1119 Pacific Avenue, Suite 1600
Tacoma, Washington 98402
206.287.9130

ANCHOR QEA

Memorandum

February 19, 2020

To: Sarah Weeks, Port of Tacoma

From: Nik Bacher, LG, and Mark Larsen, Anchor QEA

Re: Parcel 40 Groundwater Monitoring UST Pad Investigation Report

1. Introduction

This report summarizes field activities and presents the results of an underground storage tank (UST) soil and groundwater investigation conducted by Anchor QEA, LLC, on behalf of the Port of Tacoma (Port). The USTs are located east of Building 600 at the Port-owned West Sitcum Terminal Parcel 40 (Pierce County Parcel No. 8950000221), located at 1675 Lincoln Avenue in Tacoma, Washington (Site; Figure 1).

The investigation was completed to assess current soil and groundwater conditions around the UST Pad, to determine if further actions are required to comply with applicable Model Toxics Control Act (MTCA; Washington Administrative Code 173-340) requirements, and to support decommissioning of the USTs in place under a variance request approved by the Tacoma-Pierce County Health Department (TPCHD). The UST variance request application and associated approval letter from TPCHD are included in Appendix A.

2. Site Background

The property was added to Washington Department of Ecology's Confirmed and Suspected Contaminated Sites List in 2000 due to the discovery of petroleum impacts to soil and groundwater during the removal of a 3,000-gallon waste oil UST.[1]

As shown in Figure 2, the two USTs are located within the existing plume of hydrocarbon contamination located at the Site. That plume consists predominantly of diesel-range hydrocarbons, but with smaller detections of gasoline-range hydrocarbons, benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds, and motor-oil range hydrocarbons. Figure 2 summarizes the extent of the diesel-range hydrocarbon plume as delineated during testing performed August 2019 (Anchor QEA 2019).

The current fueling island consists of an 8-inch concrete slab reinforced with welded wire fabric and steel with an open-sided metal building covering the fueling area. There are two USTs associated with the fueling island; one 1,000-gallon gasoline UST and one 20,000-gallon diesel UST. Both USTs

[1] Facility Site ID 66987611. The 3,000-gallon waste oil UST was removed in 1998.

are single-wall fiberglass construction and were installed in 1984 during terminal development by Sealand. As-builts from the UST installed are included in Appendix A.

Port staff have reviewed publicly available UST records for the property and found no documented releases or indications that the tanks are compromised. Currently the Port and the tenant are coordinating to replace the USTs with an above-ground fueling system, which will greatly reduce the risk of a petroleum release to the subsurface.

The current investigation was performed to verify that there have been no releases from the existing USTs warranting further action. The testing and the associated variance (Appendix A) were developed with an understanding of the existing impacted Site conditions.

3. Methods

Soil and groundwater samples were collected from five locations around the existing USTs as shown on Figure 2. Prior to sampling, a public utility locate request was submitted and a private utility locate was completed on August 30, 2019, to clear each boring location for underground utilities.

Soil Sampling and Analysis

On August 30, 2019, five soil borings (Figure 2) were advanced using a Geoprobe drill rig operated by Holocene Drilling, a Washington State-licensed well driller, at the direction of Anchor QEA's field geologist. Two soil samples were collected from each soil boring (one above the groundwater table and one below), followed by the installation of a temporary groundwater monitoring point.

Each boring was advanced to 15 feet below ground surface (bgs) and soils collected were visually inspected and field screened with a photoionization detector by the Anchor QEA field geologist. Samples were collected directly into pre-cleaned, laboratory-provided sample jars using stainless steel spoons or a disposable U.S. Environmental Protection Agency (EPA) Method 5035 syringe (for volatile organic compound analysis). The boring locations were measured off from existing buildings on site and later mapped onto a georeferenced aerial photograph. The coordinates for the sampling locations presented in Table 1 were queried from this aerial.

In general, the site lithology consists of a few feet of gravelly sand fill-like material, followed by a sand that ranges in thickness from 4 to 5.5 feet. Below the sand is a silty sand unit that extends to the based of the explorations. The observed water level at time of drilling was found at the interface between the sand and silty sand. A summary of samples collected, depth to water at time of drilling, and field observations is as follows:

- **P40-UST-01:**
  - Soil samples collected from 4.5 and 9 feet bgs, groundwater encountered at 8 feet bgs
  - No hydrocarbon-like odor or sheen observed

- **P40-UST-02:**
  - Soil samples collected from 4.5 and 9 feet bgs, groundwater encountered at 8 feet bgs
  - No hydrocarbon-like odor or sheen observed
  - Organic material and H2S-like odors observed from 11 to 14.5 feet bgs
- **P40-UST-03:**
  - Soil samples collected from 4.5 and 8 feet bgs, groundwater encountered at 8 feet bgs
  - Hydrocarbon-like odor observed from 4 to 15 feet bgs and sheen from 8 to 15 feet bgs, in the upper portion of the water table
  - Woody debris saturated with hydrocarbon-like staining and odors observed at 14 feet bgs
- **P40-UST-04:**
  - Soil samples collected from 4.5 and 14.5 feet bgs, groundwater encountered at 8.5 feet bgs
  - Hydrocarbon-like odor and sheen observed at 14 to 15 feet bgs
- **P40-UST-05:**
  - Soil samples collected from 4.5 and 11 feet bgs, groundwater encountered at 10 feet bgs
  - No hydrocarbon-like odor or sheen observed

Collected samples were submitted to Analytical Resources, Inc., in Tukwila, Washington, for chemical analysis. Soil samples were analyzed for gasoline-range hydrocarbons via NWTPH-Gx, diesel-range and motor oil-range hydrocarbons via NWTPH-Dx both with and without silica gel cleanup (SGC), and BTEX via EPA Method 8260.

Excess soil not used for chemical analysis was placed into 55-gallon drums staged adjacent to the UST pad pending analytical testing to determine disposal options.

Groundwater Sampling

Following the visual inspection and soil sampling described above, a 10-foot-long, 1-inch-diameter Schedule 40 PVC temporary well screen was inserted, straddling the water table, at each sampling location. The temporary screen was inserted 5 to 15 feet bgs in a sandy silt unit at all locations except P40-UST-02, which was screened from 3.5 to 13.5 feet bgs.

Groundwater was pumped at 150 milliliters per minute or less using a peristaltic pump through tubing placed within the screened interval. A water quality meter with a flow-through cell was used to monitor water quality parameters during purging. After water quality parameters had stabilized, the flow-through cell was removed and groundwater samples were collected.

Groundwater samples were collected directly into laboratory-provided bottles once water quality parameters had stabilized and were subsequently placed in a cooler on ice. The cooler was kept

under standard chain-of-custody procedures prior to being delivered to Analytical Resources, Inc., for analysis.

Samples were analyzed for gasoline-range hydrocarbons via NWTPH-Gx, diesel-range and motor-oil-range hydrocarbons via NWTPH-Dx both with and without SGC, and BTEX via EPA Method 8260.

4. Results

Results of testing are summarized in Table 2 (groundwater) and Table 3 (soil). Boring logs are included in Appendix B, groundwater sampling forms are included in Appendix C, laboratory data reports are included in Appendix D, and the data validation report is included in Appendix E.

Groundwater Testing Results

Groundwater results were consistent with the existing understanding of the nature and extent of the Site groundwater plume (refer to Figure 2). Results of groundwater testing are summarized as follows:

- Measured total NWTPH-Dx hydrocarbons (diesel-range and motor oil-range) concentrations varied depending on whether samples were prepared with or without SGC.
  - When measured without SGC, total NWTPH-Dx hydrocarbon concentrations ranged from 361 to 10,520 micrograms per liter (µg/L). All measured concentrations exceeded the MTCA Method A groundwater cleanup level except for P40-UST-05.
  - When samples were prepared with SGC, measured total NWTPH-Dx hydrocarbon concentrations were much lower and they were not detected in three of the five location and the MTCA Method A groundwater cleanup level was exceeded at one location (P40-UST-03, 2,830 µg/L), located closest to the interior of the existing groundwater plume).
- Gasoline-range hydrocarbons and BTEX compounds have previously been detected within the existing groundwater plume. These compounds were also detected in the current assessment, with the highest concentrations detected in boring P40-UST-03, located closest to the interior of the existing groundwater plume.
  - None of the detected gasoline hydrocarbon concentrations exceeded the MTCA Method A cleanup level (800 µg/L). The highest measured concentration was 777 µg/L in P40-UST-03. Gasoline was detected at a lower concentration (153 µg/L) in nearby boring P40-UST-04.
  - Low levels of BTEX compounds were detected in all locations. However, none of the measured values exceeded applicable MTCA Method A cleanup levels.

Soil Testing Results

Soil analytical results are presented in Table 3. Some petroleum hydrocarbons and BTEX compounds were detected. MTCA Method A cleanup levels were exceeded in water table soil samples from the two borings located closest to the interior of the existing groundwater plume (P40-UST-03 and P40-UST-04). Results of soil testing are summarized as follows:

- Total NWTPH-Dx hydrocarbons (diesel-range and motor oil-range) hydrocarbons were present in soils from all five testing locations, but no exceedances of MTCA Method A cleanup levels were detected. The highest total NWTPH-Dx hydrocarbons was detected in boring P40-UST-03.
- Most of the borings contained low levels of gasoline-range hydrocarbons and BTEX compounds, at two locations concentrations exceeded MTCA Method A soil cleanup levels (P40-UST-03 and P40-UST-04).
  - Gasoline concentrations in water table soils from borings P40-UST-03 and P40-UST-04 exceeded Method A soil cleanup levels.
  - Benzene concentrations in water table soils from boring P40-UST-03 exceeded Method A soil cleanup levels.
  - The laboratory reported that the chromatogram pattern appears to be heavier fuel than gasoline hydrocarbons in these two soil samples potentially introducing interference with the heavier fuels biasing the results high.

5. Discussion

The results of the soil and groundwater assessment did not identify the presence of any groundwater or soil contamination attributable to the active USTs being closed in place.

Some groundwater contamination was detected, but that contamination is consistent in nature and extent with that already understood to be present at the Site from a historical release (GEI 2000; Geoengineers 2002), as follows:

- The MTCA Method A groundwater cleanup level for total NWTPH-Dx diesel-range and motor oil-range) organics was exceeded at the boring closest to the interior of the existing groundwater plume, P40-UST-03, when samples were prepared with SGC. Total NWTPH-Dx organics is a known constituent of the existing Site groundwater plume.
- Gasoline-range hydrocarbons and BTEX compounds were also detected in groundwater, but none of the detected concentrations exceeded applicable MTCA cleanup levels. These compounds are known constituents of the existing Site groundwater plume. The highest concentrations detected in the borings were located closest to the interior of the existing groundwater plume.
- When total NTWPH-DX samples were not prepared with SGC, exceedances of MTCA Method A cleanup levels were detected at three additional locations. At P40-UST-03 the ratio between

results with and without SGC is 1:4 (2,830 µg/L with SGC and 10,520 µg/L without SGC). Ecology currently recommends that, "silica gel cleanup should not be used for NWTPH-Dx analyses of groundwater samples unless uncontaminated background samples indicate that naturally occurring organic matter is significant component of the TPH being detected in the groundwater samples (Ecology 2016)." Organics, "wetland odors," and woody debris were recorded in boring logs P40-UST-02 and P40-UST-03 within the interval screened for groundwater sample collection. The presence of naturally occurring organics may be inflating the non-SGC groundwater results. SGC also removes petroleum hydrocarbon-derived breakdown products (i.e. petroleum metabolites). The significant difference between results with and without SGC may also be an indication that the diesel is highly degraded, as would be expected for contamination from an old petroleum release.

- Exceedances of MTCA cleanup levels in soil were detected in the two borings (P40-UST-03 and P40-UST-04) located closest to the interior of the existing groundwater plume, and in soil samples collected from the water table. Detected exceedances included gasoline-range hydrocarbons (two water table locations) and benzene (one water table location). The laboratory reported that the chromatogram pattern appears to be heavier fuel than gasoline hydrocarbons in these two soil samples potentially introducing interference with the heavier fuels biasing the results high.

The existing contamination at the Site is subject to ongoing cleanup and monitoring activities. No additional investigation or cleanup activities are warranted as part of the closure-in-place of the two existing USTs.

References

Anchor QEA, 2019. *Parcel 40 Groundwater Monitoring Report*. Prepared by Anchor QEA, LLC, for Port of Tacoma. December 2019.

GCI, 2000. *Phase 2 Environmental Site Assessment, Maersk Pacific Limited*. Prepared by Geotech Consultants, Inc. for Port of Tacoma. March 30, 2000.

Geoengineers, 2002. *Focused Feasibility Study, Maersk Pacific Ltd. Site*. Prepared by Geoengineers for Port of Tacoma. December 6, 2002.

Attachments

Tables

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Table 2 Groundwater Analytical Results
Table 3 Soil Analytical Results

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Tables

Table 1
UST Sampling Location Summary

Boring	Northing	Easting
P40-UST-01	708910.146	1164939.570
P40-UST-02	708884.125	1164939.563
P40-UST-03	708839.271	1164959.825
P40-UST-04	708846.271	1164991.759
P40-UST-05	708885.478	1164999.701

Notes:

Boring locations were measured from structures in the field and placed on georeferenced aerials. Coordinates were extracted from the aerial. No survey was completed.

Horizontal Datum is Washington State Plane South Zone, NAD83/2011.

Table 2
Groundwater Analytical Results

		Location ID Sample Date Sample Type	P40-UST-01 08/30/19 N	P40-UST-01 08/30/19 FD	P40-UST-02 08/30/19 N	P40-UST-03 08/30/19 N	P40-UST-04 08/30/19 N	P40-UST-05 08/30/19 N	FieldQC 08/28/19 TB
	Method	MTCA Method A Groundwater							
Volatile Organics (µg/L)									
Benzene	SW8260C	5	0.2 U	**0.04 J**	0.2 U	**0.48**	**0.07 J**	**0.07 J**	0.2 U
Ethylbenzene	SW8260C	700	**0.08 J**	**0.09 J**	**0.14 J**	**1**	**0.15 J**	**0.2 J**	0.2 U
m,p-Xylene	SW8260C		**0.34 J**	**0.39 J**	**0.65**	**1.2**	**0.6**	**0.79**	0.4 U
o-Xylene	SW8260C		**0.19 J**	**0.19 J**	**0.26**	**0.84**	**0.29**	**0.35**	0.2 U
Toluene	SW8260C	1000	**0.28**	**0.28**	**0.44**	**0.95**	**0.36**	**0.51**	0.2 U
Total Petroleum Hydrocarbons (µg/L)									
Diesel range hydrocarbons	NWTPHDx		**3,320**	**3,490**	**1,310**	**8,050**	**716**	**156**	
Motor oil range hydrocarbons	NWTPHDx		**643**	**755**	**870**	**2,470**	**750**	**205**	
Total diesel-range and motor-oil range hydrocarbons[1]	NWTPHDx	500	**3,963**	**4,245**	**2,180**	**10,520**	**1,466**	**361**	
Diesel range hydrocarbons	NWTPHDxSG		100 U	100 U	100 U	**2,630**	**100**	100 U	
Motor oil range hydrocarbons	NWTPHDxSG		200 U	200 U	200 U	200 U	200 U	200 U	
Total diesel-range and motor-oil range hydrocarbons[1]	NWTPHDxSG	500	300 U	300 U	300 U	**2,830**	**300**	300 U	
Gasoline range hydrocarbons	NWTPHG	800	100 U	100 U	100 U	**777**	**153**	100 U	100 U

Notes:

Detected concentration is greater than Model Toxics Control Act (MTCA) Method A Ground Water screening level

Bold: Detected result

1. Total diesel-range and motor-oil range hydrocarbons is the sum of the individual diesel-range and motor-oil range concentrations. Undetected values are counted at the detection limit value.

µg/L: micrograms per liter

J: Estimated value

U: Compound analyzed, but not detected above detection limit

Table 3
Soil Analytical Results

		Location ID	P40-UST-01		P40-UST-02		P40-UST-03		P40-UST-04		P40-UST-05		
		Sample Depth	4.5	9	4.5	9	4.5	8	4.5	14.5	11	4.5	4.5
		Sample Date	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19	08/30/19
		Sample Type	N	N	N	N	N	N	N	N	N	N	FD
	Method	MTCA Method A Industrial											
Volatile Organics (µg/kg)													
Benzene	SW8260C	30	1.18 U	1.57 U	**0.44 J**	1.65 U	1.44 U	**36.9 J**	1.48 U	**0.67 J**	1.99 U	1.48 U	1.85 U
Ethylbenzene	SW8260C	6000	1.18 U	1.57 U	1.4 U	1.65 U	1.44 U	**2430**	1.48 U	1.5 U	1.99 U	1.48 U	1.85 U
m,p-Xylene	SW8260C		2.36 U	3.14 U	**0.74 J**	3.29 U	2.89 U	**331**	2.96 U	**0.98 J**	3.97 U	2.96 U	3.69 U
o-Xylene	SW8260C		1.18 U	1.57 U	1.4 U	1.65 U	1.44 U	**639**	1.48 U	1.5 U	1.99 U	1.48 U	1.85 U
Toluene	SW8260C	7000	1.18 U	1.57 U	**0.72 J**	1.65 U	1.44 U	**44 J**	1.48 U	**1.28 J**	1.99 U	1.48 U	1.85 U
Total Petroleum Hydrocarbons (mg/kg)													
Diesel range hydrocarbons	NWTPHDx	2000	5.16 U	**71.4**	**83.9**	**51.1**	**1420**	**1380**	5.27 U	**738**	**51.3**	5.25 U	5.24 U
Diesel range hydrocarbons	NWTPHDxSG	2000	5.17 U	**124**	**90.4**	**71.1**	**796**	**1710**	5.26 U	**919**	**51.9**	5.27 U	5.23 U
Gasoline range hydrocarbons	NWTPHG	30	5.16 UJ	8.82 UJ	5.62 UJ	10.8 U	**10.3**	**21800**	7.41 U	**841**	12.4 U	7.39 U	8.12 U
Motor oil range hydrocarbons	NWTPHDx		10.3 U	**67.7**	**173**	**57.9**	**29.9**	**78.9**	10.5 U	**58.3**	**55.9**	10.5 U	10.5 U
Motor oil range hydrocarbons	NWTPHDxSG		10.3 U	**80**	**131**	**50.7**	**26.7**	**94**	10.5 U	**69.8**	**40.4**	10.5 U	10.5 U

Notes:

Detected concentration is greater than Model Toxics Control Act (MTCA) Method A soil screening level for industrial properties

Bold: Detected result

µg/kg: micrograms per kilogram

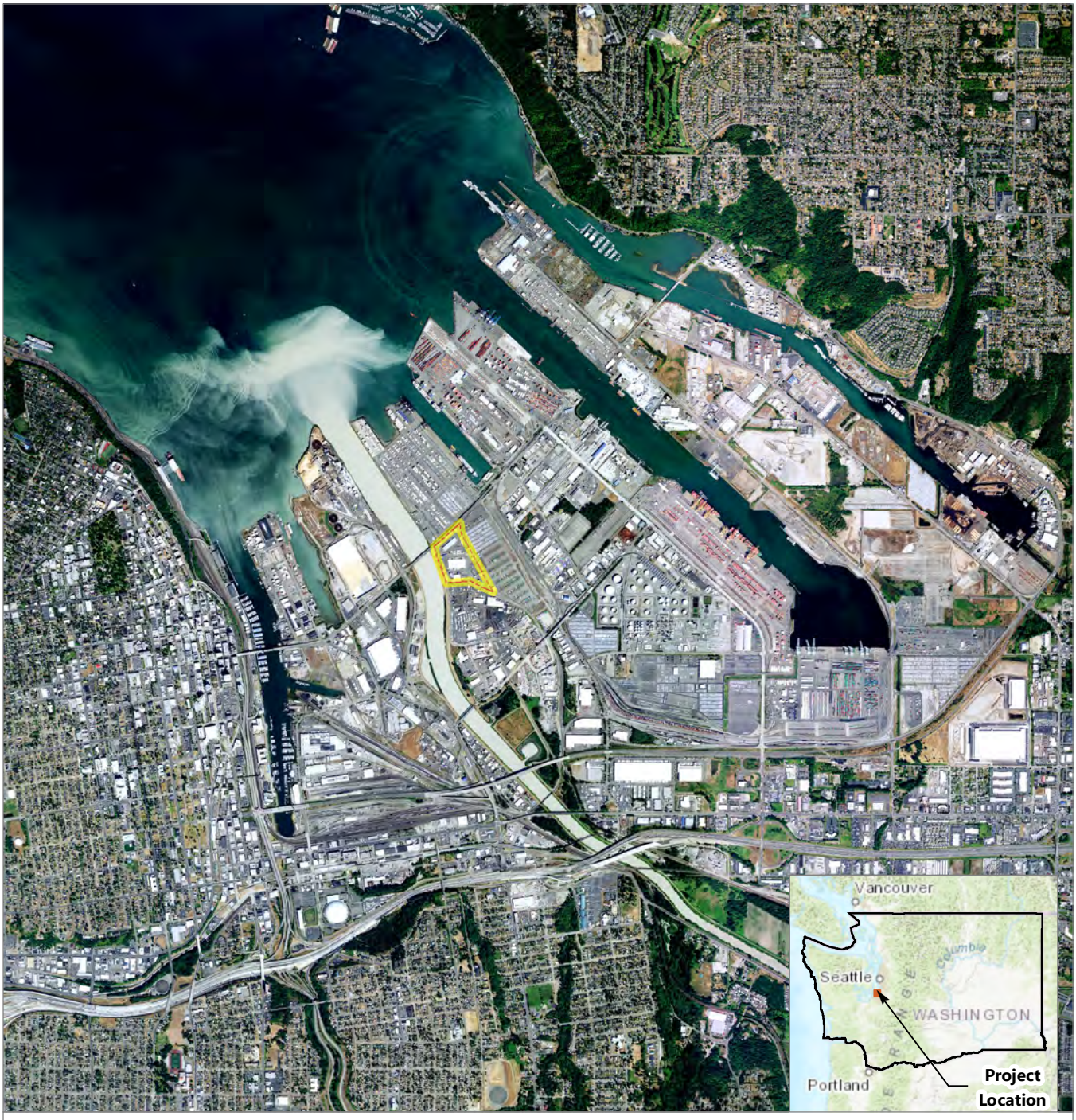
J: Estimated value

mg/kg: milligrams per kilogram

U: Compound analyzed, but not detected above detection limit

UJ: Compound analyzed, but not detected above estimated detection limit

Figures



LEGEND:

Parcel 40 Site Boundary

0 2

Miles

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ANCHOR QEA

Figure 1
Site Vicinity Map
Parcel 40 - UST Pad Investigation Report
Port of Tacoma

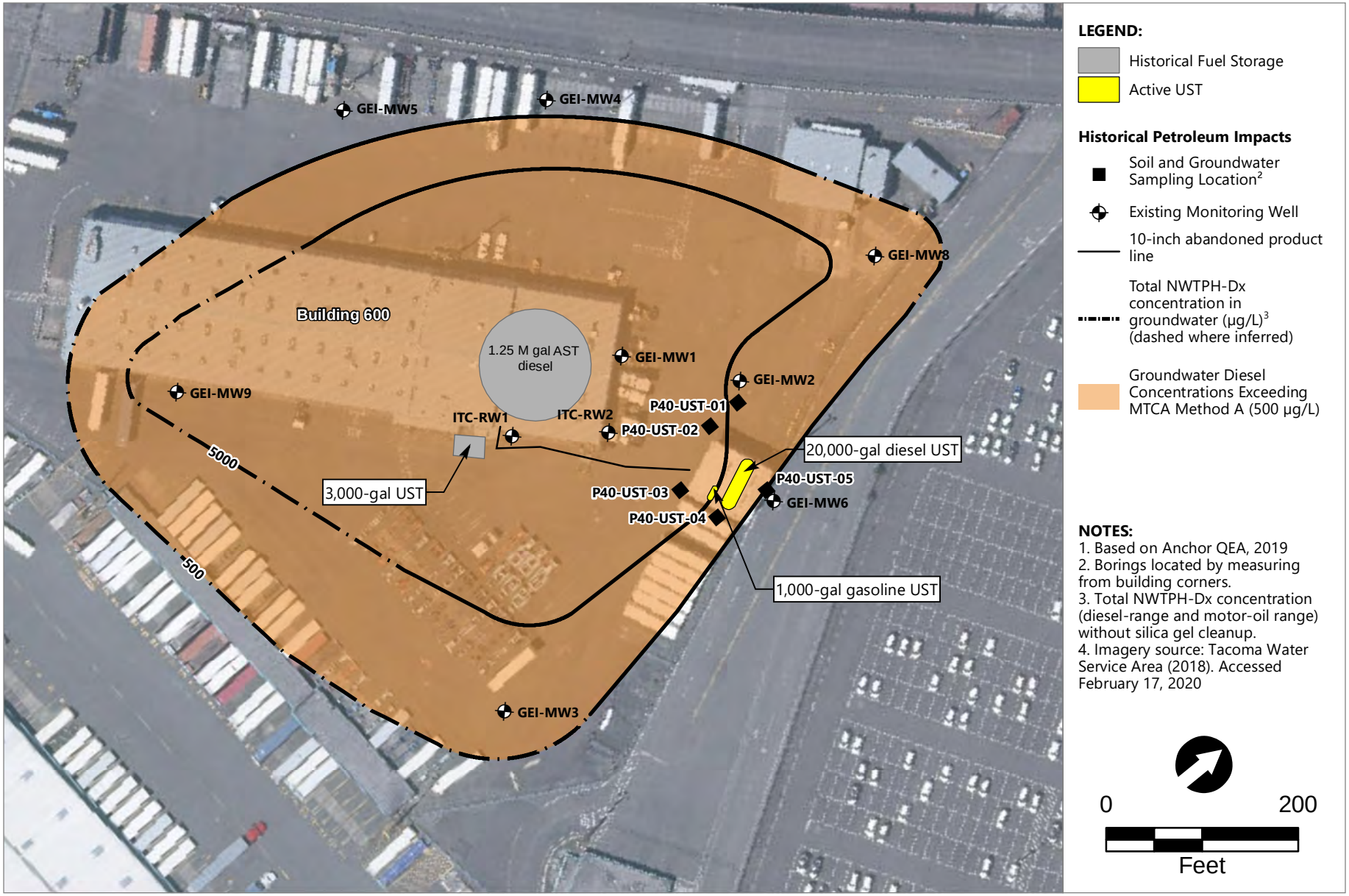

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Figure 2
Existing Parcel 40 Total NWTPH-Dx Plume and Current UST Investigation Sampling Locations
Parcel 40 - UST Pad Investigation Report
Port of Tacoma

Appendix A
UST Variance Request Application and Approval Letters

Tacoma-Pierce County
Health Department
Healthy People in Healthy Communities

August 23, 2019

Variance ID: SR0243133

Sarah Weeks
Port of Tacoma
PO BOX 1837
Tacoma, WA 98421

Subject: Variance approval for 1002 MILWAUKEE WAY, Parcel 0320024099, 8950000221

Dear Sarah Weeks:

A variance of Environmental Health Code, Chapter 4, Underground Storage Tanks - Board of Health Resolution 2015-4443 was requested on August 20, 2019.

Your variance request to was approved by Tacoma-Pierce County Health Department with the following conditions:

Must follow plan as submitted.

Approval of a variance shall be immediately revoked if the health officer determines that any of the conditions established are not met. If information is discovered or provided the the health officer that substantially contradicts the information provided in the variance your approval will be revoked.

Any affected parties may appeal the decision of the health officer in accordance with section 12, Chapter 1 of Board of Health Resolution 2010-4221. Appeals must be filed with the Health Department within 15 calendar days of this letter.

If you have any questions regarding this variance or its conditions, please contact me at rolsen@tpchd.org or (253) 798-2855.

Sincerely,

Rob Olsen
Environmental Health Specialist III

Enclosure

Variance/Waiver Request Application

Tacoma-Pierce County Health Department
Healthy People in Healthy Communities

Submit this form and all related documents, justifications and fees. Incomplete applications will be returned to the applicant.

Tacoma Pierce County Health Department
VALIDATION
8/20/2019 10:55:38 AM
Clerk 55-T8
Variance/Waiver Review - UST
$495.00
Receipt #553528
ck00705945 Northwest Seaport All
nce

receipt 553528

RECEIVED
AUG 20 2019
Tacoma-Pierce County Health Department

Property Information

Site Address 1002 Milwaukee Way

City Tacoma State WA Zip 98421

Parcel Number 8950000221

Owner Name Port of Tacoma

Mailing Address P.O. Box 1837

City Tacoma State WA Zip 98421

Phone Number (253) 383-9450

Applicant or Contact Information (for correspondence) ❑ same as owner

Name Sarah Weeks, Environmental Project Manager

Mailing Address same as above

City _____ State _____ Zip _____

Phone Number _____

Email Address sweeks@portoftacoma.com

I am the:

■ Owner ❑ Septic Designer ❑ Well Driller ❑ Water System Operator ❑ Other _____

This variance/waiver is for the following:

❑ Onsite Septic ❑ Individual Well ❑ Food Establishment ❑ Solid Waste ■ Underground Storage Tanks

❑ Public Water System Name _____ System ID Number _____

❑ Other _____

An administrative hearing is available for all variance/waiver requests. If you wish to request a hearing, please contact our office within five days of application submittal.

■ I have submitted all required information listed on the attached Variance/Waiver Request Checklist (page 2 noted in items 1-6 and items 7-11, as applicable.) I understand only the information submitted with this application and any administrative hearings will be considered in the approval or denial of my request.

Applicant/Contact Signature SeWeeks Date 8/20/2019

Information submitted is subject to Public Records Act, Chapter 42.56 RCW.

Variance/Waiver Request Checklist

Tacoma-Pierce County Health Department
Healthy People in Healthy Communities

Property Address 1002 Milwaukee Way

Type of Request ■ Variance ❑ Waiver

Use this checklist to prepare a complete variance/waiver application. Check off each required item in the left column as it is provided. Please make your own copy of this packet prior to submittal. Variance/waiver application fees are not refundable. Additional fees may apply.

✓		Description	Office Use Only
☑	1	Provide the Chapter and Section of the code you are requesting variance/waiver from.	
☑	2	Describe the requirement you are requesting variance/waiver from.	
☑	3	Explain why you are requesting variance/waiver from this part of the code.	
☑	4	Explain why we should approve your request. Provide as much technical information as possible regarding your proposed alternative method. Include diagram or drawings with this explanation.	
☑	5	Describe how the proposed alternative method will result in equivalent or superior protection of the public health.	
☑	6	Application fee.	
		Additional Requirements for Specific Variance/Waiver Requests (if applicable)	
☐	7	**Variance/waiver of setback from a neighbor's water source.** List name and address of all property owners affected by variance/waiver request.	
☐	8	**Variance/waiver of a public water system requirement.** List name and address of all owners of connections and each residence served by the system. Provide justification from a licensed hydrogeologist or an engineer for any public well setback reduction.	
☐	9	**Variance/waiver of community on-site sewage system requirement.** List name and address of all owners of connections and each residence served by the system.	
☐	10	**Variance/waiver of setback to neighboring property.** List name and address of all property owners affected by the variance/waiver request. Inability to obtain restrictive covenants for an individual well will require justification from a licensed hydrogeologist or an engineer.	
☐	11	**Variance/waiver of the requirements for an infectious waste permit.** Property owners within 300 feet of the subject property shall be notified of the request for variance/waiver and notice of the request shall be posted on the property.	

*Application review time may take up to 90 days depending on notification requirements.

Information submitted is subject to Public Records Act, Chapter 42.56 RCW.

1002 Milwaukee Way

UST Variance Request Application

Parcel No. 8950000221

August 20, 2019

Port of Tacoma
People. Partnership. Performance.
P.O. Box 1837
Tacoma, WA 98401-1837
www.portoftacoma.com

August 20, 2019

Rob Olsen
Tacoma-Pierce County Health Department
3629 South D Street
Tacoma, Washington 98418

RE: Underground Storage Tank Removal, West Sitcum Terminal, Site ID SD0000457
1002 Milwaukee Way, Tacoma, Washington 98421, Parcel No. 8950000221 (Site is listed with TPCHD under incorrect address, 3600 Port of Tacoma Road)

Dear Mr. Olsen,

Per Chapters 1 and 4 of the Environmental Health Code (EHC), I am submitting the attached Variance Request Application for 1002 Milwaukee Way property owned by the Port of Tacoma (Enclosure A). The property has three underground storage tanks (USTs):

- An active 20,000-gallon diesel tank
- An active 1,000-gallon gasoline tank
- A decommissioned 3,000-gallon waste oil tank (removed in 1998)

This variance request is for closure of the two active USTs. The USTs were installed in 1984 during terminal development by Sealand, they are single-wall fiberglass construction and are located beneath a metal building (Enclosure B).

The following information follows the variance request checklist provided by TPCHD in the variance request application:

1. **Provide the Chapter and Section of the code you are requesting variance from:**

   The Port is requesting that a variance be given for closing a 20,000-gallon diesel UST and a 1,000-gallon gasoline UST that are located beneath a metal building. The variance requested is for the following section of the ECH Chapter 4:
   - Section 4.B, Item 4

2. **Describe the requirement you are requesting variance from:**

   Section 4.B Item 4, "The UST is required to be removed from the ground and meet the handling requirements of Section 4.E (Management of Waste Stream), of this chapter. Material used to backfill the tank basin must be "clean fill" material as defined in this chapter."

3. **Explain why you are requesting variance from this part of the code:**

   Removal of the USTs from the ground will require demolition of the building that was built over the USTs and demolition of an 8-inch concrete slab reinforced with welded wire fabric and steel.

4. **Explain why TPCHD should approve this request. Provide as much technical information as possible regarding your proposed alternative method. Include diagram or drawings with this explanation:**

Strict interpretation of the code would result in a hardship.

- Chapter 1, Section 14 of the Environmental Health Code reads, "Whenever a strict interpretation of these code provisions would result in hardship, a person may seek a variance or waver from the health officer to allow regulated actions or activities that do not meet one or more requirements of the code." Removal of the USTs would require demolition of the exiting metal building. In addition, the building is immediately adjacent to an active terminal roadway. Shoring and dewatering would be required to ensure the roadway is not undermined by excavation activities. Damage to the roadway would disrupt terminal operations.

As an alternative to removing the USTs from the ground, the Port proposes closing the USTs in place.

- Tank closure in place would include several steps, tank cleaning, tank filling, and site assessment:
    - **i.** Tank cleaning - Pump out petroleum, dispose of tank bottom sludge, purge tank of petroleum vapors, and clean the tank interior.
    - **ii.** Tank filling- Fill tanks with inert material, such as sand or concrete slurry. Tank cleaning and filling services will be provided by an International Code Council (ICC)-certified UST decommissioning contractor.
    - **iii.** Site Assessment - The area immediately around the USTs will be assessed to determine if the tanks have leaked. Soil and groundwater will be collected from five sample locations. Two soil samples will be collected from each boring (one above the groundwater table and one below), followed by the installation of a temporary groundwater monitoring point screened across the groundwater table. Soil and groundwater samples will be analyzed for gasoline-range hydrocarbons via NWTPH-Gx, diesel-range and residual-range hydrocarbons via NWTPH-Dx with silica gel cleanup, and BTEX via EPA Method 8260 (Enclosure C).

5. **Describe how the proposed alternative method will result in equivalent or superior protection of the public health.**

Active USTs are inspected by Ecology every one to three years. Port staff have reviewed publicly available UST records for the property, there have been no documented releases, or indications that the tanks are compromised. The Port and the tenant are coordinating to replace the USTs with an above ground fueling system which will greatly reduce the risk of a petroleum release to the subsurface.

If the results of the site assessment indicate that the tanks have leaked the Port will continue to manage the property as a cleanup site (the property is already listed due to a documented release related to the 3,000-gallon waste oil UST removed in 1998, Ecology Facility Site ID 66987611).

Additional considerations.

The USTs are located between two known sources of subsurface petroleum contamination. To the west of the USTs is the decommissioned 3,000-gallon waste oil tank removed in 1998. At the time of tank removal, a release was identified. The Port reported the release to Ecology and conducted a site investigation, the investigation included the installation of twelve groundwater monitoring wells. The groundwater monitoring well network will be sampled prior to the Site Assessment. The purpose of this work is to minimize the risk of potential impacts from the active USTs being confused with the known historical release. In addition, the adjacent property to the east is the former UP/Milwaukee Railyard, a petroleum impacted cleanup site that is managed by the Port and overseen by Ecology. It is possible that petroleum contamination will be encountered during UST Site Assessment from one of these pre-existing sources. Port environmental staff will coordinate with TPCHD staff and Ecology to ensure that all appropriate efforts are made to differentiate between existing conditions and potential releases from the USTs.

The Port requests that the TPCHD approve this variance request and if the site assessment indicates that the tanks have not leaked, grant a 'Site Closure' determination for the 20,000-gallon and 1,000-gallon USTs.
Respectfully,

Sarah Weeks
Environmental Project Manager

SW
CC: Rob Healy, Senior Project Manager, Port of Tacoma

Enclosures:

A – Variance/Waiver Request Application
B – Vicinity Map and Fueling Facility As-Built
C – Scope of Work and Cost Estimate – Parcel 40 Groundwater Monitoring and UST Pad Investigation

Enclosure A

Variance/Waiver Request Application

Variance/Waiver Request Application

Tacoma-Pierce County Health Department
Healthy People in Healthy Communities

VALIDATION

Submit this form and all related documents, justifications and fees.
Incomplete applications will be returned to the applicant.

Property Information

Site Address 1002 Milwaukee Way

City Tacoma State WA Zip 98421

Parcel Number 8950000221

Owner Name Port of Tacoma

Mailing Address P.O. Box 1837

City Tacoma State WA Zip 98421

Phone Number (253) 383-9450

Applicant or Contact Information (for correspondence) ❑ same as owner

Name Sarah Weeks, Environmental Project Manager

Mailing Address same as above

City _____ State _____ Zip _____

Phone Number _____

Email Address sweeks@portoftacoma.com

I am the:

❑ Owner ❑ Septic Designer ❑ Well Driller ❑ Water System Operator ❑ Other _____

This variance/waiver is for the following:

❑ Onsite Septic ❑ Individual Well ❑ Food Establishment ❑ Solid Waste ❑ Underground Storage Tanks

❑ Public Water System Name _____ System ID Number _____

❑ Other _____

An administrative hearing is available for all variance/waiver requests. If you wish to request a hearing, please contact our office within five days of application submittal.

❑ I have submitted all required information listed on the attached Variance/Waiver Request Checklist (page 2 noted in items 1-6 and items 7-11, as applicable.) I understand only the information submitted with this application and any administrative hearings will be considered in the approval or denial of my request.

Applicant/Contact Signature _____ Date _____

Information submitted is subject to Public Records Act, Chapter 42.56 RCW.

Variance/Waiver Request Checklist

Tacoma-Pierce County Health Department
Healthy People in Healthy Communities

Property Address 1002 Milwaukee Way

Type of Request ◪ Variance ❑ Waiver

Use this checklist to prepare a complete variance/waiver application. Check off each required item in the left column as it is provided. Please make your own copy of this packet prior to submittal. Variance/waiver application fees are not refundable. Additional fees may apply.

✓		Description	Office Use Only
☑	1	Provide the Chapter and Section of the code you are requesting variance/waiver from.	
☑	2	Describe the requirement you are requesting variance/waiver from.	
☑	3	Explain why you are requesting variance/waiver from this part of the code.	
☑	4	Explain why we should approve your request. Provide as much technical information as possible regarding your proposed alternative method. Include diagram or drawings with this explanation.	
☑	5	Describe how the proposed alternative method will result in equivalent or superior protection of the public health.	
☑	6	Application fee.	
Additional Requirements for Specific Variance/Waiver Requests (if applicable)			
☐	7	**Variance/waiver of setback from a neighbor's water source.** List name and address of all property owners affected by variance/waiver request.	
☐	8	**Variance/waiver of a public water system requirement.** List name and address of all owners of connections and each residence served by the system. Provide justification from a licensed hydrogeologist or an engineer for any public well setback reduction.	
☐	9	**Variance/waiver of community on-site sewage system requirement.** List name and address of all owners of connections and each residence served by the system.	
☐	10	**Variance/waiver of setback to neighboring property.** List name and address of all property owners affected by the variance/waiver request. Inability to obtain restrictive covenants for an individual well will require justification from a licensed hydrogeologist or an engineer**.**	
☐	11	**Variance/waiver of the requirements for an infectious waste permit.** Property owners within 300 feet of the subject property shall be notified of the request for variance/waiver and notice of the request shall be posted on the property.	

*Application review time may take up to 90 days depending on notification requirements.

Information submitted is subject to Public Records Act, Chapter 42.56 RCW.

Enclosure B

Vicinity Map and Fueling Facility As-Built (1984)

UST Decommissioning
1002 Milwaukee Way
Port Parcel 40
Port of Tacoma

Roads

Building footprint

Port Parcels

0 200 400

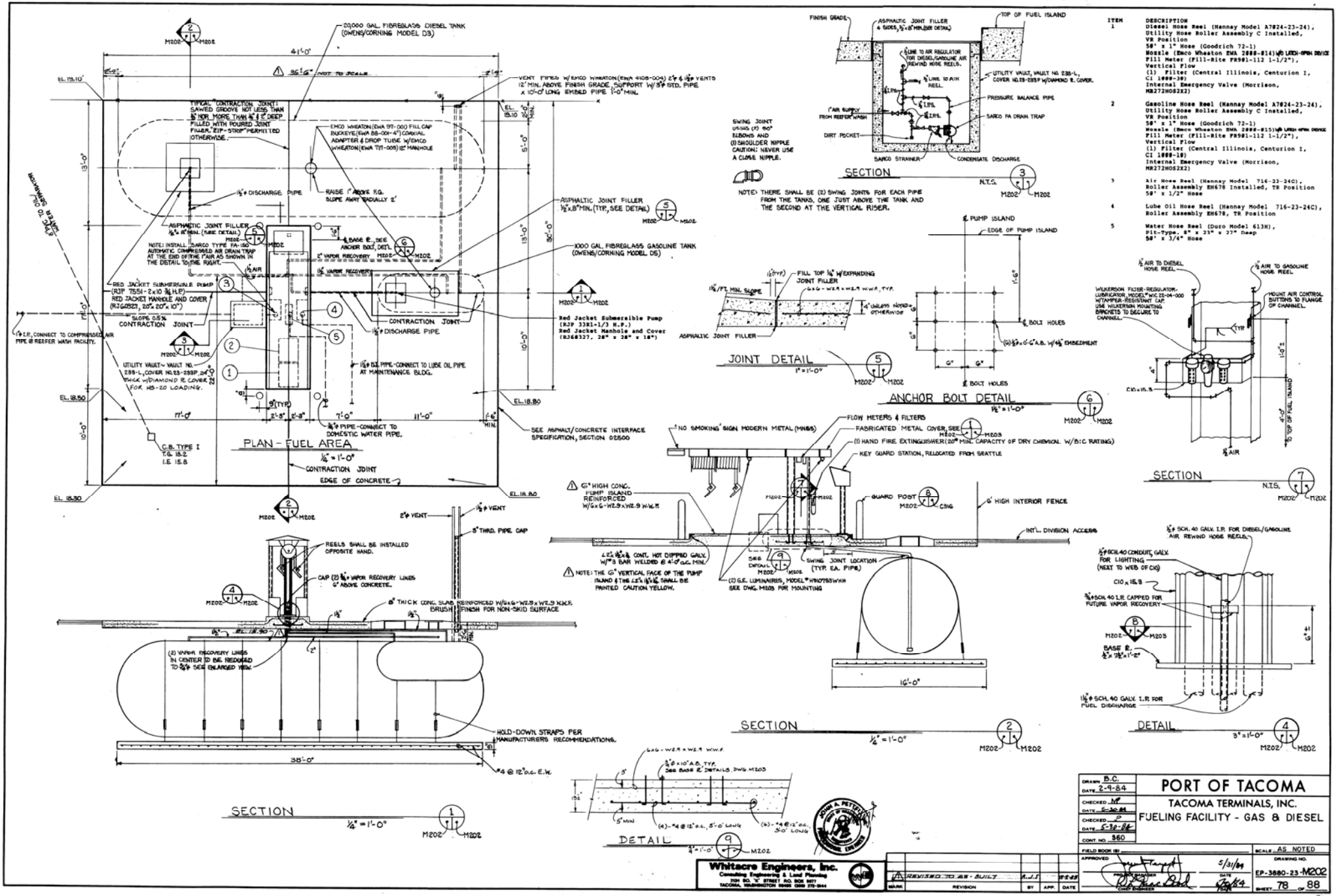
Feet

Data Source: Imagery (dated 2019) from NearMap.

Port of Tacoma

DISCLAIMER: The information included on this map has been compiled by Port of Tacoma staff from a variety of sources and is subject to change without notice. These data are intended for informational purposes and should not be considered authoritative for engineering, navigational, legal and other site-specific uses. The Port of Tacoma makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information.

Document Path: \\apps.portoftacoma.com\GISUserProjects\Environmental\SWeeks\UST_Master\Marshall_AveWSitcum_vicmap.mxd Date Revised: 7/31/2019 by sweeks



ITEM	DESCRIPTION
1	Diesel Hose Reel (Hannay Model A7824-23-24), Utility Hose Roller Assembly C Installed, VR Position 50' x 1" Hose (Goodrich 72-1) Nozzle (Emco Wheaton EWA 2888-814) W/O LATCH-OPEN DEVICE Fill Meter (Fill-Rite FR901-112 1-1/2"), Vertical Flow (1) Filter (Central Illinois, Centurion I, CI 1088-30) Internal Emergency Valve (Morrison, MR272HOS2X2)
2	Gasoline Hose Reel (Hannay Model A7824-23-24), Utility Hose Roller Assembly C Installed, VR Position 50' x 1" Hose (Goodrich 72-1) Nozzle (Emco Wheaton EWA 2888-815) W/O LATCH-OPEN DEVICE Fill Meter (Fill-Rite FR901-112 1-1/2"), Vertical Flow (1) Filter (Central Illinois, Centurion I, CI 1088-10) Internal Emergency Valve (Morrison, MR272HOS2X2)
3	Air Hose Reel (Hannay Model 716-23-24C), Roller Assembly EH678 Installed, TR Position 50' x 1/2" Hose
4	Lube Oil Hose Reel (Hannay Model 716-23-24C), Roller Assembly EH678, TR Position
5	Water Hose Reel (Duro Model 613H), Pit-Type, 8" x 23" x 27" Deep 50' x 3/4" Hose

Whitacre Engineers, Inc.
Consulting Engineering & Land Planning
2124 SO. "K" STREET P.O. BOX 9677
TACOMA, WASHINGTON 98409 (206) 272-3244

MARK	REVISION	BY	APP.	DATE
A	REVISED TO AS-BUILT	R.J.S.		11-6-85

DRAWN B.C. DATE 2-9-84
CHECKED M DATE 5-30-84
CHECKED D DATE 5-30-84
CONT. NO. 560

PORT OF TACOMA
TACOMA TERMINALS, INC.
FUELING FACILITY - GAS & DIESEL

FIELD BOOK 181
SCALE AS NOTED
APPROVED
PROJECT ENGINEER
CHIEF ENGINEER
5/31/84
DATE
DRAWING NO. EP-3880-23-M202
SHEET 78 OF 88

Enclosure C

Site Assessment Scope of Work

1119 Pacific Avenue, Suite 1600
Tacoma, Washington 98402
253.572.0927

ANCHOR QEA

July 18, 2019

Ms. Sarah Weeks
Environmental Project Manager
Port of Tacoma
P.O. Box 1837
Tacoma, Washington 98401-1837

Re: Scope of Work and Cost Estimate – Parcel 40 Groundwater Monitoring and UST Pad Investigation – On-Call Environmental Support Services, PSA No. 070429 – Task Order TBD

Dear Sarah,

This letter provides Anchor QEA's proposed scope of work and estimated costs for groundwater sampling, including well redevelopment, and a limited underground storage tank (UST) Pad soil and groundwater investigation in and around Building 600 at the Port-owned West Sitcum Terminal (Parcel 40) located at 1675 Lincoln Avenue (Figure 1). The work will determine the current groundwater conditions around Building 600 and the soil and groundwater conditions at the UST Pad, to determine if further actions are required to comply with applicable Model Toxics Control Act (MTCA; WAC 173-340) requirements and to support a variance request to Tacoma-Pierce County Health Department to close the USTs in place.

The proposed scope of work includes the following tasks, which are described in more detail in the sections that follow:

- Prepare a site-specific health and safety plan.
- Redevelop 12 existing groundwater monitoring wells to remove any fines that may have accumulated in the wells since last sampled in 2003.
- Complete one round of light non-aqueous phase liquid (LNAPL)-thickness gauging and groundwater sampling to be conducted in July 2019.
- Advance five shallow soil borings, using a direct-push technology drill rig, in and around the UST Pad located at the fueling island and collect both soil and groundwater samples.
- Manage and conduct Level 2 validation of laboratory data and prepare a summary report of groundwater monitoring and UST Pad investigation results to the Port.
- Following Port review, upload final validated groundwater data to Ecology's Environmental Information Management database.

Task 1: Monitoring Well Redevelopment and Groundwater Sampling

Prior to groundwater sampling, the existing monitoring wells (Figure 1) will be redeveloped to flush the sand pack around the screen and to remove any debris present in the well casing. The wells will be redeveloped through surging of the well casing using a surge block for approximately 1 minute

followed by purging of water from the well using a submersible Typhoon-pump. The well will be considered redeveloped if the well runs dry prior to purge water being visibly clear of turbidity or if at least three screen interval borehole volumes of water have been removed. Purge water will be drummed up and stored on site until analytical data is received, at which time disposal will be coordinated with the Port.

Previous data indicate the presence of LNAPL in a few of the groundwater monitoring wells. Prior to sampling, all wells will be gauged using an interphase probe capable of distinguishing between LNAPL and water. The depth-to-LNAPL, thickness of the LNAPL layer, and depth-to-groundwater will be recorded on the field form.

Groundwater sampling will include purging of water from the well using low-flow sampling techniques, and water quality parameters will be measured and recorded using a multi-meter water quality instrument (YSI 556 or similar). Samples will be collected in pre-cleaned, laboratory-provided sample jars once water quality parameters indicate that the well is stabilized, and water is being drawn from the aquifer.

Collected samples will be submitted to Analytical Resources, Inc., an Ecology-accredited laboratory in Tukwila, Washington, for the following analyses:

- Gasoline-range hydrocarbons via NWTPH-Gx
- Diesel-range and residual-range hydrocarbons via NWTPH-DX with silica gel cleanup
- Benzene, toluene, ethylbenzene, and xylene (BTEX) via EPA Method 8260

Purge water will be drummed up and stored on site until analytical data is received, at which time disposal will be coordinated with the Port.

Anchor QEA will prepare a summary memorandum describing the sampling activities and presenting analytical results compared to MTCA (WAC 173-340) groundwater cleanup levels. All results will be subject to a Level 2 data validation and any resulting validation flags will be added to the data tables. Once the data has been reviewed by the Port, the final validated data will be uploaded to Ecology's Environmental Information Management database.

Task 2: UST Pad Investigation

Soil and groundwater will be collected from five sample locations around the existing USTs as shown in Figure 2. Prior to well installation, a public utility locate request will be filed and a private utility locate will be scheduled to clear each boring location for underground utilities.

Borings will be advanced using a GeoProbe (or similar) drill rig operated by a Washington State licensed well driller. Two soil samples will be collected from each boring (one above the groundwater table and one below), followed by the installation of a temporary groundwater monitoring point

screened across the groundwater table. Groundwater sampling will include purging of water from the well using low-flow sampling techniques, and water quality parameters will be measured and recorded using a multi-meter water quality instrument (YSI 556 or similar). Samples will be collected in pre-cleaned, laboratory-provided sample jars once water quality parameters indicate that the well is stabilized and water is being drawn from the aquifer. Each boring location will be sealed and patched by the drilling contractor to match the existing surface.

Collected soil and groundwater samples will be submitted to Analytical Resources, Inc., for the following analyses:

- Gasoline-range hydrocarbons via NWTPH-Gx
- Diesel-range and residual-range hydrocarbons via NWTPH-DX with silica gel cleanup
- BTEX via EPA Method 8260

Soil cuttings and purge water will be drummed up and stored on site until analytical data is received, at which time disposal will be coordinated with the Port and AQ's waste disposal contractor.

Anchor QEA will prepare a summary memorandum describing the sampling activities and presenting analytical results compared to MTCA soil cleanup levels (WAC 173-340). All results will be subject to a Level 2 data validation and any resulting validation flags will be added to the data tables. The report will include recommendations regarding any further work that may be required to comply with Tacoma-Pierce County Health Department UST regulations.

Estimated Costs

Estimated costs are summarized by task below. The entire budget is a not-to-exceed amount billed on a time-and-materials basis under the existing Professional Services Agreement No. 070429 with the Port of Tacoma. If the assumptions defined in this scope of work change, Anchor QEA will discuss and obtain approval prior to exceeding these estimated costs. The following table summarizes the estimated costs for this scope of work using the 2019 Port of Tacoma Rates (Attachment A). A detailed cost estimate is included as Attachment B.

Table 1
Cost Estimate

Task Number	Task Description	Anchor QEA Labor		Subcontractors, Equipment, Materials, and Expenses	Task Total
		Hours	$		
1	Monitoring Well Redevelopment and Groundwater Sampling	102	$14,398	$8,012	$22,410
2	UST Pad Investigation	68	$9,804	$12,942	$22,746
Totals		170	**$24,202**	**$20,954**	**$45,156**

Assumptions

The cost estimate in Table 1 is based on the following assumptions:

- The monitoring redevelopment and groundwater sampling will be staffed by one Anchor QEA employee from our Tacoma, Washington, office.
- The UST Area Soil and Groundwater Investigation will be staffed by one Anchor QEA employees from our Tacoma, Washington, office.
- Analytical costs are based on analysis of the following:
  - Groundwater Monitoring:13 groundwater samples (12 regular and 1 duplicate) for NWTPH-Gx, NWTPH-Dx, and BTEX
  - UST Area Soil and Groundwater Investigation: 11 soil samples (10 regular and 1 duplicate) and 6 groundwater samples (5 regular and 1 duplicate) for NWTPH-Gx, NWTPH-Dx, and BTEX
- The monitoring well redevelopment is assumed to take up to 2 days.
- The groundwater monitoring and LNAPL-thickness gauging is assumed to take up to 2 days.
- The UST soil and groundwater investigation is assumed to take 1.5 days.
- Laboratory data will be subject to a Level 2 data validation review.

Sincerely,

Niklas Bacher, LG
Managing Scientist
Anchor QEA

cc: Mark Larsen, Anchor QEA

Attachments

Figure 1	Groundwater Sampling Locations
Figure 2	Proposed UST Pad Investigation Sampling Locations
Attachment A	2019 Port of Tacoma Rates
Attachment B	Labor Estimating Form

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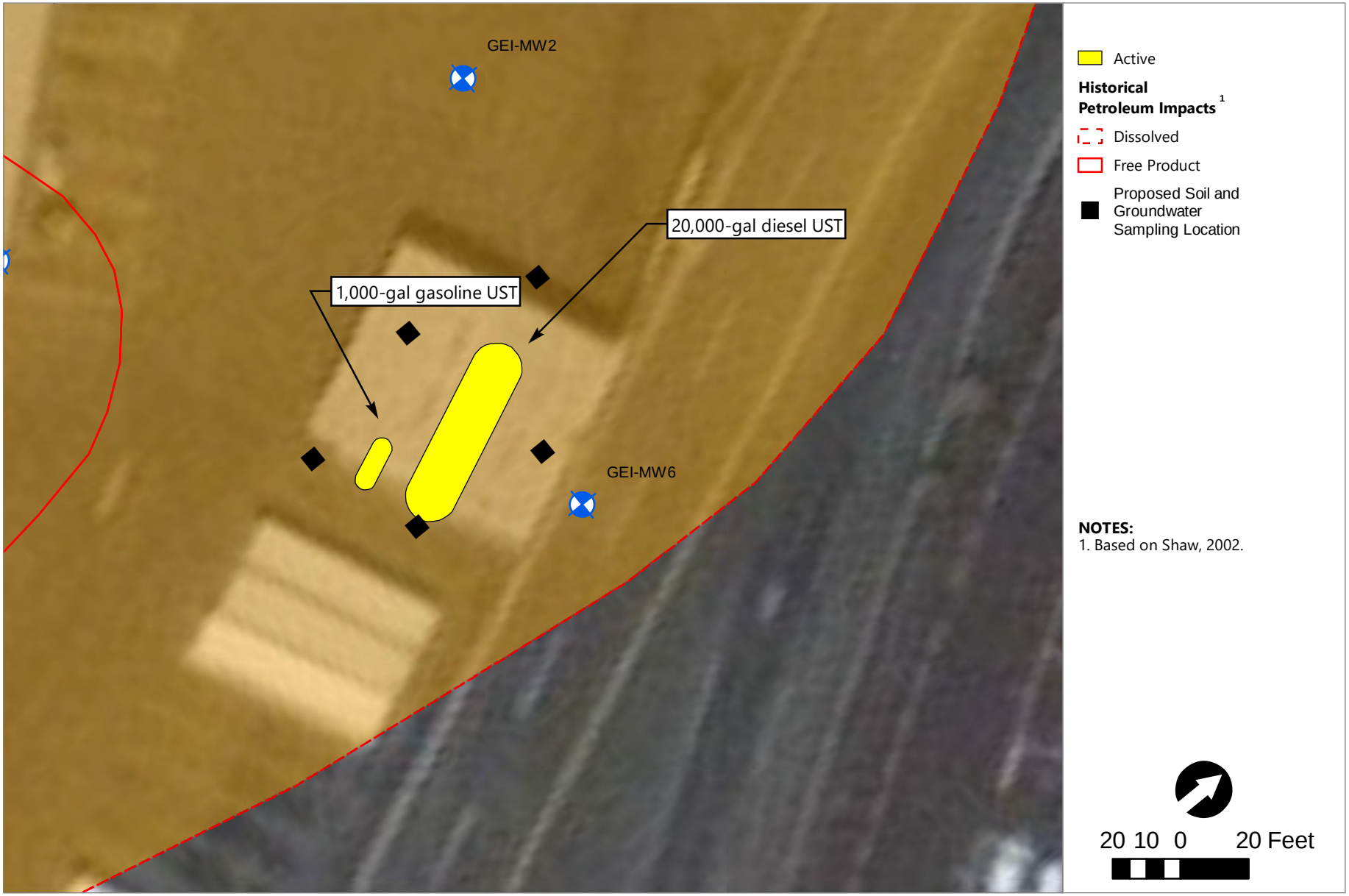
ANCHOR QEA

Figure 1
Groundwater Sampling Locations
Parcel 40 Groundwater Monitoring and UST Pad Investigation
Port of Tacoma



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ANCHOR QEA

Figure 2
Proposed UST Pad Investigation Sampling Locations
Parcel 40 Groundwater Monitoring and UST Pad Investigation
Port of Tacoma

Appendix B
Boring Logs

ANCHOR QEA

CLIENT/PROJECT NAME: Port of Tacoma: Parcel 40 UST
PROJECT NUMBER: 170092.01-19 T2
GEOLOGIST: Stephen Strehl
DRILLING CONTRACTOR: Holocene Drilling
DRILLING METHOD: Geoprobe Direct Push 7822DT

BORING # 01
DATE BEGAN: 8/30/19
DATE COMPLETED: 8/30/19
TOTAL DEPTH: 15 feet
SHEET 1 of 5

Field location of boring
NORTH OF BUILDING 675 (UST P40)
~ 20' N, 6' W

WELL OR PIEZOMETER DETAILS	SAMPLING DATA: Other	Time Sampled	Sample Depth	PID (ppm)	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
	P40-UST-4.5'-083019	0840	4.5'	0	1	SW	TOP 6" ASPHALT ~ GRAY SAND (FILL): f-c sand, fr sub ang gravel / LOOSE / GREY / no odor
					2		
					2.5' 3	SP	SAND: fine-grained / BLACK / trace silts / dense grains / sampled 4.5' / iron staining @ 7' / LOOSE
					4		
					5		
					6		Medium Dense @ 7'
					7		
					8		
	P40-UST-01-9'-083019	0850	9'		9	SM	SILTY SAND: Saturated at 8' / Dark grey / M. dense / wet fines / Fine grained
					10		MORE FG SAND w/ depth 11'-15'
					11		
					12		
					13		
					14		
					15		

Sample ID:

End of Boring

- NO HC ODORS
- NO SHEEN

ANCHOR QEA

CLIENT/PROJECT NAME: Port of Tacoma: Parcel 40 UST
PROJECT NUMBER: 170092.01-19 T2
GEOLOGIST: Stephen Strehl
DRILLING CONTRACTOR: Holocene Drilling
DRILLING METHOD: Geoprobe Direct Push 7822DT

BORING # 02
DATE BEGAN: 8/30/19
DATE COMPLETED: 8/30/19
TOTAL DEPTH: 15 feet
SHEET 2 of 5

Field location of boring
NW CORNER OF UST PAD
~4' OFF NW CORNER CLOSE TO DRAIN

WELL OR PIEZOMETER DETAILS	SAMPLING DATA: Other	Time Sampled	Sample Depth	PID (ppm)	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
	P40-UST-02-4.5'-083019 P40-UST-02-9'-083019 Sample ID's	1040	4.5	0	1		Top 4" ASPHALT
					2	SW	SAND (FILL): some silty round gravel (pea gravel): f-c sand / LIGHT BROWN / LOOSE
					3		
					4		
		1040	4.5		5	SP	Same as BORING 01 - NO ODOR FROM STAINLESS
					6		
					7		
					8		
		1050	9'		9	SM	SILTY SAND: WET / SAT @ 8', fine grained, fines present, 0.5" medium grained sand lens @ 10' DARK GREY / M dense
					10		
					11		some clay (low plasticity) @ 11'-14.5' ORGANICS / WETLAND ODORS @ 11-14.5'
					12		
					13		
					14		
					15	SP	SAND: fg / DARK / BLACK / SATURATED / M DENSE / trace silt

- NO HC ODORS
- [illegible]
- NO SHEEN

End of Boring

ANCHOR QEA

CLIENT/PROJECT NAME: Port of Tacoma: Parcel 40 UST
PROJECT NUMBER: 170092.01-19 T2
GEOLOGIST: Stephen Strehl
DRILLING CONTRACTOR: Holocene Drilling
DRILLING METHOD: Geoprobe Direct Push 7822DT

BORING # 03
DATE BEGAN: 8/30/19
DATE COMPLETED: 8/30/19
TOTAL DEPTH: 15 feet
SHEET 3 of 5

Field location of boring
OFF SW CORNER OF UST PAD
~ 9' SOUTH 11' WEST

WELL OR PIEZOMETER DETAILS	SAMPLING DATA: Other	Time Sampled	Sample Depth	PID (ppm)	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
	P40-UST-03-4.5'-083019	1110	4.5	0 2.0 27.3 30.8	1 2 3 4 5	SW SP	top 4" ASPHALT SAND (FFH): SAME AS BORING 02 SLIGHT HC ODORS SAND: fg / BLACK / DARK / trace silt / HYDROCARBON ODORS / LOOSE
	P40-UST-03-8'-083019	1115	8'	332.8 573 150	6 7 8 9 10	SW	SILTY SAND: saturated w/ petroleum sheen, OIL BROWN / BLACK / PETROLEUM STAINING / STRONG HC ODORS / M dense
				39.1	11		WOODY DEBRIS SAT w/ HC STAINING AND ODORS @ 14'
				38.4	13		
				257.8	15		End of Boring

HC: Hydrocarbon-like

* Heavy odors

From GW FILLING HOLE, SHEEN PRESENT

ANCHOR QEA

CLIENT/PROJECT NAME: Port of Tacoma: Parcel 40 UST
PROJECT NUMBER: 170092.01-19 T2
GEOLOGIST: Stephen Strehl
DRILLING CONTRACTOR: Holocene Drilling
DRILLING METHOD: Geoprobe Direct Push 7822DT

BORING # 04
DATE BEGAN: 8/30/19
DATE COMPLETED: 8/30/19
TOTAL DEPTH: 15 feet
SHEET 4 of 5

Field location of boring: SOUTH OF ~~SLAB~~ CORNER OF UST PAD ~12' SOUTH FROM EDGE / ~16' FROM EAST EDGE

WELL OR PIEZOMETER DETAILS	SAMPLING DATA: Other	Time Sampled	Sample Depth	PID (ppm)	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
	P40-UST-04-4.5'-083019	1130	4.5	0	1	SW	4" ASPHALT SAND (FILL): SAME / TAN / LOOSE (FINE GRAVEL)
					2		
					3		
					4	SP	3.5' SAND: FINE GRAINED (SAME) / BROWN / LOOSE / IRON STAINING 7-8'
					5		
					6		
					7		
					8		8' SILTY SAND: FG / SAT @ 8.5' / DK BROWN / M DENSE
					9	SM	
					10		
					11		
					12		
					13		
					14		14' SAND; FINE GRAINED / DARK / BLACK / SHEEN (PETRO) STRONG HC ODORS / M DENSE
	P40-UST-04-14.5'-083019	1140	14.5	218.2	15	SP	

GW @ 8.5'

End of Boring

possible transport zone?

ANCHOR QEA

CLIENT/PROJECT NAME: Port of Tacoma: Parcel 40 UST
PROJECT NUMBER: 170092.01-19 T2
GEOLOGIST: Stephen Strehl
DRILLING CONTRACTOR: Holocene Drilling
DRILLING METHOD: Geoprobe Direct Push 7822DT

BORING # 05
DATE BEGAN: 8/30/19
DATE COMPLETED: 8/30/19
TOTAL DEPTH: 15 feet
SHEET 5 of 5

Field location of boring
OUTSIDE FENCE / EAST OF UST PAD
~3' FROM EAST EDGE OF ROAD,
~20' FROM SE CORNER

WELL OR PIEZOMETER DETAILS	SAMPLING DATA: Other	Time Sampled	Sample Depth	PID (ppm)	DEPTH IN FEET	SOIL GROUP SYMBOL (USCS)	LITHOLOGIC DESCRIPTION
	PAD-UST-05-4.5'-083019	1300	4.5'	0	1	SW	Asphalt 5"
					2		SAND: (Fill) Same / LIGHT BROWN / LOOSE
					3		
					4		4'
					5	SP	SAND: fg / BROWN / LOOSE
					6		
					7		
					8		
					9		9'
	PAD-UST-05-11'-083019	1310	11'		10	SM	SILTY SAND: sat @ 10' / fg / DK grey / DENSE
					11		
					12		
					13		
					14		14'
					15	SP	SAND: Same as 02

GW AT 10'

End of Boring

Appendix C
Groundwater Sampling Forms

ANCHOR QEA

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: P40-UST-01

Sample ID: P40-UST-01-083019 Duplicate ID: P40-UST-101-083019

Sample Depth: SCREEN 5'-15'

Project and Task No.: 170092-01.19

Project Name: PARCEL 40 UST

Date: 8-30-19

Sampled By: SS

Method of Purging: PERISTALTIC / YSI

Method of Sampling: LOW FLOW

Initial Depth to Water: 8'

Depth to Water after Sampling: N/A

Total Depth to Well: 15'

Well Diameter: 1"

1 Casing/Borehole Volume: _____ (Circle one)

3 Casing/Borehole Volumes: _____ (Circle one)

Total Casing/Borehole Volumes Removed: _____

DTW

Time	Rate (gpm) mL/M	Cum. Vol. mL (gal.)	Temp. (°C)	pH	Specific Conductivity mS (µS/cm)	ORP (mV)	Turbidity (NTU)	Remarks (color, odor, sheen, and sediment)
0855	150	[illegible]	17.3	6.66	0.877	-107.1	52.0	CLEAR, NO ODORS
0900	150	750	17.5	6.64	0.894	-116.7	29.9	" " "
0905	150	7250	17.6	6.63	0.895	-121.2	14.4	" " "
0910	150	3000	17.5	6.62	0.893	-122.2	23.1	" " "
0915	150	3750	17.5	6.62	0.890	-123.0	20.1	" " "
0920	BYPASS YSI / SAMPLES				P40-UST-01-083019			
0925	SAMPLES DUPLICATE				P40-UST-101-083019			

Notes:

TOTAL VOLUME PURGED = 4L

SCREEN 5'-15'

CAPACITY OF CASING (GALLONS/LINEAR FOOT)	VOLUME BETWEEN CASING AND HOLE (GALLONS/LINEAR FOOT) (ASSUMING 40% POROSITY)
2" = 0.16	2" CASING AND 6" HOLE - 0.52
4" = 0.65	2" CASING AND 8" HOLE - 0.98
6" = 1.47	4" CASING AND 10" HOLE = 1.37
	4" CASING AND 12" HOLE - 2.09

ANCHOR QEA

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: P40-VSI-02
Sample ID: P40-VSI-02-083019 Duplicate ID: /
Sample Depth: SCREEN 3.5' - 13.5'
Project and Task No.: 170047-01.19
Project Name: PARCEL 40
Date: 8-30-19
Sampled By: SS
Method of Purging: PERISTALTIC / VSI
Method of Sampling: PERISTALTIC LOW FLOW

Initial Depth to Water: 5'
Depth to Water after Sampling: N/A
Total Depth to Well: 15'
Well Diameter: 1"
1 Casing/Borehole Volume: (Circle one)
3 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Rate (gpm) ML/M	Cum. Vol. (gal.) ML	Temp. (°C)	pH	Specific Conductivity MS (µS/cm)	ORP (mV)	Turbidity (NTU)	Remarks (color, odor, sheen, and sediment)
0935	150	FINAL	18.3	6.59	0.659	-54.6	72.6	CLEAR, NO ODORS
0940	150	750	18.4	6.57	0.675	-68.9	31.3	" "
0945	150	2250	18.4	6.59	0.704	-86.9	16.4	" "
0950	150	3000	18.4	6.59	0.704	-88.9	14.9	" "
0955	150	3750	18.4	6.58	0.705	-91.9	11.2	" "
0001000	BY-PASS VSI / SAMPLES				P40-VSI-02-083019			

Notes:

SCREEN 3.5 / 13.5

CAPACITY OF CASING (GALLONS/LINEAR FOOT)

2" = 0.16
4" = 0.65
6" = 1.47

VOLUME BETWEEN CASING AND HOLE (GALLONS/LINEAR FOOT) (ASSUMING 40% POROSITY)

2" CASING AND 6" HOLE - 0.52
2" CASING AND 8" HOLE - 0.98
4" CASING AND 10" HOLE = 1.37
4" CASING AND 12" HOLE - 2.09

ANCHOR QEA

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: P40-VST-03
Sample ID: P40-VST-03 Duplicate ID: —
Sample Depth: 5'-15' Screen
Project and Task No.: PARCEL 40 VST
Project Name: 170072-01.19
Date: 8/30/19
Sampled By: SS
Method of Purging: VST PERISTALTIC
Method of Sampling: LOW FLOW

Initial Depth to Water: 8'
Depth to Water after Sampling: N/A
Total Depth to Well: 15'
Well Diameter: 1"
1 Casing/Borehole Volume: (Circle one)
3 Casing/Borehole Volumes: (Circle one)
Total Casing/Borehole Volumes Removed:

Time	Rate (gpm) mL/M	Cum. Vol. (gal.) mL	Temp. (°C)	pH	Specific Conductivity mS (µS/cm)	ORP (mV)	Turbidity (NTU)	Remarks (color, odor, sheen, and sediment)
1140	150	FINAL	23.0	6.57	1.021	-54.9	[illegible]	SLIGHTLY CLOUDY, SLIGHT HC ODOR
1145	150	750	20.3	6.57	1.061	-96.7	118	" "
1150	150	2250	21.2	6.58	1.065	-102.2	202	" "
1155	150	3000	21.7	6.58	1.066	-104.6	212	" "
1200	150	3750	22.1	6.60	1.068	-108.4	218	" "
1205	150	4500	22.2	6.61	1.069	-112.1	209	" "
1210	— BYPASS VST / SAMPLED P40-VST-03-083019							

Notes:
POOR RECHARGE / 5-15' SCREEN

CAPACITY OF CASING (GALLONS/LINEAR FOOT)

2" = 0.16
4" = 0.65
6" = 1.47

VOLUME BETWEEN CASING AND HOLE (GALLONS/LINEAR FOOT) (ASSUMING 40% POROSITY)

2" CASING AND 6" HOLE - 0.52
2" CASING AND 8" HOLE - 0.98
4" CASING AND 10" HOLE = 1.37
4" CASING AND 12" HOLE - 2.09

ANCHOR QEA

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: P40-VST-04
Sample ID: P40-VST-04 Duplicate ID: ~
Sample Depth: 5'-15' SCREEN
Project and Task No.: 170092.01.19
Project Name: PARCEL 40 VST
Date: 8/30/19
Sampled By: SS
Method of Purging: PERISTALTIC / VST
Method of Sampling: LOW FLOW

Initial Depth to Water: 8.5'
Depth to Water after Sampling: N/A
Total Depth to Well: 15'
Well Diameter: 1"
1 Casing/Borehole Volume: ~
(Circle one)
3 Casing/Borehole Volumes: ~
(Circle one)
Total Casing/Borehole Volumes Removed: ~

Time	Rate (~~gpm~~) mL/m	Cum. Vol. (gal.)	Temp. (°C)	pH	Specific Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	Remarks (color, odor, sheen, and sediment)
1205	150	~~3000~~	22.6	6.66	0.924	-82.5	99.1	CLEAR, NO ODORS
1210	150	450	22.6	6.65	0.921	-82.2	24.2	" "
1215	150	1200	22.6	6.65	0.924	-82.0	21.5	" "
1220	150	3000	22.6	6.65	0.924	-81.9	20.0	" "
1225 - BYPASS / SAMPLES P40-VST-04 - 083019								

Notes:
3'-15' SCREEN / POOR RECHARGE

CAPACITY OF CASING (GALLONS/LINEAR FOOT)

2" = 0.16
4" = 0.65
6" = 1.47

VOLUME BETWEEN CASING AND HOLE (GALLONS/LINEAR FOOT) (ASSUMING 40% POROSITY)

2" CASING AND 6" HOLE - 0.52
2" CASING AND 8" HOLE - 0.98
4" CASING AND 10" HOLE = 1.37
4" CASING AND 12" HOLE - 2.09

ANCHOR QEA

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: P40 VST-05
Sample ID: P40-VST-05 Duplicate ID: —
Sample Depth: 5-15' SCREEN
Project and Task No.: 170092-01.04 T2
Project Name: PARCEL 40
Date: 8-30-17
Sampled By: SS
Method of Purging: VST / PERISTALTIC
Method of Sampling: LOW FLOW

Initial Depth to Water: 10'
Depth to Water after Sampling: N/A
Total Depth to Well: 13'
Well Diameter: 1"
1 Casing/Borehole Volume: —
(Circle one)
3 Casing/Borehole Volumes: —
(Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Rate (gpm) ML/M	Cum. Vol. ML (gal.)	Temp. (°C)	pH	Specific Conductivity MS (µS/cm)	ORP (mV)	Turbidity (NTU)	Remarks (color, odor, sheen, and sediment)
1345	150	FINITIAL	20.8	6.93	0.548	33.4	160	MUSTY CLEAR, NO ODORS
1350	150	750	20.2	6.52	0.552	-20.1	123	" "
1355	150	1500	20.1	6.50	0.552	-42.4	37.1	CLEAR, NO ODORS
1400	150	2250	20.0	6.50	0.547	-43.8	32.5	" "
1405	150	3000	20.0	6.50	0.556	-44.4	30.8	" "
1410	BYPASS VST / SAMPLED				P40-VST-05-083017			

Notes:
POOR RECOVERY
FINITIAL PURGE VERY SANDY
5-15' SCREEN

CAPACITY OF CASING (GALLONS/LINEAR FOOT)

2" = 0.16
4" = 0.65
6" = 1.47

VOLUME BETWEEN CASING AND HOLE (GALLONS/LINEAR FOOT) (ASSUMING 40% POROSITY)

2" CASING AND 6" HOLE - 0.52
2" CASING AND 8" HOLE - 0.98
4" CASING AND 10" HOLE = 1.37
4" CASING AND 12" HOLE - 2.09

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: ANCHOR QEA	Phone: 206-287-9130	Date: 8/30-19	Ice Present? Yes
Client Contact: NIK BACHER		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: PORT OF TACOMA - PARCEL 40 UST PAD INVESTIGATION			
Client Project #: 170092-01.19	Samplers: STEPHEN STREETER		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: NWTPH-Gx BTEX	NWTPH-Dx with SG cleanup	NWTPH-Dx with SG cleanup						Notes/Comments
P40-UST-01-[illegible]19	[illegible]	0720	W	9	X	X	X						
P40-UST-[illegible]-[illegible]19	8-30-19	[illegible]	W	9	X	X	X						
P40-UST-[illegible]-[illegible]19	8-28-19	1210	W	2	X	X	X						
P40-UST-01-[illegible]19	8-30-19	0940	S	7	X	X	X						
P40-UST-01-[illegible]19	8-30-19	0950	S	7	X	X	X						
P40-UST-[illegible]-[illegible]19	8-30-19	1000	W	9	X	X	X						
P40-UST-02-4.5-[illegible]19	8-30-19	1040	S	7	X	X	X						
P40-UST-02-9-[illegible]19	8-30-19	1050	S	7	X	X	X						
P40-UST-03-[illegible]19	8-30-19	1210	W	9	X	X	X						
P40-UST-03-4.5-[illegible]19	8-30-19	1110	S	7	X	X	X						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: STEPHEN STREETER	Printed Name: Jacob Haller	Printed Name:	Printed Name:
	Company: AQ	Company: ARI	Company:	Company:
	Date & Time: 8-30-19 1625	Date & Time: 08/30/19 1625	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:
ARI Client Company:	Phone:
Client Contact:	
Client Project Name:	
Client Project #:	Samplers:

Page: 2 of 2	
Date:	Ice Present? Yes
No. of Coolers: 3	Cooler Temps: See COC

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Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name:	Printed Name:	Printed Name:	Printed Name:
	Company: AQ	Company: ARI	Company:	Company:
	Date & Time: 1625	Date & Time: 03/30/19 1625	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Appendix D
Laboratory Data

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16 September 2019

Nik Bacher
Anchor QEA, LLC
1119 Pacific Avenue, Suite 1600
Tacoma, WA 98402

RE: Port of Tacoma - Parcel 40 UST PAD Investigation

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19H0481	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Amanda Volgardsen, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Cert# 100006-012

PJLA Testing
Accreditation # 66169

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19H0481	Turn-around Requested: STANDARD	Page: 1 of 2	
ARI Client Company: ANCHOR QEA	Phone: 206-287-9130	Date: 8-30-19	Ice Present? Yes
Client Contact: NIK BACHER		No. of Coolers: 3	Cooler Temps: see CRF
Client Project Name: PORT OF TACOMA - PARCEL 40 UST PAD INVESTIGATION			
Client Project #: 170042-01.19	Samplers: STEPHEN STREETER		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: NWTPH-Gx BTEX	NWTPH-Dx with SG cleanup	NWTPH-Dx without SG cleanup						Notes/Comments
P40-UST-01-083019	8-30-19	0920	H_2O	9	X	X	X						
P40-UST-101-083019	8-30-19	0925	H_2O	9	X	X	X						
P40-UST-TB-083019	8-28-19	1310	H_2O	2	X	X	X						
P40-UST-01-4.5'-083019	8-30-19	0840	Soil	7	X	X	X						
P40-UST-01-9'-083019	8-30-19	0850	Soil	7	X	X	X						
P40-UST-02-083019	8-30-19	1000	H_2O	9	X	X	X						
P40-UST-02-4.5'-083019	8-30-19	1040	Soil	7	X	X	X						
P40-UST-02-9'-083019	8-30-19	1050	Soil	7	X	X	X						
P40-UST-03-083019	8-30-19	1210	H_2O	9	X	X	X						
P40-UST-03-4.5'-083019	8-30-19	1110	Soil	7	X	X	X						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Stephen Streeter	Printed Name: Jacobs Walter	Printed Name:	Printed Name:
	Company: AQ	Company: ARI	Company:	Company:
	Date & Time: 8-30-19 1625	Date & Time: 08/30/19 1625	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: L9H0481	Turn-around Requested: STANDARD	Page: 2 of 2	
ARI Client Company: ANCHOR QEA	Phone: 2062879130	Date: 8-30-19	Ice Present? Yes
Client Contact: NEIL BACHER		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: PORT OF TACOMA - PARCEL 40 UST PAD INVESTIGATION			
Client Project #: 170042-01.19	Samplers: STEPHEN STOLTZ		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: NWTPH-Gx BTEX	NWTPH-Dx with SG cleanup	NWTPH-Dx without SG cleanup						Notes/Comments
P40-UST-03-8'-083019	8-30-19	1115	Soil	7	X	X	X						
P40-UST-04-083019		1225	H_2O	9	X	X	X						
P40-UST-04-4.5'-083019		1130	Soil	7	X	X	X						
P40-UST-04-14.5'-083019		1140	Soil	7	X	X	X						
P40-UST-05-083019		1410	H_2O	9	X	X	X						
P40-UST-05-4.5'-083019		1300	Soil	7	X	X	X						
P40-UST-505-4.5'-083019		1305	Soil	7	X	X	X						
P40-UST-05-11'-083019	8-30-19	1310	Soil	7	X	X	X						
													55

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: STEPHEN STOLTZ	Printed Name: Jacob Walte	Printed Name:	Printed Name:
	Company: AQ	Company: ARI	Company:	Company:
	Date & Time: 8-30-19 1625	Date & Time: 08/30/19 1625	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Re: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Amanda Volgardsen

Wed 9/11/2019 10:57 AM

To: Jennifer Marsalla <jmarsalla@anchorqea.com>; Nik Bacher <nbacher@anchorqea.com>; Cheronne Oreiro <coreiro@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; LabDataAttachments - Test <labdataattach@anchorqea.com>

Hi Jennifer,
We will sub sample from the %TS jars for the Gx for the samples in question. The lab will sub sample into clear vials with 5mL of MeOH and weights, as the amber vials are the vials with the weight issue.

Regards,
Amanda Volgardsen
Analytical Resources, Inc.
Project Manager

I will be out of the office Thursday September 12th for the Advanced Superfund Conference as well as the afternoon of Friday September 13th.

206-695-6220

https://www.arilabs.com

Version changes coming this summer to SW-846 8260 and 8270 organic *and* 6010 and 6020 metals *analysis methods.*

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

---

From: Jennifer Marsalla <jmarsalla@anchorqea.com>
Sent: Wednesday, September 11, 2019 8:14 AM
To: Nik Bacher <nbacher@anchorqea.com>; Amanda Volgardsen <amanda.volgardsen@arilabs.com>; Cheronne Oreiro <coreiro@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; LabDataAttachments - Test <labdataattach@anchorqea.com>
Subject: RE: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Hi Amanda,
Please sub-sample P40-UST-01-4.5'-083019, P40-UST-01-9'-083019 and P40-UST-02-4.5'-083019 from their TS jars into tared amber MeOH vials and proceed with analysis.

Thank You,

Jennifer Marsalla | ANCHOR QEA, LLC
Scientist

ANCHOR QEA, LLC
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From: Nik Bacher <nbacher@anchorqea.com>
Sent: Tuesday, September 10, 2019 5:56 PM
To: Amanda Volgardsen <amanda.volgardsen@arilabs.com>; Cheronne Oreiro <coreiro@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; Jennifer Marsalla <jmarsalla@anchorqea.com>
Subject: RE: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Thanks Amanda,

Cheronne/Jennifer, hoping you can mind meld and figure out path forward.

Nik

Niklas Bacher, L.G.

ANCHOR QEA, LLC
nbacher@anchorqea.com
This electronic message transmission contains information that may be confidential and/or privileged work product prepared in anticipation of litigation. The information is intended for the use of the individual or entity named above. If you are not the intended recipient, please be aware that any disclosure, copying distribution or use of the contents of this information is prohibited. If you have received this electronic transmission in error, please notify us by telephone at (206) 287-9130.

From: Amanda Volgardsen <amanda.volgardsen@arilabs.com>
Sent: Tuesday, September 10, 2019 5:41 PM
To: Nik Bacher <nbacher@anchorqea.com>; Cheronne Oreiro <coreiro@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; Jennifer Marsalla <jmarsalla@anchorqea.com>
Subject: Re: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Hello,
The blue handle is still in use and gives an approximate 5g sample. It looks like an additional order for 3 samples was put in and login sent the lot number in question, not sure if they were out of clear MeOH vials or if it was a mistake. I went back and looked at the %TS jars and they are pretty packed, even though it's pretty much impossible to get zero headspace in the wide mouth jars, luckily the analysis in question is just gas, so we can either assume the 5g sample volume, produce another MeOH vial from the %TS jar or both. The analyst also indicated there is a way to "back calculate" the vial weight, but this method is still iffy when it comes to specific calculations and concentrations. There's still a couple days left of holding, so just let me know how you would like to proceed and we'll get the samples going.

Regards,
Amanda Volgardsen
Analytical Resources, Inc.
Project Manager

I will be out of the office Thursday September 12th for the Advanced Superfund Conference as well as the afternoon of Friday September 13th.

206-695-6220

https://www.arilabs.com

Version changes coming this summer to SW-846 8260 and 8270 organic *and* 6010 and 6020 metals *analysis methods.*

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

---

From: Nik Bacher <nbacher@anchorqea.com>
Sent: Tuesday, September 10, 2019 5:29 PM
To: Cheronne Oreiro <coreiro@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; Amanda Volgardsen <amanda.volgardsen@arilabs.com>; Jennifer Marsalla <jmarsalla@anchorqea.com>
Subject: RE: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Hi team,

We can confirm that all the sample submitted were collected in the medium 5g setting on the sampler handle. Sorry to Sue, Mark, Kelly, Cheronne, Amanda, or any other ARI staff that I stole this handle from (for some reason I have a few of them at home).

How do the solids jars look in terms of headspace? Also, did we fill the wrong vials or was this a lab miss? I'm thinking we might want to run both the existing and the one from the solids jar (if indeed zero headspace) and see were we end up.

But I'm up for thoughts on that approach.

Thanks all,
Nik

Niklas Bacher, L.G.

ANCHOR QEA, LLC
nbacher@anchorqea.com
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From: Cheronne Oreiro <coreiro@anchorqea.com>
Sent: Tuesday, September 10, 2019 5:08 PM
To: Nik Bacher <nbacher@anchorqea.com>
Cc: Stephen Strehl <sstrehl@anchorqea.com>; Amanda Volgardsen <amanda.volgardsen@arilabs.com>; Jennifer Marsalla <jmarsalla@anchorqea.com>
Subject: FW: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment
Importance: High

Hi Nik,

Please see Amanda's comment below. Do you want to assume there is approximately 5g per vial? The other option is to take 5g from the unpreserved solids jar which were hopefully collected w/o headspace. I really think option 2 would be the most accurate. I am in the field tomorrow and Thursday, but I should have cell service if you would like to discuss.
-C

Cheronne Oreiro | Anchor QEA, LLC
Environmental Scientist

D: 206.903.3310
coreiro@anchorqea.com

ANCHOR QEA, LLC
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From: LabDataAttachments - Test <labdataattach@anchorqea.com>
Sent: Tuesday, September 10, 2019 2:28 PM
To: Cheronne Oreiro <coreiro@anchorqea.com>
Subject: FW: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Jennifer Marsalla | ANCHOR QEA, LLC
Scientist

ANCHOR QEA, LLC
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From: Amanda Volgardsen <amanda.volgardsen@arilabs.com>
Sent: Tuesday, September 10, 2019 1:39 PM
To: Lab Data Attachments <LabDataAttachments@anchorqea.com>
Subject: Re: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Hello,
The lab has indicated that gas vials for samples P40-UST-01-4.5'-083019, P40-UST-01-9'-083019 and P40-UST-02-4.5'-083019 were all sampled in amber vials without the initial weights listed on the labels. These are the only samples like this all others are clear vials with weights. The gas is coming up on holding and the lab is wondering how you would like to proceed with analysis ie; assume 5g of sample in 5mL of MeOH?

Regards,
Amanda Volgardsen
Analytical Resources, Inc.
Project Manager

I will be out of the office Thursday September 12th for the Advanced Superfund Conference as well as the afternoon of Friday September 13th.

206-695-6220

https://www.arilabs.com

Version changes coming this summer to SW-846 8260 and 8270 organic *and* 6010 and 6020 metals *analysis methods.*

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

---

From: Amanda Volgardsen
Sent: Friday, August 30, 2019 5:49 PM
To: labdata@anchorqea.com <labdata@anchorqea.com>
Subject: 19H0481 Port of Tacoma Parcel 40 Sample Acknowledgment

Hello,
Attached is the login information for samples received today. Please let me know if you have any questions.

Regards,
Amanda Volgardsen
Analytical Resources, Inc.
Project Manager

I will be out of the office Monday September 2nd and Monday September 9th. ARI will be open normal business hours with limited services Labor Day.

206-695-6220

https://www.arilabs.com

Version changes coming this summer to SW-846 8260 and 8270 organic *and* 6010 and 6020 metals *analysis methods.*

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

How was your customer experience?
Please take our 5 minute Online Customer Survey

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Analytical Chemists and Consultants
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If you have received this correspondence in error, please notify sender and delete this message from your computer immediately. Thank you.
ARI Labs, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Anchor QEA Project Name: Port of Tacoma Parcel 40

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19H0481 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1625 4.1°C 0.0°C 3.6°C

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5006

Cooler Accepted by: JDW Date: 08/30/19 Time: 1625

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: Cardboard		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	8/28/19	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JDW Date: 08/30/19 Time: 1659 Labels checked by: JDW

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Anchor QEA, LLC	Project: Port of Tacoma - Parcel 40 UST PAD Investigation	
1119 Pacific Avenue, Suite 1600	Project Number: 170092-01.19	**Reported:**
Tacoma WA, 98402	Project Manager: Nik Bacher	16-Sep-2019 11:52

Case Narrative

Sample receipt

Samples as listed on the preceding page were received August 30, 2019 under ARI work order 19H0281. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260C

The samples were analyzed within the recommended holding times.

Sample P40-UST-03-8'-083019 was reanalyzed at a medium level 50x dilution due to high hydrocarbon background in the low level analysis.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Gasoline by NWTPH-g (GC/MS)

The samples were analyzed within the recommended holding times.

Samples P40-UST-01-4.5'-083019, P40-UST-01-9'-083019 and P40-UST-02-4.5'-083019 were analyzed from the percent solids jars as the vials were not sent out pre-weighed.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

A matrix spike and matrix spike duplicate were prepared in conjunction with sample P 40-UST-02-9'-083019. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx (Ac/Si cleaned and uncleaned)

The samples were extracted and analyzed within the recommended holding times.

The unlceaned portion of sample P40-UST-03-083019 and both the acid cleaned and uncleaned portions of samples P40-UST-03-4.5'-083019, P40-UST-03-8'-083019 and P40-UST-04-14.5'-083019 were all reanalyzed at dilutions due to the diesel range concentration exceeding the upper calibration ranges. The initial analyses have been flagged with "E" qualifiers. No further corrective action was taken.

Initial and continuing calibrations were within method requirements, with the exception of SHI0028-CCV1 which is outside of control limits high for the diesel range. Associated detected results were reanalyzed with passing QC. No further corrective action was taken.

Analytical Report

Anchor QEA, LLC	Project: Port of Tacoma - Parcel 40 UST PAD Investigation	
1119 Pacific Avenue, Suite 1600	Project Number: 170092-01.19	**Reported:**
Tacoma WA, 98402	Project Manager: Nik Bacher	16-Sep-2019 11:52

Case Narrative

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Anchor QEA, LLC	Project: Port of Tacoma - Parcel 40 UST PAD Investigation	
1119 Pacific Avenue, Suite 1600	Project Number: 170092-01.19	**Reported:**
Tacoma, WA 98402	Project Manager: Nik Bacher	09/16/2019 11:52

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
19H0481-01	P40-UST-01-083019	Water	08/30/19 09:20	08/30/19 16:25
19H0481-02	P40-UST-01-083019	Water	08/30/19 09:20	08/30/19 16:25
19H0481-03	P40-UST-101-083019	Water	08/30/19 09:25	08/30/19 16:25
19H0481-04	P40-UST-101-083019	Water	08/30/19 09:25	08/30/19 16:25
19H0481-05	P40-UST-TB-083019	Water	08/30/19 08:40	08/30/19 16:25
19H0481-06	P40-UST-01-4.5'-083019	Solid	08/30/19 08:40	08/30/19 16:25
19H0481-07	P40-UST-01-4.5'-083019	Solid	08/30/19 08:40	08/30/19 16:25
19H0481-08	P40-UST-01-9'-083019	Solid	08/30/19 08:50	08/30/19 16:25
19H0481-09	P40-UST-01-9'-083019	Solid	08/30/19 08:50	08/30/19 16:25
19H0481-10	P40-UST-02-083019	Water	08/30/19 10:00	08/30/19 16:25
19H0481-11	P40-UST-02-083019	Water	08/30/19 10:00	08/30/19 16:25
19H0481-12	P40-UST-02-4.5'-083019	Solid	08/30/19 10:40	08/30/19 16:25
19H0481-13	P40-UST-02-4.5'-083019	Solid	08/30/19 10:40	08/30/19 16:25
19H0481-14	P40-UST-02-9'-083019	Solid	08/30/19 10:50	08/30/19 16:25
19H0481-15	P40-UST-02-9'-083019	Solid	08/30/19 10:50	08/30/19 16:25
19H0481-16	P40-UST-03-083019	Water	08/30/19 12:10	08/30/19 16:25
19H0481-17	P40-UST-03-083019	Water	08/30/19 12:10	08/30/19 16:25
19H0481-18	P40-UST-03-4.5'-083019	Solid	08/30/19 11:10	08/30/19 16:25
19H0481-19	P40-UST-03-4.5'-083019	Solid	08/30/19 11:10	08/30/19 16:25
19H0481-20	P40-UST-03-8'-083019	Solid	08/30/19 11:15	08/30/19 16:25
19H0481-21	P40-UST-03-8'-083019	Solid	08/30/19 11:15	08/30/19 16:25
19H0481-22	P40-UST-04-083019	Water	08/30/19 12:25	08/30/19 16:25
19H0481-23	P40-UST-04-083019	Water	08/30/19 12:25	08/30/19 16:25
19H0481-24	P40-UST-04-4.5'-083019	Solid	08/30/19 11:30	08/30/19 16:25
19H0481-25	P40-UST-04-4.5'-083019	Solid	08/30/19 11:30	08/30/19 16:25
19H0481-26	P40-UST-04-14.5'-083019	Solid	08/30/19 11:40	08/30/19 16:25
19H0481-27	P40-UST-04-14.5'-083019	Solid	08/30/19 11:40	08/30/19 16:25
19H0481-28	P40-UST-05-083019	Water	08/30/19 14:10	08/30/19 16:25
19H0481-29	P40-UST-05-083019	Water	08/30/19 14:10	08/30/19 16:25
19H0481-30	P40-UST-05-4.5'-083019	Solid	08/30/19 13:00	08/30/19 16:25
19H0481-31	P40-UST-05-4.5'-083019	Solid	08/30/19 13:00	08/30/19 16:25
19H0481-32	P40-UST-505-4.5'-083019	Solid	08/30/19 13:05	08/30/19 16:25
19H0481-33	P40-UST-505-4.5'-083019	Solid	08/30/19 13:05	08/30/19 16:25
19H0481-34	P40-UST-05-11'-083019	Solid	08/30/19 13:10	08/30/19 16:25
19H0481-35	P40-UST-05-11'-083019	Solid	08/30/19 13:10	08/30/19 16:25

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

P40-UST-01-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-01 D	SDG:	19H0481
Sampled:	08/30/19 09:20	Prepared:	09/05/19 13:58	File ID:	V309051919.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 19:21
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.20	U	0.03	0.20
108-88-3	Toluene	1	0.28		0.04	0.20
100-41-4	Ethylbenzene	1	0.08	J	0.04	0.20
179601-23-1	m,p-Xylene	1	0.34	J	0.05	0.40
95-47-6	o-Xylene	1	0.19	J	0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.95	99.0	80 - 120	
4-Bromofluorobenzene	5.0000	4.75	94.9	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

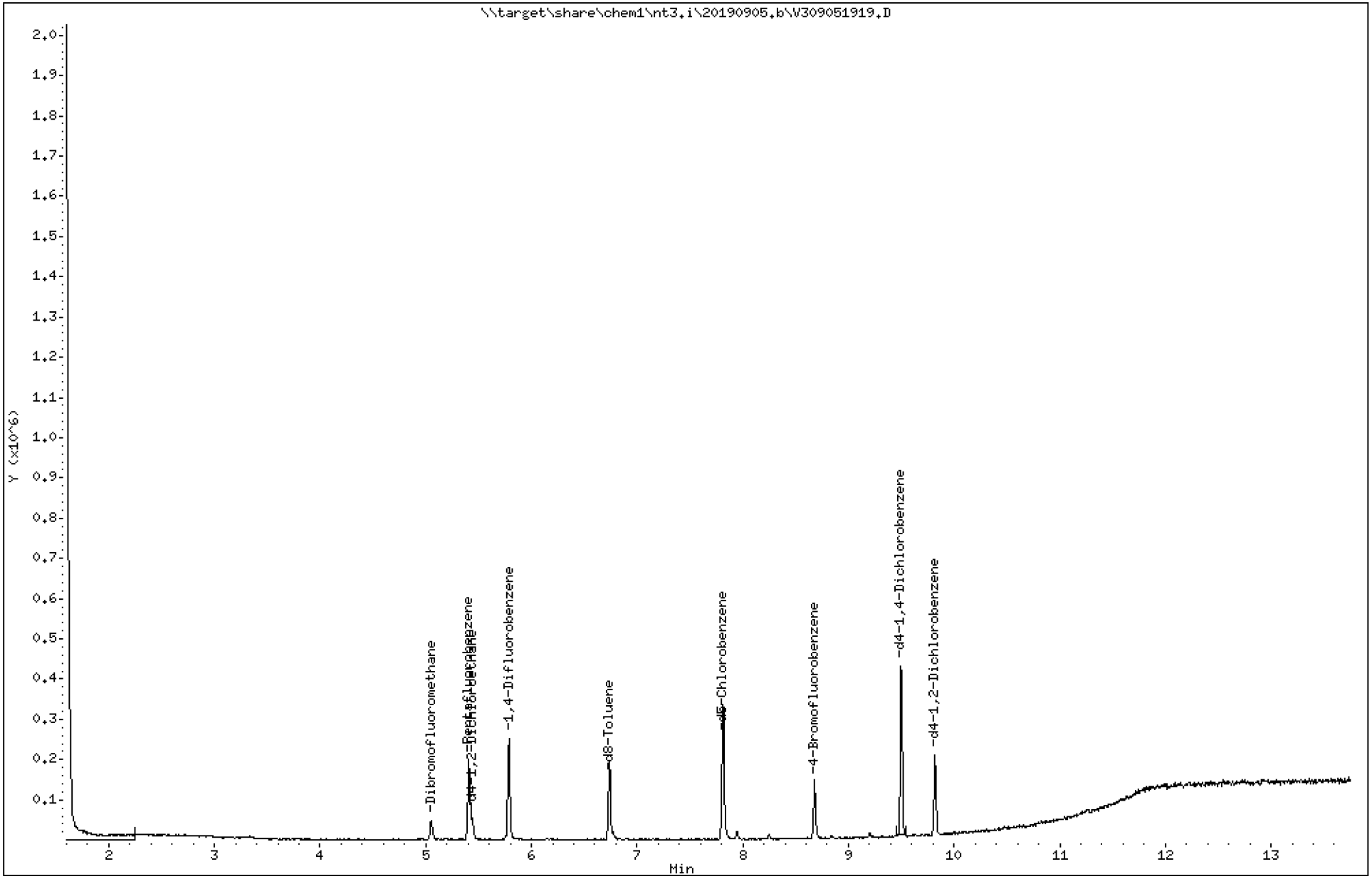
Sample Info: 19H0481-01

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

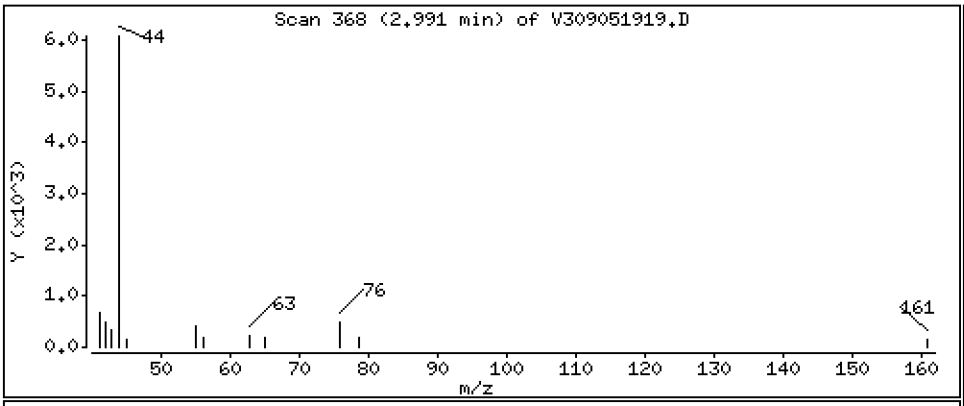
Operator: PKC

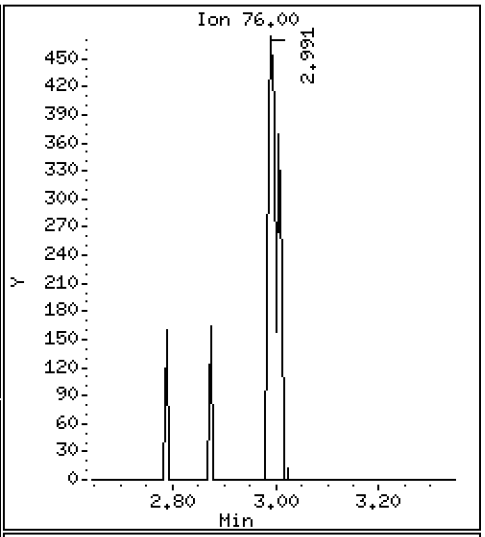
Column phase: RTXVMS

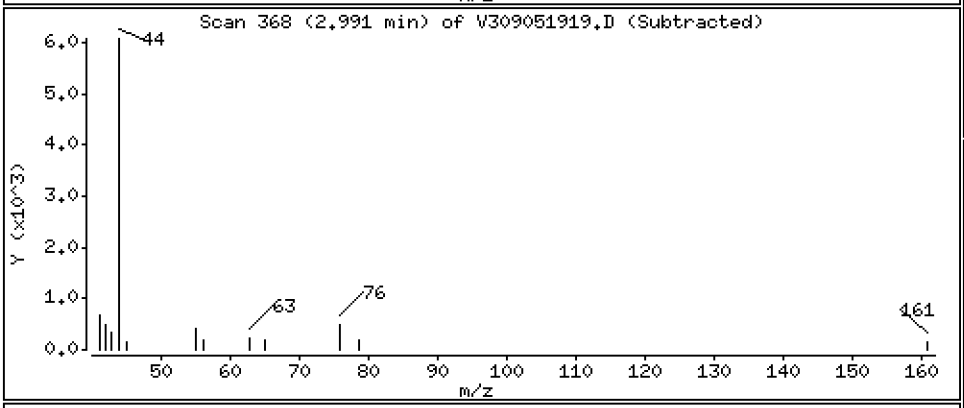
Column diameter: 0.18

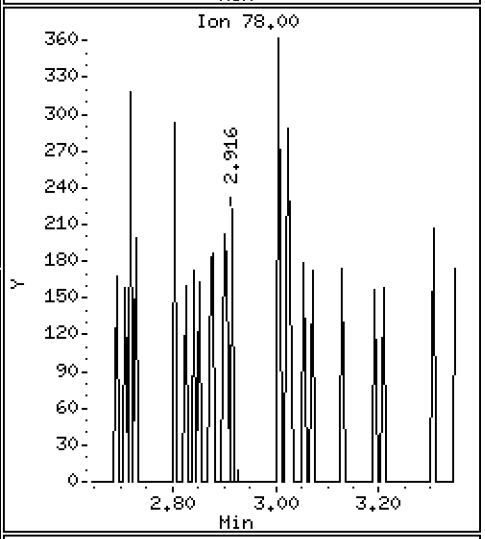
8 Carbon Disulfide

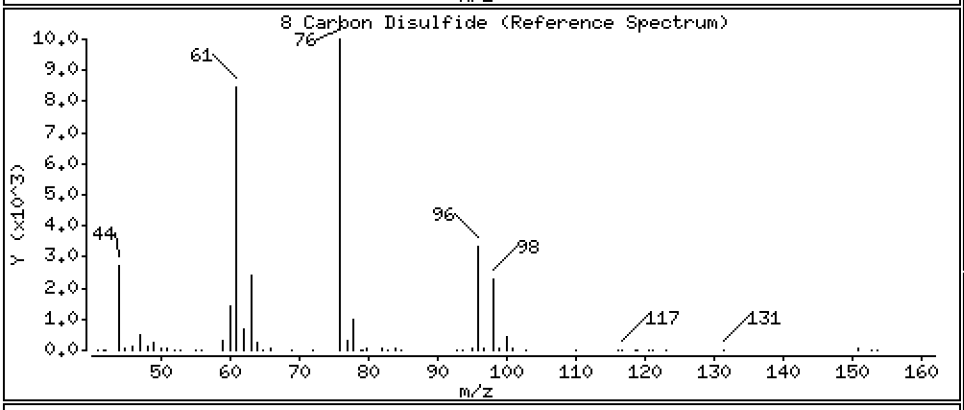
Concentration: 0.03246 ug/L

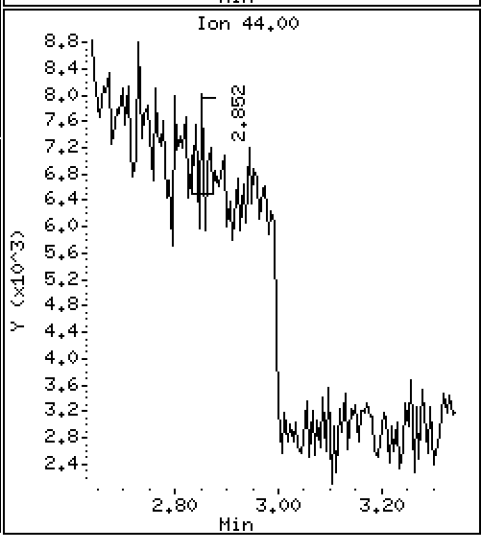


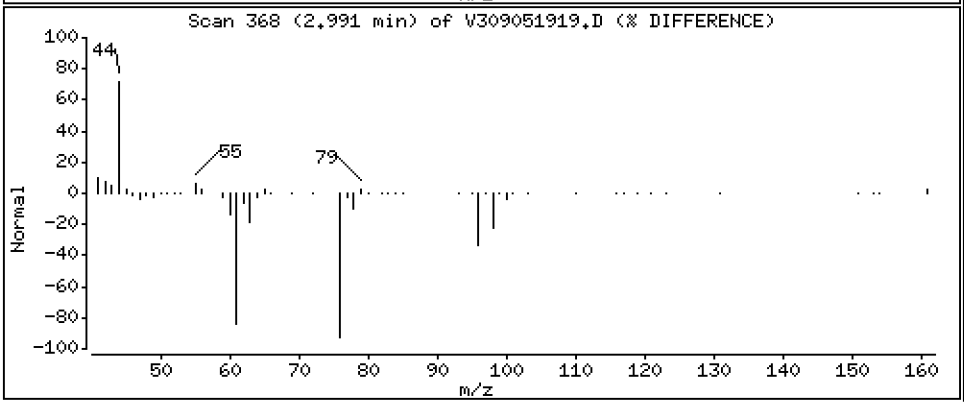












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

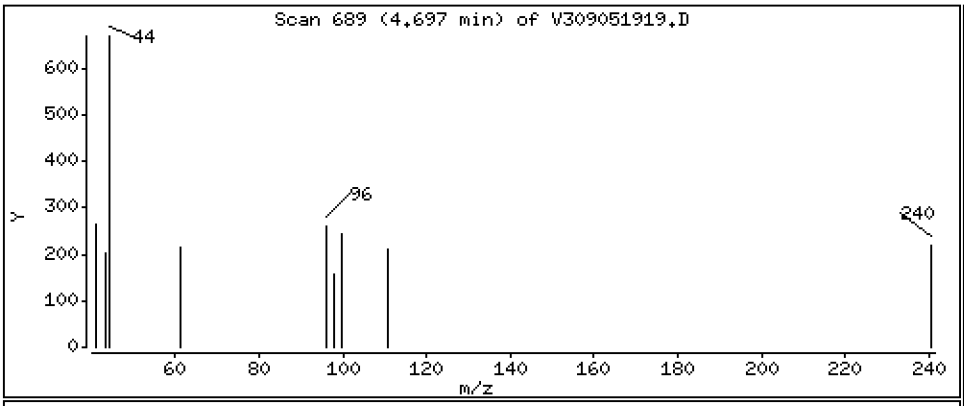
Operator: PKC

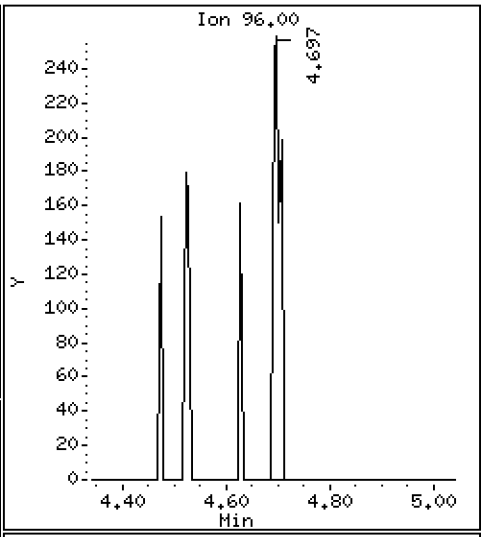
Column phase: RTXVMS

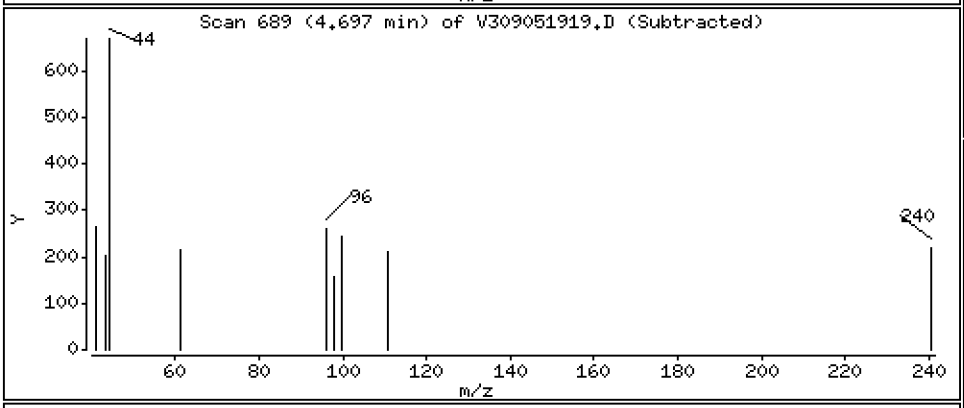
Column diameter: 0.18

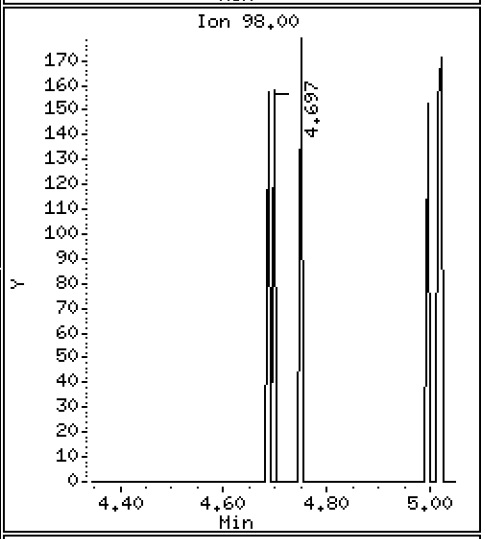
22 Cis-1,2-Dichloroethene

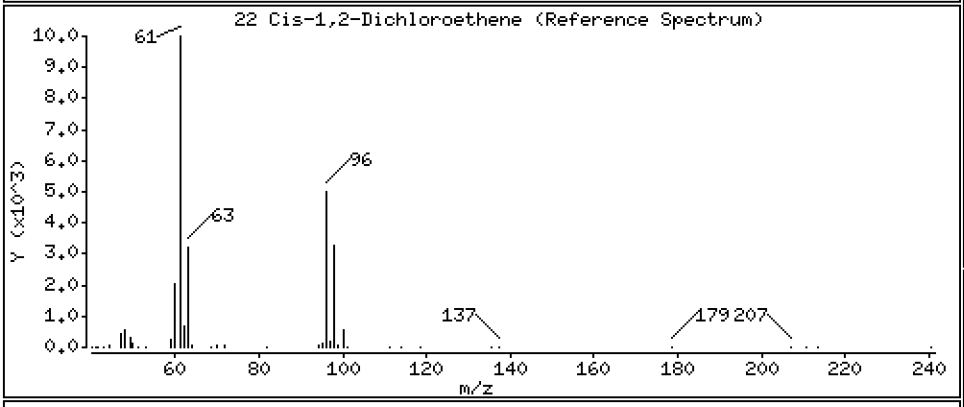
Concentration: 0.03725 ug/L

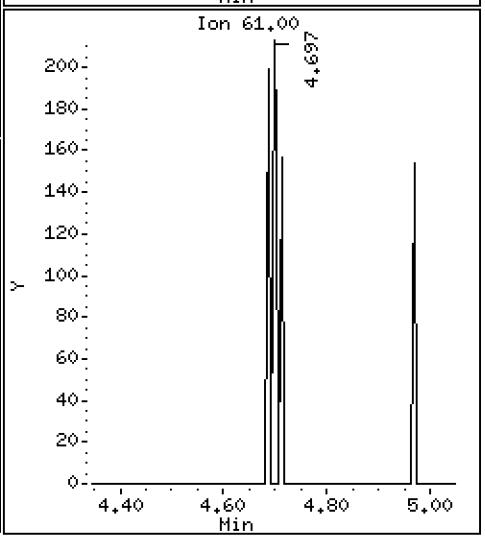


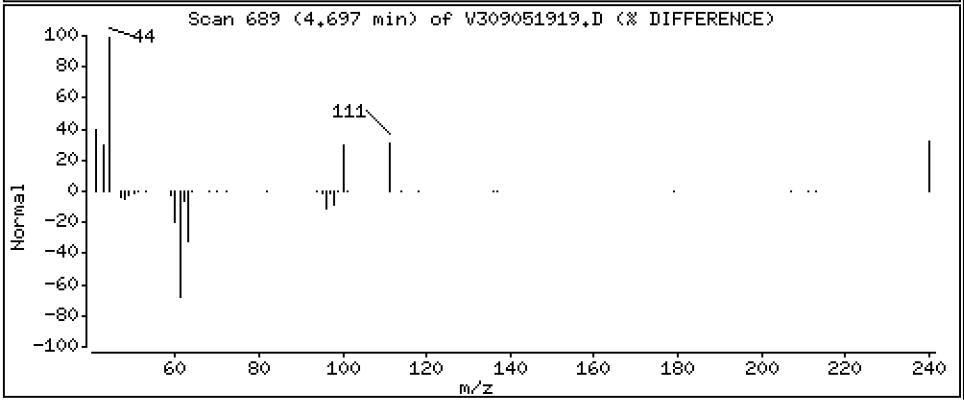












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

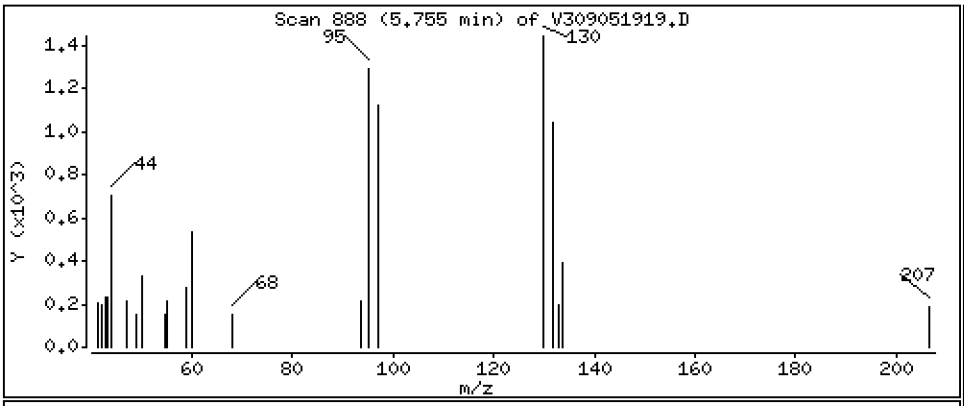
Operator: PKC

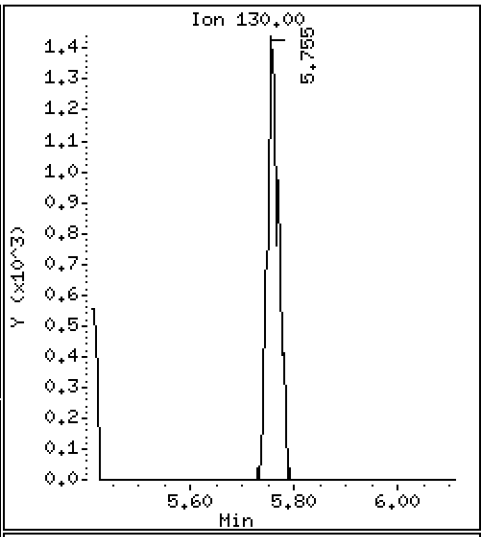
Column phase: RTXVMS

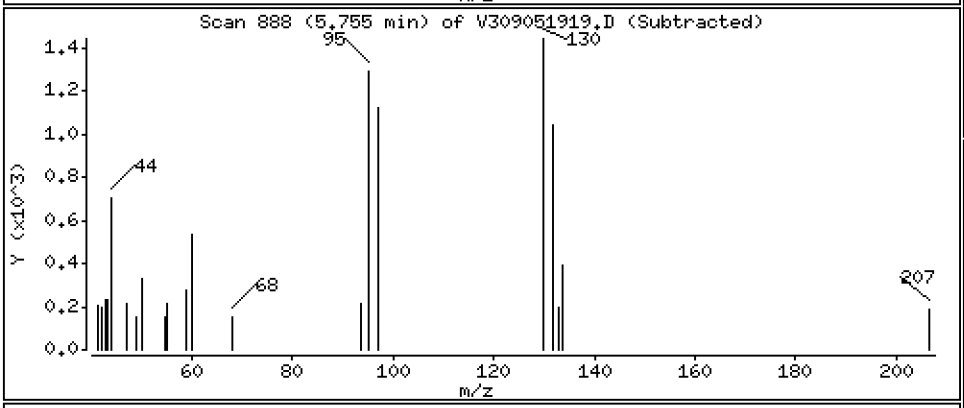
Column diameter: 0.18

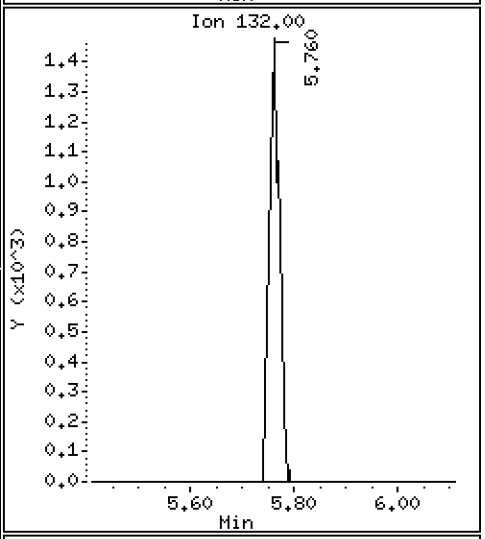
36 Trichloroethene

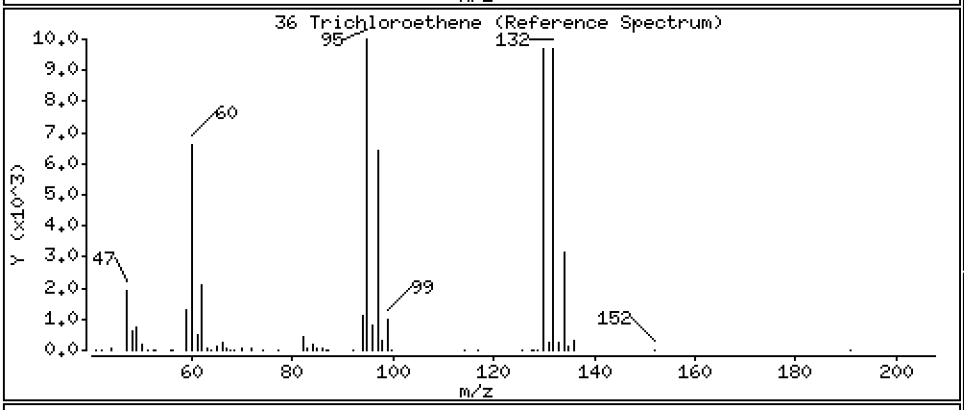
Concentration: 0.3031 ug/L

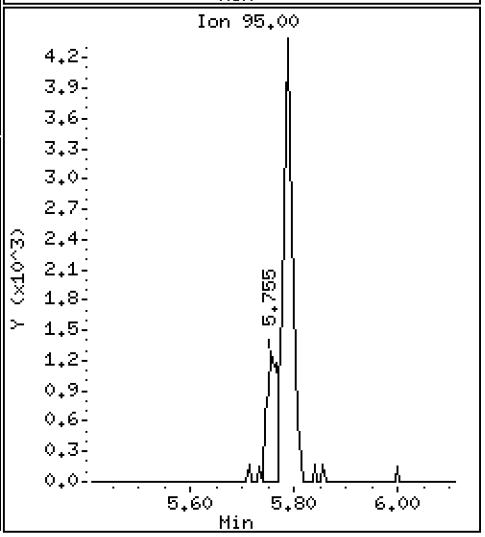


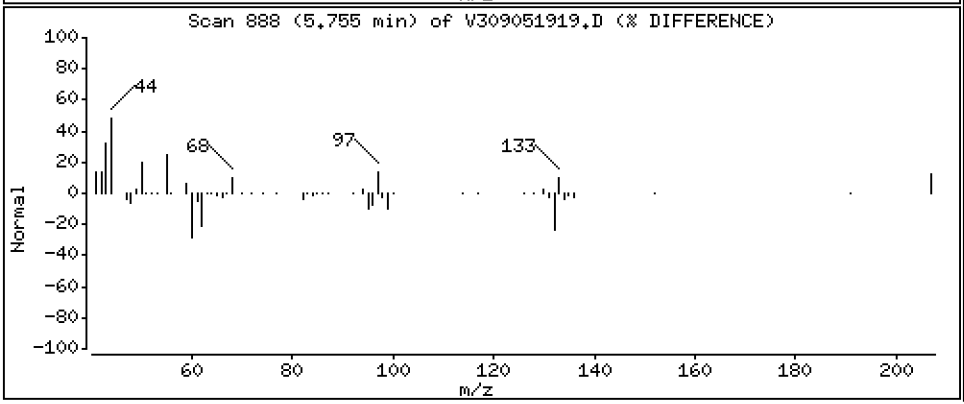












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Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

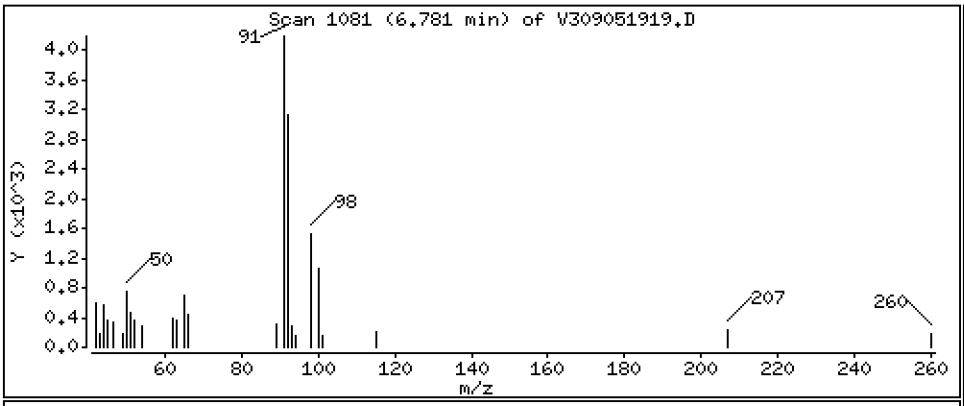
Operator: PKC

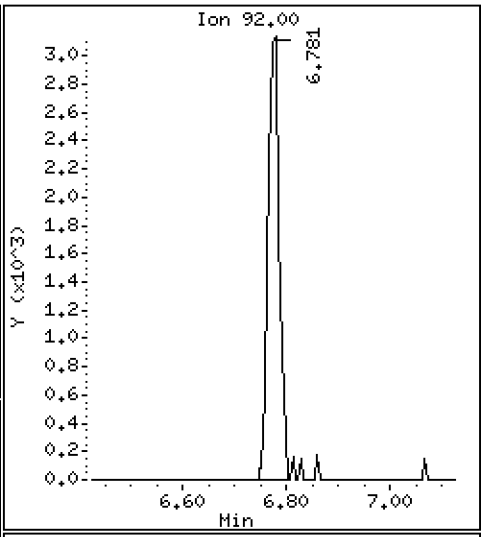
Column phase: RTXVMS

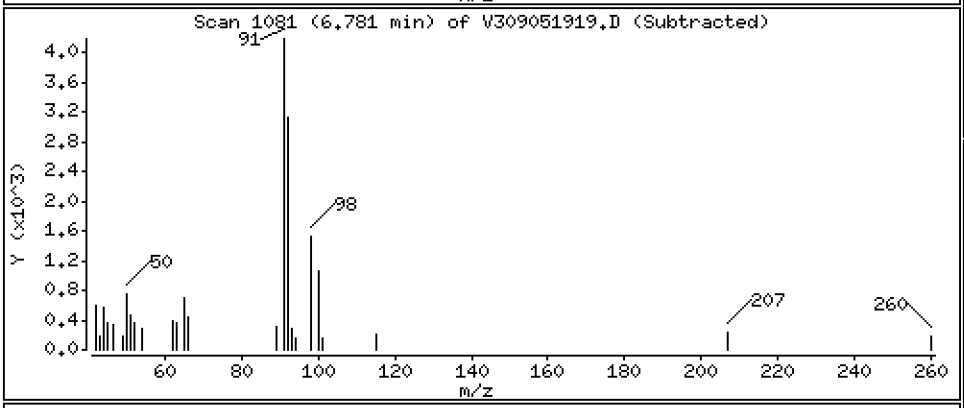
Column diameter: 0.18

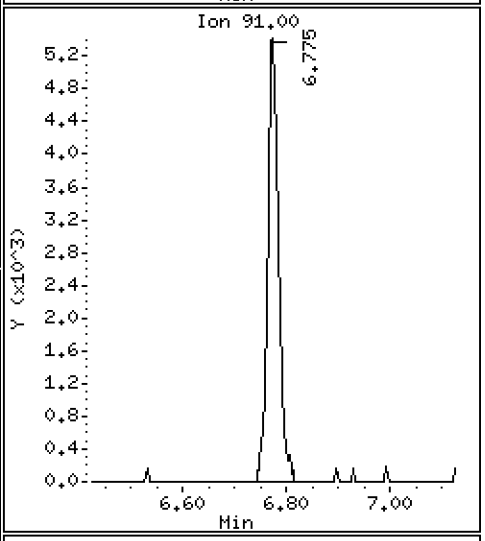
44 Toluene

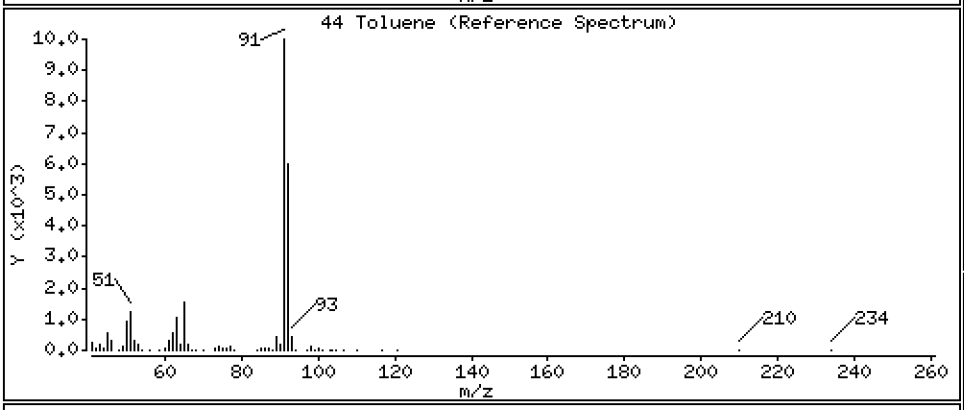
Concentration: 0.2760 ug/L

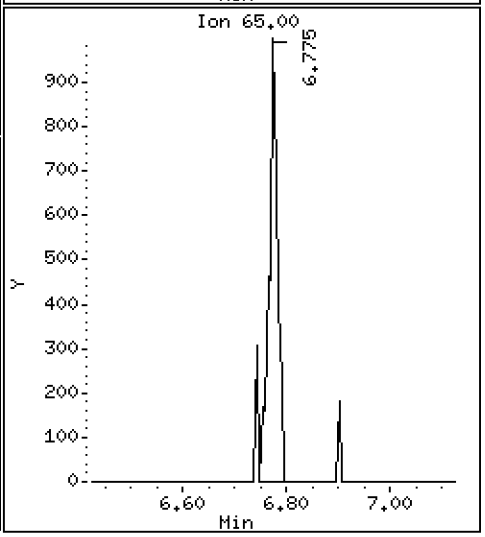


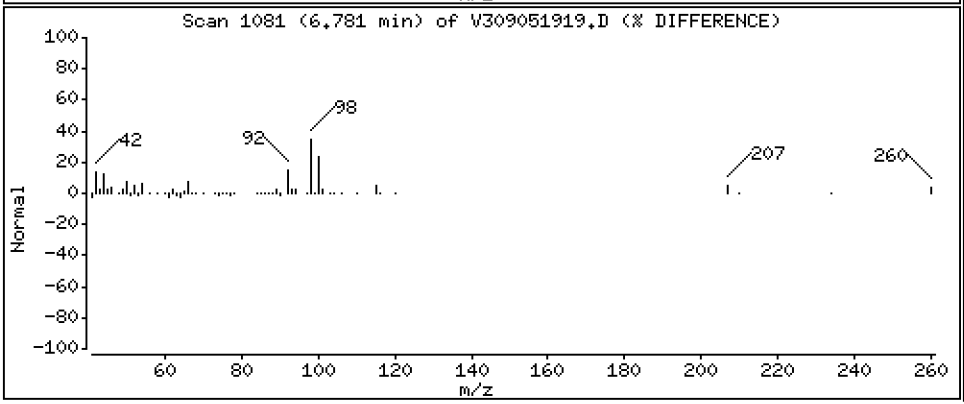












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

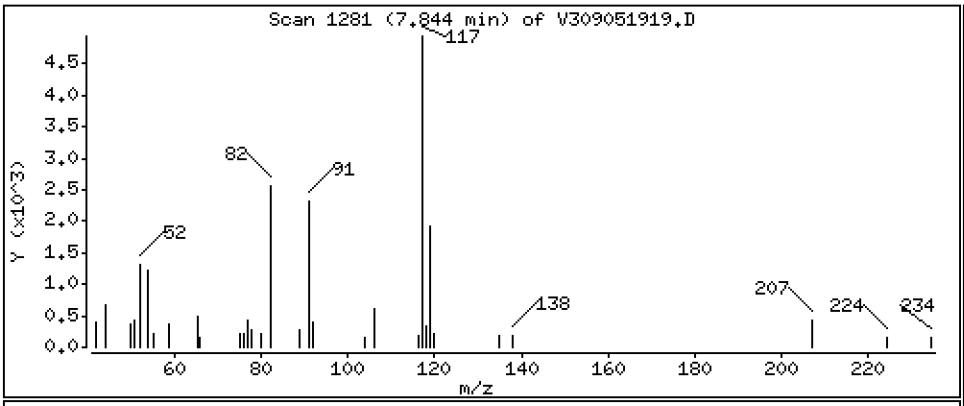
Operator: PKC

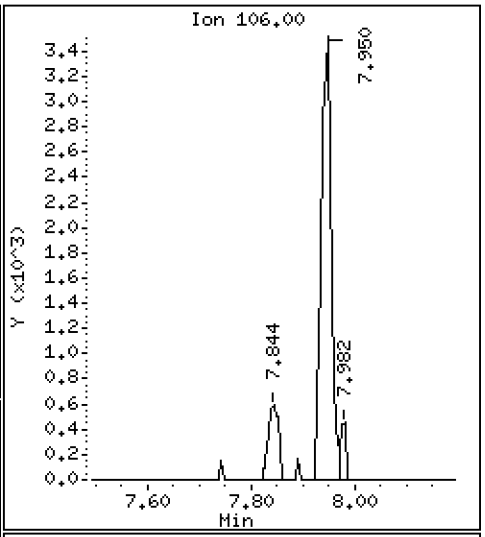
Column phase: RTXVMS

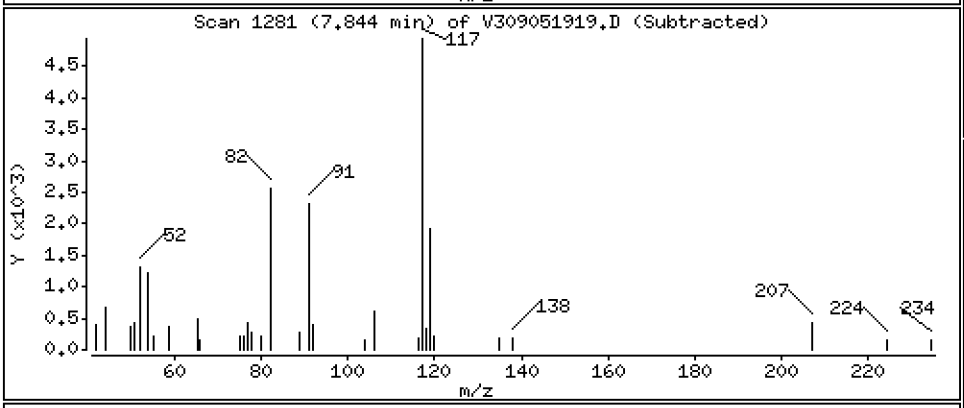
Column diameter: 0.18

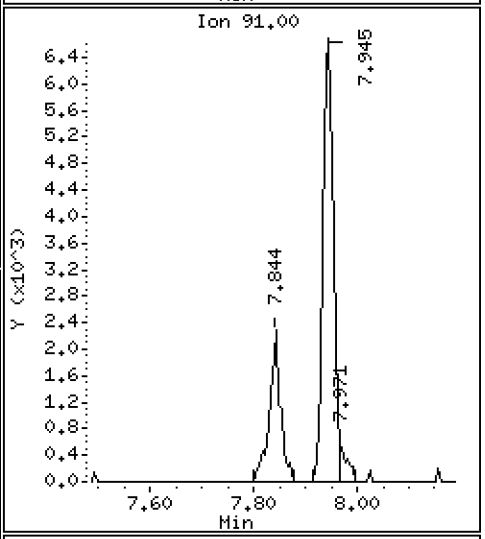
55 Ethyl Benzene

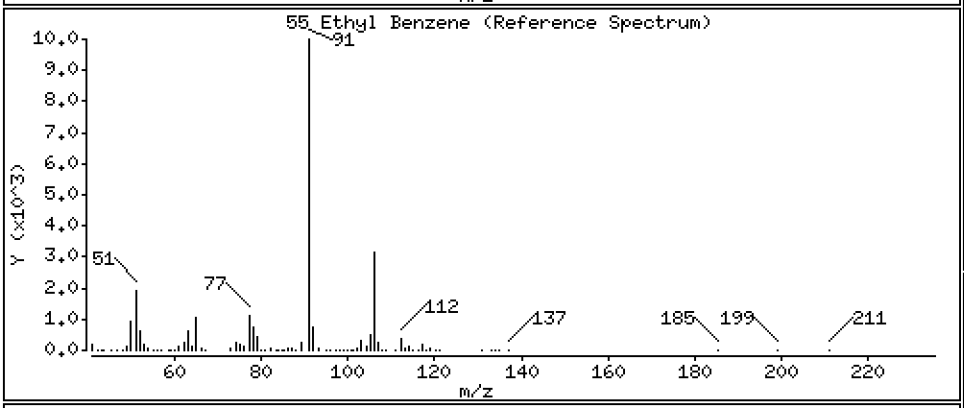
Concentration: 0.07705 ug/L

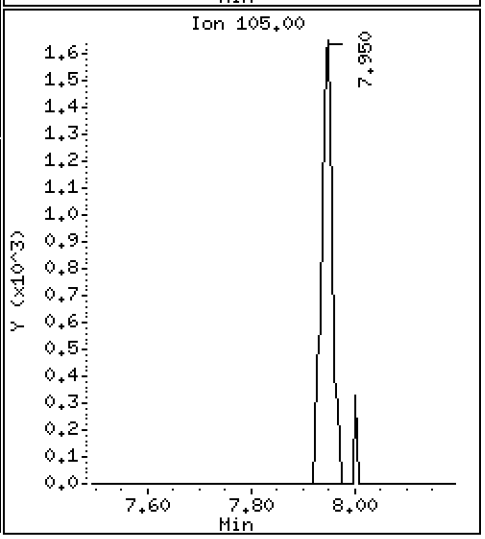


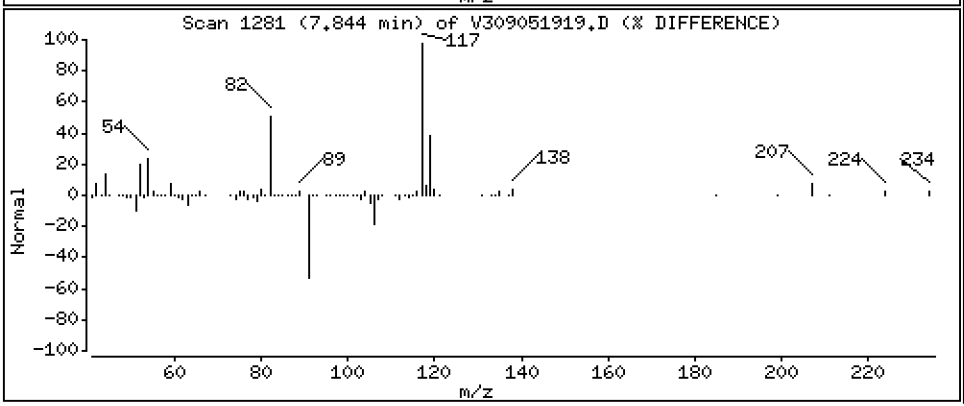












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

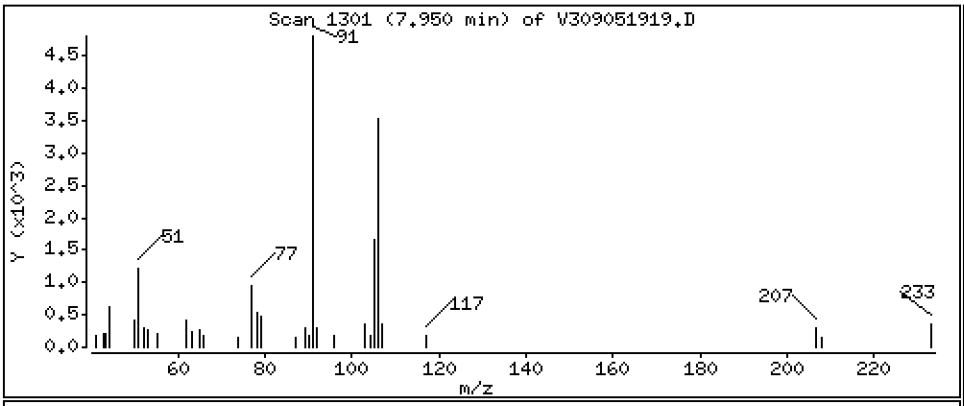
Operator: PKC

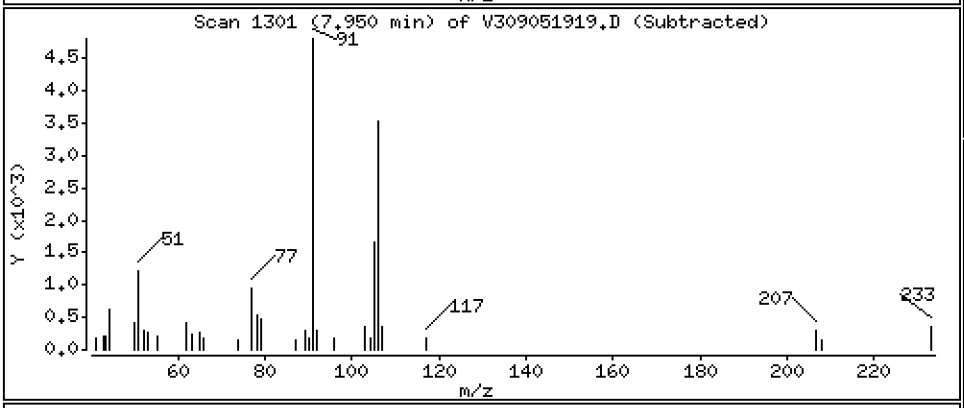
Column phase: RTXVMS

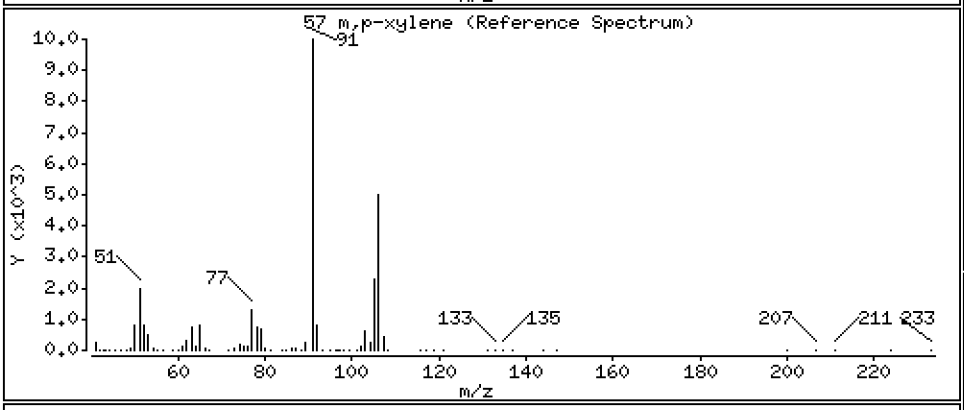
Column diameter: 0.18

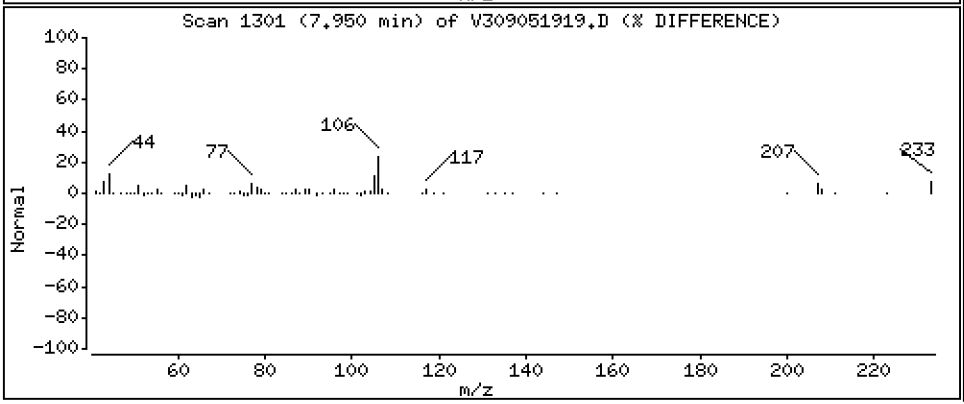
57 m,p-xylene

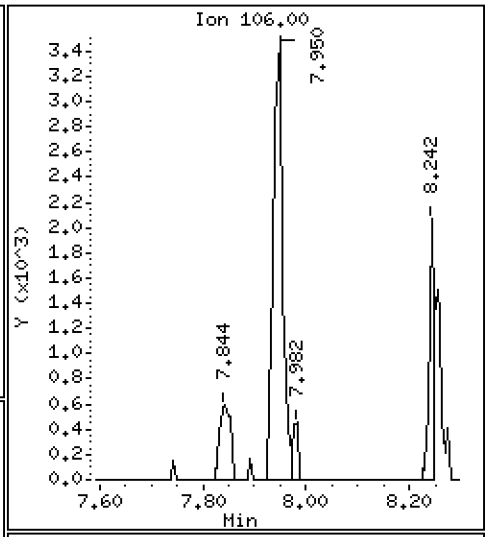
Concentration: 0.3428 ug/L

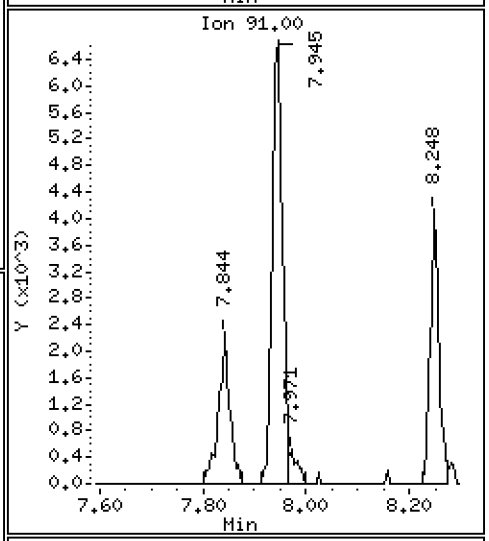


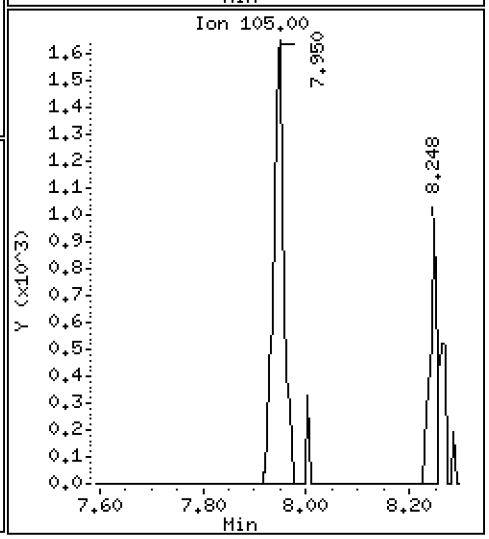












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

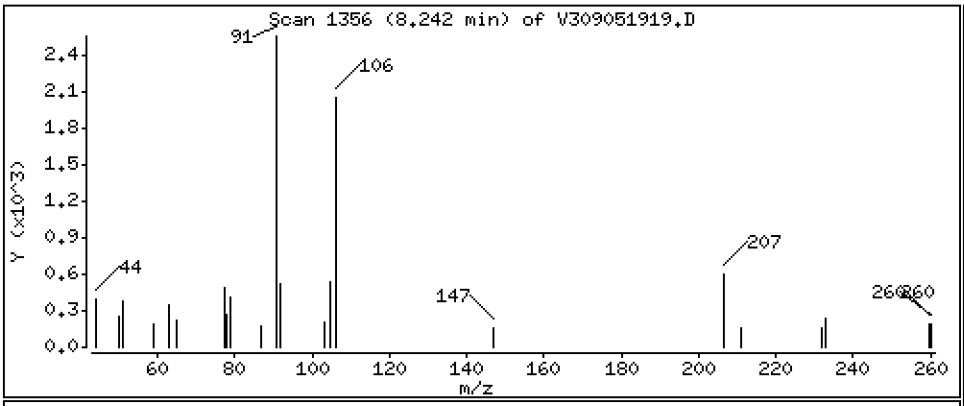
Operator: PKC

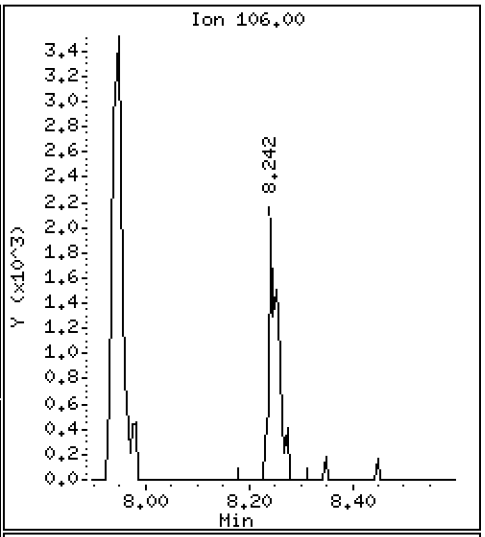
Column phase: RTXVMS

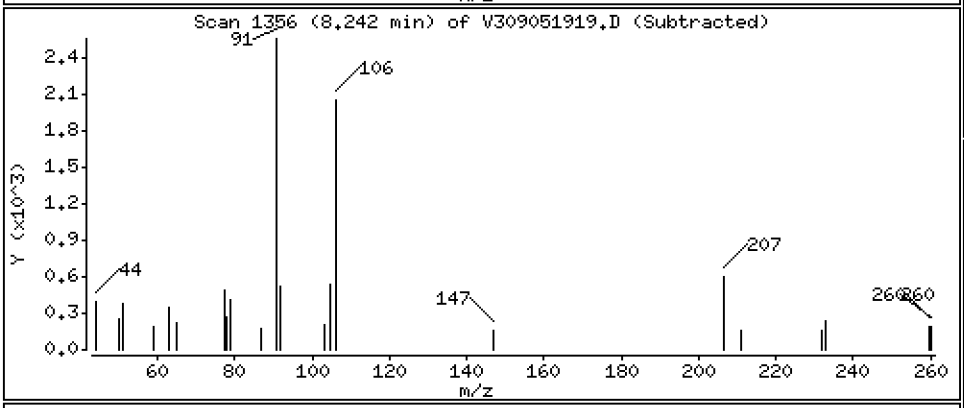
Column diameter: 0.18

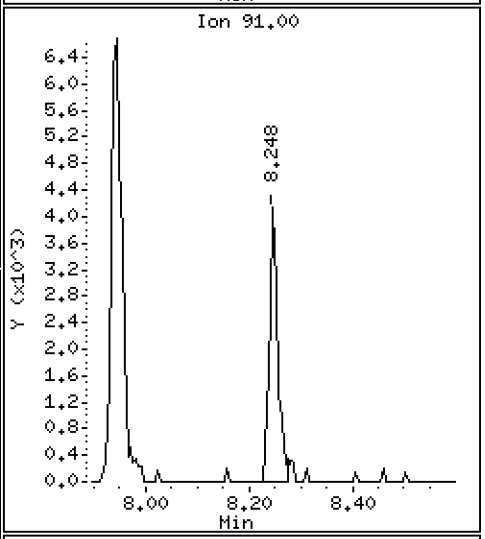
58 o-Xylene

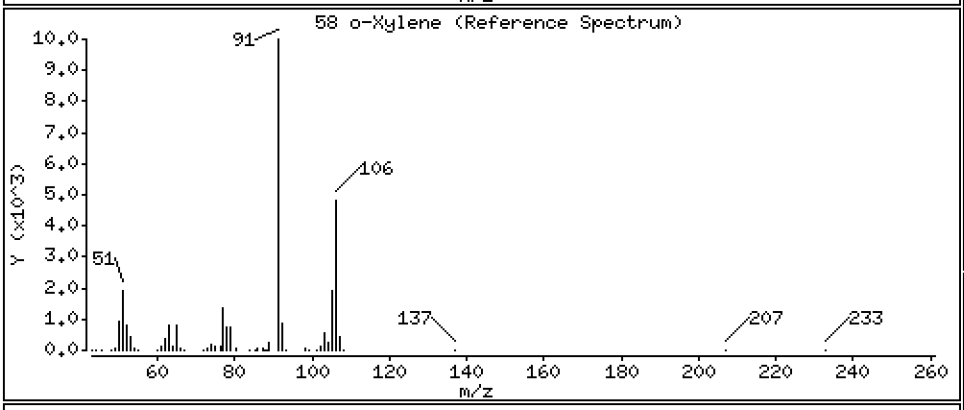
Concentration: 0.1868 ug/L

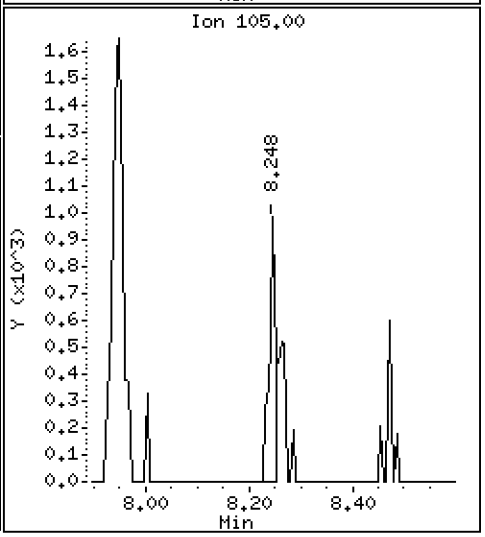


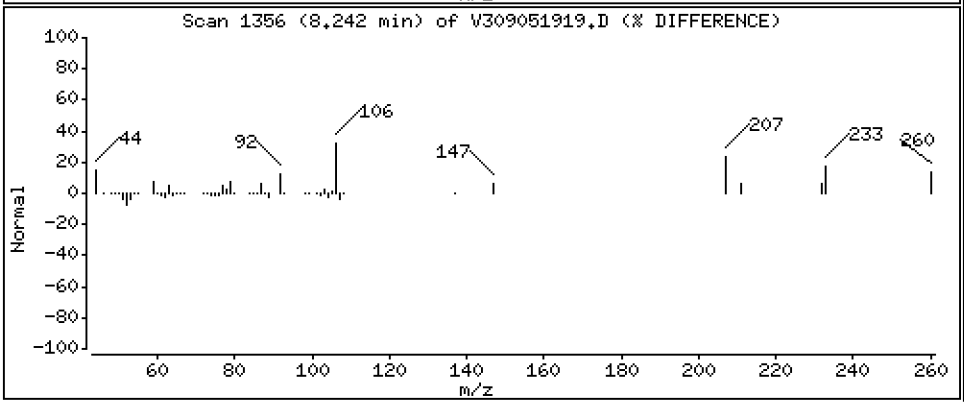












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

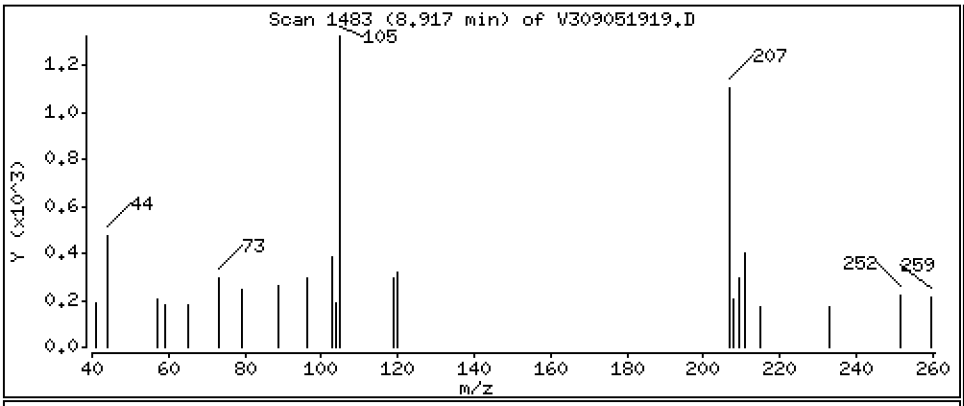
Operator: PKC

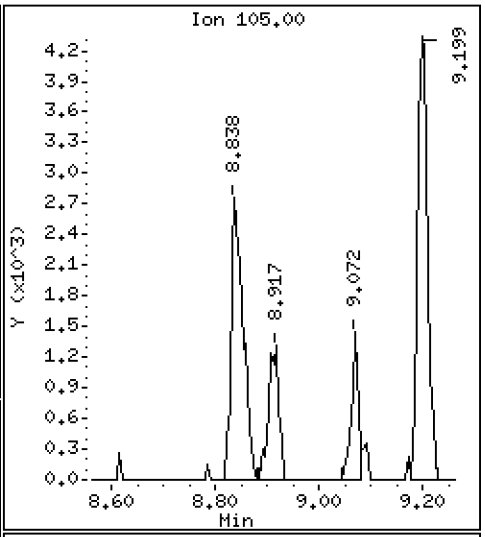
Column phase: RTXVMS

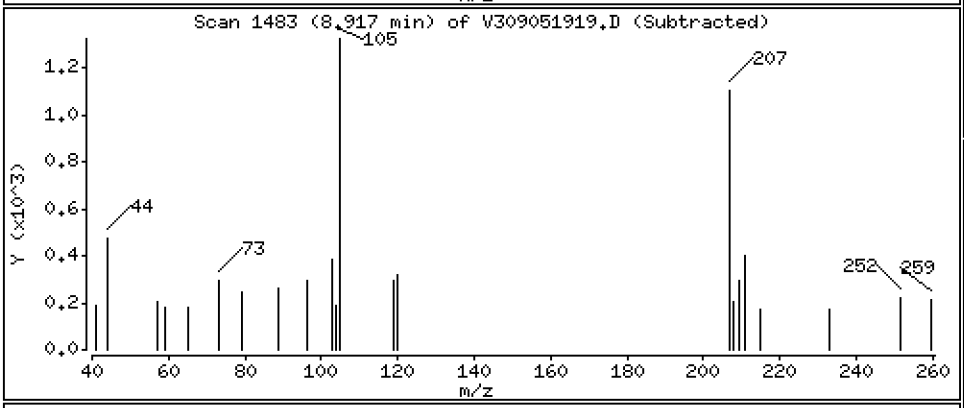
Column diameter: 0.18

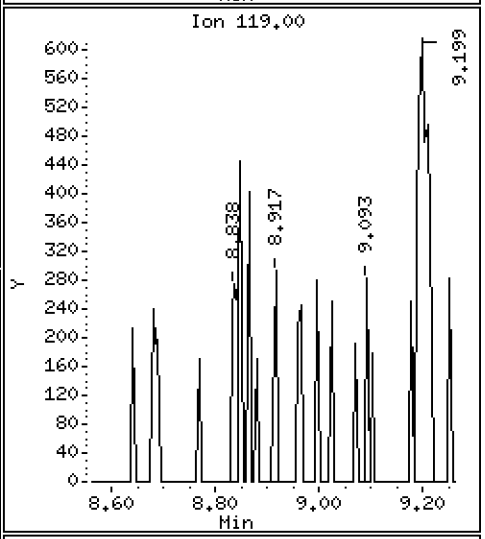
67 1,3,5-Trimethyl Benzene

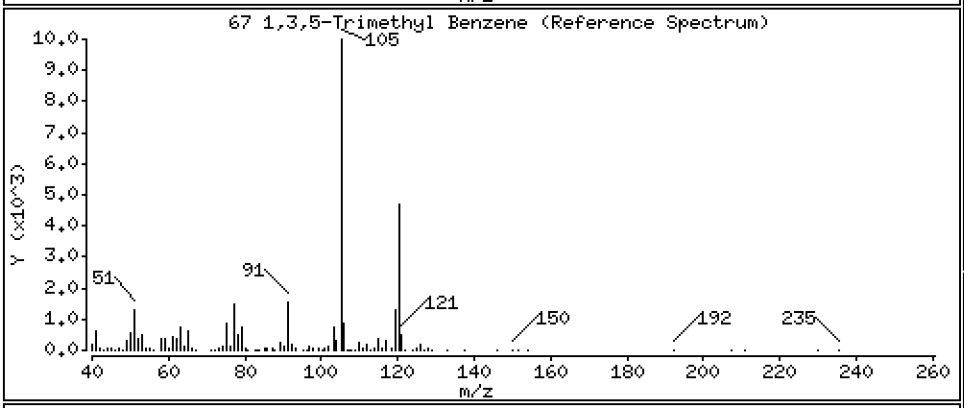
Concentration: 0.06244 ug/L

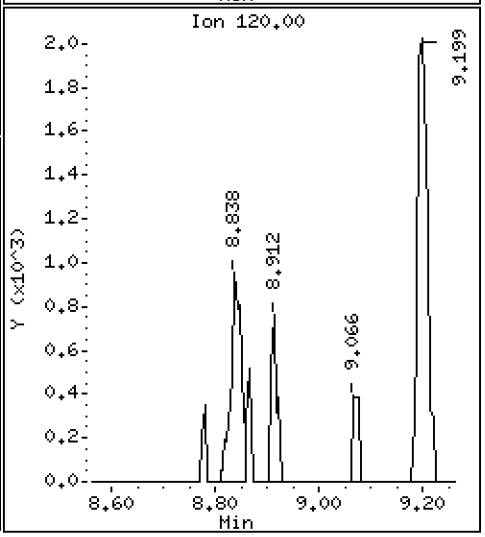


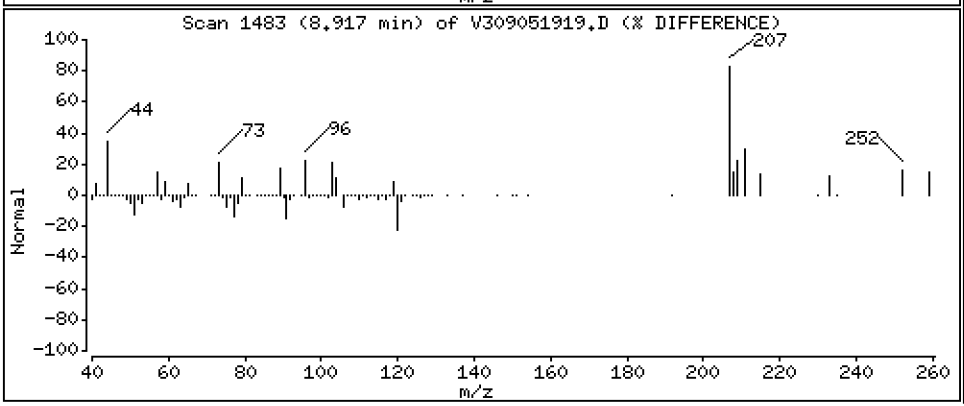












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

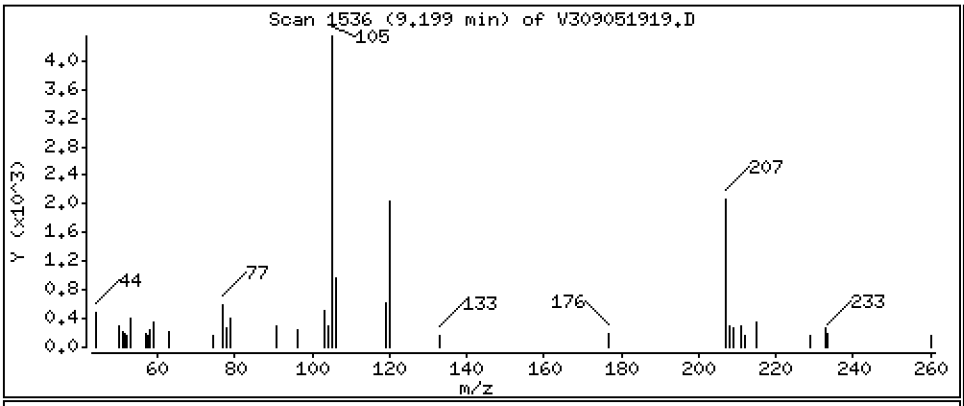
Operator: PKC

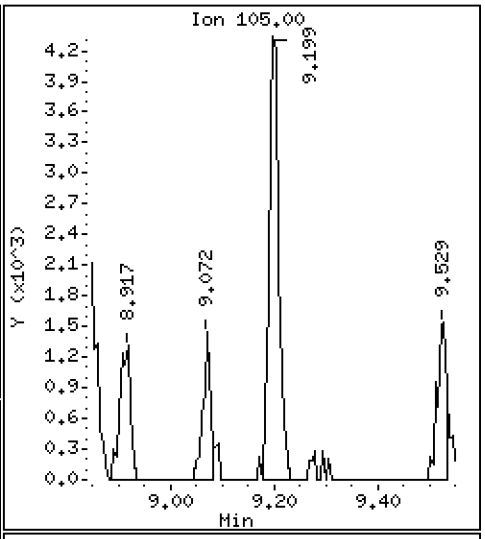
Column phase: RTXVMS

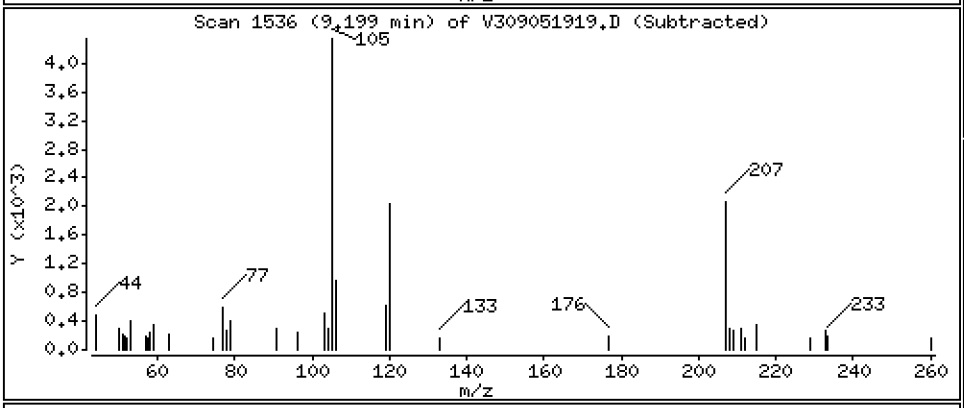
Column diameter: 0.18

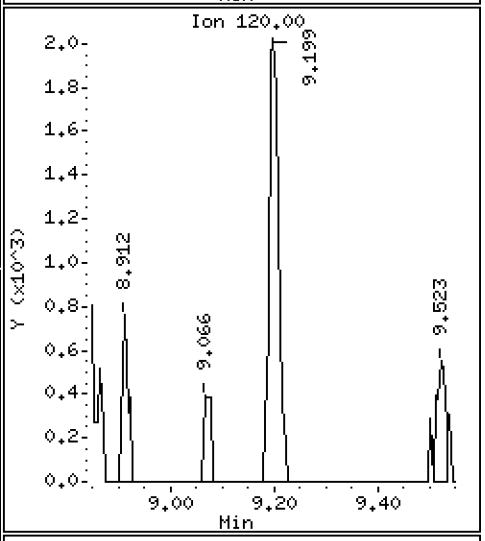
72 1,2,4-Trimethylbenzene

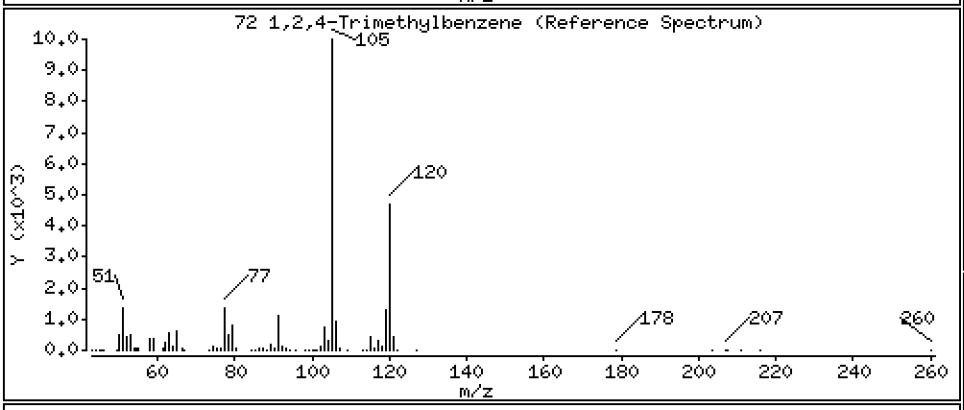
Concentration: 0.1893 ug/L

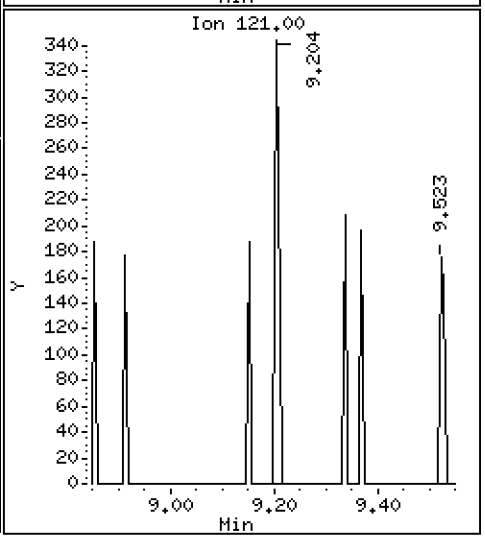


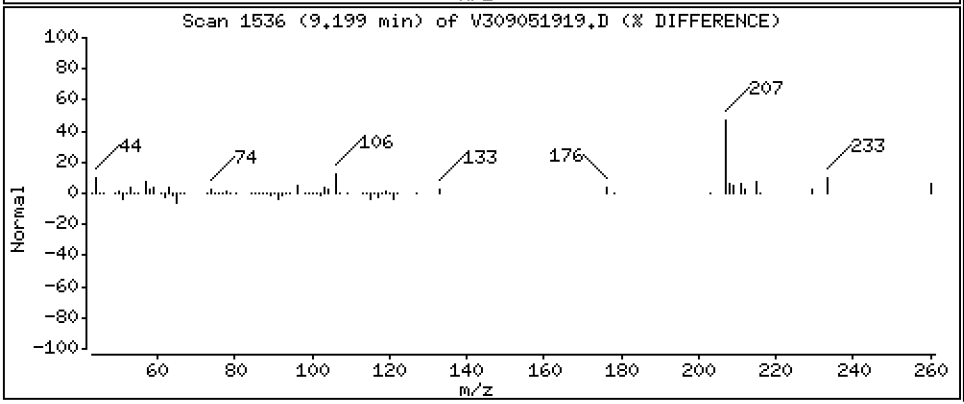












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051919.D

Date : 05-SEP-2019 19:21

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-01

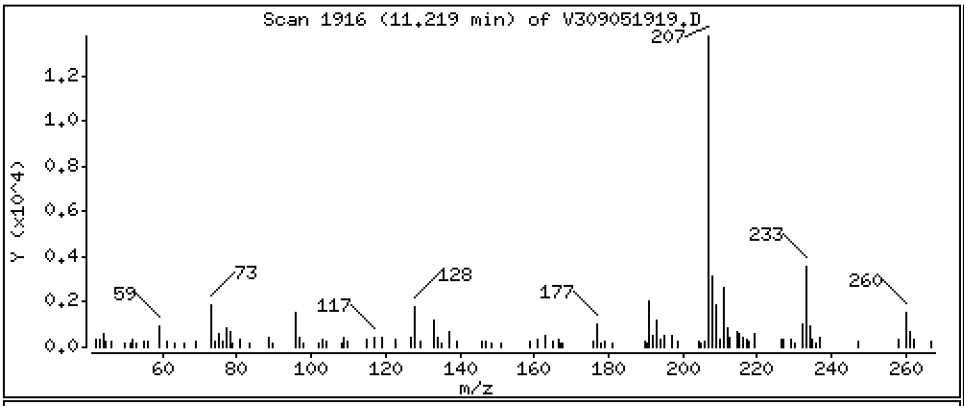
Operator: PKC

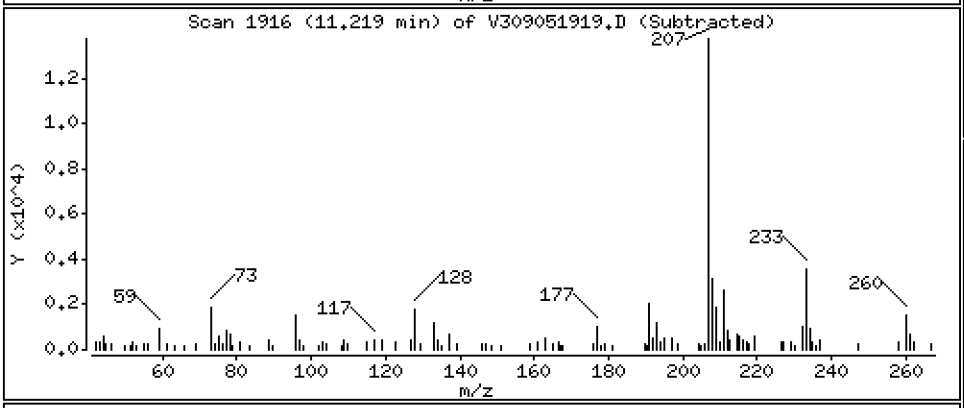
Column phase: RTXVMS

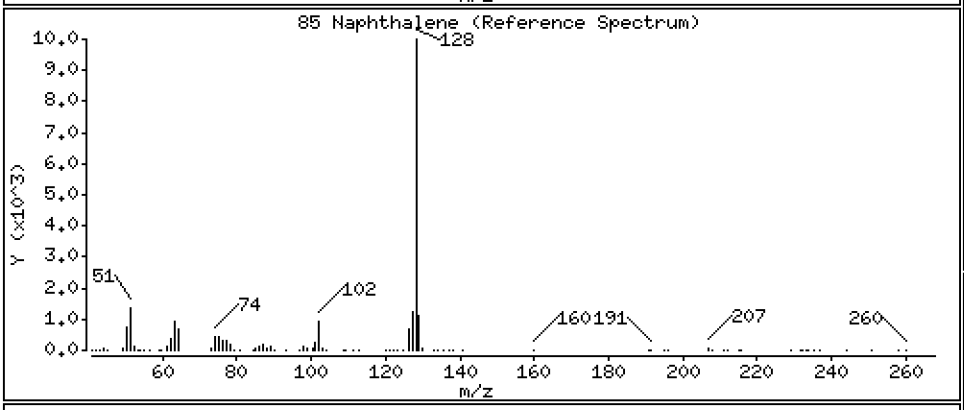
Column diameter: 0.18

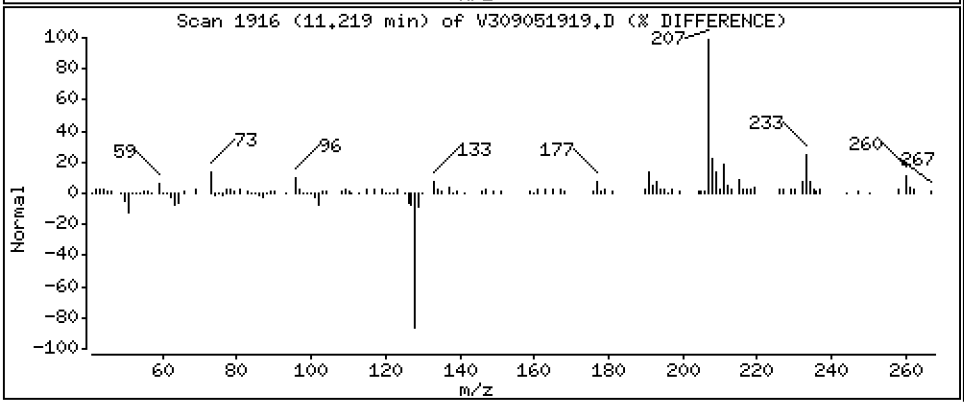
85 Naphthalene

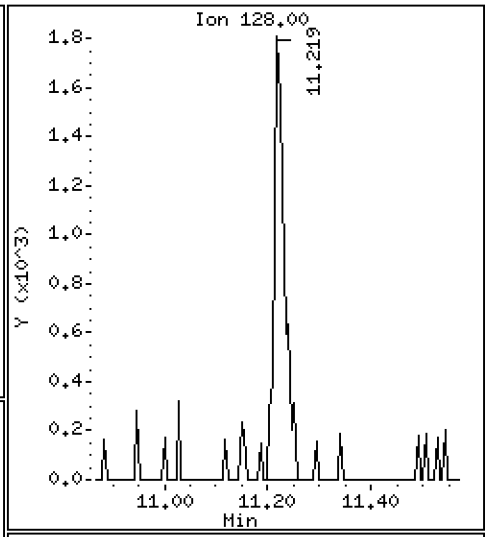
Concentration: 0.1187 ug/L

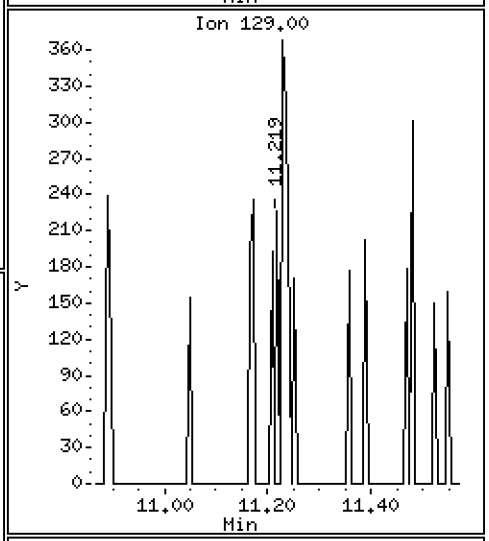


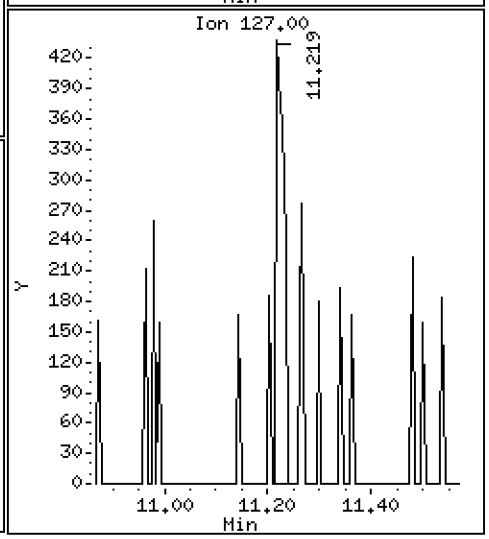












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051919.D
Lab Smp Id: 19H0481-01
Inj Date : 05-SEP-2019 19:21
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-01
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	2.990	2.996	(0.553)	636	0.03246	0.03246
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	4.696	4.691	(0.868)	272	0.03725	0.03725
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	23512	5.05796	5.058(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	Compound Not Detected.					
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	107507	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	26417	5.10076	5.101(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	5.754	5.760	(0.994)	2197	0.30307	0.3031
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	158390	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	94872	4.95125	4.951(R)
	44	Toluene	92	6.780	6.775	(1.172)	4878	0.27598	0.2760
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.811	7.812	(1.000)	158693	10.0000	
	54	Chlorobenzene	112	Compound Not Detected.					
	55	Ethyl Benzene	106	7.843	7.843	(1.004)	860	0.07705	0.07705
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.949	7.944	(1.018)	4712	0.34282	0.3428
	58	o-Xylene	106	8.242	8.247	(1.055)	2592	0.18680	0.1868(M)
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	8.683	8.678	(1.112)	35789	4.74606	4.746(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.917	8.912	(0.938)	1901	0.06244	0.06244
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.968)	5842	0.18927	0.1893(H)
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	97373	10.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	46154	5.04464	5.045(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.218	11.219	(1.181)	2564	0.11867	0.1187
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051919.D
Lab Smp Id: 19H0481-01
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	107507	10.95
37 1,4-Difluorobenze	140121	70061	280242	158390	13.04
53 d5-Chlorobenzene	140128	70064	280256	158693	13.25
76 d4-1,4-Dichlorobe	90137	45069	180274	97373	8.03

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-01
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.058	101.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.101	102.02	
$ 43 d8-Toluene	5.000	4.951	99.03	
$ 62 4-Bromofluorobenze	5.000	4.746	94.92	
$ 79 d4-1,2-Dichloroben	5.000	5.045	100.89	

REVIEW SUMMARY FOR FILE - V309051919.D

Lab ID: 19H0481-01
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 19:21

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

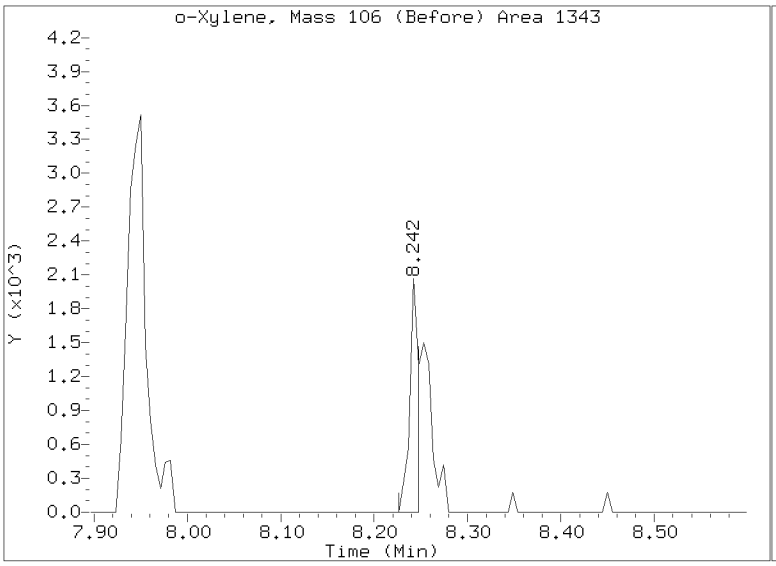
RRT check based on Ccal File: V309051928.D

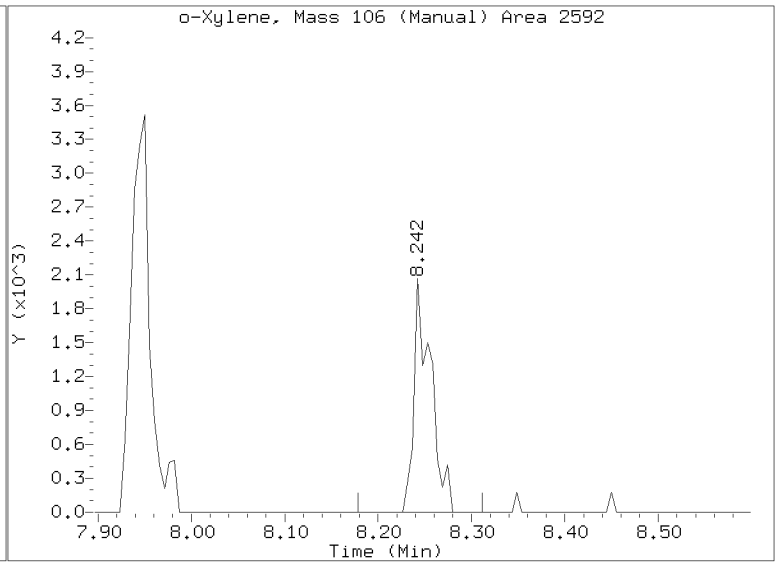
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051919.D
Injection Date: 05-SEP-2019 19:21
Lab ID:19H0481-01 Client ID:
Report Date: 09/06/2019 14:40





P40-UST-101-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-03 E	SDG:	19H0481
Sampled:	08/30/19 09:25	Prepared:	09/05/19 13:58	File ID:	V309051920.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 19:48
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.04	J	0.03	0.20
108-88-3	Toluene	1	0.28		0.04	0.20
100-41-4	Ethylbenzene	1	0.09	J	0.04	0.20
179601-23-1	m,p-Xylene	1	0.39	J	0.05	0.40
95-47-6	o-Xylene	1	0.19	J	0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.97	99.4	80 - 120	
4-Bromofluorobenzene	5.0000	4.86	97.2	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

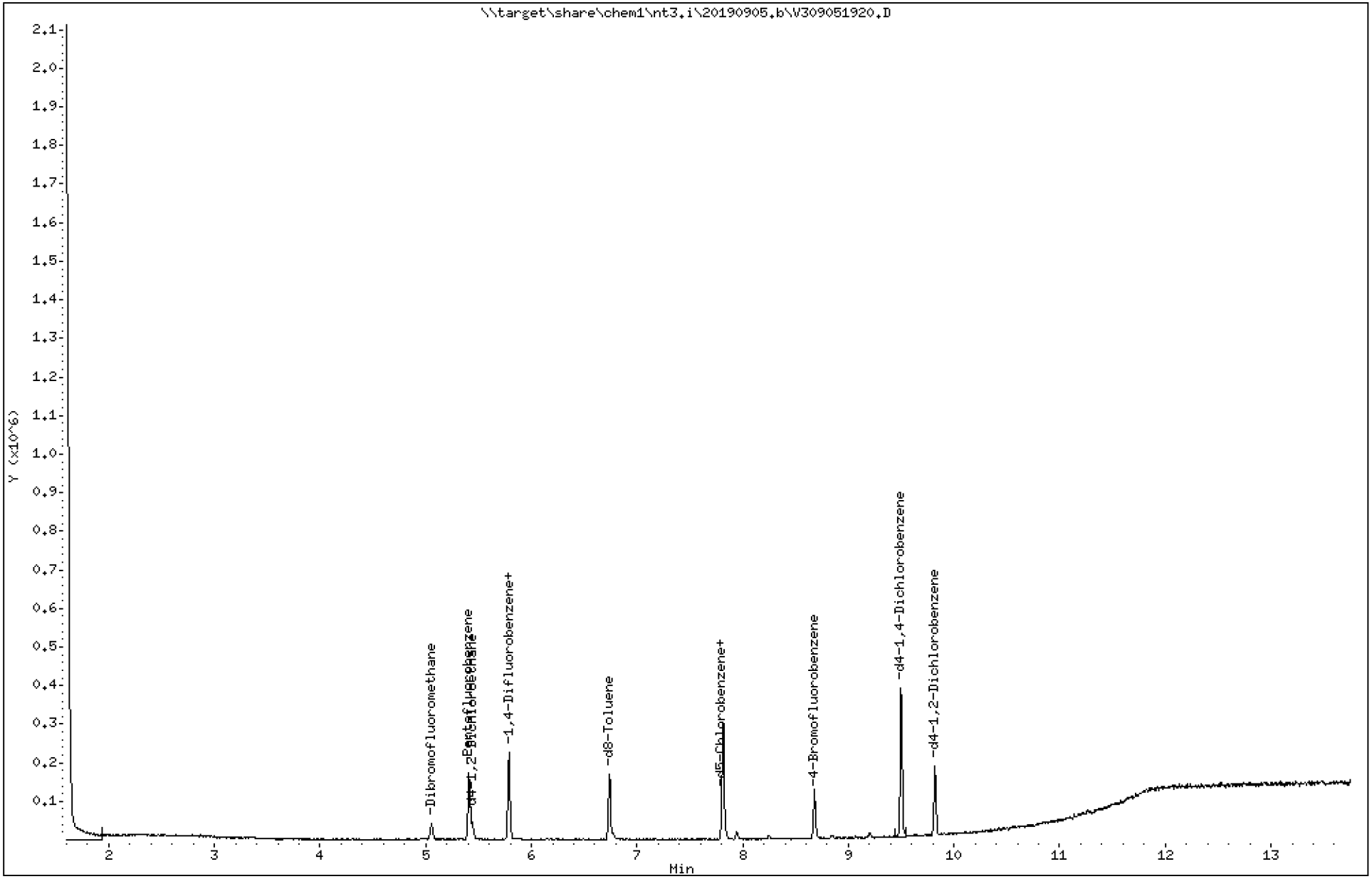
Sample Info: 19H0481-03

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

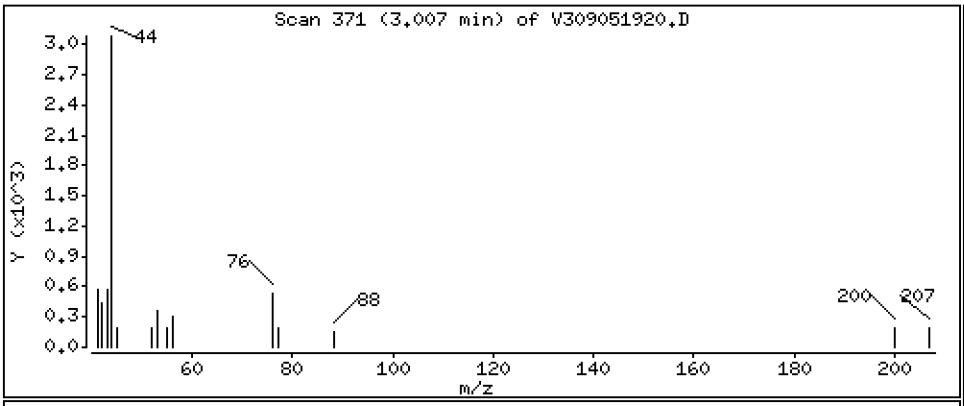
Operator: PKC

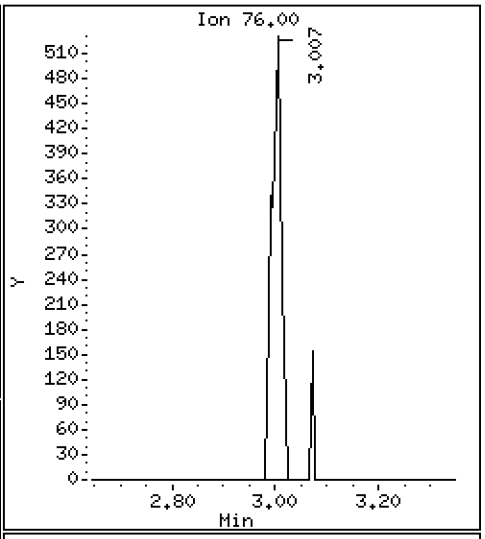
Column phase: RTXVMS

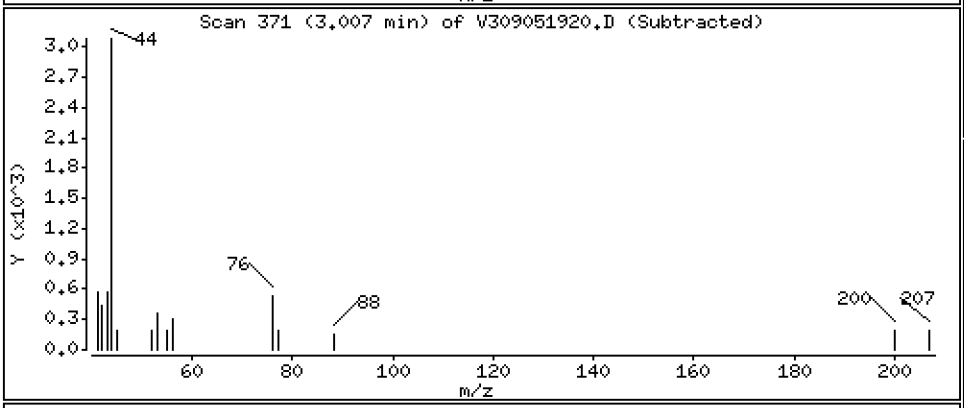
Column diameter: 0.18

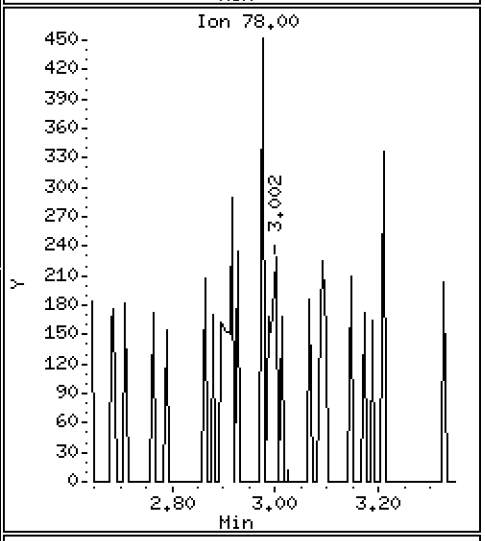
8 Carbon Disulfide

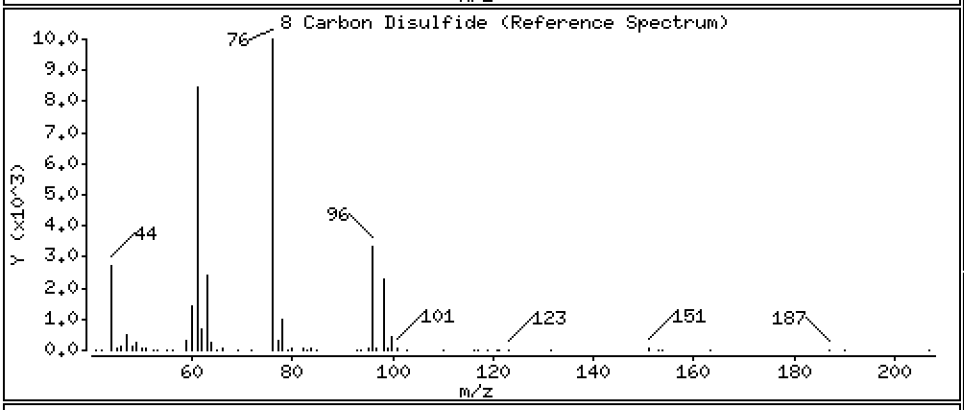
Concentration: 0.04182 ug/L

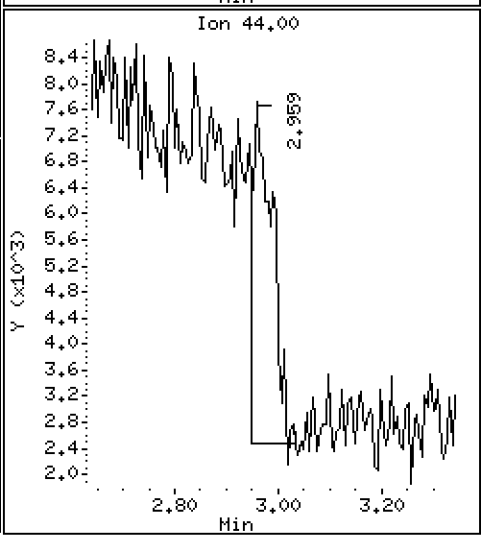


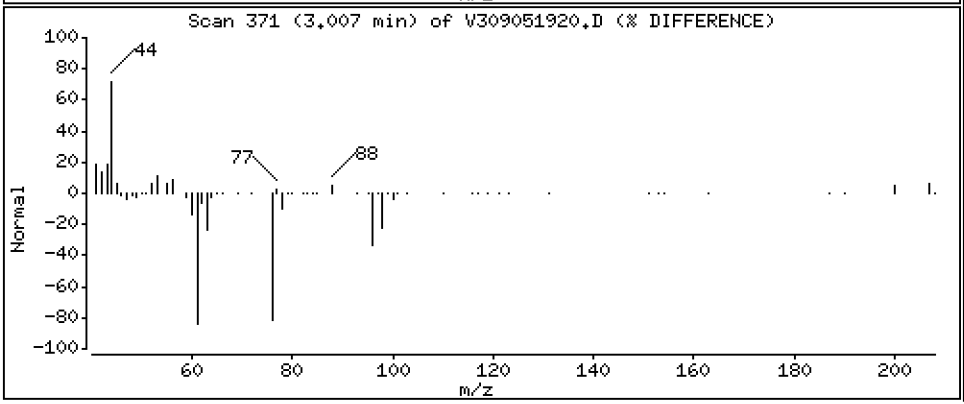












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

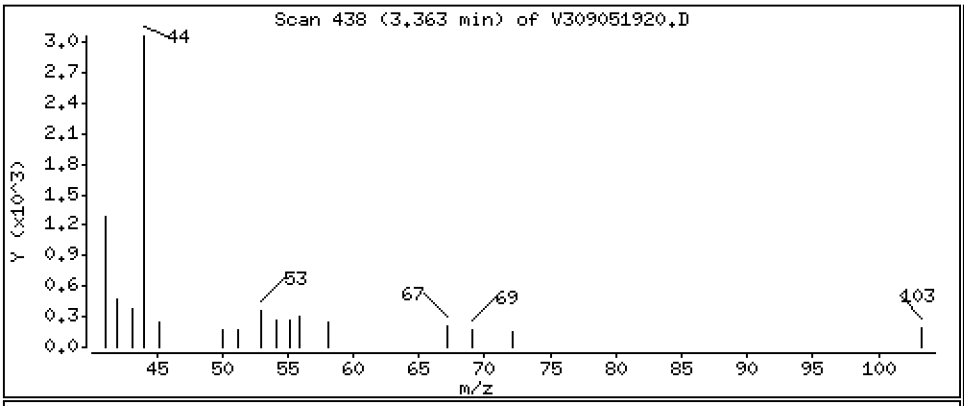
Operator: PKC

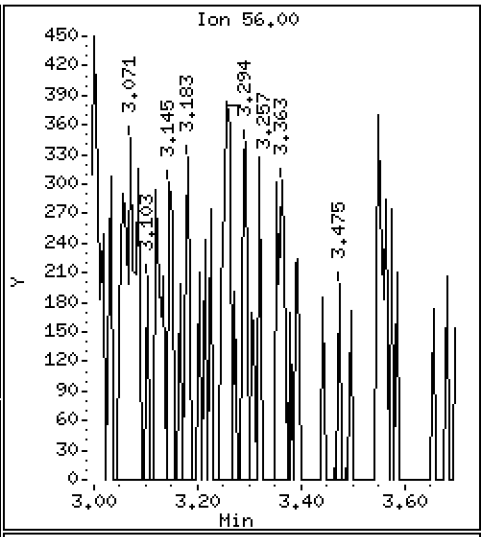
Column phase: RTXVMS

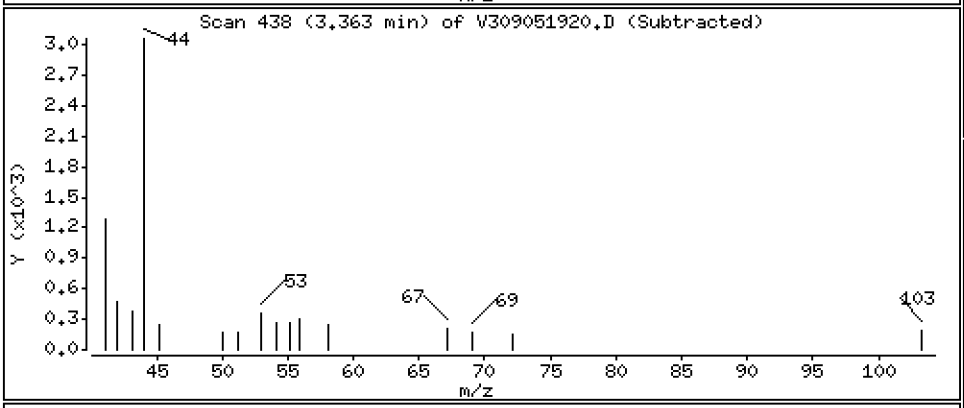
Column diameter: 0.18

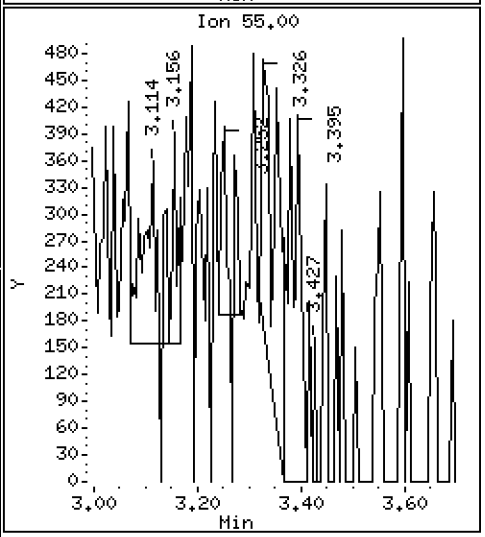
12 Acrolein

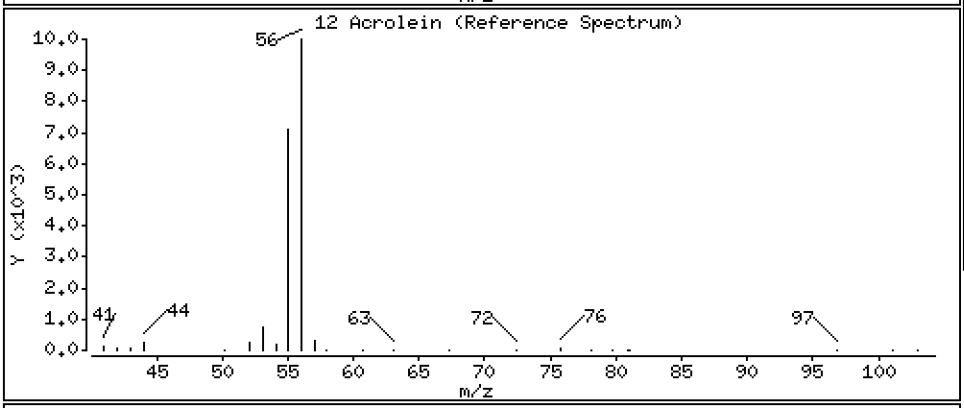
Concentration: 0.3679 ug/L

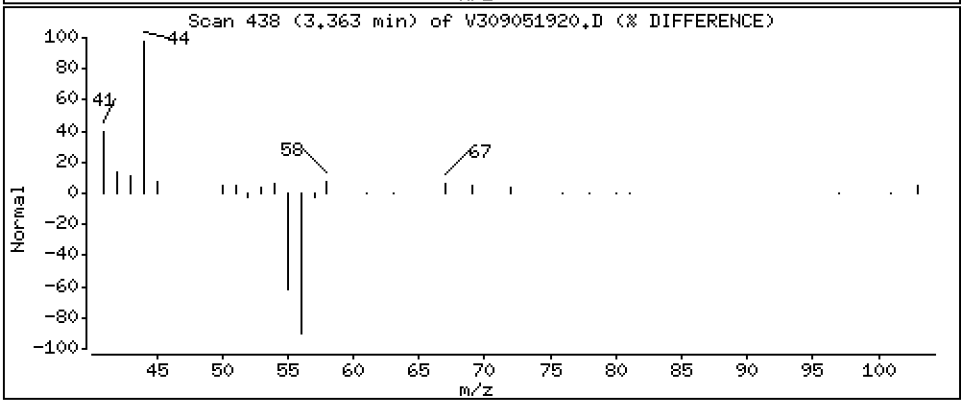












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

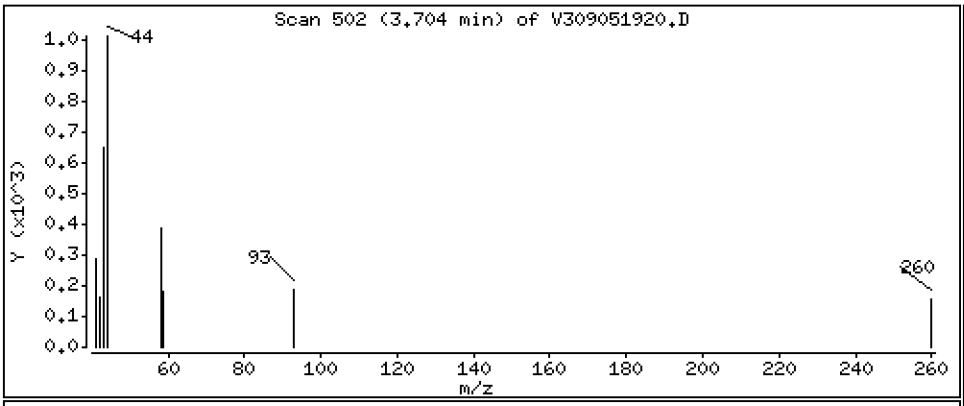
Operator: PKC

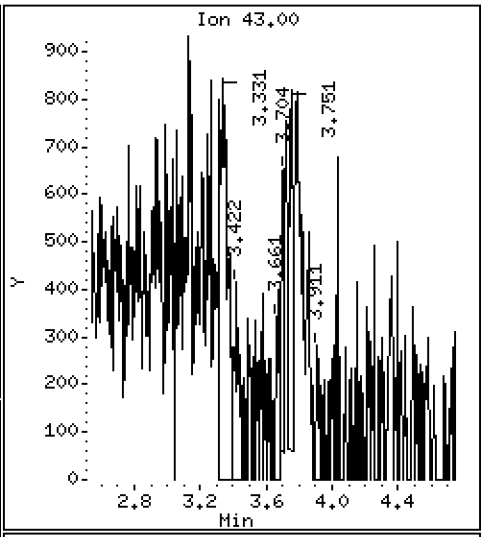
Column phase: RTXVMS

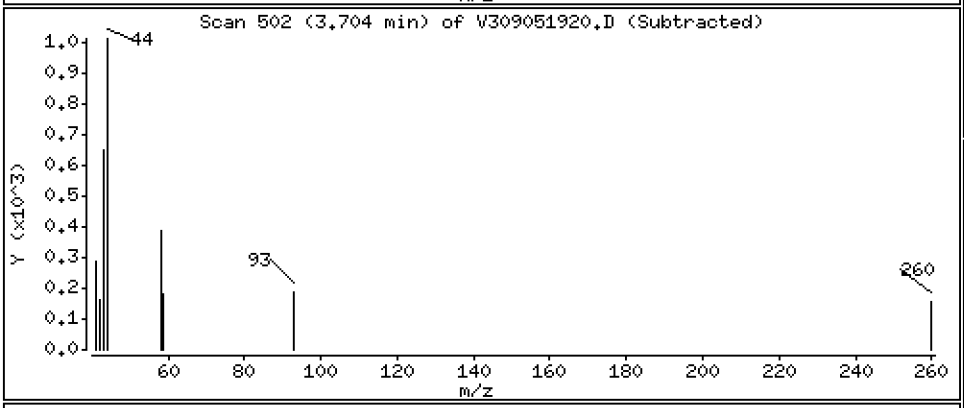
Column diameter: 0.18

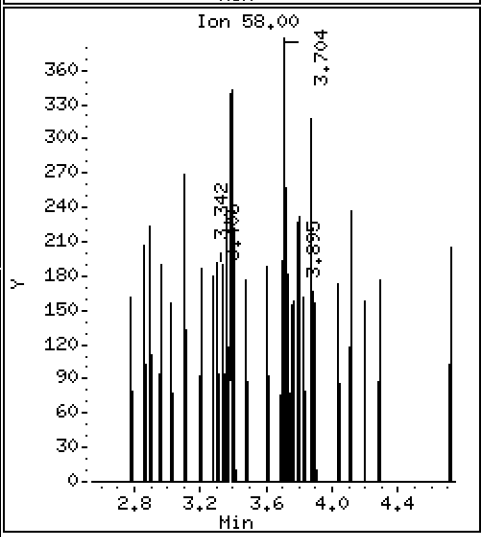
14 Acetone

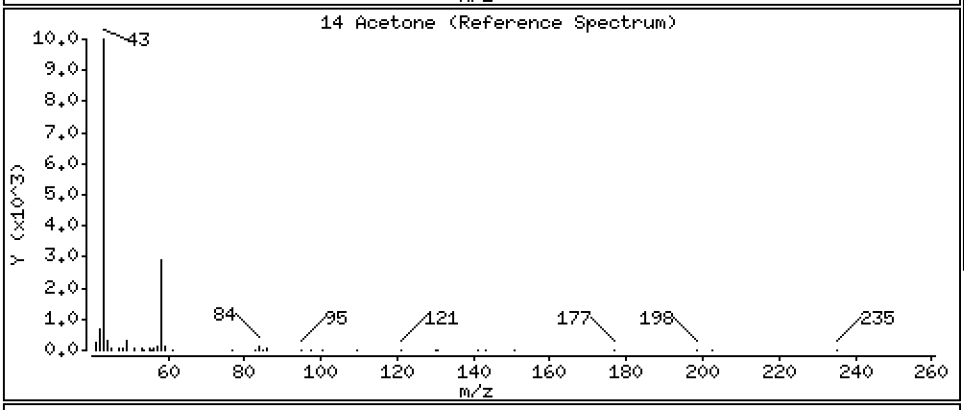
Concentration: 0.6214 ug/L

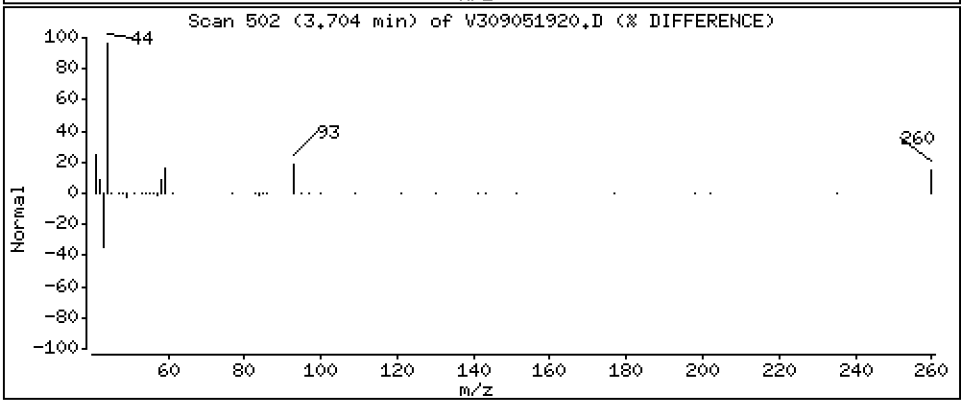












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

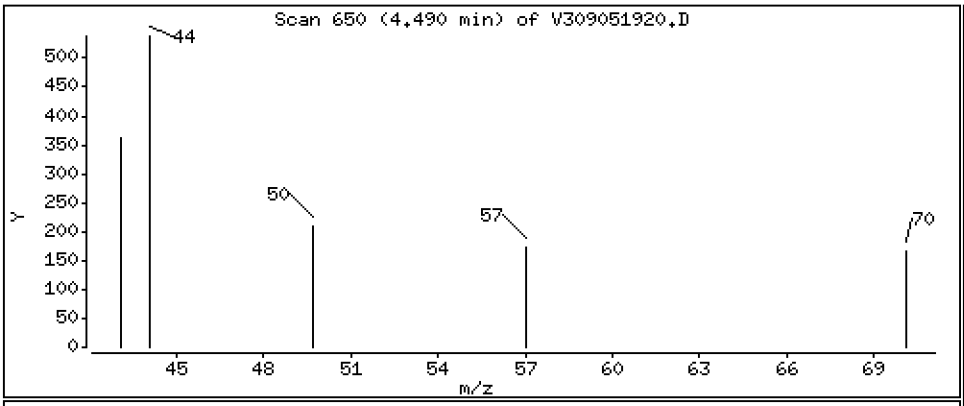
Operator: PKC

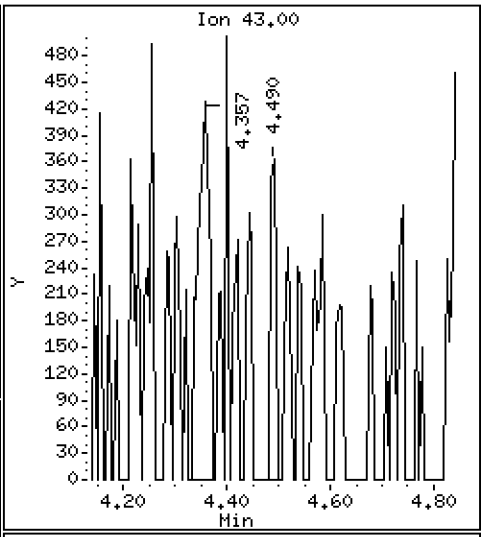
Column phase: RTXVMS

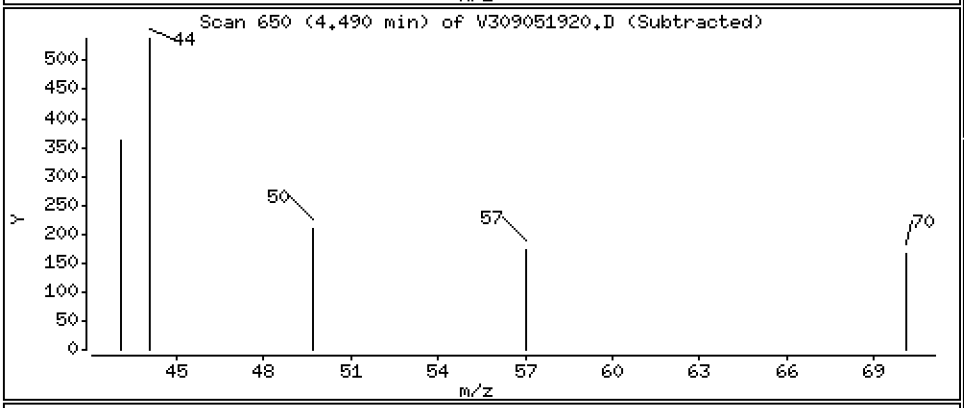
Column diameter: 0.18

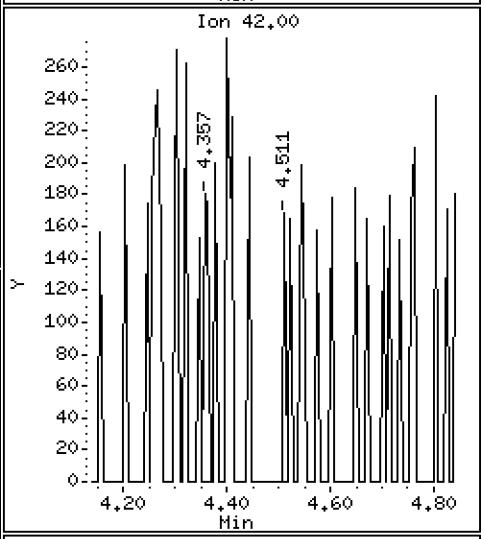
20 Vinyl Acetate

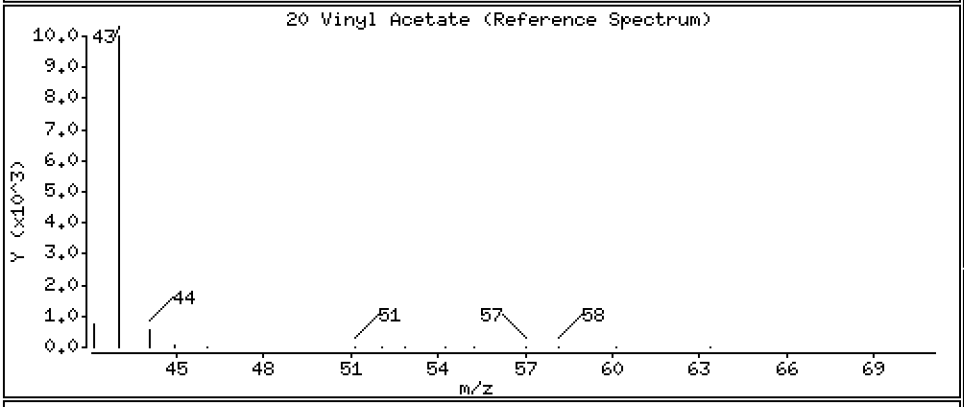
Concentration: 0.02216 ug/L

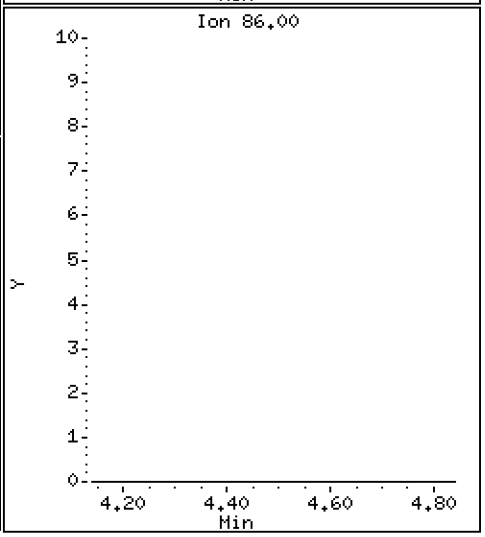


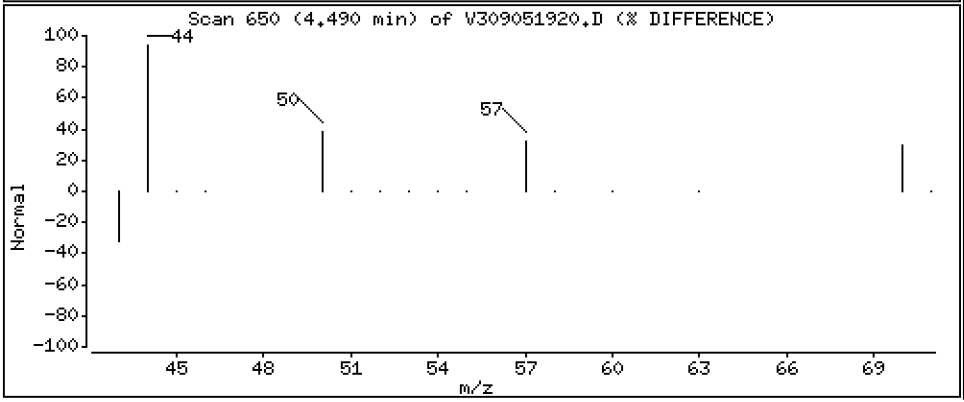












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

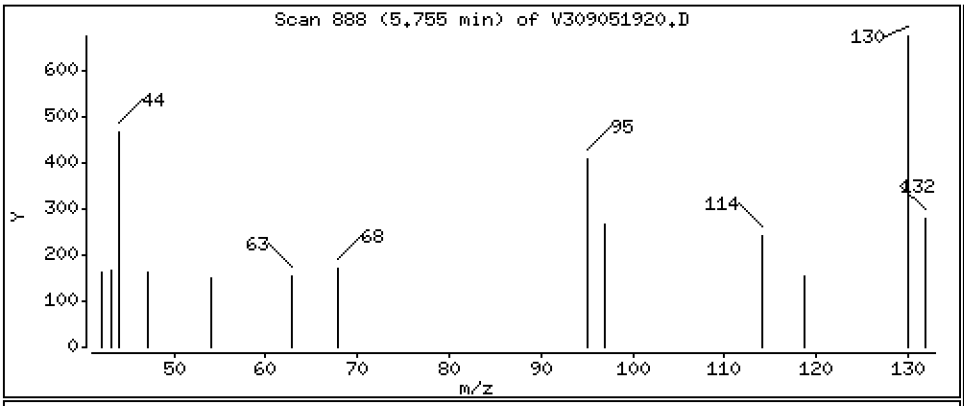
Operator: PKC

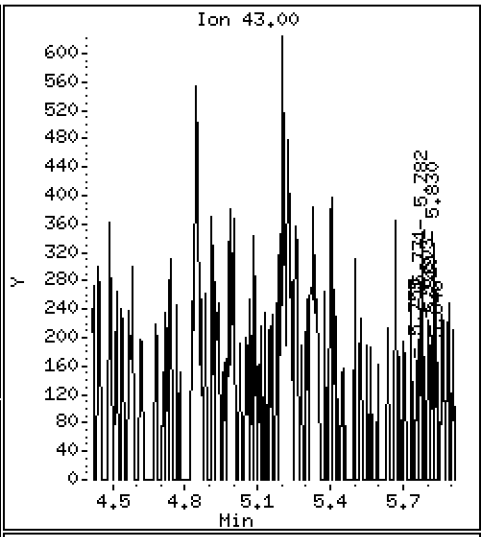
Column phase: RTXVMS

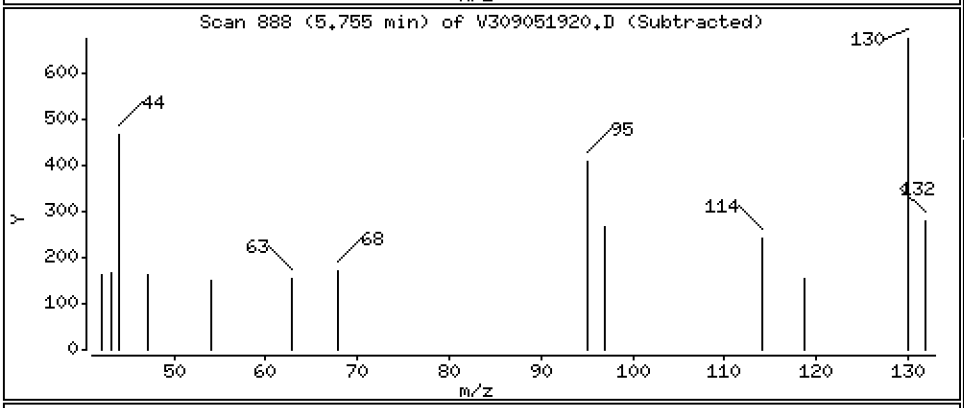
Column diameter: 0.18

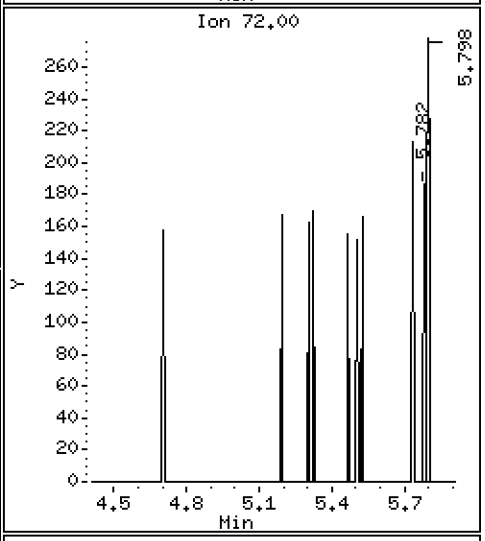
29 2-Butanone

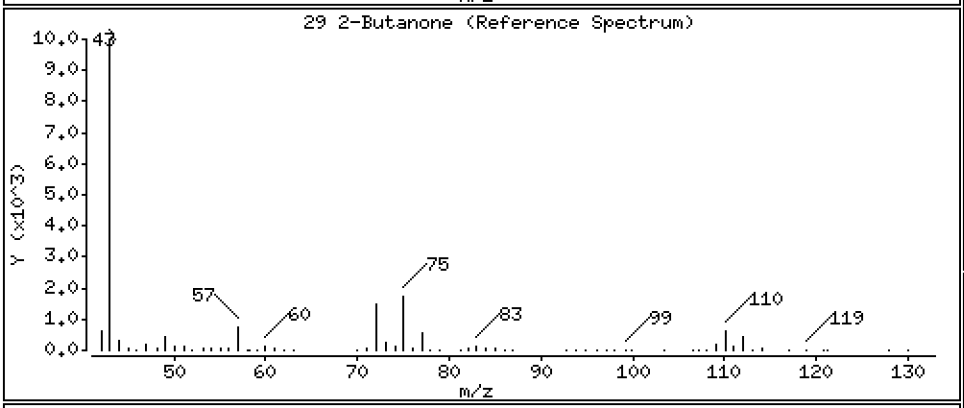
Concentration: 0.02184 ug/L

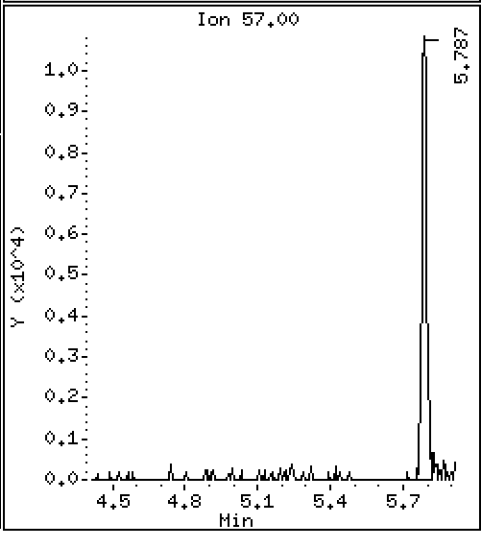


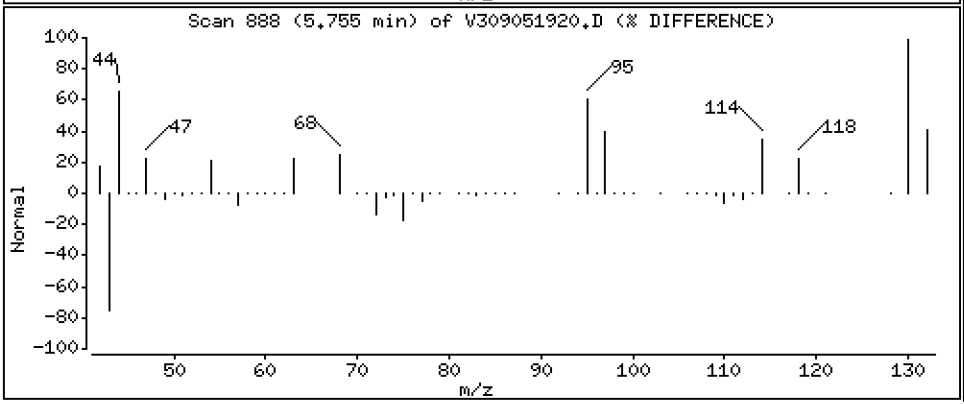












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

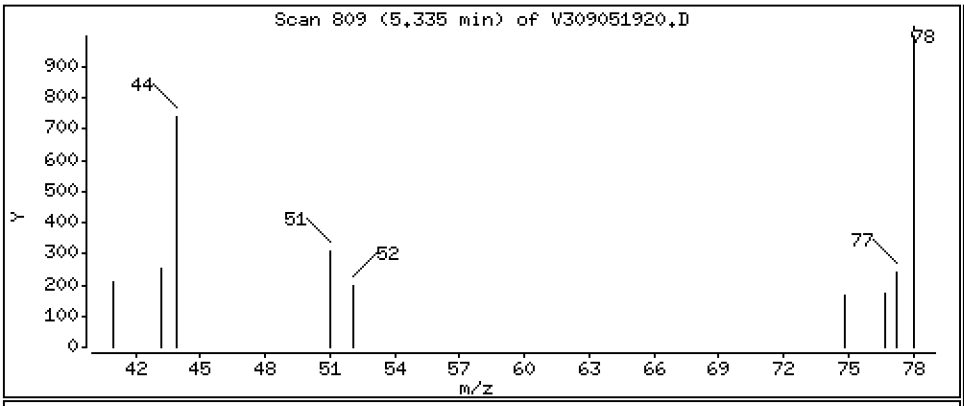
Operator: PKC

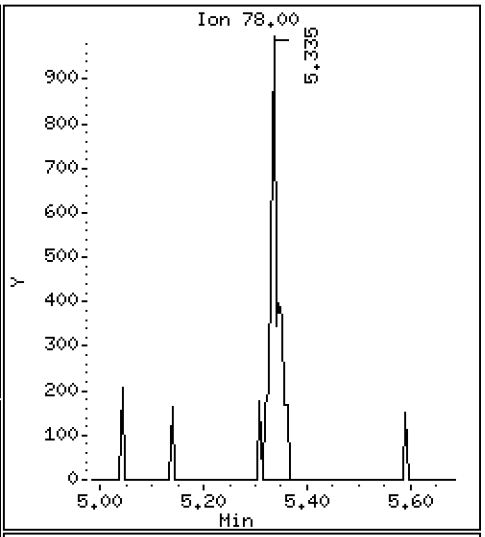
Column phase: RTXVMS

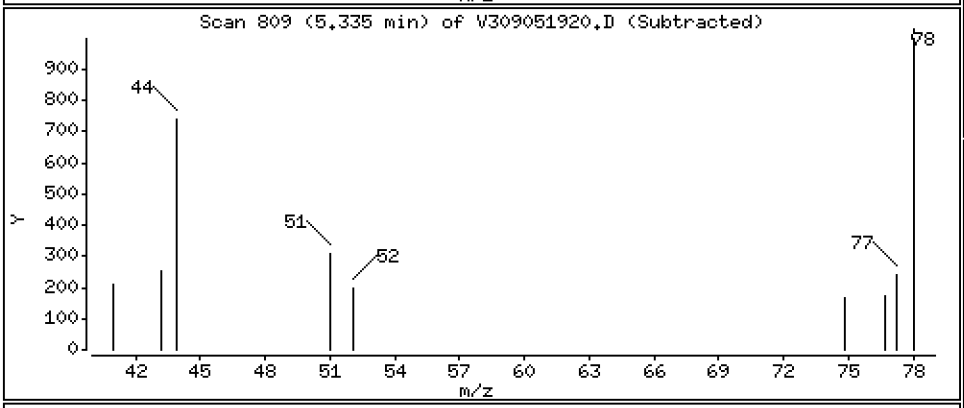
Column diameter: 0.18

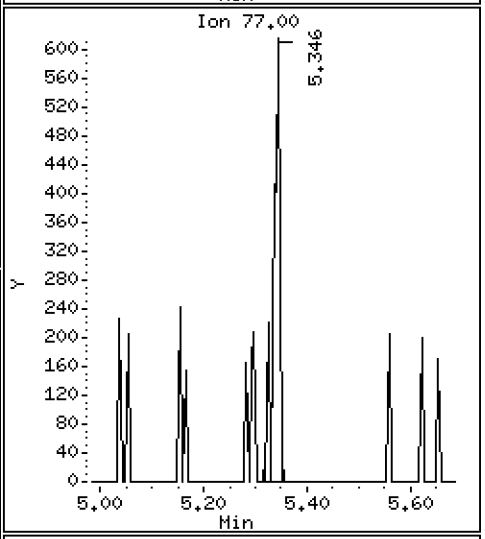
31 Benzene

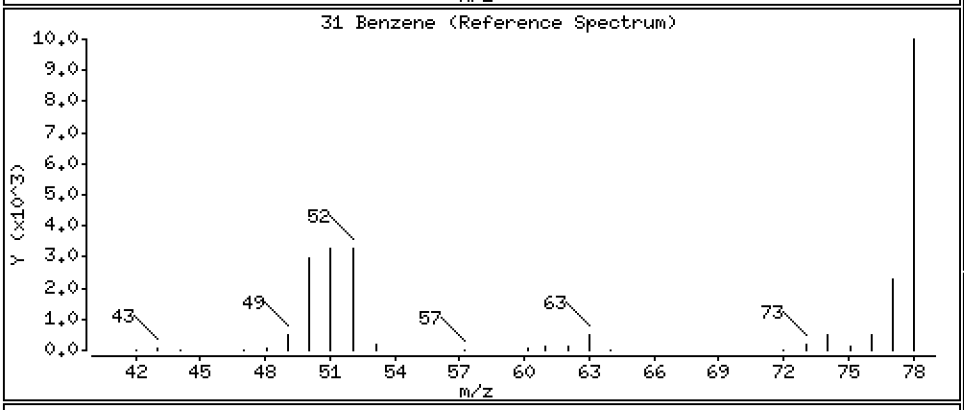
Concentration: 0.04436 ug/L

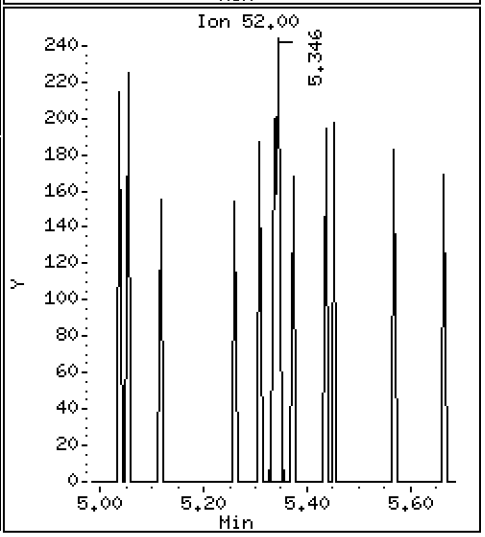


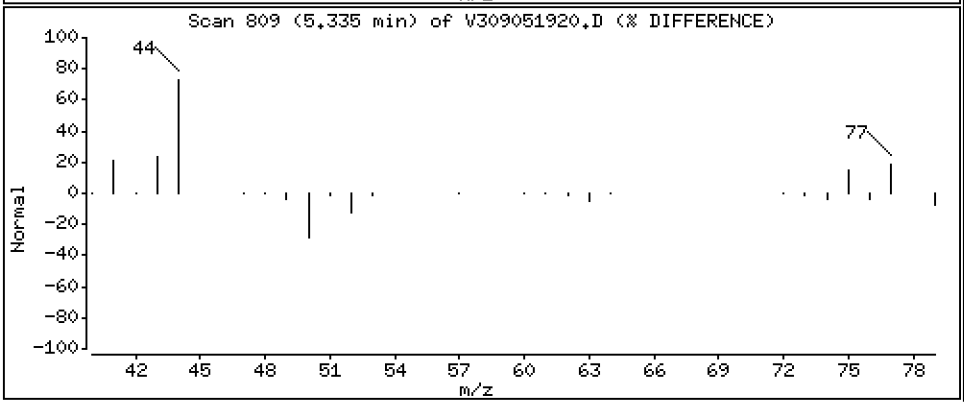












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

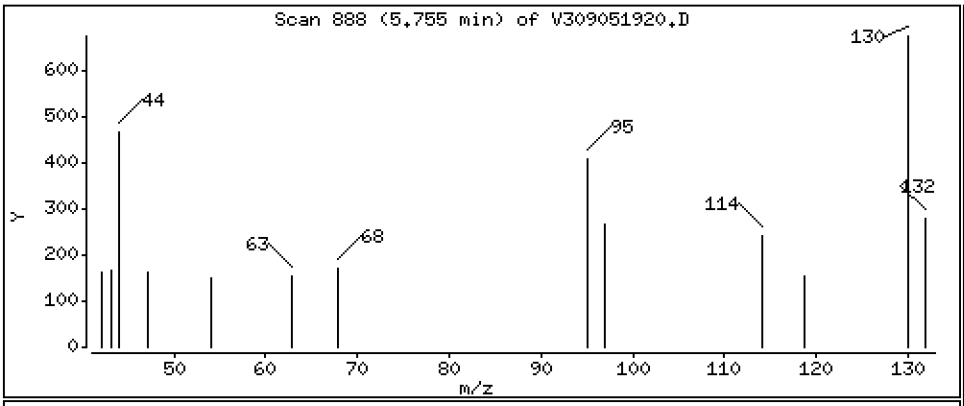
Operator: PKC

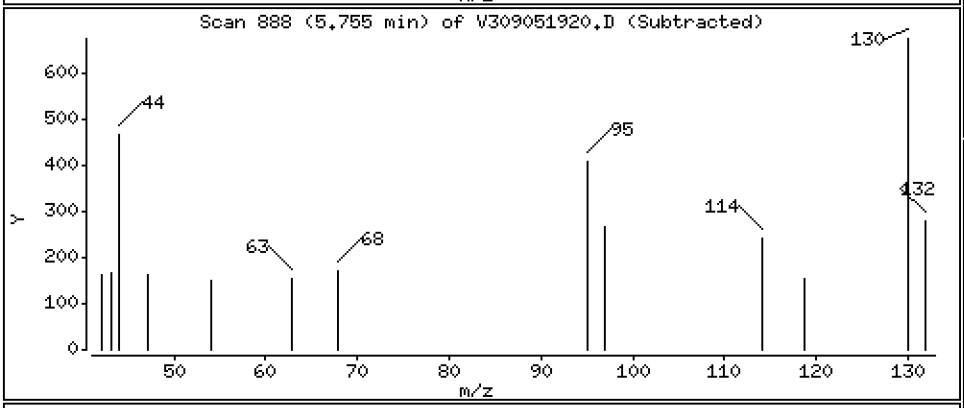
Column phase: RTXVMS

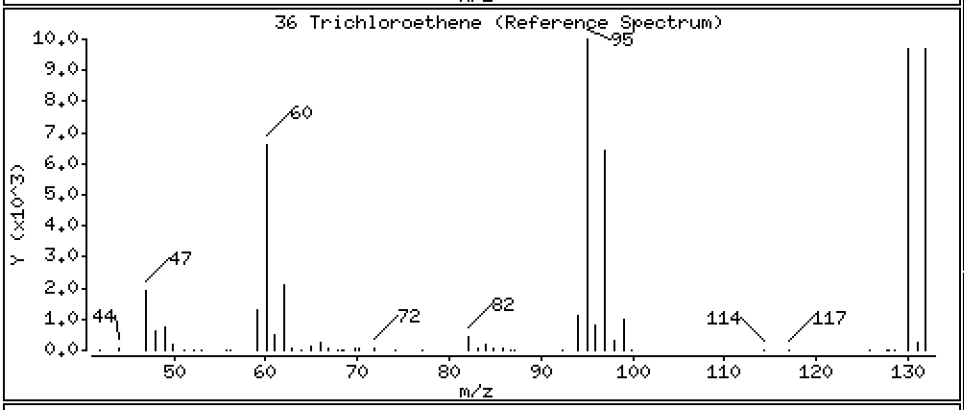
Column diameter: 0.18

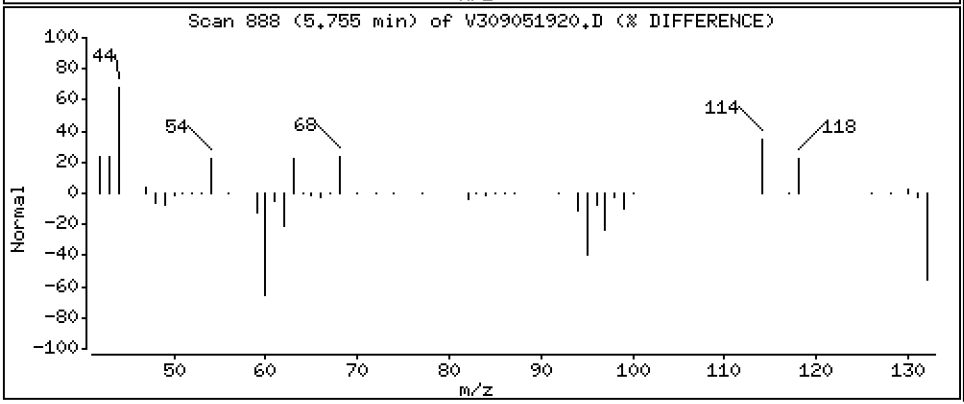
36 Trichloroethene

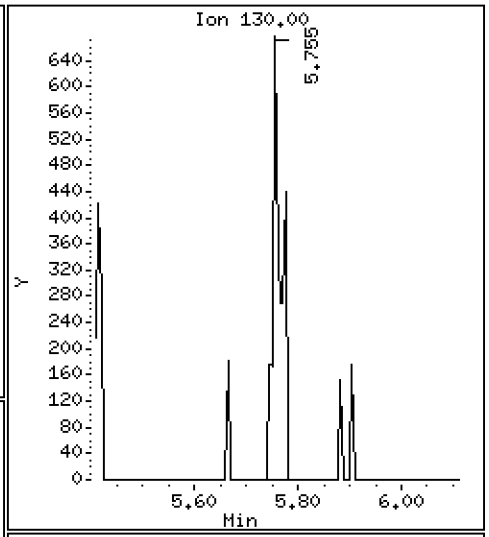
Concentration: 0.1176 ug/L

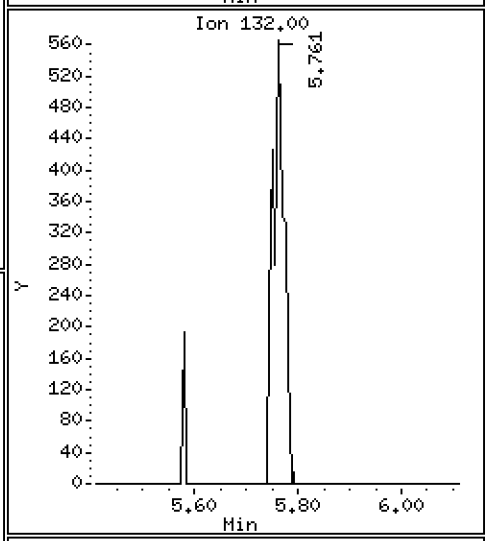


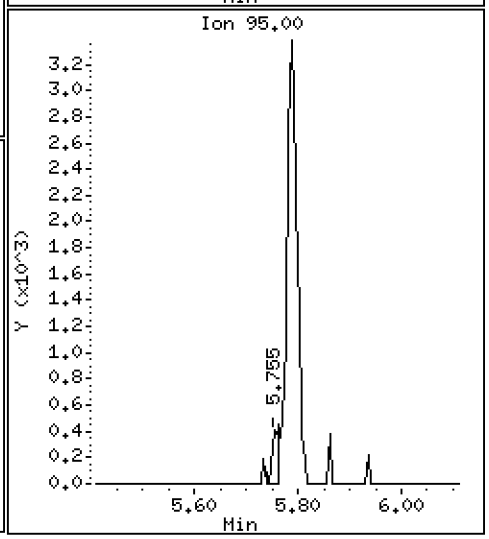












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

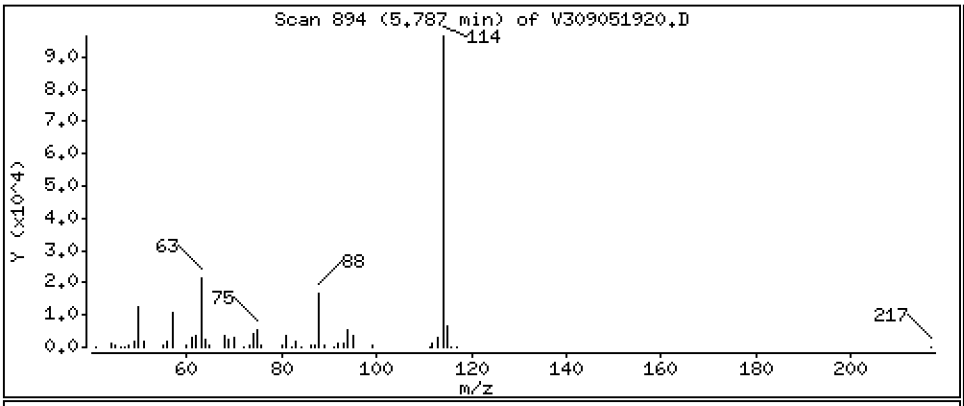
Operator: PKC

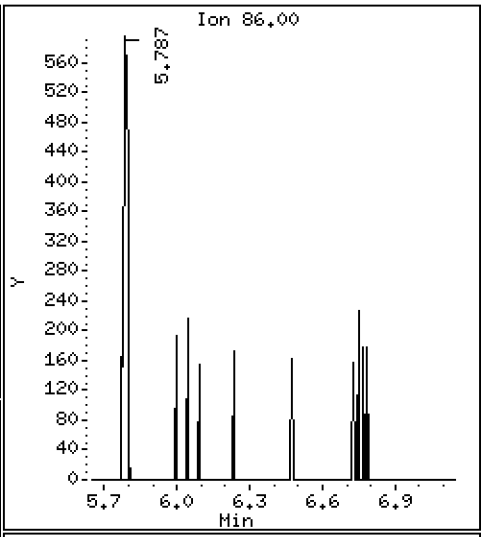
Column phase: RTXVMS

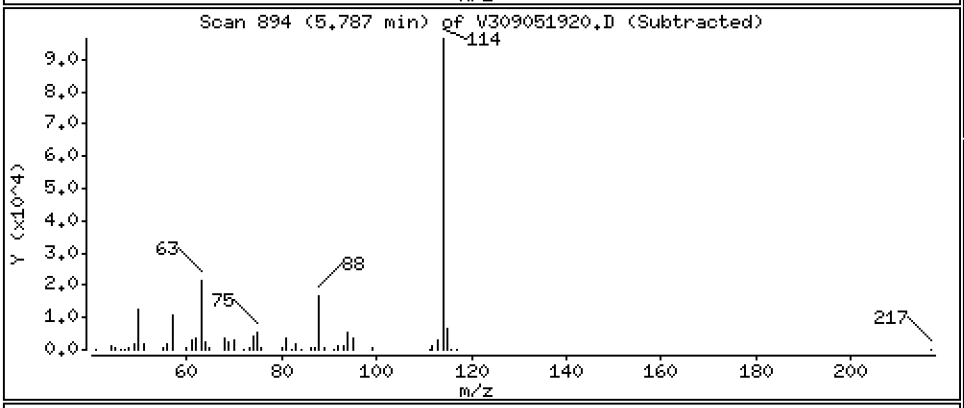
Column diameter: 0.18

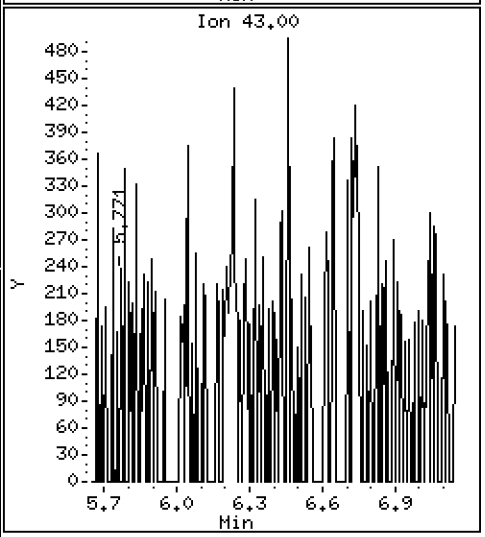
173 2-Pentanone

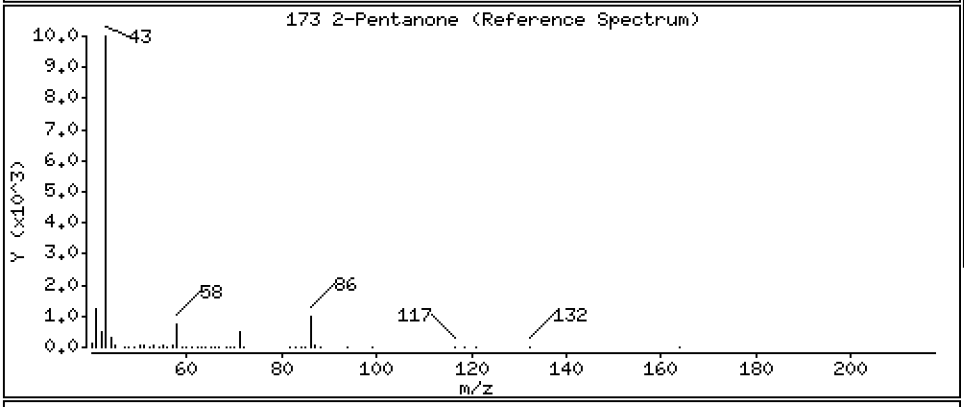
Concentration: 1.503 ug/L

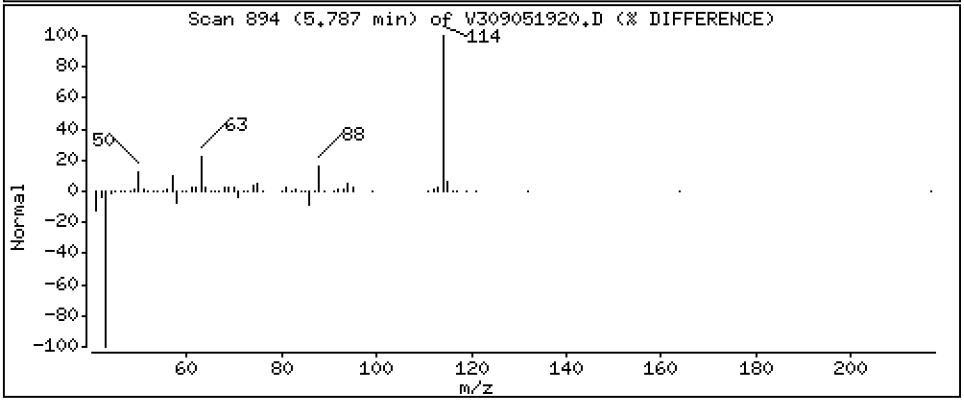












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

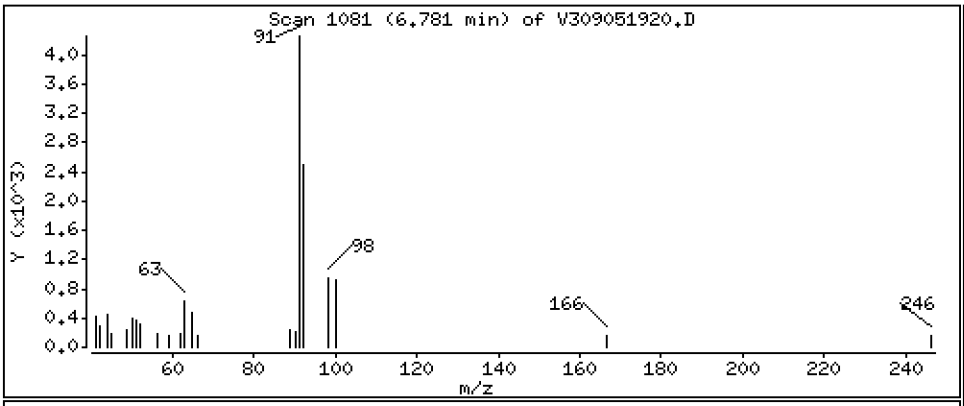
Operator: PKC

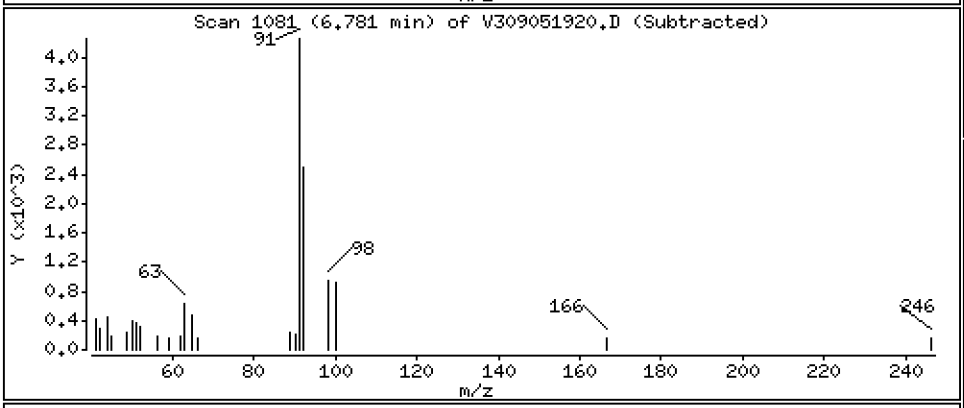
Column phase: RTXVMS

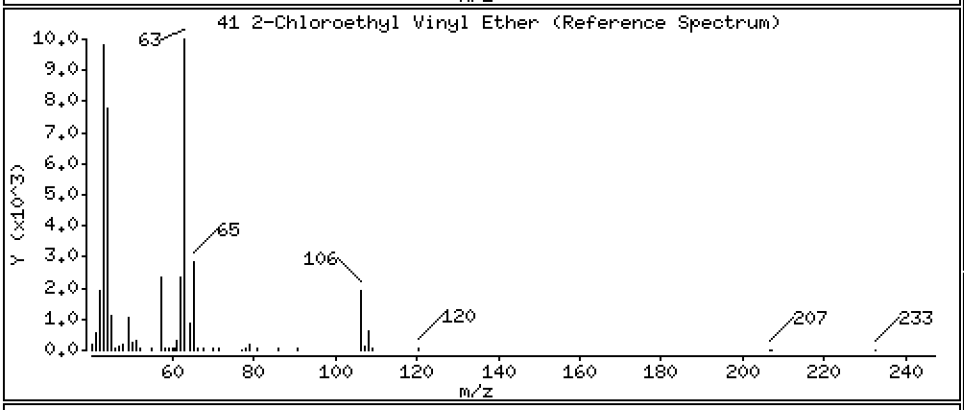
Column diameter: 0.18

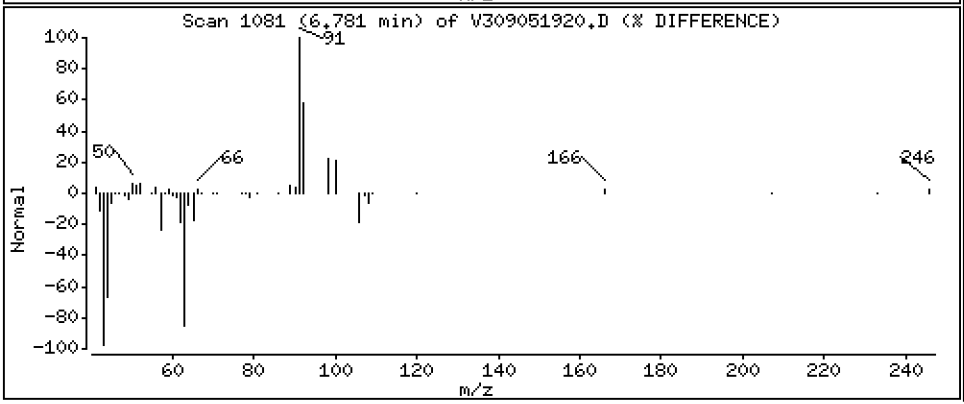
41 2-Chloroethyl Vinyl Ether

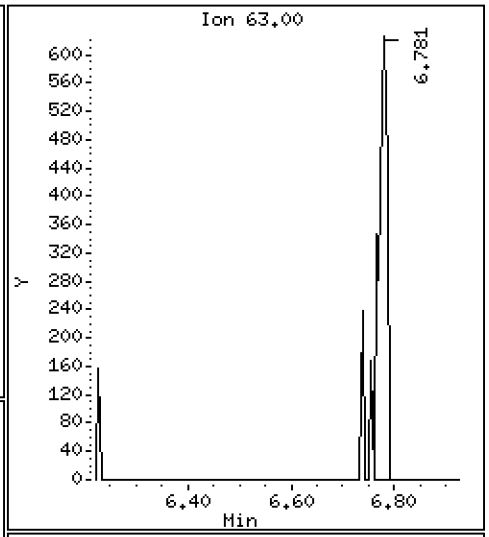
Concentration: 0.2333 ug/L

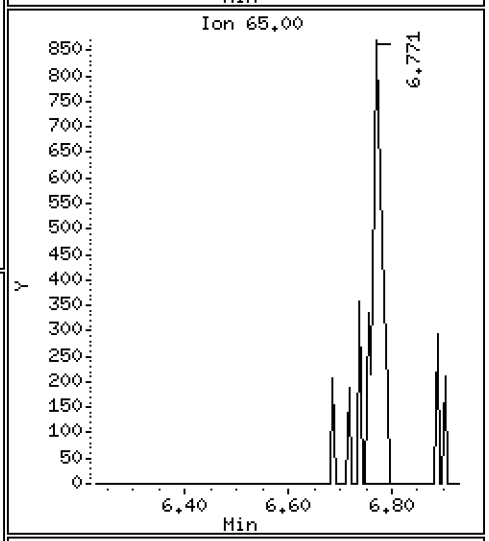


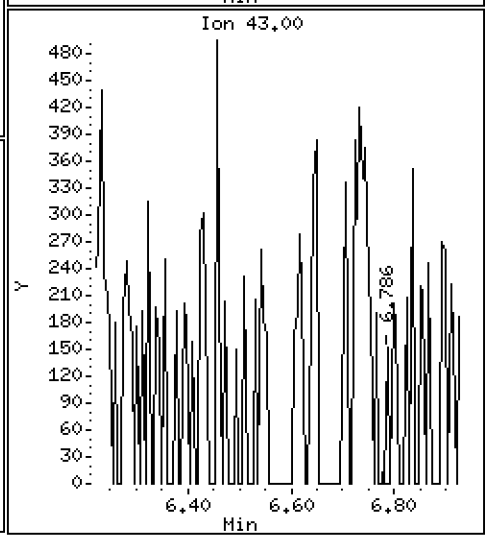












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

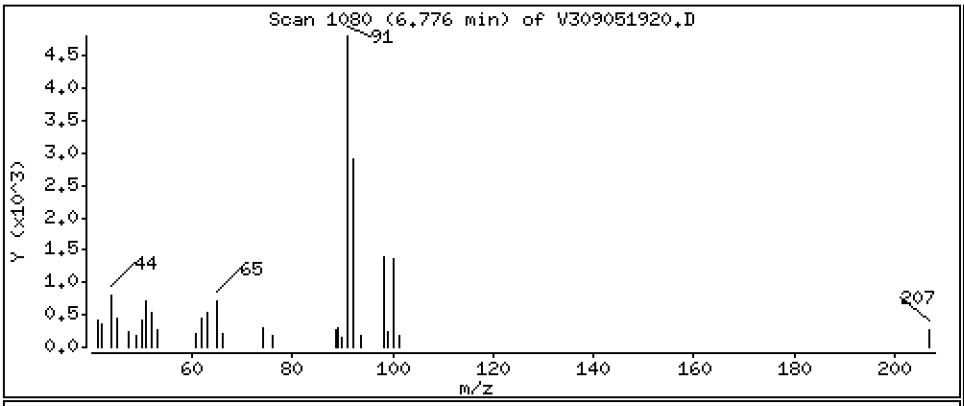
Operator: PKC

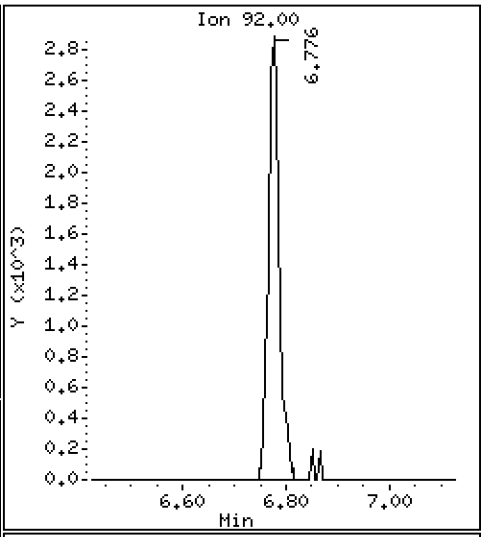
Column phase: RTXVMS

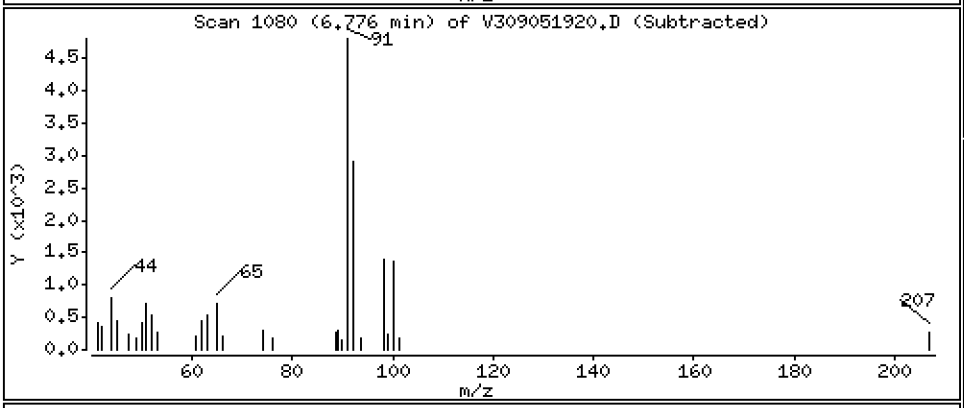
Column diameter: 0.18

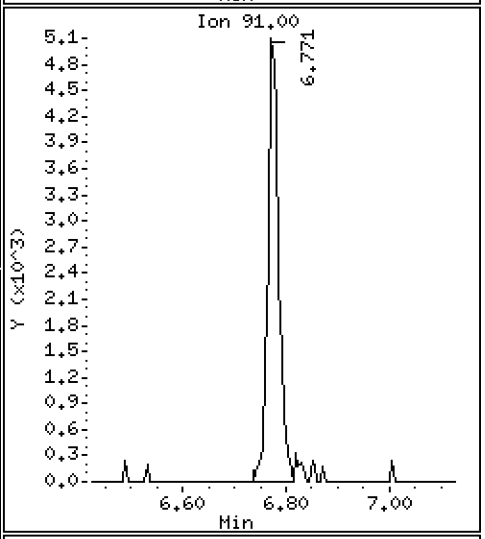
44 Toluene

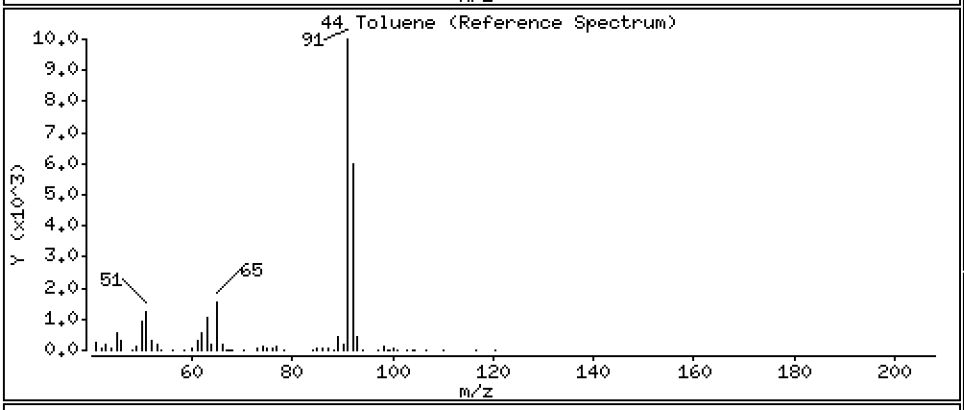
Concentration: 0.2801 ug/L

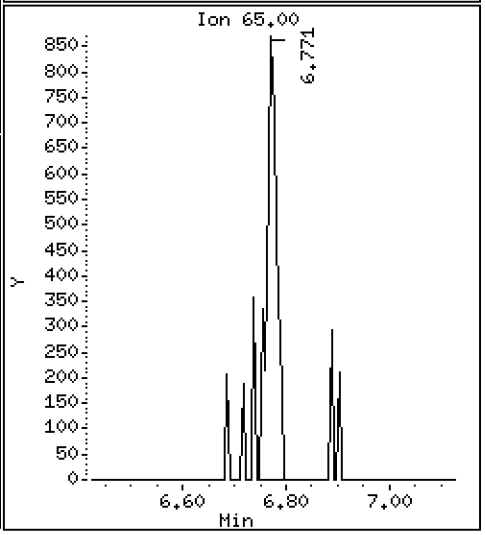


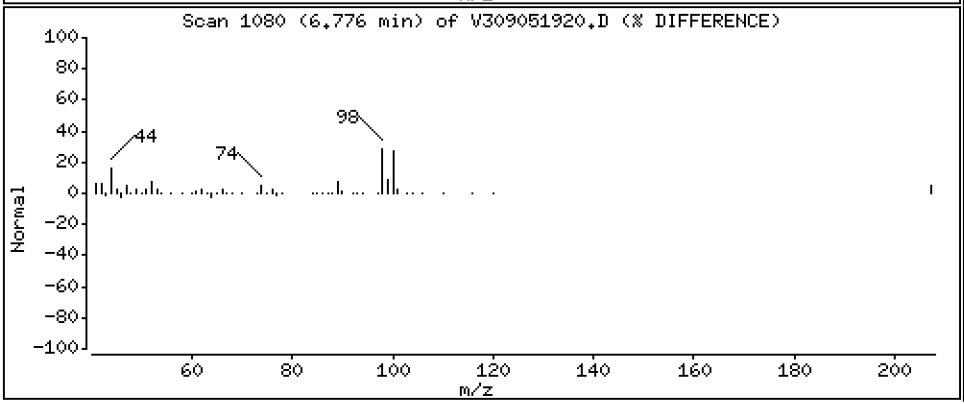












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

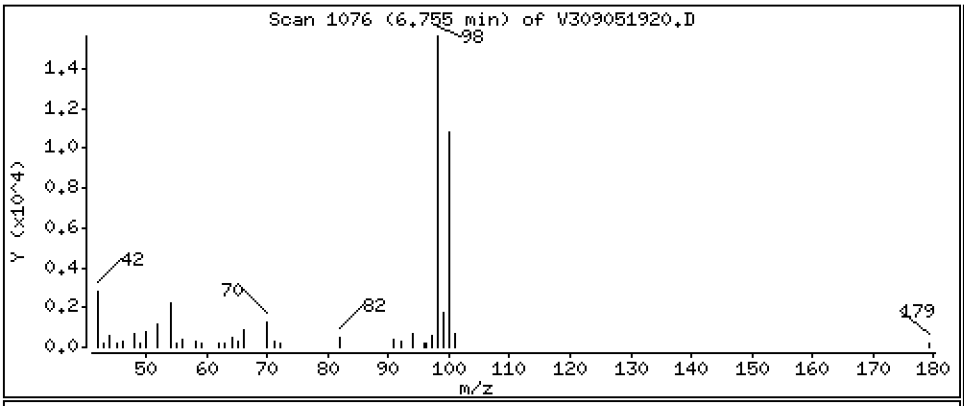
Operator: PKC

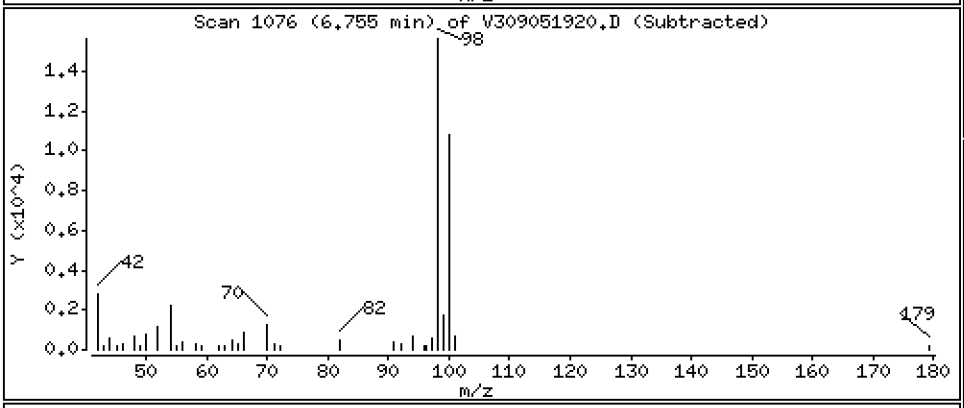
Column phase: RTXVMS

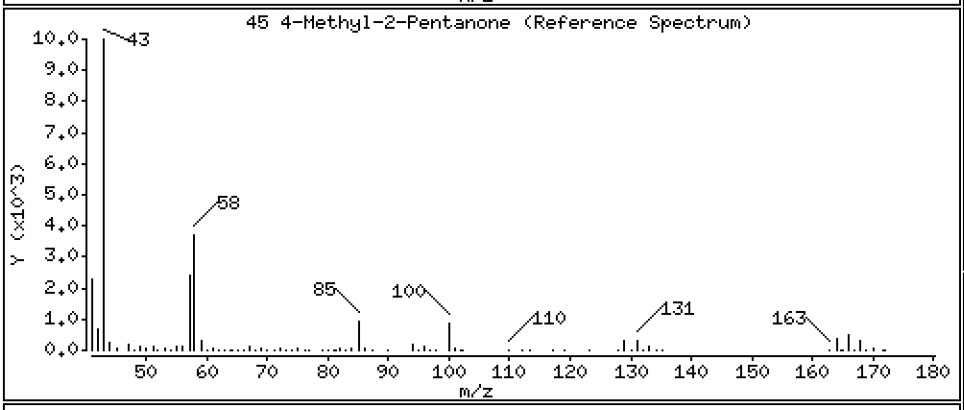
Column diameter: 0.18

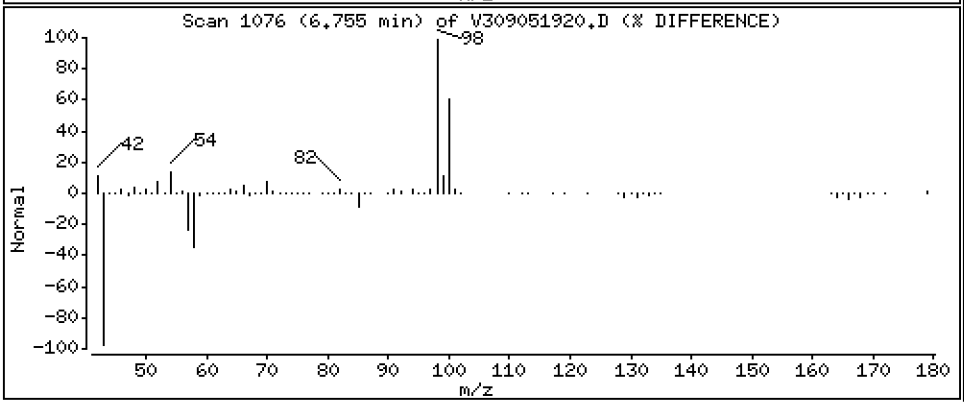
45 4-Methyl-2-Pentanone

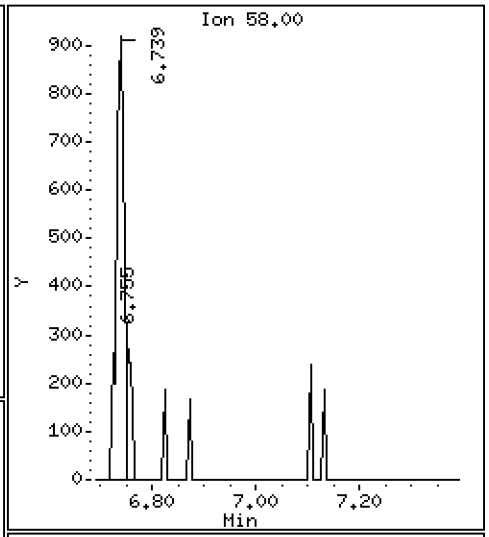
Concentration: 0.1005 ug/L

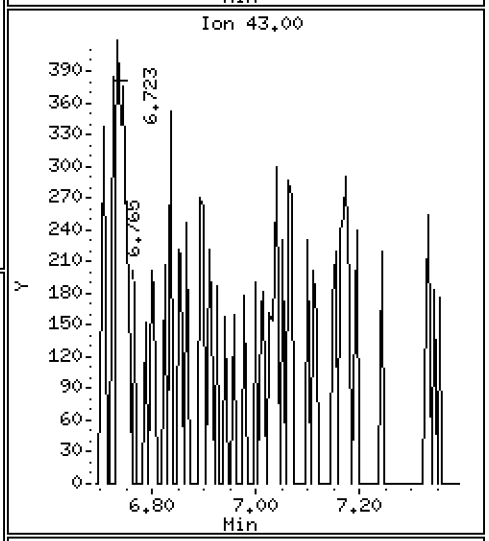


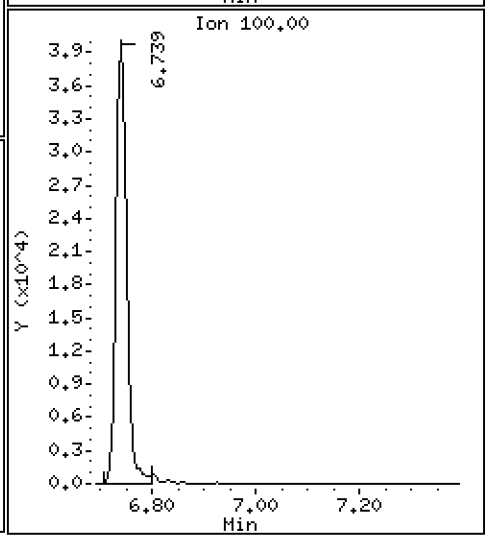












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

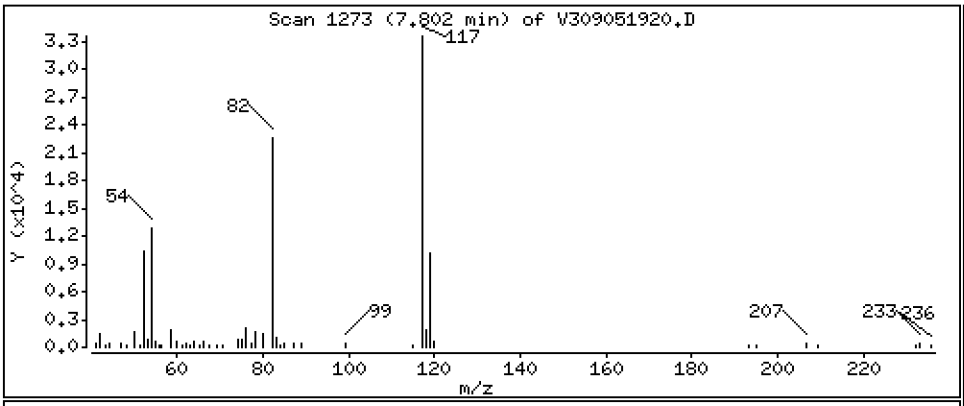
Operator: PKC

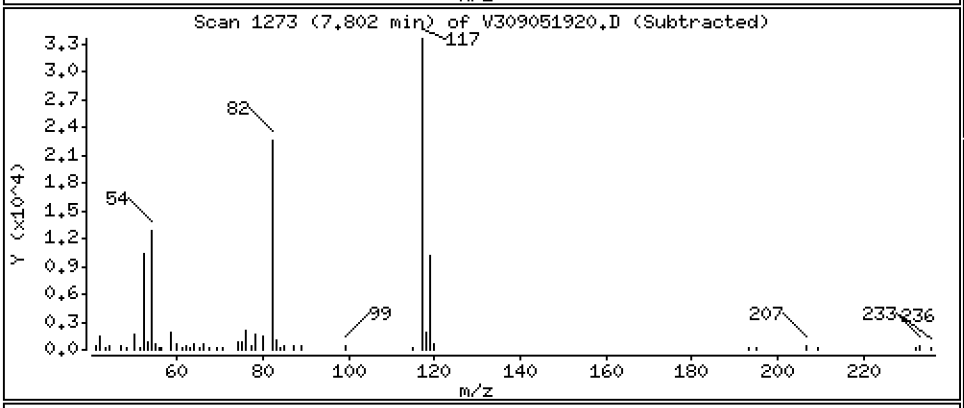
Column phase: RTXVMS

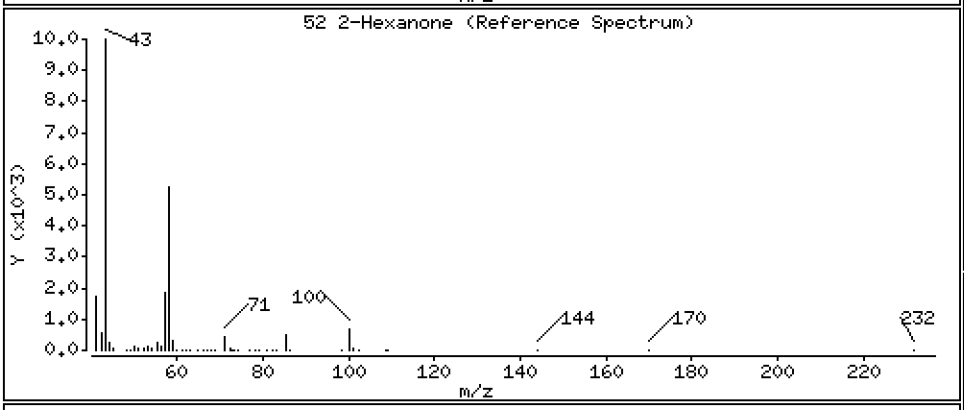
Column diameter: 0.18

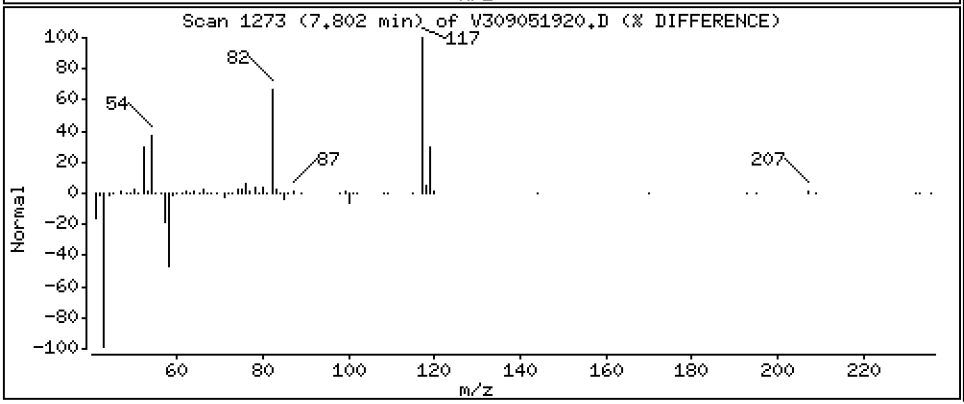
52 2-Hexanone

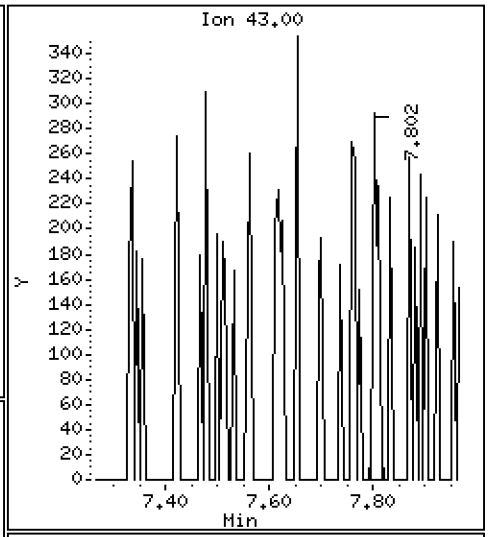
Concentration: 0.05932 ug/L

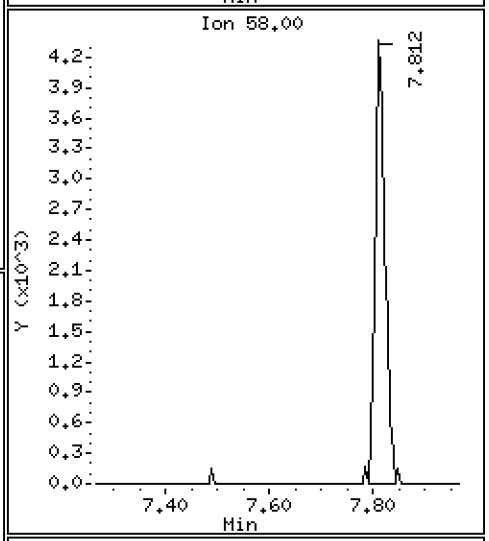


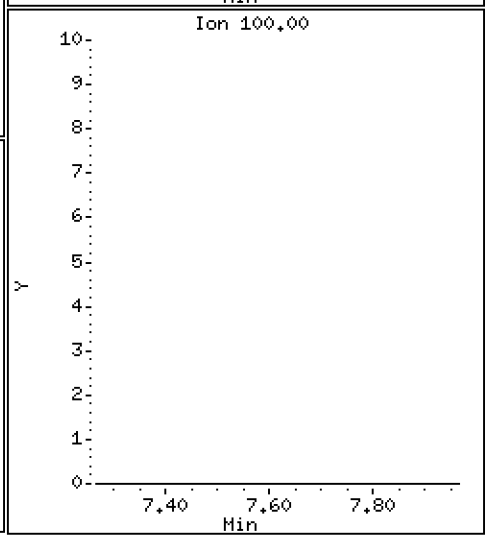












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

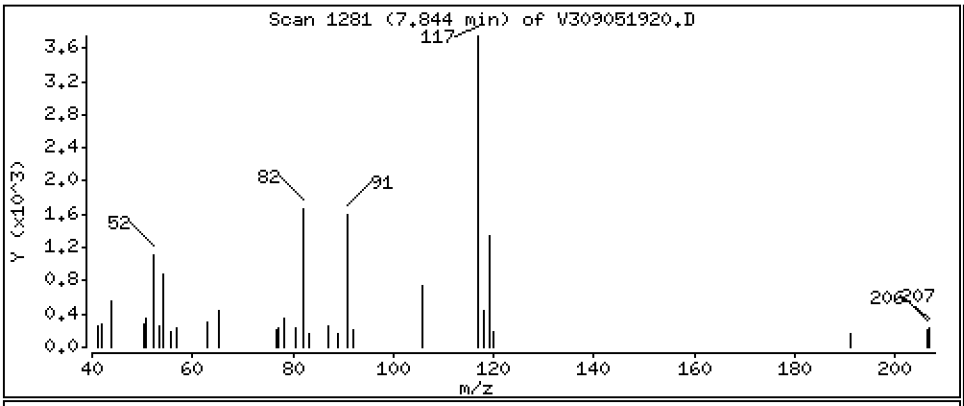
Operator: PKC

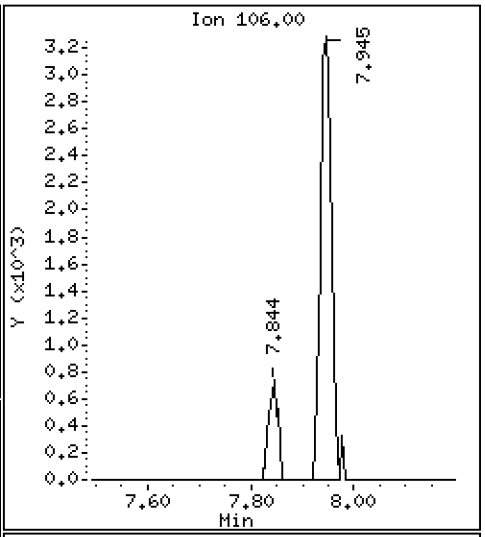
Column phase: RTXVMS

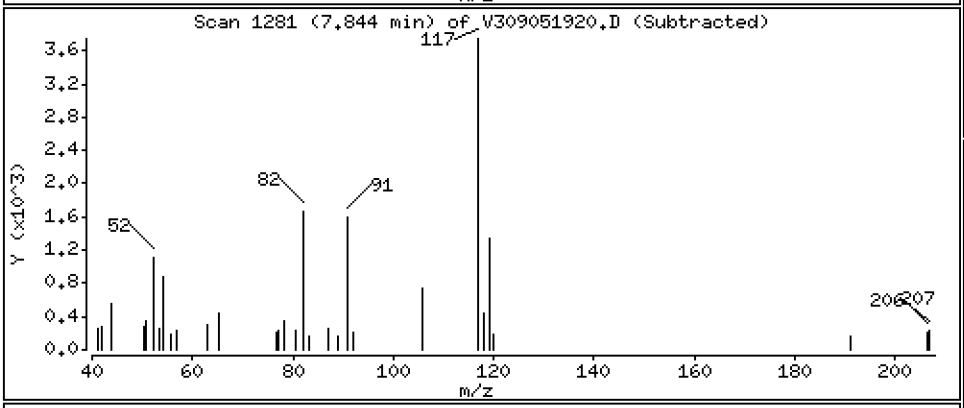
Column diameter: 0.18

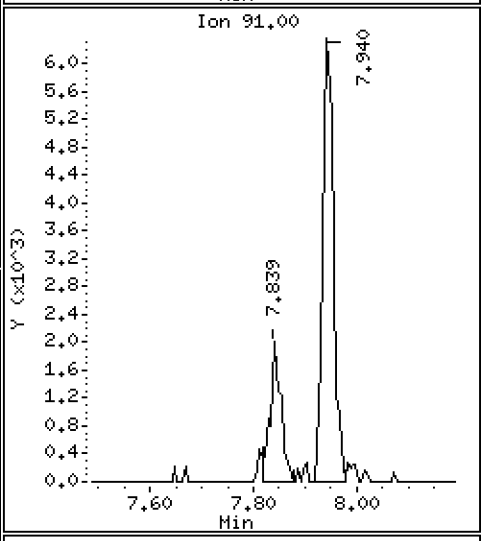
55 Ethyl Benzene

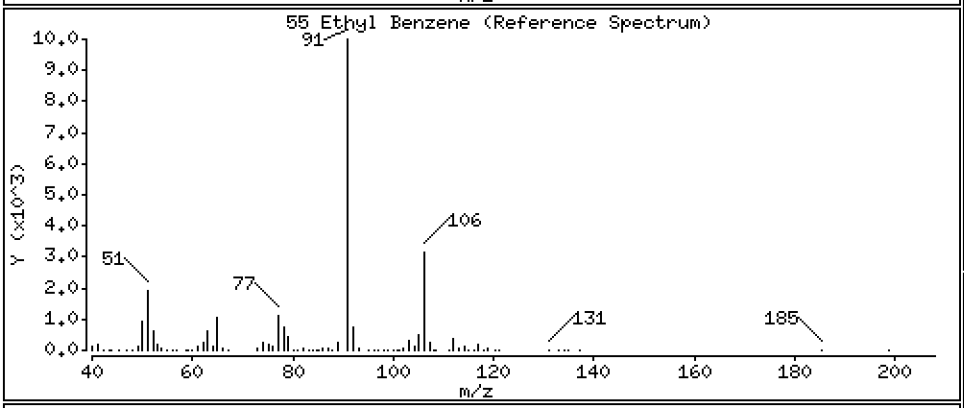
Concentration: 0.09377 ug/L

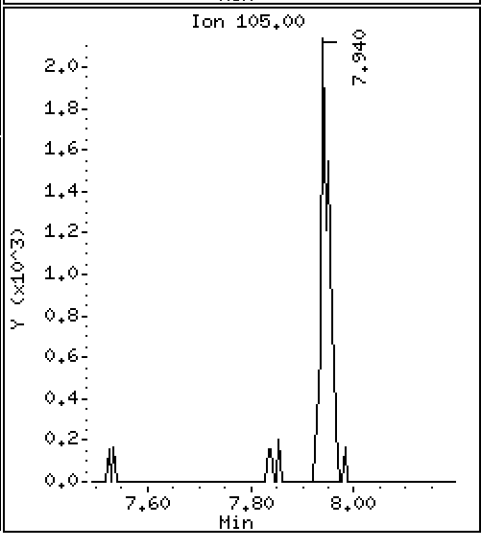


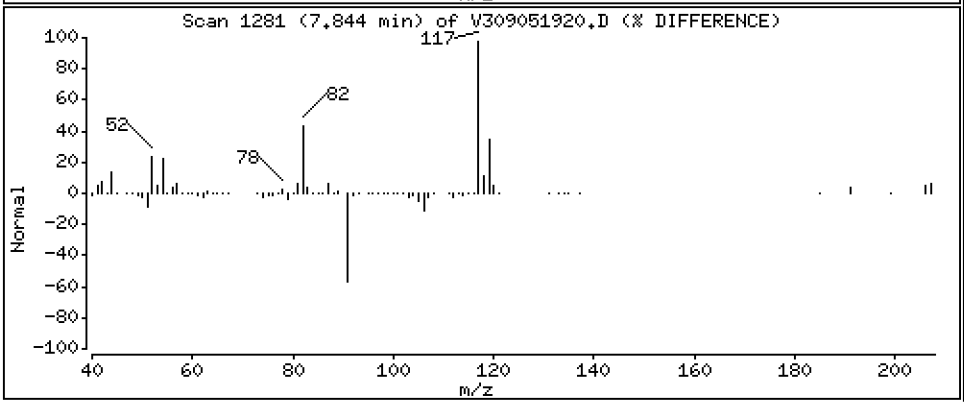












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

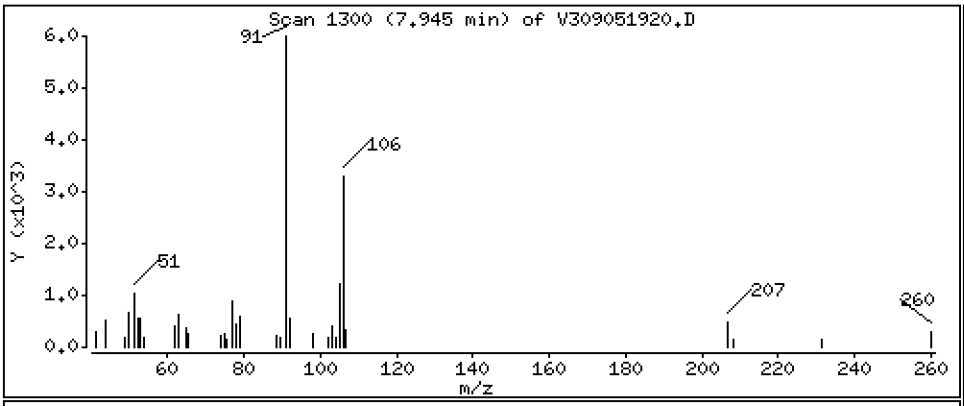
Operator: PKC

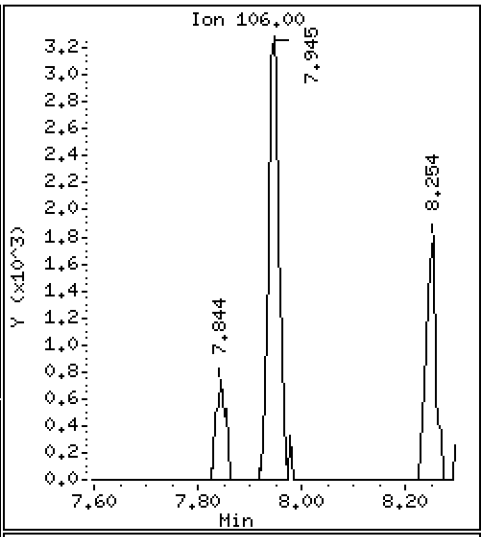
Column phase: RTXVMS

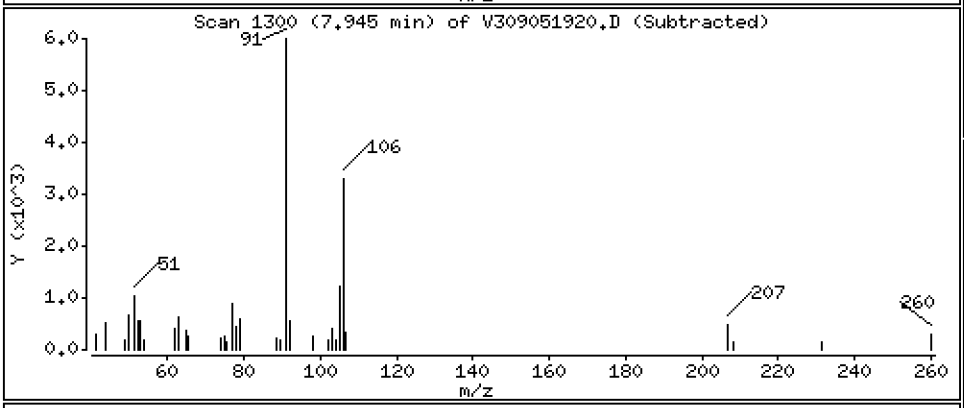
Column diameter: 0.18

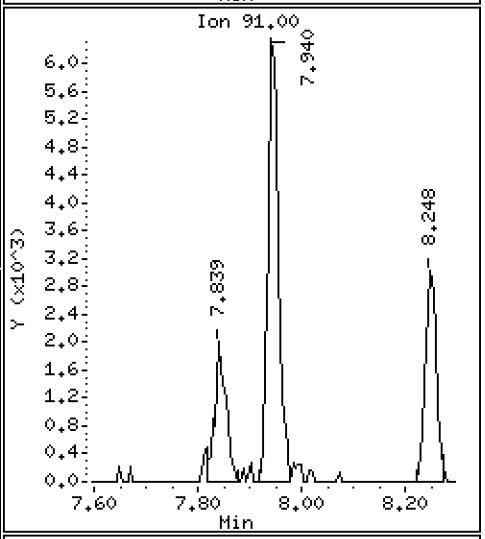
57 m,p-xylene

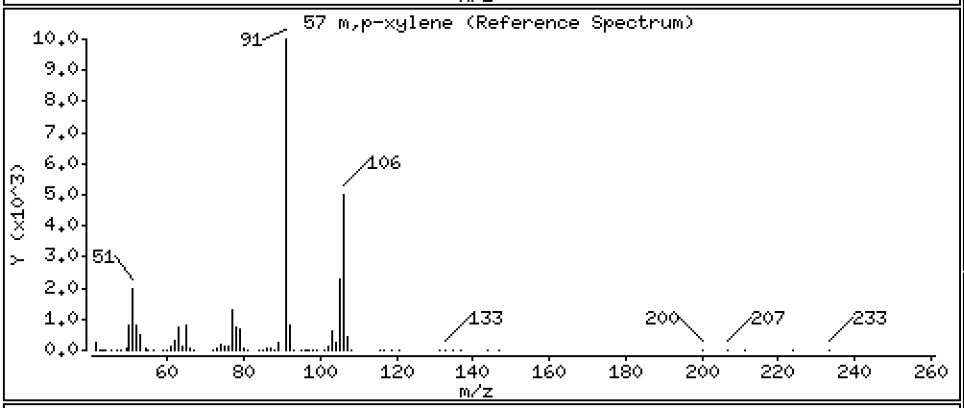
Concentration: 0.3922 ug/L

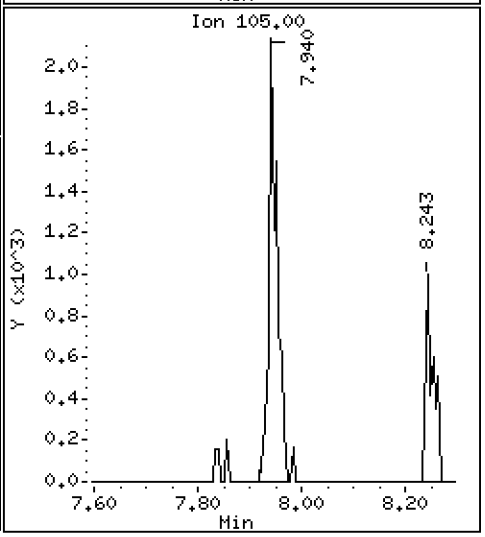


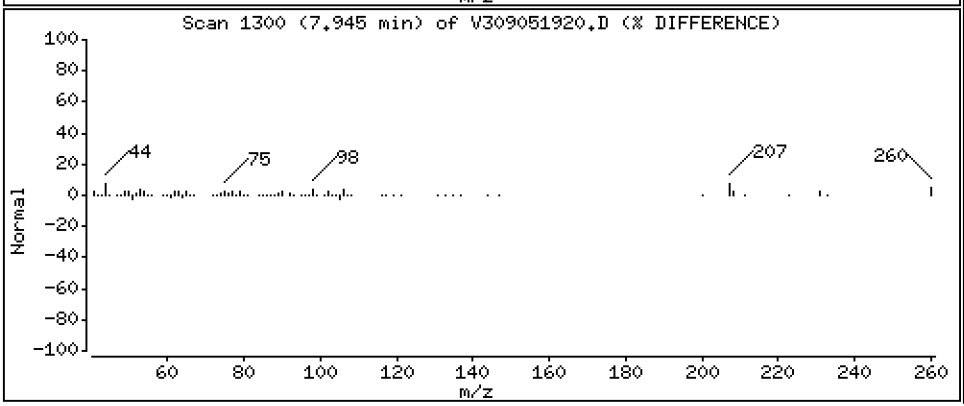












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

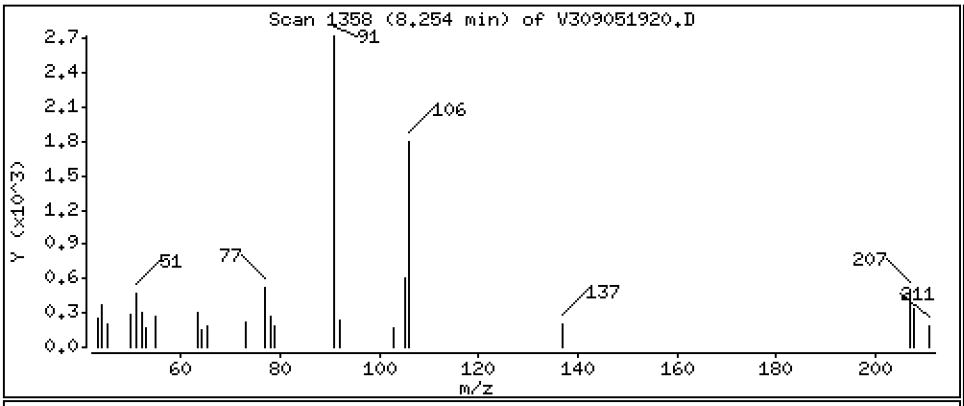
Operator: PKC

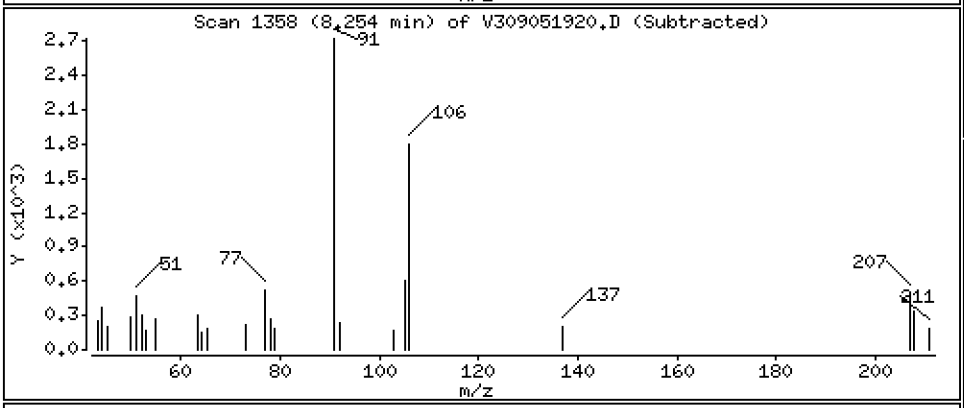
Column phase: RTXVMS

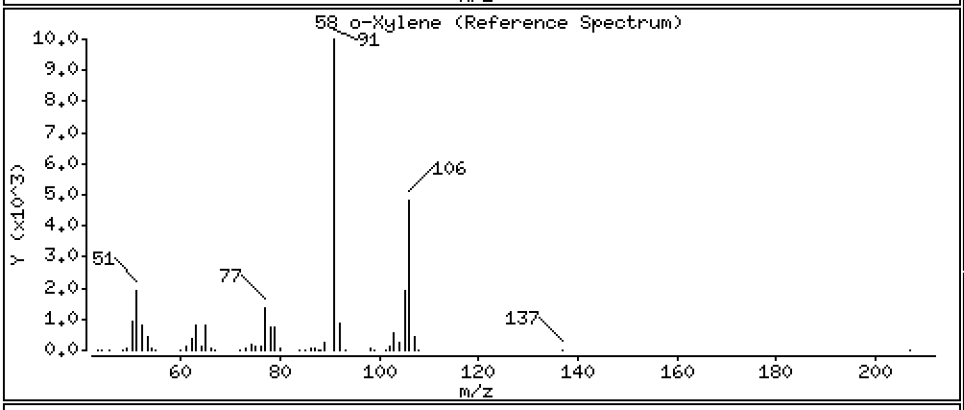
Column diameter: 0.18

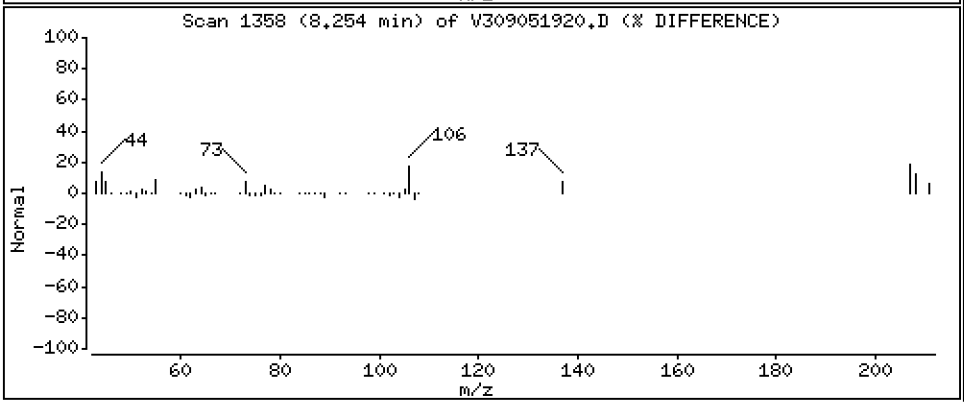
58 o-Xylene

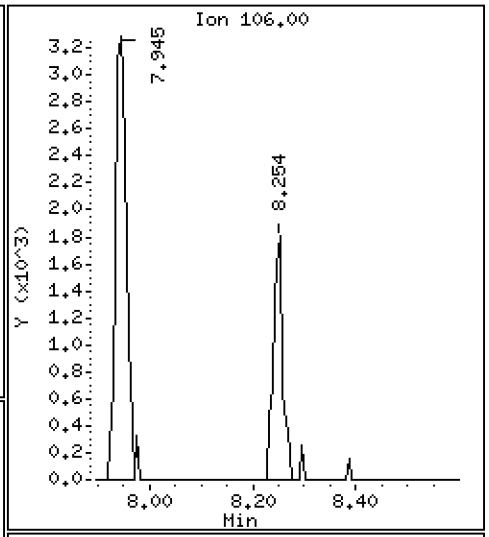
Concentration: 0.1867 ug/L

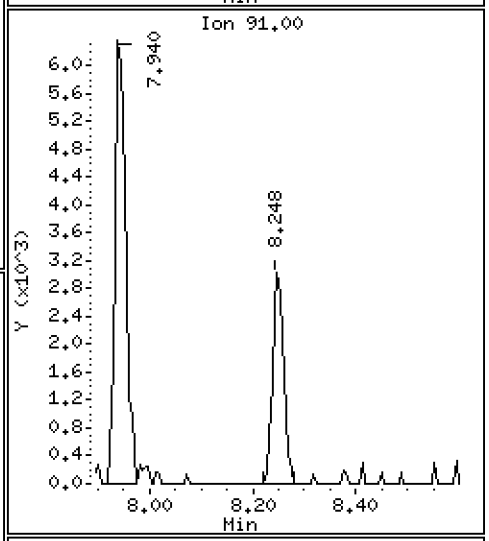


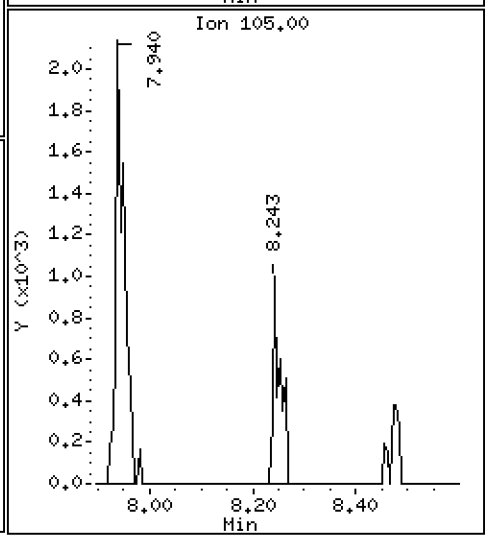












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

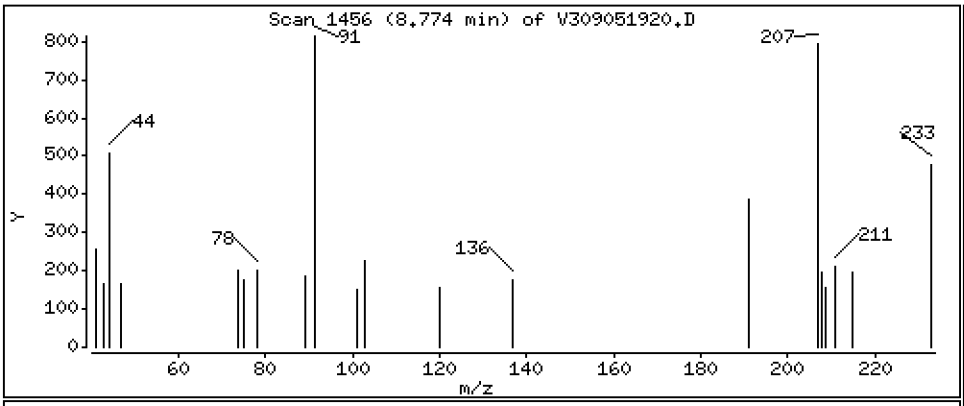
Operator: PKC

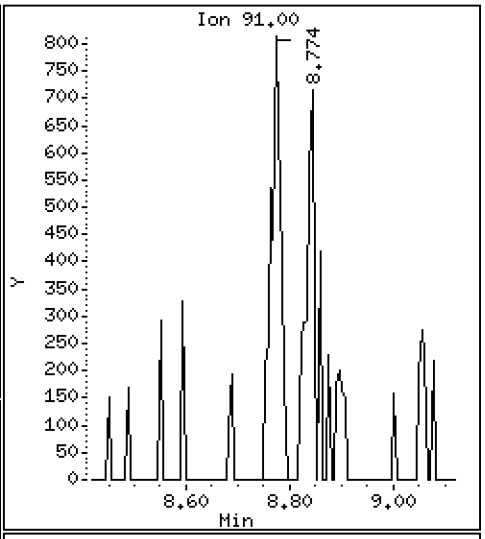
Column phase: RTXVMS

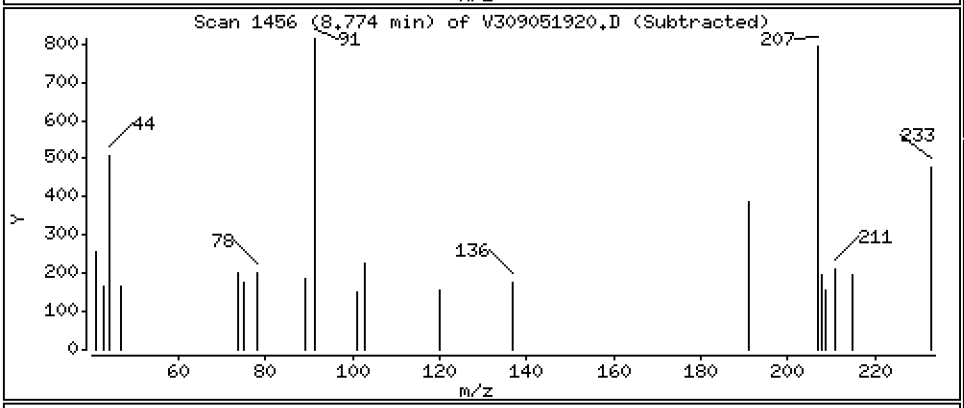
Column diameter: 0.18

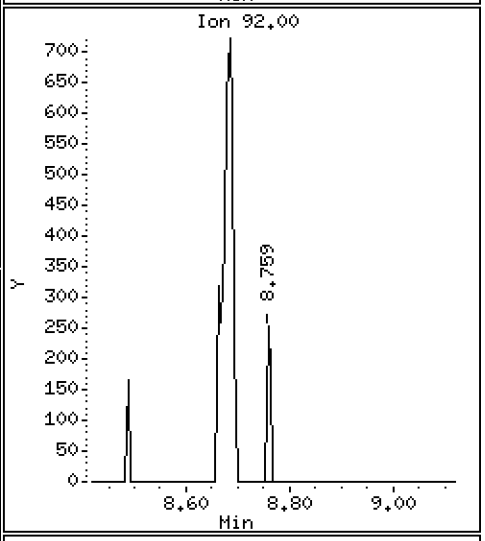
64 N-Propyl Benzene

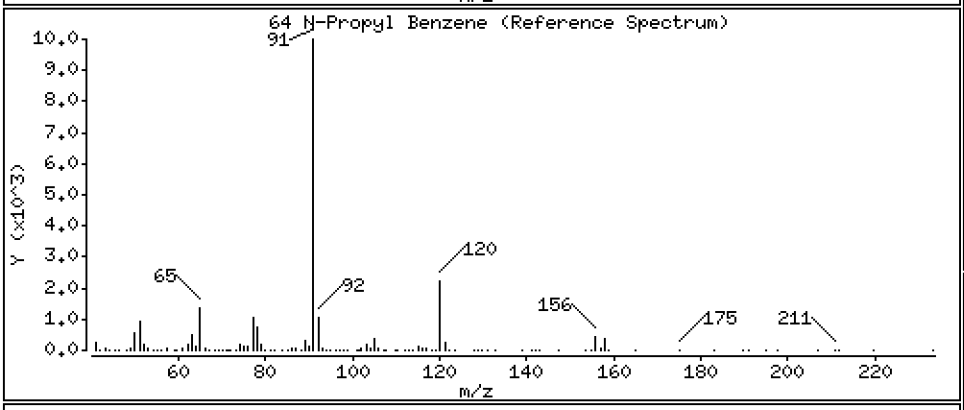
Concentration: 0.03051 ug/L

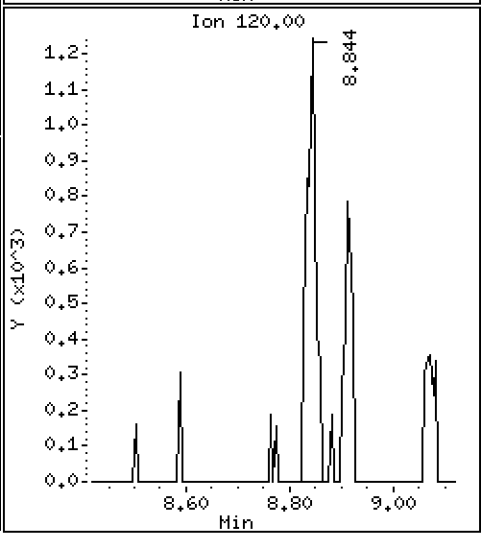


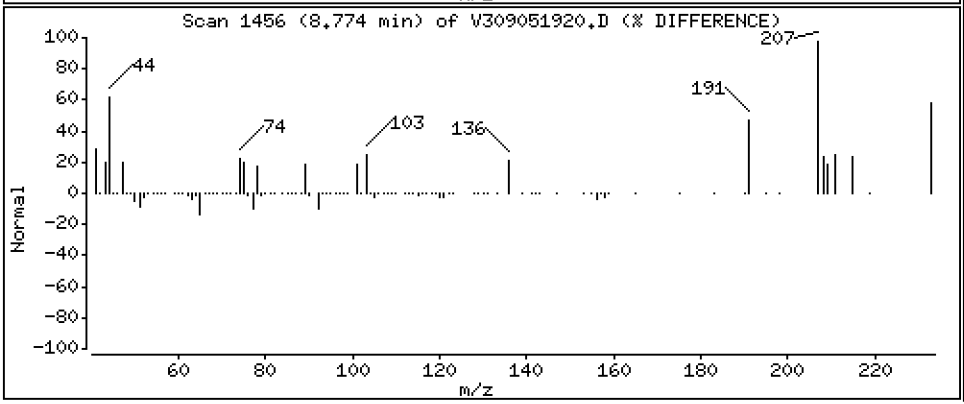












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

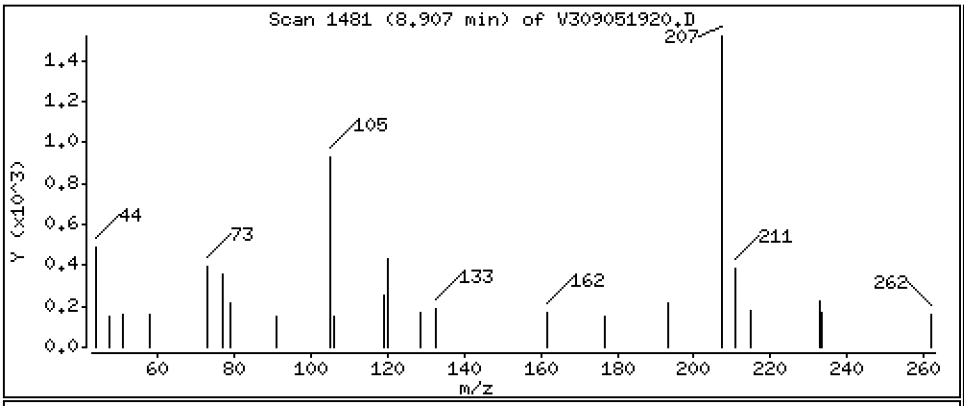
Operator: PKC

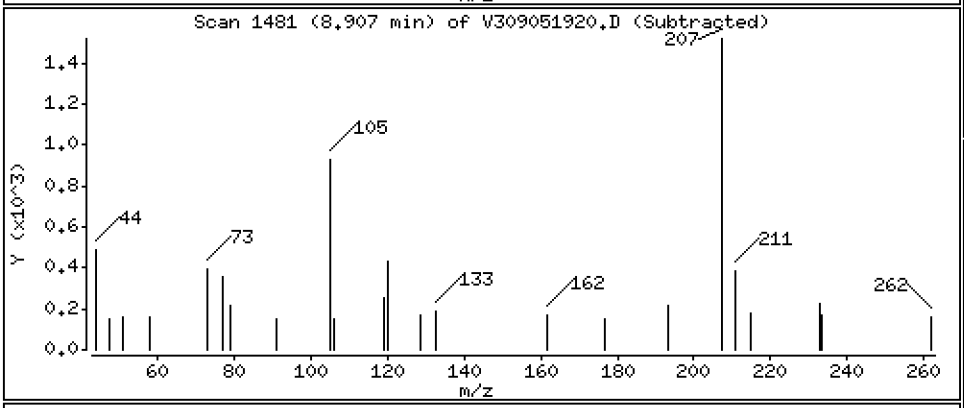
Column phase: RTXVMS

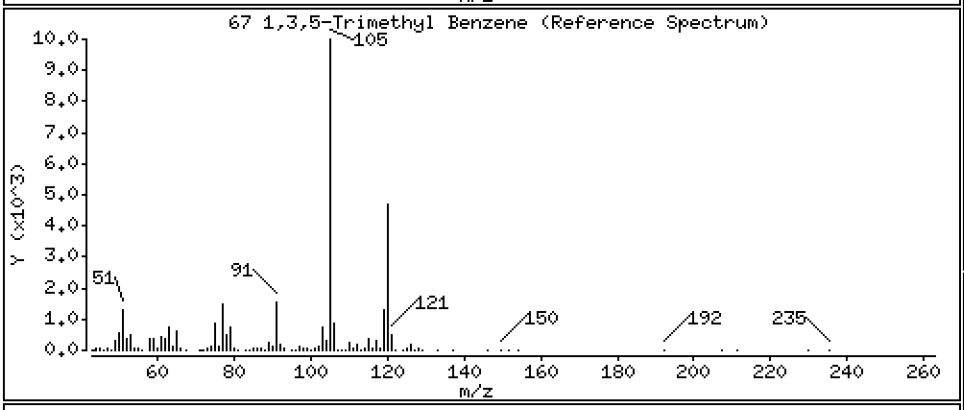
Column diameter: 0.18

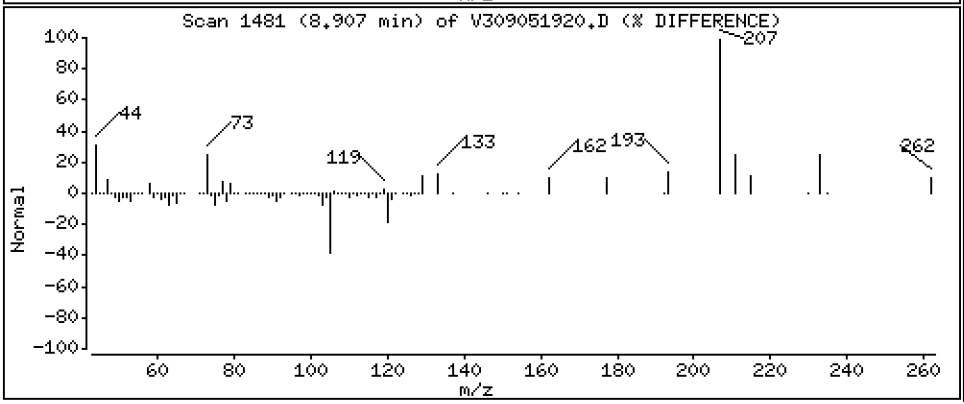
67 1,3,5-Trimethyl Benzene

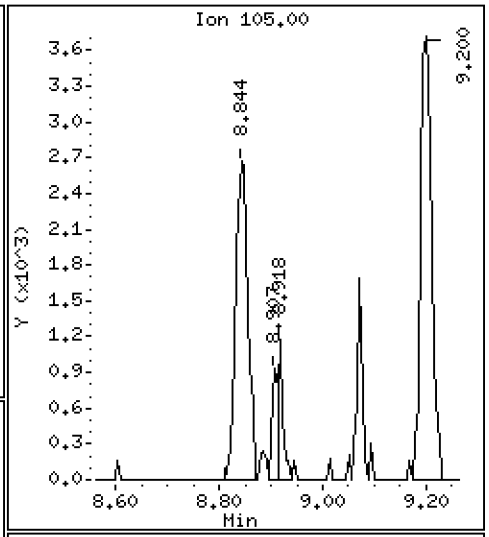
Concentration: 0.02745 ug/L

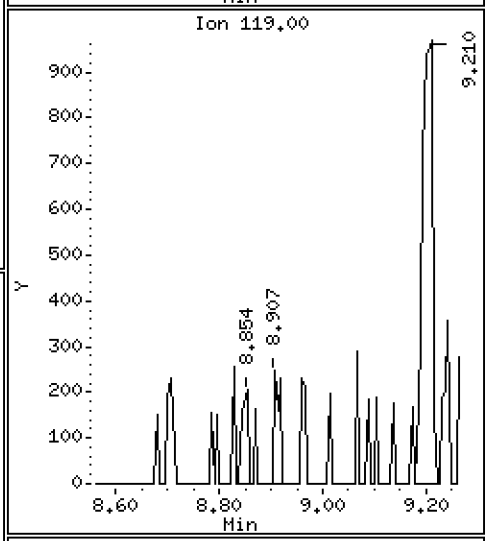


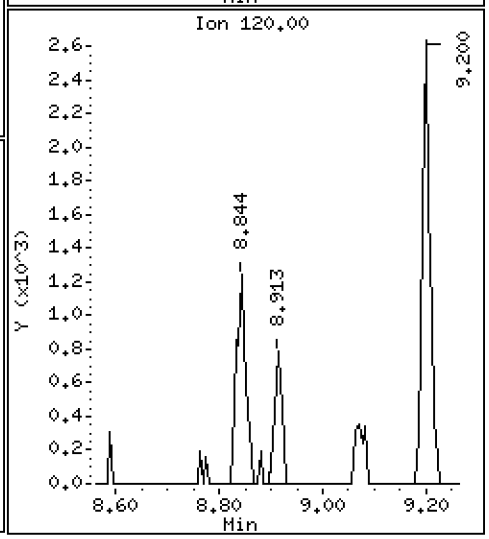












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

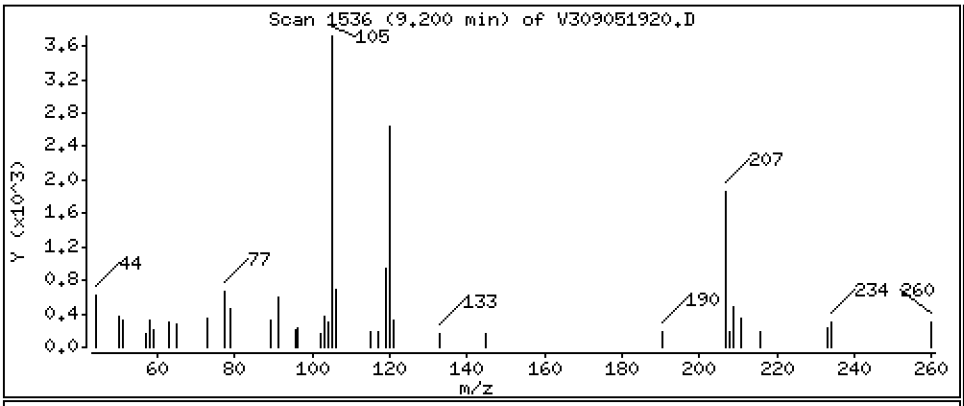
Operator: PKC

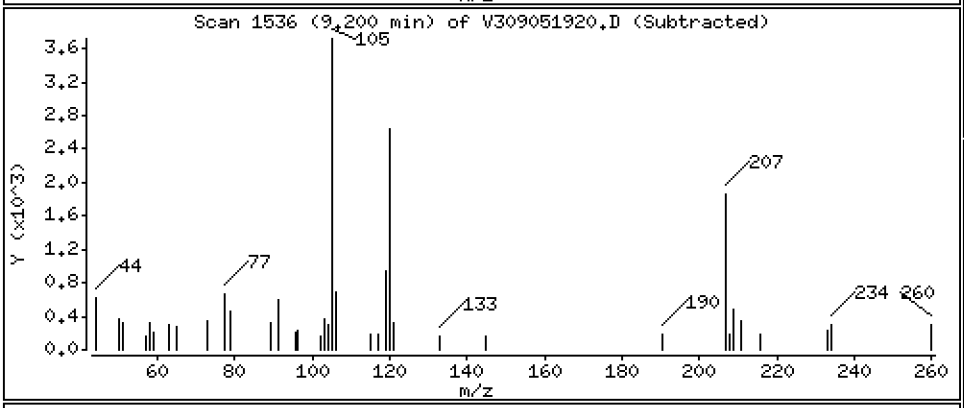
Column phase: RTXVMS

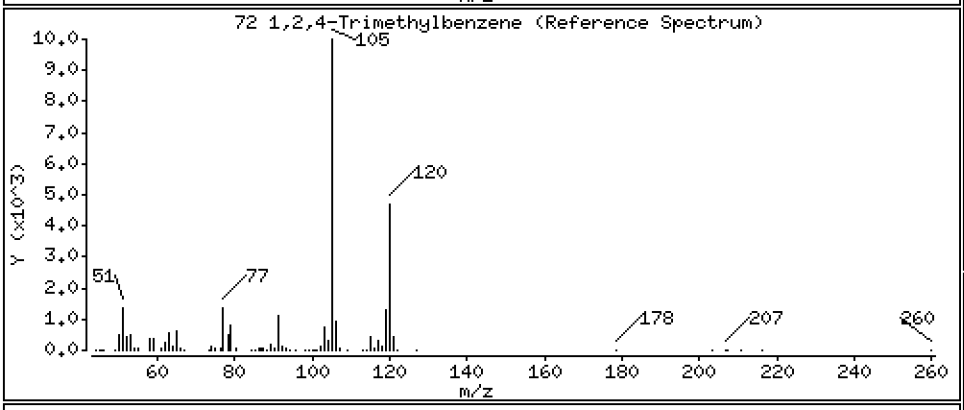
Column diameter: 0.18

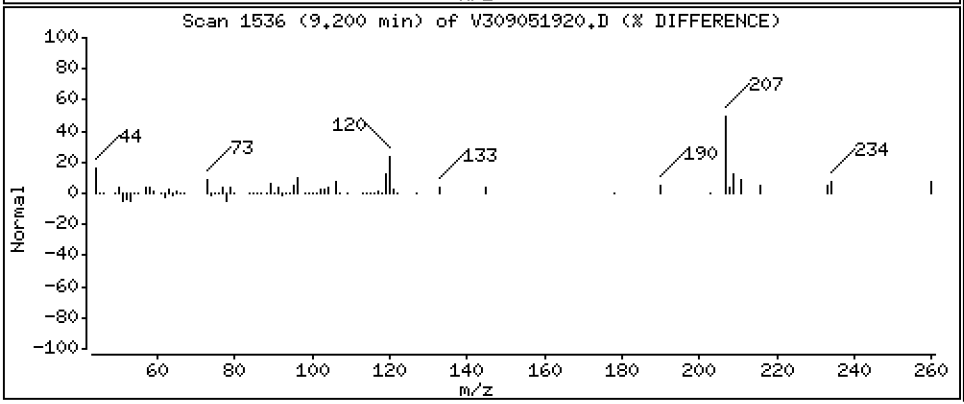
72 1,2,4-Trimethylbenzene

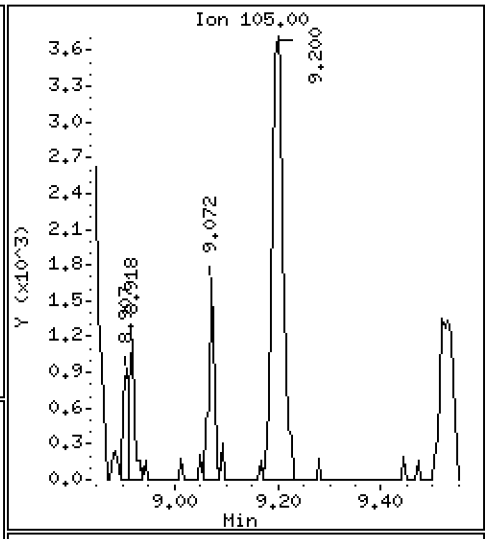
Concentration: 0.2006 ug/L

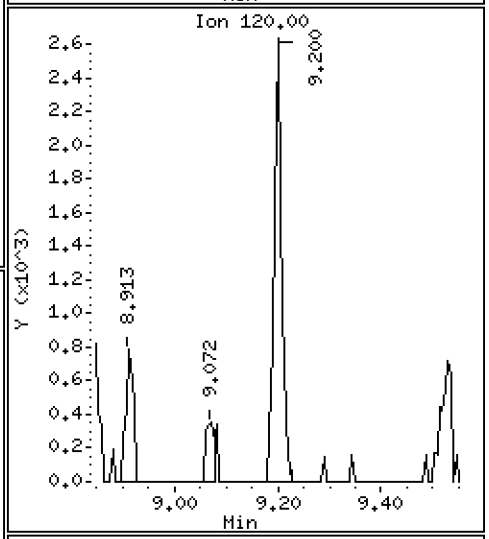


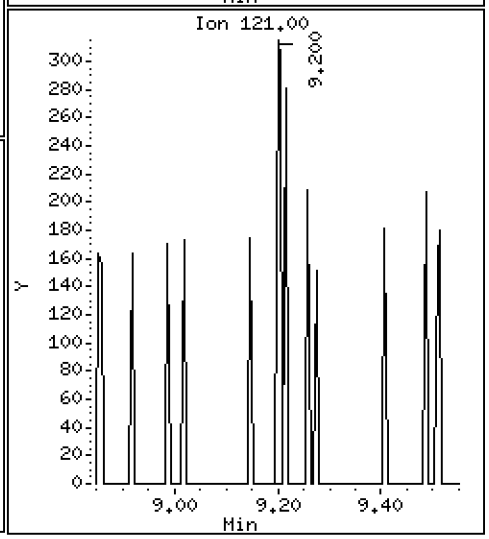












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

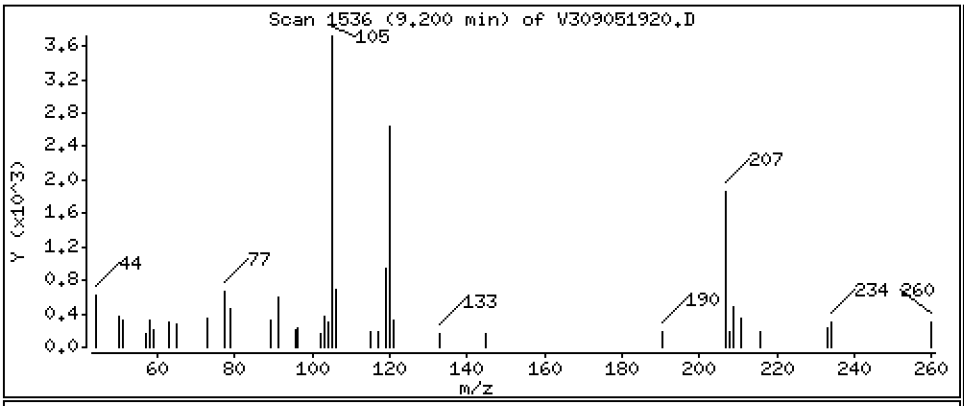
Operator: PKC

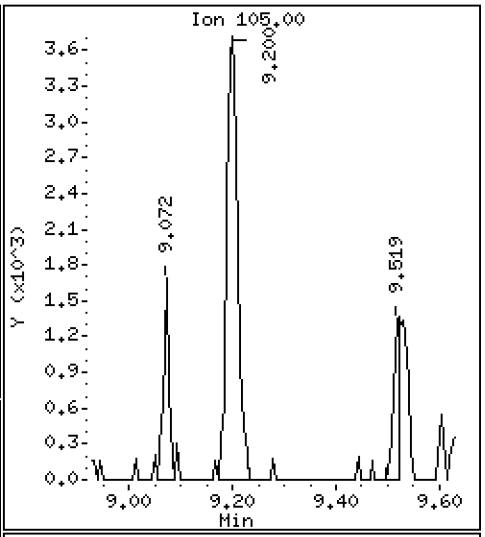
Column phase: RTXVMS

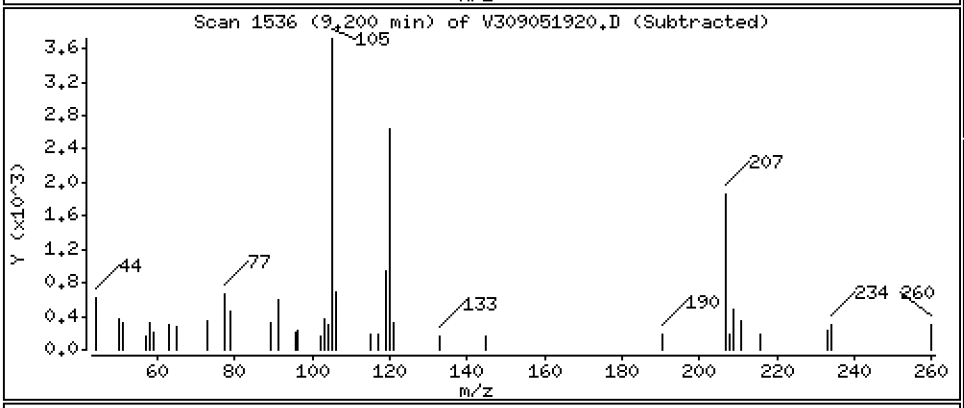
Column diameter: 0.18

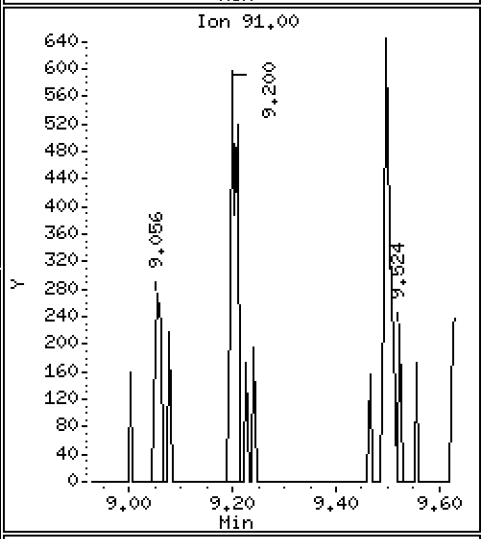
73 S-Butyl Benzene

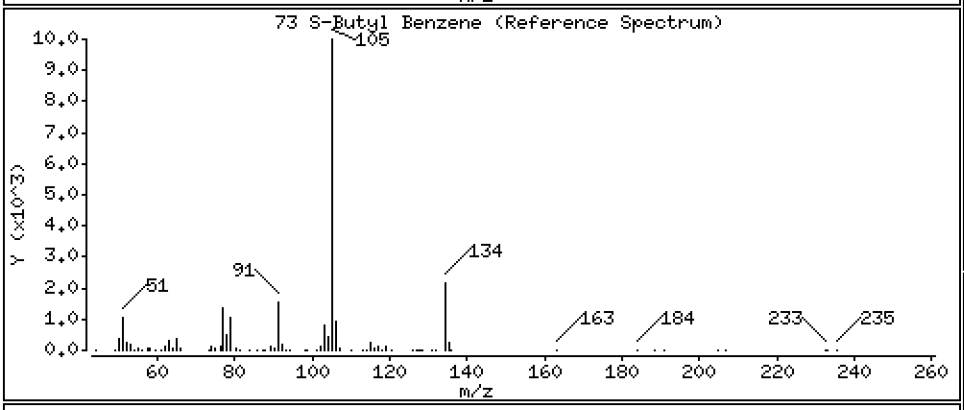
Concentration: 0.1723 ug/L

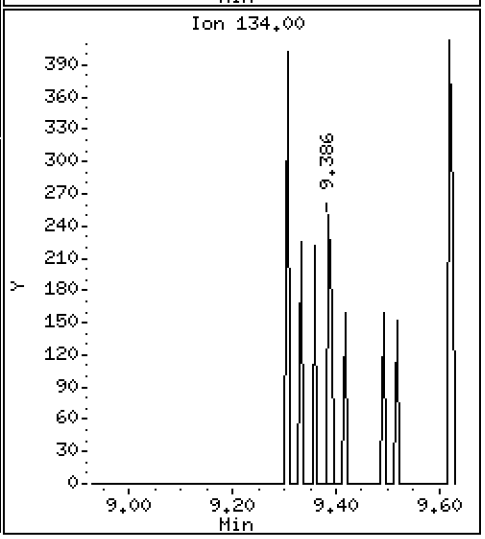


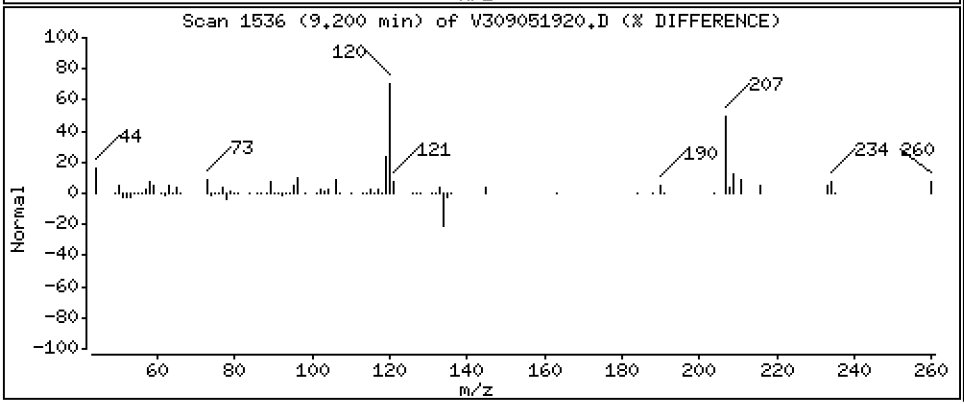












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

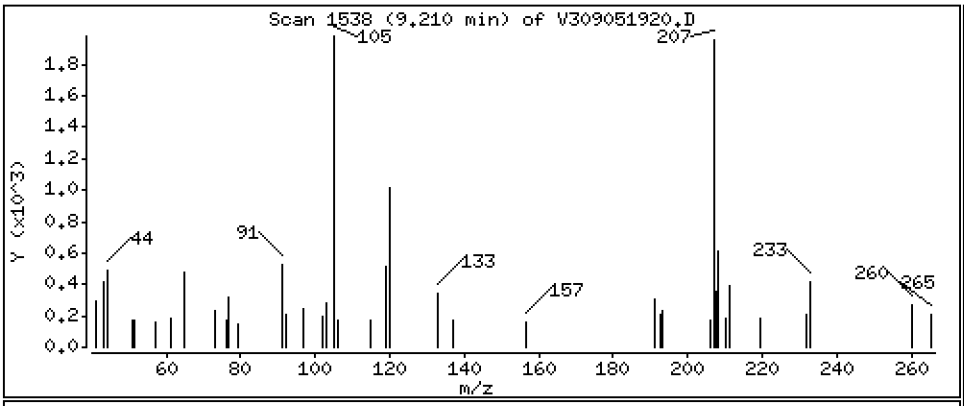
Operator: PKC

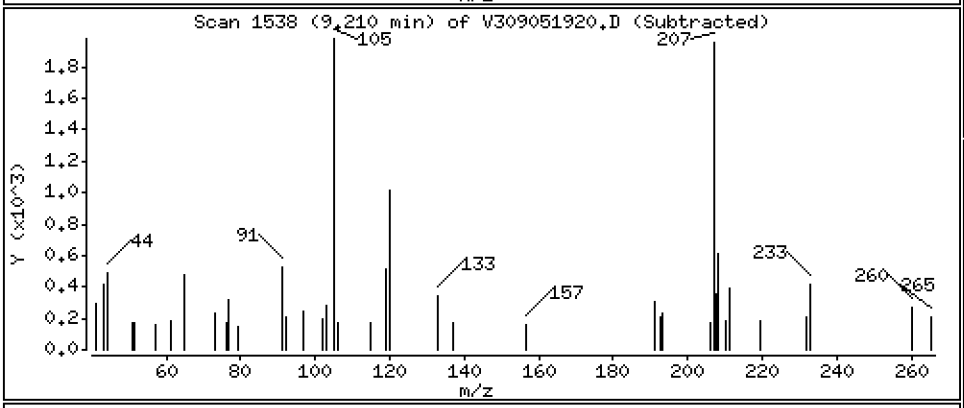
Column phase: RTXVMS

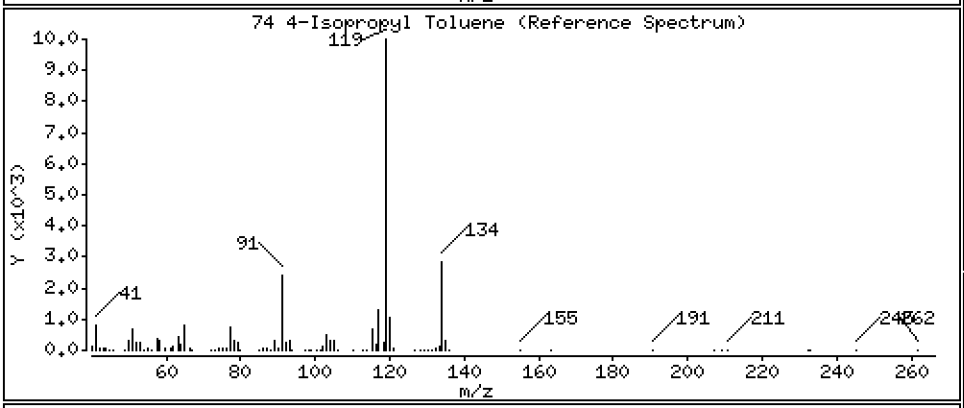
Column diameter: 0.18

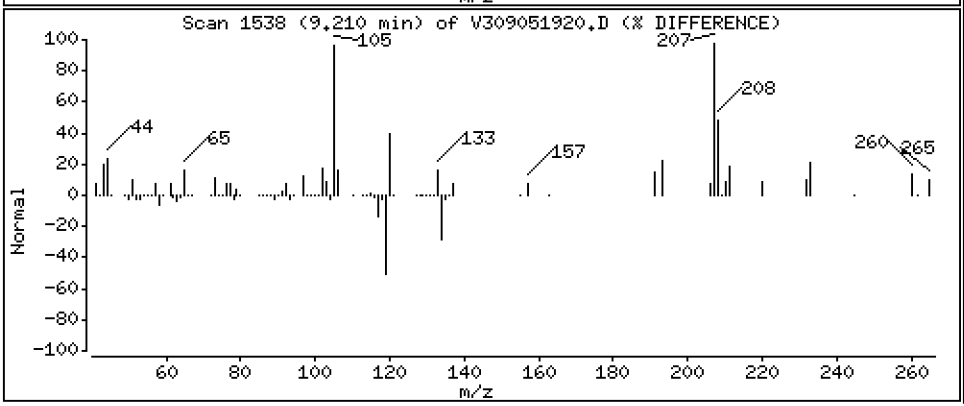
74 4-Isopropyl Toluene

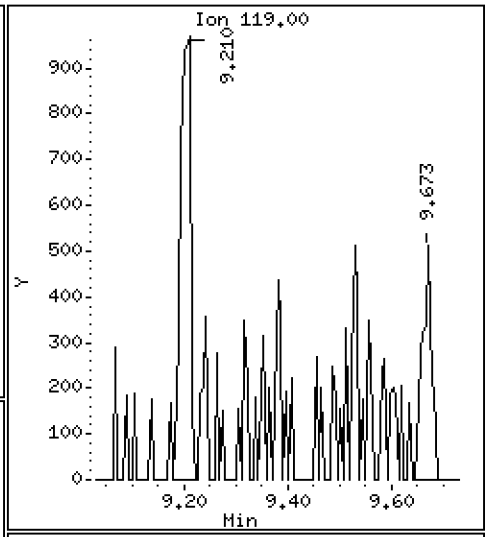
Concentration: 0.04559 ug/L

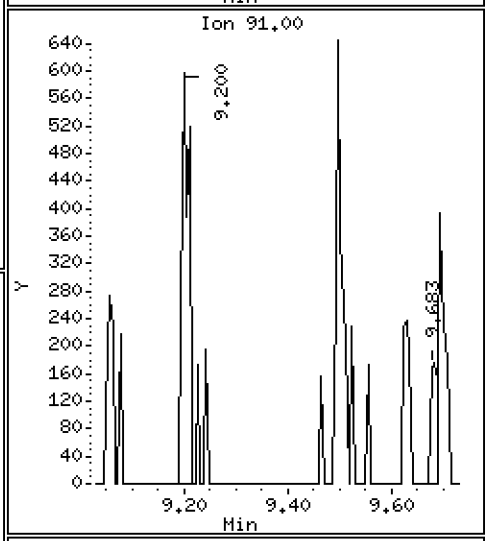


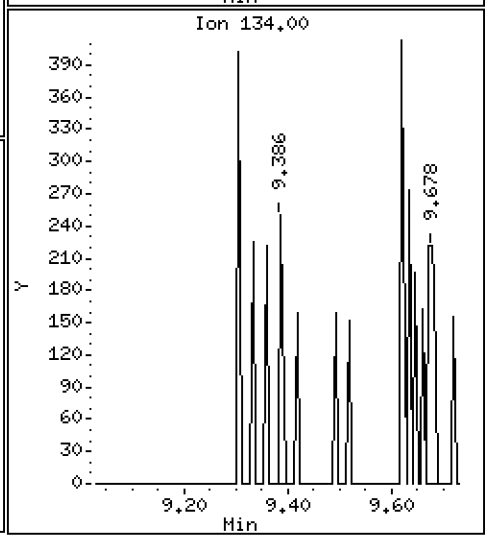












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

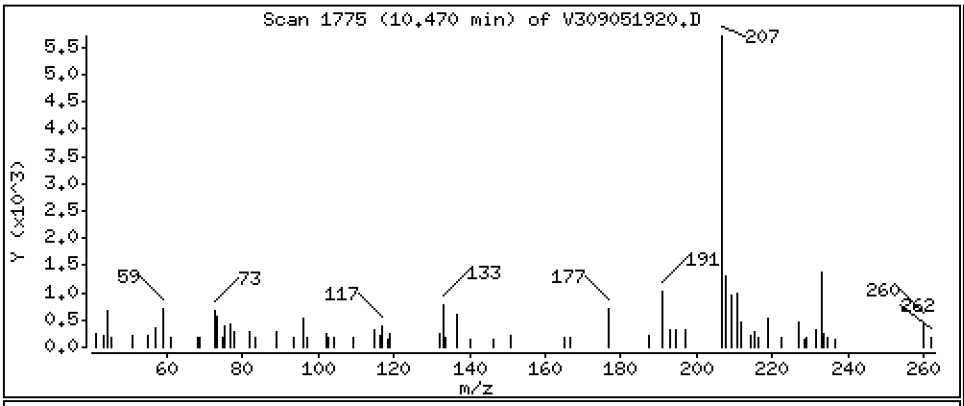
Operator: PKC

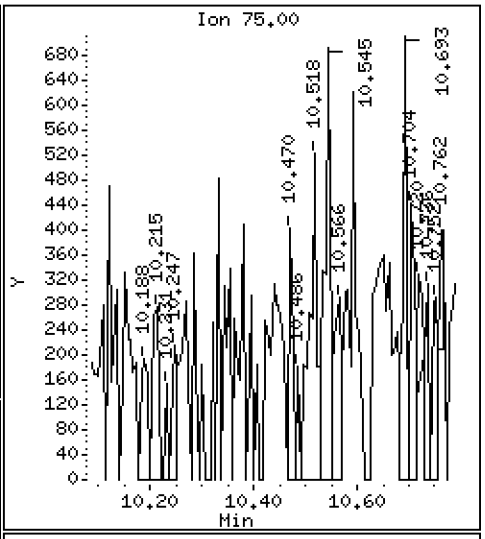
Column phase: RTXVMS

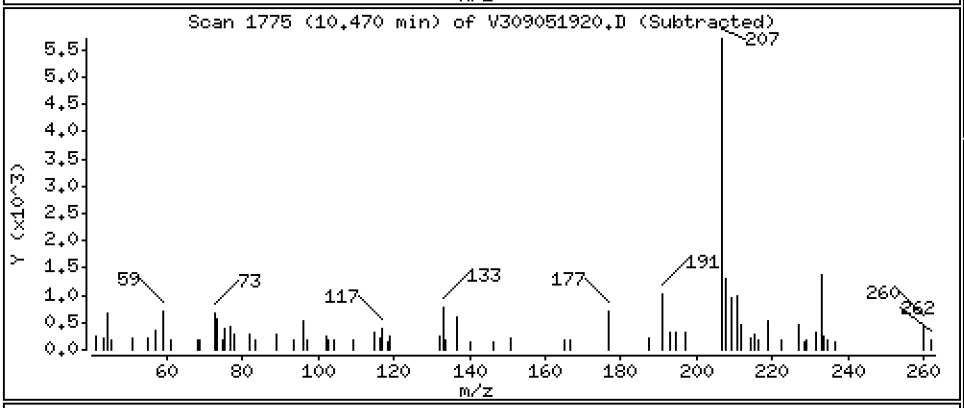
Column diameter: 0.18

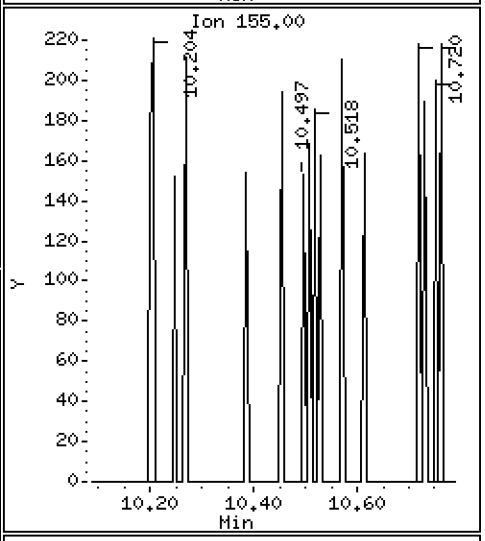
81 1,2-Dibromo 3-Chloropropane

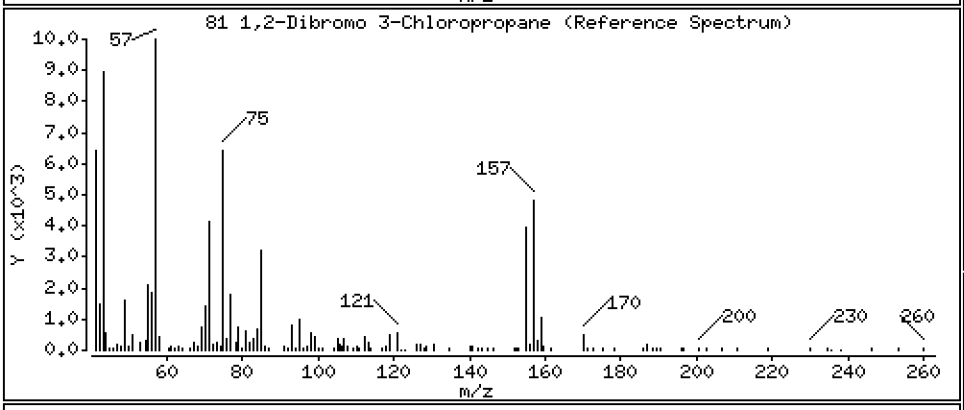
Concentration: 0.1919 ug/L

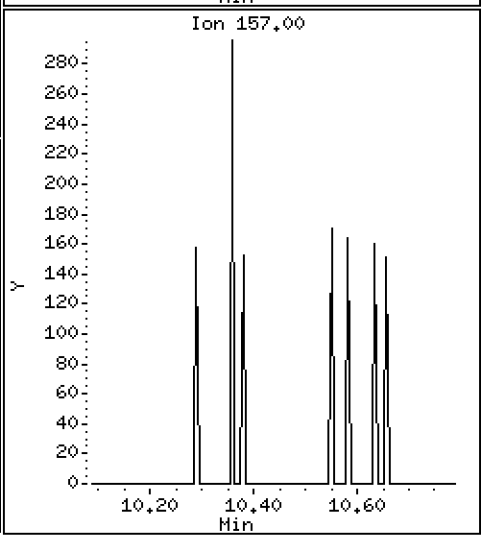


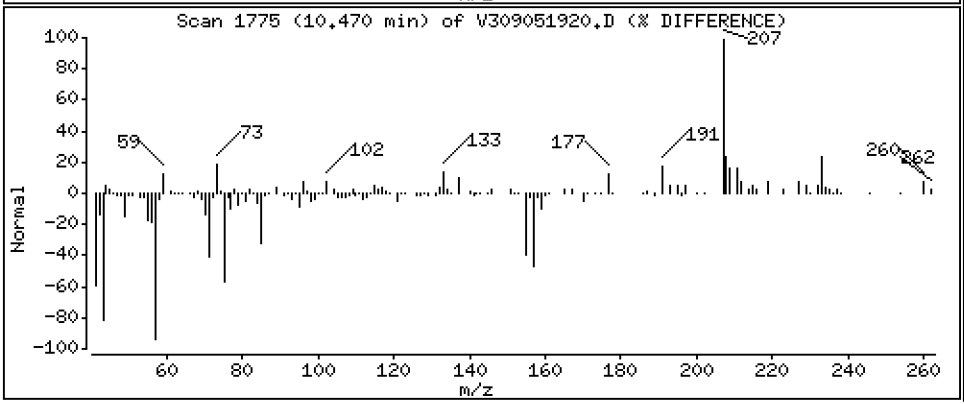












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Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

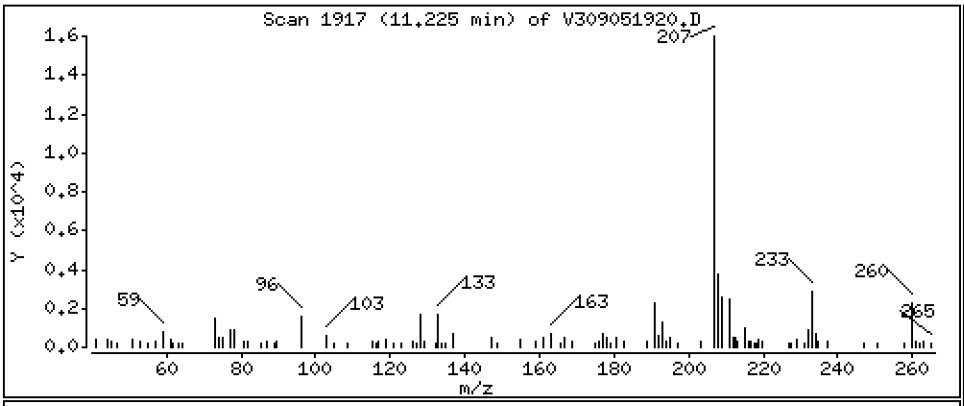
Operator: PKC

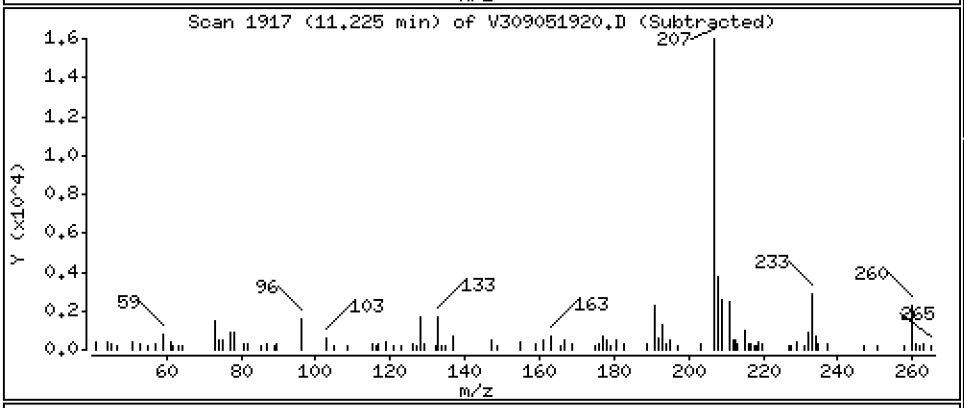
Column phase: RTXVMS

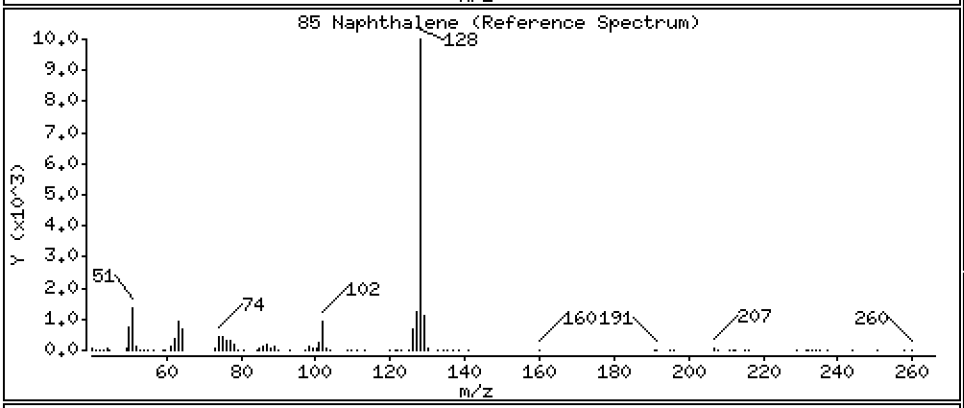
Column diameter: 0.18

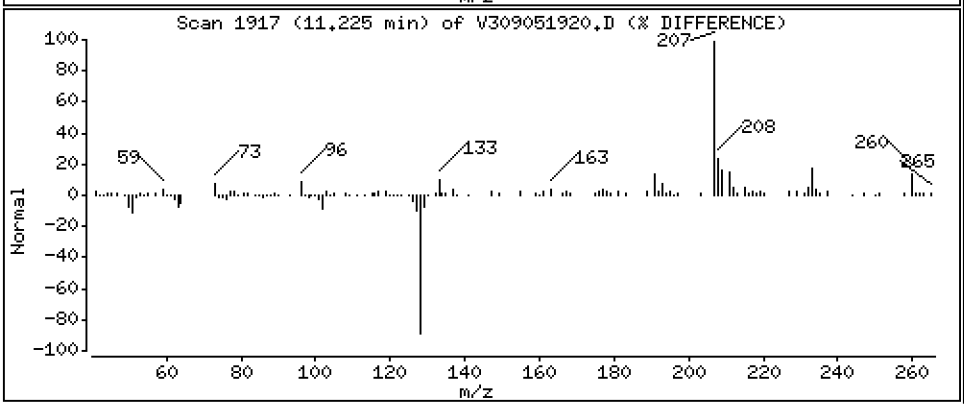
85 Naphthalene

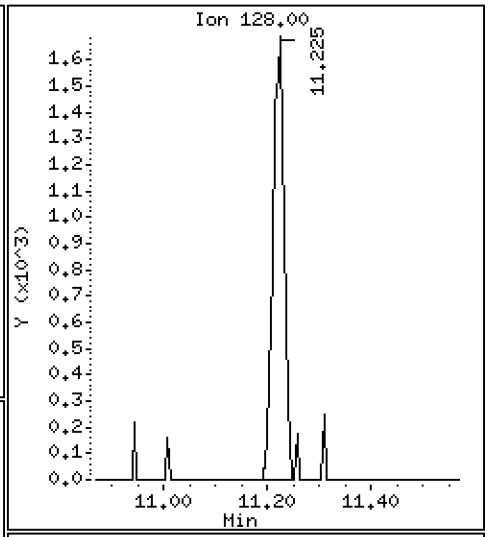
Concentration: 0.1320 ug/L

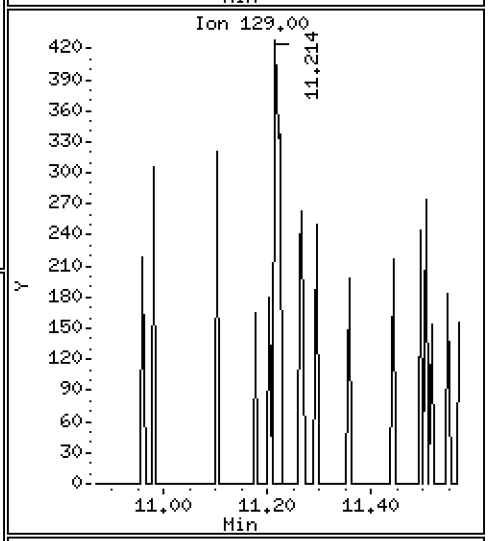


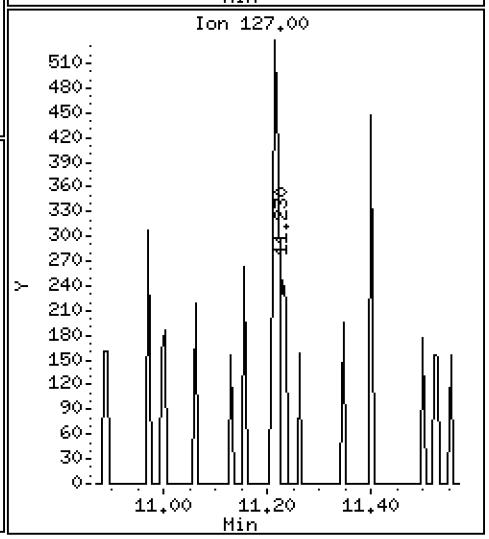












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051920.D

Date : 05-SEP-2019 19:48

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-03

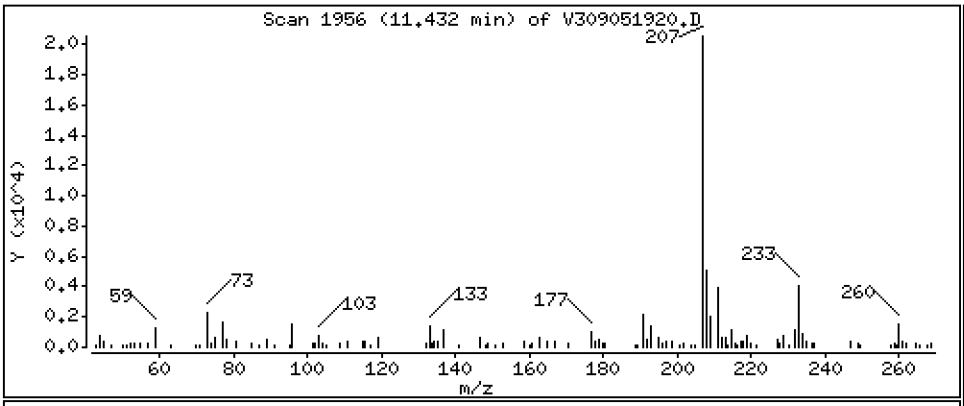
Operator: PKC

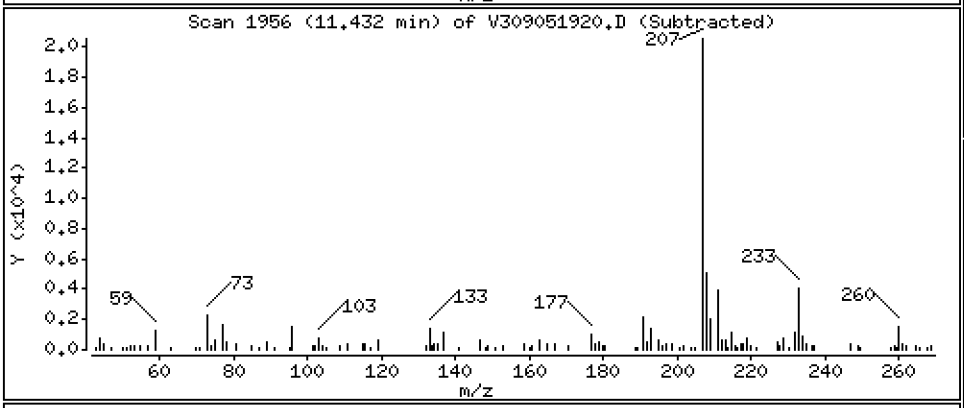
Column phase: RTXVMS

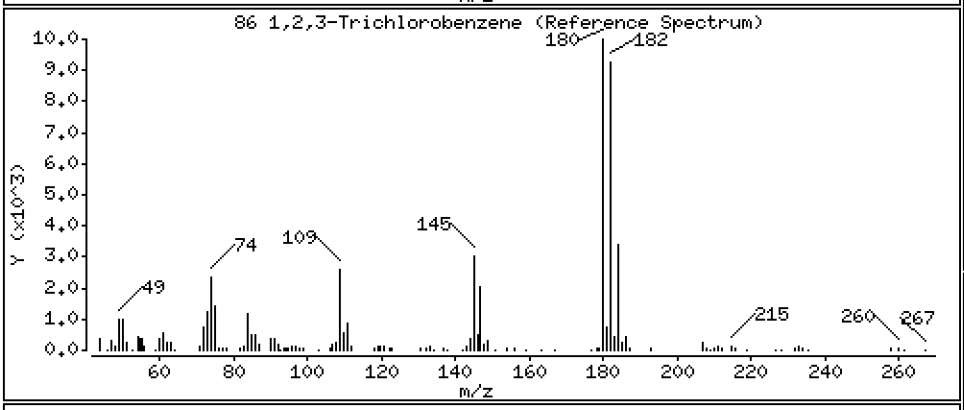
Column diameter: 0.18

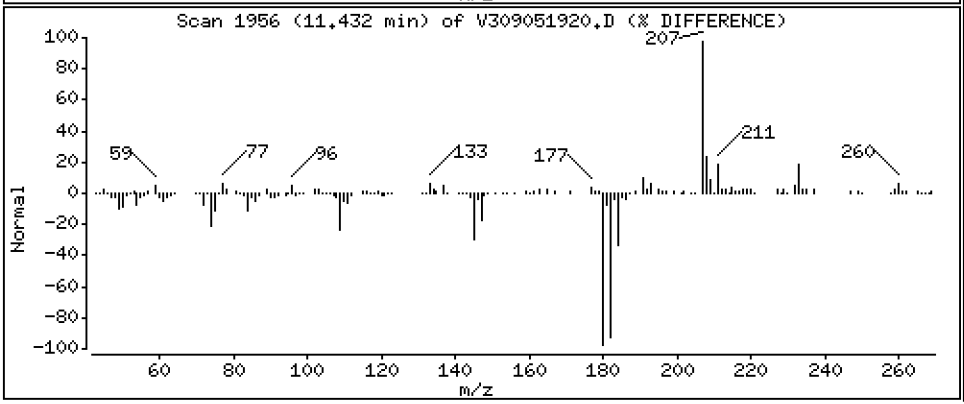
86 1,2,3-Trichlorobenzene

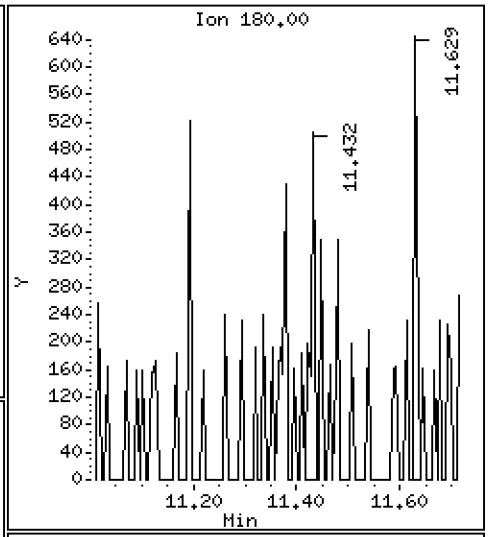
Concentration: 0.02804 ug/L

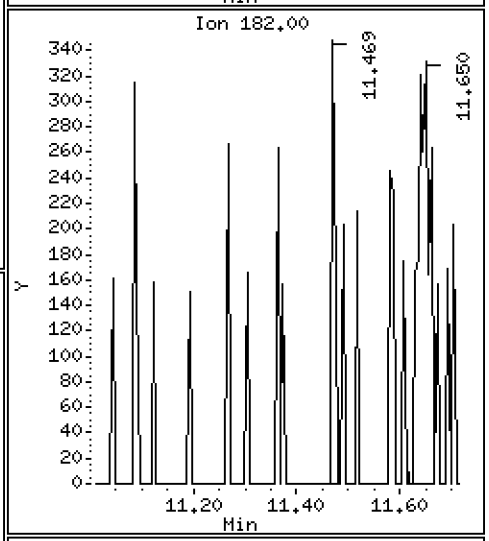


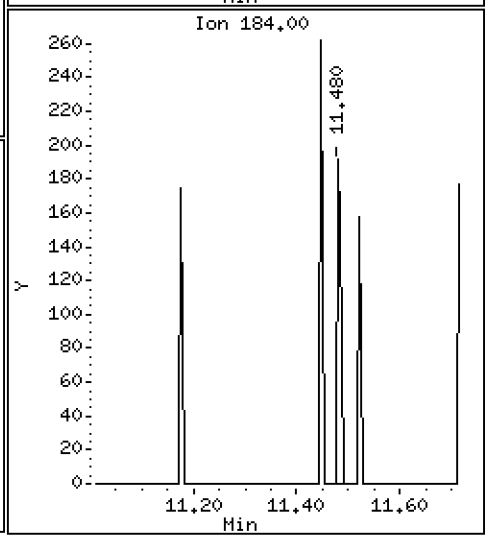












ARI Labs, Inc.

8260C 10 ml purge

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Inj Date : 05-SEP-2019 19:48
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-03
Misc Info : 16-
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Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	3.007	2.996	(0.556)	713	0.04182	0.04182
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	3.363	3.347	(0.622)	380	0.36793	0.3679
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	3.703	3.644	(0.685)	924	0.62144	0.6214
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	4.490	4.489	(0.830)	289	0.02216	0.02216
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.058	5.053	(0.935)	20663	5.10940	5.109(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	5.755	5.164	(1.064)	53	0.02184	0.02184
	31 Benzene	78	5.335	5.335	(0.922)	1055	0.04436	0.04436
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	93529	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	21939	4.86921	4.869(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	5.755	5.760	(0.994)	748	0.11761	0.1176
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	138961	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
39	1,2-Dichloropropane	63	Compound Not Detected.					
40	Bromodichloromethane	83	Compound Not Detected.					
173	2-Pentanone	86	5.787	6.398	(1.000)	777	1.50328	1.503
41	2-Chloroethyl Vinyl Ether	63	6.781	6.573	(1.172)	709	0.23332	0.2333
42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$ 43	d8-Toluene	98	6.738	6.738	(1.164)	83584	4.97205	4.972(R)
44	Toluene	92	6.775	6.775	(1.171)	4343	0.28007	0.2801
46	Tetrachloroethene	166	Compound Not Detected.					
45	4-Methyl-2-Pentanone	58	6.754	7.041	(1.167)	205	0.10046	0.1005
47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
48	1,1,2-Trichloroethane	97	Compound Not Detected.					
49	Chlorodibromomethane	129	Compound Not Detected.					
50	1,3-Dichloropropane	76	Compound Not Detected.					
51	1,2-Dibromoethane	107	Compound Not Detected.					
52	2-Hexanone	43	7.801	7.615	(0.999)	227	0.05932	0.05932
* 53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	142218	10.0000	
54	Chlorobenzene	112	Compound Not Detected.					
55	Ethyl Benzene	106	7.844	7.843	(1.004)	938	0.09377	0.09377
56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
57	m,p-xylene	106	7.945	7.944	(1.017)	4831	0.39219	0.3922
58	o-Xylene	106	8.253	8.247	(1.056)	2322	0.18673	0.1867
59	Styrene	104	Compound Not Detected.					
60	Bromoform	173	Compound Not Detected.					
61	Isopropyl Benzene	105	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	8.684	8.678	(1.112)	32859	4.86229	4.862(R)
63	Bromobenzene	156	Compound Not Detected.					
64	N-Propyl Benzene	91	8.774	8.768	(0.924)	1108	0.03051	0.03051
65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
66	2-Chloro Toluene	91	Compound Not Detected.					
67	1,3,5-Trimethyl Benzene	105	8.907	8.912	(0.938)	765	0.02745	0.02745
68	1,2,3-Trichloropropane	110	Compound Not Detected.					
69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
70	4-Chloro Toluene	91	Compound Not Detected.					
71	T-Butyl Benzene	119	Compound Not Detected.					
72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	5668	0.20059	0.2006
73	S-Butyl Benzene	105	9.199	9.279	(0.969)	5668	0.17228	0.1723
74	4-Isopropyl Toluene	119	9.210	9.380	(0.970)	1346	0.04559	0.04559
75	1,3-Dichlorobenzene	146	Compound Not Detected.					
* 76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	89138	10.0000	
77	1,4-Dichlorobenzene	146	Compound Not Detected.					
78	N-Butyl Benzene	91	Compound Not Detected.					
$ 79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	42599	5.08623	5.086(R)
80	1,2-Dichlorobenzene	146	Compound Not Detected.					
81	1,2-Dibromo 3-Chloropropane	75	10.470	10.437	(1.102)	197	0.19191	0.1919
83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
85	Naphthalene	128	11.224	11.219	(1.182)	2611	0.13202	0.1320
86	1,2,3-Trichlorobenzene	180	11.432	11.362	(1.204)	271	0.02804	0.02804

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051920.D
Lab Smp Id: 19H0481-03
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	93529	-3.48
37 1,4-Difluorobenze	140121	70061	280242	138961	-0.83
53 d5-Chlorobenzene	140128	70064	280256	142218	1.49
76 d4-1,4-Dichlorobe	90137	45069	180274	89138	-1.11

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-03
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.109	102.19	
$ 33 d4-1,2-Dichloroeth	5.000	4.869	97.38	
$ 43 d8-Toluene	5.000	4.972	99.44	
$ 62 4-Bromofluorobenze	5.000	4.862	97.25	
$ 79 d4-1,2-Dichloroben	5.000	5.086	101.72	

REVIEW SUMMARY FOR FILE - V309051920.D

Lab ID: 19H0481-03
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 19:48

RT	CO-ELUTION COMPOUNDS
9.200	1,2,4-Trimethylbenzene and S-Butyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.685	0.674	0.0108	Acetone
1.064	0.955	0.1091	2-Butanone
1.172	1.136	0.0358	2-Chloroethyl Vinyl Ether
1.167	1.217	-0.0496	4-Methyl-2-Pentanone
0.999	0.975	0.0238	2-Hexanone
0.969	0.977	-0.0084	S-Butyl Benzene
0.970	0.988	-0.0179	4-Isopropyl Toluene
1.204	1.196	0.0073	1,2,3-Trichlorobenzene
1.000	1.106	-0.1056	2-Pentanone

RRT check based on Ccal File: V309051928.D

On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

P40-UST-TB-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-05 B	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/05/19 13:58	File ID:	V309051910.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 15:10
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.20	U	0.03	0.20
108-88-3	Toluene	1	0.20	U	0.04	0.20
100-41-4	Ethylbenzene	1	0.20	U	0.04	0.20
179601-23-1	m,p-Xylene	1	0.40	U	0.05	0.40
95-47-6	o-Xylene	1	0.20	U	0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.89	97.7	80 - 120	
4-Bromofluorobenzene	5.0000	4.88	97.7	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051910.D

Date : 05-SEP-2019 15:10

Client ID:

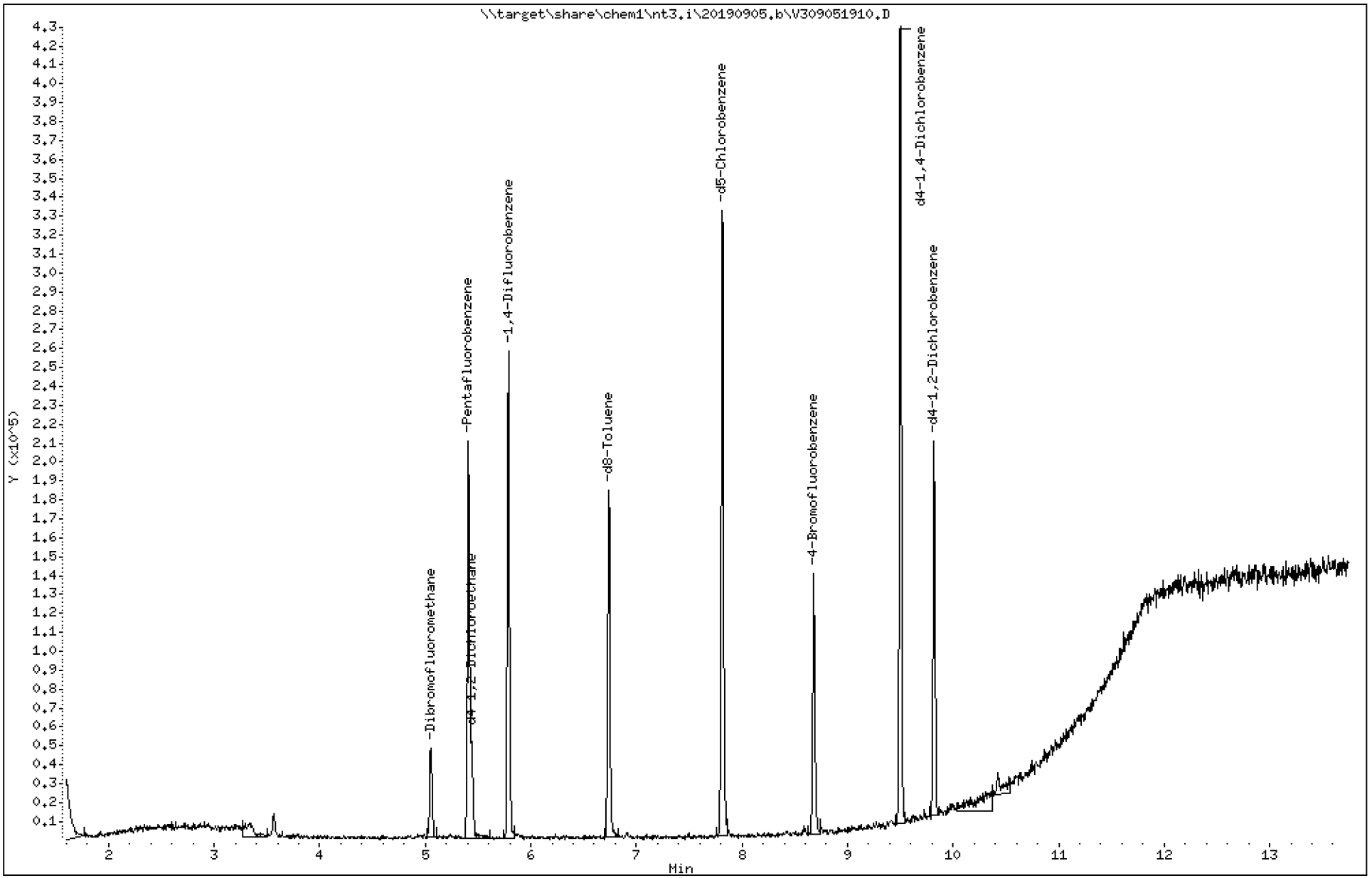
Sample Info: 19H0481-05

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051910.D

Date : 05-SEP-2019 15:10

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-05

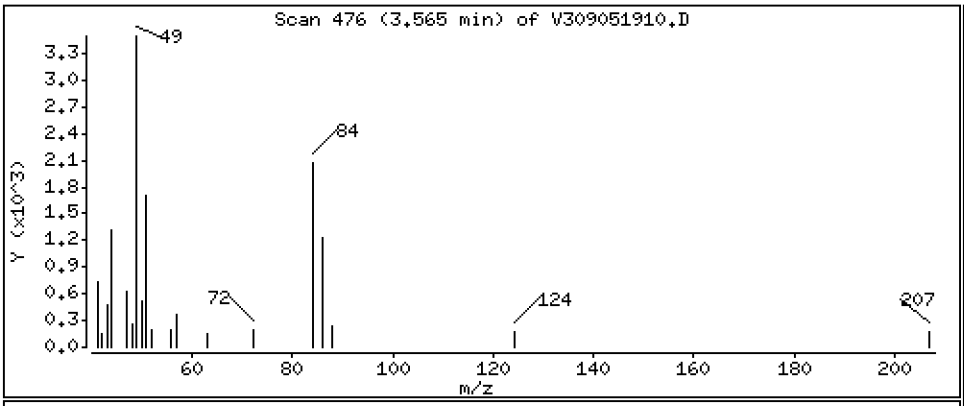
Operator: PKC

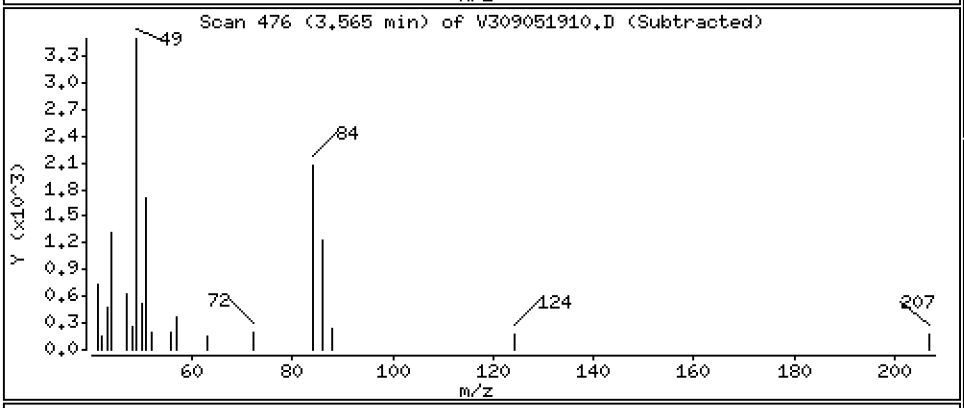
Column phase: RTXVMS

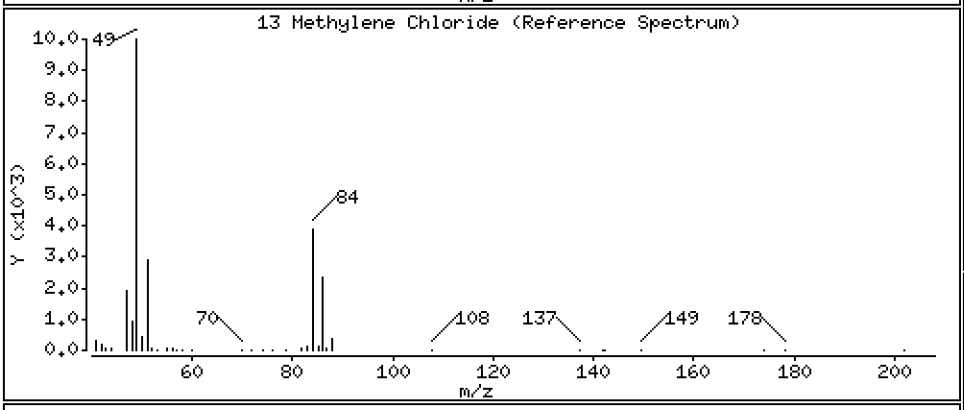
Column diameter: 0.18

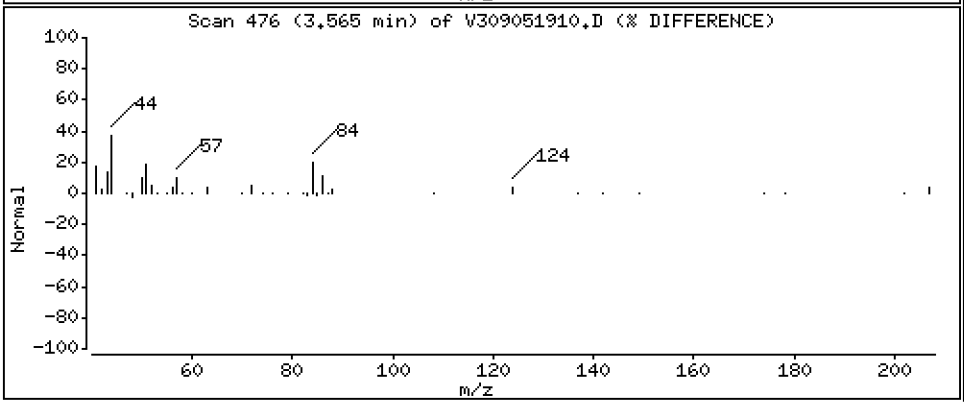
13 Methylene Chloride

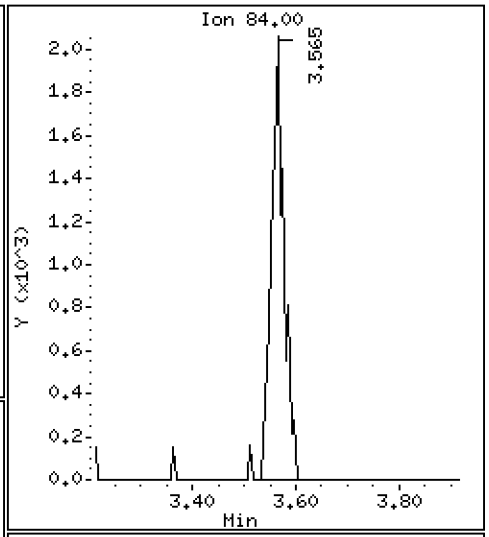
Concentration: 0.5482 ug/L

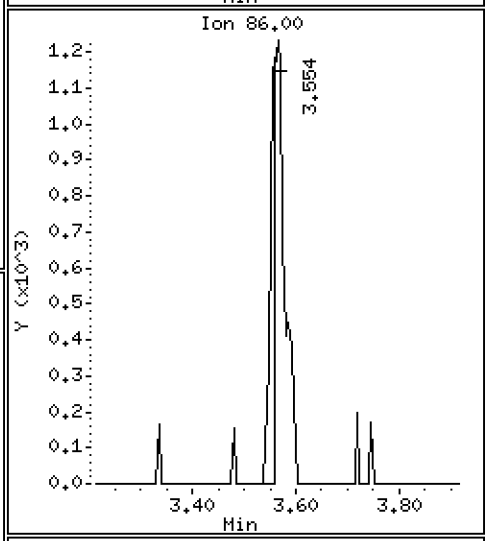


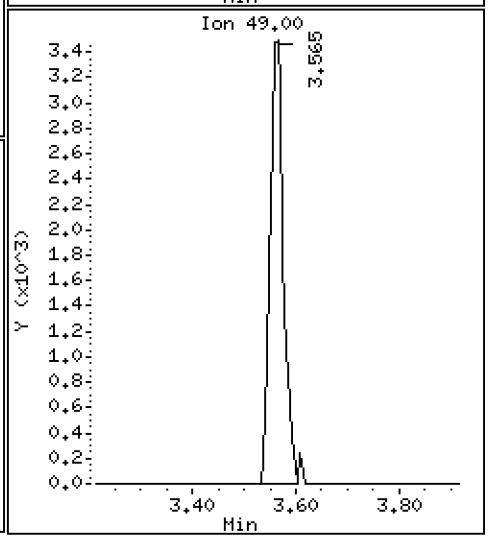












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051910.D

Date : 05-SEP-2019 15:10

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-05

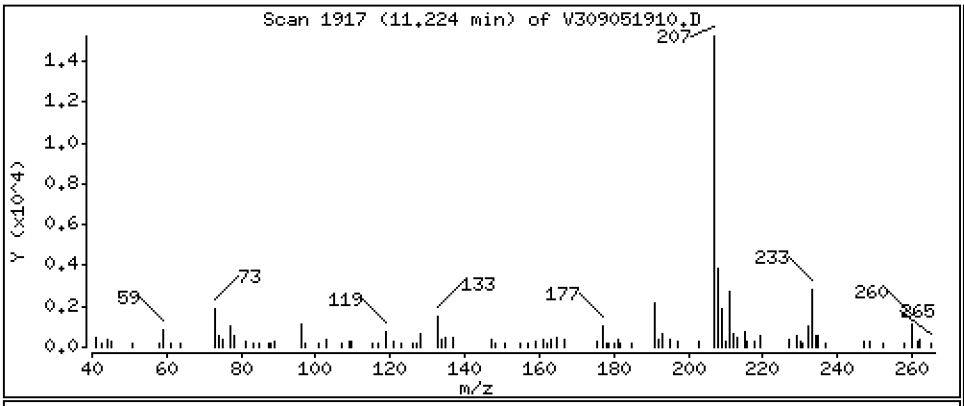
Operator: PKC

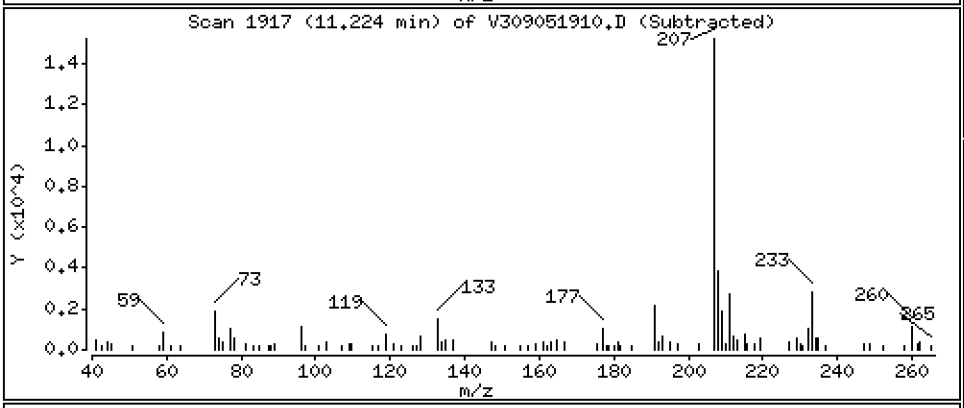
Column phase: RTXVMS

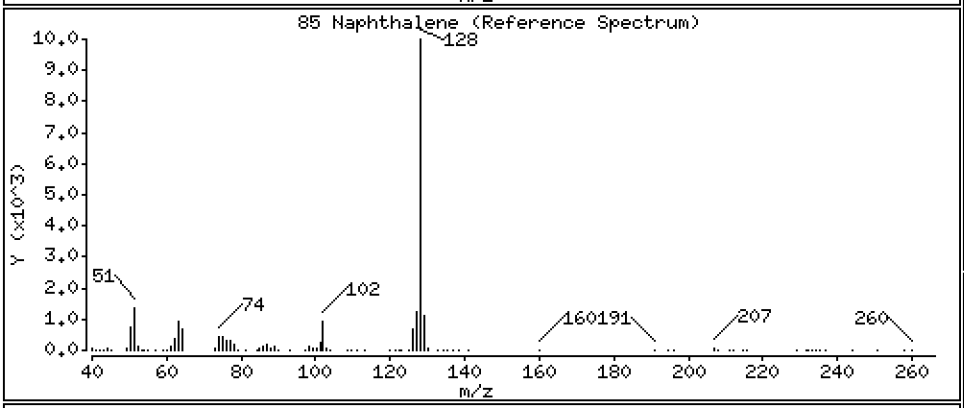
Column diameter: 0.18

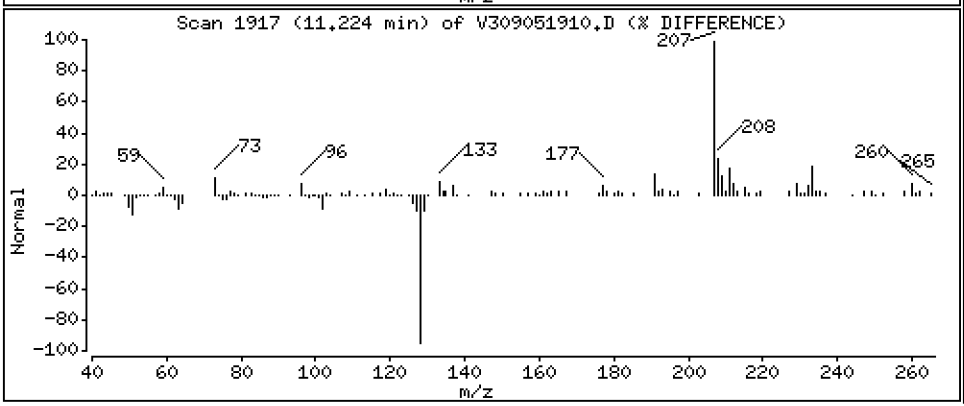
85 Naphthalene

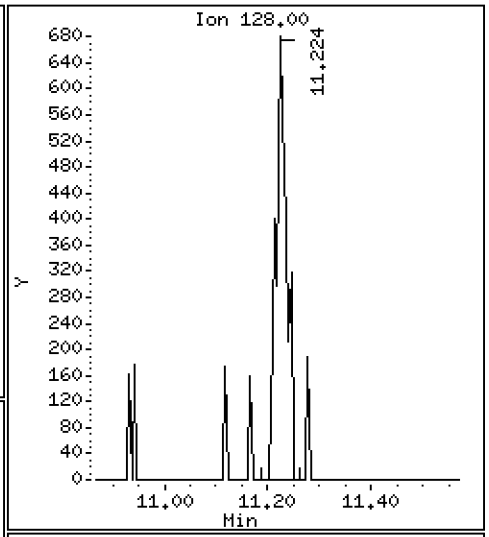
Concentration: 0.04515 ug/L

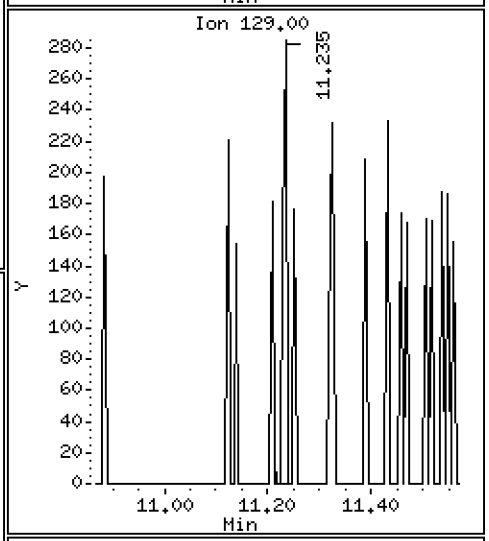


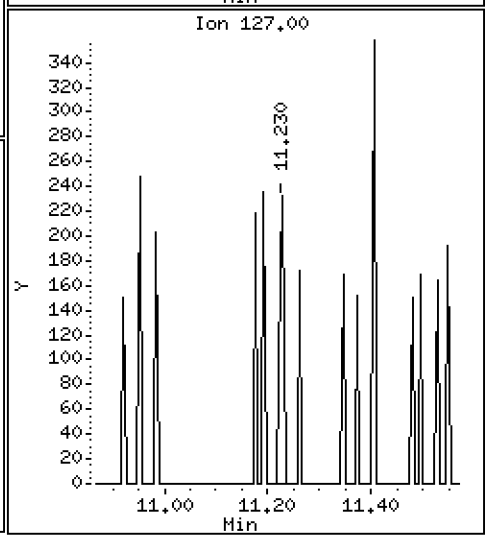












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051910.D
Lab Smp Id: 19H0481-05
Inj Date : 05-SEP-2019 15:10
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-05
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.564	3.565	(0.659)	3482	0.54823	0.5482
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.047	5.053	(0.933)	23041	4.79915	4.799(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	Compound Not Detected.					
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	111035	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	26620	4.97664	4.977(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	159904	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	94535	4.88695	4.887(R)
	44	Toluene	92	Compound Not Detected.					
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.811	7.812	(1.000)	159851	10.0000	
	54	Chlorobenzene	112	Compound Not Detected.					
	55	Ethyl Benzene	106	Compound Not Detected.					
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	Compound Not Detected.					
	58	o-Xylene	106	Compound Not Detected.					
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	8.683	8.678	(1.112)	37091	4.88309	4.883(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	98119	10.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	44334	4.80887	4.809(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.224	11.219	(1.181)	983	0.04515	0.04515(M)
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051910.D
Lab Smp Id: 19H0481-05
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111035	14.59
37 1,4-Difluorobenze	140121	70061	280242	159904	14.12
53 d5-Chlorobenzene	140128	70064	280256	159851	14.07
76 d4-1,4-Dichlorobe	90137	45069	180274	98119	8.86

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-05
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.799	95.98	
$ 33 d4-1,2-Dichloroeth	5.000	4.977	99.53	
$ 43 d8-Toluene	5.000	4.887	97.74	
$ 62 4-Bromofluorobenze	5.000	4.883	97.66	
$ 79 d4-1,2-Dichloroben	5.000	4.809	96.18	

REVIEW SUMMARY FOR FILE - V309051910.D

Lab ID: 19H0481-05
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 15:10

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

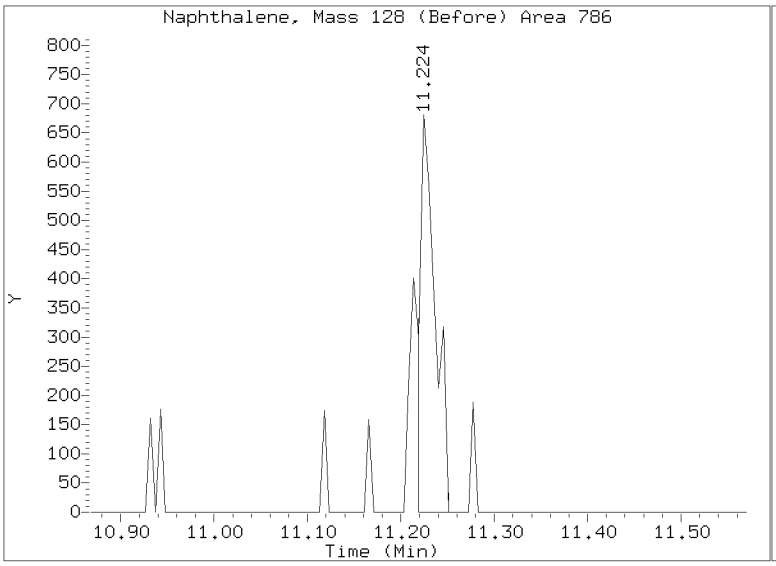
RRT check based on Ccal File: V309051928.D

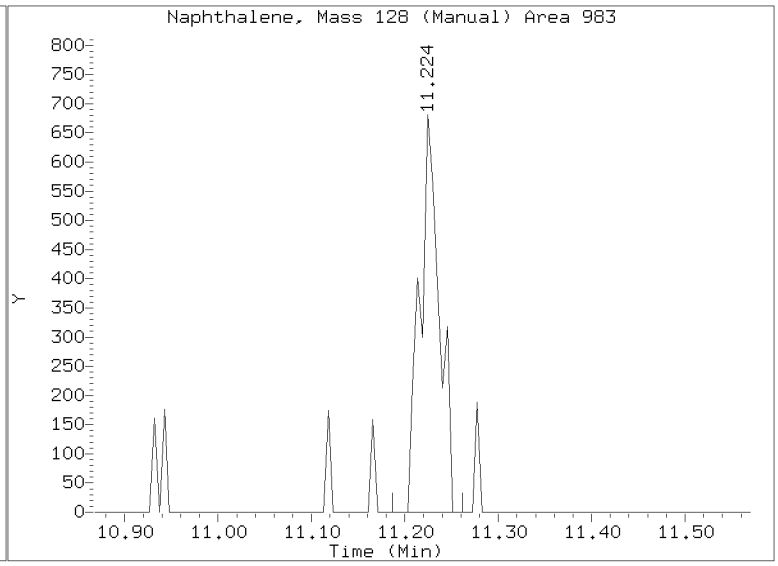
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051910.D
Injection Date: 05-SEP-2019 15:10
Lab ID:19H0481-05 Client ID:
Report Date: 09/06/2019 14:39





P40-UST-01-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-06 C	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/03/19 15:33	File ID:	NT509031919.D
% Solids:	96.64	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/03/19 19:55
Batch:	BHI0056	Sequence:	SHI0046	Initial/Final:	4.39 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.18	U	0.35	1.18
108-88-3	Toluene	1	1.18	U	0.18	1.18
100-41-4	Ethylbenzene	1	1.18	U	0.24	1.18
179601-23-1	m,p-Xylene	1	2.36	U	0.46	2.36
95-47-6	o-Xylene	1	1.18	U	0.26	1.18

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	53.1	106	77 - 120	
4-Bromofluorobenzene	50.000	51.8	104	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031919.D

Date : 03-SEP-2019 19:55

Client ID:

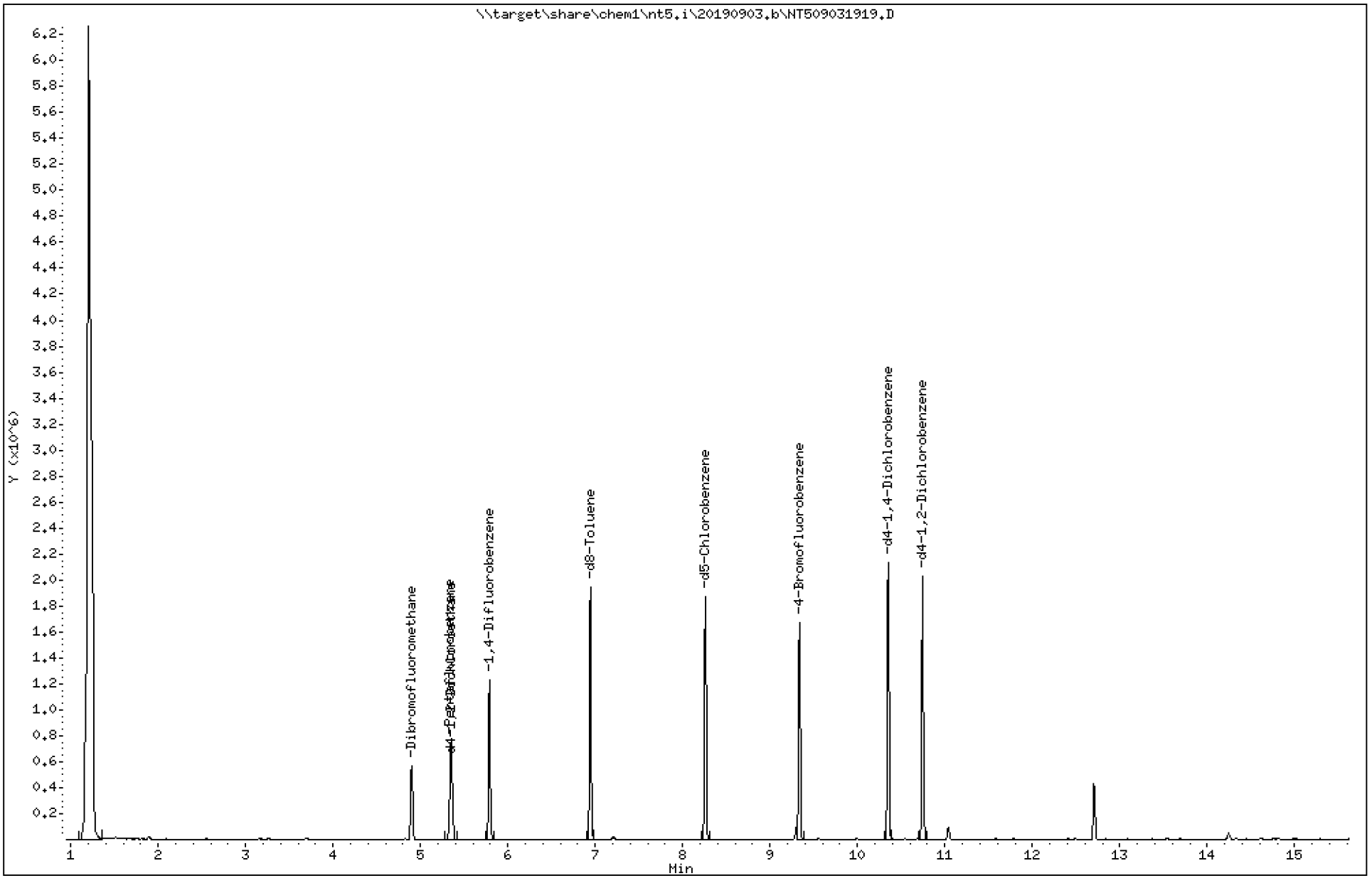
Instrument: nt5.i

Sample Info: 19H0481-06

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



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Date : 03-SEP-2019 19:55

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-06

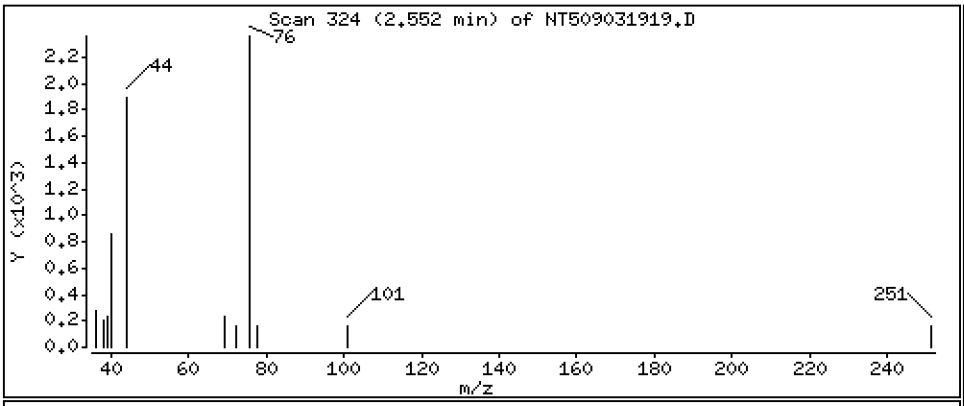
Operator: PB

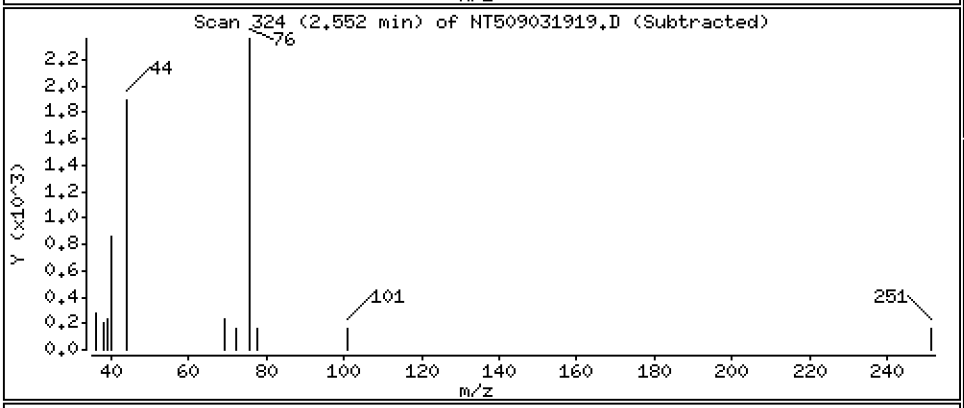
Column phase: RTXVMS

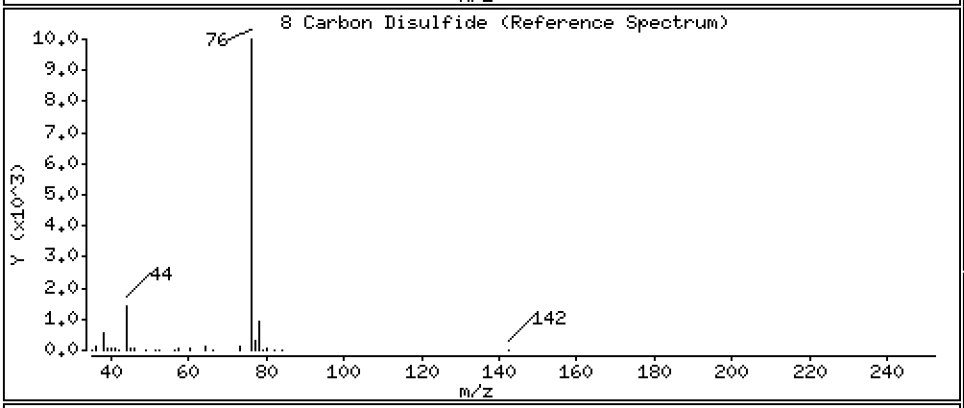
Column diameter: 0.18

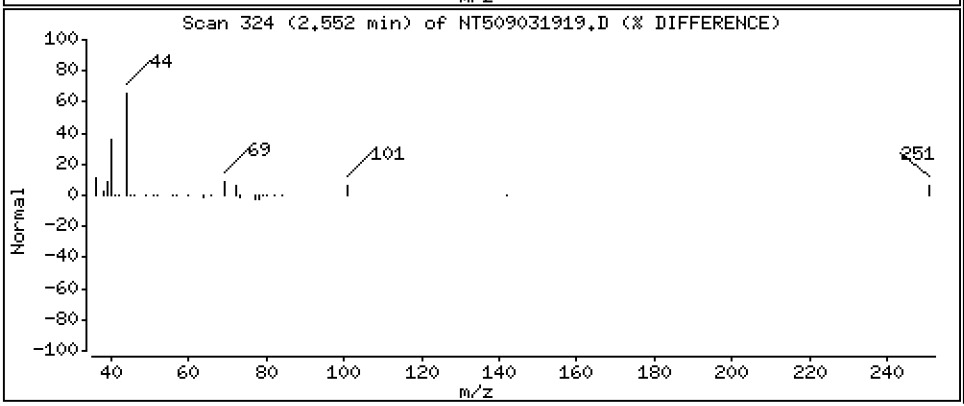
8 Carbon Disulfide

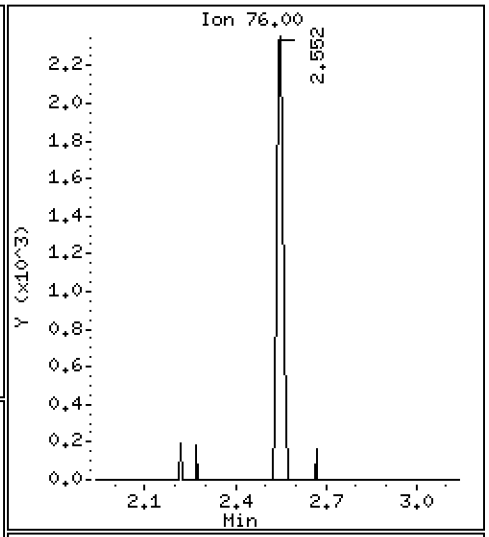
Concentration: 0.5238 ug/Kg

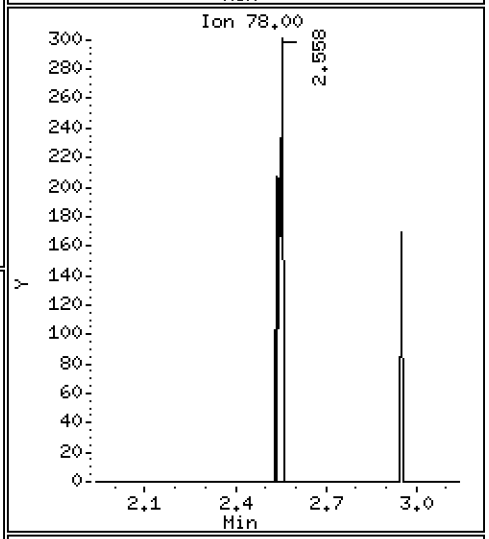


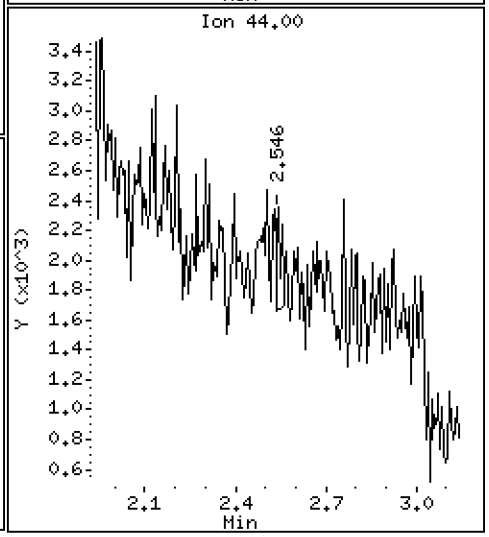












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031919.D

Date : 03-SEP-2019 19:55

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-06

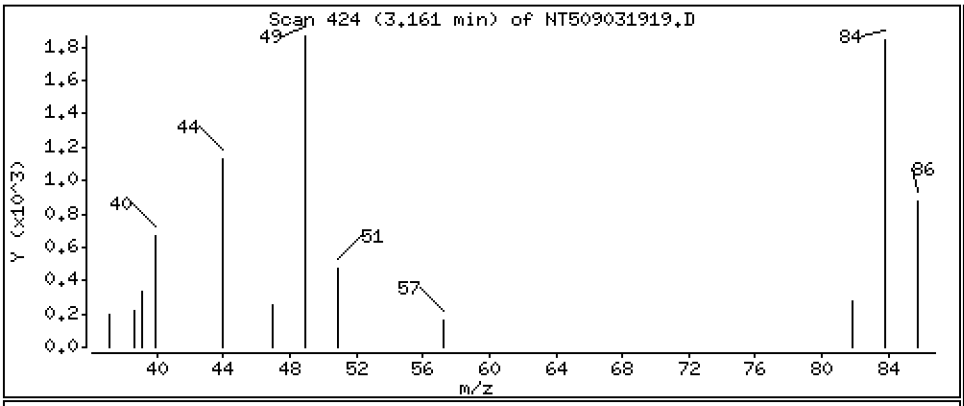
Operator: PB

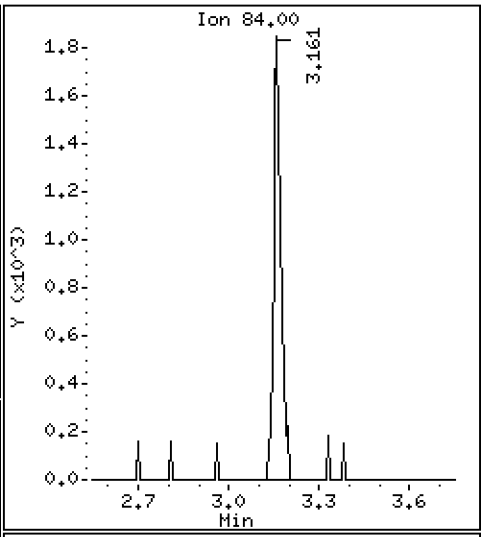
Column phase: RTXVMS

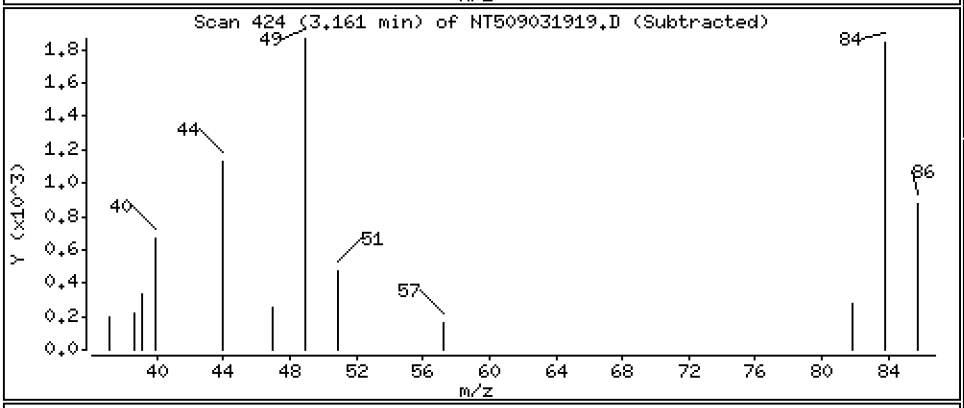
Column diameter: 0.18

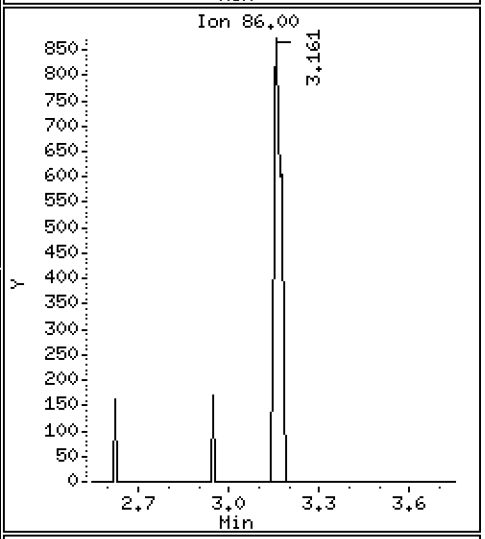
13 Methylene Chloride

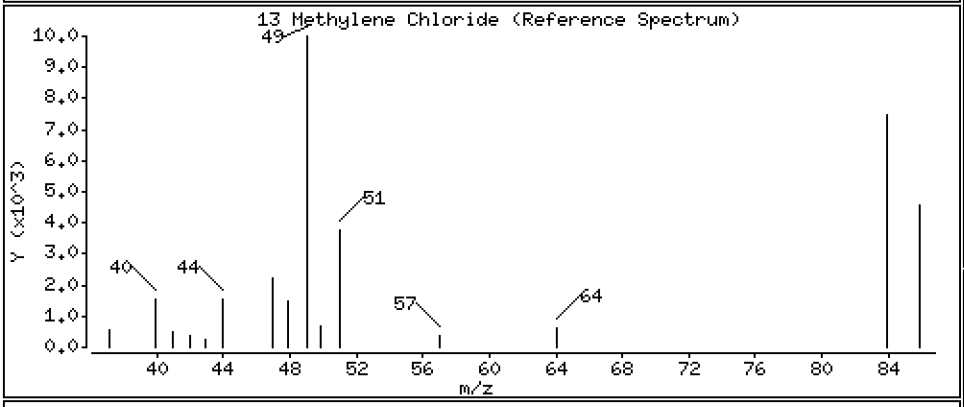
Concentration: 1.615 ug/Kg

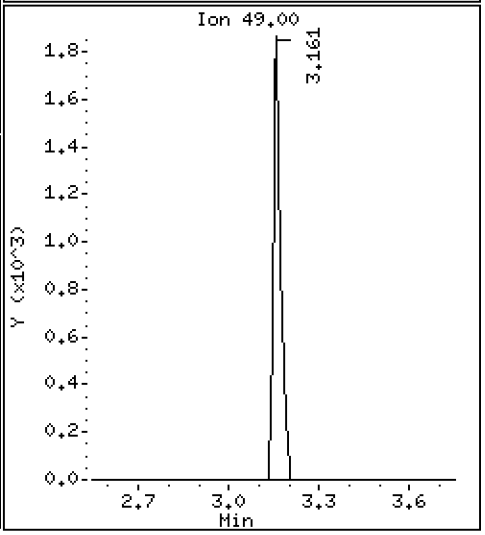


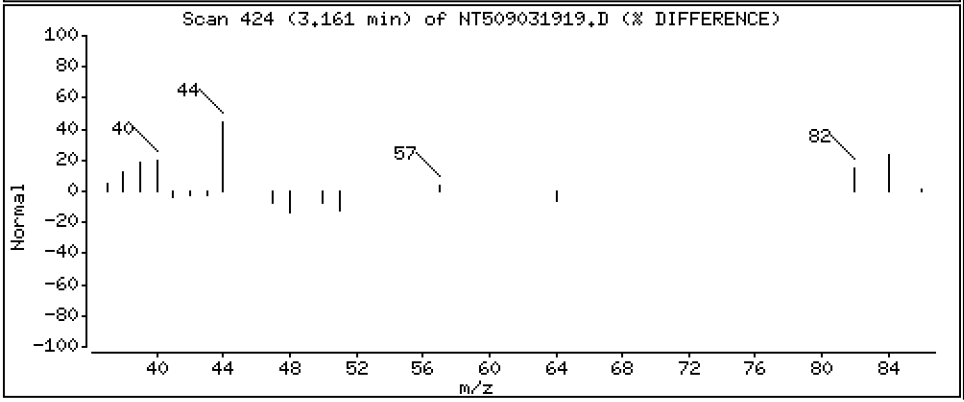












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Date : 03-SEP-2019 19:55

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-06

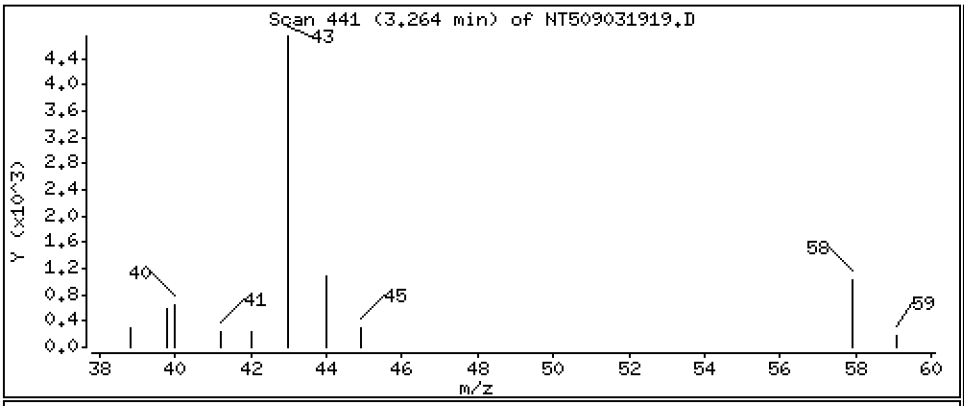
Operator: PB

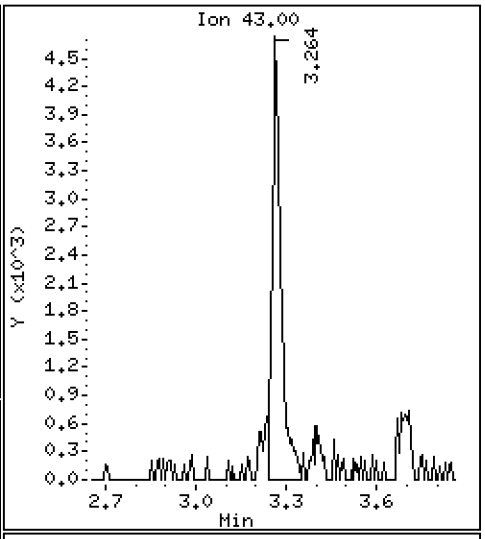
Column phase: RTXVMS

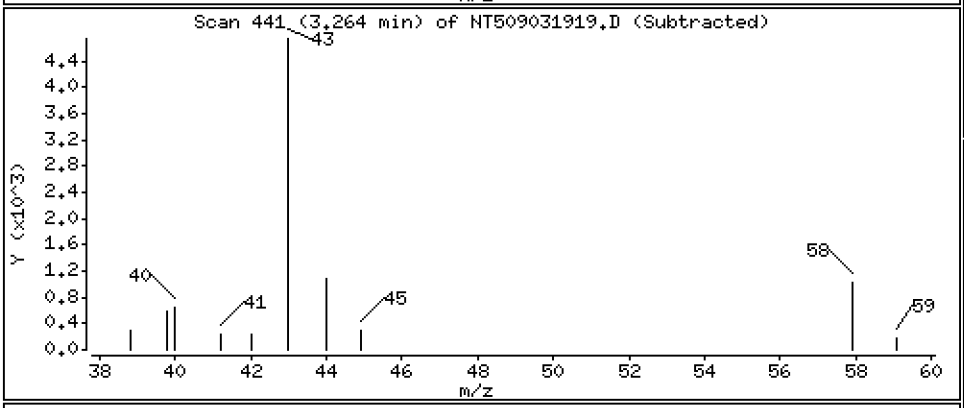
Column diameter: 0.18

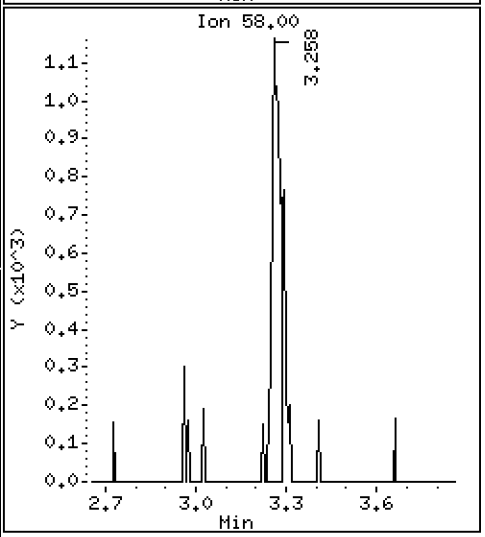
14 Acetone

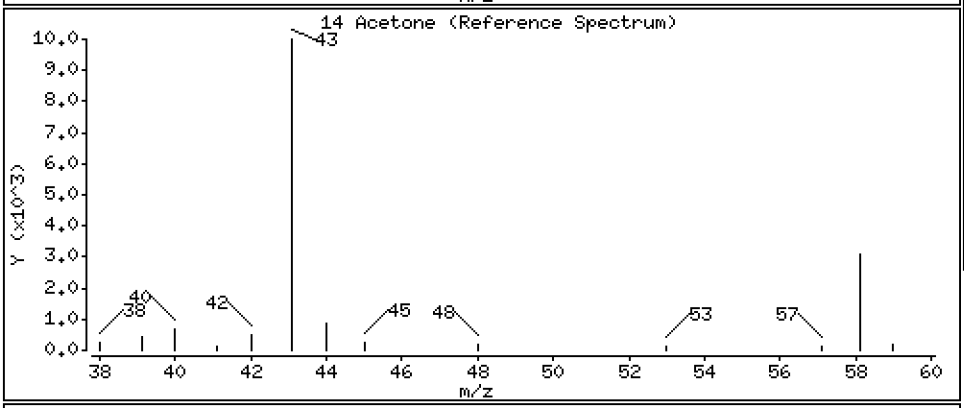
Concentration: 23.273 ug/Kg

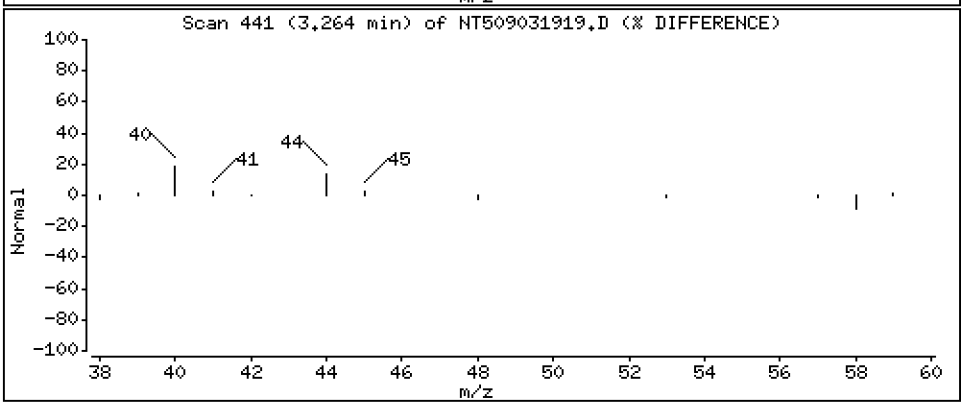












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Date : 03-SEP-2019 19:55

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-06

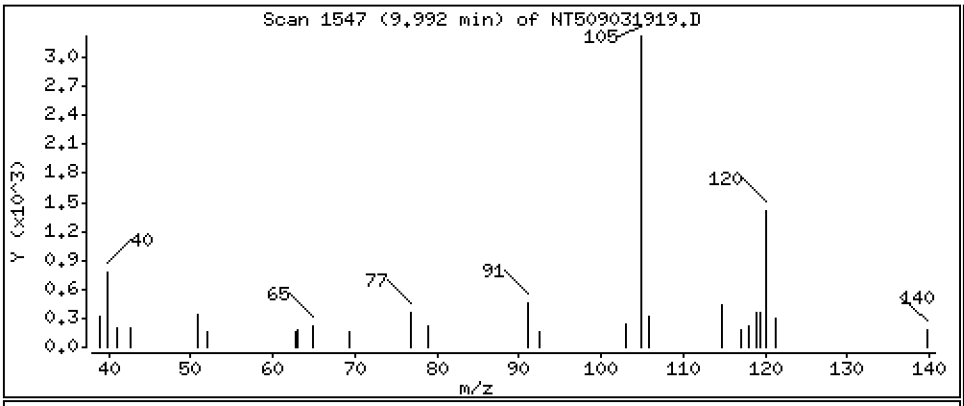
Operator: PB

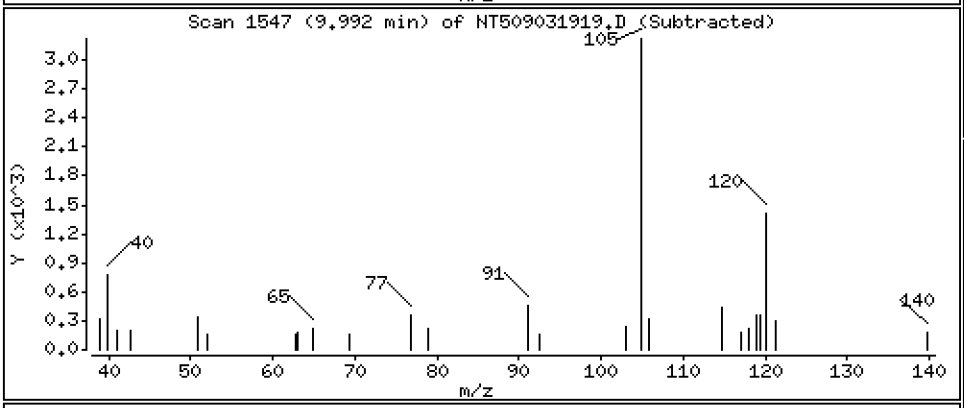
Column phase: RTXVMS

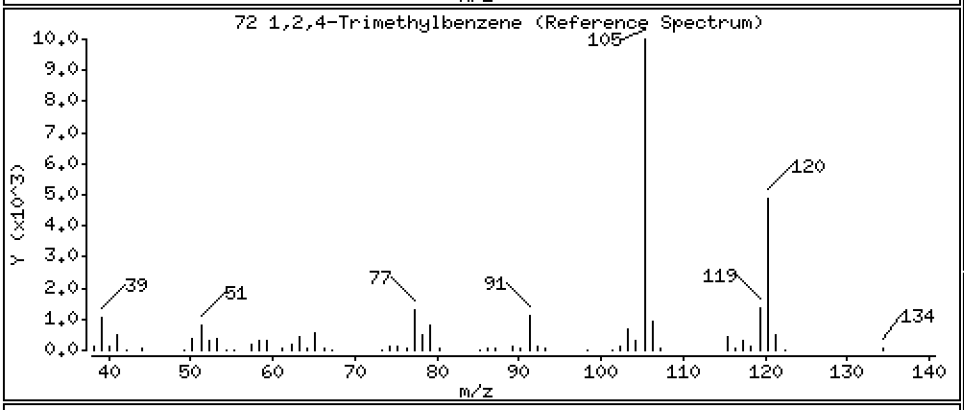
Column diameter: 0.18

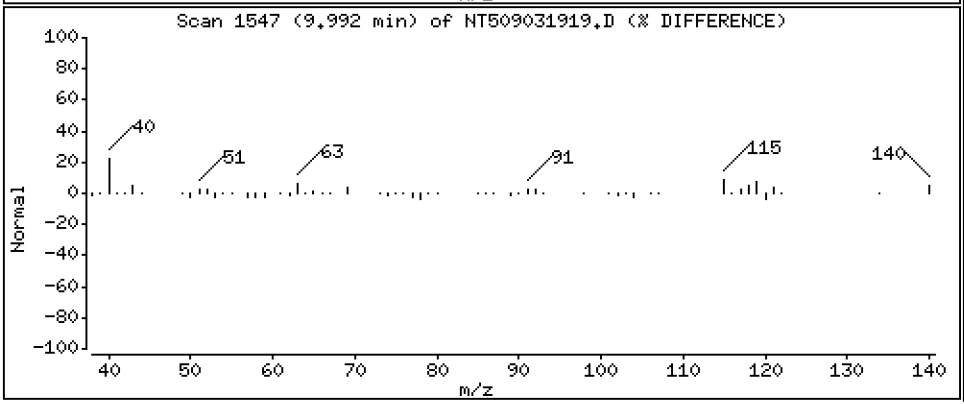
72 1,2,4-Trimethylbenzene

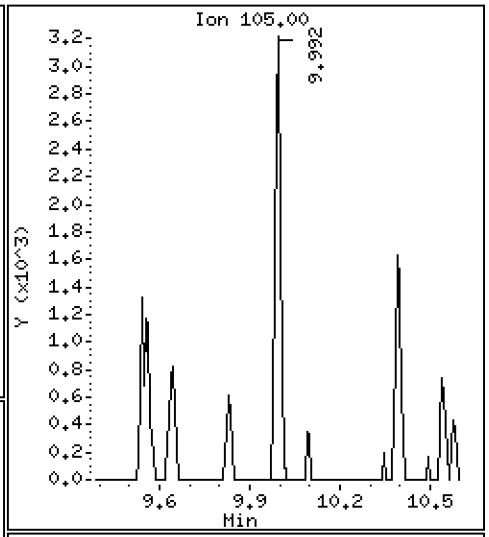
Concentration: 0.3140 ug/Kg

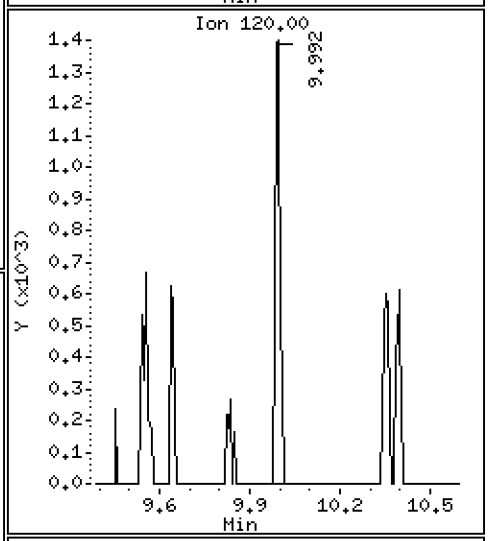


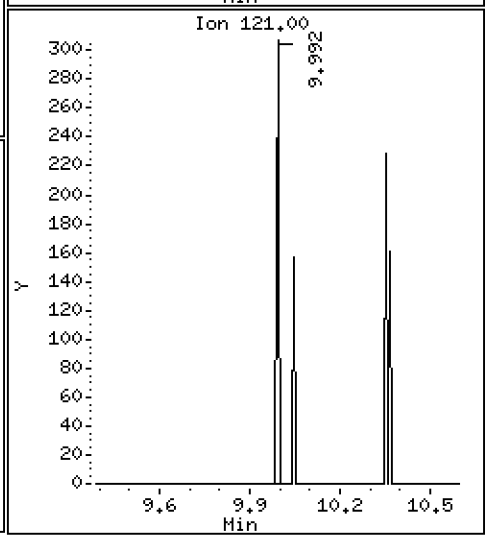












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031919.D
Lab Smp Id: 19H0481-06
Inj Date : 03-SEP-2019 19:55
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-06
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.552	2.540	(0.478)	3747	0.52383	0.5238
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.591)	3404	1.61487	1.615
	14 Acetone	43	3.263	3.258	(0.611)	10617	23.2732	23.273
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	285803	69.6450	69.645(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.338	(1.000)	334142	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.350	(1.003)	282961	70.3791	70.379(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	803456	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1053702	53.1002	53.100(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	856200	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	384729	51.8328	51.833(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	5068	0.31397	0.3140
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	486349	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	482697	52.9721	52.972(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	Compound Not Detected.					
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031919.D
Lab Smp Id: 19H0481-06
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	334142	-27.04
35 1,4-Difluorobenze	852165	426083	1704330	803456	-5.72
52 d5-Chlorobenzene	803678	401839	1607356	856200	6.54
76 d4-1,4-Dichlorobe	439766	219883	879532	486349	10.59

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.11
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-06
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	69.645	139.29	
$ 32 d4-1,2-Dichloroeth	50.000	70.379	140.76	
$ 42 d8-Toluene	50.000	53.100	106.20	
$ 62 4-Bromofluorobenze	50.000	51.833	103.67	
$ 79 d4-1,2-Dichloroben	50.000	52.972	105.94	

REVIEW SUMMARY FOR FILE - NT509031919.D

Lab ID: 19H0481-06
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 19:55

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

P40-UST-01-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-08 C	SDG:	19H0481
Sampled:	08/30/19 08:50	Prepared:	09/03/19 15:33	File ID:	NT509031920.D
% Solids:	72.30	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/03/19 20:17
Batch:	BHI0056	Sequence:	SHI0046	Initial/Final:	4.41 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.57	U	0.46	1.57
108-88-3	Toluene	1	1.57	U	0.24	1.57
100-41-4	Ethylbenzene	1	1.57	U	0.32	1.57
179601-23-1	m,p-Xylene	1	3.14	U	0.61	3.14
95-47-6	o-Xylene	1	1.57	U	0.35	1.57

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.2	104	77 - 120	
4-Bromofluorobenzene	50.000	50.6	101	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

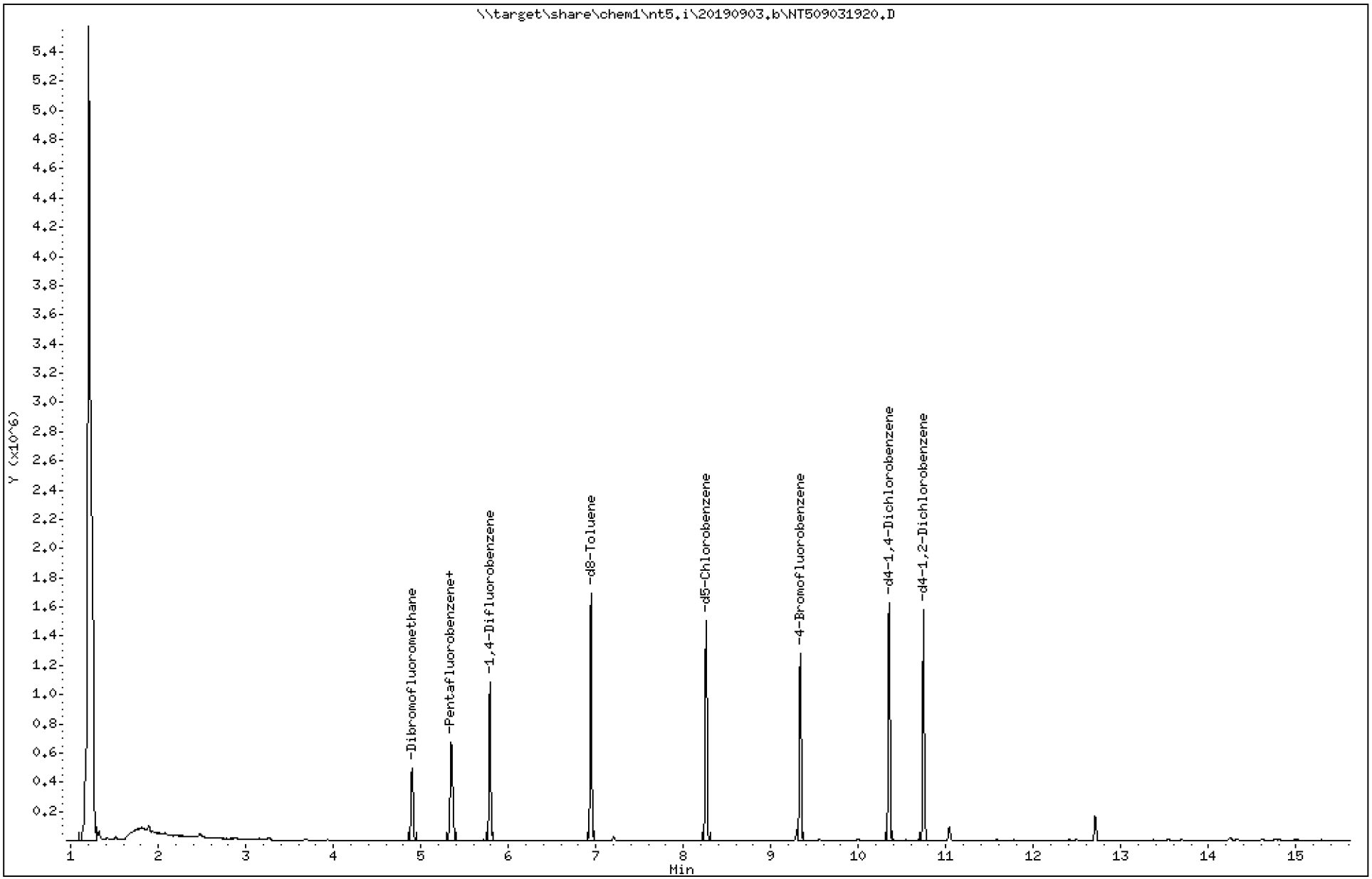
Instrument: nt5.i

Sample Info: 19H0481-08

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-08

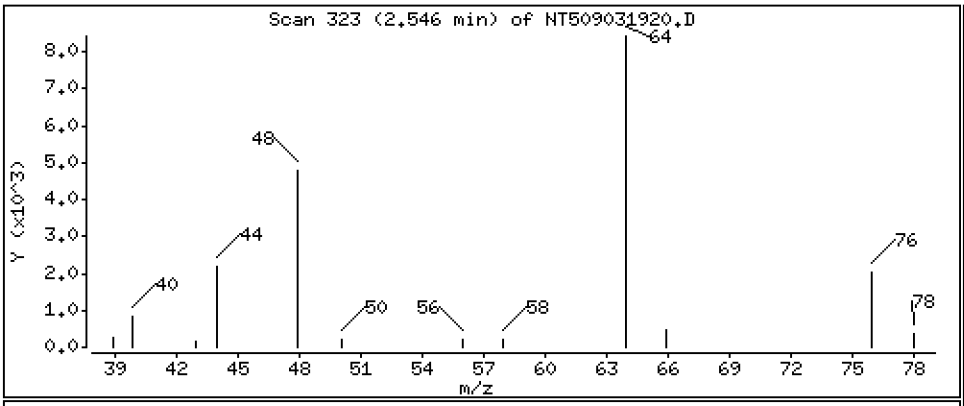
Operator: PB

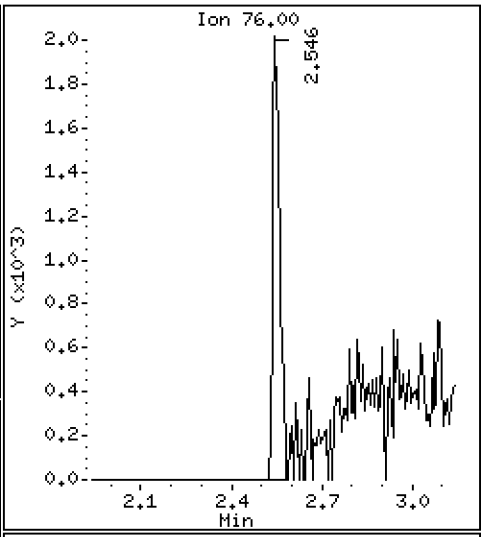
Column phase: RTXVMS

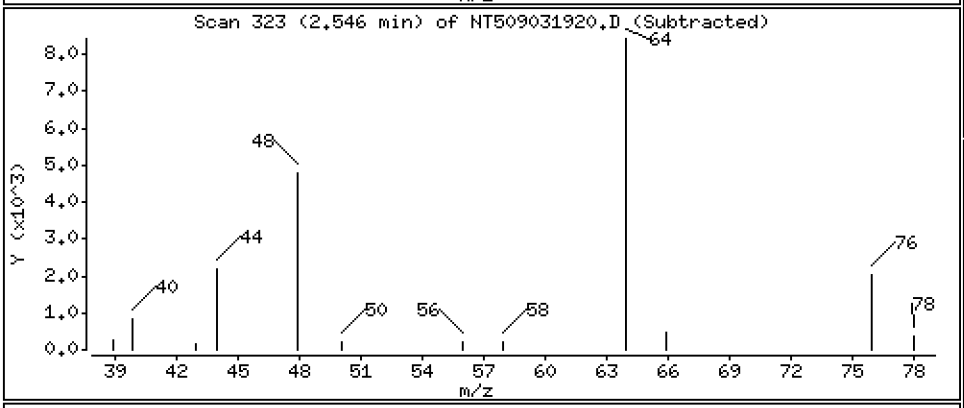
Column diameter: 0.18

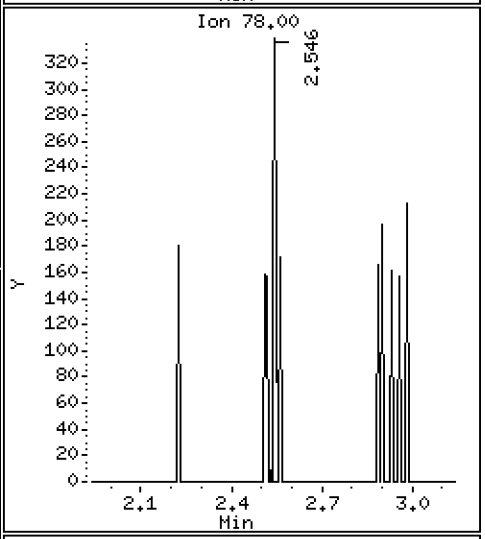
8 Carbon Disulfide

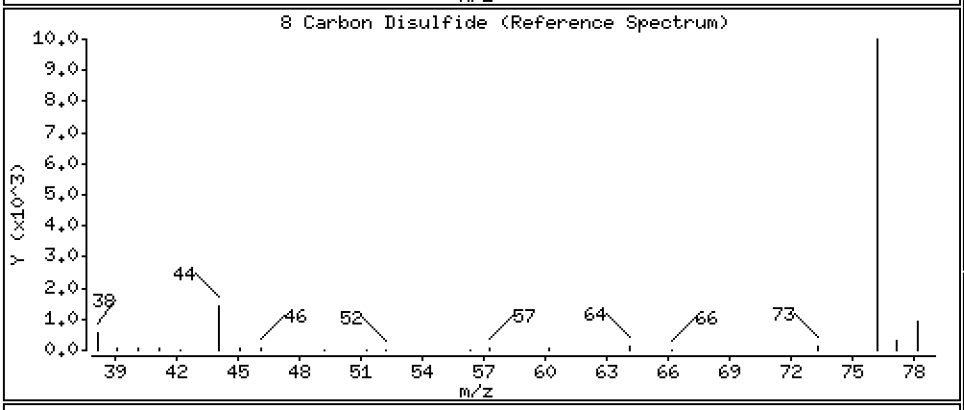
Concentration: 0.5495 ug/Kg

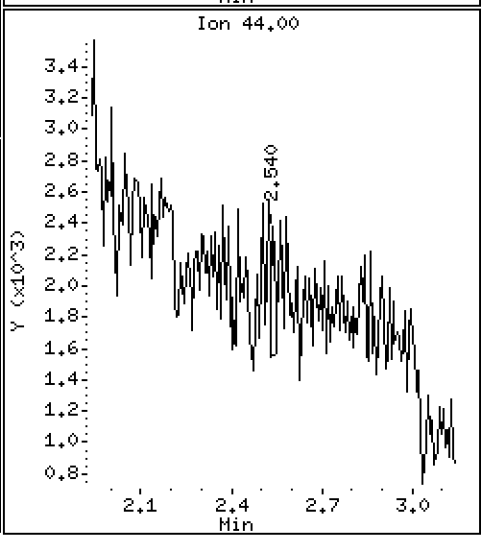


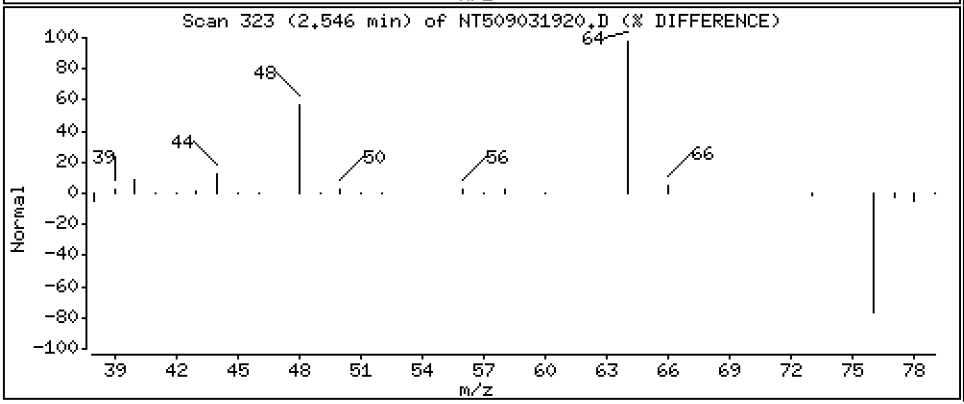












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-08

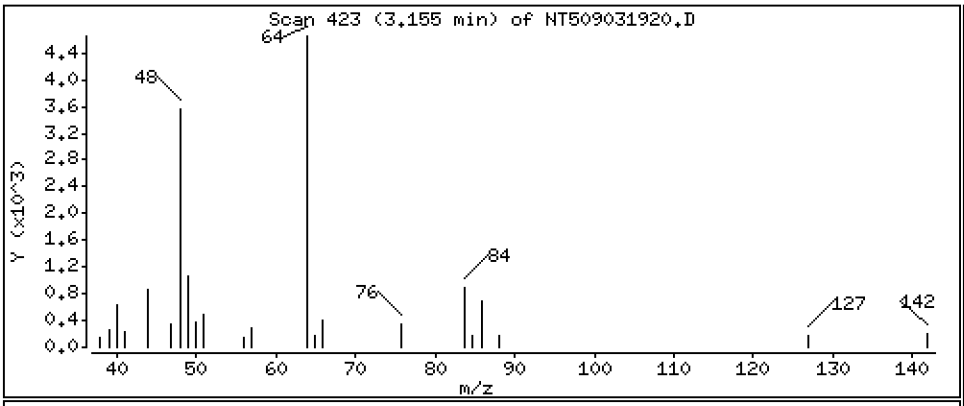
Operator: PB

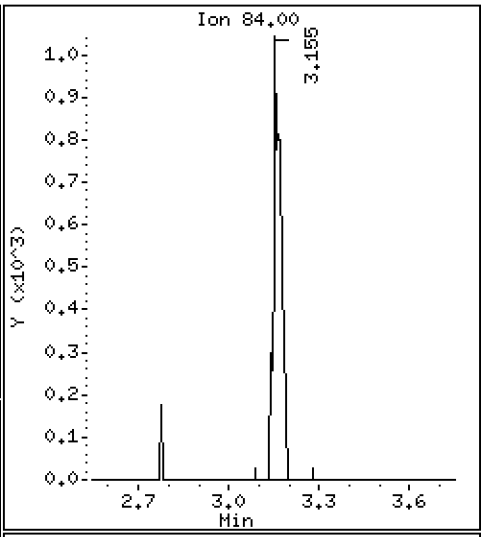
Column phase: RTXVMS

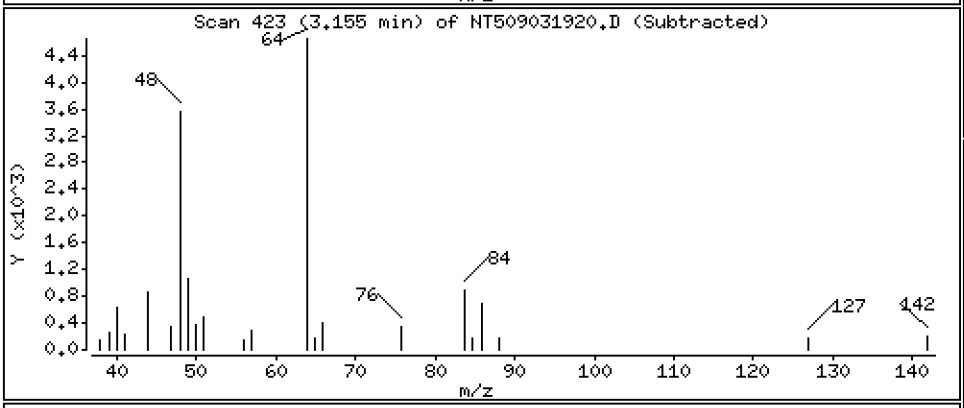
Column diameter: 0.18

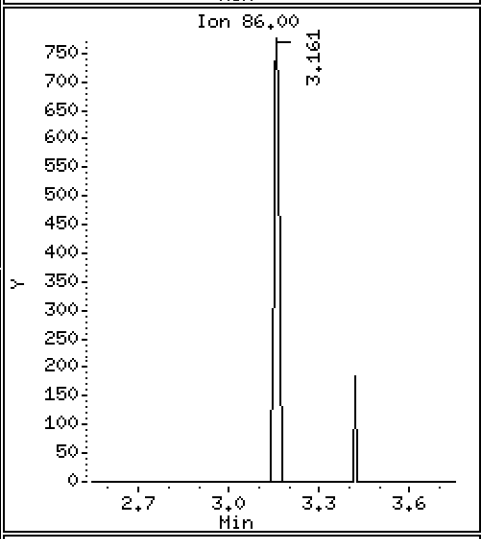
13 Methylene Chloride

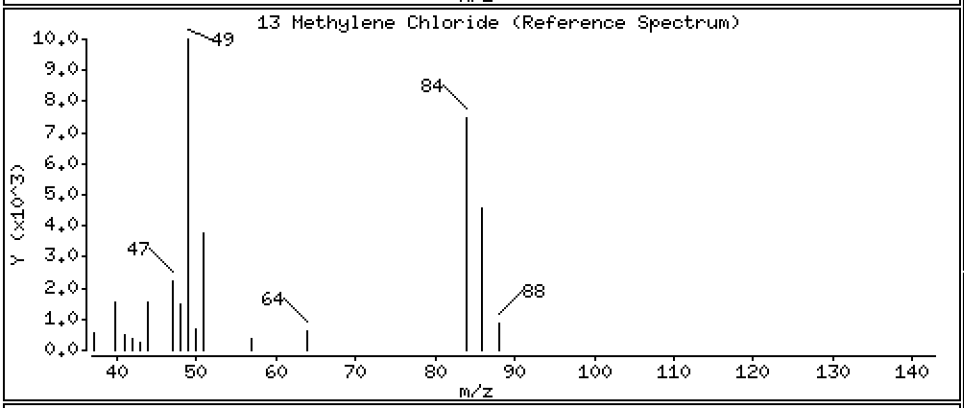
Concentration: 1.031 ug/Kg

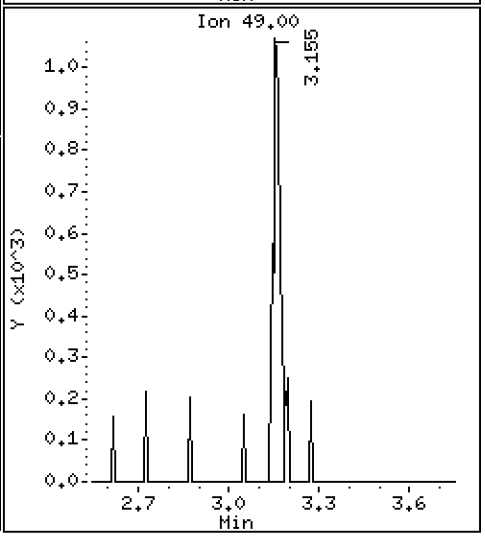


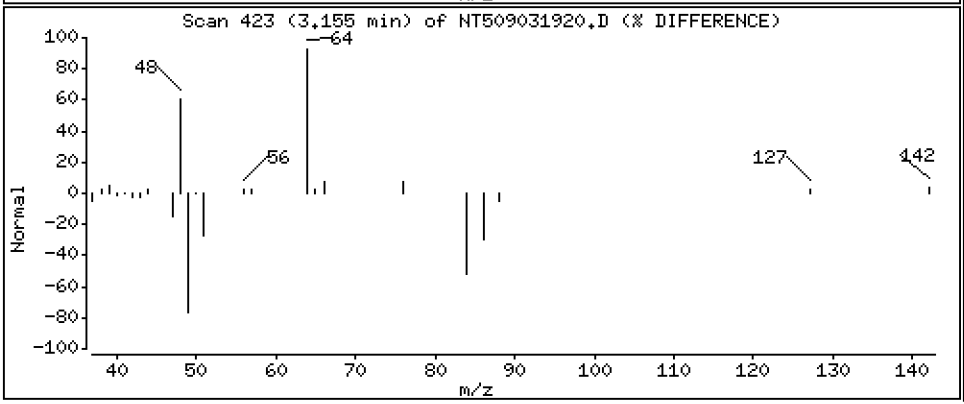












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-08

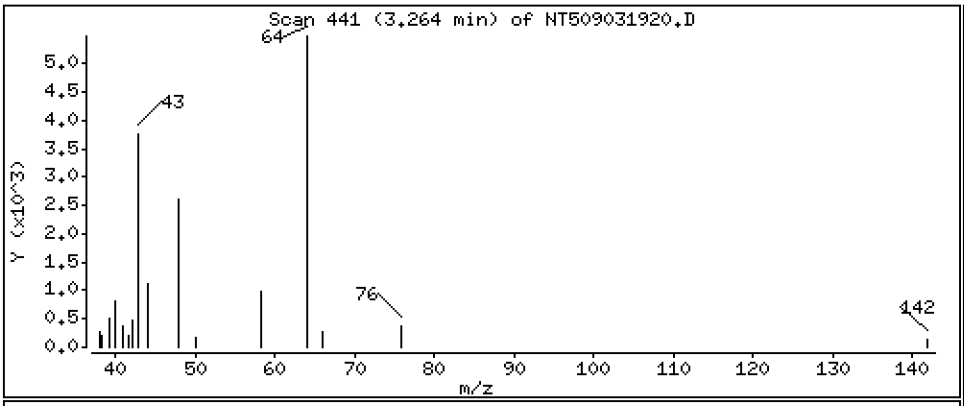
Operator: PB

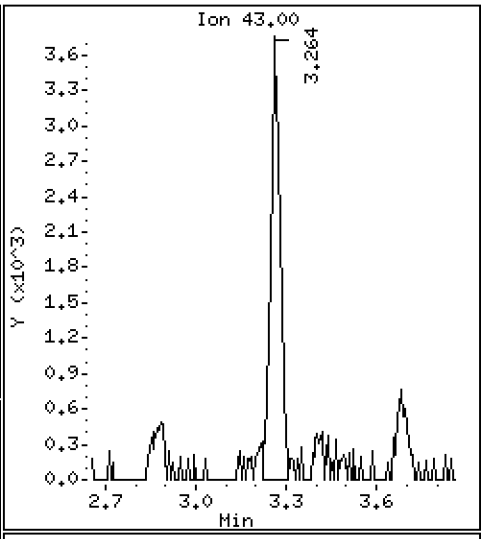
Column phase: RTXVMS

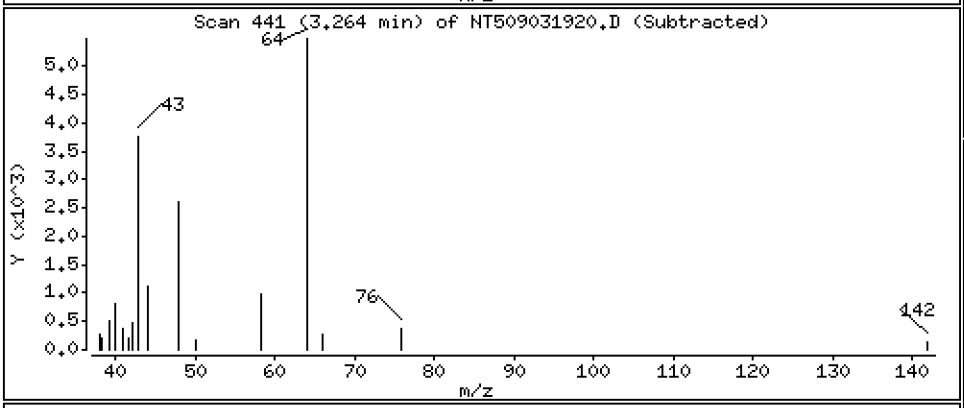
Column diameter: 0.18

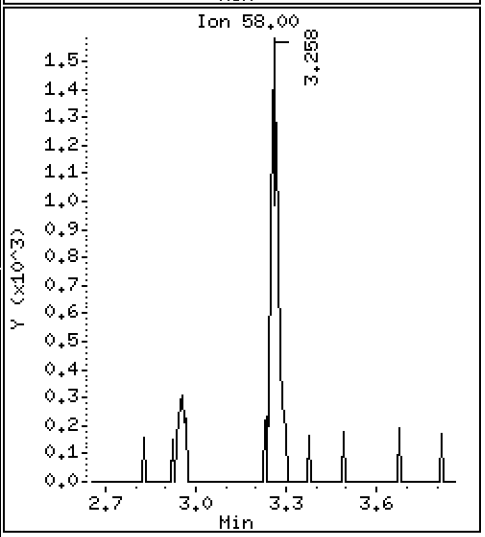
14 Acetone

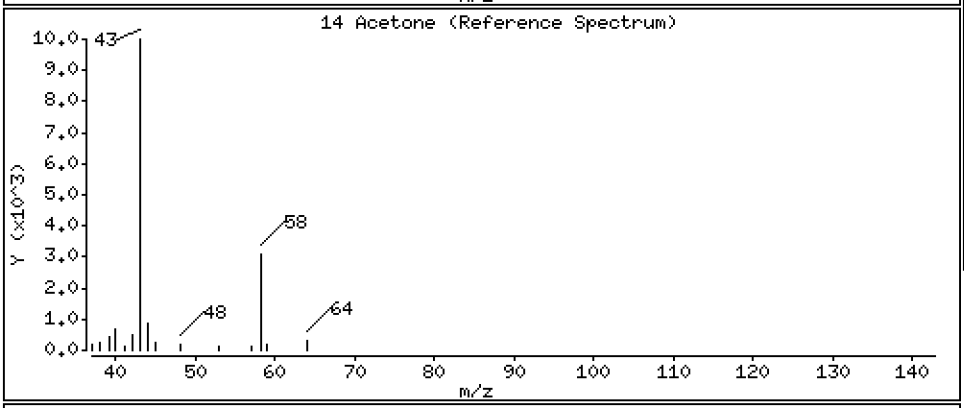
Concentration: 21.842 ug/Kg

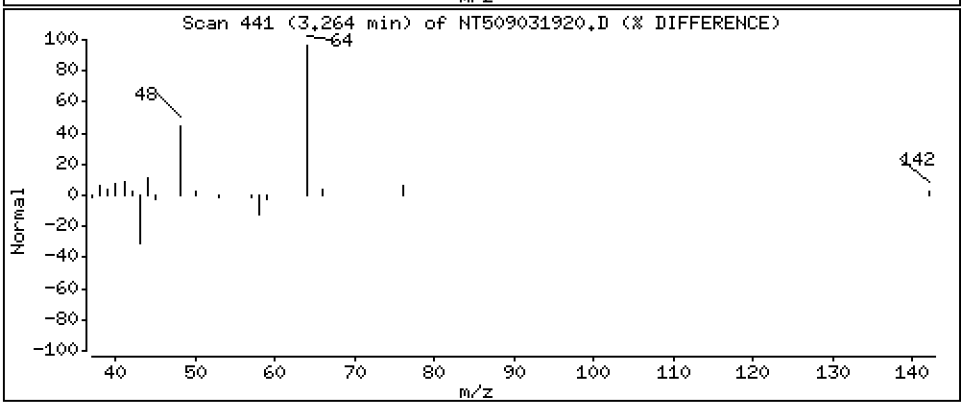












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-08

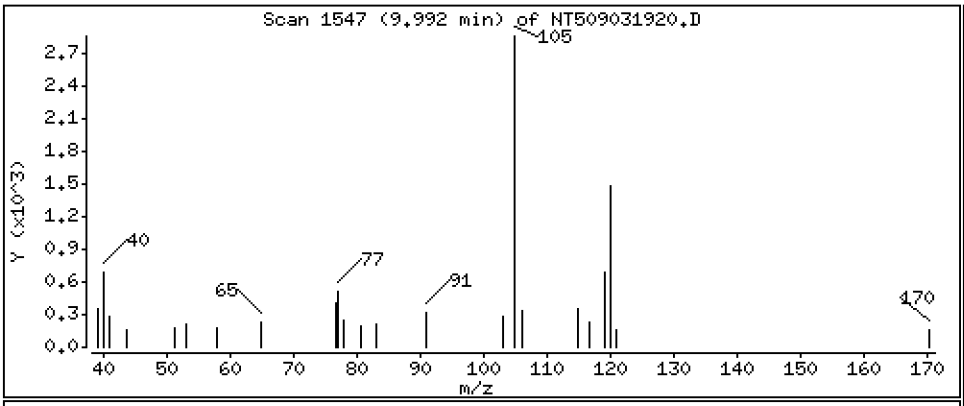
Operator: PB

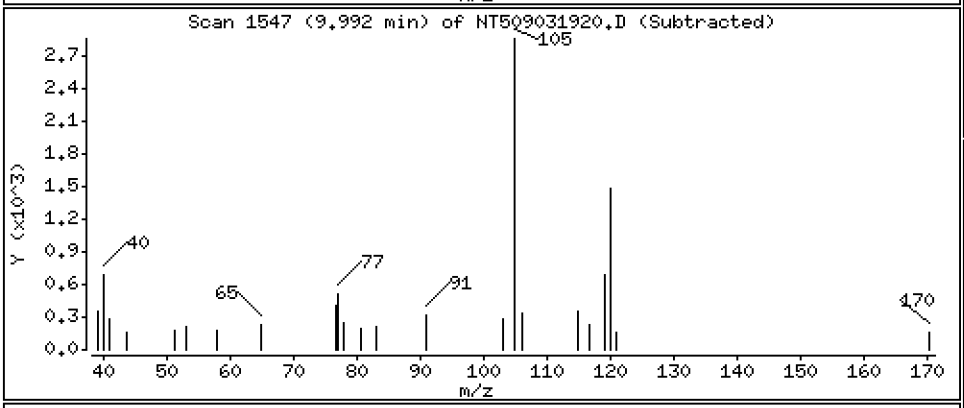
Column phase: RTXVMS

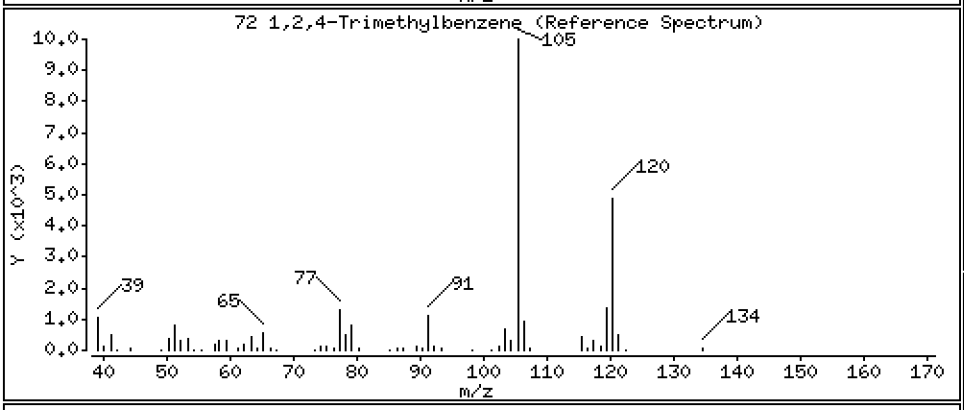
Column diameter: 0.18

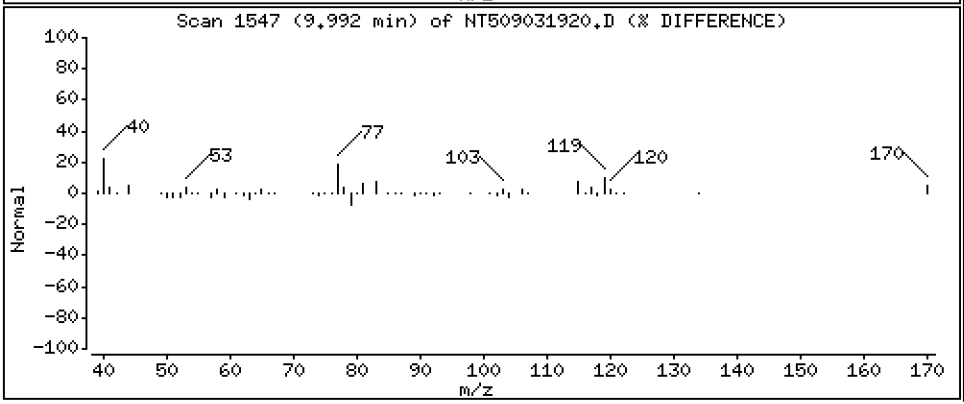
72 1,2,4-Trimethylbenzene

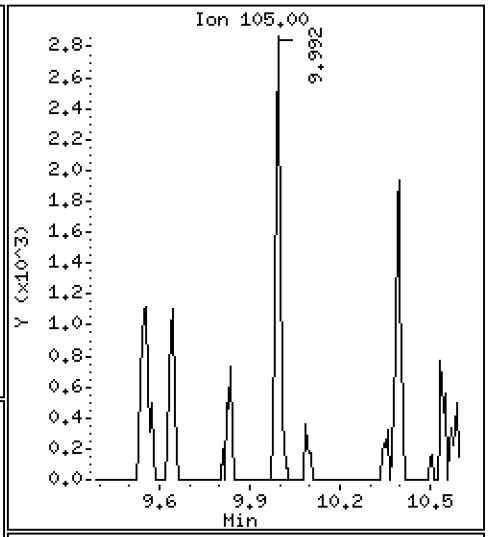
Concentration: 0.3305 ug/Kg

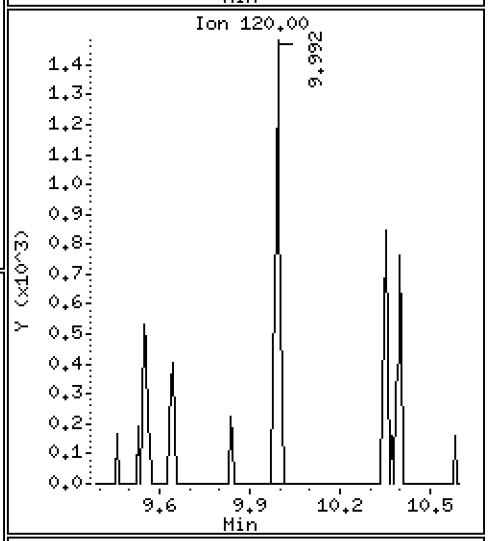


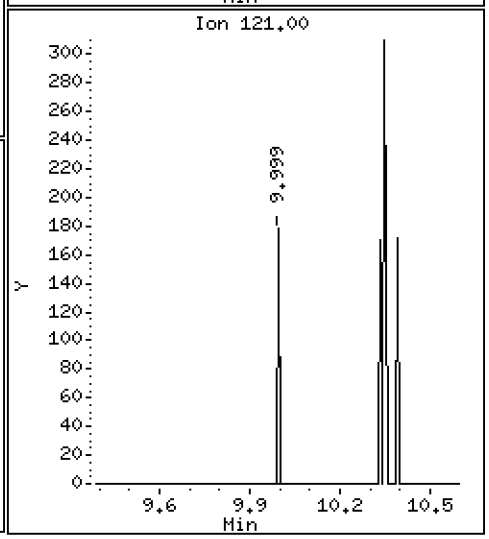












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031920.D

Date : 03-SEP-2019 20:17

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-08

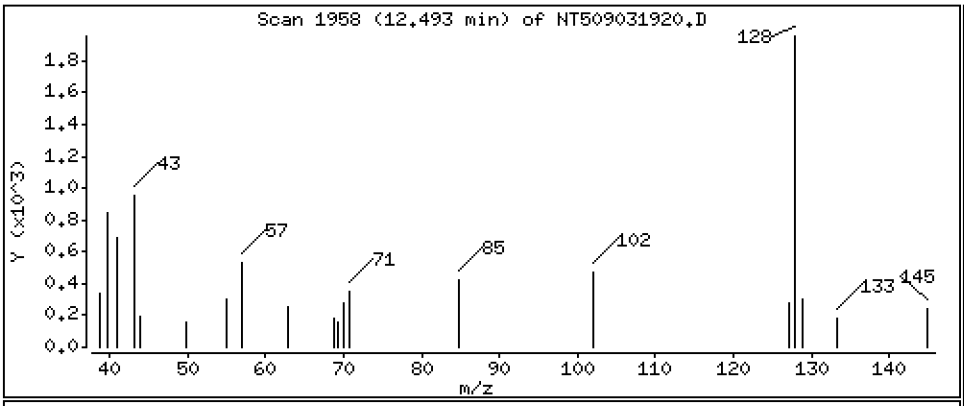
Operator: PB

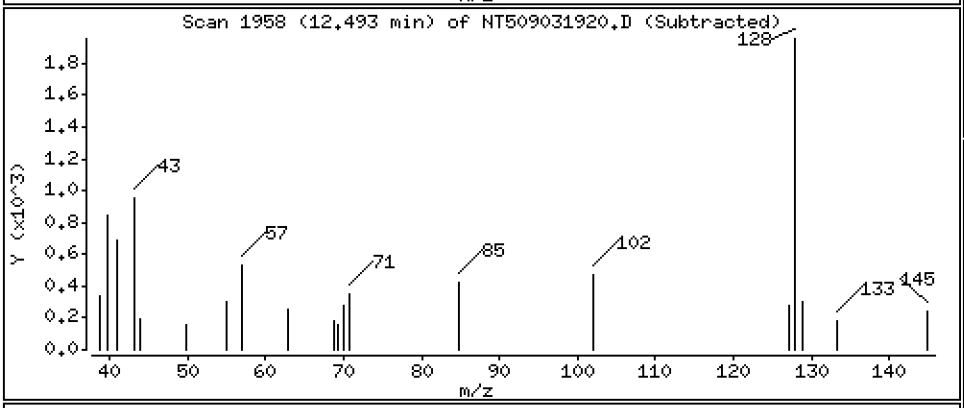
Column phase: RTXVMS

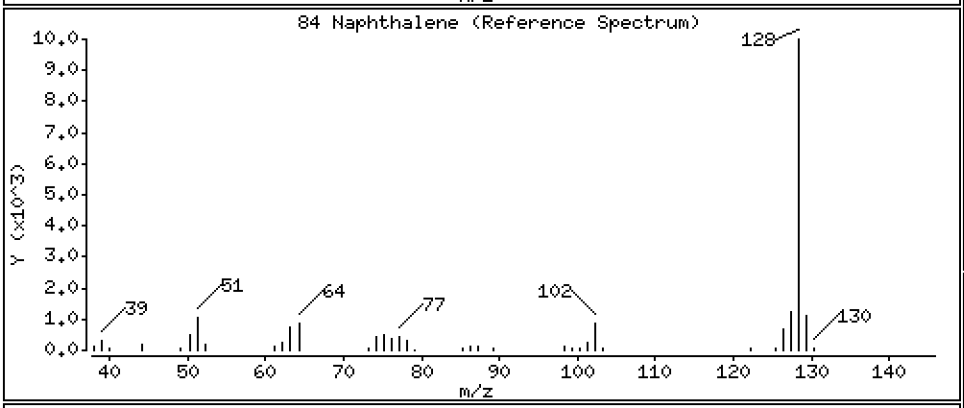
Column diameter: 0.18

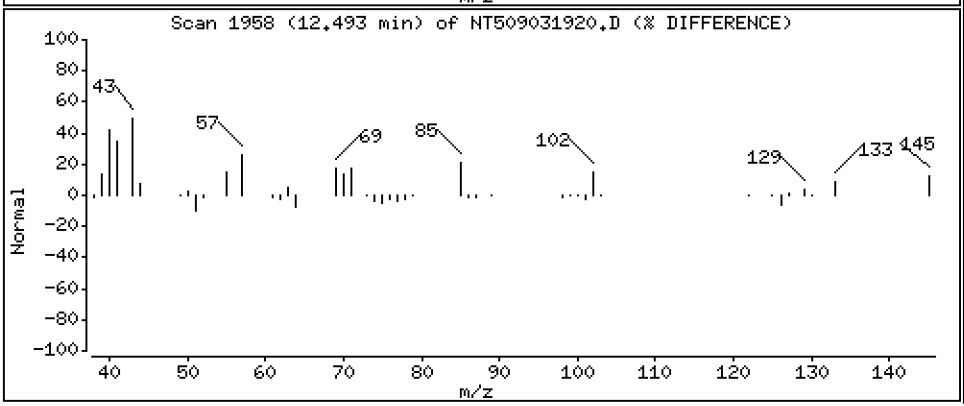
84 Naphthalene

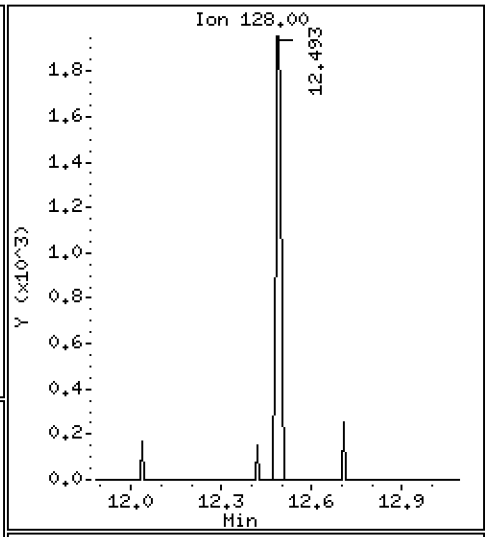
Concentration: 0.3022 ug/Kg

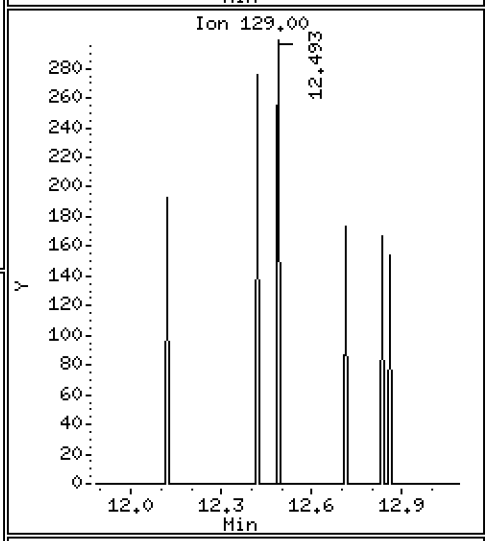


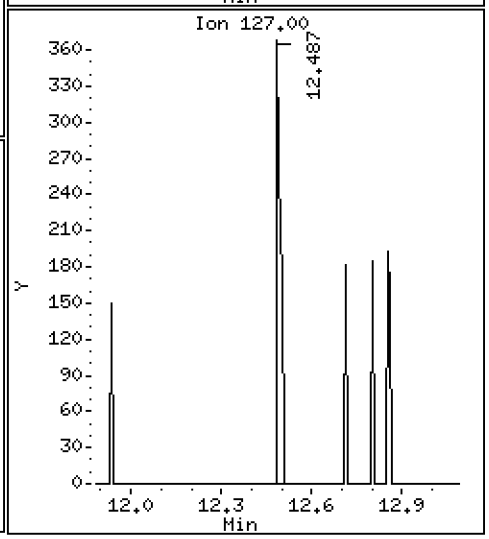












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031920.D
Lab Smp Id: 19H0481-08
Inj Date : 03-SEP-2019 20:17
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-08
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.546	2.540	(0.476)	3601	0.54946	0.5495
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.154	3.148	(0.590)	1991	1.03094	1.031(M)
	14 Acetone	43	3.264	3.258	(0.611)	9129	21.8419	21.842
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	250629	66.6603	66.660(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.338	(1.000)	306139	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.002)	244846	66.4696	66.470(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	713767	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	919792	52.1763	52.176(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	695027	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	304645	50.5612	50.561(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	4090	0.33048	0.3305
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	372885	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	372923	53.3783	53.378(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.492	12.486	(1.207)	2853	0.30219	0.3022
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031920.D
Lab Smp Id: 19H0481-08
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	306139	-33.15
35 1,4-Difluorobenze	852165	426083	1704330	713767	-16.24
52 d5-Chlorobenzene	803678	401839	1607356	695027	-13.52
76 d4-1,4-Dichlorobe	439766	219883	879532	372885	-15.21

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.11
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 04-Sep-2019 16:39

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-08
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	66.660	133.32	
$ 32 d4-1,2-Dichloroeth	50.000	66.470	132.94	
$ 42 d8-Toluene	50.000	52.176	104.35	
$ 62 4-Bromofluorobenze	50.000	50.561	101.12	
$ 79 d4-1,2-Dichloroben	50.000	53.378	106.76	

REVIEW SUMMARY FOR FILE - NT509031920.D

Lab ID: 19H0481-08
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 20:17

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

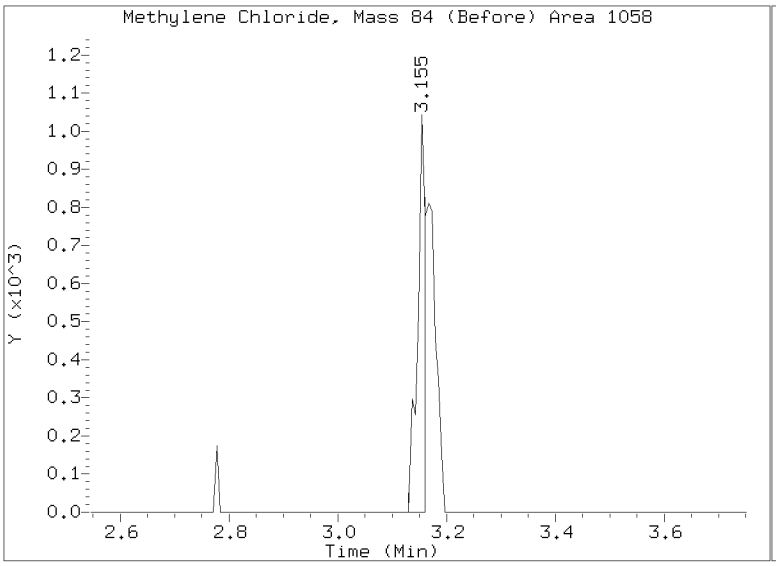
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

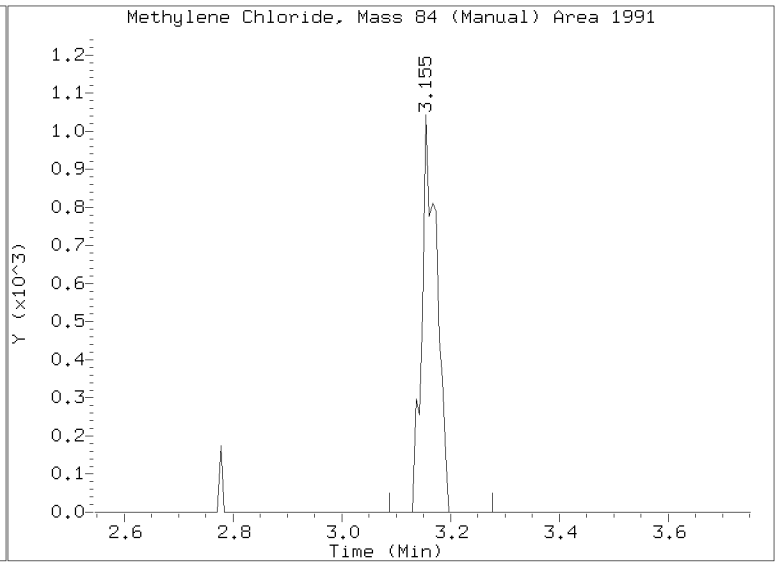
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190903.b/NT509031920.D
Injection Date: 03-SEP-2019 20:17
Lab ID:19H0481-08 Client ID:
Report Date: 09/04/2019 16:39





P40-UST-02-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-10 D	SDG:	19H0481
Sampled:	08/30/19 10:00	Prepared:	09/05/19 13:58	File ID:	V309051921.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 20:15
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

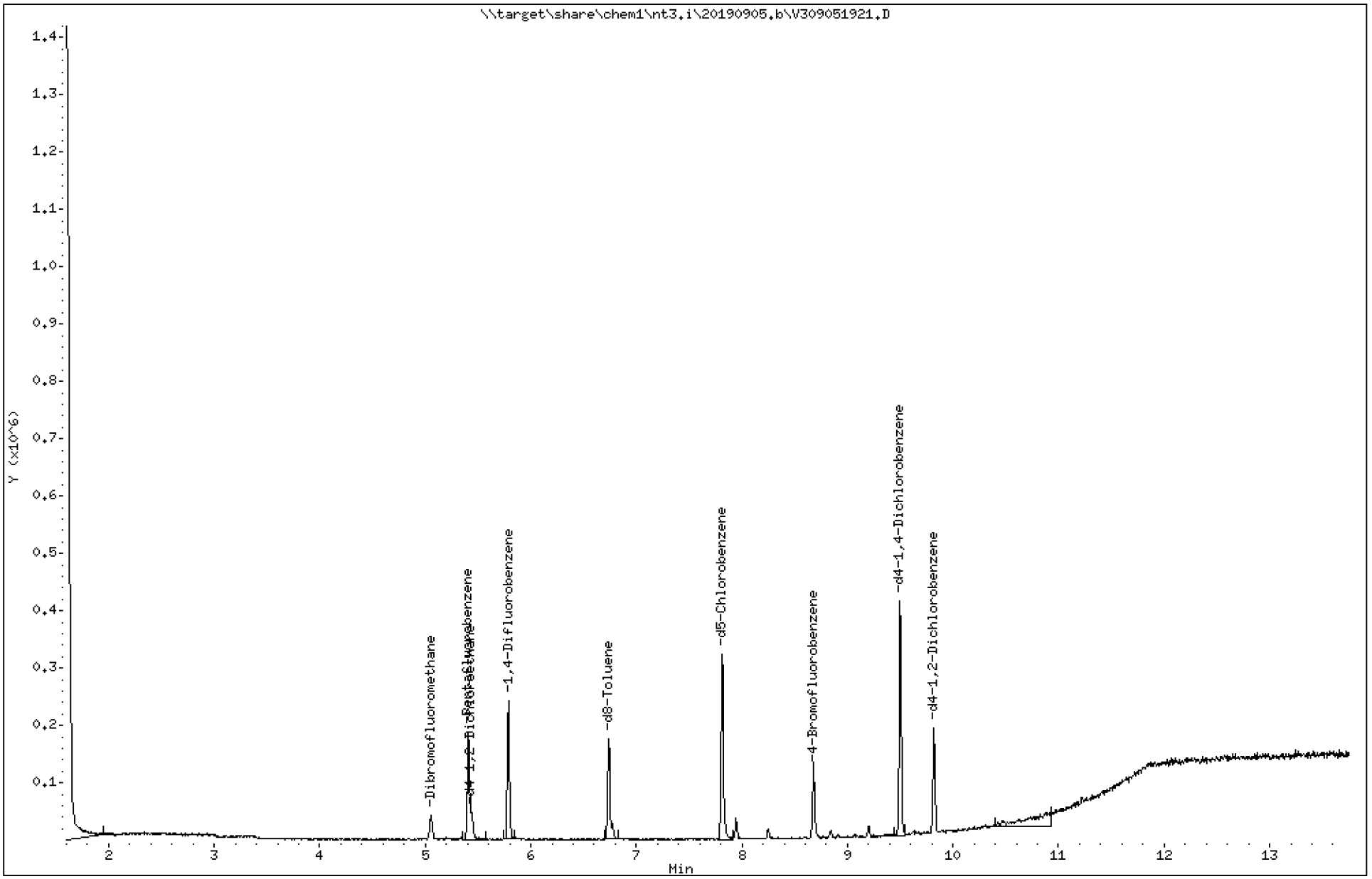
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.20	U	0.03	0.20
108-88-3	Toluene	1	0.44		0.04	0.20
100-41-4	Ethylbenzene	1	0.14	J	0.04	0.20
179601-23-1	m,p-Xylene	1	0.65		0.05	0.40
95-47-6	o-Xylene	1	0.26		0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.09	102	80 - 120	
4-Bromofluorobenzene	5.0000	4.62	92.3	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D
Date : 05-SEP-2019 20:15
Client ID:
Sample Info: 19H0481-10

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



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Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

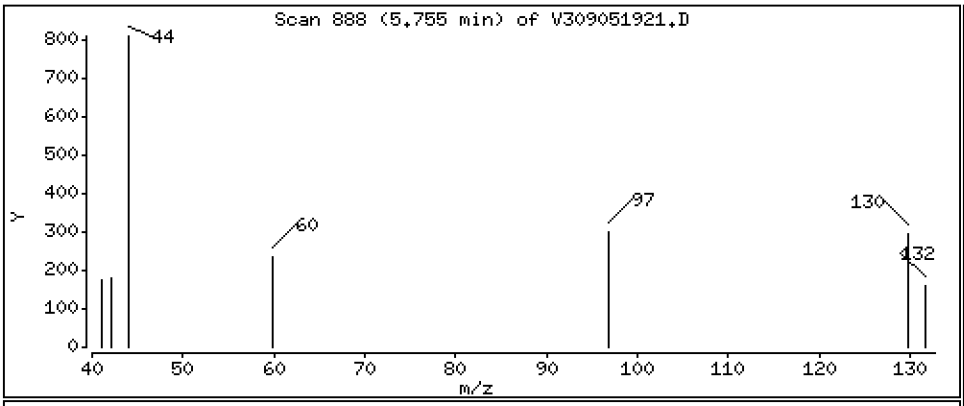
Operator: PKC

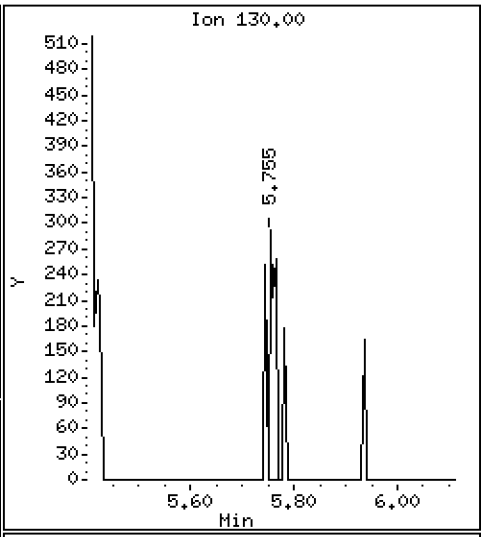
Column phase: RTXVMS

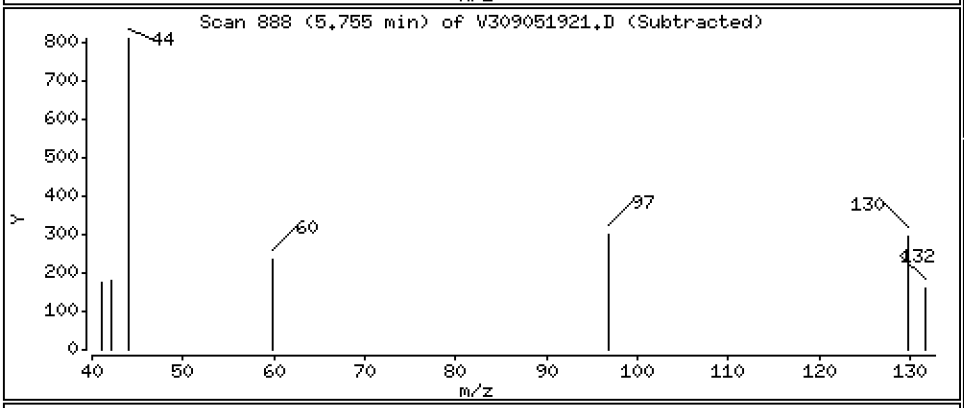
Column diameter: 0.18

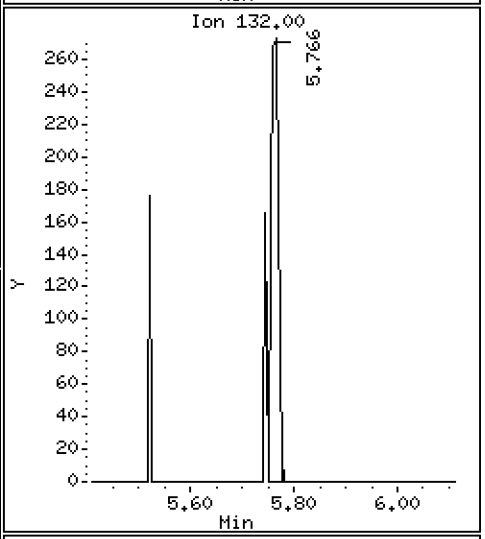
36 Trichloroethene

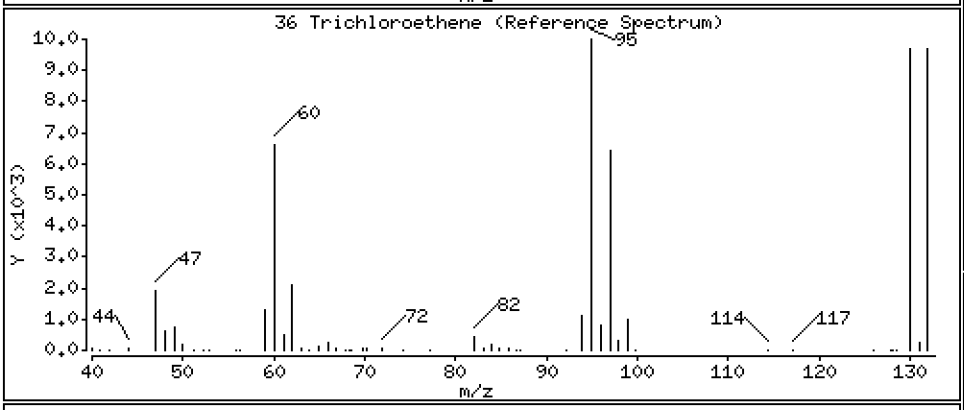
Concentration: 0.03576 ug/L

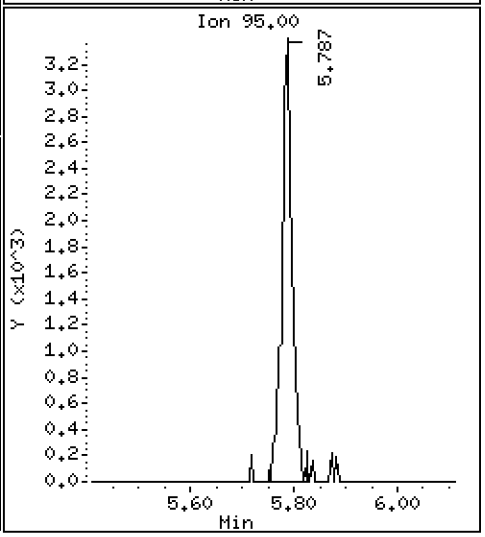


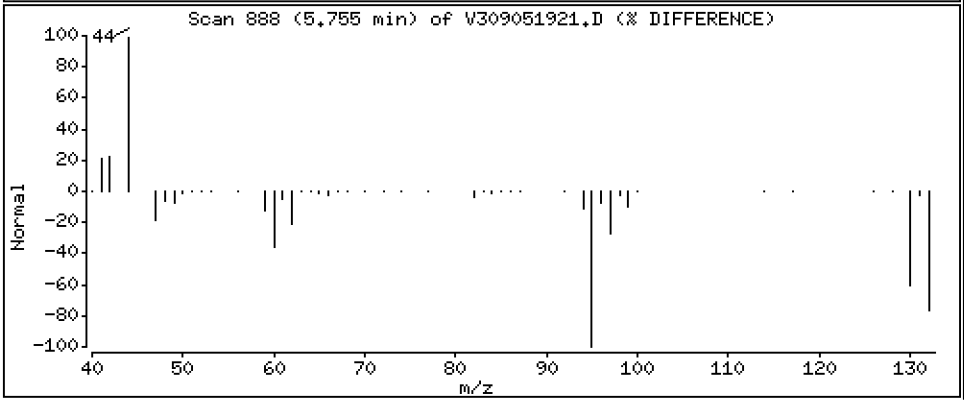












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Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

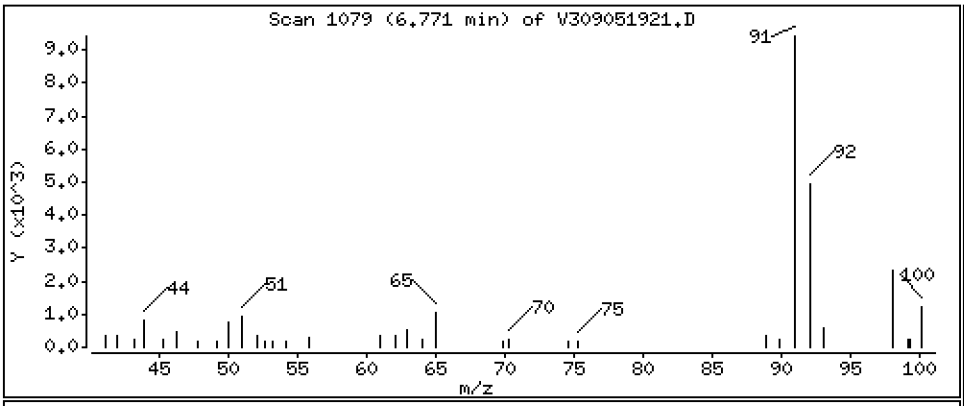
Operator: PKC

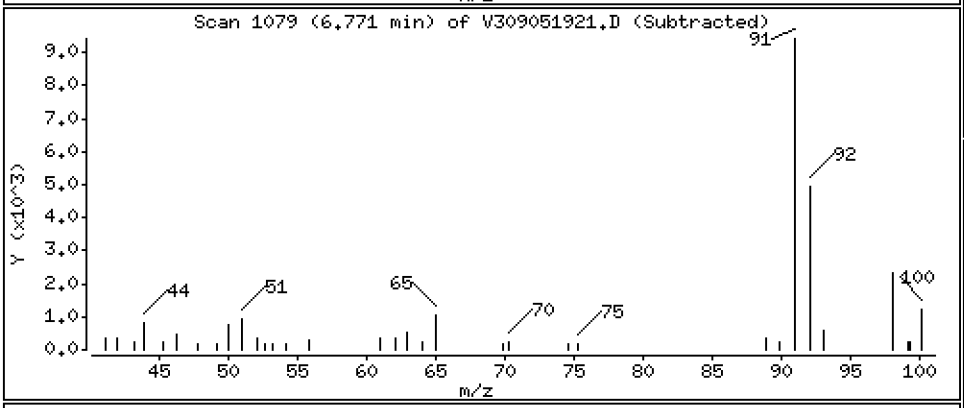
Column phase: RTXVMS

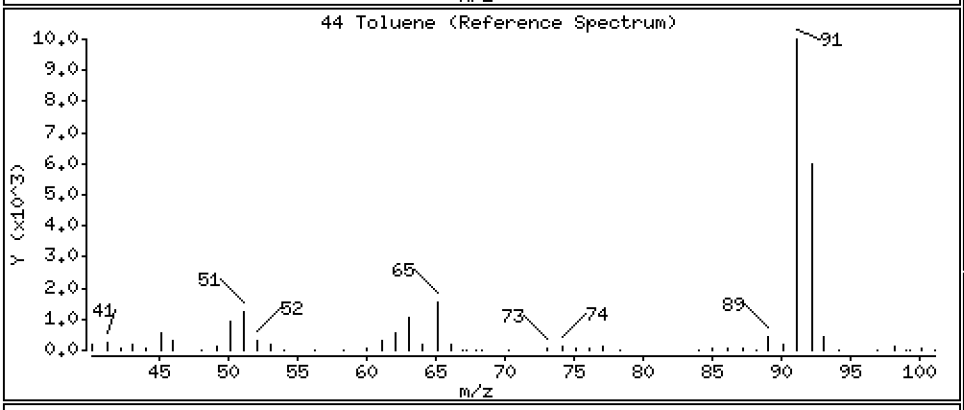
Column diameter: 0.18

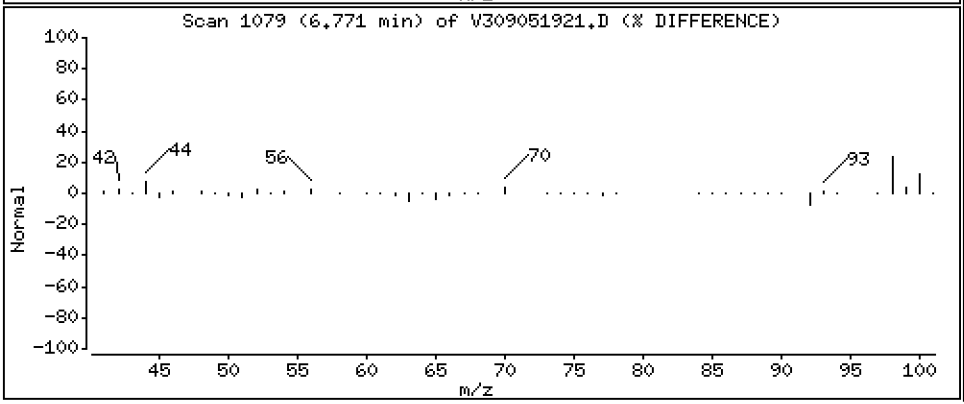
44 Toluene

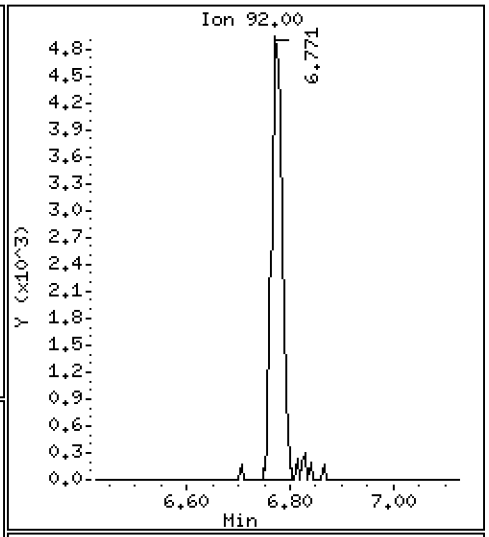
Concentration: 0.4419 ug/L

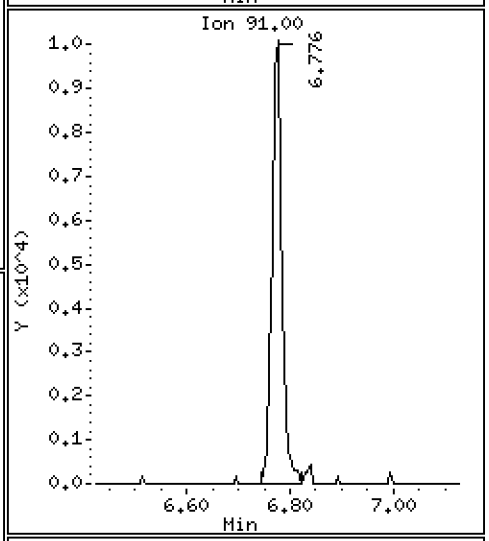


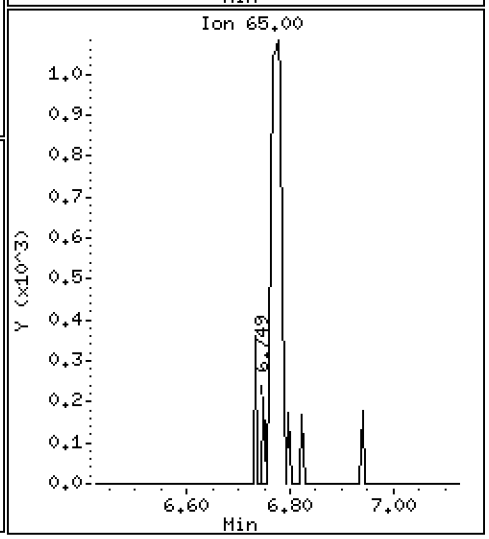












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Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

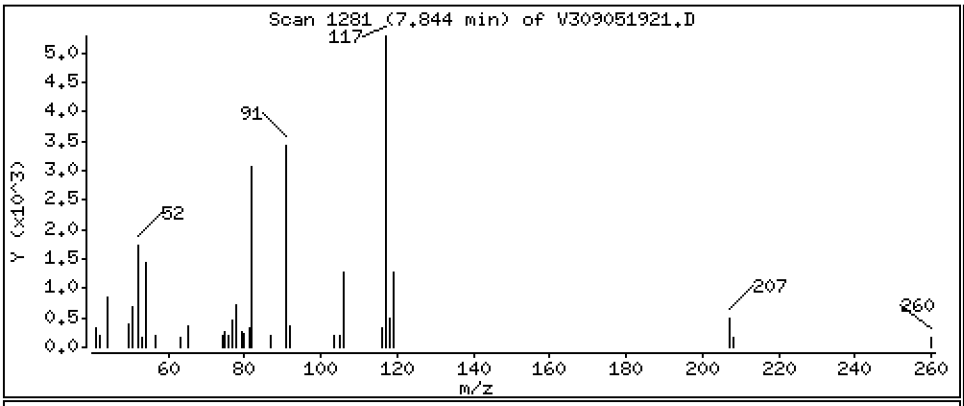
Operator: PKC

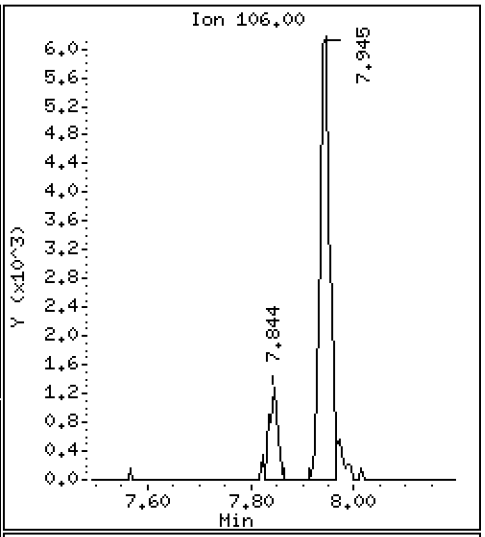
Column phase: RTXVMS

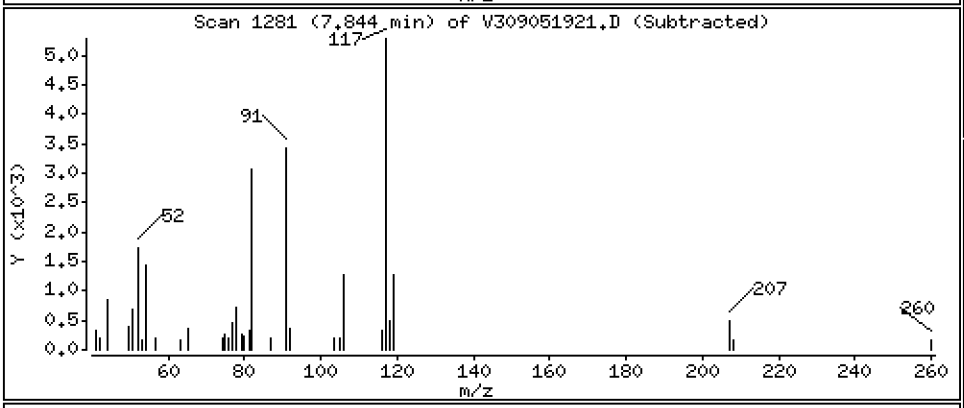
Column diameter: 0.18

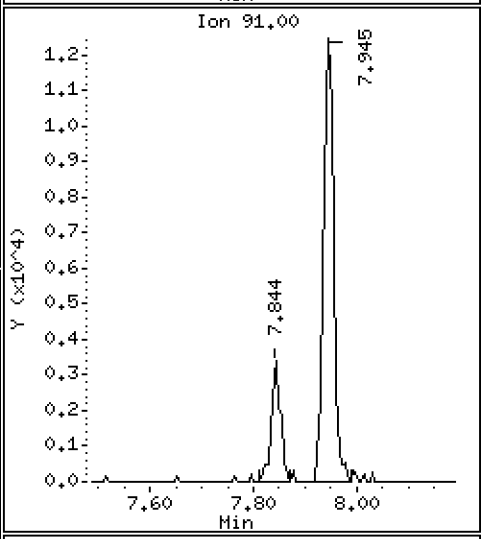
55 Ethyl Benzene

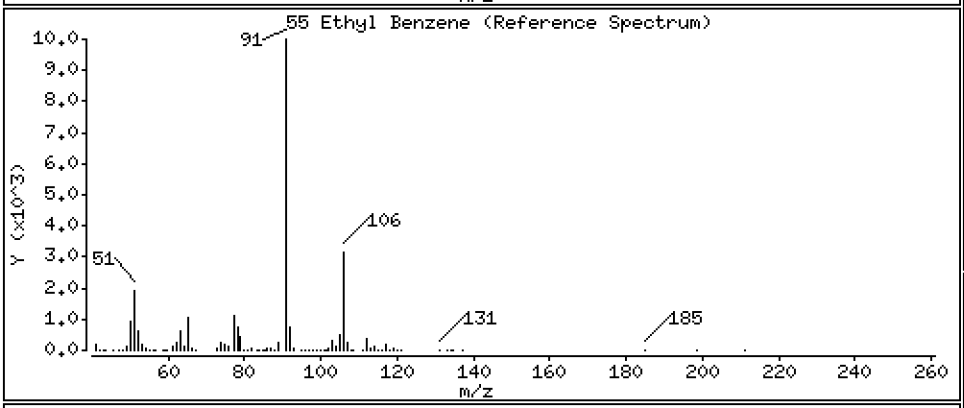
Concentration: 0.1394 ug/L

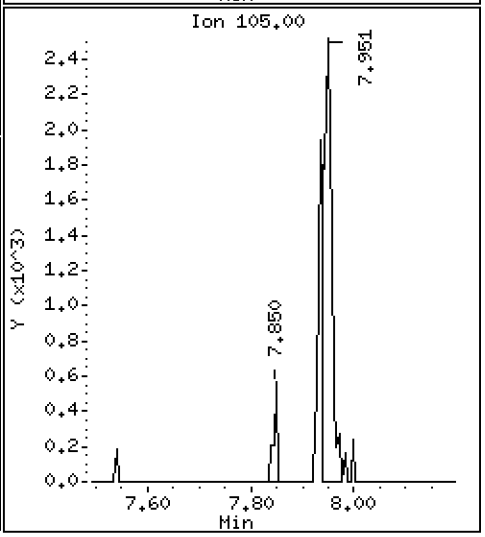


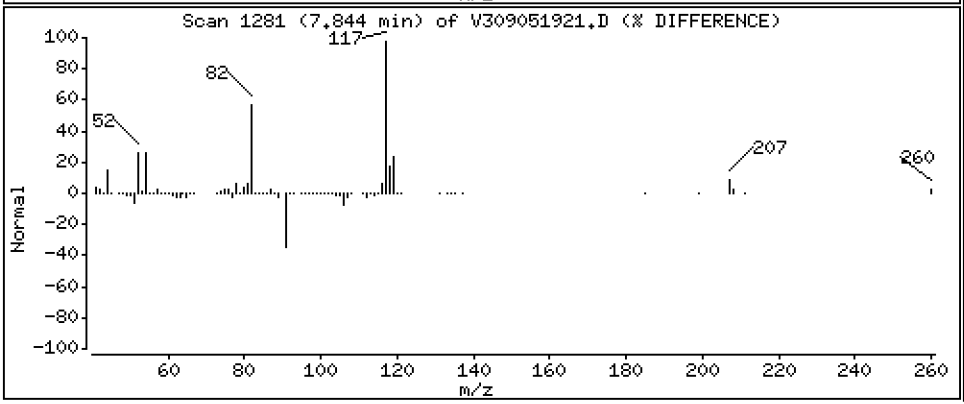












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

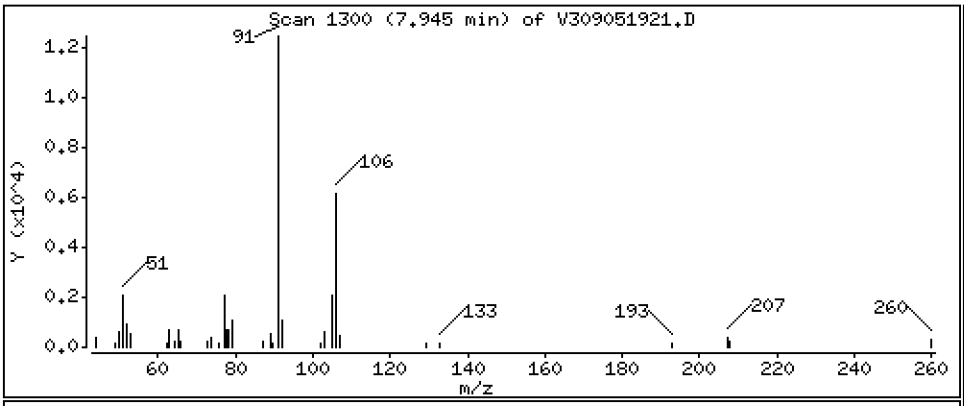
Operator: PKC

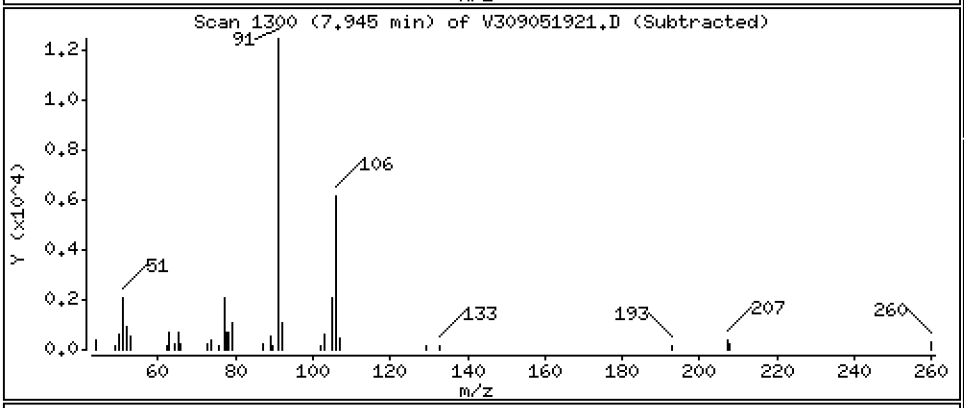
Column phase: RTXVMS

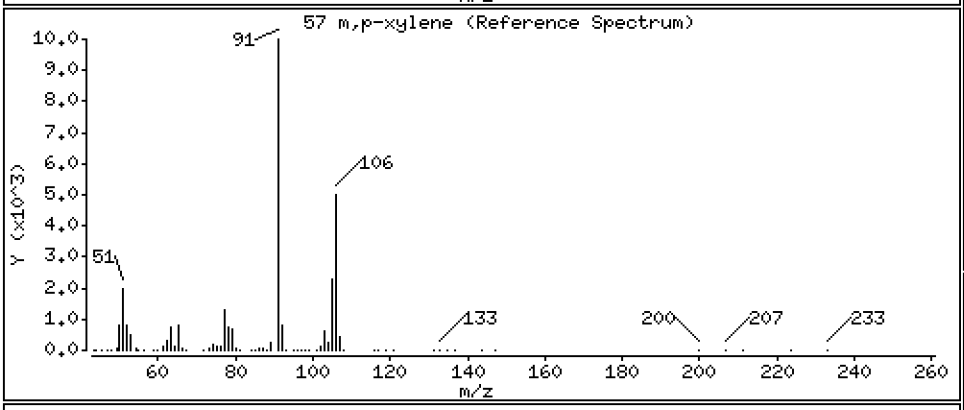
Column diameter: 0.18

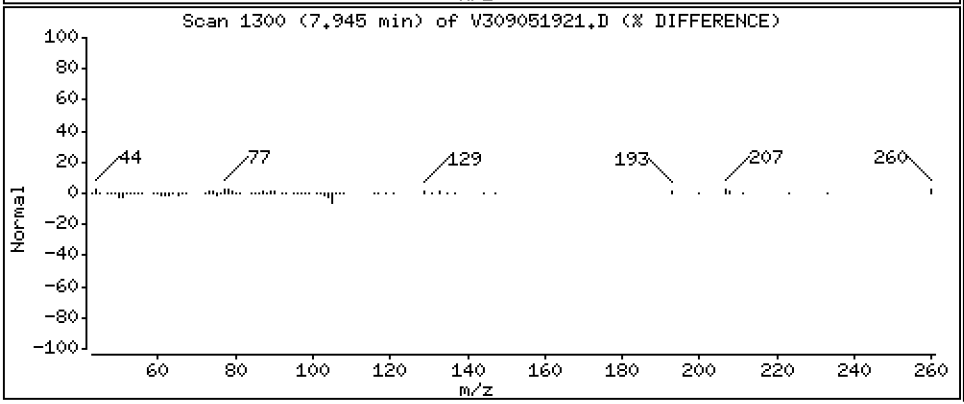
57 m,p-xylene

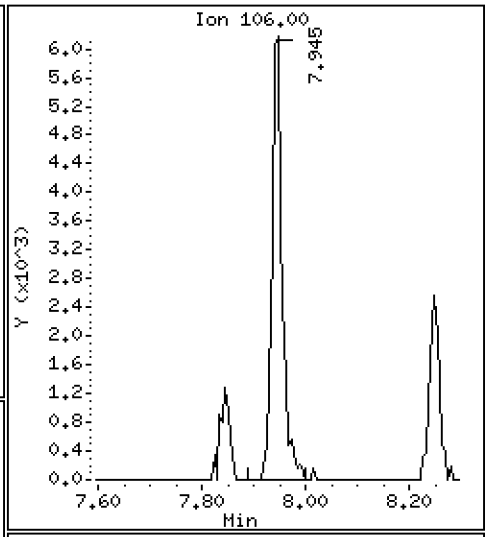
Concentration: 0.6508 ug/L

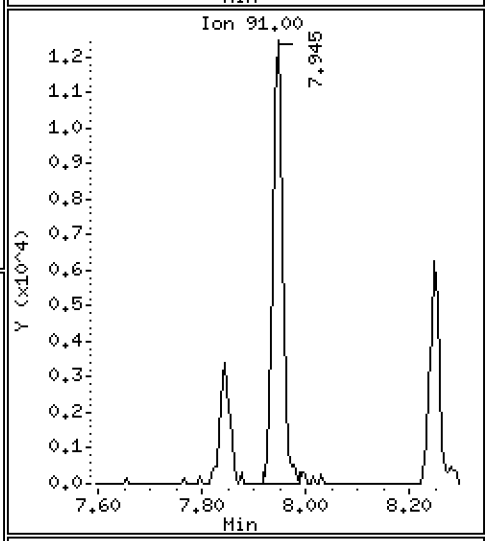


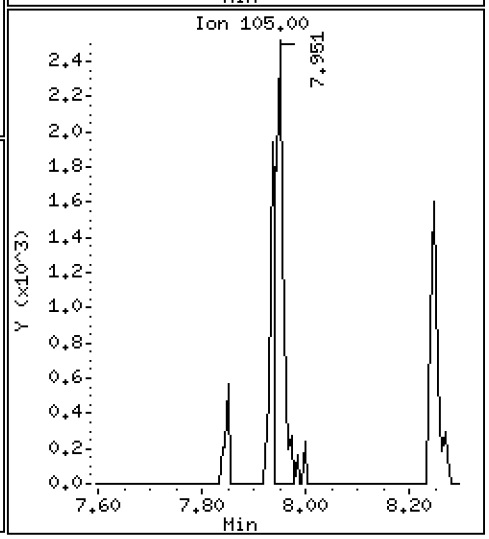












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

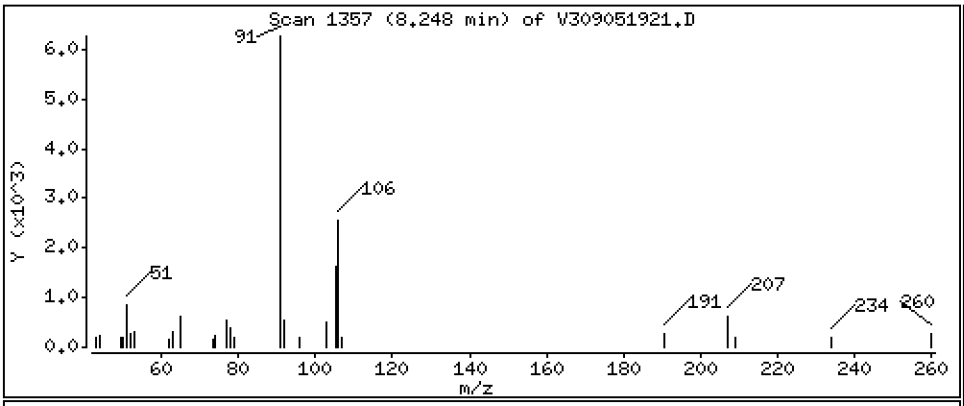
Operator: PKC

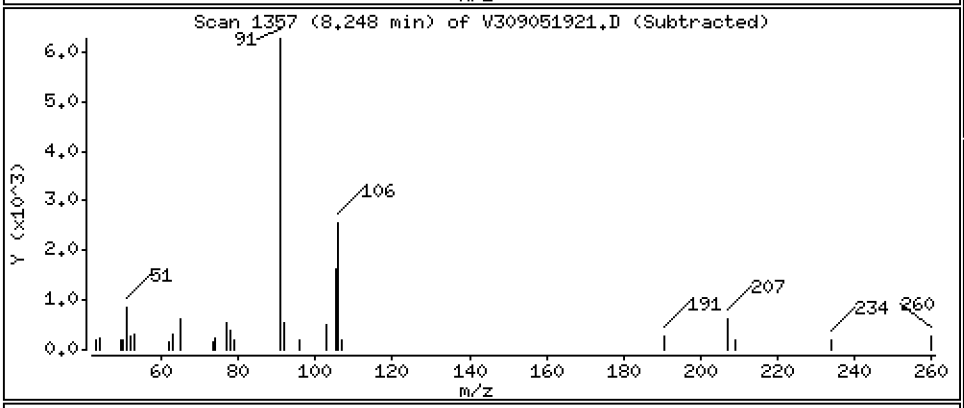
Column phase: RTXVMS

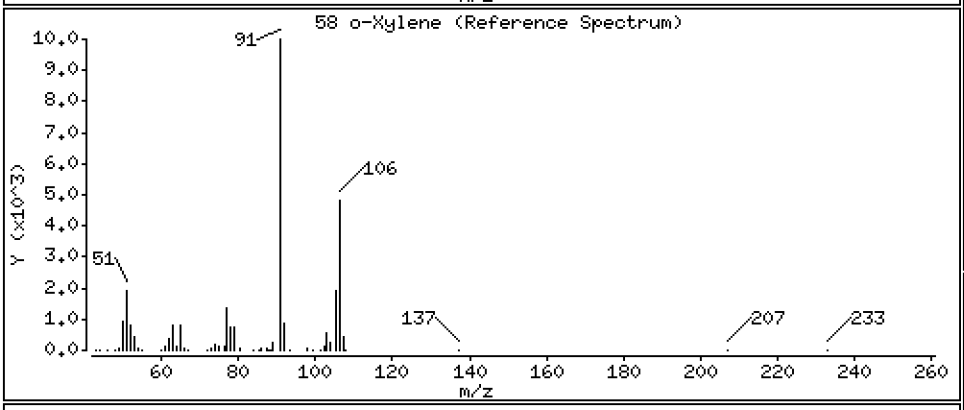
Column diameter: 0.18

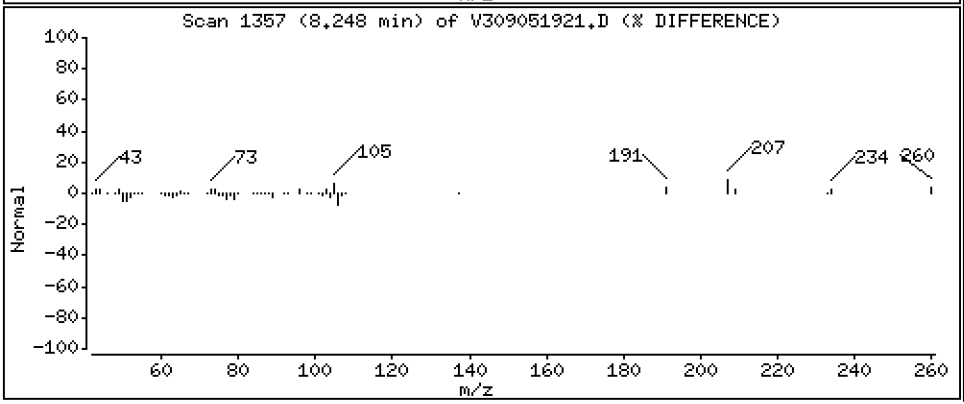
58 o-Xylene

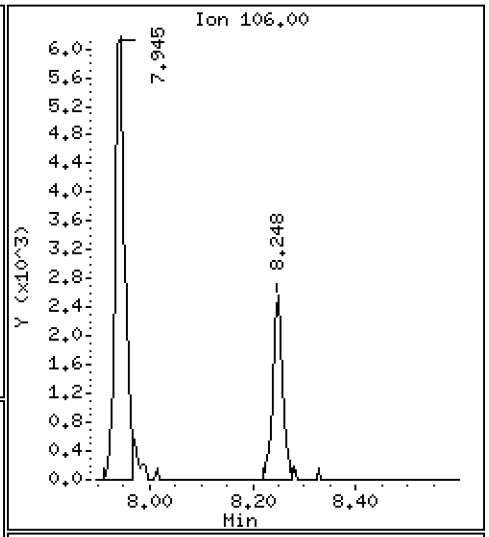
Concentration: 0.2580 ug/L

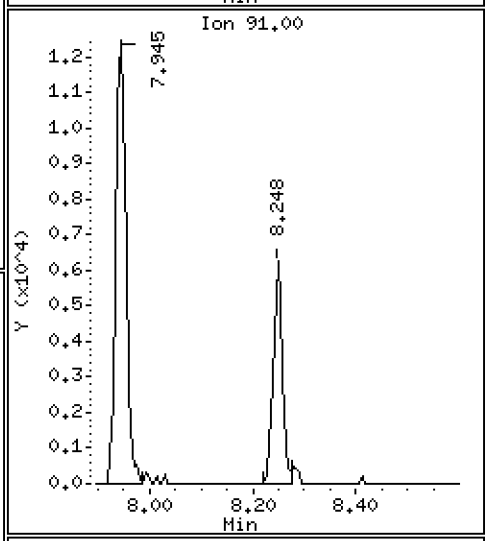


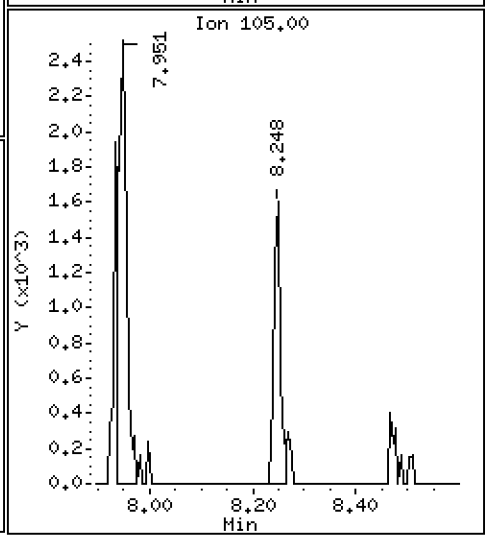












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

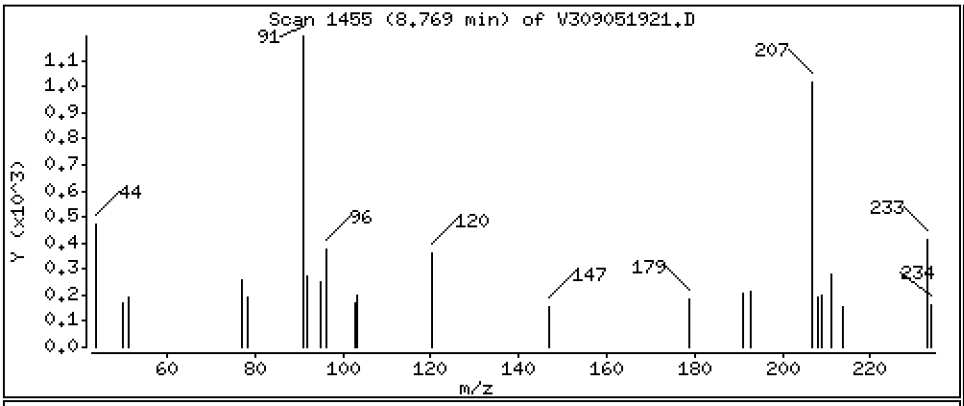
Operator: PKC

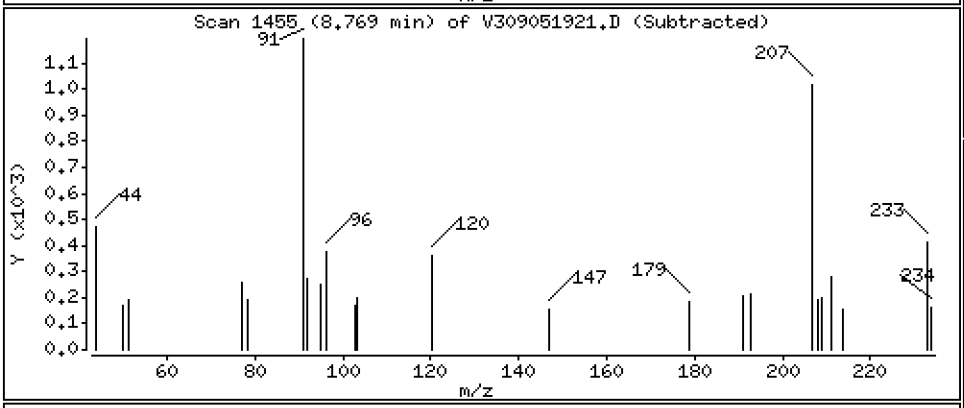
Column phase: RTXVMS

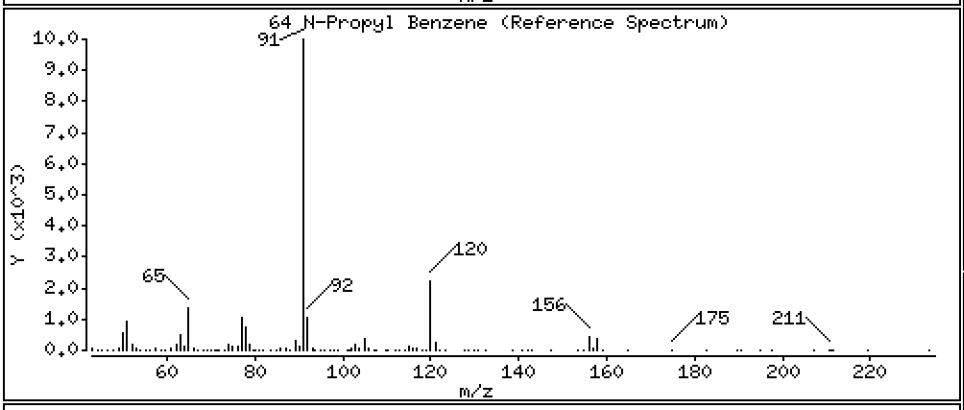
Column diameter: 0.18

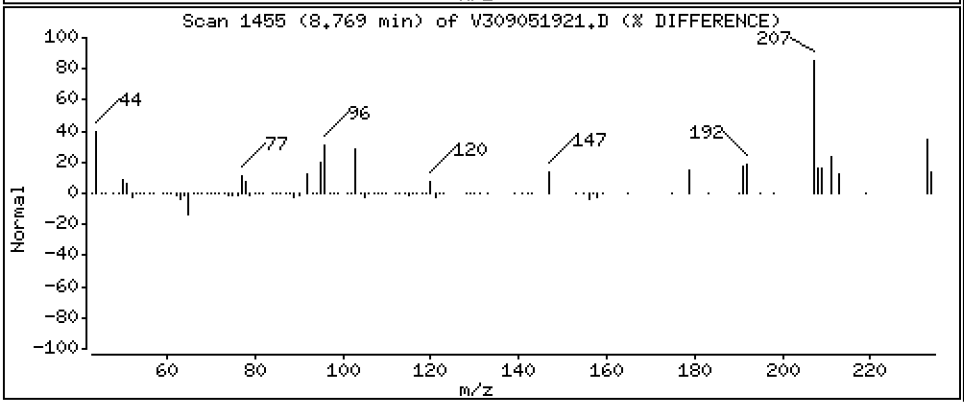
64 N-Propyl Benzene

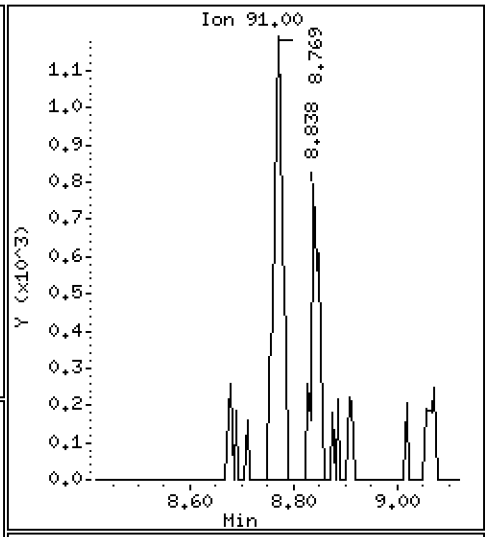
Concentration: 0.03936 ug/L

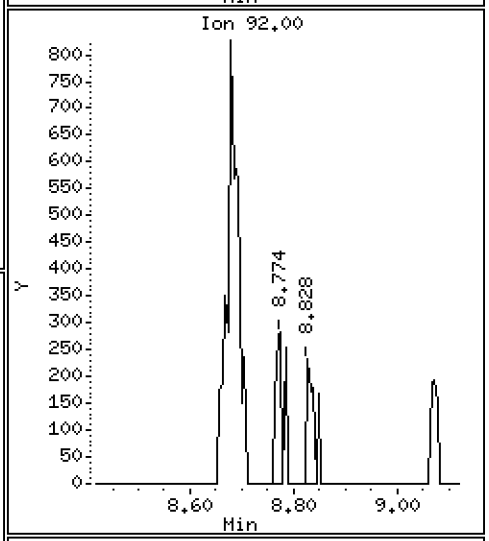


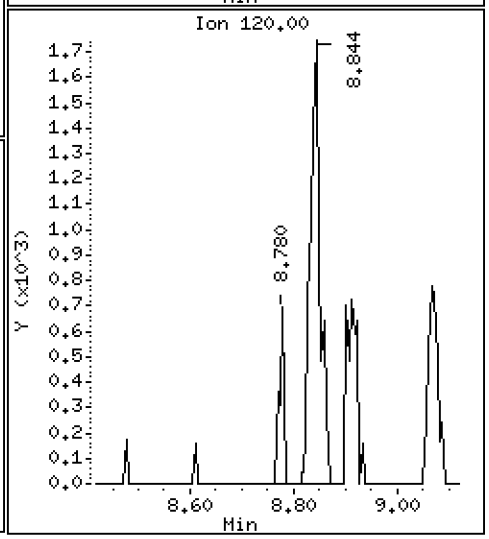












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

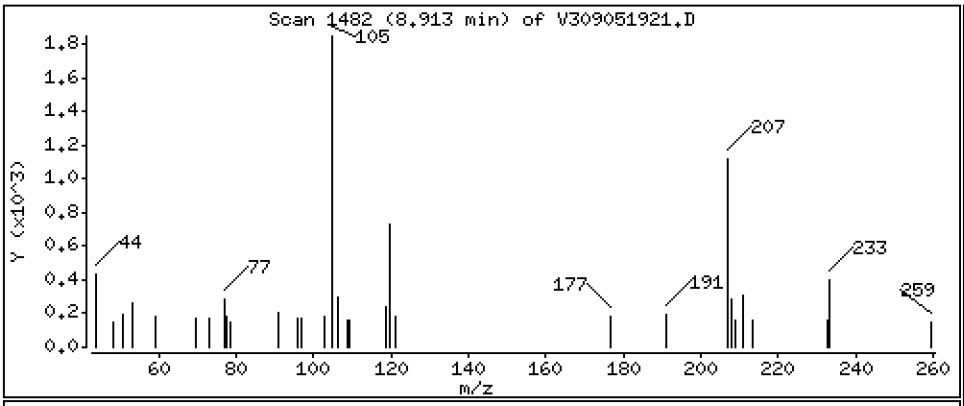
Operator: PKC

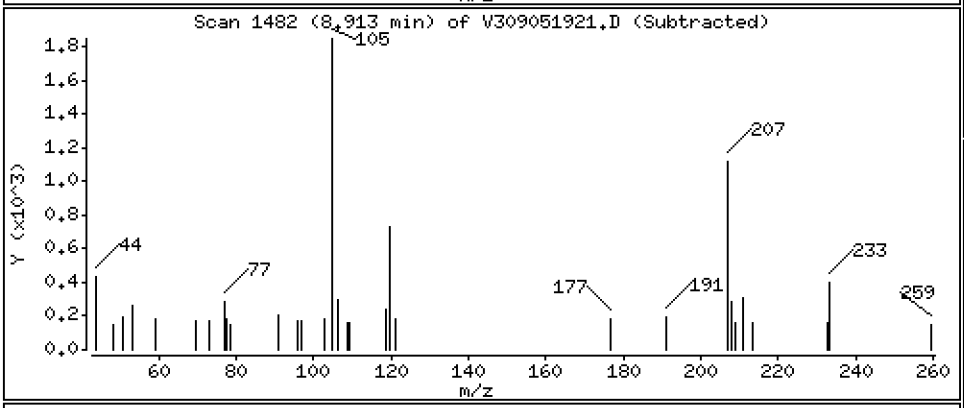
Column phase: RTXVMS

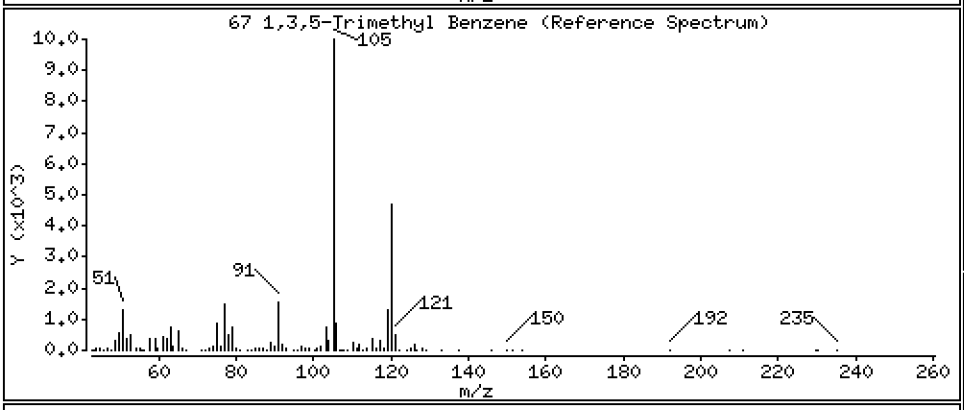
Column diameter: 0.18

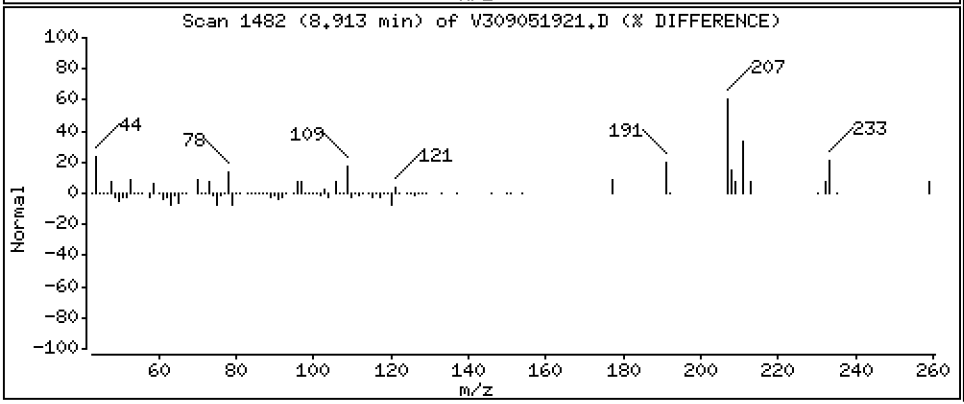
67 1,3,5-Trimethyl Benzene

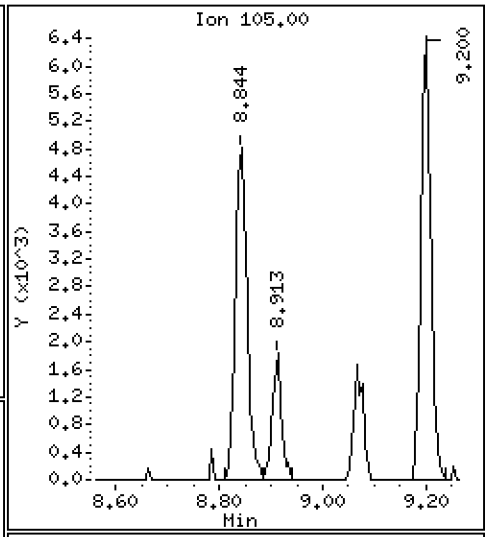
Concentration: 0.07838 ug/L

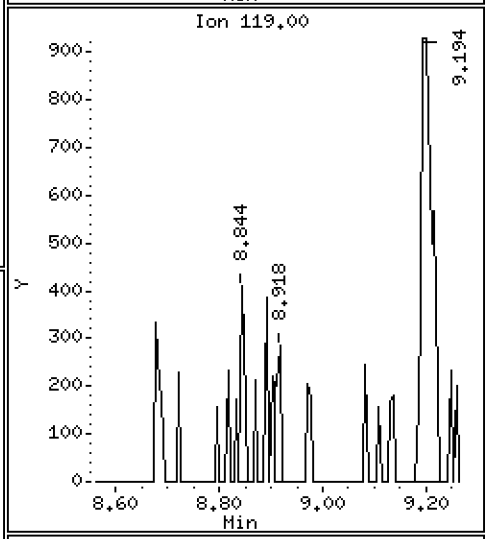


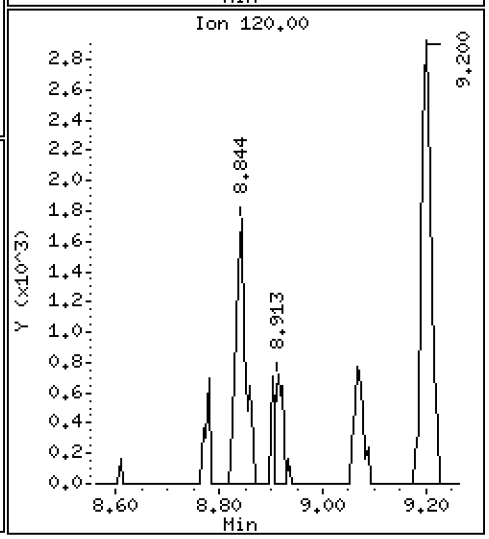












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

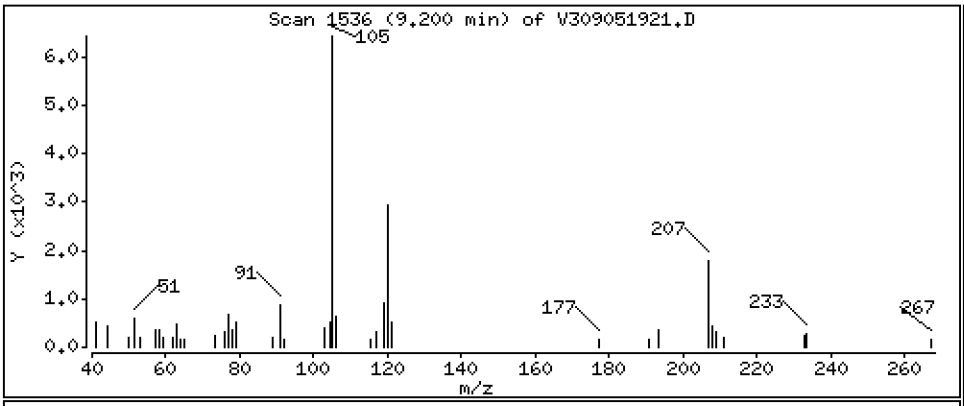
Operator: PKC

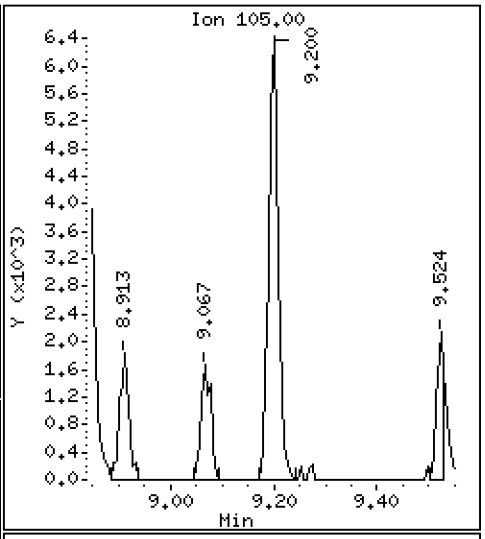
Column phase: RTXVMS

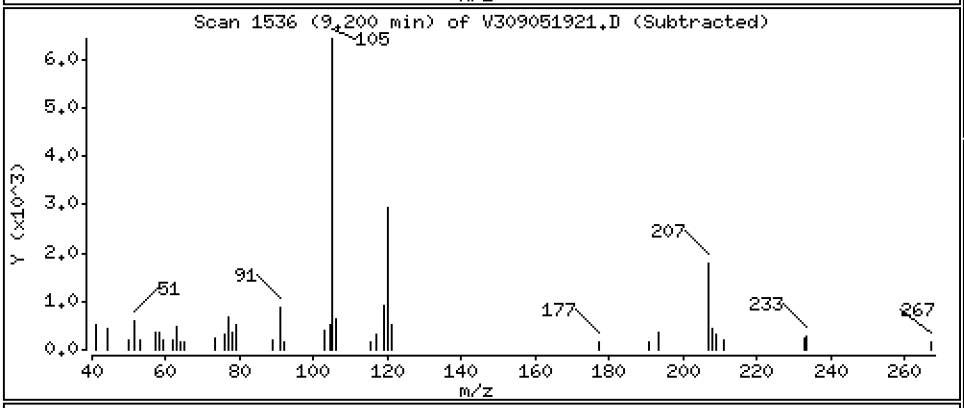
Column diameter: 0.18

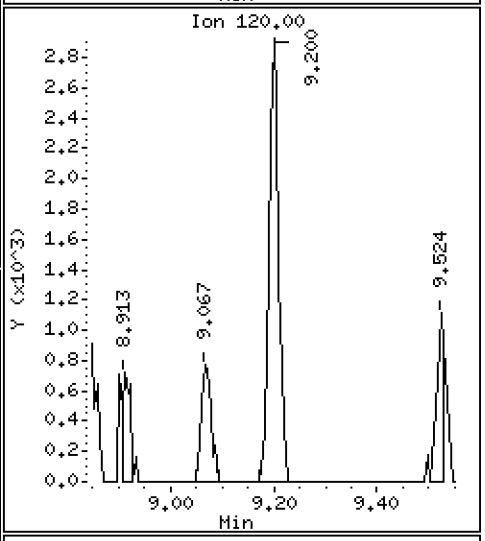
72 1,2,4-Trimethylbenzene

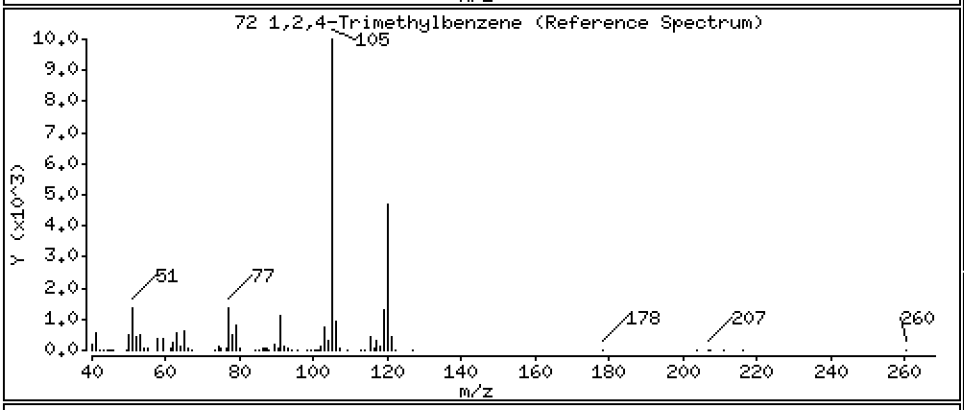
Concentration: 0.2900 ug/L

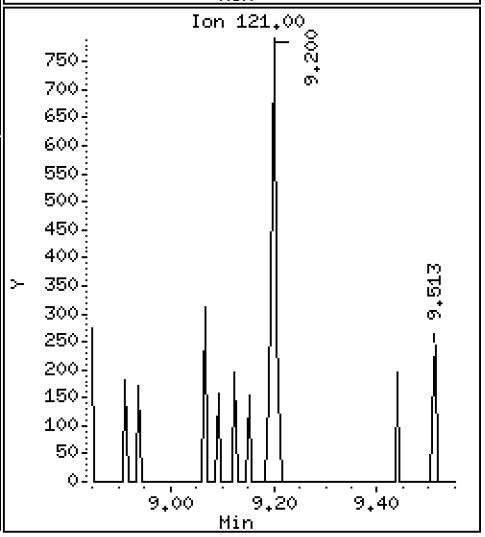


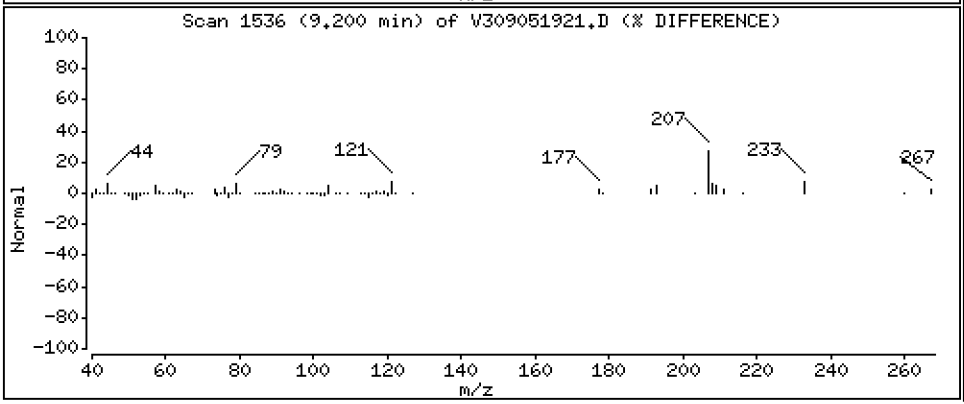












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051921.D

Date : 05-SEP-2019 20:15

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-10

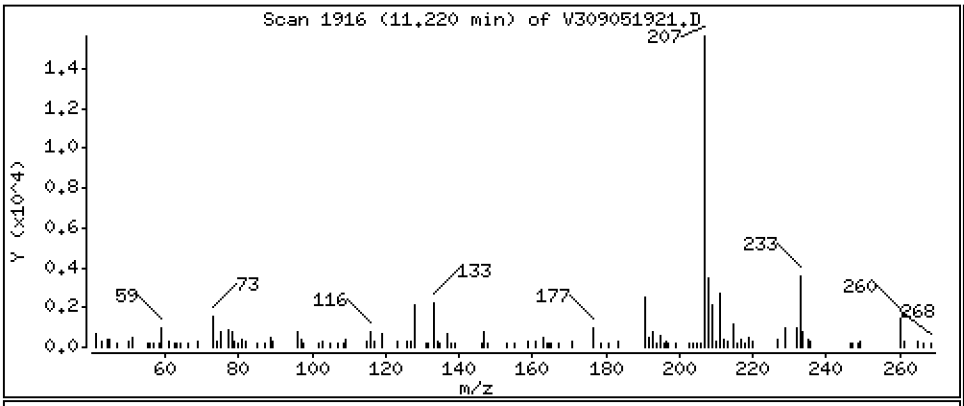
Operator: PKC

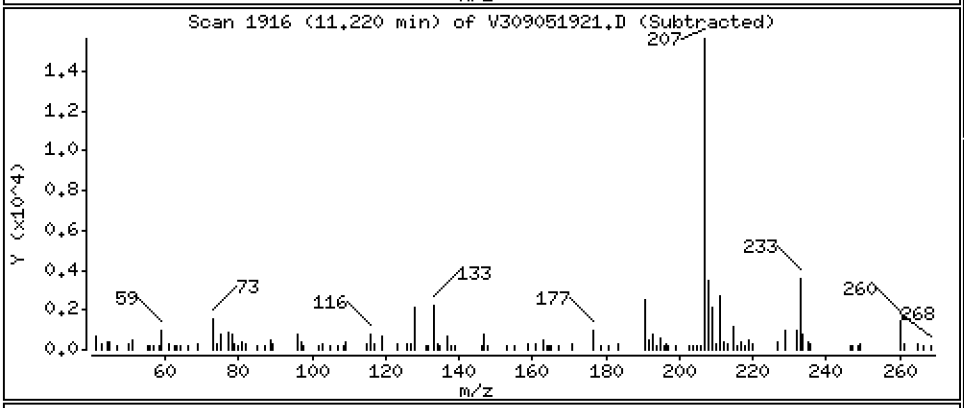
Column phase: RTXVMS

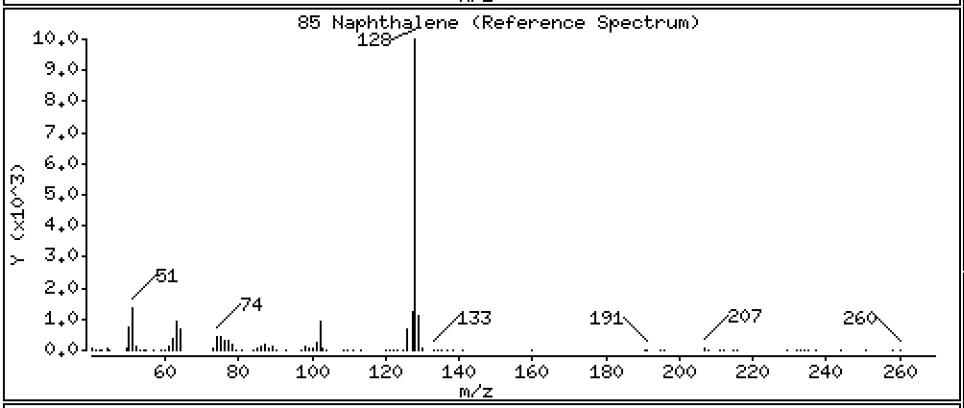
Column diameter: 0.18

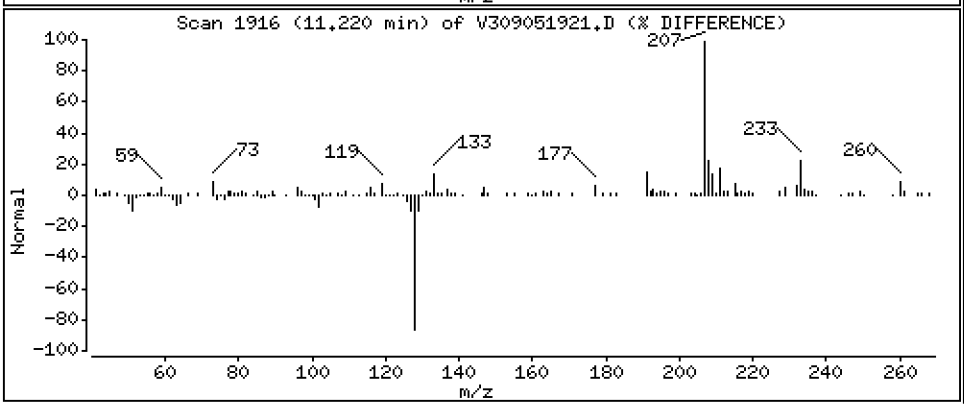
85 Naphthalene

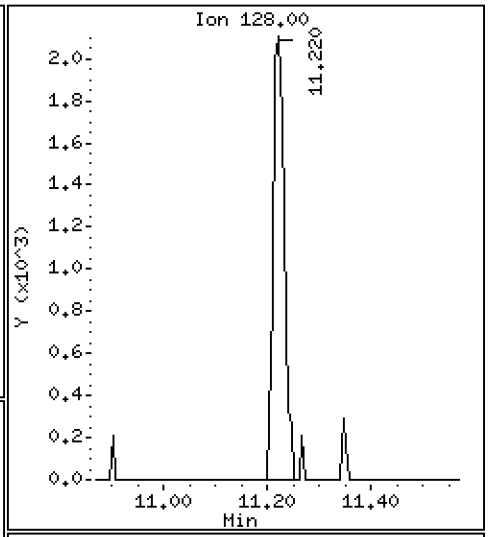
Concentration: 0.1580 ug/L

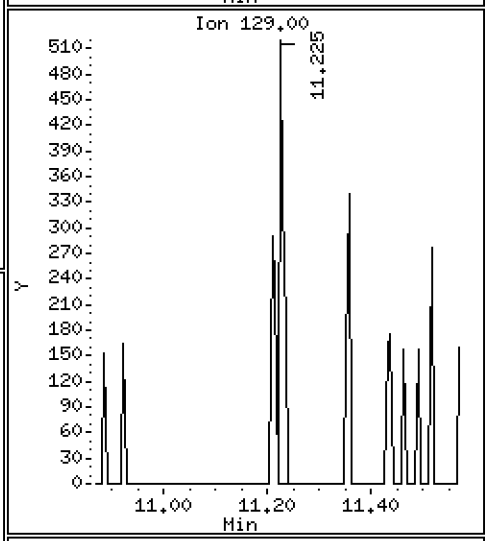


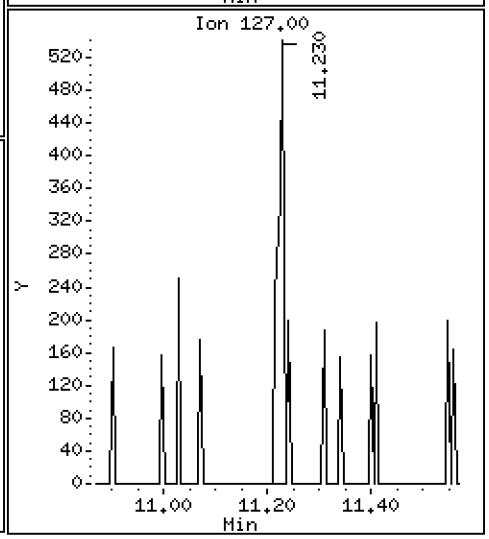












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051921.D
Lab Smp Id: 19H0481-10
Inj Date : 05-SEP-2019 20:15
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-10
Misc Info : 16-
Comment :
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Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	21657	4.96959	4.970(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	Compound Not Detected.					
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	100786	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.441	(1.005)	24460	5.03784	5.038(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	5.755	5.760	(0.994)	243	0.03576	0.03576
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	148454	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	91337	5.08581	5.086(R)
	44	Toluene	92	6.770	6.775	(1.170)	7321	0.44192	0.4419
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	152335	10.0000	
	54	Chlorobenzene	112	Compound Not Detected.					
	55	Ethyl Benzene	106	7.844	7.843	(1.004)	1494	0.13944	0.1394
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.945	7.944	(1.017)	8587	0.65082	0.6508(M)
	58	o-Xylene	106	8.248	8.247	(1.056)	3437	0.25804	0.2580
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	8.684	8.678	(1.112)	33409	4.61536	4.615(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	8.769	8.768	(0.923)	1491	0.03936	0.03936
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	2279	0.07838	0.07838
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	8548	0.28998	0.2900
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	92991	10.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	43572	4.98684	4.987(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.219	11.219	(1.181)	3261	0.15805	0.1580
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051921.D
Lab Smp Id: 19H0481-10
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	100786	4.01
37 1,4-Difluorobenze	140121	70061	280242	148454	5.95
53 d5-Chlorobenzene	140128	70064	280256	152335	8.71
76 d4-1,4-Dichlorobe	90137	45069	180274	92991	3.17

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-10
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.970	99.39	
$ 33 d4-1,2-Dichloroeth	5.000	5.038	100.76	
$ 43 d8-Toluene	5.000	5.086	101.72	
$ 62 4-Bromofluorobenze	5.000	4.615	92.31	
$ 79 d4-1,2-Dichloroben	5.000	4.987	99.74	

REVIEW SUMMARY FOR FILE - V309051921.D

Lab ID: 19H0481-10
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 20:15

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

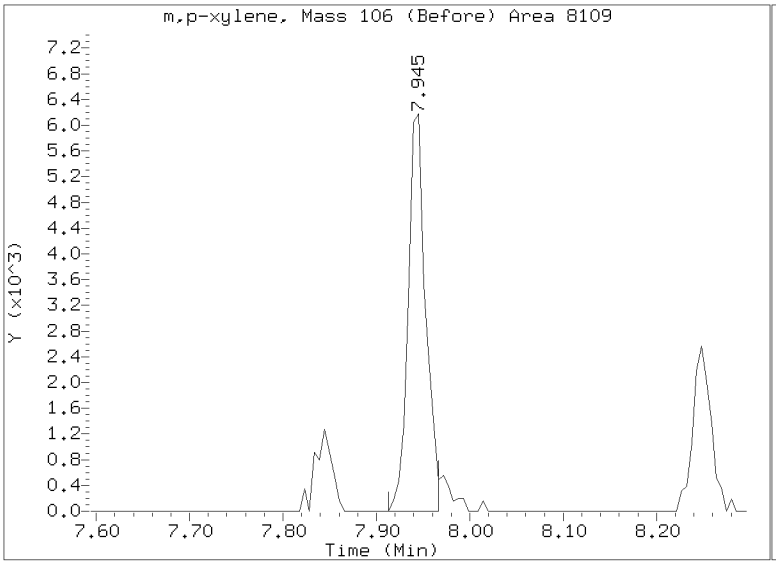
RRT check based on Ccal File: V309051928.D

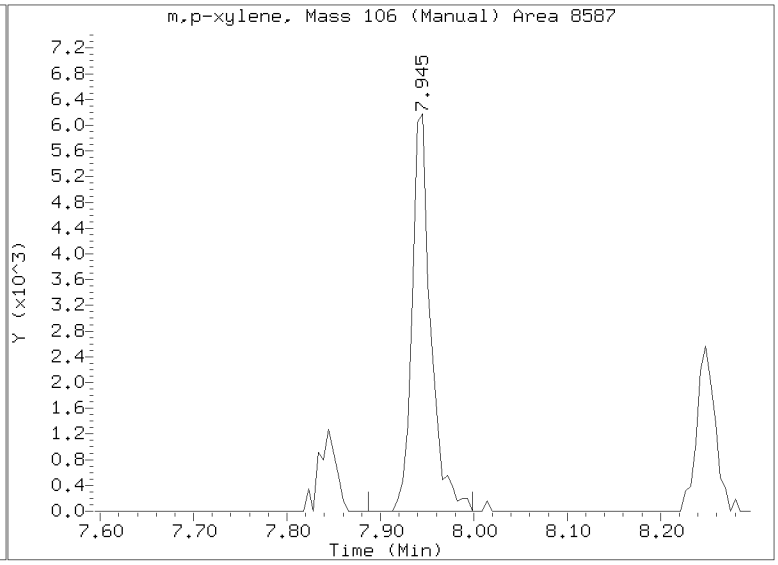
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051921.D
Injection Date: 05-SEP-2019 20:15
Lab ID:19H0481-10 Client ID:
Report Date: 09/06/2019 14:40





P40-UST-02-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-12 C	SDG:	19H0481
Sampled:	08/30/19 10:40	Prepared:	09/03/19 15:33	File ID:	NT509031921.D
% Solids:	92.32	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/03/19 20:38
Batch:	BHI0056	Sequence:	SHI0046	Initial/Final:	3.87 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	0.44	J	0.41	1.40
108-88-3	Toluene	1	0.72	J	0.21	1.40
100-41-4	Ethylbenzene	1	1.40	U	0.28	1.40
179601-23-1	m,p-Xylene	1	0.74	J	0.55	2.80
95-47-6	o-Xylene	1	1.40	U	0.31	1.40

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.9	106	77 - 120	
4-Bromofluorobenzene	50.000	51.1	102	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

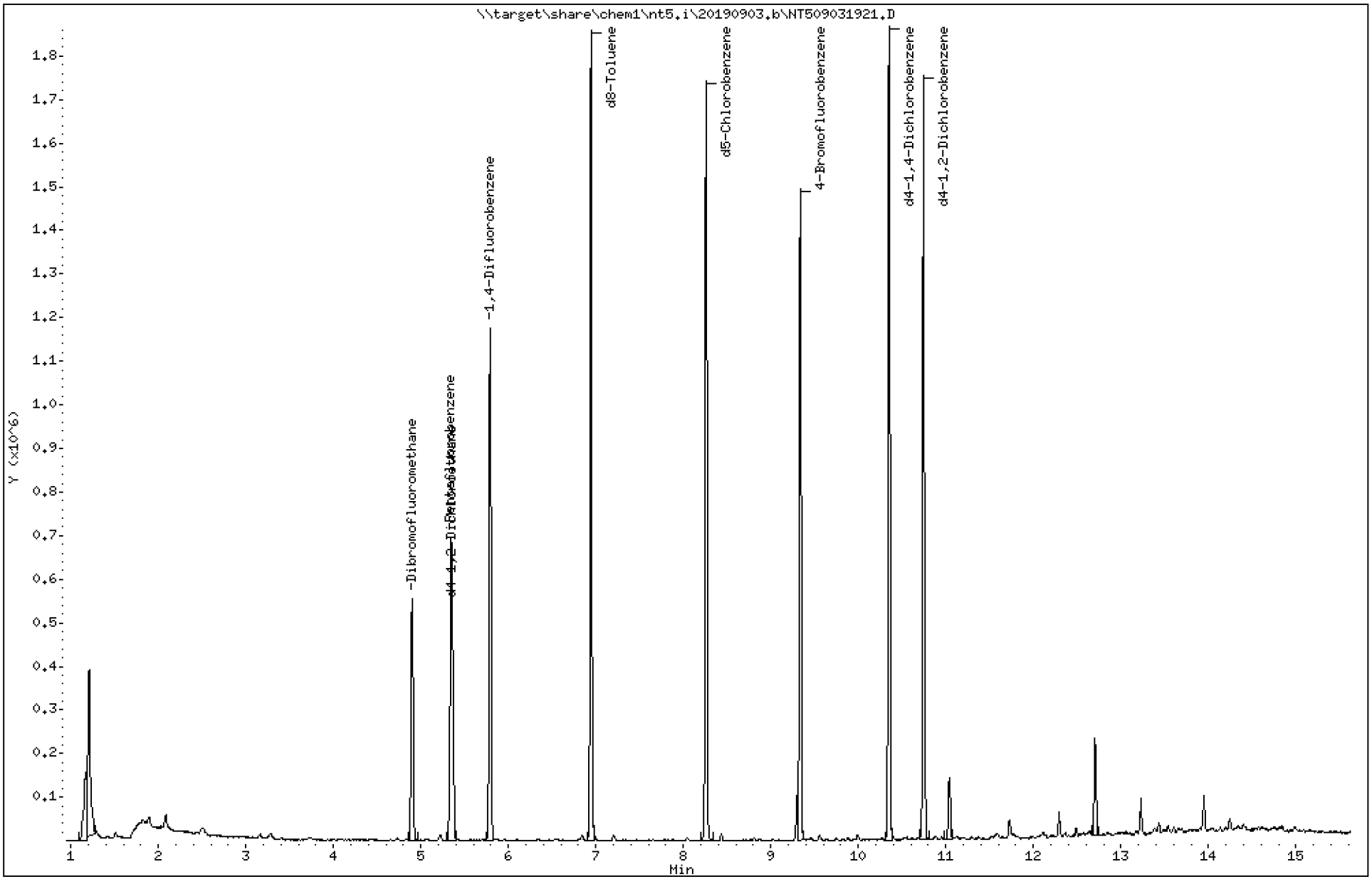
Sample Info: 19H0481-12

Instrument: nt5.i

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

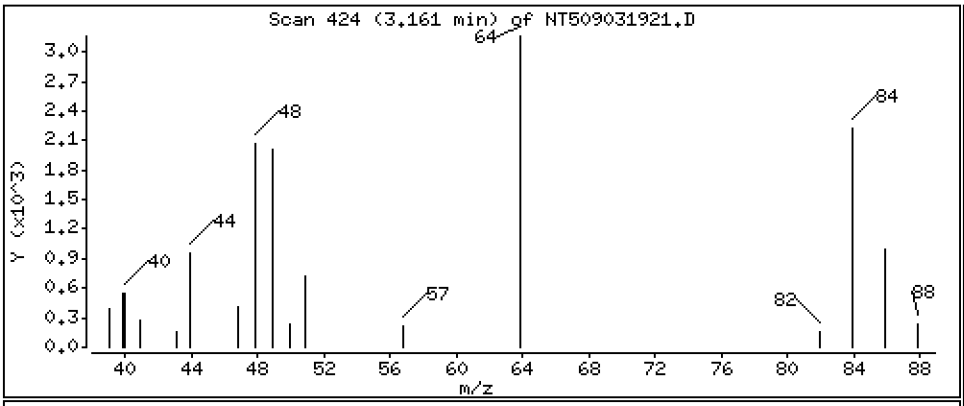
Operator: PB

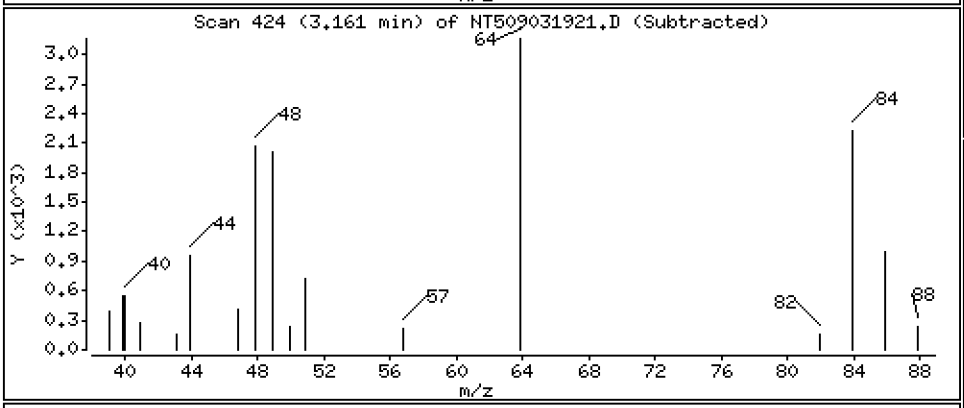
Column phase: RTXVMS

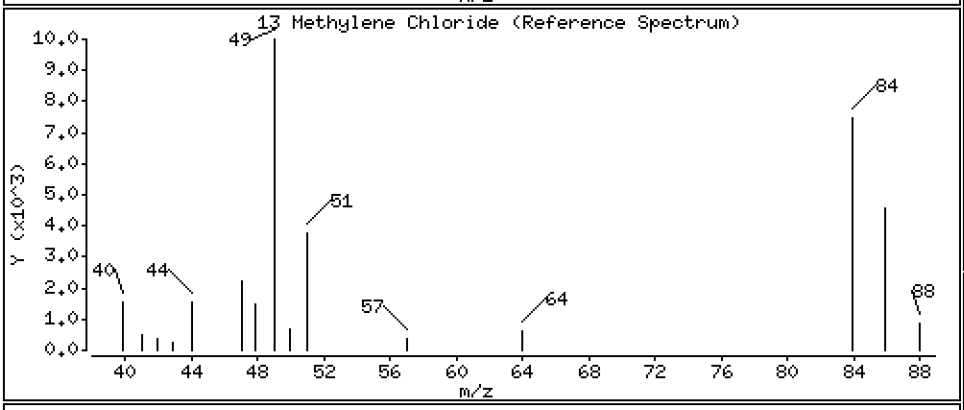
Column diameter: 0.18

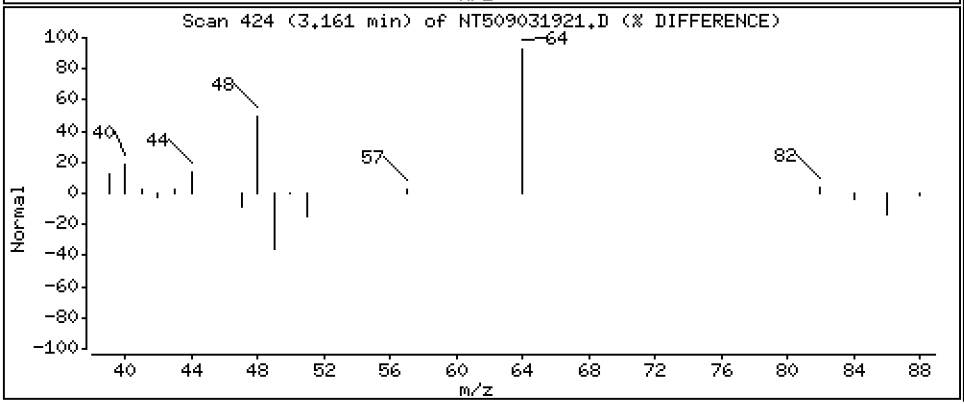
13 Methylene Chloride

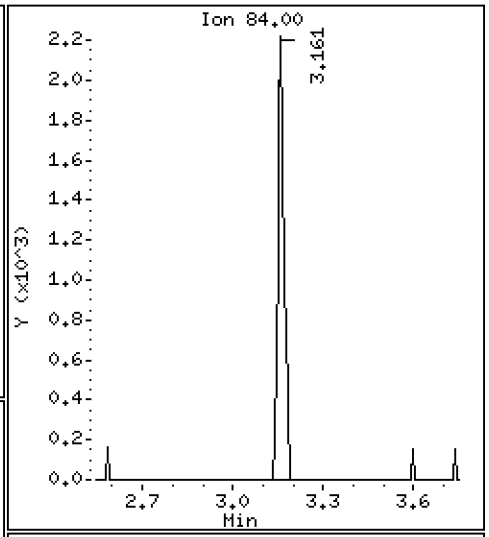
Concentration: 1.737 ug/Kg

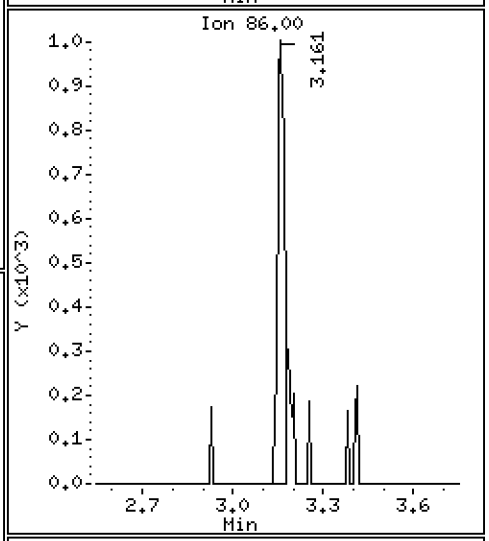


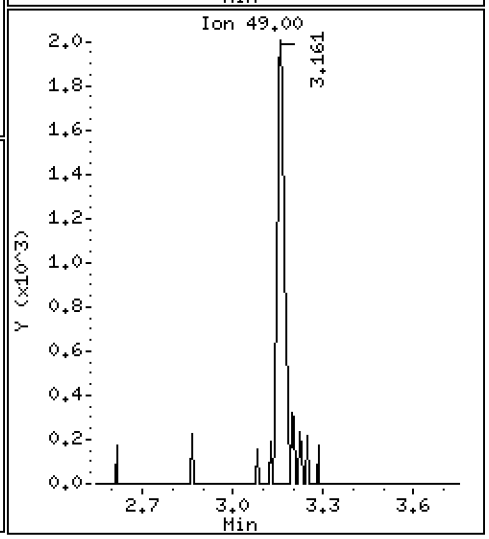












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Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

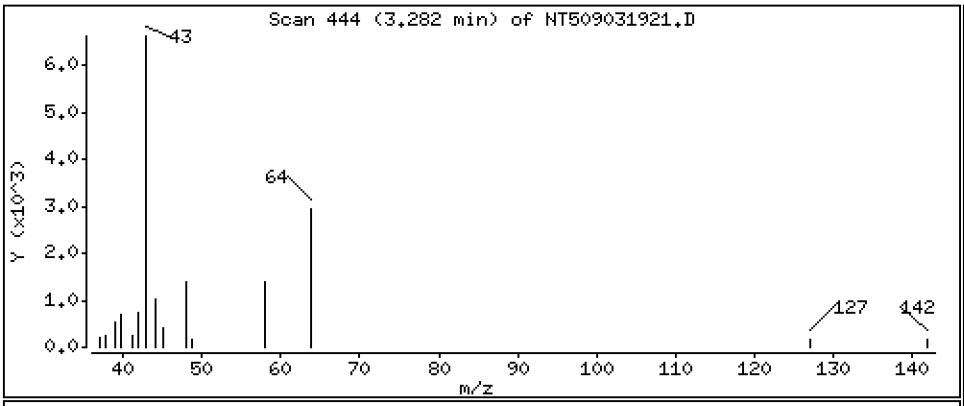
Operator: PB

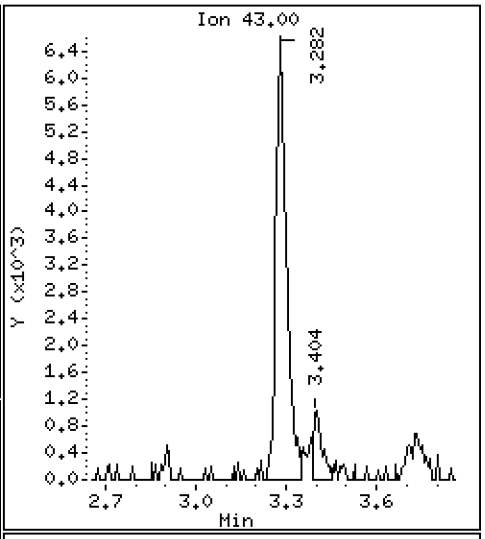
Column phase: RTXVMS

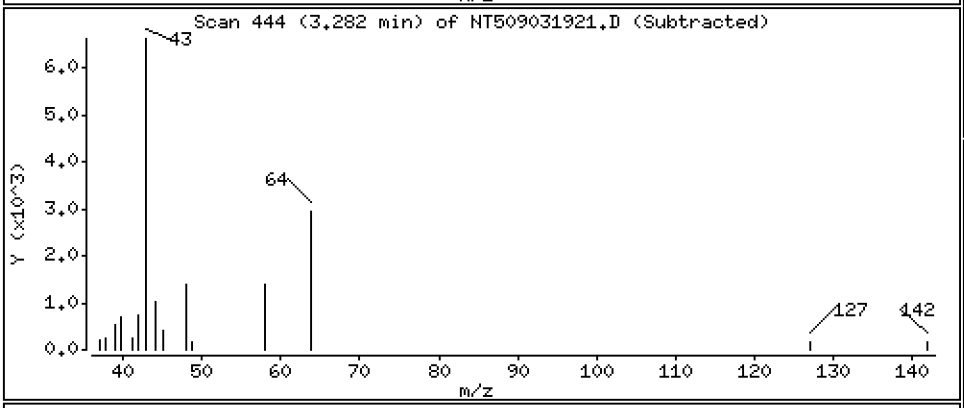
Column diameter: 0.18

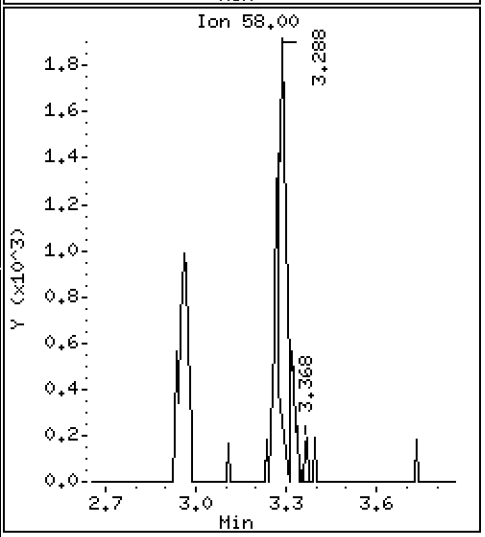
14 Acetone

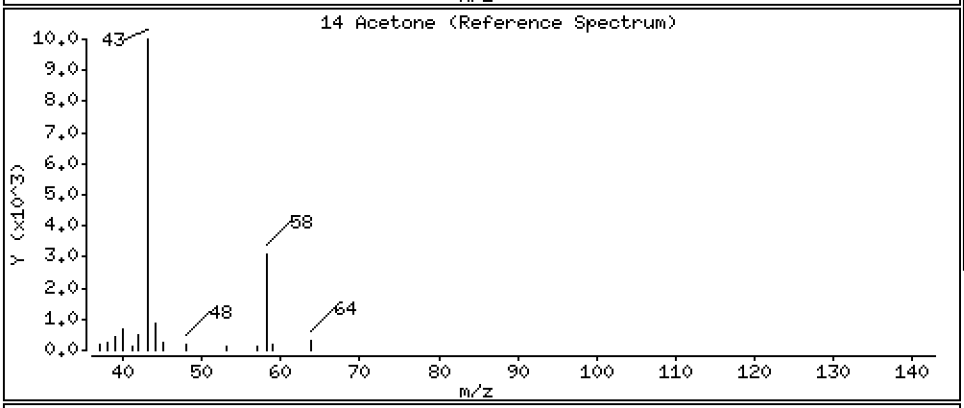
Concentration: 37.161 ug/Kg

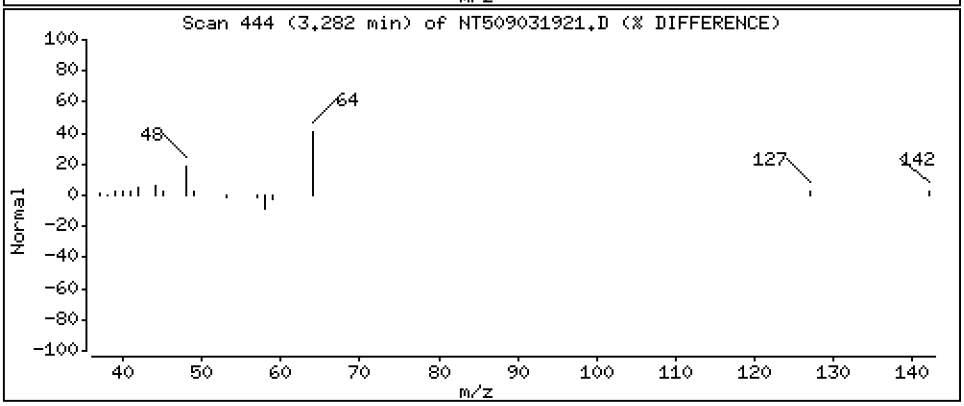












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Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

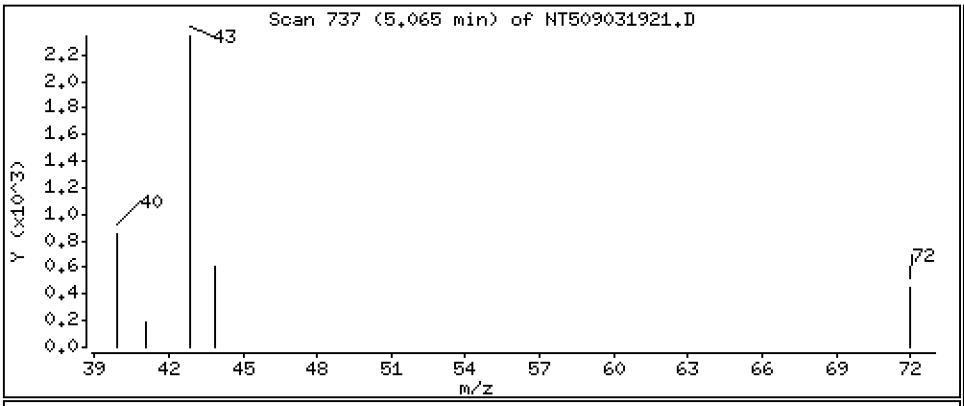
Operator: PB

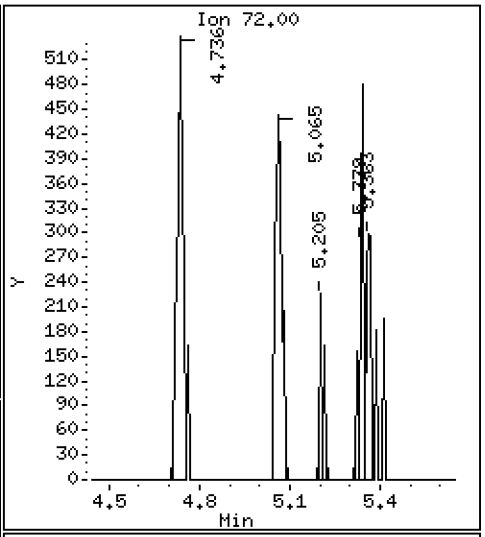
Column phase: RTXVMS

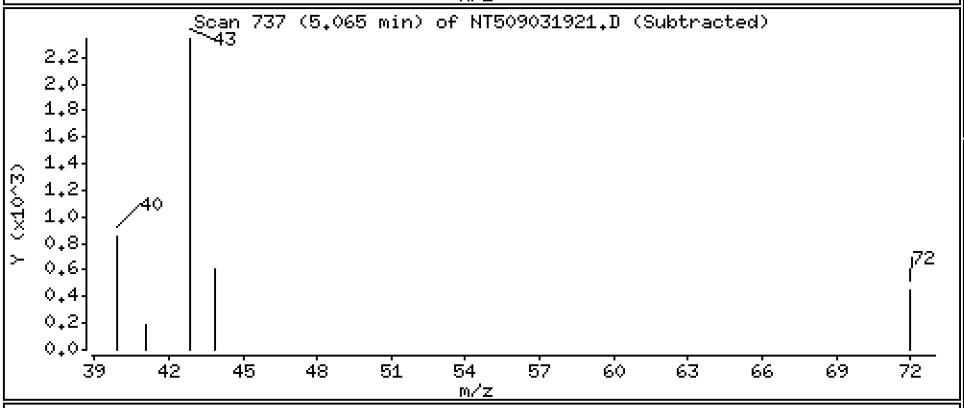
Column diameter: 0.18

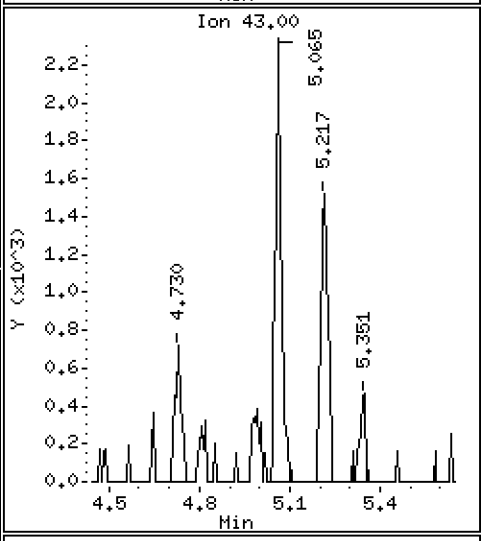
29 2-Butanone

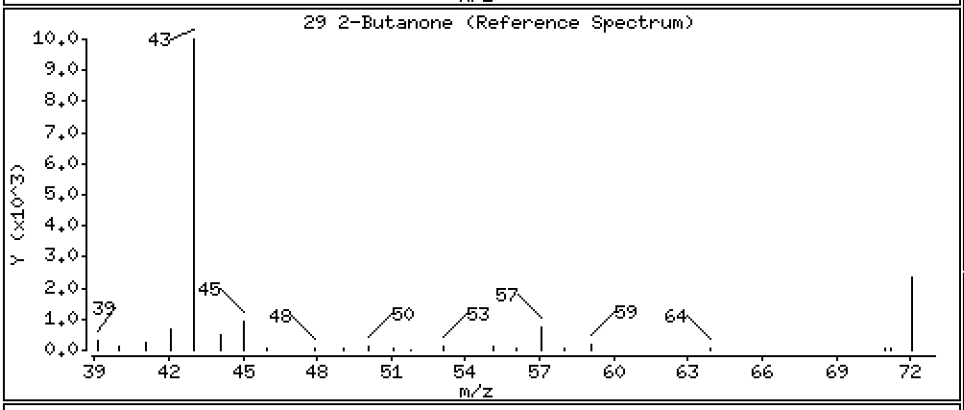
Concentration: 3.006 ug/Kg

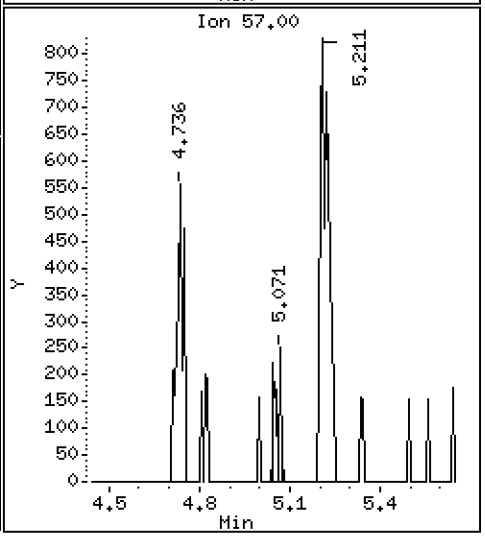


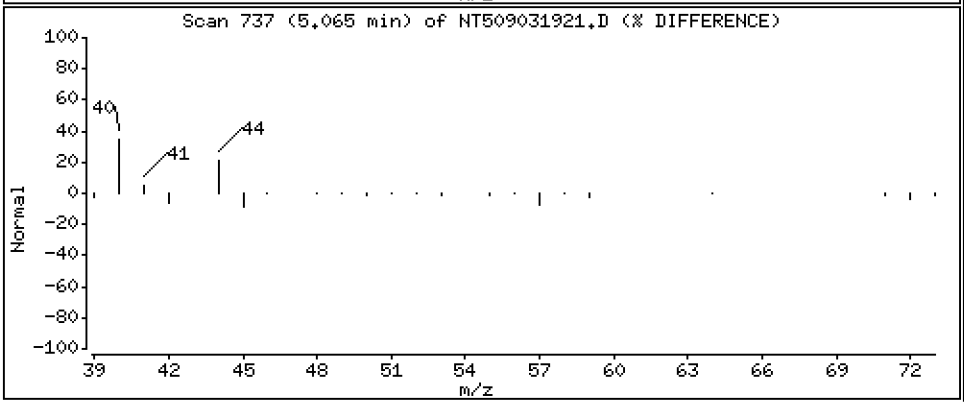












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Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

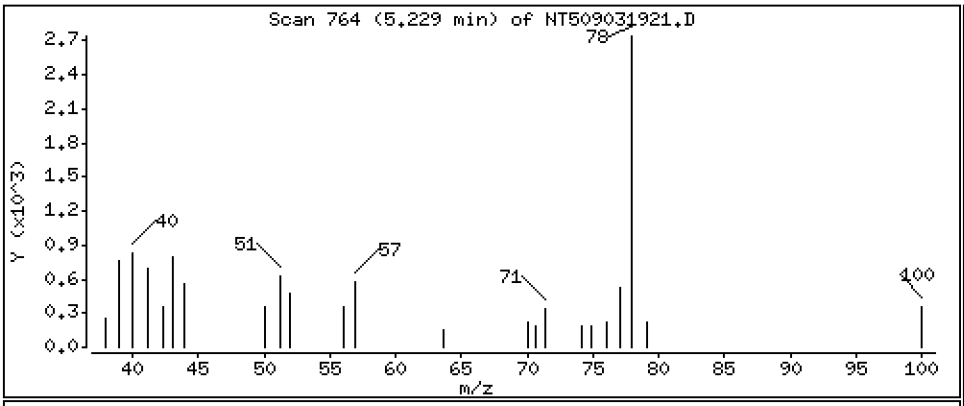
Operator: PB

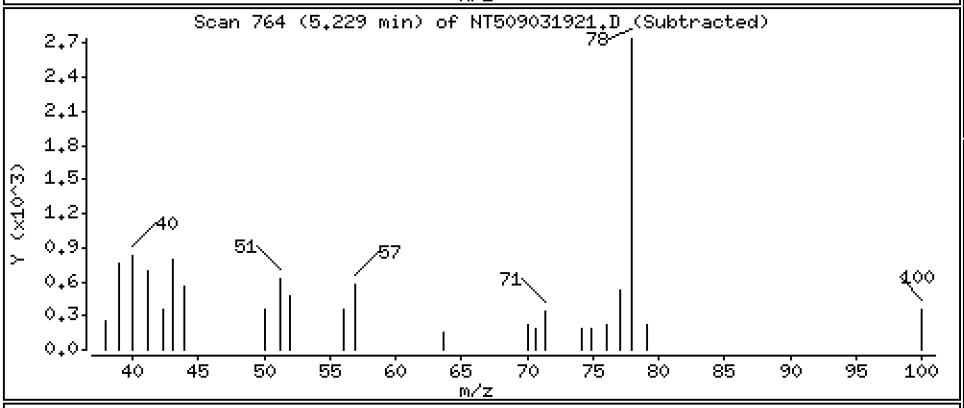
Column phase: RTXVMS

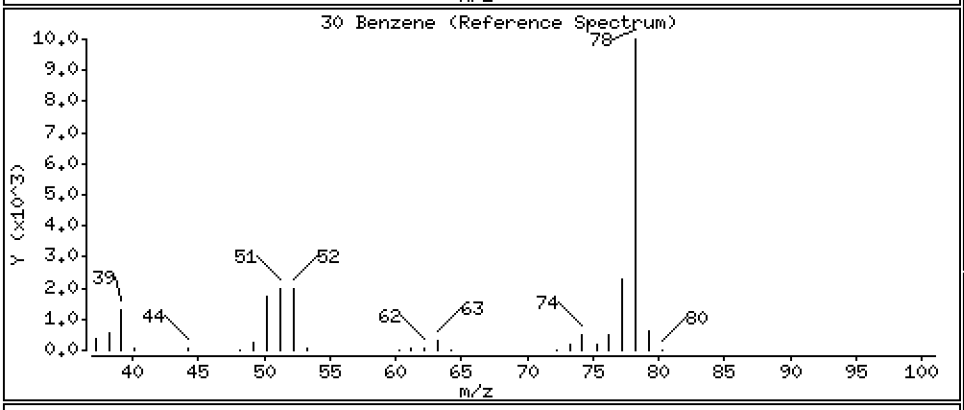
Column diameter: 0.18

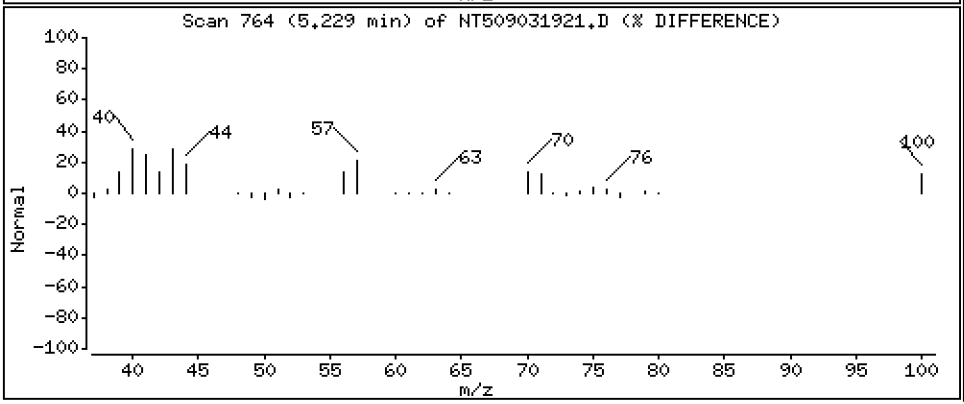
30 Benzene

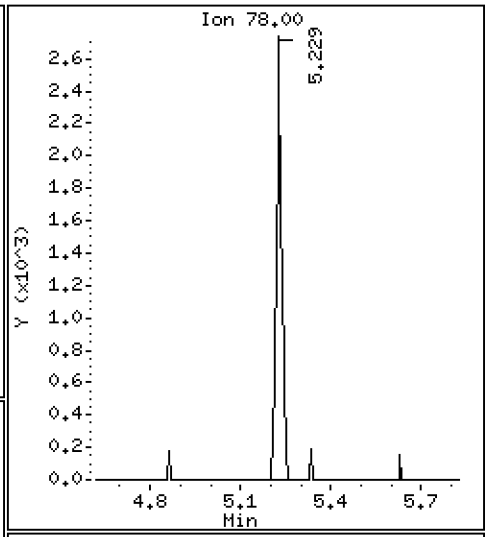
Concentration: 0.3111 ug/Kg

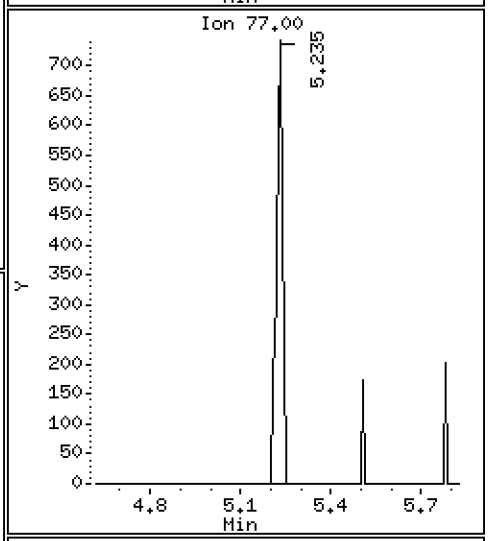


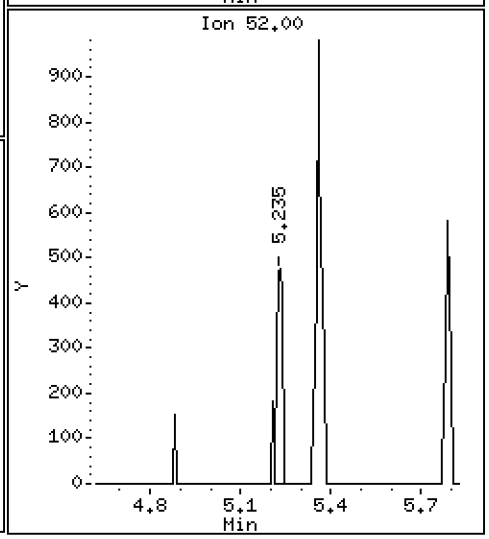












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

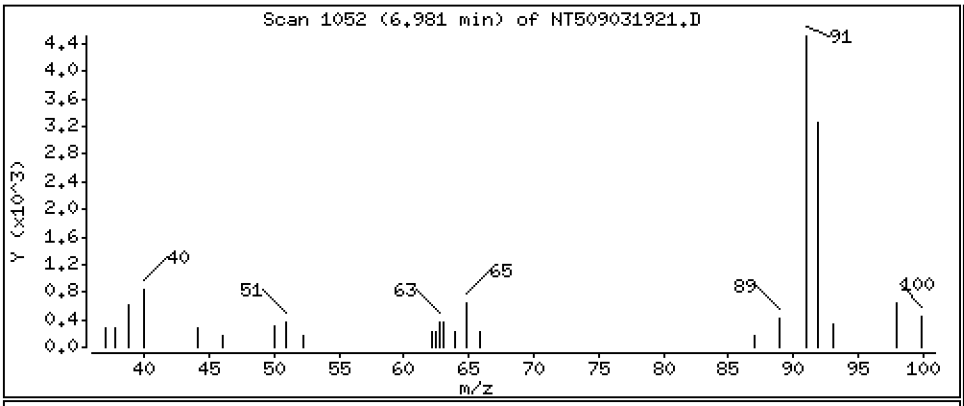
Operator: PB

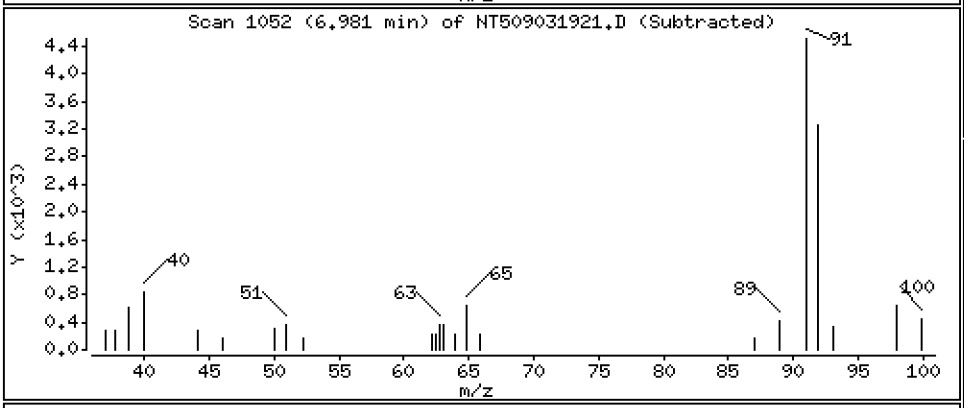
Column phase: RTXVMS

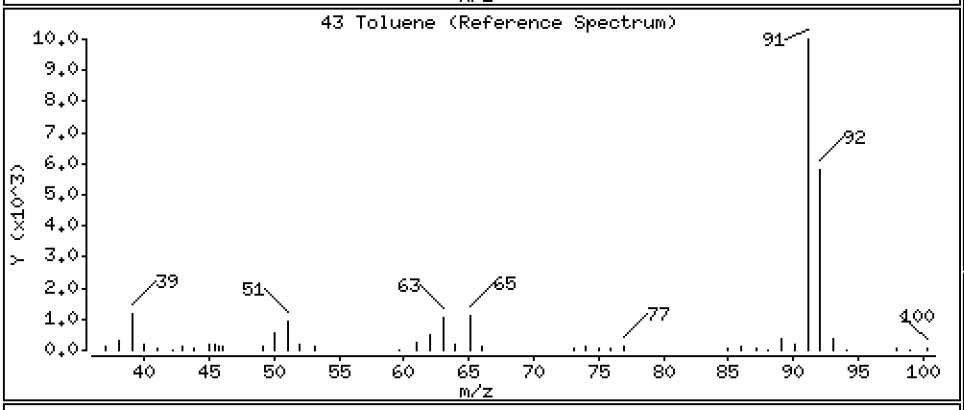
Column diameter: 0.18

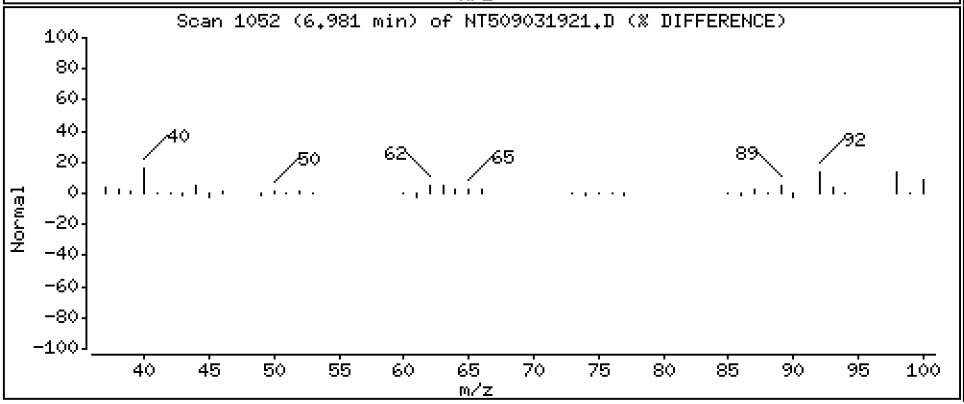
43 Toluene

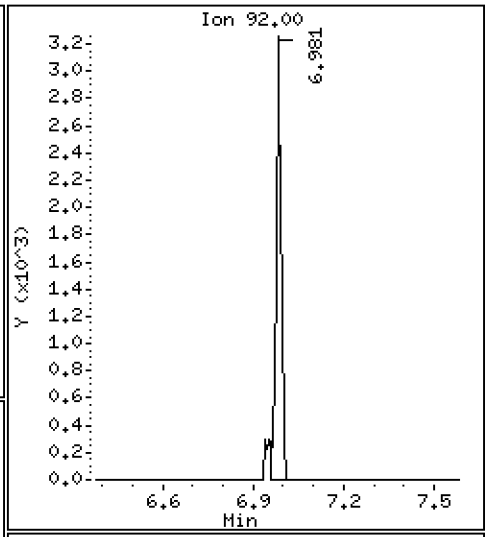
Concentration: 0.5172 ug/Kg

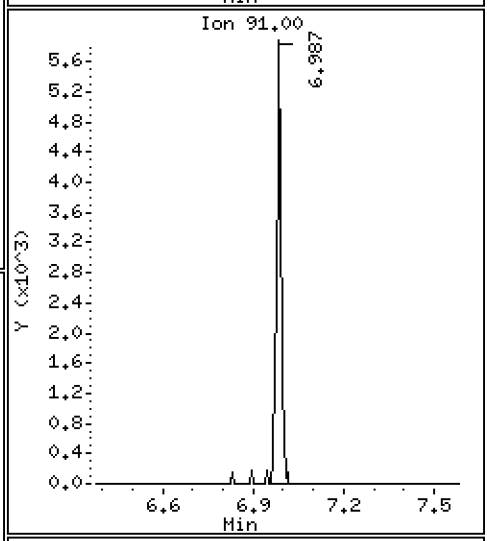


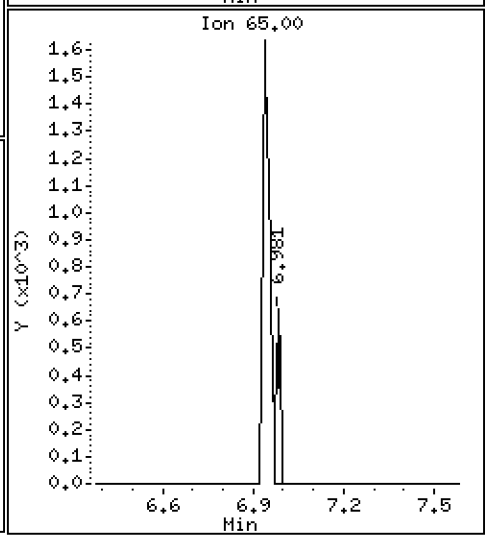












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

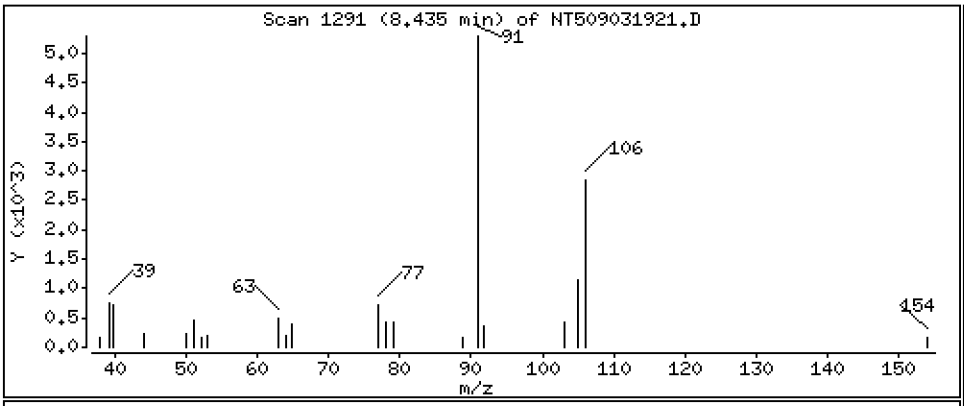
Operator: PB

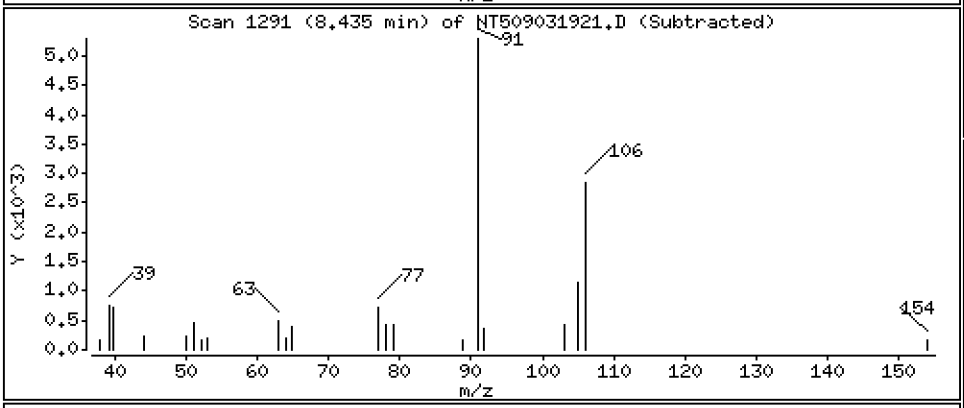
Column phase: RTXVMS

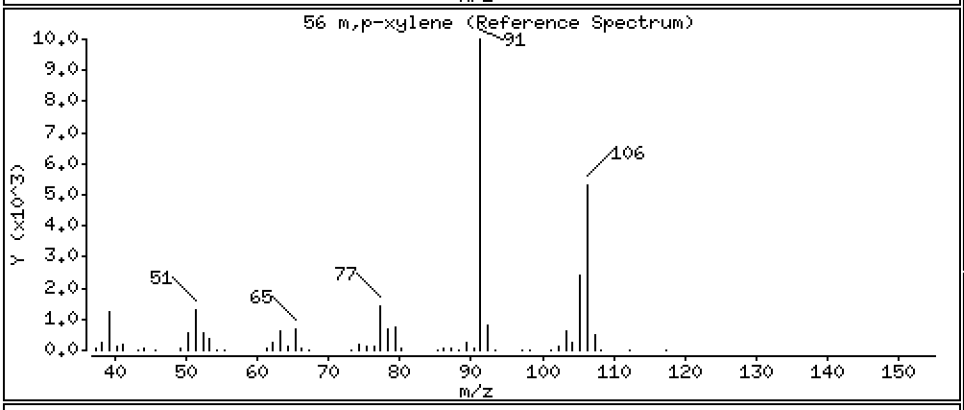
Column diameter: 0.18

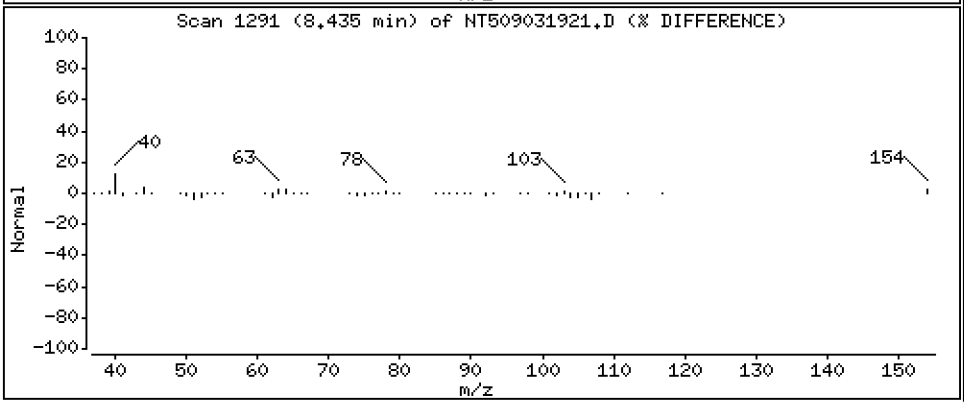
56 m,p-xylene

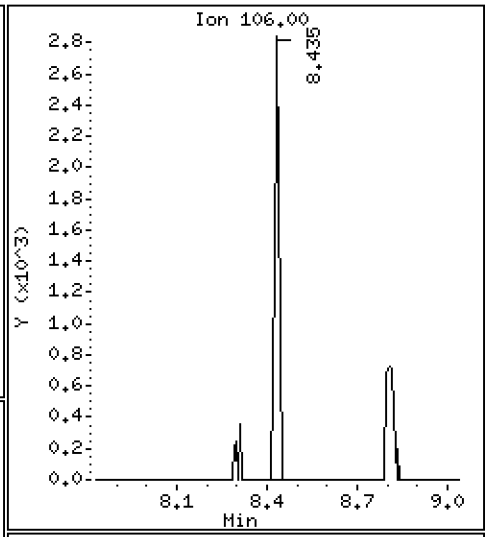
Concentration: 0.5270 ug/Kg

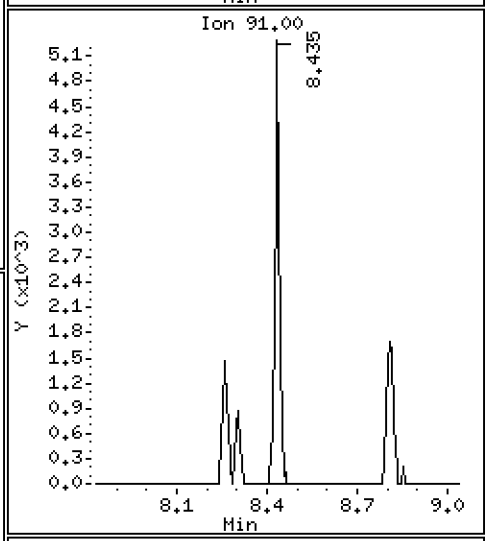


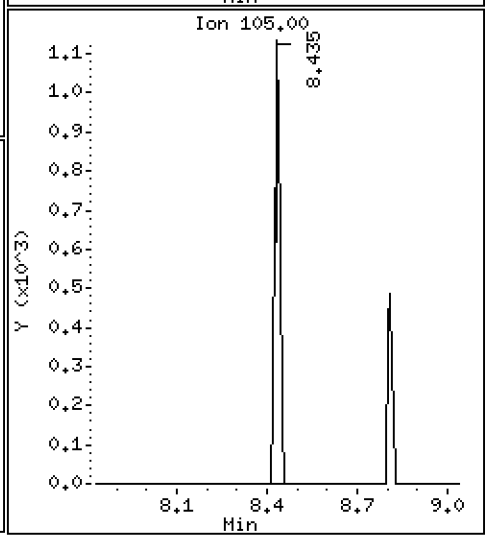












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

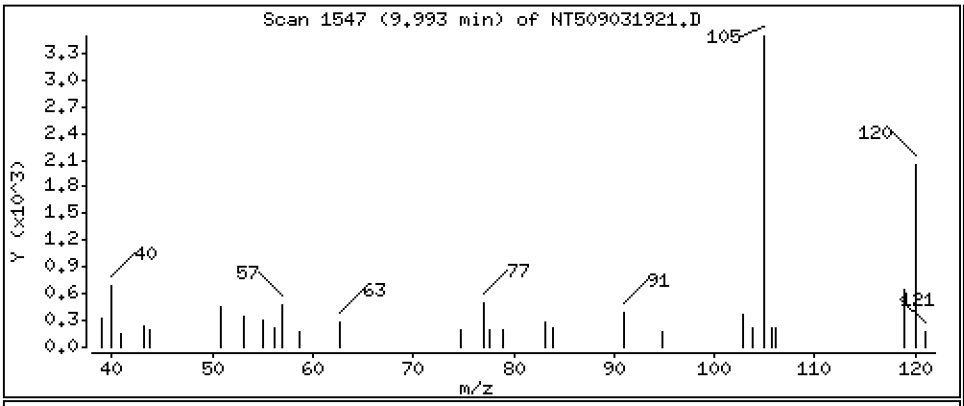
Operator: PB

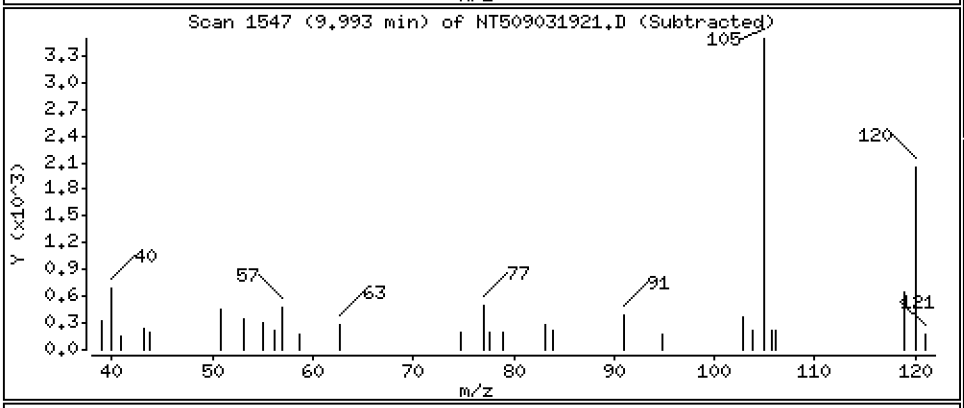
Column phase: RTXVMS

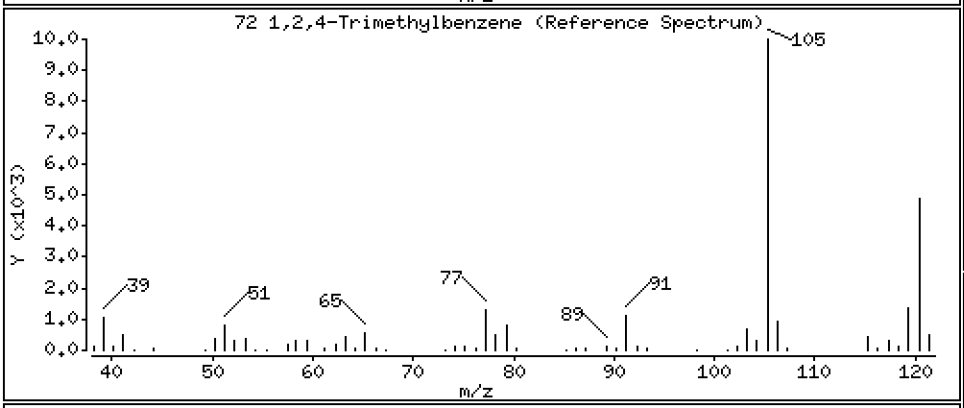
Column diameter: 0.18

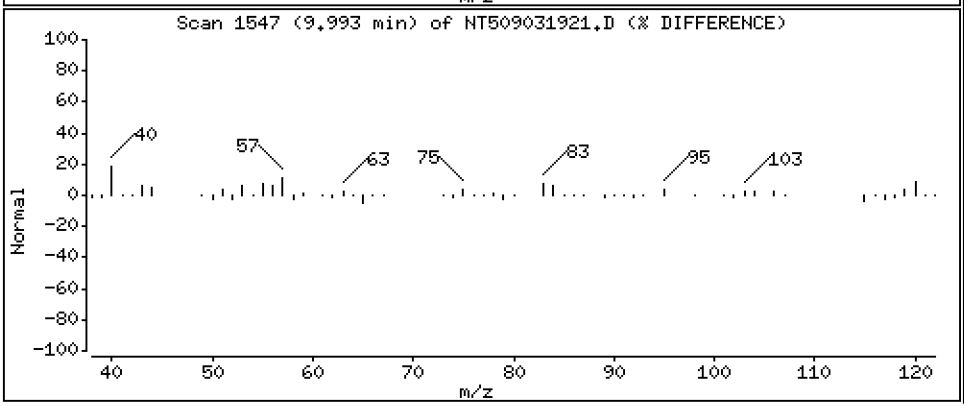
72 1,2,4-Trimethylbenzene

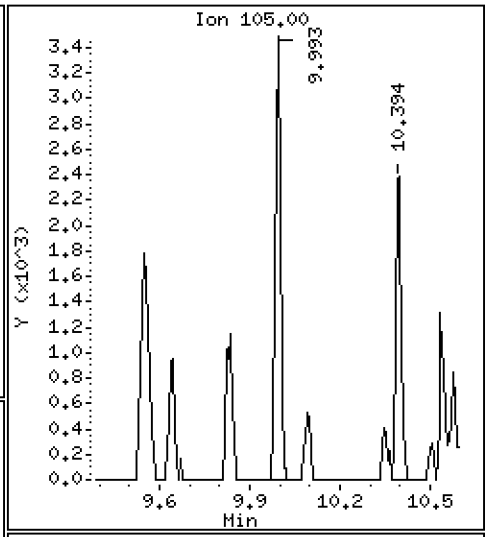
Concentration: 0.3751 ug/Kg

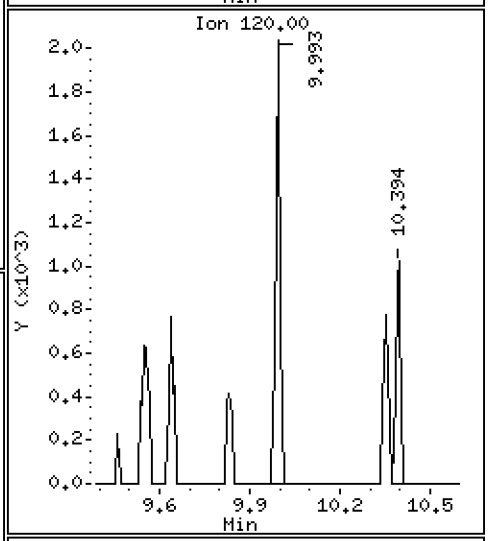


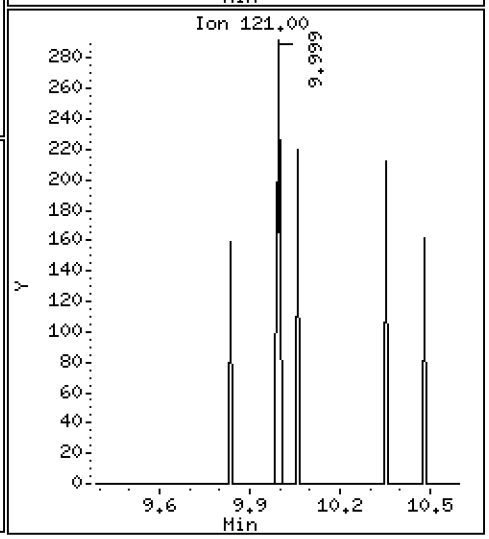












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031921.D

Date : 03-SEP-2019 20:38

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-12

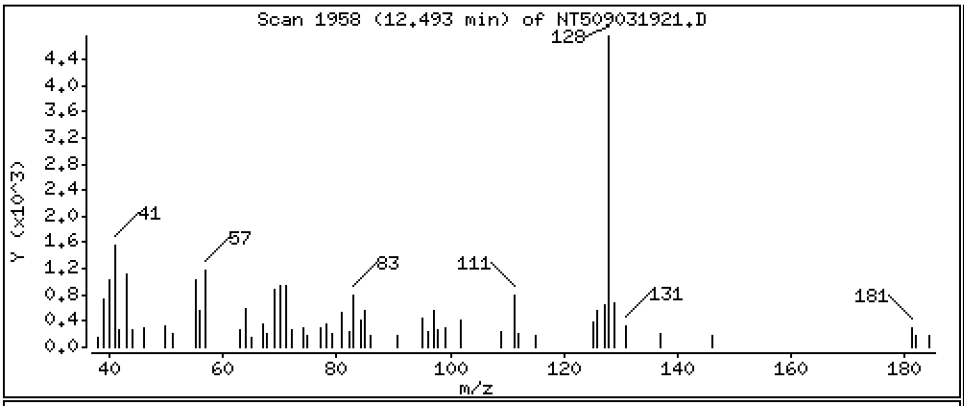
Operator: PB

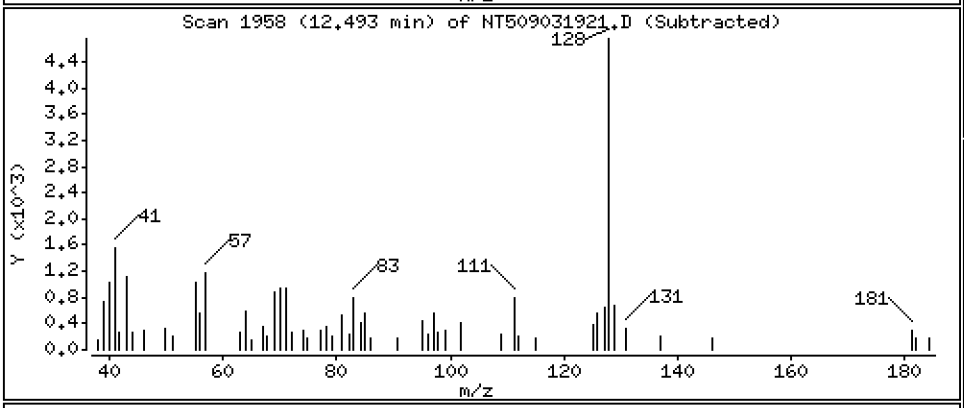
Column phase: RTXVMS

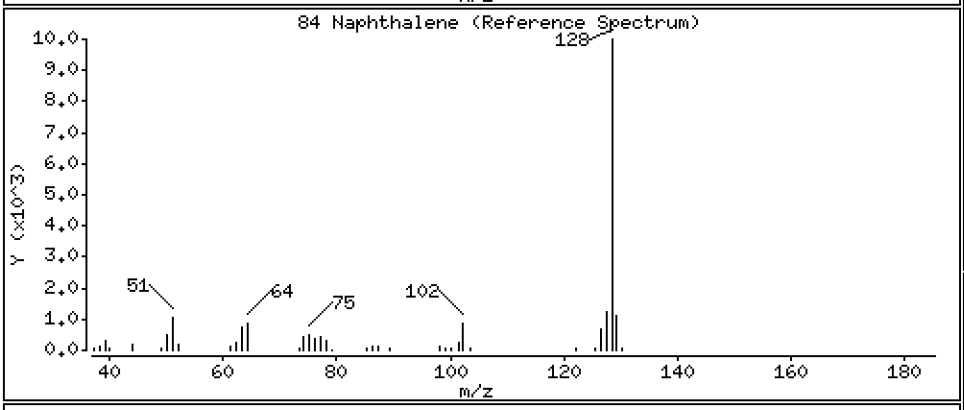
Column diameter: 0.18

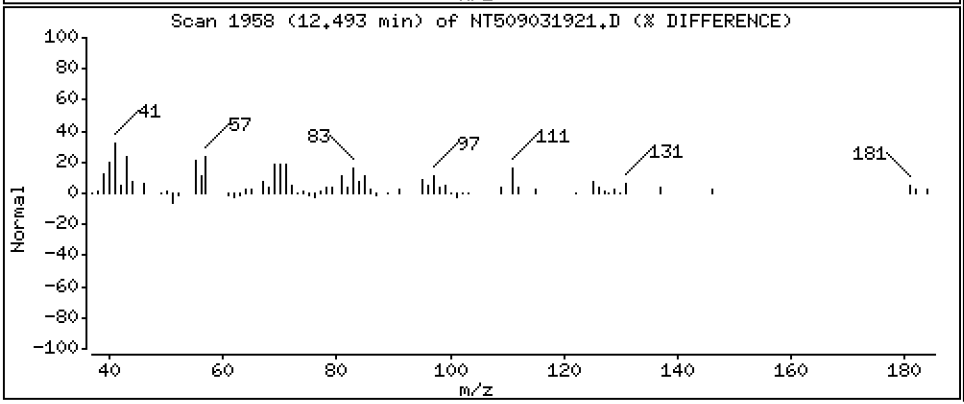
84 Naphthalene

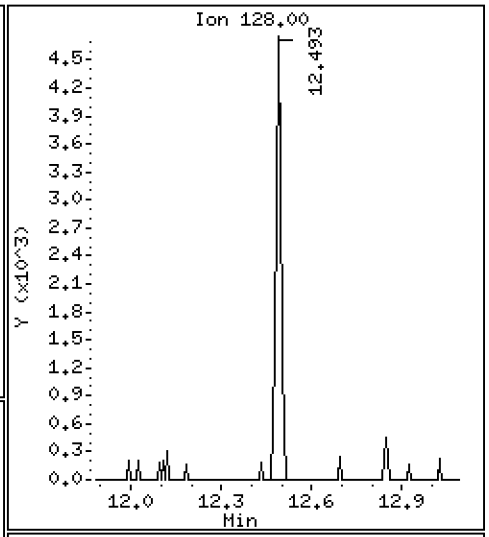
Concentration: 0.6602 ug/Kg

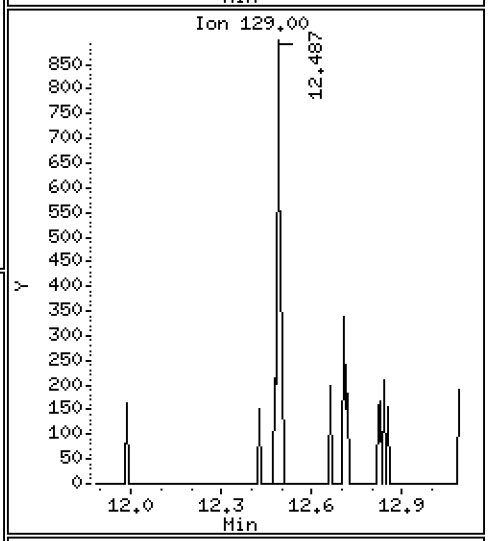


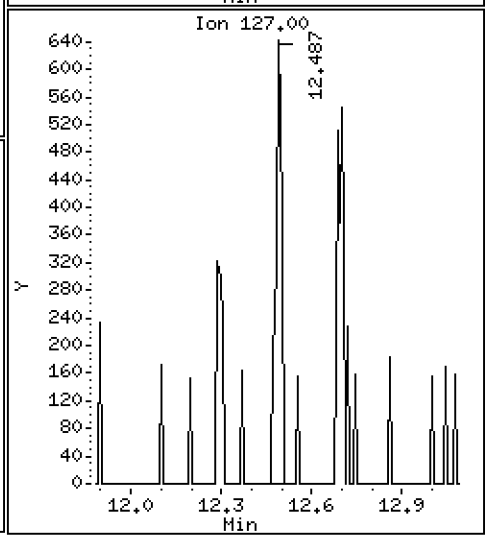












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031921.D
Lab Smp Id: 19H0481-12
Inj Date : 03-SEP-2019 20:38
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-12
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.591)	3563	1.73707	1.737
	14 Acetone	43	3.282	3.258	(0.614)	16496	37.1609	37.161
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	281468	70.4863	70.486(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	5.064	5.046	(0.948)	667	3.00553	3.006
	30 Benzene	78	5.229	5.223	(0.903)	3882	0.31109	0.3111
*	31 Pentafluorobenzene	168	5.344	5.338	(1.000)	325146	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.350	(1.003)	274444	70.1494	70.149(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	780322	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1018843	52.8657	52.866(R)
	43	Toluene	92	6.981	6.981	(1.206)	4566	0.51723	0.5172
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	797316	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	8.435	8.435	(1.021)	3687	0.52698	0.5270
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	352880	51.0531	51.053(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	5304	0.37514	0.3751
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	426000	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	412647	51.6999	51.700(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.492	12.486	(1.207)	7121	0.66021	0.6602
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031921.D
Lab Smp Id: 19H0481-12
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	325146	-29.00
35 1,4-Difluorobenze	852165	426083	1704330	780322	-8.43
52 d5-Chlorobenzene	803678	401839	1607356	797316	-0.79
76 d4-1,4-Dichlorobe	439766	219883	879532	426000	-3.13

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.11
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-12
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	70.486	140.97	
$ 32 d4-1,2-Dichloroeth	50.000	70.149	140.30	
$ 42 d8-Toluene	50.000	52.866	105.73	
$ 62 4-Bromofluorobenze	50.000	51.053	102.11	
$ 79 d4-1,2-Dichloroben	50.000	51.700	103.40	

REVIEW SUMMARY FOR FILE - NT509031921.D

Lab ID: 19H0481-12
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 20:38

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

P40-UST-02-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-14 C	SDG:	19H0481
Sampled:	08/30/19 10:50	Prepared:	09/03/19 15:33	File ID:	NT509031922.D
% Solids:	73.22	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/03/19 21:00
Batch:	BHI0056	Sequence:	SHI0046	Initial/Final:	4.15 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

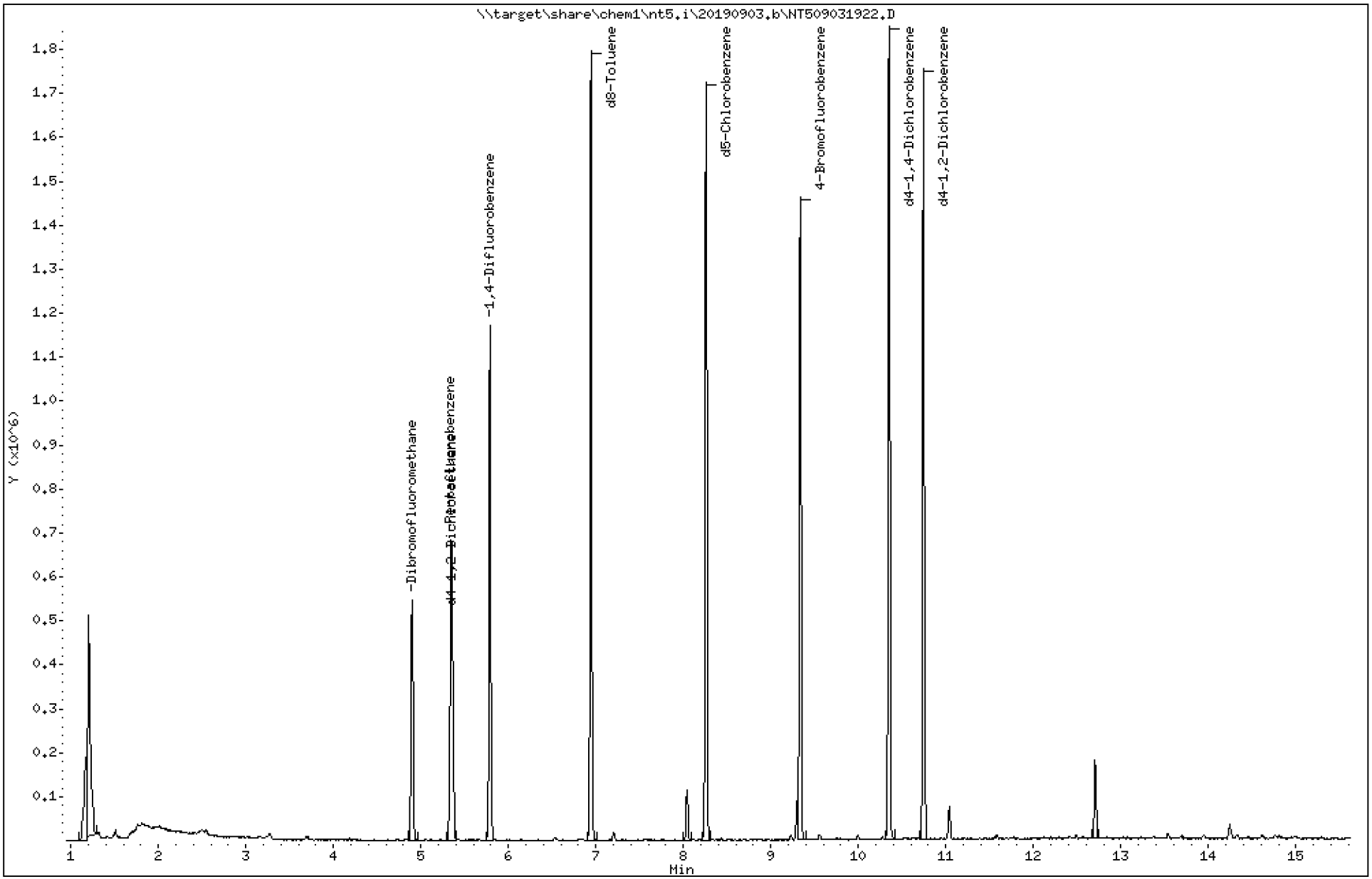
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.65	U	0.49	1.65
108-88-3	Toluene	1	1.65	U	0.25	1.65
100-41-4	Ethylbenzene	1	1.65	U	0.33	1.65
179601-23-1	m,p-Xylene	1	3.29	U	0.65	3.29
95-47-6	o-Xylene	1	1.65	U	0.37	1.65

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.6	105	77 - 120	
4-Bromofluorobenzene	50.000	50.7	101	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031922.D
Date : 03-SEP-2019 21:00
Client ID:
Sample Info: 19H0481-14

Instrument: nt5.i
Operator: PB
Column diameter: 0.18

Column phase: RTXVMS



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Date : 03-SEP-2019 21:00

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-14

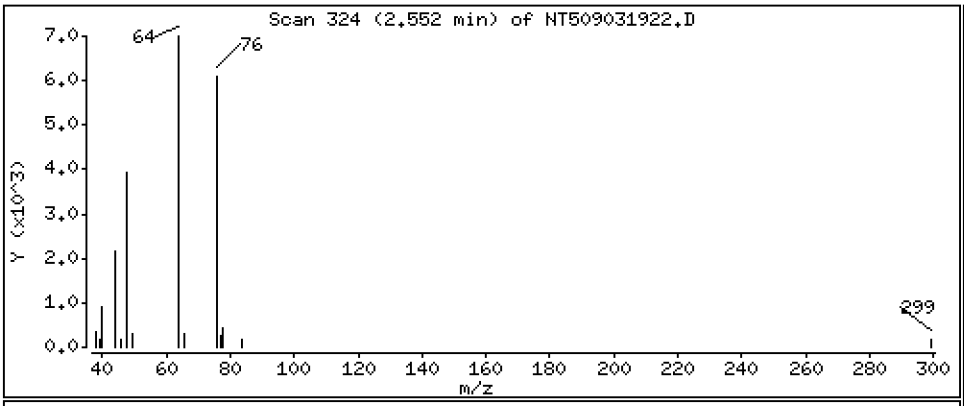
Operator: PB

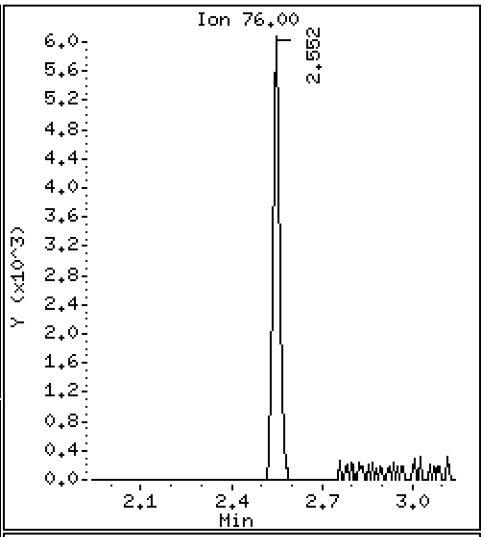
Column phase: RTXVMS

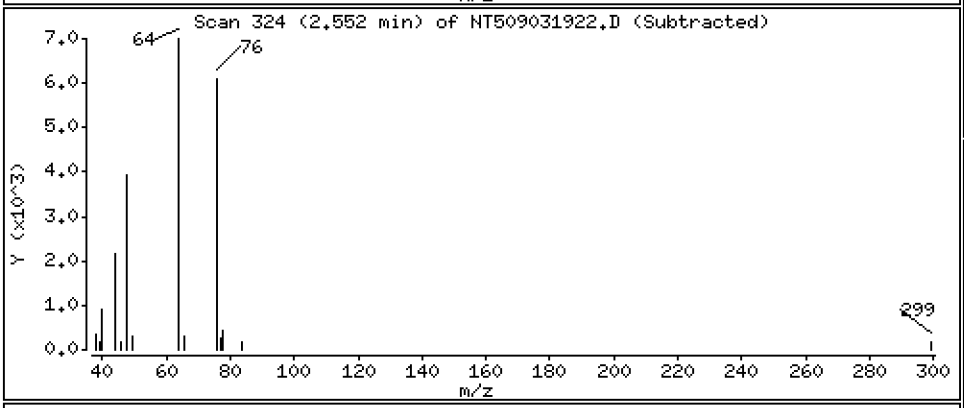
Column diameter: 0.18

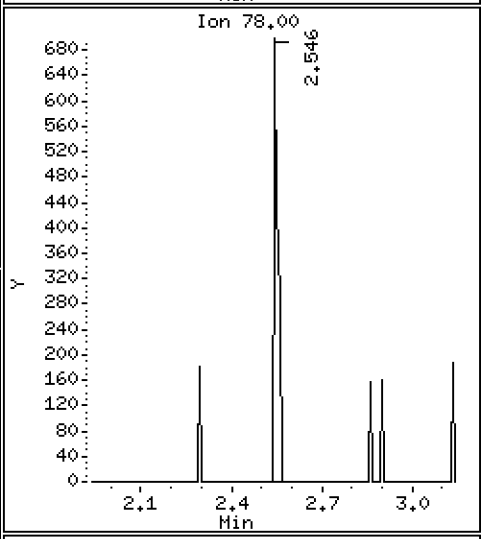
8 Carbon Disulfide

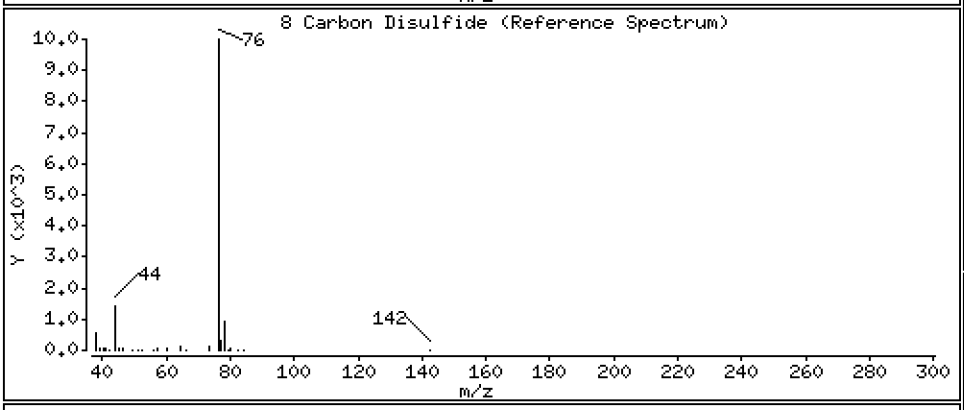
Concentration: 1.625 ug/Kg

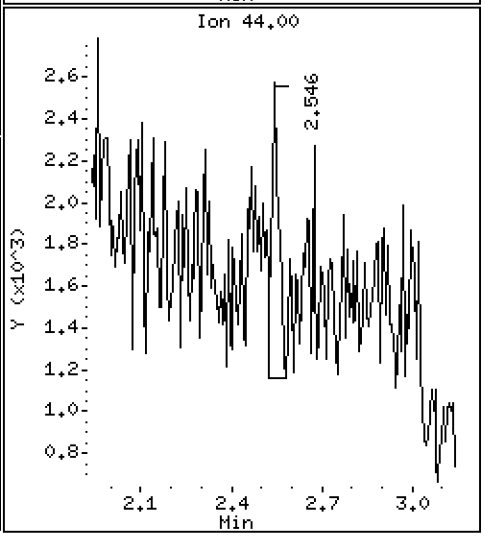


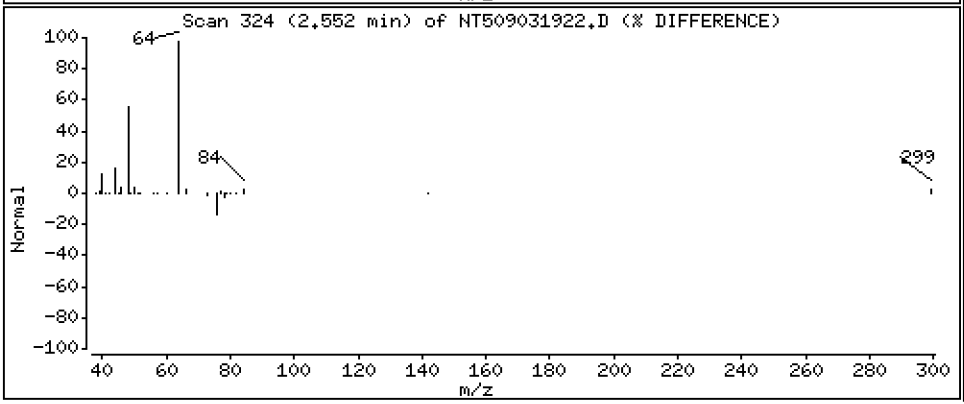












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031922.D

Date : 03-SEP-2019 21:00

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-14

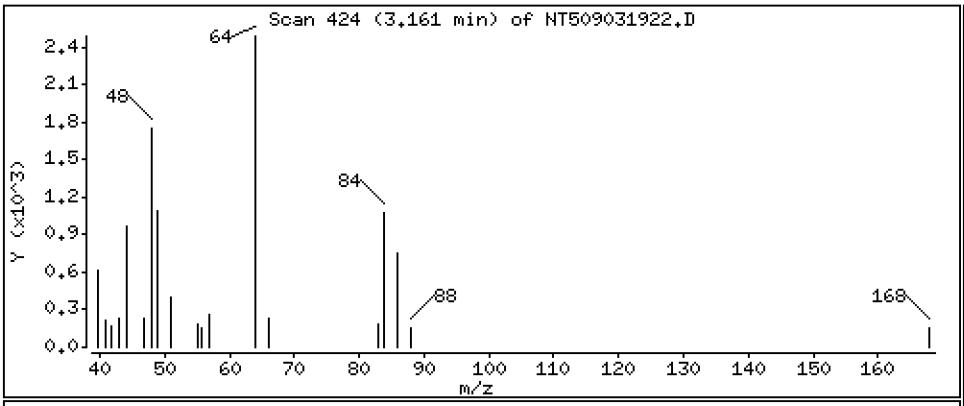
Operator: PB

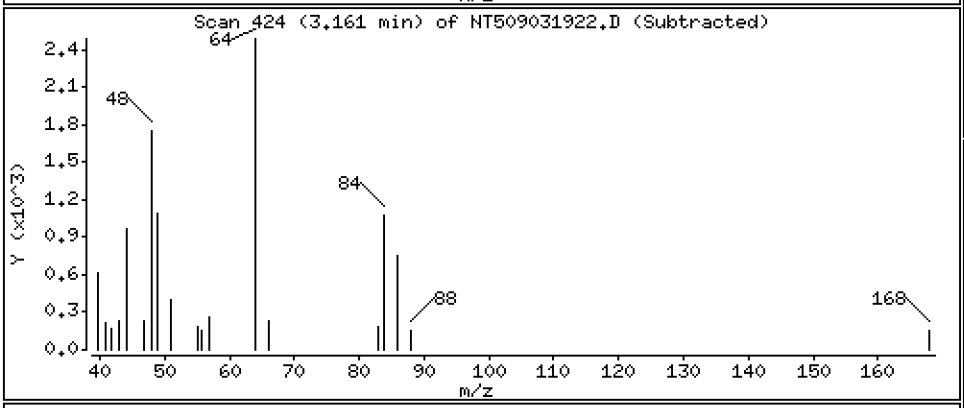
Column phase: RTXVMS

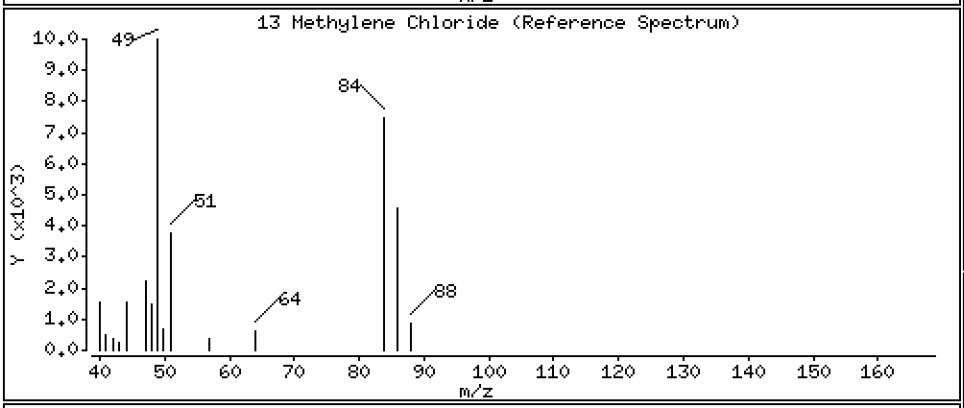
Column diameter: 0.18

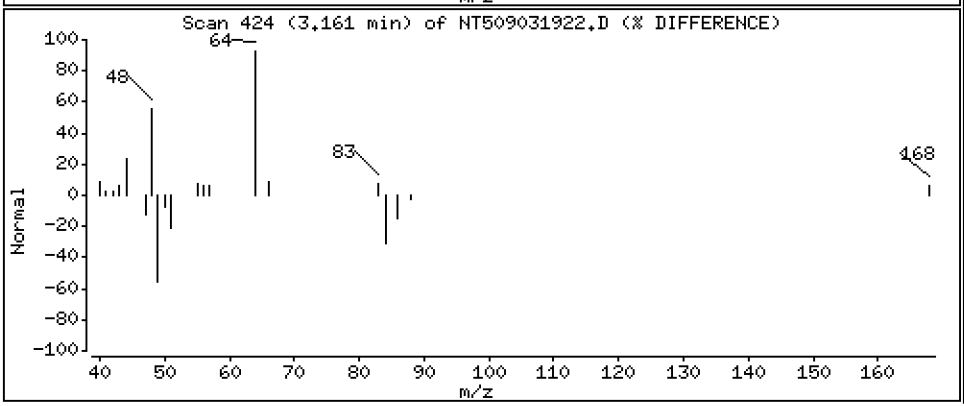
13 Methylene Chloride

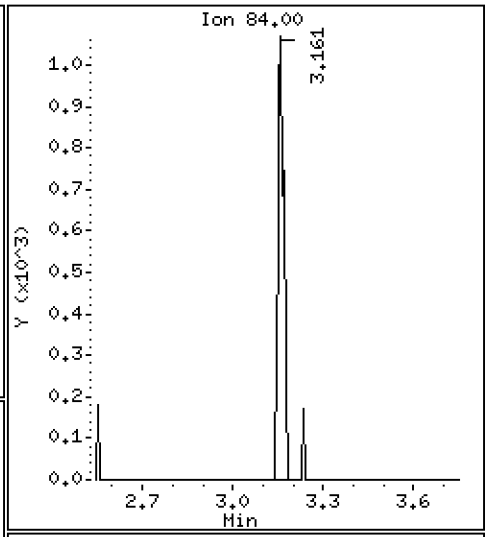
Concentration: 0.8479 ug/Kg

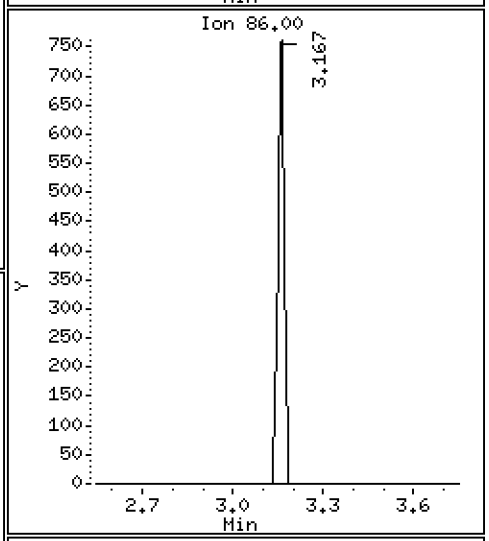


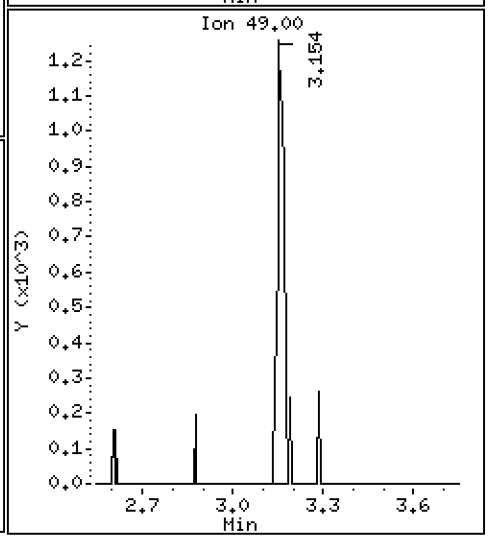












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031922.D

Date : 03-SEP-2019 21:00

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-14

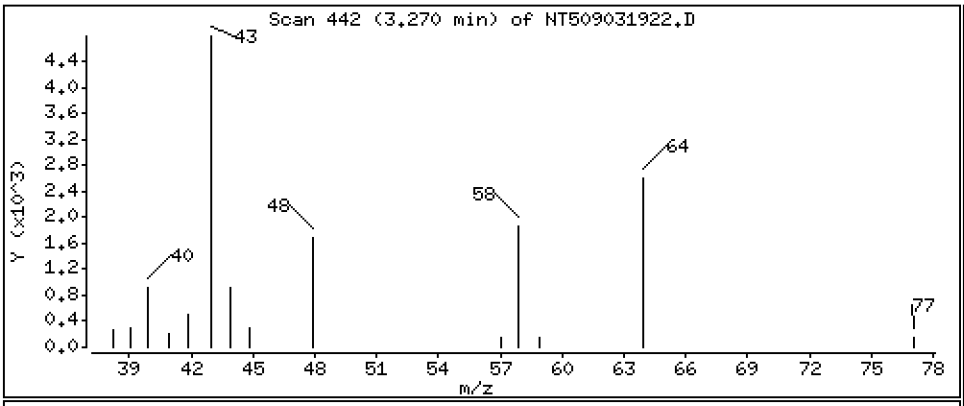
Operator: PB

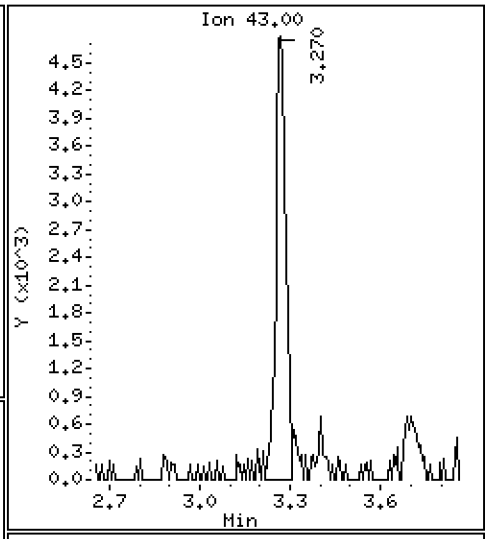
Column phase: RTXVMS

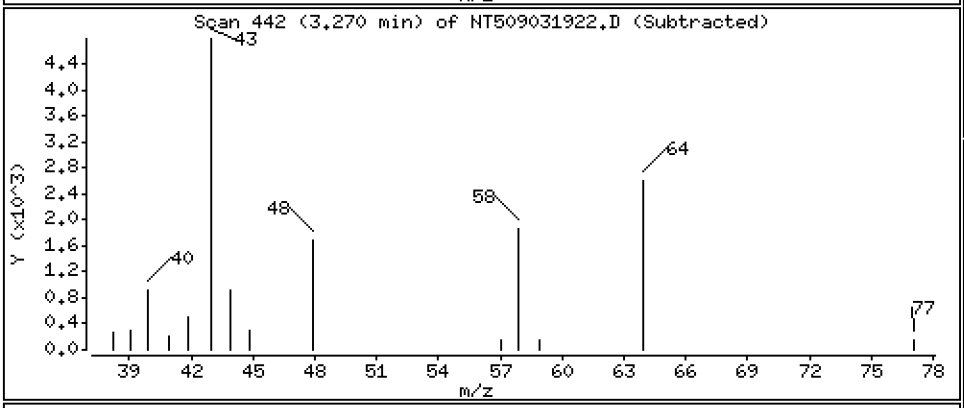
Column diameter: 0.18

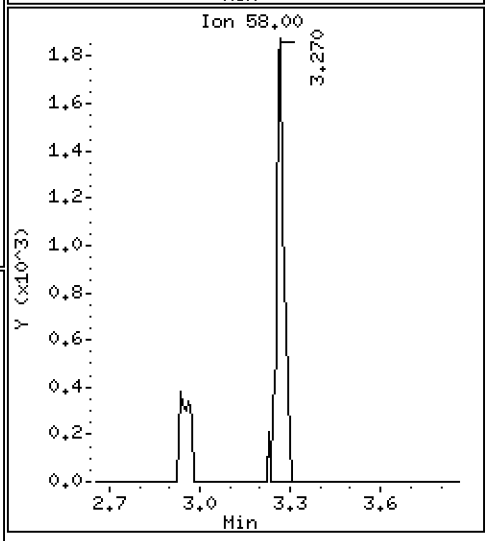
14 Acetone

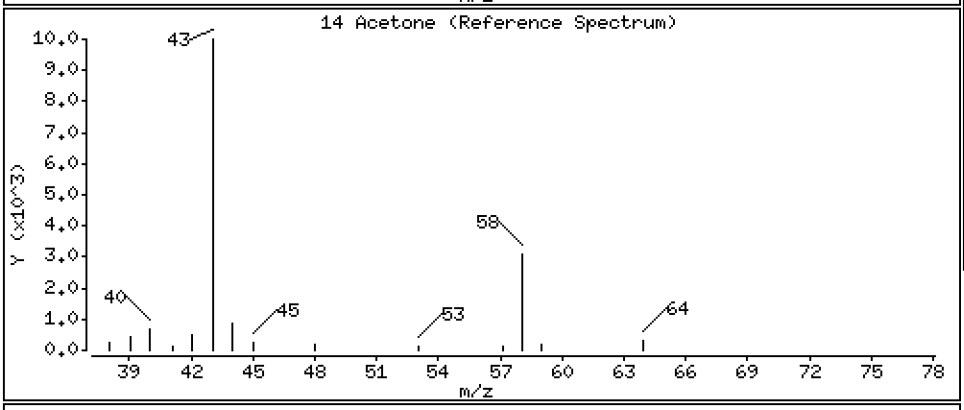
Concentration: 27.492 ug/Kg

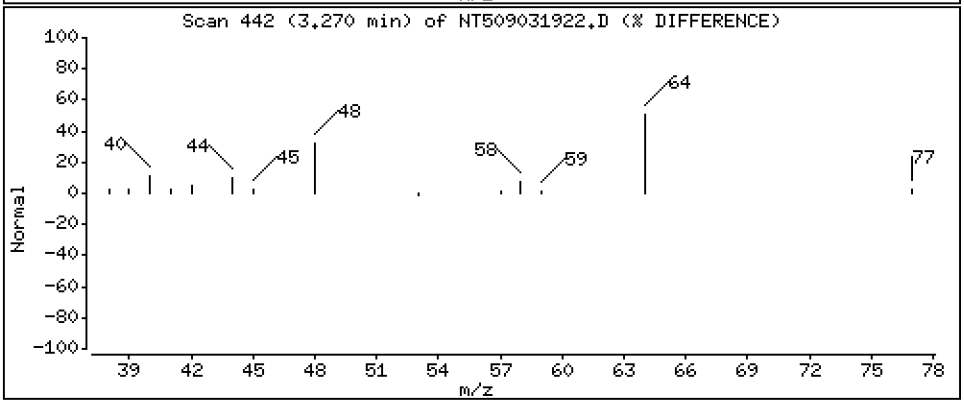












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Date : 03-SEP-2019 21:00

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-14

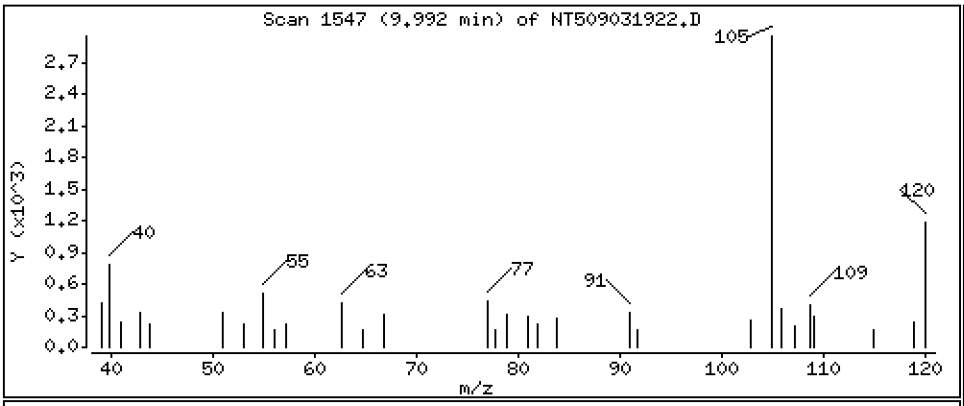
Operator: PB

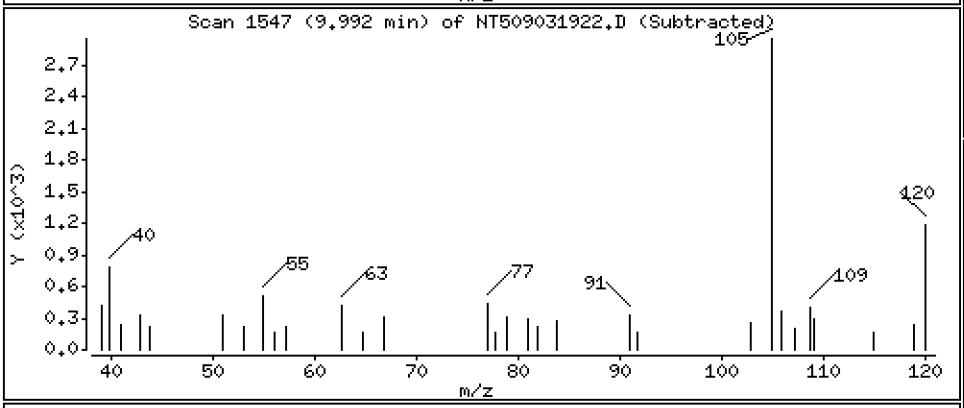
Column phase: RTXVMS

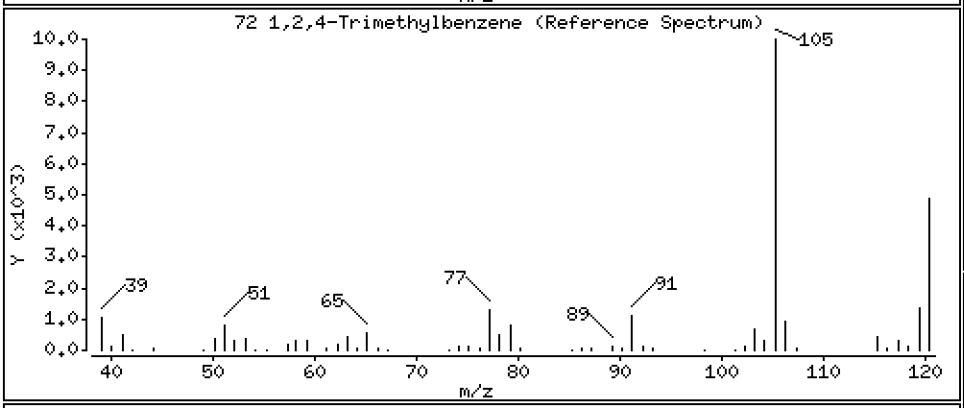
Column diameter: 0.18

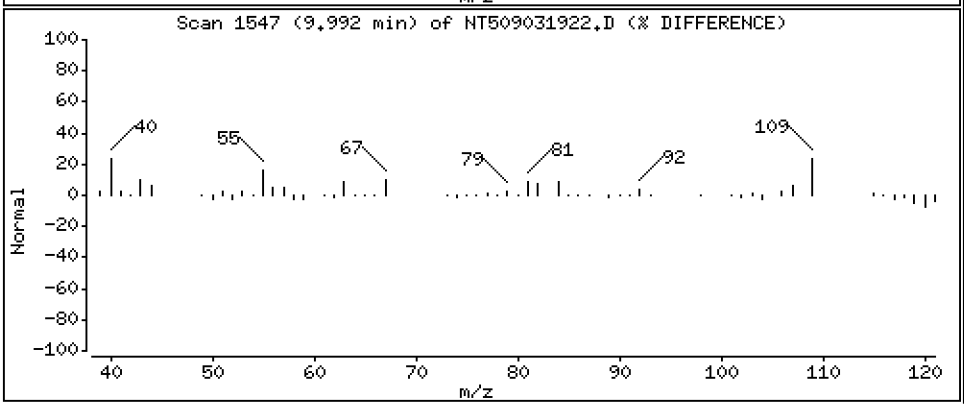
72 1,2,4-Trimethylbenzene

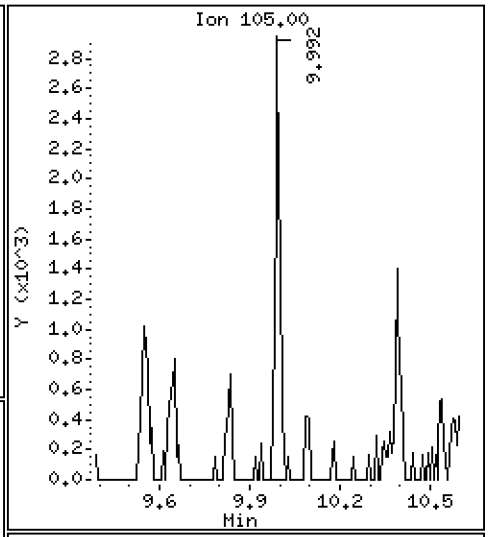
Concentration: 0.2666 ug/Kg

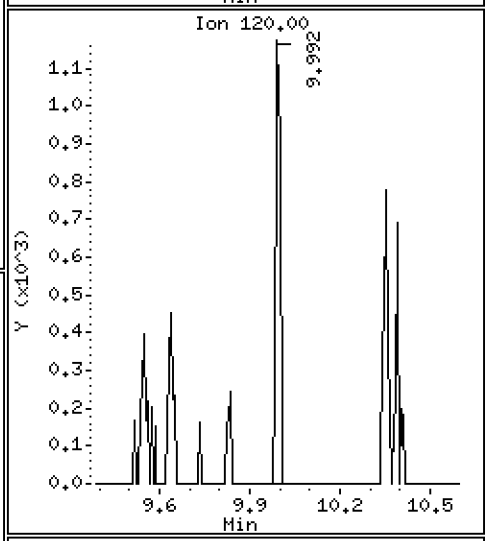


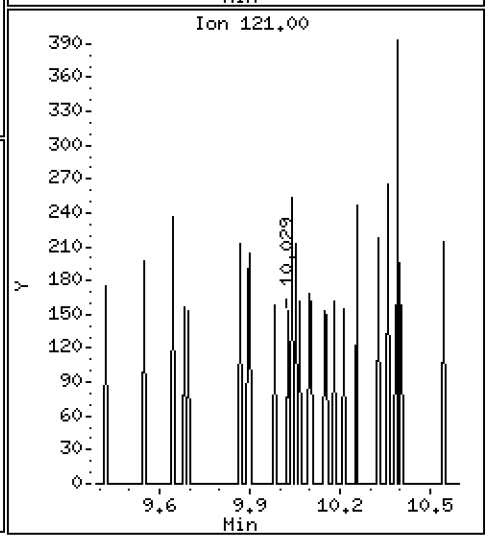












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031922.D

Date : 03-SEP-2019 21:00

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-14

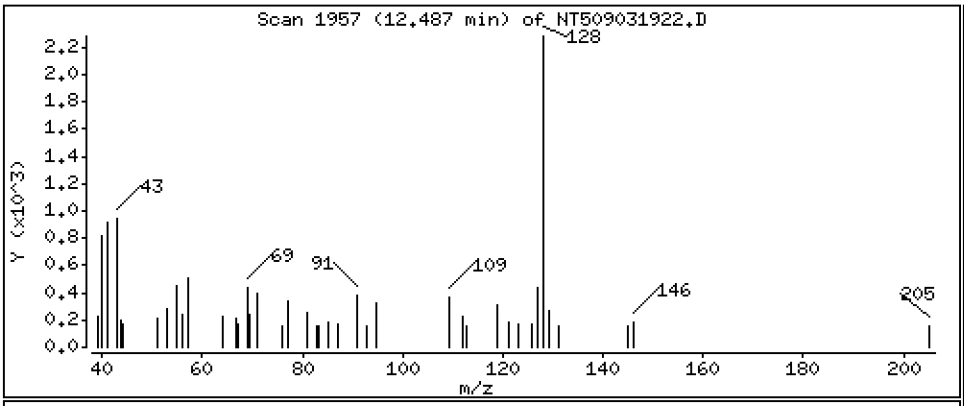
Operator: PB

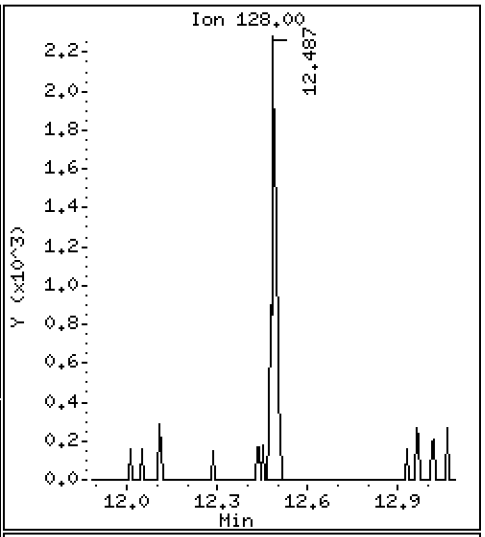
Column phase: RTXVMS

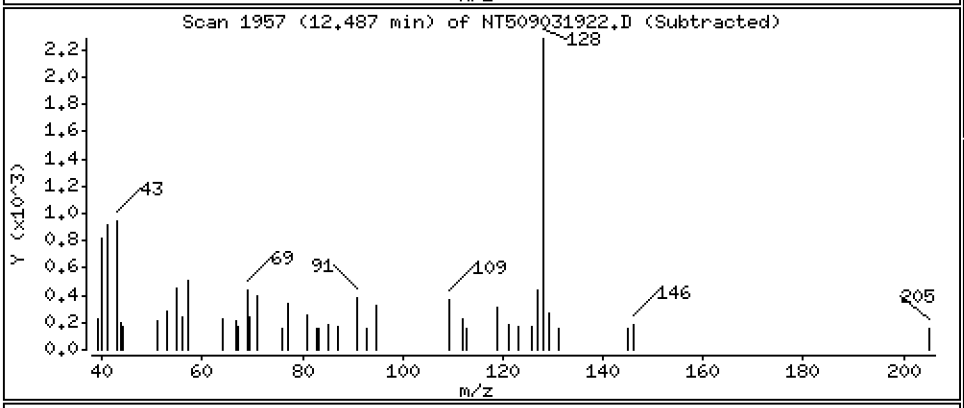
Column diameter: 0.18

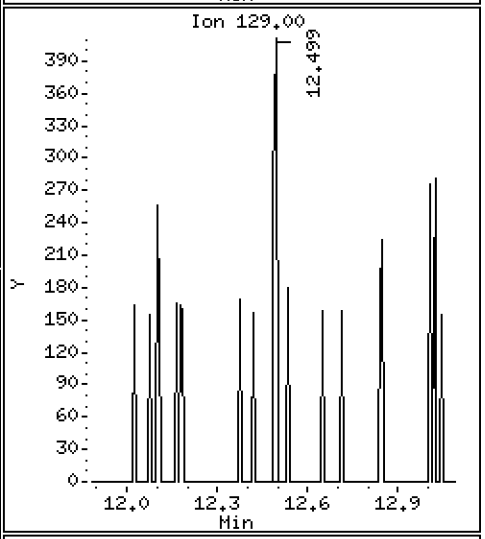
84 Naphthalene

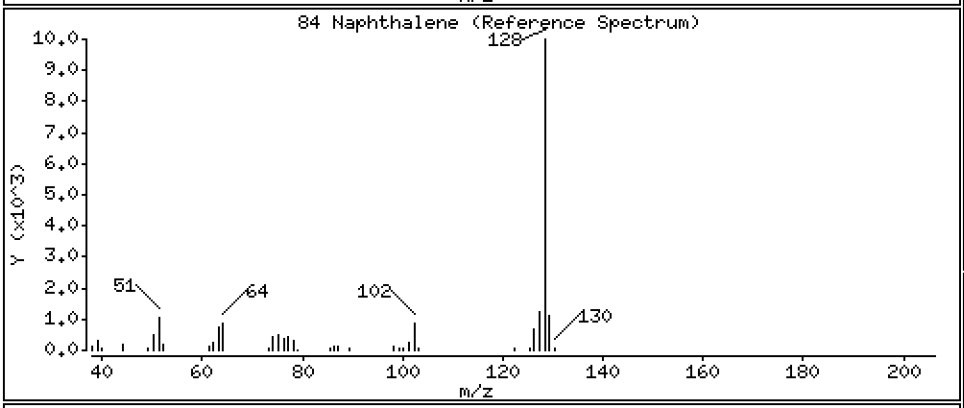
Concentration: 0.2676 ug/Kg

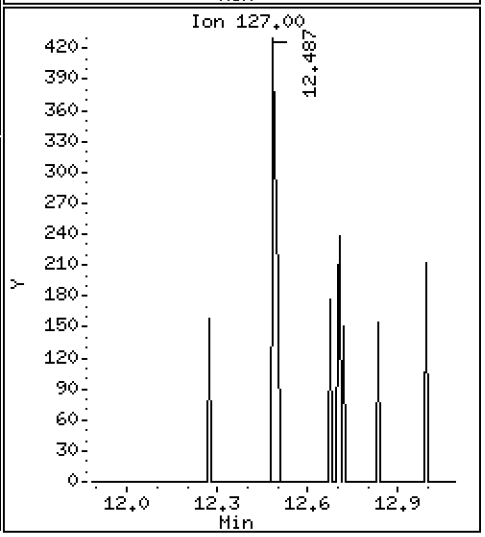


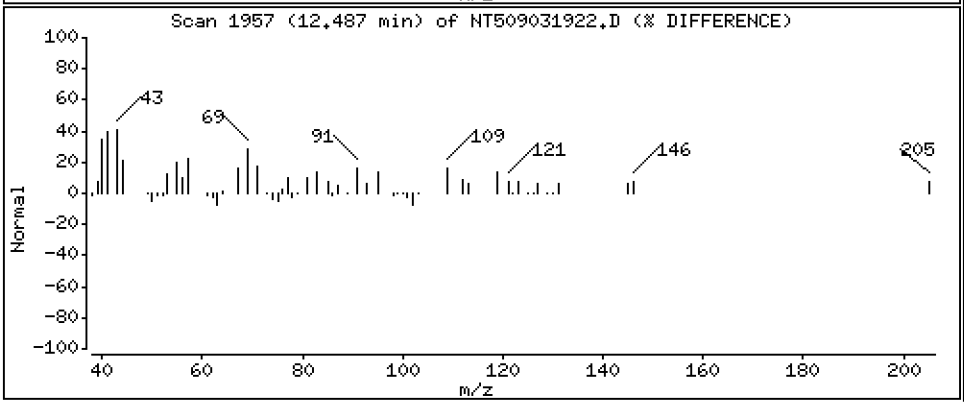












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031922.D
Lab Smp Id: 19H0481-14
Inj Date : 03-SEP-2019 21:00
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-14
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.552	2.540	(0.478)	10779	1.62543	1.625
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.591)	1657	0.84793	0.8479
	14 Acetone	43	3.270	3.258	(0.612)	11627	27.4922	27.492
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	276340	72.6364	72.636(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.338	(1.000)	309773	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.350	(1.003)	269005	72.1714	72.171(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	766662	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	995350	52.5669	52.567(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	790859	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	347481	50.6824	50.682(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	3803	0.26662	0.2666
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	429767	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	422676	52.4922	52.492(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.486	12.486	(1.206)	2912	0.26761	0.2676
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031922.D
Lab Smp Id: 19H0481-14
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	309773	-32.36
35 1,4-Difluorobenze	852165	426083	1704330	766662	-10.03
52 d5-Chlorobenzene	803678	401839	1607356	790859	-1.60
76 d4-1,4-Dichlorobe	439766	219883	879532	429767	-2.27

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.11
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 04-Sep-2019 16:39

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-14
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	72.636	145.27	
$ 32 d4-1,2-Dichloroeth	50.000	72.171	144.34	
$ 42 d8-Toluene	50.000	52.567	105.13	
$ 62 4-Bromofluorobenze	50.000	50.682	101.36	
$ 79 d4-1,2-Dichloroben	50.000	52.492	104.98	

REVIEW SUMMARY FOR FILE - NT509031922.D

Lab ID: 19H0481-14
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 21:00

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

P40-UST-03-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-16 E	SDG:	19H0481
Sampled:	08/30/19 12:10	Prepared:	09/05/19 13:58	File ID:	V309051922.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 20:41
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

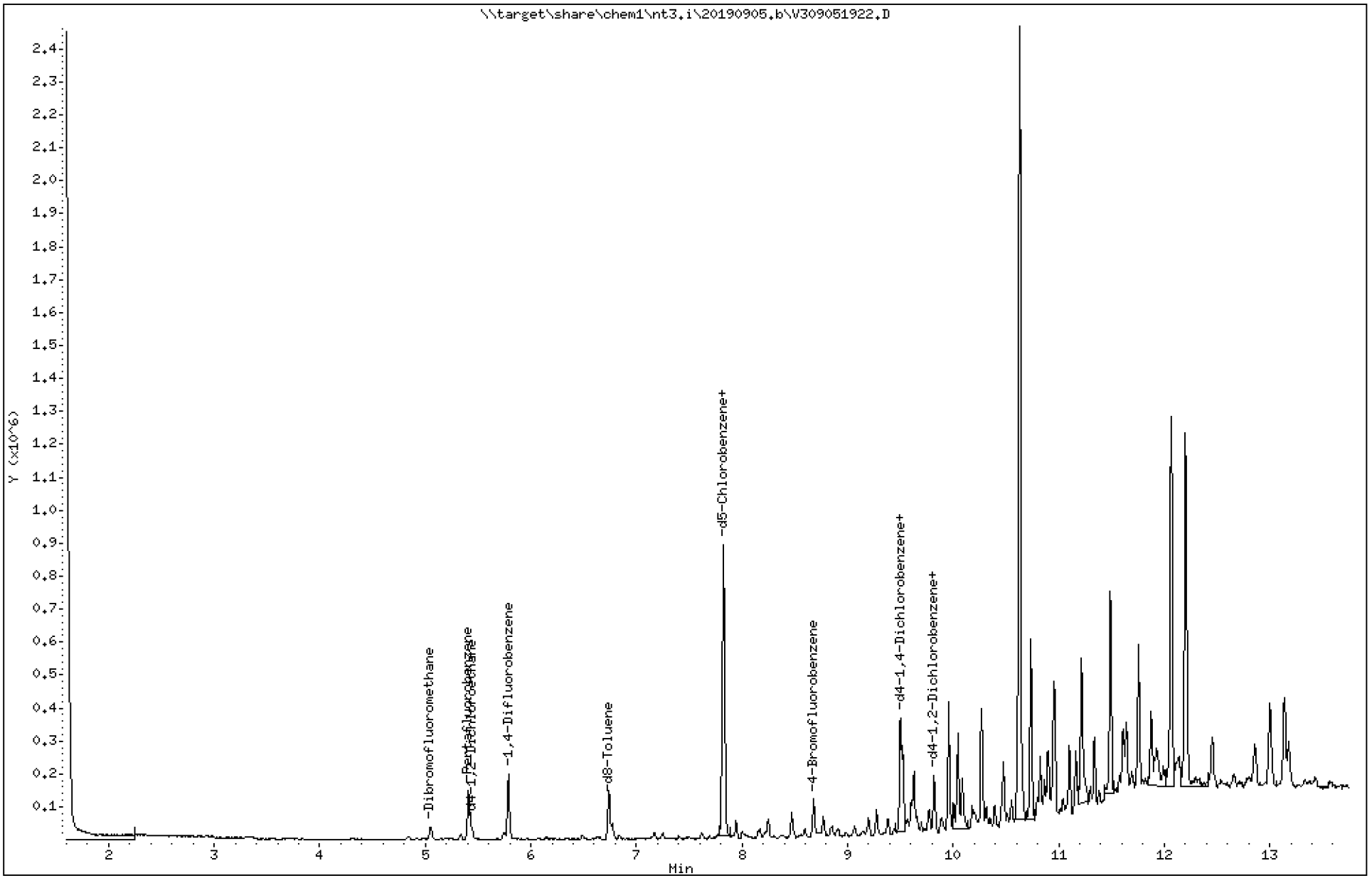
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.48		0.03	0.20
108-88-3	Toluene	1	0.95		0.04	0.20
100-41-4	Ethylbenzene	1	1.00		0.04	0.20
179601-23-1	m,p-Xylene	1	1.20		0.05	0.40
95-47-6	o-Xylene	1	0.84		0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.13	103	80 - 120	
4-Bromofluorobenzene	5.0000	4.79	95.8	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D
Date : 05-SEP-2019 20:41
Client ID:
Sample Info: 19H0481-16

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

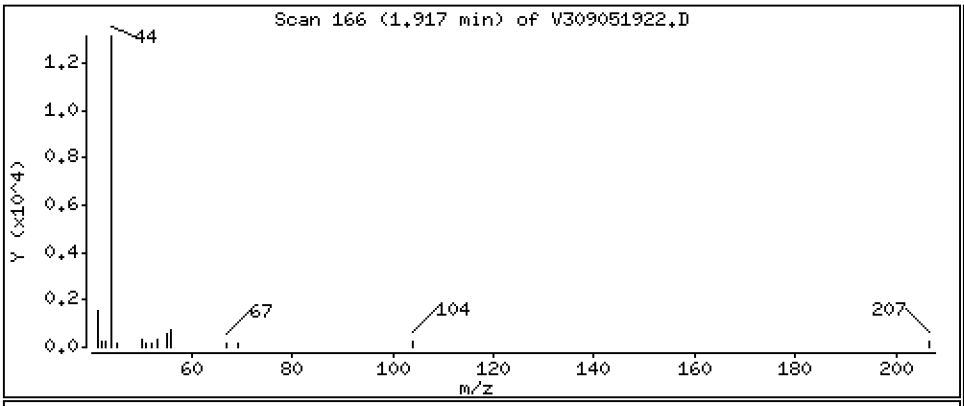
Operator: PKC

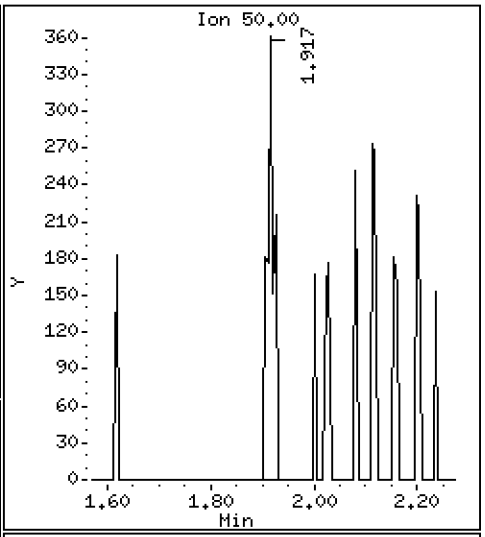
Column phase: RTXVMS

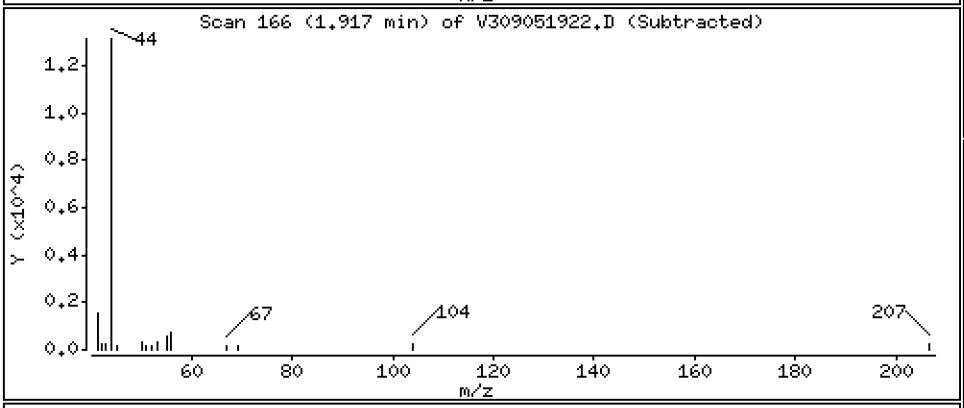
Column diameter: 0.18

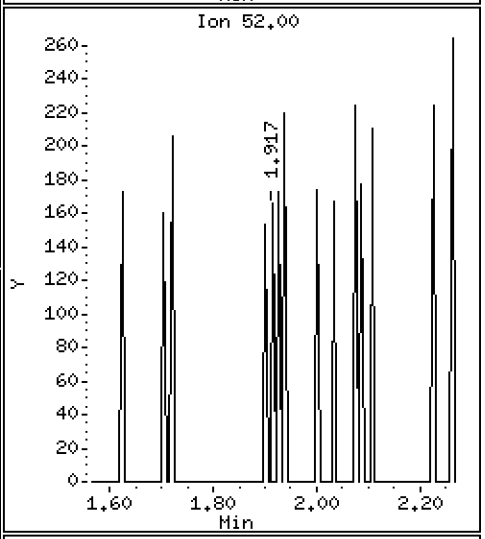
2 Chloromethane

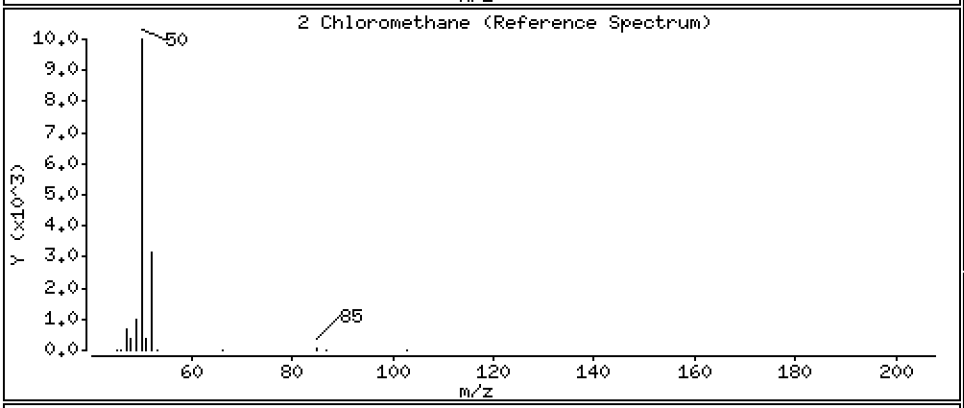
Concentration: 0.02741 ug/L

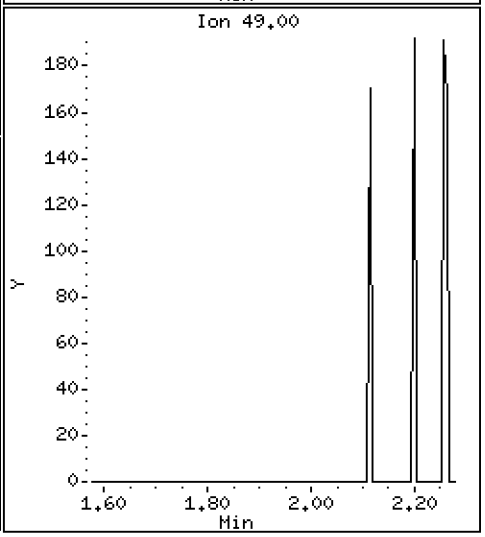


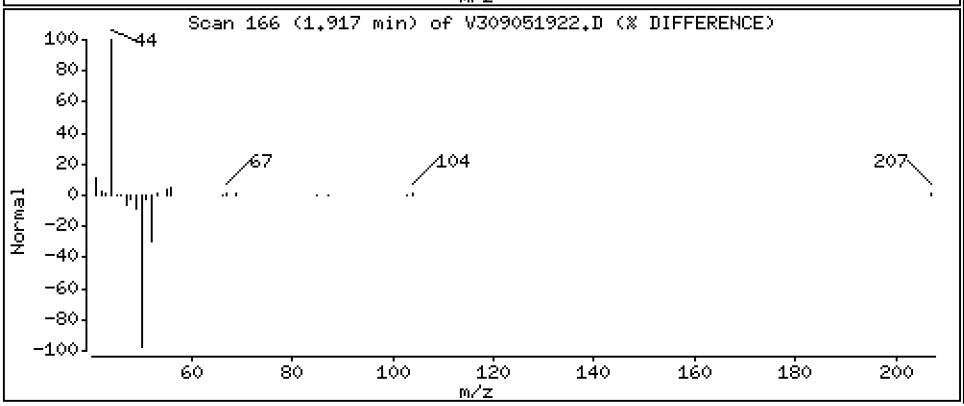












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

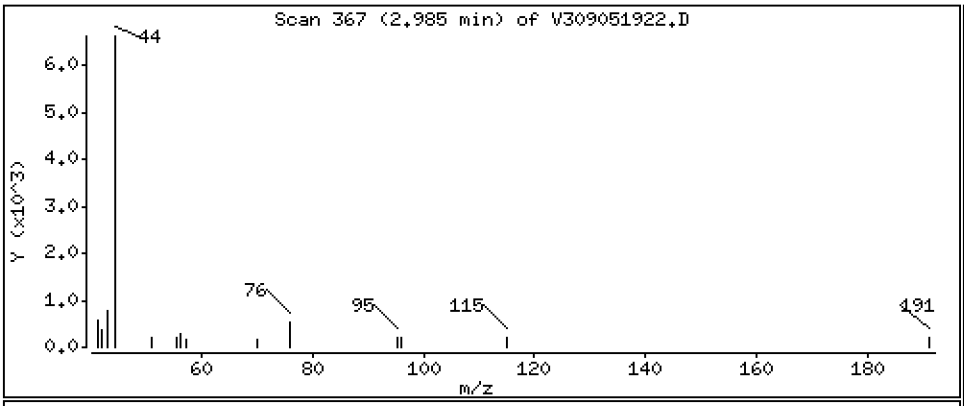
Operator: PKC

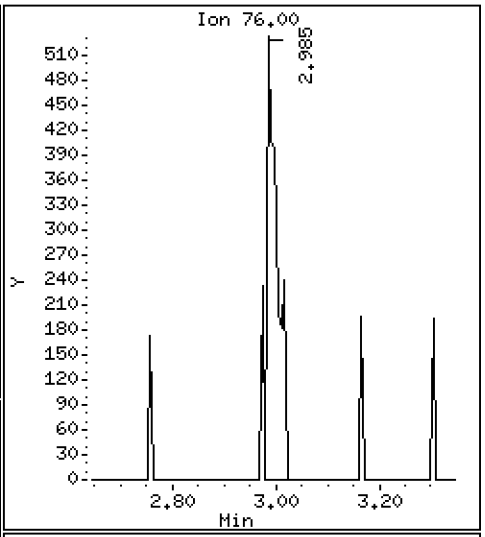
Column phase: RTXVMS

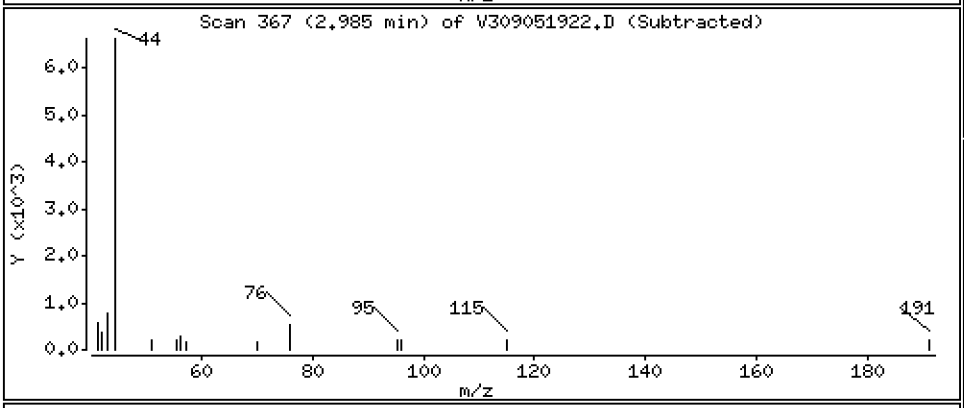
Column diameter: 0.18

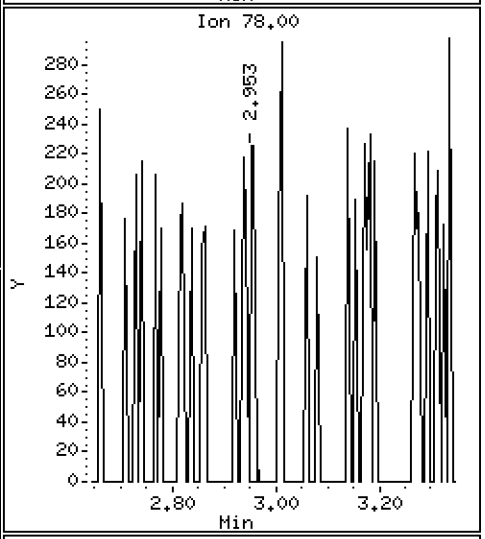
8 Carbon Disulfide

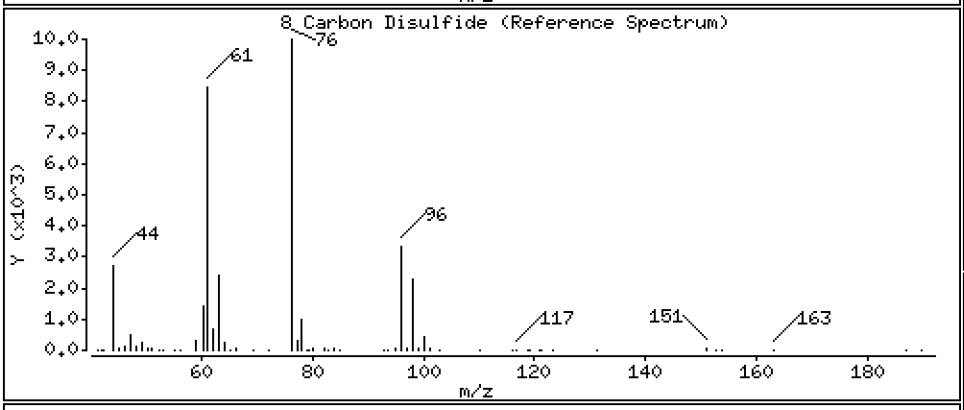
Concentration: 0.04932 ug/L

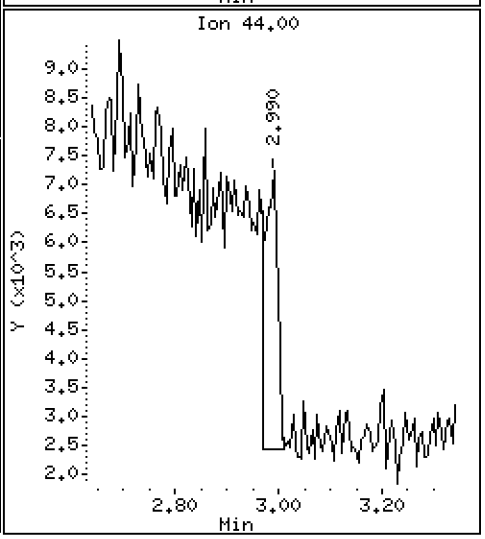


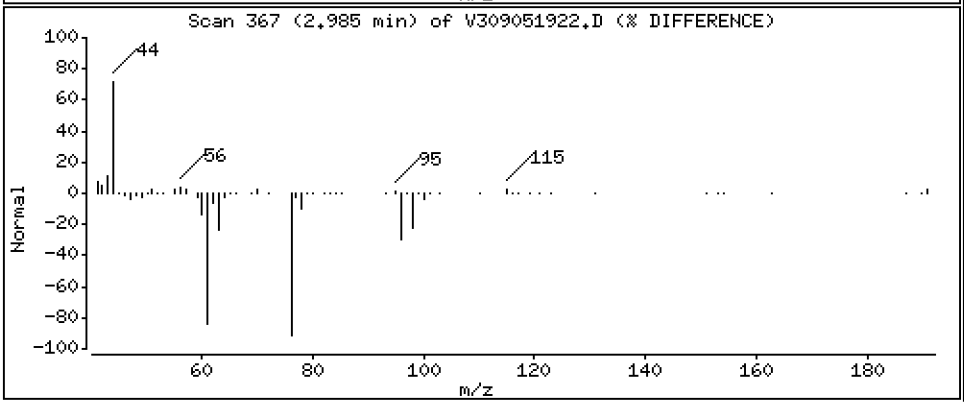












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

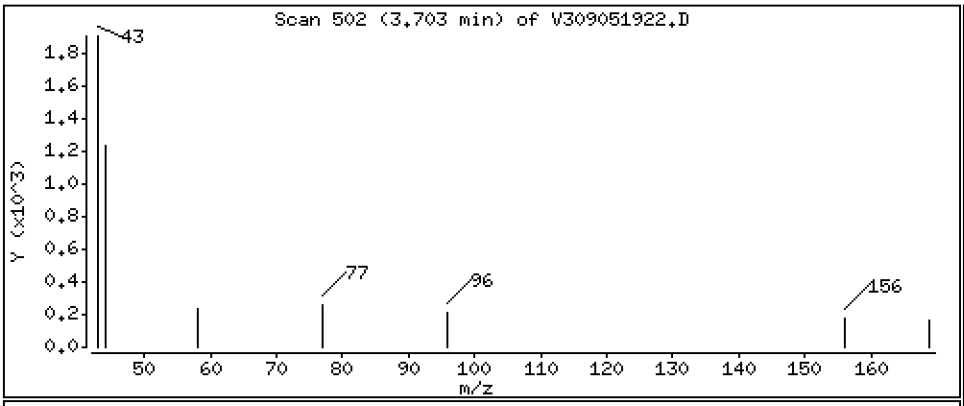
Operator: PKC

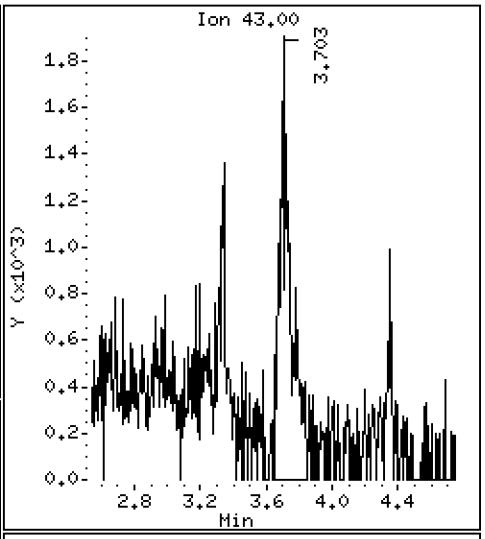
Column phase: RTXVMS

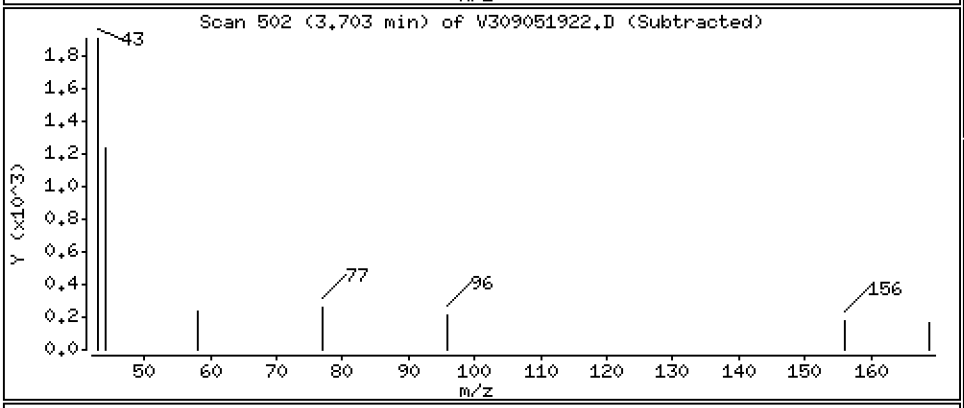
Column diameter: 0.18

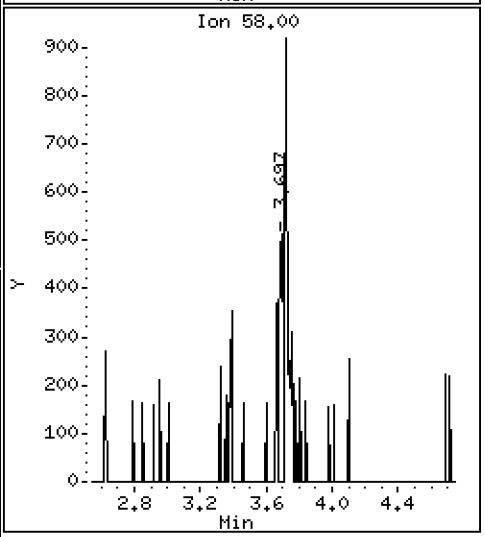
14 Acetone

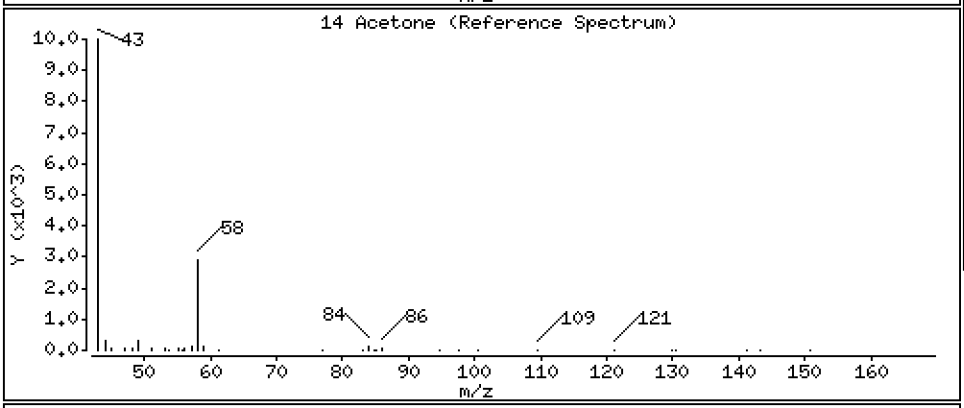
Concentration: 6.608 ug/L

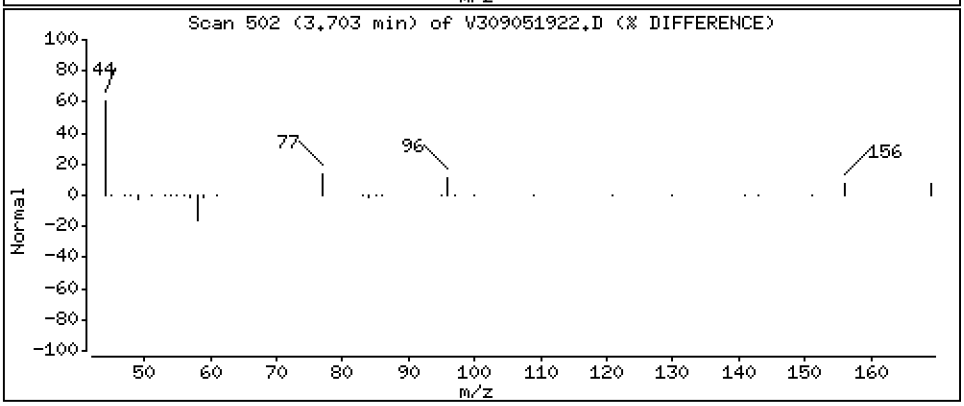












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

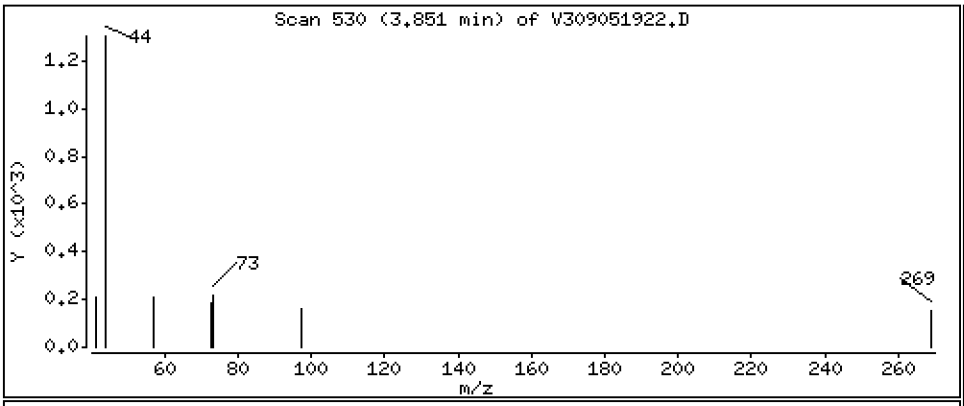
Operator: PKC

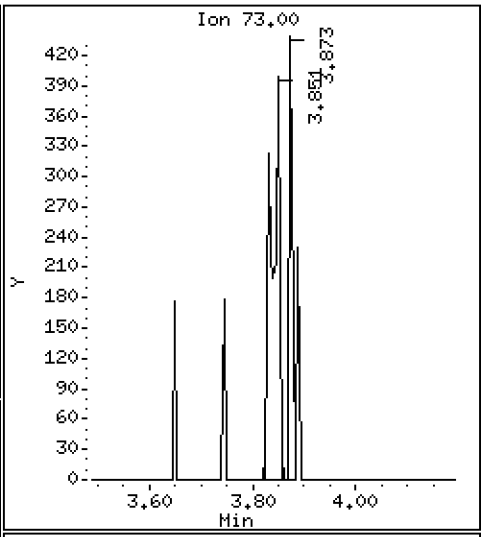
Column phase: RTXVMS

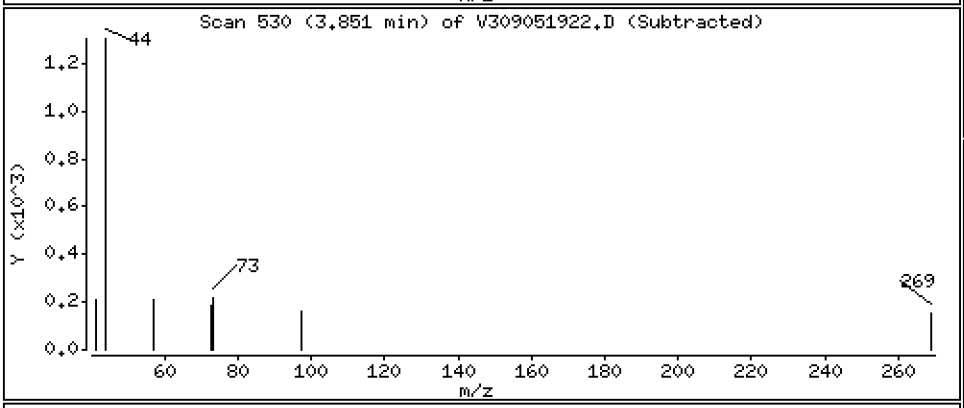
Column diameter: 0.18

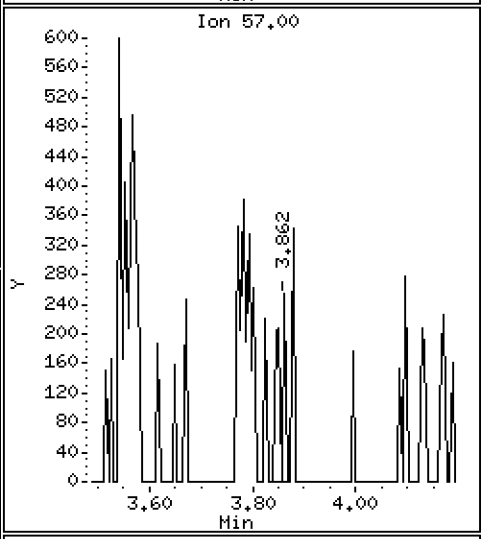
17 Methyl tert butyl ether

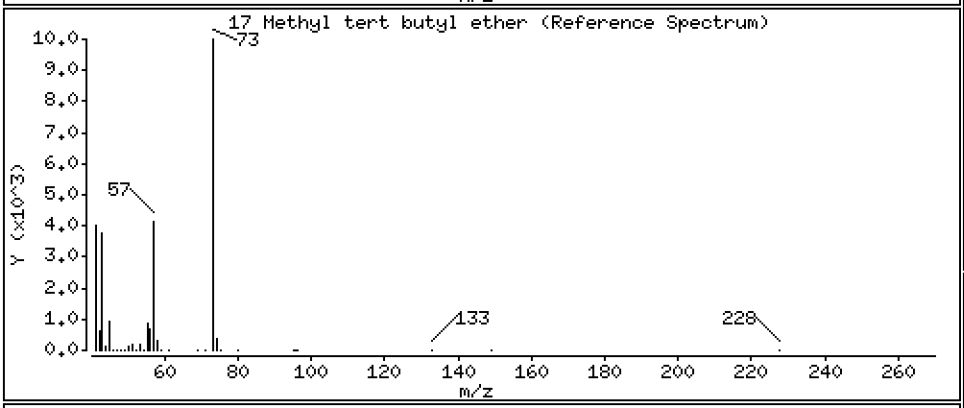
Concentration: 0.04786 ug/L

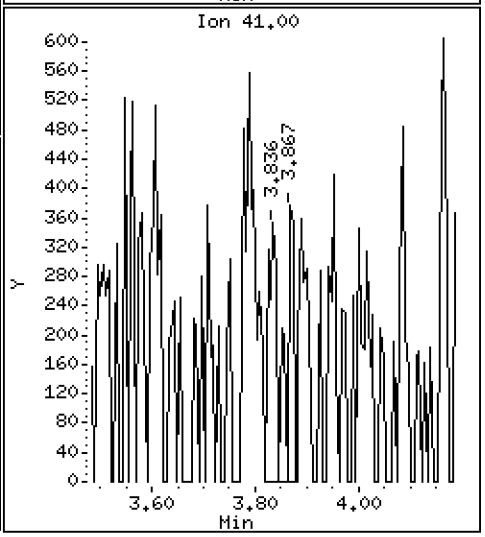


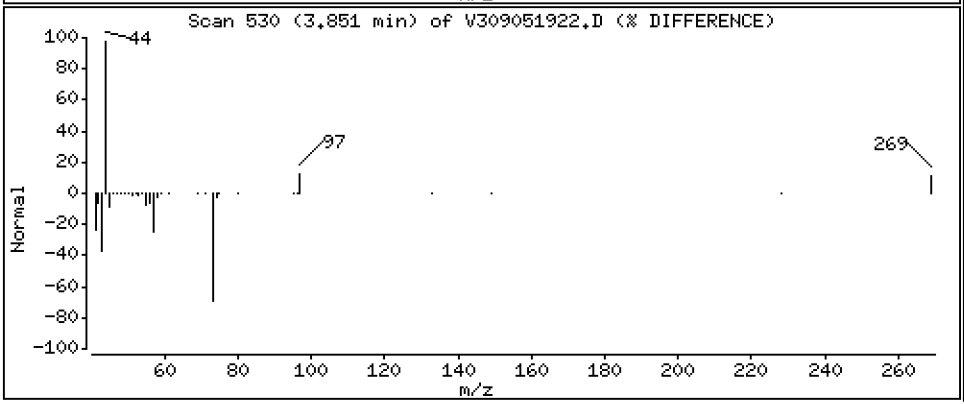












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

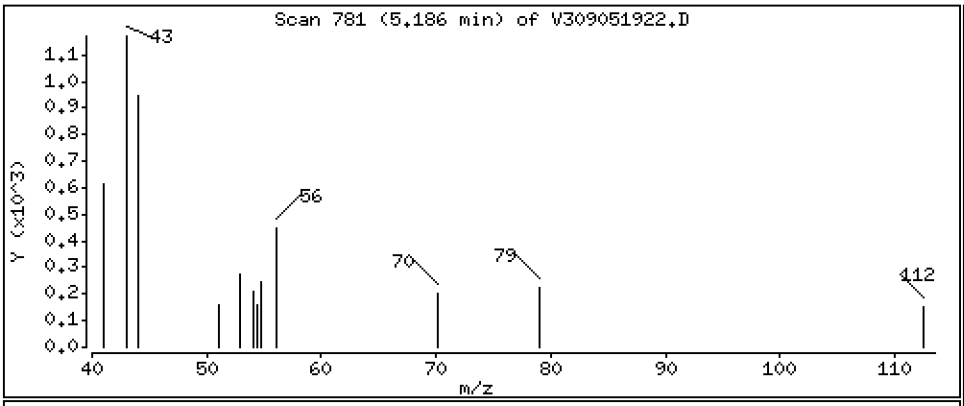
Operator: PKC

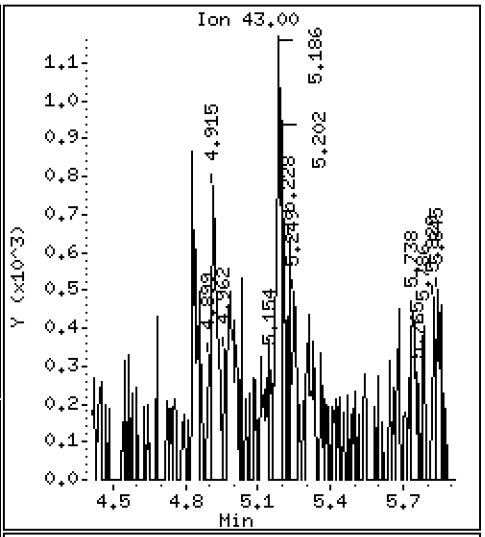
Column phase: RTXVMS

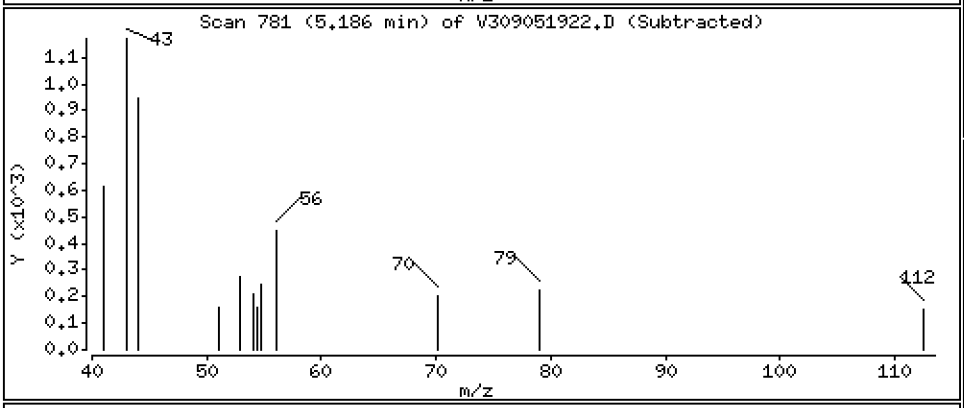
Column diameter: 0.18

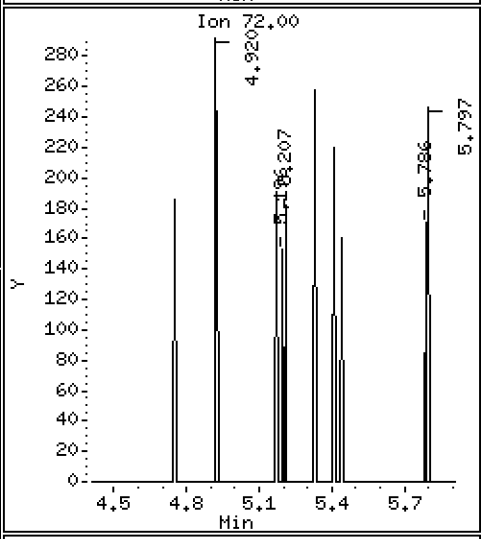
29 2-Butanone

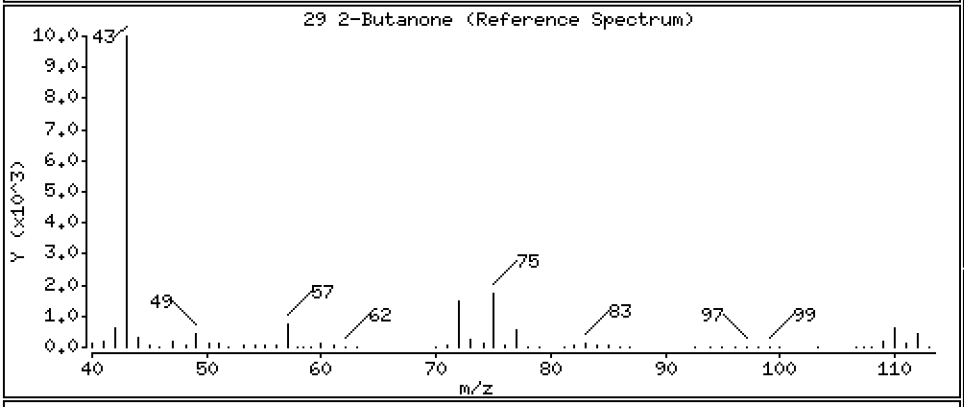
Concentration: 0.7648 ug/L

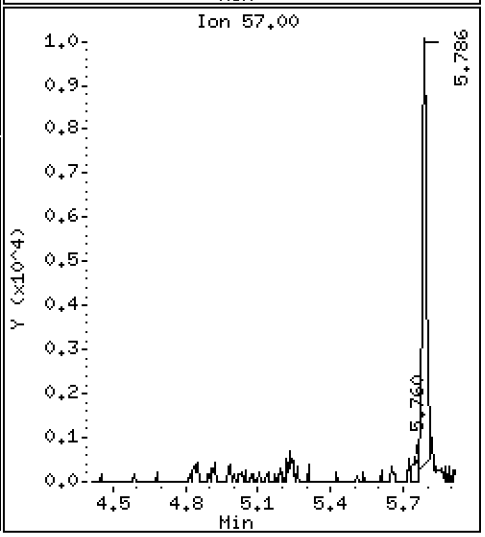


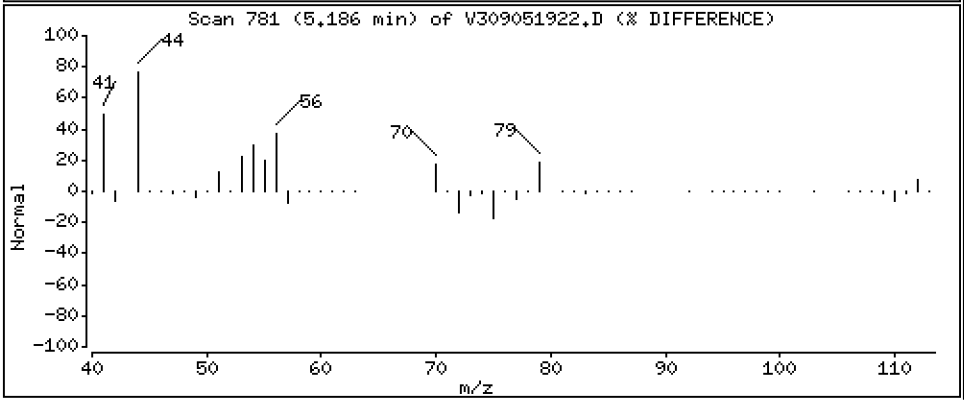












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

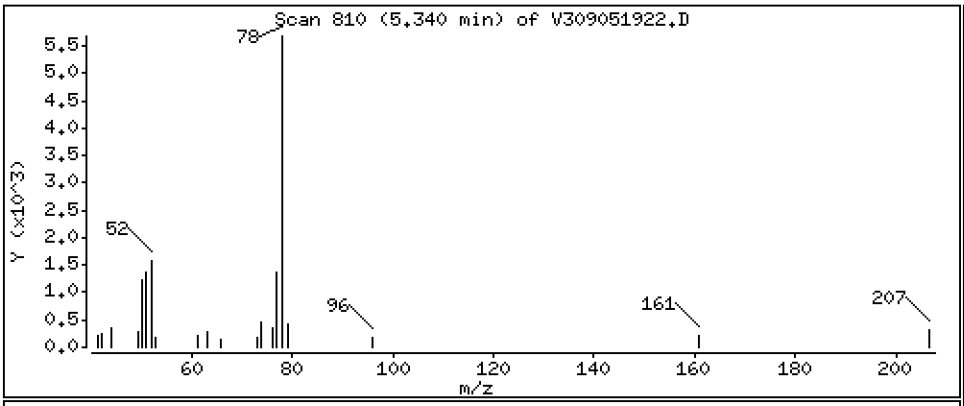
Operator: PKC

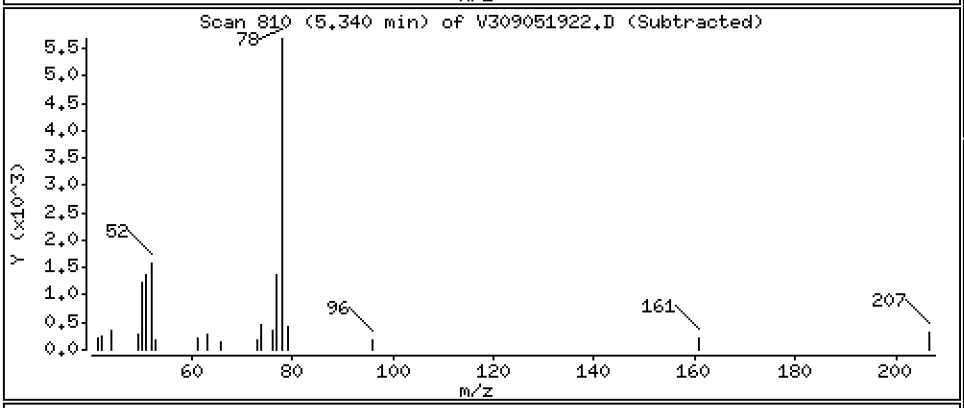
Column phase: RTXVMS

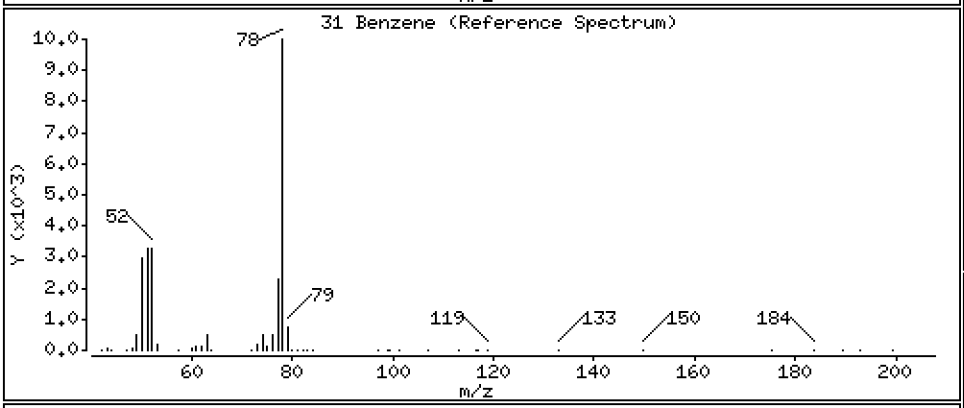
Column diameter: 0.18

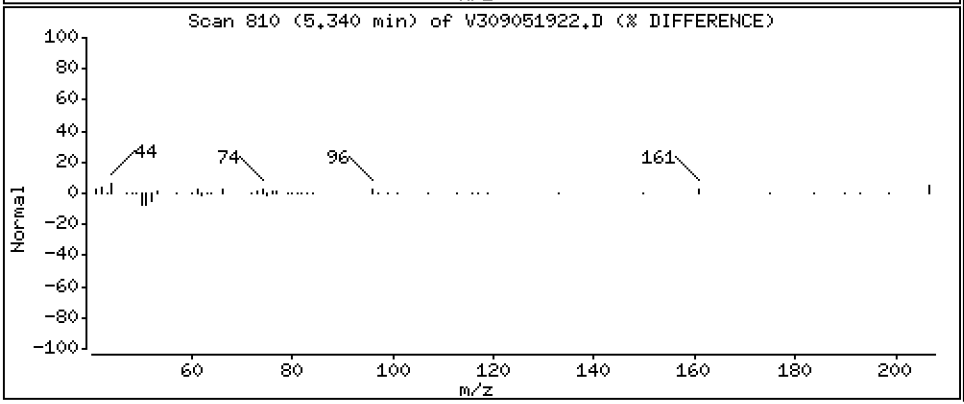
31 Benzene

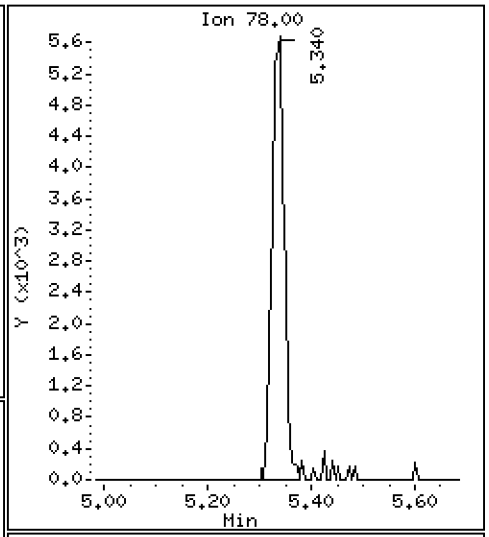
Concentration: 0.4760 ug/L

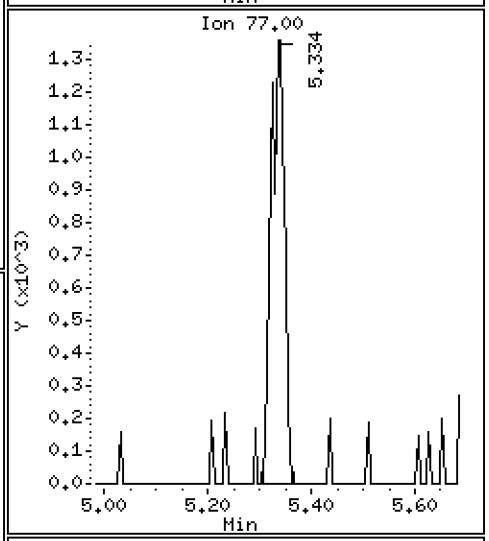


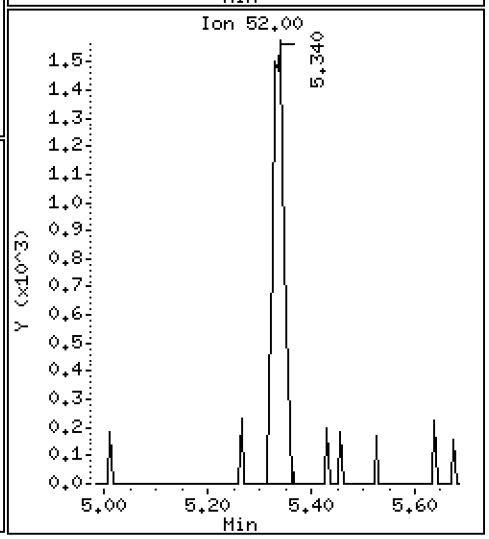












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

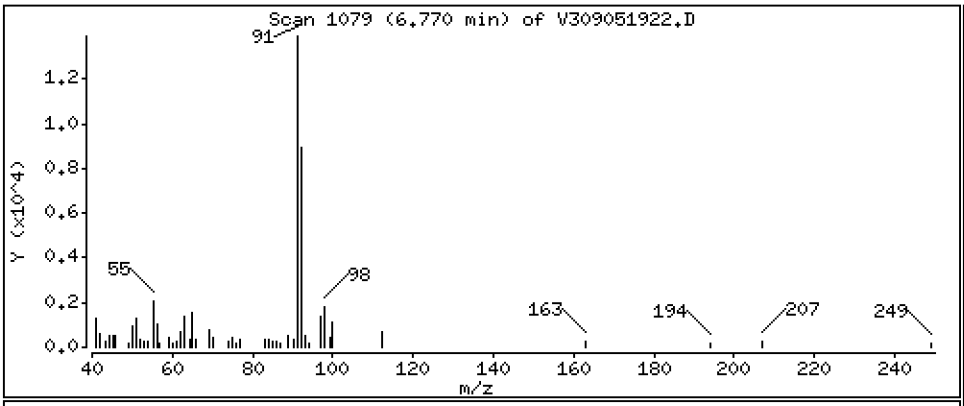
Operator: PKC

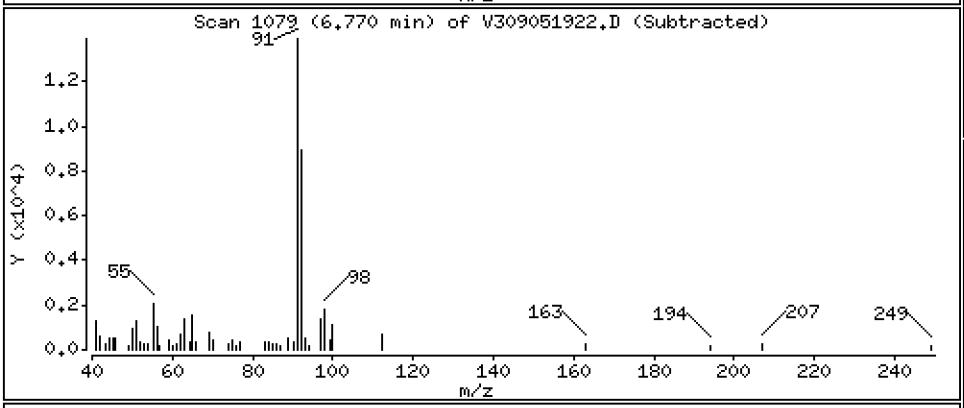
Column phase: RTXVMS

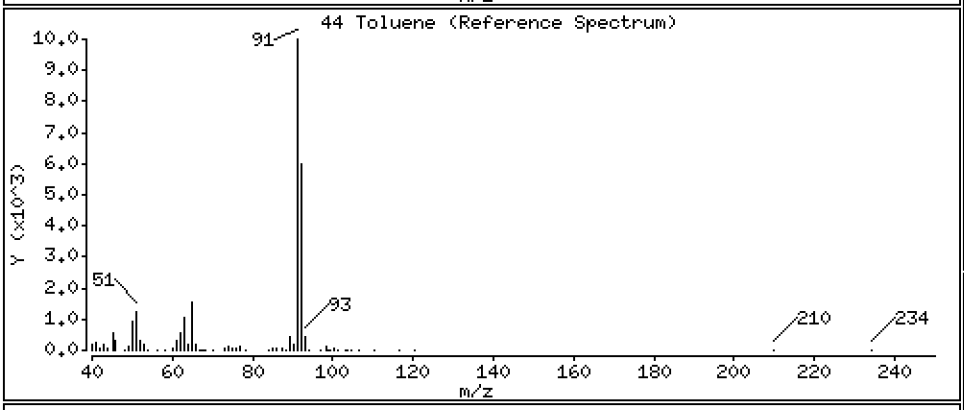
Column diameter: 0.18

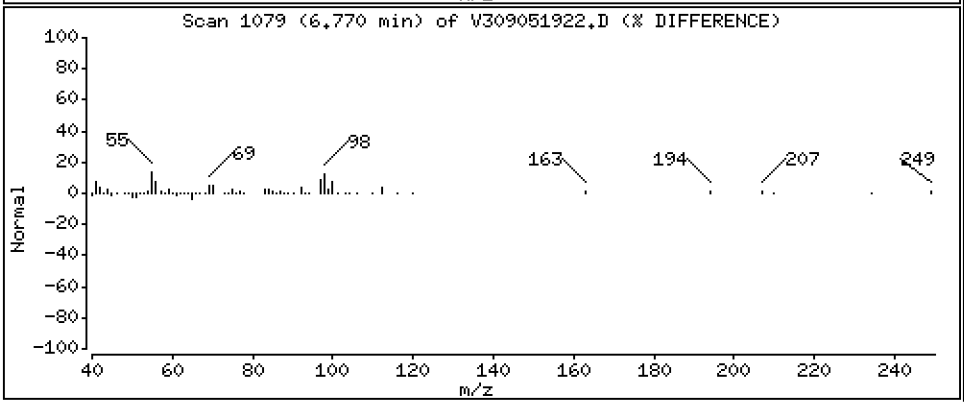
44 Toluene

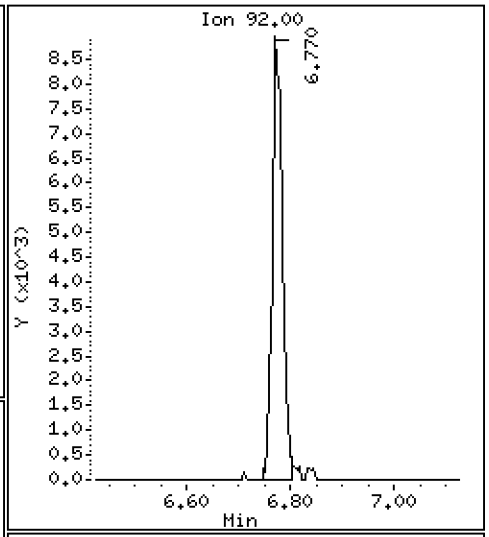
Concentration: 0.9499 ug/L

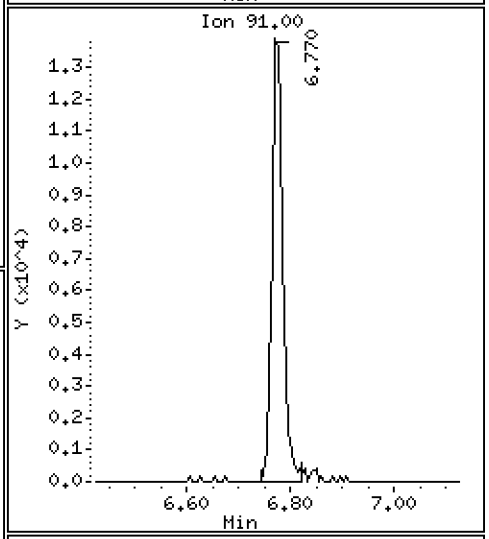


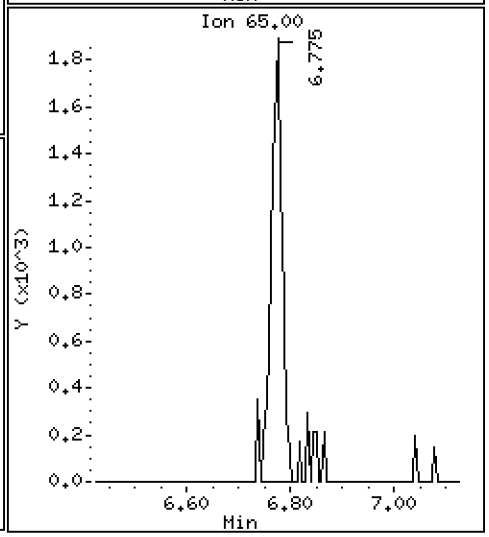












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

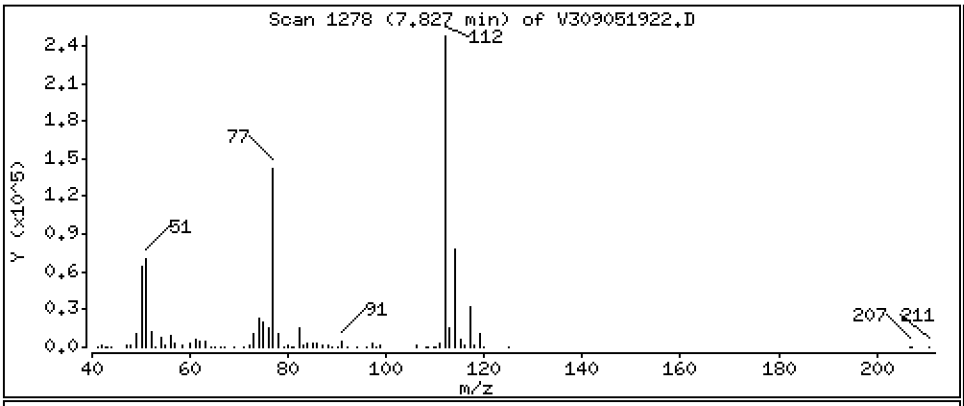
Operator: PKC

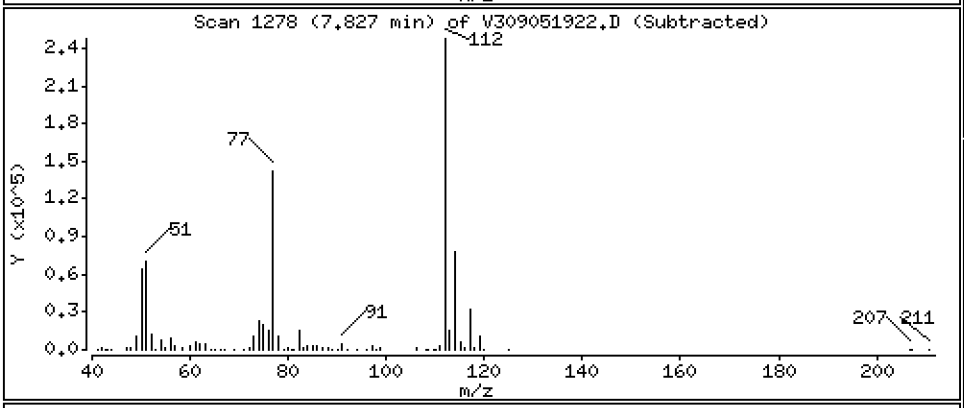
Column phase: RTXVMS

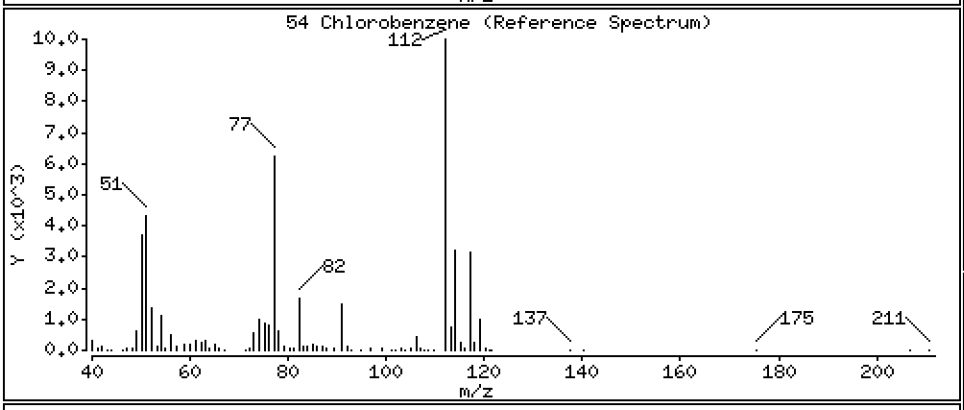
Column diameter: 0.18

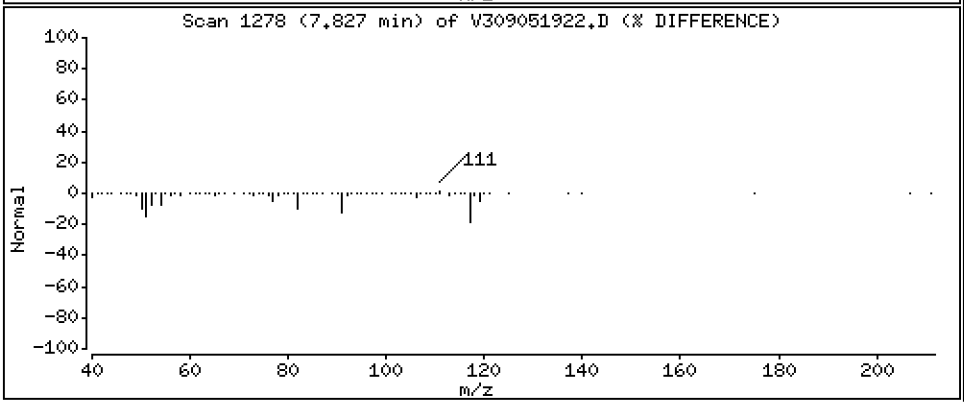
54 Chlorobenzene

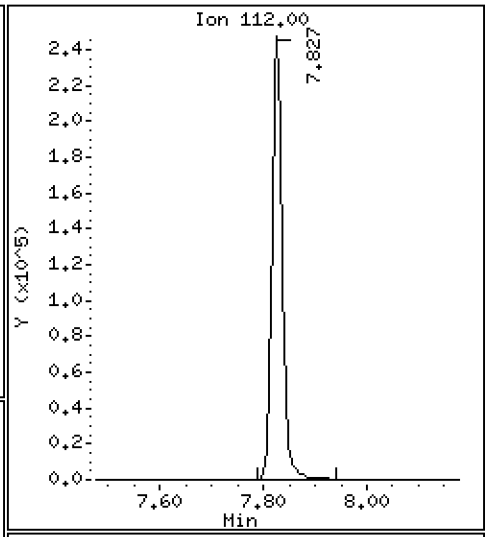
Concentration: 21.892 ug/L

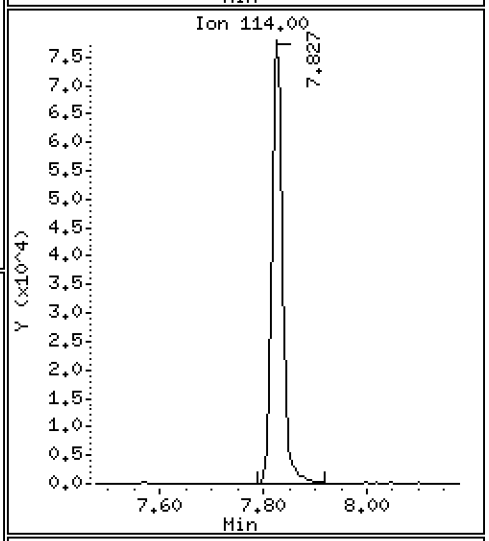


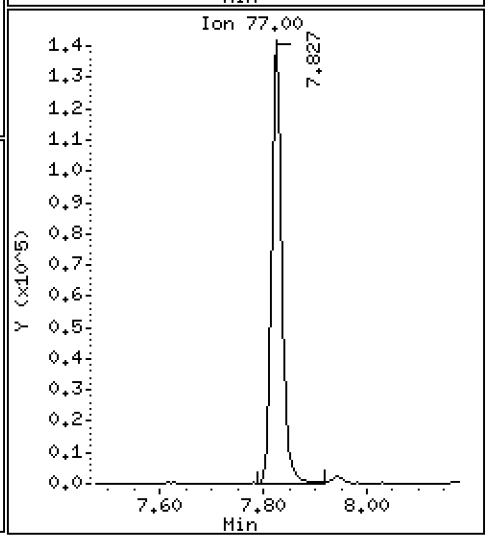












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

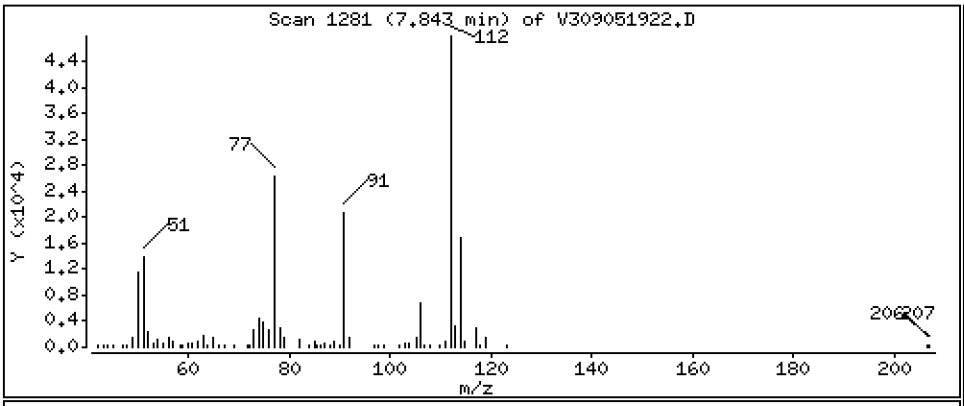
Operator: PKC

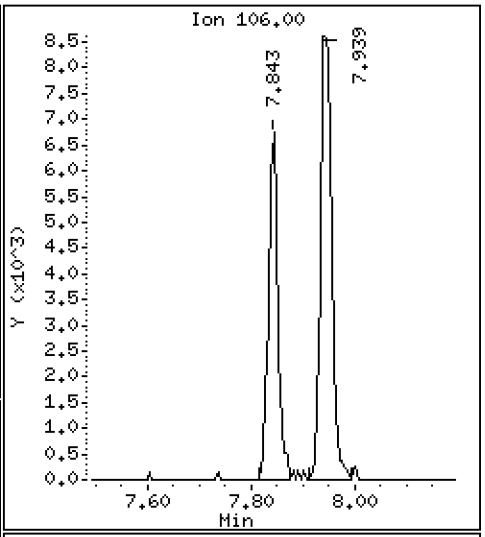
Column phase: RTXVMS

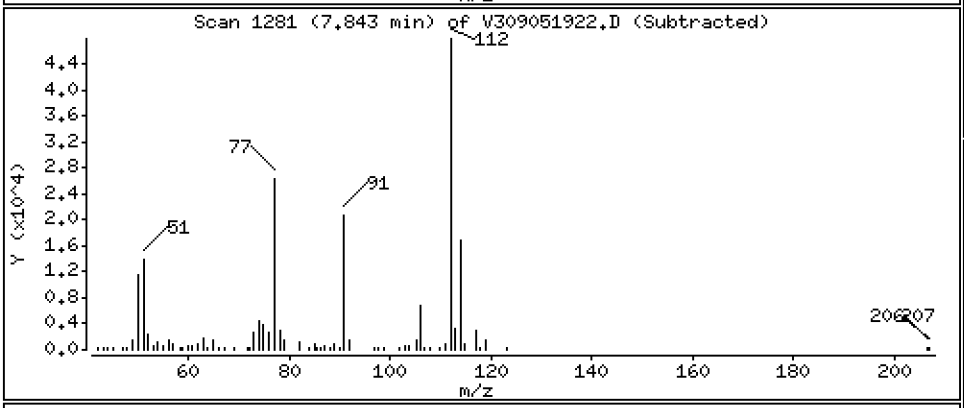
Column diameter: 0.18

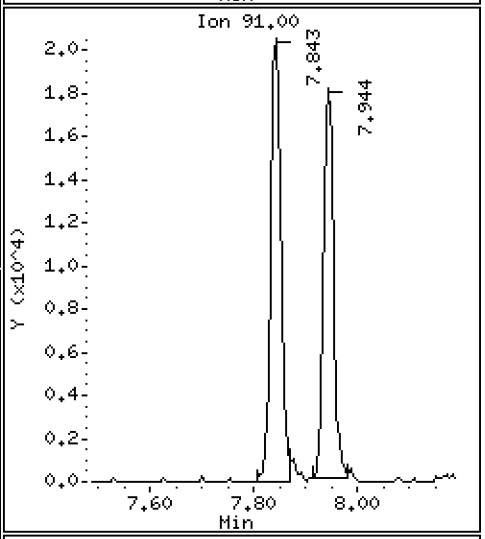
55 Ethyl Benzene

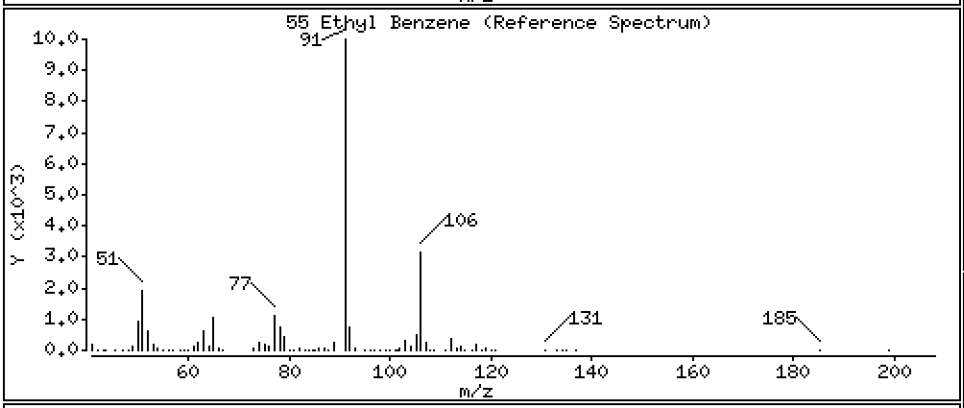
Concentration: 1.002 ug/L

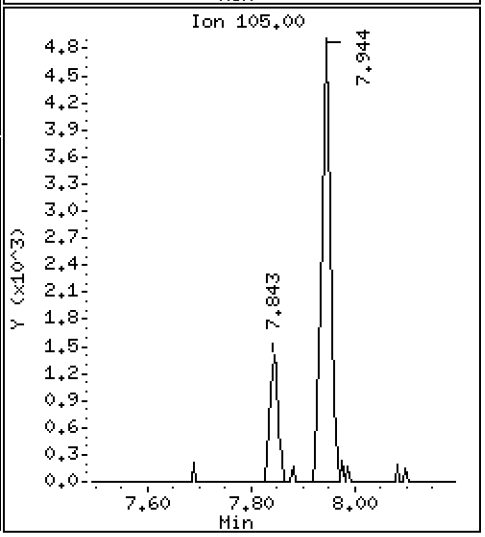


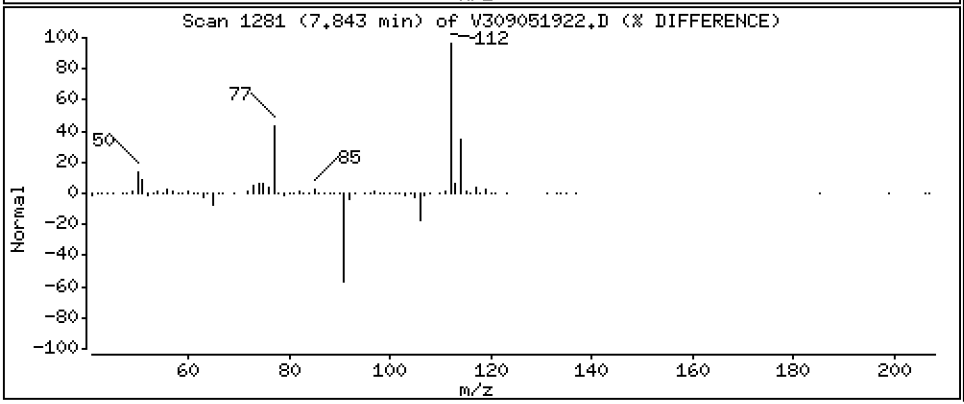












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

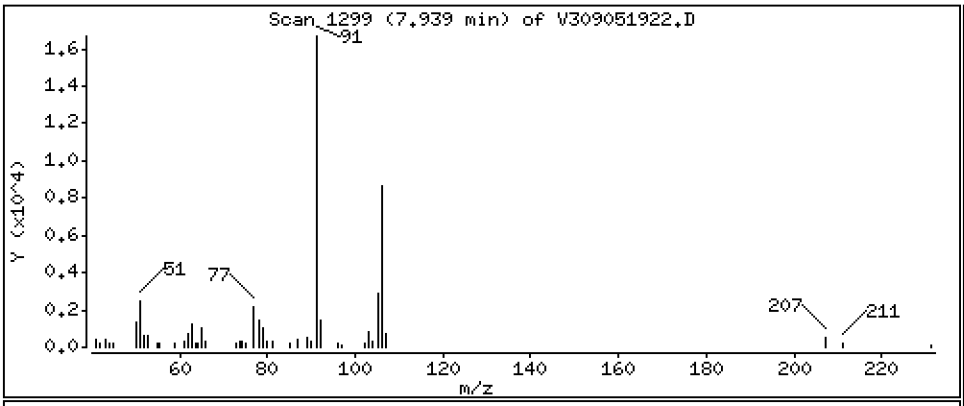
Operator: PKC

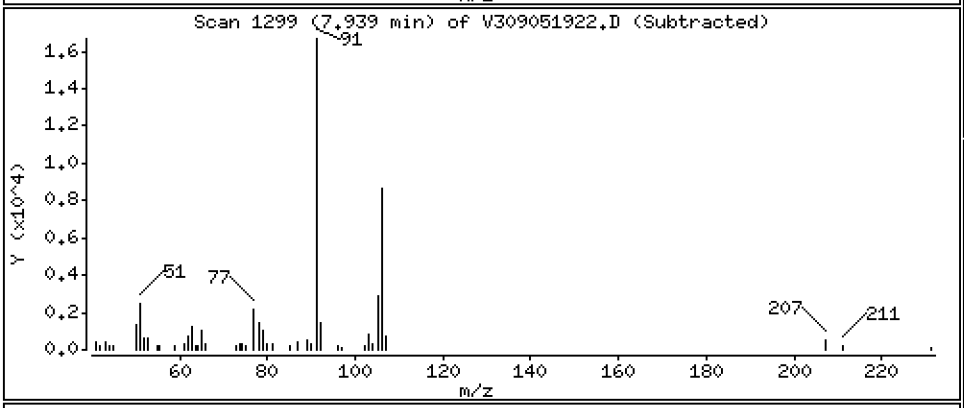
Column phase: RTXVMS

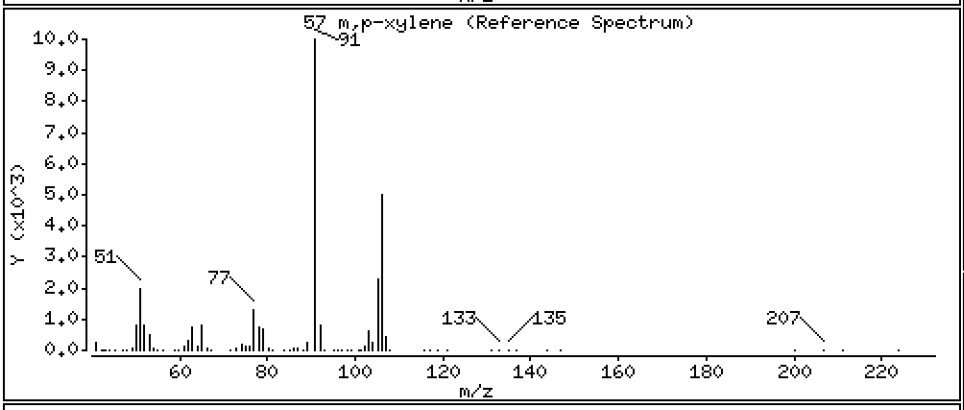
Column diameter: 0.18

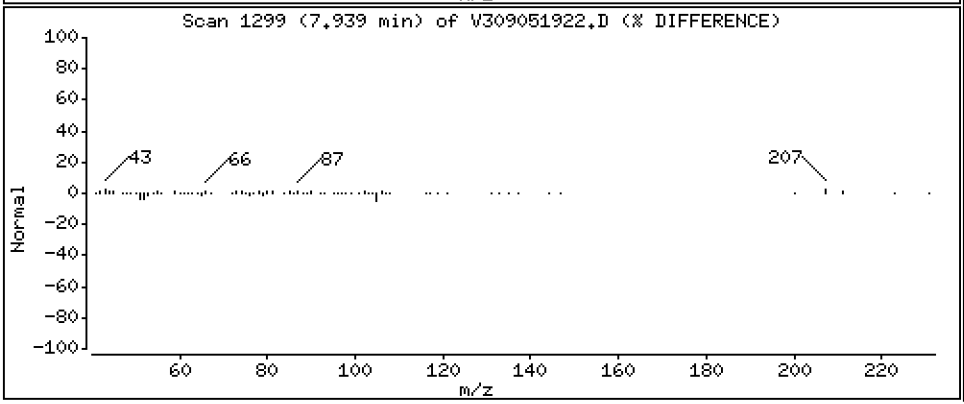
57 m,p-xylene

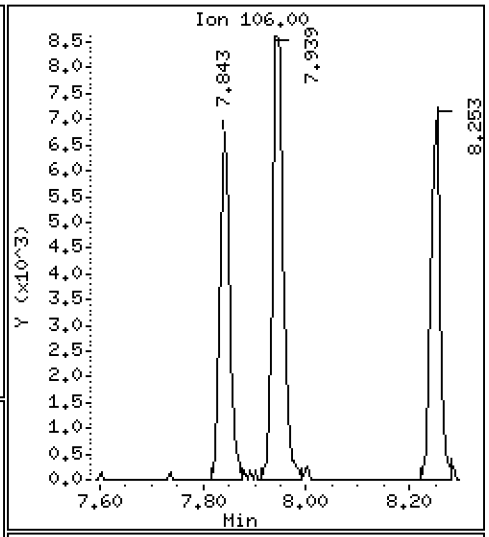
Concentration: 1.197 ug/L

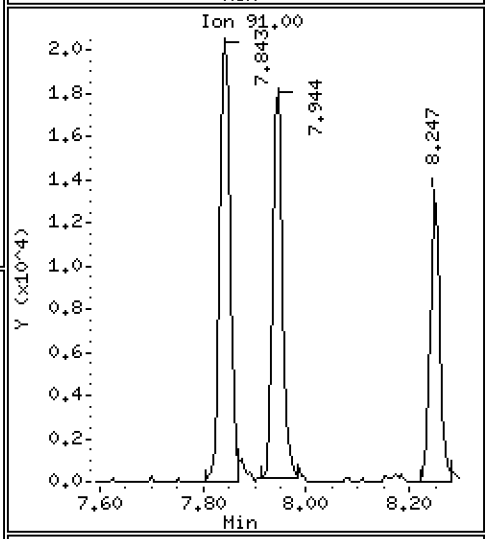


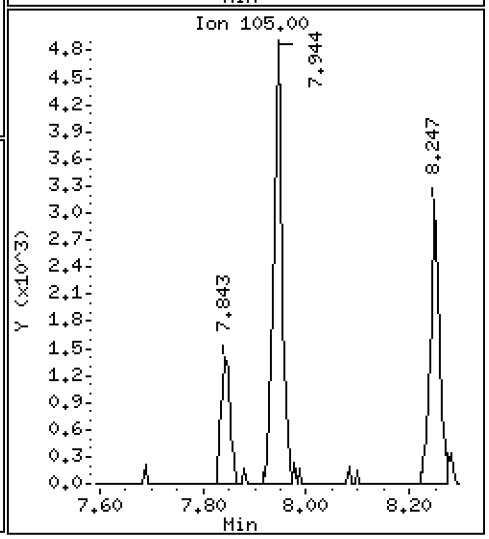












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

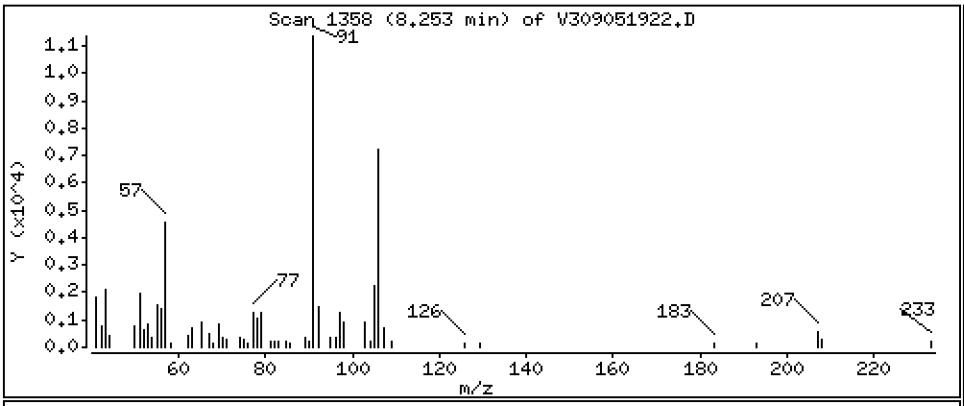
Operator: PKC

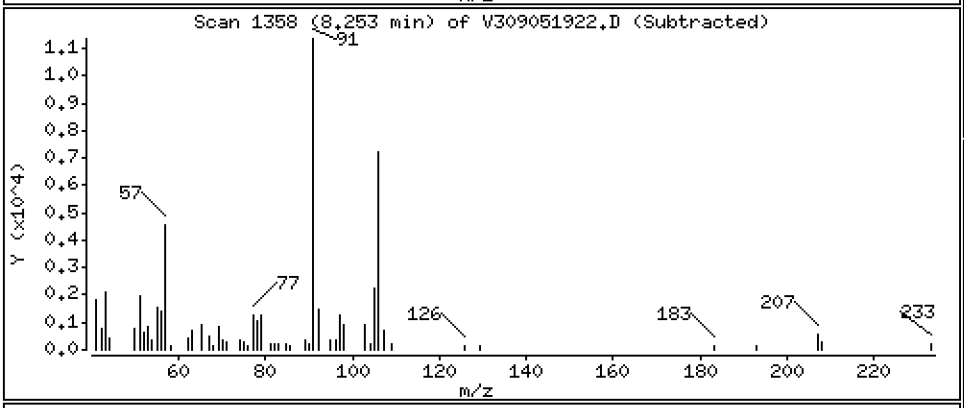
Column phase: RTXVMS

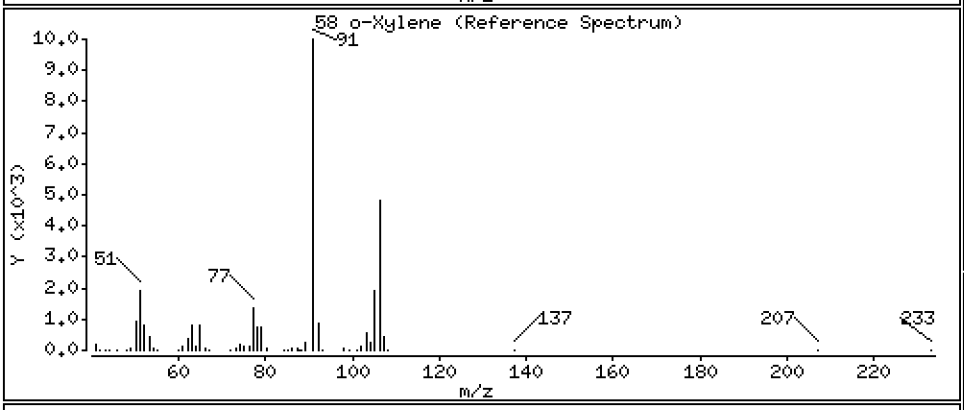
Column diameter: 0.18

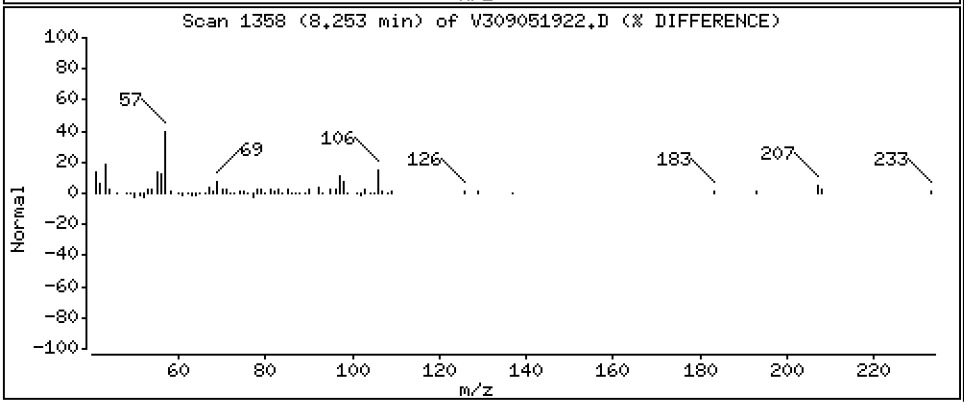
58 o-Xylene

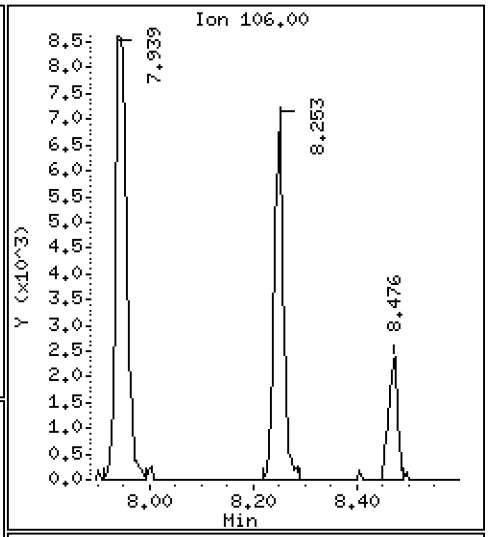
Concentration: 0.8379 ug/L

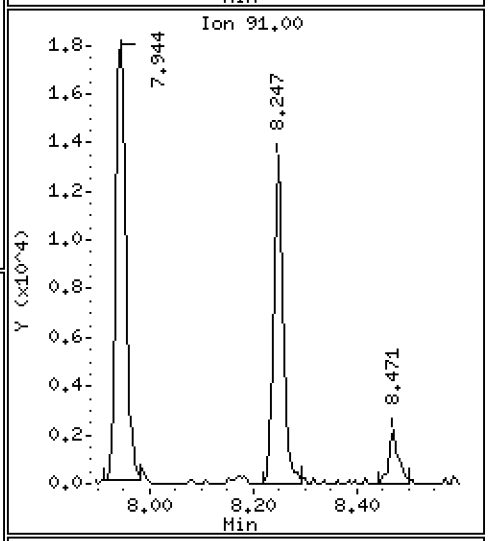


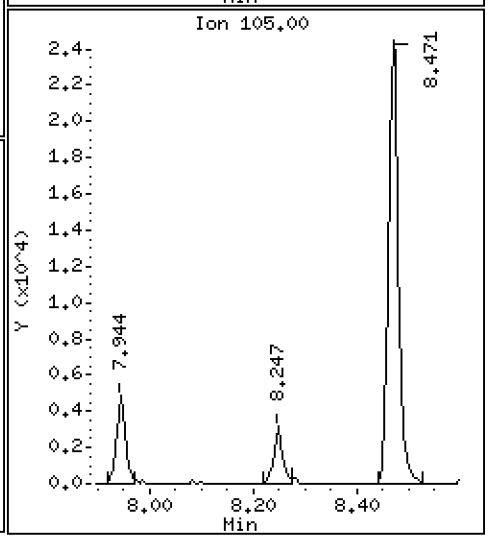












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

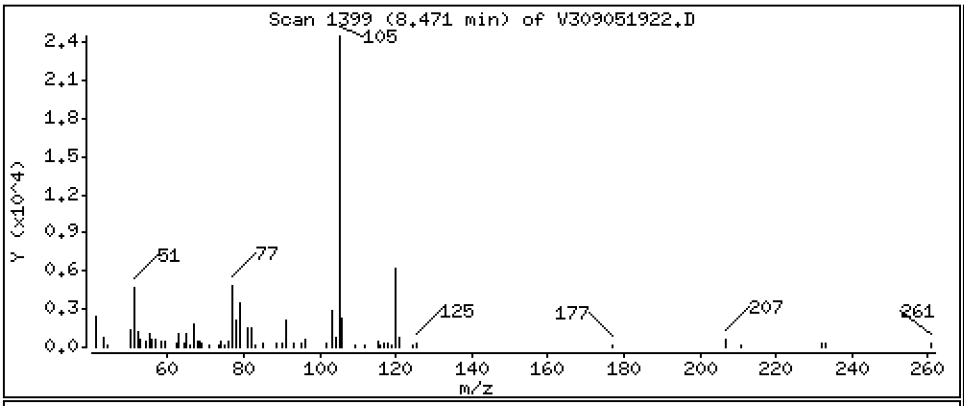
Operator: PKC

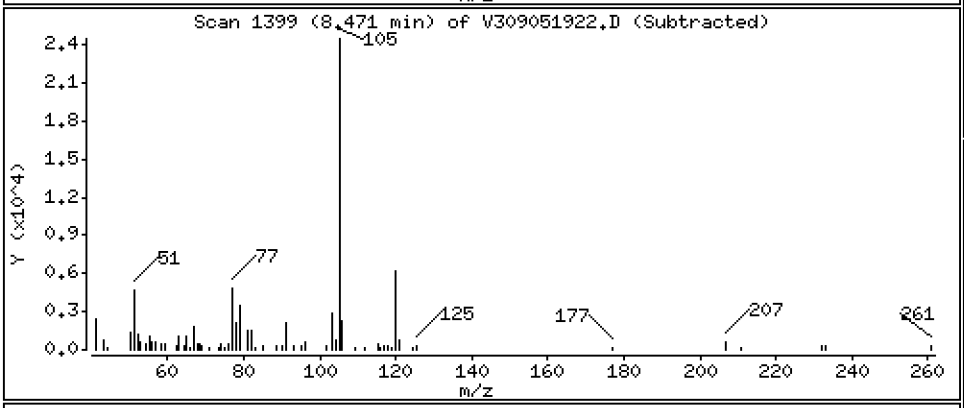
Column phase: RTXVMS

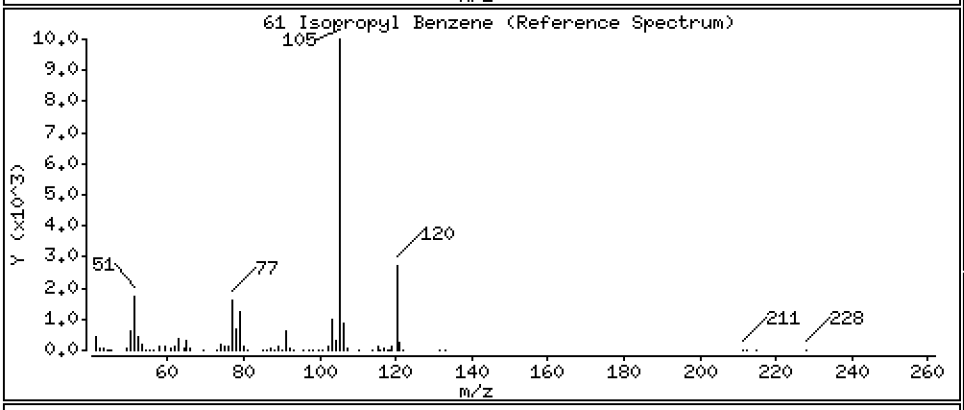
Column diameter: 0.18

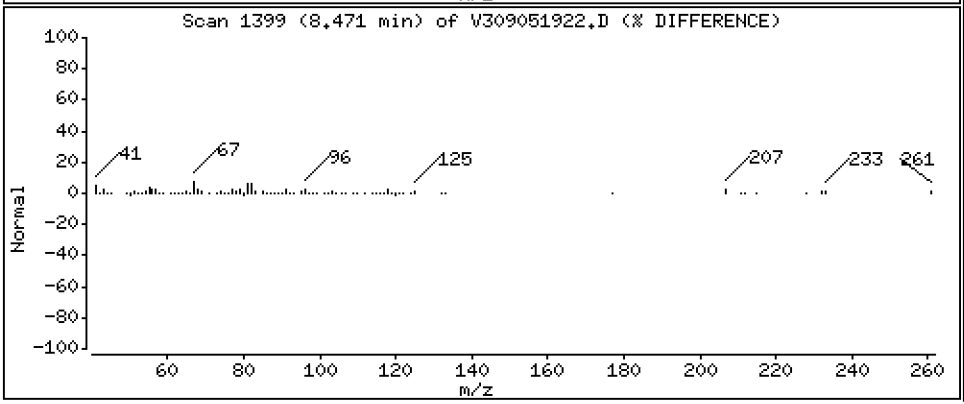
61 Isopropyl Benzene

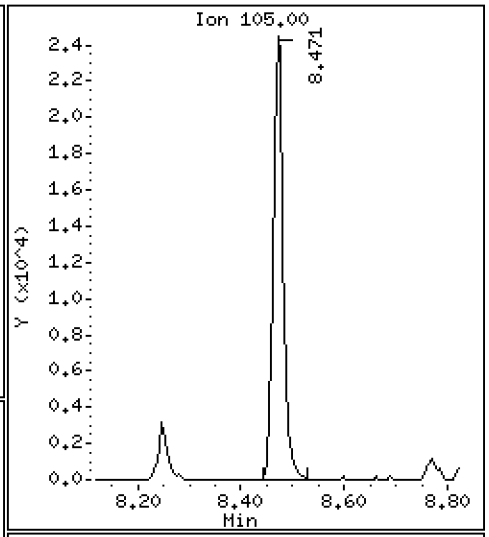
Concentration: 1.258 ug/L

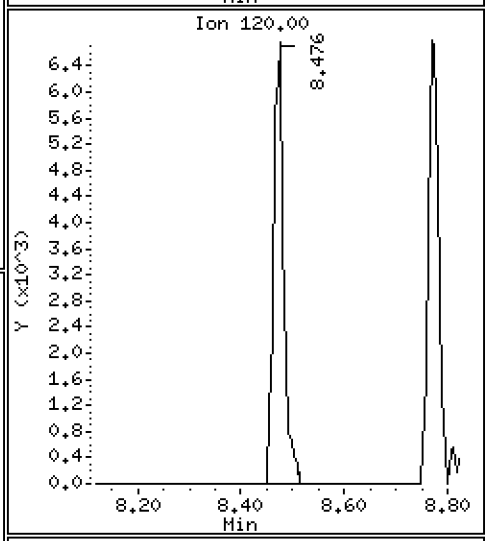


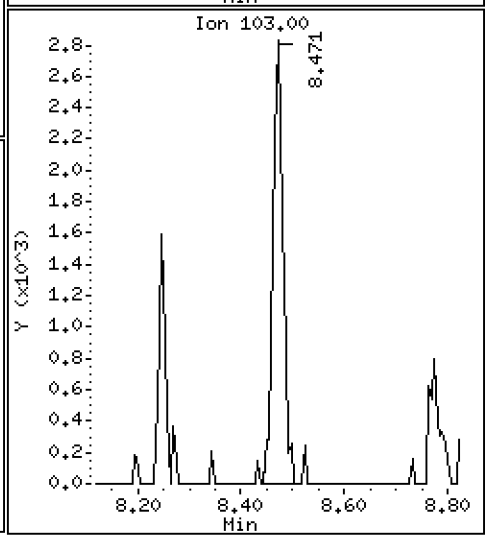












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

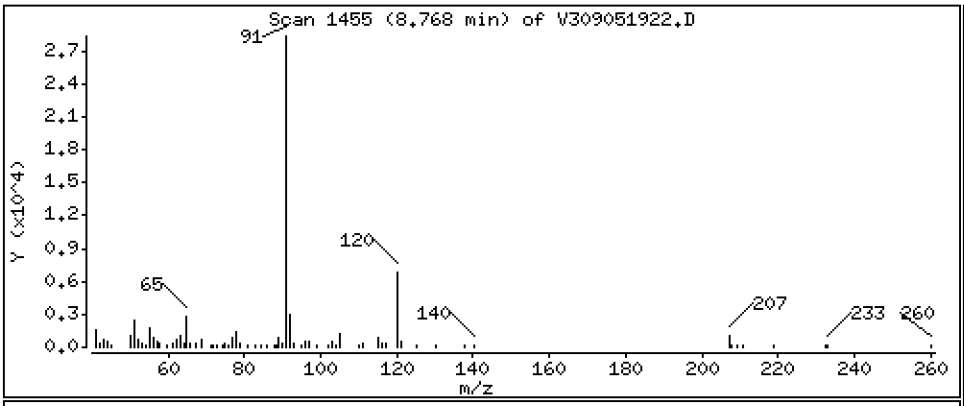
Operator: PKC

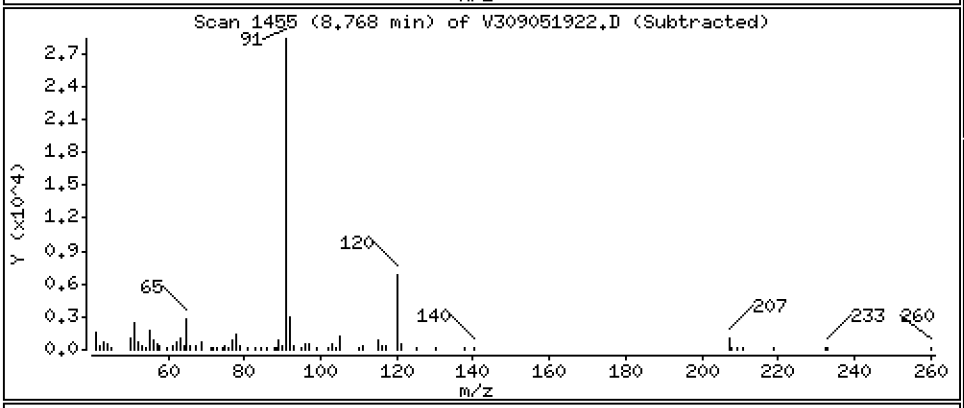
Column phase: RTXVMS

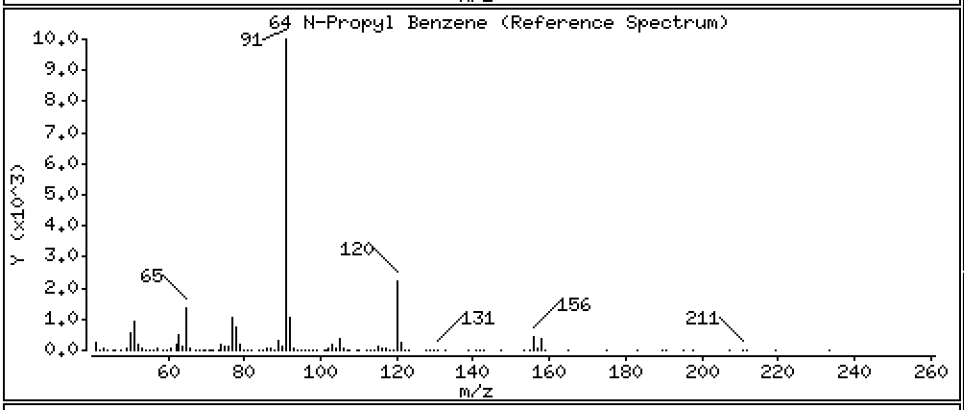
Column diameter: 0.18

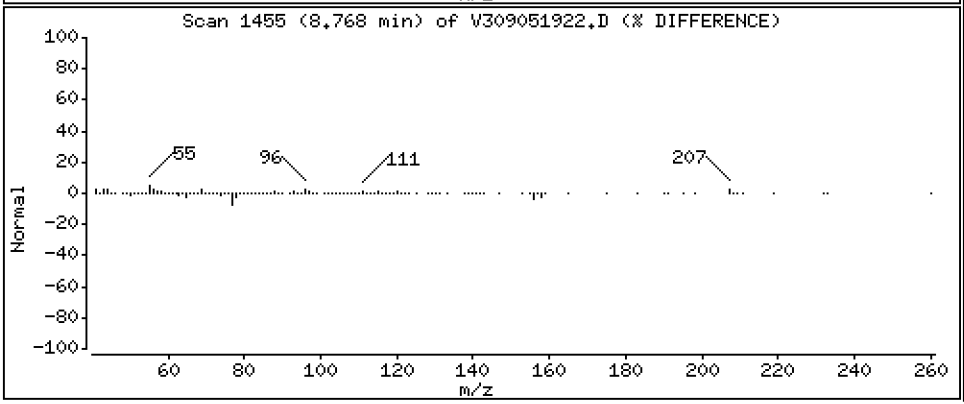
64 N-Propyl Benzene

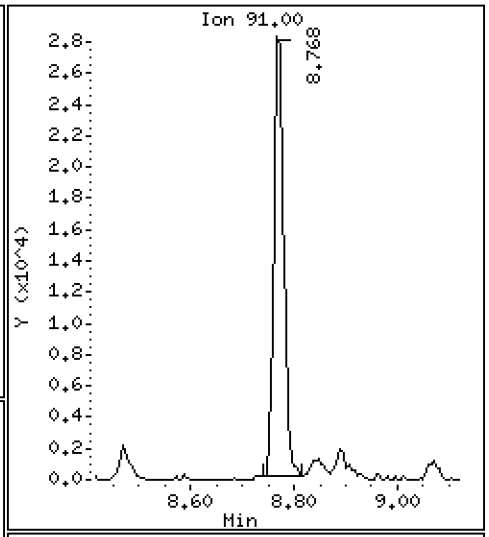
Concentration: 1.227 ug/L

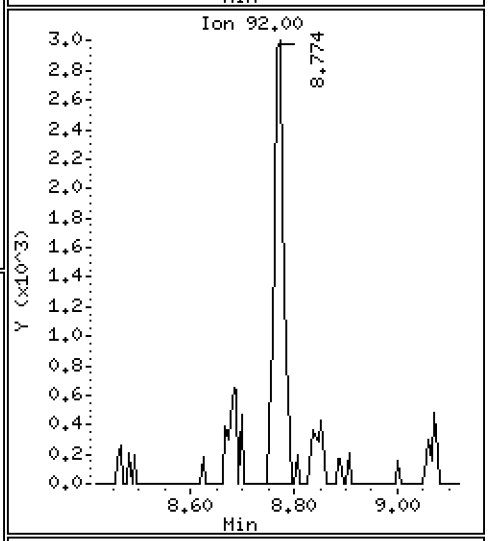


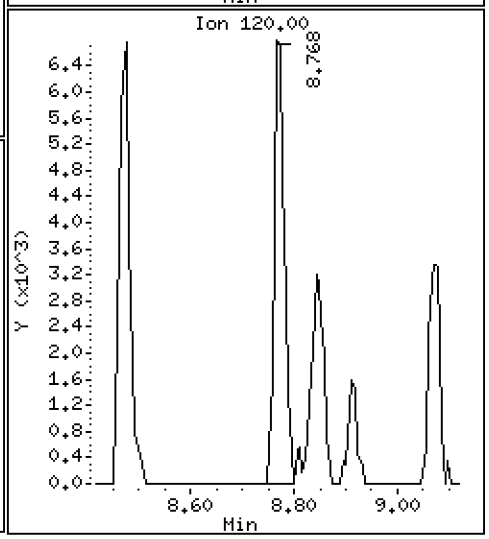












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

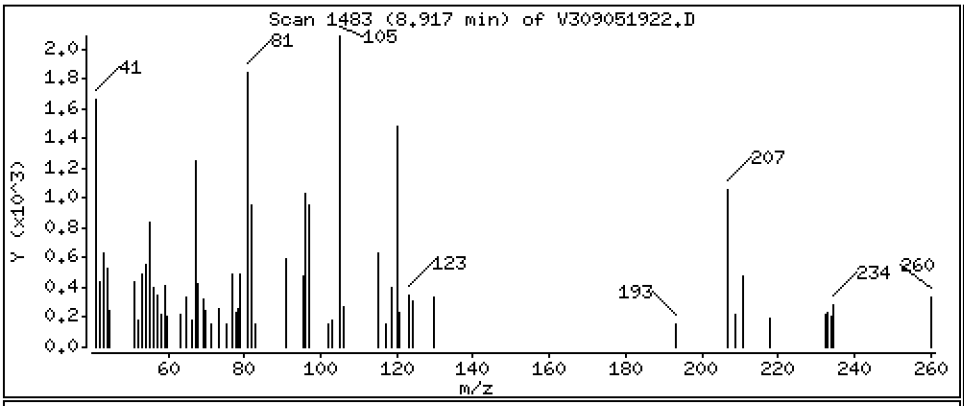
Operator: PKC

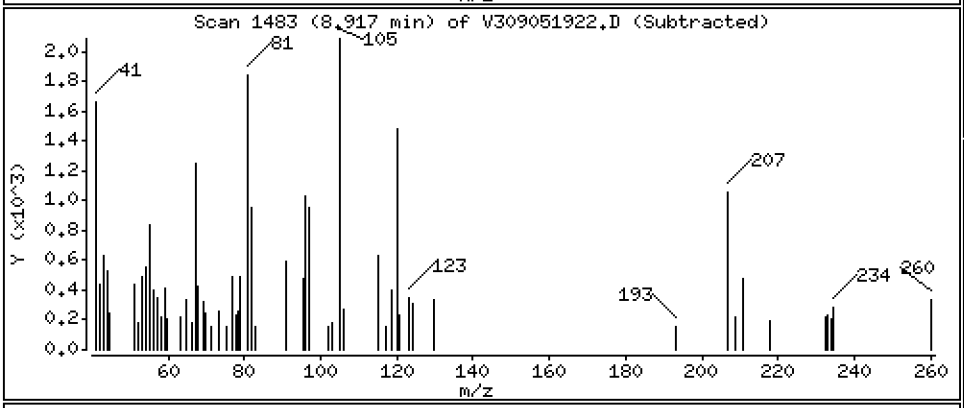
Column phase: RTXVMS

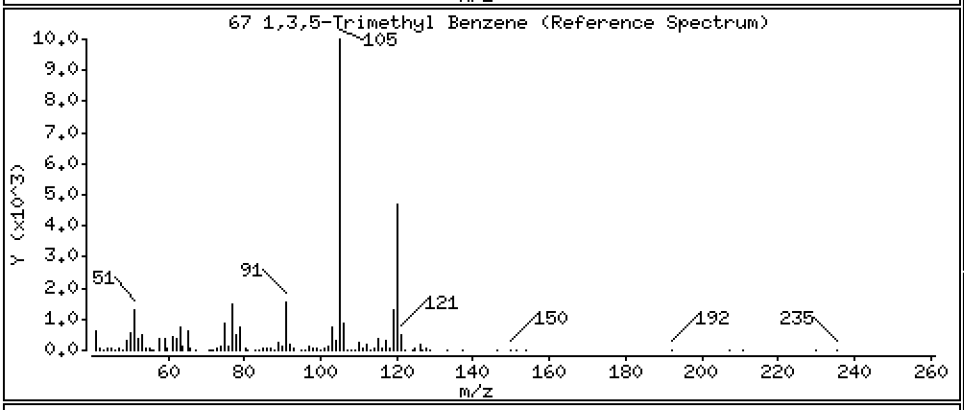
Column diameter: 0.18

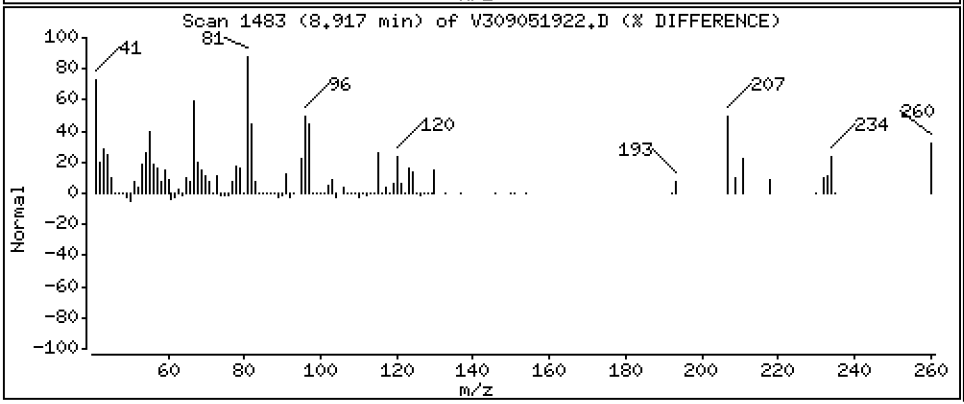
67 1,3,5-Trimethyl Benzene

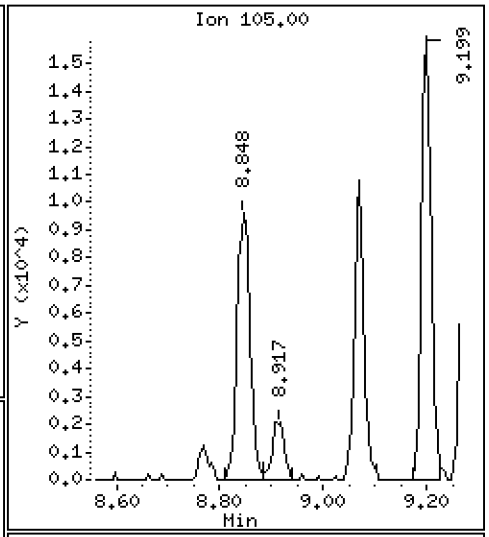
Concentration: 0.1492 ug/L

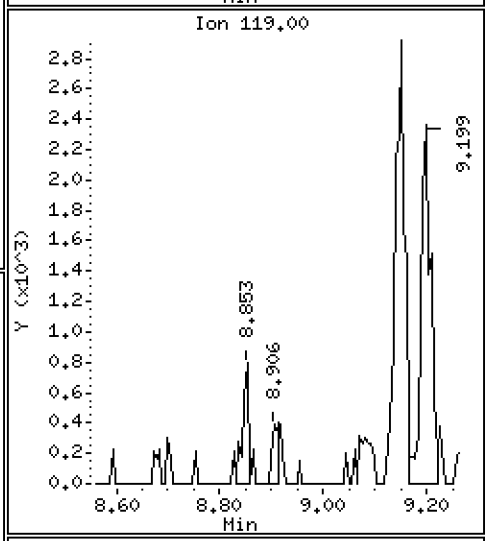


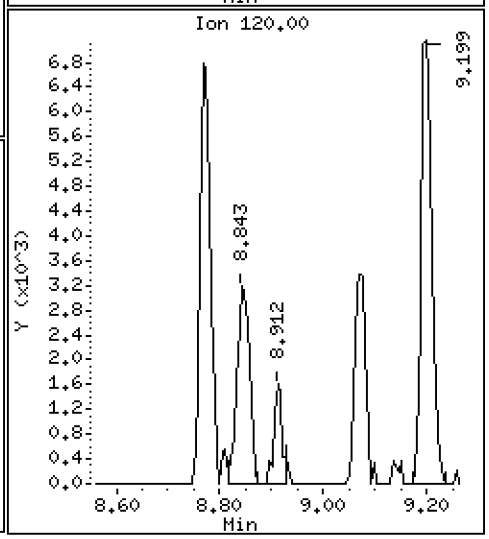












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

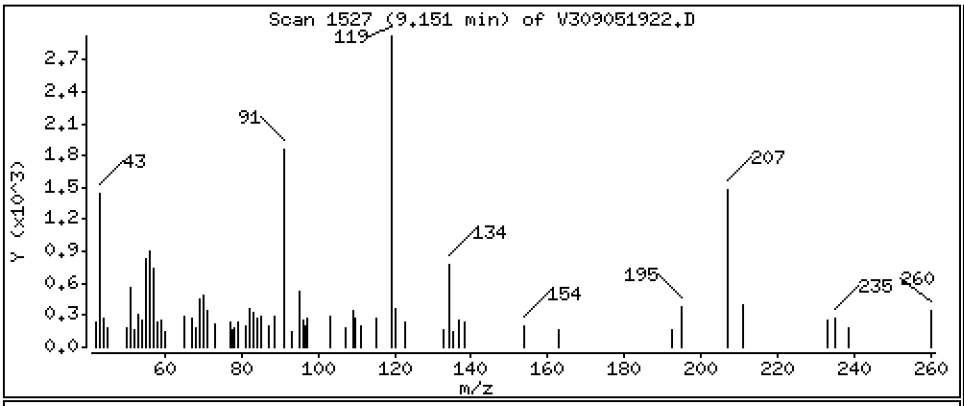
Operator: PKC

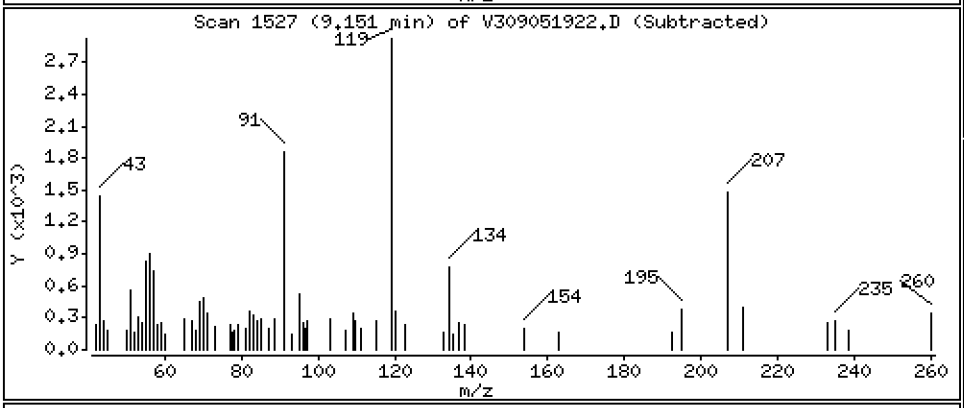
Column phase: RTXVMS

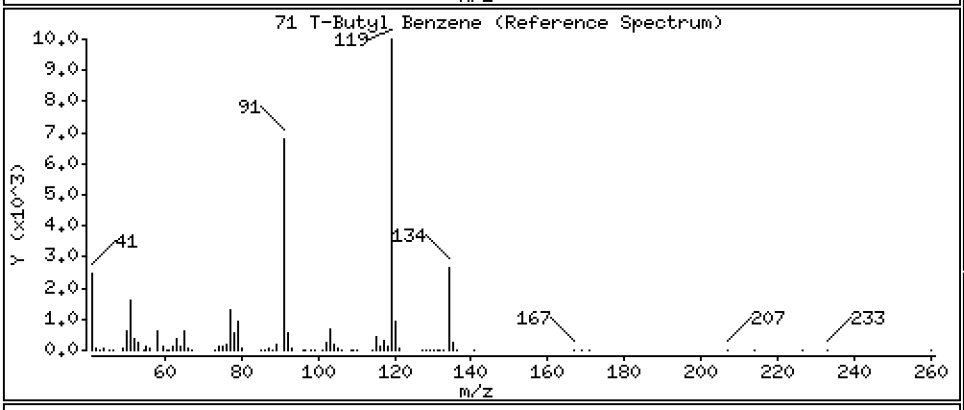
Column diameter: 0.18

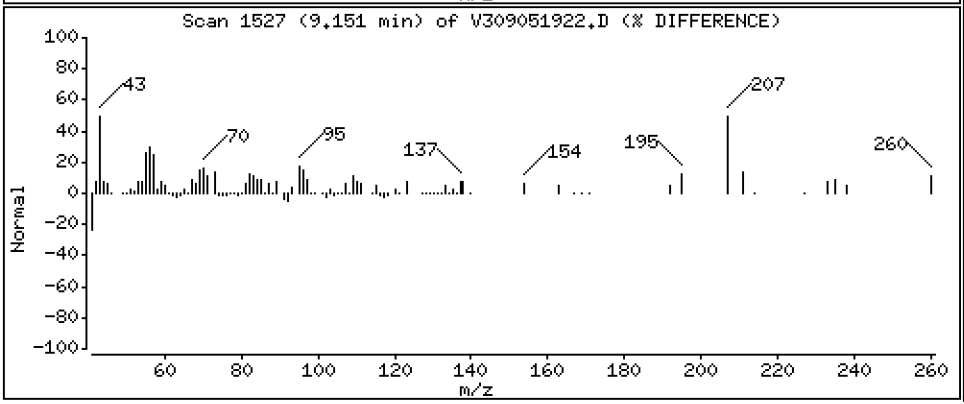
71 T-Butyl Benzene

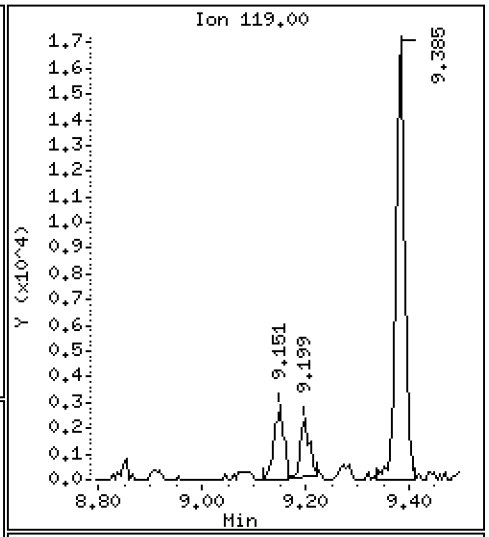
Concentration: 0.1949 ug/L

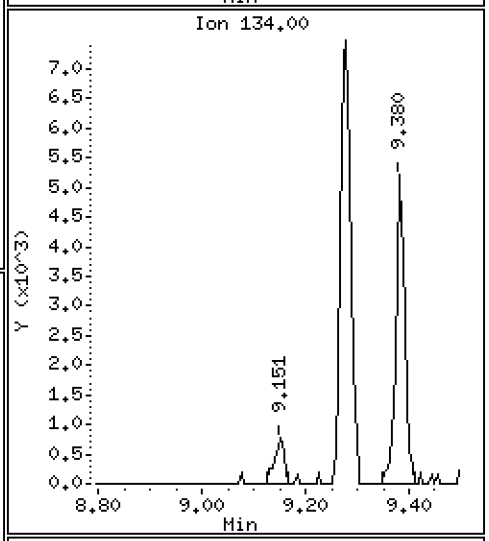


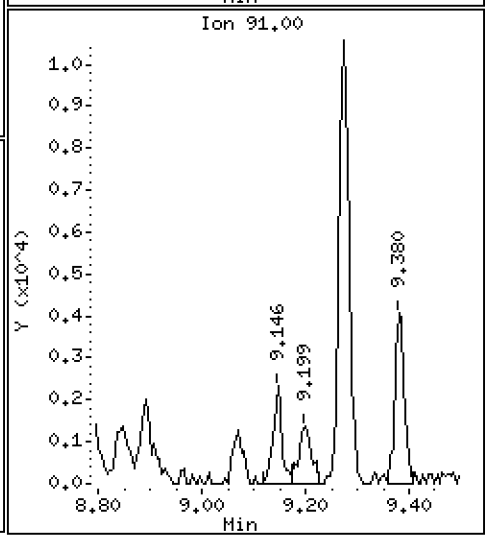












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

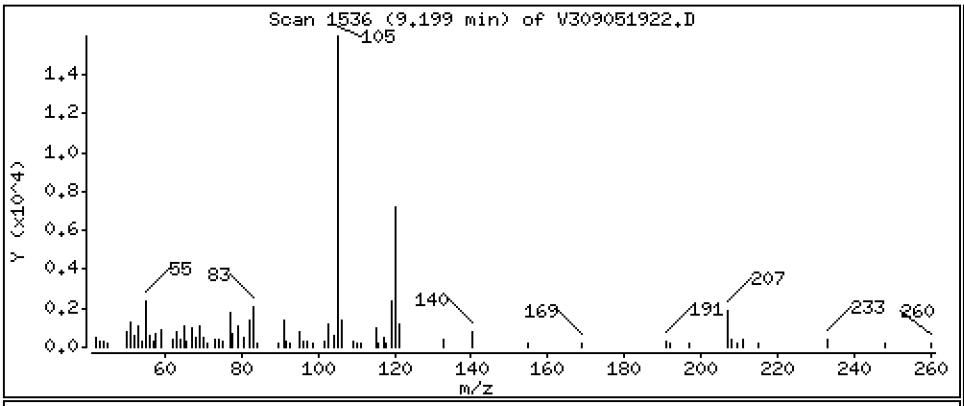
Operator: PKC

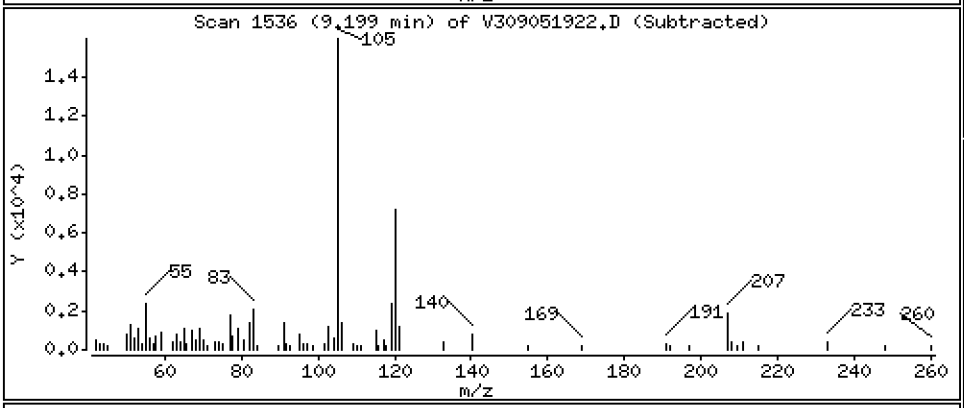
Column phase: RTXVMS

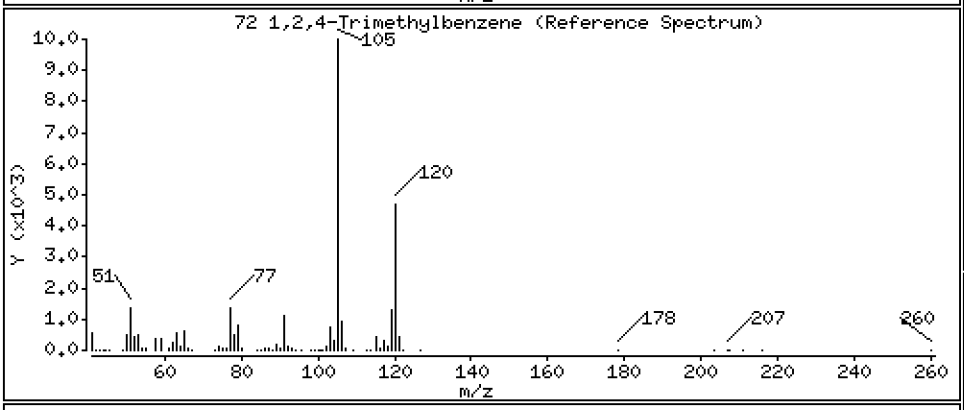
Column diameter: 0.18

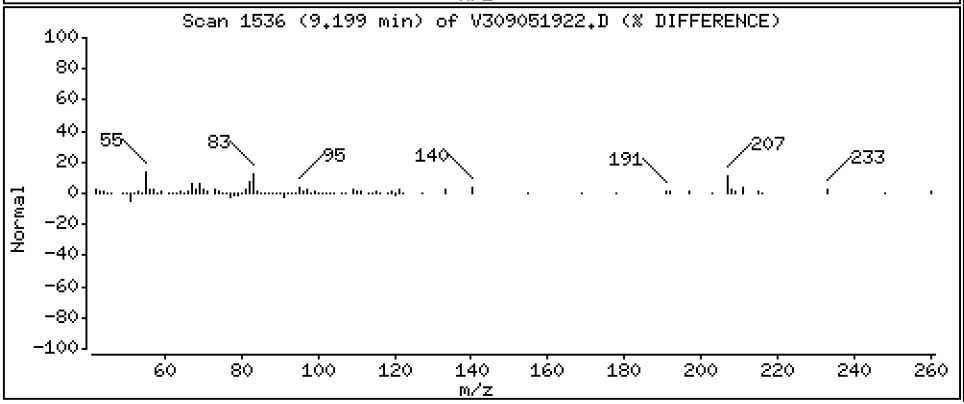
72 1,2,4-Trimethylbenzene

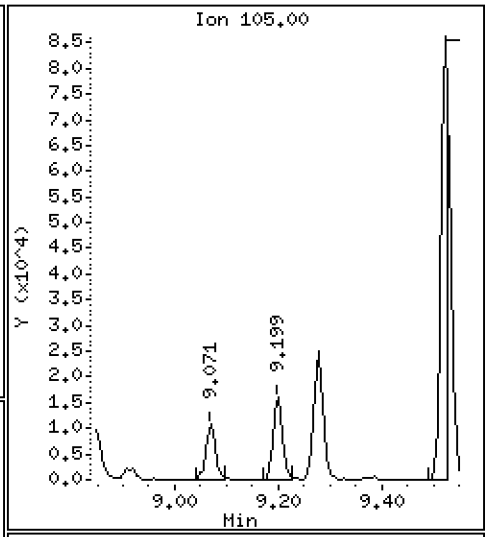
Concentration: 0.8633 ug/L

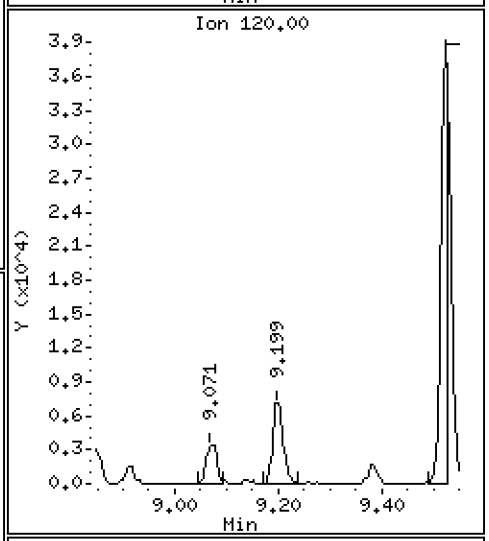


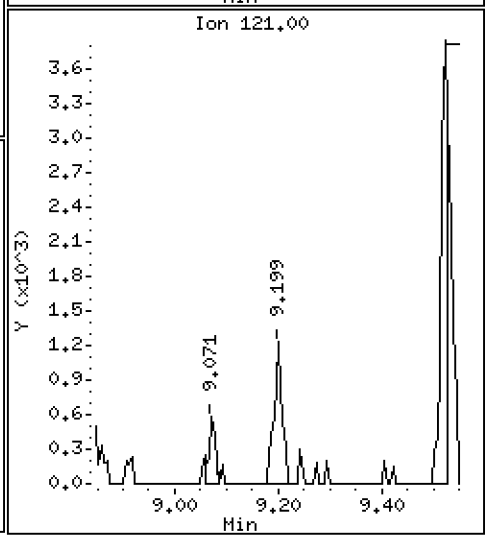












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

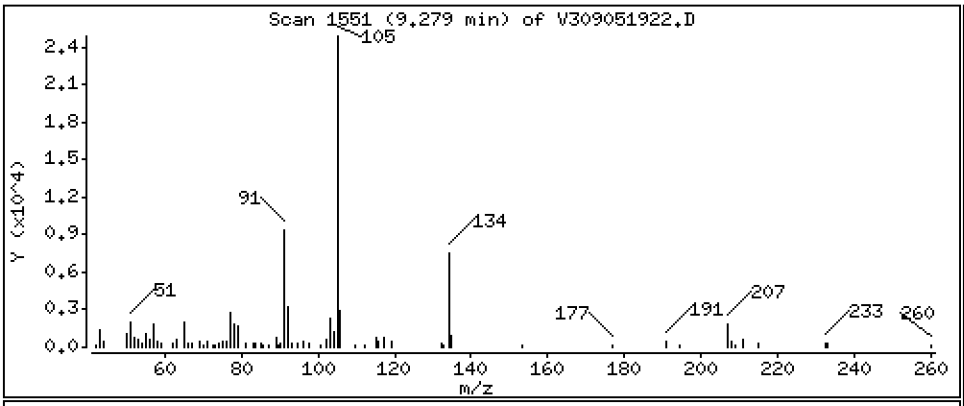
Operator: PKC

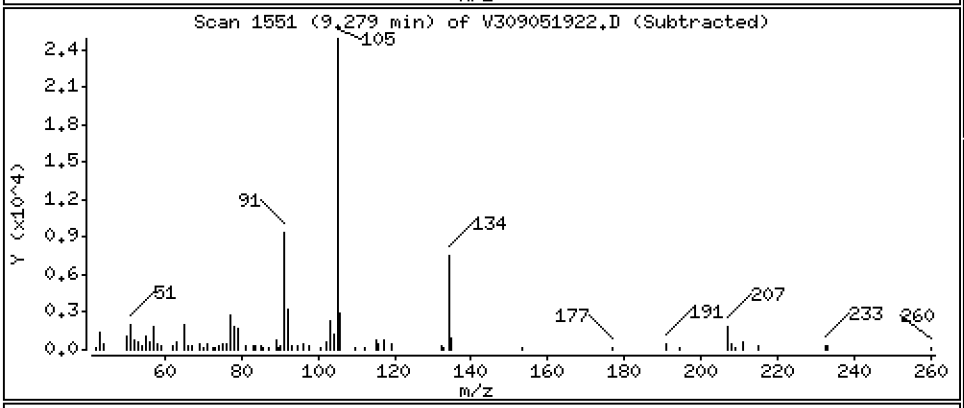
Column phase: RTXVMS

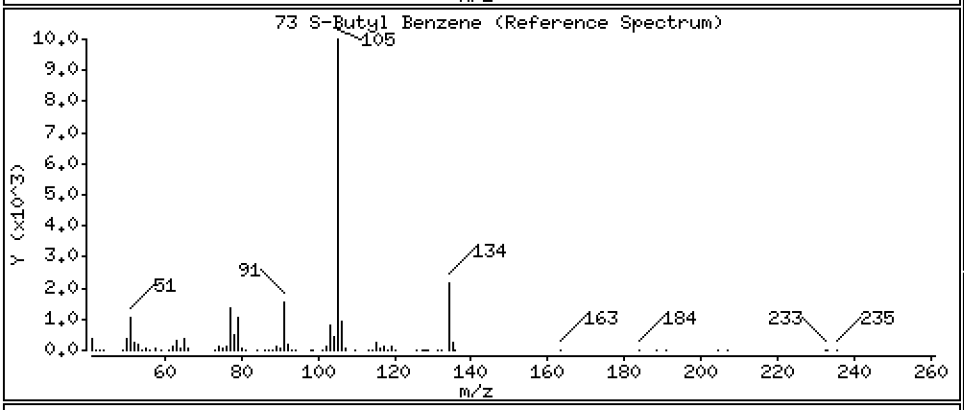
Column diameter: 0.18

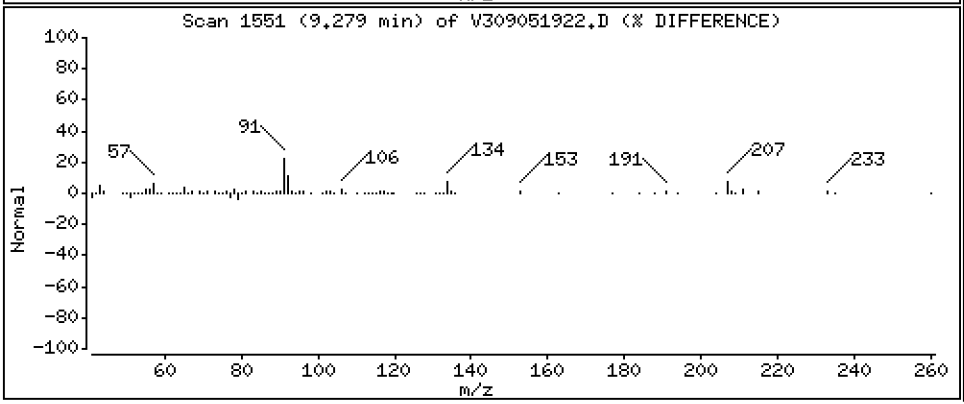
73 S-Butyl Benzene

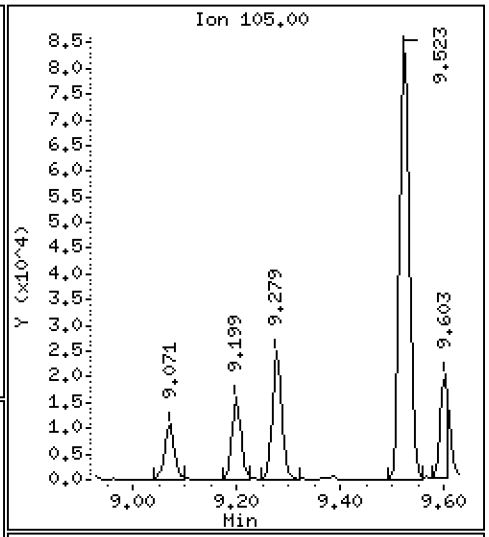
Concentration: 1.171 ug/L

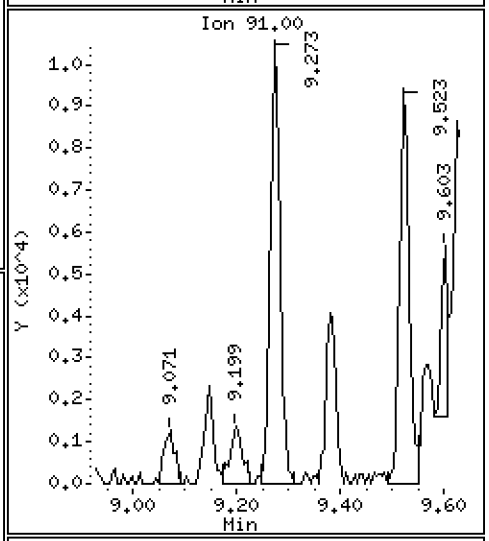


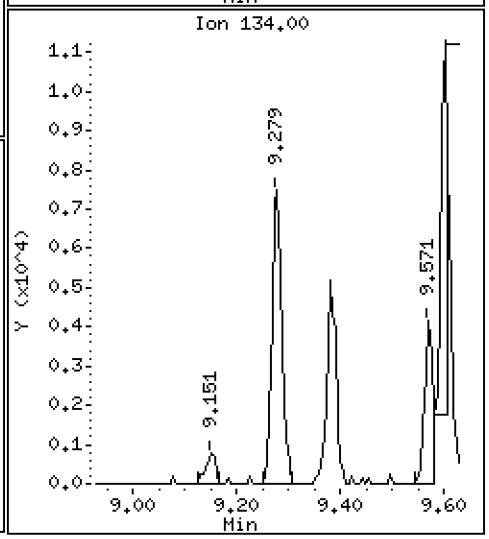












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

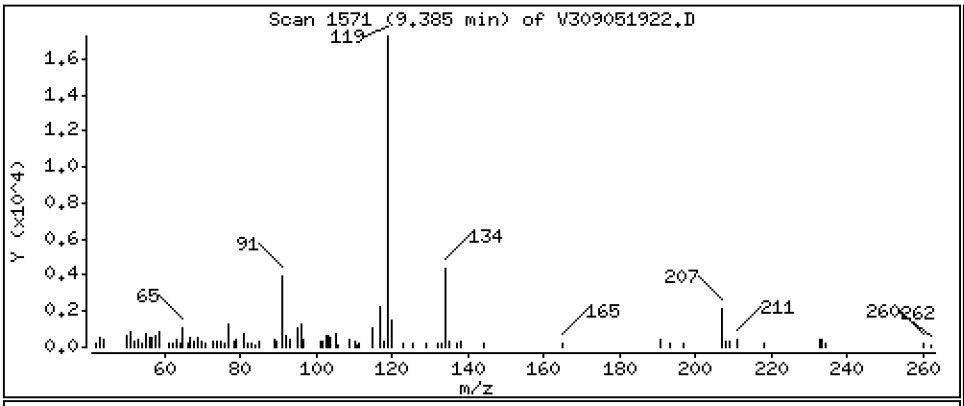
Operator: PKC

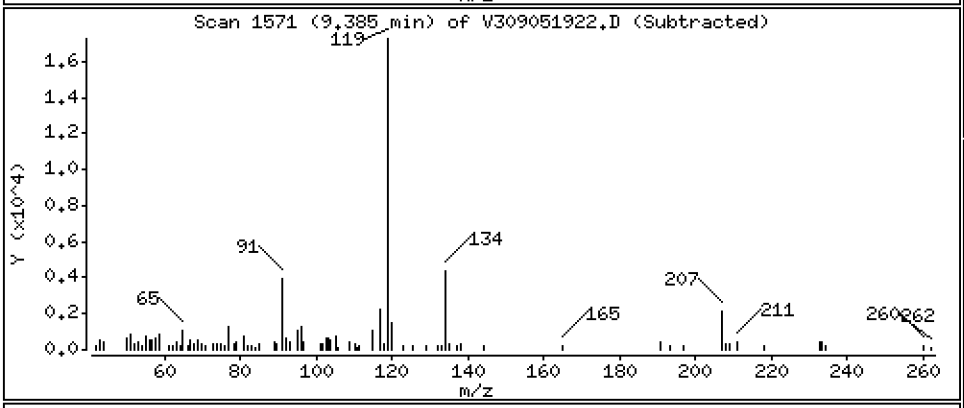
Column phase: RTXVMS

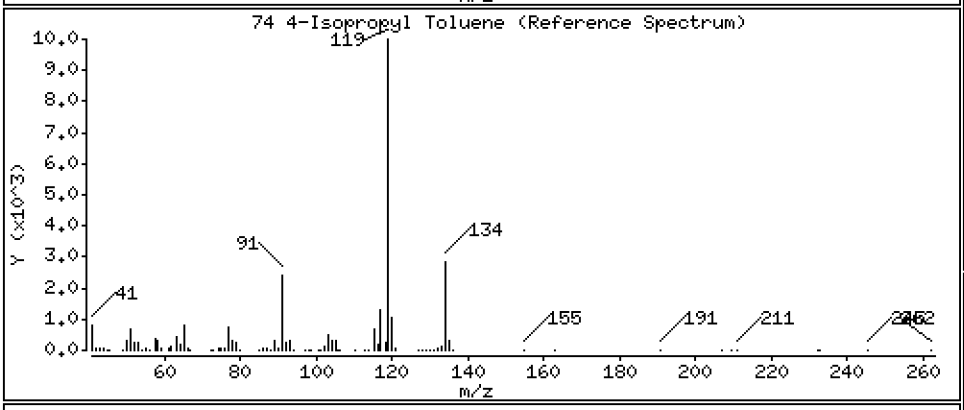
Column diameter: 0.18

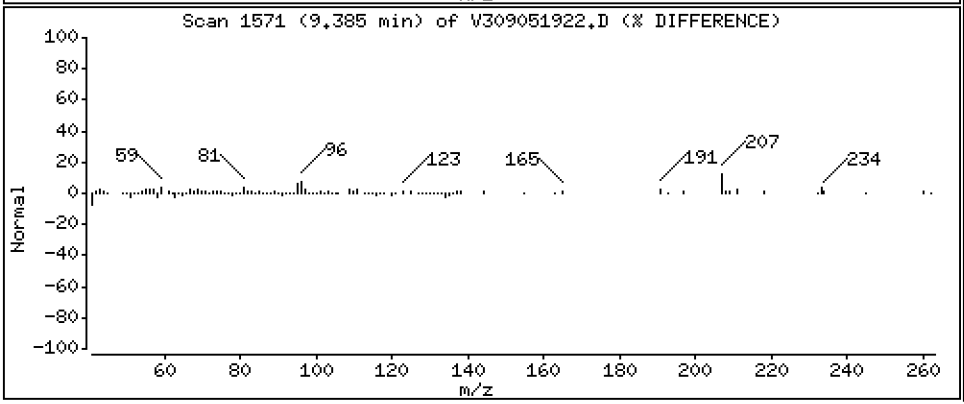
74 4-Isopropyl Toluene

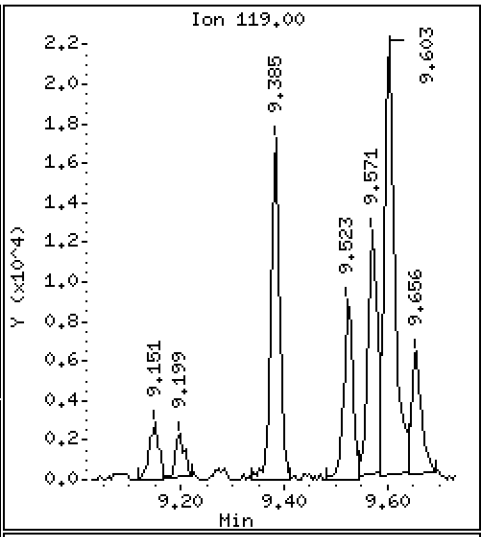
Concentration: 0.8366 ug/L

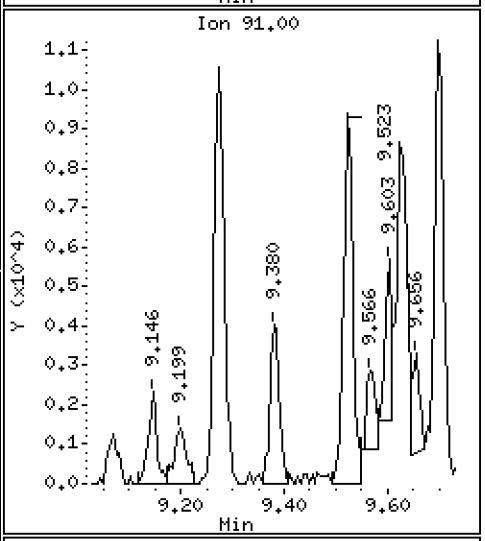


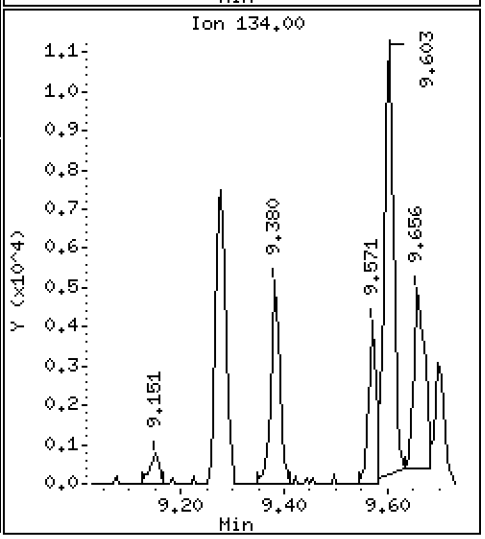












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

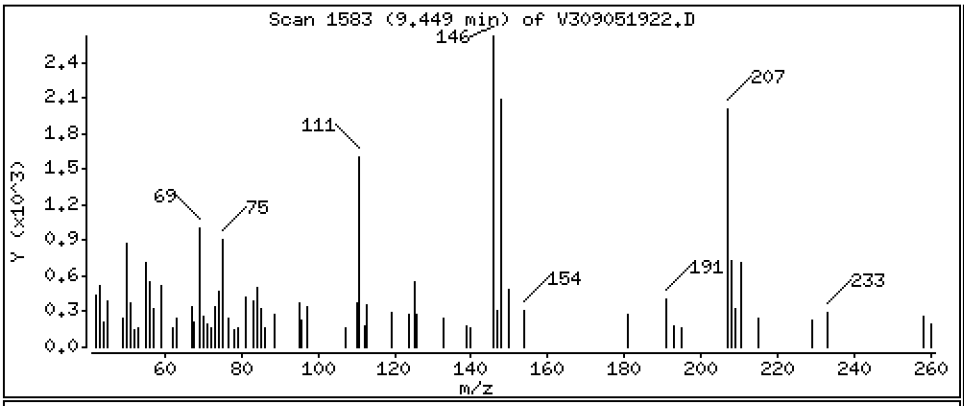
Operator: PKC

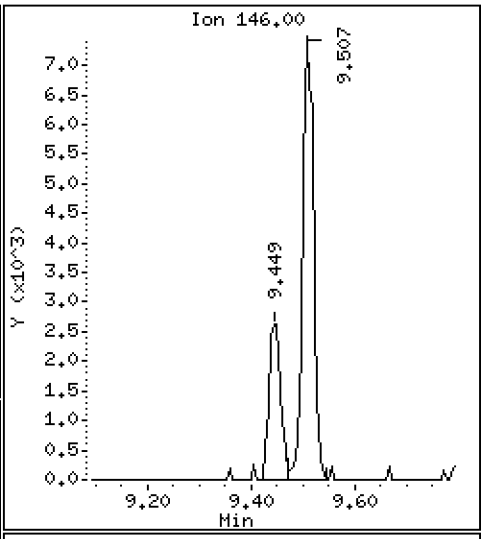
Column phase: RTXVMS

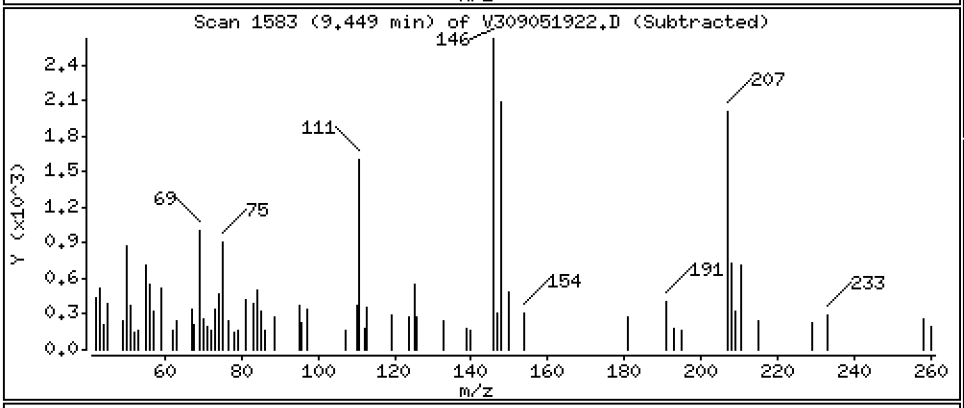
Column diameter: 0.18

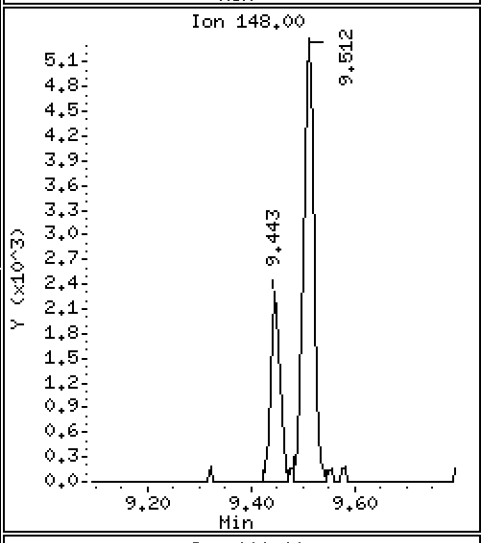
75 1,3-Dichlorobenzene

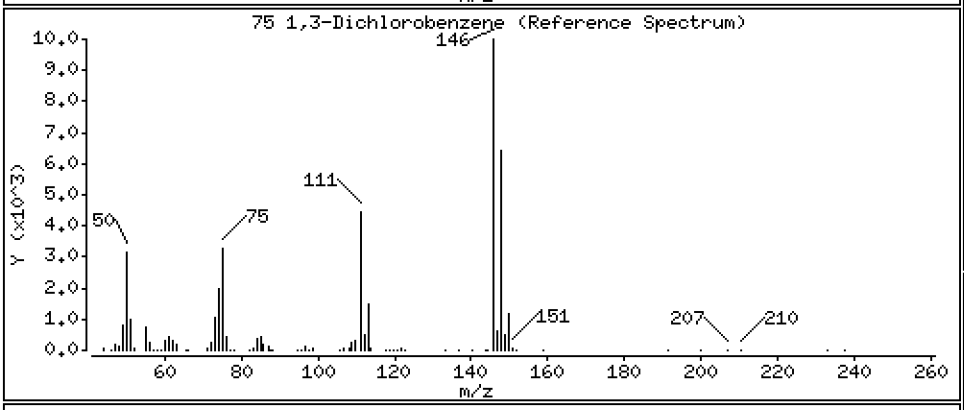
Concentration: 0.2784 ug/L

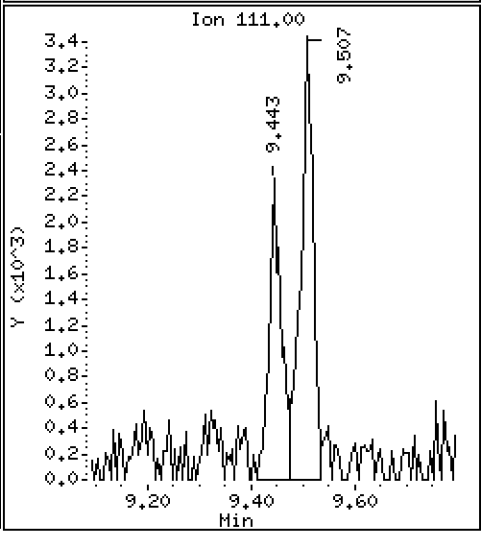


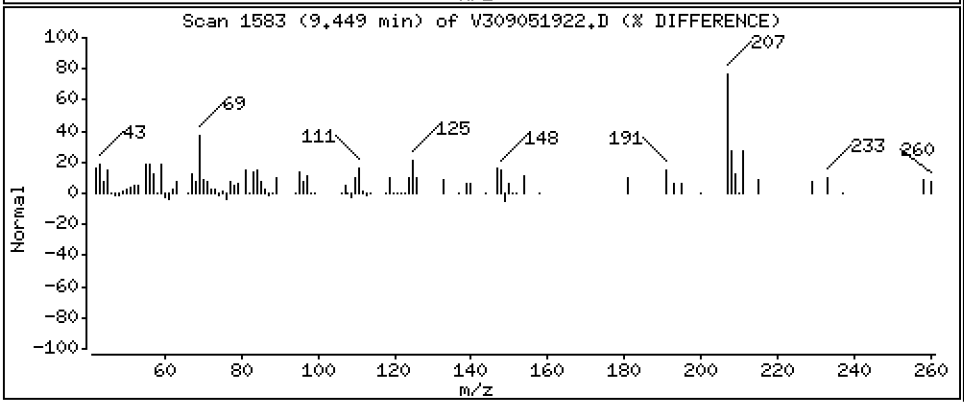












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Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

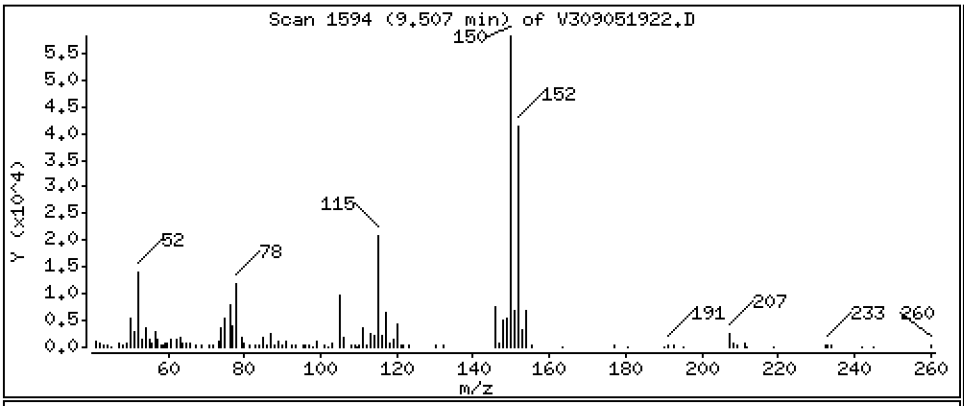
Operator: PKC

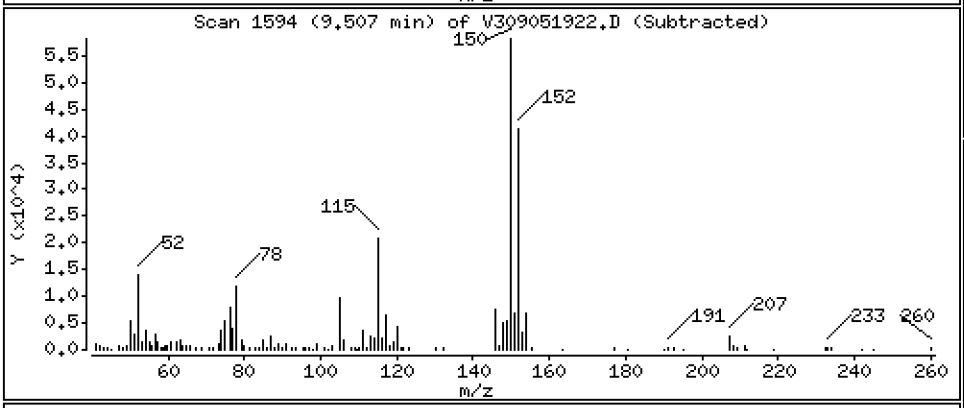
Column phase: RTXVMS

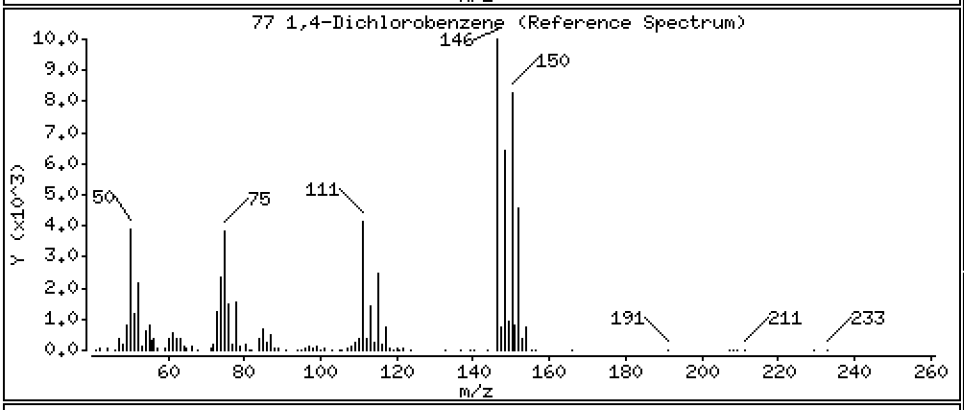
Column diameter: 0.18

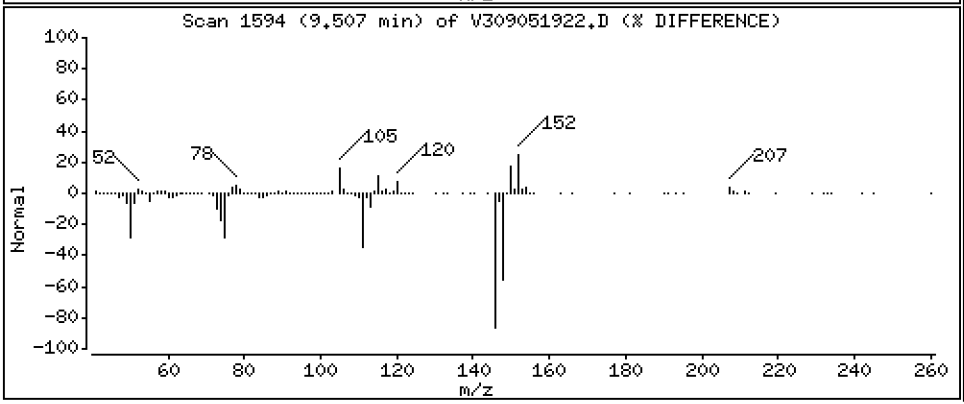
77 1,4-Dichlorobenzene

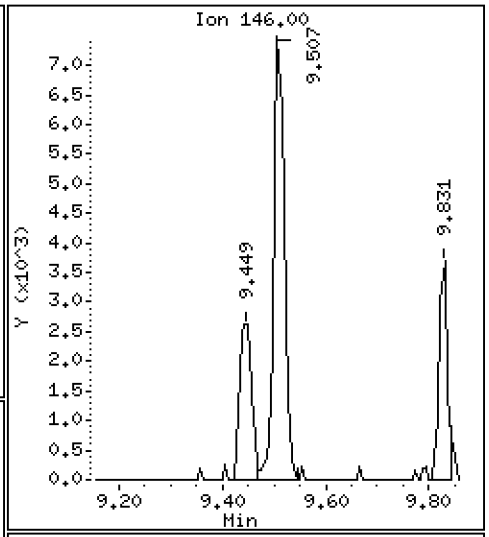
Concentration: 0.7113 ug/L

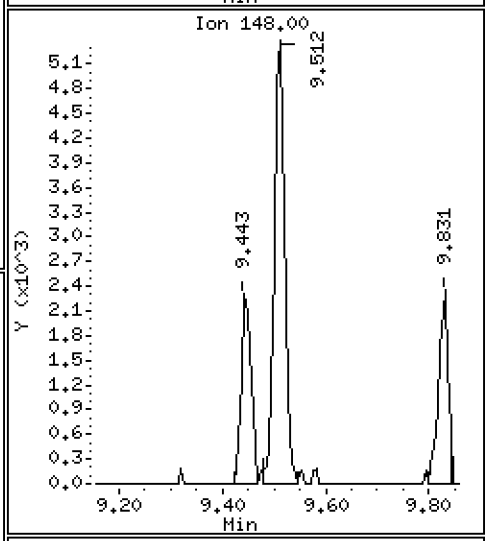


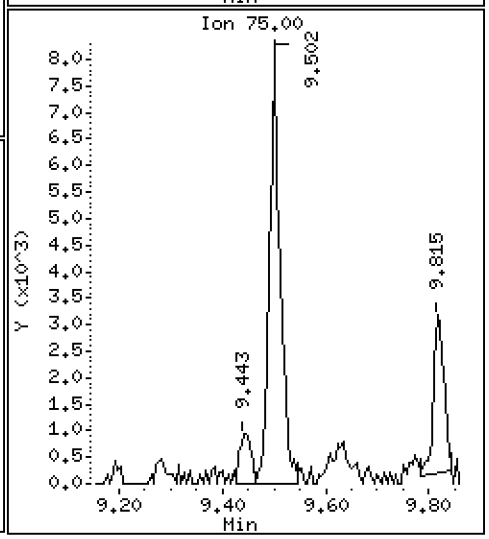












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

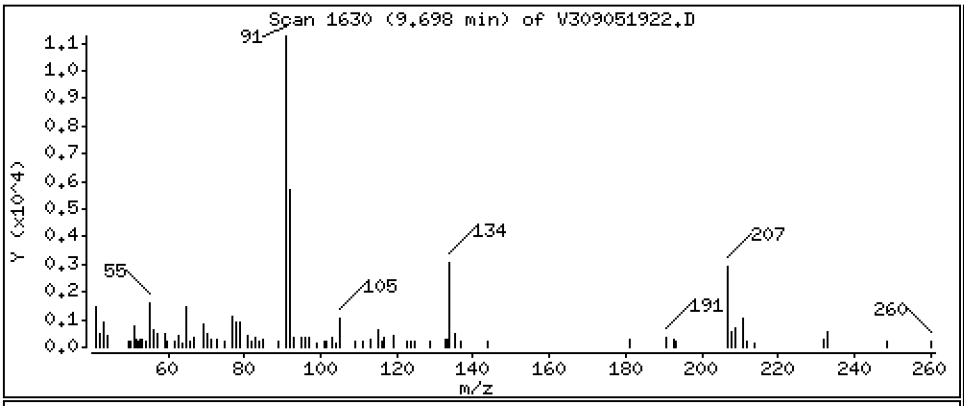
Operator: PKC

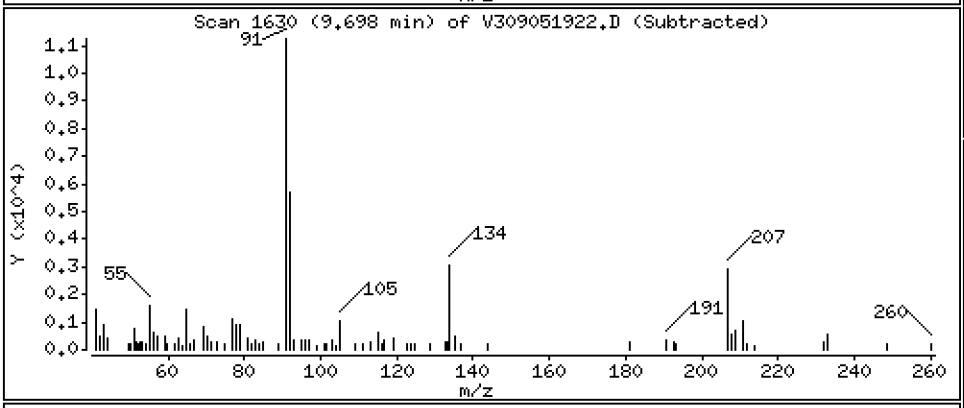
Column phase: RTXVMS

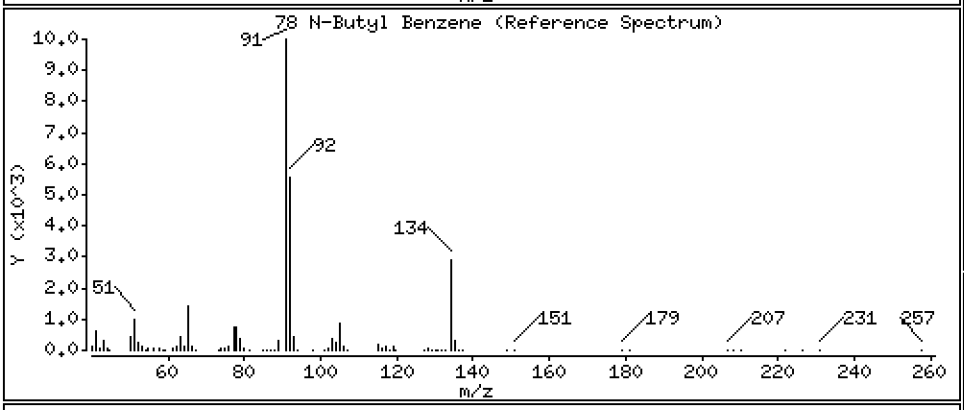
Column diameter: 0.18

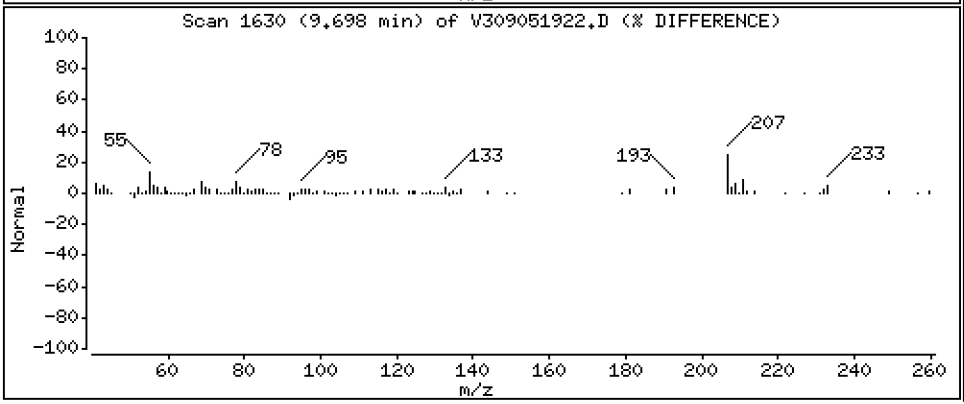
78 N-Butyl Benzene

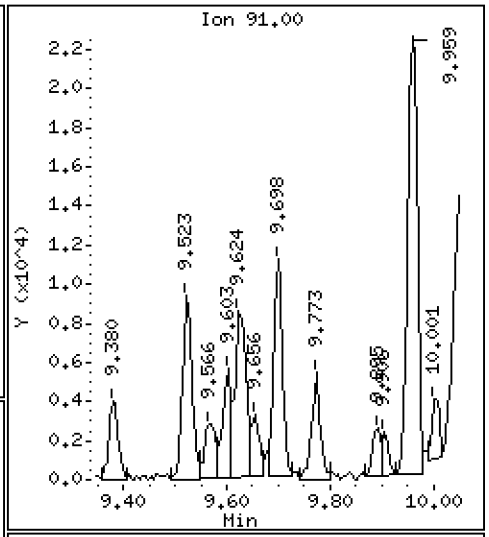
Concentration: 0.6287 ug/L

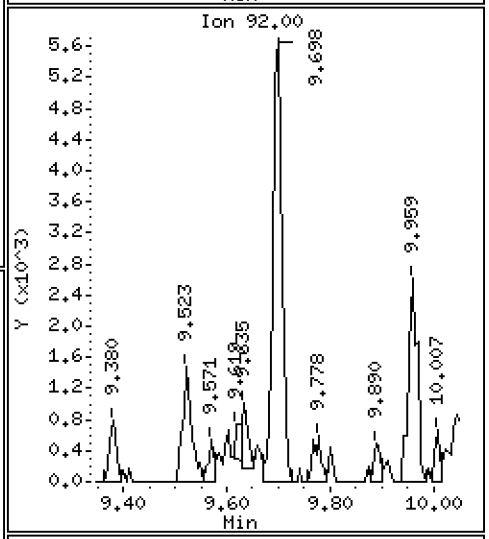


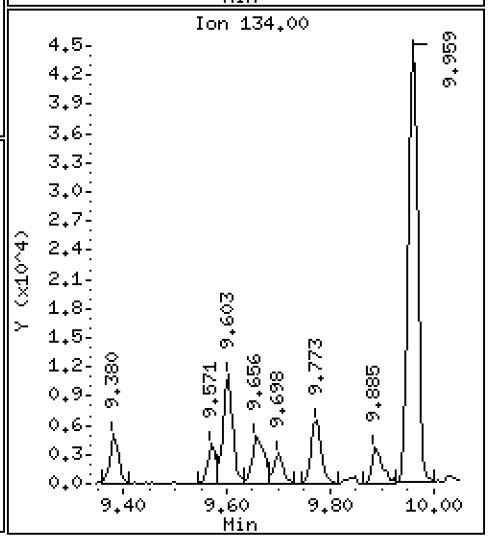












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

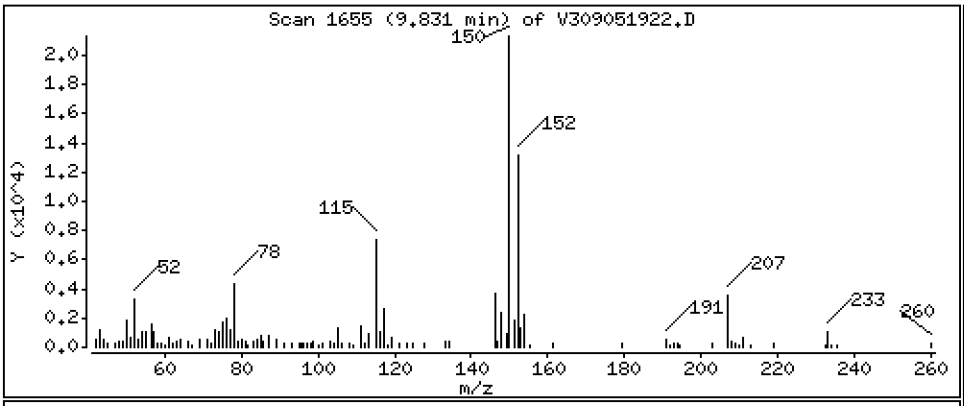
Operator: PKC

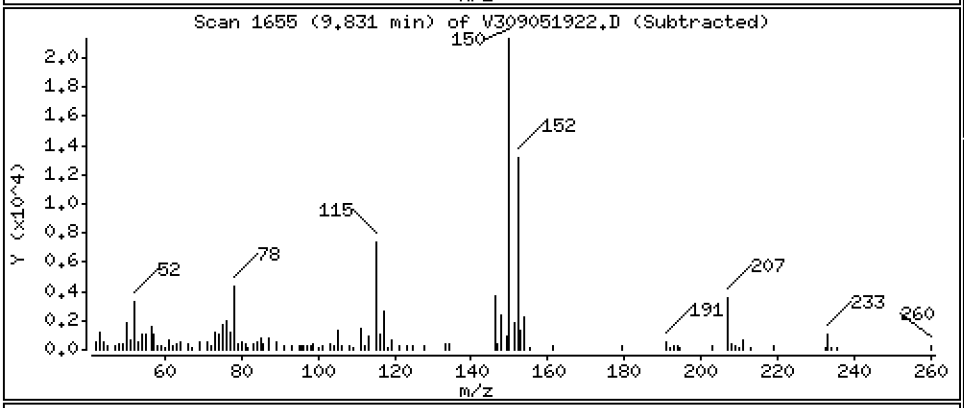
Column phase: RTXVMS

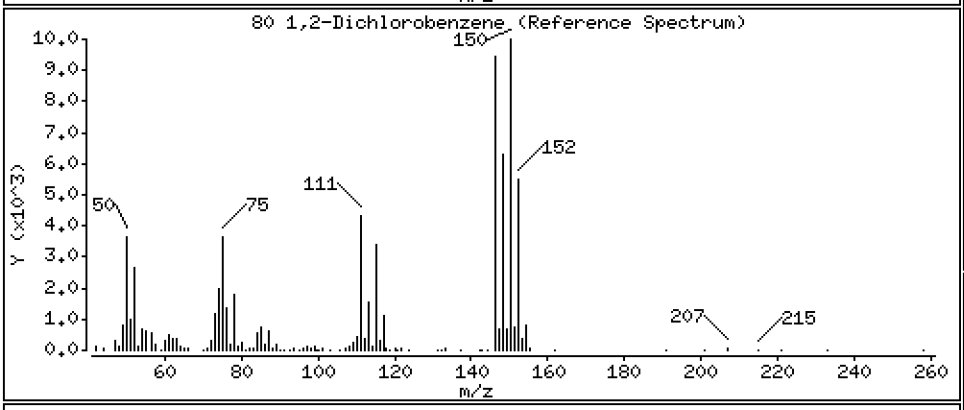
Column diameter: 0.18

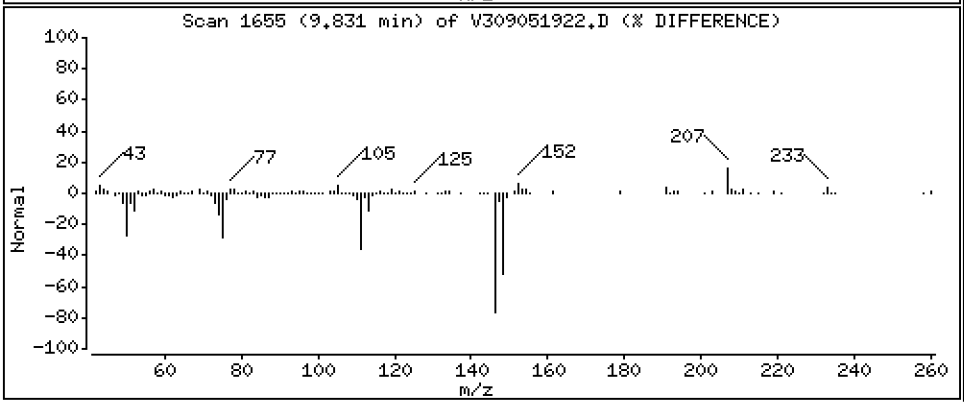
80 1,2-Dichlorobenzene

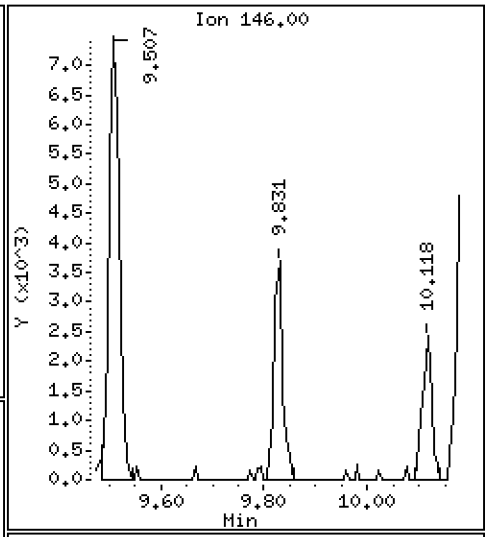
Concentration: 0.3146 ug/L

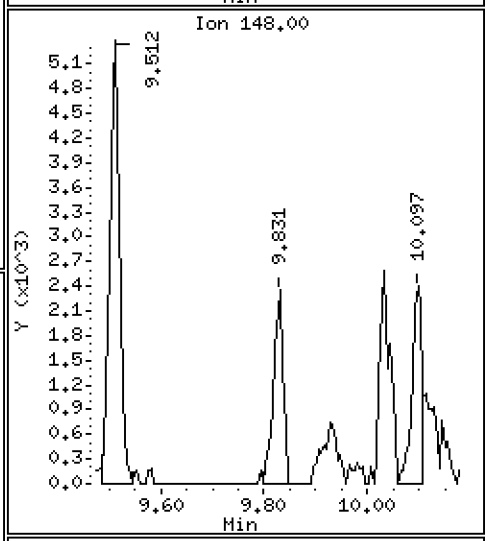


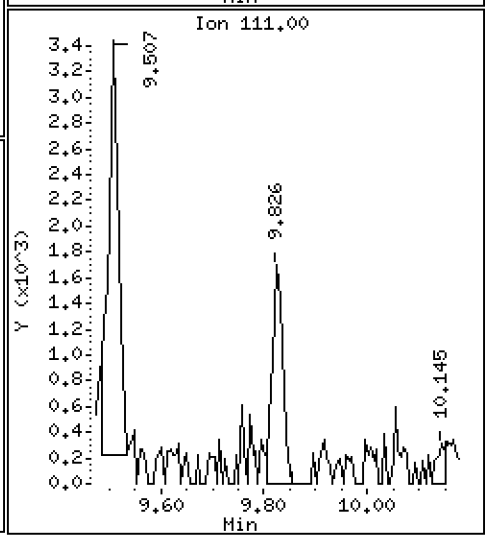












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051922.D

Date : 05-SEP-2019 20:41

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-16

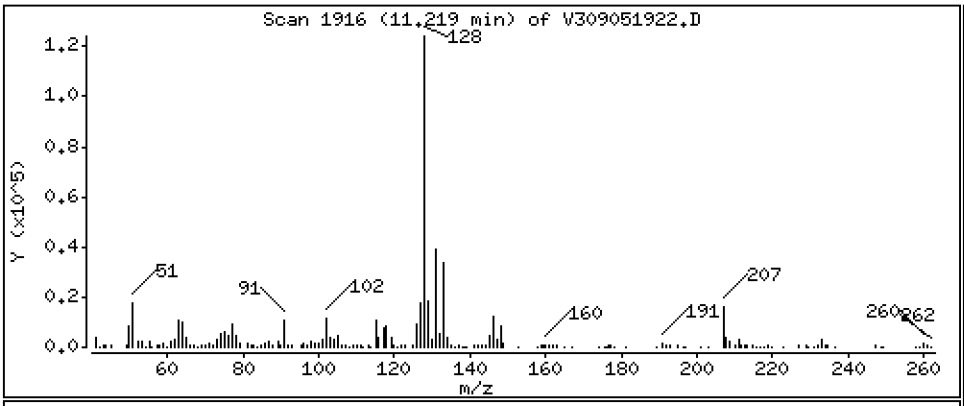
Operator: PKC

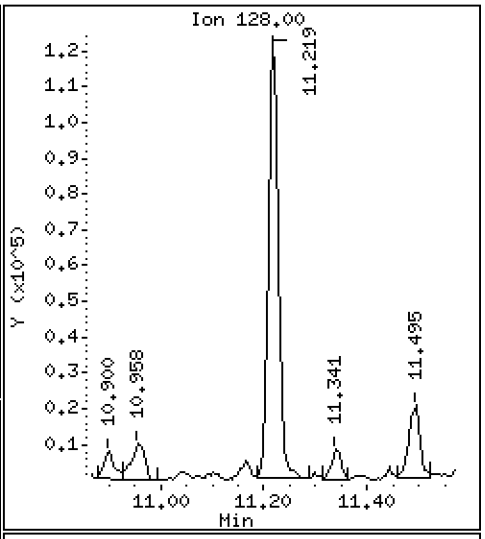
Column phase: RTXVMS

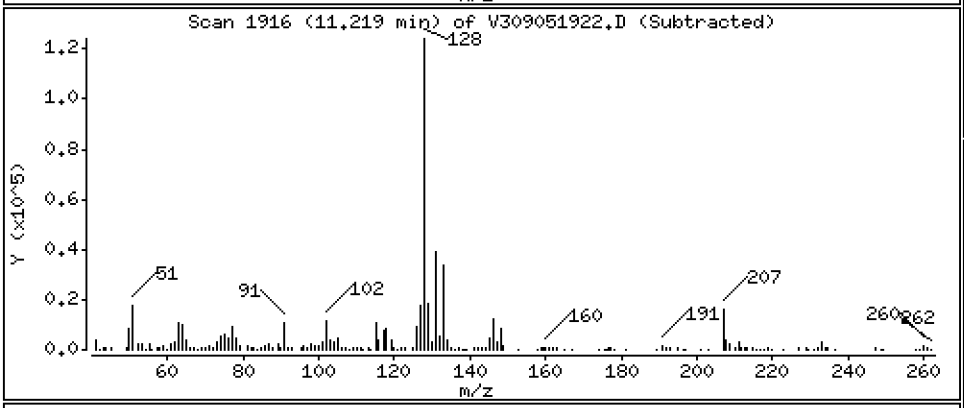
Column diameter: 0.18

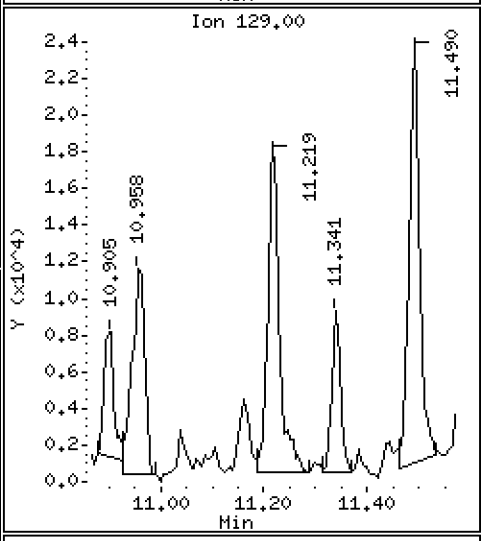
85 Naphthalene

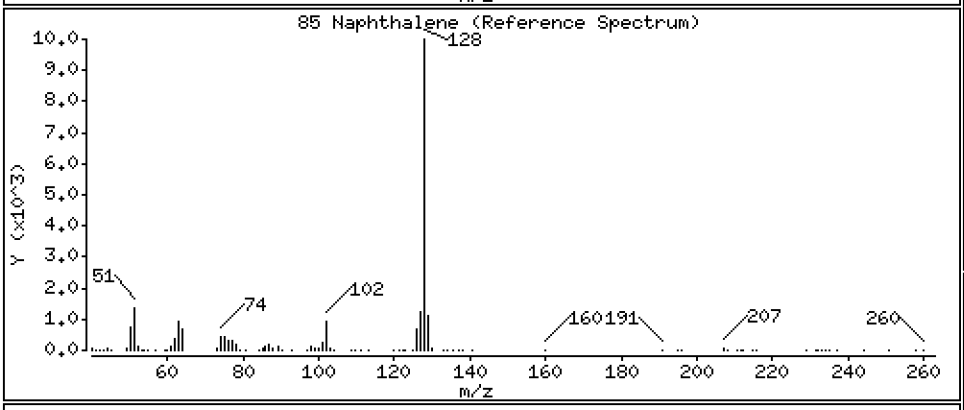
Concentration: 10.020 ug/L

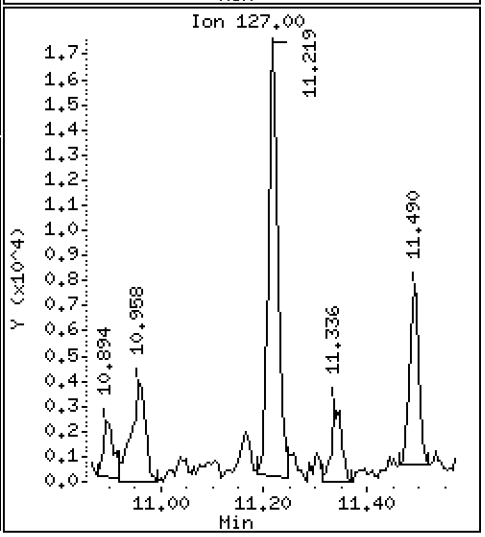


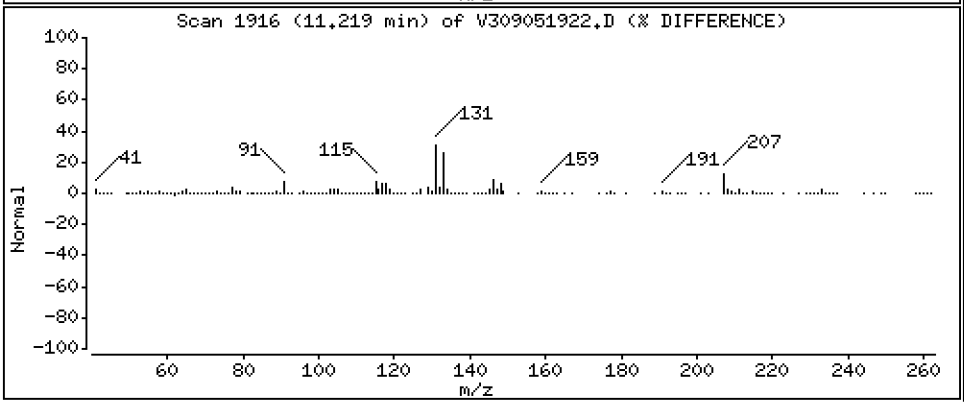












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051922.D
Lab Smp Id: 19H0481-16
Inj Date : 05-SEP-2019 20:41
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-16
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	1.916	1.922	(0.354)	346	0.02741	0.02741
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	2.985	2.996	(0.552)	724	0.04932	0.04932
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	3.702	3.644	(0.685)	8461	6.60815	6.608(M)
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	3.851	3.841	(0.712)	433	0.04786	0.04786
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.047	5.053	(0.933)	17459	5.01331	5.013(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	5.185	5.164	(0.959)	1598	0.76485	0.7648
	31 Benzene	78	5.339	5.335	(0.923)	9654	0.47603	0.4760
*	32 Pentafluorobenzene	168	5.408	5.409	(1.000)	80541	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.441	(1.006)	20138	5.19024	5.190(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	118505	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.737	6.738	(1.164)	73485	5.12586	5.126(R)
	44	Toluene	92	6.769	6.775	(1.170)	12561	0.94986	0.9499
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.816	7.812	(1.000)	124703	10.0000	
	54	Chlorobenzene	112	7.827	7.828	(1.001)	351692	21.8923	21.892
	55	Ethyl Benzene	106	7.843	7.843	(1.003)	8785	1.00160	1.002
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.939	7.944	(1.016)	12924	1.19657	1.197
	58	o-Xylene	106	8.252	8.247	(1.056)	9136	0.83789	0.8379
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	8.470	8.471	(0.892)	33894	1.25760	1.258
$	62	4-Bromofluorobenzene	174	8.683	8.678	(1.111)	28369	4.78750	4.787(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	8.768	8.768	(0.923)	37941	1.22743	1.227
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.917	8.912	(0.939)	3539	0.14917	0.1492
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	9.150	9.146	(0.964)	3904	0.19489	0.1949
	72	1,2,4-Trimethylbenzene	105	9.198	9.199	(0.969)	20763	0.86329	0.8633
	73	S-Butyl Benzene	105	9.278	9.279	(0.977)	32803	1.17136	1.171
	74	4-Isopropyl Toluene	119	9.384	9.380	(0.988)	21024	0.83659	0.8366
	75	1,3-Dichlorobenzene	146	9.448	9.443	(0.995)	4288	0.27840	0.2784
*	76	d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	75872	10.0000	
	77	1,4-Dichlorobenzene	146	9.507	9.507	(1.001)	10942	0.71134	0.7113
	78	N-Butyl Benzene	91	9.698	9.699	(1.021)	13521	0.62865	0.6287
$	79	d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	36871	5.17205	5.172(R)
	80	1,2-Dichlorobenzene	146	9.831	9.826	(1.035)	4519	0.31458	0.3146
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.218	11.219	(1.181)	168680	10.0199	10.020
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051922.D
Lab Smp Id: 19H0481-16
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	80541	-16.88
37 1,4-Difluorobenze	140121	70061	280242	118505	-15.43
53 d5-Chlorobenzene	140128	70064	280256	124703	-11.01
76 d4-1,4-Dichlorobe	90137	45069	180274	75872	-15.83

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.82	0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-16
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.013	100.27	
$ 33 d4-1,2-Dichloroeth	5.000	5.190	103.80	
$ 43 d8-Toluene	5.000	5.126	102.52	
$ 62 4-Bromofluorobenze	5.000	4.787	95.75	
$ 79 d4-1,2-Dichloroben	5.000	5.172	103.44	

REVIEW SUMMARY FOR FILE - V309051922.D

Lab ID: 19H0481-16
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 20:41

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.685	0.674	0.0108	Acetone

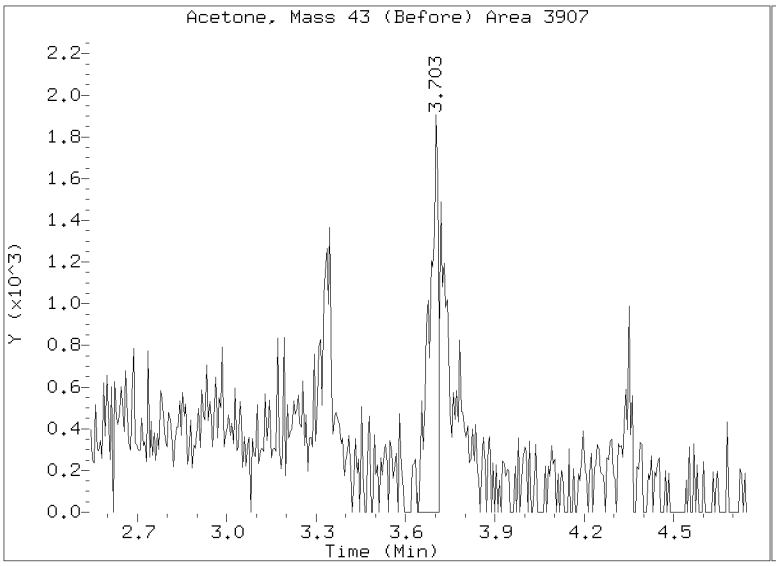
RRT check based on Ccal File: V309051928.D

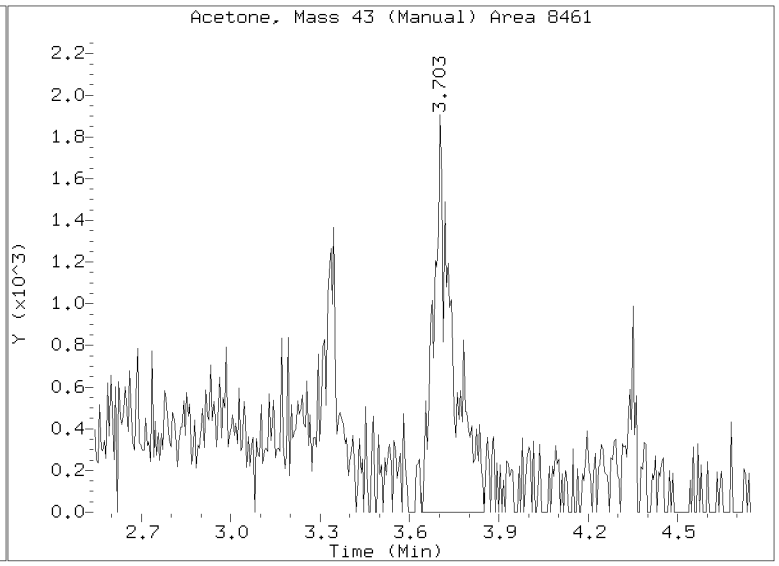
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051922.D
Injection Date: 05-SEP-2019 20:41
Lab ID:19H0481-16 Client ID:
Report Date: 09/06/2019 14:40





P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-18 C	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/03/19 15:33	File ID:	NT509031923.D
% Solids:	94.62	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/03/19 21:22
Batch:	BHI0056	Sequence:	SHI0046	Initial/Final:	3.66 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.44	U	0.43	1.44
108-88-3	Toluene	1	1.44	U	0.22	1.44
100-41-4	Ethylbenzene	1	1.44	U	0.29	1.44
179601-23-1	m,p-Xylene	1	2.89	U	0.57	2.89
95-47-6	o-Xylene	1	1.44	U	0.32	1.44

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.4	105	77 - 120	
4-Bromofluorobenzene	50.000	50.9	102	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

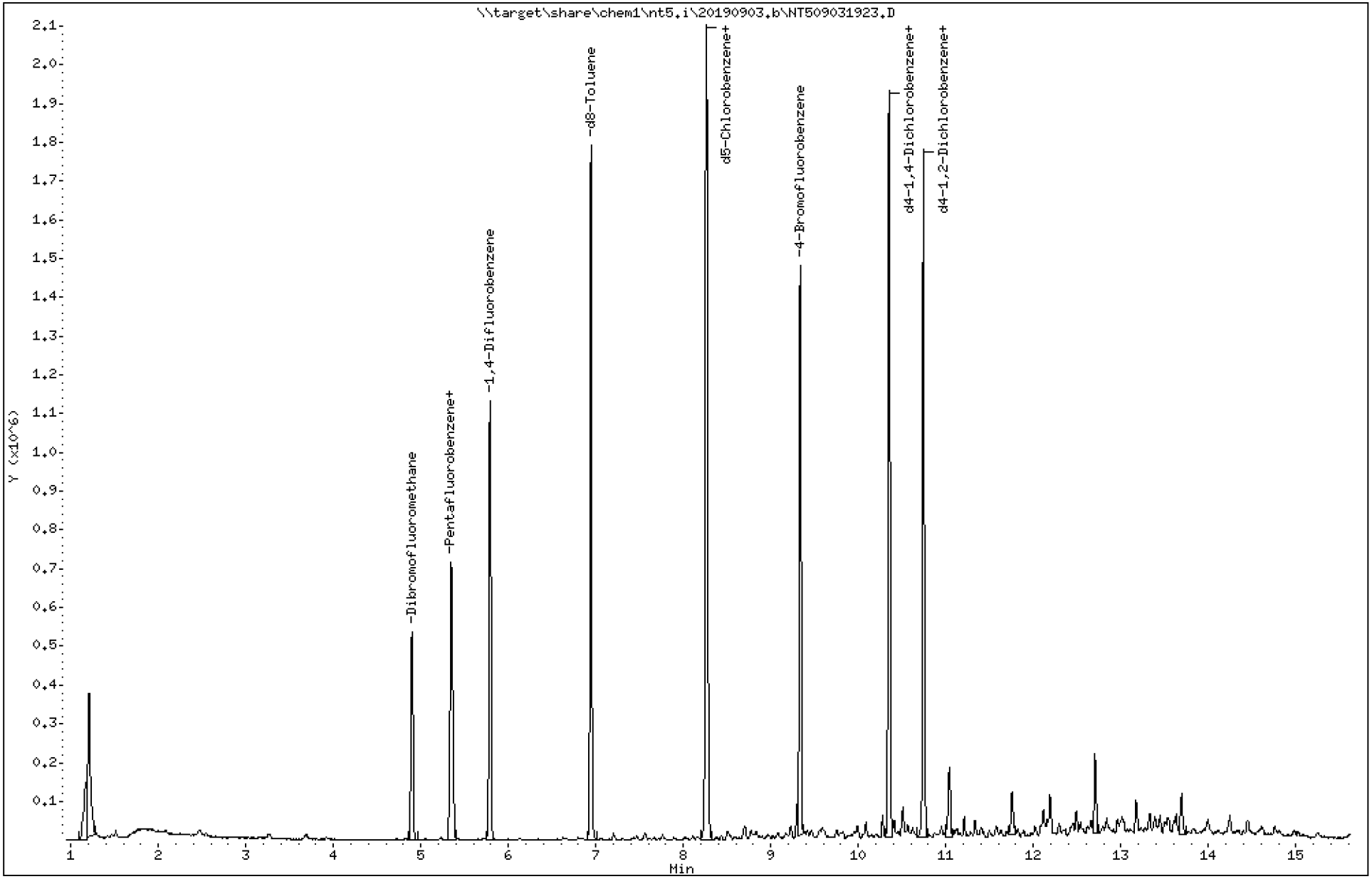
Sample Info: 19H0481-18

Column phase: RTXVMS

Instrument: nt5.i

Operator: PB

Column diameter: 0.18



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Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

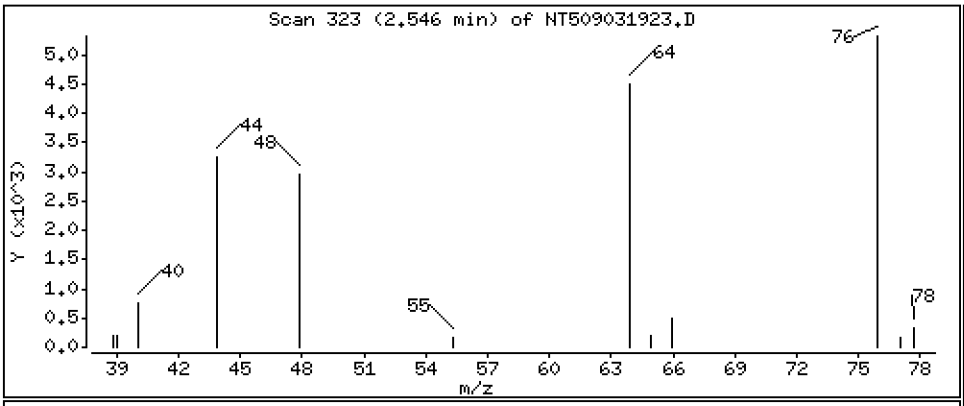
Operator: PB

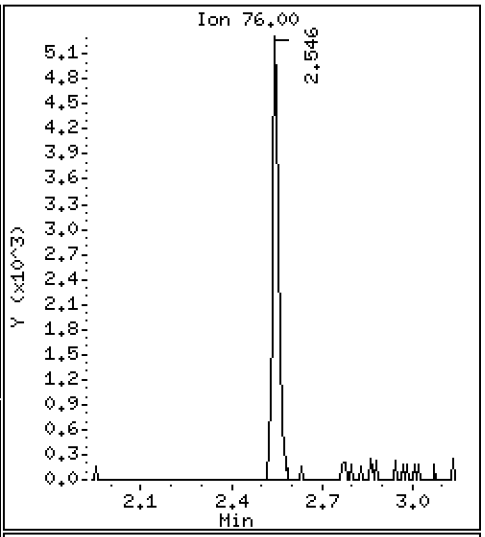
Column phase: RTXVMS

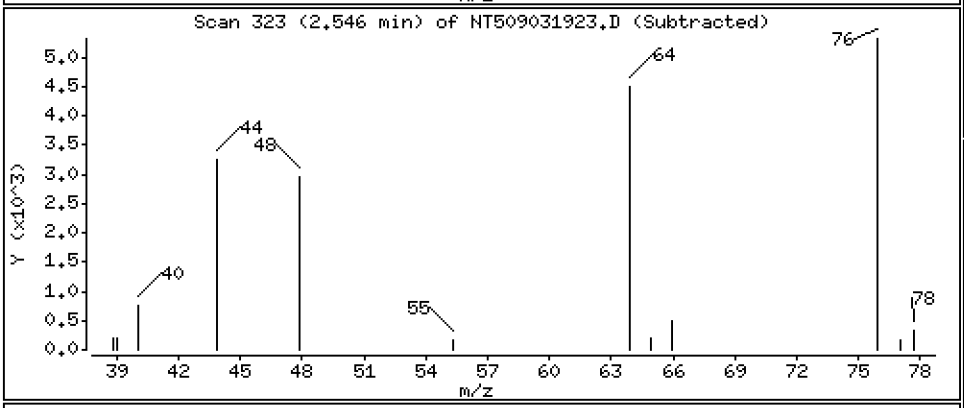
Column diameter: 0.18

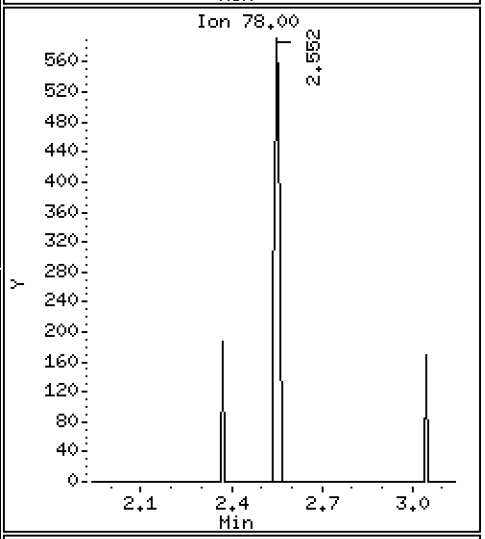
8 Carbon Disulfide

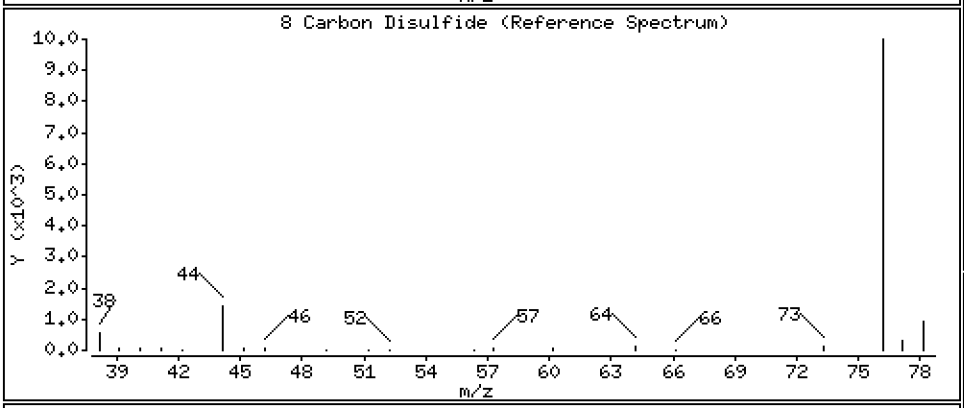
Concentration: 1.228 ug/Kg

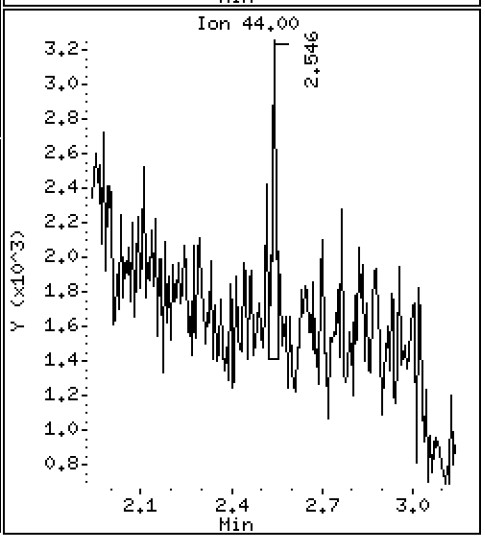


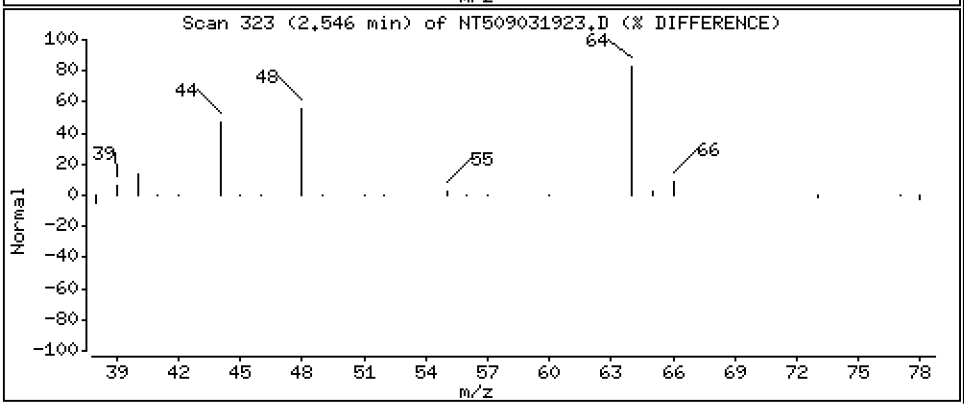












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

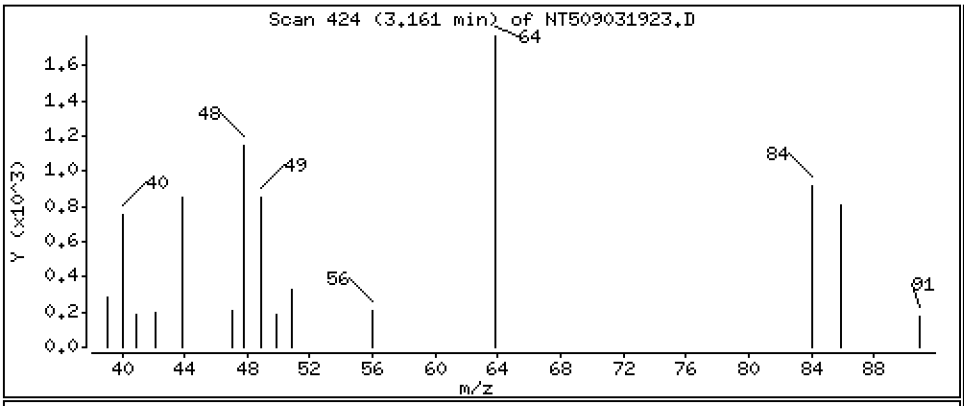
Operator: PB

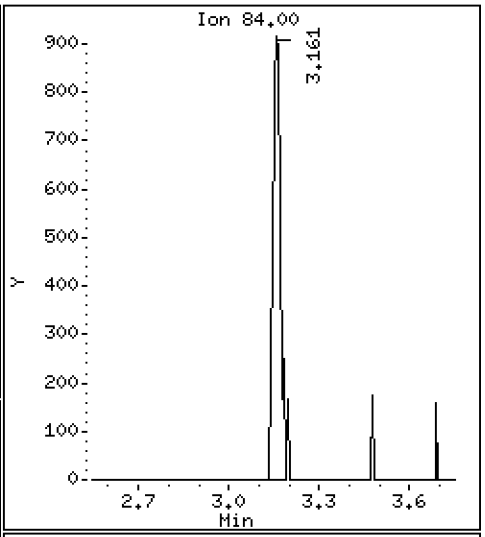
Column phase: RTXVMS

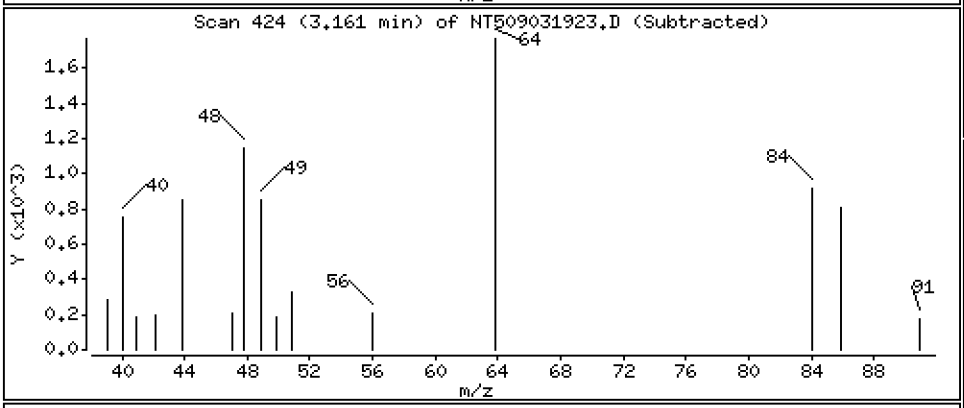
Column diameter: 0.18

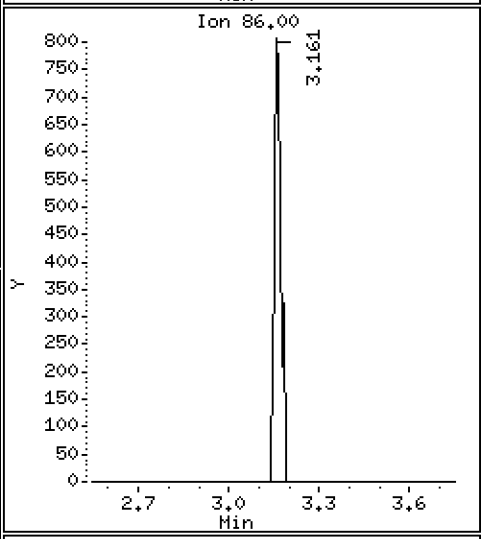
13 Methylene Chloride

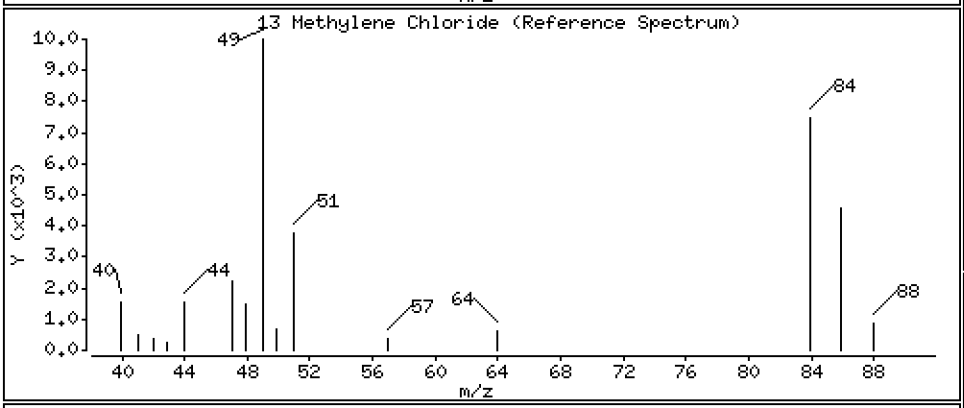
Concentration: 0.9309 ug/Kg

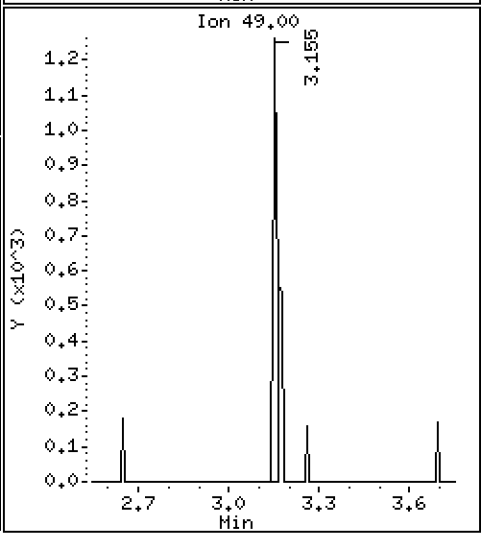


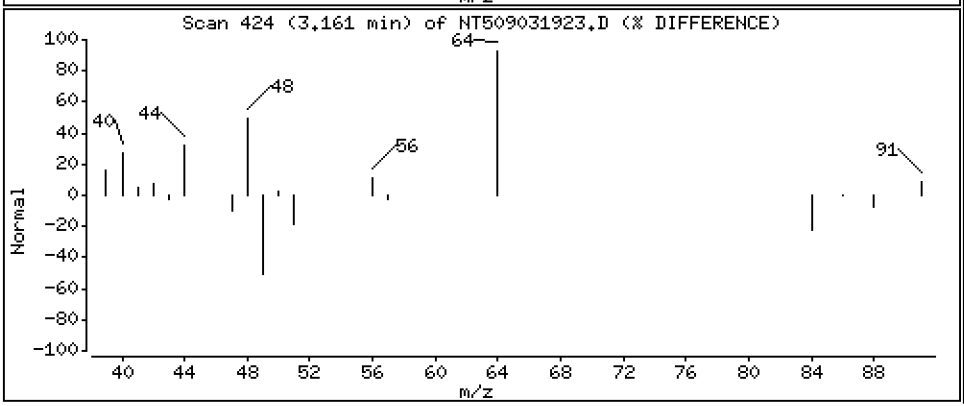












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Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

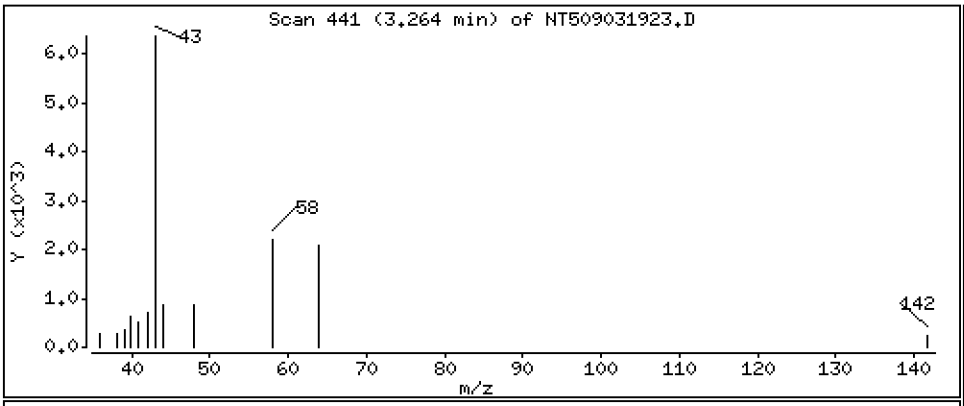
Operator: PB

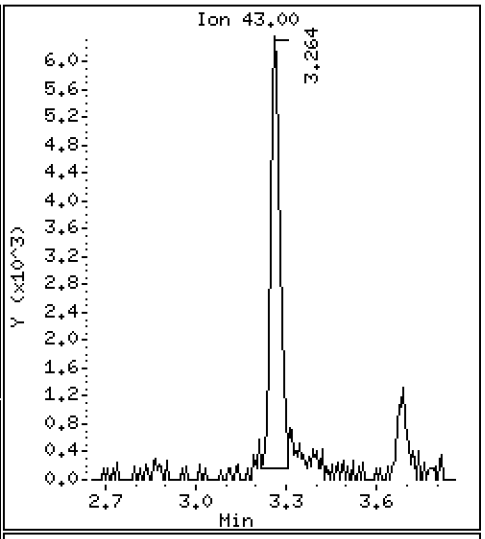
Column phase: RTXVMS

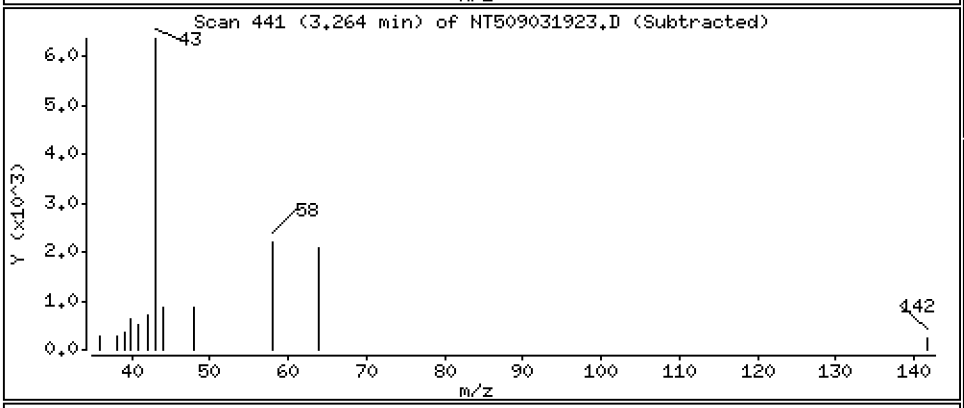
Column diameter: 0.18

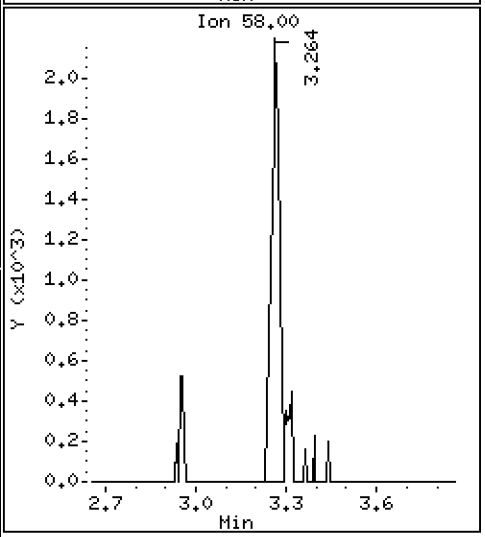
14 Acetone

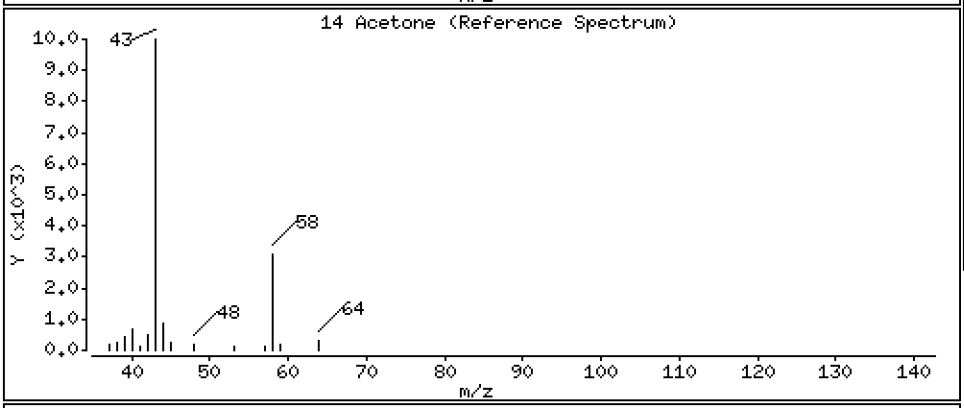
Concentration: 35.431 ug/Kg

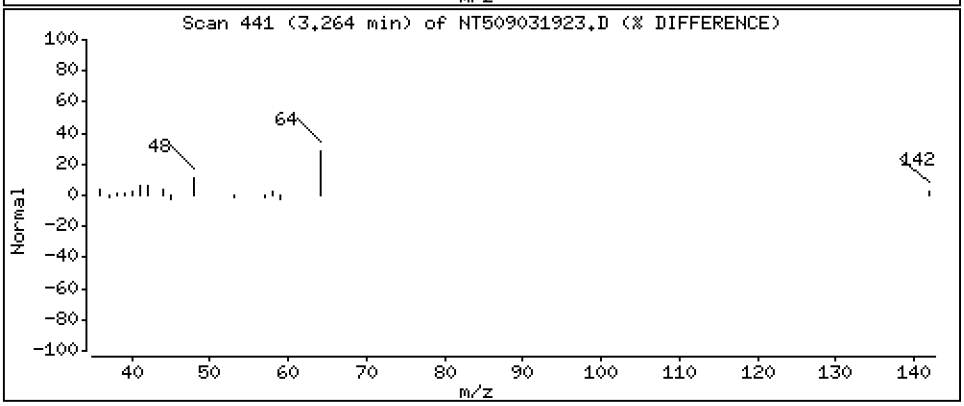












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Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

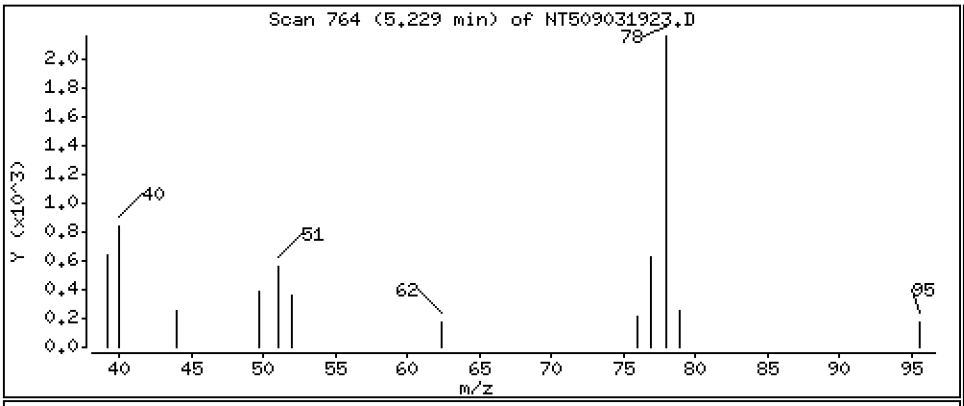
Operator: PB

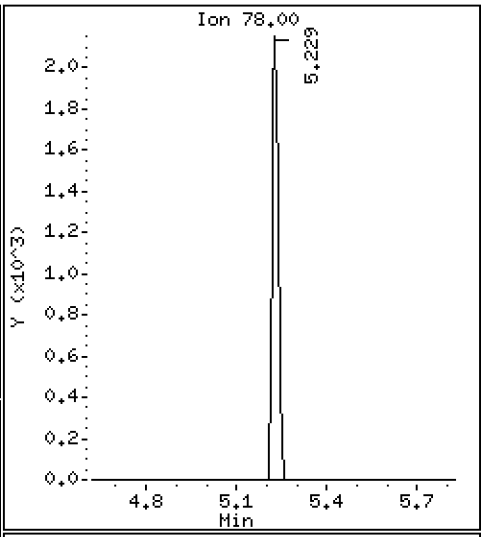
Column phase: RTXVMS

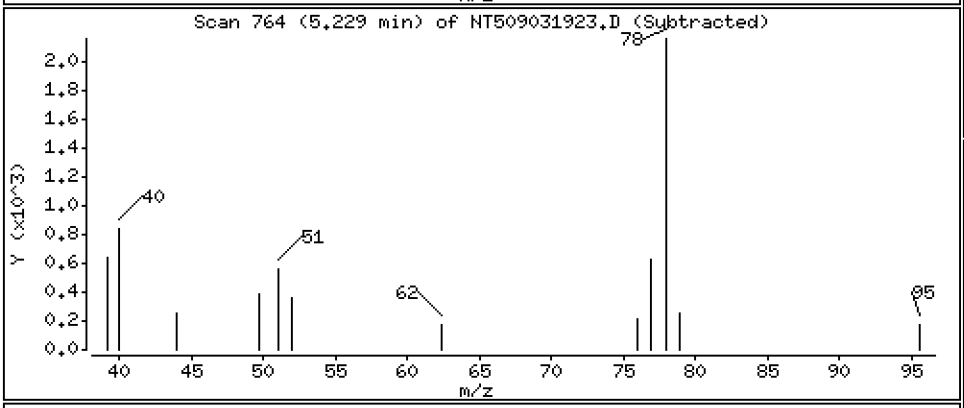
Column diameter: 0.18

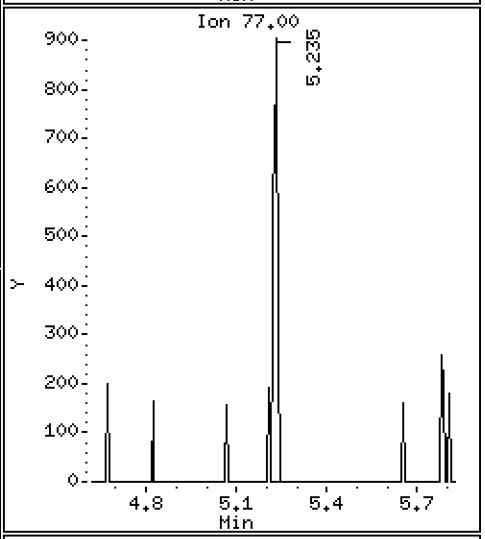
30 Benzene

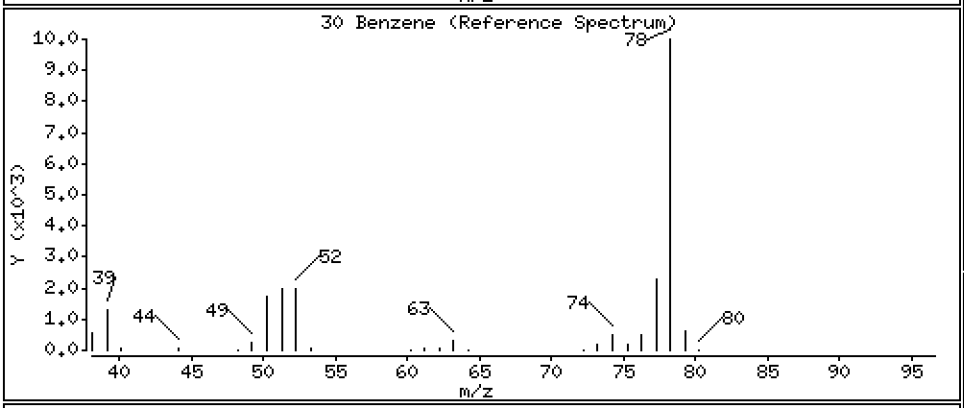
Concentration: 0.2884 ug/Kg

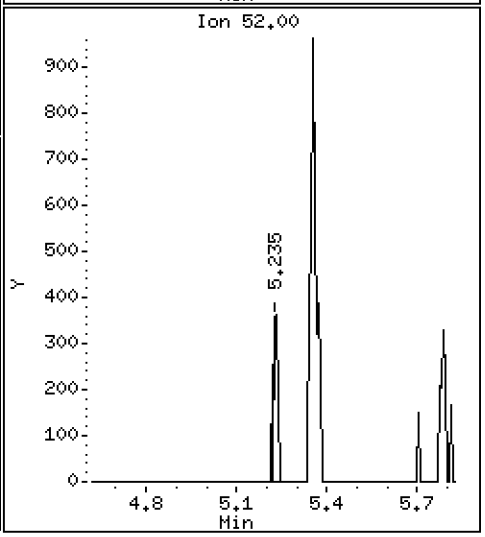


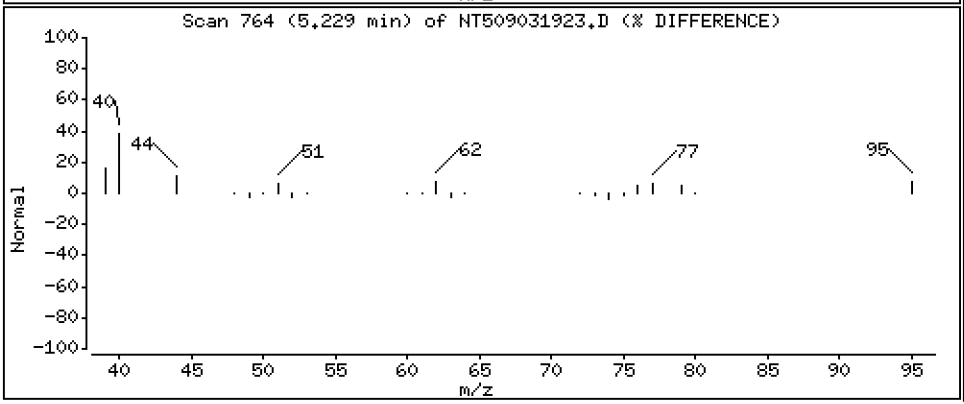












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

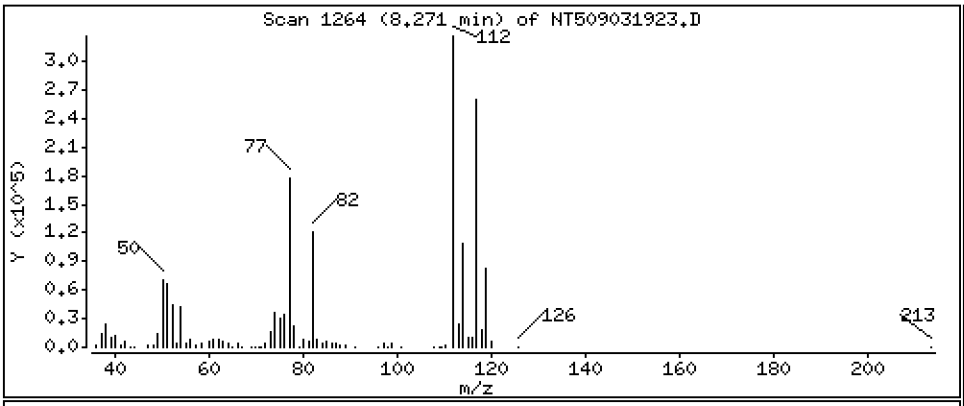
Operator: PB

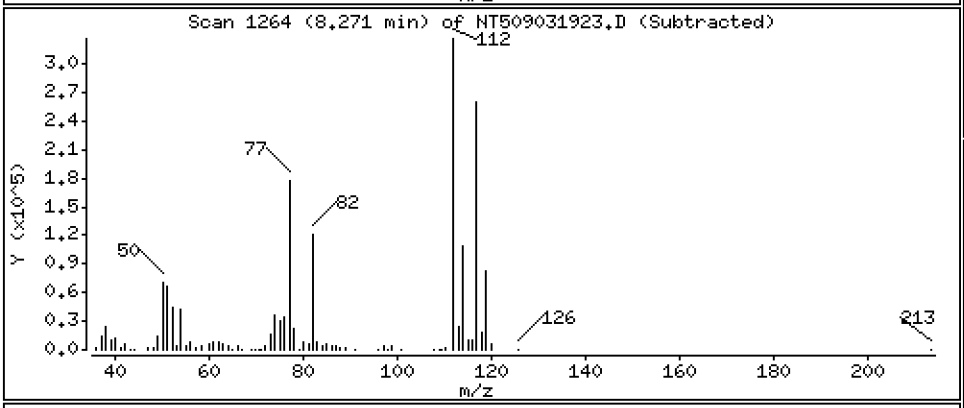
Column phase: RTXVMS

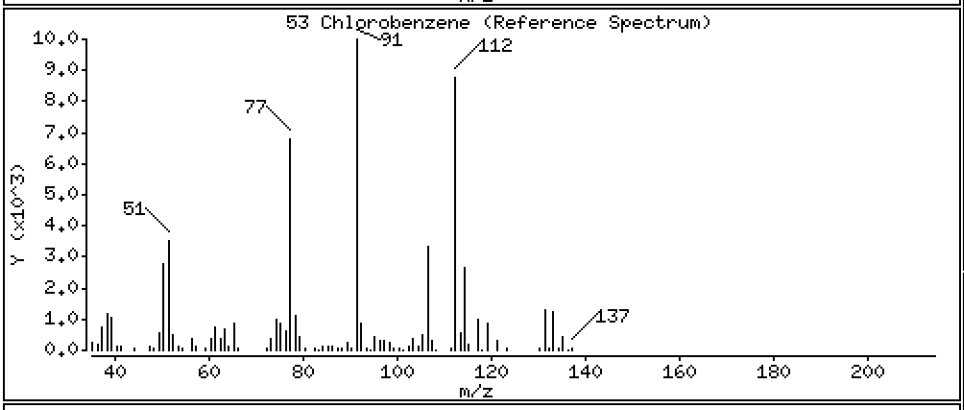
Column diameter: 0.18

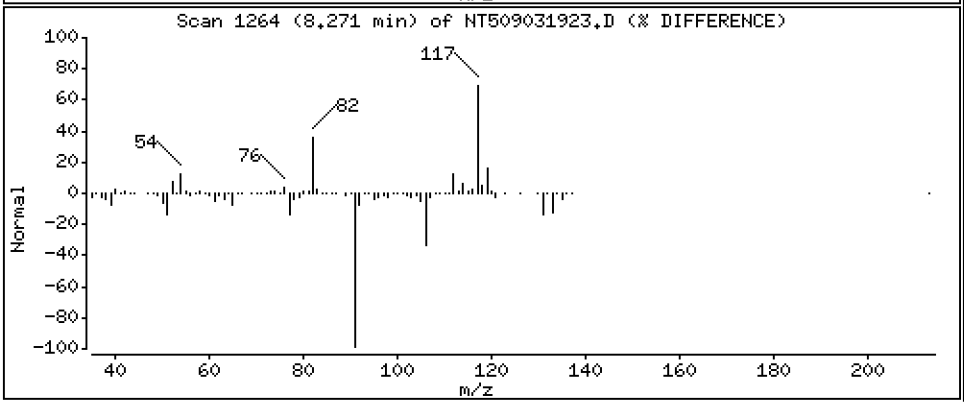
53 Chlorobenzene

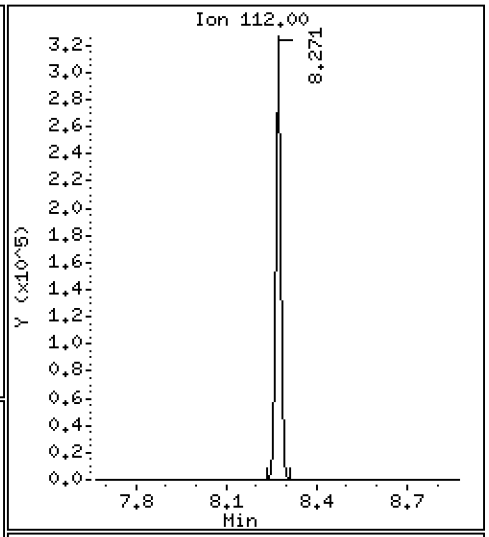
Concentration: 42.369 ug/Kg

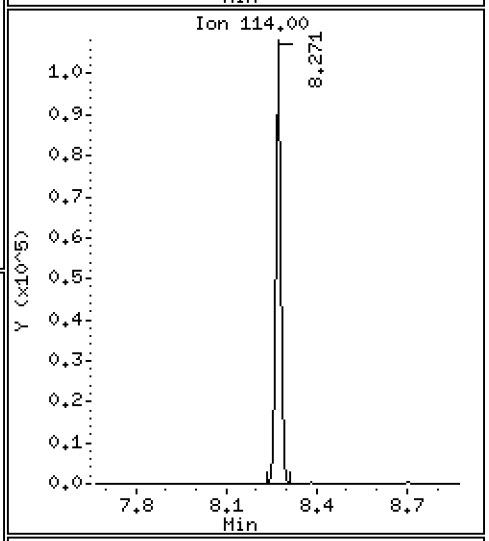


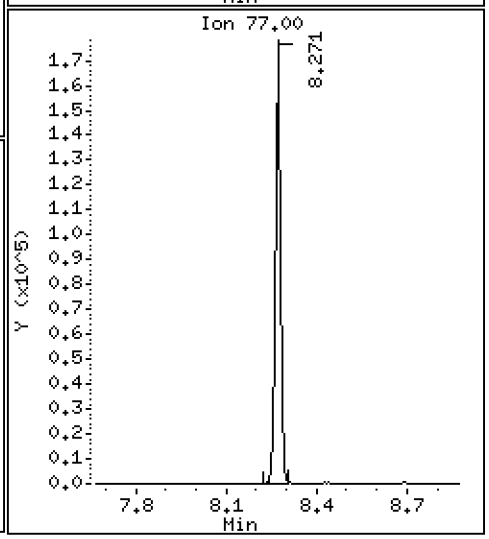












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Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

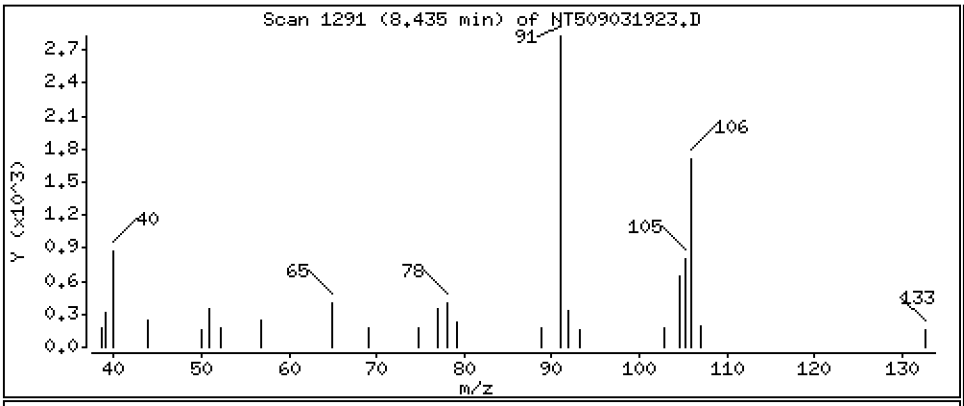
Operator: PB

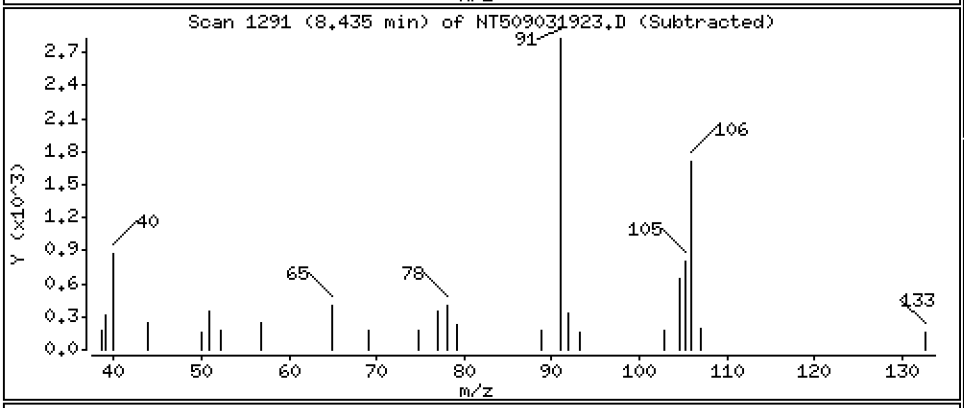
Column phase: RTXVMS

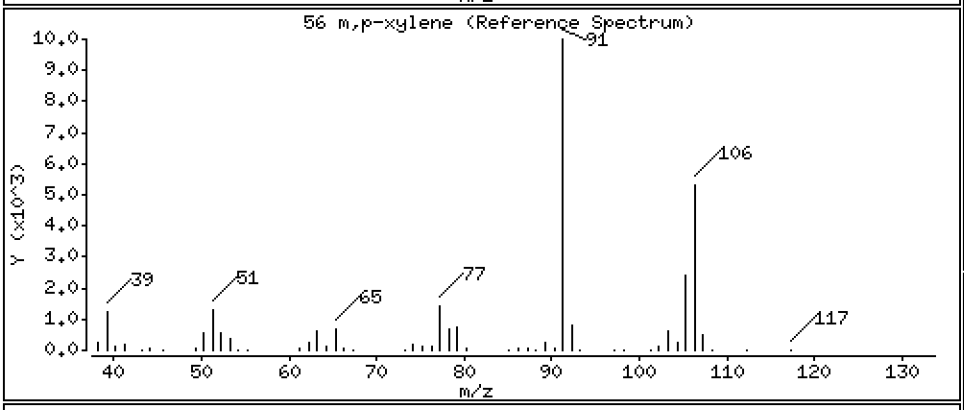
Column diameter: 0.18

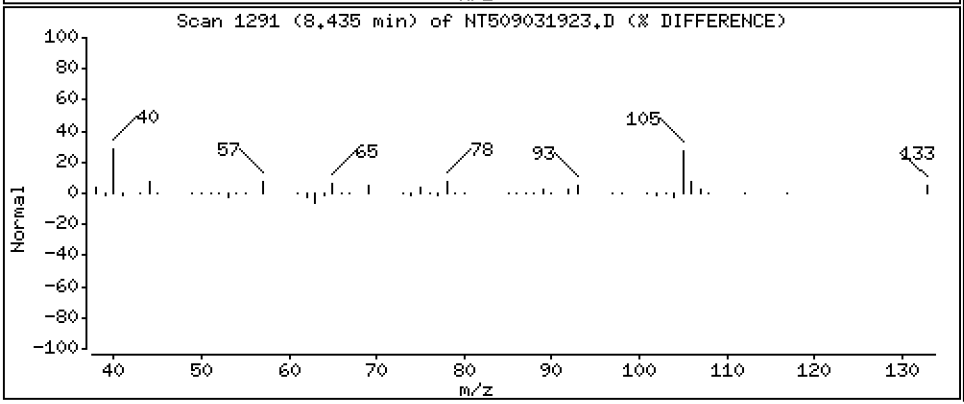
56 m,p-xylene

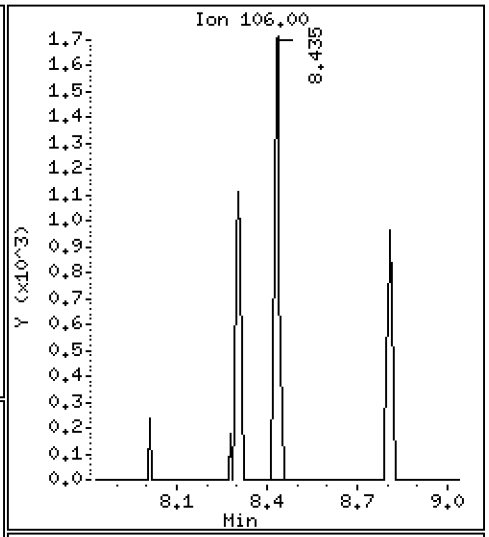
Concentration: 0.3283 ug/Kg

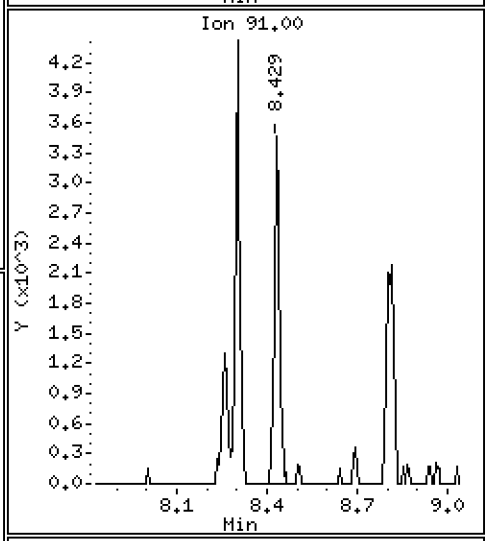


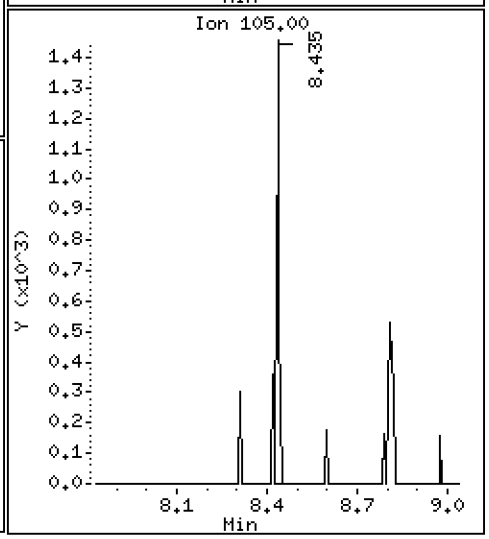












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

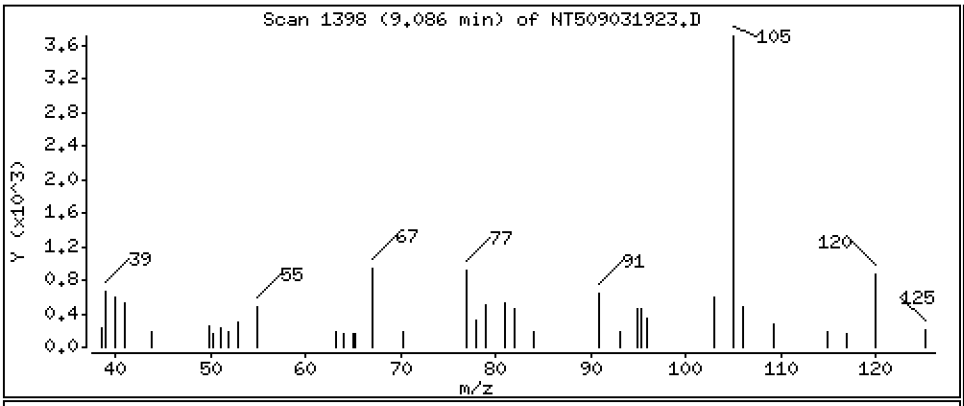
Operator: PB

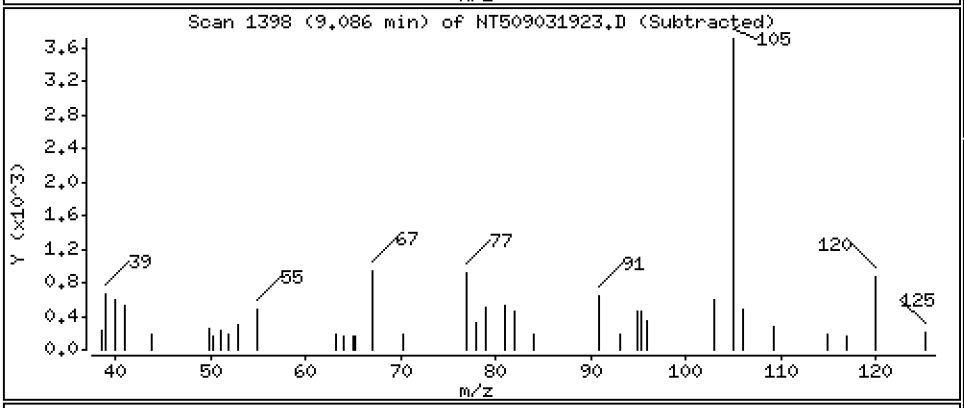
Column phase: RTXVMS

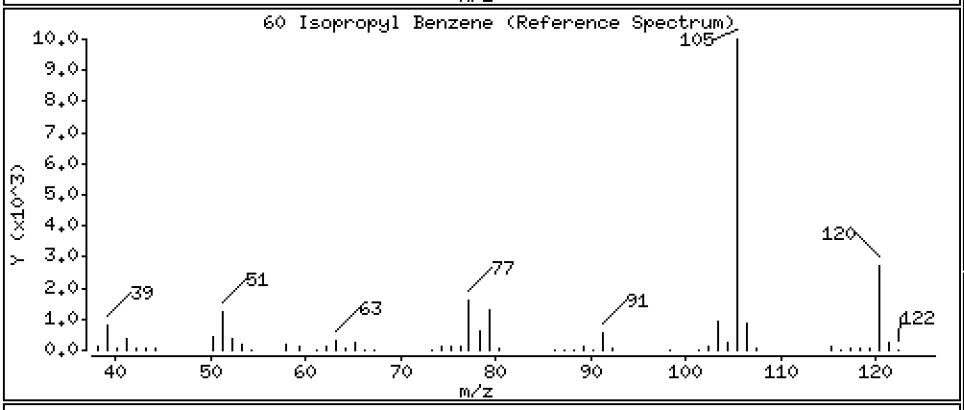
Column diameter: 0.18

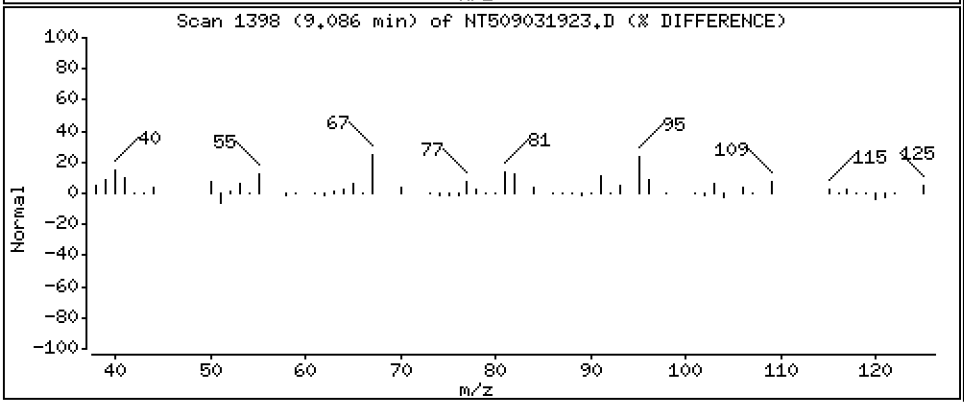
60 Isopropyl Benzene

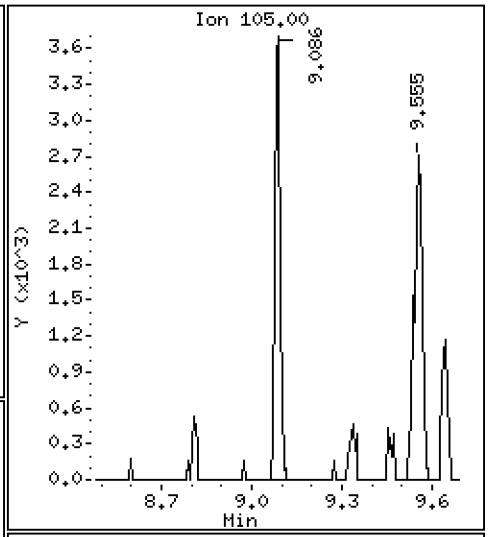
Concentration: 0.3119 ug/Kg

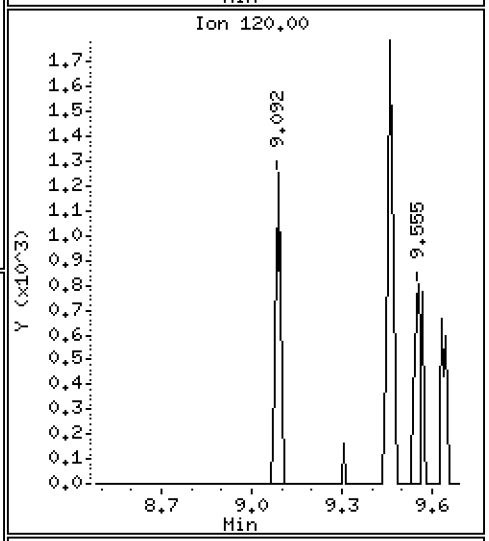


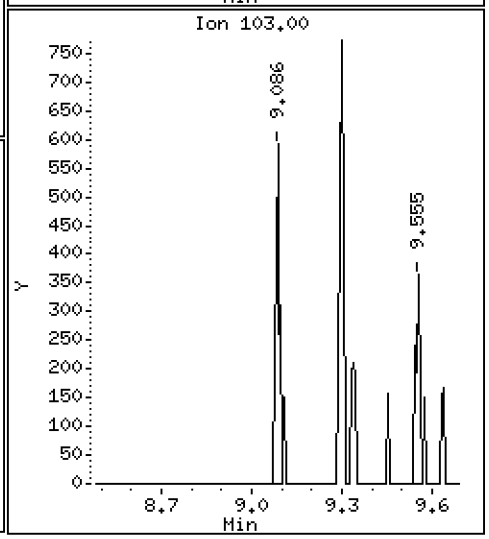












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

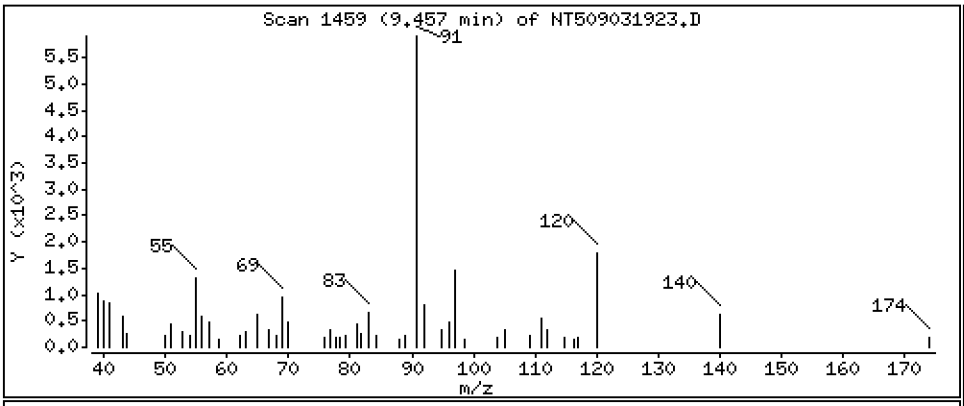
Operator: PB

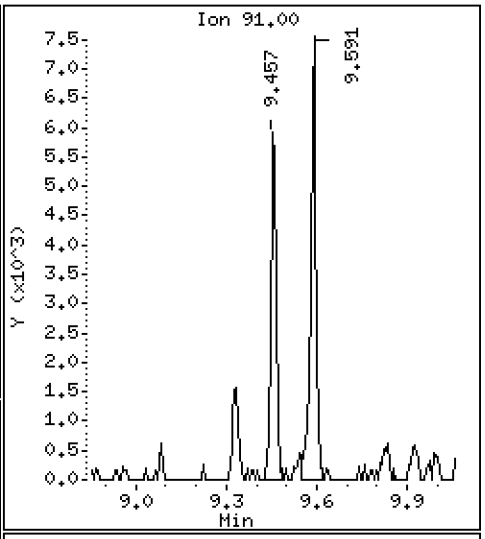
Column phase: RTXVMS

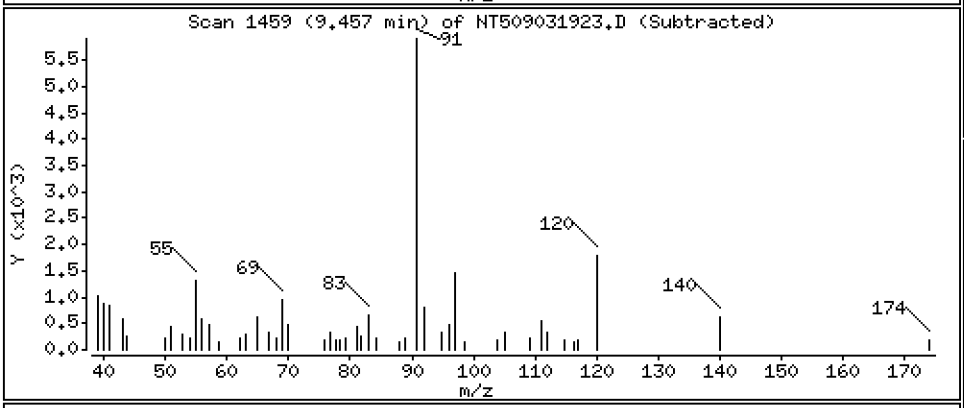
Column diameter: 0.18

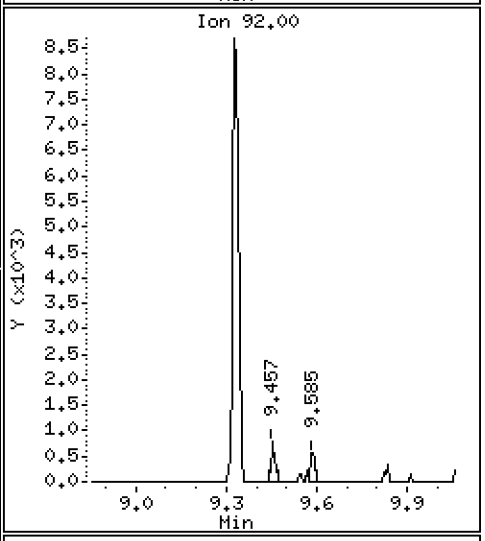
64 N-Propyl Benzene

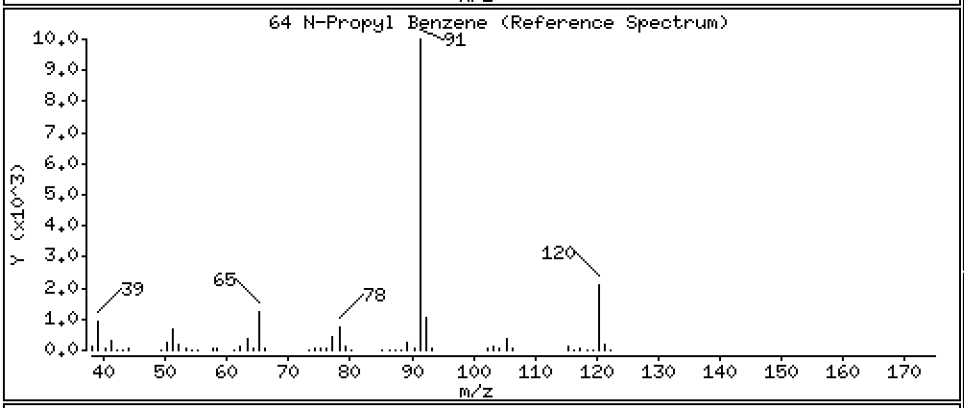
Concentration: 0.4305 ug/Kg

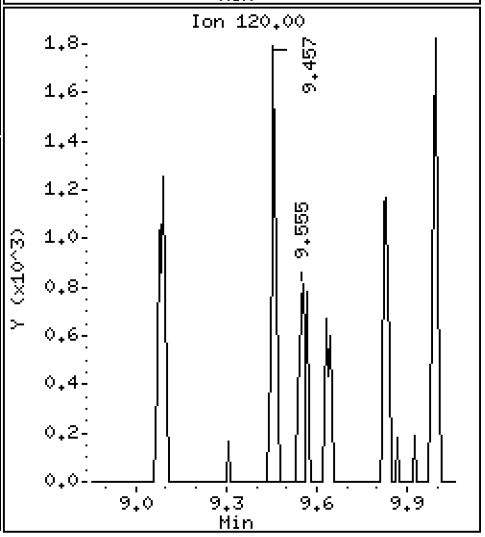


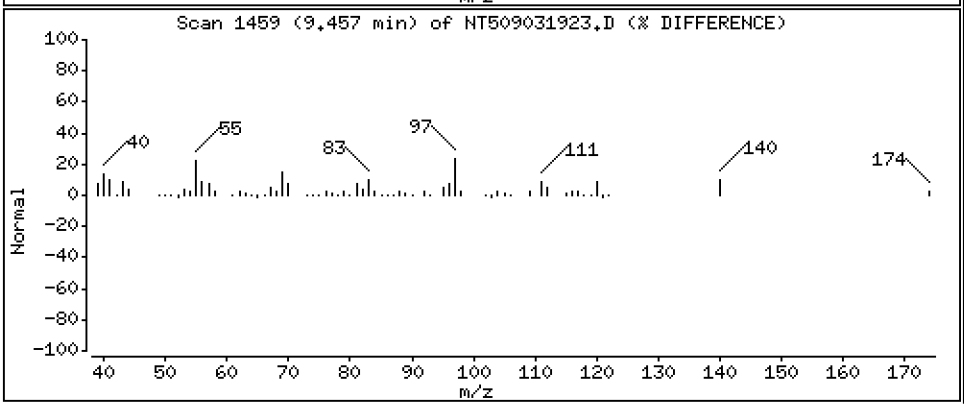












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

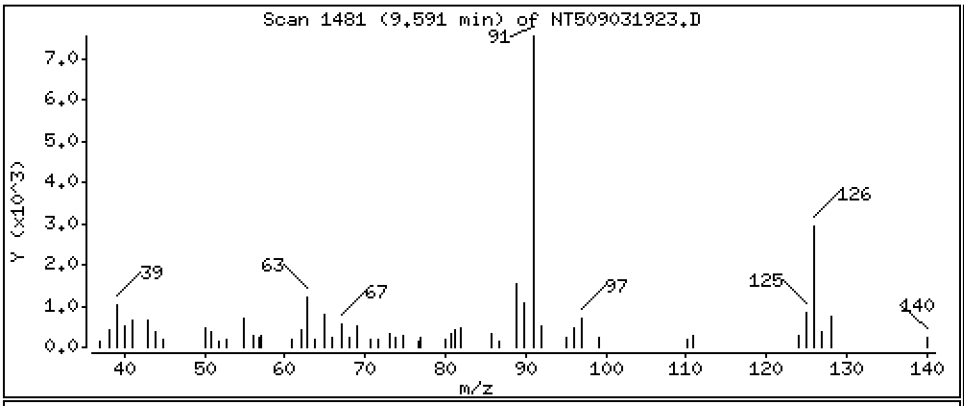
Operator: PB

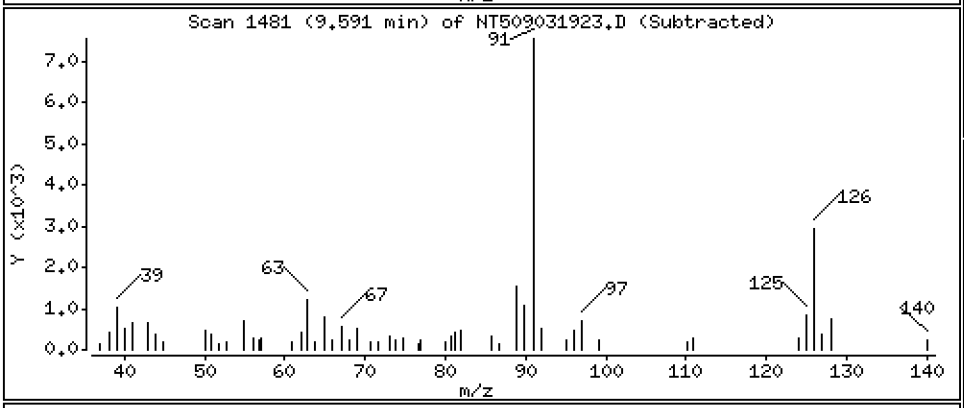
Column phase: RTXVMS

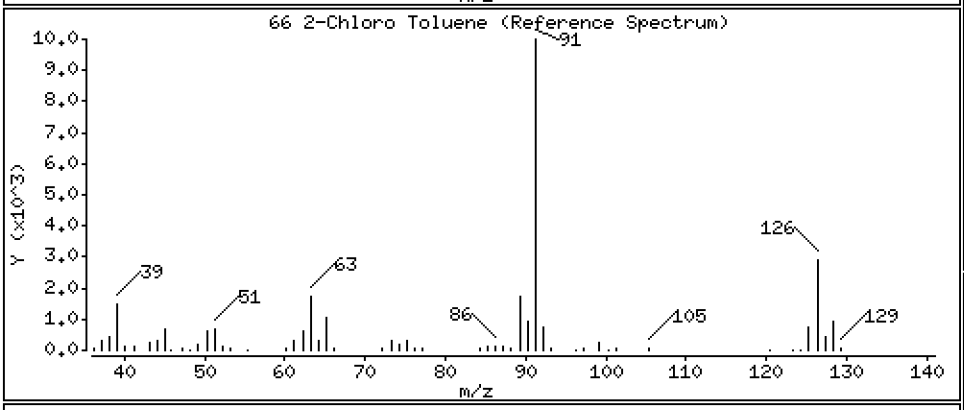
Column diameter: 0.18

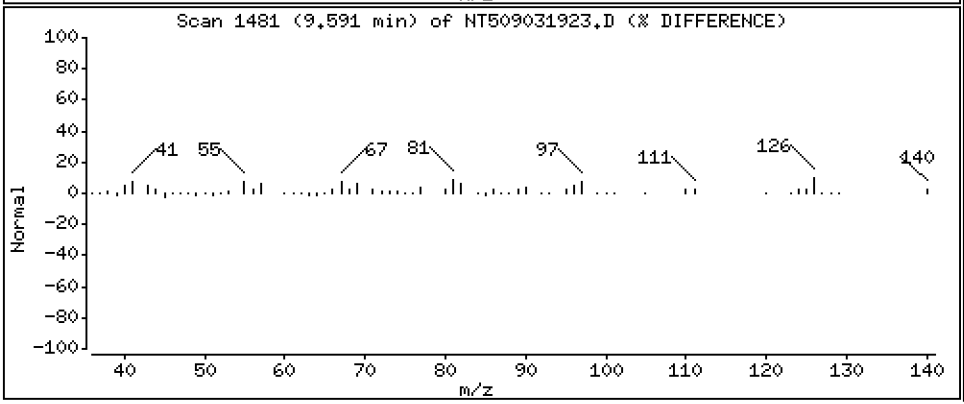
66 2-Chloro Toluene

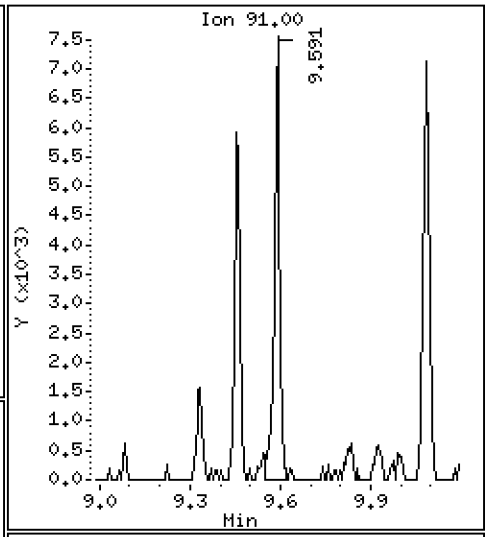
Concentration: 0.9126 ug/Kg

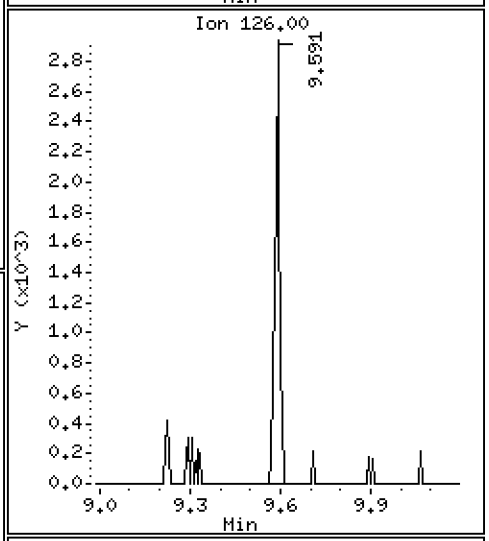


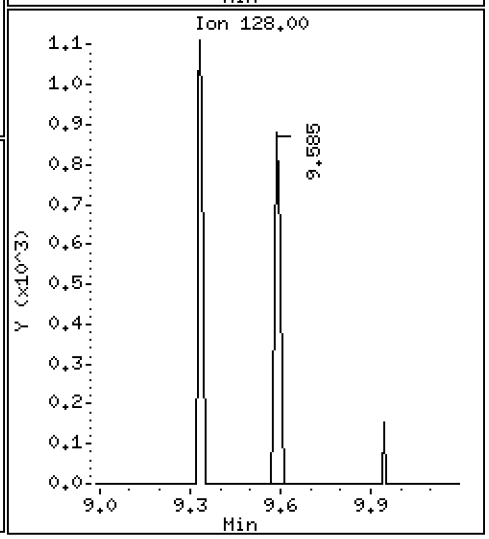












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

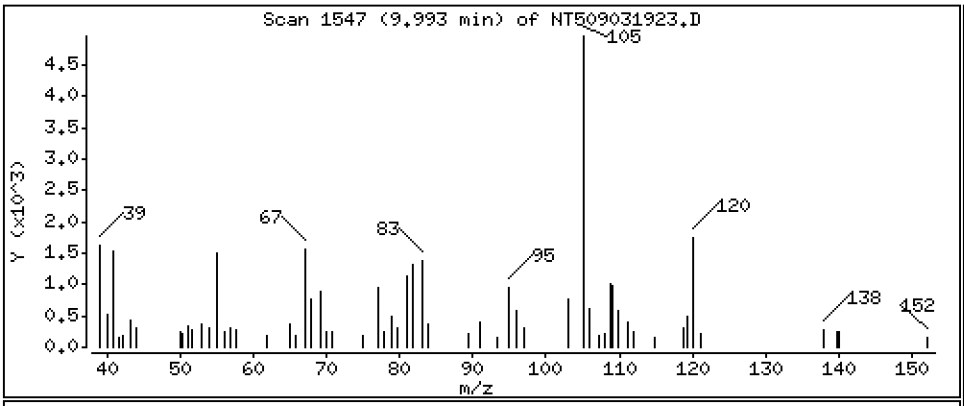
Operator: PB

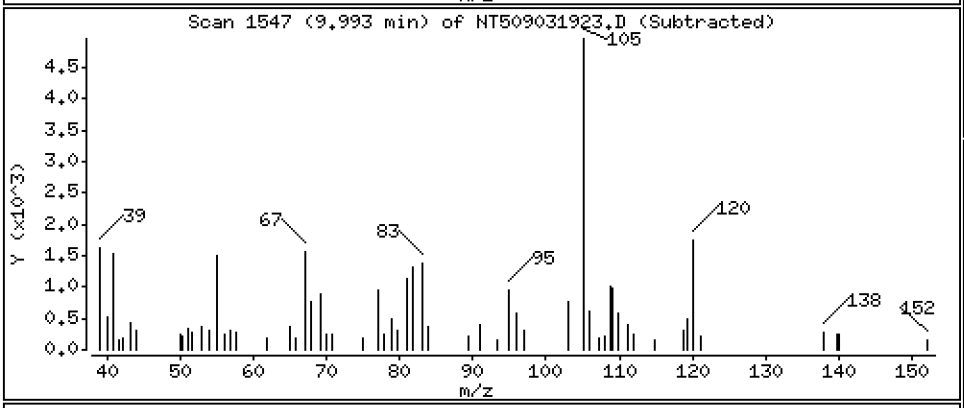
Column phase: RTXVMS

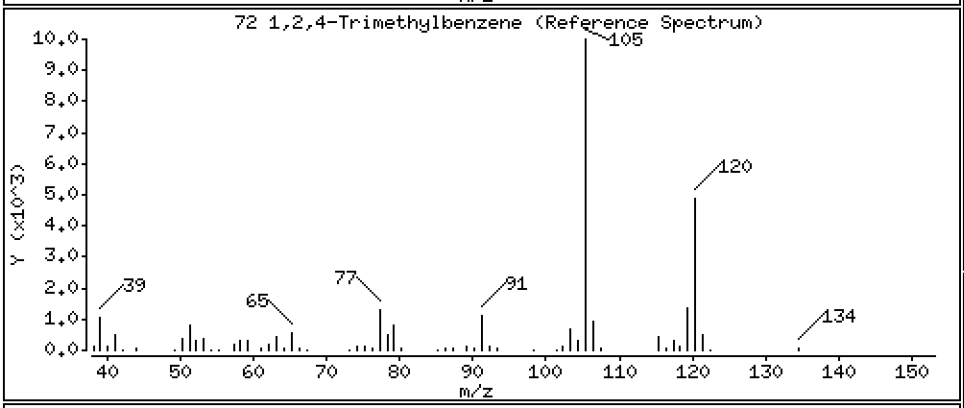
Column diameter: 0.18

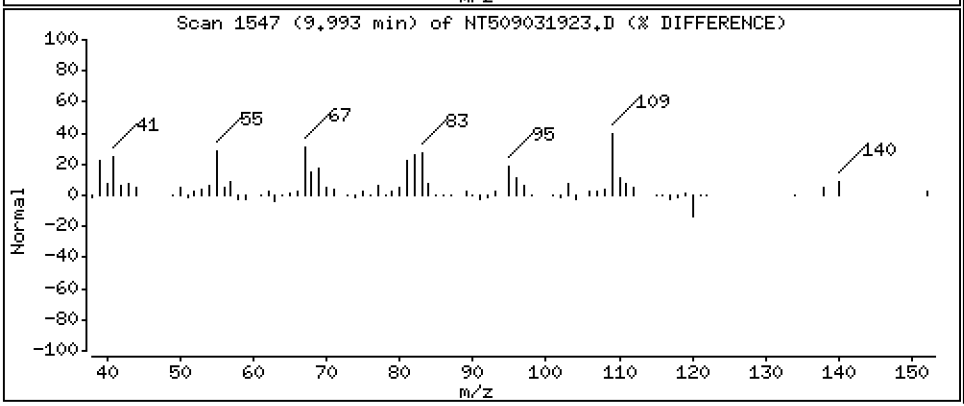
72 1,2,4-Trimethylbenzene

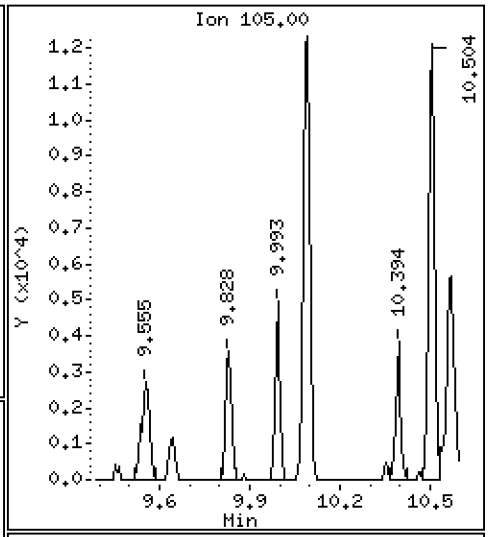
Concentration: 0.4400 ug/Kg

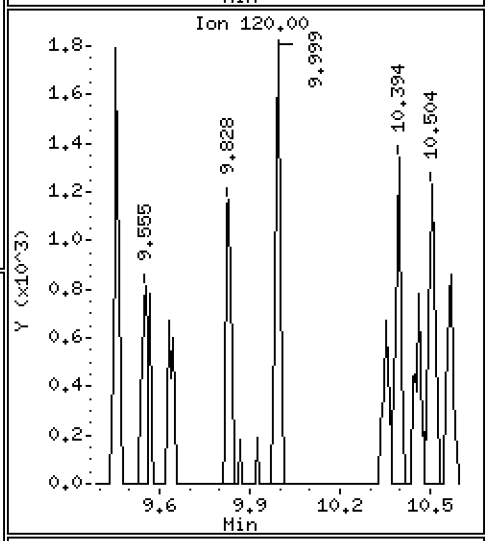


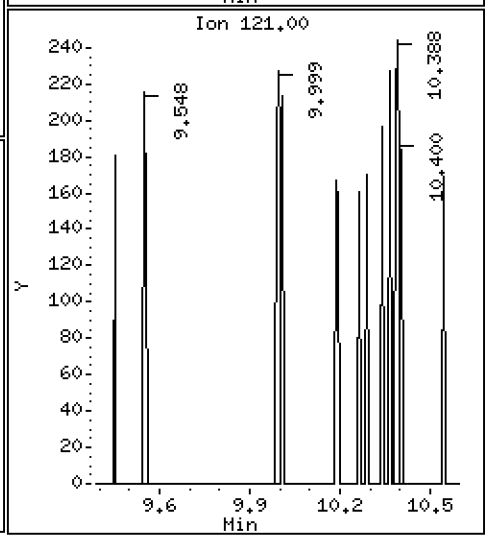












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

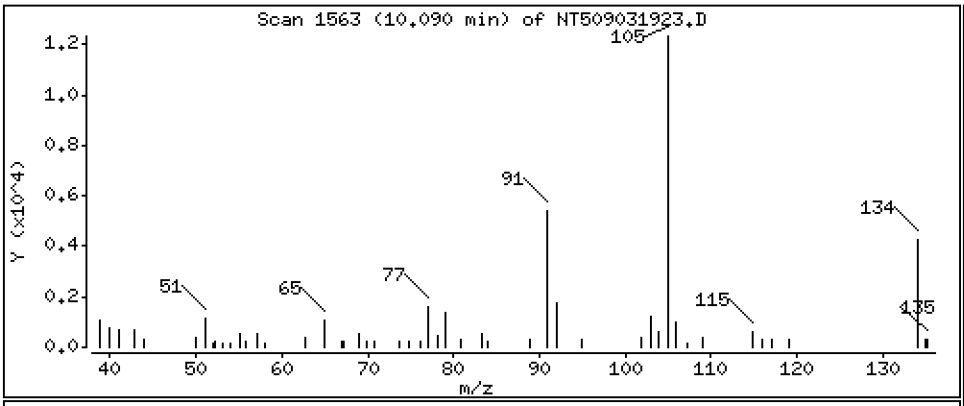
Operator: PB

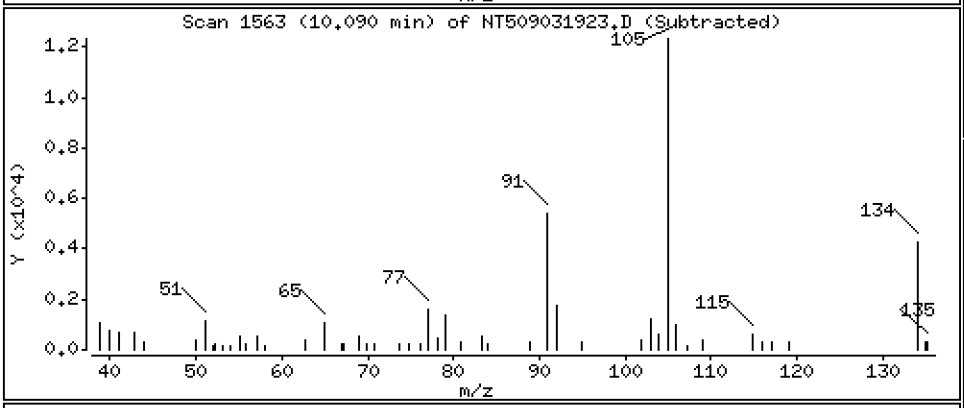
Column phase: RTXVMS

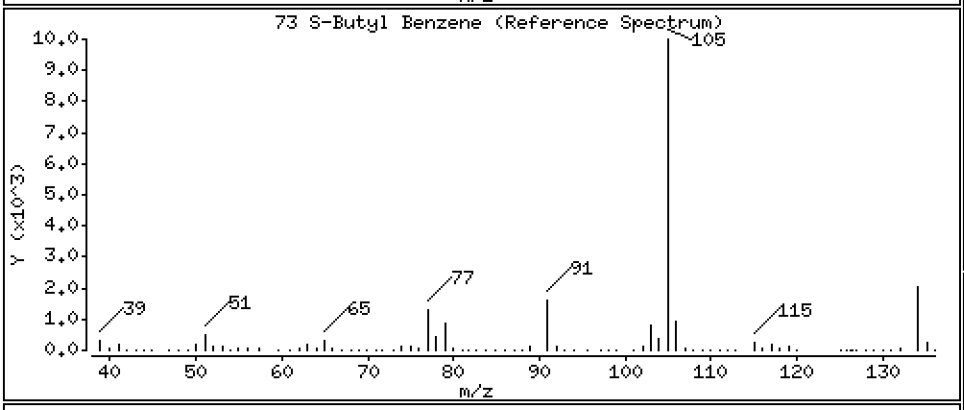
Column diameter: 0.18

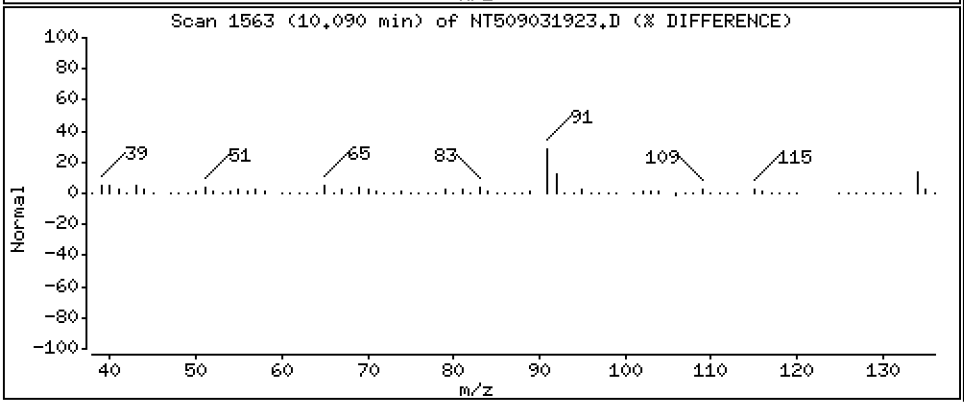
73 S-Butyl Benzene

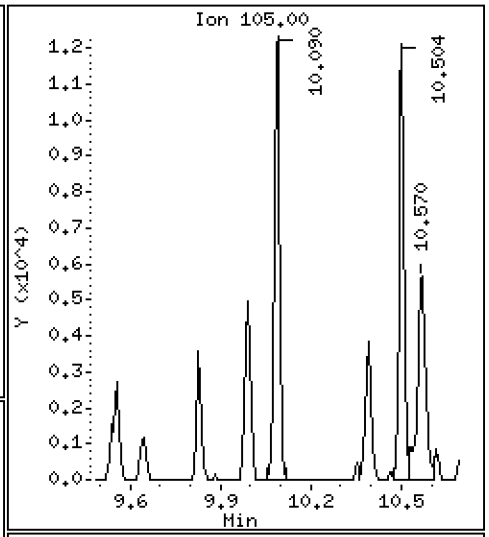
Concentration: 0.9138 ug/Kg

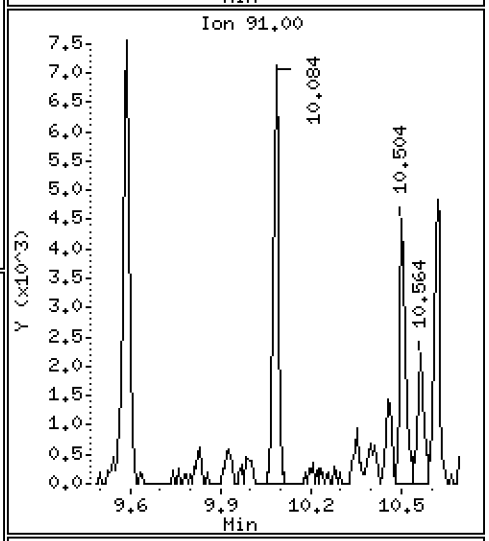


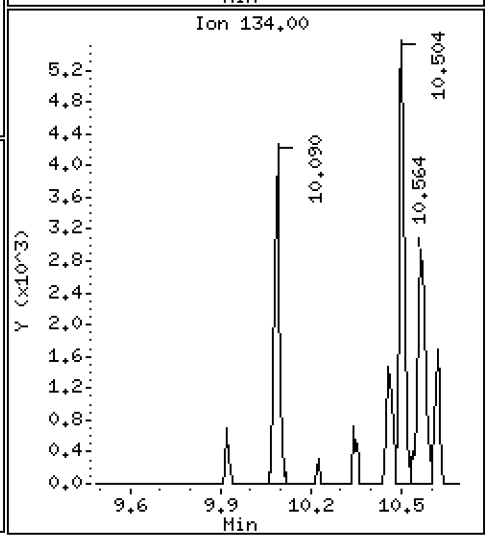












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Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

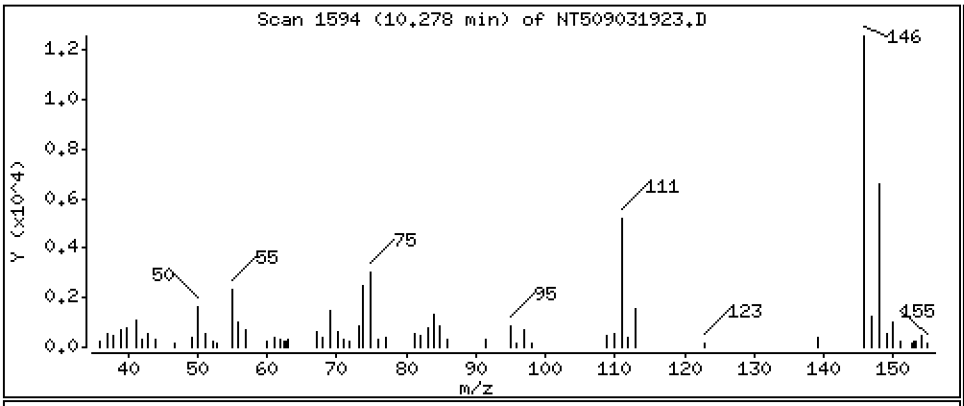
Operator: PB

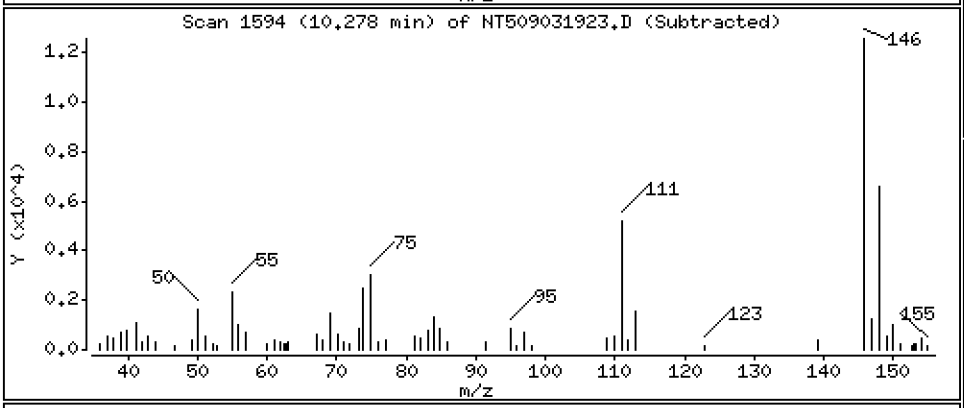
Column phase: RTXVMS

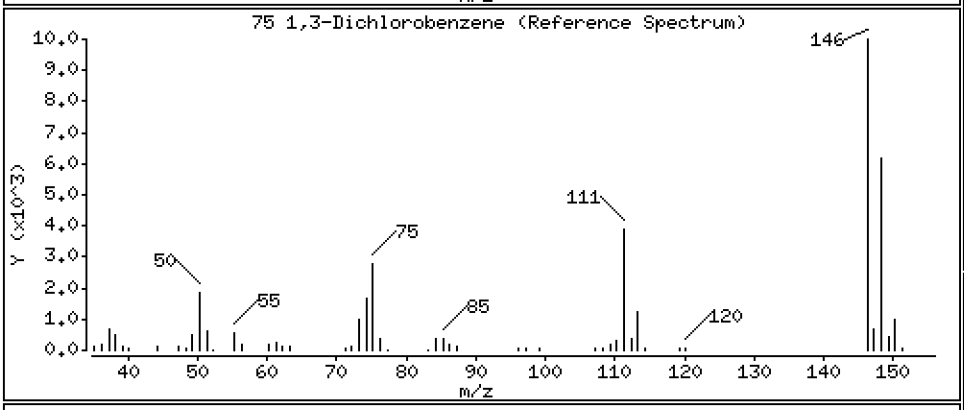
Column diameter: 0.18

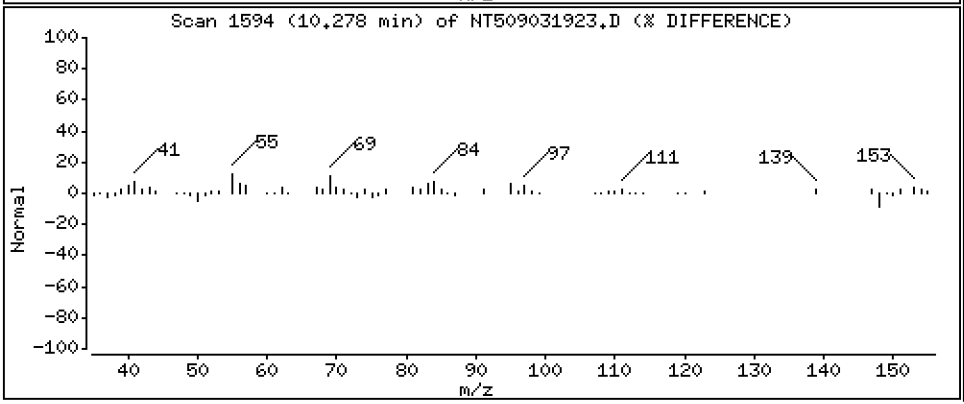
75 1,3-Dichlorobenzene

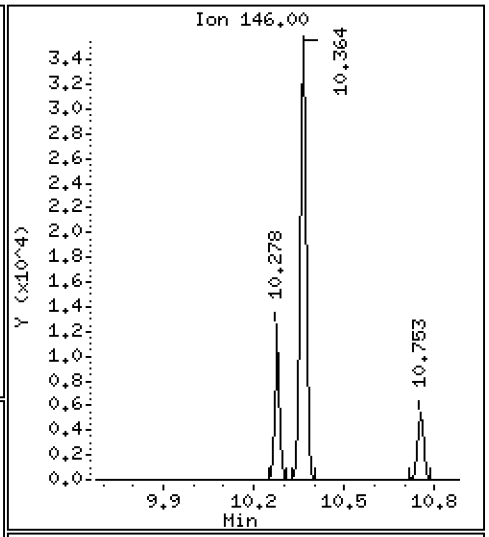
Concentration: 1.741 ug/Kg

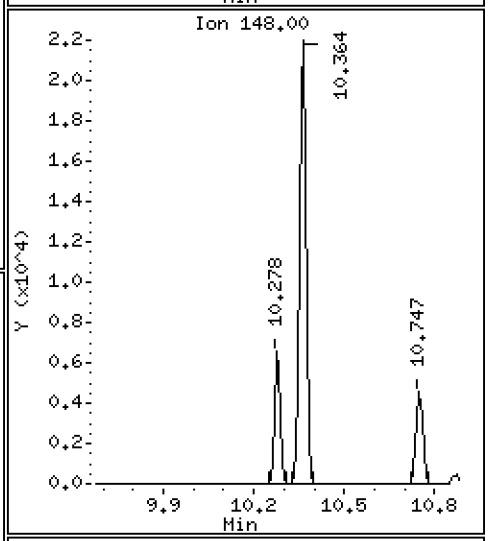


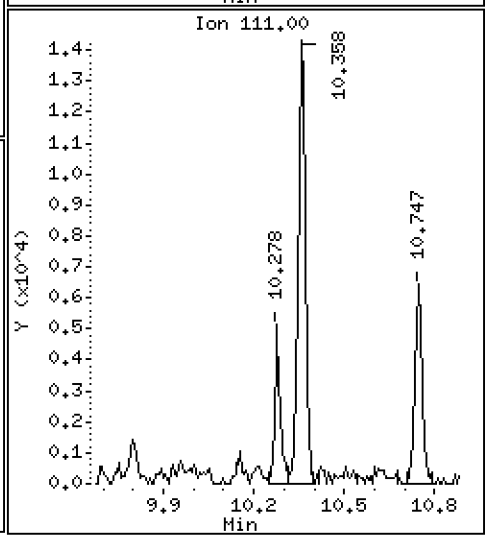












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

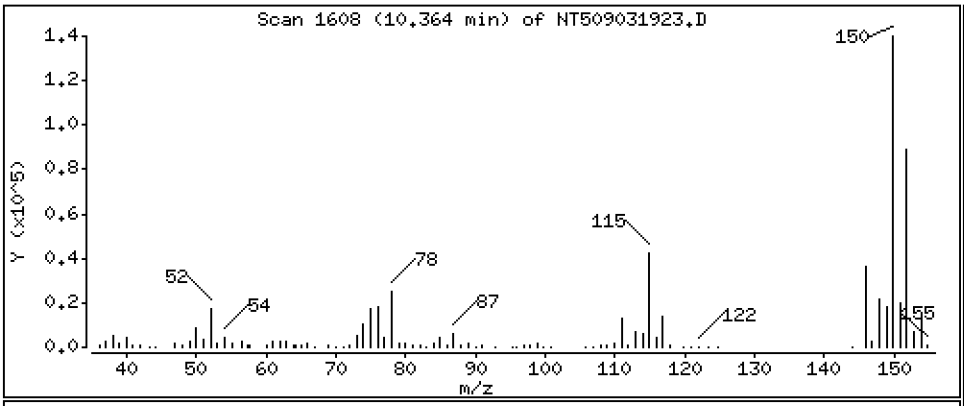
Operator: PB

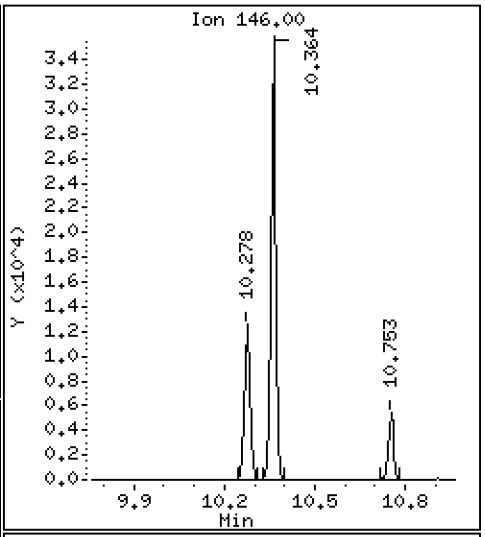
Column phase: RTXVMS

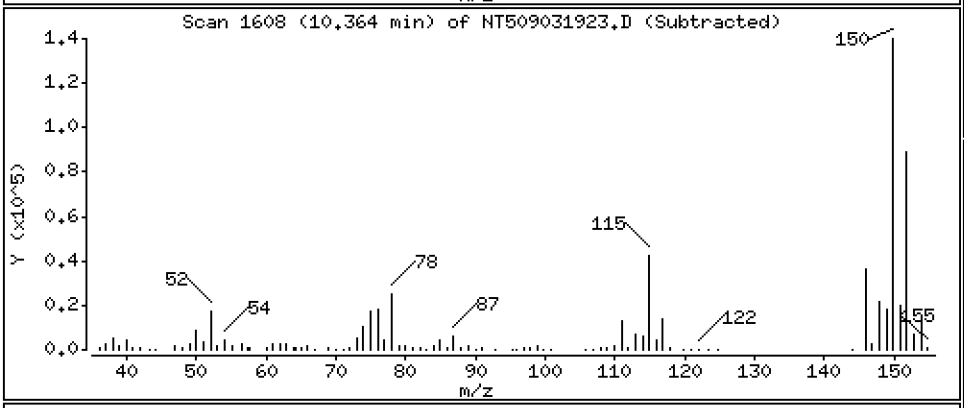
Column diameter: 0.18

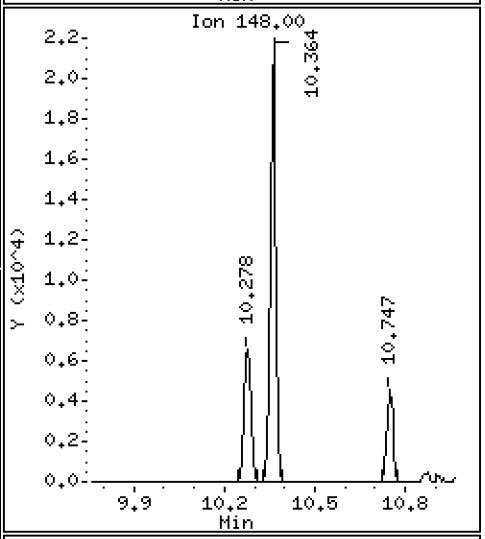
77 1,4-Dichlorobenzene

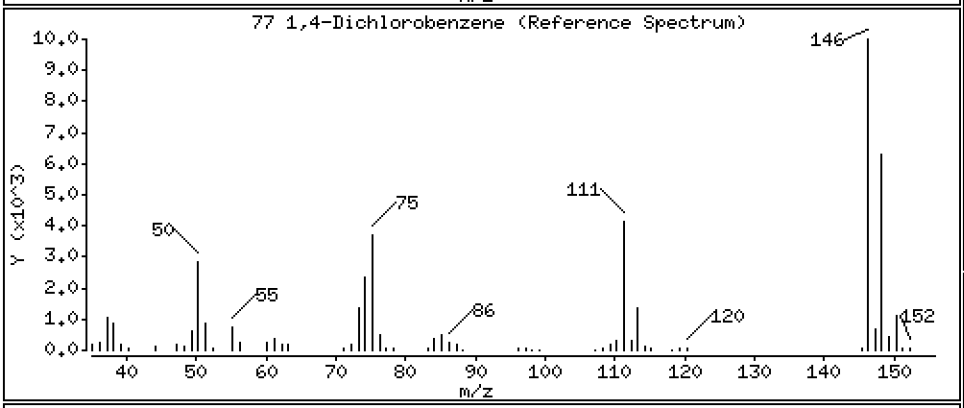
Concentration: 5.140 ug/Kg

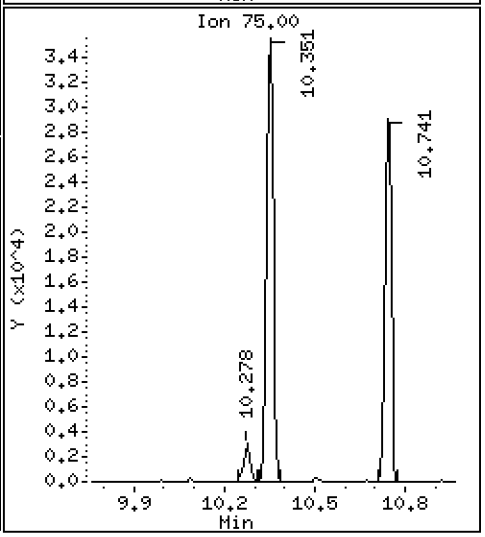


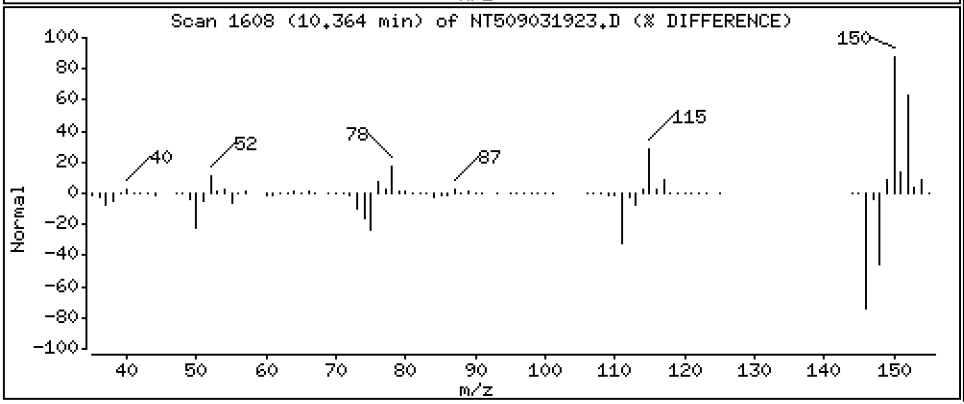












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

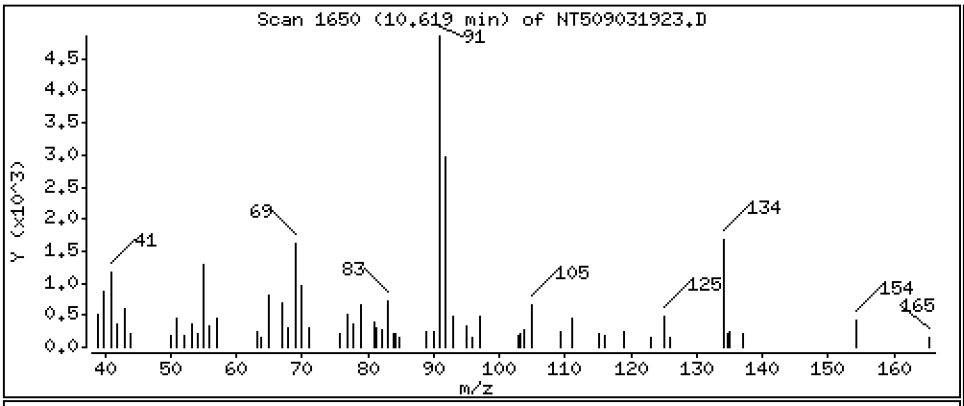
Operator: PB

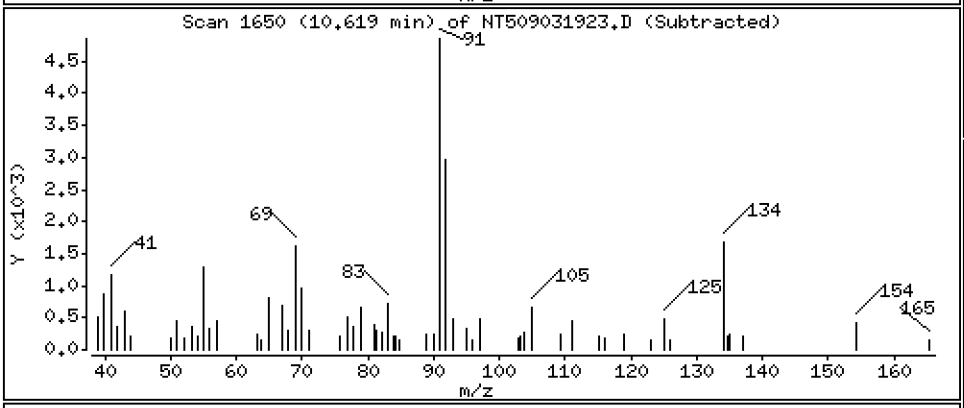
Column phase: RTXVMS

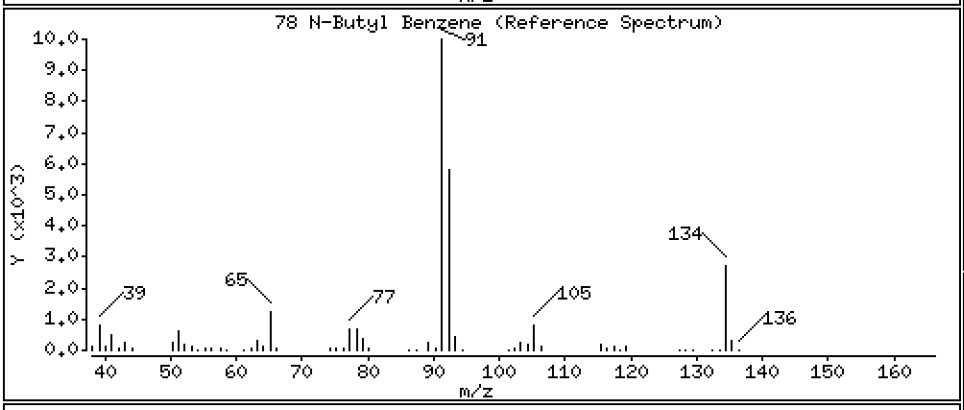
Column diameter: 0.18

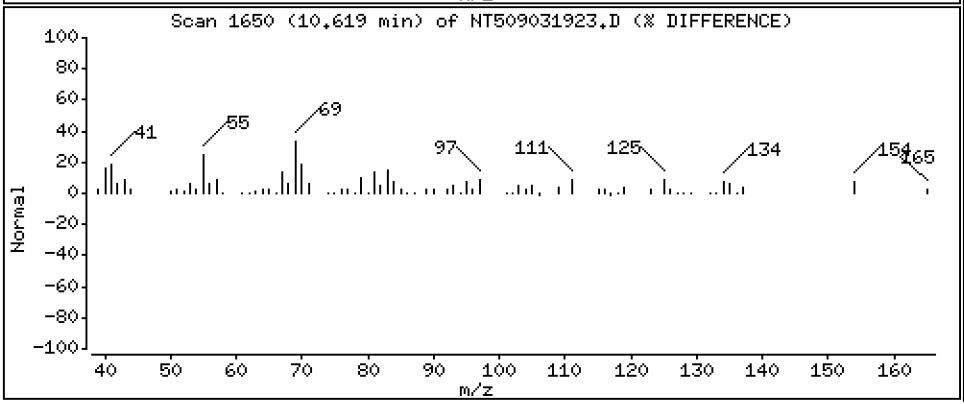
78 N-Butyl Benzene

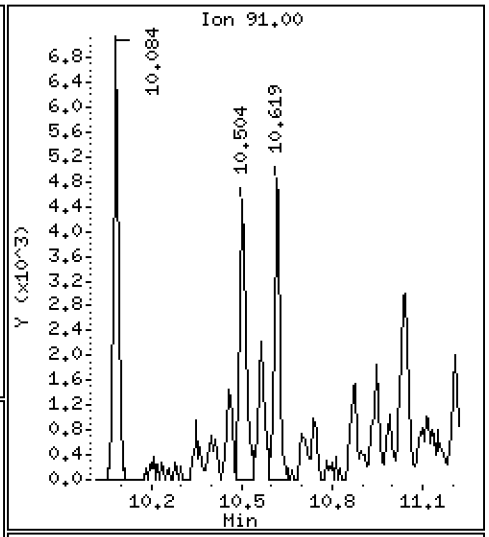
Concentration: 0.5072 ug/Kg

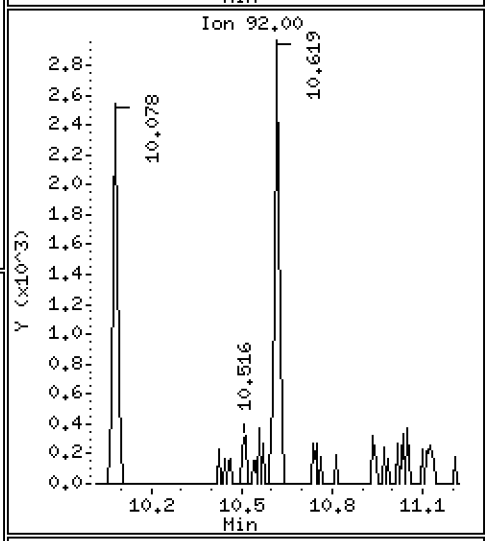


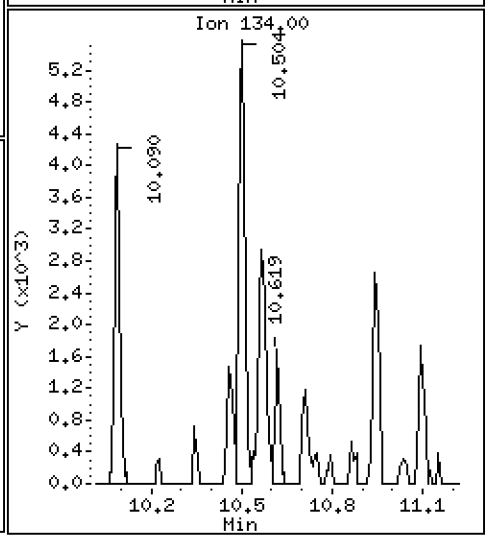












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

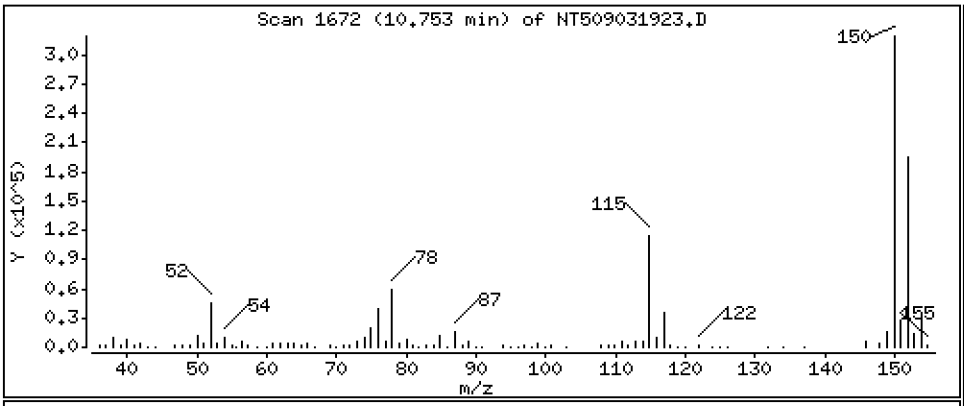
Operator: PB

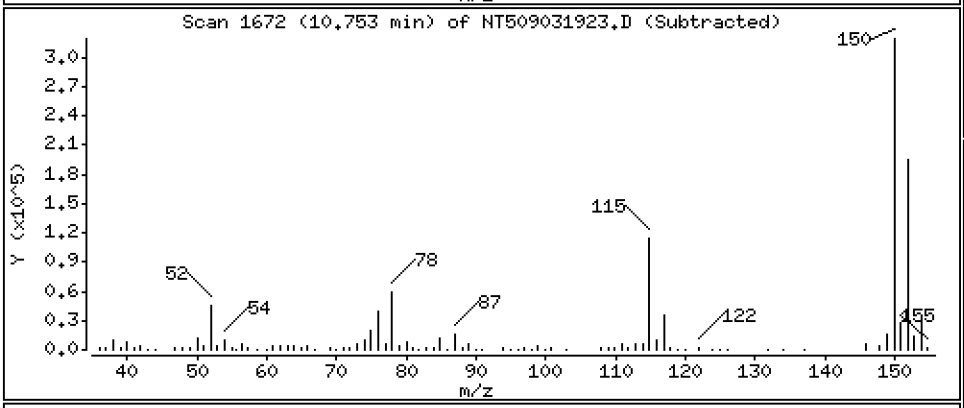
Column phase: RTXVMS

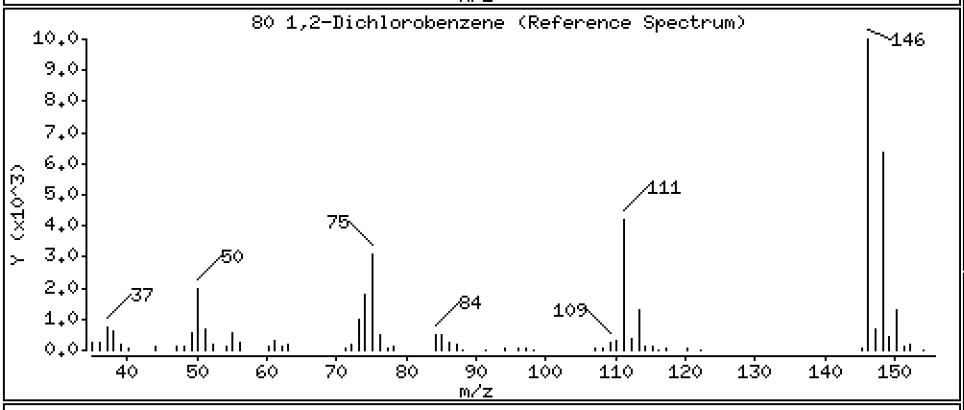
Column diameter: 0.18

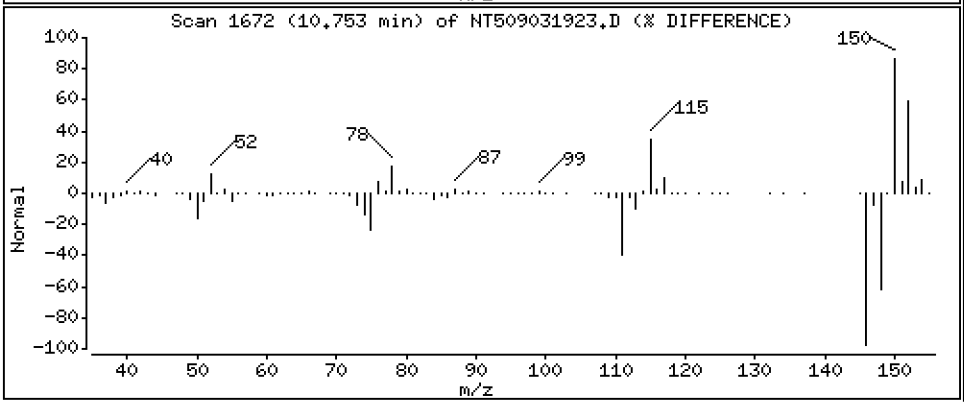
80 1,2-Dichlorobenzene

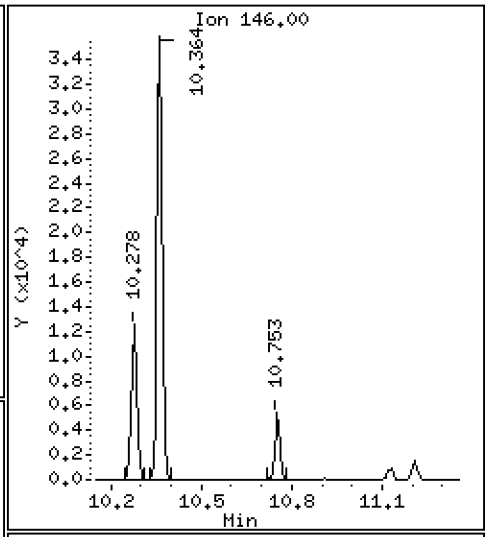
Concentration: 0.8888 ug/Kg

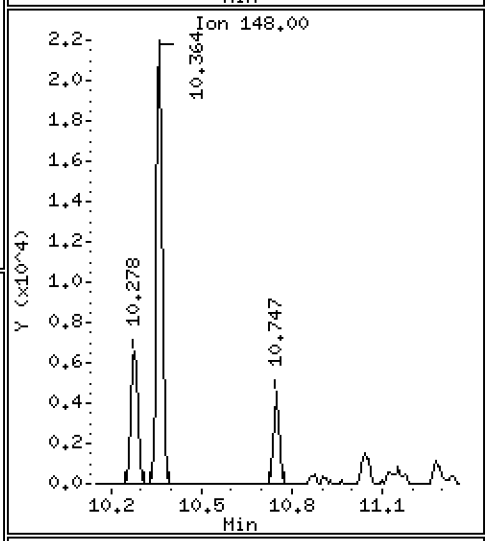


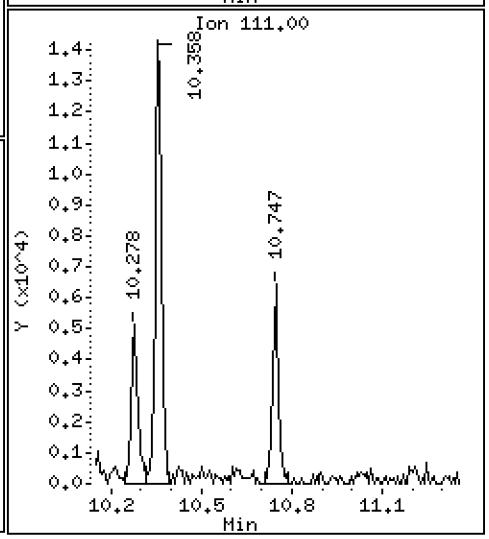












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031923.D

Date : 03-SEP-2019 21:22

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-18

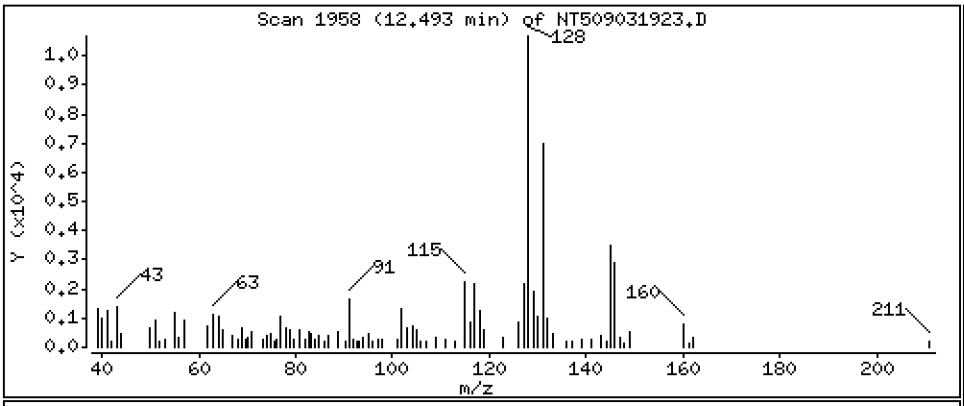
Operator: PB

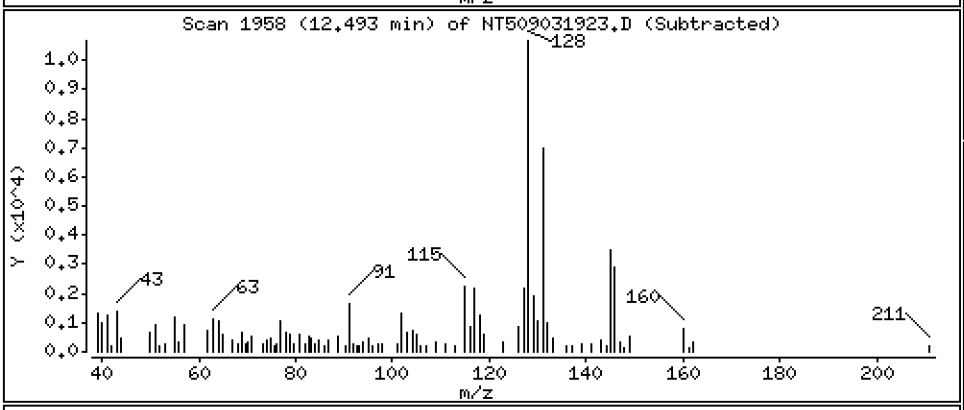
Column phase: RTXVMS

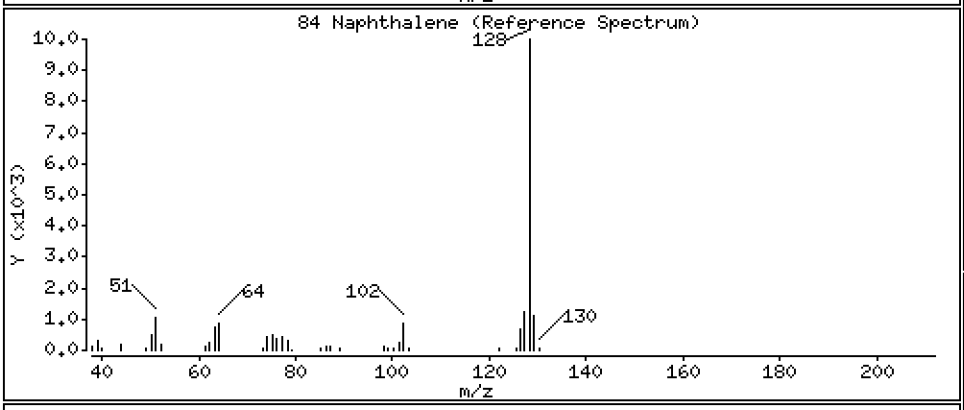
Column diameter: 0.18

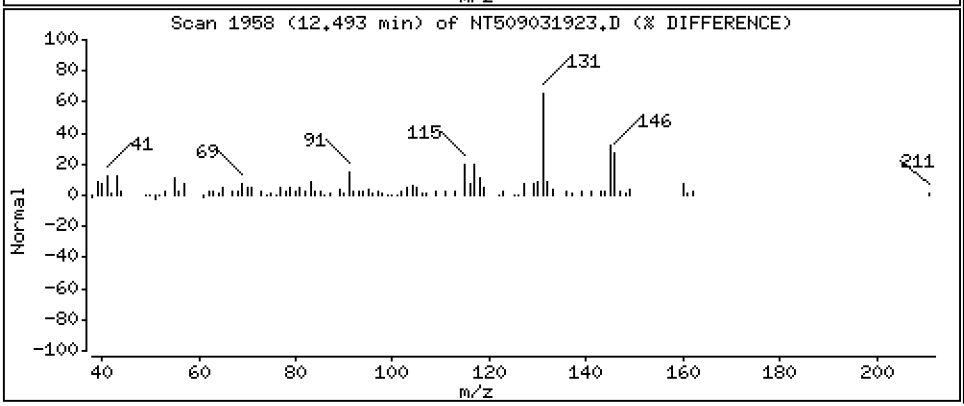
84 Naphthalene

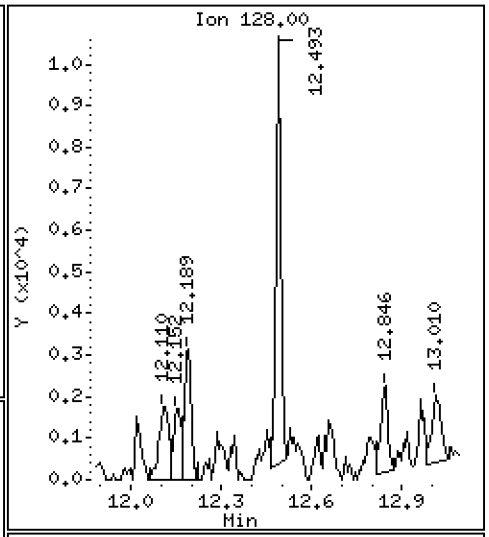
Concentration: 1.310 ug/Kg

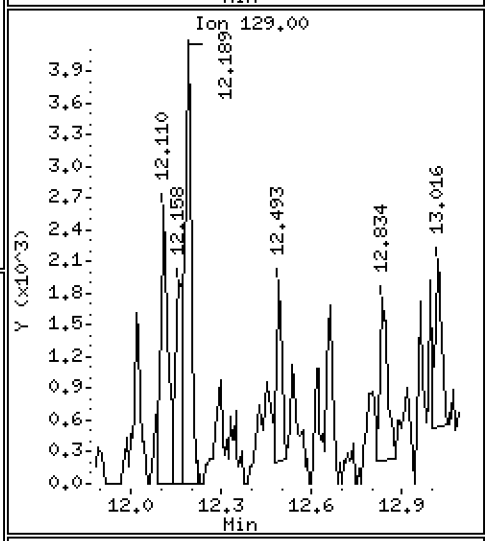


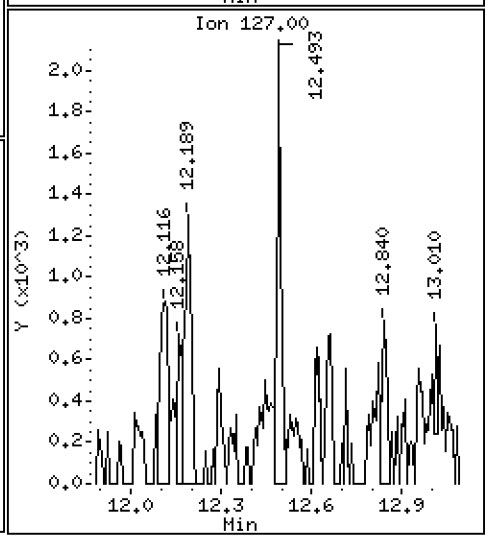












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031923.D
Lab Smp Id: 19H0481-18
Inj Date : 03-SEP-2019 21:22
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-18
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.546	2.540	(0.477)	8203	1.22832	1.228
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.592)	1832	0.93092	0.9309
	14 Acetone	43	3.264	3.258	(0.611)	15090	35.4309	35.431
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.918)	275202	71.8311	71.831(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	5.229	5.223	(0.903)	3525	0.28843	0.2884
*	31 Pentafluorobenzene	168	5.338	5.338	(1.000)	311956	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.003)	279306	74.4107	74.411(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	764231	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	988293	52.3602	52.360(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	802874	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	462215	42.3693	42.369
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	8.435	8.435	(1.021)	2313	0.32831	0.3283
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	9.086	9.086	(0.878)	5558	0.31188	0.3119
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	354555	50.9403	50.940(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	8803	0.43046	0.4305
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	9.591	9.591	(0.927)	10767	0.91255	0.9126
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	6390	0.44003	0.4400
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	18003	0.91380	0.9138
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	15495	1.74120	1.741
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	437542	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	46499	5.14033	5.140
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	7334	0.50720	0.5072
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	428903	52.3190	52.319(R)
	80	1,2-Dichlorobenzene	146	10.752	10.753	(1.039)	7496	0.88879	0.8888
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.492	12.486	(1.207)	14513	1.31005	1.310
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031923.D
Lab Smp Id: 19H0481-18
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	311956	-31.88
35 1,4-Difluorobenze	852165	426083	1704330	764231	-10.32
52 d5-Chlorobenzene	803678	401839	1607356	802874	-0.10
76 d4-1,4-Dichlorobe	439766	219883	879532	437542	-0.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-18
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	71.831	143.66	
$ 32 d4-1,2-Dichloroeth	50.000	74.411	148.82	
$ 42 d8-Toluene	50.000	52.360	104.72	
$ 62 4-Bromofluorobenze	50.000	50.940	101.88	
$ 79 d4-1,2-Dichloroben	50.000	52.319	104.64	

REVIEW SUMMARY FOR FILE - NT509031923.D

Lab ID: 19H0481-18
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 21:22

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

P40-UST-03-8'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds (MeOH extraction)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-20 E	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/04/19 07:00	File ID:	NT509041914.D
% Solids:	68.73	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/04/19 19:26
Batch:	BHI0098	Sequence:	SHI0061	Initial/Final:	4.1 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	50	36.9	J	18.3	111
108-88-3	Toluene	50	44.0	J	19.2	111
100-41-4	Ethylbenzene	50	2430		30.3	111
179601-23-1	m,p-Xylene	50	331		62.2	223
95-47-6	o-Xylene	50	639		25.4	111

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	53.0	106	80 - 120	
4-Bromofluorobenzene	50.000	51.1	102	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

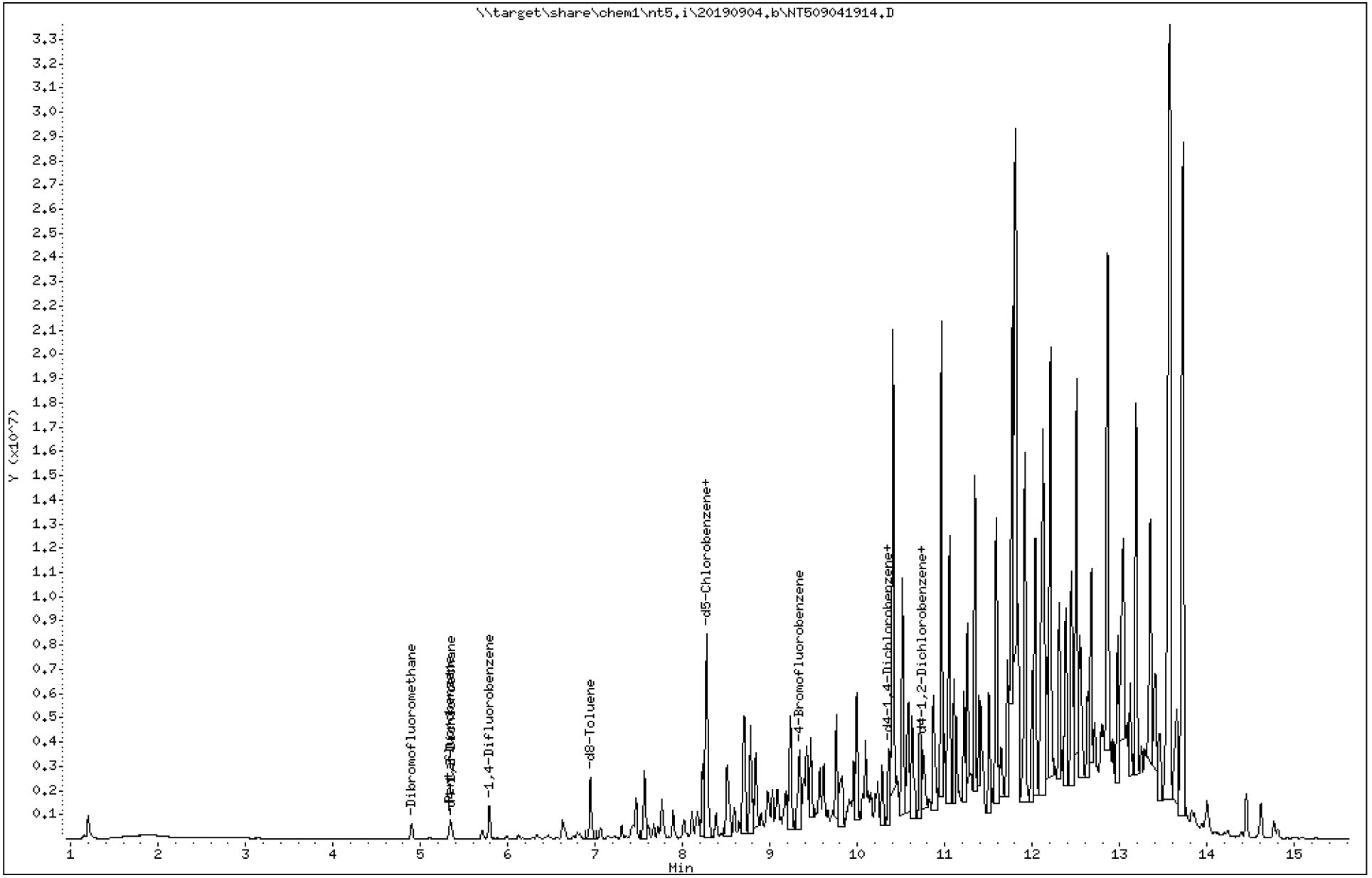
Instrument: nt5.i

Sample Info: 19H0481-20,50X

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



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Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

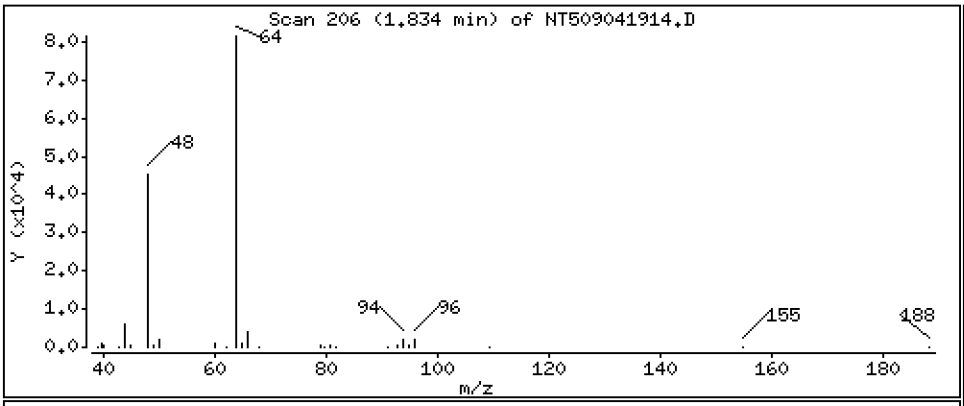
Operator: PB

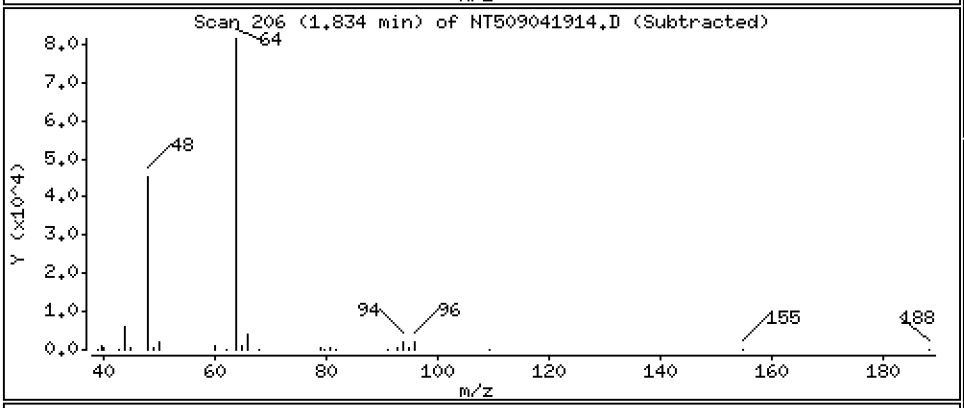
Column phase: RTXVMS

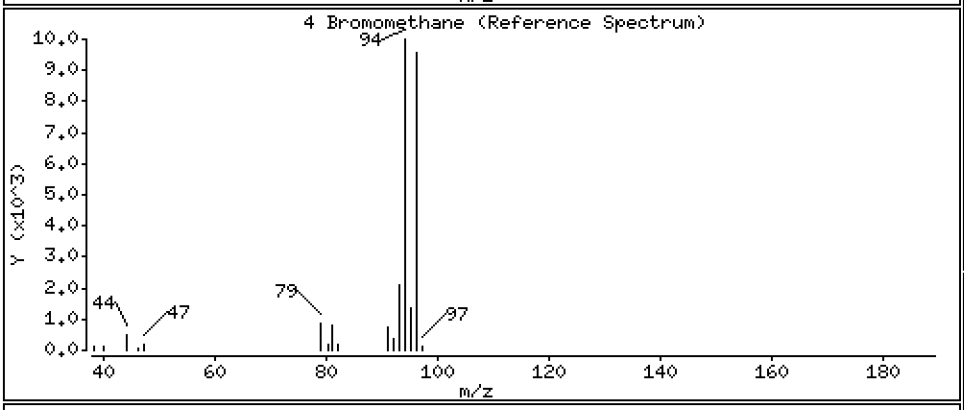
Column diameter: 0.18

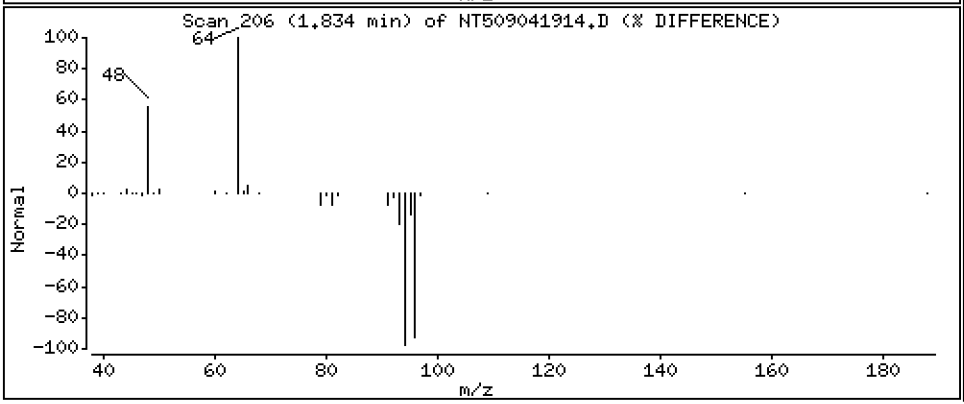
4 Bromomethane

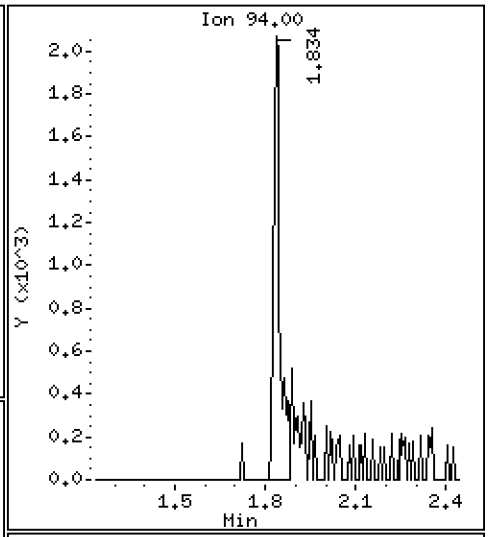
Concentration: 1.499 ug/Kg

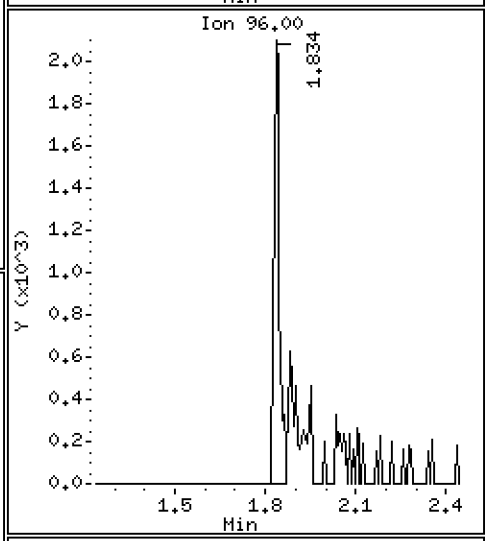


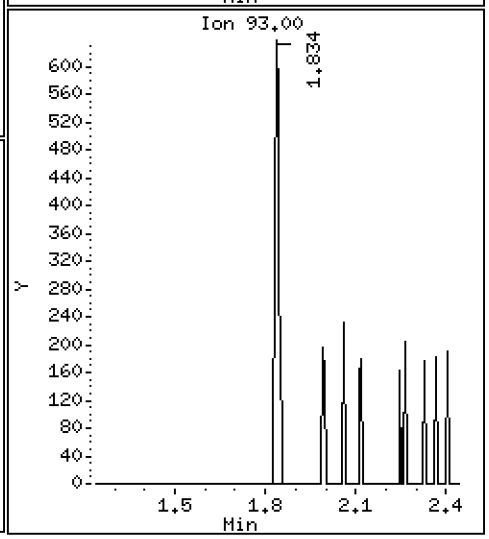












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

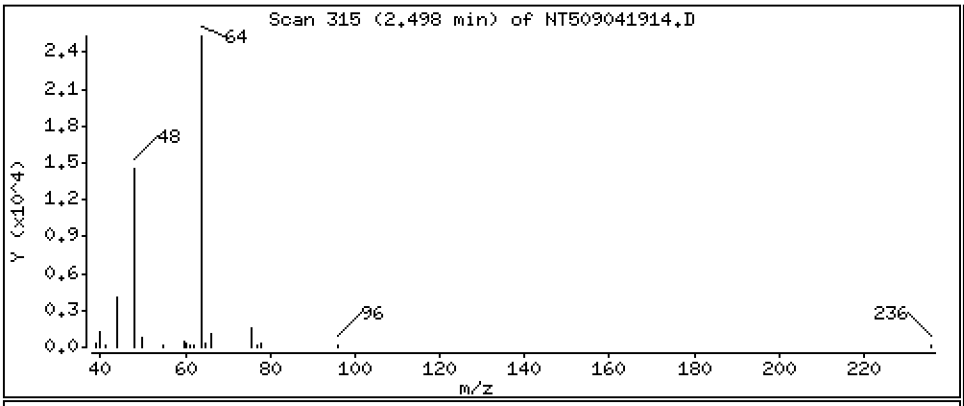
Operator: PB

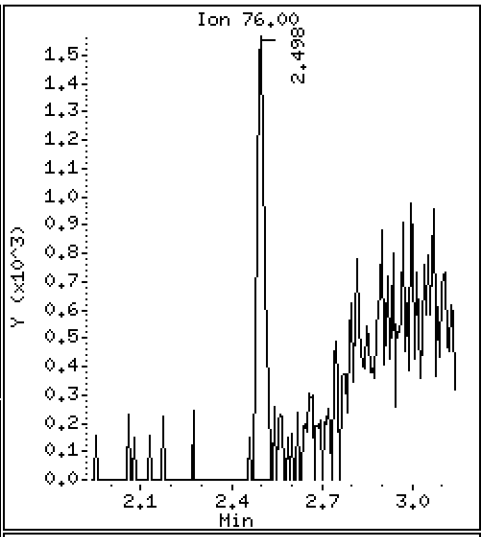
Column phase: RTXVMS

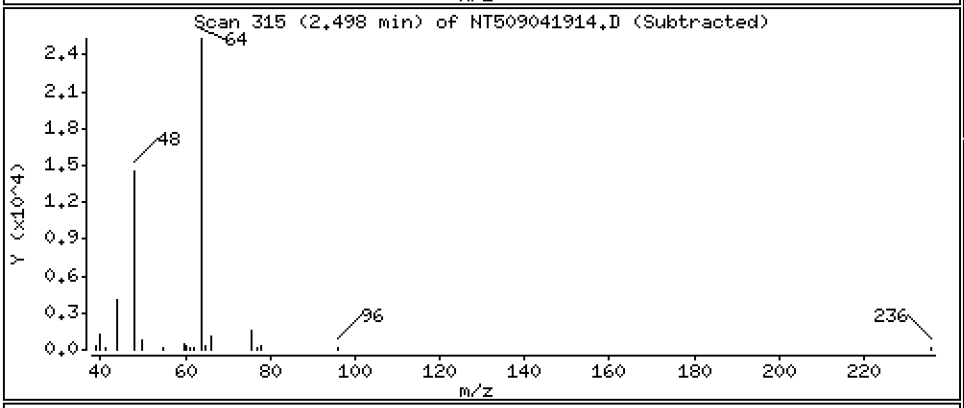
Column diameter: 0.18

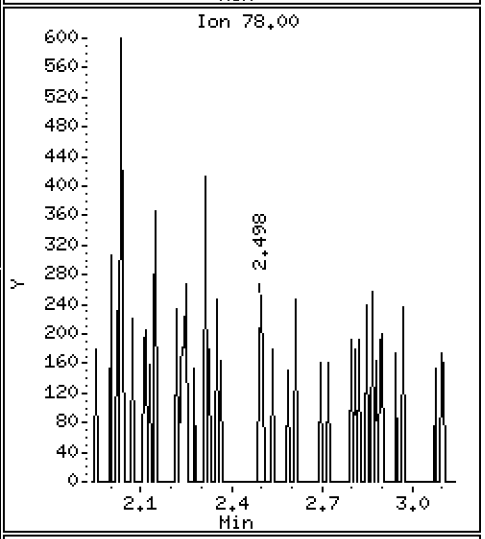
8 Carbon Disulfide

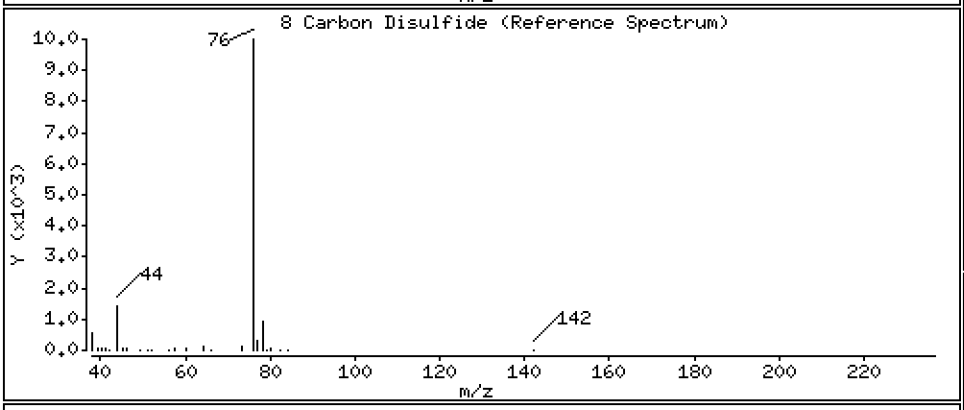
Concentration: 0.3154 ug/Kg

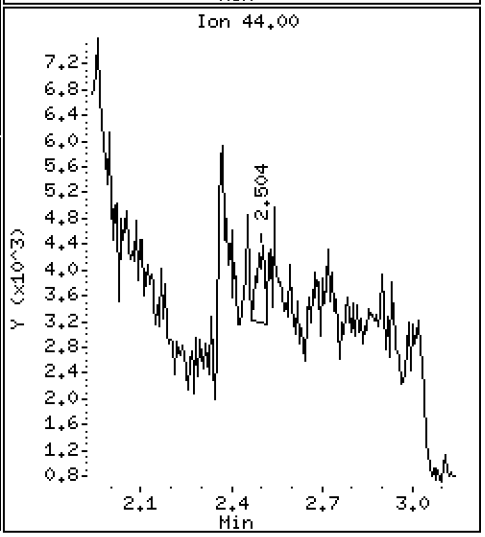


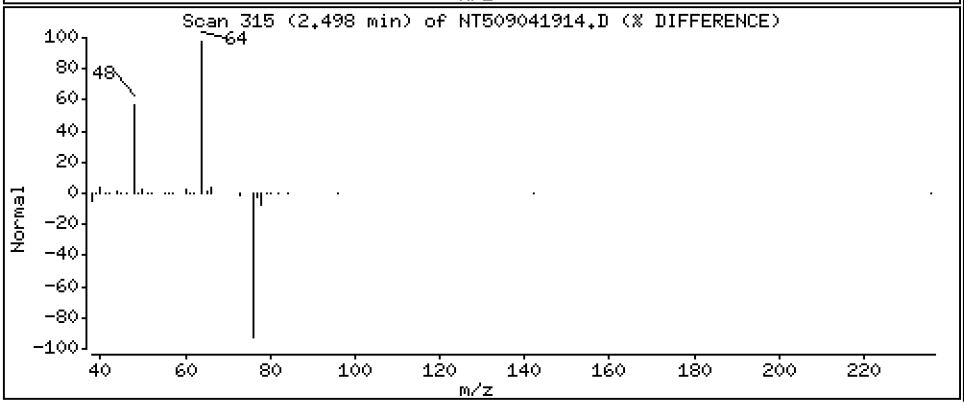












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

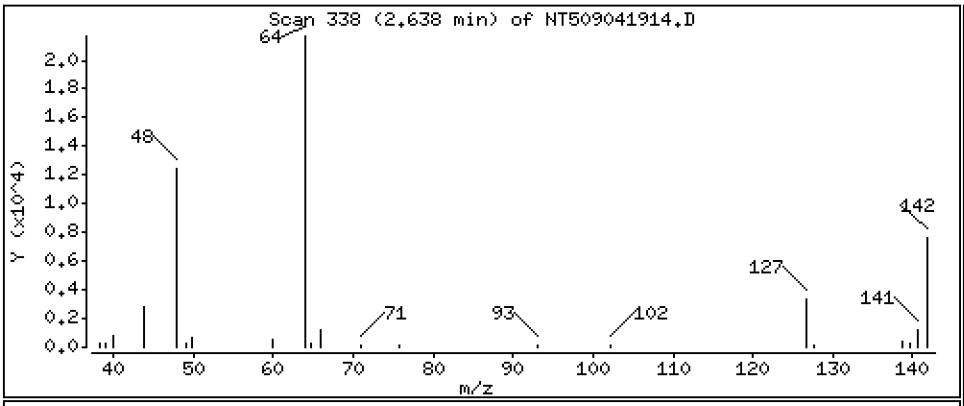
Operator: PB

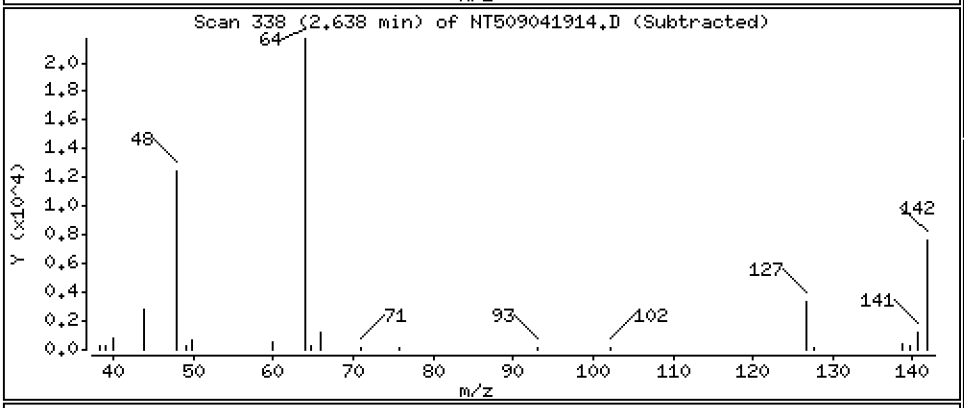
Column phase: RTXVMS

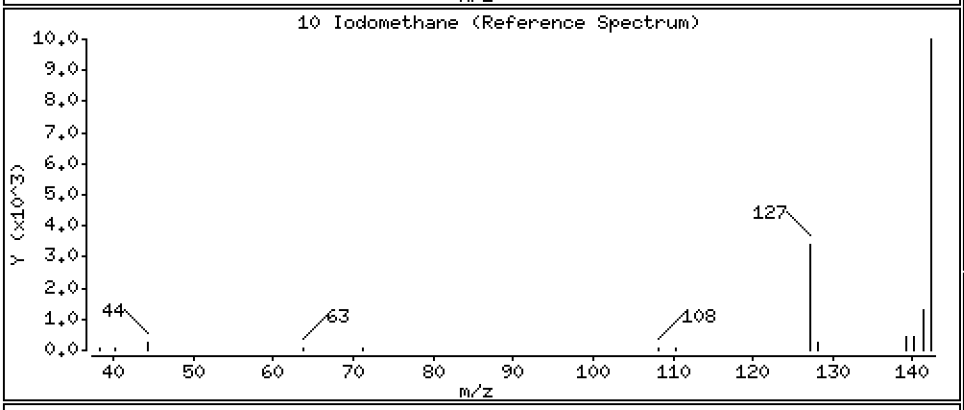
Column diameter: 0.18

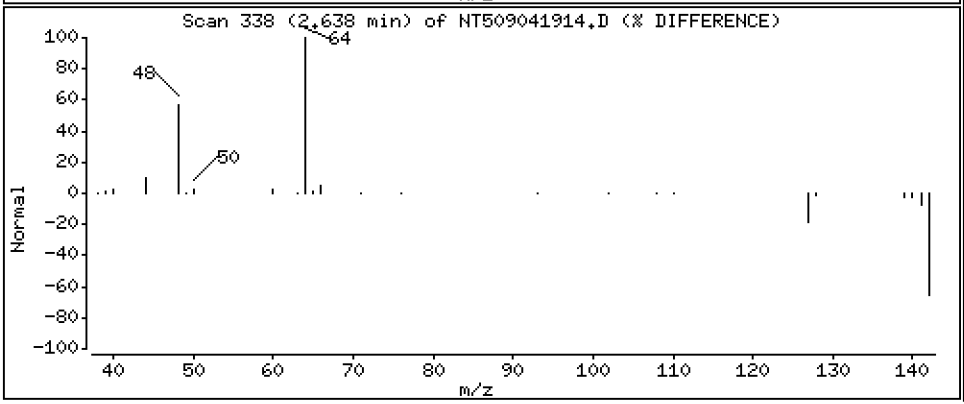
10 Iodomethane

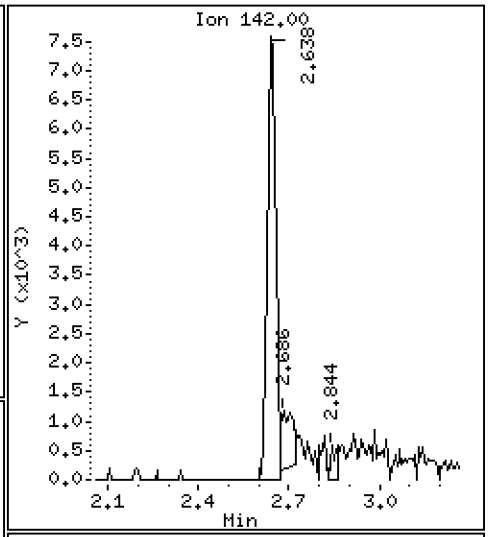
Concentration: 4.989 ug/Kg

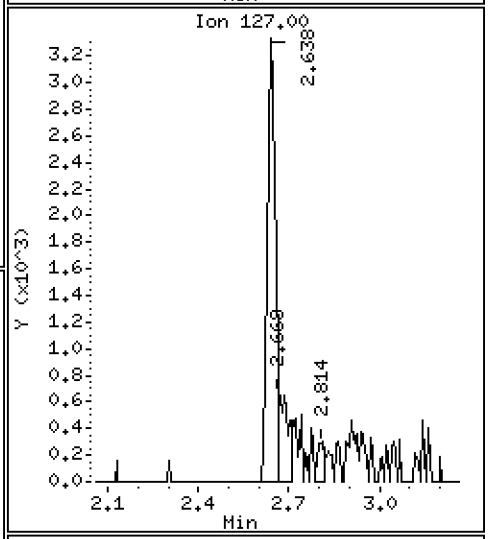


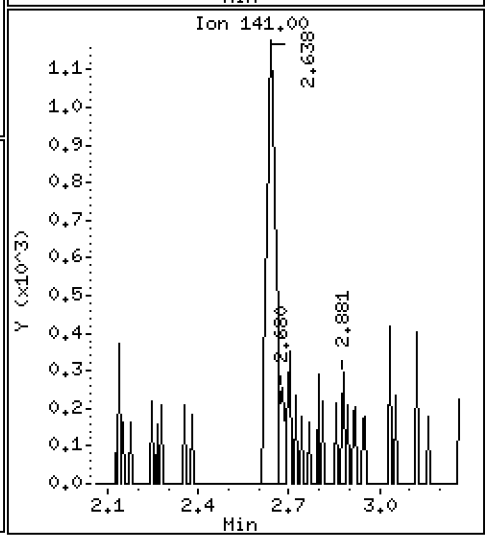












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

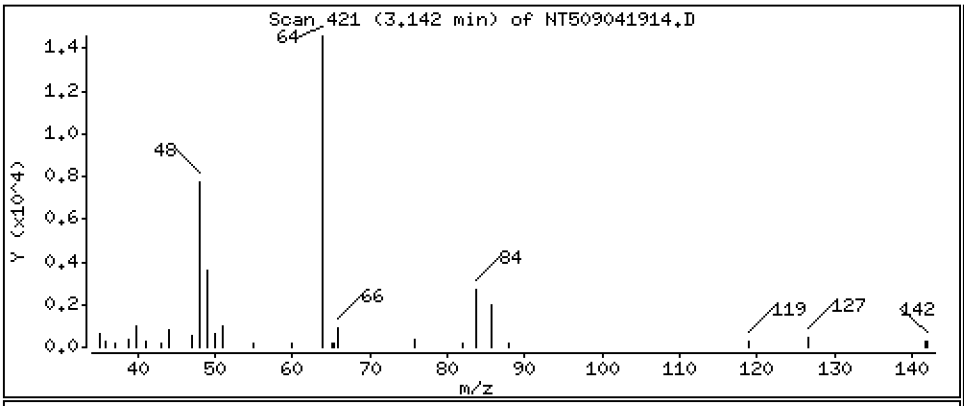
Operator: PB

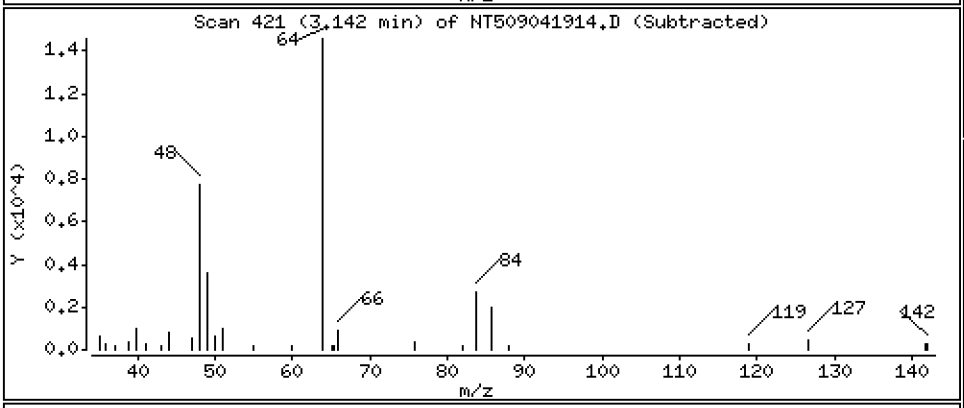
Column phase: RTXVMS

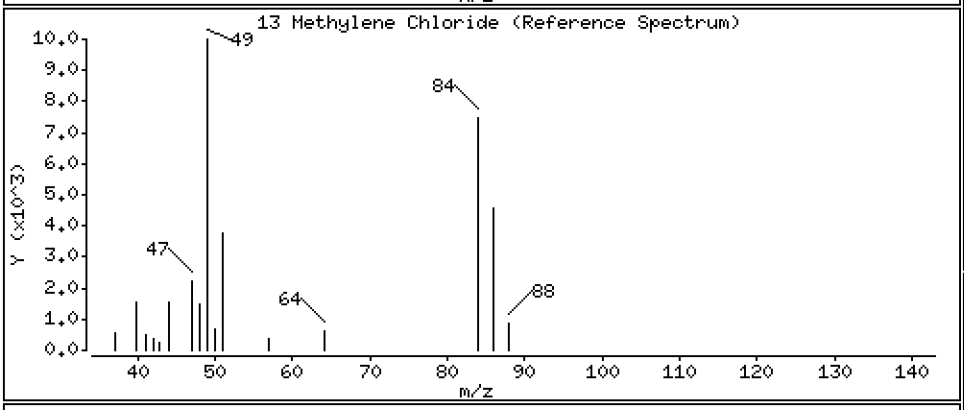
Column diameter: 0.18

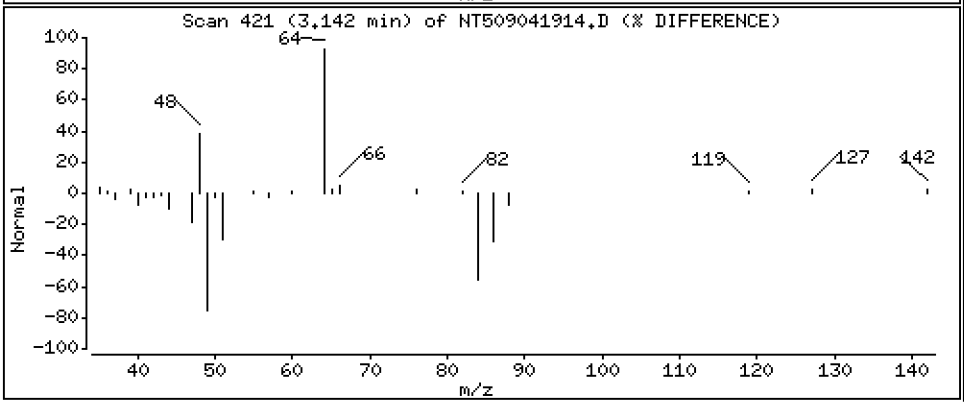
13 Methylene Chloride

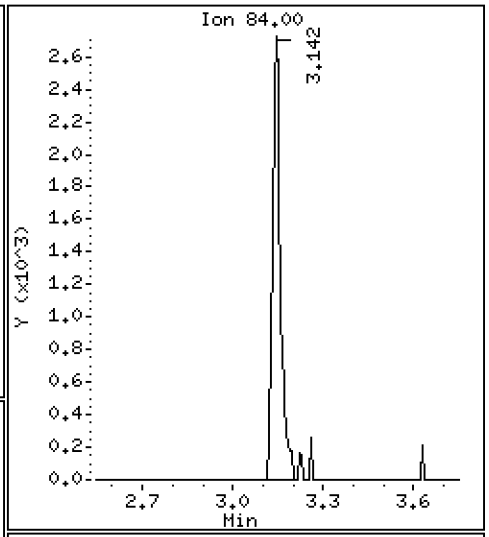
Concentration: 2.268 ug/Kg

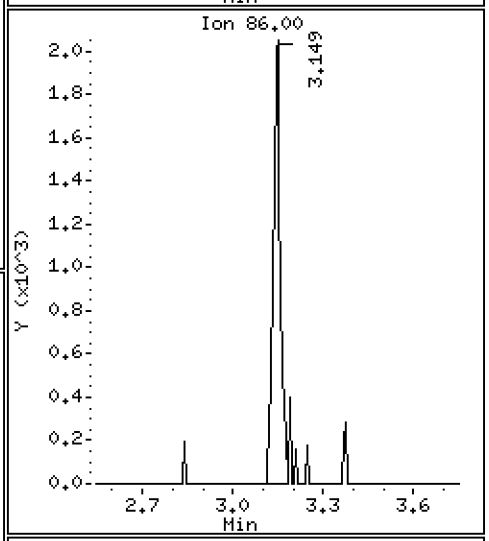


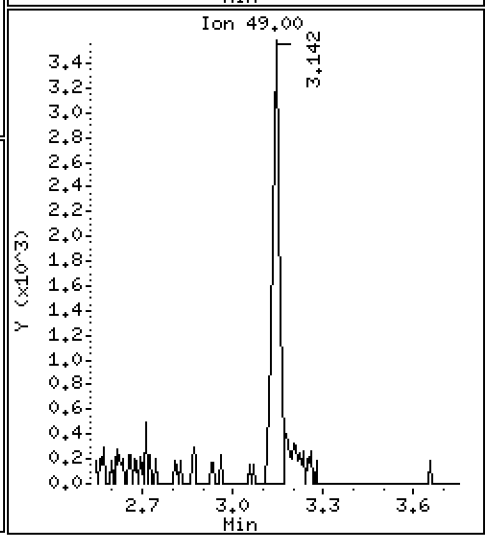












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

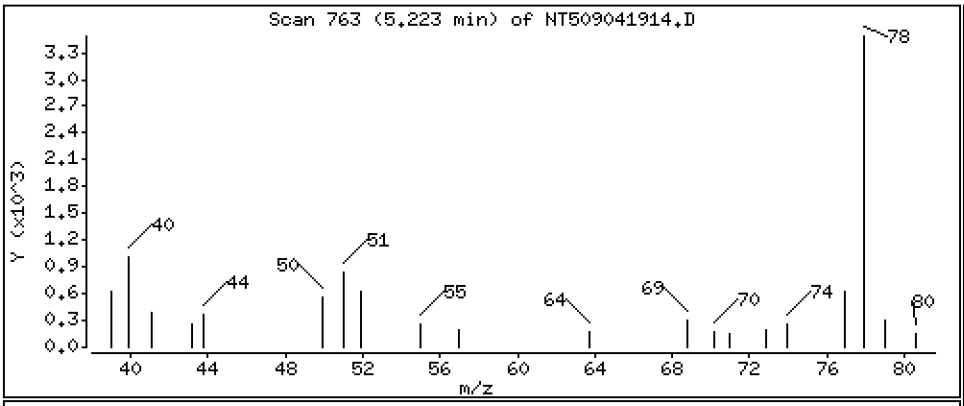
Operator: PB

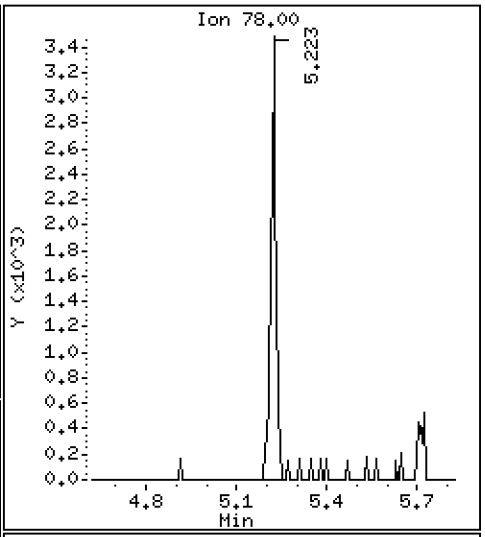
Column phase: RTXVMS

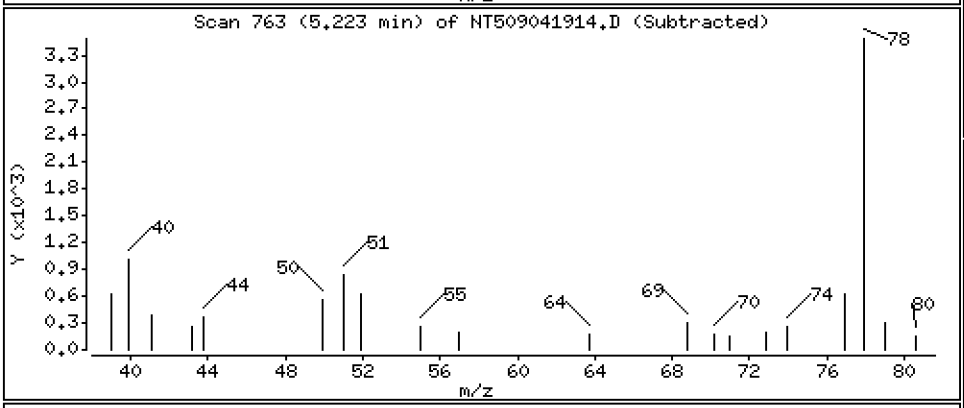
Column diameter: 0.18

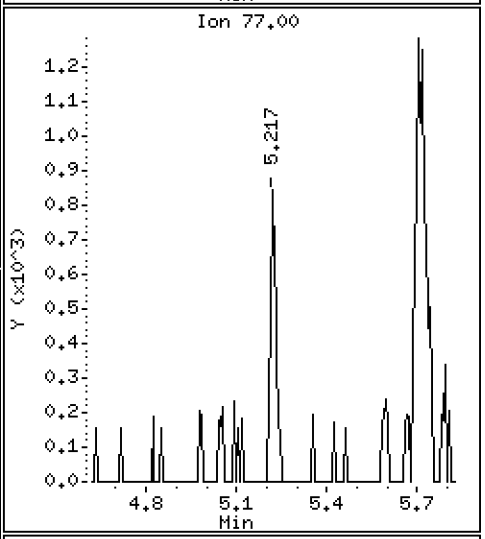
30 Benzene

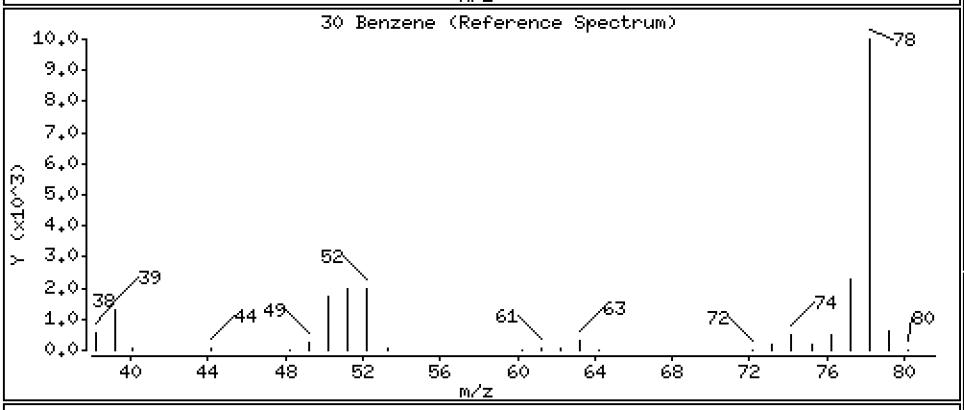
Concentration: 0.3309 ug/Kg

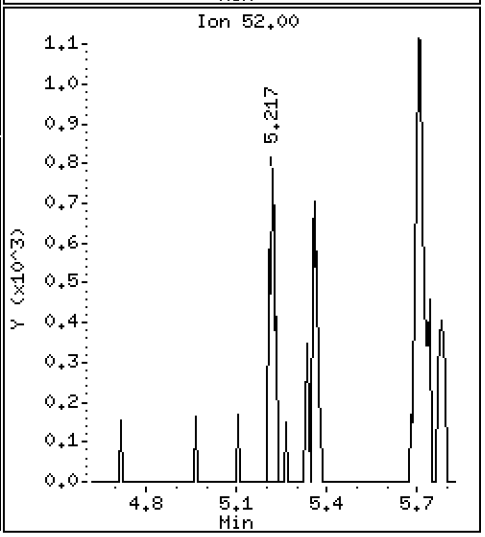


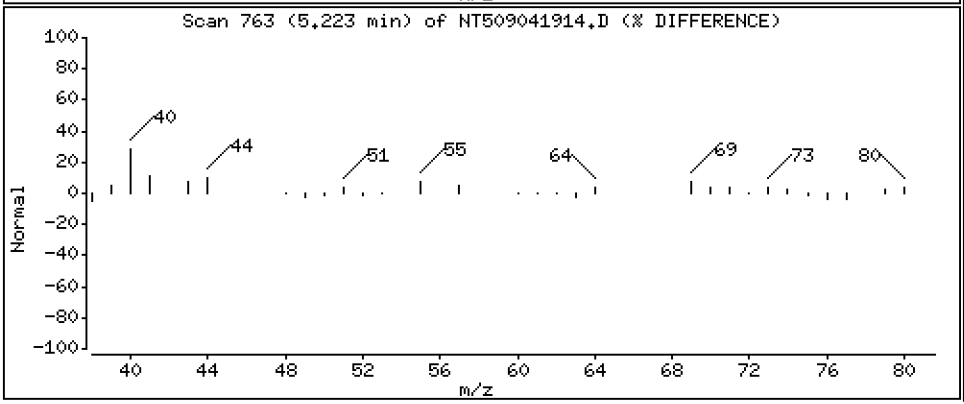












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

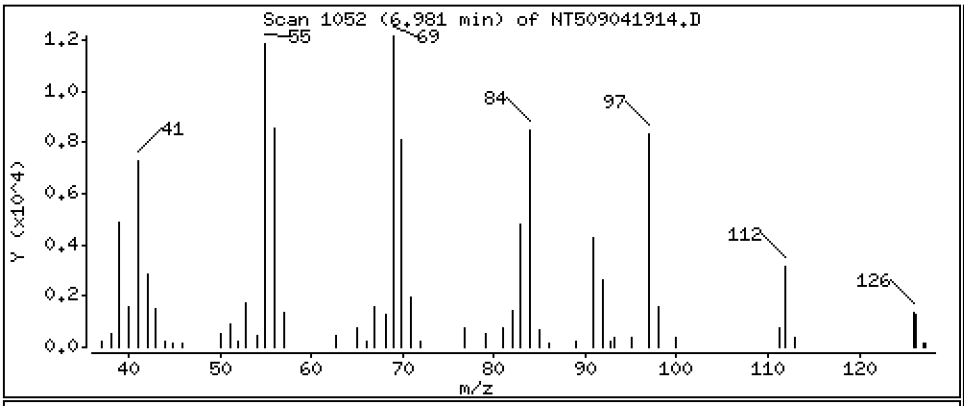
Operator: PB

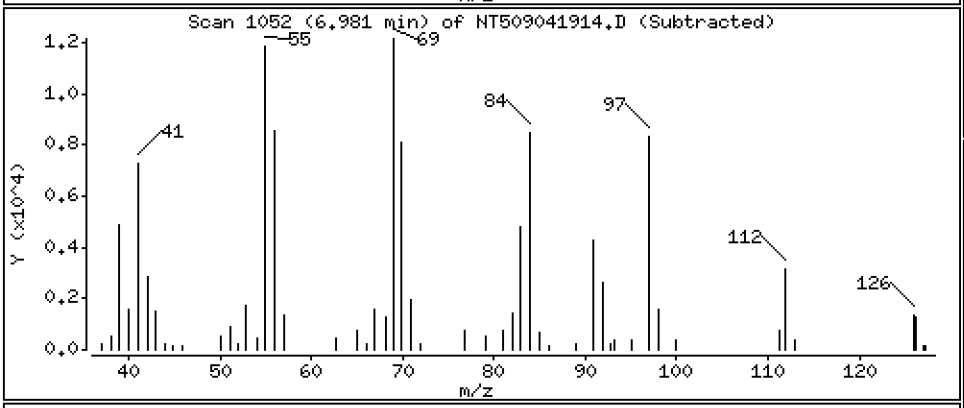
Column phase: RTXVMS

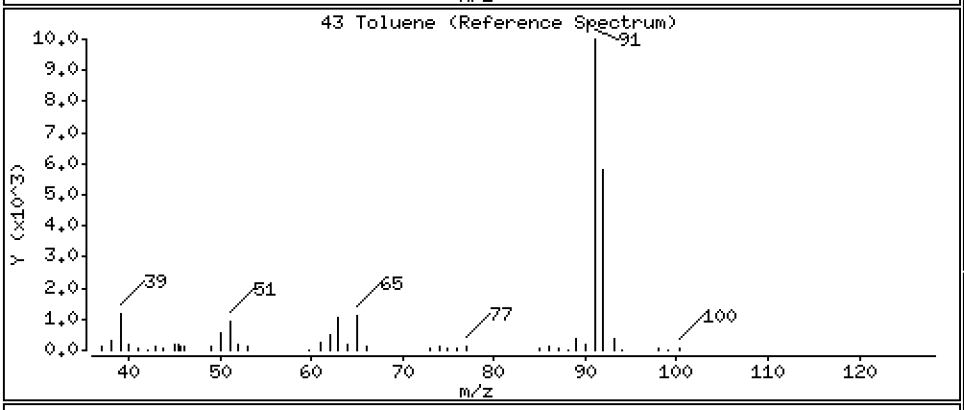
Column diameter: 0.18

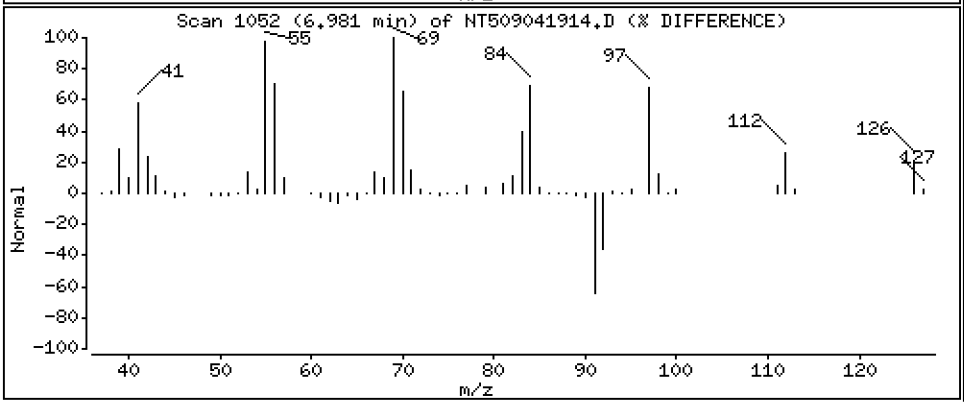
43 Toluene

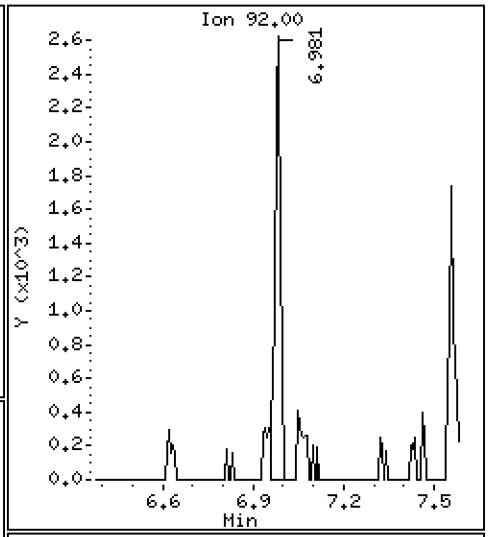
Concentration: 0.3948 ug/Kg

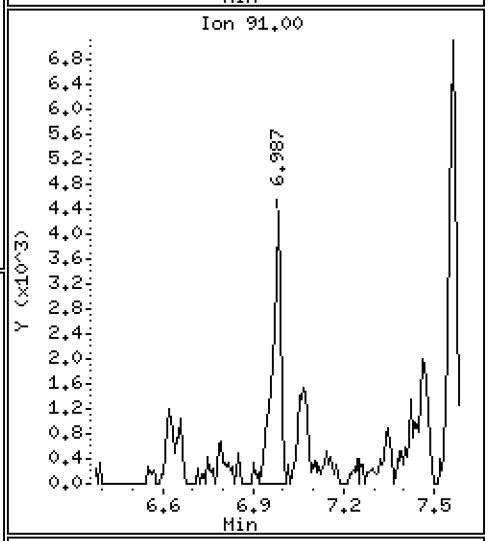


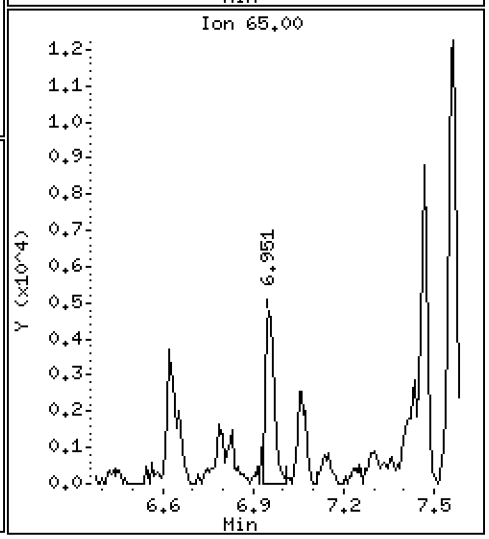












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

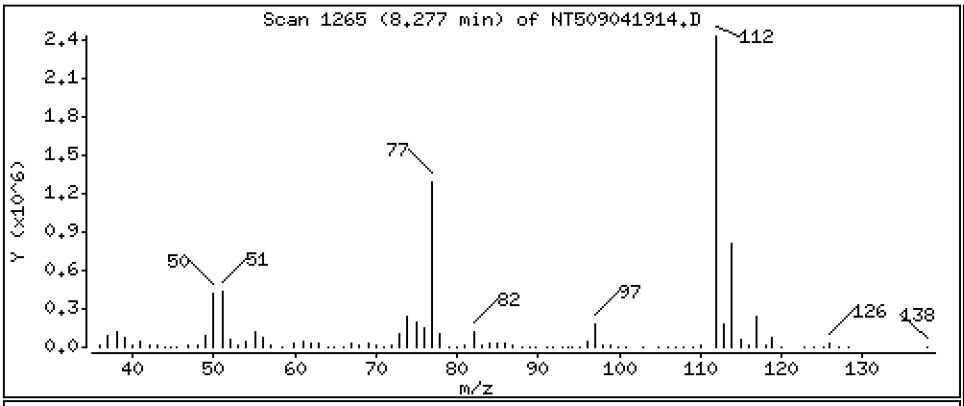
Operator: PB

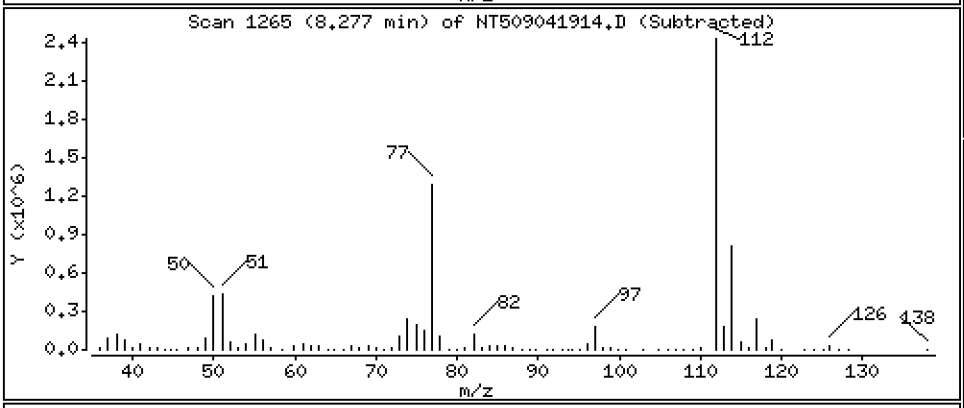
Column phase: RTXVMS

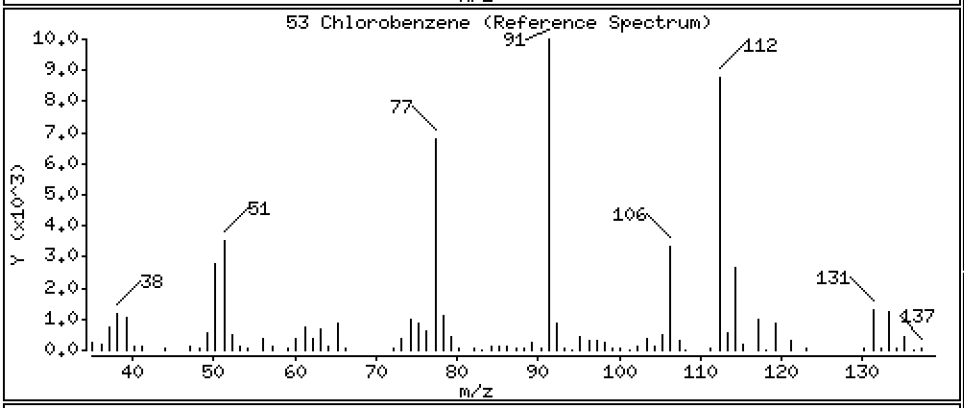
Column diameter: 0.18

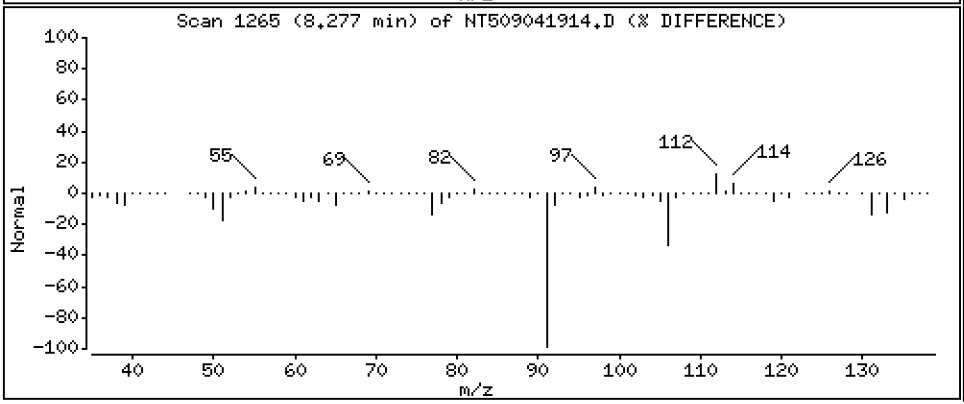
53 Chlorobenzene

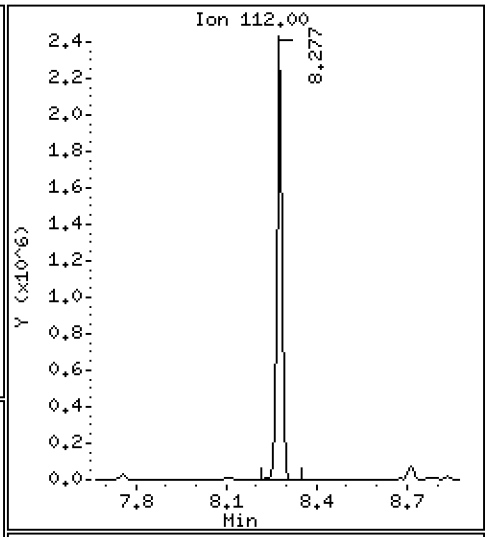
Concentration: 259.03 ug/Kg

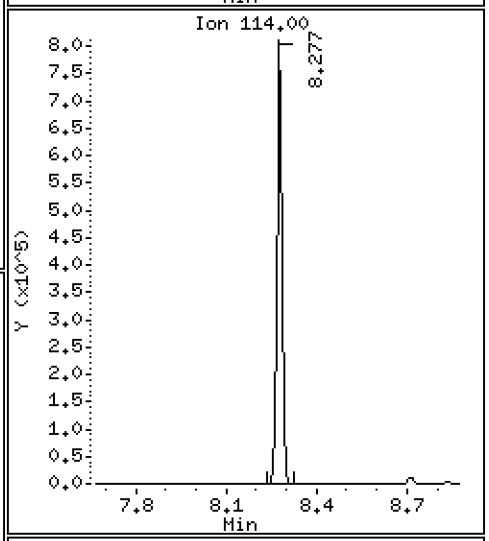


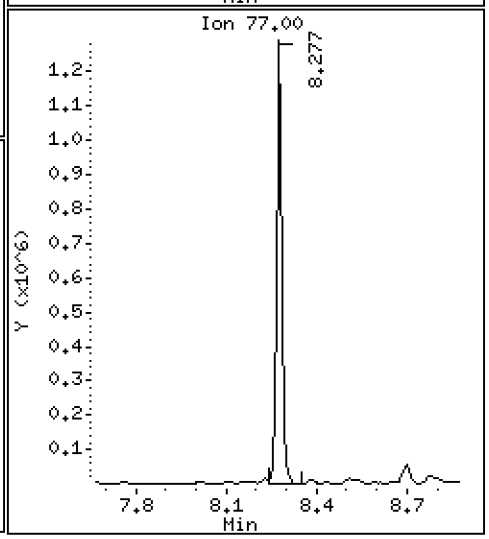












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

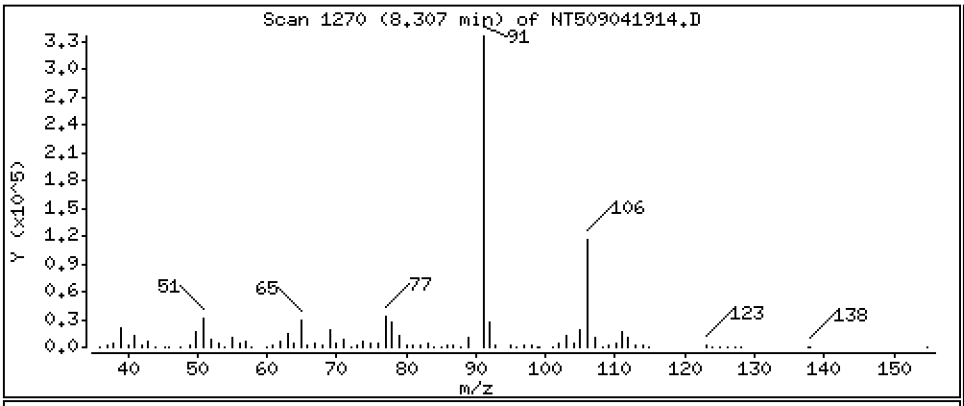
Operator: PB

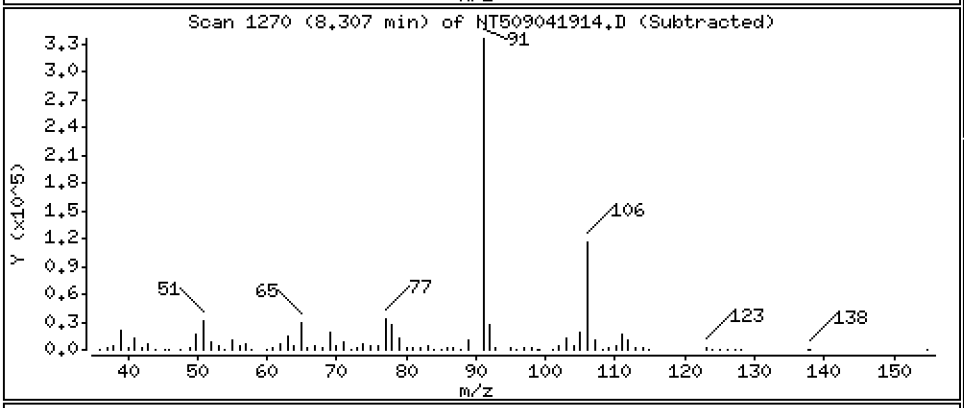
Column phase: RTXVMS

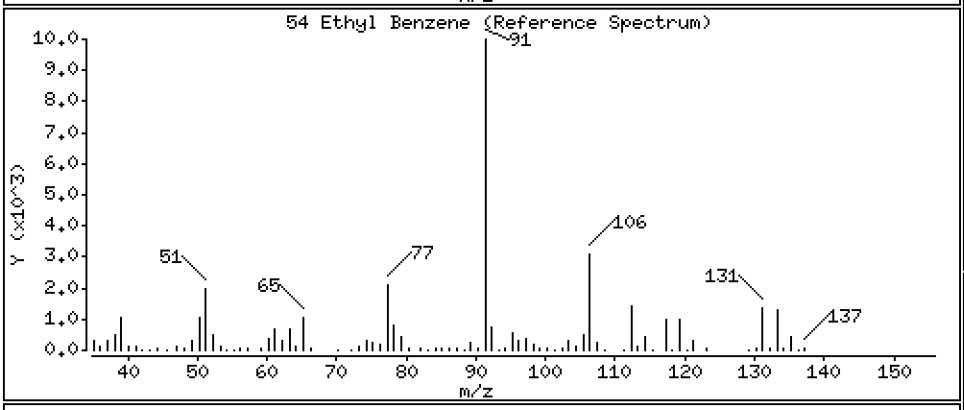
Column diameter: 0.18

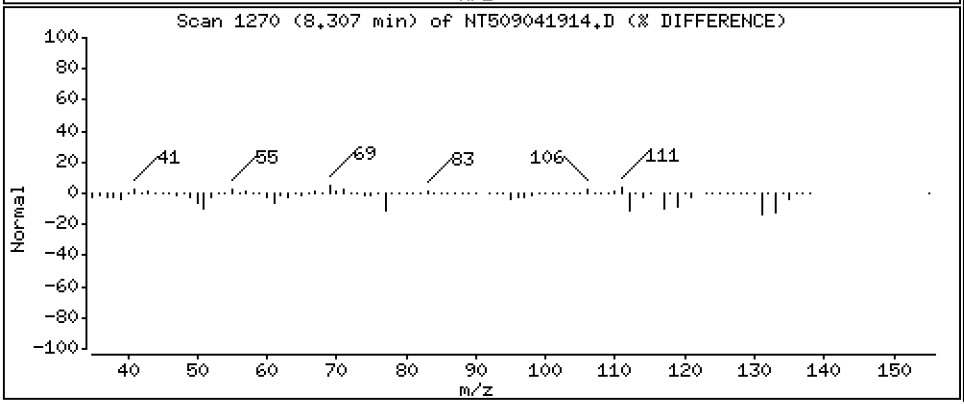
54 Ethyl Benzene

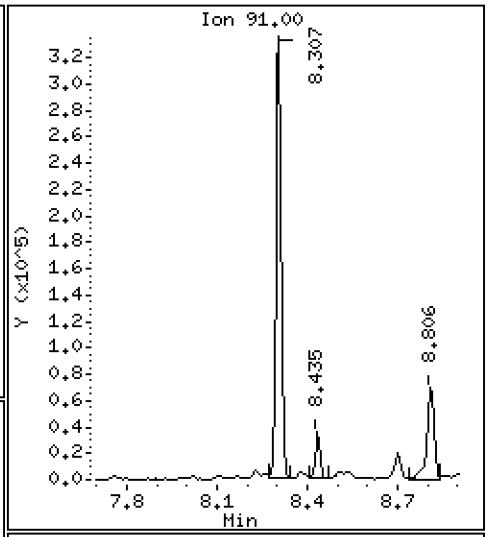
Concentration: 21.791 ug/Kg

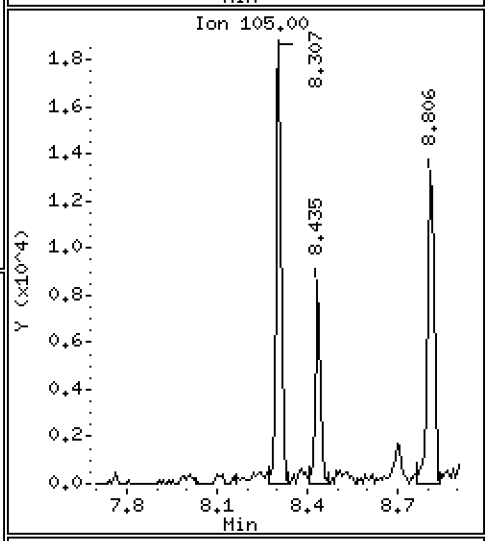


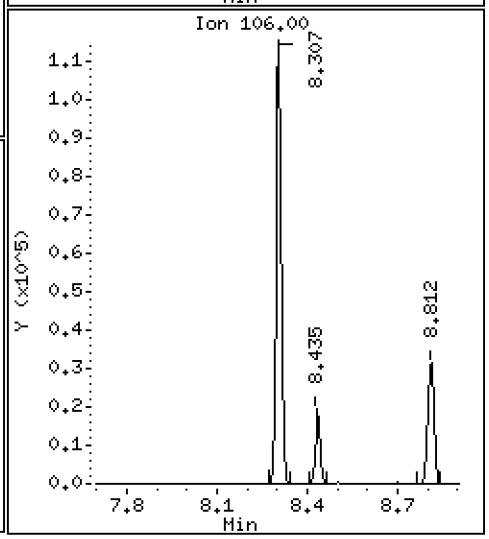












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

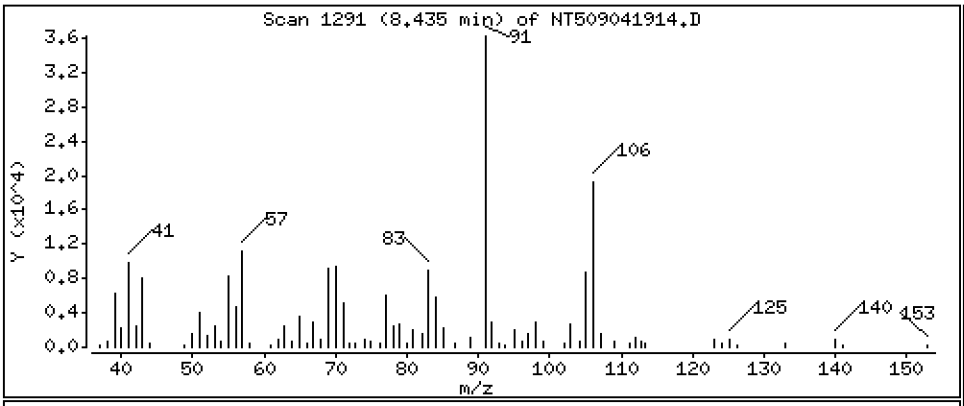
Operator: PB

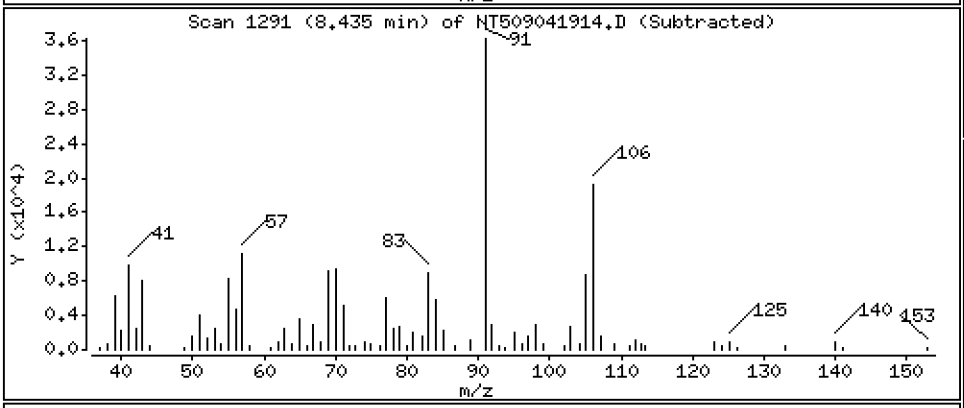
Column phase: RTXVMS

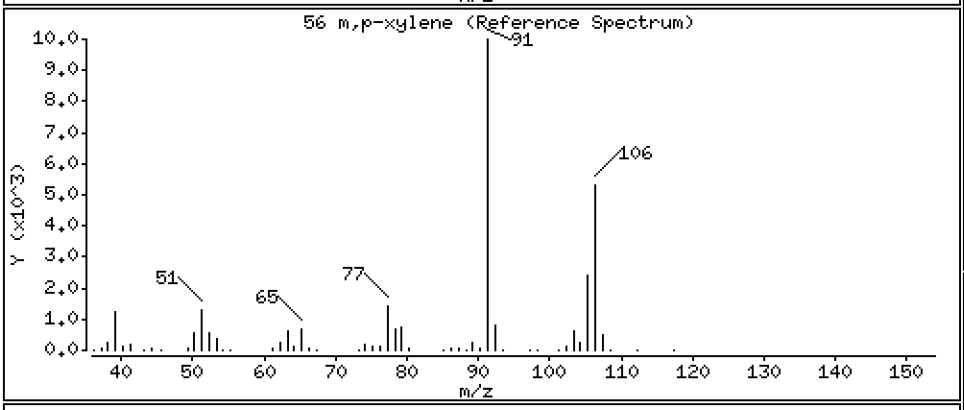
Column diameter: 0.18

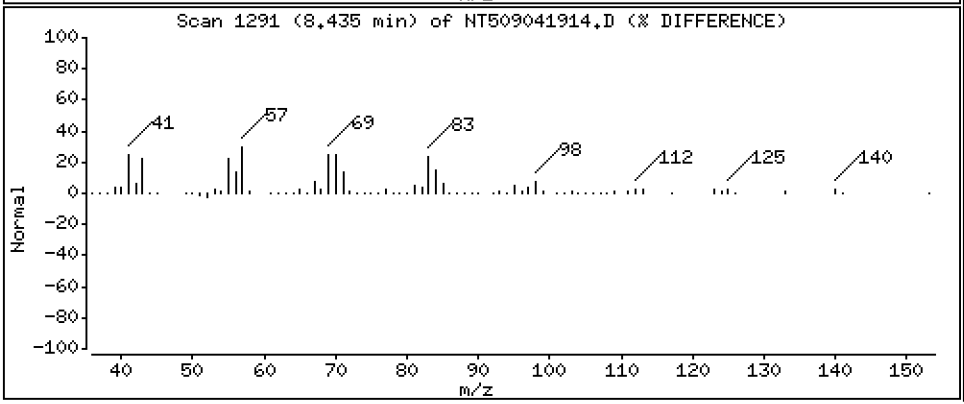
56 m,p-xylene

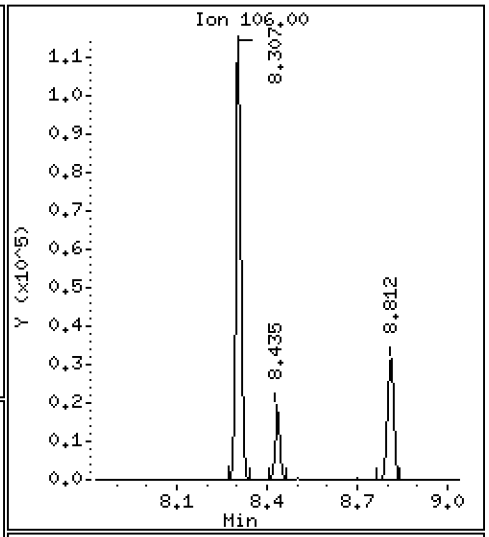
Concentration: 2.974 ug/Kg

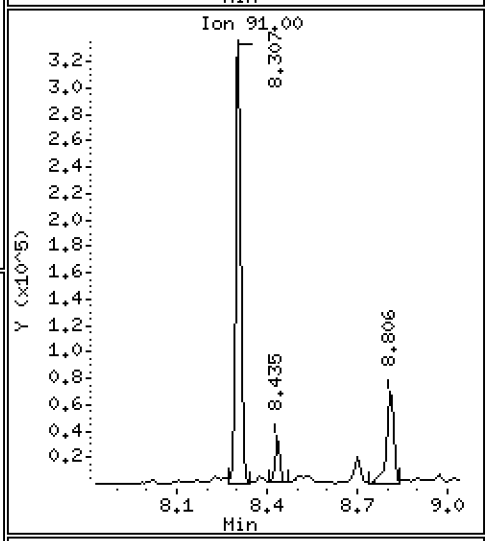


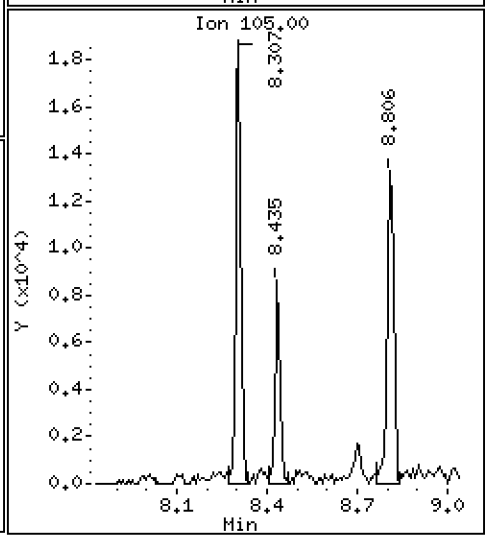












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

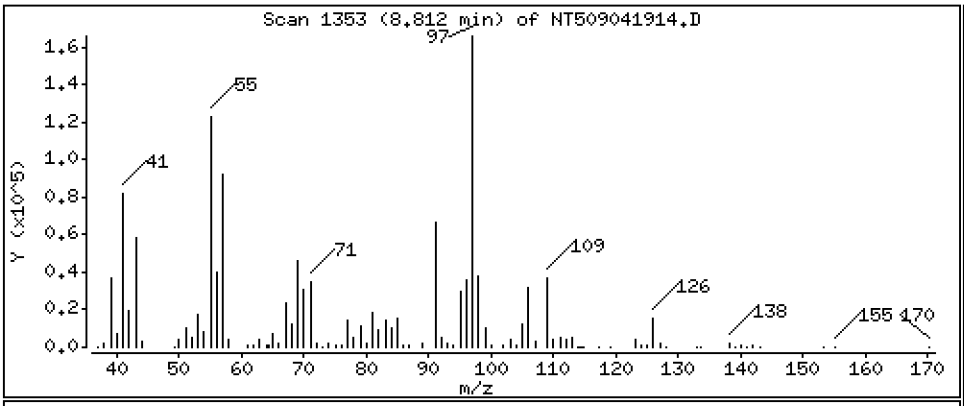
Operator: PB

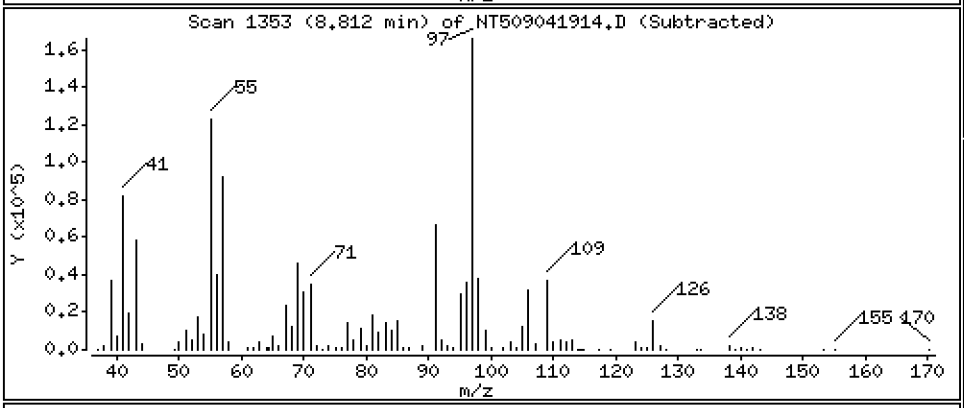
Column phase: RTXVMS

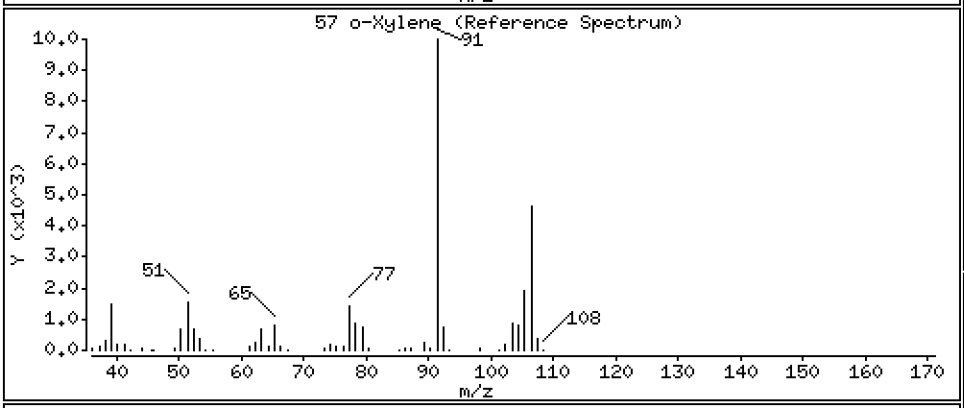
Column diameter: 0.18

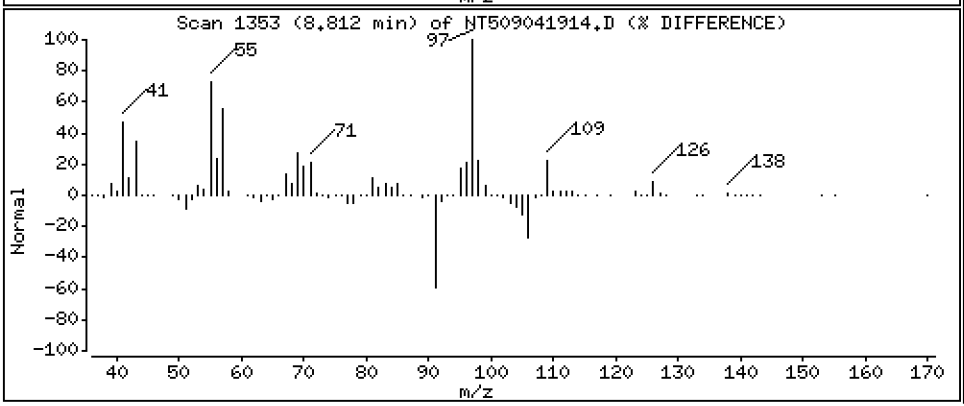
57 o-Xylene

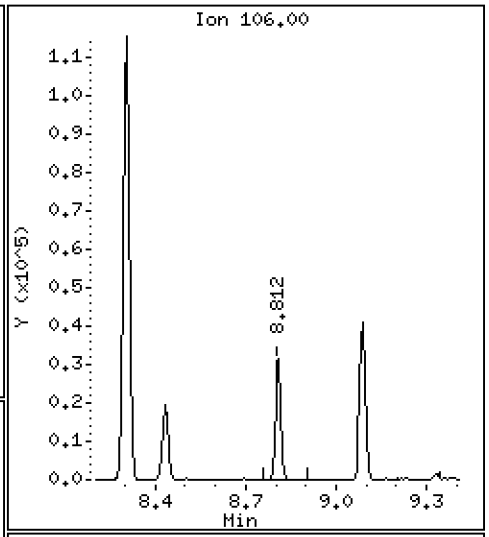
Concentration: 5.728 ug/Kg

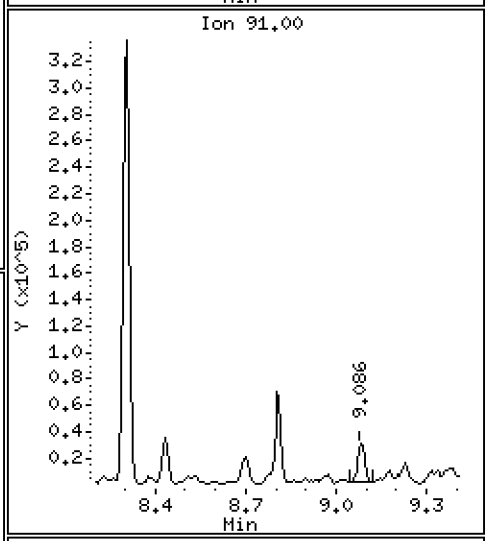


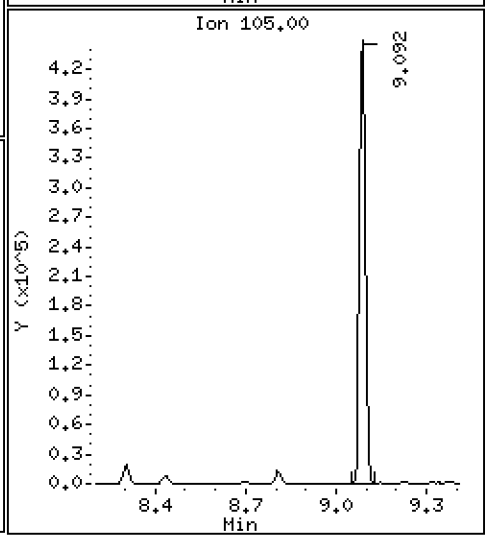












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

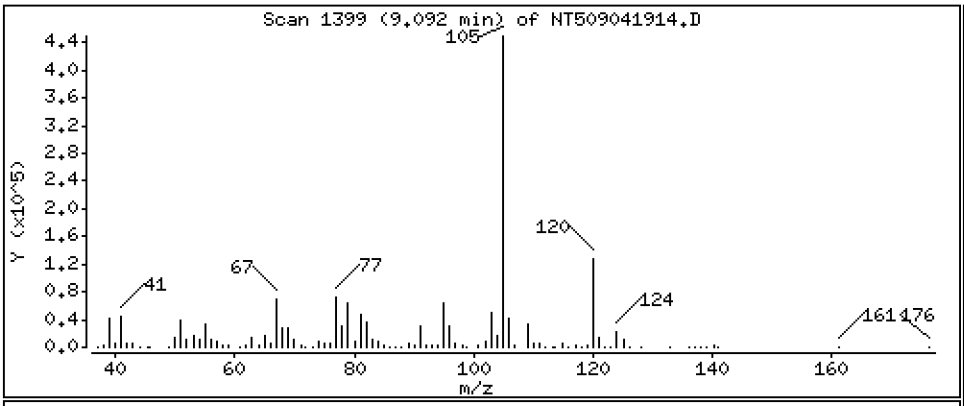
Operator: PB

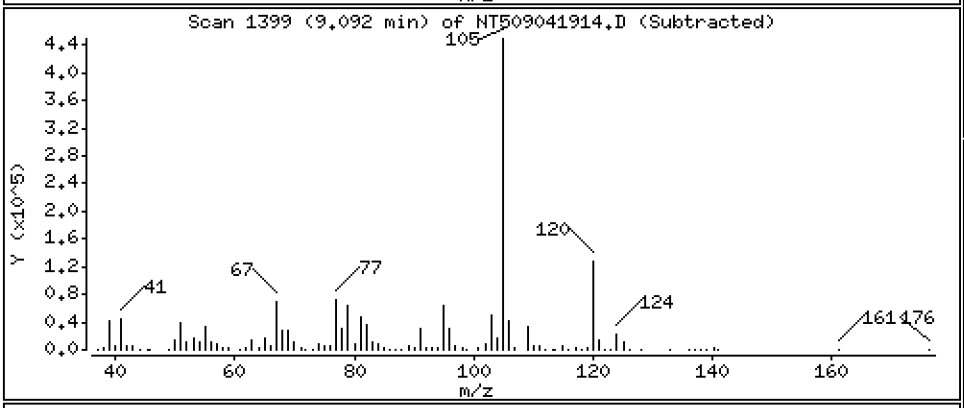
Column phase: RTXVMS

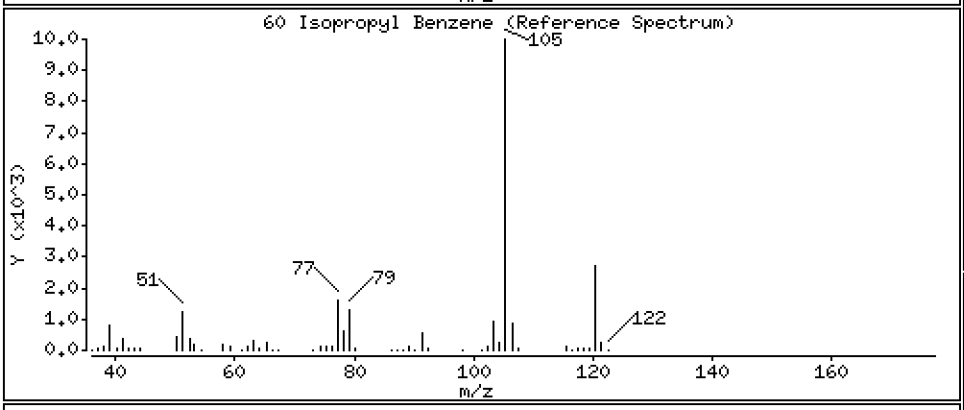
Column diameter: 0.18

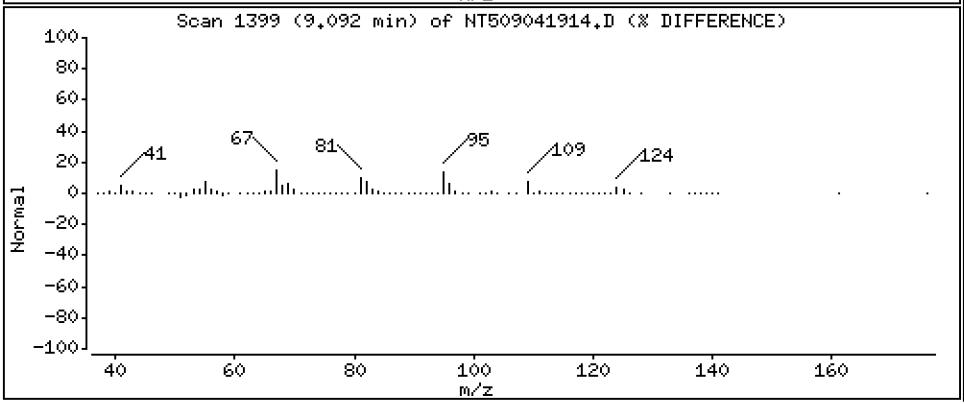
60 Isopropyl Benzene

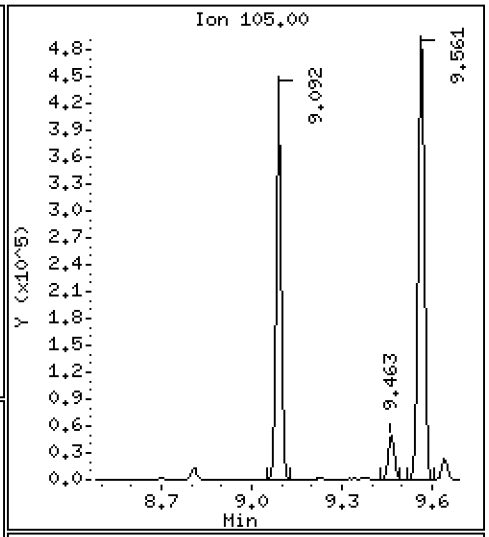
Concentration: 29.557 ug/Kg

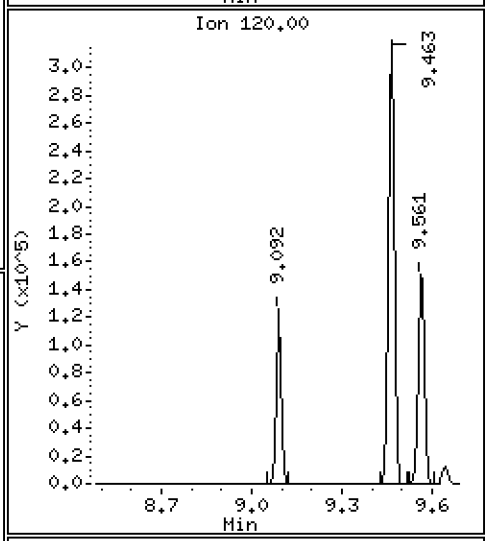


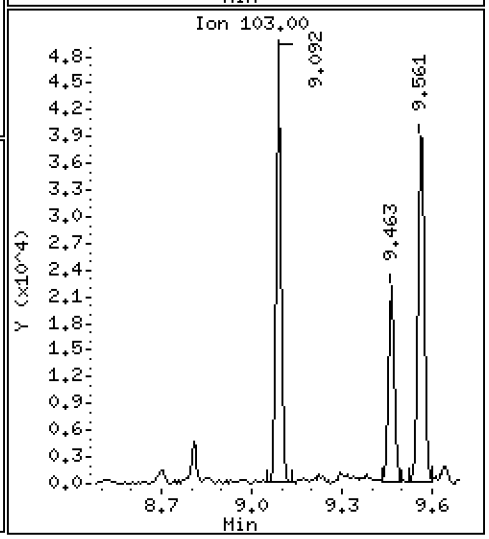












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

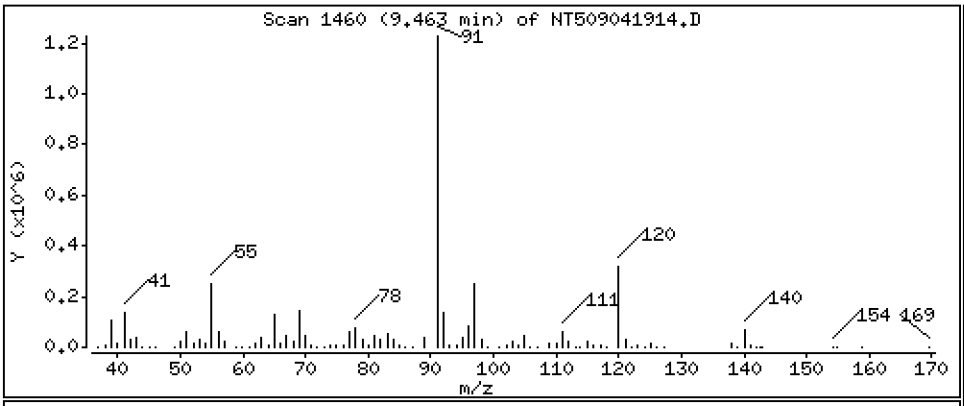
Operator: PB

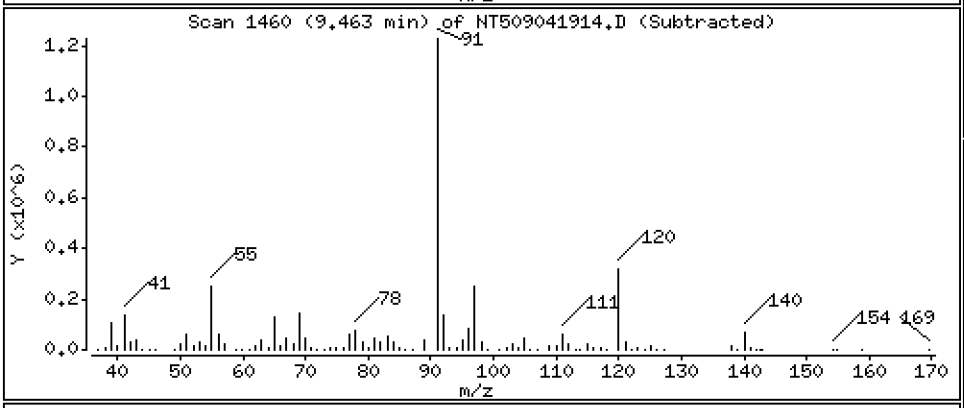
Column phase: RTXVMS

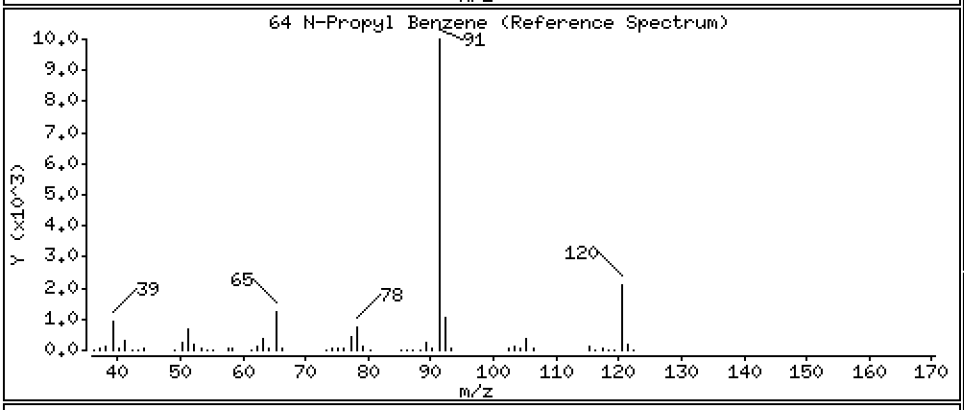
Column diameter: 0.18

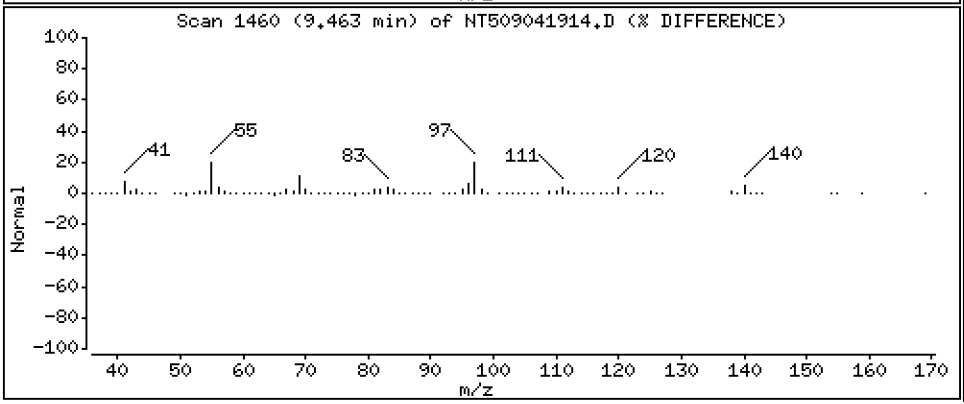
64 N-Propyl Benzene

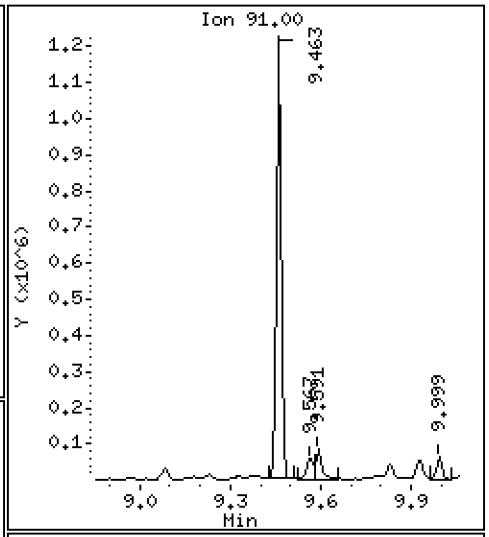
Concentration: 68.414 ug/Kg

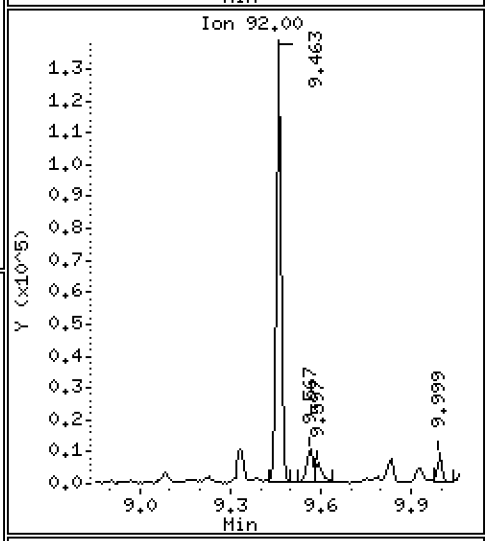


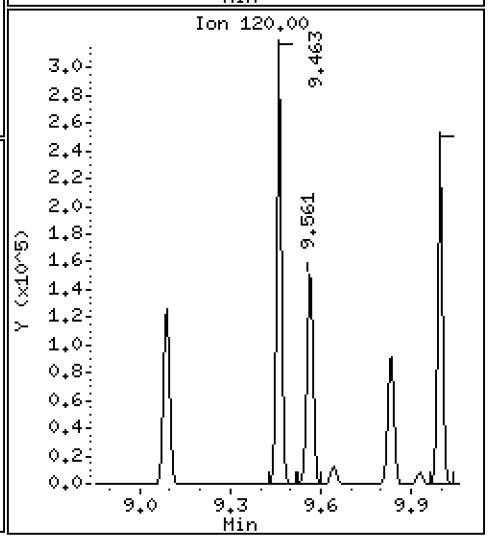












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

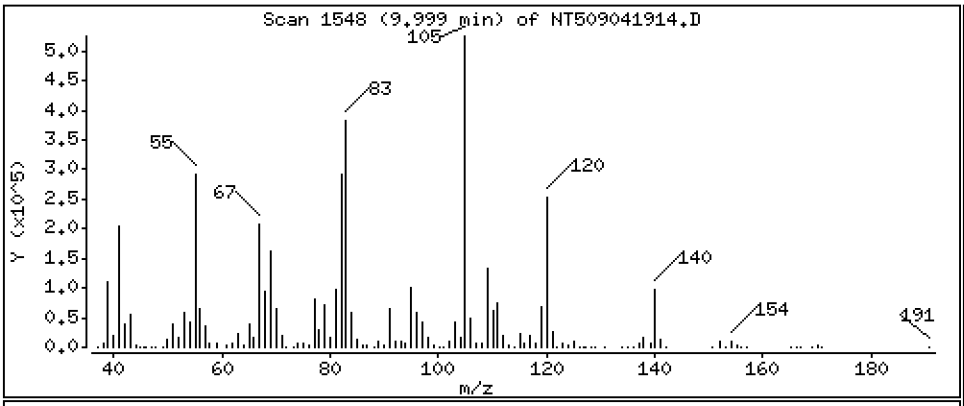
Operator: PB

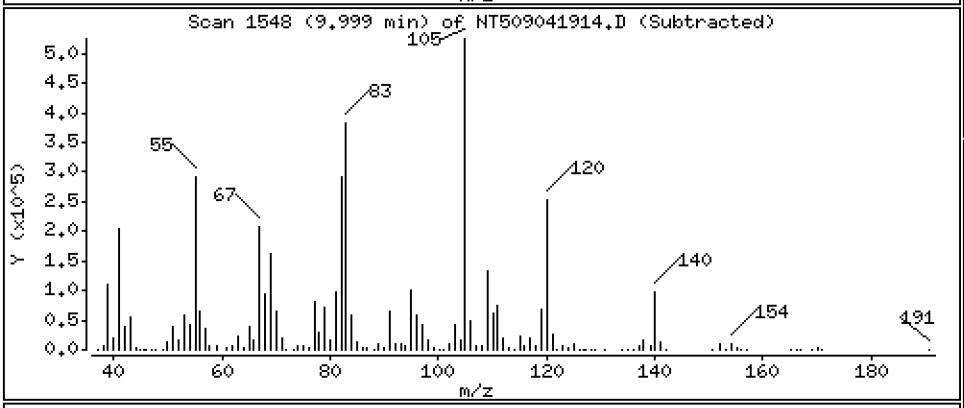
Column phase: RTXVMS

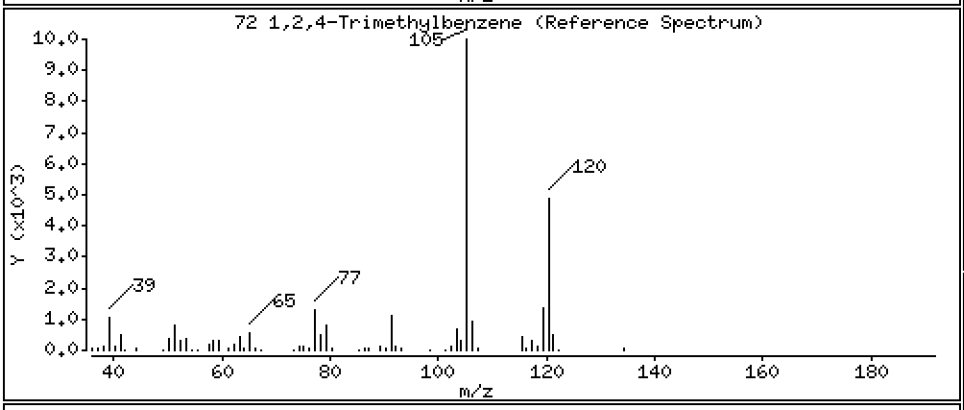
Column diameter: 0.18

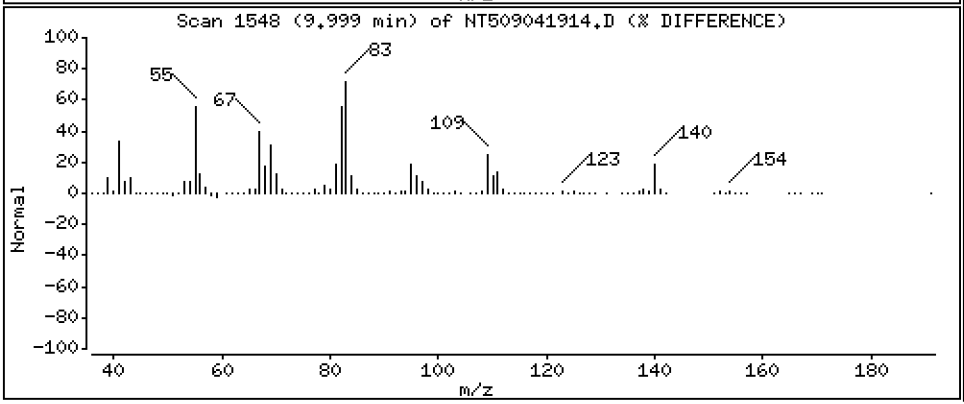
72 1,2,4-Trimethylbenzene

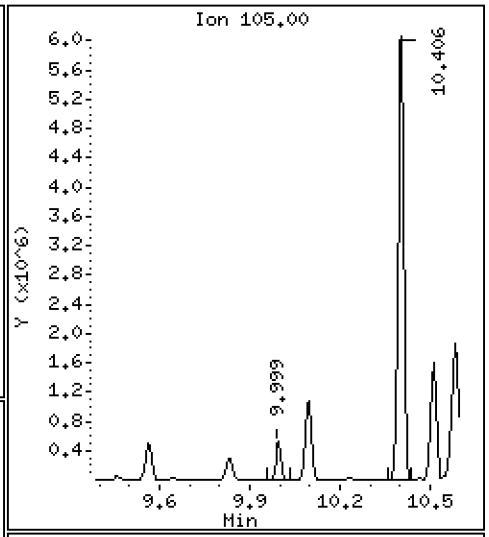
Concentration: 41.136 ug/Kg

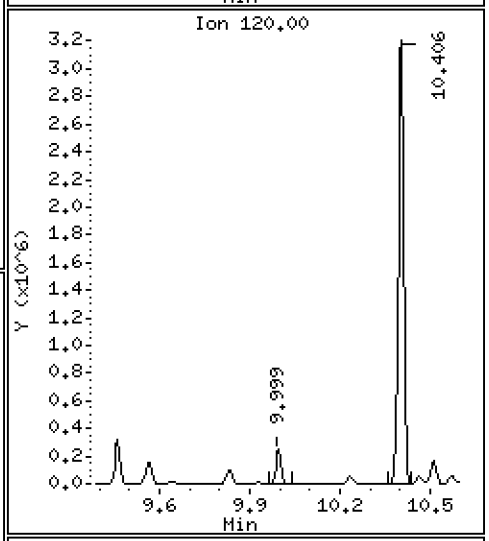


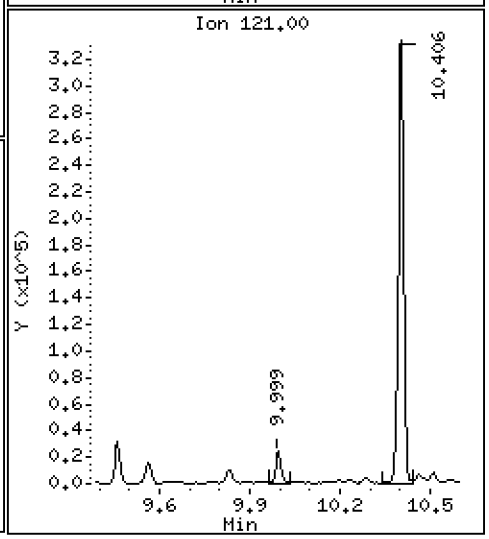












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

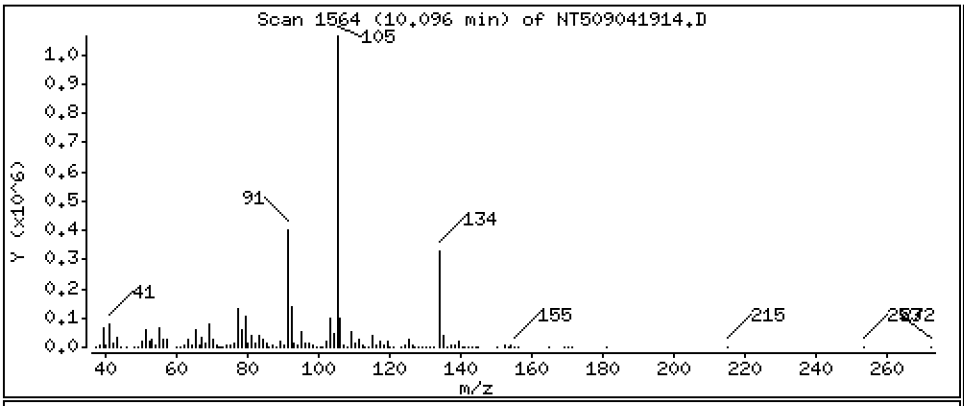
Operator: PB

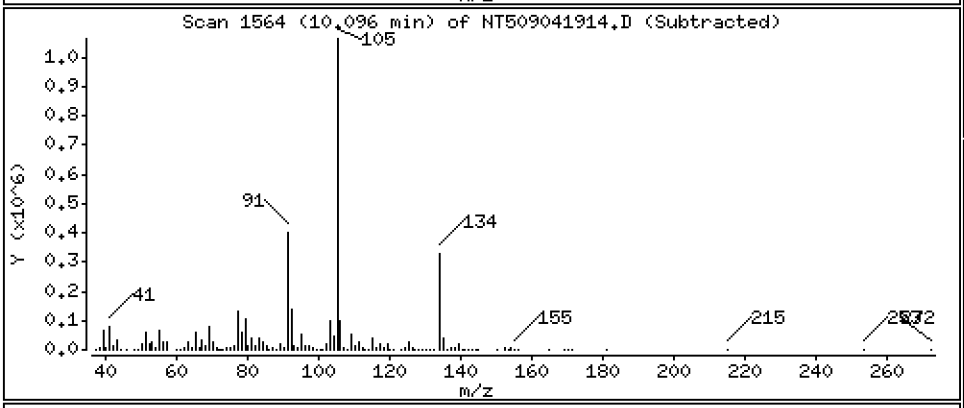
Column phase: RTXVMS

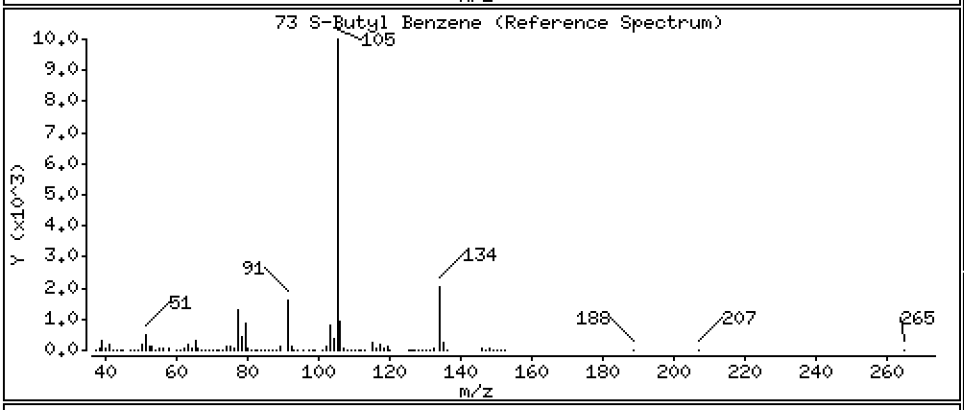
Column diameter: 0.18

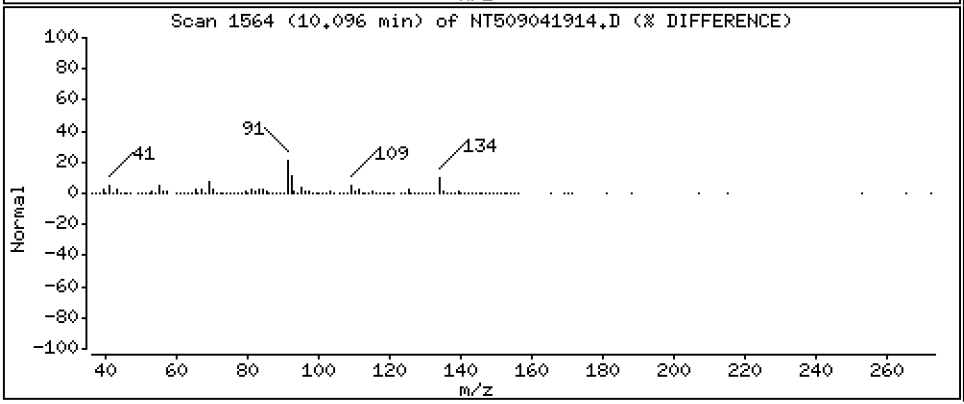
73 S-Butyl Benzene

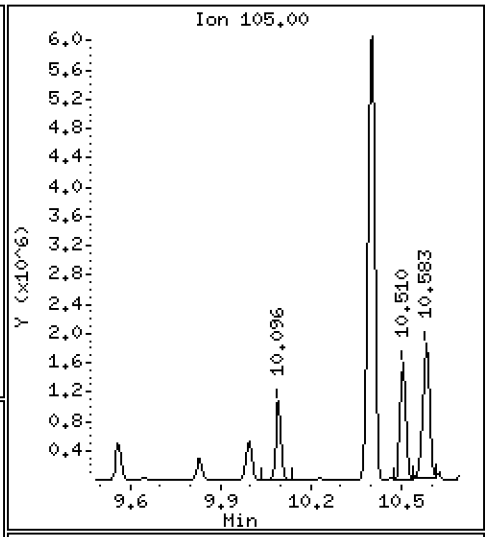
Concentration: 64.052 ug/Kg

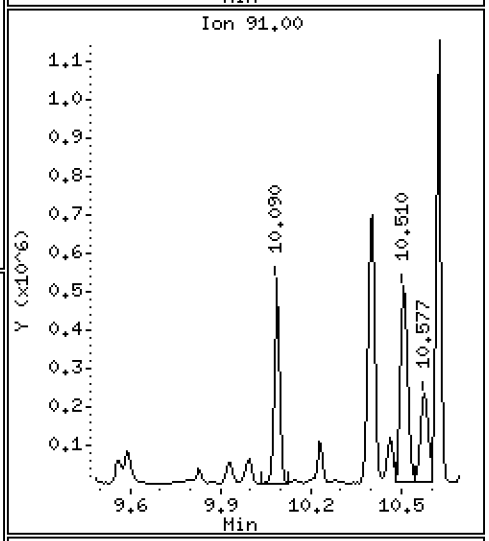


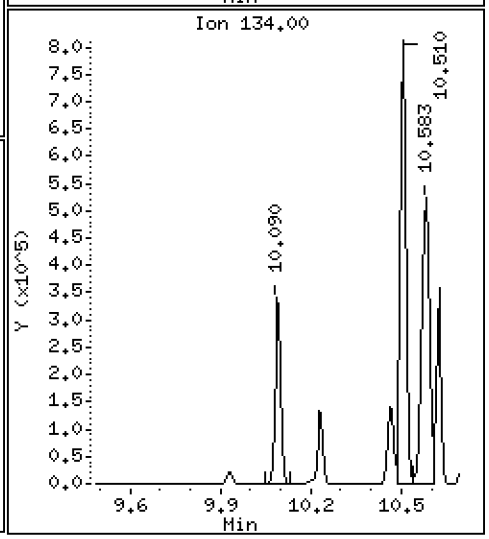












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

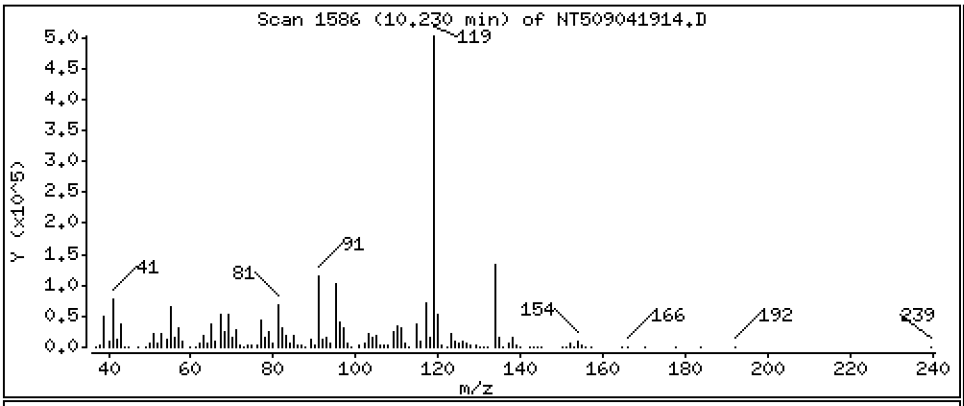
Operator: PB

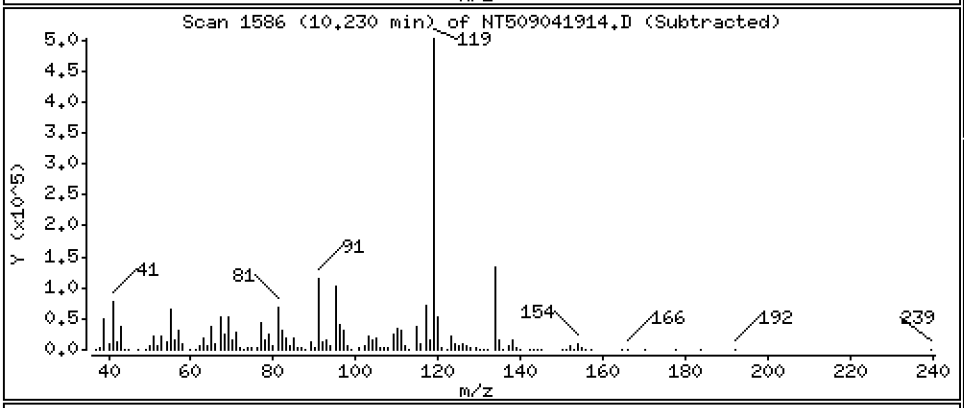
Column phase: RTXVMS

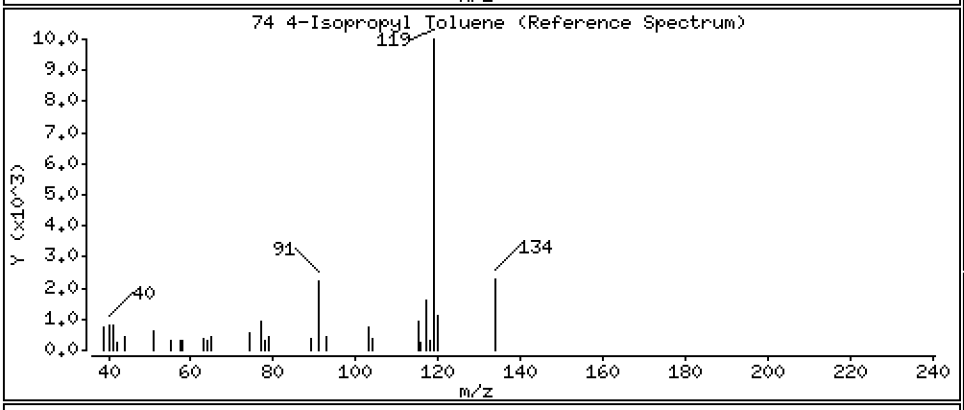
Column diameter: 0.18

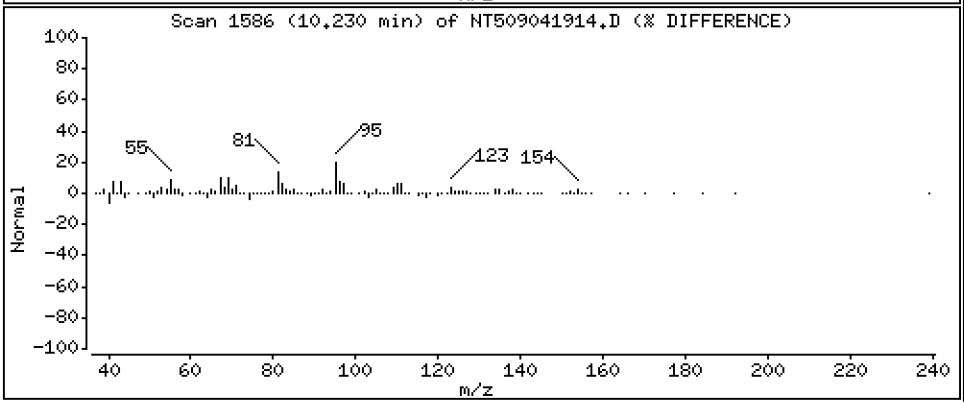
74 4-Isopropyl Toluene

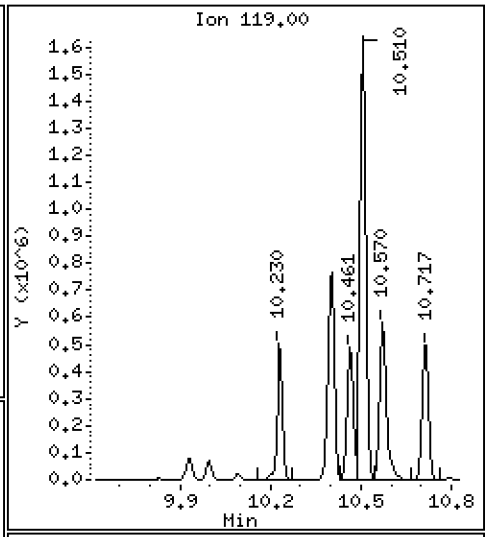
Concentration: 35.305 ug/Kg

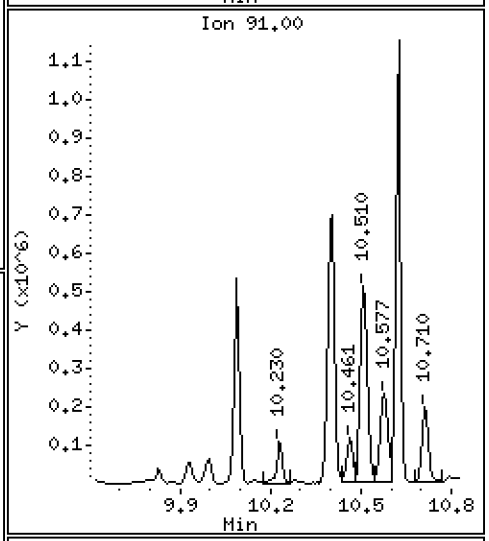


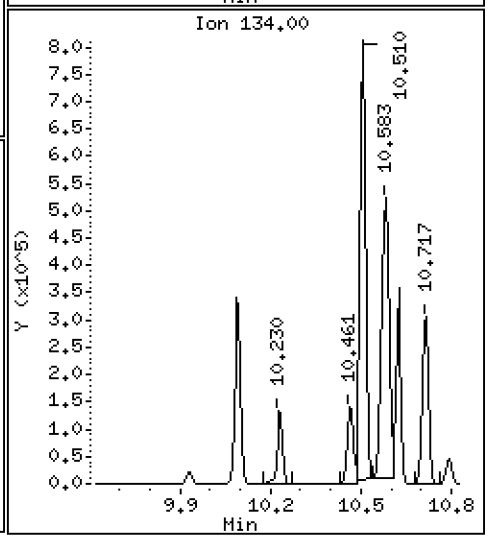












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Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

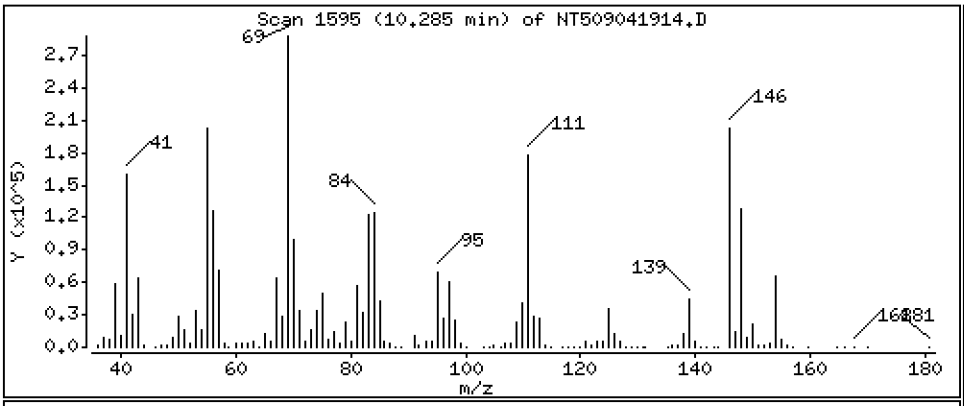
Operator: PB

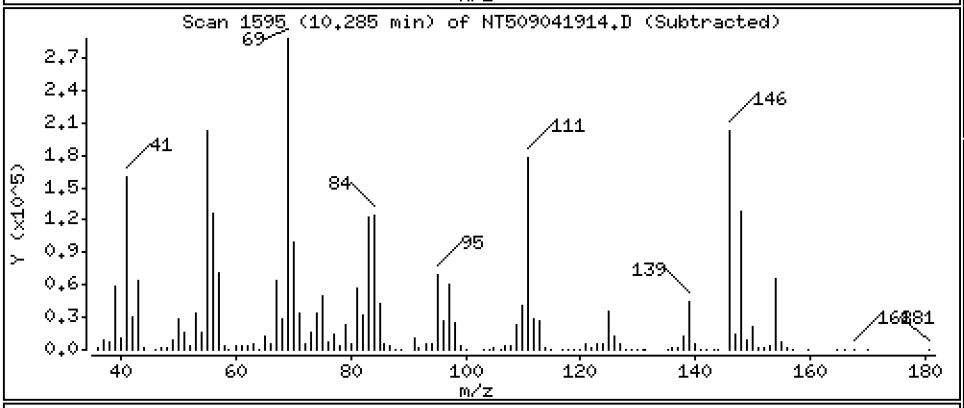
Column phase: RTXVMS

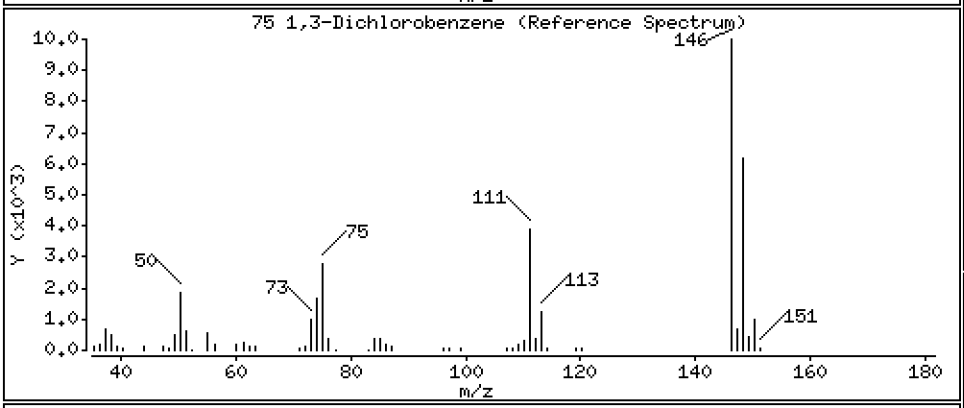
Column diameter: 0.18

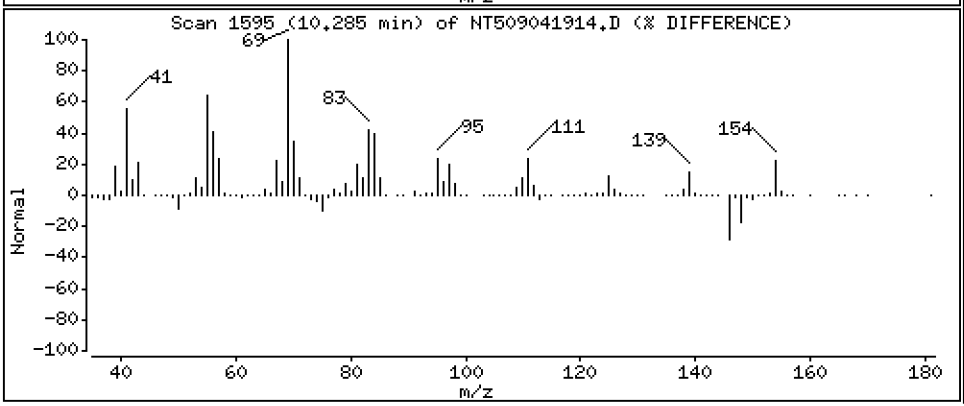
75 1,3-Dichlorobenzene

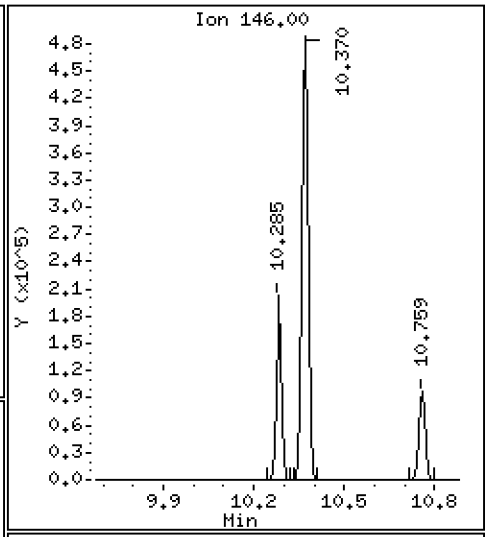
Concentration: 25.918 ug/Kg

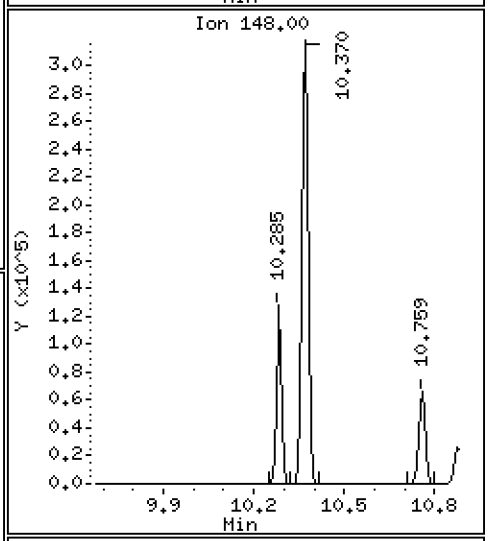


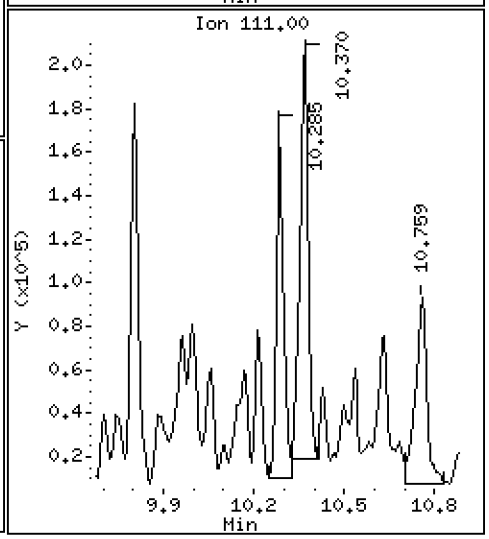












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

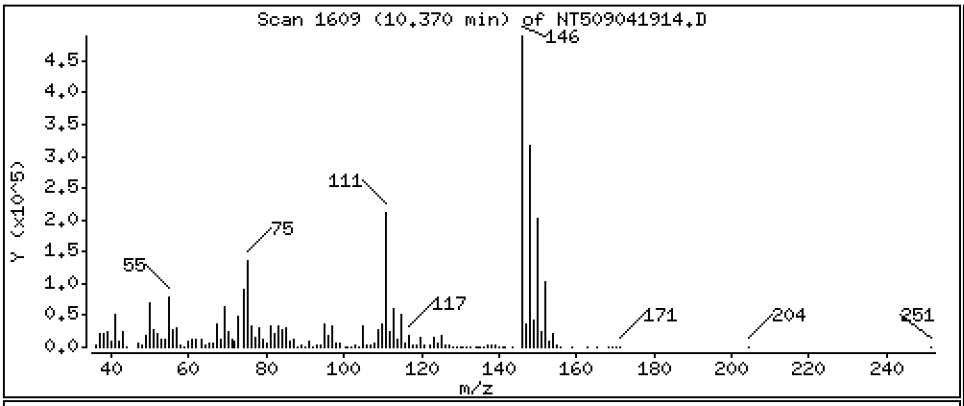
Operator: PB

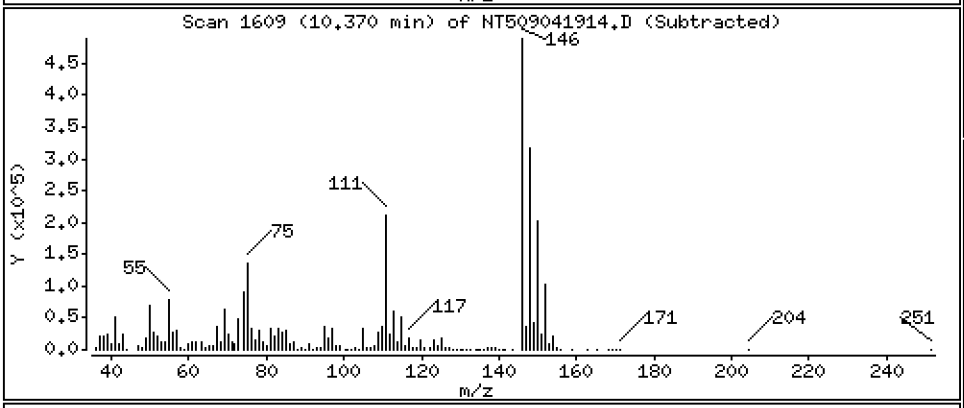
Column phase: RTXVMS

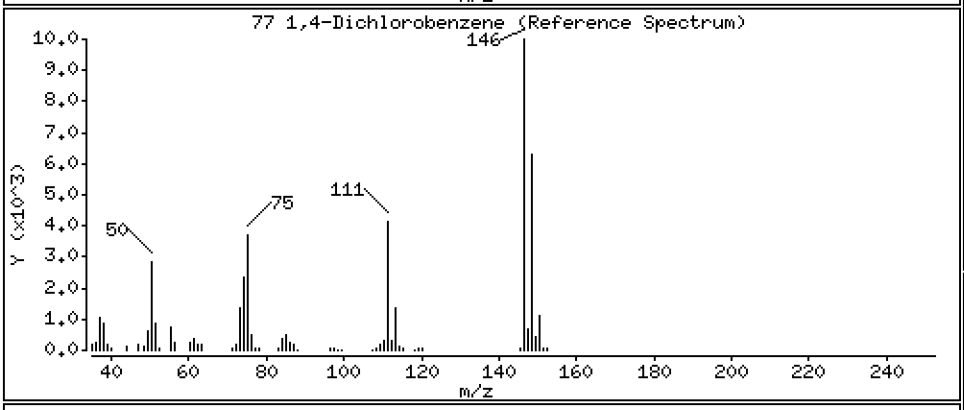
Column diameter: 0.18

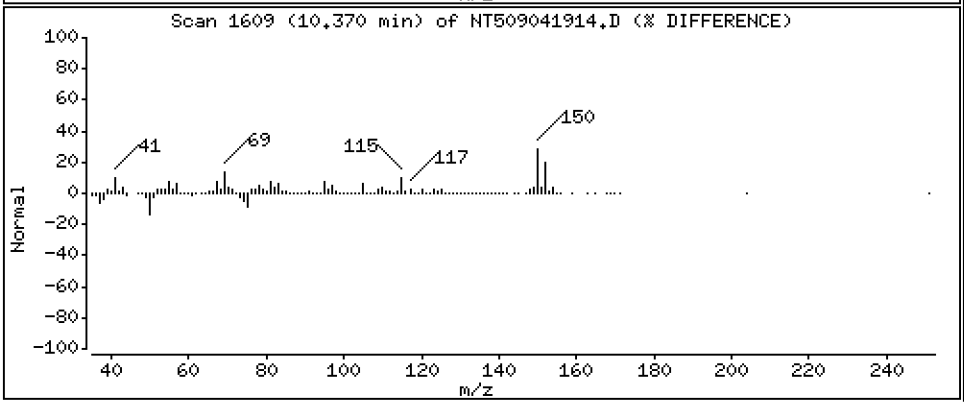
77 1,4-Dichlorobenzene

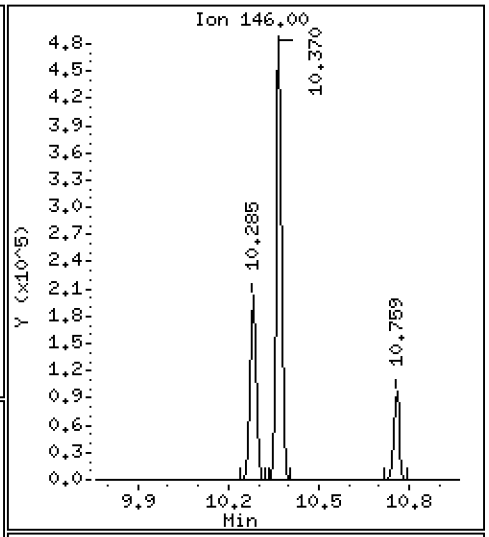
Concentration: 63.643 ug/Kg

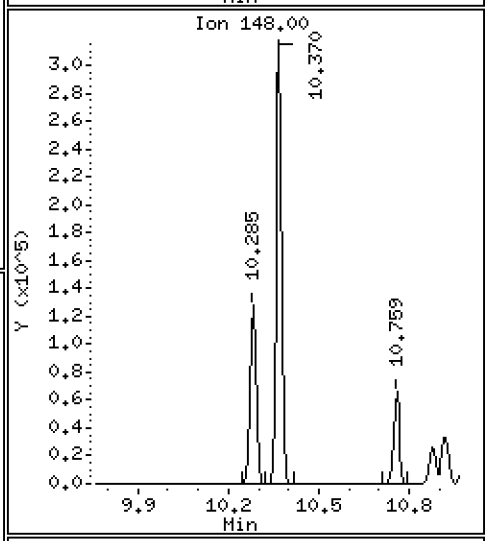


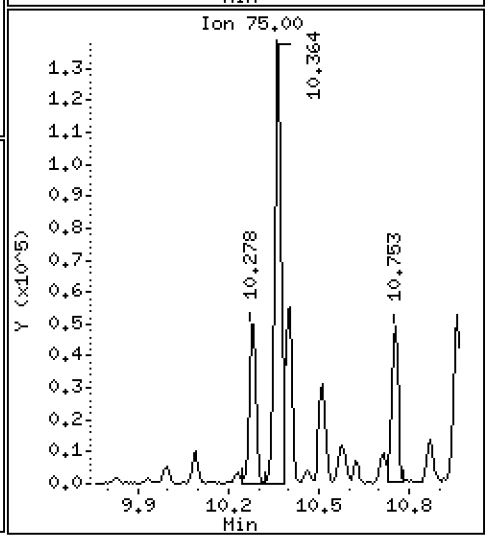












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041914.D

Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

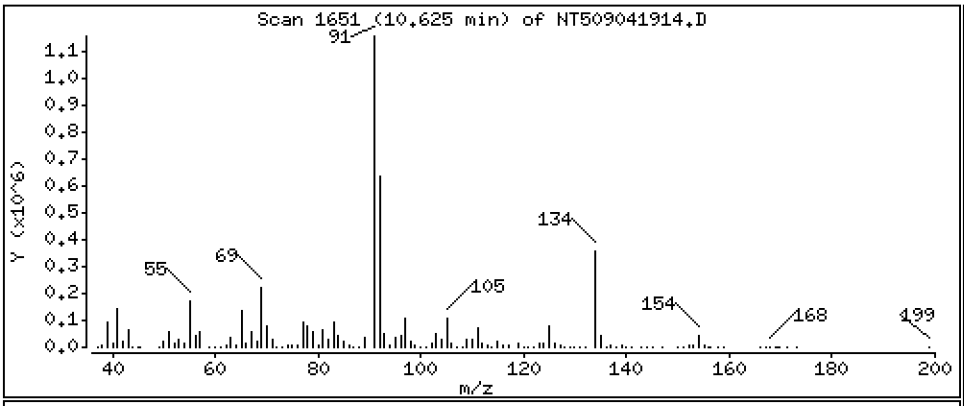
Operator: PB

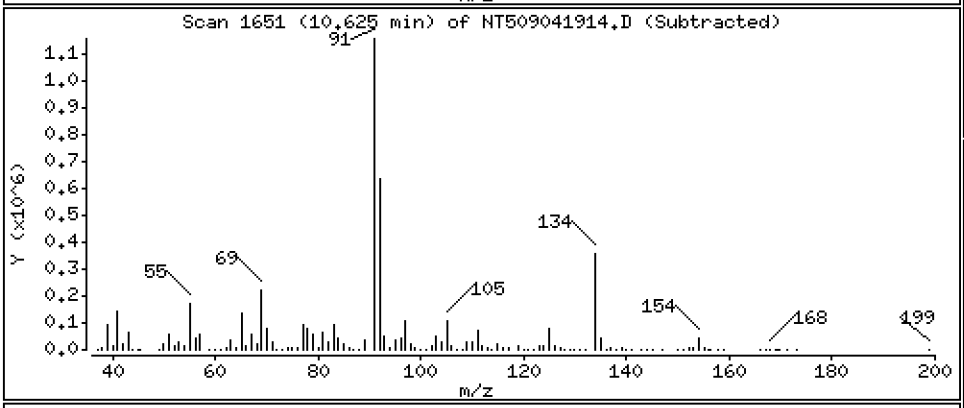
Column phase: RTXVMS

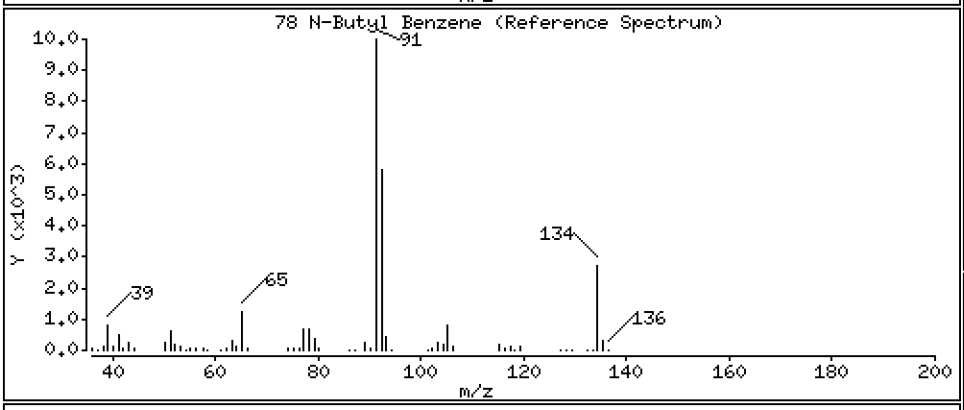
Column diameter: 0.18

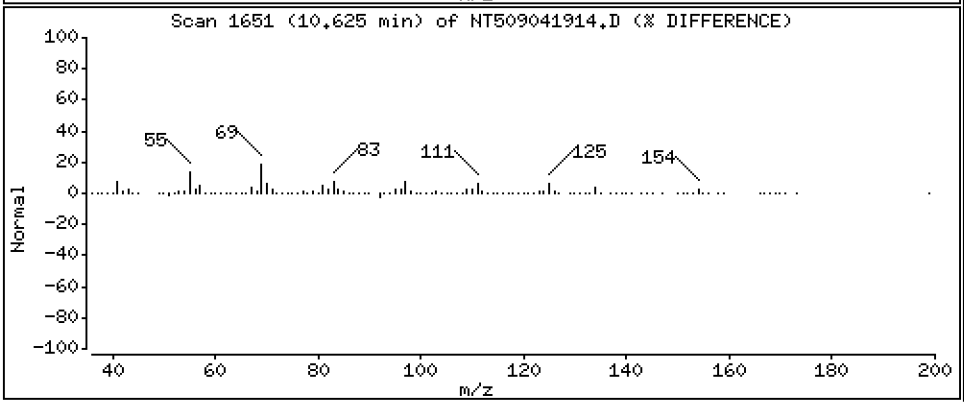
78 N-Butyl Benzene

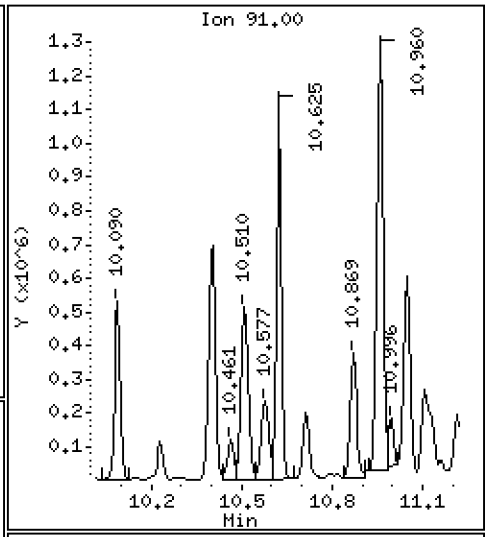
Concentration: 88.048 ug/Kg

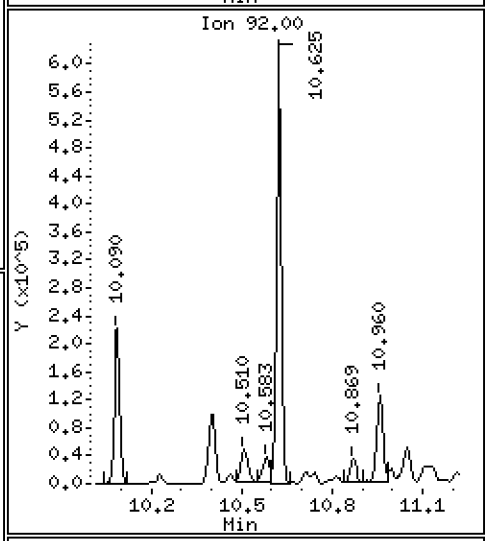


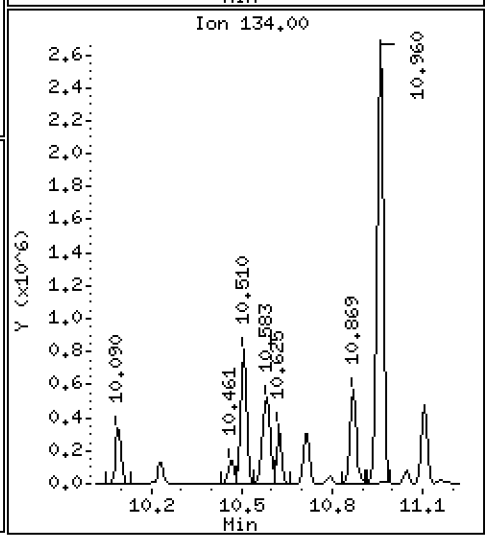












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Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

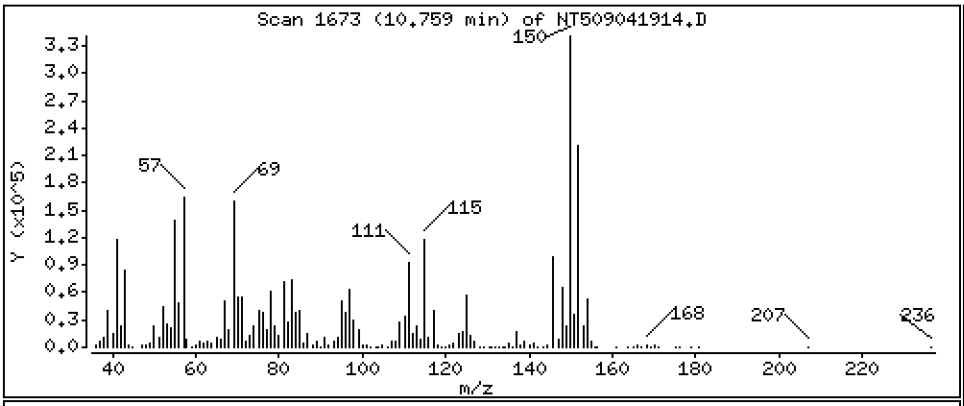
Operator: PB

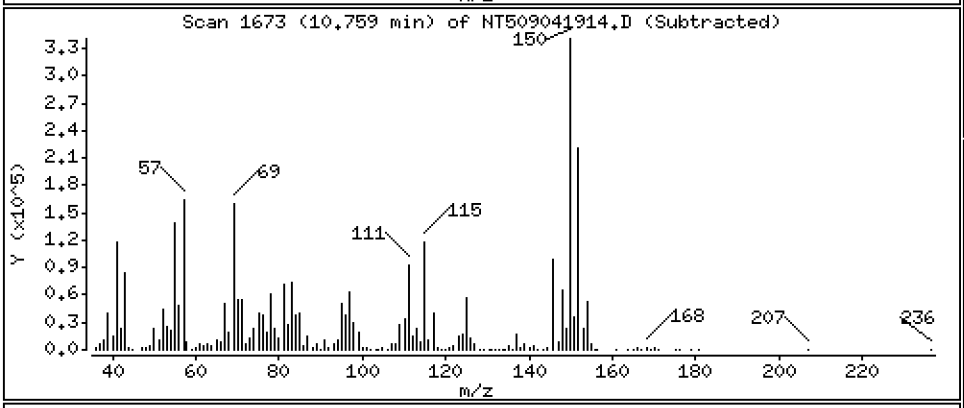
Column phase: RTXVMS

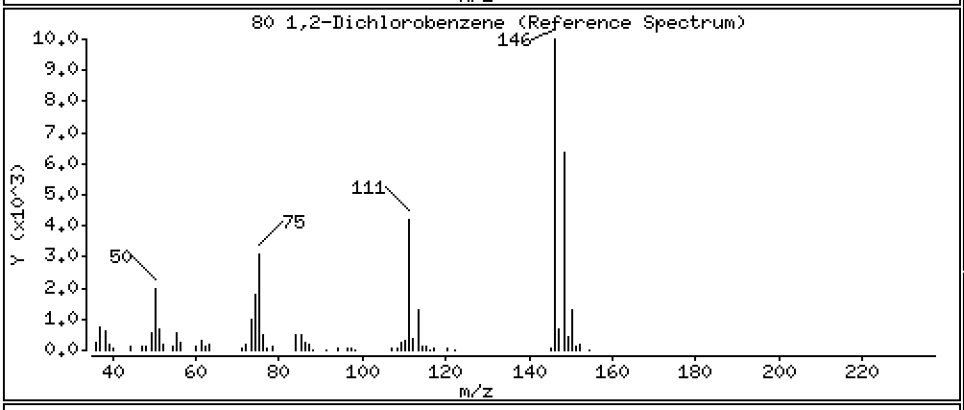
Column diameter: 0.18

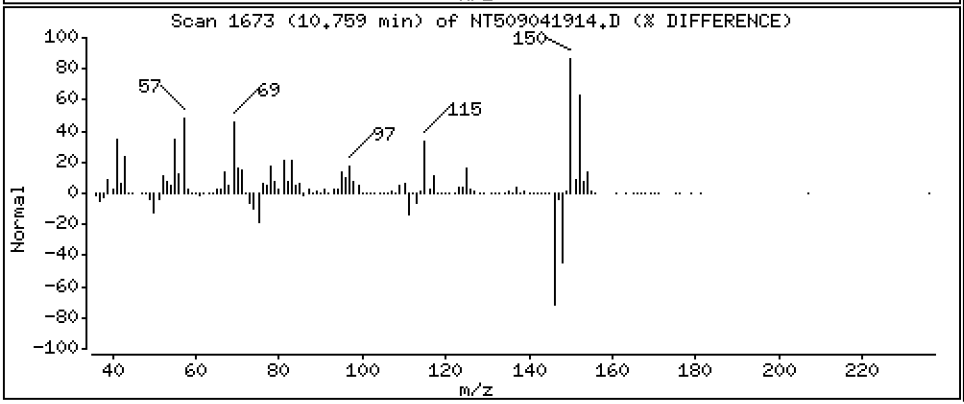
80 1,2-Dichlorobenzene

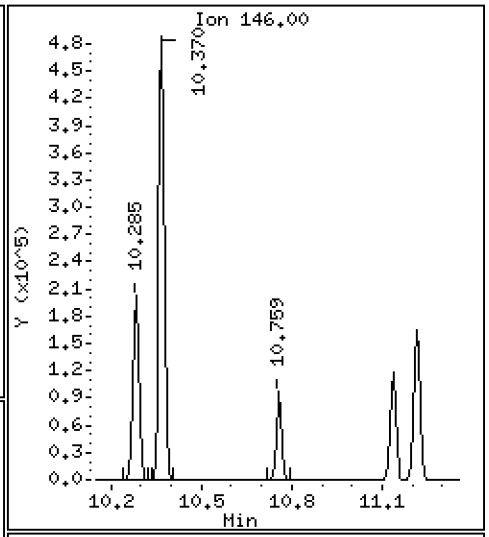
Concentration: 13.892 ug/Kg

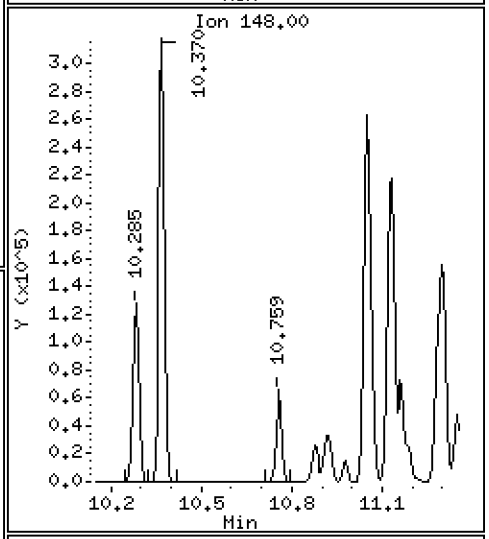


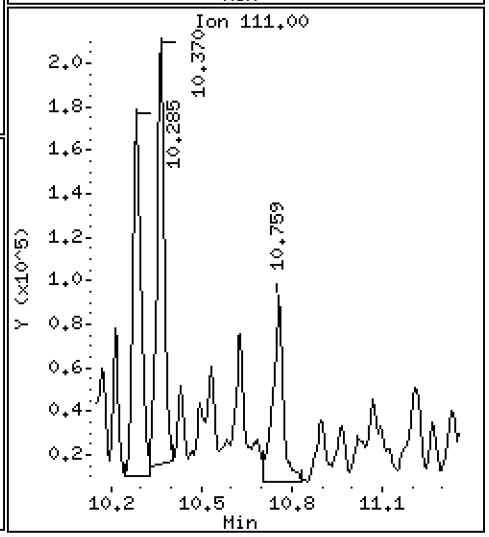












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Date : 04-SEP-2019 19:26

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-20,50X

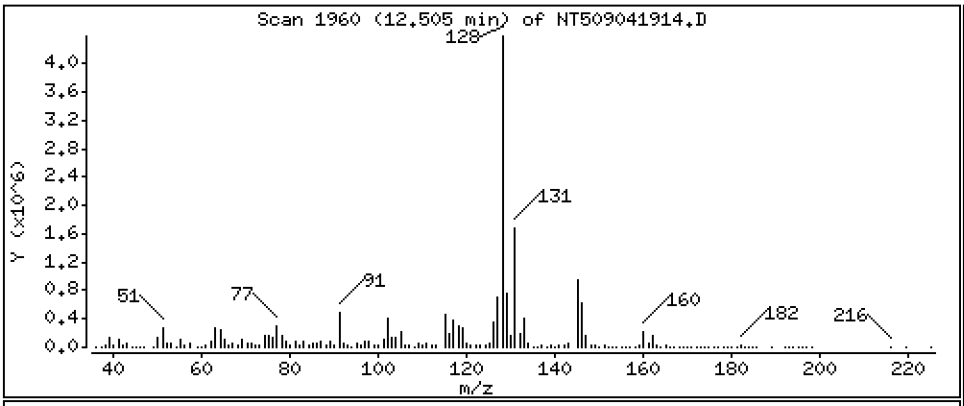
Operator: PB

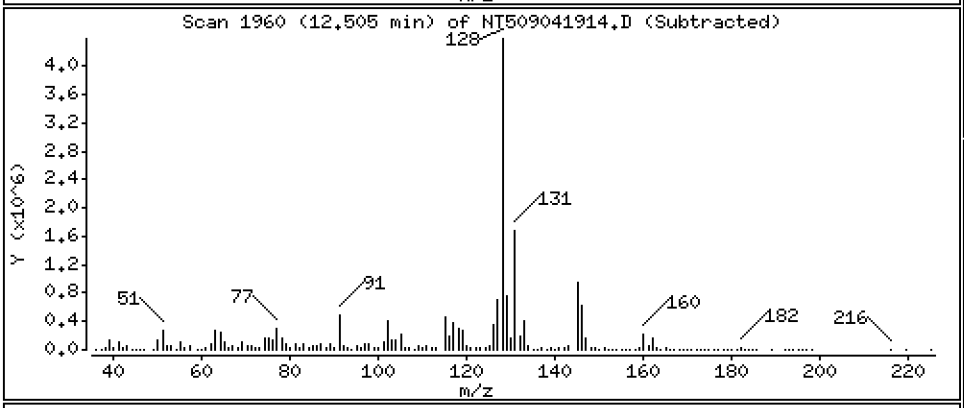
Column phase: RTXVMS

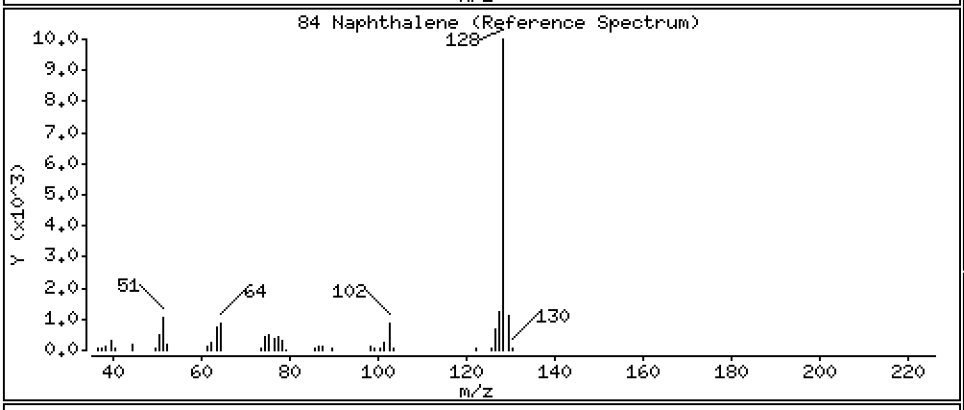
Column diameter: 0.18

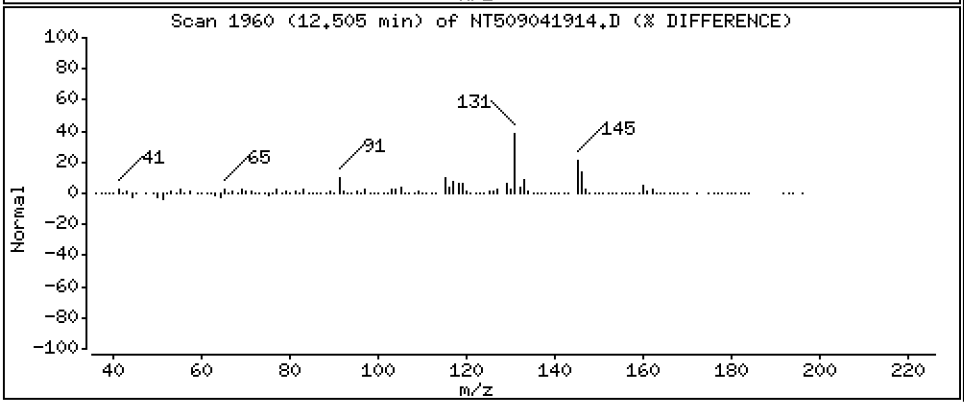
84 Naphthalene

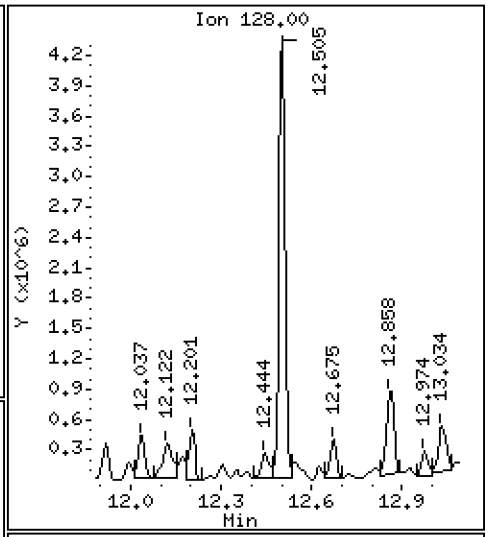
Concentration: 506.08 ug/Kg

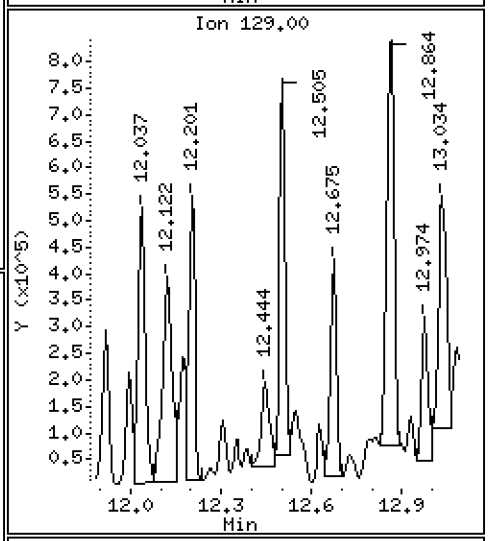


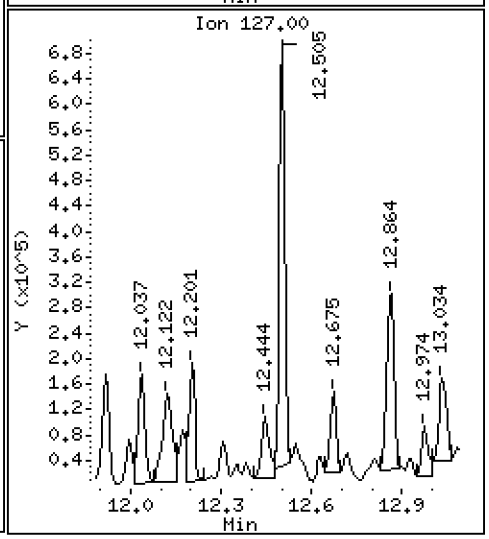












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041914.D
Lab Smp Id: 19H0481-20
Inj Date : 04-SEP-2019 19:26
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-20,50X
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	1.834	1.840	(0.344)	3514	1.49942	1.499
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.497	2.540	(0.468)	2623	0.31543	0.3154
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	2.637	2.661	(0.494)	14876	4.98888	4.989(H)
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.142	3.148	(0.589)	5558	2.26815	2.268
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.918)	319350	66.9414	66.941(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	5.223	5.222	(0.902)	4864	0.33087	0.3309
*	31 Pentafluorobenzene	168	5.338	5.332	(1.000)	388442	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.003)	300542	64.3024	64.302(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	919248	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.938	6.938	(1.199)	1204036	53.0331	53.033(R)
	43	Toluene	92	6.981	6.981	(1.206)	4106	0.39483	0.3948
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.264	8.258	(1.000)	954708	50.0000	
	53	Chlorobenzene	112	8.276	8.270	(1.001)	3360268	259.035	259.03
	54	Ethyl Benzene	91	8.307	8.301	(1.005)	462307	21.7909	21.791
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	8.435	8.435	(1.021)	24913	2.97378	2.974
	57	o-Xylene	106	8.812	8.806	(1.066)	45129	5.72829	5.728(M)
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	9.092	9.085	(0.878)	623975	29.5568	29.557
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	422868	51.0928	51.093(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	9.463	9.457	(0.914)	1657360	68.4138	68.414
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.998	9.992	(0.965)	707632	41.1355	41.136
	73	S-Butyl Benzene	105	10.095	10.089	(0.975)	1494859	64.0519	64.052
	74	4-Isopropyl Toluene	119	10.229	10.223	(0.988)	705916	35.3049	35.305
	75	1,3-Dichlorobenzene	146	10.284	10.278	(0.993)	273225	25.9181	25.918
*	76	d4-1,4-Dichlorobenzene	152	10.357	10.351	(1.000)	518315	50.0000	
	77	1,4-Dichlorobenzene	146	10.369	10.363	(1.001)	681990	63.6431	63.643
	78	N-Butyl Benzene	91	10.625	10.619	(1.026)	1508201	88.0483	88.048
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	503710	51.8689	51.869(R)
	80	1,2-Dichlorobenzene	146	10.759	10.752	(1.039)	138794	13.8921	13.892
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.505	12.486	(1.207)	6641399	506.077	506.08
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041914.D
Lab Smp Id: 19H0481-20
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	388442	-15.18
35 1,4-Difluorobenze	852165	426083	1704330	919248	7.87
52 d5-Chlorobenzene	803678	401839	1607356	954708	18.79
76 d4-1,4-Dichlorobe	439766	219883	879532	518315	17.86

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.12
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.08
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.36	0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 05-Sep-2019 13:07

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-20
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	66.941	133.88	
$ 32 d4-1,2-Dichloroeth	50.000	64.302	128.60	
$ 42 d8-Toluene	50.000	53.033	106.07	
$ 62 4-Bromofluorobenze	50.000	51.093	102.19	
$ 79 d4-1,2-Dichloroben	50.000	51.869	103.74	

REVIEW SUMMARY FOR FILE - NT509041914.D

Lab ID: 19H0481-20
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 19:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.494	0.499	-0.0051	Iodomethane
0.468	0.476	-0.0085	Carbon Disulfide

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

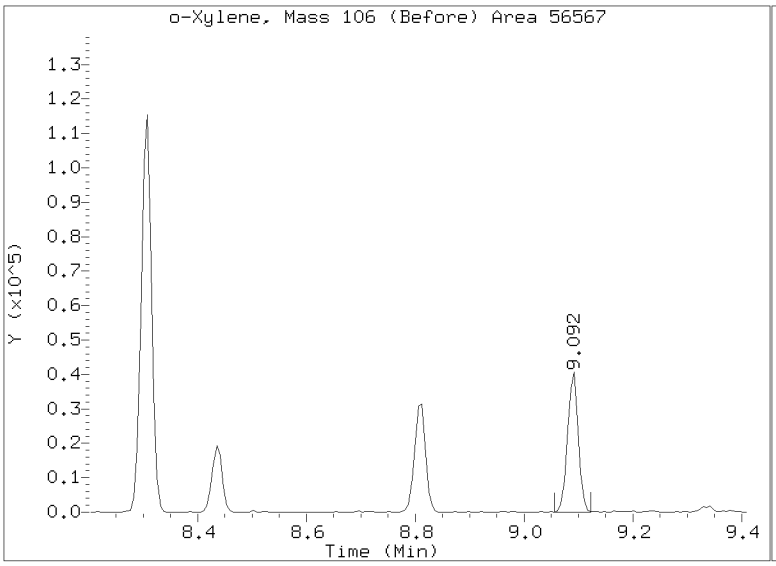
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500

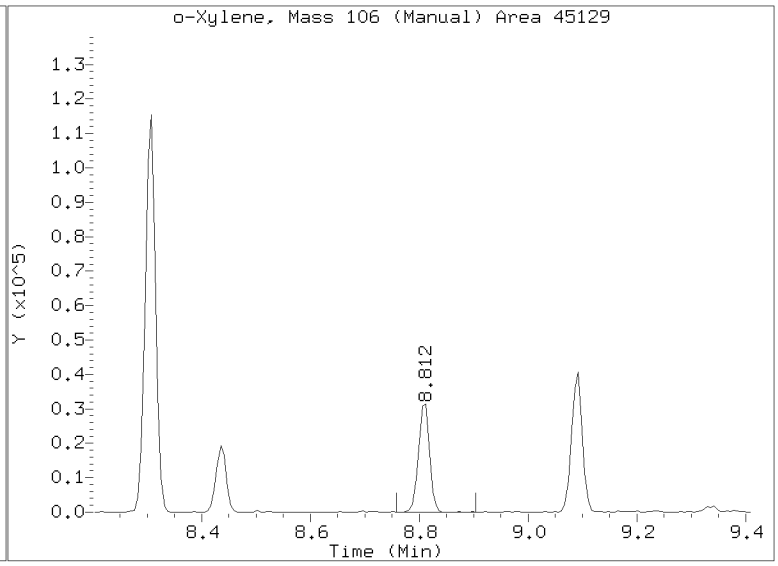
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190904.b/NT509041914.D
Injection Date: 04-SEP-2019 19:26
Lab ID:19H0481-20 Client ID:
Report Date: 09/05/2019 13:07





P40-UST-04-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-22 D	SDG:	19H0481
Sampled:	08/30/19 12:25	Prepared:	09/05/19 13:58	File ID:	V309051923.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 21:08
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

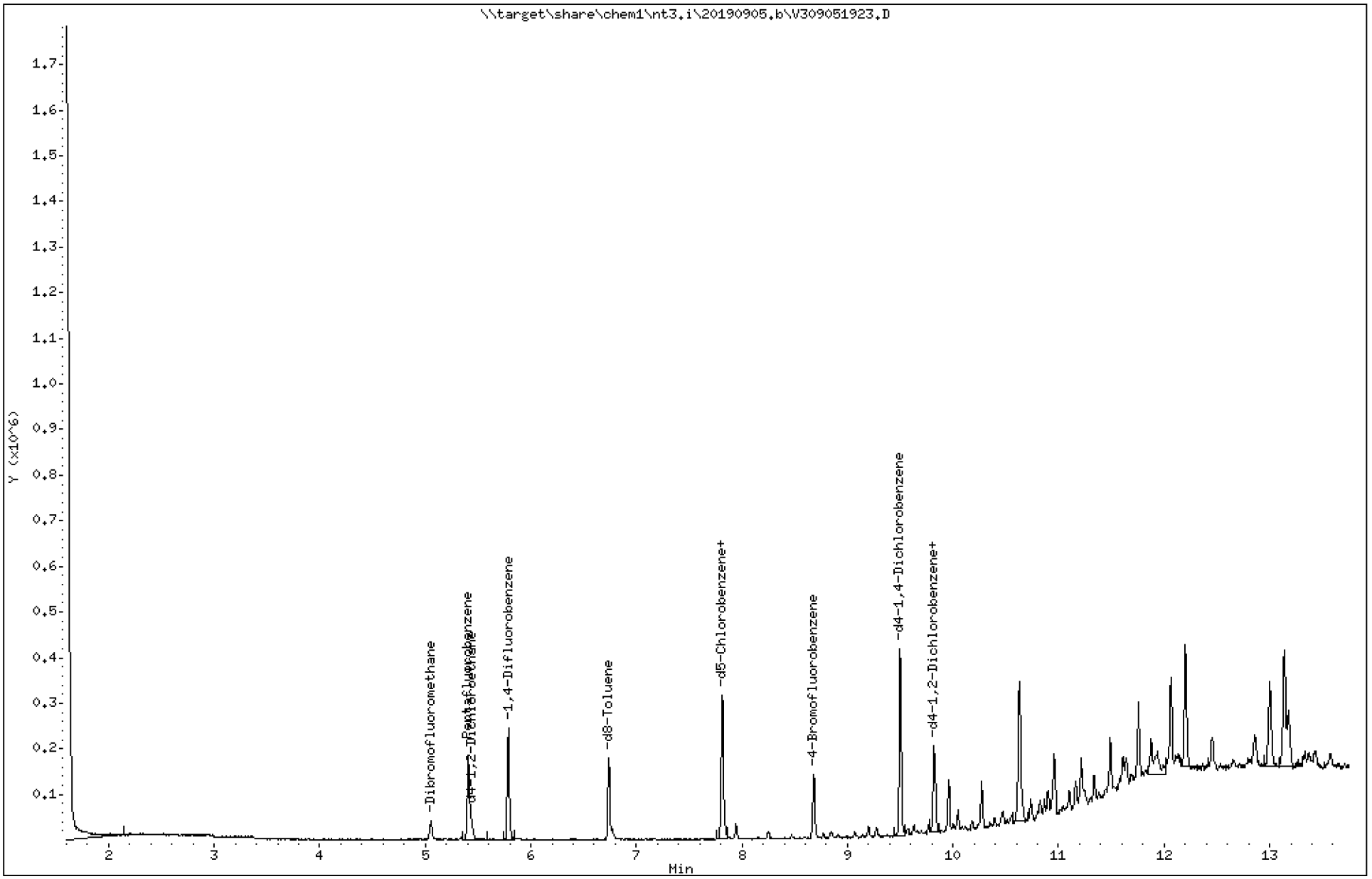
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.07	J	0.03	0.20
108-88-3	Toluene	1	0.36		0.04	0.20
100-41-4	Ethylbenzene	1	0.15	J	0.04	0.20
179601-23-1	m,p-Xylene	1	0.60		0.05	0.40
95-47-6	o-Xylene	1	0.29		0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.93	98.6	80 - 120	
4-Bromofluorobenzene	5.0000	4.90	98.1	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D
Date : 05-SEP-2019 21:08
Client ID:
Sample Info: 19H0481-22

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

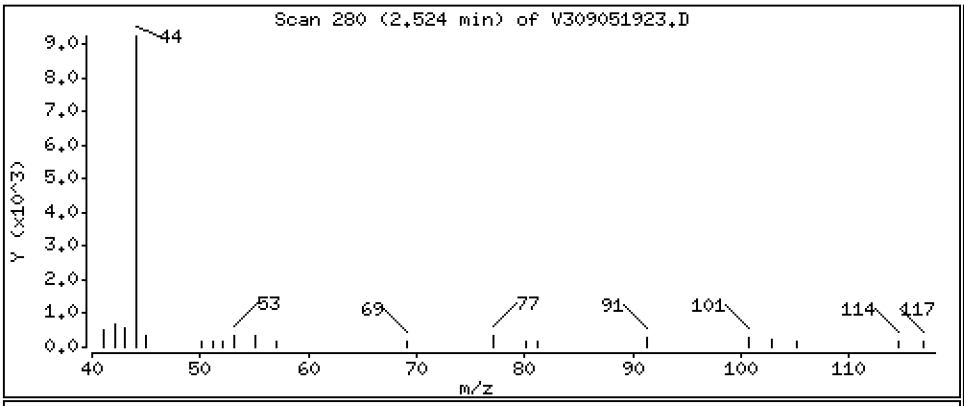
Operator: PKC

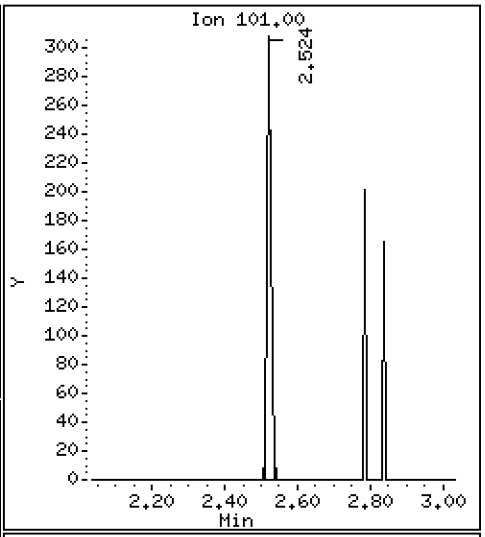
Column phase: RTXVMS

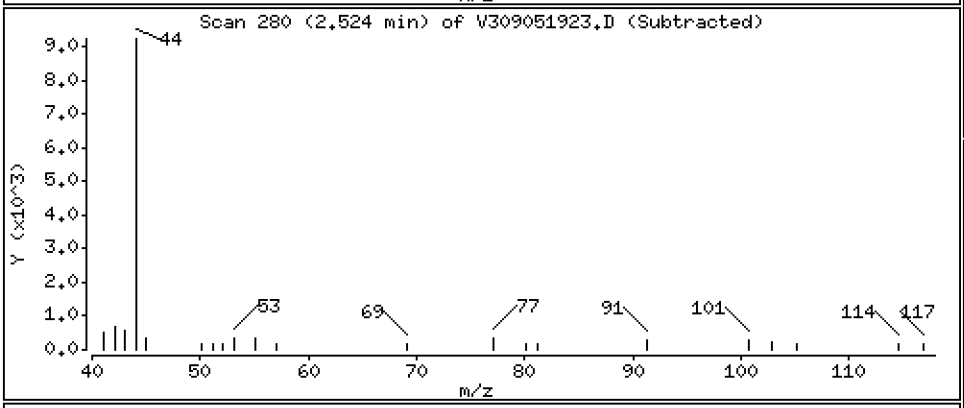
Column diameter: 0.18

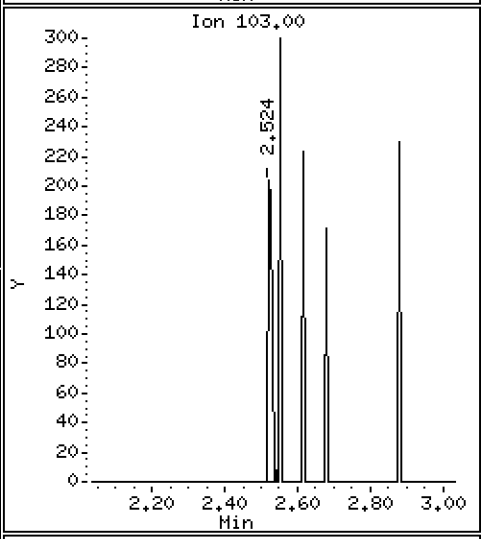
6 Trichlorofluoromethane

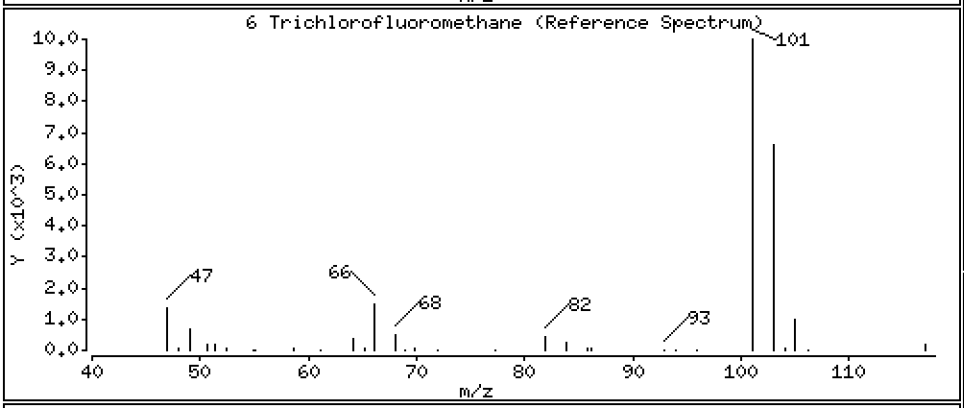
Concentration: 0.02010 ug/L

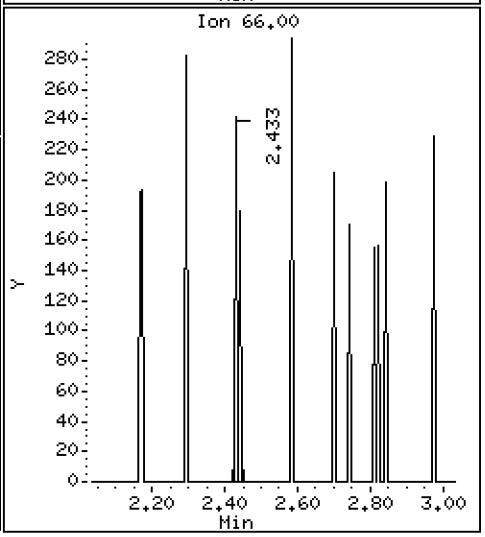


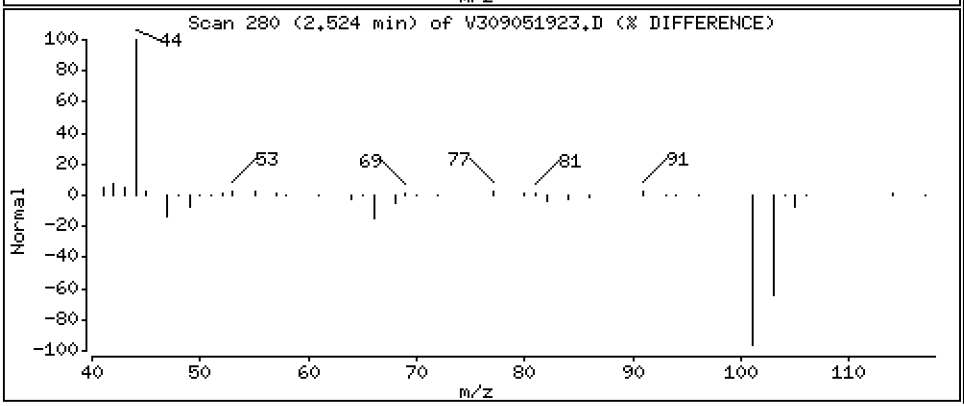












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

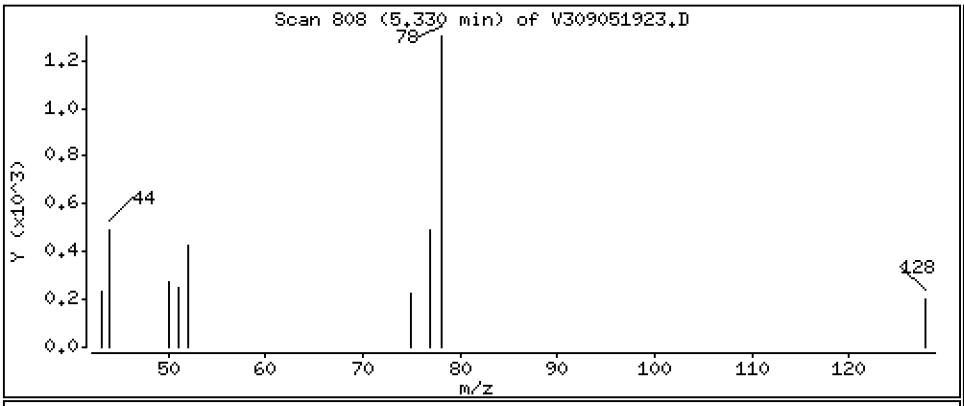
Operator: PKC

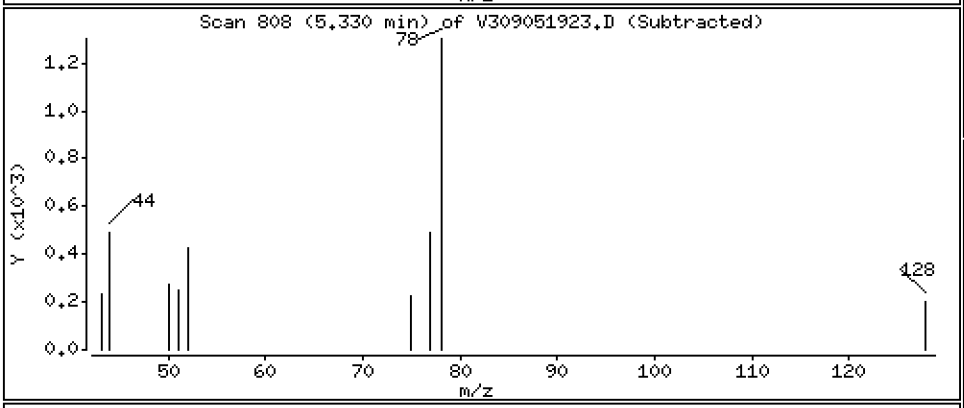
Column phase: RTXVMS

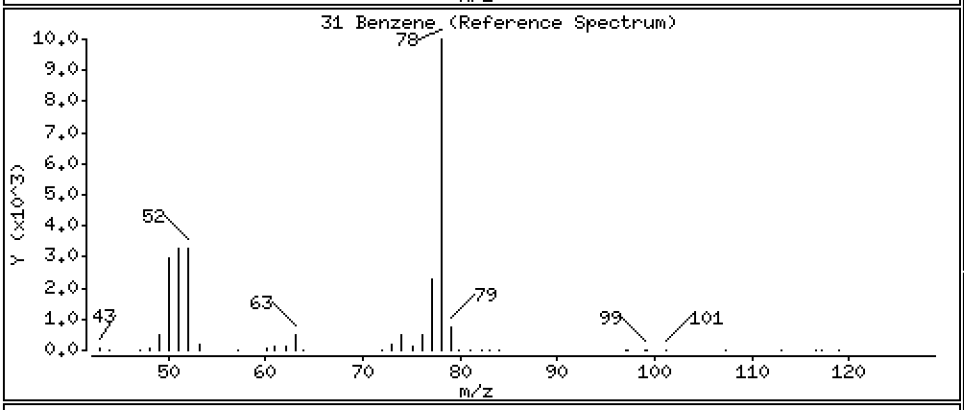
Column diameter: 0.18

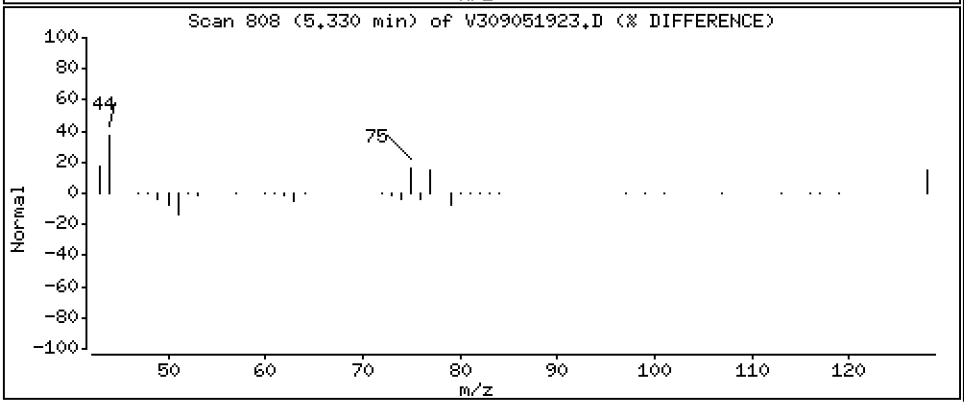
31 Benzene

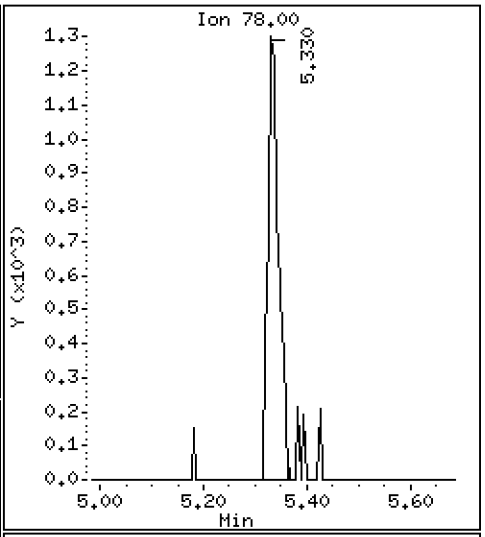
Concentration: 0.07394 ug/L

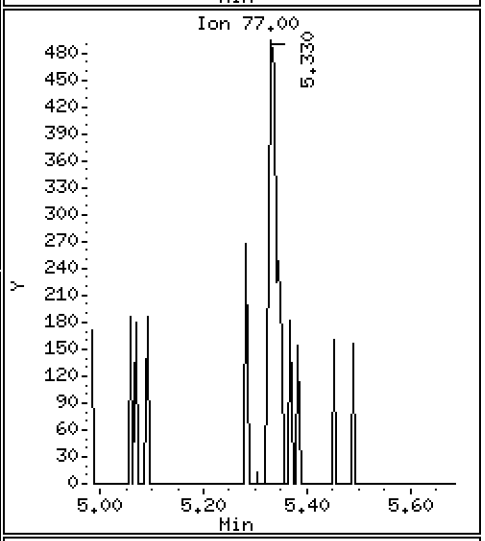


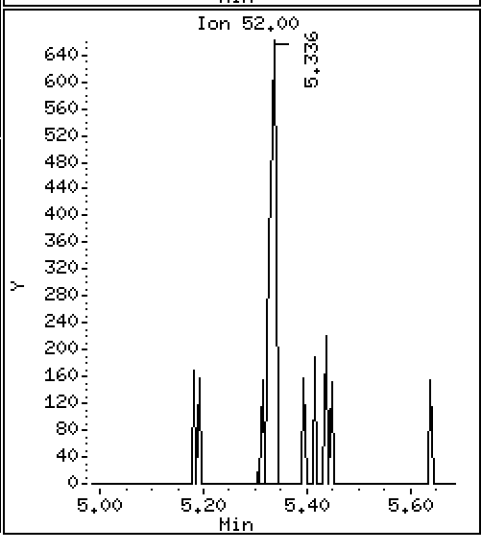












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

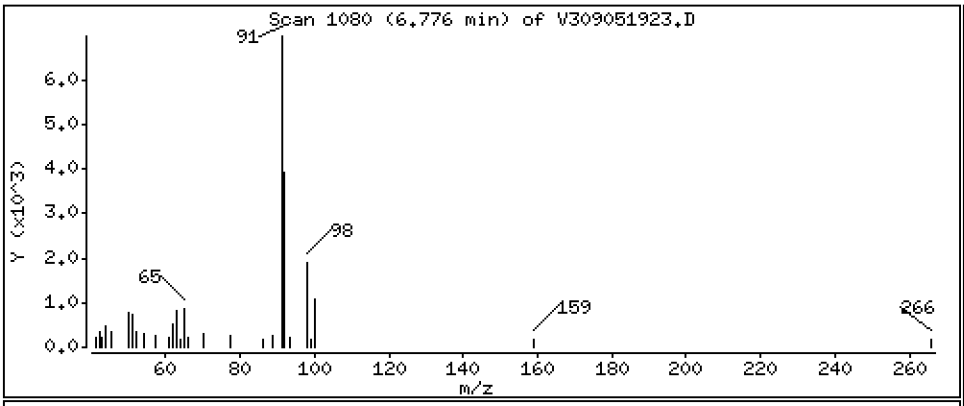
Operator: PKC

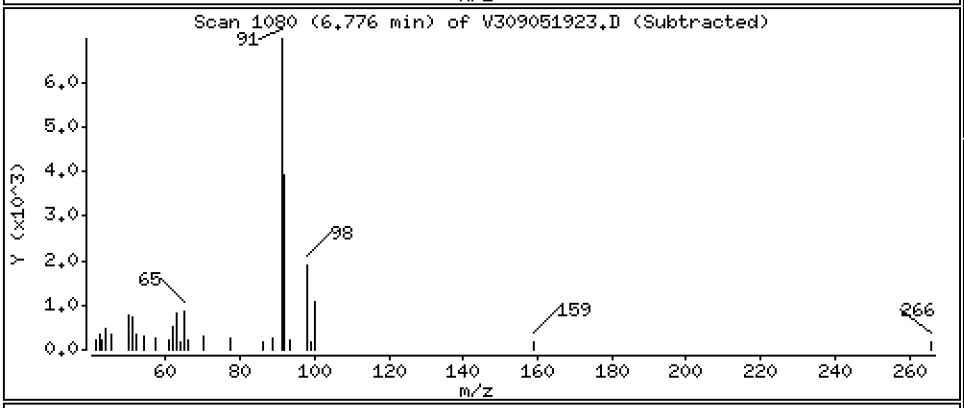
Column phase: RTXVMS

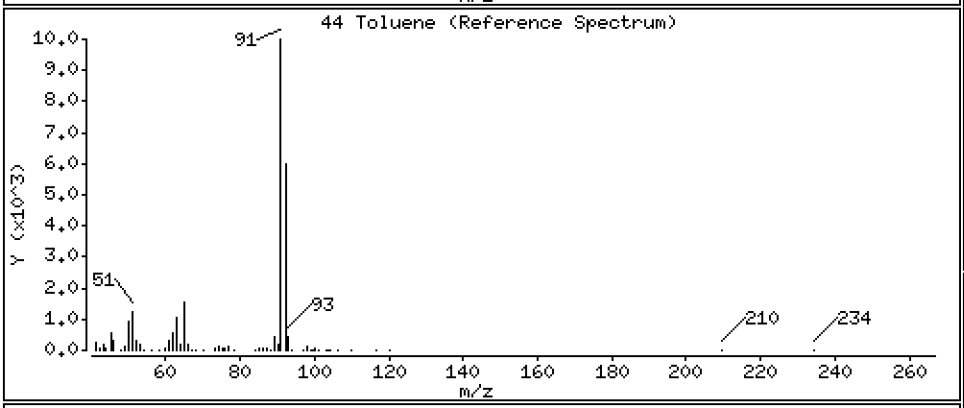
Column diameter: 0.18

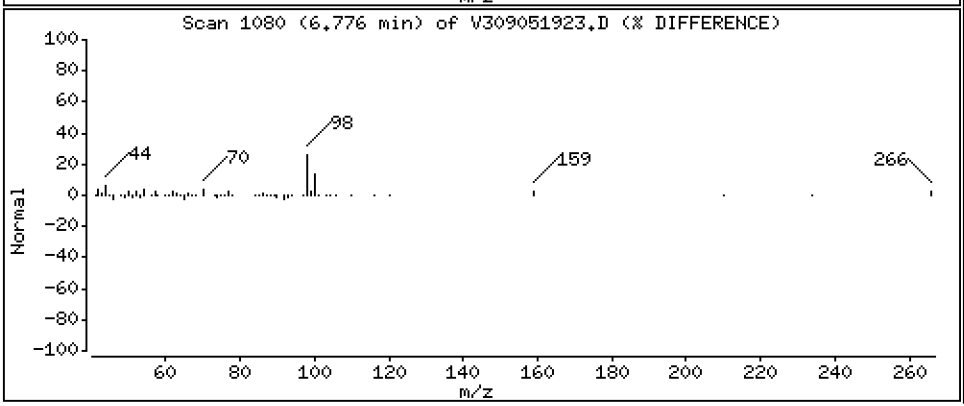
44 Toluene

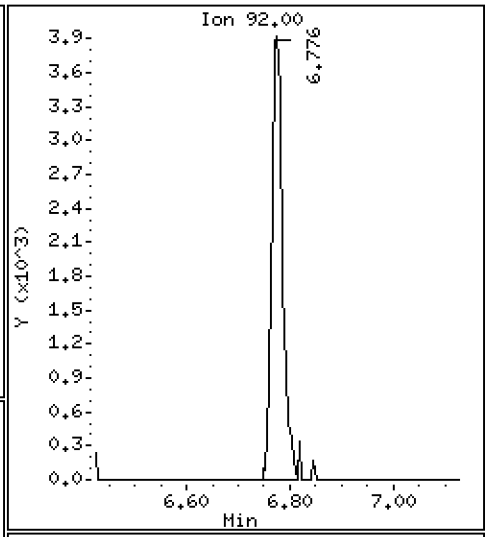
Concentration: 0.3582 ug/L

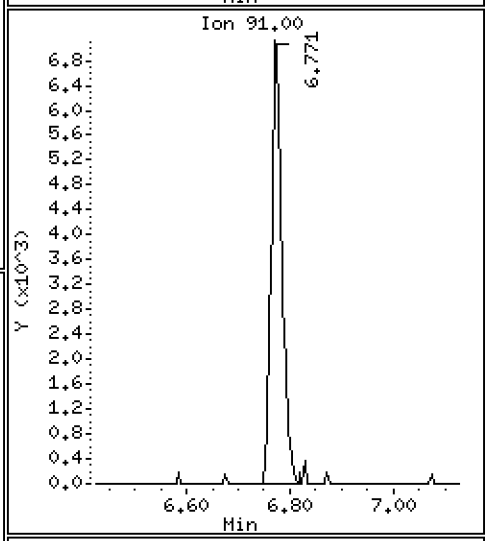


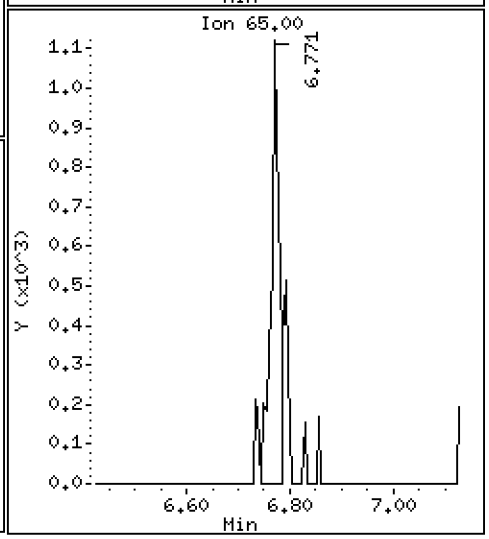












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

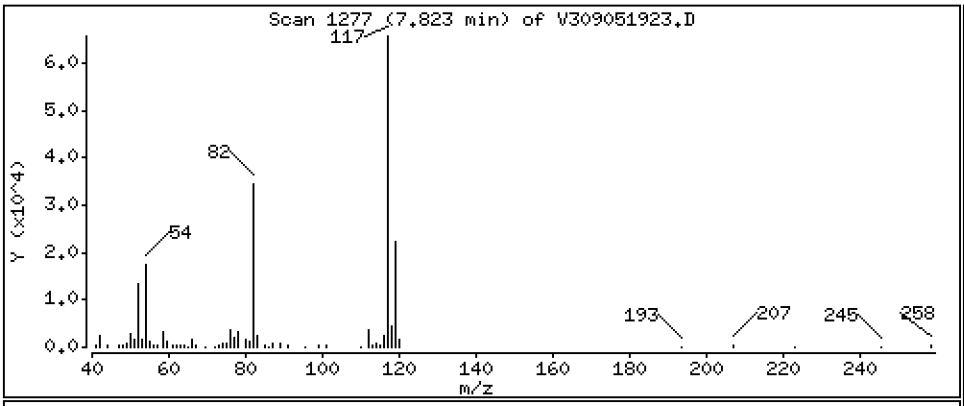
Operator: PKC

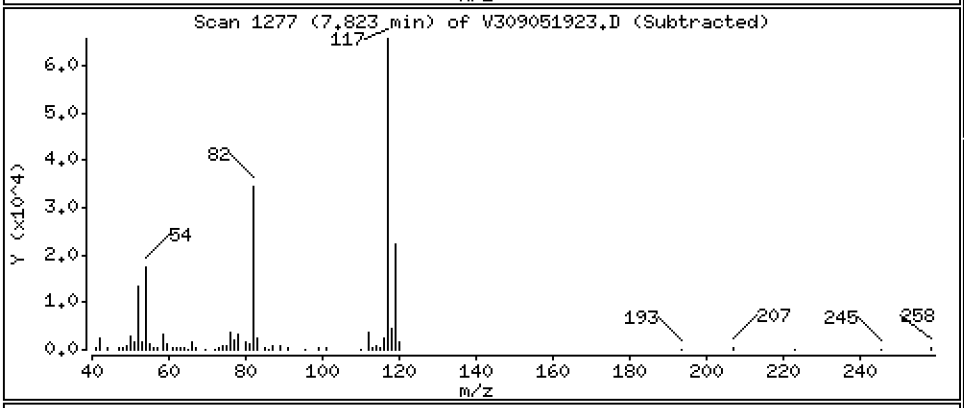
Column phase: RTXVMS

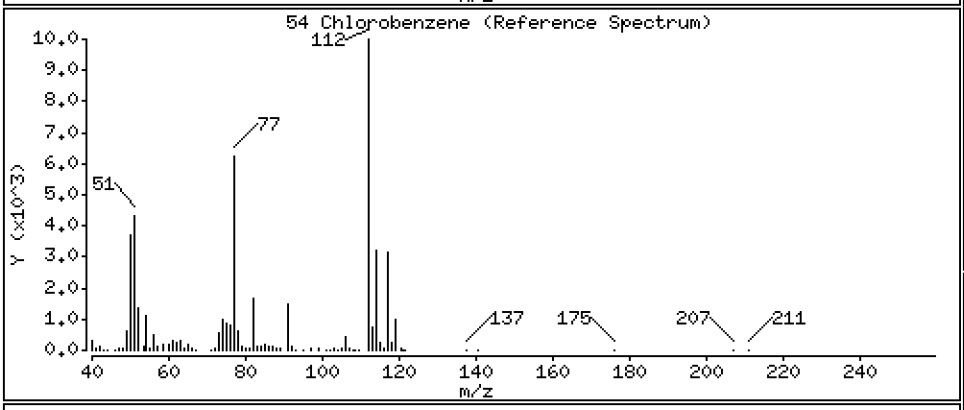
Column diameter: 0.18

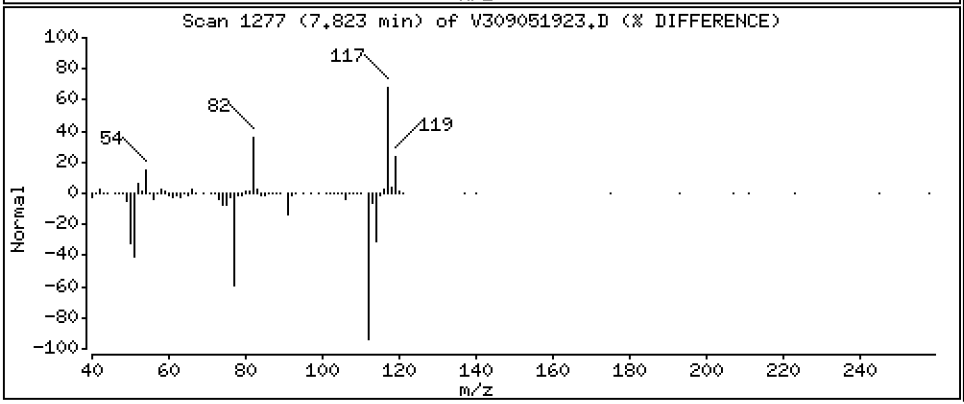
54 Chlorobenzene

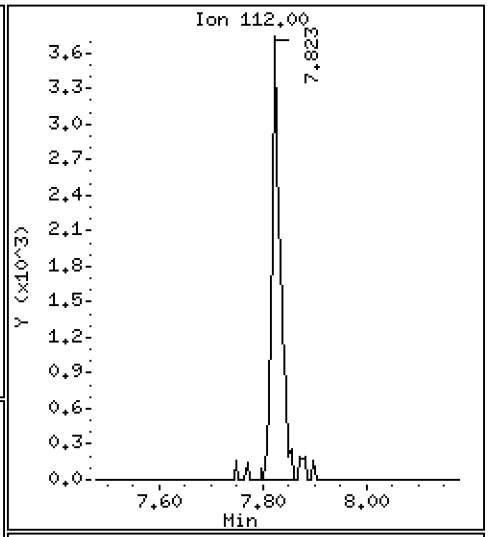
Concentration: 0.2254 ug/L

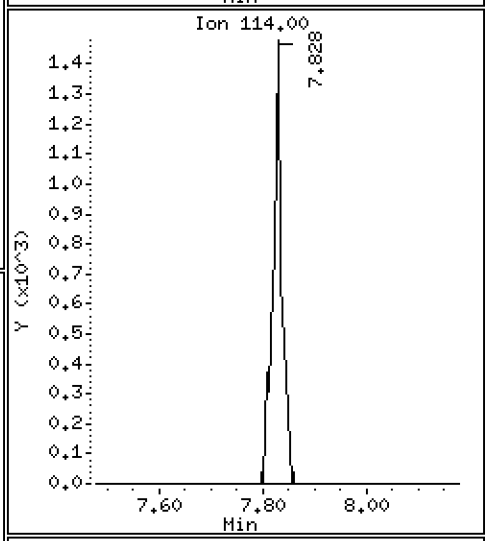


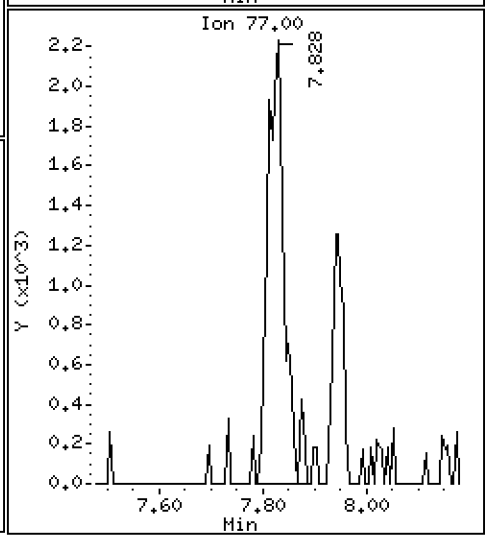












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

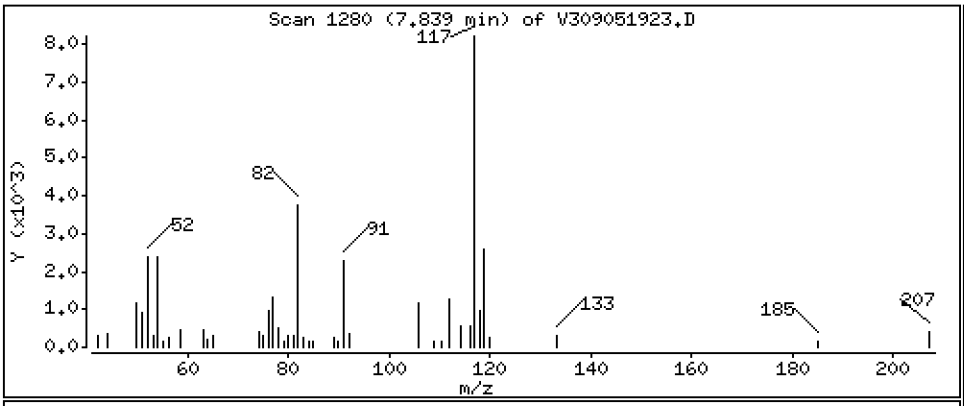
Operator: PKC

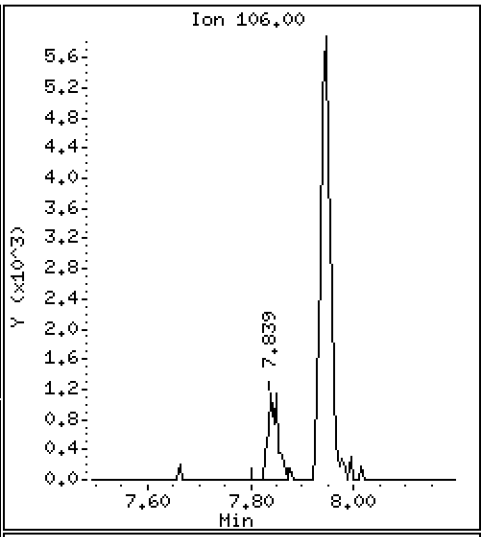
Column phase: RTXVMS

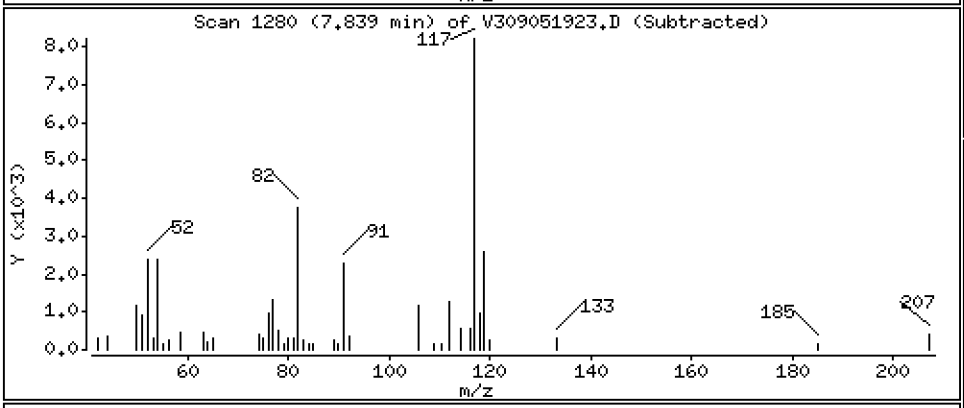
Column diameter: 0.18

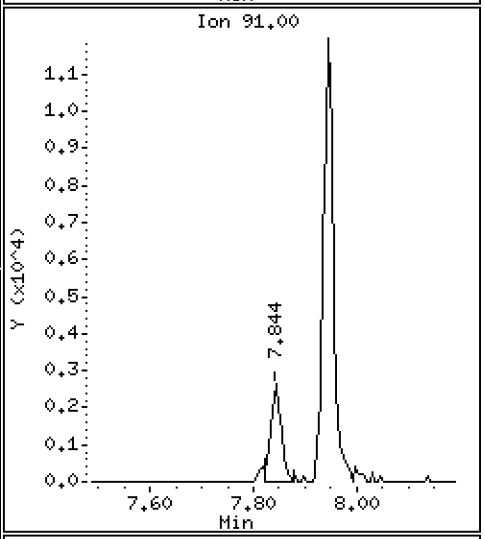
55 Ethyl Benzene

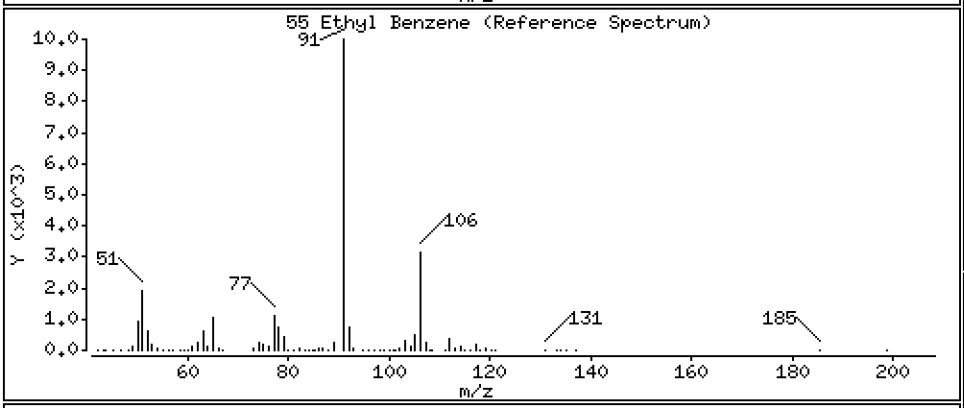
Concentration: 0.1529 ug/L

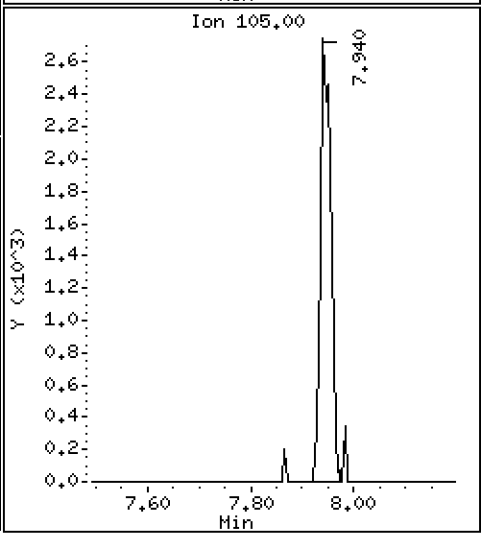


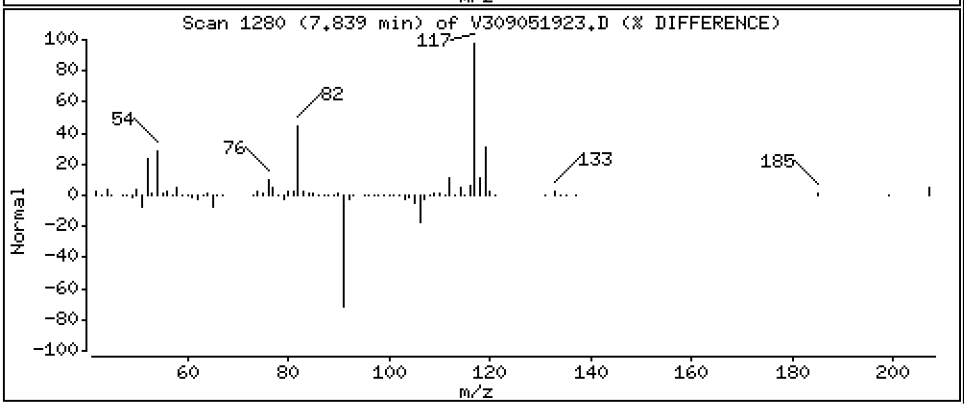












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

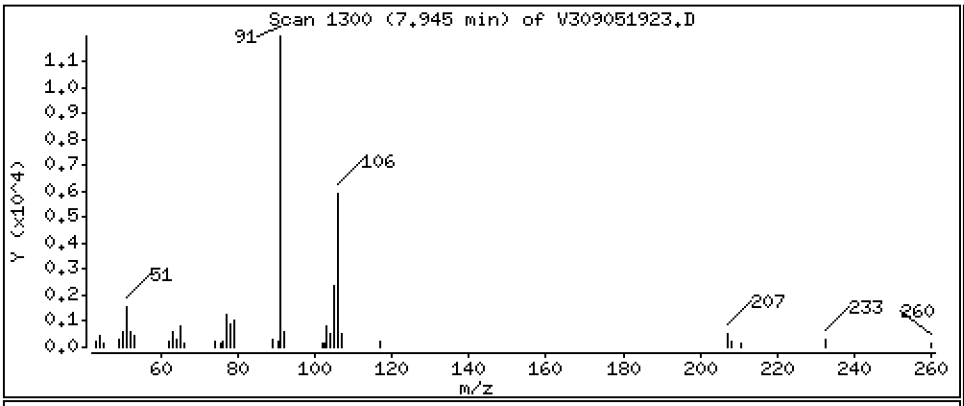
Operator: PKC

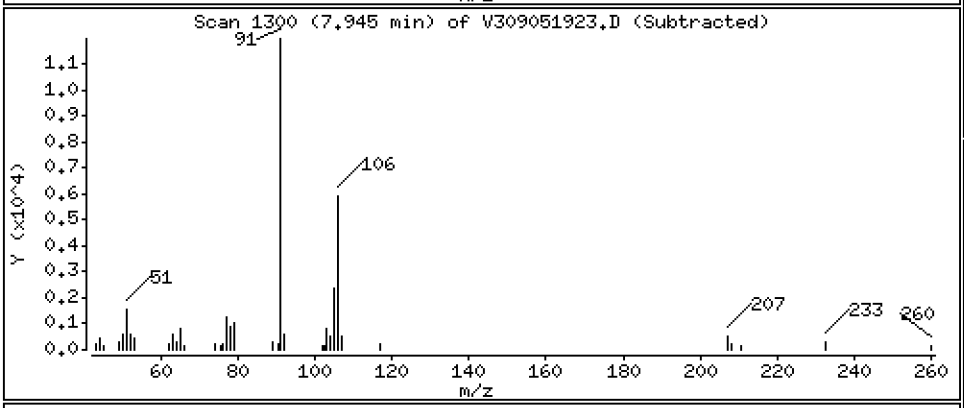
Column phase: RTXVMS

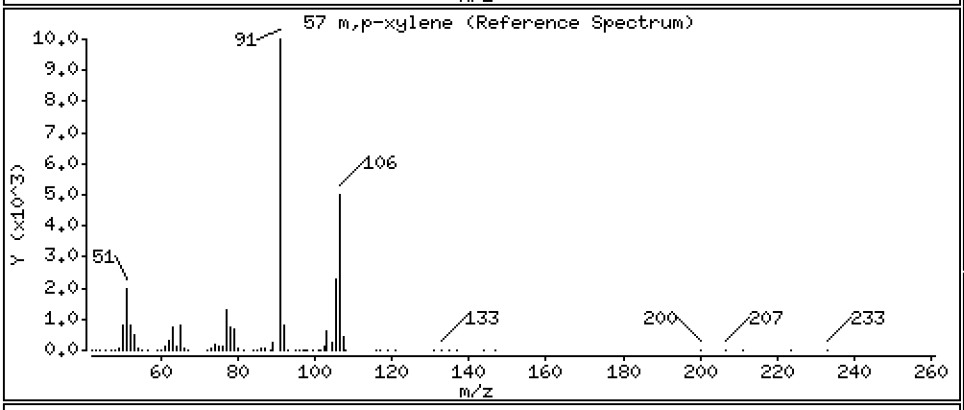
Column diameter: 0.18

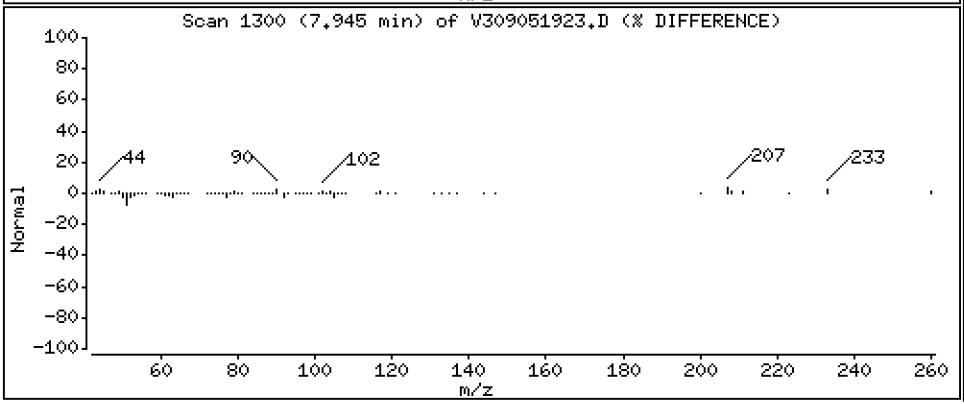
57 m,p-xylene

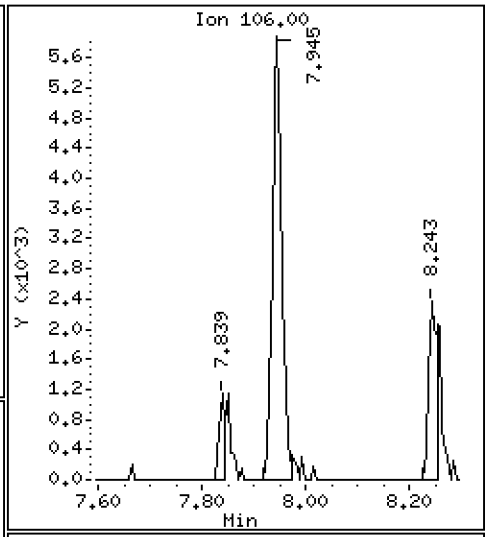
Concentration: 0.6028 ug/L

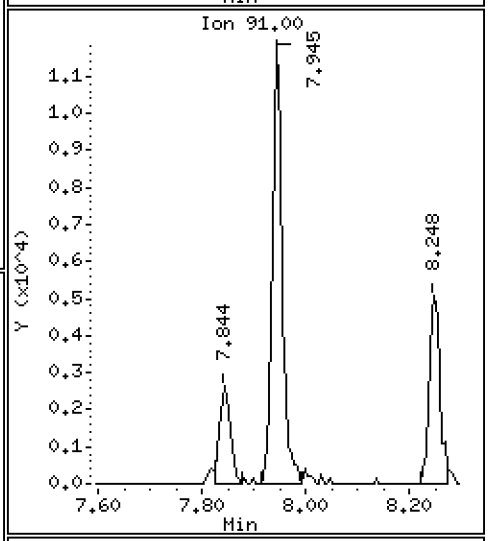


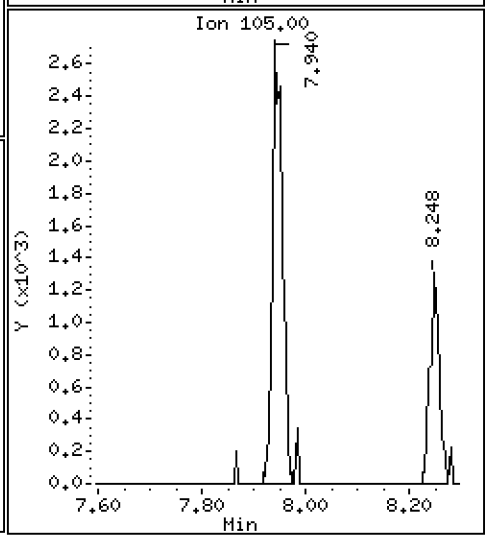












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

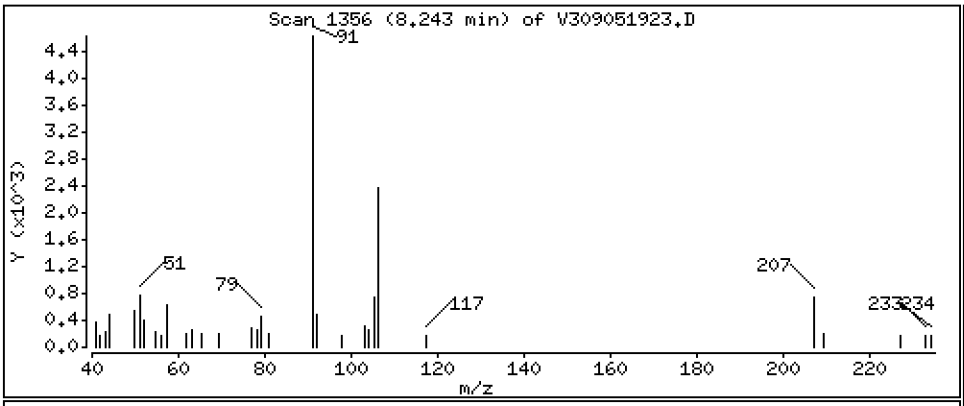
Operator: PKC

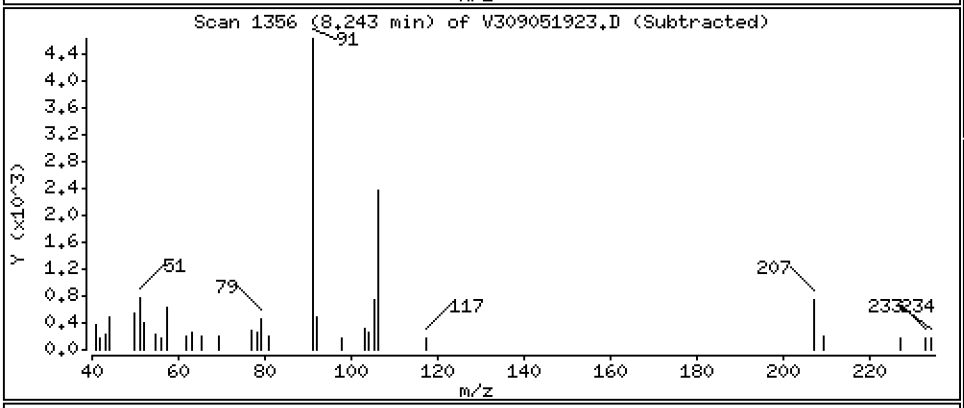
Column phase: RTXVMS

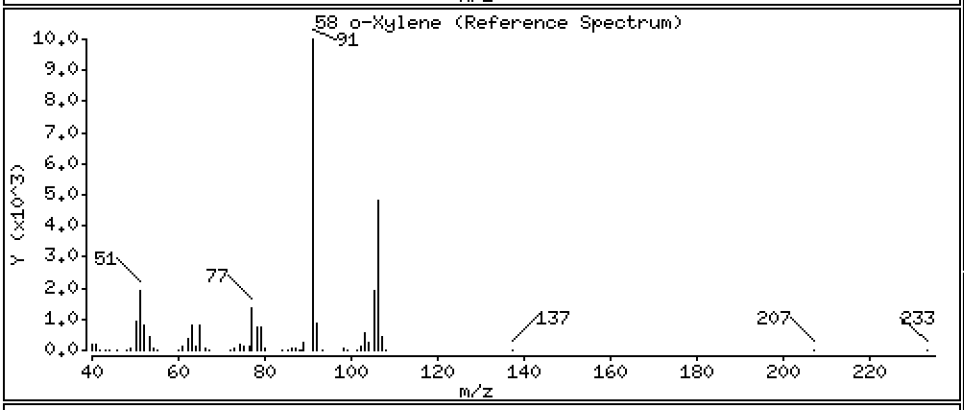
Column diameter: 0.18

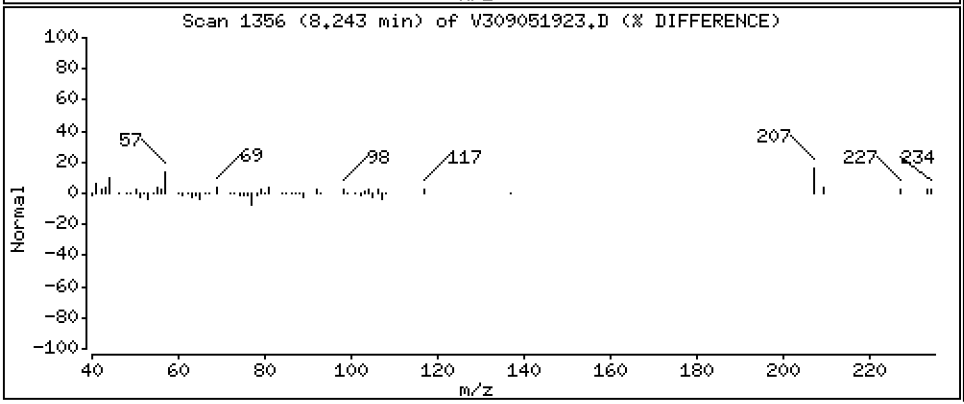
58 o-Xylene

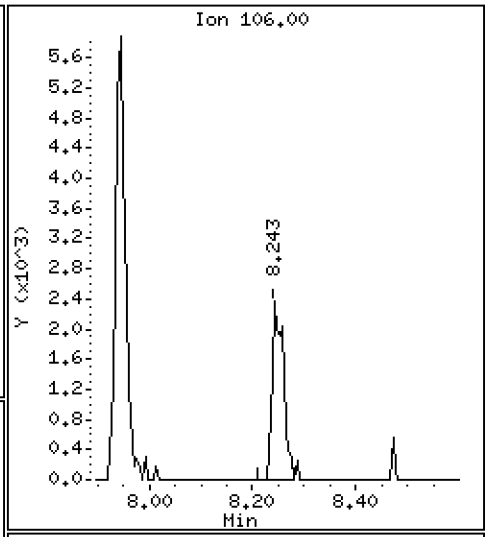
Concentration: 0.2879 ug/L

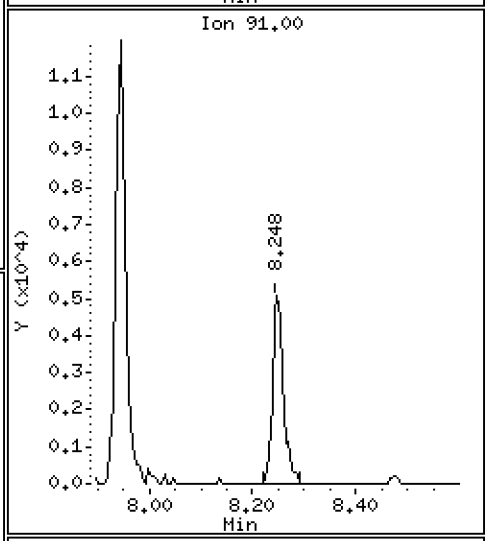


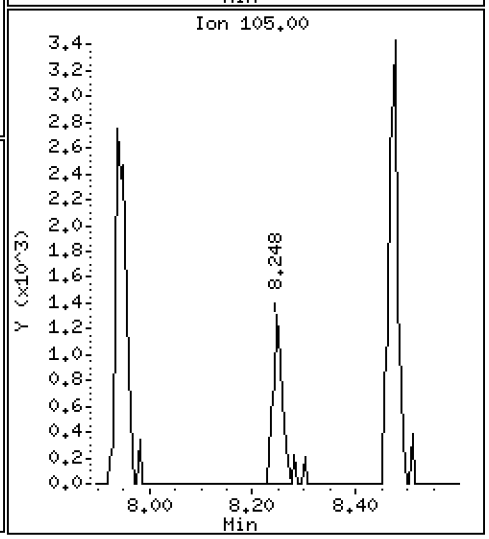












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

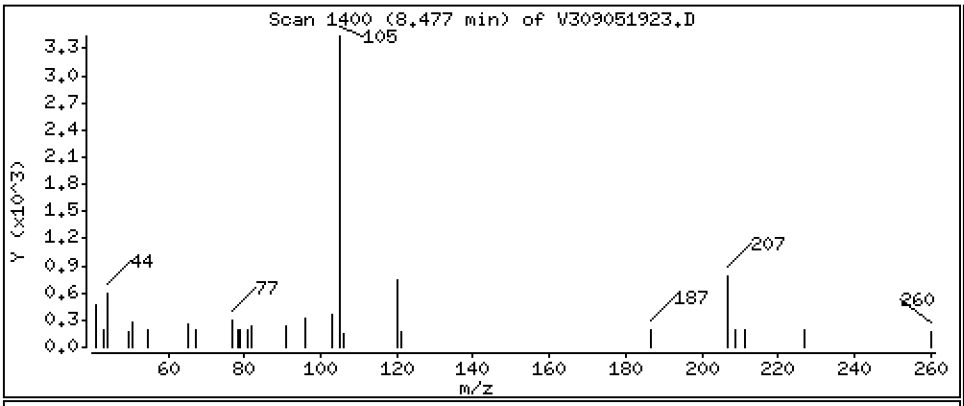
Operator: PKC

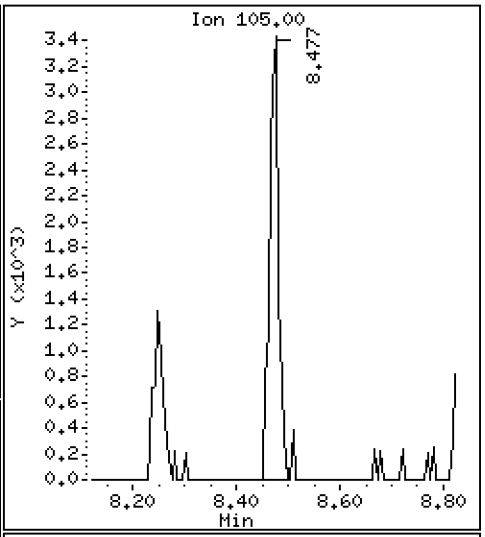
Column phase: RTXVMS

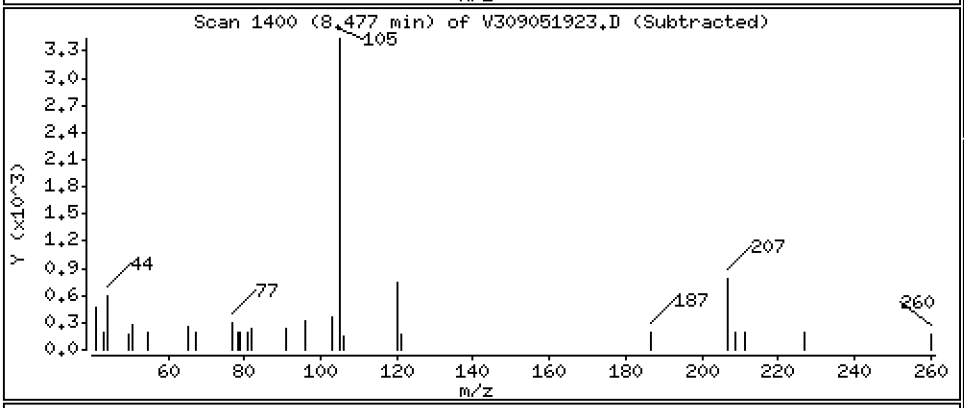
Column diameter: 0.18

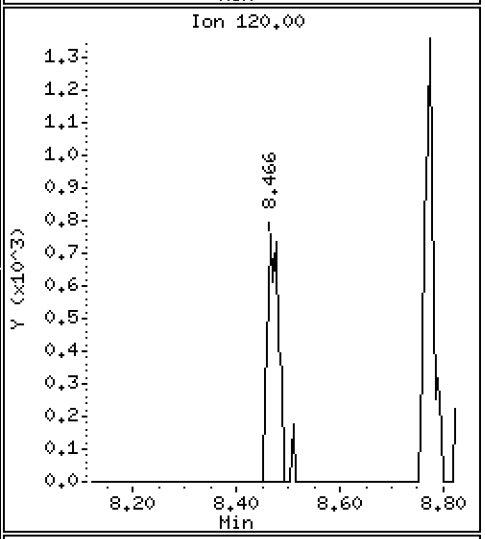
61 Isopropyl Benzene

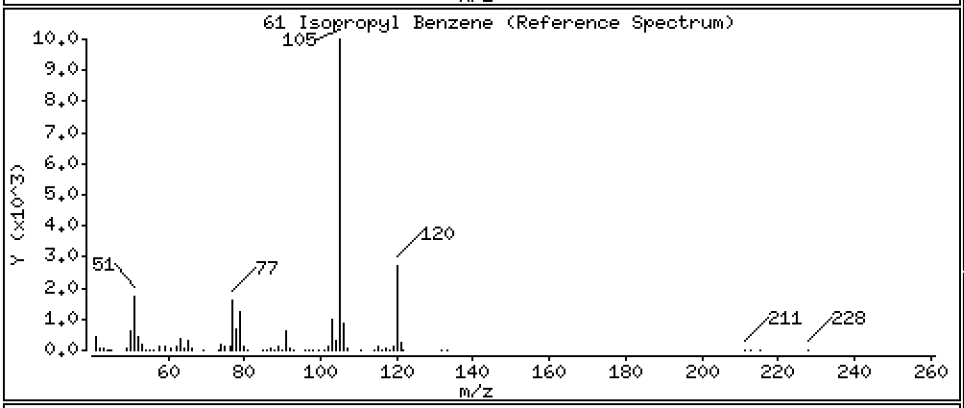
Concentration: 0.1318 ug/L

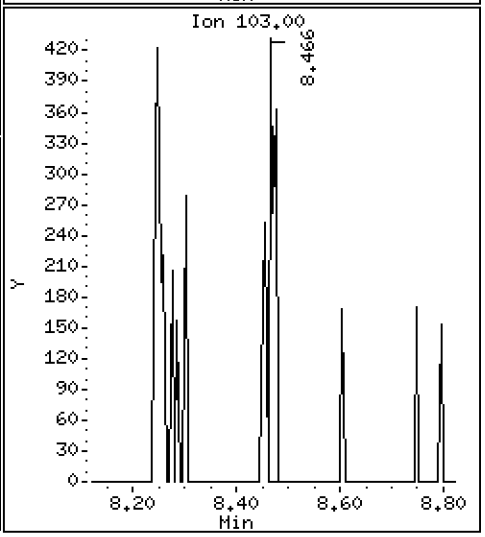


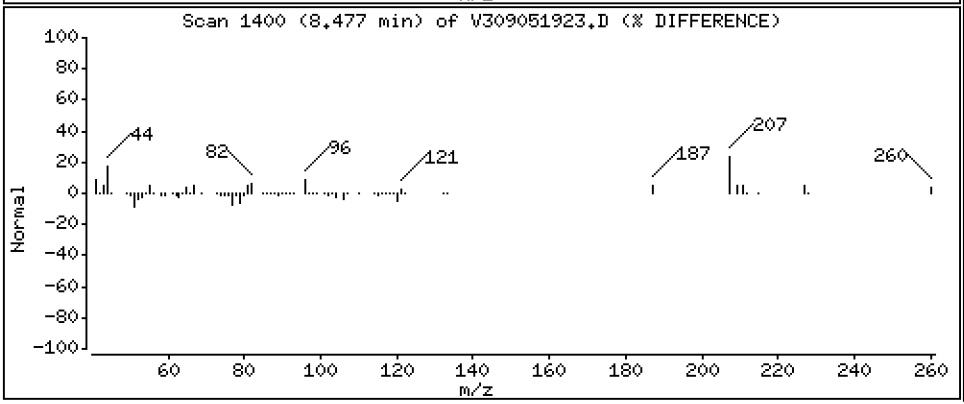












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

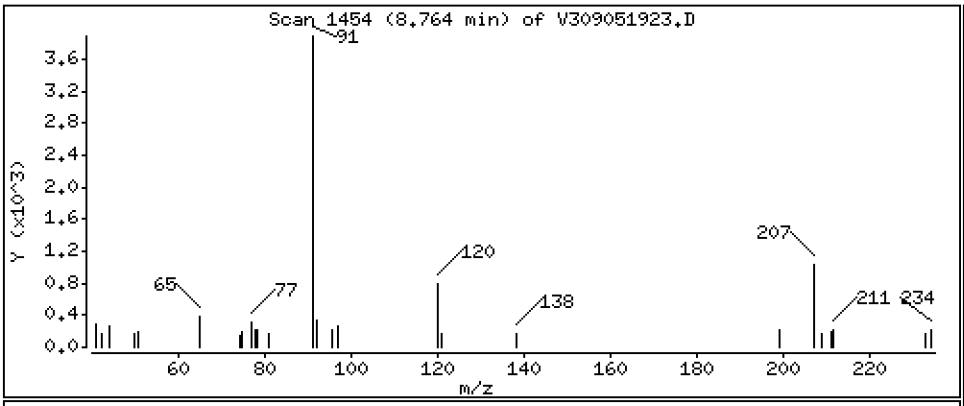
Operator: PKC

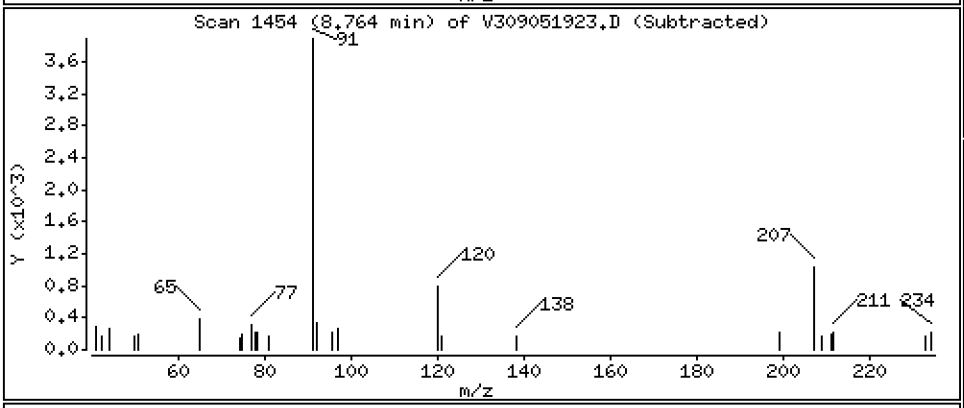
Column phase: RTXVMS

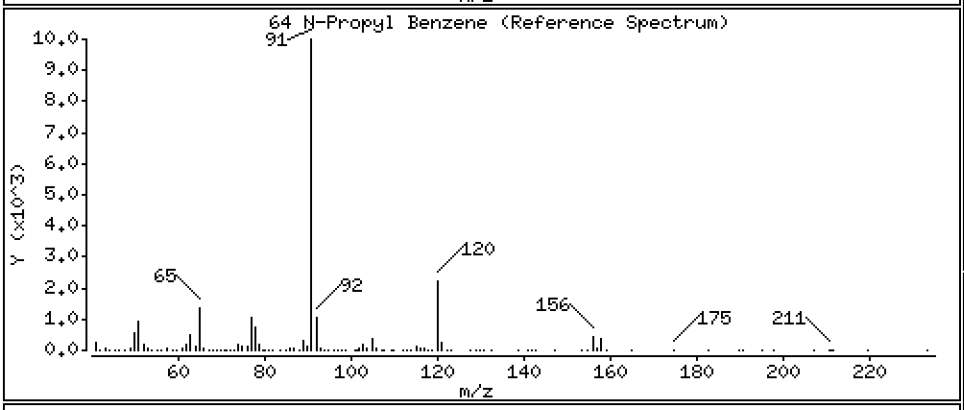
Column diameter: 0.18

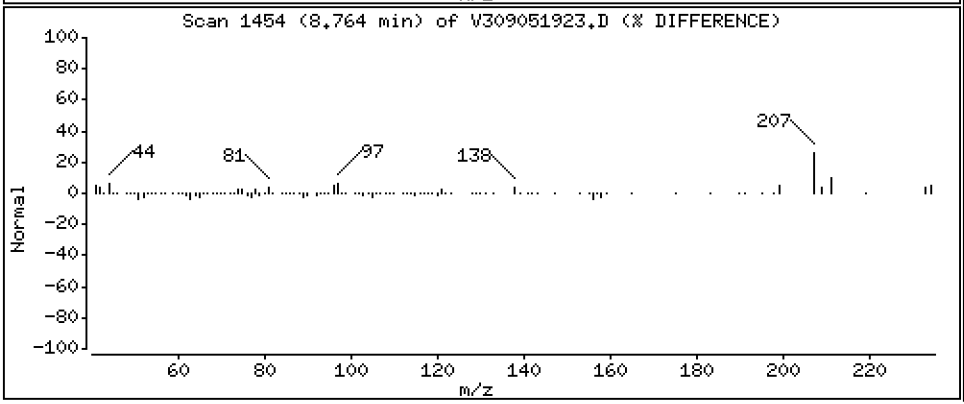
64 N-Propyl Benzene

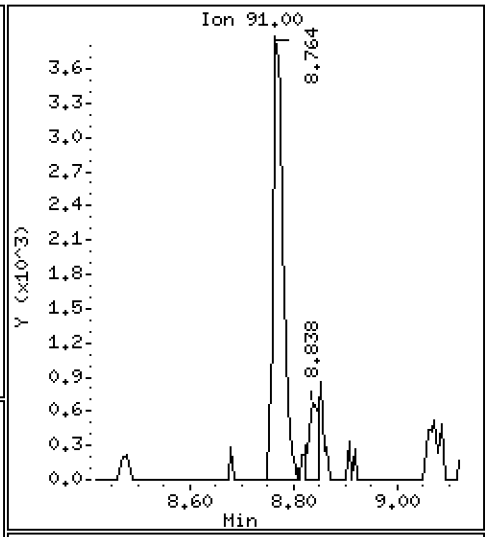
Concentration: 0.1450 ug/L

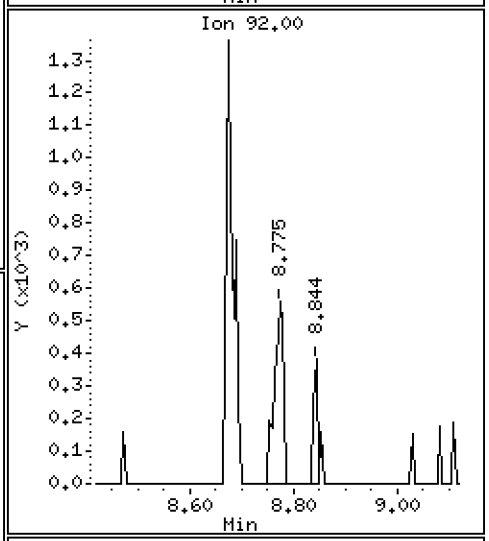


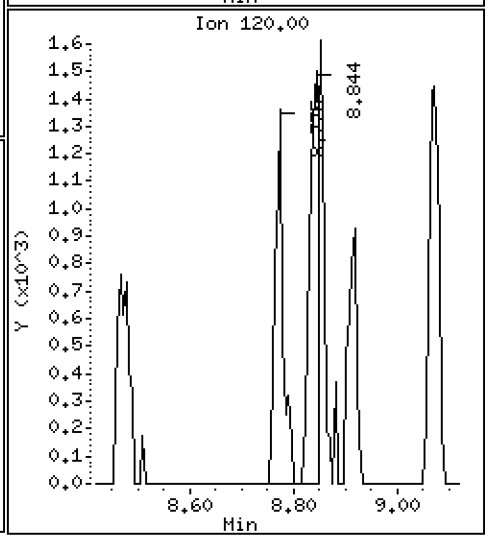












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

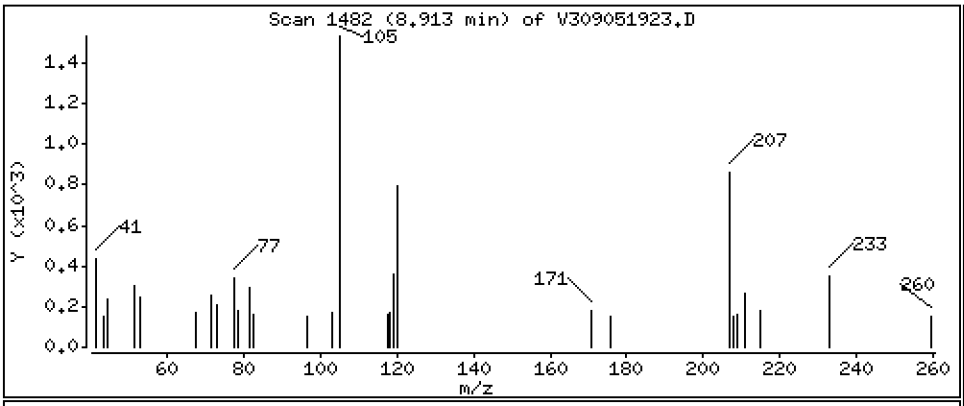
Operator: PKC

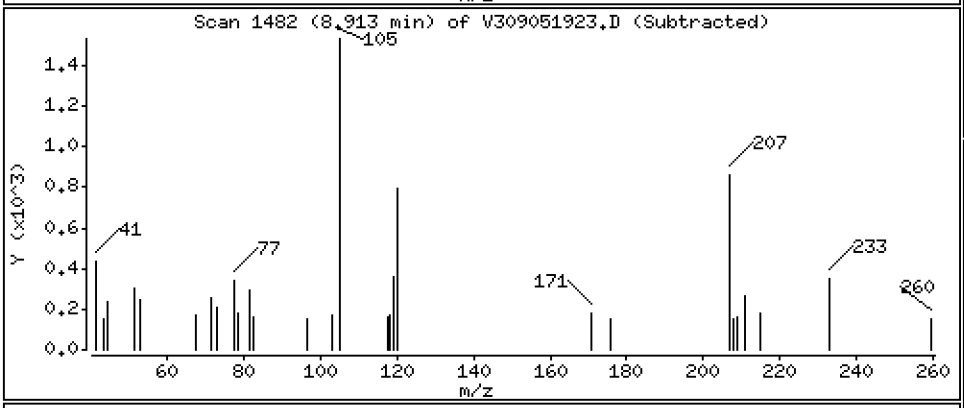
Column phase: RTXVMS

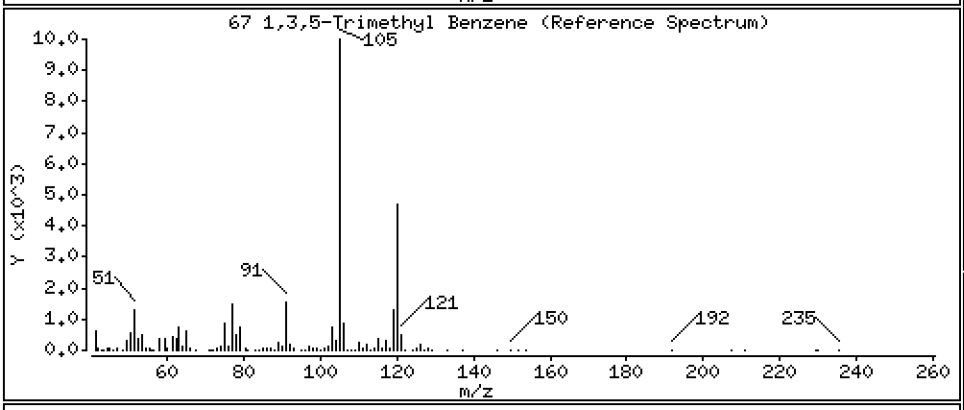
Column diameter: 0.18

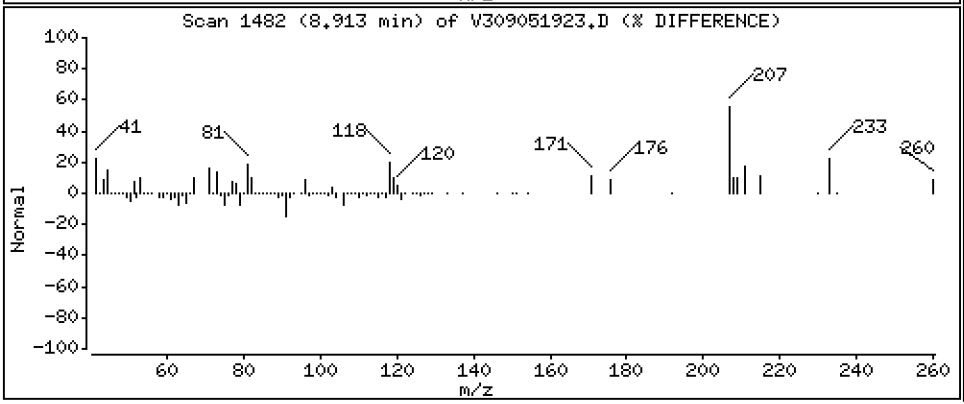
67 1,3,5-Trimethyl Benzene

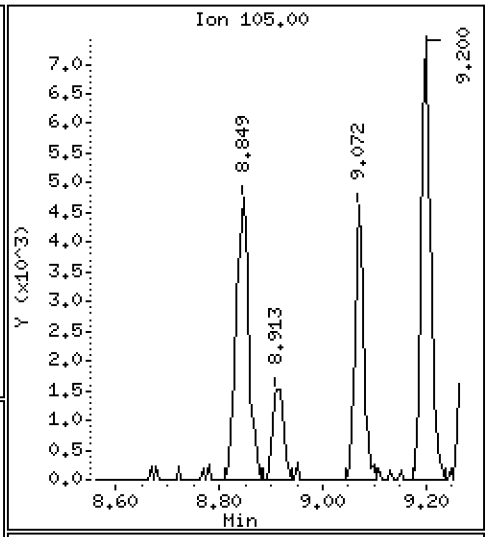
Concentration: 0.08149 ug/L

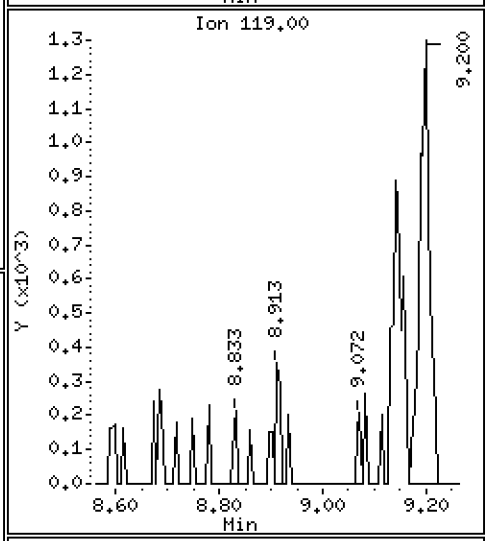


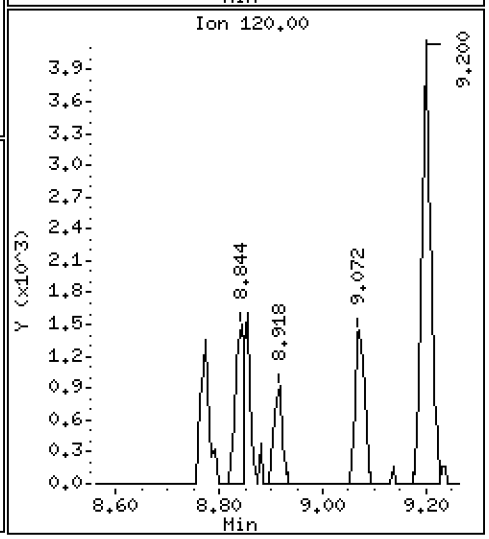












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

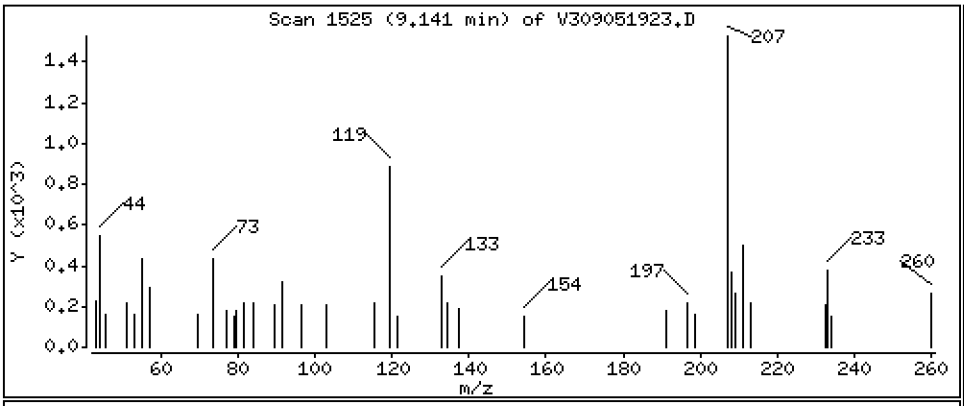
Operator: PKC

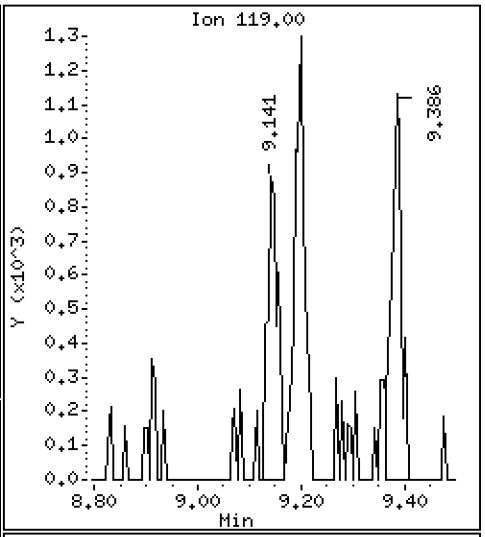
Column phase: RTXVMS

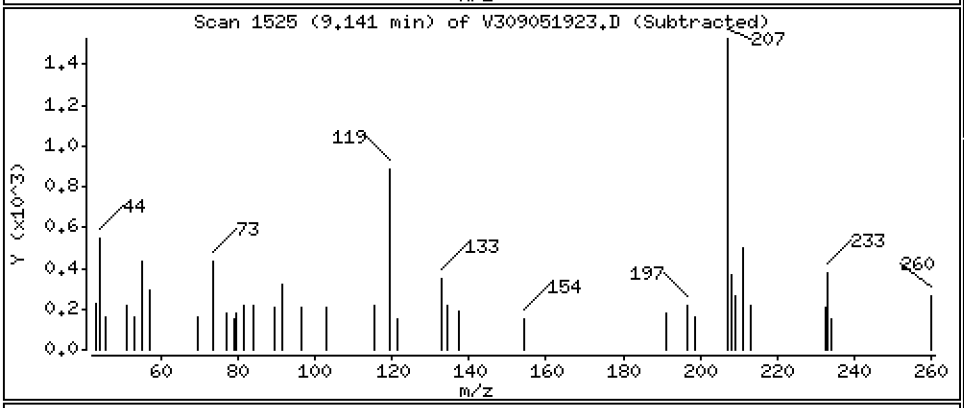
Column diameter: 0.18

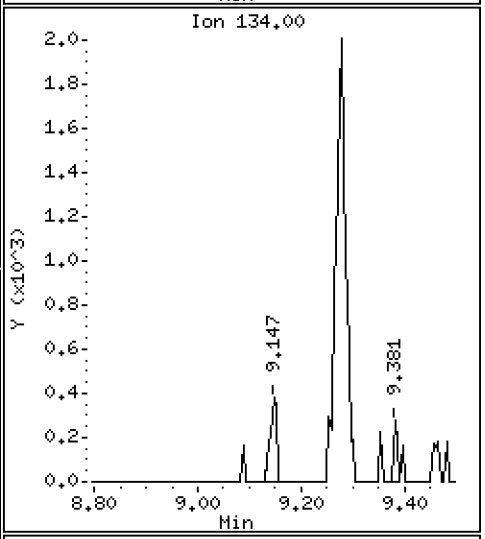
71 T-Butyl Benzene

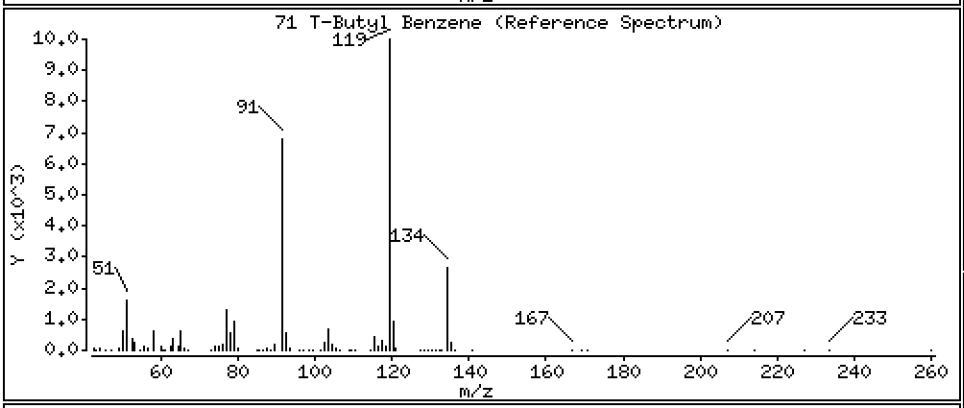
Concentration: 0.05141 ug/L

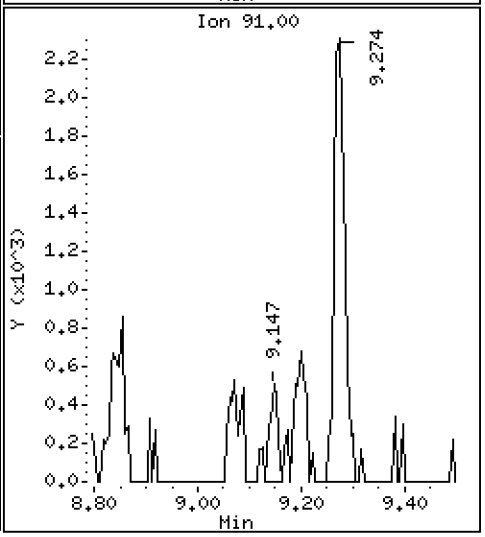


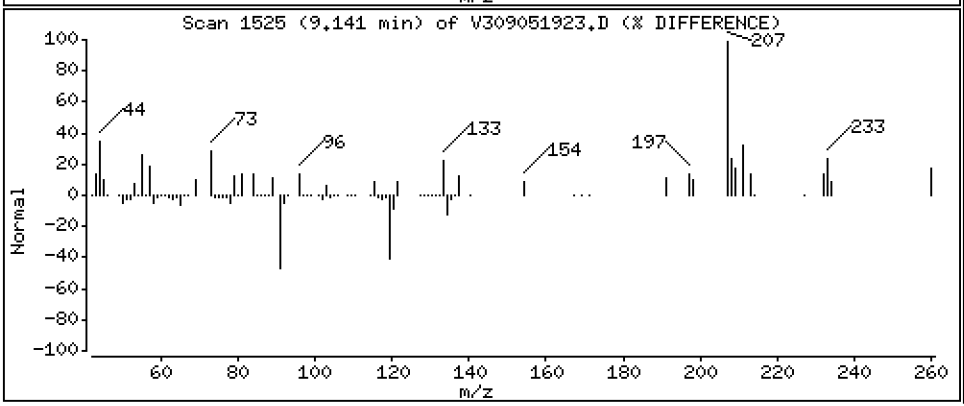












Date : 05-SEP-2019 21:08

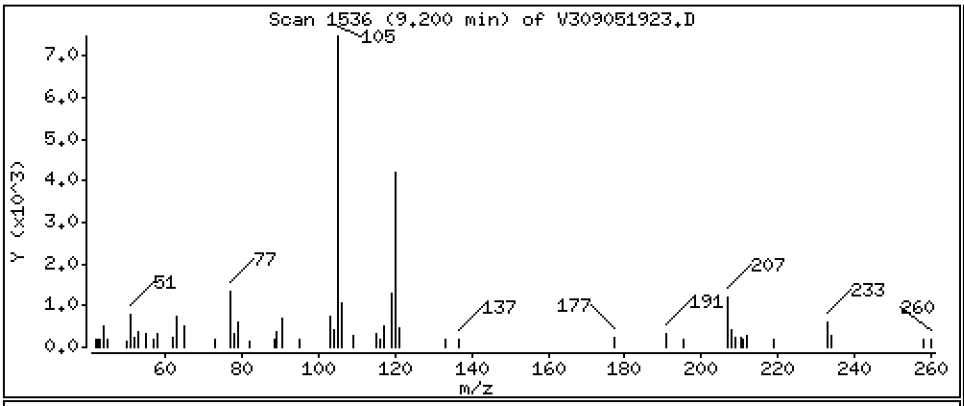
Client ID: Instrument: nt3.i

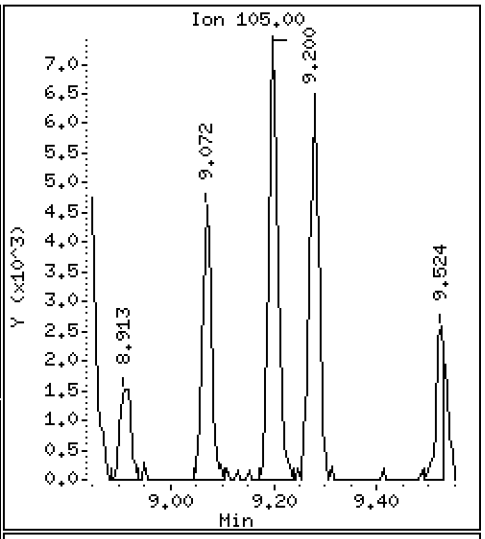
Sample Info: 19H0481-22

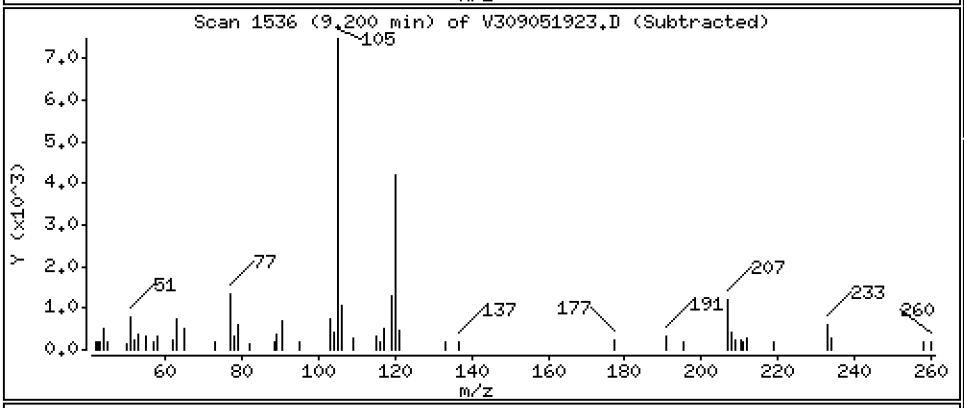
Operator: PKC

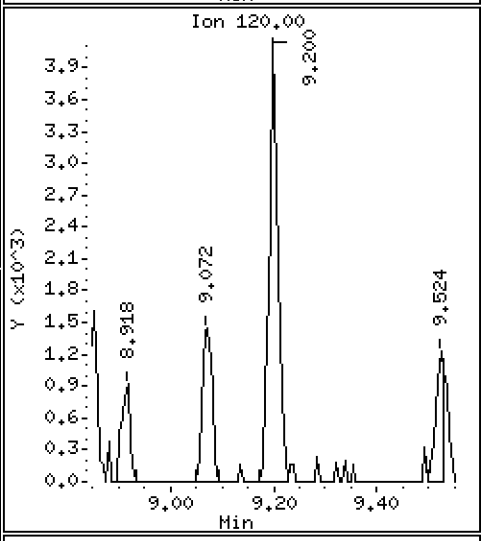
Column phase: RTXVMS Column diameter: 0.18

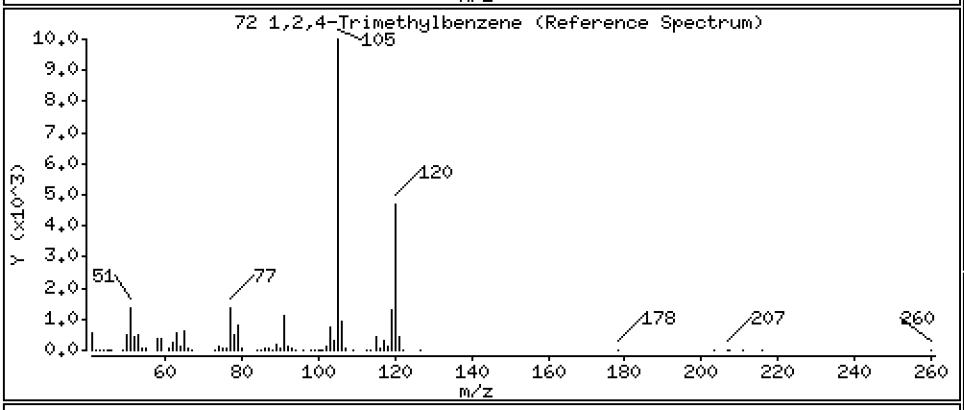
72 1,2,4-Trimethylbenzene Concentration: 0.3253 ug/L

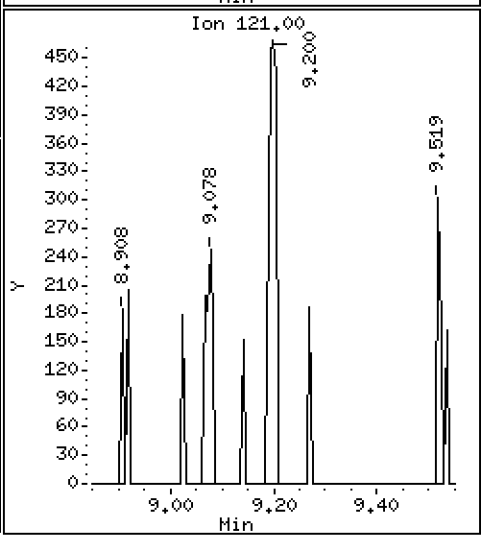


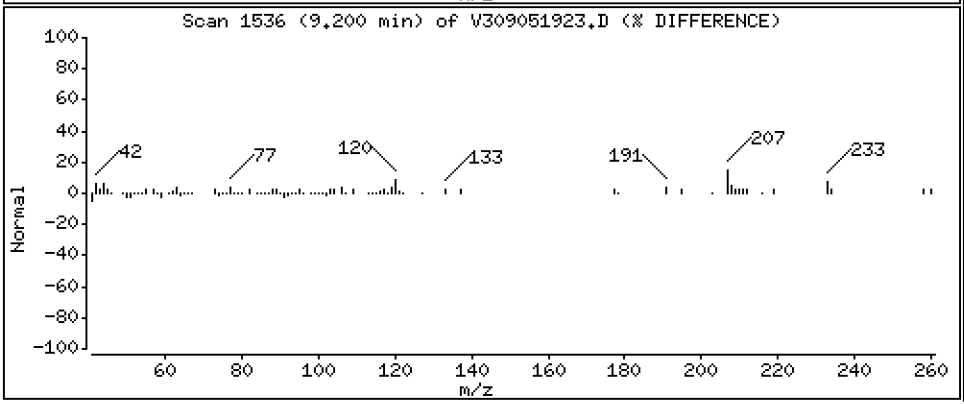












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

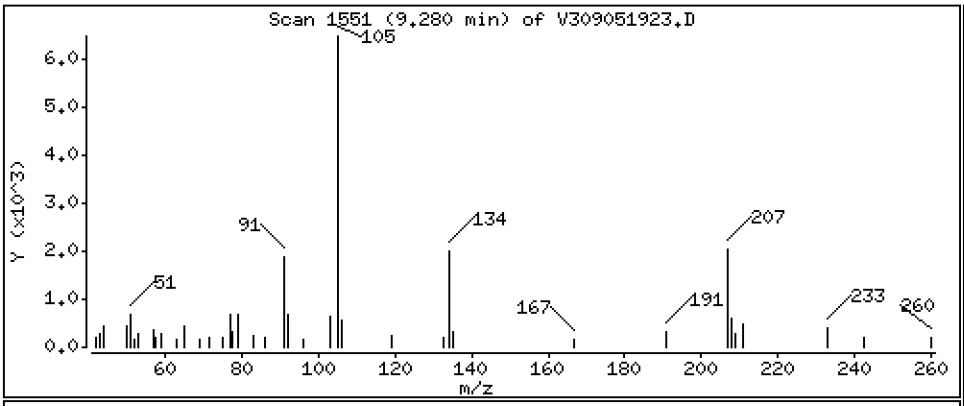
Operator: PKC

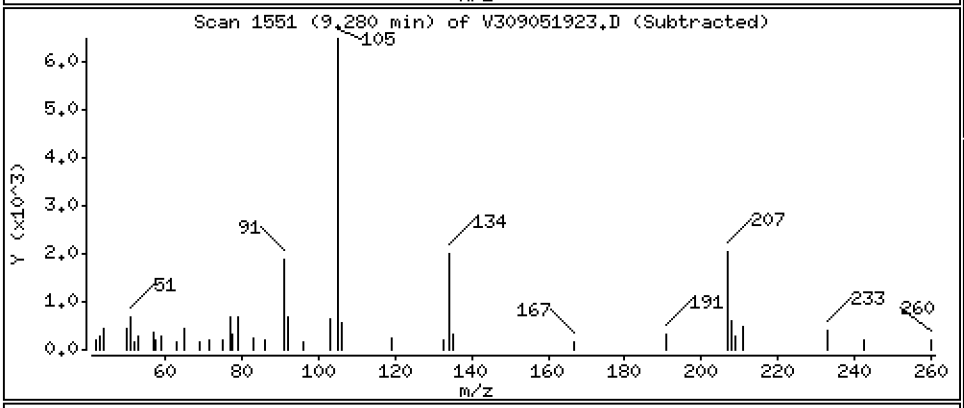
Column phase: RTXVMS

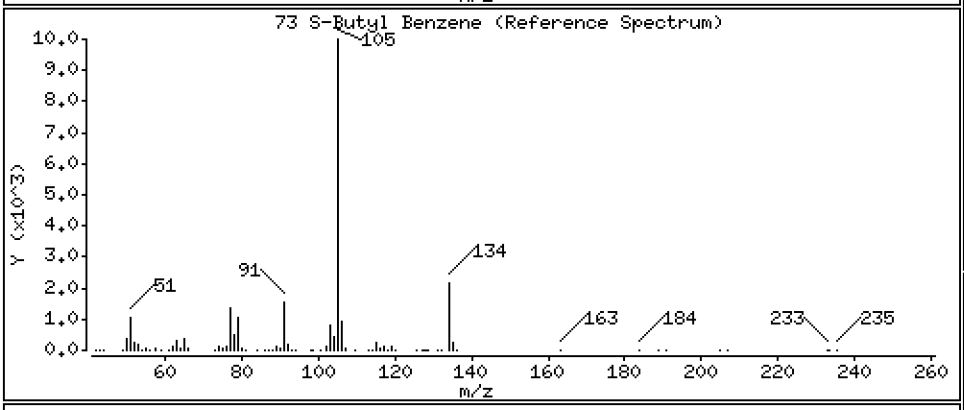
Column diameter: 0.18

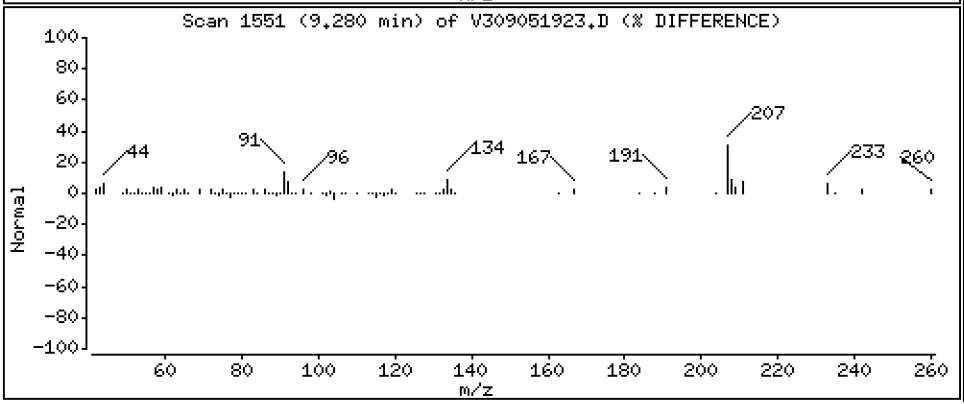
73 S-Butyl Benzene

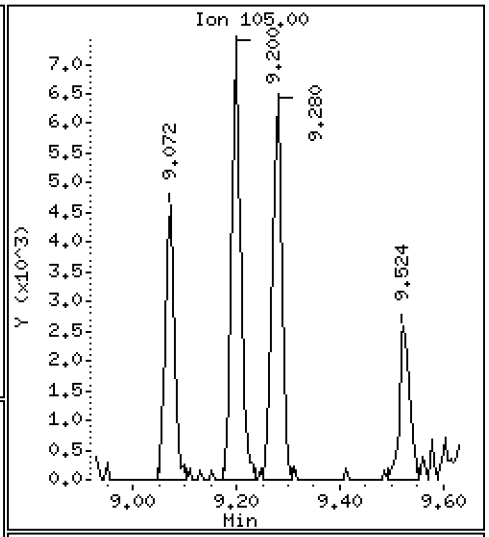
Concentration: 0.2528 ug/L

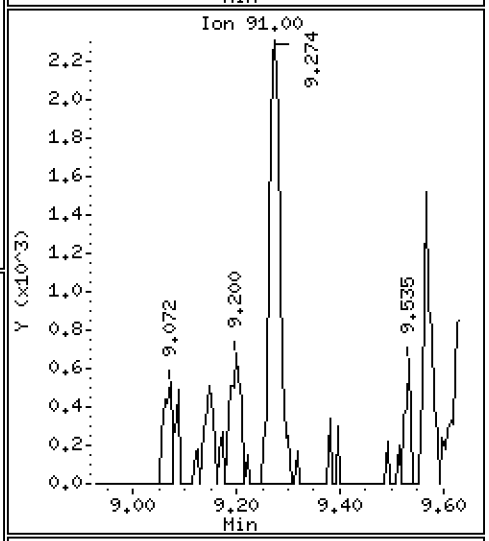


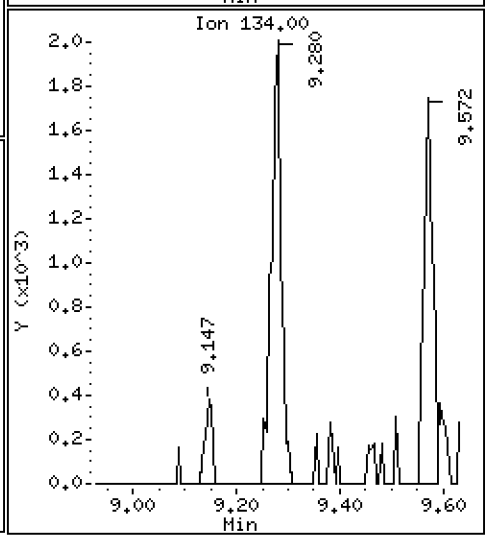












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051923.D

Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

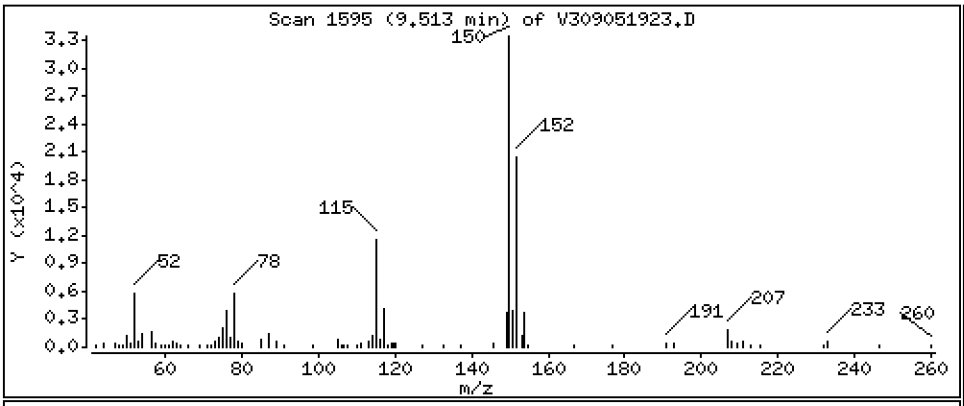
Operator: PKC

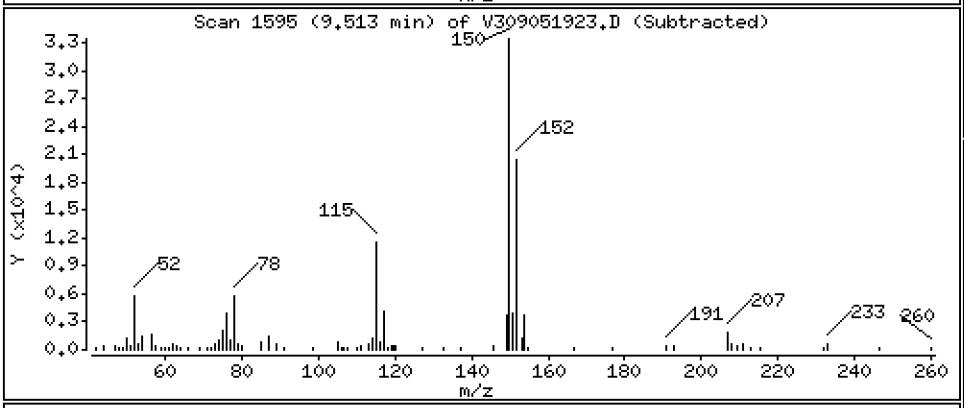
Column phase: RTXVMS

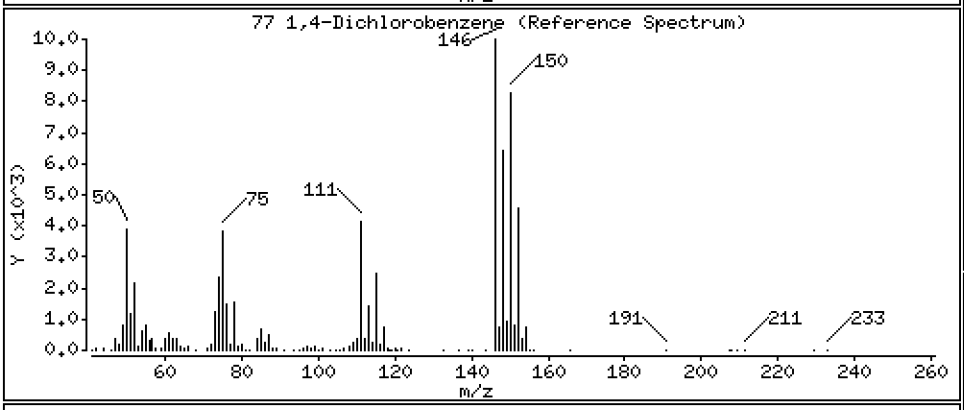
Column diameter: 0.18

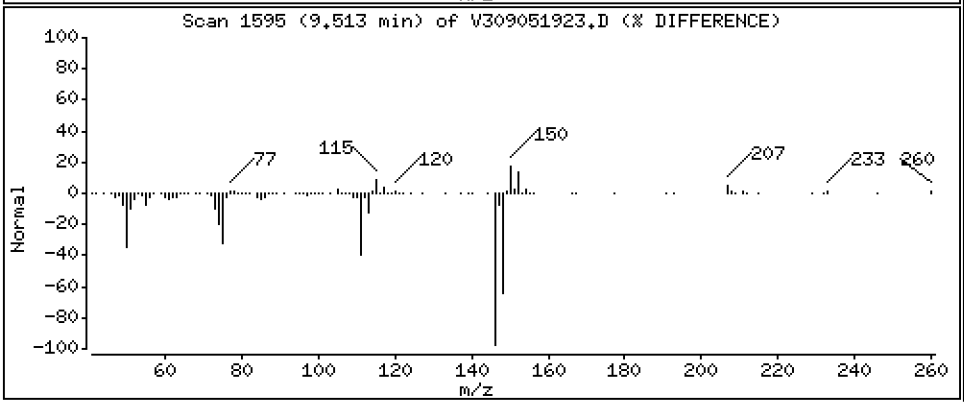
77 1,4-Dichlorobenzene

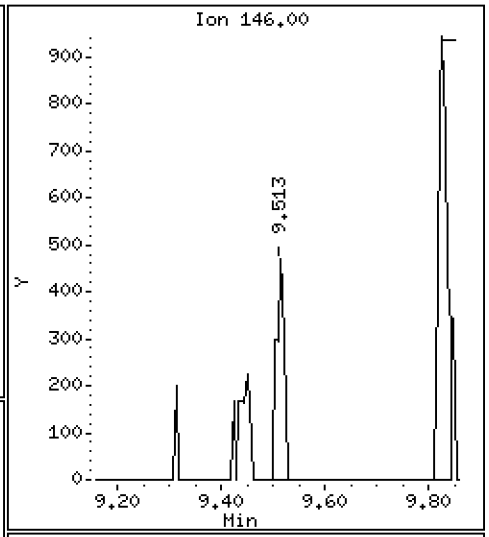
Concentration: 0.02794 ug/L

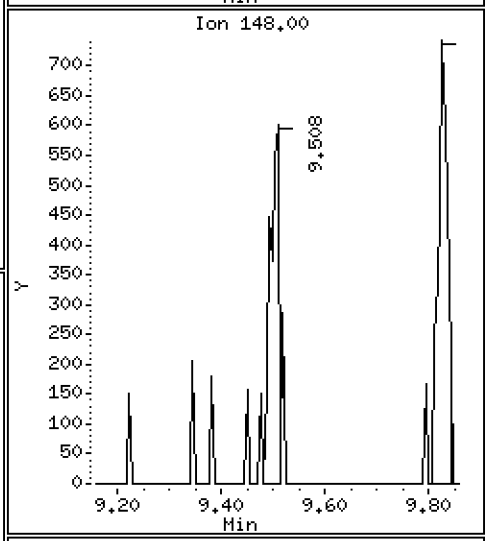


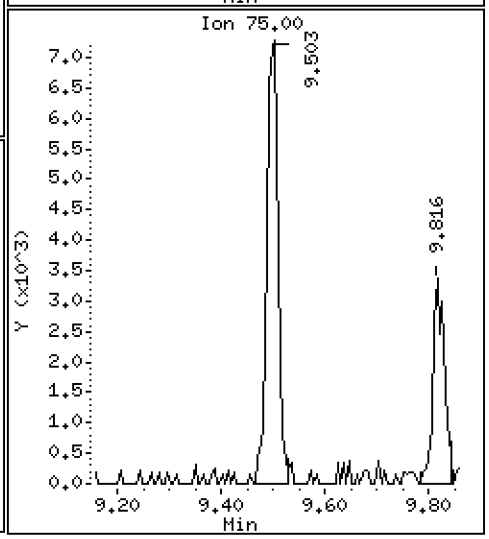












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

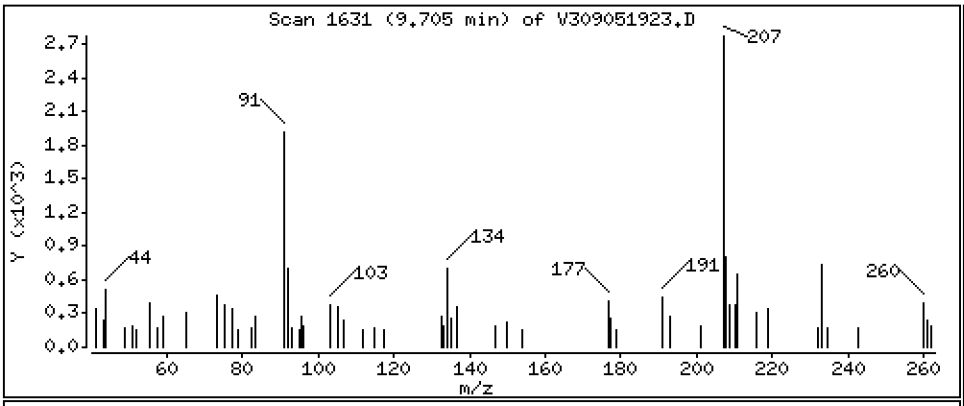
Operator: PKC

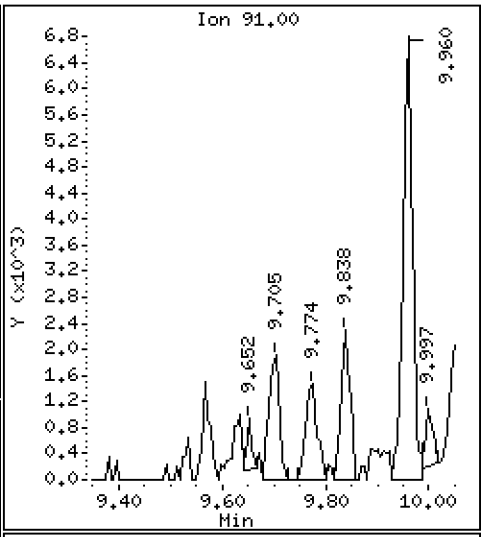
Column phase: RTXVMS

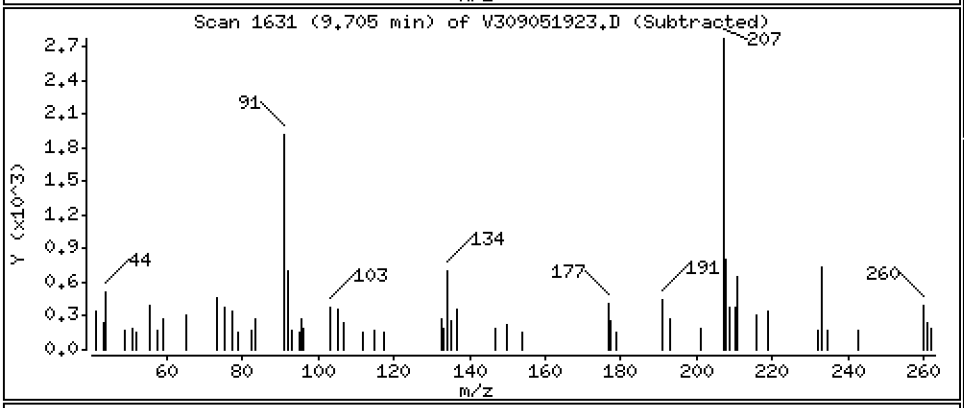
Column diameter: 0.18

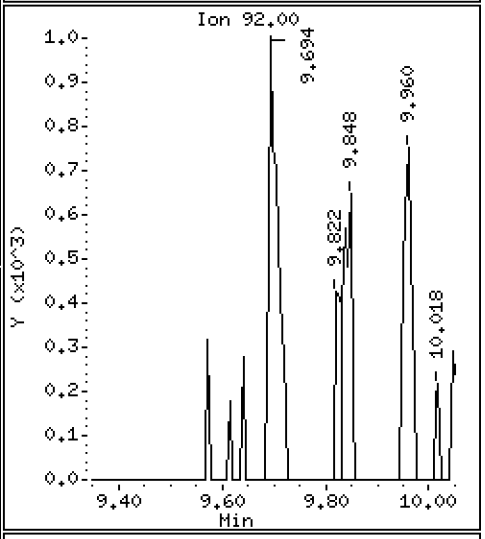
78 N-Butyl Benzene

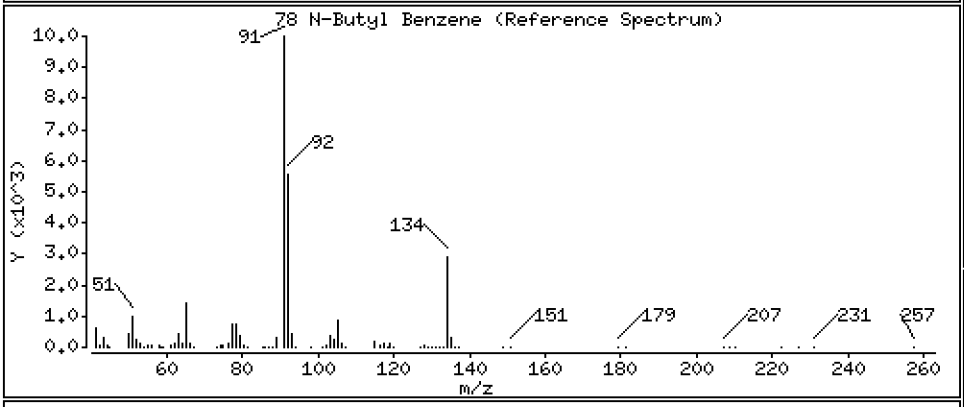
Concentration: 0.1056 ug/L

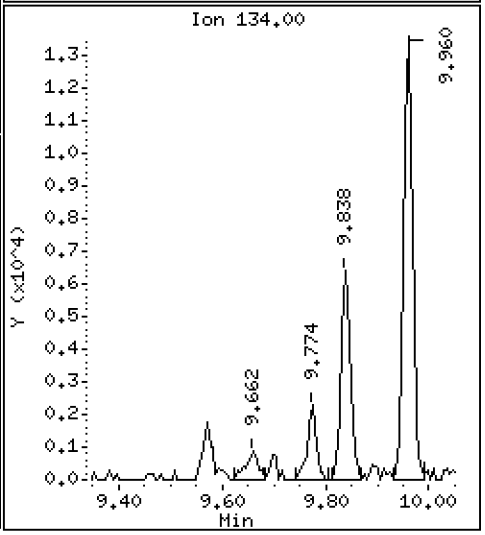


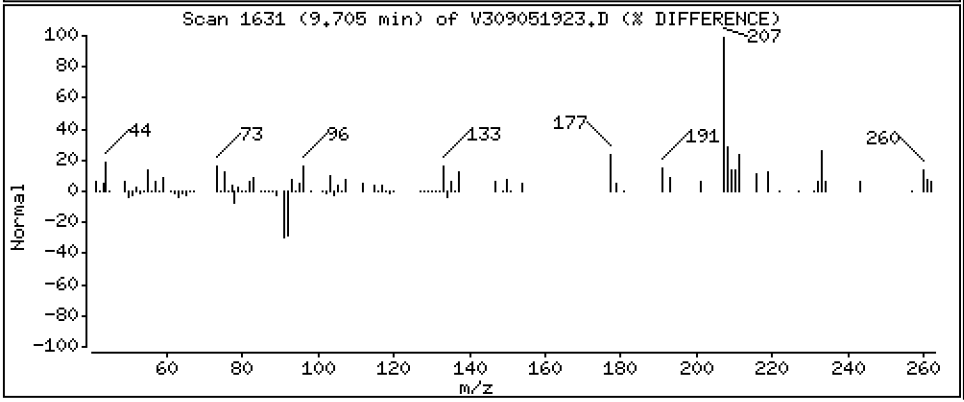












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

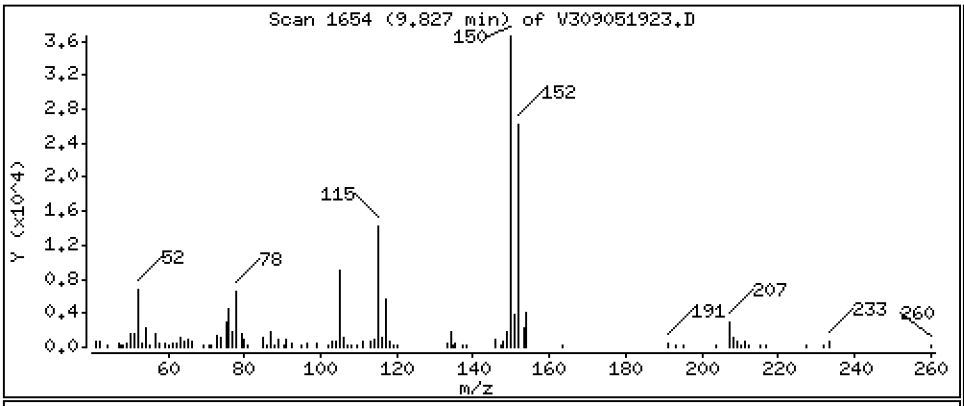
Operator: PKC

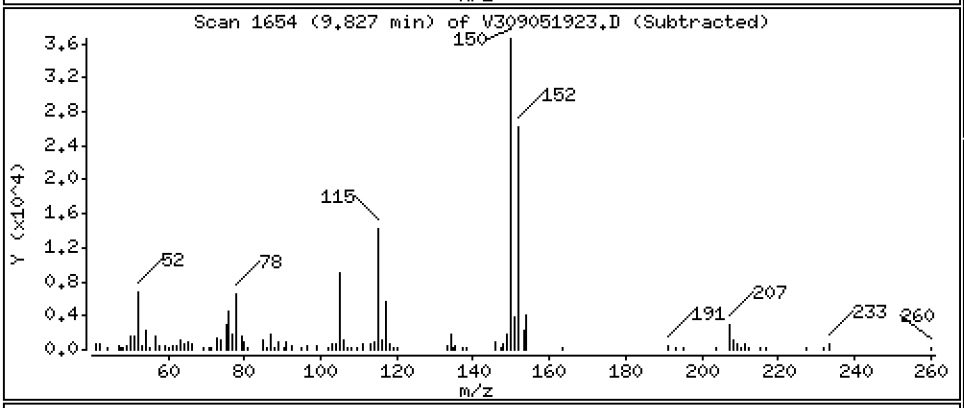
Column phase: RTXVMS

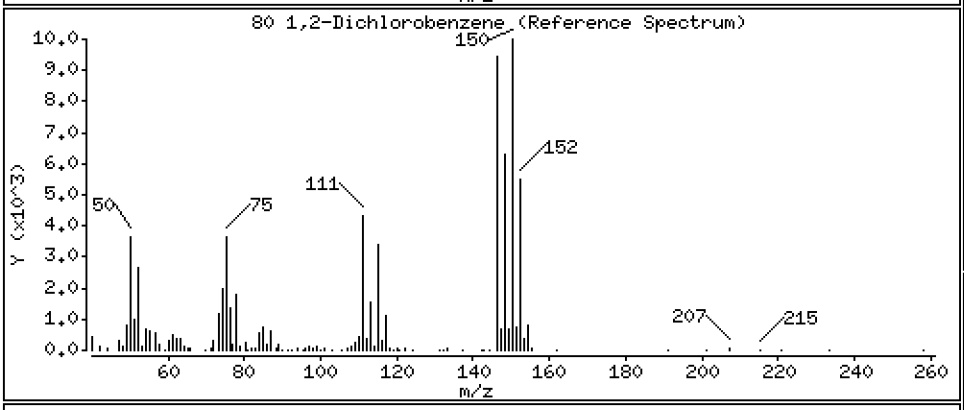
Column diameter: 0.18

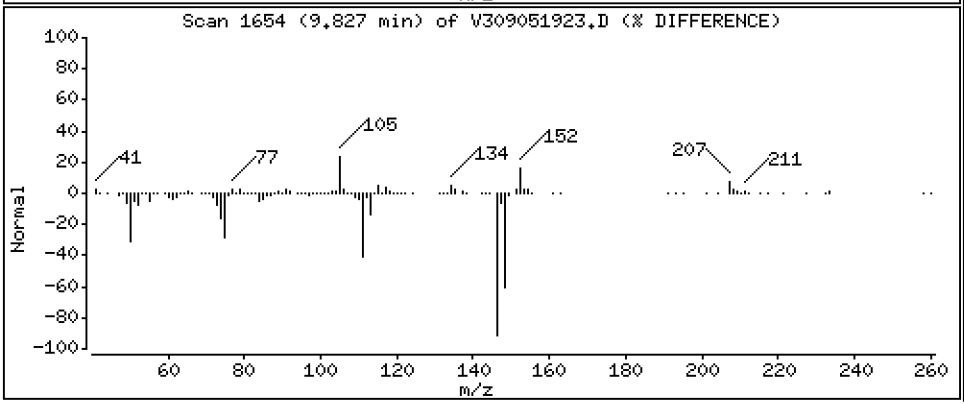
80 1,2-Dichlorobenzene

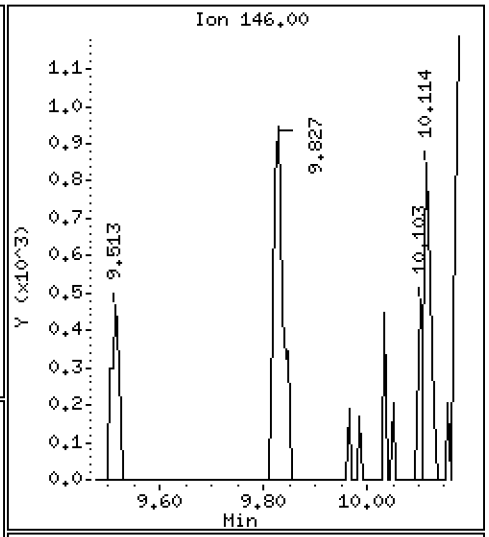
Concentration: 0.07388 ug/L

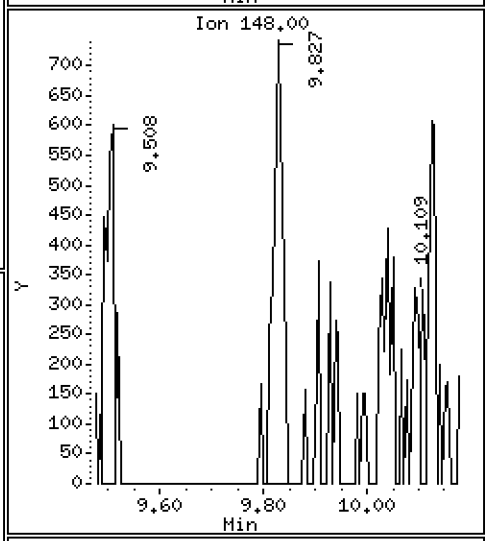


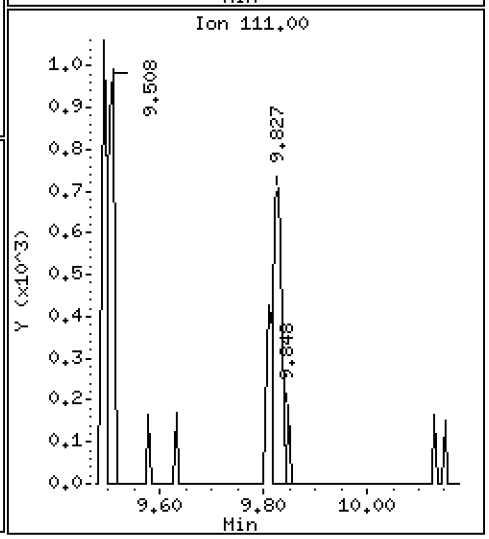












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Date : 05-SEP-2019 21:08

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-22

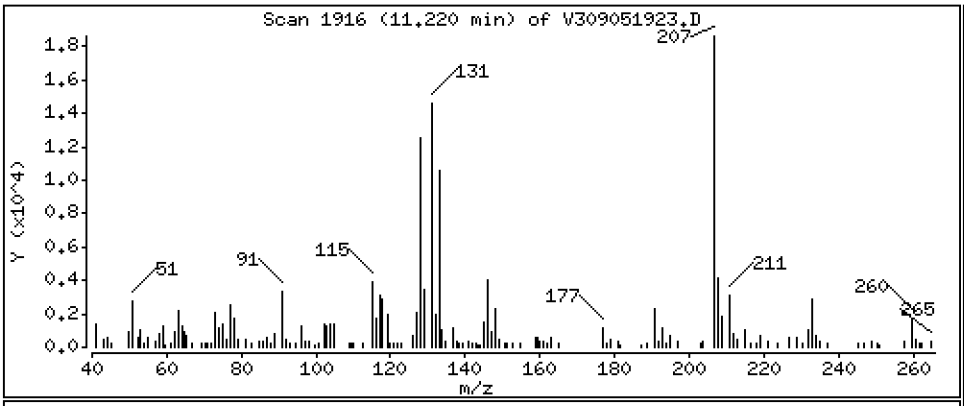
Operator: PKC

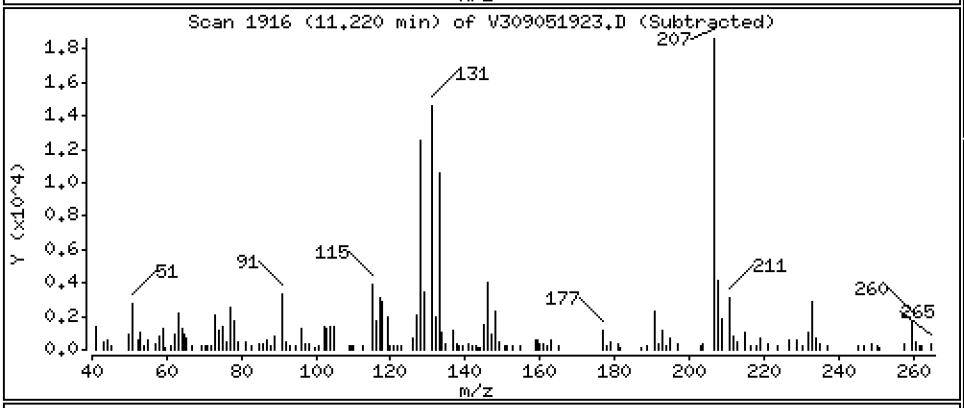
Column phase: RTXVMS

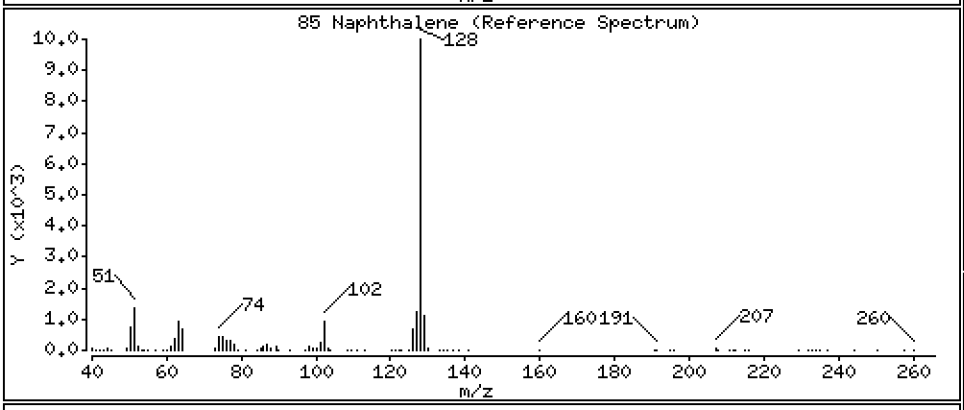
Column diameter: 0.18

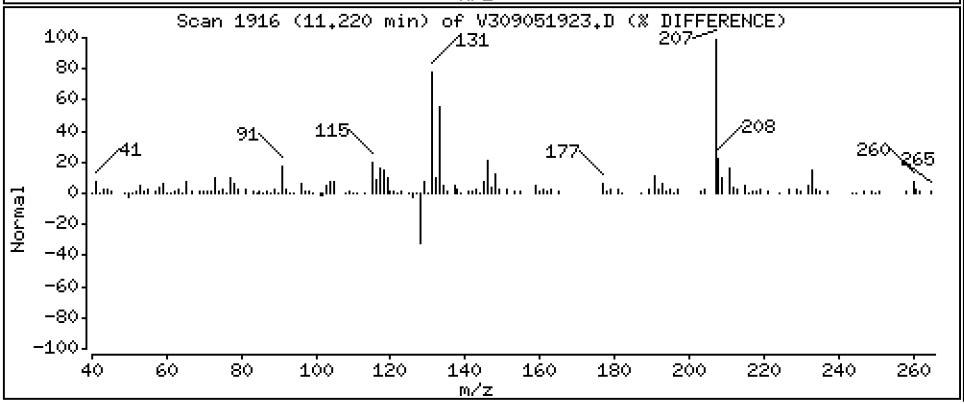
85 Naphthalene

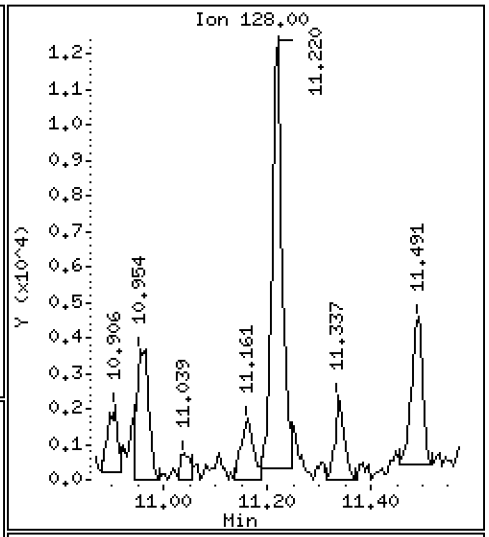
Concentration: 0.8066 ug/L

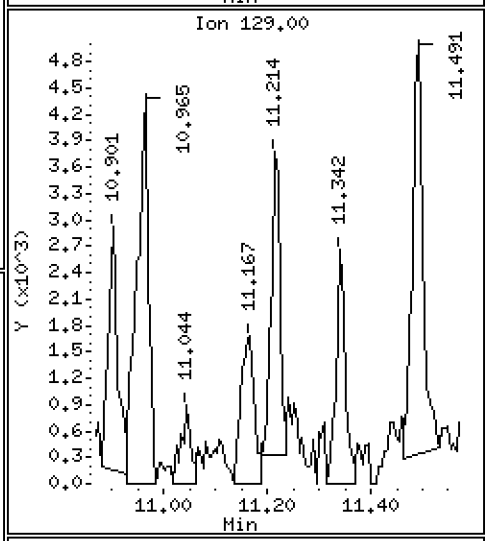


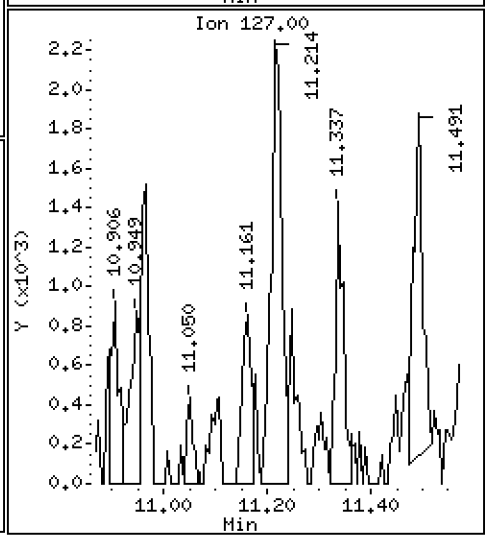












ARI Labs, Inc.

8260C 10 ml purge

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Lab Smp Id: 19H0481-22
Inj Date : 05-SEP-2019 21:08
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-22
Misc Info : 16-
Comment :
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Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	2.523	2.533	(0.466)	209	0.02010	0.02010
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	21203	4.84369	4.844(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	5.330	5.335	(0.921)	1889	0.07394	0.07394
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	101238	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.441	(1.005)	23597	4.83839	4.838(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	149291	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	89004	4.92811	4.928(R)
	44	Toluene	92	6.776	6.775	(1.171)	5968	0.35823	0.3582
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	145840	10.0000	
	54	Chlorobenzene	112	7.823	7.828	(1.001)	4235	0.22541	0.2254
	55	Ethyl Benzene	106	7.839	7.843	(1.003)	1568	0.15286	0.1529(M)
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.945	7.944	(1.017)	7614	0.60277	0.6028
	58	o-Xylene	106	8.243	8.247	(1.055)	3671	0.28788	0.2879(M)
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	8.476	8.471	(0.893)	4298	0.13181	0.1318
$	62	4-Bromofluorobenzene	174	8.678	8.678	(1.111)	33985	4.90402	4.904(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	8.763	8.768	(0.923)	5421	0.14496	0.1450
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	2339	0.08149	0.08149
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	9.141	9.146	(0.963)	1246	0.05141	0.05141
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	9464	0.32525	0.3253
	73	S-Butyl Benzene	105	9.279	9.279	(0.977)	8565	0.25280	0.2528
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	91792	10.0000	
	77	1,4-Dichlorobenzene	146	9.513	9.507	(1.002)	520	0.02794	0.02794
	78	N-Butyl Benzene	91	9.704	9.699	(1.022)	2749	0.10565	0.1056
$	79	d4-1,2-Dichlorobenzene	152	9.816	9.821	(1.034)	45673	5.29558	5.296(R)
	80	1,2-Dichlorobenzene	146	9.827	9.826	(1.035)	1284	0.07388	0.07388
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.219	11.219	(1.181)	16428	0.80660	0.8066
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051923.D
Lab Smp Id: 19H0481-22
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	101238	4.48
37 1,4-Difluorobenze	140121	70061	280242	149291	6.54
53 d5-Chlorobenzene	140128	70064	280256	145840	4.08
76 d4-1,4-Dichlorobe	90137	45069	180274	91792	1.84

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-22
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.844	96.87	
$ 33 d4-1,2-Dichloroeth	5.000	4.838	96.77	
$ 43 d8-Toluene	5.000	4.928	98.56	
$ 62 4-Bromofluorobenze	5.000	4.904	98.08	
$ 79 d4-1,2-Dichloroben	5.000	5.296	105.91	

REVIEW SUMMARY FOR FILE - V309051923.D

Lab ID: 19H0481-22
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 21:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

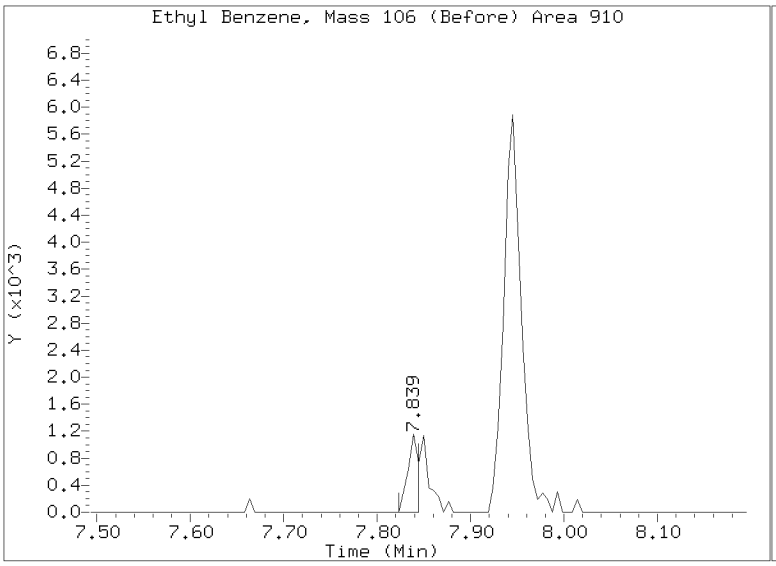
RRT check based on Ccal File: V309051928.D

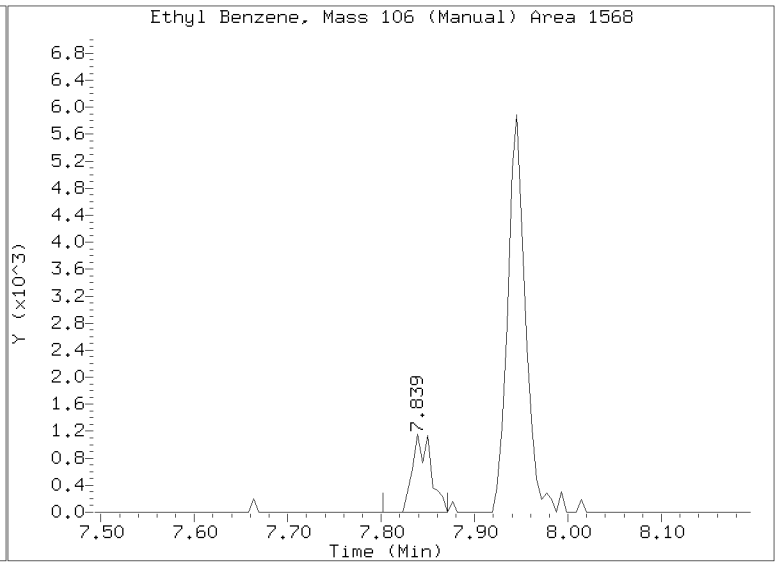
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

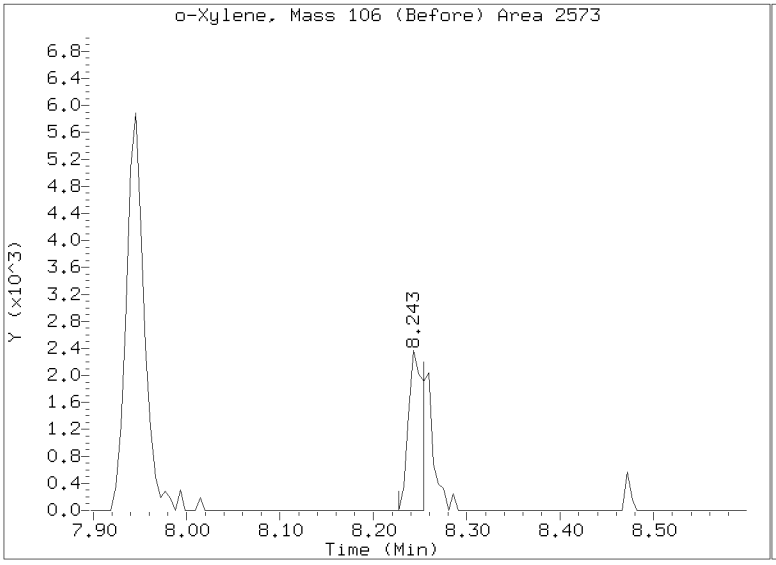
* Only compounds listed in the work order have been verified by the analyst *

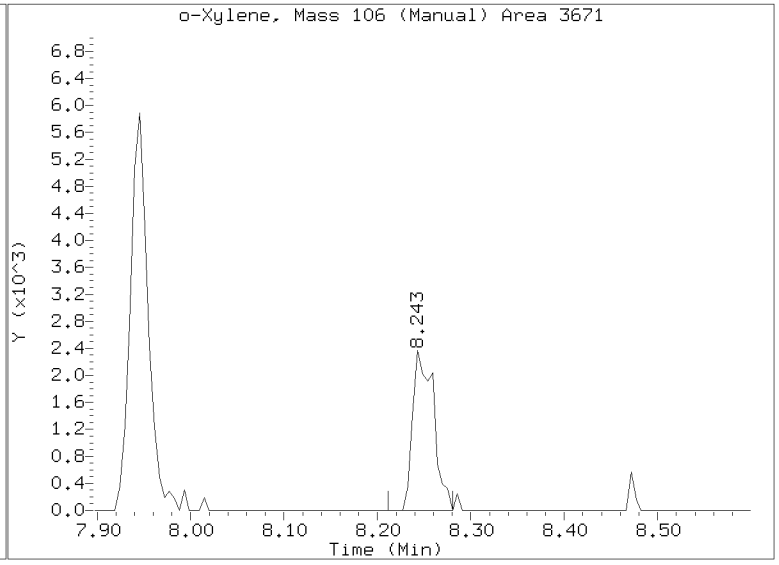
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051923.D
Injection Date: 05-SEP-2019 21:08
Lab ID:19H0481-22 Client ID:
Report Date: 09/06/2019 14:40









P40-UST-04-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-24 C	SDG:	19H0481
Sampled:	08/30/19 11:30	Prepared:	09/04/19 15:53	File ID:	NT509041909.D
% Solids:	94.94	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/04/19 17:36
Batch:	BHI0097	Sequence:	SHI0061	Initial/Final:	3.56 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.48	U	0.44	1.48
108-88-3	Toluene	1	1.48	U	0.22	1.48
100-41-4	Ethylbenzene	1	1.48	U	0.30	1.48
179601-23-1	m,p-Xylene	1	2.96	U	0.58	2.96
95-47-6	o-Xylene	1	1.48	U	0.33	1.48

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.6	105	77 - 120	
4-Bromofluorobenzene	50.000	52.2	104	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041909.D

Date : 04-SEP-2019 17:36

Client ID:

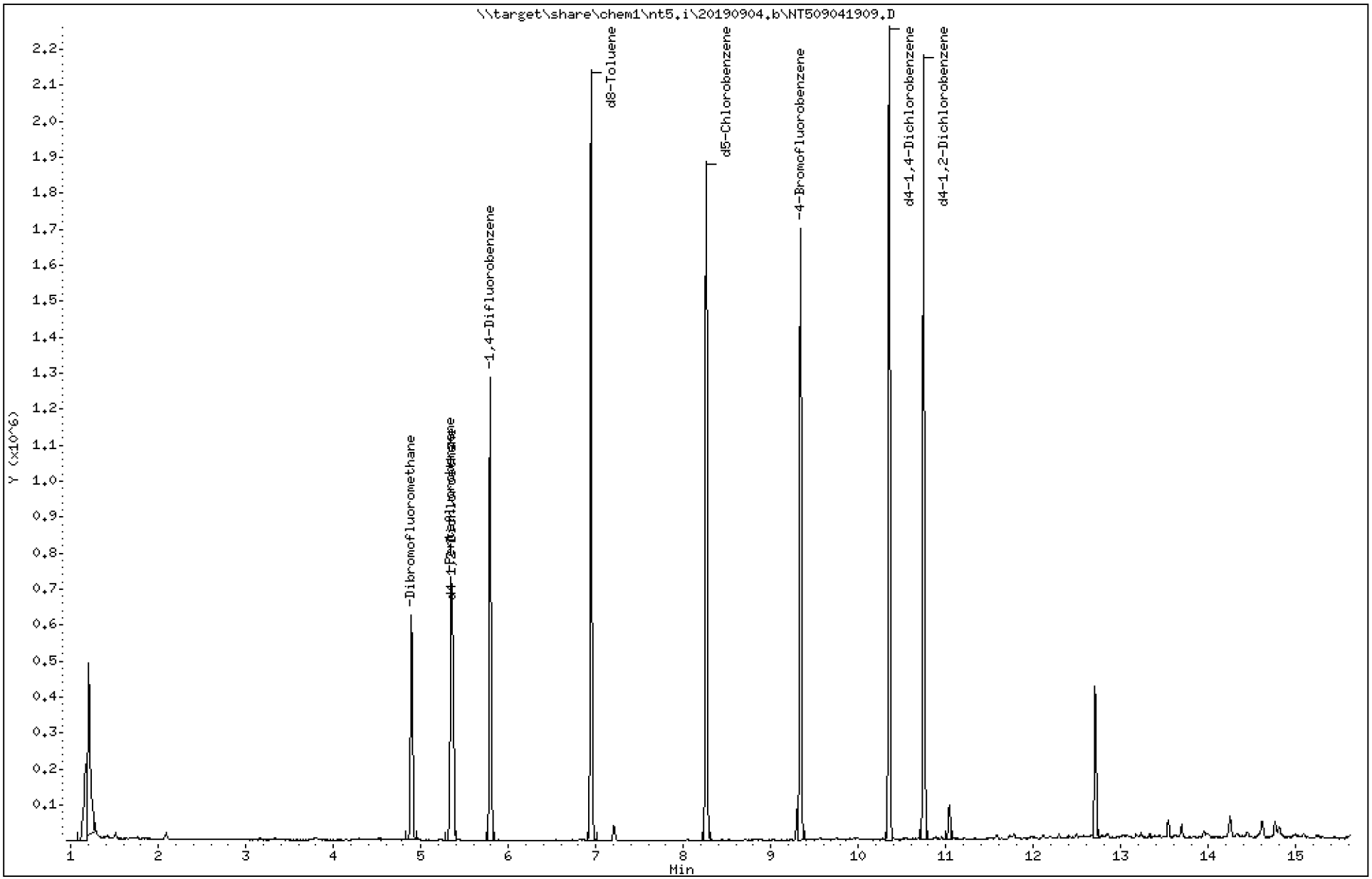
Instrument: nt5.i

Sample Info: 19H0481-24

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041909.D

Date : 04-SEP-2019 17:36

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-24

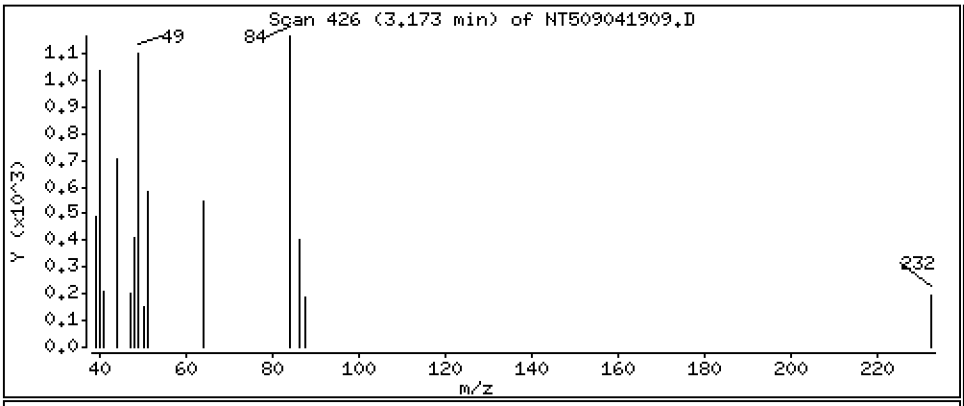
Operator: PB

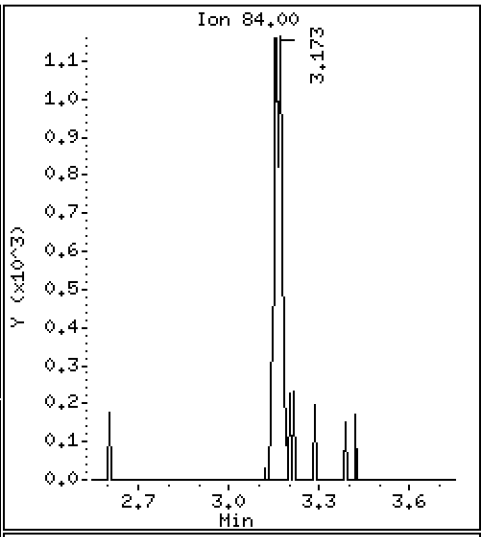
Column phase: RTXVMS

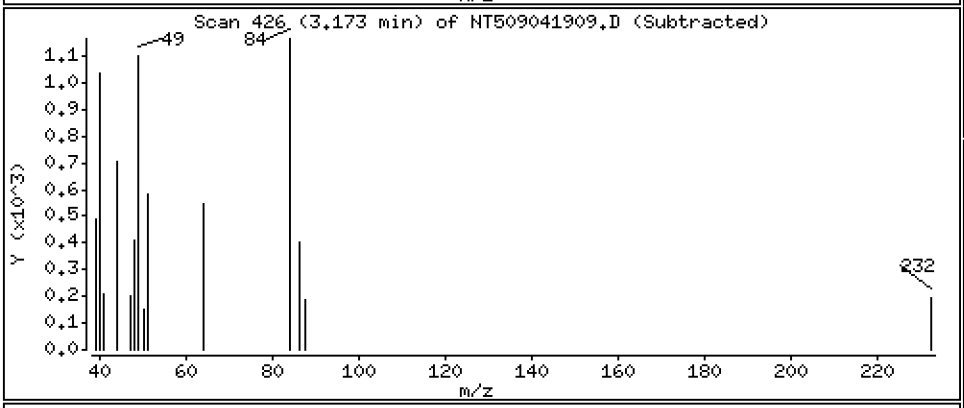
Column diameter: 0.18

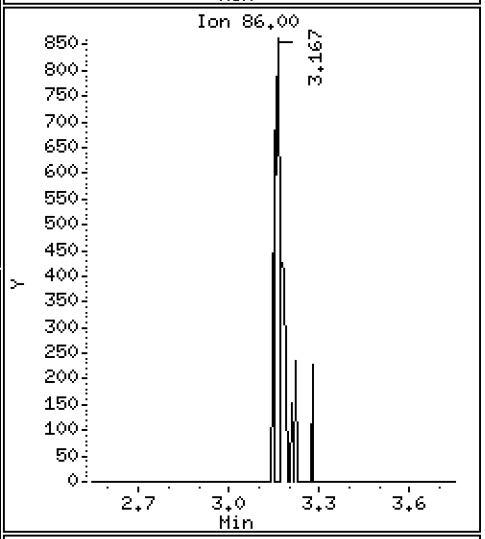
13 Methylene Chloride

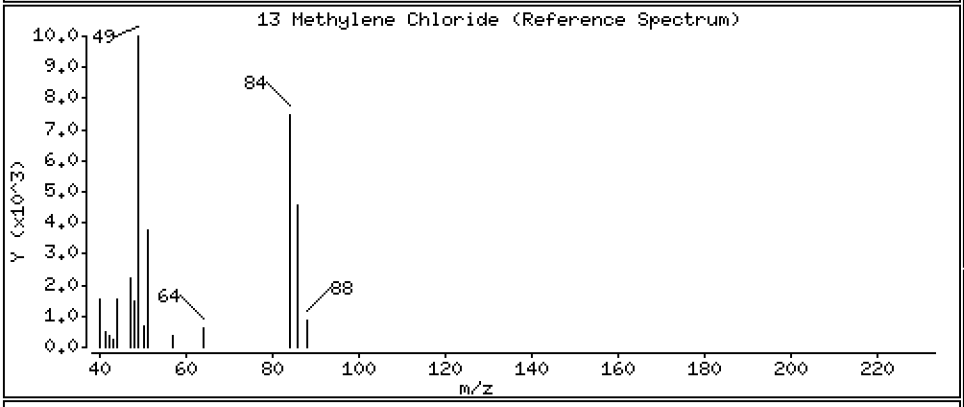
Concentration: 1.038 ug/Kg

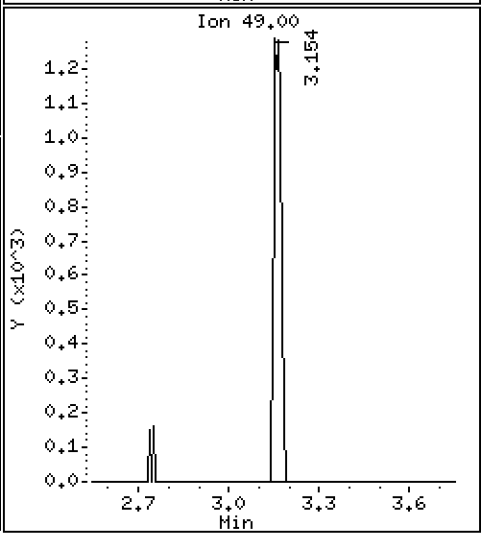


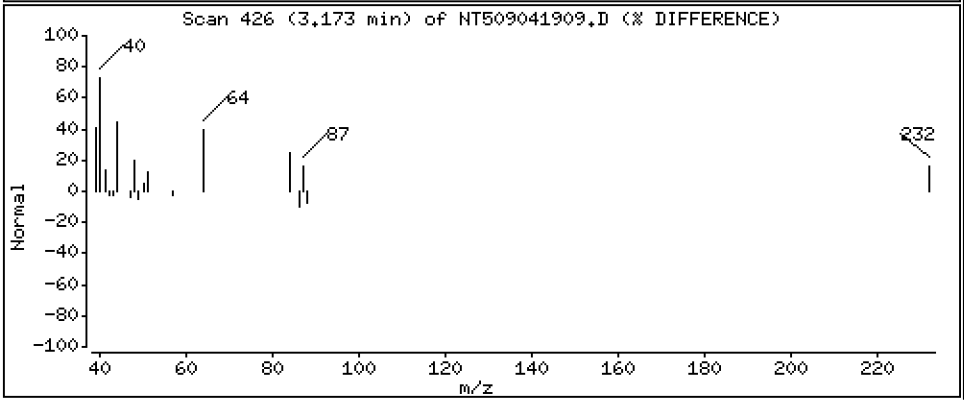












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Date : 04-SEP-2019 17:36

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-24

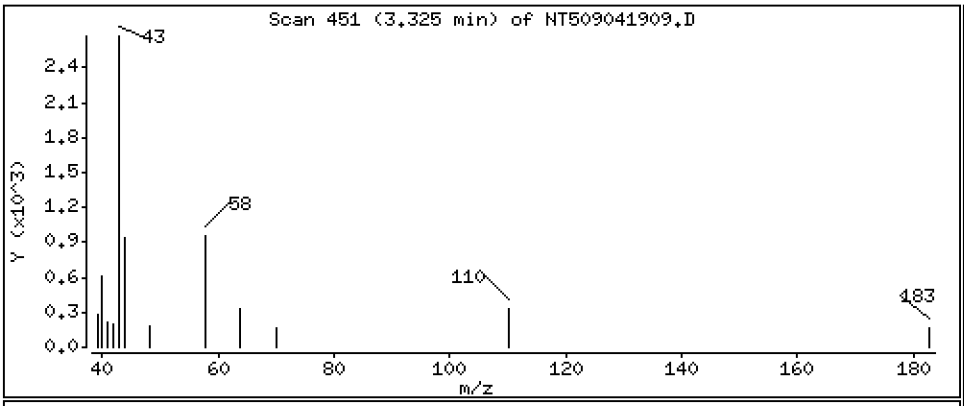
Operator: PB

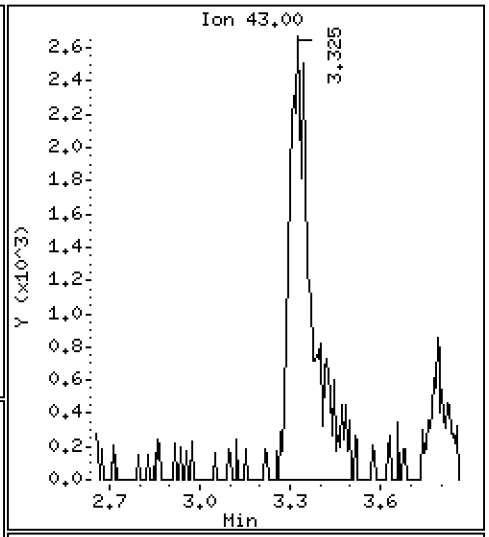
Column phase: RTXVMS

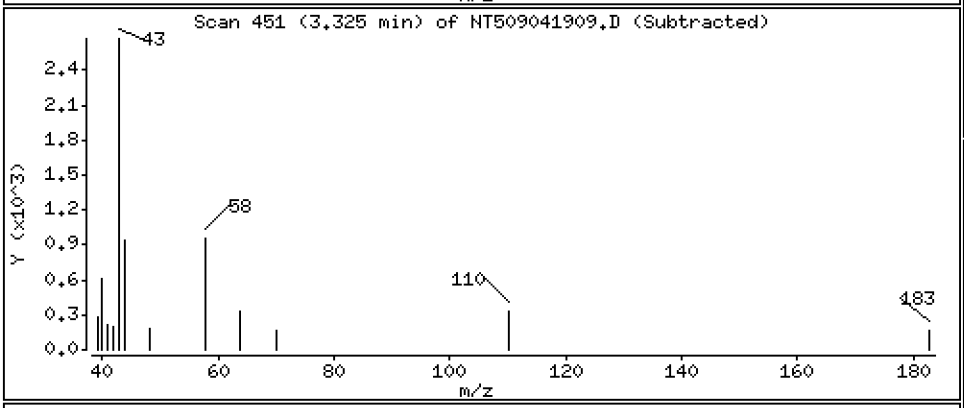
Column diameter: 0.18

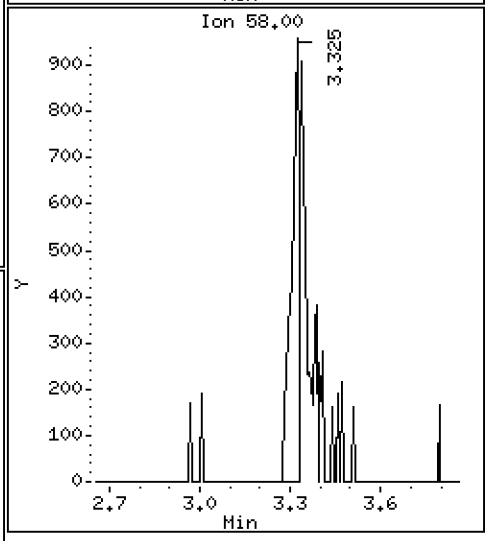
14 Acetone

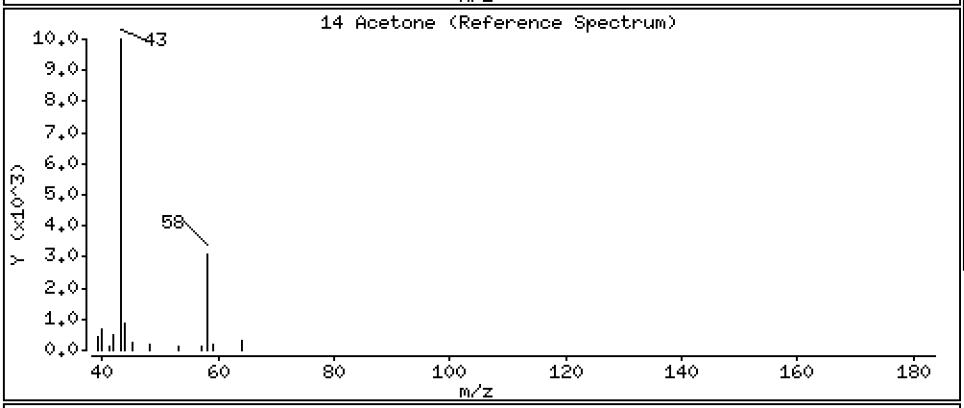
Concentration: 26.978 ug/Kg

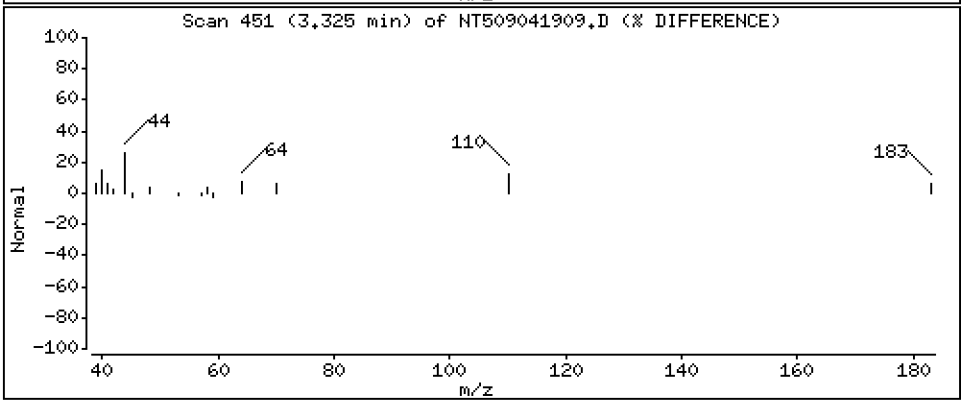












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041909.D

Date : 04-SEP-2019 17:36

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-24

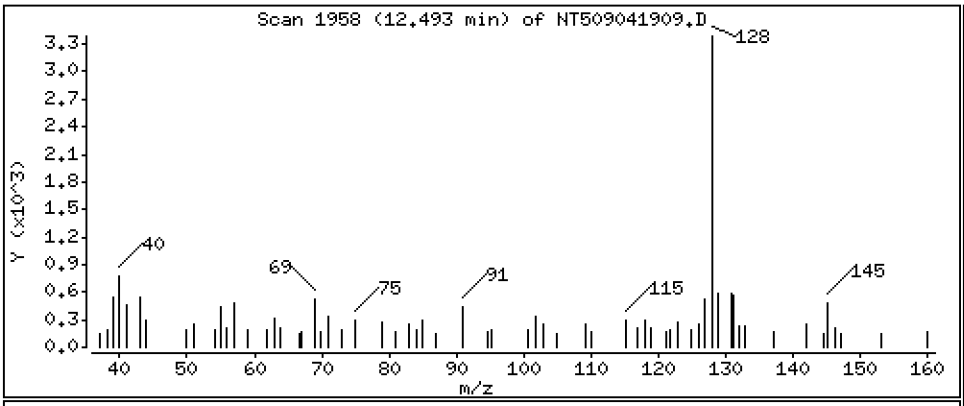
Operator: PB

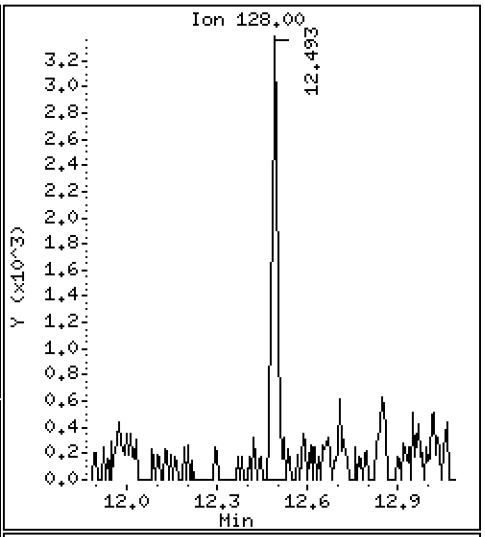
Column phase: RTXVMS

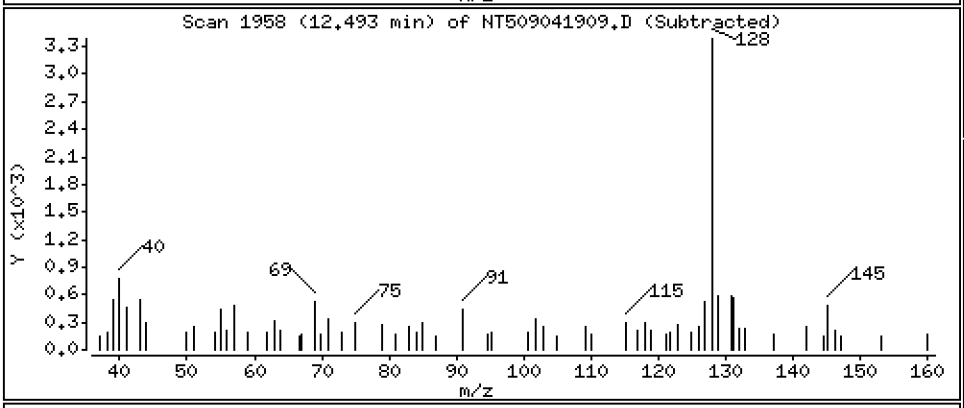
Column diameter: 0.18

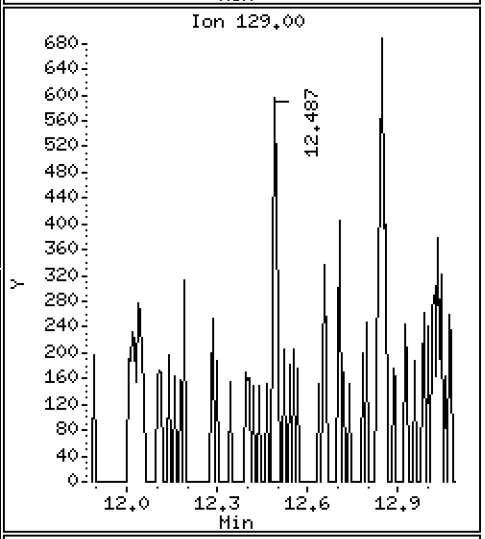
84 Naphthalene

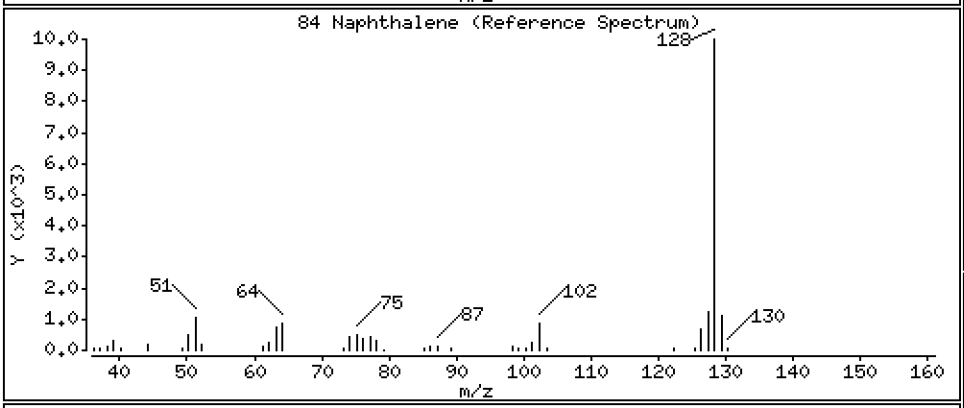
Concentration: 0.4160 ug/Kg

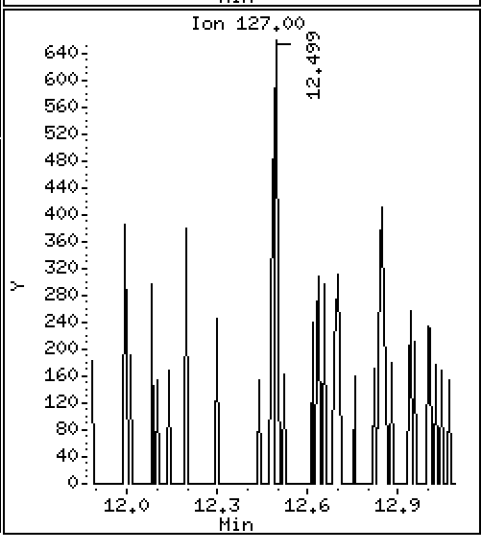


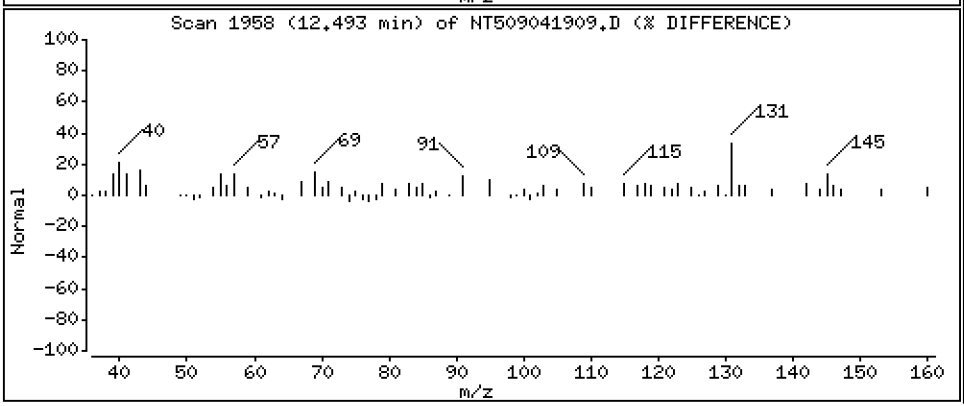












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041909.D
Lab Smp Id: 19H0481-24
Inj Date : 04-SEP-2019 17:36
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-24
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1	Dichlorodifluoromethane	85	Compound Not Detected.					
2	Chloromethane	50	Compound Not Detected.					
3	Vinyl Chloride	62	Compound Not Detected.					
4	Bromomethane	94	Compound Not Detected.					
5	Chloroethane	64	Compound Not Detected.					
6	Trichlorofluoromethane	101	Compound Not Detected.					
7	1,1-Dichloroethene	96	Compound Not Detected.					
8	Carbon Disulfide	76	Compound Not Detected.					
9	112Trichloro122Trifluoroethane	101	Compound Not Detected.					
10	Iodomethane	142	Compound Not Detected.					
11	Bromoethane	108	Compound Not Detected.					
12	Acrolein	56	Compound Not Detected.					
13	Methylene Chloride	84	3.172	3.148	(0.594)	2383	1.03776	1.038(M)
14	Acetone	43	3.324	3.257	(0.622)	13407	26.9780	26.978(M)
15	Trans-1,2-Dichloroethene	96	Compound Not Detected.					
16	Methyl tert butyl ether	73	Compound Not Detected.					
173	n-Hexane	41	Compound Not Detected.					
17	1,1-Dichloroethane	63	Compound Not Detected.					
18	Acrylonitrile	53	Compound Not Detected.					
19	Vinyl Acetate	43	Compound Not Detected.					
20	Cis-1,2-Dichloroethene	96	Compound Not Detected.					
22	2,2-Dichloropropane	77	Compound Not Detected.					
23	Bromochloromethane	128	Compound Not Detected.					
24	Chloroform	83	Compound Not Detected.					
25	Carbon Tetrachloride	117	Compound Not Detected.					
$ 27	Dibromofluoromethane	111	4.894	4.894	(0.916)	328427	73.4659	73.466(R)
26	1,1,1-Trichloroethane	97	Compound Not Detected.					
28	1,1-Dichloropropene	75	Compound Not Detected.					
29	2-Butanone	72	Compound Not Detected.					
30	Benzene	78	Compound Not Detected.					
* 31	Pentafluorobenzene	168	5.344	5.332	(1.000)	364005	50.0000	
$ 32	d4-1,2-Dichloroethane	65	5.362	5.350	(1.003)	312897	71.4402	71.440(R)
33	1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.794	5.782	(1.000)	887137	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.198)	1151812	52.5692	52.569(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.264	8.258	(1.000)	913775	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.341	9.335	(1.130)	413177	52.1581	52.158(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	510679	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	502134	52.4798	52.480(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.492	12.486	(1.207)	5379	0.41601	0.4160
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041909.D
Lab Smp Id: 19H0481-24
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	364005	-20.52
35 1,4-Difluorobenze	852165	426083	1704330	887137	4.10
52 d5-Chlorobenzene	803678	401839	1607356	913775	13.70
76 d4-1,4-Dichlorobe	439766	219883	879532	510679	16.13

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.23
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.21
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.07
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-24
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	73.466	146.93	
$ 32 d4-1,2-Dichloroeth	50.000	71.440	142.88	
$ 42 d8-Toluene	50.000	52.569	105.14	
$ 62 4-Bromofluorobenze	50.000	52.158	104.32	
$ 79 d4-1,2-Dichloroben	50.000	52.480	104.96	

REVIEW SUMMARY FOR FILE - NT509041909.D

Lab ID: 19H0481-24
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 17:36

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.622	0.611	0.0111	Acetone

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

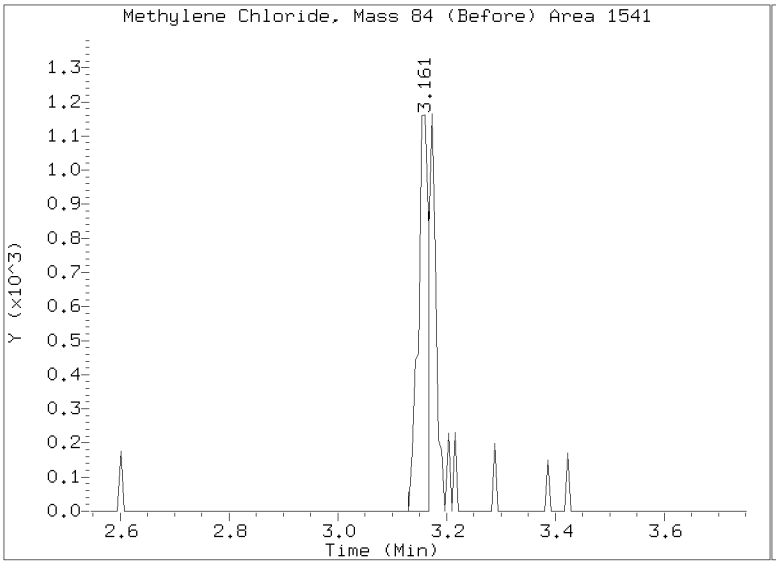
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

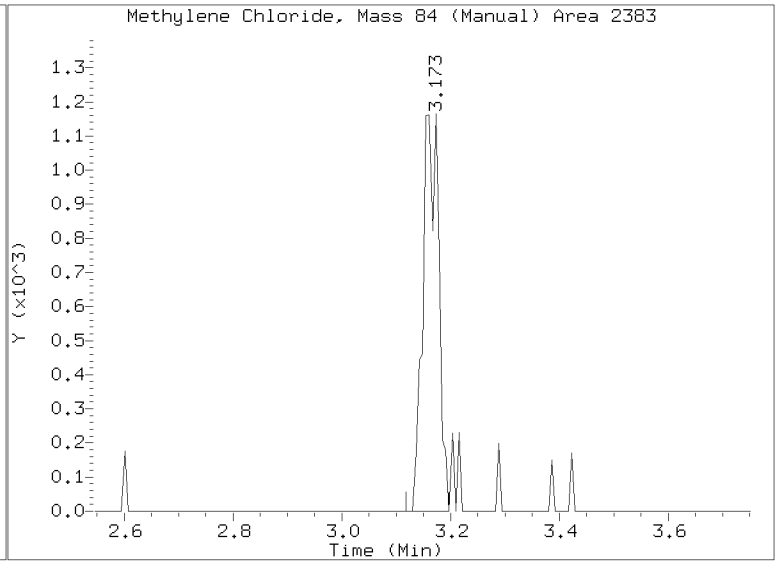
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

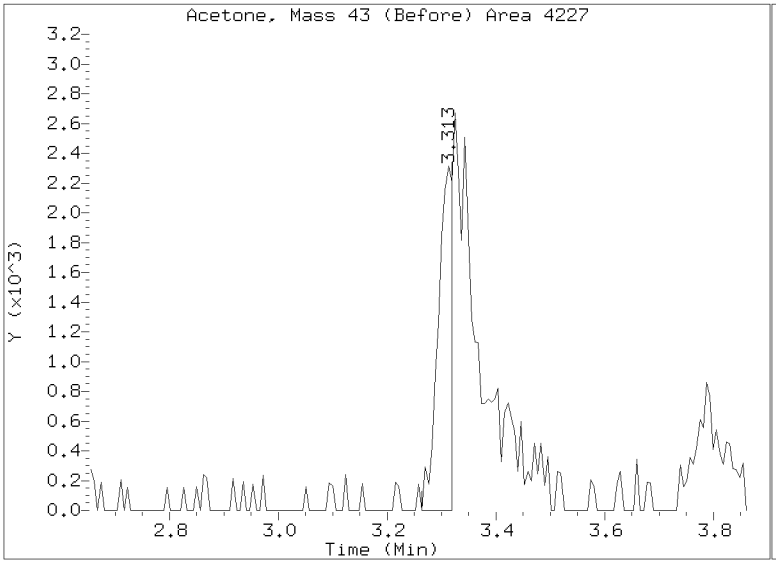
* Only compounds listed in the work order have been verified by the analyst *

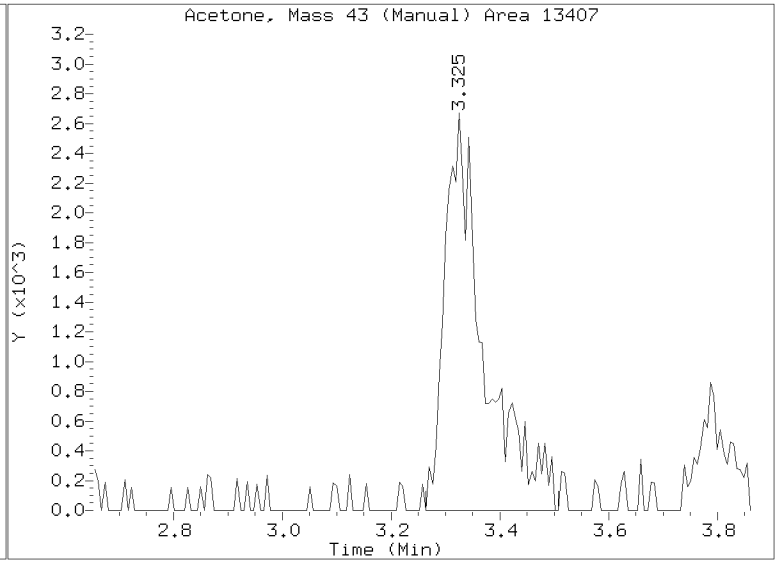
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190904.b/NT509041909.D
Injection Date: 04-SEP-2019 17:36
Lab ID:19H0481-24 Client ID:
Report Date: 09/05/2019 13:07









Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-26 C	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/04/19 15:53	File ID:	NT509041910.D
% Solids:	74.69	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/04/19 17:58
Batch:	BHI0097	Sequence:	SHI0061	Initial/Final:	4.45 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	0.67	J	0.45	1.50
108-88-3	Toluene	1	1.28	J	0.23	1.50
100-41-4	Ethylbenzene	1	1.50	U	0.30	1.50
179601-23-1	m,p-Xylene	1	0.98	J	0.59	3.01
95-47-6	o-Xylene	1	1.50	U	0.34	1.50

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	54.9	110	77 - 120	
4-Bromofluorobenzene	50.000	49.2	98.4	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

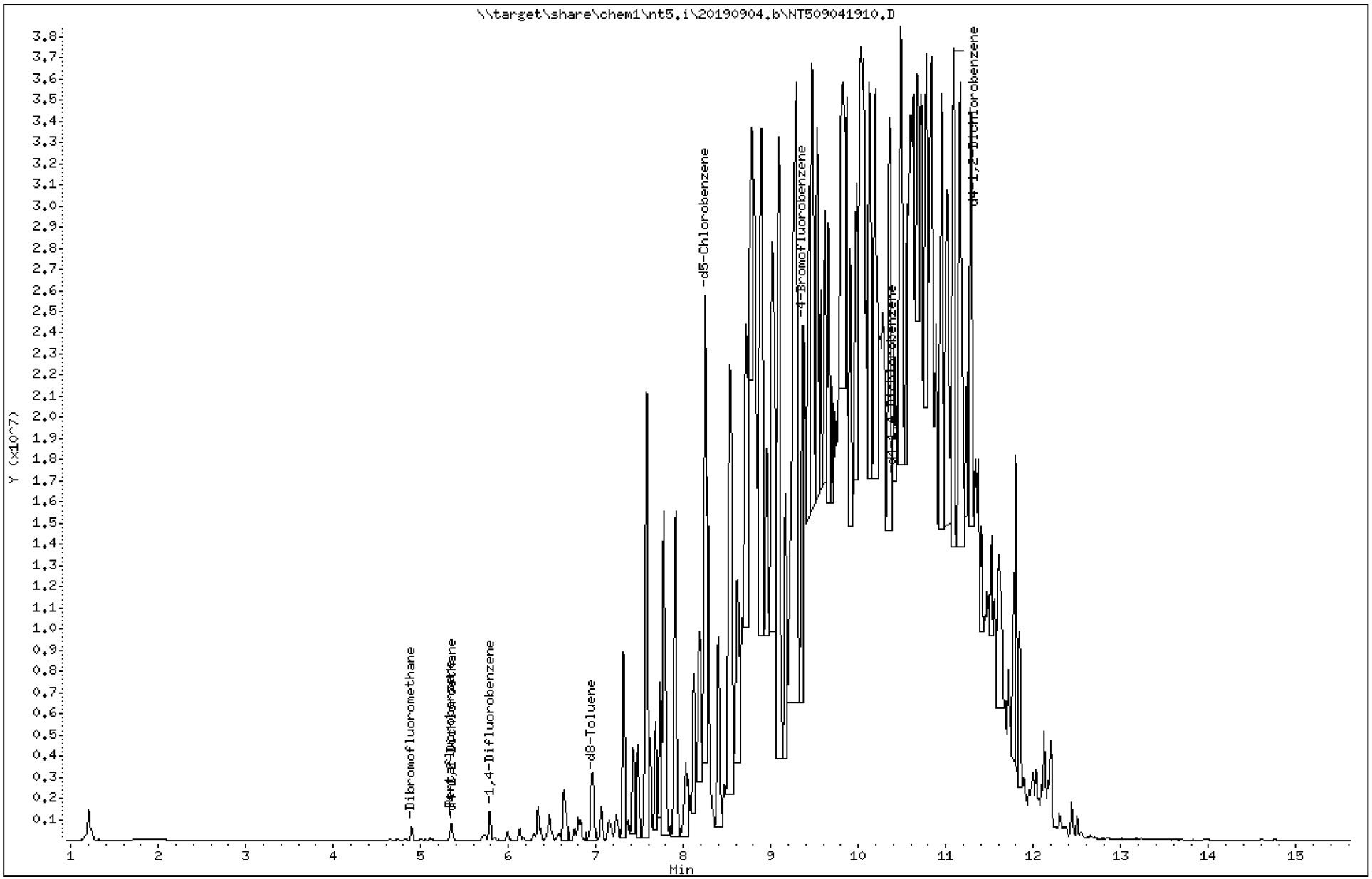
Sample Info: 19H0481-26

Column phase: RTXVMS

Instrument: nt5.i

Operator: PB

Column diameter: 0.18



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Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

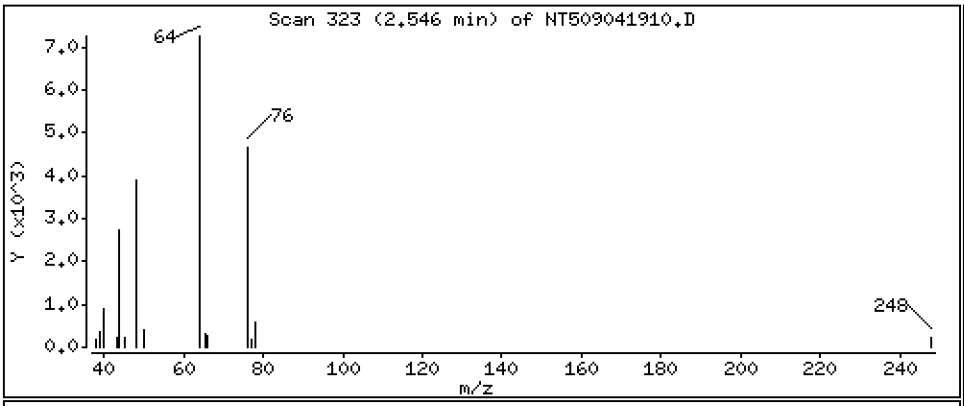
Operator: PB

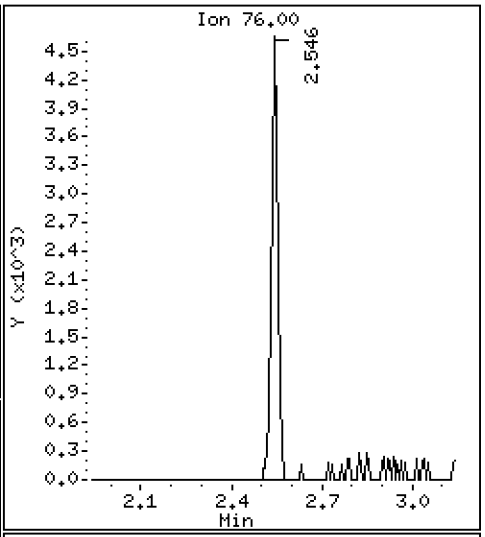
Column phase: RTXVMS

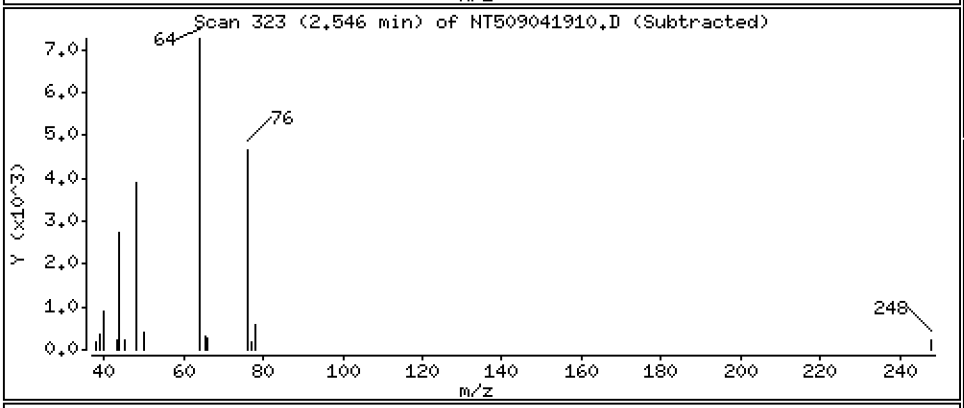
Column diameter: 0.18

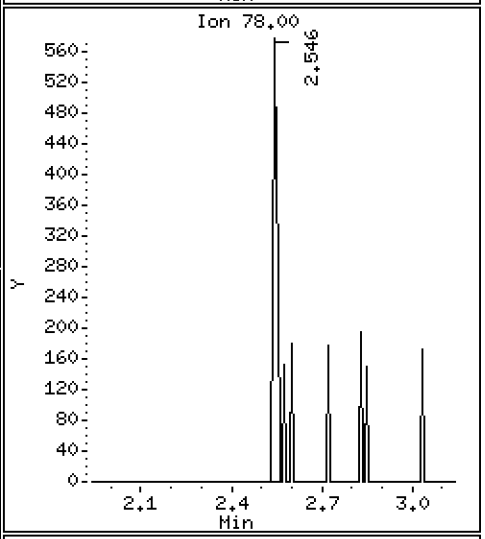
8 Carbon Disulfide

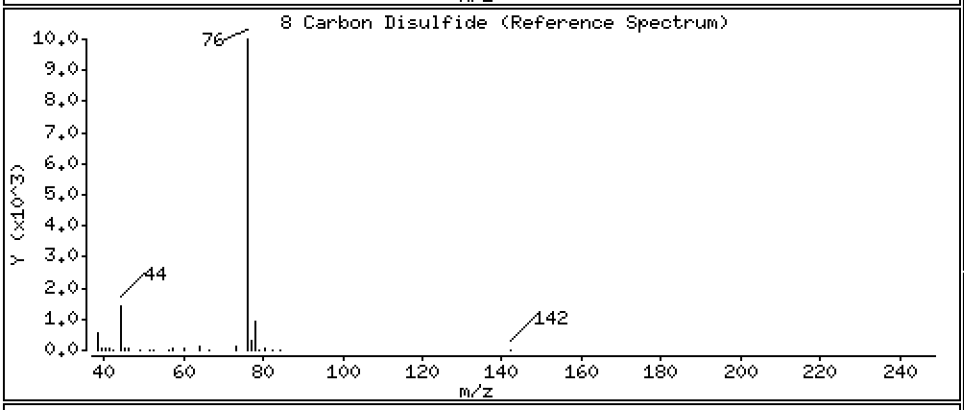
Concentration: 1.052 ug/Kg

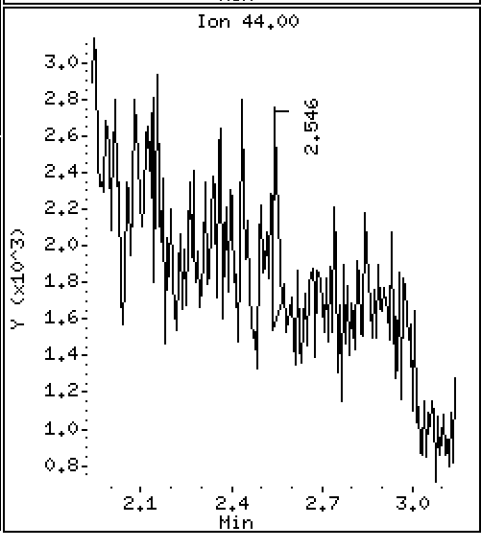


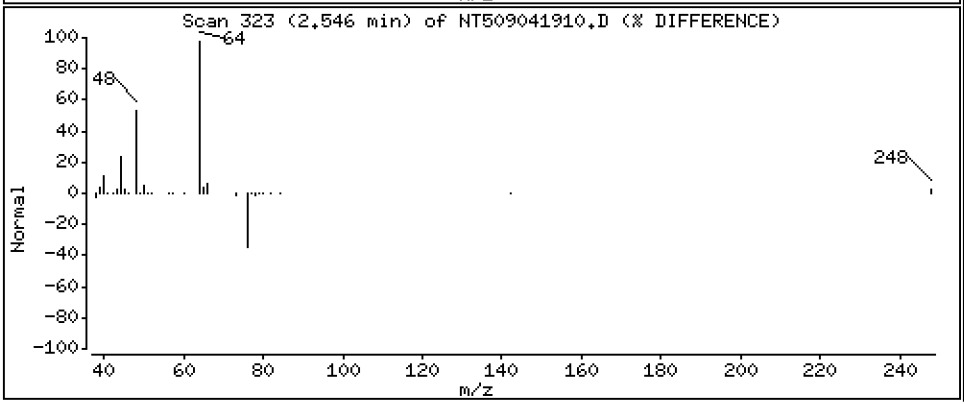












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

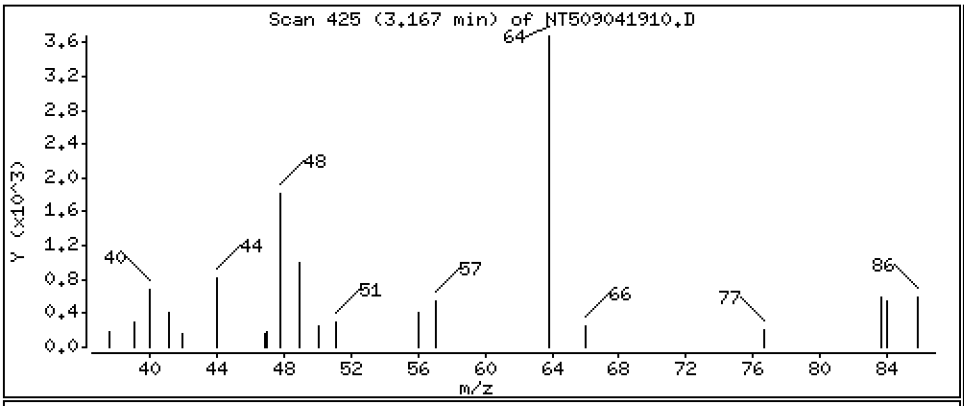
Operator: PB

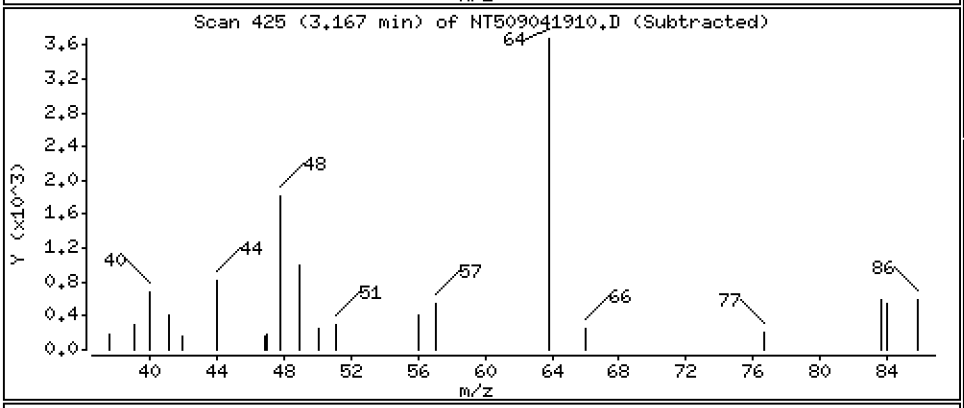
Column phase: RTXVMS

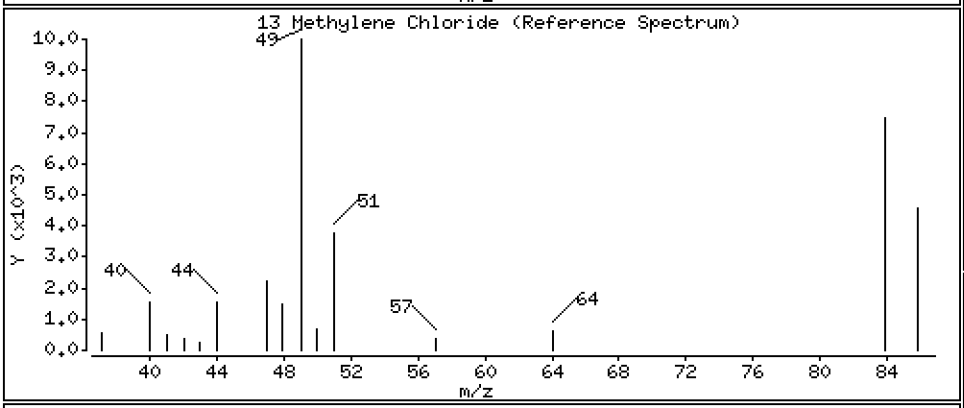
Column diameter: 0.18

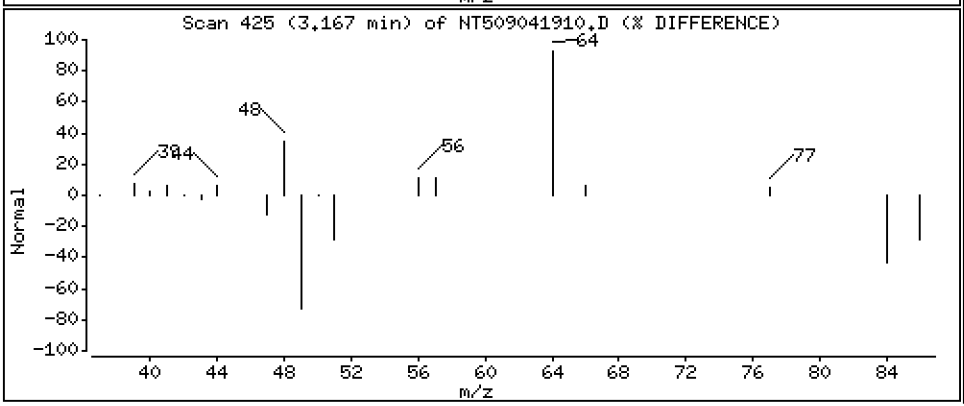
13 Methylene Chloride

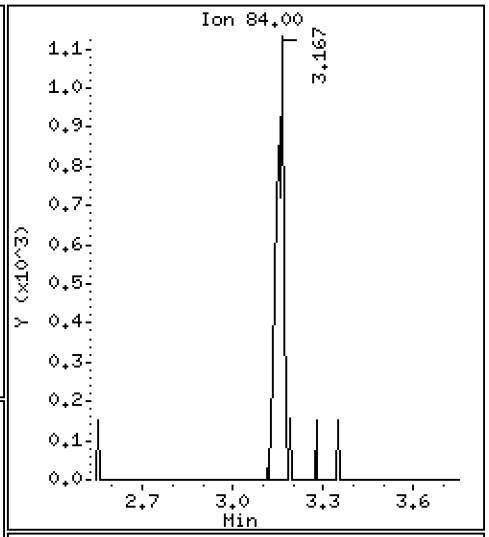
Concentration: 0.9270 ug/Kg

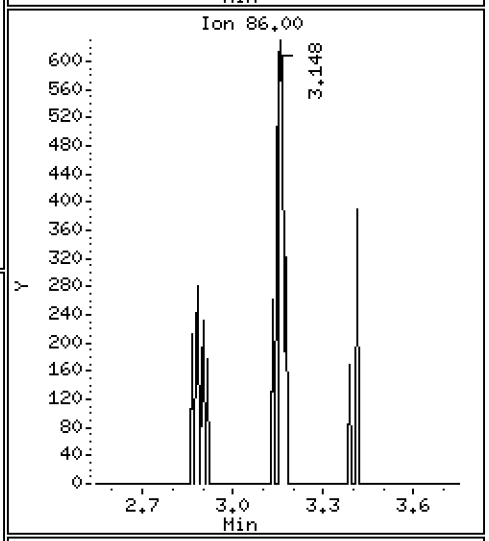


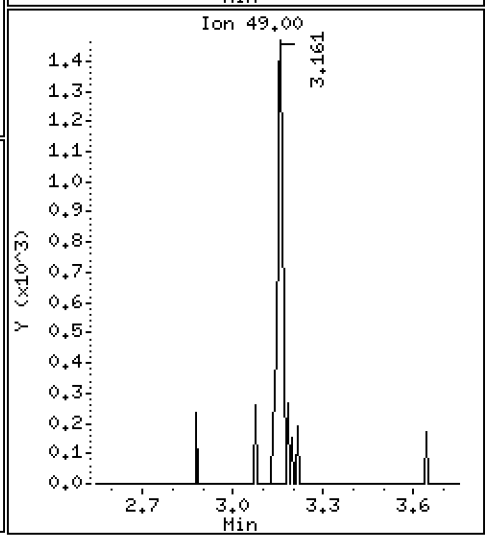












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Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

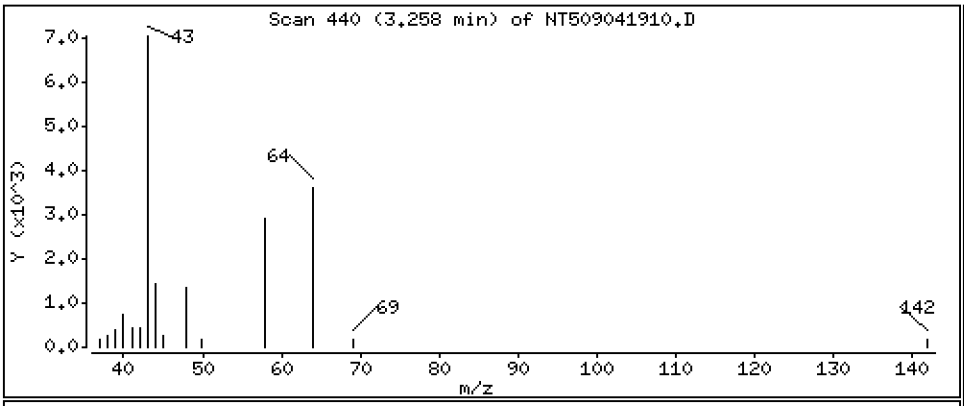
Operator: PB

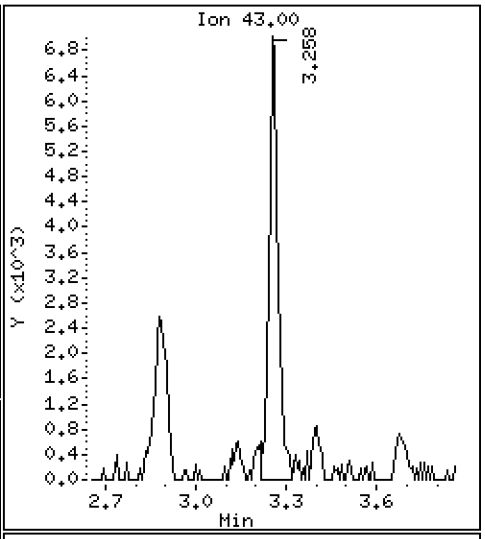
Column phase: RTXVMS

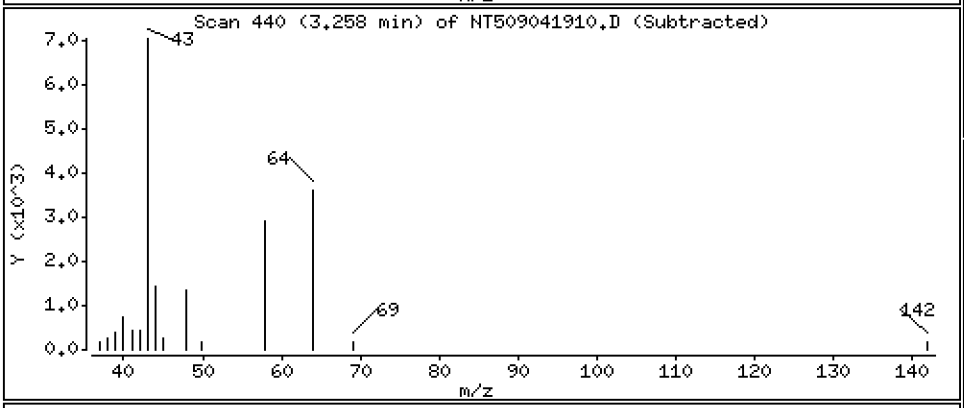
Column diameter: 0.18

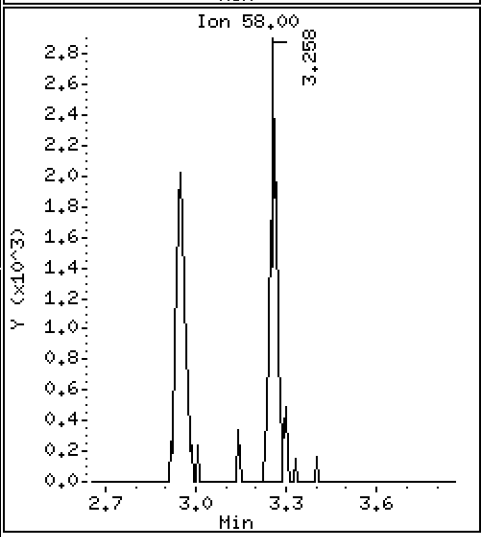
14 Acetone

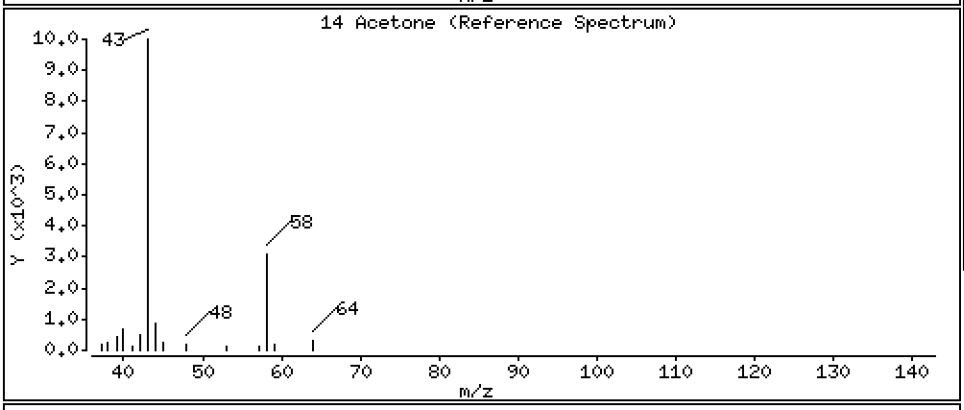
Concentration: 33.053 ug/Kg

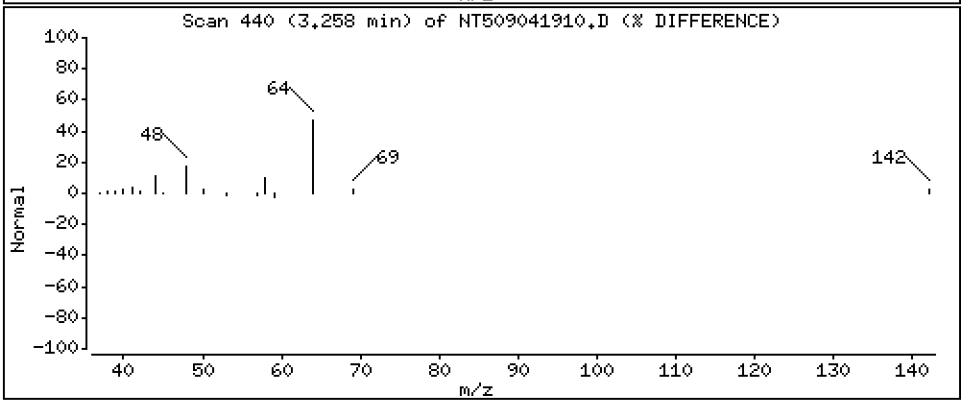












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

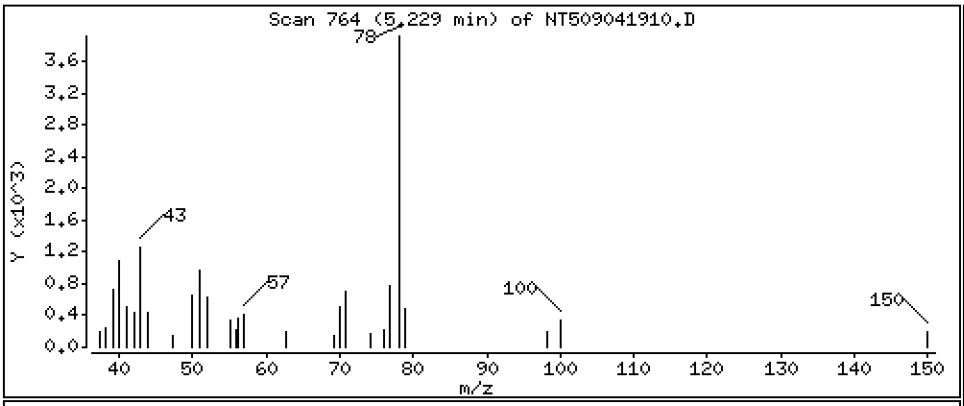
Operator: PB

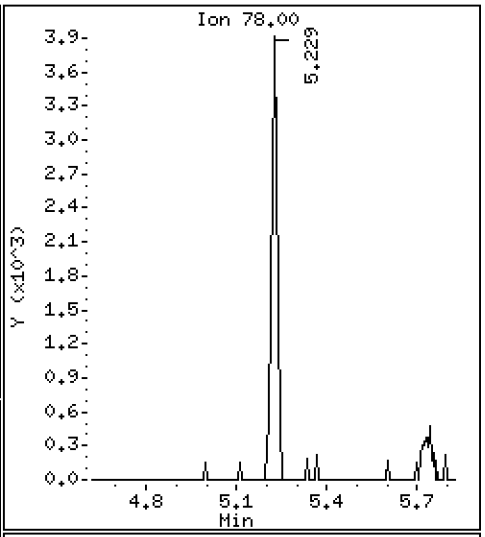
Column phase: RTXVMS

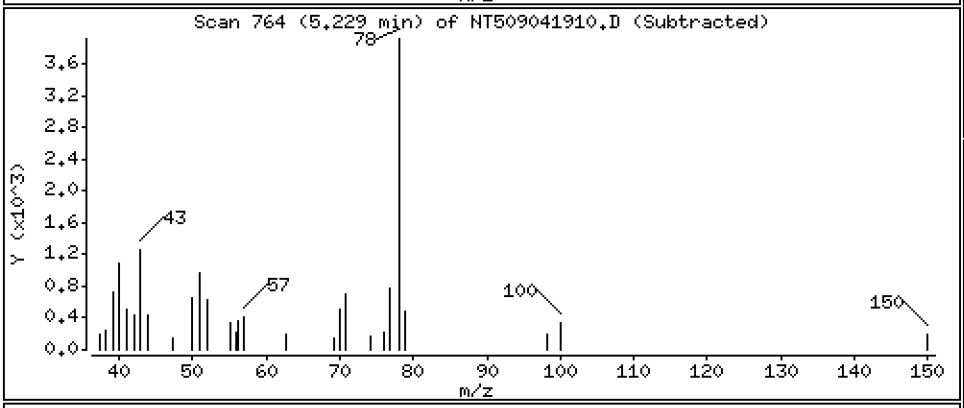
Column diameter: 0.18

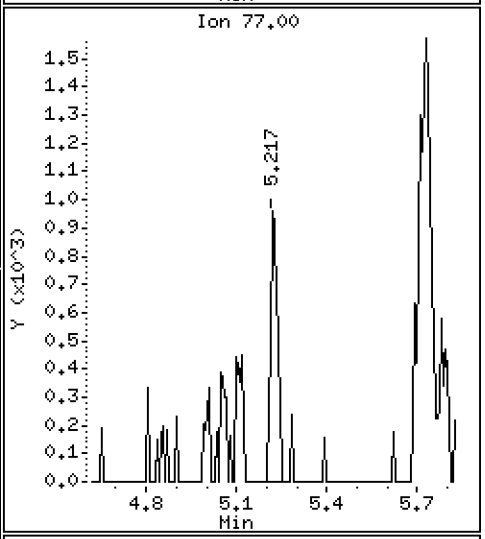
30 Benzene

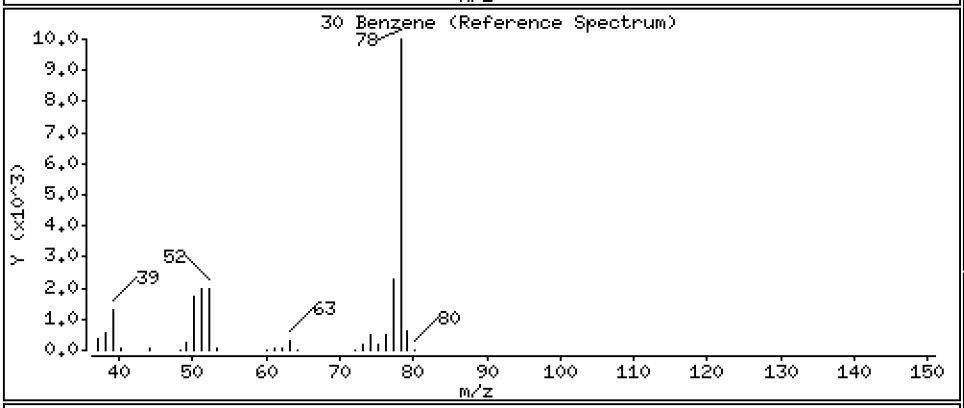
Concentration: 0.4428 ug/Kg

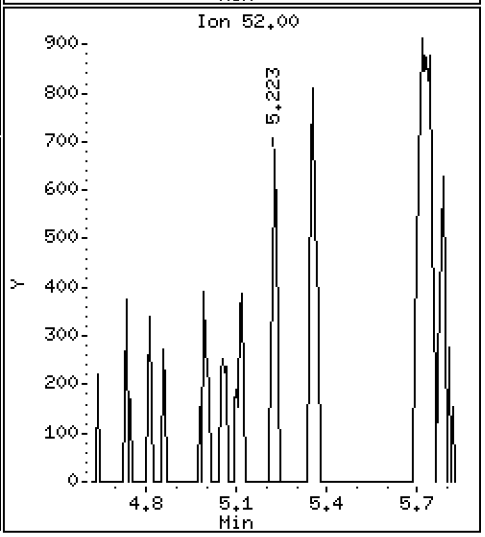


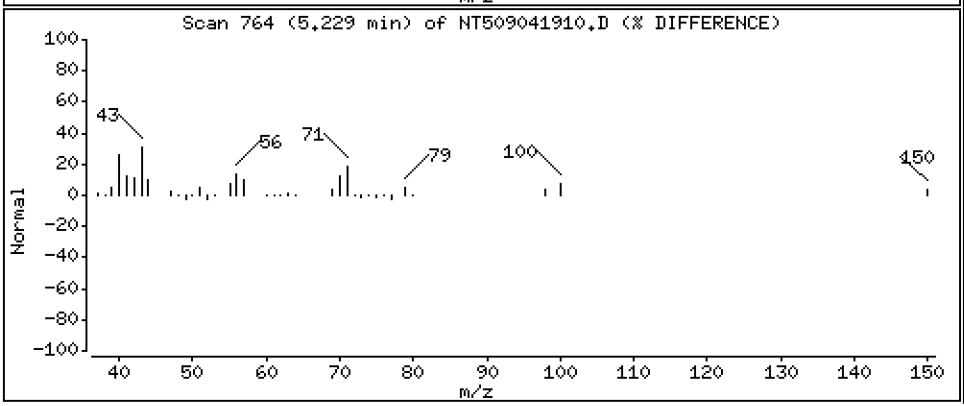












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

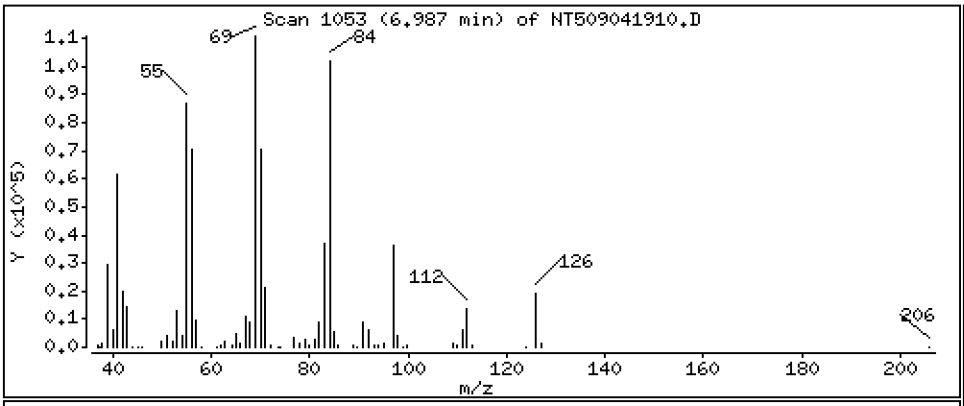
Operator: PB

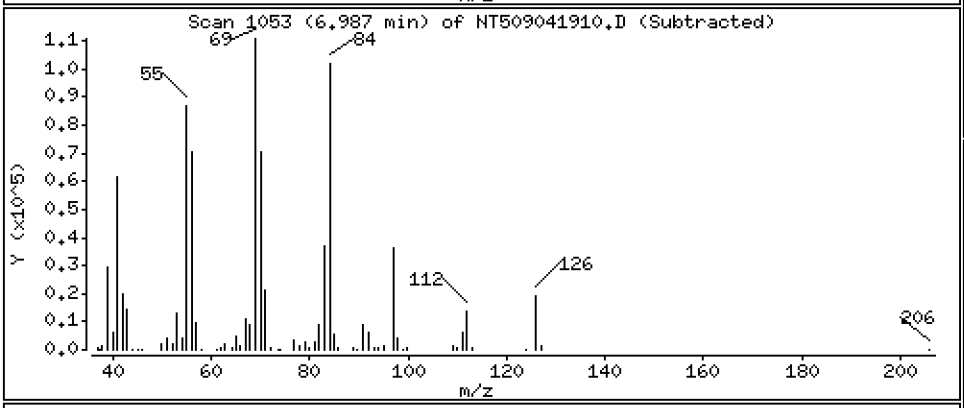
Column phase: RTXVMS

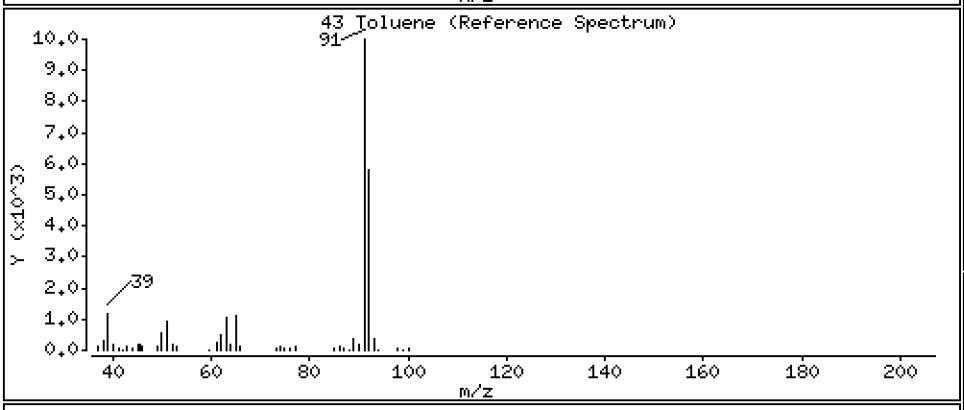
Column diameter: 0.18

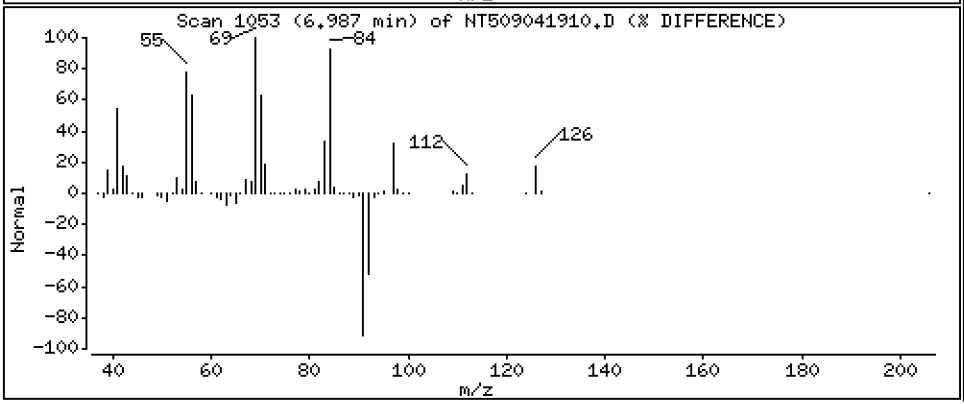
43 Toluene

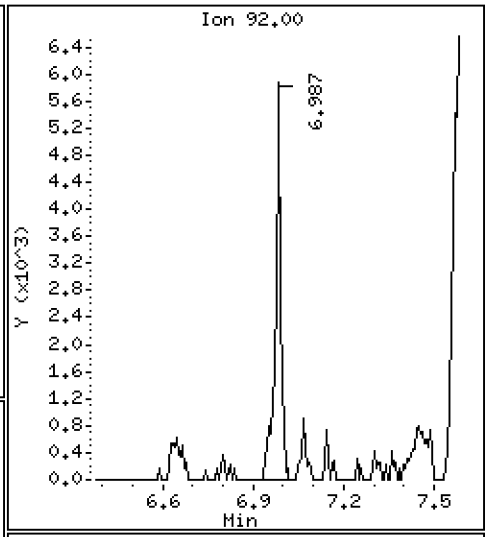
Concentration: 0.8493 ug/Kg

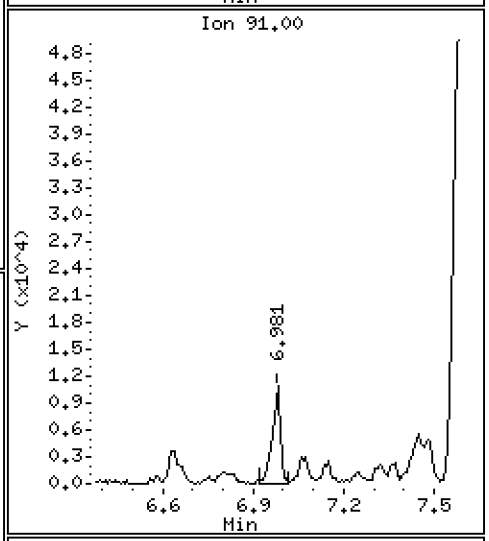


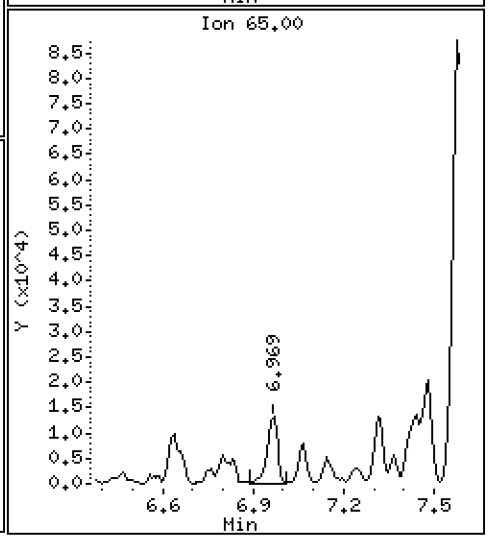












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

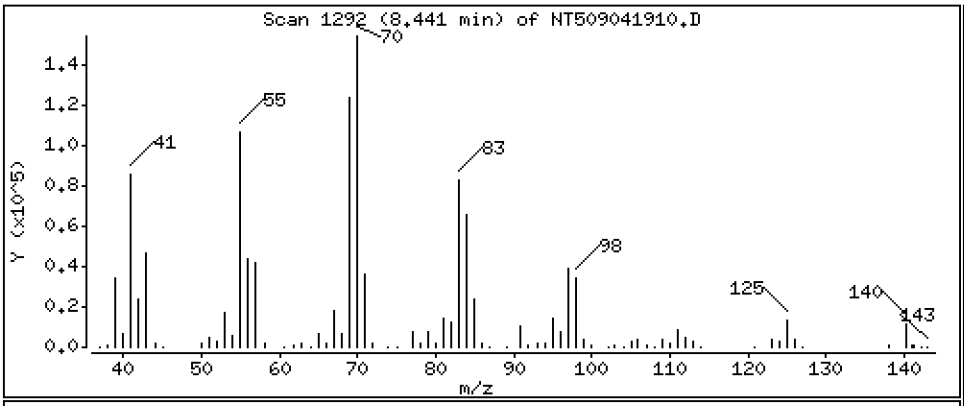
Operator: PB

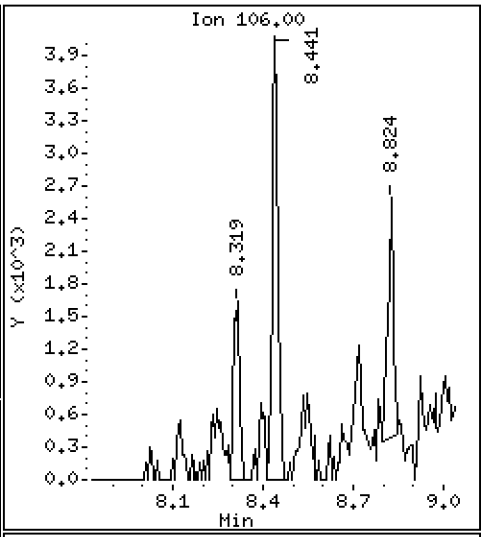
Column phase: RTXVMS

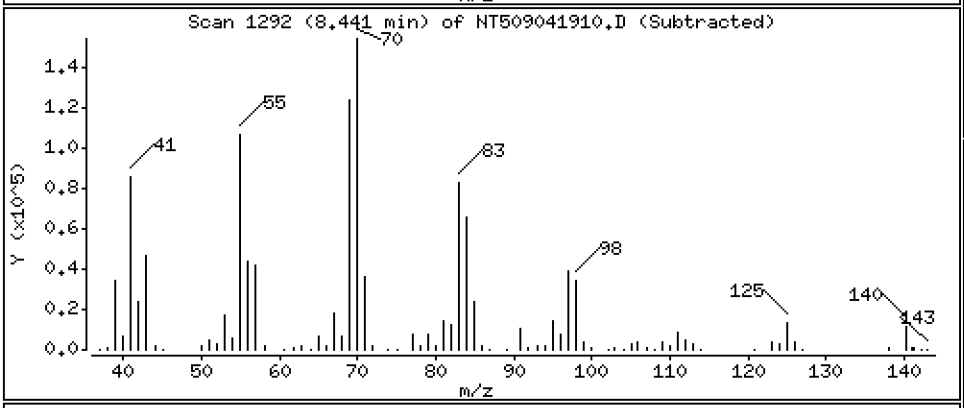
Column diameter: 0.18

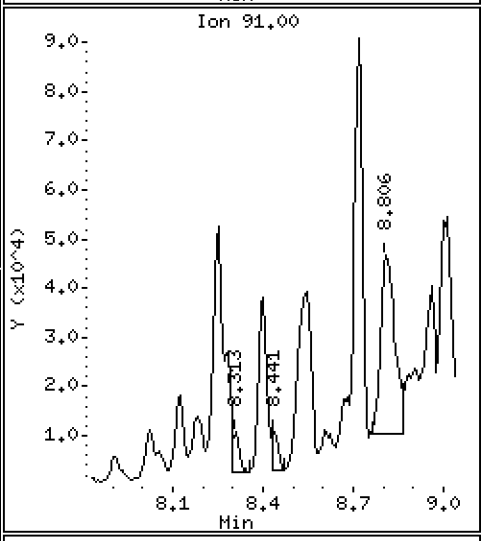
56 m,p-xylene

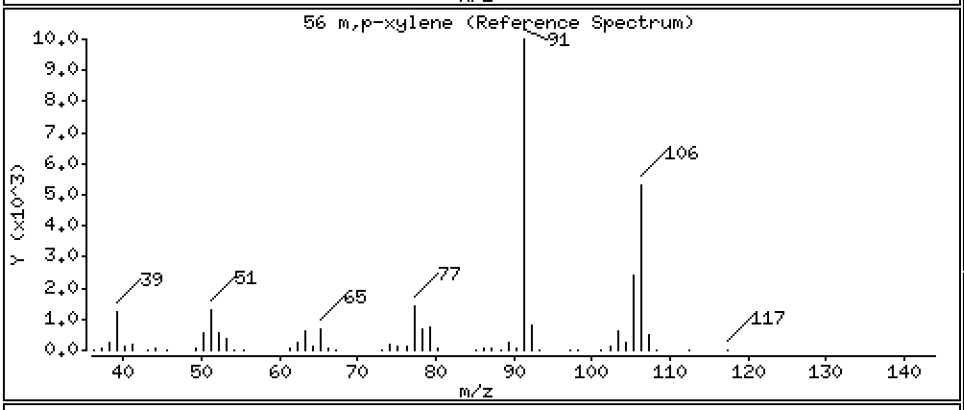
Concentration: 0.6531 ug/Kg

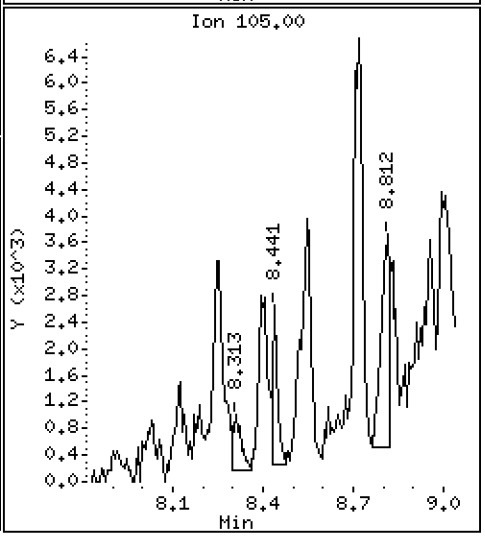


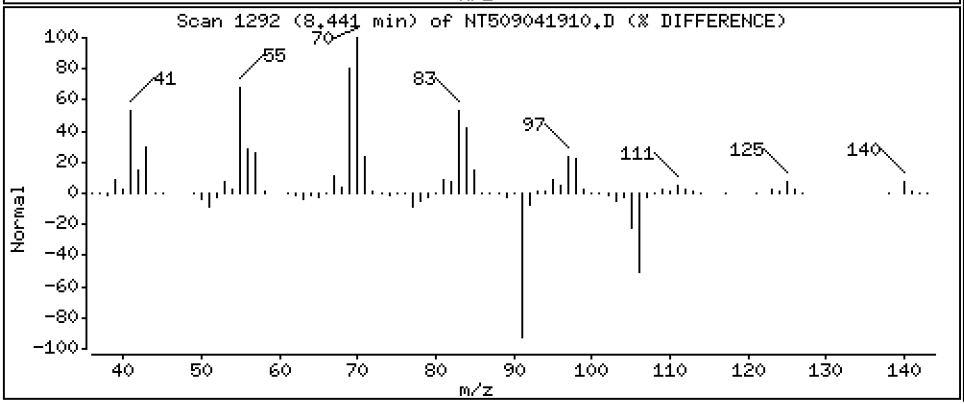












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

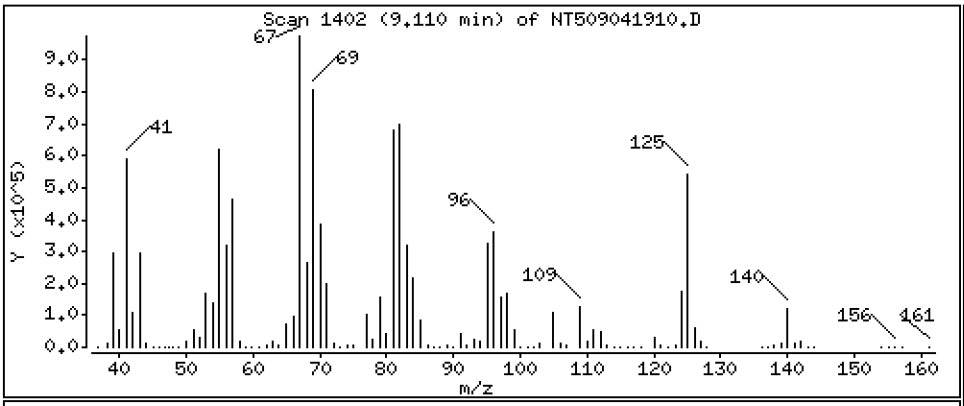
Operator: PB

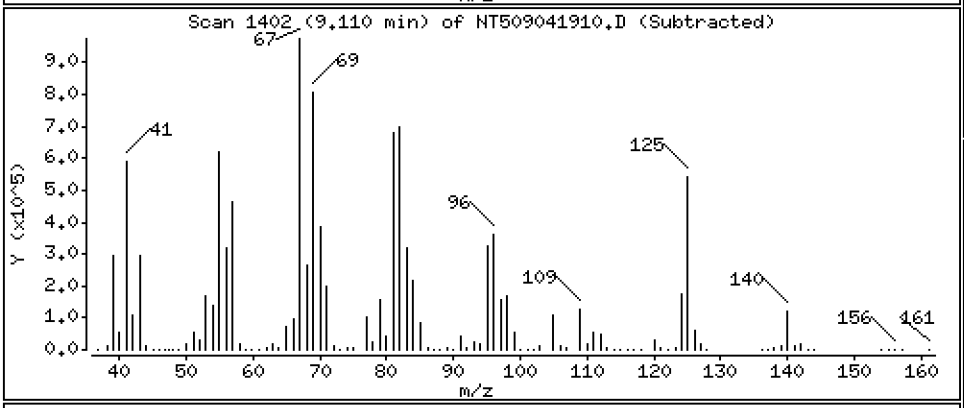
Column phase: RTXVMS

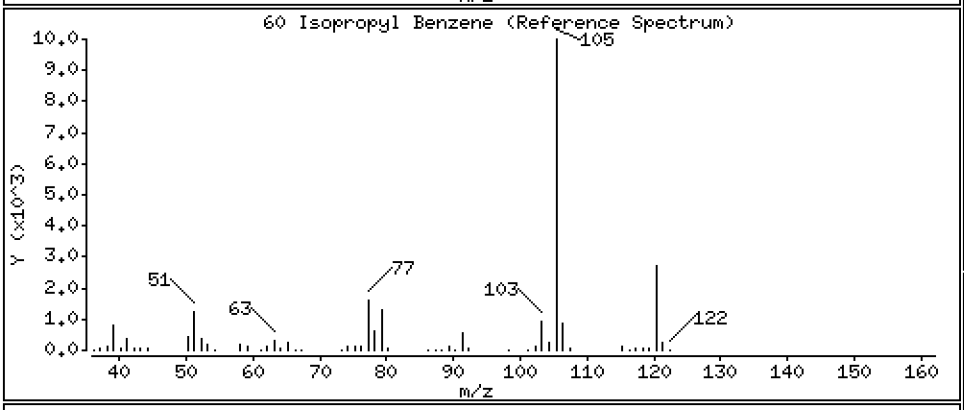
Column diameter: 0.18

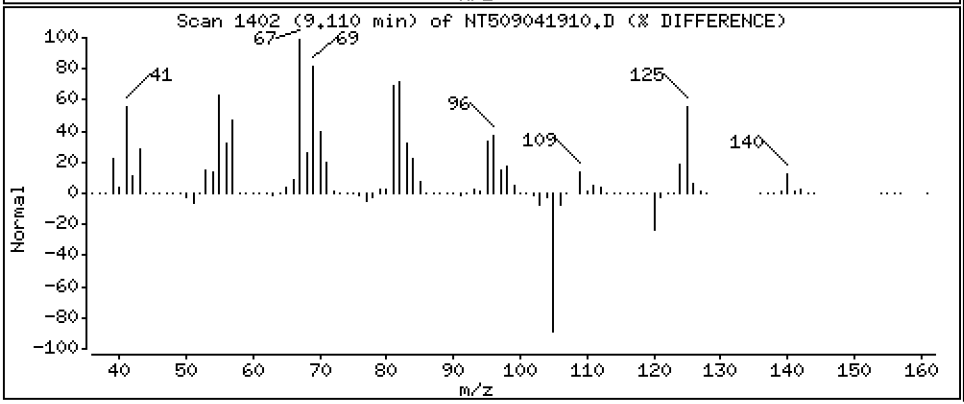
60 Isopropyl Benzene

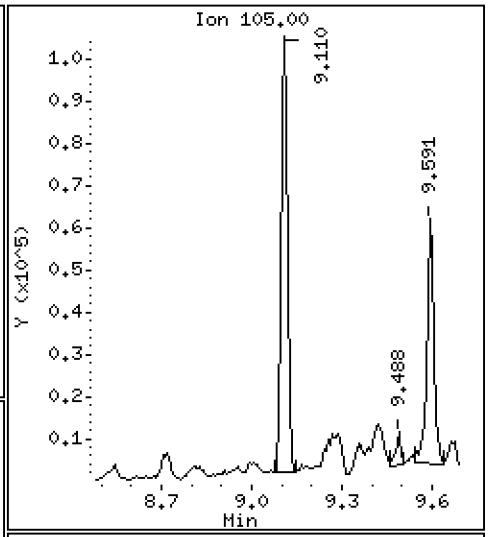
Concentration: 6.828 ug/Kg

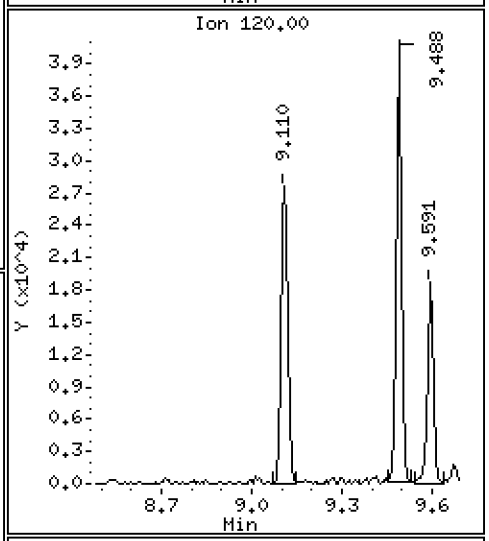


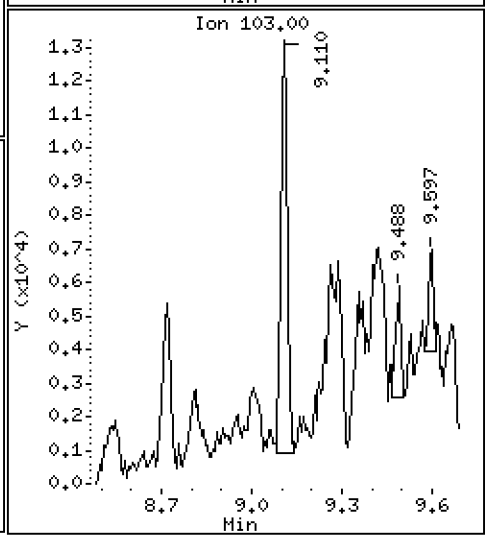












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

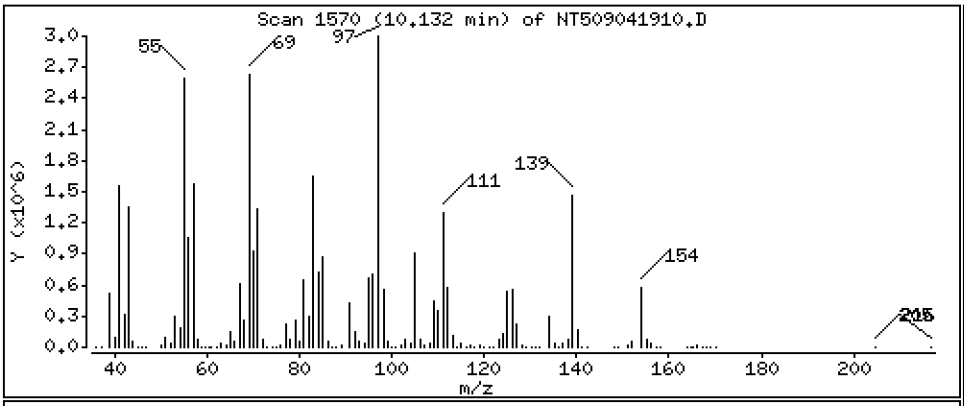
Operator: PB

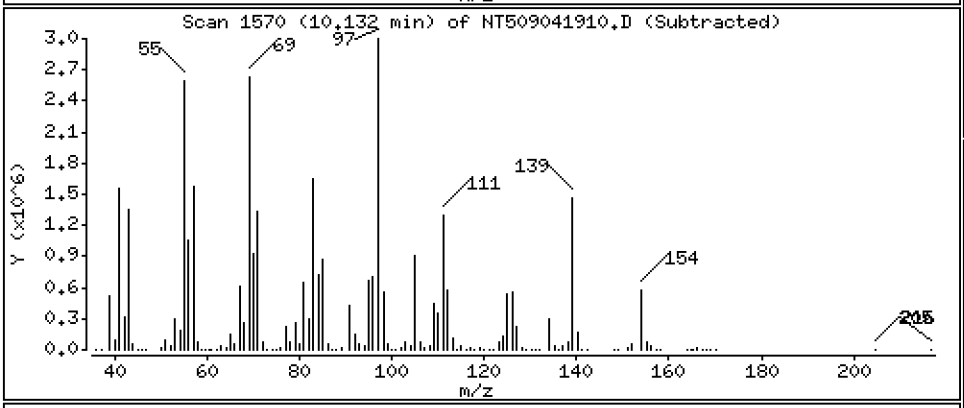
Column phase: RTXVMS

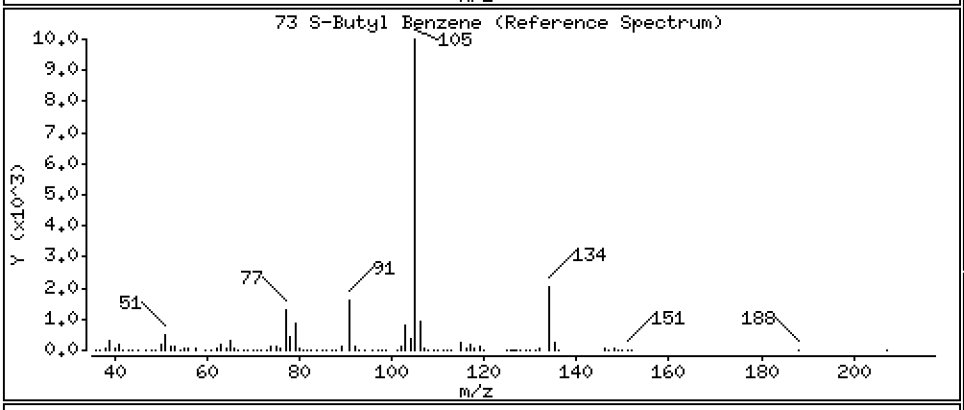
Column diameter: 0.18

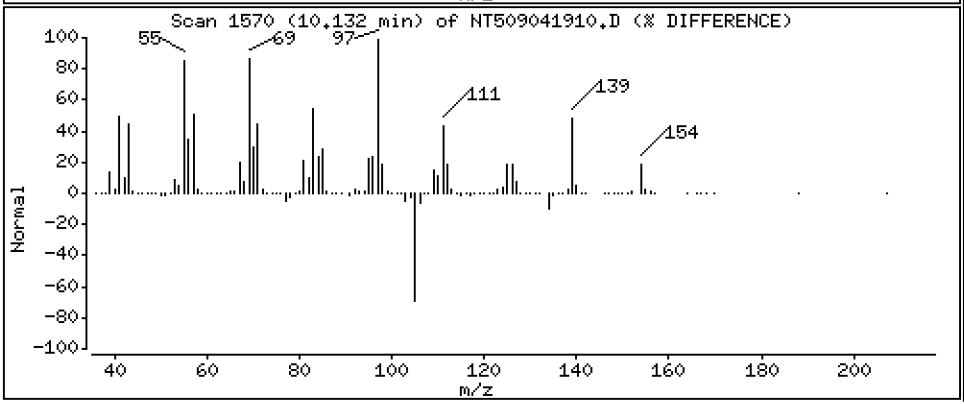
73 S-Butyl Benzene

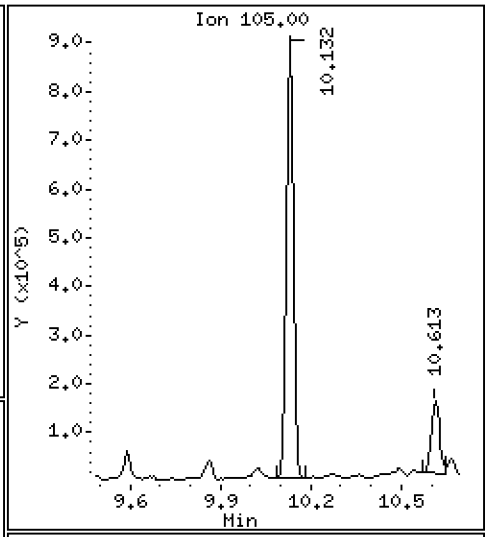
Concentration: 60.051 ug/Kg

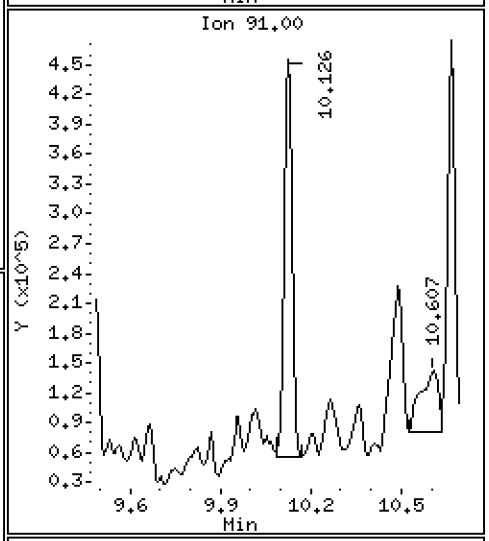


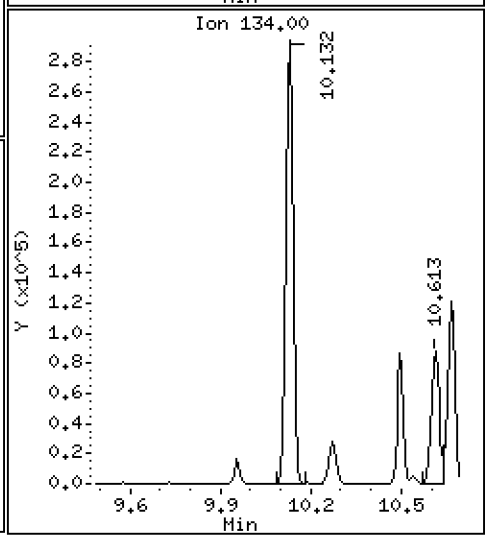












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

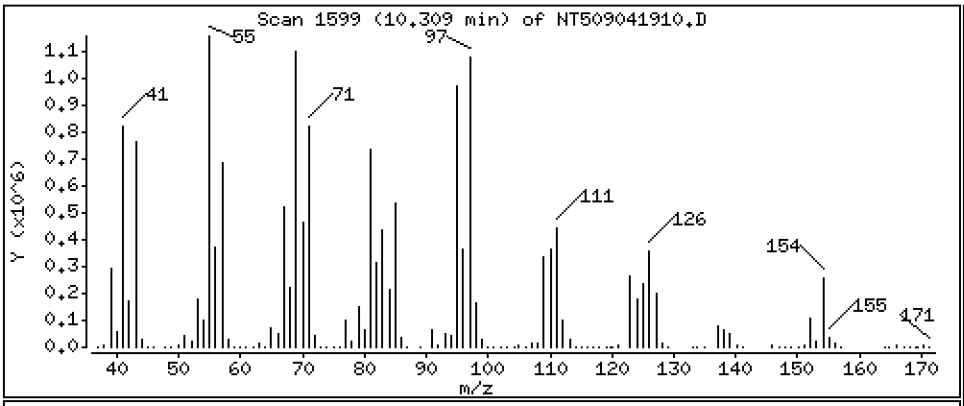
Operator: PB

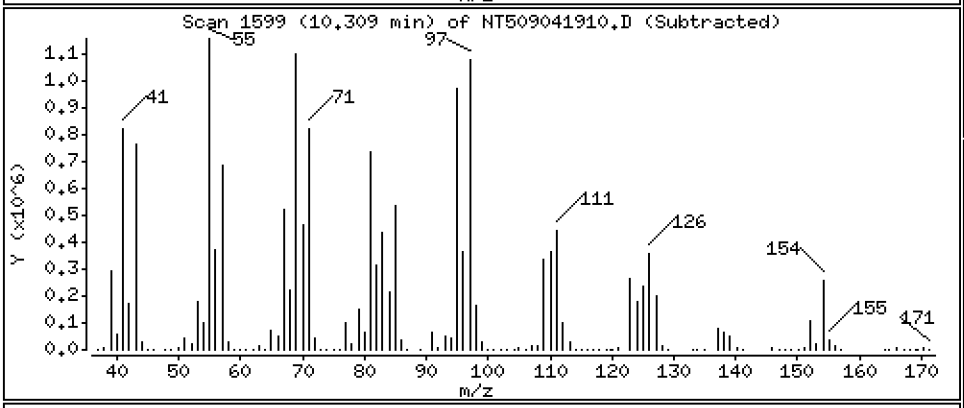
Column phase: RTXVMS

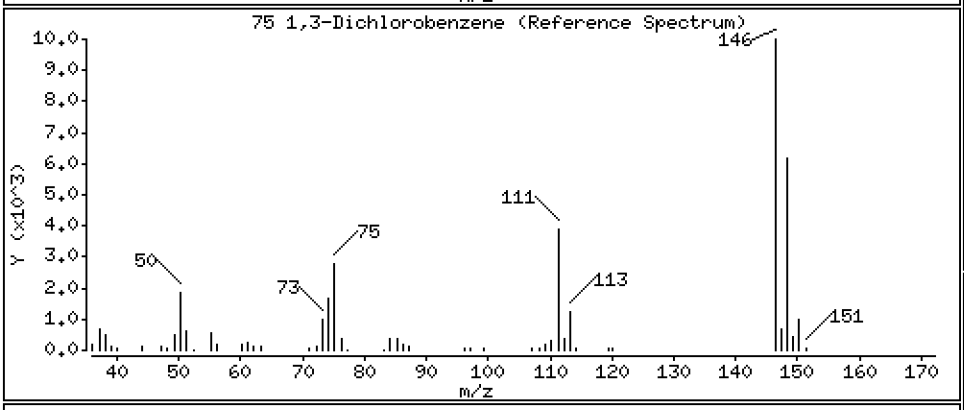
Column diameter: 0.18

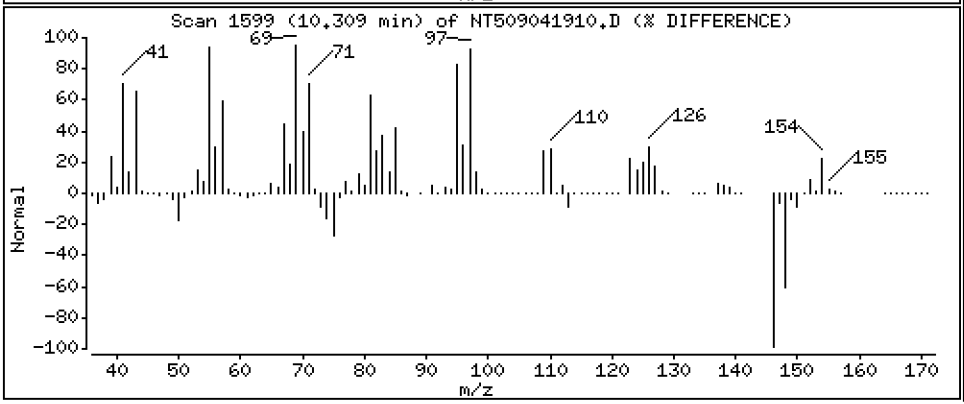
75 1,3-Dichlorobenzene

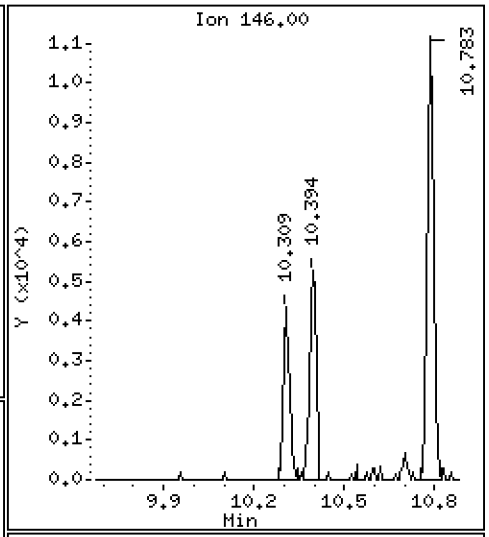
Concentration: 0.5668 ug/Kg

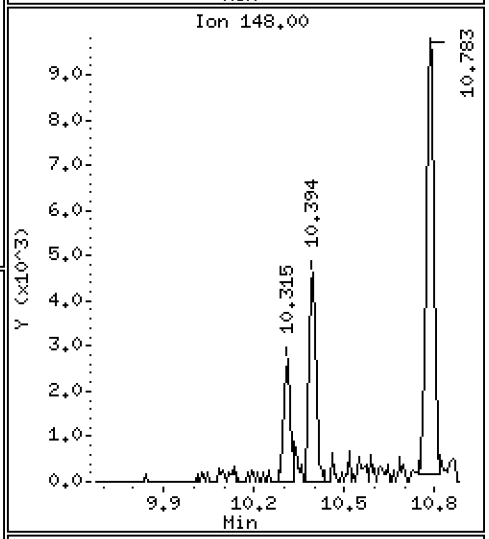


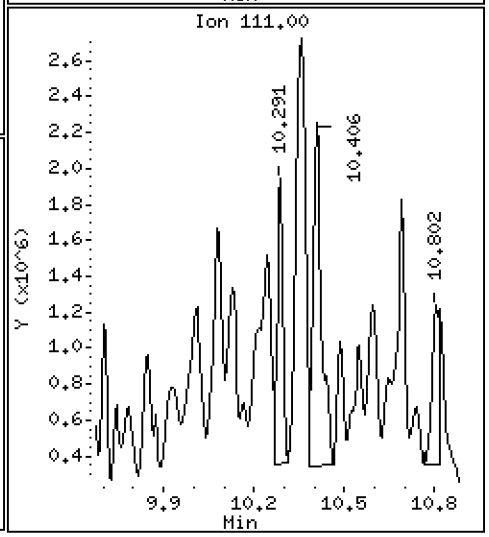












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041910.D

Date : 04-SEP-2019 17:58

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-26

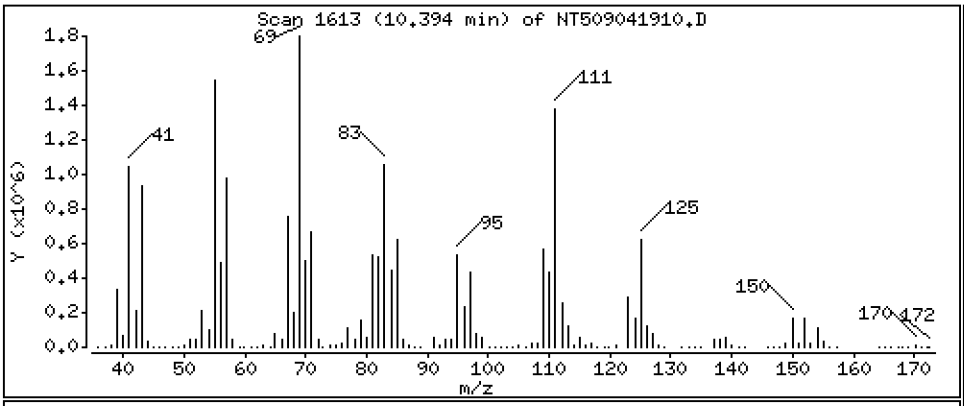
Operator: PB

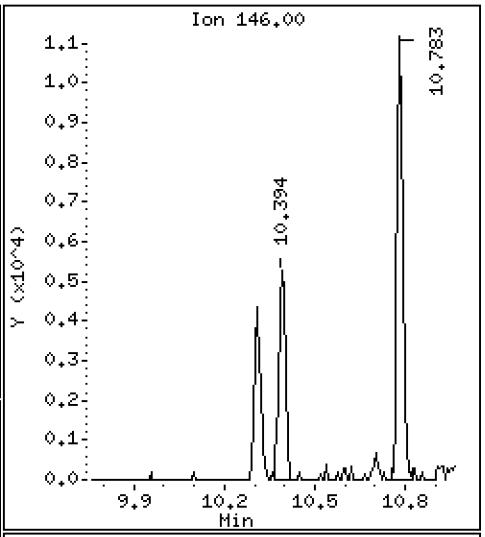
Column phase: RTXVMS

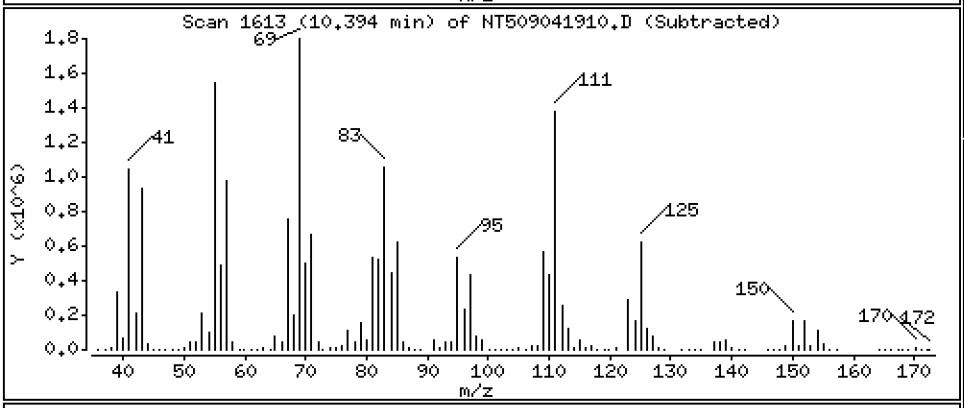
Column diameter: 0.18

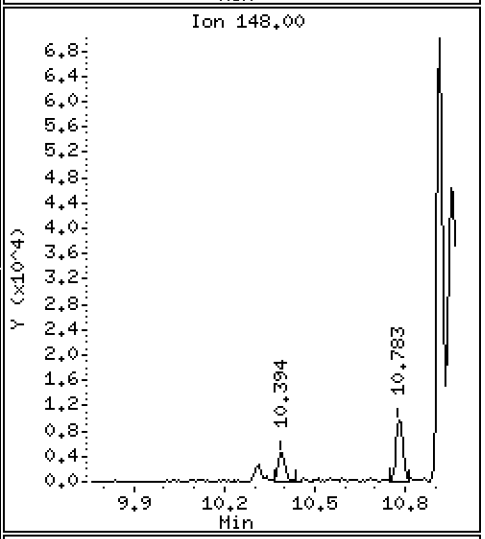
77 1,4-Dichlorobenzene

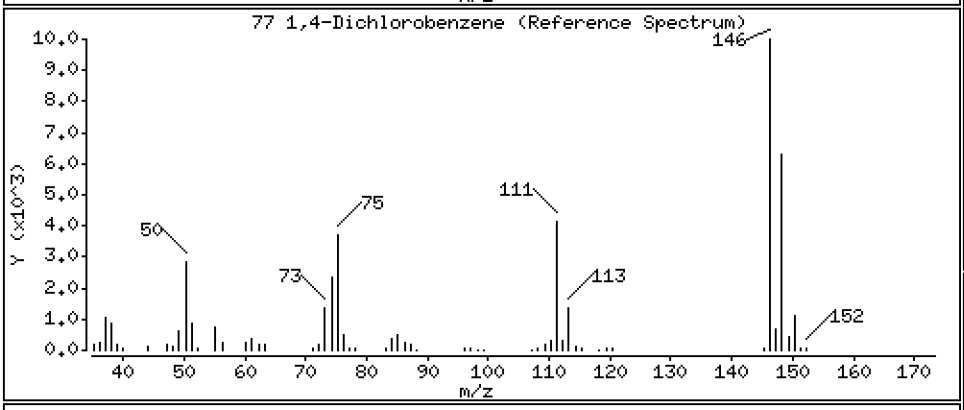
Concentration: 0.7383 ug/Kg

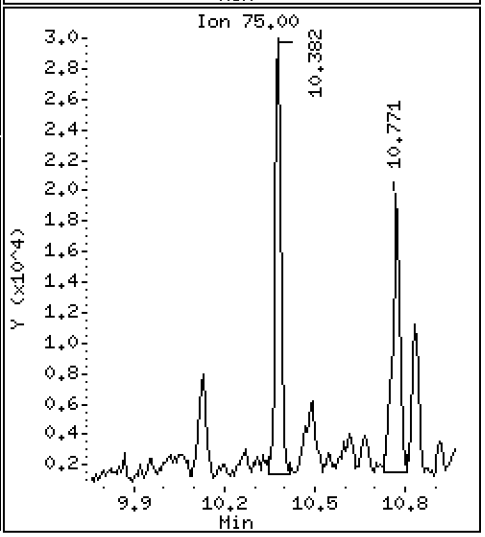


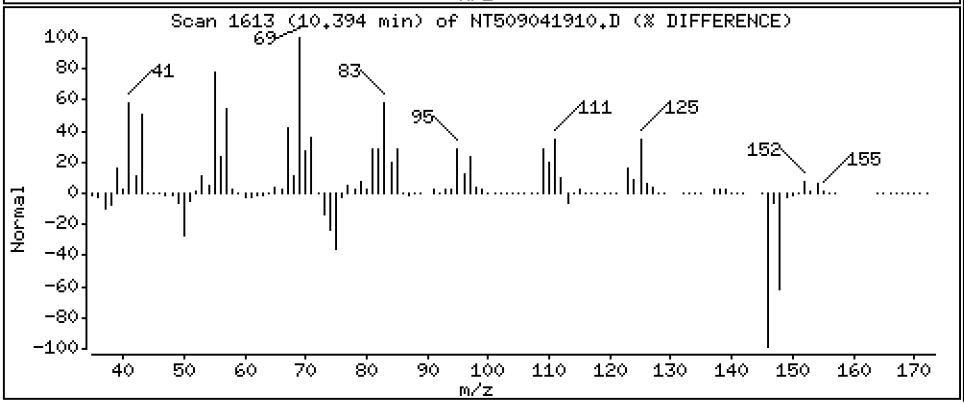












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041910.D
Lab Smp Id: 19H0481-26
Inj Date : 04-SEP-2019 17:58
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-26
Misc Info :
Comment :
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Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.546	2.540	(0.477)	8173	1.05158	1.052
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.166	3.148	(0.593)	2123	0.92696	0.9270(M)
	14 Acetone	43	3.257	3.257	(0.610)	16383	33.0528	33.053
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.894	4.894	(0.917)	316129	70.9002	70.900(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	5.229	5.222	(0.903)	6366	0.44285	0.4428
*	31 Pentafluorobenzene	168	5.338	5.332	(1.000)	363054	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.003)	311845	71.3865	71.386(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

		QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	Compound Not Detected.					
* 35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	898910	50.0000	
37	Dibromomethane	93	Compound Not Detected.					
38	1,2-Dichloropropane	63	Compound Not Detected.					
39	Bromodichloromethane	83	Compound Not Detected.					
172	2-Pentanone	86	Compound Not Detected.					
40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$ 42	d8-Toluene	98	6.944	6.938	(1.200)	1219355	54.9230	54.923(R)
43	Toluene	92	6.987	6.981	(1.207)	8637	0.84931	0.8493
44	Tetrachloroethene	166	Compound Not Detected.					
45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
47	1,1,2-Trichloroethane	97	Compound Not Detected.					
48	Chlorodibromomethane	129	Compound Not Detected.					
49	1,3-Dichloropropane	76	Compound Not Detected.					
50	1,2-Dibromoethane	107	Compound Not Detected.					
51	2-Hexanone	43	Compound Not Detected.					
* 52	d5-Chlorobenzene	117	8.264	8.258	(1.000)	1052067	50.0000	
53	Chlorobenzene	112	Compound Not Detected.					
54	Ethyl Benzene	91	Compound Not Detected.					
55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
56	m,p-xylene	106	8.441	8.435	(1.021)	6029	0.65306	0.6531
57	o-Xylene	106	Compound Not Detected.					
58	Styrene	104	Compound Not Detected.					
59	Bromoform	173	Compound Not Detected.					
60	Isopropyl Benzene	105	9.110	9.085	(0.878)	143910	6.82809	6.828
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.353	9.335	(1.132)	448691	49.1959	49.196(R)
63	Bromobenzene	156	Compound Not Detected.					
64	N-Propyl Benzene	91	Compound Not Detected.					
65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
66	2-Chloro Toluene	91	Compound Not Detected.					
67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
68	1,2,3-Trichloropropane	110	Compound Not Detected.					
69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
70	4-Chloro Toluene	91	Compound Not Detected.					
71	T-Butyl Benzene	119	Compound Not Detected.					
72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
73	S-Butyl Benzene	105	10.132	10.089	(0.976)	1399182	60.0515	60.051
74	4-Isopropyl Toluene	119	Compound Not Detected.					
75	1,3-Dichlorobenzene	146	10.308	10.278	(0.993)	5965	0.56677	0.5668
* 76	d4-1,4-Dichlorobenzene	152	10.381	10.351	(1.000)	517459	50.0000	
77	1,4-Dichlorobenzene	146	10.394	10.363	(1.001)	7898	0.73826	0.7383
78	N-Butyl Benzene	91	Compound Not Detected.					
$ 79	d4-1,2-Dichlorobenzene	152	11.093	10.740	(1.069)	6587221	679.433	679.43(R)
80	1,2-Dichlorobenzene	146	Compound Not Detected.					
81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
84	Naphthalene	128	Compound Not Detected.					
85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041910.D
Lab Smp Id: 19H0481-26
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	363054	-20.73
35 1,4-Difluorobenze	852165	426083	1704330	898910	5.49
52 d5-Chlorobenzene	803678	401839	1607356	1052067	30.91
76 d4-1,4-Dichlorobe	439766	219883	879532	517459	17.67

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.12
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.07
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.38	0.29

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 05-Sep-2019 13:07

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-26
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	70.900	141.80	
$ 32 d4-1,2-Dichloroeth	50.000	71.386	142.77	
$ 42 d8-Toluene	50.000	54.923	109.85	
$ 62 4-Bromofluorobenze	50.000	49.196	98.39	
$ 79 d4-1,2-Dichloroben	50.000	679.43	1358.87	

REVIEW SUMMARY FOR FILE - NT509041910.D

Lab ID: 19H0481-26
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 17:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.069	1.038	0.0310	d4-1,2-Dichlorobenzene

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

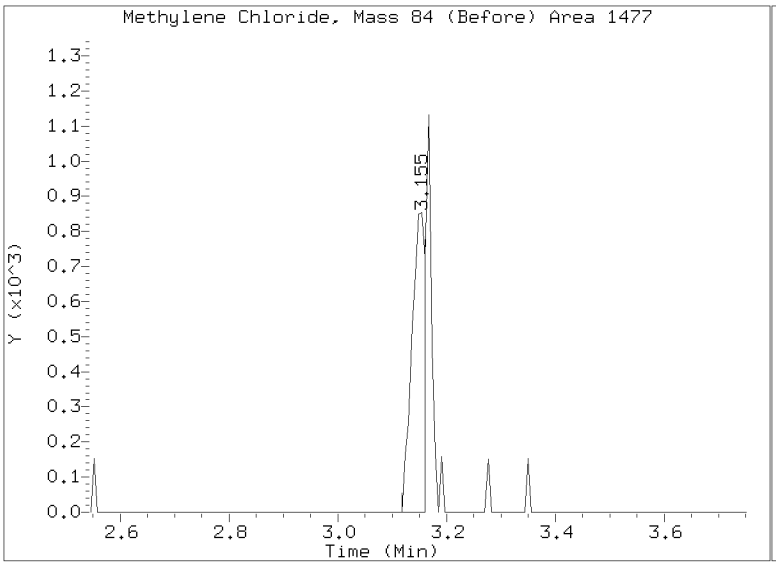
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

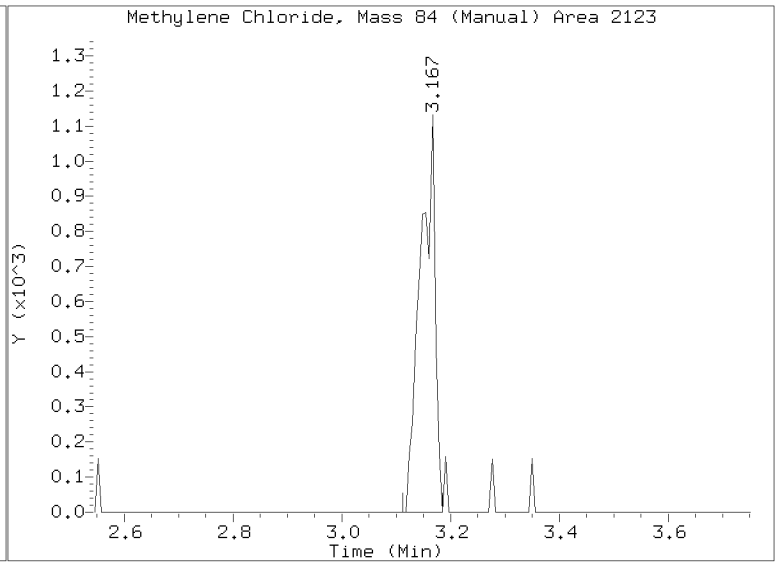
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190904.b/NT509041910.D
Injection Date: 04-SEP-2019 17:58
Lab ID:19H0481-26 Client ID:
Report Date: 09/05/2019 13:07





P40-UST-05-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-28 D	SDG:	19H0481
Sampled:	08/30/19 14:10	Prepared:	09/05/19 13:58	File ID:	V309051924.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 21:35
Batch:	BHI0133	Sequence:	SHI0085	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00019

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.07	J	0.03	0.20
108-88-3	Toluene	1	0.51		0.04	0.20
100-41-4	Ethylbenzene	1	0.20	J	0.04	0.20
179601-23-1	m,p-Xylene	1	0.79		0.05	0.40
95-47-6	o-Xylene	1	0.35		0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.97	99.5	80 - 120	
4-Bromofluorobenzene	5.0000	4.99	99.9	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

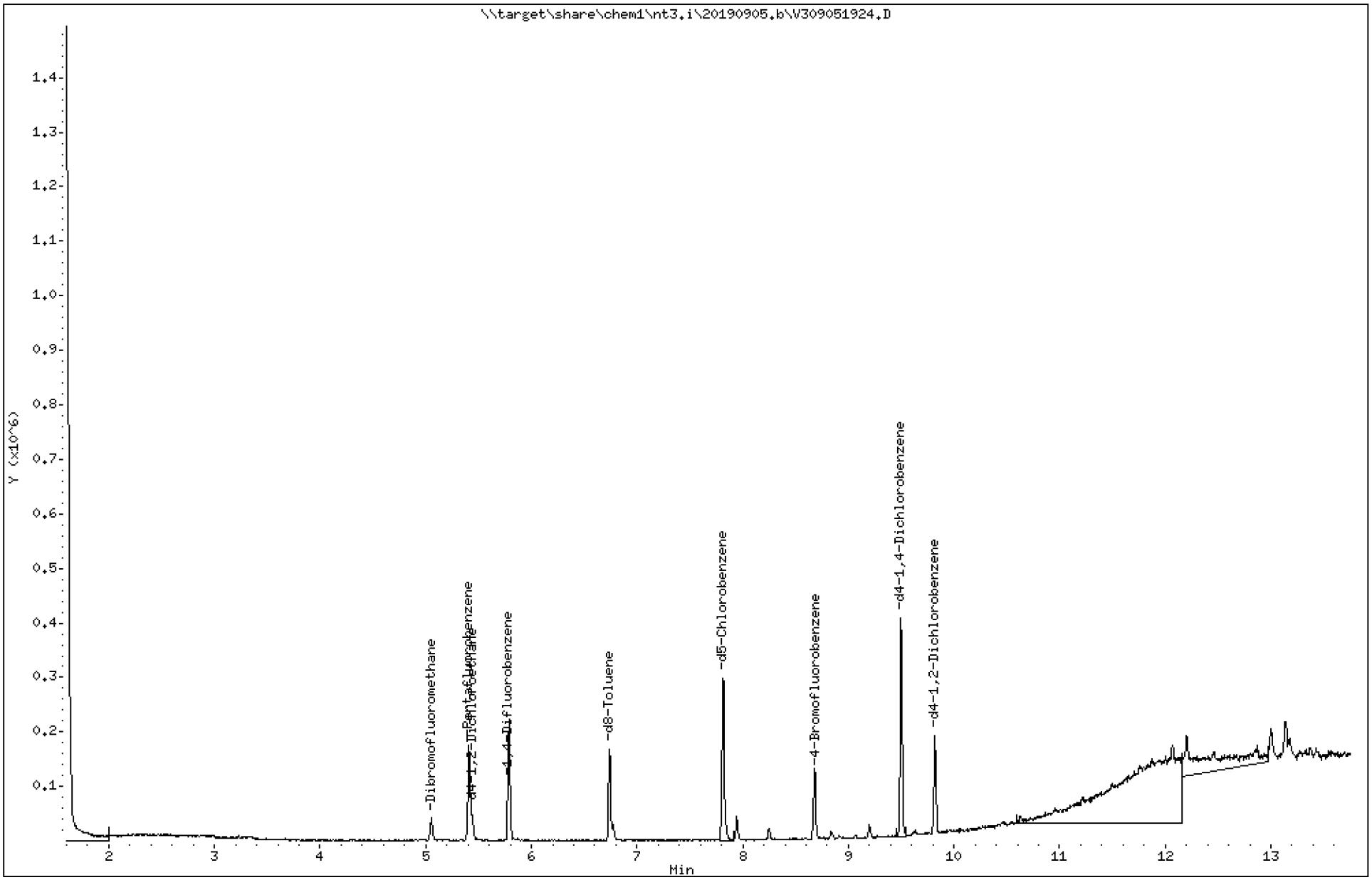
Instrument: nt3.i

Sample Info: 19H0481-28

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

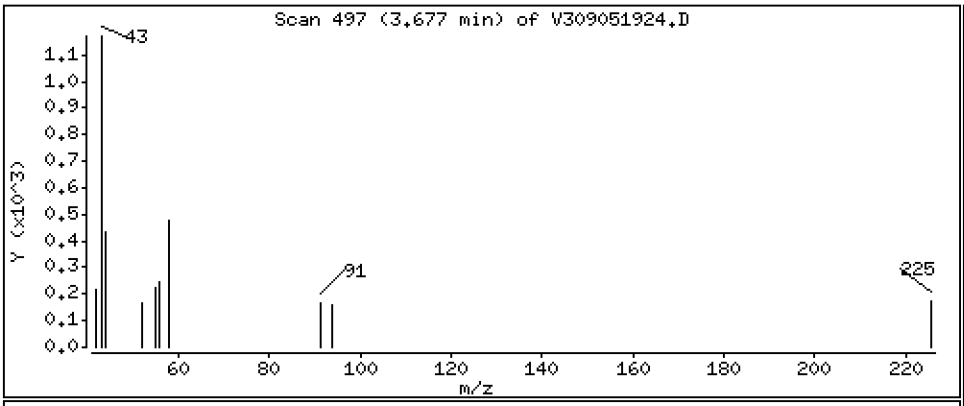
Operator: PKC

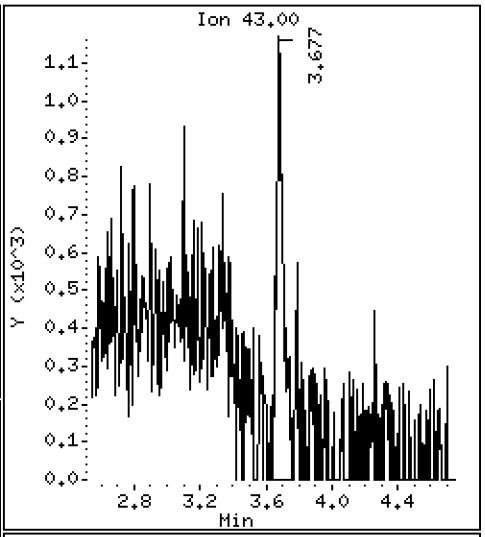
Column phase: RTXVMS

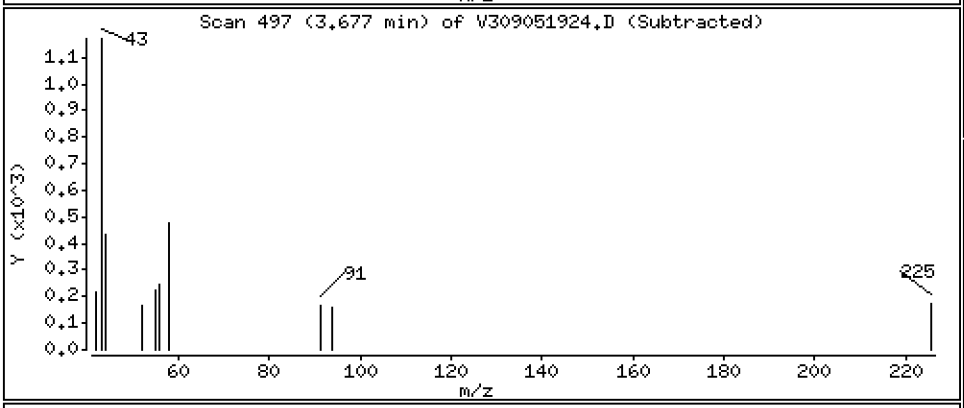
Column diameter: 0.18

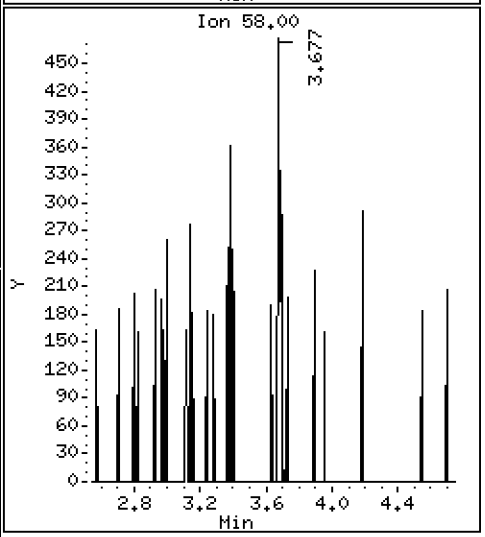
14 Acetone

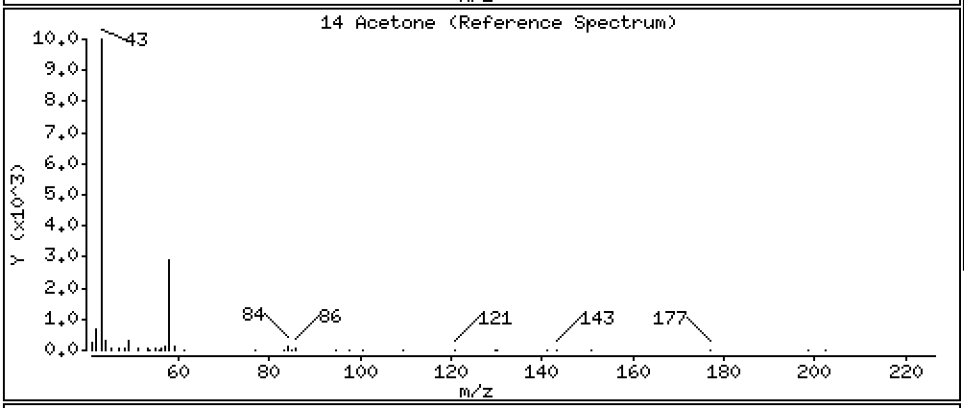
Concentration: 2.199 ug/L

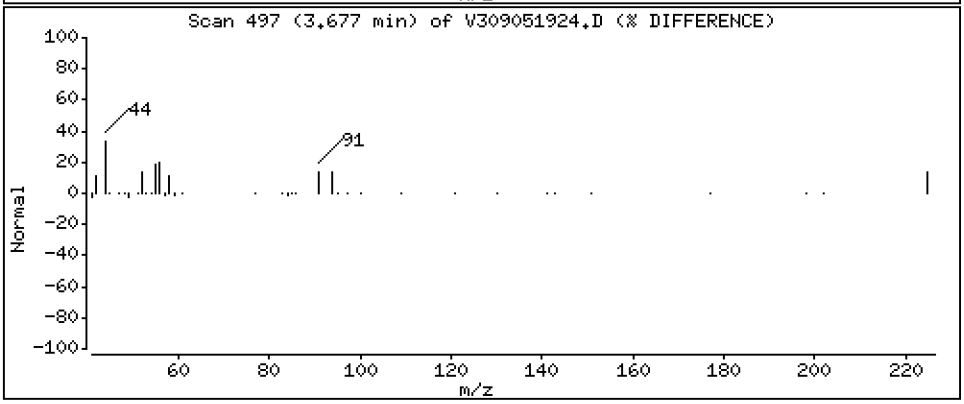












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Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

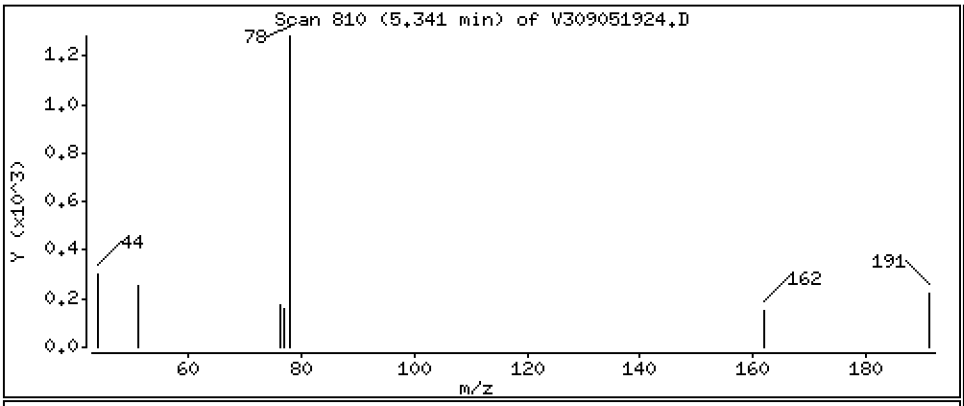
Operator: PKC

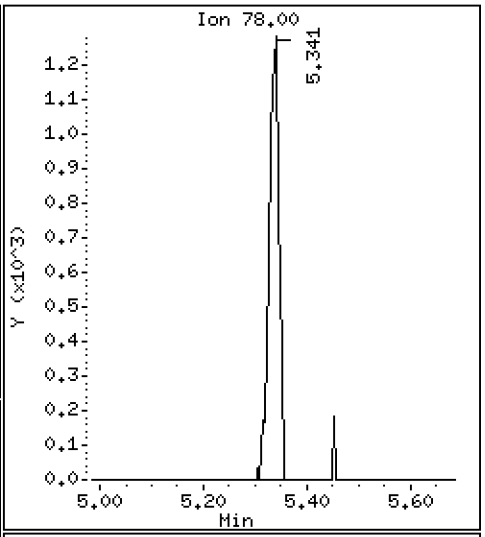
Column phase: RTXVMS

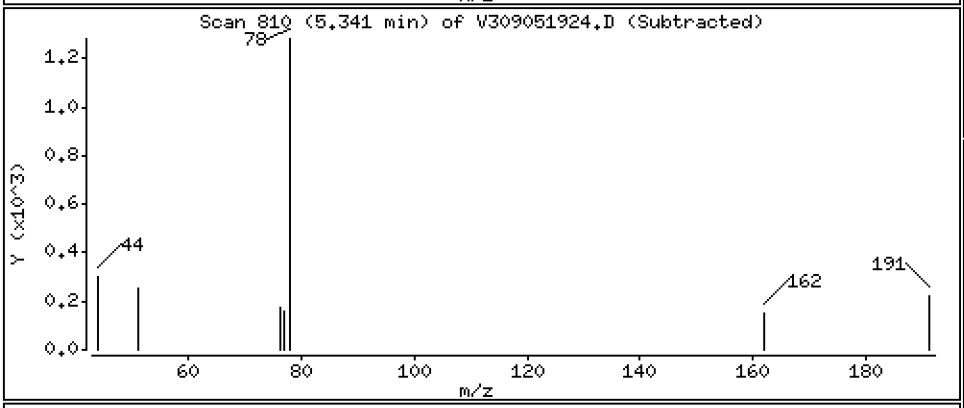
Column diameter: 0.18

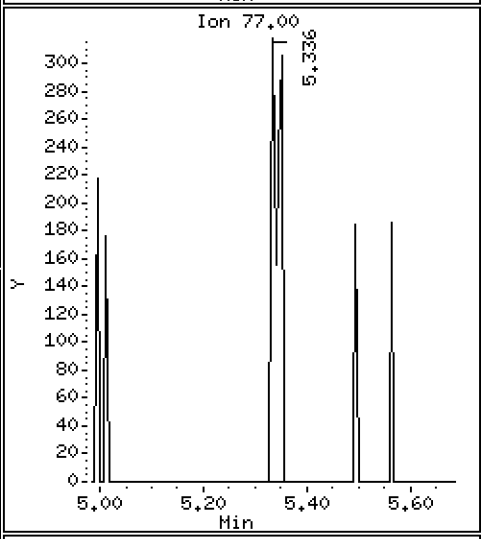
31 Benzene

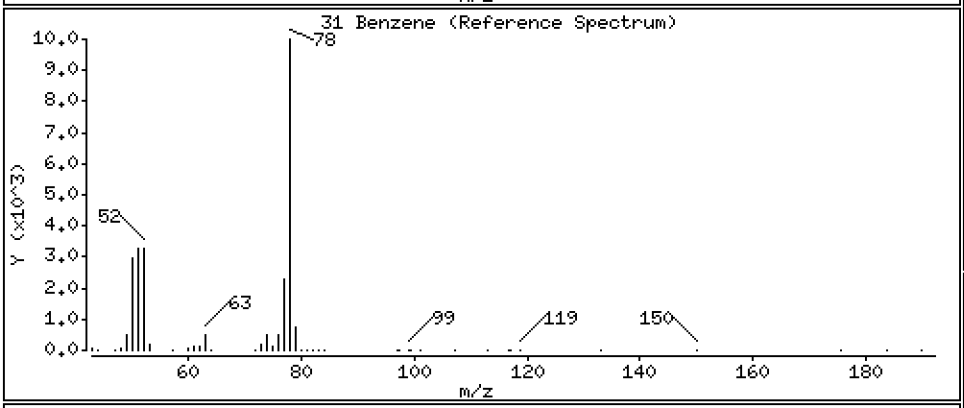
Concentration: 0.07382 ug/L

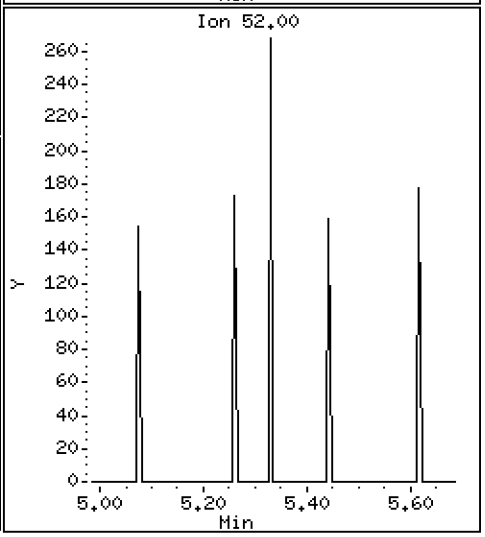


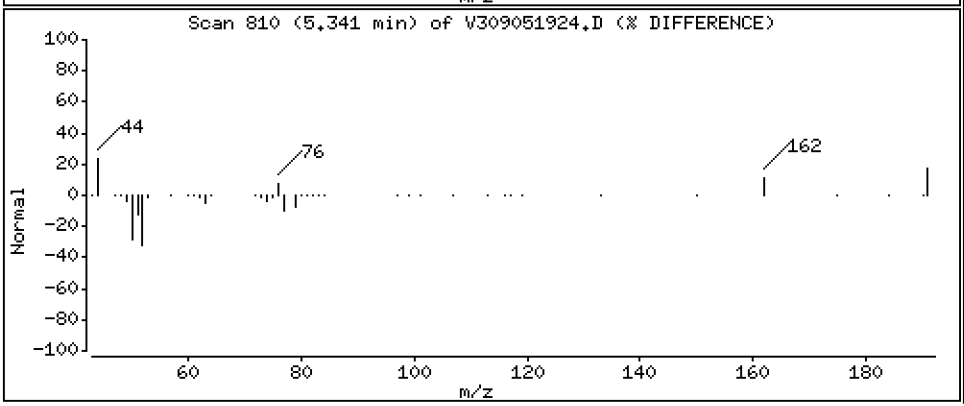












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Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

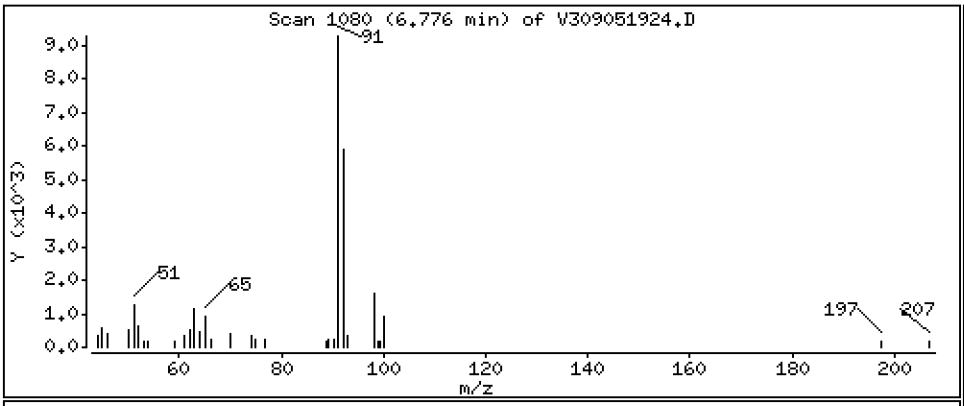
Operator: PKC

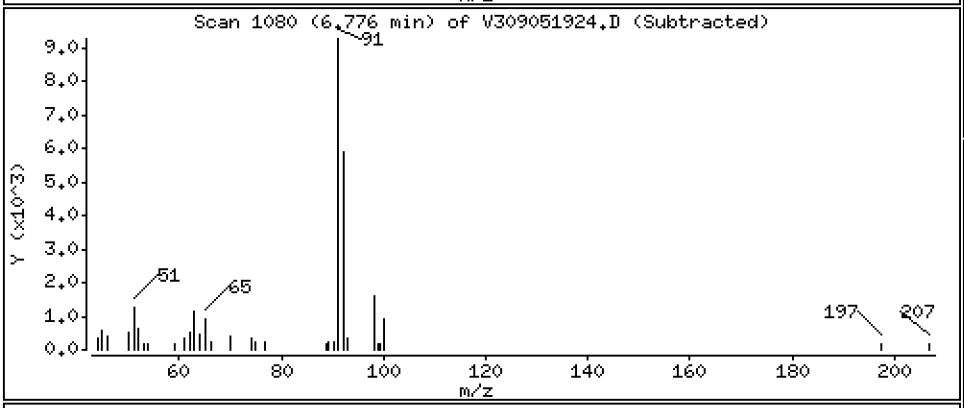
Column phase: RTXVMS

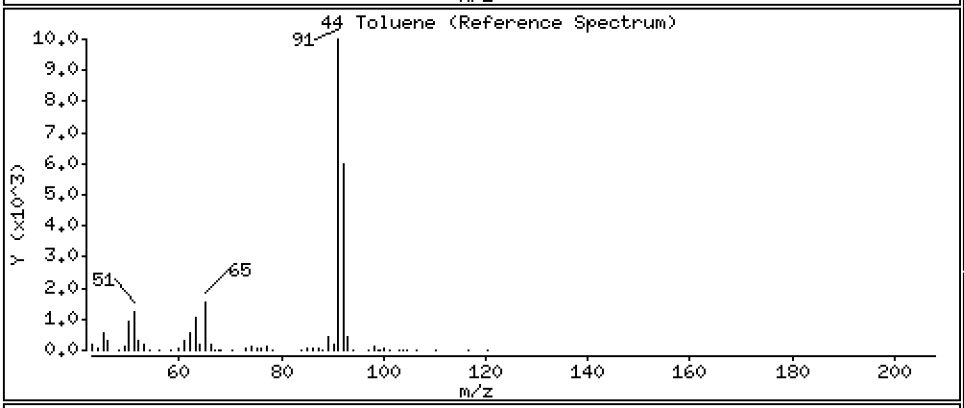
Column diameter: 0.18

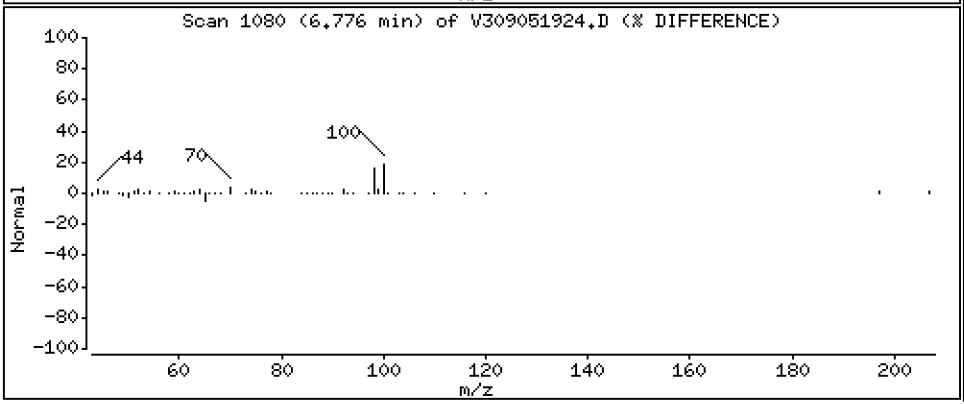
44 Toluene

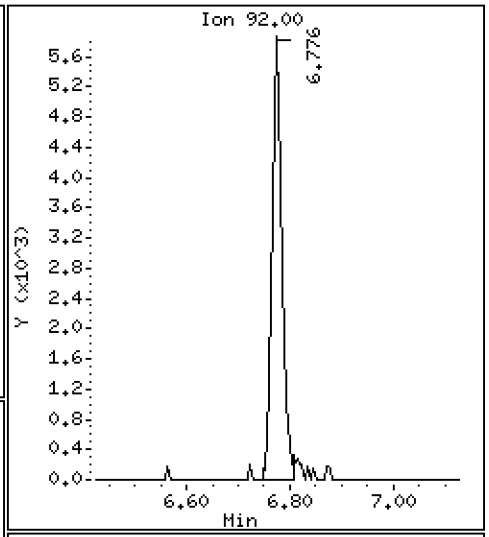
Concentration: 0.5121 ug/L

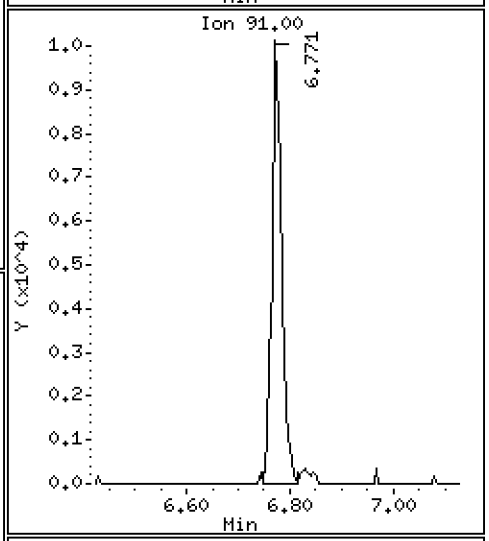


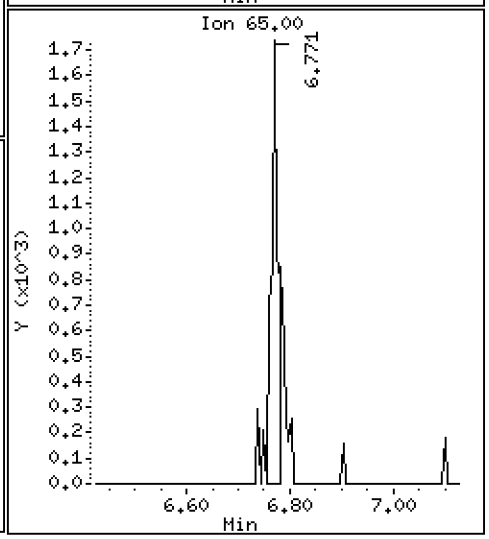












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

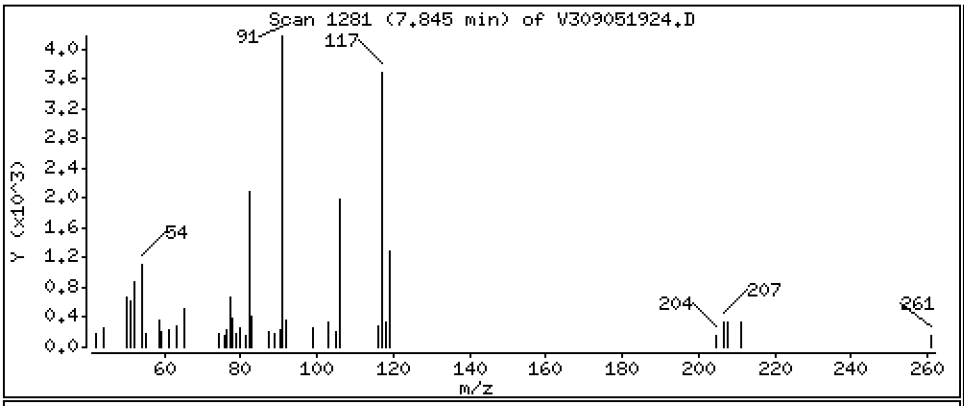
Operator: PKC

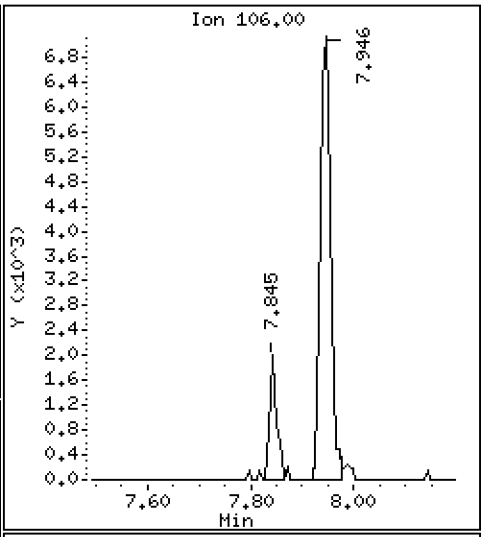
Column phase: RTXVMS

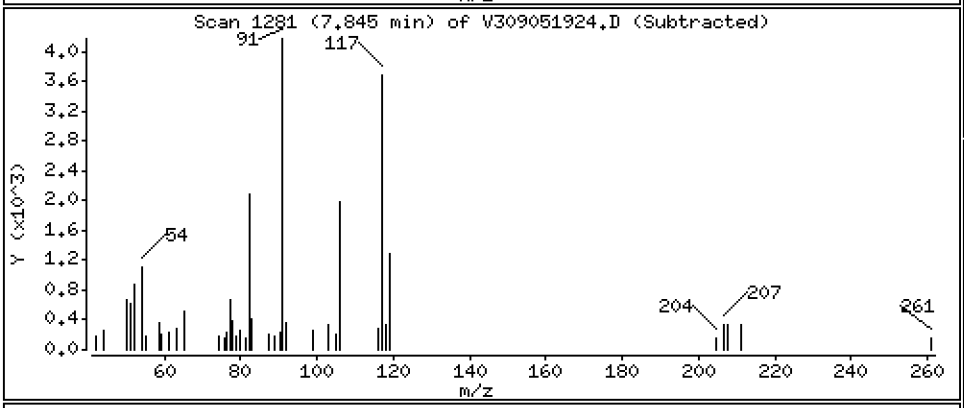
Column diameter: 0.18

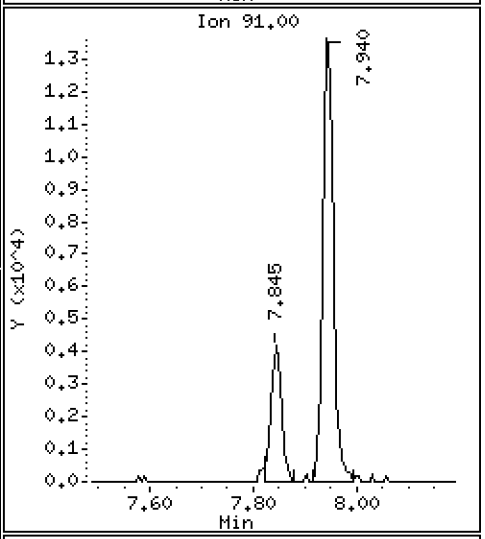
55 Ethyl Benzene

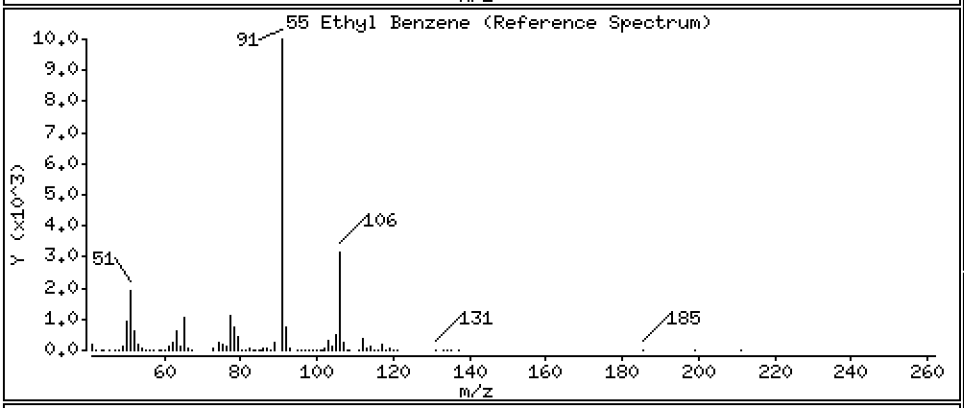
Concentration: 0.1964 ug/L

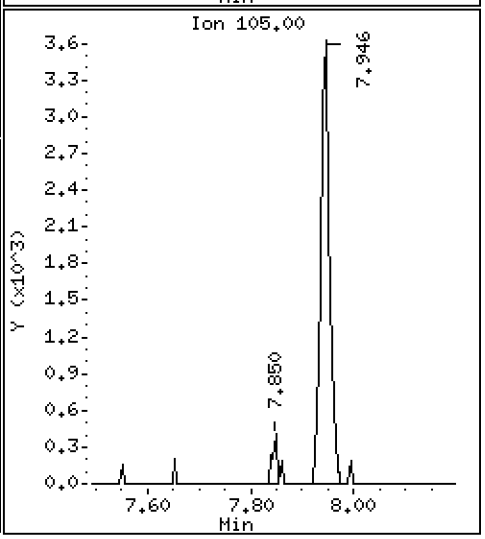


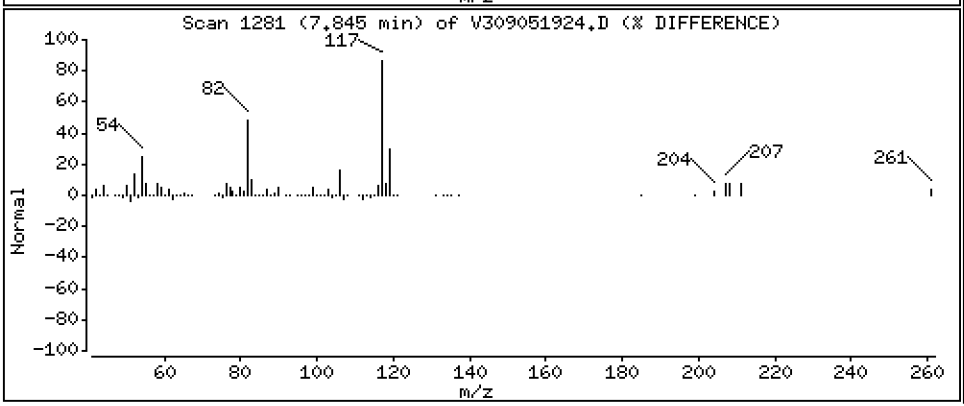












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

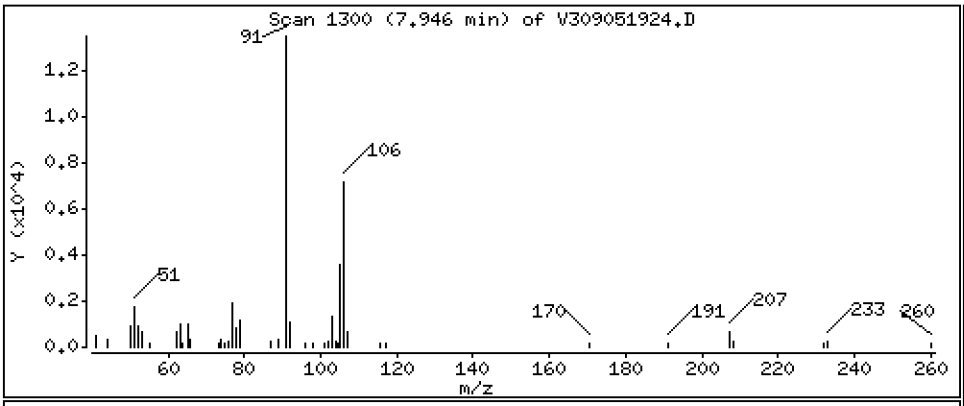
Operator: PKC

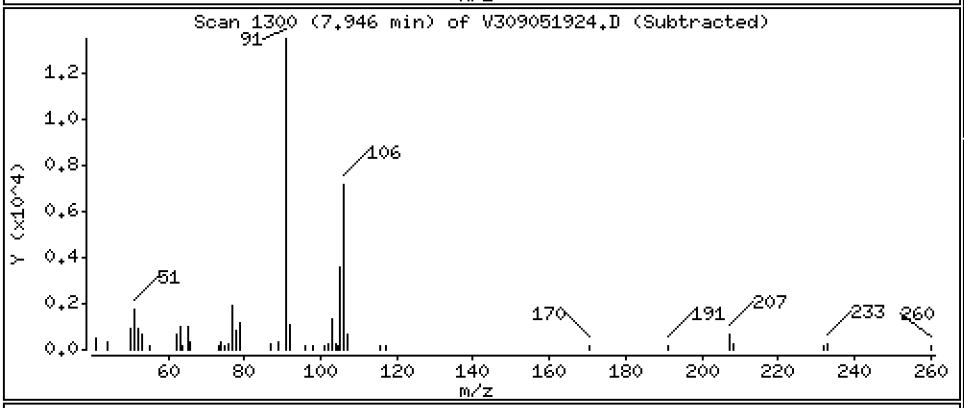
Column phase: RTXVMS

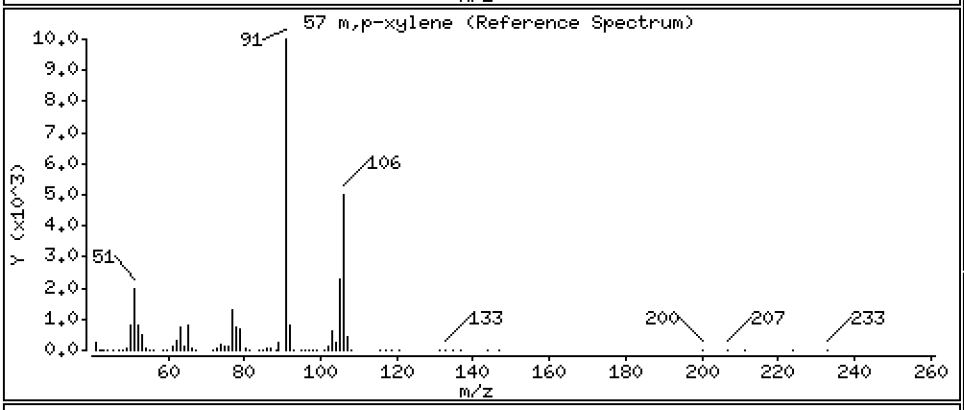
Column diameter: 0.18

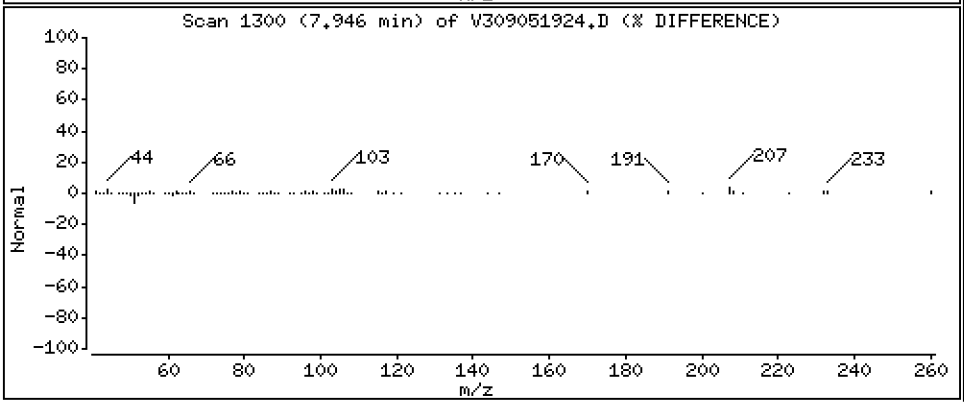
57 m,p-xylene

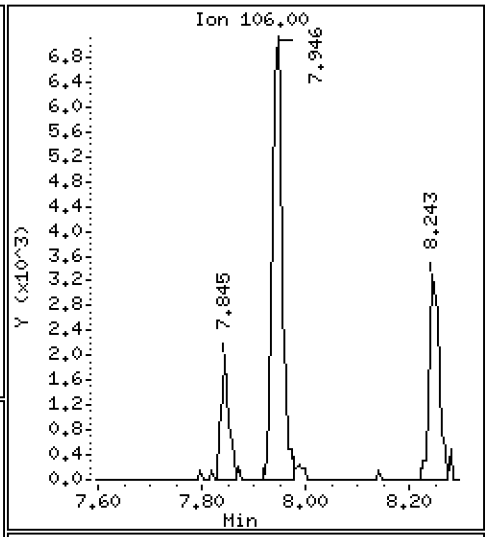
Concentration: 0.7947 ug/L

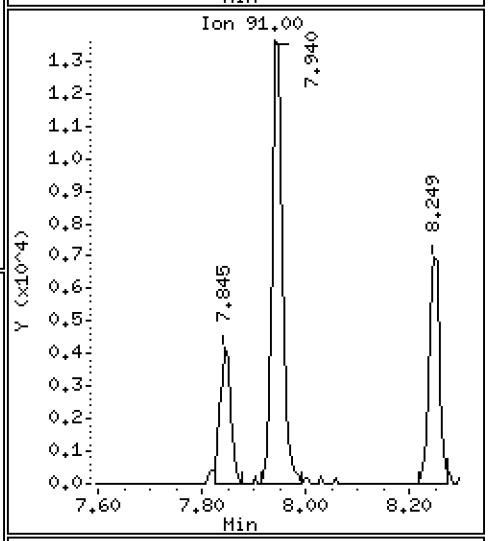


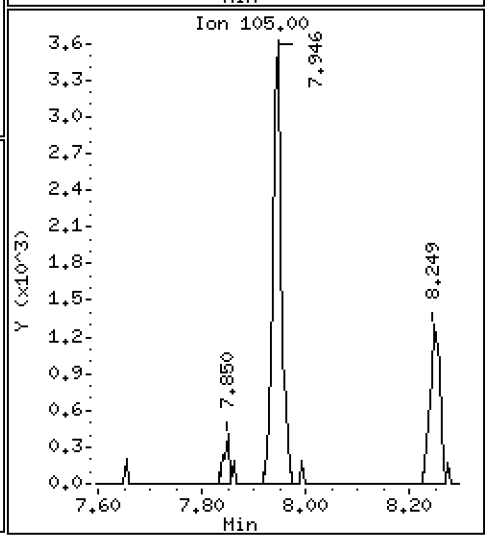












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

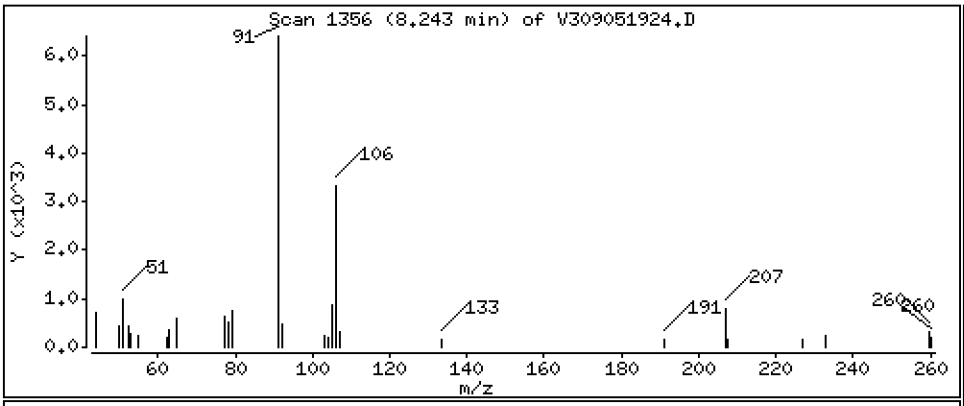
Operator: PKC

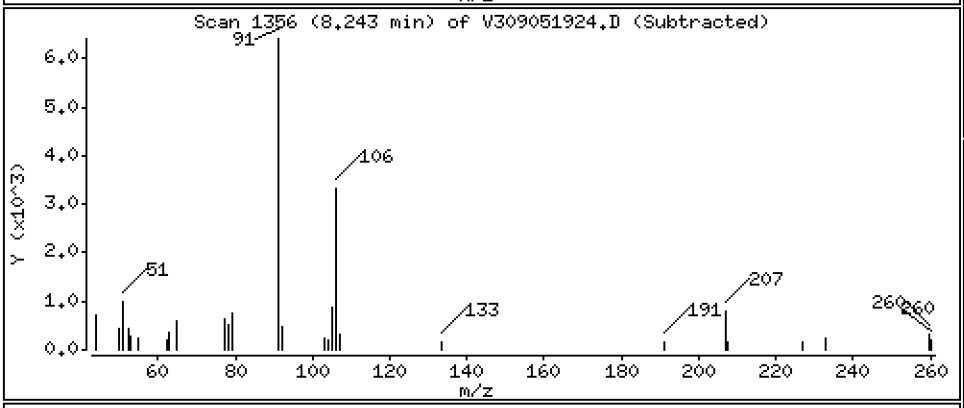
Column phase: RTXVMS

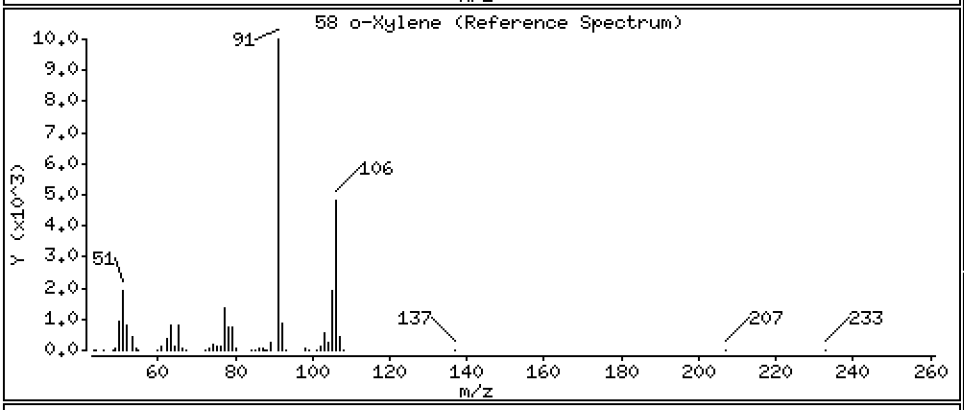
Column diameter: 0.18

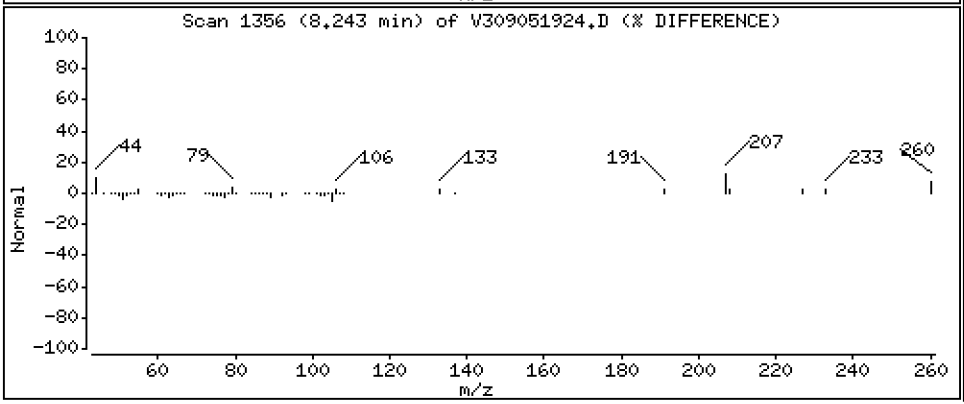
58 o-Xylene

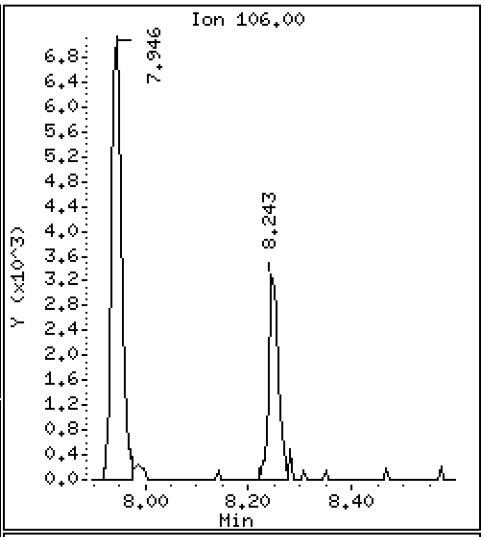
Concentration: 0.3533 ug/L

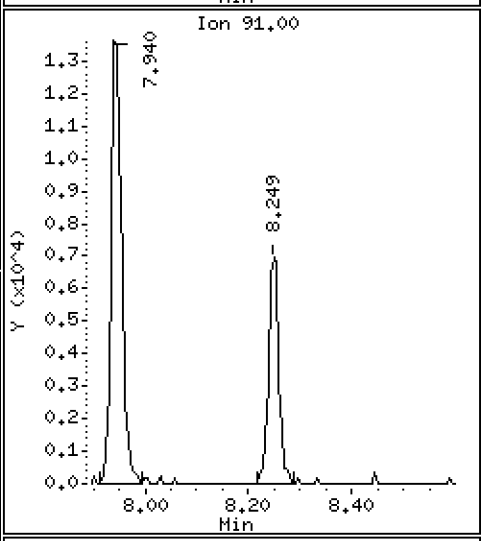


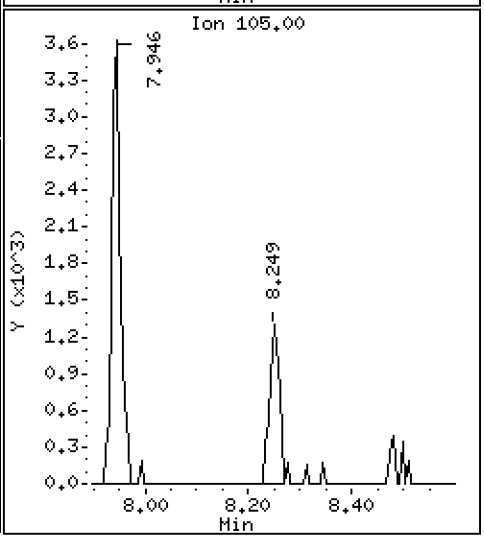












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

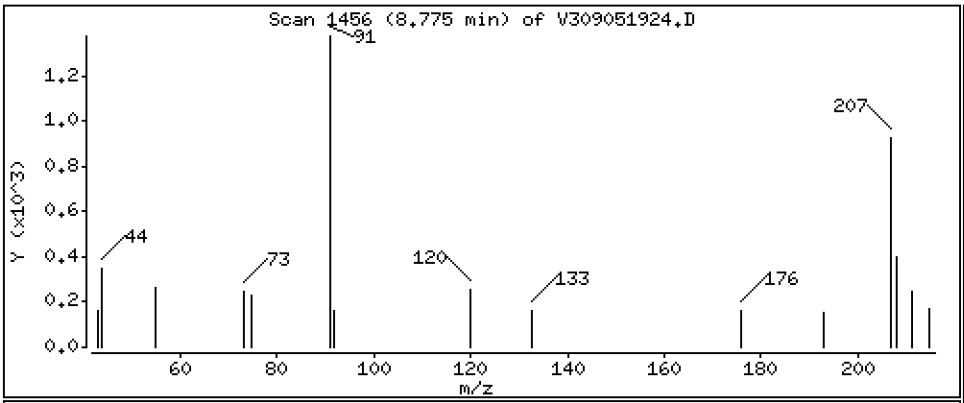
Operator: PKC

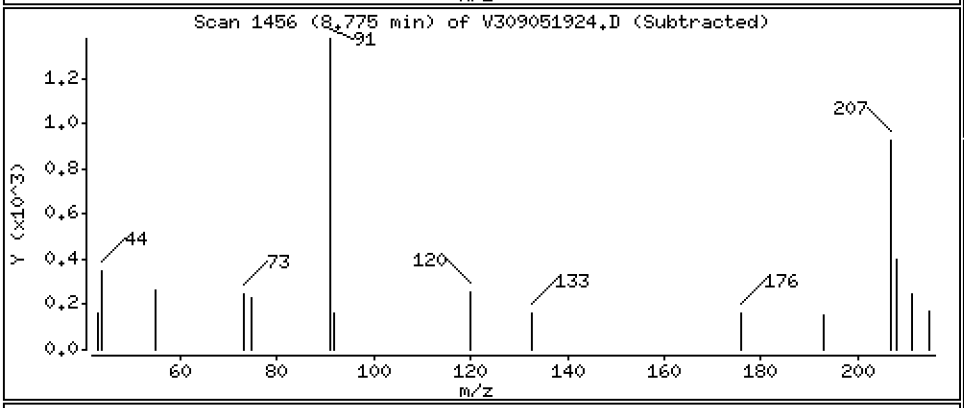
Column phase: RTXVMS

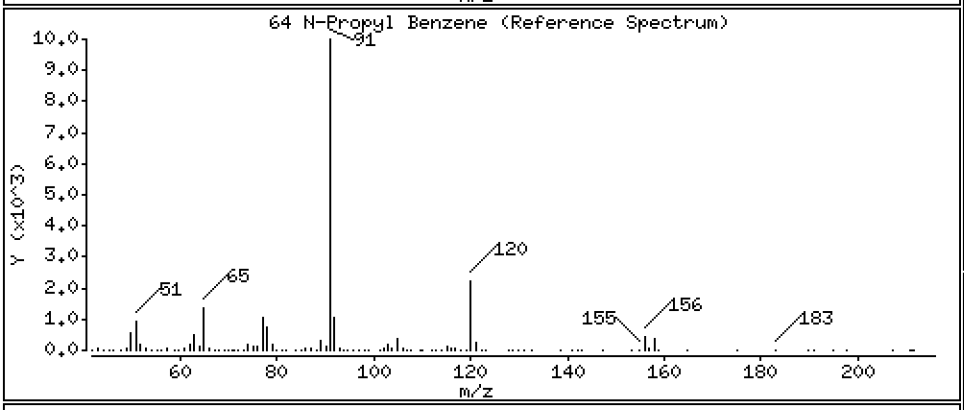
Column diameter: 0.18

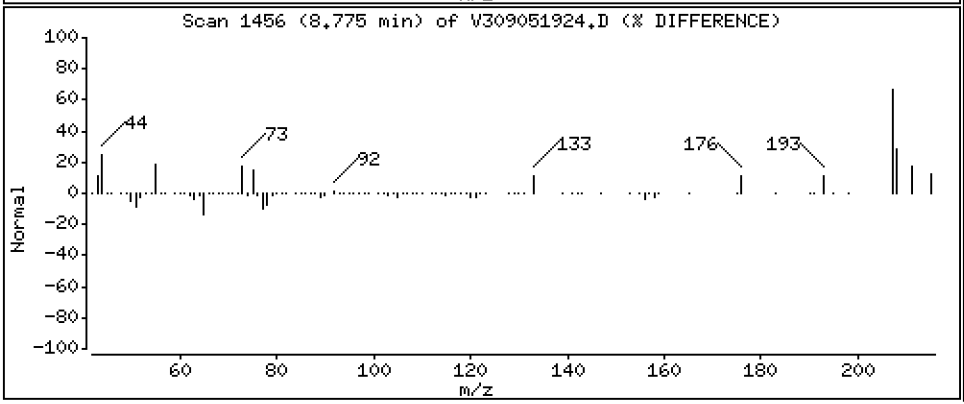
64 N-Propyl Benzene

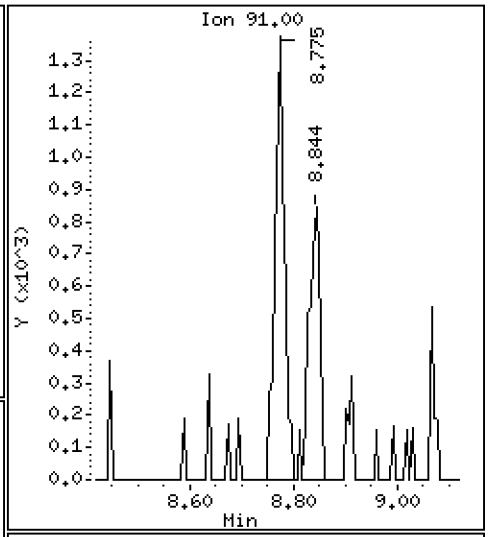
Concentration: 0.05022 ug/L

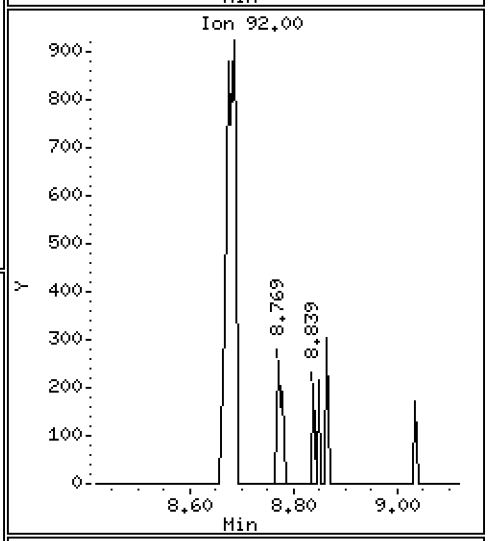


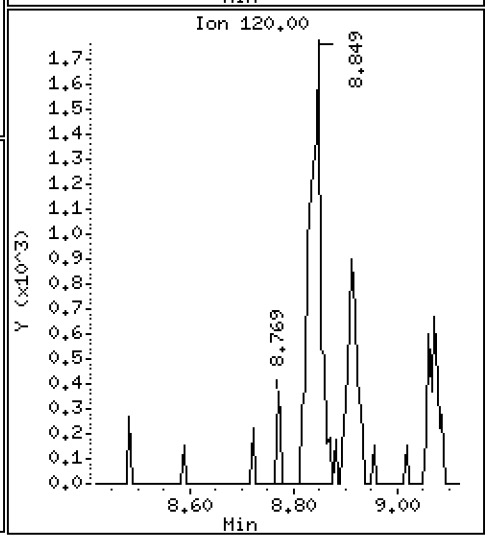












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

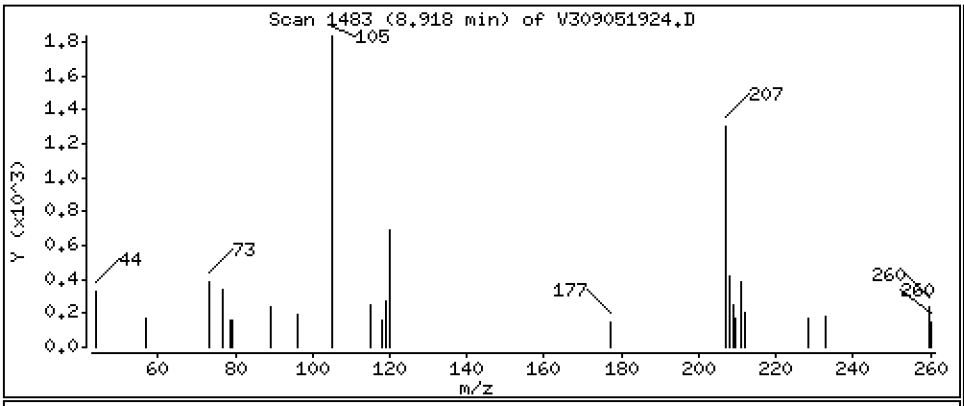
Operator: PKC

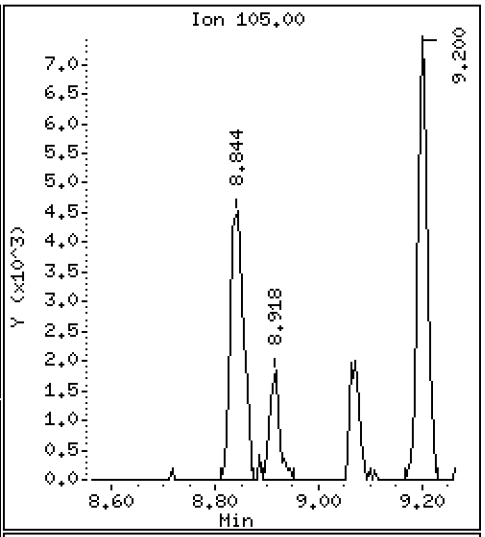
Column phase: RTXVMS

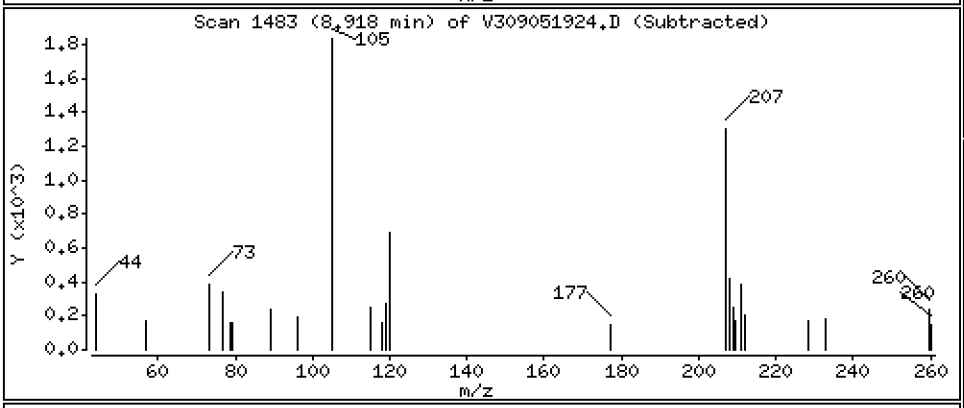
Column diameter: 0.18

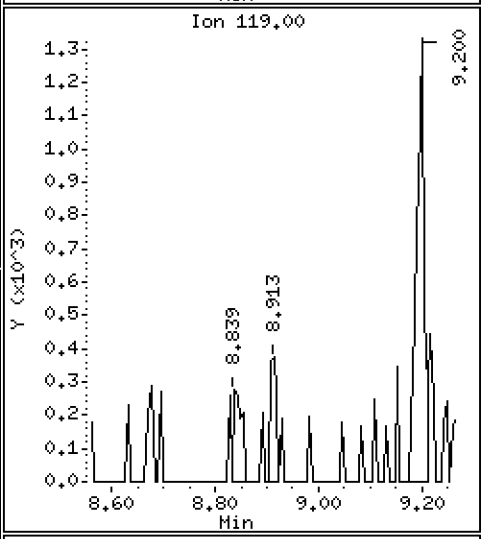
67 1,3,5-Trimethyl Benzene

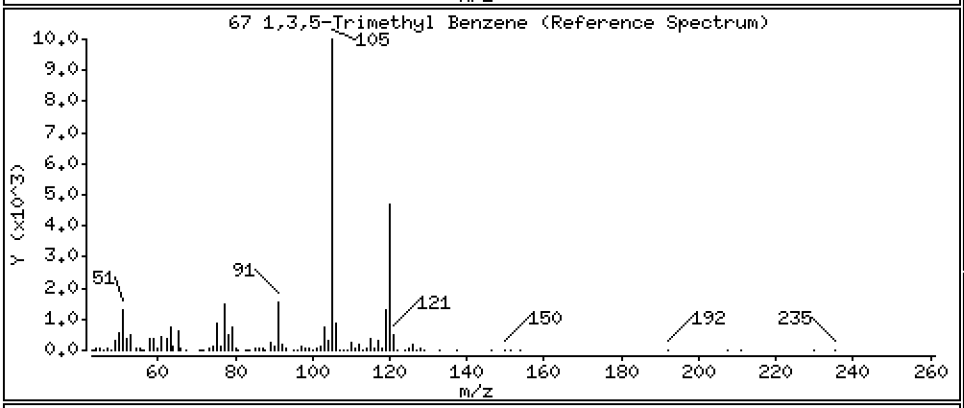
Concentration: 0.09098 ug/L

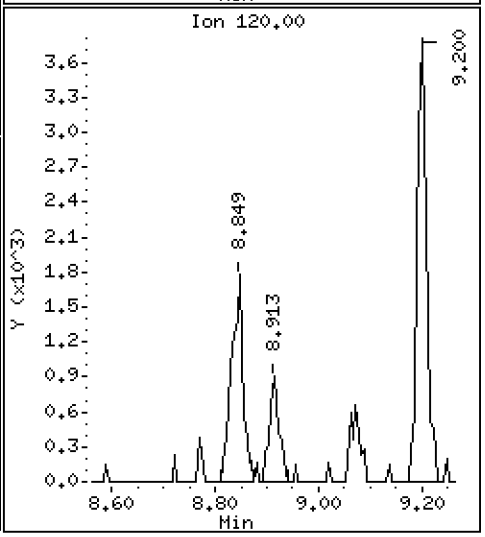


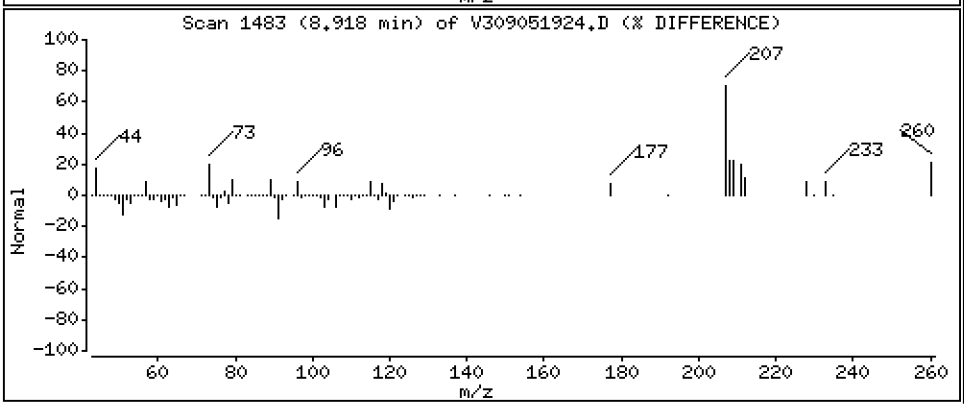












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

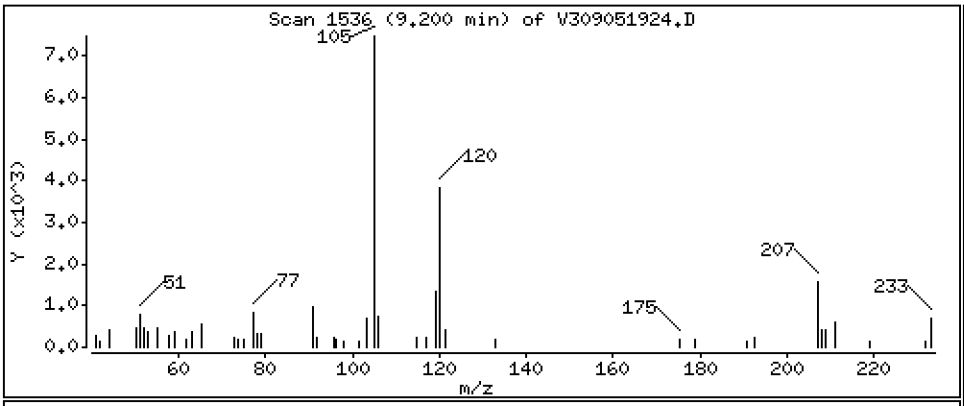
Operator: PKC

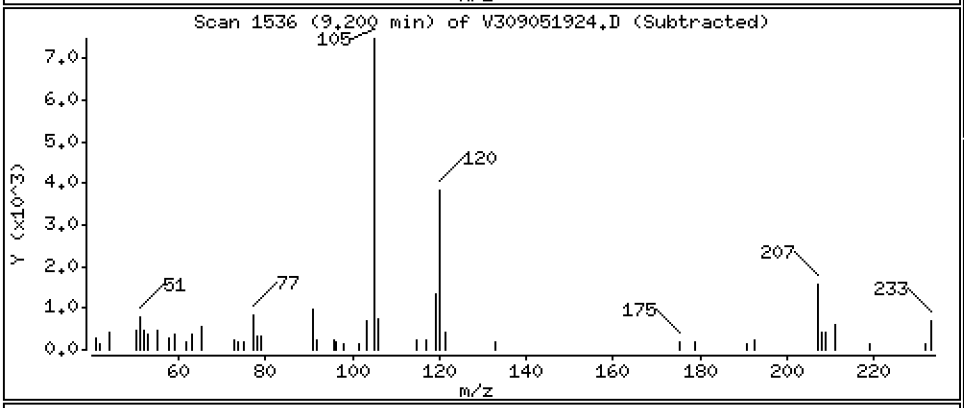
Column phase: RTXVMS

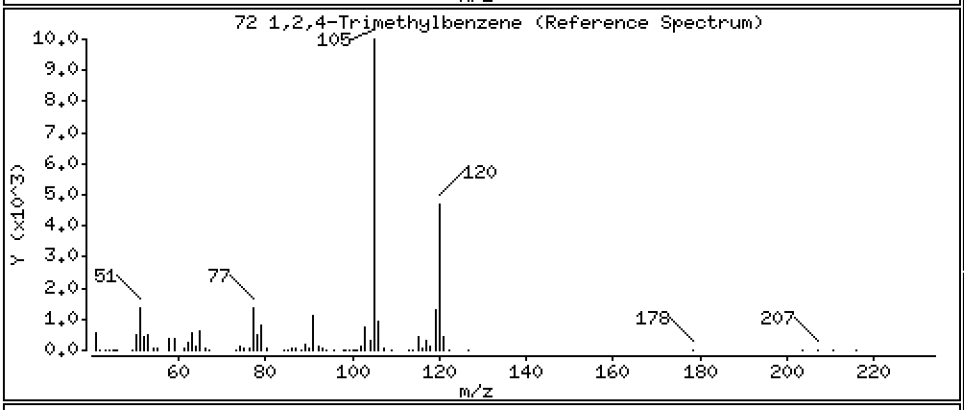
Column diameter: 0.18

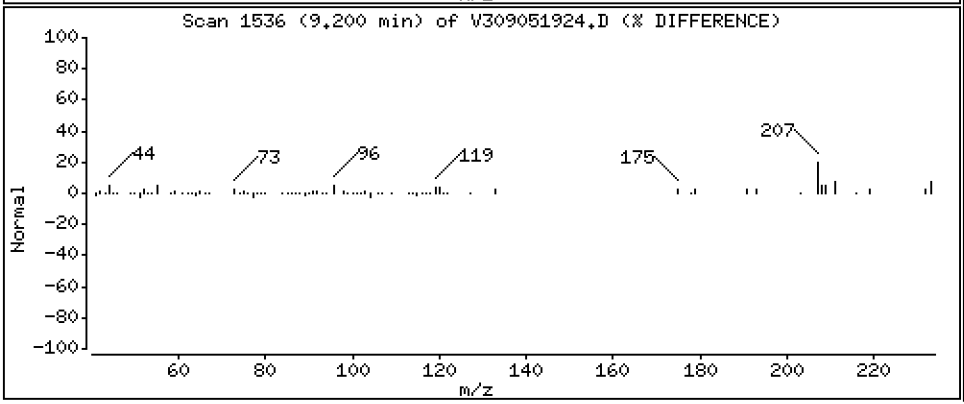
72 1,2,4-Trimethylbenzene

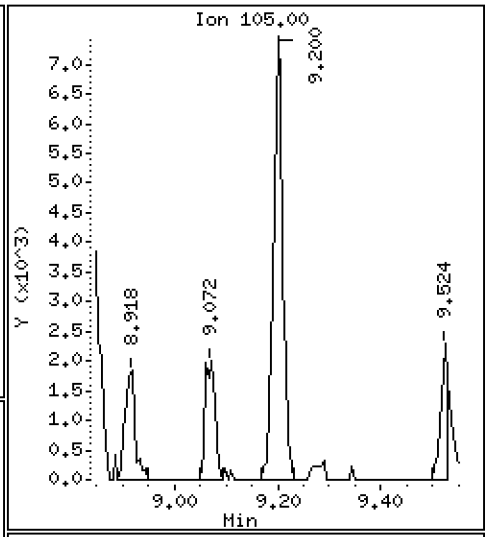
Concentration: 0.3425 ug/L

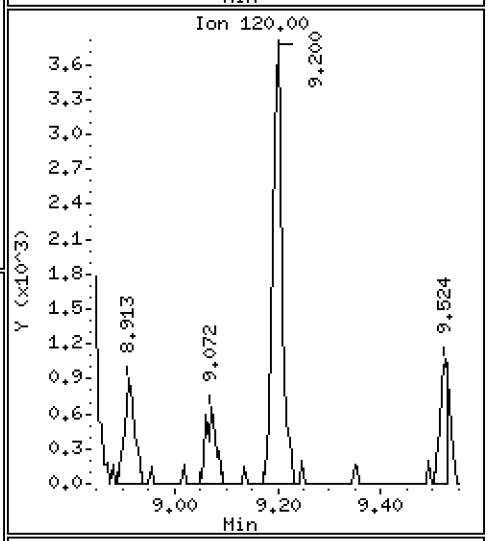


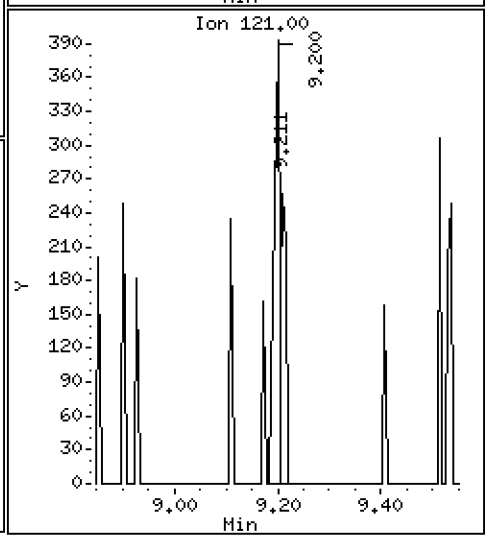












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051924.D

Date : 05-SEP-2019 21:35

Client ID:

Instrument: nt3.i

Sample Info: 19H0481-28

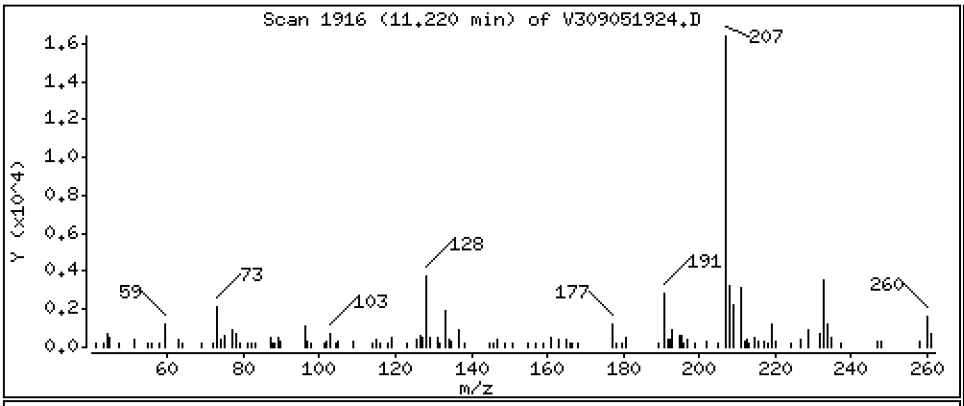
Operator: PKC

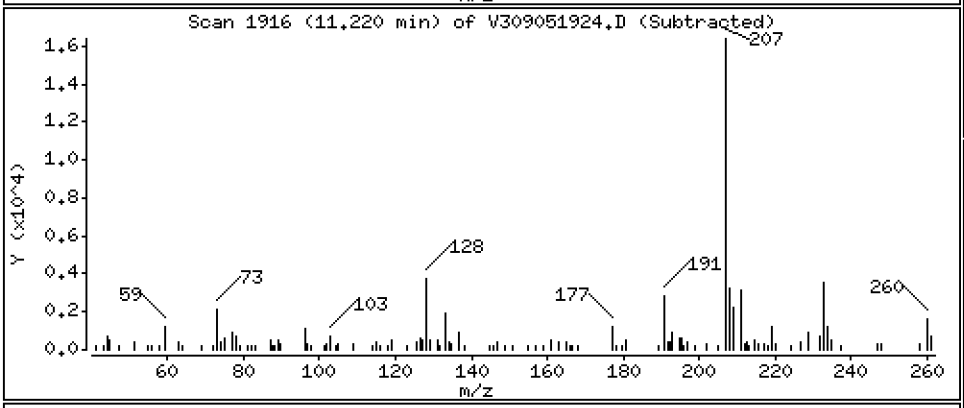
Column phase: RTXVMS

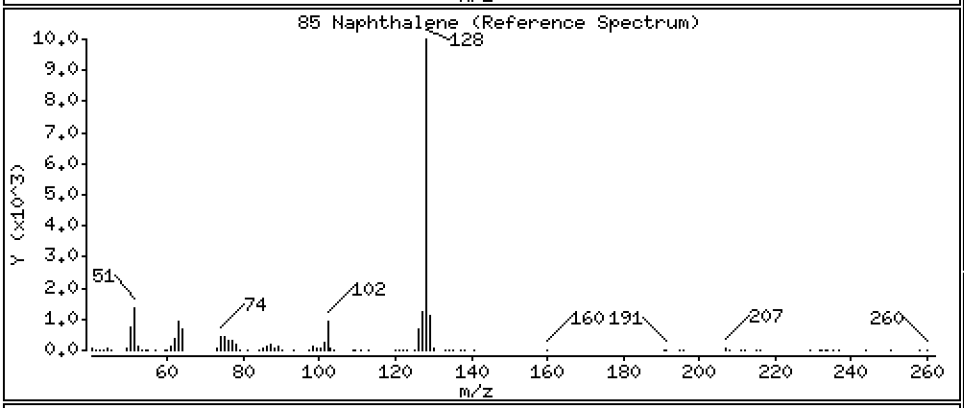
Column diameter: 0.18

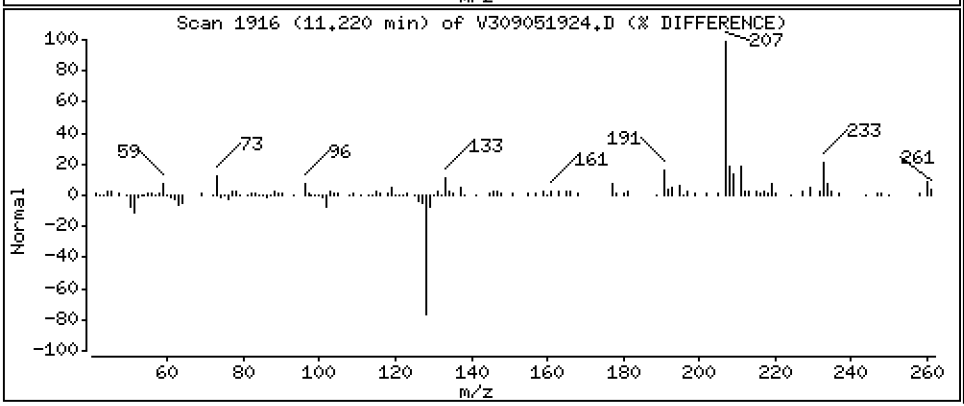
85 Naphthalene

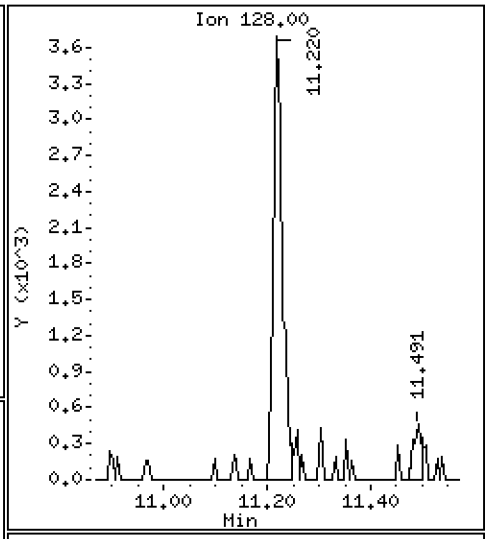
Concentration: 0.2353 ug/L

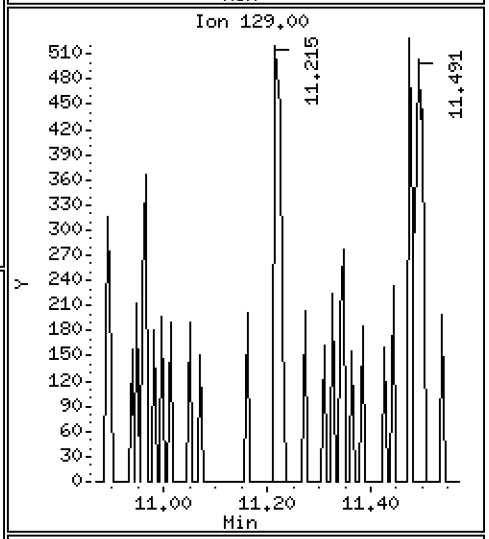


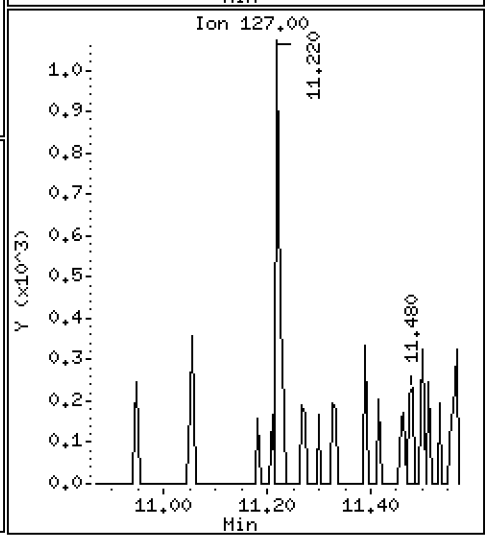












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051924.D
Lab Smp Id: 19H0481-28
Inj Date : 05-SEP-2019 21:35
Operator : PKC Inst ID: nt3.i
Smp Info : 19H0481-28
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	Compound Not Detected.					
	14 Acetone	43	3.677	3.644	(0.680)	3382	2.19938	2.199(M)
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	20516	4.90532	4.905(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	5.340	5.335	(0.923)	1756	0.07382	0.07382
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	96727	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	22909	4.91639	4.916(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	139003	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	83655	4.97477	4.975(R)
	44	Toluene	92	6.776	6.775	(1.171)	7943	0.51207	0.5121
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	143504	10.0000	
	54	Chlorobenzene	112	Compound Not Detected.					
	55	Ethyl Benzene	106	7.844	7.843	(1.004)	1982	0.19637	0.1964
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.945	7.944	(1.017)	9878	0.79474	0.7947
	58	o-Xylene	106	8.243	8.247	(1.055)	4433	0.35330	0.3533
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	8.684	8.678	(1.112)	34052	4.99367	4.994(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	8.774	8.768	(0.924)	1818	0.05022	0.05022
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.918	8.912	(0.939)	2528	0.09098	0.09098
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	9648	0.34251	0.3425
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	88861	10.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	41228	4.93788	4.938(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85	Naphthalene	128	11.219	11.219	(1.181)	4640	0.23533	0.2353
	86	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051924.D
Lab Smp Id: 19H0481-28
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	96727	-0.18
37 1,4-Difluorobenze	140121	70061	280242	139003	-0.80
53 d5-Chlorobenzene	140128	70064	280256	143504	2.41
76 d4-1,4-Dichlorobe	90137	45069	180274	88861	-1.42

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-28
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.905	98.11	
$ 33 d4-1,2-Dichloroeth	5.000	4.916	98.33	
$ 43 d8-Toluene	5.000	4.975	99.50	
$ 62 4-Bromofluorobenze	5.000	4.994	99.87	
$ 79 d4-1,2-Dichloroben	5.000	4.938	98.76	

REVIEW SUMMARY FOR FILE - V309051924.D

Lab ID: 19H0481-28
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 21:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.680	0.674	0.0059	Acetone

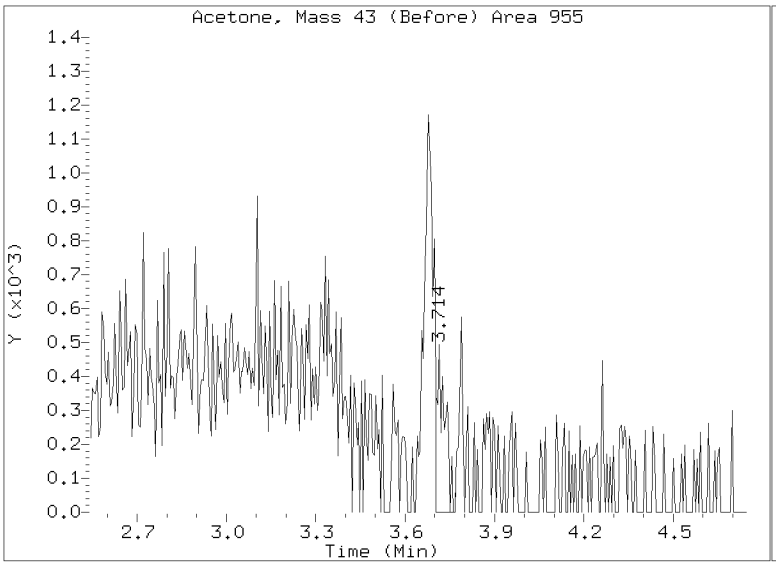
RRT check based on Ccal File: V309051928.D

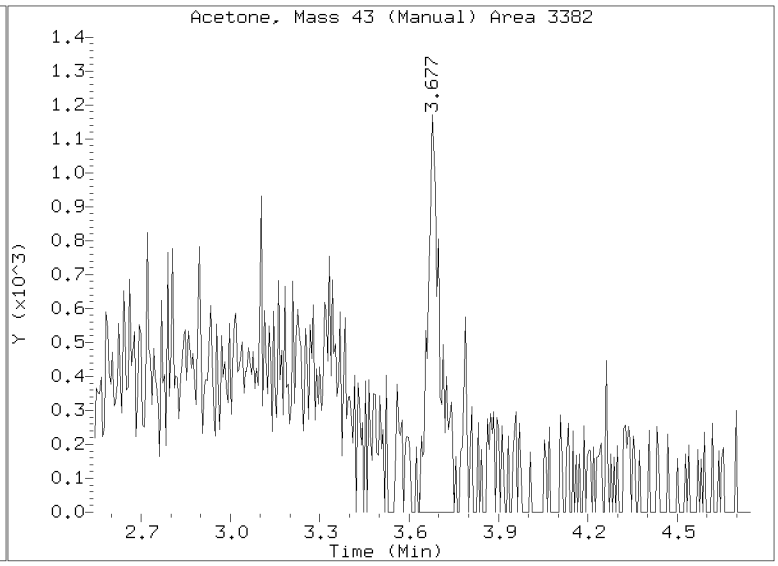
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051924.D
Injection Date: 05-SEP-2019 21:35
Lab ID:19H0481-28 Client ID:
Report Date: 09/06/2019 14:40





P40-UST-05-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-30 D	SDG:	19H0481
Sampled:	08/30/19 13:00	Prepared:	09/04/19 15:53	File ID:	NT509041911.D
% Solids:	94.96	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/04/19 18:20
Batch:	BHI0097	Sequence:	SHI0061	Initial/Final:	3.56 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

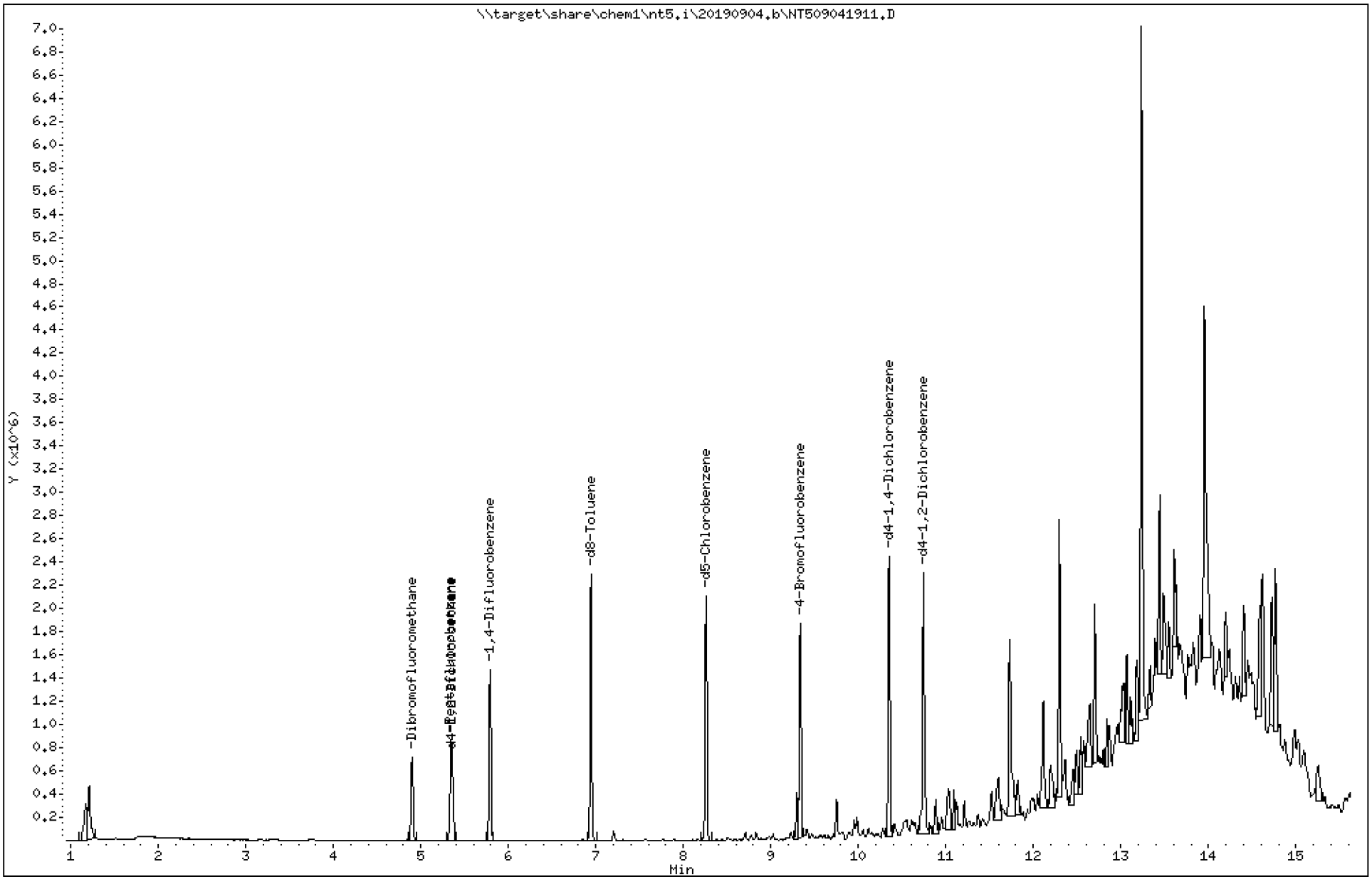
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.48	U	0.44	1.48
108-88-3	Toluene	1	1.48	U	0.22	1.48
100-41-4	Ethylbenzene	1	1.48	U	0.30	1.48
179601-23-1	m,p-Xylene	1	2.96	U	0.58	2.96
95-47-6	o-Xylene	1	1.48	U	0.33	1.48

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	50.7	101	77 - 120	
4-Bromofluorobenzene	50.000	51.2	102	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041911.D
Date : 04-SEP-2019 18:20
Client ID:
Sample Info: 19H0481-30

Instrument: nt5.i
Operator: PB
Column diameter: 0.18

Column phase: RTXVMS



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041911.D

Date : 04-SEP-2019 18:20

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-30

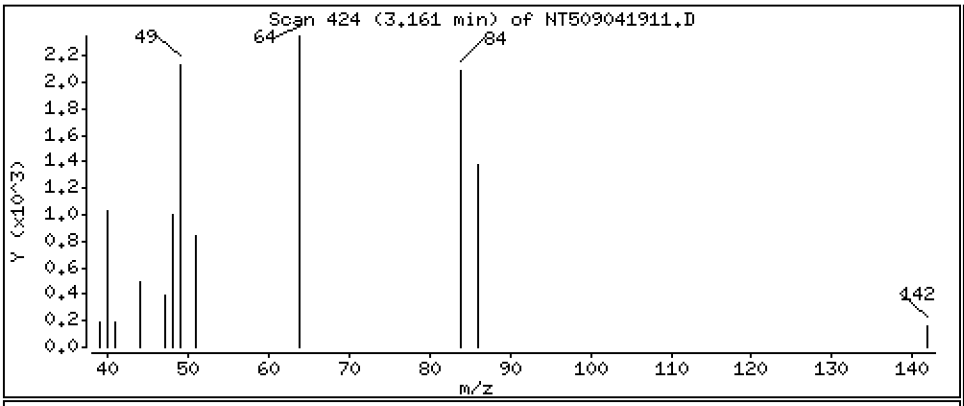
Operator: PB

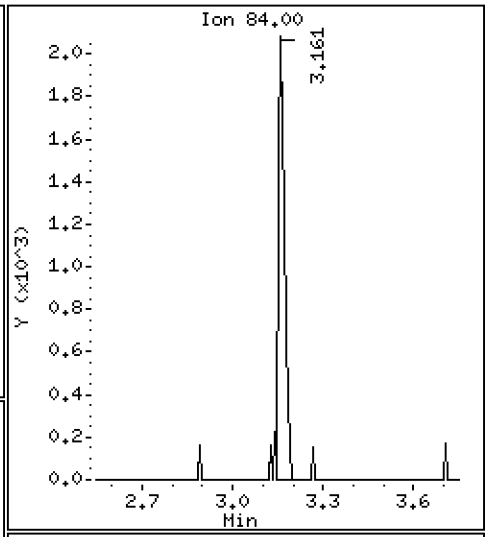
Column phase: RTXVMS

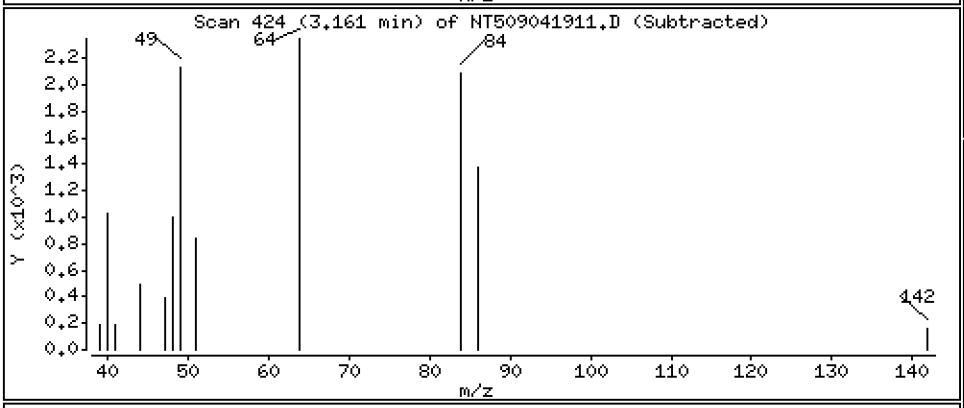
Column diameter: 0.18

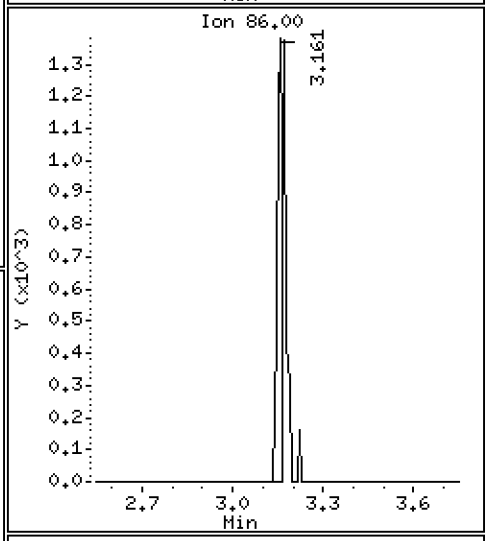
13 Methylene Chloride

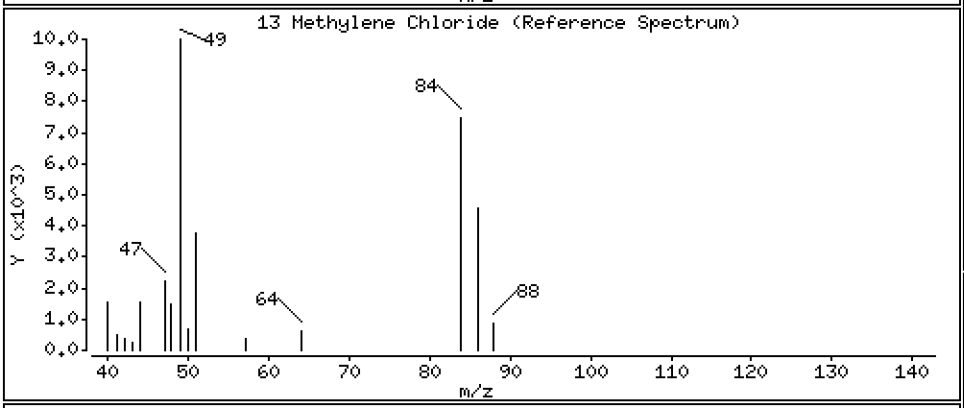
Concentration: 1.249 ug/Kg

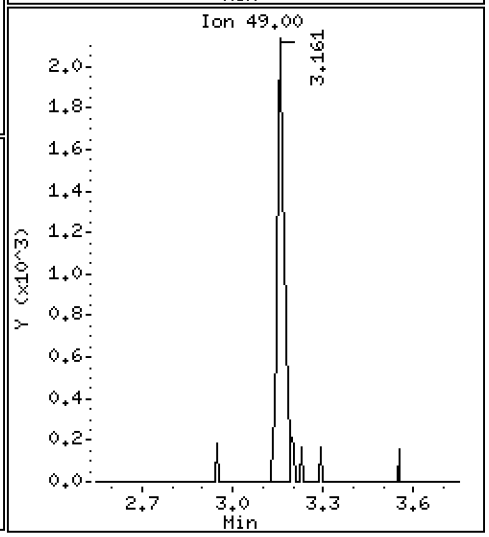


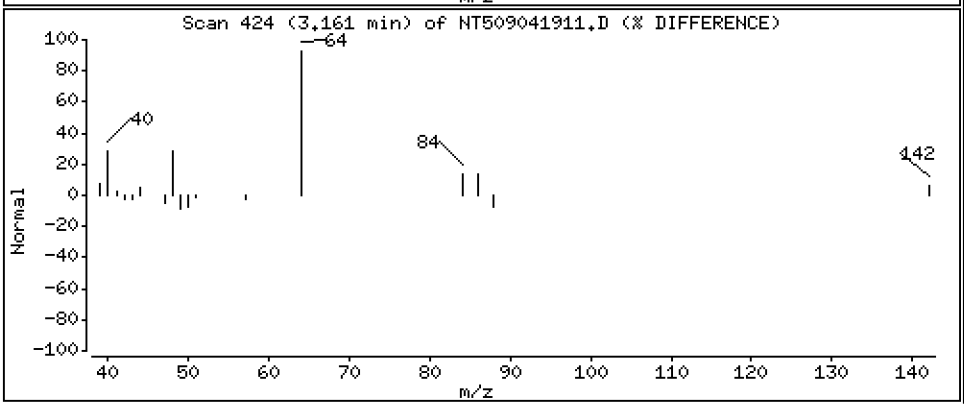












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041911.D

Date : 04-SEP-2019 18:20

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-30

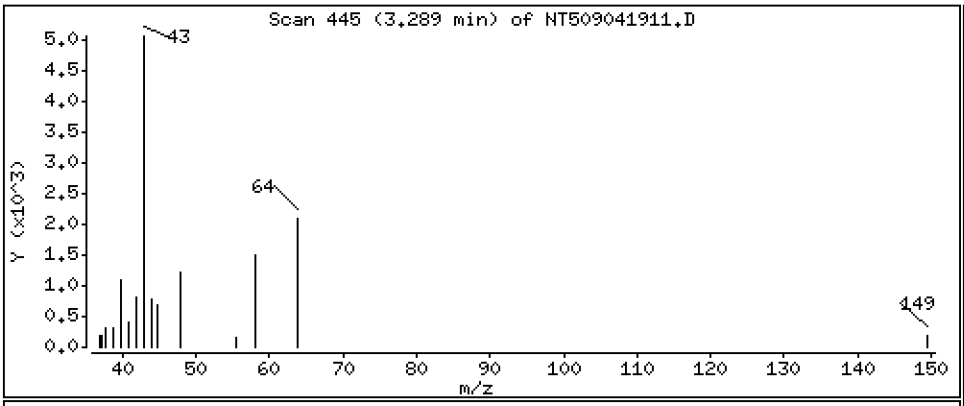
Operator: PB

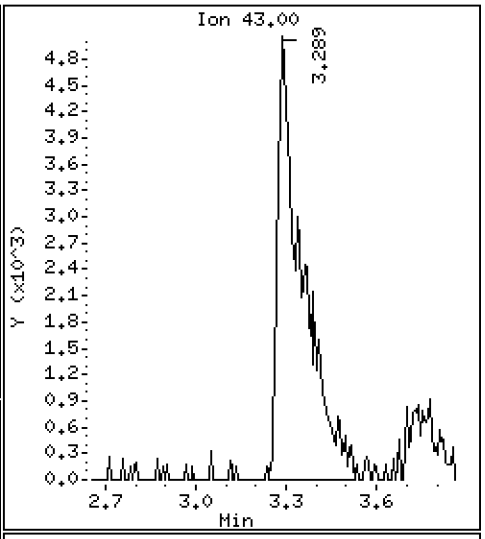
Column phase: RTXVMS

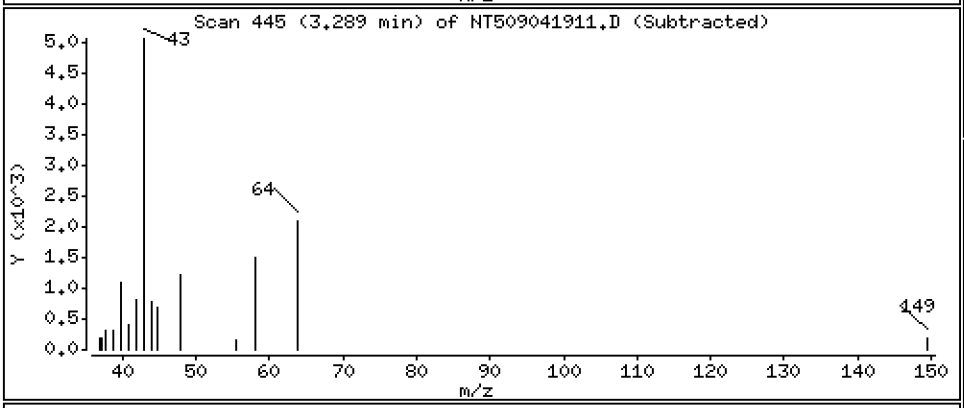
Column diameter: 0.18

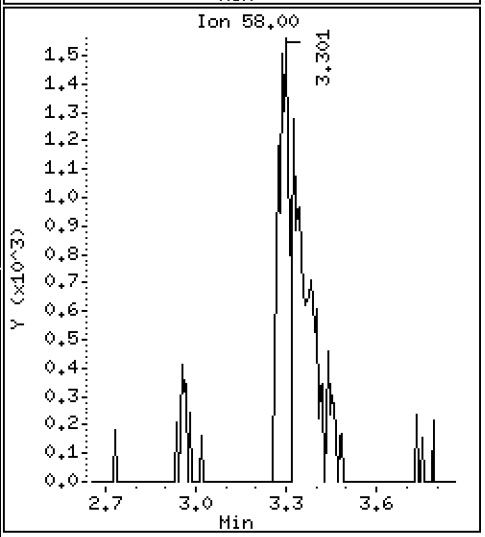
14 Acetone

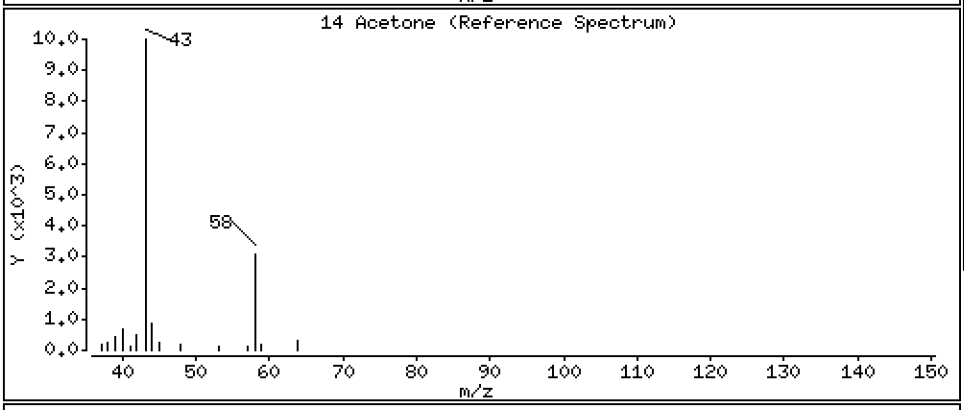
Concentration: 49.678 ug/Kg

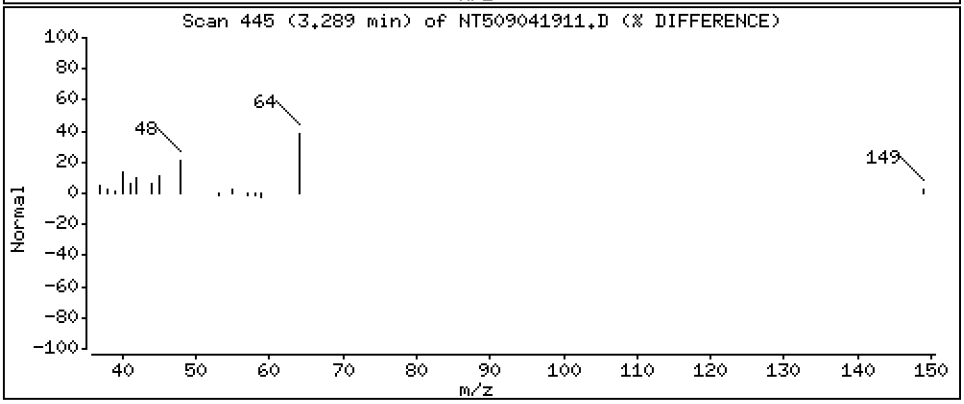












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041911.D
Lab Smp Id: 19H0481-30
Inj Date : 04-SEP-2019 18:20
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-30
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.591)	3327	1.24854	1.249
	14 Acetone	43	3.288	3.257	(0.615)	28649	49.6779	49.678(M)
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	368036	70.9435	70.943(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.332	(1.000)	422408	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.363	5.350	(1.003)	346709	68.2152	68.215(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	1002131	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1256063	50.7490	50.749(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	1011393	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	448858	51.1934	51.193(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	551362	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	546127	52.8661	52.866(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	Compound Not Detected.					
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041911.D
Lab Smp Id: 19H0481-30
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	422408	-7.76
35 1,4-Difluorobenze	852165	426083	1704330	1002131	17.60
52 d5-Chlorobenzene	803678	401839	1607356	1011393	25.85
76 d4-1,4-Dichlorobe	439766	219883	879532	551362	25.38

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.23
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-30
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	70.943	141.89	
$ 32 d4-1,2-Dichloroeth	50.000	68.215	136.43	
$ 42 d8-Toluene	50.000	50.749	101.50	
$ 62 4-Bromofluorobenze	50.000	51.193	102.39	
$ 79 d4-1,2-Dichloroben	50.000	52.866	105.73	

REVIEW SUMMARY FOR FILE - NT509041911.D

Lab ID: 19H0481-30
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 18:20

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

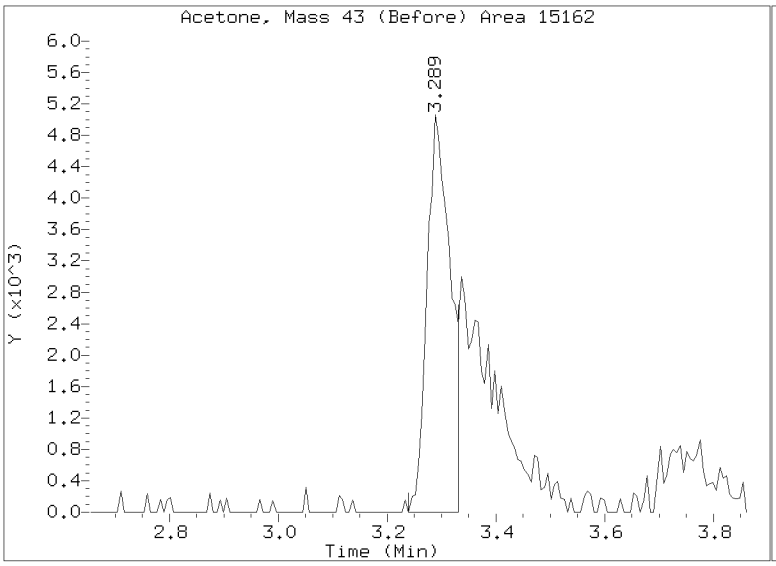
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

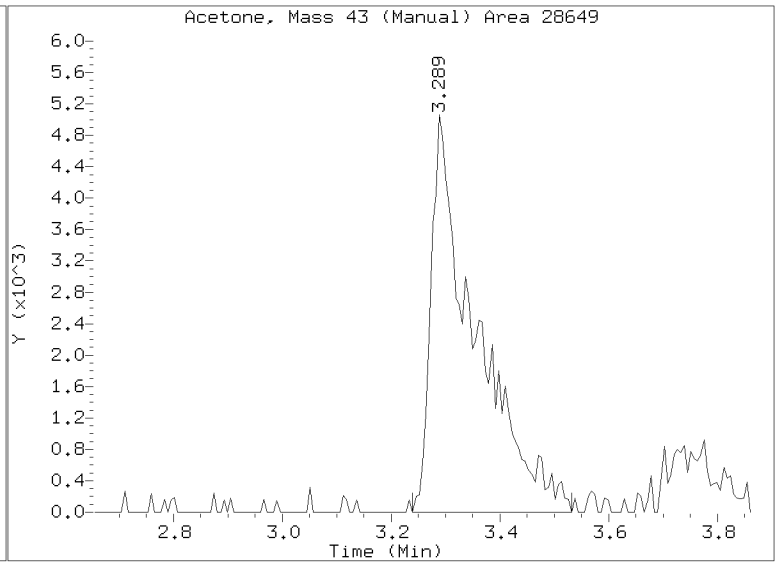
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190904.b/NT509041911.D
Injection Date: 04-SEP-2019 18:20
Lab ID:19H0481-30 Client ID:
Report Date: 09/05/2019 13:07





P40-UST-505-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-32 C	SDG:	19H0481
Sampled:	08/30/19 13:05	Prepared:	09/04/19 15:53	File ID:	NT509041912.D
% Solids:	95.05	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/04/19 18:42
Batch:	BHI0097	Sequence:	SHI0061	Initial/Final:	2.85 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

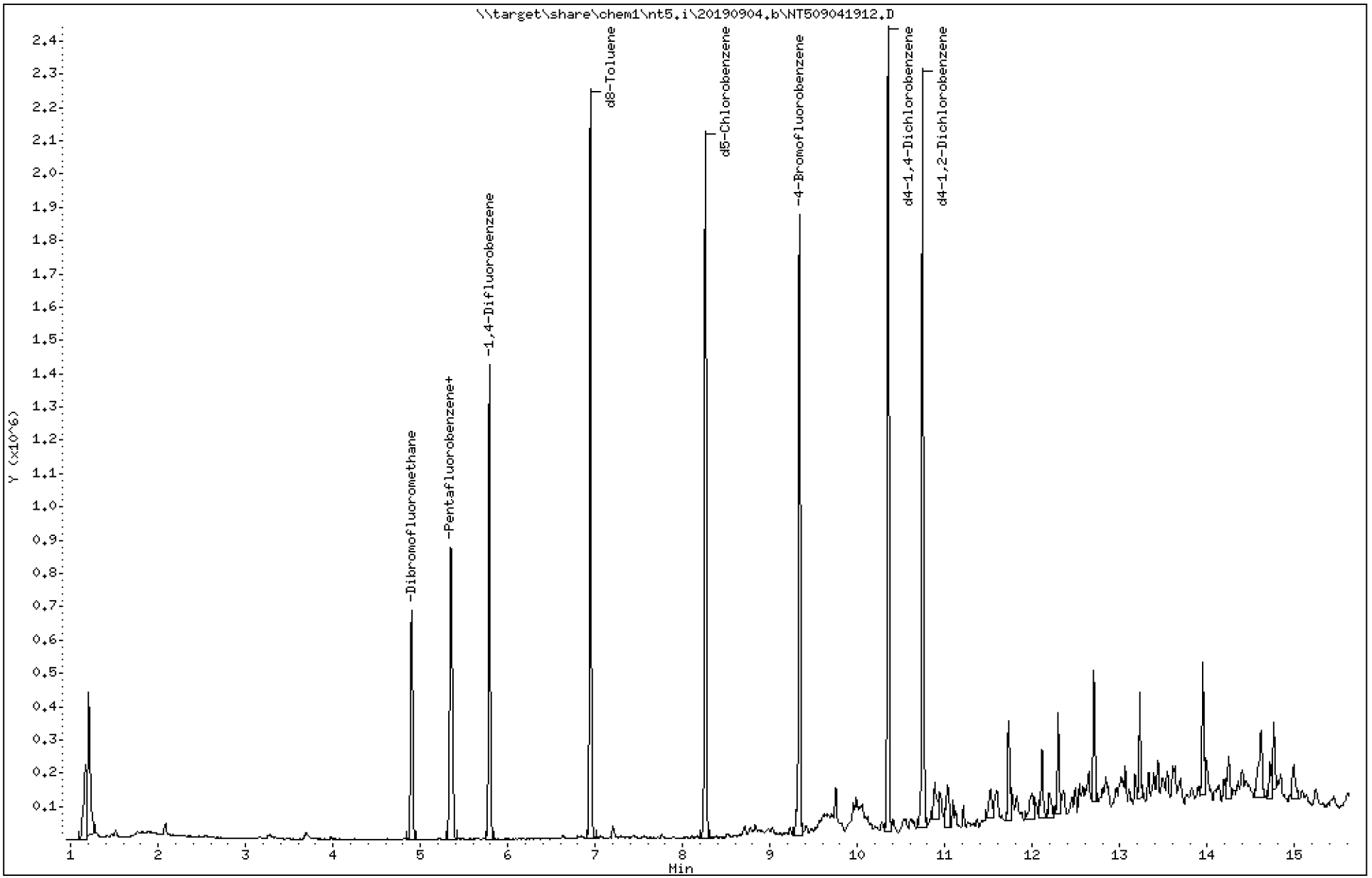
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.85	U	0.55	1.85
108-88-3	Toluene	1	1.85	U	0.28	1.85
100-41-4	Ethylbenzene	1	1.85	U	0.37	1.85
179601-23-1	m,p-Xylene	1	3.69	U	0.72	3.69
95-47-6	o-Xylene	1	1.85	U	0.41	1.85

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.4	105	77 - 120	
4-Bromofluorobenzene	50.000	51.9	104	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041912.D
Date : 04-SEP-2019 18:42
Client ID:
Sample Info: 19H0481-32

Instrument: nt5.i
Operator: PB
Column diameter: 0.18

Column phase: RTXVMS



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041912.D

Date : 04-SEP-2019 18:42

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-32

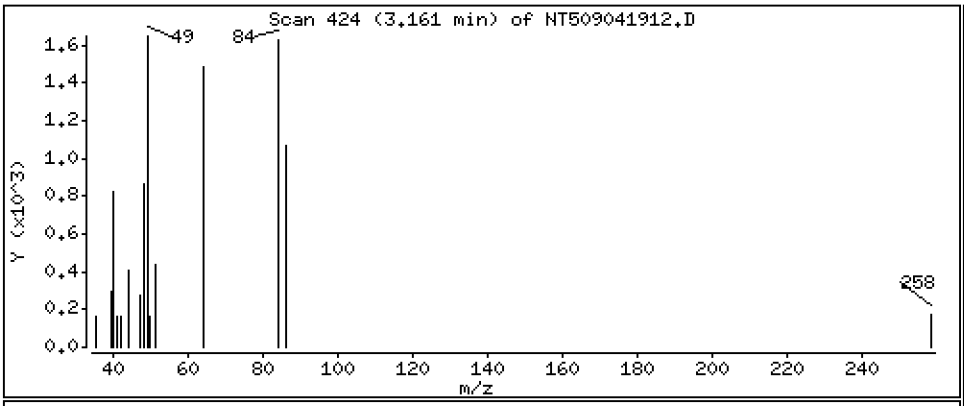
Operator: PB

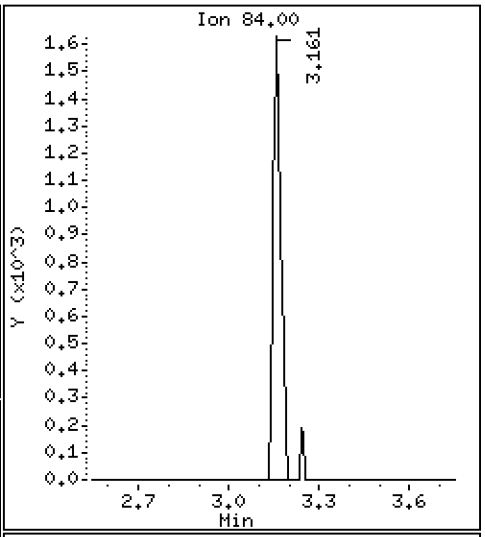
Column phase: RTXVMS

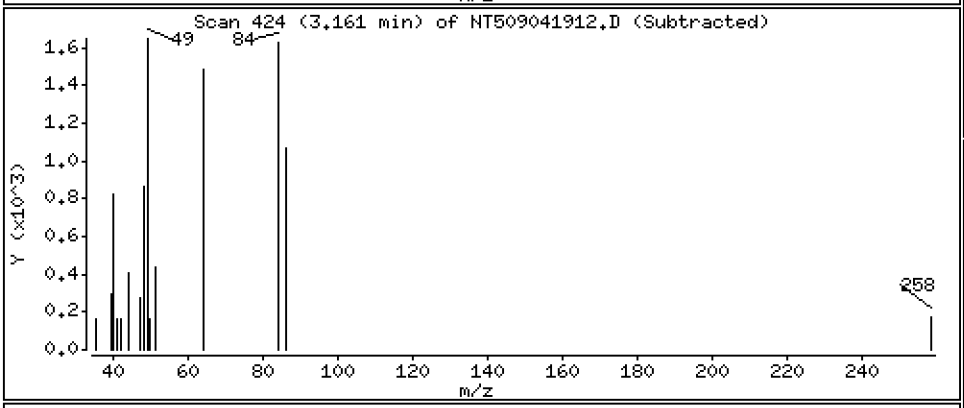
Column diameter: 0.18

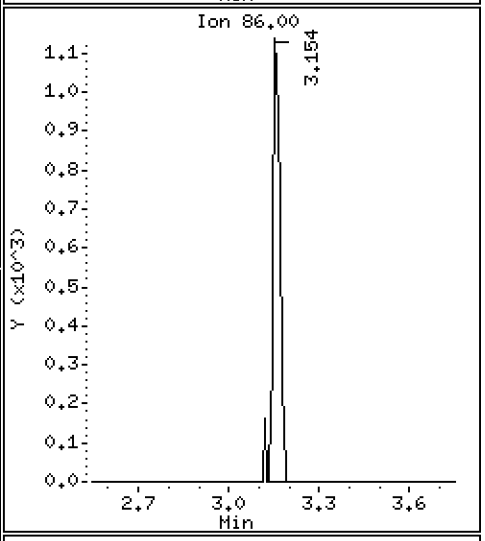
13 Methylene Chloride

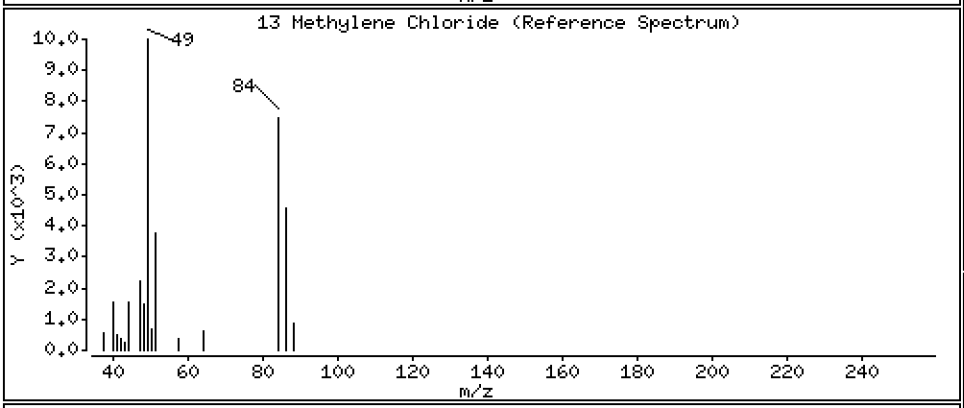
Concentration: 1.243 ug/Kg

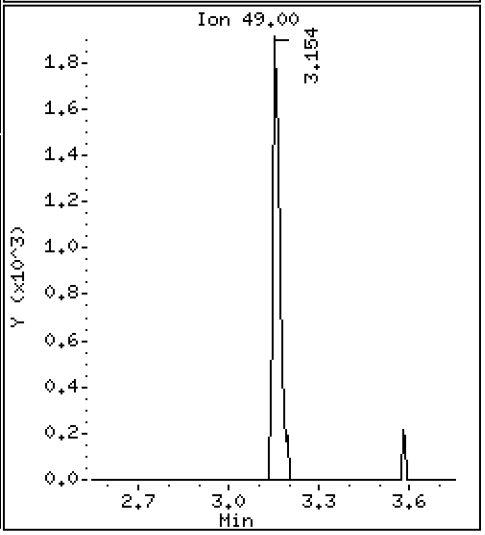


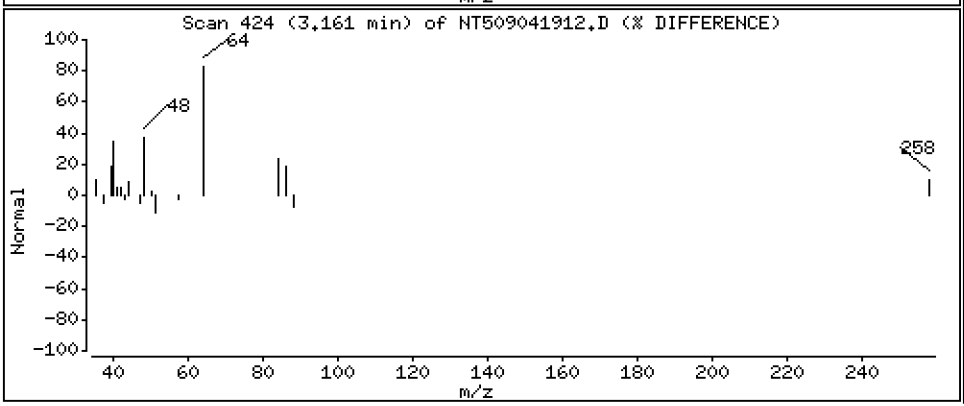












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041912.D

Date : 04-SEP-2019 18:42

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-32

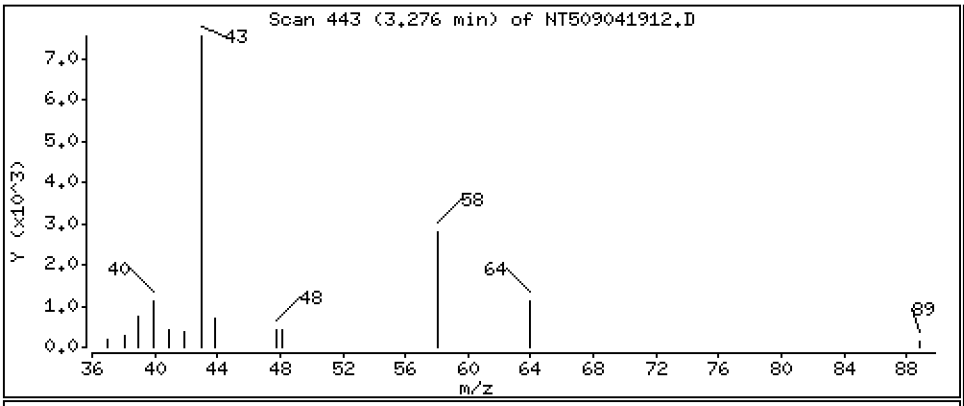
Operator: PB

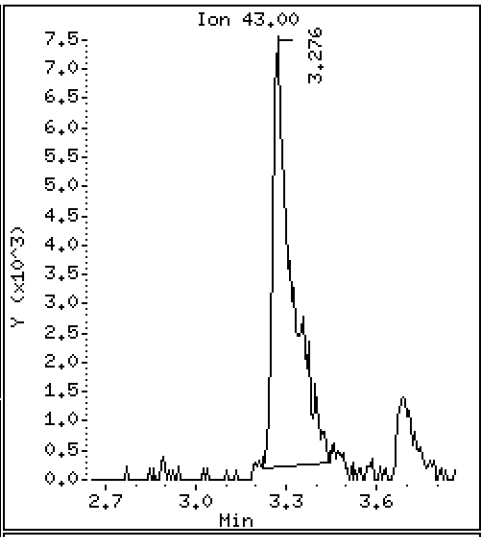
Column phase: RTXVMS

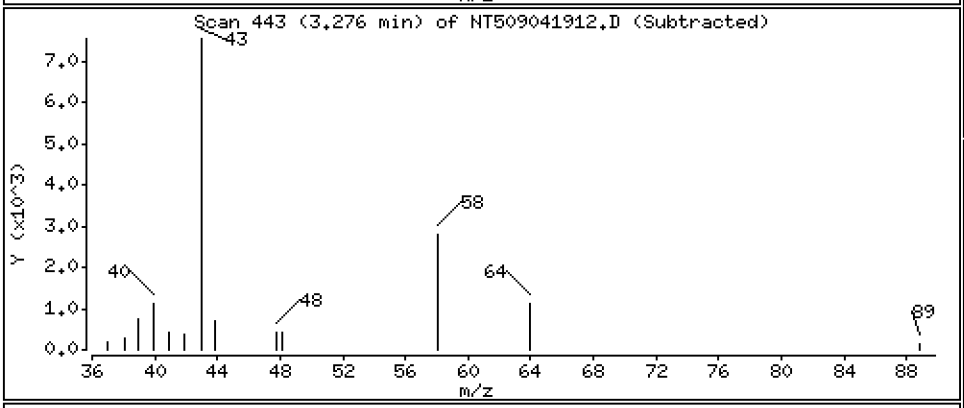
Column diameter: 0.18

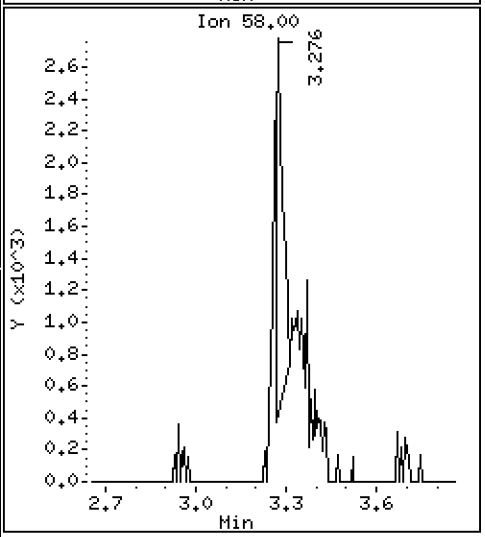
14 Acetone

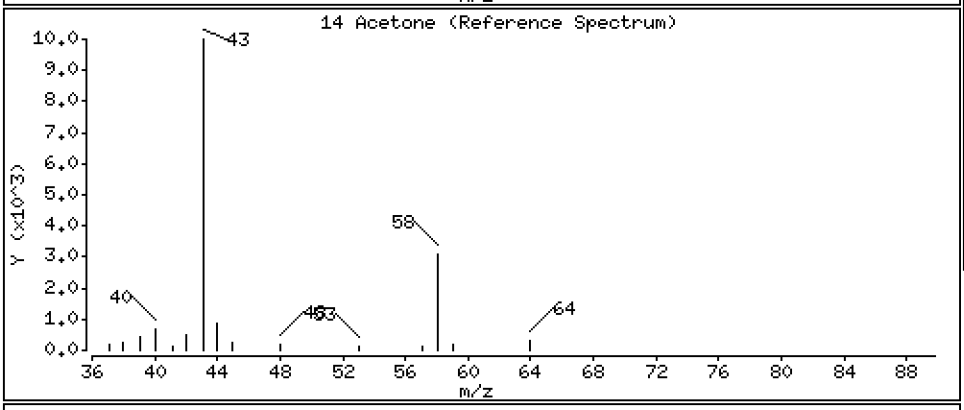
Concentration: 61.265 ug/Kg

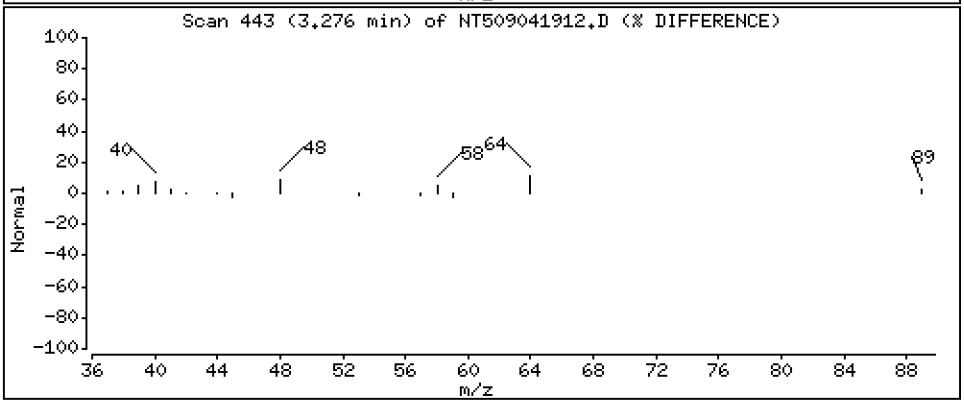












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041912.D
Lab Smp Id: 19H0481-32
Inj Date : 04-SEP-2019 18:42
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-32
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.591)	3151	1.24341	1.243
	14 Acetone	43	3.276	3.257	(0.613)	33600	61.2649	61.265(M)
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	351901	71.3282	71.328(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.332	(1.000)	401711	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.002)	340813	70.5100	70.510(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	953474	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1232931	52.3565	52.356(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	990884	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	445483	51.8601	51.860(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	557434	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	553019	52.9501	52.950(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	Compound Not Detected.					
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041912.D
Lab Smp Id: 19H0481-32
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	401711	-12.28
35 1,4-Difluorobenze	852165	426083	1704330	953474	11.89
52 d5-Chlorobenzene	803678	401839	1607356	990884	23.29
76 d4-1,4-Dichlorobe	439766	219883	879532	557434	26.76

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.23
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-32
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	71.328	142.66	
$ 32 d4-1,2-Dichloroeth	50.000	70.510	141.02	
$ 42 d8-Toluene	50.000	52.356	104.71	
$ 62 4-Bromofluorobenze	50.000	51.860	103.72	
$ 79 d4-1,2-Dichloroben	50.000	52.950	105.90	

REVIEW SUMMARY FOR FILE - NT509041912.D

Lab ID: 19H0481-32
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 18:42

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

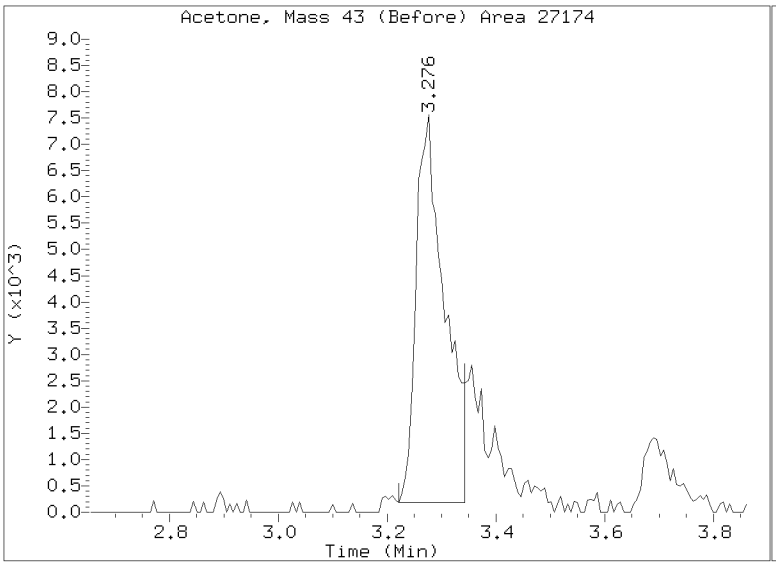
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

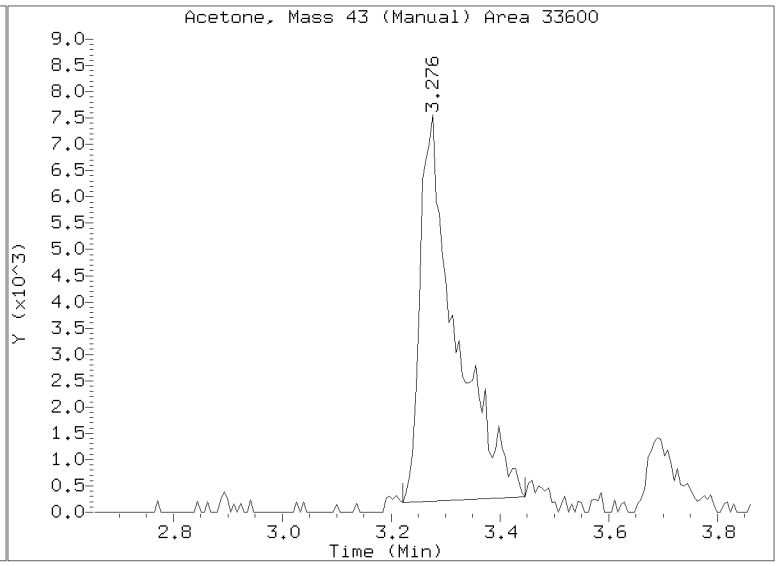
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190904.b/NT509041912.D
Injection Date: 04-SEP-2019 18:42
Lab ID:19H0481-32 Client ID:
Report Date: 09/05/2019 13:07





P40-UST-05-11'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8260C

Volatile Organic Compounds

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-34 C	SDG:	19H0481
Sampled:	08/30/19 13:10	Prepared:	09/04/19 15:53	File ID:	NT509041913.D
% Solids:	72.37	Preparation:	EPA 5035 (Sodium Bisulfate)	Analyzed:	09/04/19 19:04
Batch:	BHI0097	Sequence:	SHI0061	Initial/Final:	3.48 g Wet / 5 mL
Instrument:	NT5	Column:	RTX-VMS	Calibration:	CH00068

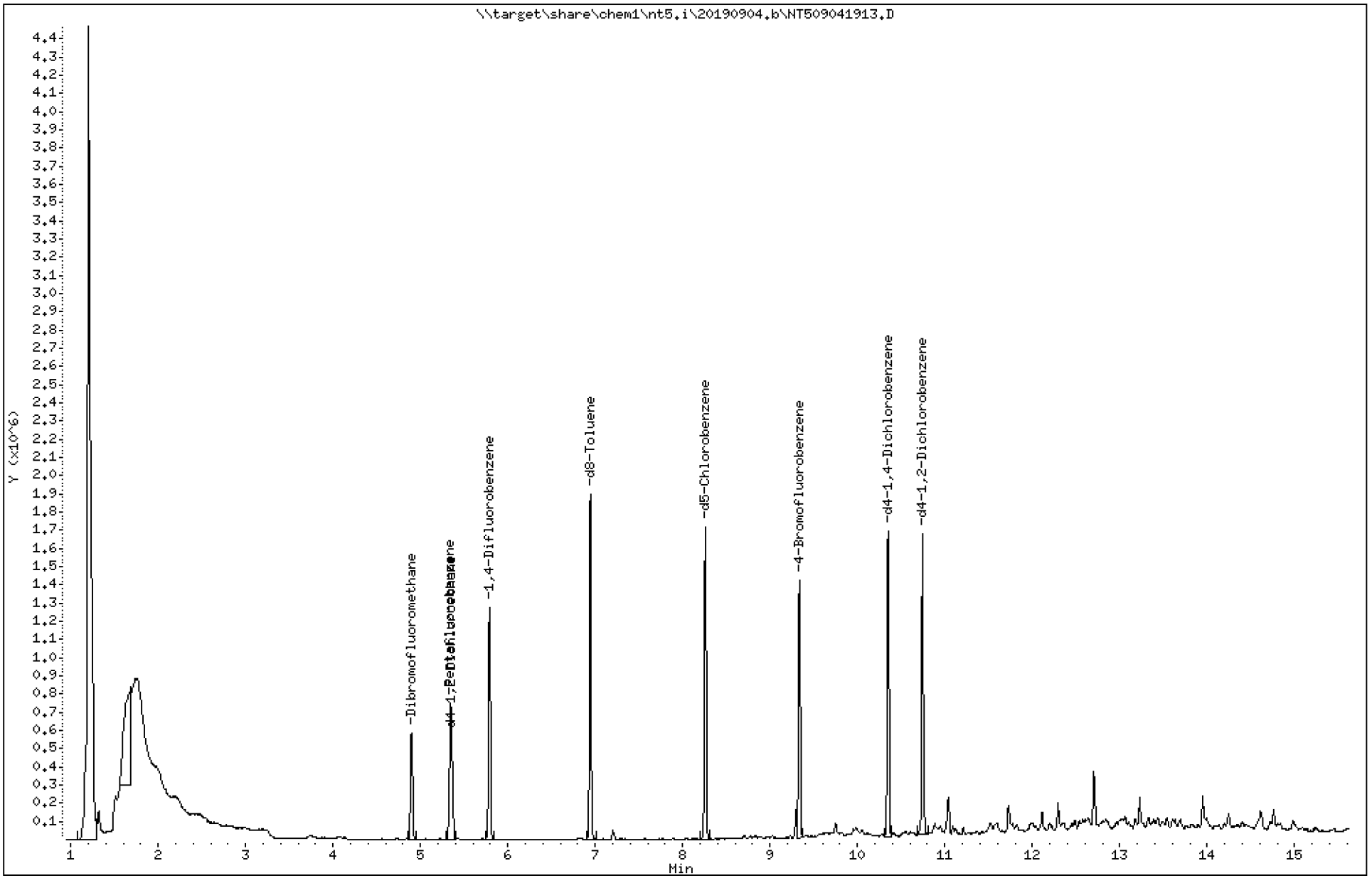
CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
71-43-2	Benzene	1	1.99	U	0.59	1.99
108-88-3	Toluene	1	1.99	U	0.30	1.99
100-41-4	Ethylbenzene	1	1.99	U	0.40	1.99
179601-23-1	m,p-Xylene	1	3.97	U	0.78	3.97
95-47-6	o-Xylene	1	1.99	U	0.44	1.99

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	51.2	102	77 - 120	
4-Bromofluorobenzene	50.000	48.5	96.9	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D
Date : 04-SEP-2019 19:04
Client ID:
Sample Info: 19H0481-34

Instrument: nt5.i
Operator: PB
Column diameter: 0.18

Column phase: RTXVMS



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

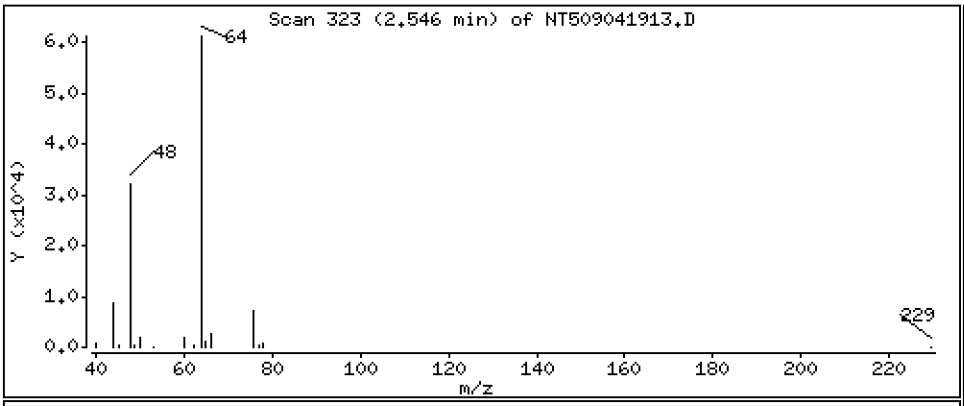
Operator: PB

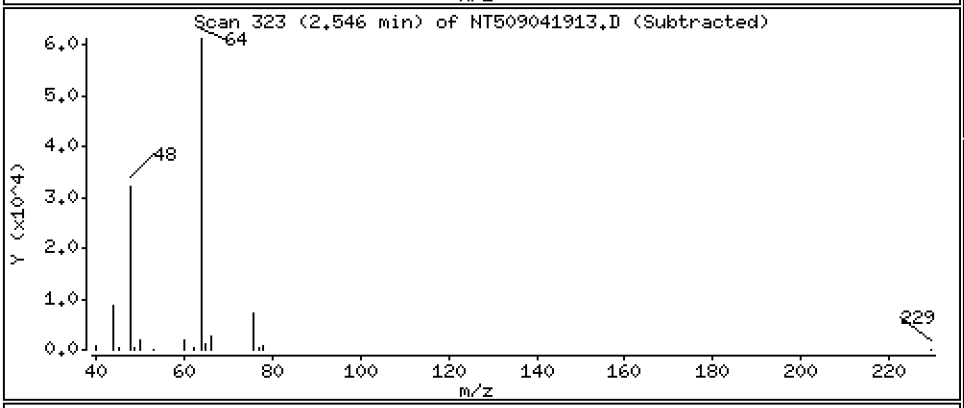
Column phase: RTXVMS

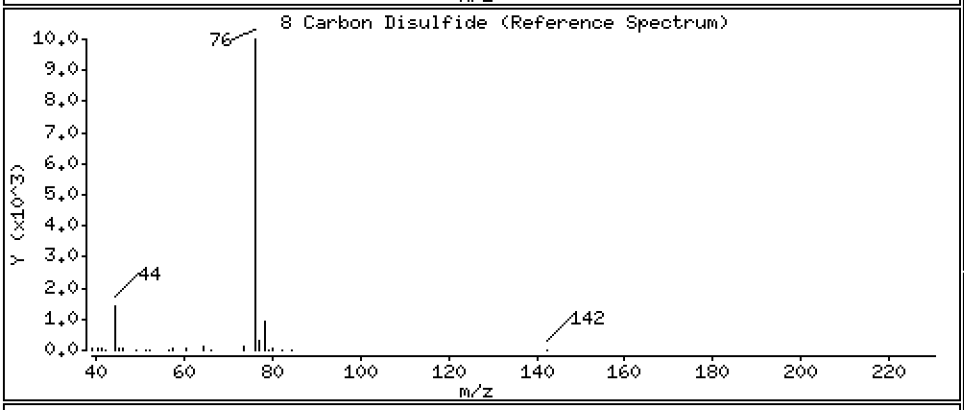
Column diameter: 0.18

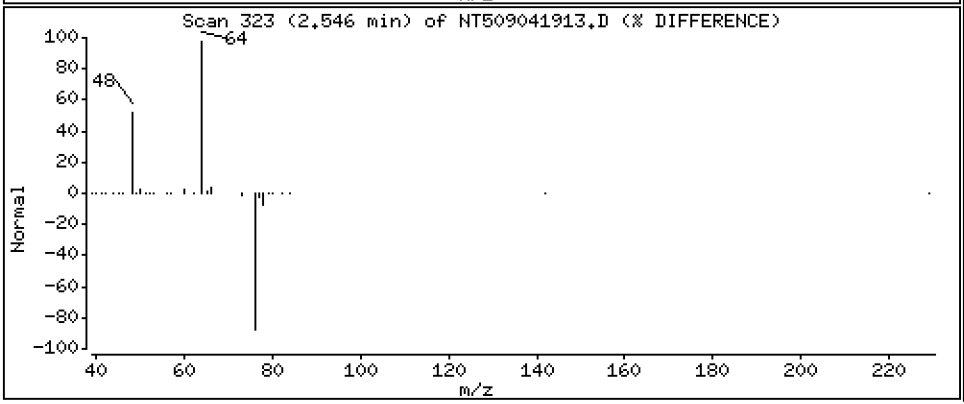
8 Carbon Disulfide

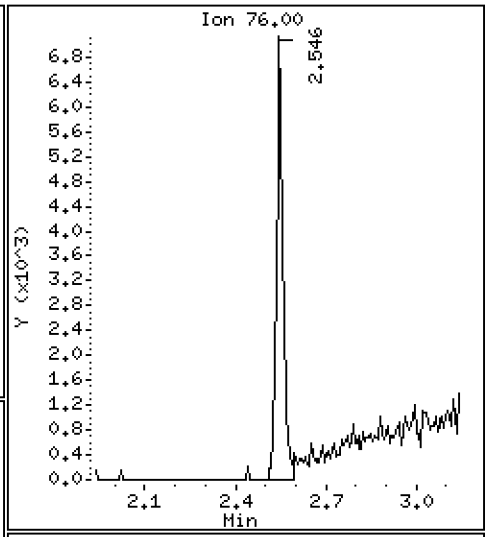
Concentration: 1.601 ug/Kg

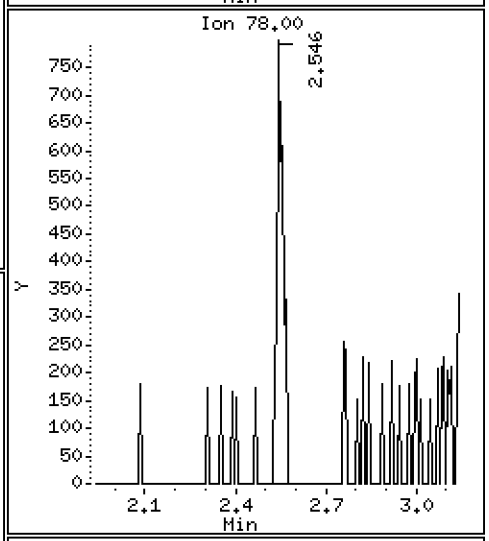


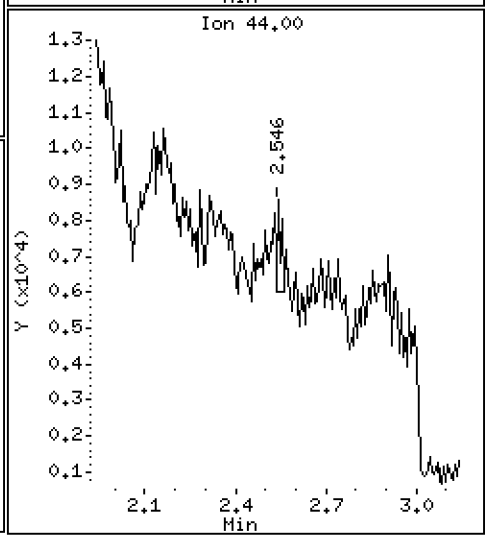












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

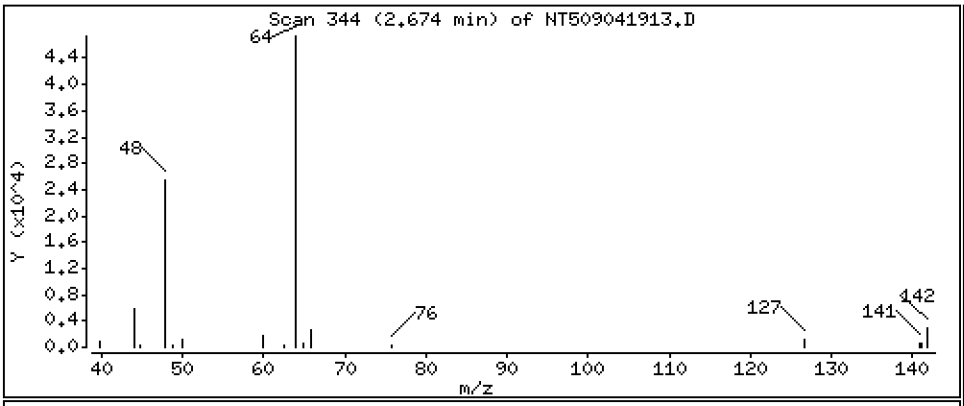
Operator: PB

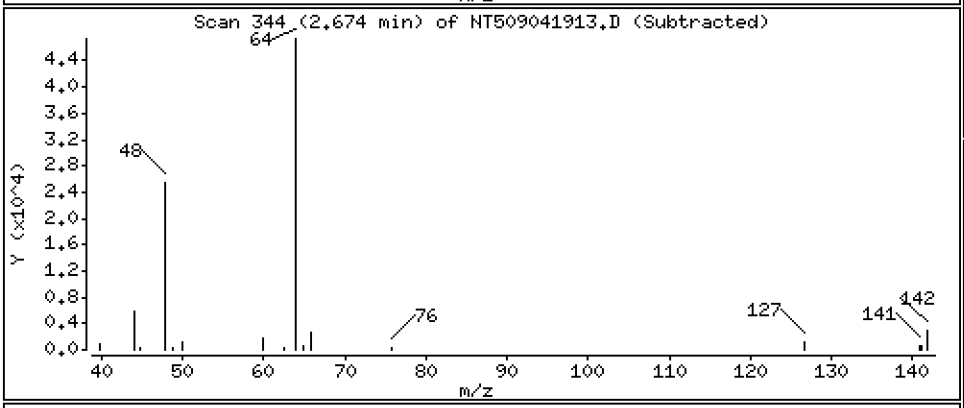
Column phase: RTXVMS

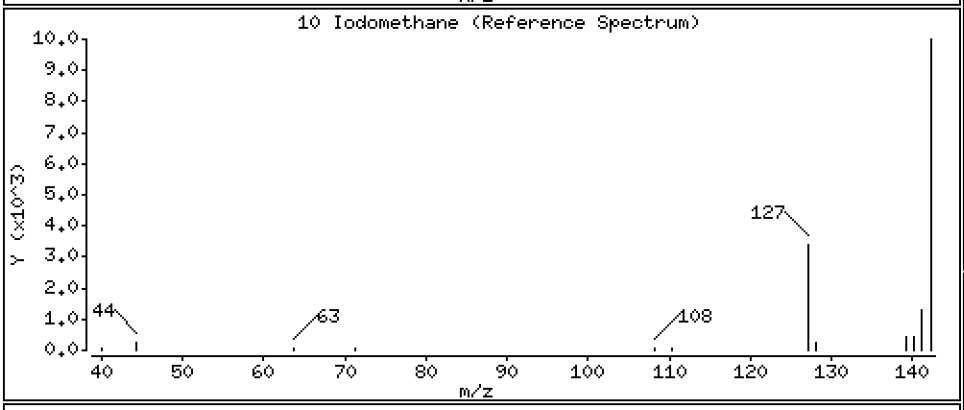
Column diameter: 0.18

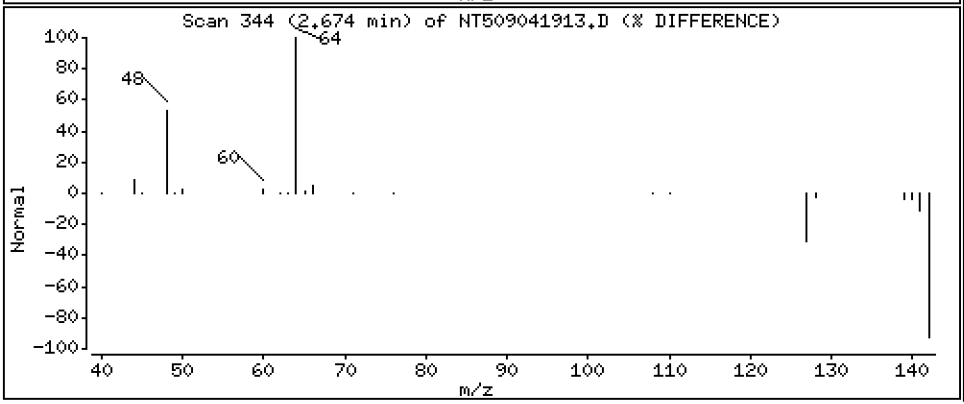
10 Iodomethane

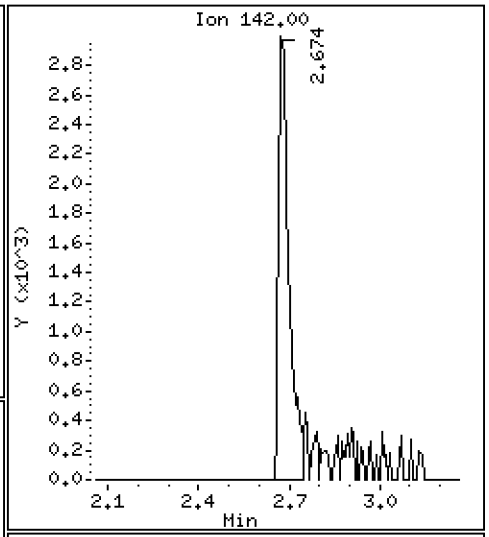
Concentration: 2.668 ug/Kg

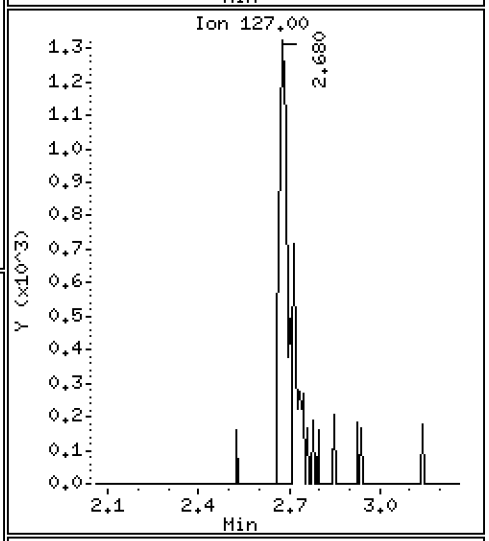


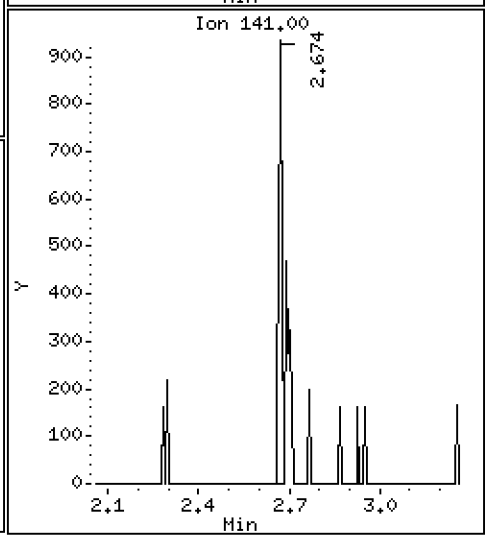












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

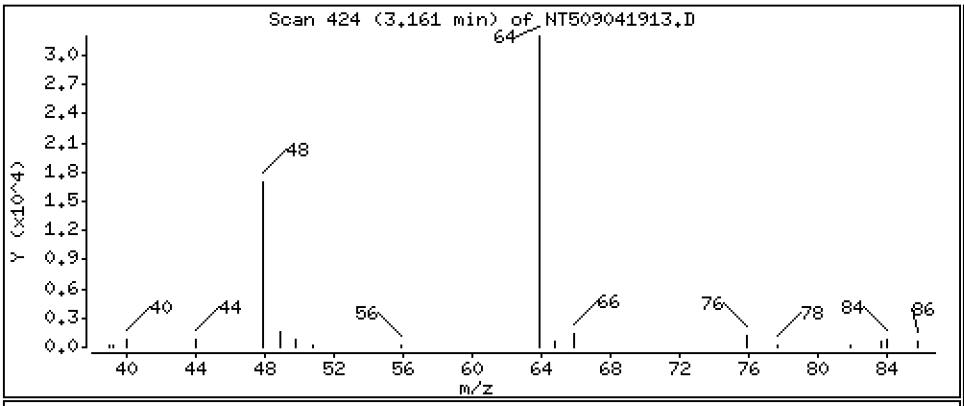
Operator: PB

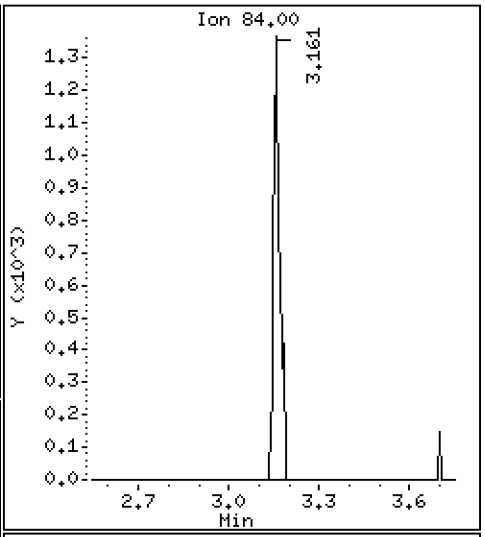
Column phase: RTXVMS

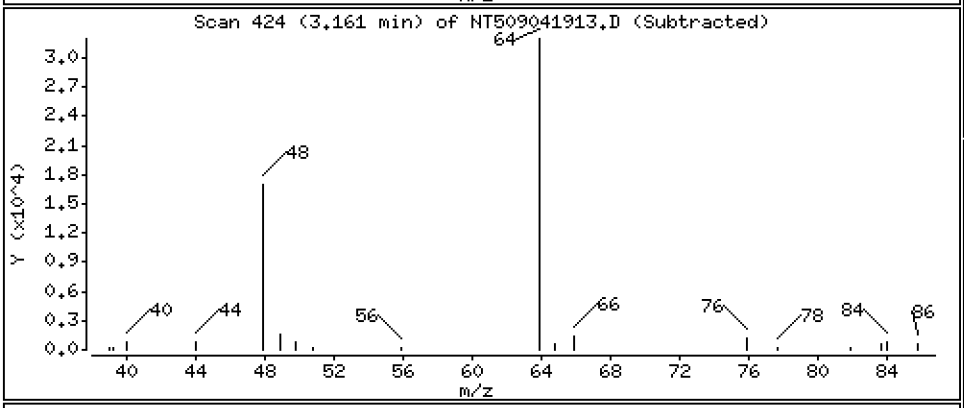
Column diameter: 0.18

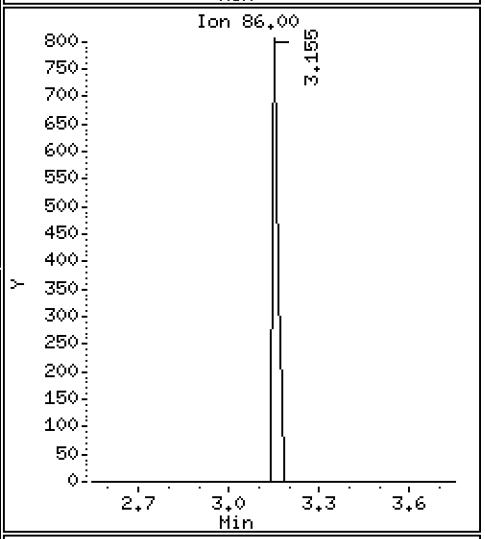
13 Methylene Chloride

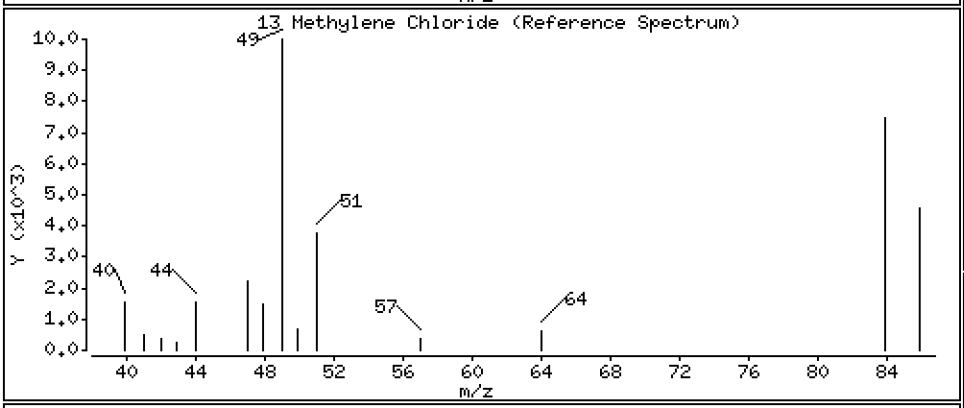
Concentration: 0.9216 ug/Kg

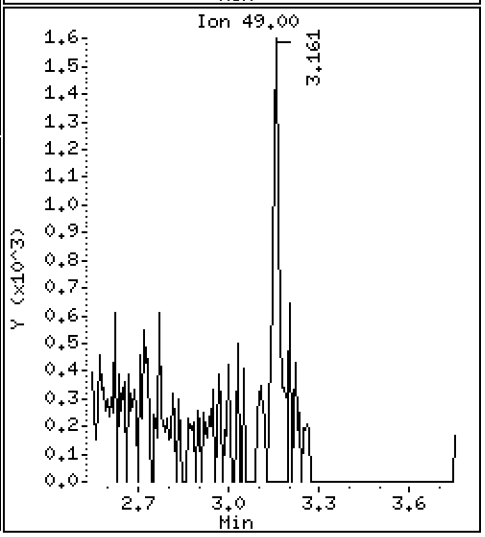


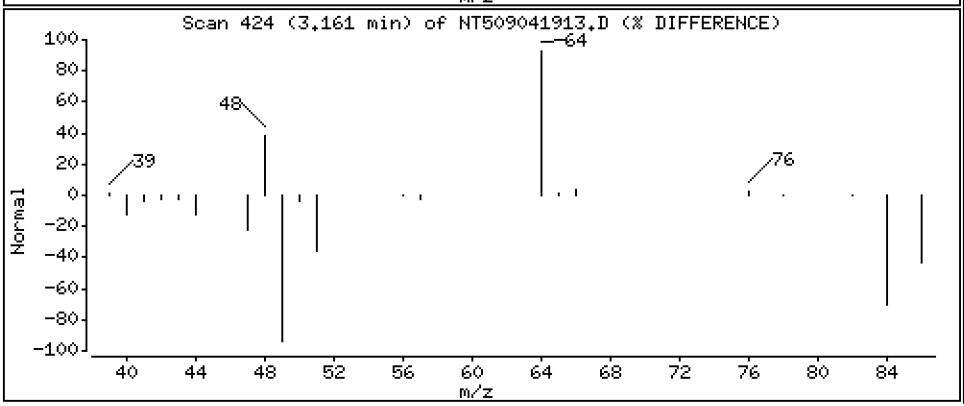












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

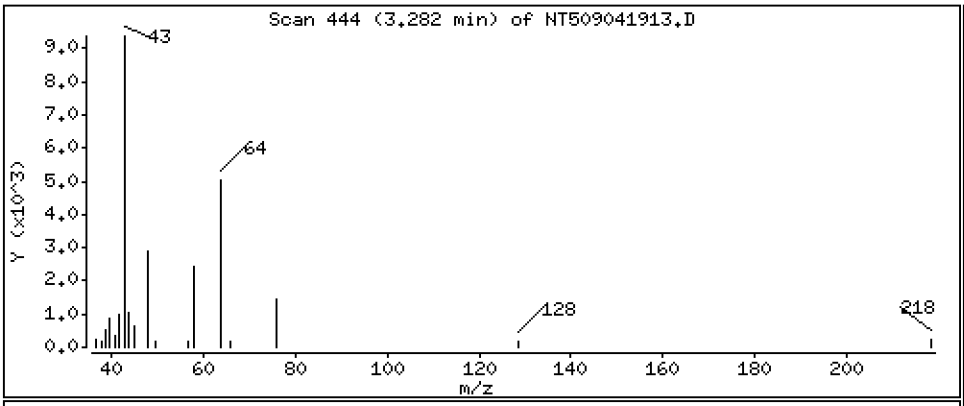
Operator: PB

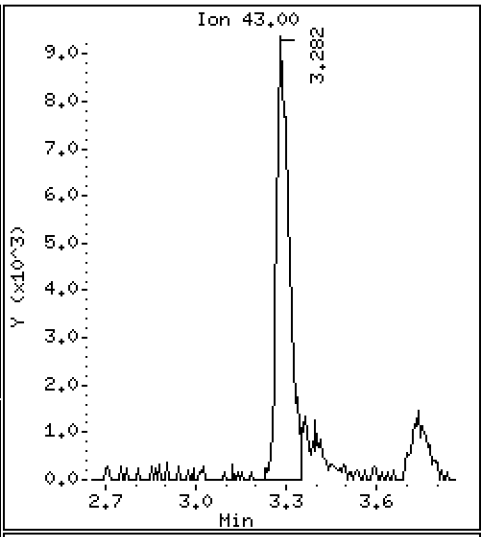
Column phase: RTXVMS

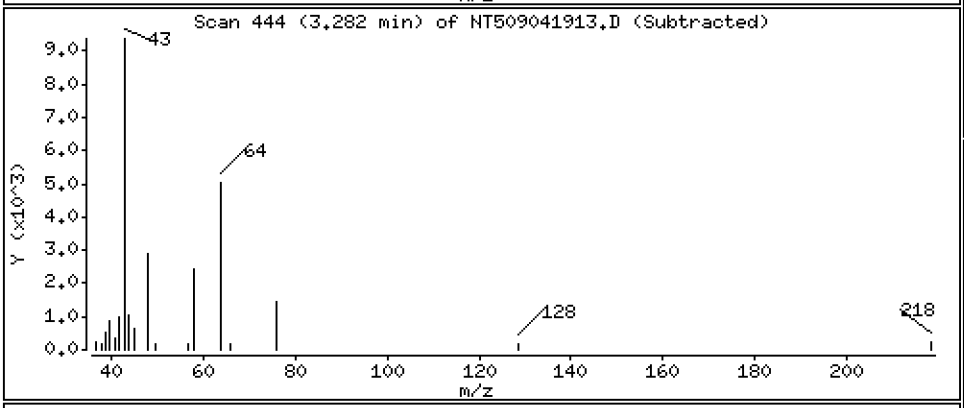
Column diameter: 0.18

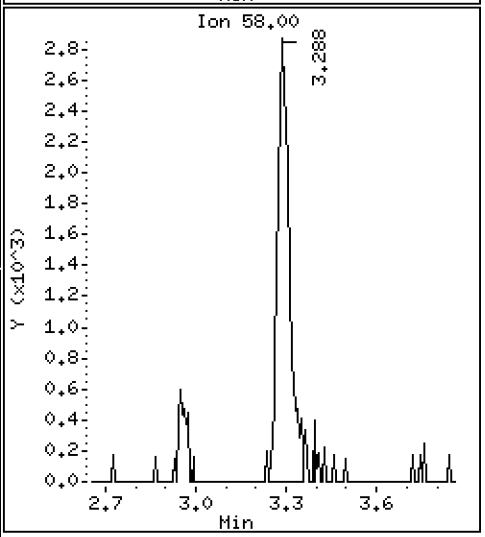
14 Acetone

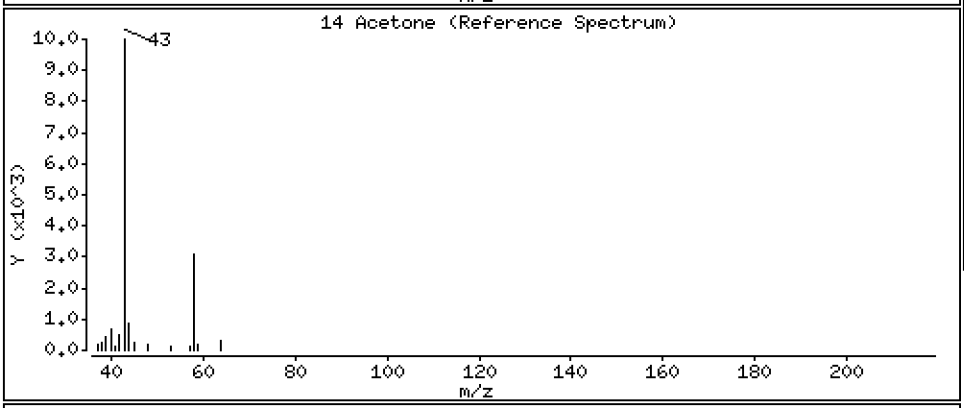
Concentration: 55.934 ug/Kg

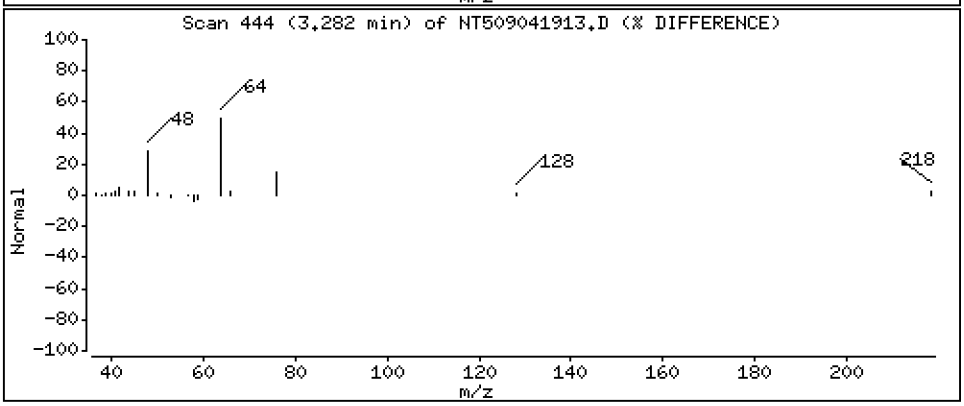












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

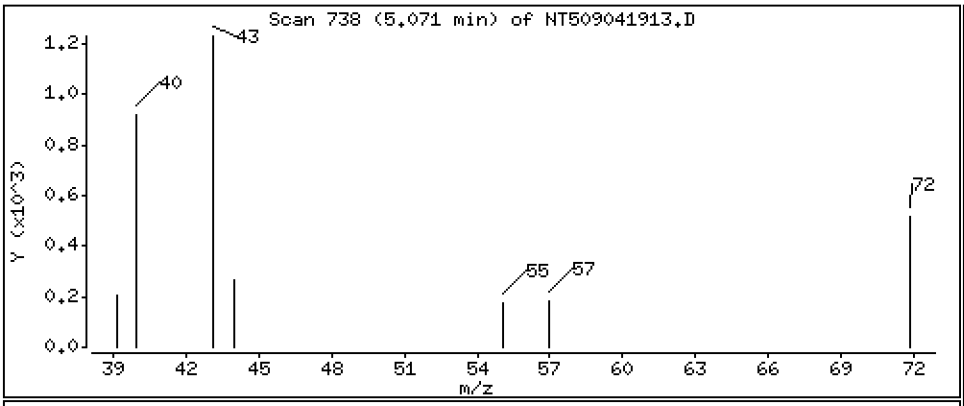
Operator: PB

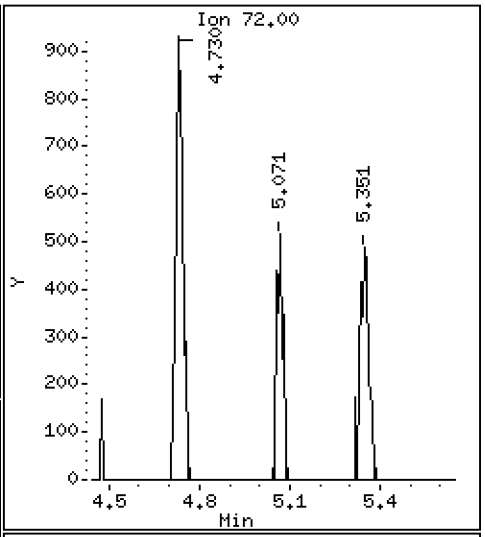
Column phase: RTXVMS

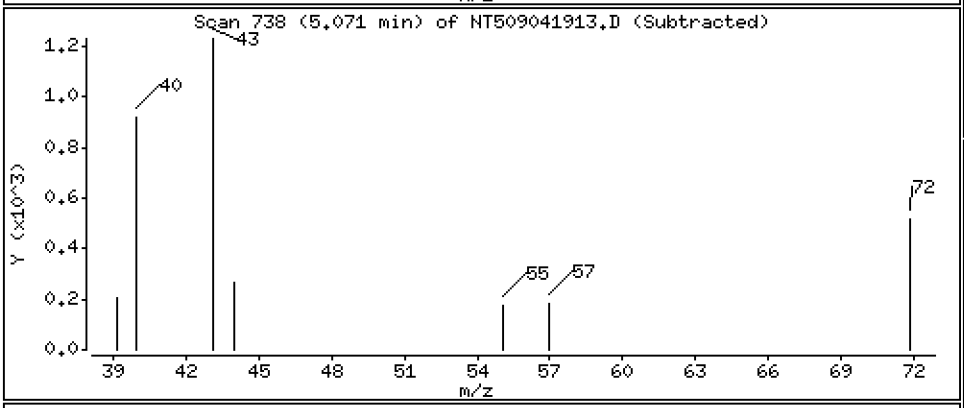
Column diameter: 0.18

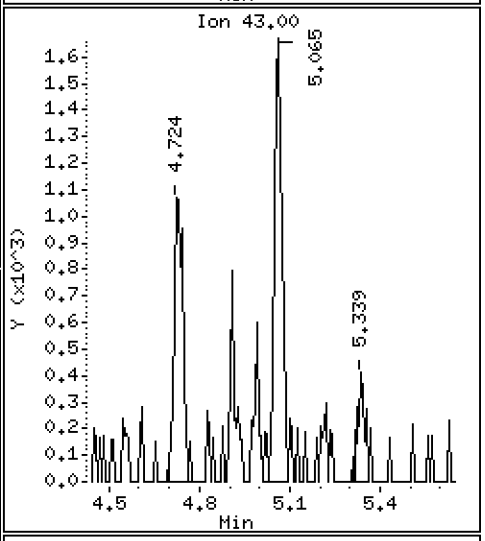
29 2-Butanone

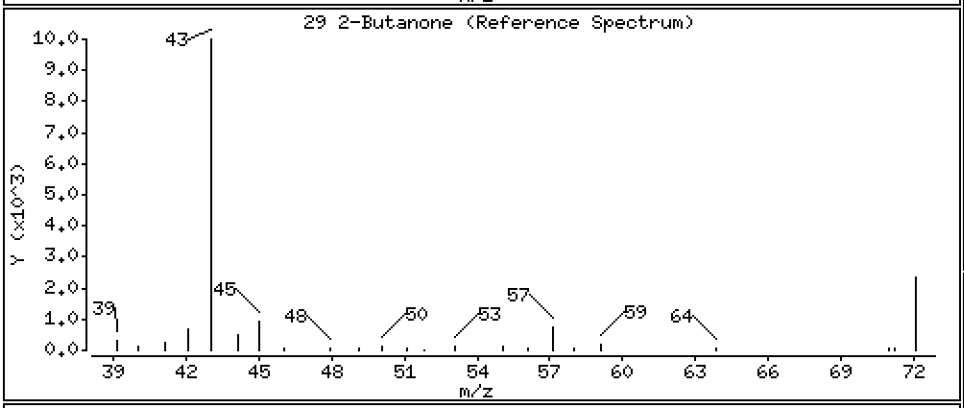
Concentration: 2.842 ug/Kg

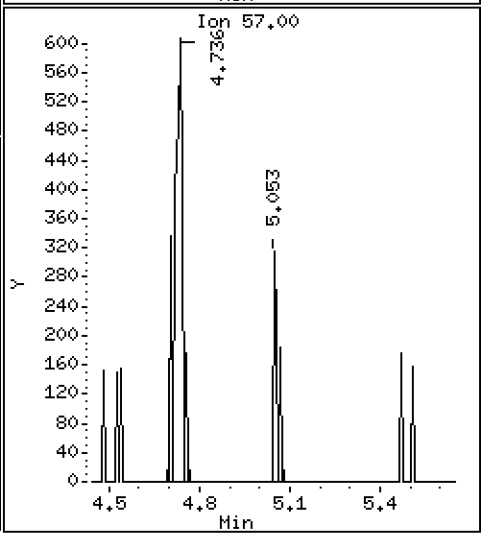


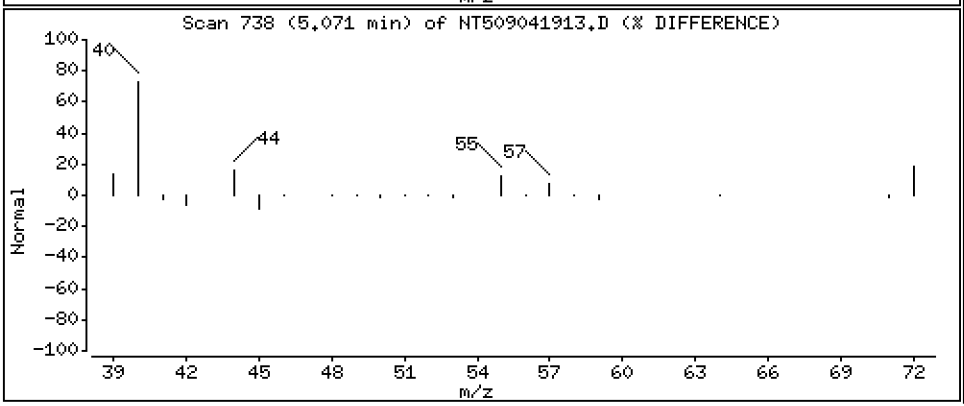












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041913.D

Date : 04-SEP-2019 19:04

Client ID:

Instrument: nt5.i

Sample Info: 19H0481-34

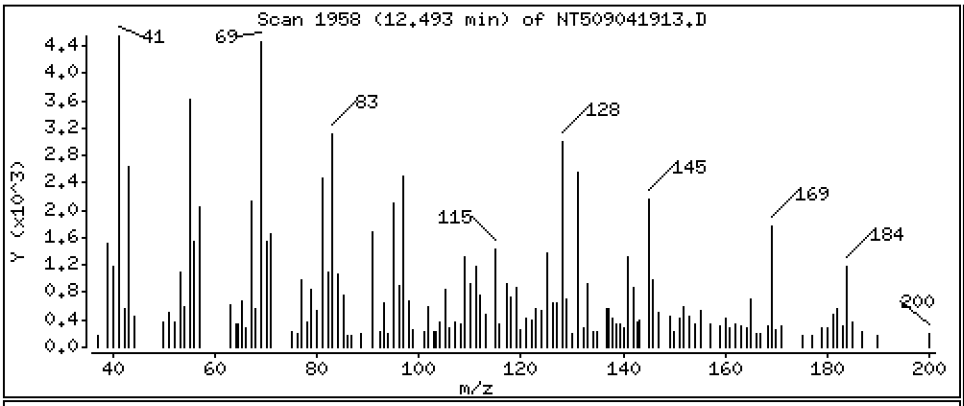
Operator: PB

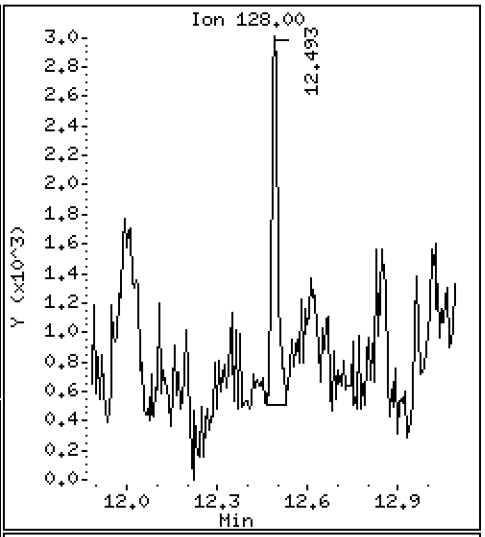
Column phase: RTXVMS

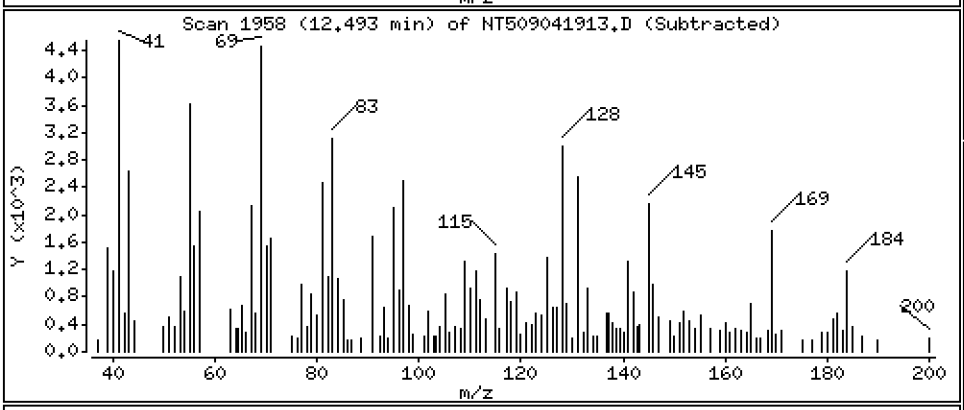
Column diameter: 0.18

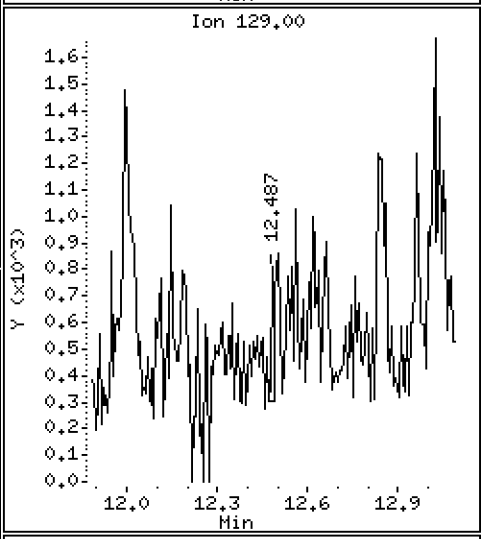
84 Naphthalene

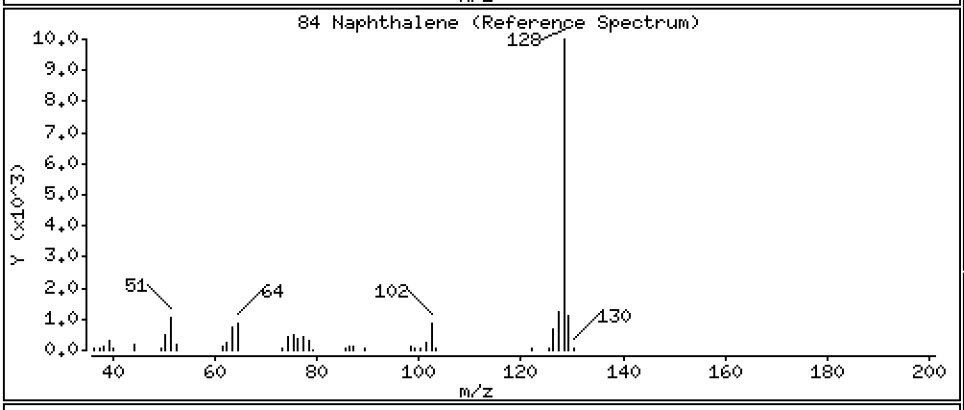
Concentration: 0.4225 ug/Kg

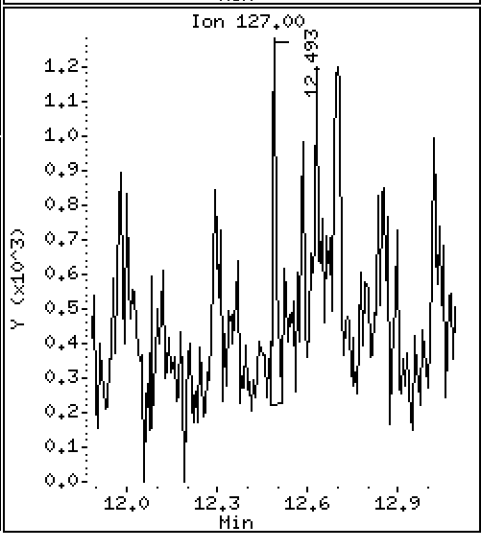


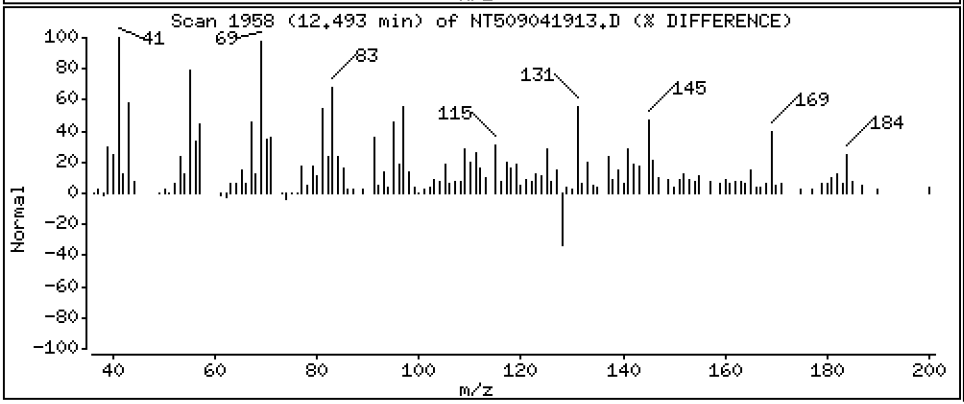












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041913.D
Lab Smp Id: 19H0481-34
Inj Date : 04-SEP-2019 19:04
Operator : PB Inst ID: nt5.i
Smp Info : 19H0481-34
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	2.546	2.540	(0.477)	12259	1.60054	1.601
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	2.673	2.661	(0.501)	7327	2.66776	2.668
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.592)	2080	0.92156	0.9216
	14 Acetone	43	3.282	3.257	(0.615)	27322	55.9340	55.934
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.918)	302939	68.9426	68.943(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	5.070	5.046	(0.950)	694	2.84191	2.842
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.338	5.332	(1.000)	357785	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.350	(1.005)	295170	68.5644	68.564(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	840187	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1063472	51.2496	51.250(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	797396	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	335054	48.4692	48.469(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	388296	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	399086	54.8560	54.856(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	83	1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	84	Naphthalene	128	12.492	12.486	(1.207)	4154	0.42253	0.4225
	85	1,2,3-Trichlorobenzene	180	Compound Not Detected.					

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041913.D
Lab Smp Id: 19H0481-34
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	357785	-21.88
35 1,4-Difluorobenze	852165	426083	1704330	840187	-1.41
52 d5-Chlorobenzene	803678	401839	1607356	797396	-0.78
76 d4-1,4-Dichlorobe	439766	219883	879532	388296	-11.70

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.12
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 05-Sep-2019 13:07

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19H0481-34
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	68.943	137.89	
$ 32 d4-1,2-Dichloroeth	50.000	68.564	137.13	
$ 42 d8-Toluene	50.000	51.250	102.50	
$ 62 4-Bromofluorobenze	50.000	48.469	96.94	
$ 79 d4-1,2-Dichloroben	50.000	54.856	109.71	

REVIEW SUMMARY FOR FILE - NT509041913.D

Lab ID: 19H0481-34
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 19:04

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

PREPARATION BATCH SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0056
Batch Matrix: Solid
Preparation: EPA 5035 (Sodium Bisulfate)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-4.5'-083019	19H0481-06	NT509031919.D	09/03/19 15:33	
P40-UST-01-9'-083019	19H0481-08	NT509031920.D	09/03/19 15:33	
P40-UST-02-4.5'-083019	19H0481-12	NT509031921.D	09/03/19 15:33	
P40-UST-02-9'-083019	19H0481-14	NT509031922.D	09/03/19 15:33	
P40-UST-03-4.5'-083019	19H0481-18	NT509031923.D	09/03/19 15:33	
Blank	BHI0056-BLK1	NT509031904.D	09/03/19 07:33	
LCS	BHI0056-BS1	NT509031902A.D	09/03/19 07:33	
LCS Dup	BHI0056-BSD1	NT509031903.D	09/03/19 07:33	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s) | Element Batch(es): B1H0056/0057/0058 | Prep/Extraction Date: 9/3/19 | Analyst: [illegible]

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	19H0393-01	B					5.38	5	100/5	5	1/20/1000
2	19H0394-01	B					5.11	5	100/5	5	1/20/1000
3	19H0460-01	B					1.93				
4	↓	B					5.39	5	100	5	1/20
5	19H0461-01	A					5.87				
6	02	A					5.59				
7	03	A					5.56				
8	04	A					5.83				
9	05	A					5.99				
10	19H0462-01	A					5.98				
11	02	A					5.12				
12	19H0481-06	C	1+5741		39.90	35.51	4.39				
13	08	C			40.13	35.72	4.41				
14	12	C			39.62	35.75	3.87				
15	14	C			39.78	35.63	4.15				
	18	C		Balance ID: SLF302	36.85	33.19	3.66				
	20	C			35.39	35.34	4.05				

359 of 3434

PREPARATION BATCH SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0097
Batch Matrix: Solid
Preparation: EPA 5035 (Sodium Bisulfate)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-04-4.5'-083019	19H0481-24	NT509041909.D	09/04/19 15:53	
P40-UST-04-14.5'-083019	19H0481-26	NT509041910.D	09/04/19 15:53	
P40-UST-05-4.5'-083019	19H0481-30	NT509041911.D	09/04/19 15:53	
P40-UST-505-4.5'-083019	19H0481-32	NT509041912.D	09/04/19 15:53	
P40-UST-05-11'-083019	19H0481-34	NT509041913.D	09/04/19 15:53	
Blank	BHI0097-BLK1	NT509041905.D	09/04/19 07:53	
LCS	BHI0097-BS1	NT509041903A.D	09/04/19 07:53	
LCS Dup	BHI0097-BSD1	NT509041904.D	09/04/19 07:53	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s) | Element Batch(es): SHI0097/0098 | Prep/Extraction Date: 9/4/19 | Analyst: B

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	19I0001-01	C	HS741		40.94	35.80	5.14				
2	02	C	↓		40.84	35.32	5.52				
3	03	E	↓		41.21	35.25	5.96				
4	19I0461-24	C			39.31	35.75	3.56				
5	26	C			40.37	35.92	4.45				
6	30	X			39.18	35.62	3.56				
7	32	C			38.71	35.86	2.85				
8	34	C	↓		39.64	36.16	3.48				
9	20	E		DU187	32.70	28.600	4.100				
10	19I0001-03MS	G	HS741		41.12	35.78	5.34				
11	03MSD	P	↓		40.42	35.62	4.80				
12											
13											
14											
15											

Balance ID: SLF302

8043F – VOA Extraction Log

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BENCH SHEET

BHI0097

Printed: 9/5/2019 1:00:47PM

Matrix: Solid **Prepared using: Volatiles - EPA 5035 (Sodium Bisulfate)** **Surrogate used: H006534**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-24 C	8260C VOA	09/04/19@15:53	3.56	5				1	94.94	
19H0481-26 C	8260C VOA	09/04/19@15:53	4.45	5				1	74.69	
19H0481-30 D	8260C VOA	09/04/19@15:53	3.56	5				1	94.96	
19H0481-32 C	8260C VOA	09/04/19@15:53	2.85	5				1	95.05	
19H0481-34 C	8260C VOA	09/04/19@15:53	3.48	5				1	72.37	
19I0001-01 C	8260C VOA	09/04/19@15:53	5.14	5				1	85.87	
19I0001-02 C	8260C VOA	09/04/19@15:53	5.52	5				1	84.86	
19I0001-03 E	8260C VOA	09/04/19@15:53	5.96	5				1	85.78	
BHI0097-BLK1	QC	09/04/19@07:53	5	5				1		
BHI0097-BS1	QC	09/04/19@07:53	5	5	H008158		12.5	1		
BHI0097-BSD1	QC	09/04/19@07:53	5	5	H008158		12.5	1		
BHI0097-MS1	QC	09/04/19@07:53	5.34	5	H008158	19I0001-03	12.5	1		
BHI0097-MSD1	QC	09/04/19@07:53	4.8	5	H008158	19I0001-03	12.5	1		

Reagents:

Reagent ID Reagent

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BATCH SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0098 Batch Matrix: Solid
Preparation: EPA 5035 (Methanol Extraction)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-03-8'-083019	19H0481-20	NT509041914.D	09/04/19 07:00	
Blank	BHI0098-BLK1	NT509041905A.D	09/04/19 07:54	
LCS	BHI0098-BS1	NT509041903B.D	09/04/19 07:54	
LCS Dup	BHI0098-BSD1	NT509041904A.D	09/04/19 07:54	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet
(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s) | Element Batch(es): SHI0897/0998 | Prep/Extraction Date: 9/4/19 | Analyst: B

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	195001-01	C	HS741		40.94	35.80	5.14				
2	02	C	↓		40.84	35.32	5.52				
3	03	E	↓		41.21	35.25	5.96				
4	195461-24	C			39.31	35.75	3.56				
5	26	C			40.37	35.92	4.45				
6	30	X			39.18	35.62	3.56				
7	32	C			38.71	35.86	2.85				
8	34	C	↓		39.64	36.16	3.48				
9	20	E		DU187	32.70	28.600	4.100				
10	195001-03MSG	G	HS741		41.12	35.78	5.34				
11	03MSD	P	↓		40.42	35.62	4.80				
12											
13											
14											
15											

Balance ID: SLF302

PREPARATION BENCH SHEET

BHI0098

Printed: 9/5/2019 1:01:06PM

Matrix: Solid **epared using: Volatiles - EPA 5035 (Methanol Extractio** **Surrogate used: H006669**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-20 E	8260C VOA Solid (Me	09/05/19@13:00	4.1	5				100	68.73	
BHI0098-BLK1	QC	09/04/19@07:54	5	5				100		
BHI0098-BS1	QC	09/04/19@07:54	5	5	H008158		625	100		
BHI0098-BSD1	QC	09/04/19@07:54	5	5	H008158		625	100		

From BHH0597 on 8/22/2019 by PAB

Reagents:

Reagent ID	Reagent

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BATCH SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0133 Batch Matrix: Water Preparation: EPA 5030 (Purge and Trap)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-083019	19H0481-01	V309051919.D	09/05/19 13:58	
P40-UST-101-083019	19H0481-03	V309051920.D	09/05/19 13:58	
P40-UST-TB-083019	19H0481-05	V309051910.D	09/05/19 13:58	
P40-UST-02-083019	19H0481-10	V309051921.D	09/05/19 13:58	
P40-UST-03-083019	19H0481-16	V309051922.D	09/05/19 13:58	
P40-UST-04-083019	19H0481-22	V309051923.D	09/05/19 13:58	
P40-UST-05-083019	19H0481-28	V309051924.D	09/05/19 13:58	
Blank	BHI0133-BLK1	V309051908.D	09/05/19 07:58	
LCS	BHI0133-BS1	V309051904LCS.D	09/05/19 07:58	
LCS Dup	BHI0133-BSD1	V309051905.D	09/05/19 07:58	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BENCH SHEET

BHI0133

Printed: 9/6/2019 1:09:06PM

Matrix: Water **Prepared using: Volatiles - EPA 5030 (Purge and Trap)** **Surrogate used: H007835**

Lab Number	Analysis	Prepared	Initial (mL)	Final (ml)	Spike ID	Source ID	ul Spike	ul Surrogate	pH	Extraction Comments
19H0426-04 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-05 F	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-07 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-08 B	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-04 A	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-04 A	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-05 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-05 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-06 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-06 C	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-07 C	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-07 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-01 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-01 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-03 E	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-03 E	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-05 B	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-05 B	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-10 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-10 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-16 E	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-16 E	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	

36 of 3434

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BENCH SHEET

BHI0133

Printed: 9/6/2019 1:09:06PM

Matrix: Water **Prepared using: Volatiles - EPA 5030 (Purge and Trap)** **Surrogate used: H007835**

Lab Number	Analysis	Prepared	Initial (mL)	Final (ml)	Spike ID	Source ID	ul Spike	ul Surrogate	pH	Extraction Comments
19H0481-22 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-22 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-28 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-28 D	8260C VOA	09/05/19@13:58	10	10				1	2	
BHI0133-BLK1	QC	09/05/19@07:58	10	10				1		
BHI0133-BLK2	QC	09/05/19@07:58	10	10				1		
BHI0133-BS1	QC	09/05/19@07:58	10	10	H008567		5	1		
BHI0133-BS2	QC	09/05/19@07:58	10	10	H008262		2	1		
BHI0133-BSD1	QC	09/05/19@07:58	10	10	H008567		5	1		
BHI0133-BSD2	QC	09/05/19@07:58	10	10	H008262		2	1		

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

Form I

METHOD BLANK DATA SHEET

EPA 8260C

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0056-BLK1	File ID:	NT509031904.D
Sampled:	N/A	Prepared:	09/03/19 07:33	Analyzed:	09/03/19 13:48
Solids:		Preparation:	EPA 5035 (Sodium Bisulfate	Initial/Final:	5 g / 5 mL
Batch:	BHI0056	Sequence:	SHI0046	Calibration:	CH00068
Instrument:	NT5	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
71-43-2	Benzene	1	1.00	U	0.30	1.00
108-88-3	Toluene	1	1.00	U	0.15	1.00
100-41-4	Ethylbenzene	1	1.00	U	0.20	1.00
179601-23-1	m,p-Xylene	1	2.00	U	0.39	2.00
95-47-6	o-Xylene	1	1.00	U	0.22	1.00

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	52.5	105	77 - 120	
4-Bromofluorobenzene	50.000	51.8	104	80 - 120	

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Date : 03-SEP-2019 13:48

Client ID:

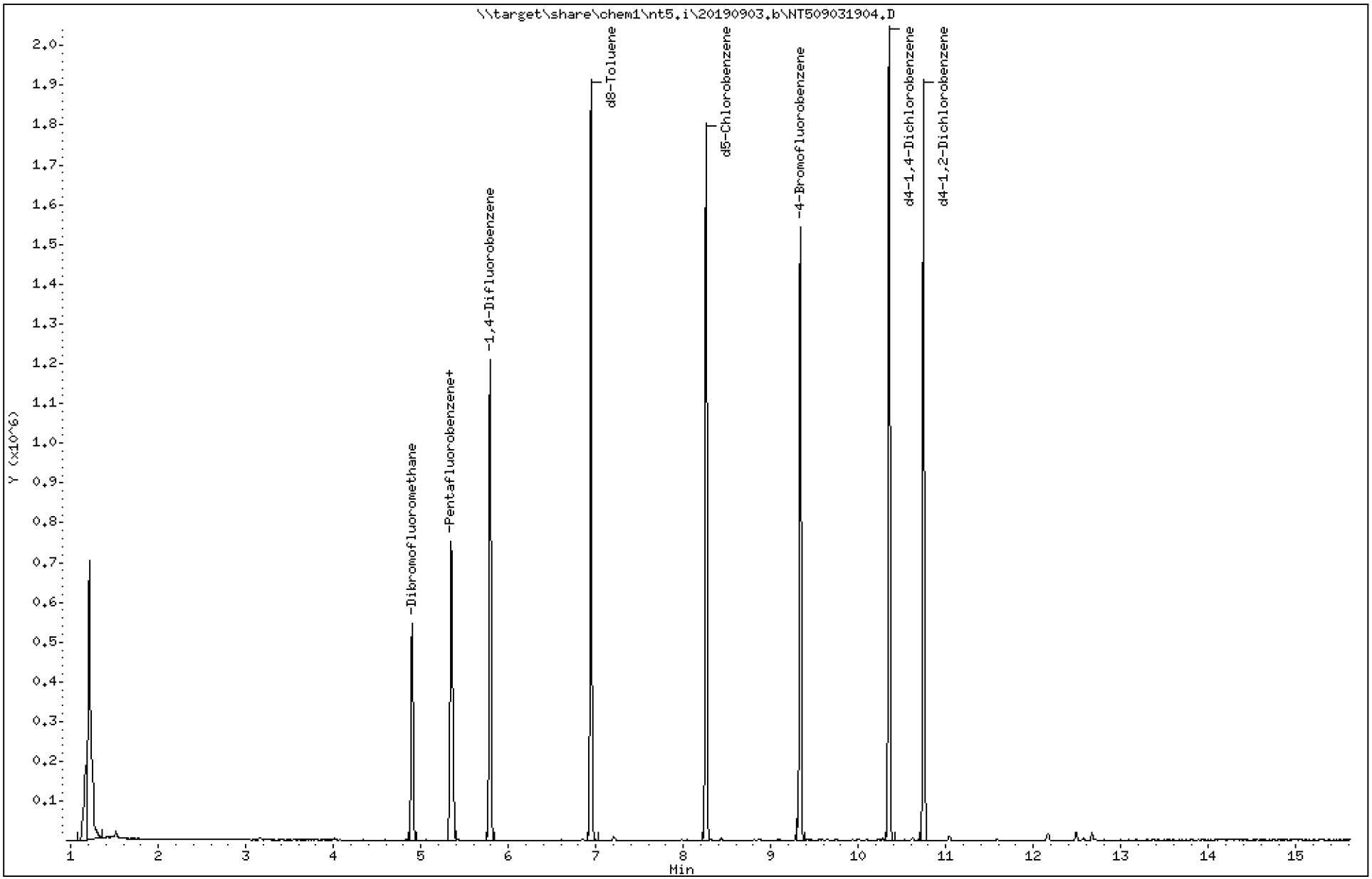
Instrument: nt5.i

Sample Info: BLK1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



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Date : 03-SEP-2019 13:48

Client ID:

Instrument: nt5.i

Sample Info: BLK1

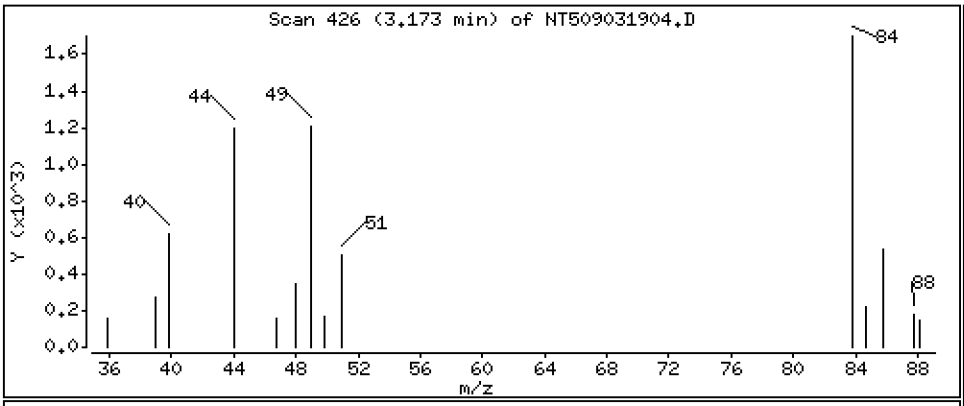
Operator: PB

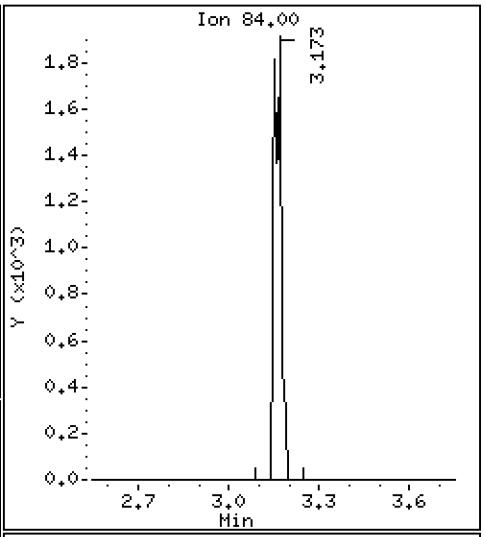
Column phase: RTXVMS

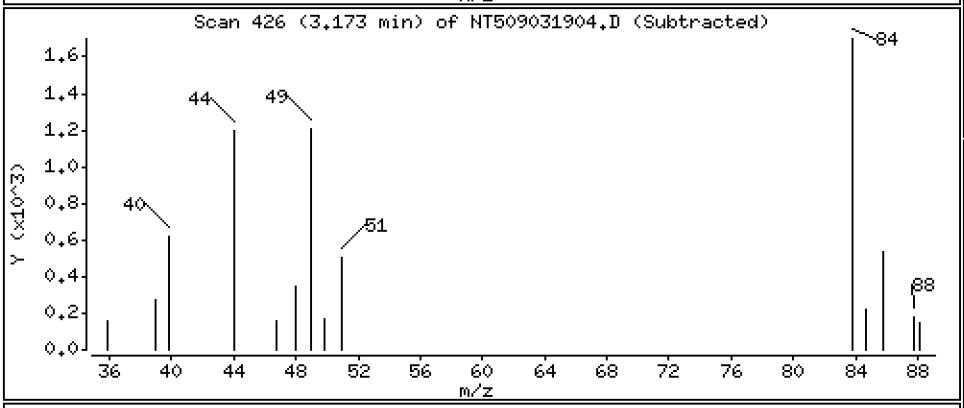
Column diameter: 0.18

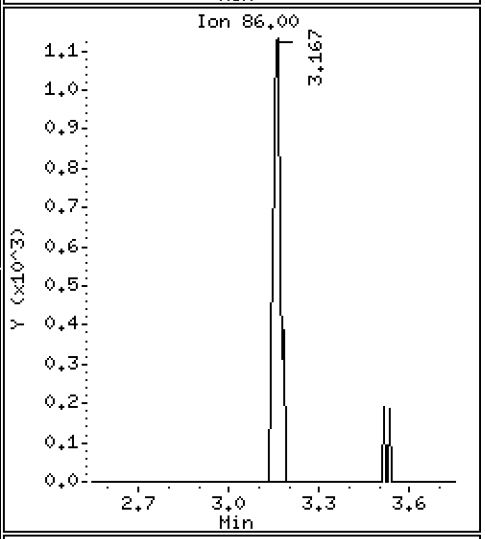
13 Methylene Chloride

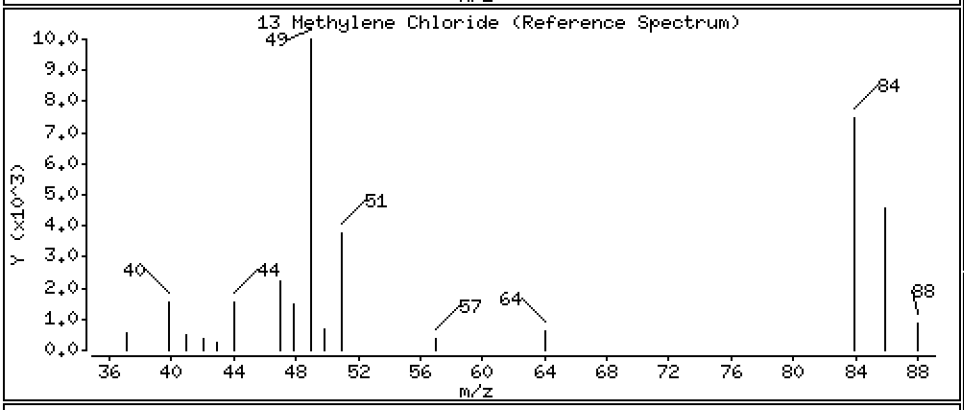
Concentration: 1.550 ug/Kg

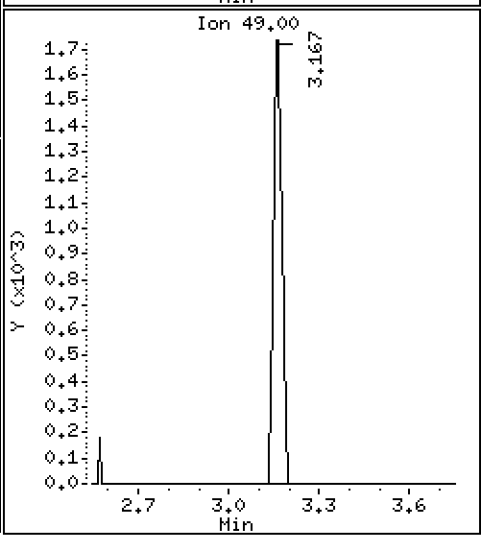


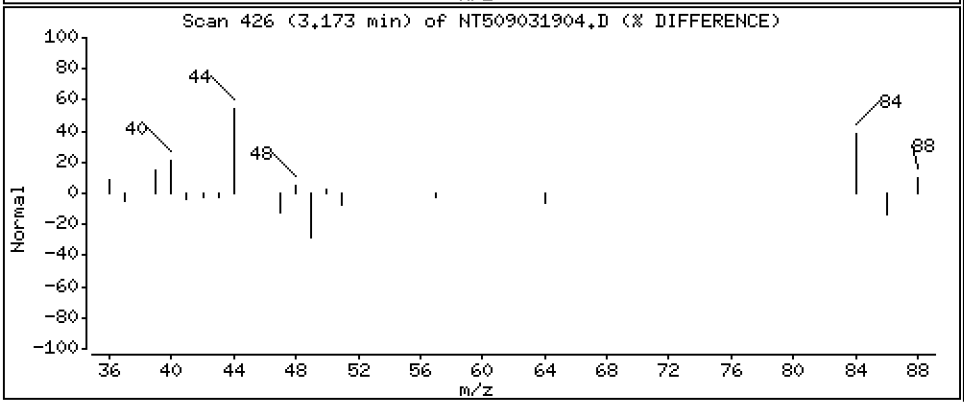












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Date : 03-SEP-2019 13:48

Client ID:

Instrument: nt5.i

Sample Info: BLK1

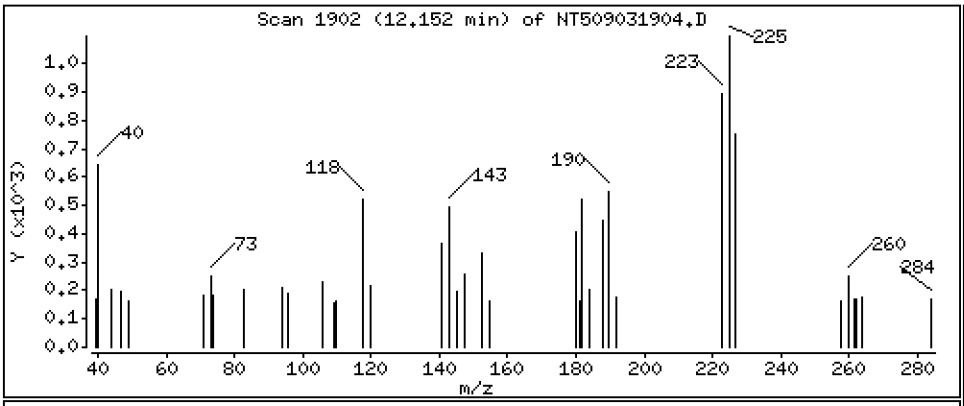
Operator: PB

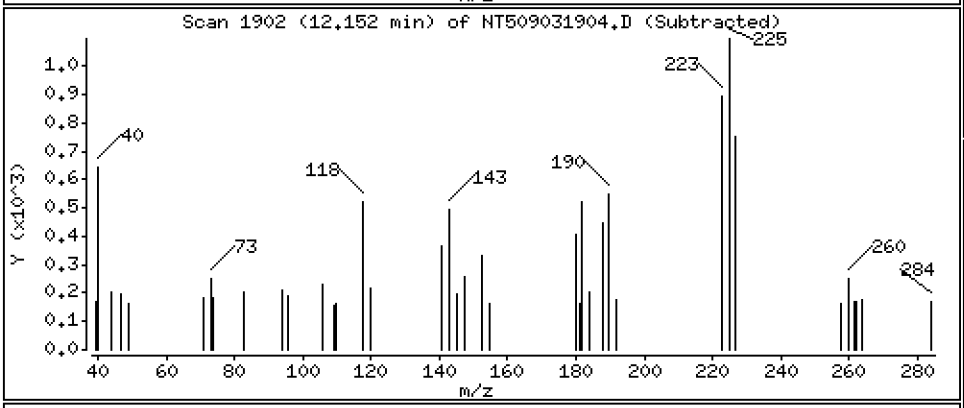
Column phase: RTXVMS

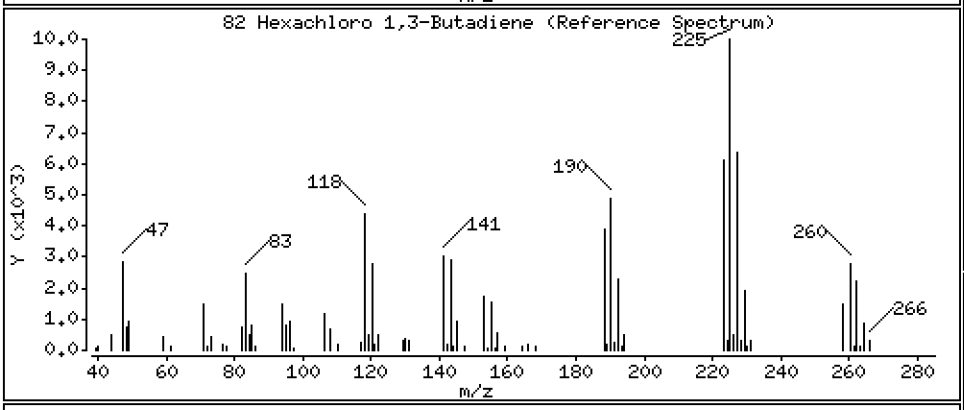
Column diameter: 0.18

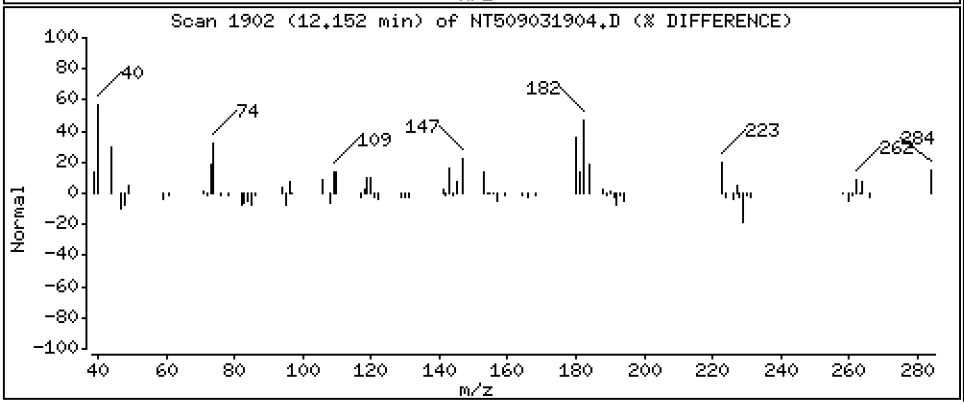
82 Hexachloro 1,3-Butadiene

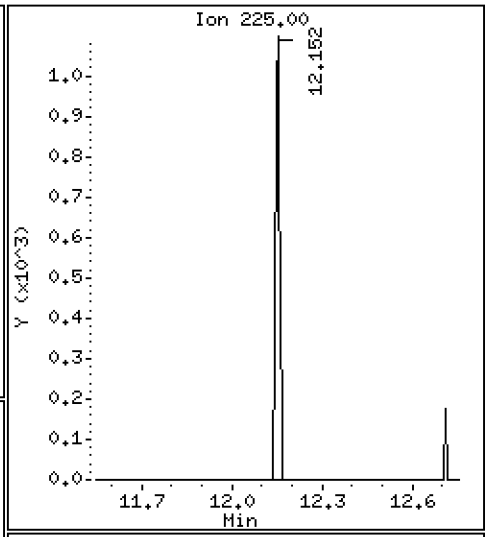
Concentration: 0.3983 ug/Kg

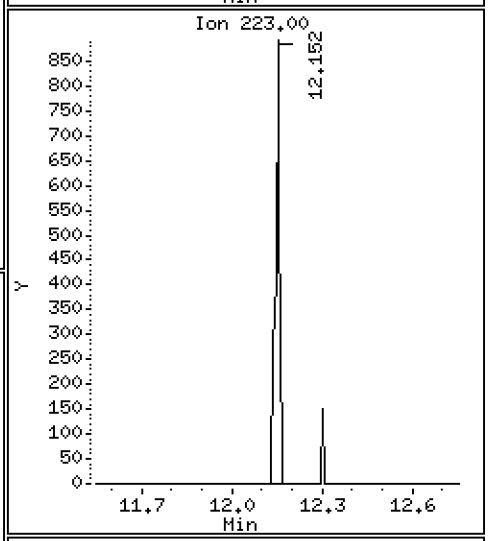


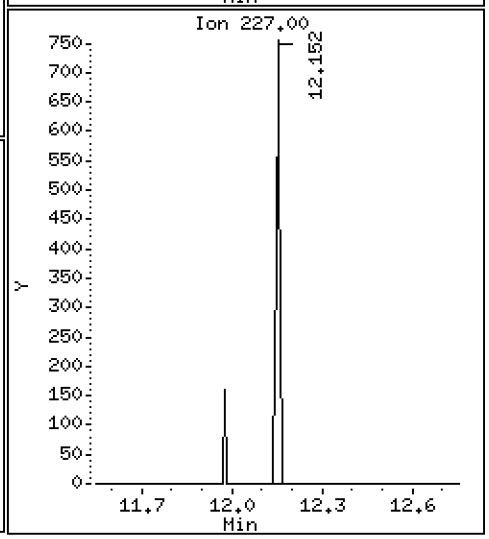












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Date : 03-SEP-2019 13:48

Client ID:

Instrument: nt5.i

Sample Info: BLK1

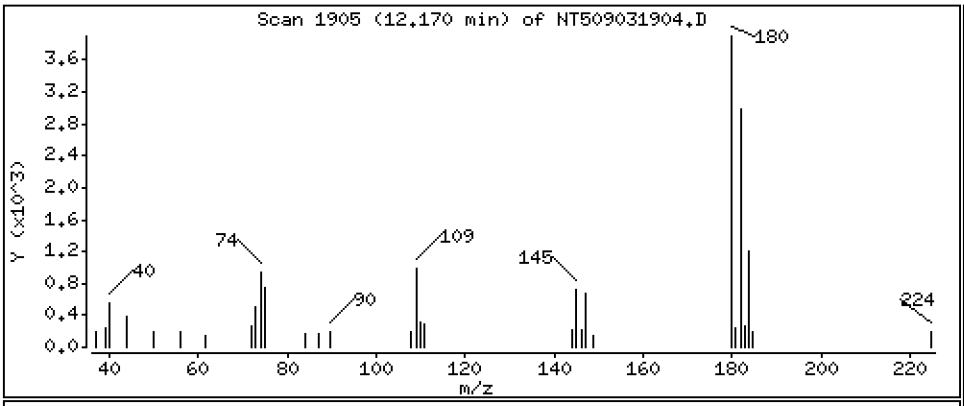
Operator: PB

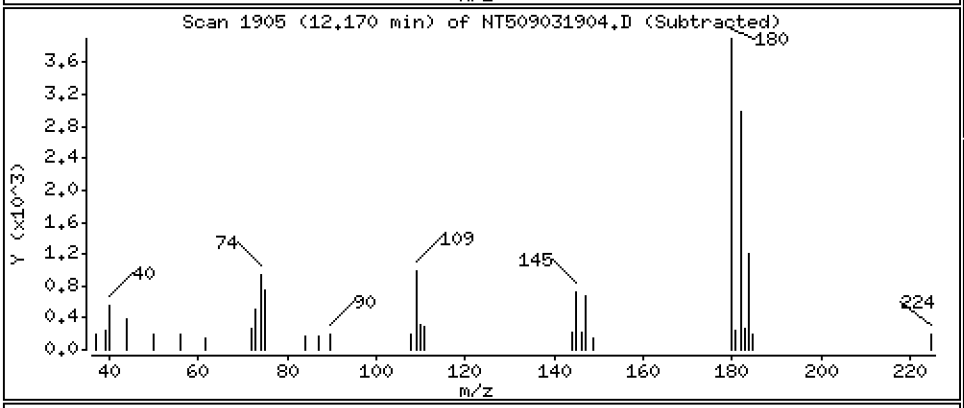
Column phase: RTXVMS

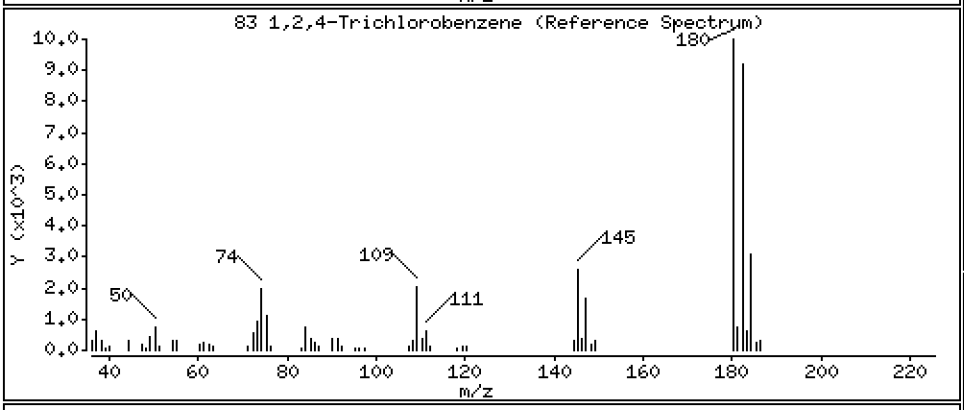
Column diameter: 0.18

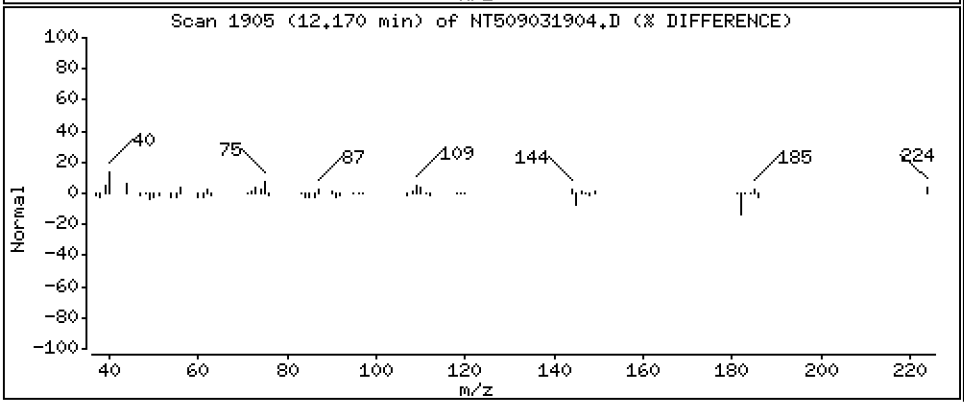
83 1,2,4-Trichlorobenzene

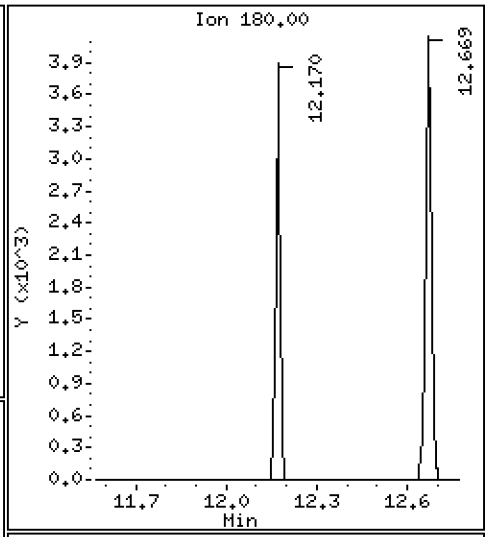
Concentration: 0.8037 ug/Kg

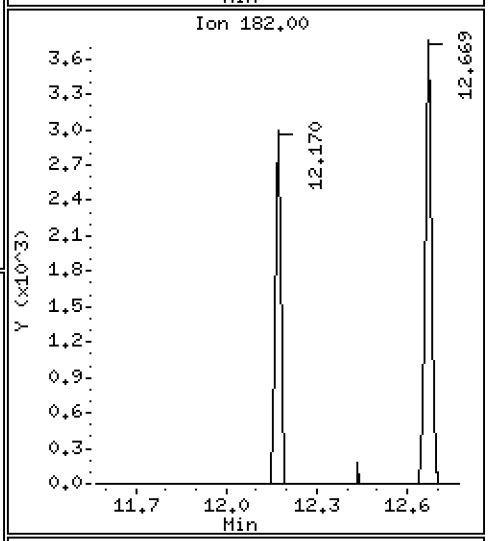


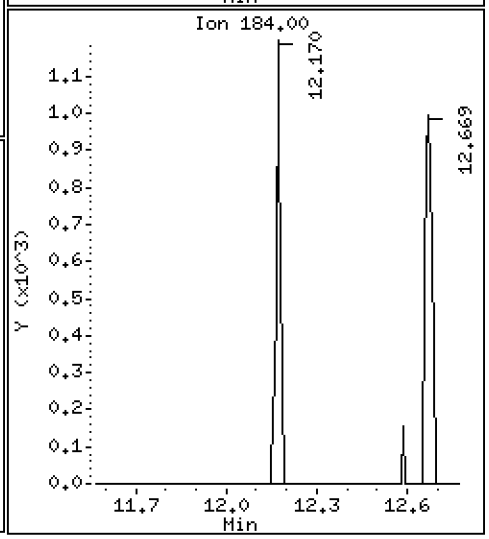












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Date : 03-SEP-2019 13:48

Client ID:

Instrument: nt5.i

Sample Info: BLK1

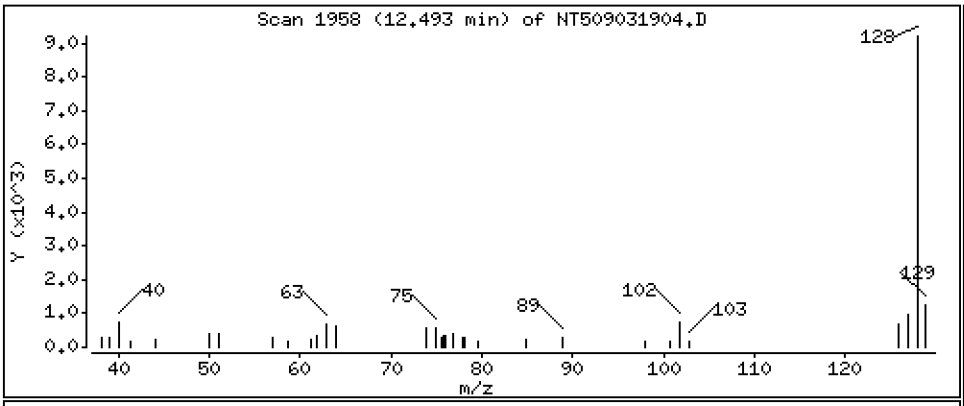
Operator: PB

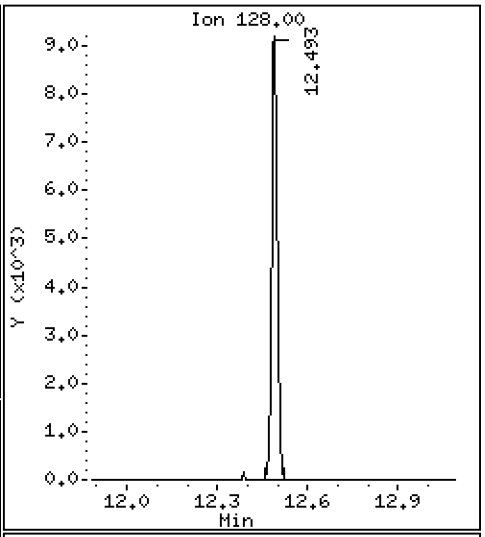
Column phase: RTXVMS

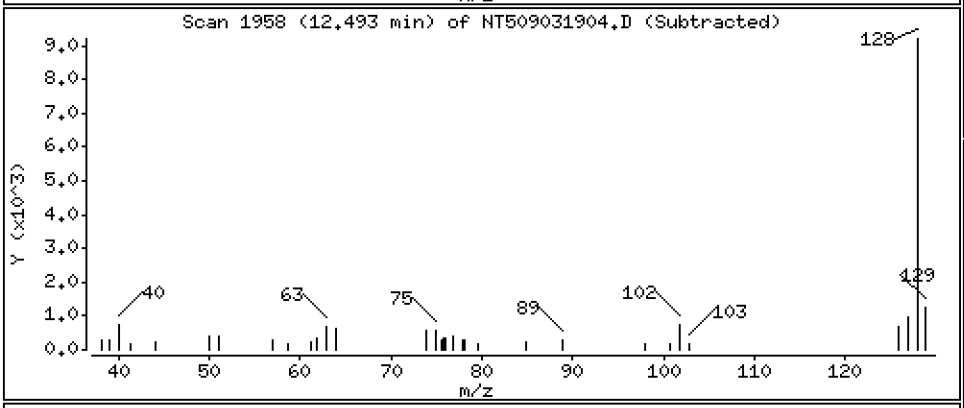
Column diameter: 0.18

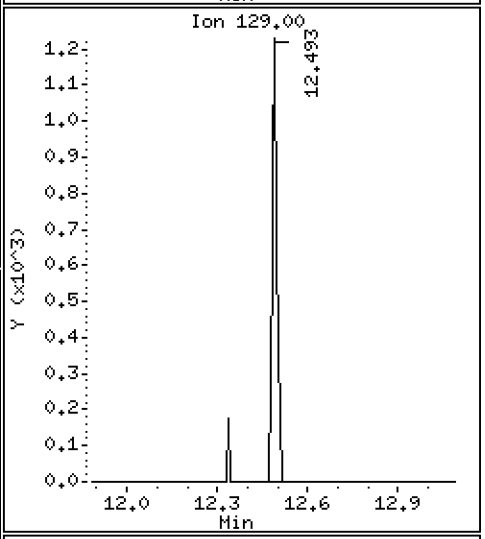
84 Naphthalene

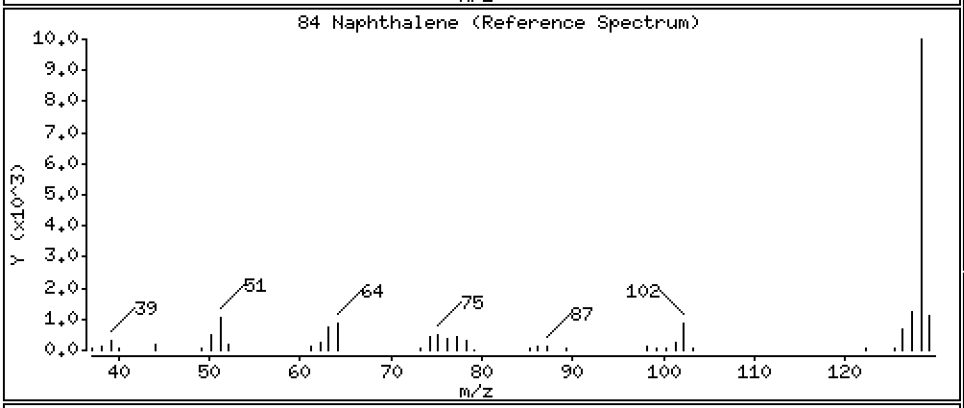
Concentration: 1.193 ug/Kg

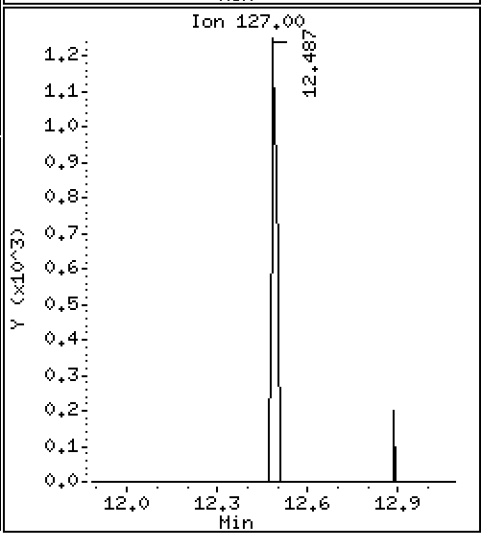


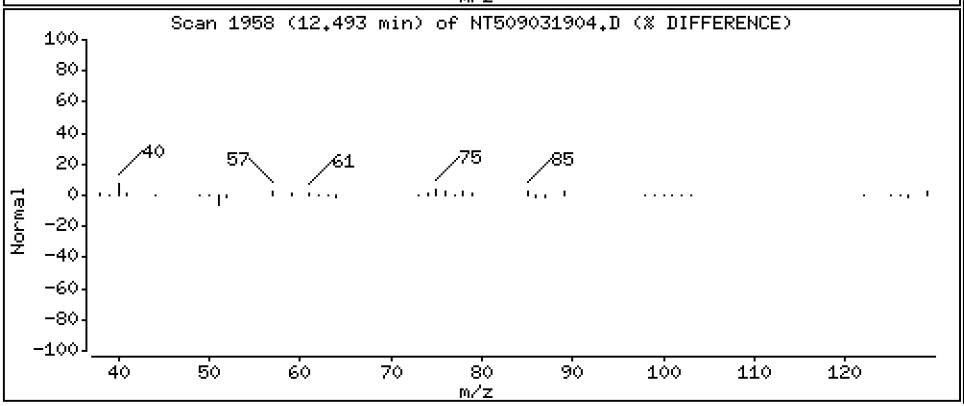












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031904.D

Date : 03-SEP-2019 13:48

Client ID:

Instrument: nt5.i

Sample Info: BLK1

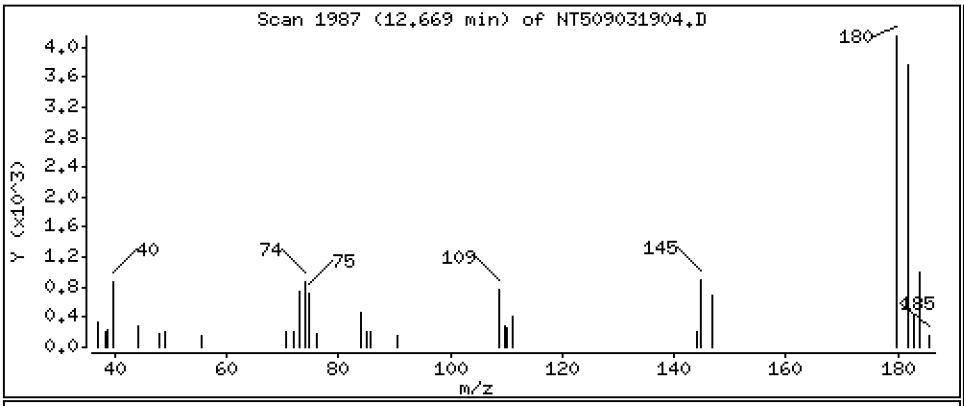
Operator: PB

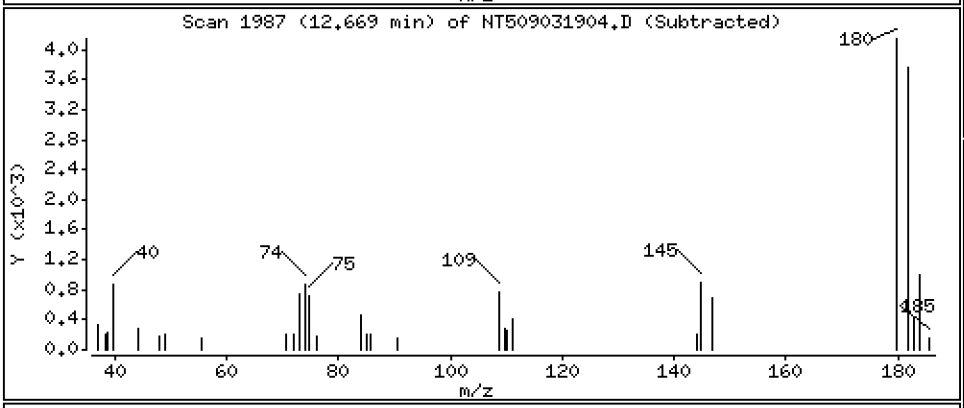
Column phase: RTXVMS

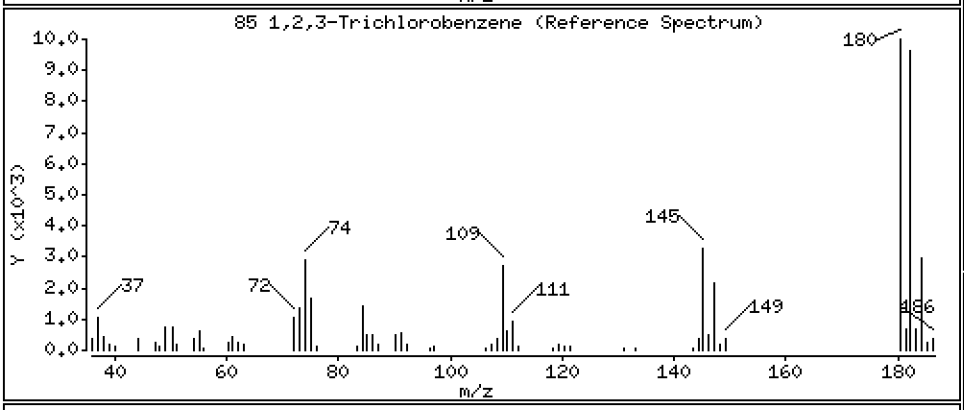
Column diameter: 0.18

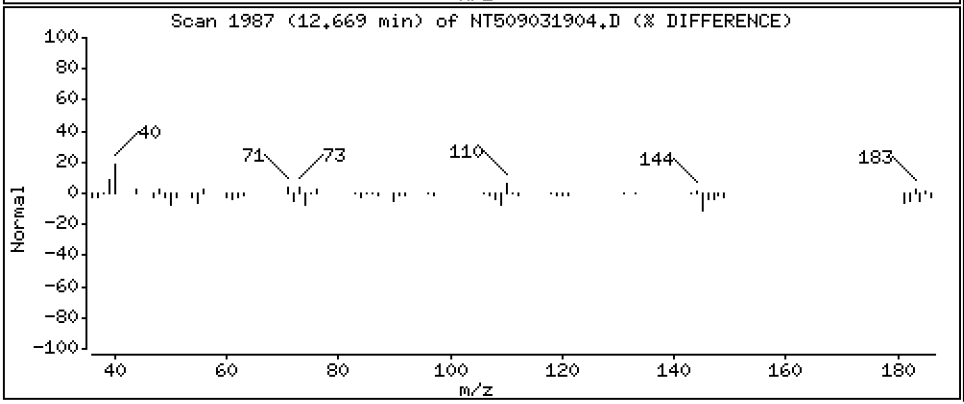
85 1,2,3-Trichlorobenzene

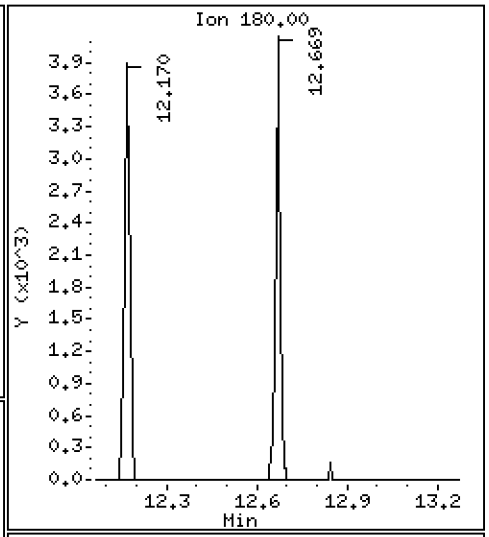
Concentration: 1.010 ug/Kg

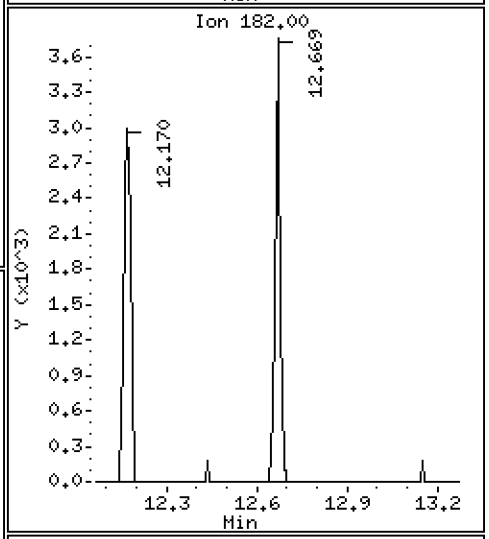


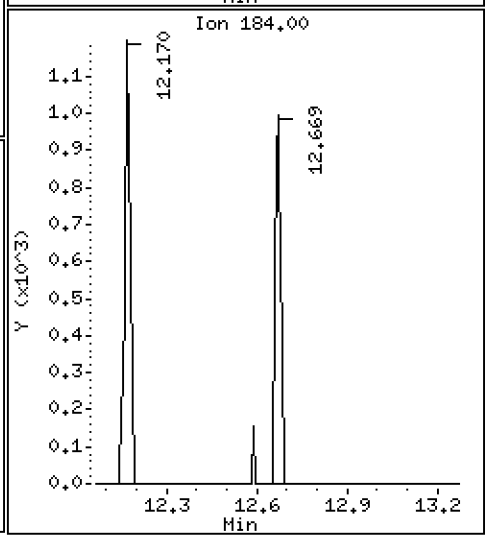












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031904.D
Lab Smp Id: bhi0056-BLK1
Inj Date : 03-SEP-2019 13:48
Operator : PB Inst ID: nt5.i
Smp Info : BLK1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.172	3.148	(0.594)	3442	1.54955	1.550(M)
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.917)	268921	62.1861	62.186(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.344	5.338	(1.000)	352116	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.002)	253733	59.8880	59.888(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	808949	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.944	6.938	(1.200)	1049687	52.5387	52.539(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	825112	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	370284	51.7663	51.766(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	468180	50.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	Compound Not Detected.					
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	456134	51.9996	52.000(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	1334	0.39826	0.3983
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	4569	0.80369	0.8037
	84	Naphthalene	128	12.492	12.486	(1.207)	14144	1.19319	1.193
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	5207	1.01007	1.010

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031904.D
Lab Smp Id: bhi0056-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	352116	-23.11
35 1,4-Difluorobenze	852165	426083	1704330	808949	-5.07
52 d5-Chlorobenzene	803678	401839	1607356	825112	2.67
76 d4-1,4-Dichlorobe	439766	219883	879532	468180	6.46

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.11
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: bhi0056-BLK1
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	62.186	124.37	
$ 32 d4-1,2-Dichloroeth	50.000	59.888	119.78	
$ 42 d8-Toluene	50.000	52.539	105.08	
$ 62 4-Bromofluorobenze	50.000	51.766	103.53	
$ 79 d4-1,2-Dichloroben	50.000	52.000	104.00	

REVIEW SUMMARY FOR FILE - NT509031904.D

Lab ID: bhi0056-BLK1
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 13:48

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

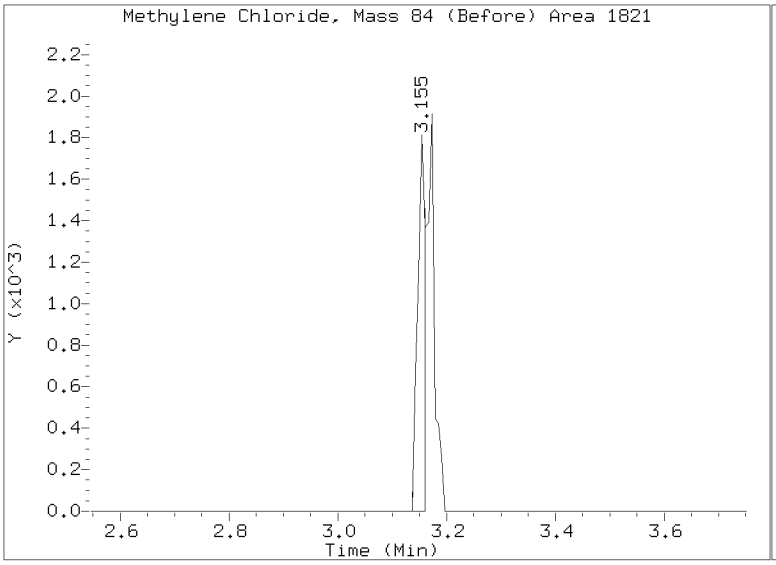
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

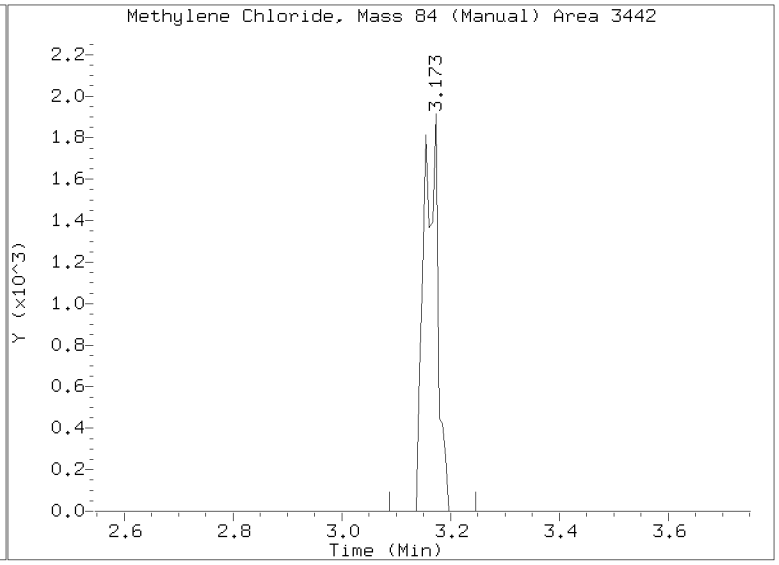
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190903.b/NT509031904.D
Injection Date: 03-SEP-2019 13:48
Lab ID:bhi0056-BLK1 Client ID:
Report Date: 09/04/2019 16:37





Form I

METHOD BLANK DATA SHEET

EPA 8260C

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0097-BLK1	File ID:	NT509041905.D
Sampled:	N/A	Prepared:	09/04/19 07:53	Analyzed:	09/04/19 15:26
Solids:		Preparation:	EPA 5035 (Sodium Bisulfate	Initial/Final:	5 g / 5 mL
Batch:	BHI0097	Sequence:	SHI0061	Calibration:	CH00068
Instrument:	NT5	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
71-43-2	Benzene	1	1.00	U	0.30	1.00
108-88-3	Toluene	1	1.00	U	0.15	1.00
100-41-4	Ethylbenzene	1	1.00	U	0.20	1.00
179601-23-1	m,p-Xylene	1	2.00	U	0.39	2.00
95-47-6	o-Xylene	1	1.00	U	0.22	1.00

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	51.2	102	77 - 120	
4-Bromofluorobenzene	50.000	50.4	101	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

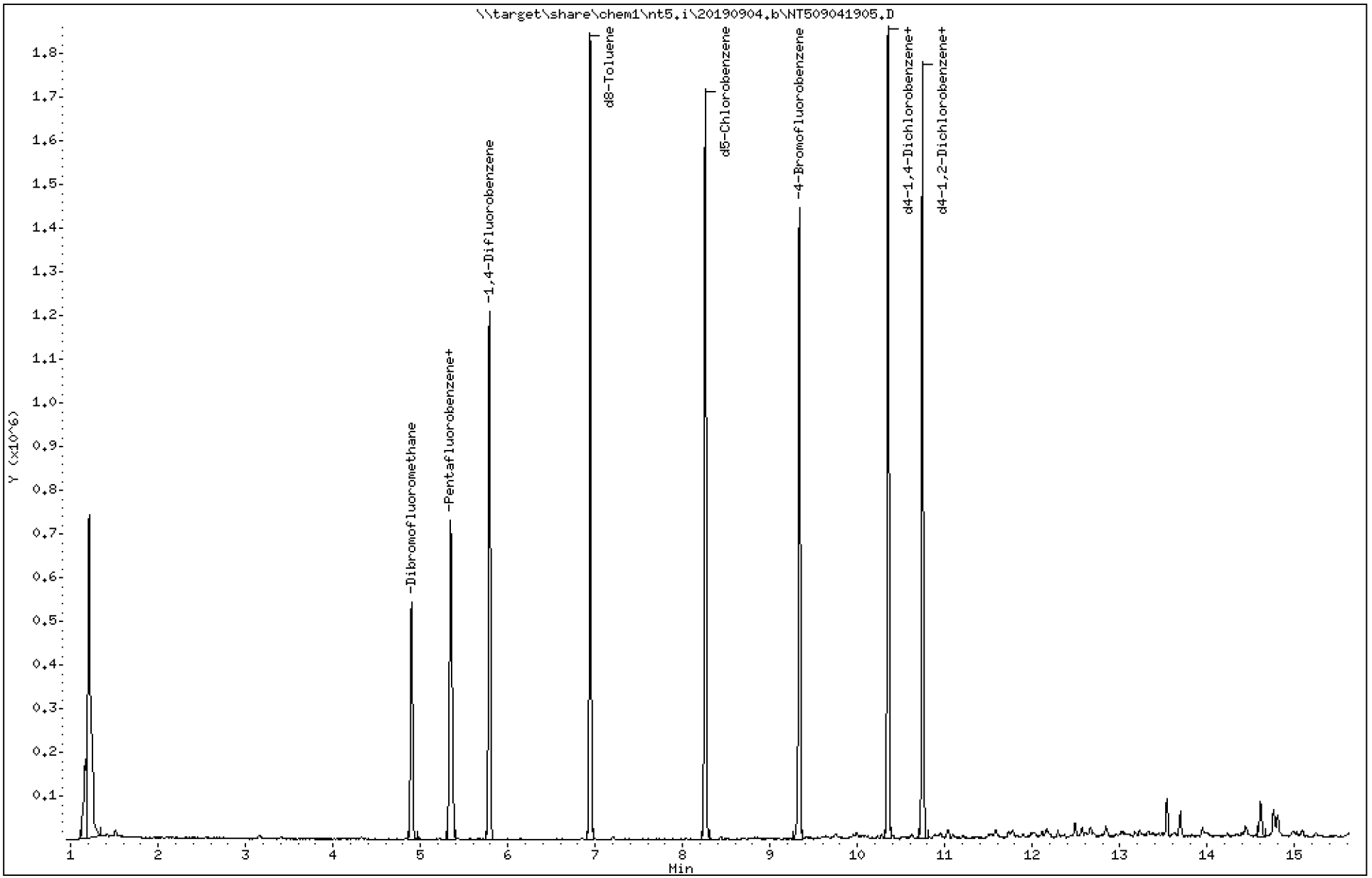
Instrument: nt5.i

Sample Info: BLK1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

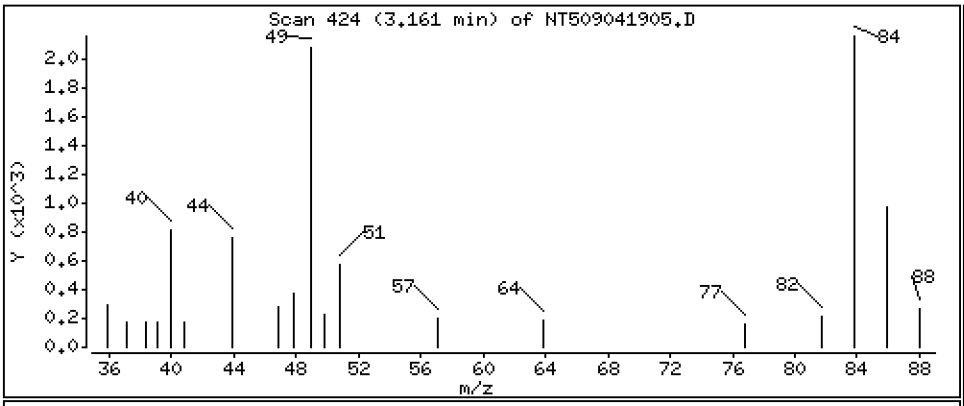
Operator: PB

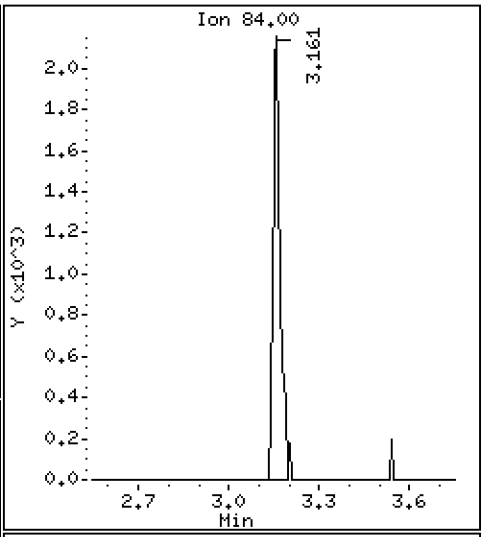
Column phase: RTXVMS

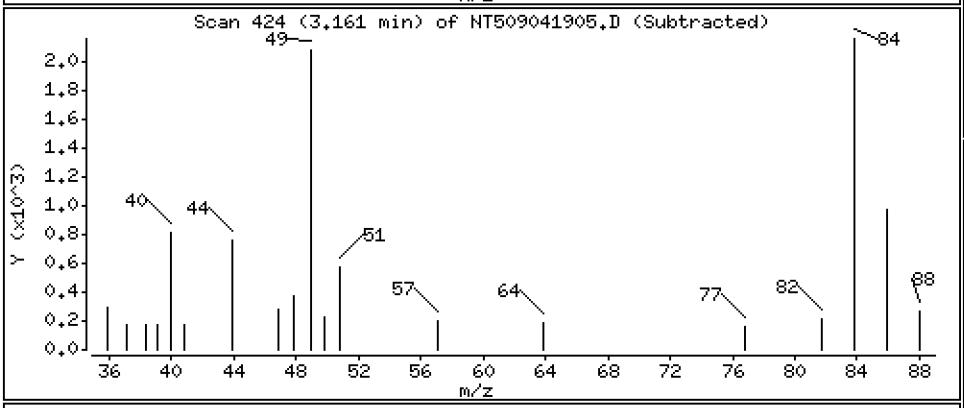
Column diameter: 0.18

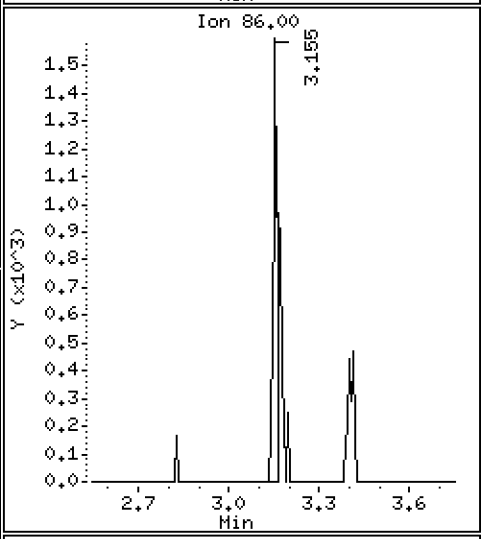
13 Methylene Chloride

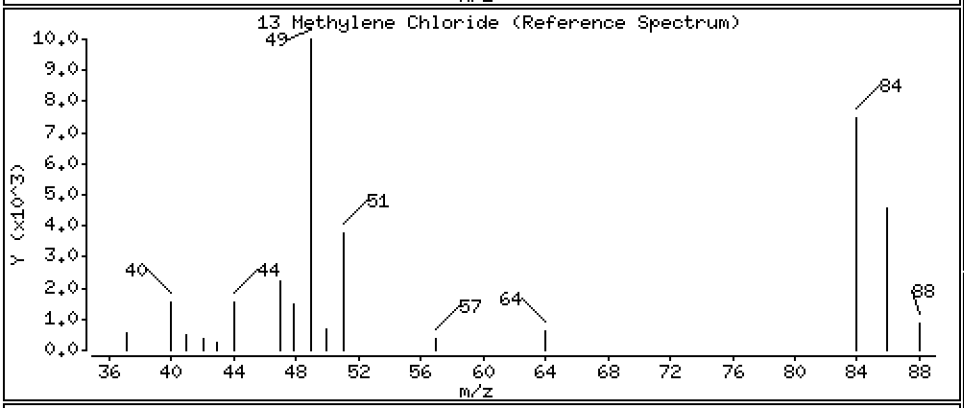
Concentration: 1.790 ug/Kg

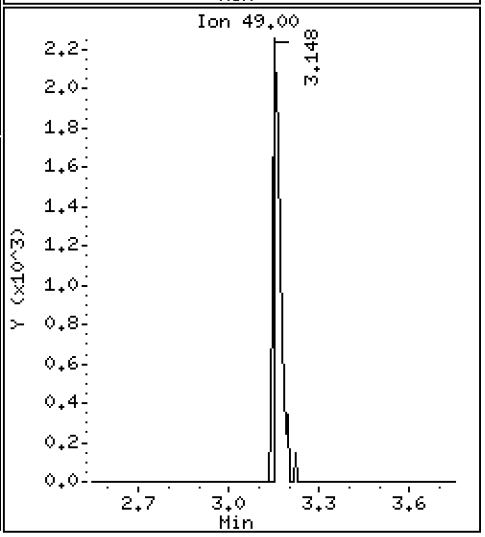


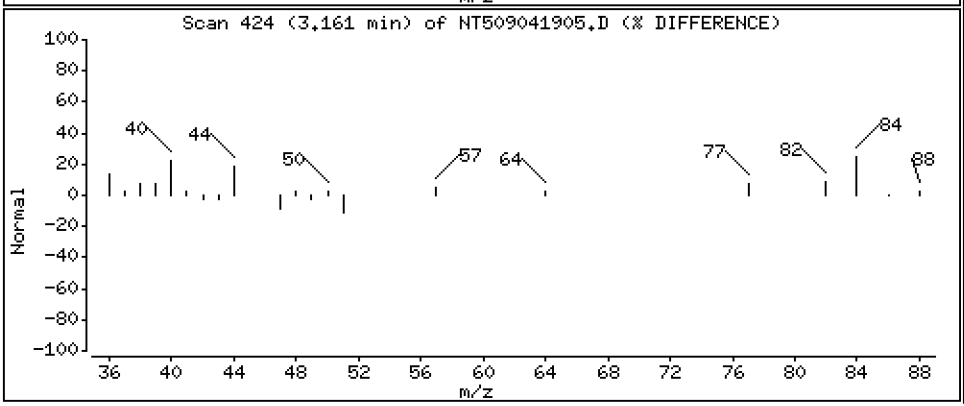












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Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

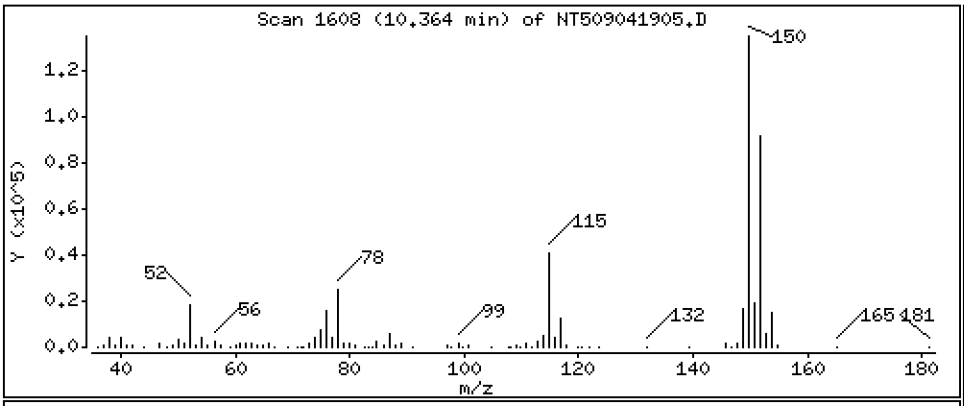
Operator: PB

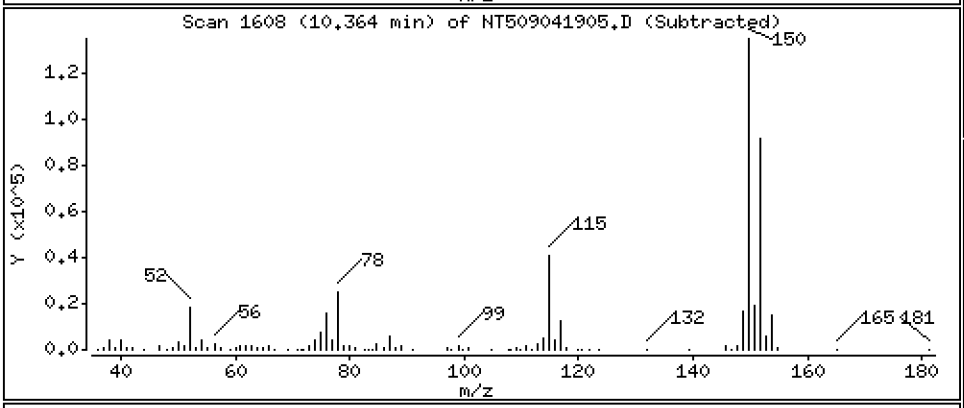
Column phase: RTXVMS

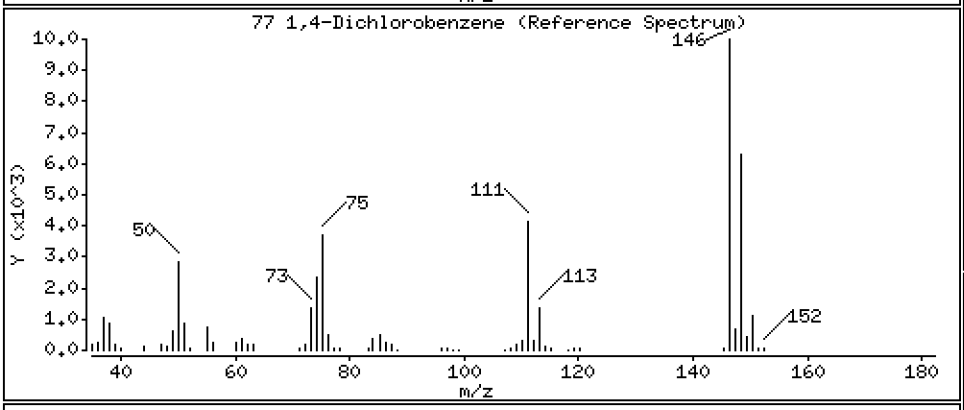
Column diameter: 0.18

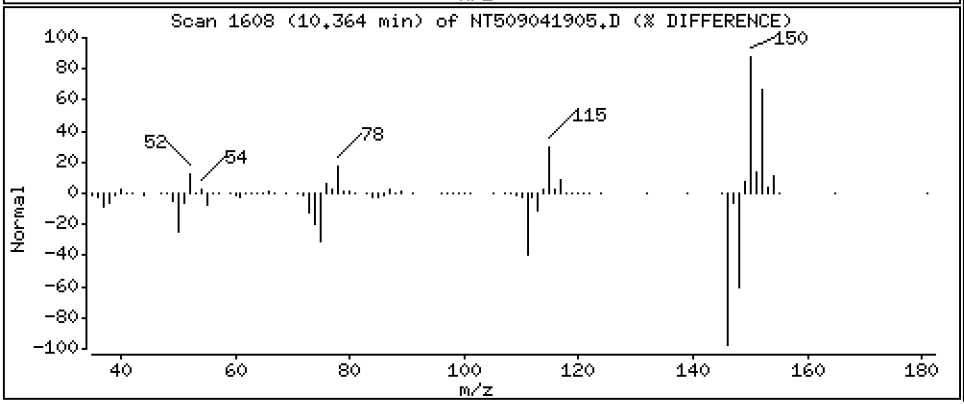
77 1,4-Dichlorobenzene

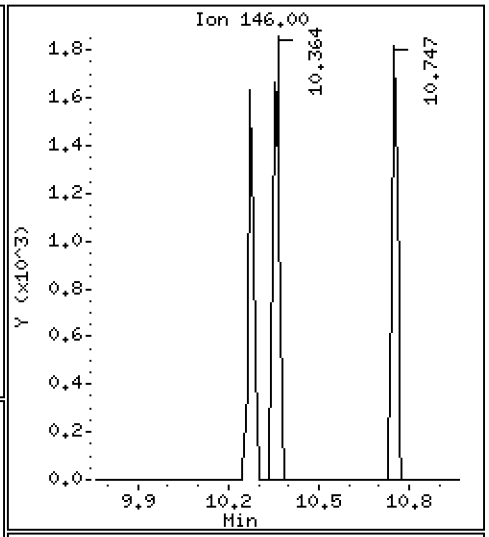
Concentration: 0.3390 ug/Kg

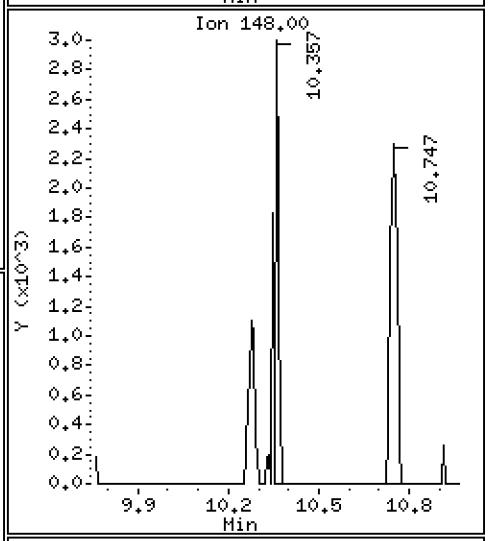


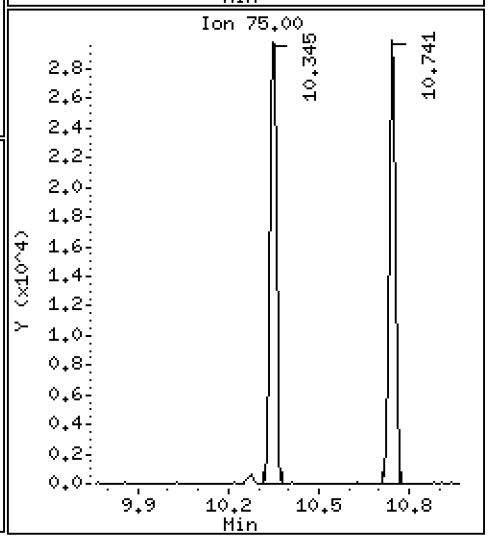












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

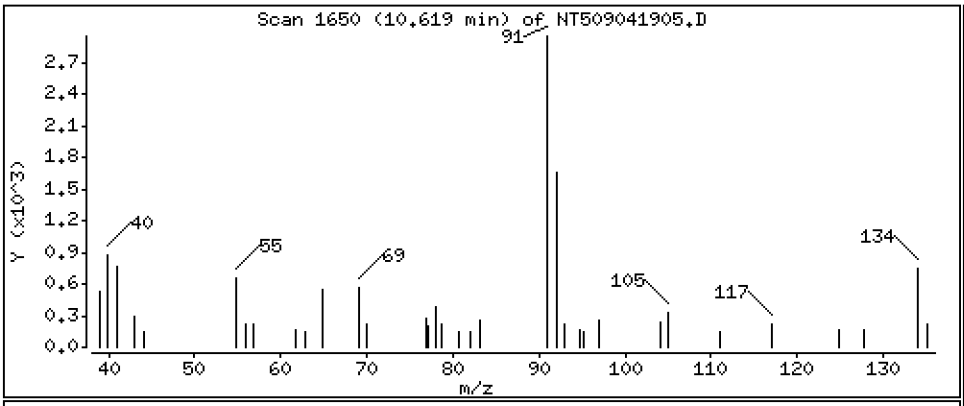
Operator: PB

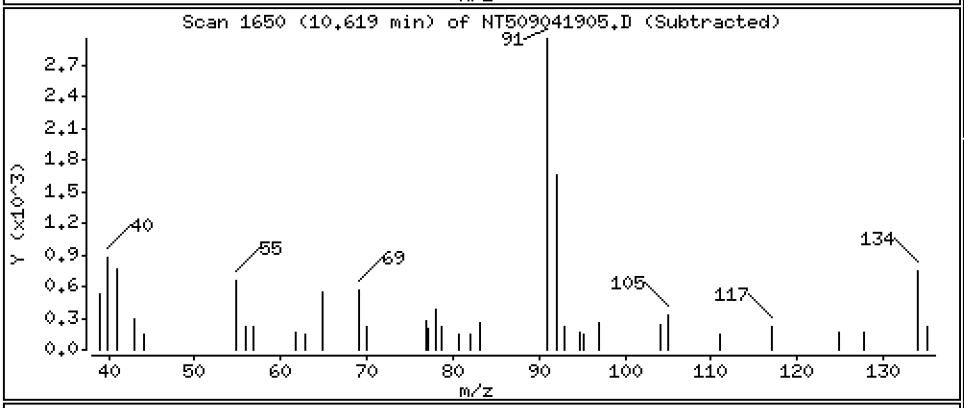
Column phase: RTXVMS

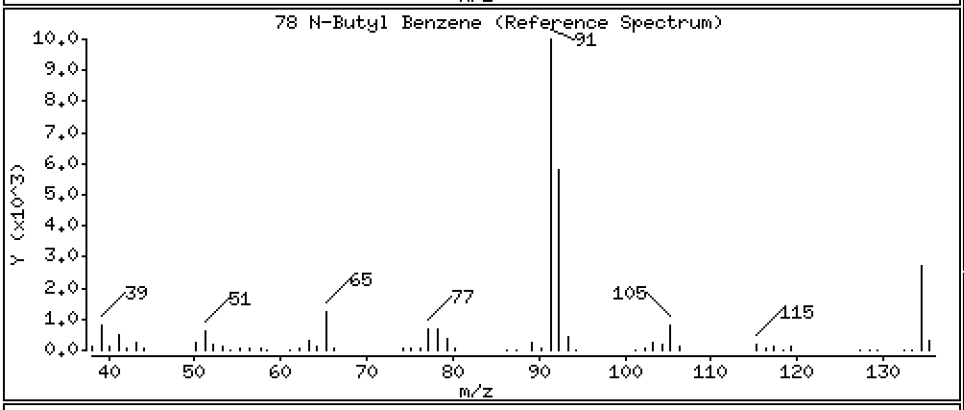
Column diameter: 0.18

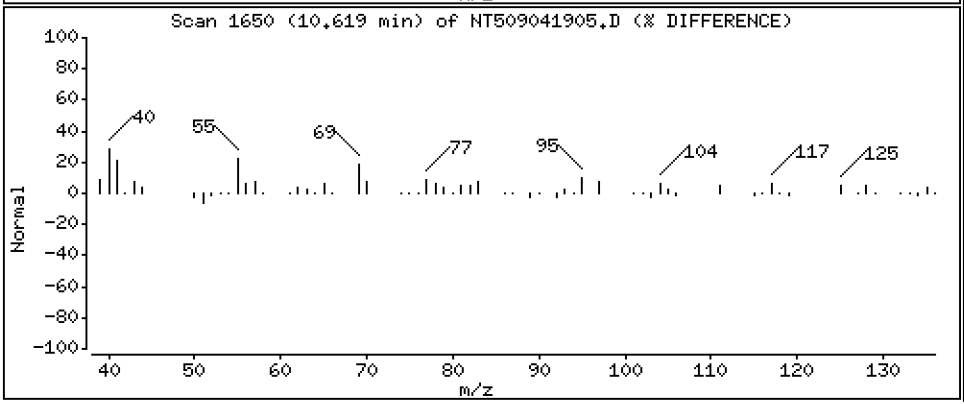
78 N-Butyl Benzene

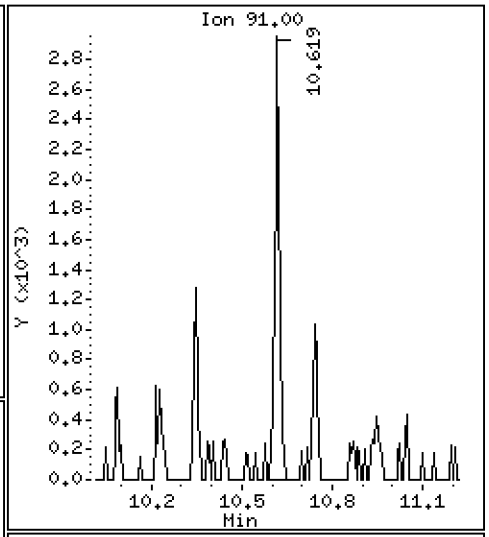
Concentration: 0.2613 ug/Kg

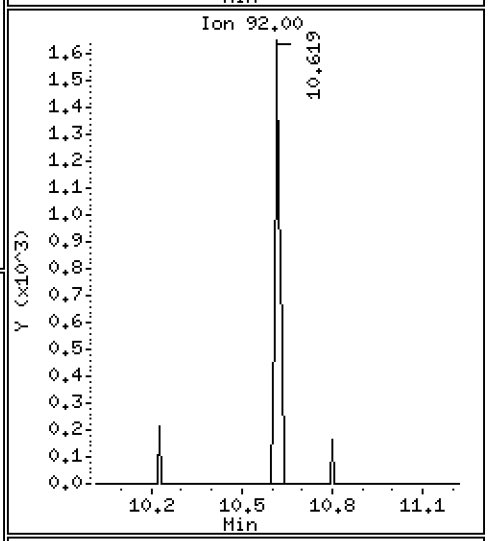


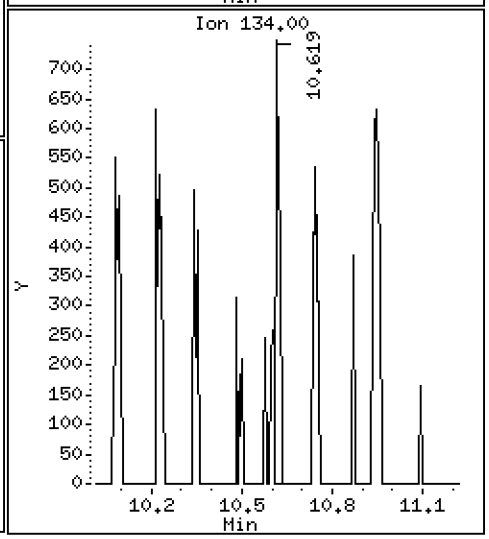












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

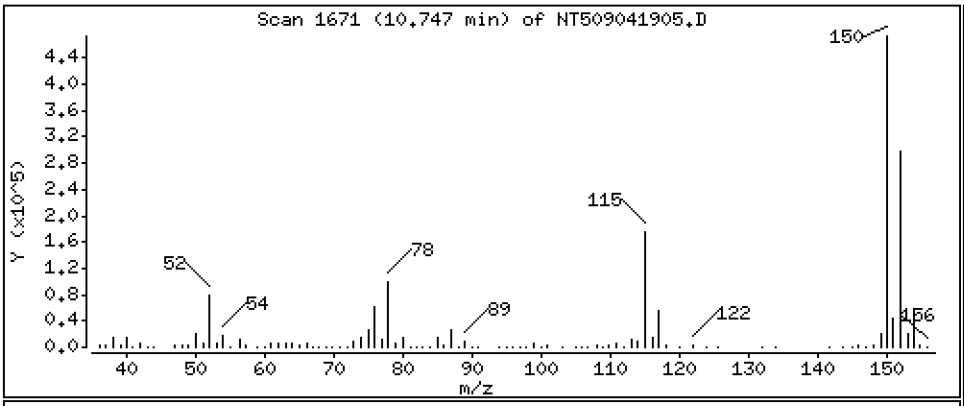
Operator: PB

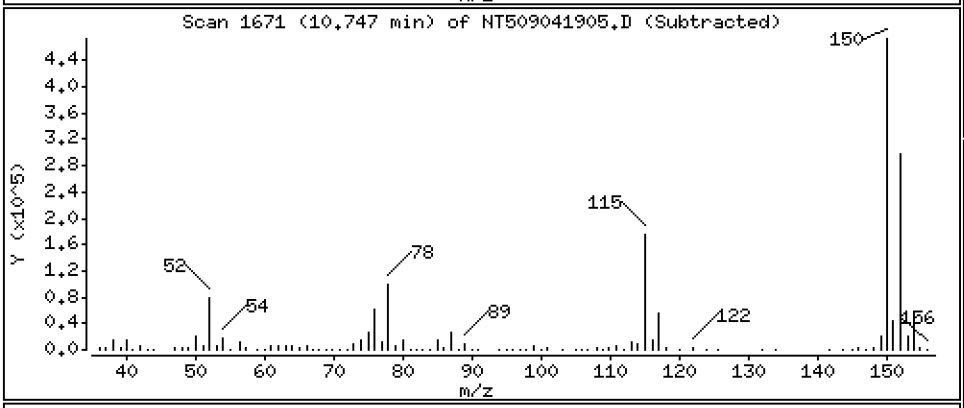
Column phase: RTXVMS

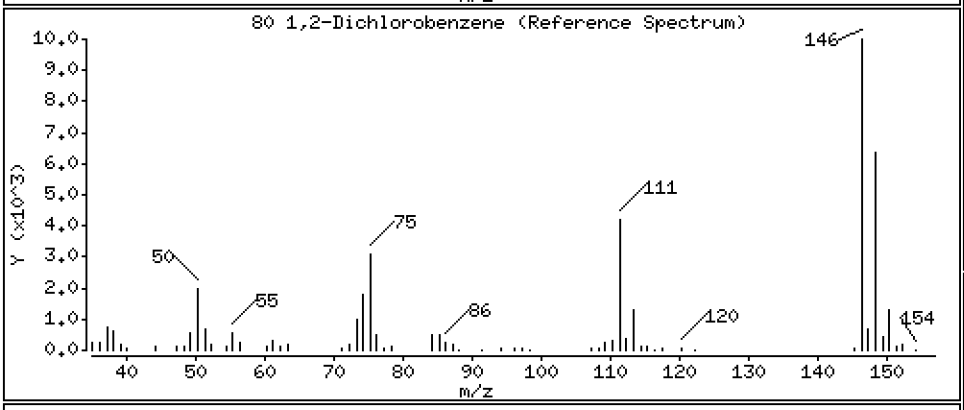
Column diameter: 0.18

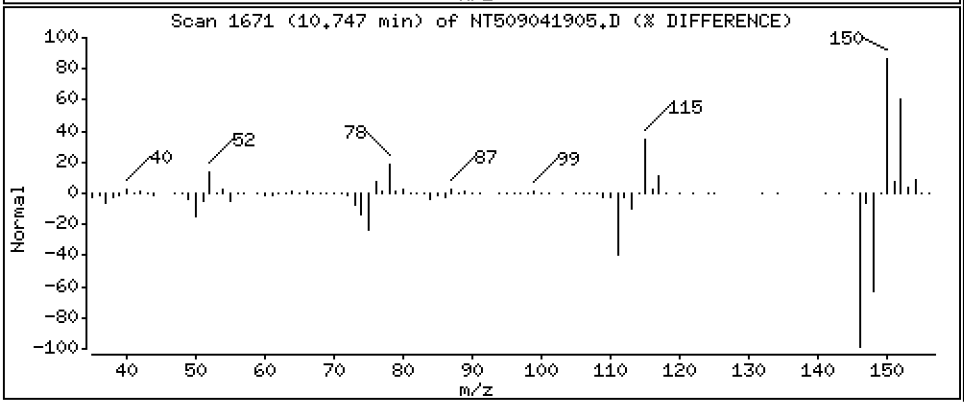
80 1,2-Dichlorobenzene

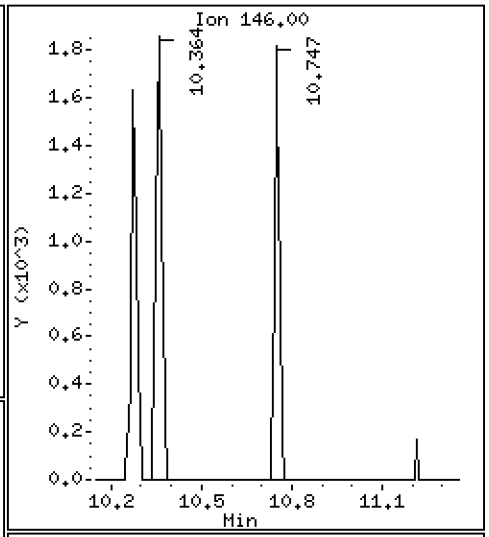
Concentration: 0.2915 ug/Kg

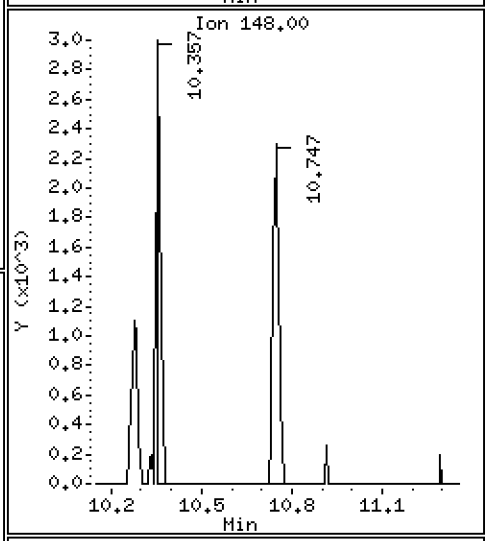


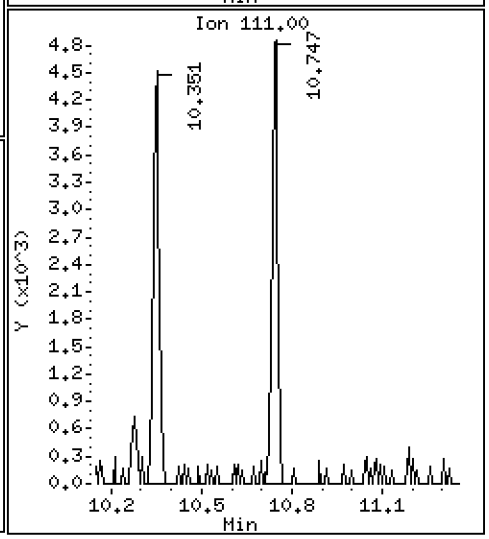












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

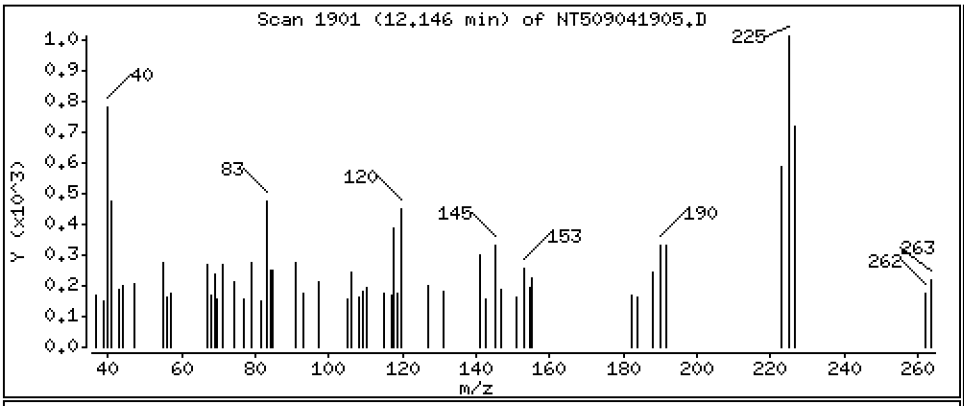
Operator: PB

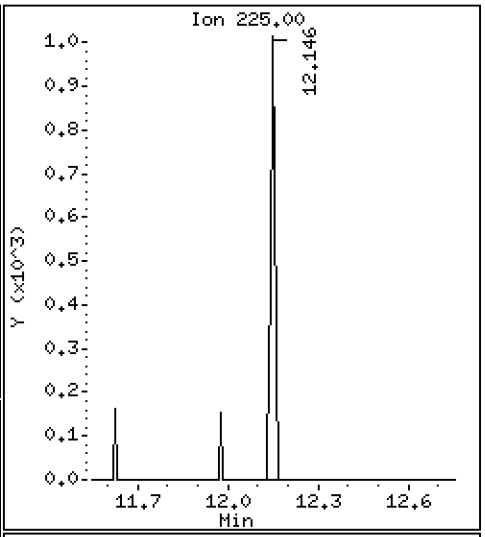
Column phase: RTXVMS

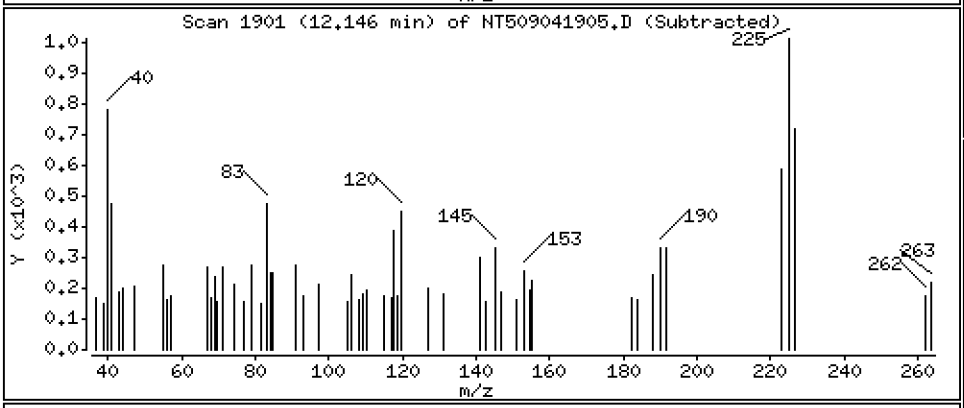
Column diameter: 0.18

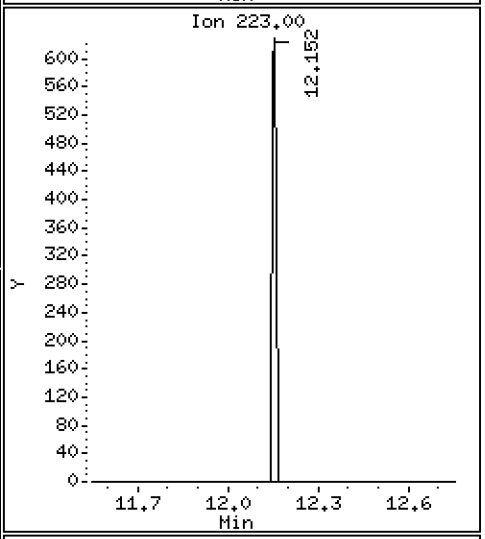
82 Hexachloro 1,3-Butadiene

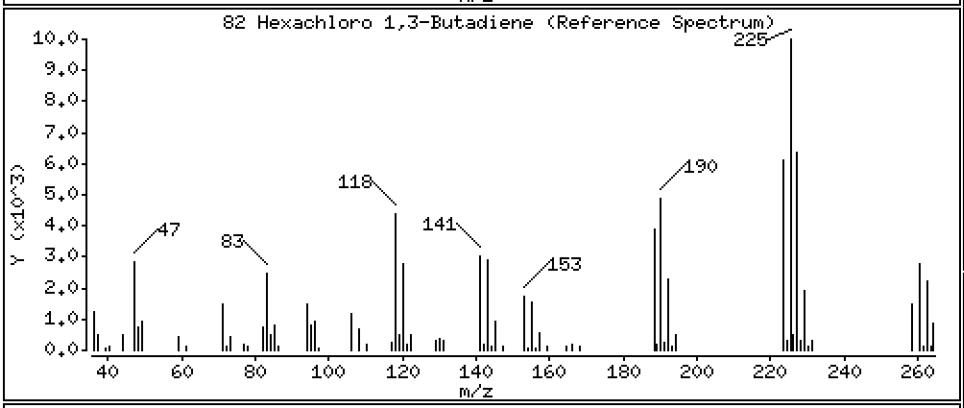
Concentration: 0.3920 ug/Kg

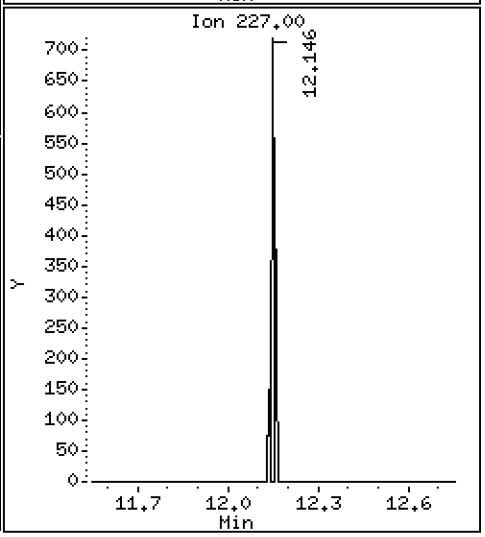


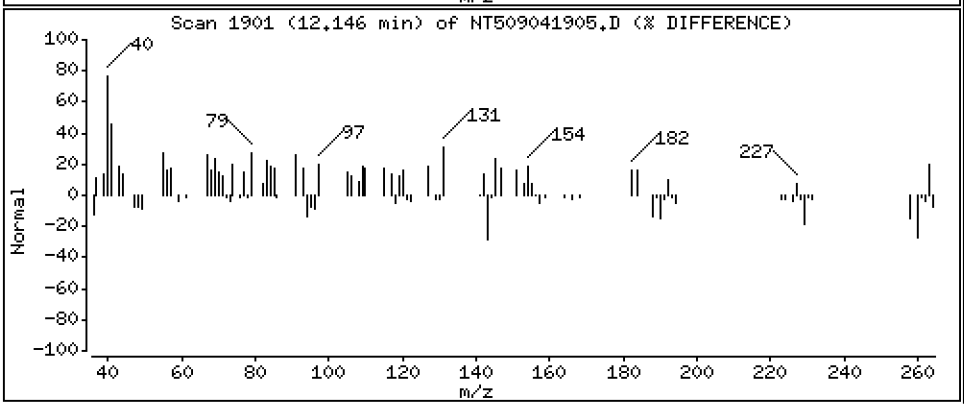












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

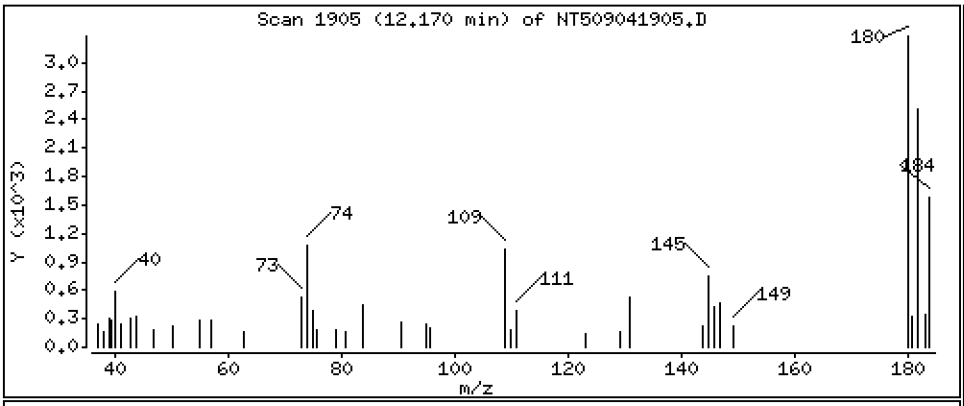
Operator: PB

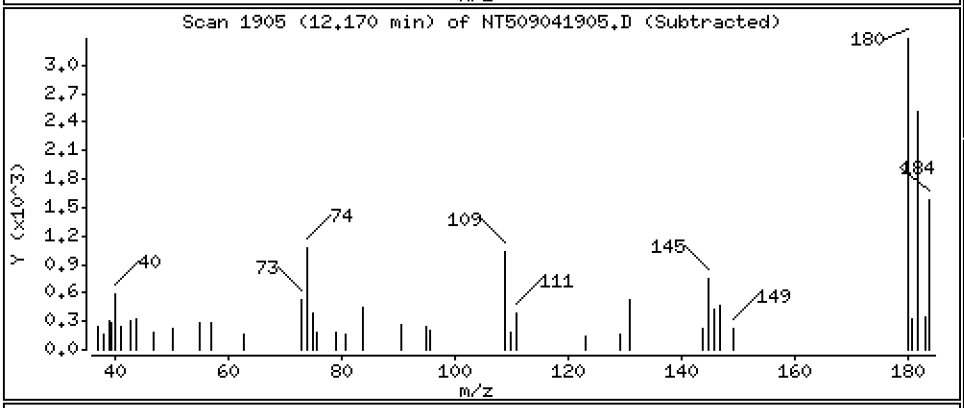
Column phase: RTXVMS

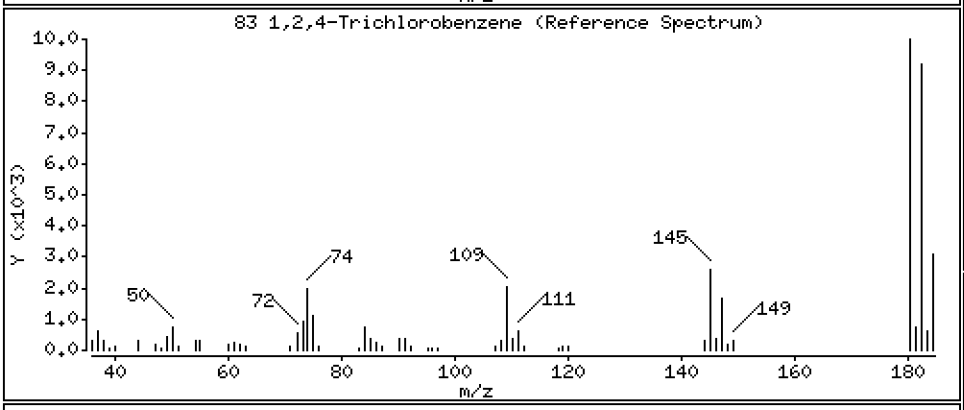
Column diameter: 0.18

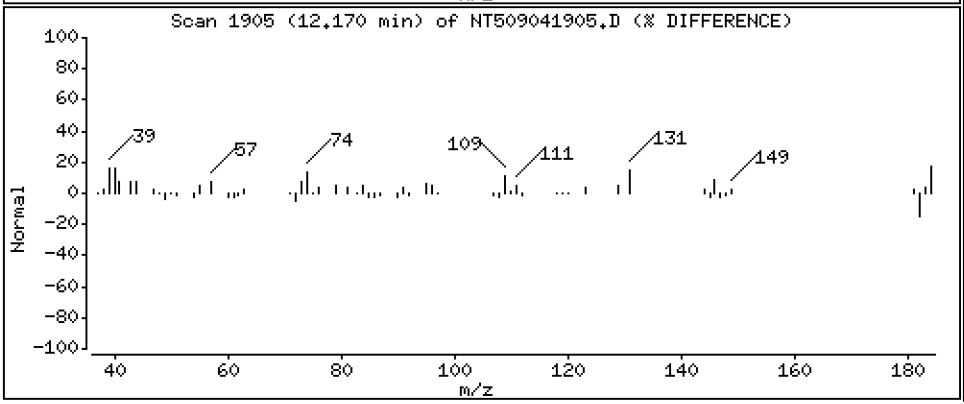
83 1,2,4-Trichlorobenzene

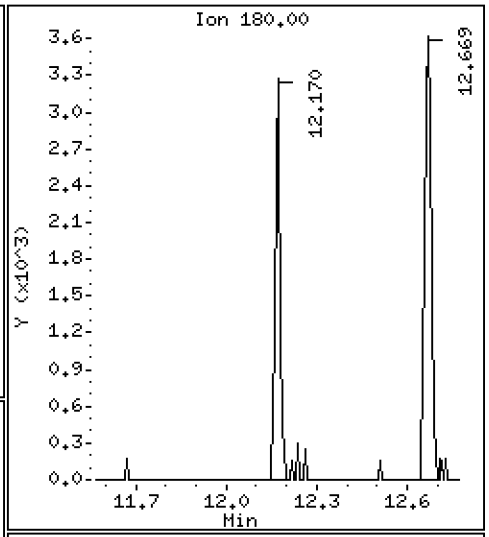
Concentration: 0.8370 ug/Kg

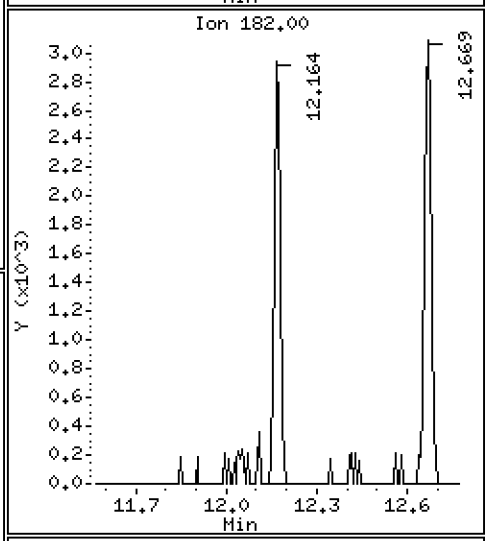


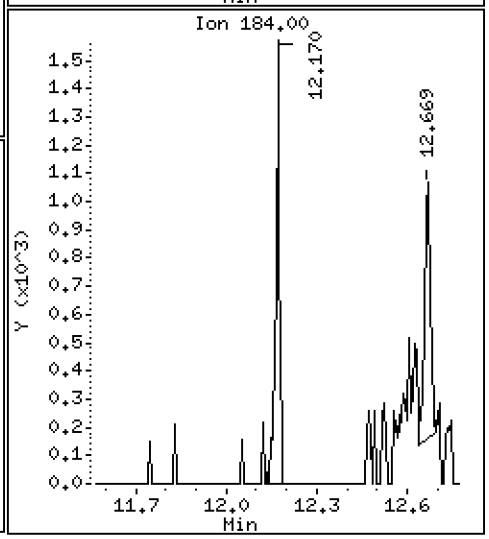












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

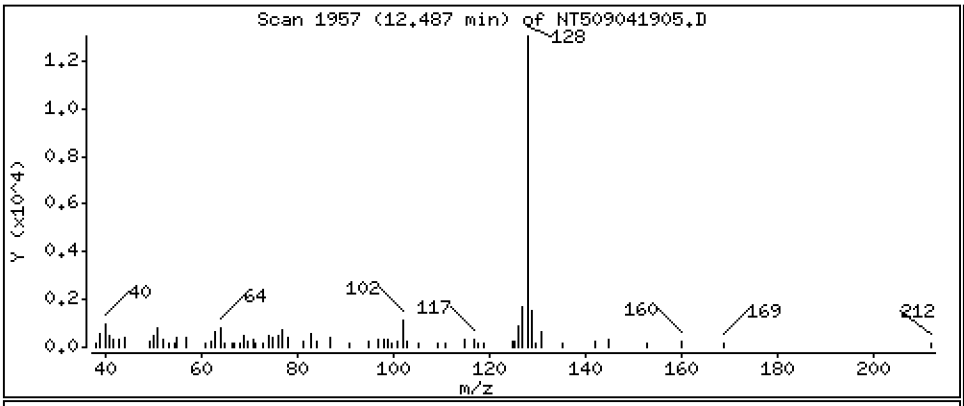
Operator: PB

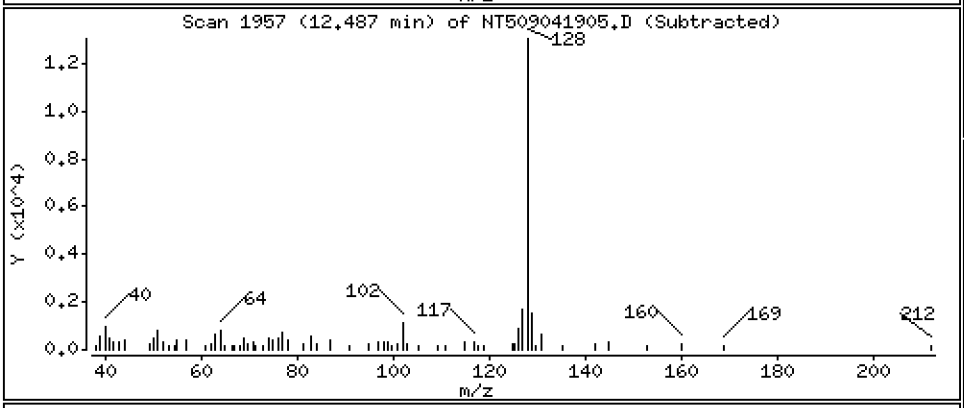
Column phase: RTXVMS

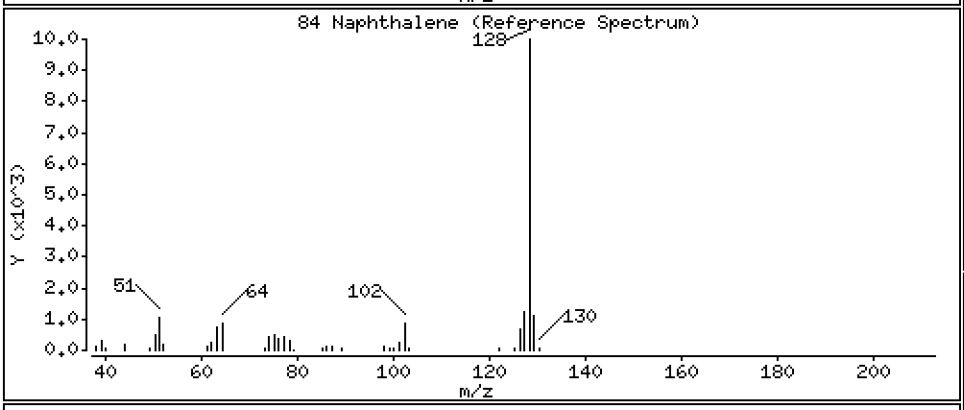
Column diameter: 0.18

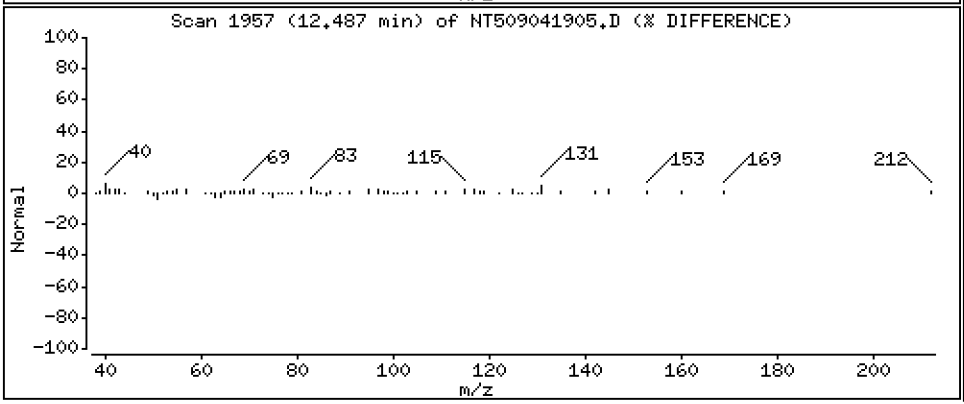
84 Naphthalene

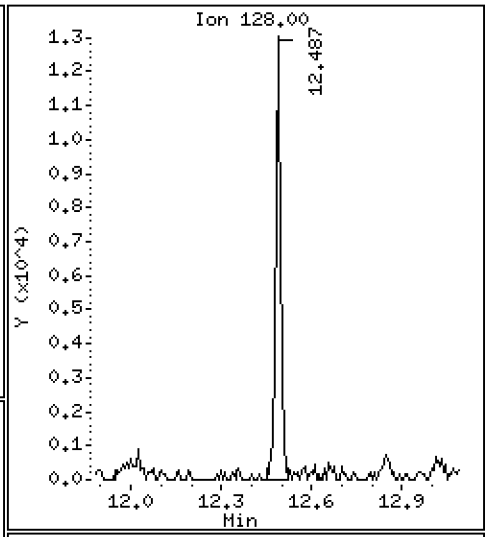
Concentration: 1.651 ug/Kg

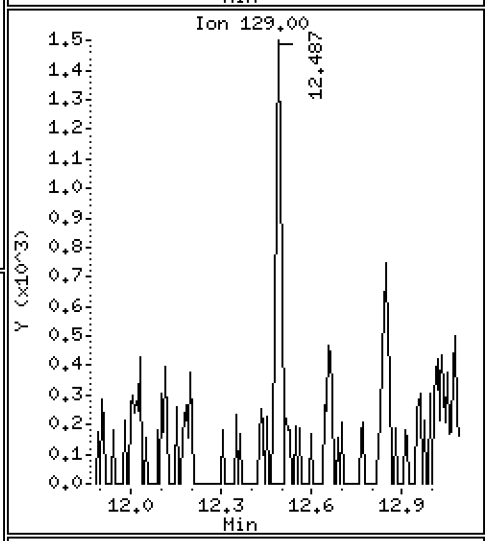


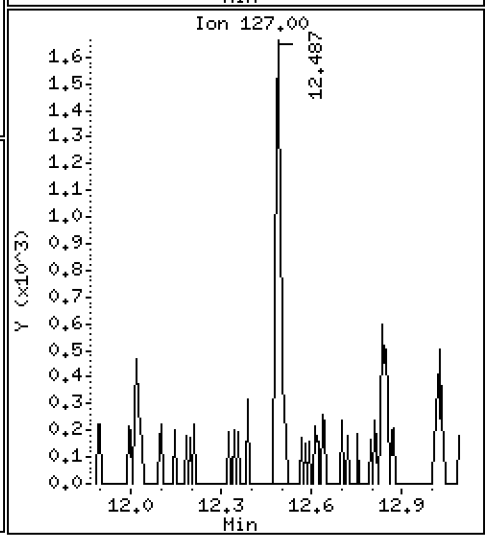












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

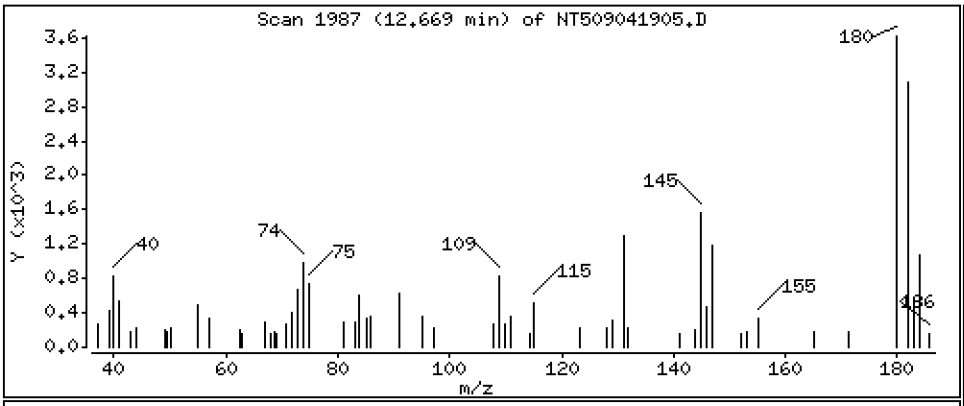
Operator: PB

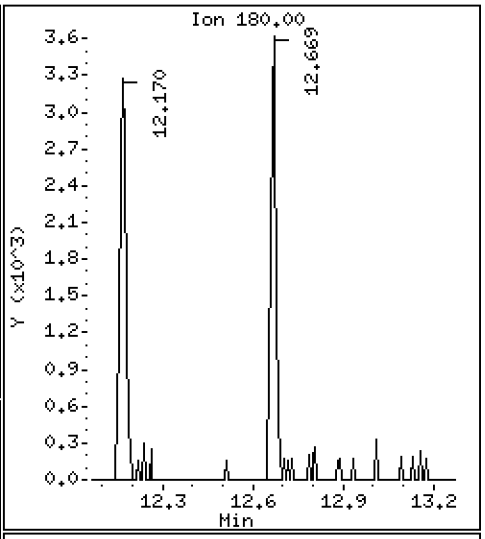
Column phase: RTXVMS

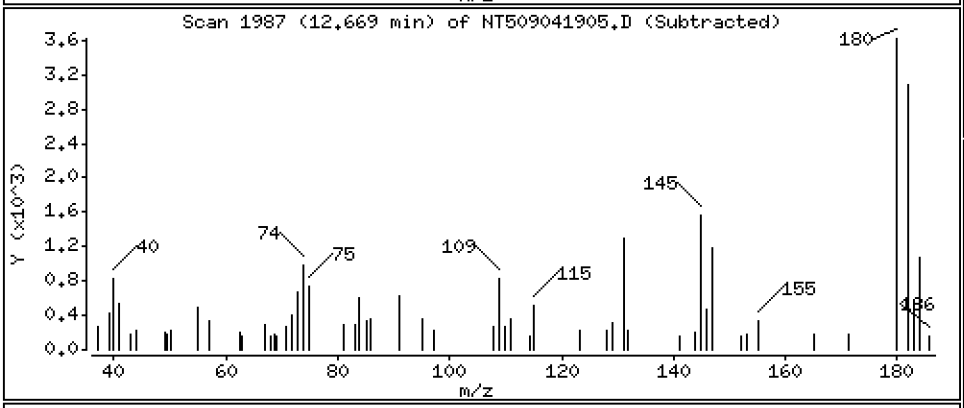
Column diameter: 0.18

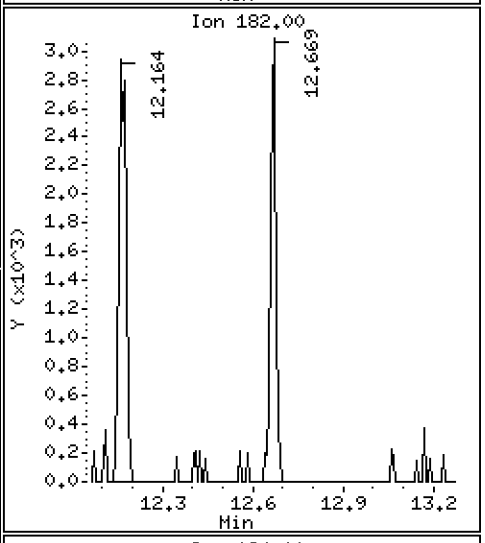
85 1,2,3-Trichlorobenzene

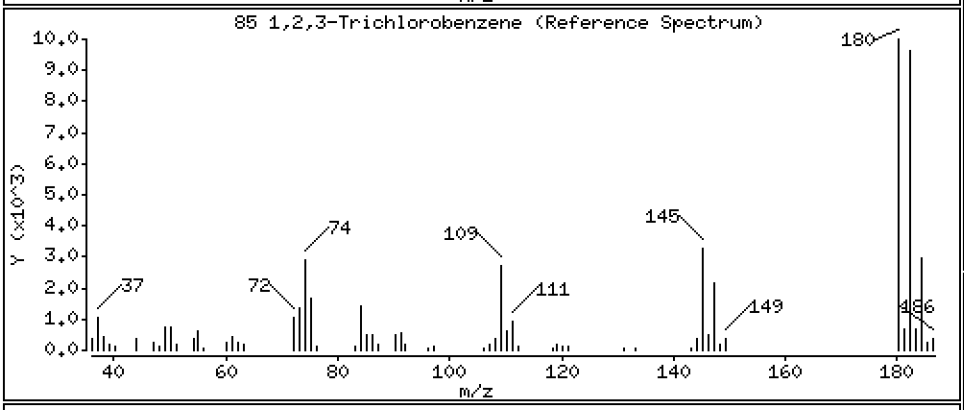
Concentration: 1.096 ug/Kg

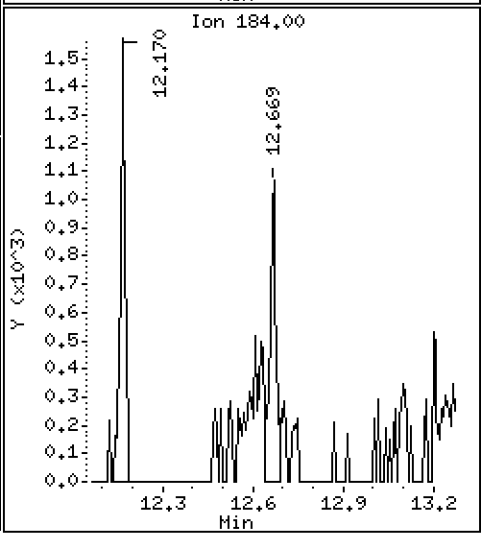


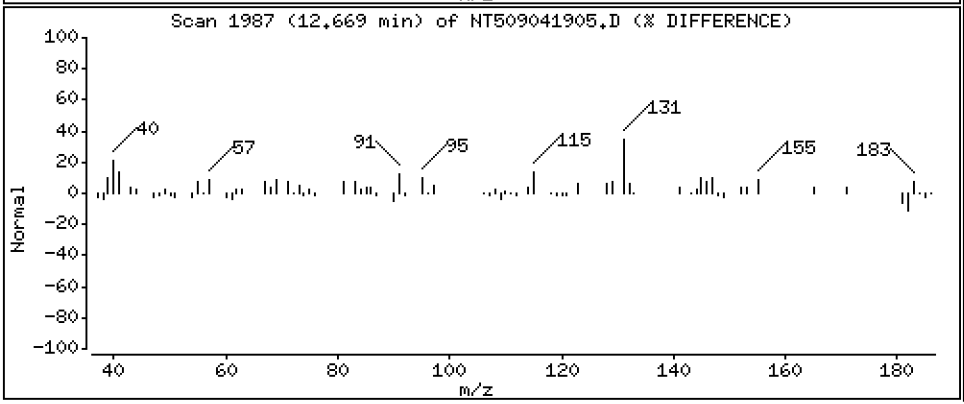












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041905.D
Lab Smp Id: bhi0097-BLK1
Inj Date : 04-SEP-2019 15:26
Operator : PB Inst ID: nt5.i
Smp Info : BLK1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.592)	3949	1.79024	1.790
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.918)	272965	63.5632	63.563(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.338	5.332	(1.000)	349668	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.003)	256311	60.9200	60.920(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	Compound Not Detected.					
*	35	1,4-Difluorobenzene	114	5.788	5.782	(1.000)	820601	50.0000	
	37	Dibromomethane	93	Compound Not Detected.					
	38	1,2-Dichloropropane	63	Compound Not Detected.					
	39	Bromodichloromethane	83	Compound Not Detected.					
	172	2-Pentanone	86	Compound Not Detected.					
	40	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42	d8-Toluene	98	6.938	6.938	(1.199)	1038238	51.2278	51.228(R)
	43	Toluene	92	Compound Not Detected.					
	44	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47	1,1,2-Trichloroethane	97	Compound Not Detected.					
	48	Chlorodibromomethane	129	Compound Not Detected.					
	49	1,3-Dichloropropane	76	Compound Not Detected.					
	50	1,2-Dibromoethane	107	Compound Not Detected.					
	51	2-Hexanone	43	Compound Not Detected.					
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	804428	50.0000	
	53	Chlorobenzene	112	Compound Not Detected.					
	54	Ethyl Benzene	91	Compound Not Detected.					
	55	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56	m,p-xylene	106	Compound Not Detected.					
	57	o-Xylene	106	Compound Not Detected.					
	58	Styrene	104	Compound Not Detected.					
	59	Bromoform	173	Compound Not Detected.					
	60	Isopropyl Benzene	105	Compound Not Detected.					
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	351325	50.3787	50.379(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	442849	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	3104	0.33903	0.3390
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	3824	0.26129	0.2613
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	427063	51.4703	51.470(R)
	80	1,2-Dichlorobenzene	146	10.746	10.752	(1.038)	2488	0.29146	0.2915
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82	Hexachloro 1,3-Butadiene	225	12.146	12.152	(1.173)	1242	0.39200	0.3920
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	4501	0.83702	0.8370
	84	Naphthalene	128	12.486	12.486	(1.206)	18511	1.65091	1.651
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	5343	1.09574	1.096

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041905.D
Lab Smp Id: bhi0097-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	349668	-23.65
35 1,4-Difluorobenze	852165	426083	1704330	820601	-3.70
52 d5-Chlorobenzene	803678	401839	1607356	804428	0.09
76 d4-1,4-Dichlorobe	439766	219883	879532	442849	0.70

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.12
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 05-Sep-2019 13:07

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: bhi0097-BLK1
Level: Operator: PB
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	63.563	127.13	
$ 32 d4-1,2-Dichloroeth	50.000	60.920	121.84	
$ 42 d8-Toluene	50.000	51.228	102.46	
$ 62 4-Bromofluorobenze	50.000	50.379	100.76	
$ 79 d4-1,2-Dichloroben	50.000	51.470	102.94	

REVIEW SUMMARY FOR FILE - NT509041905.D

Lab ID: bhi0097-BLK1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 15:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Form I

METHOD BLANK DATA SHEET

EPA 8260C

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0098-BLK1	File ID:	NT509041905A.D
Sampled:	N/A	Prepared:	09/04/19 07:54	Analyzed:	09/04/19 15:26
Solids:		Preparation:	EPA 5035 (Methanol Extract	Initial/Final:	5 g / 5 mL
Batch:	BHI0098	Sequence:	SHI0061	Calibration:	CH00068
Instrument:	NT5	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
71-43-2	Benzene	50	50.0	U	8.20	50.0
108-88-3	Toluene	50	50.0	U	8.60	50.0
100-41-4	Ethylbenzene	50	50.0	U	13.6	50.0
179601-23-1	m,p-Xylene	50	100	U	27.9	100
95-47-6	o-Xylene	50	50.0	U	11.4	50.0

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	50.000	51.2	102	80 - 120	
4-Bromofluorobenzene	50.000	50.4	101	80 - 120	

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905A.D

Date : 04-SEP-2019 15:26

Client ID:

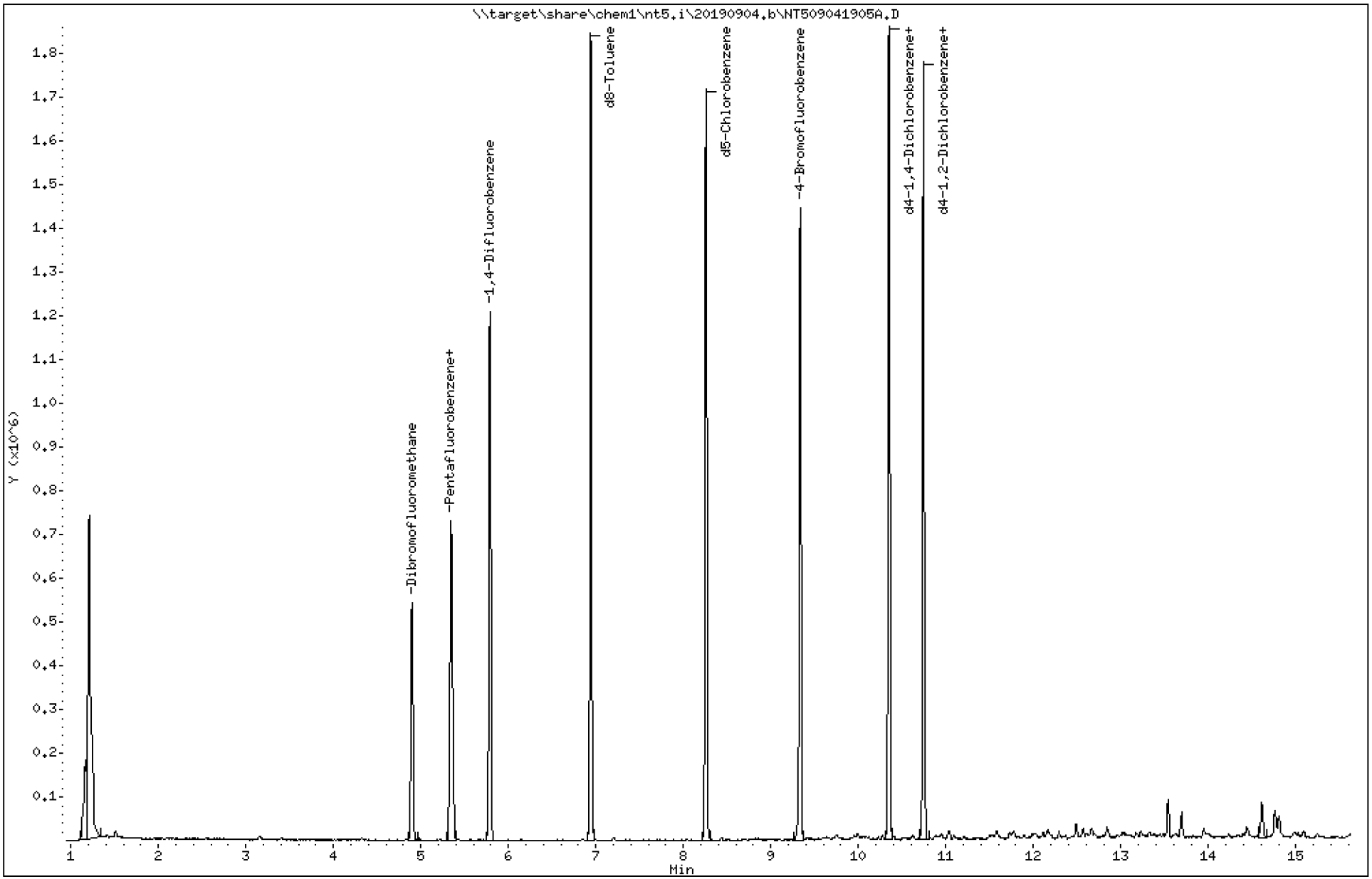
Instrument: nt5.i

Sample Info: BLK1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905A.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

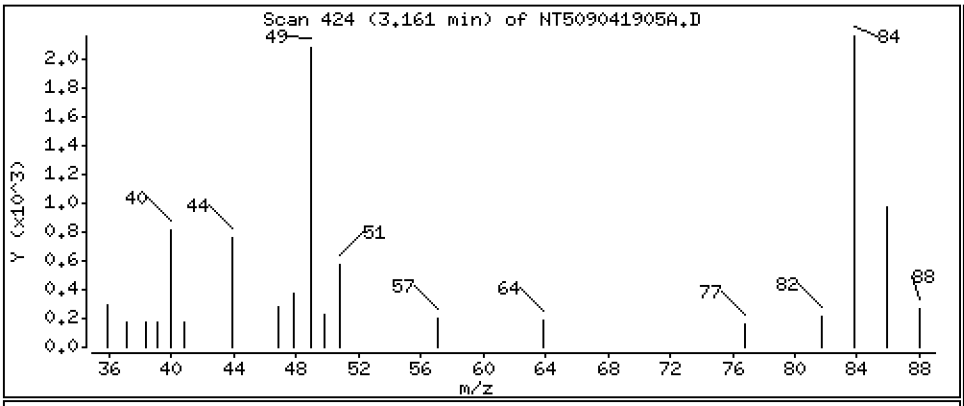
Operator: PB

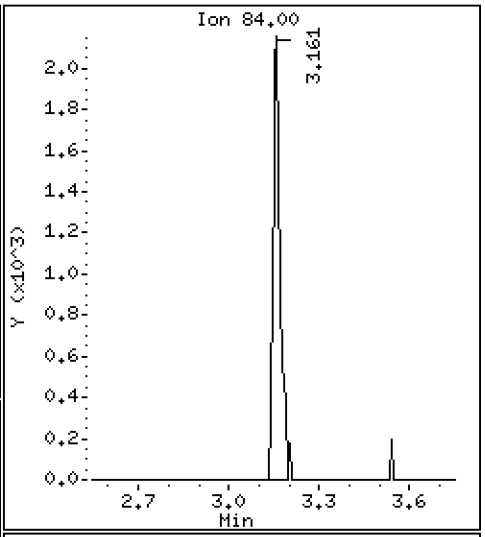
Column phase: RTXVMS

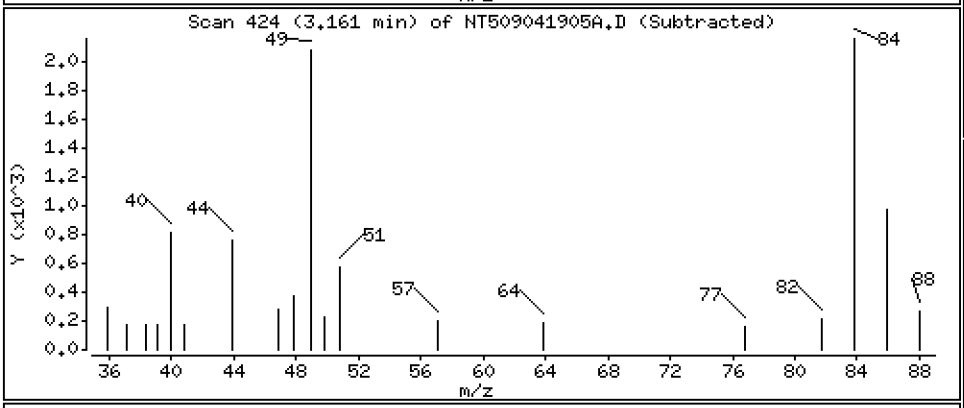
Column diameter: 0.18

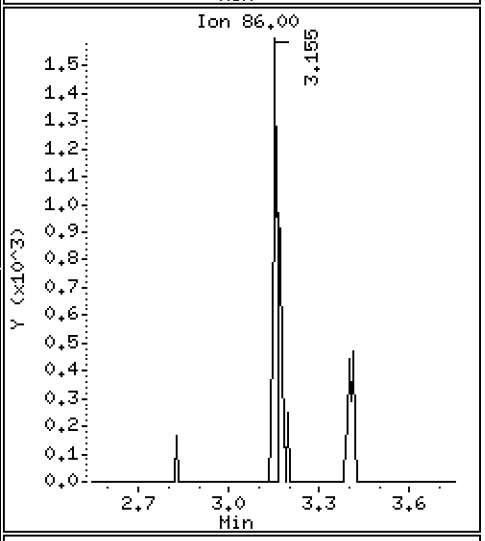
13 Methylene Chloride

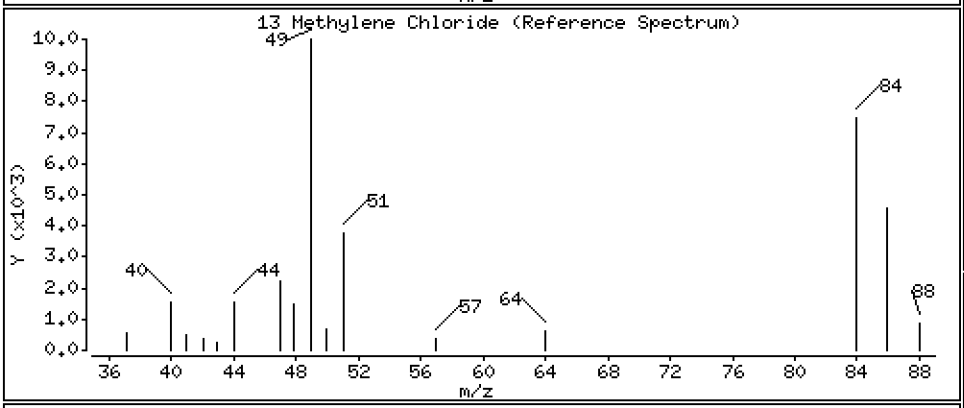
Concentration: 1.790 ug/Kg

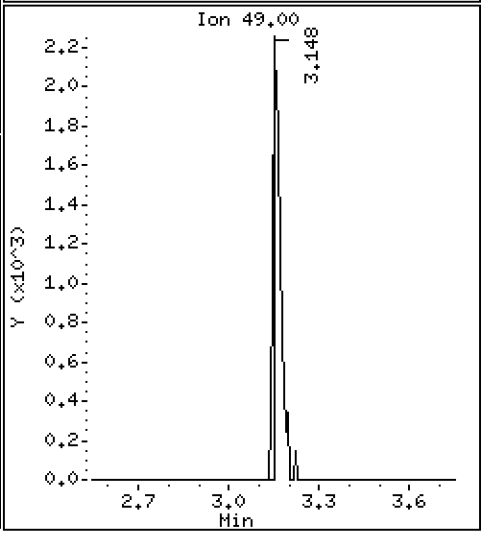


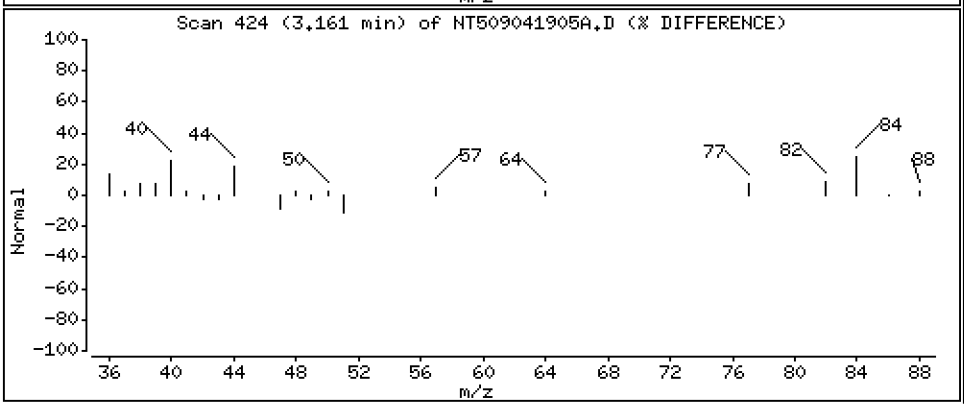












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905A.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

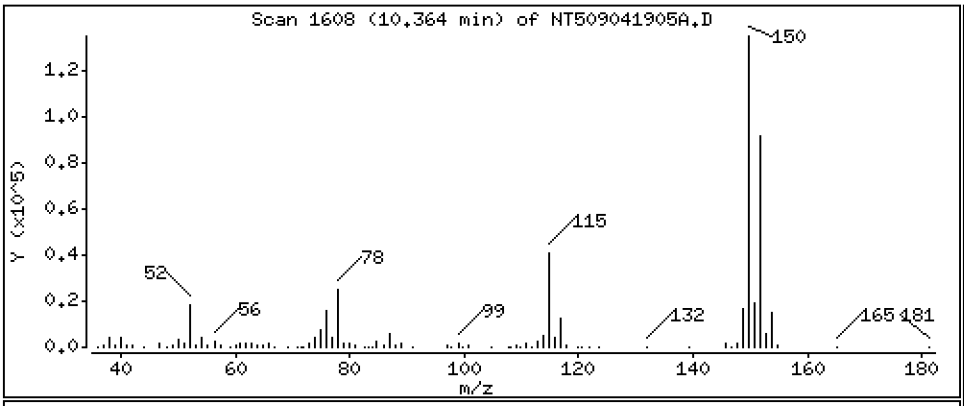
Operator: PB

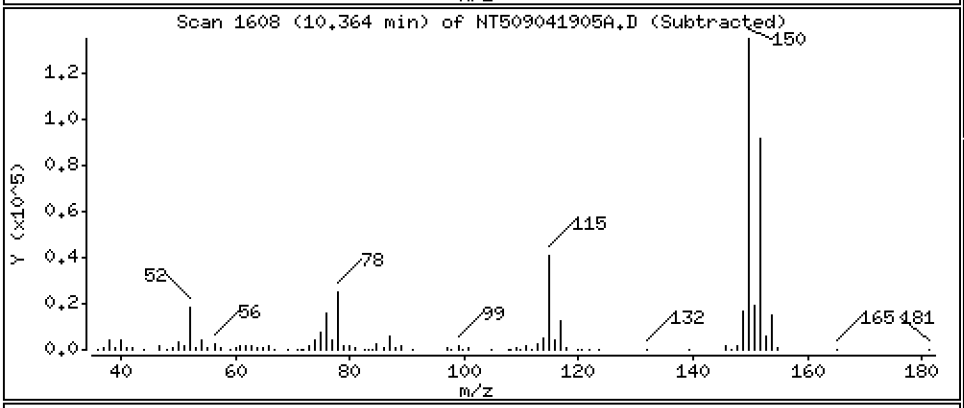
Column phase: RTXVMS

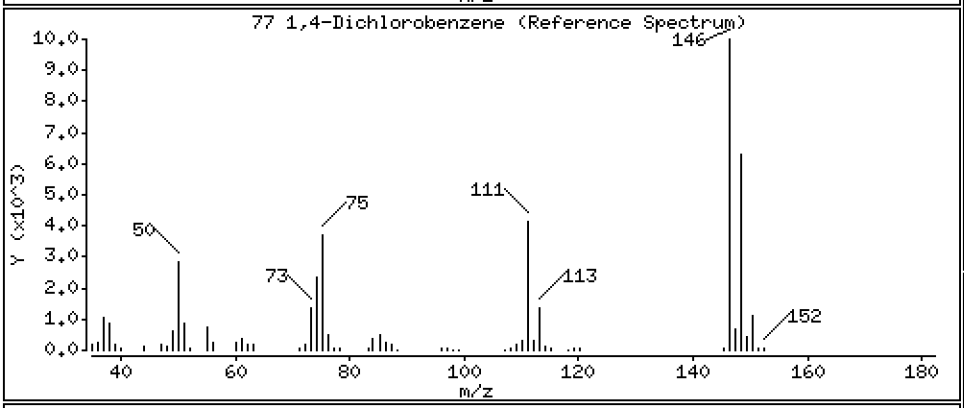
Column diameter: 0.18

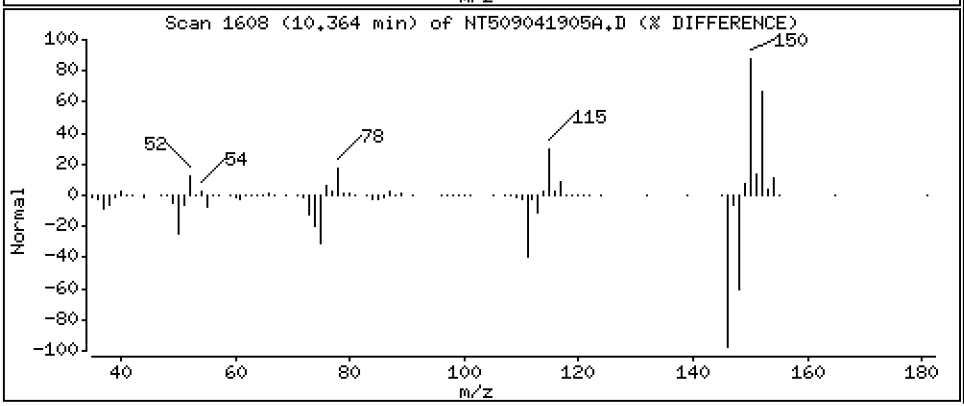
77 1,4-Dichlorobenzene

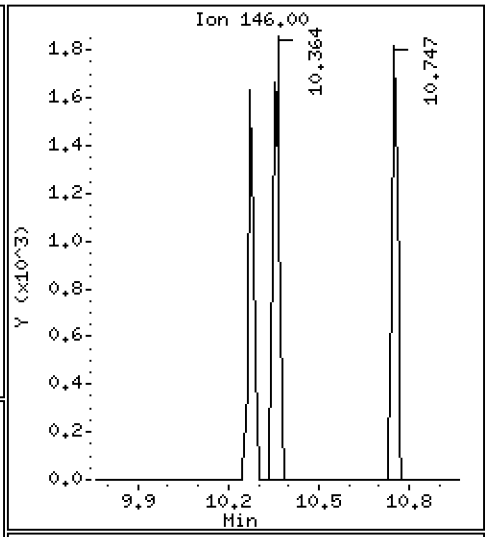
Concentration: 0.3390 ug/Kg

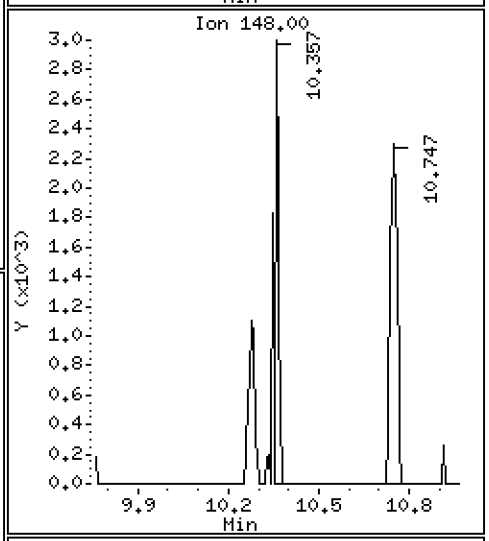


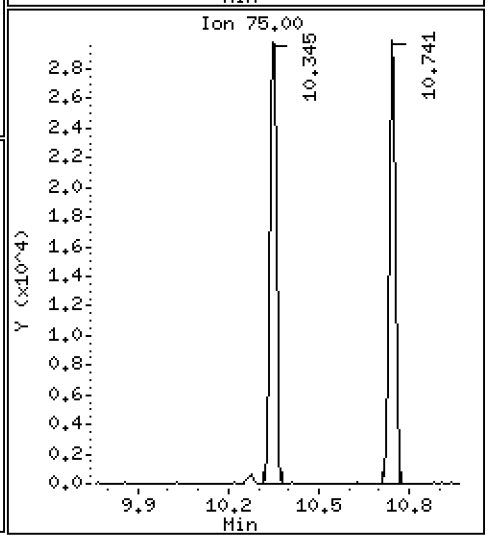












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Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

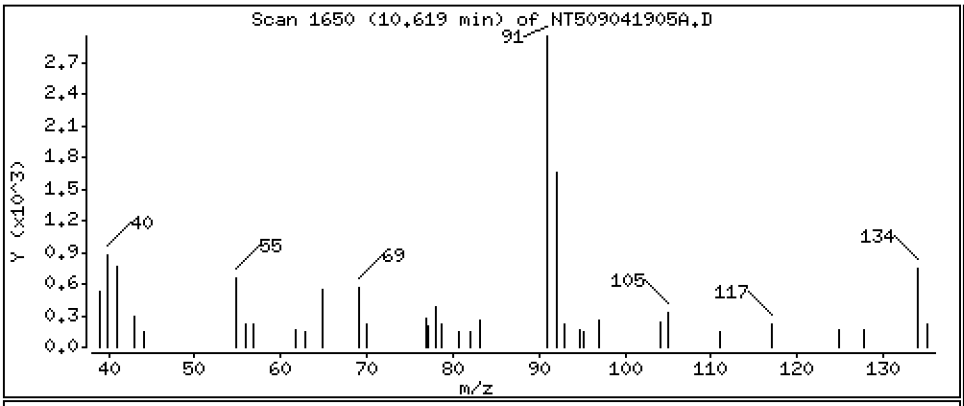
Operator: PB

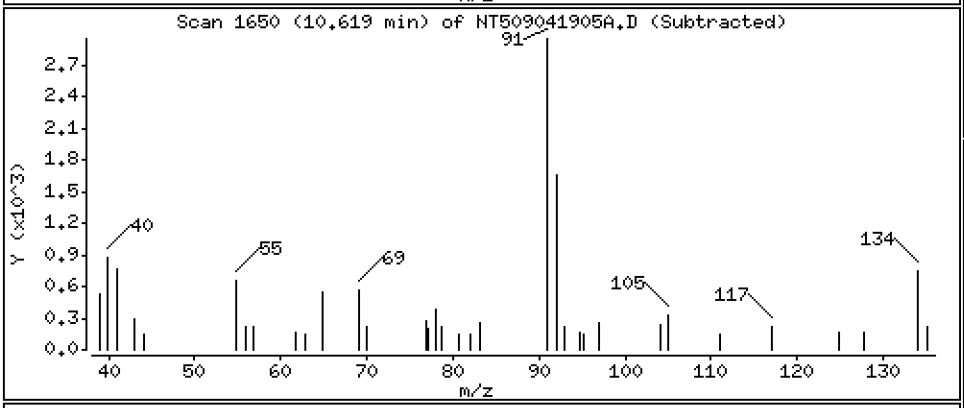
Column phase: RTXVMS

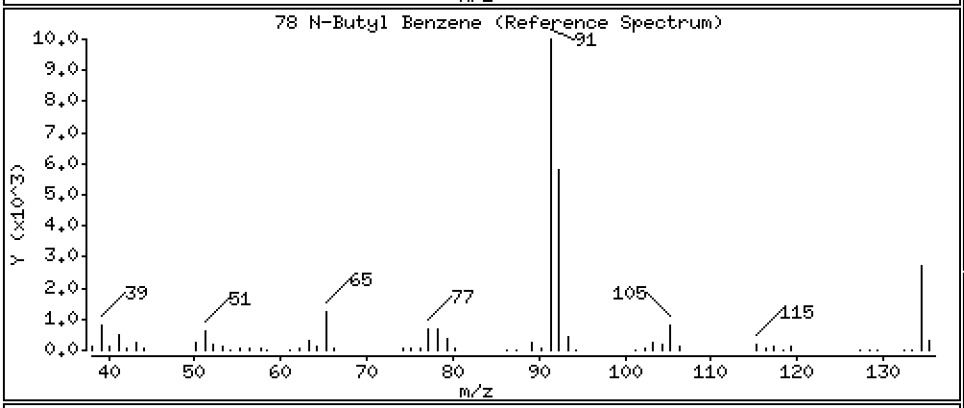
Column diameter: 0.18

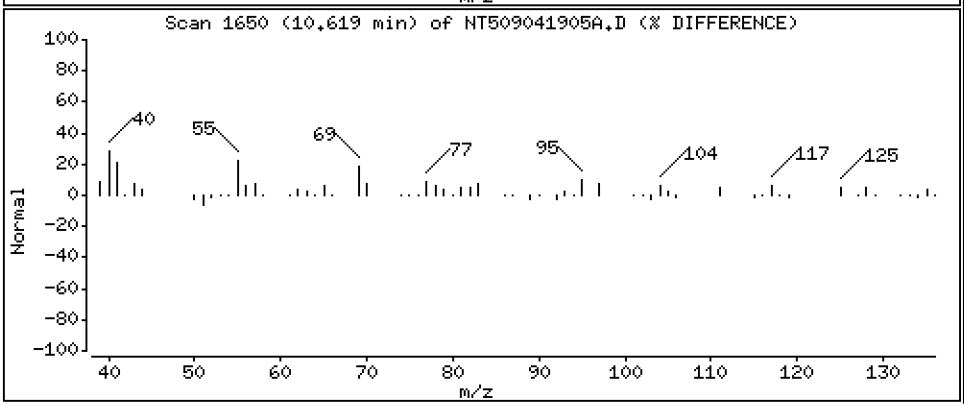
78 N-Butyl Benzene

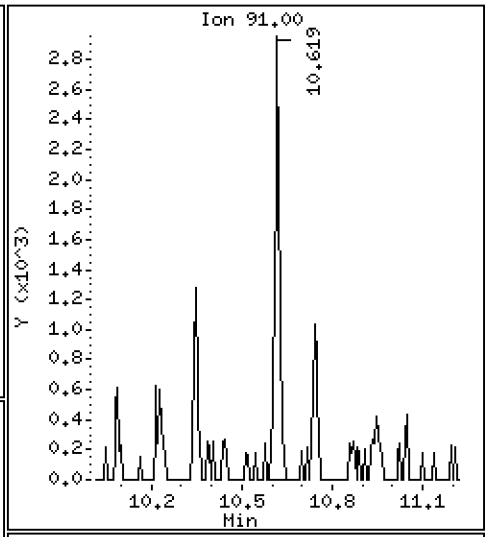
Concentration: 0.2613 ug/Kg

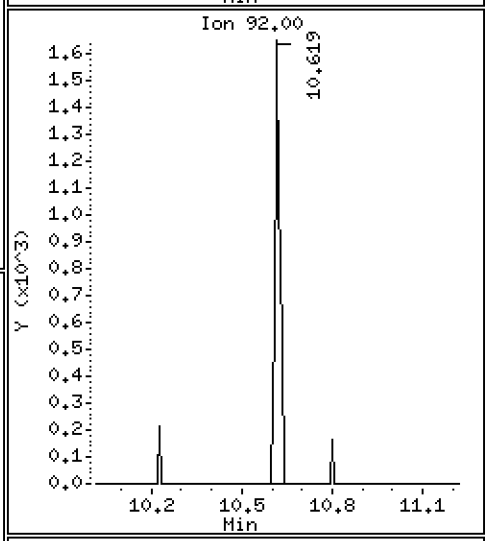


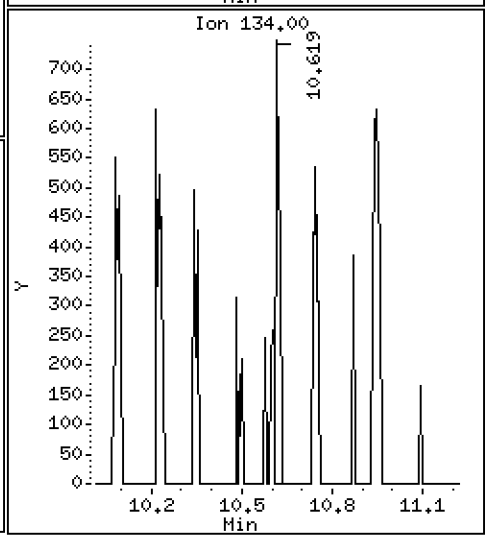












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Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

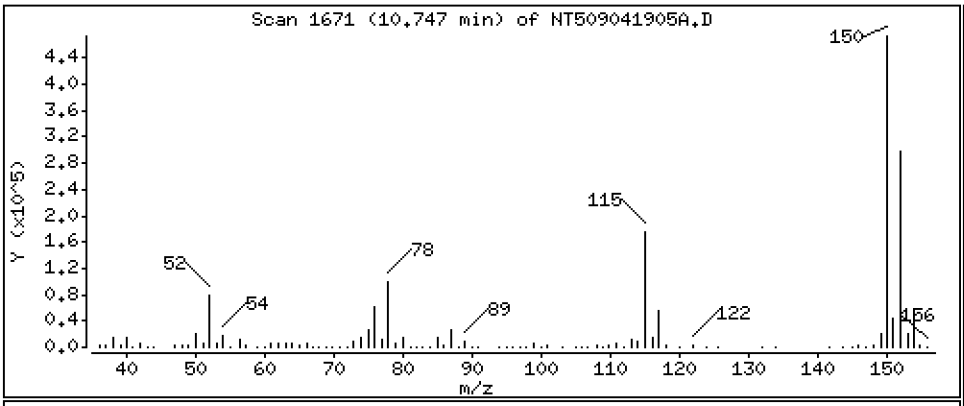
Operator: PB

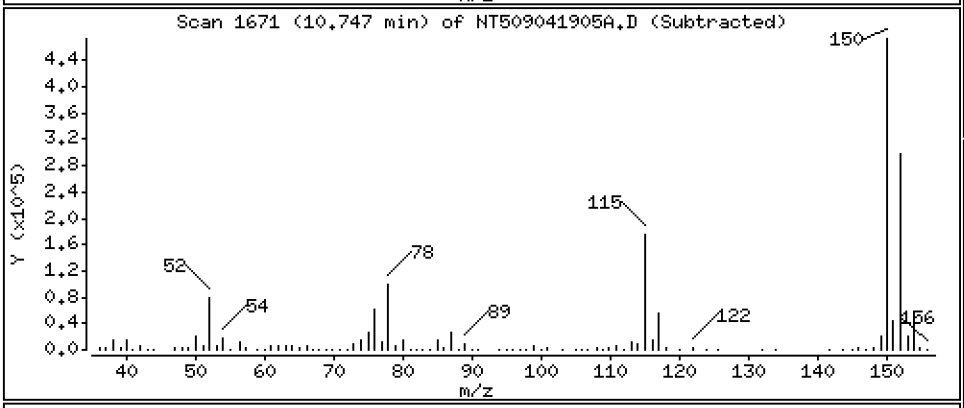
Column phase: RTXVMS

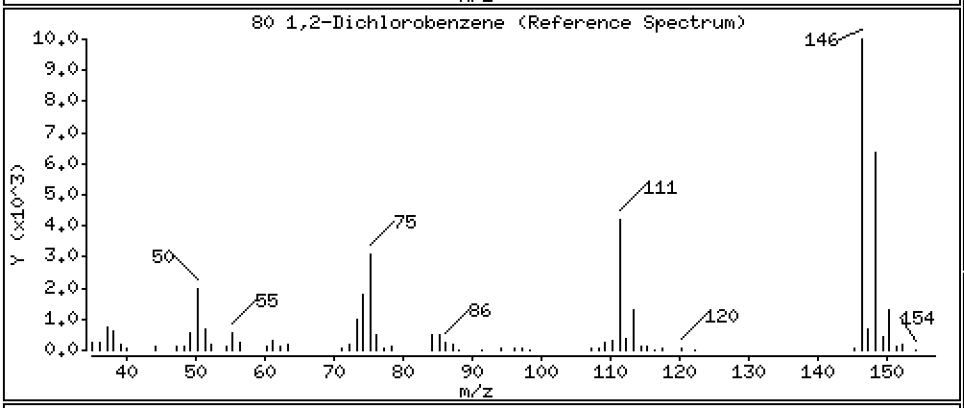
Column diameter: 0.18

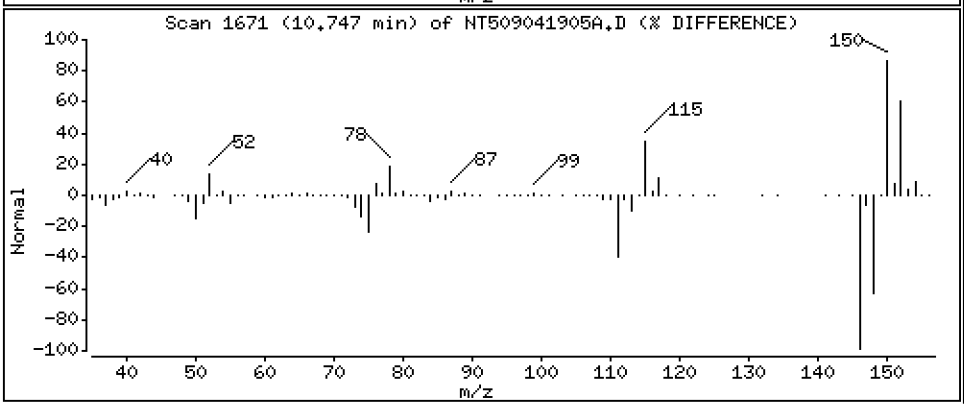
80 1,2-Dichlorobenzene

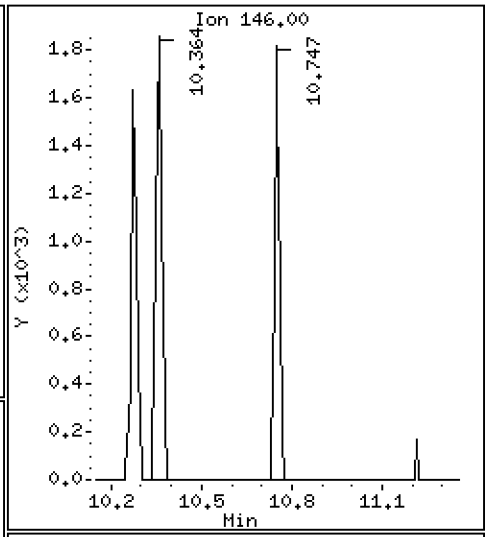
Concentration: 0.2915 ug/Kg

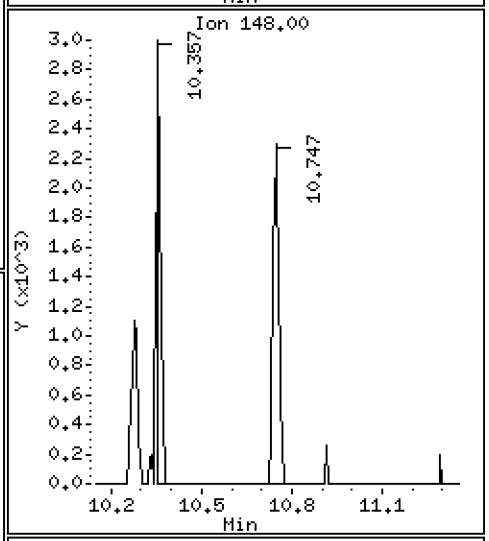


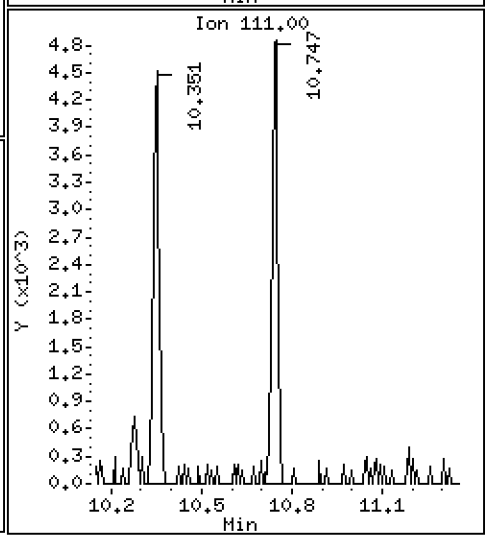












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Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

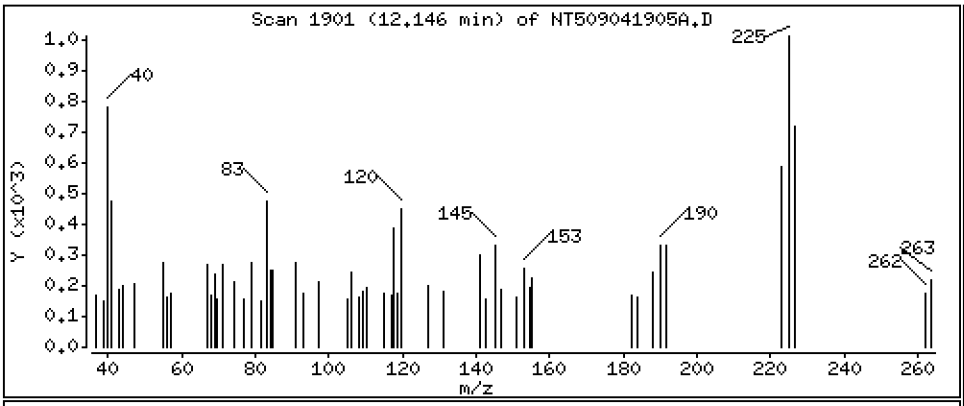
Operator: PB

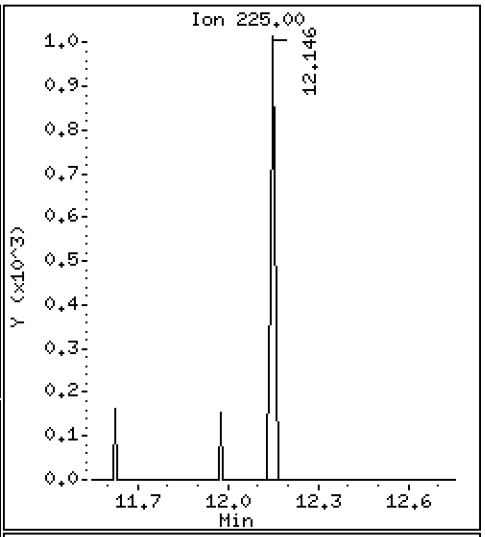
Column phase: RTXVMS

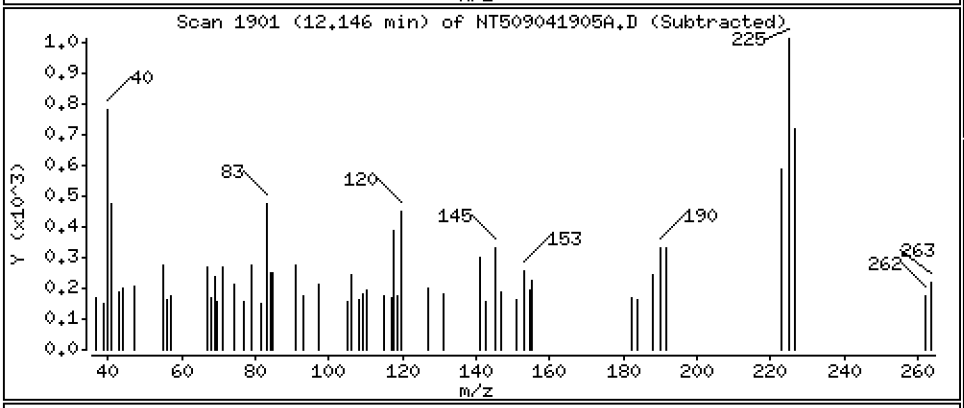
Column diameter: 0.18

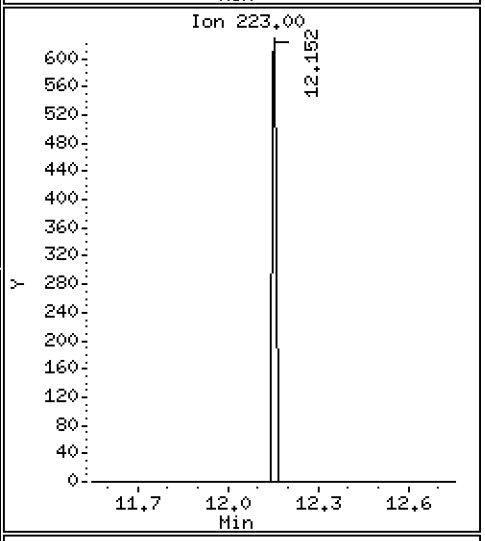
82 Hexachloro 1,3-Butadiene

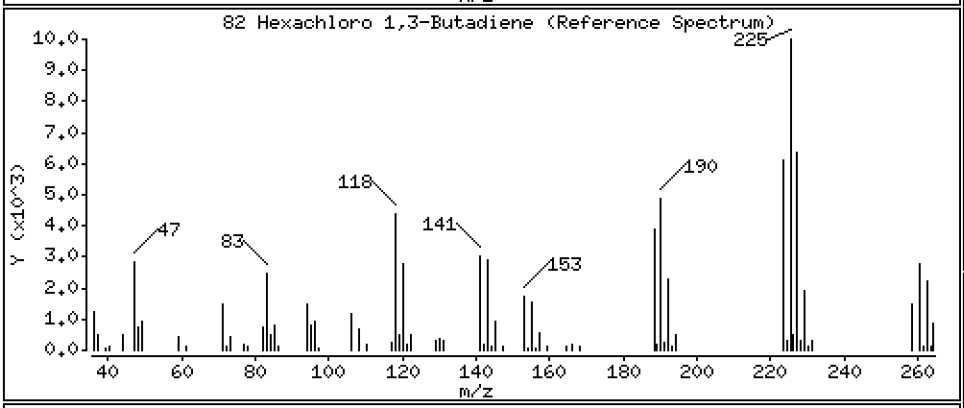
Concentration: 0.3920 ug/Kg

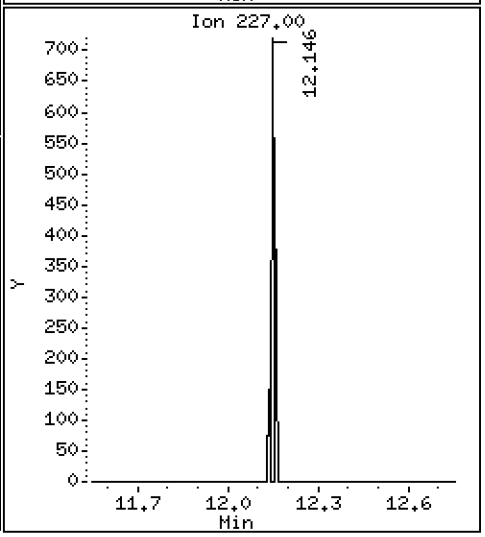


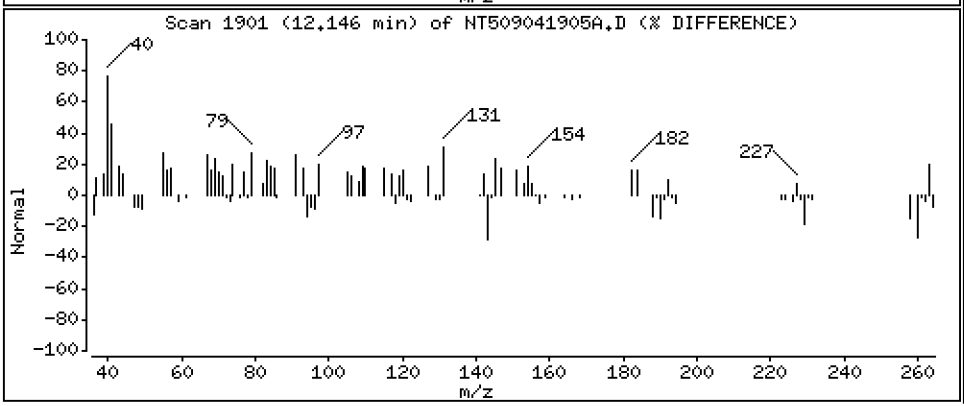












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041905A.D

Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

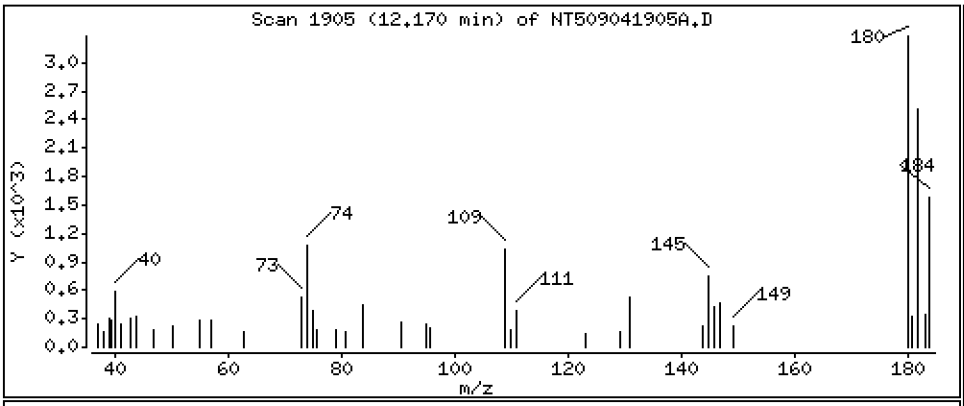
Operator: PB

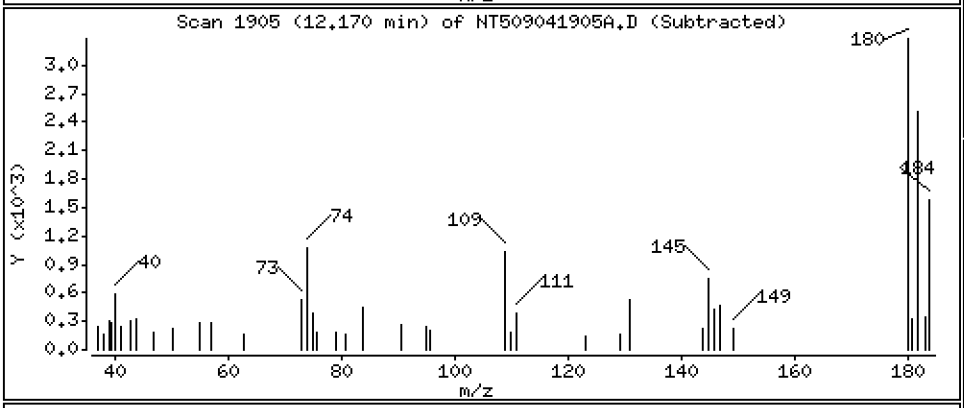
Column phase: RTXVMS

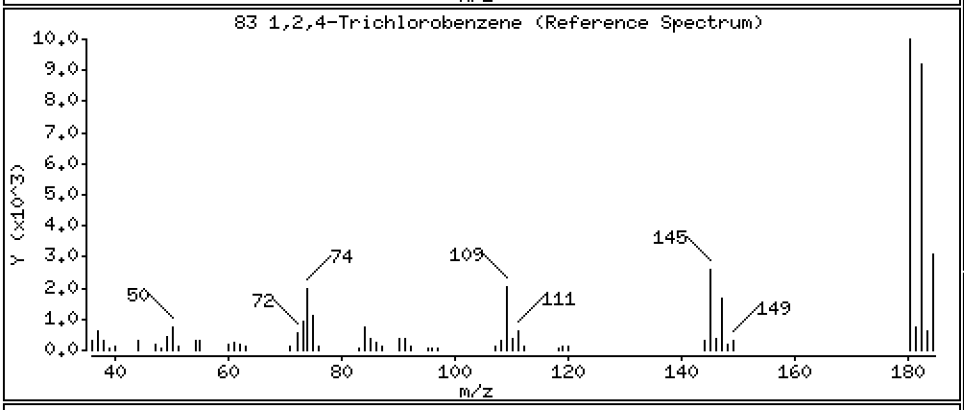
Column diameter: 0.18

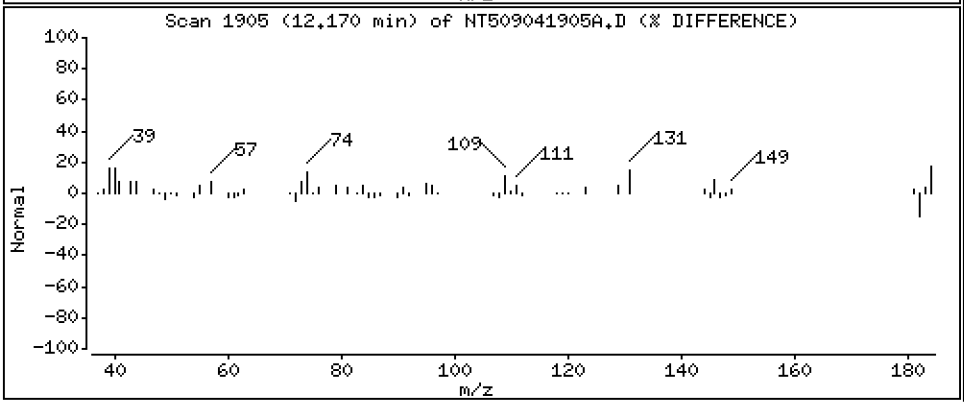
83 1,2,4-Trichlorobenzene

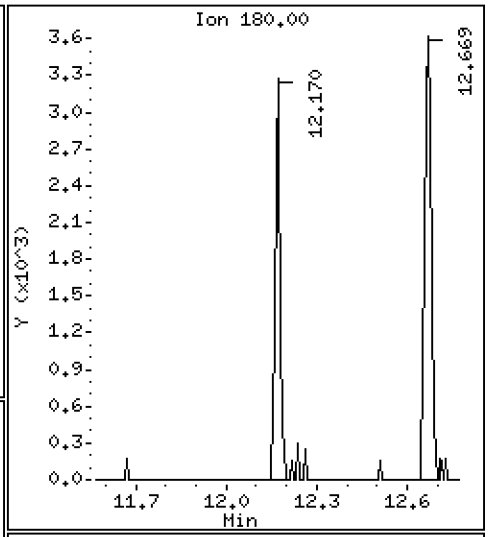
Concentration: 0.8370 ug/Kg

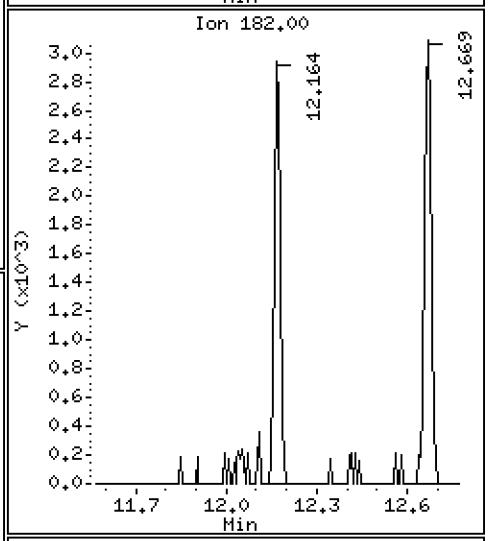


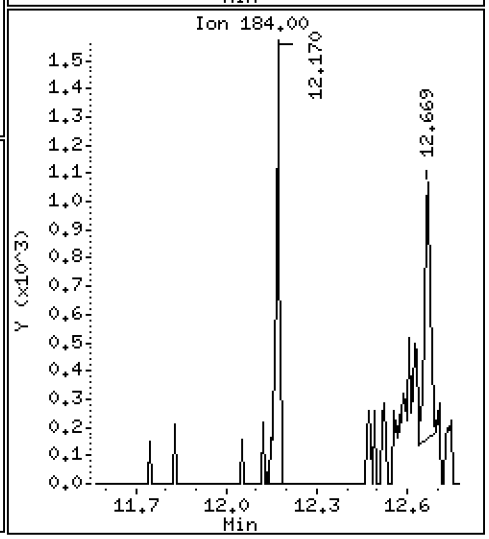












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Date : 04-SEP-2019 15:26

Client ID:

Instrument: nt5.i

Sample Info: BLK1

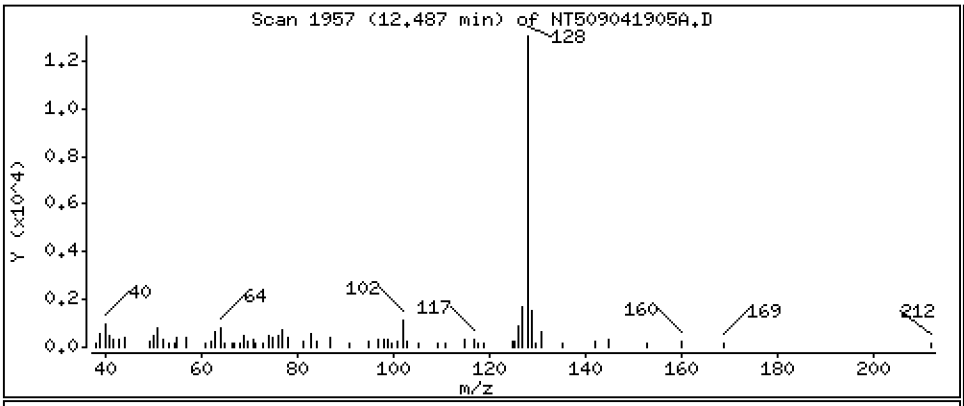
Operator: PB

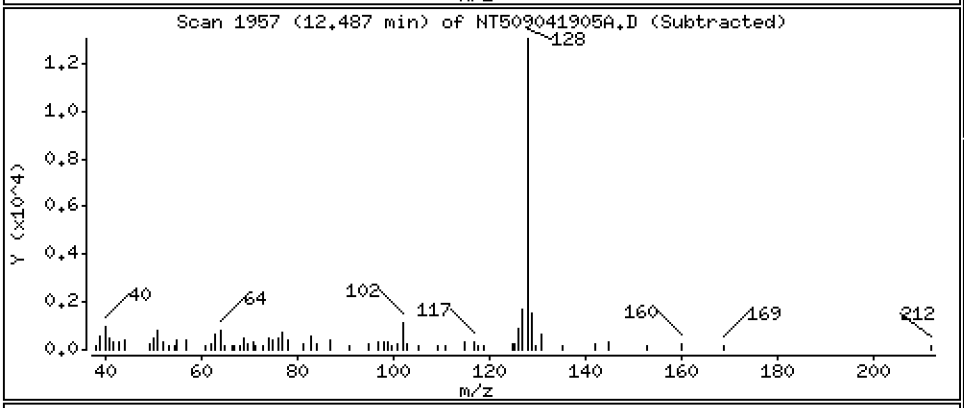
Column phase: RTXVMS

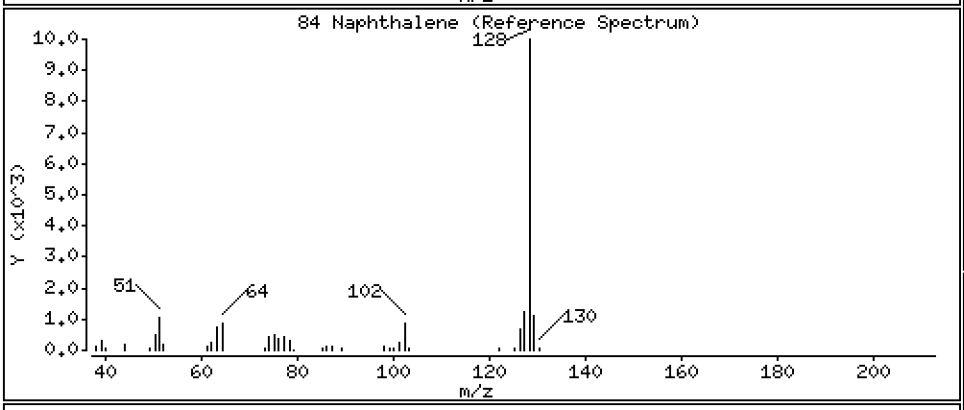
Column diameter: 0.18

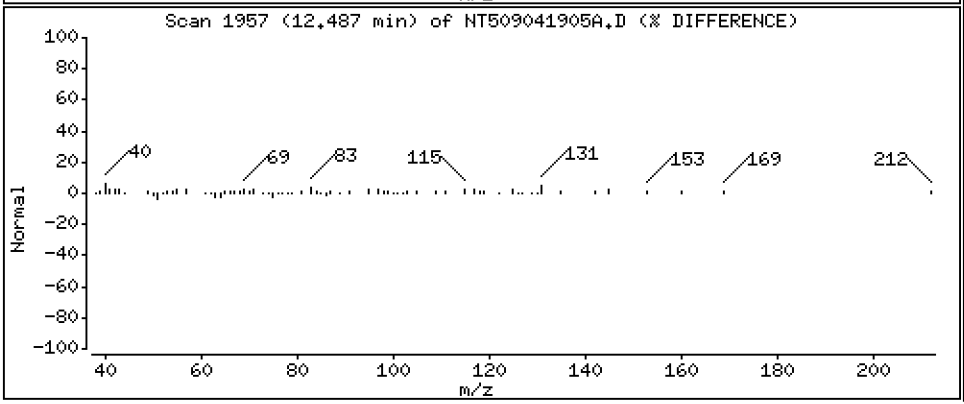
84 Naphthalene

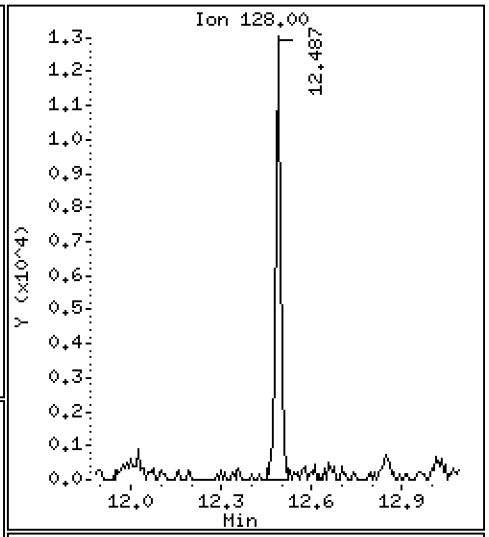
Concentration: 1.651 ug/Kg

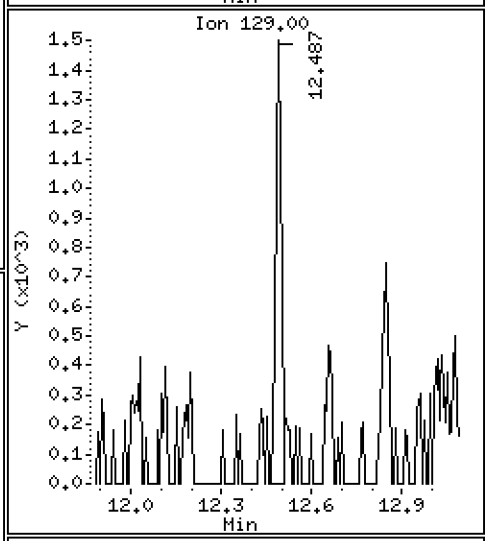


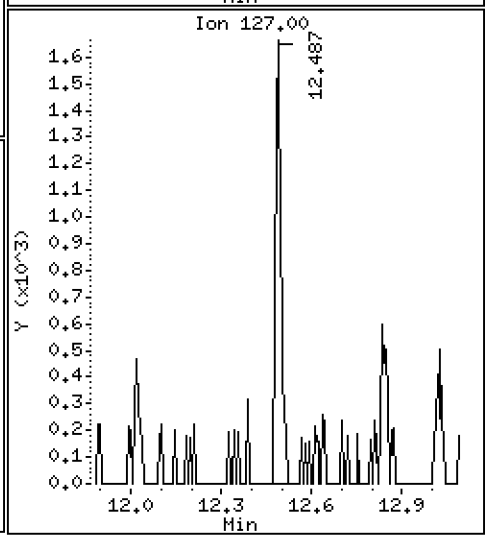












Date : 04-SEP-2019 15:26

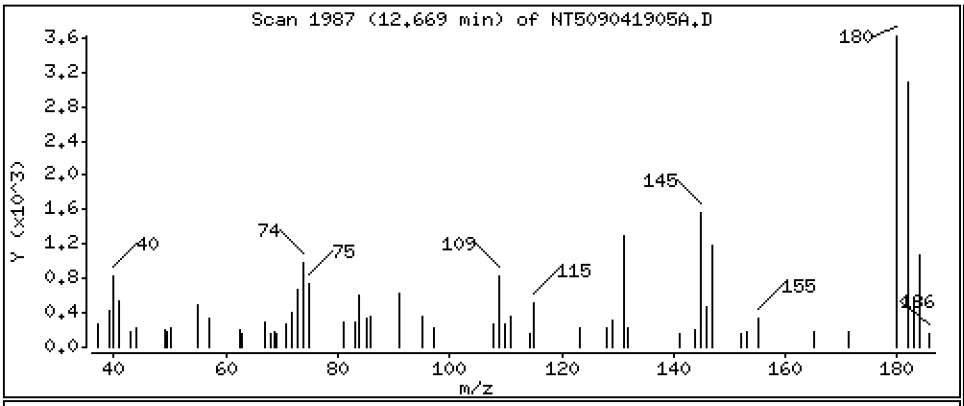
Client ID: Instrument: nt5.i

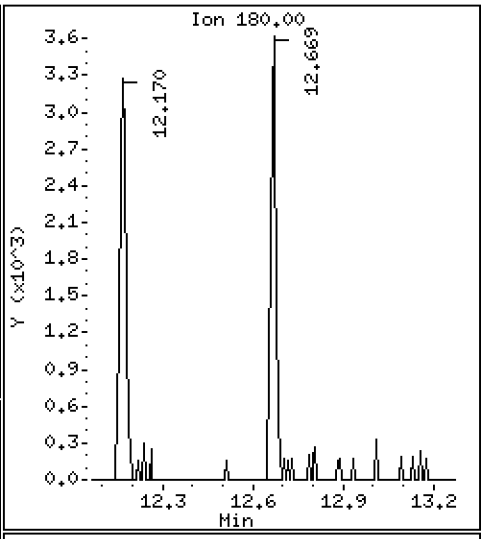
Sample Info: BLK1

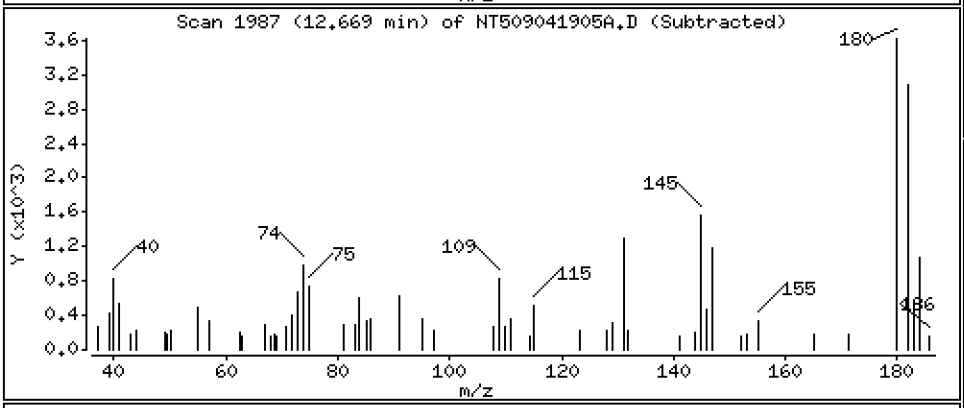
Operator: PB

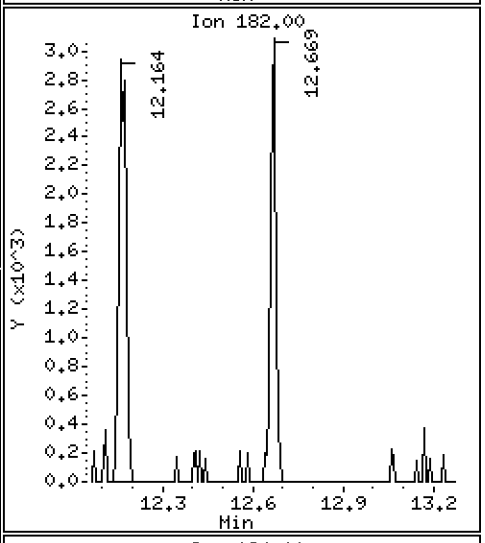
Column phase: RTXVMS Column diameter: 0.18

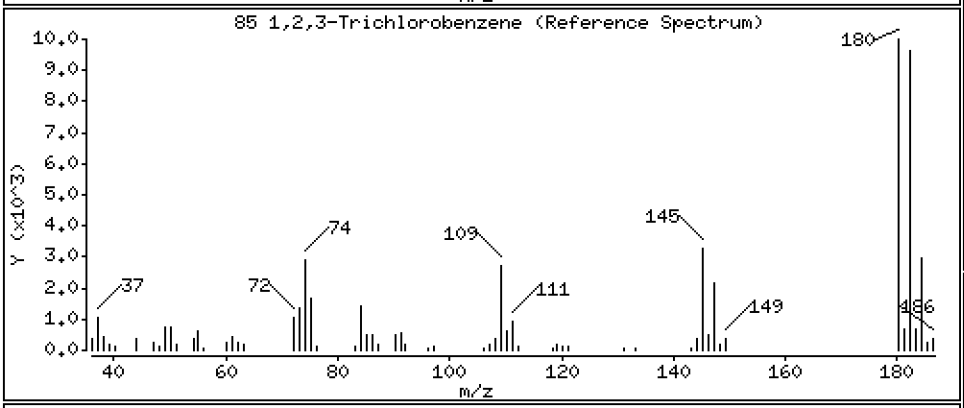
85 1,2,3-Trichlorobenzene Concentration: 1.096 ug/Kg

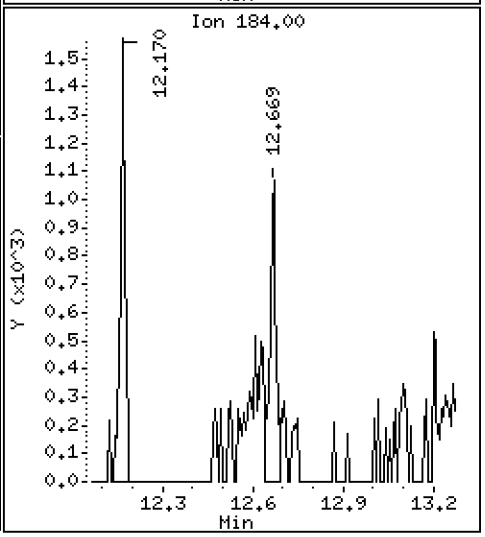


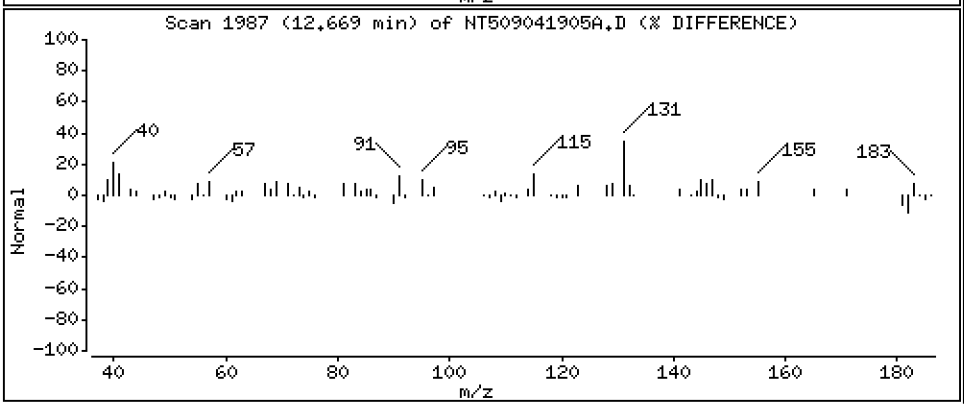












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041905A.D
Lab Smp Id: bhi0098-BLK1
Inj Date : 04-SEP-2019 15:26
Operator : PB   Inst ID: nt5.i
Smp Info : BLK1
Misc Info :
Comment   :
Method   : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i   Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29   Cal File: NT508201911.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	96	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.160	3.148	(0.592)	3949	1.79024	1.790
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 Methyl tert butyl ether	73	Compound Not Detected.					
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	Compound Not Detected.					
	18 Acrylonitrile	53	Compound Not Detected.					
	19 Vinyl Acetate	43	Compound Not Detected.					
	20 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	22 2,2-Dichloropropane	77	Compound Not Detected.					
	23 Bromochloromethane	128	Compound Not Detected.					
	24 Chloroform	83	Compound Not Detected.					
	25 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.900	4.894	(0.918)	272965	63.5632	63.563(R)
	26 1,1,1-Trichloroethane	97	Compound Not Detected.					
	28 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	72	Compound Not Detected.					
	30 Benzene	78	Compound Not Detected.					
*	31 Pentafluorobenzene	168	5.338	5.332	(1.000)	349668	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.350	(1.003)	256311	60.9200	60.920(R)
	33 1,2-Dichloroethane	62	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	CONCENTRATIONS FINAL (ug/Kg)
	34 Trichloroethene	130	Compound Not Detected.					
*	35 1,4-Difluorobenzene	114	5.788	5.782	(1.000)	820601	50.0000	
	37 Dibromomethane	93	Compound Not Detected.					
	38 1,2-Dichloropropane	63	Compound Not Detected.					
	39 Bromodichloromethane	83	Compound Not Detected.					
	172 2-Pentanone	86	Compound Not Detected.					
	40 2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	41 Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	42 d8-Toluene	98	6.938	6.938	(1.199)	1038238	51.2278	51.228(R)
	43 Toluene	92	Compound Not Detected.					
	44 Tetrachloroethene	166	Compound Not Detected.					
	45 4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46 Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	47 1,1,2-Trichloroethane	97	Compound Not Detected.					
	48 Chlorodibromomethane	129	Compound Not Detected.					
	49 1,3-Dichloropropane	76	Compound Not Detected.					
	50 1,2-Dibromoethane	107	Compound Not Detected.					
	51 2-Hexanone	43	Compound Not Detected.					
*	52 d5-Chlorobenzene	117	8.258	8.258	(1.000)	804428	50.0000	
	53 Chlorobenzene	112	Compound Not Detected.					
	54 Ethyl Benzene	91	Compound Not Detected.					
	55 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	56 m,p-xylene	106	Compound Not Detected.					
	57 o-Xylene	106	Compound Not Detected.					
	58 Styrene	104	Compound Not Detected.					
	59 Bromoform	173	Compound Not Detected.					
	60 Isopropyl Benzene	105	Compound Not Detected.					
	61 Cyclohexanone	55	Compound Not Detected.					
$	62 4-Bromofluorobenzene	174	9.335	9.335	(1.130)	351325	50.3787	50.379(R)
	63 Bromobenzene	156	Compound Not Detected.					
	64 N-Propyl Benzene	91	Compound Not Detected.					
	65 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66 2-Chloro Toluene	91	Compound Not Detected.					
	67 1,3,5-Trimethyl Benzene	105	Compound Not Detected.					
	68 1,2,3-Trichloropropane	110	Compound Not Detected.					
	69 Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70 4-Chloro Toluene	91	Compound Not Detected.					
	71 T-Butyl Benzene	119	Compound Not Detected.					
	72 1,2,4-Trimethylbenzene	105	Compound Not Detected.					
	73 S-Butyl Benzene	105	Compound Not Detected.					
	74 4-Isopropyl Toluene	119	Compound Not Detected.					
	75 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76 d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	442849	50.0000	
	77 1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	3104	0.33903	0.3390
	78 N-Butyl Benzene	91	10.619	10.619	(1.026)	3824	0.26129	0.2613
$	79 d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	427063	51.4703	51.470(R)
	80 1,2-Dichlorobenzene	146	10.746	10.752	(1.038)	2488	0.29146	0.2915
	81 1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	82 Hexachloro 1,3-Butadiene	225	12.146	12.152	(1.173)	1242	0.39200	0.3920
	83 1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	4501	0.83702	0.8370
	84 Naphthalene	128	12.486	12.486	(1.206)	18511	1.65091	1.651
	85 1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	5343	1.09574	1.096

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041905A.D
Lab Smp Id: bhi0098-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	349668	-23.65
35 1,4-Difluorobenze	852165	426083	1704330	820601	-3.70
52 d5-Chlorobenzene	803678	401839	1607356	804428	0.09
76 d4-1,4-Dichlorobe	439766	219883	879532	442849	0.70

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.34	0.12
35 1,4-Difluorobenze	5.78	5.28	6.28	5.79	0.11
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151013
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: bhi0098-BLK1
Level:
Operator: PB
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: voasoil.spk
Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	63.563	127.13	
$ 32 d4-1,2-Dichloroeth	50.000	60.920	121.84	
$ 42 d8-Toluene	50.000	51.228	102.46	
$ 62 4-Bromofluorobenze	50.000	50.379	100.76	
$ 79 d4-1,2-Dichloroben	50.000	51.470	102.94	

REVIEW SUMMARY FOR FILE - NT509041905A.D

Lab ID: bhi0098-BLK1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 15:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Form I

METHOD BLANK DATA SHEET

EPA 8260C

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Water	Laboratory ID:	BHI0133-BLK1	File ID:	V309051908.D
Sampled:	N/A	Prepared:	09/05/19 07:58	Analyzed:	09/05/19 14:16
Solids:		Preparation:	EPA 5030 (Purge and Trap)	Initial/Final:	10 mL / 10 ml
Batch:	BHI0133	Sequence:	SHI0085	Calibration:	CI00019
Instrument:	NT3	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
71-43-2	Benzene	1	0.20	U	0.03	0.20
108-88-3	Toluene	1	0.20	U	0.04	0.20
100-41-4	Ethylbenzene	1	0.20	U	0.04	0.20
179601-23-1	m,p-Xylene	1	0.40	U	0.05	0.40
95-47-6	o-Xylene	1	0.20	U	0.03	0.20

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.98	99.7	80 - 120	
4-Bromofluorobenzene	5.0000	4.88	97.6	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

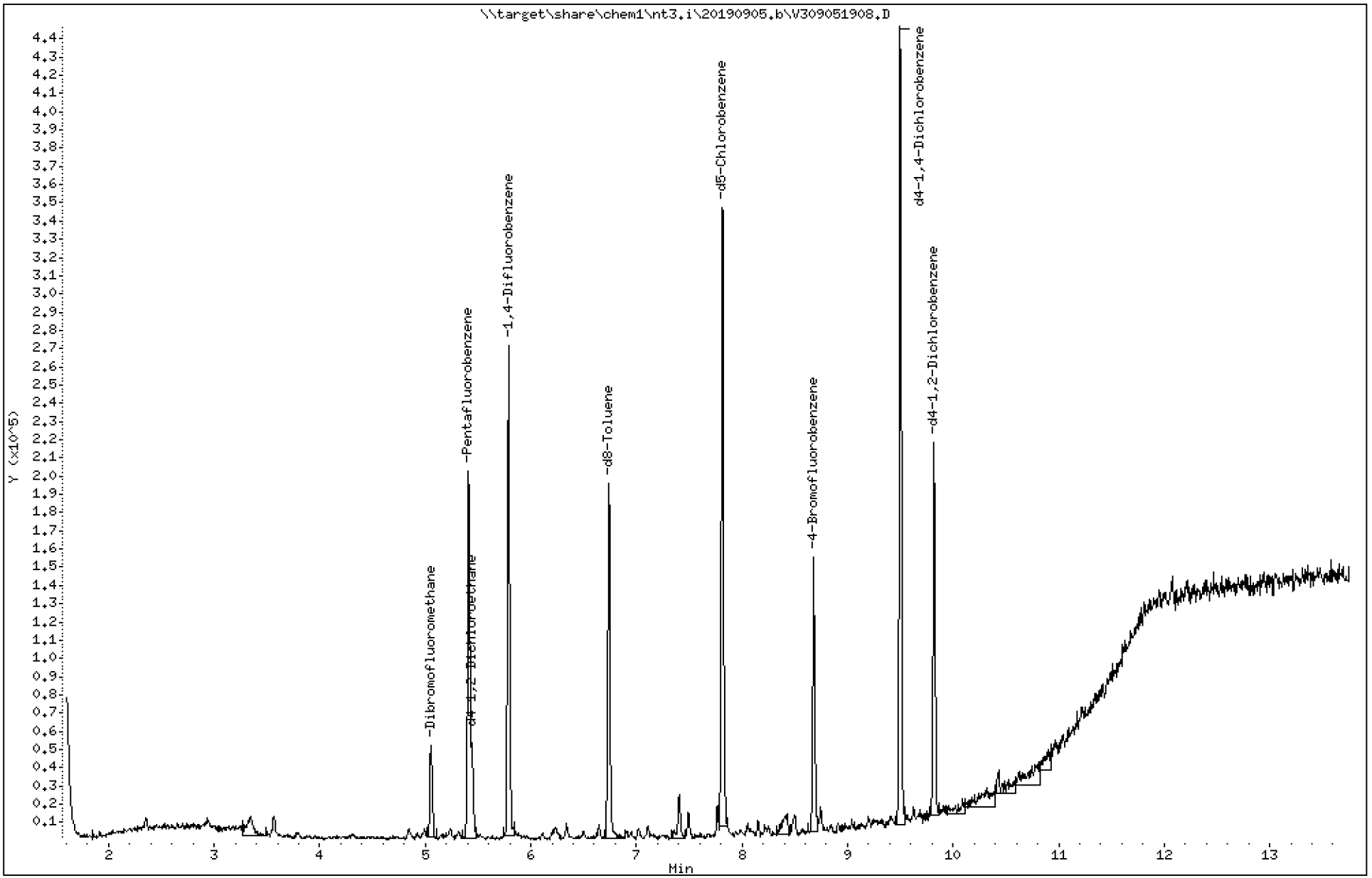
Instrument: nt3.i

Sample Info: BHI0133-BLK1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

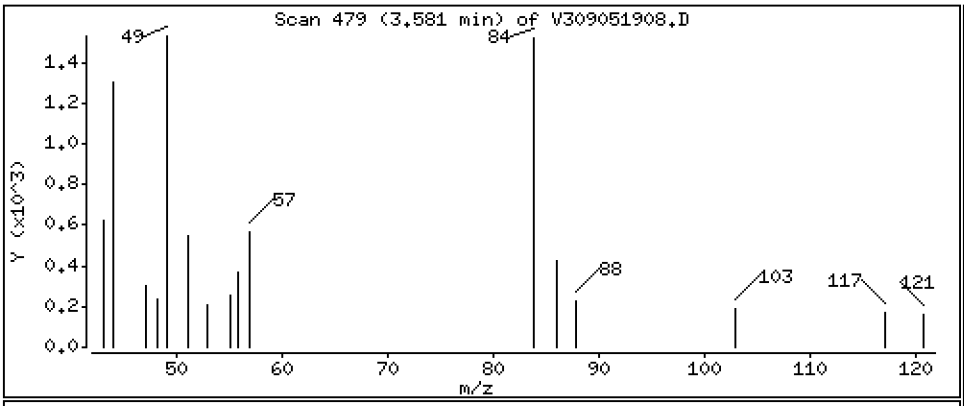
Operator: PKC

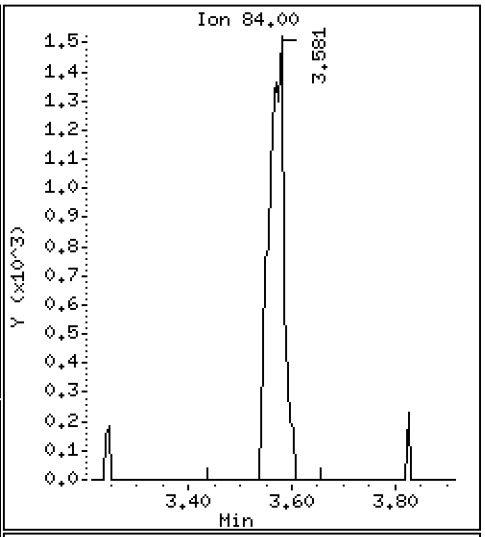
Column phase: RTXVMS

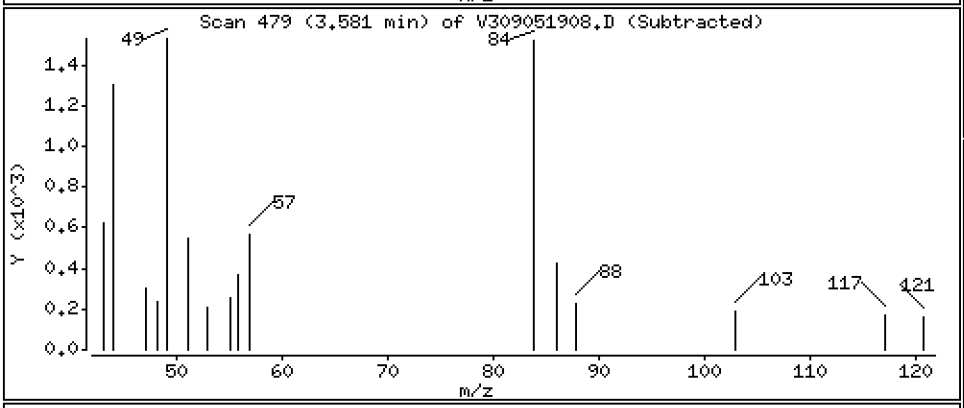
Column diameter: 0.18

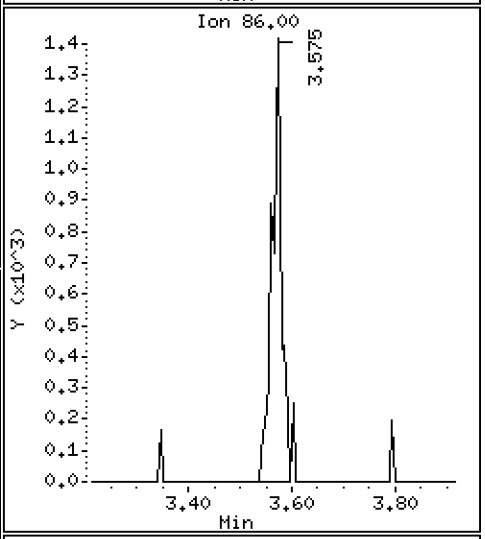
13 Methylene Chloride

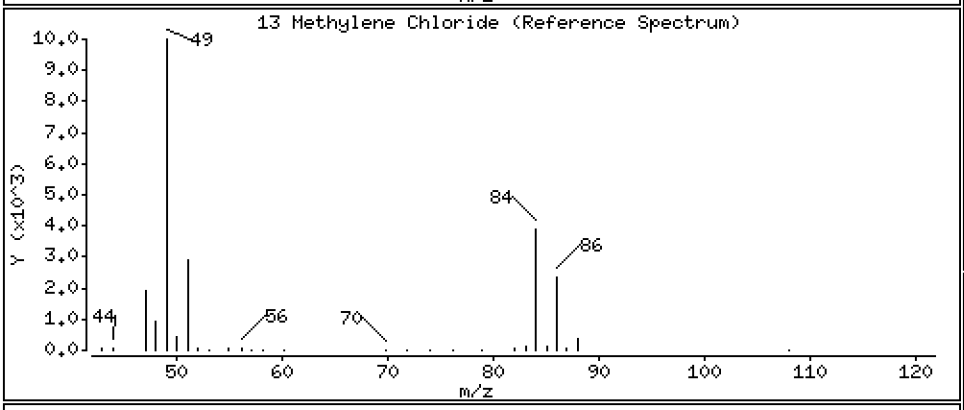
Concentration: 0.4896 ug/L

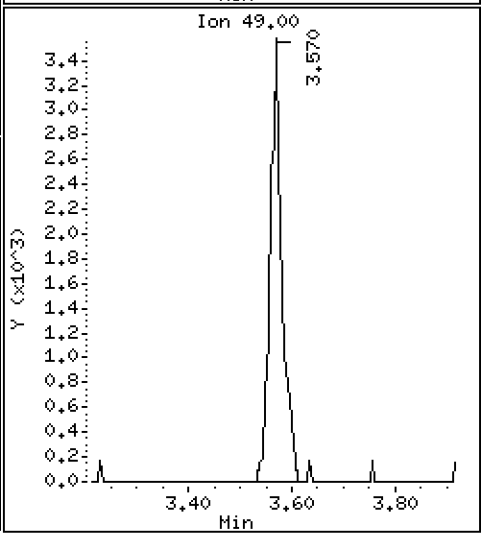


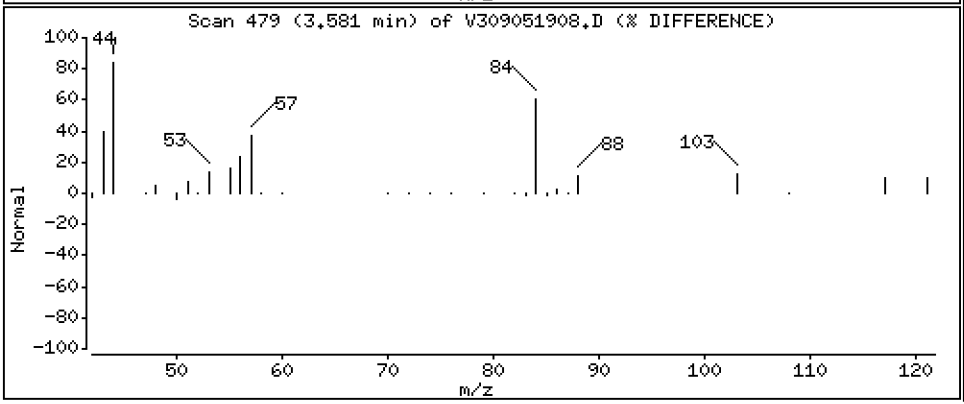












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Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

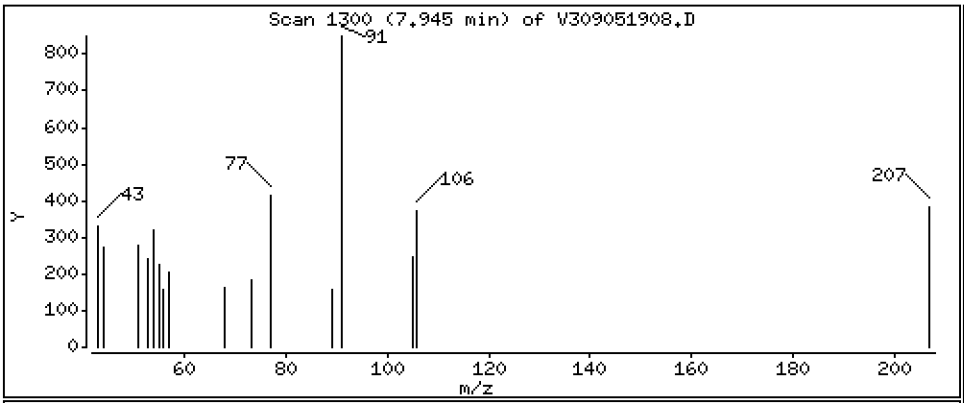
Operator: PKC

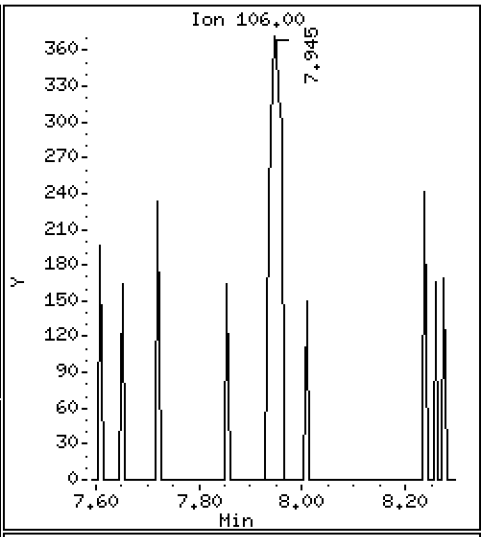
Column phase: RTXVMS

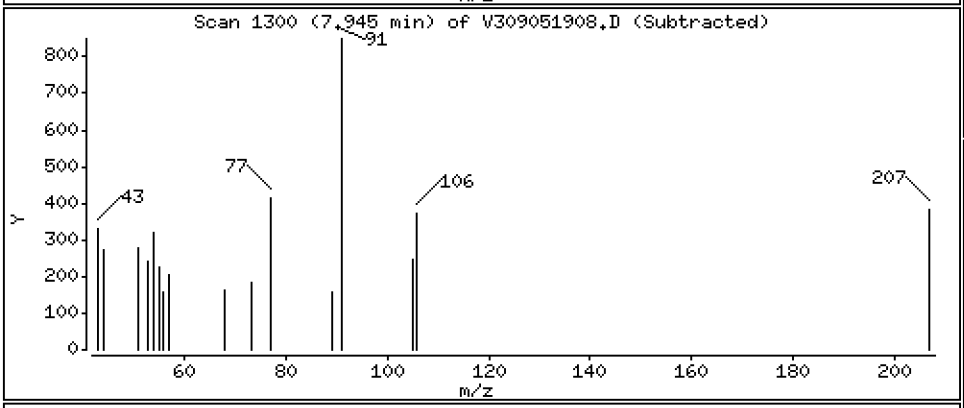
Column diameter: 0.18

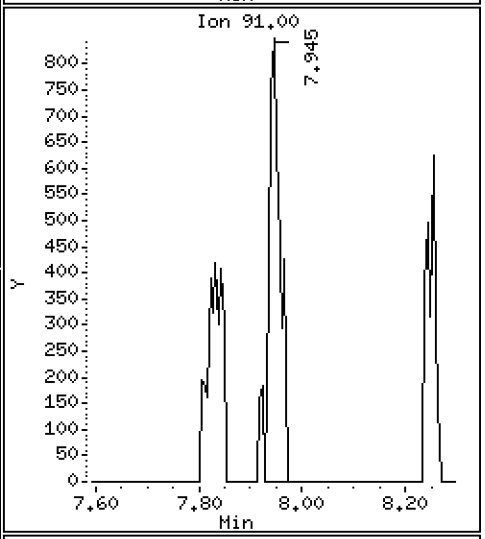
57 m,p-xylene

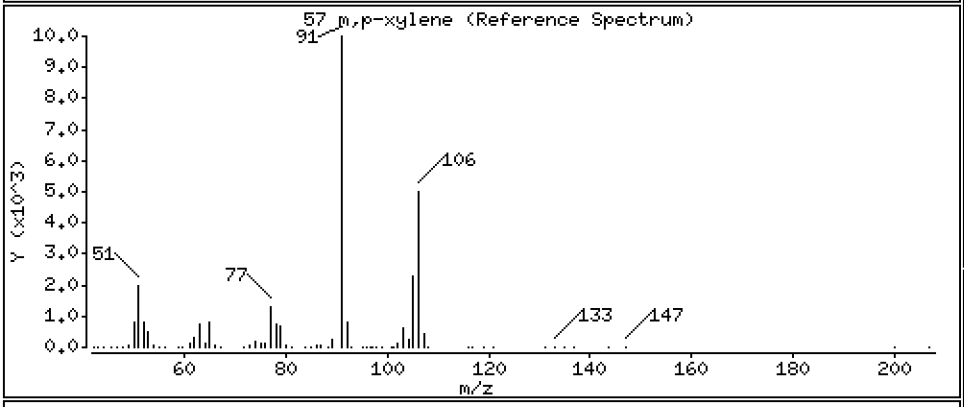
Concentration: 0.04177 ug/L

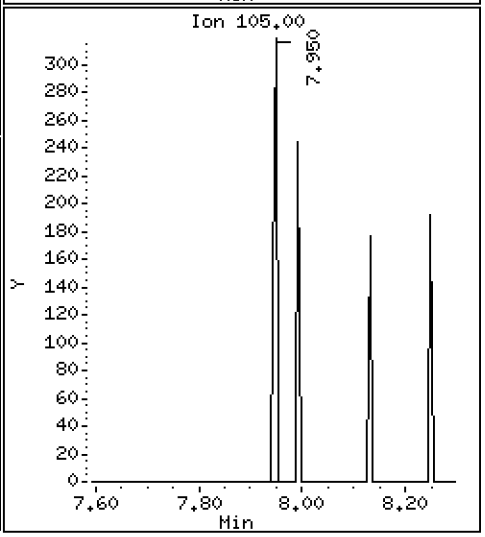


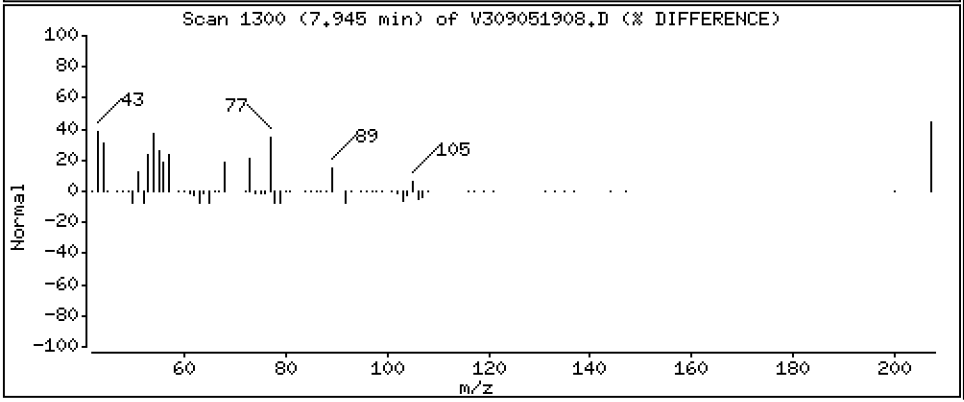












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

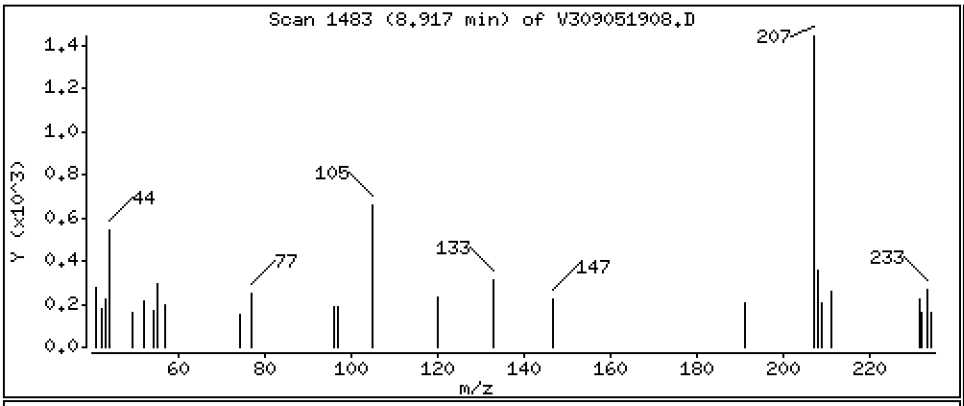
Operator: PKC

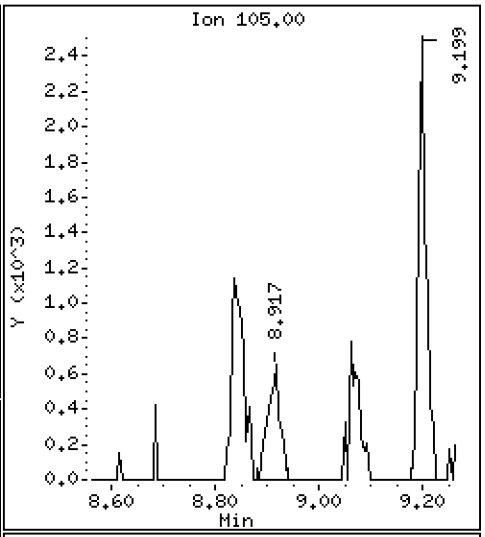
Column phase: RTXVMS

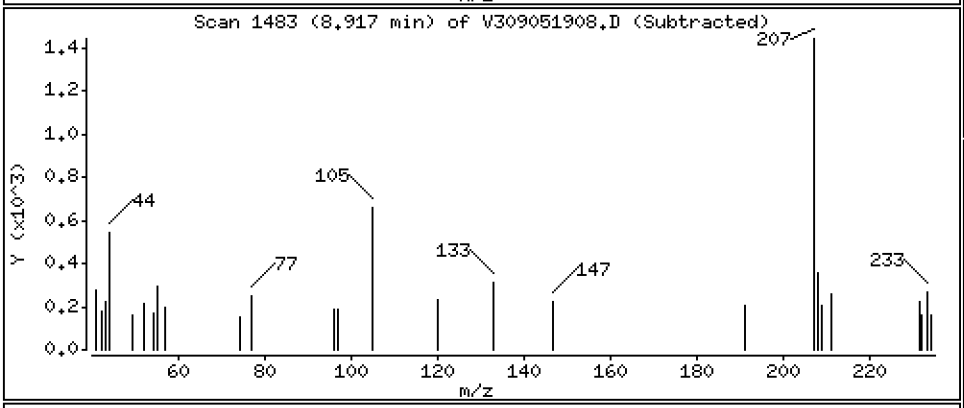
Column diameter: 0.18

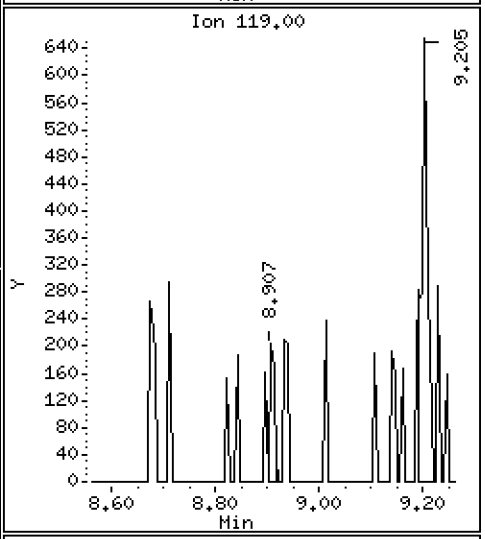
67 1,3,5-Trimethyl Benzene

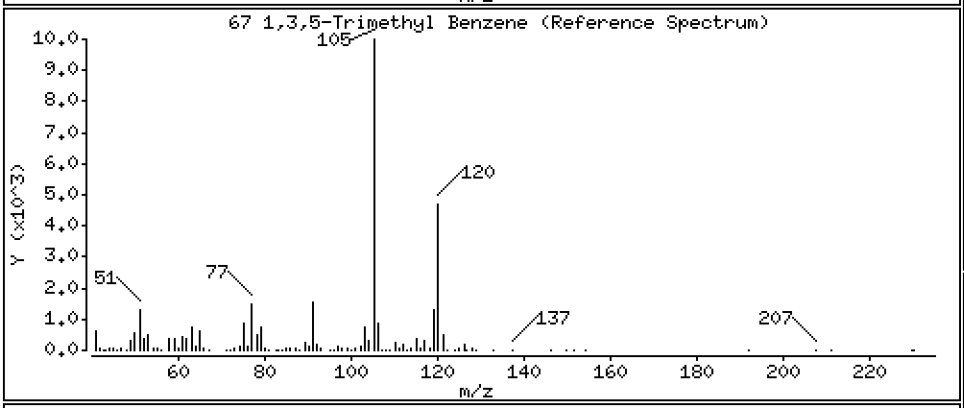
Concentration: 0.03260 ug/L

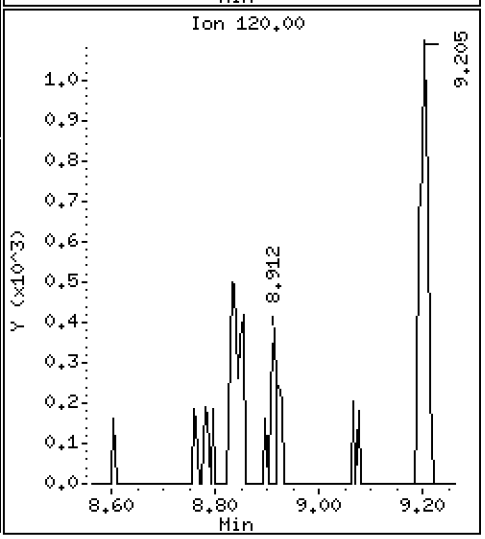


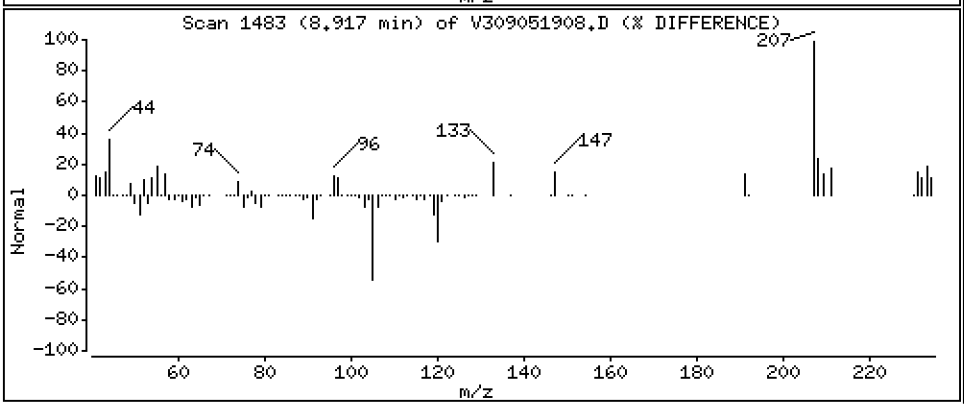












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

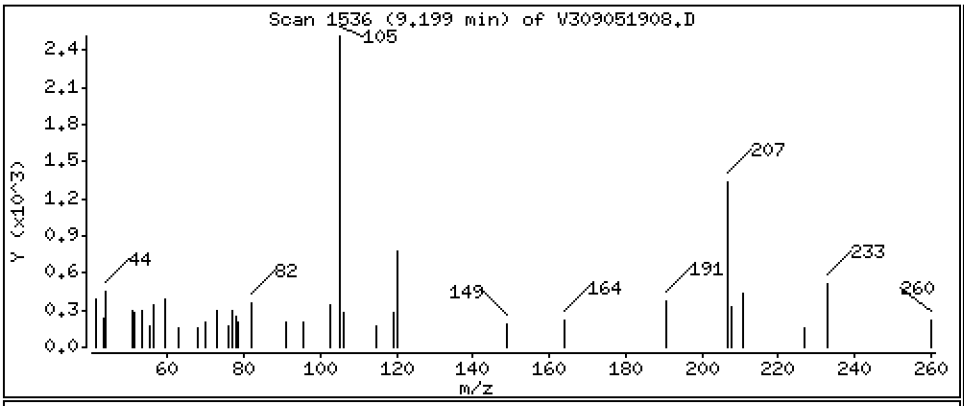
Operator: PKC

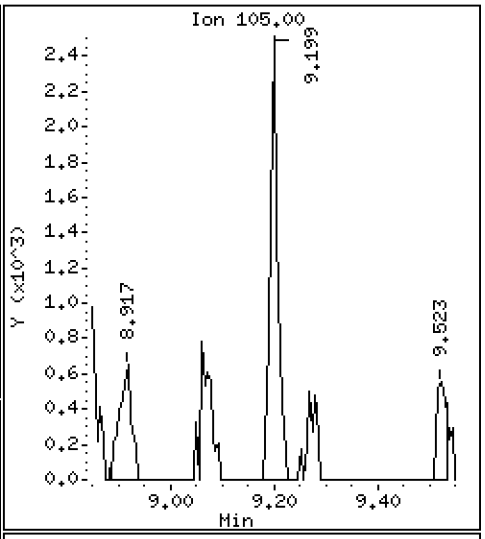
Column phase: RTXVMS

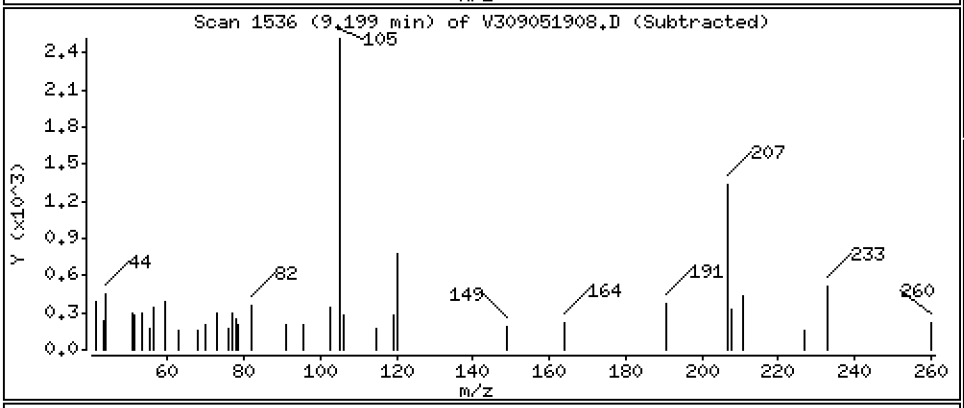
Column diameter: 0.18

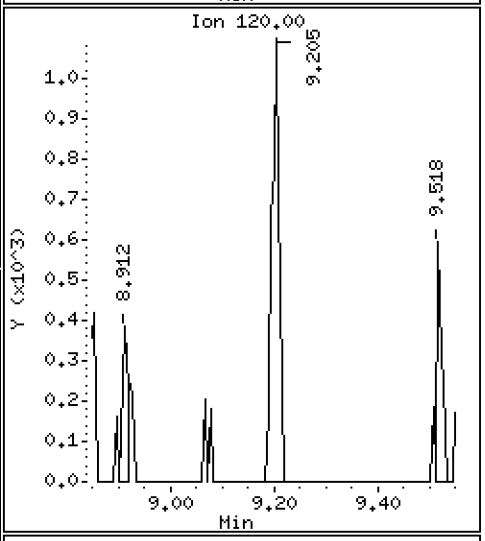
72 1,2,4-Trimethylbenzene

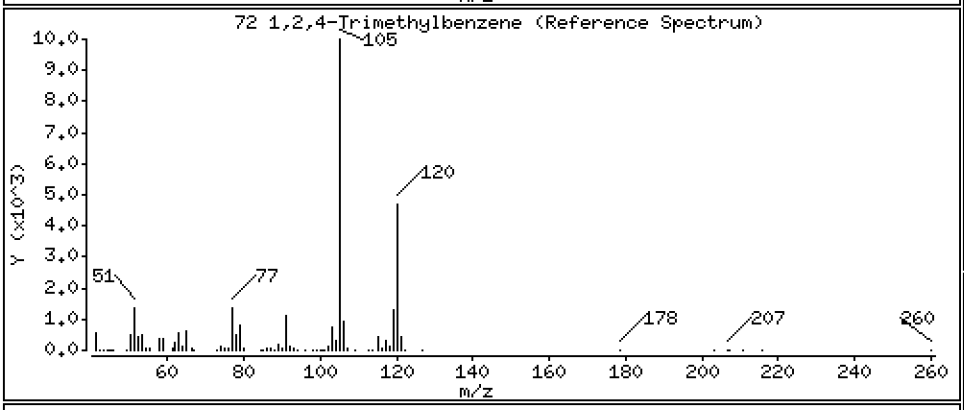
Concentration: 0.07919 ug/L

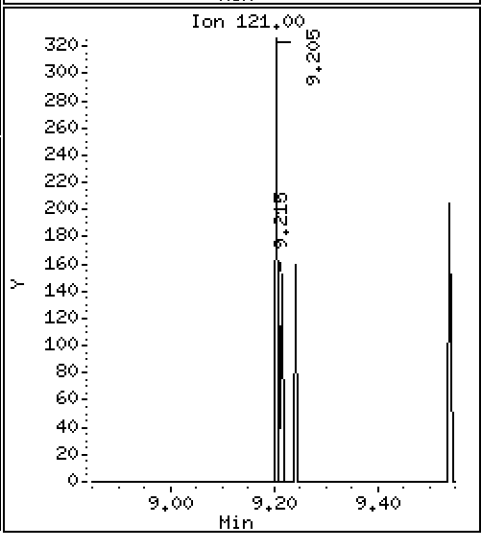


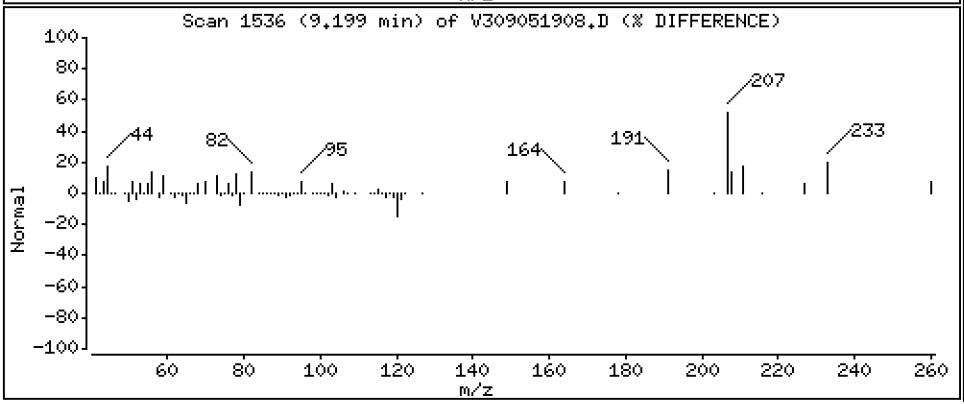












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

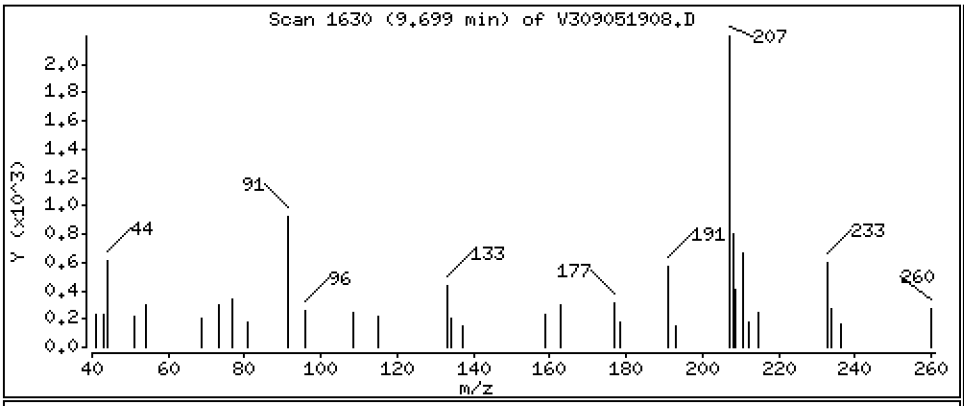
Operator: PKC

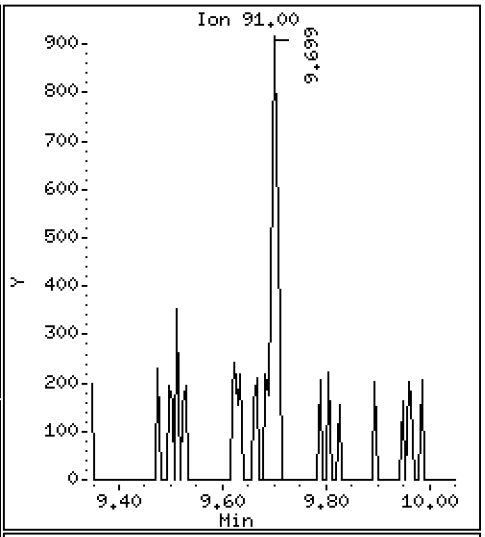
Column phase: RTXVMS

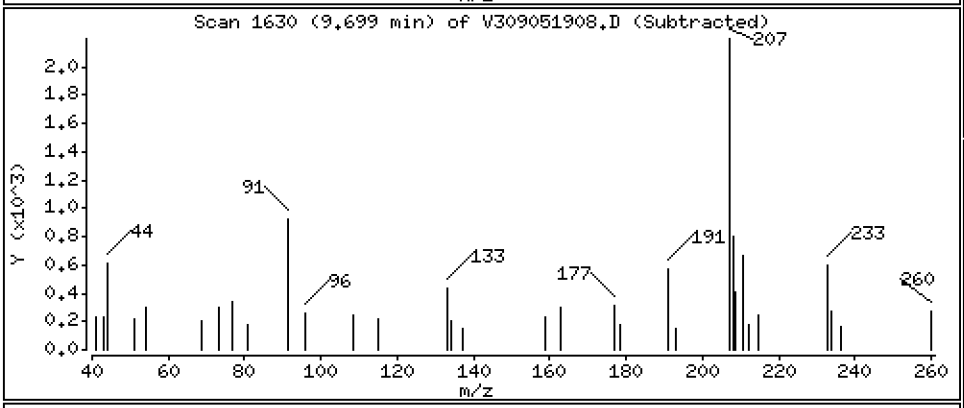
Column diameter: 0.18

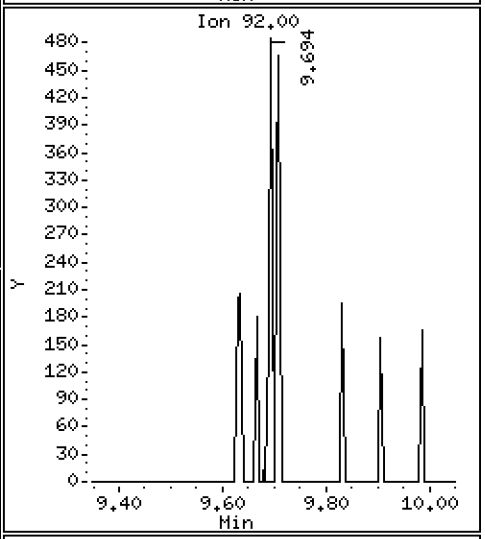
78 N-Butyl Benzene

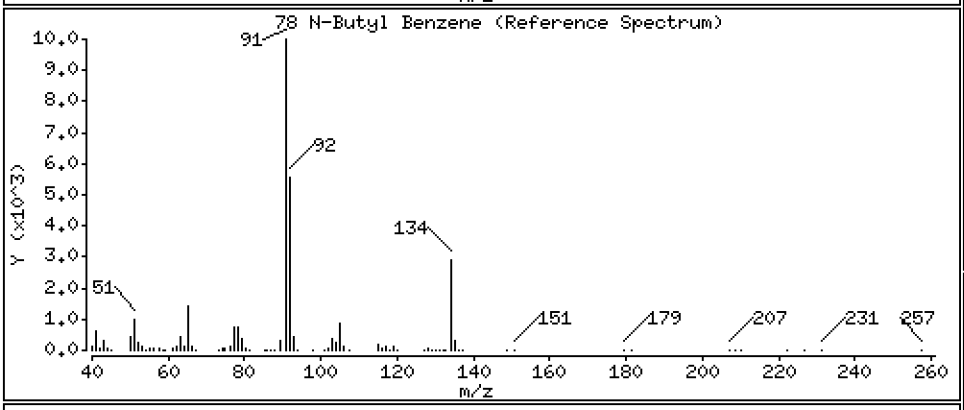
Concentration: 0.03142 ug/L

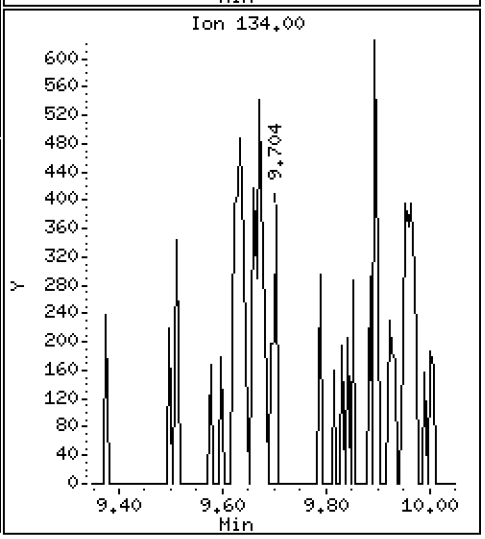


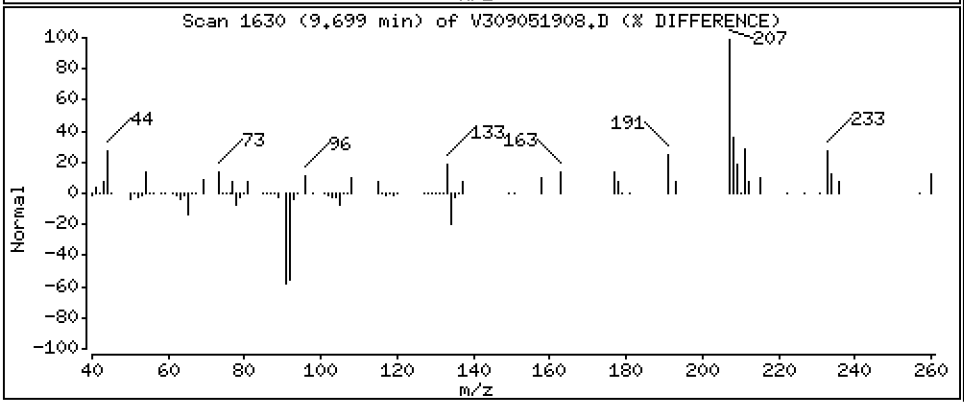












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

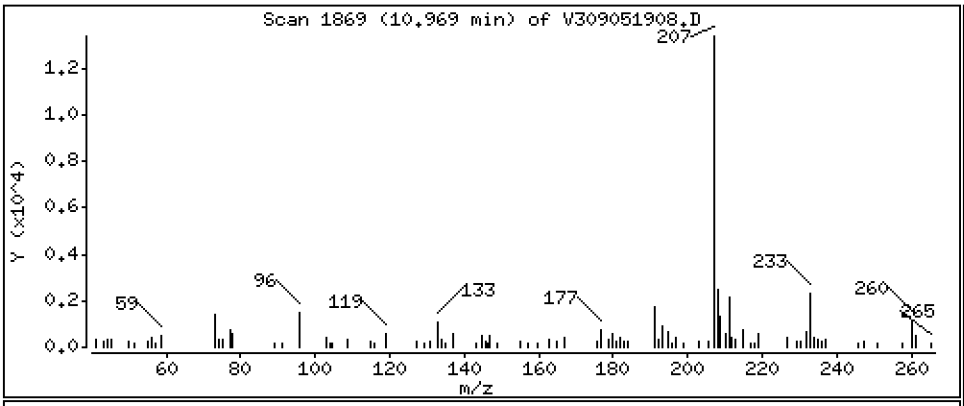
Operator: PKC

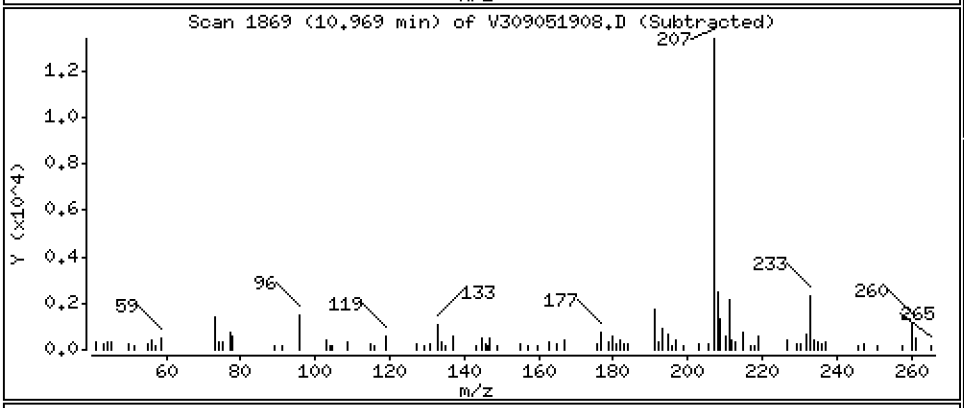
Column phase: RTXVMS

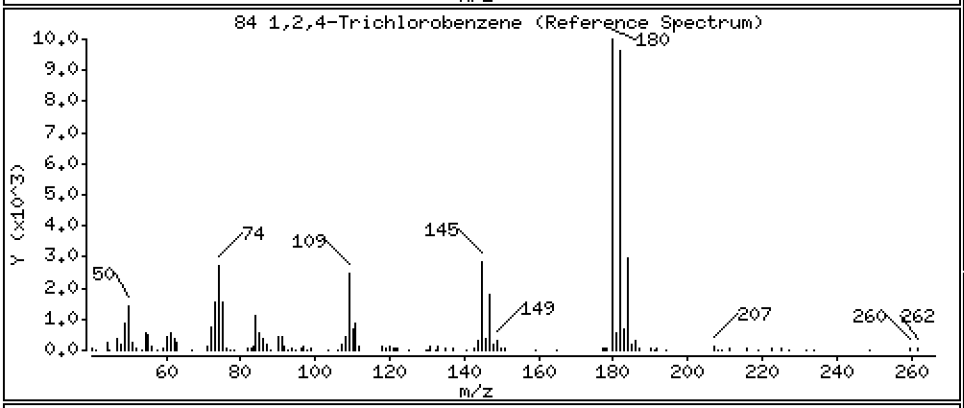
Column diameter: 0.18

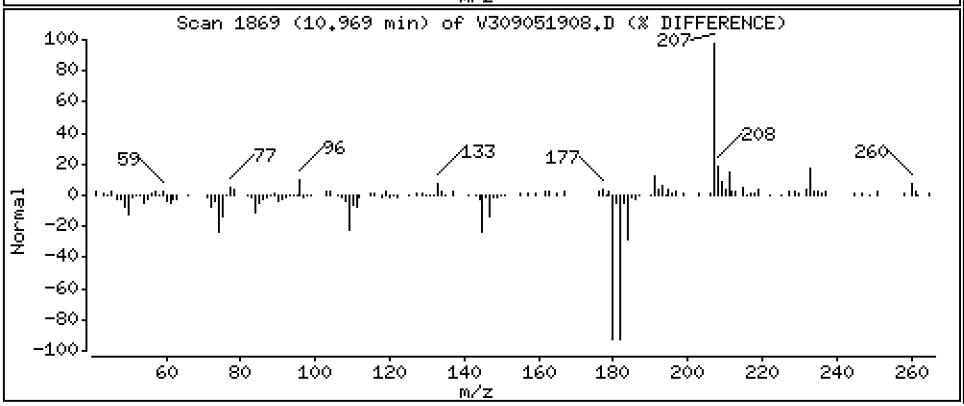
84 1,2,4-Trichlorobenzene

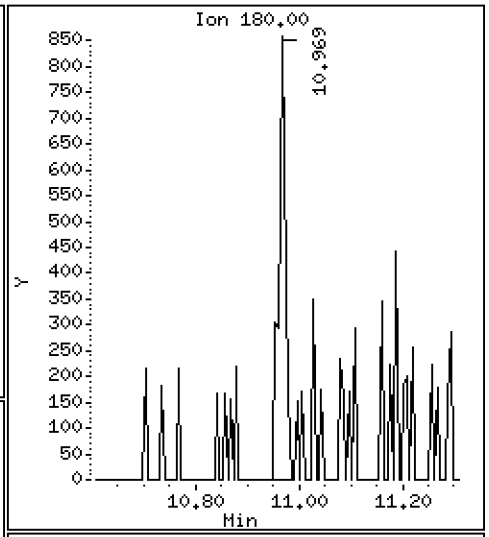
Concentration: 0.05846 ug/L

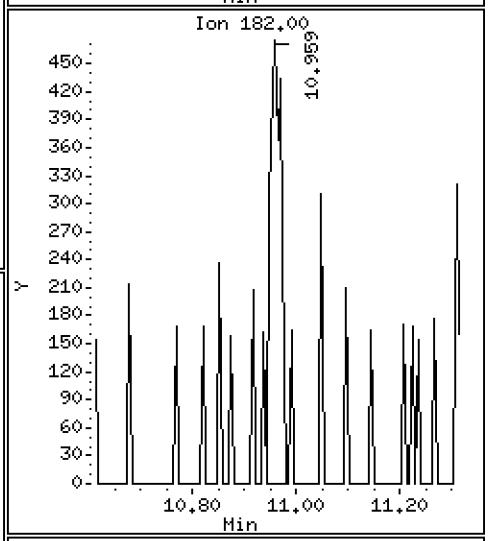


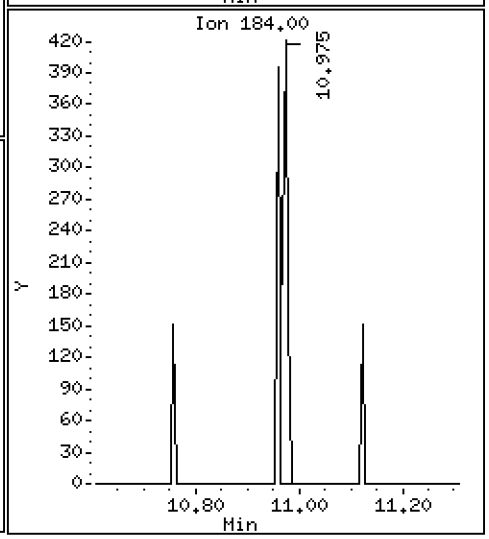












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

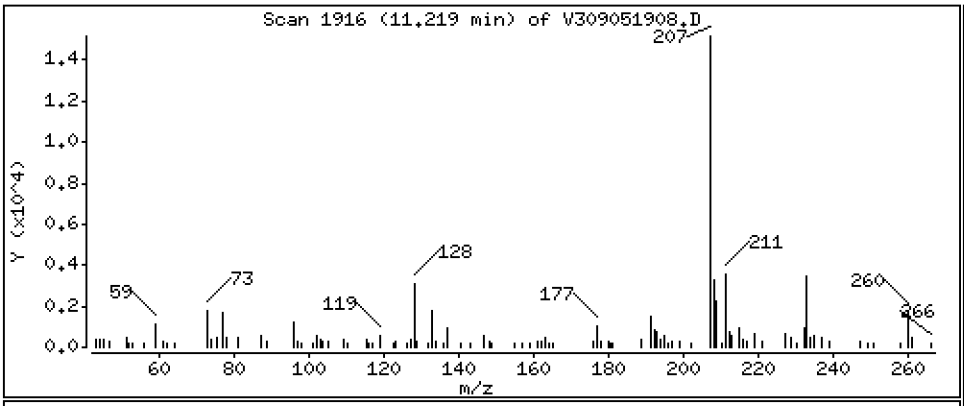
Operator: PKC

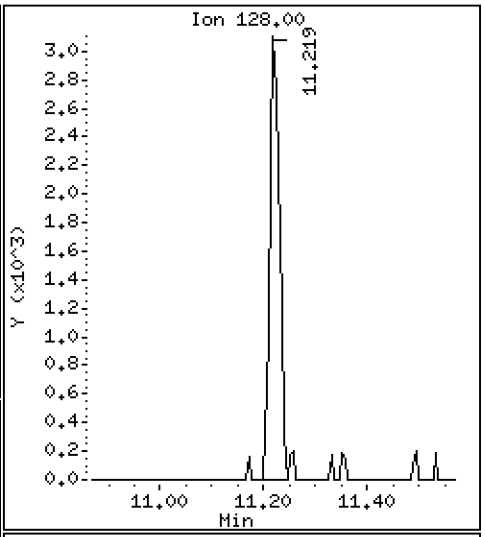
Column phase: RTXVMS

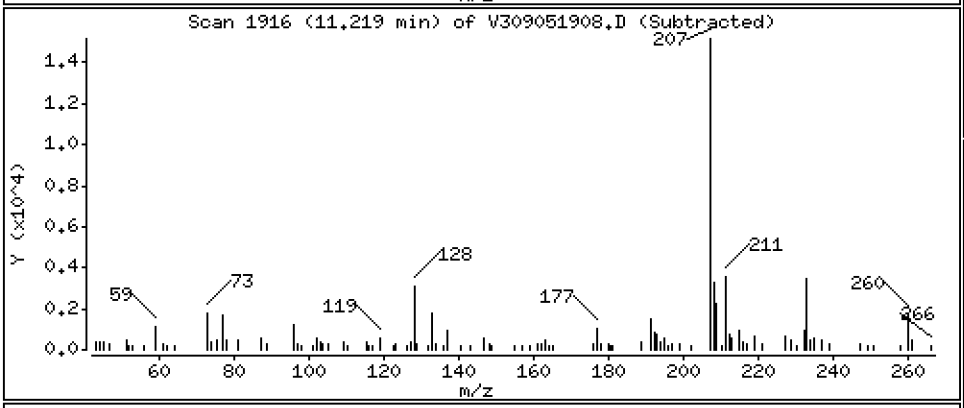
Column diameter: 0.18

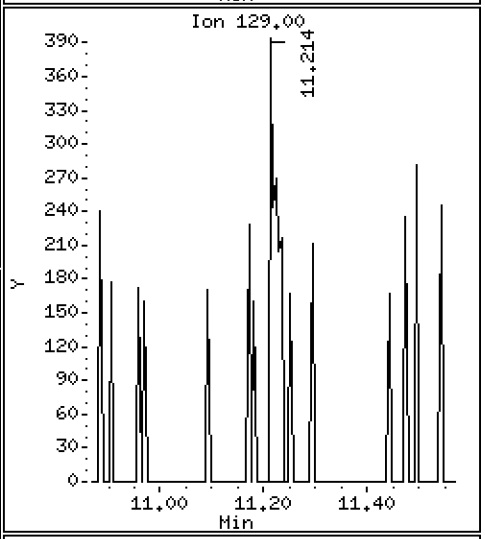
85 Naphthalene

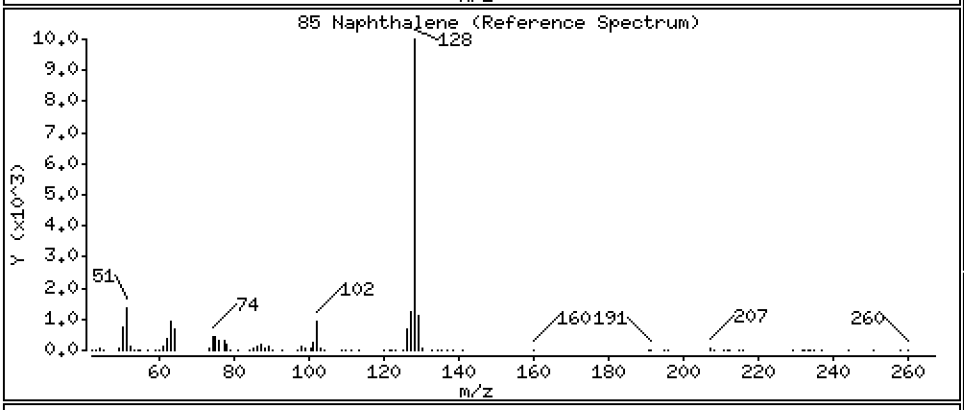
Concentration: 0.1801 ug/L

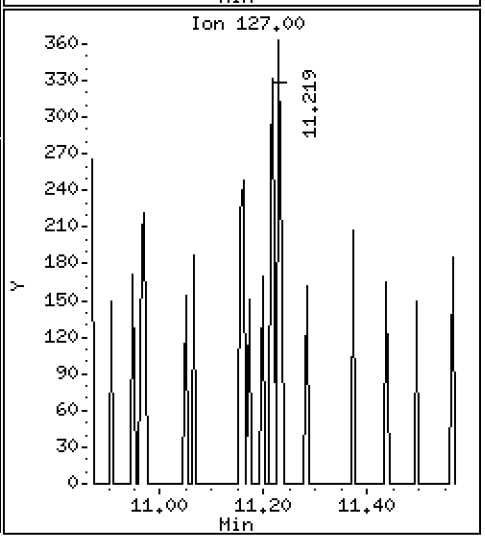


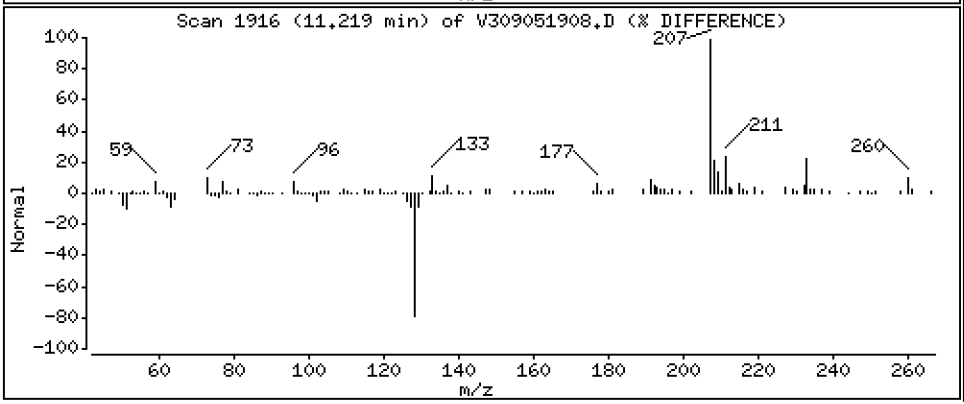












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051908.D

Date : 05-SEP-2019 14:16

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BLK1

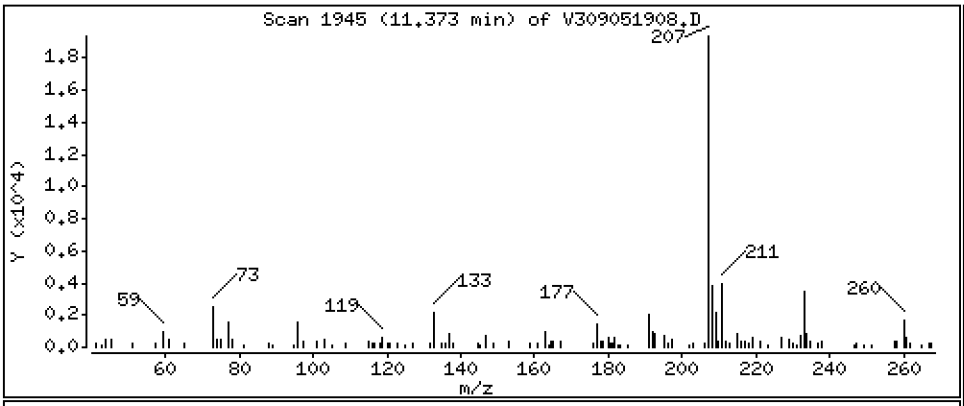
Operator: PKC

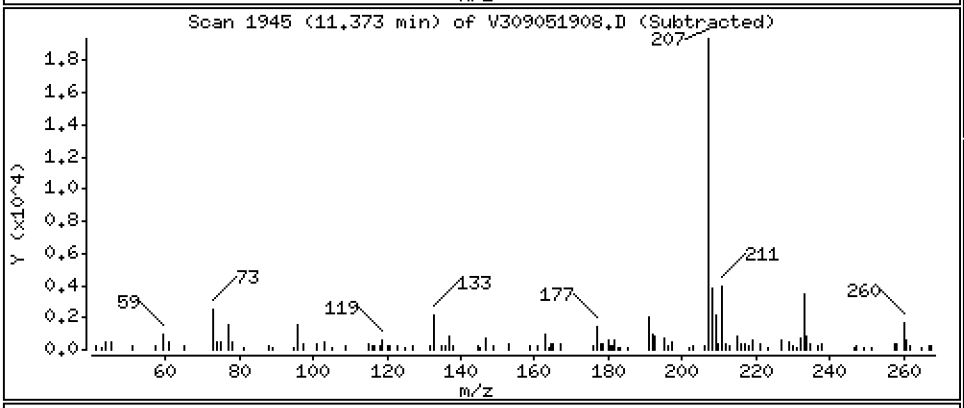
Column phase: RTXVMS

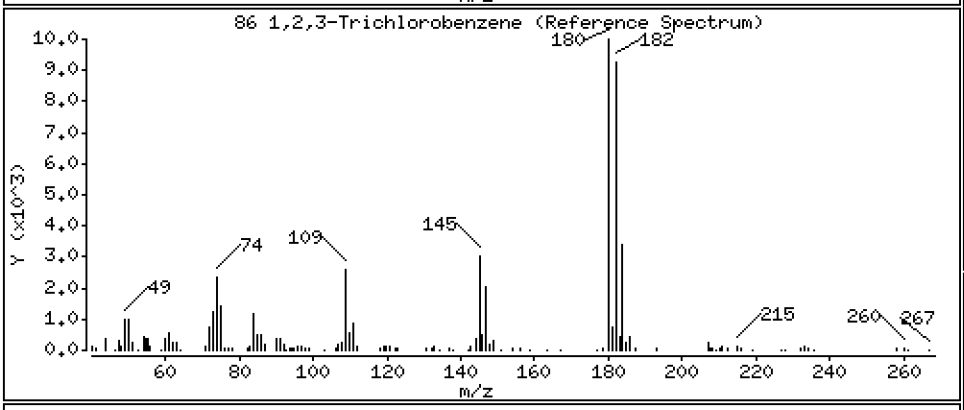
Column diameter: 0.18

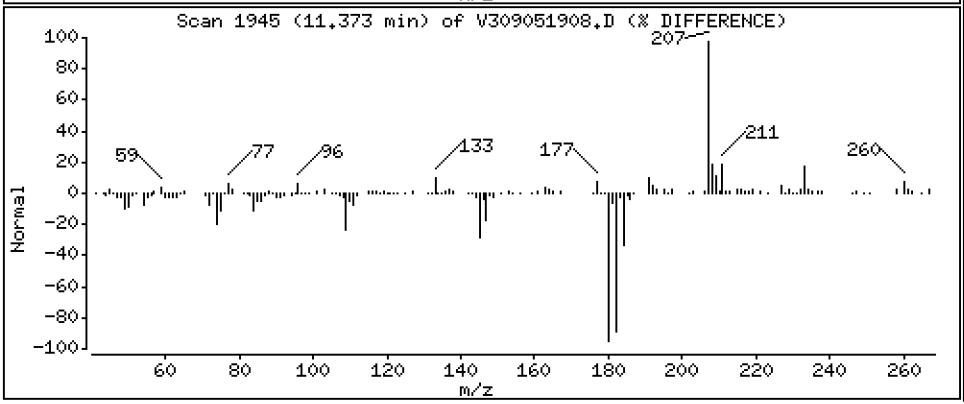
86 1,2,3-Trichlorobenzene

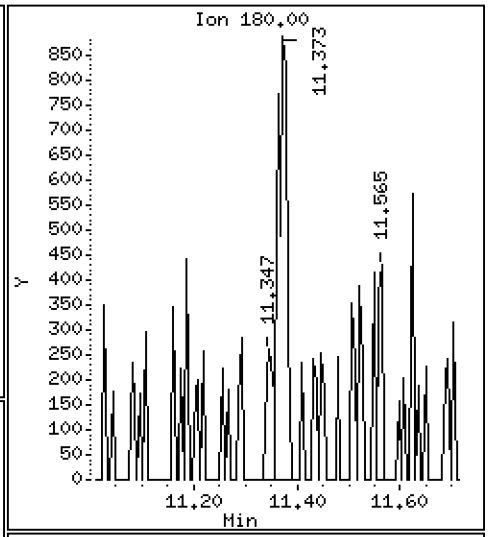
Concentration: 0.09675 ug/L

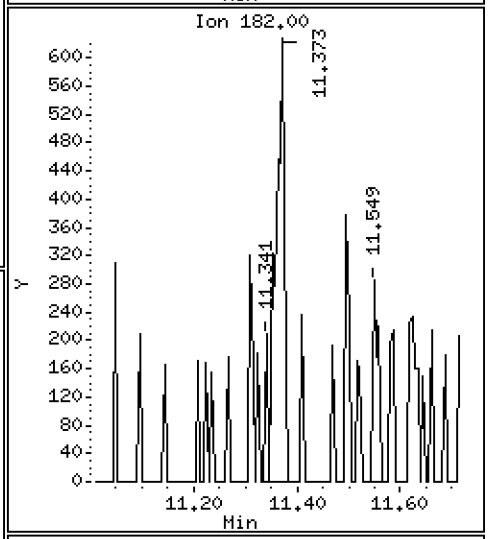


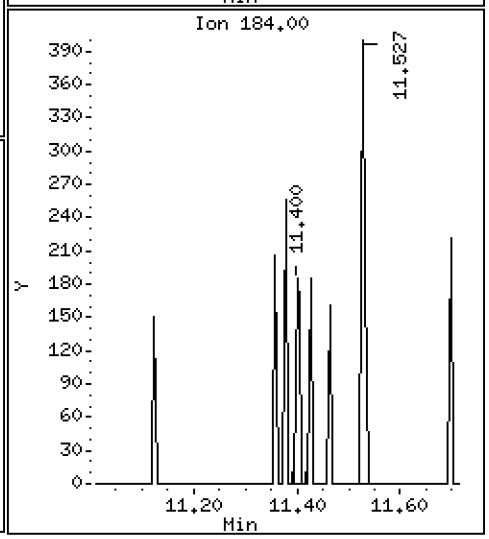












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051908.D
Lab Smp Id: BHI0133-BLK1
Inj Date : 05-SEP-2019 14:16
Operator : PKC Inst ID: nt3.i
Smp Info : BHI0133-BLK1
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	Compound Not Detected.					
	13 Methylene Chloride	84	3.580	3.565	(0.662)	3148	0.48964	0.4896(M)
	14 Acetone	43	Compound Not Detected.					
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	Compound Not Detected.					
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	Compound Not Detected.					
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	24734	5.08930	5.089(R)
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	Compound Not Detected.					
	31 Benzene	78	Compound Not Detected.					
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	112398	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	27001	4.98665	4.987(R)
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	163146	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	39	1,2-Dichloropropane	63	Compound Not Detected.					
	40	Bromodichloromethane	83	Compound Not Detected.					
	173	2-Pentanone	86	Compound Not Detected.					
	41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
	42	Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43	d8-Toluene	98	6.738	6.738	(1.164)	98367	4.98400	4.984(R)
	44	Toluene	92	Compound Not Detected.					
	46	Tetrachloroethene	166	Compound Not Detected.					
	45	4-Methyl-2-Pentanone	58	Compound Not Detected.					
	47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
	48	1,1,2-Trichloroethane	97	Compound Not Detected.					
	49	Chlorodibromomethane	129	Compound Not Detected.					
	50	1,3-Dichloropropane	76	Compound Not Detected.					
	51	1,2-Dibromoethane	107	Compound Not Detected.					
	52	2-Hexanone	43	Compound Not Detected.					
*	53	d5-Chlorobenzene	117	7.811	7.812	(1.000)	165550	10.0000	
	54	Chlorobenzene	112	Compound Not Detected.					
	55	Ethyl Benzene	106	Compound Not Detected.					
	56	1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57	m,p-xylene	106	7.944	7.944	(1.017)	599	0.04177	0.04177
	58	o-Xylene	106	Compound Not Detected.					
	59	Styrene	104	Compound Not Detected.					
	60	Bromoform	173	Compound Not Detected.					
	61	Isopropyl Benzene	105	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	8.683	8.678	(1.112)	38377	4.87847	4.878(R)
	63	Bromobenzene	156	Compound Not Detected.					
	64	N-Propyl Benzene	91	Compound Not Detected.					
	65	1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66	2-Chloro Toluene	91	Compound Not Detected.					
	67	1,3,5-Trimethyl Benzene	105	8.917	8.912	(0.938)	1063	0.03260	0.03260
	68	1,2,3-Trichloropropane	110	Compound Not Detected.					
	69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70	4-Chloro Toluene	91	Compound Not Detected.					
	71	T-Butyl Benzene	119	Compound Not Detected.					
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.968)	2618	0.07919	0.07919
	73	S-Butyl Benzene	105	Compound Not Detected.					
	74	4-Isopropyl Toluene	119	Compound Not Detected.					
	75	1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76	d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	104290	10.0000	
	77	1,4-Dichlorobenzene	146	Compound Not Detected.					
	78	N-Butyl Benzene	91	9.698	9.699	(1.021)	929	0.03142	0.03142
$	79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48024	4.90089	4.901(R)
	80	1,2-Dichlorobenzene	146	Compound Not Detected.					
	81	1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83	Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84	1,2,4-Trichlorobenzene	180	10.969	10.958	(1.154)	812	0.05846	0.05846
	85	Naphthalene	128	11.219	11.219	(1.181)	4167	0.18008	0.1801
	86	1,2,3-Trichlorobenzene	180	11.373	11.362	(1.197)	1094	0.09675	0.09675

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051908.D
Lab Smp Id: BHI0133-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112398	16.00
37 1,4-Difluorobenze	140121	70061	280242	163146	16.43
53 d5-Chlorobenzene	140128	70064	280256	165550	18.14
76 d4-1,4-Dichlorobe	90137	45069	180274	104290	15.70

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0133-BLK1
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.089	101.79	
$ 33 d4-1,2-Dichloroeth	5.000	4.987	99.73	
$ 43 d8-Toluene	5.000	4.984	99.68	
$ 62 4-Bromofluorobenze	5.000	4.878	97.57	
$ 79 d4-1,2-Dichloroben	5.000	4.901	98.02	

REVIEW SUMMARY FOR FILE - V309051908.D

Lab ID: BHI0133-BLK1
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 14:16

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

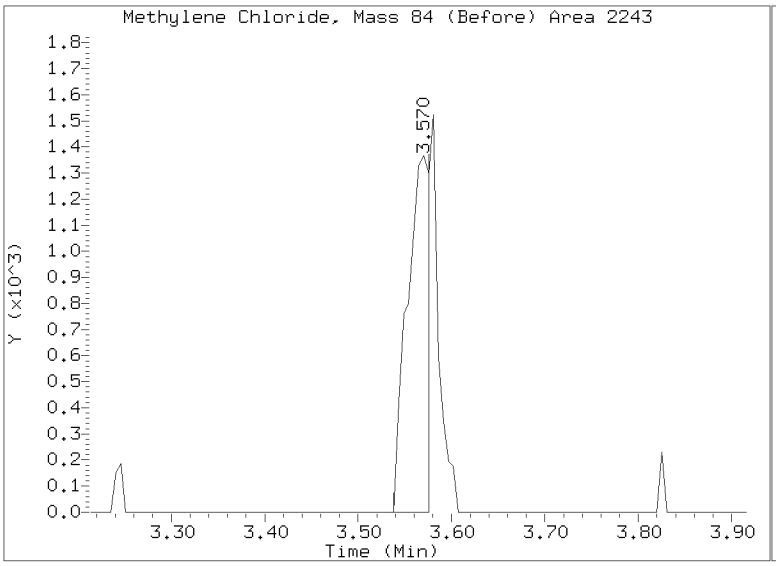
RRT check based on Ccal File: V309051928.D

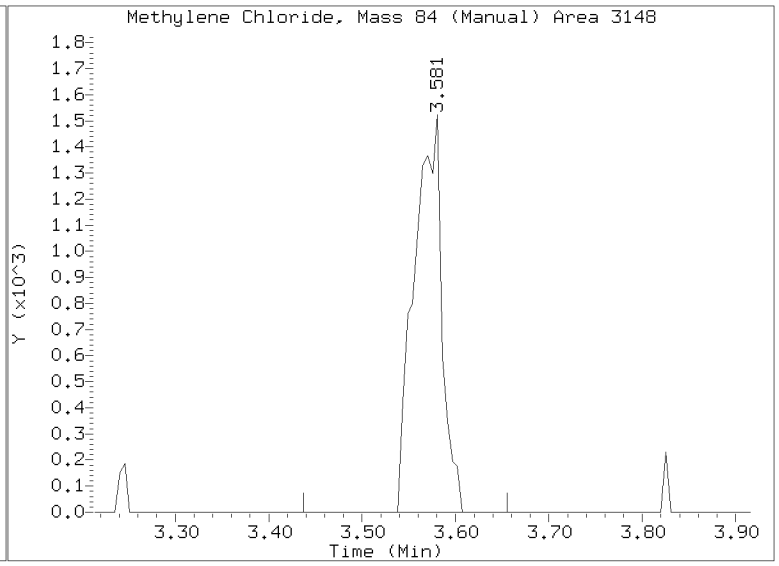
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051908.D
Injection Date: 05-SEP-2019 14:16
Lab ID:BHI0133-BLK1 Client ID:
Report Date: 09/06/2019 14:39





LCS / LCS DUPLICATE RECOVERY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/03/19 12:38
Batch:	BHI0056	Laboratory ID:	BHI0056-BS1
Preparation:	EPA 5035 (Sodium Bisulfate)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Benzene	50.0	49.7		99.3	80 - 120
Toluene	50.0	47.7		95.4	75 - 120
Ethylbenzene	50.0	45.5		90.9	80 - 125
m,p-Xylene	100	92.6		92.6	76 - 121
o-Xylene	50.0	46.7		93.4	67 - 132

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	50.0	48.4		96.8	2.56	30	80 - 120
Toluene	50.0	47.0		93.9	1.61	30	75 - 120
Ethylbenzene	50.0	45.7		91.4	0.551	30	80 - 125
m,p-Xylene	100	92.2		92.2	0.424	30	76 - 121
o-Xylene	50.0	45.1		90.2	3.42	30	67 - 132

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

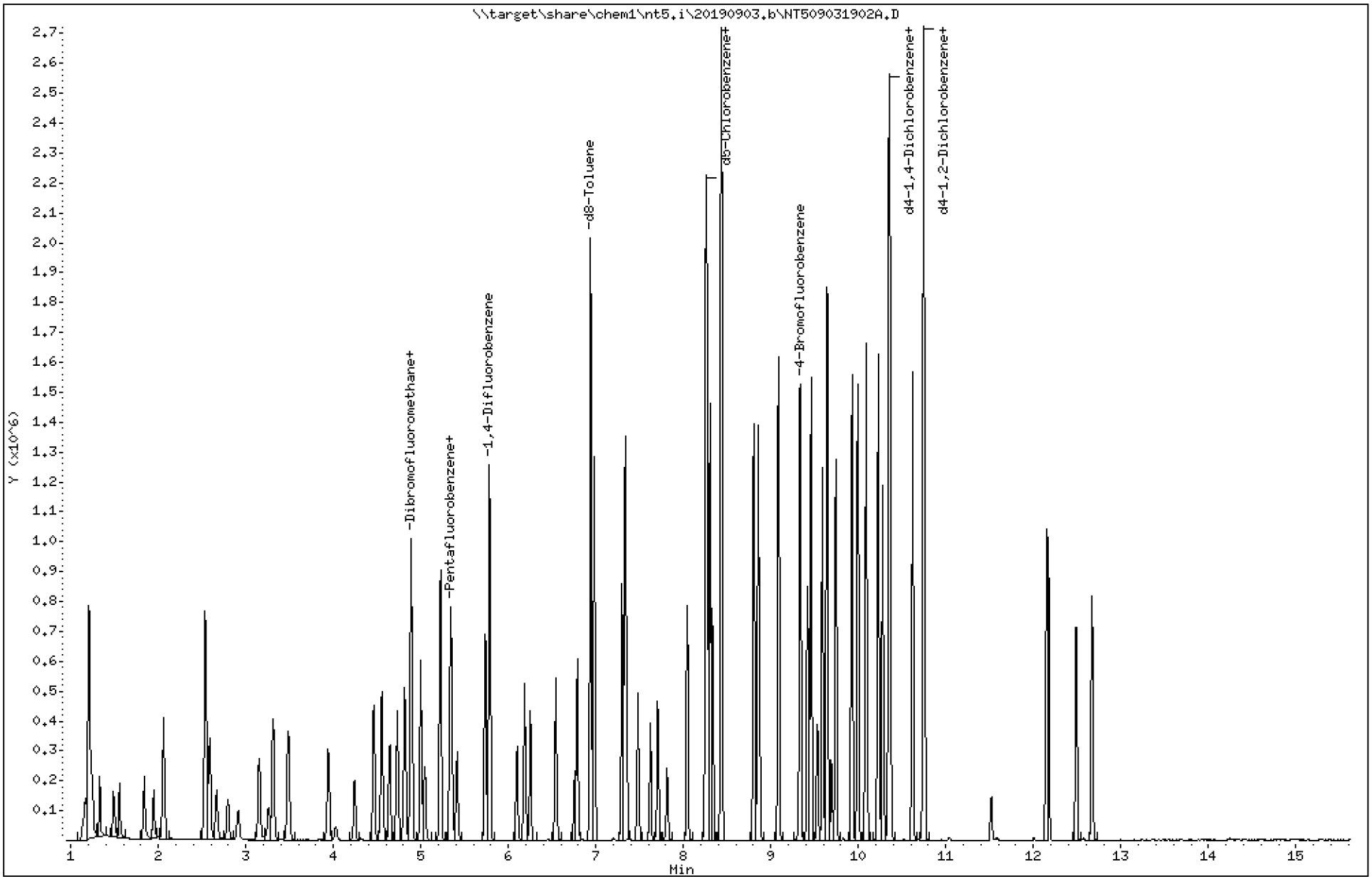
Instrument: nt5.i

Sample Info: ICV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

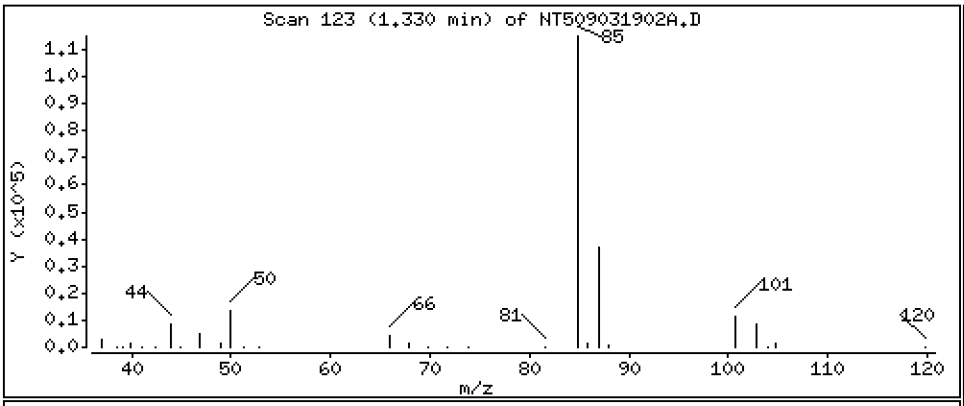
Operator: PB

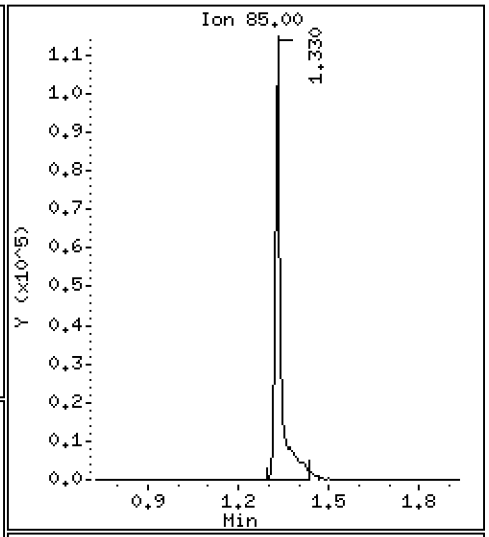
Column phase: RTXVMS

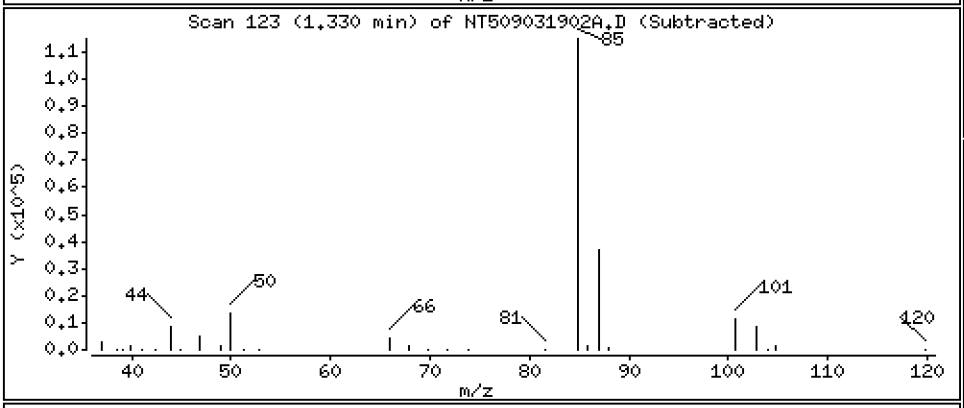
Column diameter: 0.18

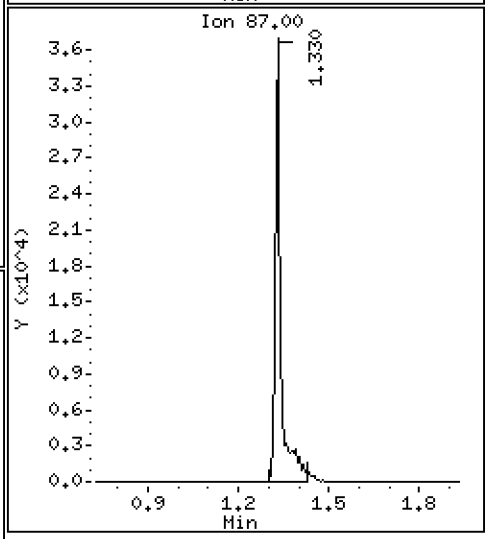
1 Dichlorodifluoromethane

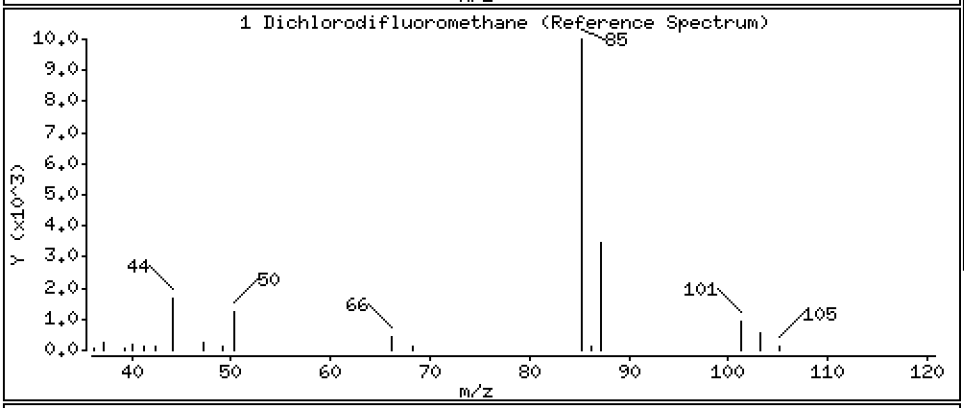
Concentration: 60.140 ug/Kg

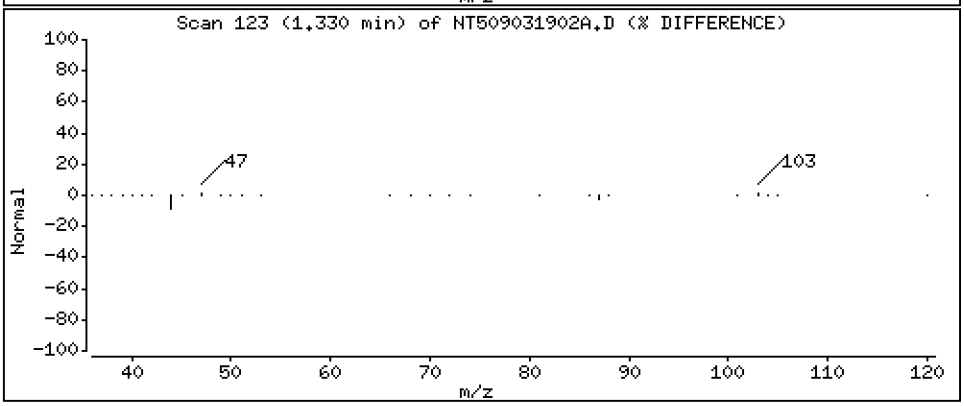












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

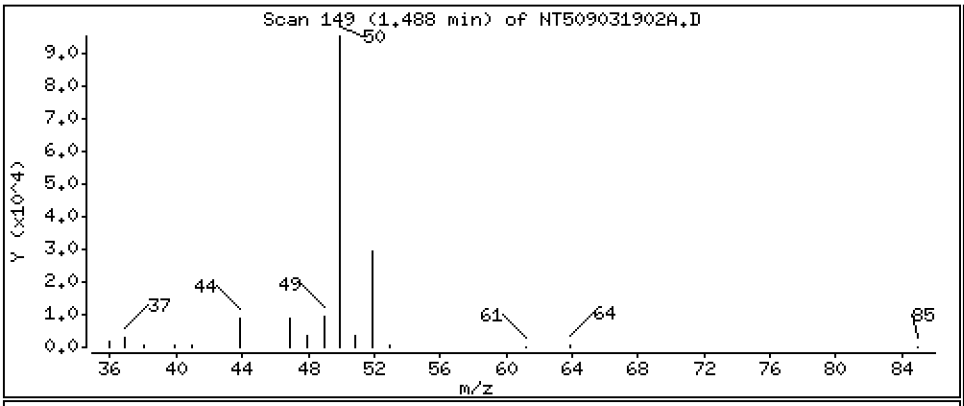
Operator: PB

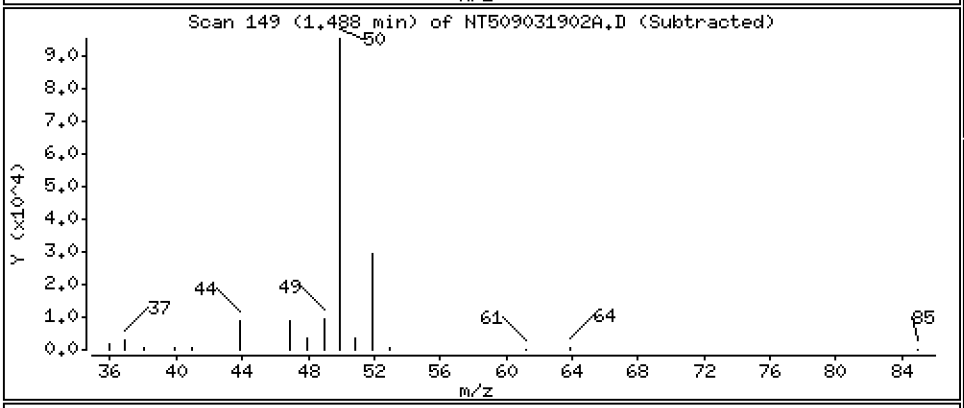
Column phase: RTXVMS

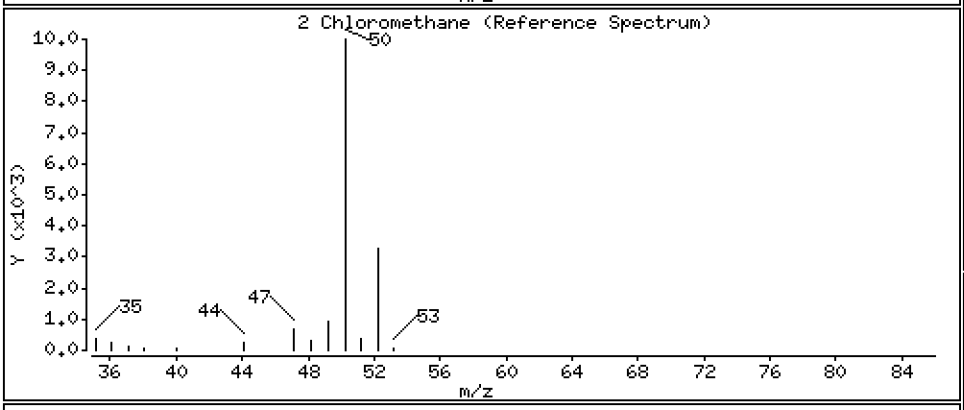
Column diameter: 0.18

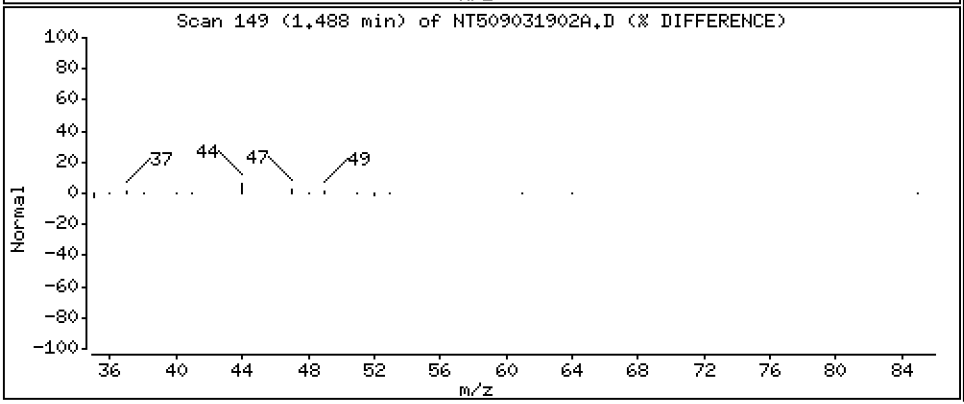
2 Chloromethane

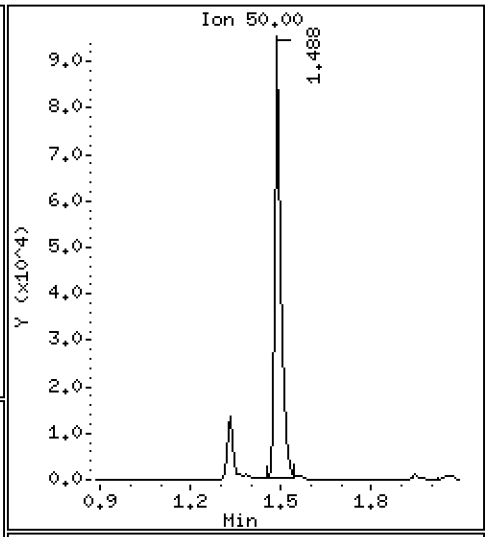
Concentration: 59.385 ug/Kg

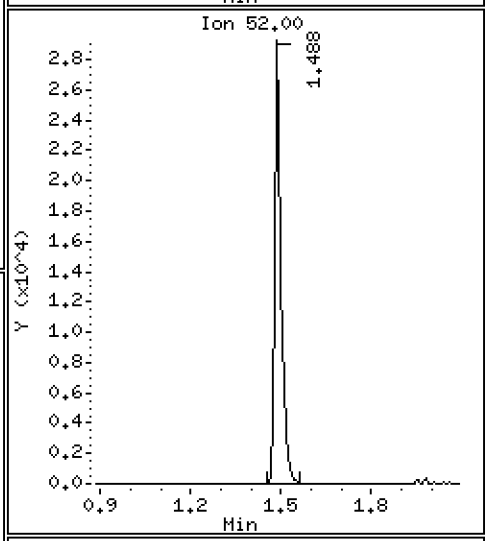


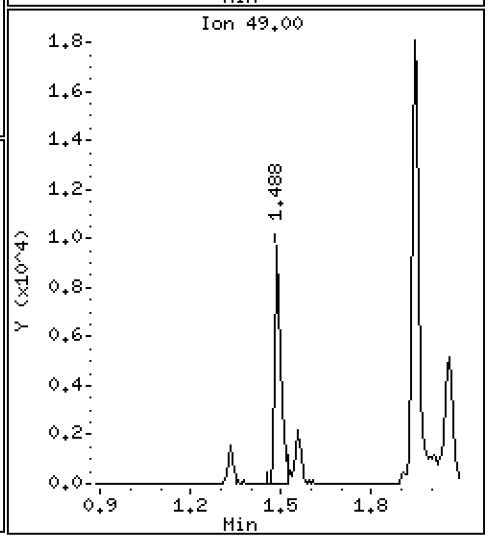












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

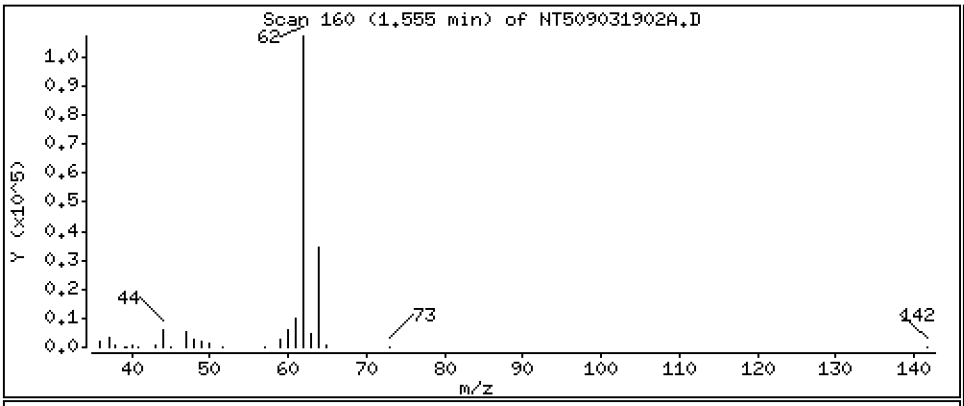
Operator: PB

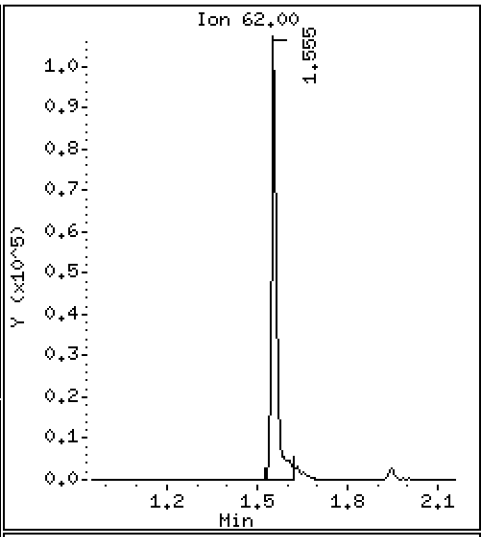
Column phase: RTXVMS

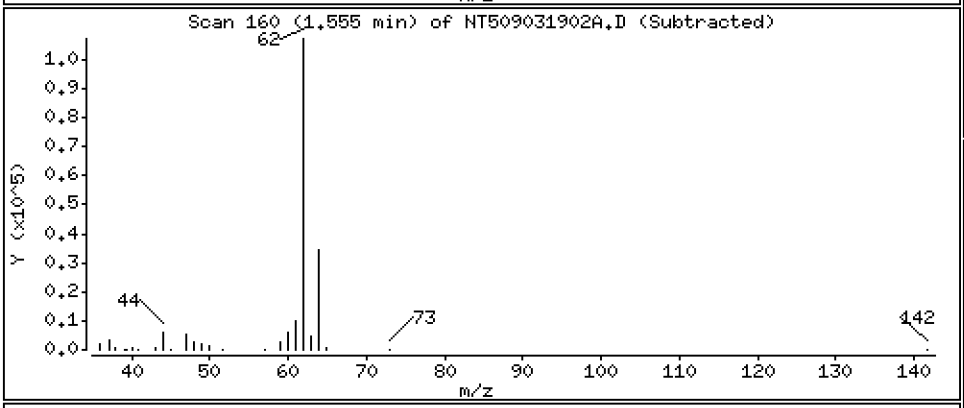
Column diameter: 0.18

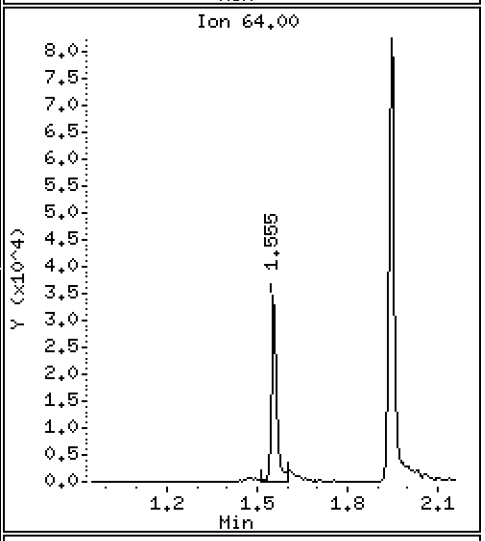
3 Vinyl Chloride

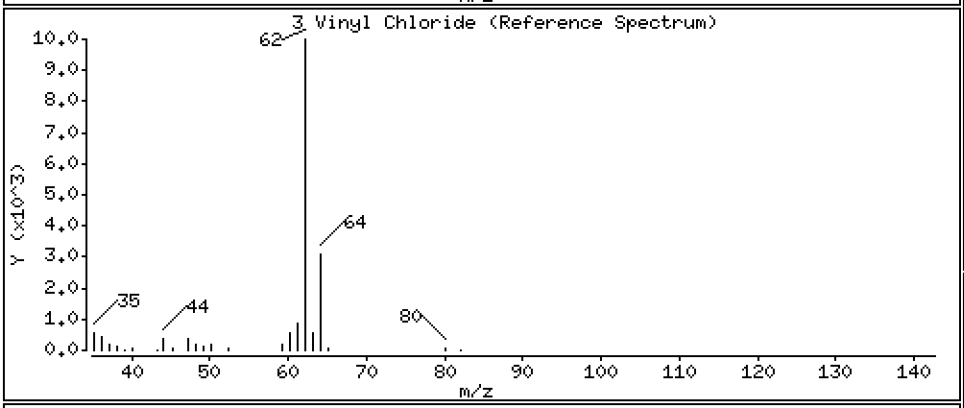
Concentration: 59.364 ug/Kg

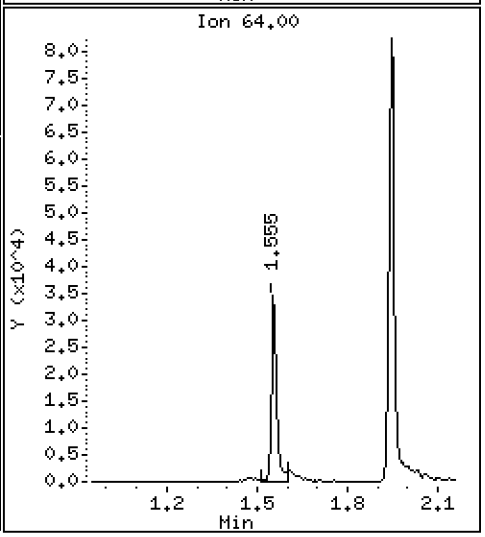


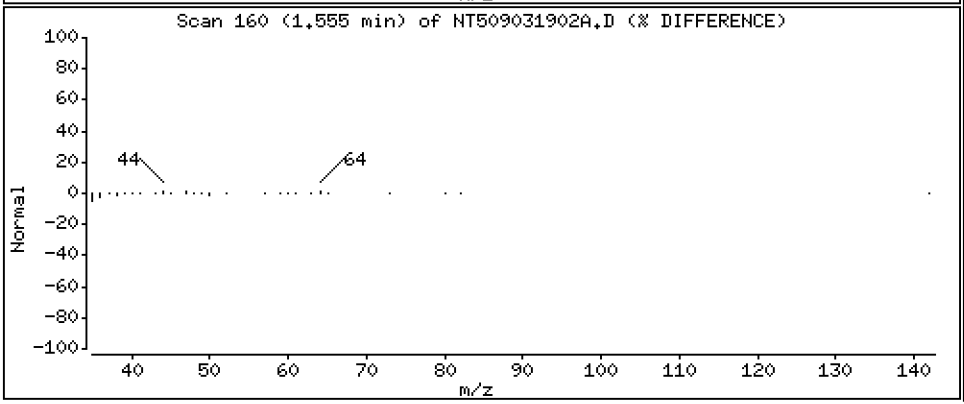












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

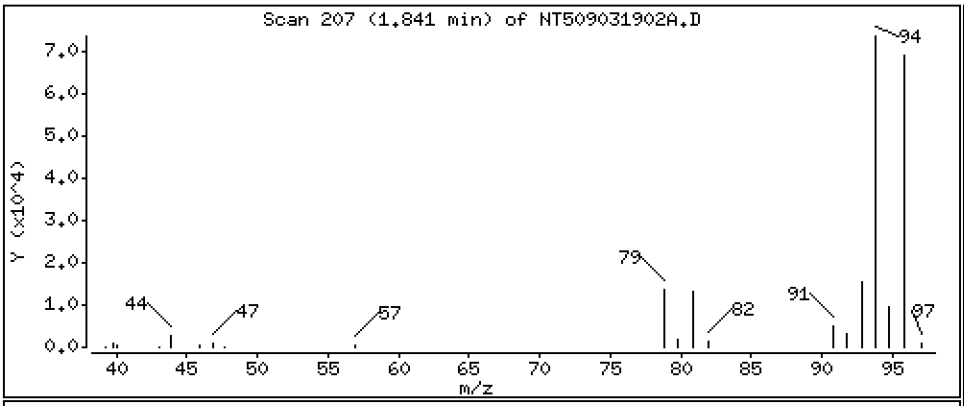
Operator: PB

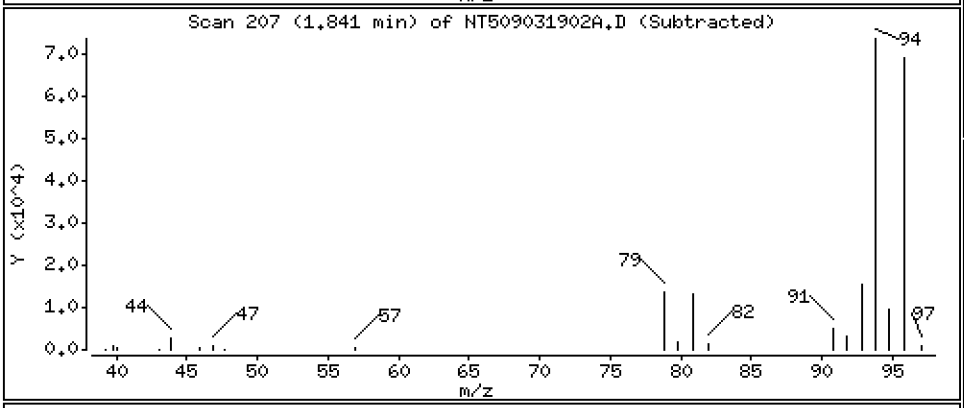
Column phase: RTXVMS

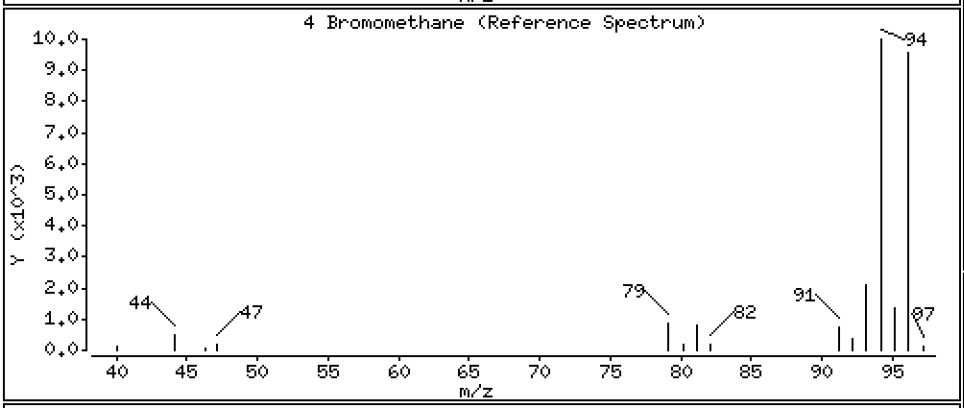
Column diameter: 0.18

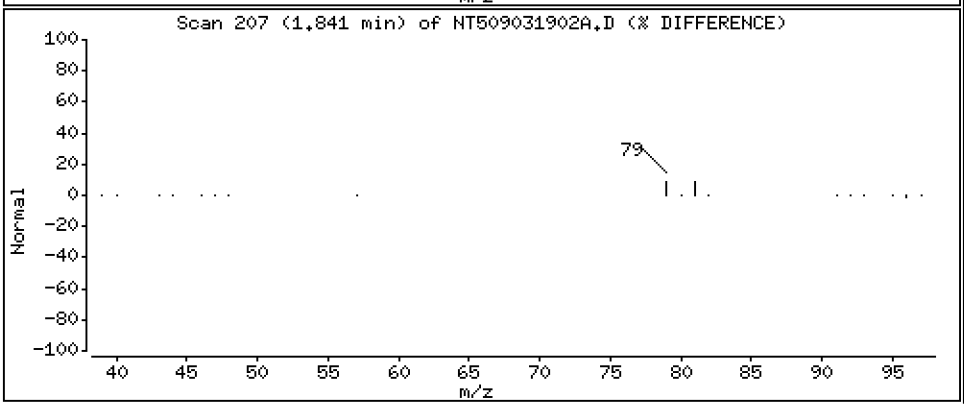
4 Bromomethane

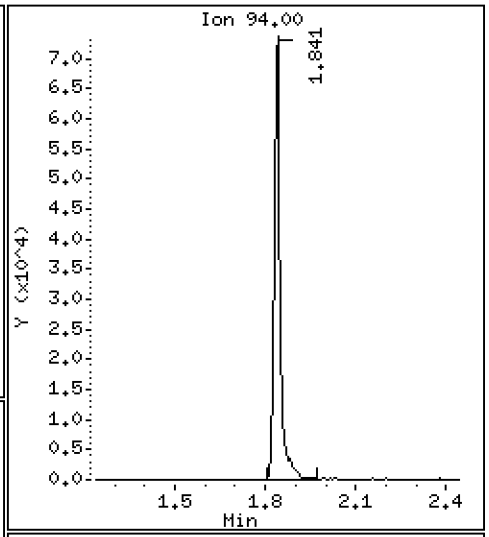
Concentration: 52.581 ug/Kg

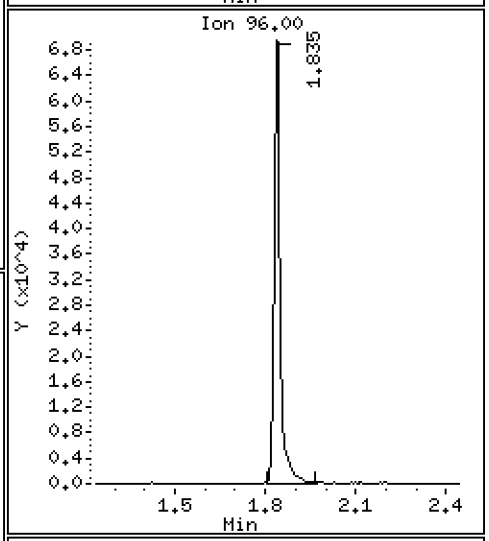


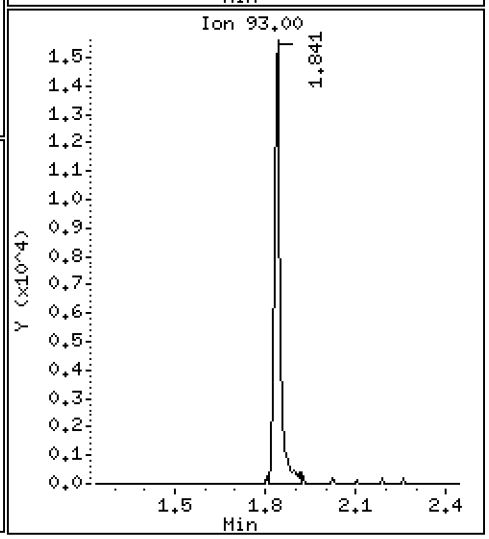












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

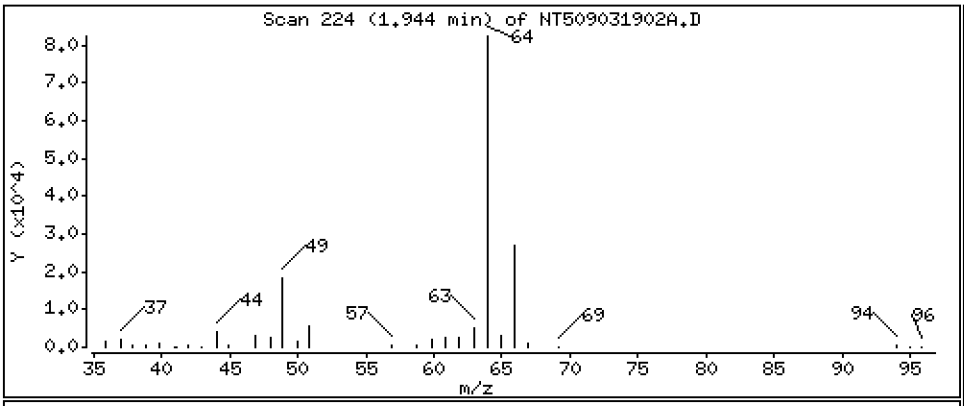
Operator: PB

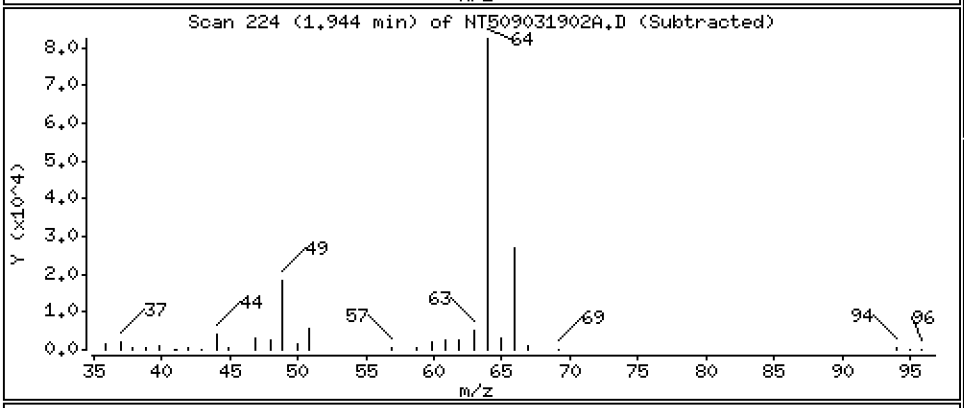
Column phase: RTXVMS

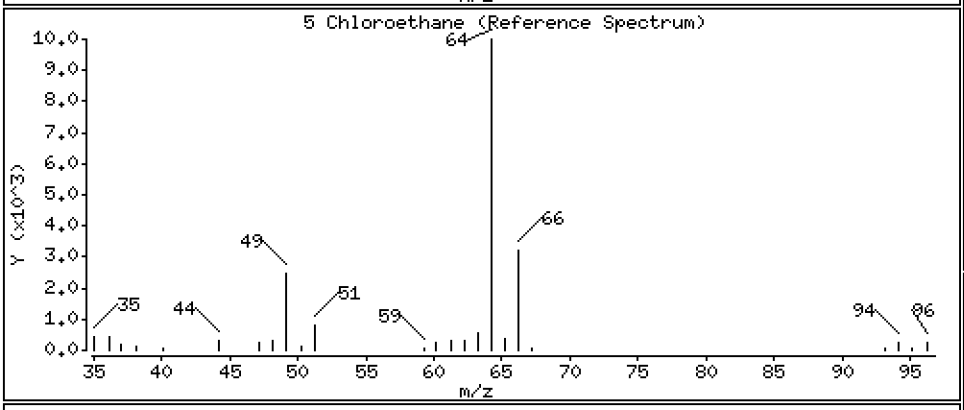
Column diameter: 0.18

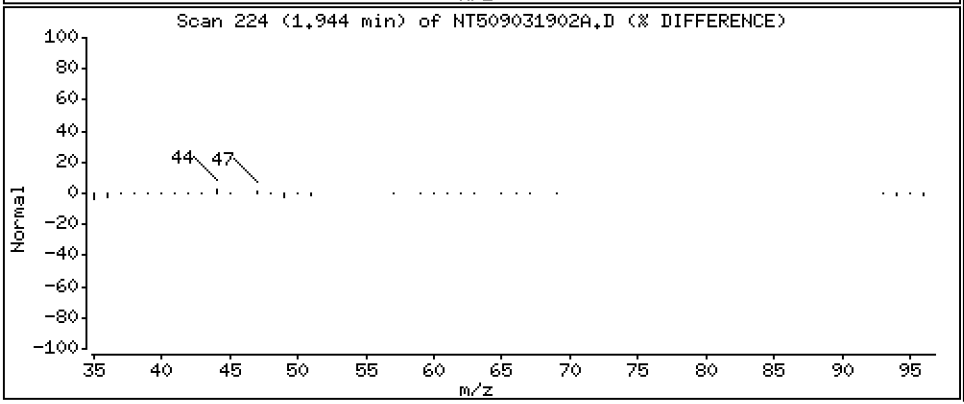
5 Chloroethane

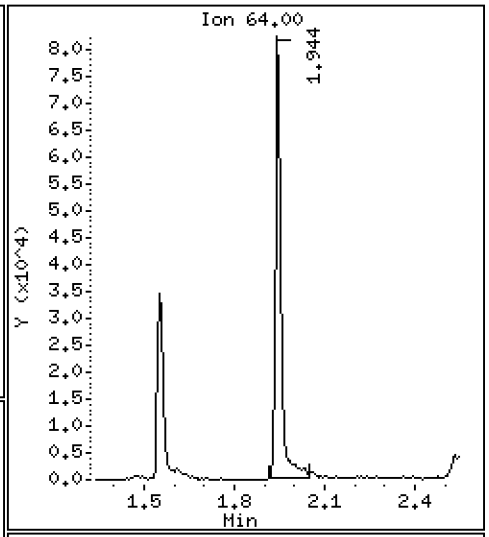
Concentration: 58.593 ug/Kg

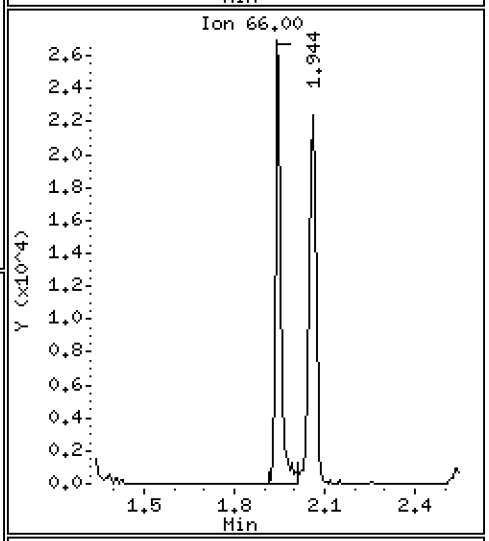


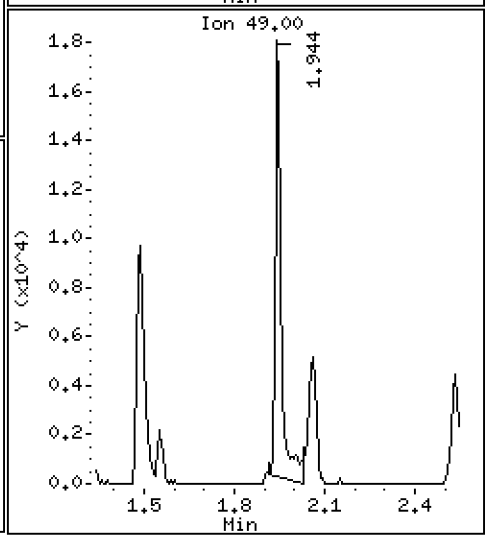












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

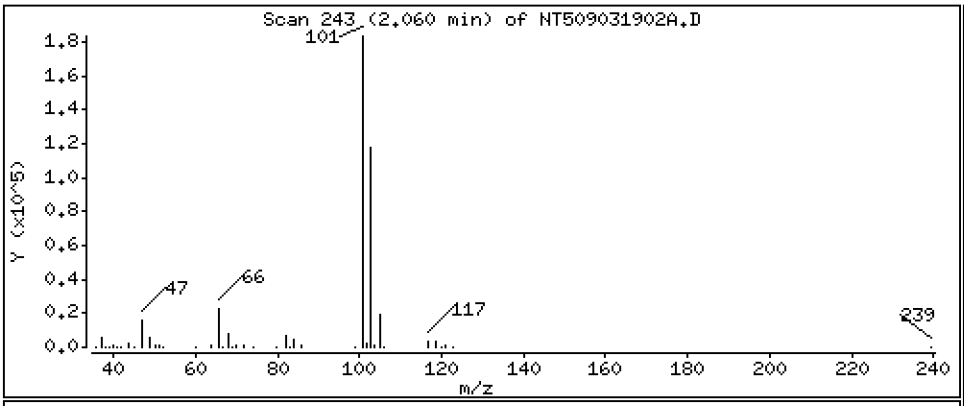
Operator: PB

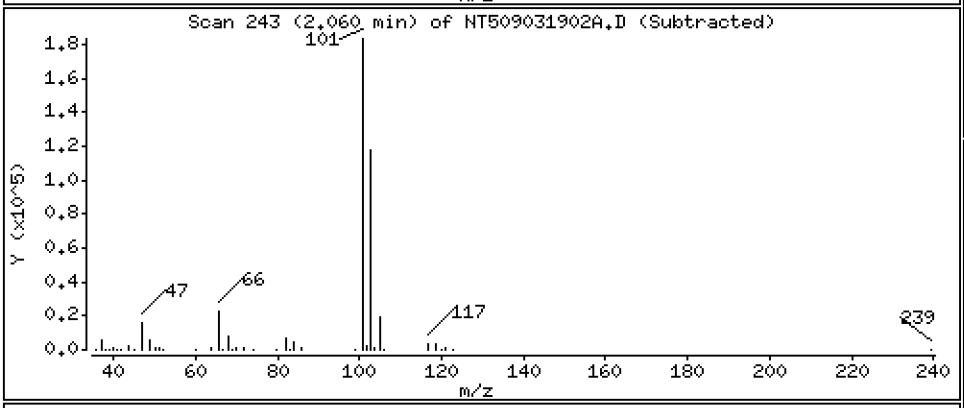
Column phase: RTXVMS

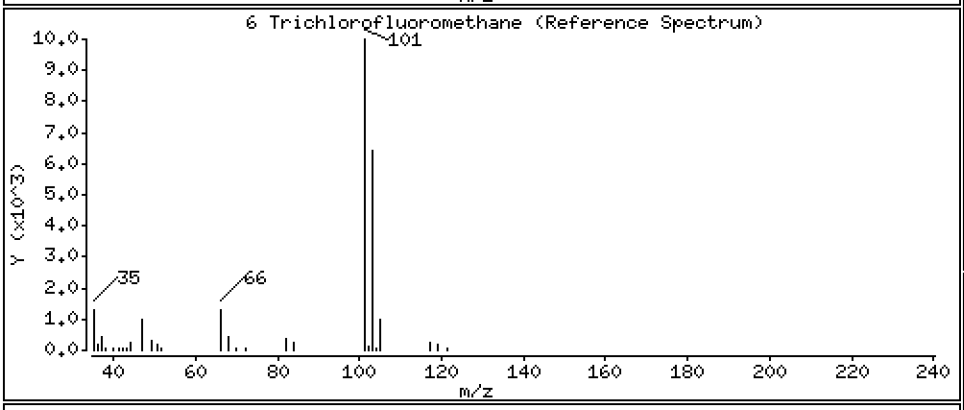
Column diameter: 0.18

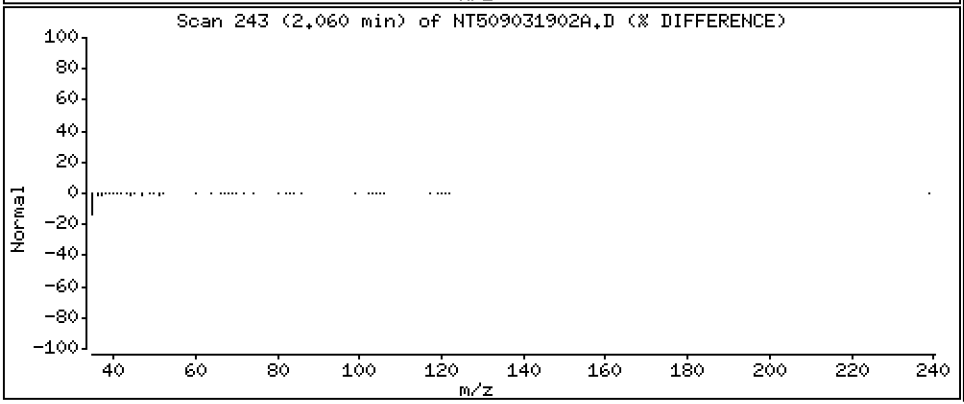
6 Trichlorofluoromethane

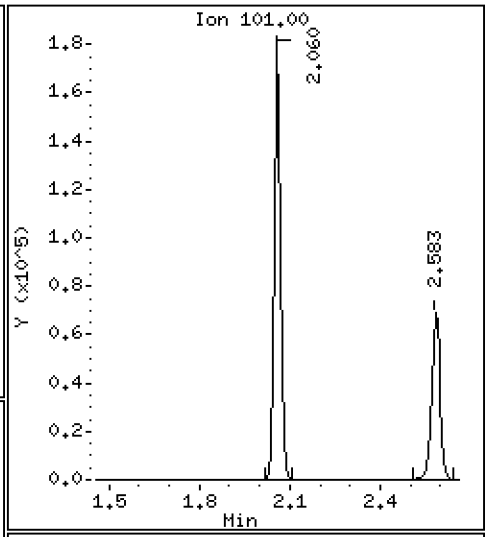
Concentration: 59.143 ug/Kg

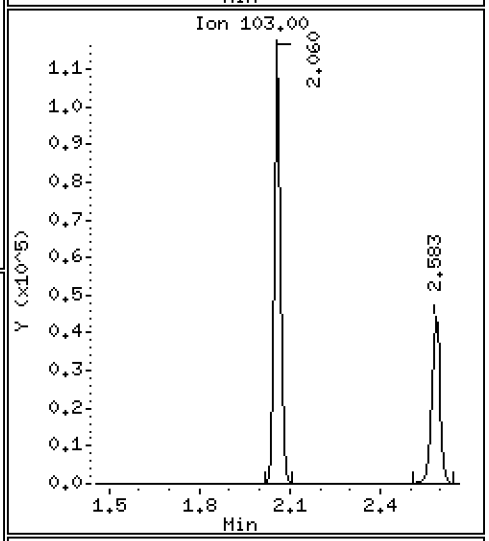


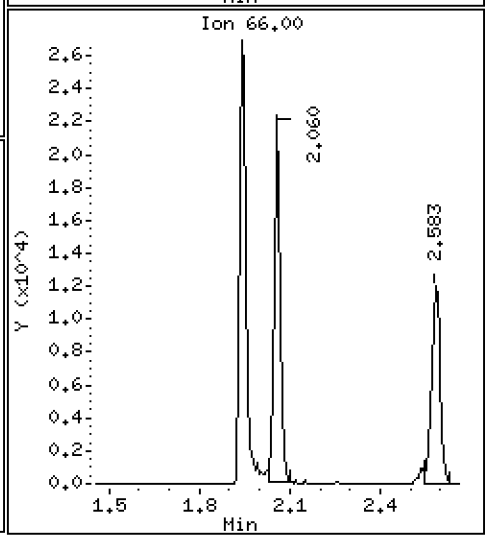












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

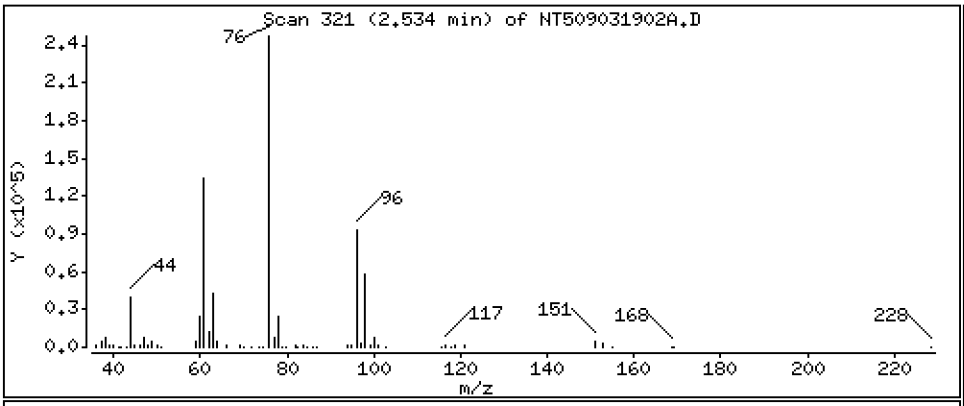
Operator: PB

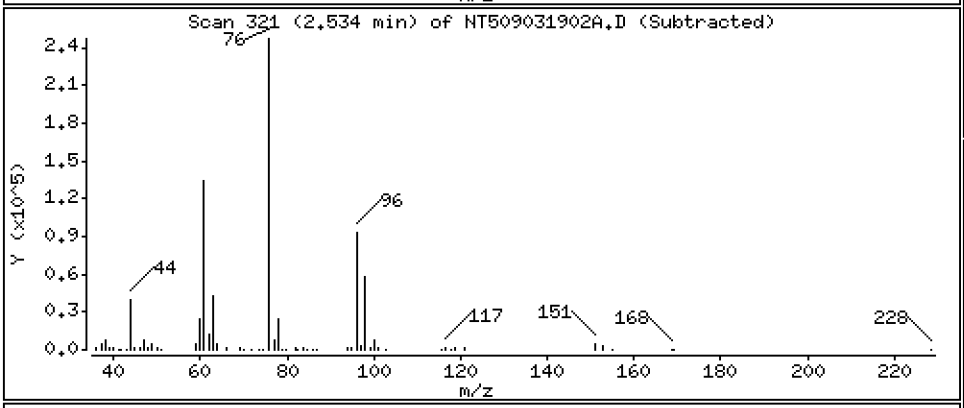
Column phase: RTXVMS

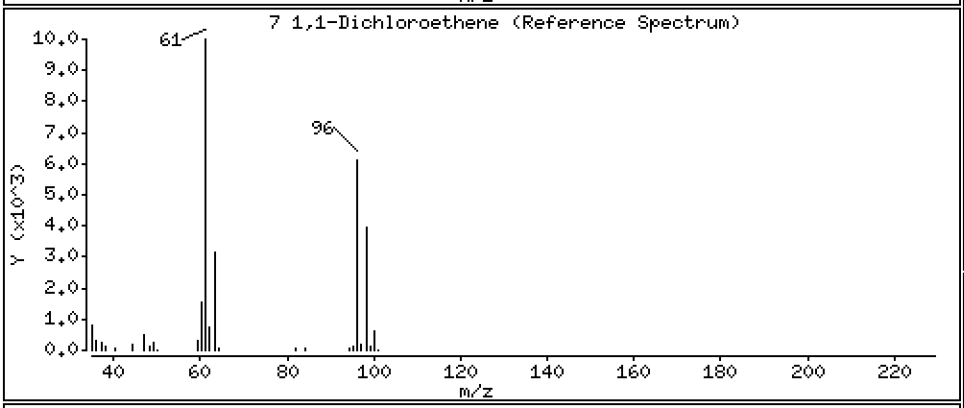
Column diameter: 0.18

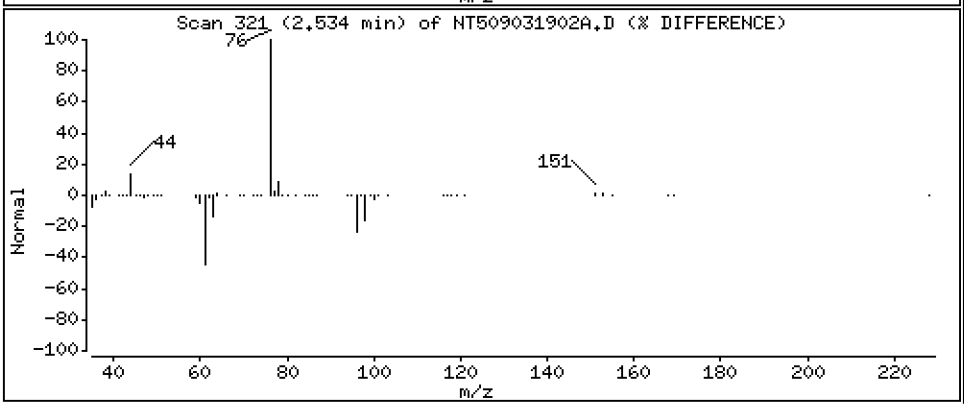
7 1,1-Dichloroethene

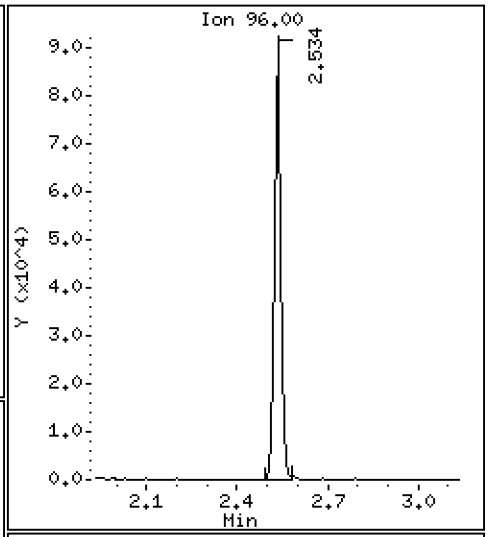
Concentration: 58.235 ug/Kg

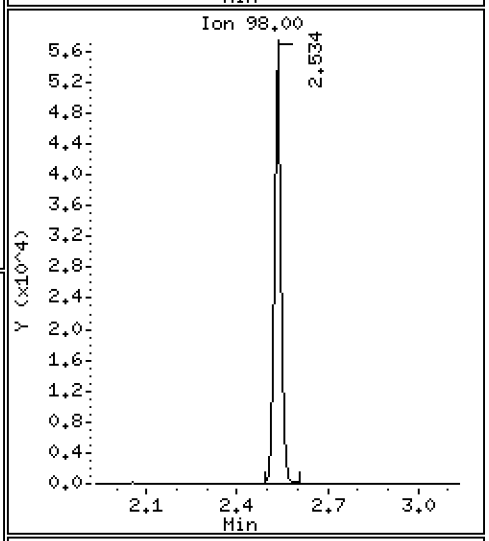


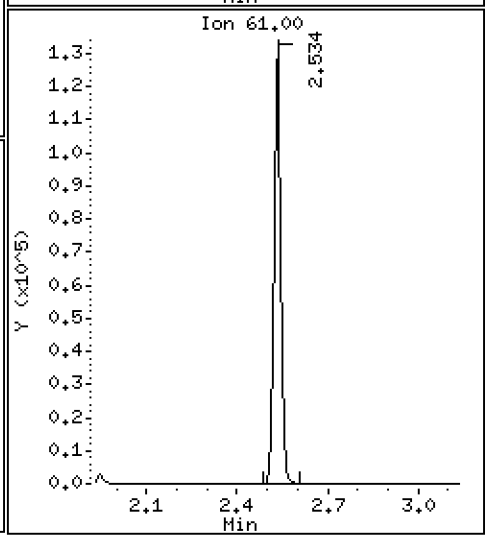












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

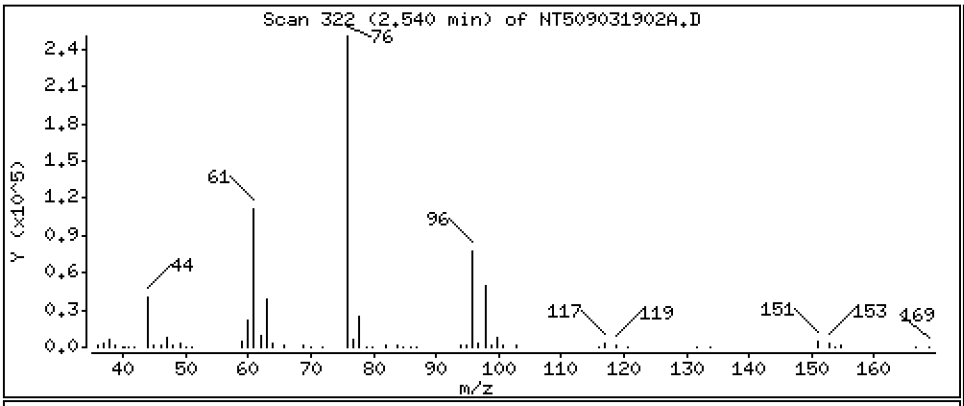
Operator: PB

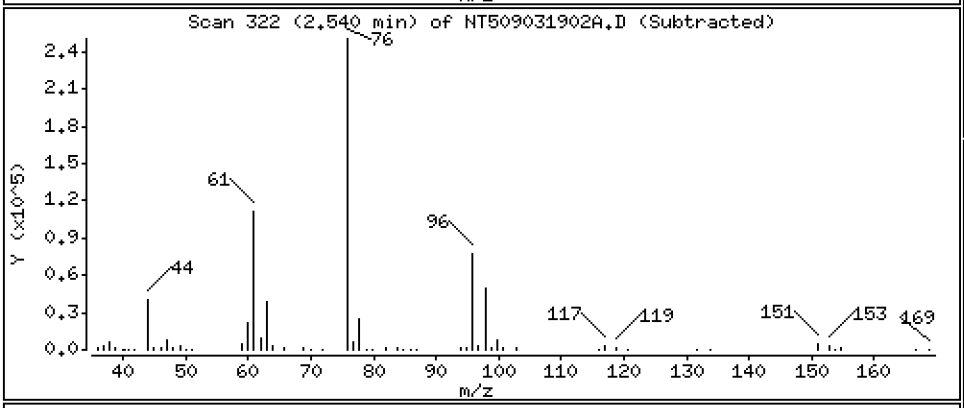
Column phase: RTXVMS

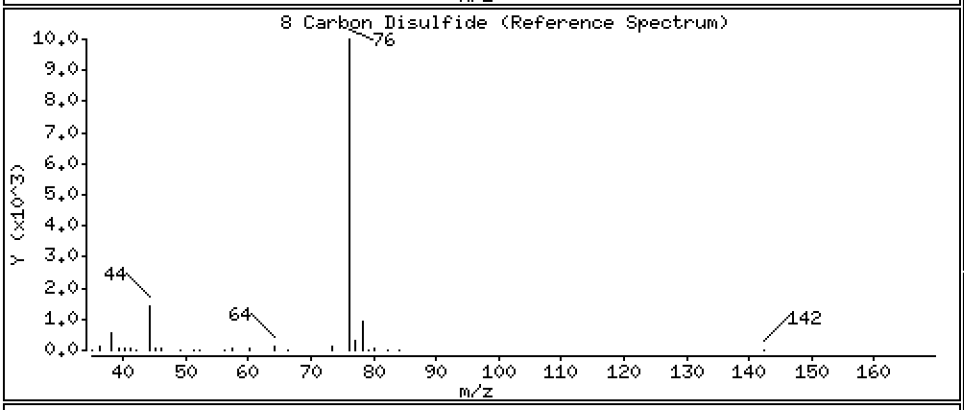
Column diameter: 0.18

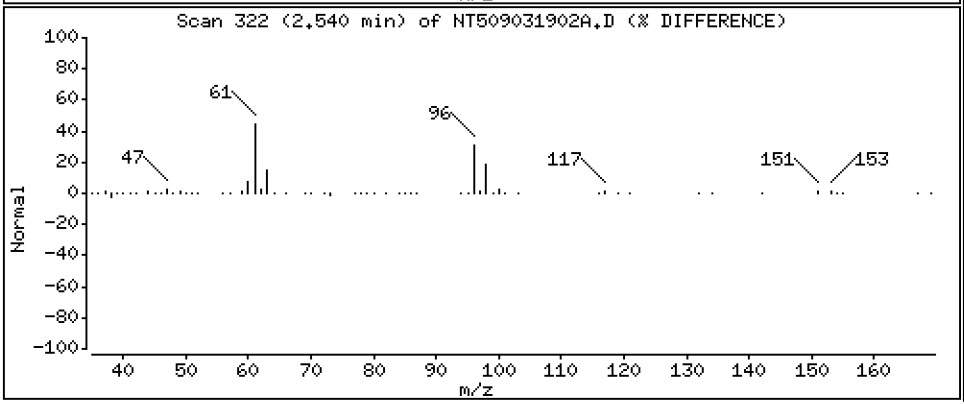
8 Carbon Disulfide

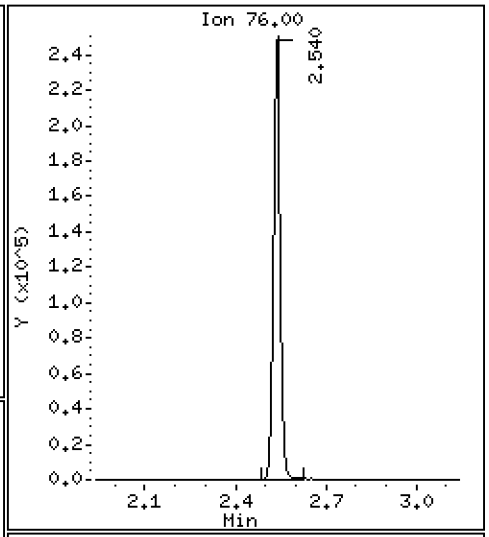
Concentration: 55.732 ug/Kg

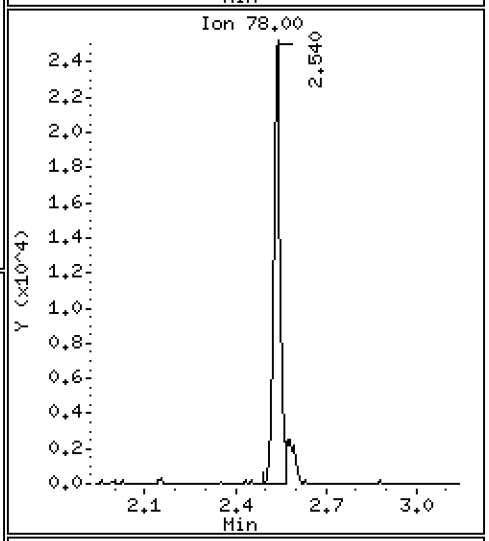


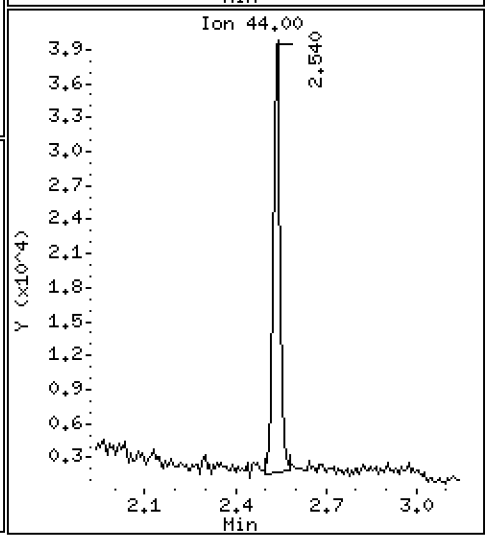












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

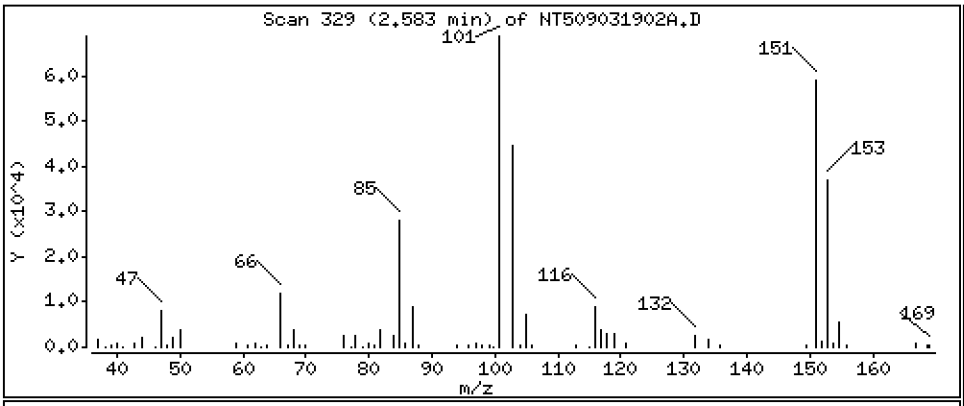
Operator: PB

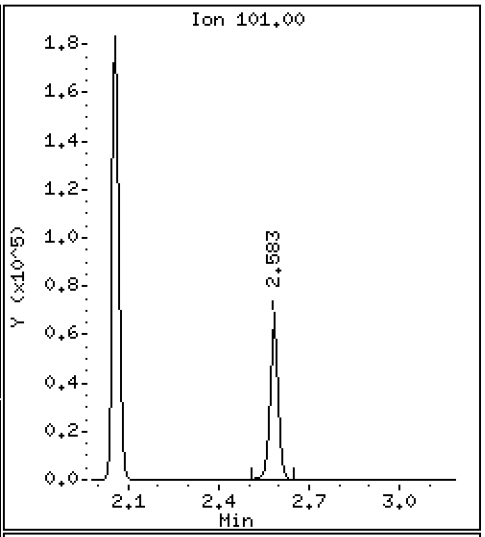
Column phase: RTXVMS

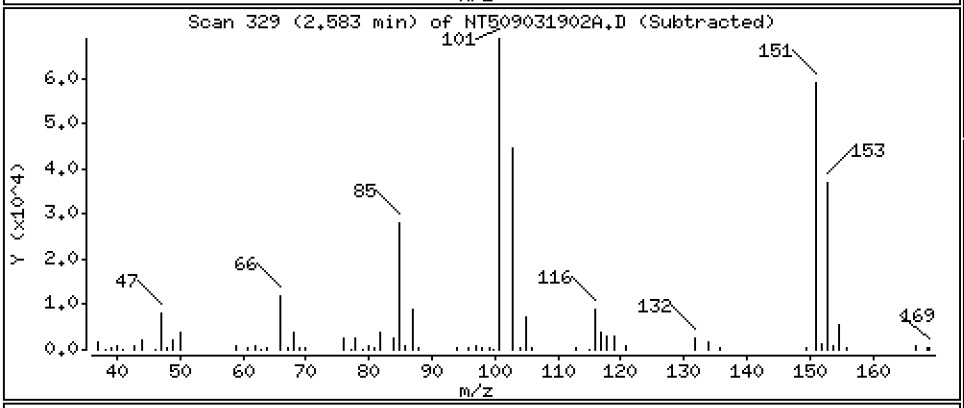
Column diameter: 0.18

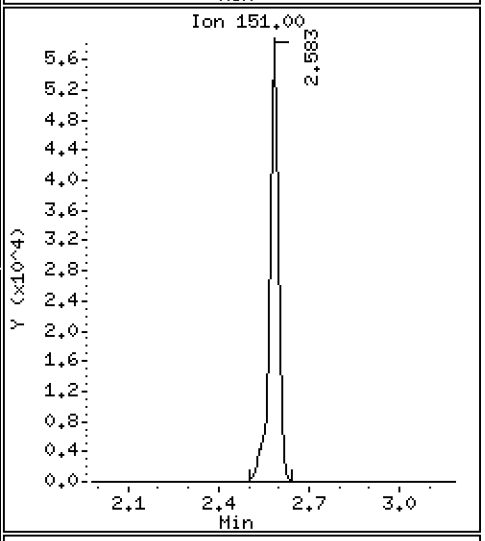
9 112Trichloro122Trifluoroethane

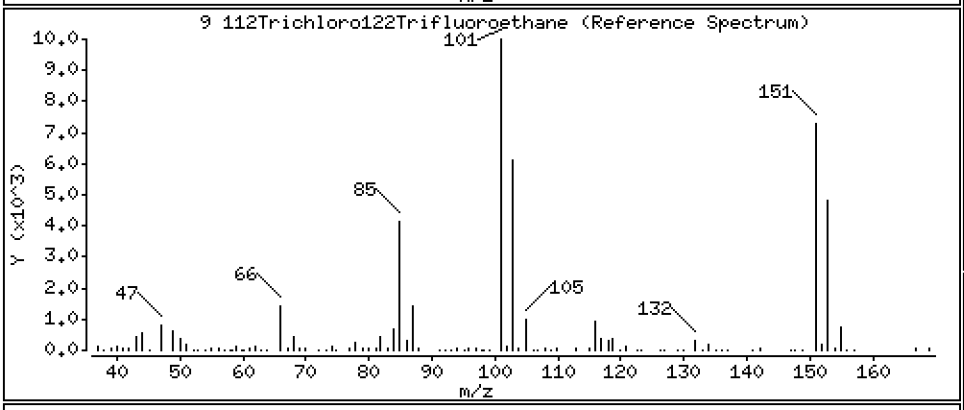
Concentration: 54.363 ug/Kg

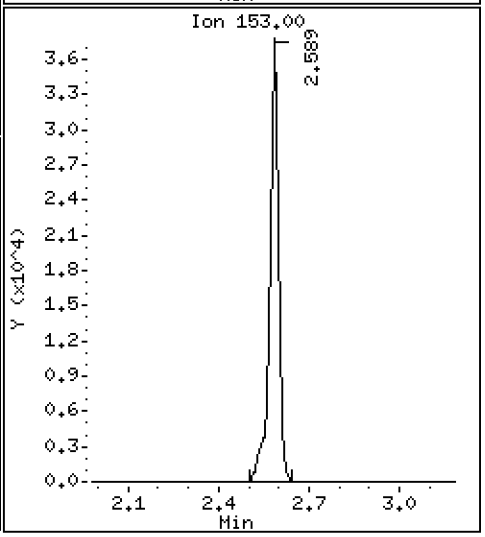


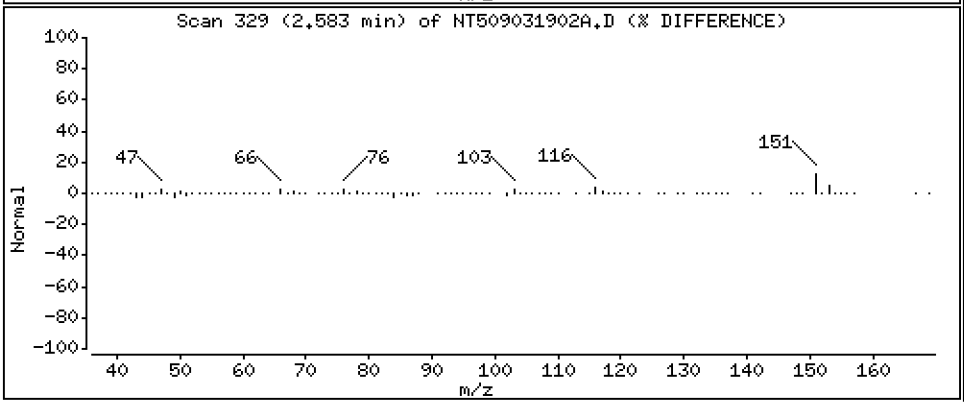












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

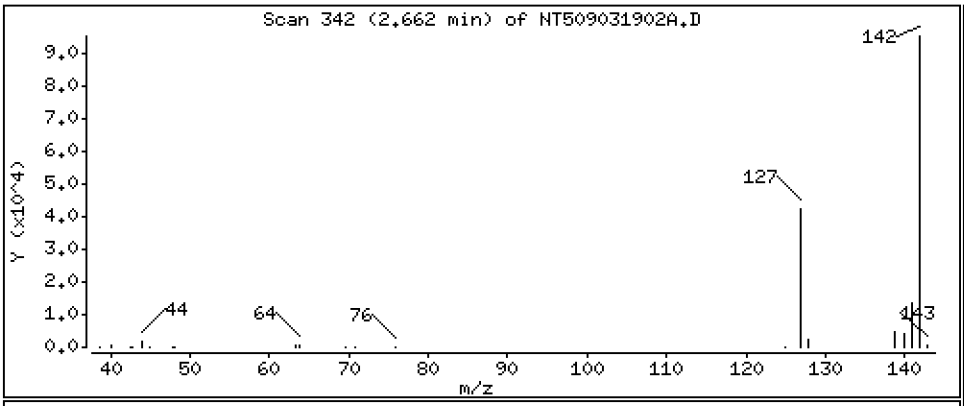
Operator: PB

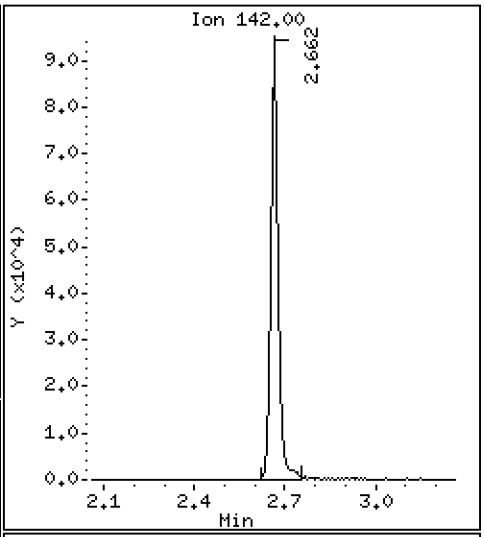
Column phase: RTXVMS

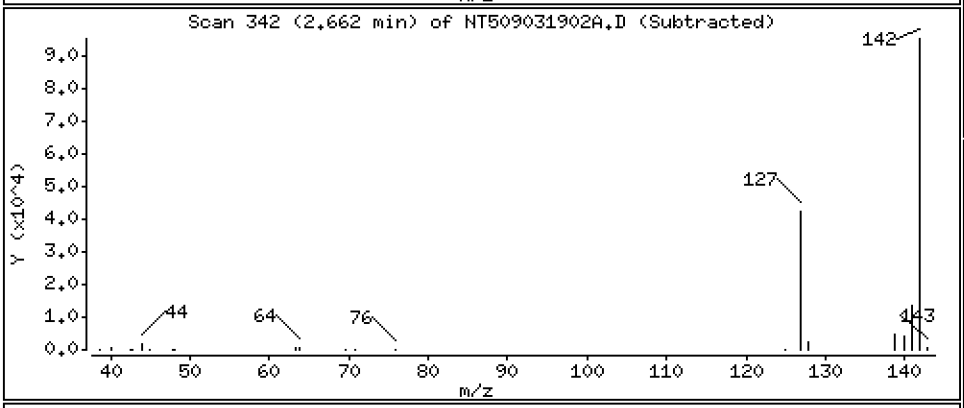
Column diameter: 0.18

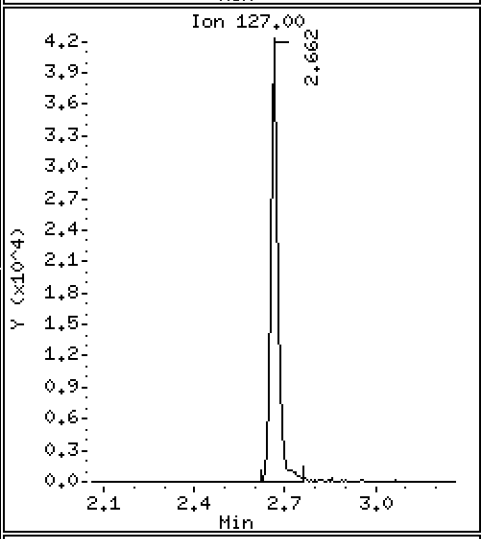
10 Iodomethane

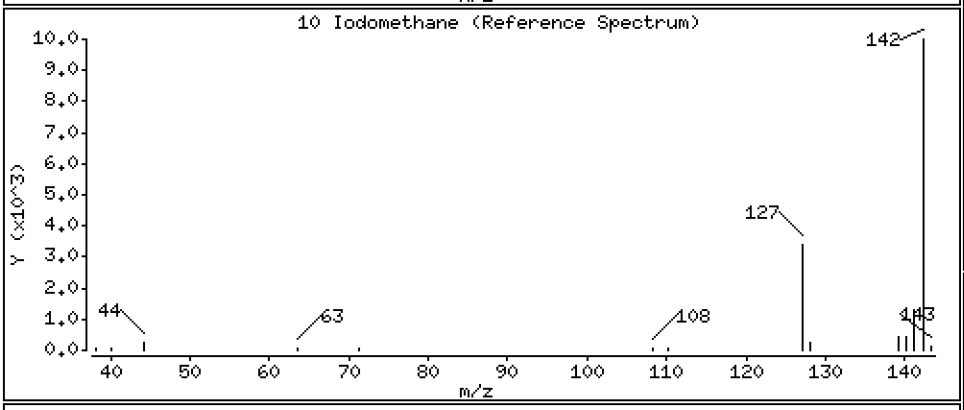
Concentration: 64.678 ug/Kg

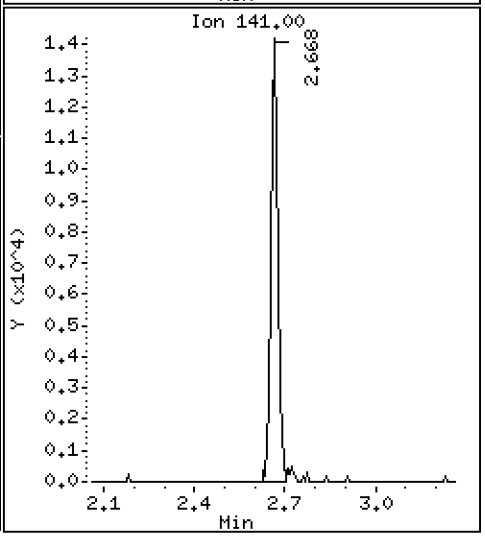


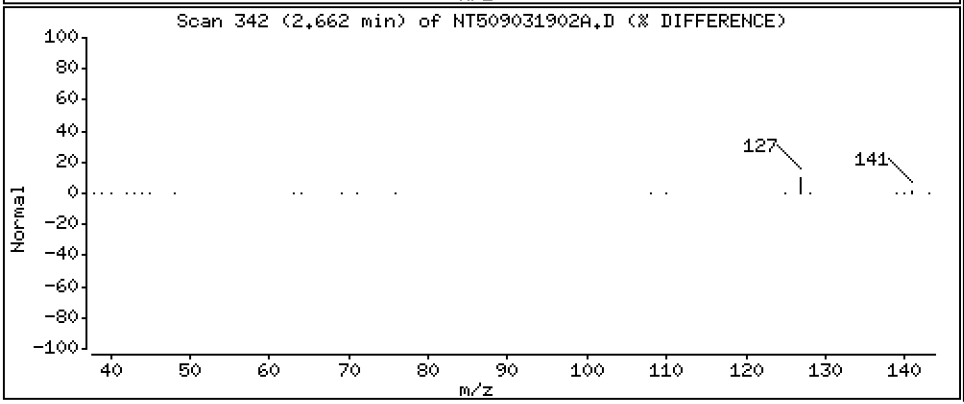












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

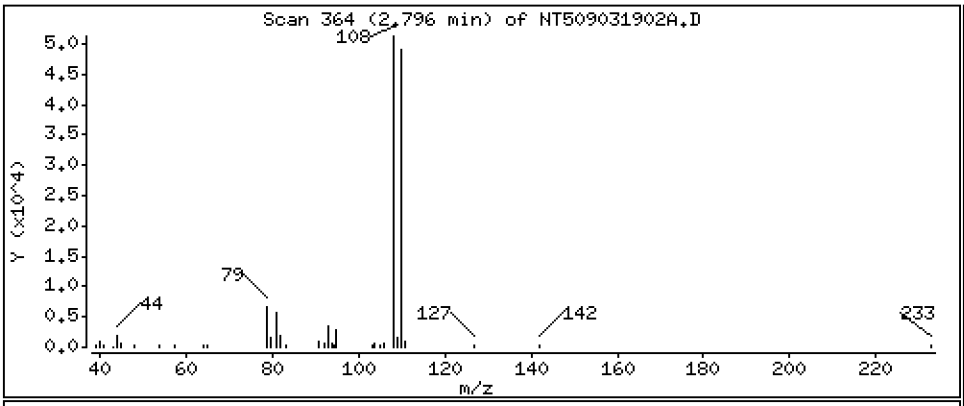
Operator: PB

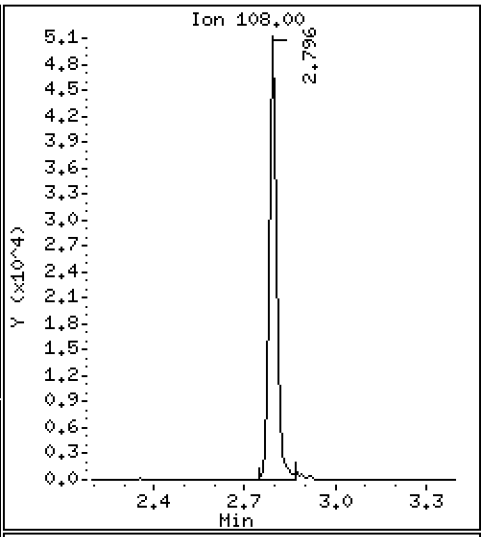
Column phase: RTXVMS

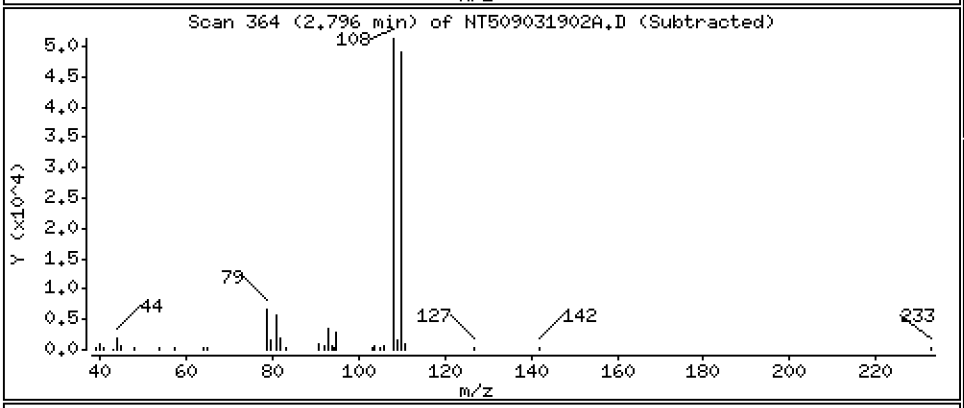
Column diameter: 0.18

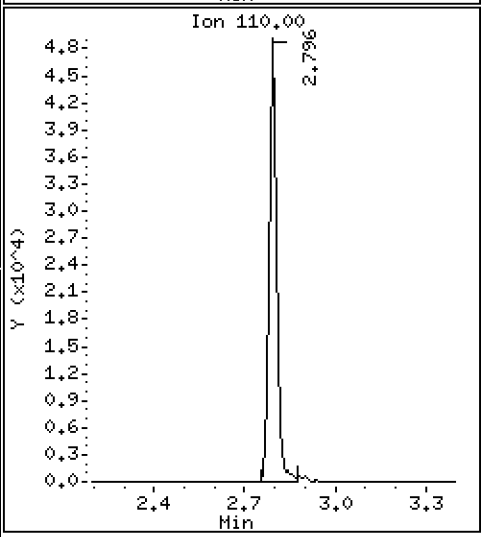
11 Bromoethane

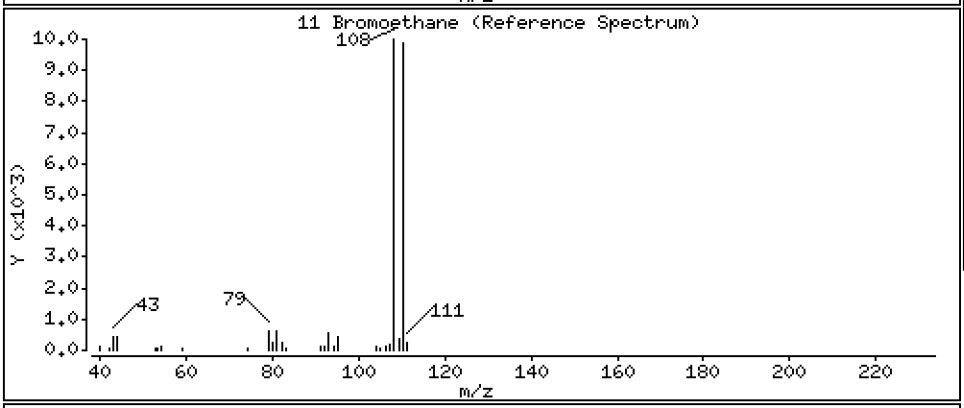
Concentration: 56.973 ug/Kg

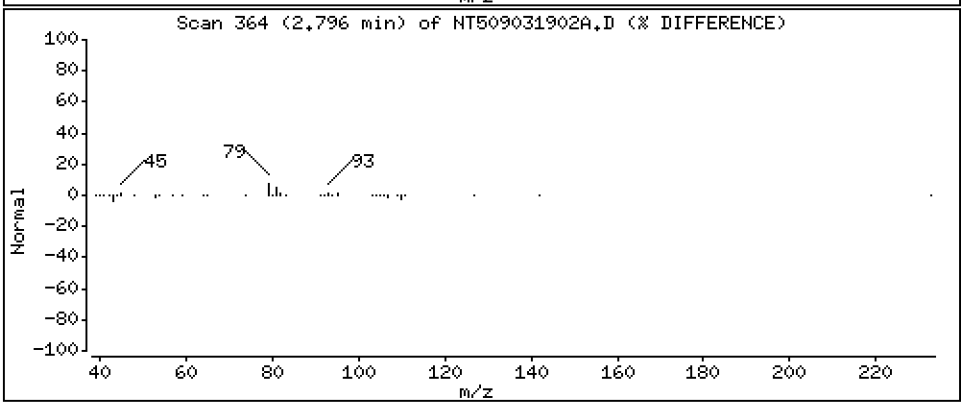












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

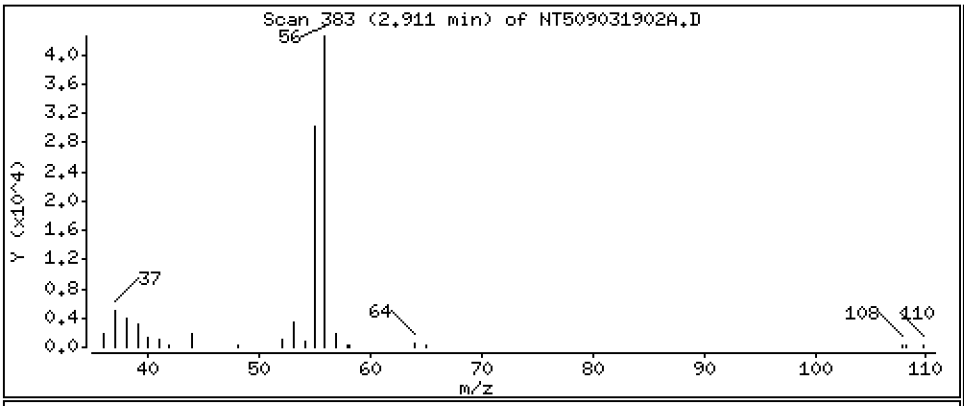
Operator: PB

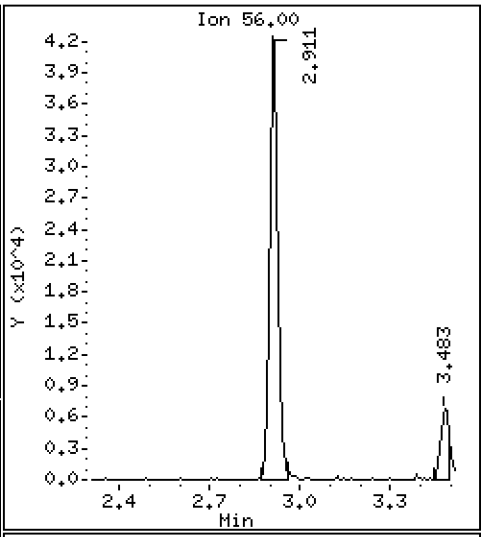
Column phase: RTXVMS

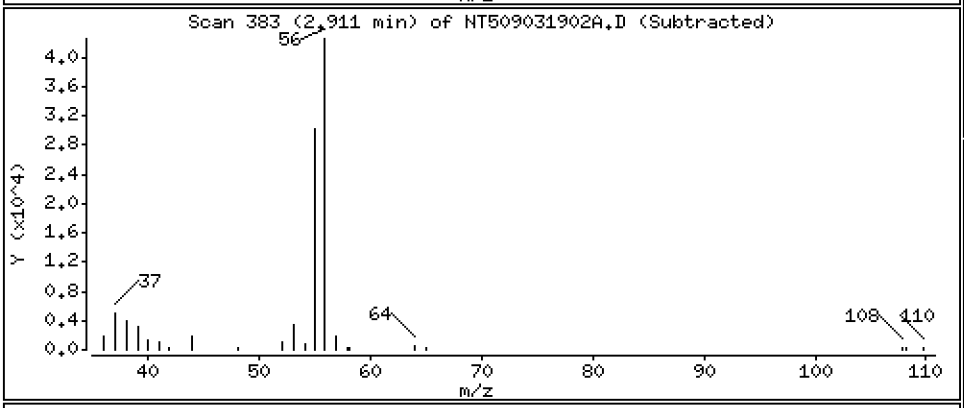
Column diameter: 0.18

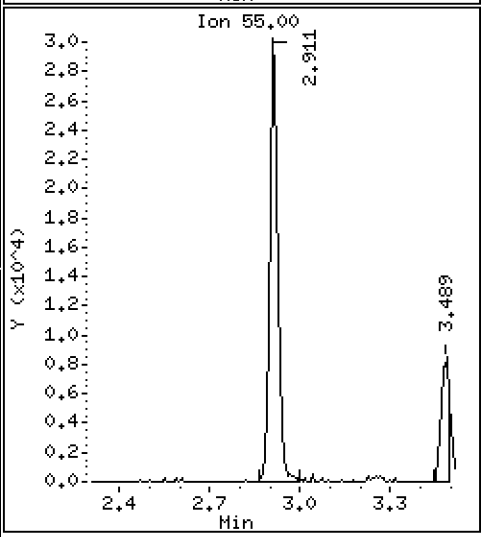
12 Acrolein

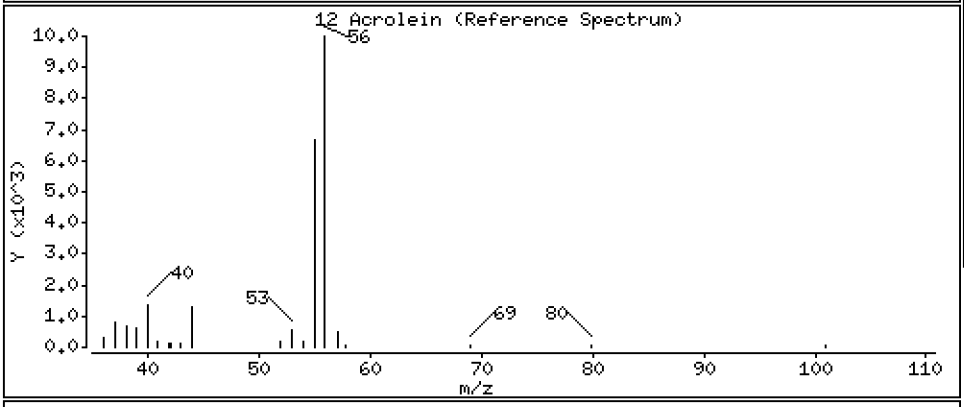
Concentration: 299.07 ug/Kg

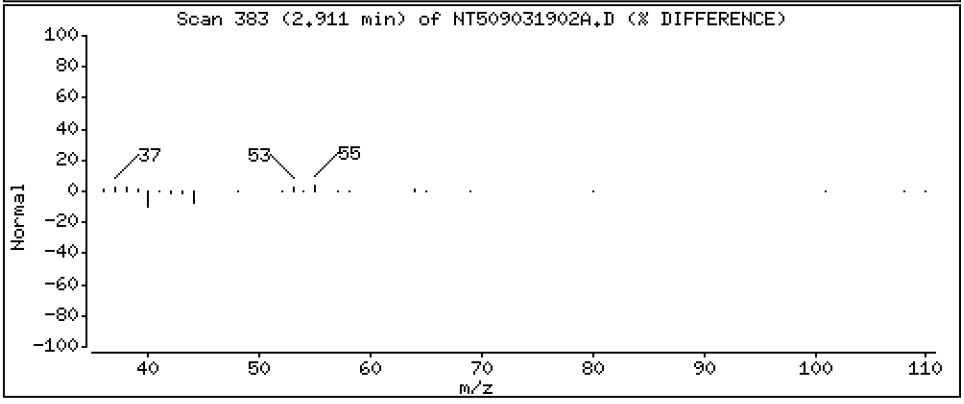












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

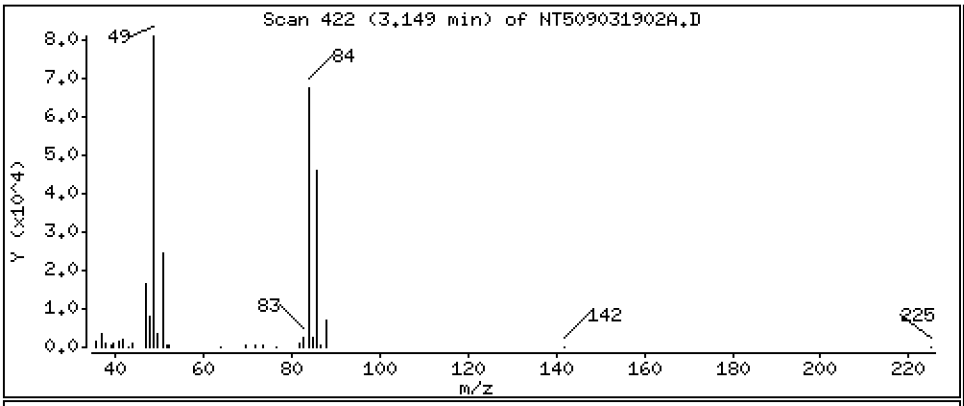
Operator: PB

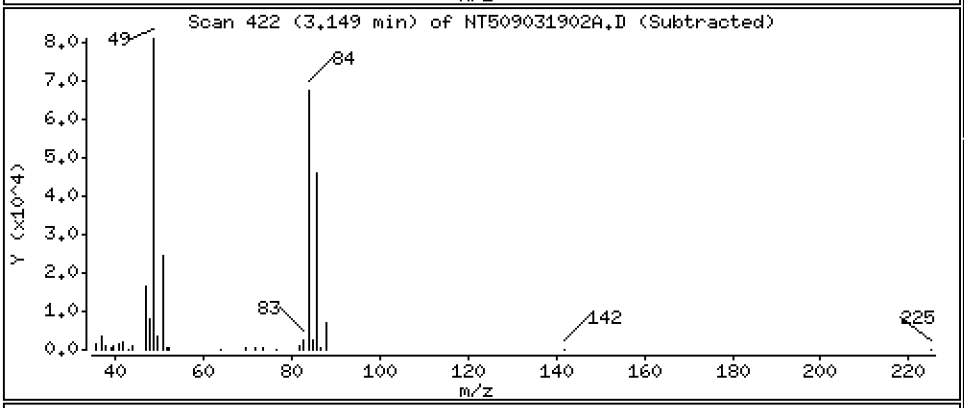
Column phase: RTXVMS

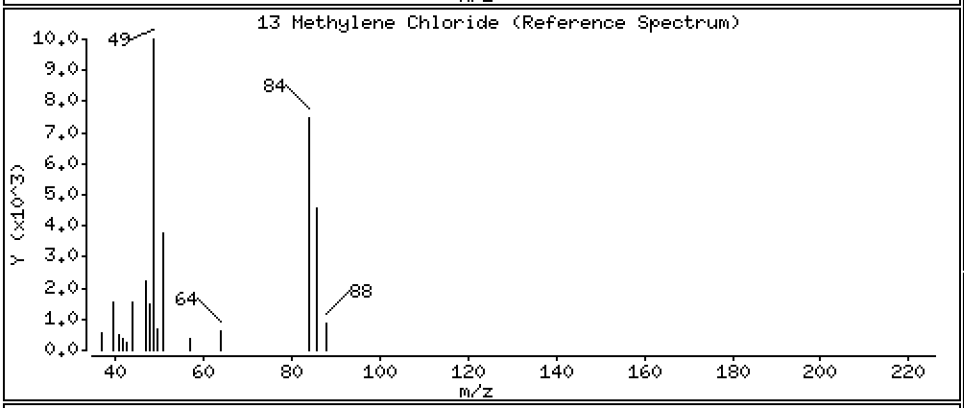
Column diameter: 0.18

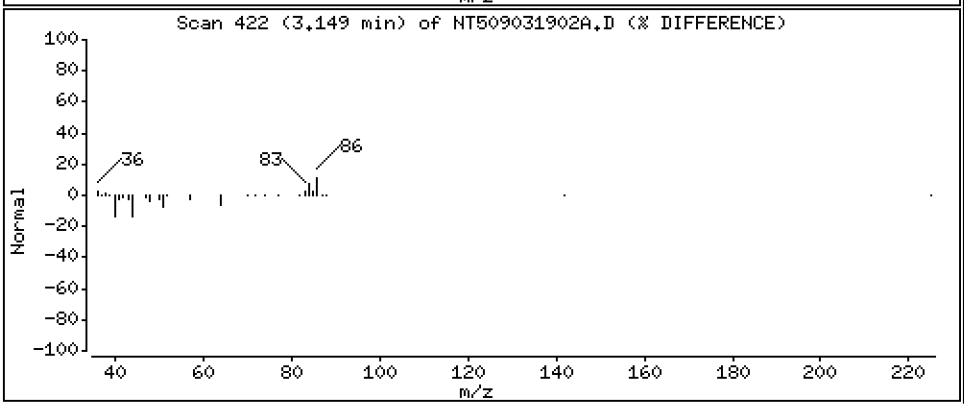
13 Methylene Chloride

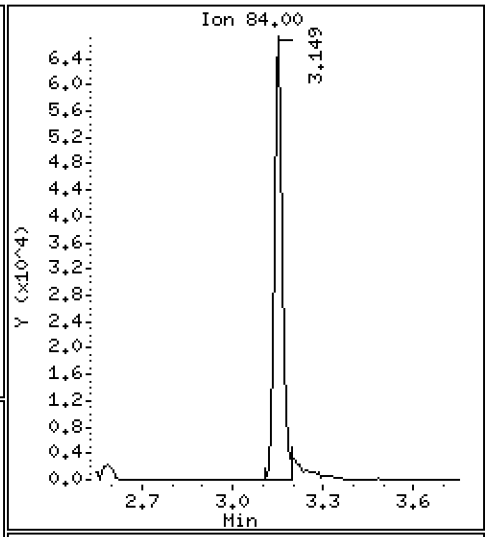
Concentration: 60.999 ug/Kg

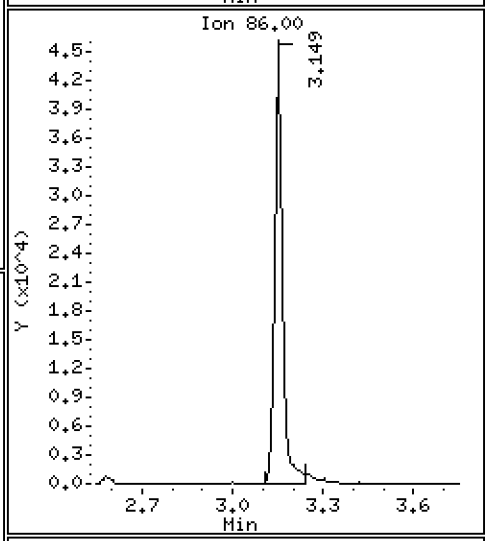


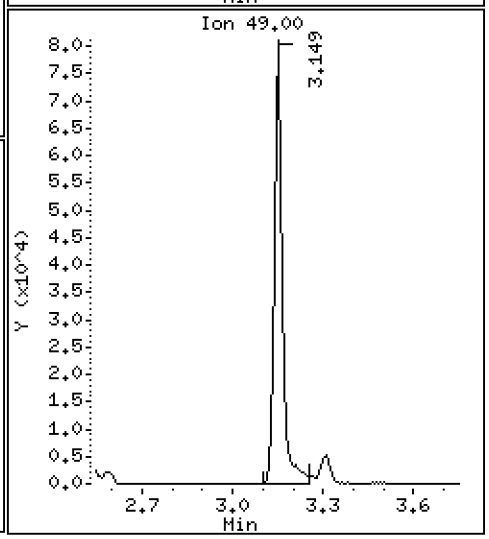












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

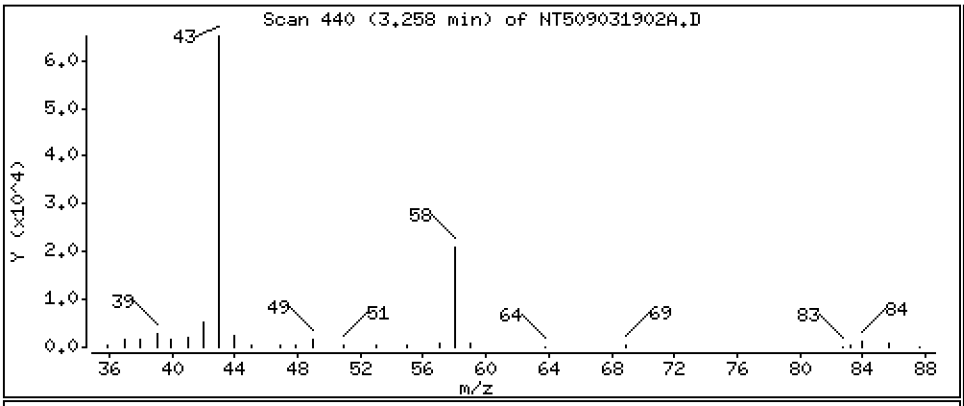
Operator: PB

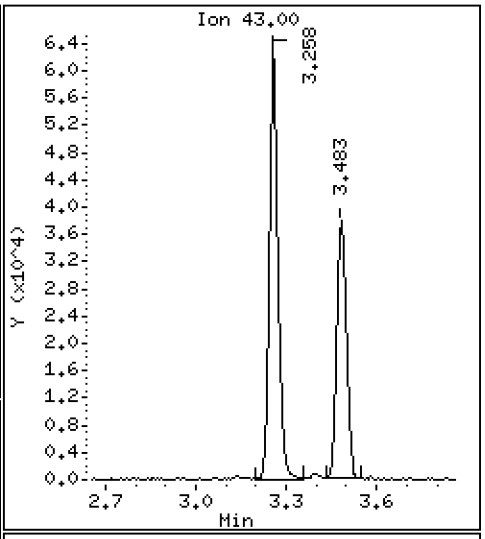
Column phase: RTXVMS

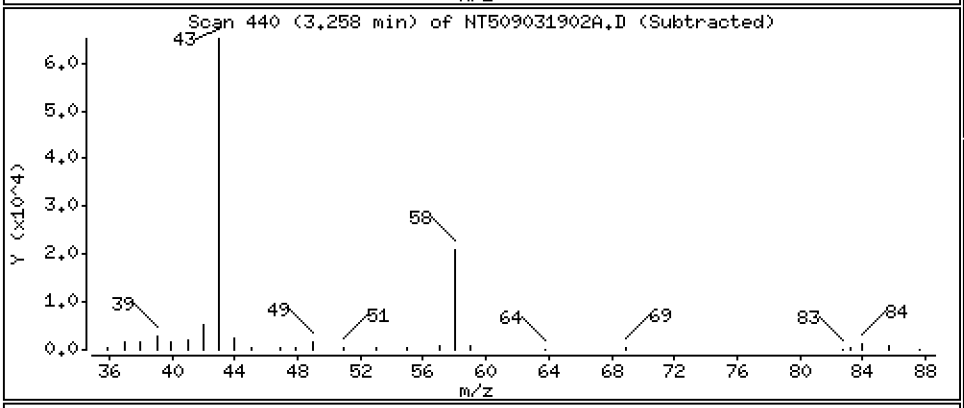
Column diameter: 0.18

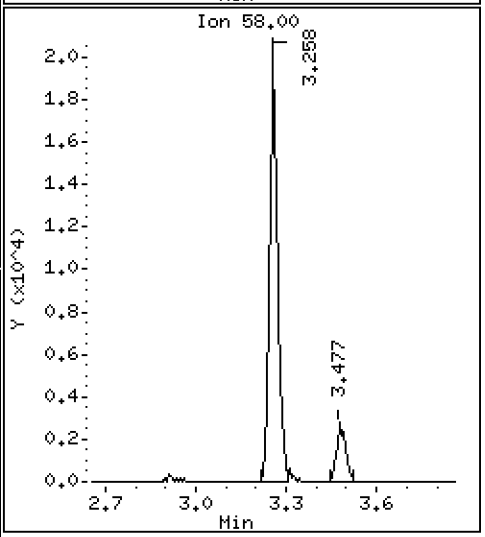
14 Acetone

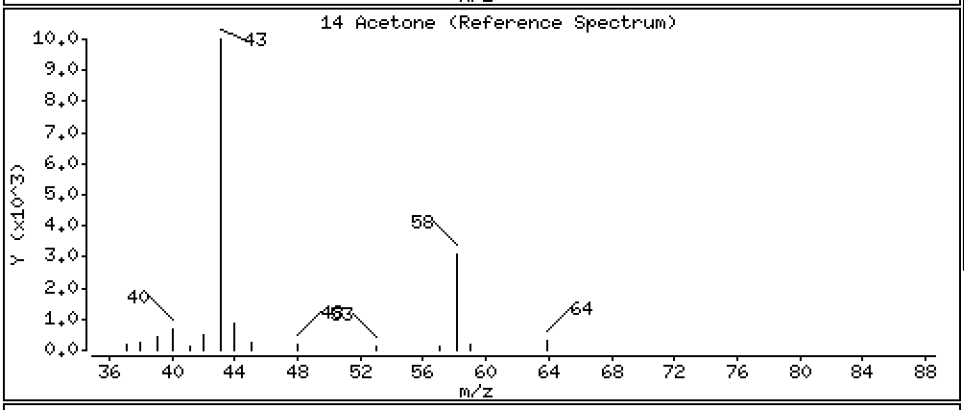
Concentration: 279.44 ug/Kg

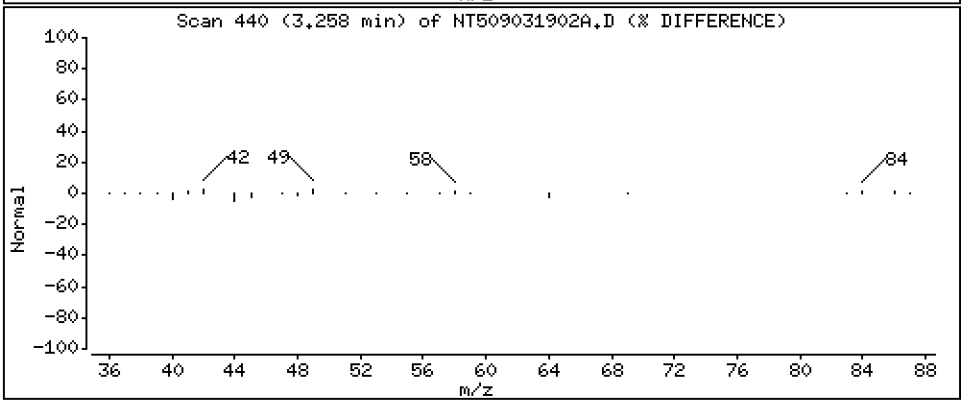












Date : 03-SEP-2019 12:38

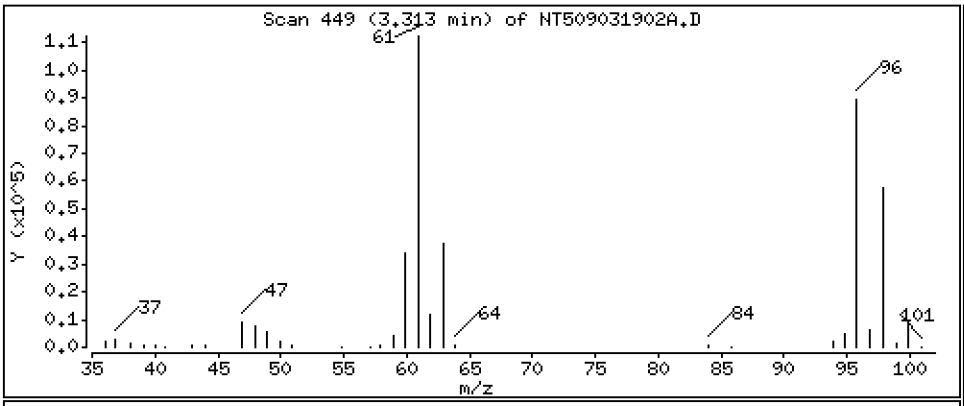
Client ID: Instrument: nt5.i

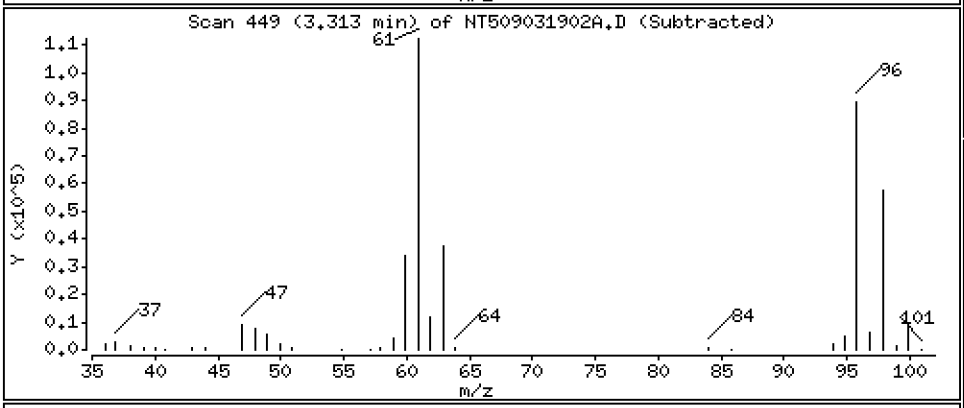
Sample Info: ICV1

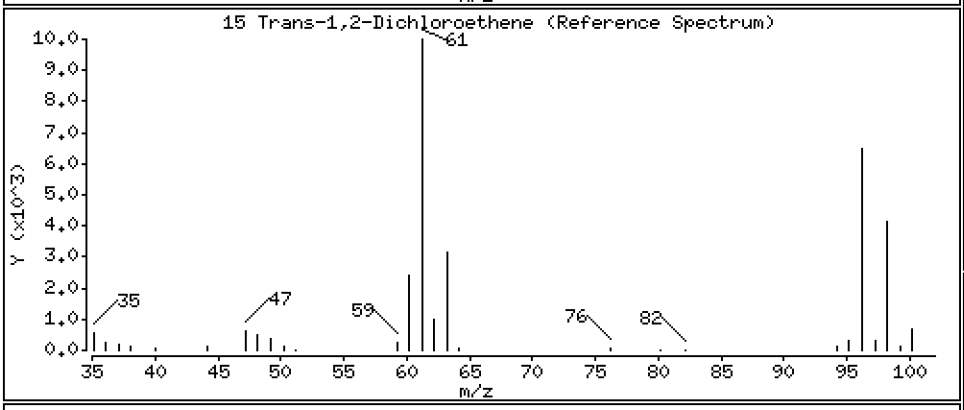
Operator: PB

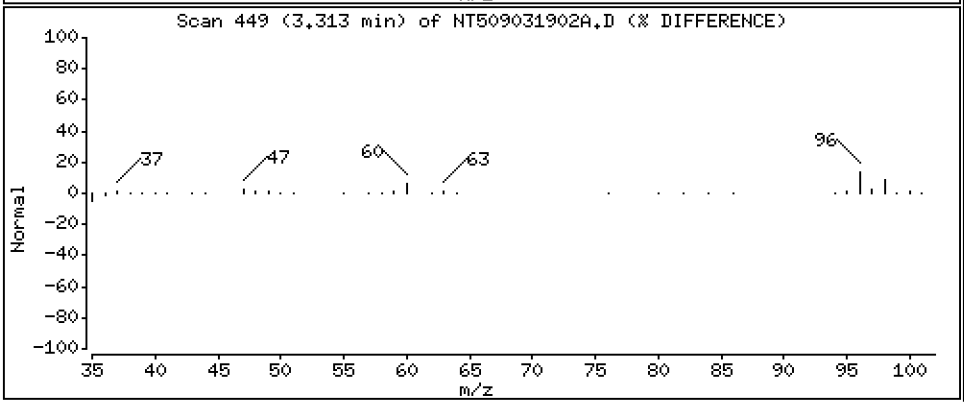
Column phase: RTXVMS Column diameter: 0.18

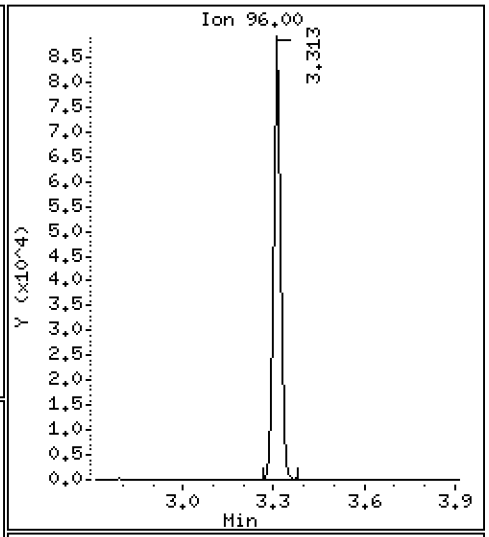
15 Trans-1,2-Dichloroethene Concentration: 57.021 ug/Kg

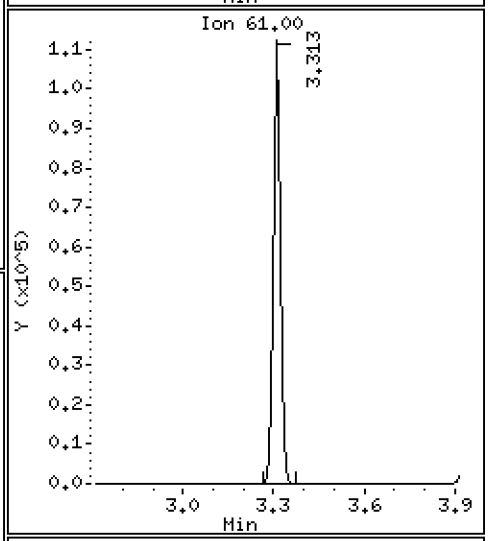


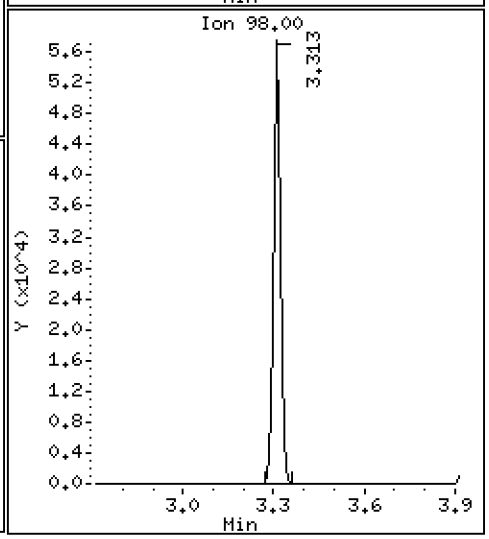












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

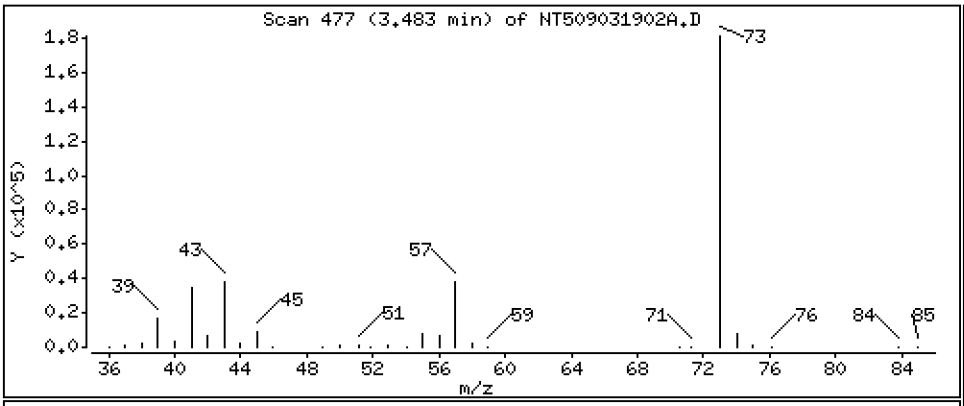
Operator: PB

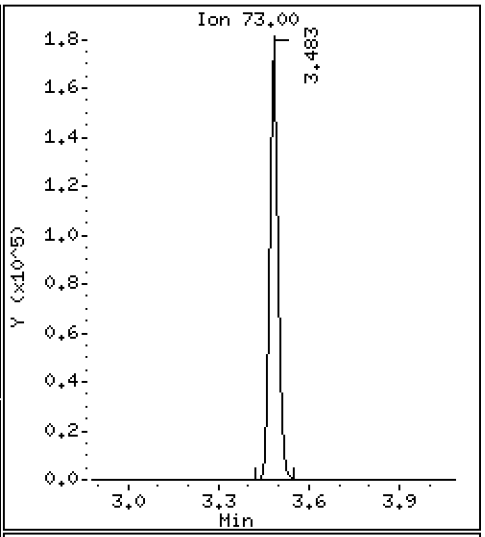
Column phase: RTXVMS

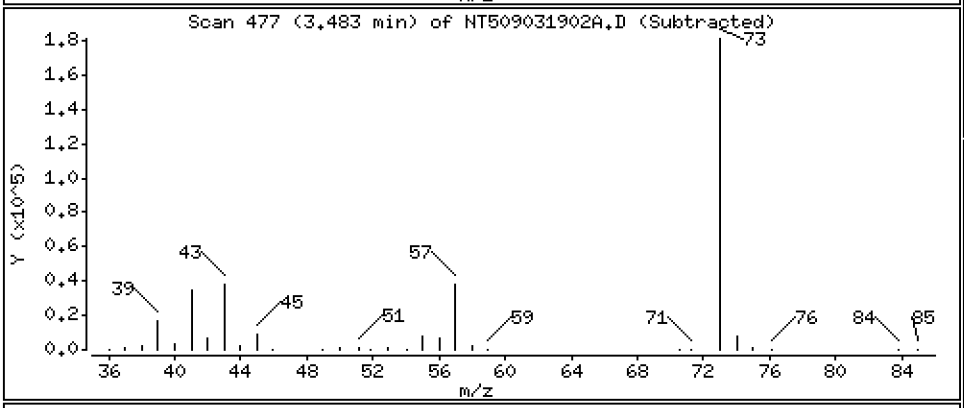
Column diameter: 0.18

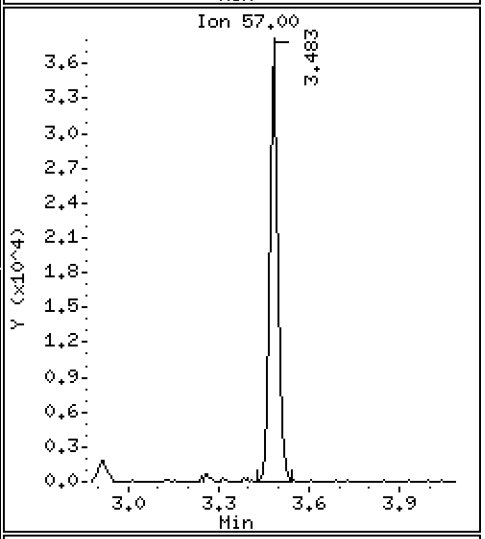
16 Methyl tert butyl ether

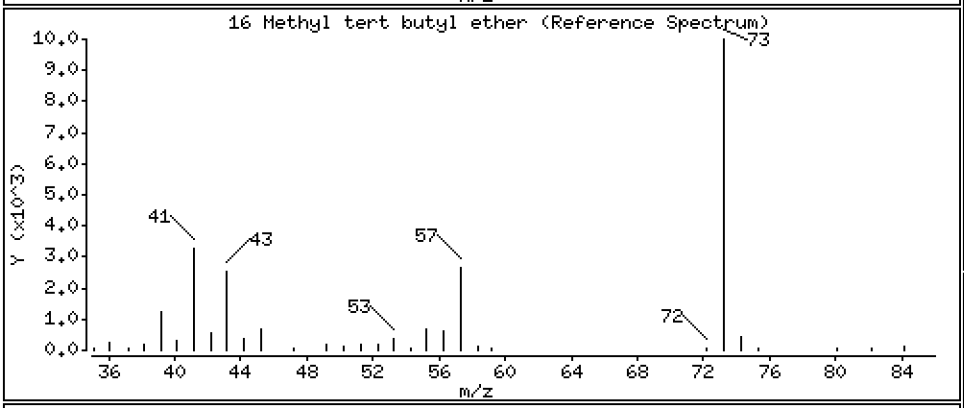
Concentration: 57.046 ug/Kg

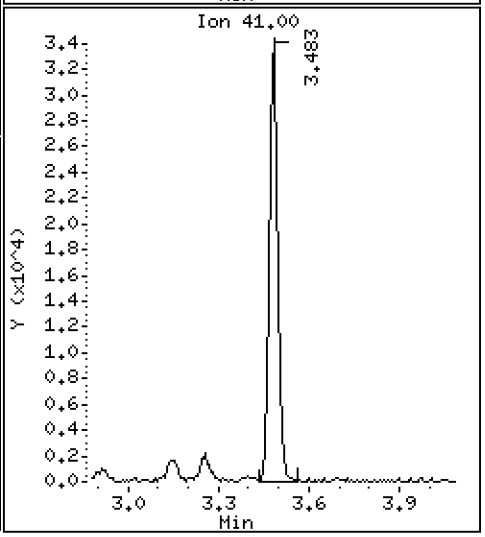


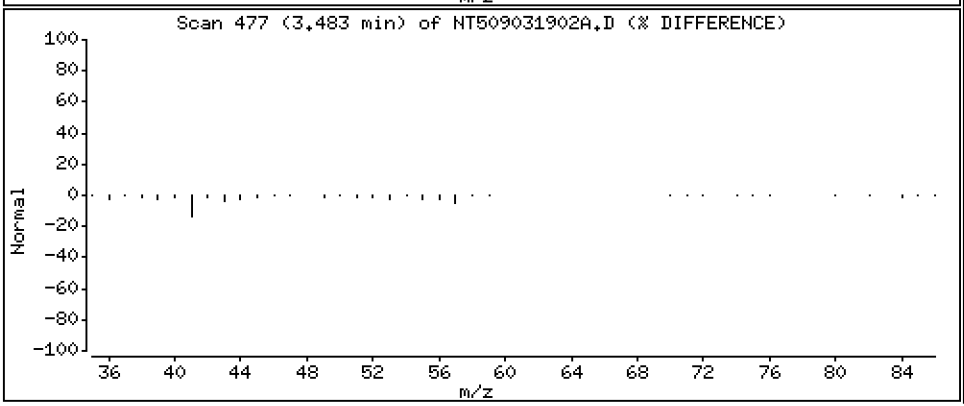












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

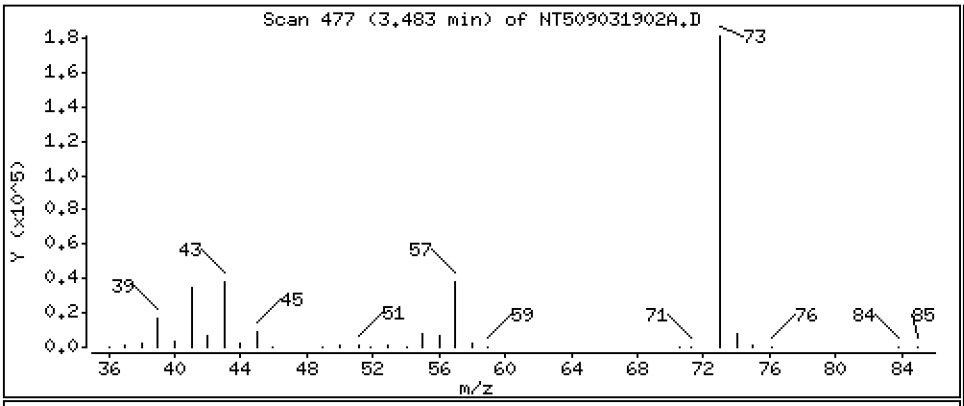
Operator: PB

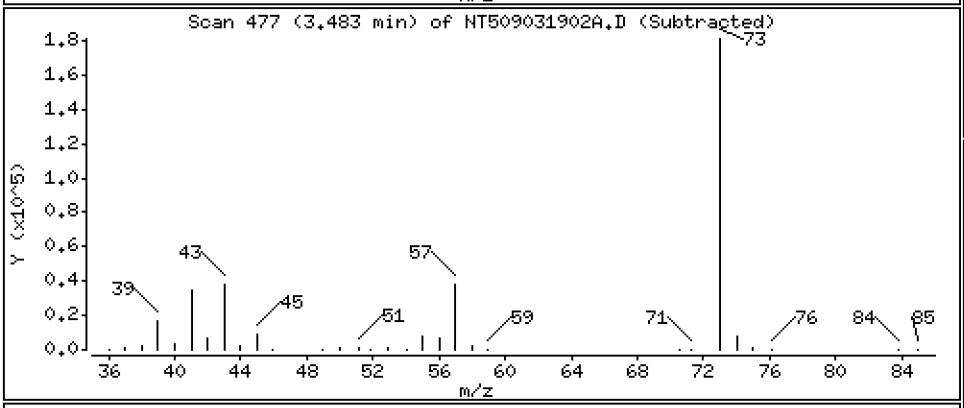
Column phase: RTXVMS

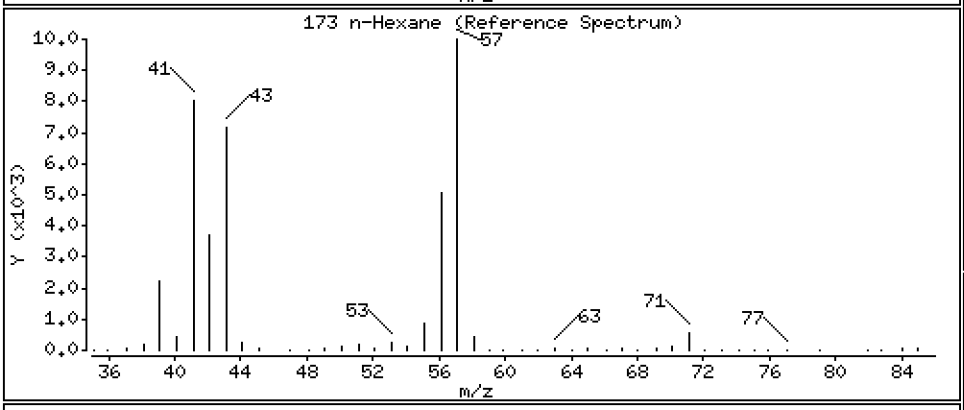
Column diameter: 0.18

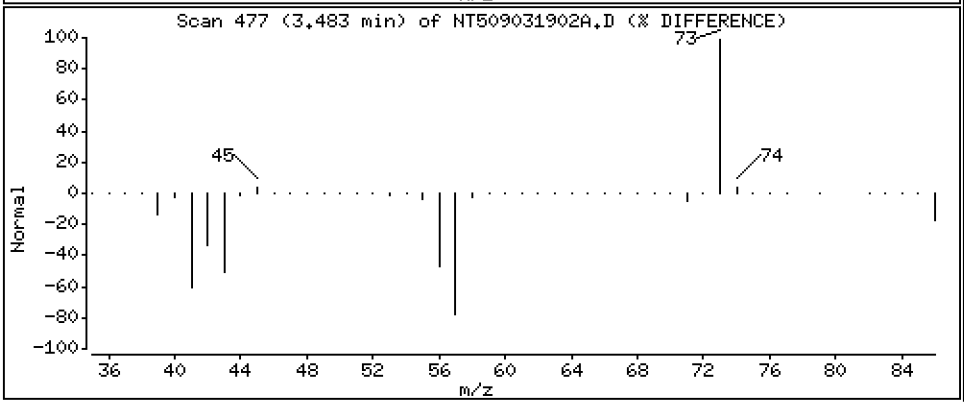
173 n-Hexane

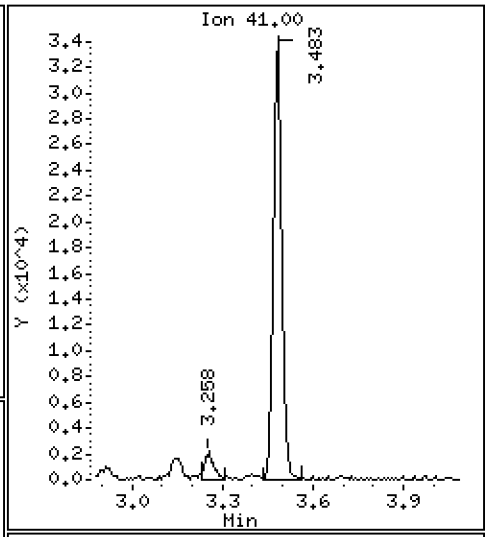
Concentration: 28.333 ug/Kg

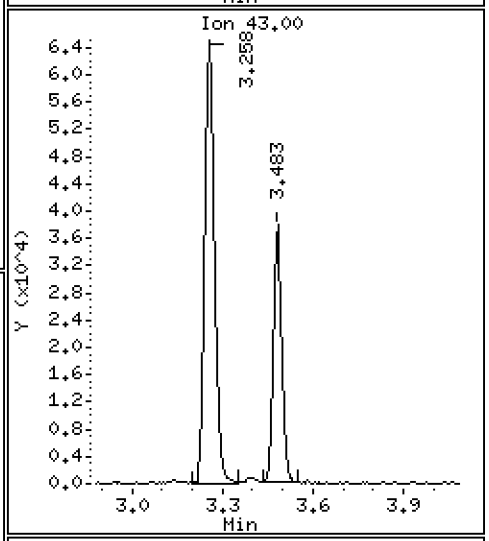


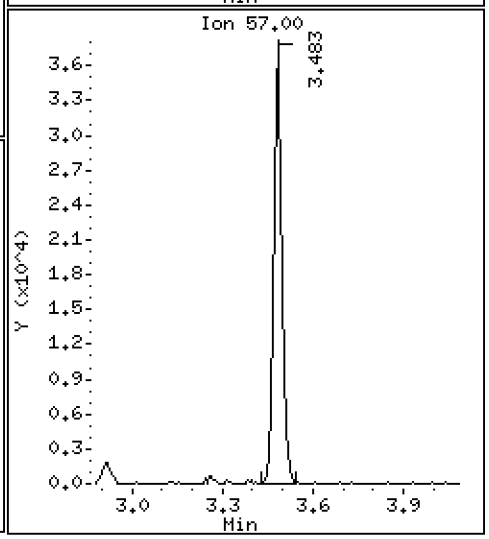












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

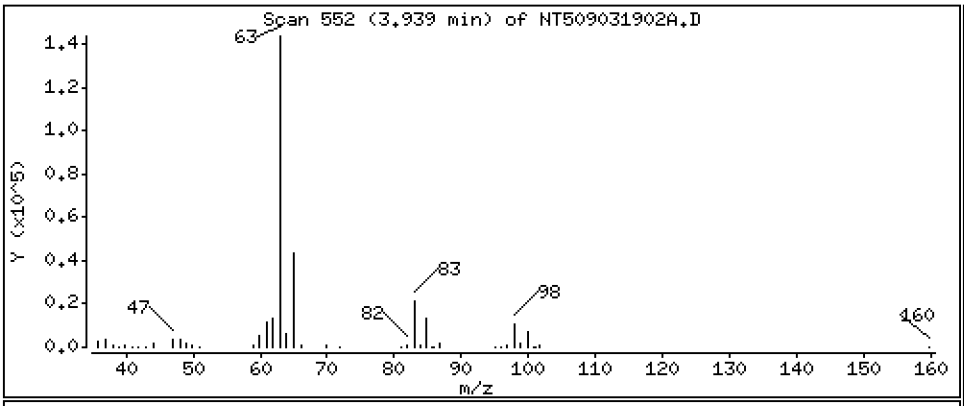
Operator: PB

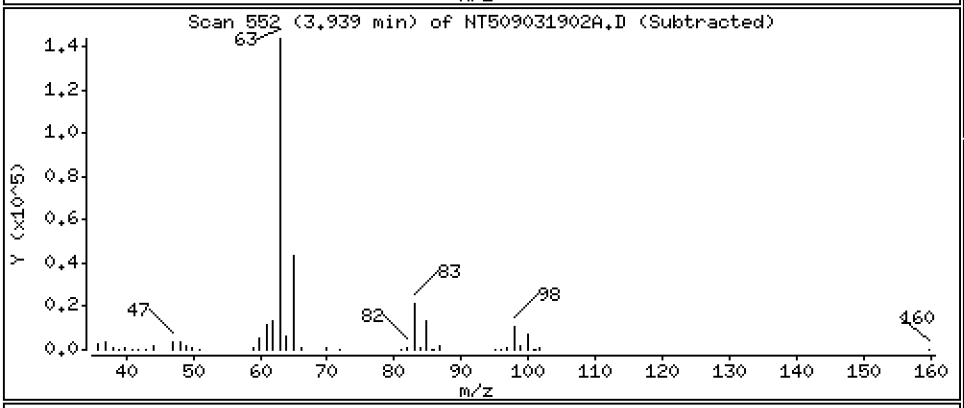
Column phase: RTXVMS

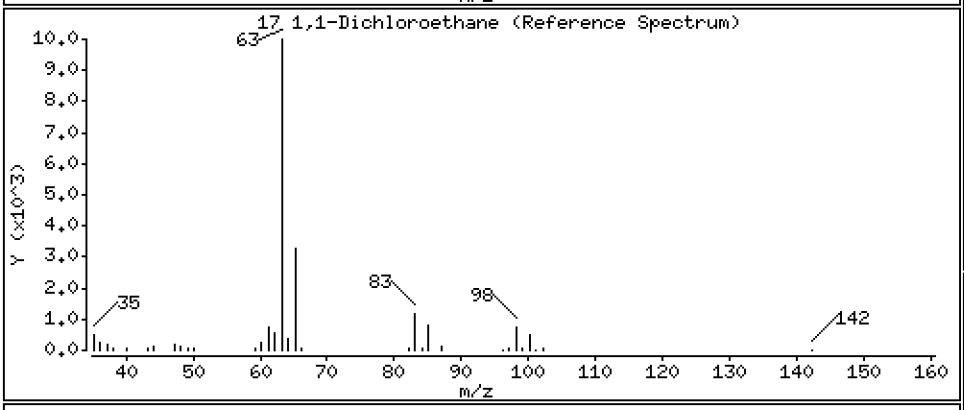
Column diameter: 0.18

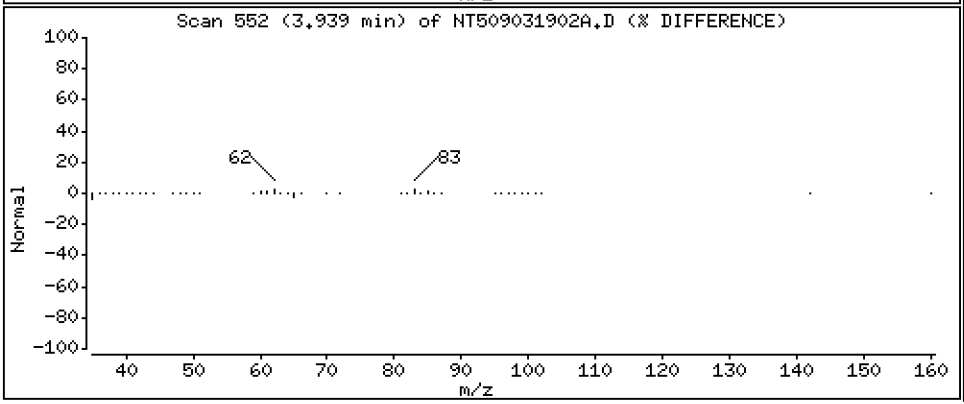
17 1,1-Dichloroethane

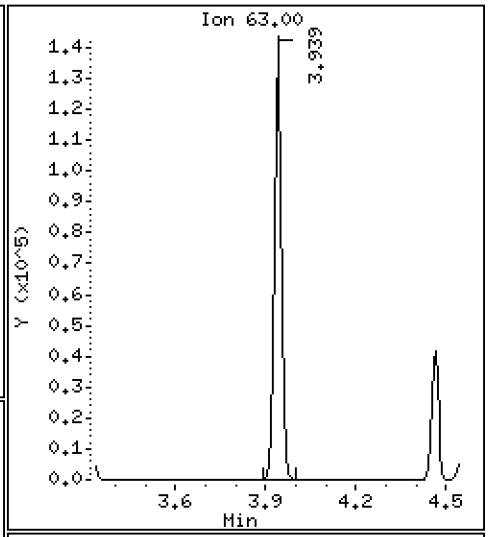
Concentration: 58.278 ug/Kg

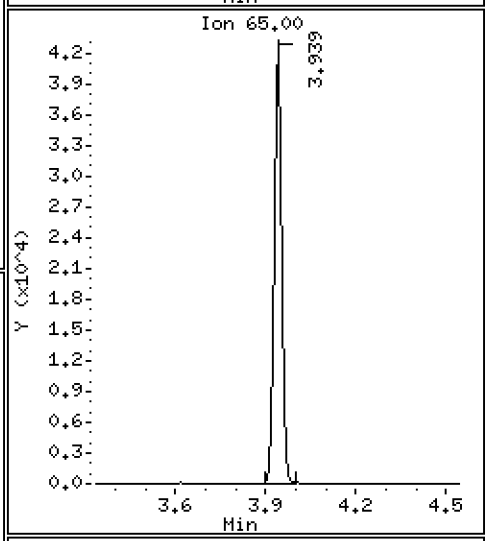


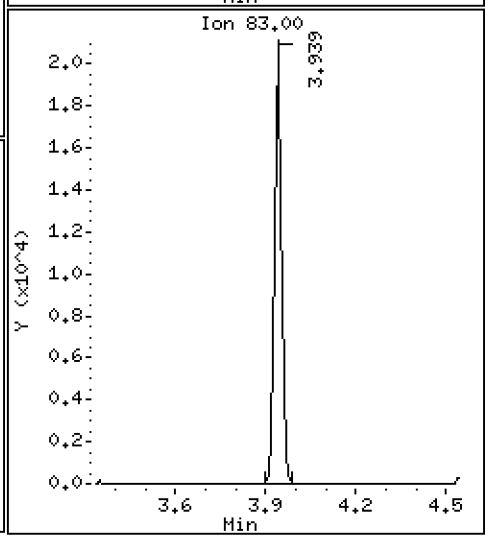












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

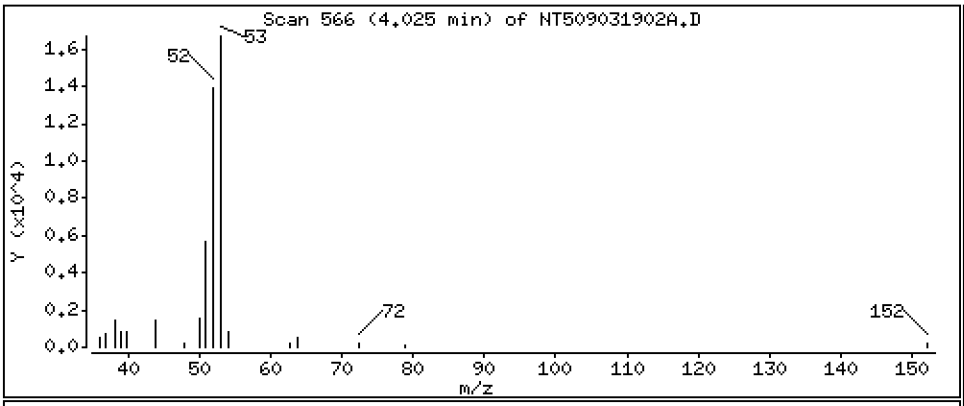
Operator: PB

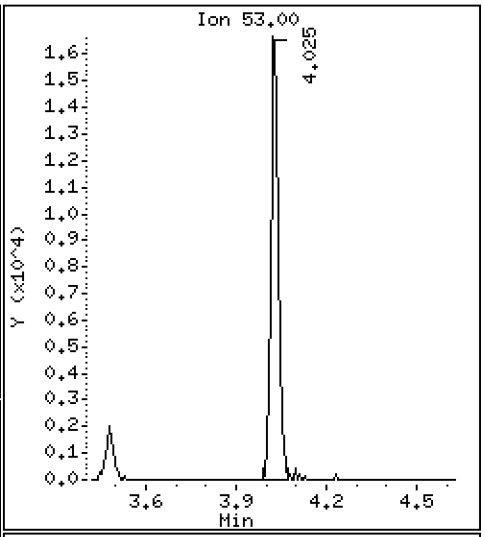
Column phase: RTXVMS

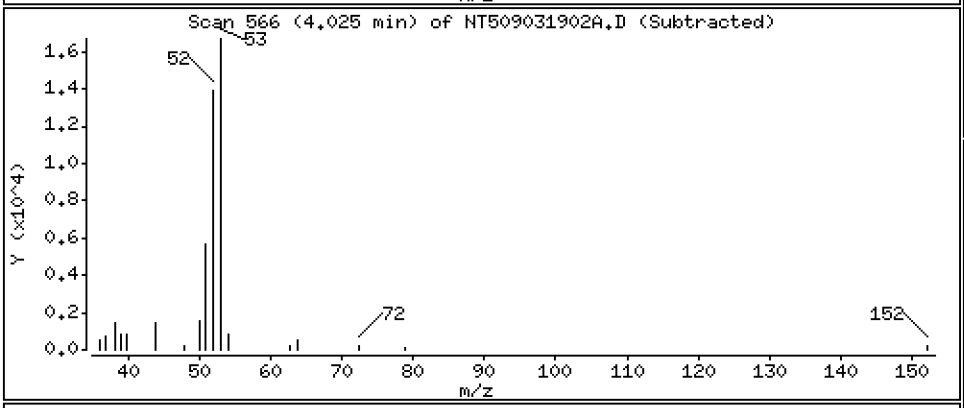
Column diameter: 0.18

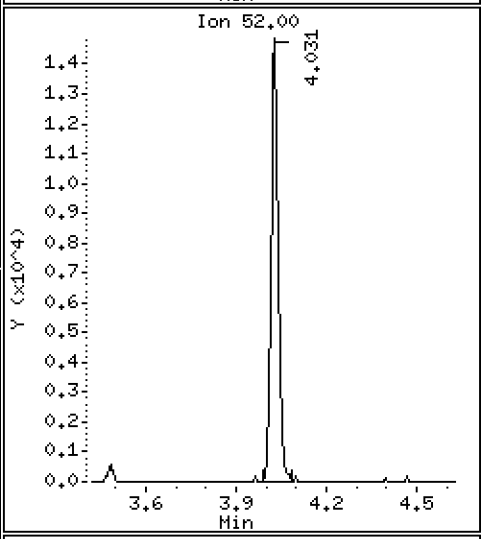
18 Acrylonitrile

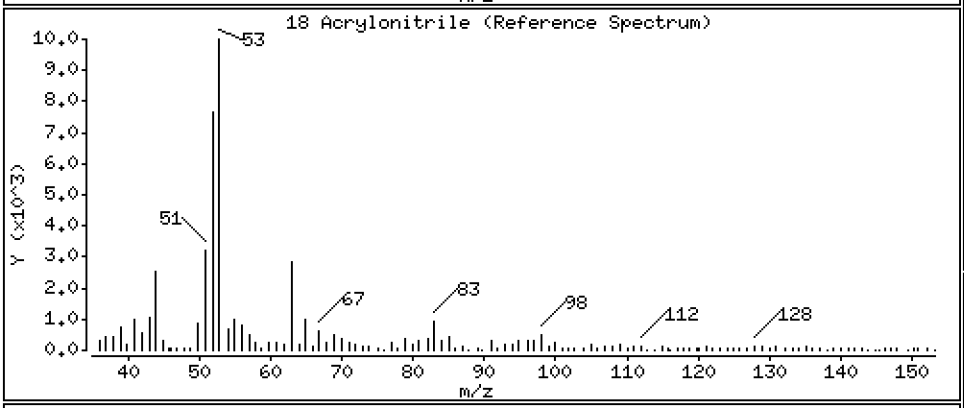
Concentration: 57.086 ug/Kg

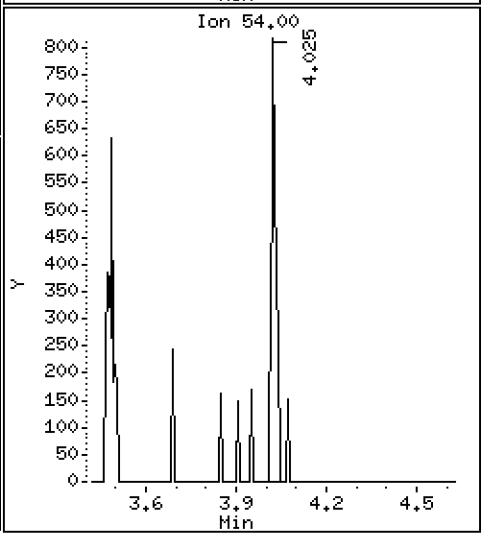


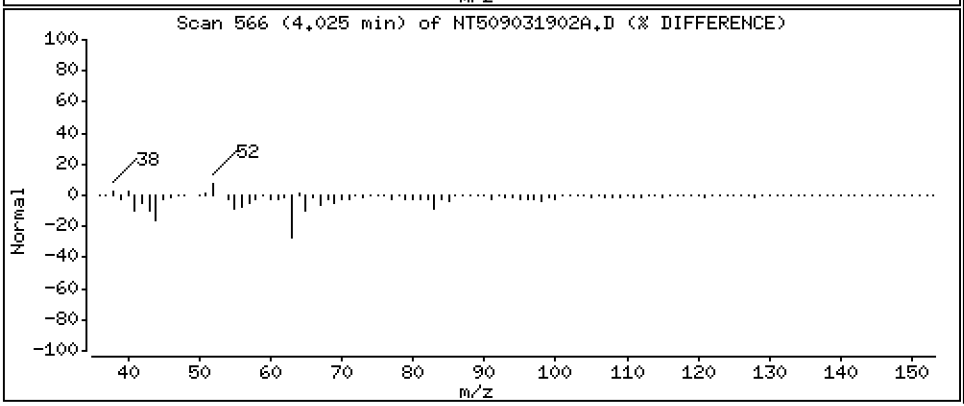












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

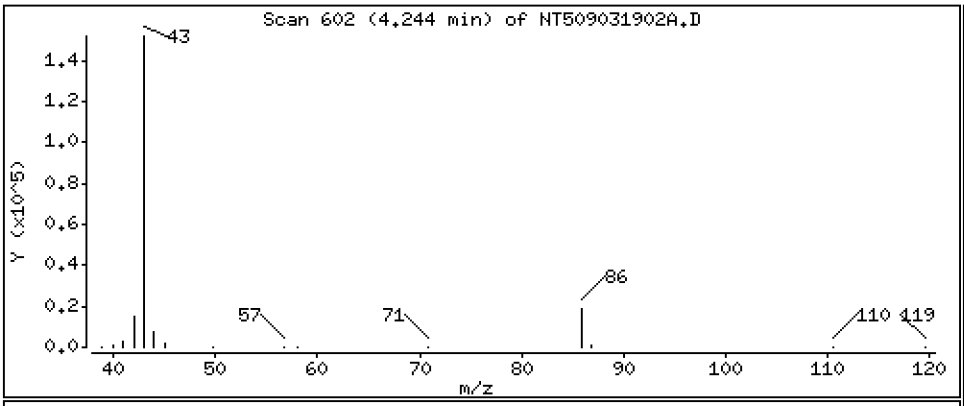
Operator: PB

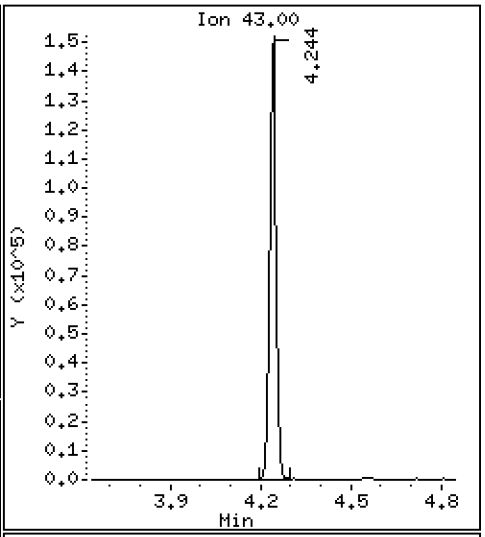
Column phase: RTXVMS

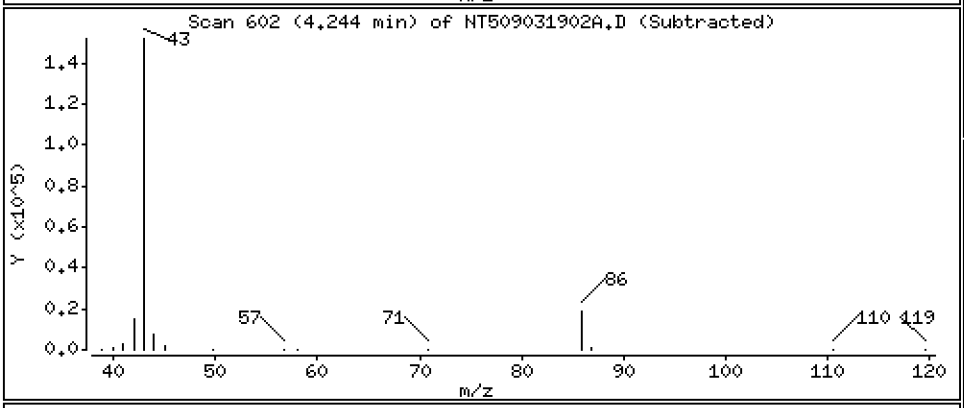
Column diameter: 0.18

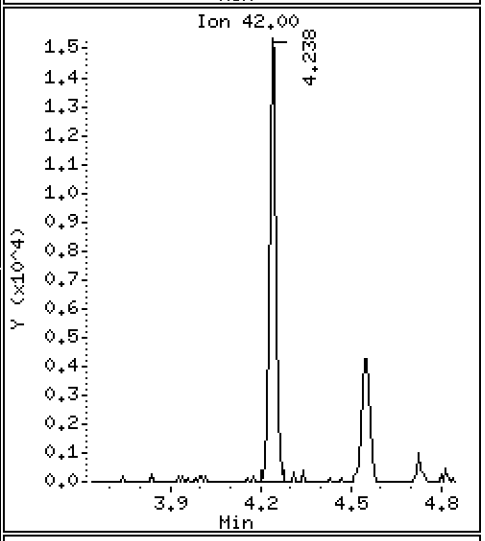
19 Vinyl Acetate

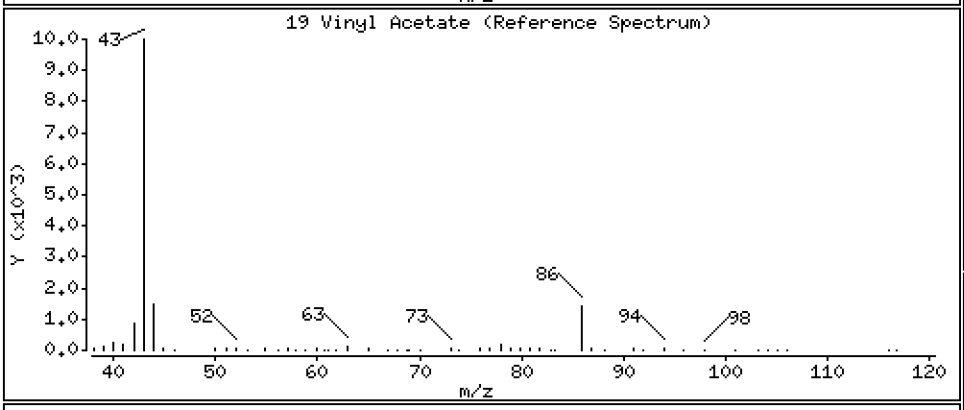
Concentration: 54.767 ug/Kg

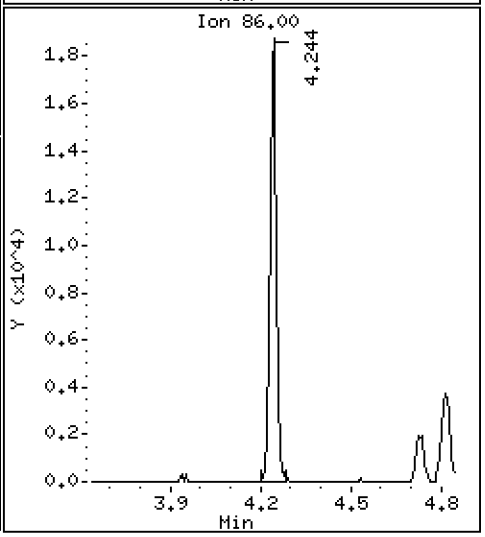


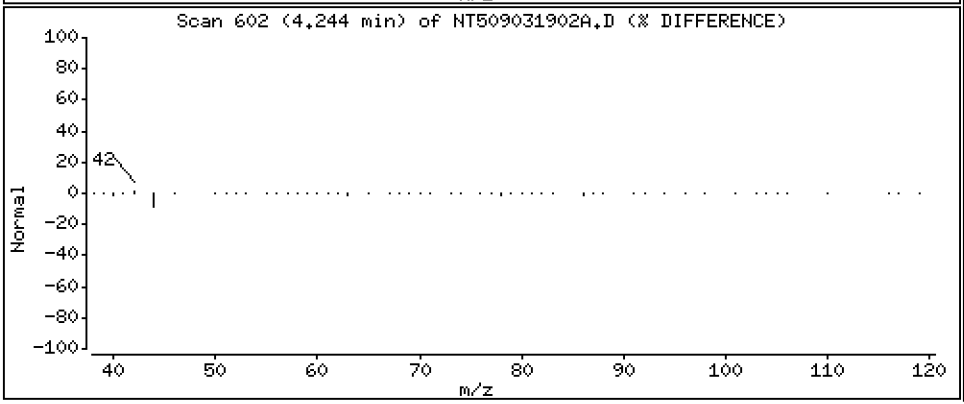












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

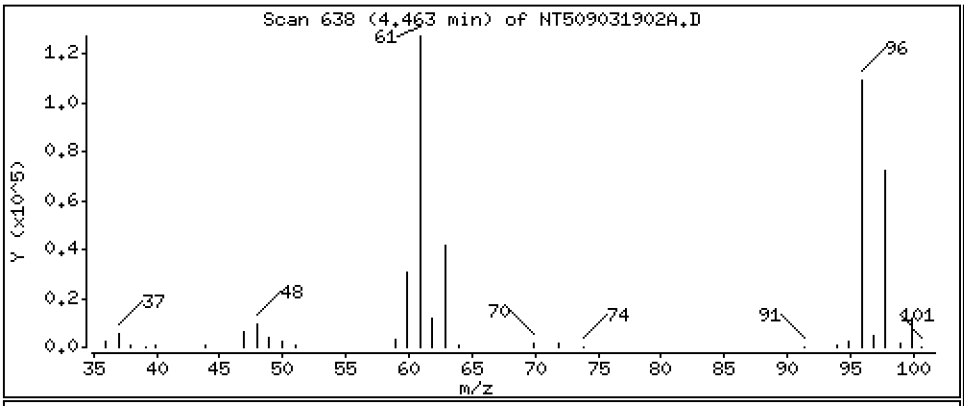
Operator: PB

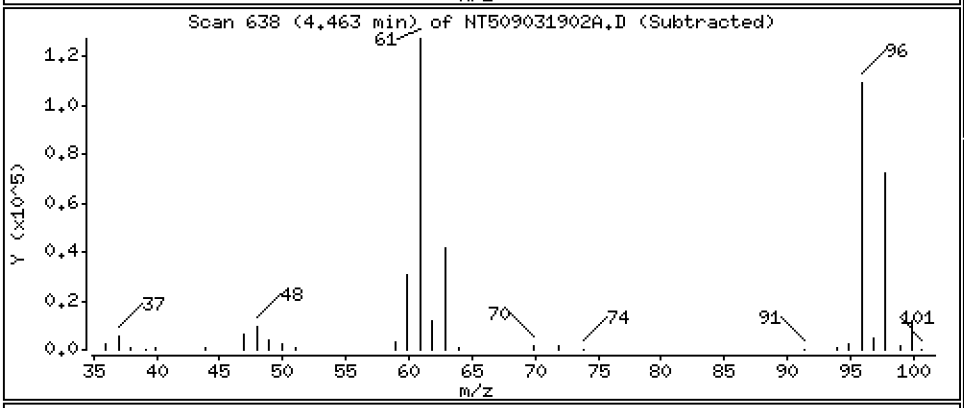
Column phase: RTXVMS

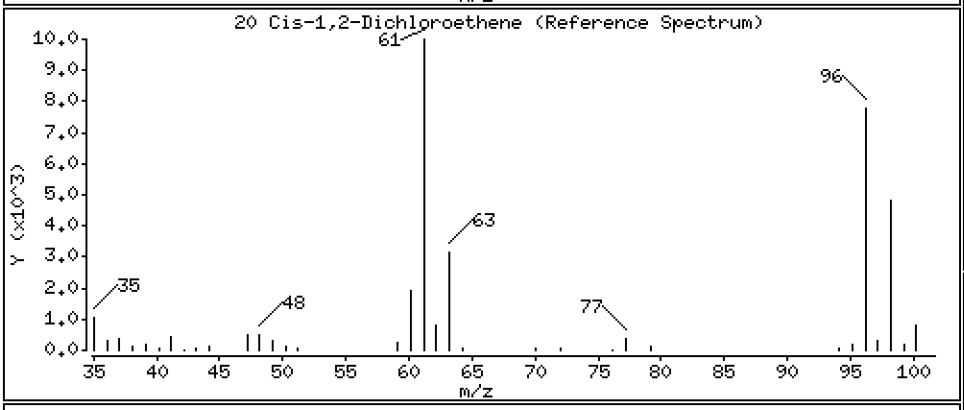
Column diameter: 0.18

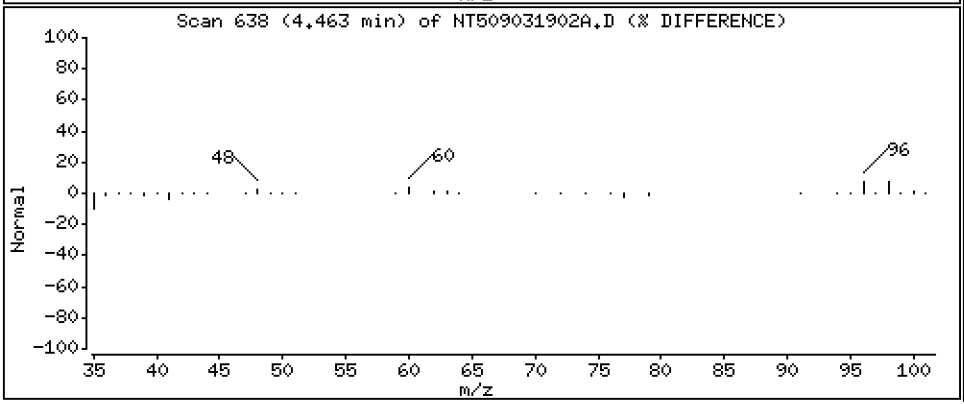
20 Cis-1,2-Dichloroethene

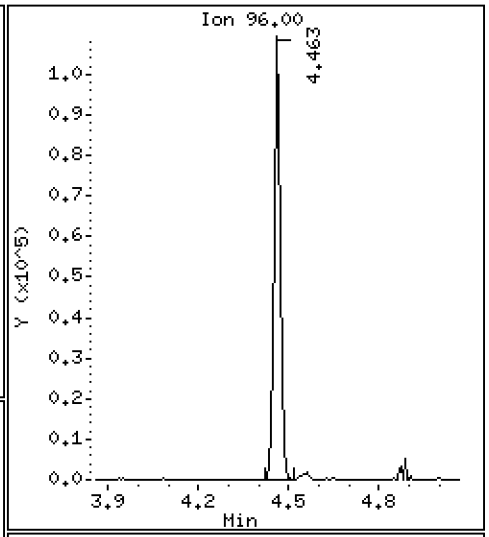
Concentration: 55.858 ug/Kg

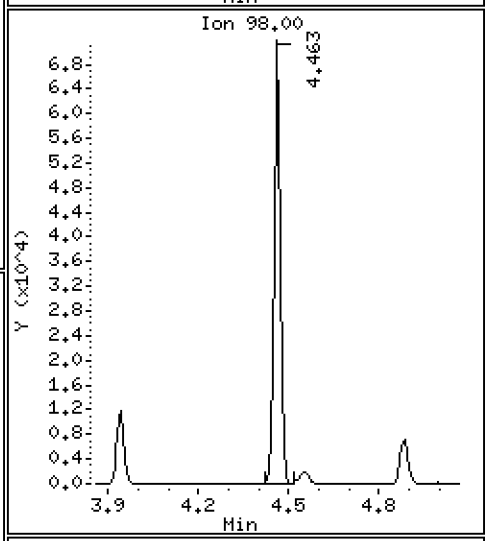


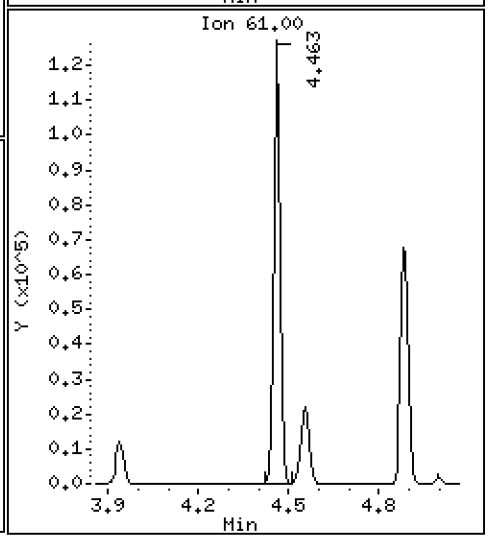












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

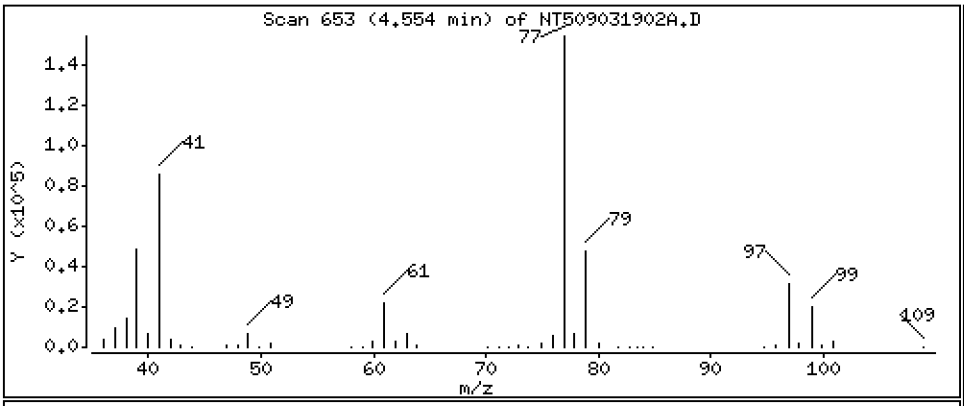
Operator: PB

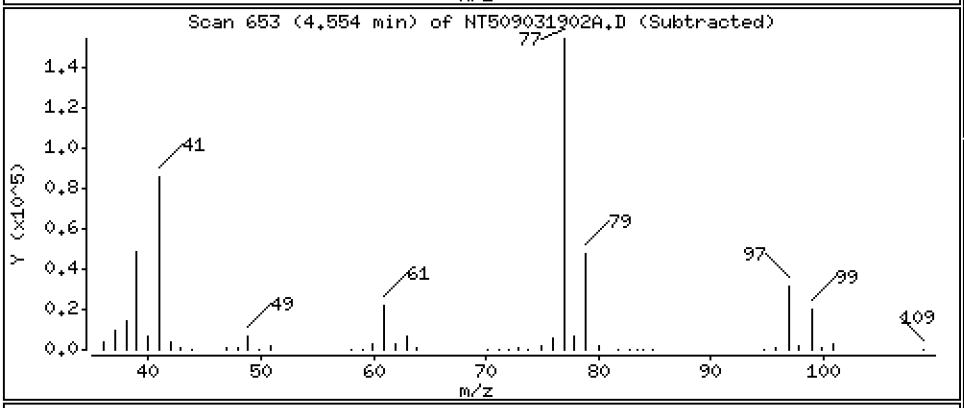
Column phase: RTXVMS

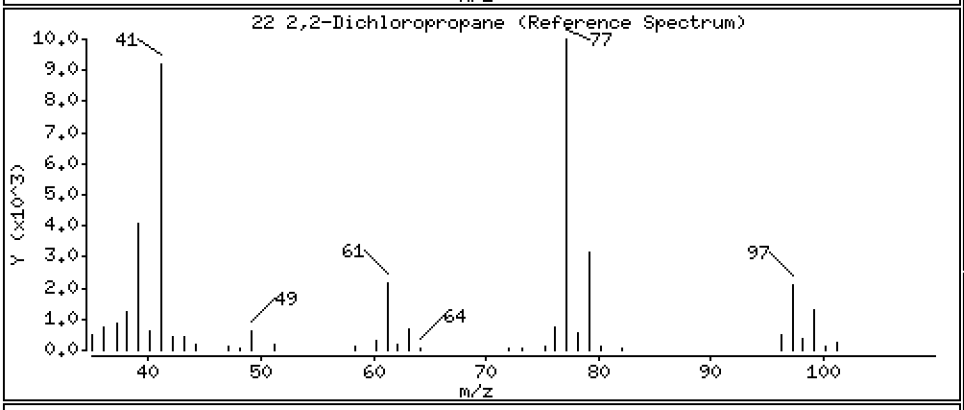
Column diameter: 0.18

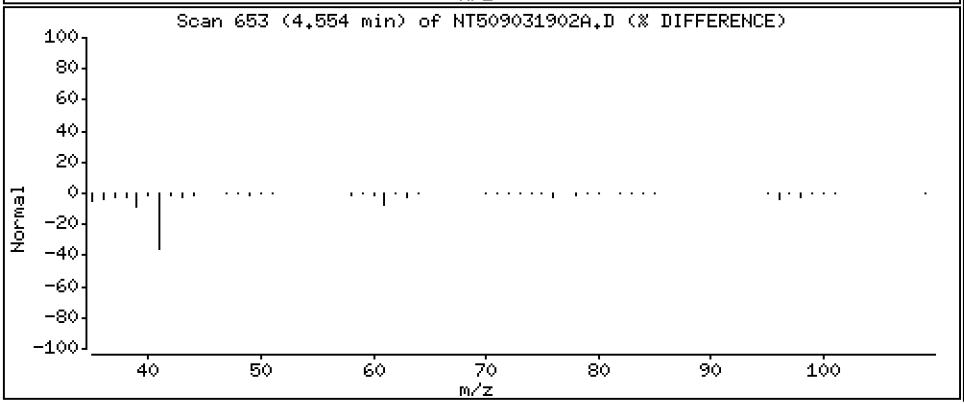
22 2,2-Dichloropropane

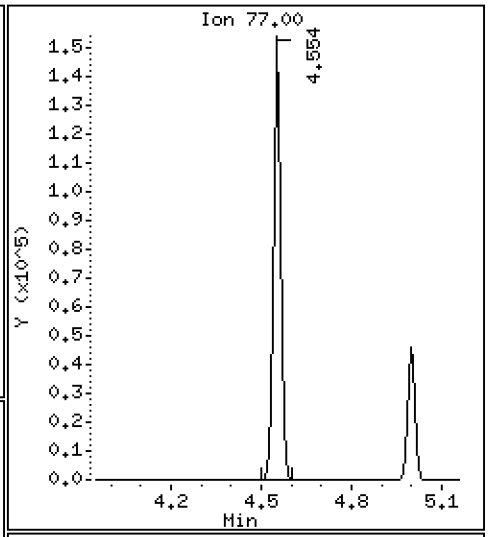
Concentration: 58.328 ug/Kg

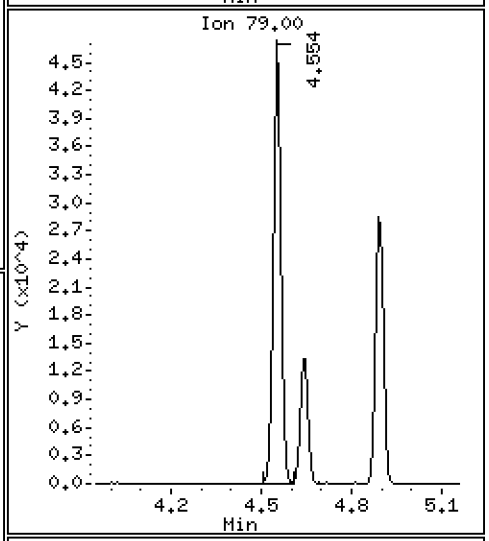


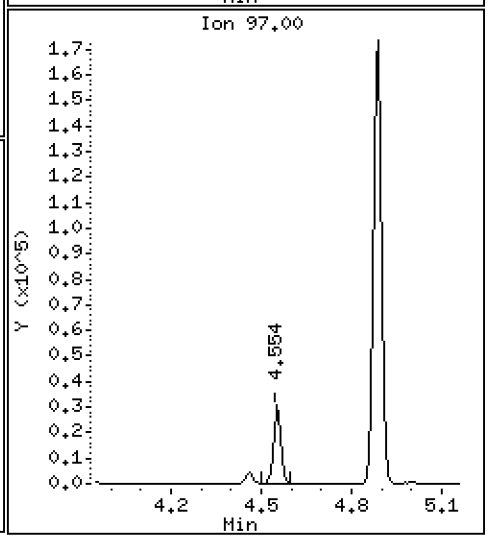












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

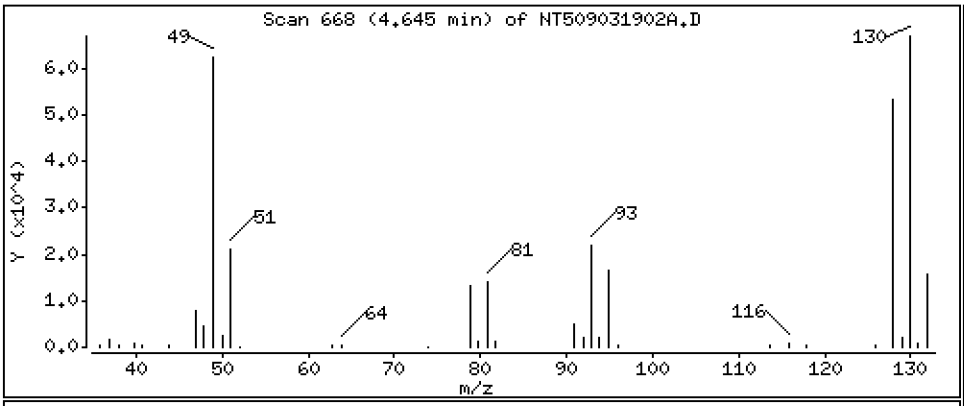
Operator: PB

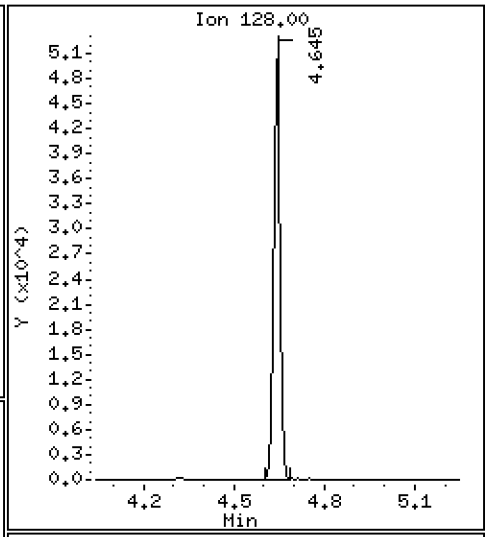
Column phase: RTXVMS

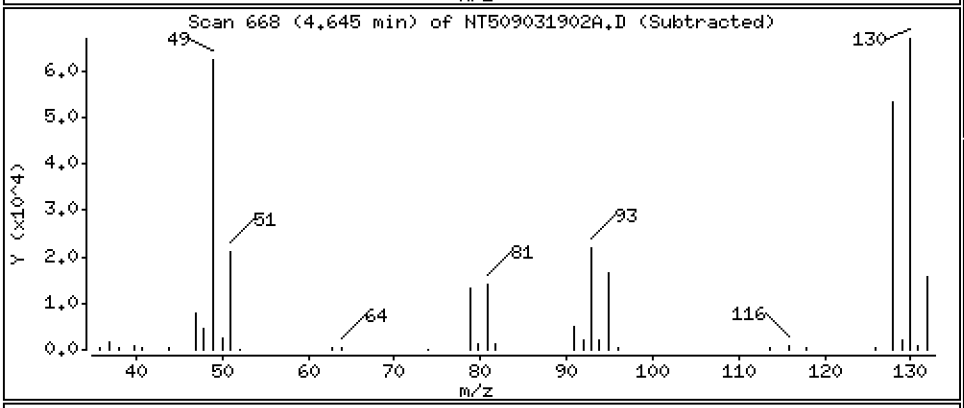
Column diameter: 0.18

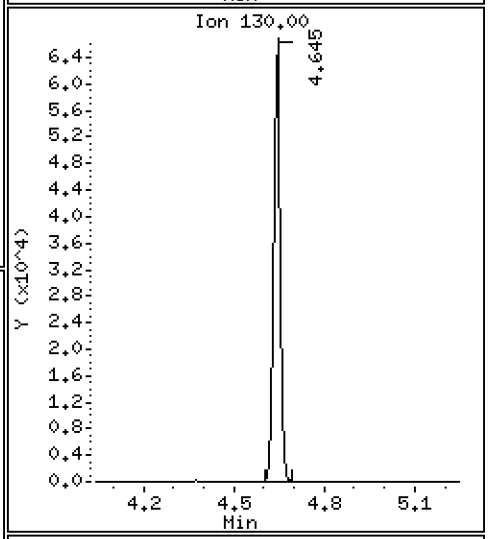
23 Bromochloromethane

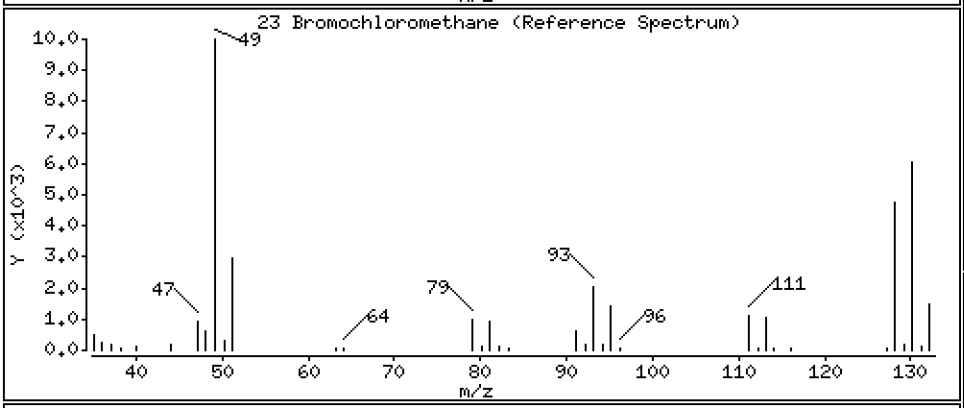
Concentration: 55.965 ug/Kg

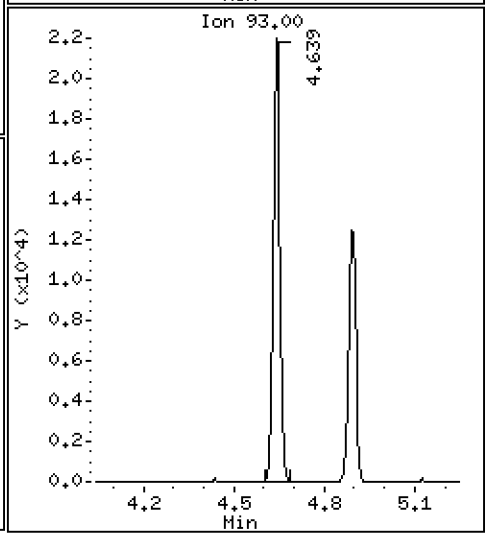


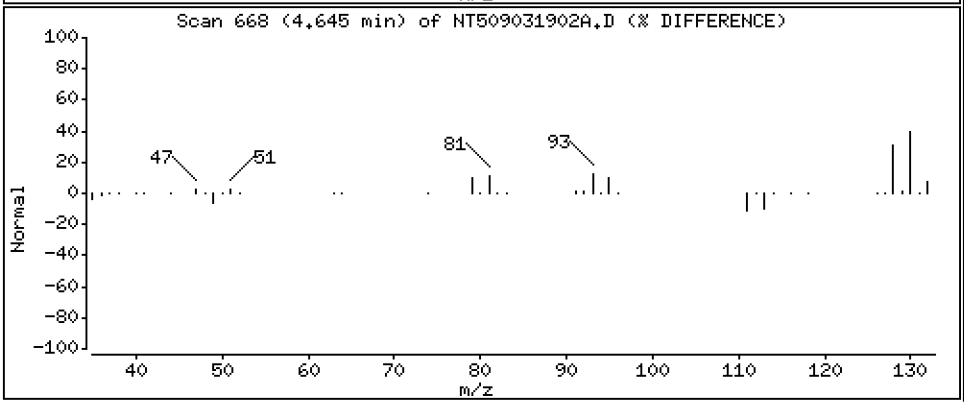












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

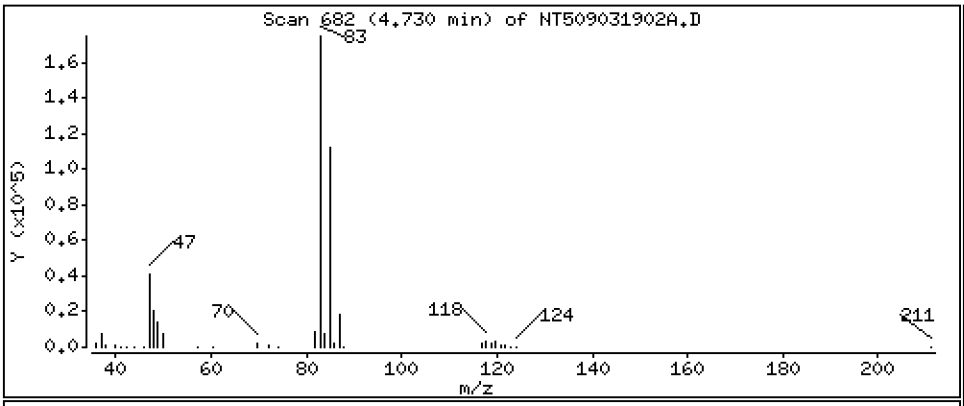
Operator: PB

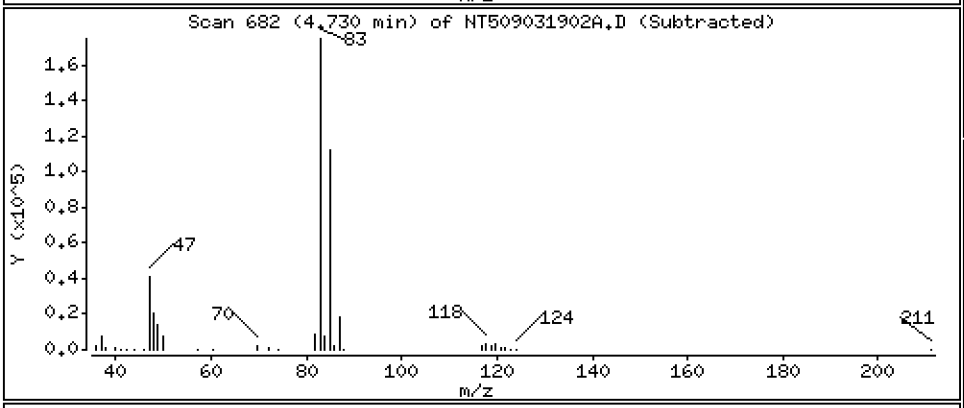
Column phase: RTXVMS

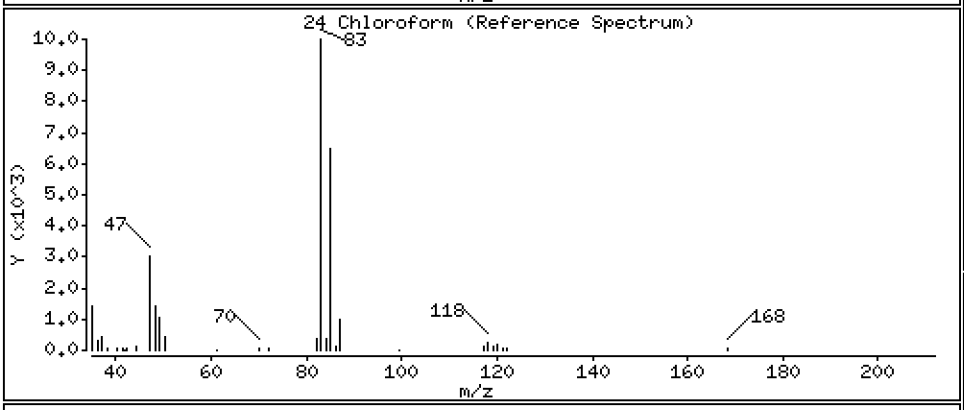
Column diameter: 0.18

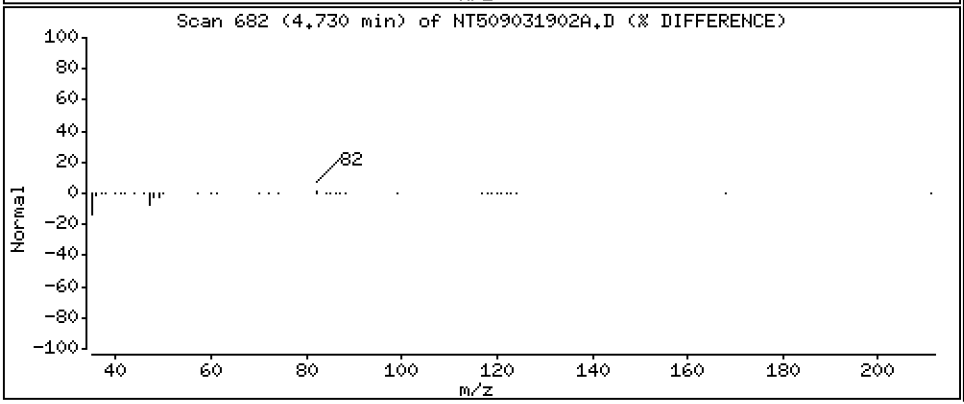
24 Chloroform

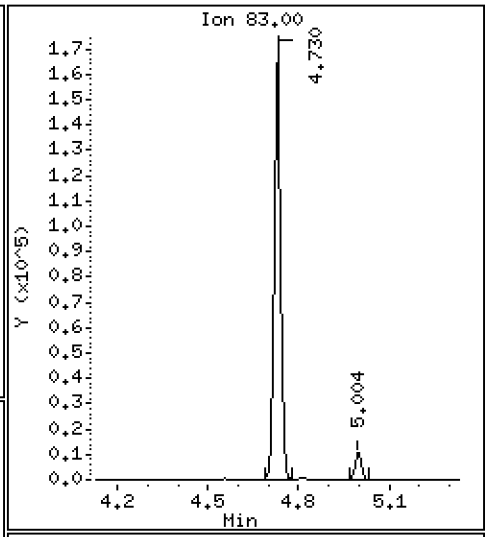
Concentration: 55.340 ug/Kg

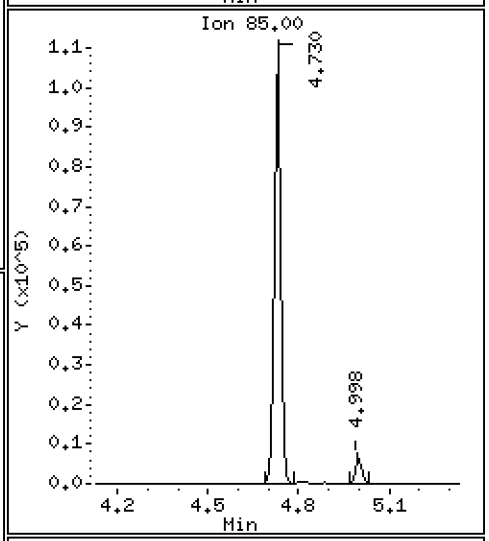


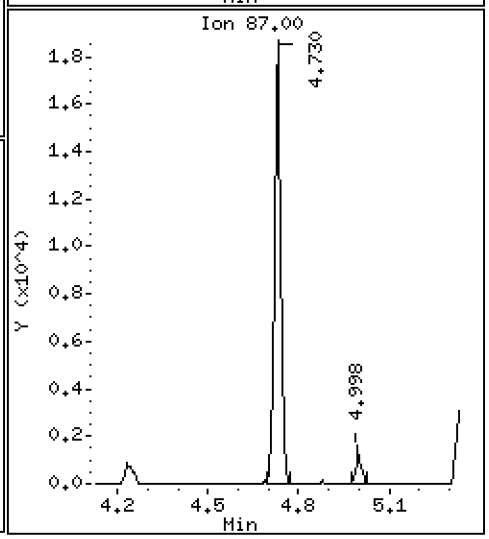












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

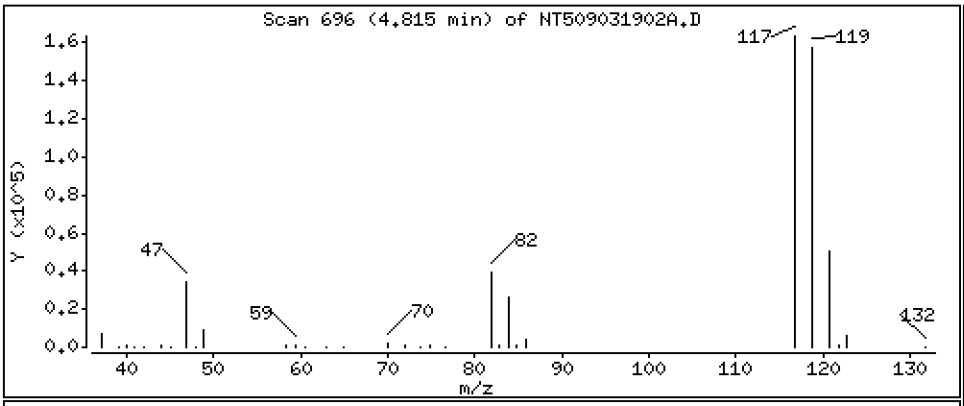
Operator: PB

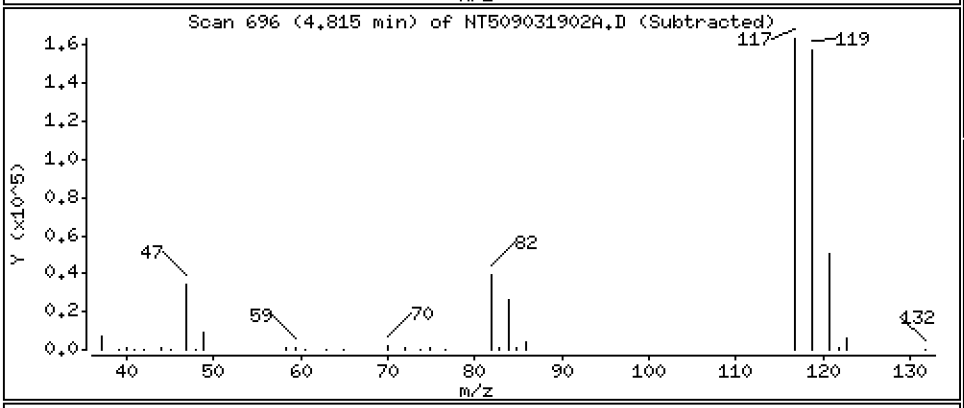
Column phase: RTXVMS

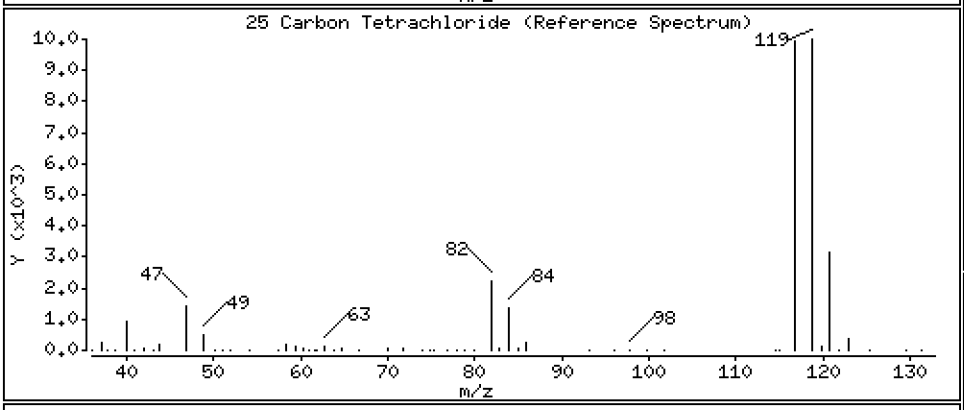
Column diameter: 0.18

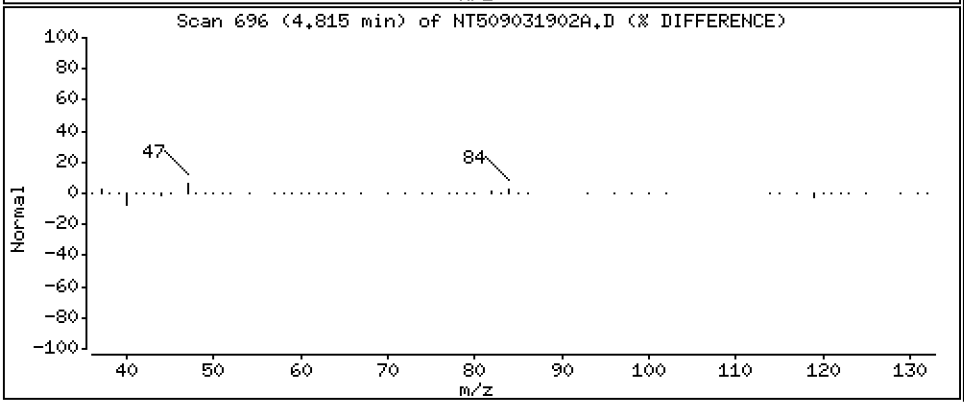
25 Carbon Tetrachloride

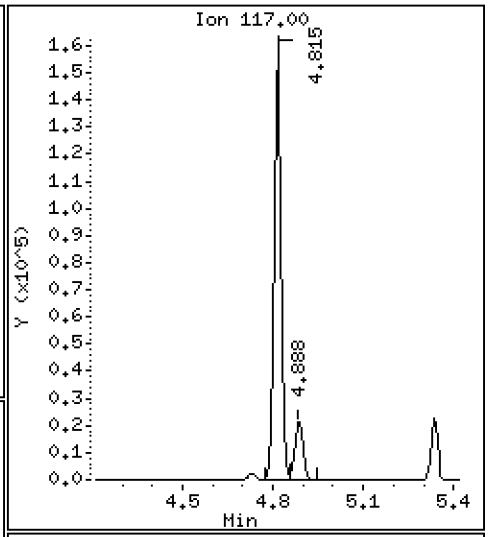
Concentration: 48.605 ug/Kg

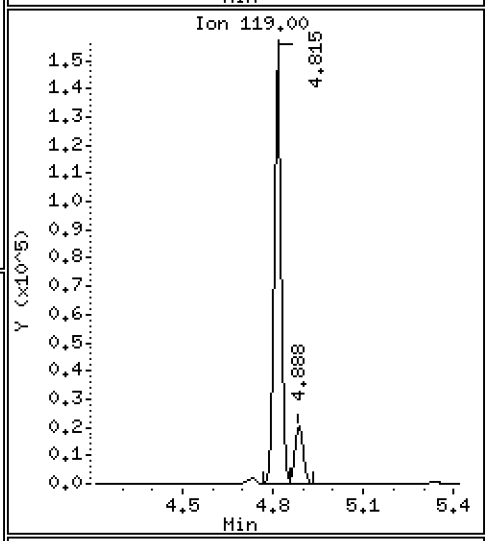


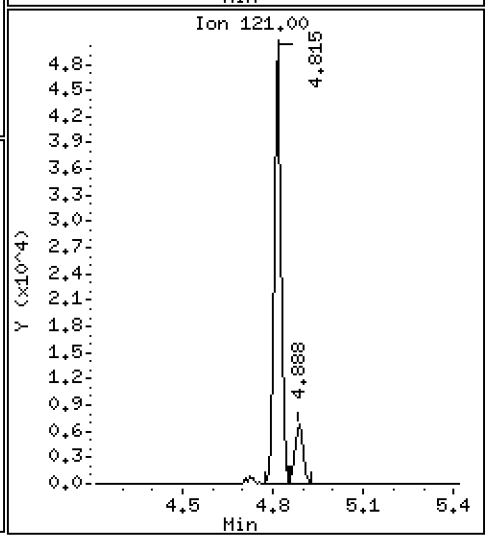












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

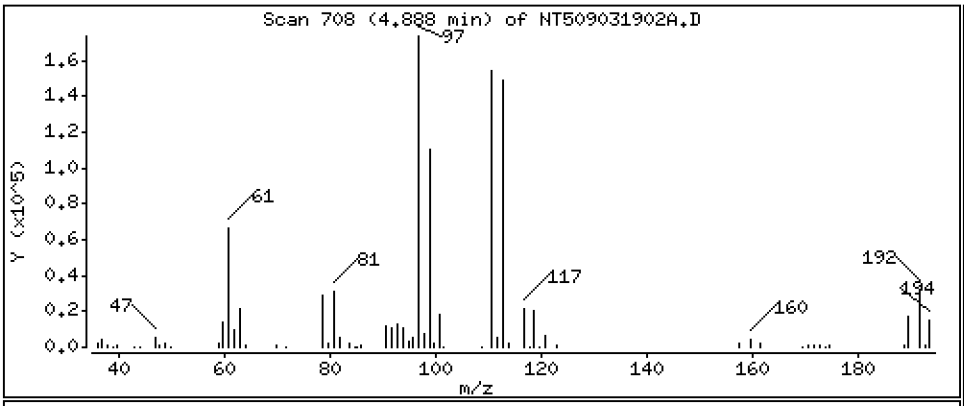
Operator: PB

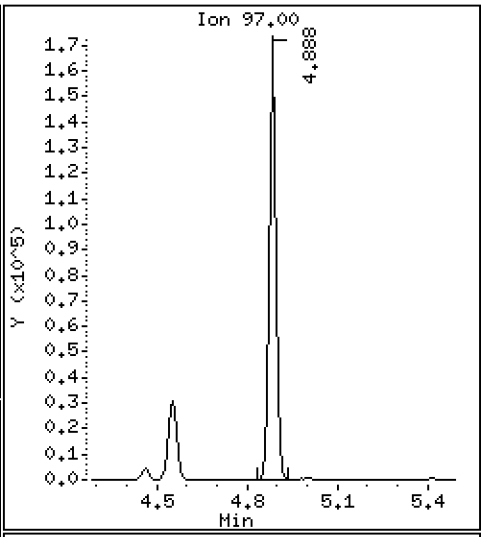
Column phase: RTXVMS

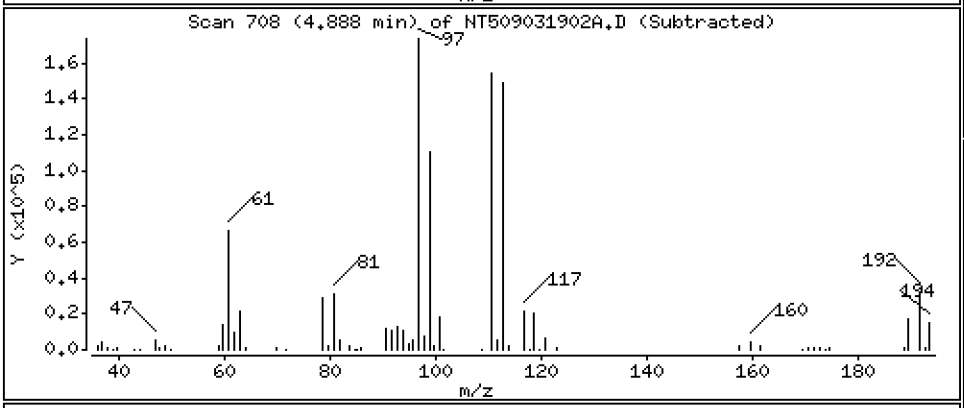
Column diameter: 0.18

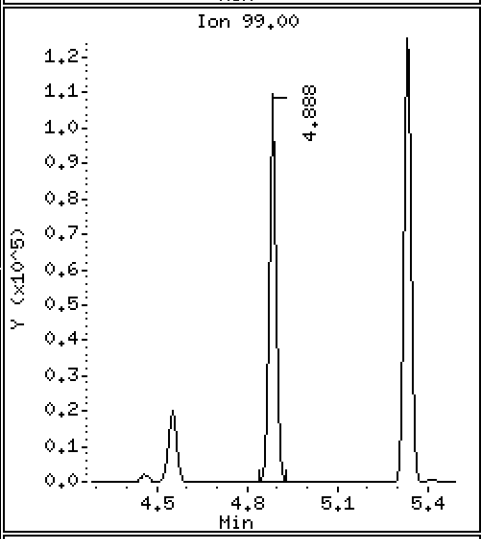
26 1,1,1-Trichloroethane

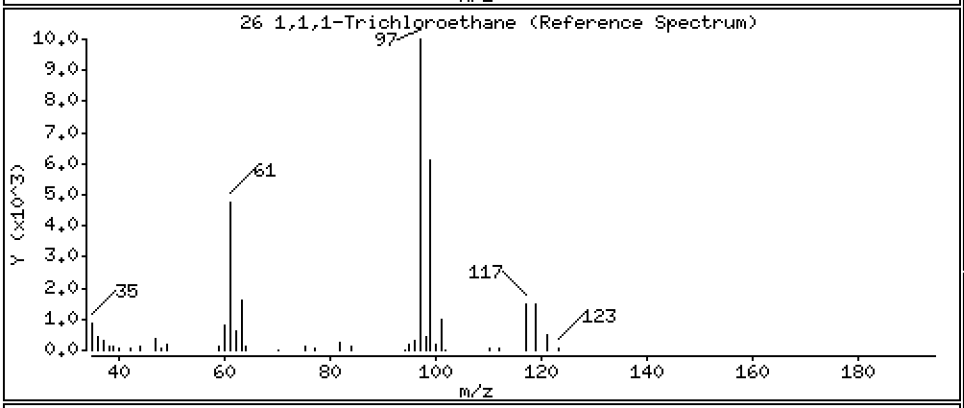
Concentration: 57.565 ug/Kg

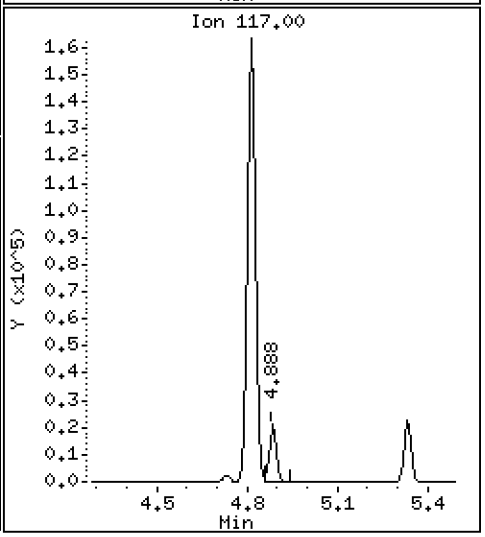


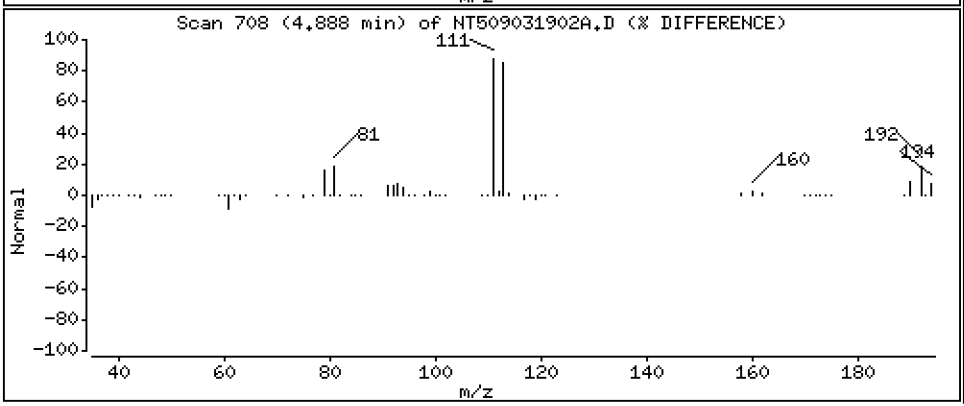












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

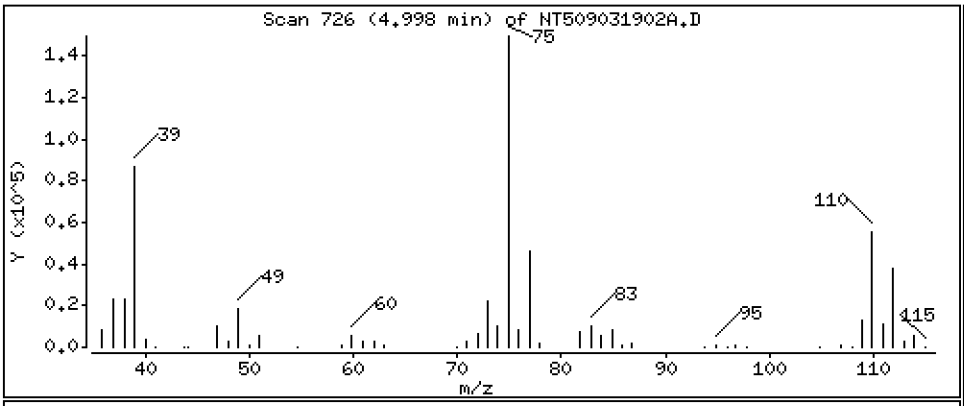
Operator: PB

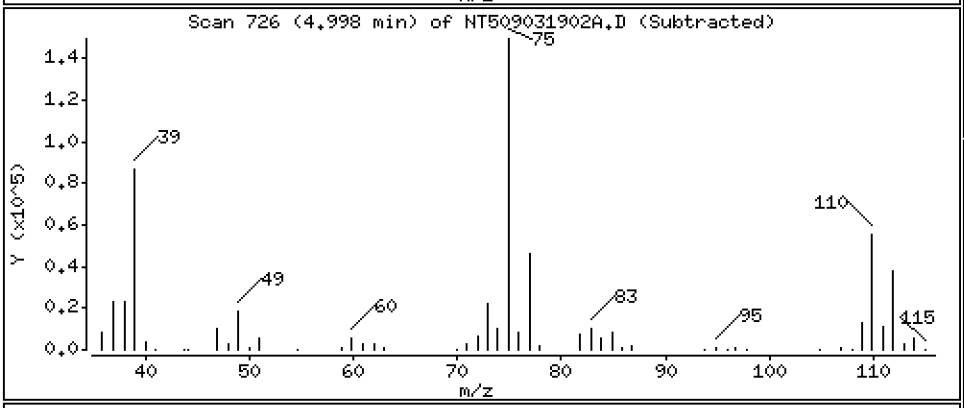
Column phase: RTXVMS

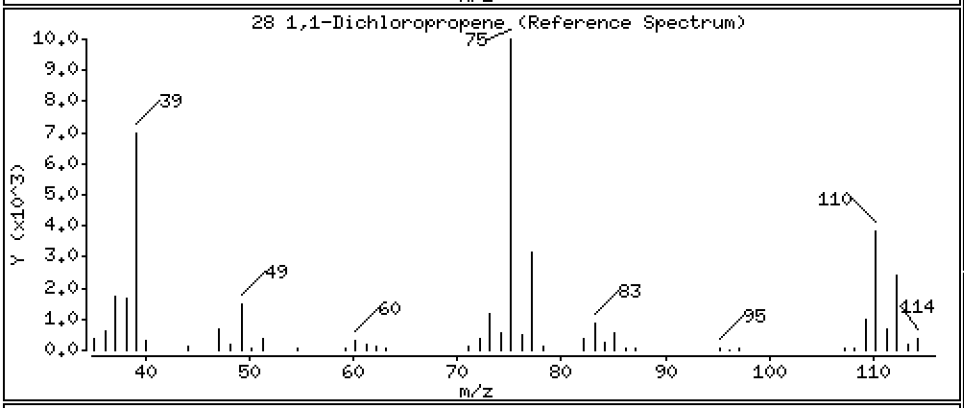
Column diameter: 0.18

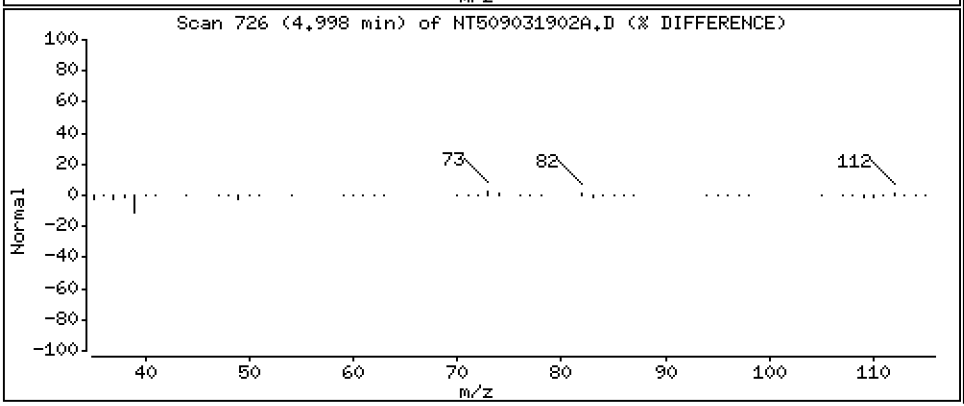
28 1,1-Dichloropropene

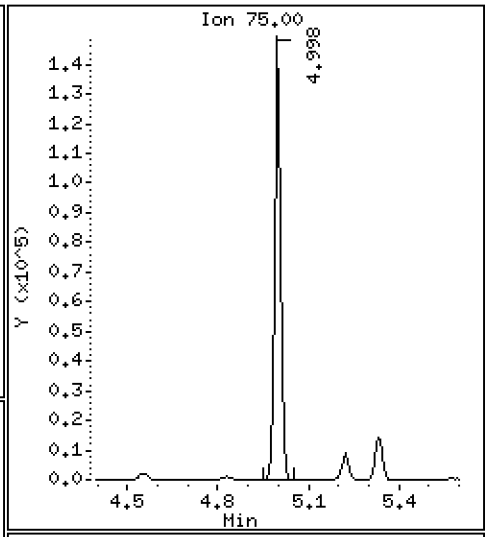
Concentration: 49.947 ug/Kg

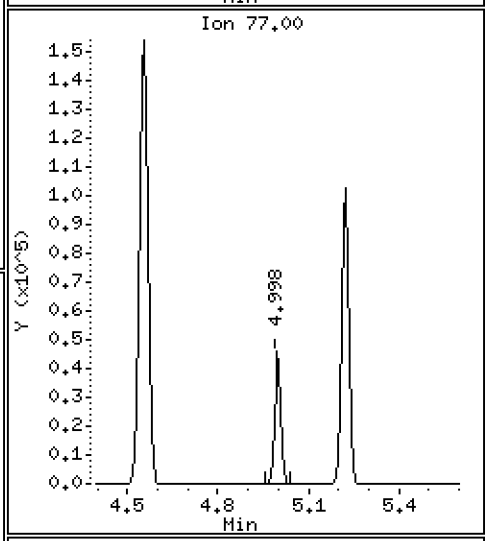


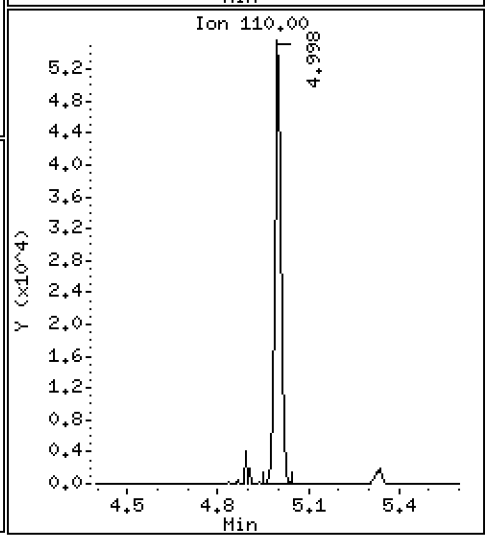












Date : 03-SEP-2019 12:38

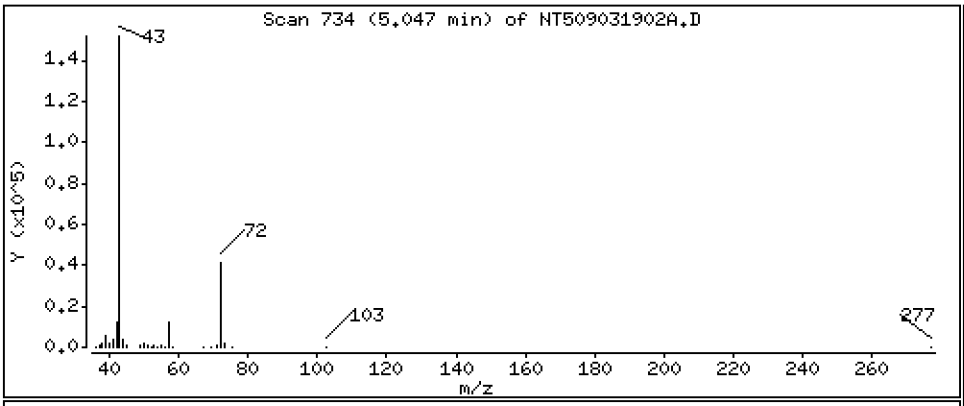
Client ID: Instrument: nt5.i

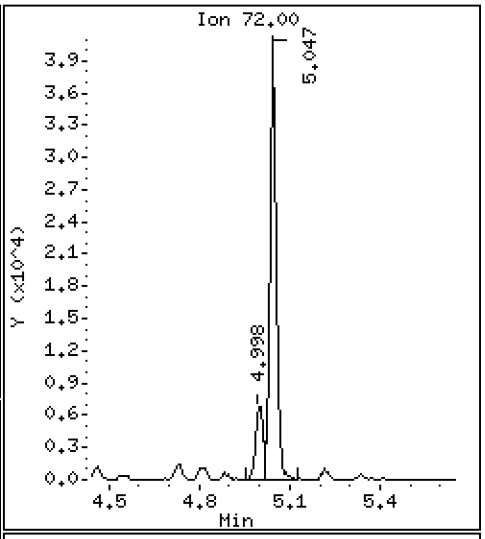
Sample Info: ICV1

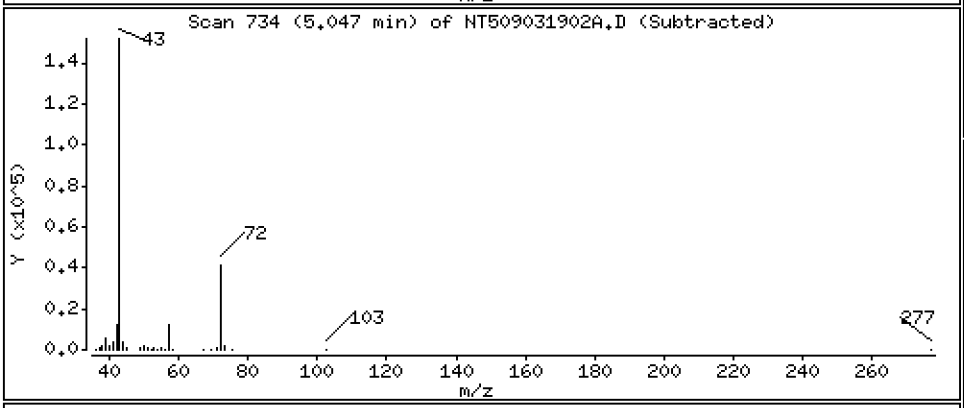
Operator: PB

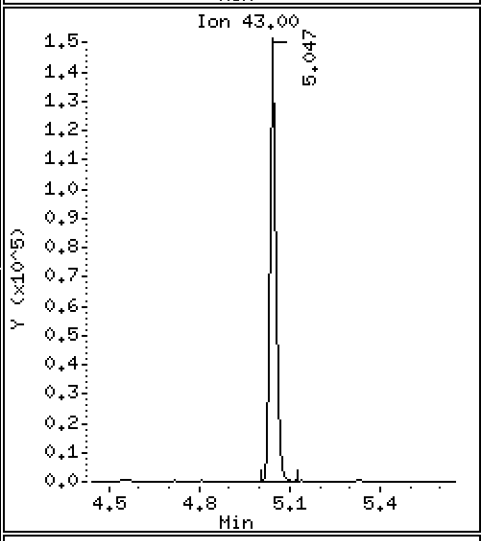
Column phase: RTXVMS Column diameter: 0.18

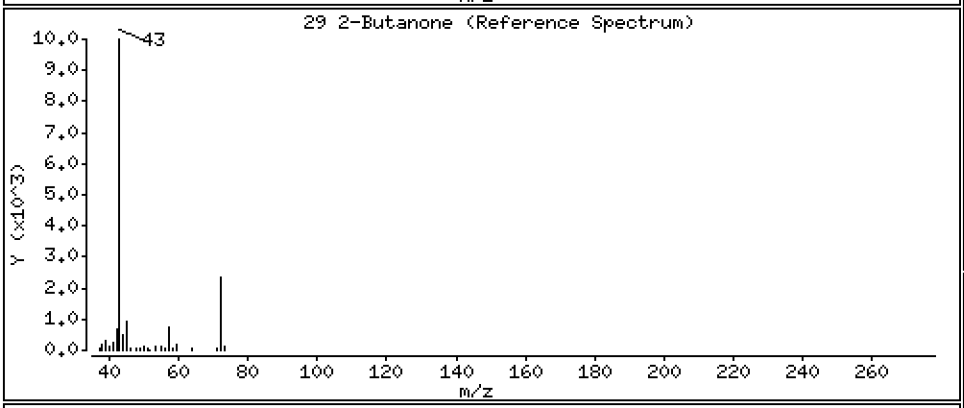
29 2-Butanone Concentration: 278.85 ug/Kg

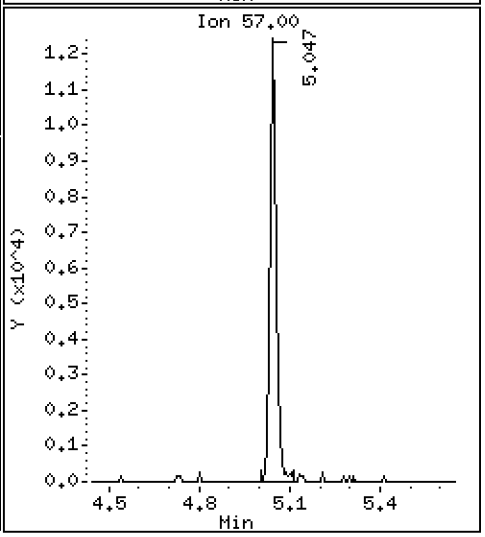


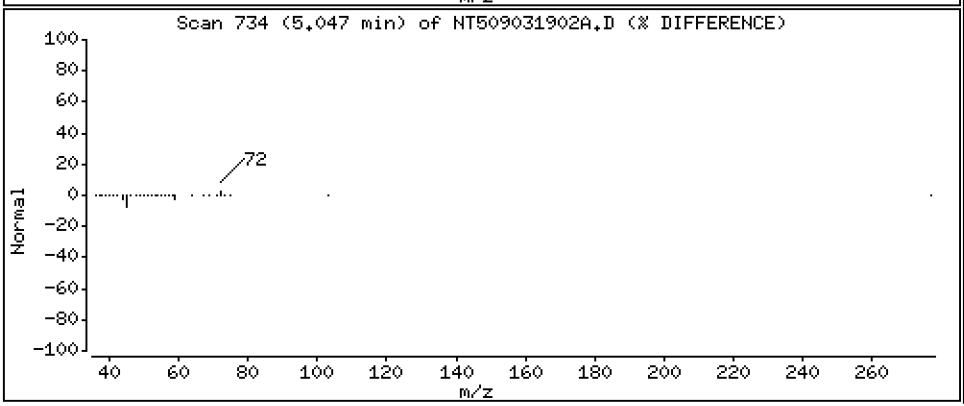












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

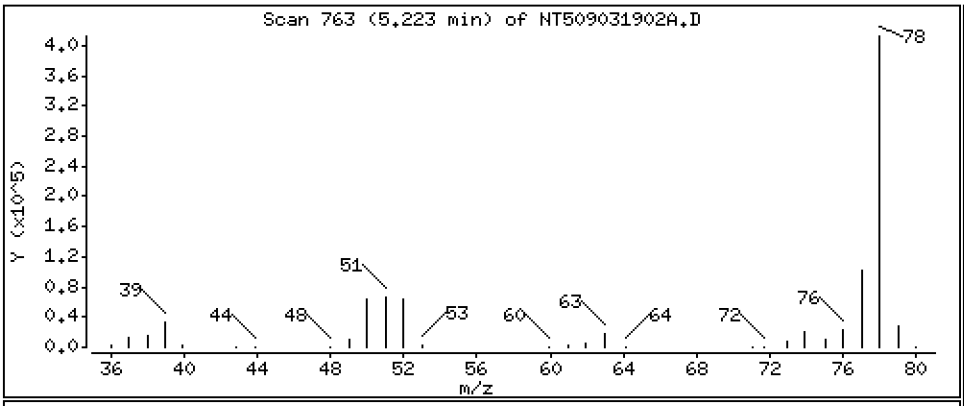
Operator: PB

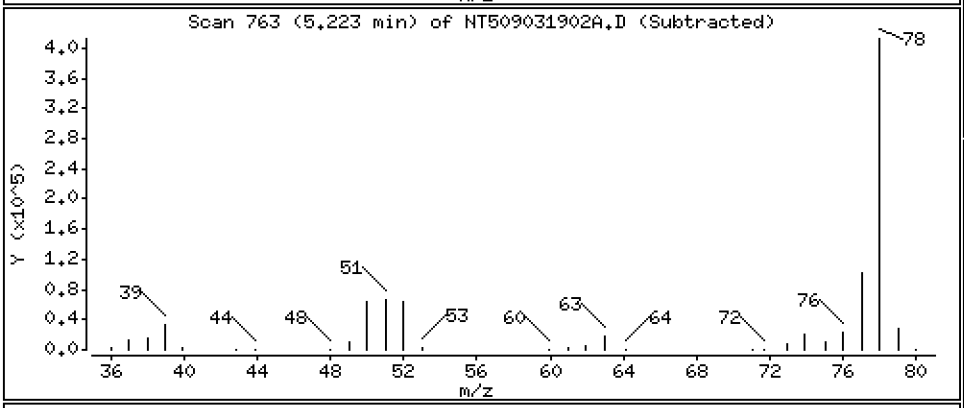
Column phase: RTXVMS

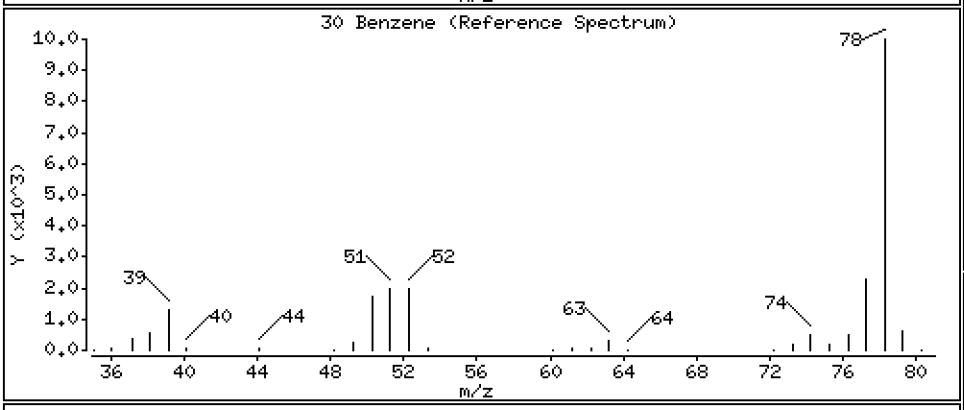
Column diameter: 0.18

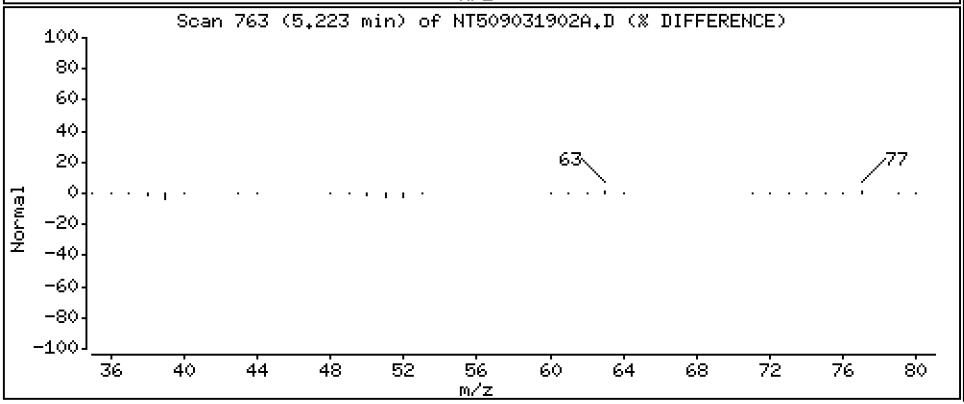
30 Benzene

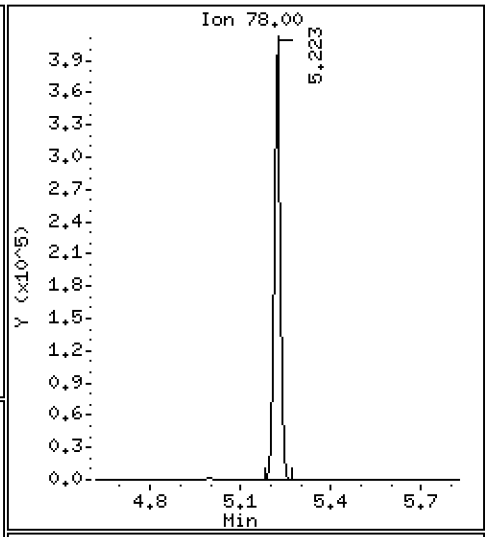
Concentration: 49.657 ug/Kg

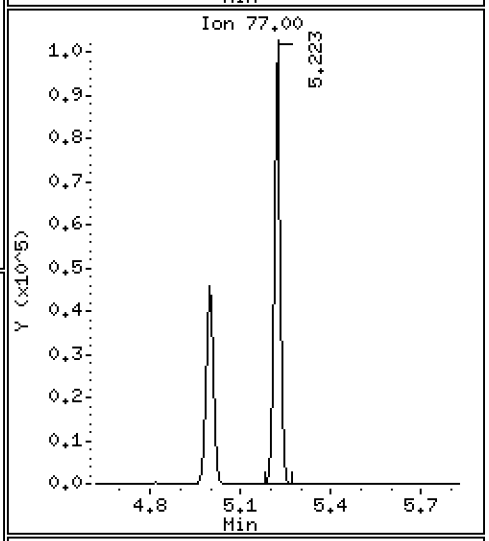


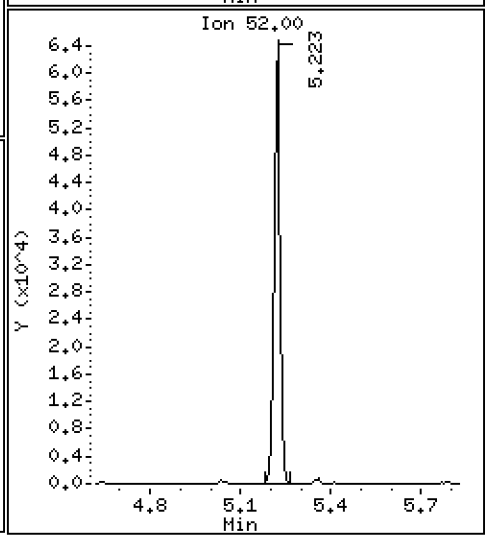












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

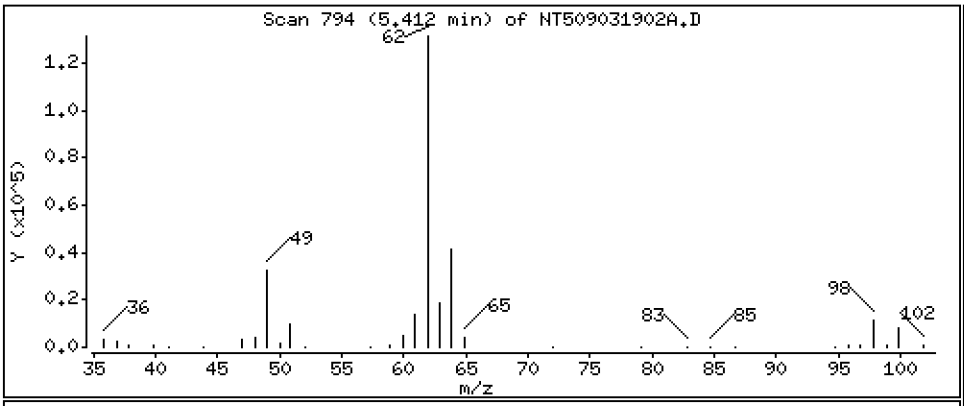
Operator: PB

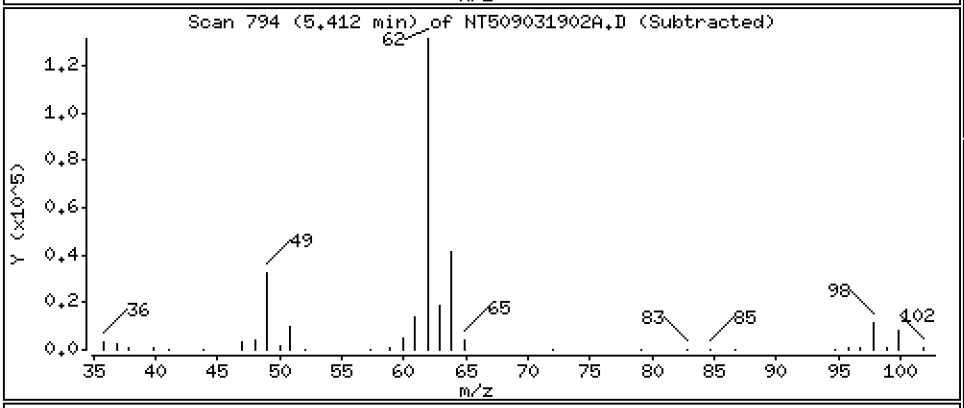
Column phase: RTXVMS

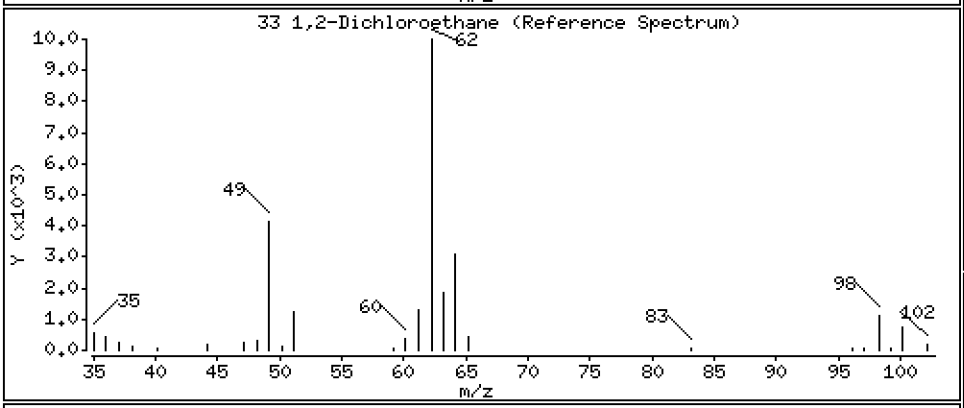
Column diameter: 0.18

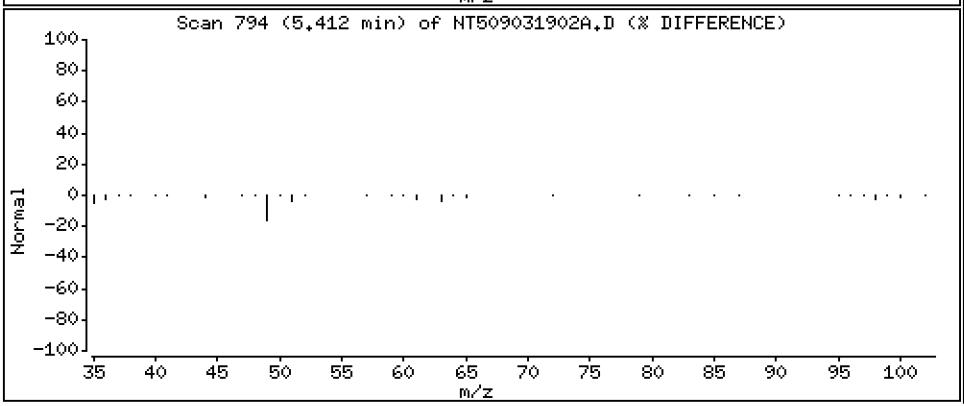
33 1,2-Dichloroethane

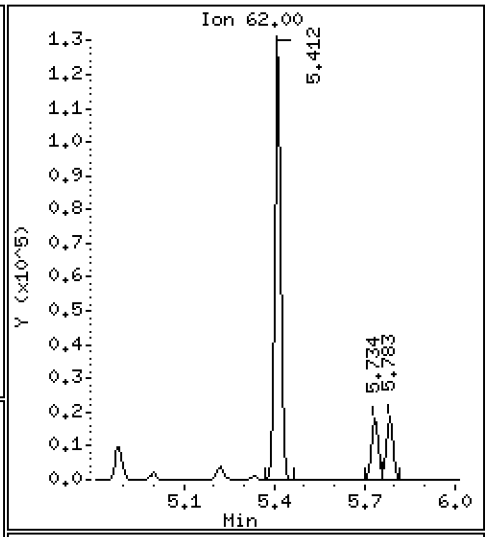
Concentration: 45.496 ug/Kg

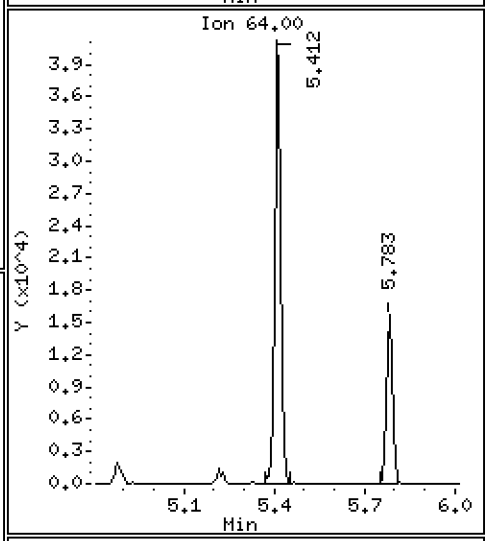


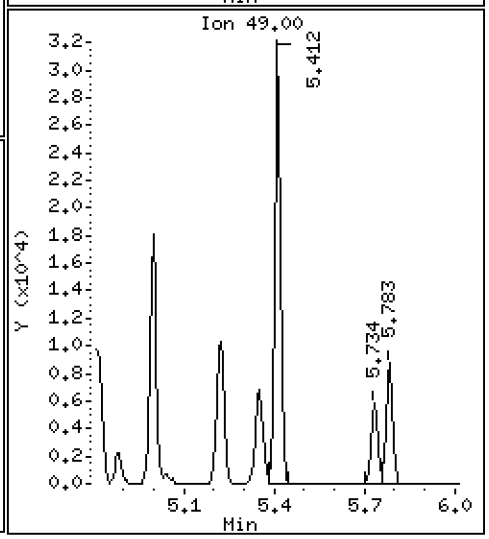












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

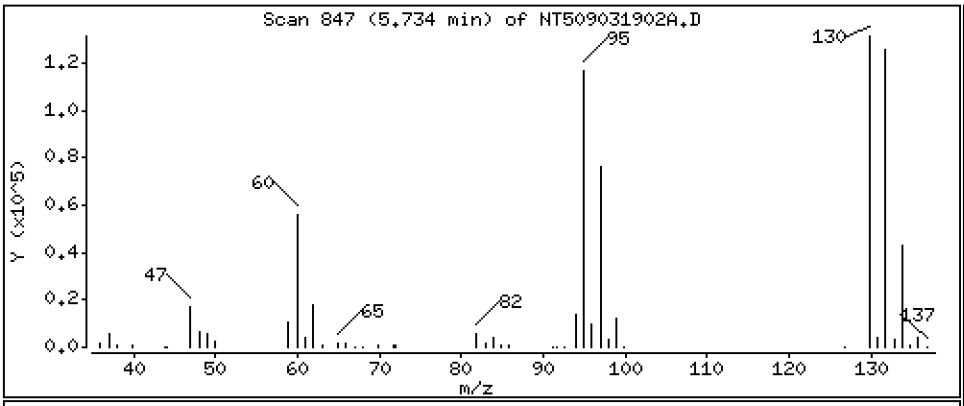
Operator: PB

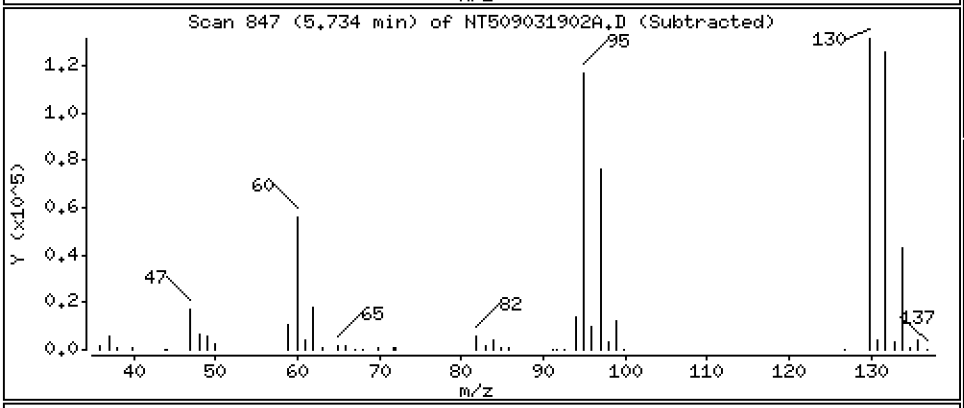
Column phase: RTXVMS

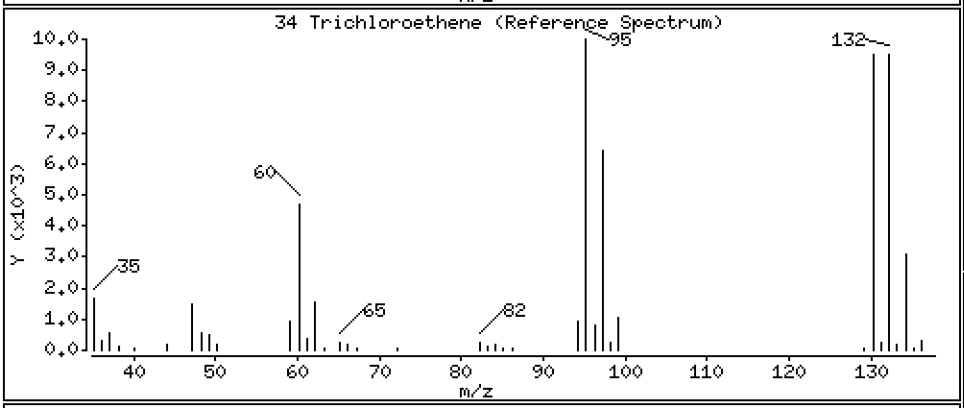
Column diameter: 0.18

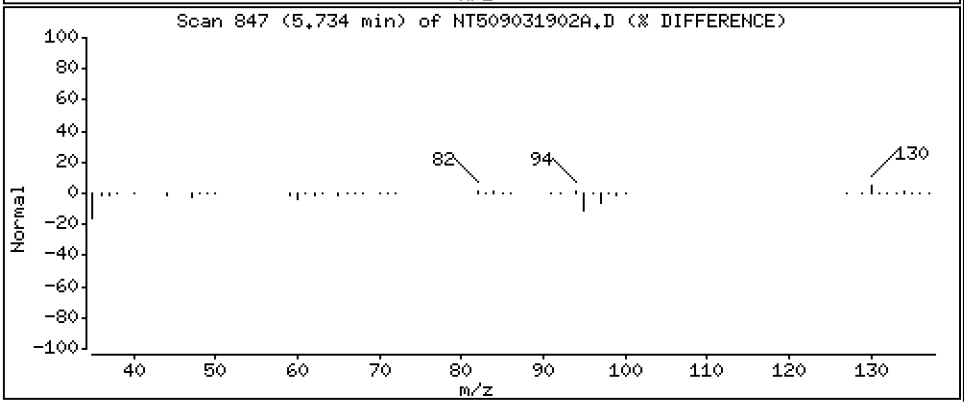
34 Trichloroethene

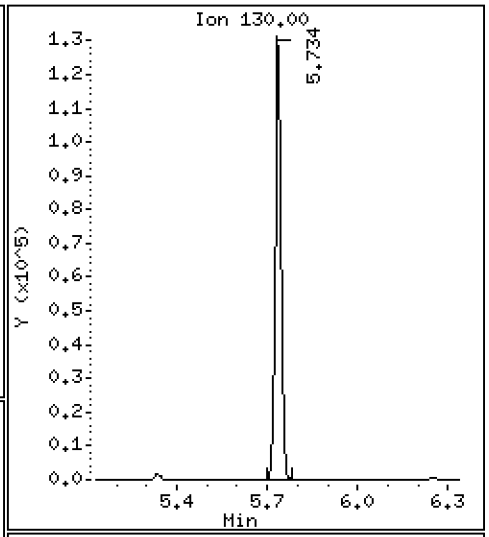
Concentration: 49.985 ug/Kg

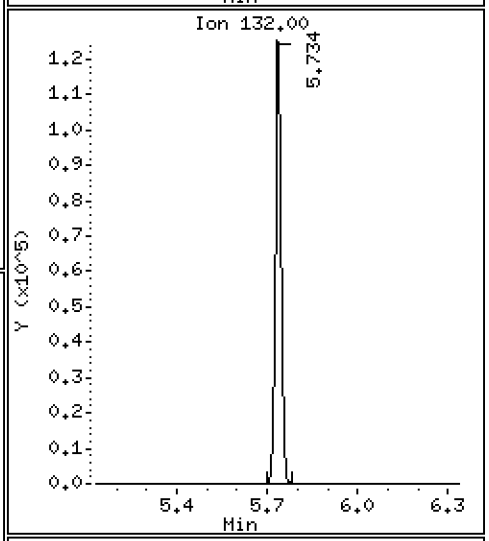


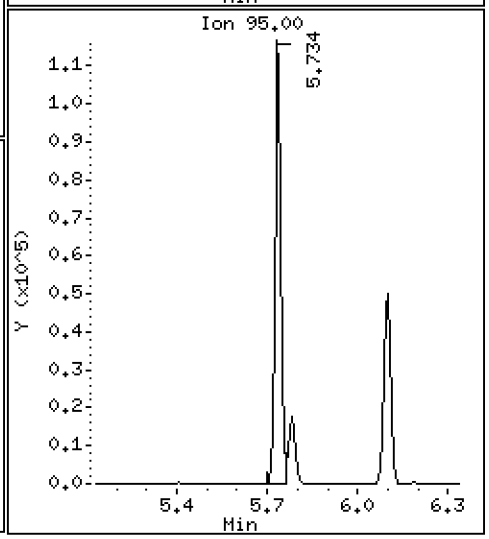












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

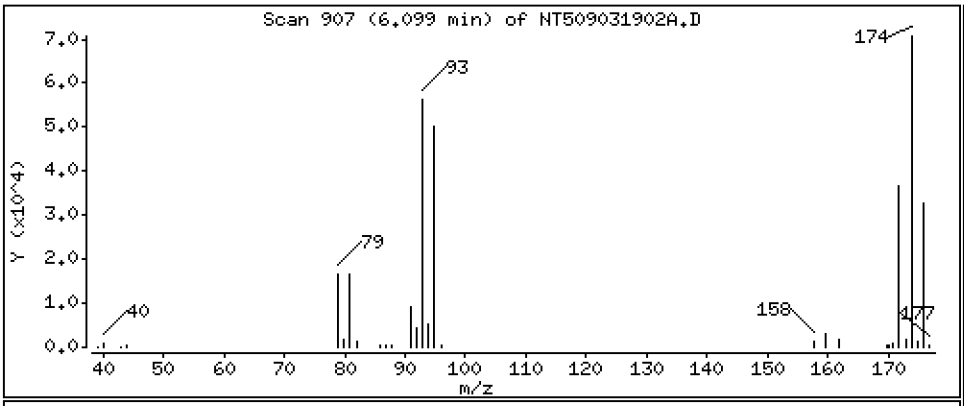
Operator: PB

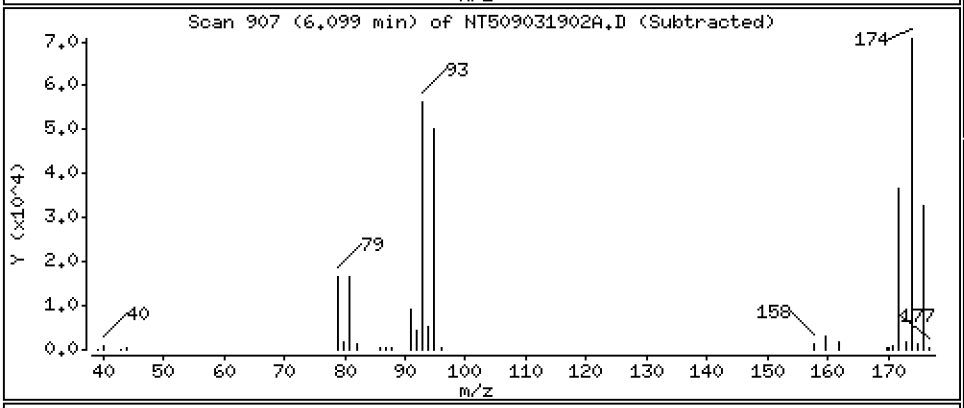
Column phase: RTXVMS

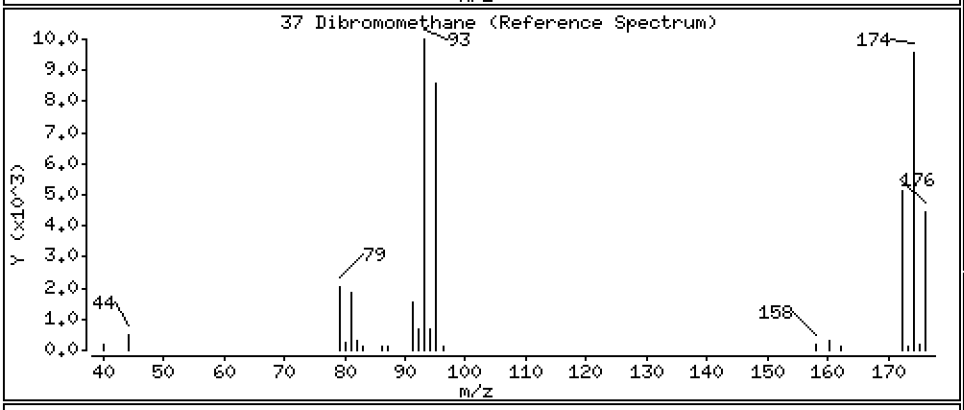
Column diameter: 0.18

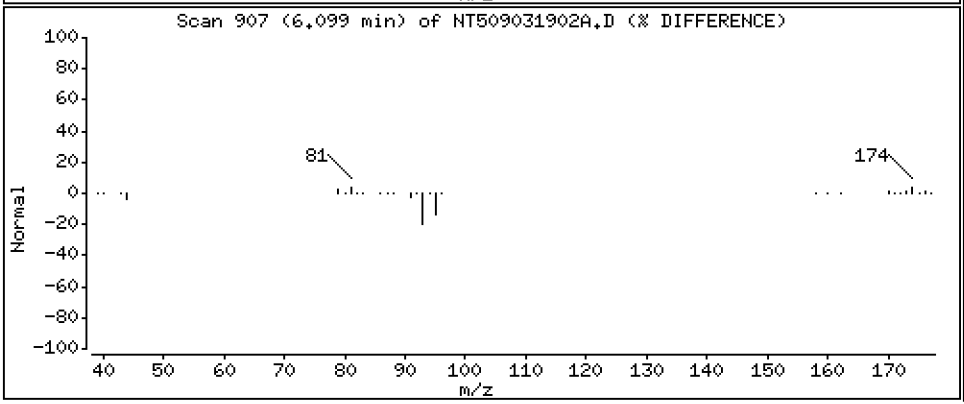
37 Dibromomethane

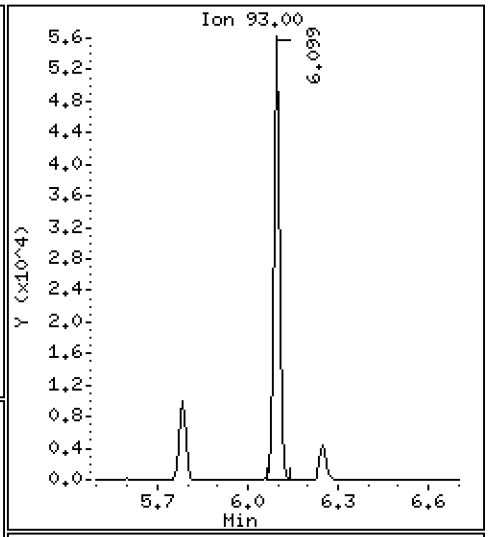
Concentration: 46.943 ug/Kg

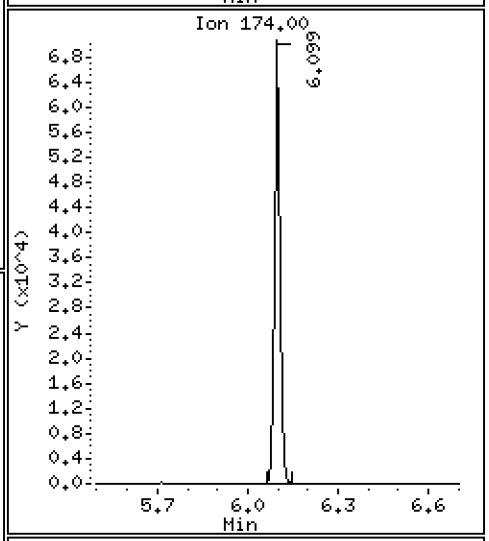


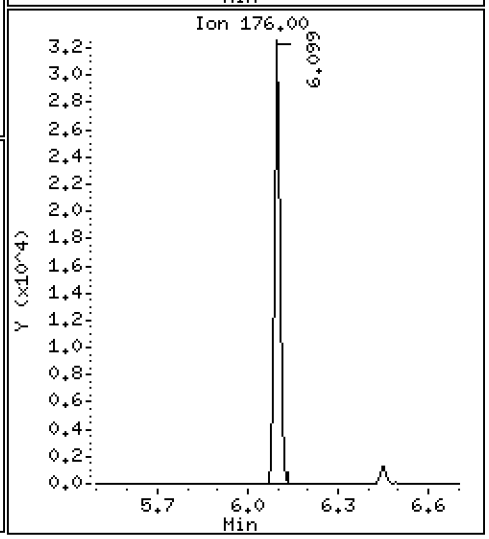












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

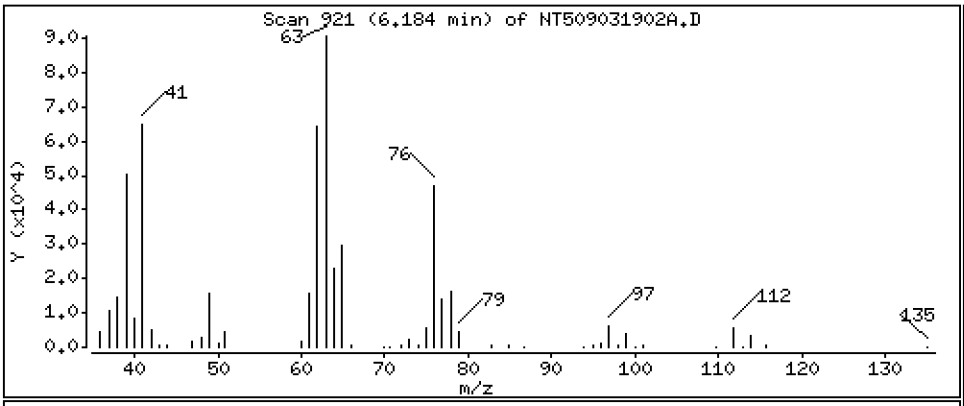
Operator: PB

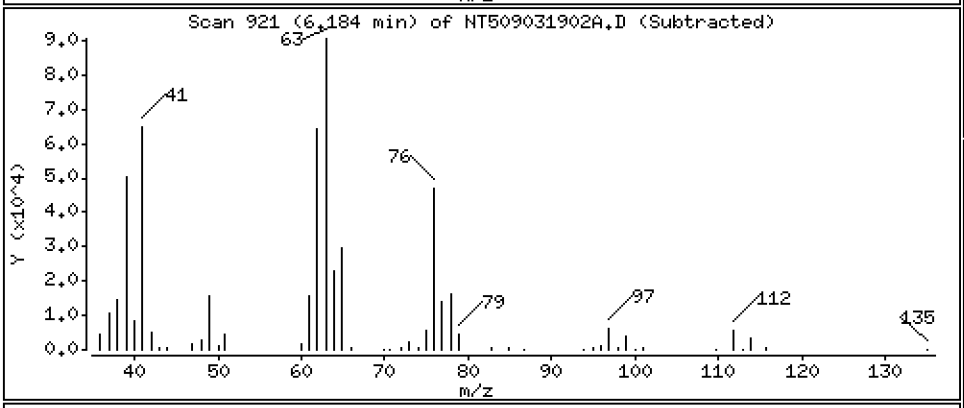
Column phase: RTXVMS

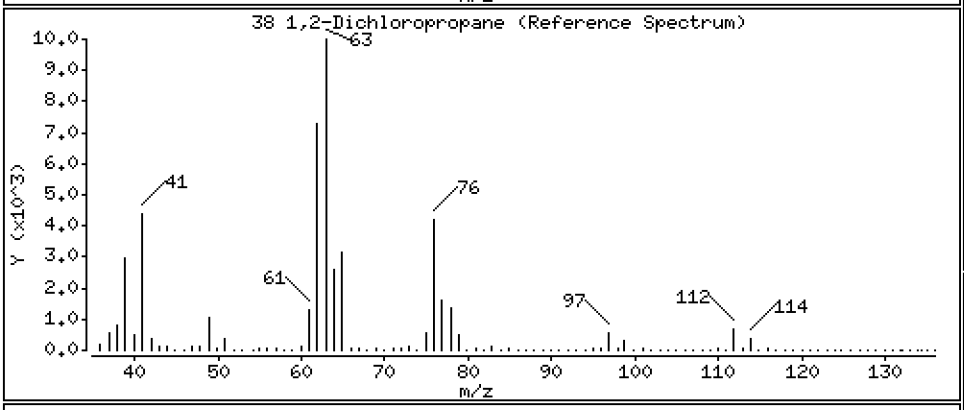
Column diameter: 0.18

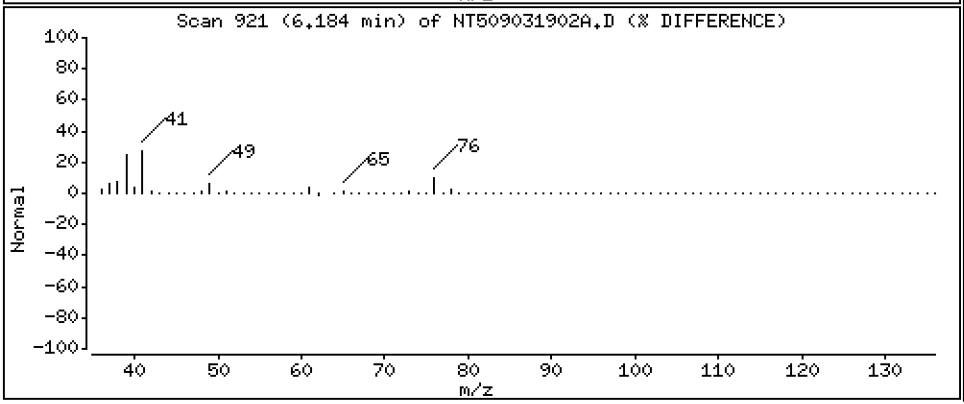
38 1,2-Dichloropropane

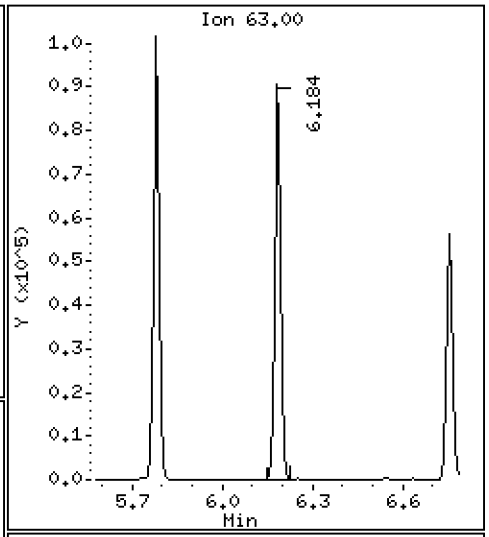
Concentration: 46.953 ug/Kg

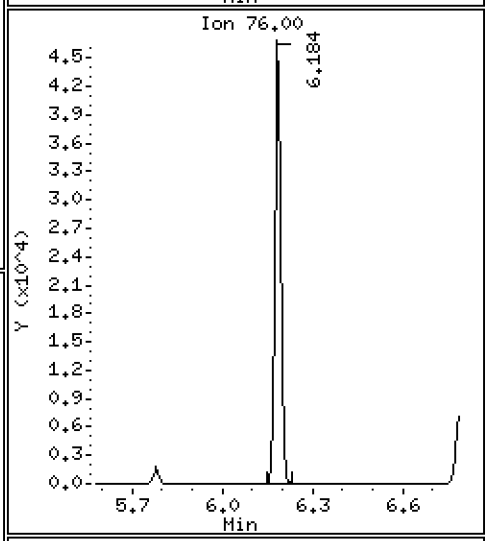


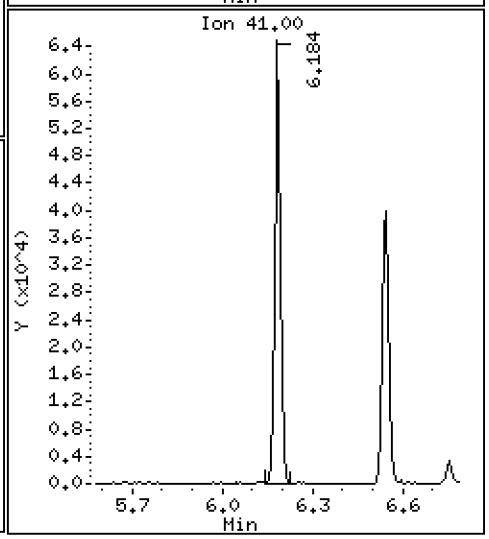












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

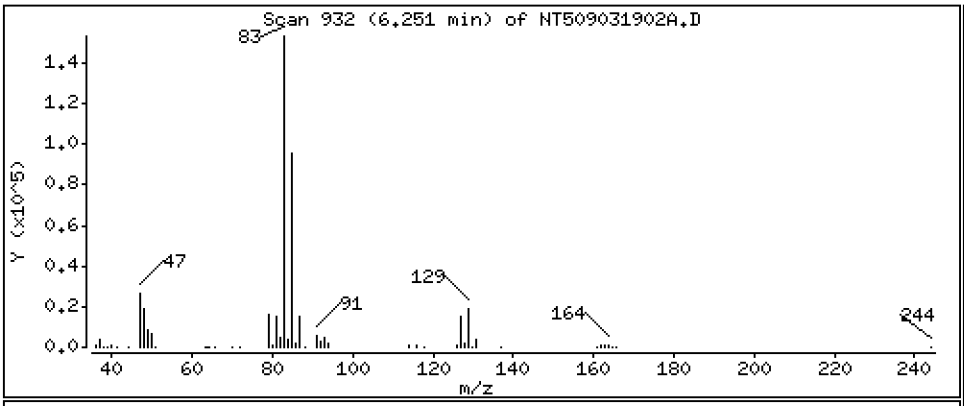
Operator: PB

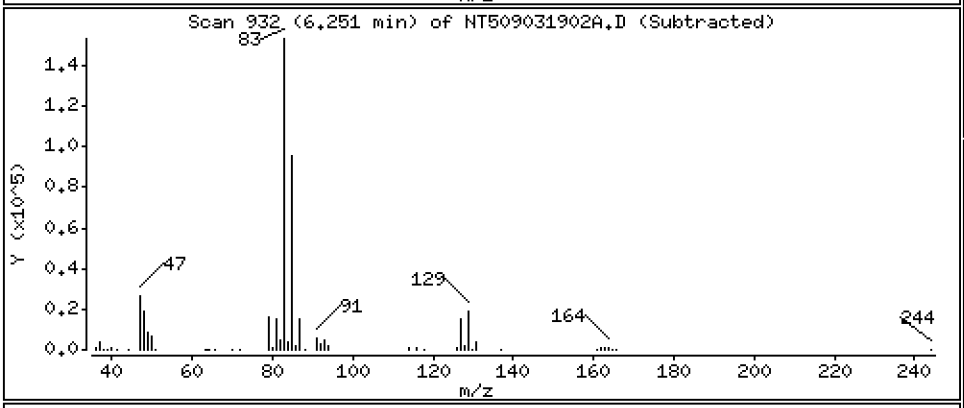
Column phase: RTXVMS

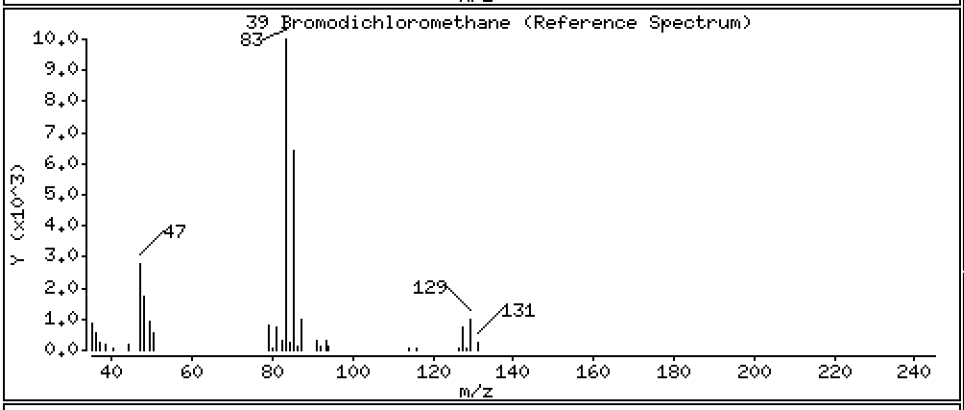
Column diameter: 0.18

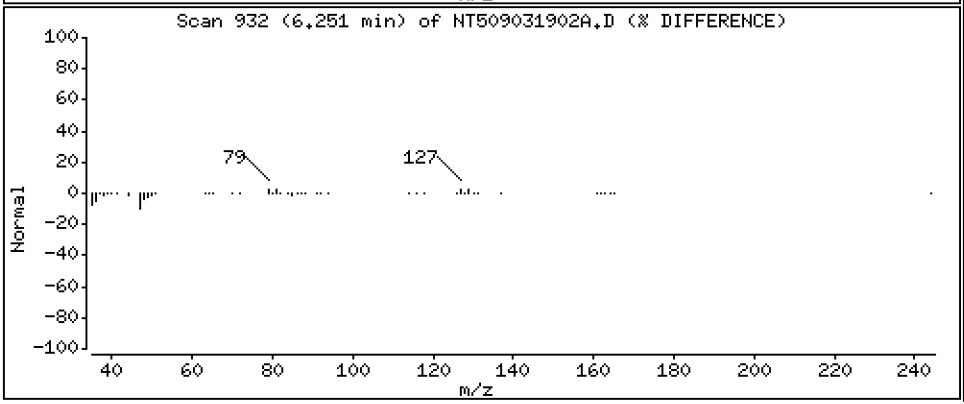
39 Bromodichloromethane

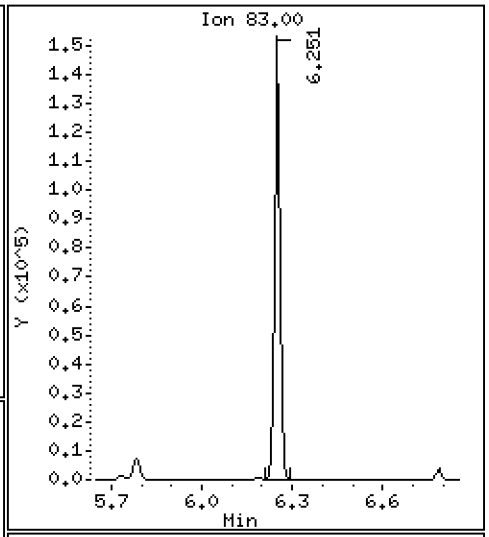
Concentration: 47.429 ug/Kg

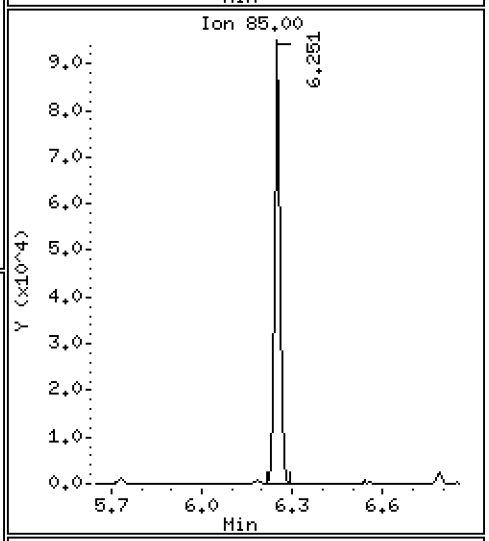


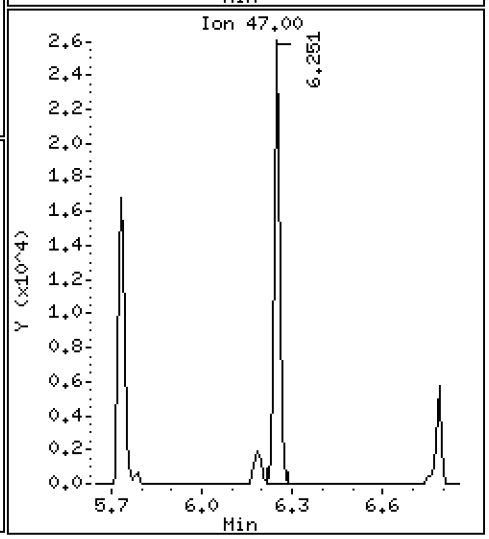












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

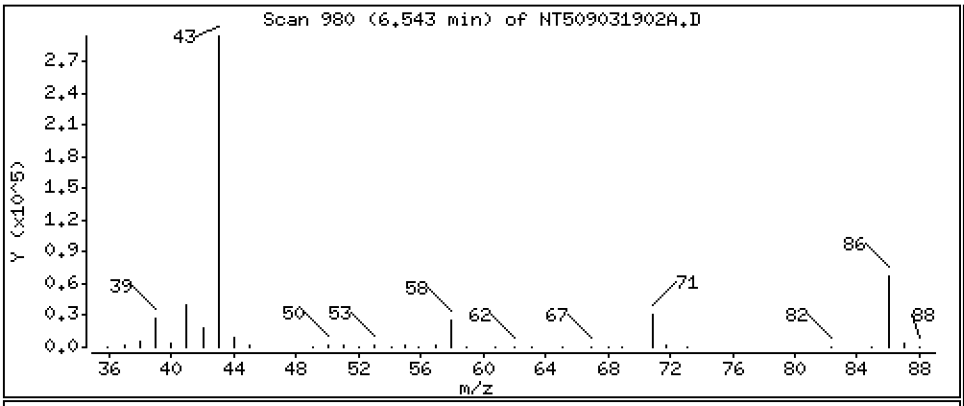
Operator: PB

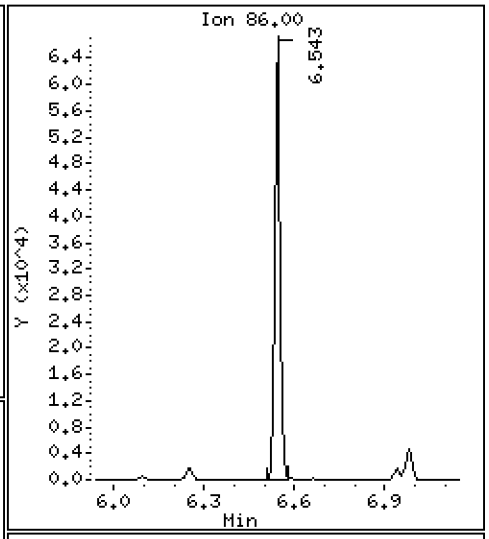
Column phase: RTXVMS

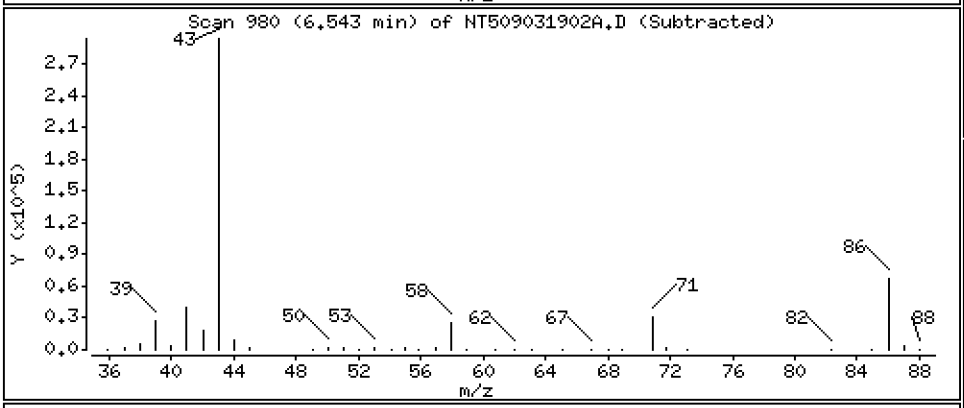
Column diameter: 0.18

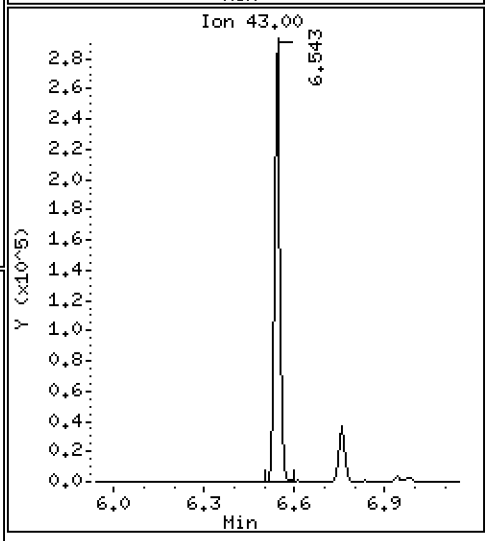
172 2-Pentanone

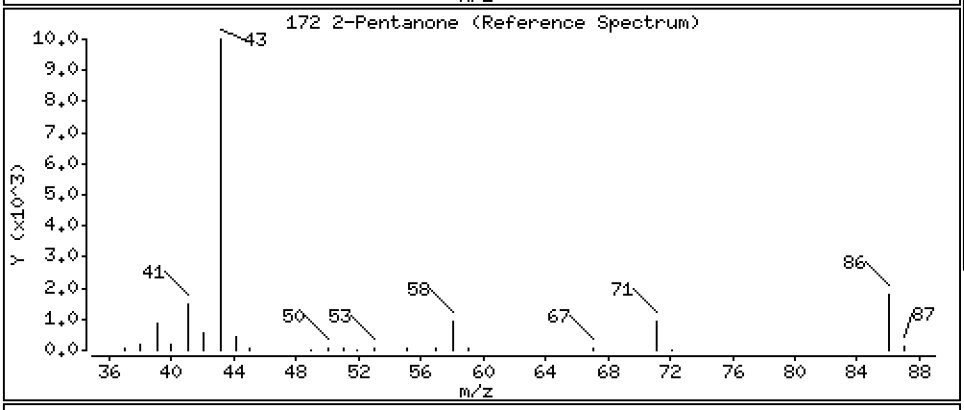
Concentration: 245.36 ug/Kg

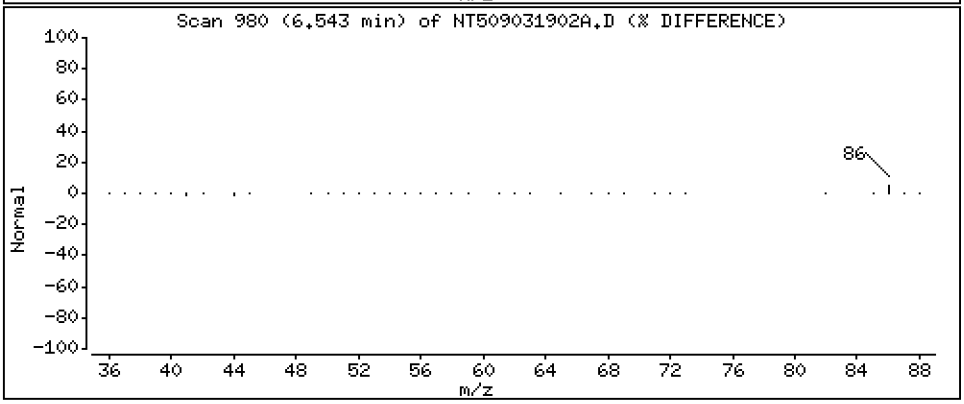












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

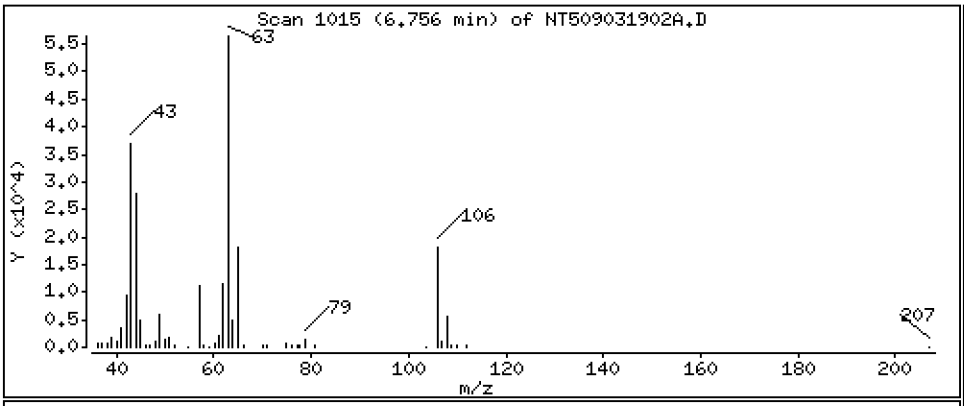
Operator: PB

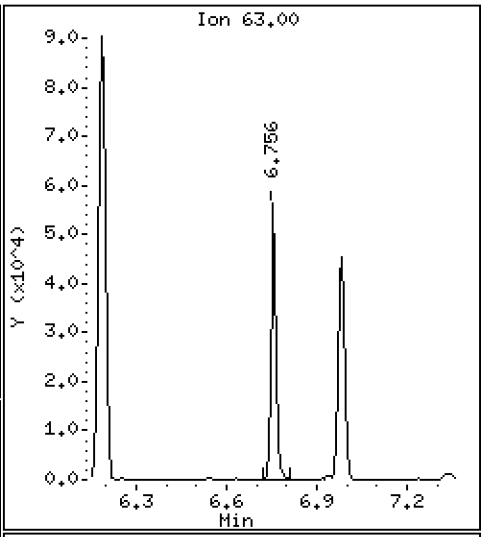
Column phase: RTXVMS

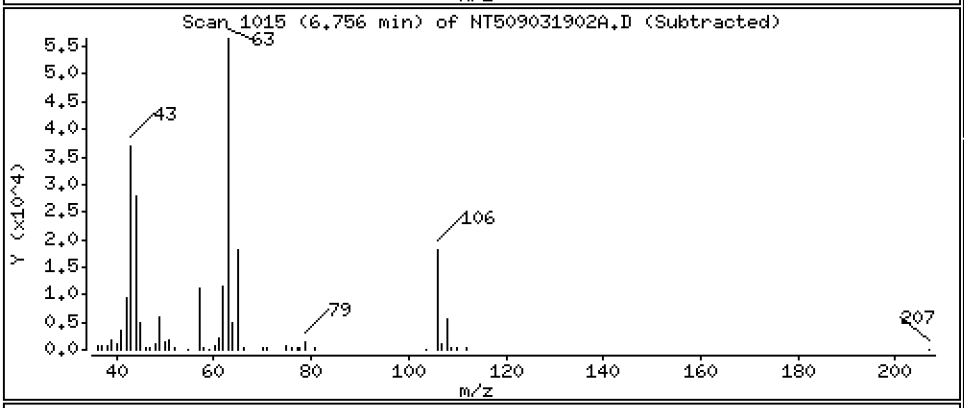
Column diameter: 0.18

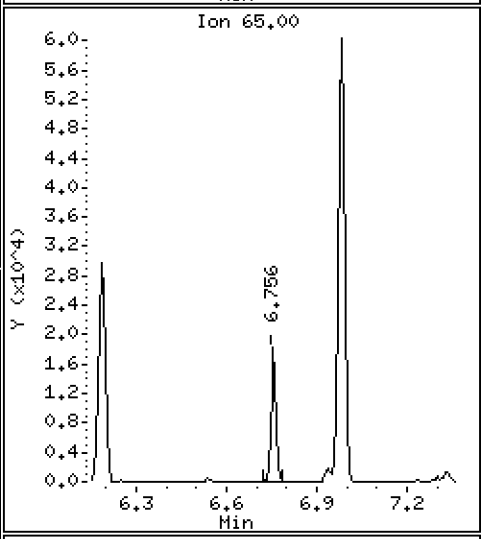
40 2-Chloroethyl Vinyl Ether

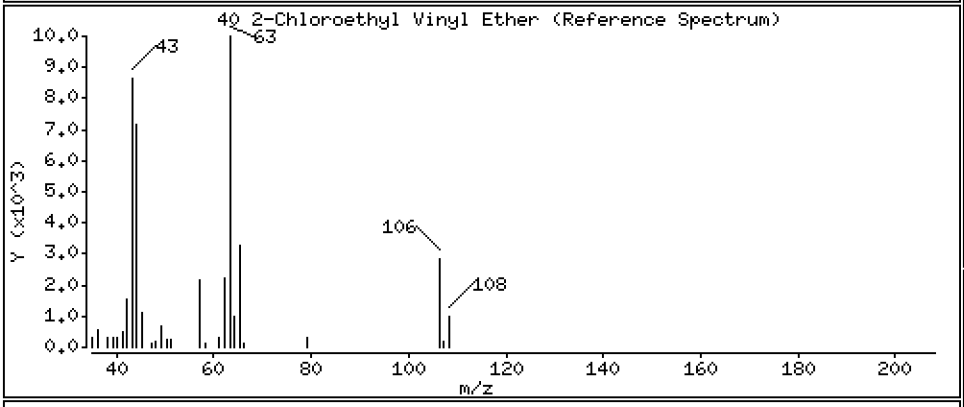
Concentration: 45.672 ug/Kg

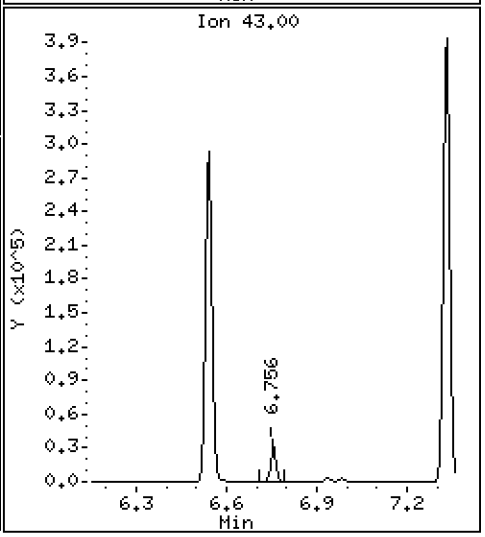


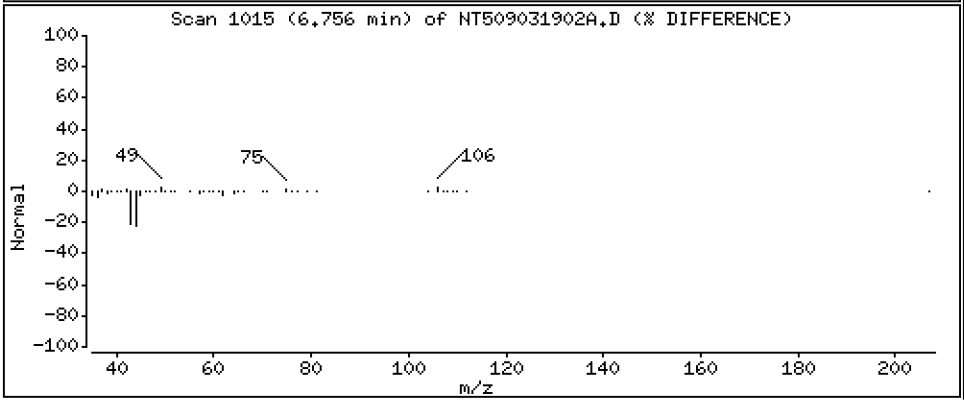












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

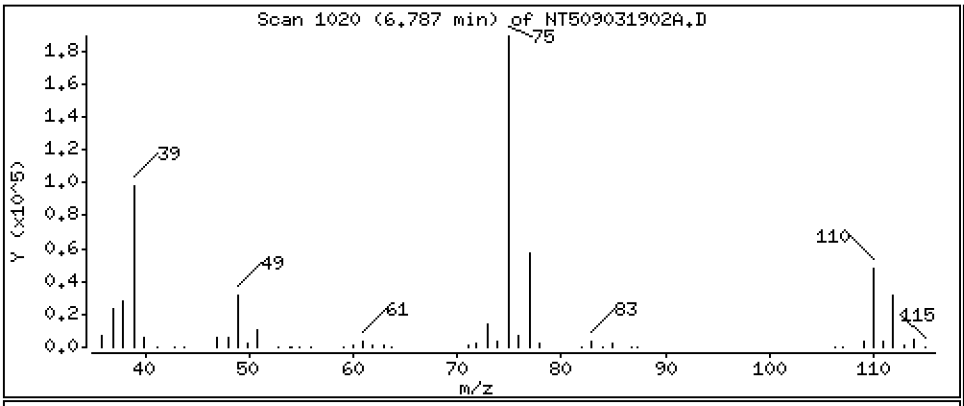
Operator: PB

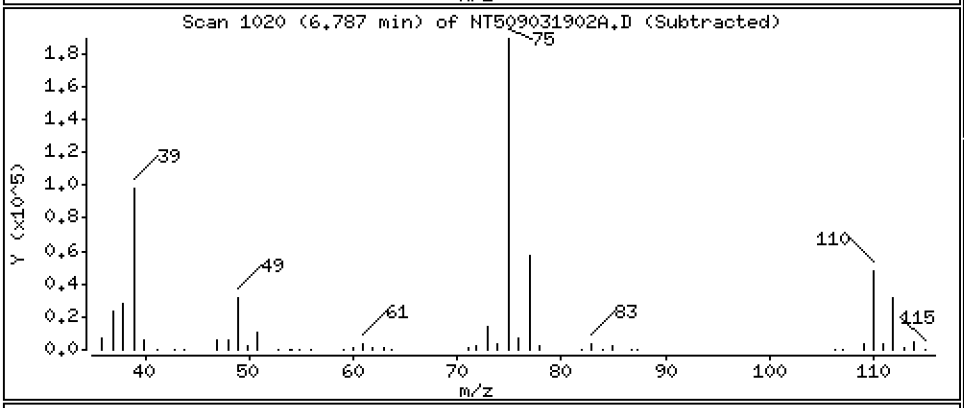
Column phase: RTXVMS

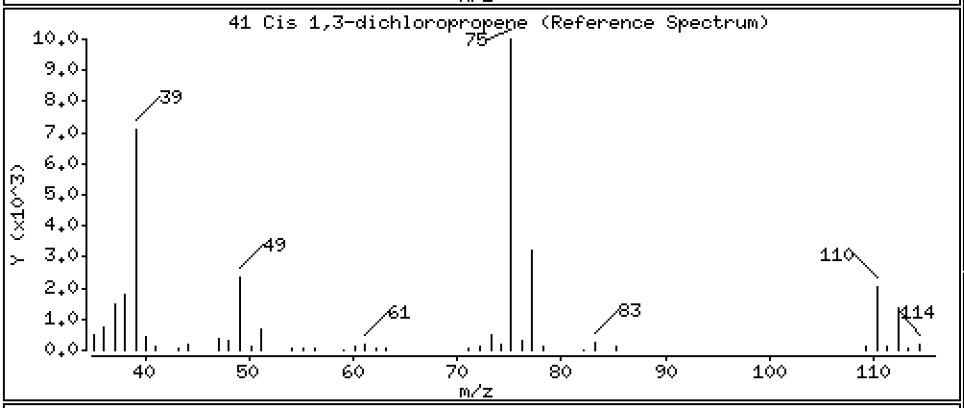
Column diameter: 0.18

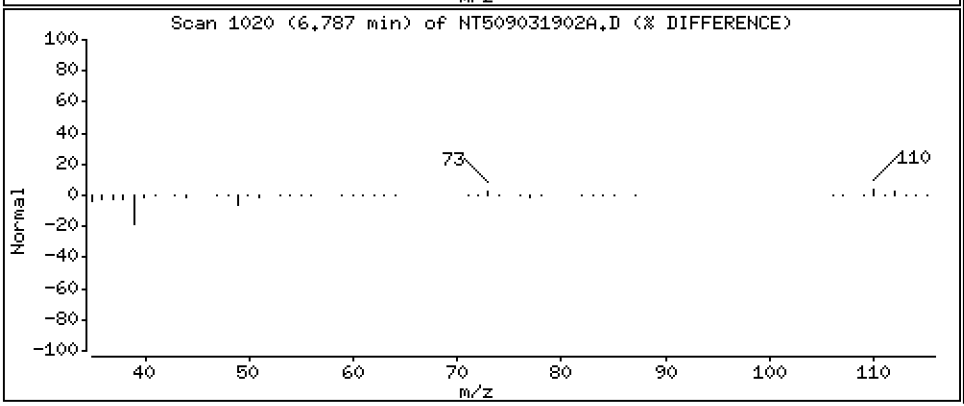
41 Cis 1,3-dichloropropene

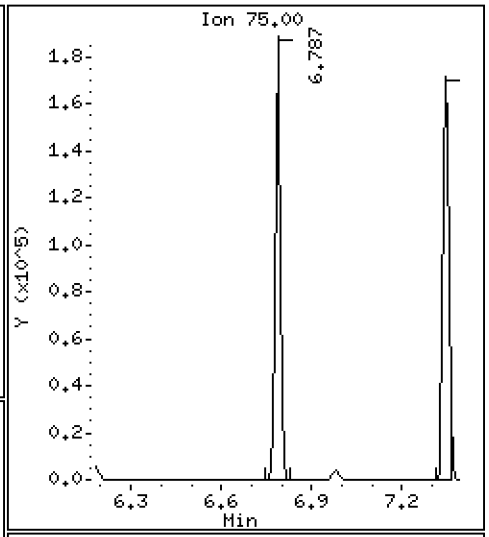
Concentration: 48.305 ug/Kg

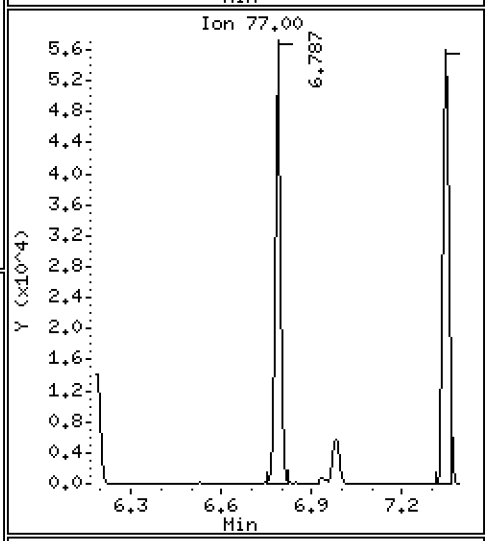


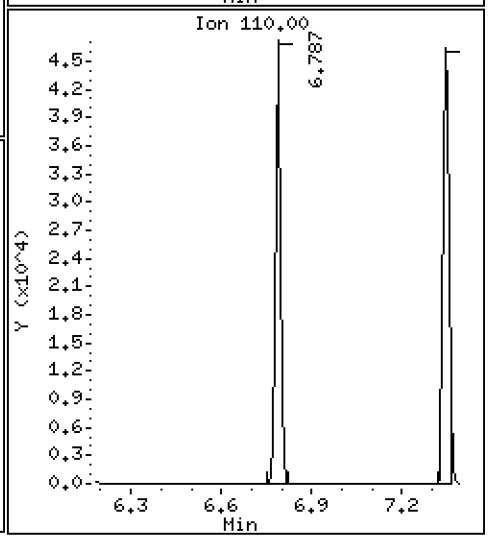












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

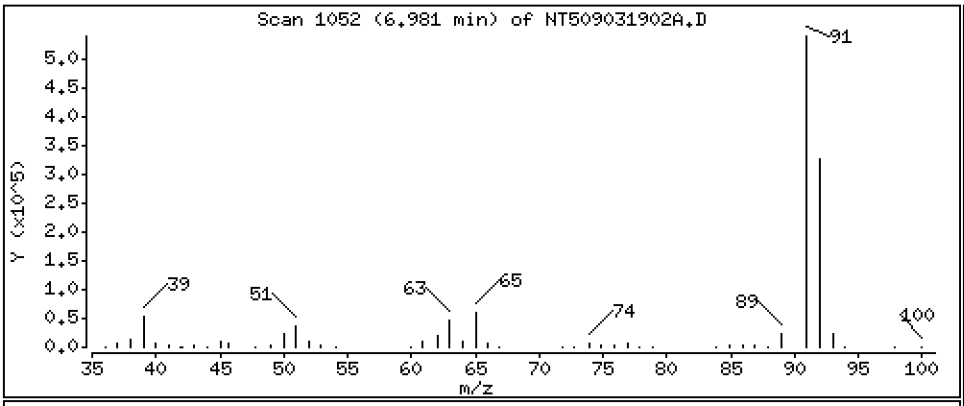
Operator: PB

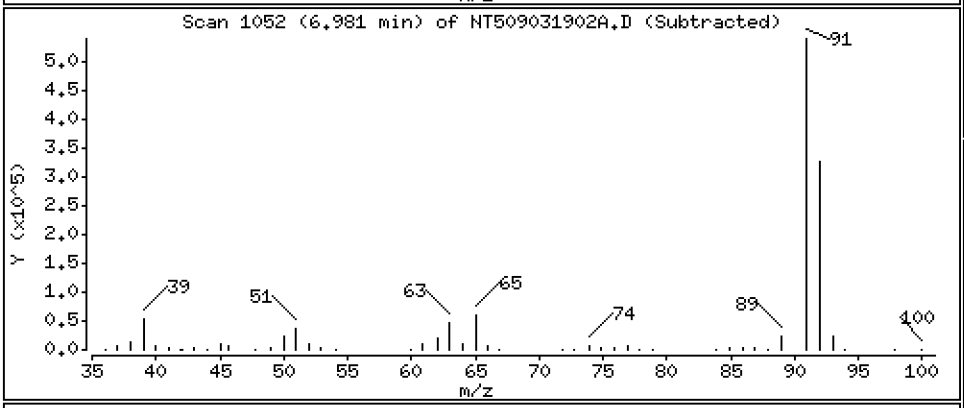
Column phase: RTXVMS

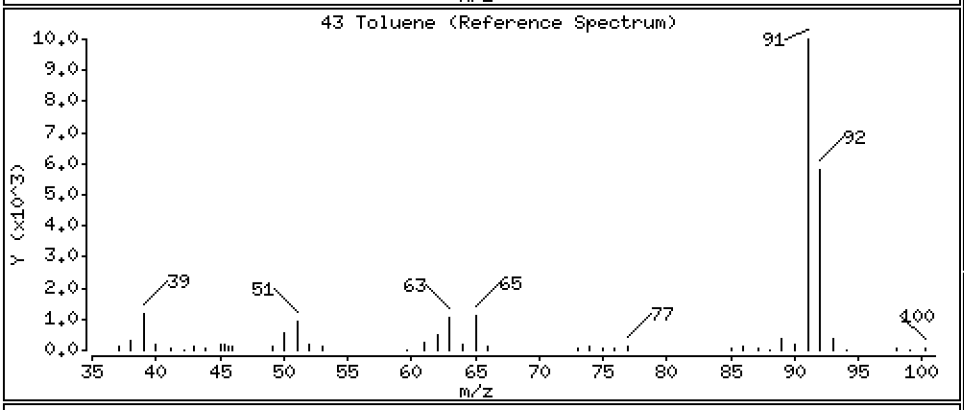
Column diameter: 0.18

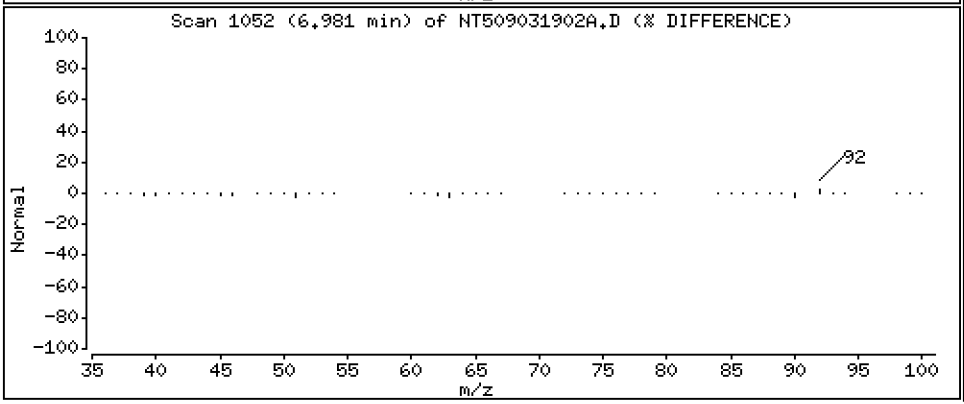
43 Toluene

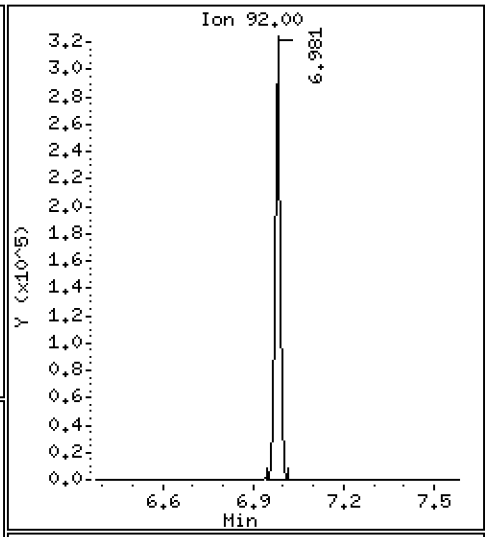
Concentration: 47.718 ug/Kg

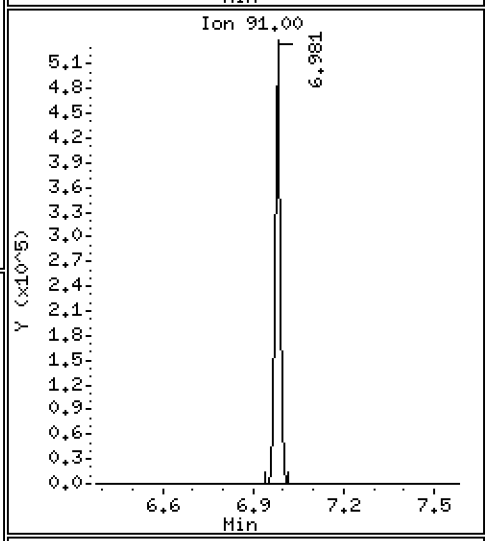


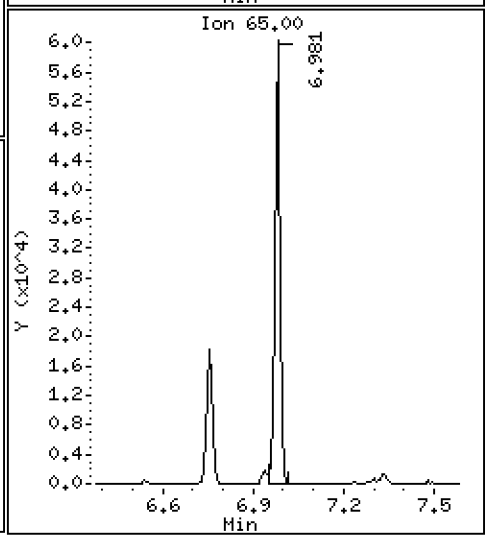












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

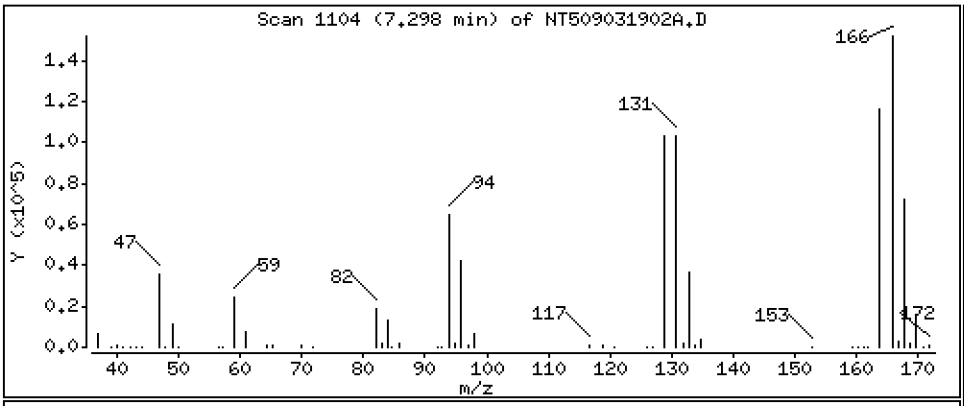
Operator: PB

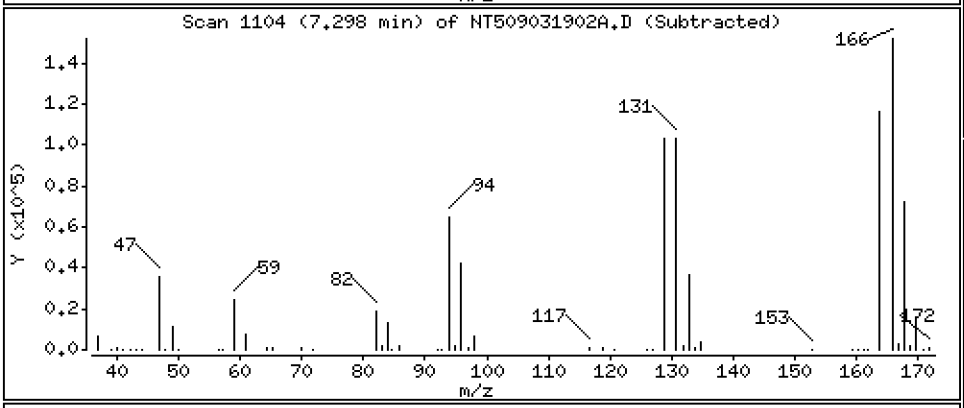
Column phase: RTXVMS

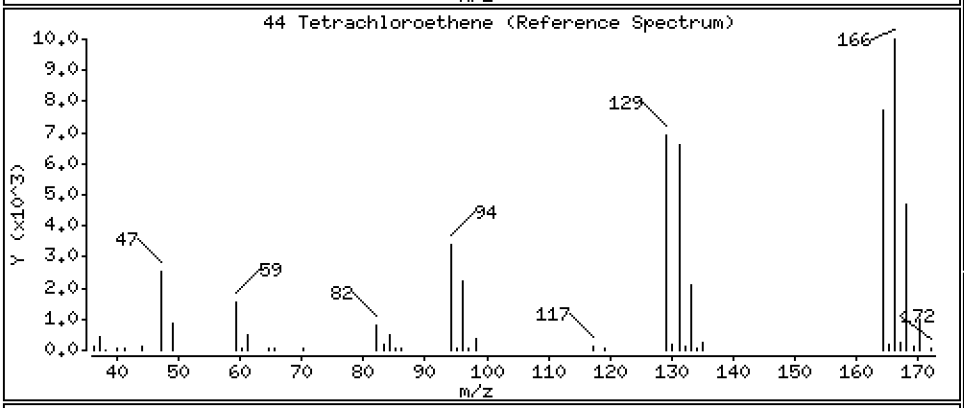
Column diameter: 0.18

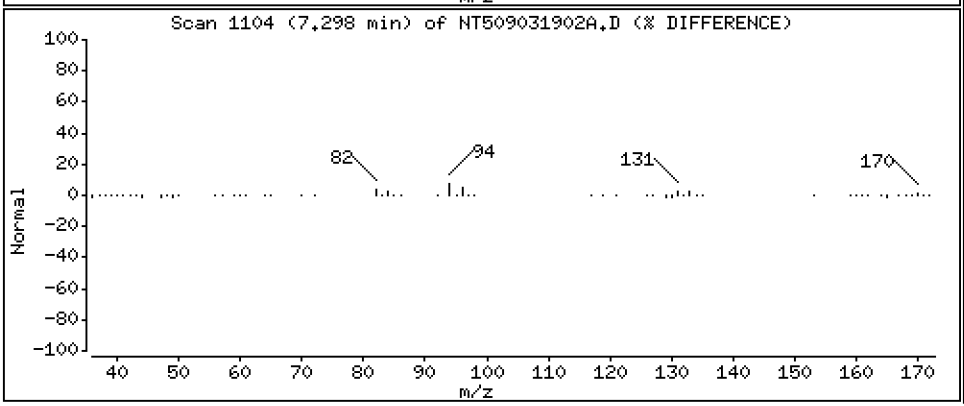
44 Tetrachloroethene

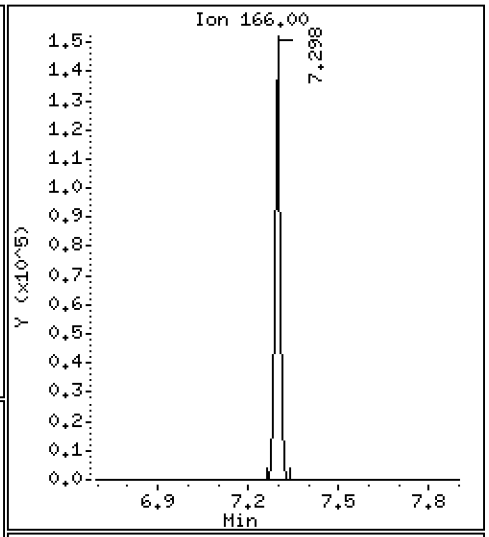
Concentration: 46.132 ug/Kg

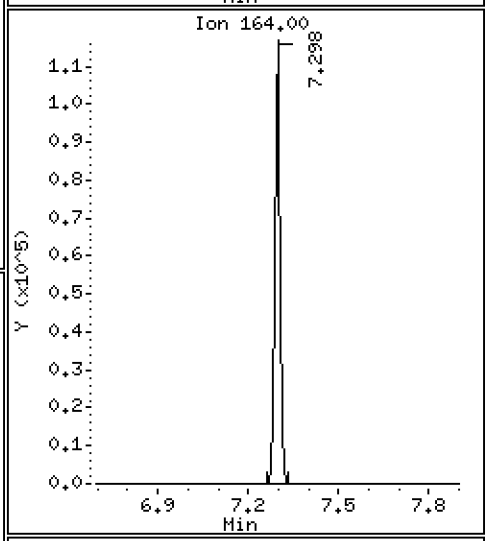


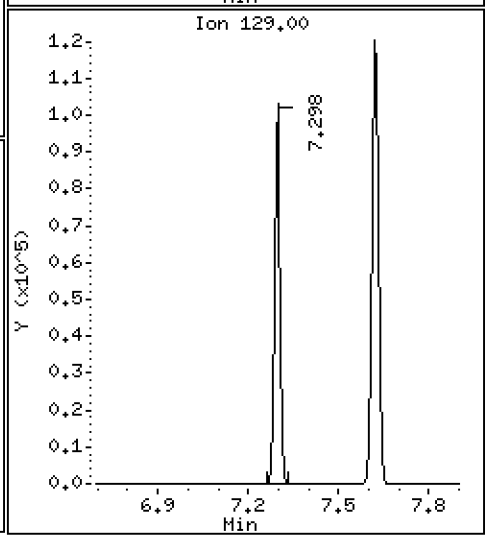












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

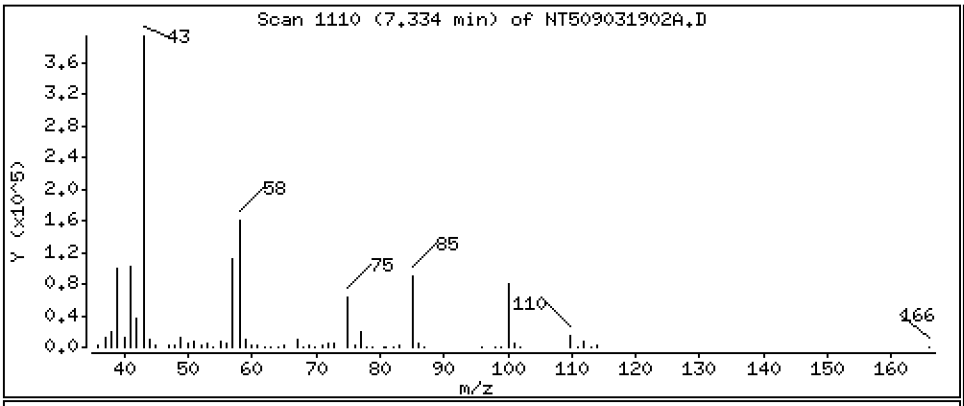
Operator: PB

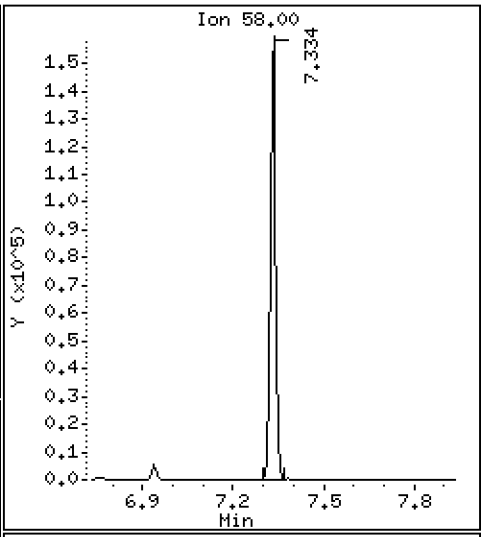
Column phase: RTXVMS

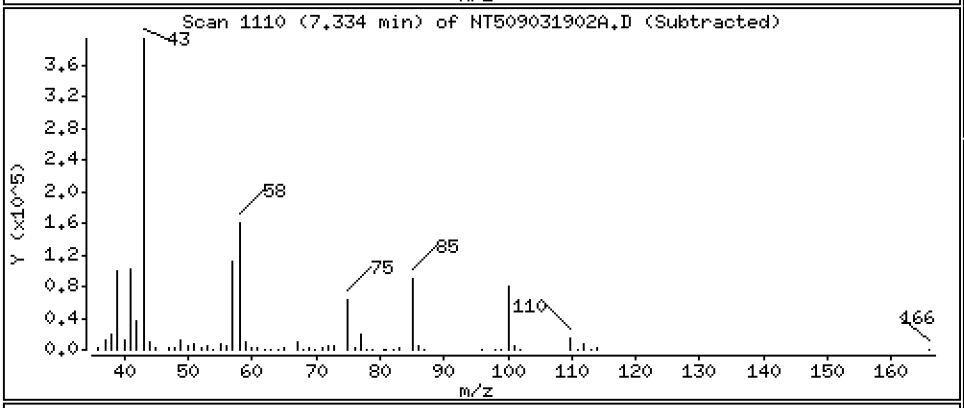
Column diameter: 0.18

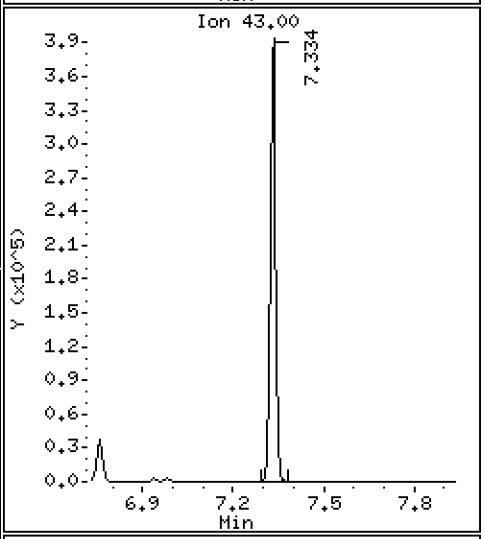
45 4-Methyl-2-Pentanone

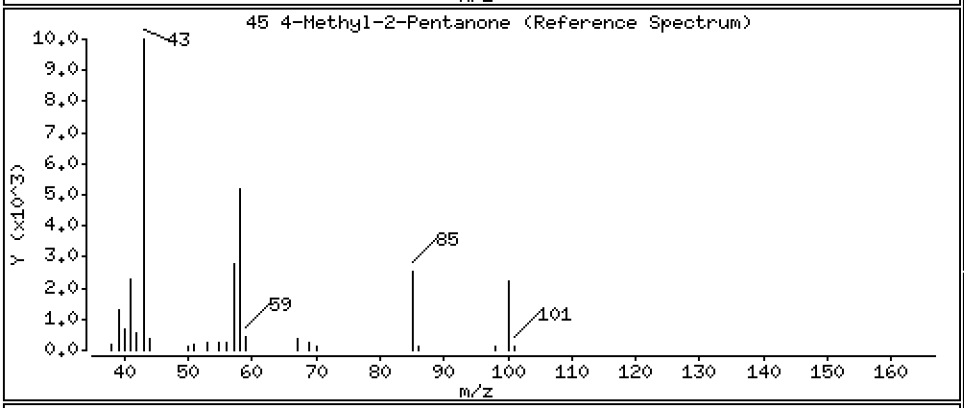
Concentration: 236.92 ug/Kg

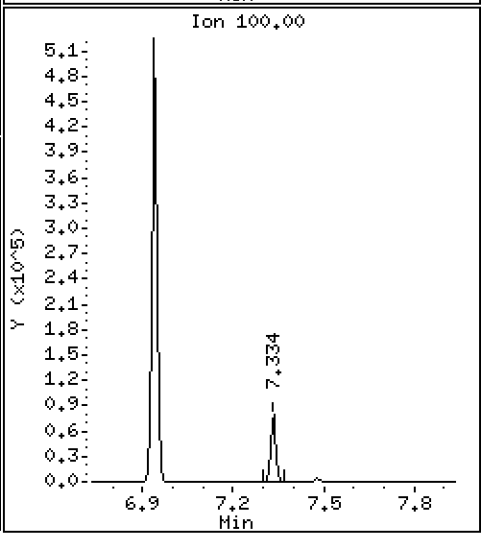


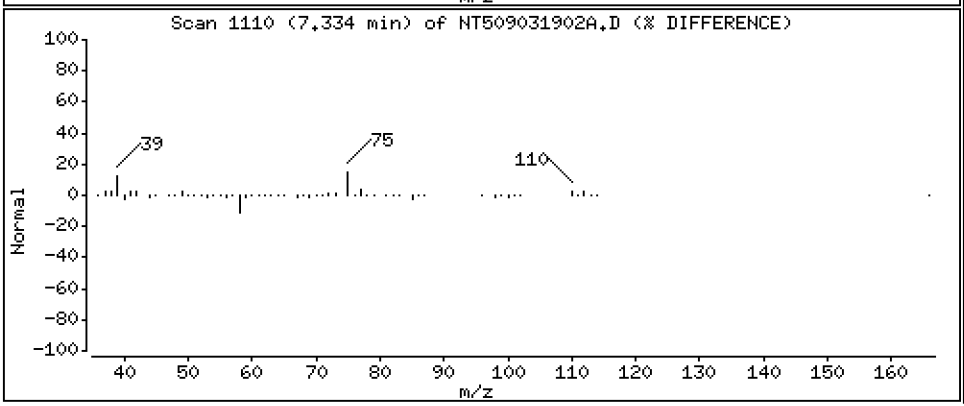












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

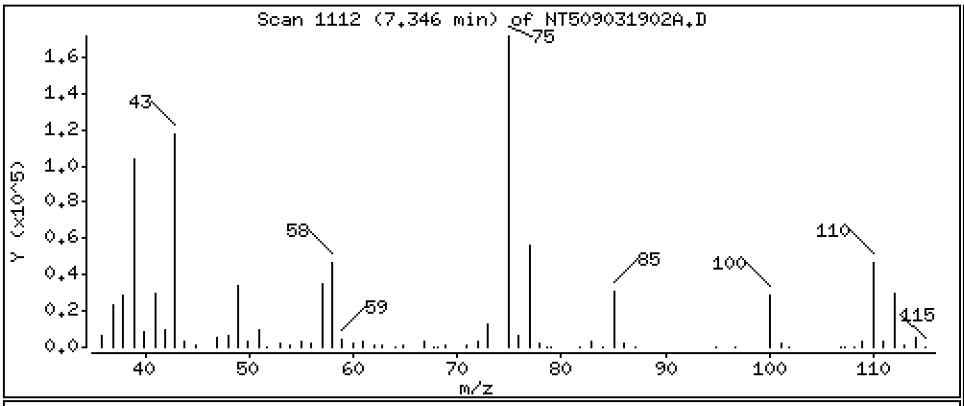
Operator: PB

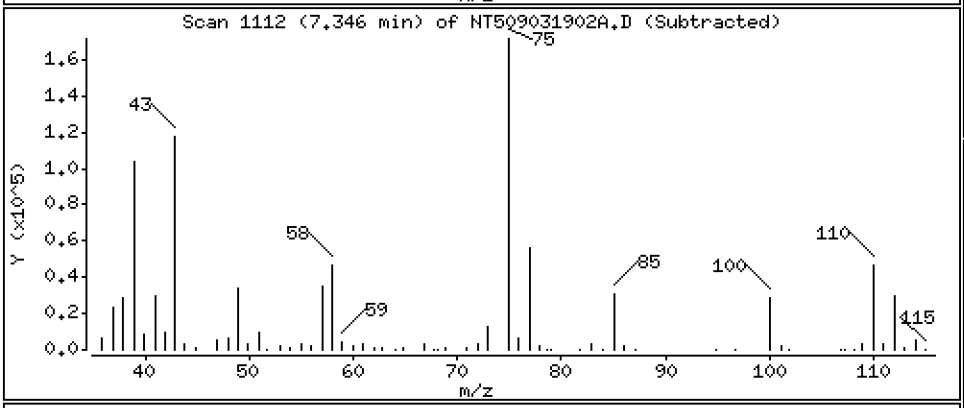
Column phase: RTXVMS

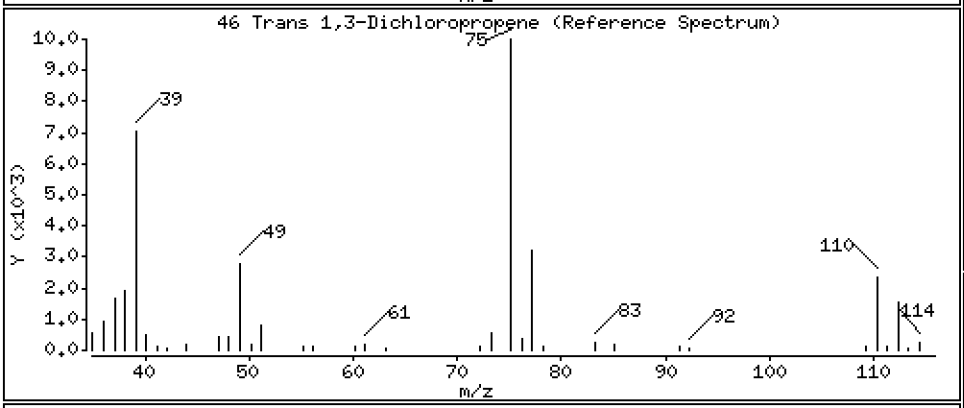
Column diameter: 0.18

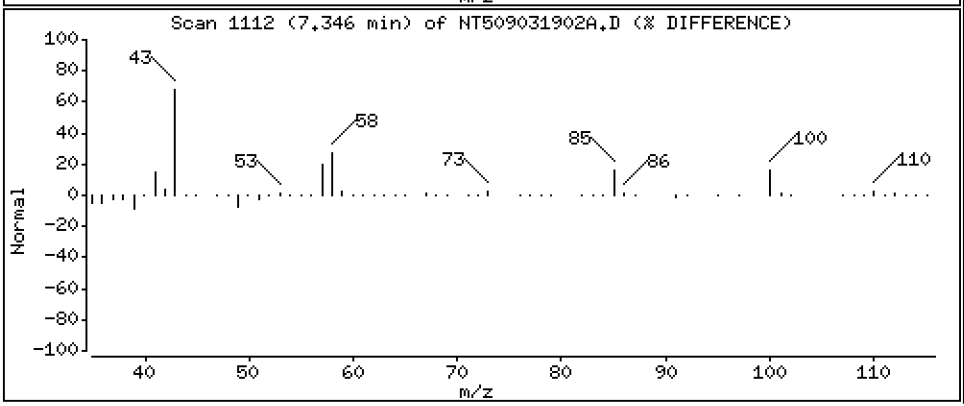
46 Trans 1,3-Dichloropropene

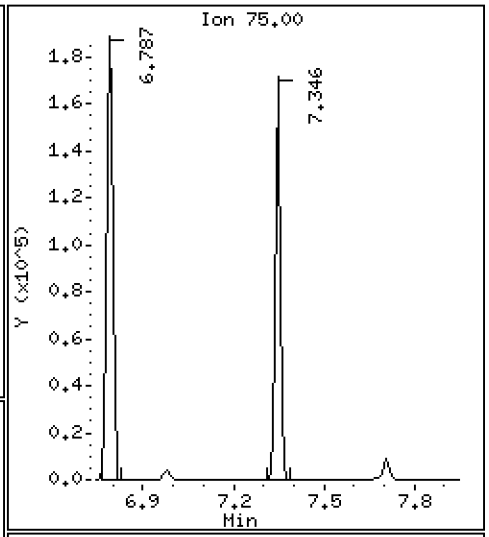
Concentration: 48.091 ug/Kg

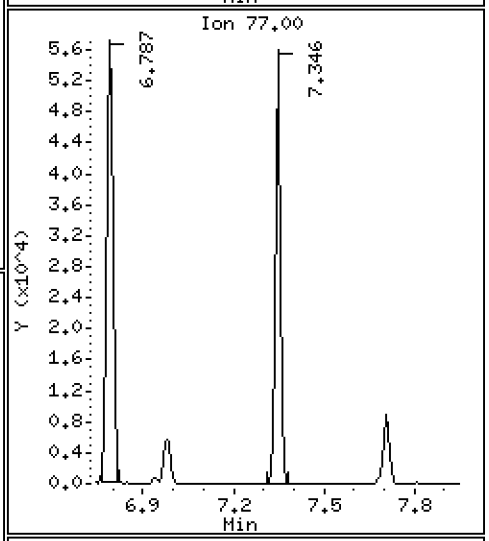


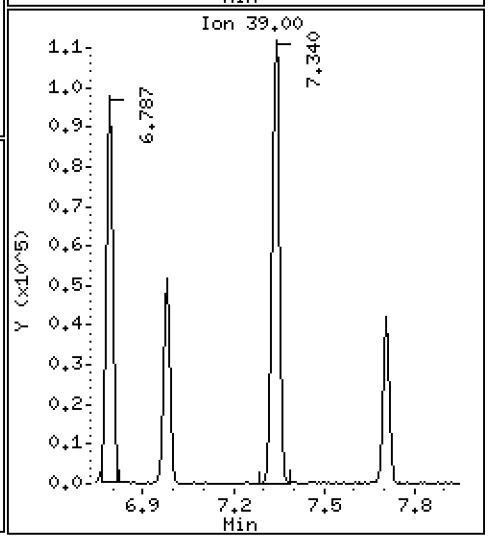












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

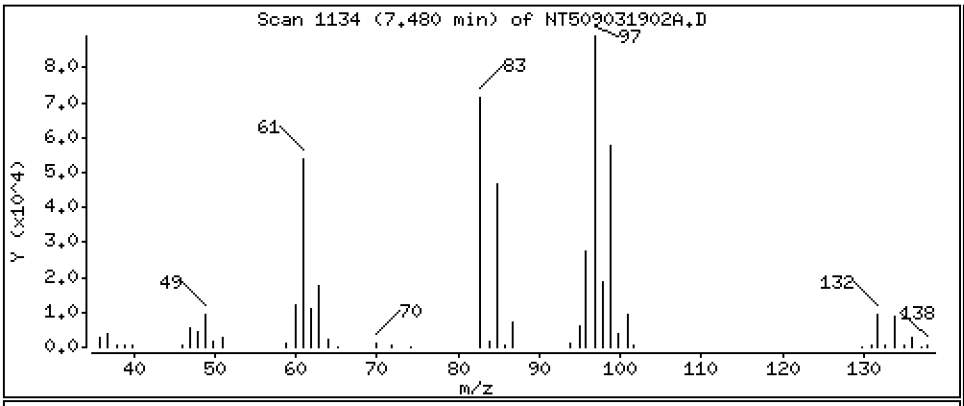
Operator: PB

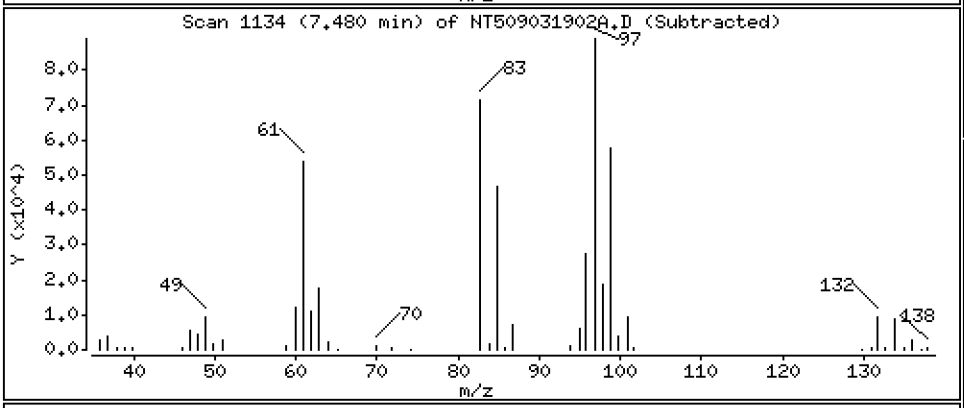
Column phase: RTXVMS

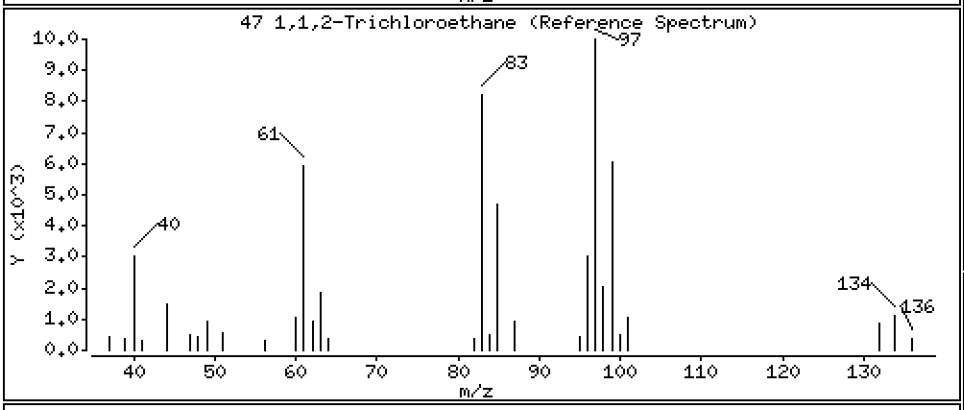
Column diameter: 0.18

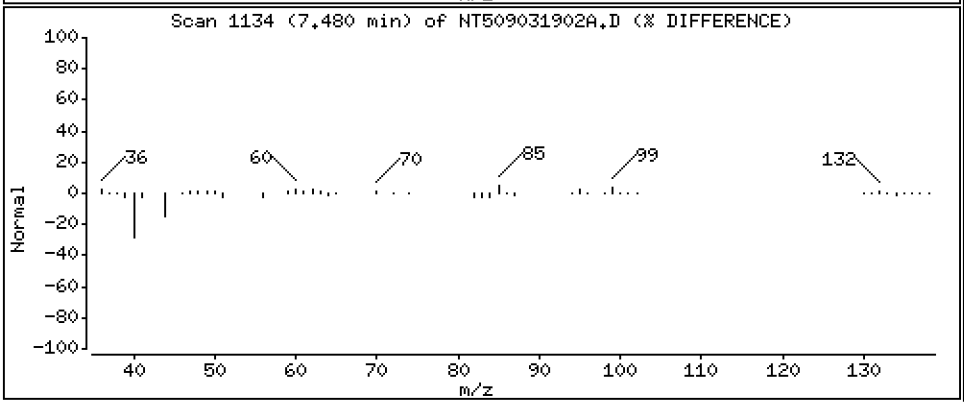
47 1,1,2-Trichloroethane

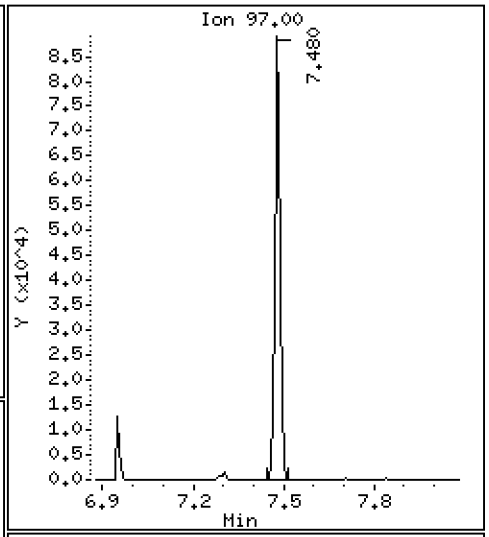
Concentration: 46.613 ug/Kg

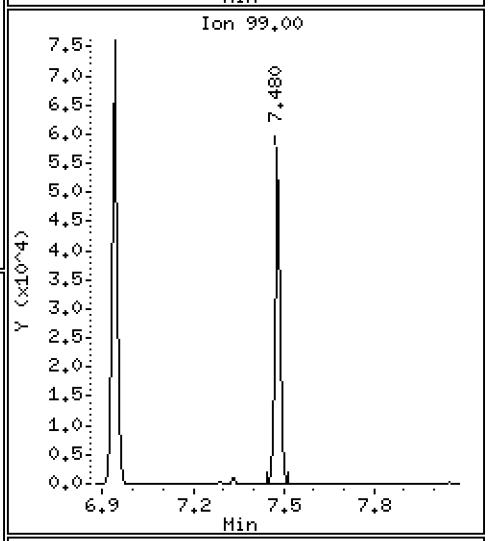


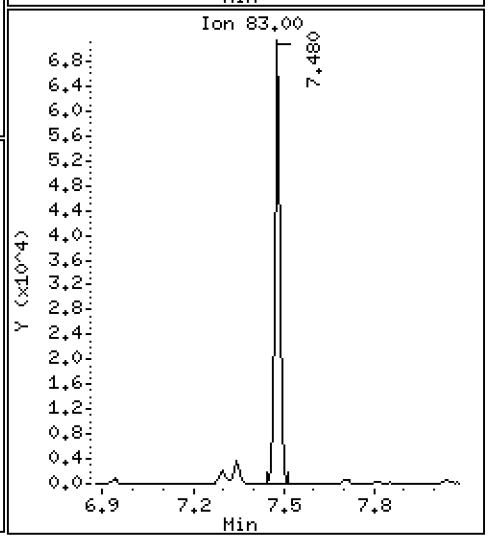












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

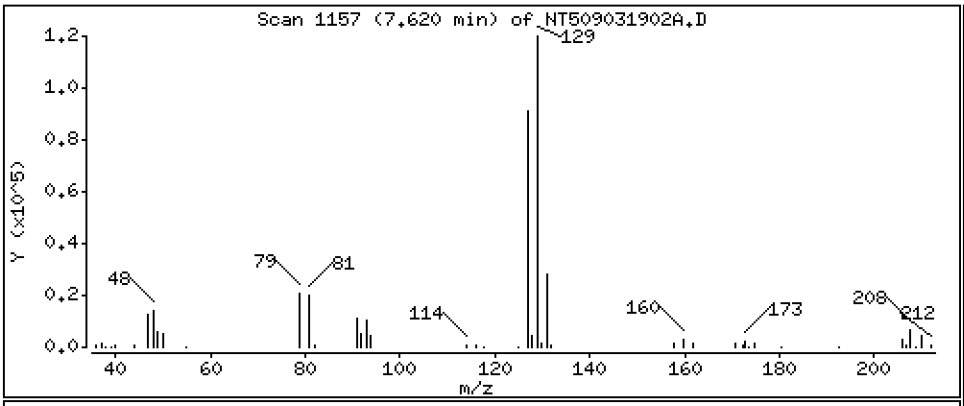
Operator: PB

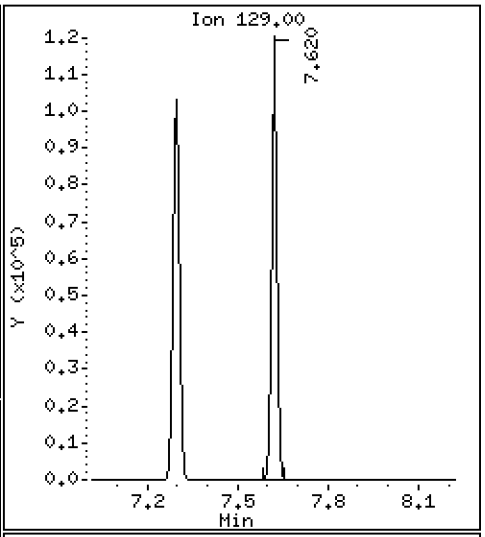
Column phase: RTXVMS

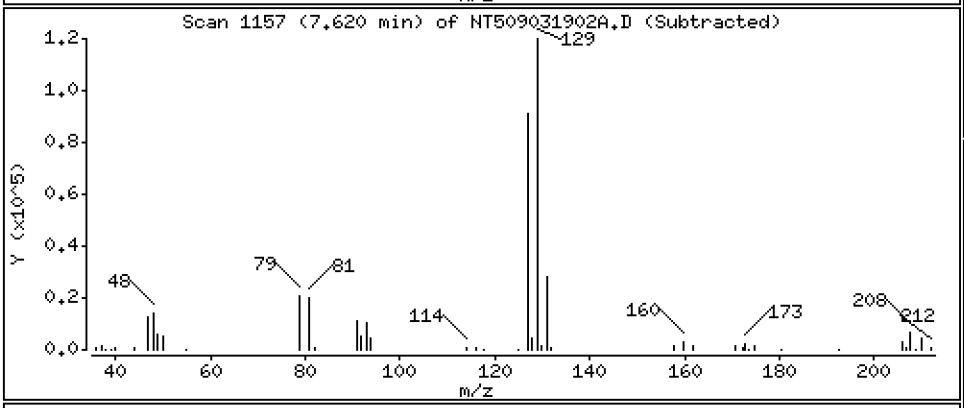
Column diameter: 0.18

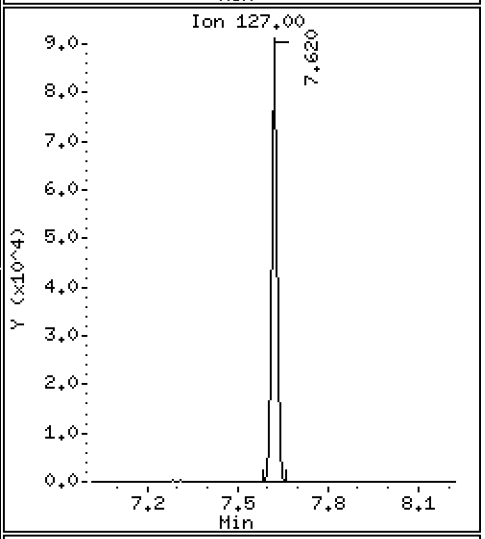
48 Chlorodibromomethane

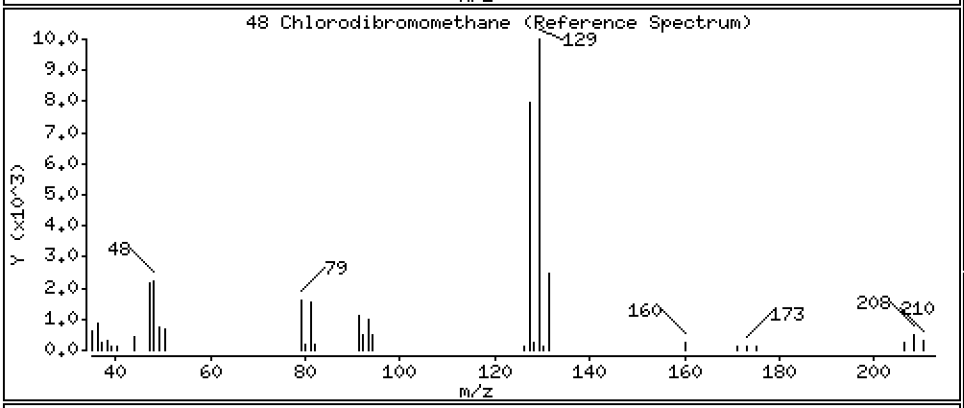
Concentration: 44.249 ug/Kg

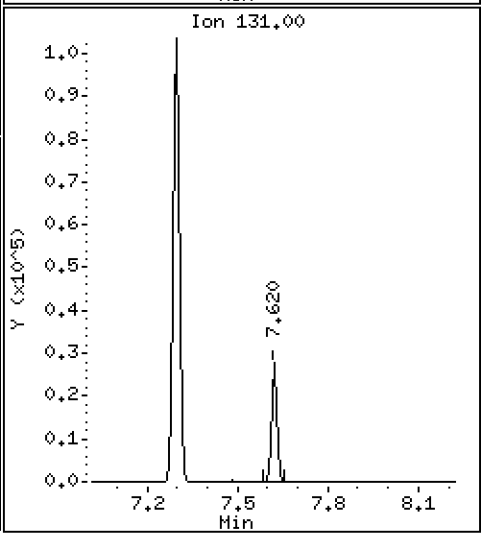


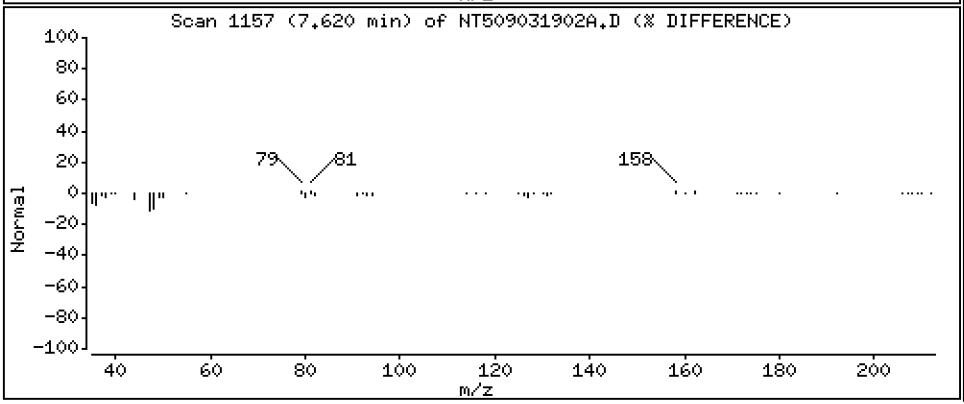












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031902A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

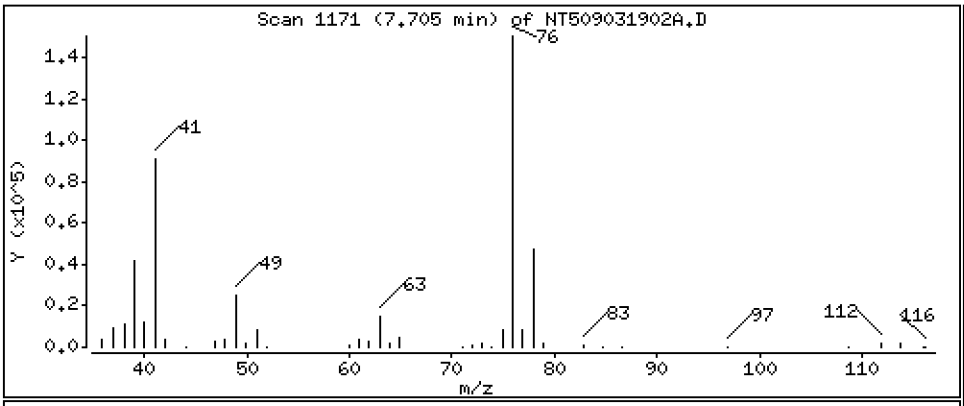
Operator: PB

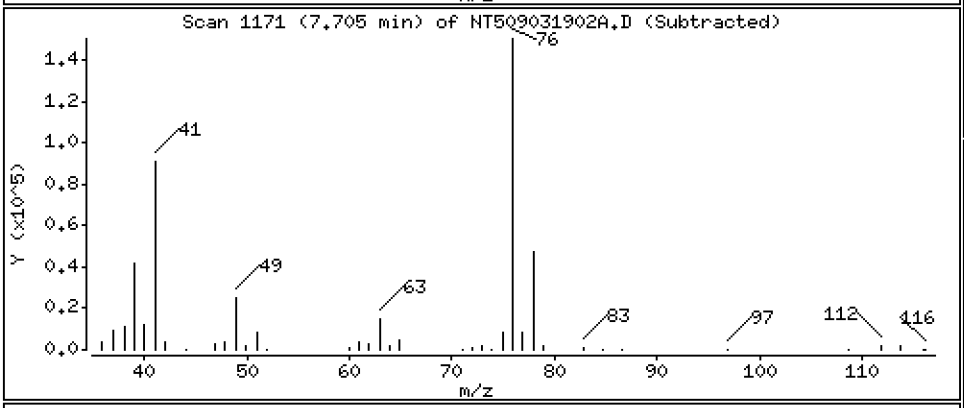
Column phase: RTXVMS

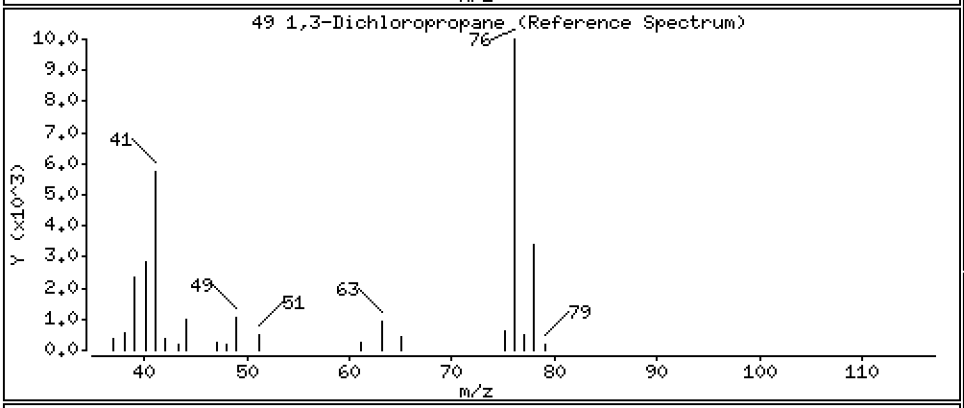
Column diameter: 0.18

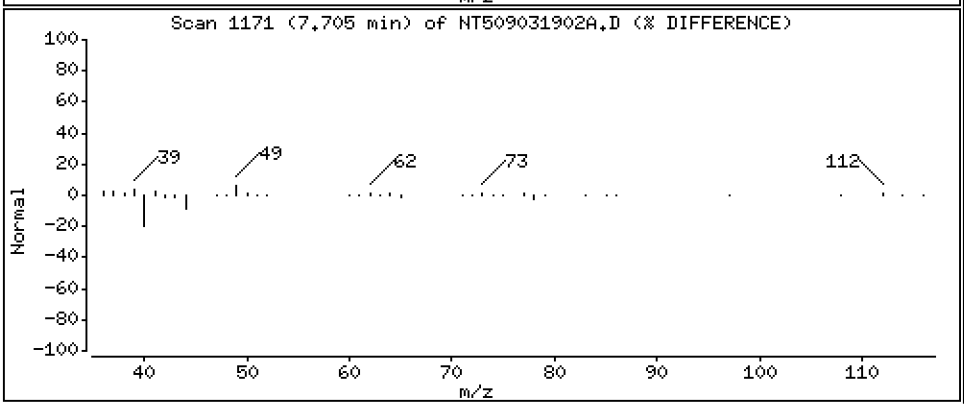
49 1,3-Dichloropropane

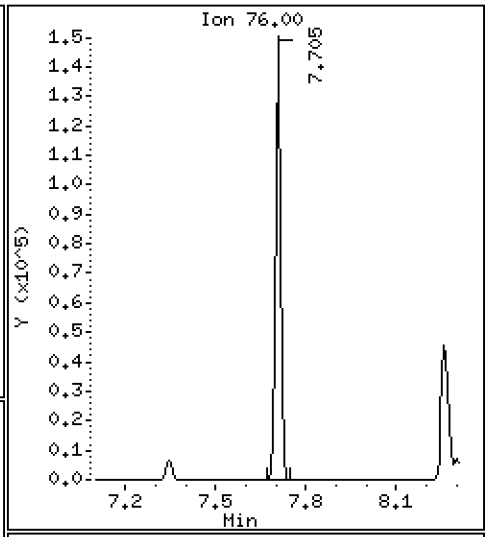
Concentration: 44.365 ug/Kg

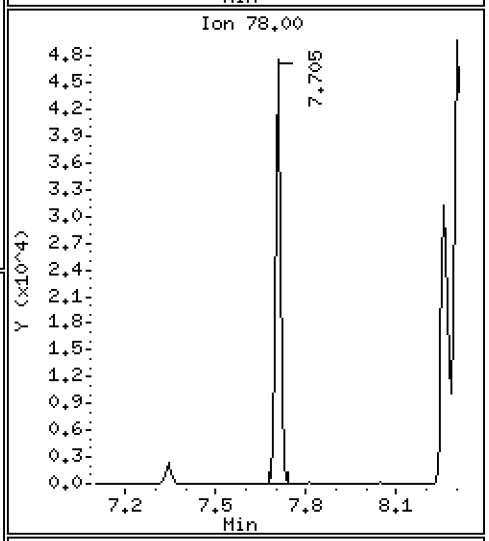


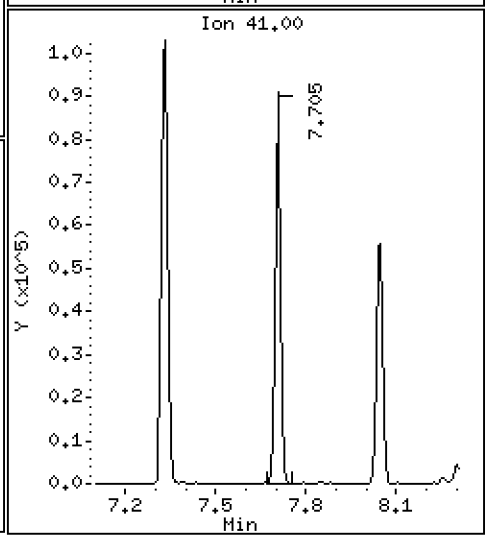












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

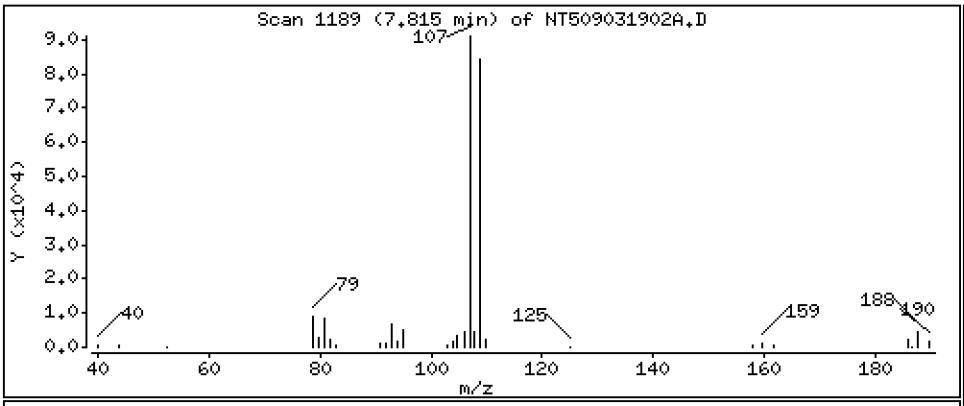
Operator: PB

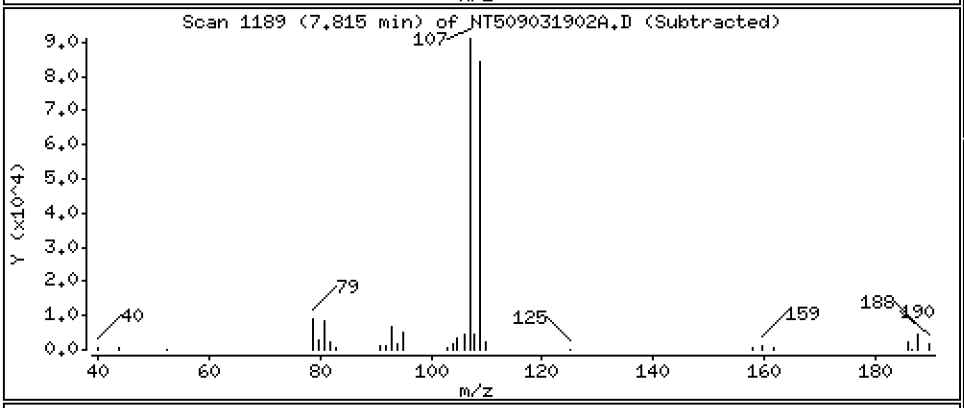
Column phase: RTXVMS

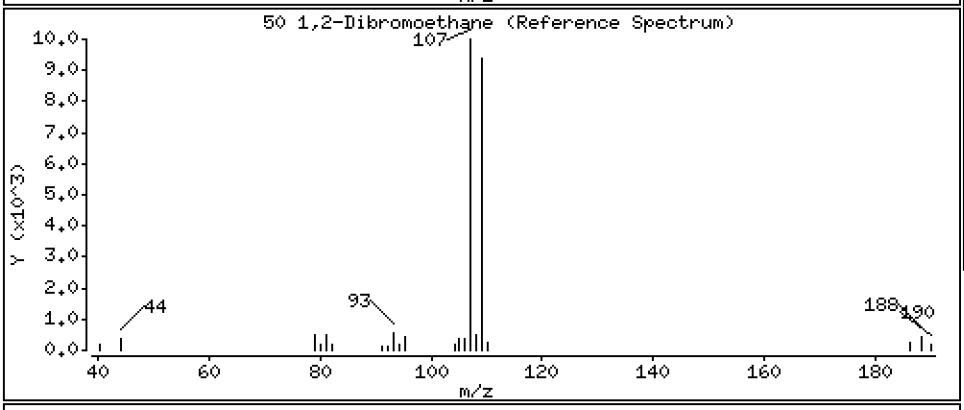
Column diameter: 0.18

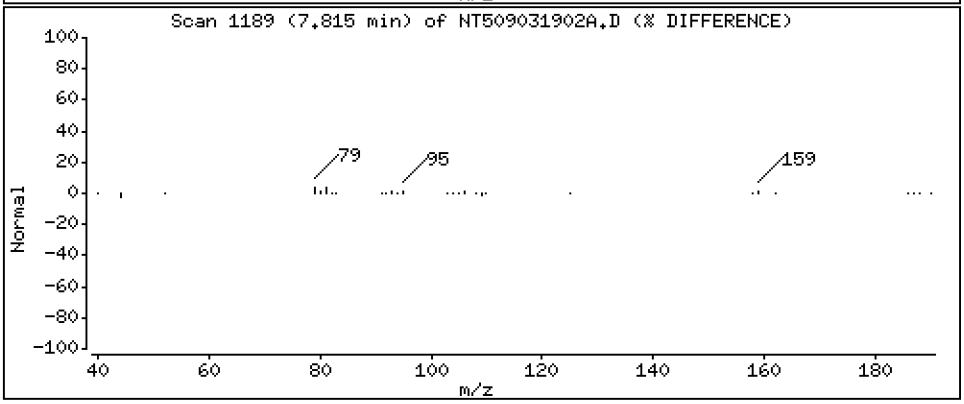
50 1,2-Dibromoethane

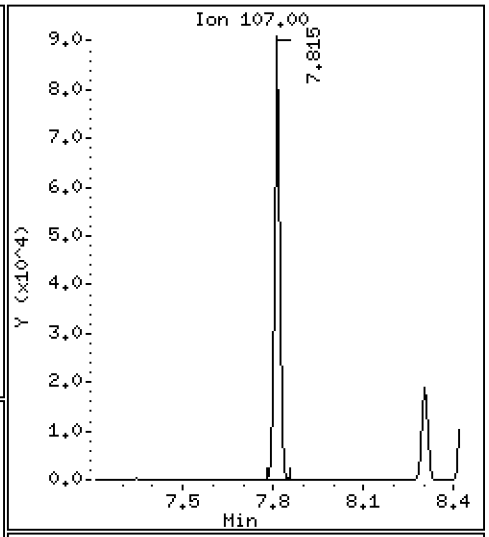
Concentration: 47.394 ug/Kg

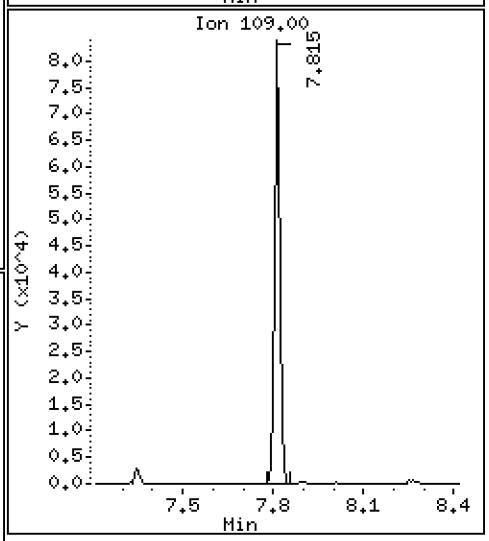












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

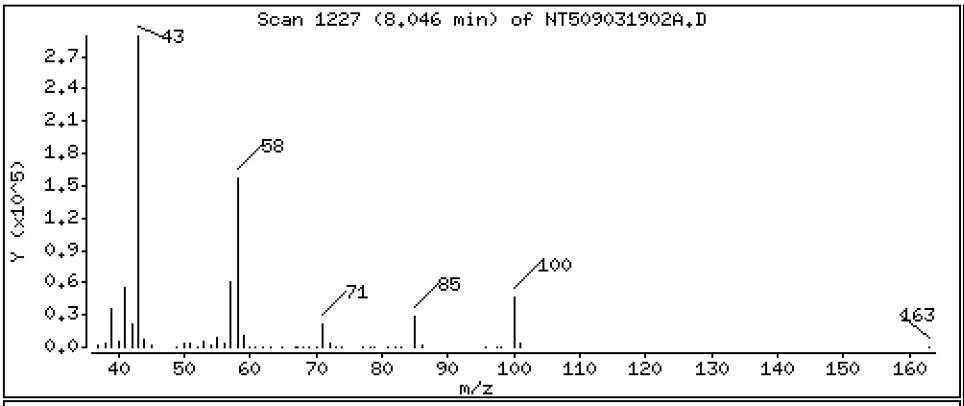
Operator: PB

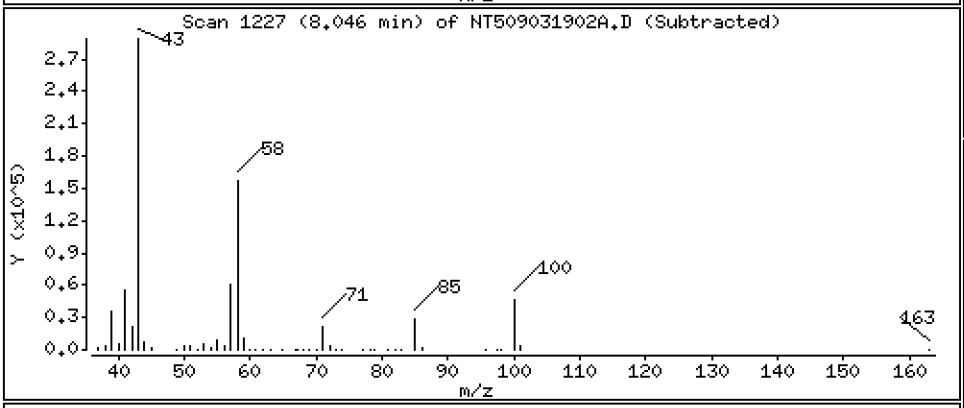
Column phase: RTXVMS

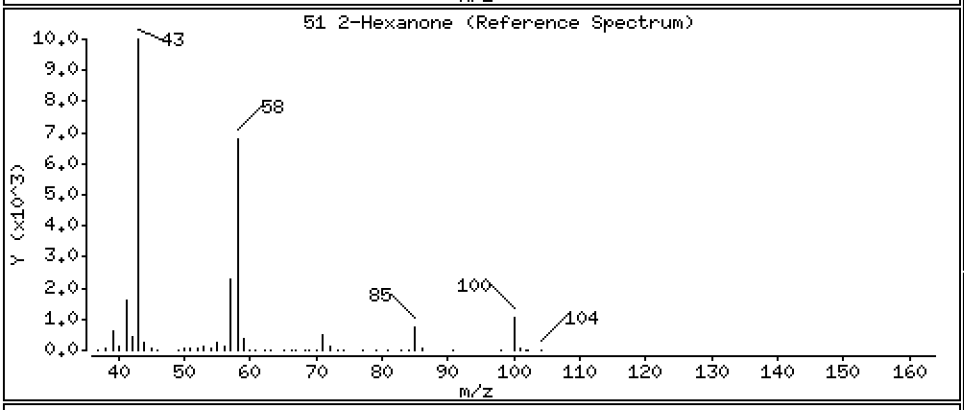
Column diameter: 0.18

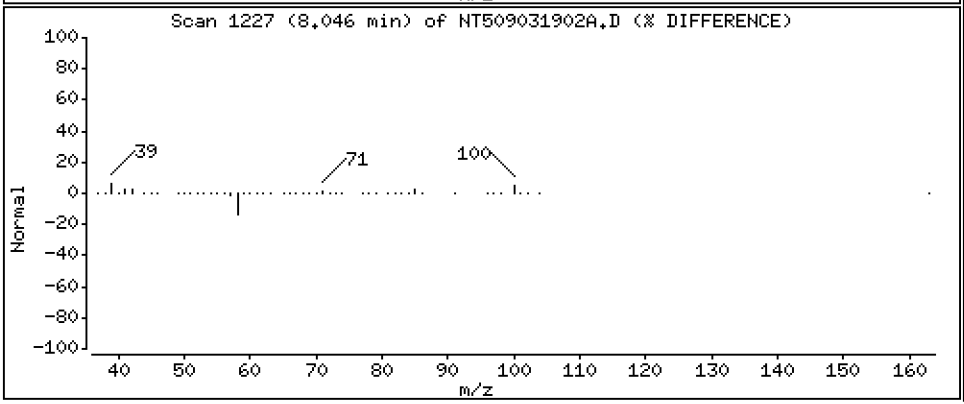
51 2-Hexanone

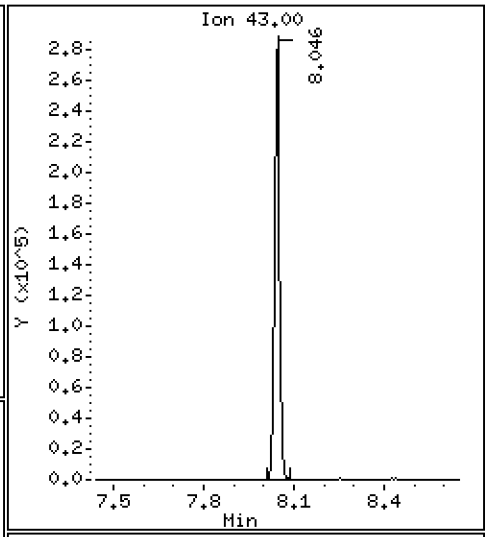
Concentration: 223.40 ug/Kg

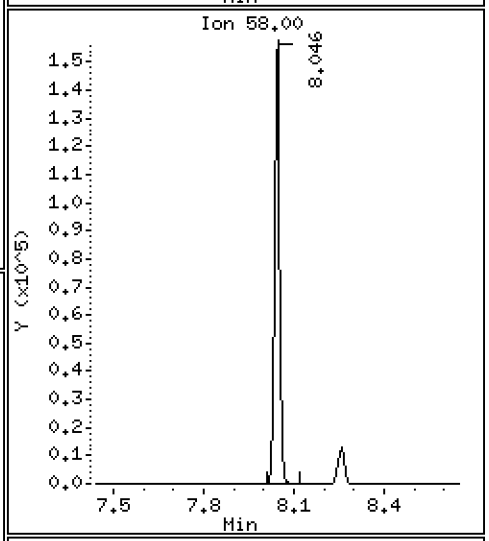


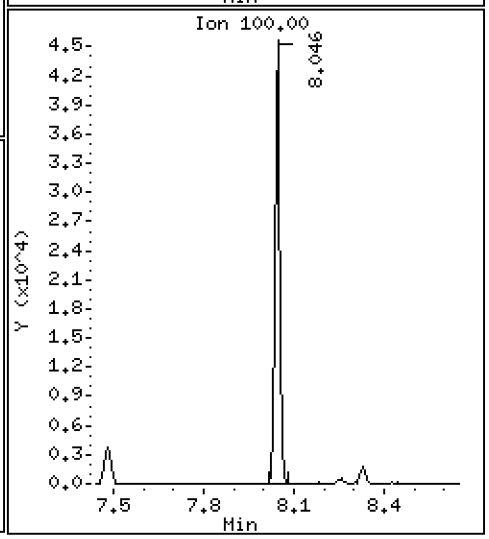












Data File: \\target\share\chem1\nt5.i\20190903.b\NT5090319O2A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

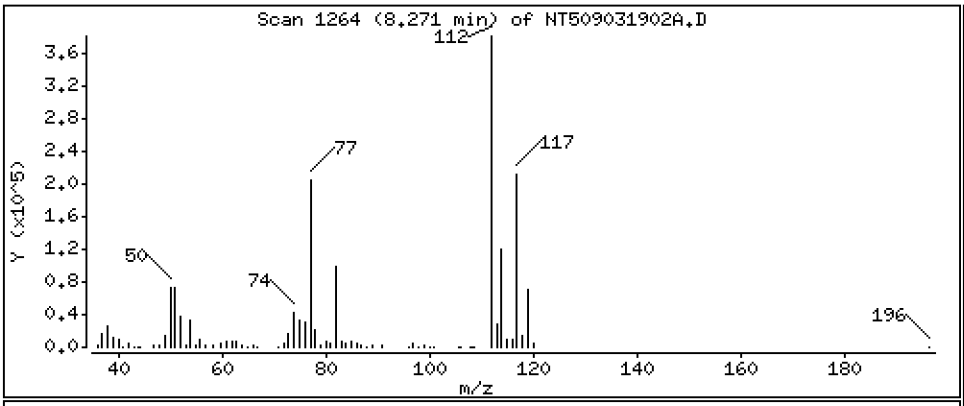
Operator: PB

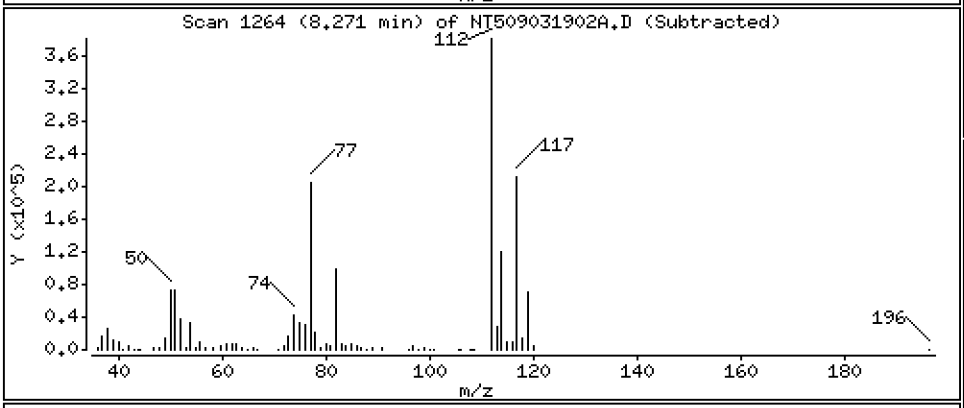
Column phase: RTXVMS

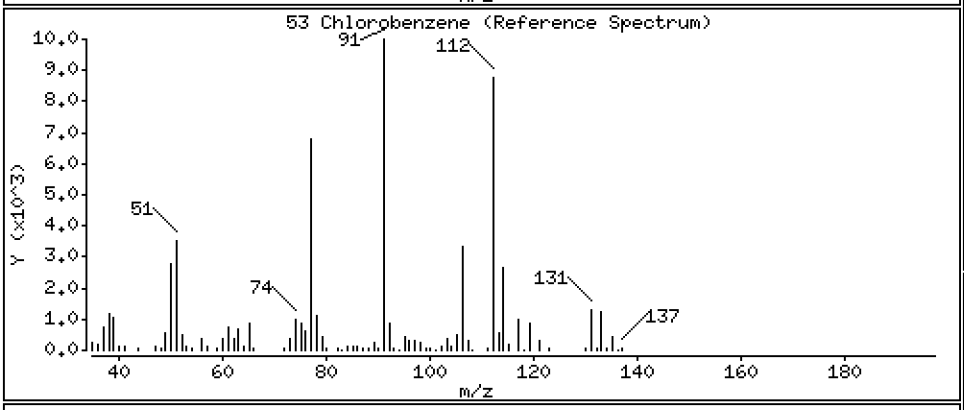
Column diameter: 0.18

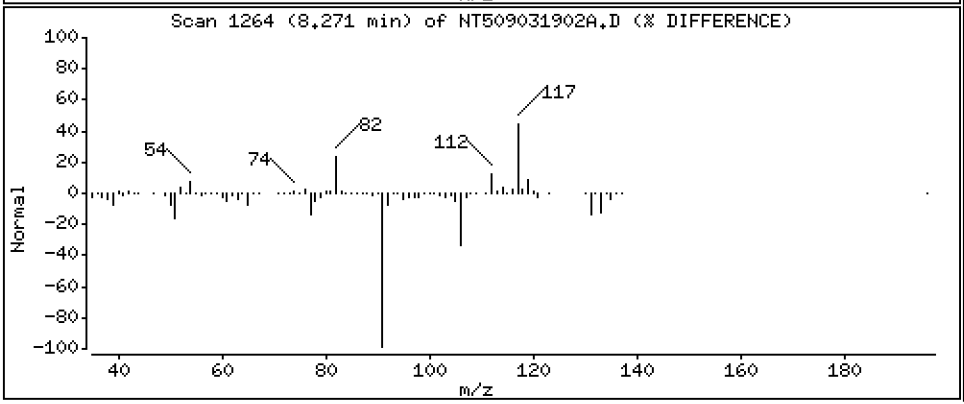
53 Chlorobenzene

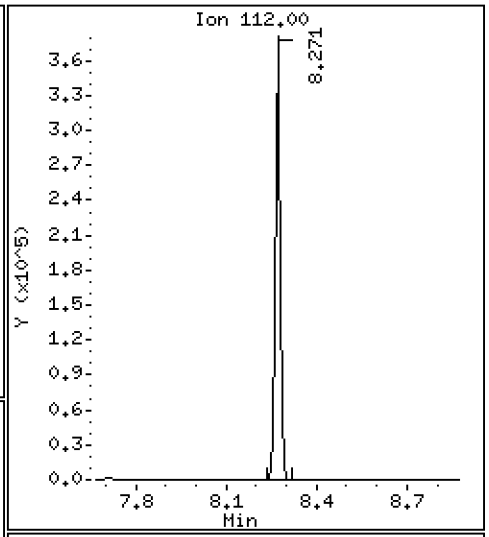
Concentration: 44.039 ug/Kg

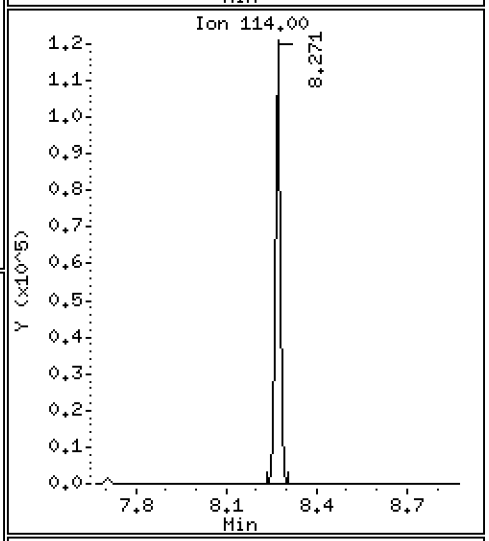


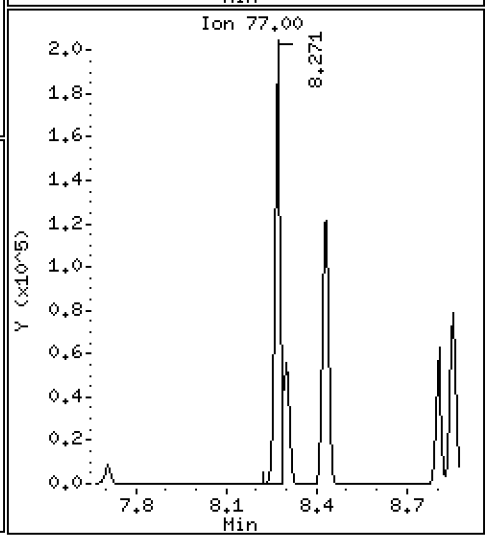












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

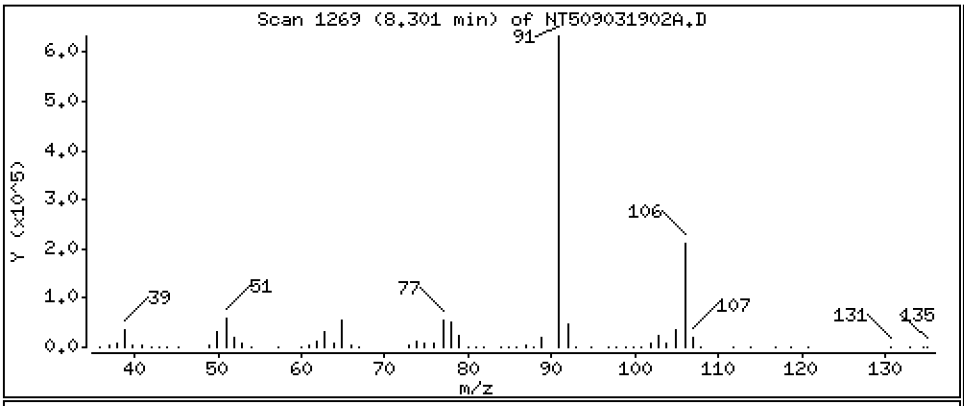
Operator: PB

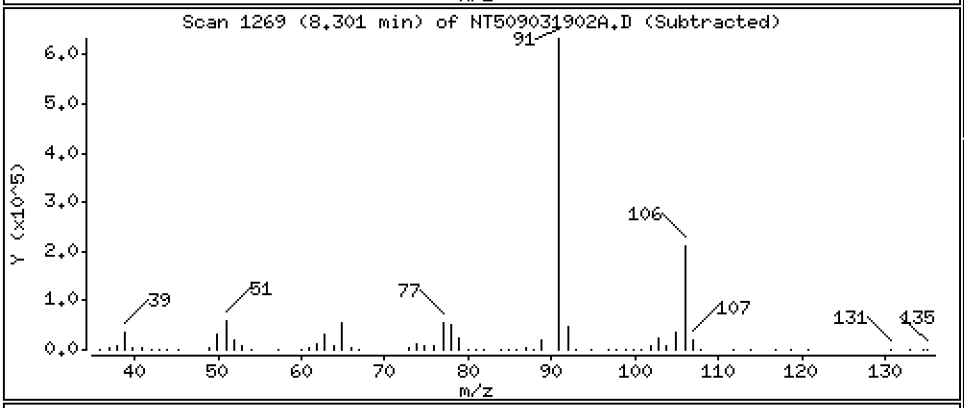
Column phase: RTXVMS

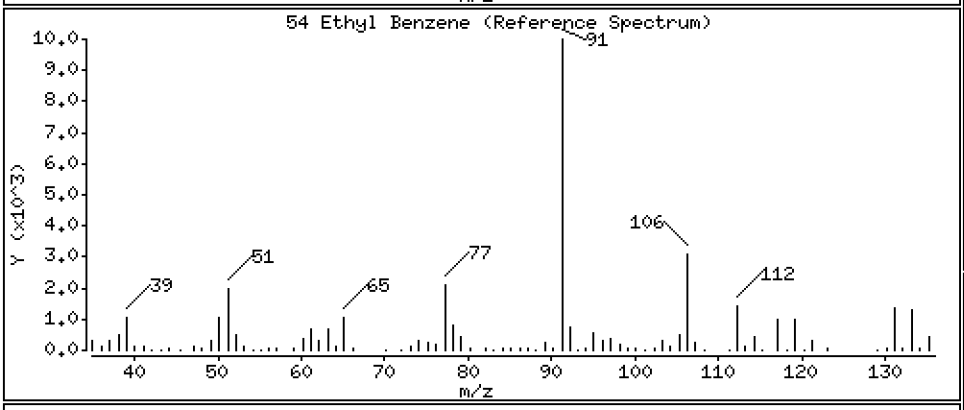
Column diameter: 0.18

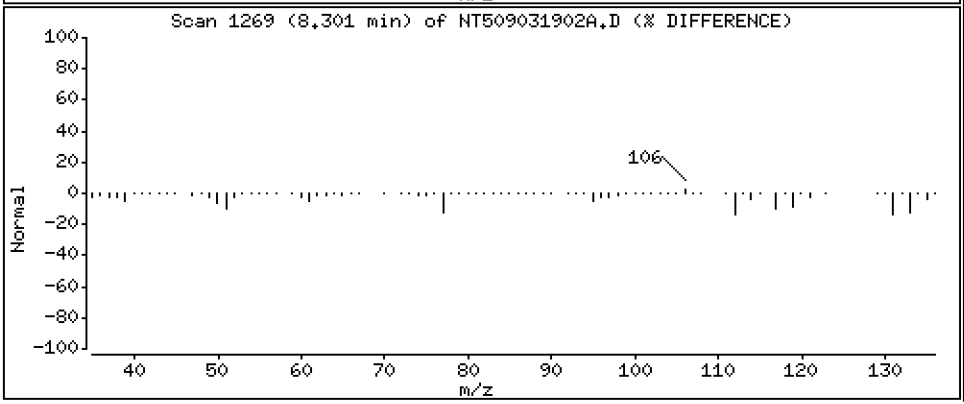
54 Ethyl Benzene

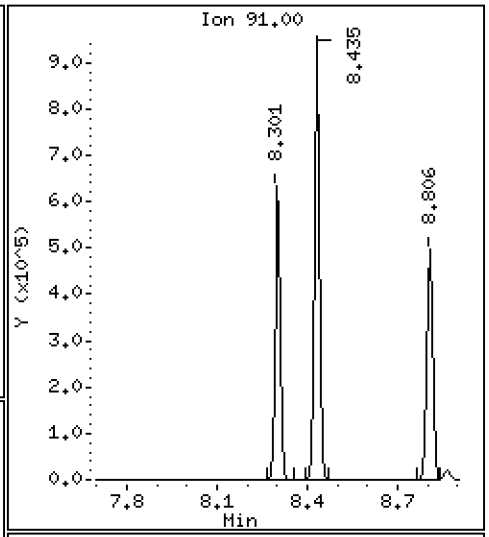
Concentration: 45.462 ug/Kg

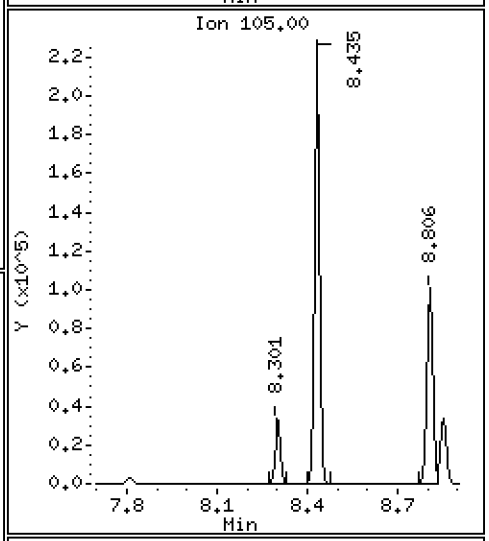


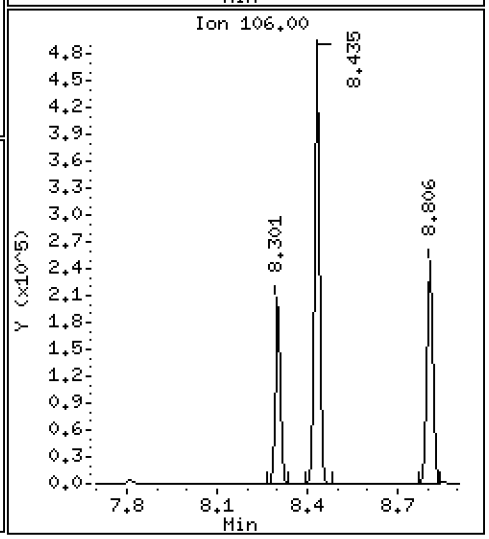












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

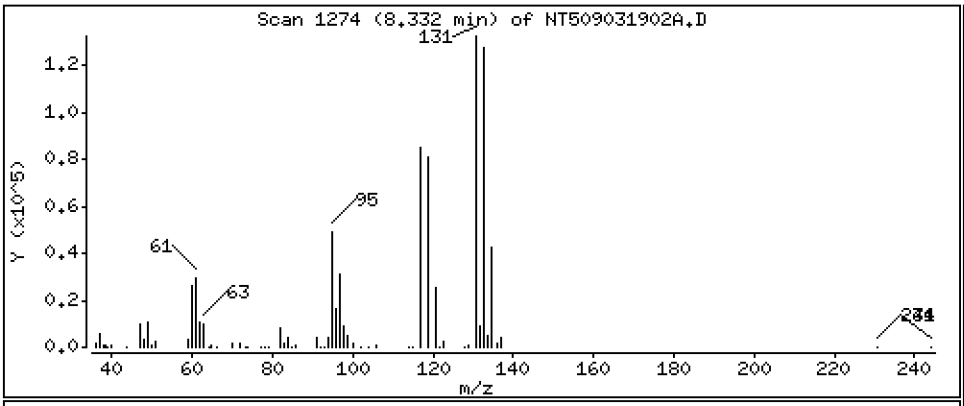
Operator: PB

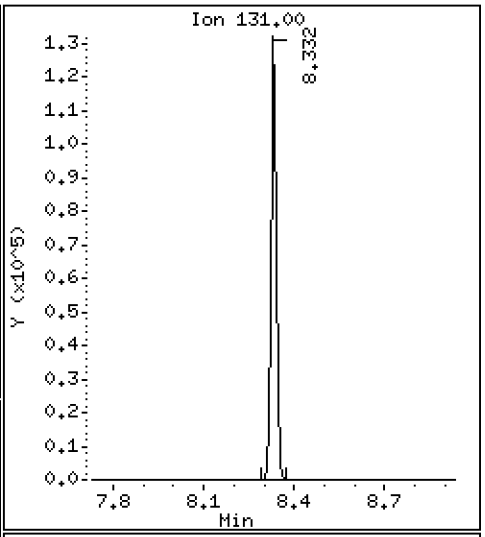
Column phase: RTXVMS

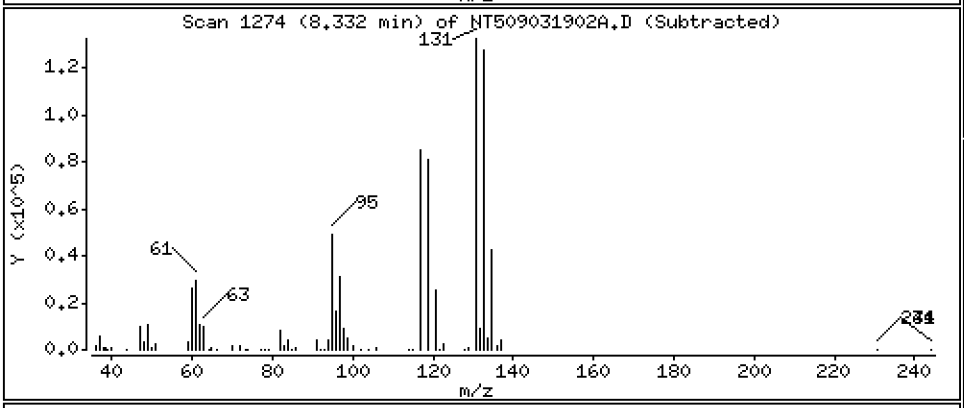
Column diameter: 0.18

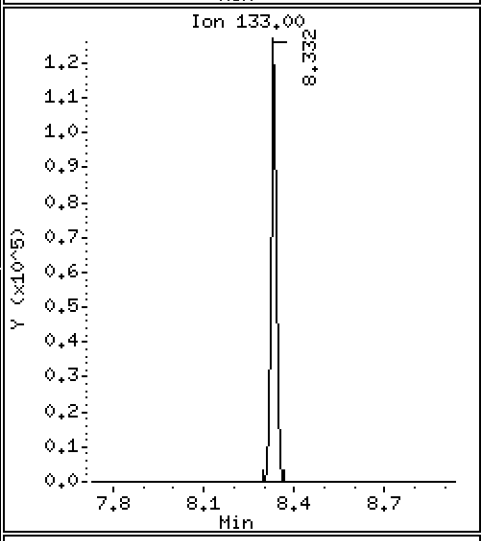
55 1,1,1,2-Tetrachloroethane

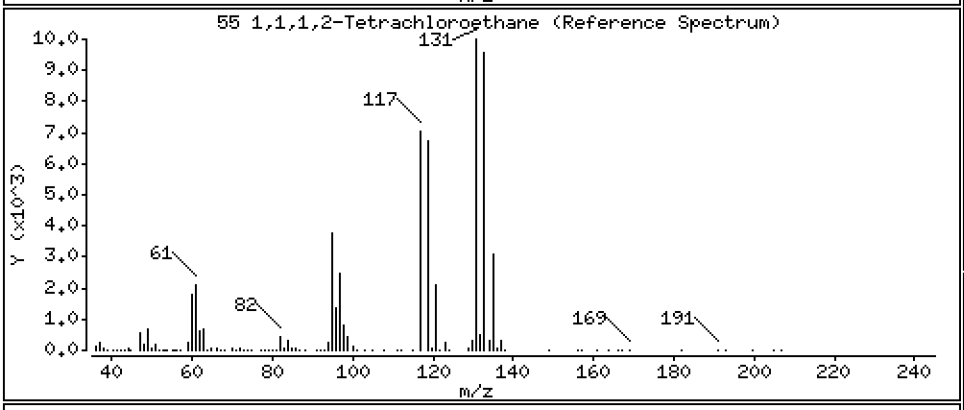
Concentration: 46.100 ug/Kg

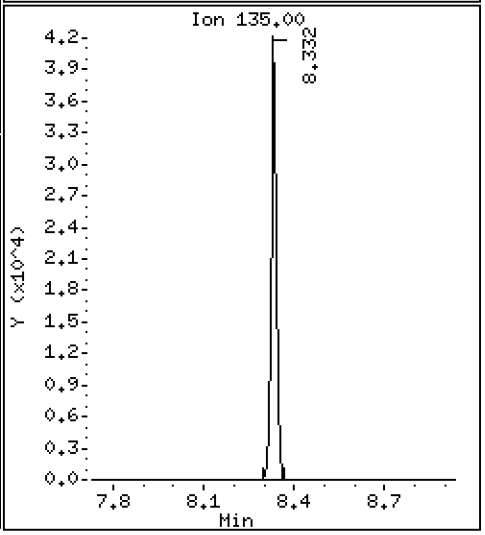


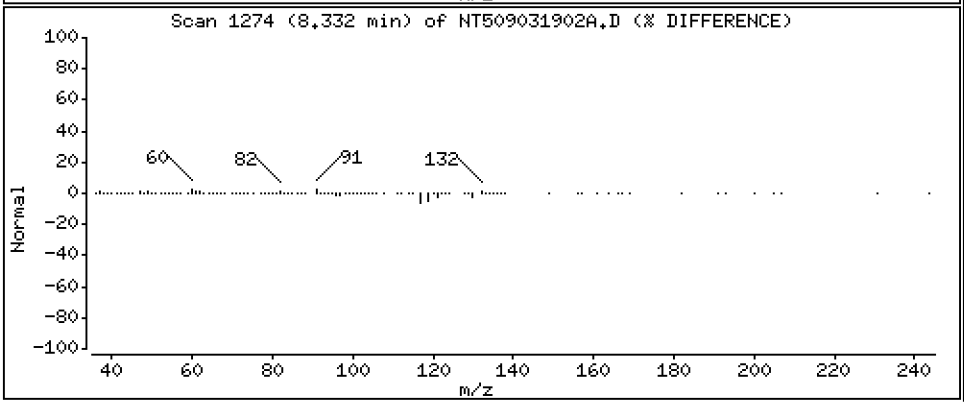












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

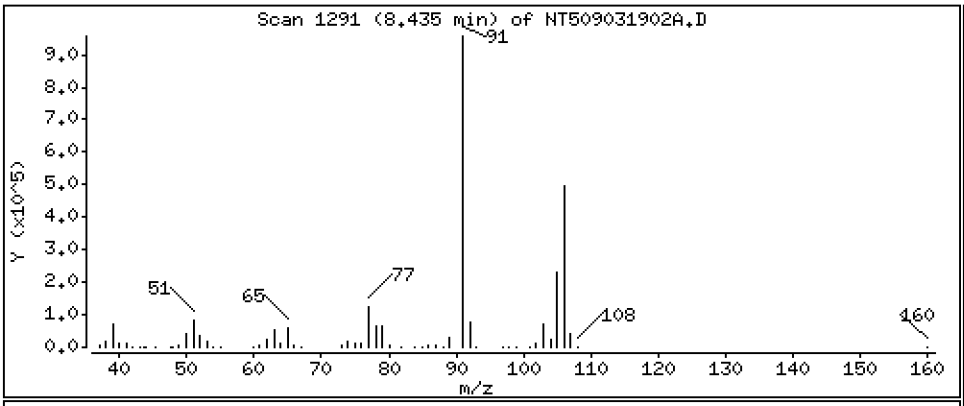
Operator: PB

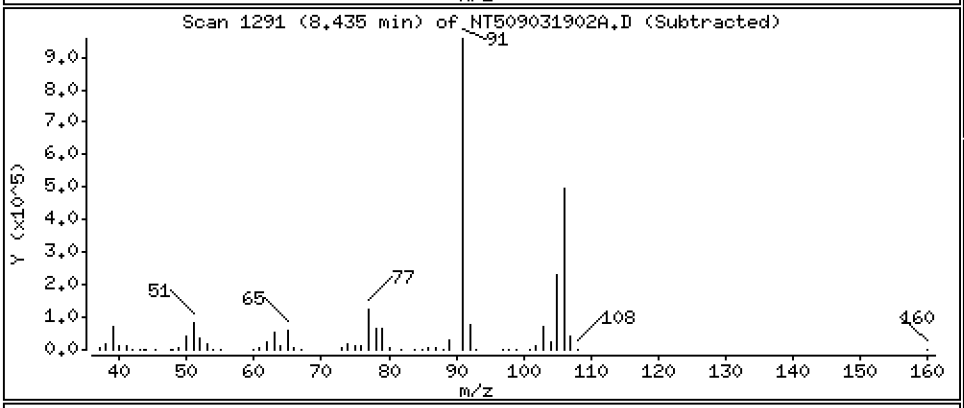
Column phase: RTXVMS

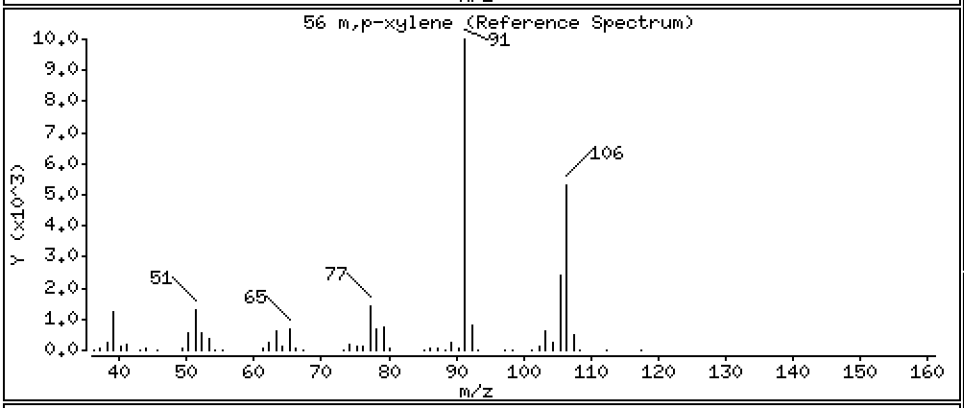
Column diameter: 0.18

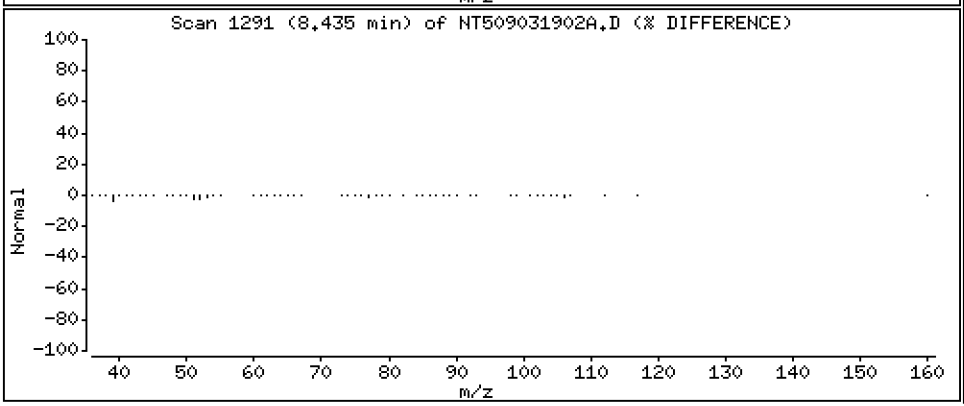
56 m,p-xylene

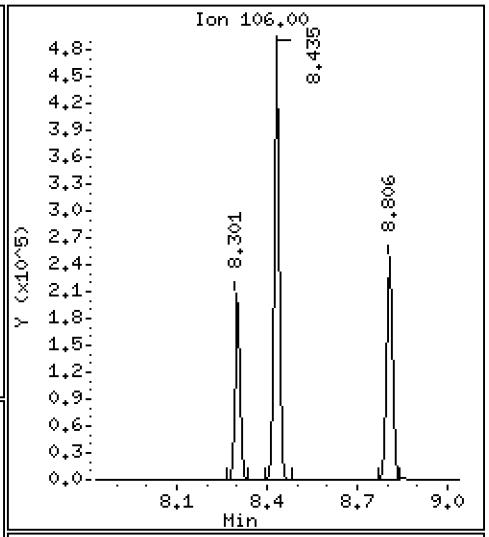
Concentration: 92.564 ug/Kg

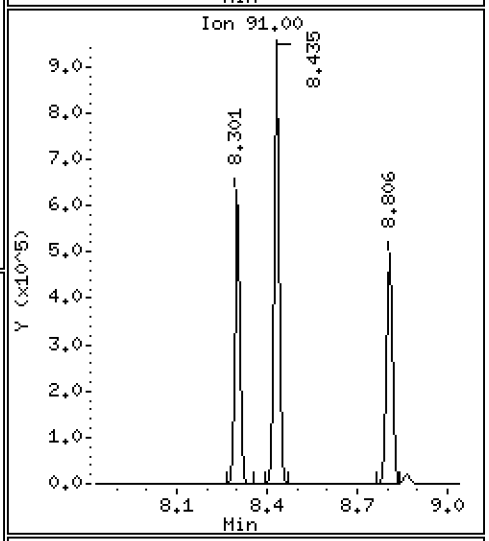


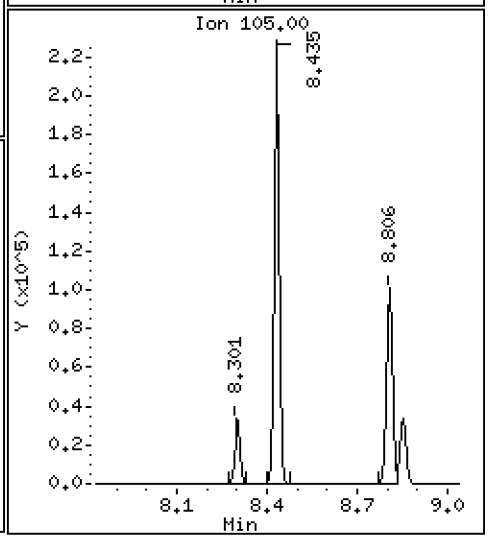












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

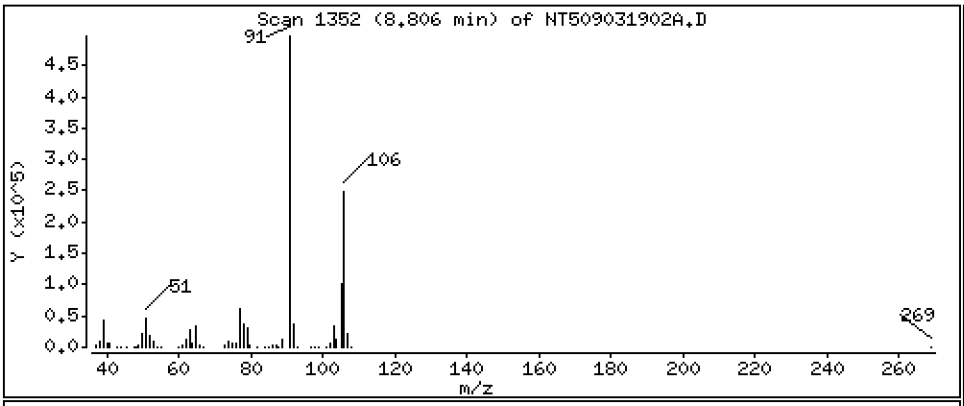
Operator: PB

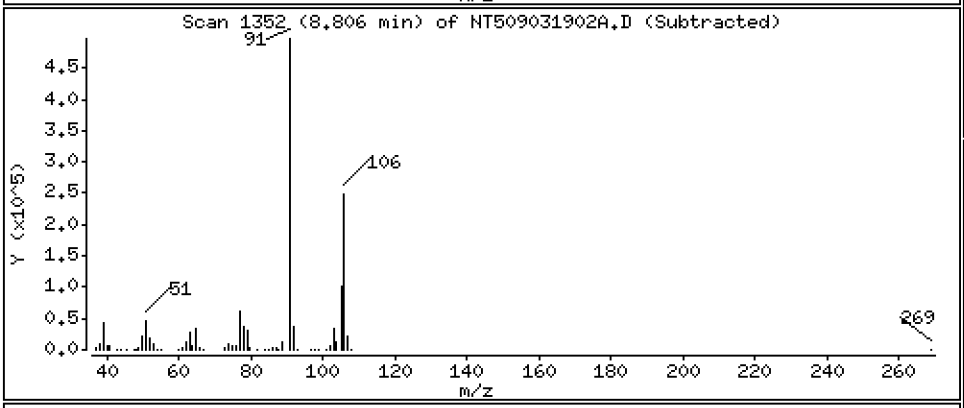
Column phase: RTXVMS

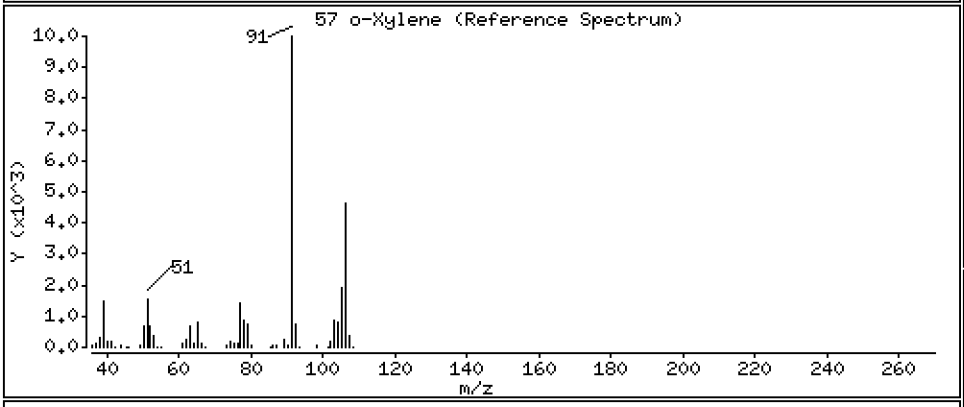
Column diameter: 0.18

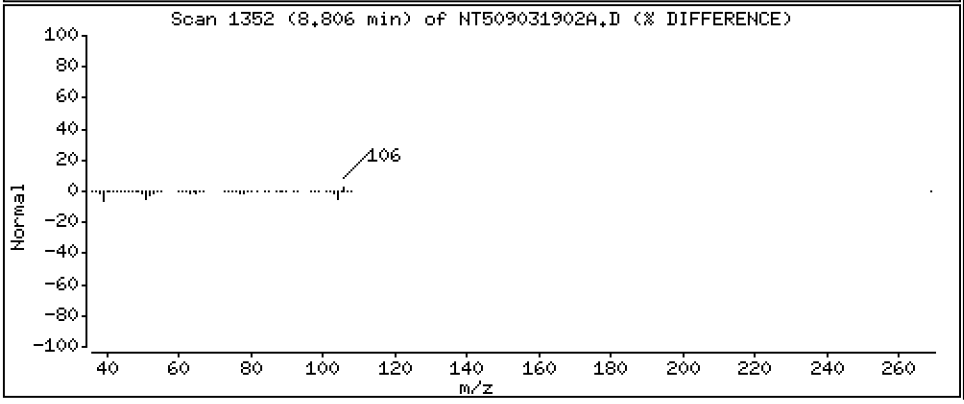
57 o-Xylene

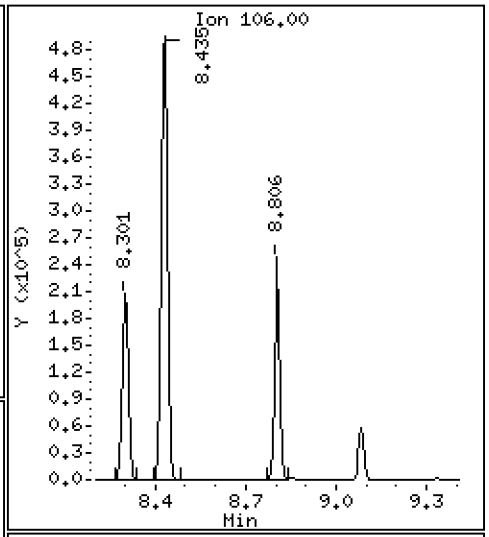
Concentration: 46.692 ug/Kg

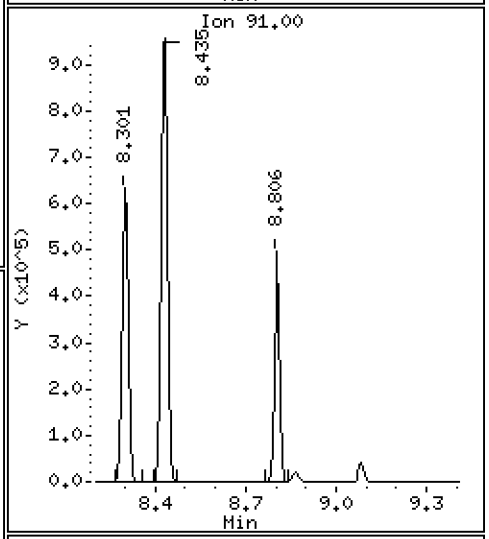


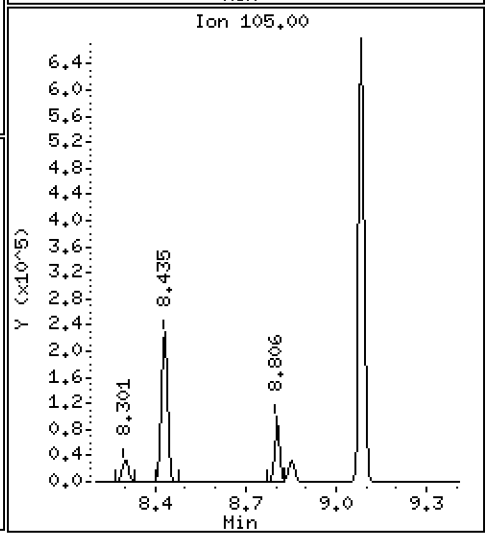












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

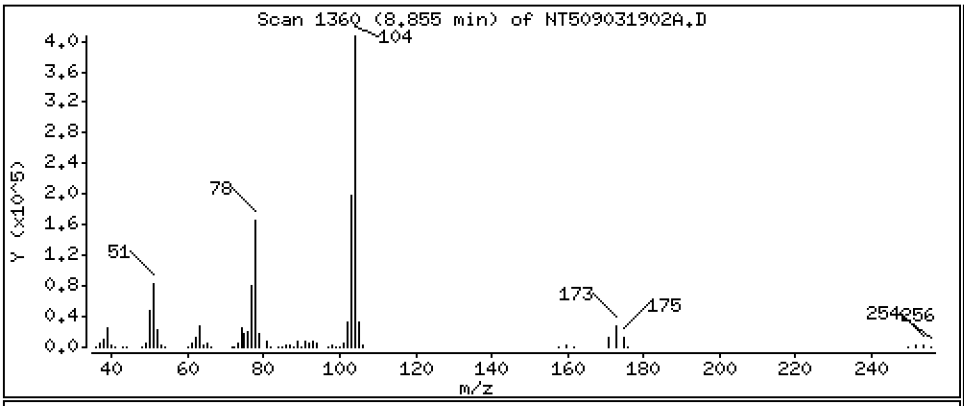
Operator: PB

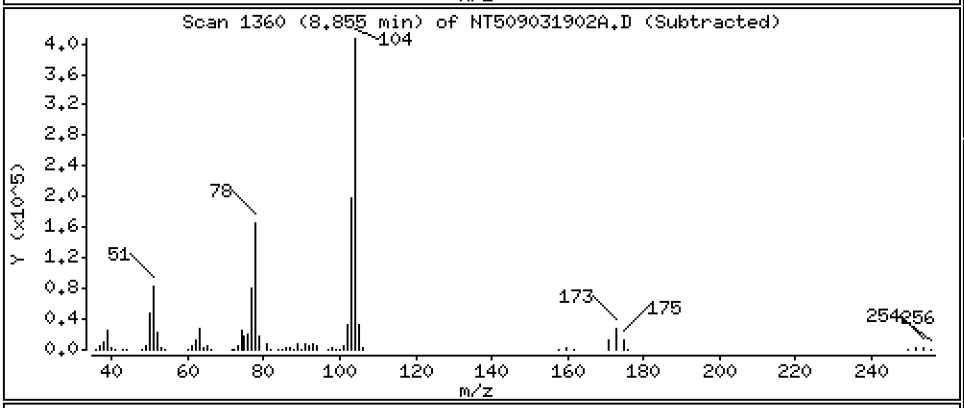
Column phase: RTXVMS

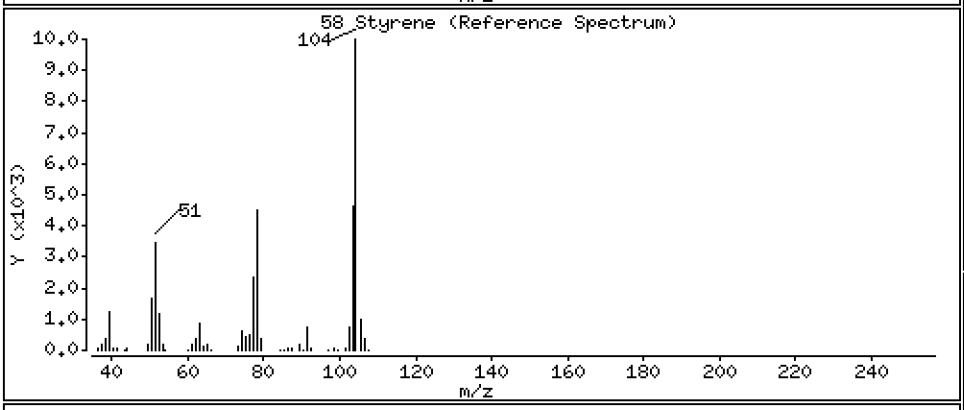
Column diameter: 0.18

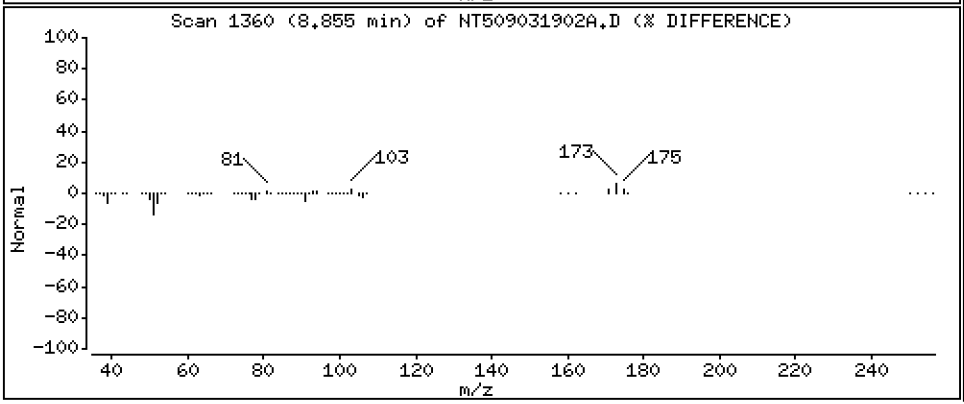
58 Styrene

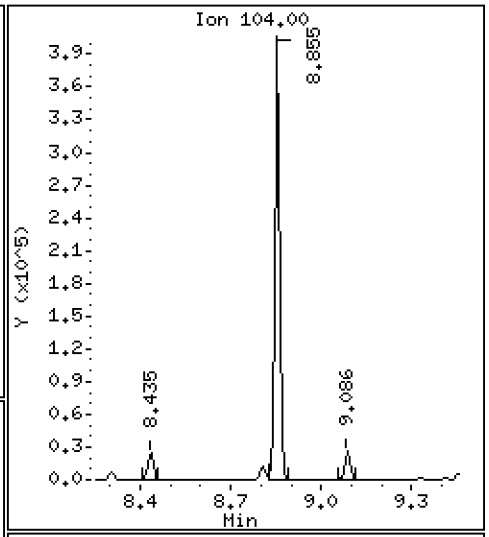
Concentration: 46.345 ug/Kg

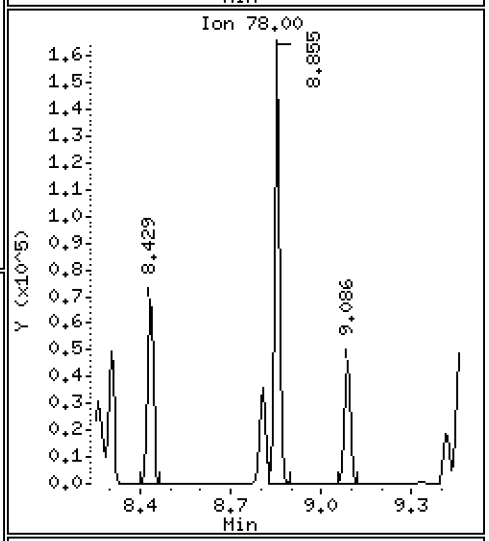


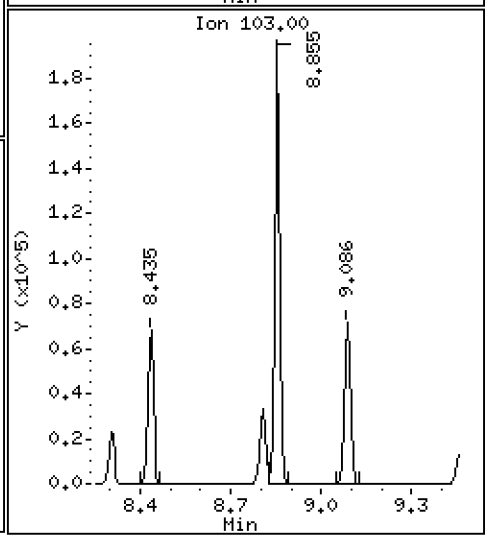












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

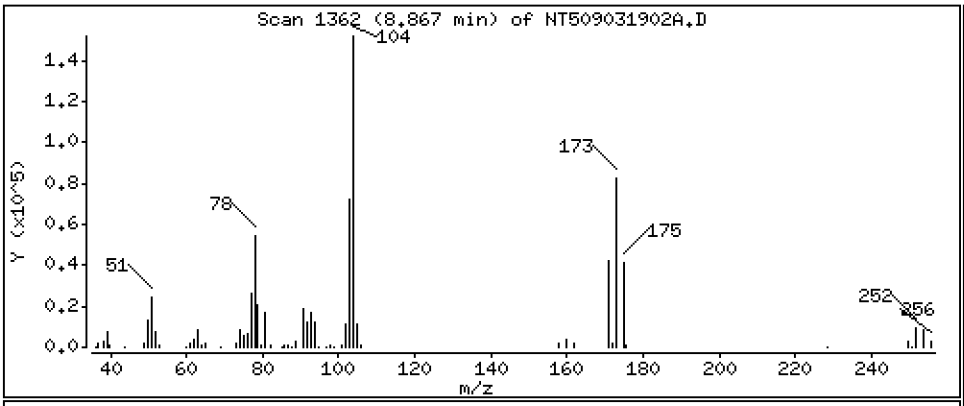
Operator: PB

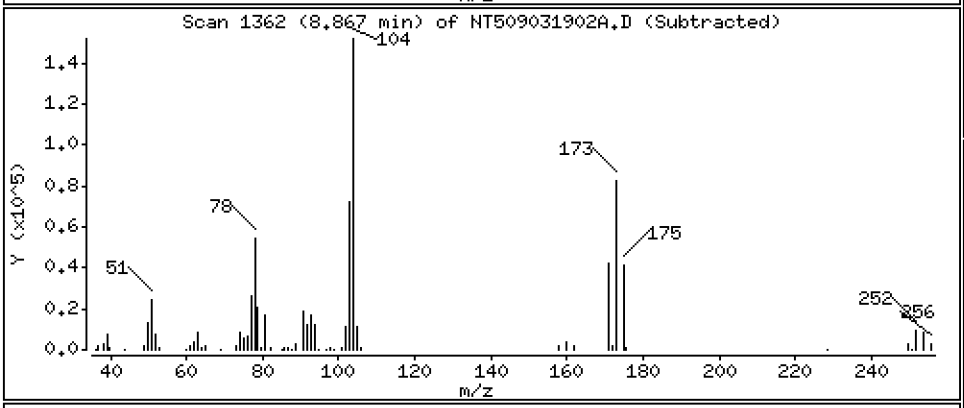
Column phase: RTXVMS

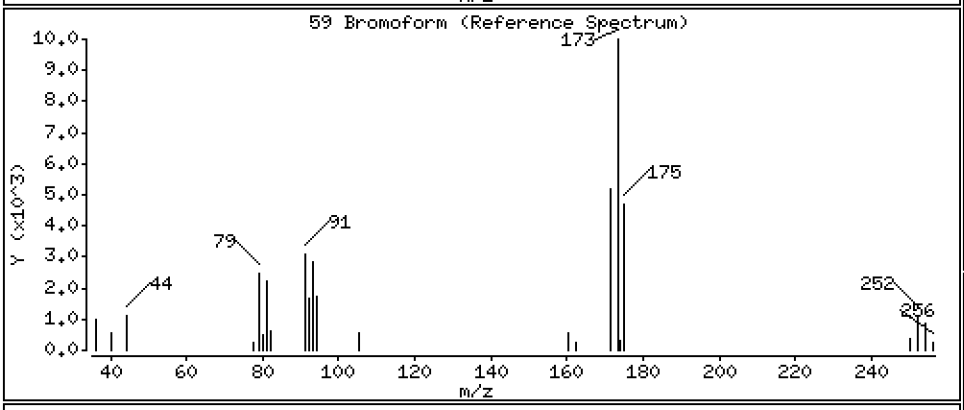
Column diameter: 0.18

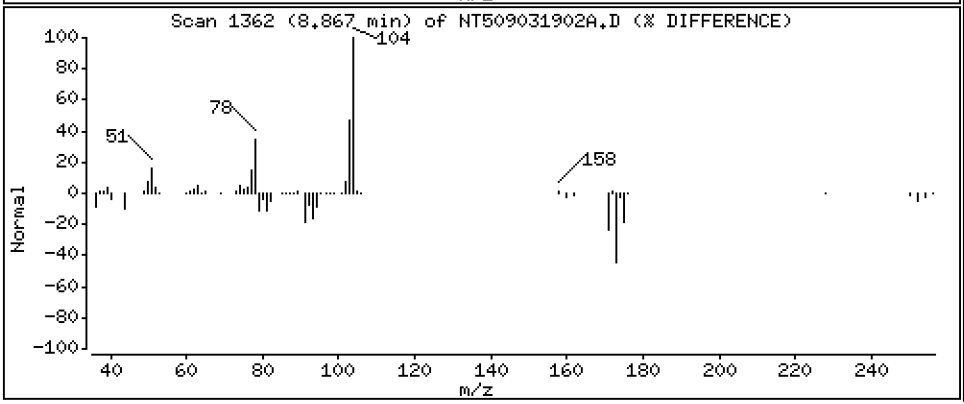
59 Bromoform

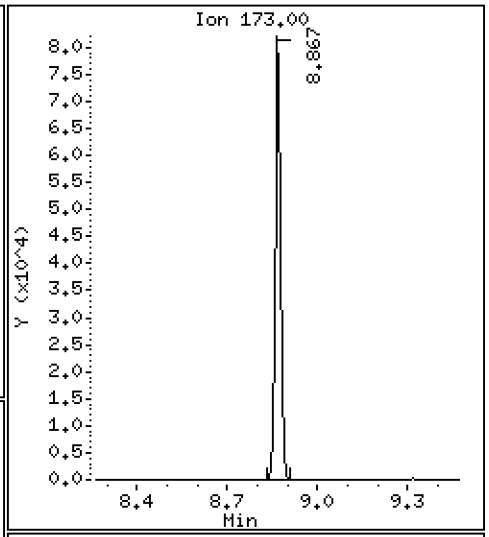
Concentration: 41.344 ug/Kg

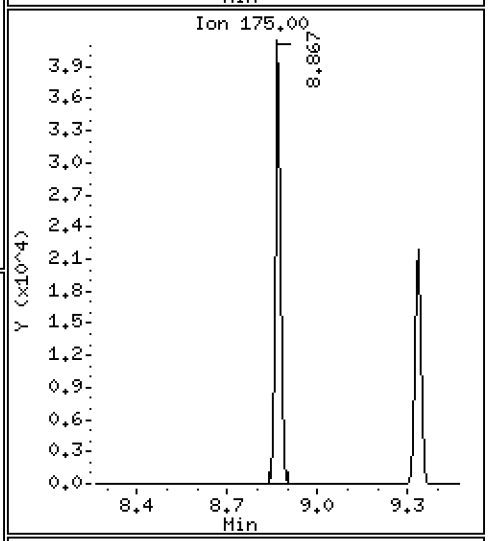


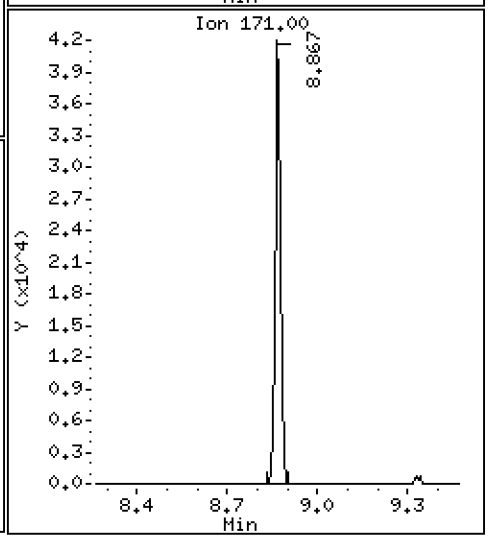












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031902A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

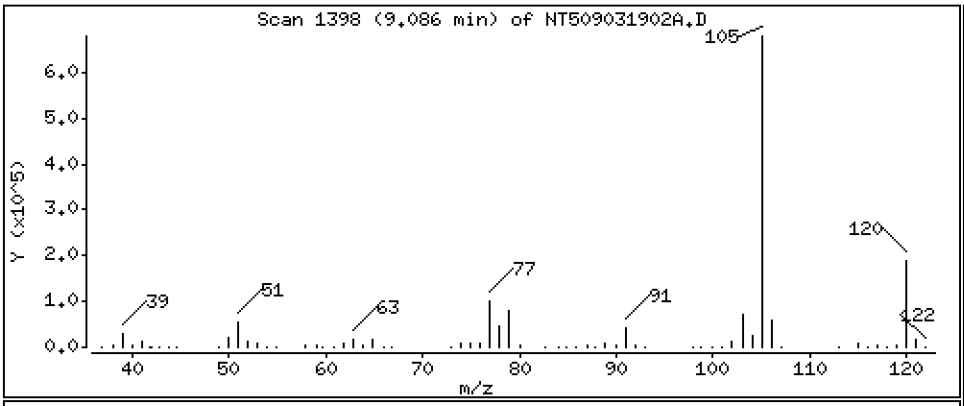
Operator: PB

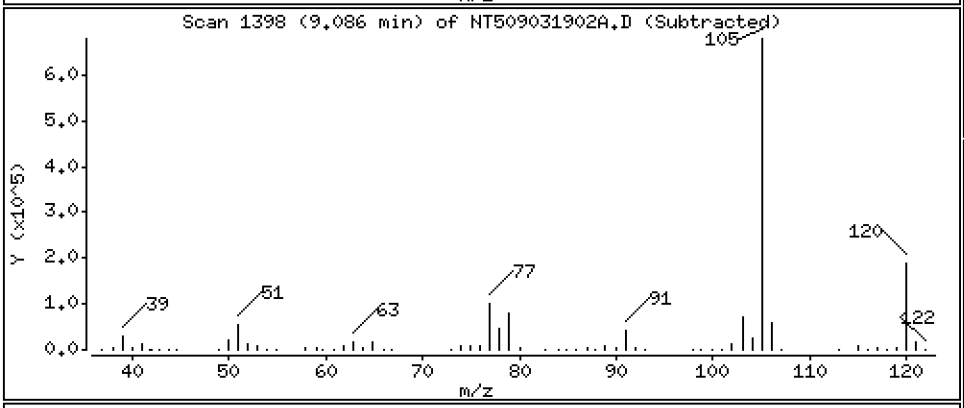
Column phase: RTXVMS

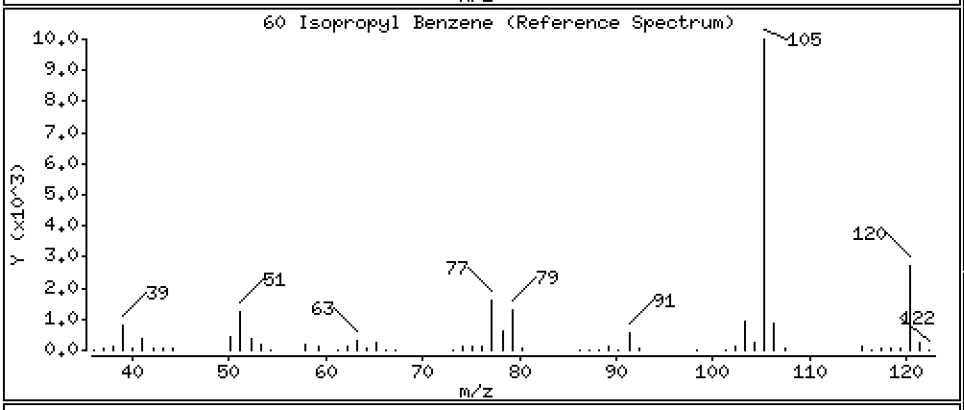
Column diameter: 0.18

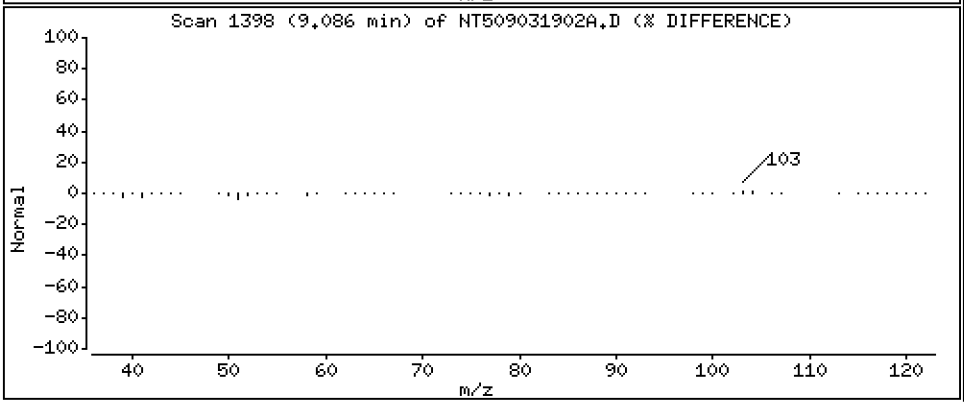
60 Isopropyl Benzene

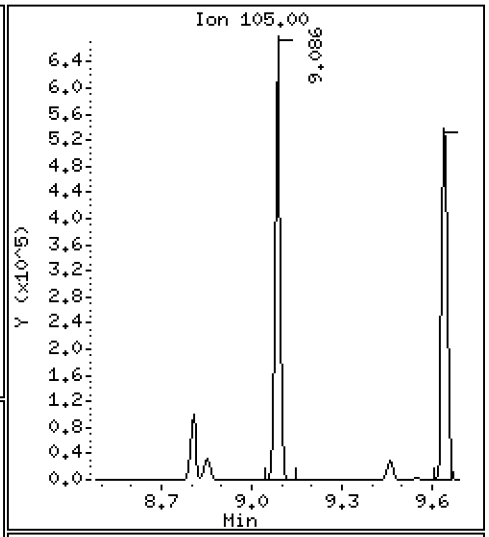
Concentration: 45.883 ug/Kg

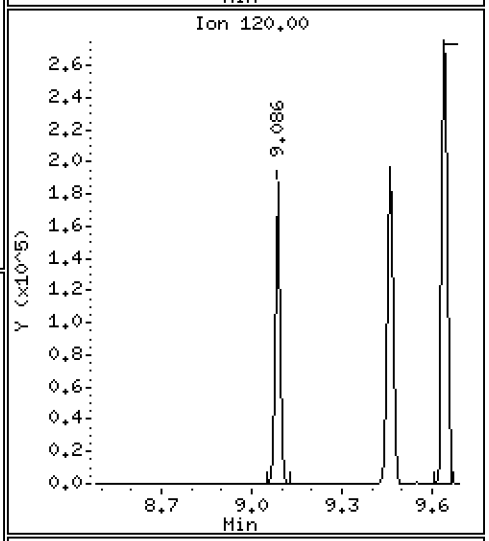


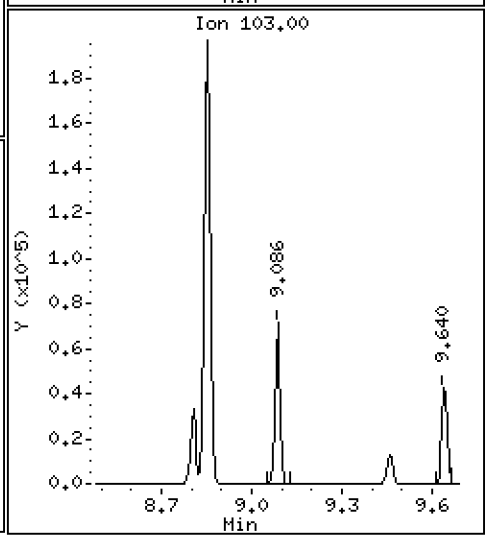












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

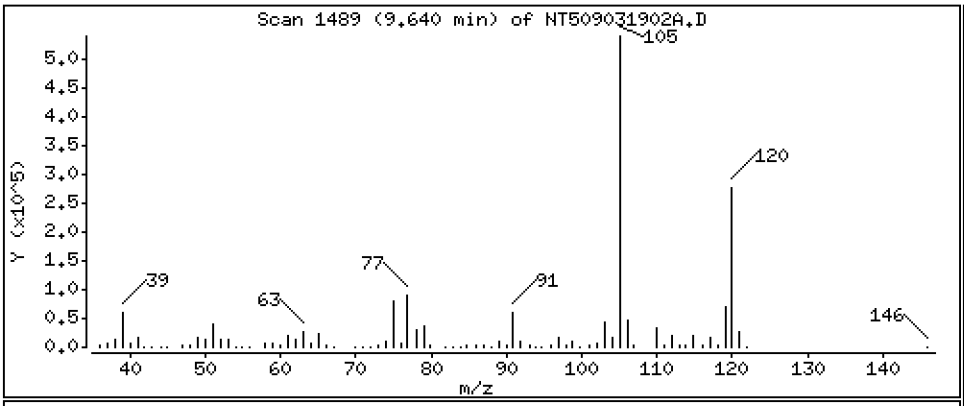
Sample Info: ICV1

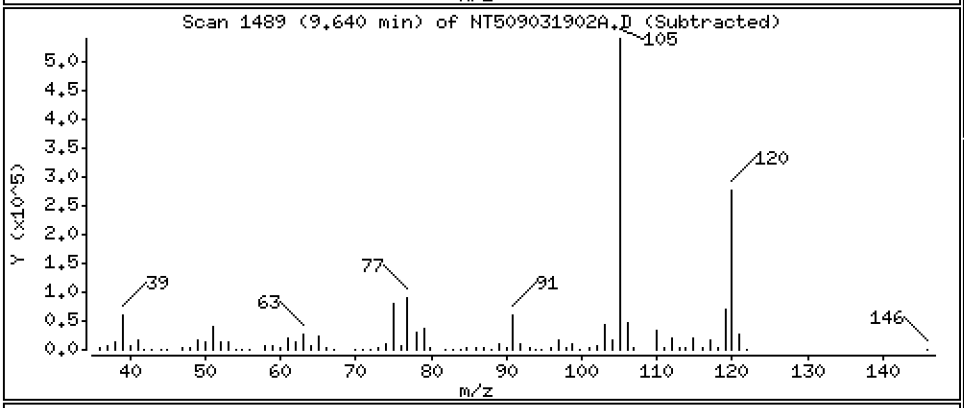
Operator: PB

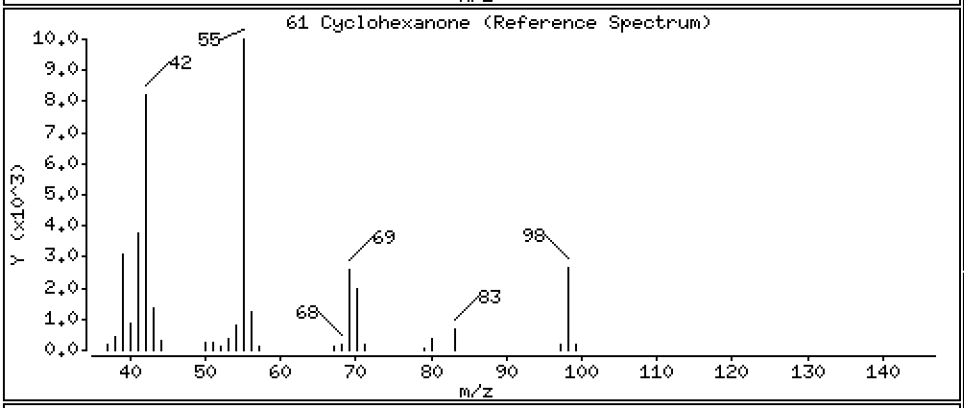
Column phase: RTXVMS

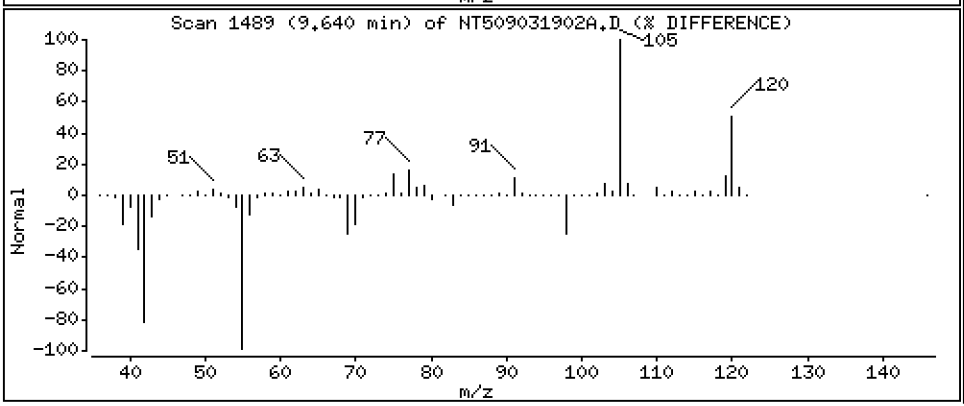
Column diameter: 0.18

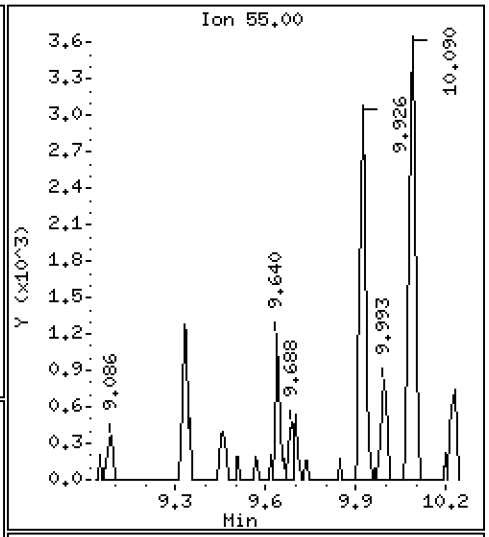
61 Cyclohexanone

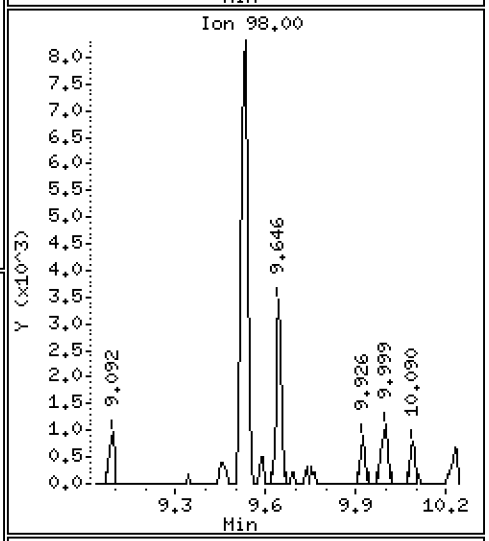


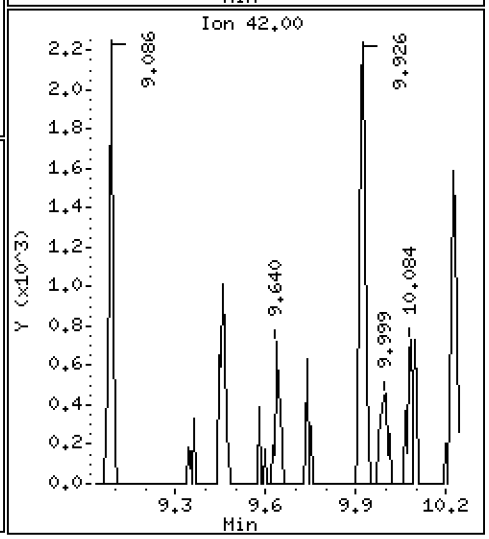












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

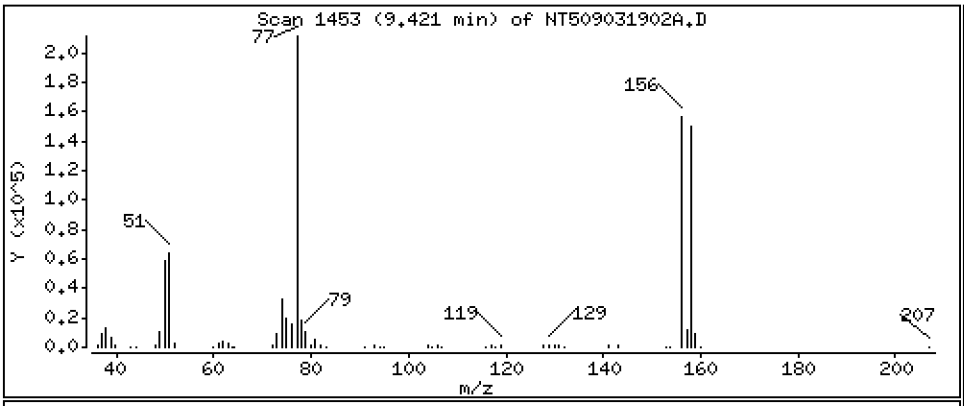
Operator: PB

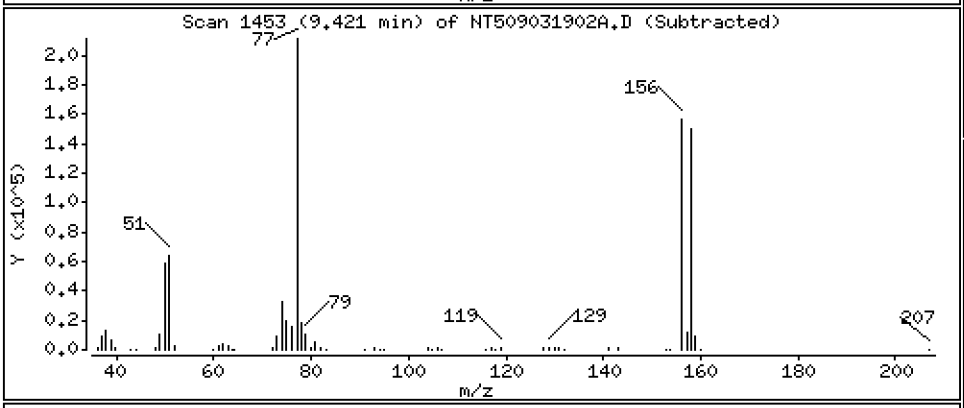
Column phase: RTXVMS

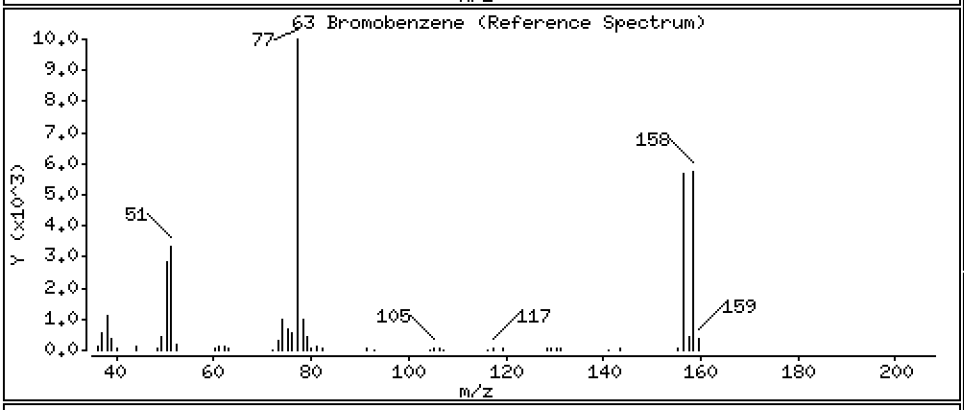
Column diameter: 0.18

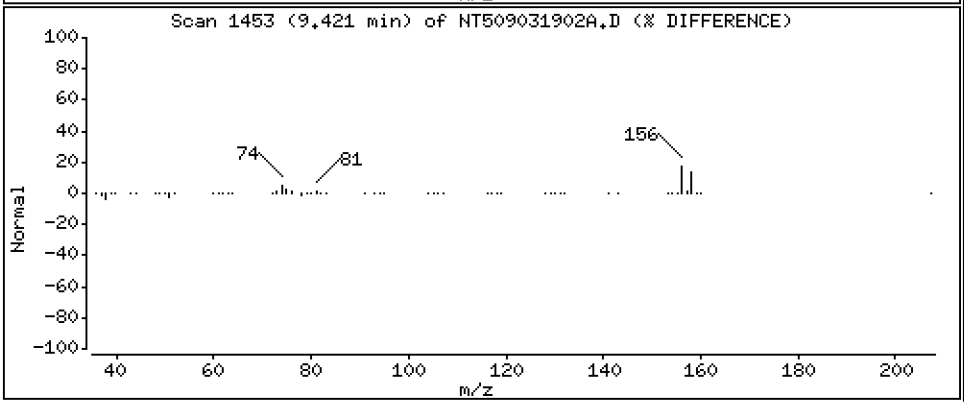
63 Bromobenzene

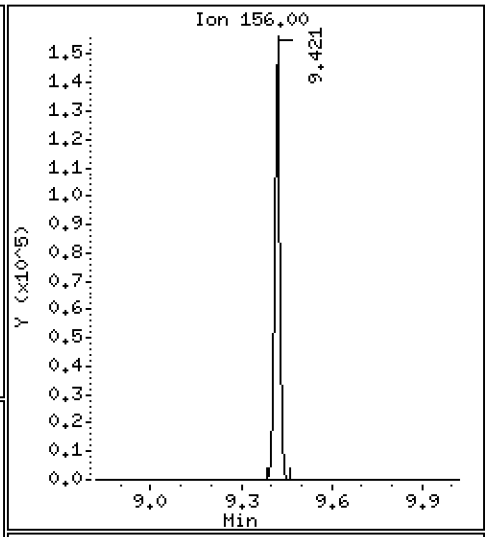
Concentration: 42.982 ug/Kg

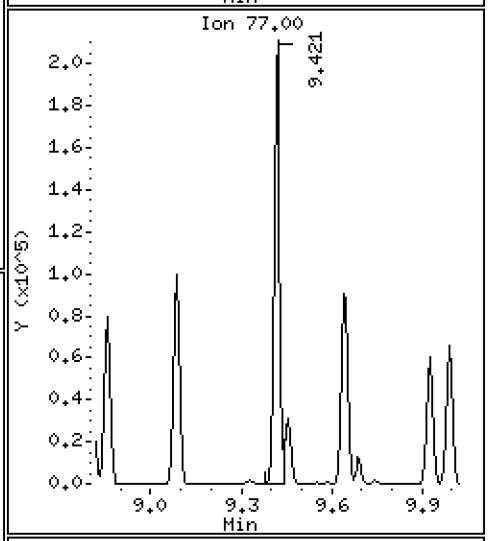


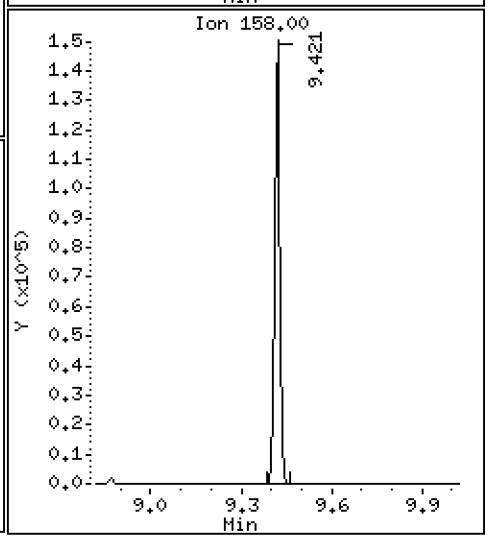












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

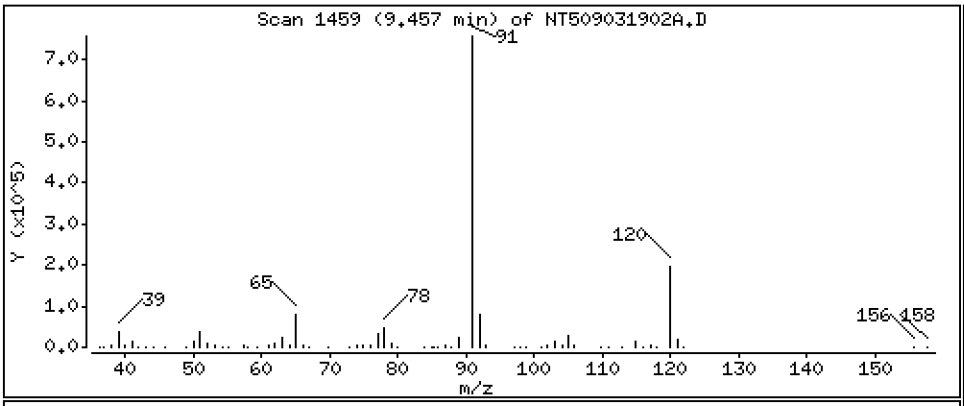
Operator: PB

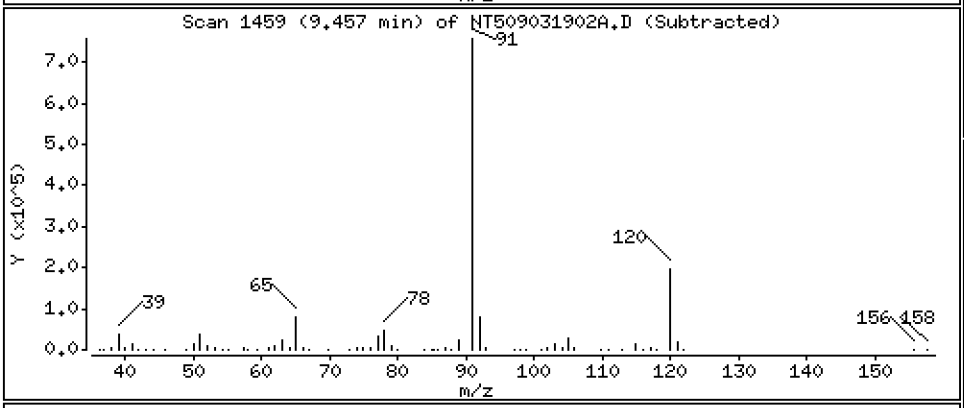
Column phase: RTXVMS

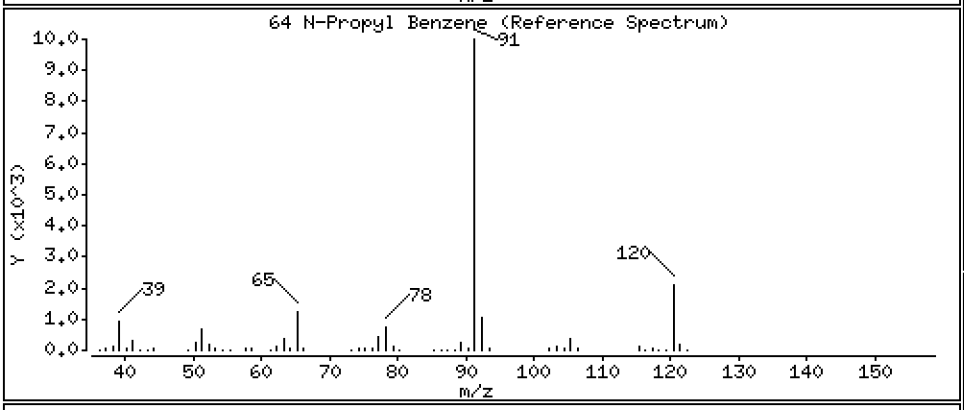
Column diameter: 0.18

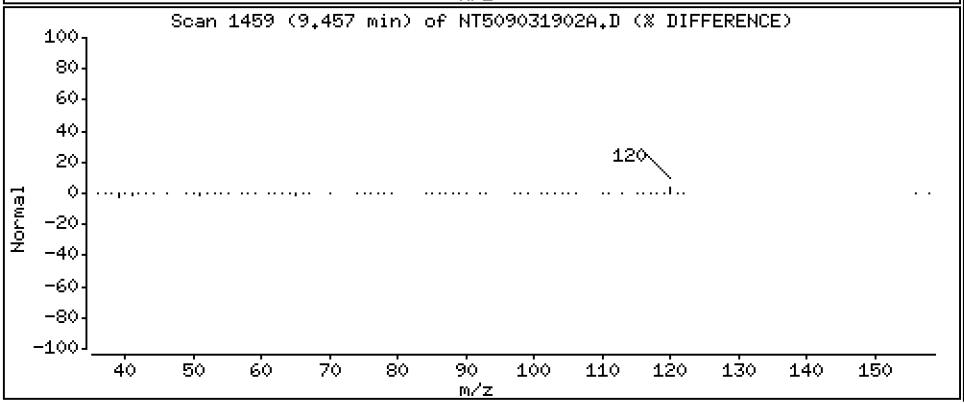
64 N-Propyl Benzene

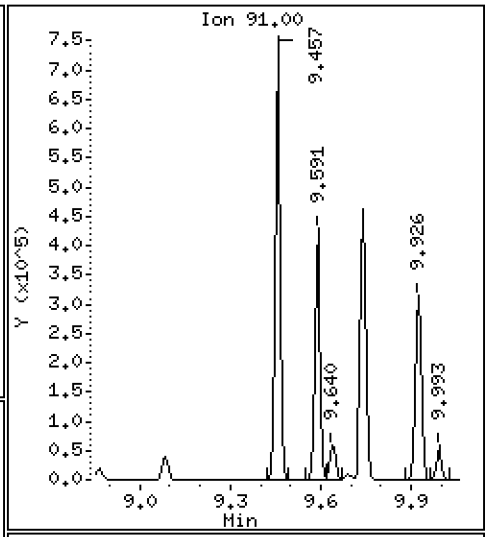
Concentration: 44.458 ug/Kg

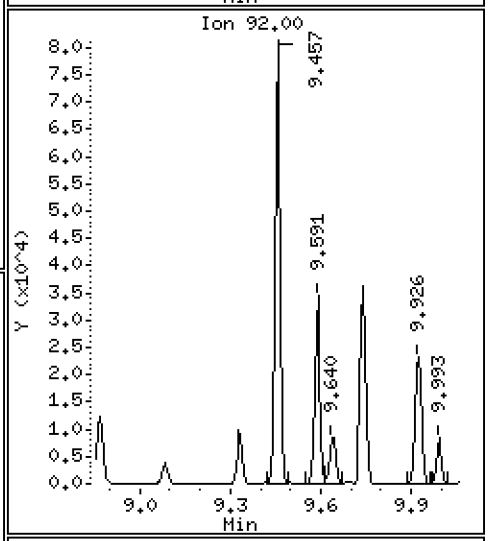


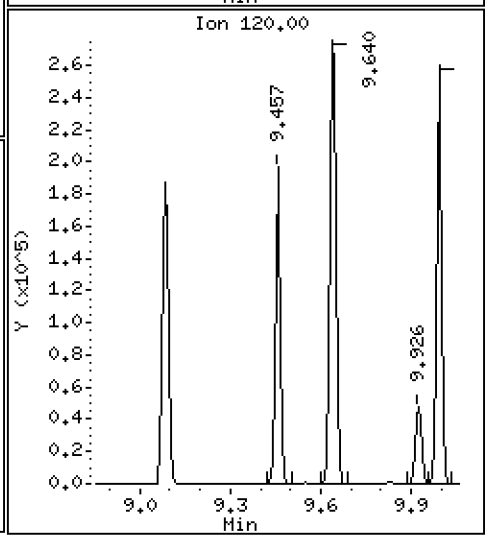












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

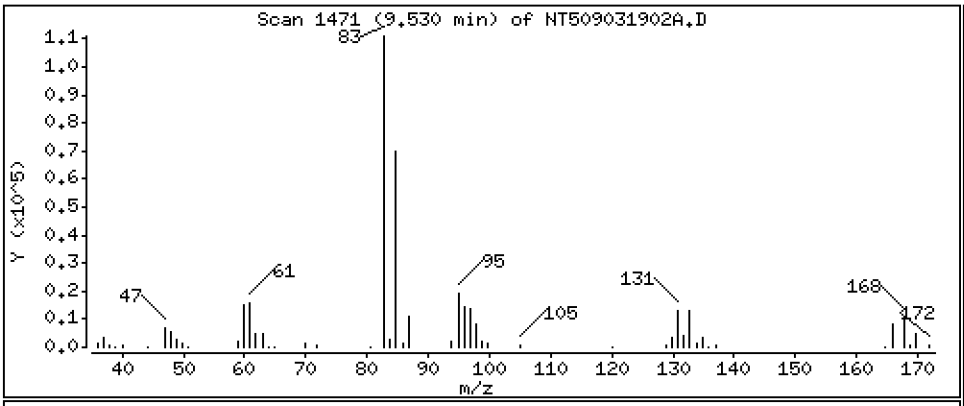
Operator: PB

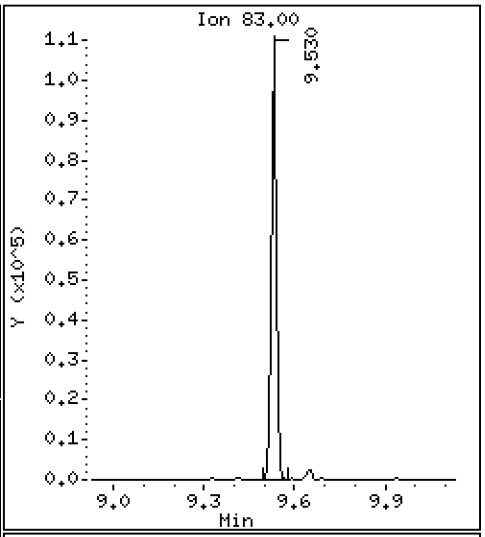
Column phase: RTXVMS

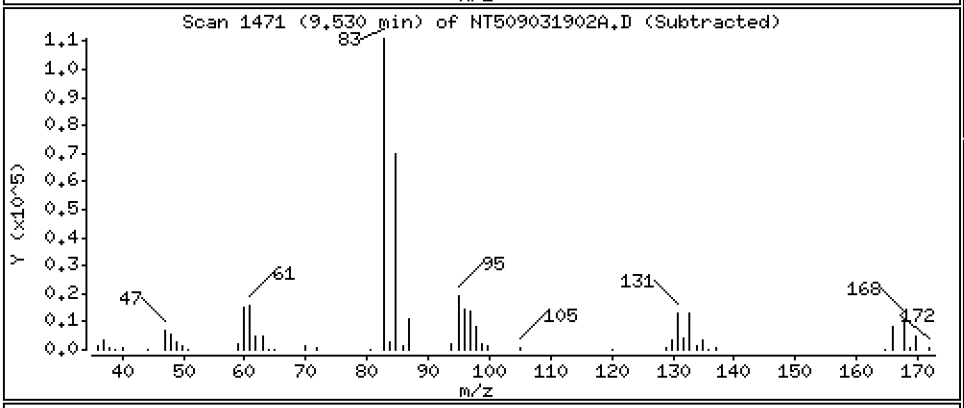
Column diameter: 0.18

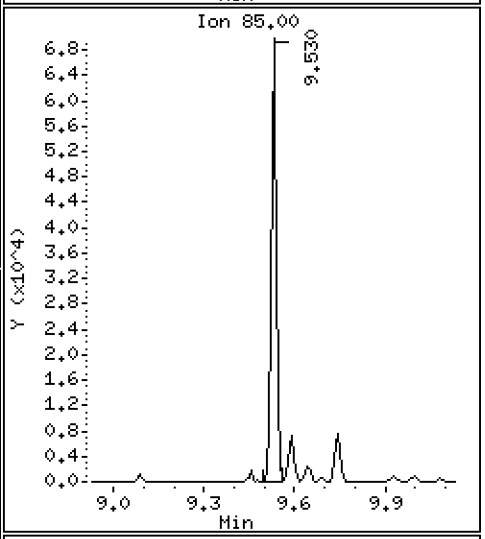
65 1,1,2,2-Tetrachloroethane

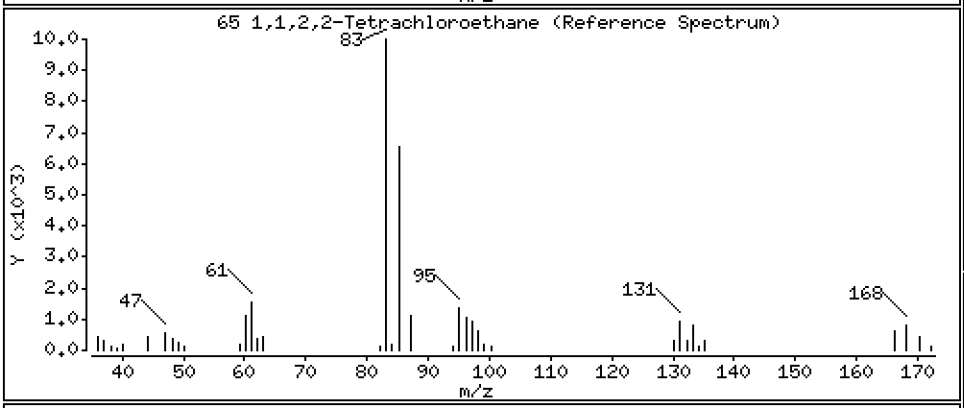
Concentration: 43.551 ug/Kg

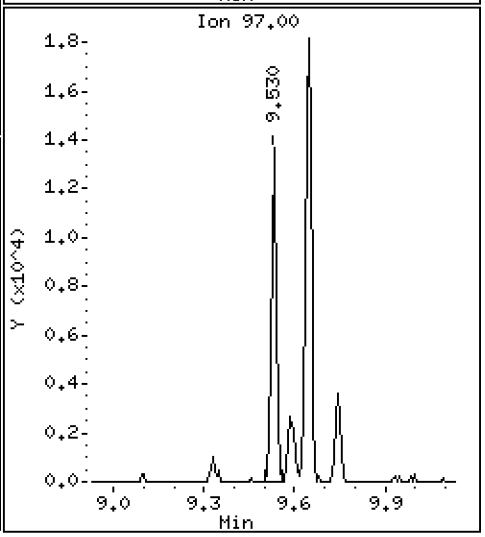


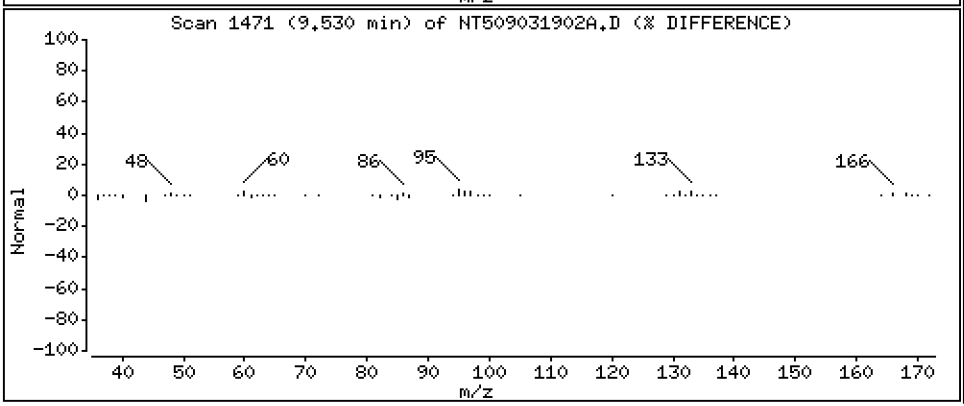












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

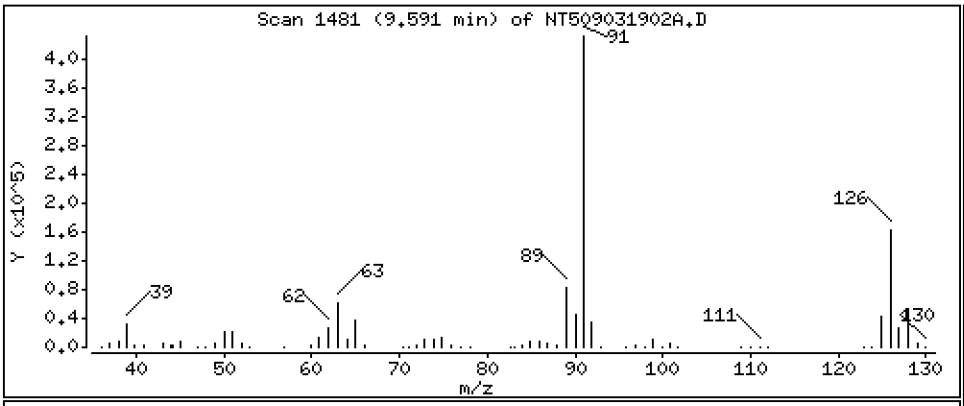
Operator: PB

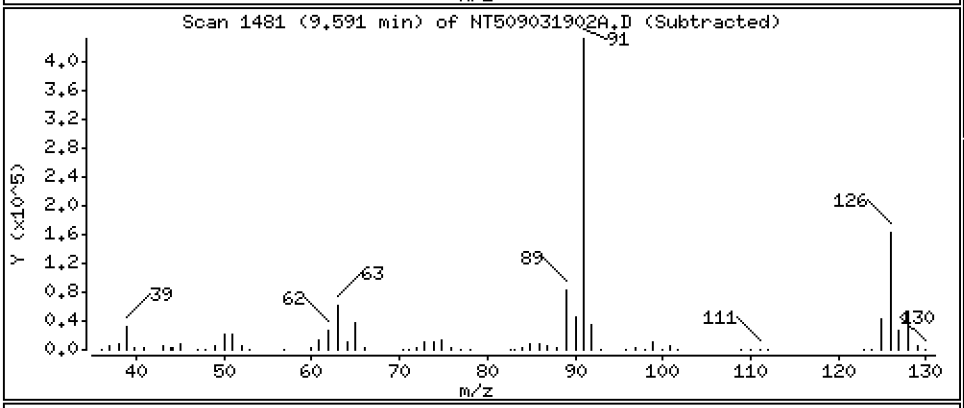
Column phase: RTXVMS

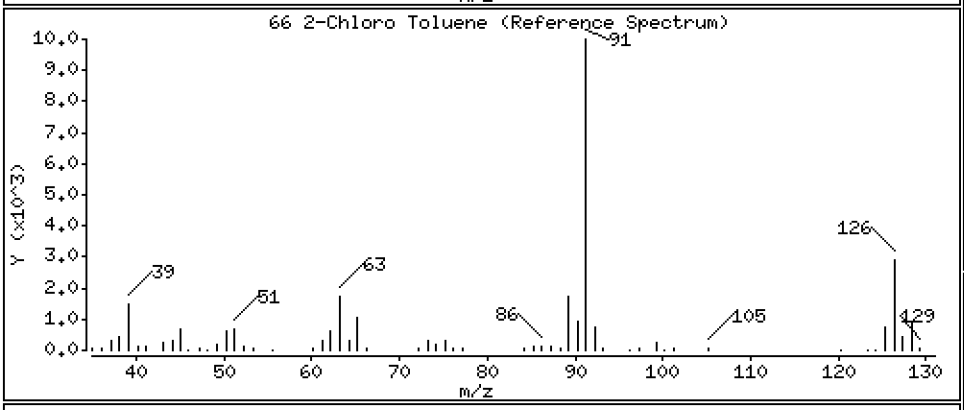
Column diameter: 0.18

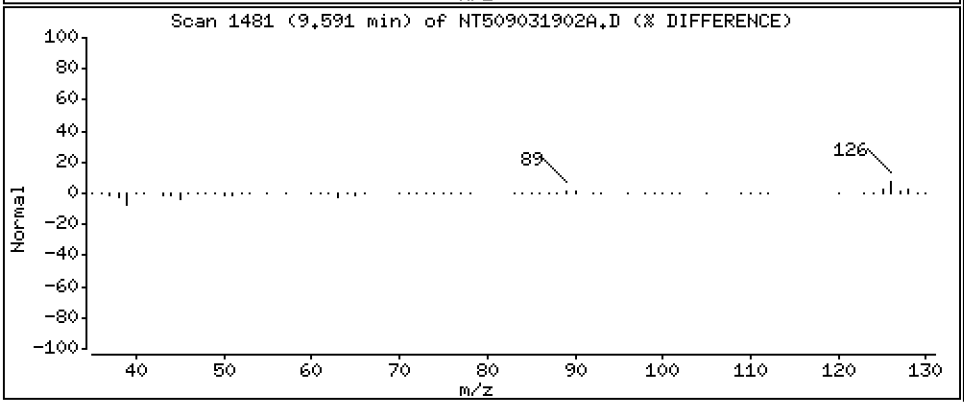
66 2-Chloro Toluene

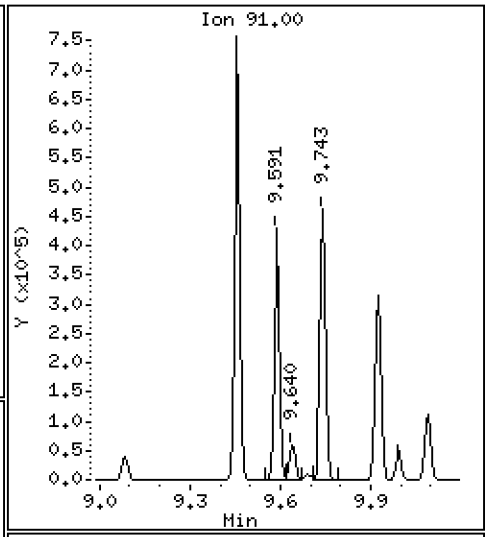
Concentration: 44.832 ug/Kg

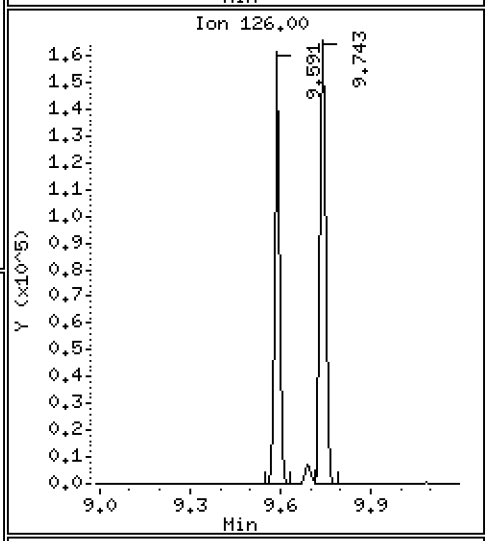


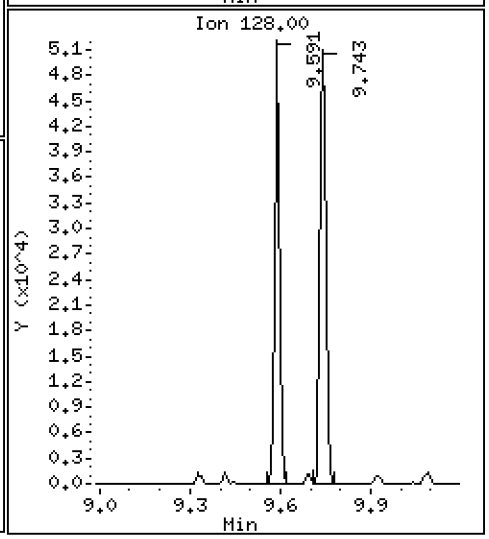












Date : 03-SEP-2019 12:38

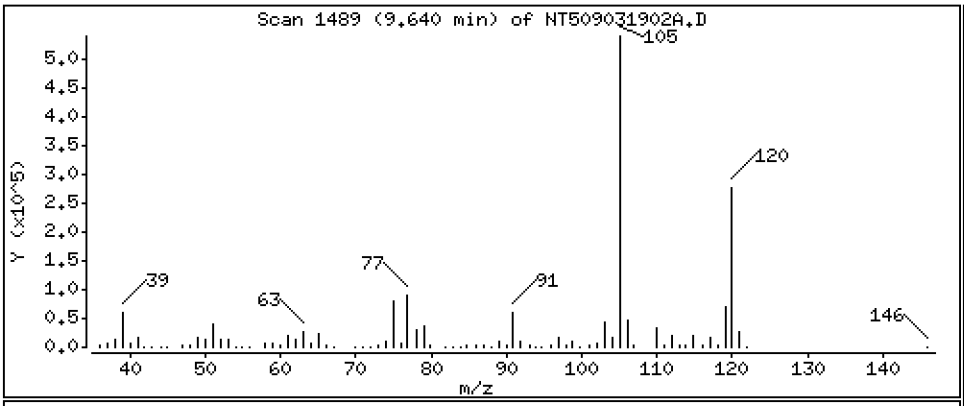
Client ID: Instrument: nt5.i

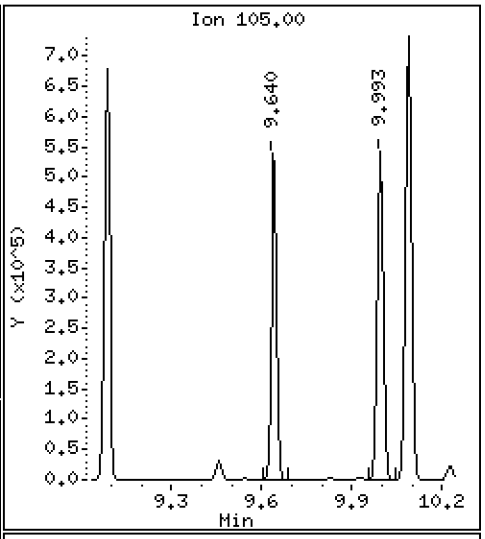
Sample Info: ICV1

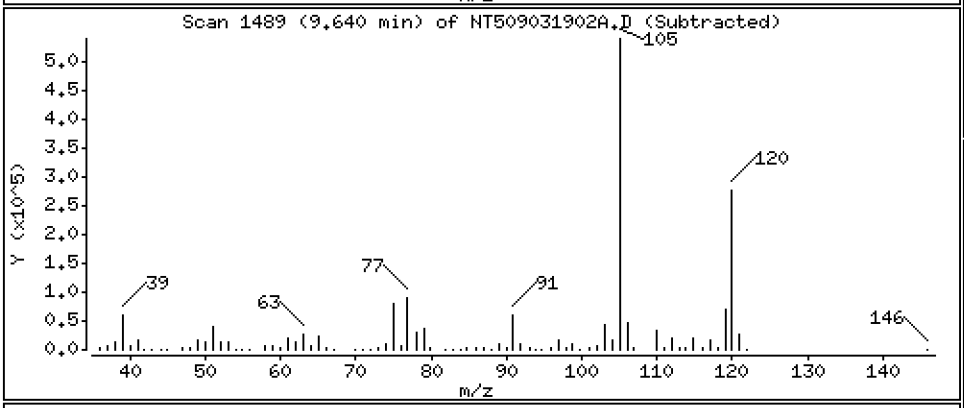
Operator: PB

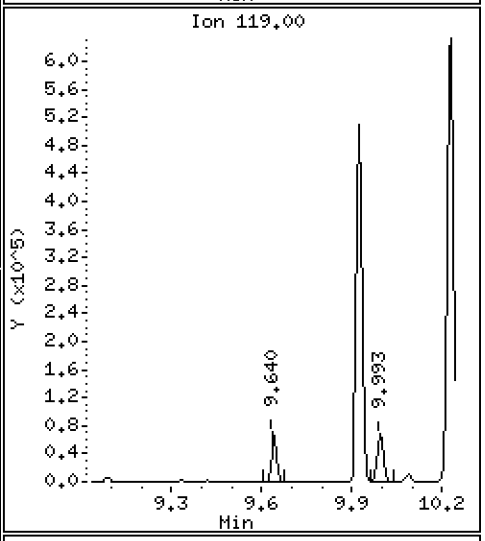
Column phase: RTXVMS Column diameter: 0.18

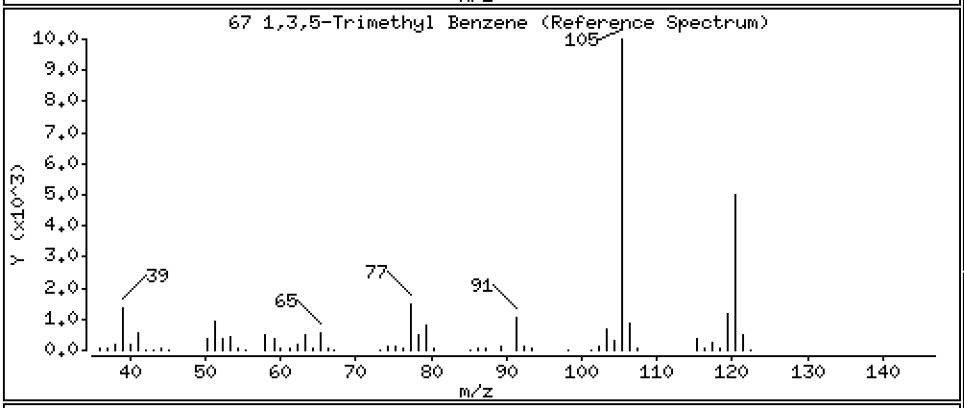
67 1,3,5-Trimethyl Benzene Concentration: 45.573 ug/Kg

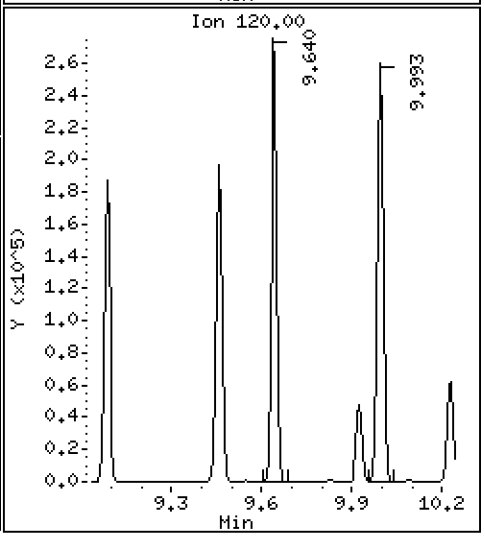


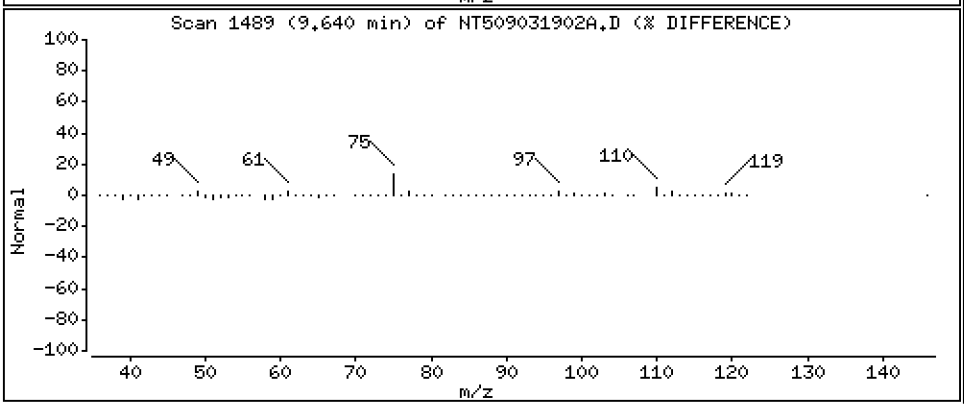












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

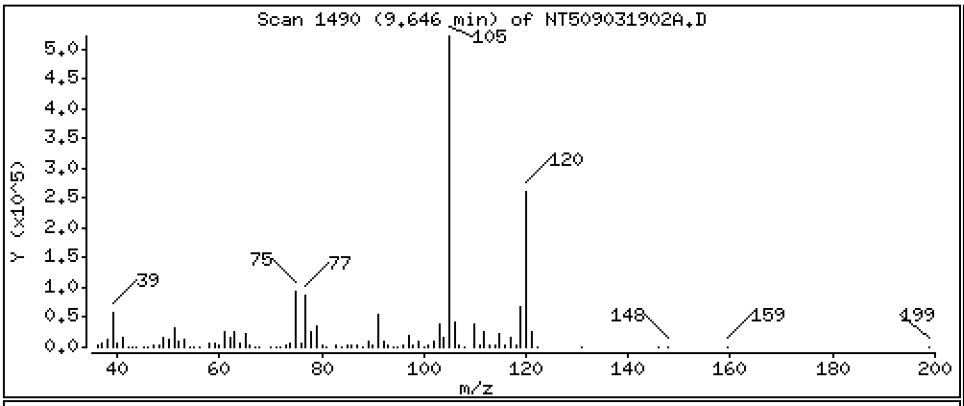
Operator: PB

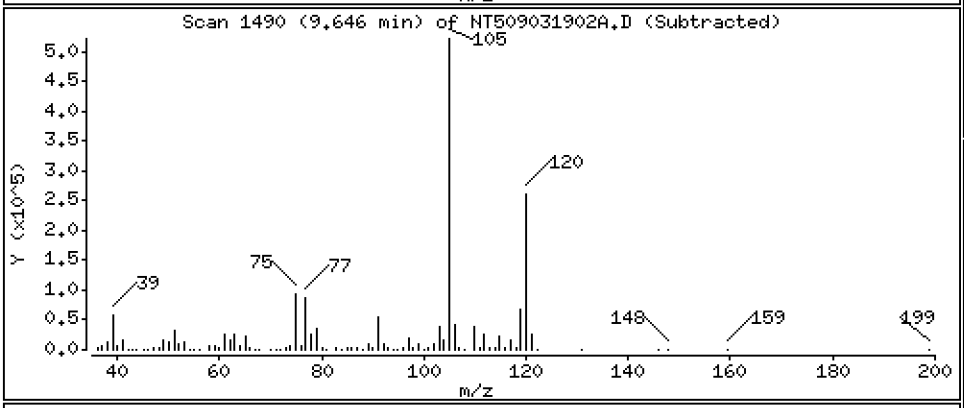
Column phase: RTXVMS

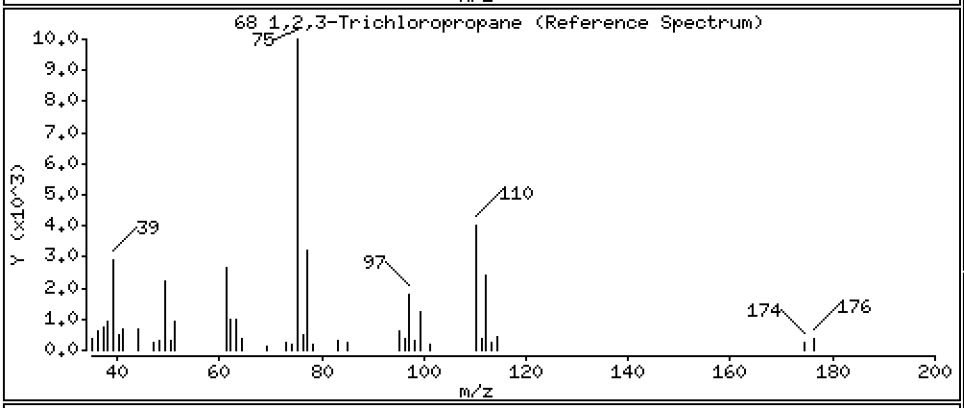
Column diameter: 0.18

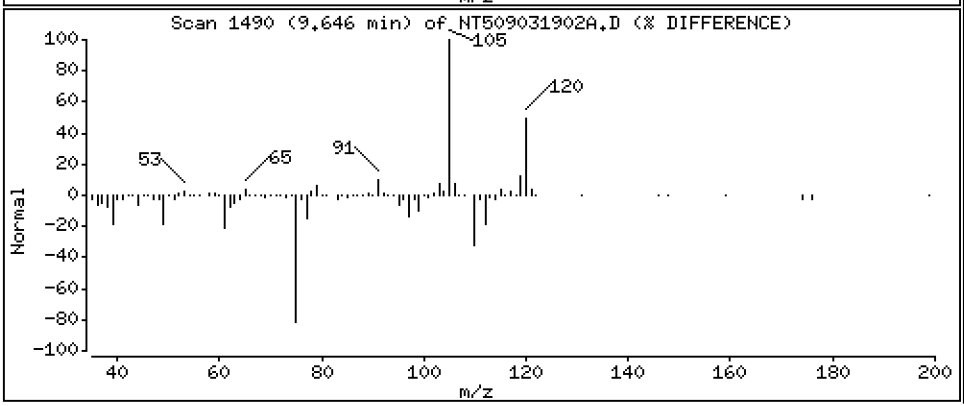
68 1,2,3-Trichloropropane

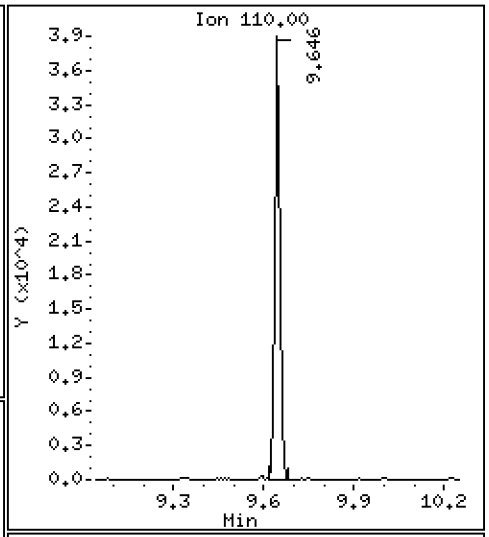
Concentration: 43.436 ug/Kg

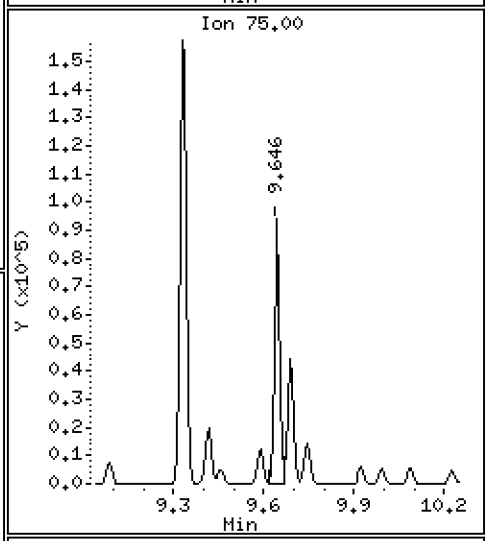


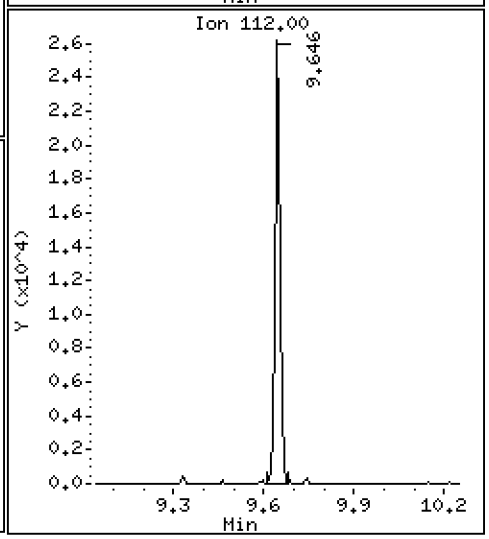












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

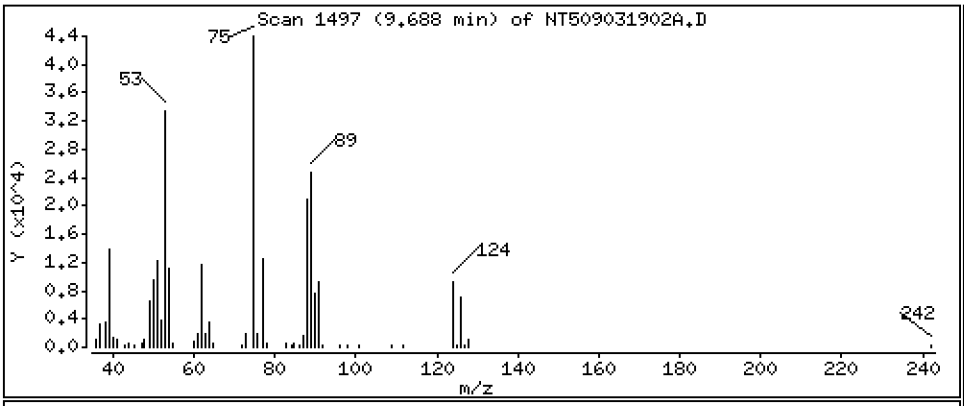
Operator: PB

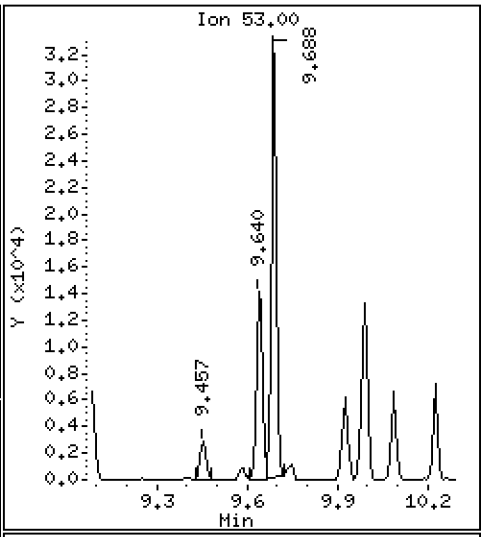
Column phase: RTXVMS

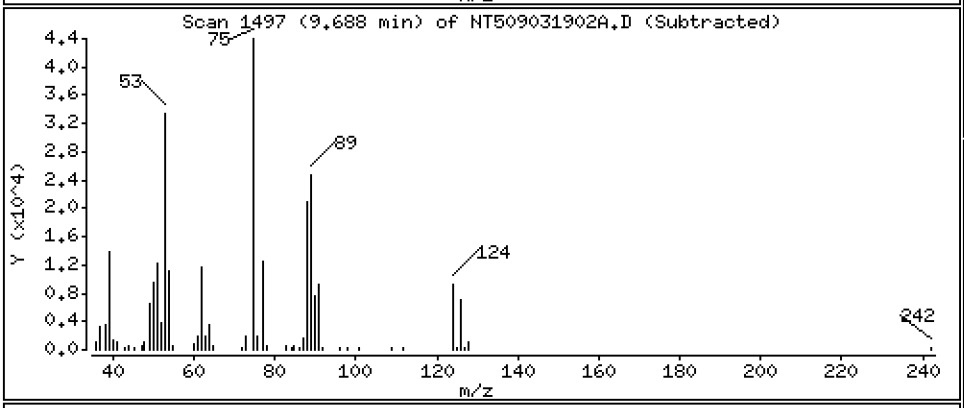
Column diameter: 0.18

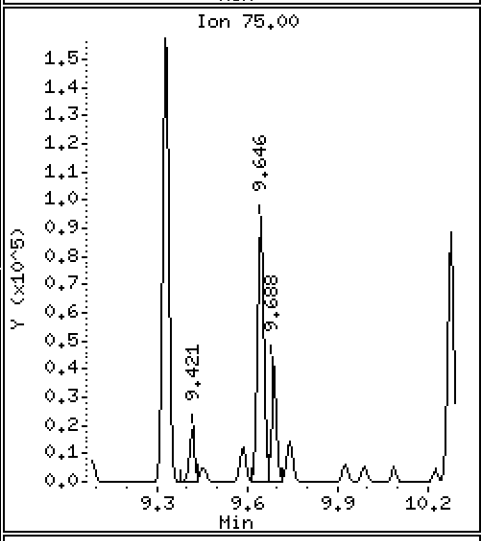
69 Trans-1,4-Dichloro 2-Butene

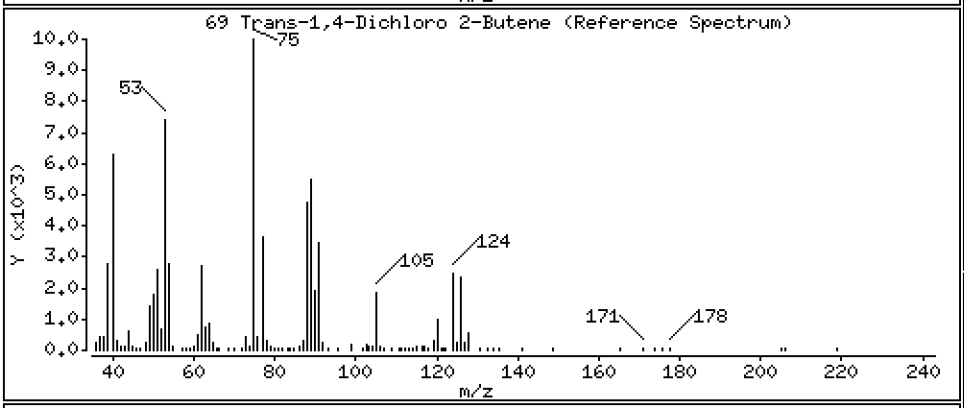
Concentration: 42.879 ug/Kg

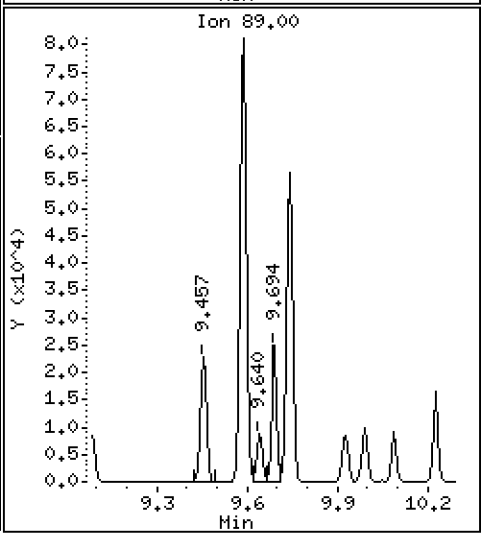


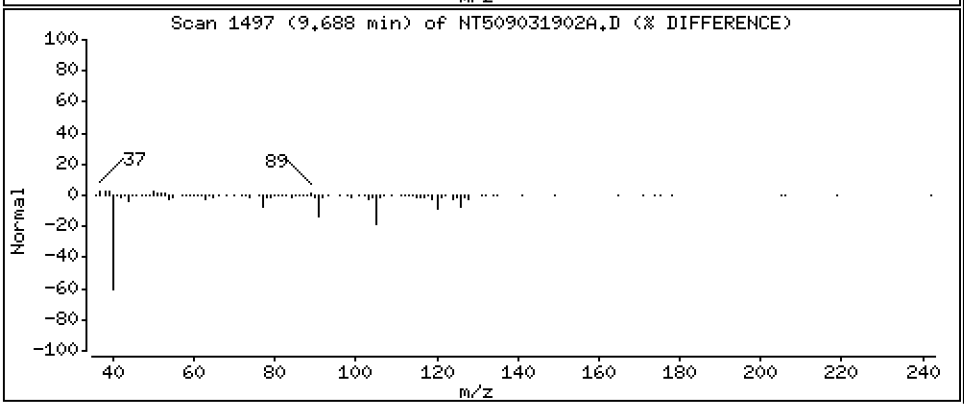












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

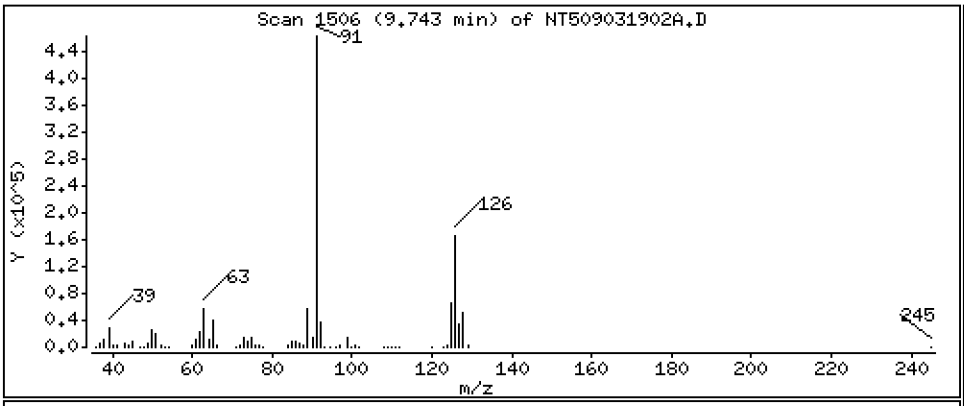
Operator: PB

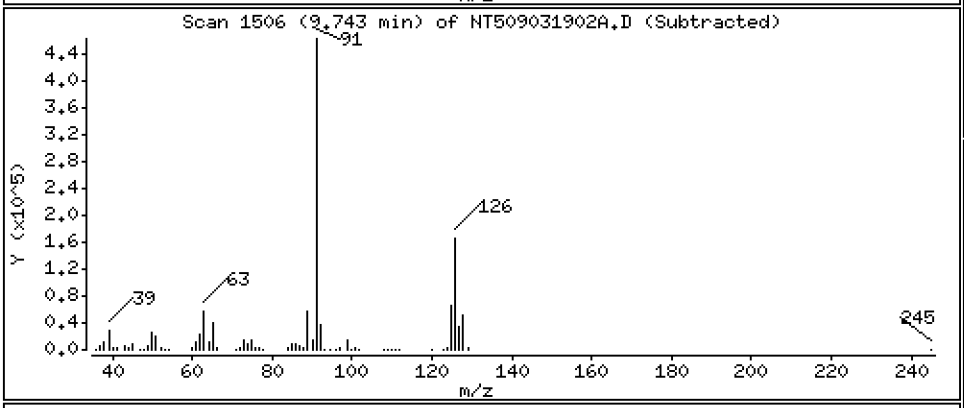
Column phase: RTXVMS

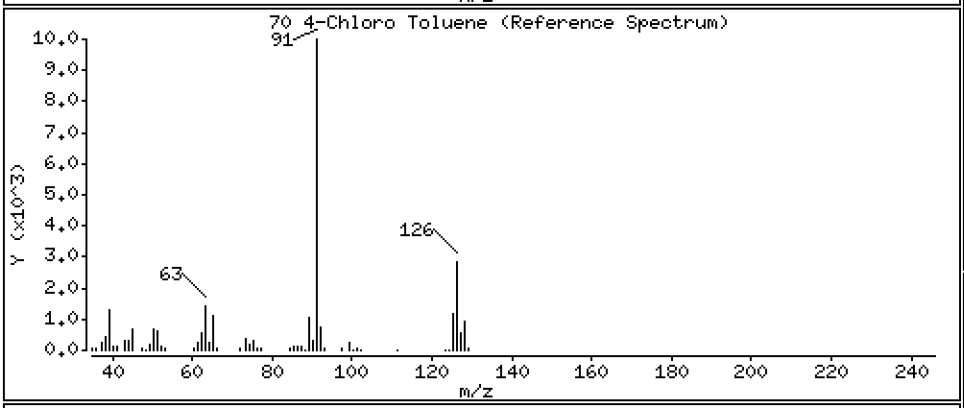
Column diameter: 0.18

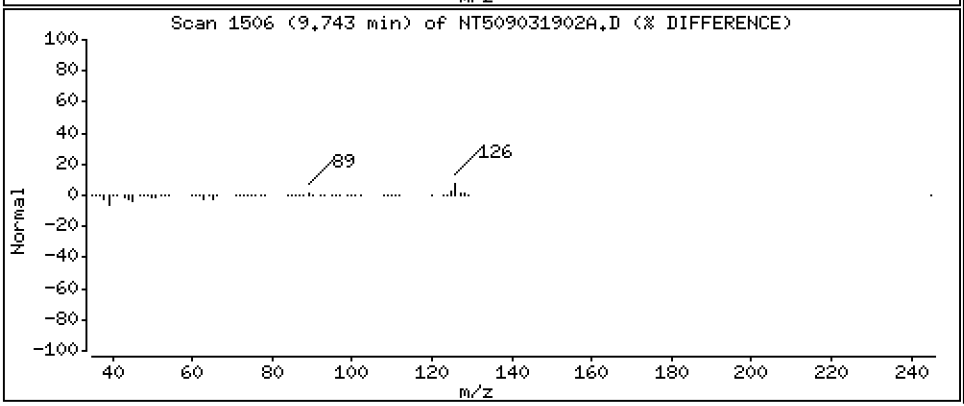
70 4-Chloro Toluene

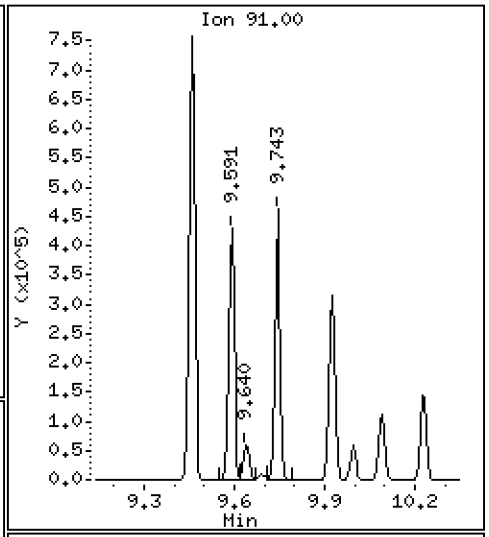
Concentration: 44.190 ug/Kg

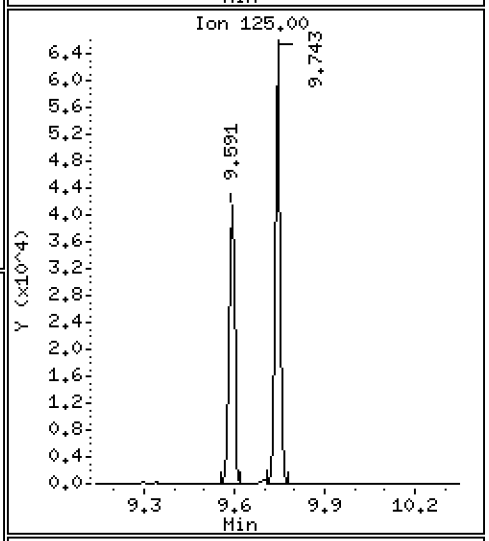


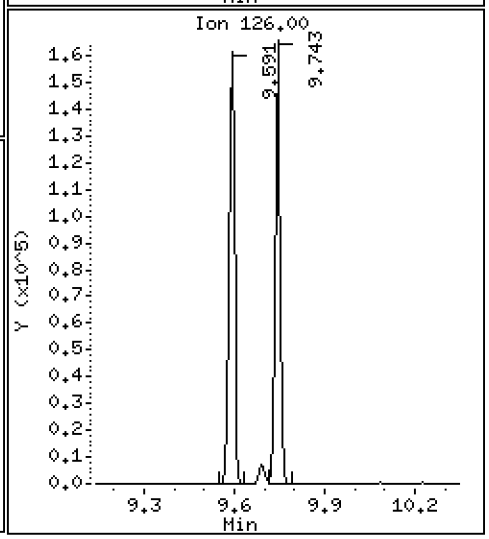












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

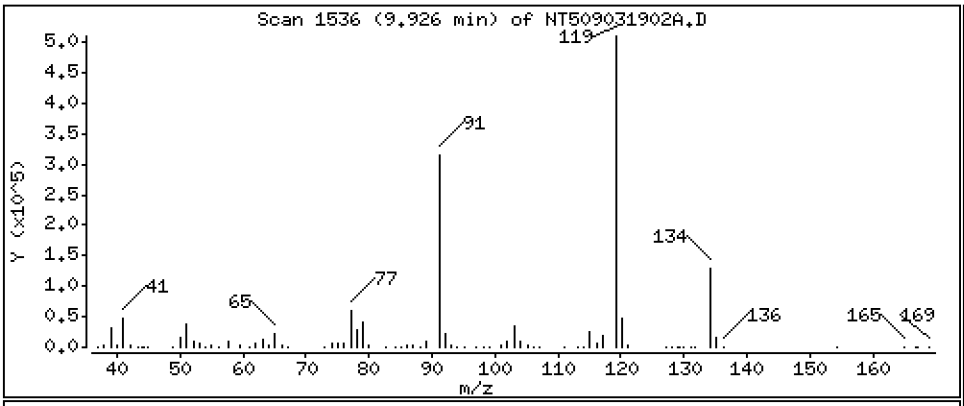
Operator: PB

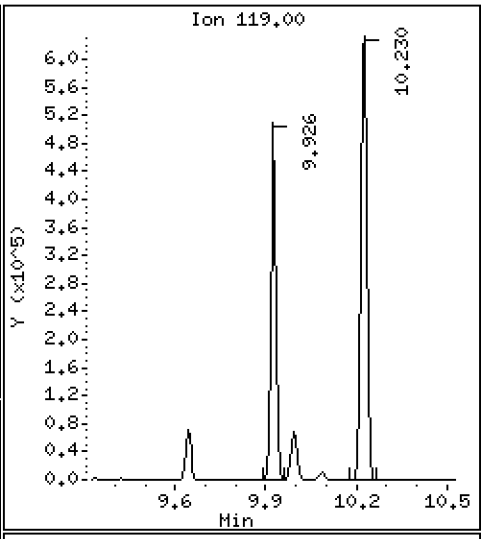
Column phase: RTXVMS

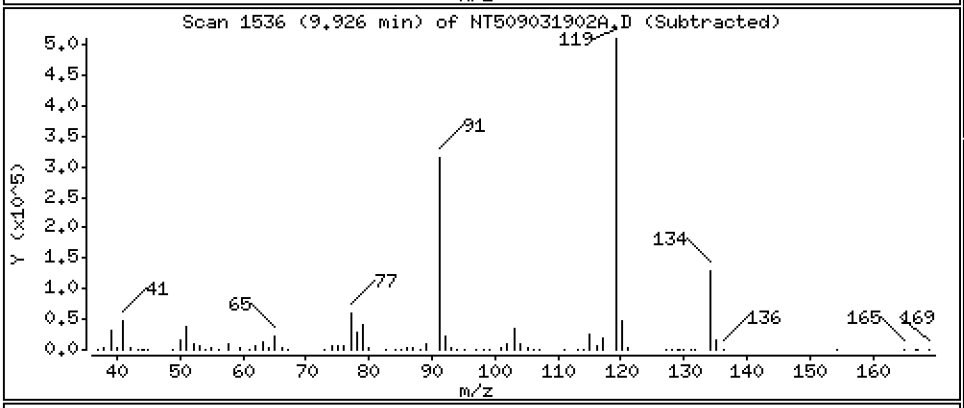
Column diameter: 0.18

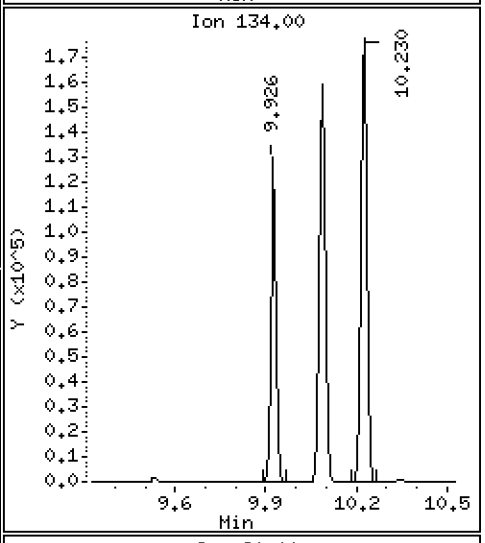
71 T-Butyl Benzene

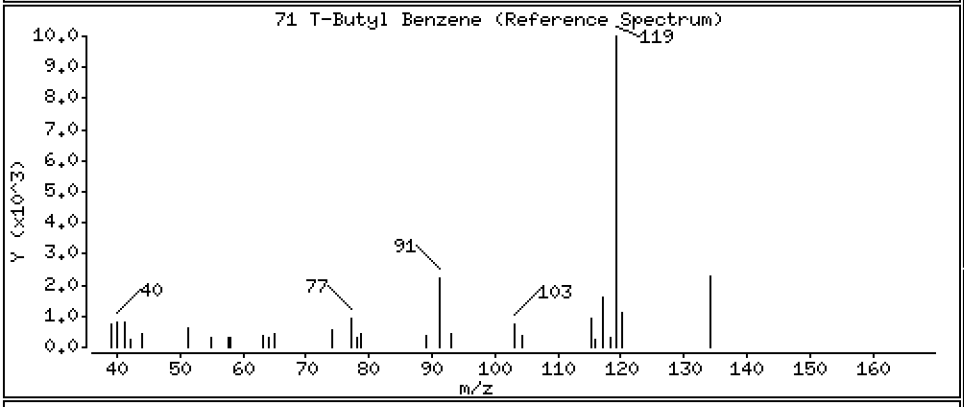
Concentration: 45.170 ug/Kg

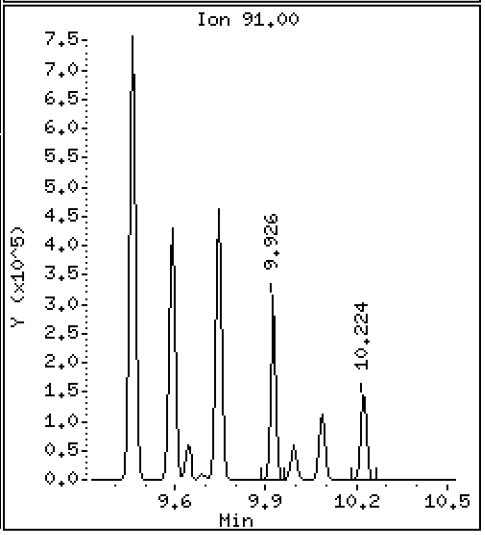


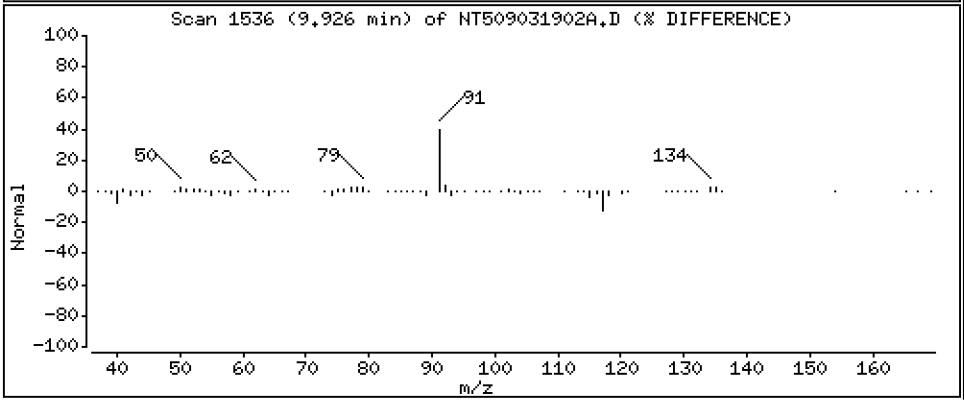












Date : 03-SEP-2019 12:38

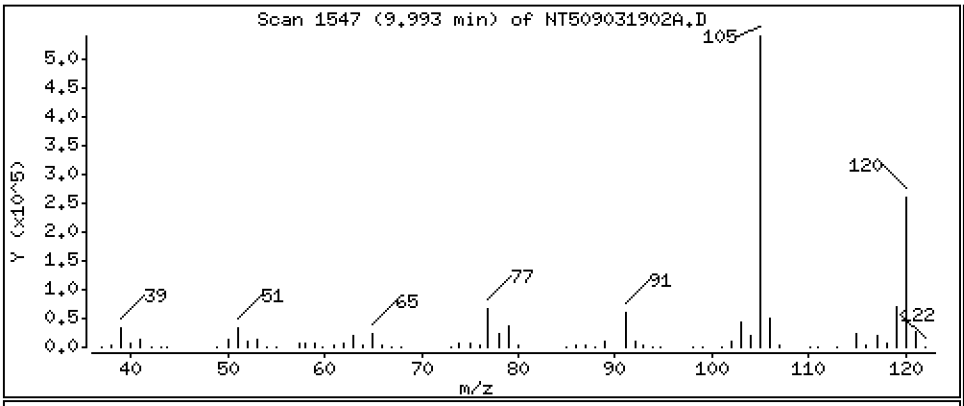
Client ID: Instrument: nt5.i

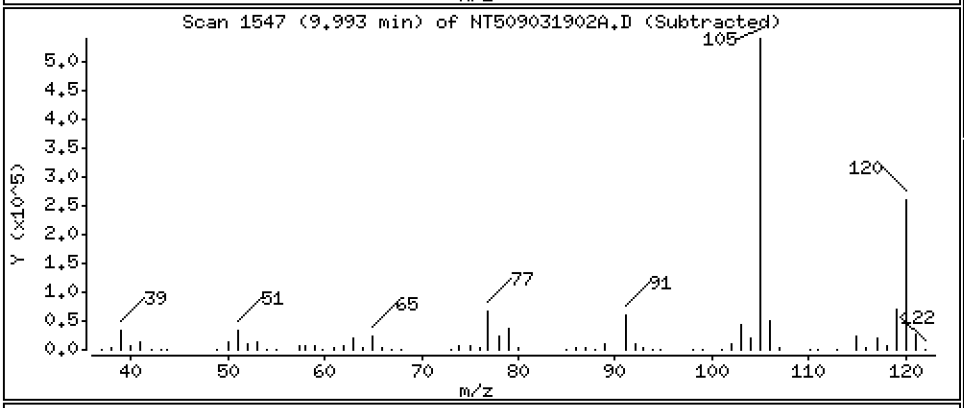
Sample Info: ICV1

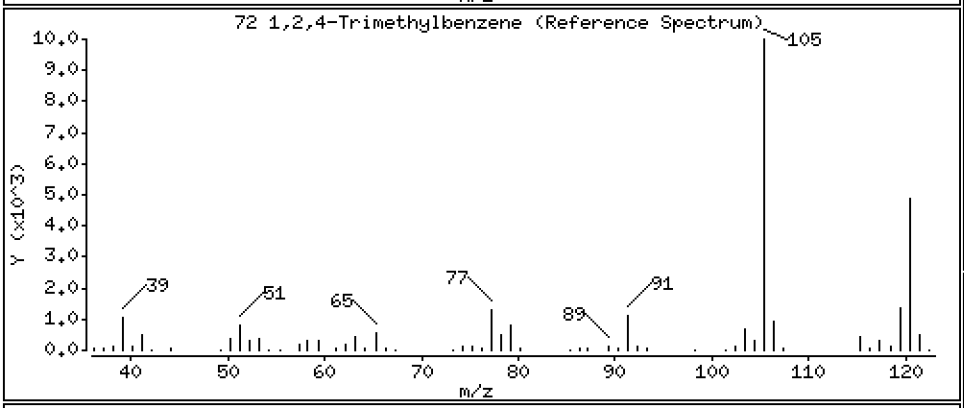
Operator: PB

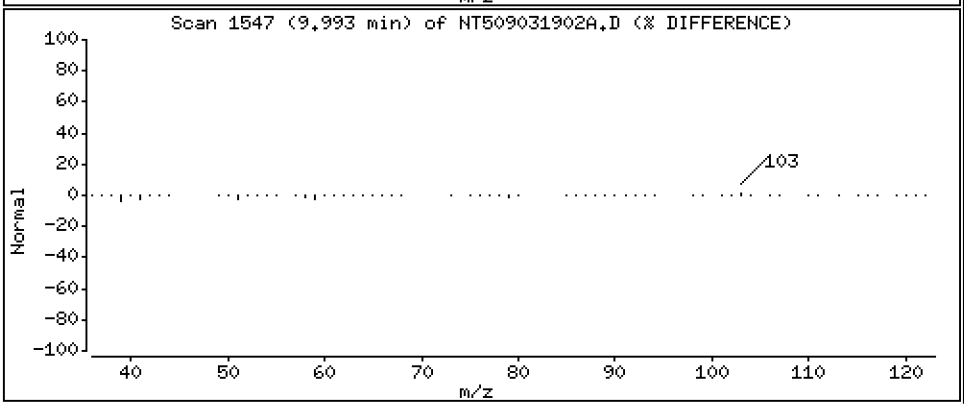
Column phase: RTXVMS Column diameter: 0.18

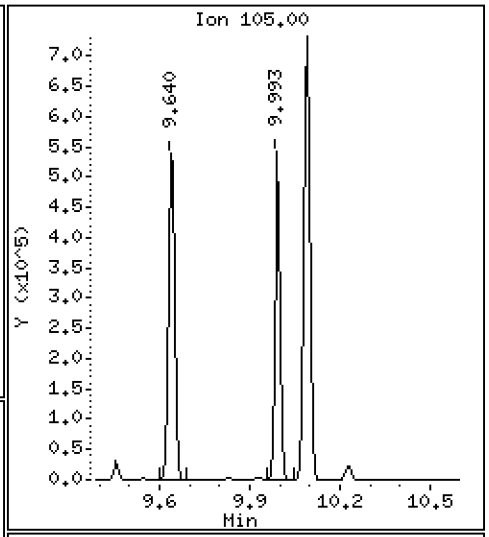
72 1,2,4-Trimethylbenzene Concentration: 45.132 ug/Kg

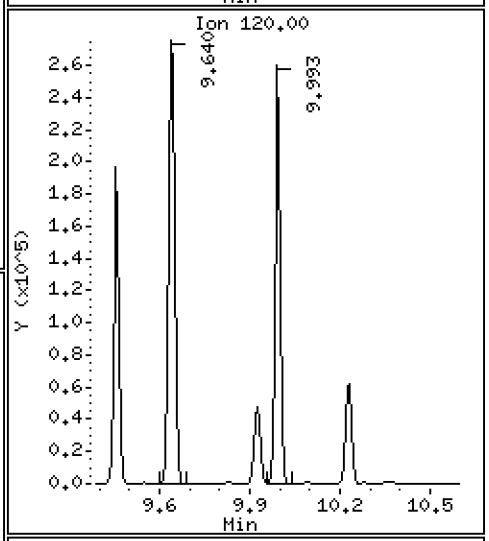


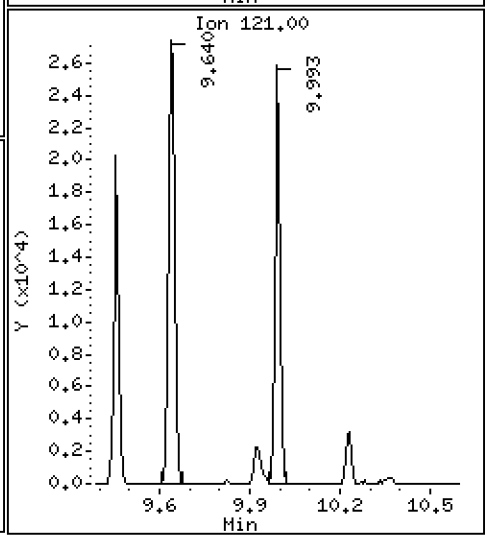












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

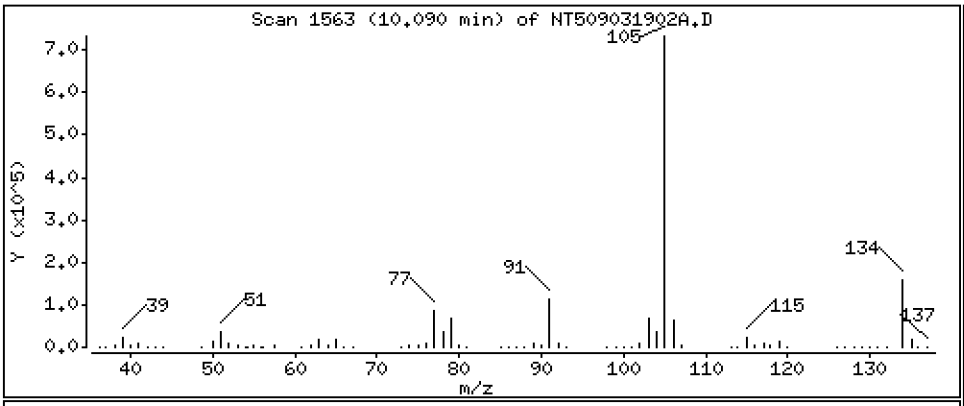
Operator: PB

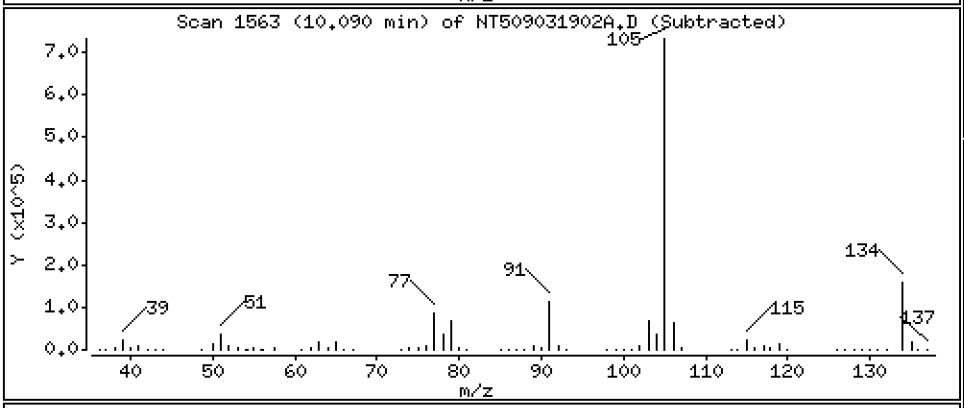
Column phase: RTXVMS

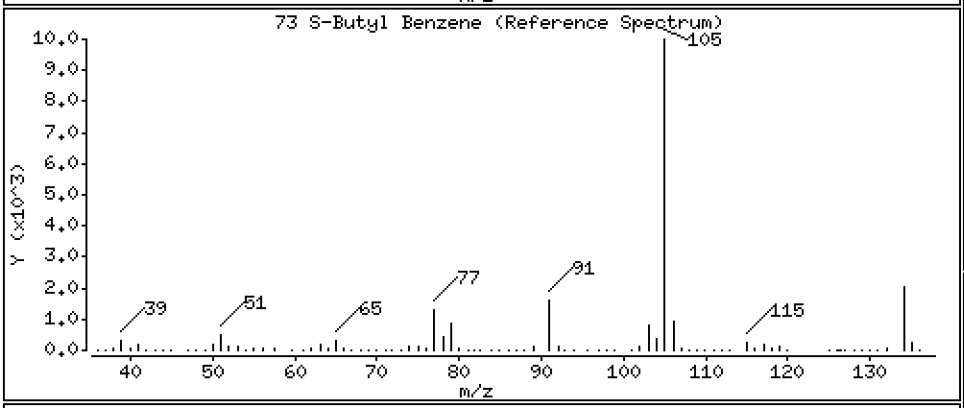
Column diameter: 0.18

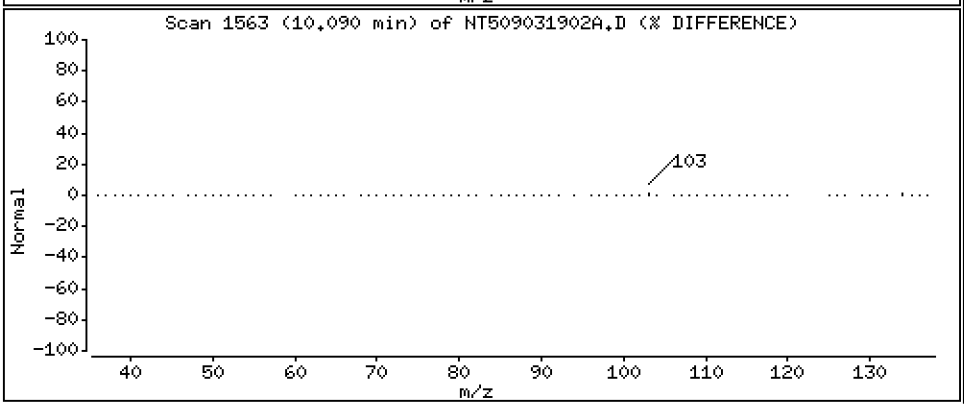
73 S-Butyl Benzene

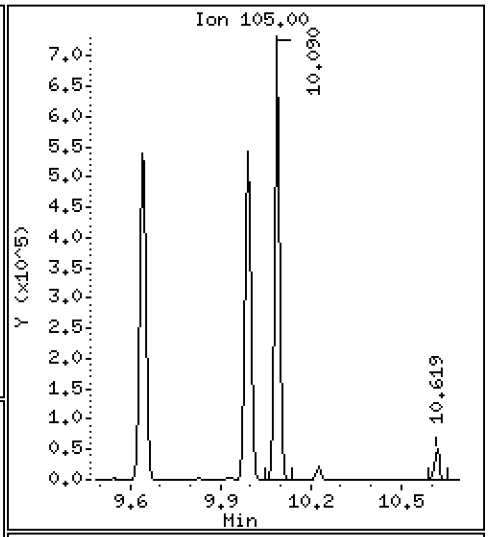
Concentration: 45.341 ug/Kg

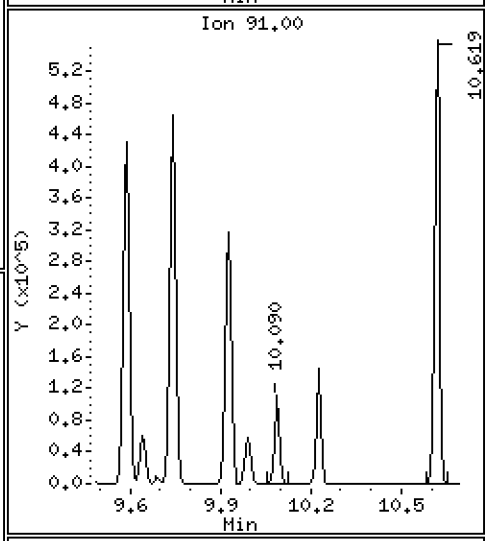


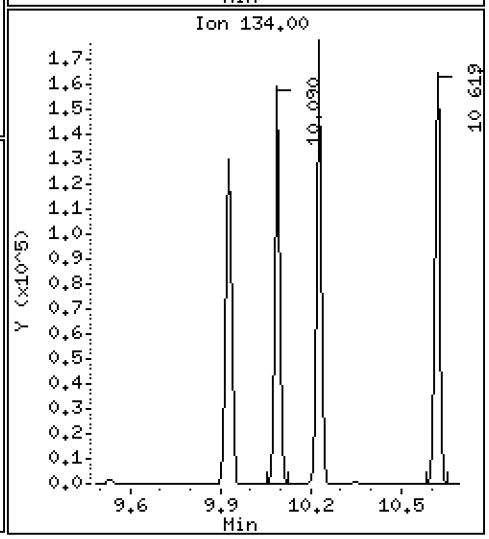












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

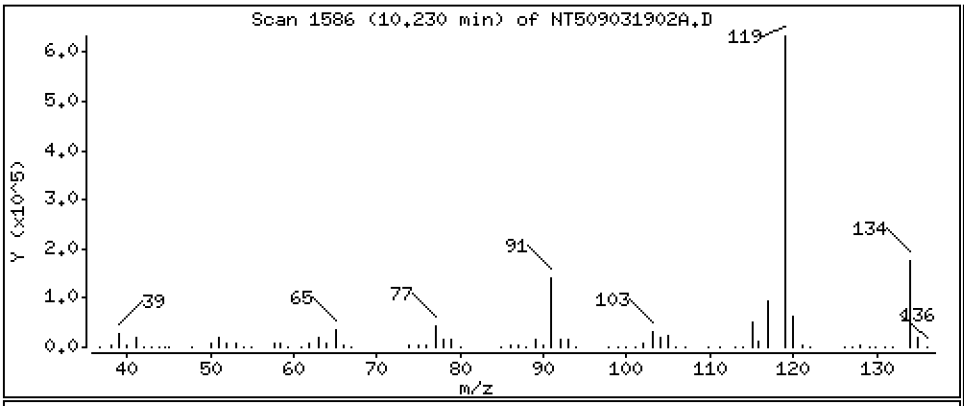
Operator: PB

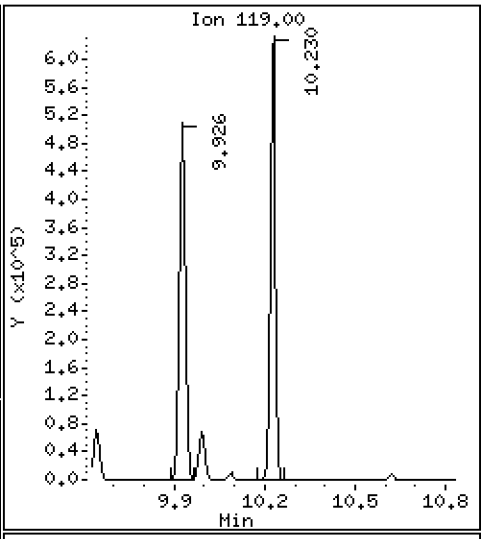
Column phase: RTXVMS

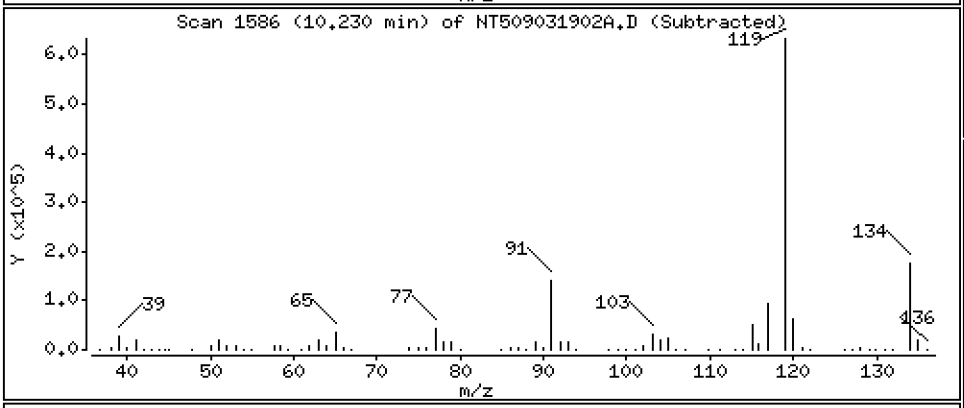
Column diameter: 0.18

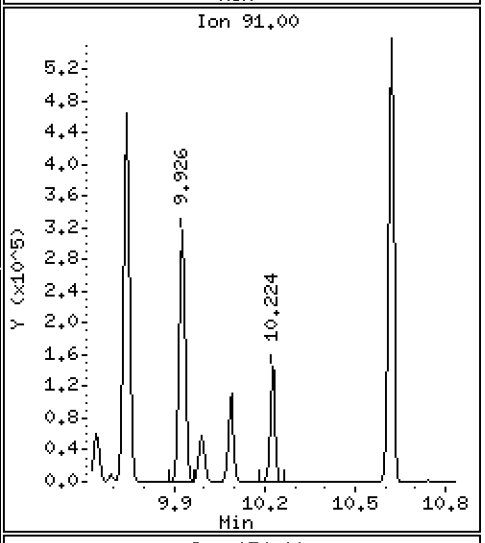
74 4-Isopropyl Toluene

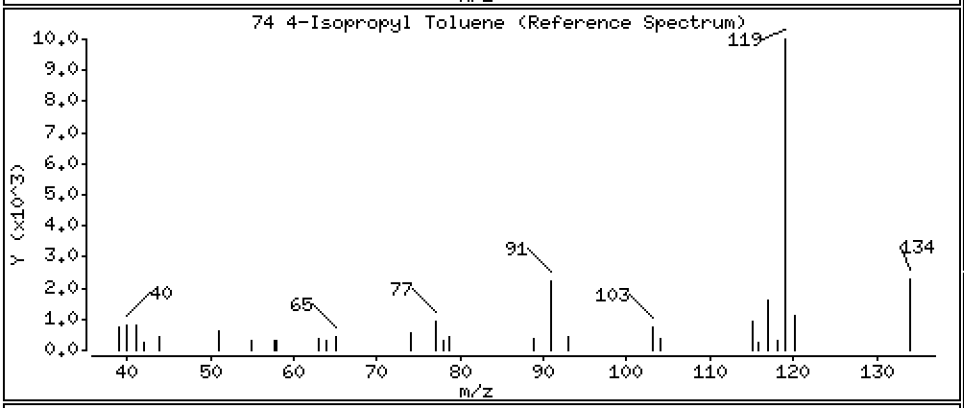
Concentration: 45.649 ug/Kg

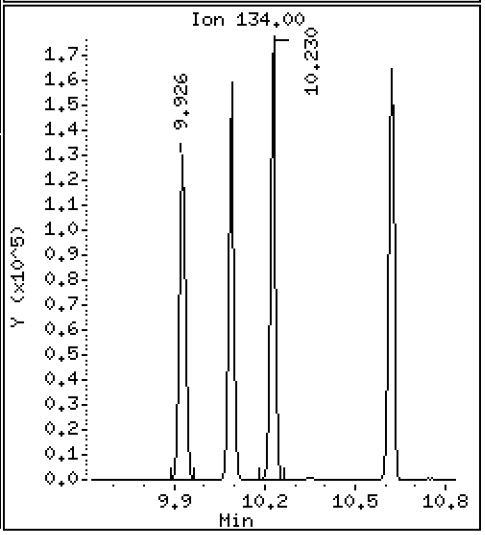


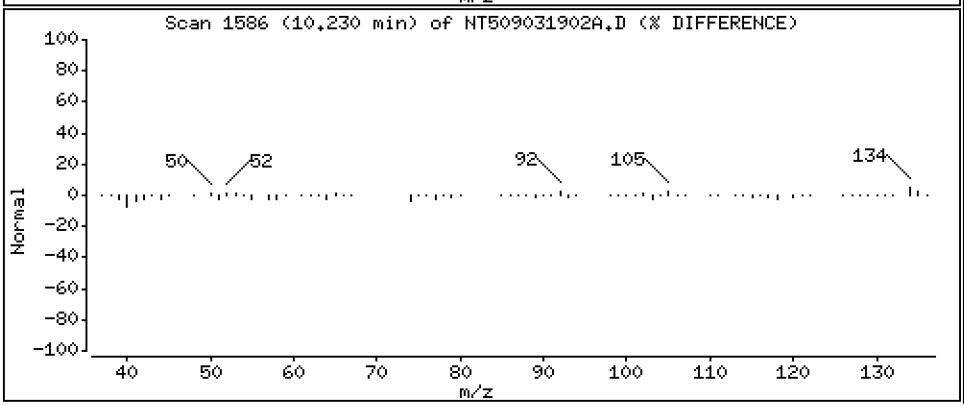












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

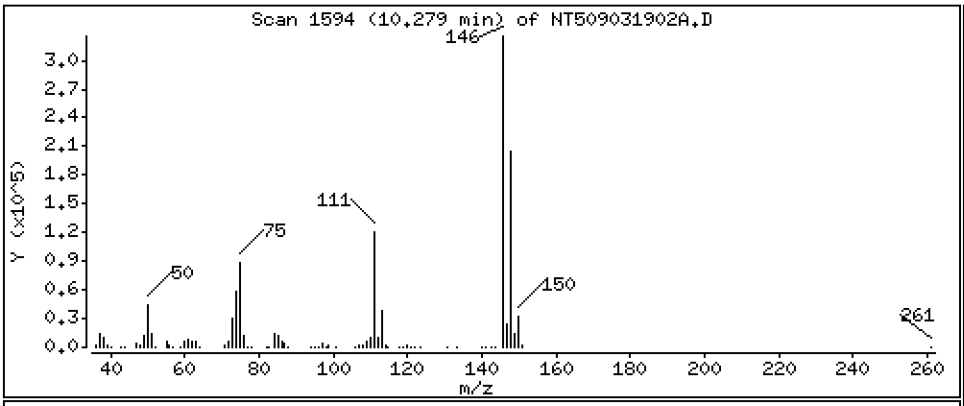
Operator: PB

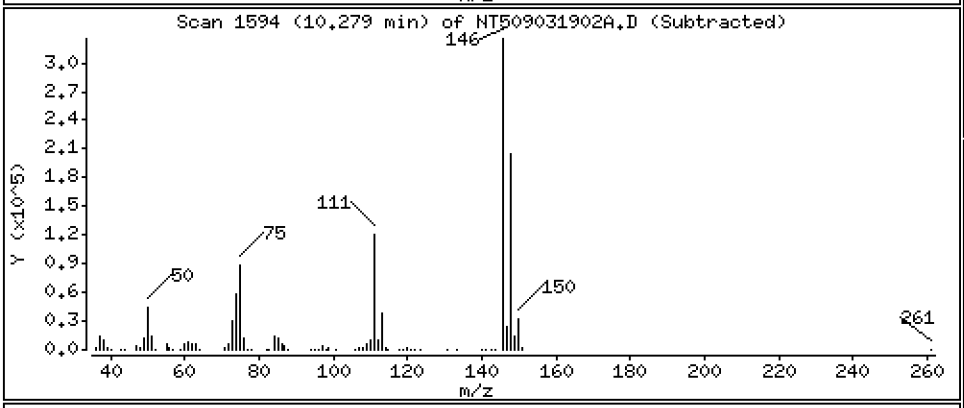
Column phase: RTXVMS

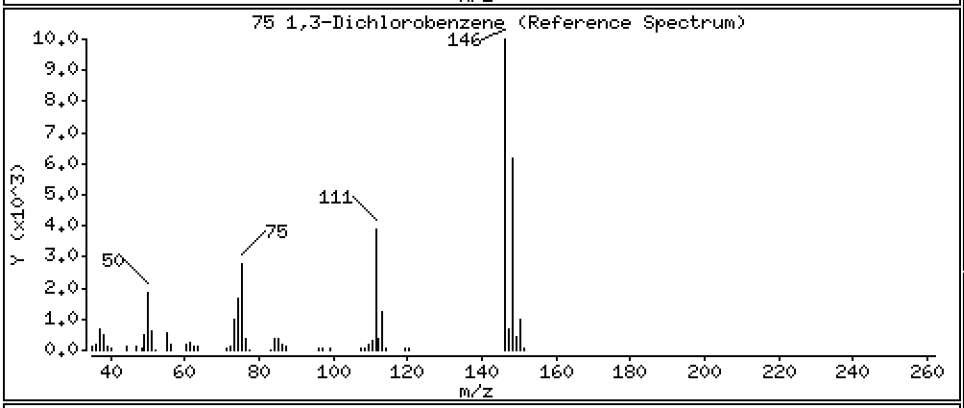
Column diameter: 0.18

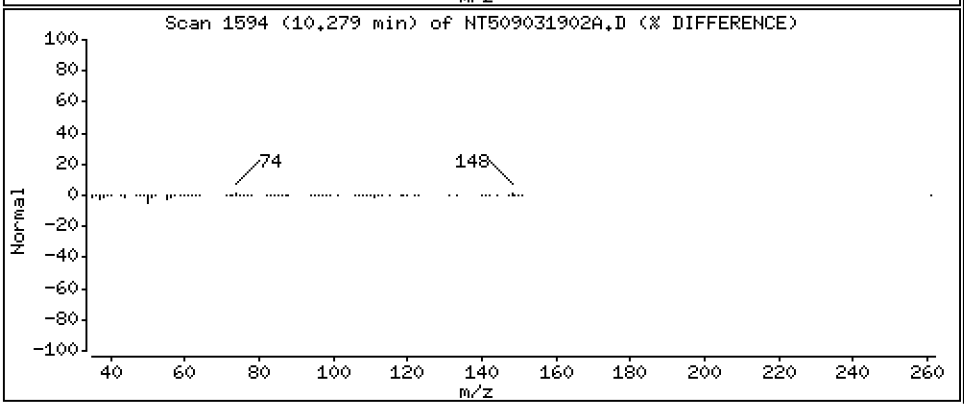
75 1,3-Dichlorobenzene

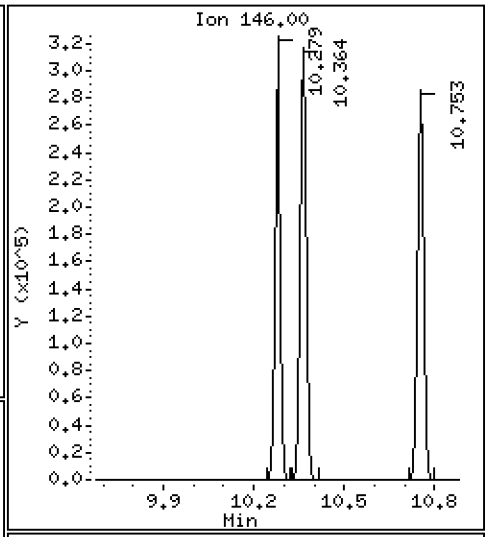
Concentration: 44.141 ug/Kg

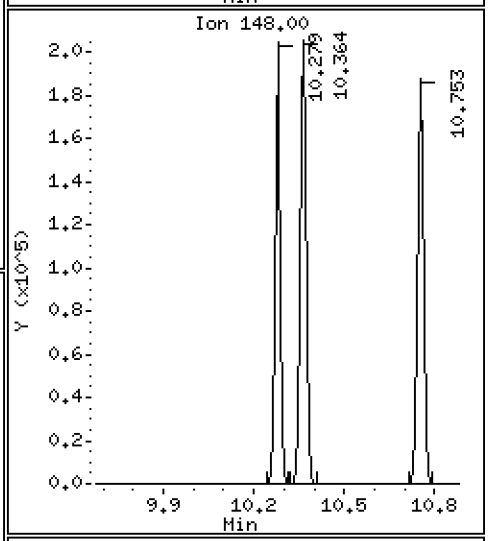


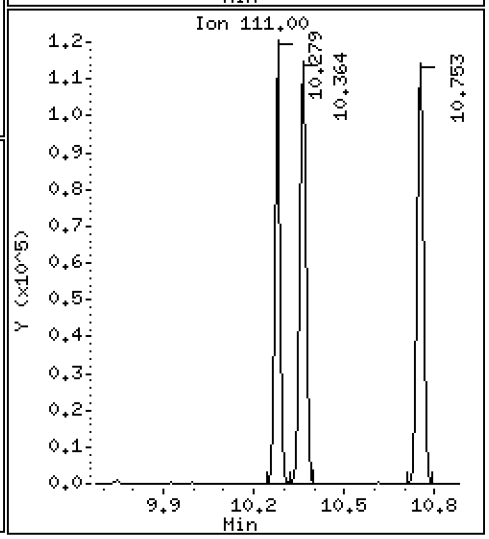












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

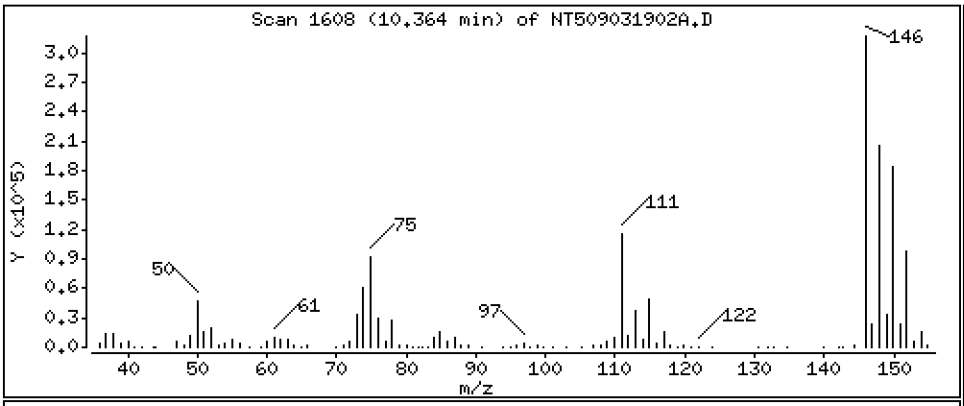
Operator: PB

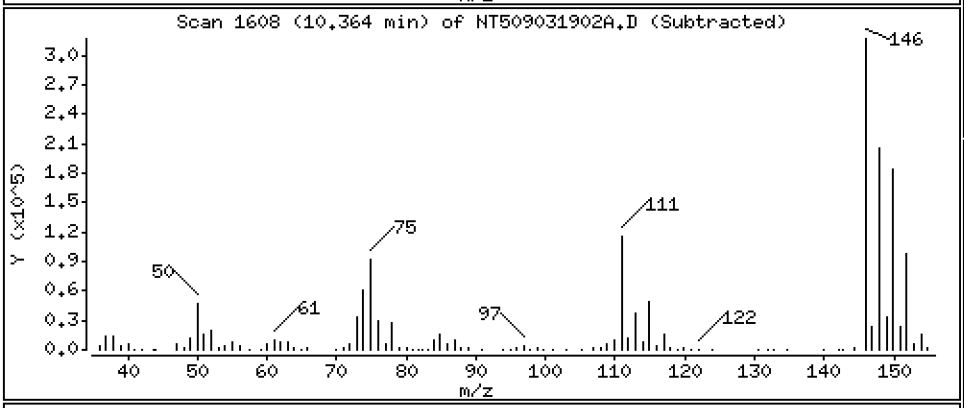
Column phase: RTXVMS

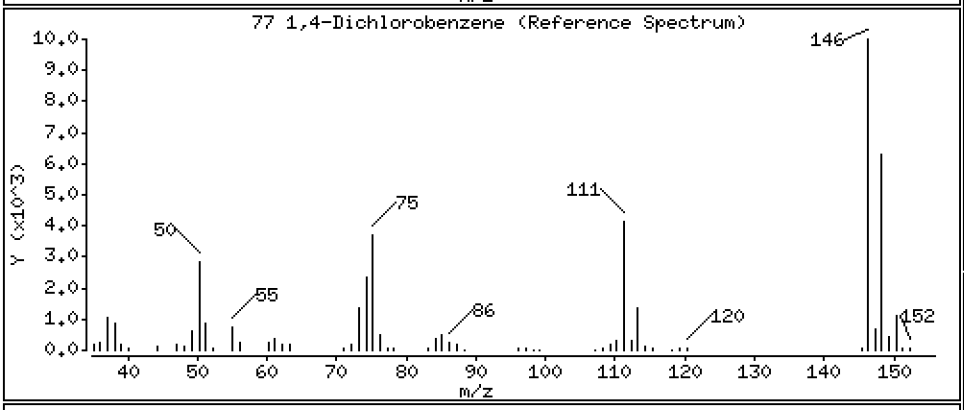
Column diameter: 0.18

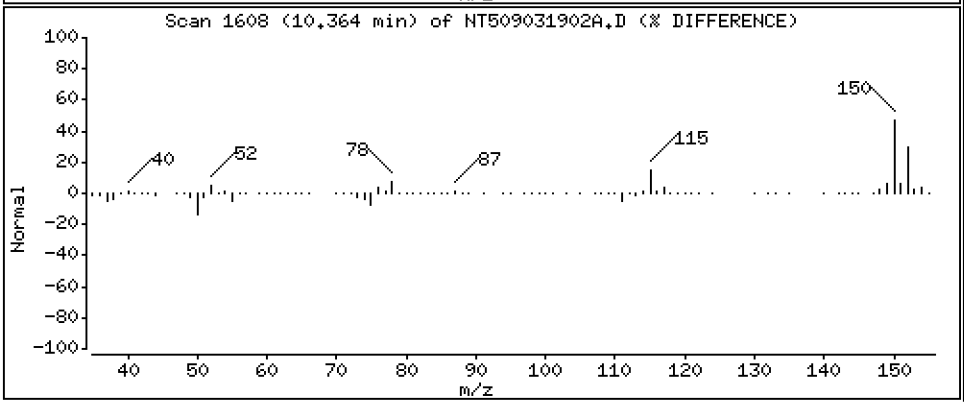
77 1,4-Dichlorobenzene

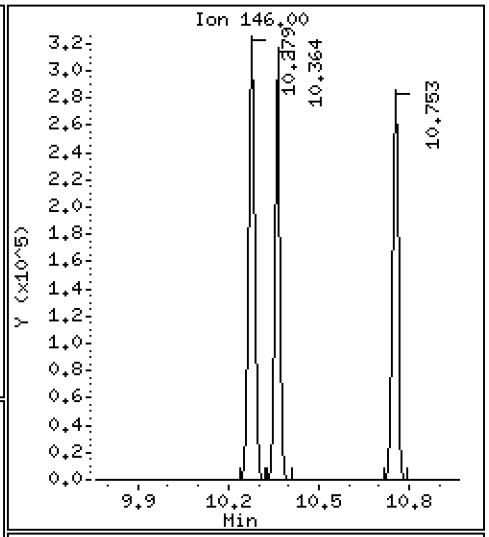
Concentration: 42.649 ug/Kg

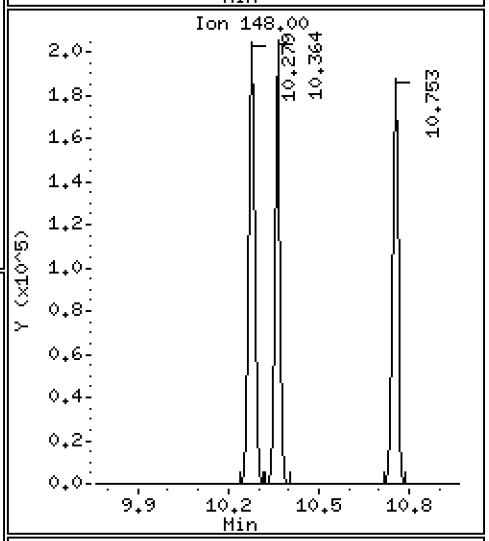


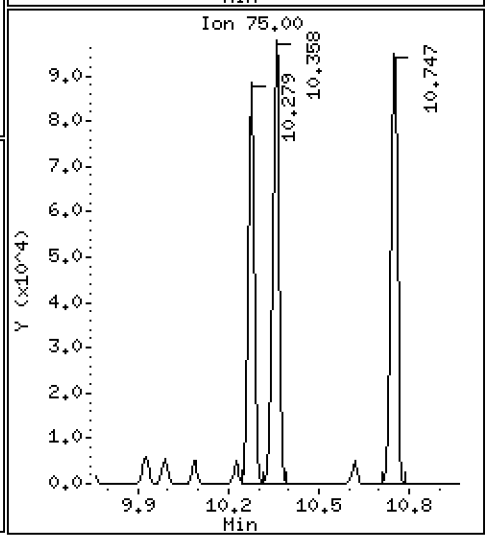












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

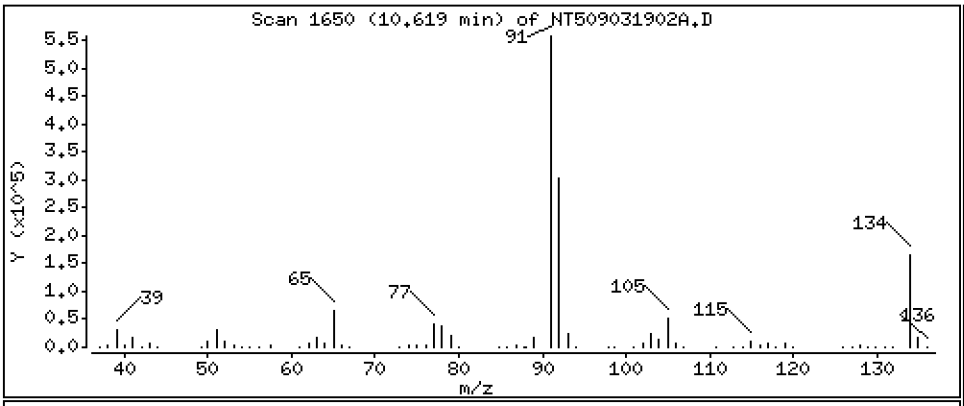
Operator: PB

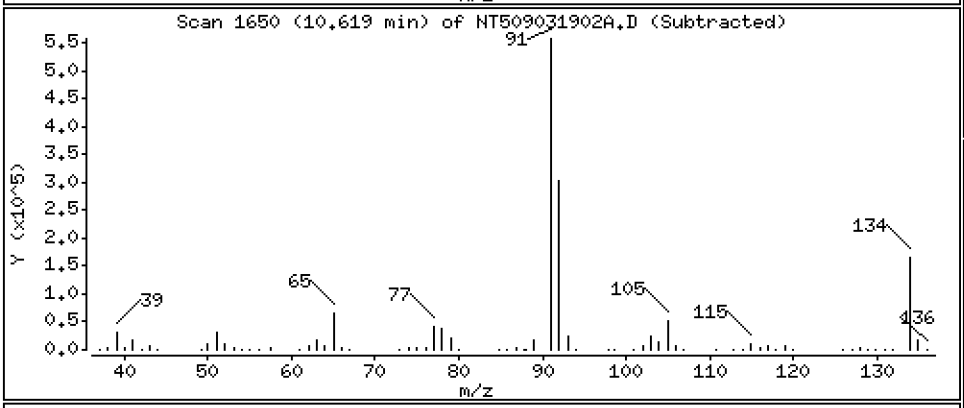
Column phase: RTXVMS

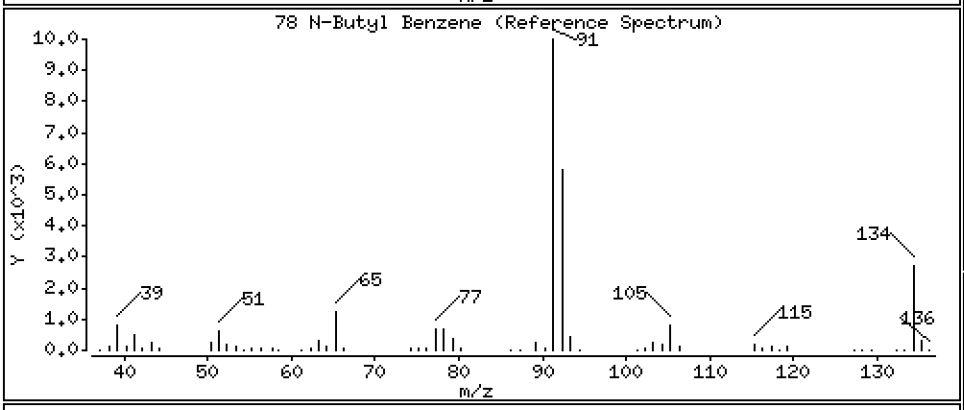
Column diameter: 0.18

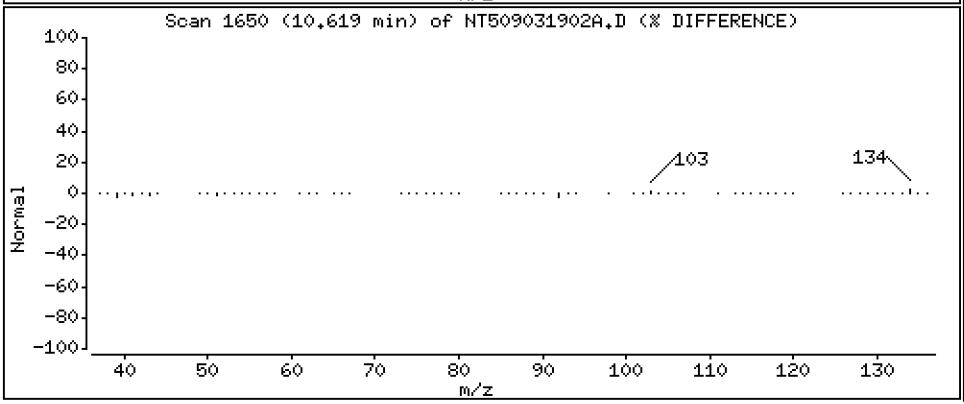
78 N-Butyl Benzene

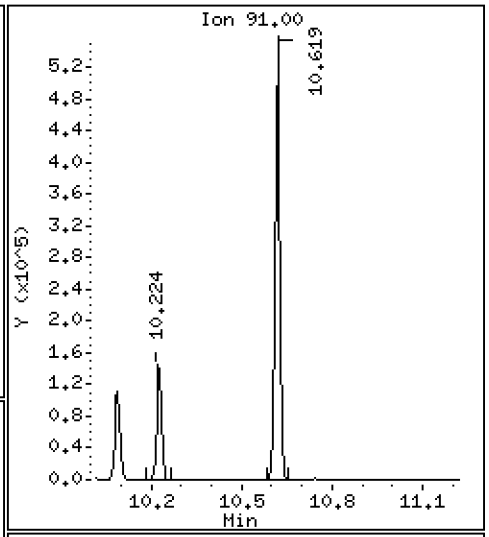
Concentration: 44.508 ug/Kg

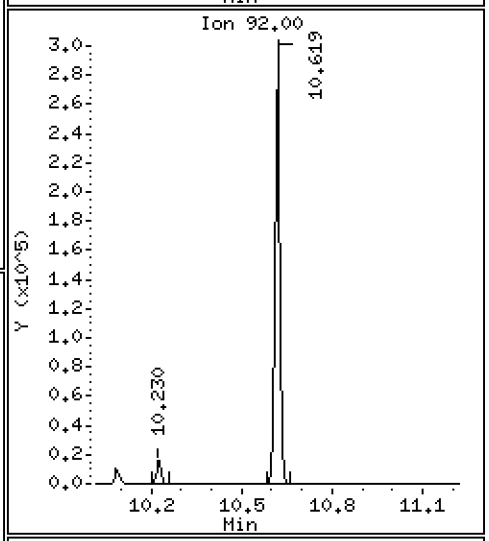


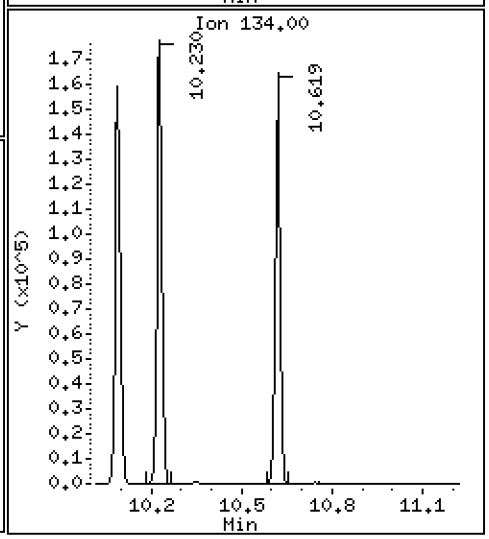












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

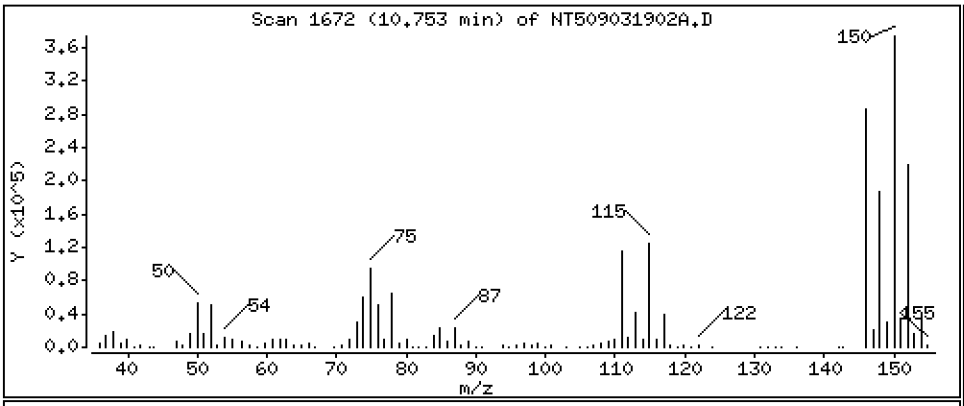
Operator: PB

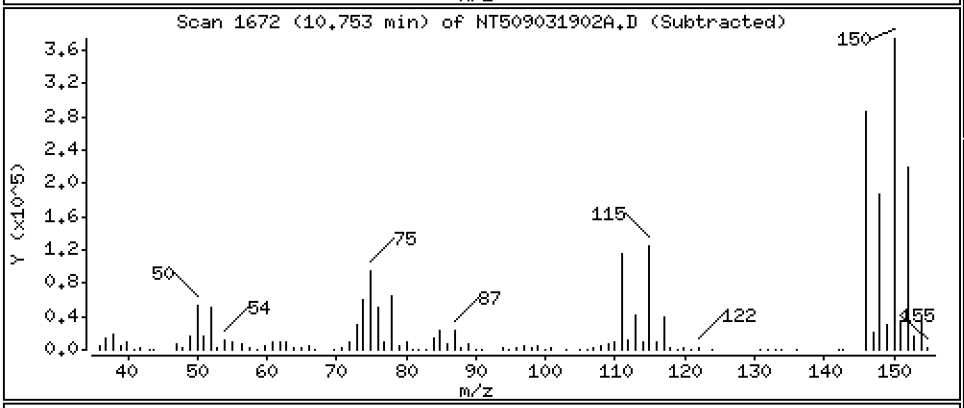
Column phase: RTXVMS

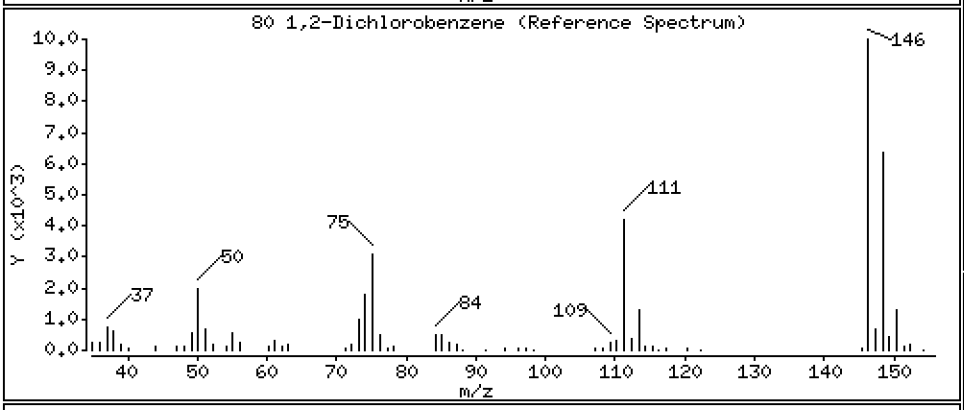
Column diameter: 0.18

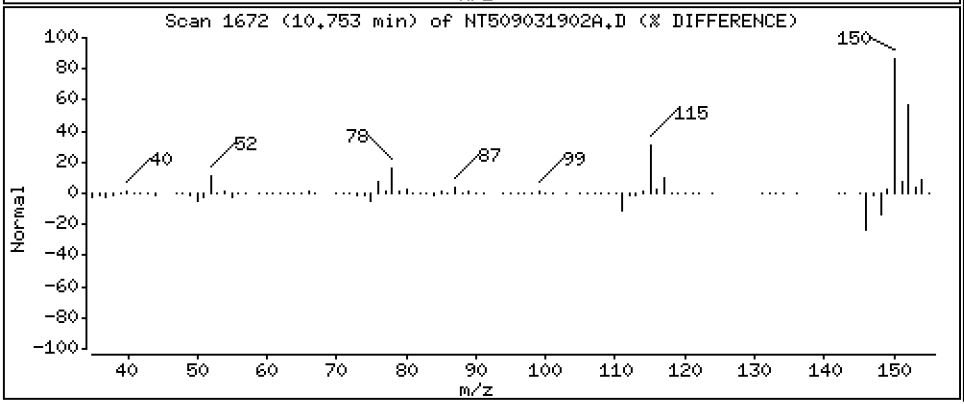
80 1,2-Dichlorobenzene

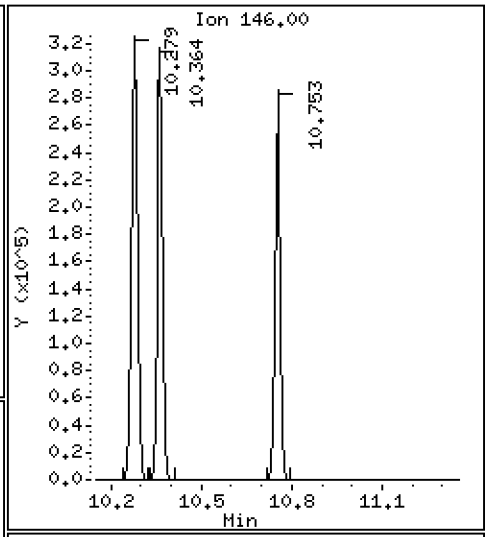
Concentration: 41.974 ug/Kg

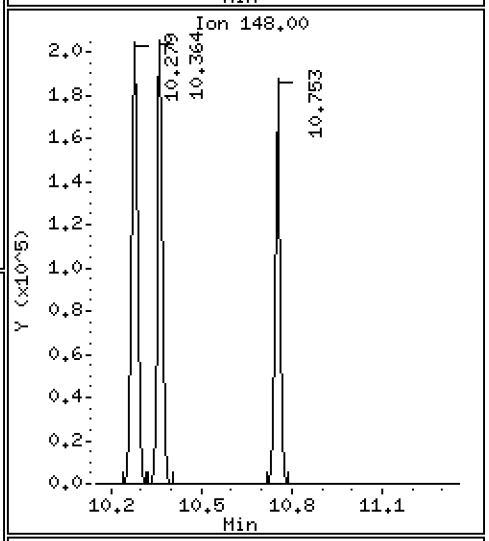


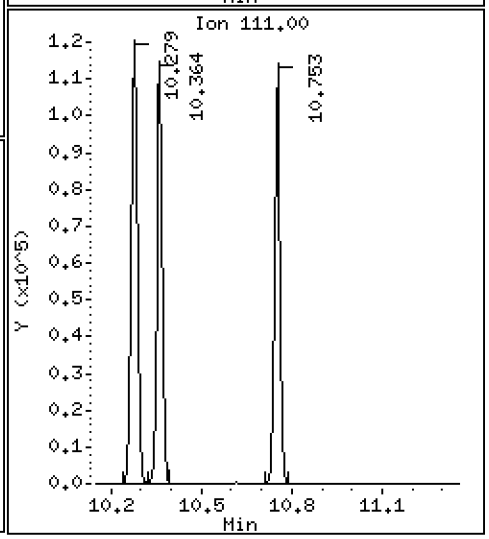












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

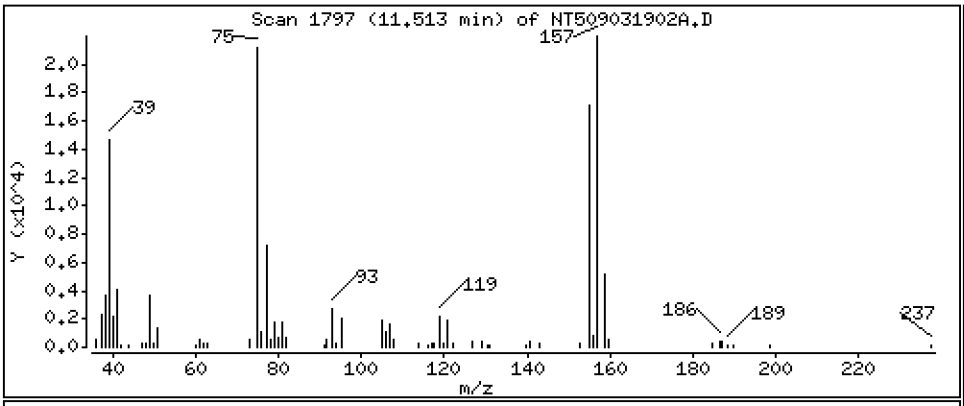
Operator: PB

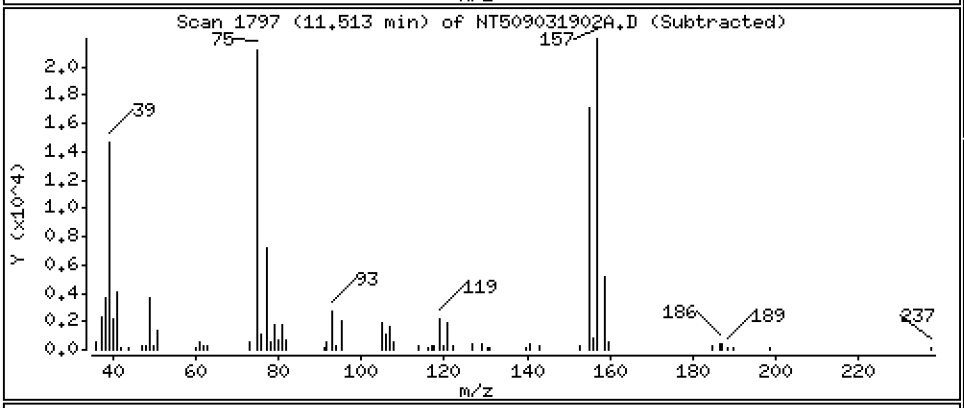
Column phase: RTXVMS

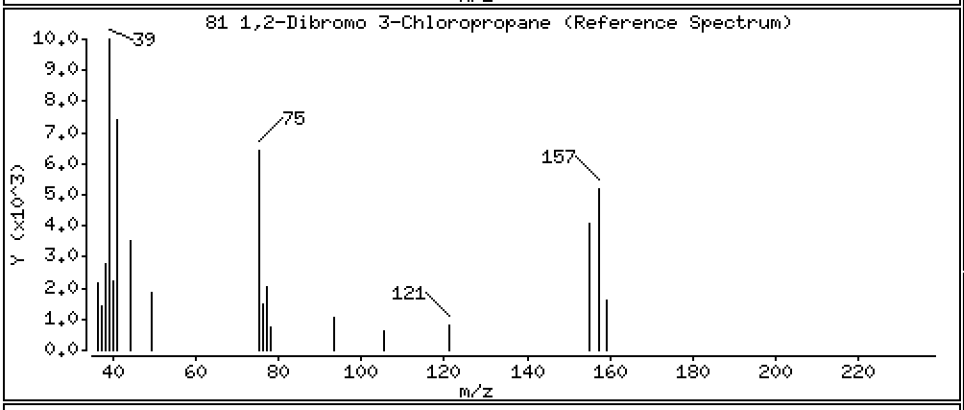
Column diameter: 0.18

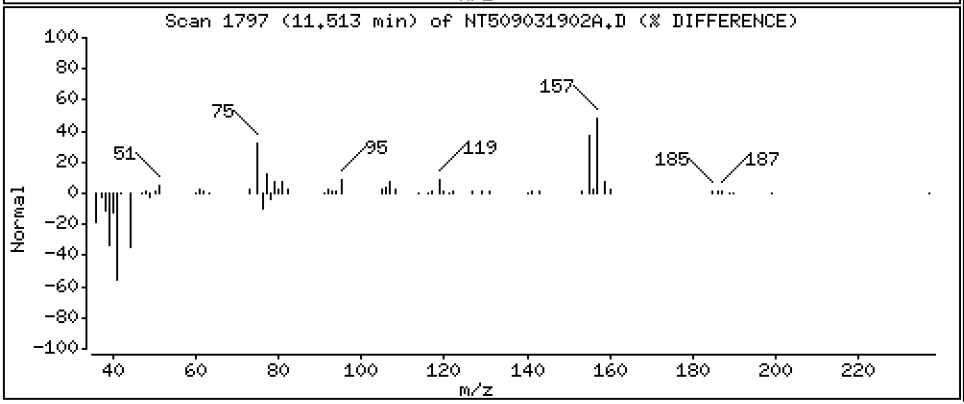
81 1,2-Dibromo 3-Chloropropane

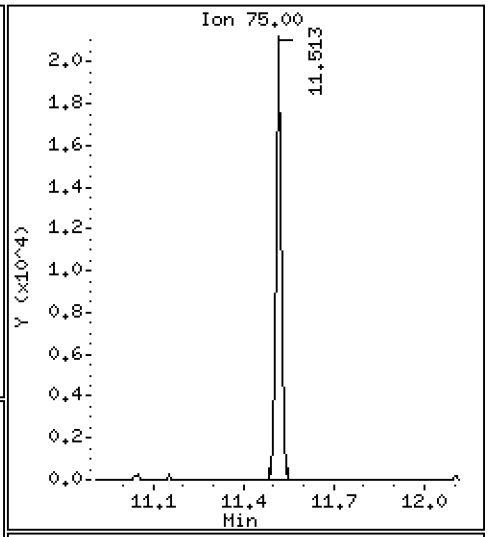
Concentration: 43.117 ug/Kg

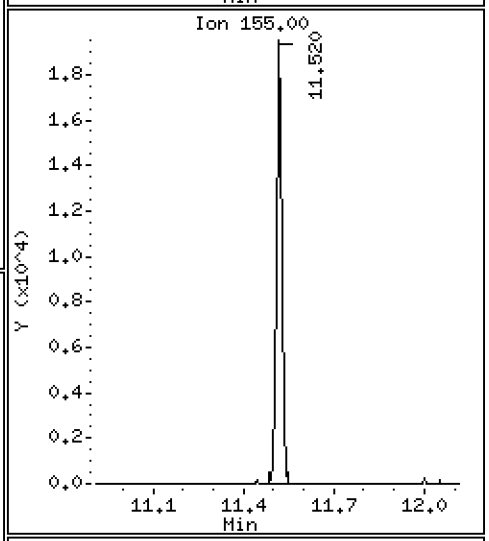


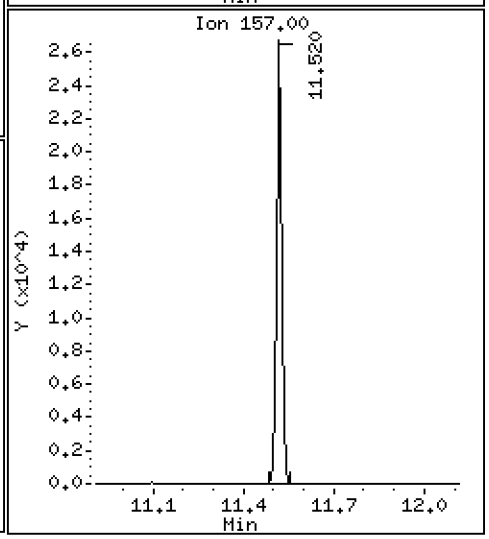












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Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

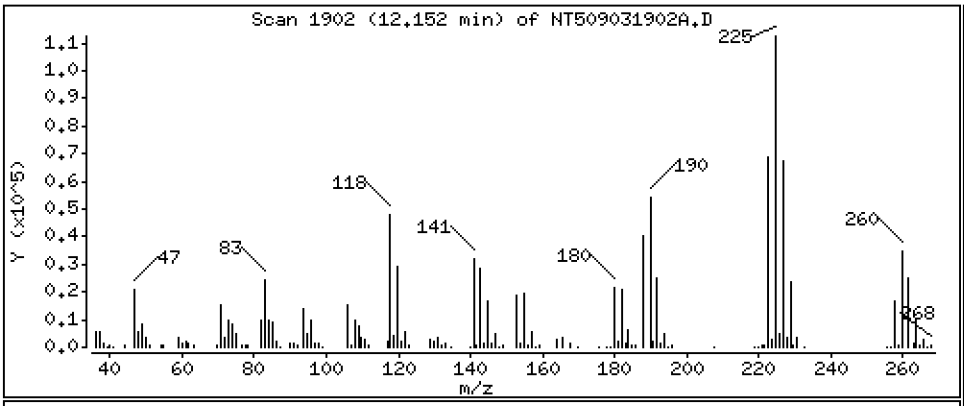
Operator: PB

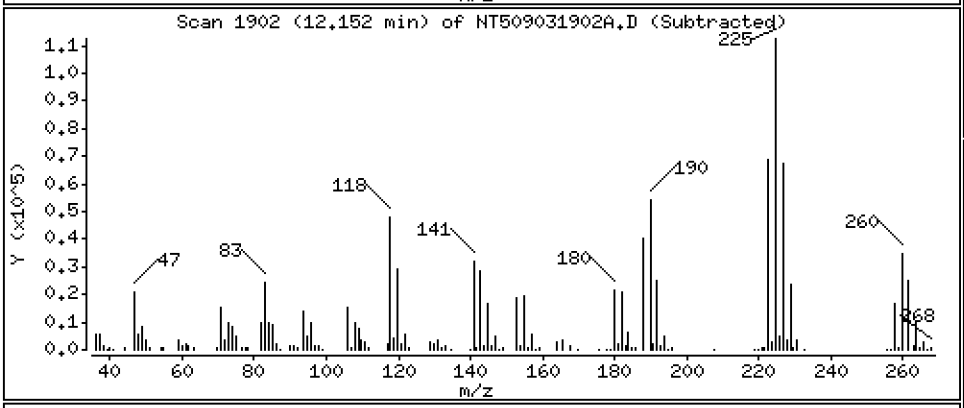
Column phase: RTXVMS

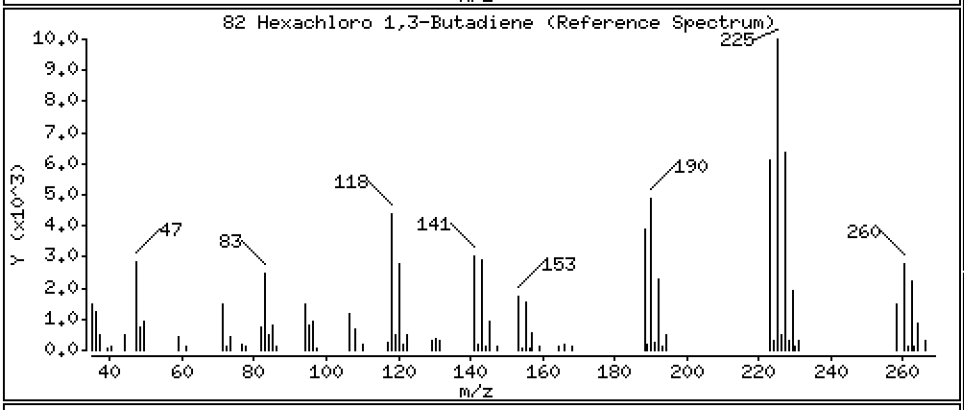
Column diameter: 0.18

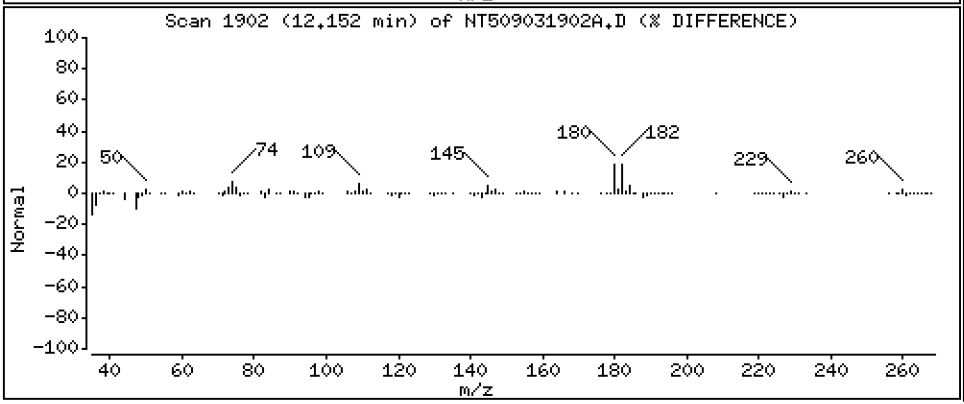
82 Hexachloro 1,3-Butadiene

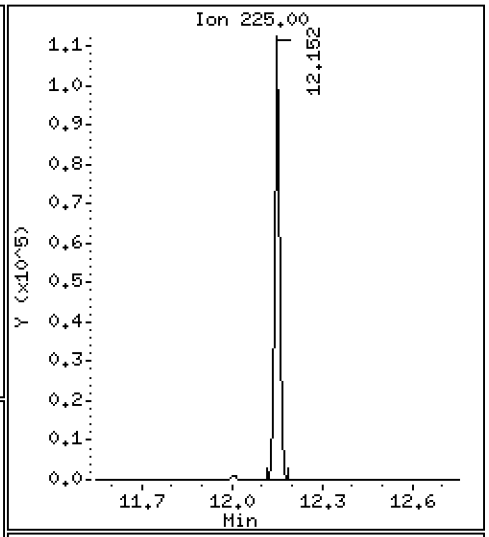
Concentration: 44.239 ug/Kg

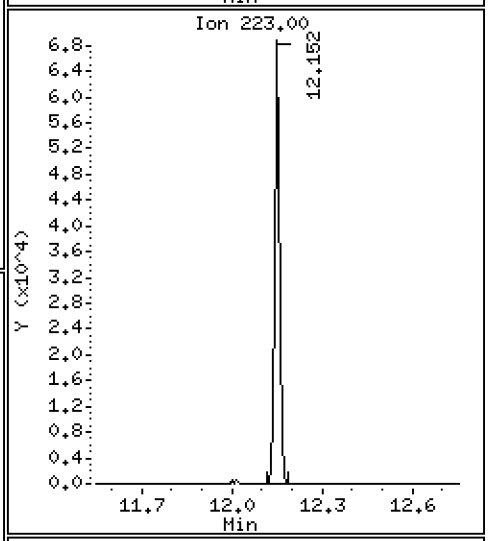


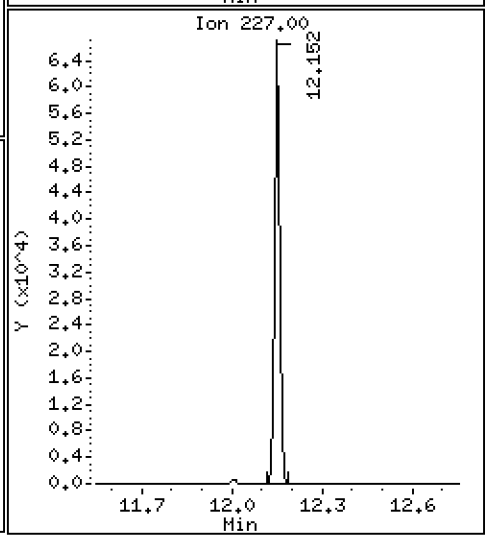












Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

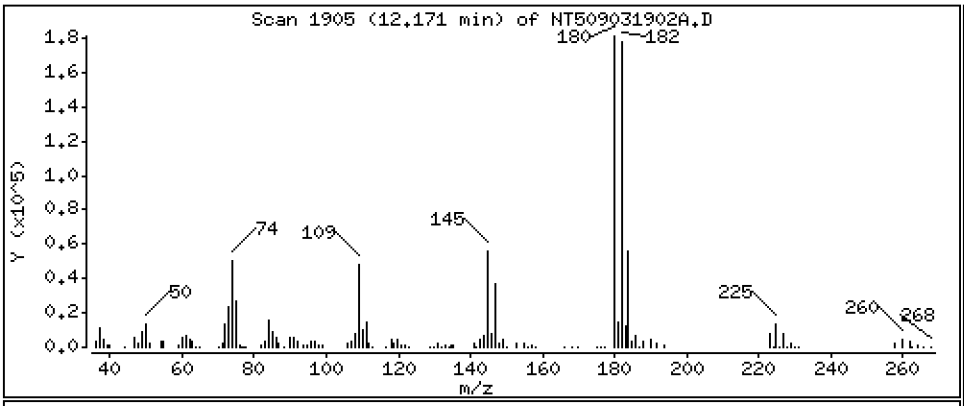
Operator: PB

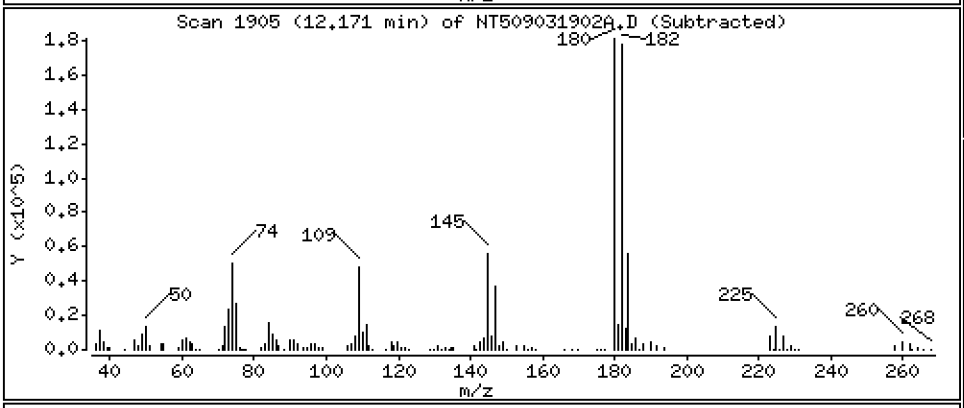
Column phase: RTXVMS

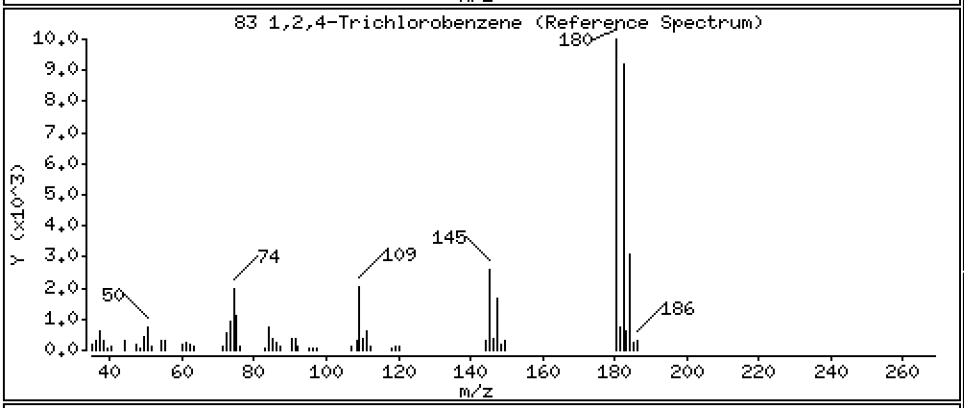
Column diameter: 0.18

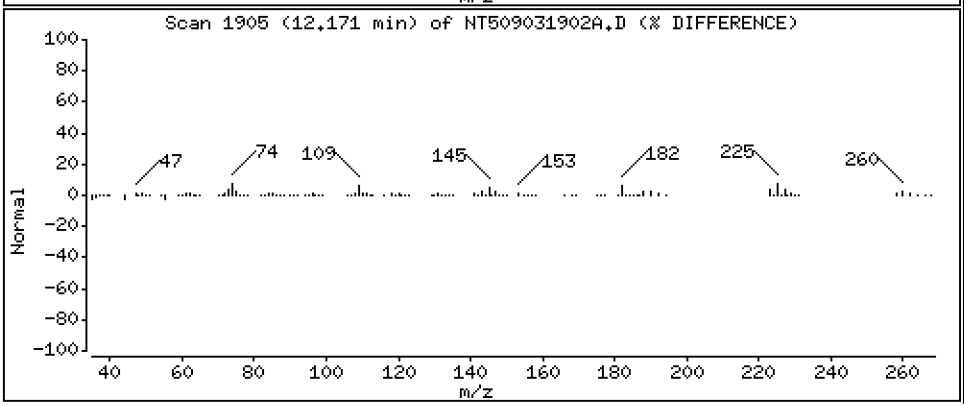
83 1,2,4-Trichlorobenzene

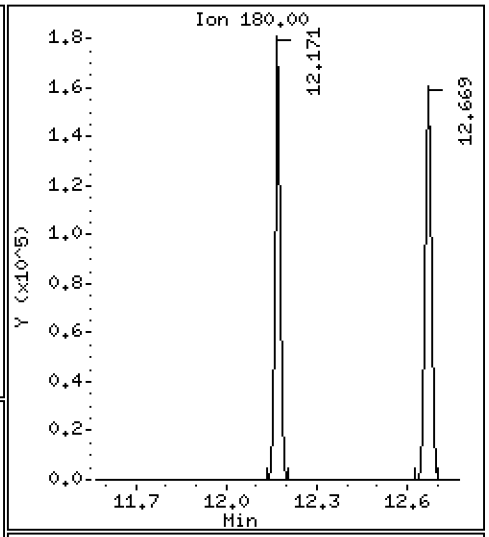
Concentration: 42.798 ug/Kg

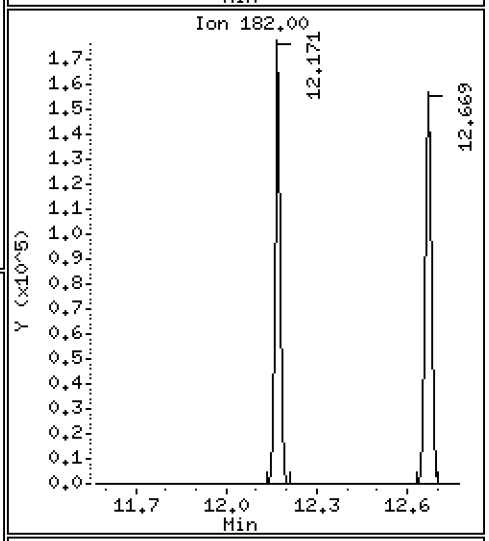


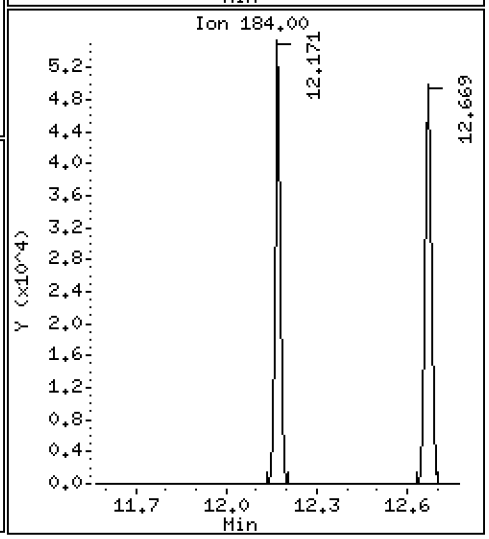












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031902A.D

Date : 03-SEP-2019 12:38

Client ID:

Instrument: nt5.i

Sample Info: ICV1

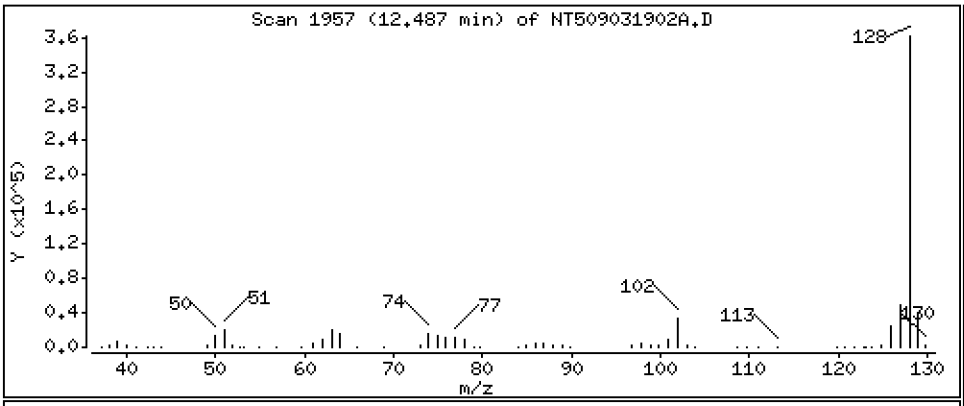
Operator: PB

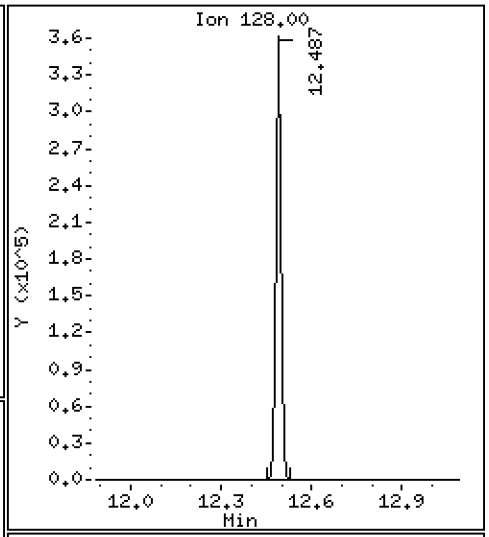
Column phase: RTXVMS

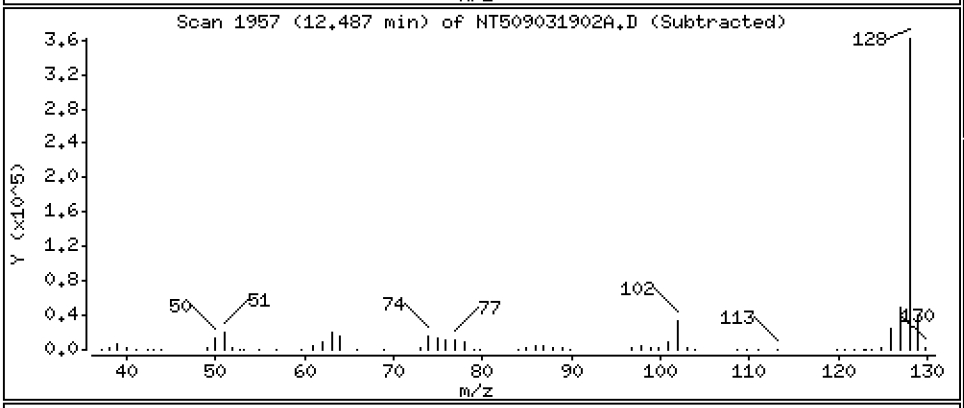
Column diameter: 0.18

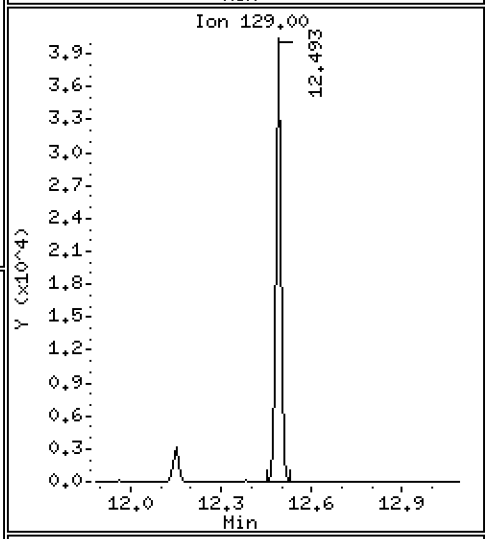
84 Naphthalene

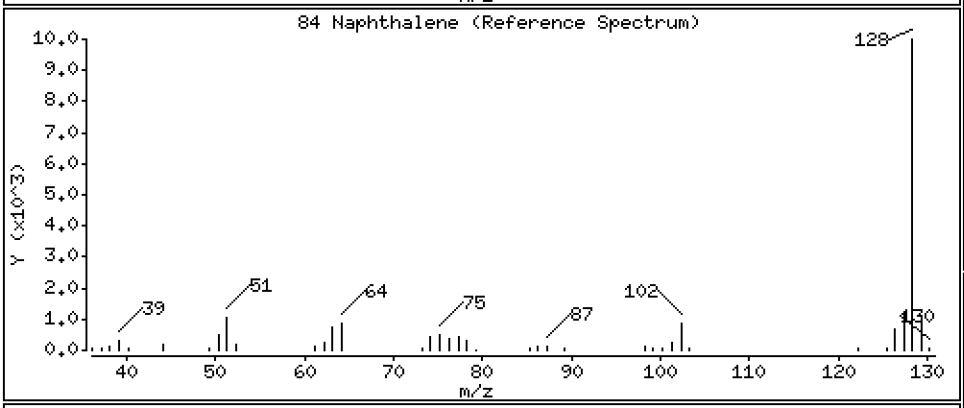
Concentration: 42.902 ug/Kg

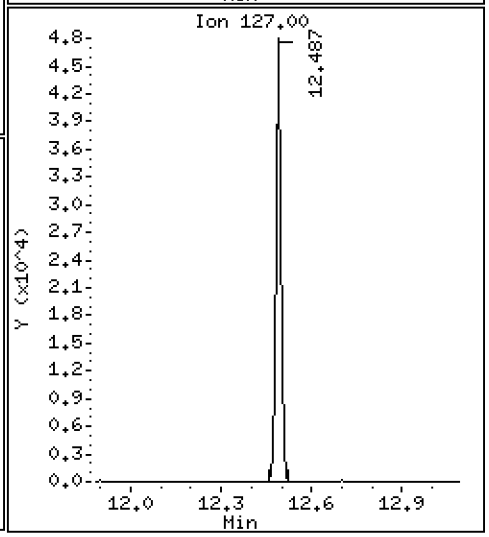


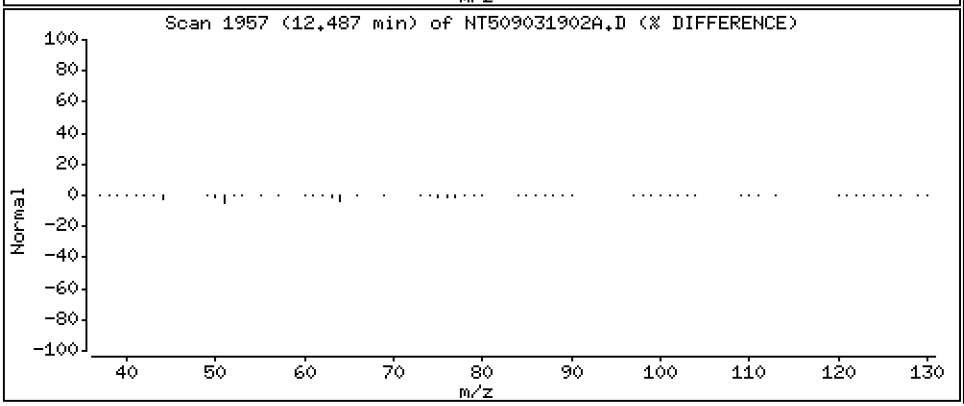












Date : 03-SEP-2019 12:38

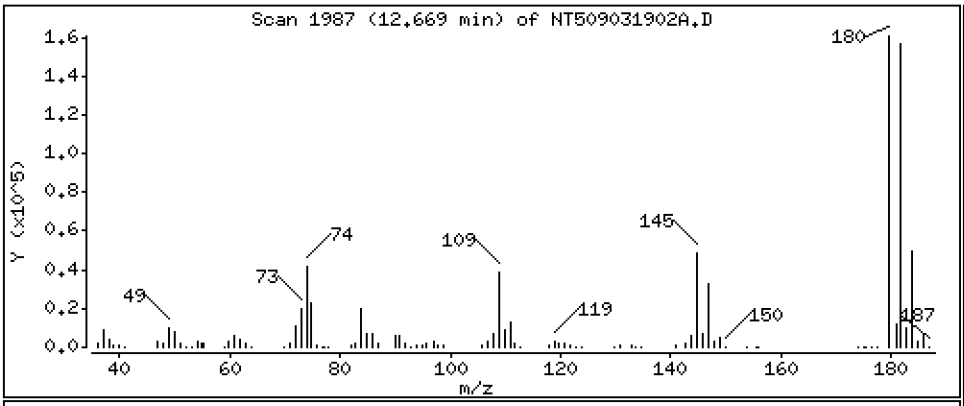
Client ID: Instrument: nt5.i

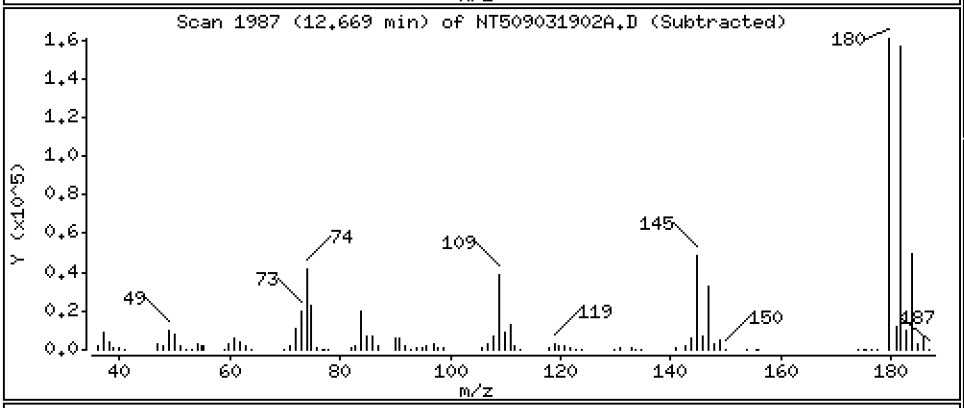
Sample Info: ICV1

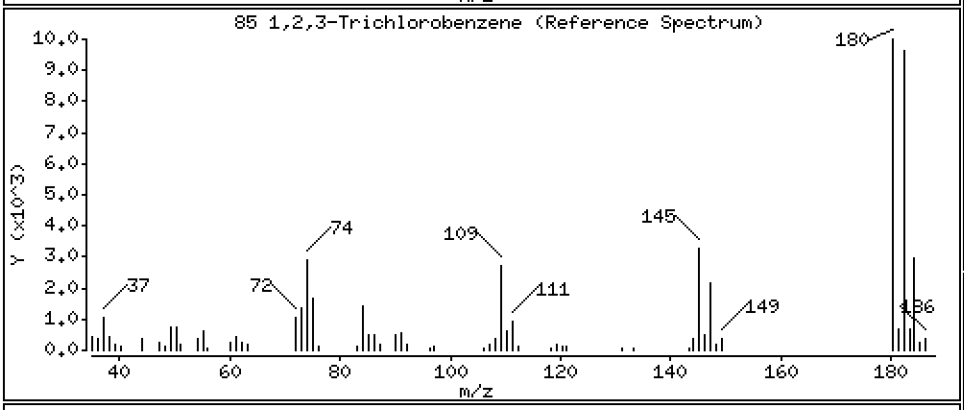
Operator: PB

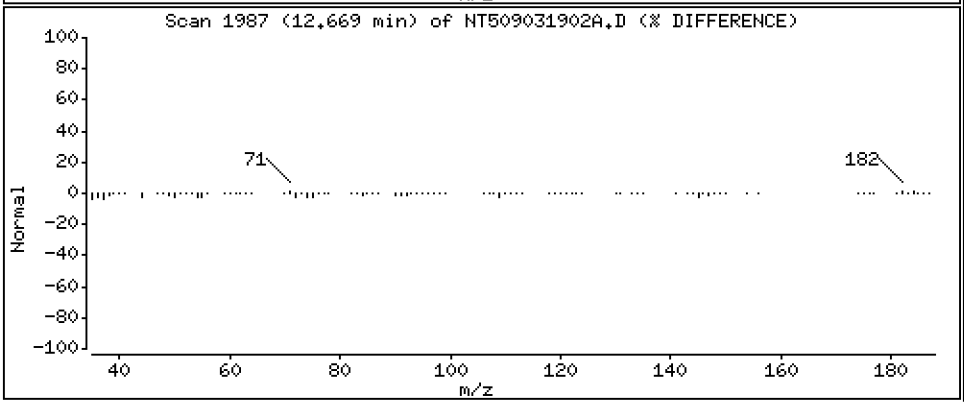
Column phase: RTXVMS Column diameter: 0.18

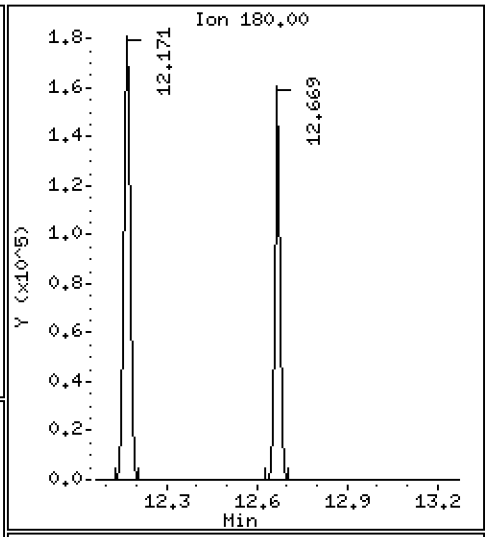
85 1,2,3-Trichlorobenzene Concentration: 41.610 ug/Kg

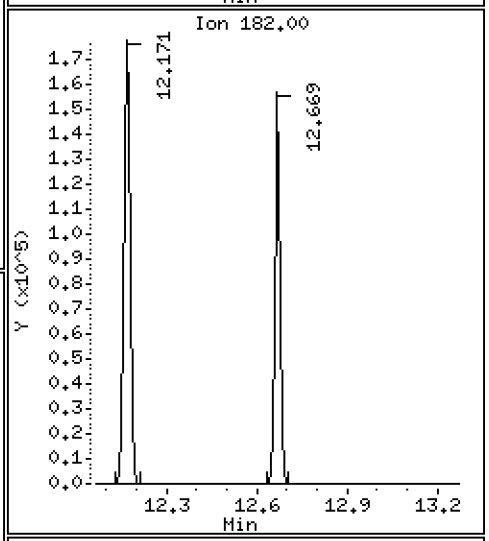


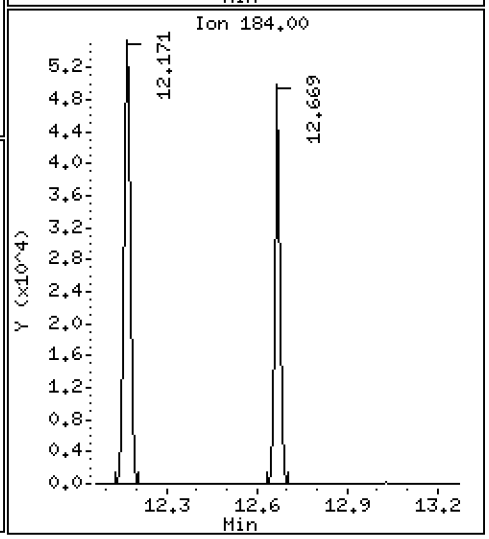












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031902A.D
Lab Smp Id: bhi0056-bs1
Inj Date : 03-SEP-2019 12:38
Operator : PB   Inst ID: nt5.i
Smp Info : ICV1
Misc Info :
Comment   :
Method   : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:34 patrickb   Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29   Cal File: NT508201911.D
Als bottle: 5   QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	172708	60.1402	60.140
	2 Chloromethane	50	1.487	1.487	(0.279)	153602	59.3852	59.385
	3 Vinyl Chloride	62	1.554	1.554	(0.291)	149706	59.3643	59.364
	4 Bromomethane	94	1.840	1.840	(0.345)	117569	52.5807	52.581
	5 Chloroethane	64	1.944	1.944	(0.364)	123936	58.5929	58.593
	6 Trichlorofluoromethane	101	2.059	2.059	(0.386)	303390	59.1434	59.143
	7 1,1-Dichloroethene	96	2.534	2.534	(0.475)	154541	58.2352	58.235
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	442165	55.7318	55.732
	9 112Trichloro122Trifluoroethane	101	2.582	2.582	(0.484)	142309	54.3628	54.363
	10 Iodomethane	142	2.661	2.661	(0.499)	184004	64.6778	64.678
	11 Bromoethane	108	2.795	2.795	(0.524)	101852	56.9727	56.973
	12 Acrolein	56	2.911	2.911	(0.545)	89537	299.069	299.07
	13 Methylene Chloride	84	3.148	3.148	(0.590)	142612	60.9988	60.999
	14 Acetone	43	3.258	3.258	(0.610)	141392	279.445	279.44
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	166351	57.0214	57.021
	16 Methyl tert butyl ether	73	3.483	3.483	(0.652)	383774	57.0455	57.046
	173 n-Hexane	41	3.483	3.483	(0.652)	75107	28.3330	28.333
	17 1,1-Dichloroethane	63	3.939	3.939	(0.738)	262639	58.2777	58.278
	18 Acrylonitrile	53	4.024	4.024	(0.754)	32561	57.0859	57.086
	19 Vinyl Acetate	43	4.243	4.243	(0.795)	255524	54.7674	54.767
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.836)	183748	55.8583	55.858
	22 2,2-Dichloropropane	77	4.553	4.553	(0.853)	291372	58.3278	58.328
	23 Bromochloromethane	128	4.645	4.645	(0.870)	87480	55.9650	55.965
	24 Chloroform	83	4.730	4.730	(0.886)	289484	55.3398	55.340
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	290193	48.6050	48.605
$	27 Dibromofluoromethane	111	4.894	4.894	(0.917)	277396	60.9452	60.945(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.916)	307135	57.5649	57.565
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	236160	49.9472	49.947
	29 2-Butanone	72	5.046	5.046	(0.945)	70536	278.849	278.85
	30 Benzene	78	5.223	5.223	(0.903)	660444	49.6571	49.657
*	31 Pentafluorobenzene	168	5.338	5.338	(1.000)	370608	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.002)	255663	57.3326	57.333(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	207689	45.4956	45.496

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	5.734	5.734	(0.992)	203551	49.9854	49.985
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	831682	50.0000	
	37	Dibromomethane	93	6.099	6.099	(1.055)	89917	46.9426	46.943
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	142250	46.9528	46.953
	39	Bromodichloromethane	83	6.251	6.251	(1.081)	223125	47.4294	47.429
	172	2-Pentanone	86	6.543	6.543	(1.132)	96082	245.357	245.36
	40	2-Chloroethyl Vinyl Ether	63	6.756	6.756	(1.168)	75392	45.6722	45.672
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	262954	48.3049	48.305
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1071519	52.1655	52.165(R)
	43	Toluene	92	6.981	6.981	(1.207)	448973	47.7180	47.718
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	210775	46.1320	46.132
	45	4-Methyl-2-Pentanone	58	7.334	7.334	(1.268)	223621	236.917	236.92
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	240267	48.0909	48.091
	47	1,1,2-Trichloroethane	97	7.480	7.480	(1.294)	125791	46.6134	46.613
	48	Chlorodibromomethane	129	7.620	7.620	(0.923)	174370	44.2490	44.249
	49	1,3-Dichloropropane	76	7.705	7.705	(0.933)	214587	44.3654	44.365
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	128788	47.3943	47.394
	51	2-Hexanone	43	8.045	8.045	(0.974)	387036	223.400	223.40
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	852840	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	510328	44.0389	44.039
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	861586	45.4617	45.462
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	192006	46.0999	46.100
	56	m,p-xylene	106	8.435	8.435	(1.021)	692718	92.5640	92.564
	57	o-Xylene	106	8.806	8.806	(1.066)	328601	46.6919	46.692
	58	Styrene	104	8.854	8.854	(1.072)	536487	46.3445	46.345
	59	Bromoform	173	8.867	8.867	(0.857)	118290	41.3443	41.344
	60	Isopropyl Benzene	105	9.086	9.086	(0.878)	903376	45.8828	45.883
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1491		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	380134	51.4155	51.416(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	216407	42.9822	42.982
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	1004465	44.4583	44.458
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	155000	43.5506	43.551
	66	2-Chloro Toluene	91	9.591	9.591	(0.927)	584400	44.8321	44.832
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	745012	45.5727	45.573
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	55229	43.4361	43.436
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	45180	42.8792	42.879
	70	4-Chloro Toluene	91	9.743	9.743	(0.941)	606596	44.1898	44.190
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	680516	45.1699	45.170
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	724080	45.1322	45.132
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	986892	45.3411	45.341
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	851250	45.6489	45.649
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	433976	44.1407	44.141
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	483396	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	426232	42.6491	42.649
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	711034	44.5085	44.508
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	459379	50.7211	50.721(R)
	80	1,2-Dichlorobenzene	146	10.753	10.753	(1.039)	391107	41.9743	41.974
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	31391	43.1170	43.117
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	152998	44.2389	44.239
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	251216	42.7983	42.798
	84	Naphthalene	128	12.486	12.486	(1.206)	525088	42.9022	42.902
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	221476	41.6103	41.610

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031902A.D
Lab Smp Id: bhi0056-bs1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	370608	-19.08
35 1,4-Difluorobenze	852165	426083	1704330	831682	-2.40
52 d5-Chlorobenzene	803678	401839	1607356	852840	6.12
76 d4-1,4-Dichlorobe	439766	219883	879532	483396	9.92

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151013
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: bhi0056-bs1
Level:
Operator: PB
Data Type: MS DATA
SampleType: LCS
SpikeList File: voasoil.spk
Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	60.140	120.28	
2	Chloromethane	50.000	59.385	118.77	
3	Vinyl Chloride	50.000	59.364	118.73	
4	Bromomethane	50.000	52.581	105.16	
5	Chloroethane	50.000	58.593	117.19	
6	Trichlorofluoromet	50.000	59.143	118.29	
12	Acrolein	250.00	299.07	119.63	
9	112Trichloro122Tri	50.000	54.363	108.73	
14	Acetone	250.00	279.44	111.78	
7	1,1-Dichloroethene	50.000	58.235	116.47	
11	Bromoethane	50.000	56.973	113.95	
10	Iodomethane	50.000	64.678	129.36	
13	Methylene Chloride	50.000	60.999	122.00	
8	Carbon Disulfide	50.000	55.732	111.46	
18	Acrylonitrile	50.000	57.086	114.17	
15	Trans-1,2-Dichloro	50.000	57.021	114.04	
19	Vinyl Acetate	50.000	54.767	109.53	
17	1,1-Dichloroethane	50.000	58.278	116.56	
29	2-Butanone	250.00	278.85	111.54	
22	2,2-Dichloropropan	50.000	58.328	116.66	
20	Cis-1,2-Dichloroet	50.000	55.858	111.72	
24	Chloroform	50.000	55.340	110.68	
23	Bromochloromethane	50.000	55.965	111.93	
26	1,1,1-Trichloroeth	50.000	57.565	115.13	
28	1,1-Dichloropropen	50.000	49.947	99.89	
25	Carbon Tetrachlori	50.000	48.605	97.21	
33	1,2-Dichloroethane	50.000	45.496	90.99	
30	Benzene	50.000	49.657	99.31	
34	Trichloroethene	50.000	49.985	99.97	
38	1,2-Dichloropropan	50.000	46.953	93.91	
39	Bromodichlorometha	50.000	47.429	94.86	
172	2-Pentanone	250.00	245.36	98.14	
37	Dibromomethane	50.000	46.943	93.89	
40	2-Chloroethyl Viny	50.000	45.672	91.34	
45	4-Methyl-2-Pentano	250.00	236.92	94.77	
41	Cis 1,3-dichloropr	50.000	48.305	96.61	
43	Toluene	50.000	47.718	95.44	
46	Trans 1,3-Dichloro	50.000	48.091	96.18	
51	2-Hexanone	250.00	223.40	89.36	
47	1,1,2-Trichloroeth	50.000	46.613	93.23	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	44.365	88.73	
44 Tetrachloroethene	50.000	46.132	92.26	
48 Chlorodibromometha	50.000	44.249	88.50	
50 1,2-Dibromoethane	50.000	47.394	94.79	
53 Chlorobenzene	50.000	44.039	88.08	
55 1,1,1,2-Tetrachlor	50.000	46.100	92.20	
54 Ethyl Benzene	50.000	45.462	90.92	
56 m,p-xylene	100.00	92.564	92.56	
57 o-Xylene	50.000	46.692	93.38	
58 Styrene	50.000	46.345	92.69	
60 Isopropyl Benzene	50.000	45.883	91.77	
59 Bromoform	50.000	41.344	82.69	
65 1,1,2,2-Tetrachlor	50.000	43.551	87.10	
68 1,2,3-Trichloropro	50.000	43.436	86.87	
69 Trans-1,4-Dichloro	50.000	42.879	85.76	
64 N-Propyl Benzene	50.000	44.458	88.92	
63 Bromobenzene	50.000	42.982	85.96	
67 1,3,5-Trimethyl Be	50.000	45.573	91.15	
66 2-Chloro Toluene	50.000	44.832	89.66	
70 4-Chloro Toluene	50.000	44.190	88.38	
71 T-Butyl Benzene	50.000	45.170	90.34	
72 1,2,4-Trimethylben	50.000	45.132	90.26	
73 S-Butyl Benzene	50.000	45.341	90.68	
74 4-Isopropyl Toluen	50.000	45.649	91.30	
75 1,3-Dichlorobenzen	50.000	44.141	88.28	
77 1,4-Dichlorobenzen	50.000	42.649	85.30	
78 N-Butyl Benzene	50.000	44.508	89.02	
80 1,2-Dichlorobenzen	50.000	41.974	83.95	
81 1,2-Dibromo 3-Chlo	50.000	43.117	86.23	
83 1,2,4-Trichloroben	50.000	42.798	85.60	
82 Hexachloro 1,3-But	50.000	44.239	88.48	
84 Naphthalene	50.000	42.902	85.80	
85 1,2,3-Trichloroben	50.000	41.610	83.22	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	60.945	121.89	
$ 32 d4-1,2-Dichloroeth	50.000	57.333	114.67	
$ 42 d8-Toluene	50.000	52.165	104.33	
$ 62 4-Bromofluorobenze	50.000	51.416	102.83	
$ 79 d4-1,2-Dichloroben	50.000	50.721	101.44	

REVIEW SUMMARY FOR FILE - NT509031902A.D

Lab ID: bhi0056-bs1
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 12:38

RT	CO-ELUTION COMPOUNDS
3.483	n-Hexane and Methyl tert butyl ether
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

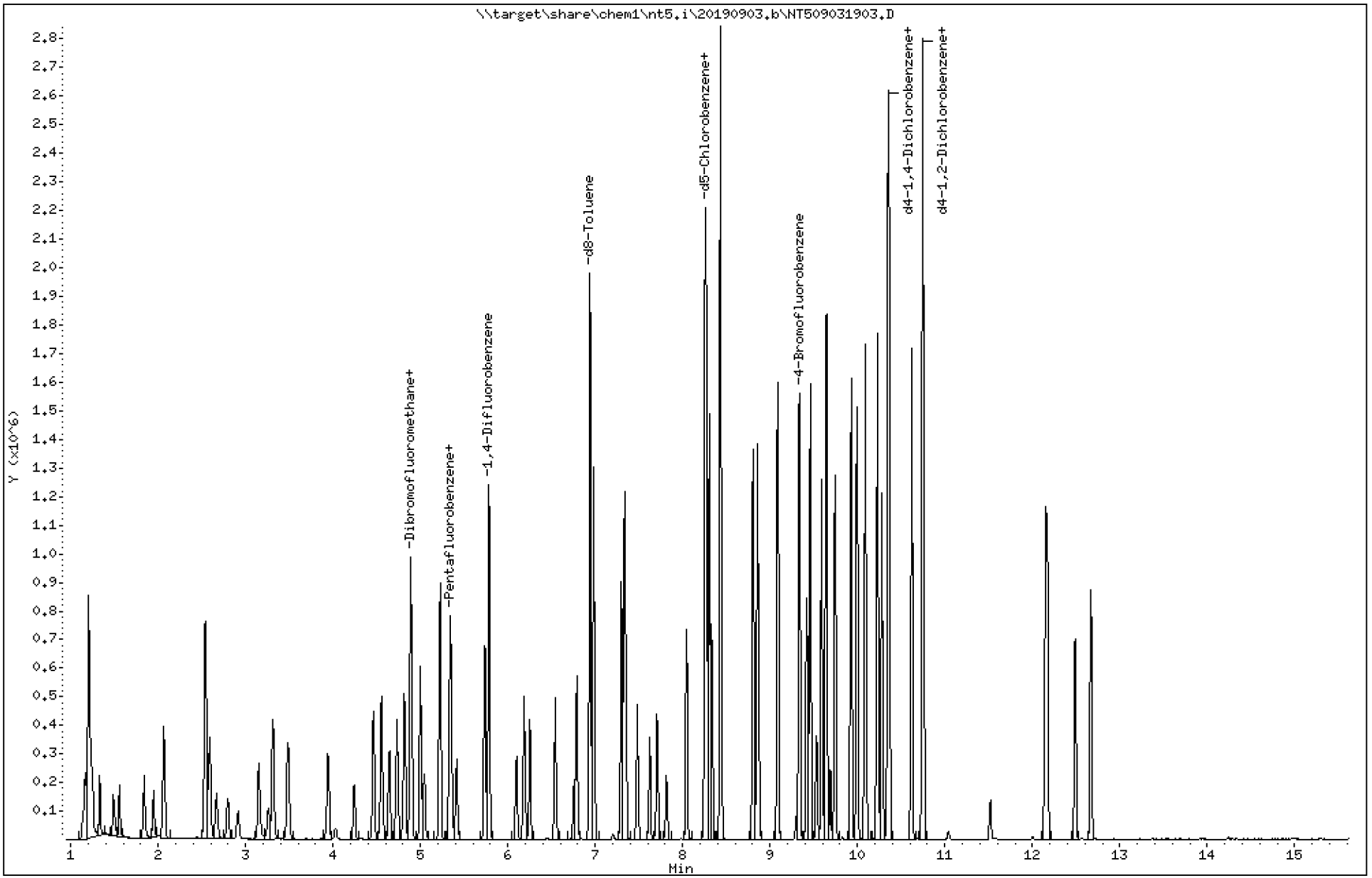
Instrument: nt5.i

Sample Info: BSD1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

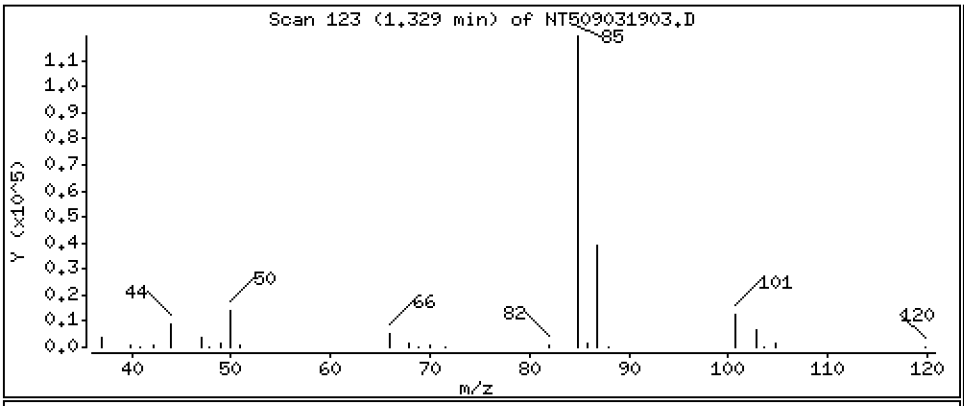
Operator: PB

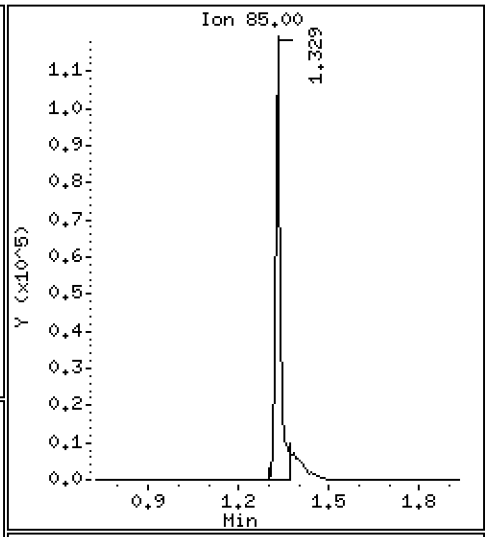
Column phase: RTXVMS

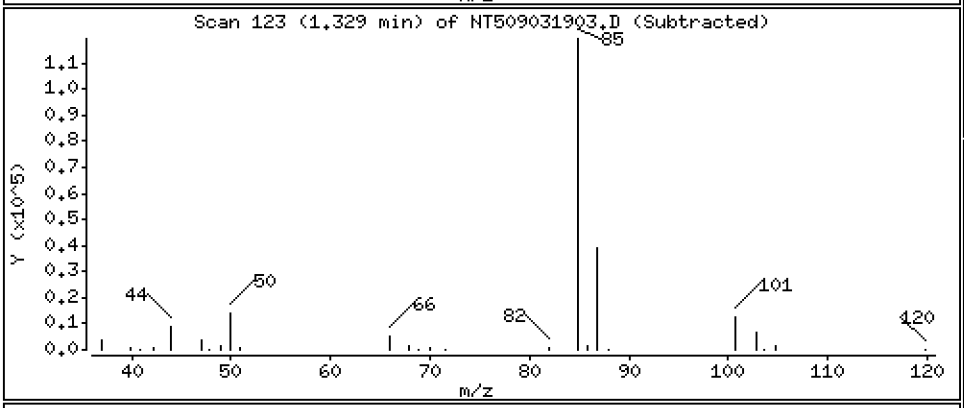
Column diameter: 0.18

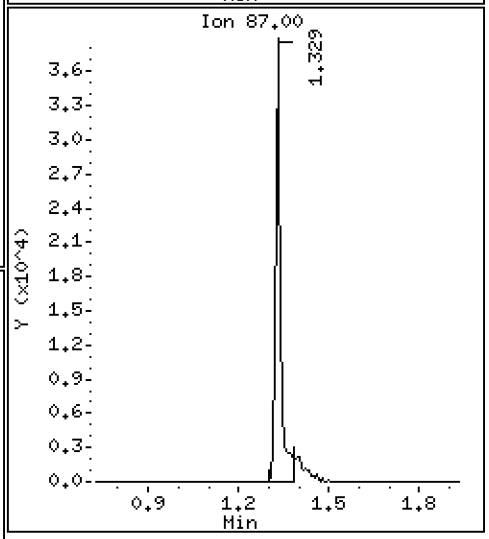
1 Dichlorodifluoromethane

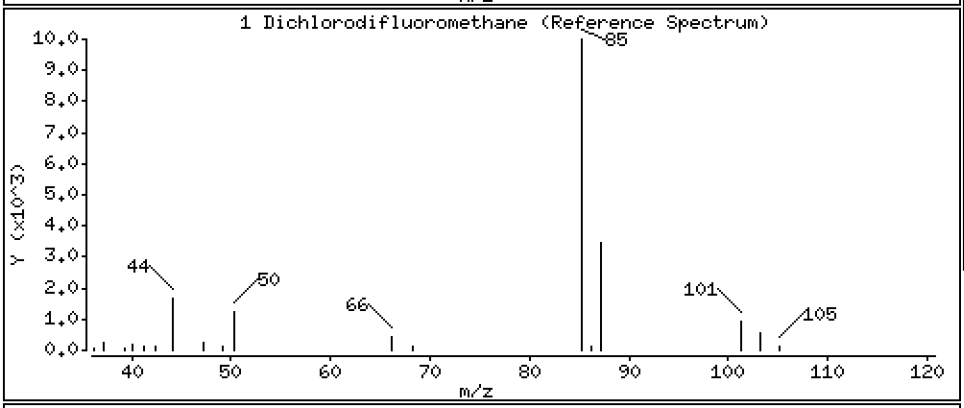
Concentration: 57.071 ug/Kg

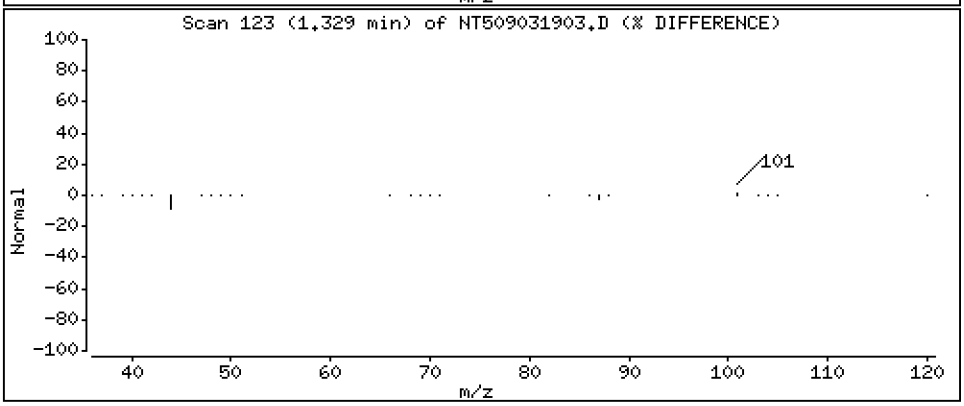












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

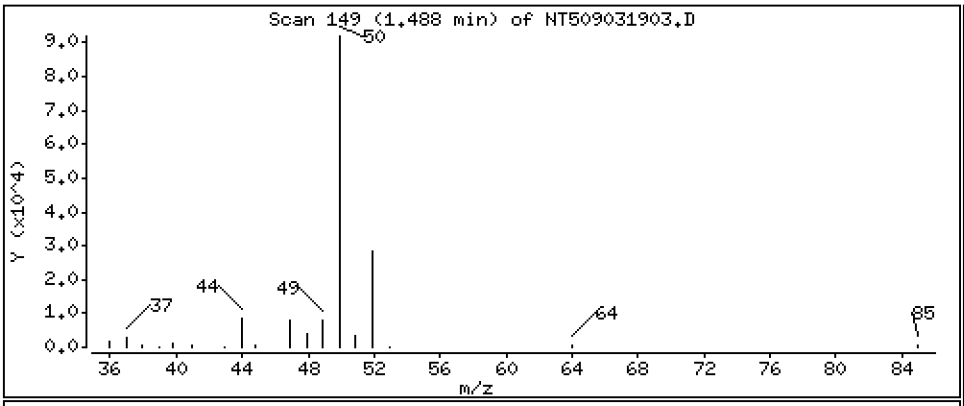
Operator: PB

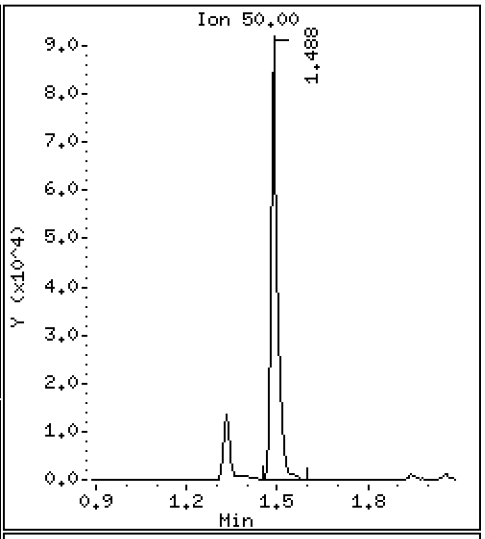
Column phase: RTXVMS

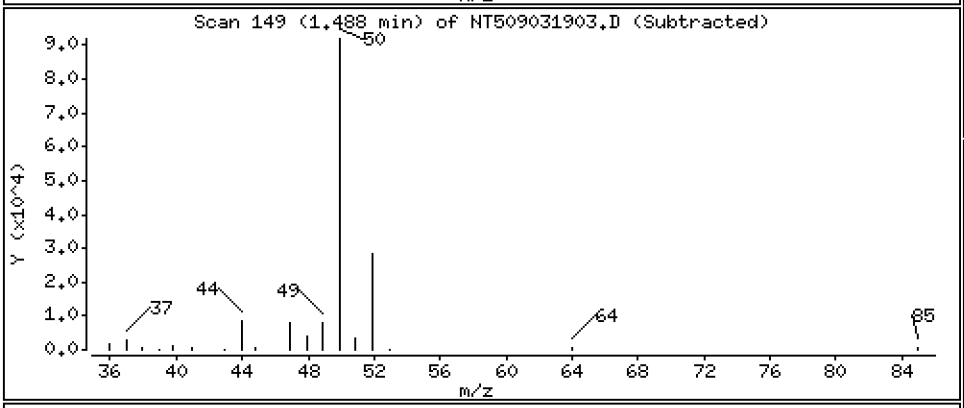
Column diameter: 0.18

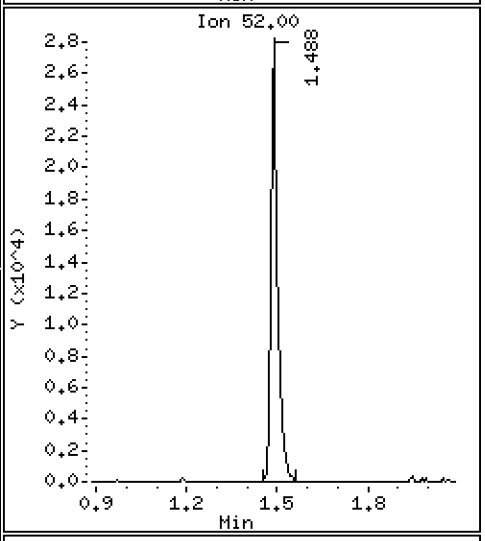
2 Chloromethane

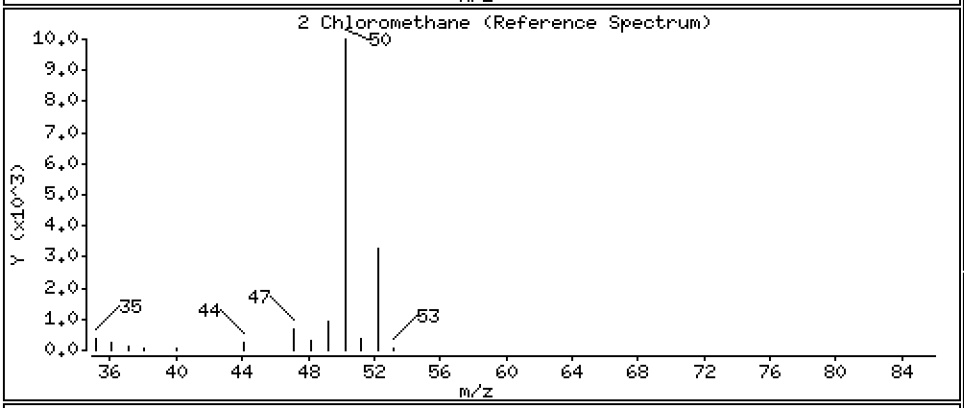
Concentration: 60.332 ug/Kg

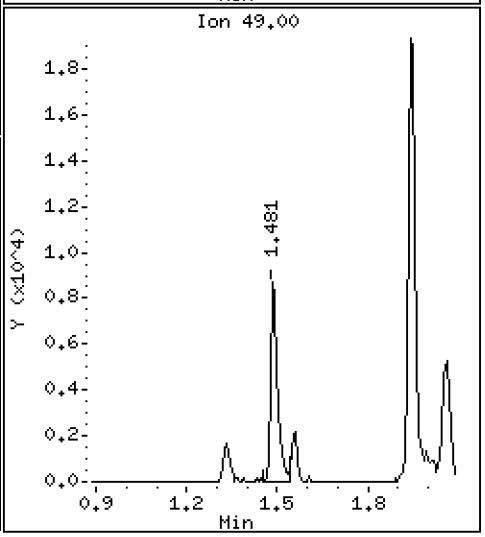


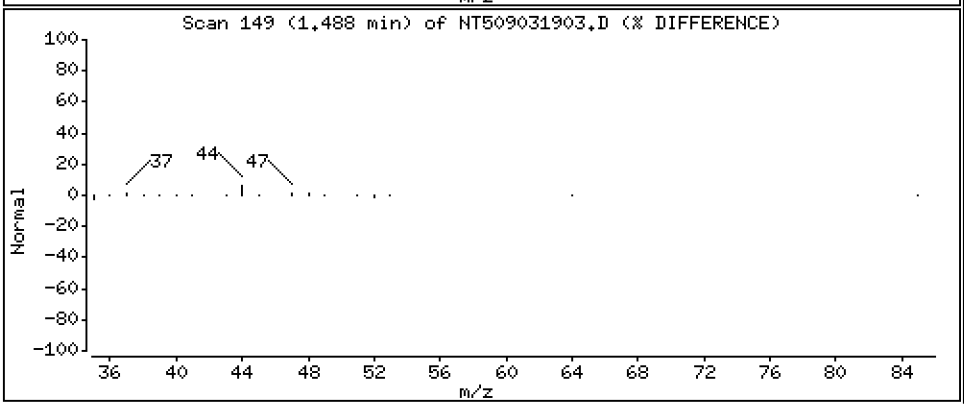












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

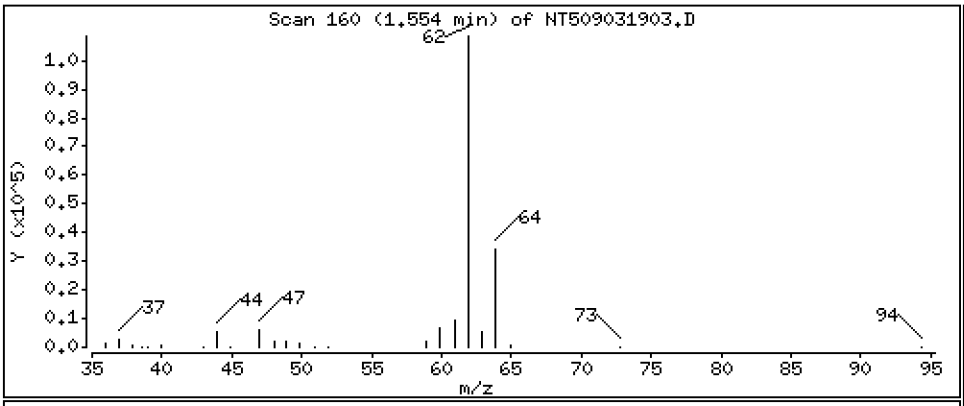
Operator: PB

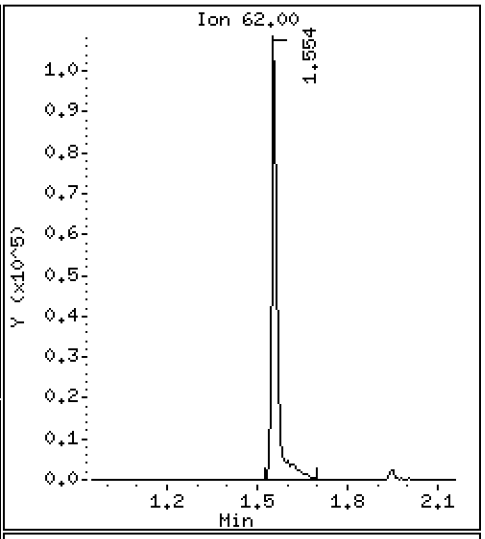
Column phase: RTXVMS

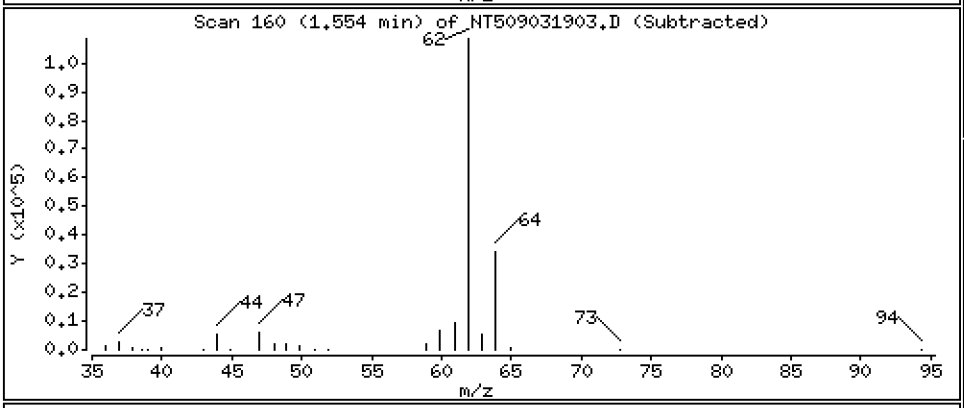
Column diameter: 0.18

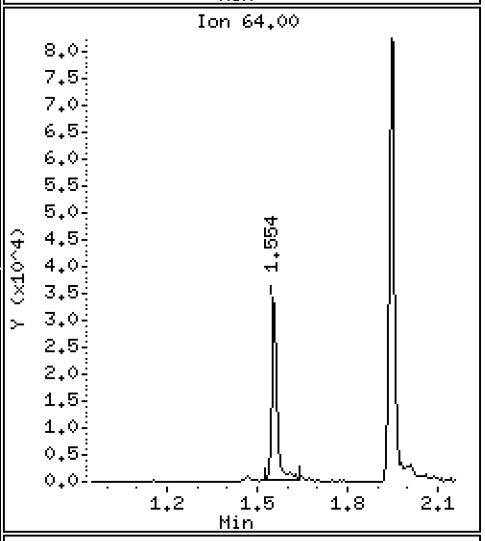
3 Vinyl Chloride

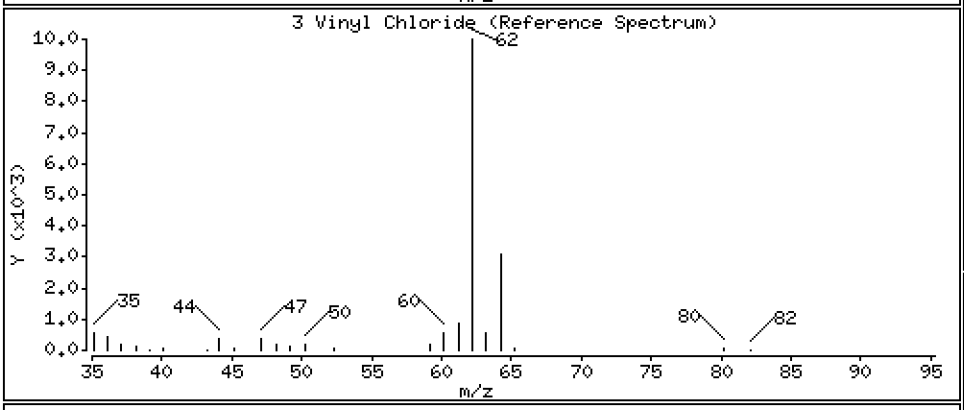
Concentration: 64.647 ug/Kg

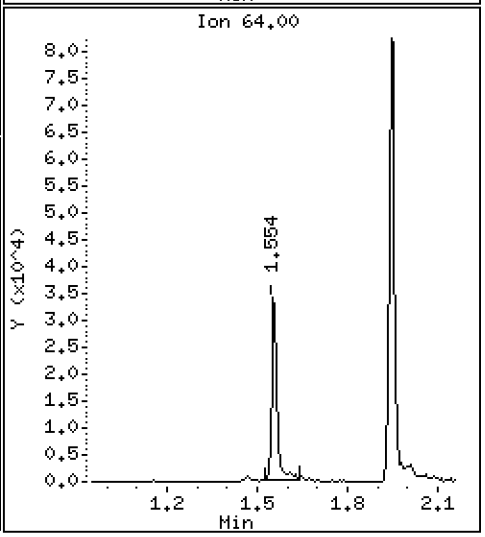


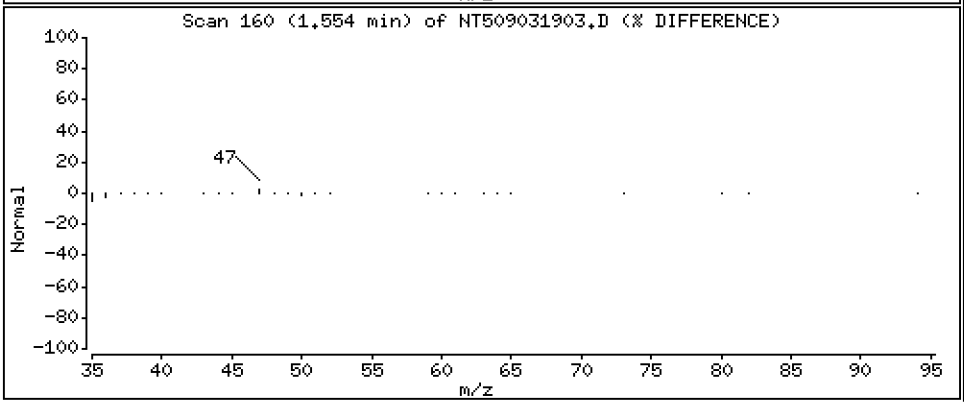












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

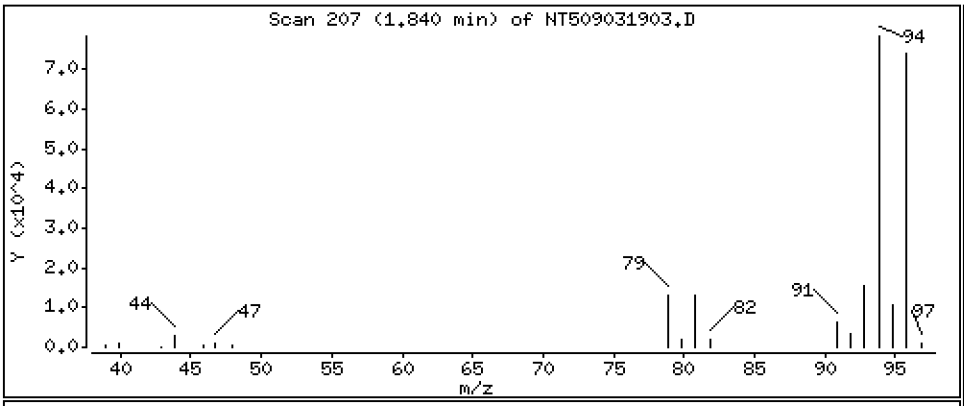
Operator: PB

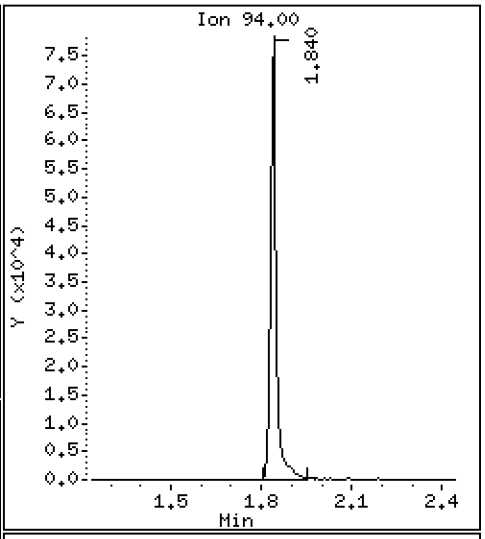
Column phase: RTXVMS

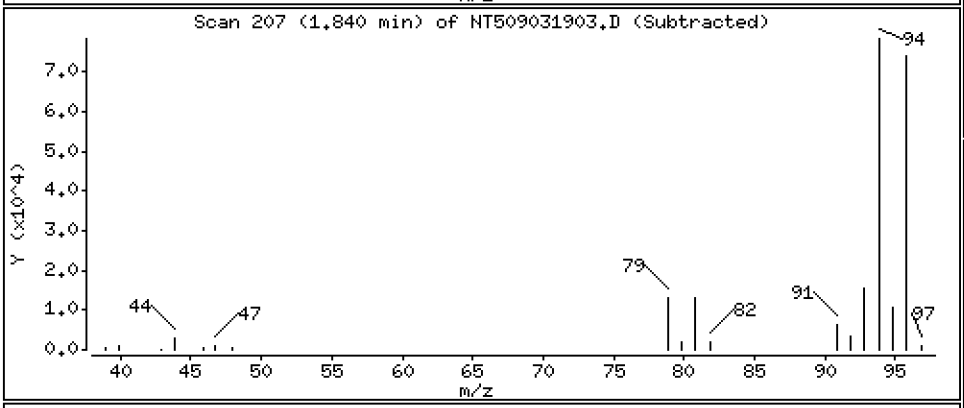
Column diameter: 0.18

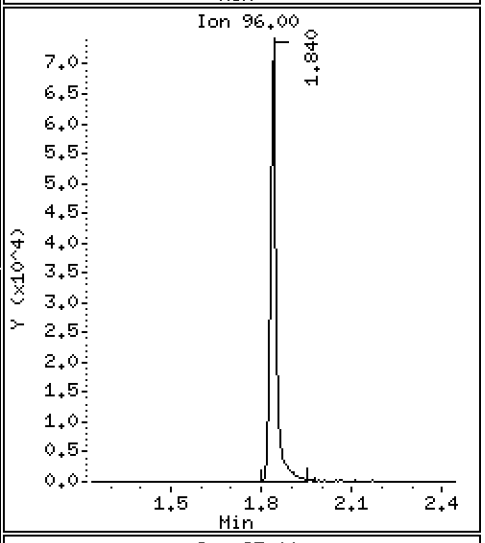
4 Bromomethane

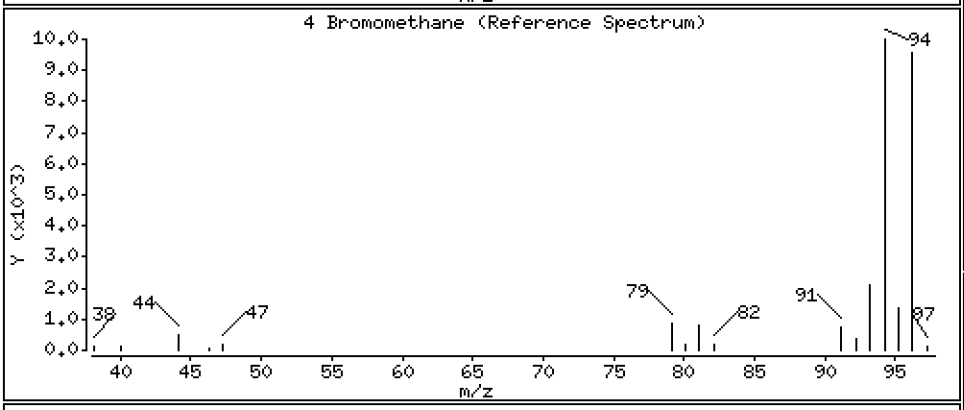
Concentration: 55.241 ug/Kg

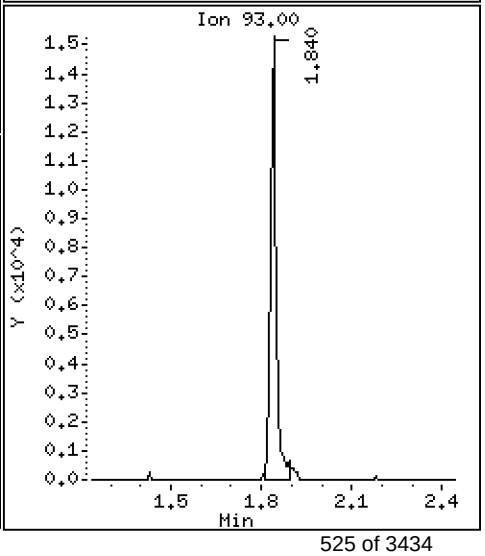


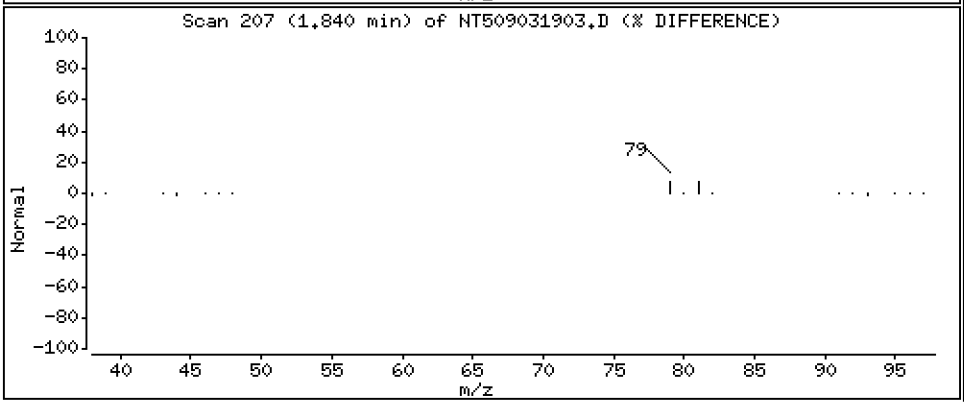












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

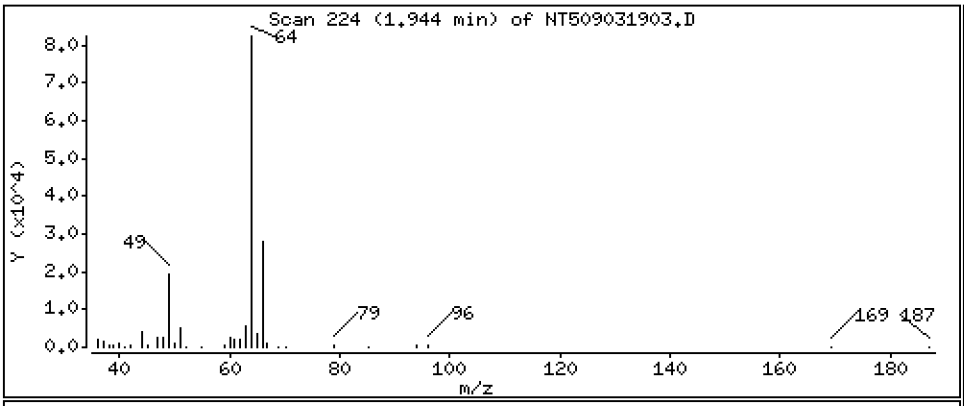
Operator: PB

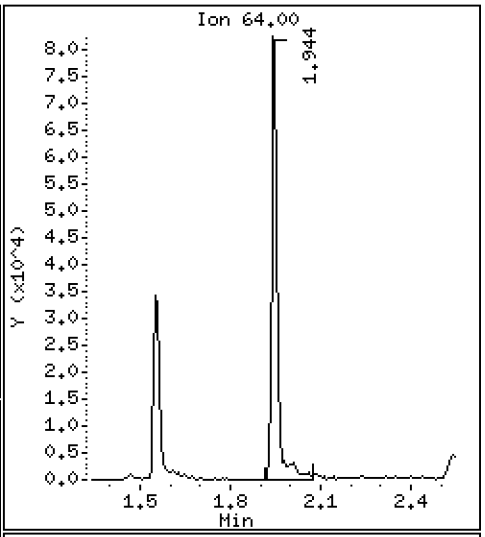
Column phase: RTXVMS

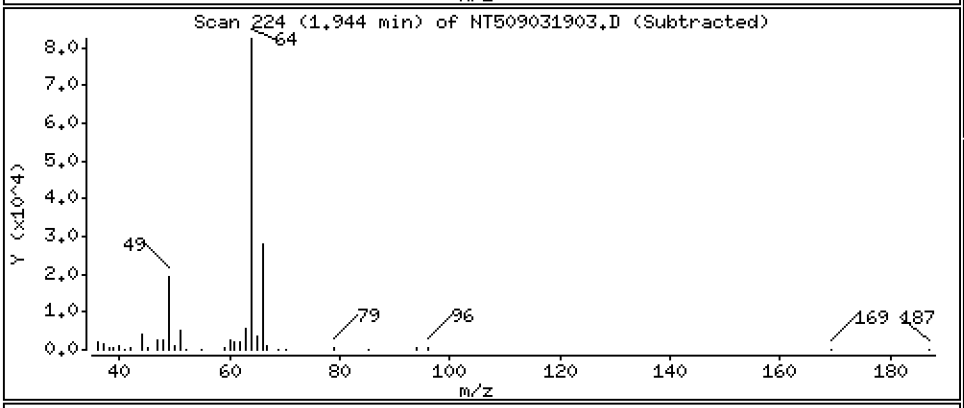
Column diameter: 0.18

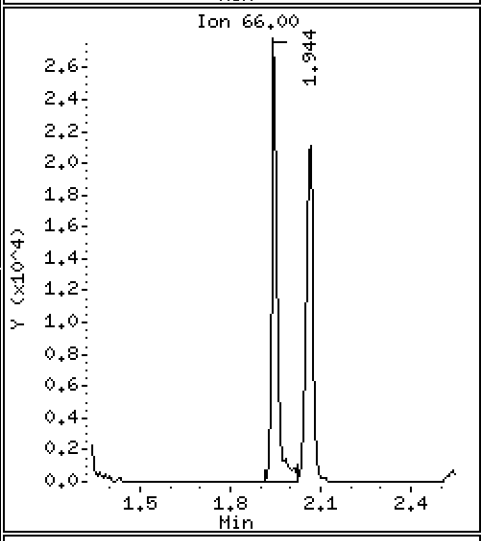
5 Chloroethane

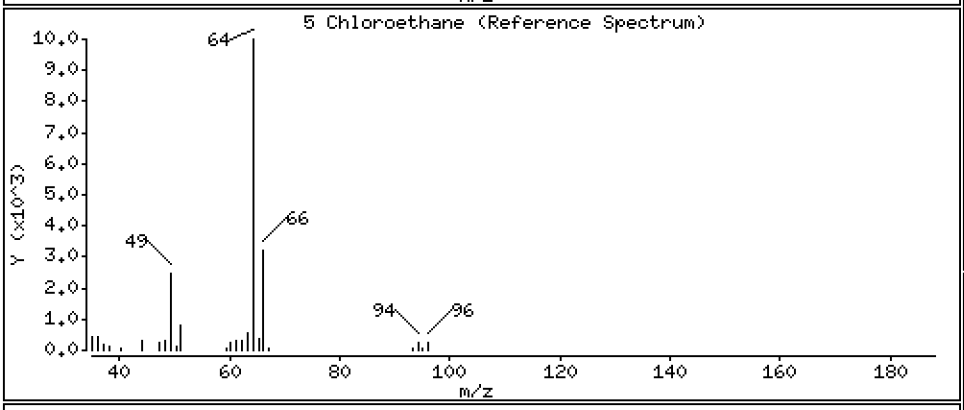
Concentration: 61.087 ug/Kg

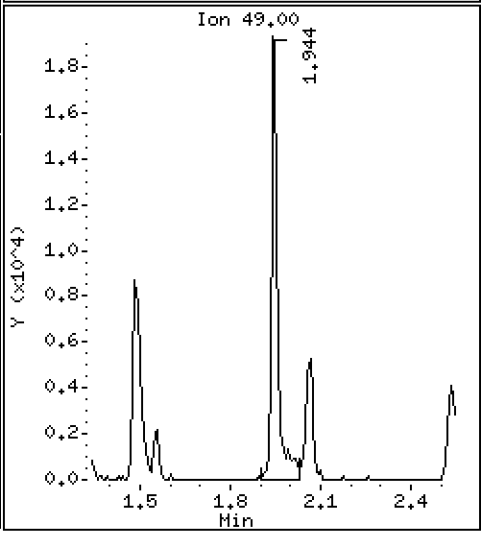


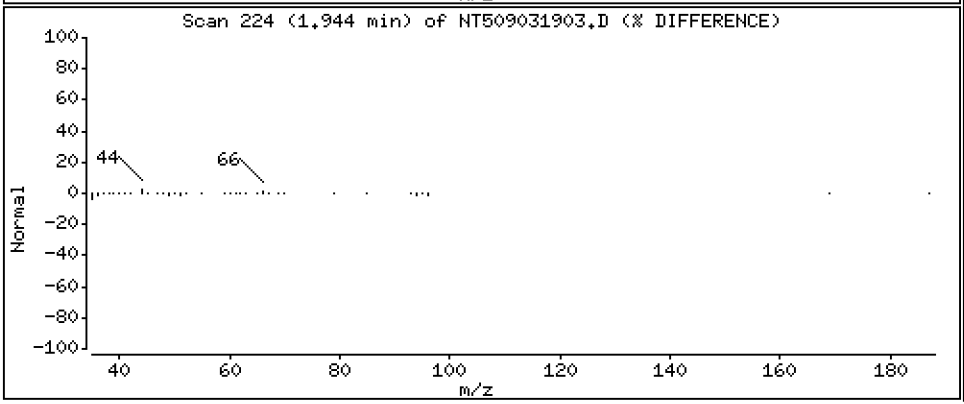












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

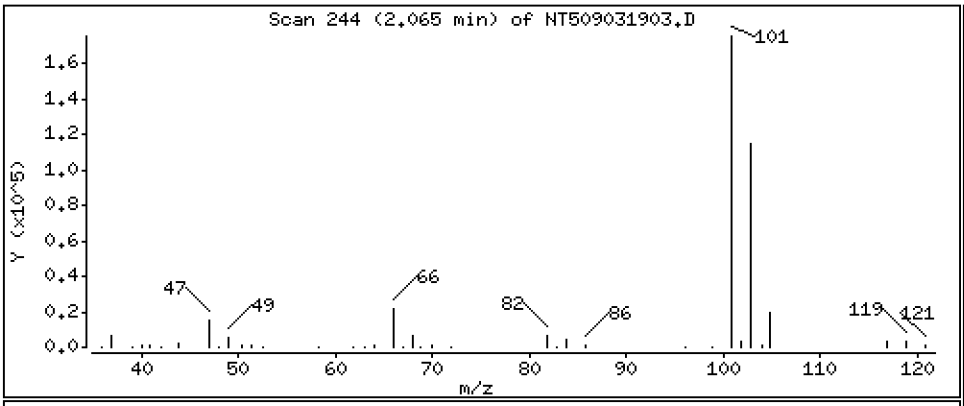
Operator: PB

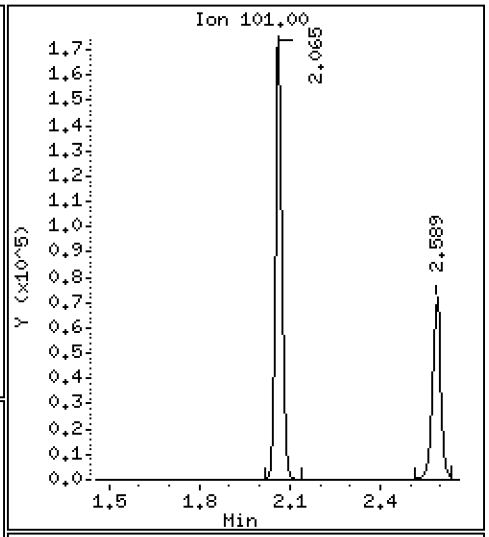
Column phase: RTXVMS

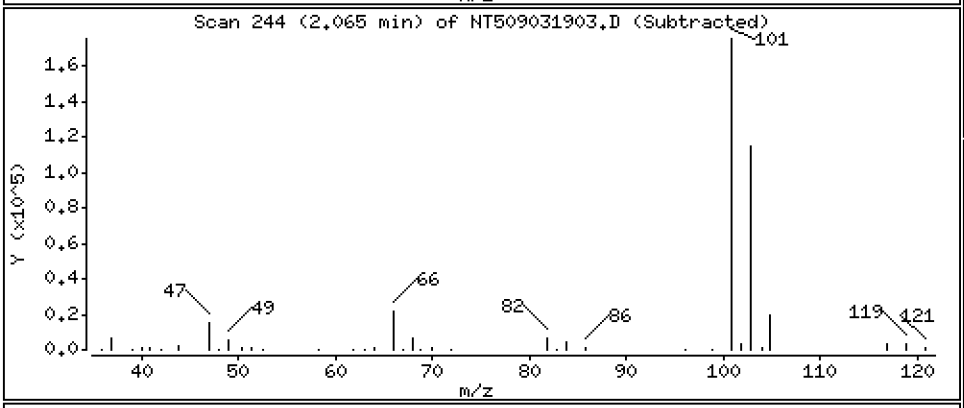
Column diameter: 0.18

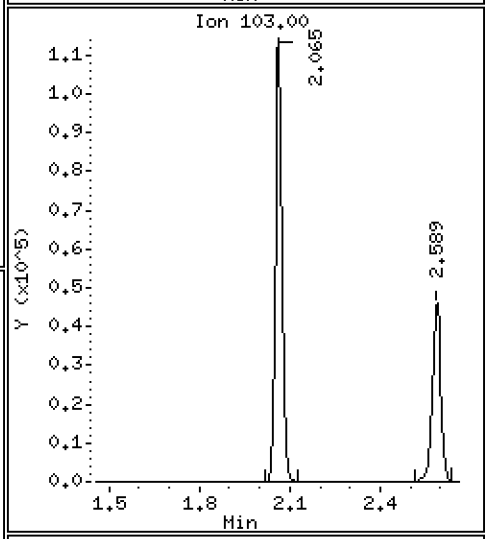
6 Trichlorofluoromethane

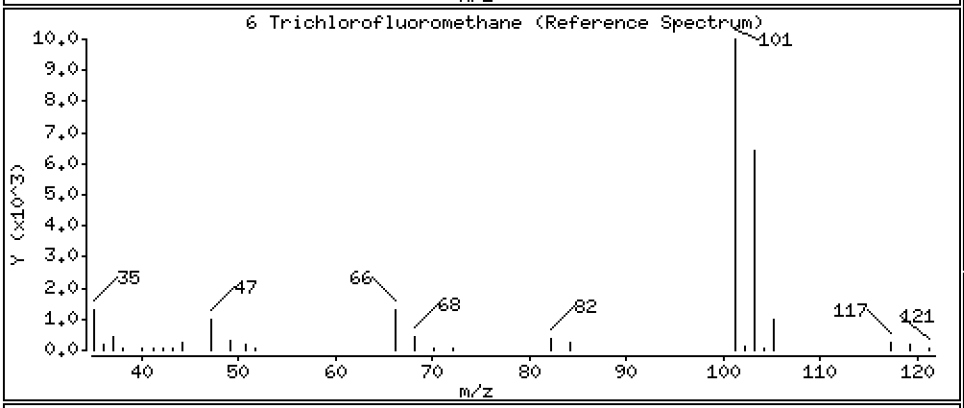
Concentration: 59.850 ug/Kg

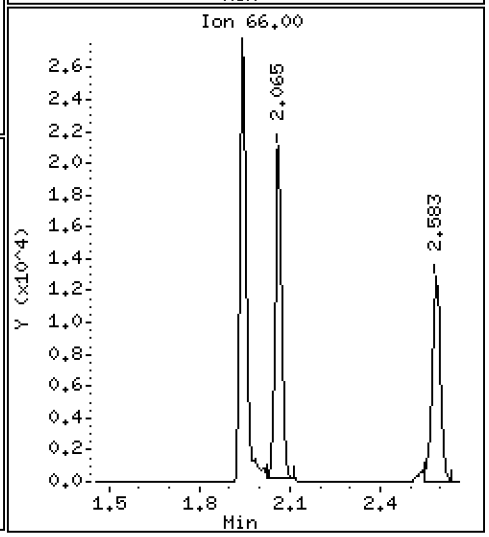


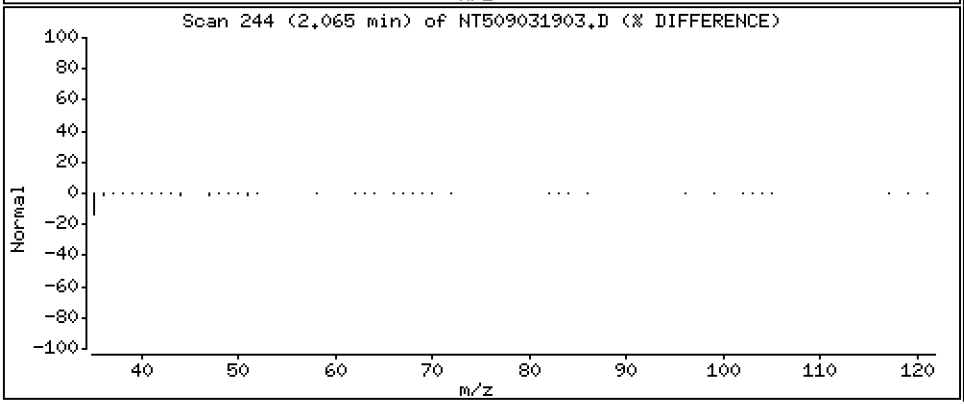












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

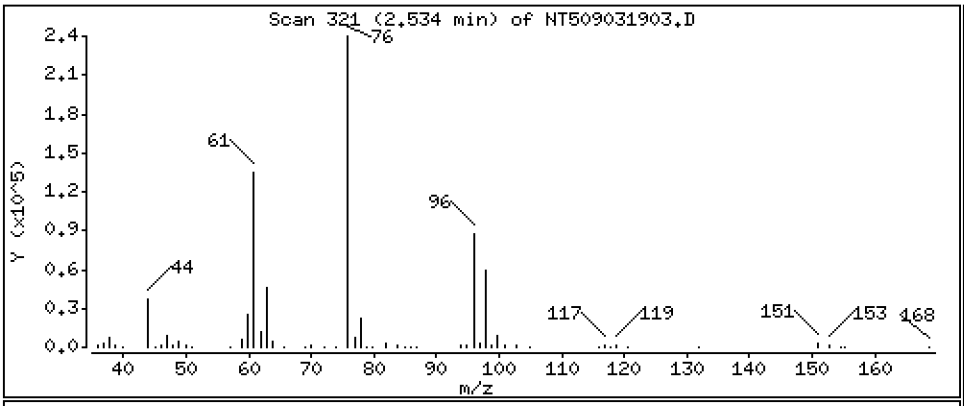
Operator: PB

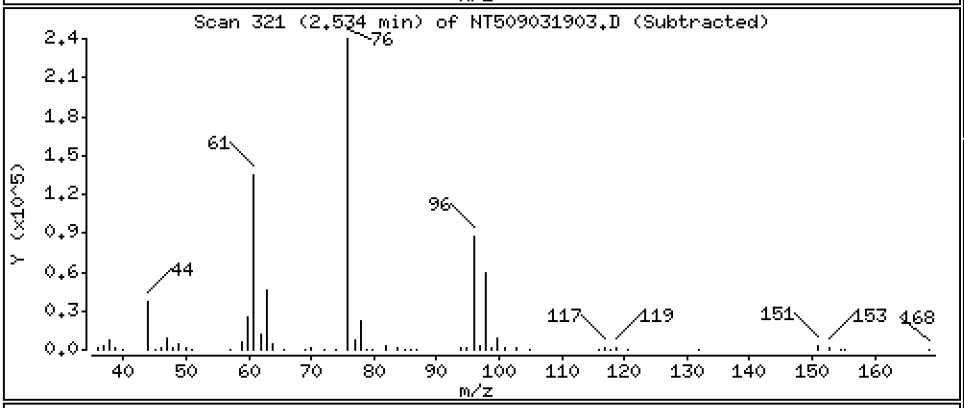
Column phase: RTXVMS

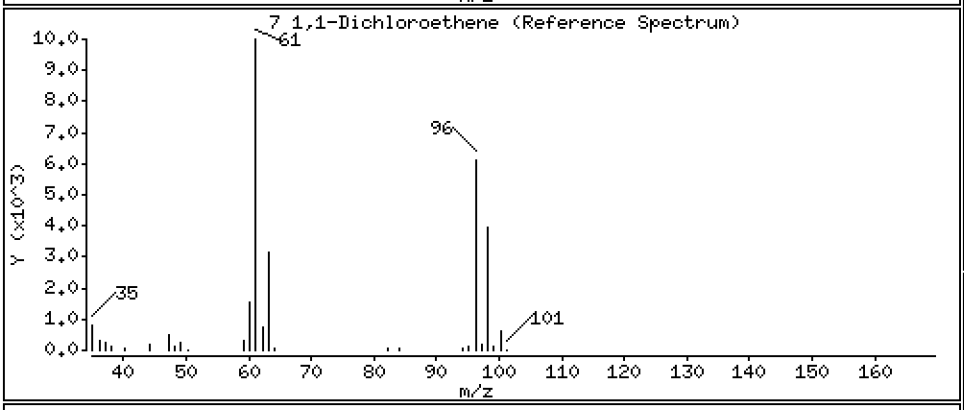
Column diameter: 0.18

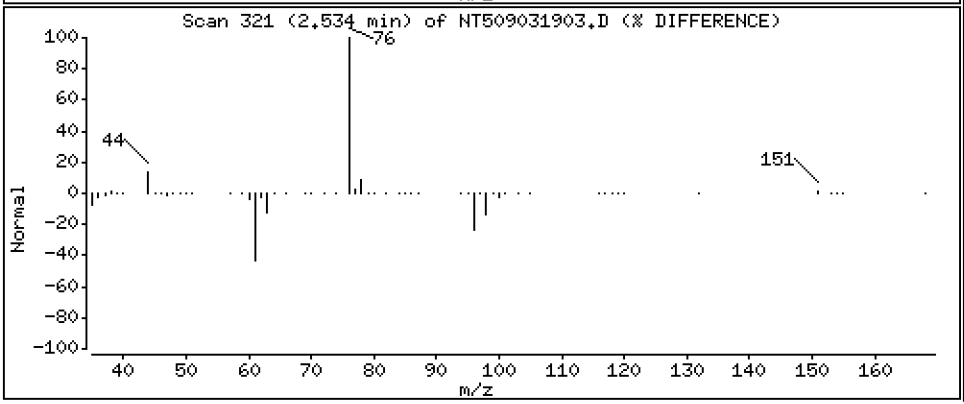
7 1,1-Dichloroethene

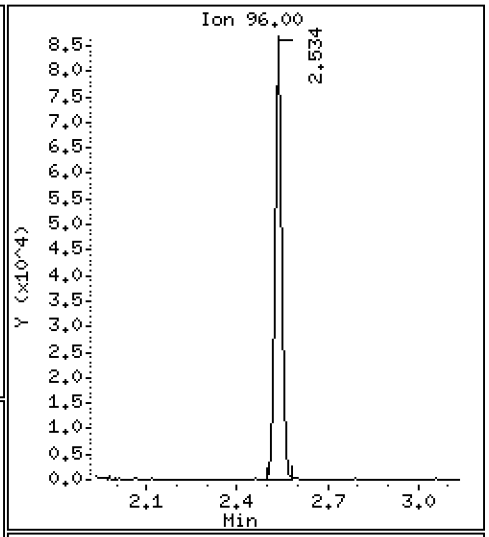
Concentration: 60.204 ug/Kg

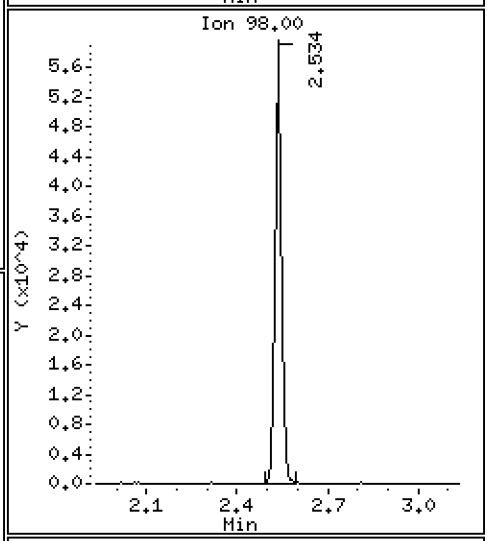


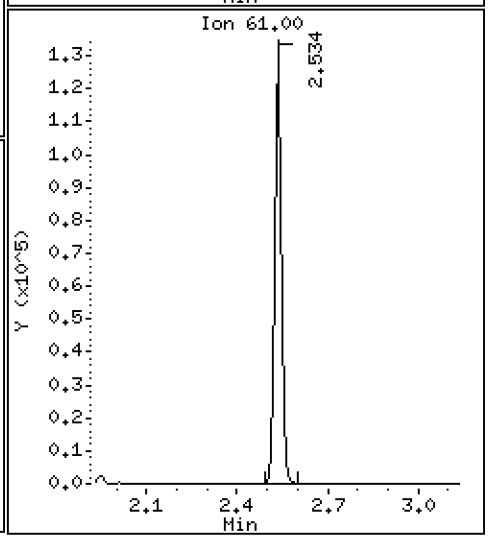












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

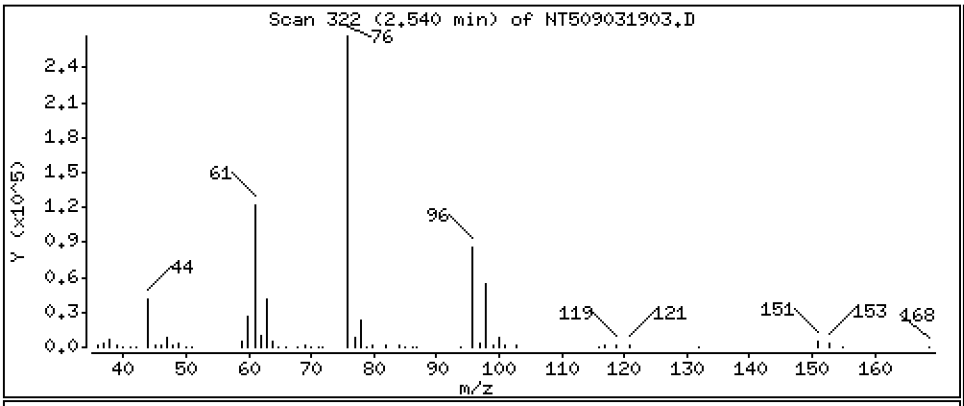
Operator: PB

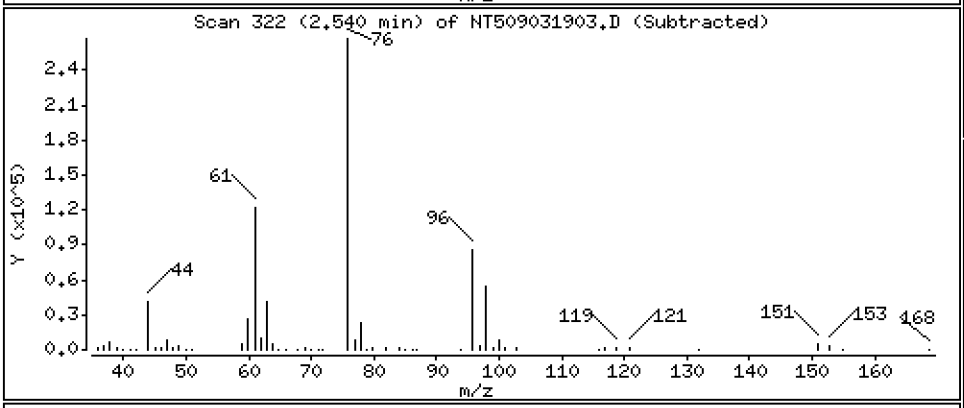
Column phase: RTXVMS

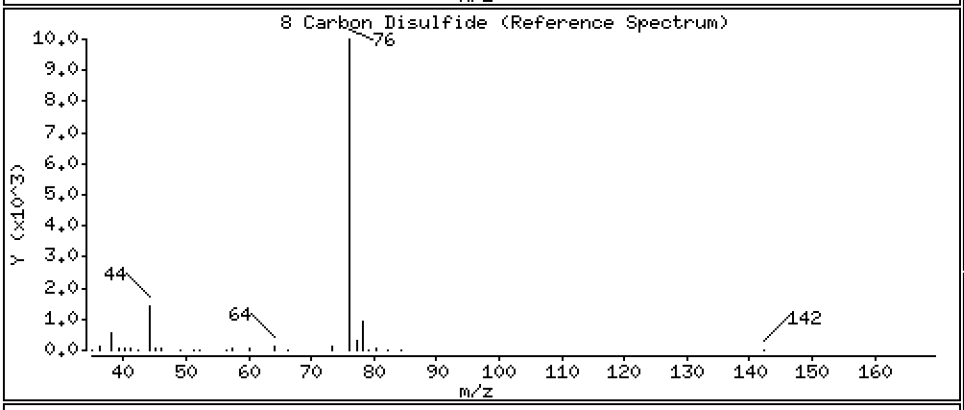
Column diameter: 0.18

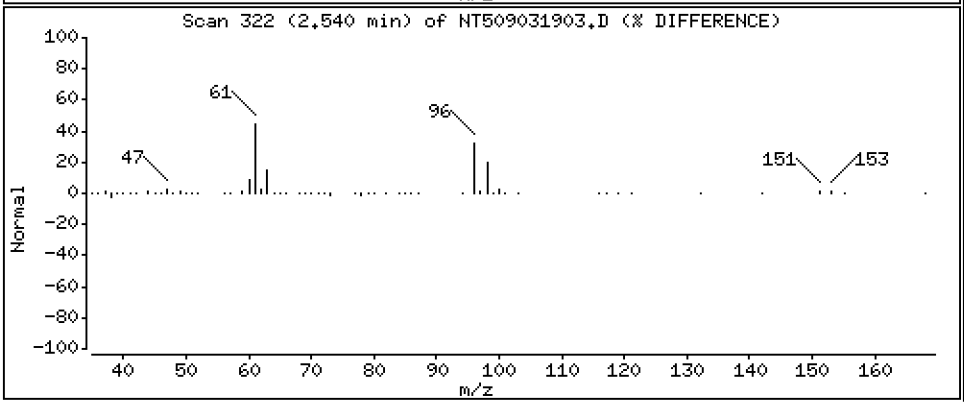
8 Carbon Disulfide

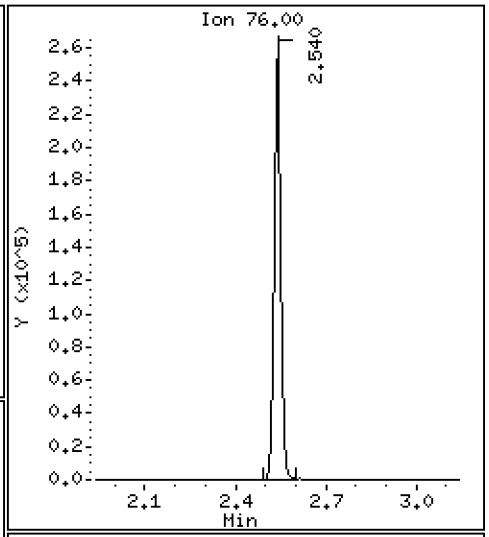
Concentration: 58.753 ug/Kg

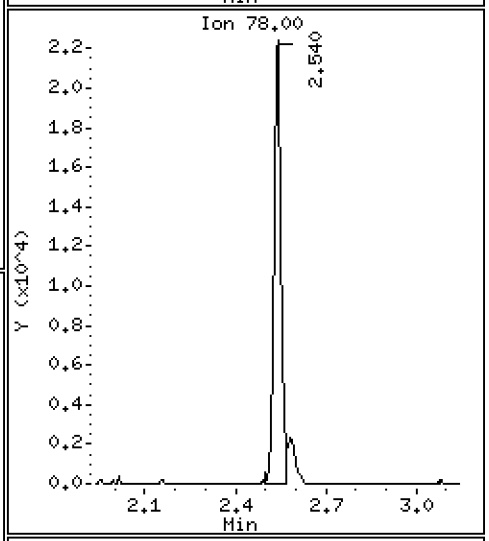


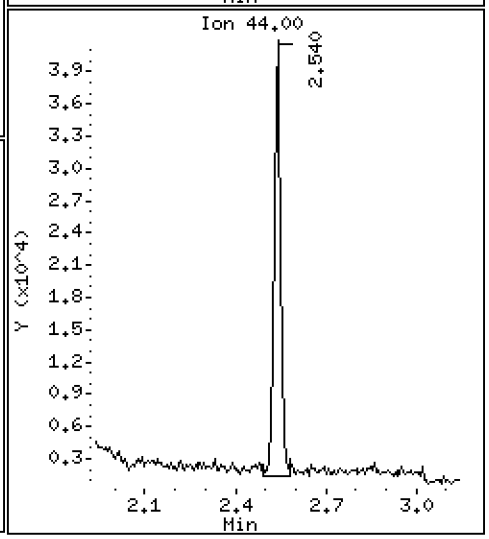












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

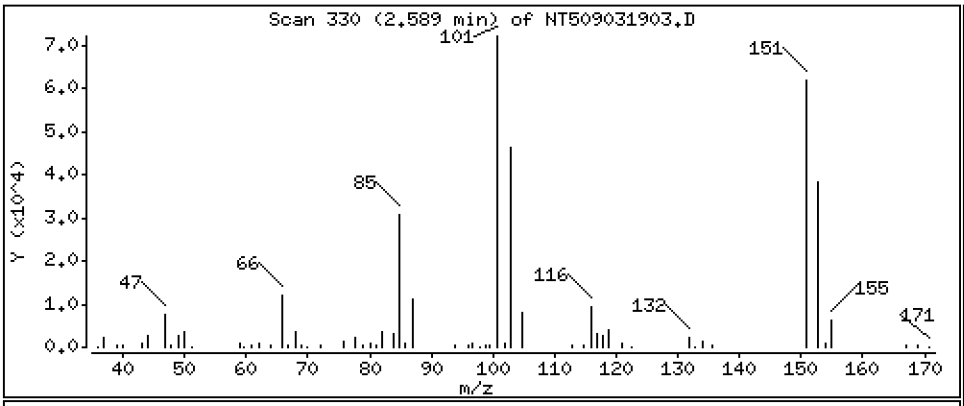
Operator: PB

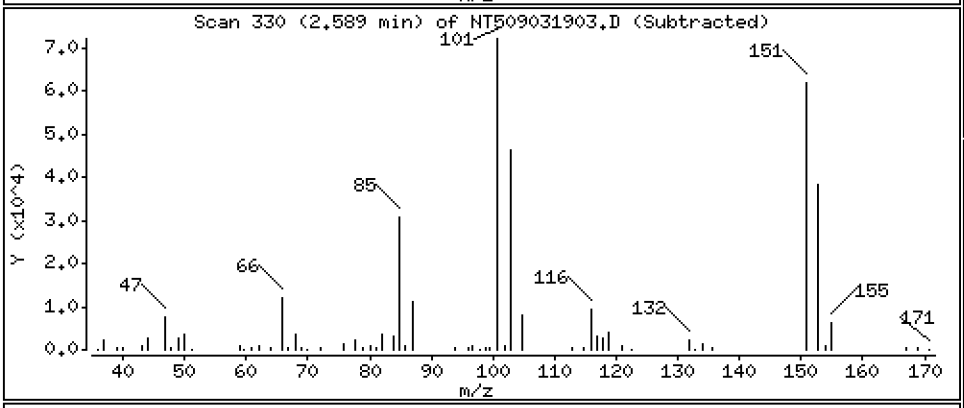
Column phase: RTXVMS

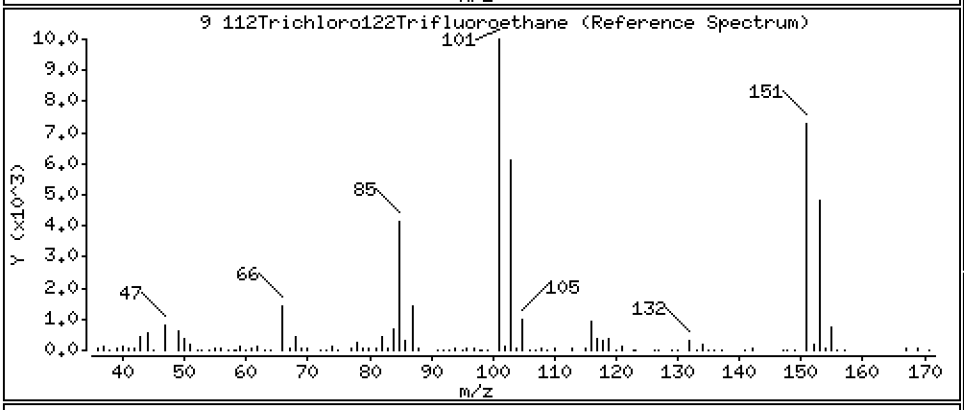
Column diameter: 0.18

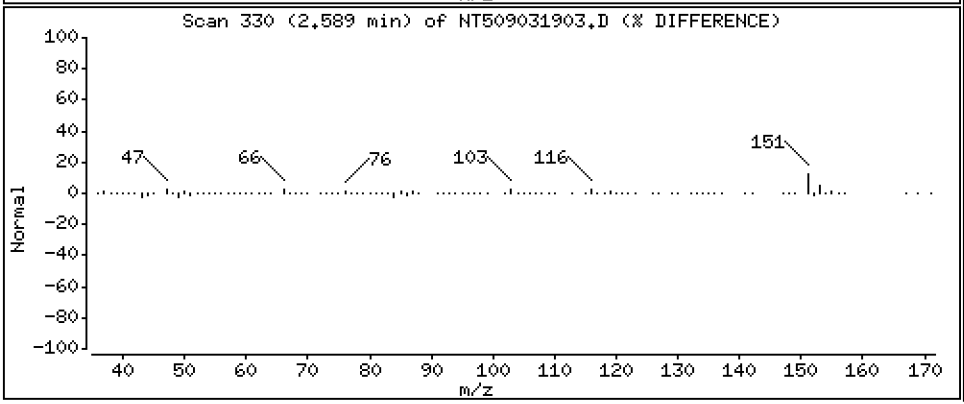
9 112Trichloro122Trifluoroethane

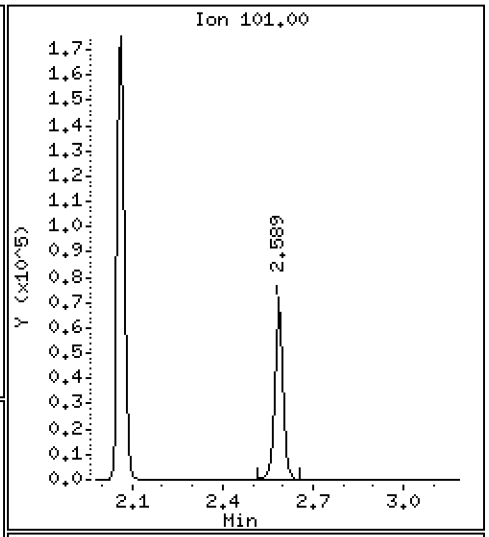
Concentration: 59.278 ug/Kg

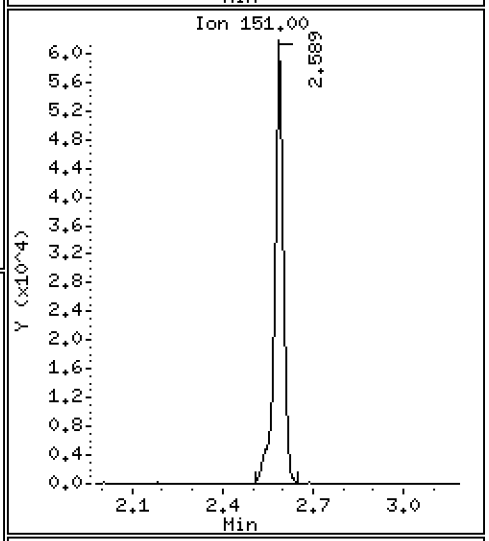


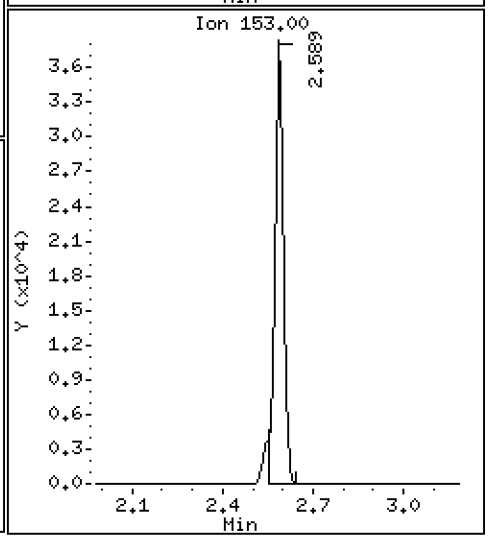












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

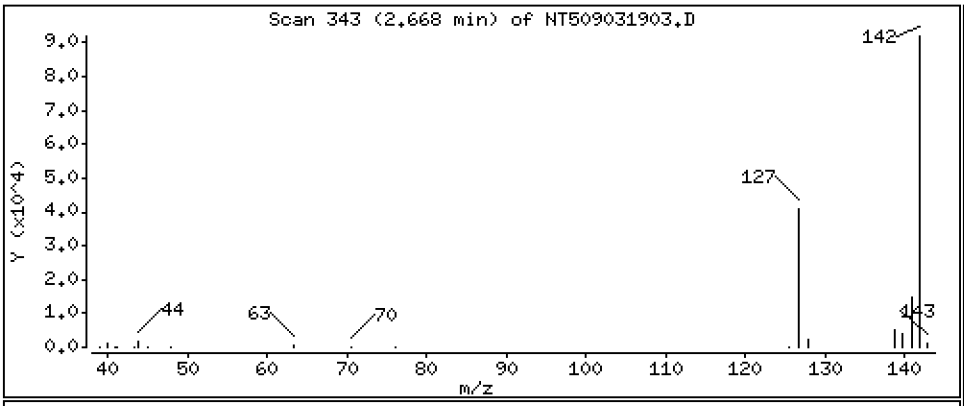
Operator: PB

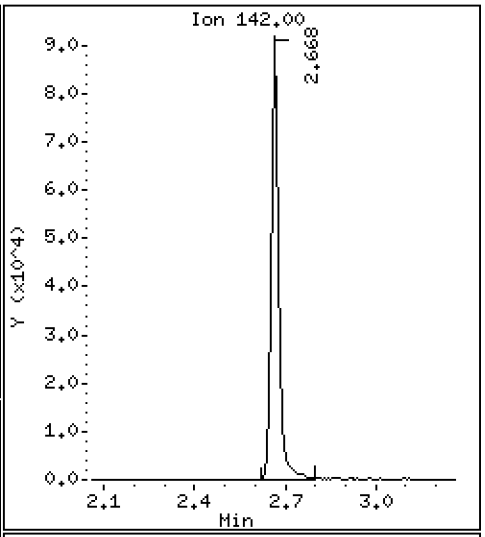
Column phase: RTXVMS

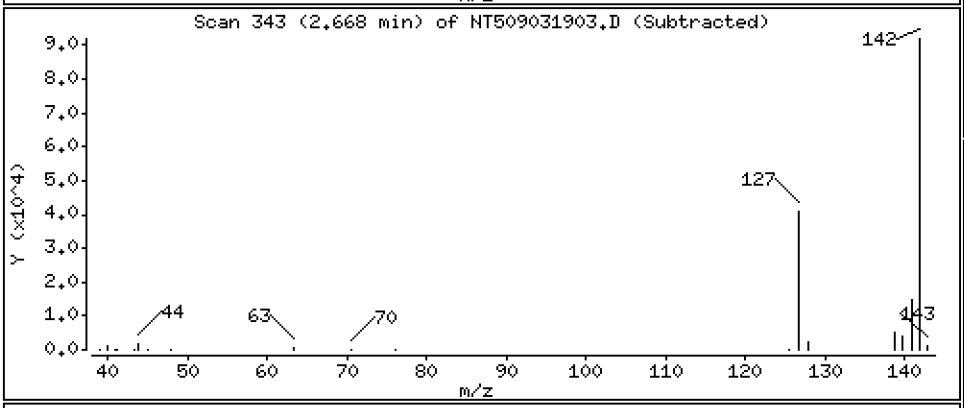
Column diameter: 0.18

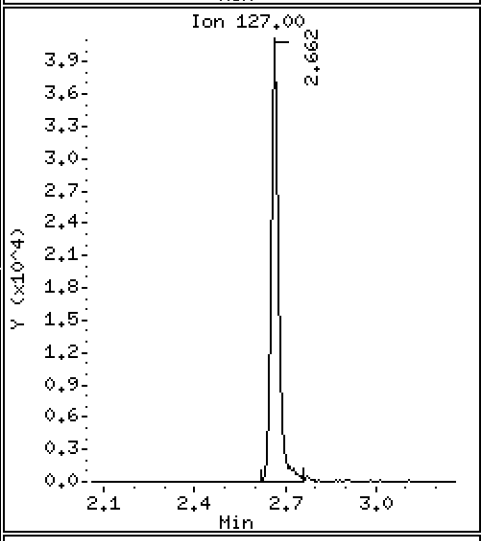
10 Iodomethane

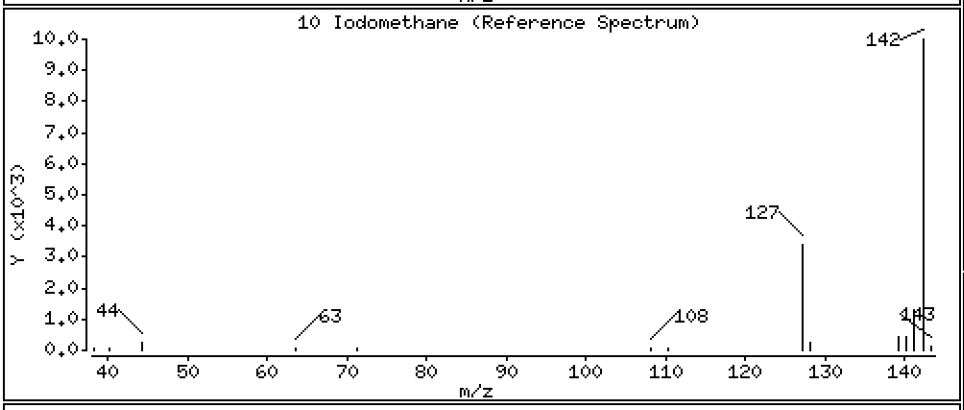
Concentration: 64.930 ug/Kg

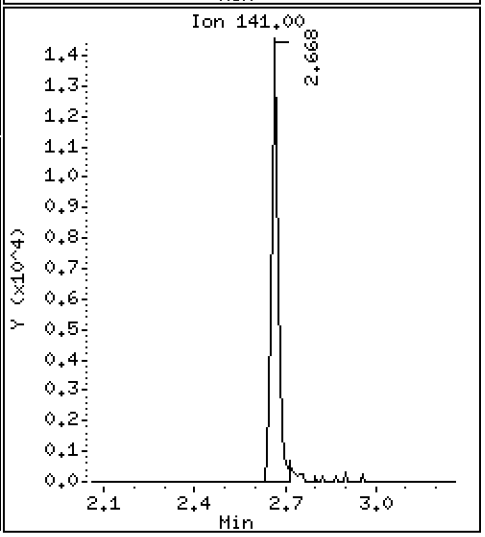


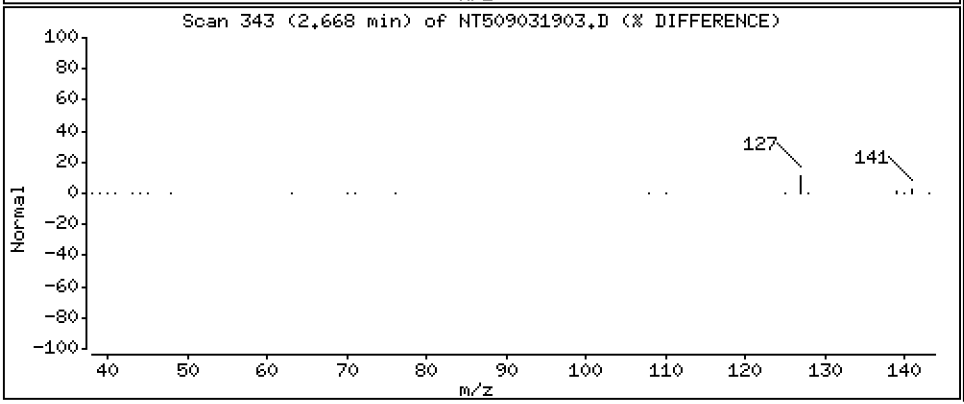












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

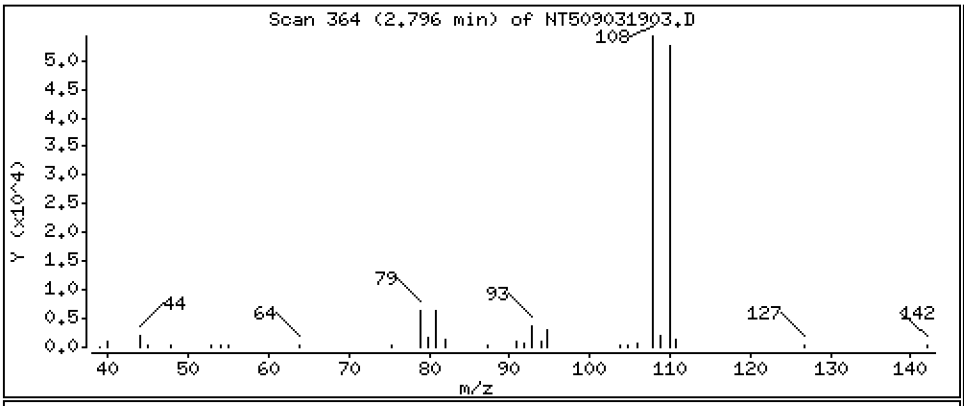
Operator: PB

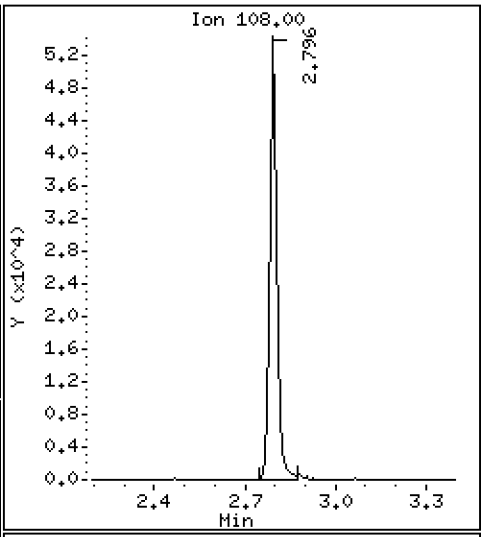
Column phase: RTXVMS

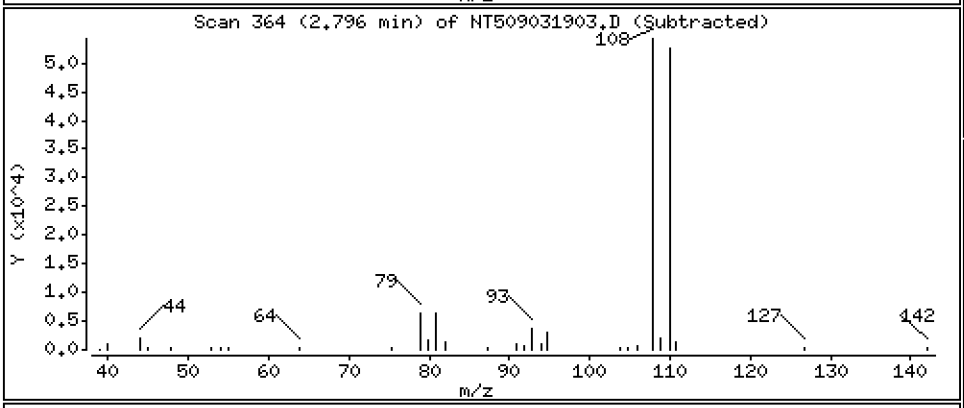
Column diameter: 0.18

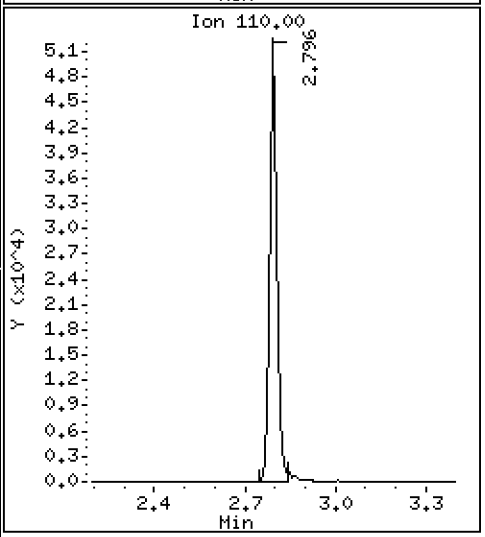
11 Bromoethane

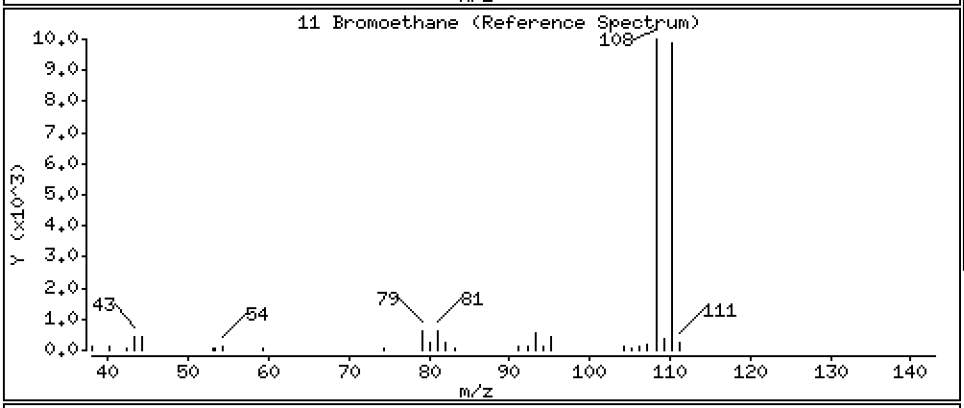
Concentration: 58.700 ug/Kg

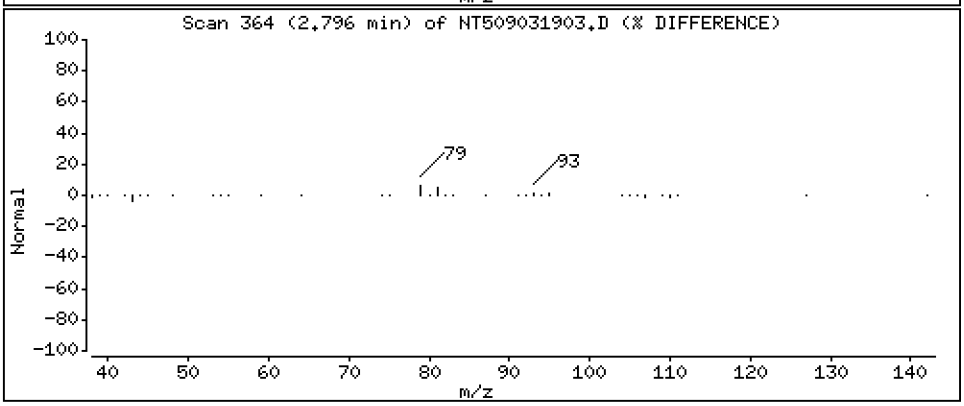












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

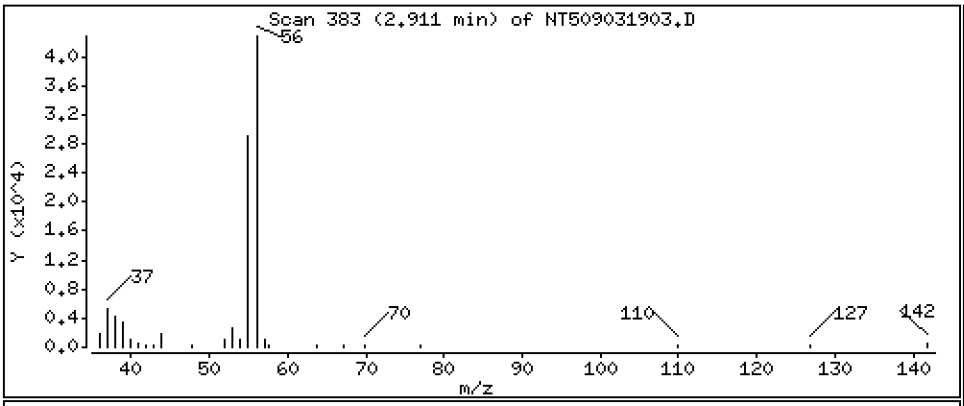
Operator: PB

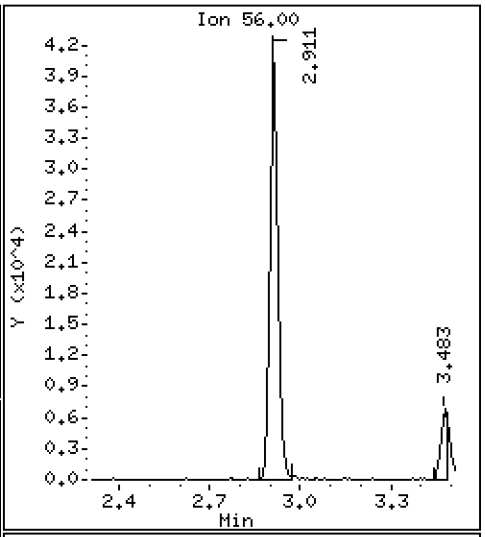
Column phase: RTXVMS

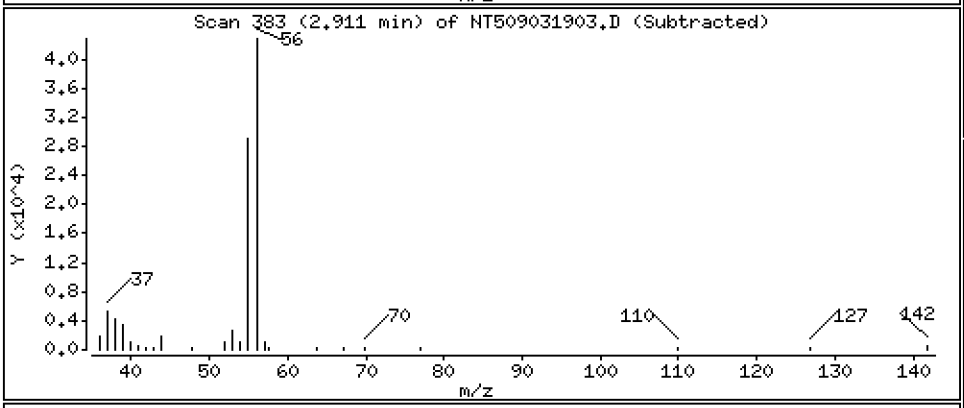
Column diameter: 0.18

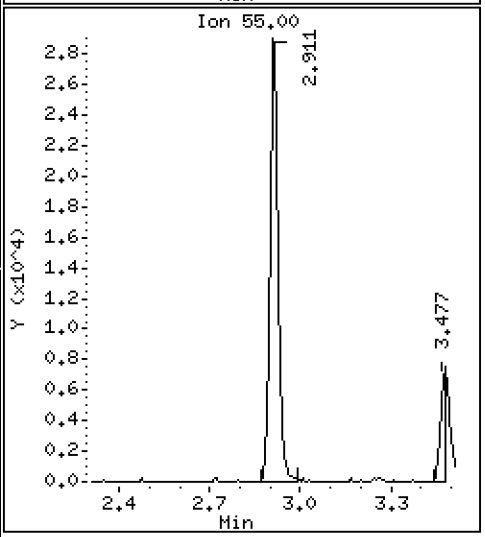
12 Acrolein

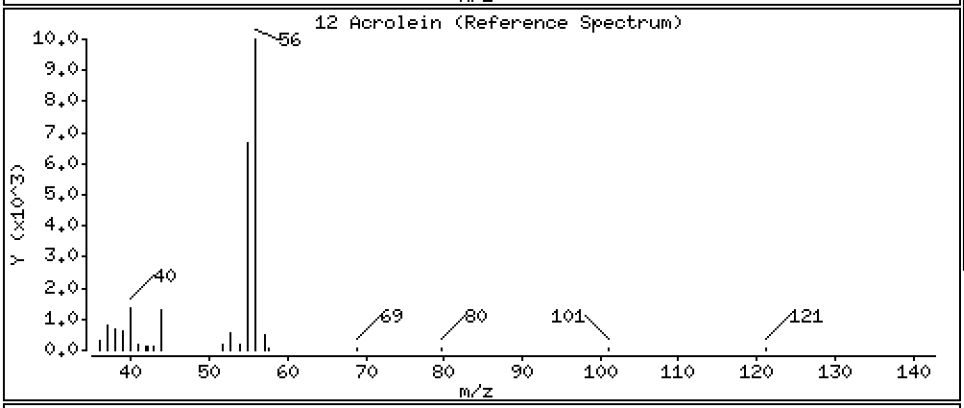
Concentration: 294.07 ug/Kg

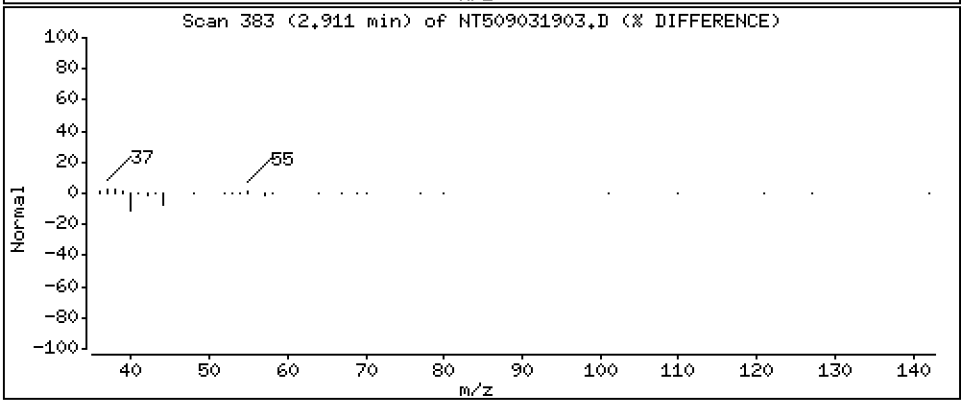












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

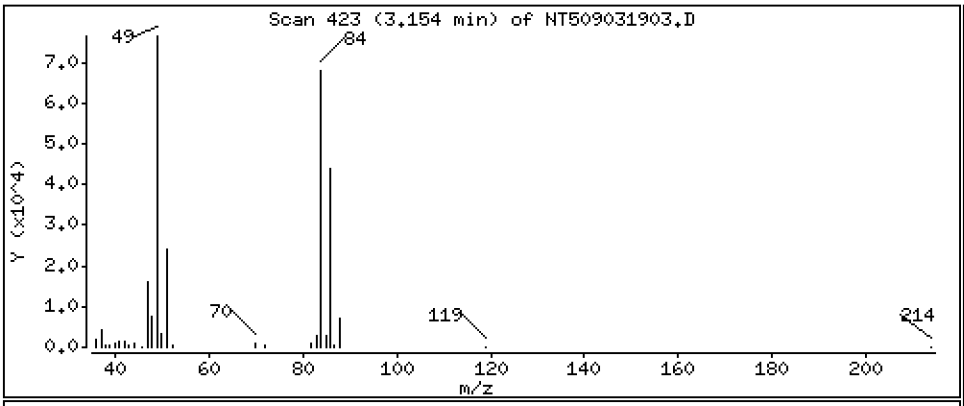
Operator: PB

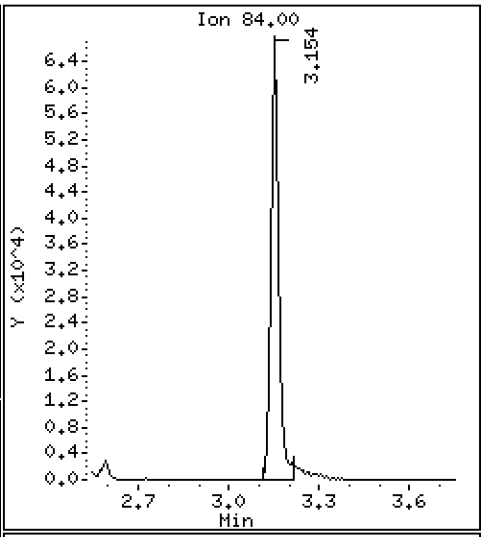
Column phase: RTXVMS

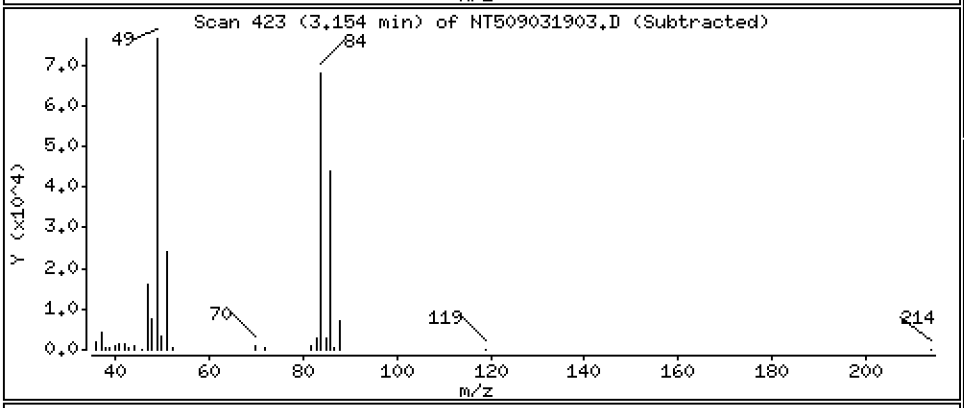
Column diameter: 0.18

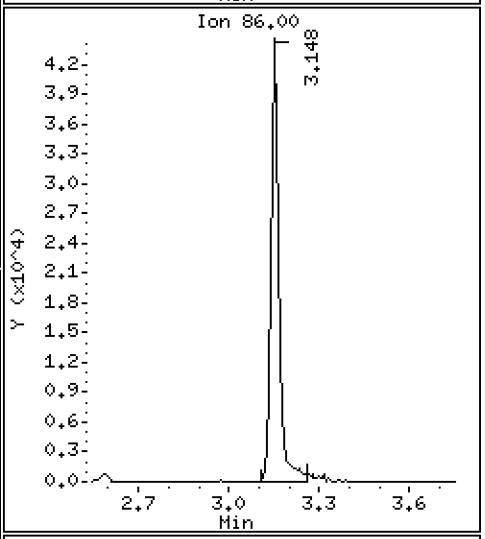
13 Methylene Chloride

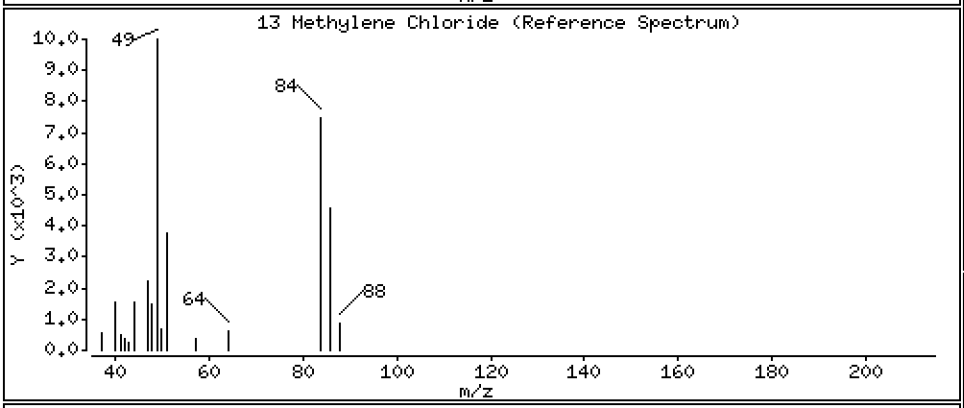
Concentration: 60.539 ug/Kg

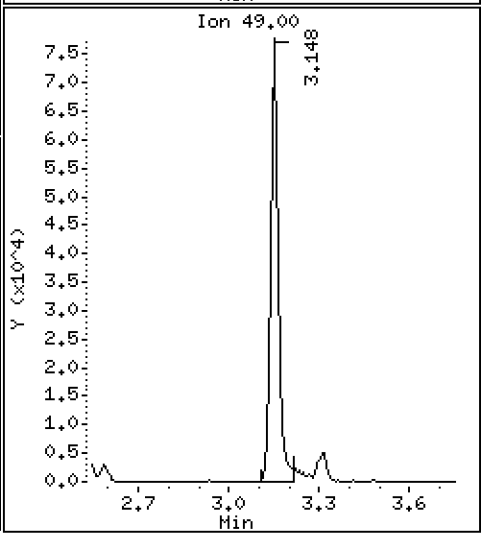


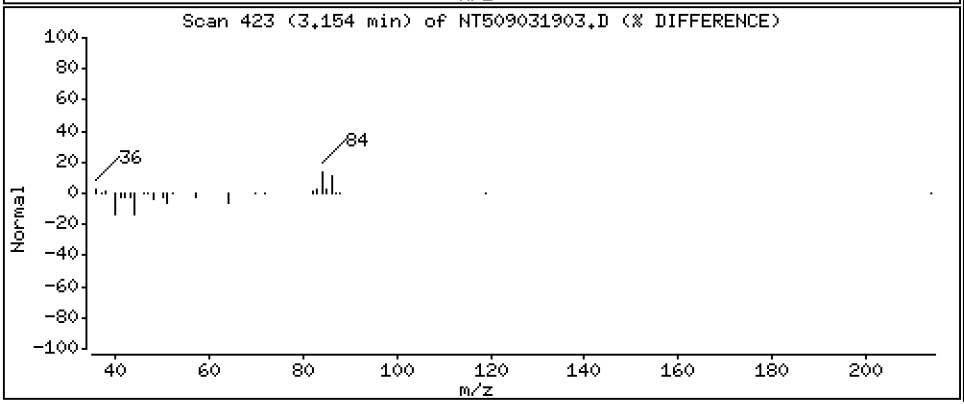












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

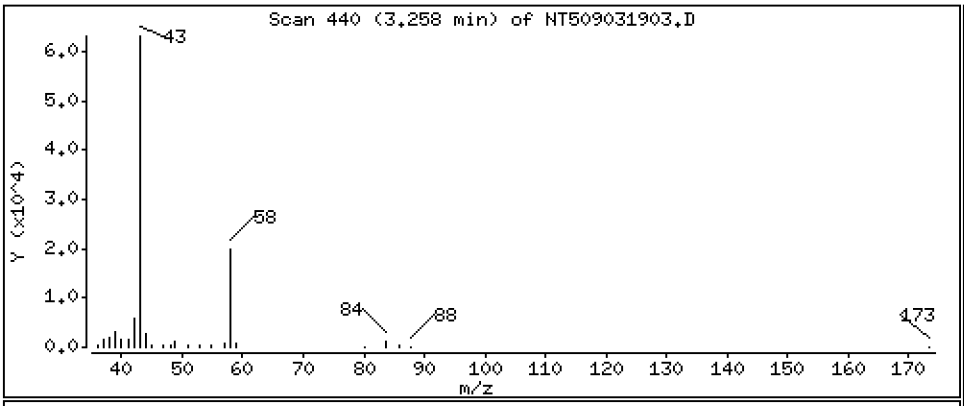
Operator: PB

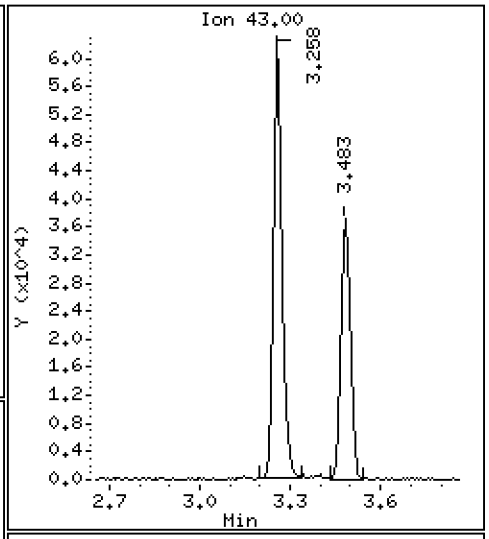
Column phase: RTXVMS

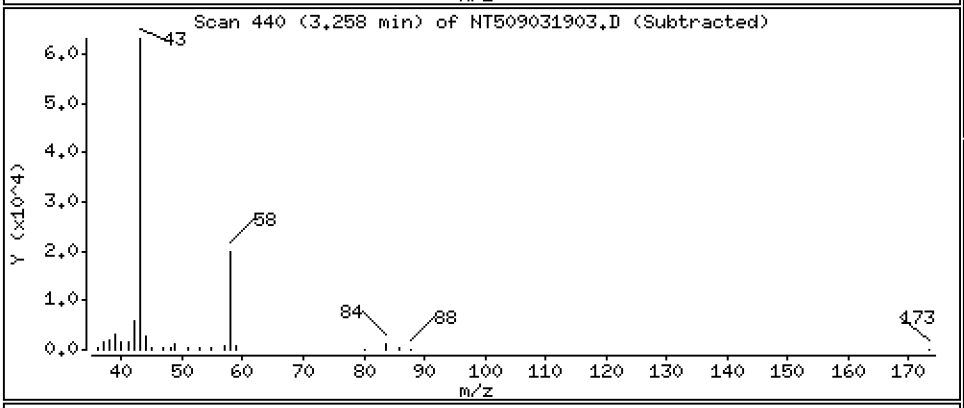
Column diameter: 0.18

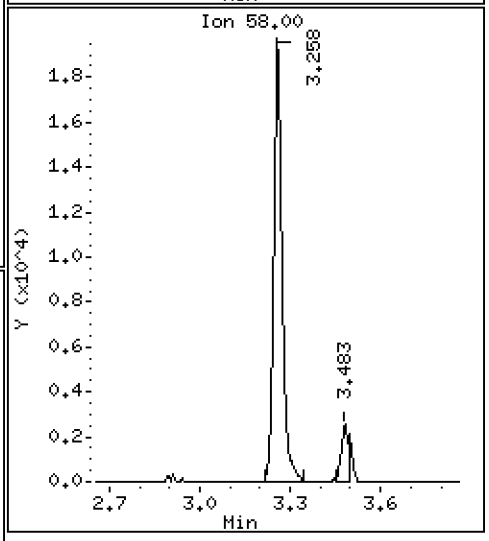
14 Acetone

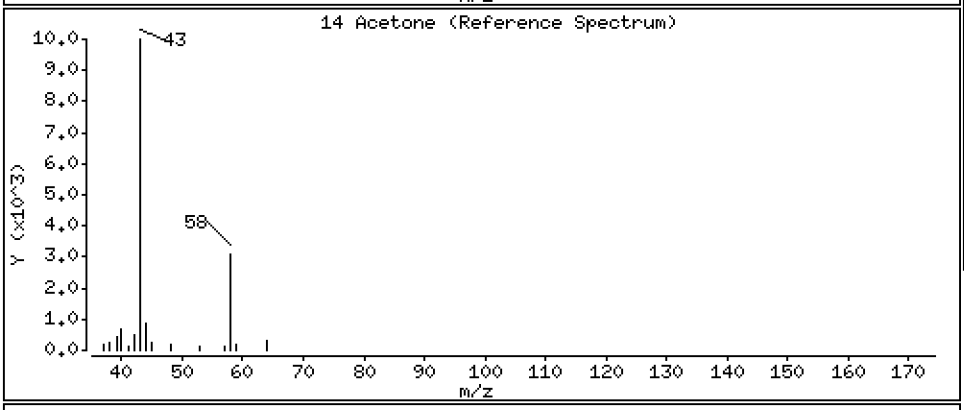
Concentration: 278.69 ug/Kg

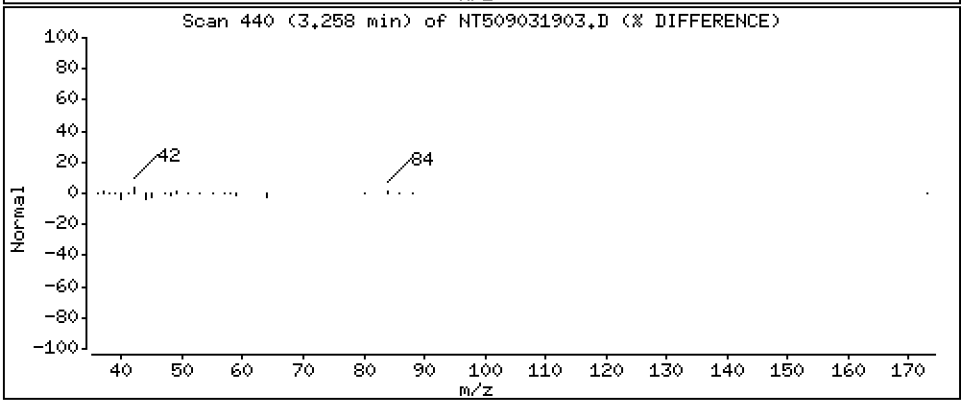












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

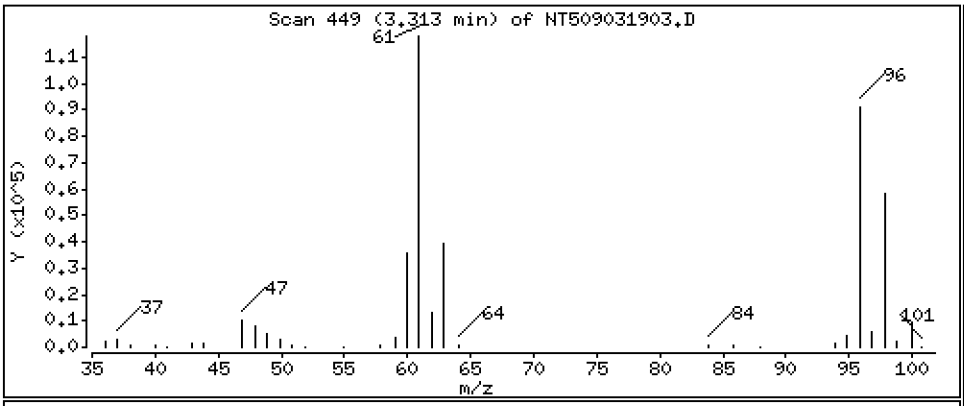
Operator: PB

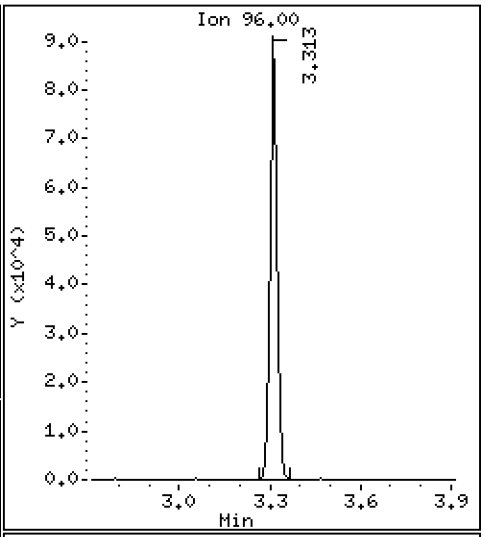
Column phase: RTXVMS

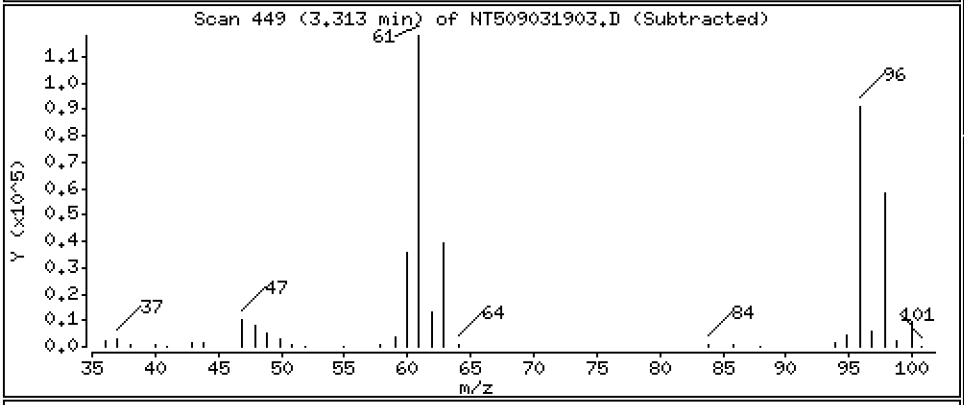
Column diameter: 0.18

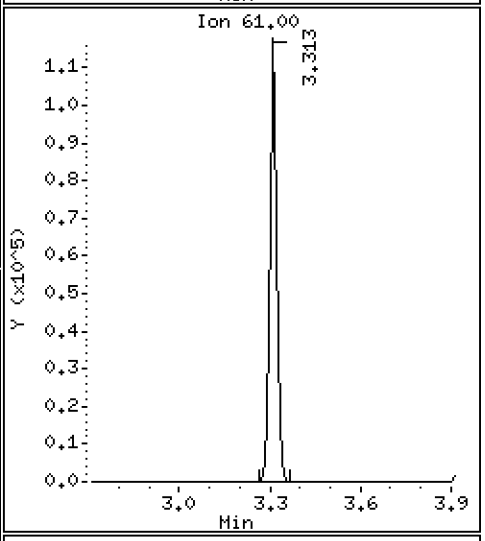
15 Trans-1,2-Dichloroethene

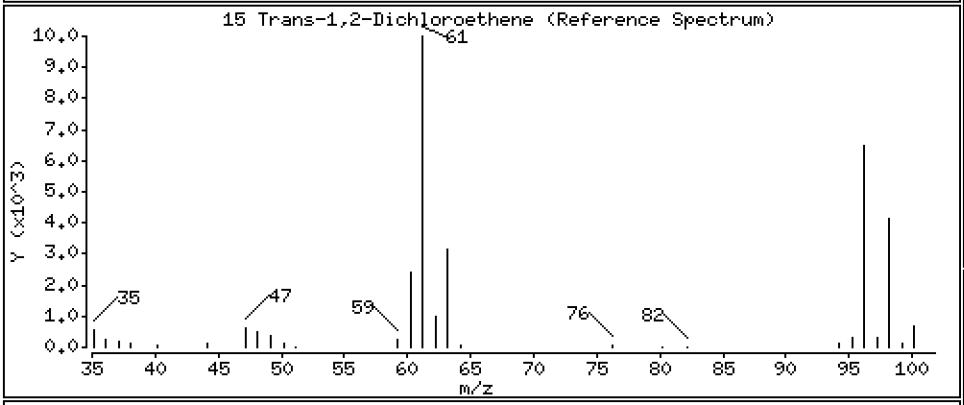
Concentration: 58.340 ug/Kg

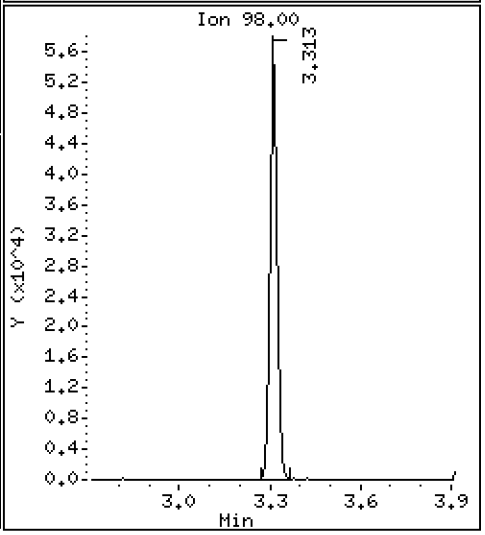


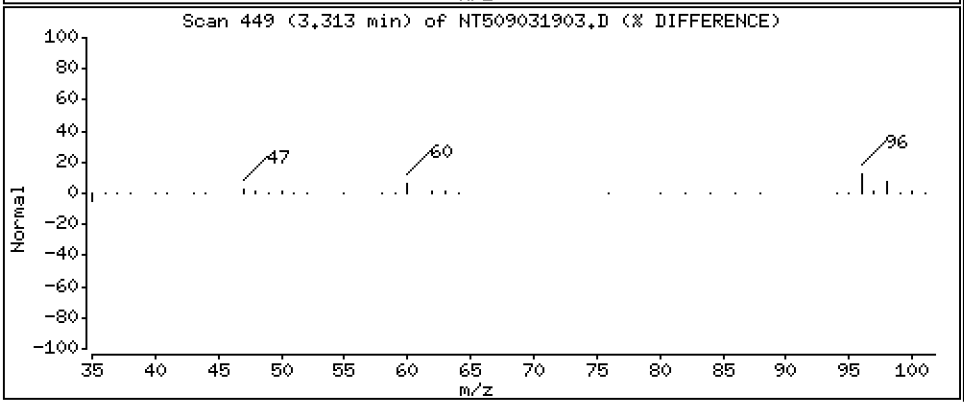












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

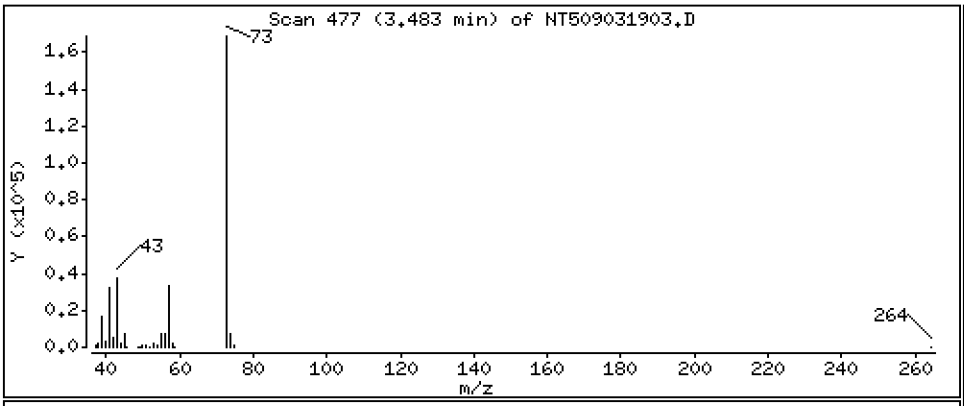
Operator: PB

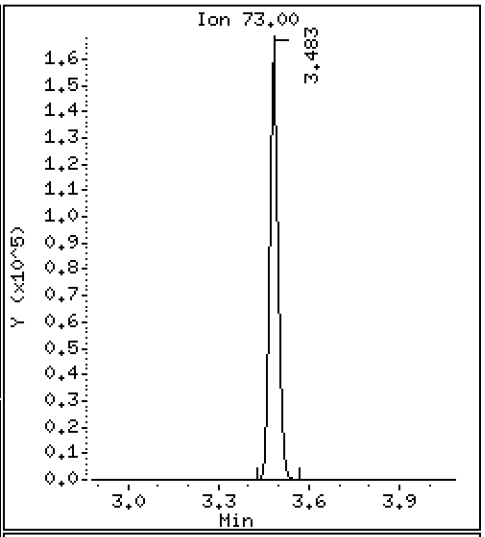
Column phase: RTXVMS

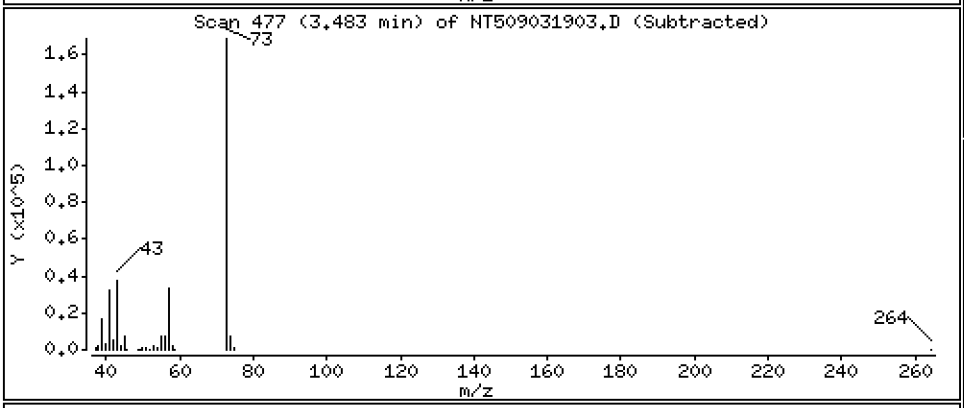
Column diameter: 0.18

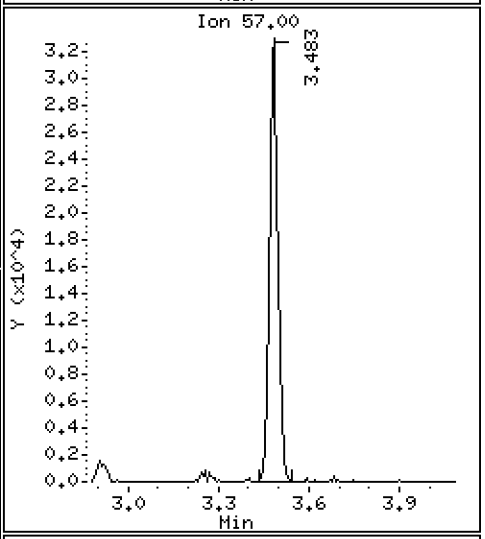
16 Methyl tert butyl ether

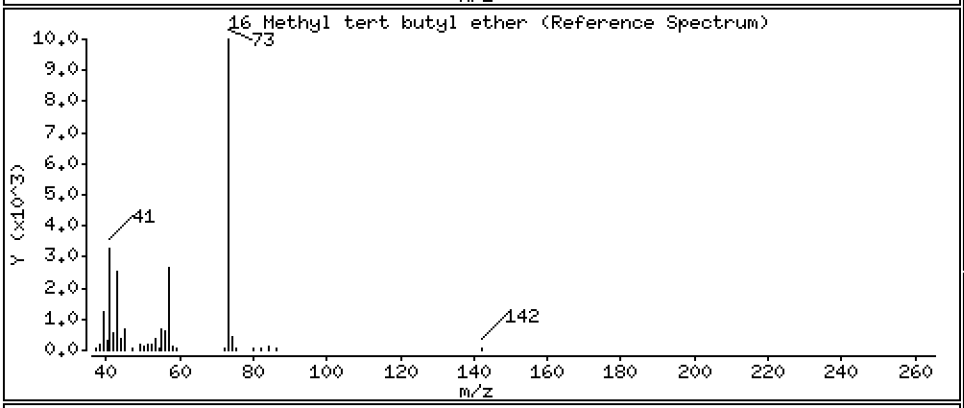
Concentration: 54.342 ug/Kg

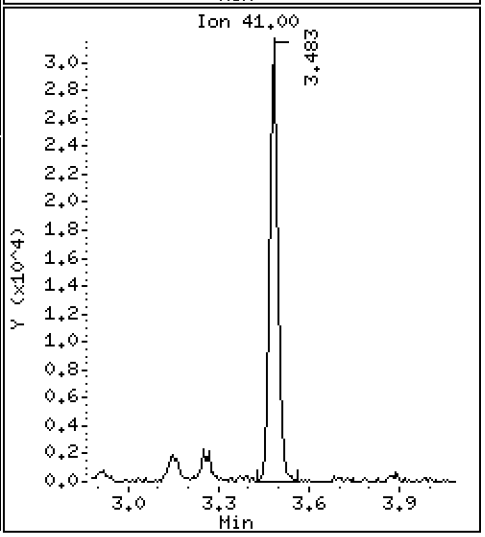


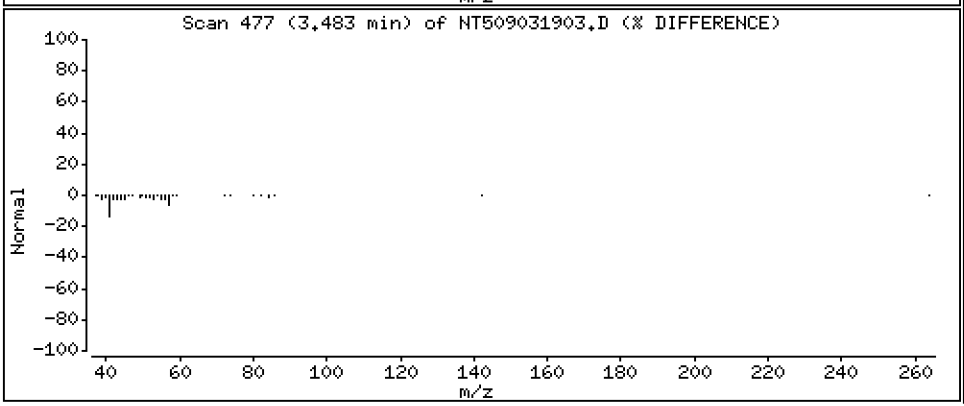












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

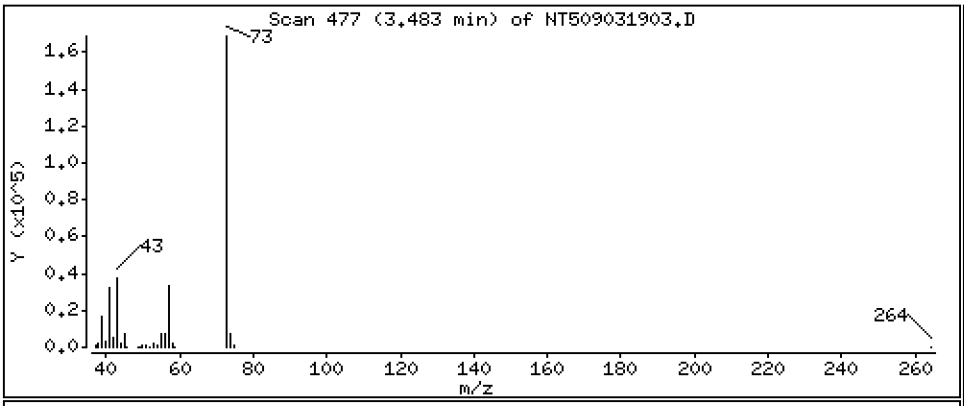
Operator: PB

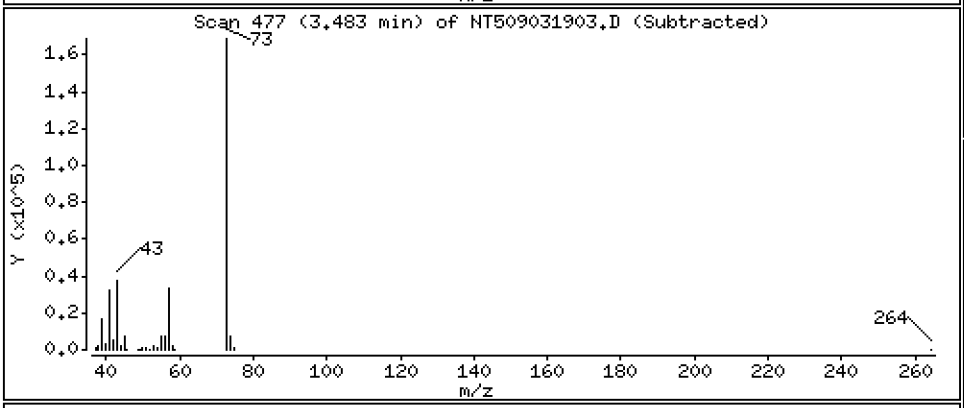
Column phase: RTXVMS

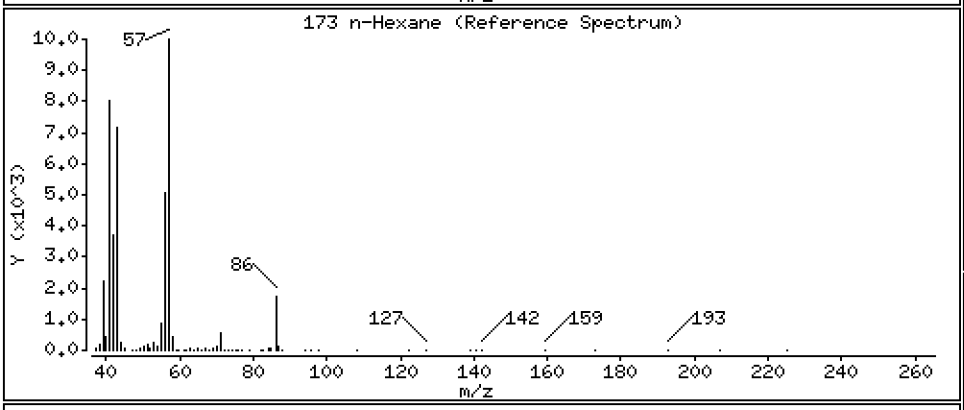
Column diameter: 0.18

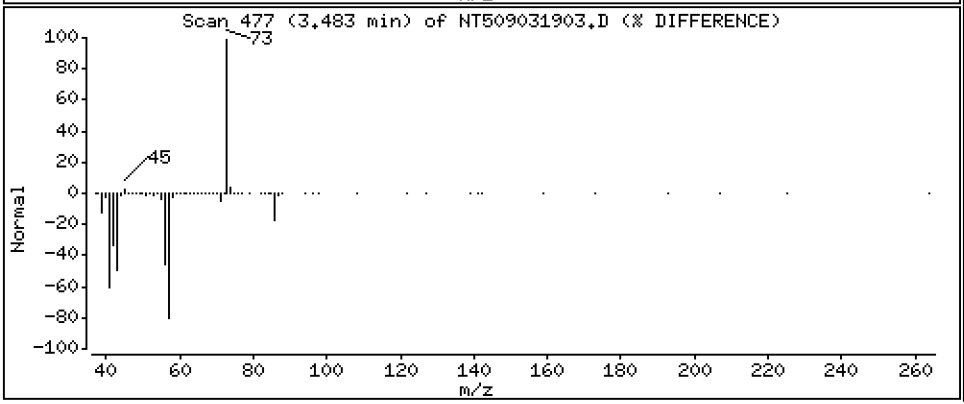
173 n-Hexane

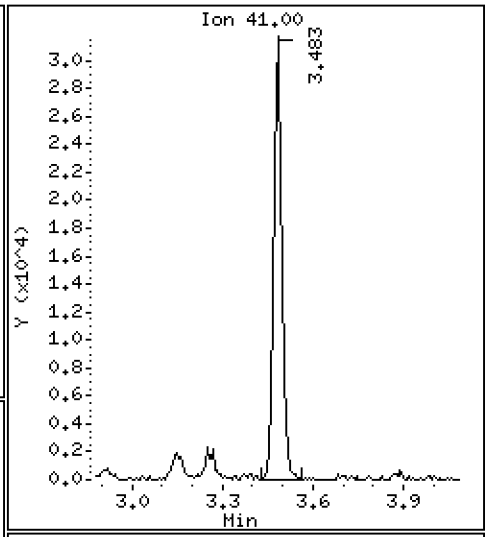
Concentration: 26.208 ug/Kg

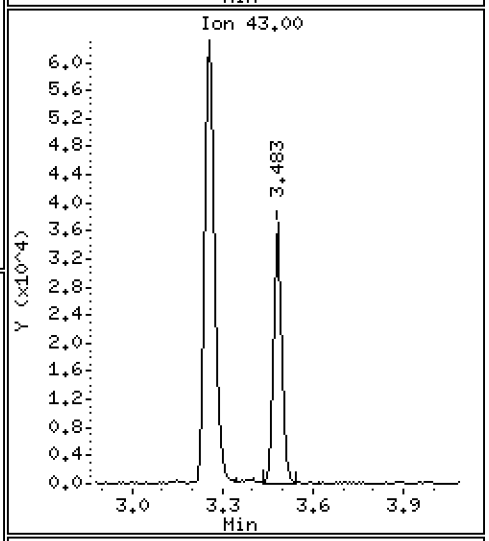


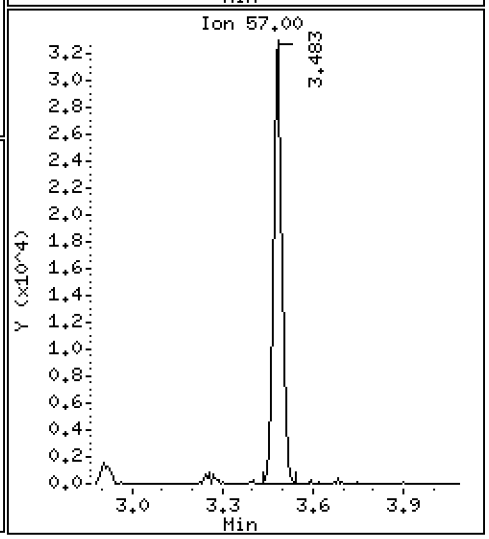












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

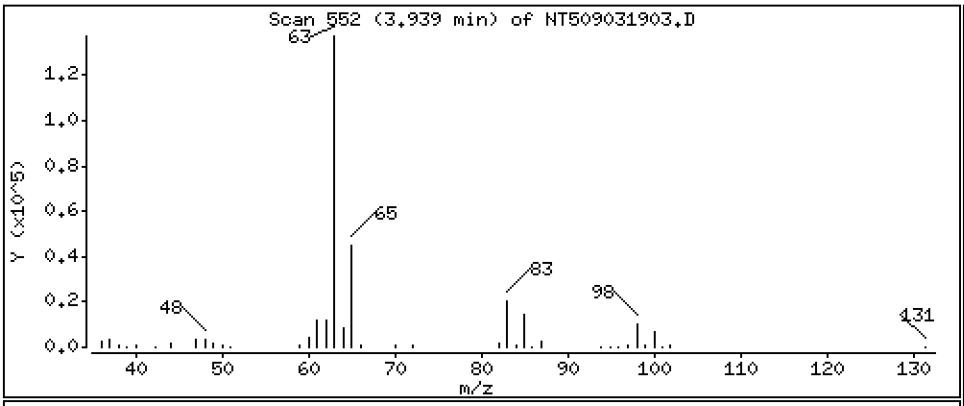
Operator: PB

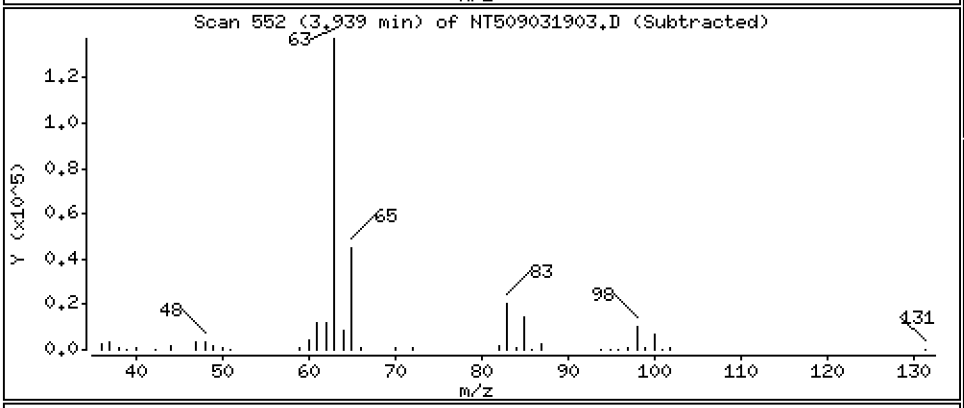
Column phase: RTXVMS

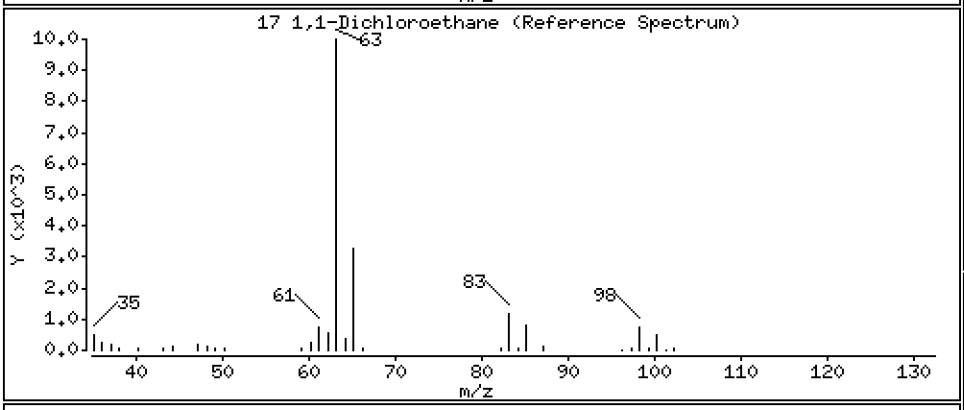
Column diameter: 0.18

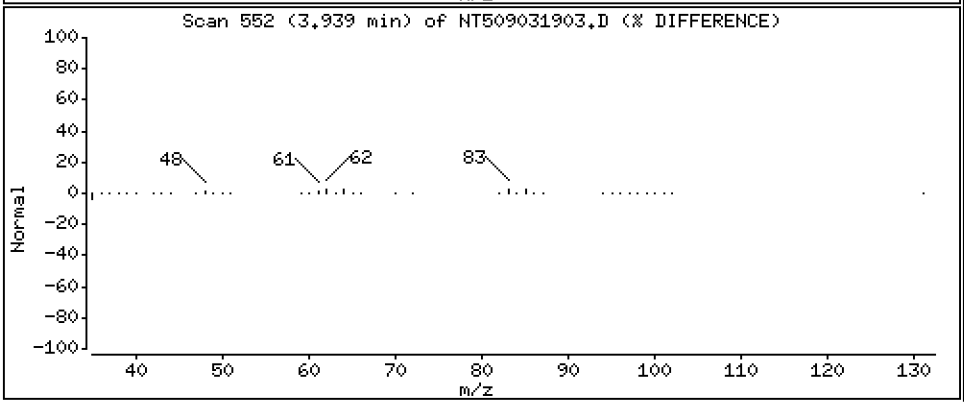
17 1,1-Dichloroethane

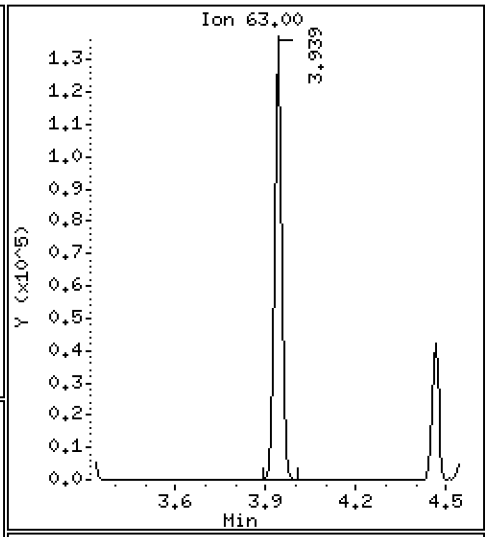
Concentration: 58.801 ug/Kg

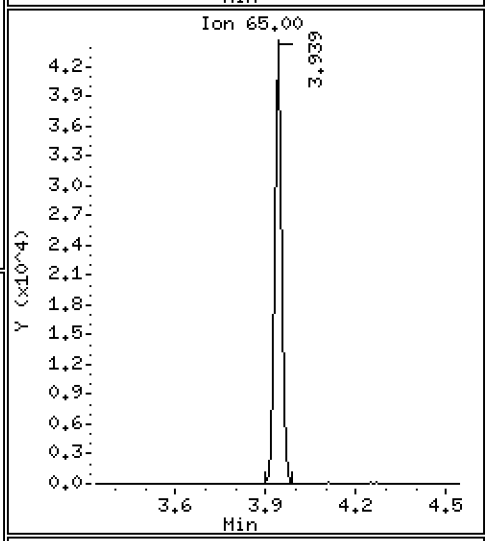


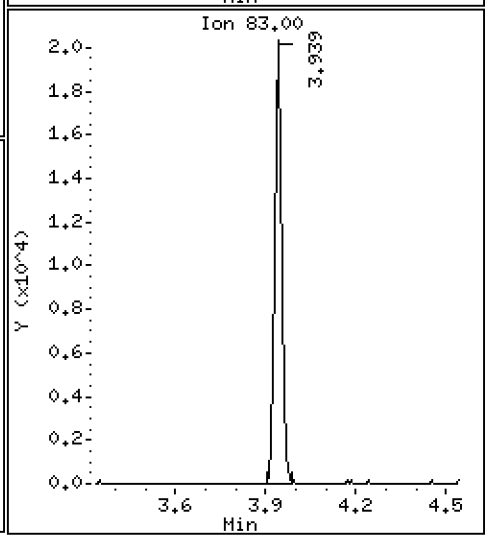












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

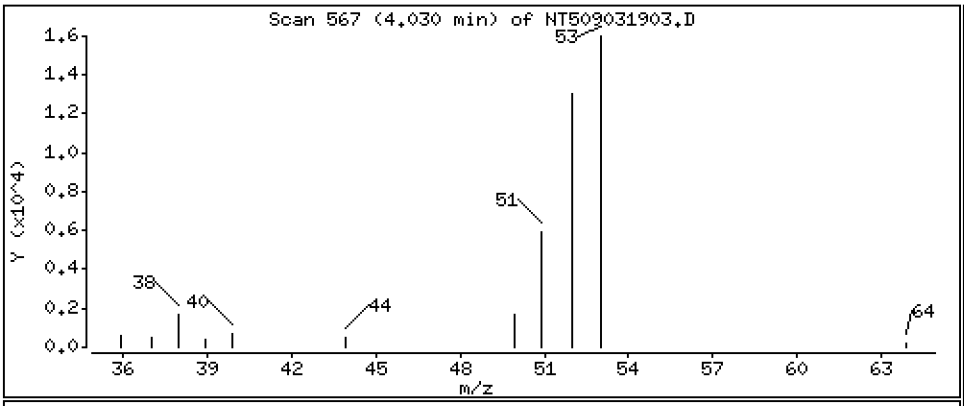
Operator: PB

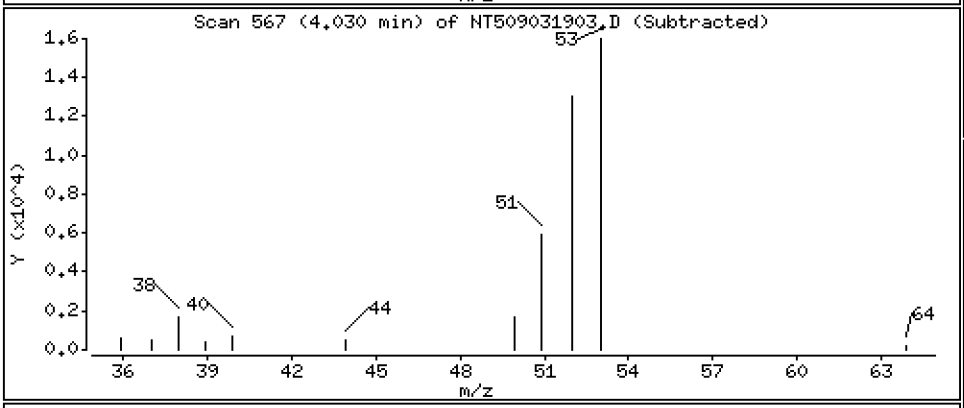
Column phase: RTXVMS

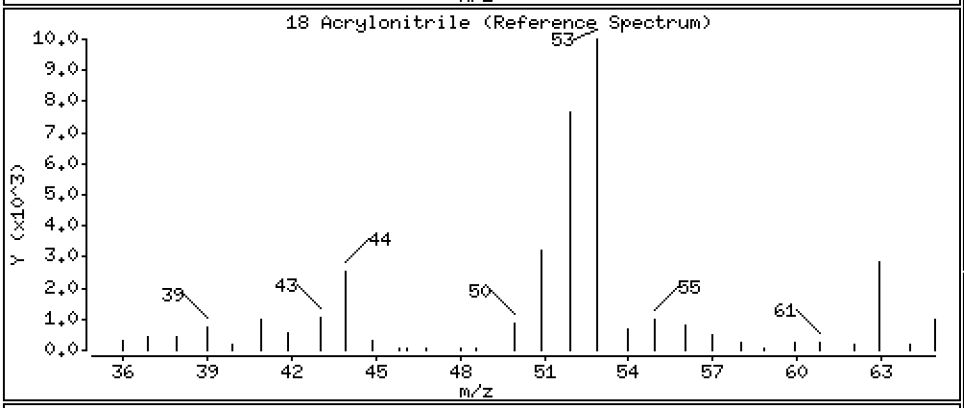
Column diameter: 0.18

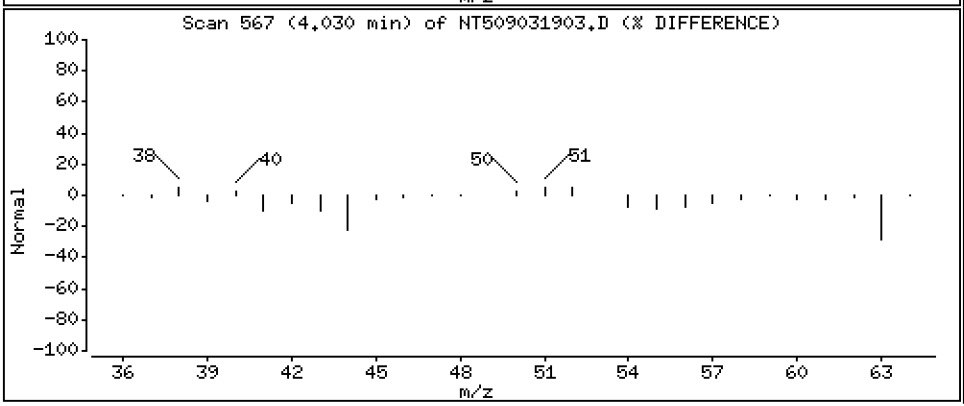
18 Acrylonitrile

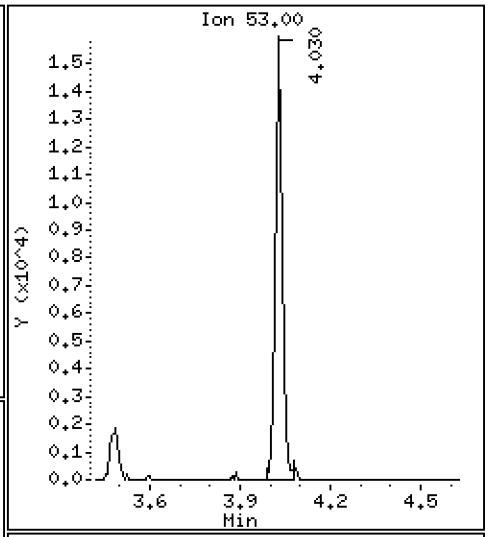
Concentration: 53.146 ug/Kg

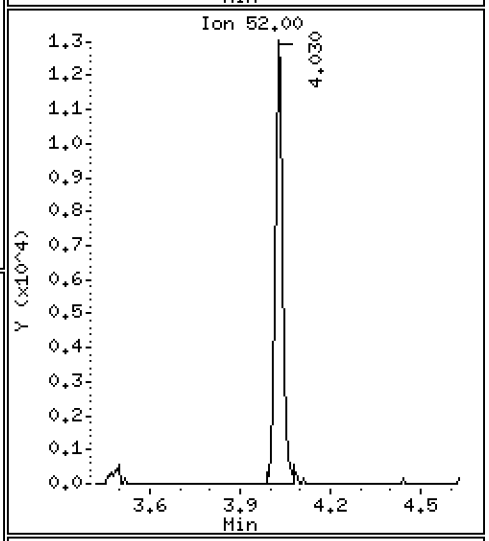


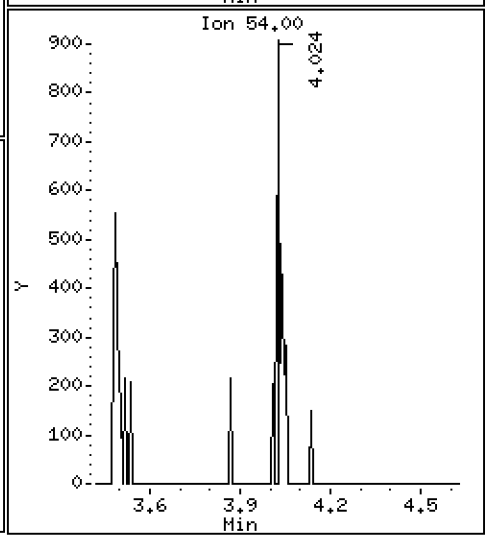












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

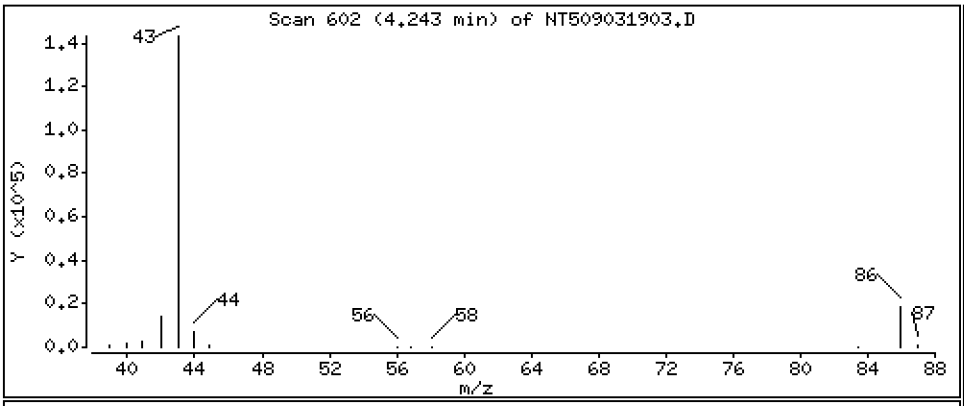
Operator: PB

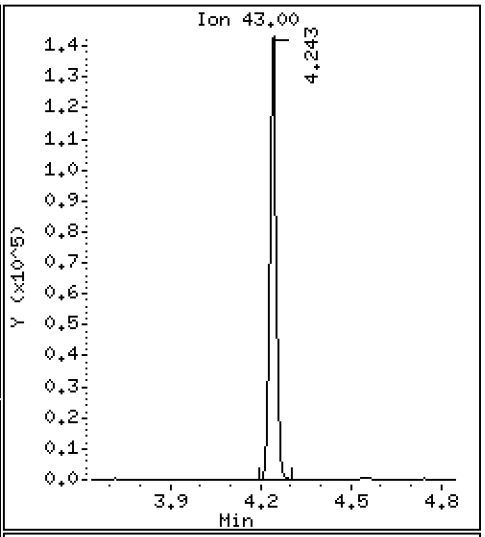
Column phase: RTXVMS

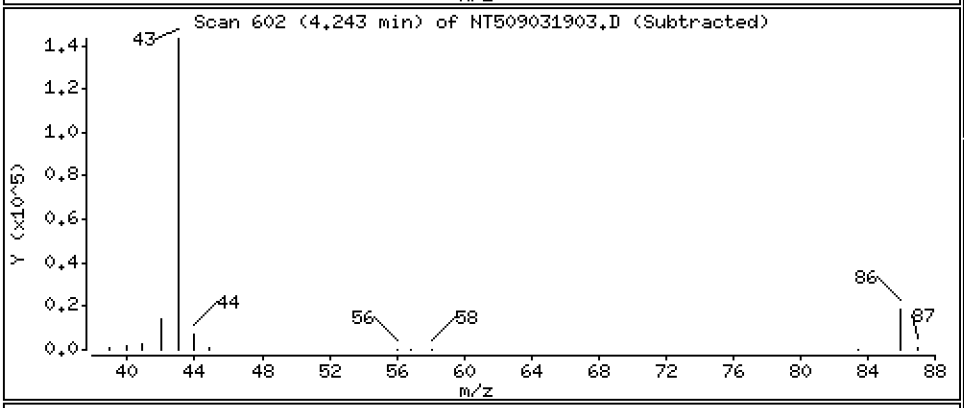
Column diameter: 0.18

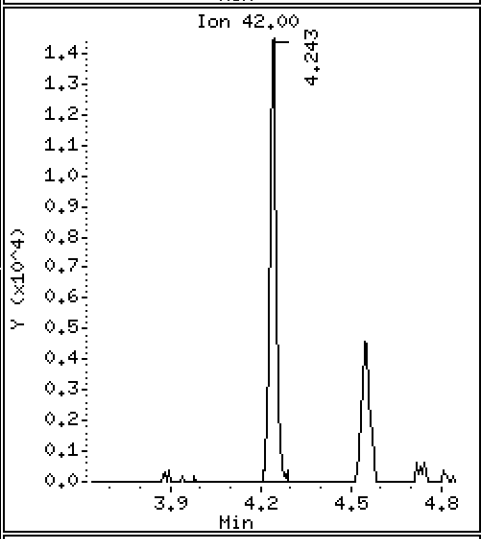
19 Vinyl Acetate

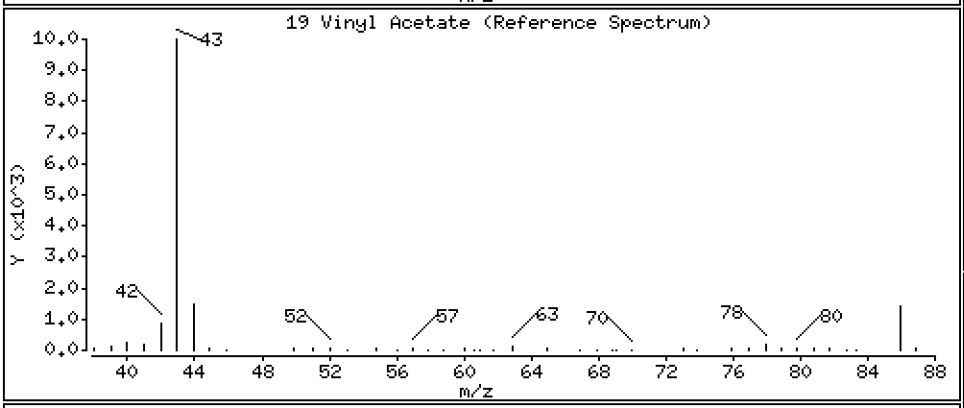
Concentration: 52.728 ug/Kg

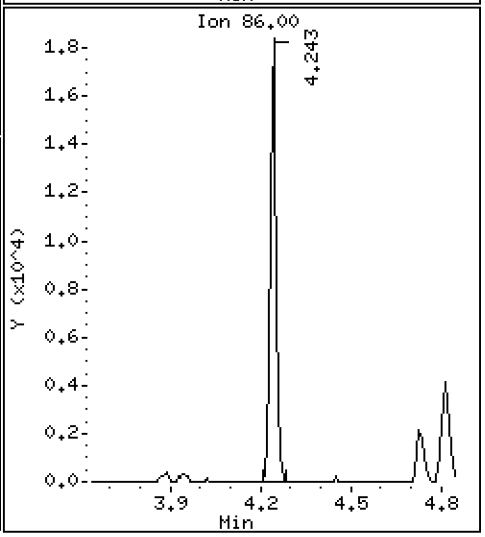


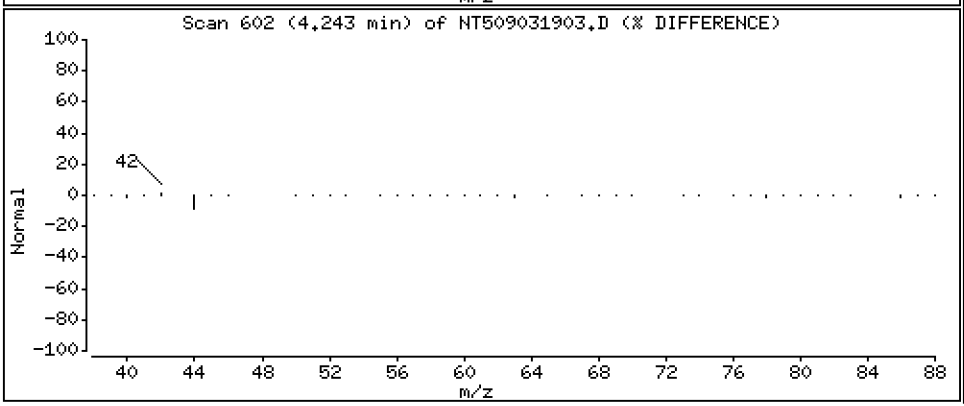












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

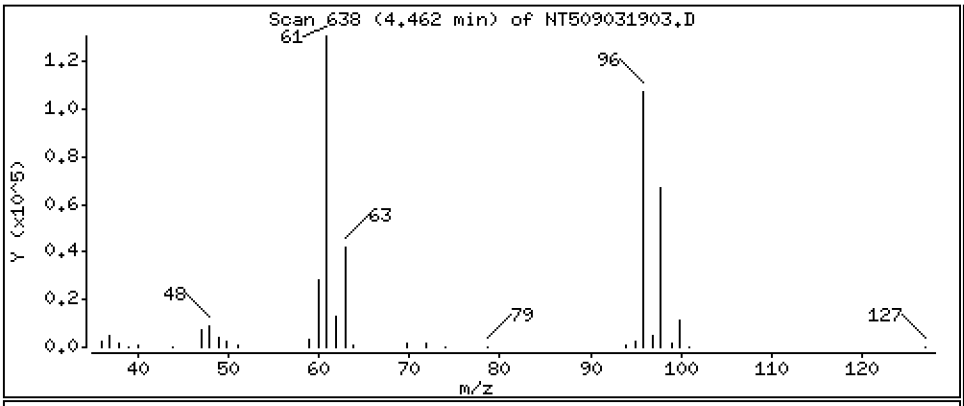
Operator: PB

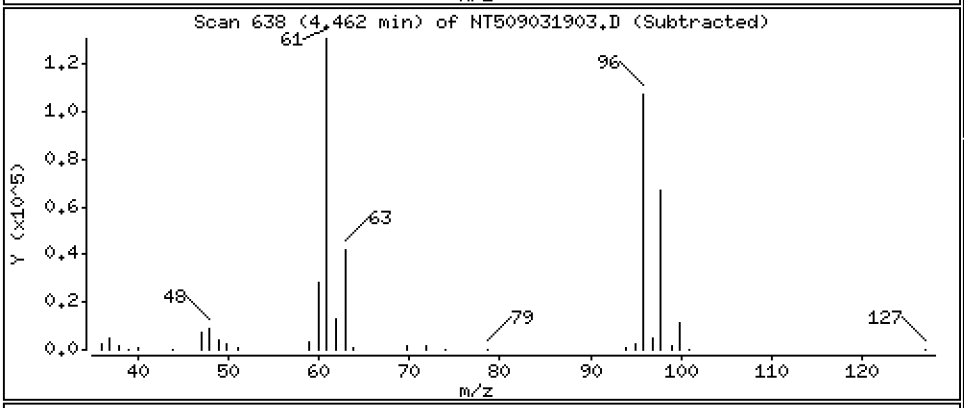
Column phase: RTXVMS

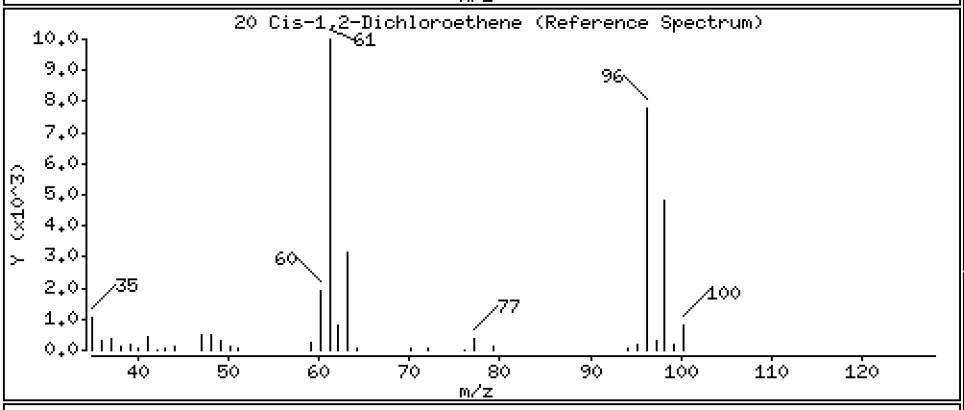
Column diameter: 0.18

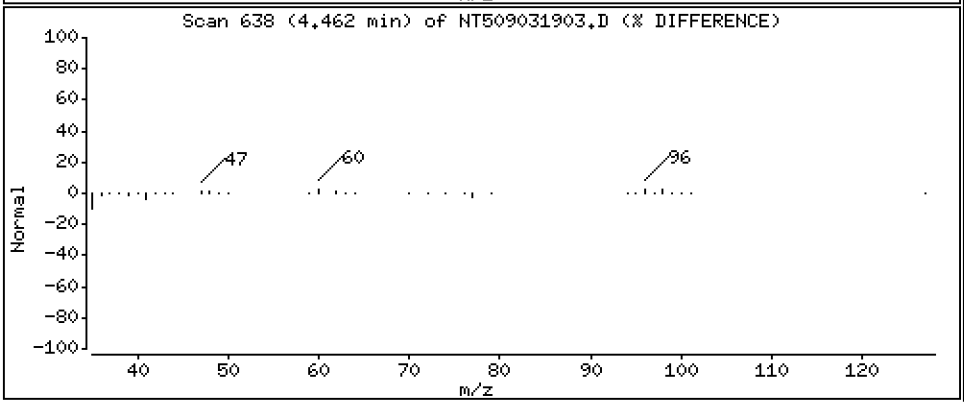
20 Cis-1,2-Dichloroethene

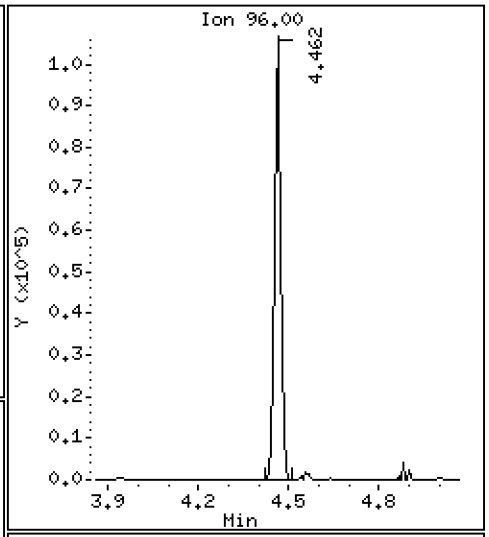
Concentration: 55.211 ug/Kg

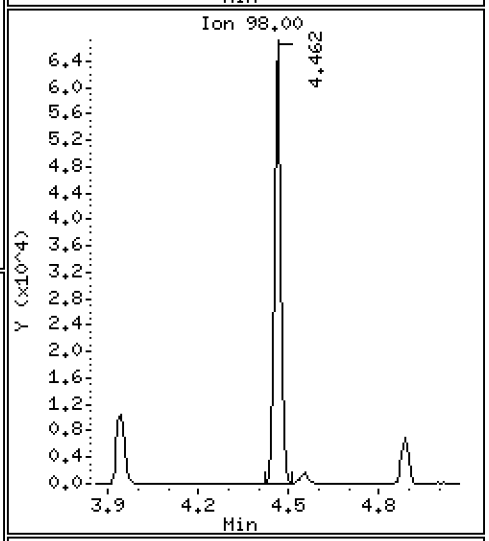


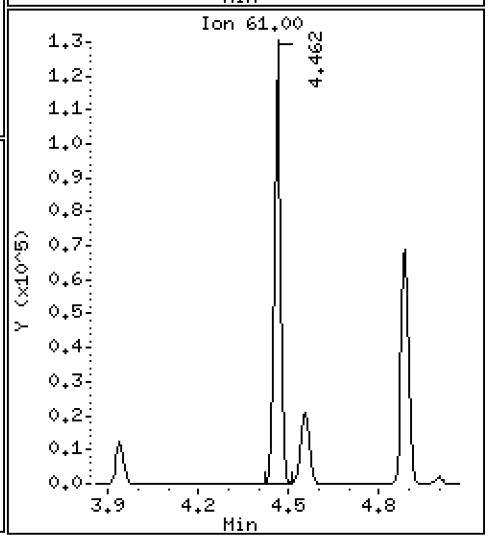












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

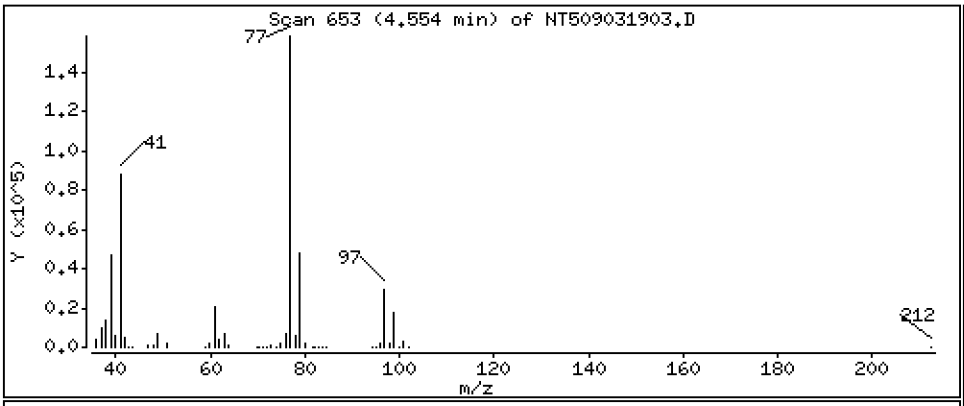
Operator: PB

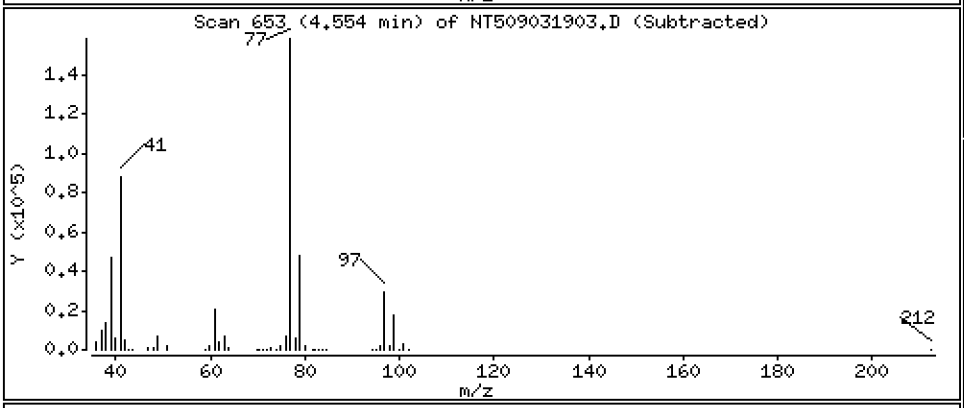
Column phase: RTXVMS

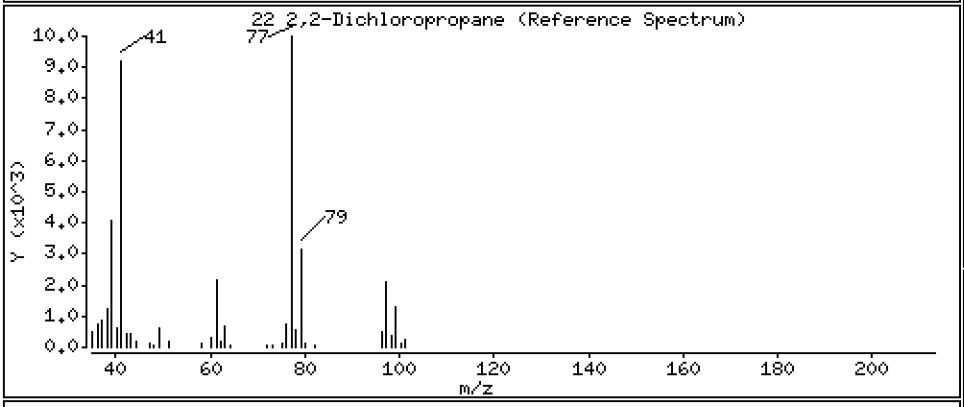
Column diameter: 0.18

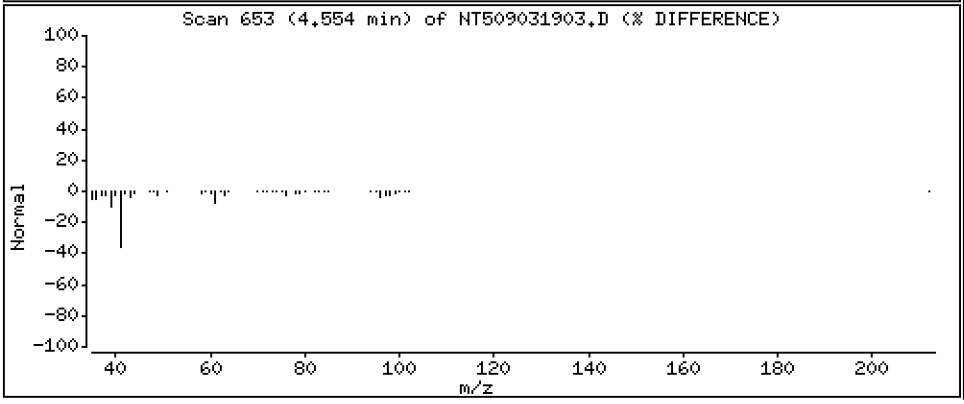
22 2,2-Dichloropropane

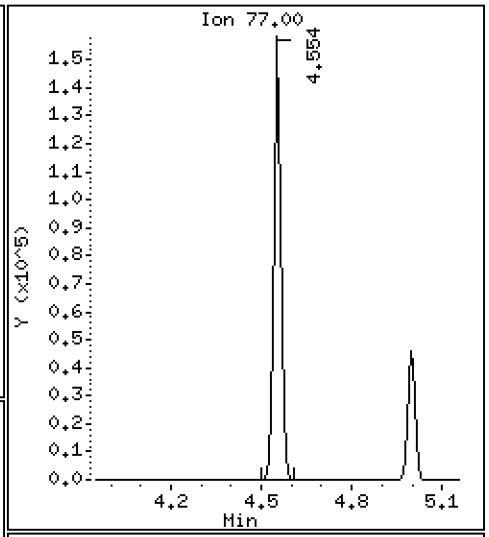
Concentration: 60.076 ug/Kg

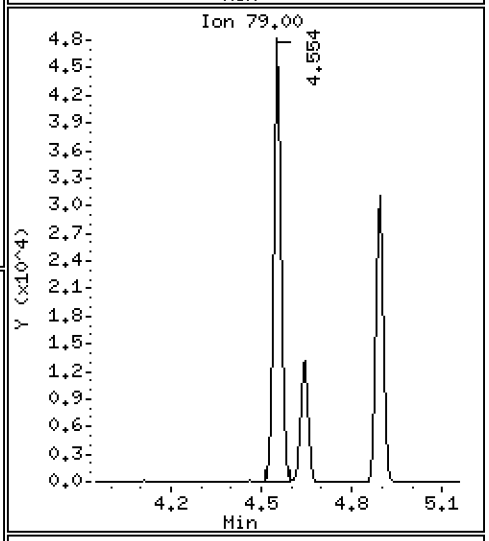


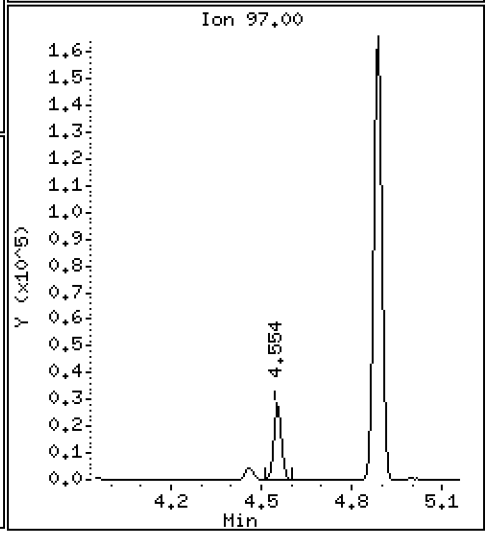












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Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

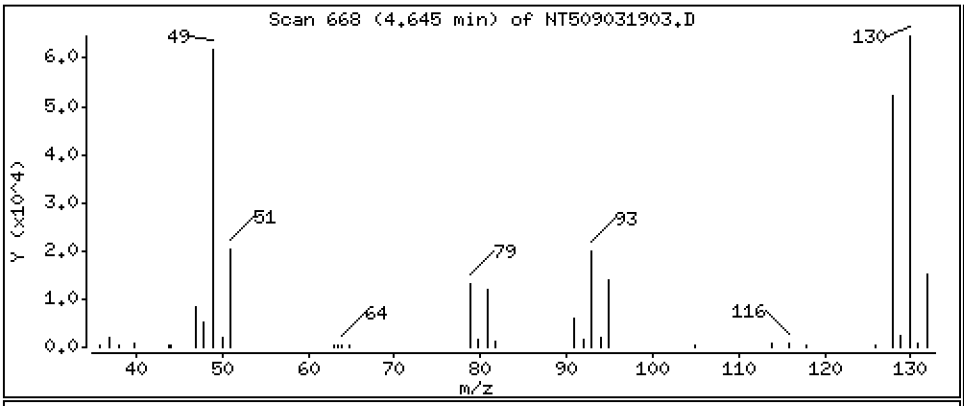
Operator: PB

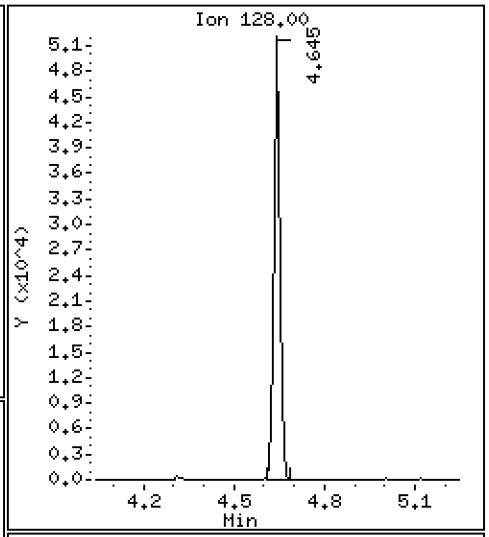
Column phase: RTXVMS

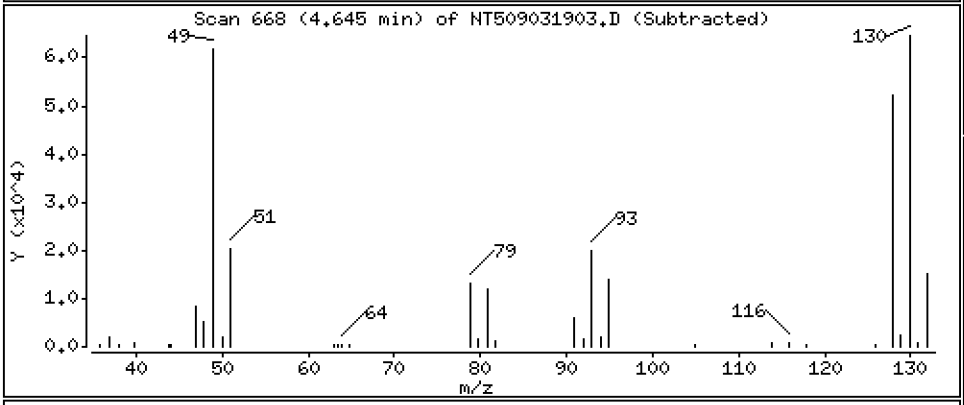
Column diameter: 0.18

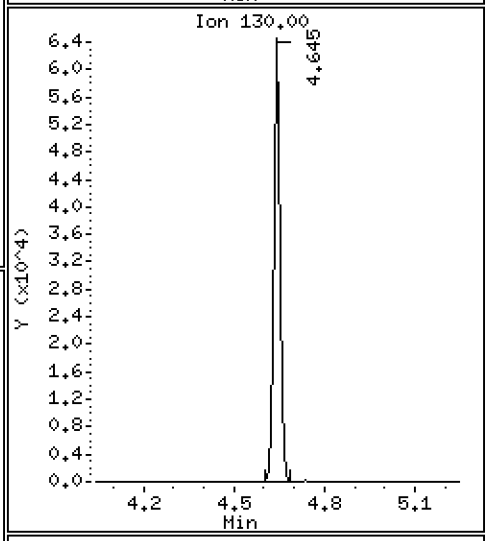
23 Bromochloromethane

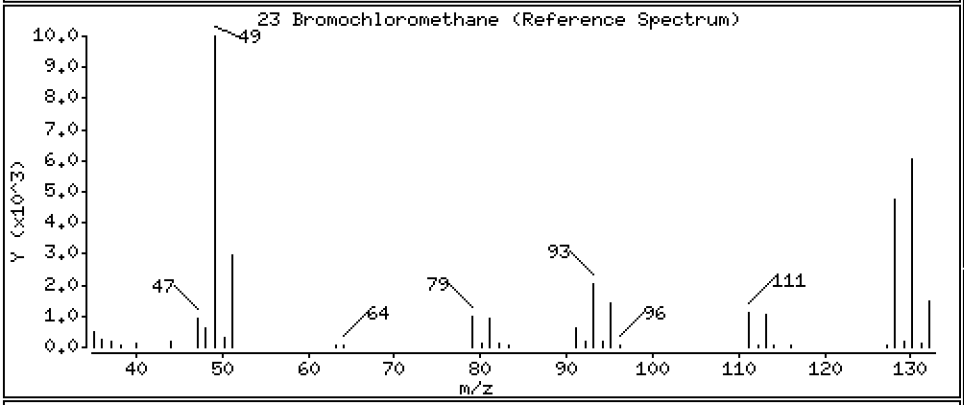
Concentration: 55.555 ug/Kg

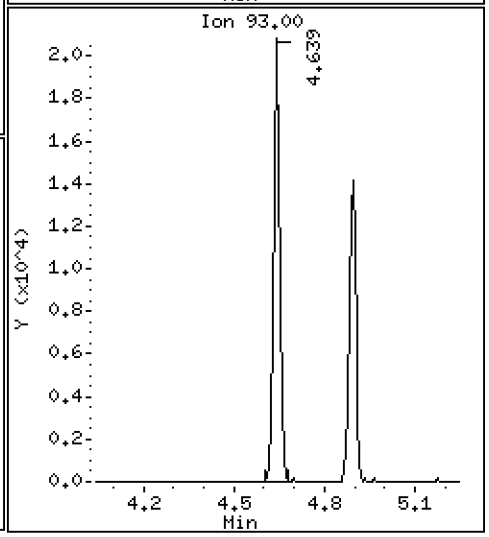


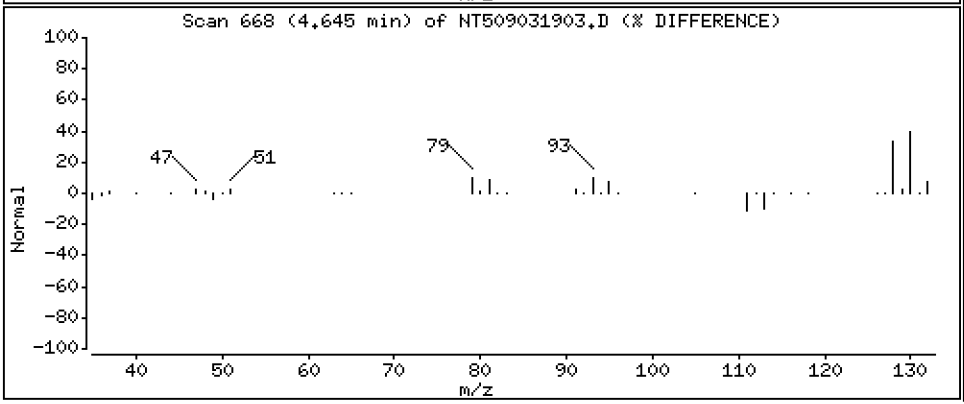












Date : 03-SEP-2019 13:27

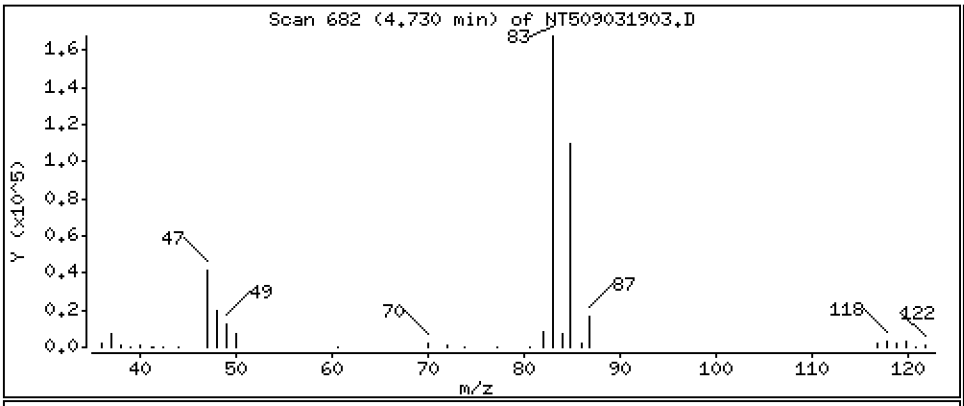
Client ID: Instrument: nt5.i

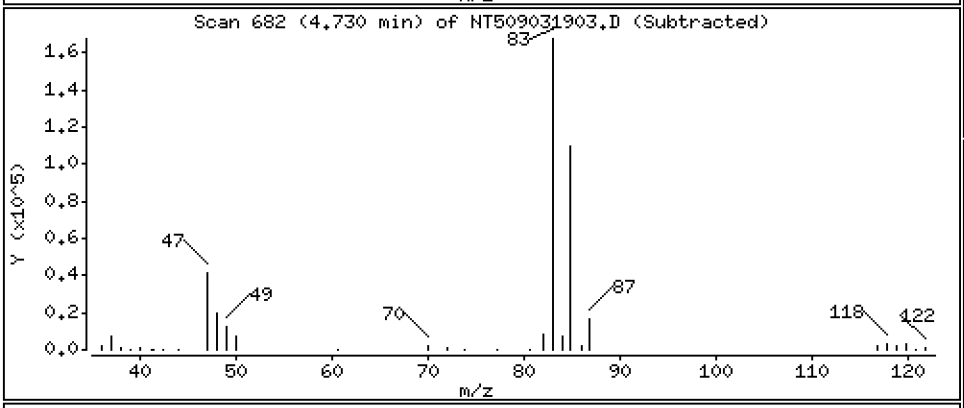
Sample Info: BSD1

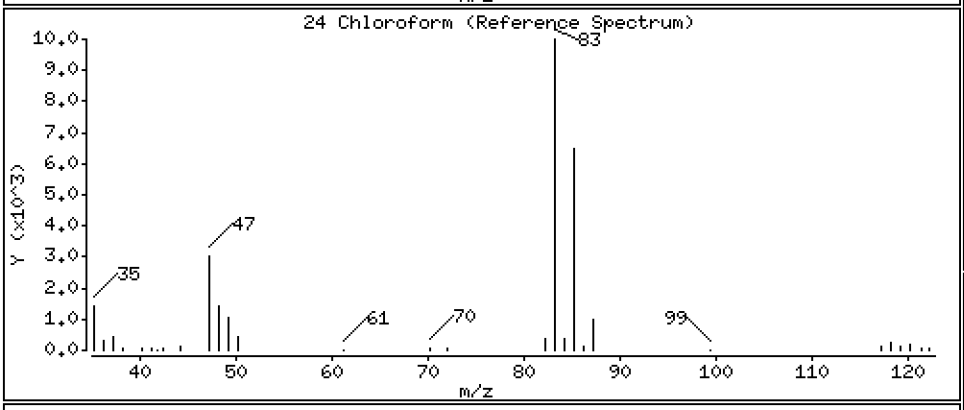
Operator: PB

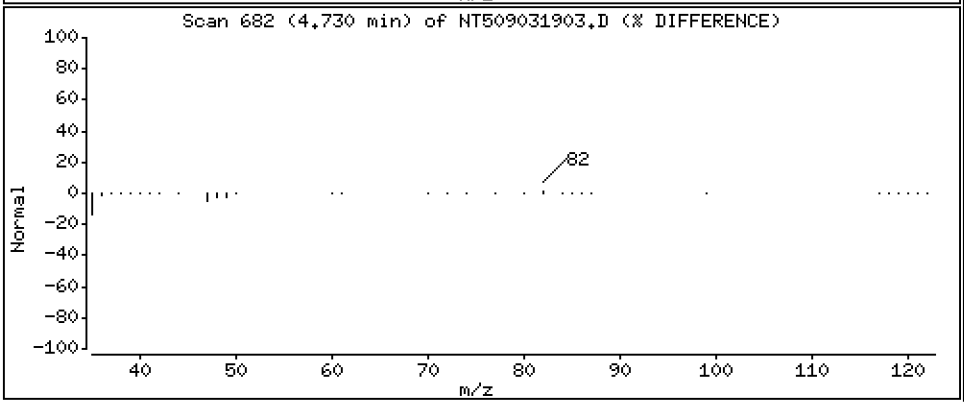
Column phase: RTXVMS Column diameter: 0.18

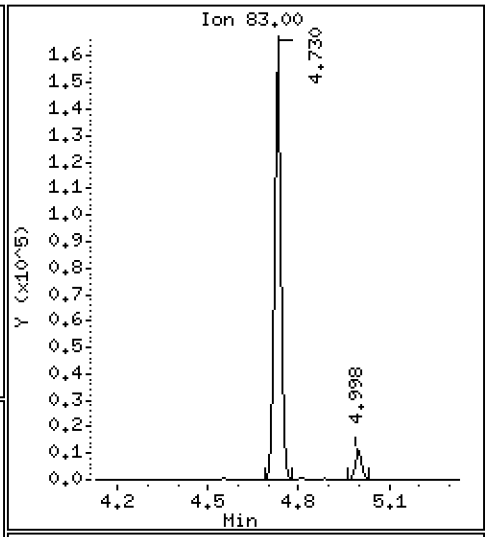
24 Chloroform Concentration: 55.498 ug/Kg

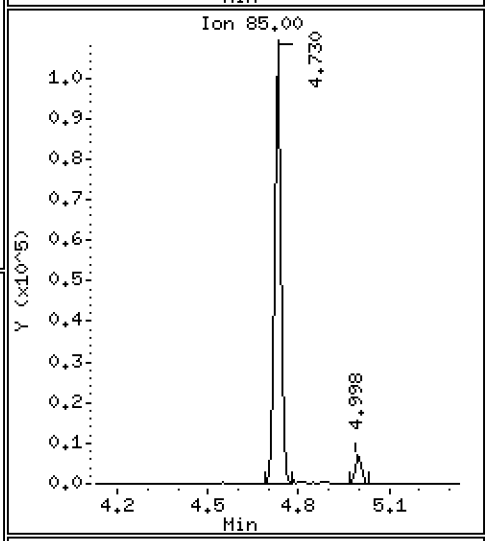


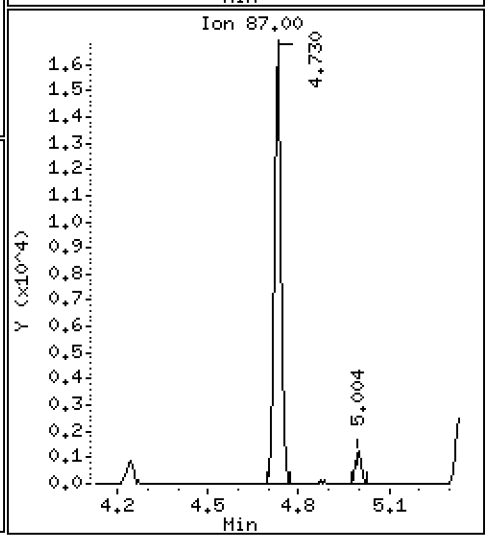












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

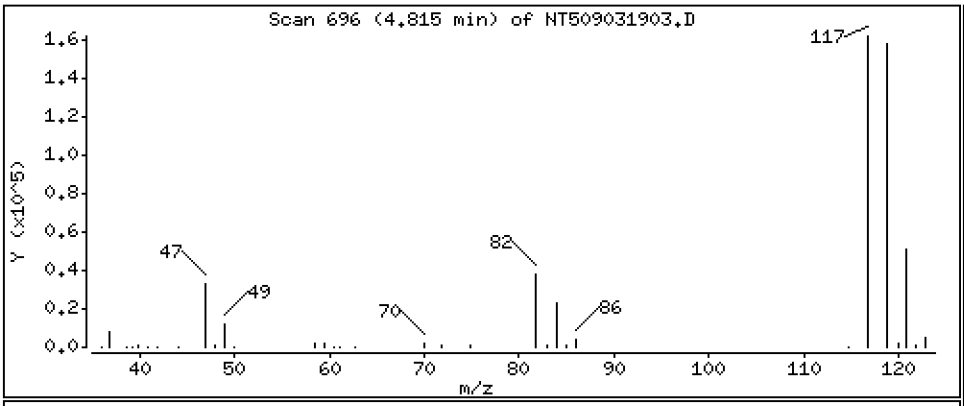
Operator: PB

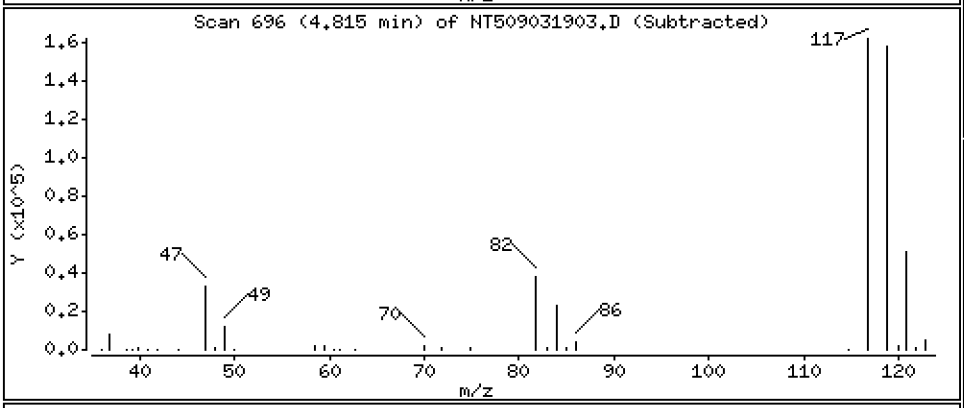
Column phase: RTXVMS

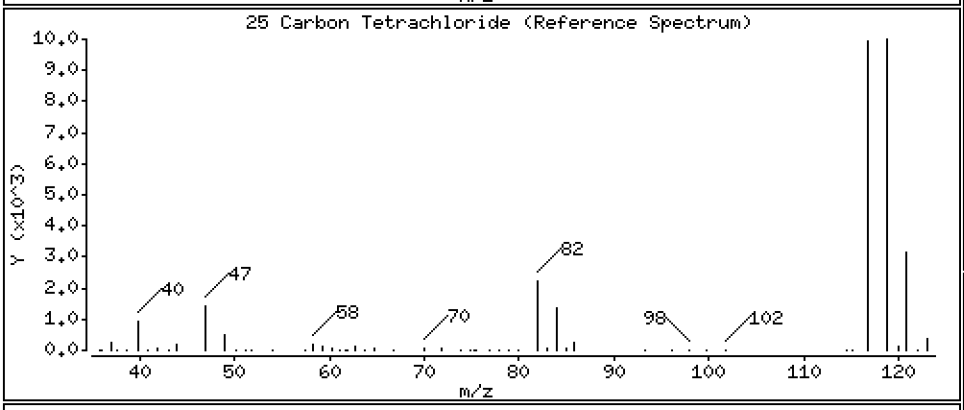
Column diameter: 0.18

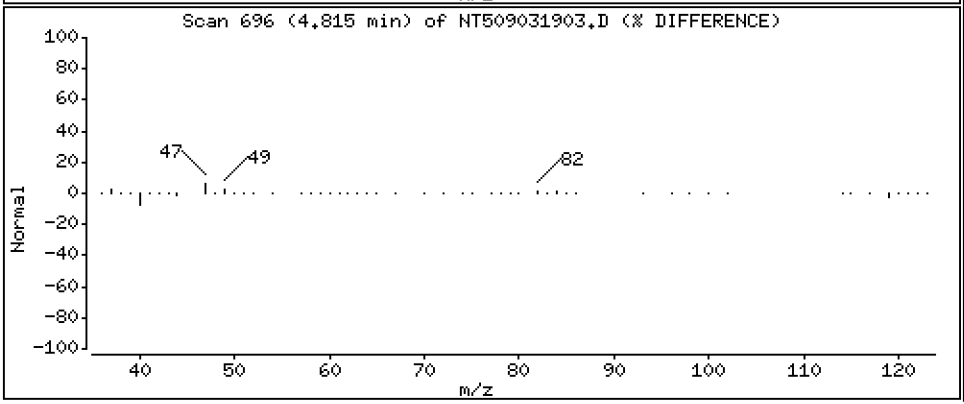
25 Carbon Tetrachloride

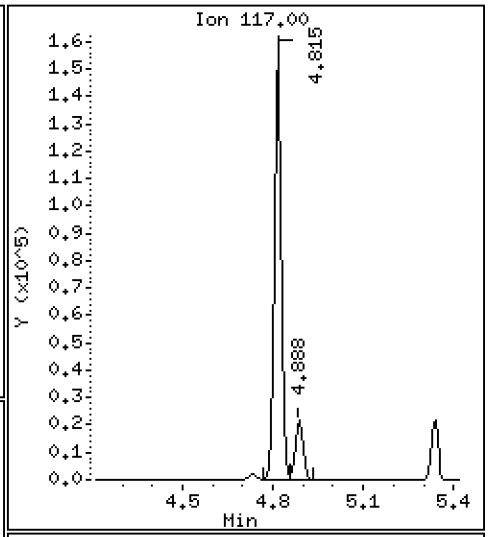
Concentration: 48.326 ug/Kg

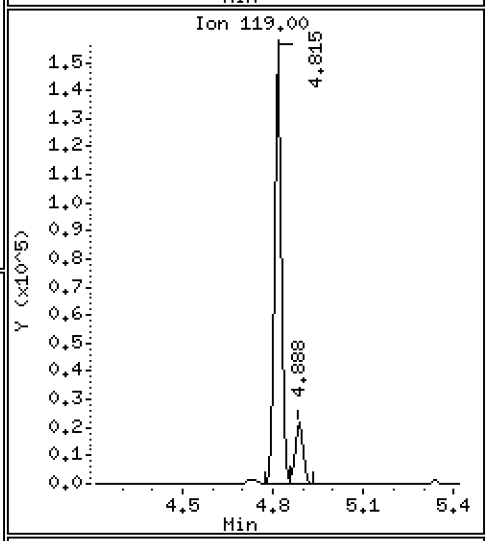


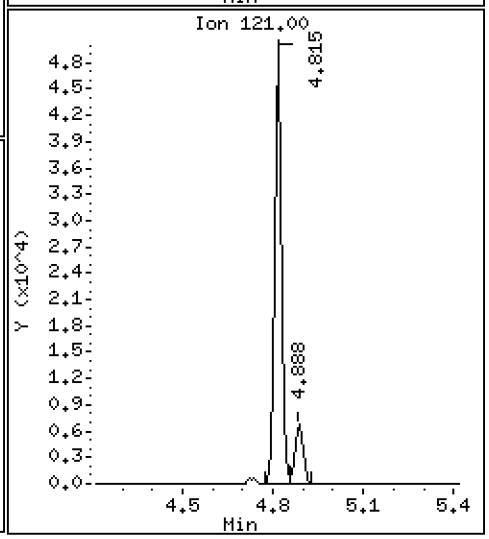












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

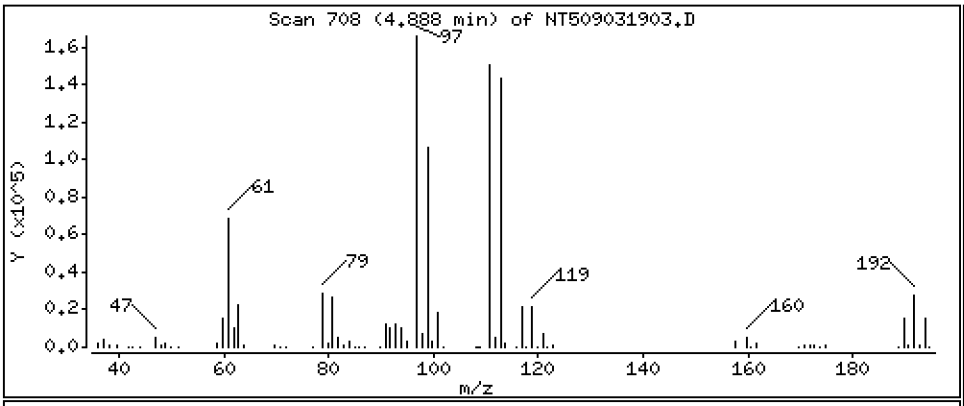
Operator: PB

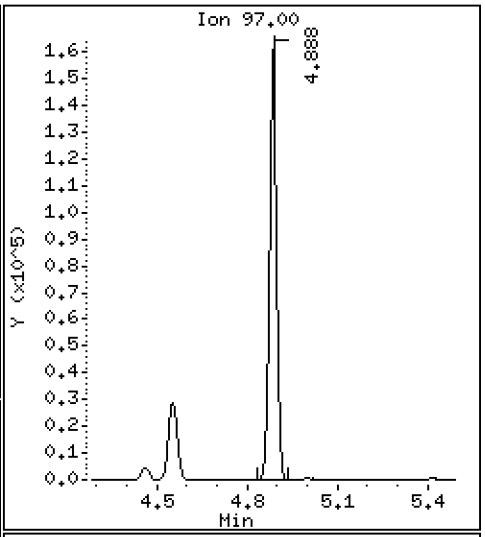
Column phase: RTXVMS

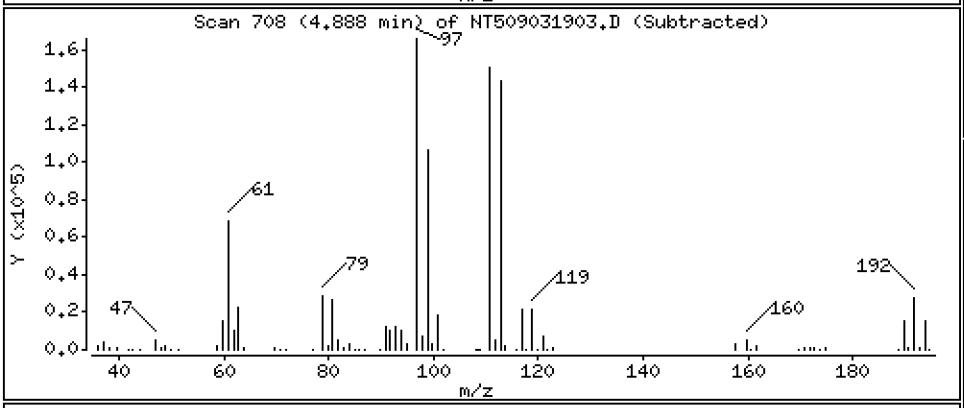
Column diameter: 0.18

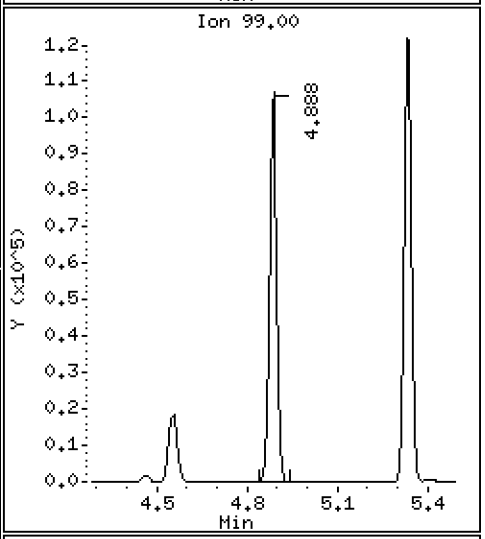
26 1,1,1-Trichloroethane

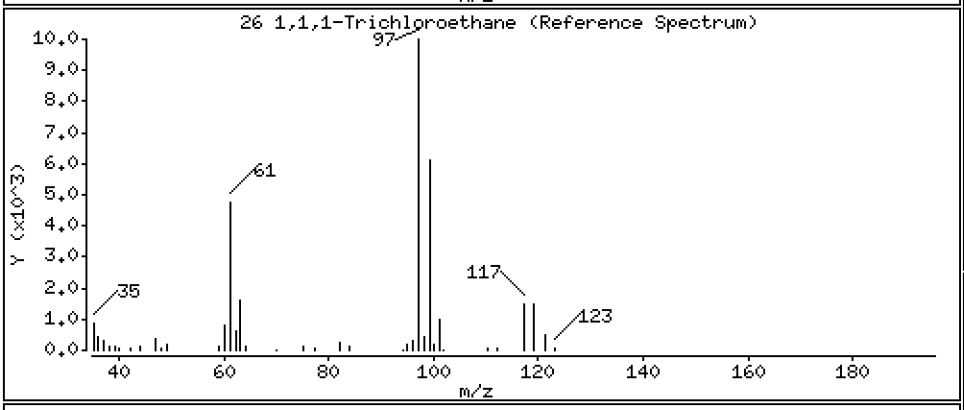
Concentration: 57.418 ug/Kg

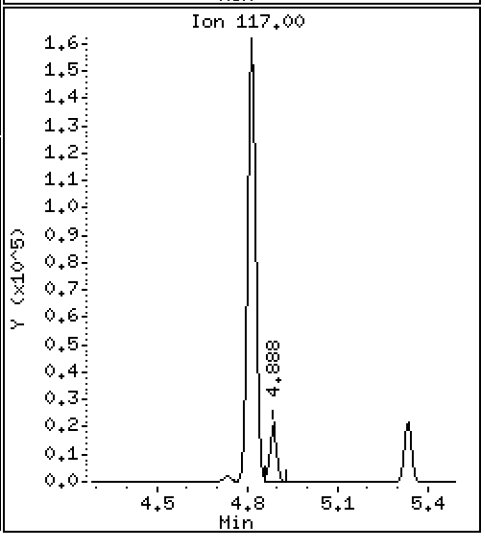


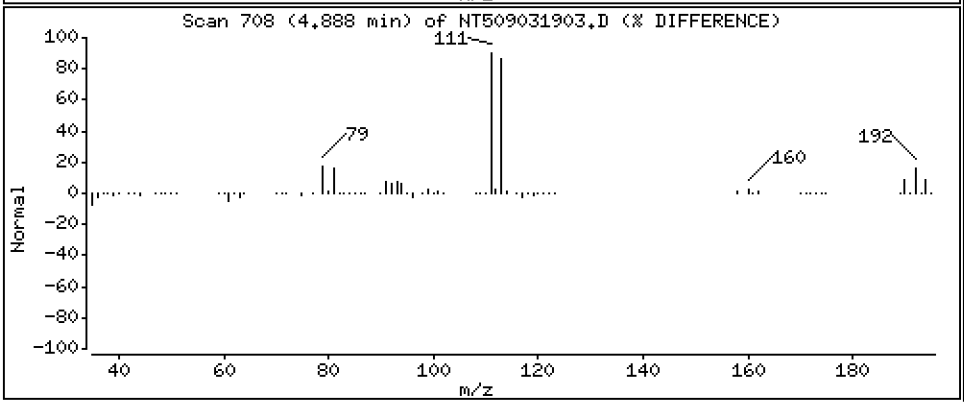












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

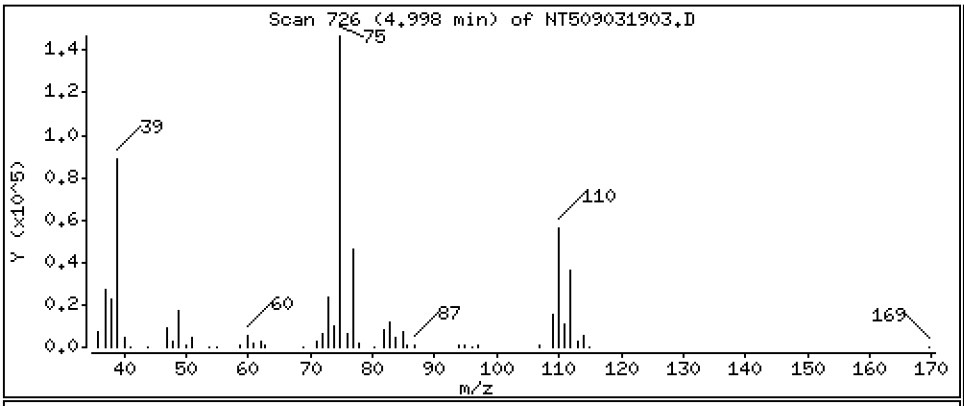
Operator: PB

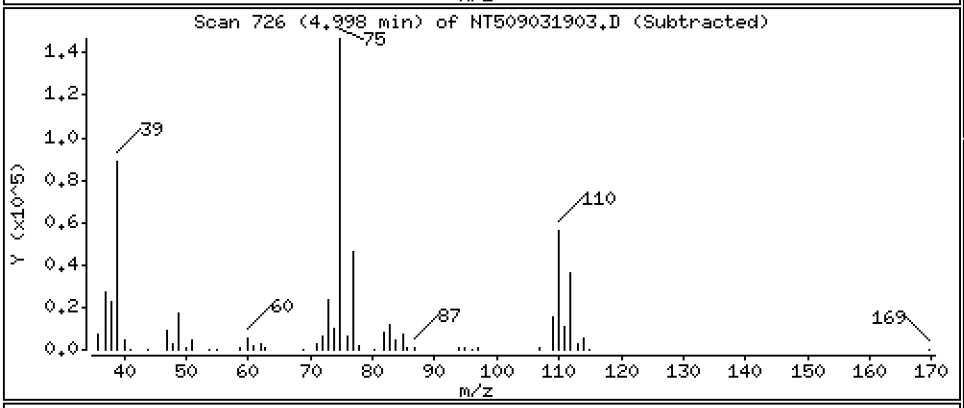
Column phase: RTXVMS

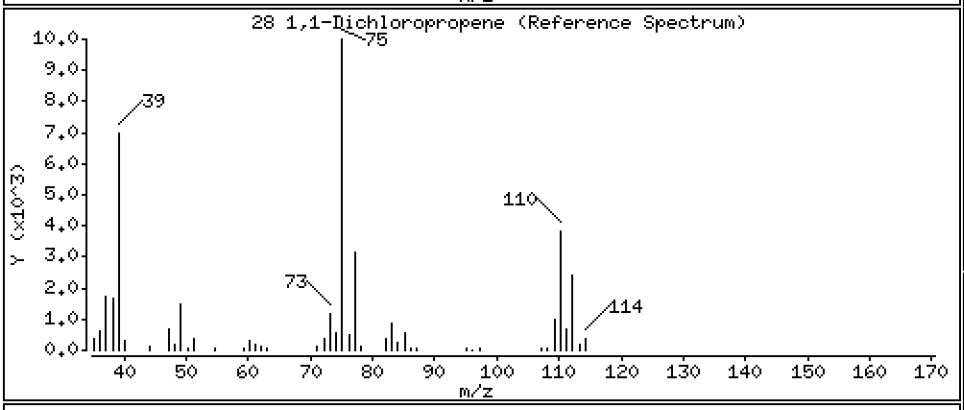
Column diameter: 0.18

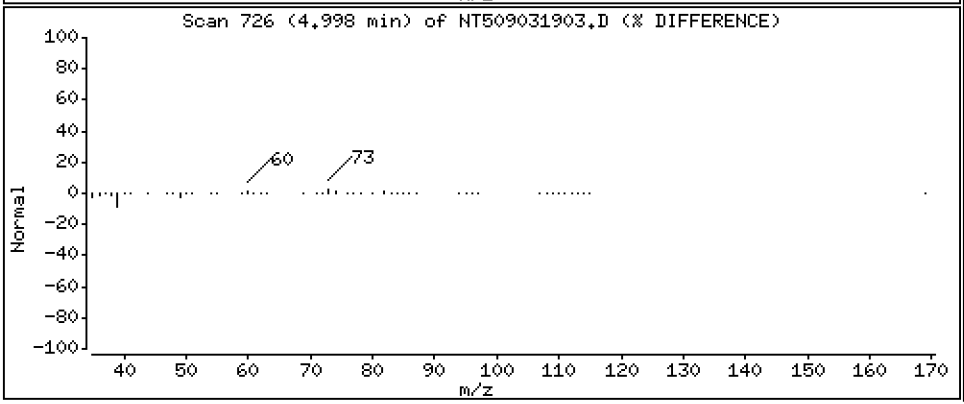
28 1,1-Dichloropropene

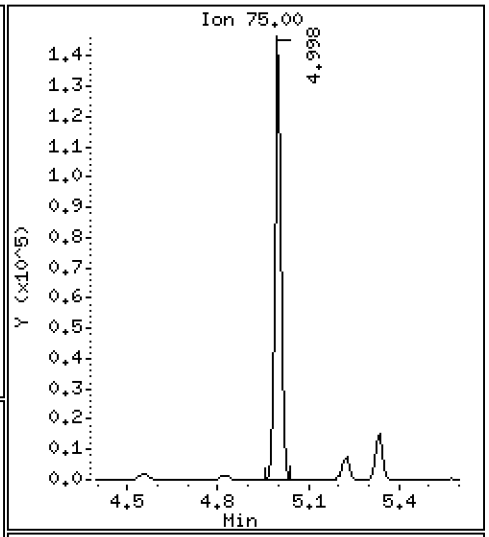
Concentration: 49.853 ug/Kg

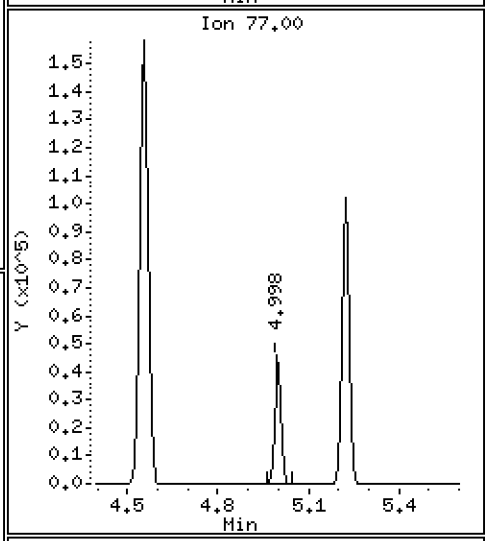


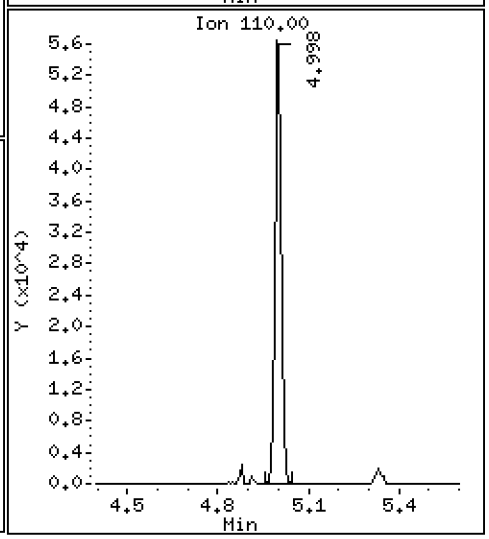












Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

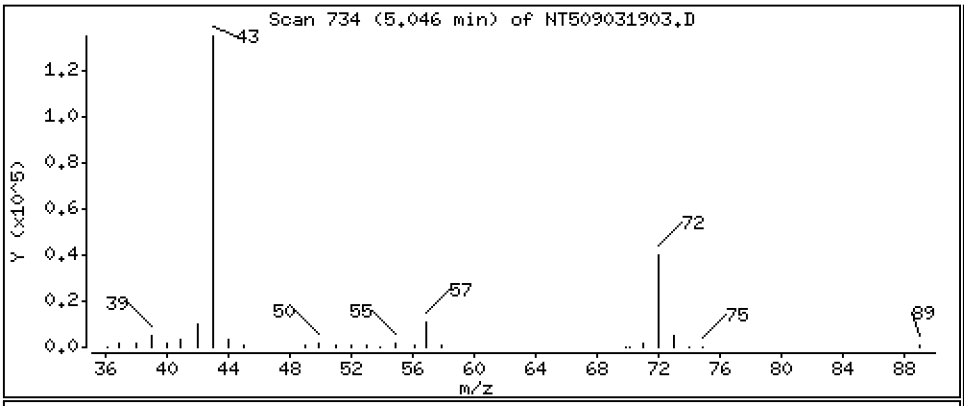
Operator: PB

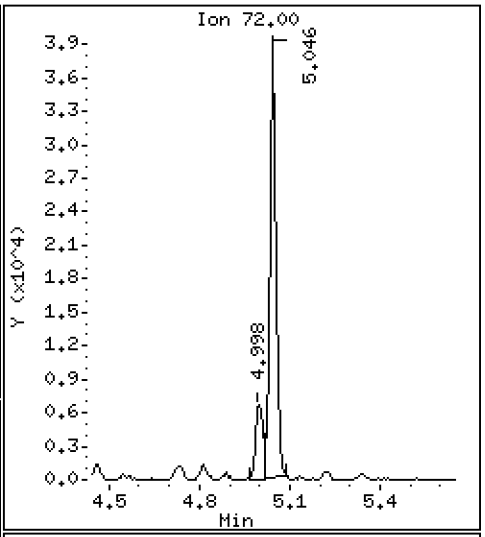
Column phase: RTXVMS

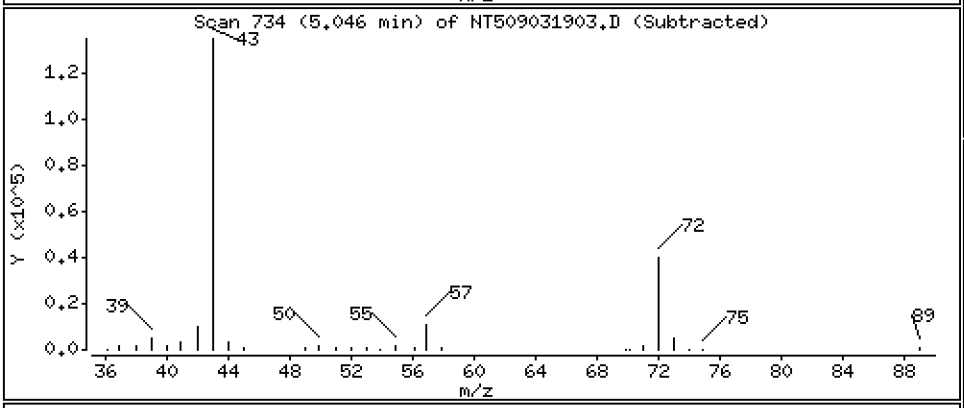
Column diameter: 0.18

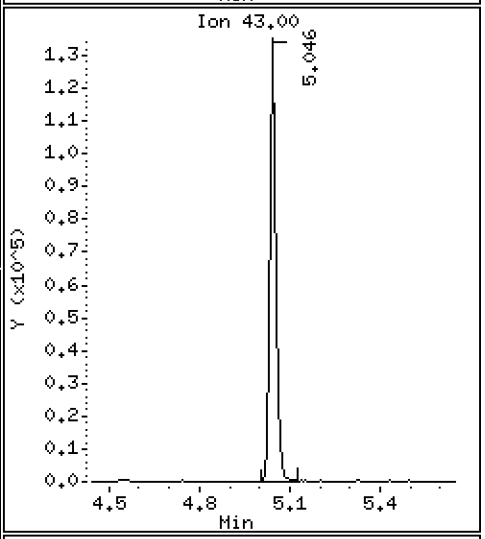
29 2-Butanone

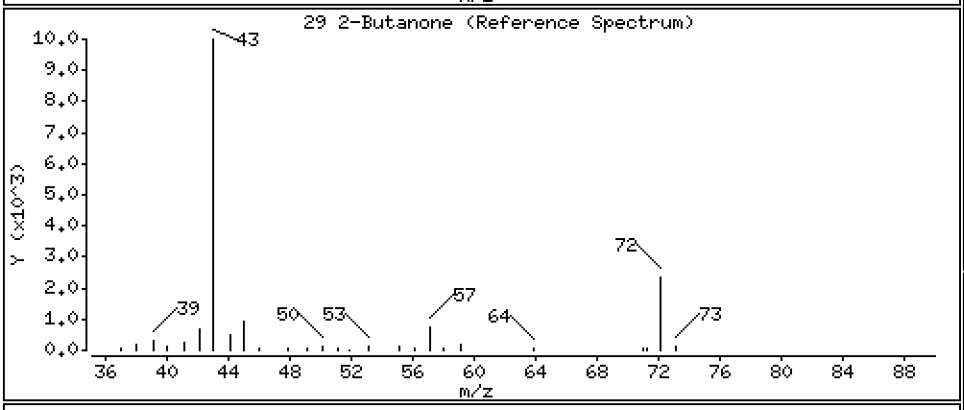
Concentration: 266.63 ug/Kg

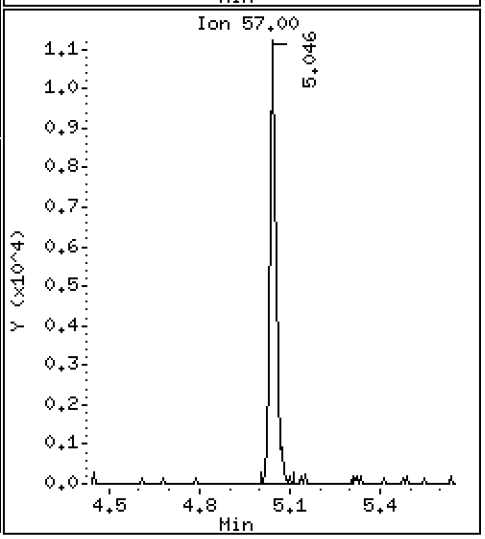


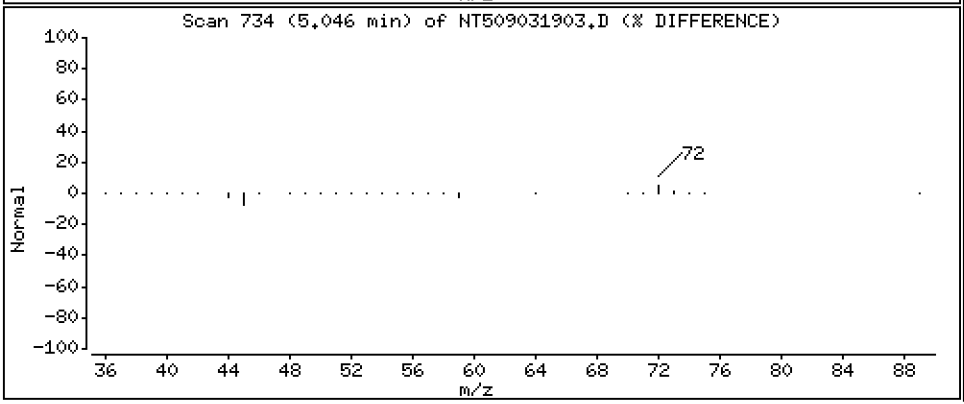












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

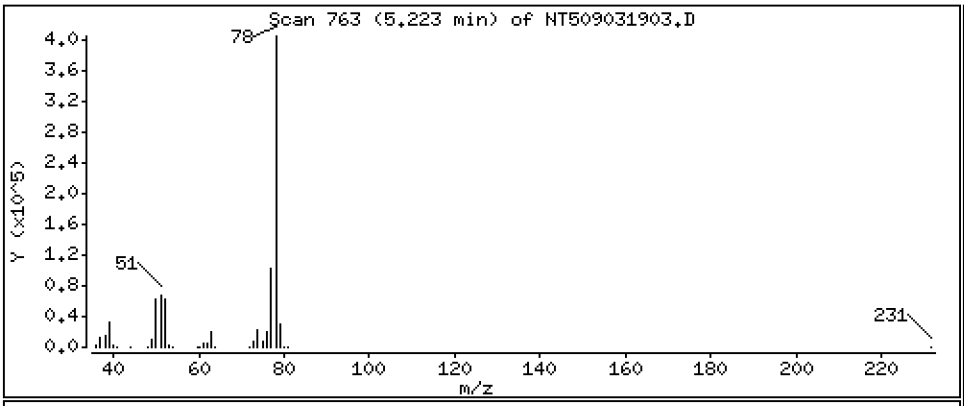
Operator: PB

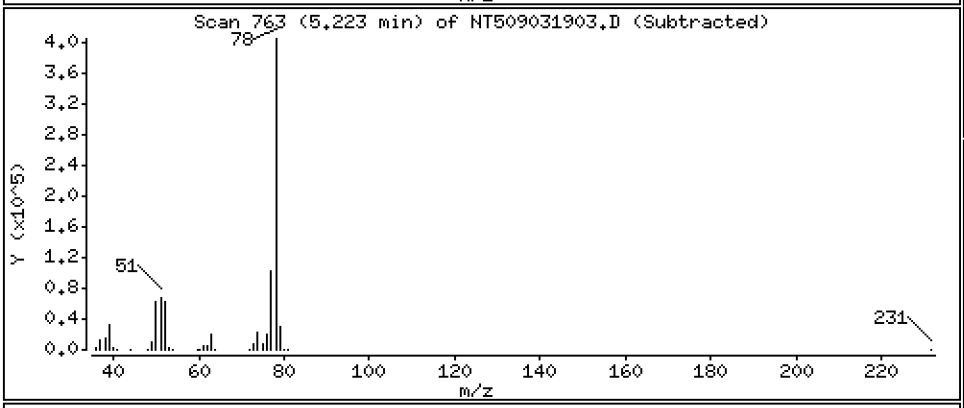
Column phase: RTXVMS

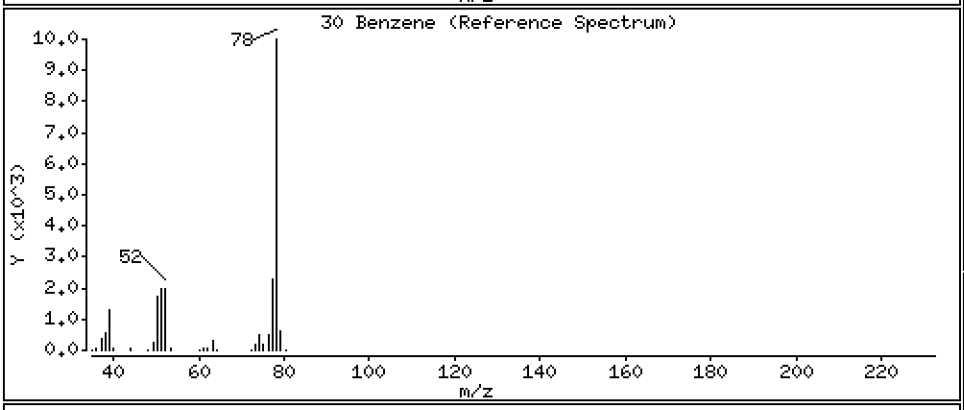
Column diameter: 0.18

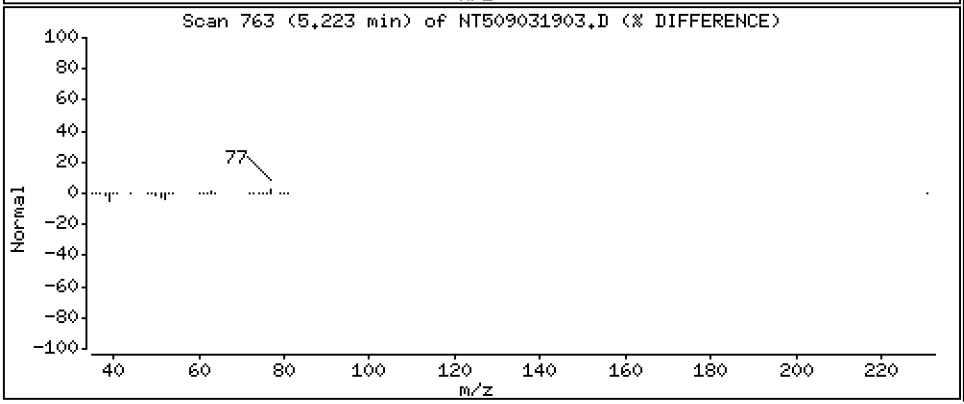
30 Benzene

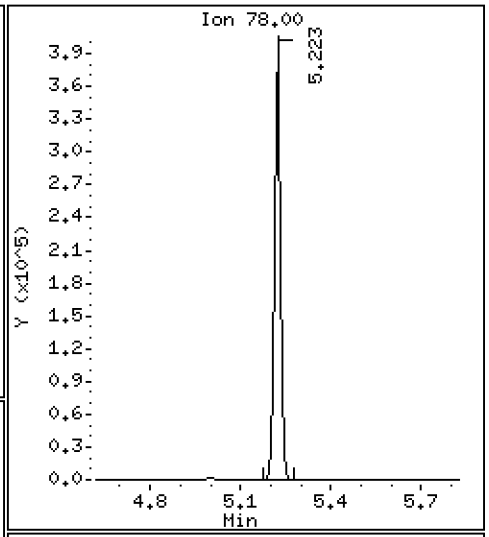
Concentration: 48.404 ug/Kg

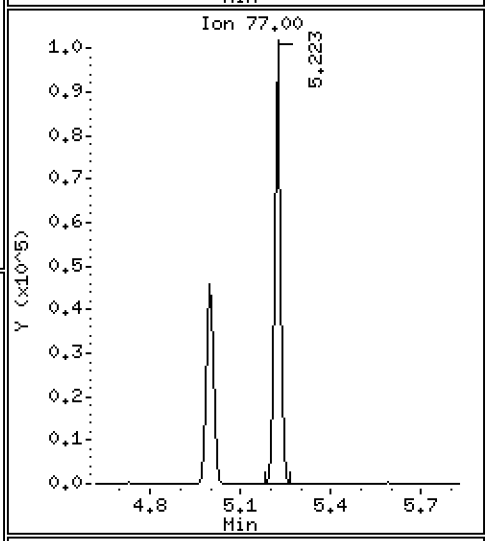


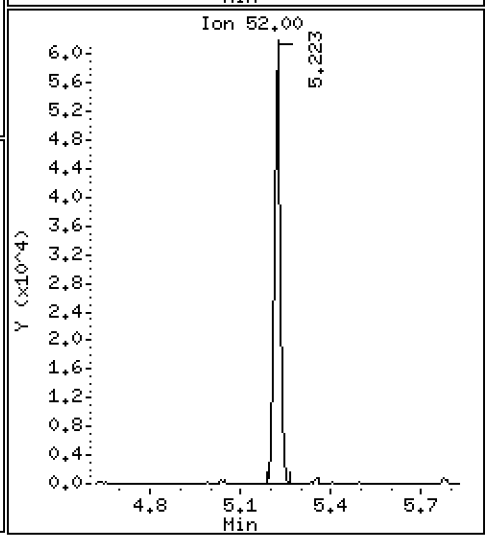












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

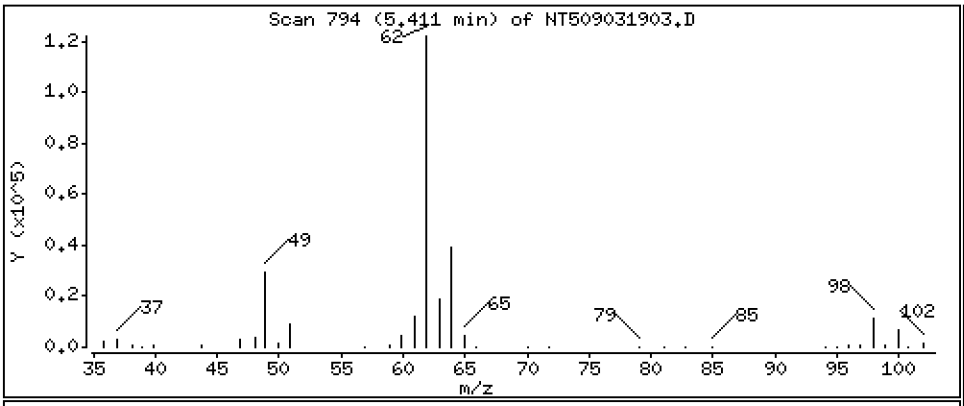
Operator: PB

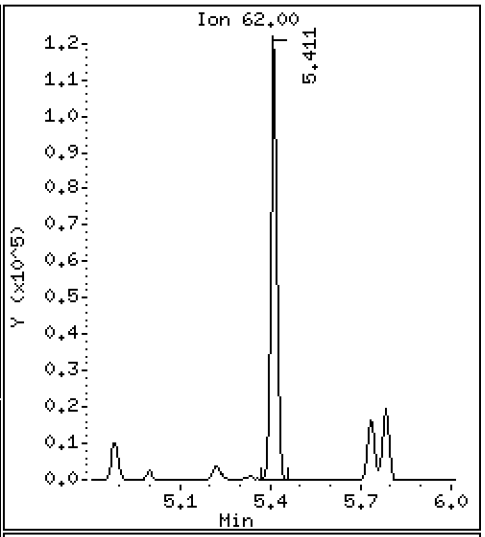
Column phase: RTXVMS

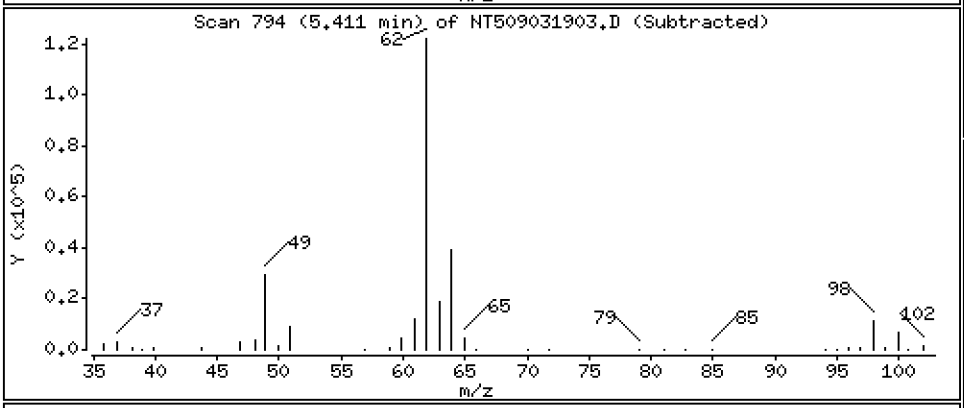
Column diameter: 0.18

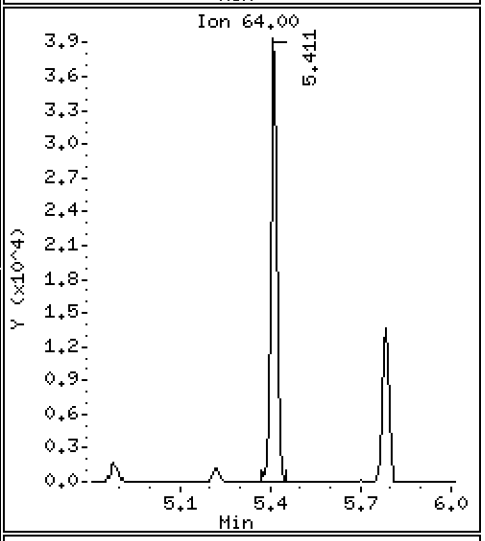
33 1,2-Dichloroethane

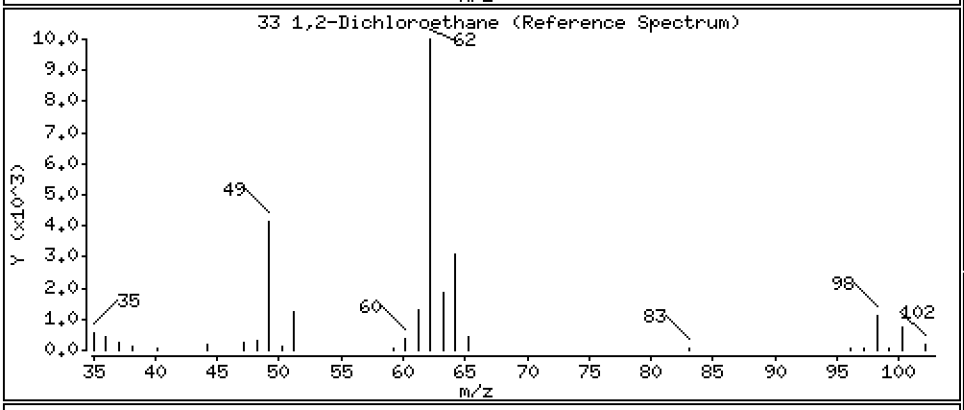
Concentration: 42.574 ug/Kg

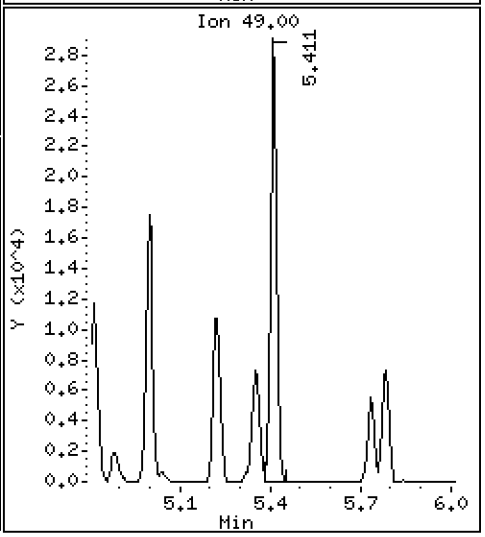


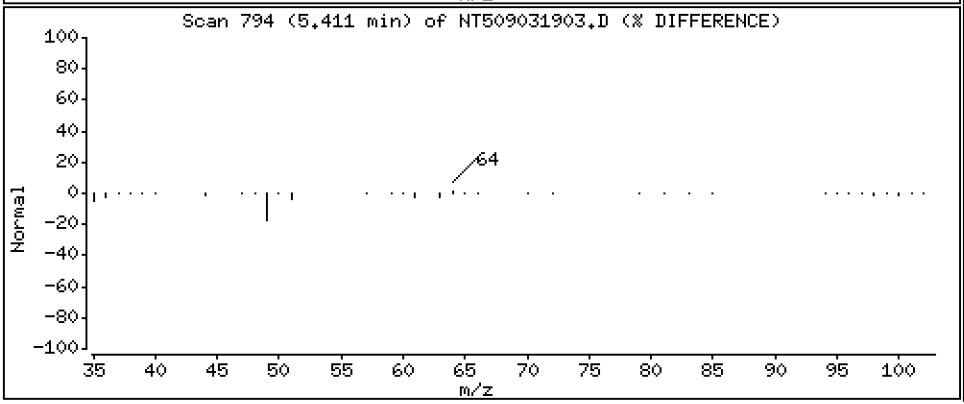












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

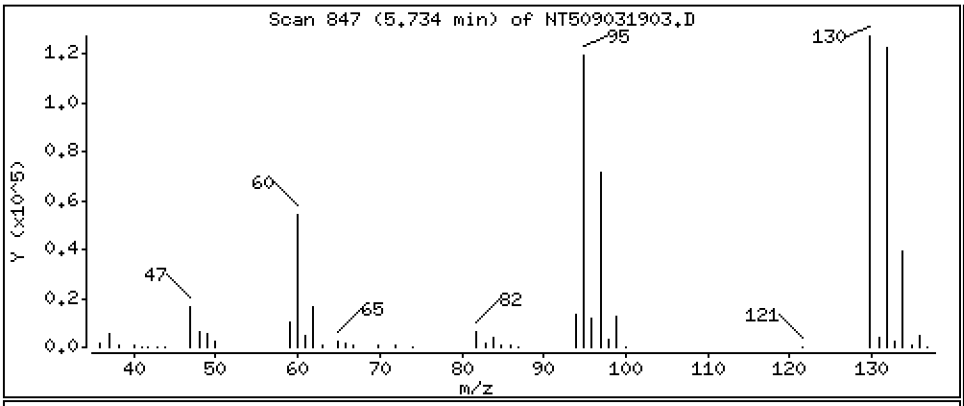
Operator: PB

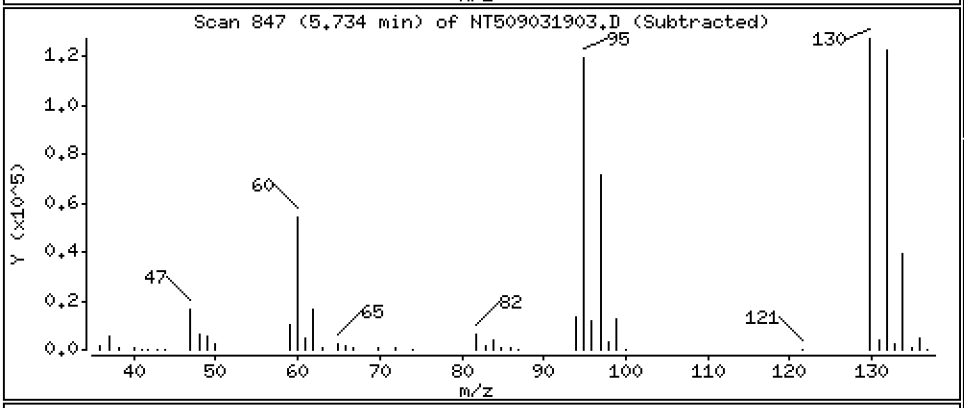
Column phase: RTXVMS

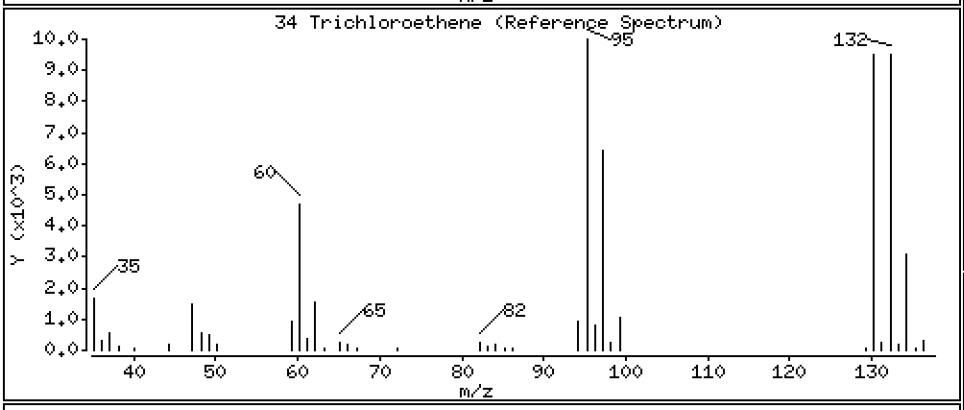
Column diameter: 0.18

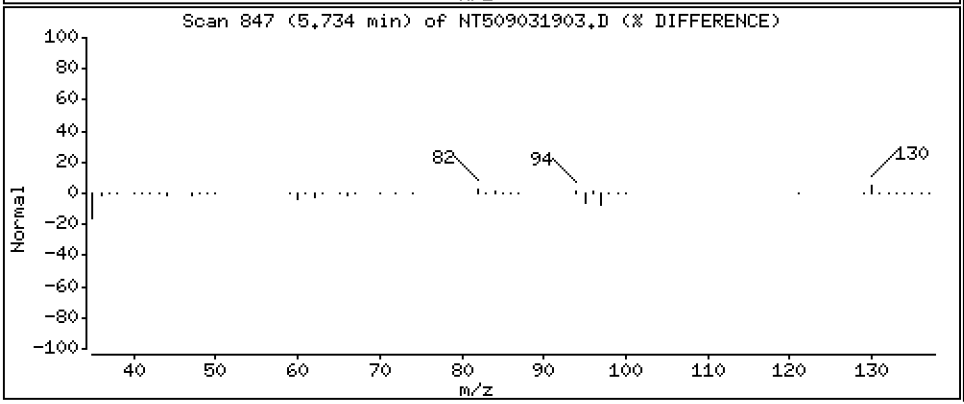
34 Trichloroethene

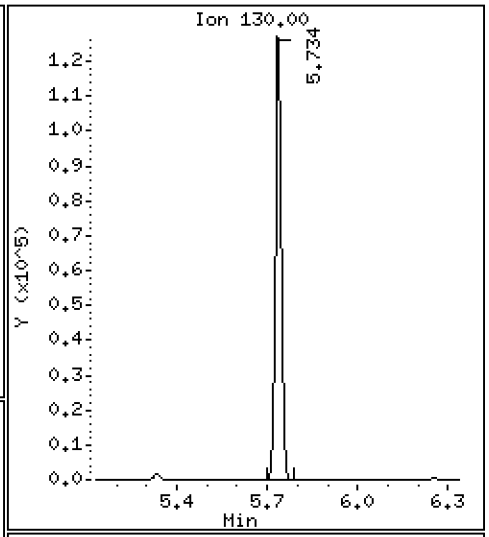
Concentration: 49.363 ug/Kg

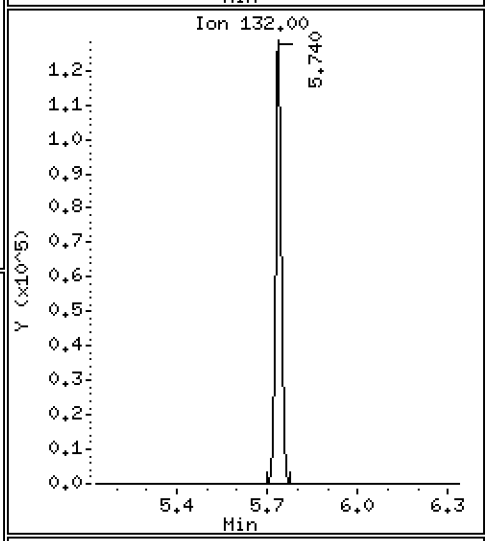


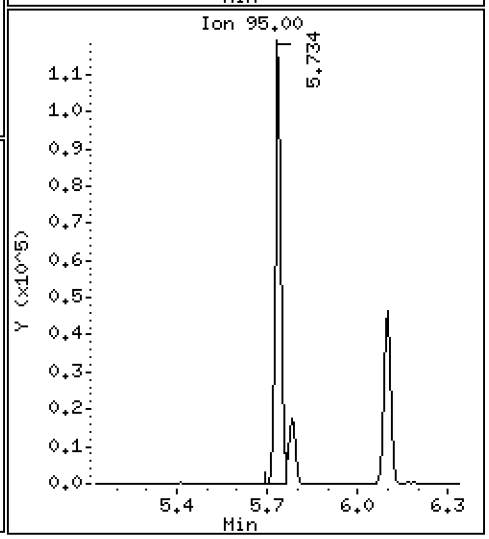












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

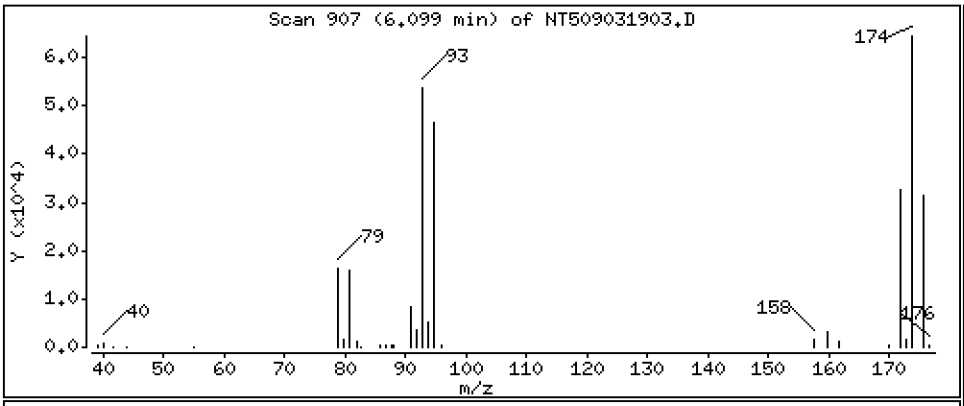
Operator: PB

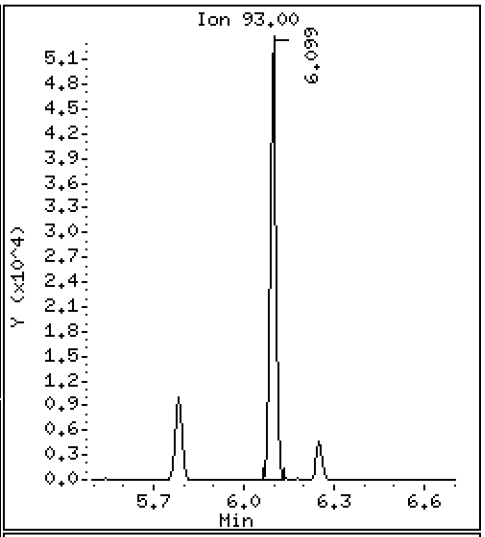
Column phase: RTXVMS

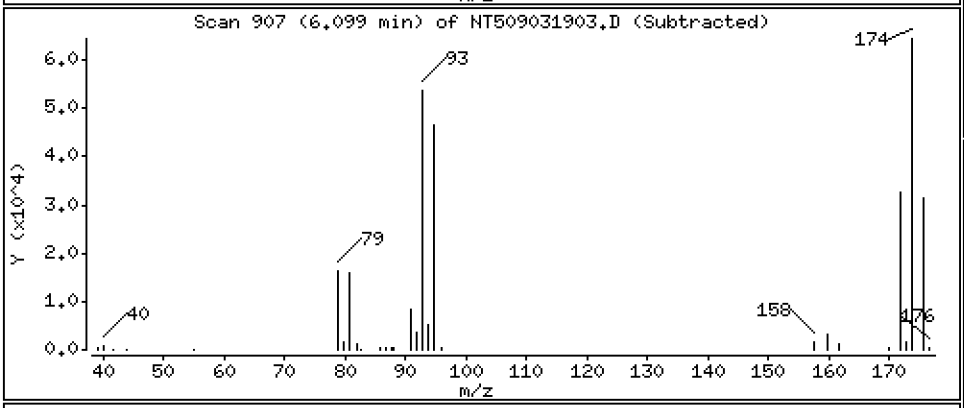
Column diameter: 0.18

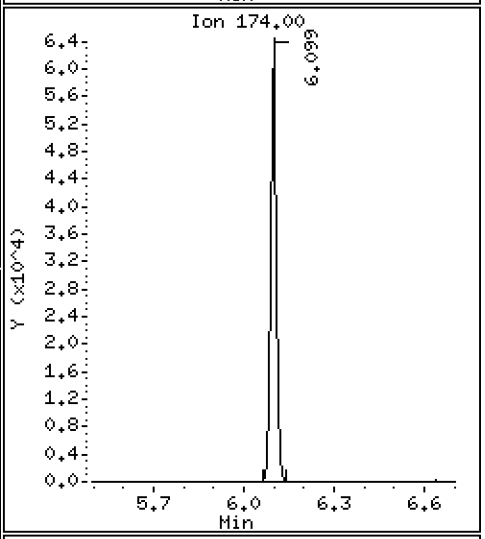
37 Dibromomethane

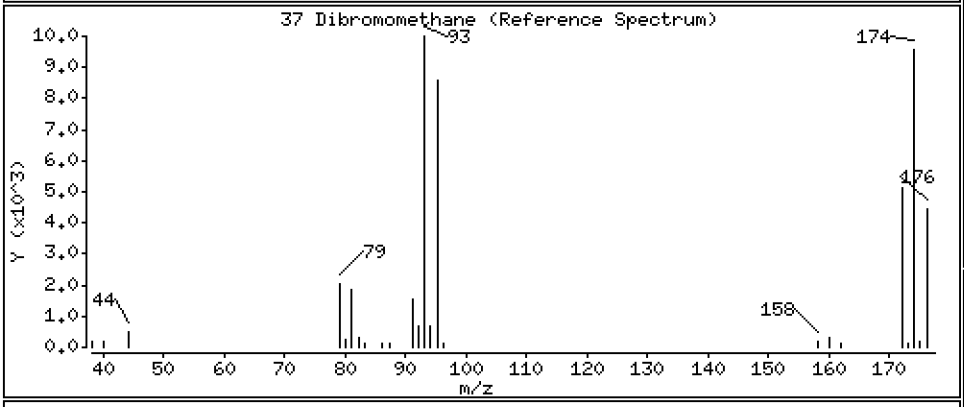
Concentration: 43.269 ug/Kg

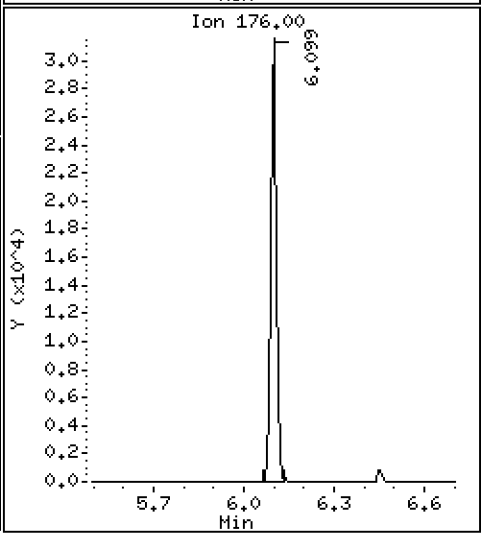


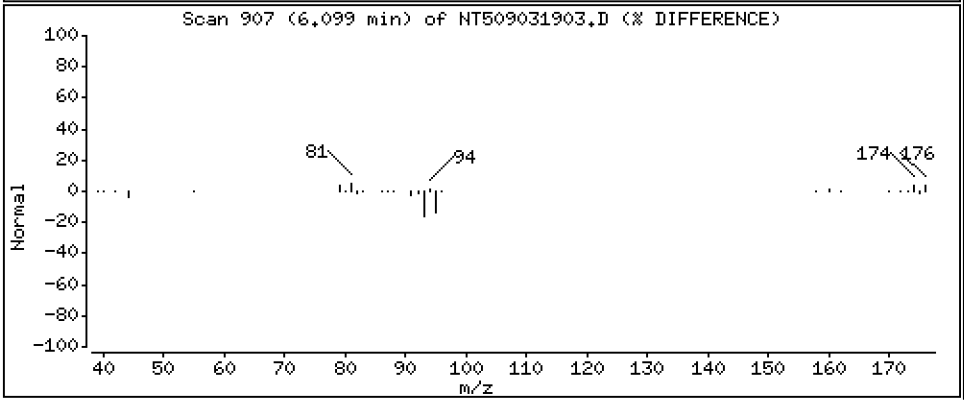












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

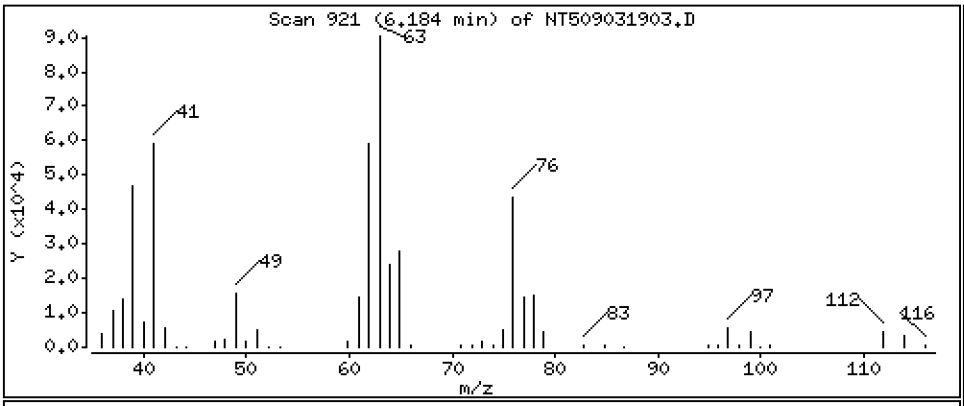
Operator: PB

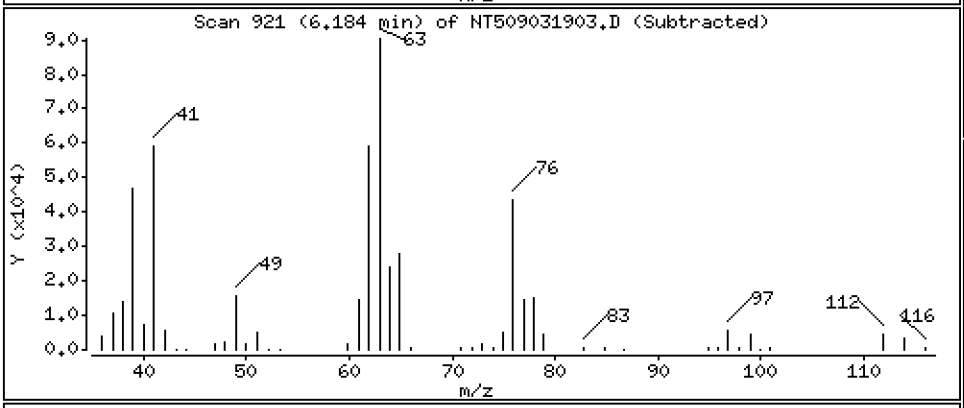
Column phase: RTXVMS

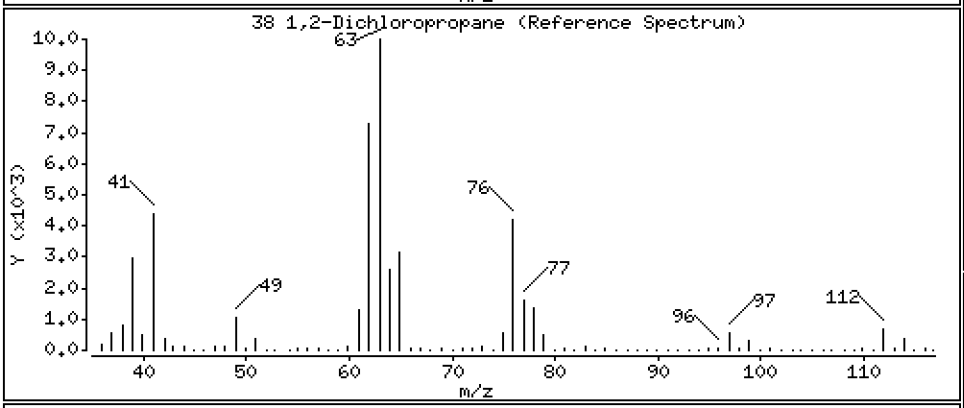
Column diameter: 0.18

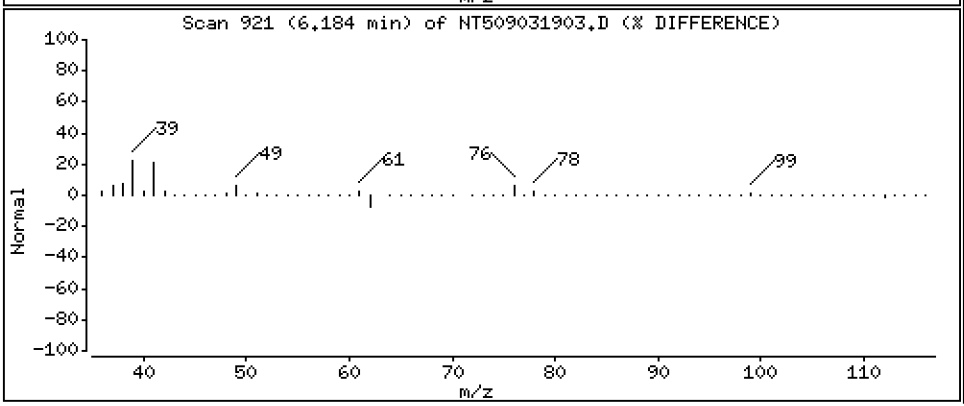
38 1,2-Dichloropropane

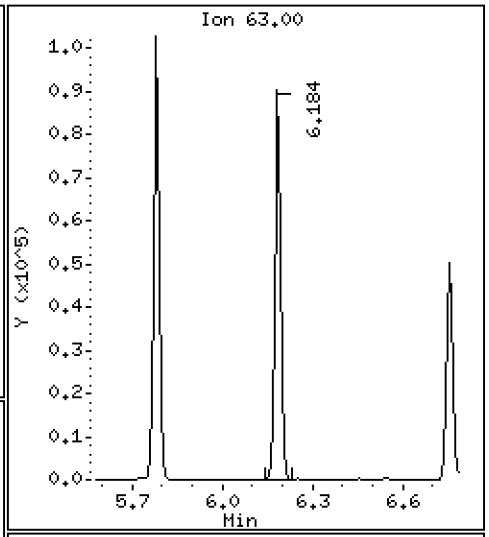
Concentration: 45.821 ug/Kg

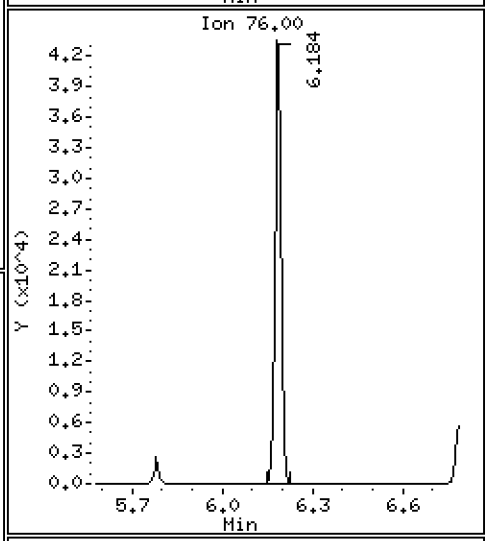


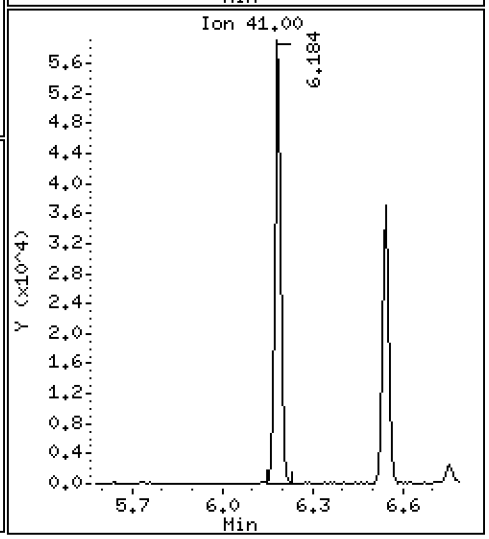












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

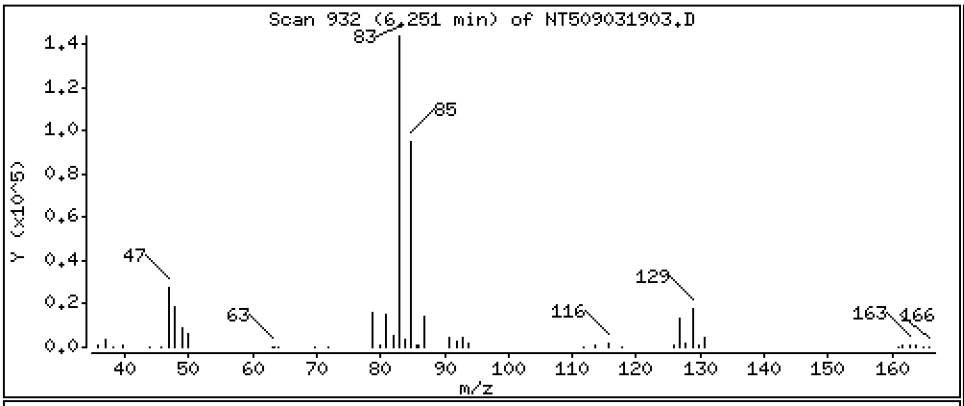
Operator: PB

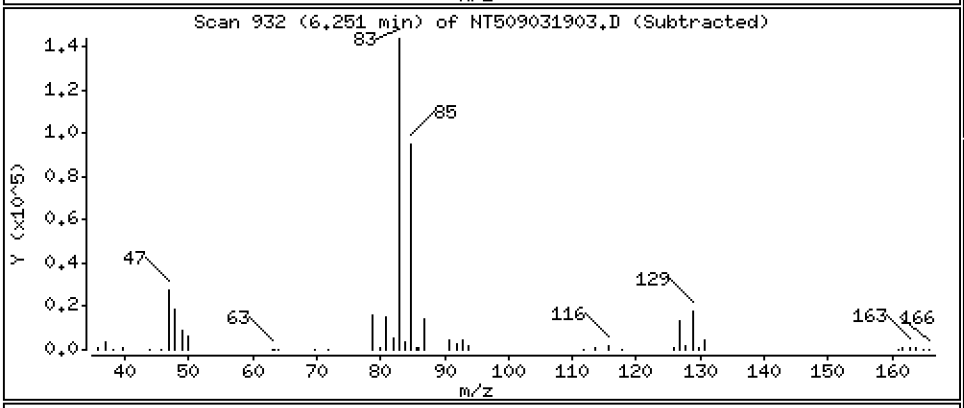
Column phase: RTXVMS

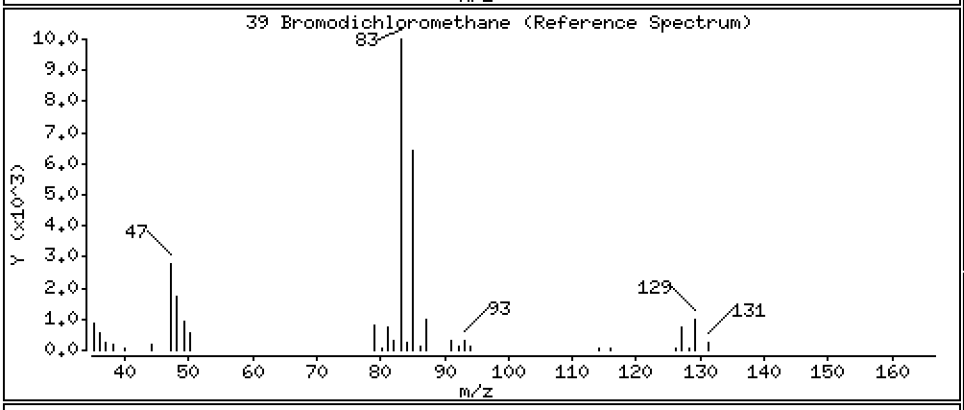
Column diameter: 0.18

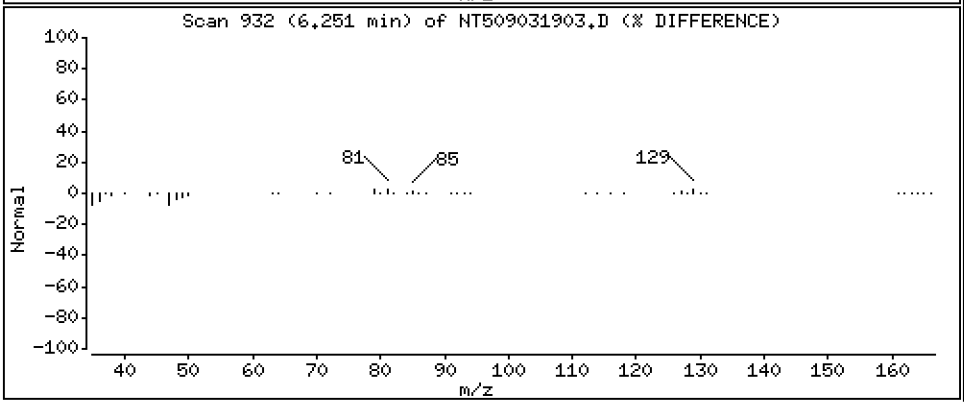
39 Bromodichloromethane

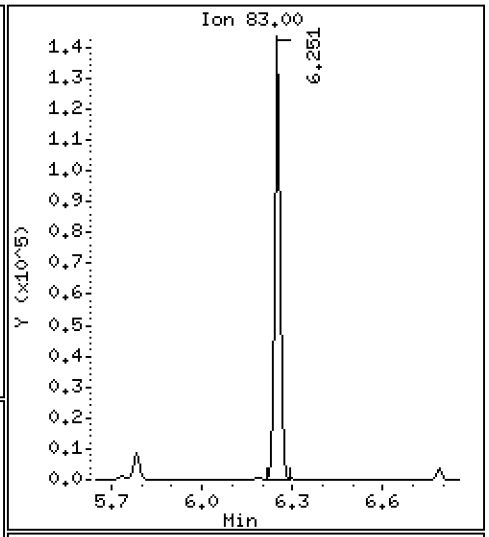
Concentration: 45.409 ug/Kg

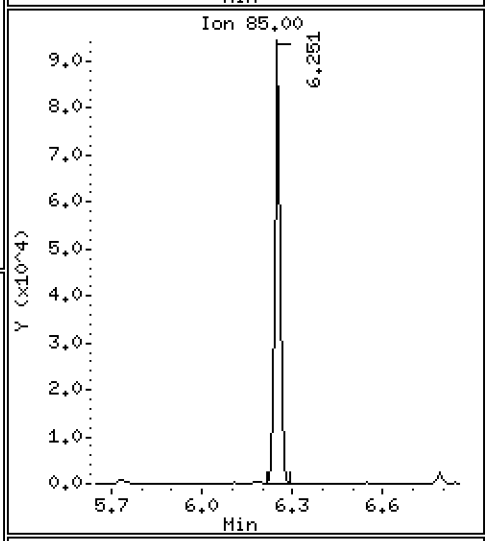


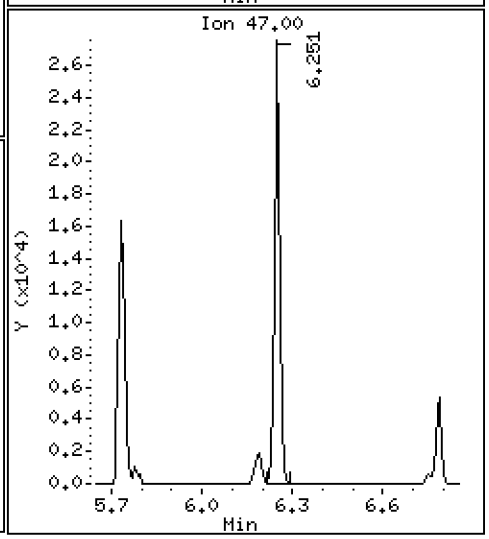












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

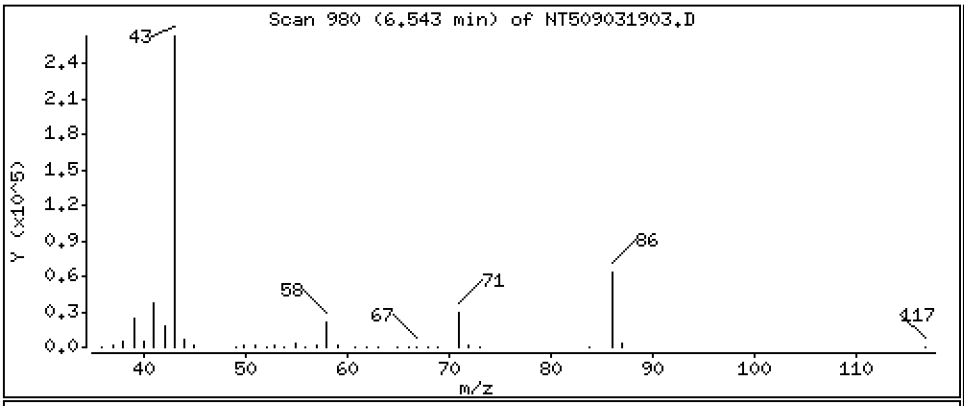
Operator: PB

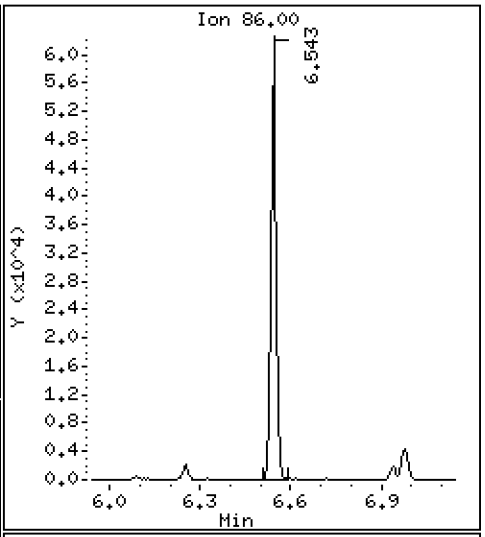
Column phase: RTXVMS

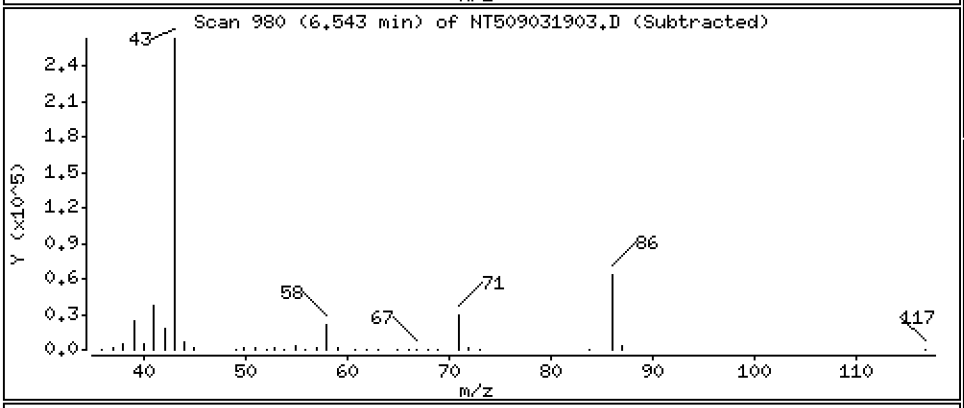
Column diameter: 0.18

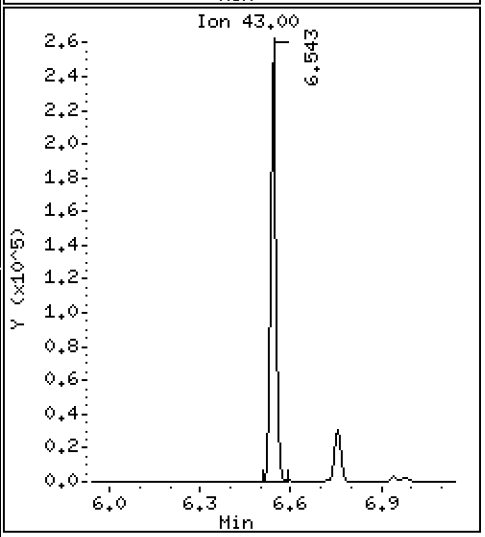
172 2-Pentanone

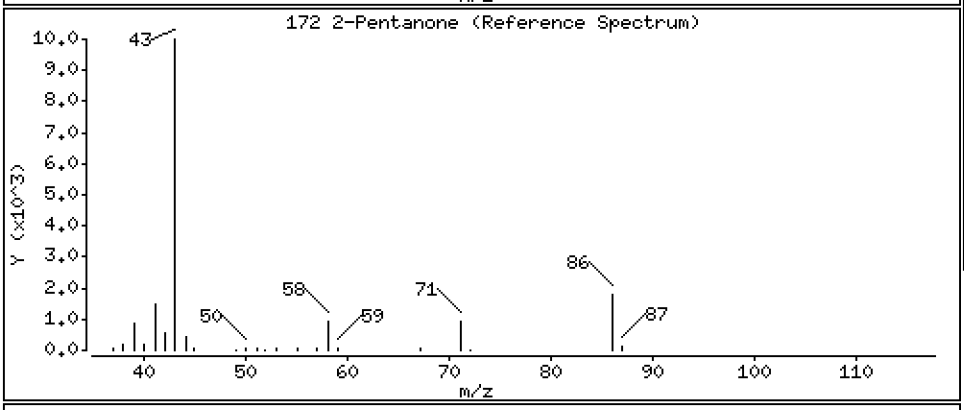
Concentration: 220.45 ug/Kg

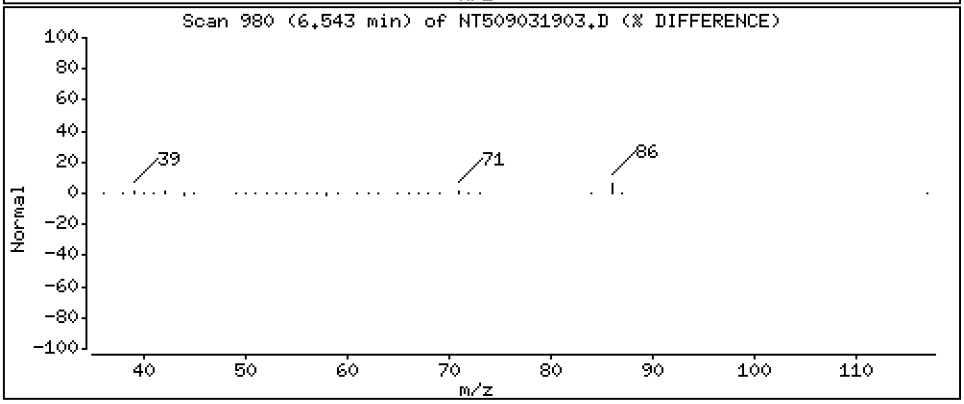












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

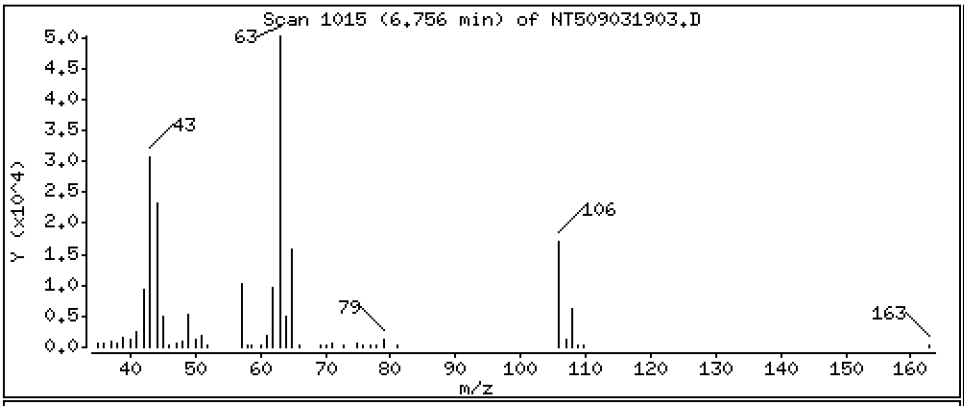
Operator: PB

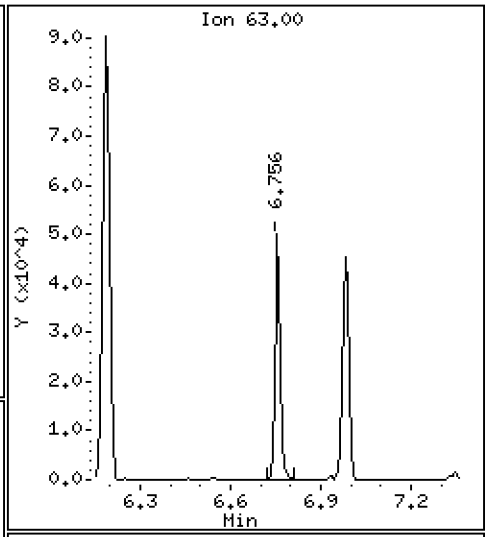
Column phase: RTXVMS

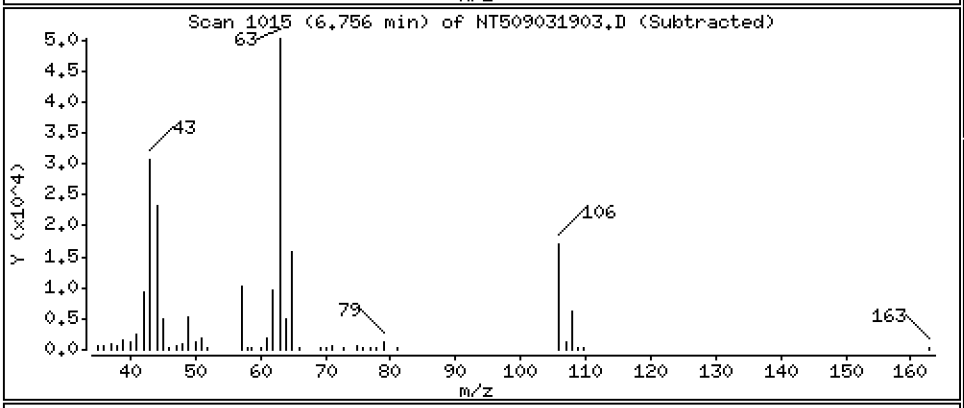
Column diameter: 0.18

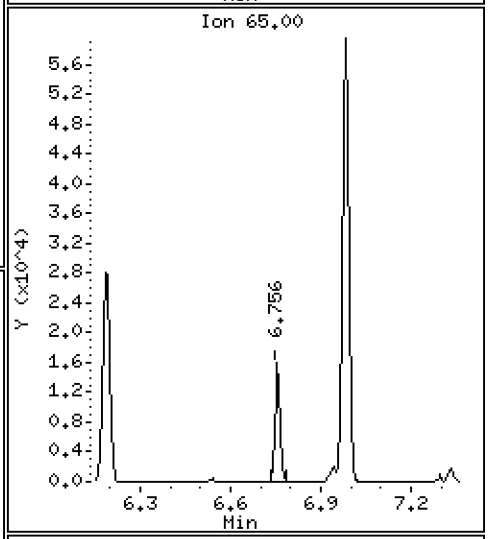
40 2-Chloroethyl Vinyl Ether

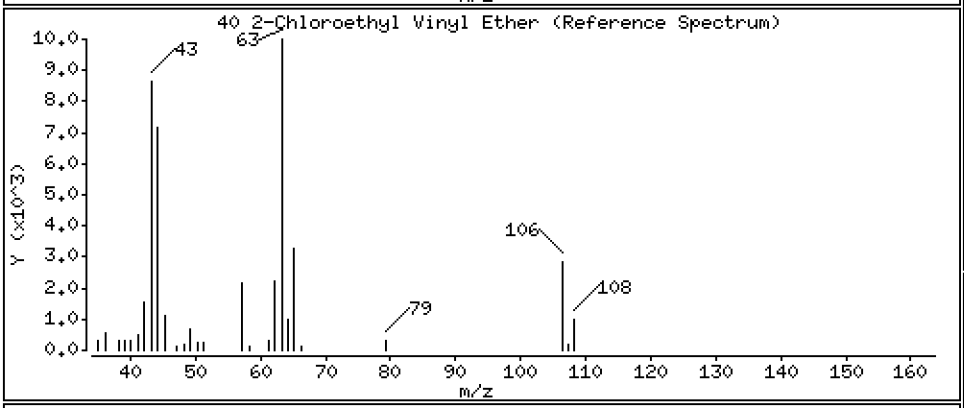
Concentration: 42.060 ug/Kg

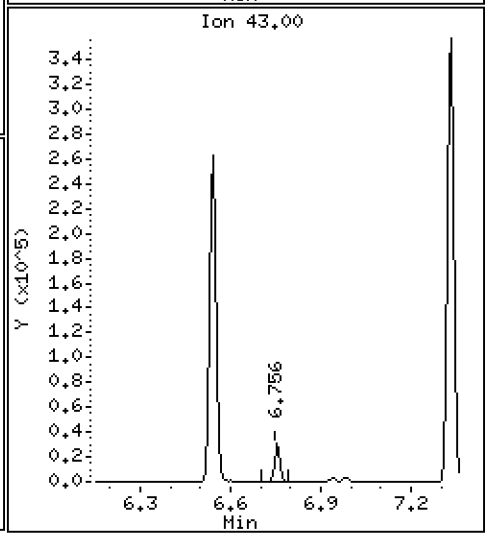


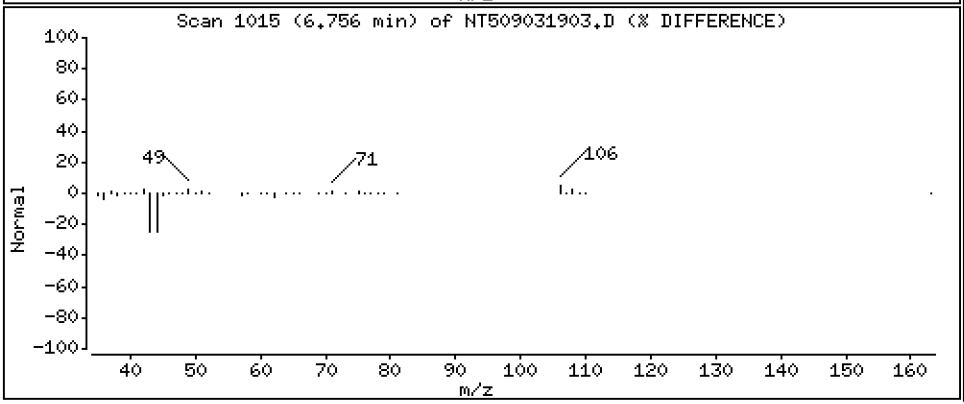












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

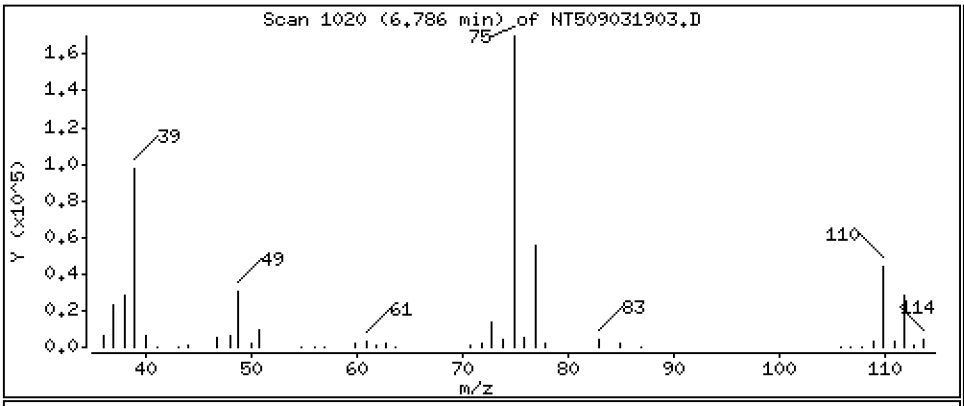
Operator: PB

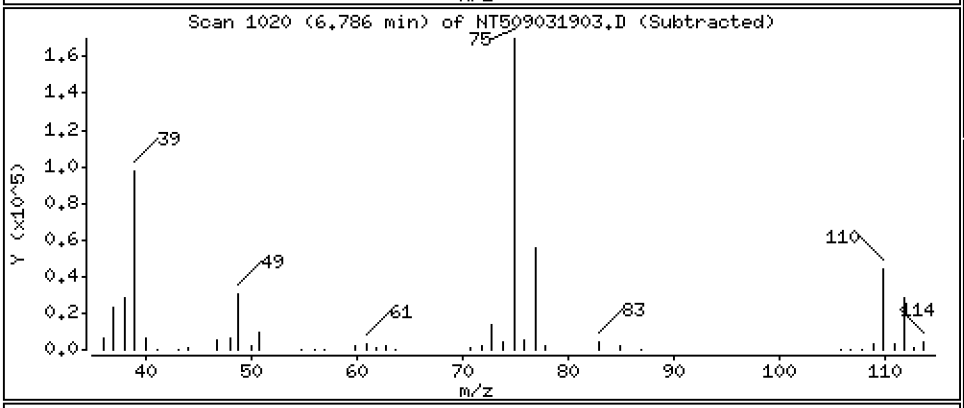
Column phase: RTXVMS

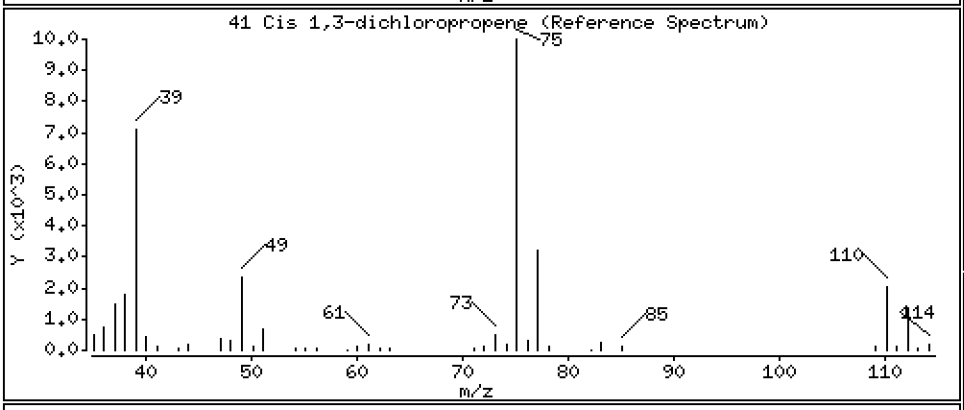
Column diameter: 0.18

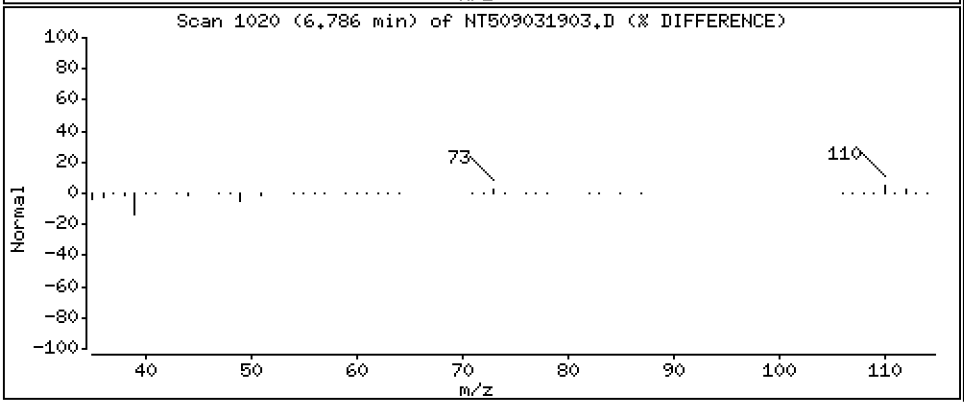
41 Cis 1,3-dichloropropene

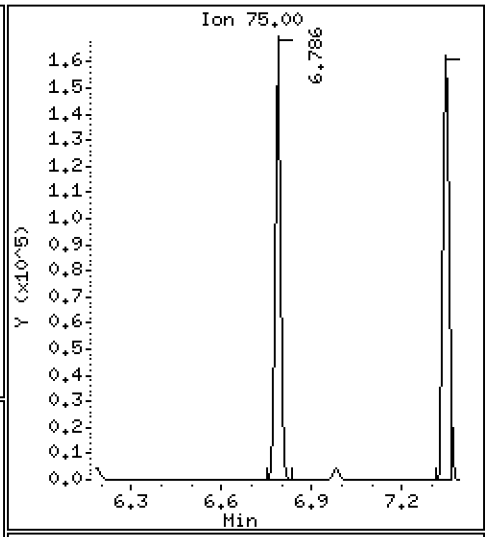
Concentration: 45.618 ug/Kg

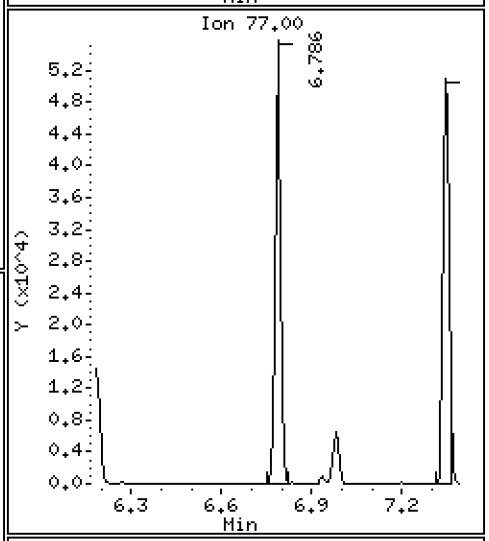


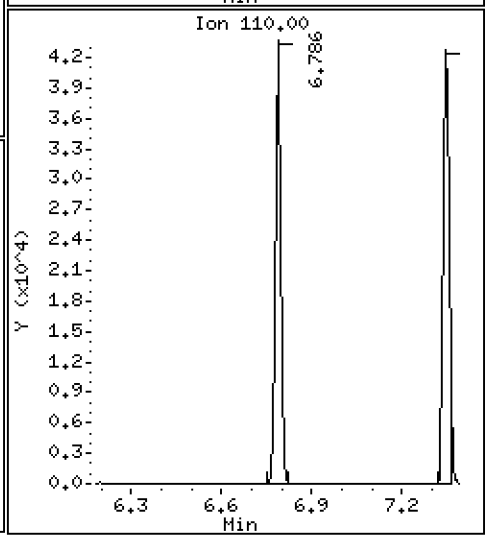












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

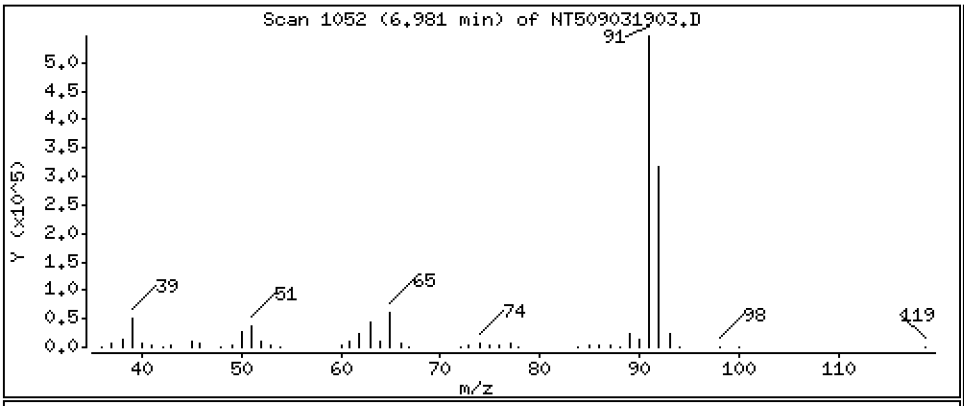
Operator: PB

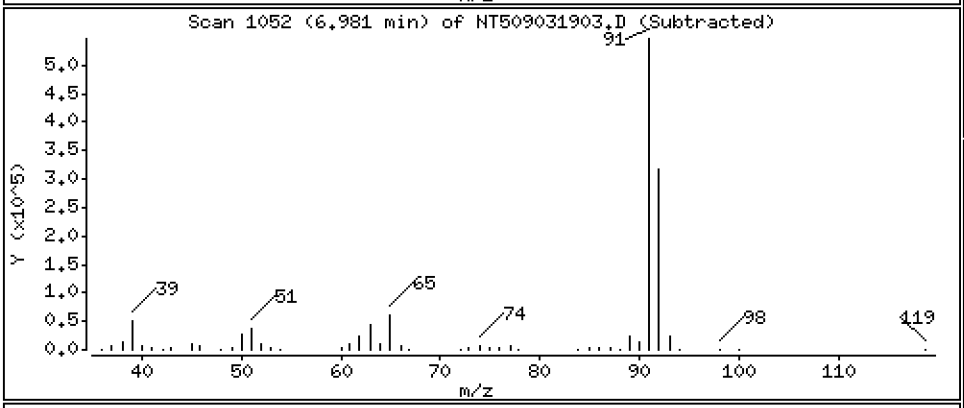
Column phase: RTXVMS

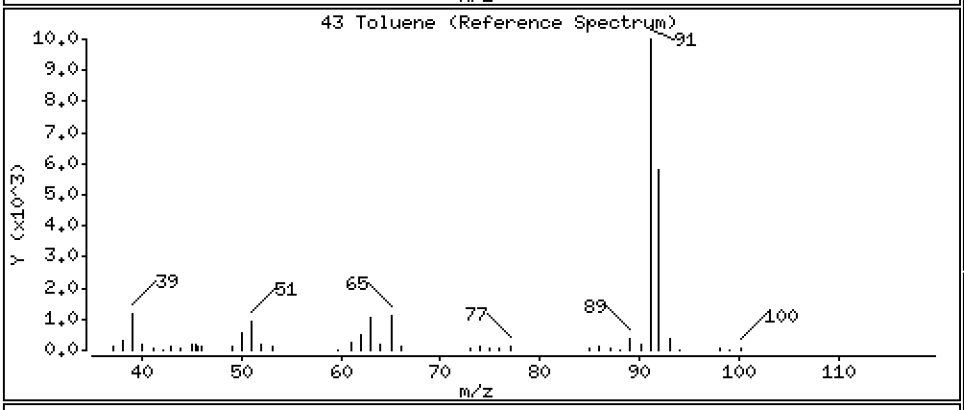
Column diameter: 0.18

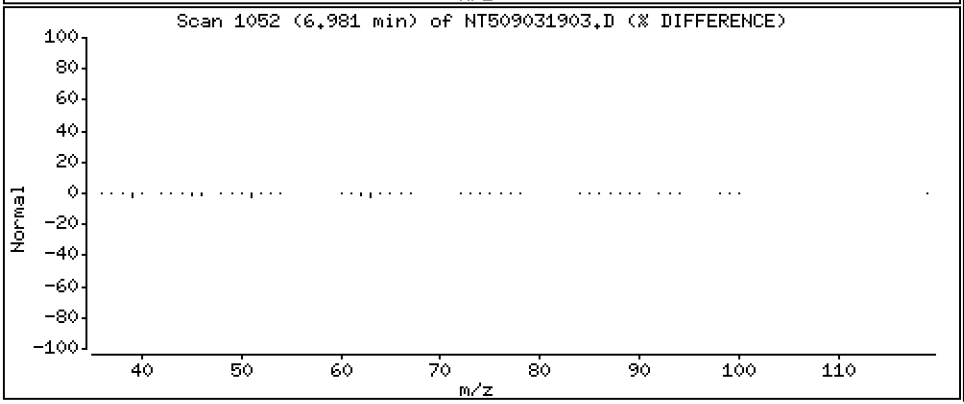
43 Toluene

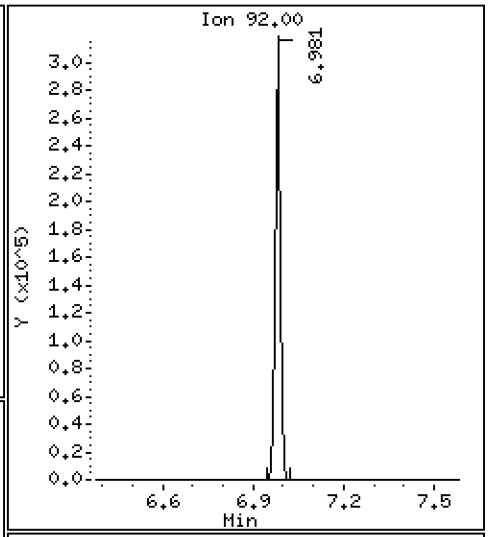
Concentration: 46.957 ug/Kg

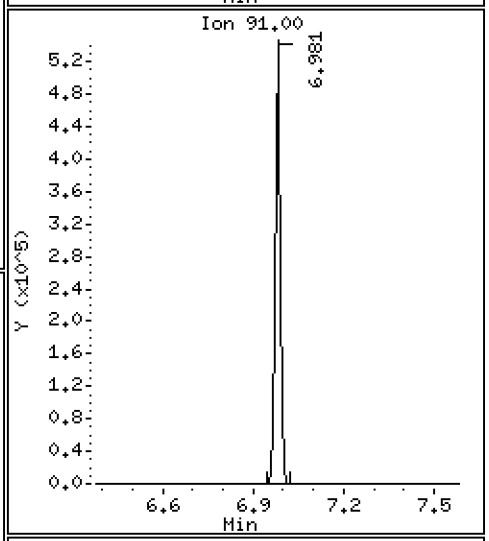


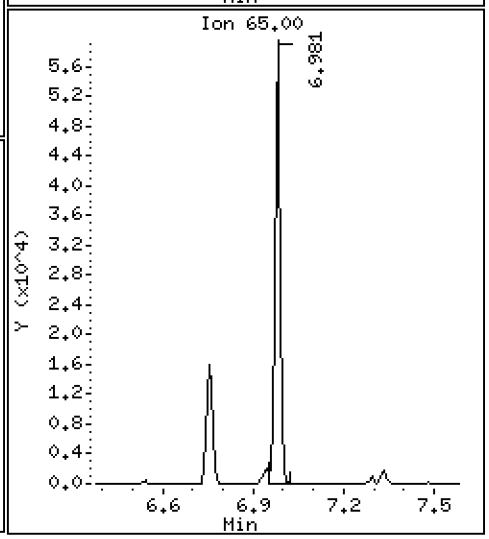












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

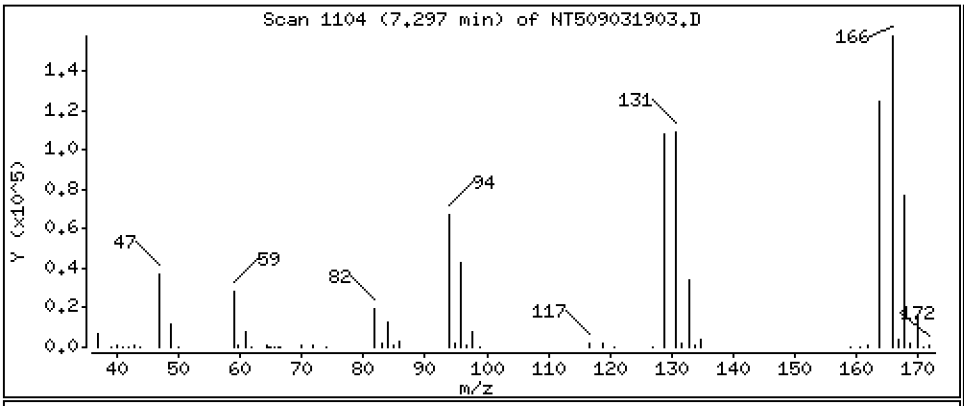
Operator: PB

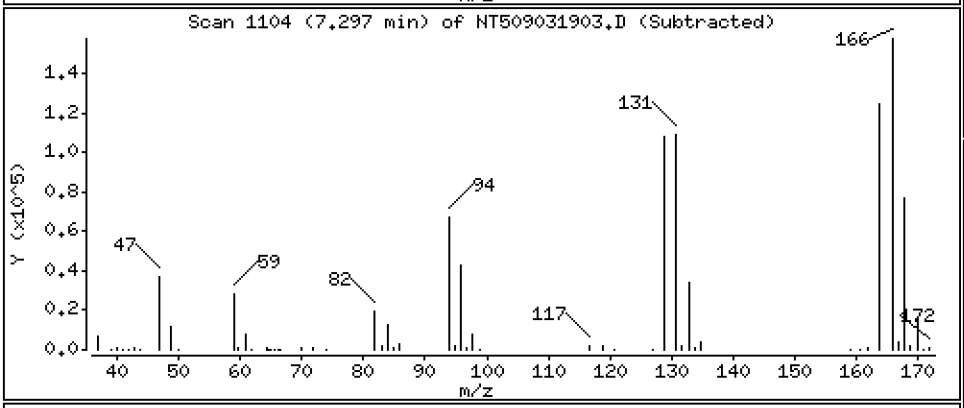
Column phase: RTXVMS

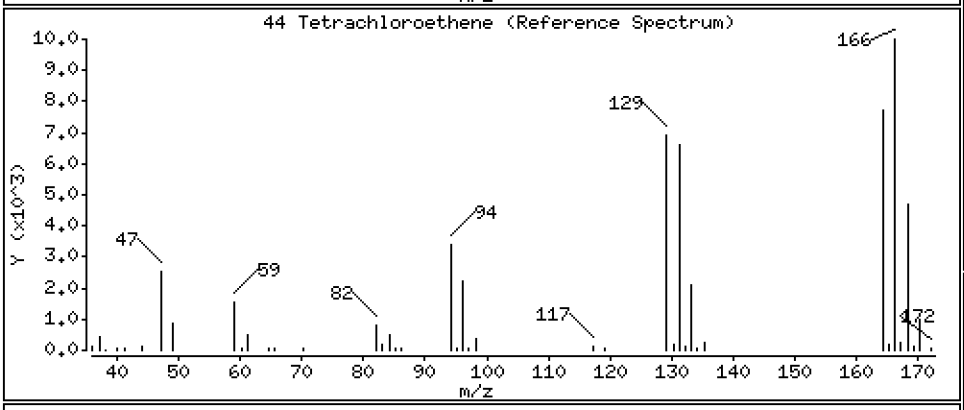
Column diameter: 0.18

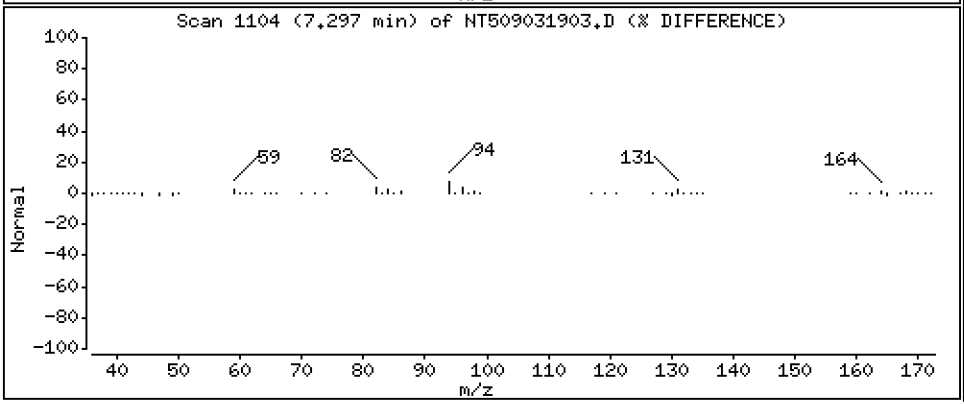
44 Tetrachloroethene

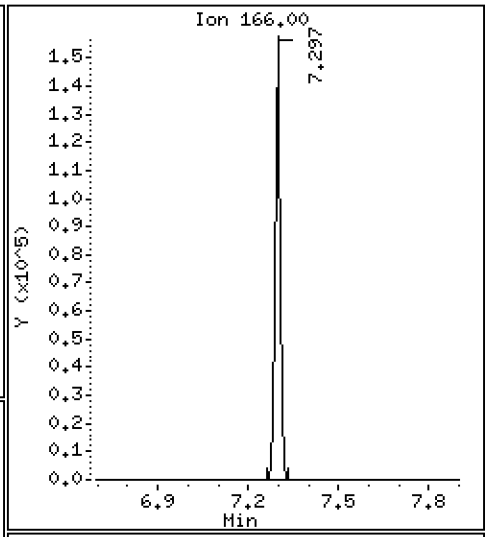
Concentration: 47.908 ug/Kg

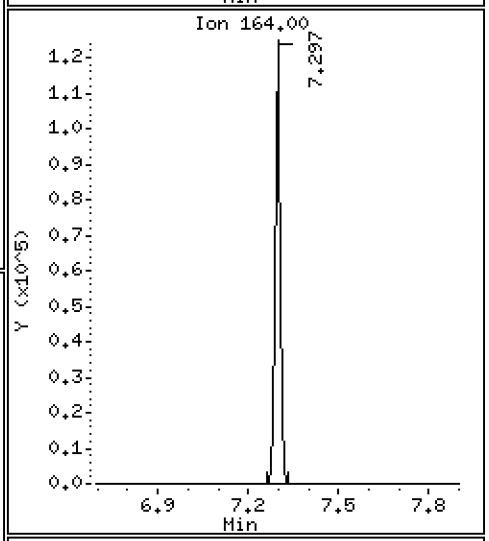


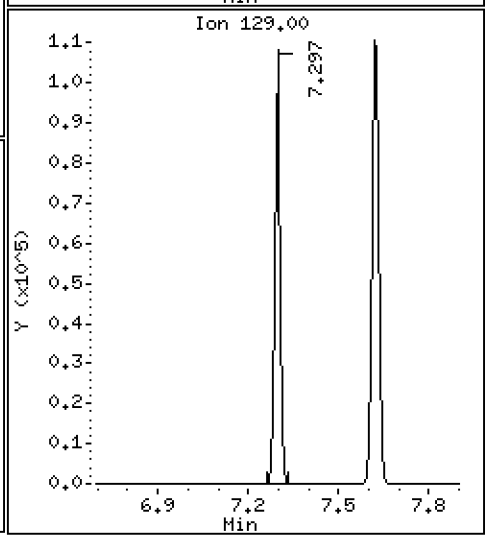












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

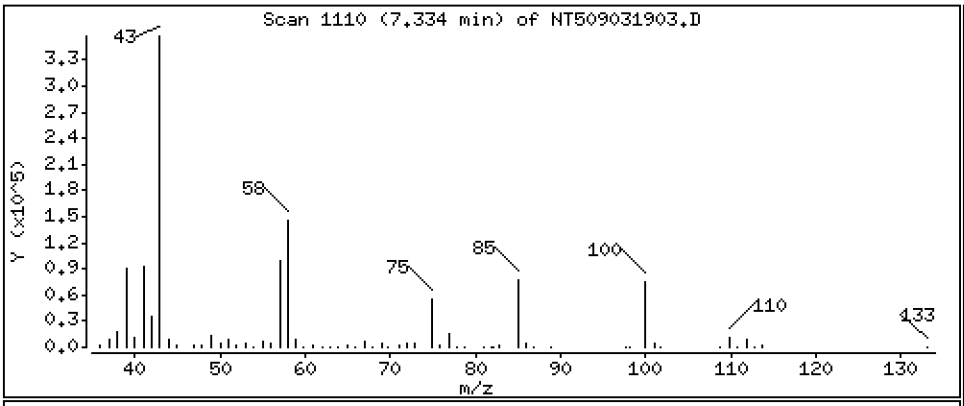
Operator: PB

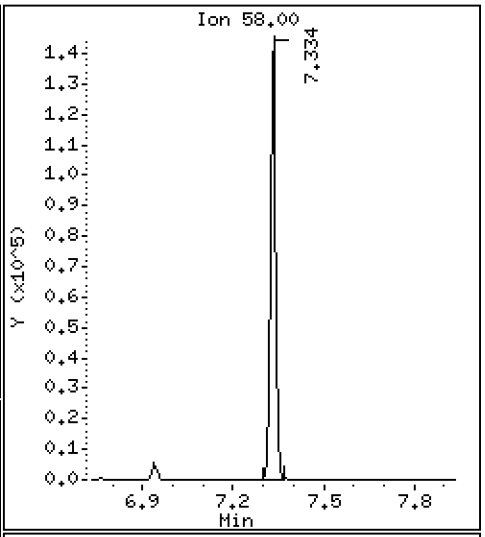
Column phase: RTXVMS

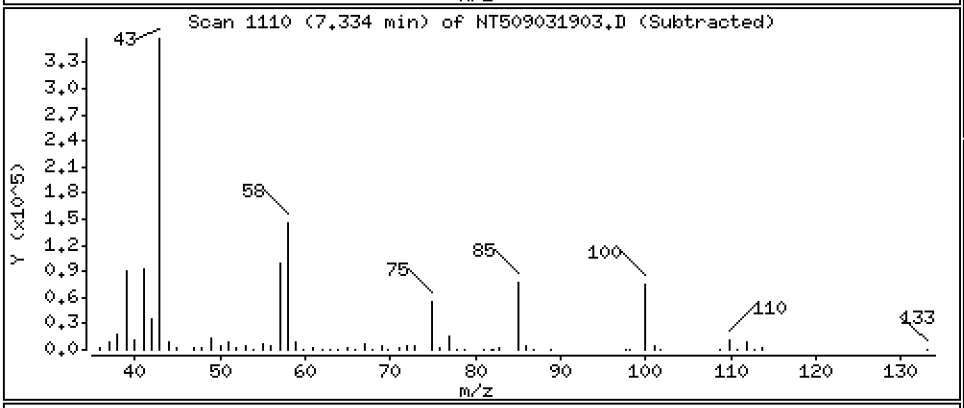
Column diameter: 0.18

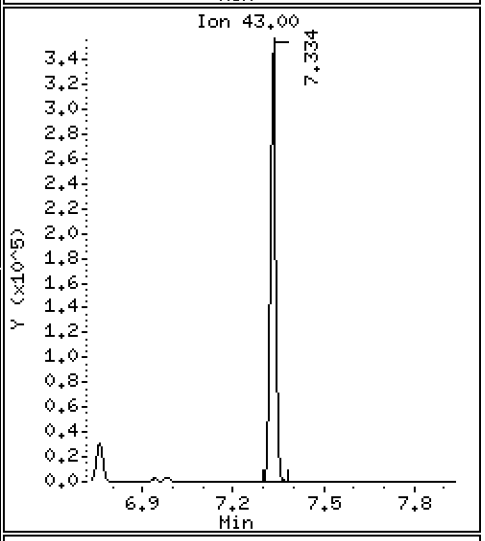
45 4-Methyl-2-Pentanone

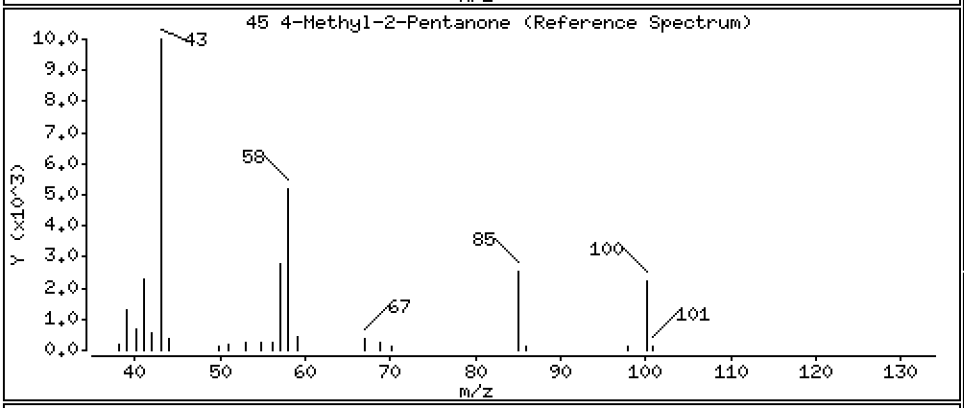
Concentration: 217.99 ug/Kg

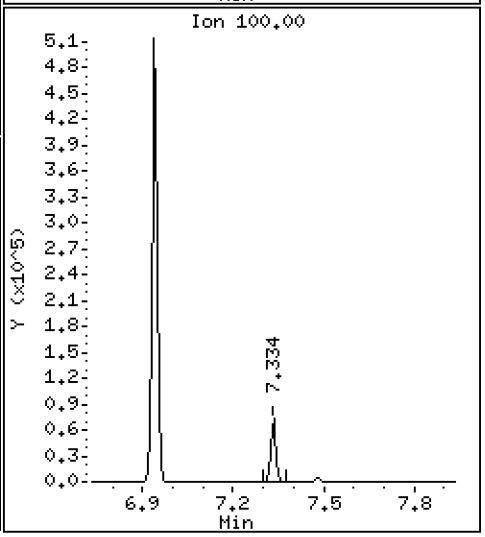


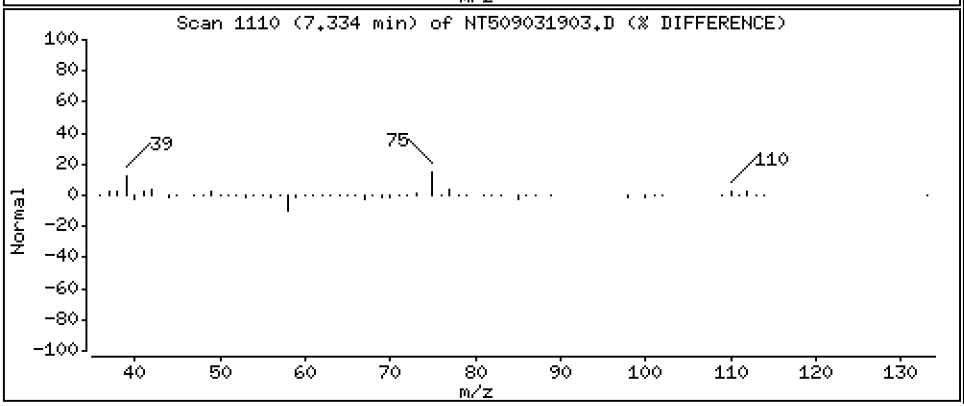












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

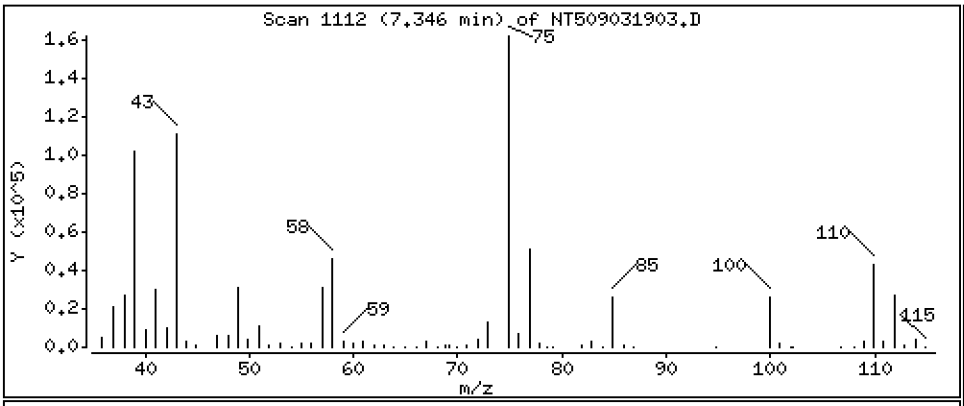
Operator: PB

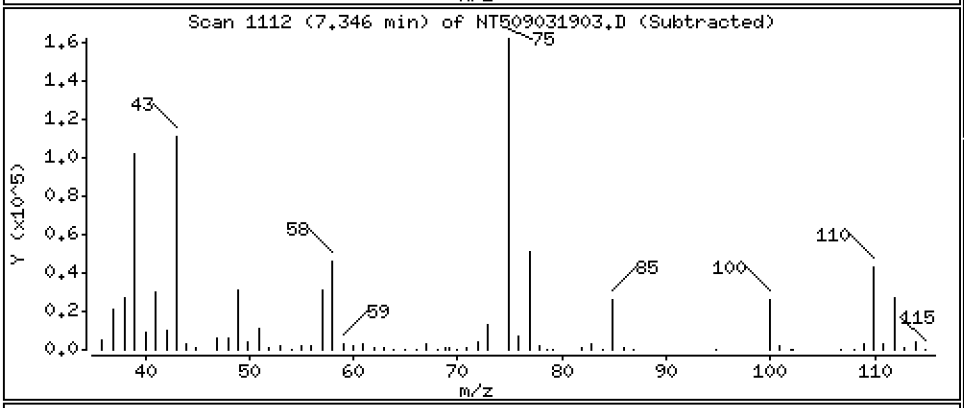
Column phase: RTXVMS

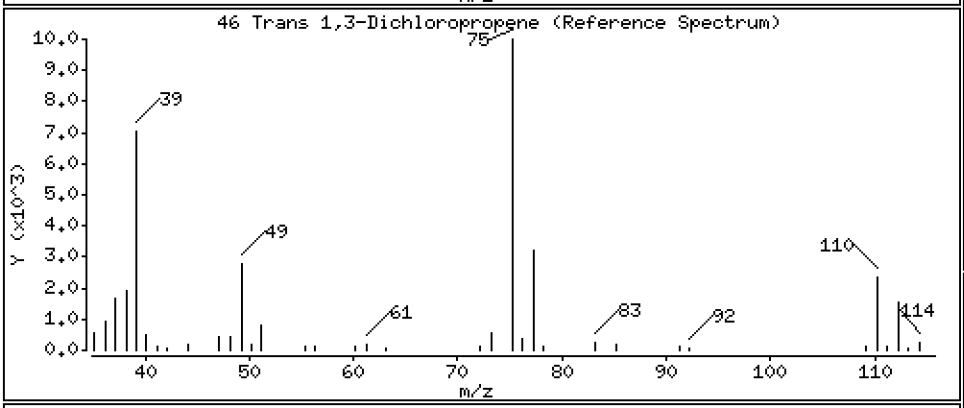
Column diameter: 0.18

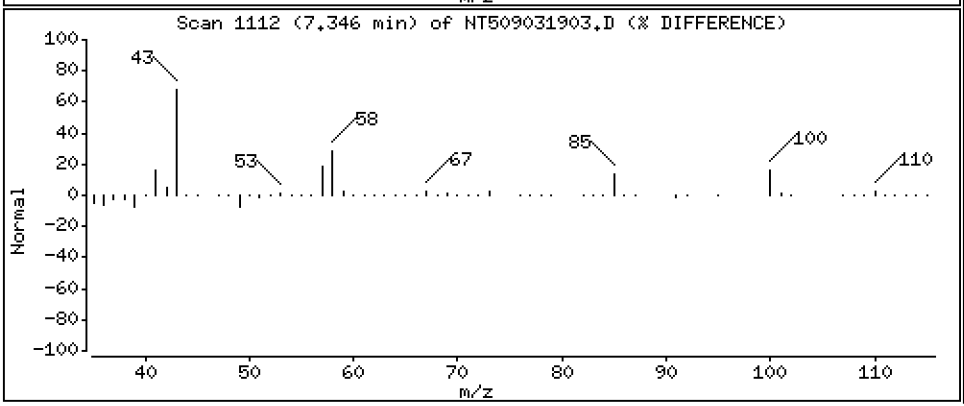
46 Trans 1,3-Dichloropropene

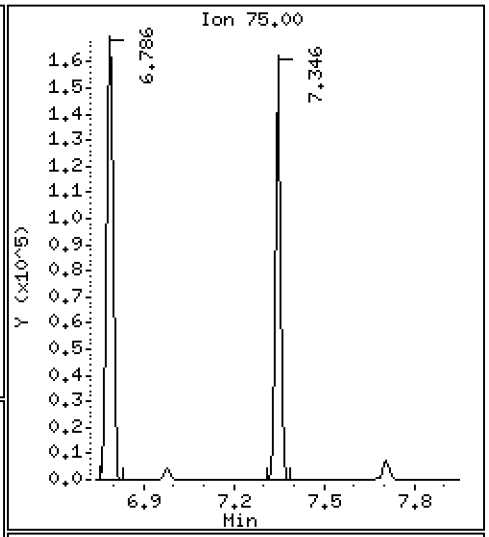
Concentration: 45.985 ug/Kg

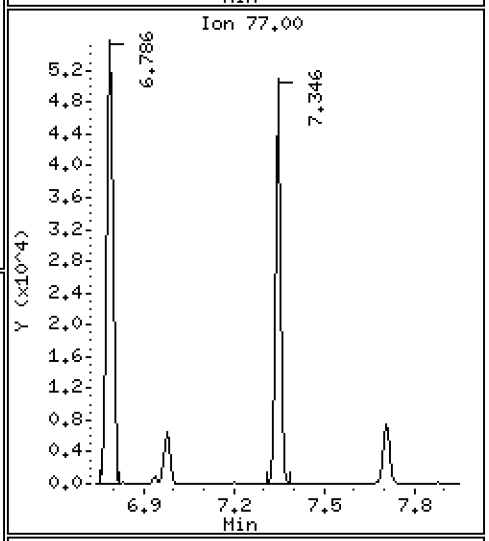


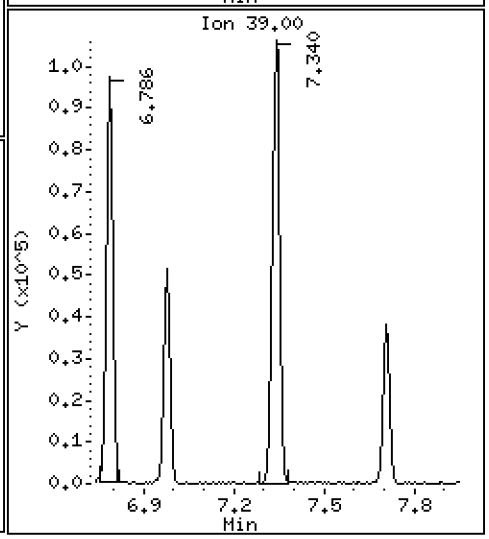












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

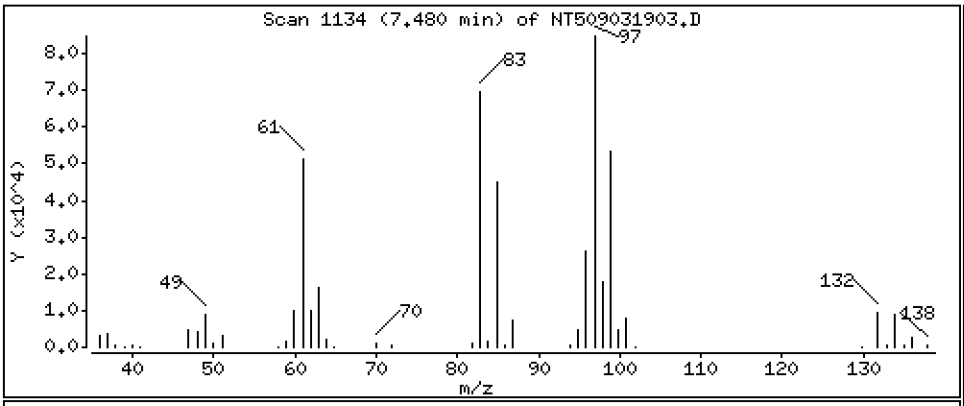
Operator: PB

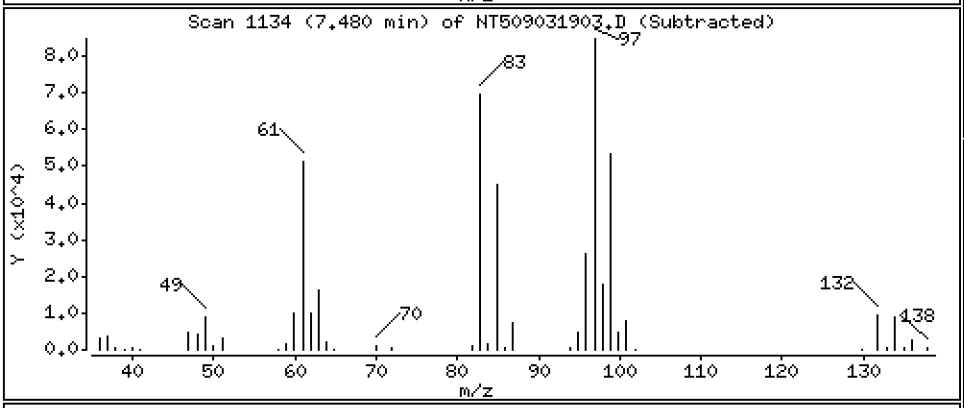
Column phase: RTXVMS

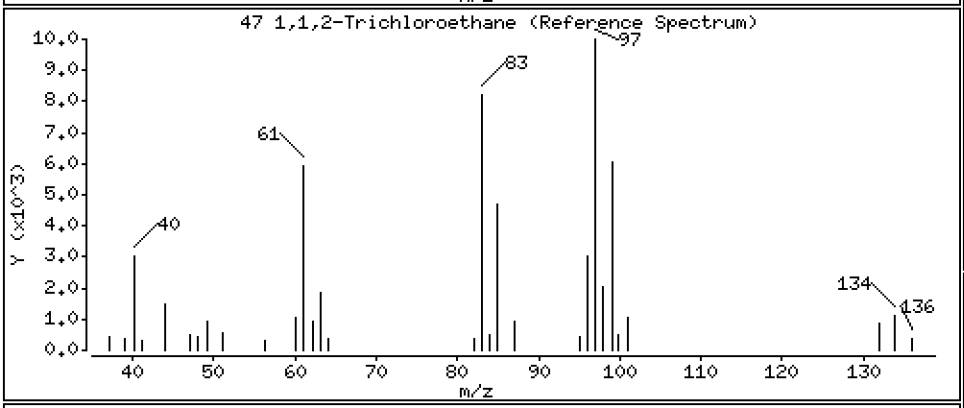
Column diameter: 0.18

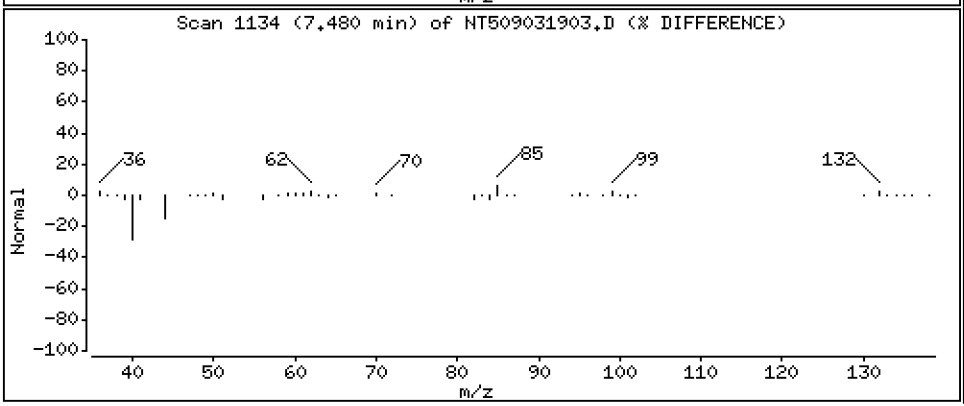
47 1,1,2-Trichloroethane

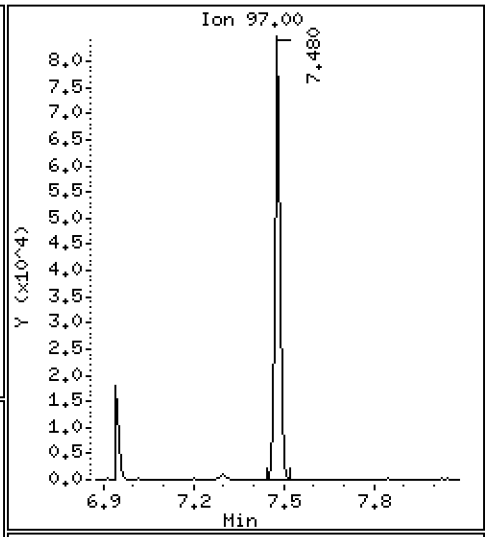
Concentration: 43.879 ug/Kg

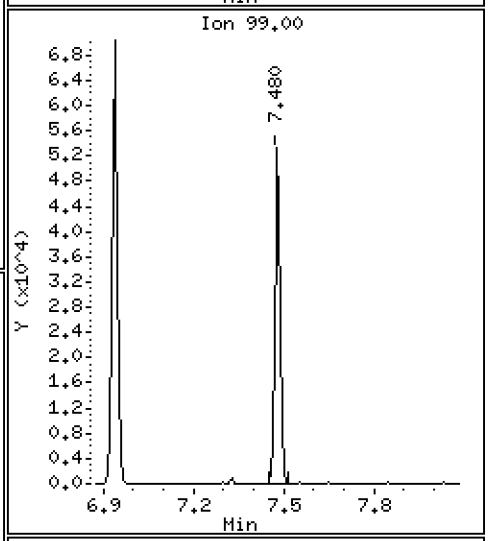


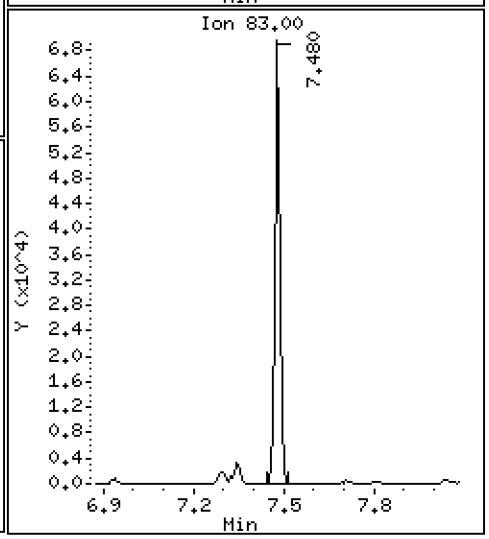












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

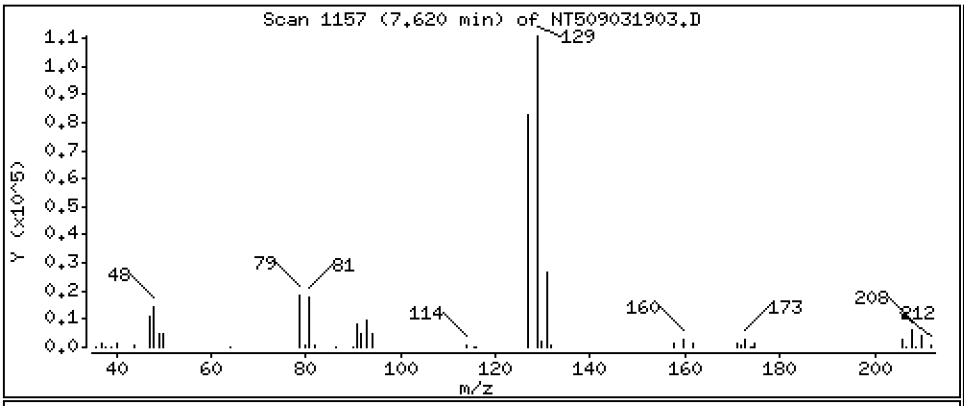
Operator: PB

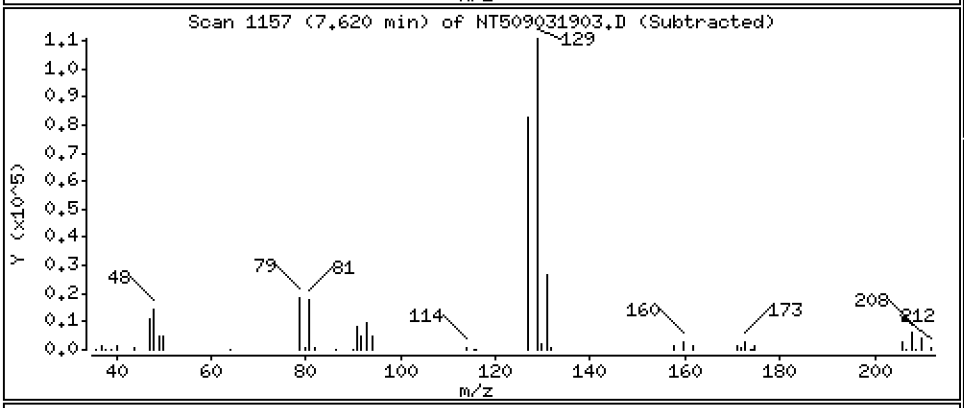
Column phase: RTXVMS

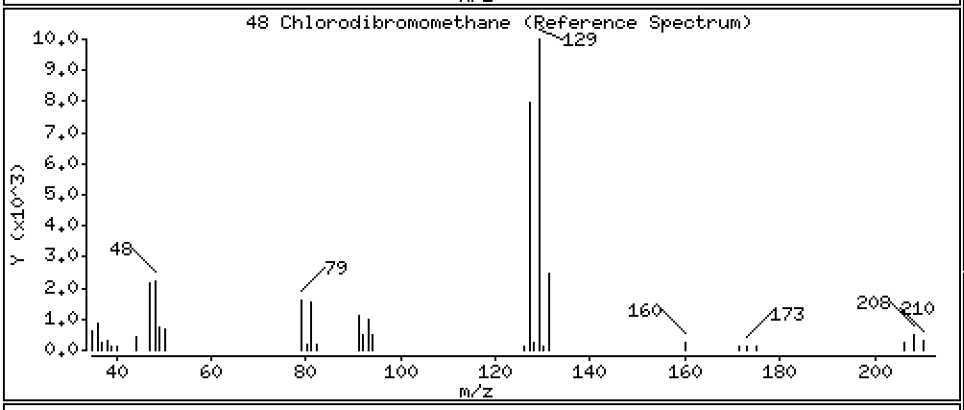
Column diameter: 0.18

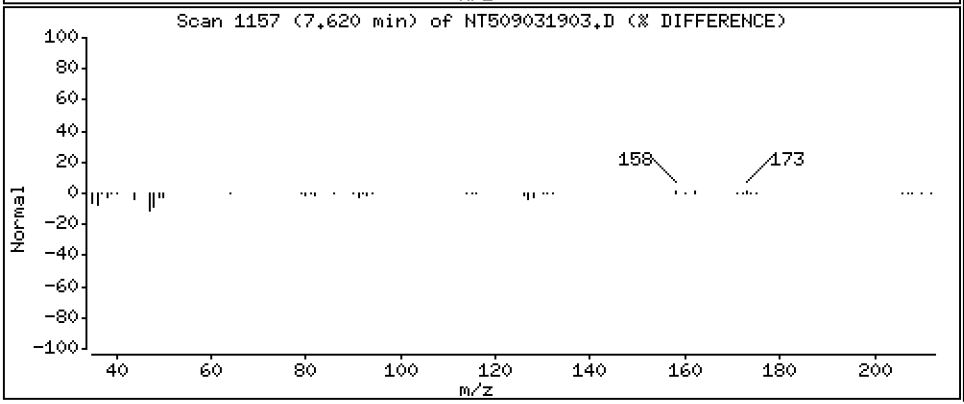
48 Chlorodibromomethane

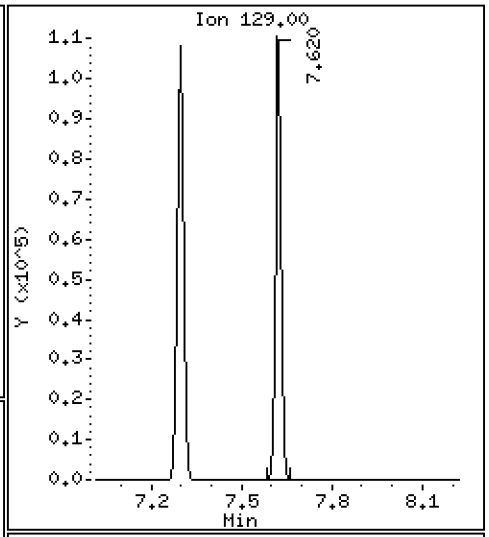
Concentration: 41.526 ug/Kg

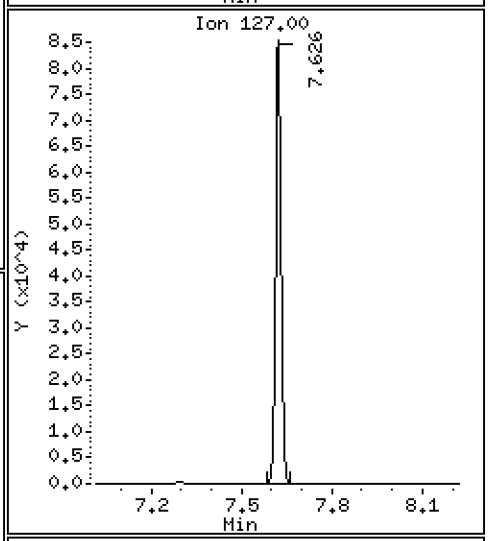


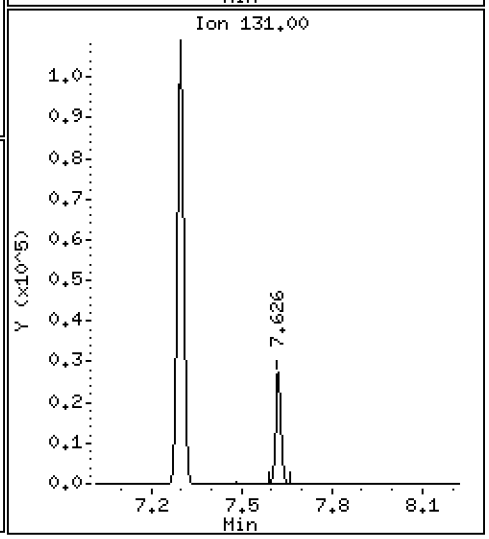












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

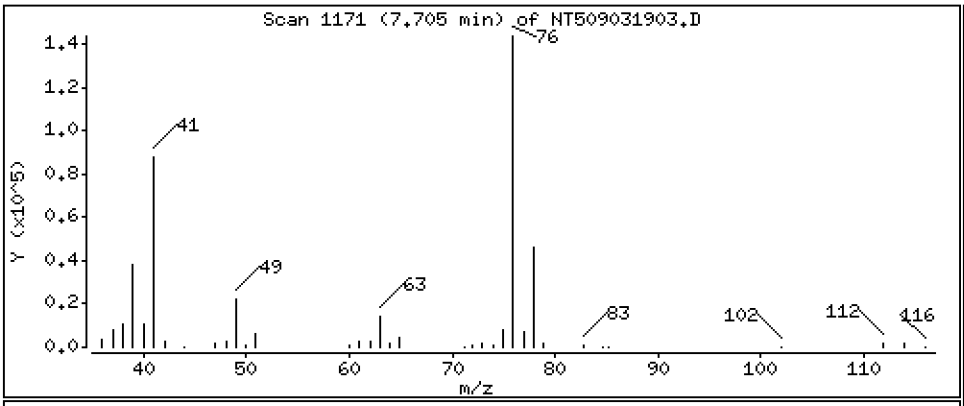
Operator: PB

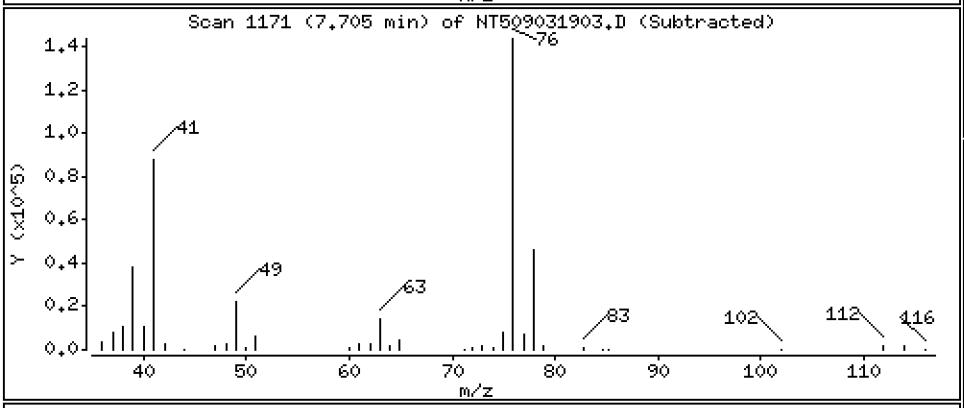
Column phase: RTXVMS

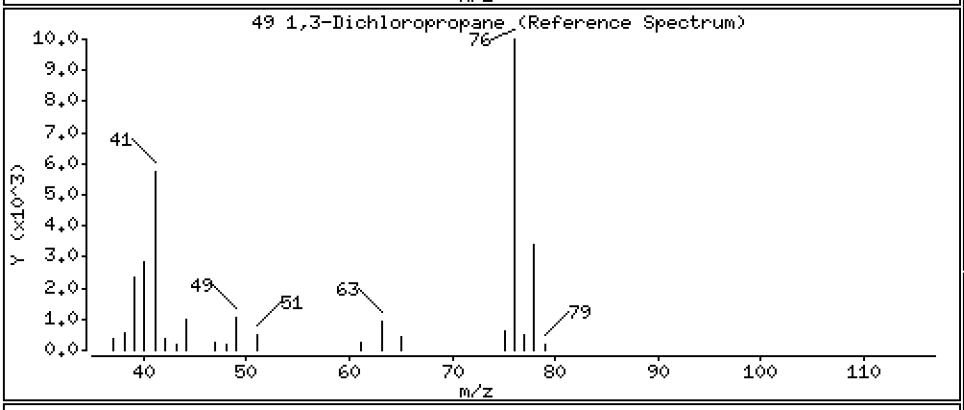
Column diameter: 0.18

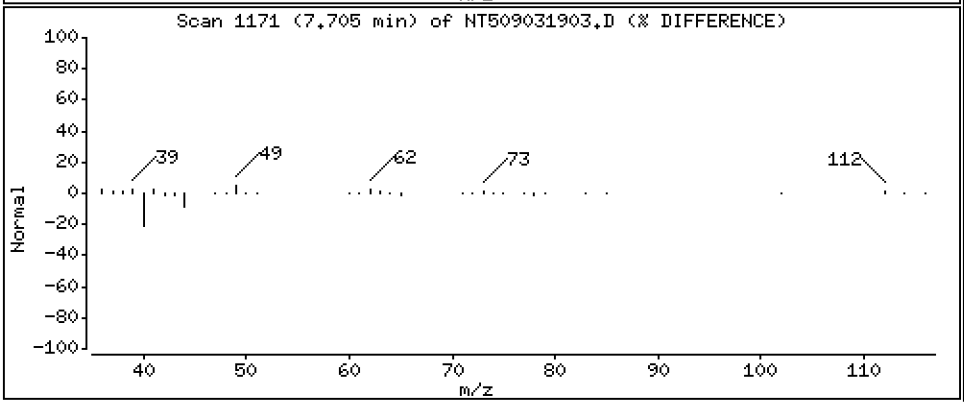
49 1,3-Dichloropropane

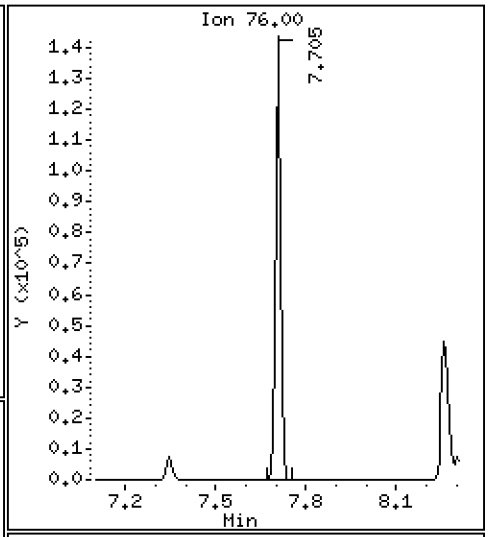
Concentration: 41.659 ug/Kg

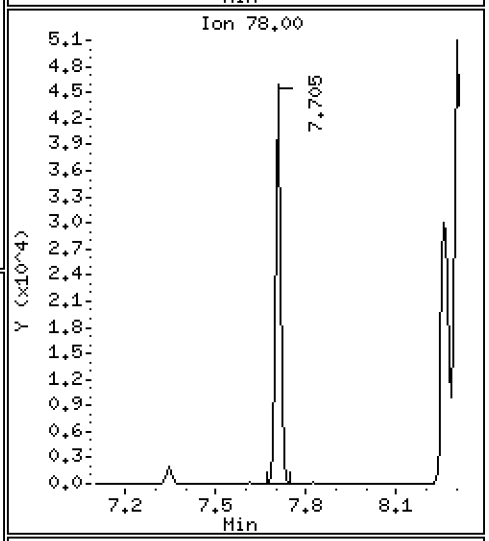


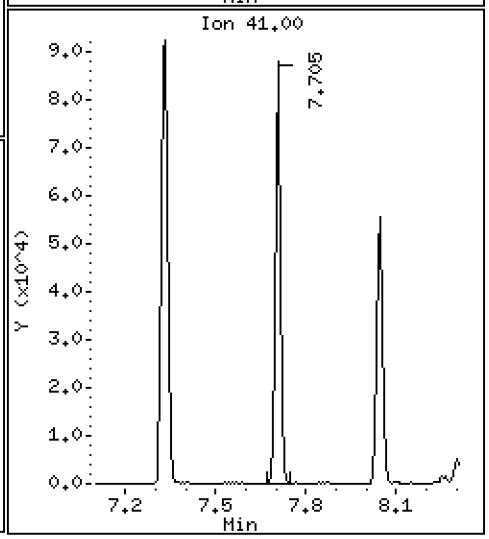












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

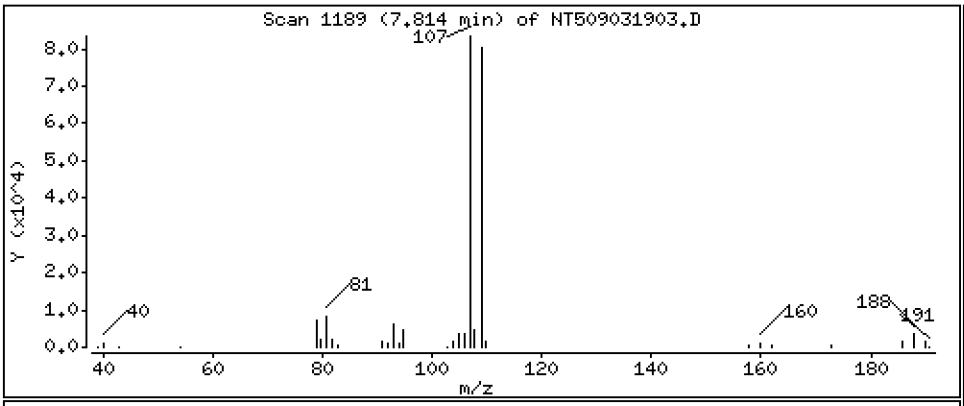
Operator: PB

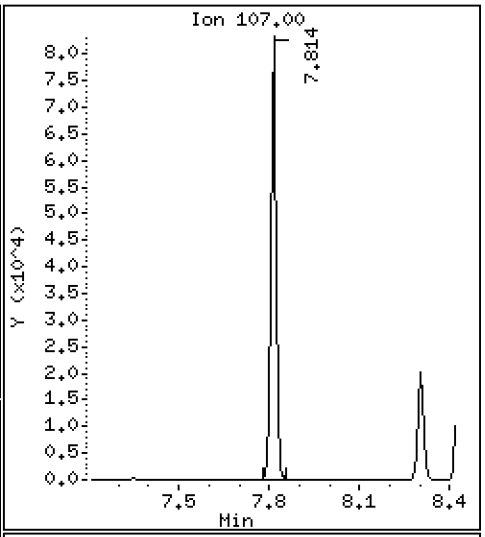
Column phase: RTXVMS

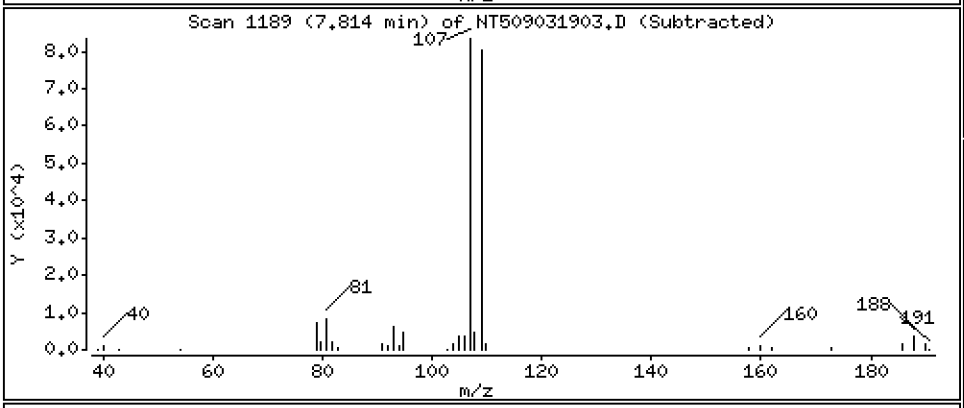
Column diameter: 0.18

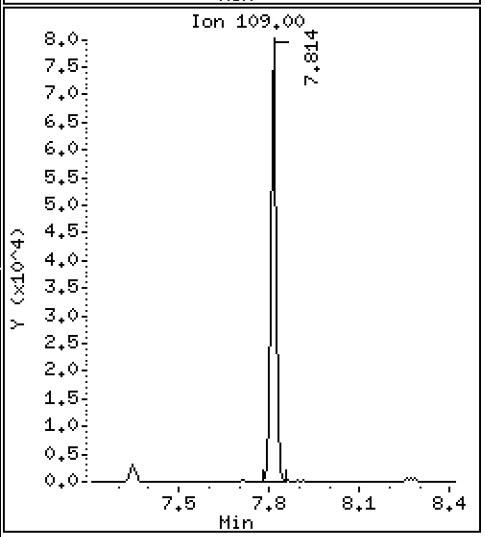
50 1,2-Dibromoethane

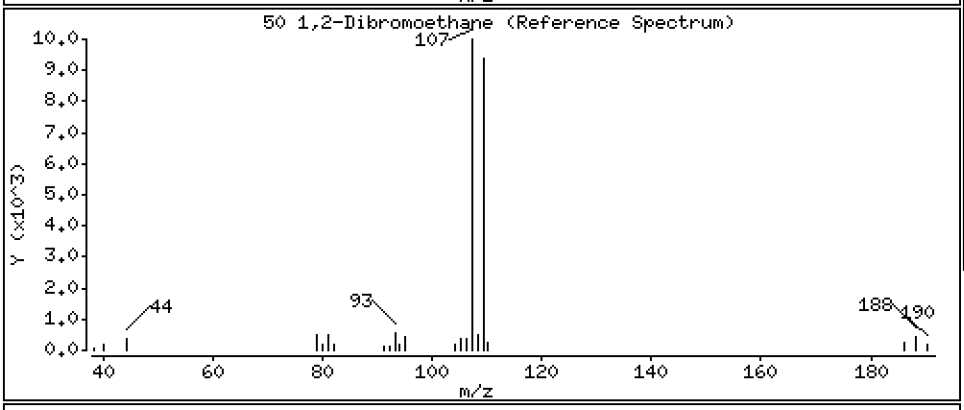
Concentration: 44.335 ug/Kg

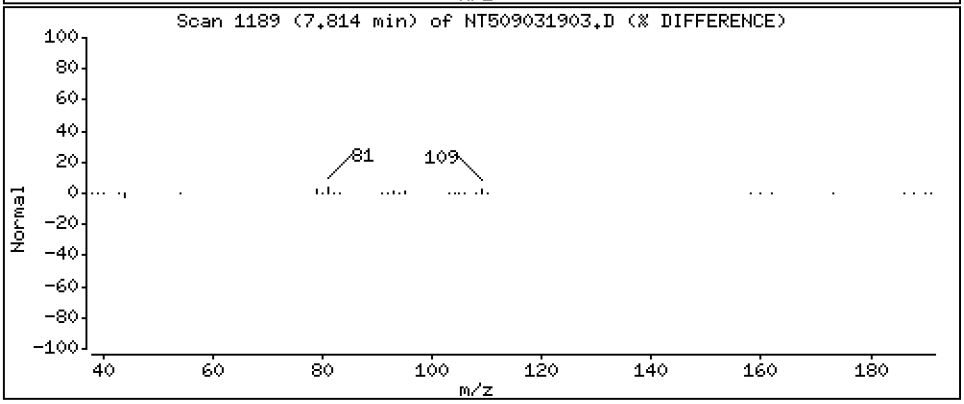












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

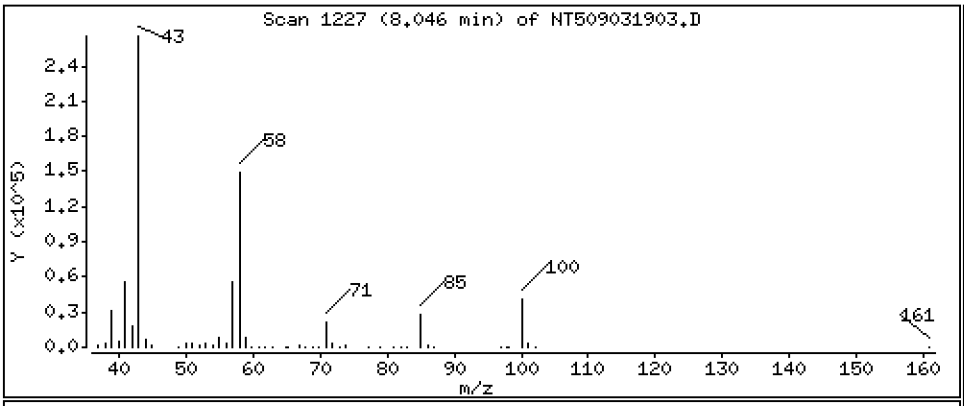
Operator: PB

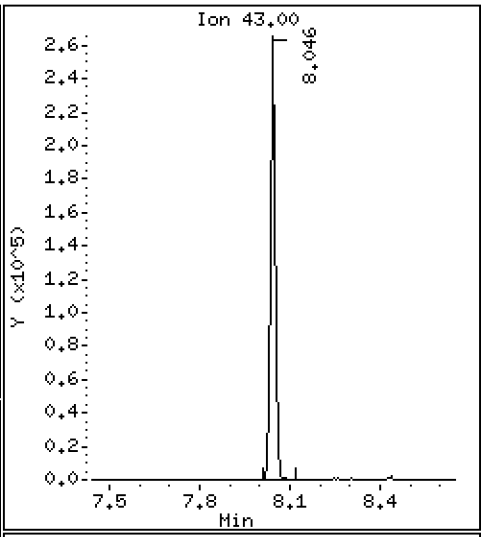
Column phase: RTXVMS

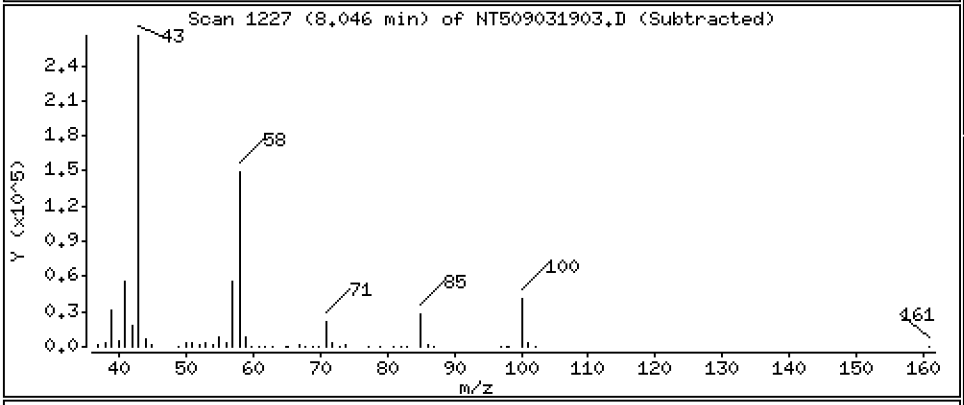
Column diameter: 0.18

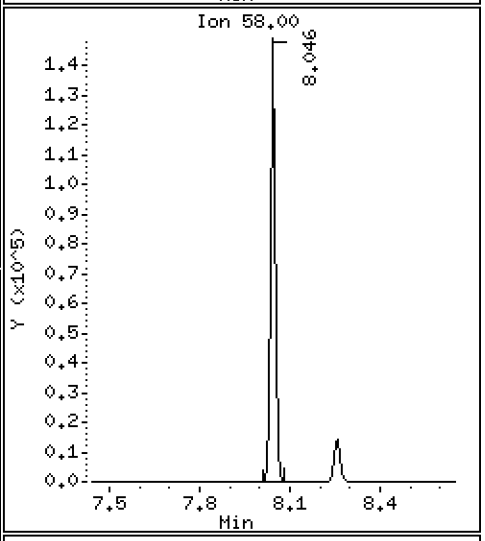
51 2-Hexanone

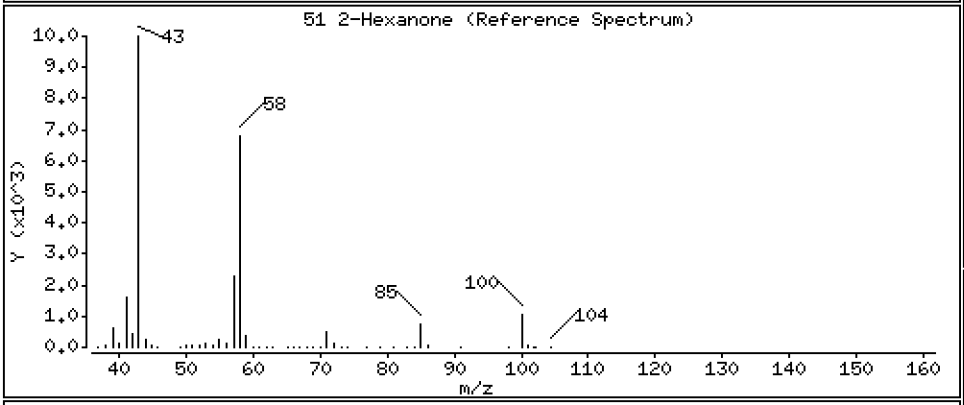
Concentration: 207.77 ug/Kg

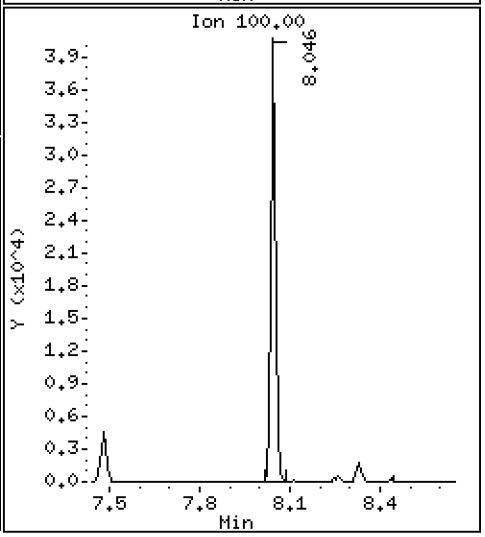


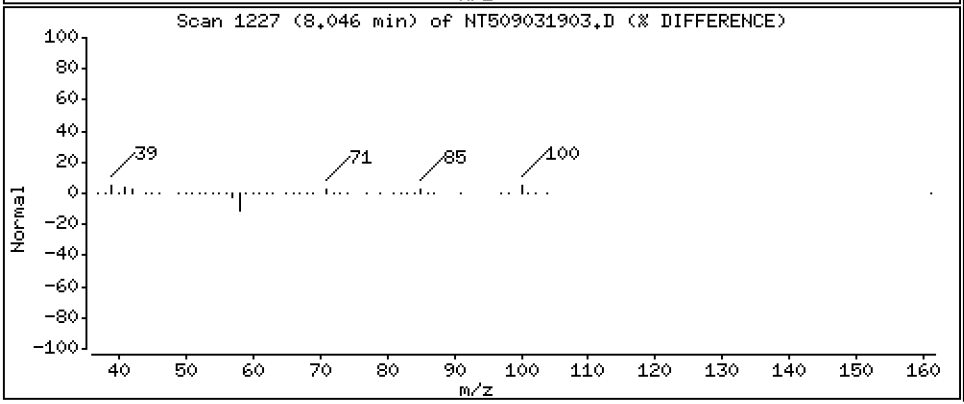












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

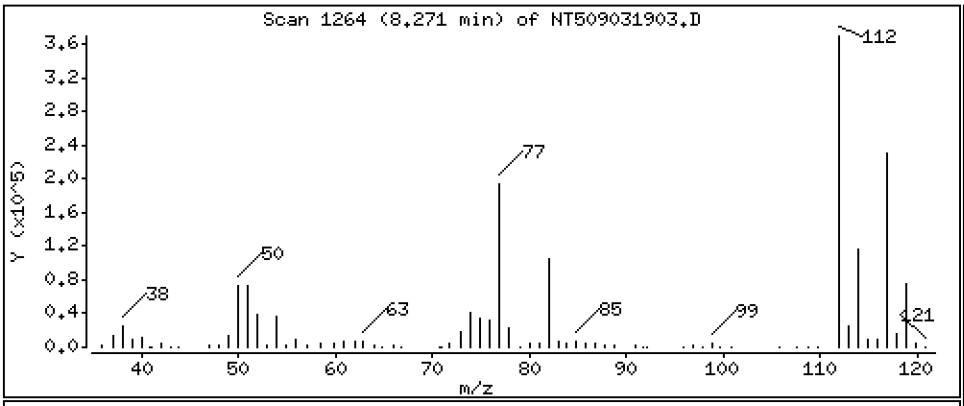
Operator: PB

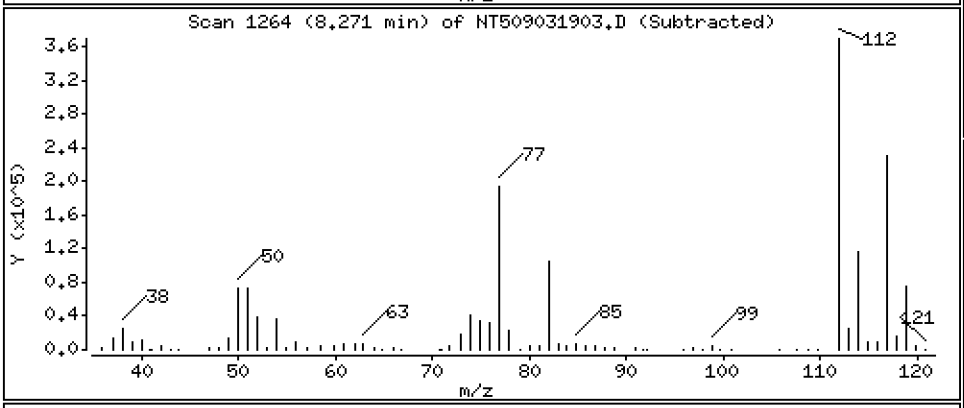
Column phase: RTXVMS

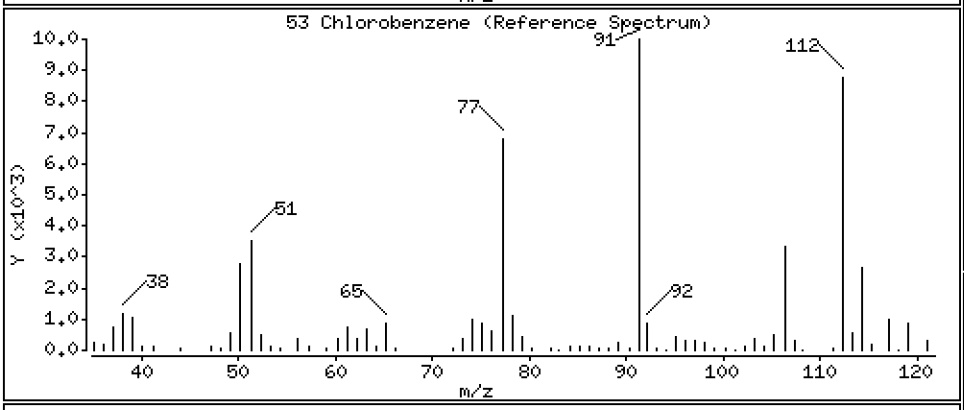
Column diameter: 0.18

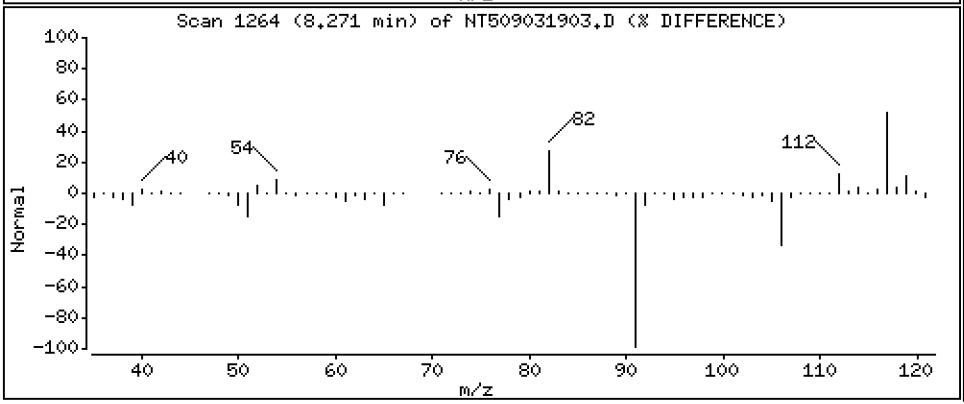
53 Chlorobenzene

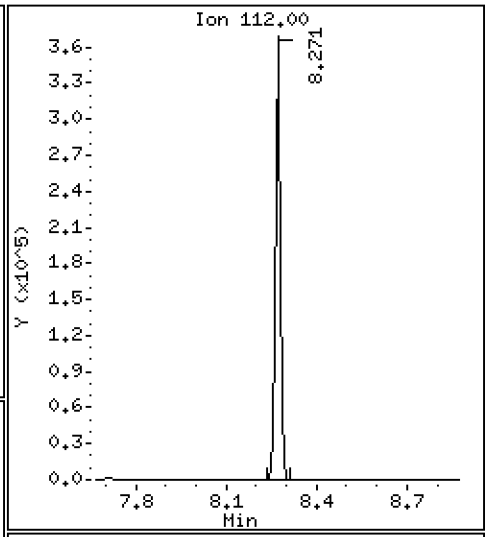
Concentration: 43.192 ug/Kg

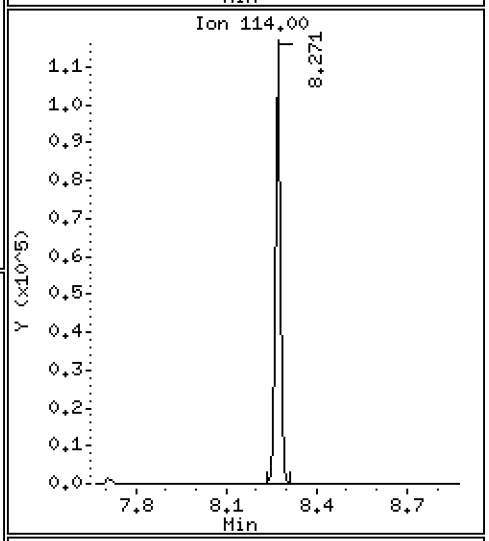


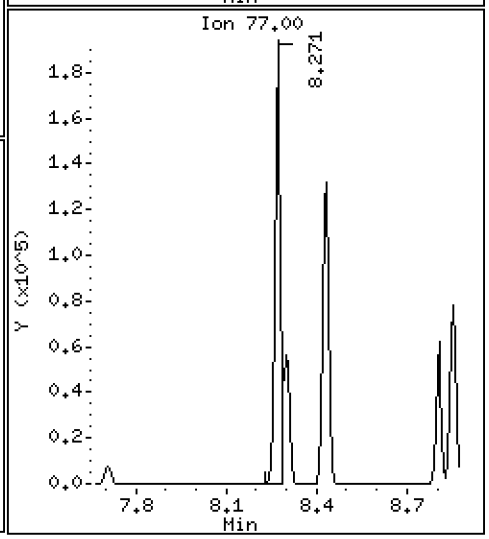












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

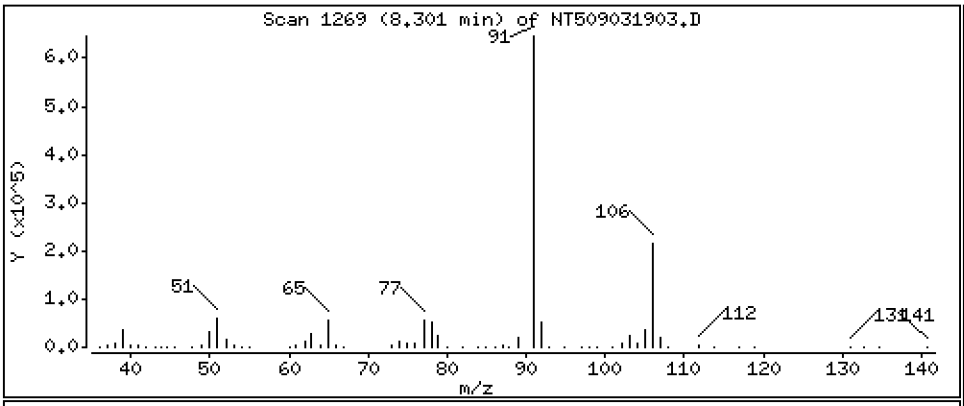
Operator: PB

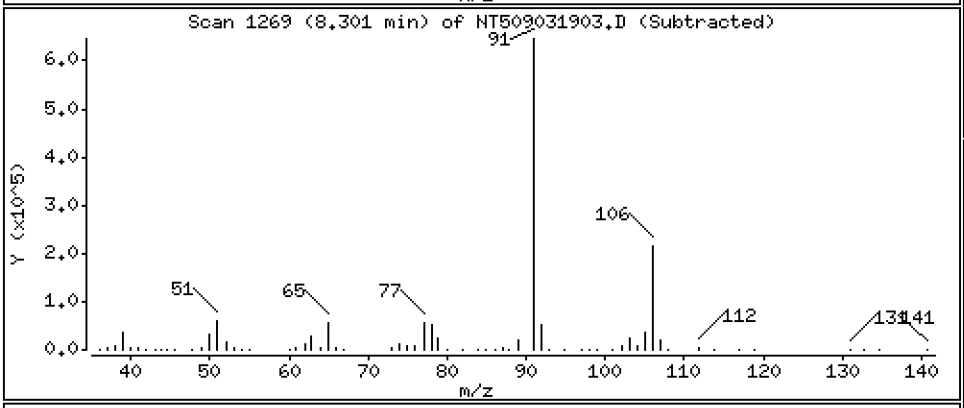
Column phase: RTXVMS

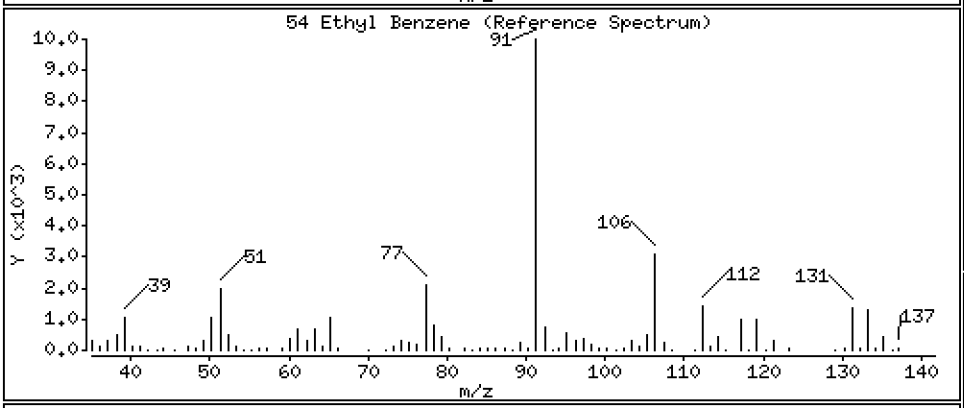
Column diameter: 0.18

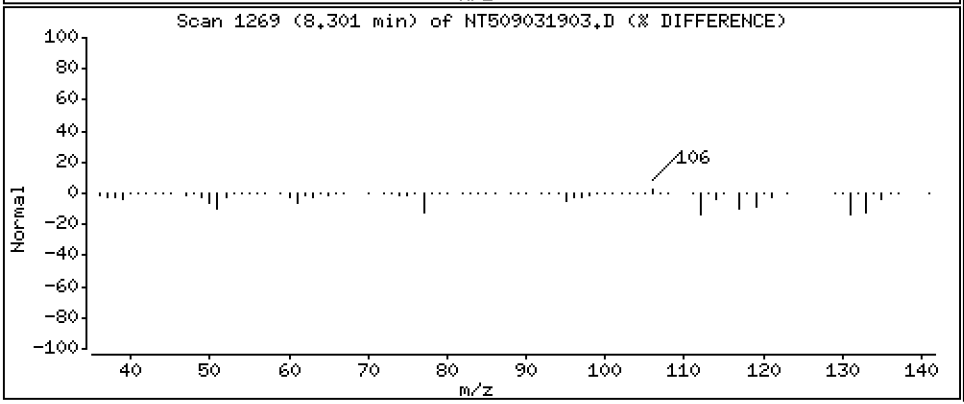
54 Ethyl Benzene

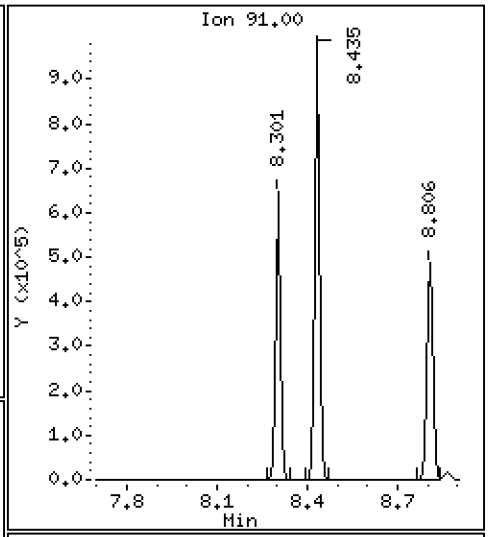
Concentration: 45.713 ug/Kg

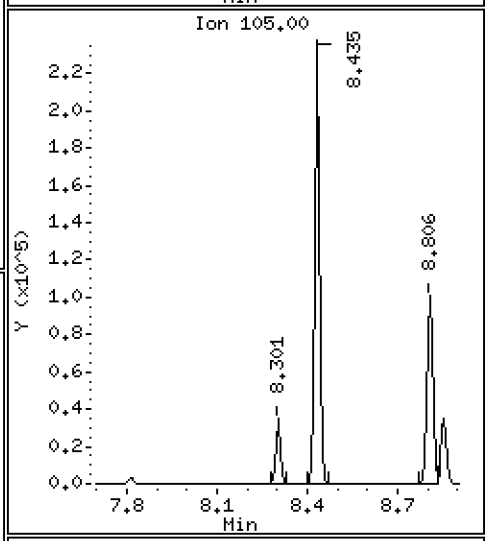


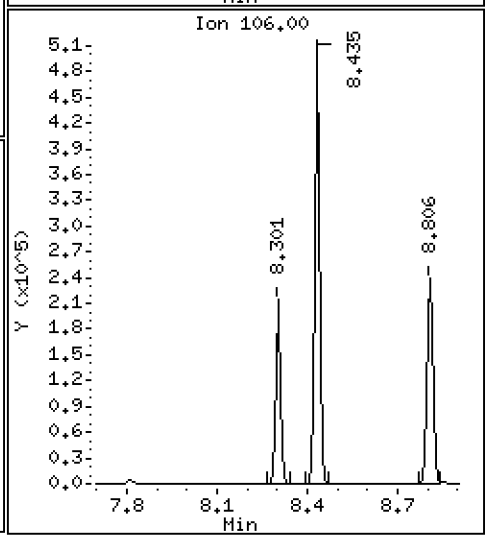












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

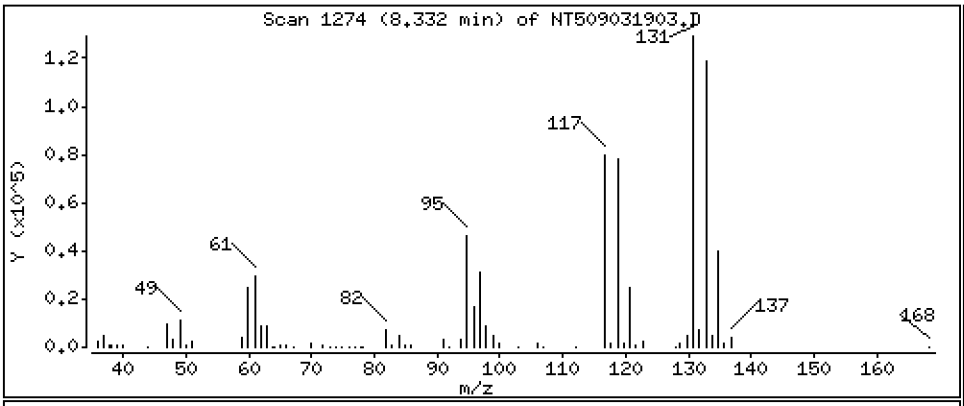
Operator: PB

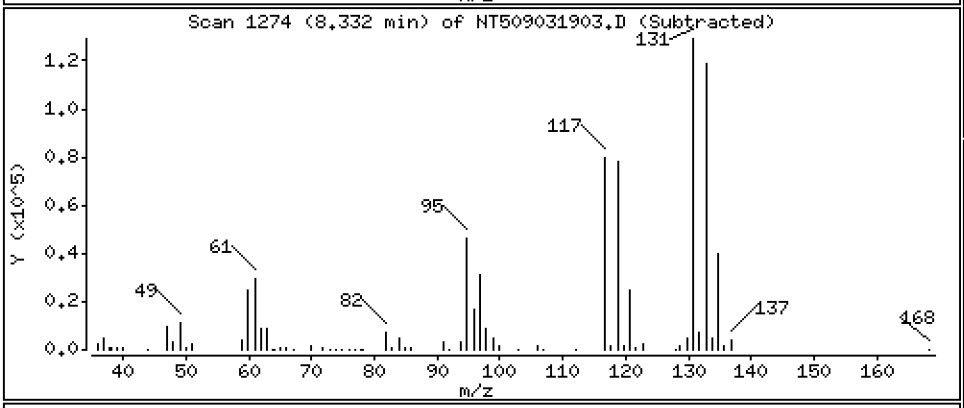
Column phase: RTXVMS

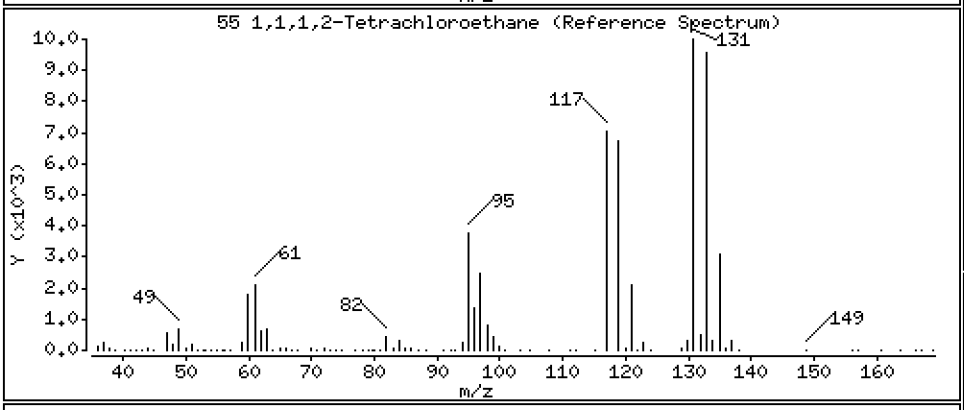
Column diameter: 0.18

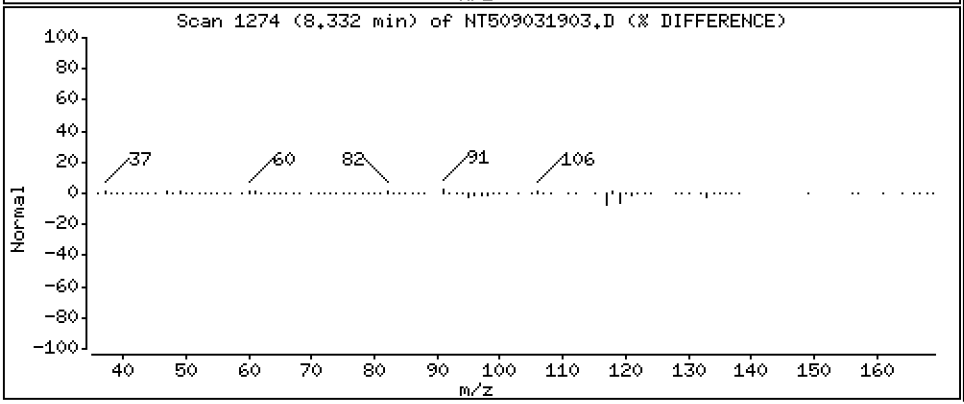
55 1,1,1,2-Tetrachloroethane

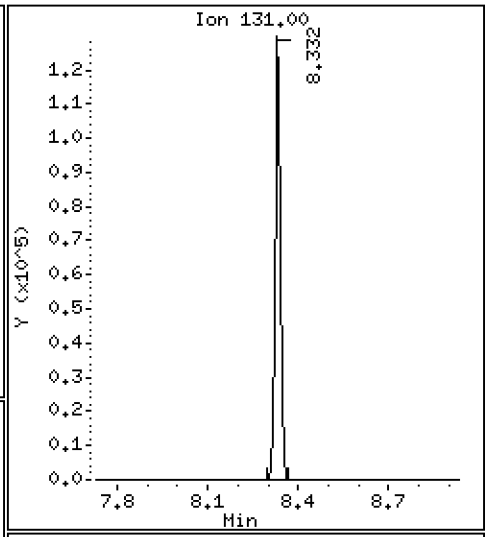
Concentration: 44.133 ug/Kg

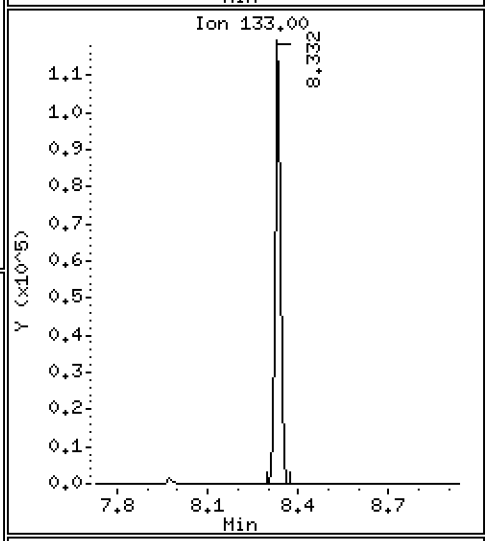


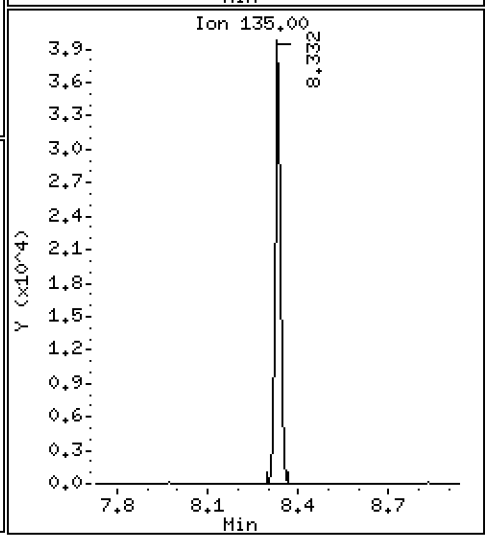












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

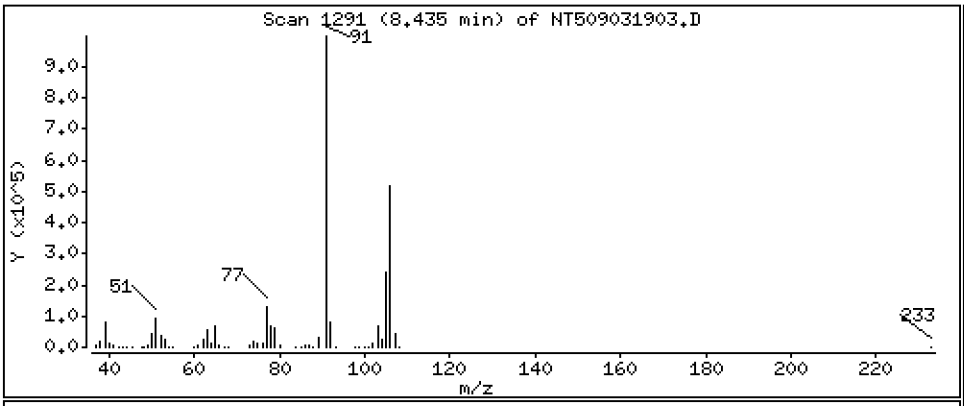
Operator: PB

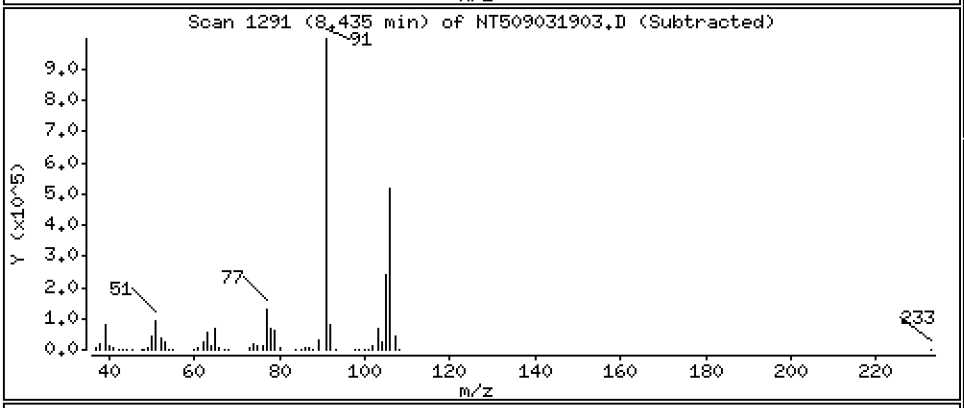
Column phase: RTXVMS

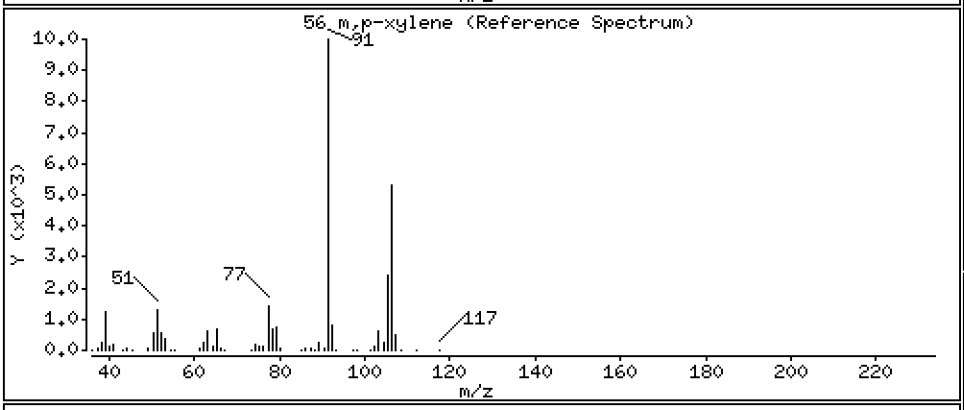
Column diameter: 0.18

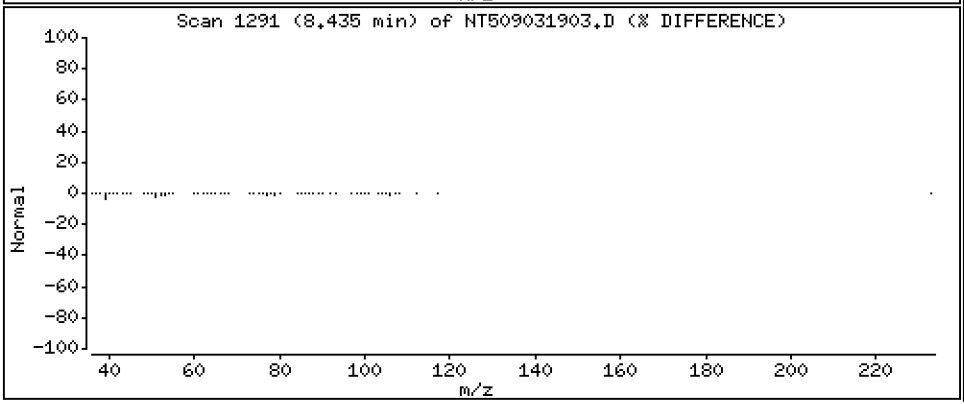
56 m,p-xylene

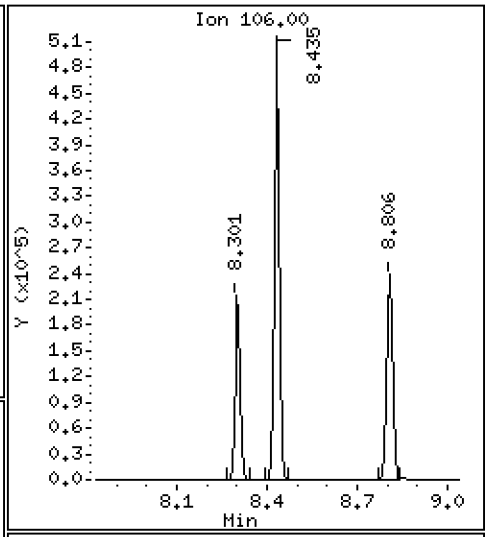
Concentration: 92.173 ug/Kg

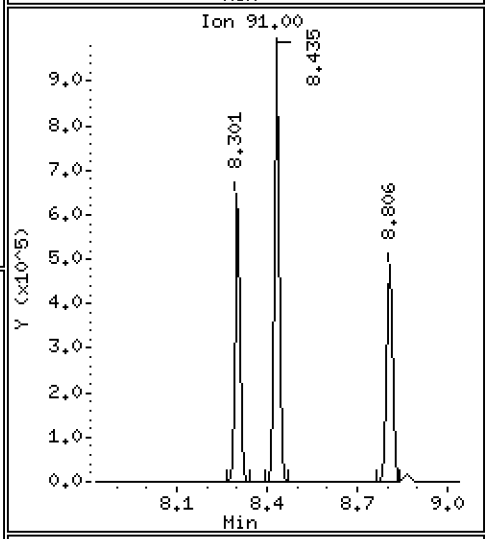


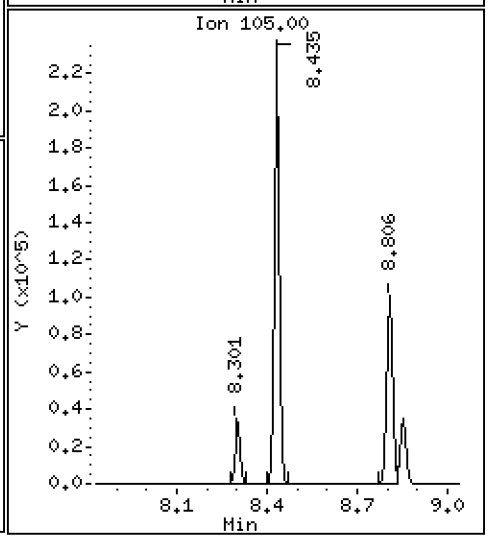












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

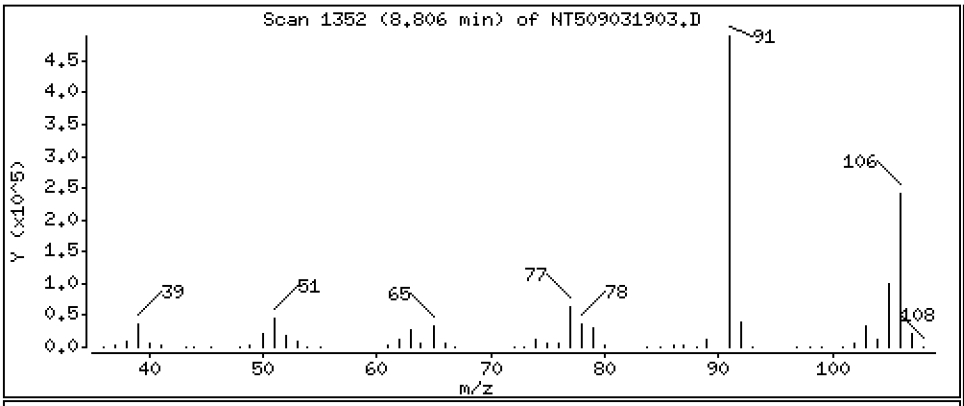
Operator: PB

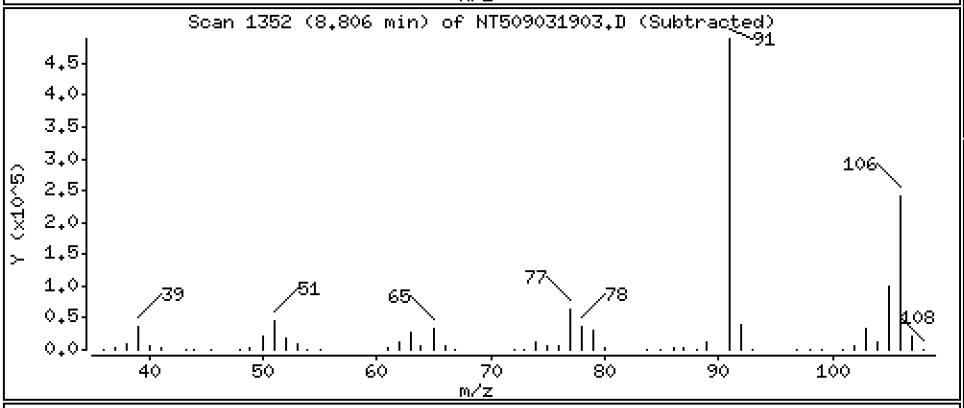
Column phase: RTXVMS

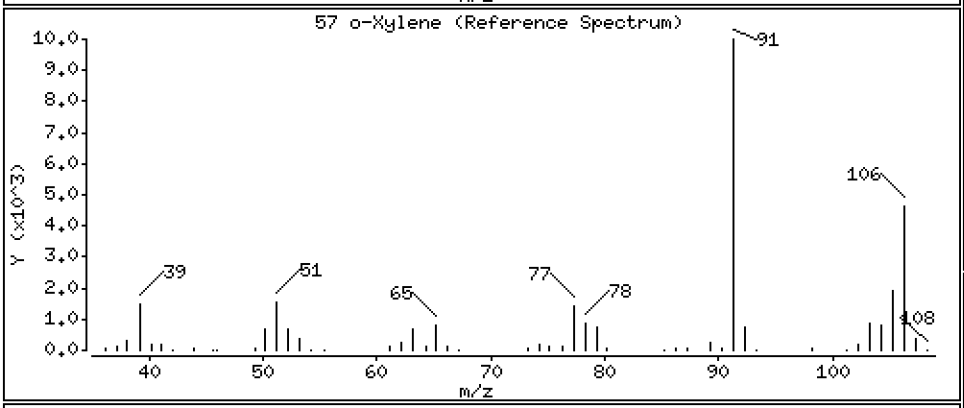
Column diameter: 0.18

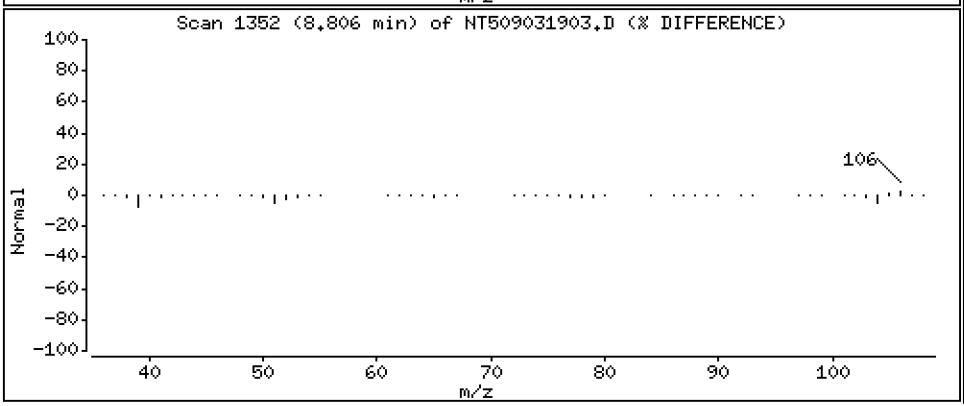
57 o-Xylene

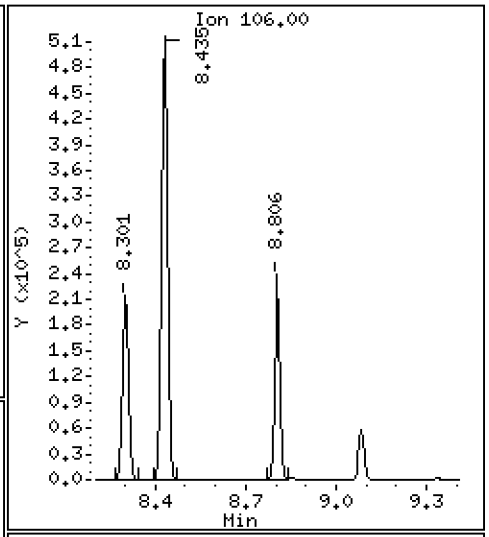
Concentration: 45.121 ug/Kg

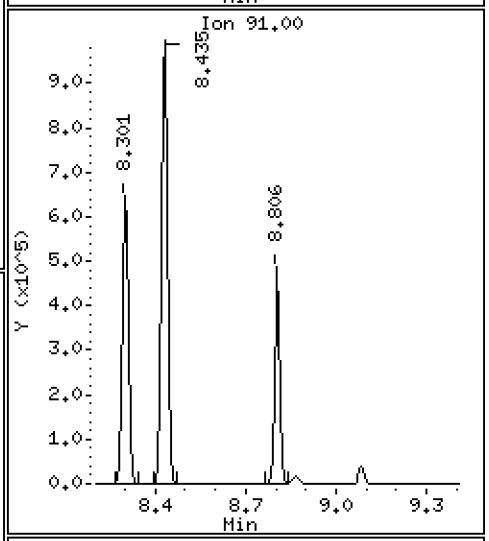


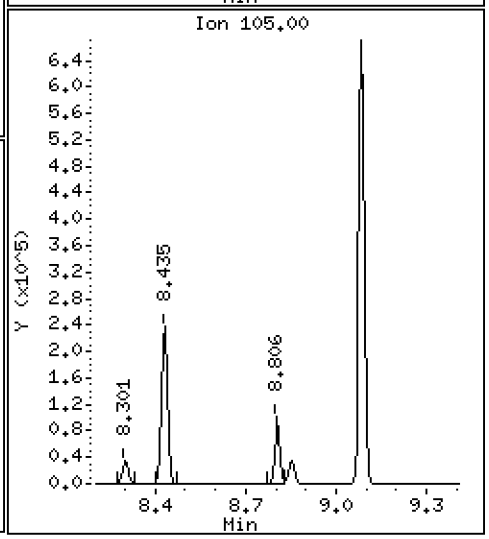












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

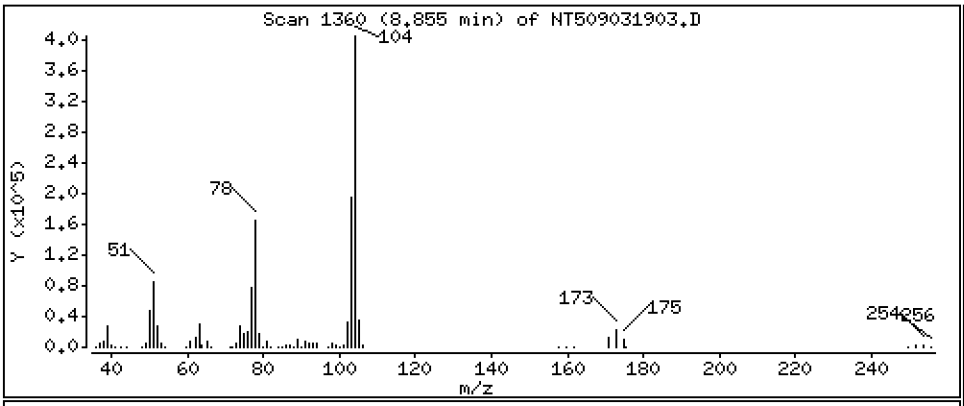
Operator: PB

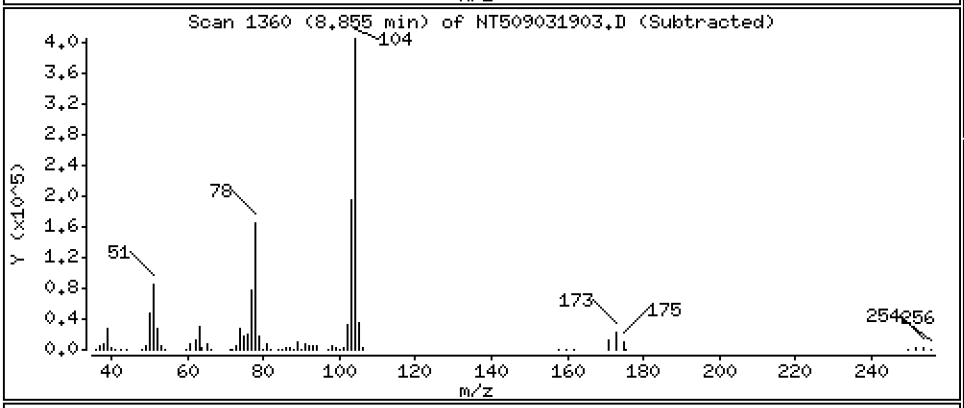
Column phase: RTXVMS

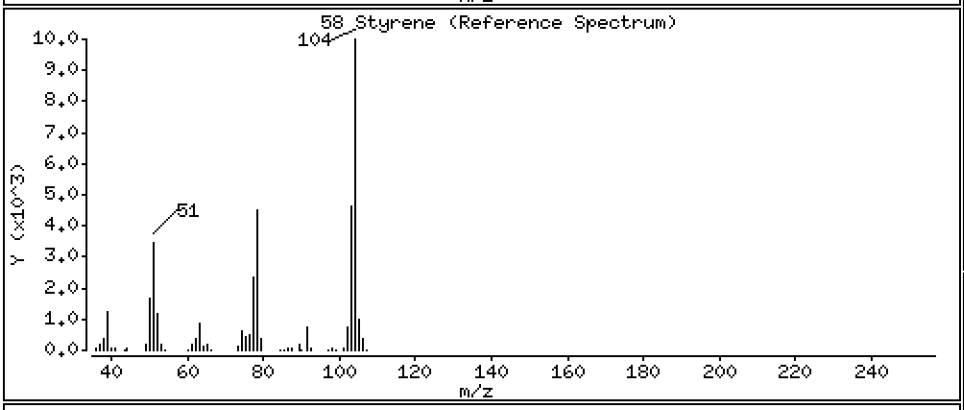
Column diameter: 0.18

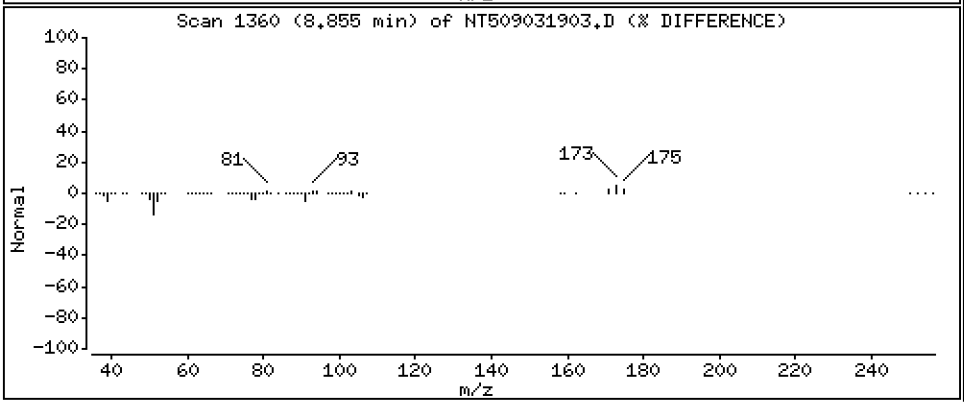
58 Styrene

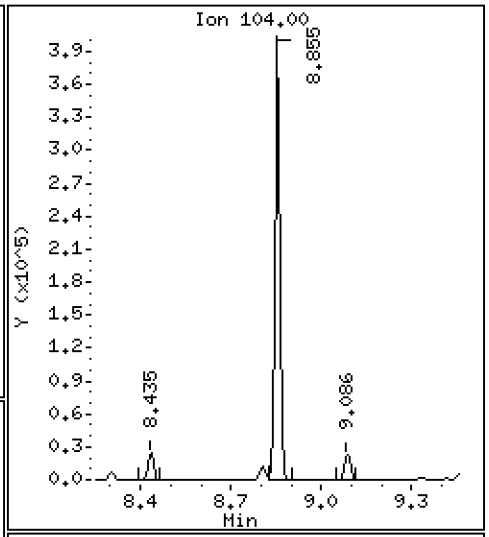
Concentration: 46.333 ug/Kg

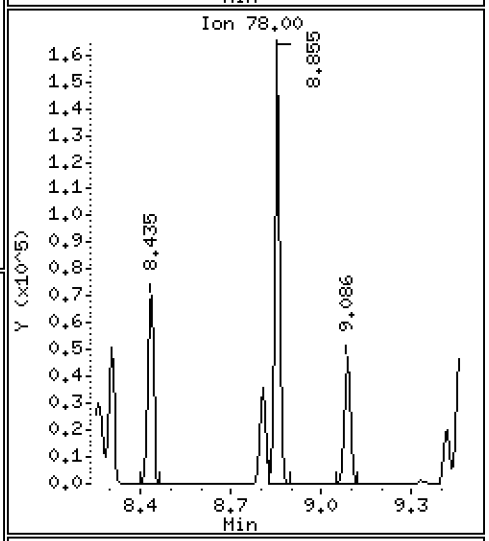


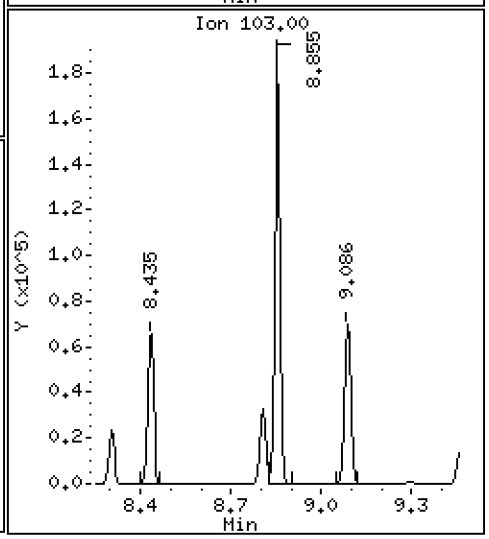












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

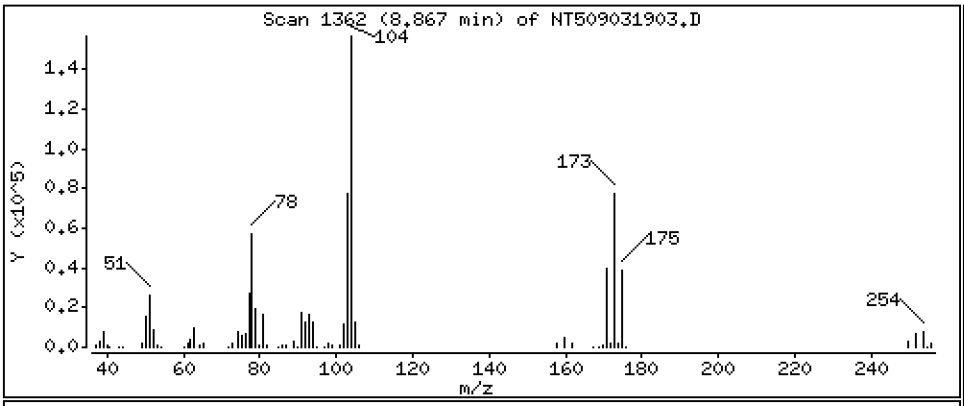
Operator: PB

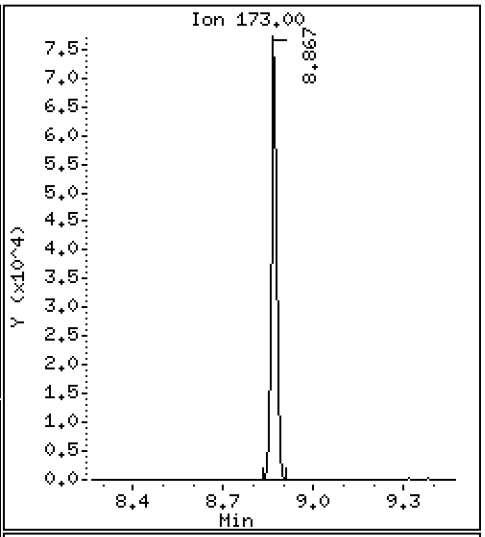
Column phase: RTXVMS

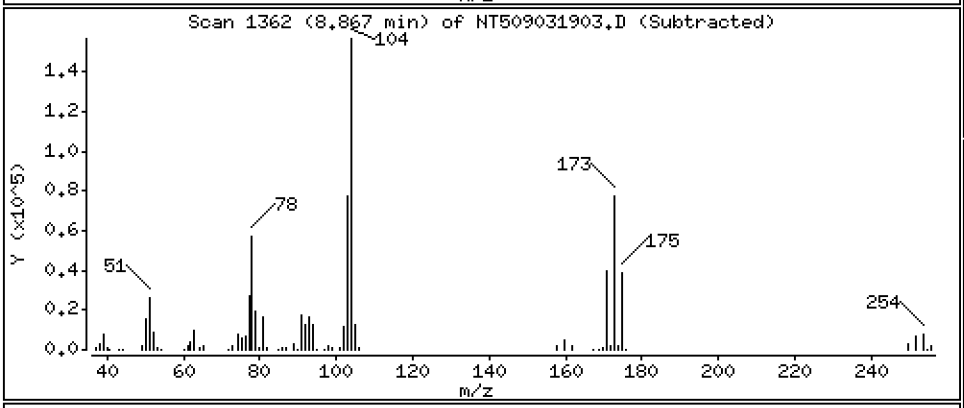
Column diameter: 0.18

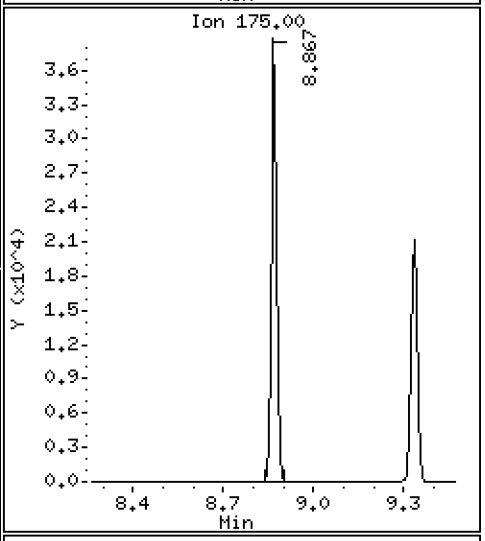
59 Bromoform

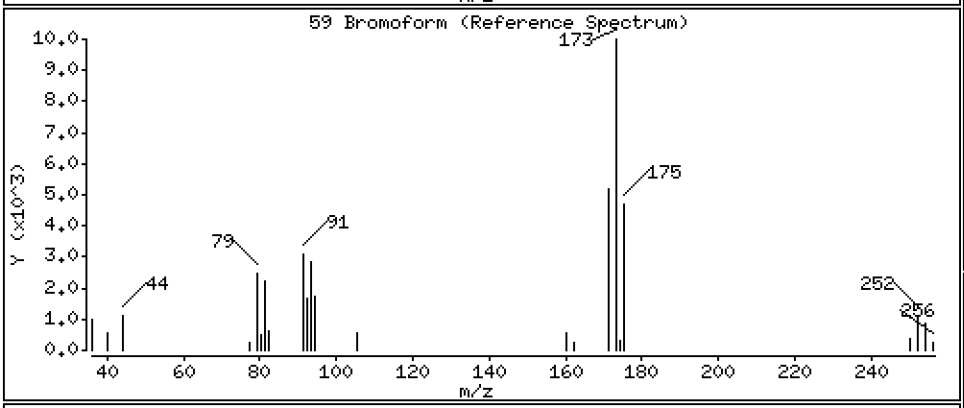
Concentration: 37.675 ug/Kg

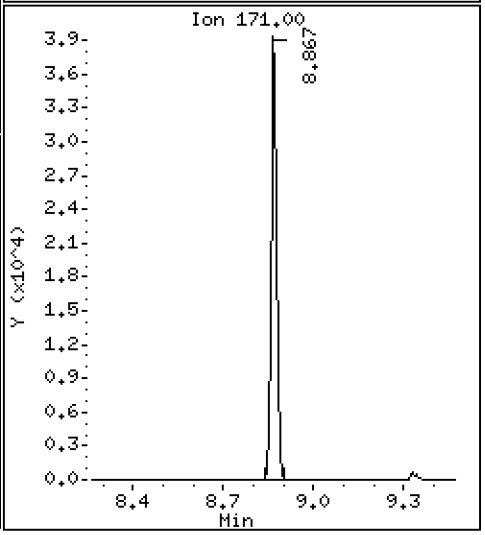


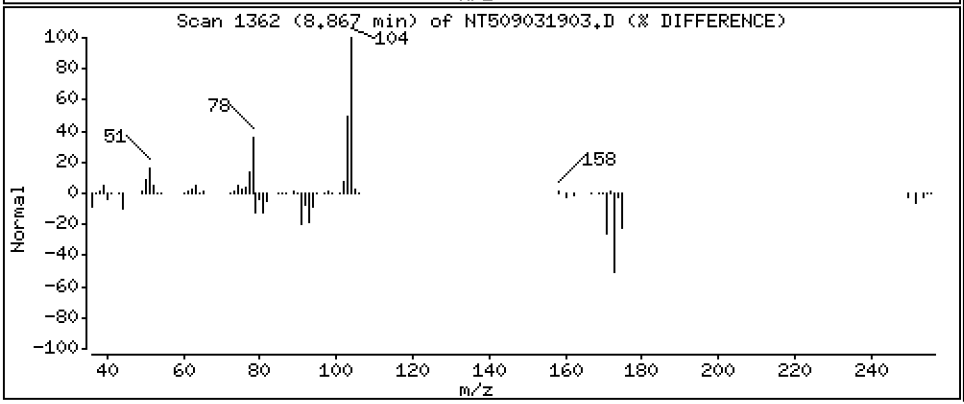












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

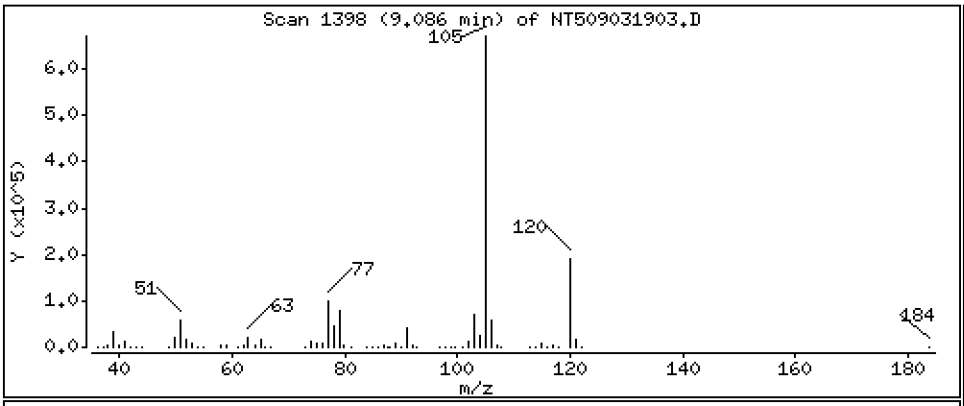
Operator: PB

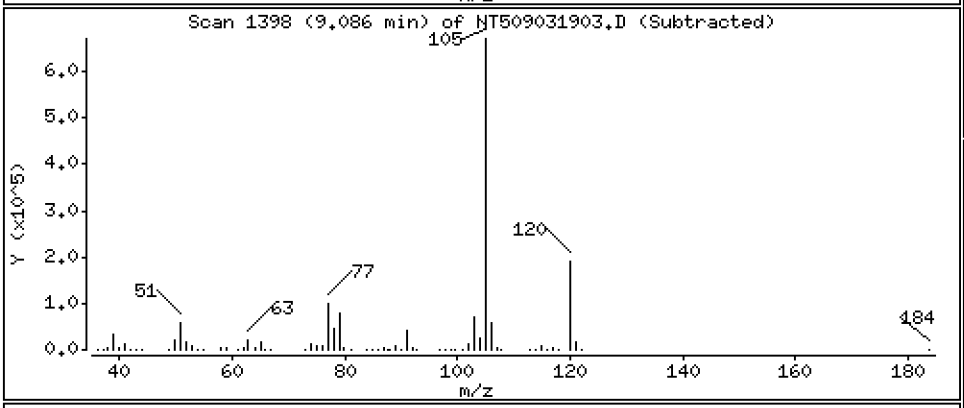
Column phase: RTXVMS

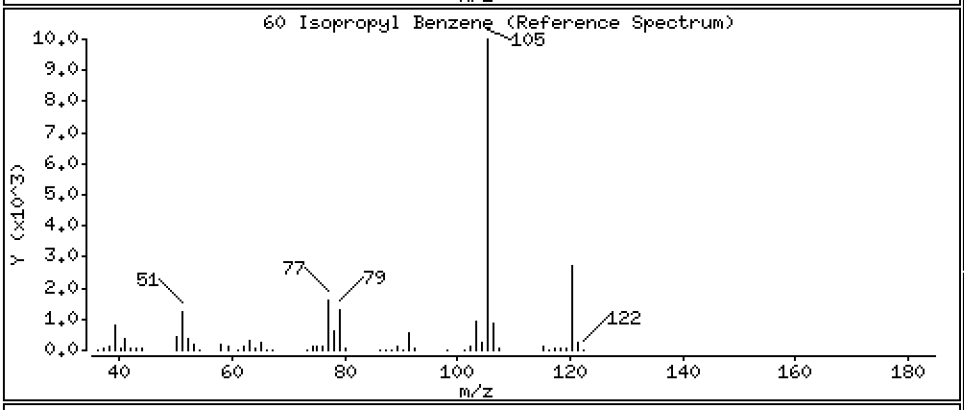
Column diameter: 0.18

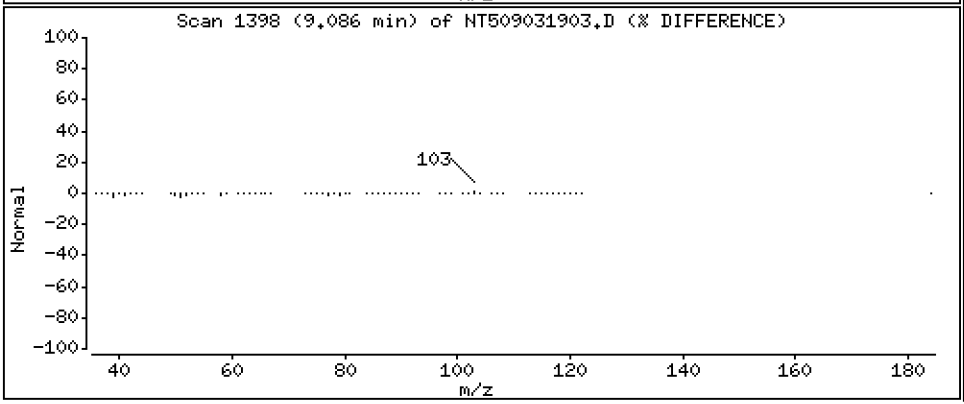
60 Isopropyl Benzene

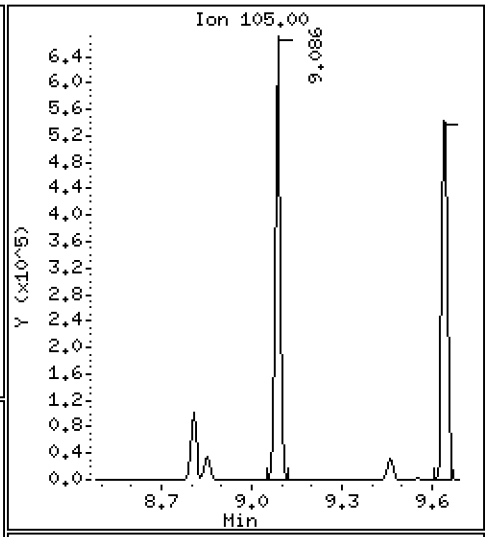
Concentration: 45.258 ug/Kg

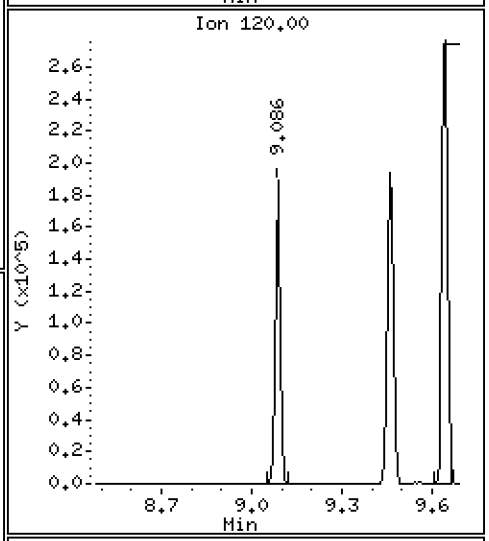


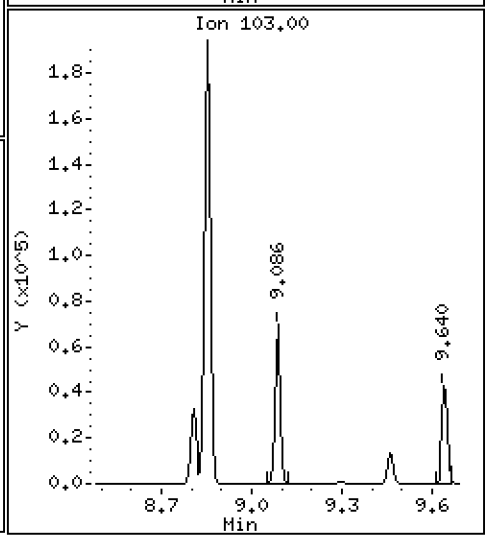












Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

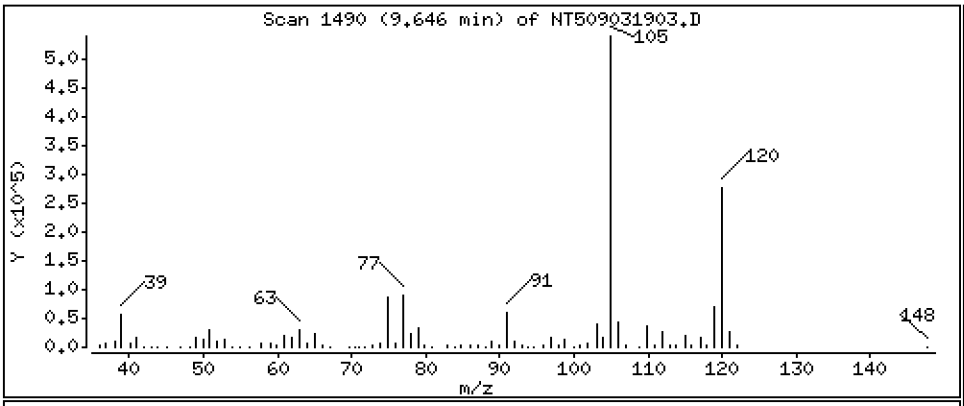
Sample Info: BSD1

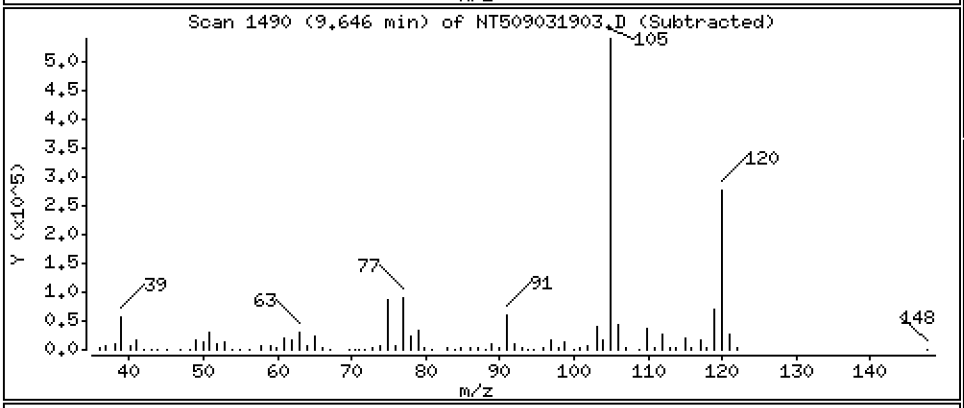
Operator: PB

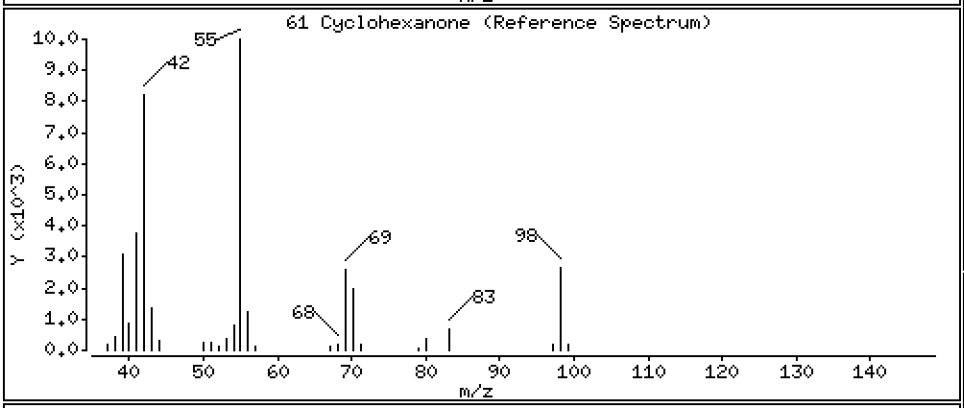
Column phase: RTXVMS

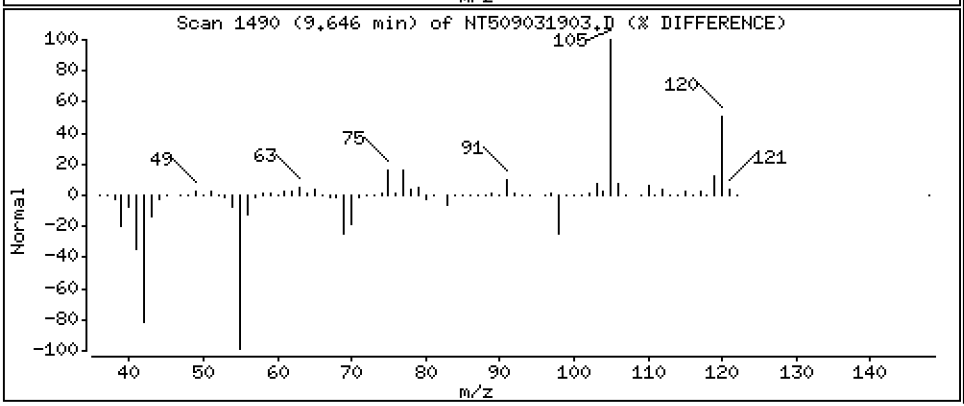
Column diameter: 0.18

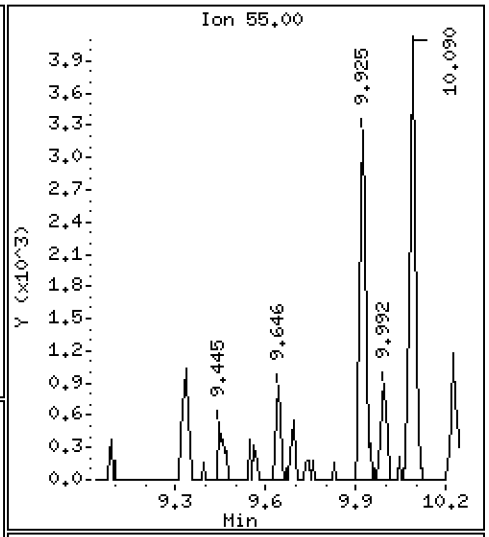
61 Cyclohexanone

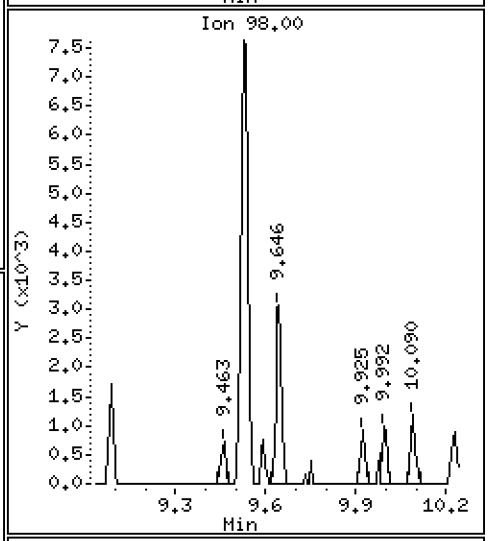


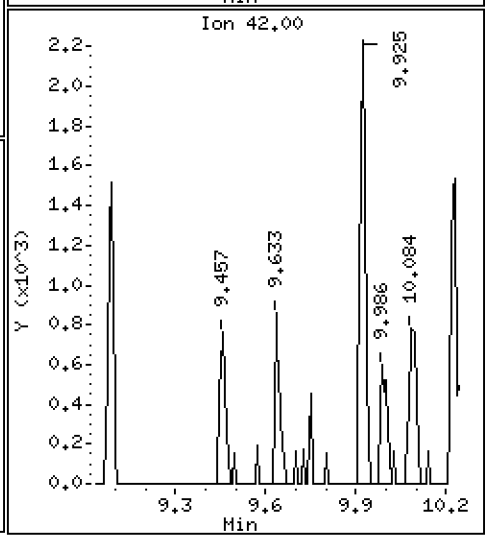












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

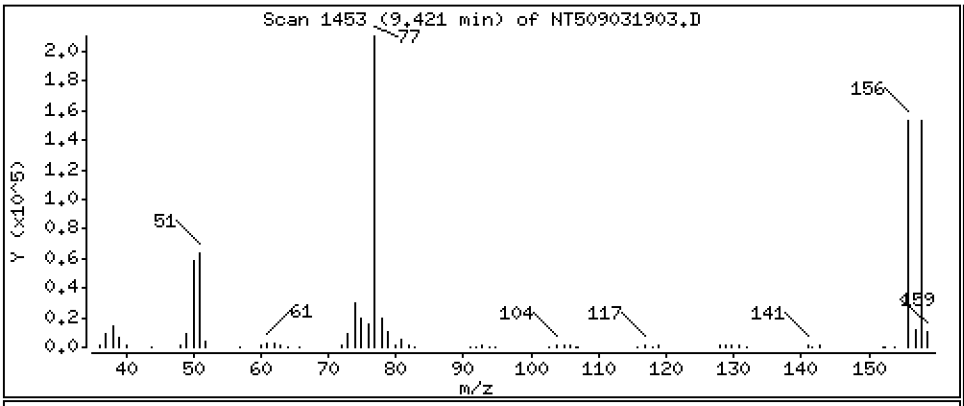
Operator: PB

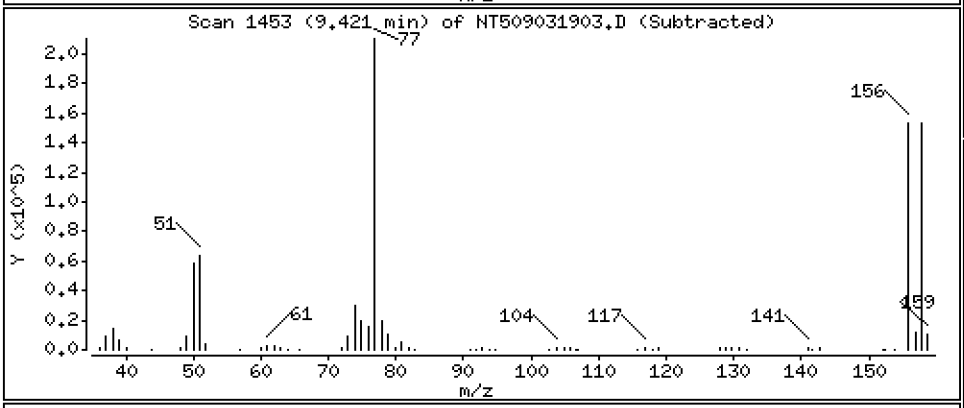
Column phase: RTXVMS

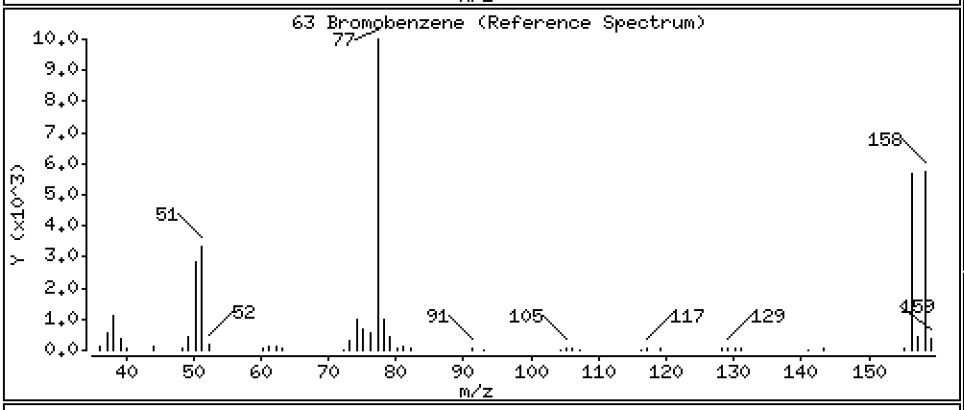
Column diameter: 0.18

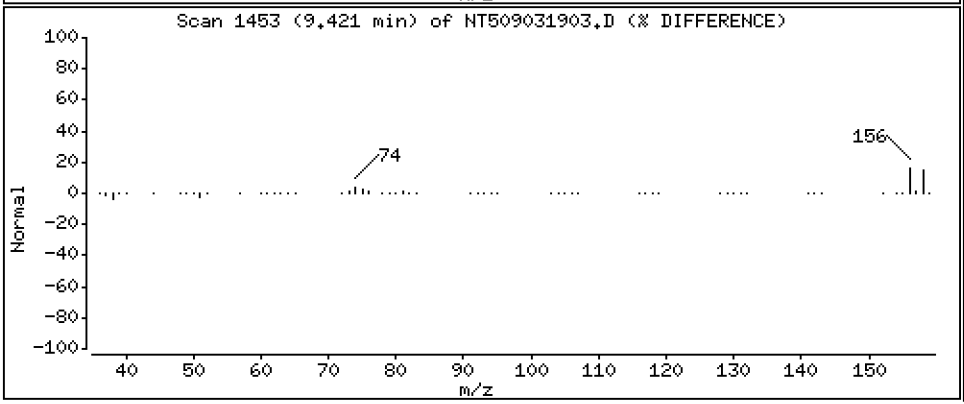
63 Bromobenzene

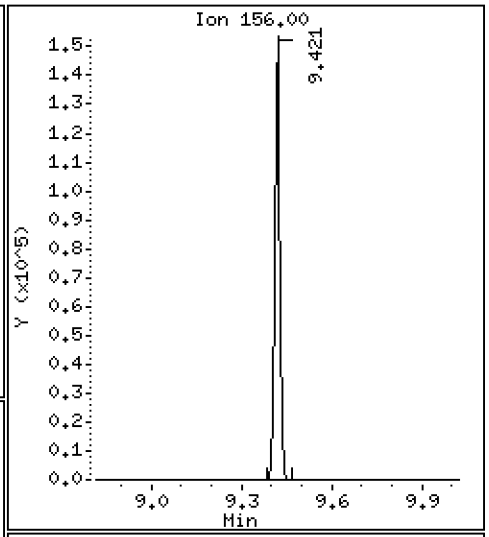
Concentration: 40.863 ug/Kg

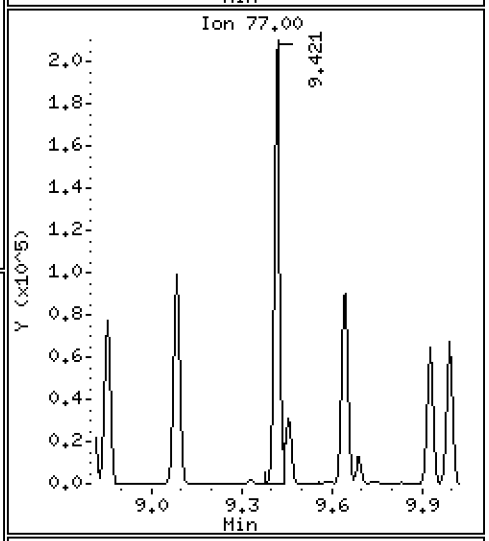


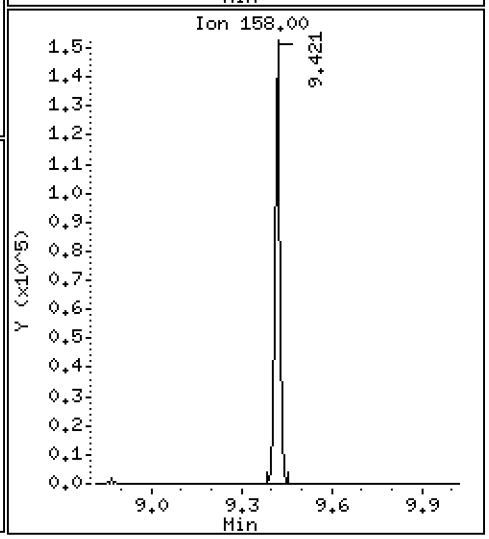












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

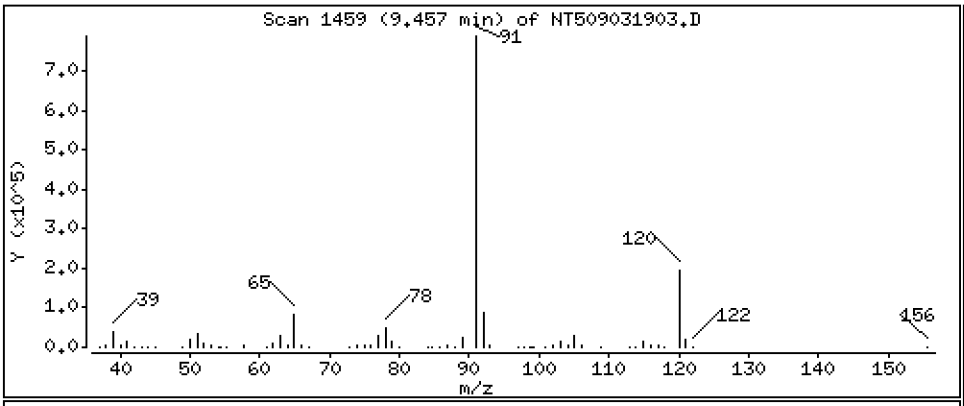
Operator: PB

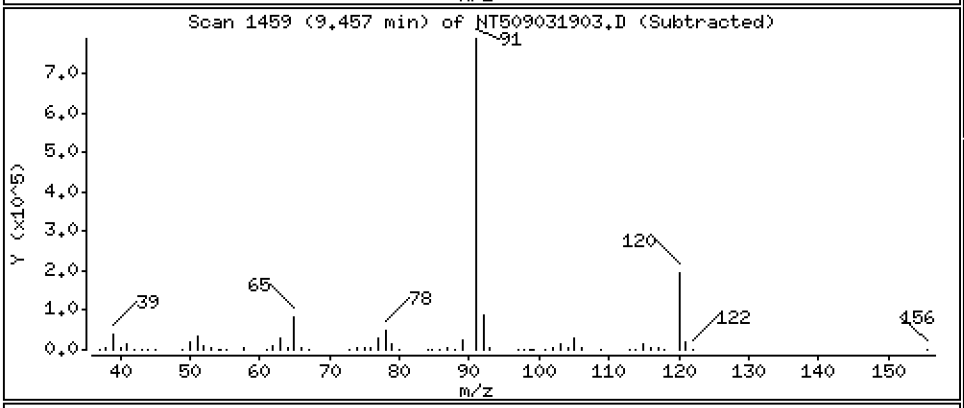
Column phase: RTXVMS

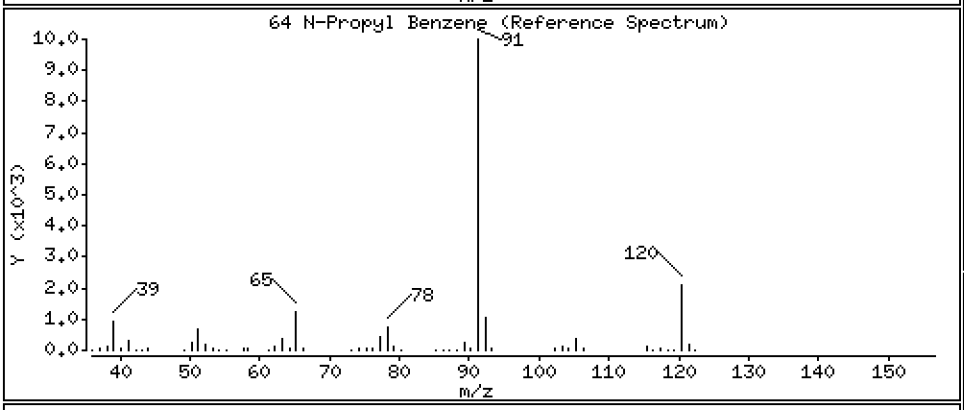
Column diameter: 0.18

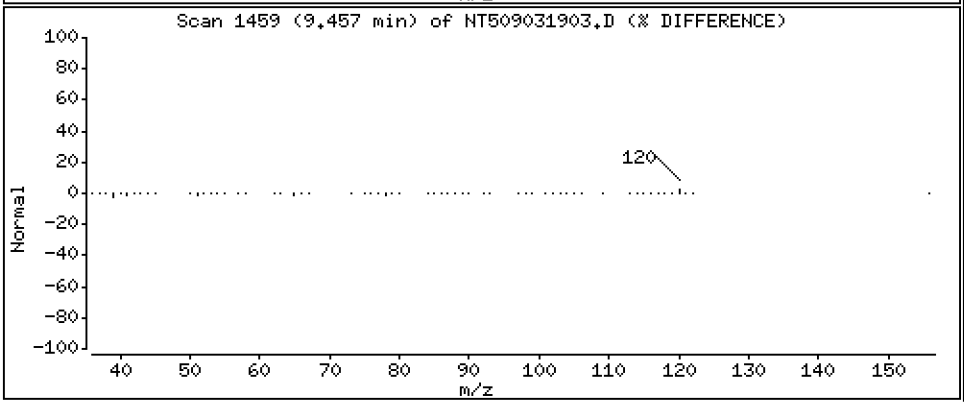
64 N-Propyl Benzene

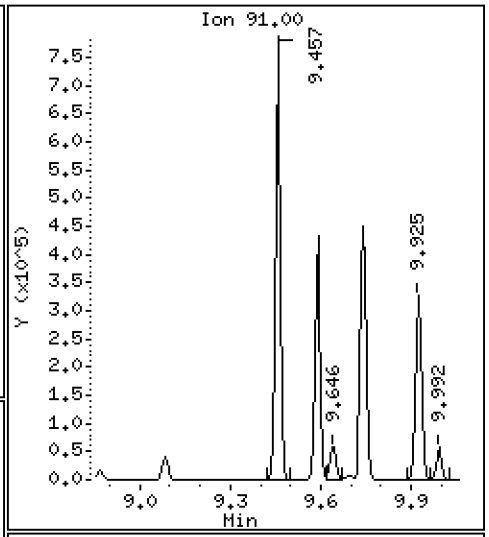
Concentration: 45.096 ug/Kg

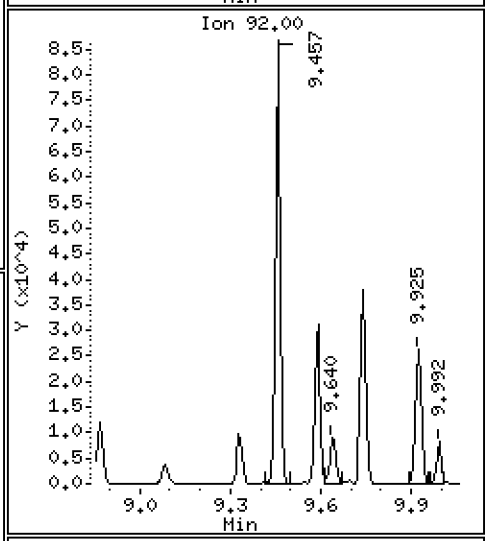


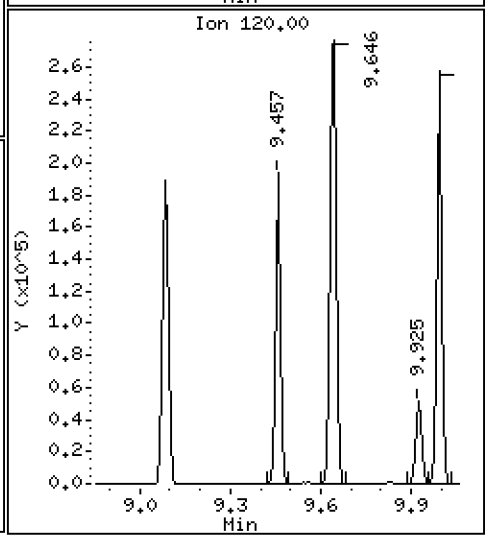












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

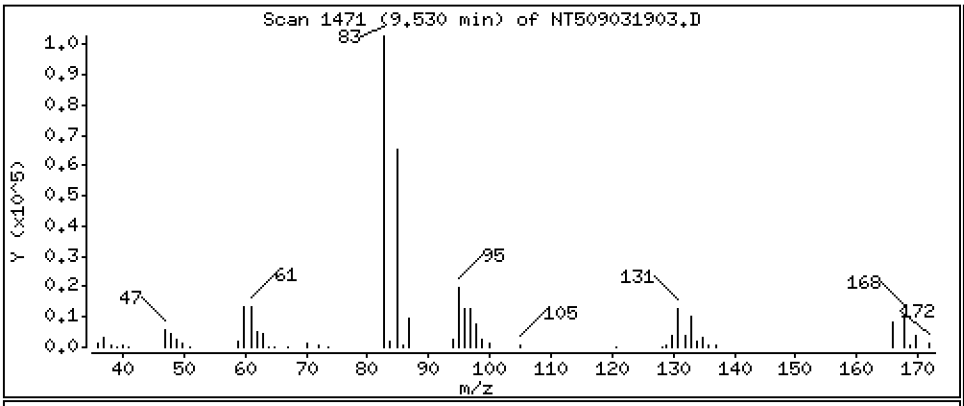
Operator: PB

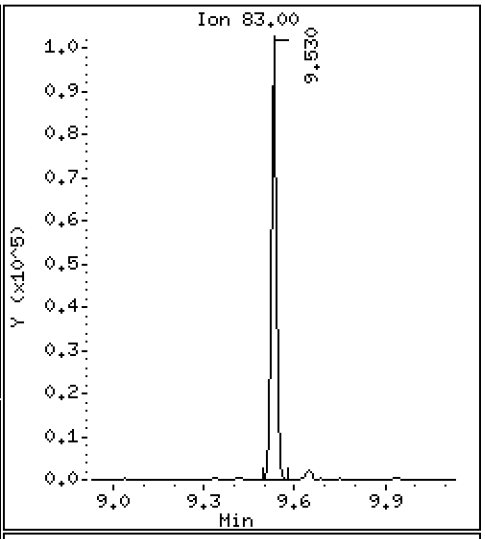
Column phase: RTXVMS

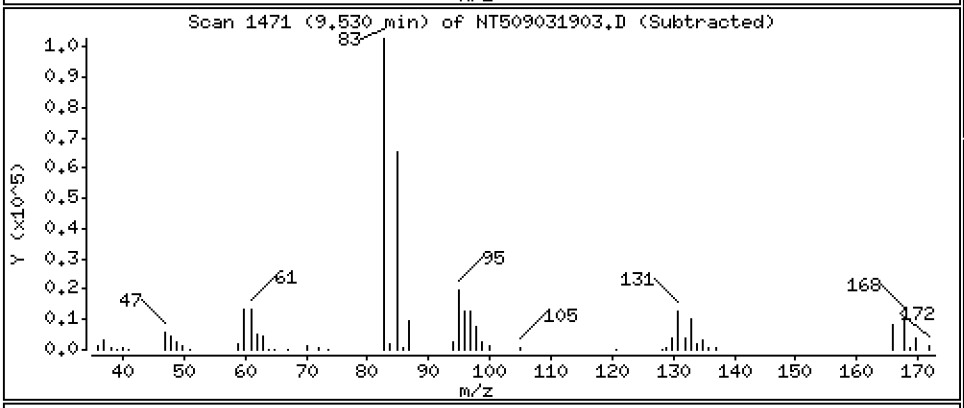
Column diameter: 0.18

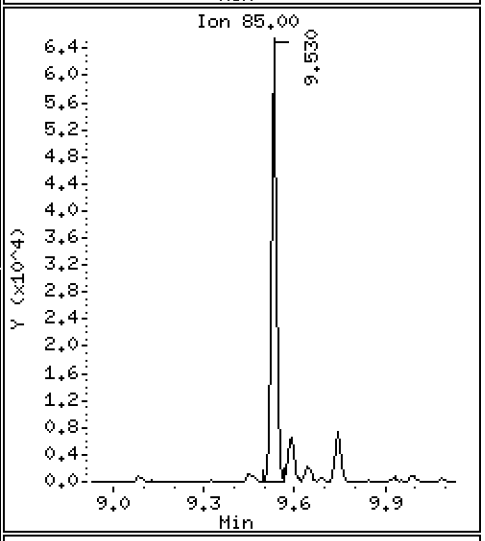
65 1,1,2,2-Tetrachloroethane

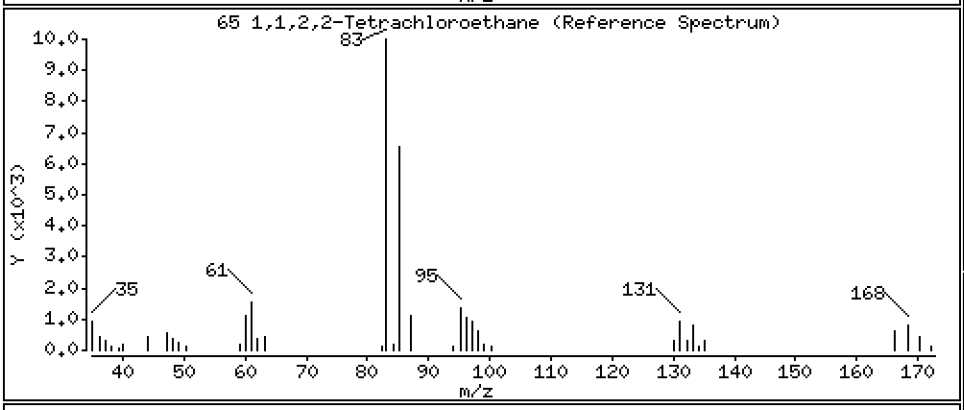
Concentration: 39.747 ug/Kg

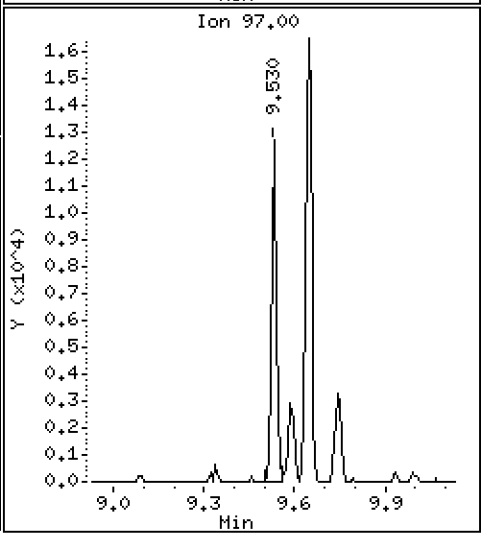


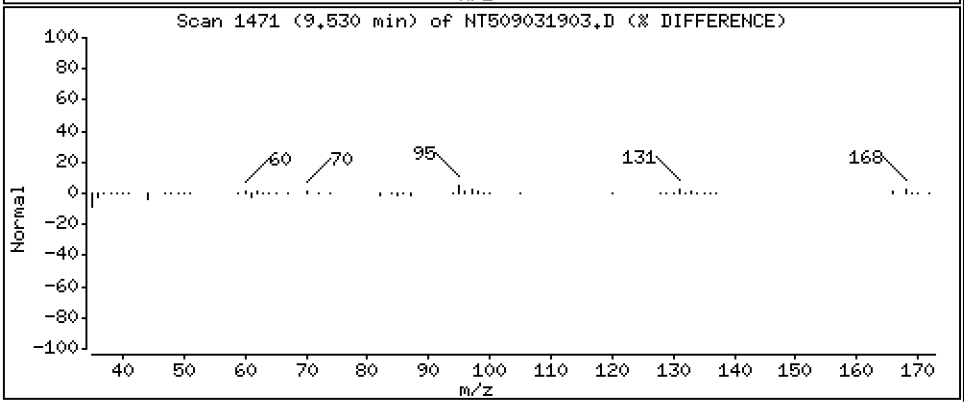












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

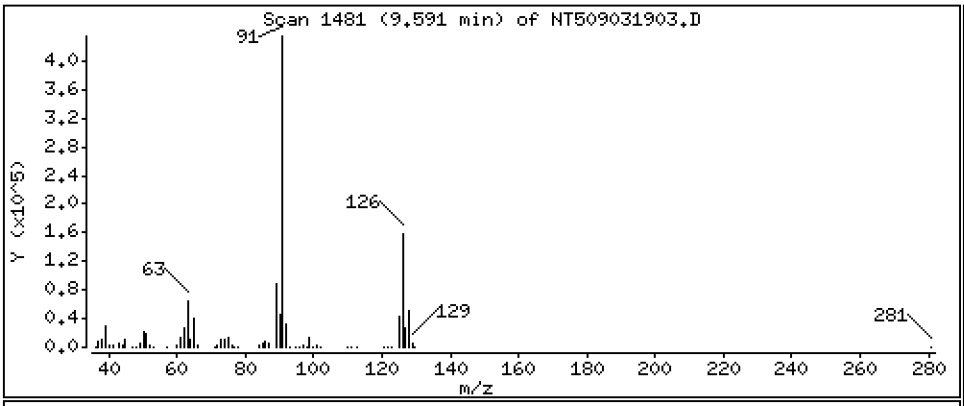
Operator: PB

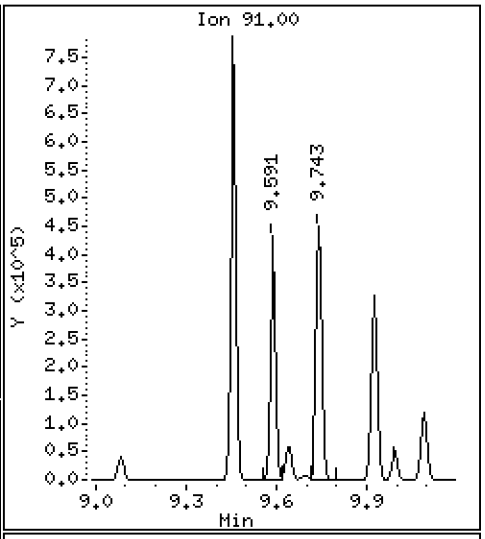
Column phase: RTXVMS

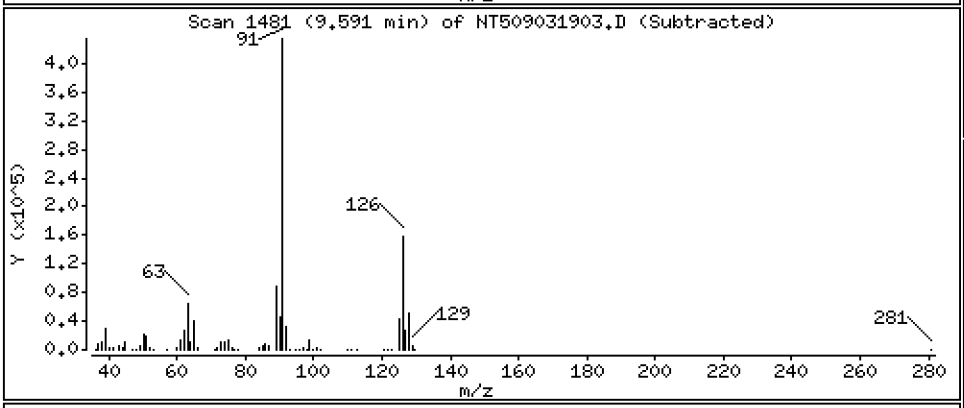
Column diameter: 0.18

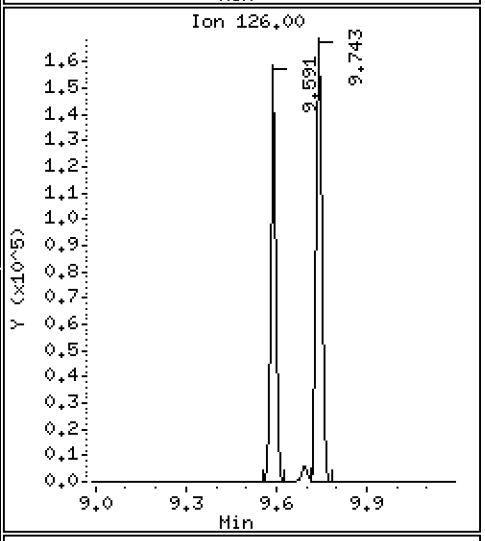
66 2-Chloro Toluene

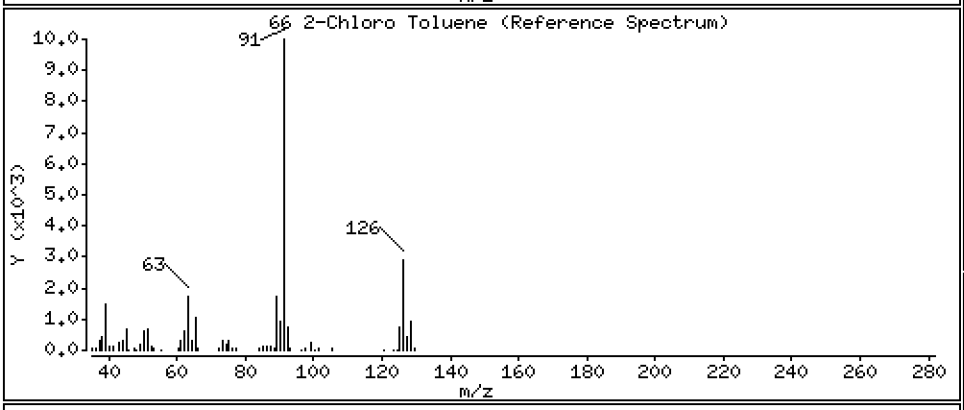
Concentration: 43.794 ug/Kg

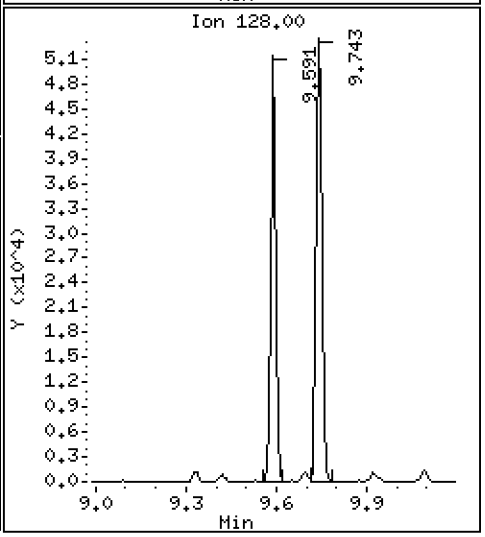


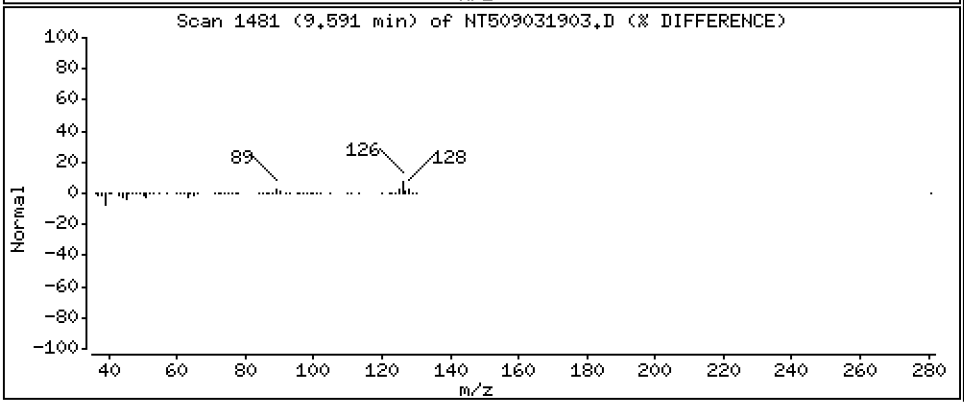












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

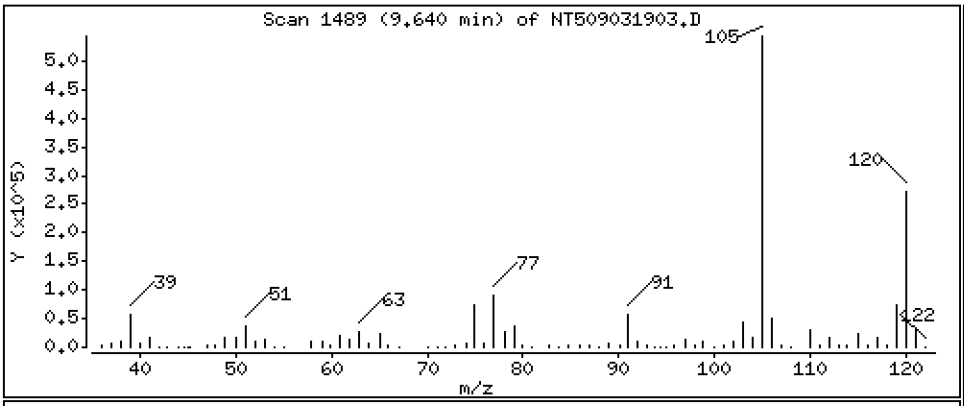
Operator: PB

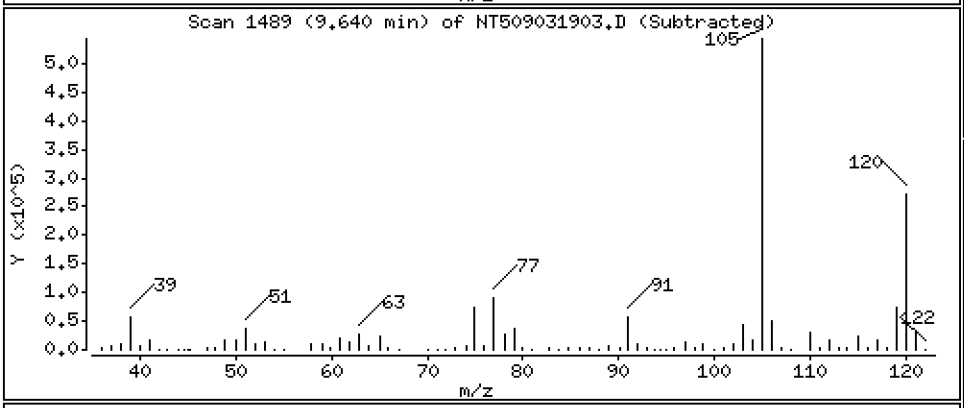
Column phase: RTXVMS

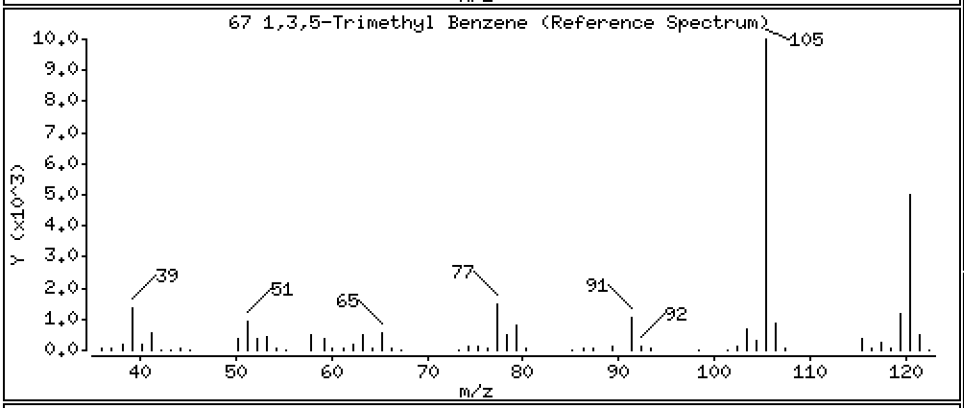
Column diameter: 0.18

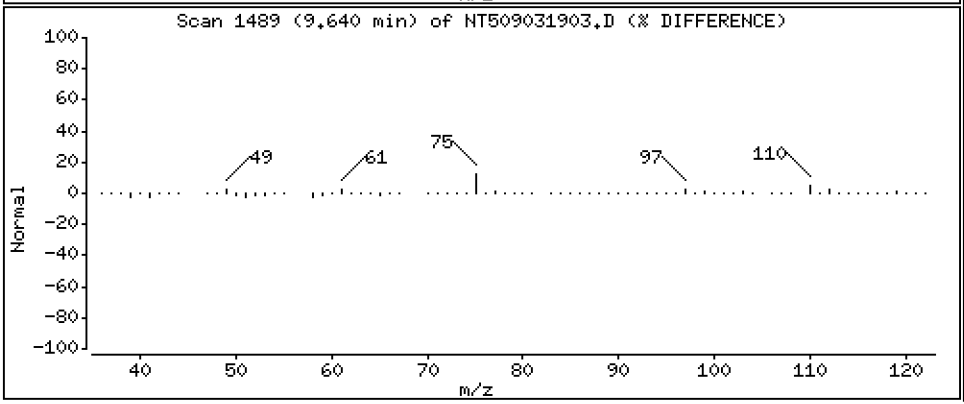
67 1,3,5-Trimethyl Benzene

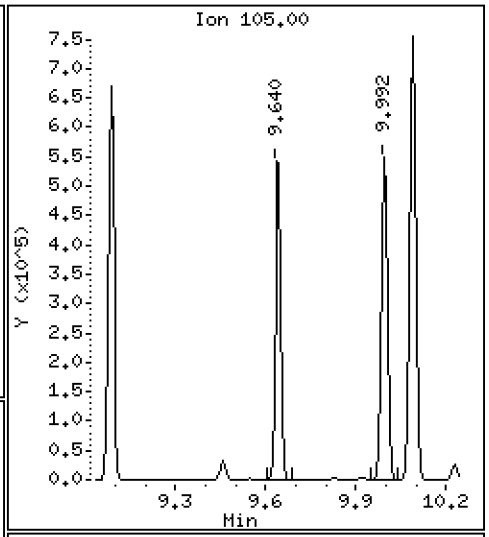
Concentration: 45.564 ug/Kg

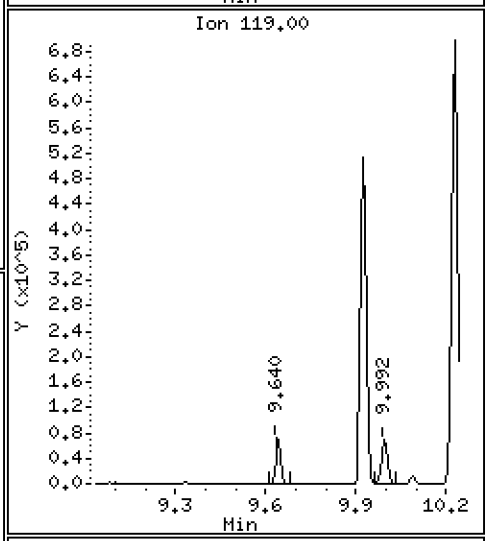


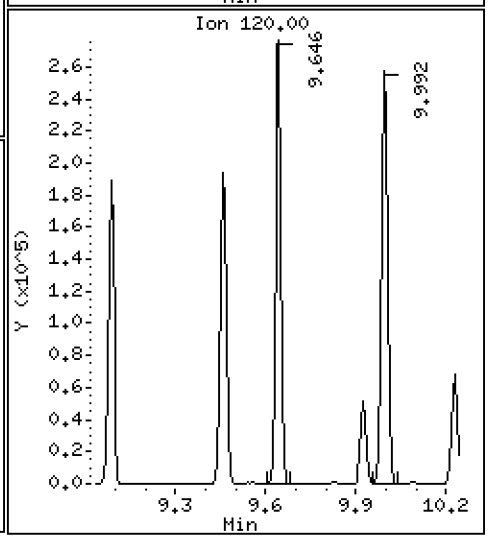












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

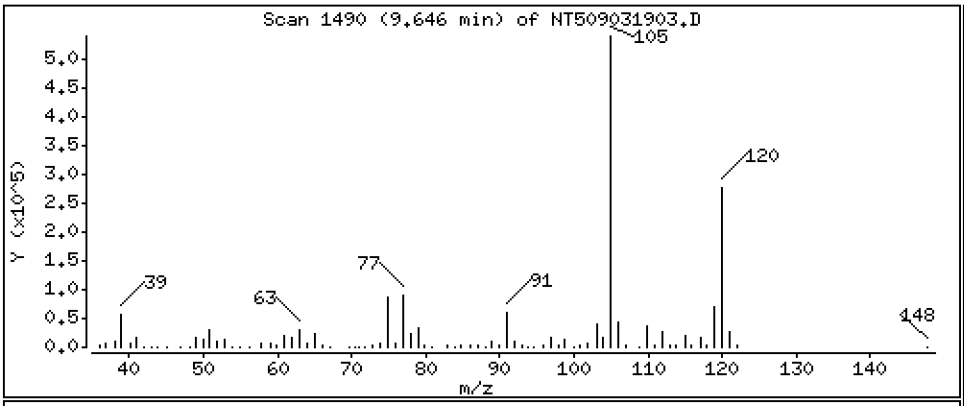
Operator: PB

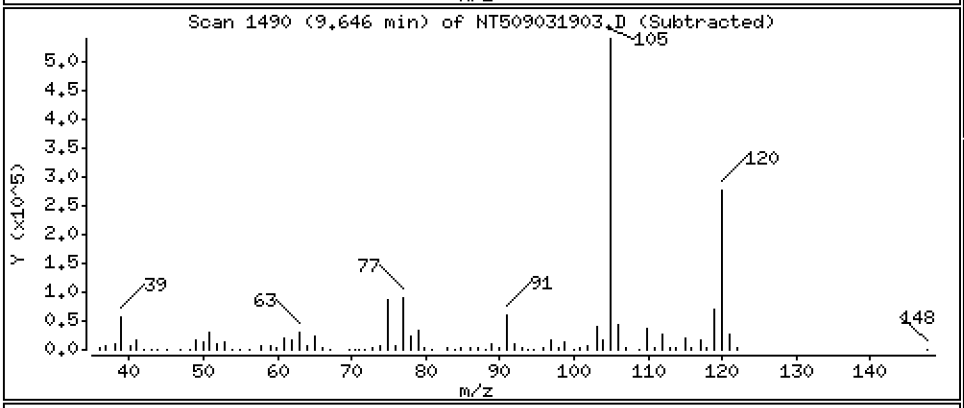
Column phase: RTXVMS

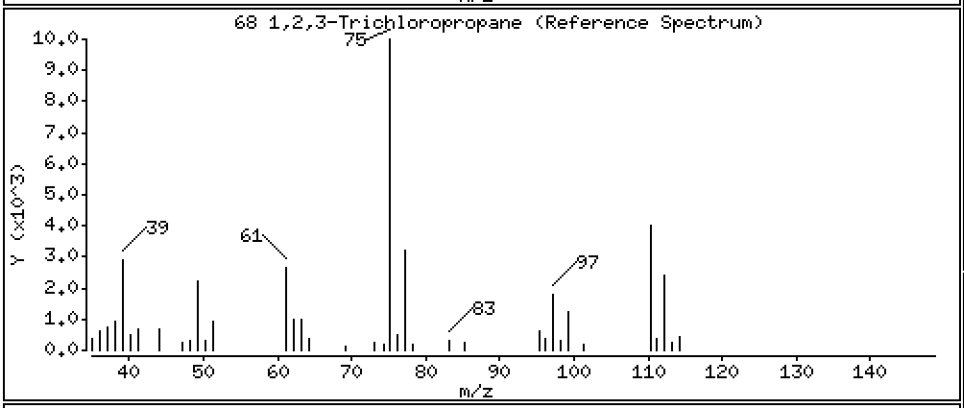
Column diameter: 0.18

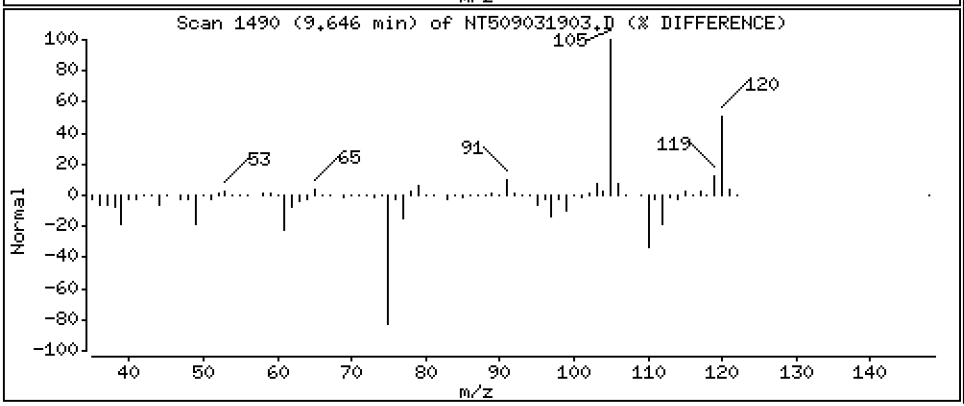
68 1,2,3-Trichloropropane

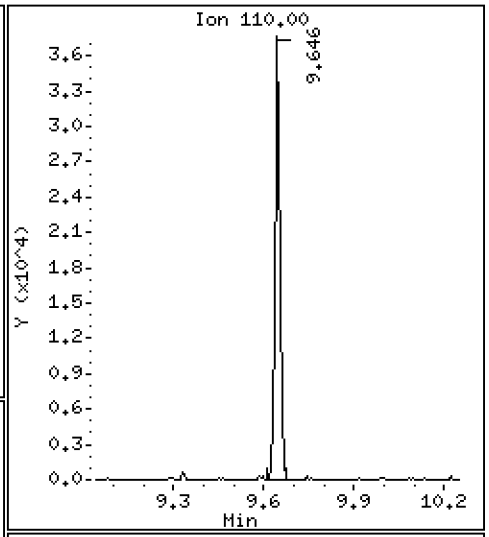
Concentration: 39.516 ug/Kg

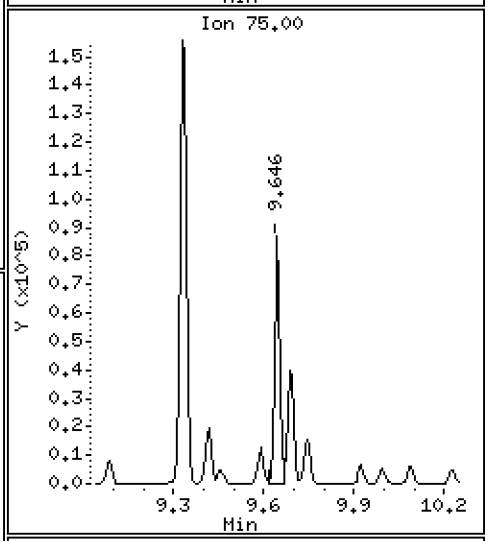


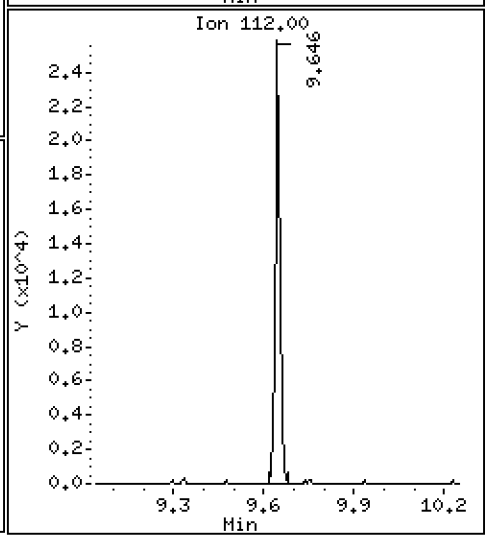












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

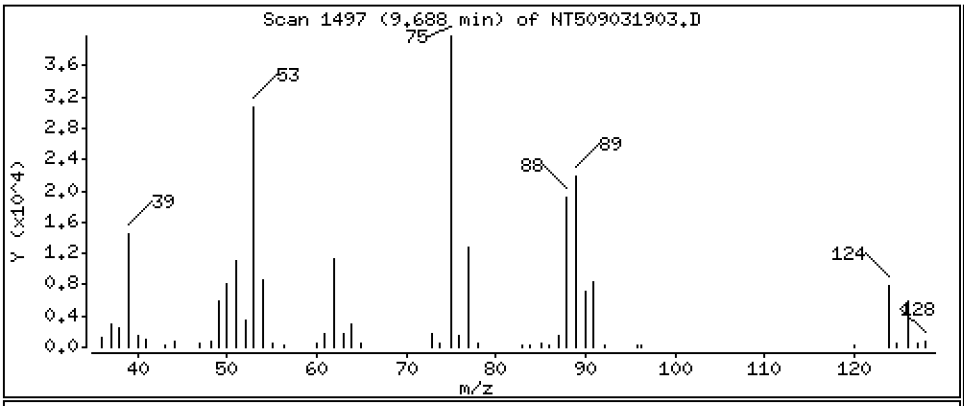
Operator: PB

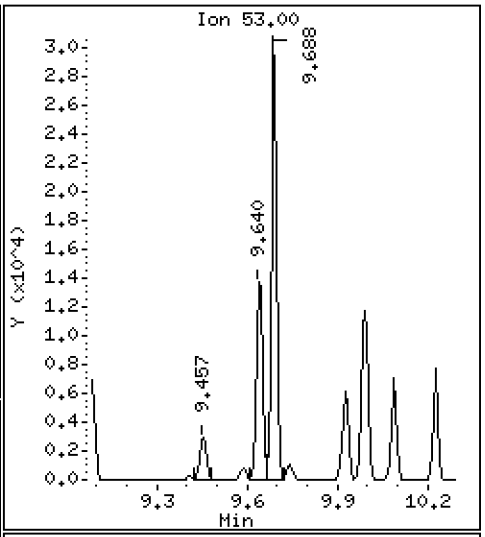
Column phase: RTXVMS

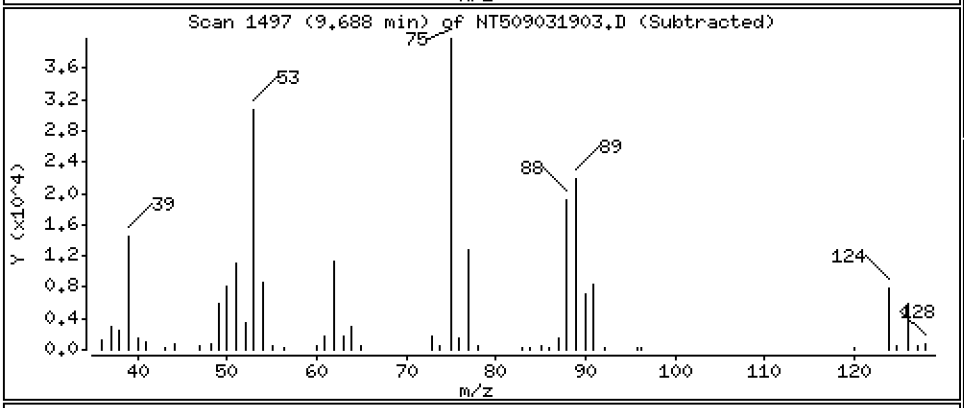
Column diameter: 0.18

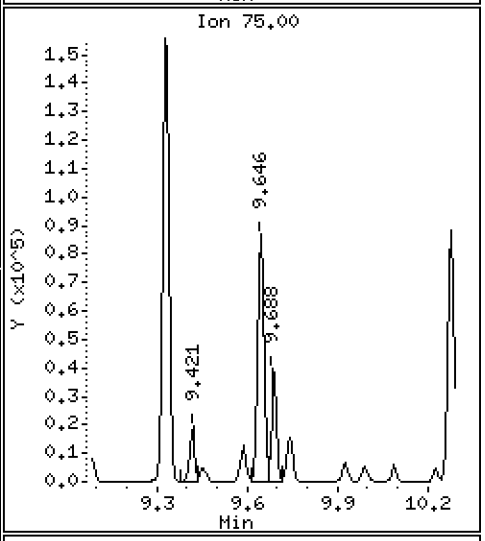
69 Trans-1,4-Dichloro 2-Butene

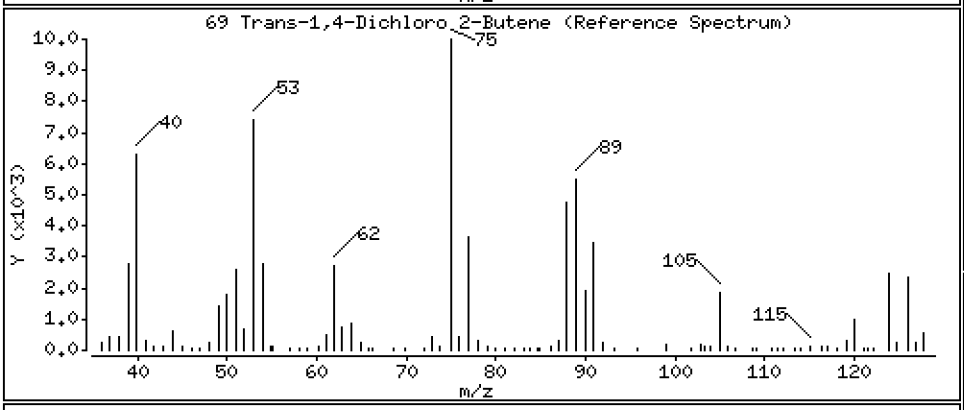
Concentration: 39.884 ug/Kg

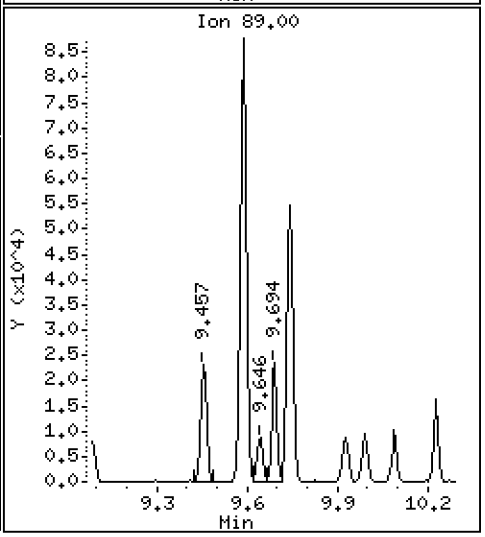


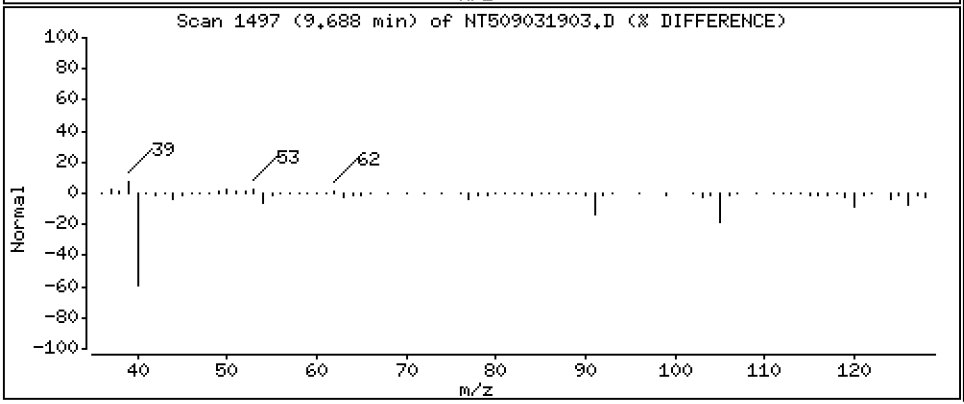












Date : 03-SEP-2019 13:27

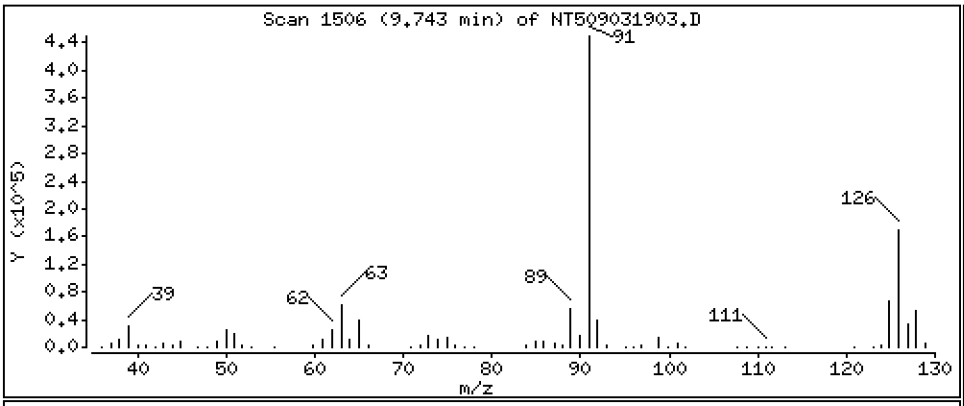
Client ID: Instrument: nt5.i

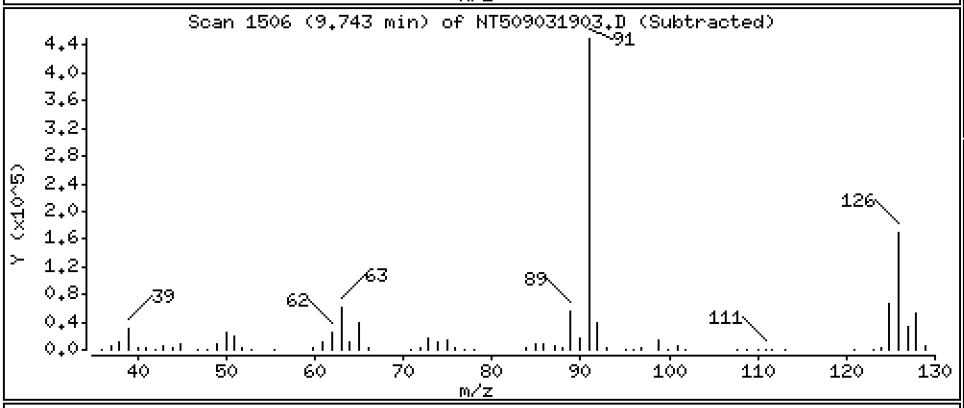
Sample Info: BSD1

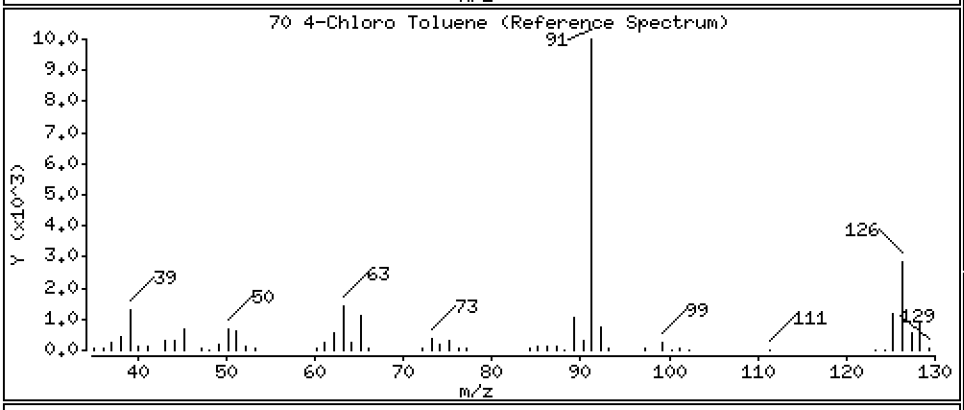
Operator: PB

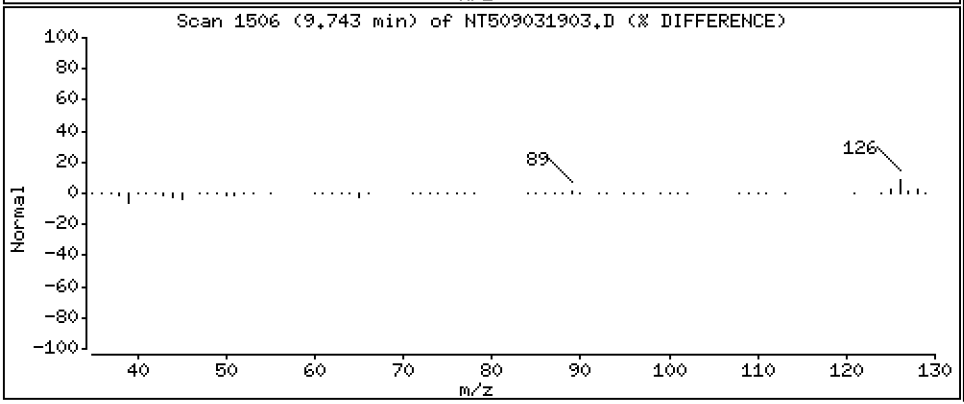
Column phase: RTXVMS Column diameter: 0.18

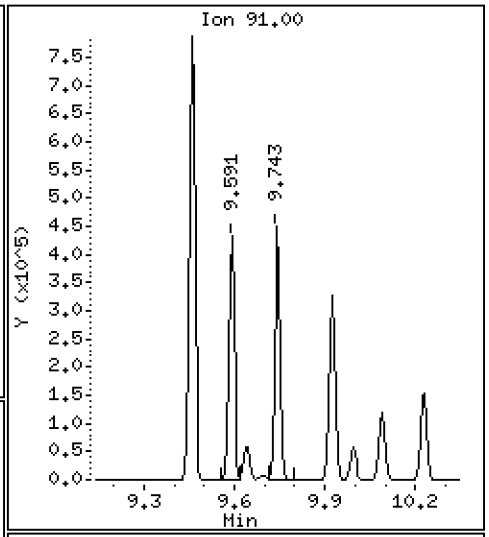
70 4-Chloro Toluene Concentration: 44.187 ug/Kg

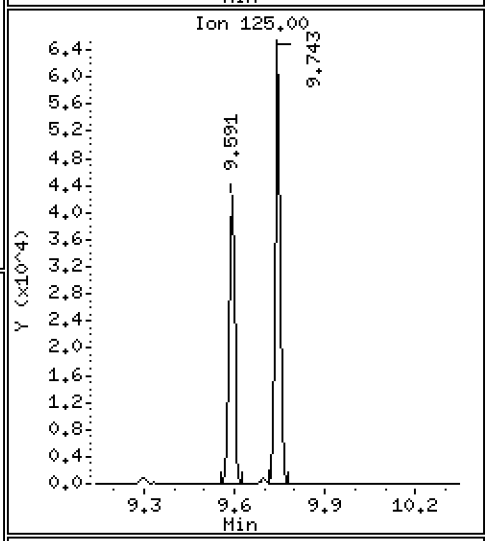


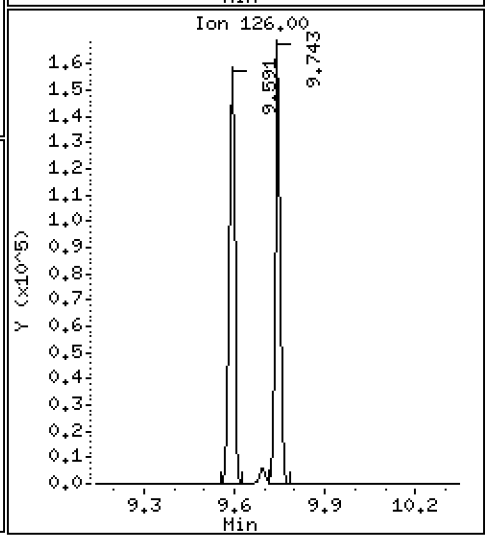












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

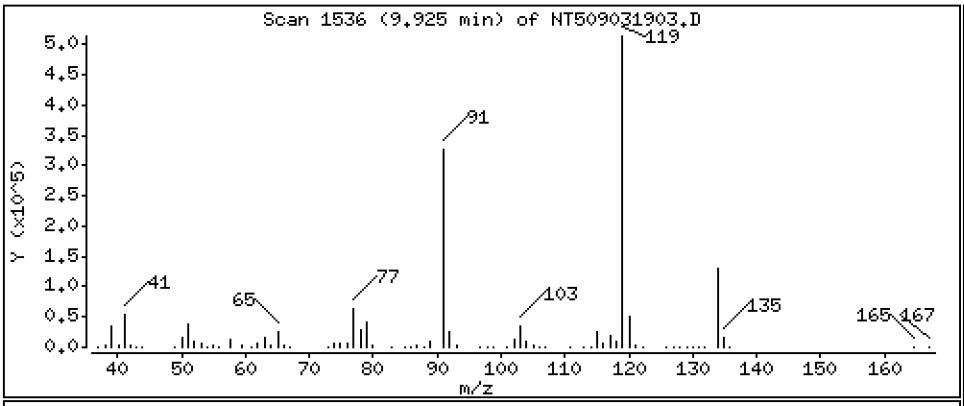
Operator: PB

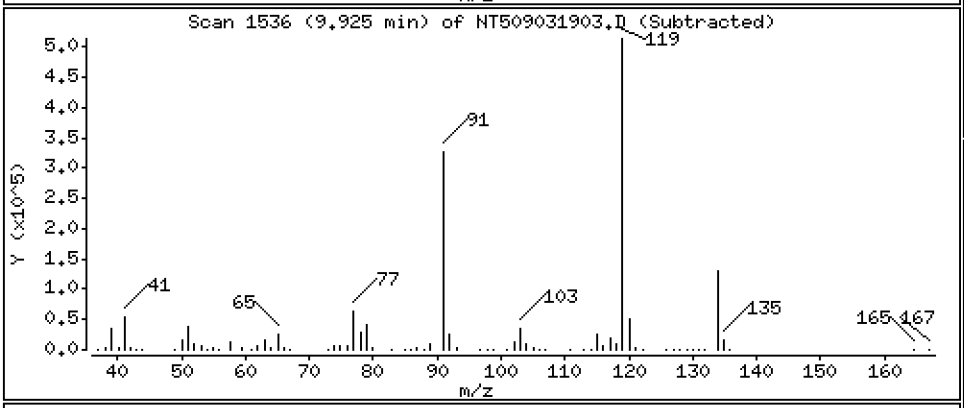
Column phase: RTXVMS

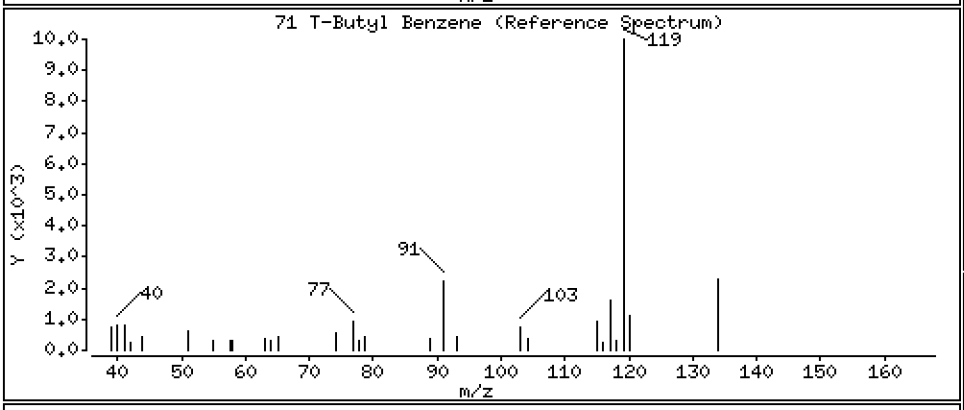
Column diameter: 0.18

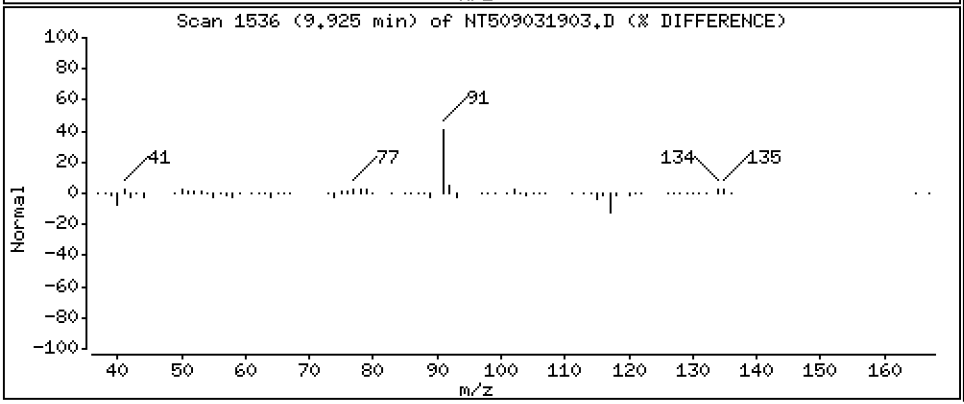
71 T-Butyl Benzene

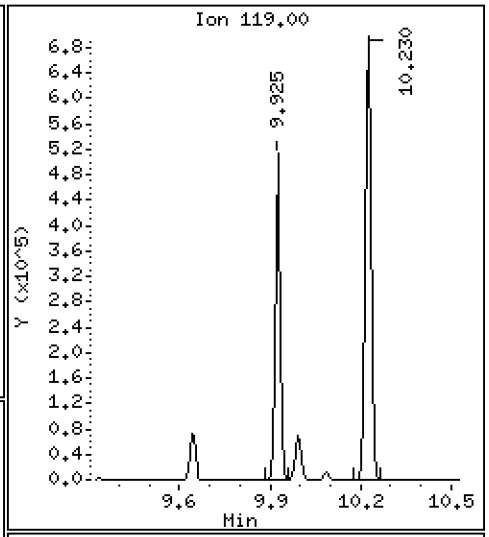
Concentration: 44.743 ug/Kg

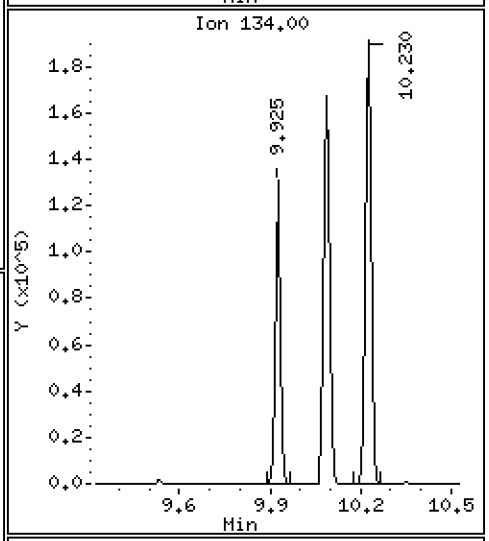


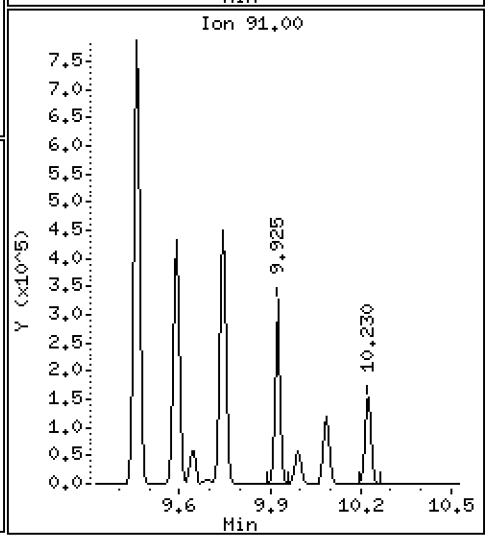












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

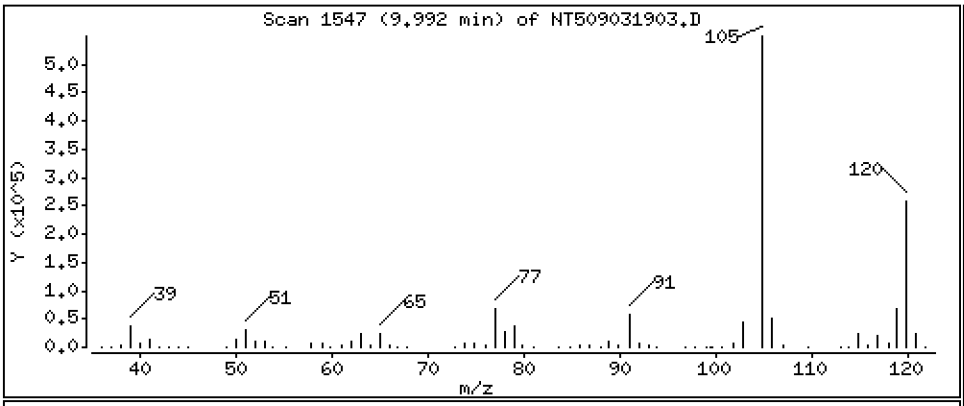
Operator: PB

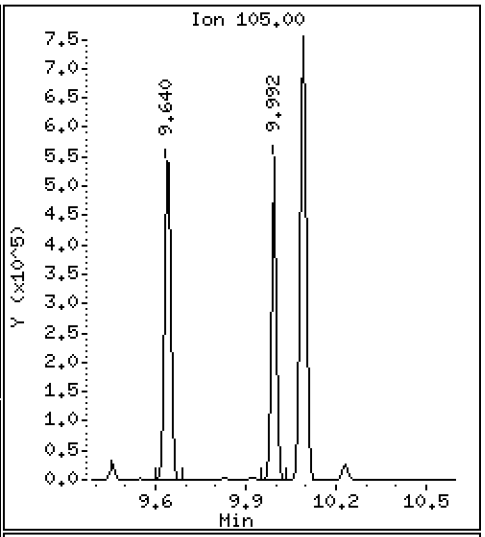
Column phase: RTXVMS

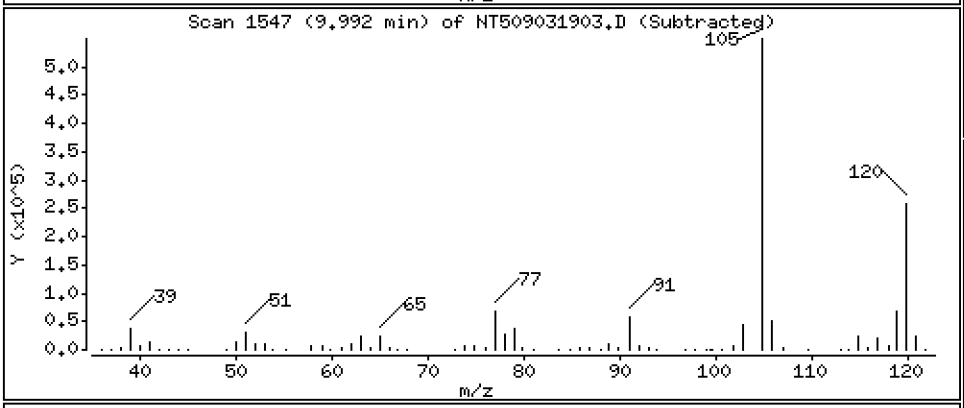
Column diameter: 0.18

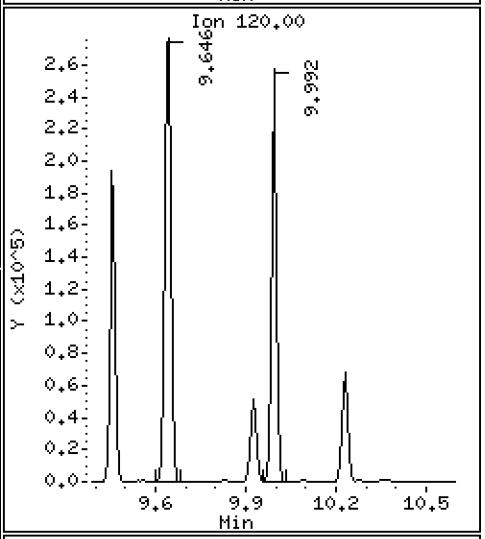
72 1,2,4-Trimethylbenzene

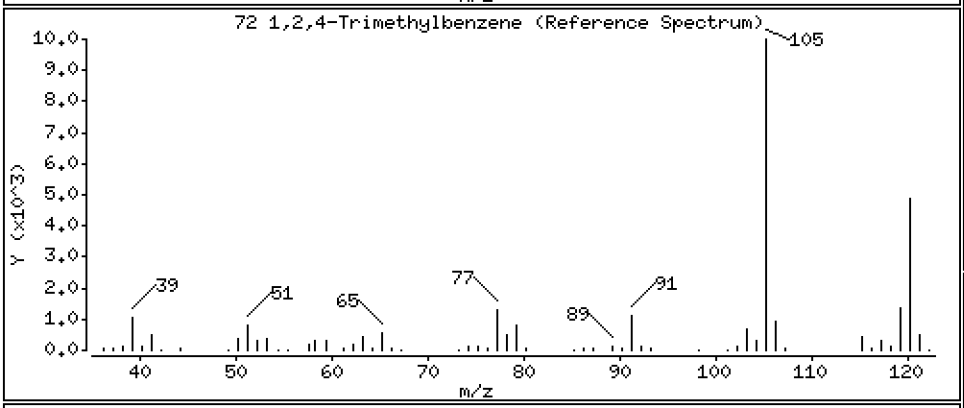
Concentration: 45.777 ug/Kg

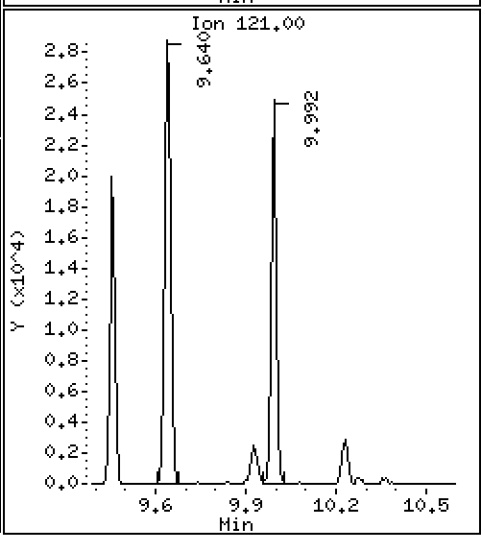


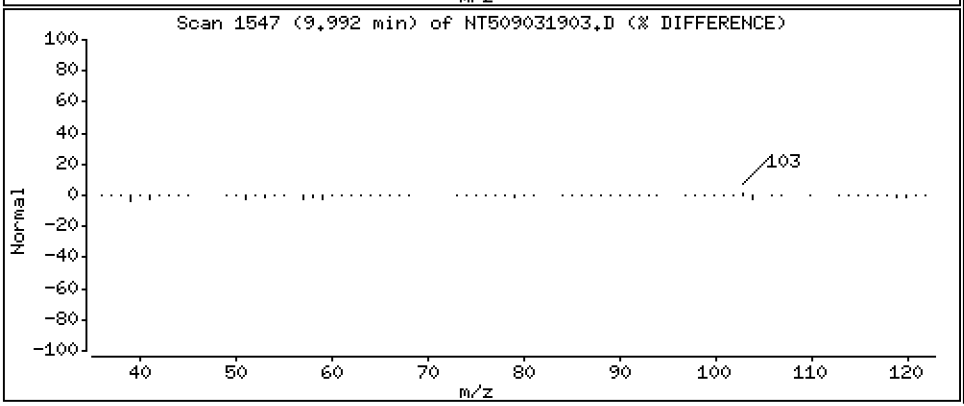












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

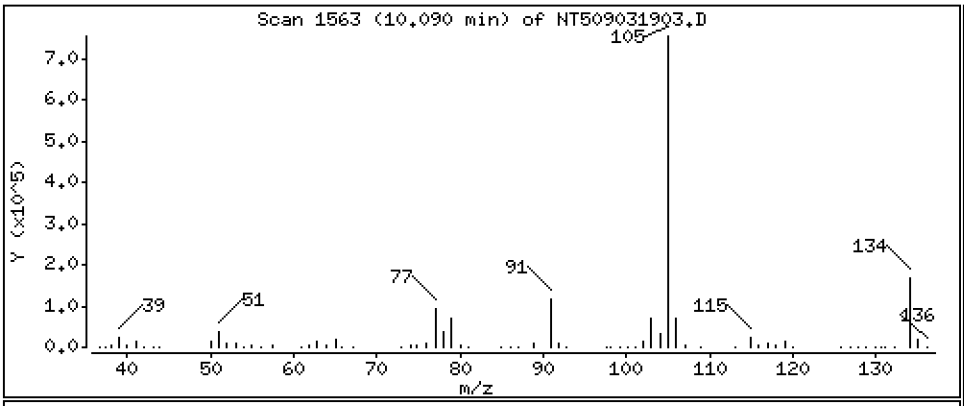
Operator: PB

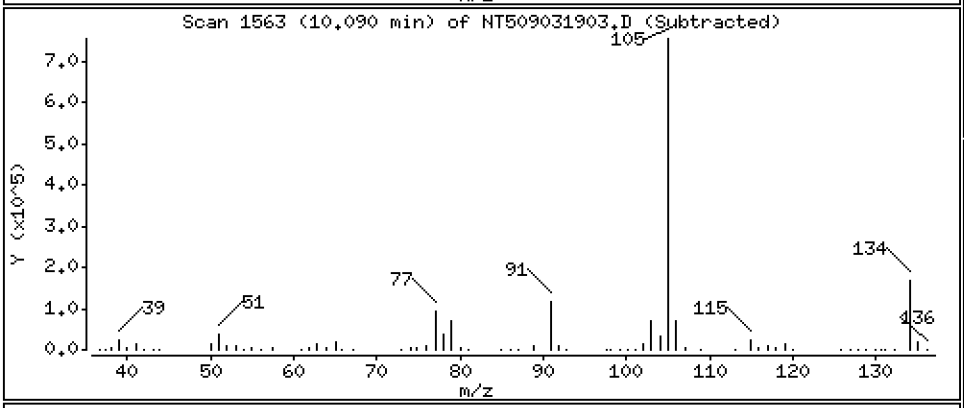
Column phase: RTXVMS

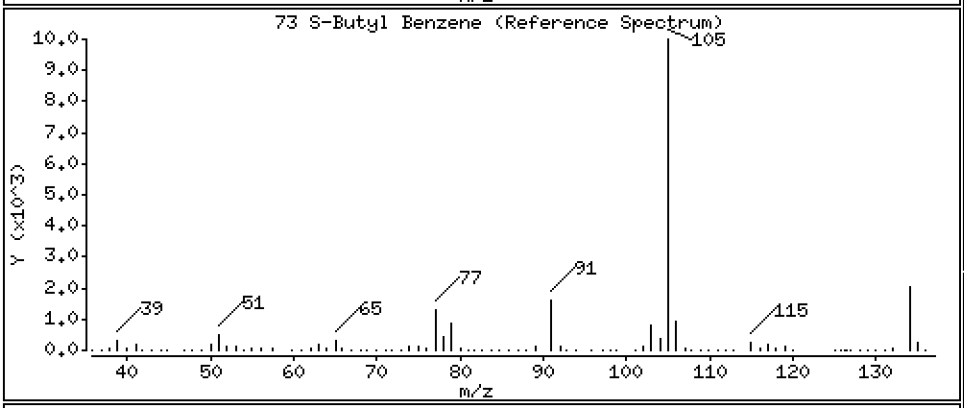
Column diameter: 0.18

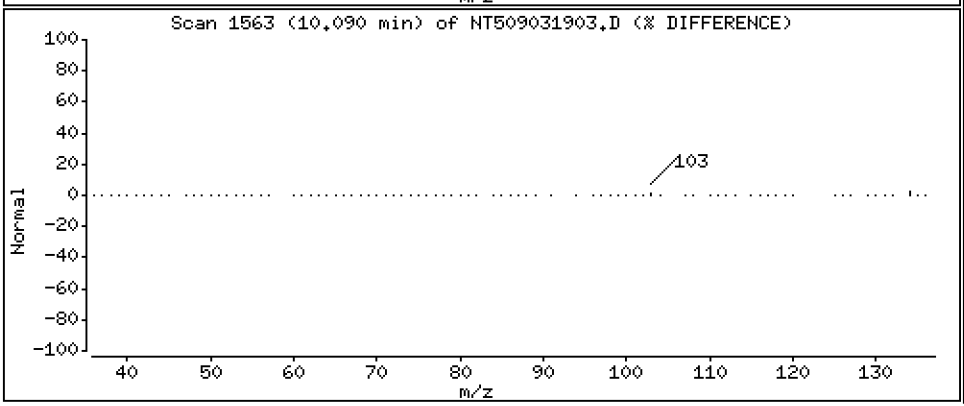
73 S-Butyl Benzene

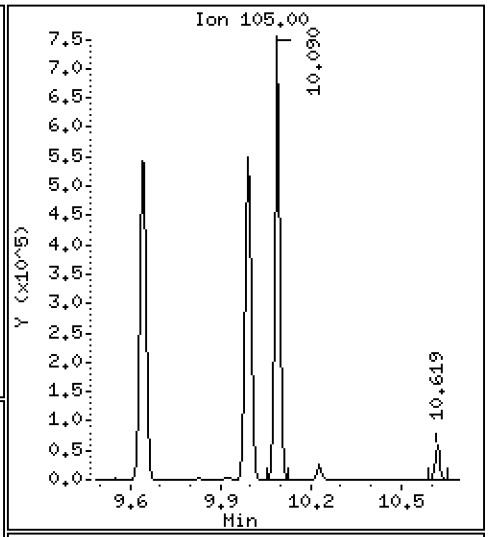
Concentration: 45.845 ug/Kg

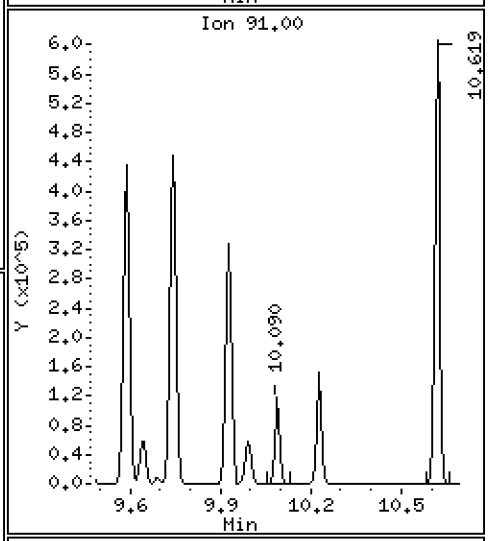


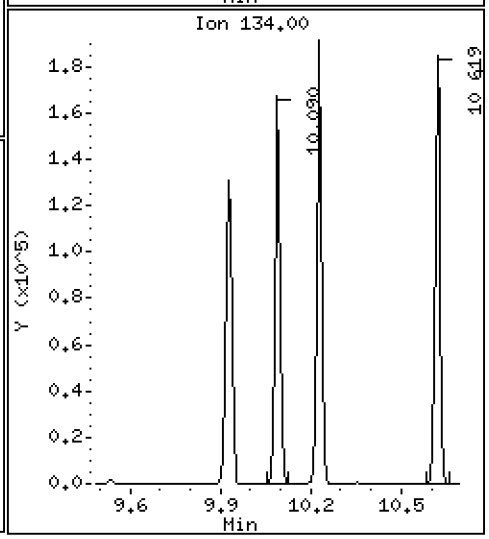












Date : 03-SEP-2019 13:27

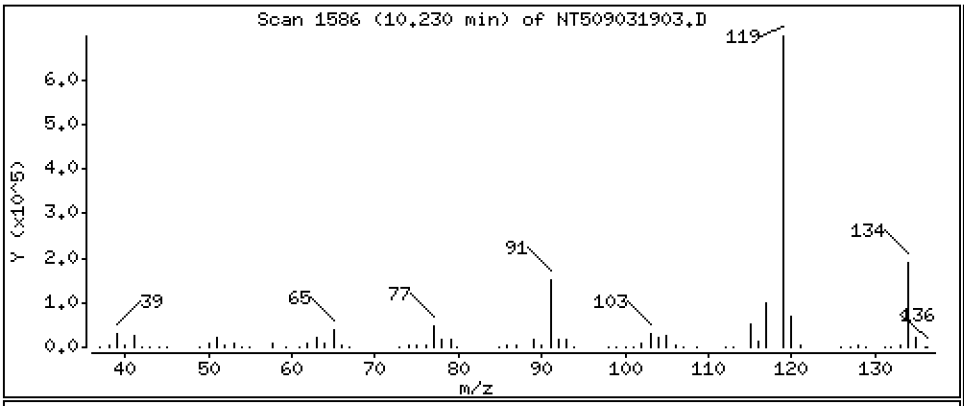
Client ID: Instrument: nt5.i

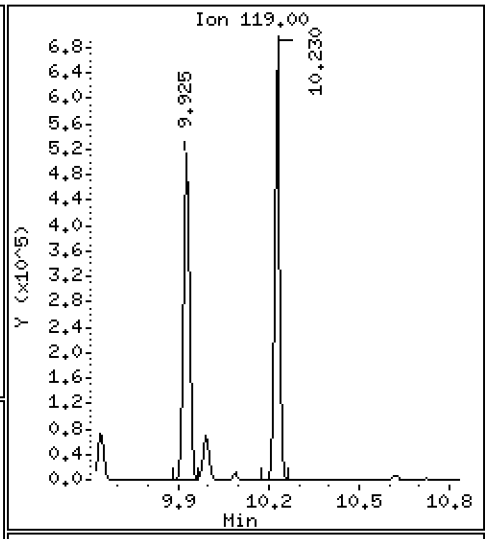
Sample Info: BSD1

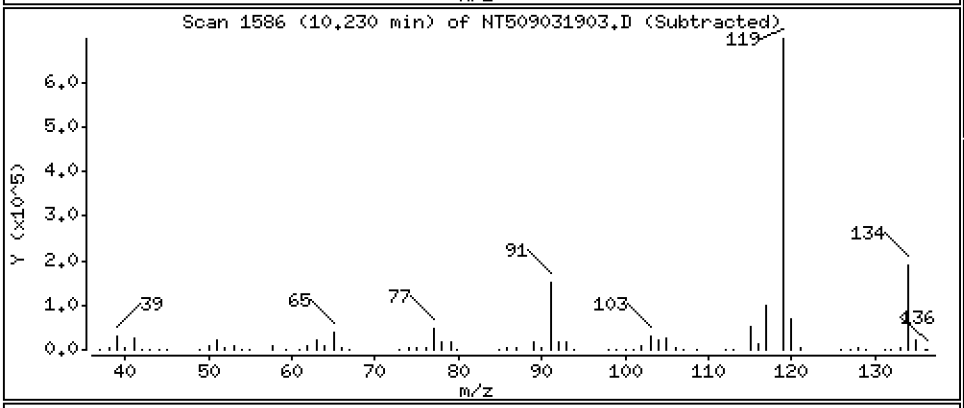
Operator: PB

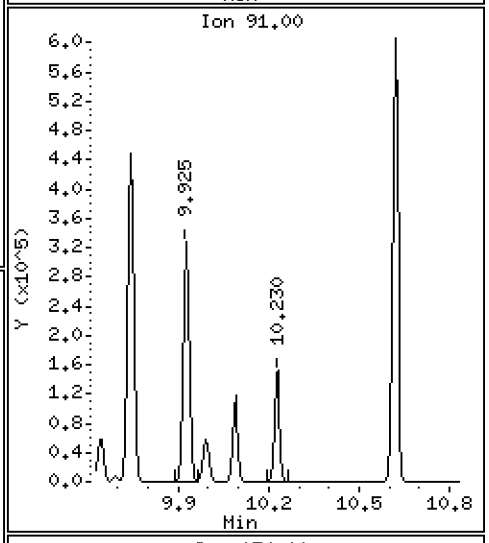
Column phase: RTXVMS Column diameter: 0.18

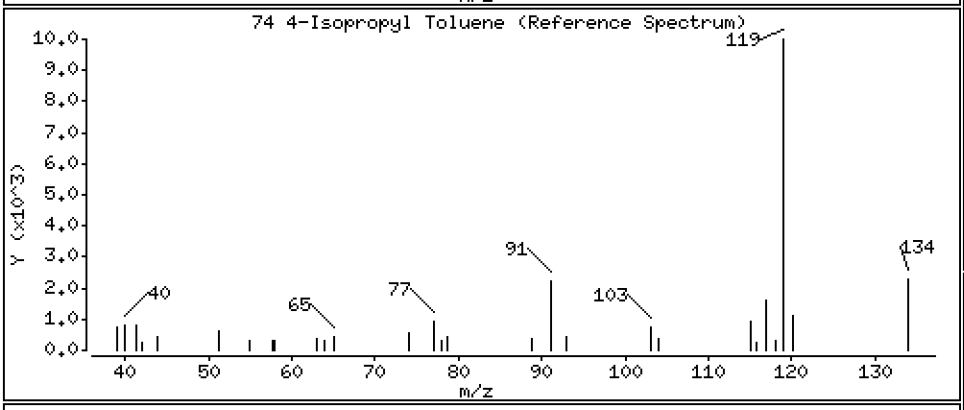
74 4-Isopropyl Toluene Concentration: 47.412 ug/Kg

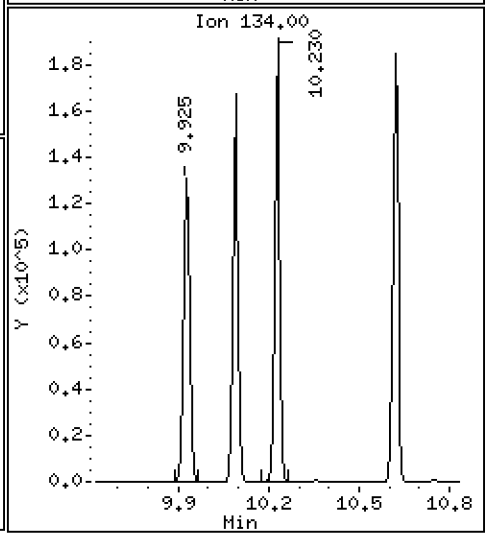


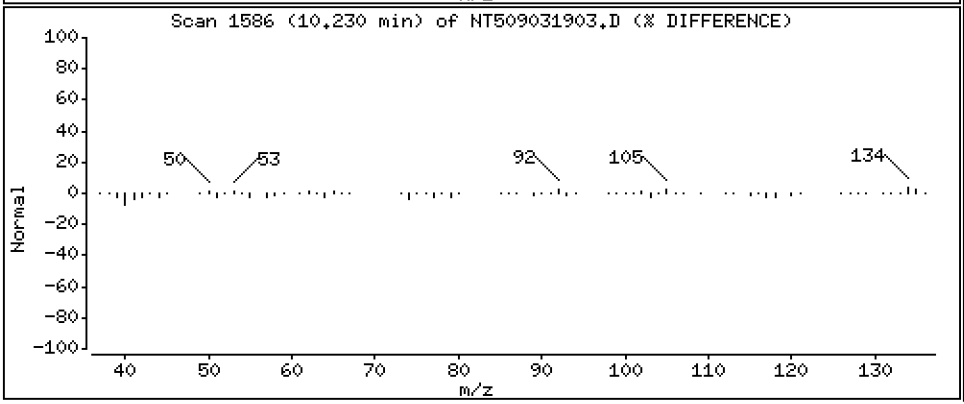












Date : 03-SEP-2019 13:27

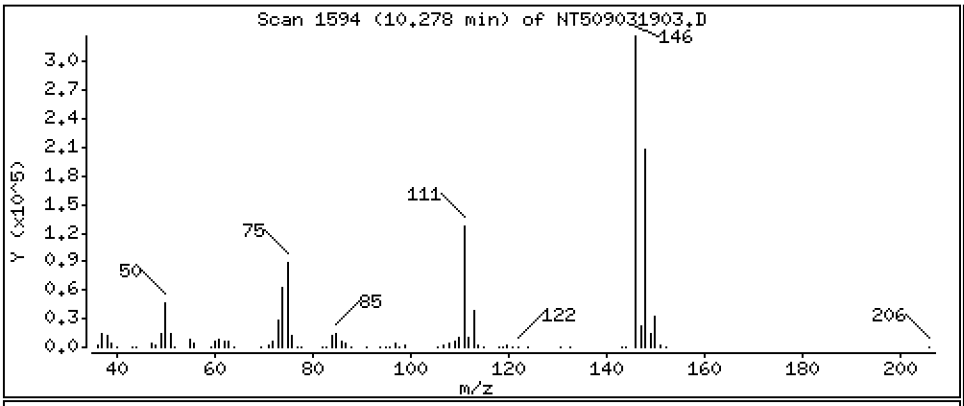
Client ID: Instrument: nt5.i

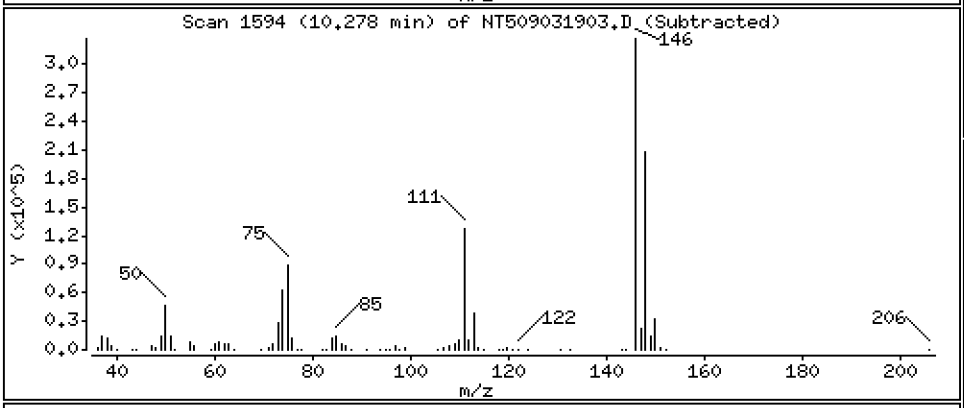
Sample Info: BSD1

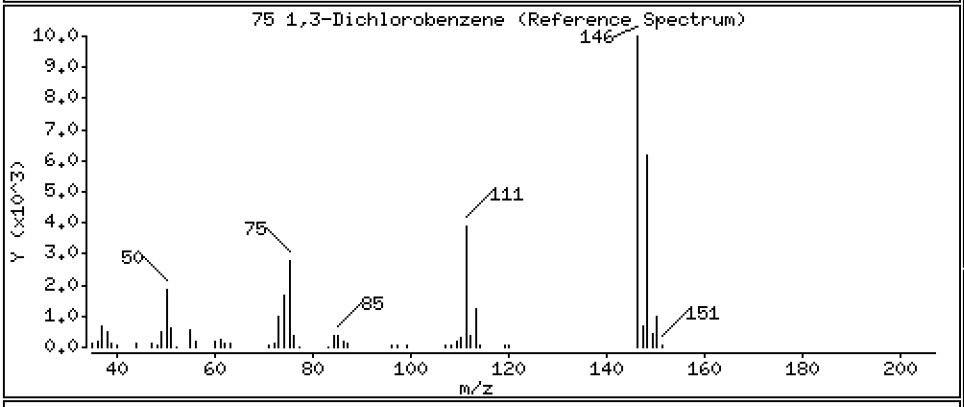
Operator: PB

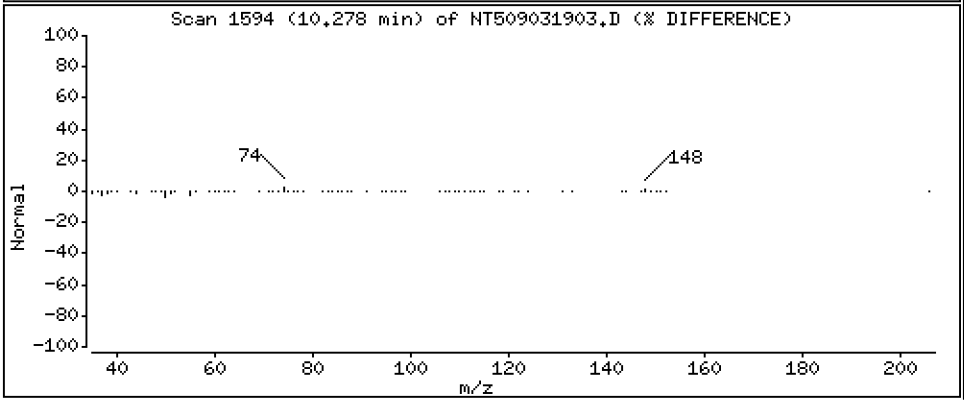
Column phase: RTXVMS Column diameter: 0.18

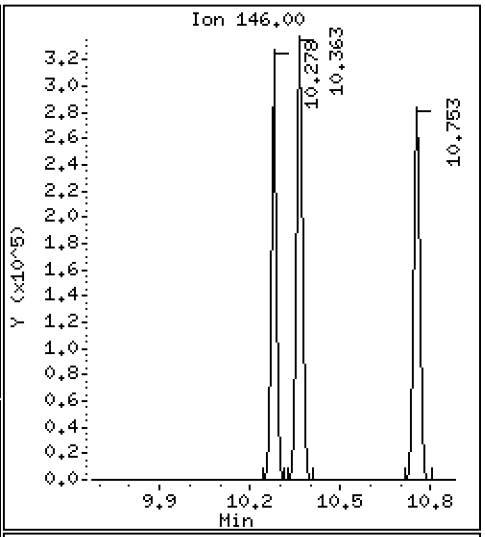
75 1,3-Dichlorobenzene Concentration: 44.460 ug/Kg

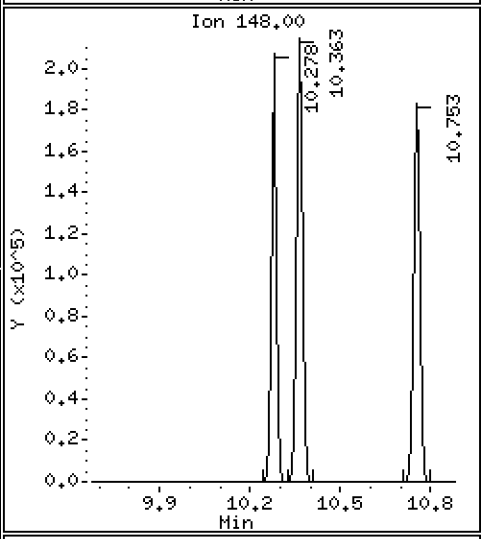


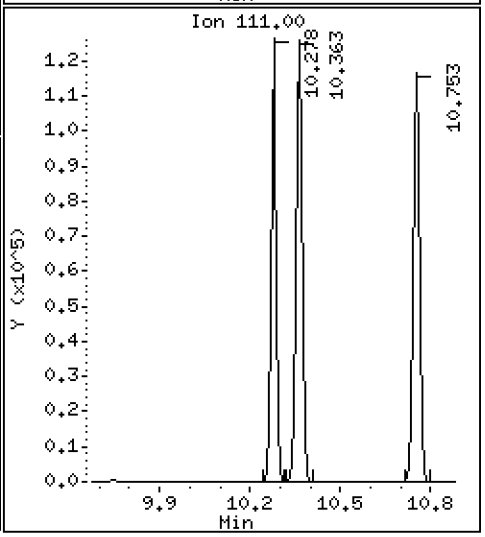












Date : 03-SEP-2019 13:27

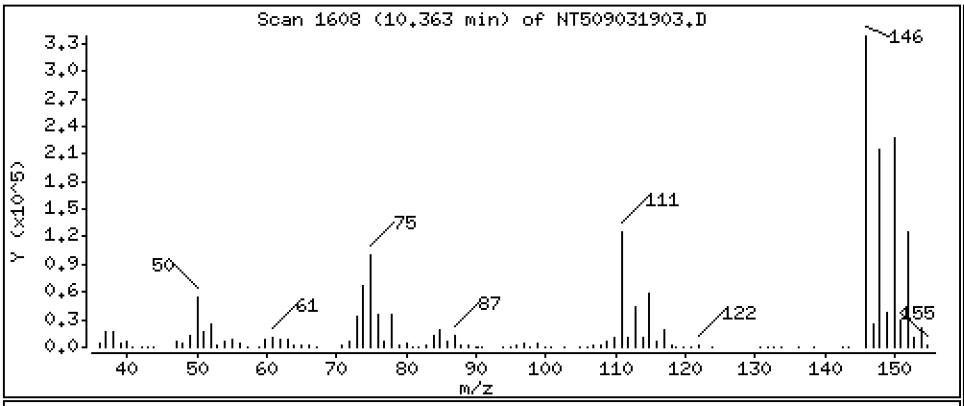
Client ID: Instrument: nt5.i

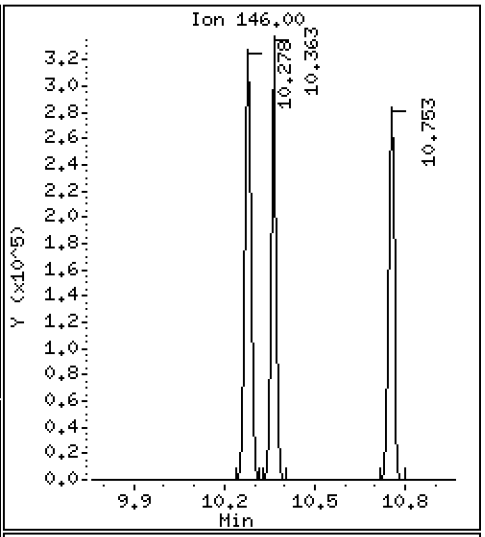
Sample Info: BSD1

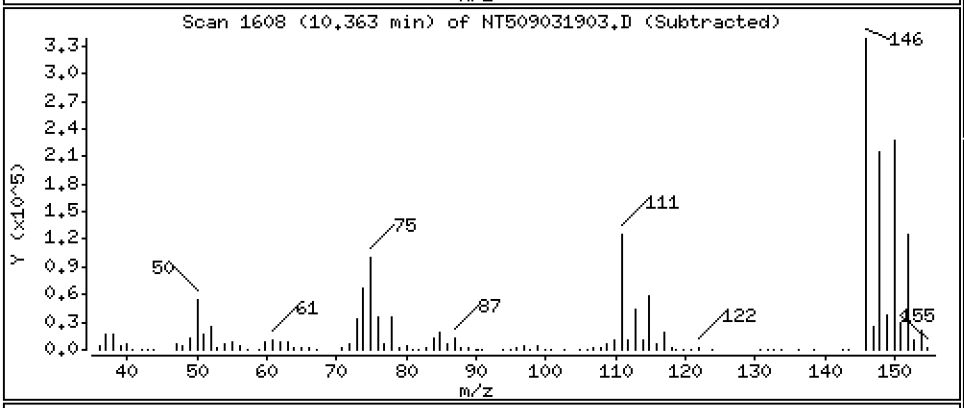
Operator: PB

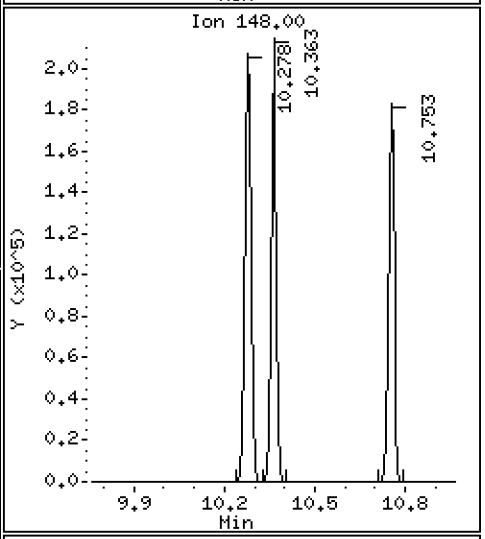
Column phase: RTXVMS Column diameter: 0.18

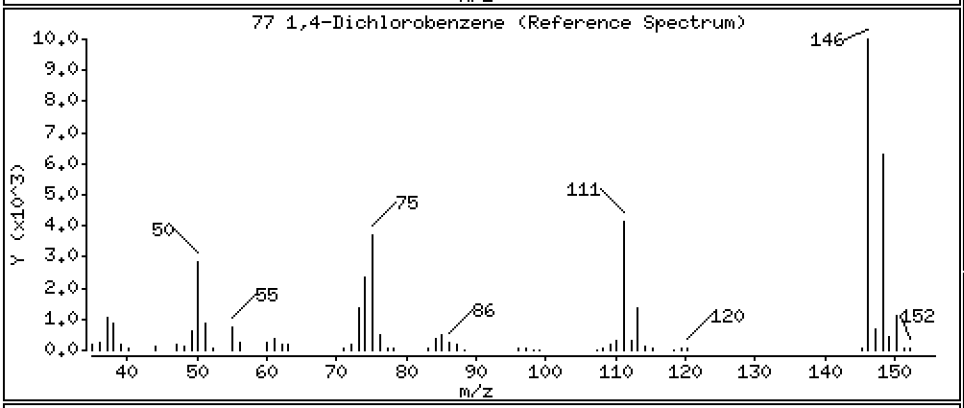
77 1,4-Dichlorobenzene Concentration: 43.212 ug/Kg

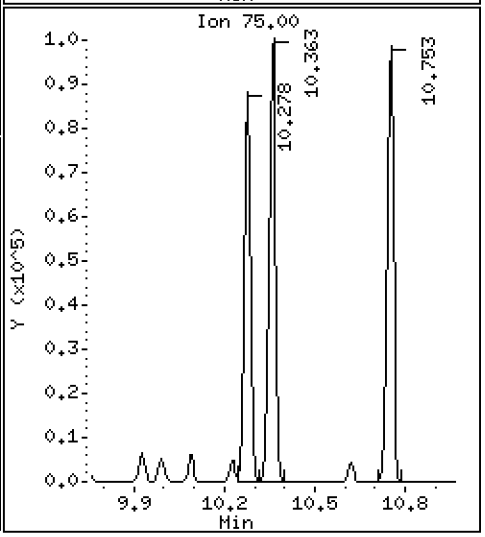


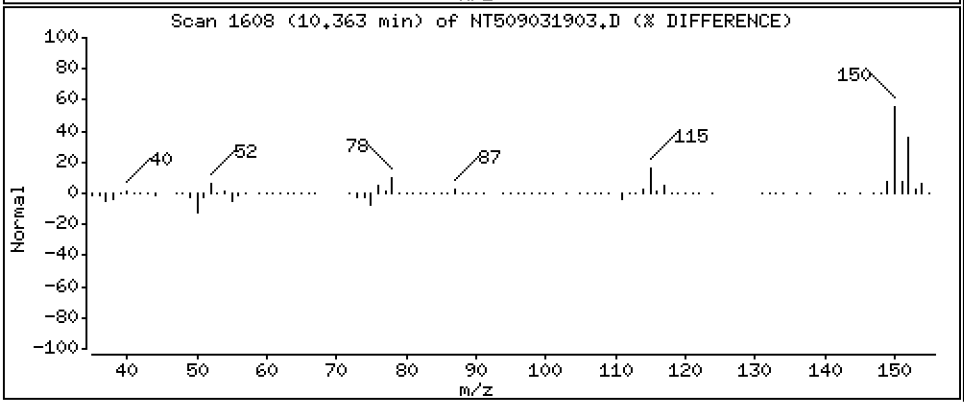












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

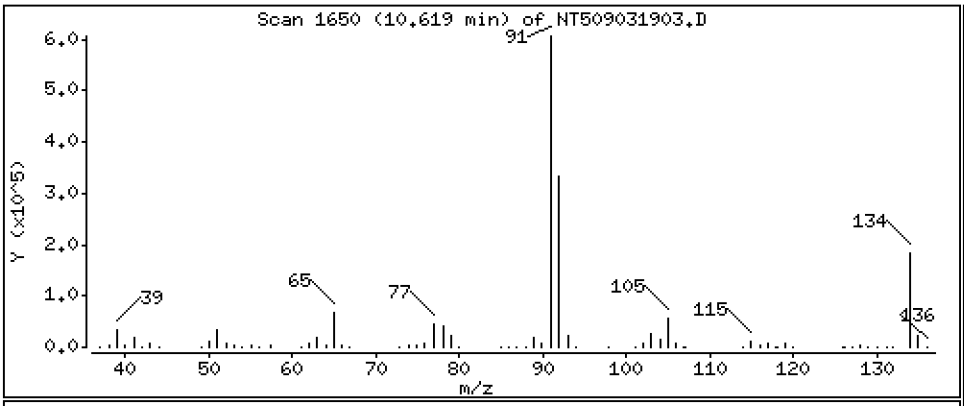
Operator: PB

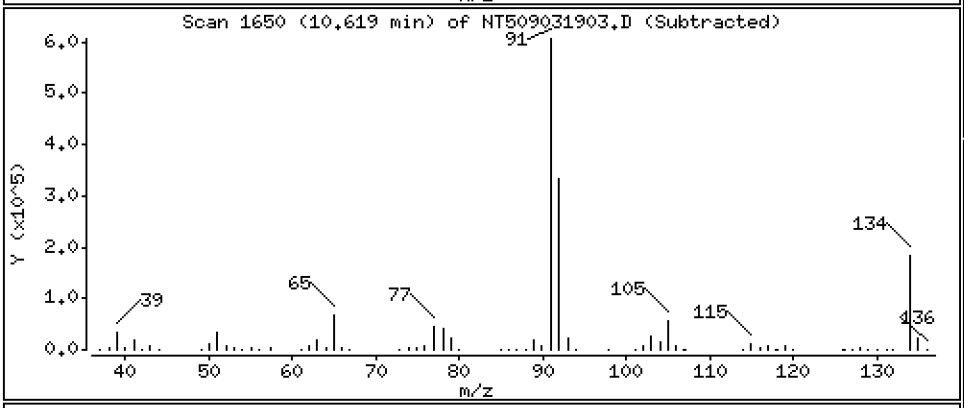
Column phase: RTXVMS

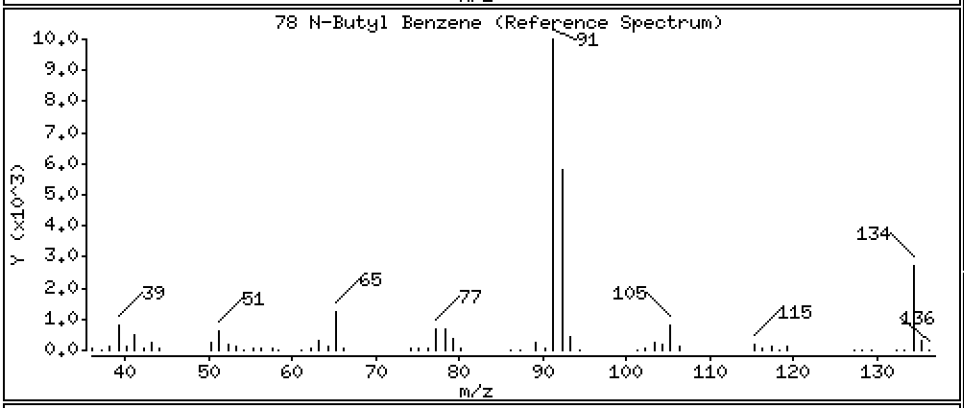
Column diameter: 0.18

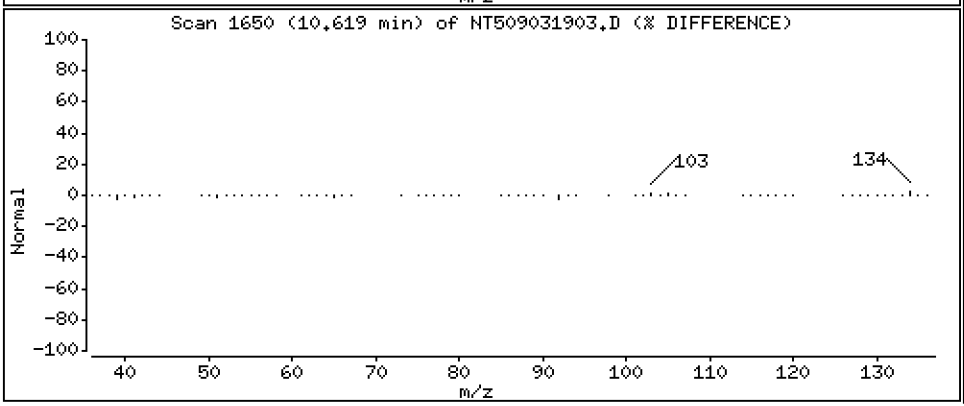
78 N-Butyl Benzene

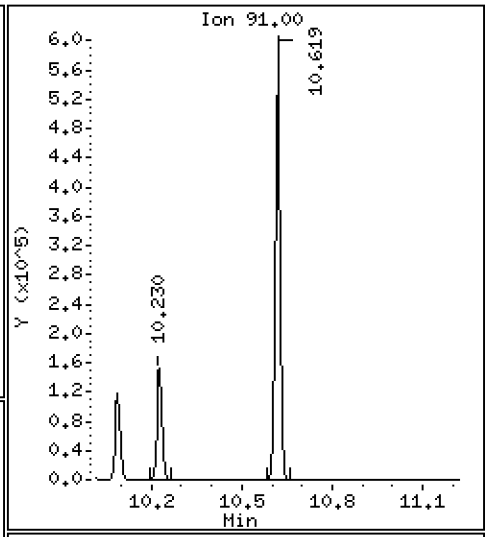
Concentration: 48.264 ug/Kg

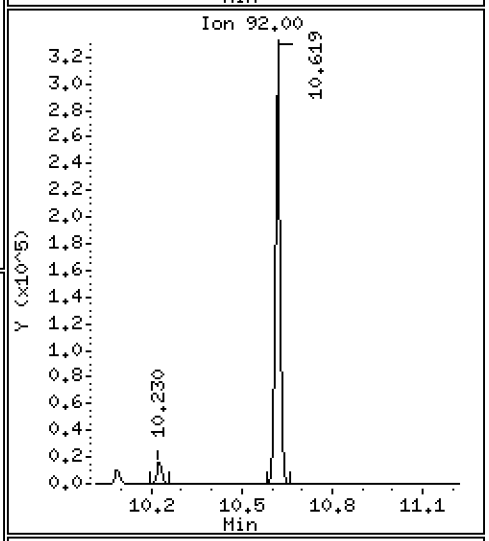


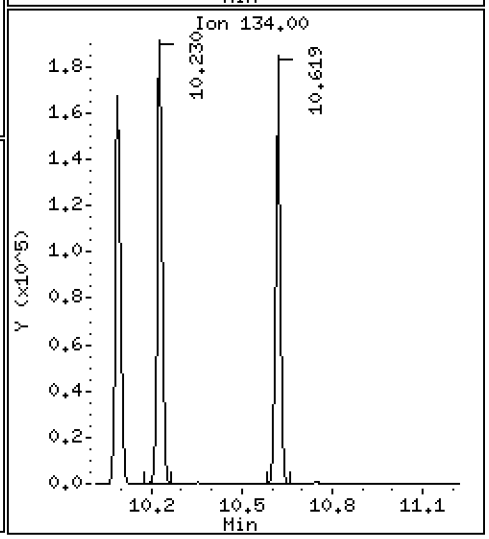












Date : 03-SEP-2019 13:27

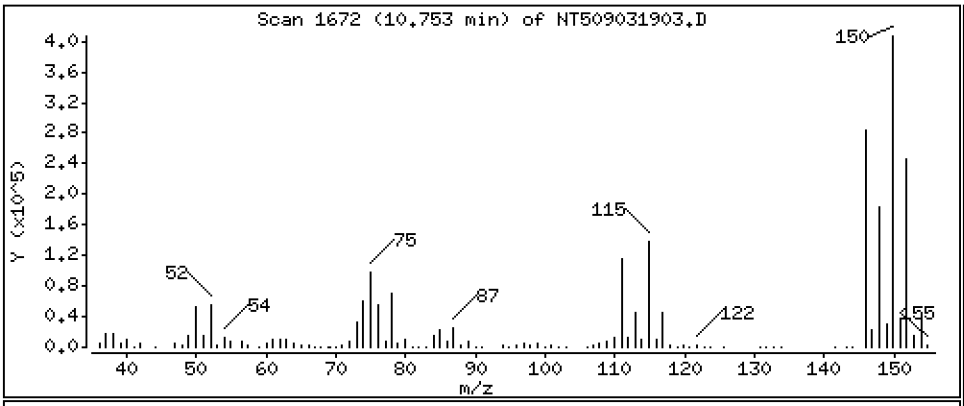
Client ID: Instrument: nt5.i

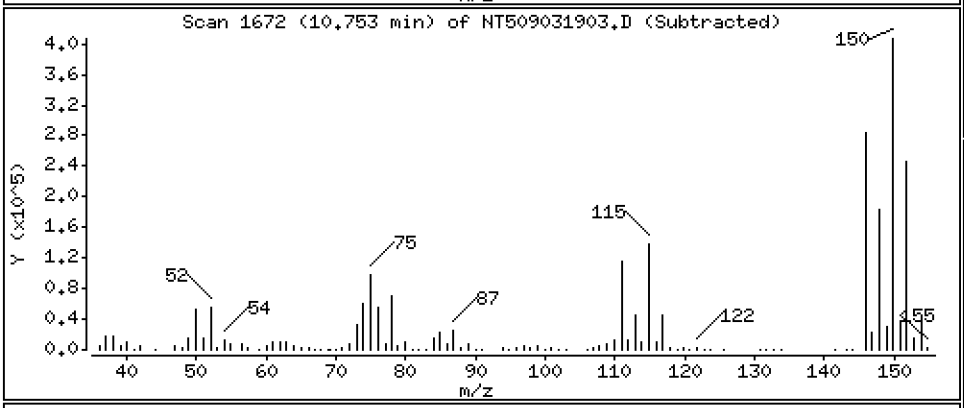
Sample Info: BSD1

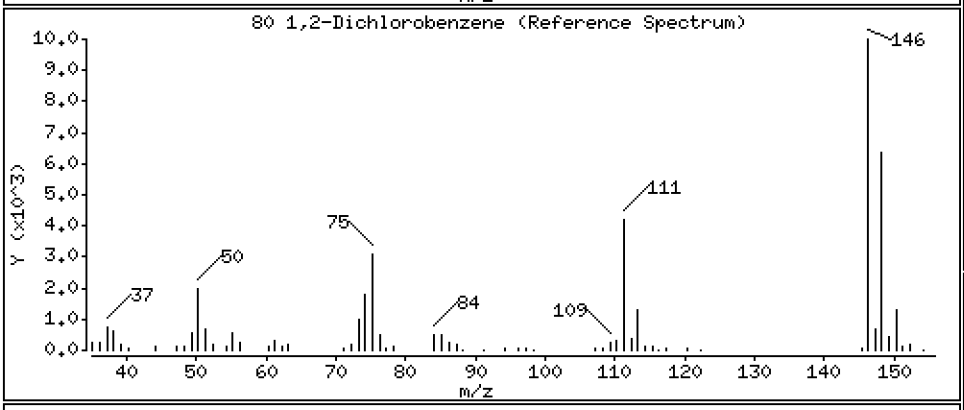
Operator: PB

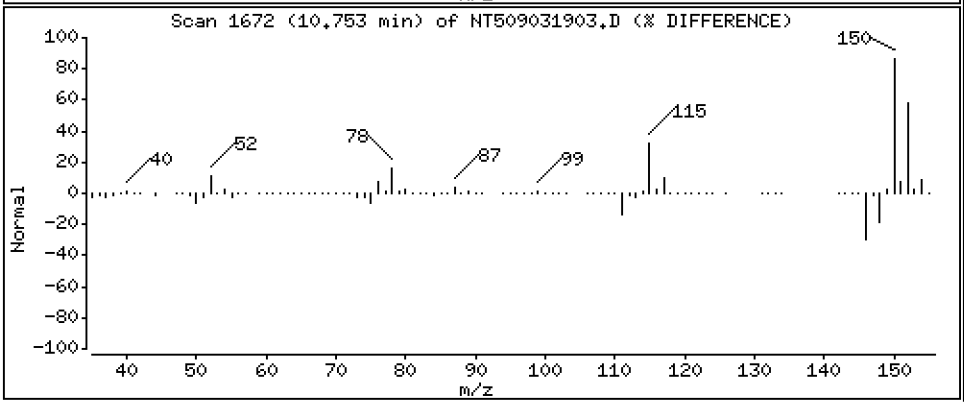
Column phase: RTXVMS Column diameter: 0.18

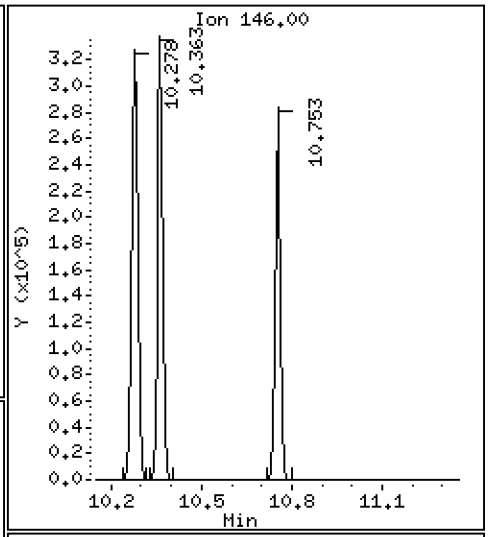
80 1,2-Dichlorobenzene Concentration: 41.026 ug/Kg

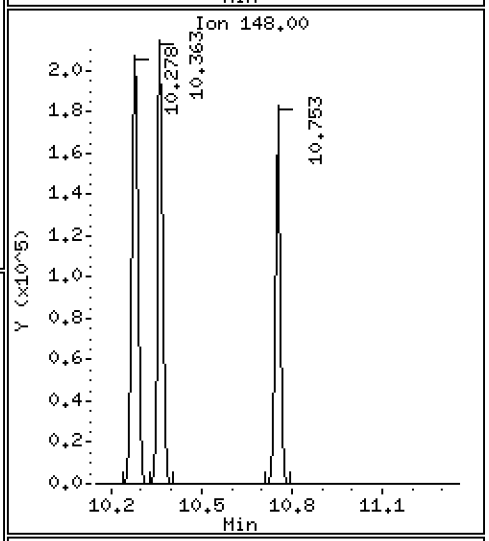


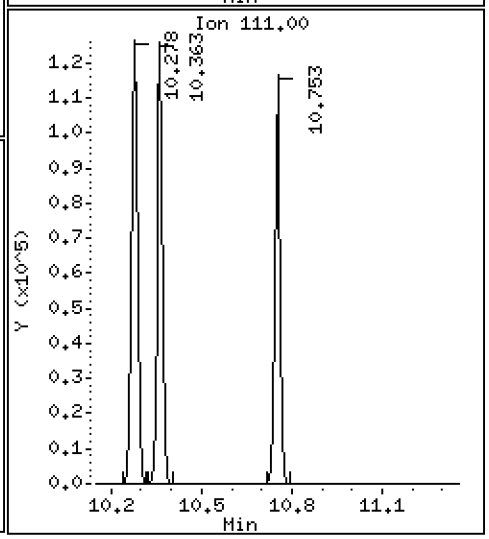












Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

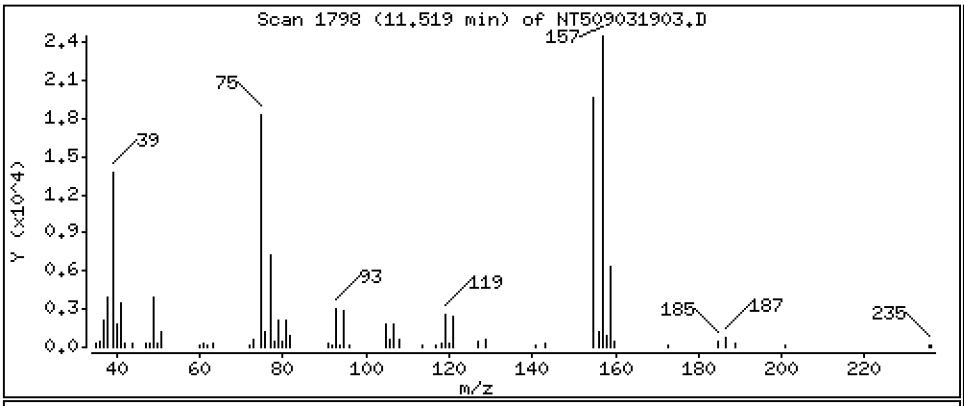
Operator: PB

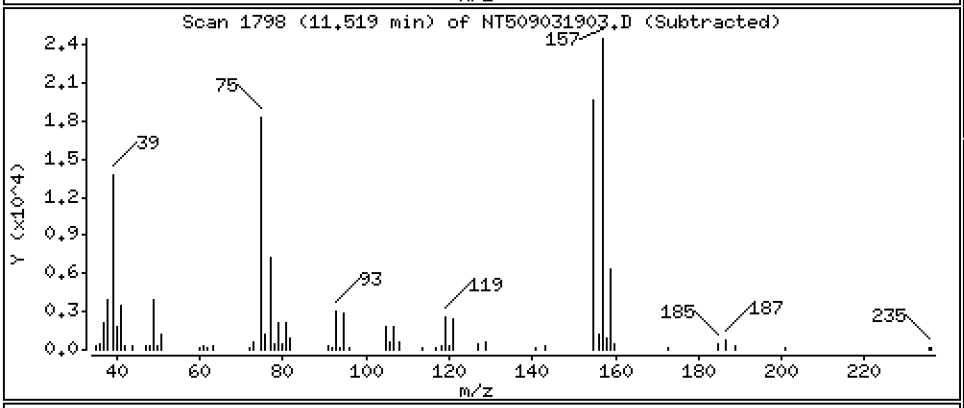
Column phase: RTXVMS

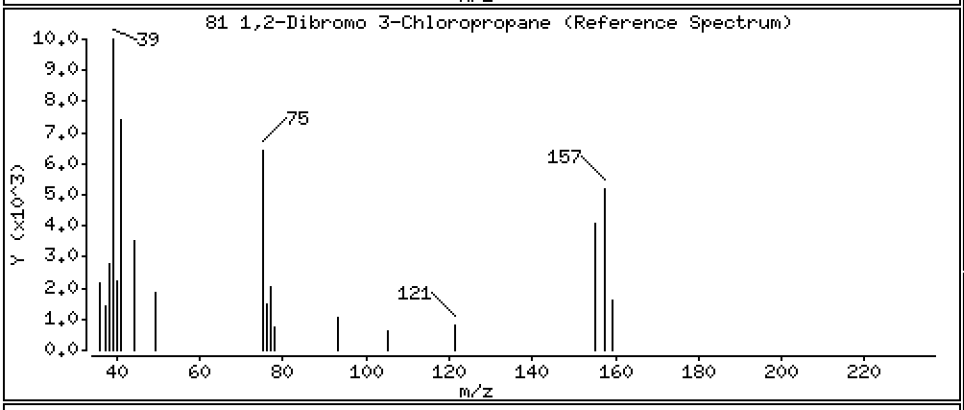
Column diameter: 0.18

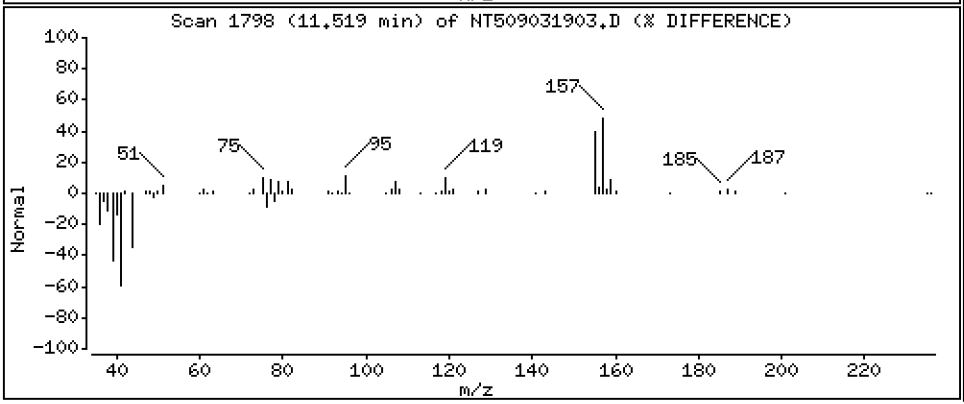
81 1,2-Dibromo 3-Chloropropane

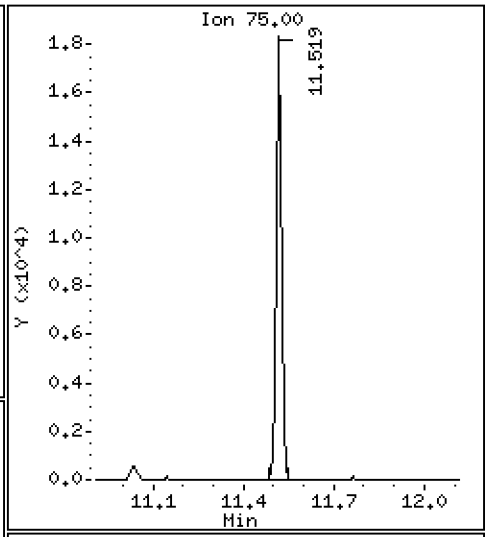
Concentration: 36.861 ug/Kg

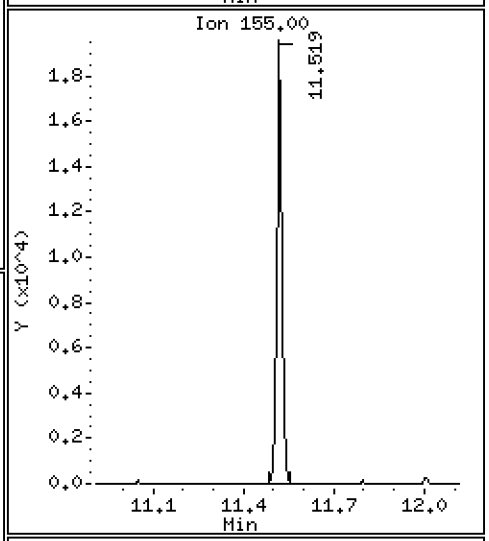


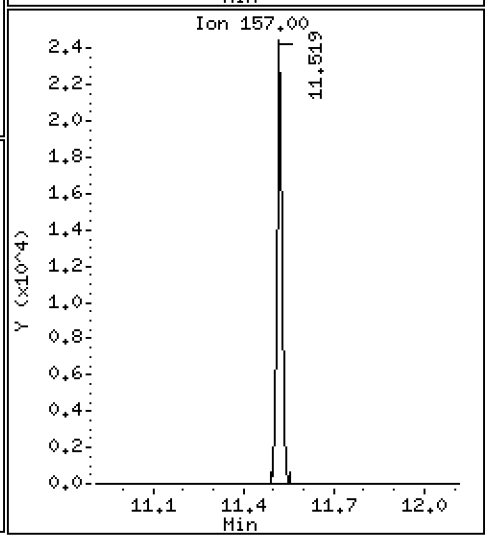












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

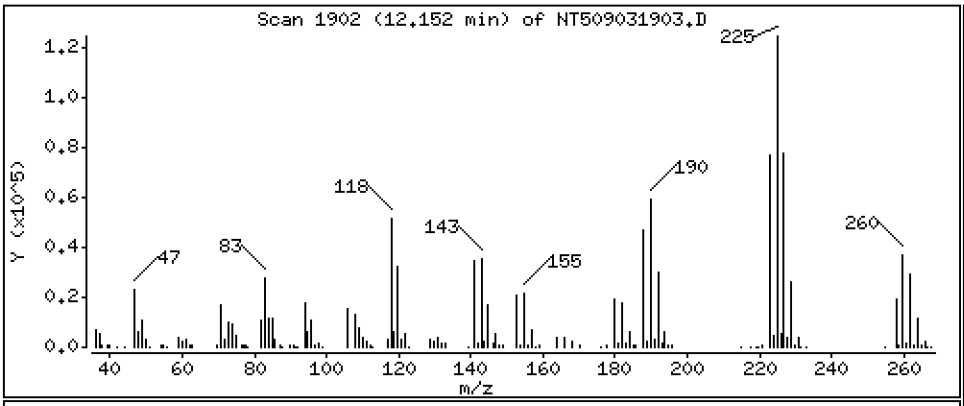
Operator: PB

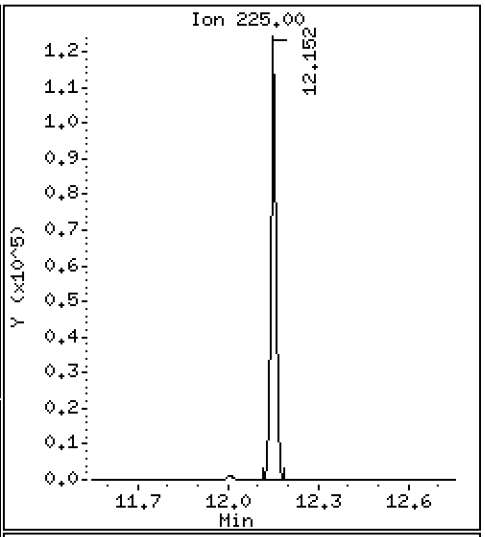
Column phase: RTXVMS

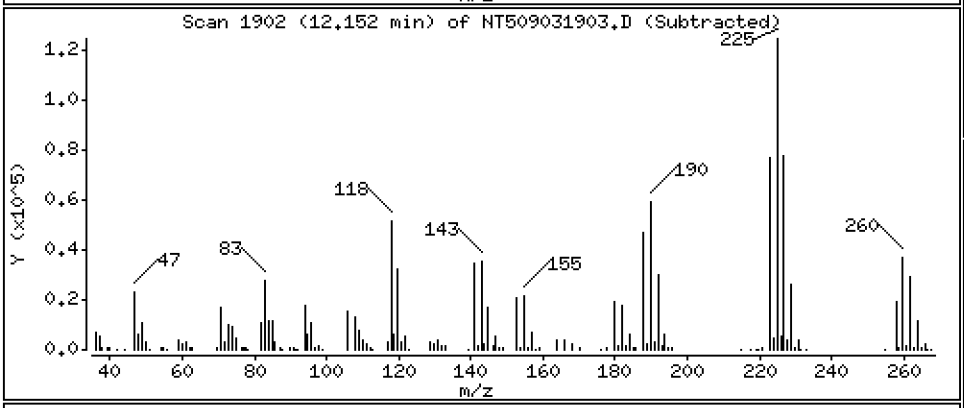
Column diameter: 0.18

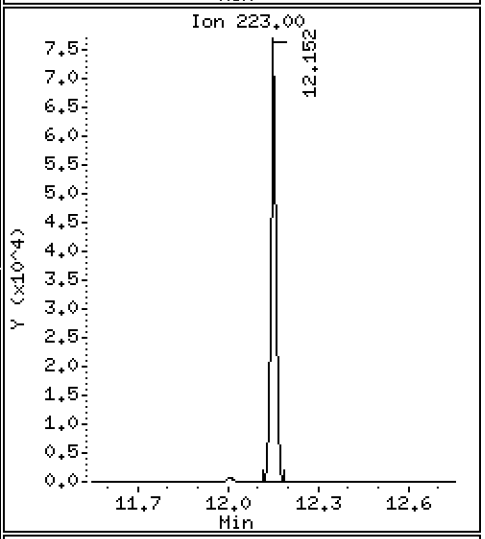
82 Hexachloro 1,3-Butadiene

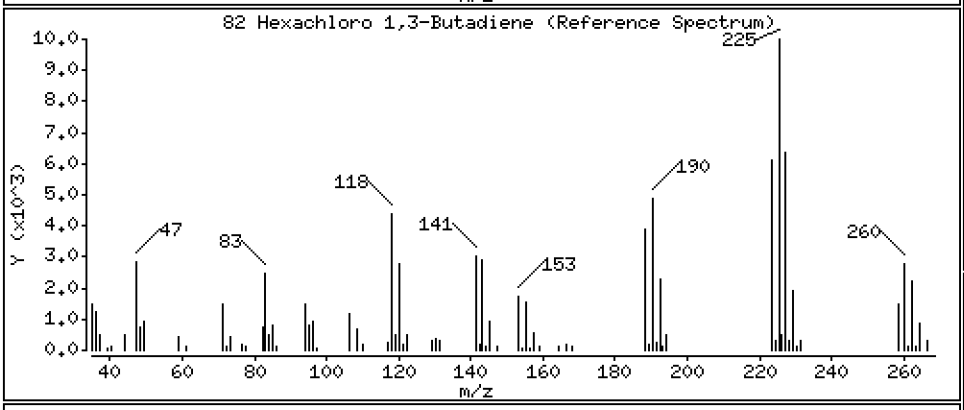
Concentration: 48.826 ug/Kg

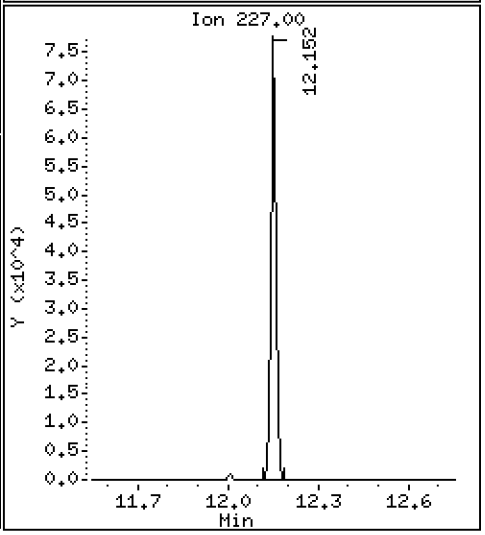


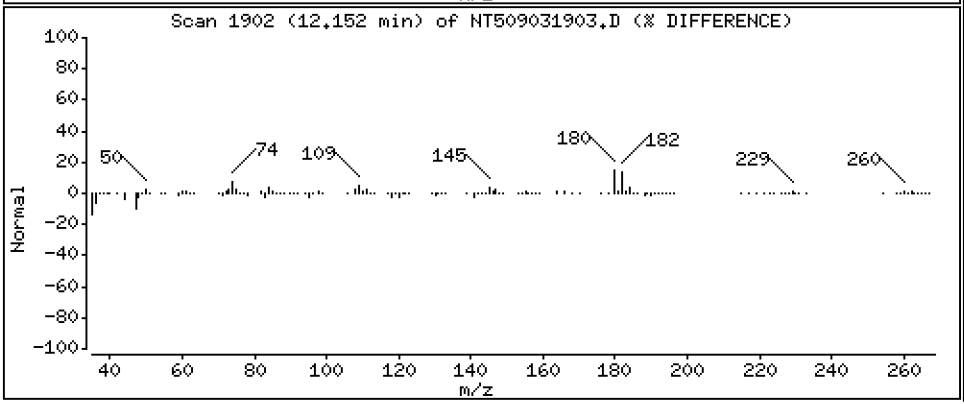












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Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

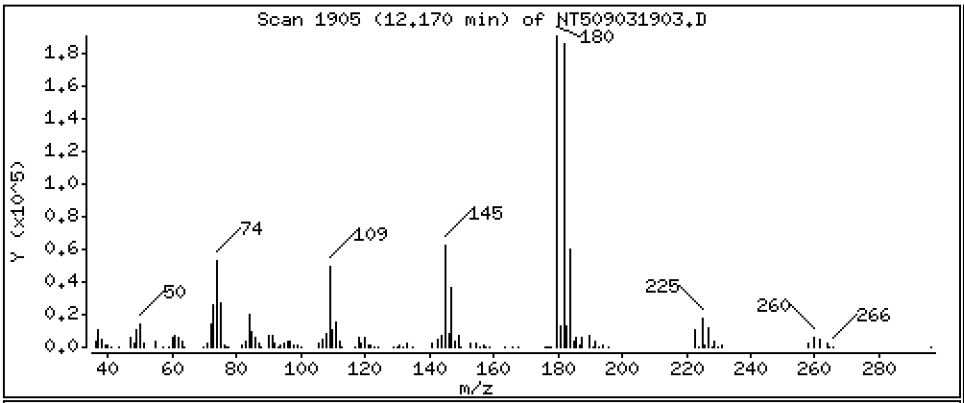
Operator: PB

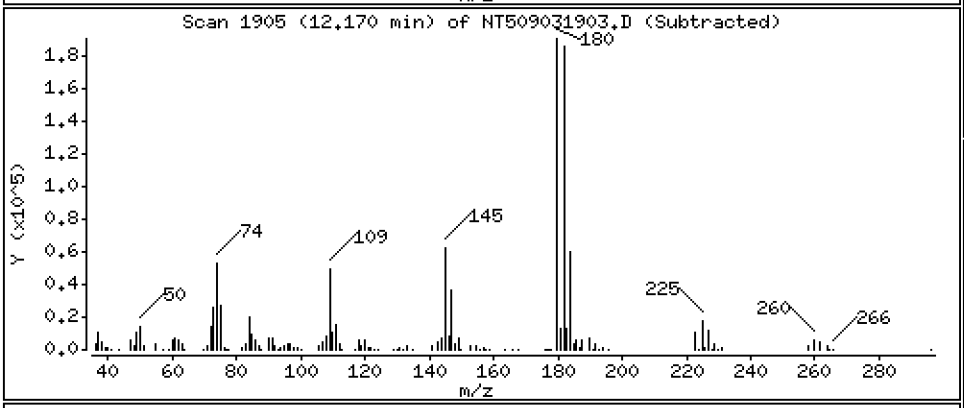
Column phase: RTXVMS

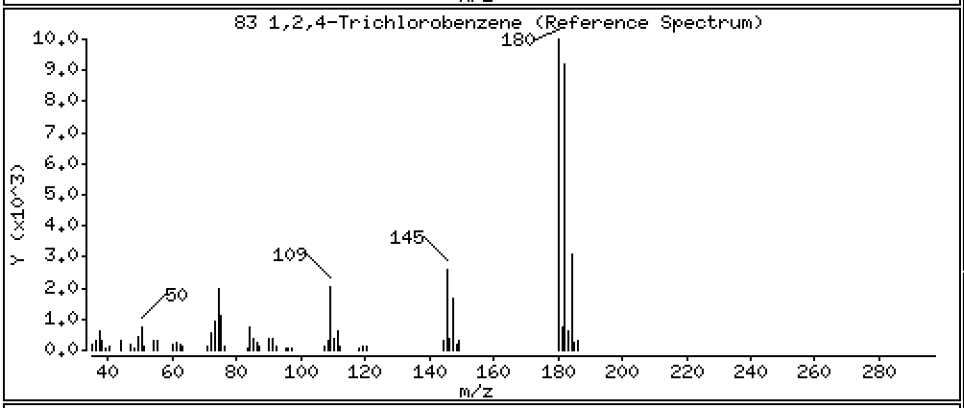
Column diameter: 0.18

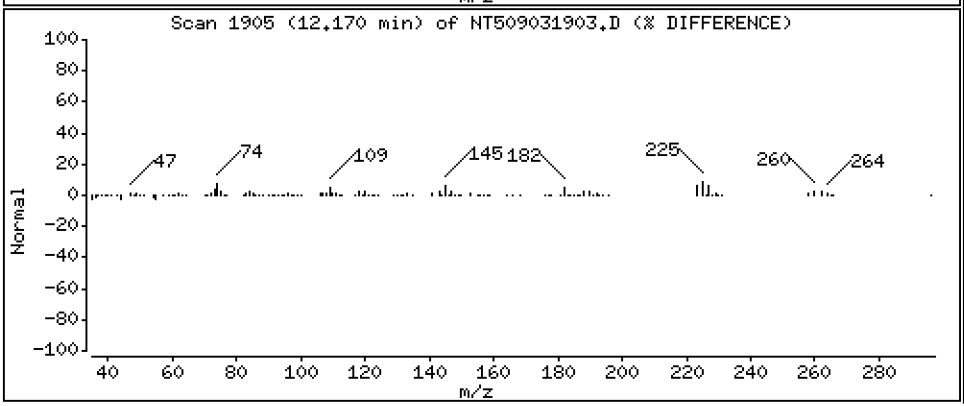
83 1,2,4-Trichlorobenzene

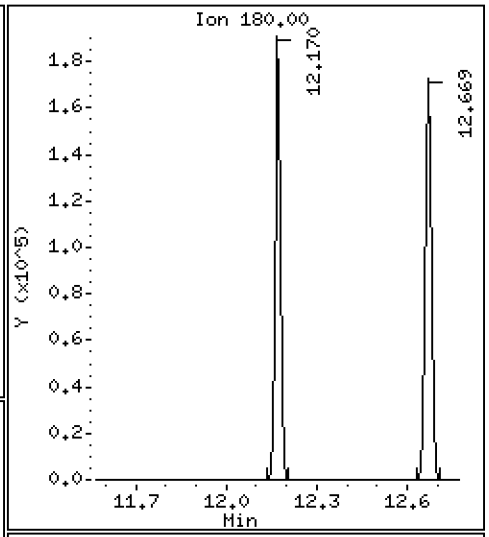
Concentration: 45.234 ug/Kg

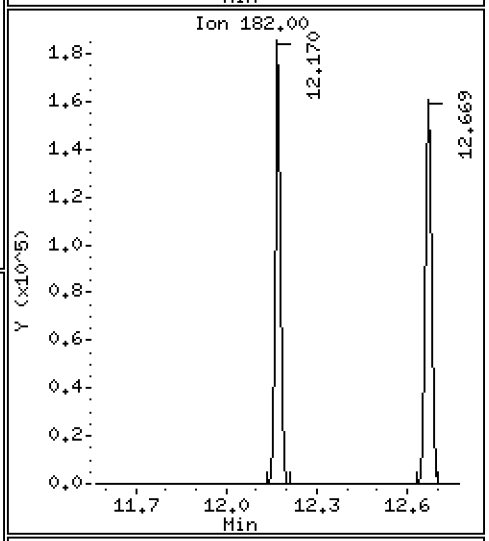


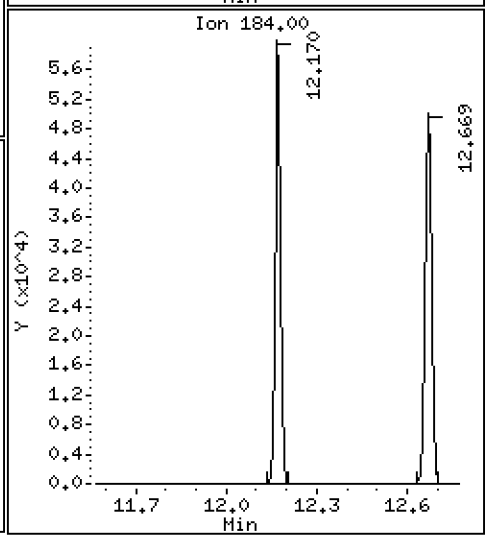












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Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

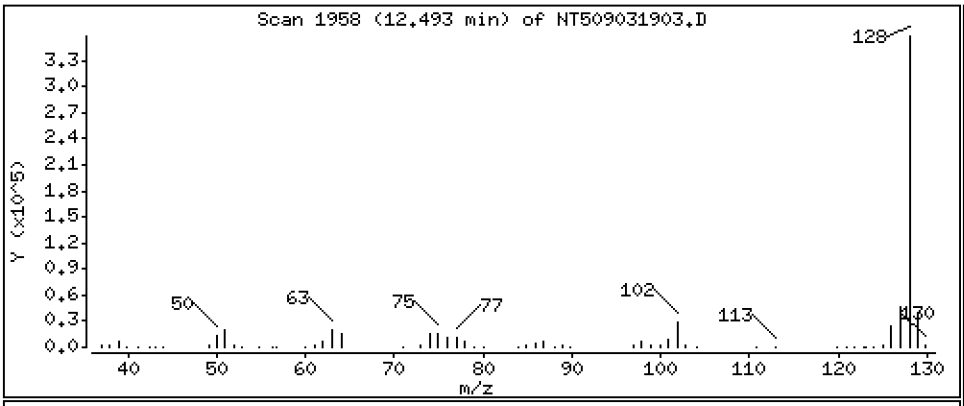
Operator: PB

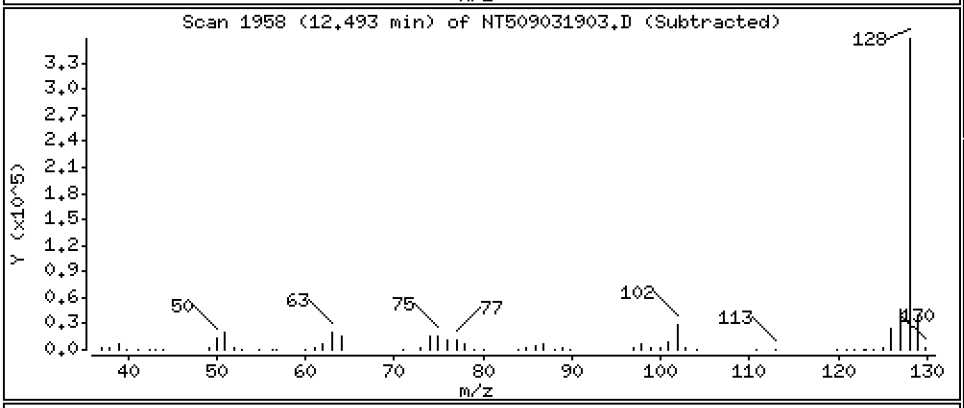
Column phase: RTXVMS

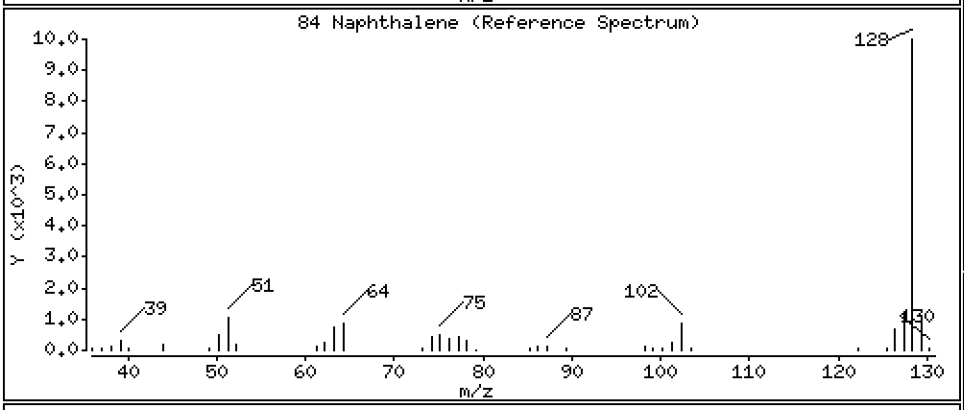
Column diameter: 0.18

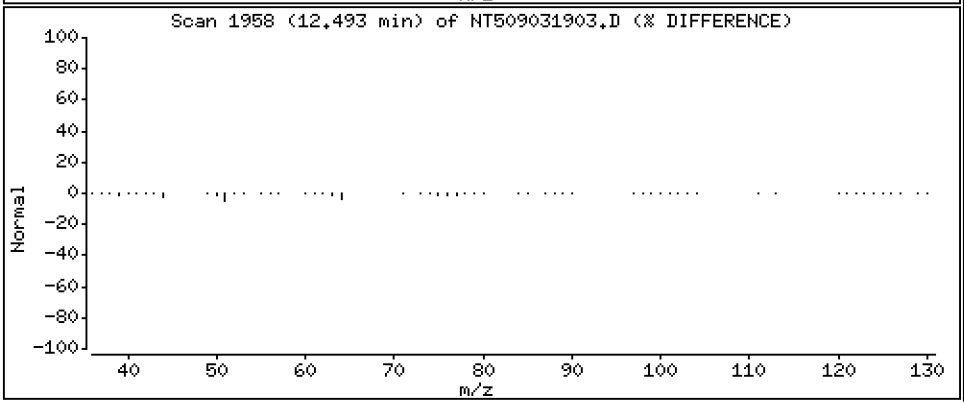
84 Naphthalene

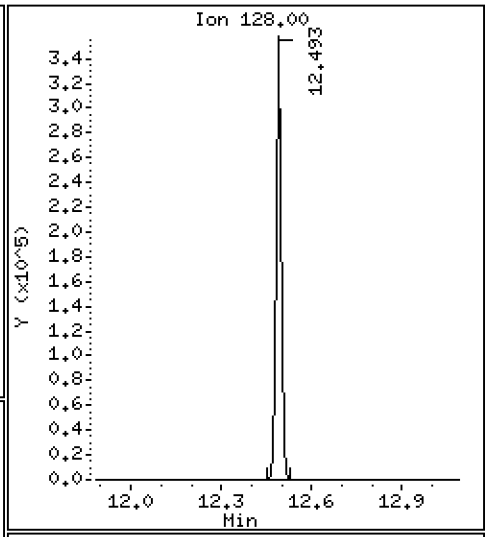
Concentration: 41.010 ug/Kg

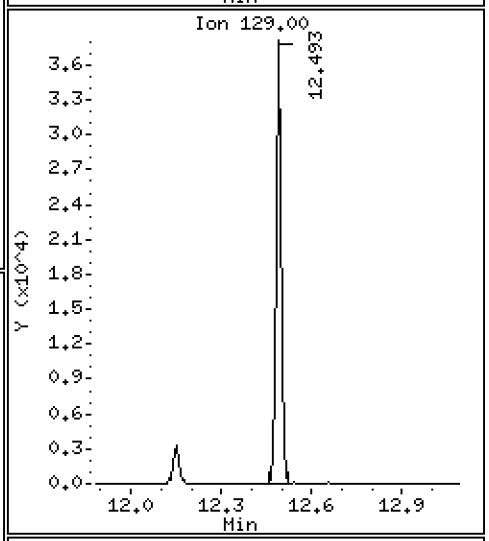


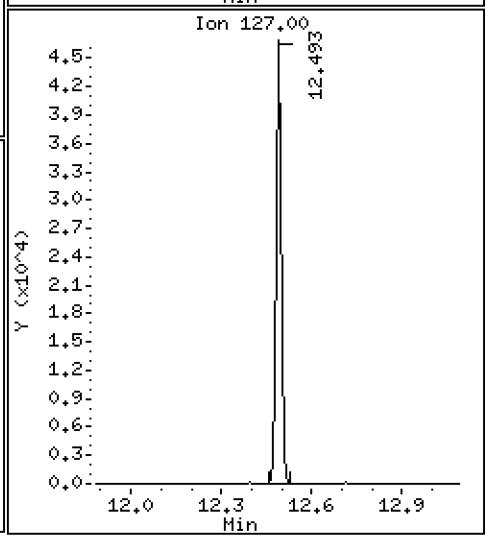












Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031903.D

Date : 03-SEP-2019 13:27

Client ID:

Instrument: nt5.i

Sample Info: BSD1

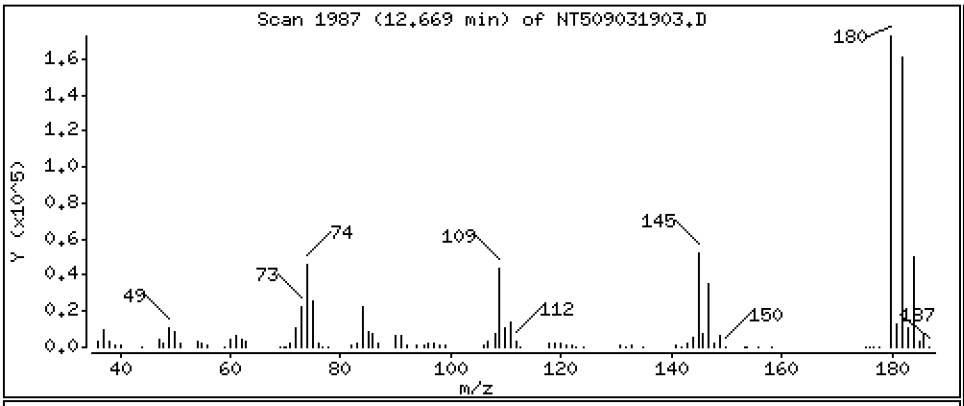
Operator: PB

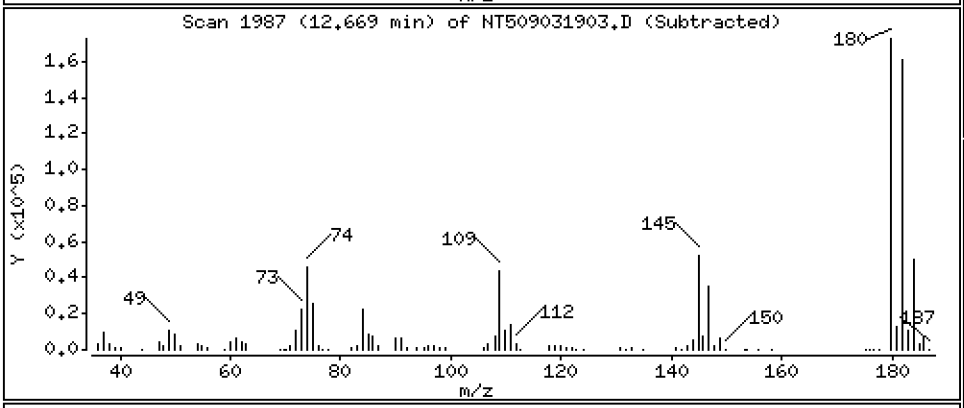
Column phase: RTXVMS

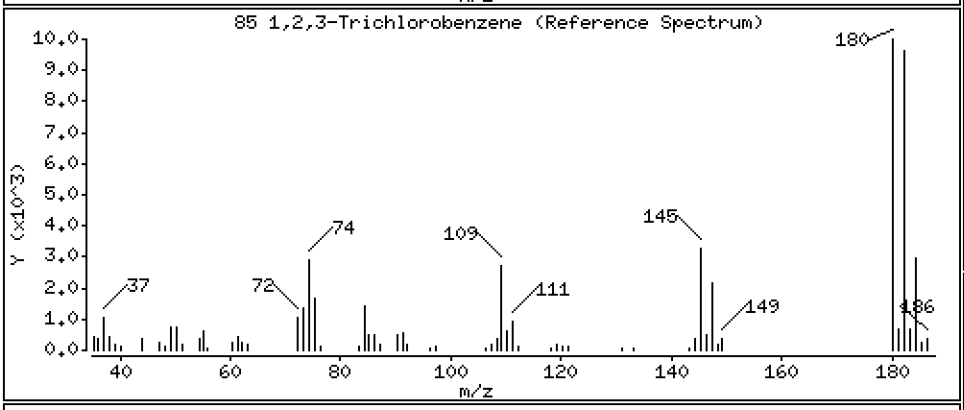
Column diameter: 0.18

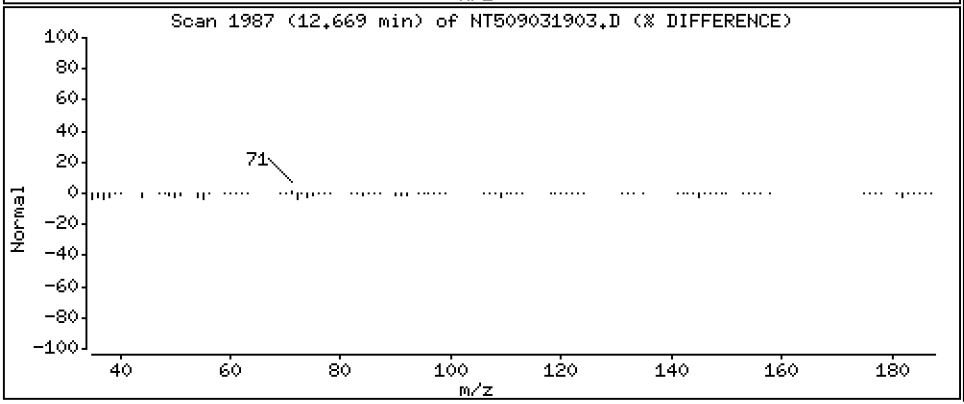
85 1,2,3-Trichlorobenzene

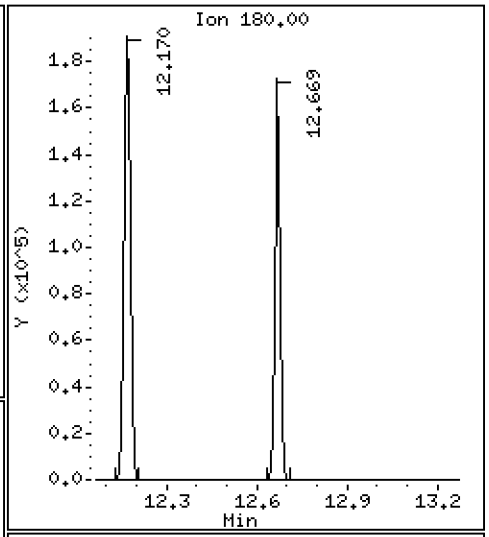
Concentration: 43.698 ug/Kg

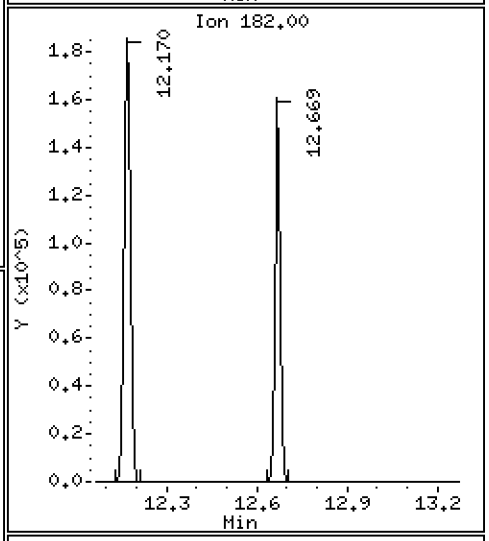


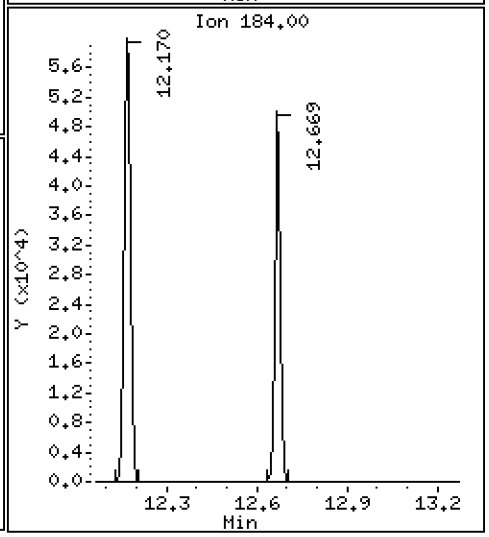












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031903.D
Lab Smp Id: bhi0056-BSD1
Inj Date : 03-SEP-2019 13:27
Operator : PB Inst ID: nt5.i
Smp Info : BSD1
Misc Info :
Comment   :
Method   : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 6 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	160310	57.0709	57.071
	2 Chloromethane	50	1.487	1.487	(0.279)	152638	60.3318	60.332
	3 Vinyl Chloride	62	1.554	1.554	(0.291)	159462	64.6466	64.647
	4 Bromomethane	94	1.840	1.840	(0.345)	120817	55.2412	55.241
	5 Chloroethane	64	1.943	1.944	(0.364)	126385	61.0865	61.087
	6 Trichlorofluoromethane	101	2.065	2.059	(0.387)	300302	59.8501	59.850
	7 1,1-Dichloroethene	96	2.533	2.534	(0.475)	156273	60.2043	60.204
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	455945	58.7535	58.753
	9 112Trichloro122Trifluoroethane	101	2.588	2.582	(0.485)	151783	59.2781	59.278
	10 Iodomethane	142	2.667	2.661	(0.500)	180683	64.9303	64.930
	11 Bromoethane	108	2.795	2.795	(0.524)	102645	58.6998	58.700
	12 Acrolein	56	2.911	2.911	(0.545)	86114	294.066	294.07
	13 Methylene Chloride	84	3.154	3.148	(0.591)	138442	60.5390	60.539
	14 Acetone	43	3.257	3.258	(0.610)	137925	278.687	278.69
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	166476	58.3400	58.340
	16 Methyl tert butyl ether	73	3.482	3.483	(0.652)	357594	54.3423	54.342
	173 n-Hexane	41	3.482	3.483	(0.652)	67954	26.2078	26.208
	17 1,1-Dichloroethane	63	3.939	3.939	(0.738)	259202	58.8009	58.801
	18 Acrylonitrile	53	4.030	4.024	(0.755)	29651	53.1463	53.146
	19 Vinyl Acetate	43	4.243	4.243	(0.795)	240628	52.7277	52.728
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.836)	177646	55.2106	55.211
	22 2,2-Dichloropropane	77	4.553	4.553	(0.853)	293543	60.0761	60.076
	23 Bromochloromethane	128	4.644	4.645	(0.870)	84941	55.5555	55.555
	24 Chloroform	83	4.730	4.730	(0.886)	283965	55.4983	55.498
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	288352	48.3259	48.326
$	27 Dibromofluoromethane	111	4.894	4.894	(0.917)	274248	61.6006	61.601(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.916)	299654	57.4183	57.418
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	235570	49.8525	49.853
	29 2-Butanone	72	5.046	5.046	(0.945)	65970	266.629	266.63
	30 Benzene	78	5.222	5.223	(0.903)	643392	48.4043	48.404
*	31 Pentafluorobenzene	168	5.338	5.338	(1.000)	362504	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.002)	256139	58.7234	58.723(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	194235	42.5741	42.574

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.733	5.734	(0.992)	200893	49.3625	49.363
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	831179	50.0000	
	37	Dibromomethane	93	6.098	6.099	(1.055)	82831	43.2694	43.269
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	138736	45.8207	45.821
	39	Bromodichloromethane	83	6.250	6.251	(1.081)	213489	45.4085	45.409
	172	2-Pentanone	86	6.542	6.543	(1.132)	86277	220.452	220.45
	40	2-Chloroethyl Vinyl Ether	63	6.755	6.756	(1.168)	69388	42.0604	42.060
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	248179	45.6183	45.618
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1077511	52.4889	52.489(R)
	43	Toluene	92	6.981	6.981	(1.207)	441548	46.9572	46.957
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	219816	47.9077	47.908
	45	4-Methyl-2-Pentanone	58	7.333	7.334	(1.268)	205633	217.991	217.99
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	229607	45.9850	45.985
	47	1,1,2-Trichloroethane	97	7.479	7.480	(1.294)	118339	43.8785	43.879
	48	Chlorodibromomethane	129	7.619	7.620	(0.923)	164335	41.5265	41.526
	49	1,3-Dichloropropane	76	7.704	7.705	(0.933)	202350	41.6589	41.659
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	120402	44.3351	44.335
	51	2-Hexanone	43	8.045	8.045	(0.974)	361486	207.771	207.77
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	856455	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	502634	43.1919	43.192
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	870016	45.7128	45.713
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	184594	44.1332	44.133
	56	m,p-xylene	106	8.434	8.435	(1.021)	692713	92.1726	92.173
	57	o-Xylene	106	8.806	8.806	(1.066)	318891	45.1209	45.121
	58	Styrene	104	8.854	8.854	(1.072)	538627	46.3330	46.333
	59	Bromoform	173	8.866	8.867	(0.857)	110089	37.6751	37.675
	60	Isopropyl Benzene	105	9.085	9.086	(0.878)	910061	45.2580	45.258
	61	Cyclohexanone	55	9.645	9.639	(1.168)	1162		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	381371	51.3651	51.365(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	210120	40.8628	40.863
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	1040573	45.0956	45.096
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	144475	39.7465	39.747
	66	2-Chloro Toluene	91	9.590	9.591	(0.927)	583037	43.7944	43.794
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	760744	45.5642	45.564
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	51315	39.5159	39.516
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	42919	39.8835	39.884
	70	4-Chloro Toluene	91	9.742	9.743	(0.941)	619477	44.1866	44.187
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	688447	44.7429	44.743
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	750072	45.7769	45.777
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	1019124	45.8451	45.845
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	902971	47.4122	47.412
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	446426	44.4596	44.460
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	493696	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	441061	43.2122	43.212
	78	N-Butyl Benzene	91	10.618	10.619	(1.026)	787450	48.2635	48.264
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	475808	51.4390	51.439(R)
	80	1,2-Dichlorobenzene	146	10.752	10.753	(1.039)	390415	41.0258	41.026
	81	1,2-Dibromo 3-Chloropropane	75	11.519	11.513	(1.113)	27408	36.8608	36.861
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	172462	48.8265	48.826
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	271172	45.2343	45.234
	84	Naphthalene	128	12.492	12.486	(1.207)	512622	41.0098	41.010
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	237544	43.6980	43.698

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031903.D
Lab Smp Id: bhi0056-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 03-SEP-2019
Calibration Time: 12:38
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	362504	-20.85
35 1,4-Difluorobenze	852165	426083	1704330	831179	-2.46
52 d5-Chlorobenzene	803678	401839	1607356	856455	6.57
76 d4-1,4-Dichlorobe	439766	219883	879532	493696	12.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	-0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: bhi0056-BSD1
Level: Operator: PB
Data Type: MS DATA SampleType: LCS
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	57.071	114.14	
2	Chloromethane	50.000	60.332	120.66	
3	Vinyl Chloride	50.000	64.647	129.29	
4	Bromomethane	50.000	55.241	110.48	
5	Chloroethane	50.000	61.087	122.17	
6	Trichlorofluoromet	50.000	59.850	119.70	
12	Acrolein	250.00	294.07	117.63	
9	112Trichloro122Tri	50.000	59.278	118.56	
14	Acetone	250.00	278.69	111.47	
7	1,1-Dichloroethene	50.000	60.204	120.41	
11	Bromoethane	50.000	58.700	117.40	
10	Iodomethane	50.000	64.930	129.86	
13	Methylene Chloride	50.000	60.539	121.08	
8	Carbon Disulfide	50.000	58.753	117.51	
18	Acrylonitrile	50.000	53.146	106.29	
15	Trans-1,2-Dichloro	50.000	58.340	116.68	
19	Vinyl Acetate	50.000	52.728	105.46	
17	1,1-Dichloroethane	50.000	58.801	117.60	
29	2-Butanone	250.00	266.63	106.65	
22	2,2-Dichloropropan	50.000	60.076	120.15	
20	Cis-1,2-Dichloroet	50.000	55.211	110.42	
24	Chloroform	50.000	55.498	111.00	
23	Bromochloromethane	50.000	55.555	111.11	
26	1,1,1-Trichloroeth	50.000	57.418	114.84	
28	1,1-Dichloropropen	50.000	49.853	99.71	
25	Carbon Tetrachlori	50.000	48.326	96.65	
33	1,2-Dichloroethane	50.000	42.574	85.15	
30	Benzene	50.000	48.404	96.81	
34	Trichloroethene	50.000	49.363	98.73	
38	1,2-Dichloropropan	50.000	45.821	91.64	
39	Bromodichlorometha	50.000	45.409	90.82	
172	2-Pentanone	250.00	220.45	88.18	
37	Dibromomethane	50.000	43.269	86.54	
40	2-Chloroethyl Viny	50.000	42.060	84.12	
45	4-Methyl-2-Pentano	250.00	217.99	87.20	
41	Cis 1,3-dichloropr	50.000	45.618	91.24	
43	Toluene	50.000	46.957	93.91	
46	Trans 1,3-Dichloro	50.000	45.985	91.97	
51	2-Hexanone	250.00	207.77	83.11	
47	1,1,2-Trichloroeth	50.000	43.879	87.76	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	41.659	83.32	
44 Tetrachloroethene	50.000	47.908	95.82	
48 Chlorodibromometha	50.000	41.526	83.05	
50 1,2-Dibromoethane	50.000	44.335	88.67	
53 Chlorobenzene	50.000	43.192	86.38	
55 1,1,1,2-Tetrachlor	50.000	44.133	88.27	
54 Ethyl Benzene	50.000	45.713	91.43	
56 m,p-xylene	100.00	92.173	92.17	
57 o-Xylene	50.000	45.121	90.24	
58 Styrene	50.000	46.333	92.67	
60 Isopropyl Benzene	50.000	45.258	90.52	
59 Bromoform	50.000	37.675	75.35	
65 1,1,2,2-Tetrachlor	50.000	39.747	79.49	
68 1,2,3-Trichloropro	50.000	39.516	79.03	
69 Trans-1,4-Dichloro	50.000	39.884	79.77	
64 N-Propyl Benzene	50.000	45.096	90.19	
63 Bromobenzene	50.000	40.863	81.73	
67 1,3,5-Trimethyl Be	50.000	45.564	91.13	
66 2-Chloro Toluene	50.000	43.794	87.59	
70 4-Chloro Toluene	50.000	44.187	88.37	
71 T-Butyl Benzene	50.000	44.743	89.49	
72 1,2,4-Trimethylben	50.000	45.777	91.55	
73 S-Butyl Benzene	50.000	45.845	91.69	
74 4-Isopropyl Toluen	50.000	47.412	94.82	
75 1,3-Dichlorobenzen	50.000	44.460	88.92	
77 1,4-Dichlorobenzen	50.000	43.212	86.42	
78 N-Butyl Benzene	50.000	48.264	96.53	
80 1,2-Dichlorobenzen	50.000	41.026	82.05	
81 1,2-Dibromo 3-Chlo	50.000	36.861	73.72	
83 1,2,4-Trichloroben	50.000	45.234	90.47	
82 Hexachloro 1,3-But	50.000	48.826	97.65	
84 Naphthalene	50.000	41.010	82.02	
85 1,2,3-Trichloroben	50.000	43.698	87.40	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	61.601	123.20	
$ 32 d4-1,2-Dichloroeth	50.000	58.723	117.45	
$ 42 d8-Toluene	50.000	52.489	104.98	
$ 62 4-Bromofluorobenze	50.000	51.365	102.73	
$ 79 d4-1,2-Dichloroben	50.000	51.439	102.88	

REVIEW SUMMARY FOR FILE - NT509031903.D

Lab ID: bhi0056-BSD1
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 13:27

RT	CO-ELUTION COMPOUNDS
3.483	n-Hexane and Methyl tert butyl ether
9.646	Cyclohexanone and 1,2,3-Trichloropropane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT509031902.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/04/19 14:02
Batch:	BHI0097	Laboratory ID:	BHI0097-BS1
Preparation:	EPA 5035 (Sodium Bisulfate)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Benzene	50.0	47.6		95.3	80 - 120
Toluene	50.0	45.6		91.2	75 - 120
Ethylbenzene	50.0	45.3		90.6	80 - 125
m,p-Xylene	100	91.7		91.7	76 - 121
o-Xylene	50.0	46.0		92.1	67 - 132

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	50.0	47.2		94.4	0.949	30	80 - 120
Toluene	50.0	45.3		90.5	0.739	30	75 - 120
Ethylbenzene	50.0	45.8		91.5	0.957	30	80 - 125
m,p-Xylene	100	92.6		92.6	1.02	30	76 - 121
o-Xylene	50.0	46.3		92.7	0.627	30	67 - 132

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

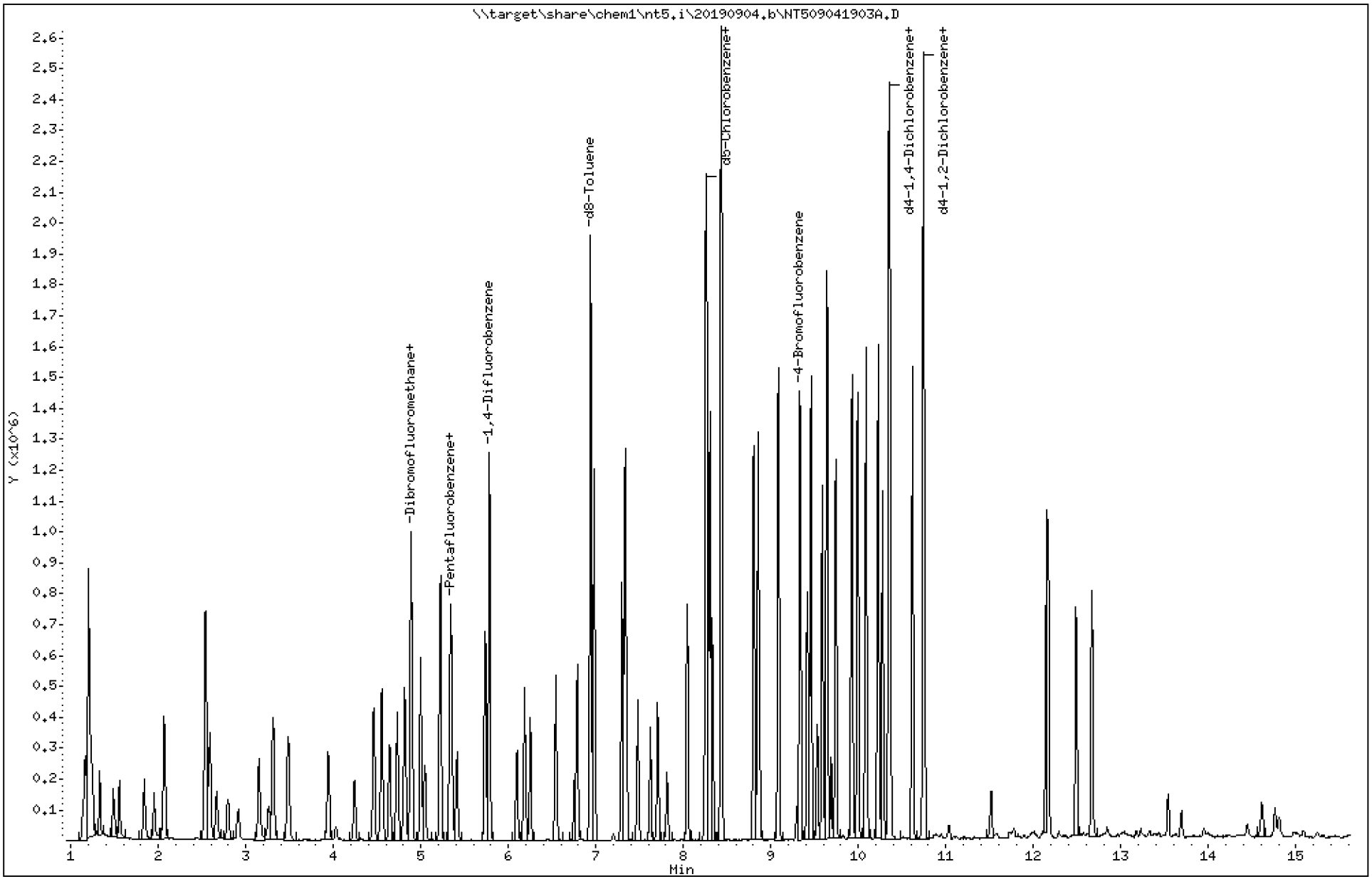
Instrument: nt5.i

Sample Info: ICV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

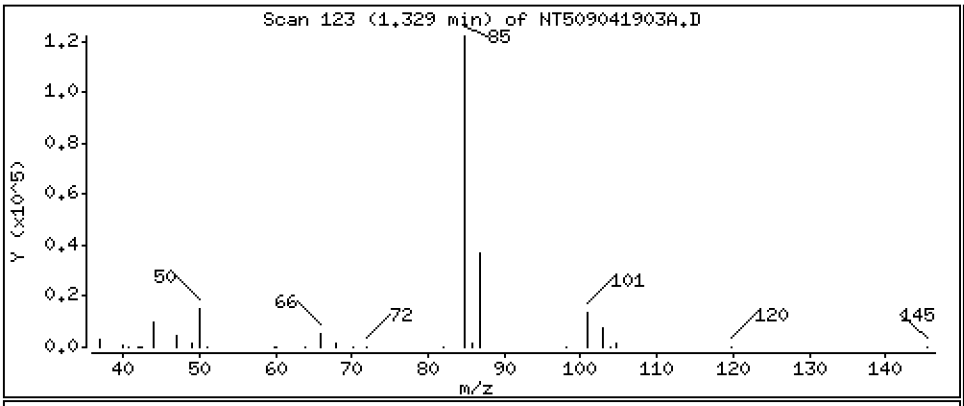
Operator: PB

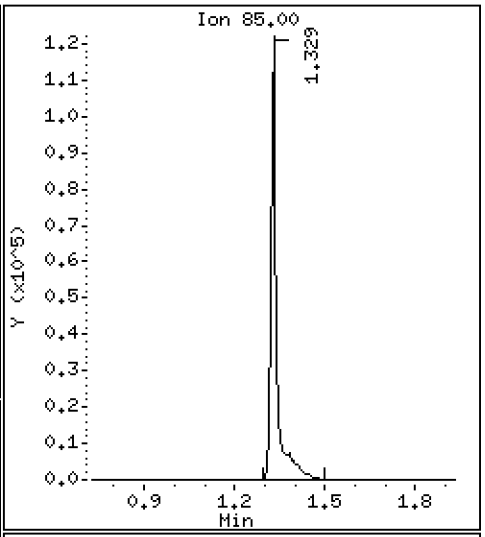
Column phase: RTXVMS

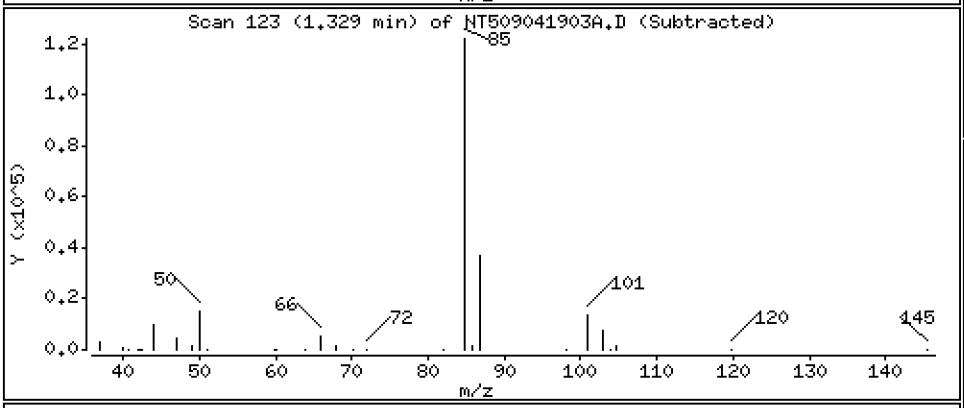
Column diameter: 0.18

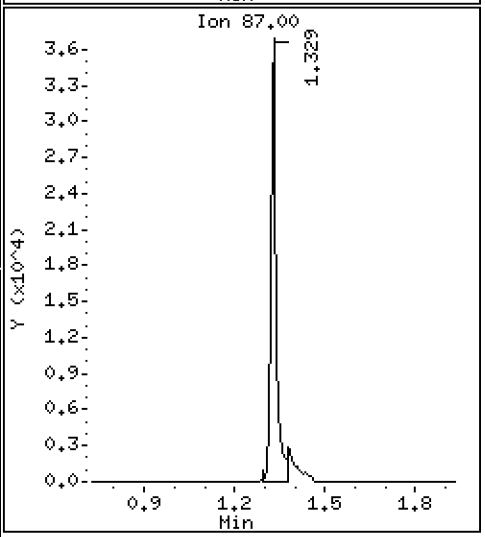
1 Dichlorodifluoromethane

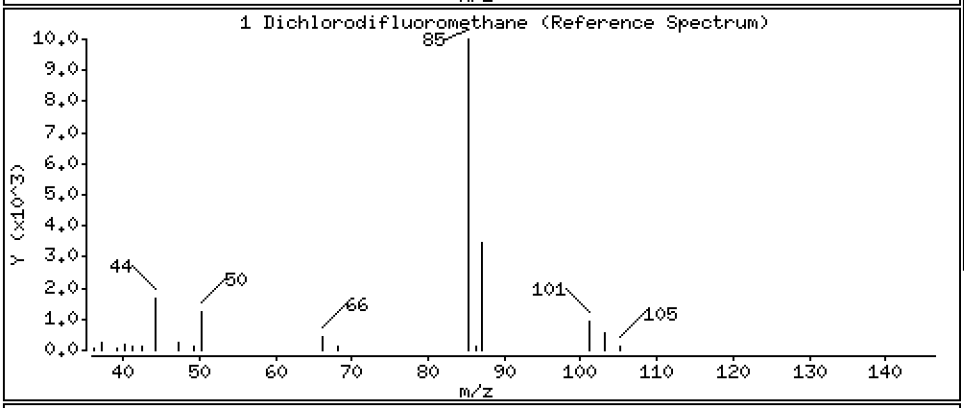
Concentration: 65.550 ug/Kg

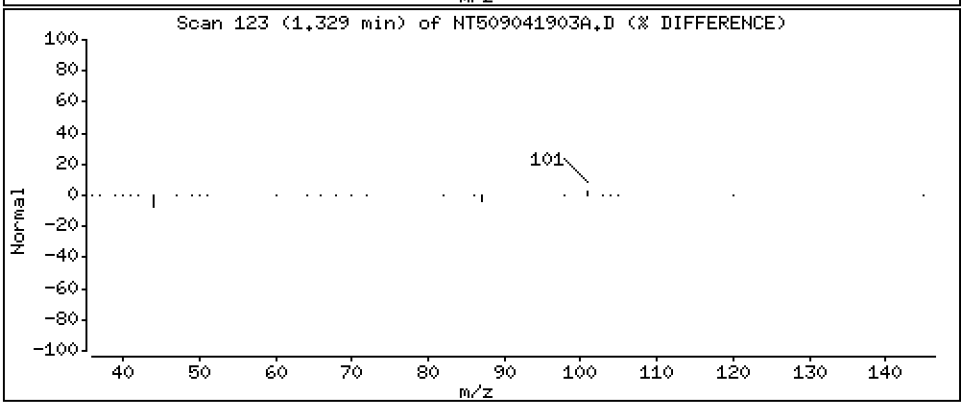












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

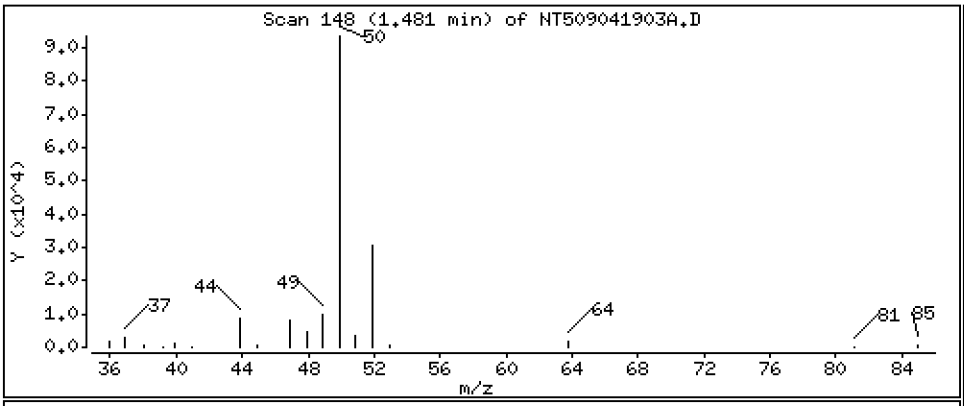
Operator: PB

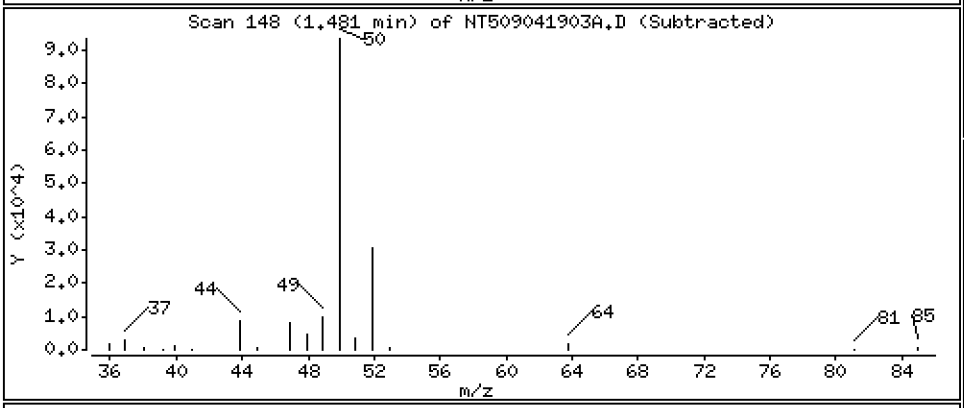
Column phase: RTXVMS

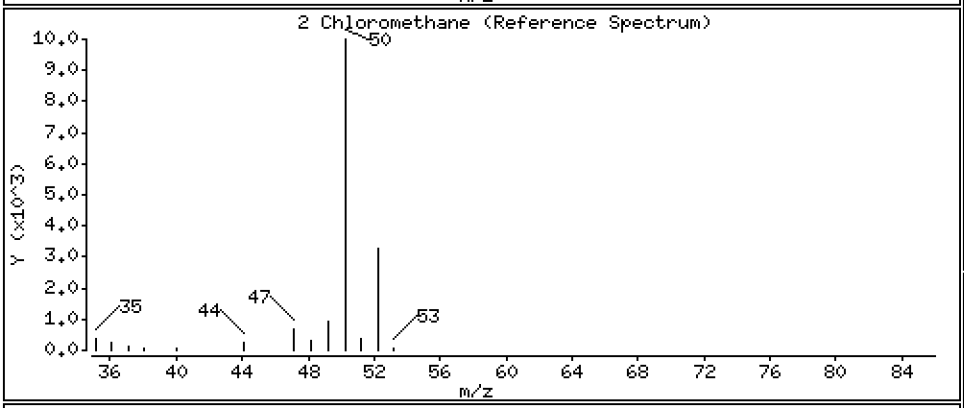
Column diameter: 0.18

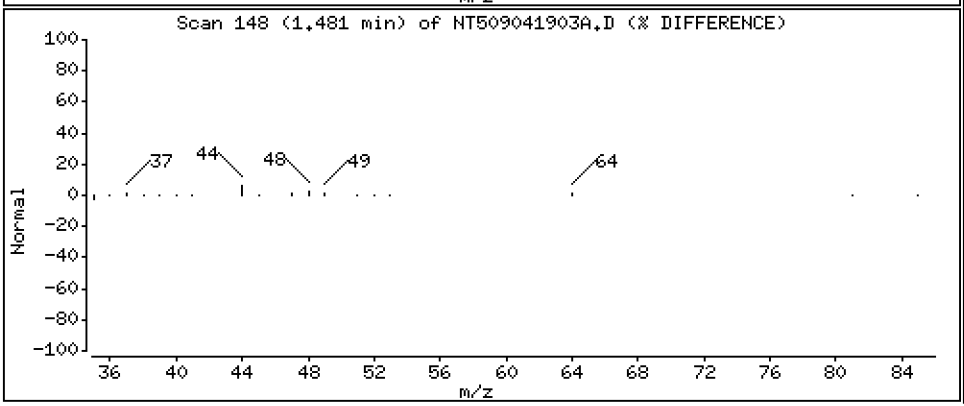
2 Chloromethane

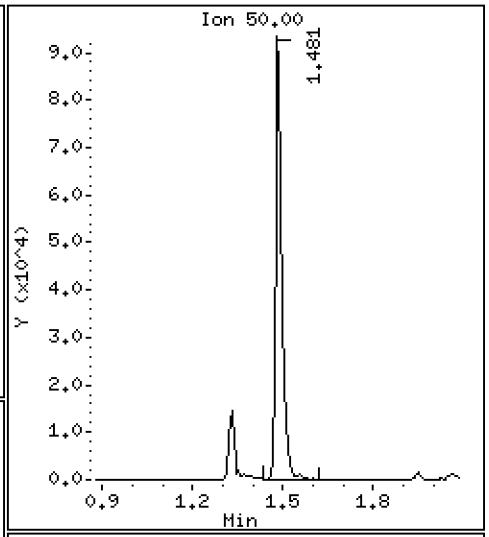
Concentration: 60.061 ug/Kg

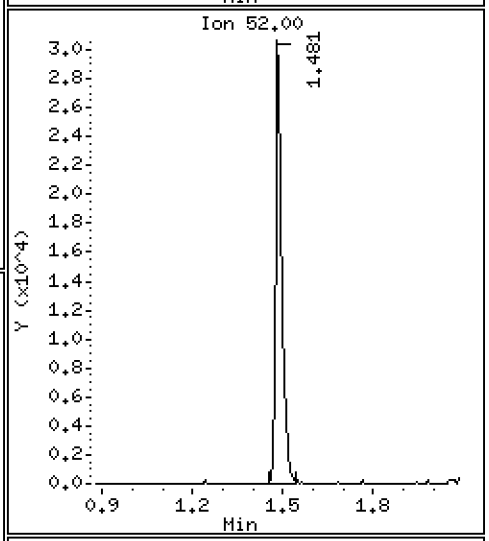


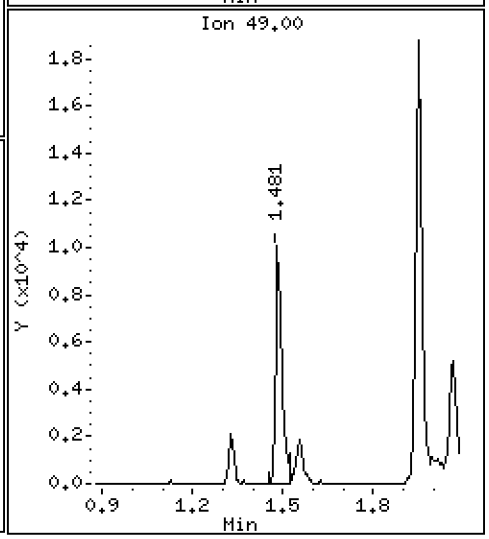












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

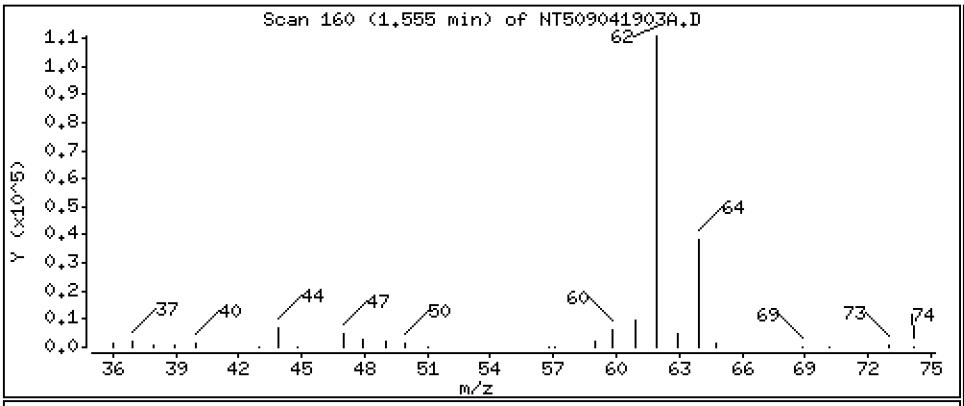
Operator: PB

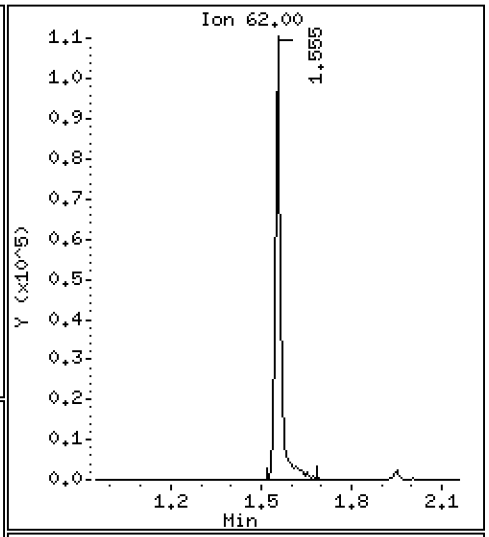
Column phase: RTXVMS

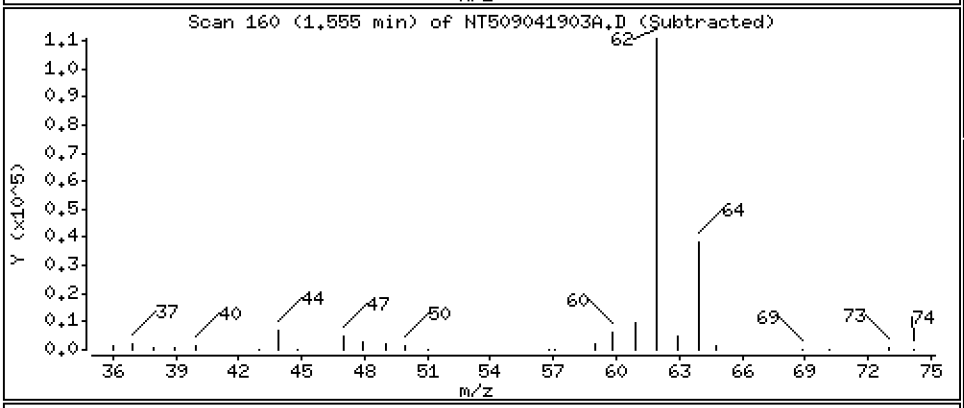
Column diameter: 0.18

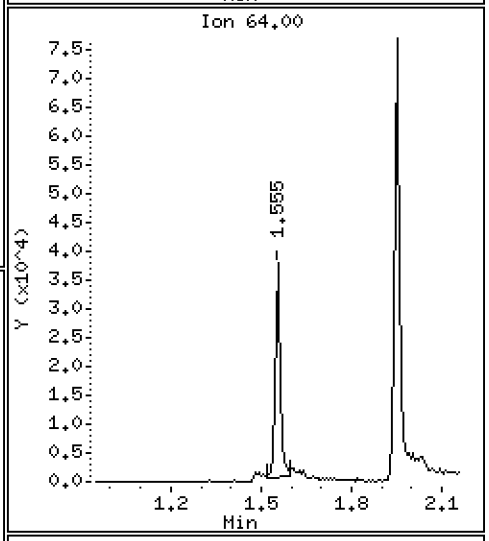
3 Vinyl Chloride

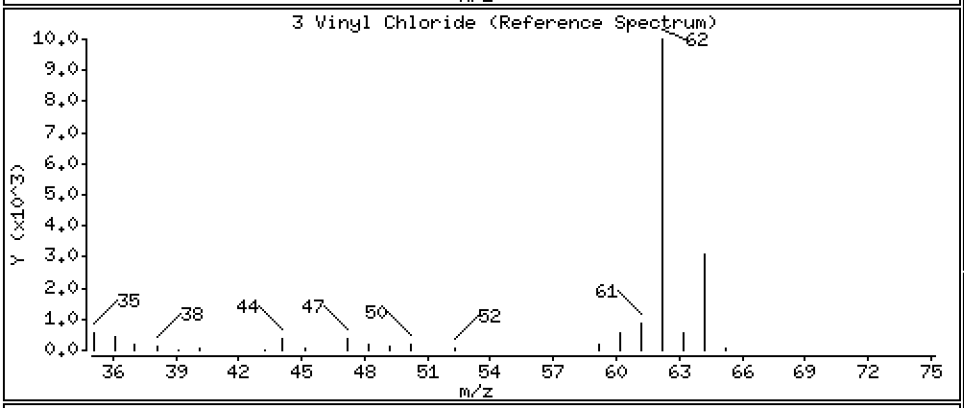
Concentration: 67.384 ug/Kg

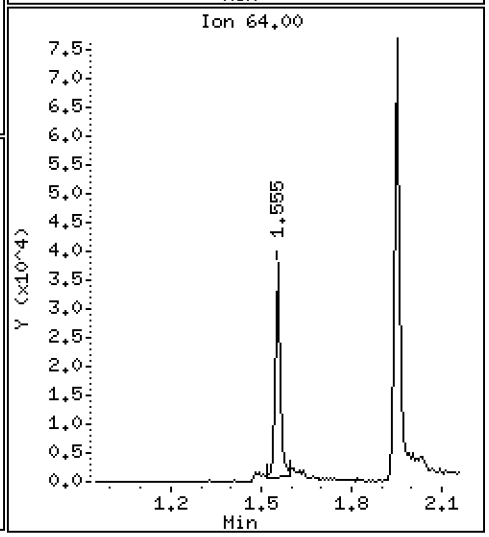


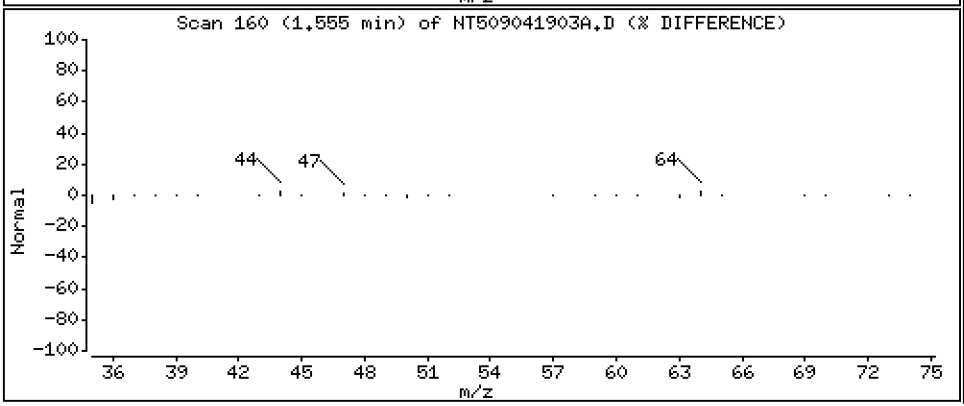












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

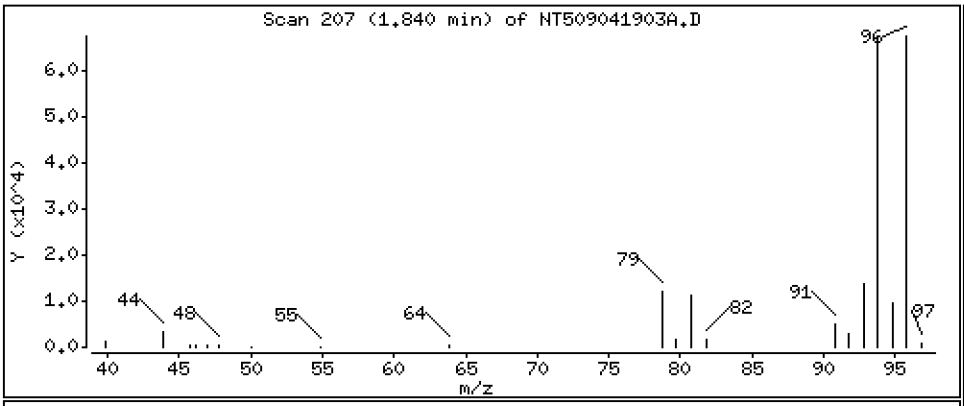
Operator: PB

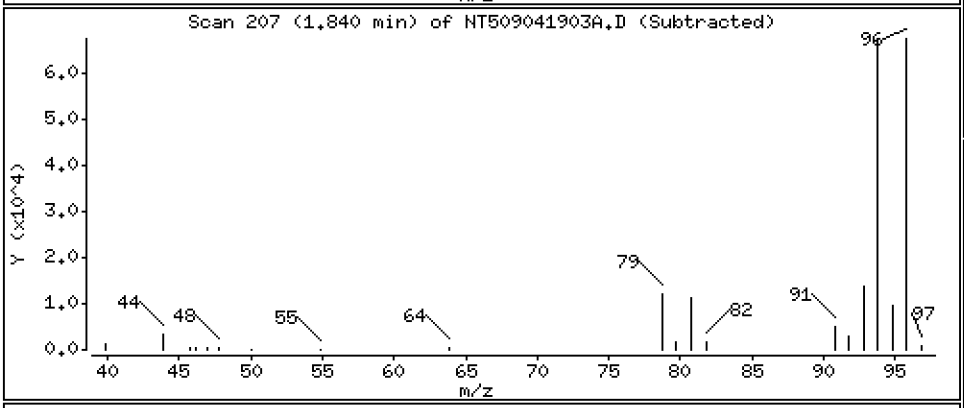
Column phase: RTXVMS

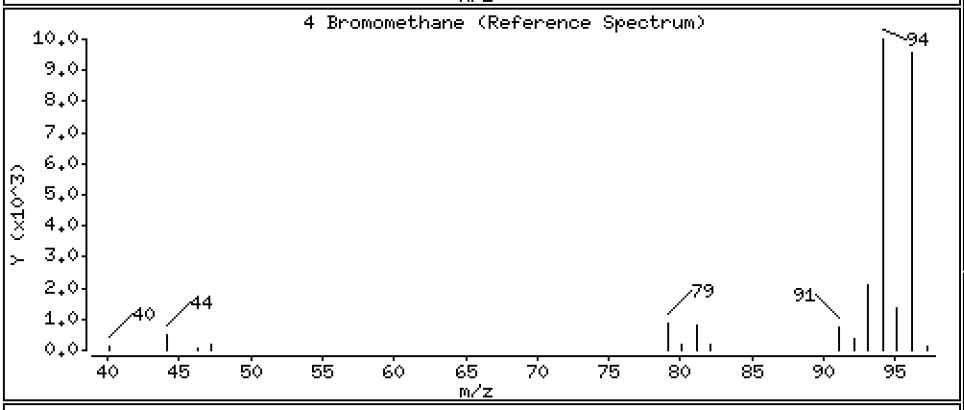
Column diameter: 0.18

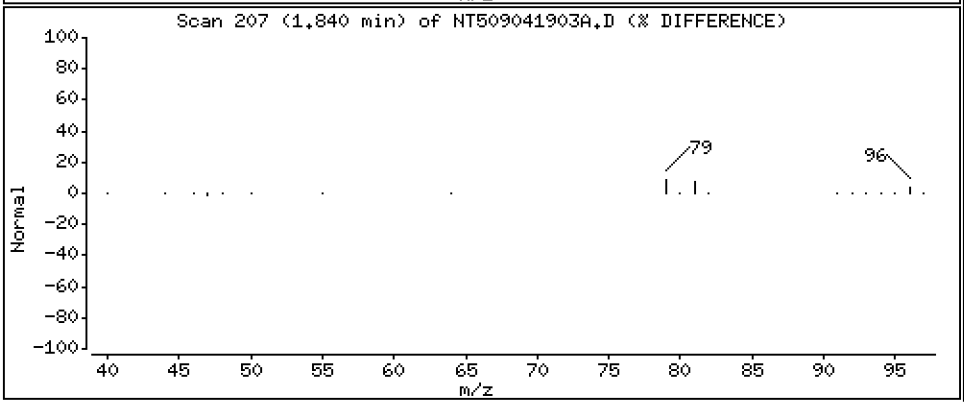
4 Bromomethane

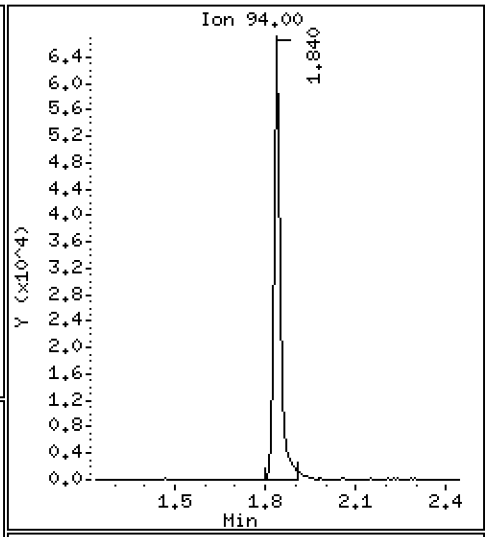
Concentration: 53.310 ug/Kg

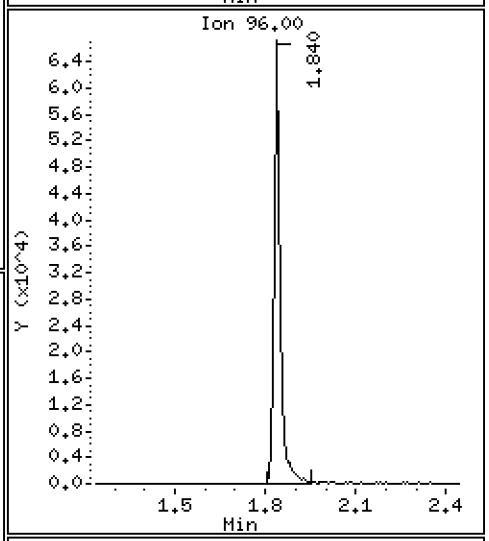


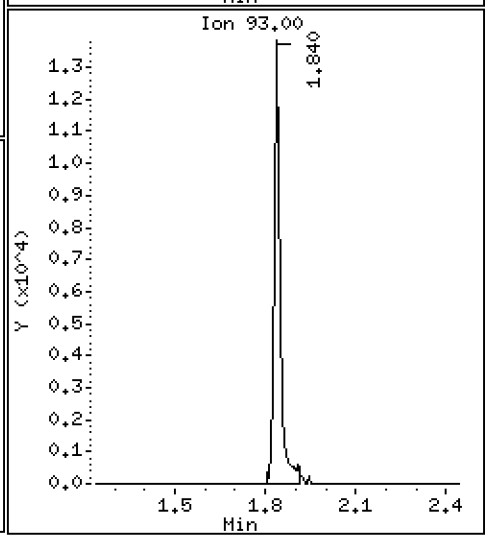












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

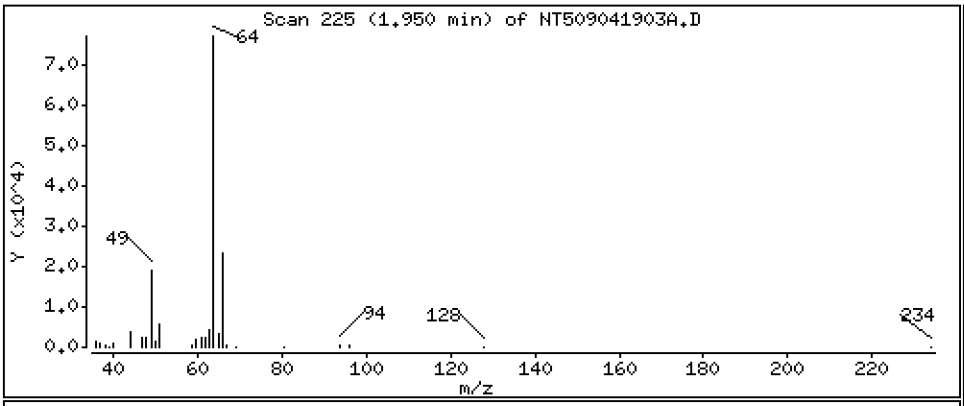
Operator: PB

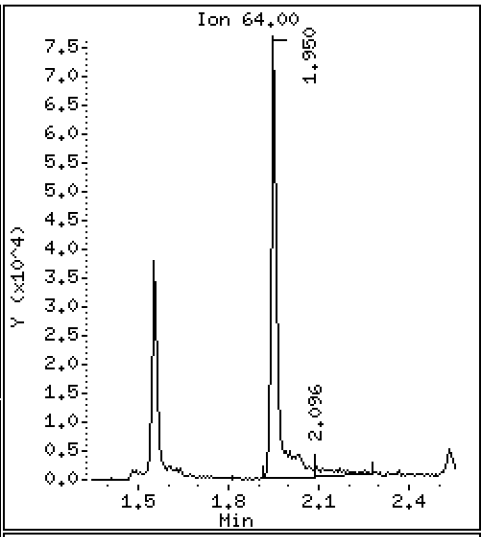
Column phase: RTXVMS

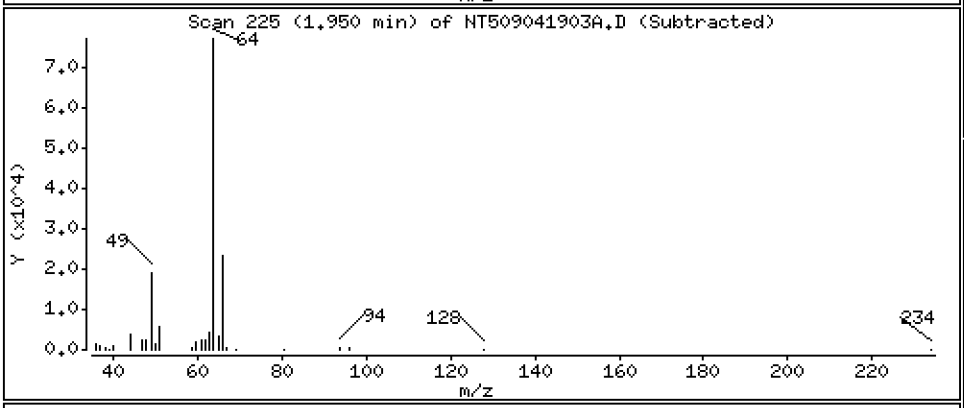
Column diameter: 0.18

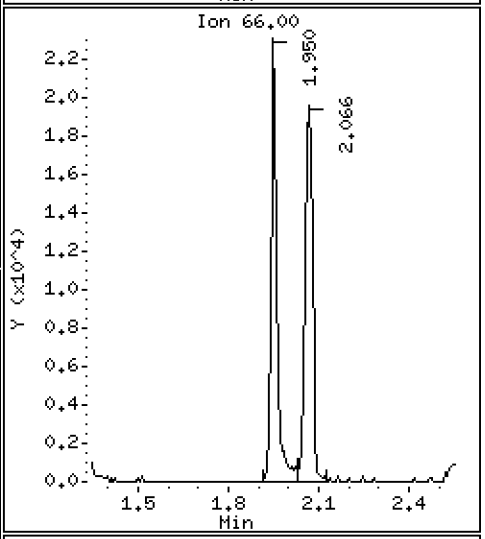
5 Chloroethane

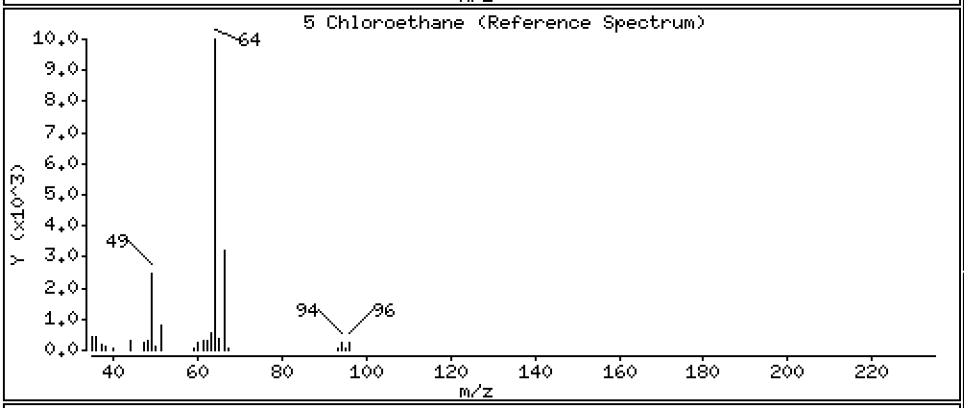
Concentration: 61.569 ug/Kg

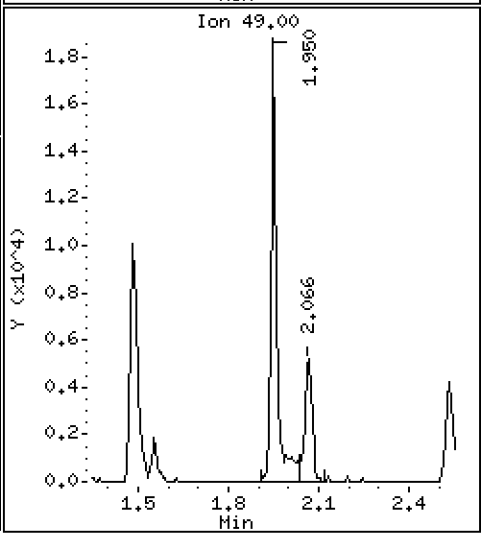


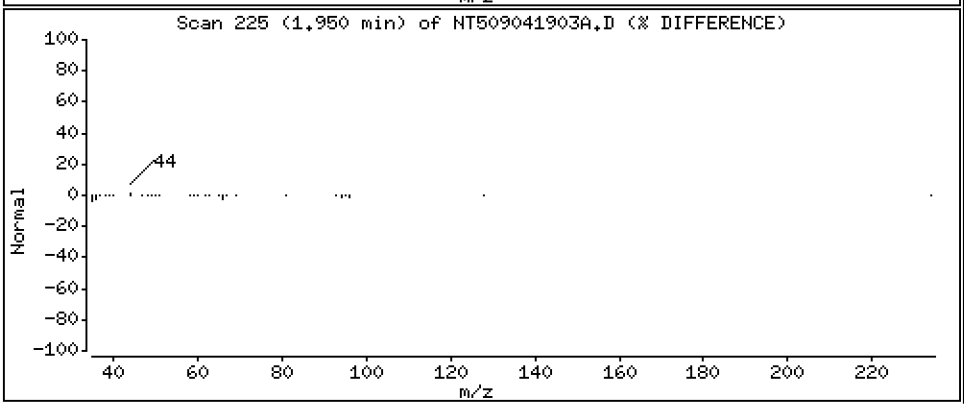












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

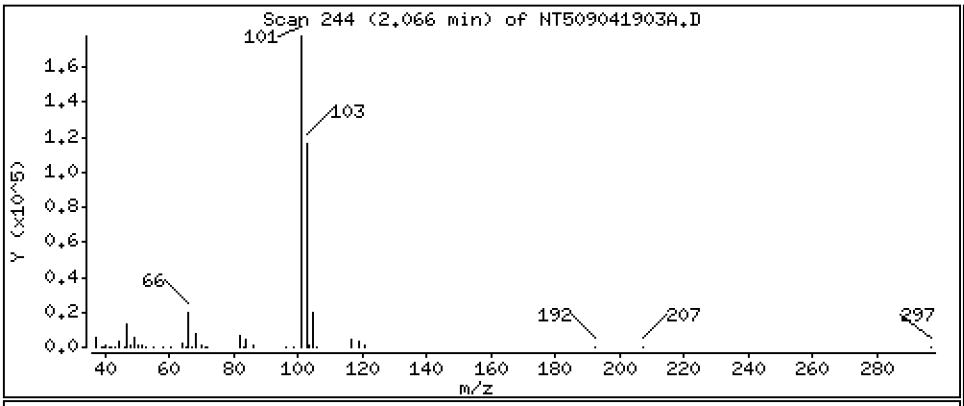
Operator: PB

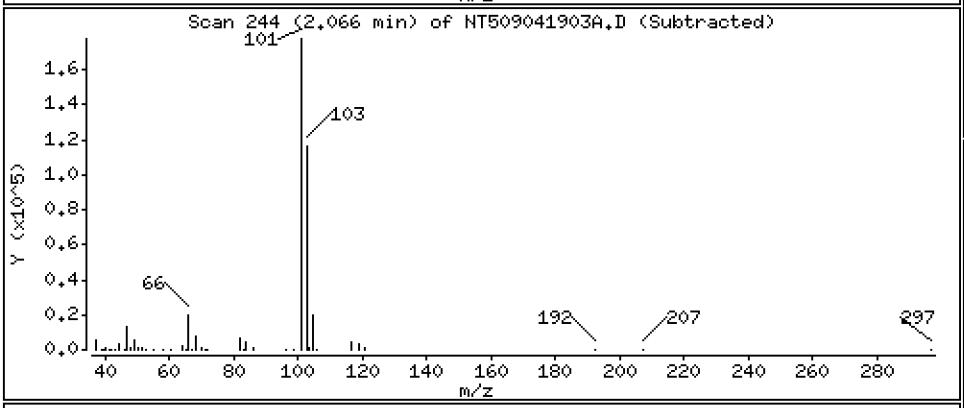
Column phase: RTXVMS

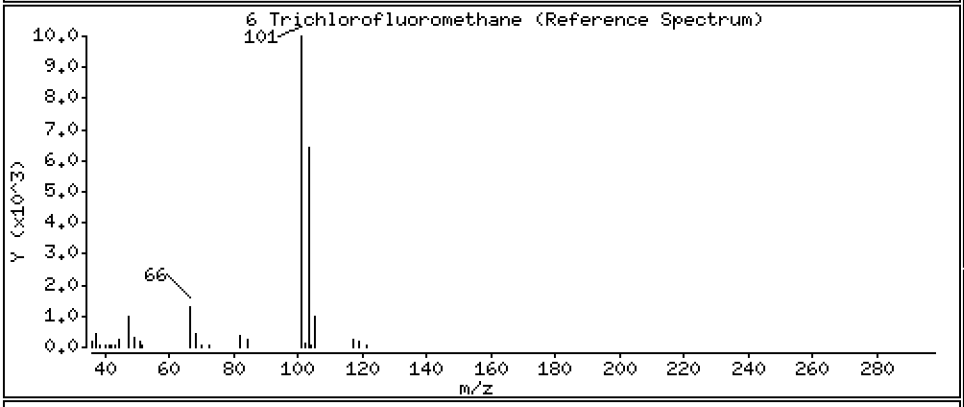
Column diameter: 0.18

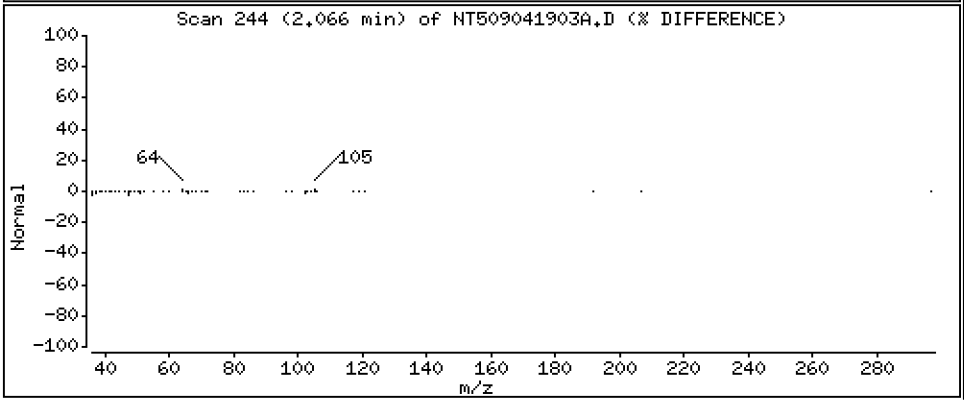
6 Trichlorofluoromethane

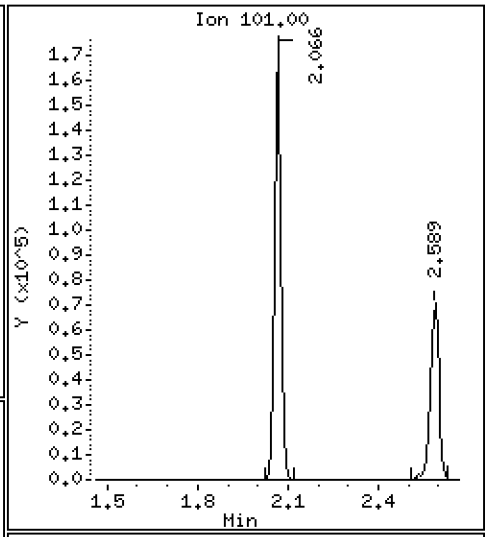
Concentration: 59.314 ug/Kg

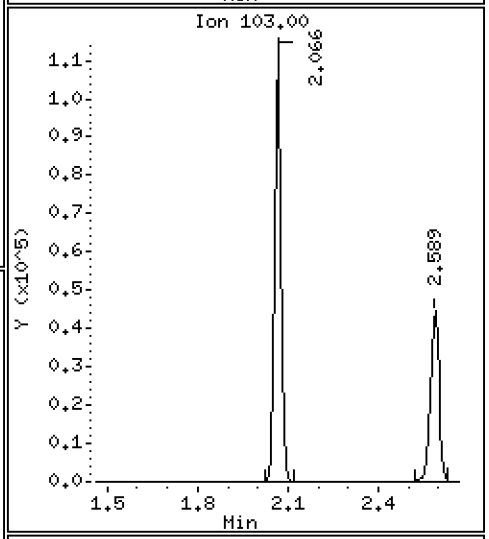


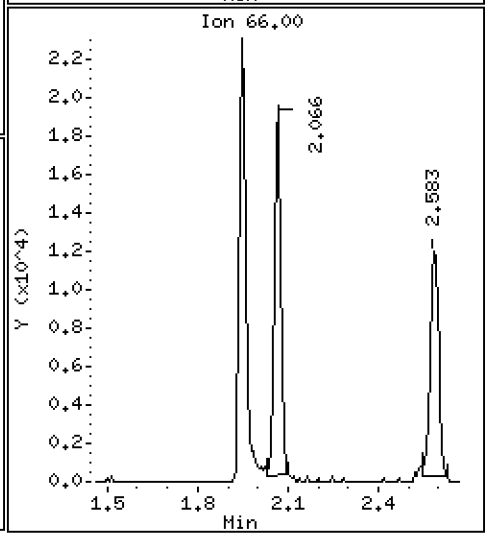












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

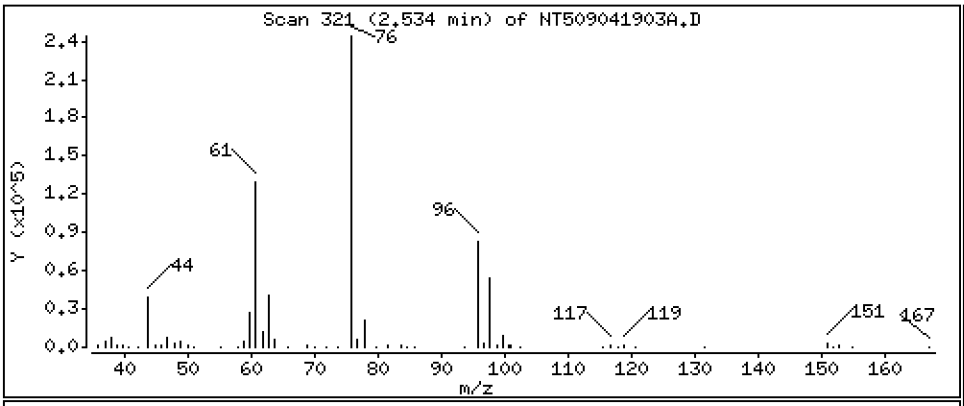
Operator: PB

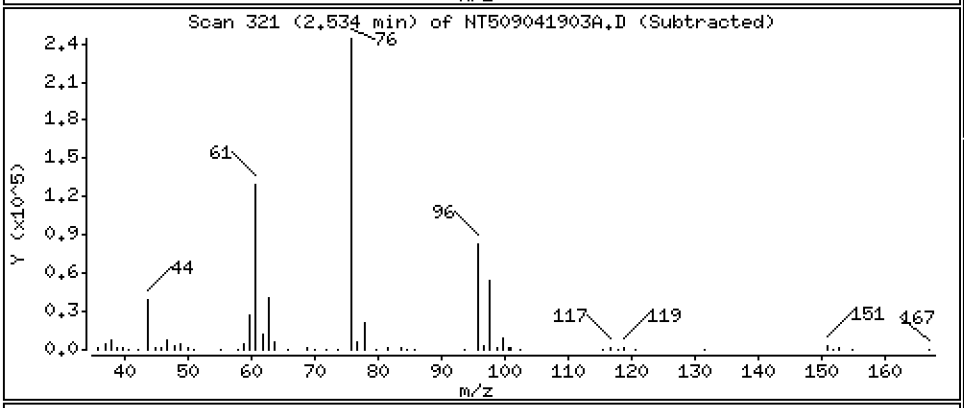
Column phase: RTXVMS

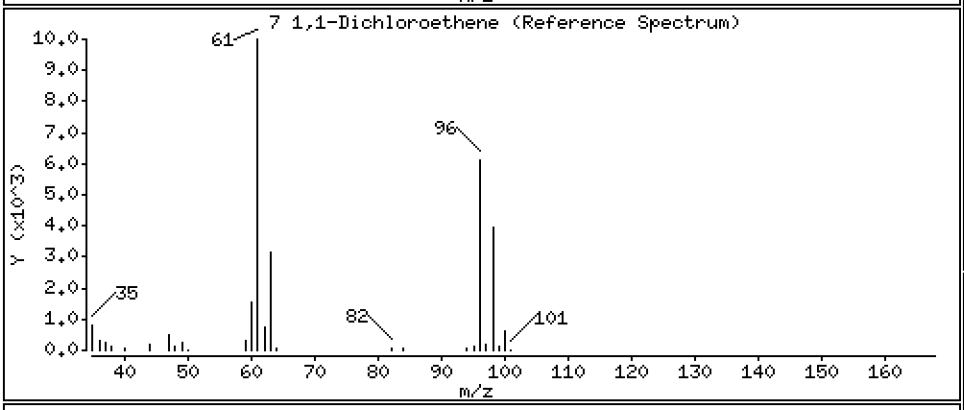
Column diameter: 0.18

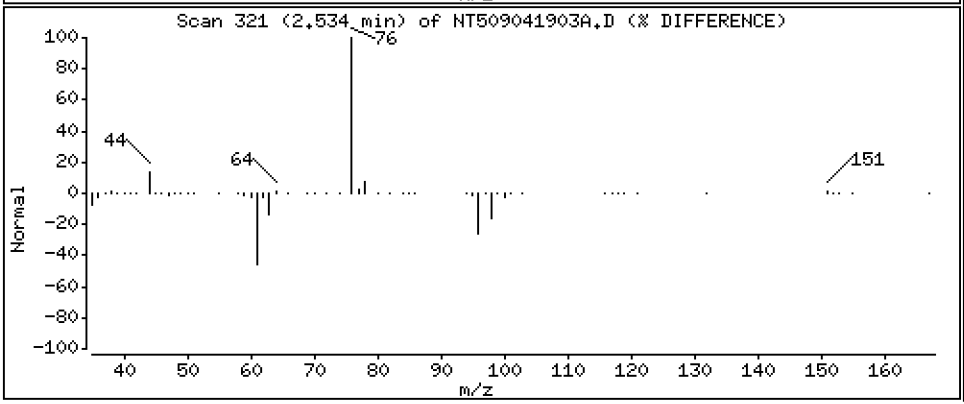
7 1,1-Dichloroethene

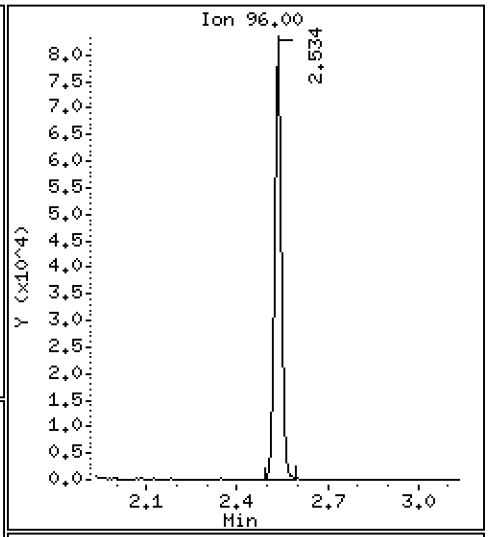
Concentration: 58.295 ug/Kg

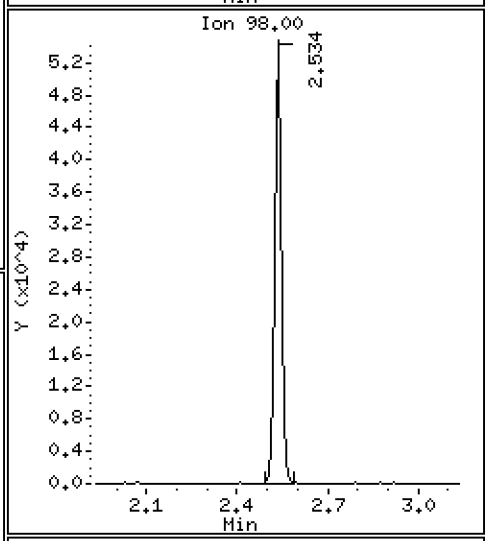


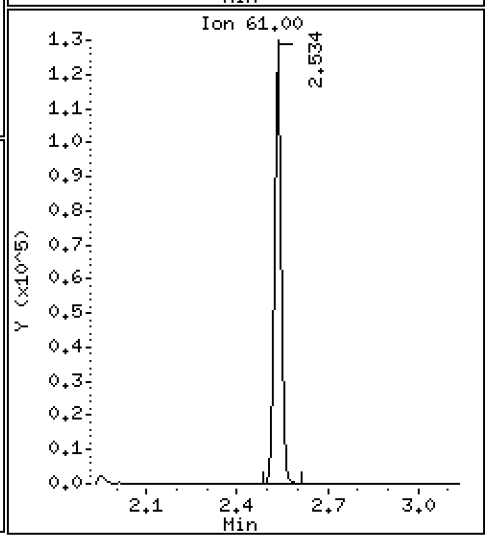












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

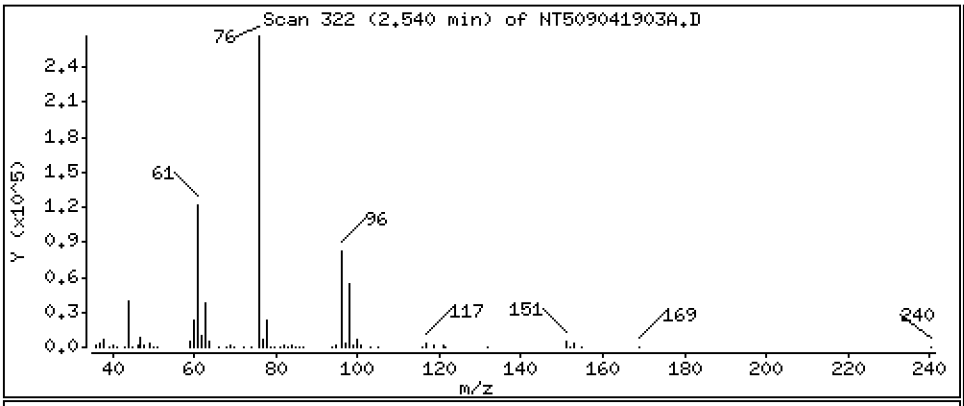
Operator: PB

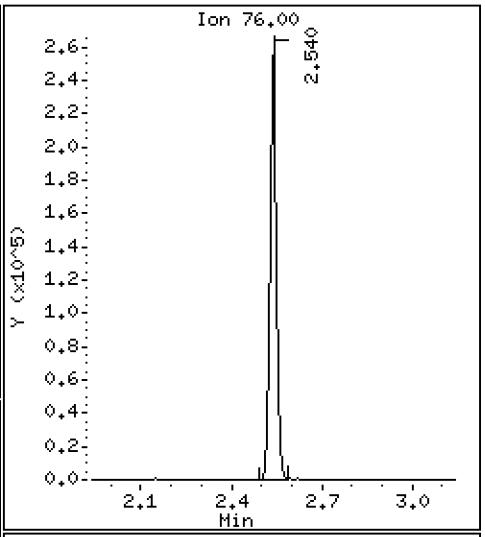
Column phase: RTXVMS

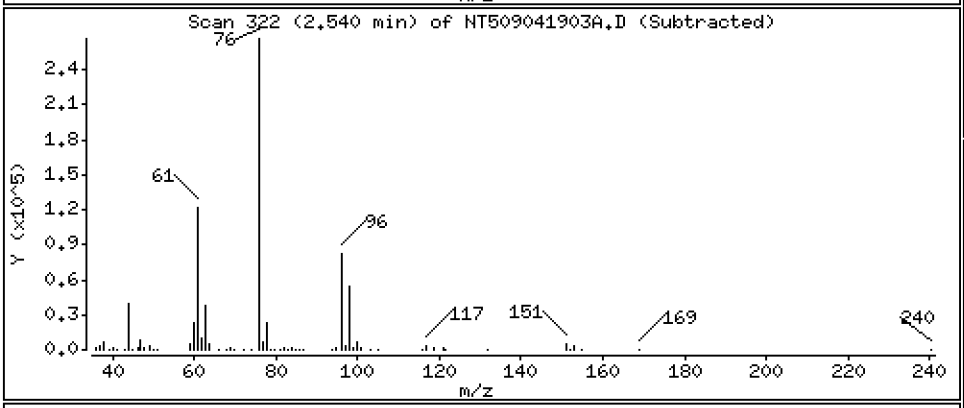
Column diameter: 0.18

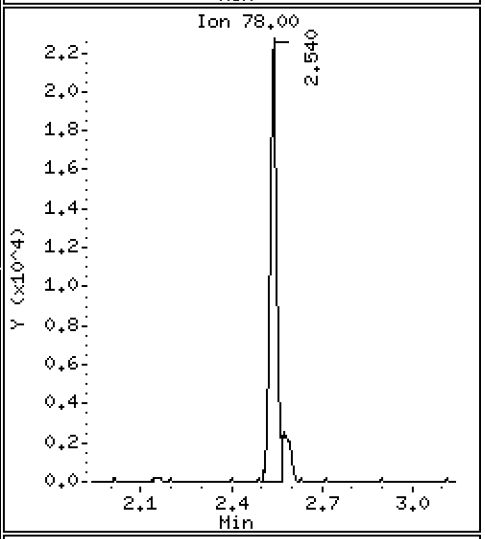
8 Carbon Disulfide

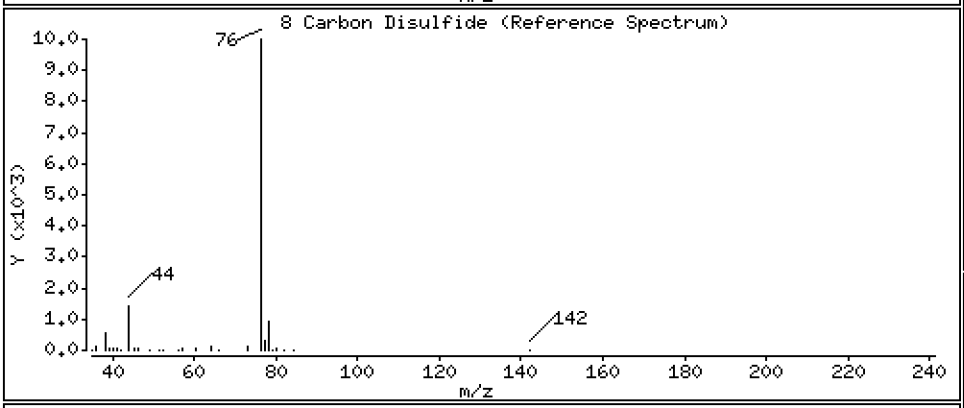
Concentration: 57.058 ug/Kg

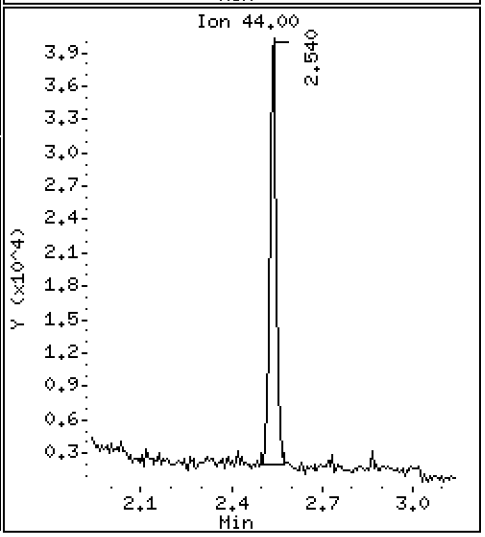


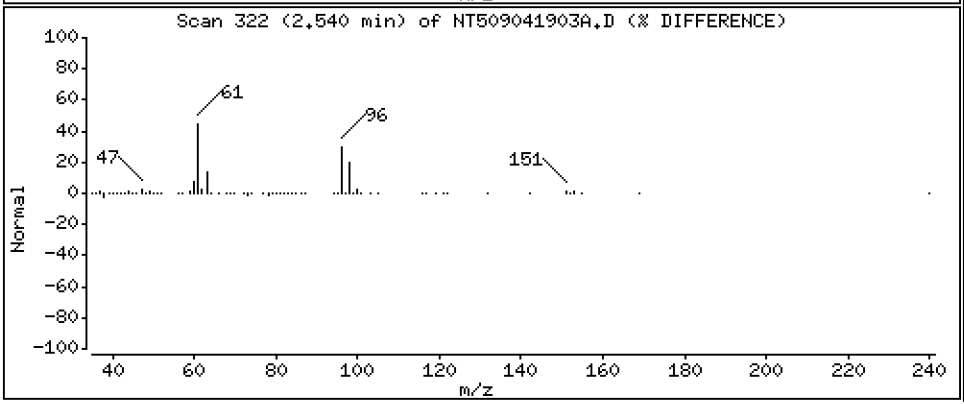












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

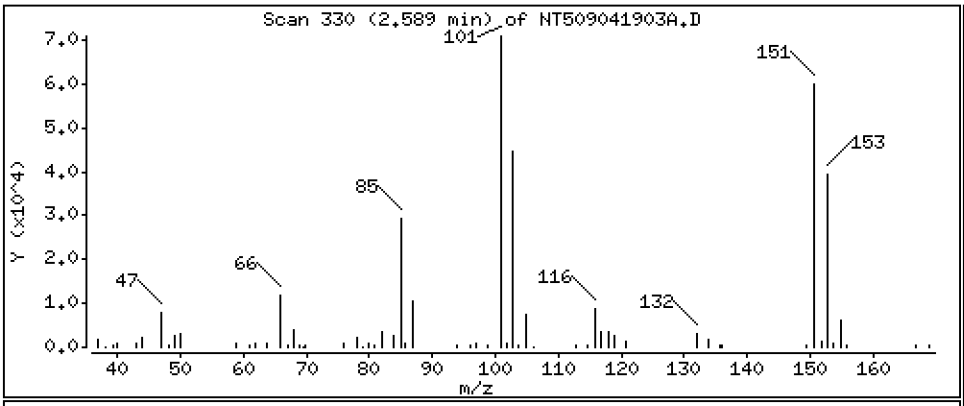
Operator: PB

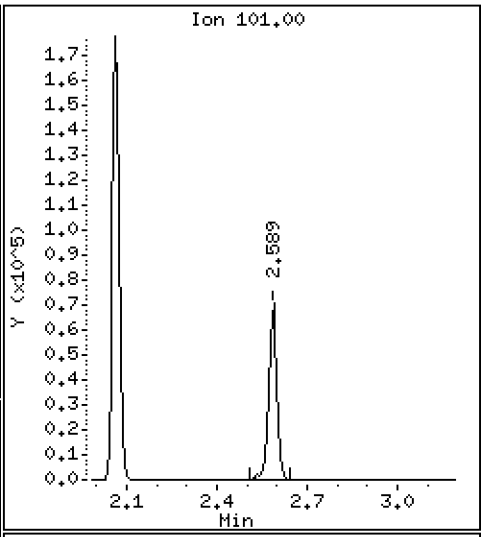
Column phase: RTXVMS

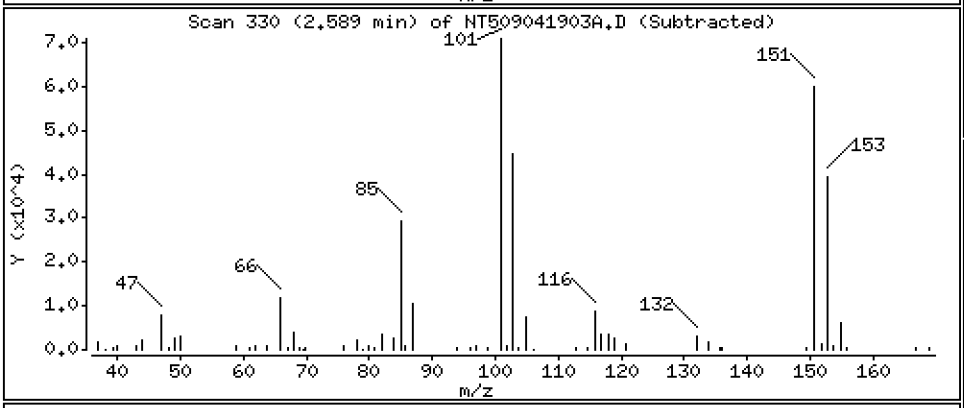
Column diameter: 0.18

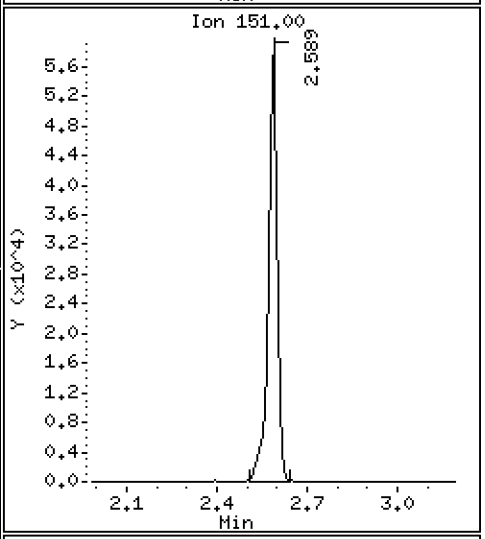
9 112Trichloro122Trifluoroethane

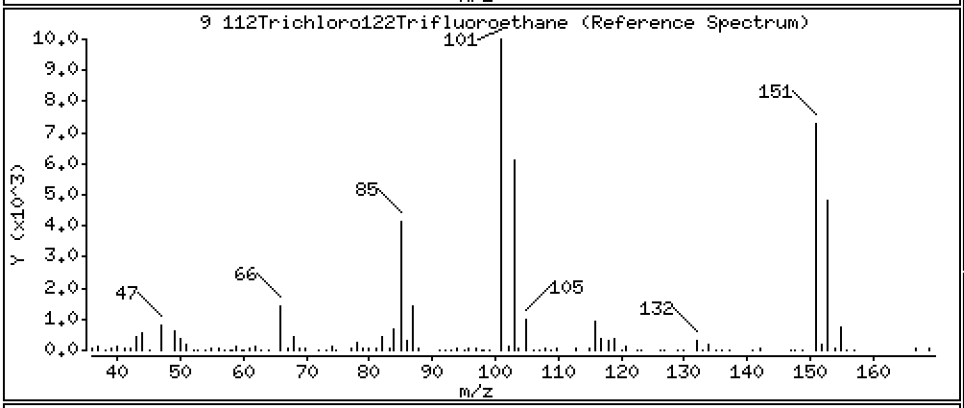
Concentration: 58.165 ug/Kg

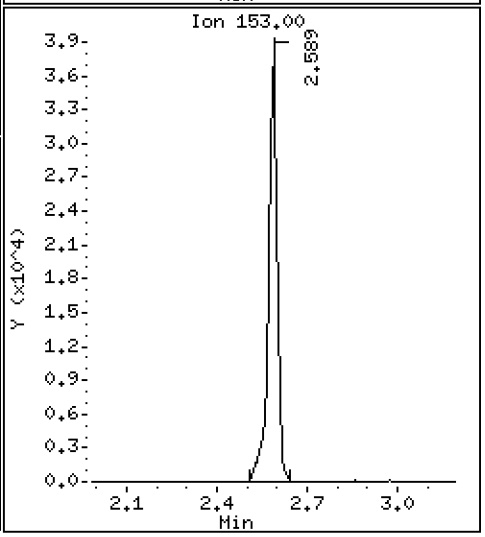


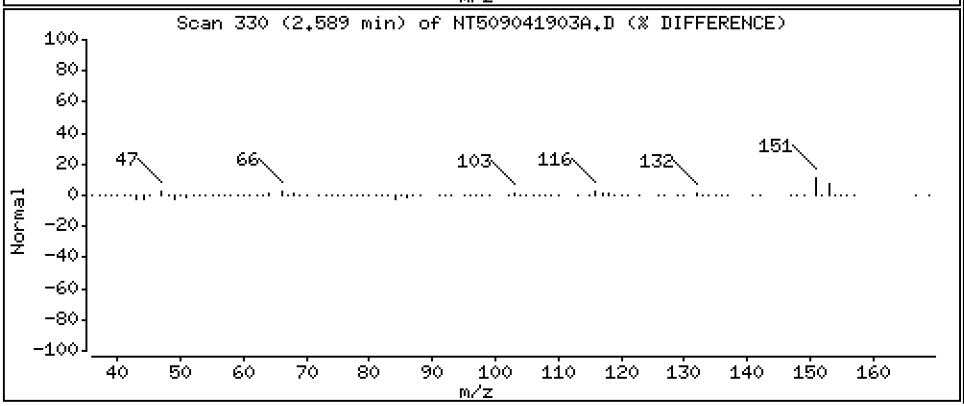












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

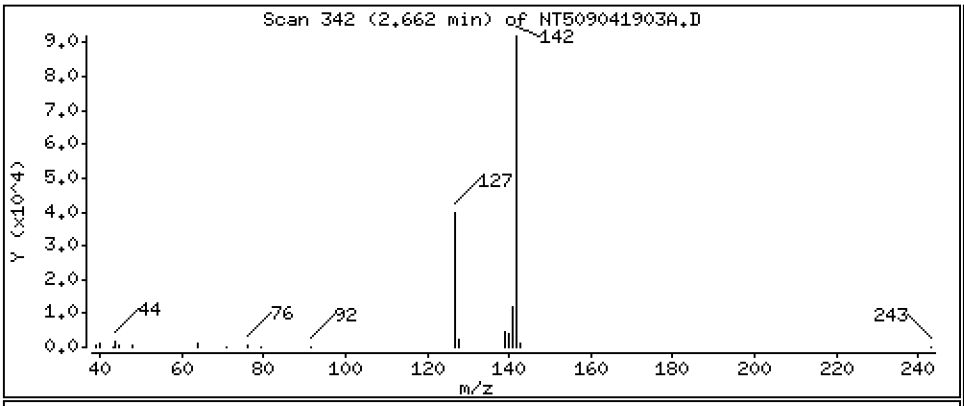
Operator: PB

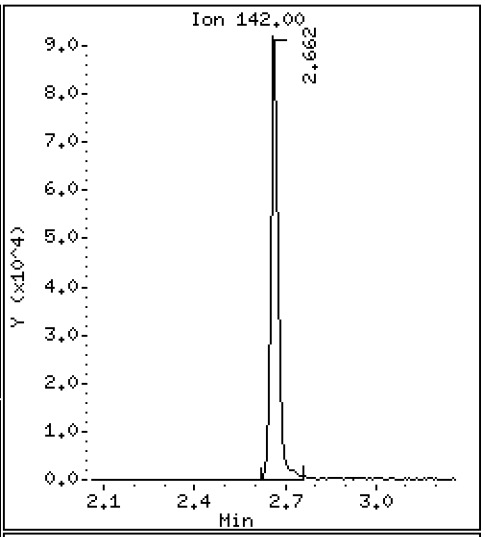
Column phase: RTXVMS

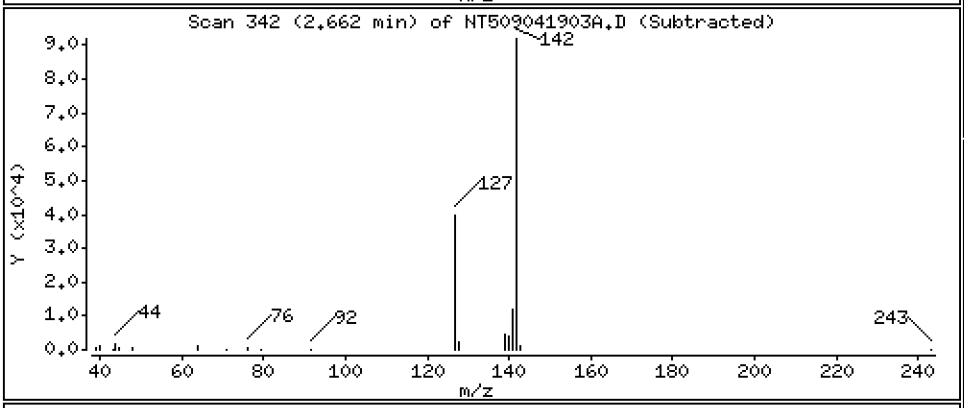
Column diameter: 0.18

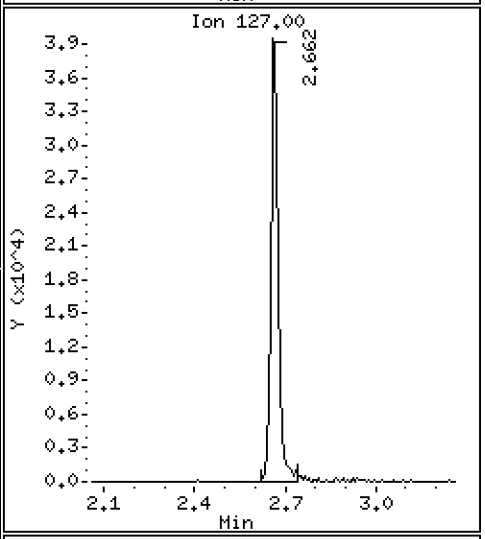
10 Iodomethane

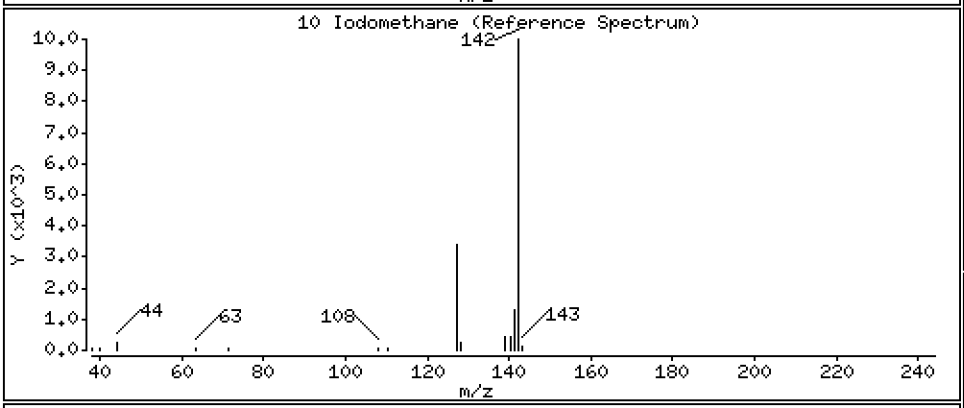
Concentration: 63.426 ug/Kg

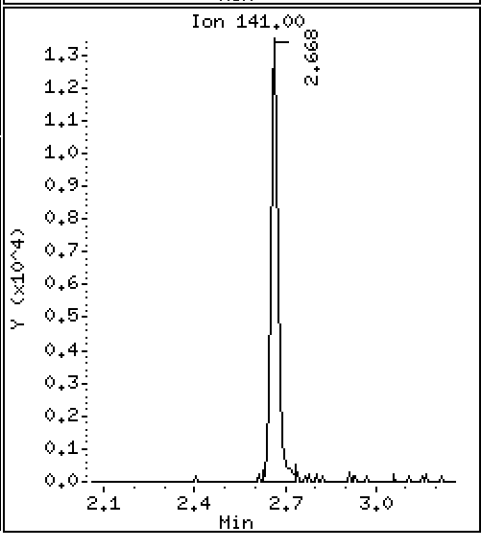


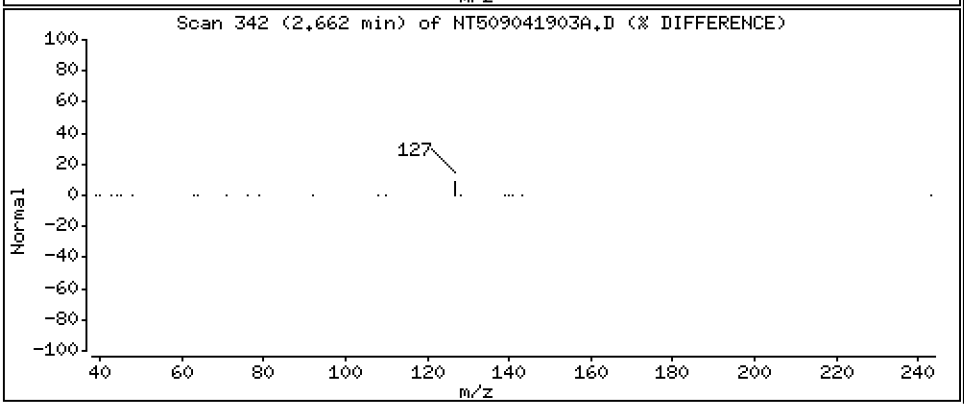












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

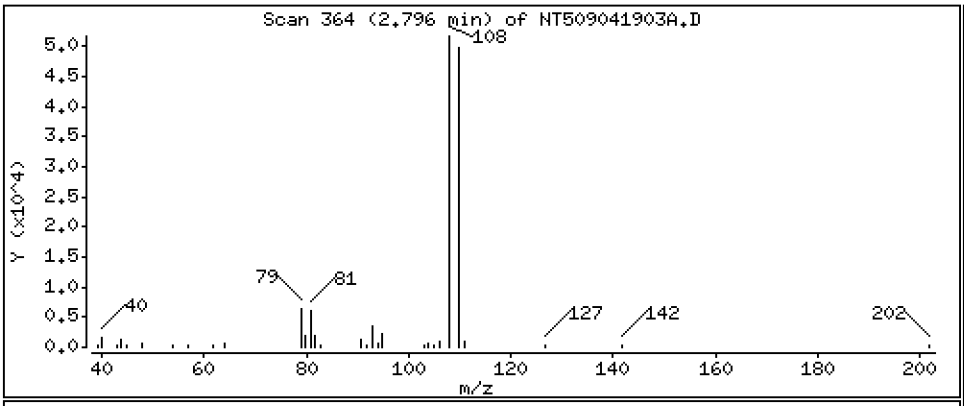
Operator: PB

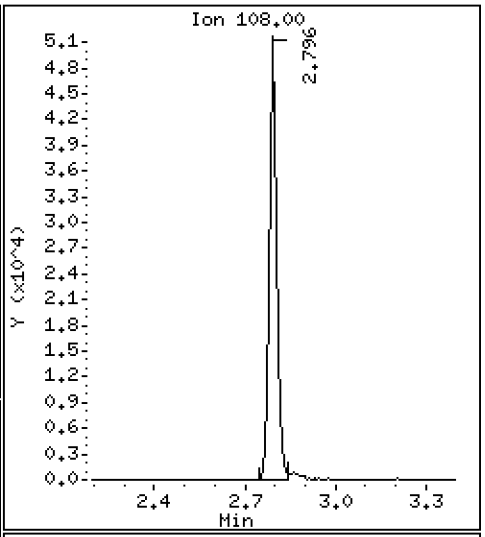
Column phase: RTXVMS

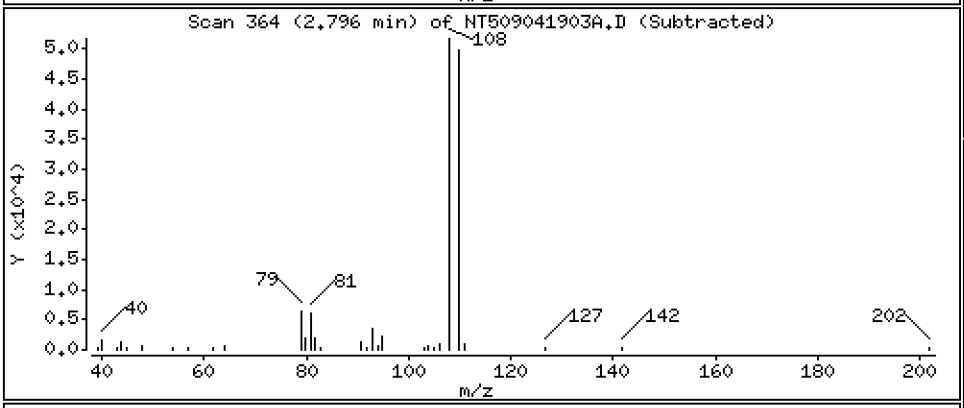
Column diameter: 0.18

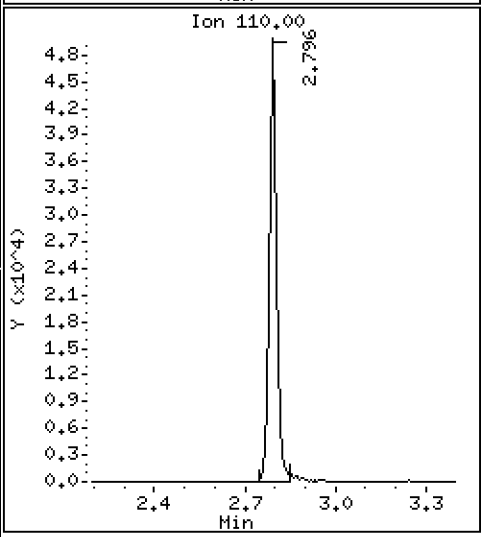
11 Bromoethane

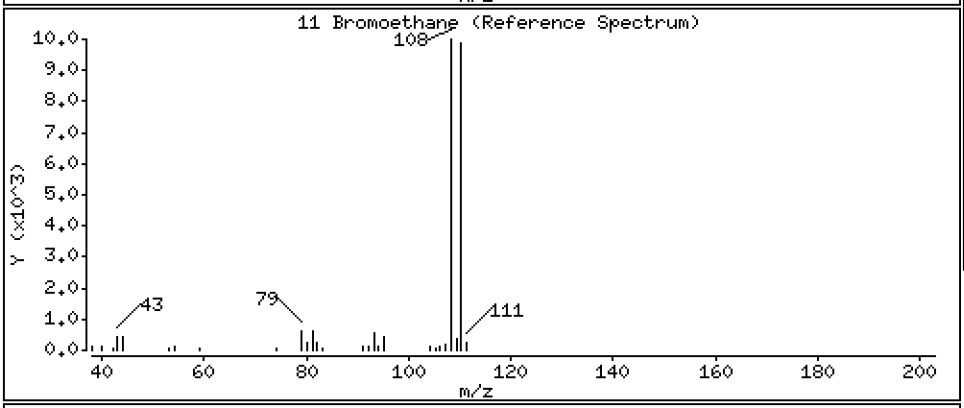
Concentration: 57.848 ug/Kg

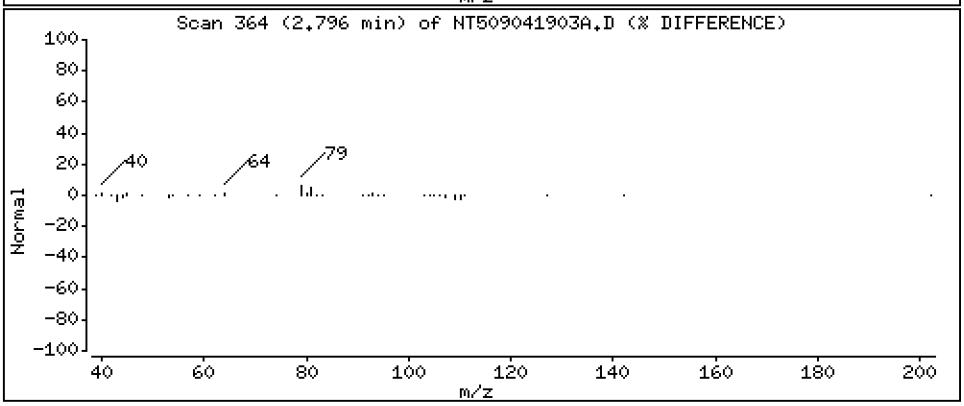












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

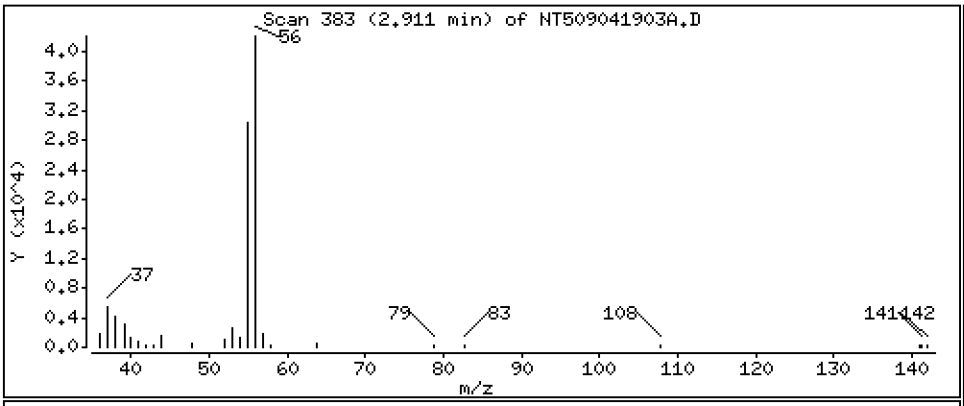
Operator: PB

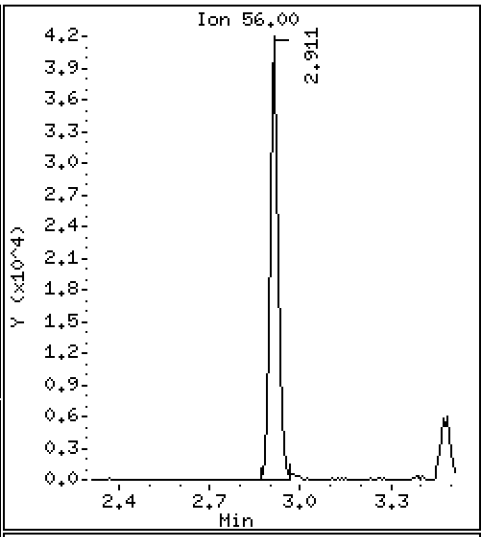
Column phase: RTXVMS

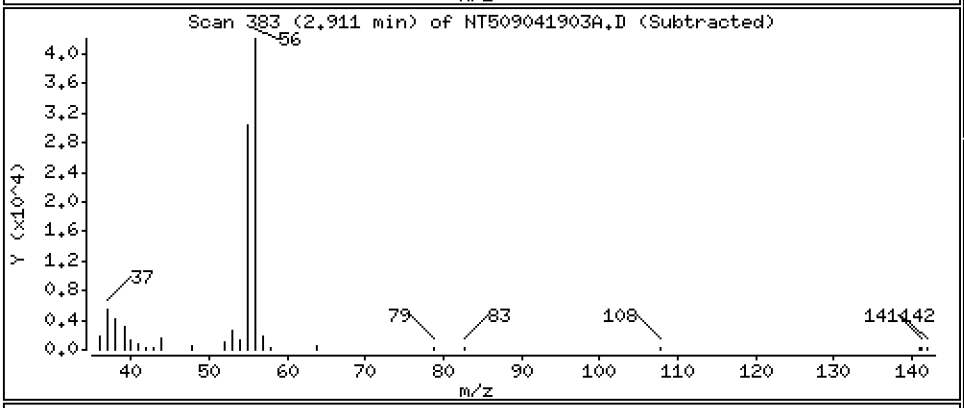
Column diameter: 0.18

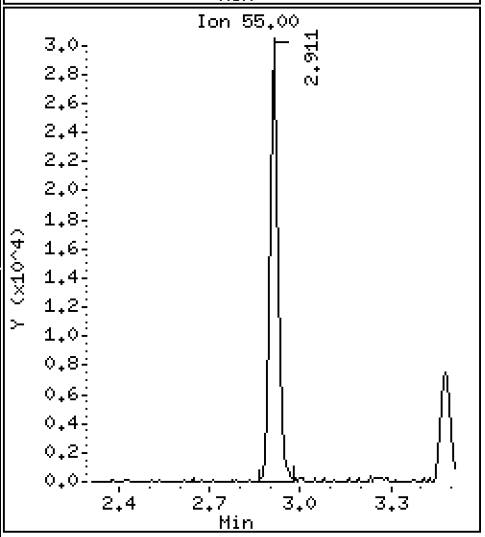
12 Acrolein

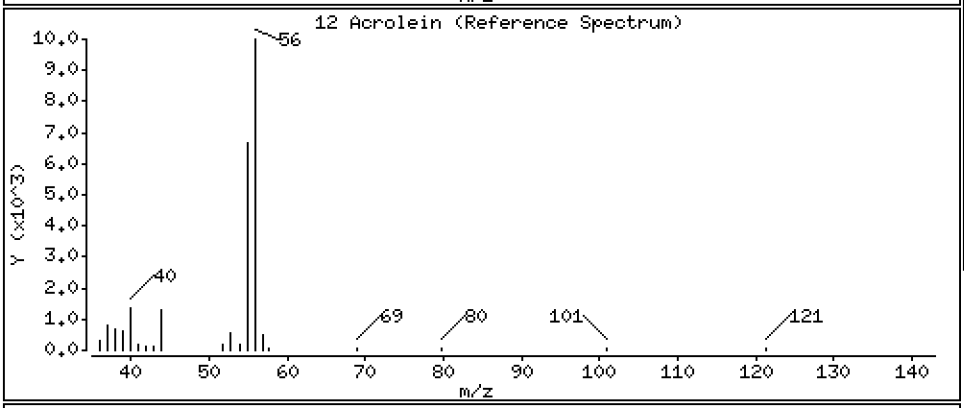
Concentration: 301.30 ug/Kg

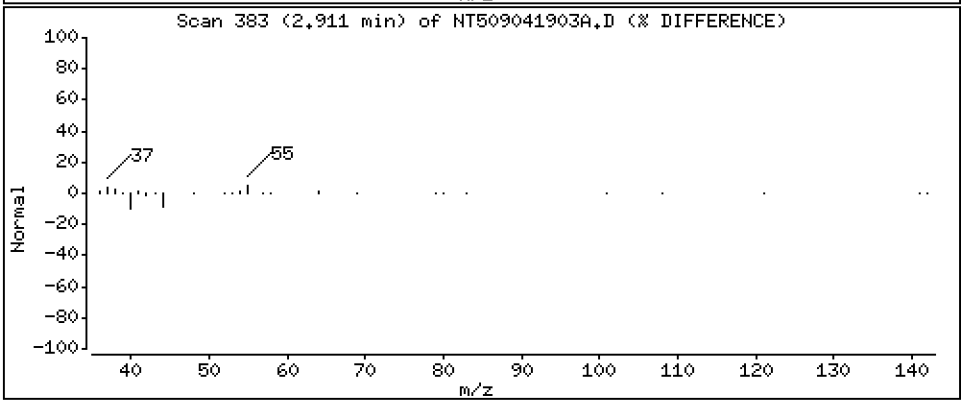












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

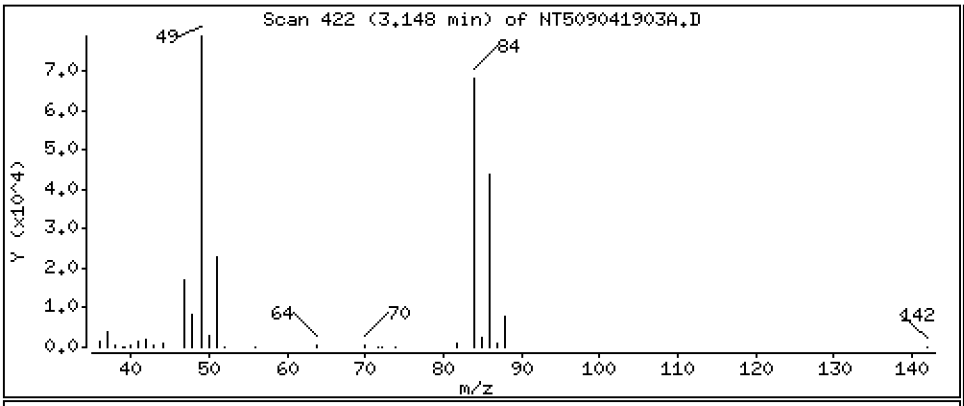
Operator: PB

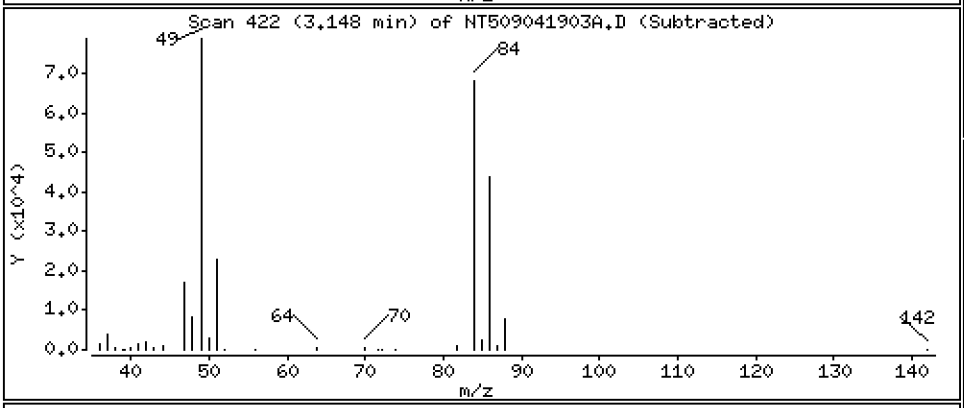
Column phase: RTXVMS

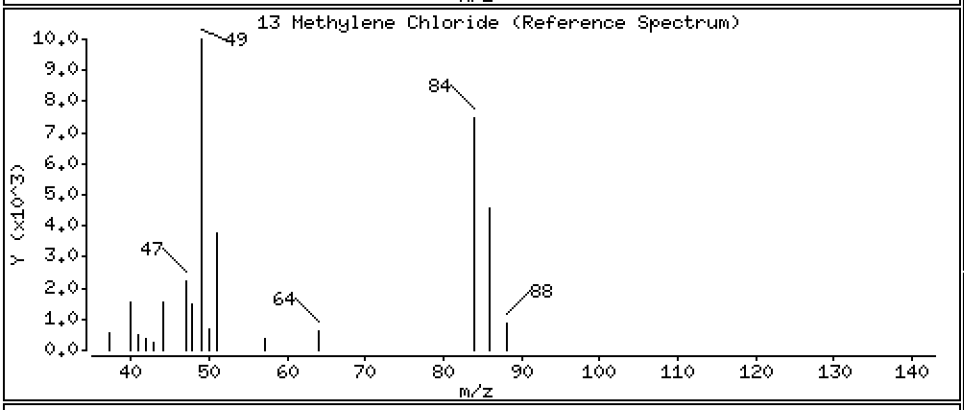
Column diameter: 0.18

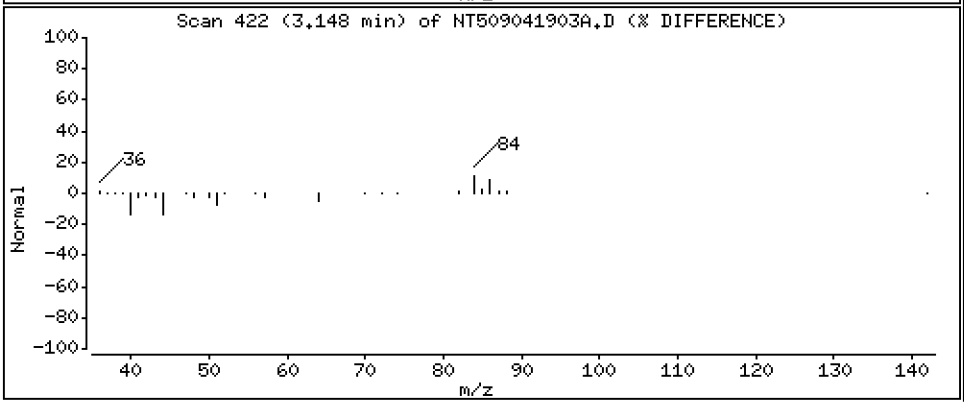
13 Methylene Chloride

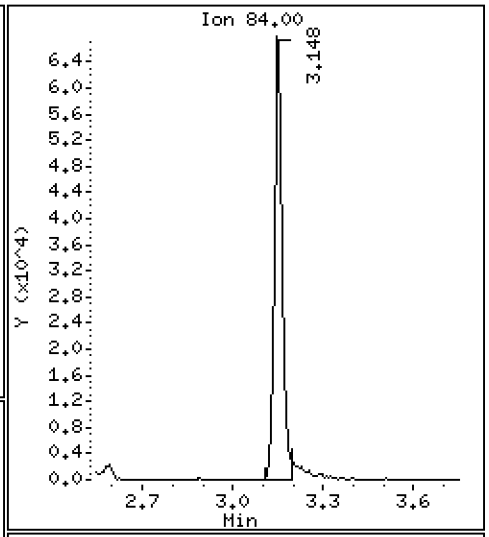
Concentration: 60.422 ug/Kg

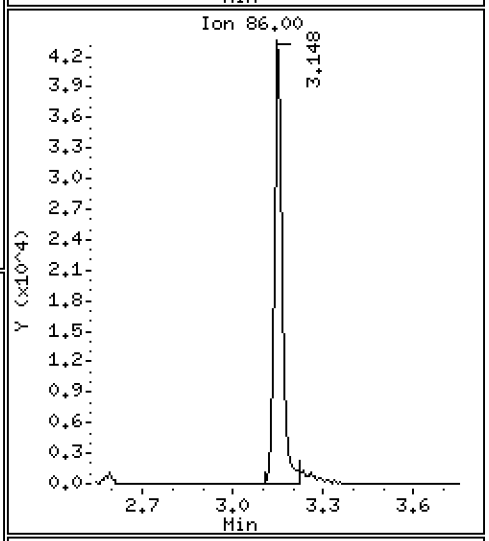


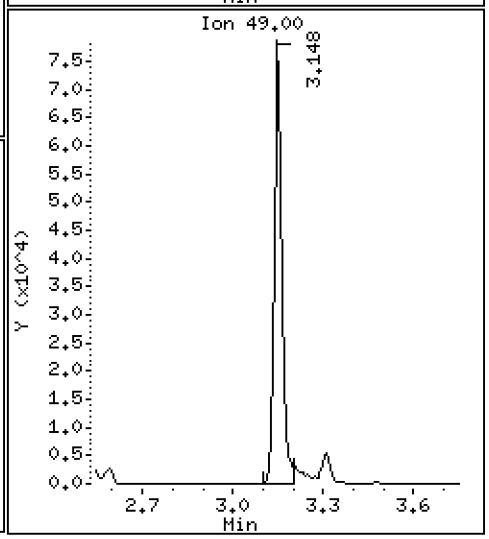












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

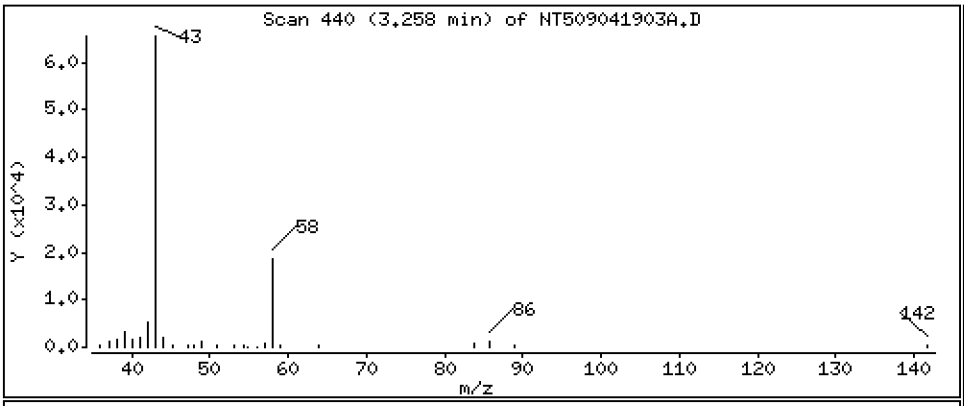
Operator: PB

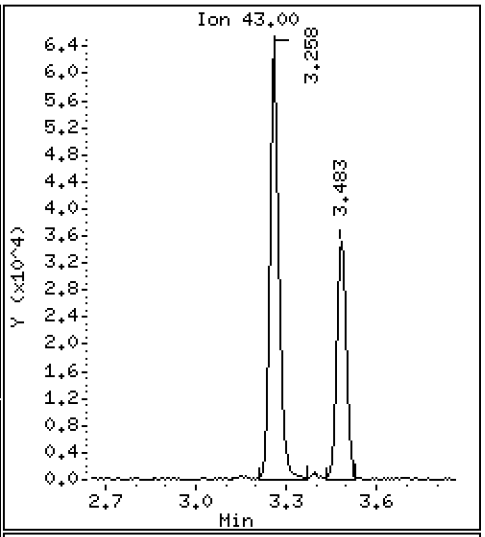
Column phase: RTXVMS

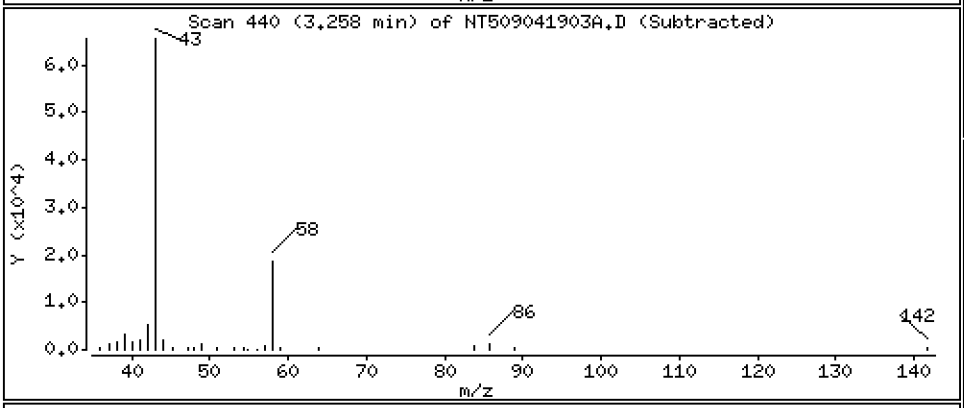
Column diameter: 0.18

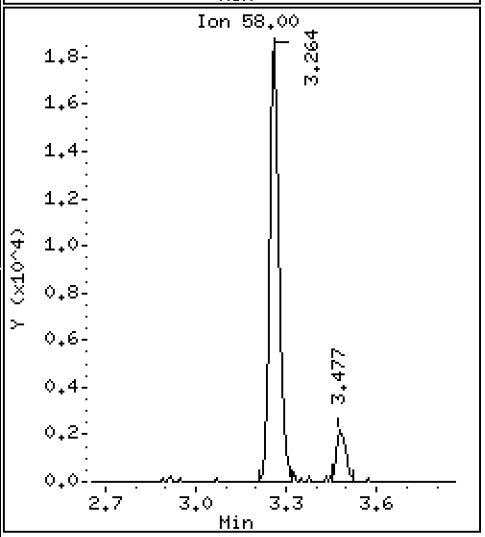
14 Acetone

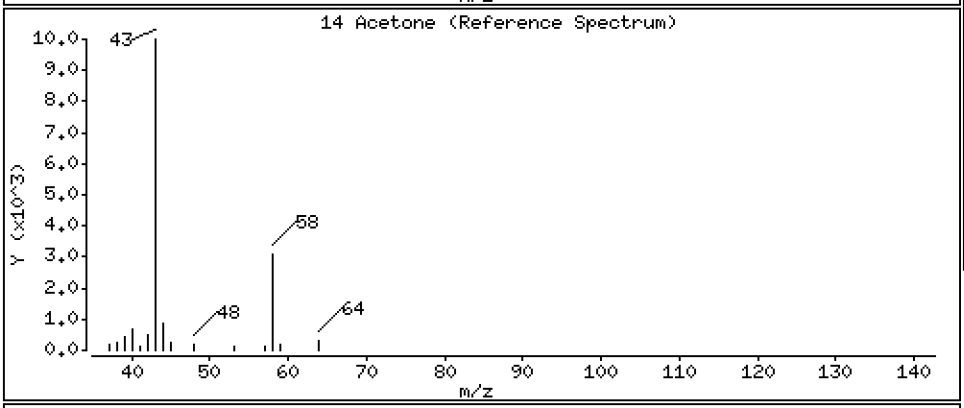
Concentration: 303.30 ug/Kg

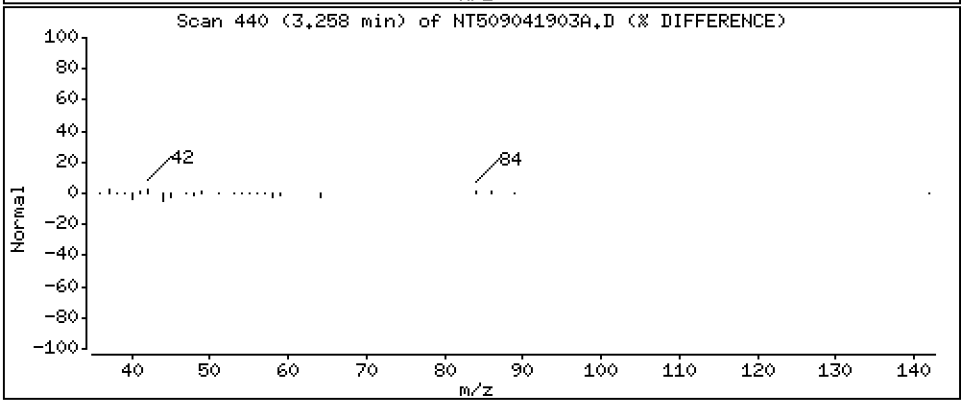












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

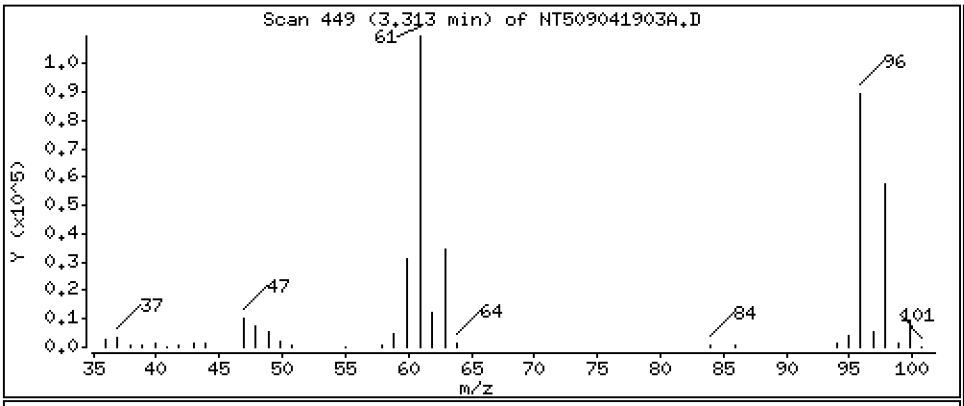
Operator: PB

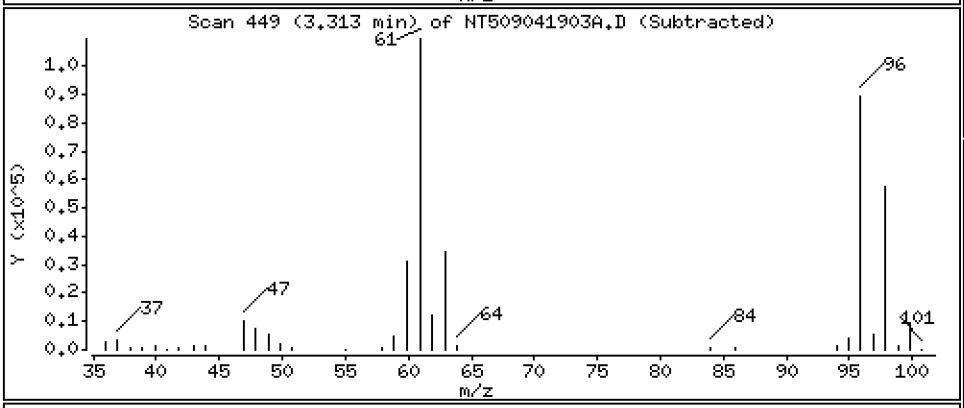
Column phase: RTXVMS

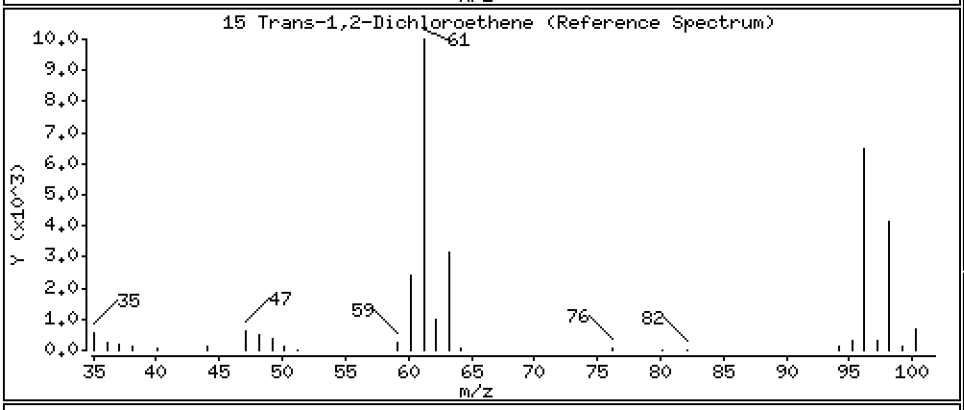
Column diameter: 0.18

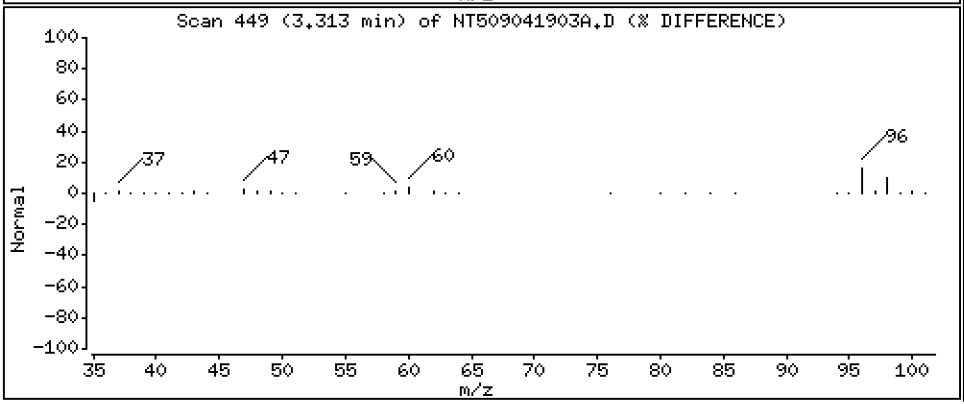
15 Trans-1,2-Dichloroethene

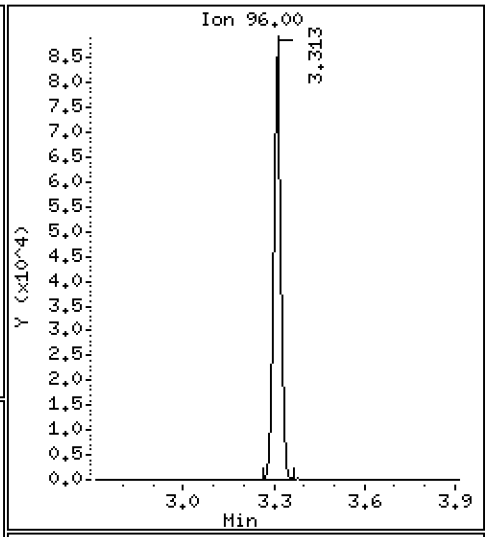
Concentration: 57.469 ug/Kg

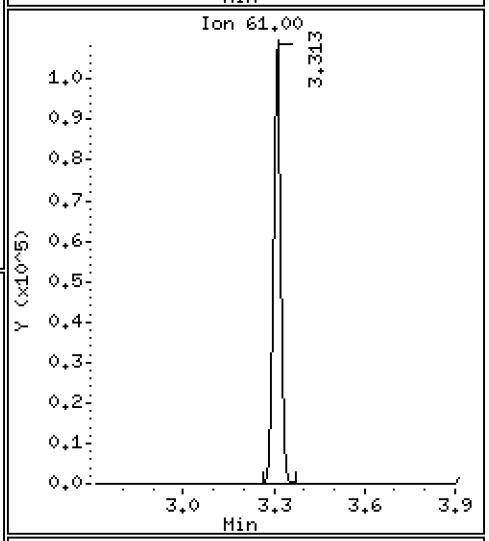


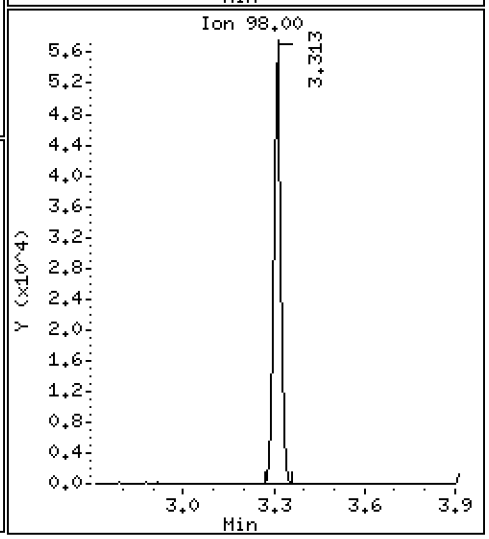












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

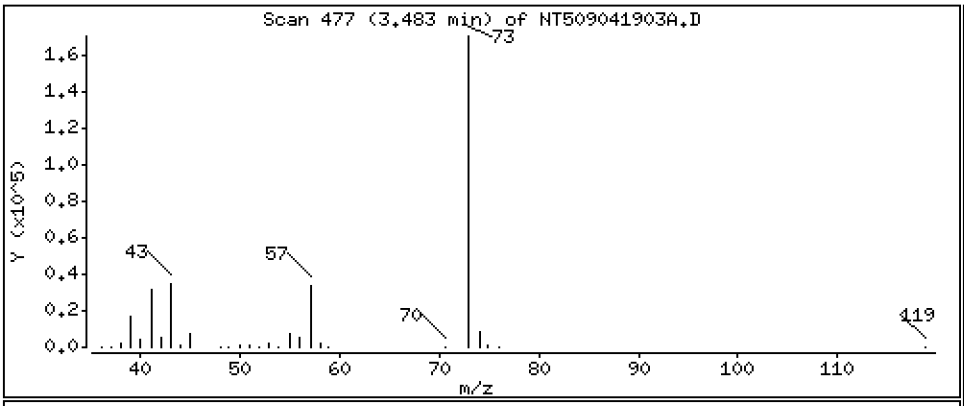
Operator: PB

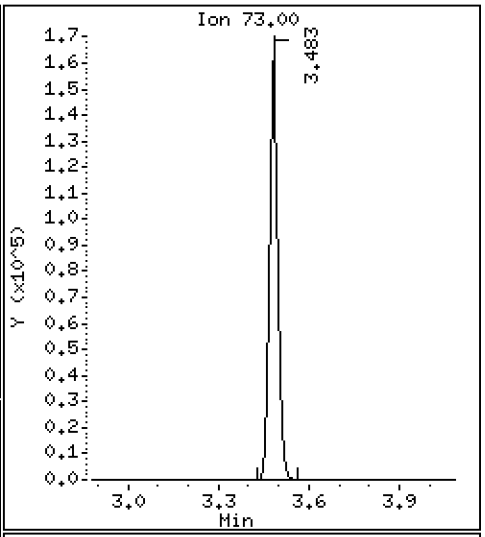
Column phase: RTXVMS

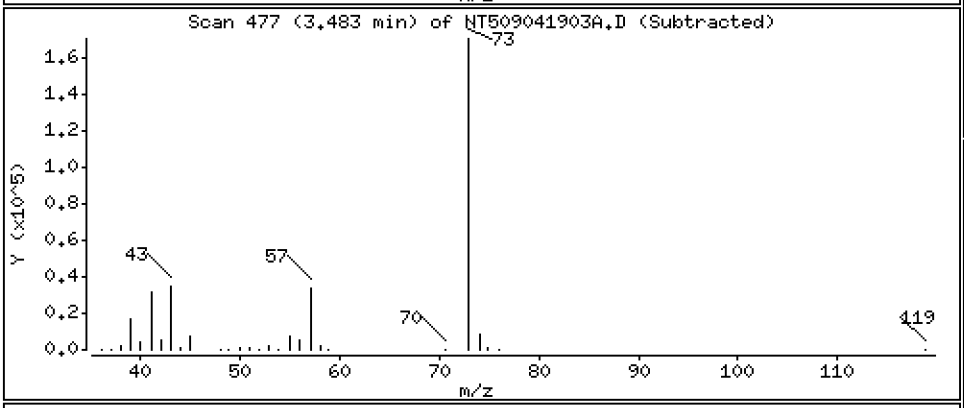
Column diameter: 0.18

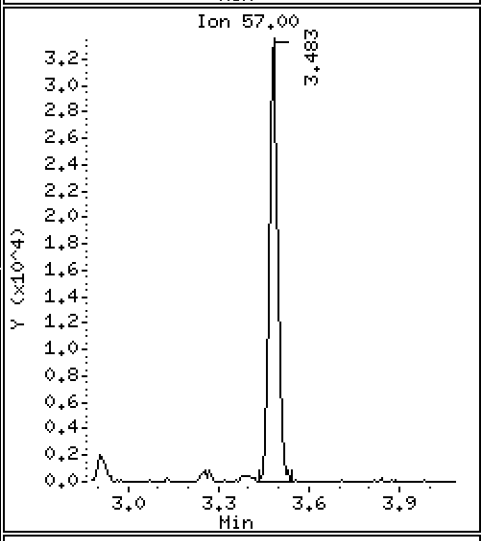
16 Methyl tert butyl ether

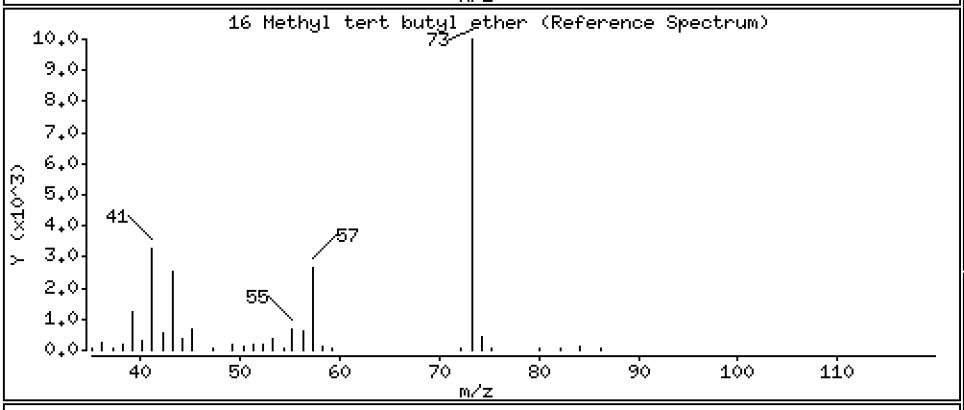
Concentration: 53.833 ug/Kg

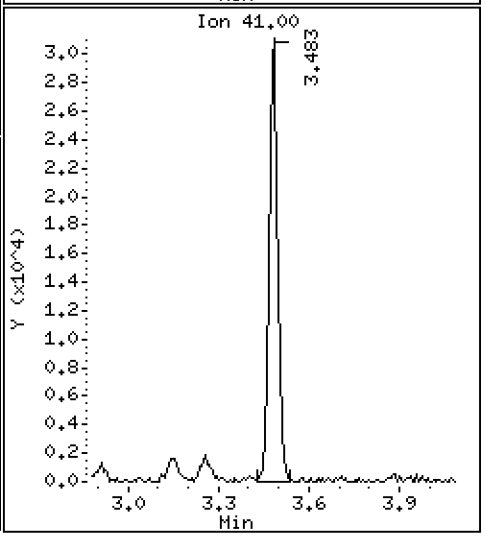


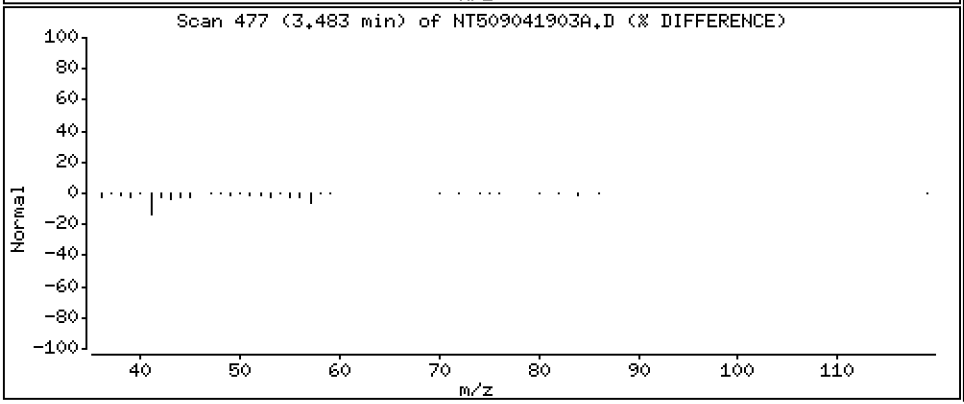












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

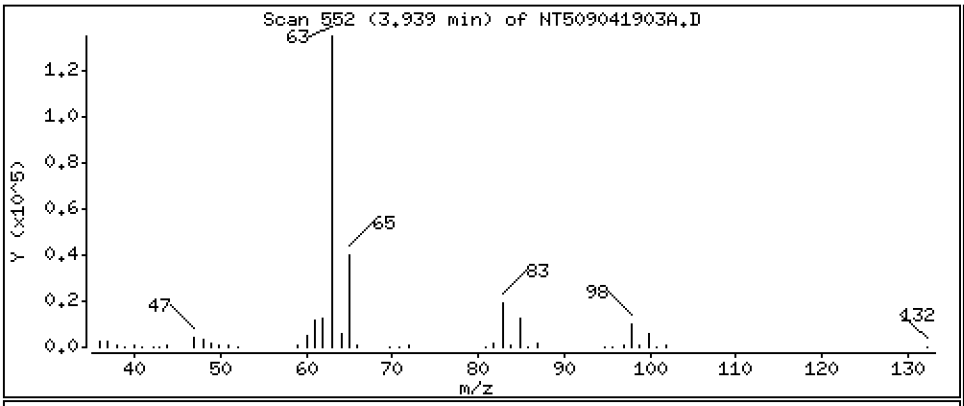
Operator: PB

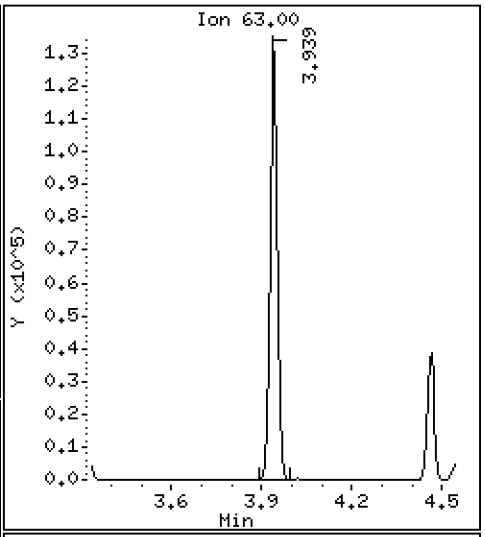
Column phase: RTXVMS

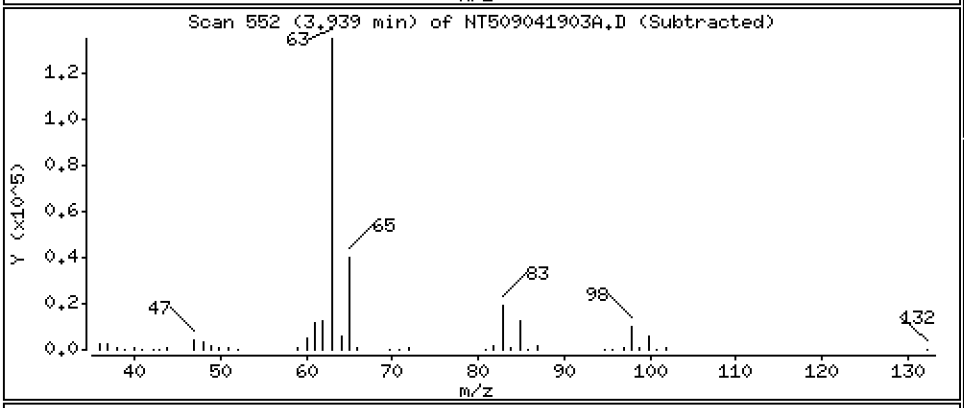
Column diameter: 0.18

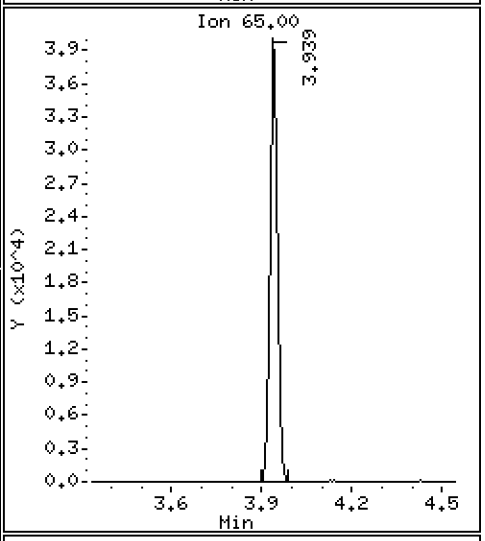
17 1,1-Dichloroethane

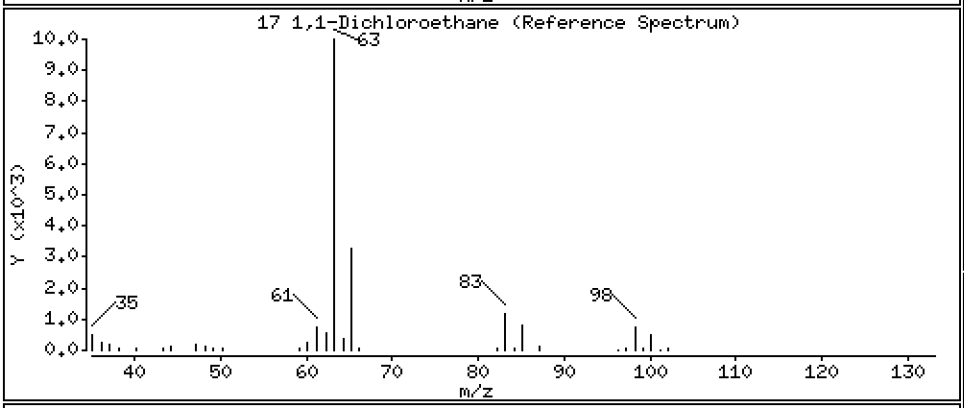
Concentration: 57.245 ug/Kg

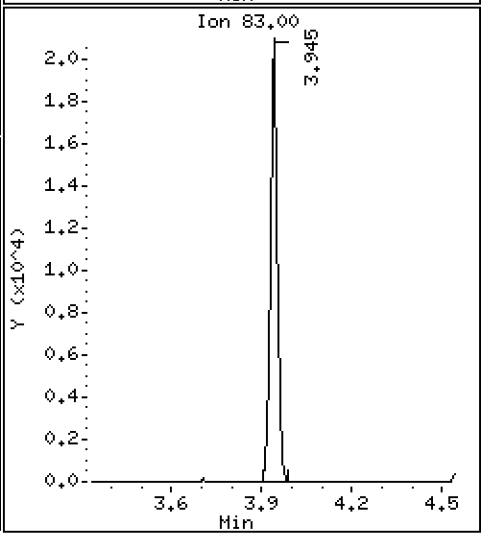


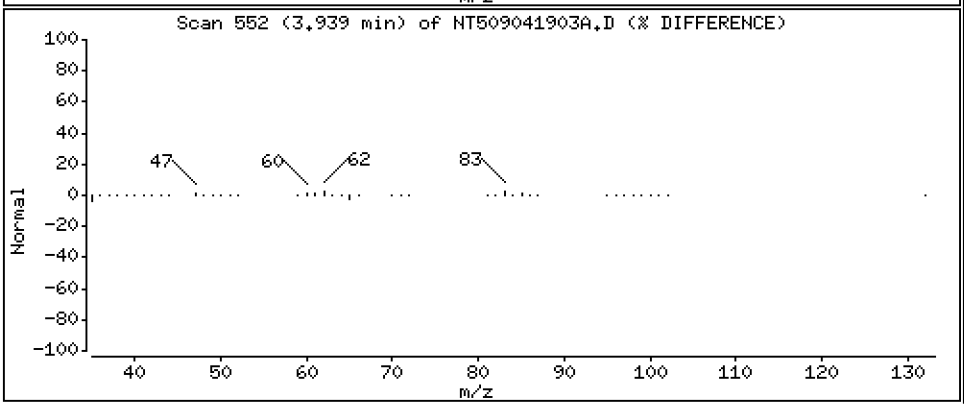












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

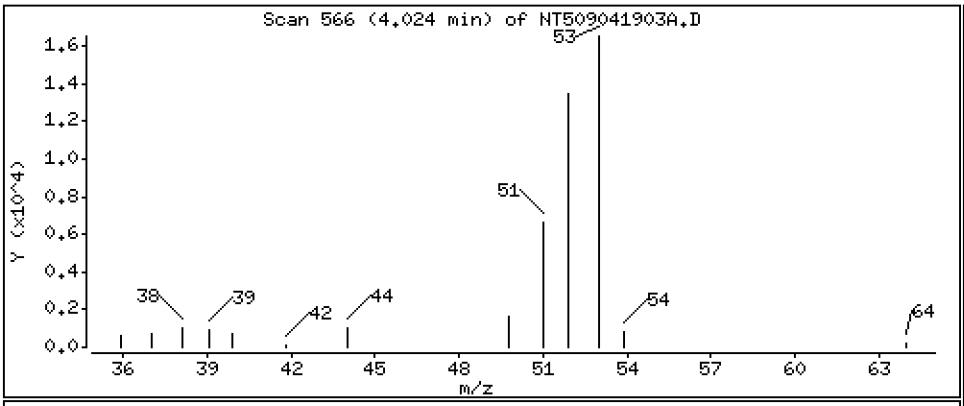
Operator: PB

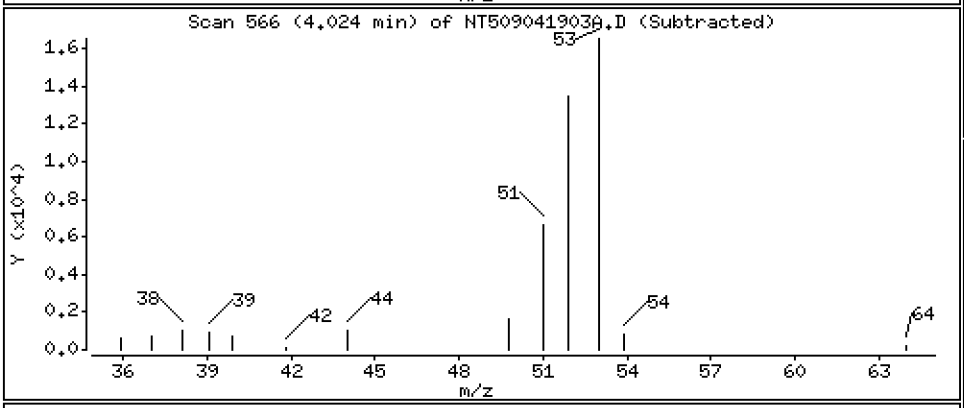
Column phase: RTXVMS

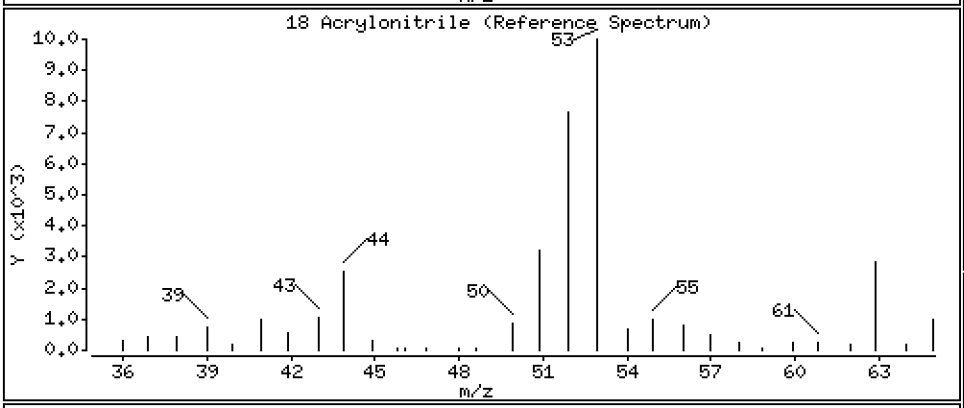
Column diameter: 0.18

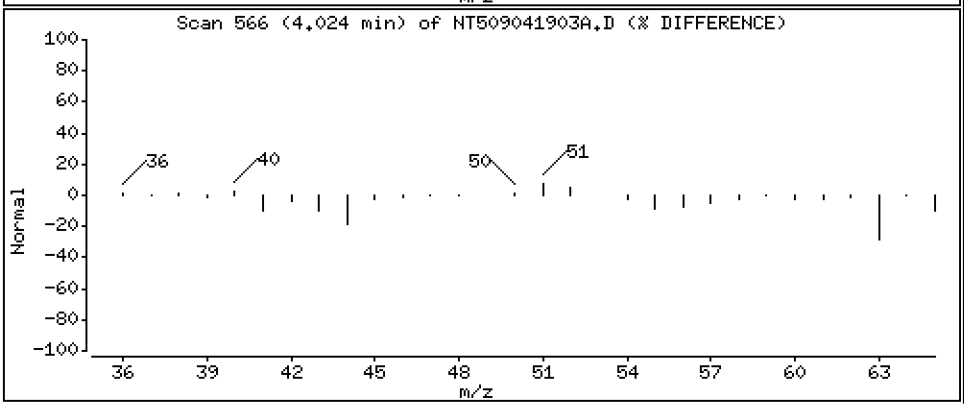
18 Acrylonitrile

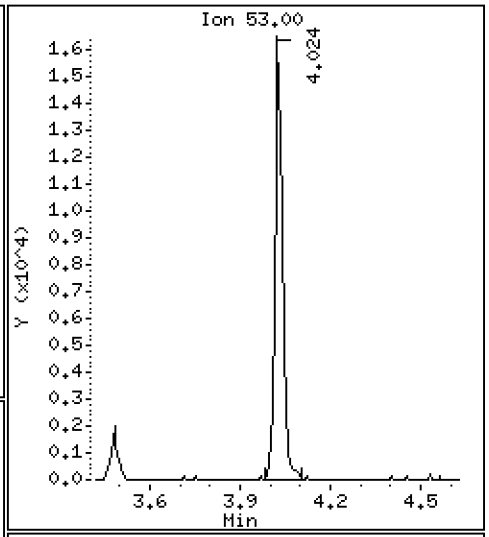
Concentration: 57.847 ug/Kg

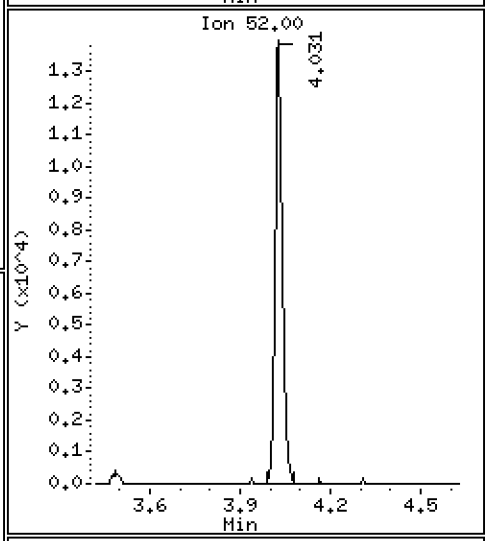


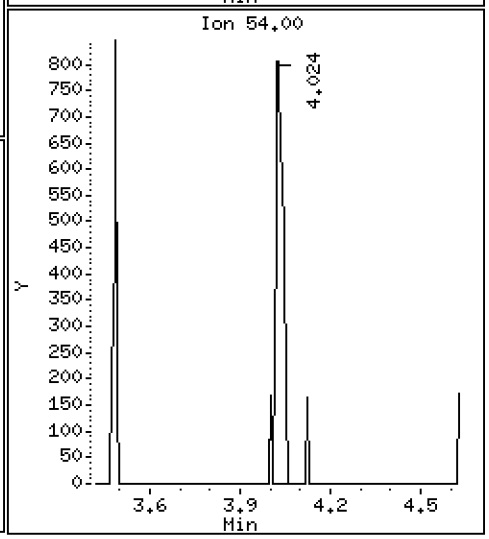












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

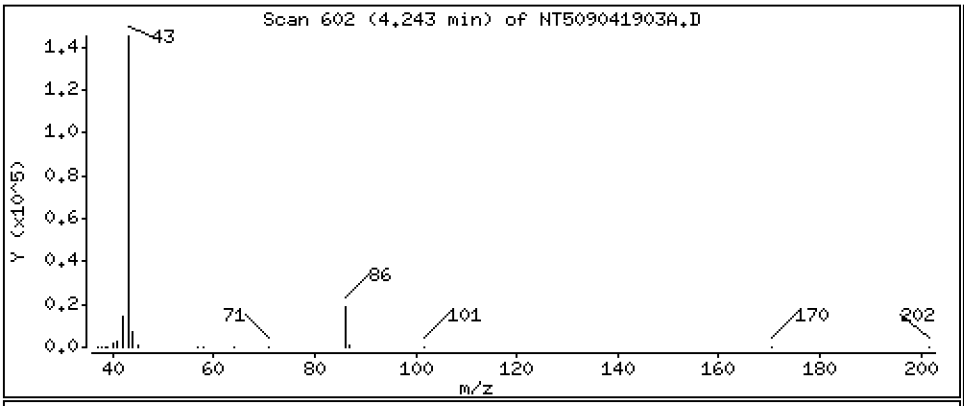
Operator: PB

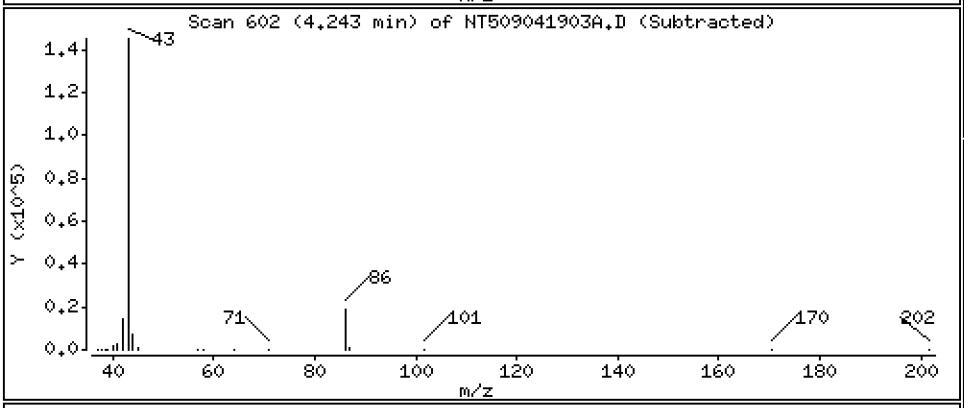
Column phase: RTXVMS

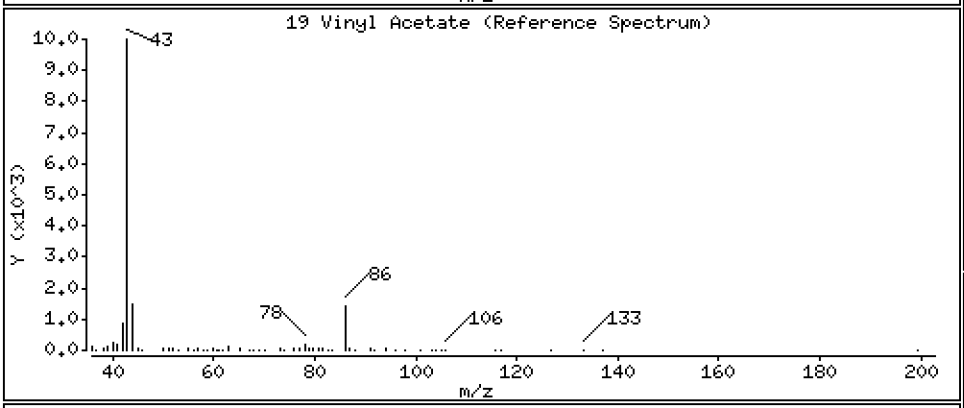
Column diameter: 0.18

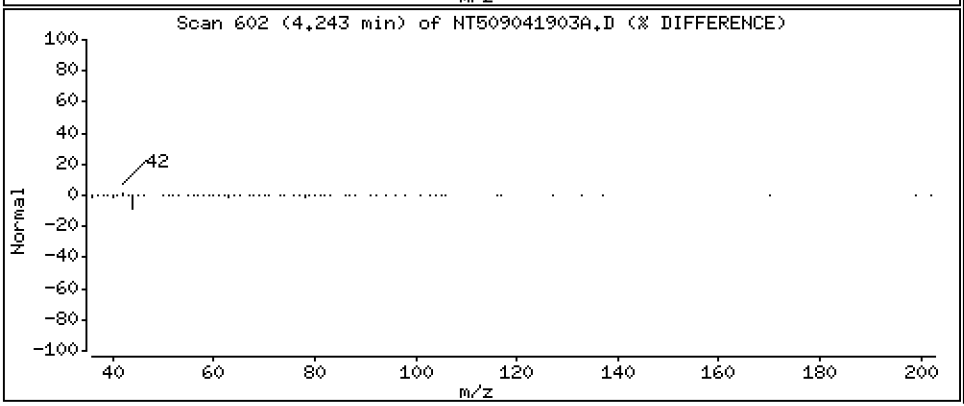
19 Vinyl Acetate

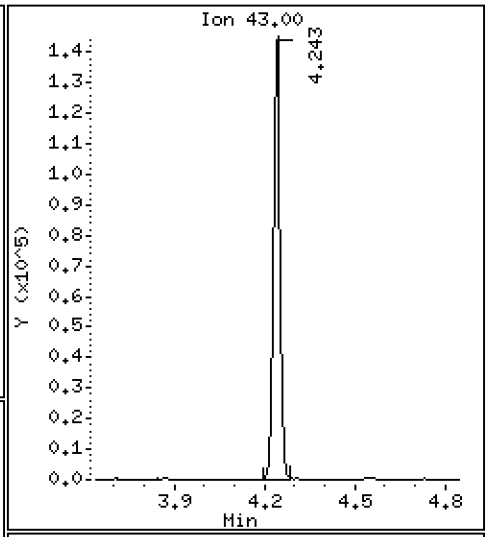
Concentration: 54.947 ug/Kg

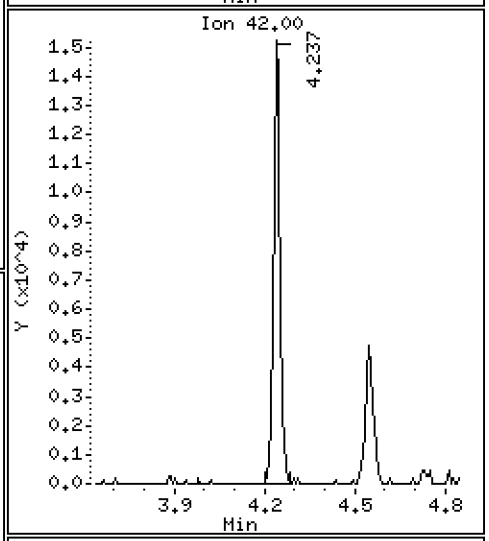


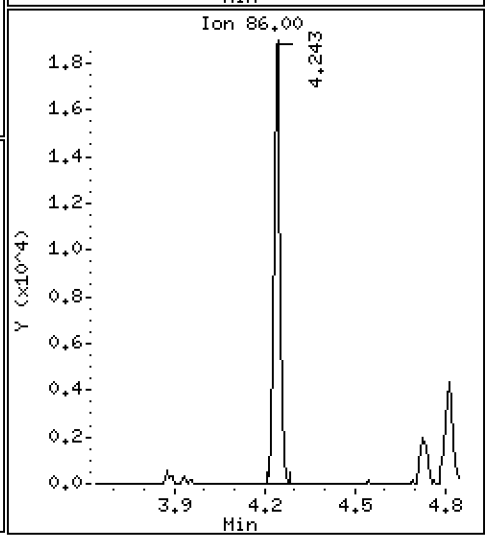












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

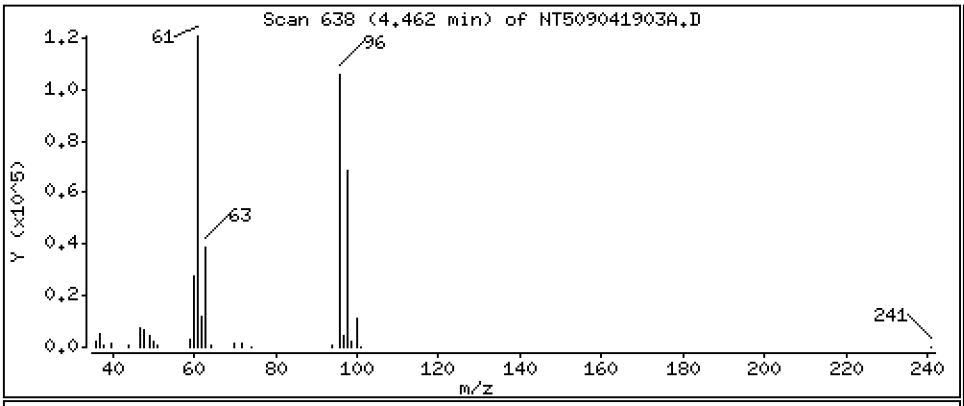
Operator: PB

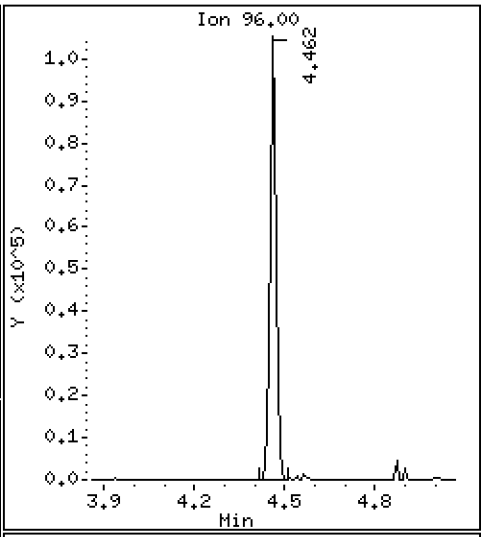
Column phase: RTXVMS

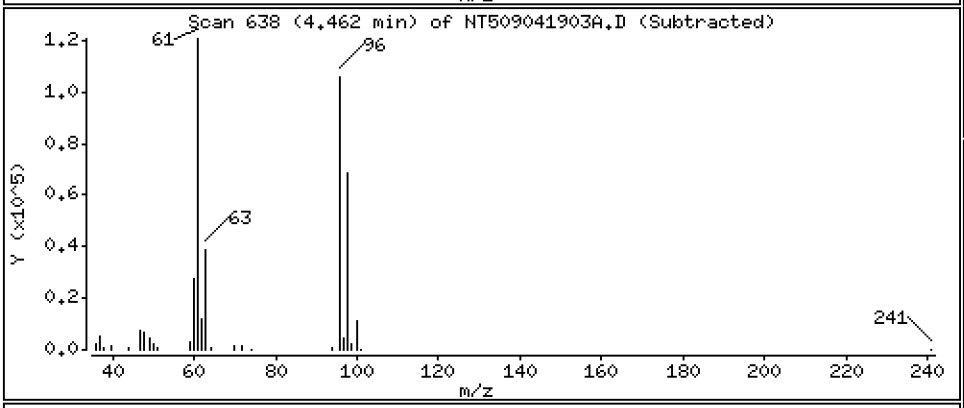
Column diameter: 0.18

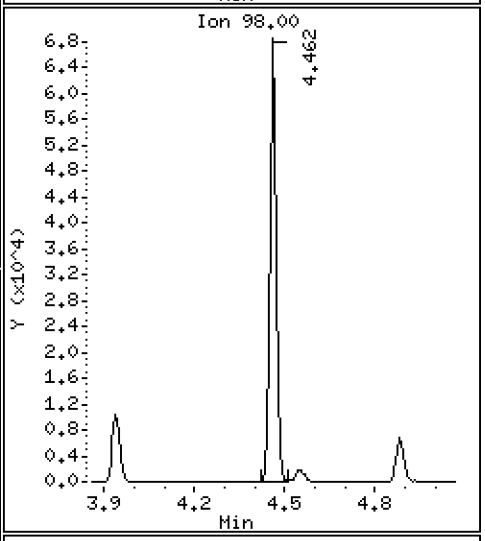
20 Cis-1,2-Dichloroethene

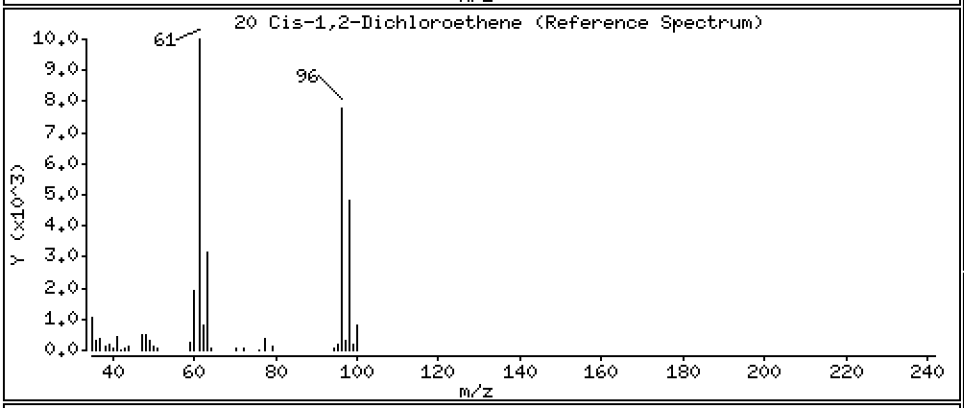
Concentration: 54.798 ug/Kg

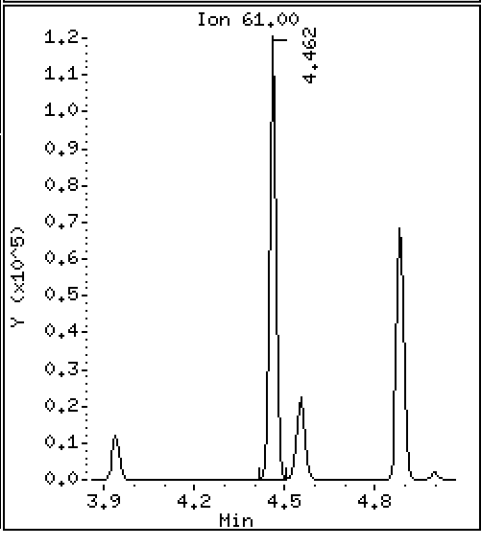


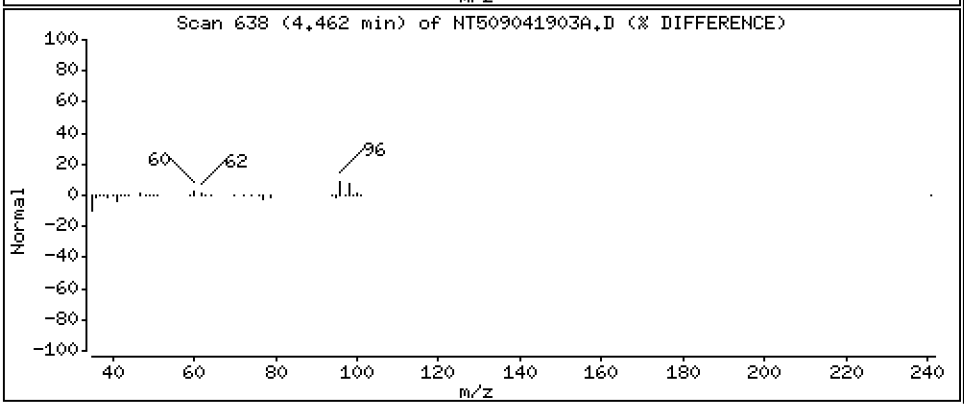












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

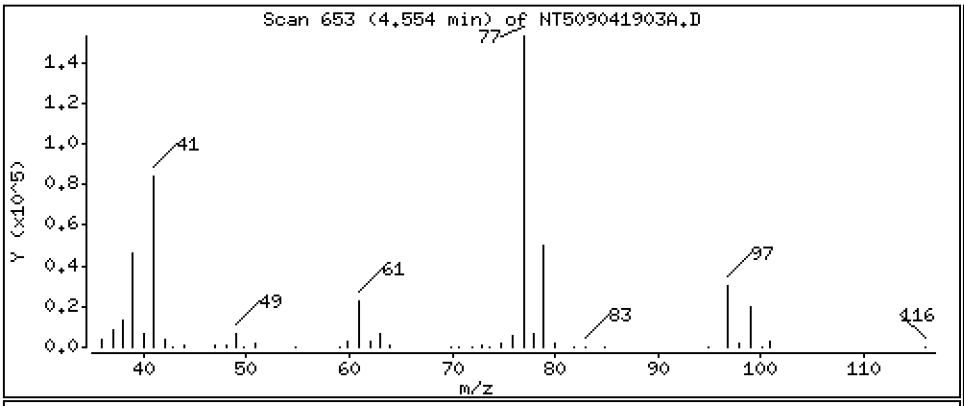
Operator: PB

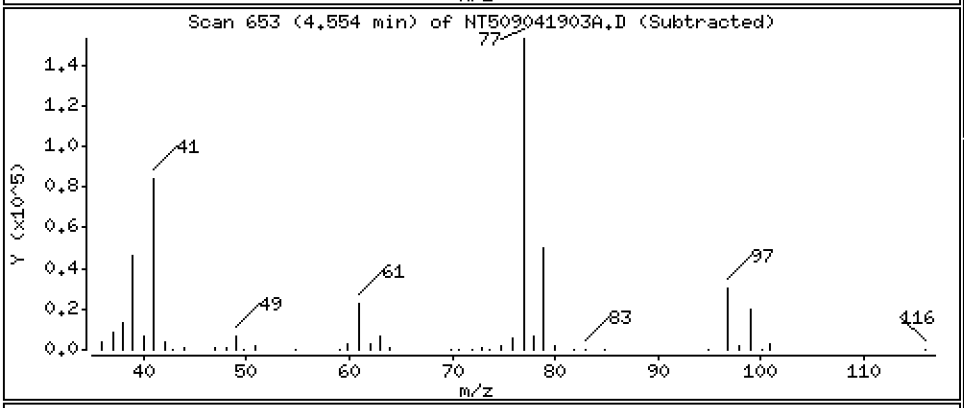
Column phase: RTXVMS

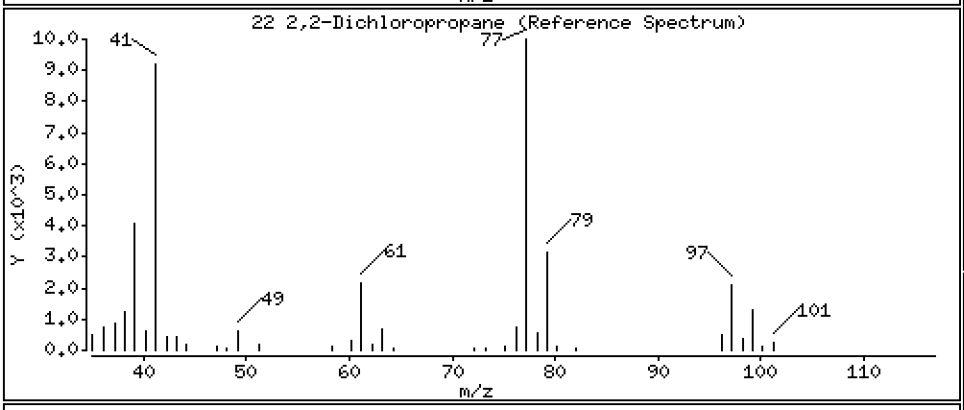
Column diameter: 0.18

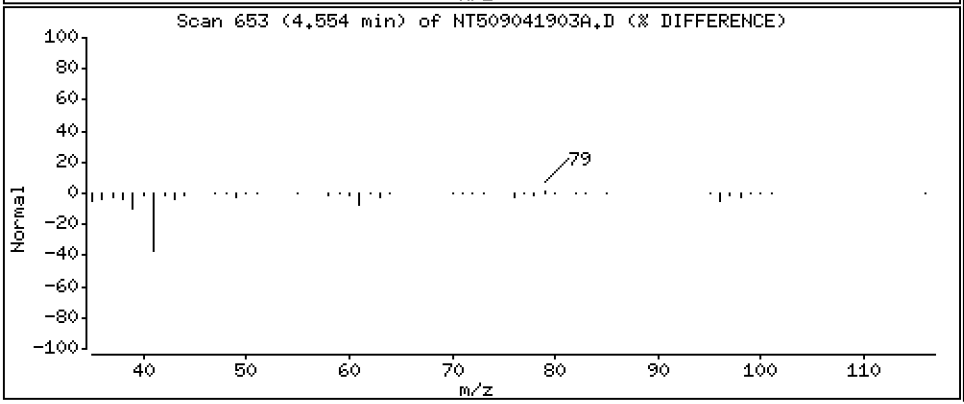
22 2,2-Dichloropropane

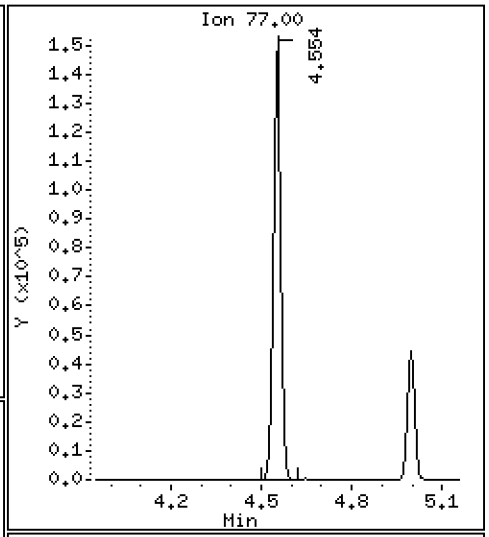
Concentration: 59.341 ug/Kg

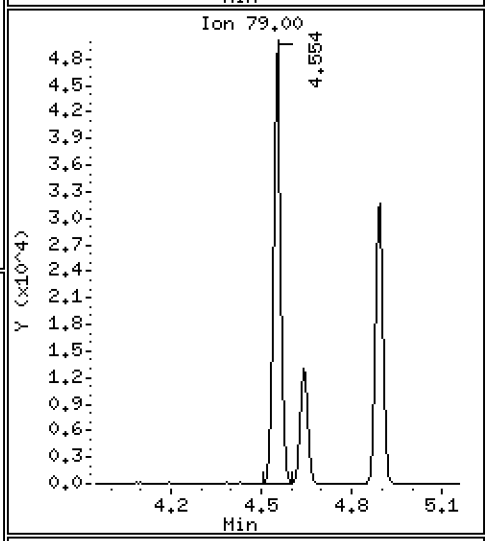


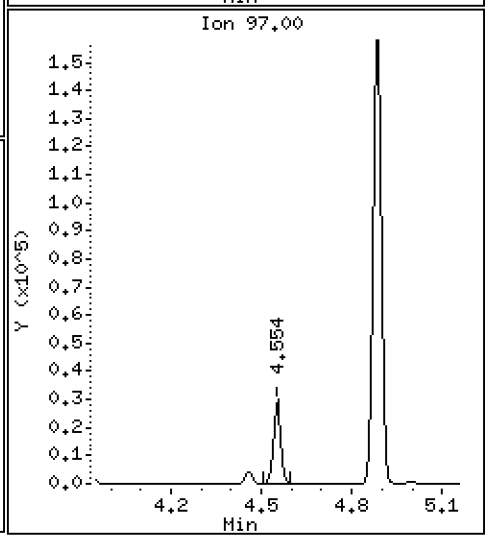












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

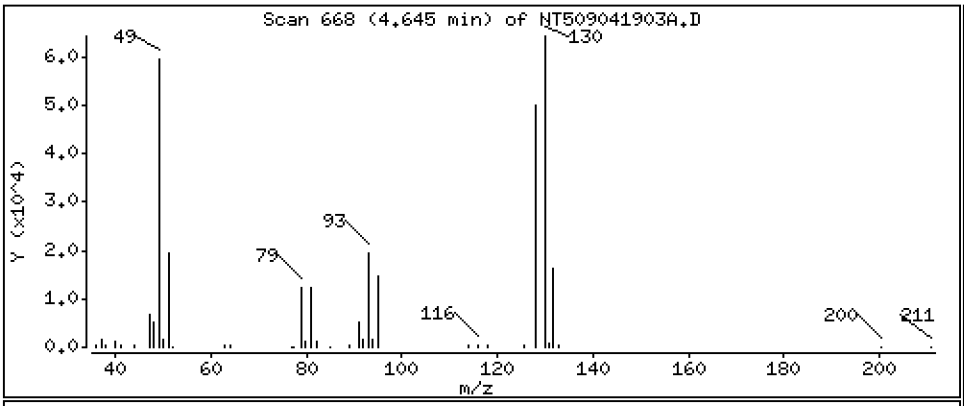
Operator: PB

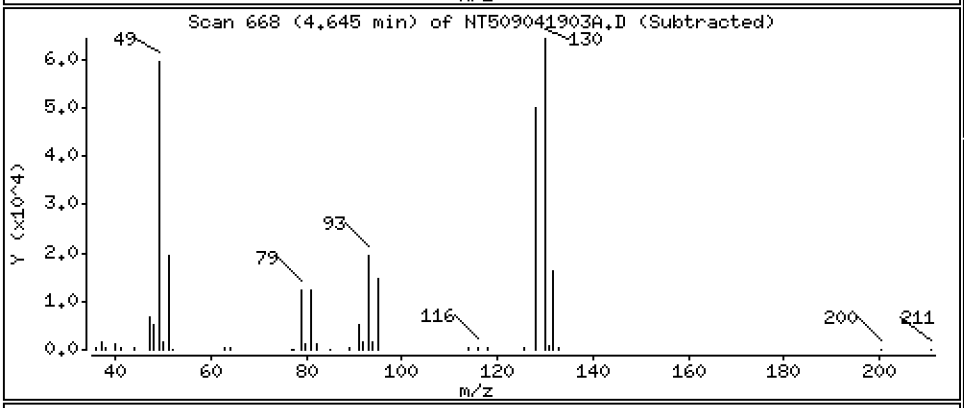
Column phase: RTXVMS

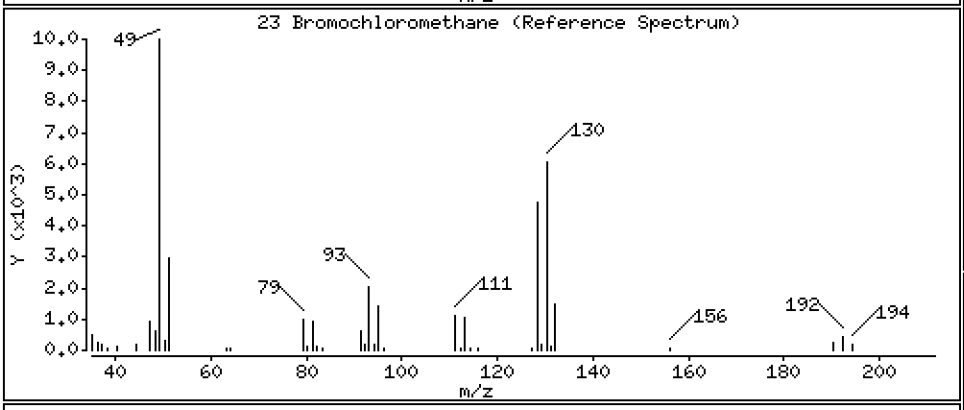
Column diameter: 0.18

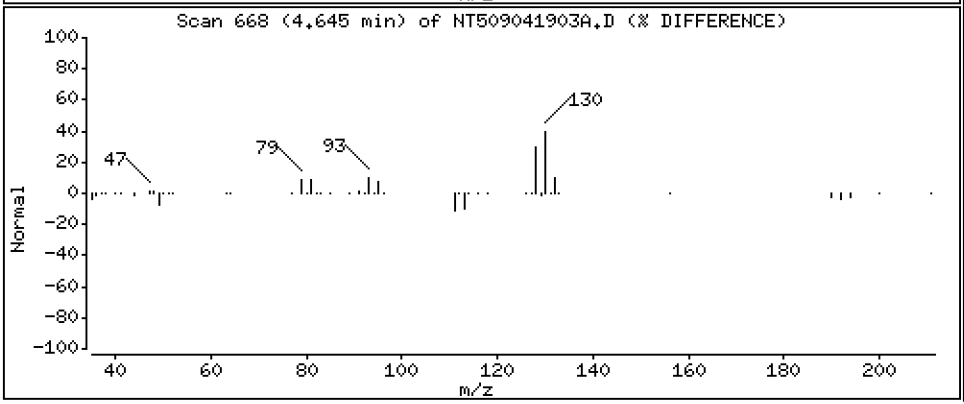
23 Bromochloromethane

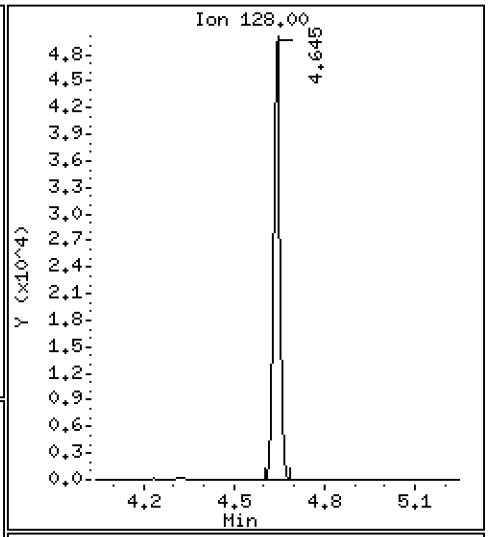
Concentration: 54.897 ug/Kg

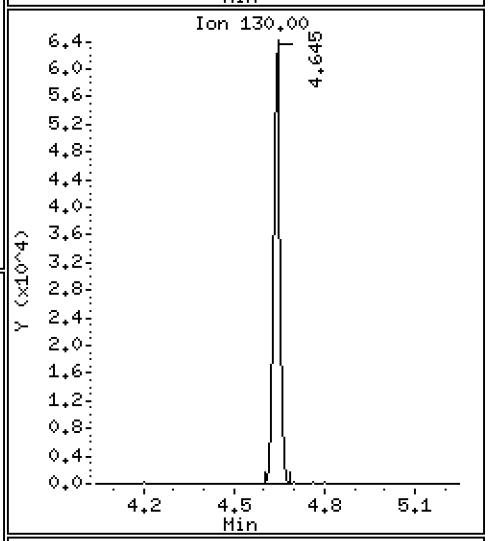


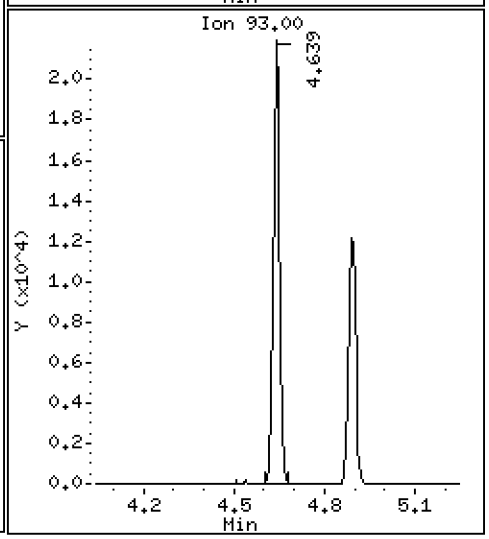












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

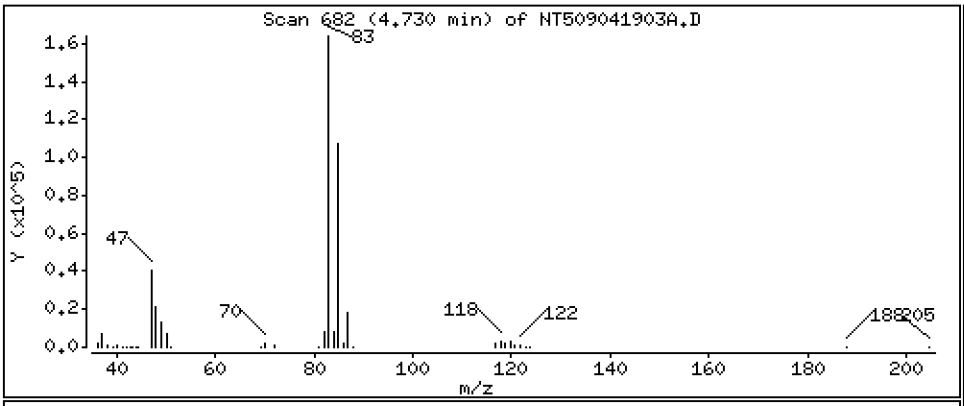
Operator: PB

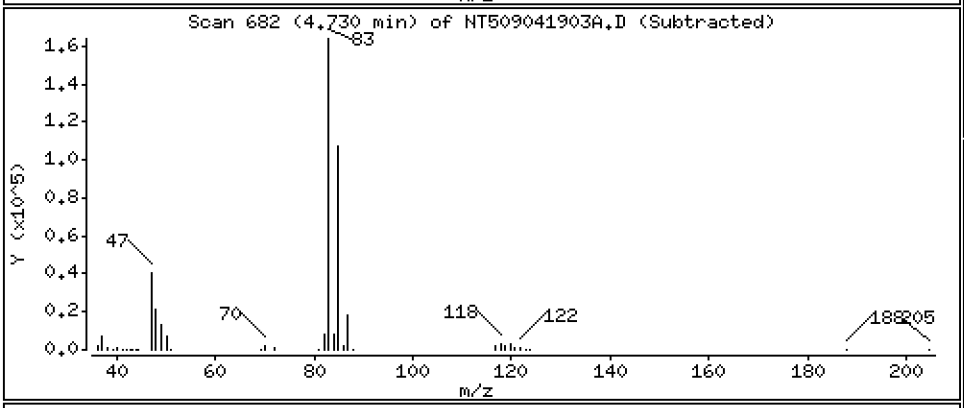
Column phase: RTXVMS

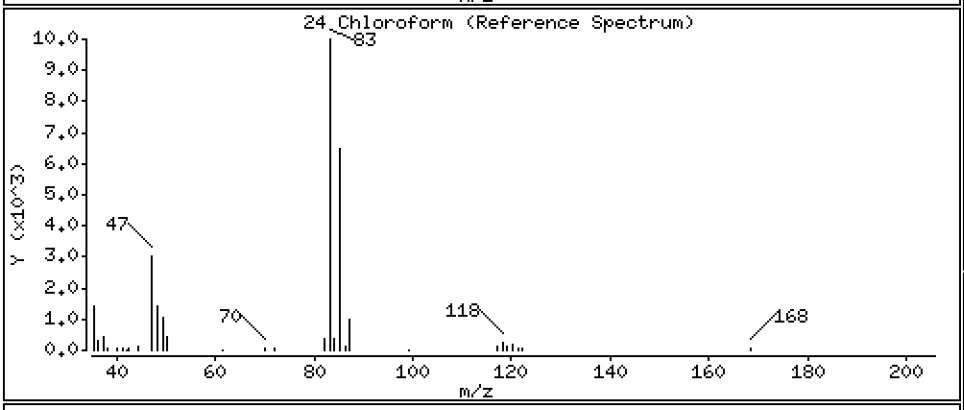
Column diameter: 0.18

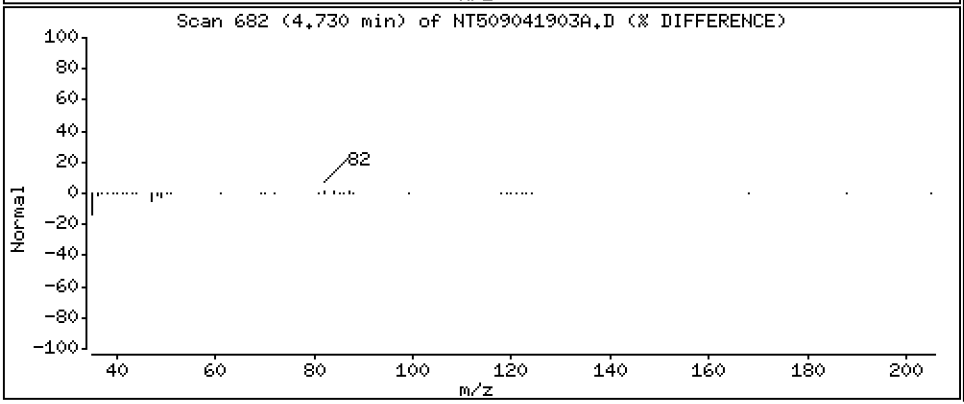
24 Chloroform

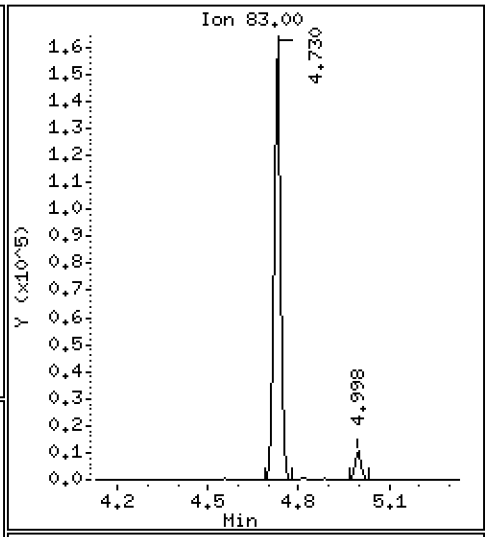
Concentration: 55.217 ug/Kg

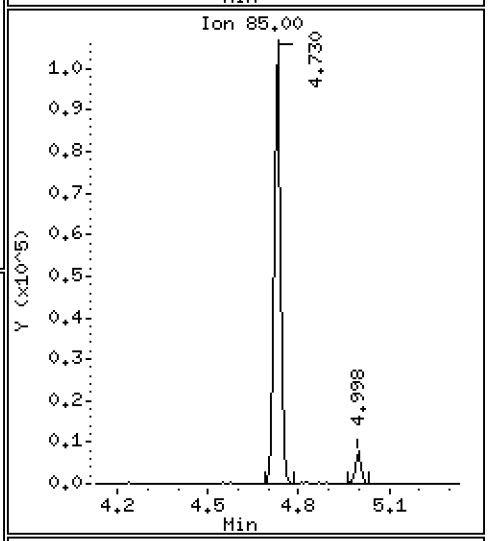


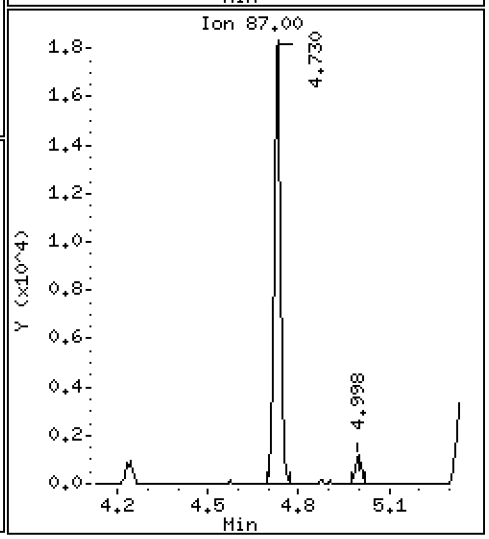












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

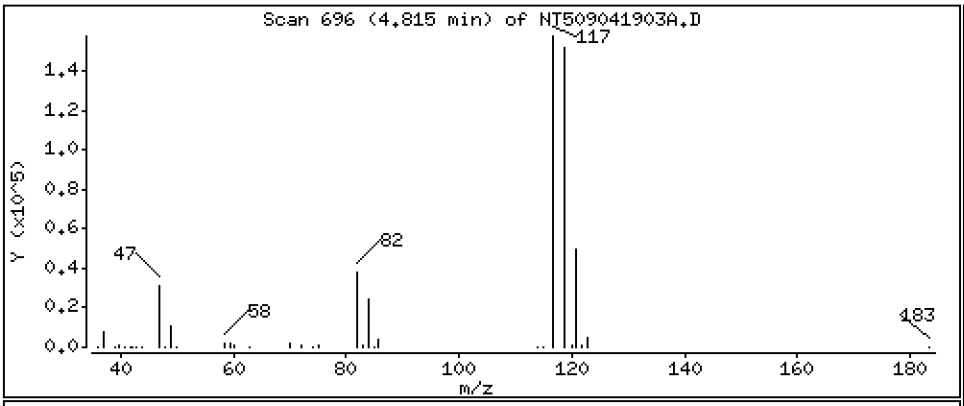
Operator: PB

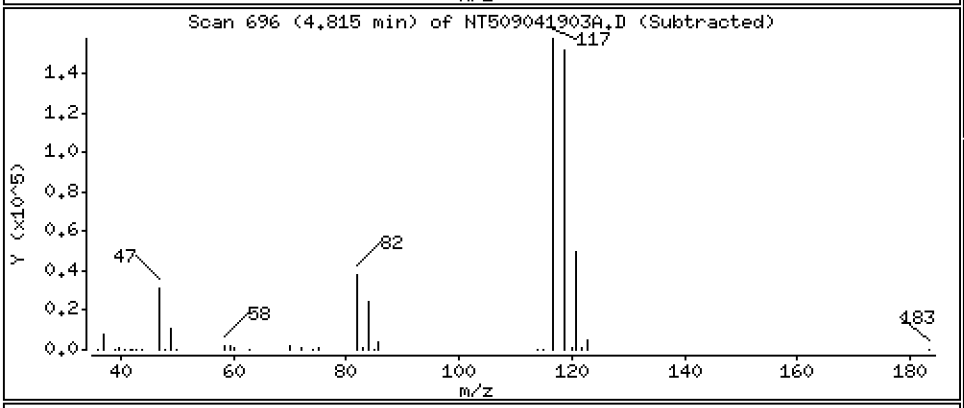
Column phase: RTXVMS

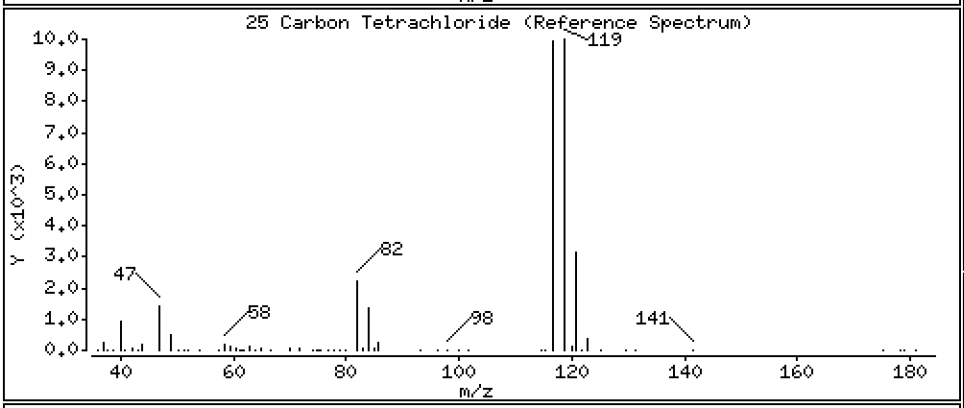
Column diameter: 0.18

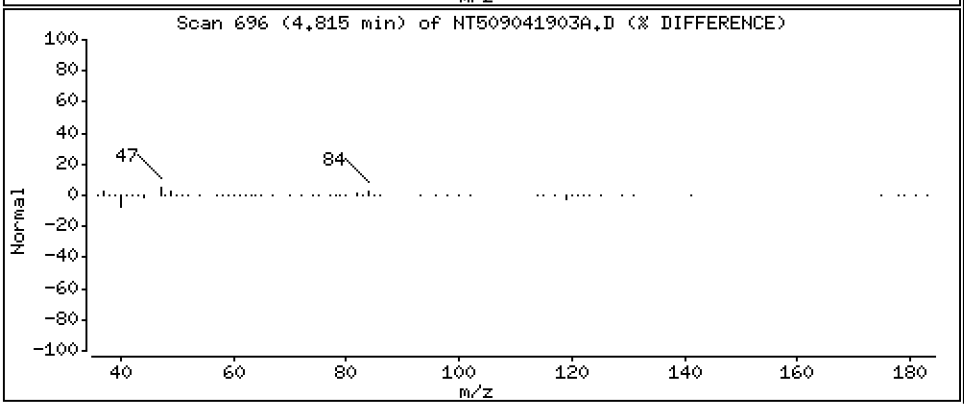
25 Carbon Tetrachloride

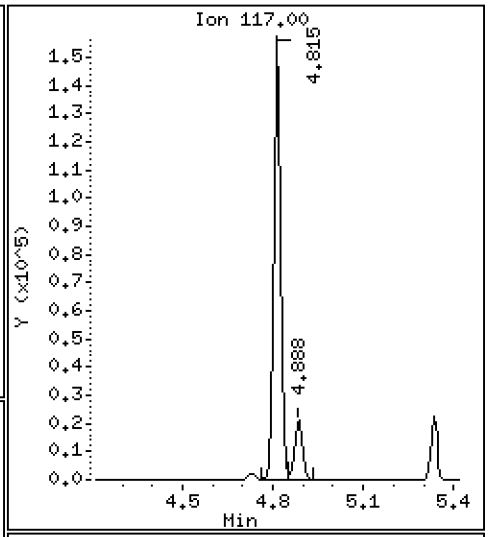
Concentration: 48.273 ug/Kg

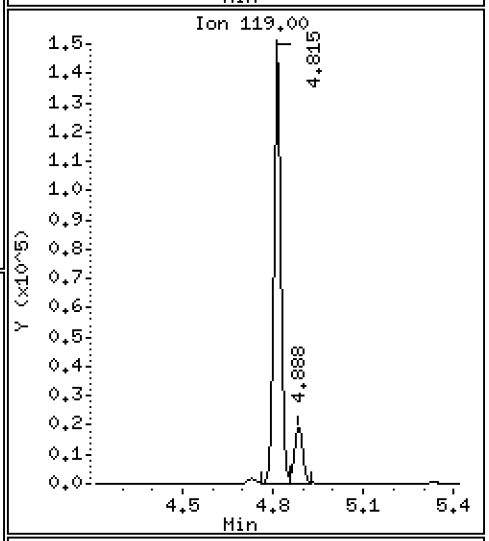


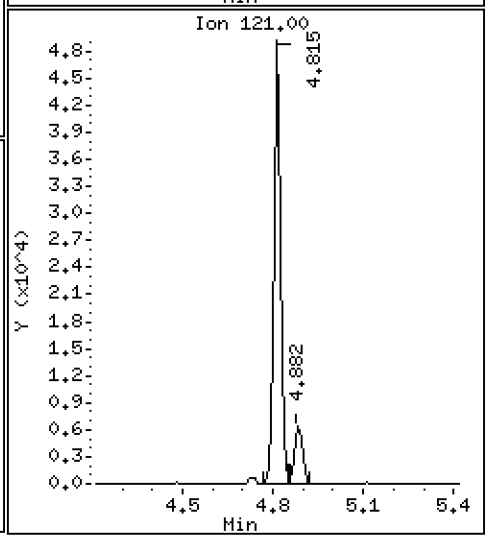












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

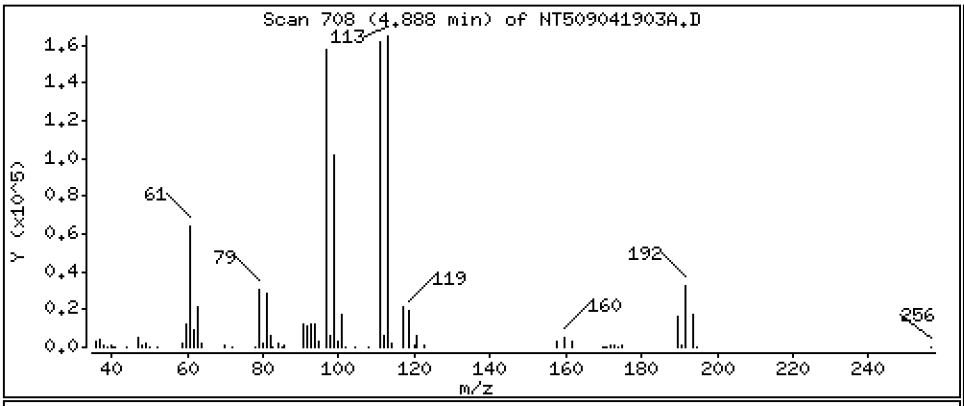
Operator: PB

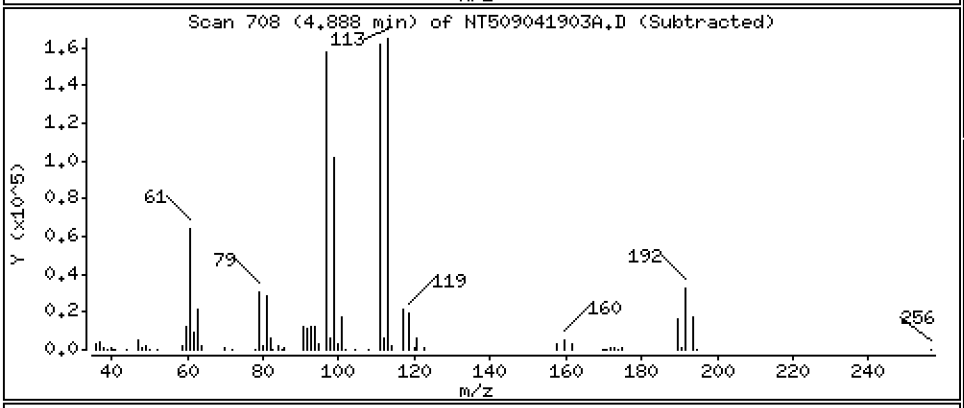
Column phase: RTXVMS

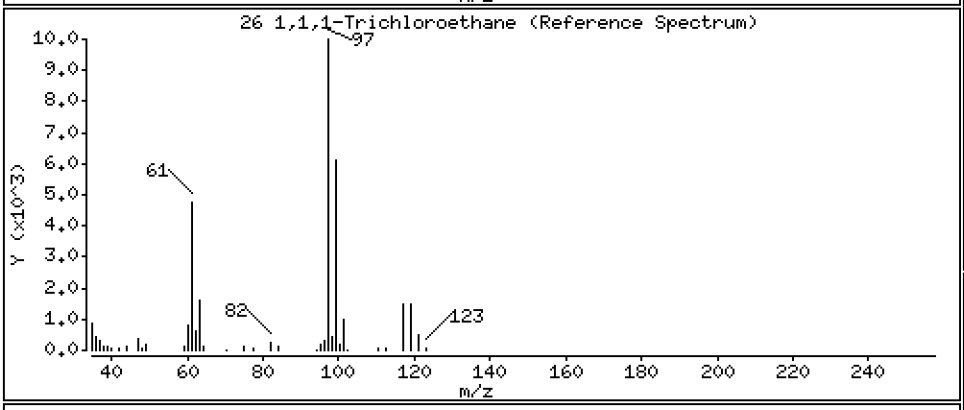
Column diameter: 0.18

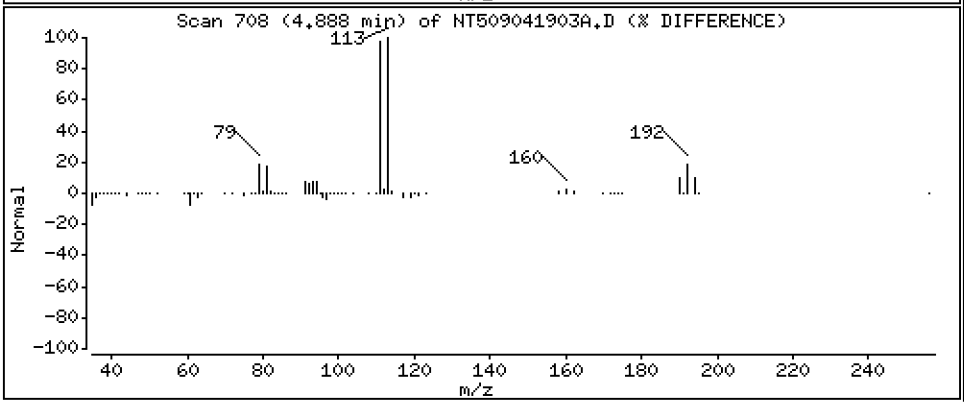
26 1,1,1-Trichloroethane

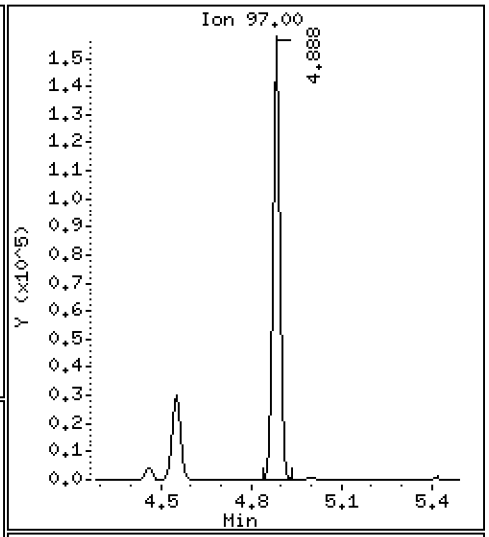
Concentration: 56.097 ug/Kg

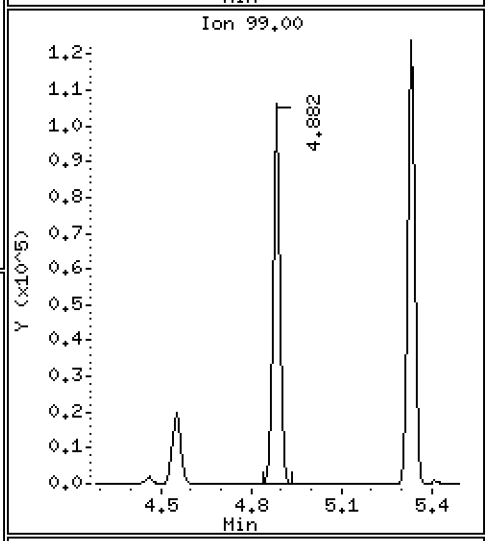


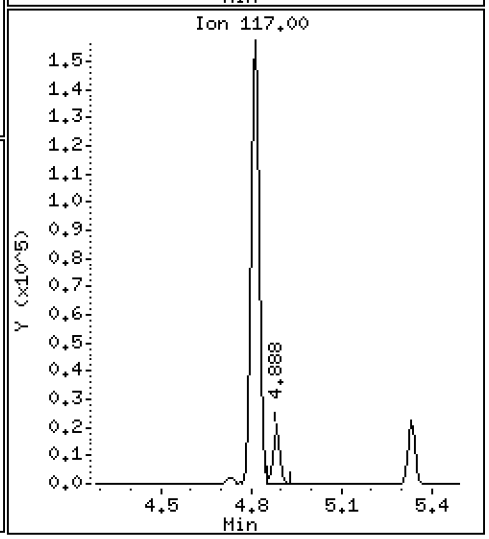












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

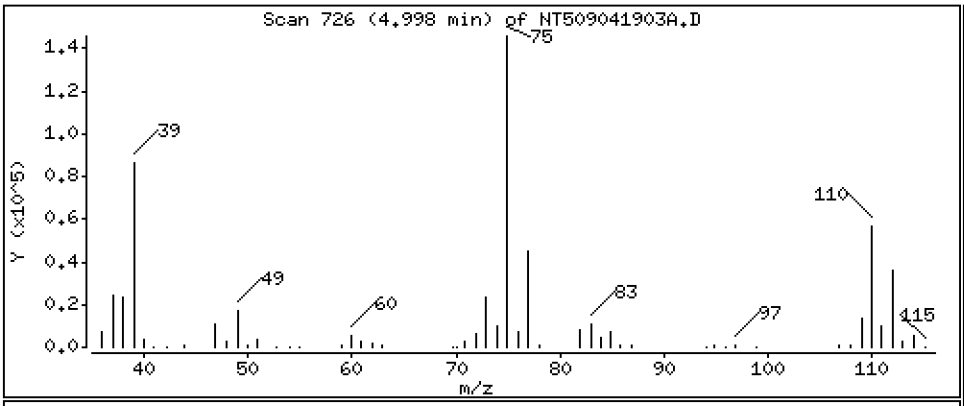
Operator: PB

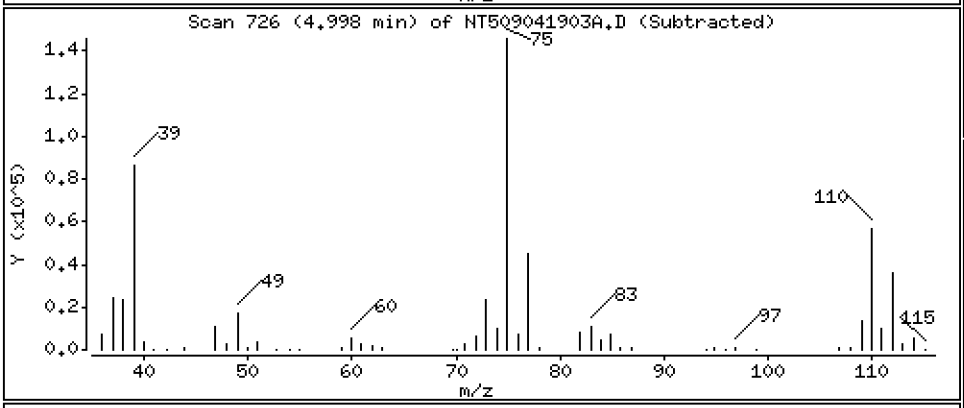
Column phase: RTXVMS

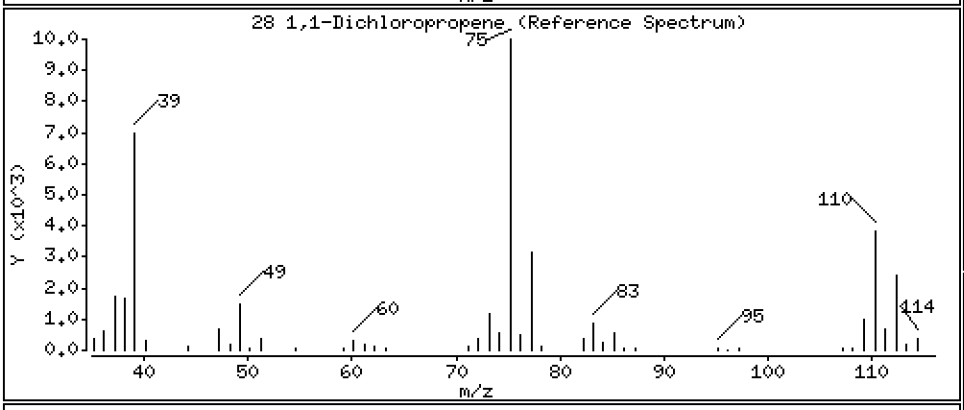
Column diameter: 0.18

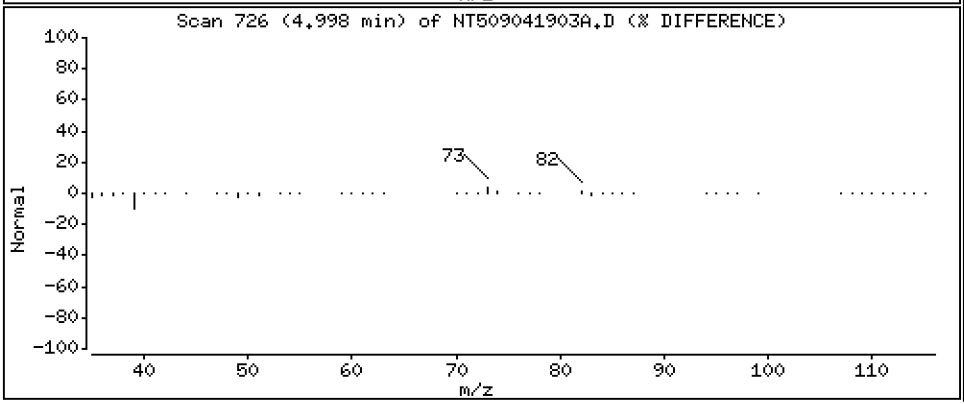
28 1,1-Dichloropropene

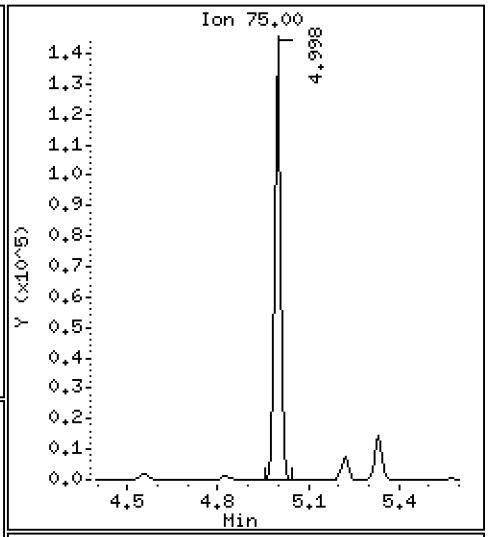
Concentration: 50.017 ug/Kg

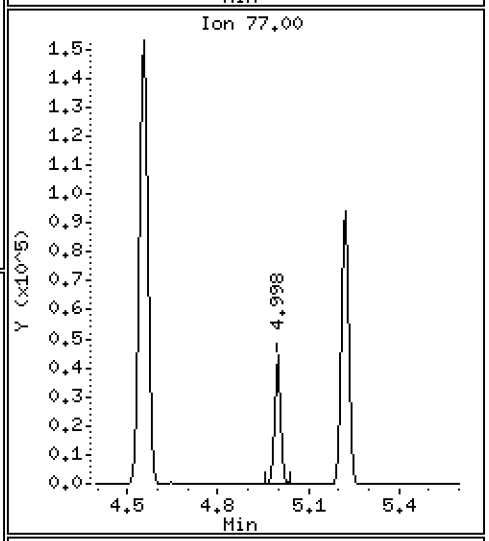


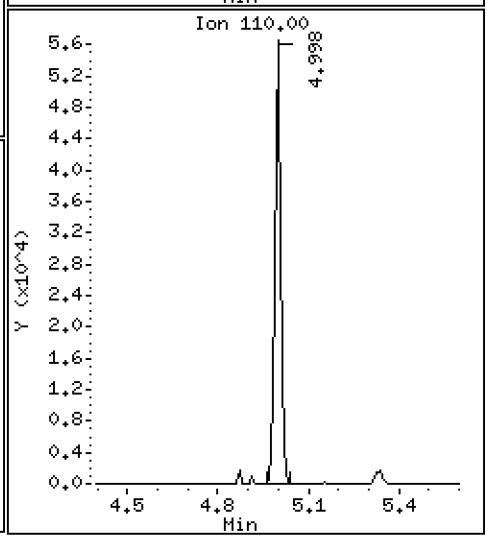












Date : 04-SEP-2019 14:02

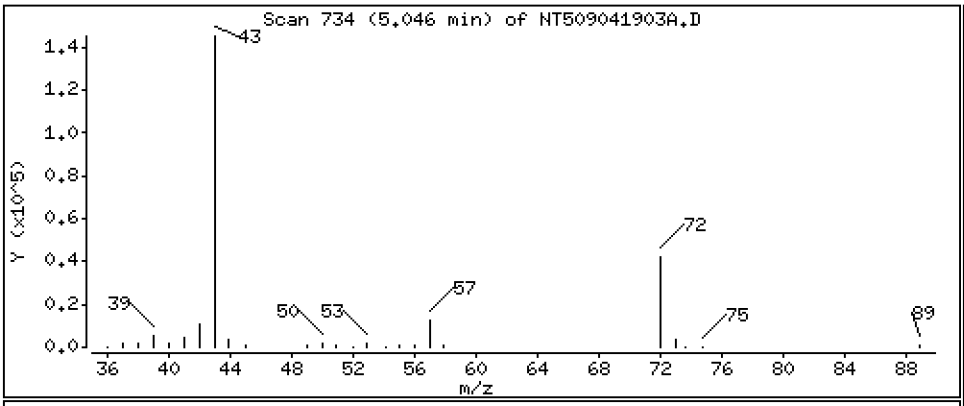
Client ID: Instrument: nt5.i

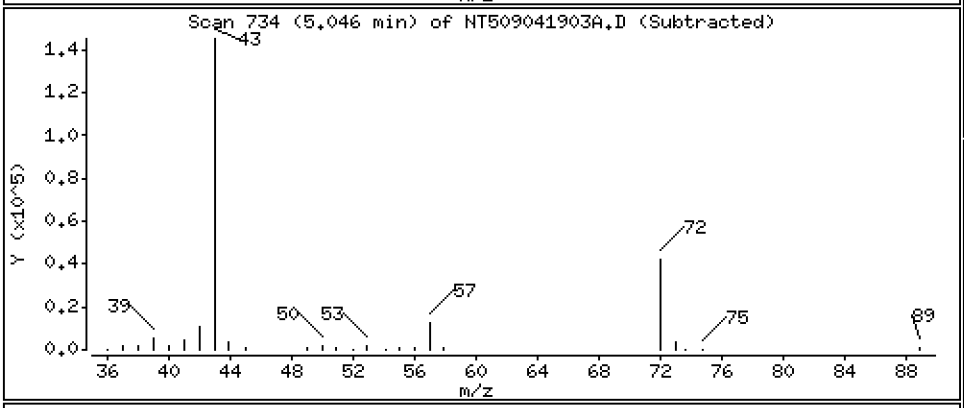
Sample Info: ICV1

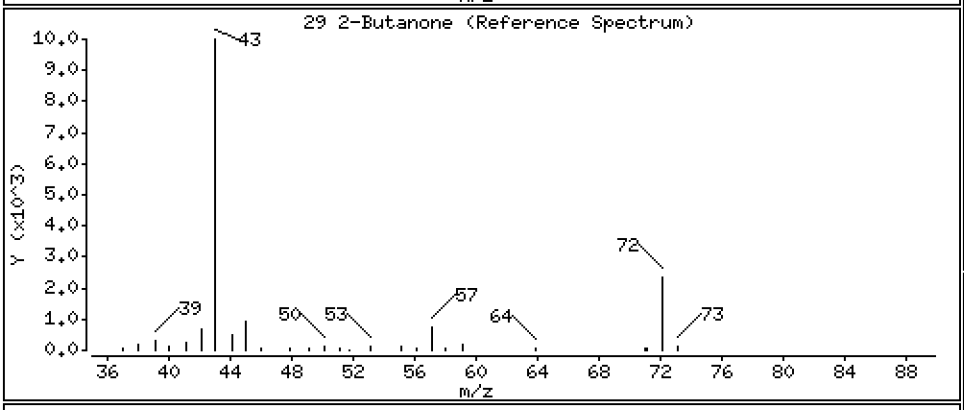
Operator: PB

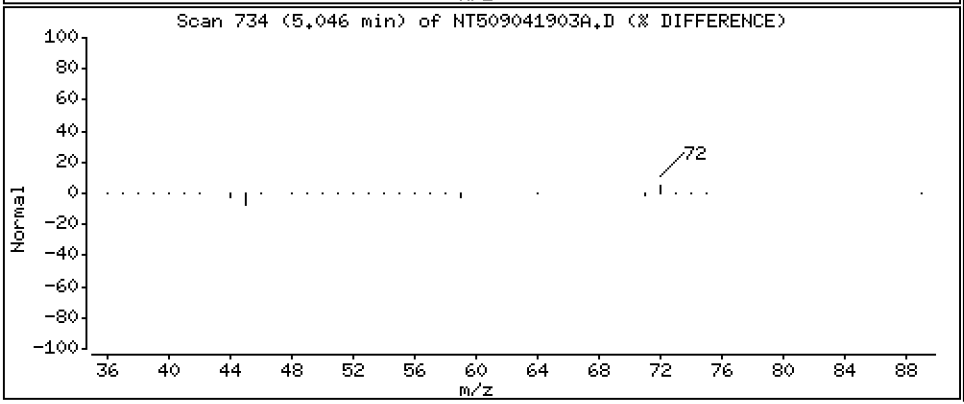
Column phase: RTXVMS Column diameter: 0.18

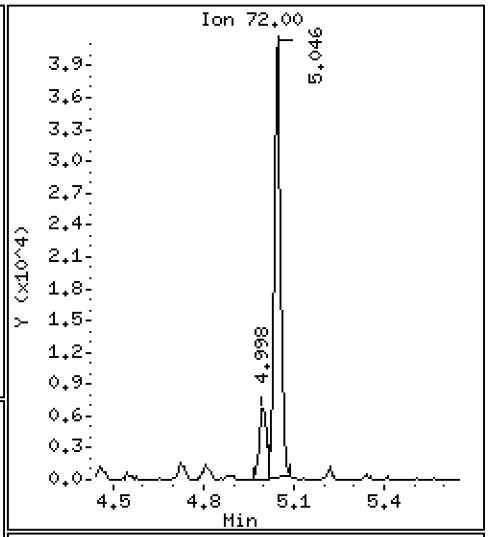
29 2-Butanone Concentration: 285.08 ug/Kg

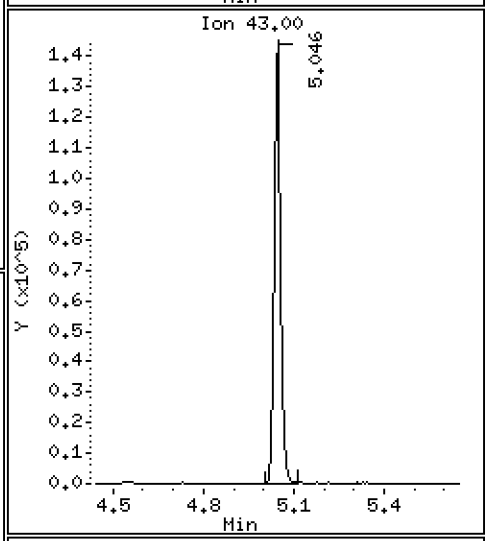


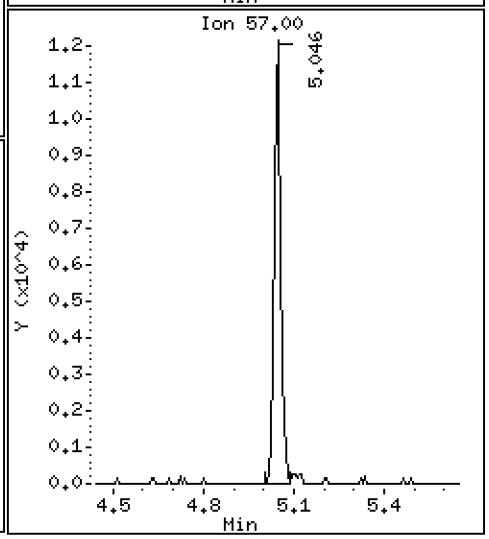












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

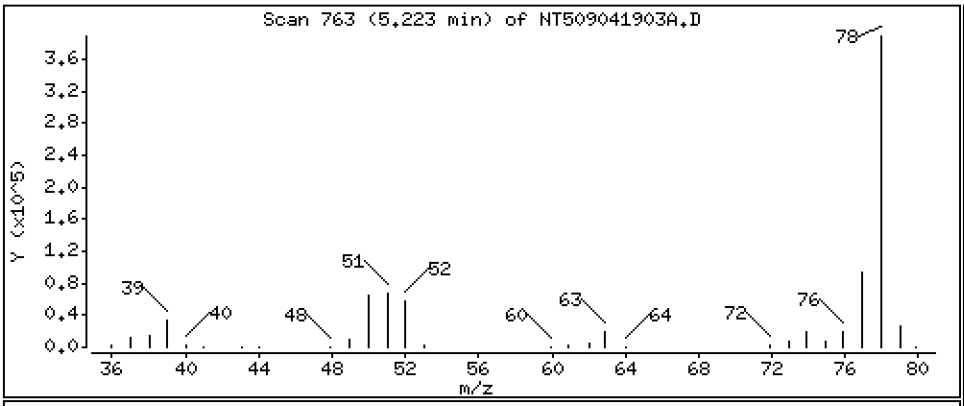
Operator: PB

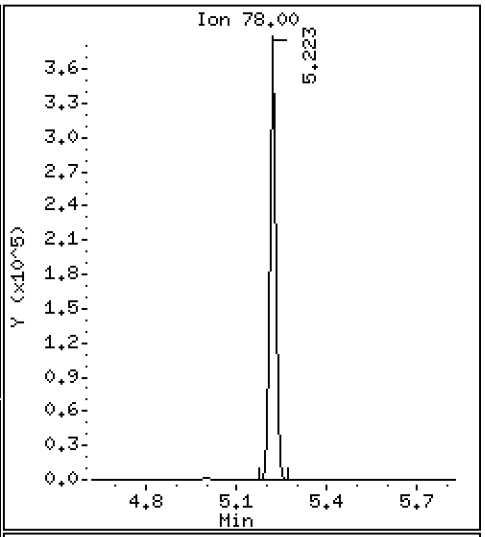
Column phase: RTXVMS

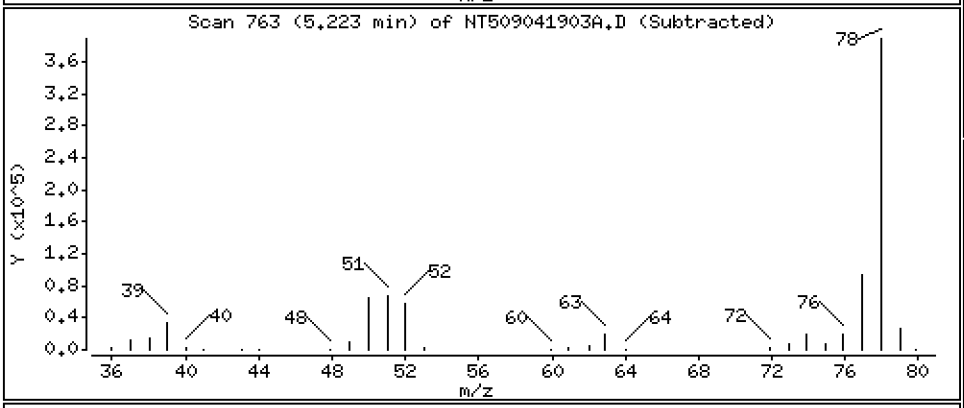
Column diameter: 0.18

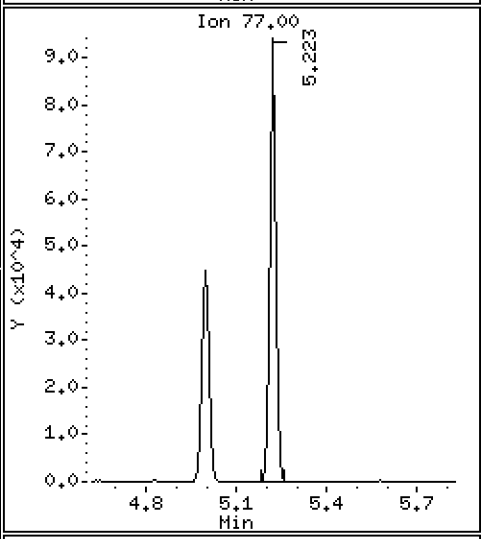
30 Benzene

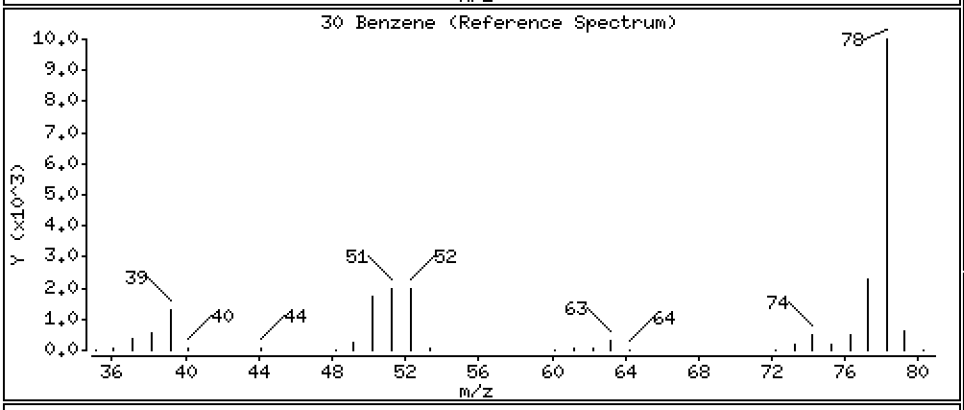
Concentration: 47.627 ug/Kg

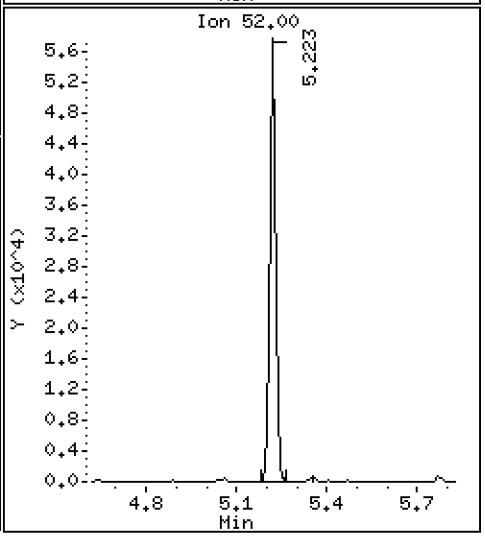


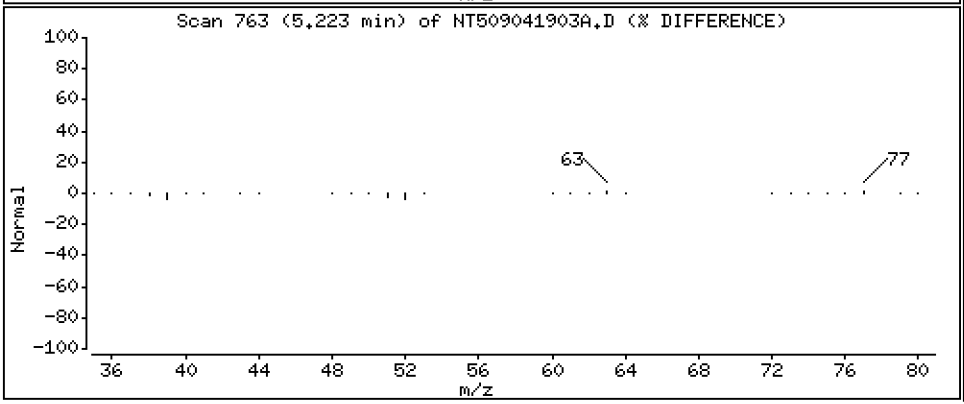












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

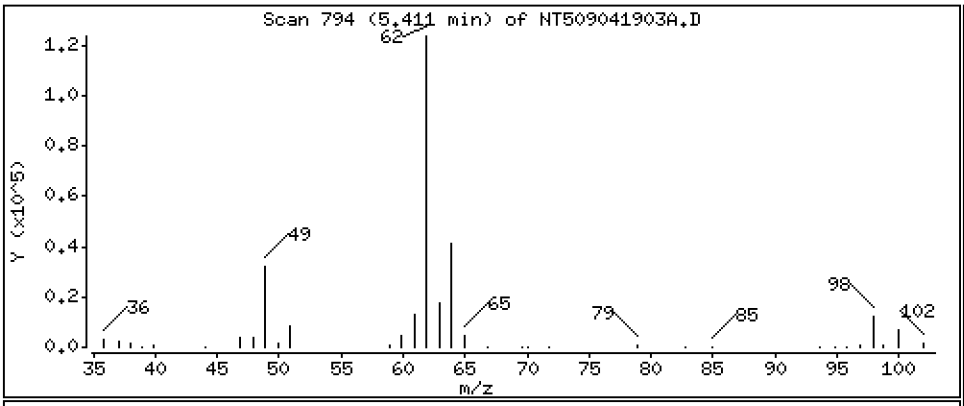
Operator: PB

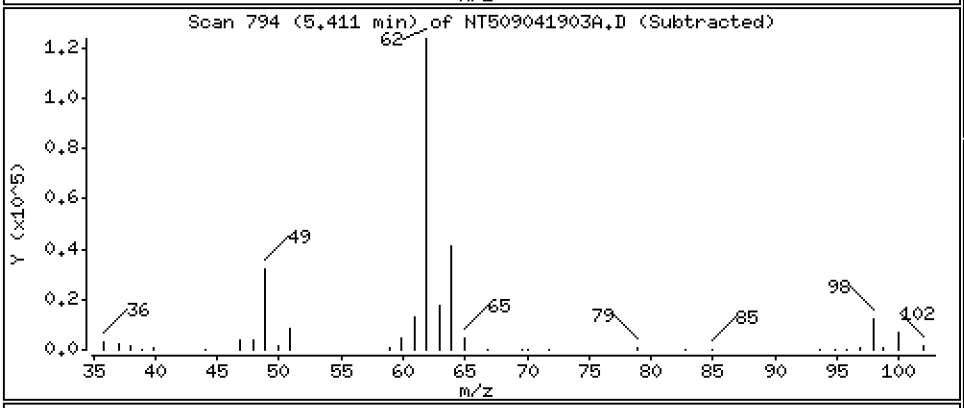
Column phase: RTXVMS

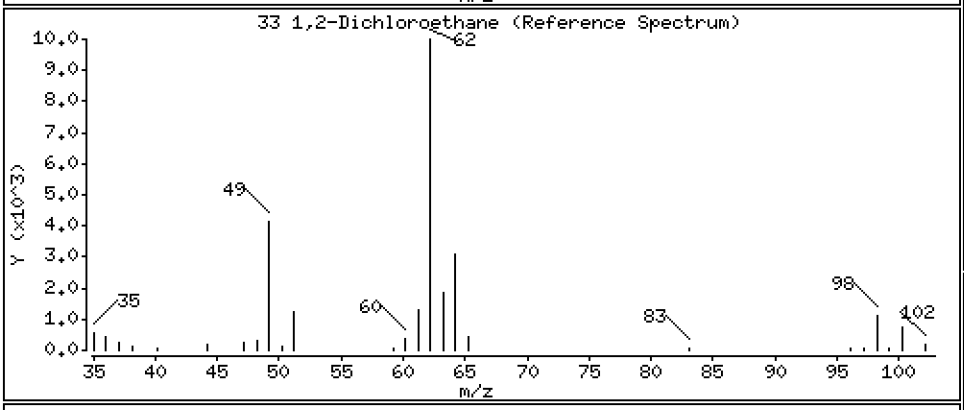
Column diameter: 0.18

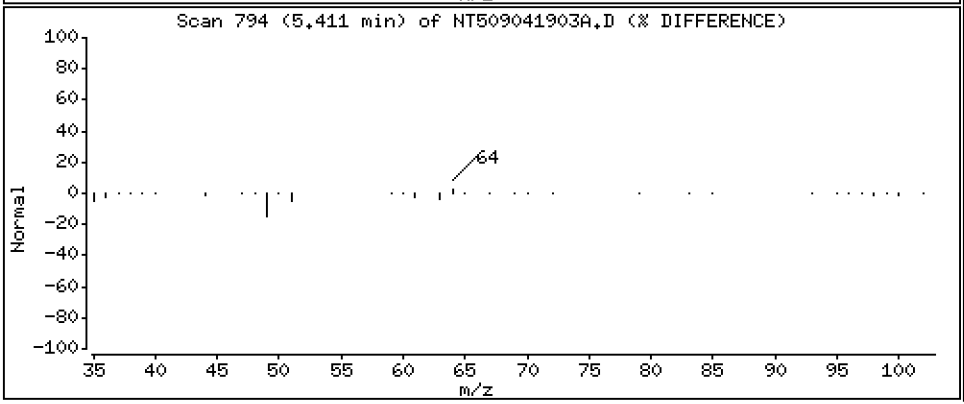
33 1,2-Dichloroethane

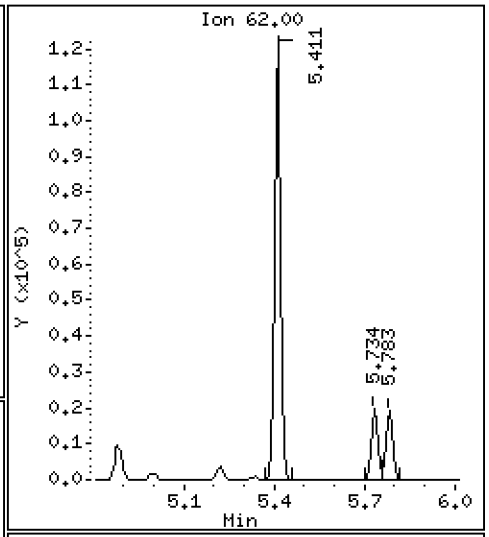
Concentration: 43.280 ug/Kg

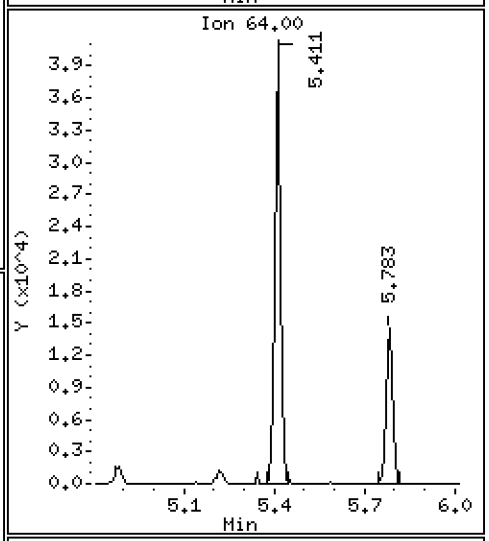


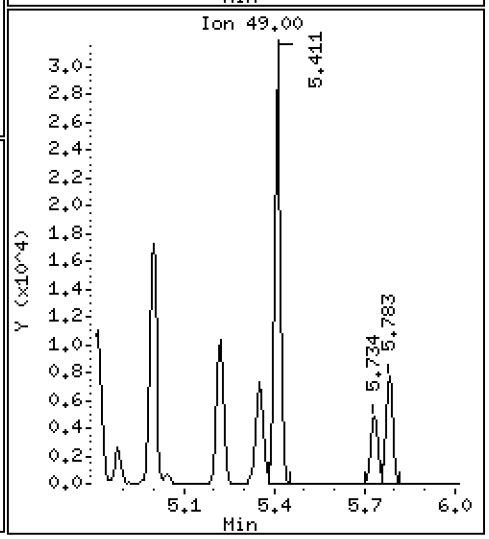












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

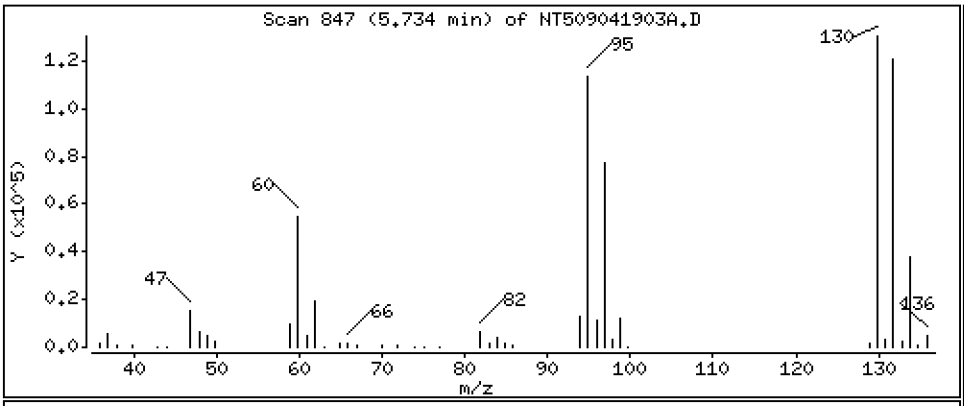
Operator: PB

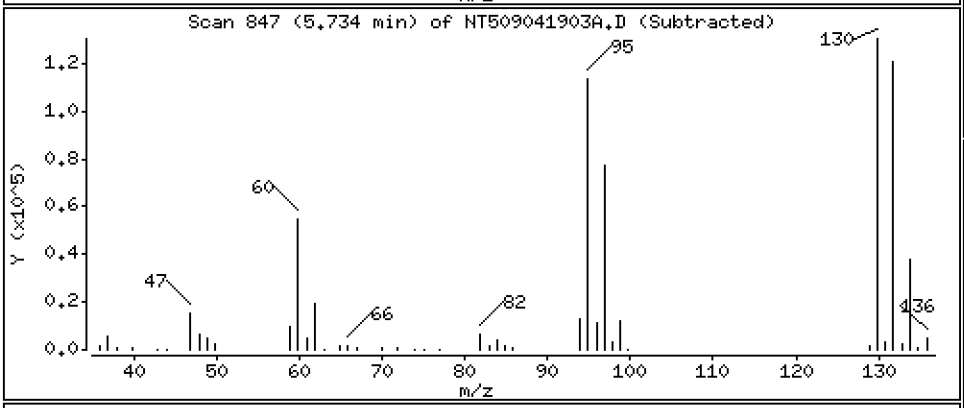
Column phase: RTXVMS

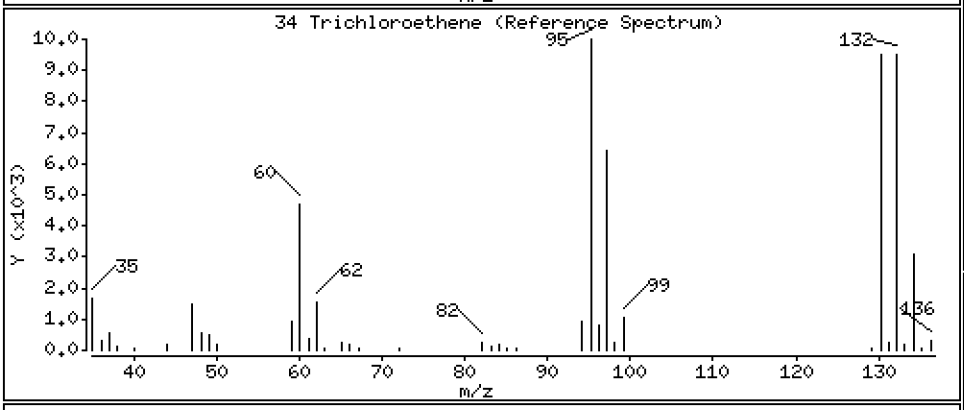
Column diameter: 0.18

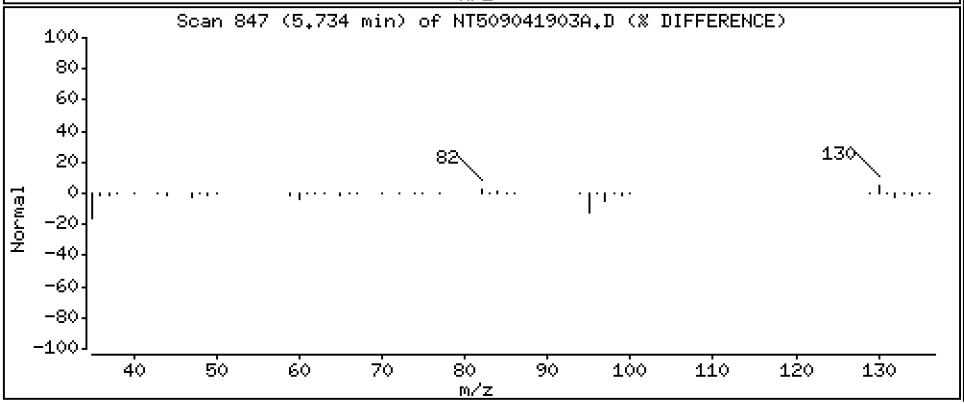
34 Trichloroethene

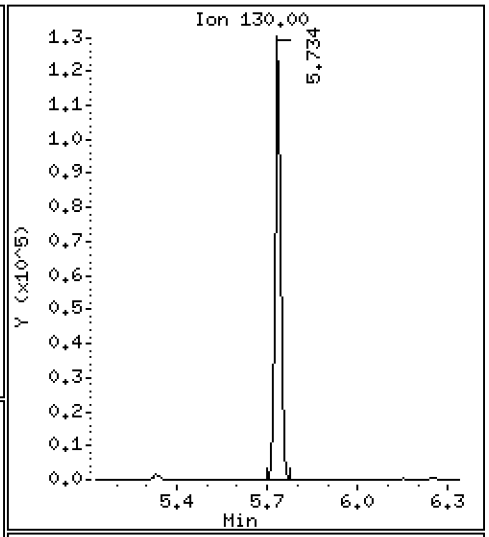
Concentration: 48.542 ug/Kg

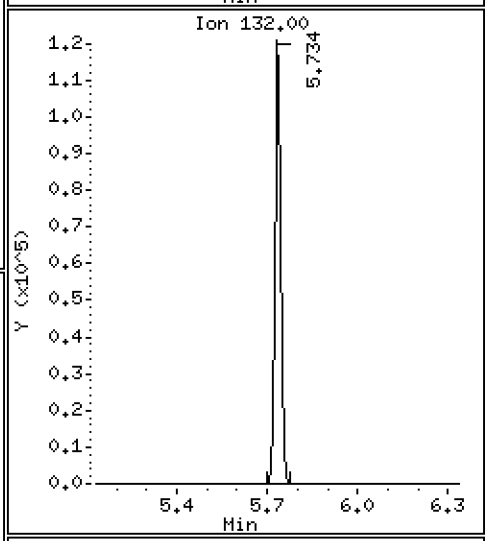


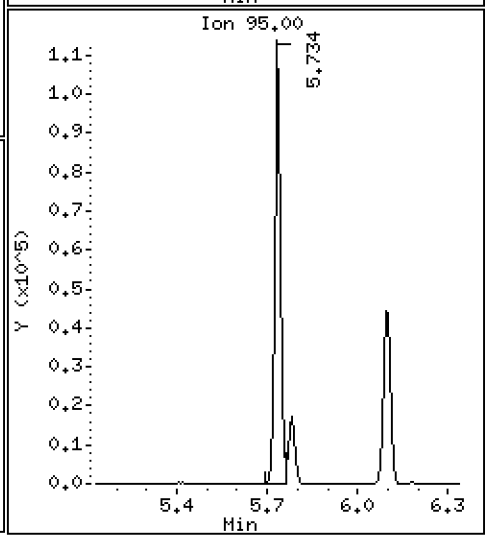












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

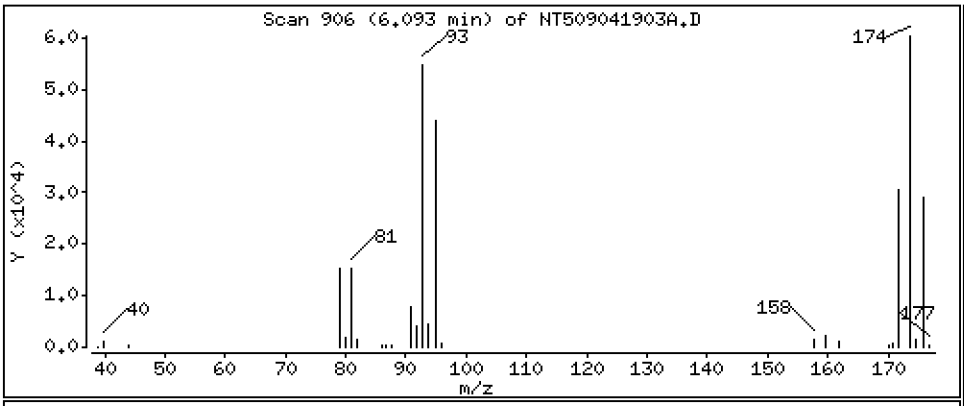
Operator: PB

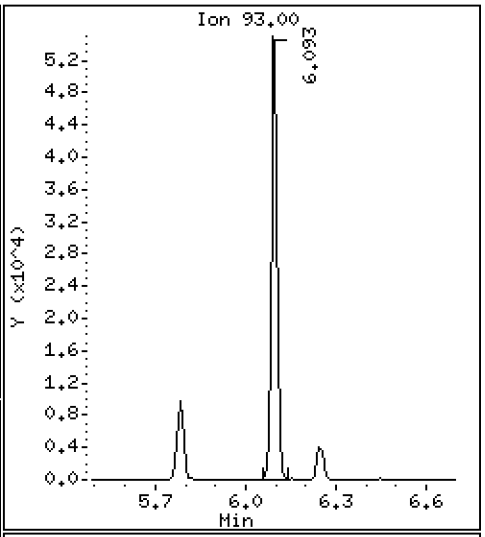
Column phase: RTXVMS

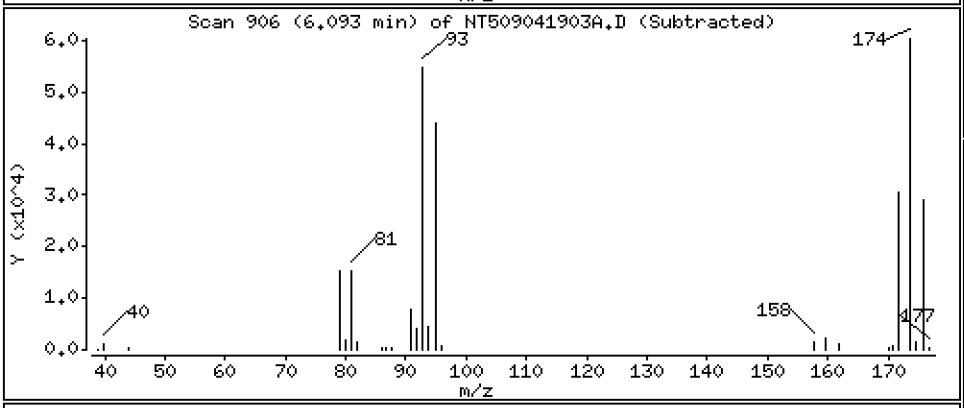
Column diameter: 0.18

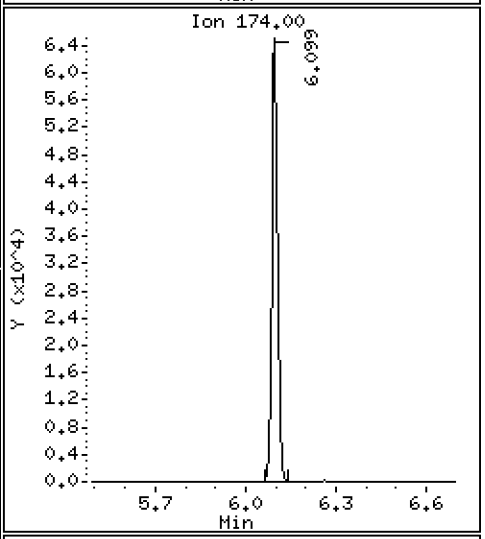
37 Dibromomethane

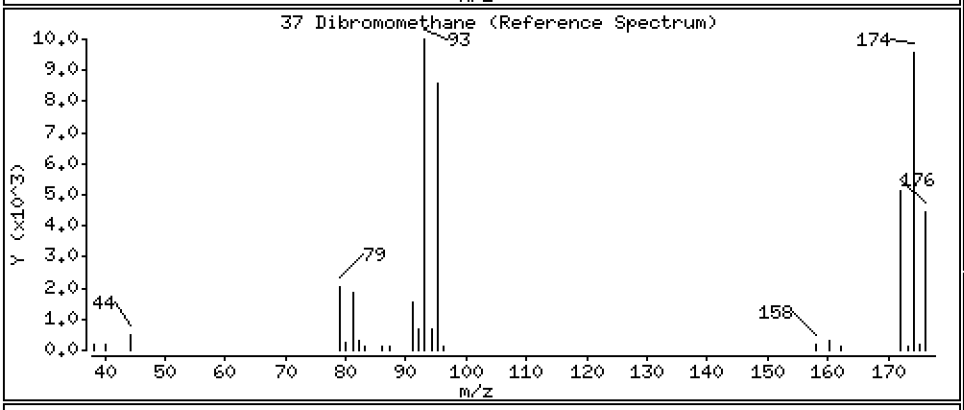
Concentration: 44.703 ug/Kg

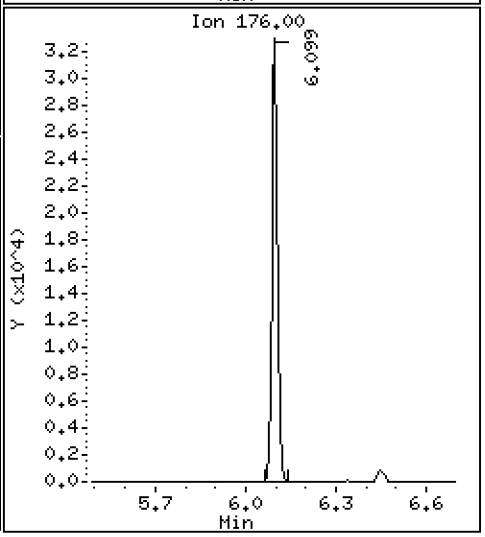


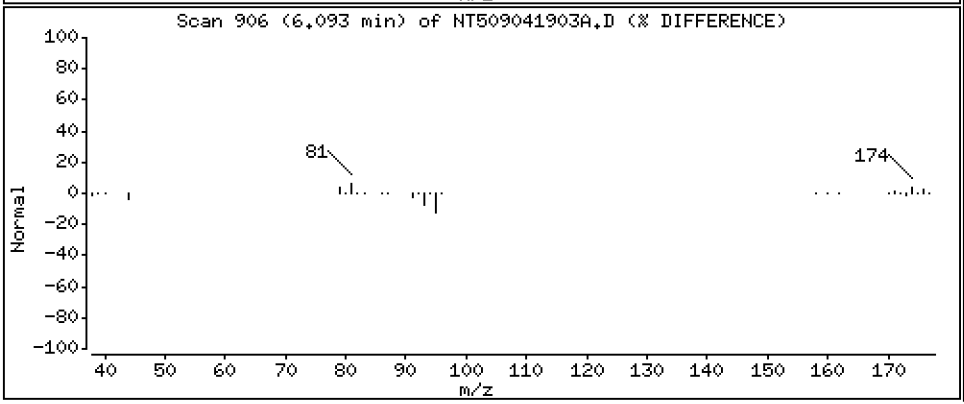












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

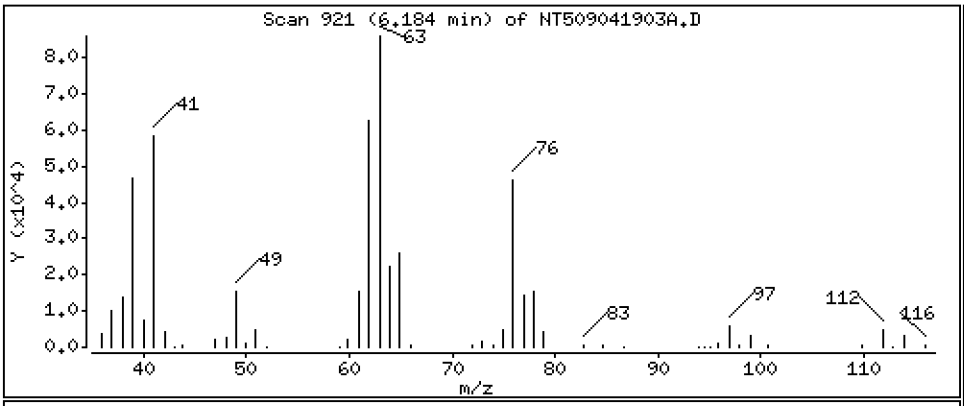
Operator: PB

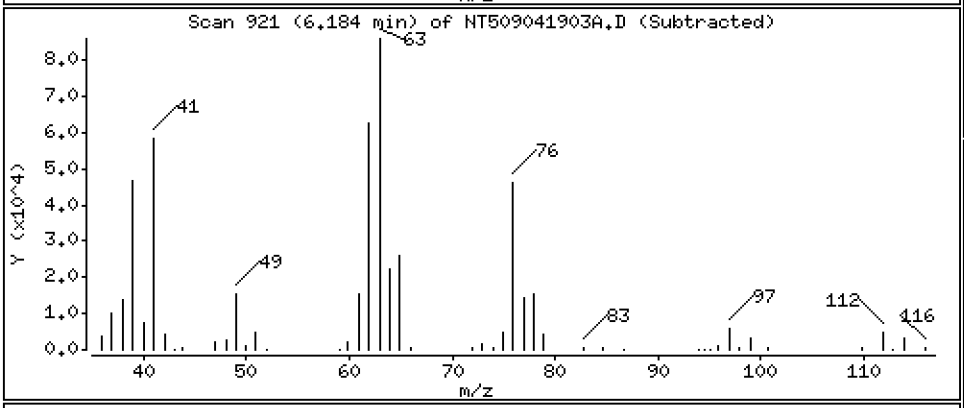
Column phase: RTXVMS

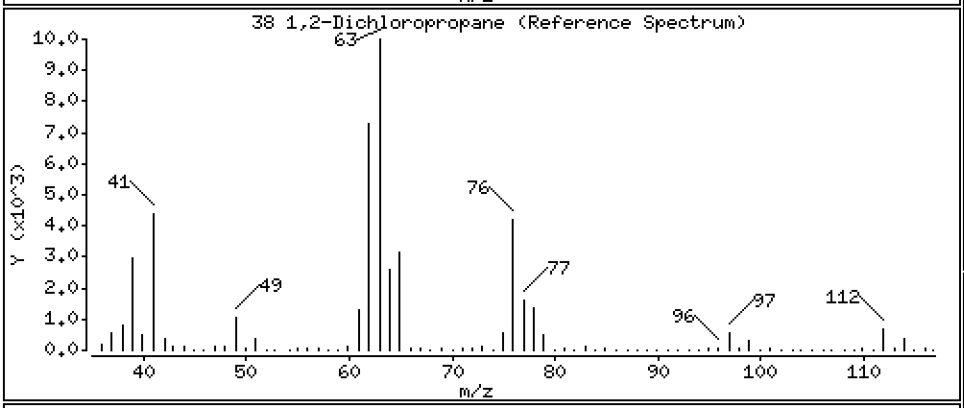
Column diameter: 0.18

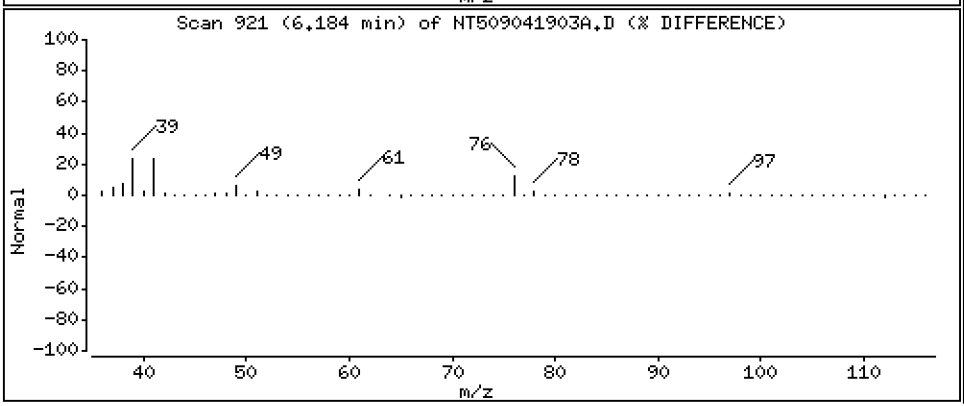
38 1,2-Dichloropropane

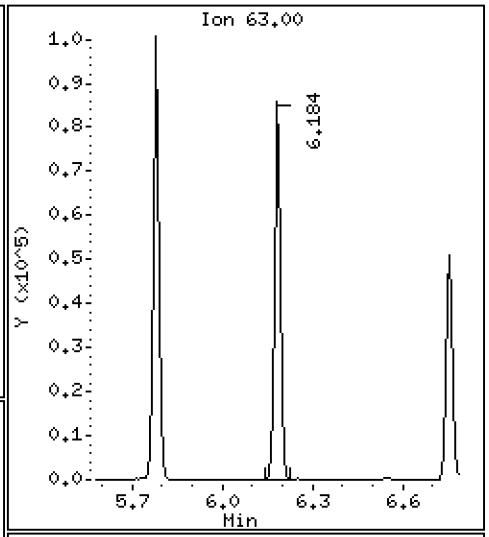
Concentration: 45.627 ug/Kg

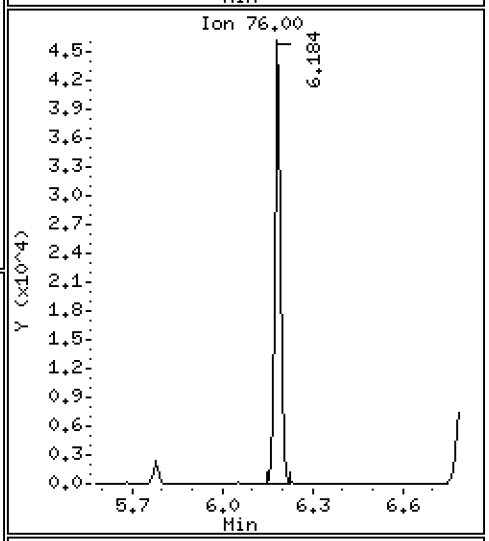


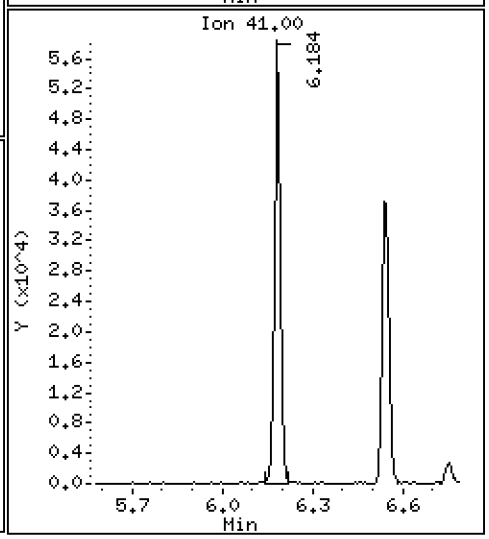












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

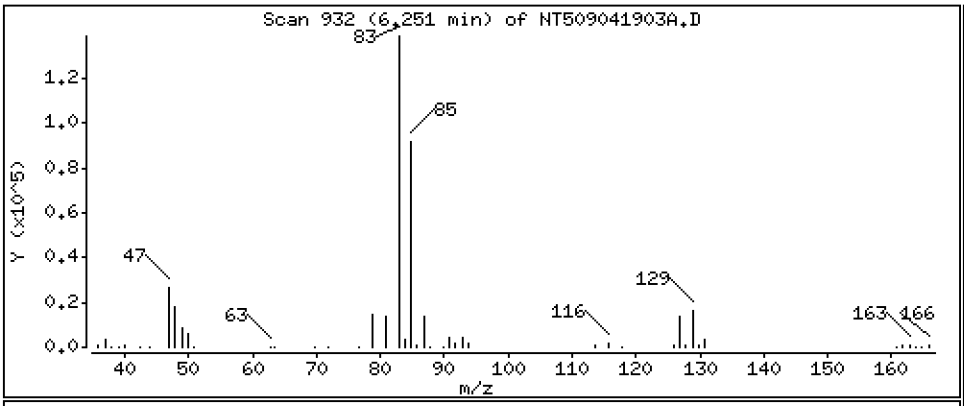
Operator: PB

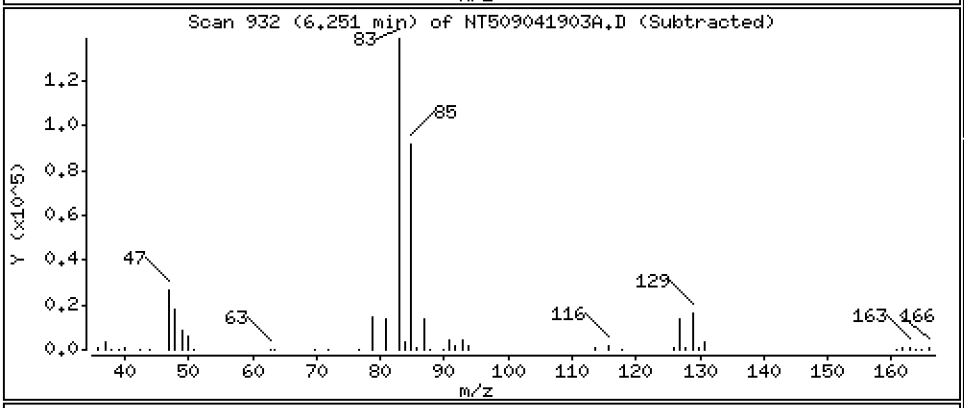
Column phase: RTXVMS

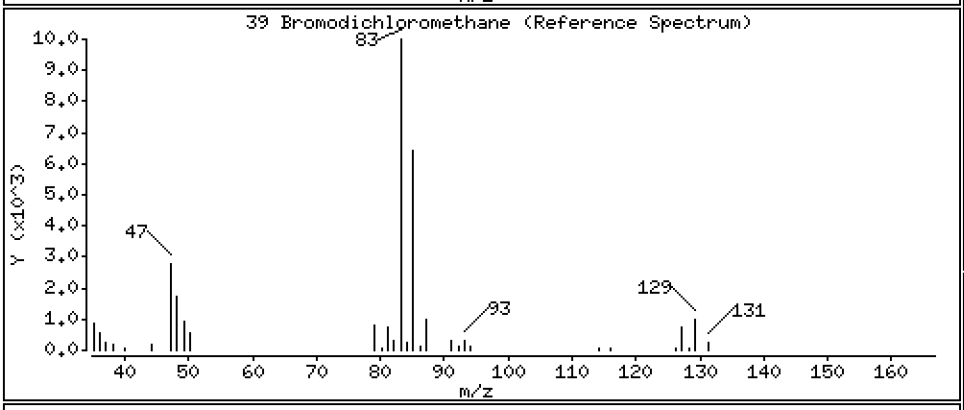
Column diameter: 0.18

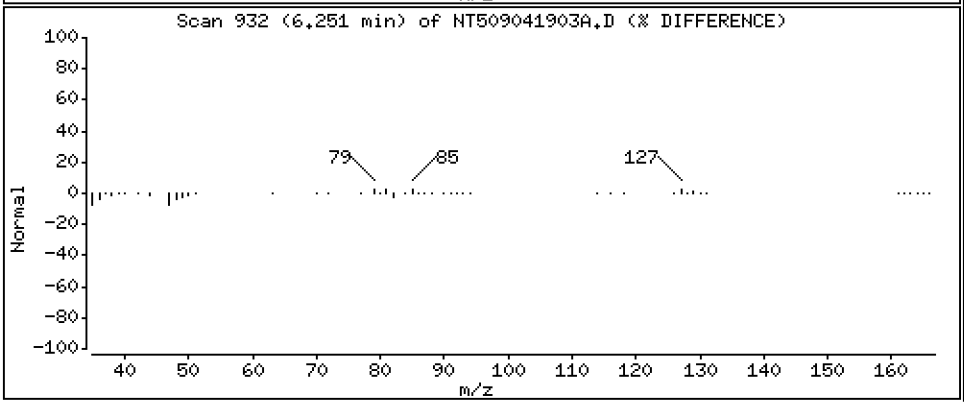
39 Bromodichloromethane

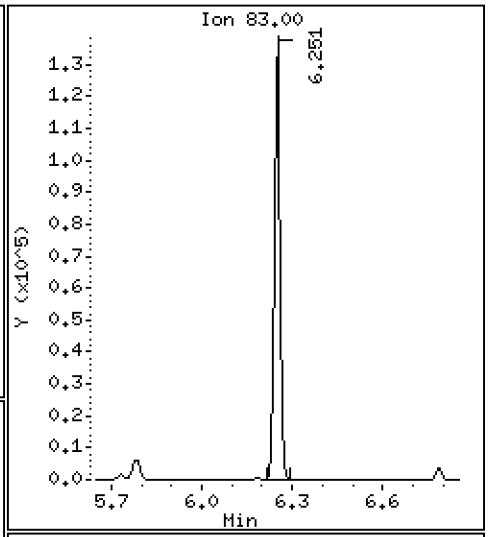
Concentration: 45.083 ug/Kg

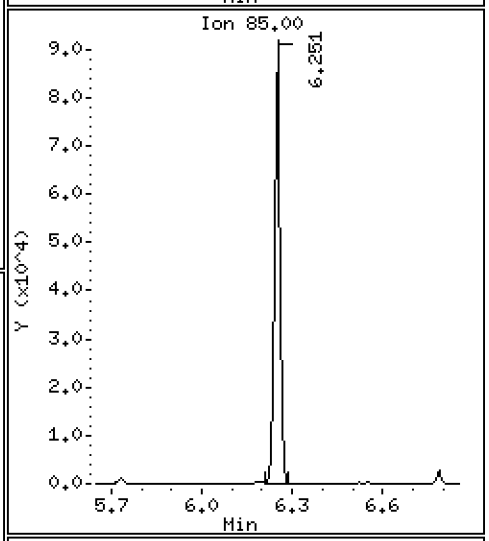


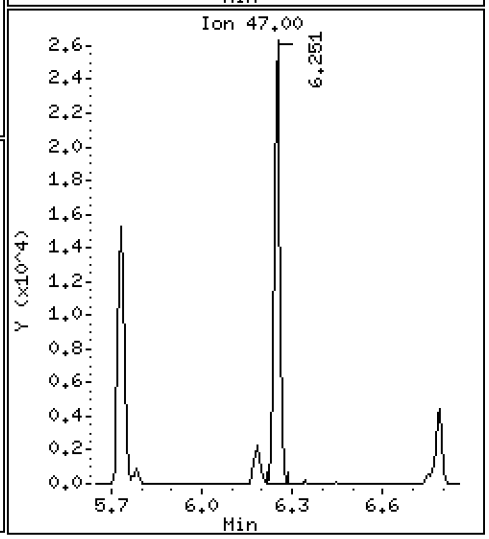












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

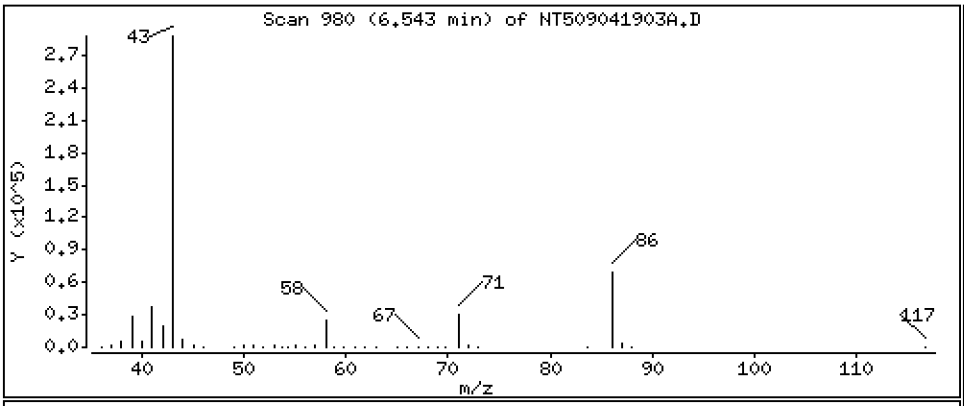
Operator: PB

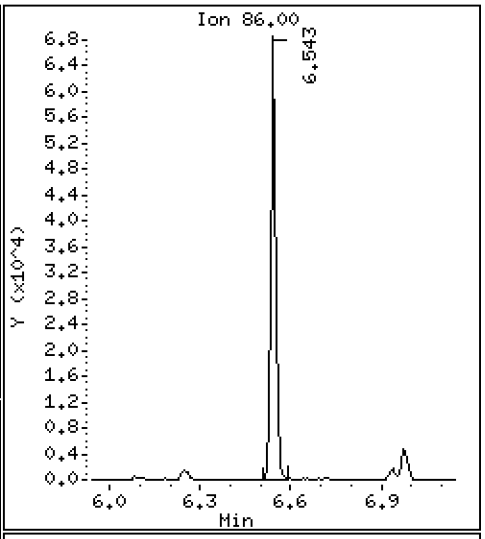
Column phase: RTXVMS

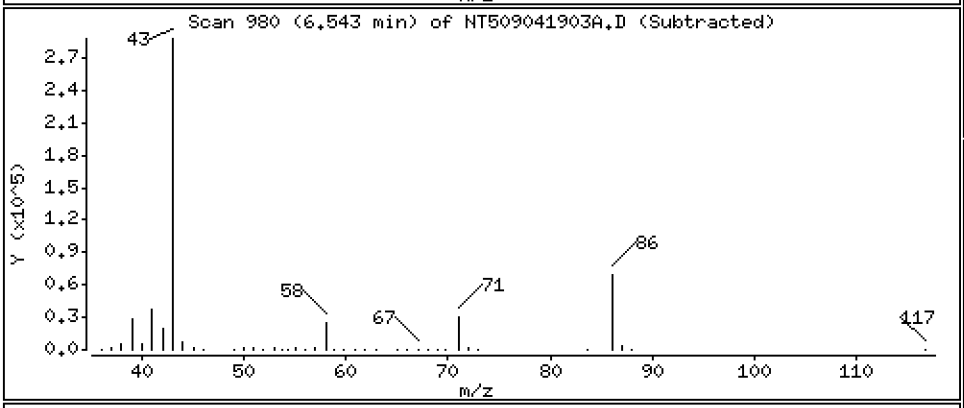
Column diameter: 0.18

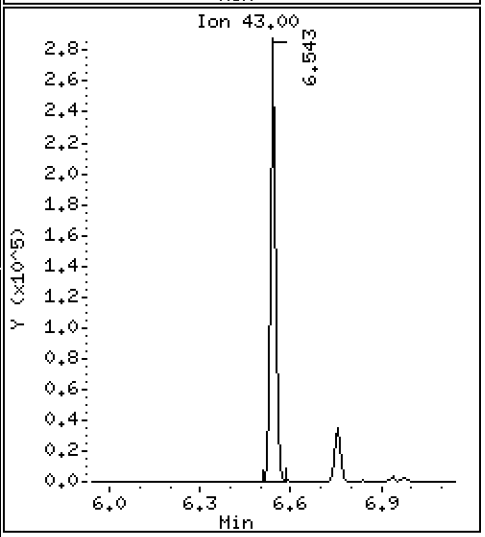
172 2-Pentanone

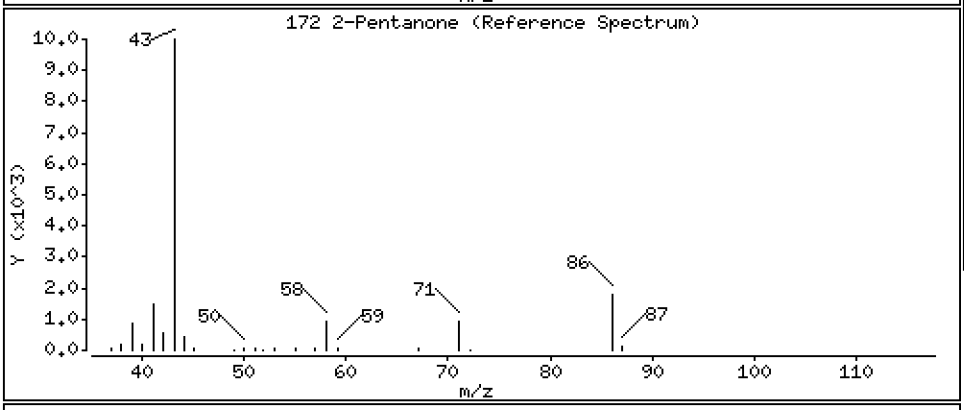
Concentration: 239.78 ug/Kg

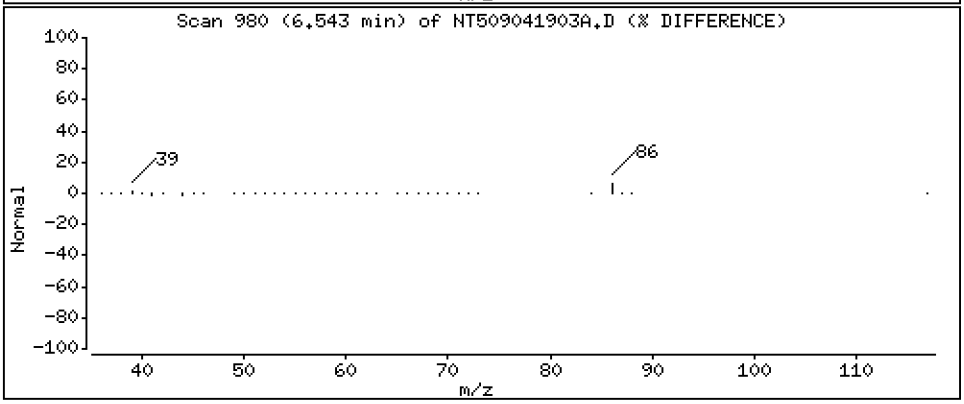












Date : 04-SEP-2019 14:02

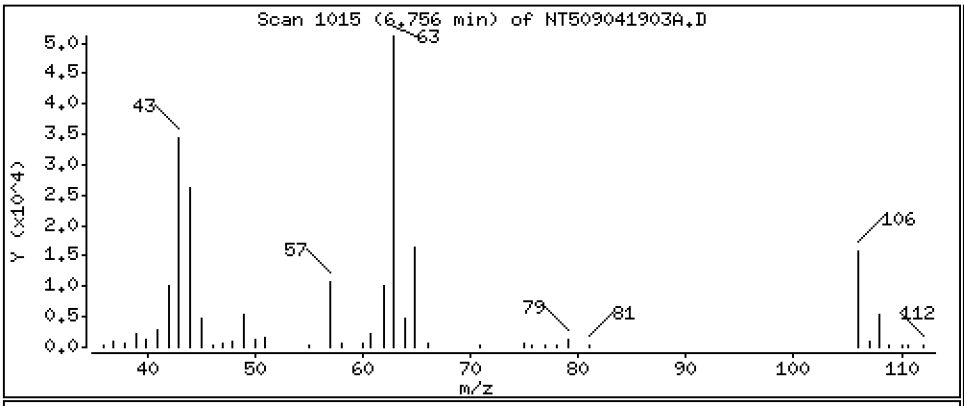
Client ID: Instrument: nt5.i

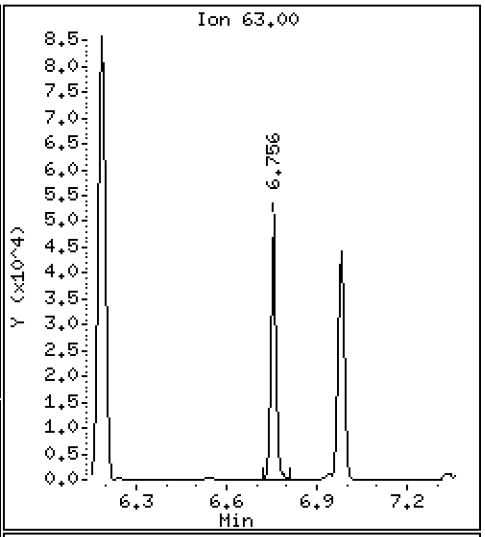
Sample Info: ICV1

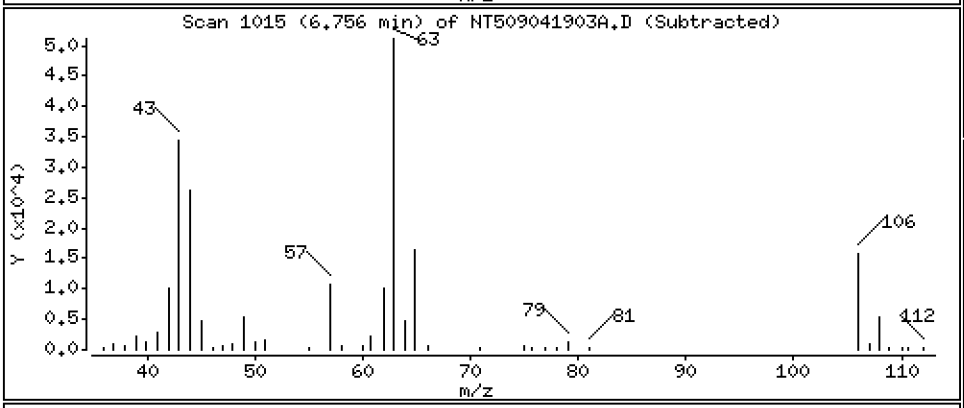
Operator: PB

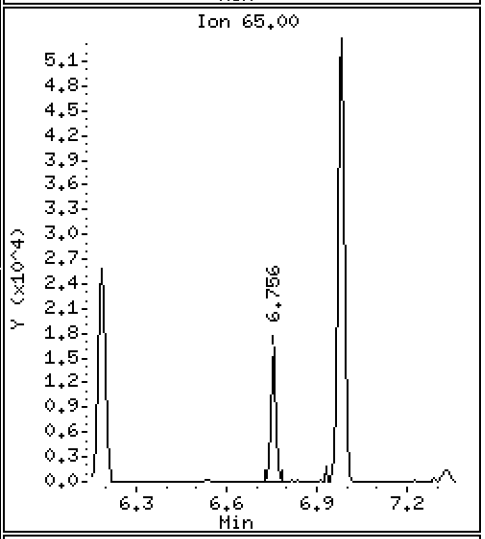
Column phase: RTXVMS Column diameter: 0.18

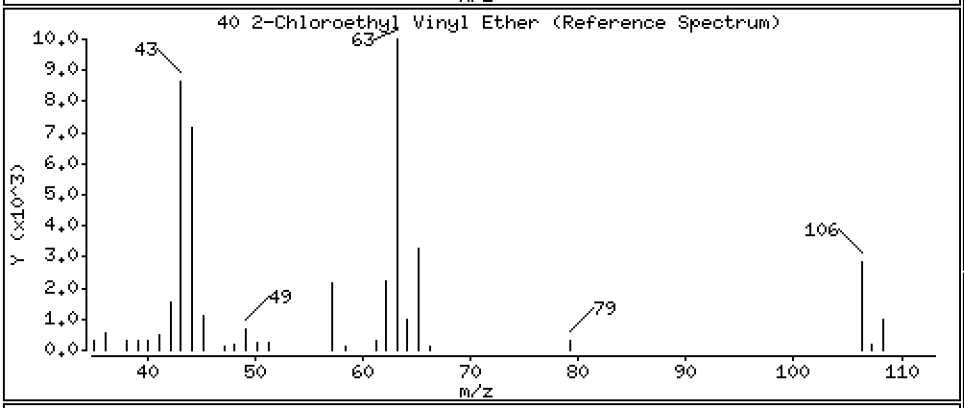
40 2-Chloroethyl Vinyl Ether Concentration: 43.856 ug/Kg

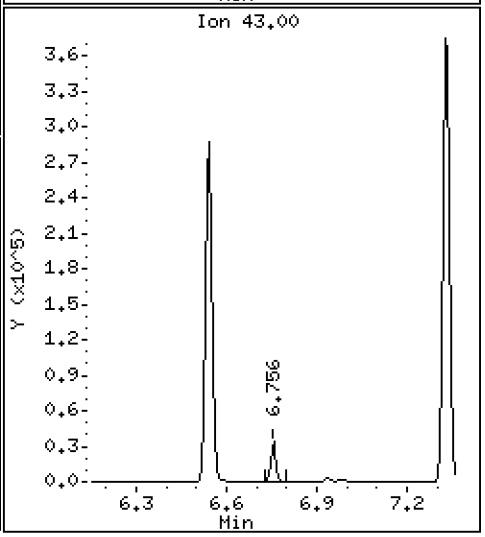


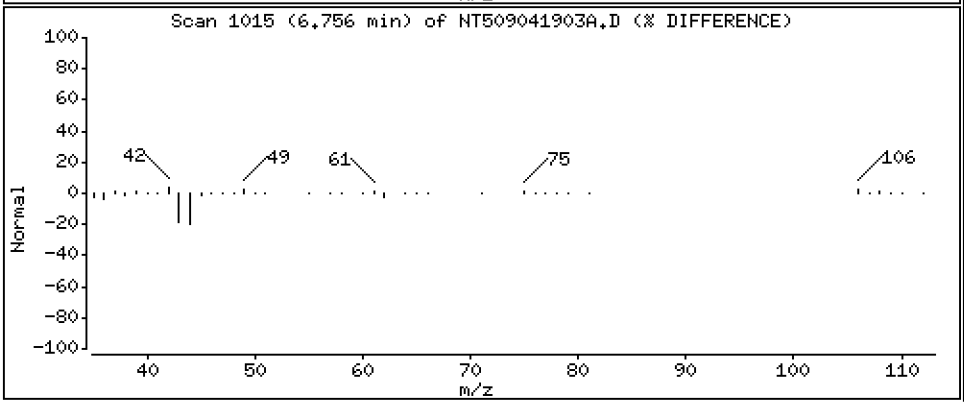












Date : 04-SEP-2019 14:02

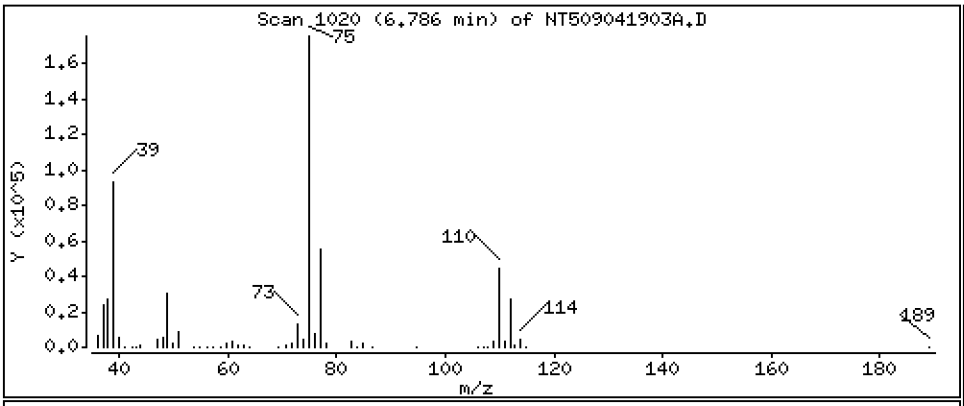
Client ID: Instrument: nt5.i

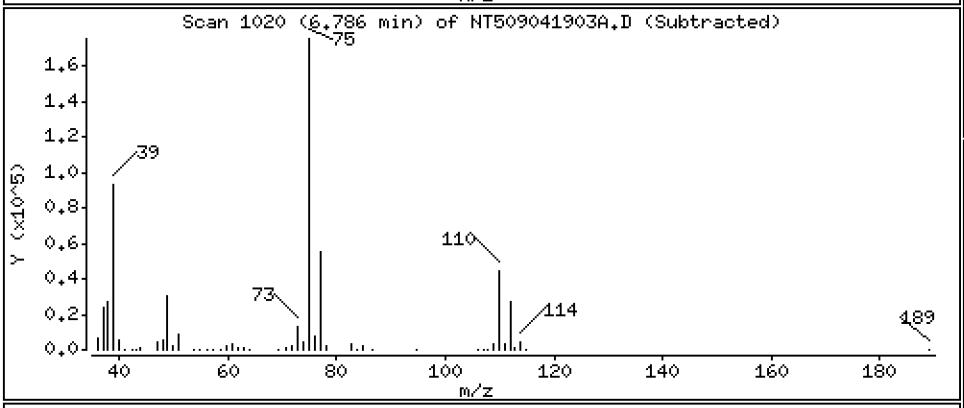
Sample Info: ICV1

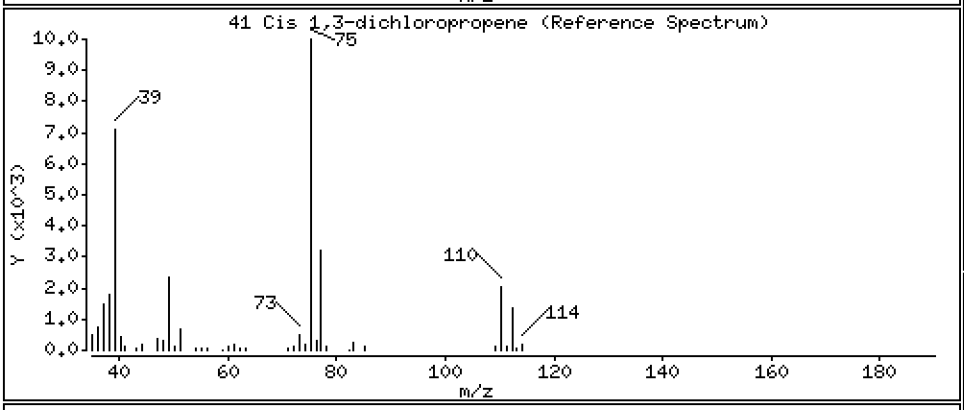
Operator: PB

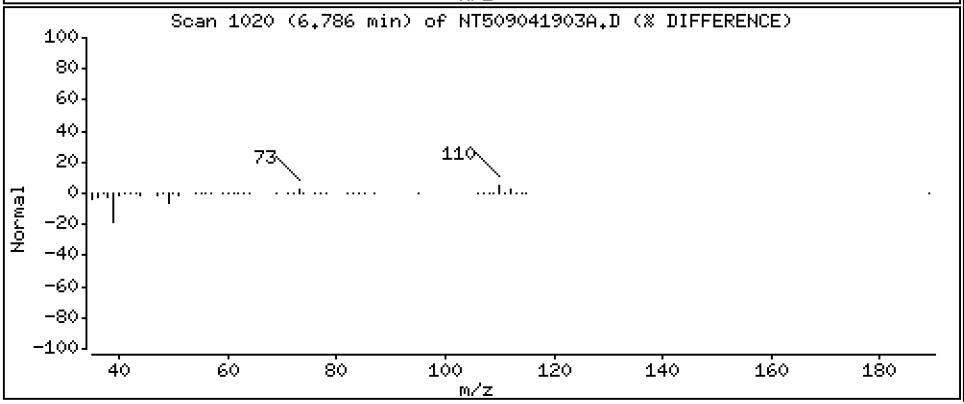
Column phase: RTXVMS Column diameter: 0.18

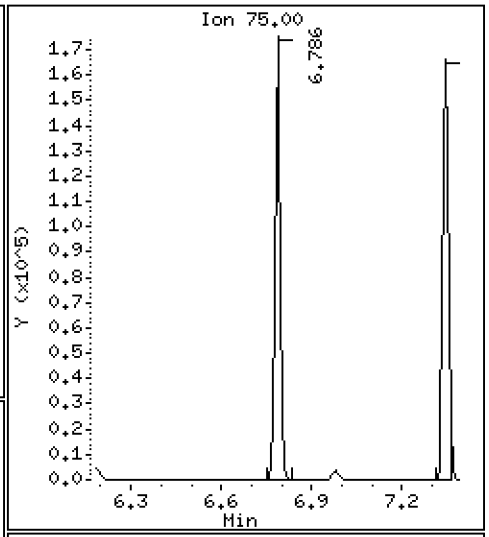
41 Cis 1,3-dichloropropene Concentration: 45.282 ug/Kg

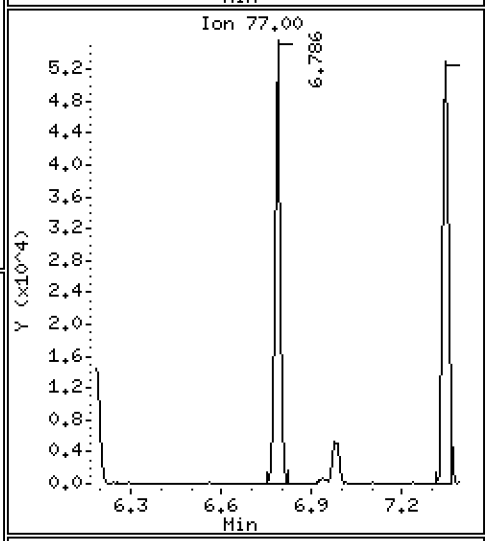


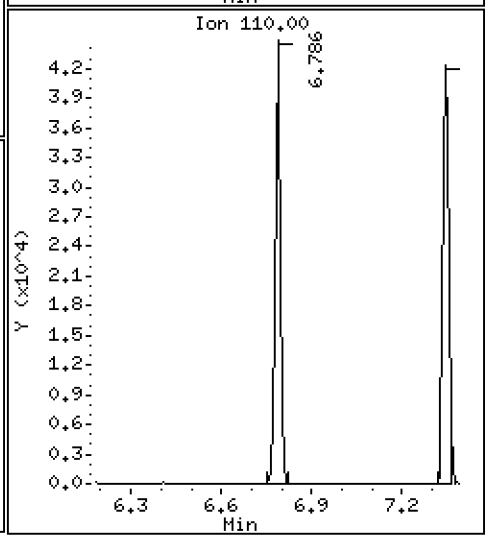












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

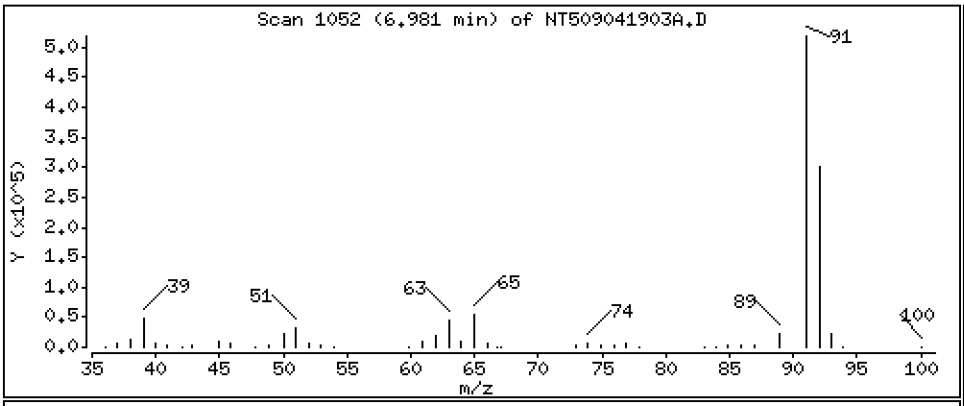
Operator: PB

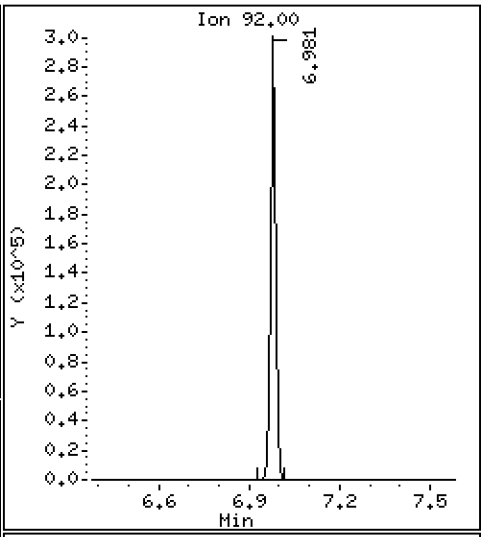
Column phase: RTXVMS

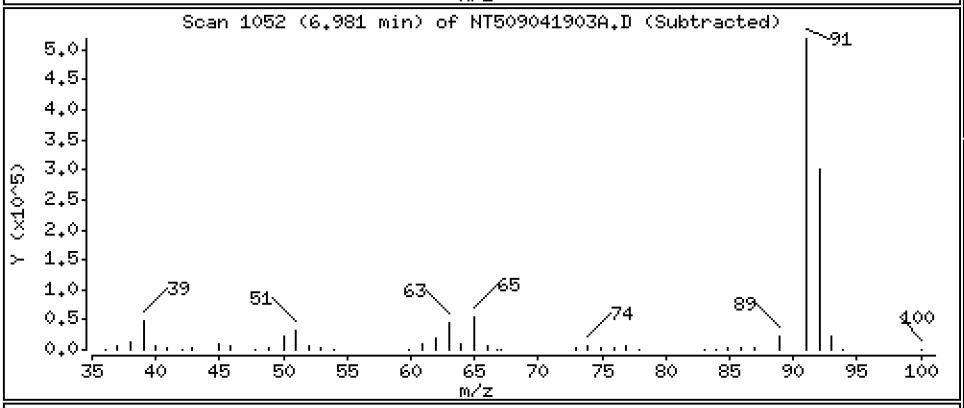
Column diameter: 0.18

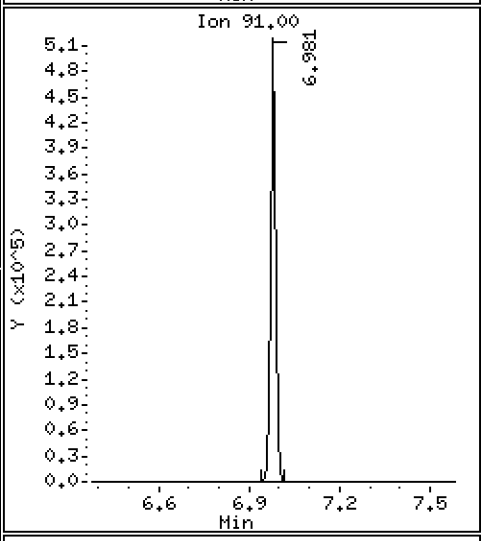
43 Toluene

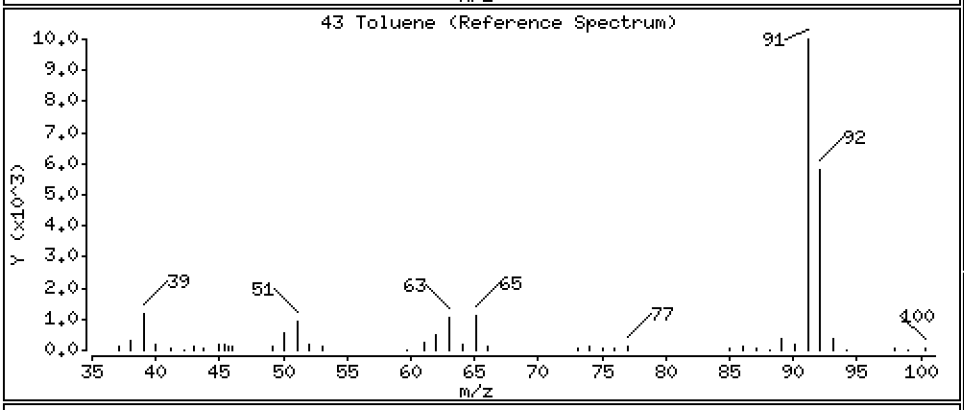
Concentration: 45.607 ug/Kg

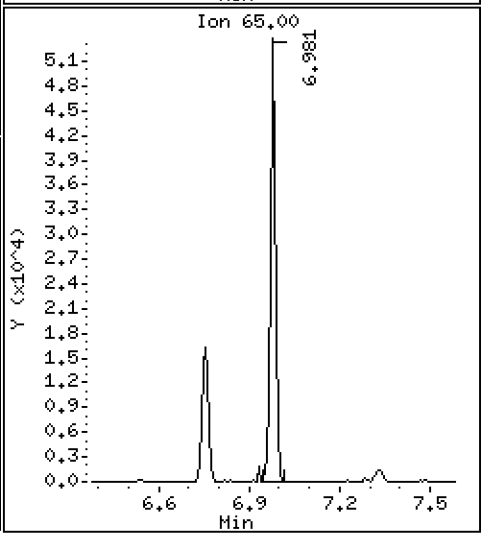


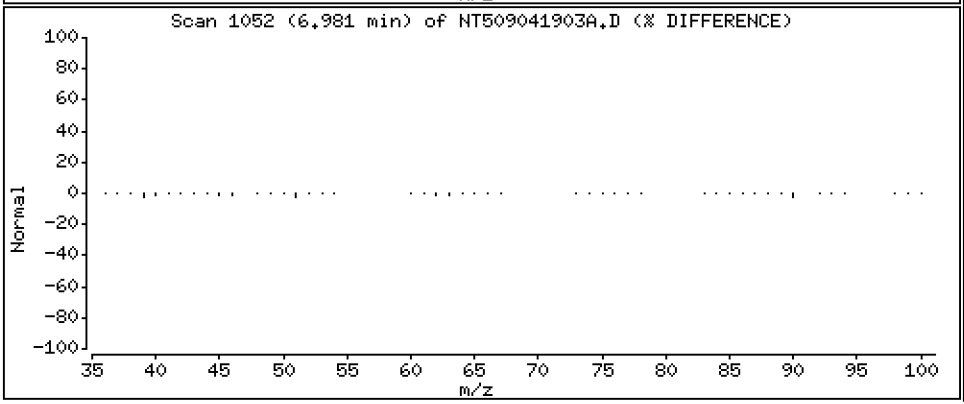












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

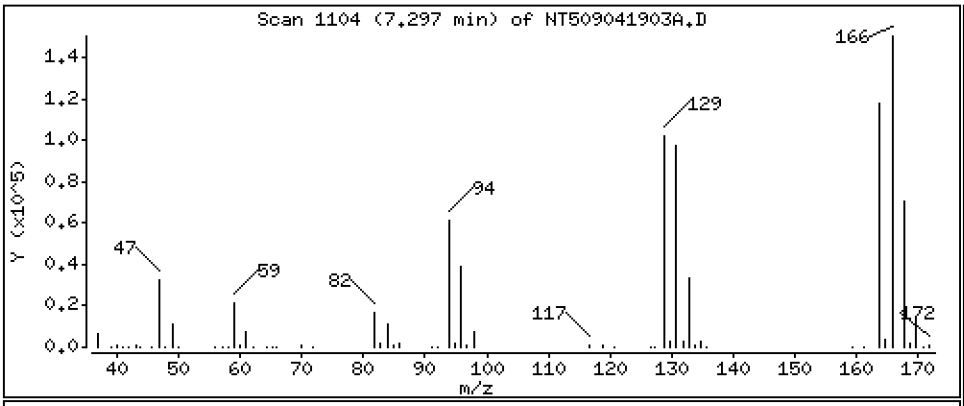
Operator: PB

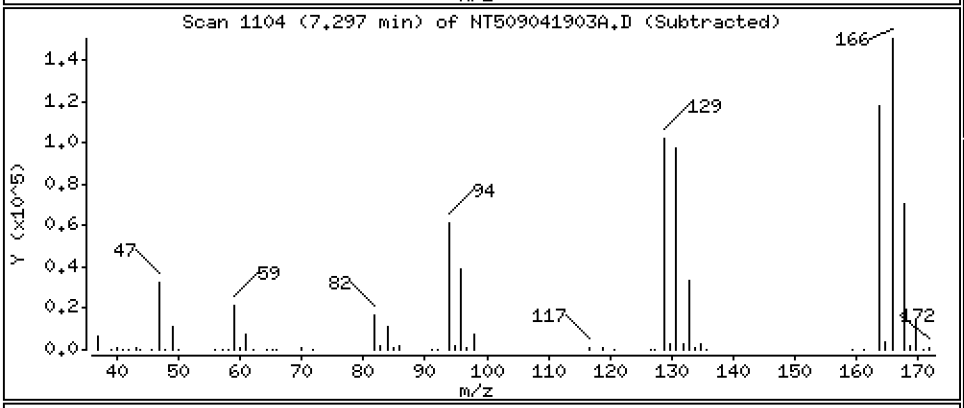
Column phase: RTXVMS

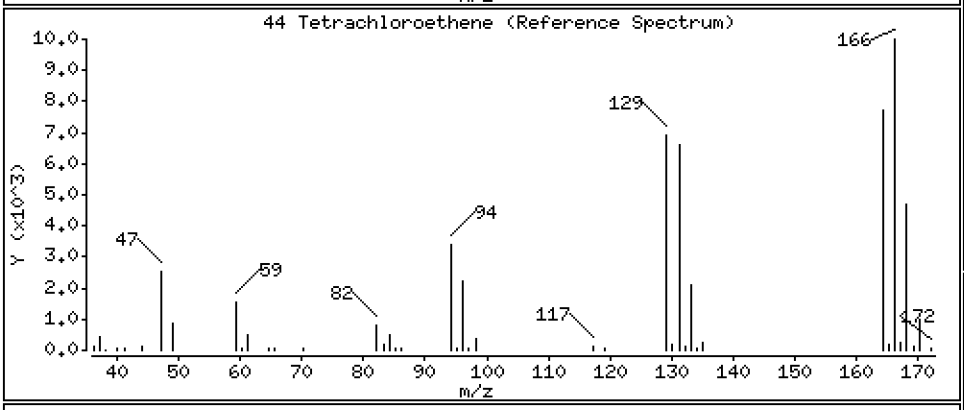
Column diameter: 0.18

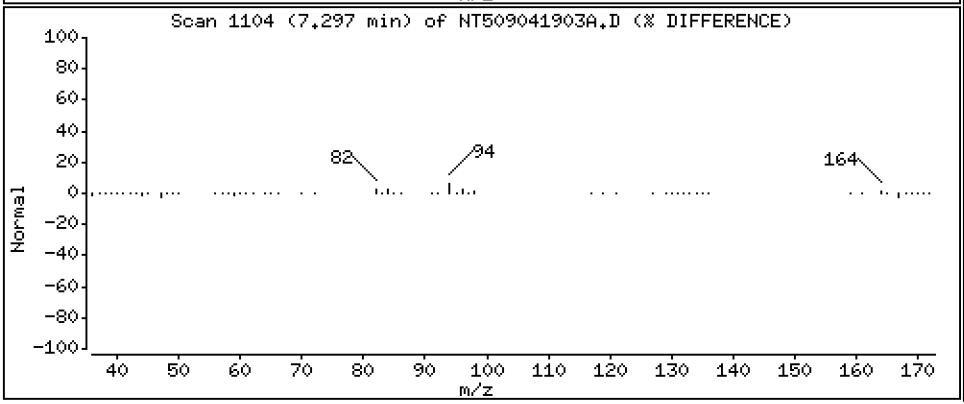
44 Tetrachloroethene

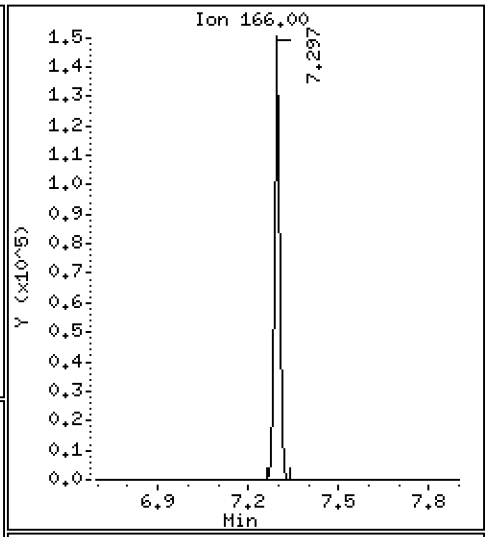
Concentration: 48.424 ug/Kg

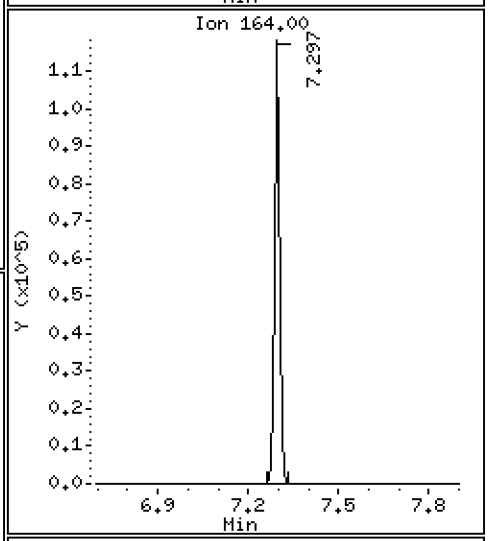


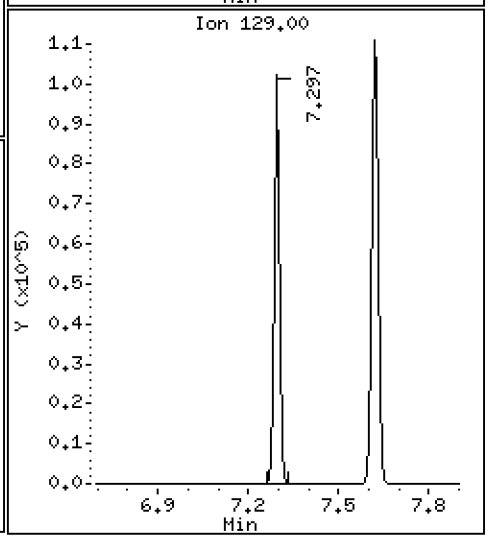












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

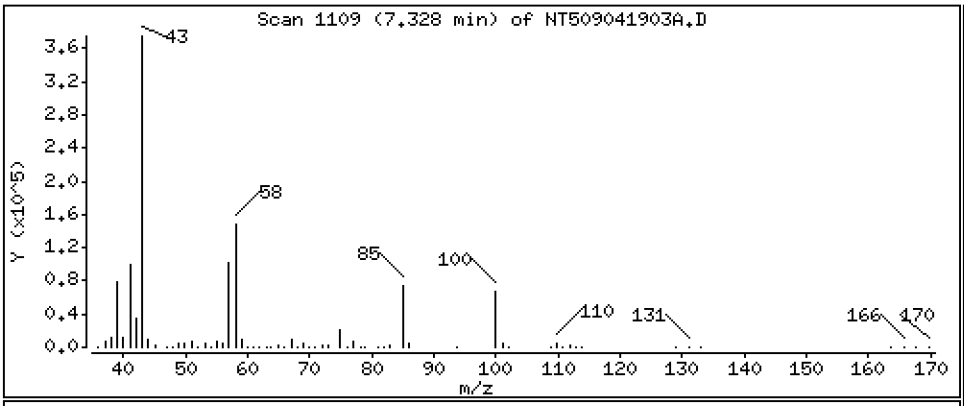
Operator: PB

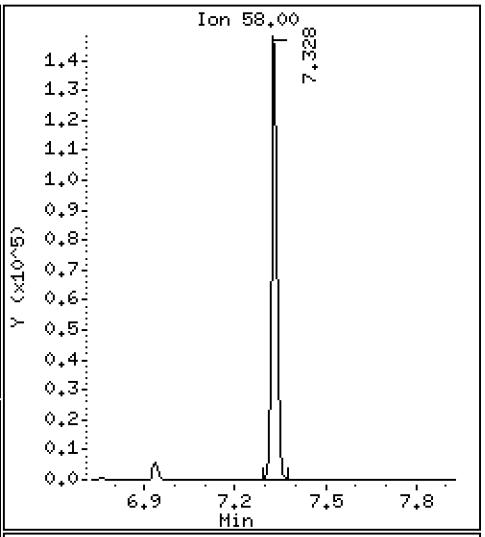
Column phase: RTXVMS

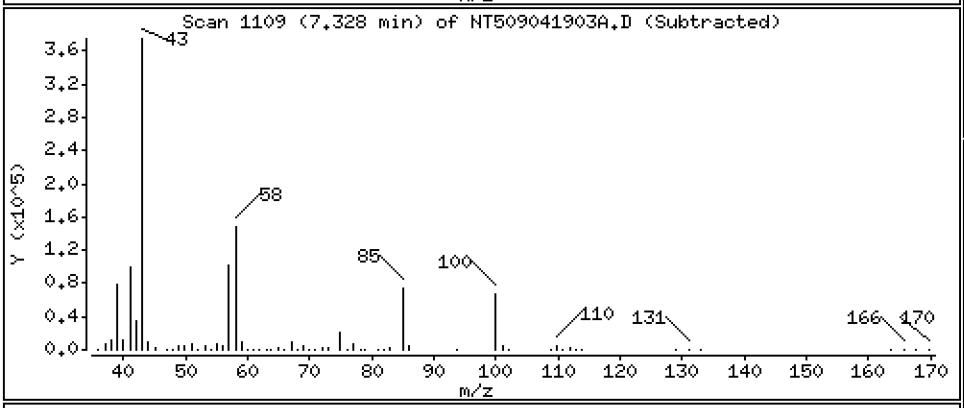
Column diameter: 0.18

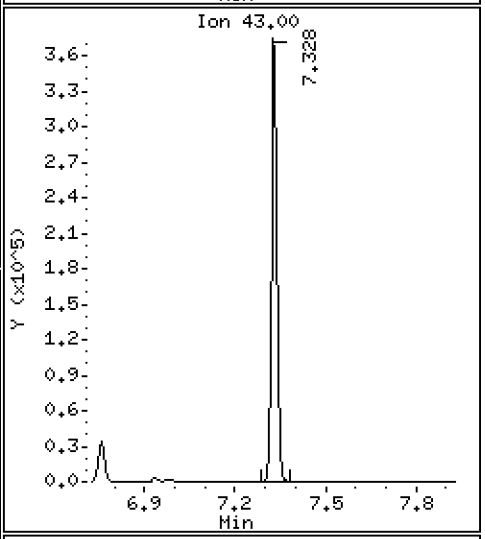
45 4-Methyl-2-Pentanone

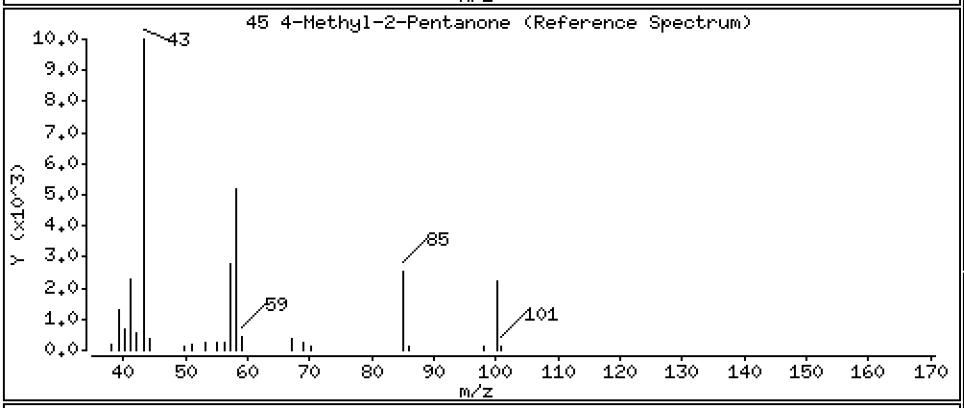
Concentration: 230.17 ug/Kg

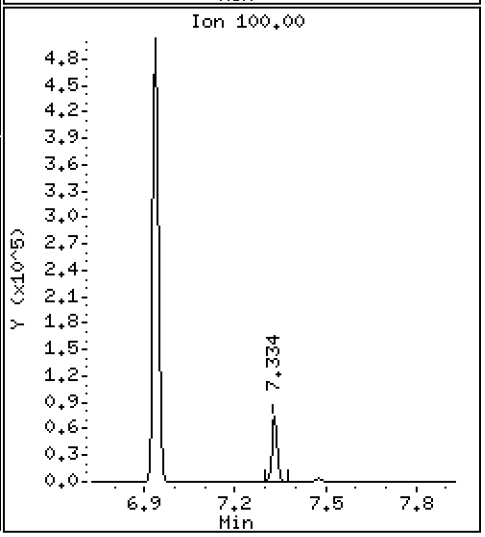


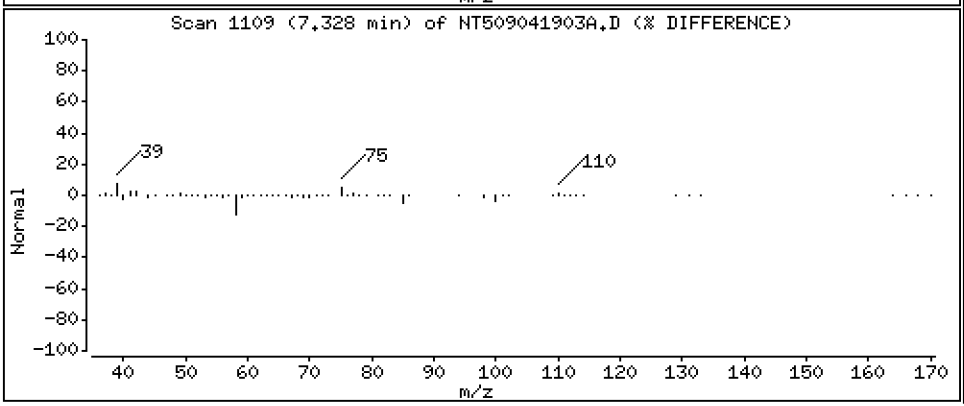












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

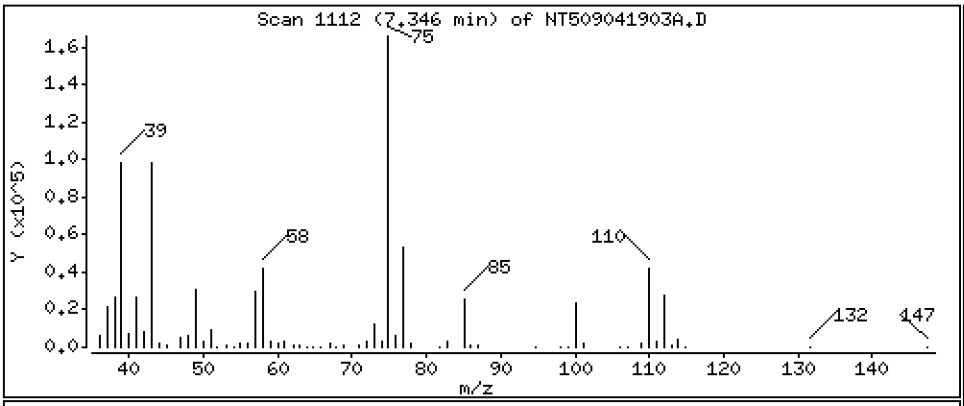
Operator: PB

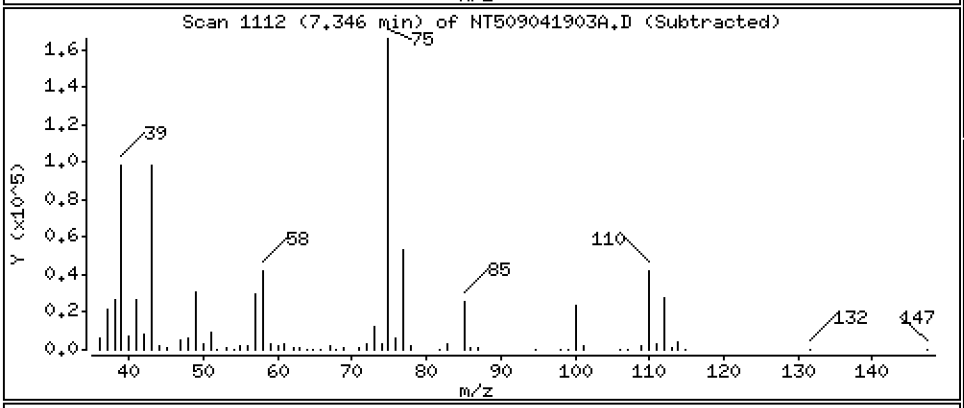
Column phase: RTXVMS

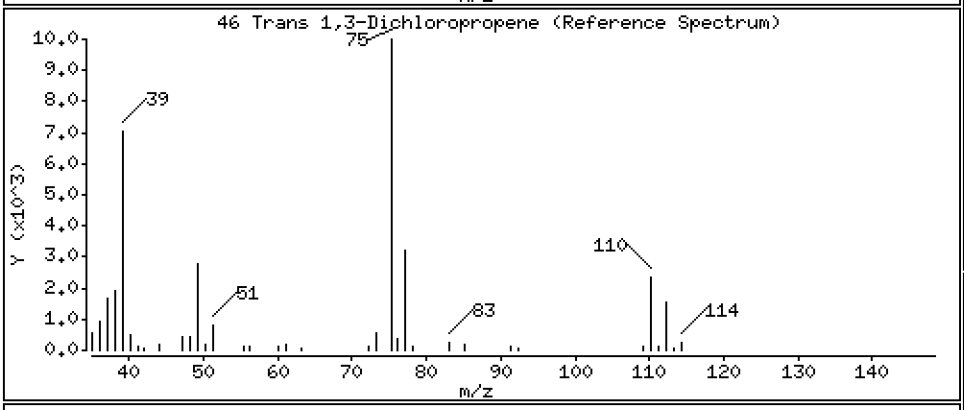
Column diameter: 0.18

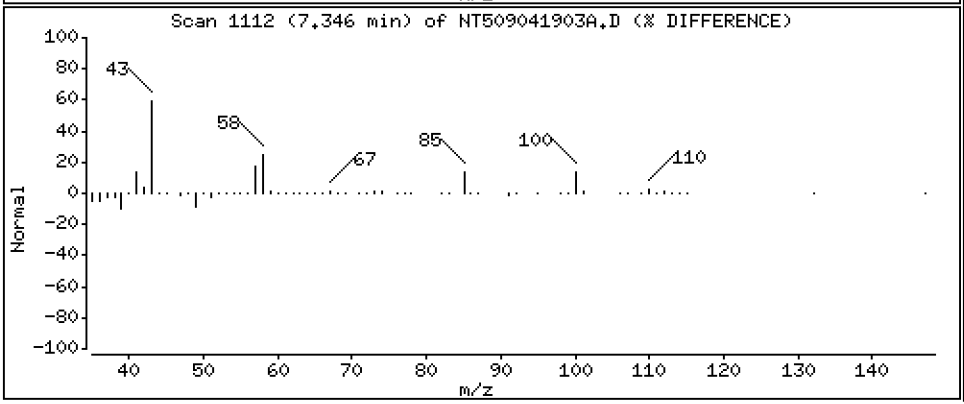
46 Trans 1,3-Dichloropropene

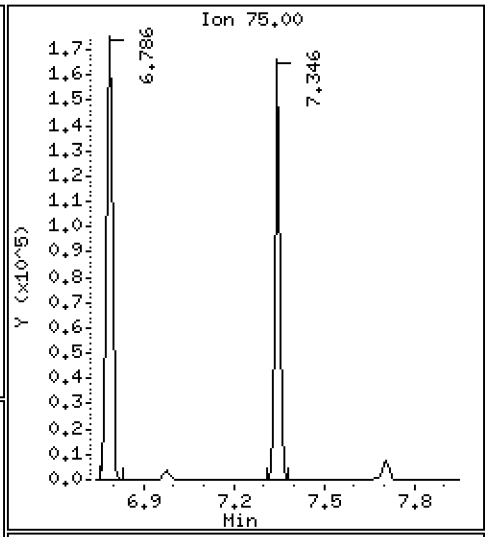
Concentration: 45.042 ug/Kg

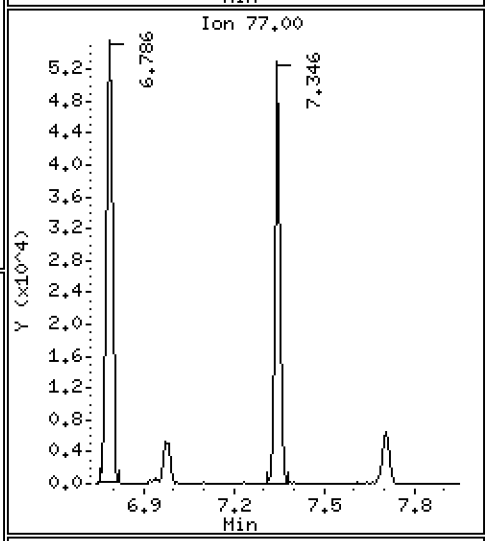


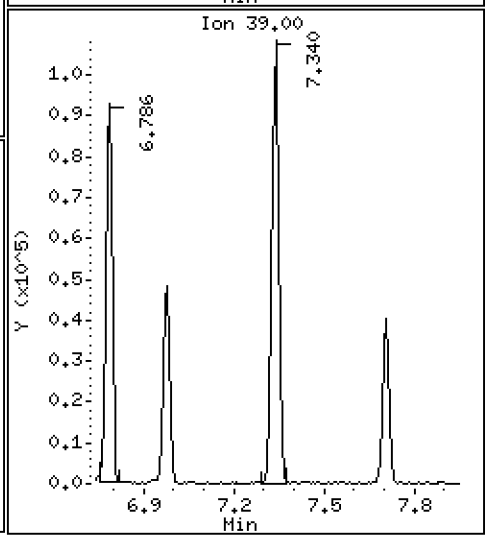












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

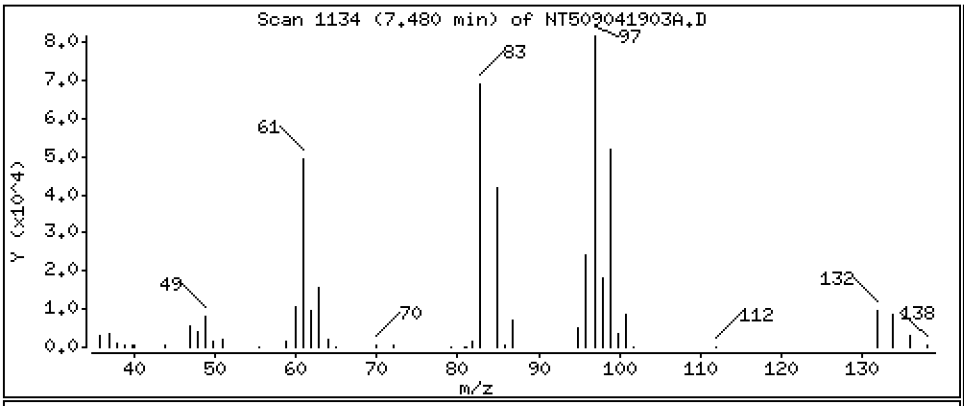
Operator: PB

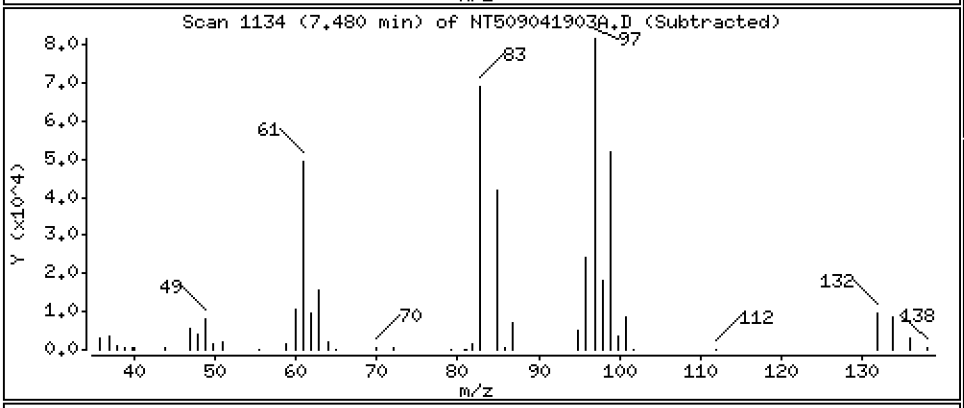
Column phase: RTXVMS

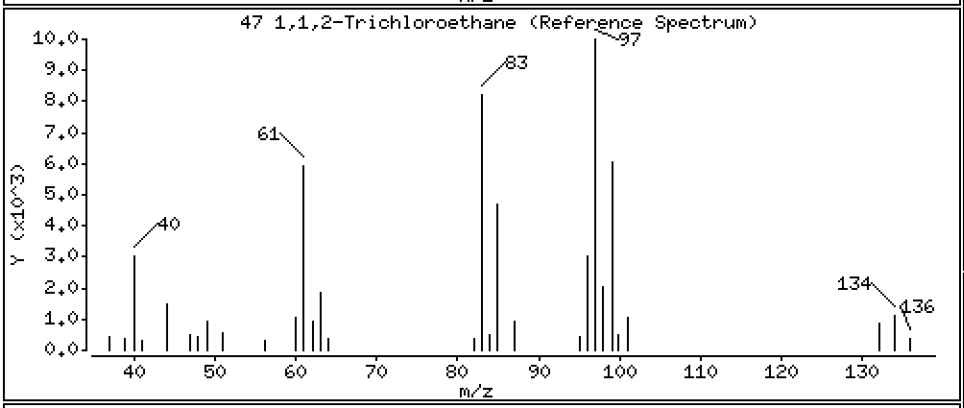
Column diameter: 0.18

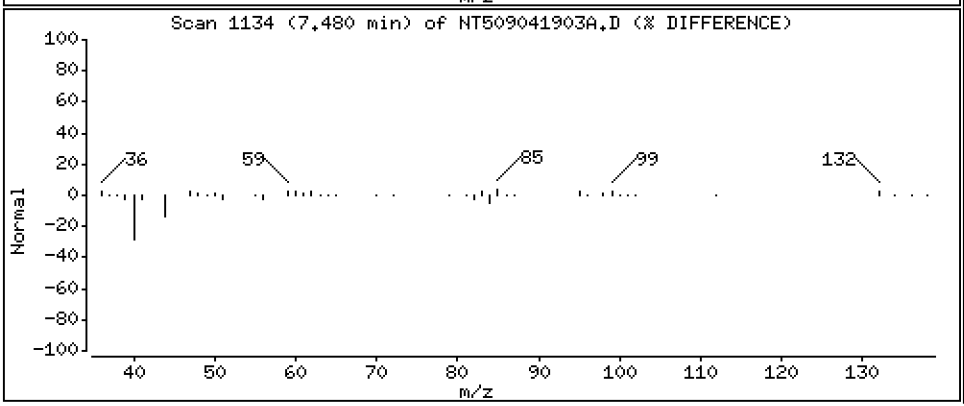
47 1,1,2-Trichloroethane

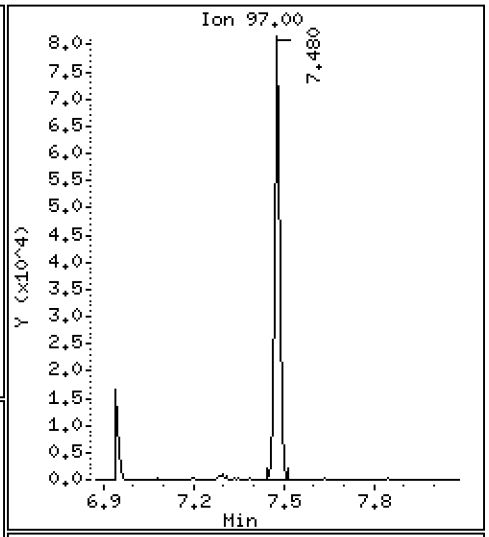
Concentration: 43.439 ug/Kg

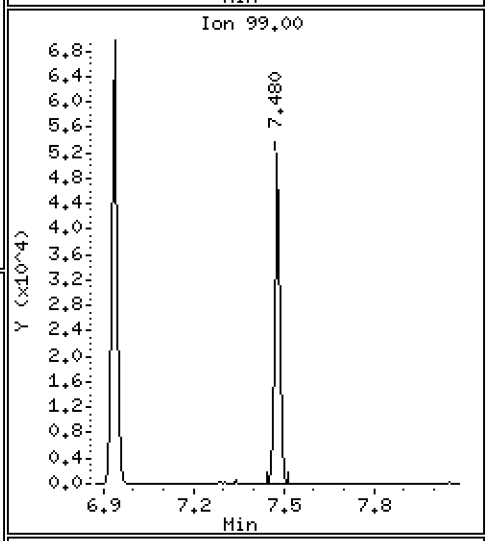


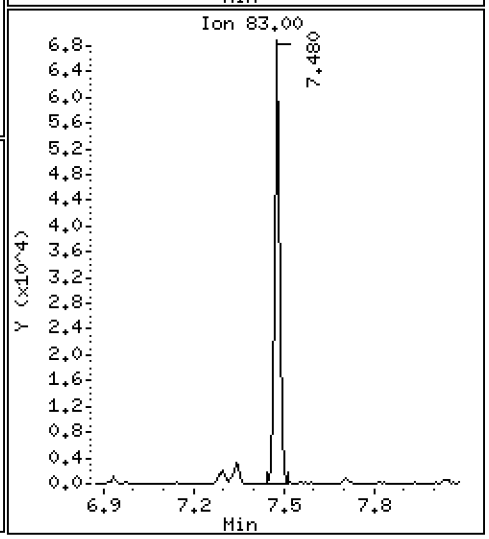












Date : 04-SEP-2019 14:02

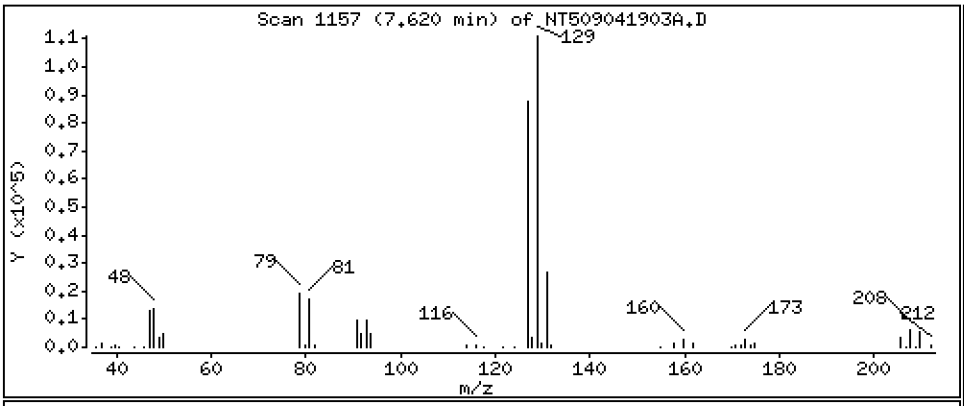
Client ID: Instrument: nt5.i

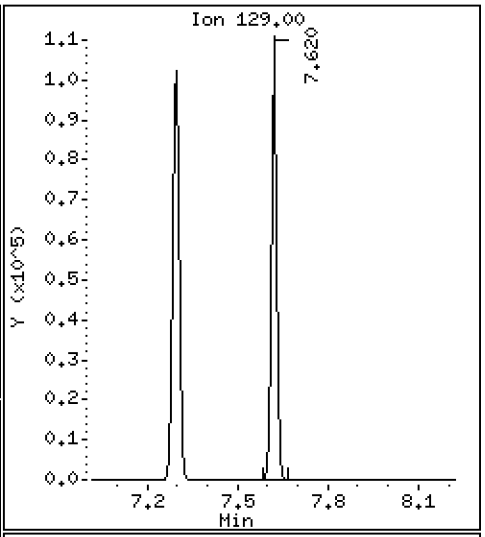
Sample Info: ICV1

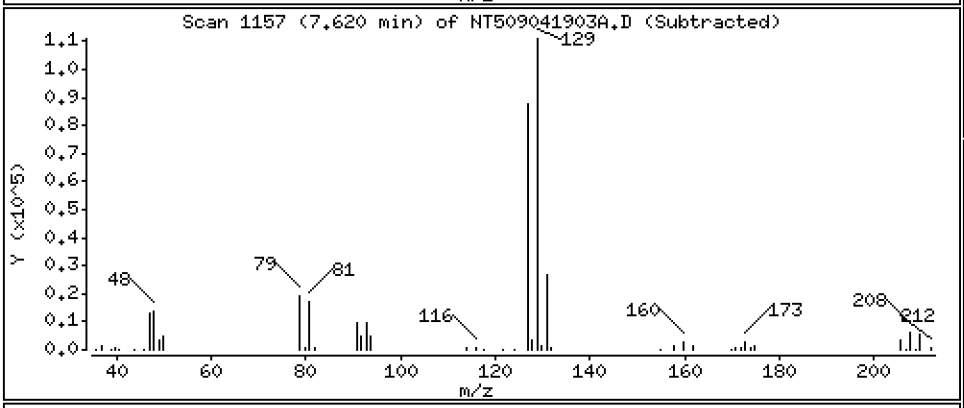
Operator: PB

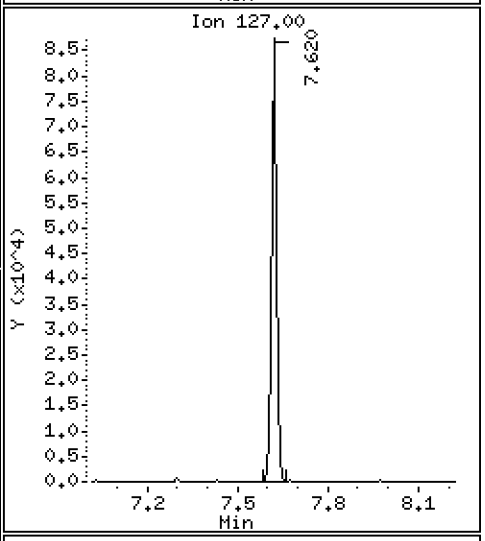
Column phase: RTXVMS Column diameter: 0.18

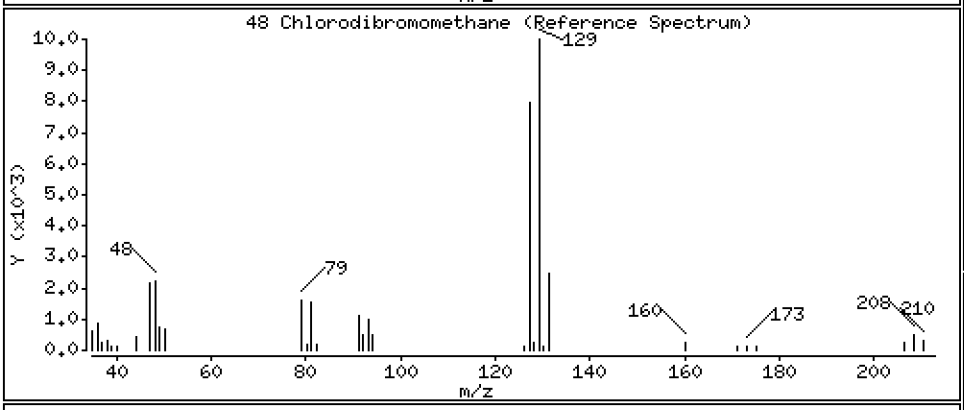
48 Chlorodibromomethane Concentration: 42.410 ug/Kg

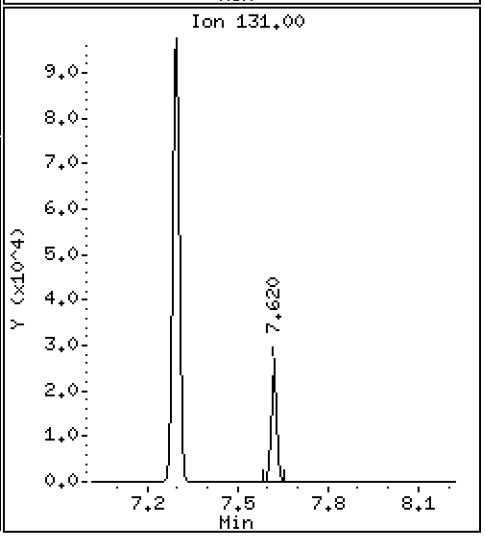


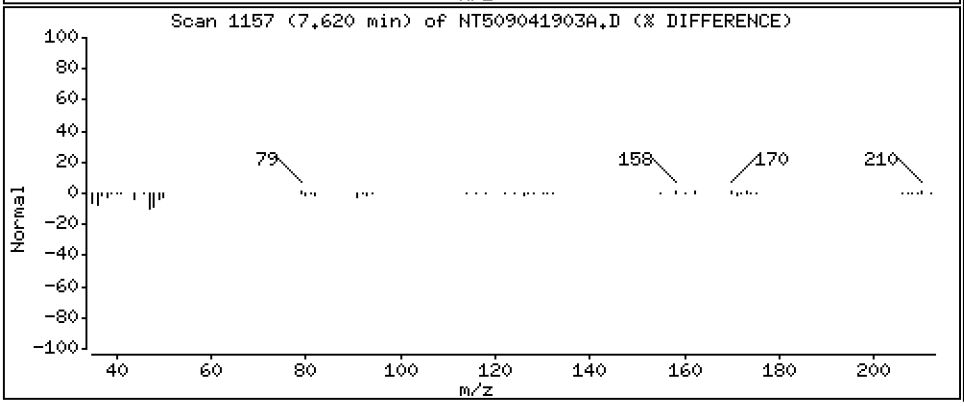












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

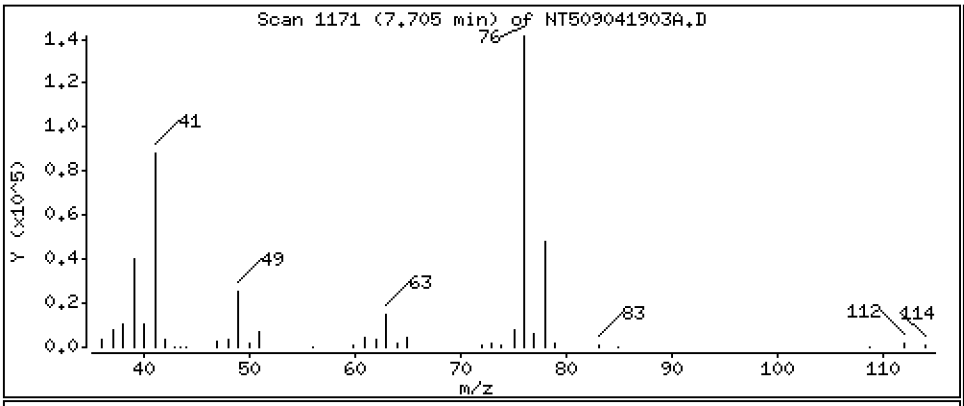
Operator: PB

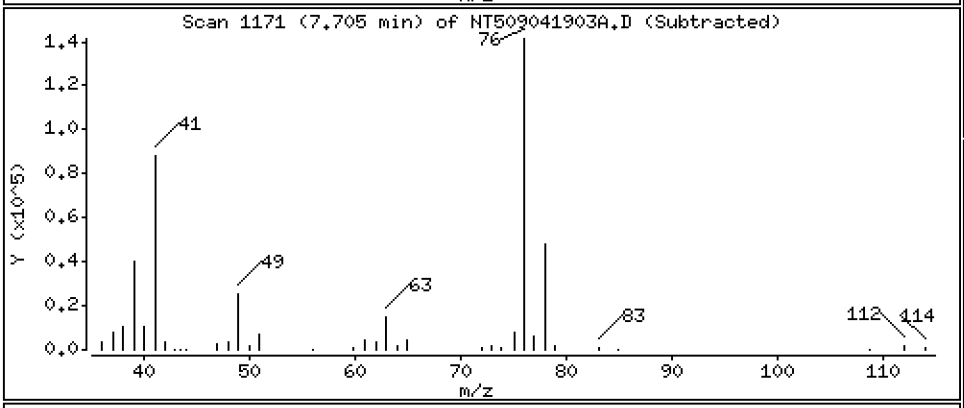
Column phase: RTXVMS

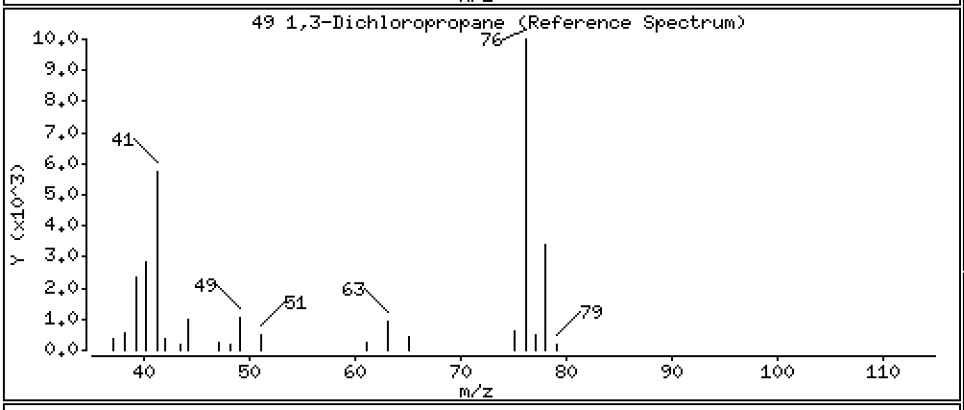
Column diameter: 0.18

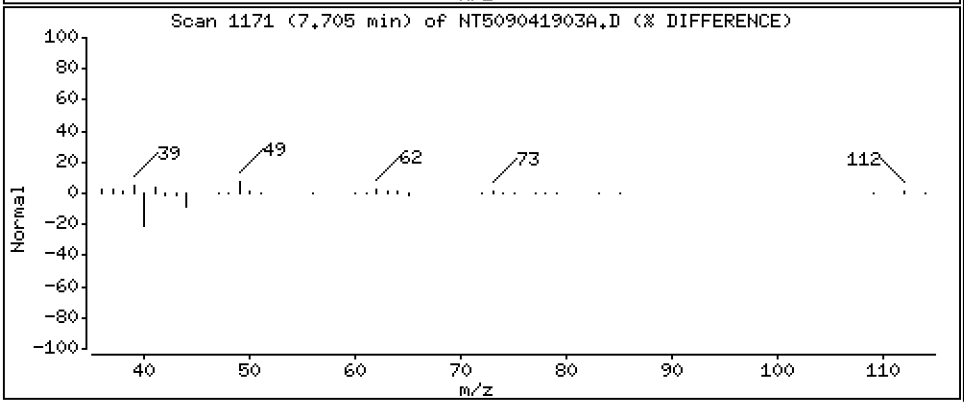
49 1,3-Dichloropropane

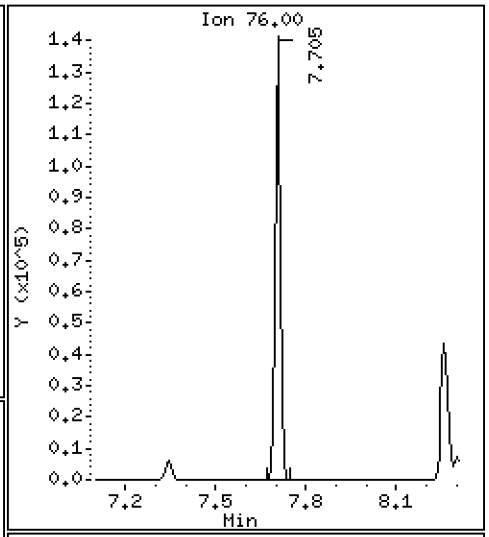
Concentration: 43.225 ug/Kg

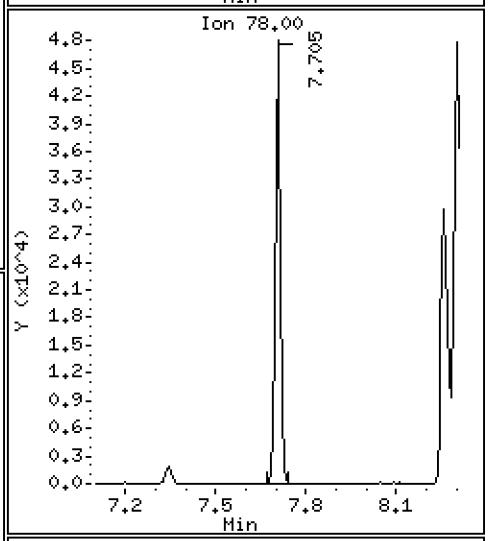


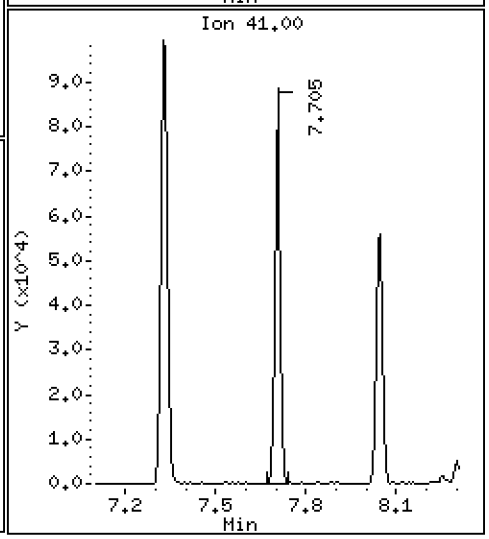












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

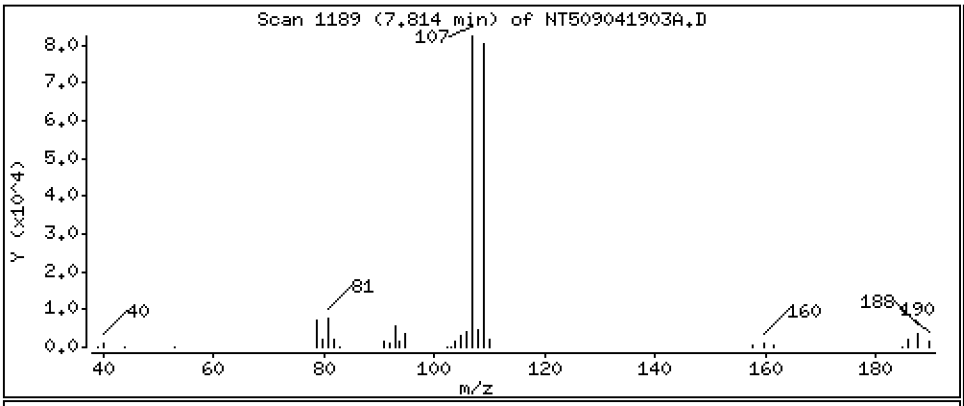
Operator: PB

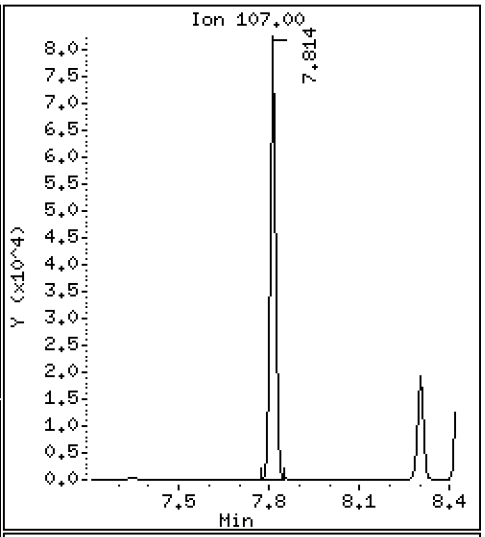
Column phase: RTXVMS

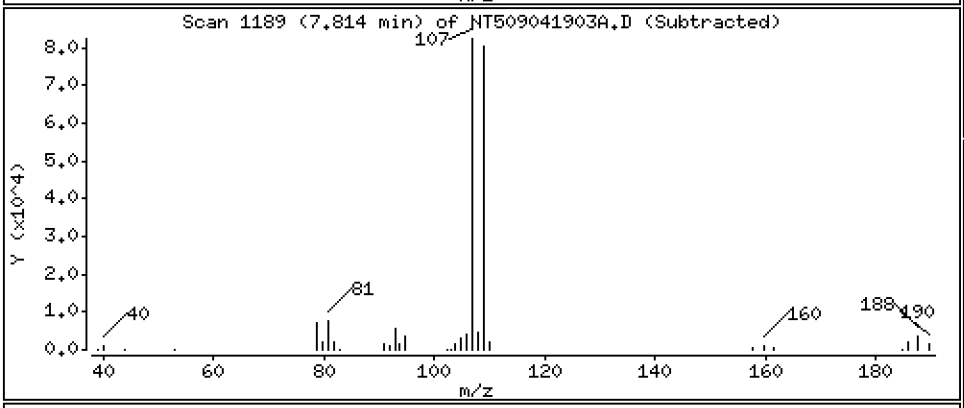
Column diameter: 0.18

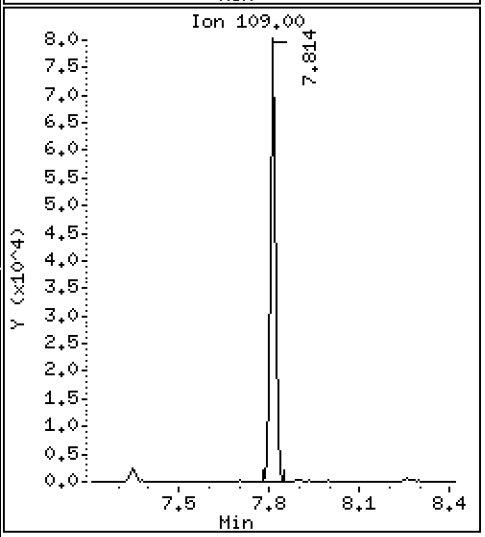
50 1,2-Dibromoethane

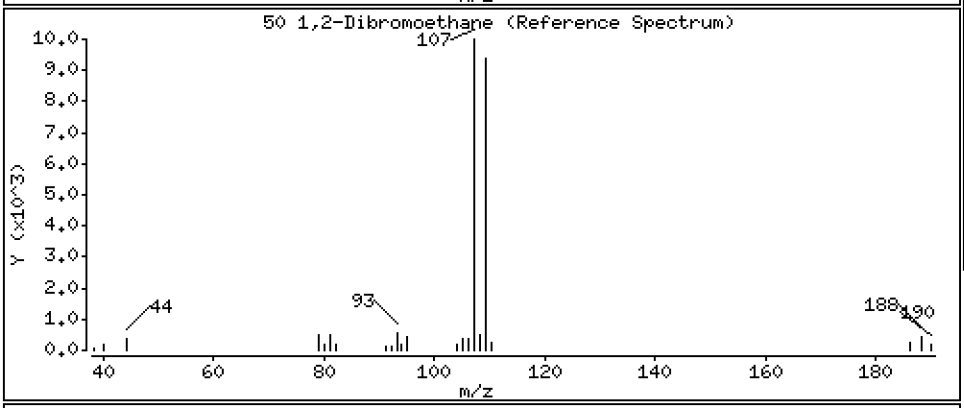
Concentration: 45.877 ug/Kg

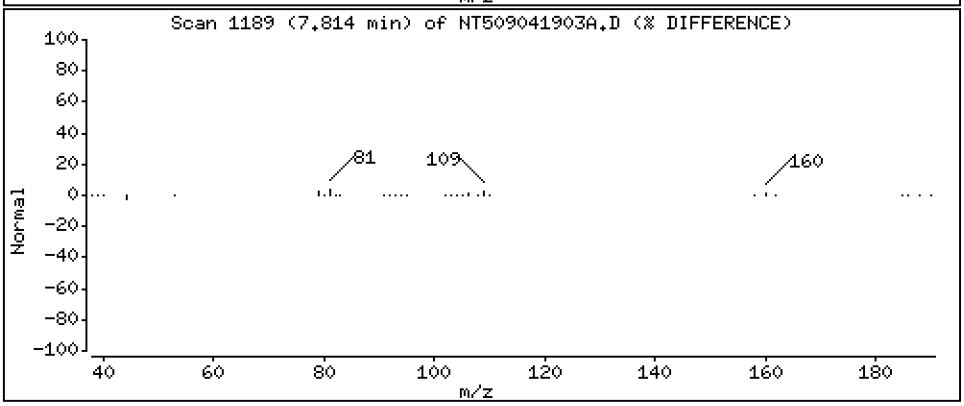












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

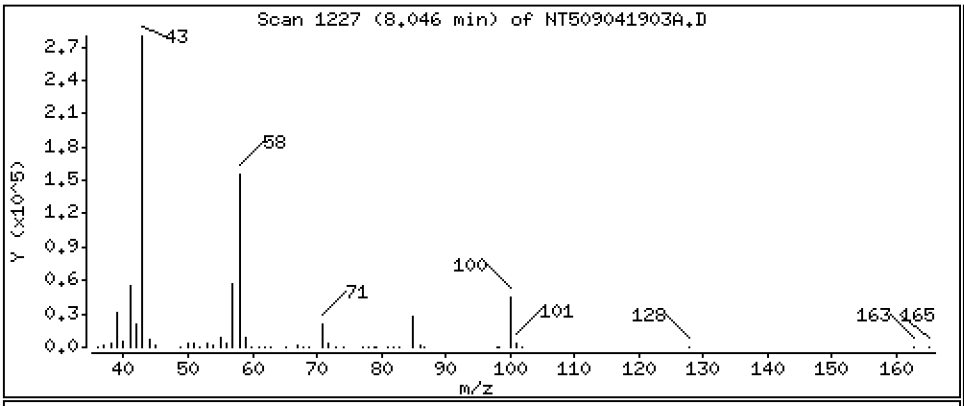
Operator: PB

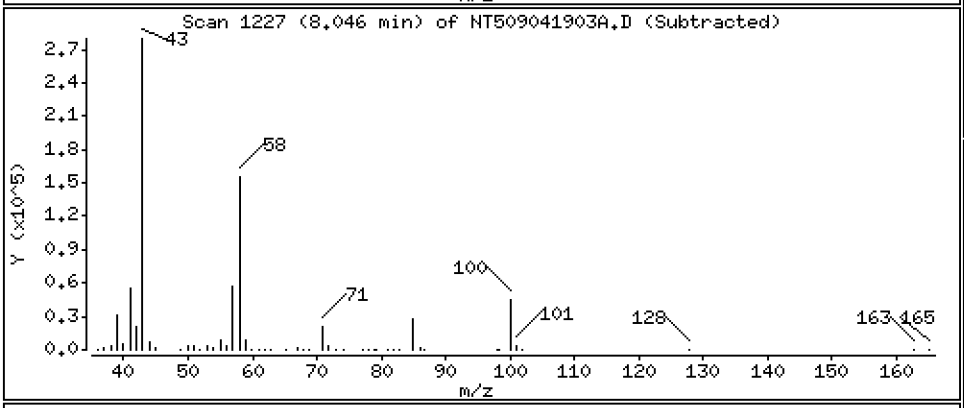
Column phase: RTXVMS

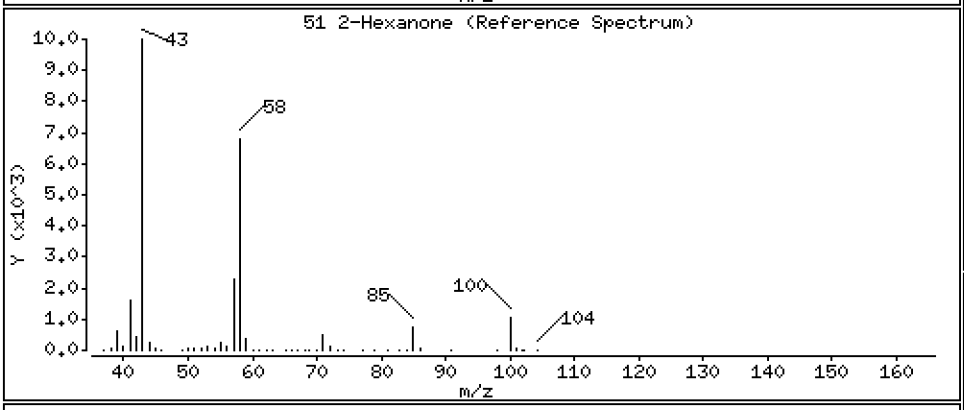
Column diameter: 0.18

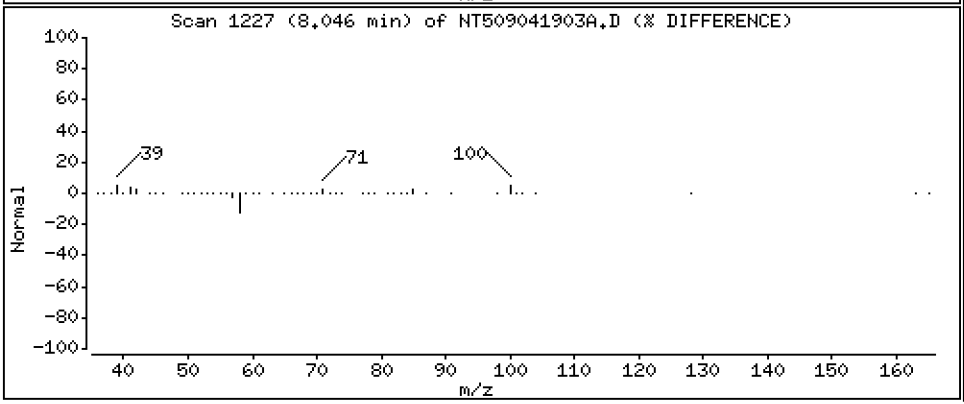
51 2-Hexanone

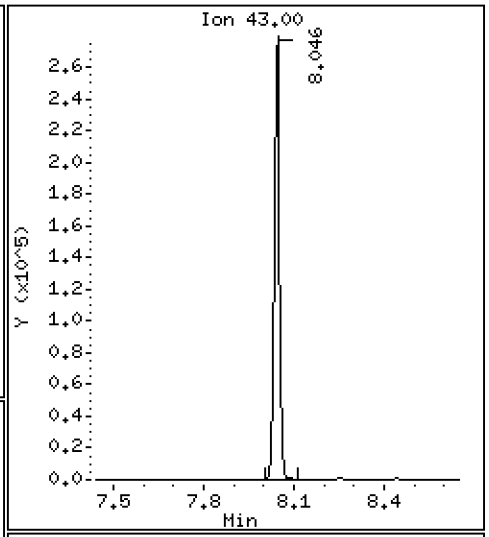
Concentration: 233.99 ug/Kg

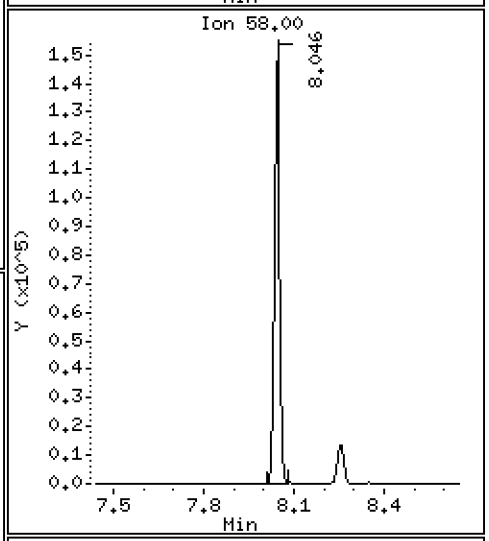


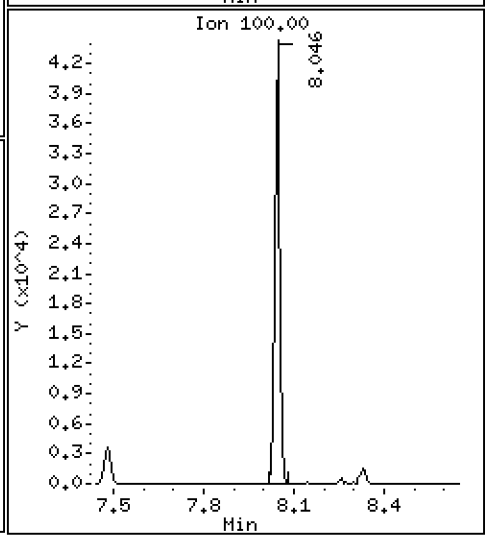












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

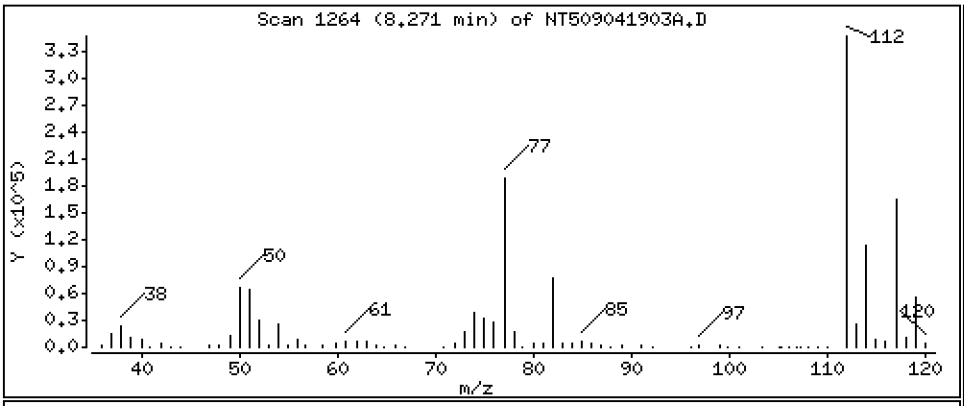
Operator: PB

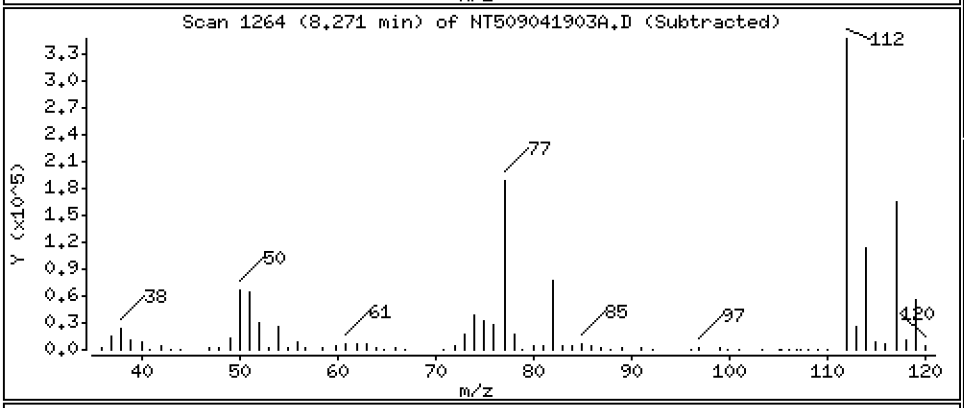
Column phase: RTXVMS

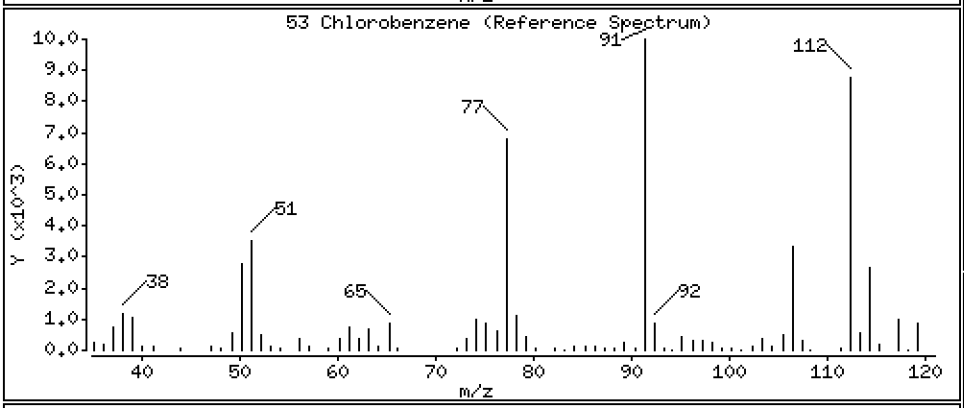
Column diameter: 0.18

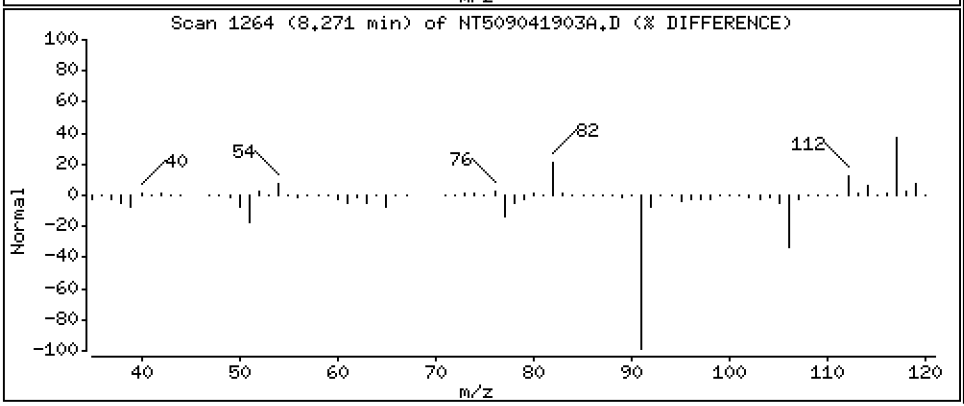
53 Chlorobenzene

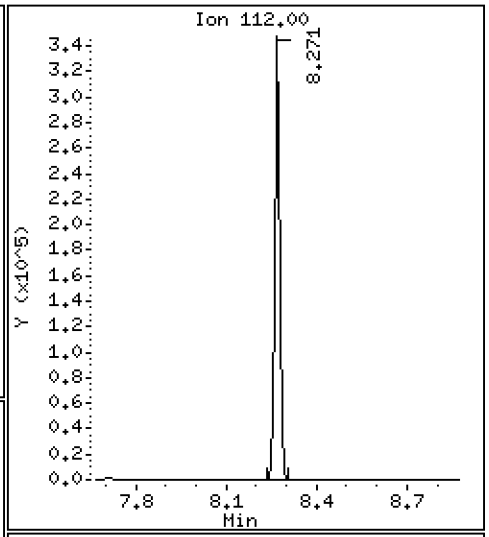
Concentration: 43.220 ug/Kg

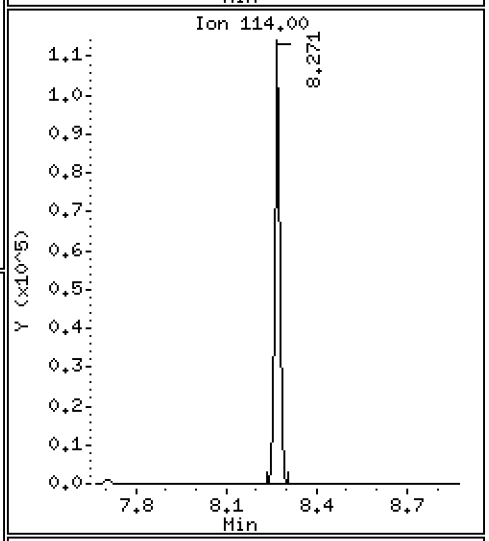


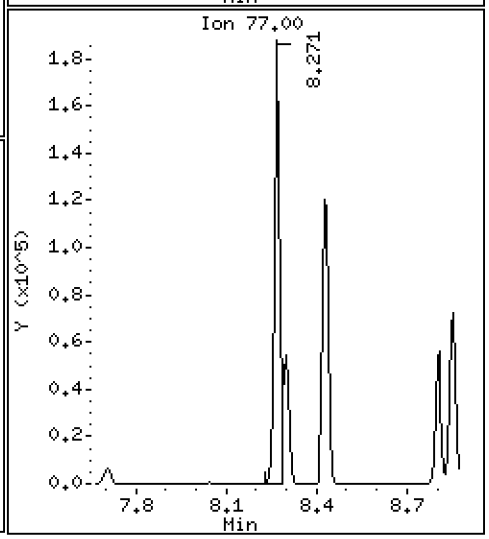












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

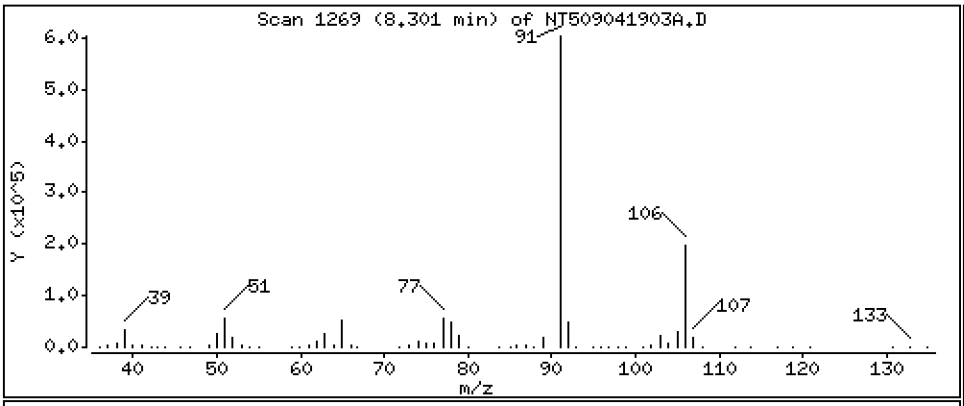
Operator: PB

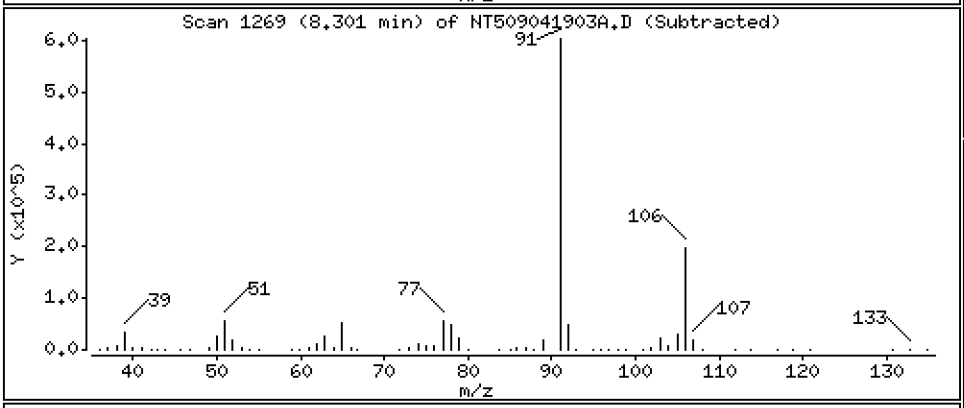
Column phase: RTXVMS

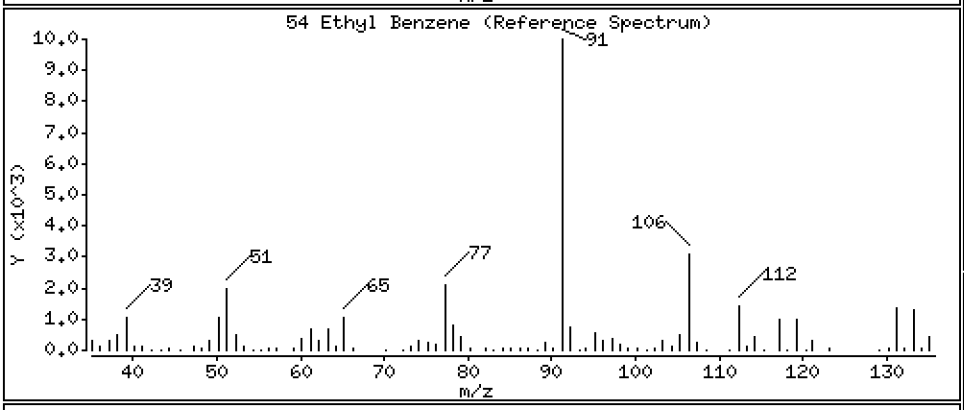
Column diameter: 0.18

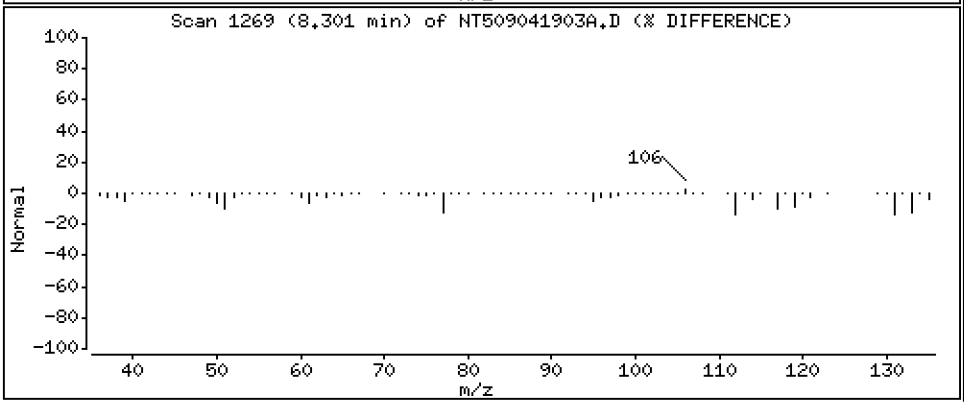
54 Ethyl Benzene

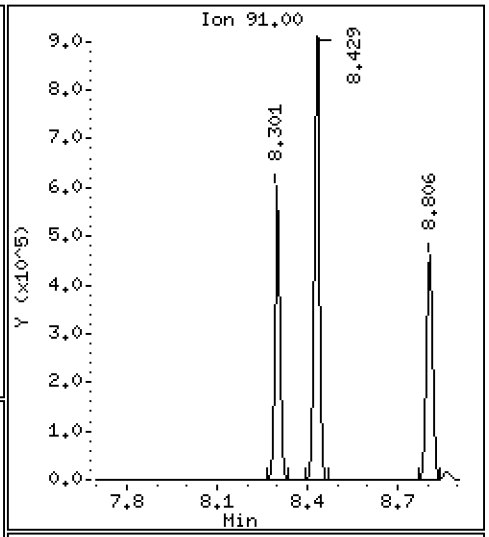
Concentration: 45.320 ug/Kg

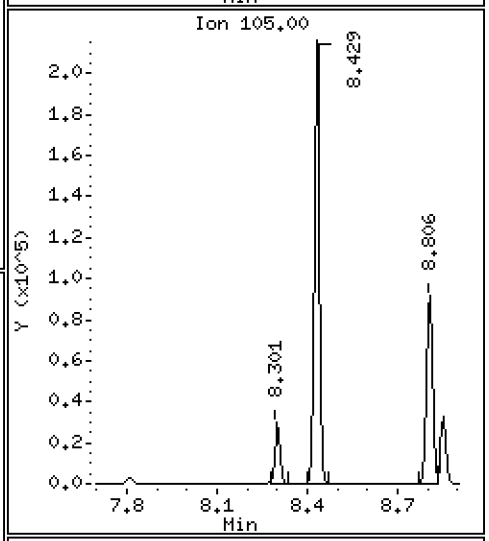


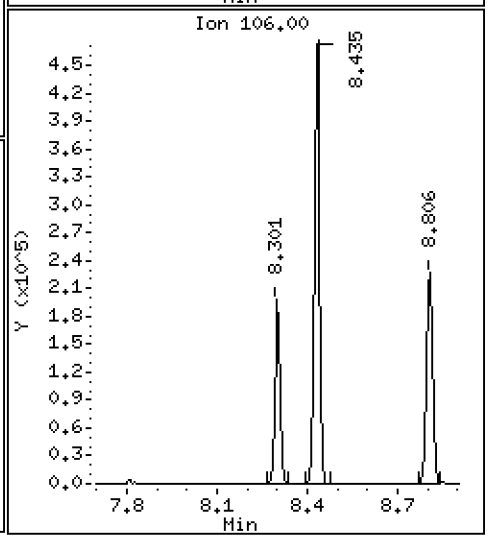












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

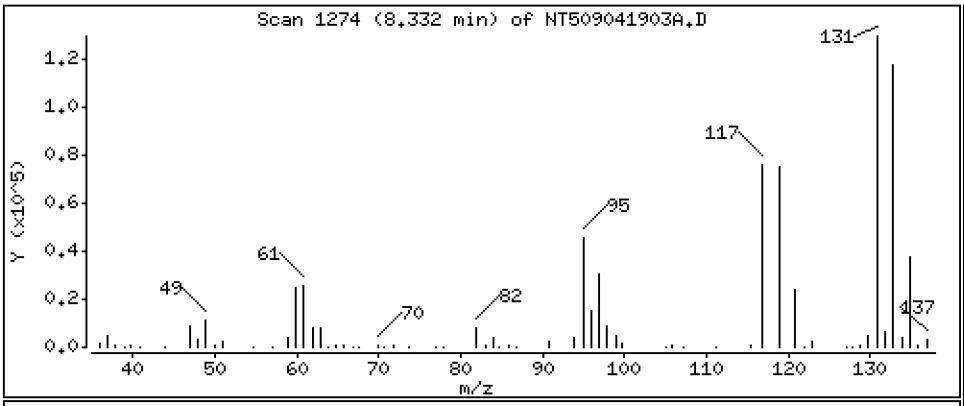
Operator: PB

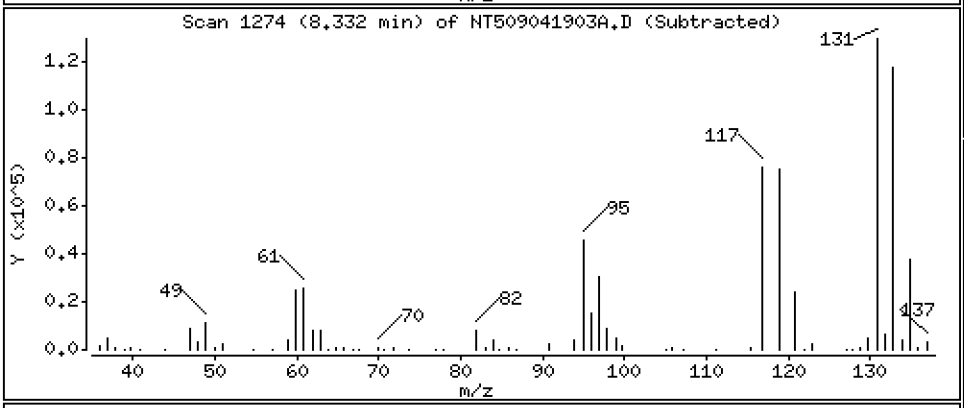
Column phase: RTXVMS

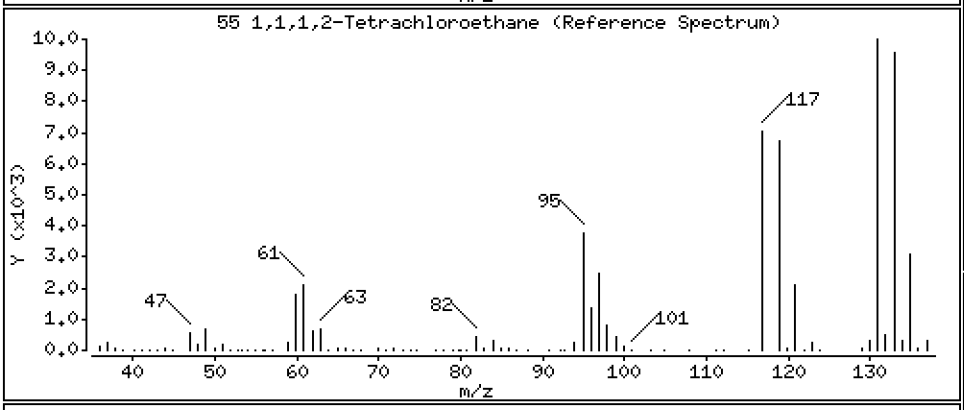
Column diameter: 0.18

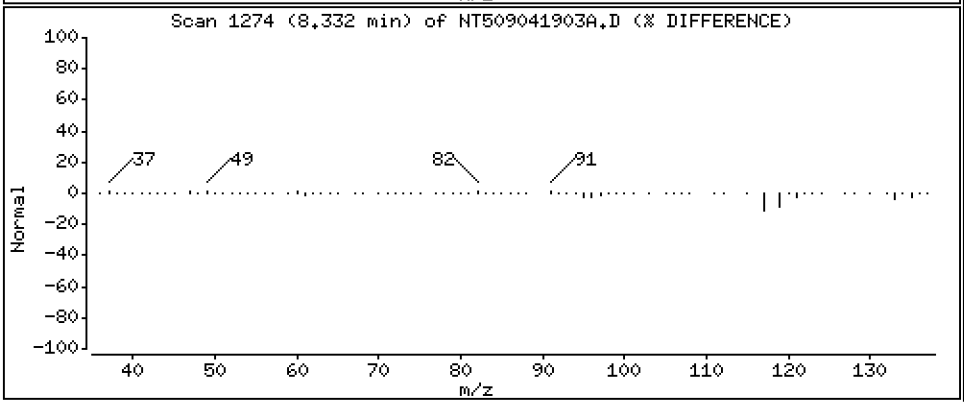
55 1,1,1,2-Tetrachloroethane

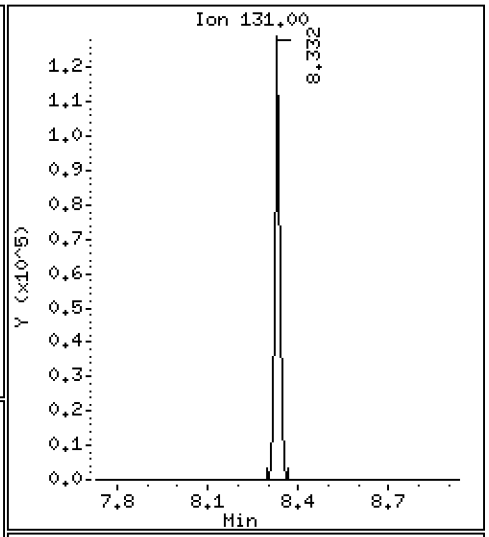
Concentration: 43.976 ug/Kg

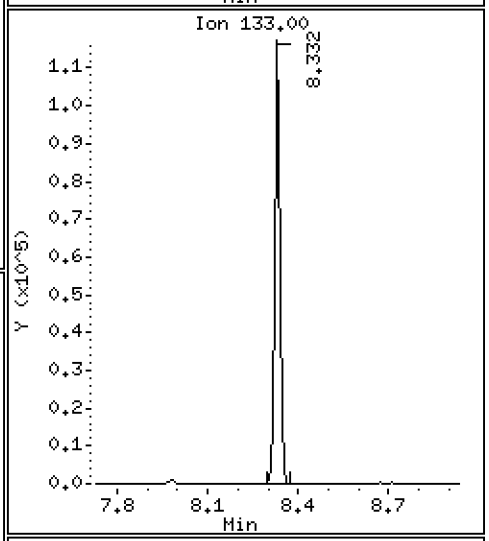


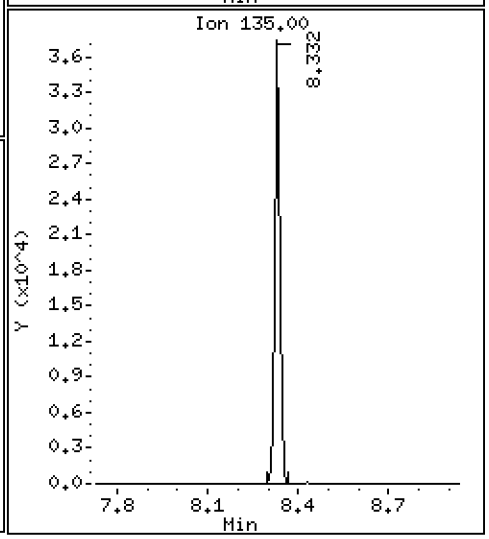












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

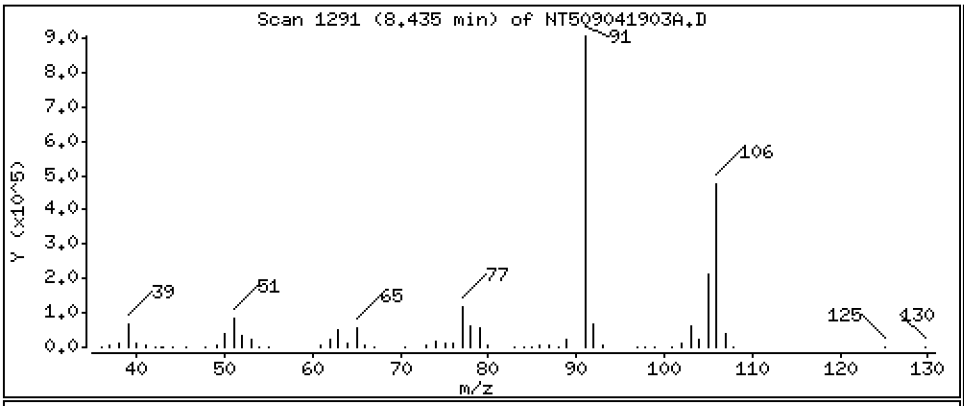
Operator: PB

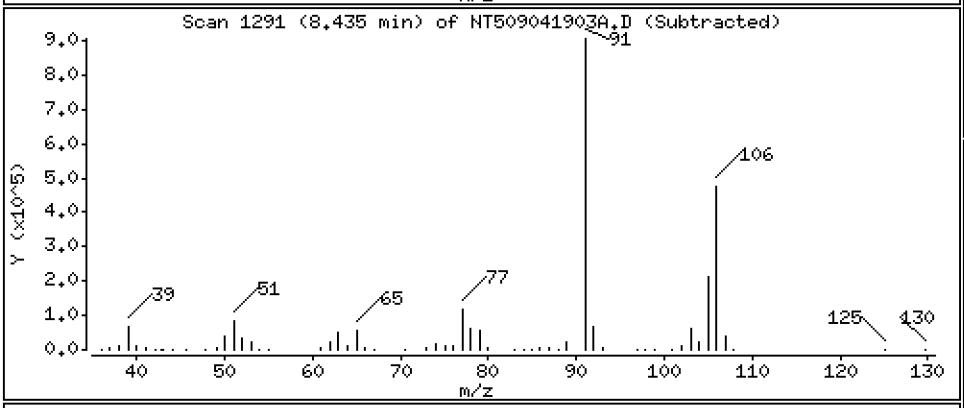
Column phase: RTXVMS

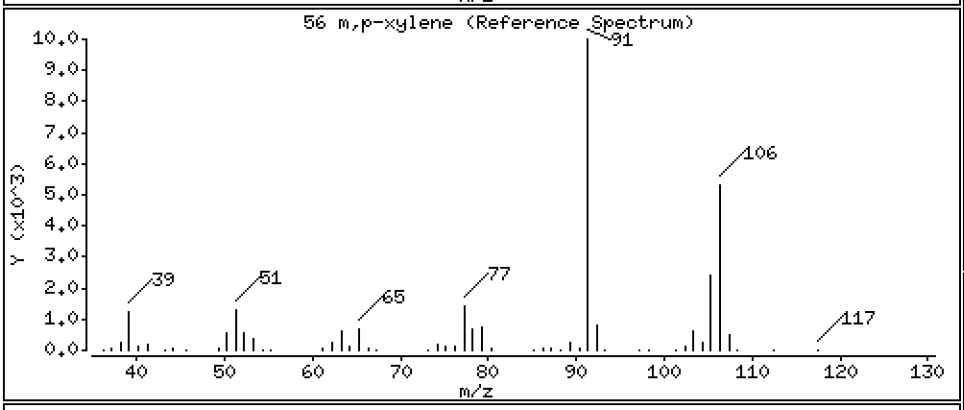
Column diameter: 0.18

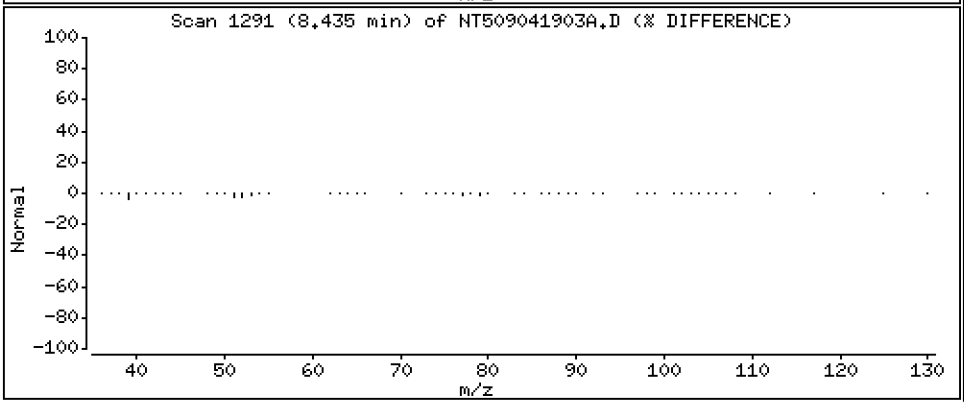
56 m,p-xylene

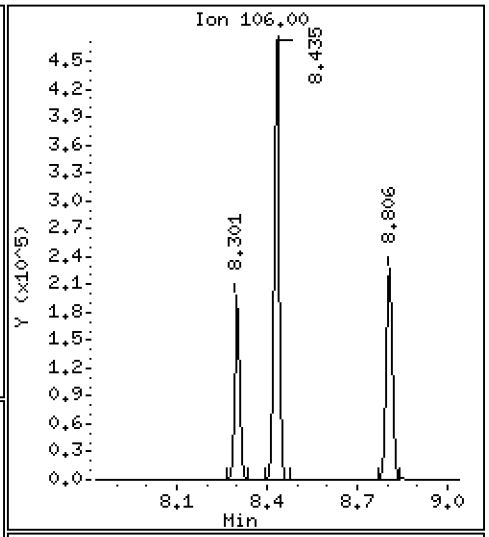
Concentration: 91.673 ug/Kg

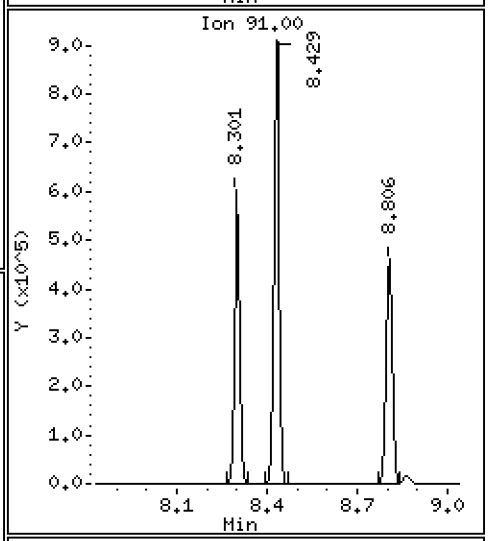


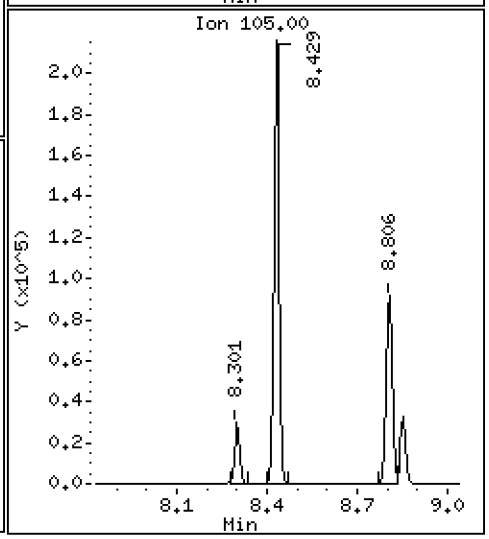












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

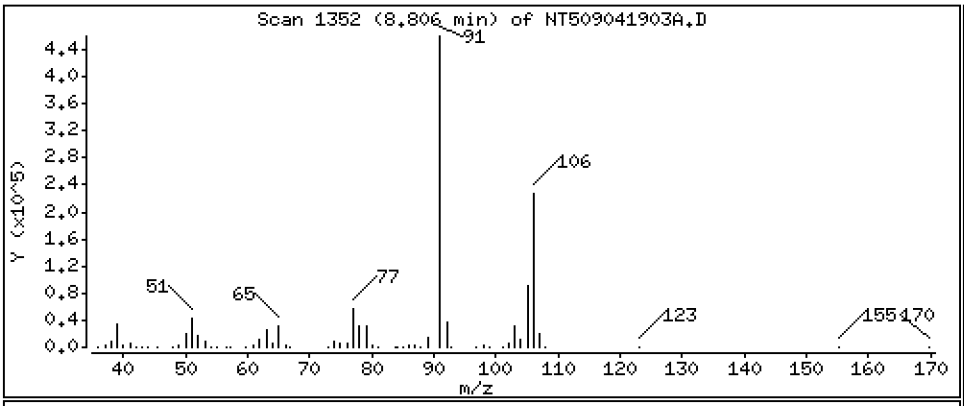
Operator: PB

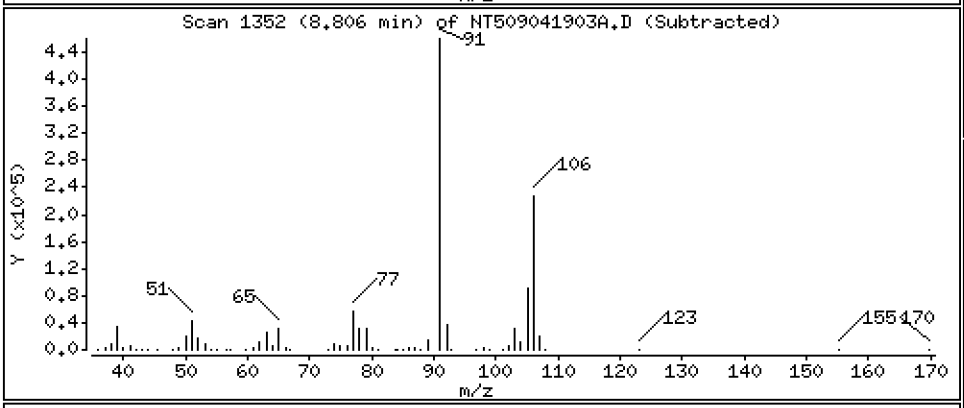
Column phase: RTXVMS

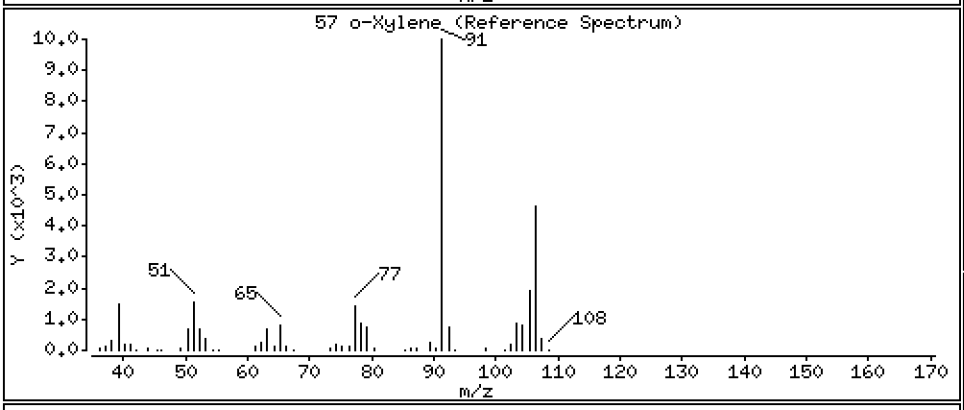
Column diameter: 0.18

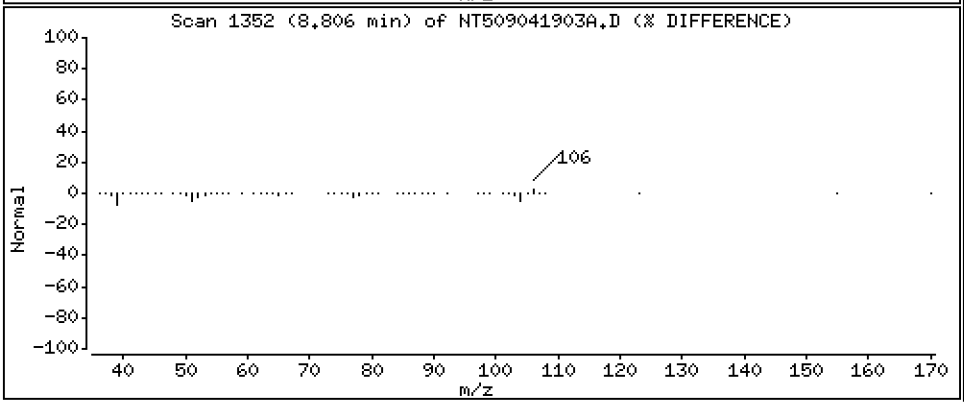
57 o-Xylene

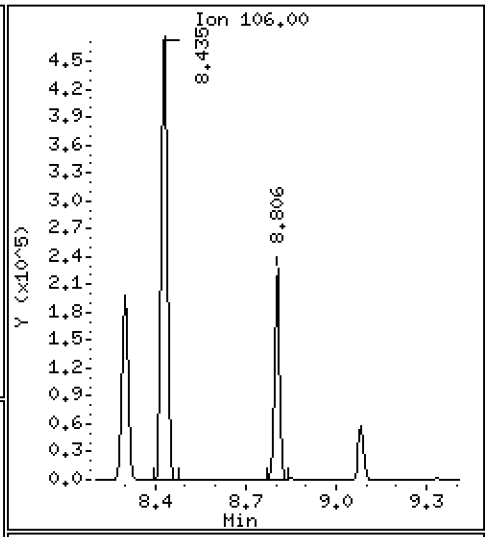
Concentration: 46.036 ug/Kg

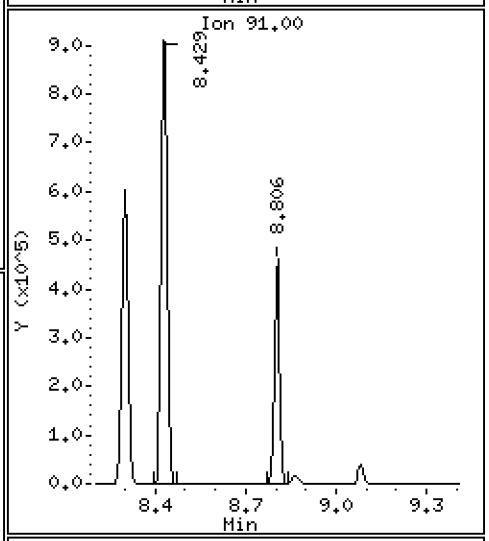


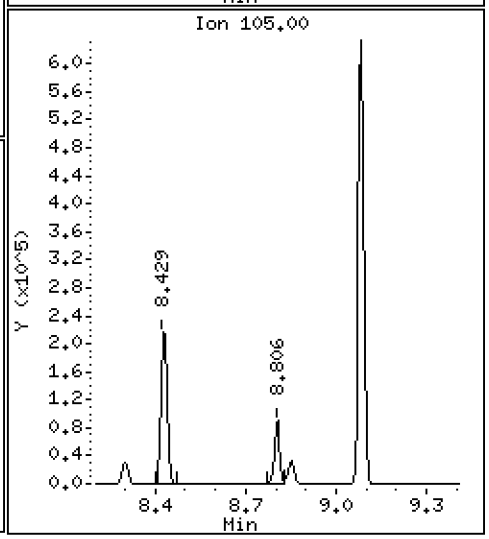












Date : 04-SEP-2019 14:02

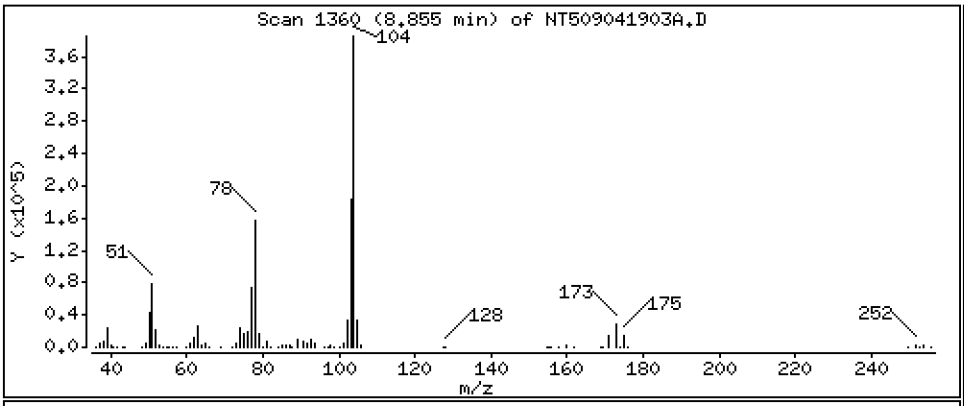
Client ID: Instrument: nt5.i

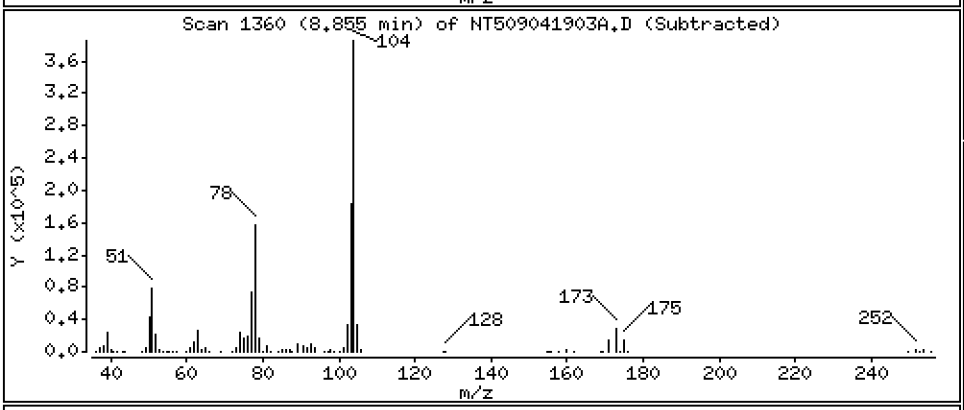
Sample Info: ICV1

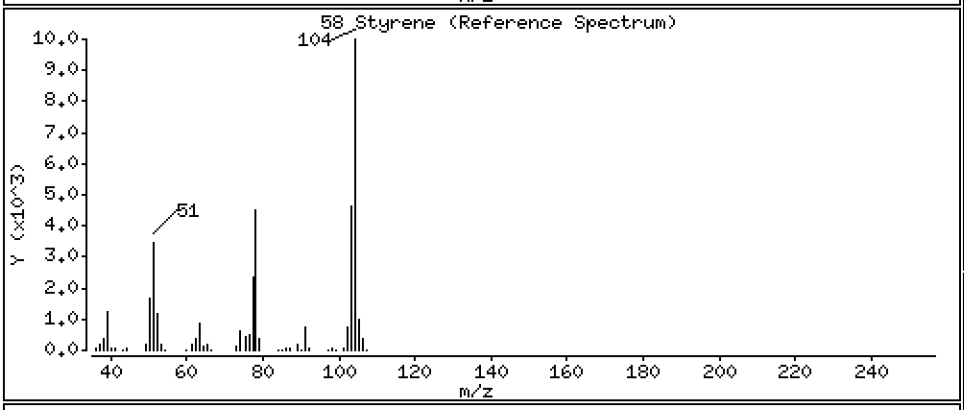
Operator: PB

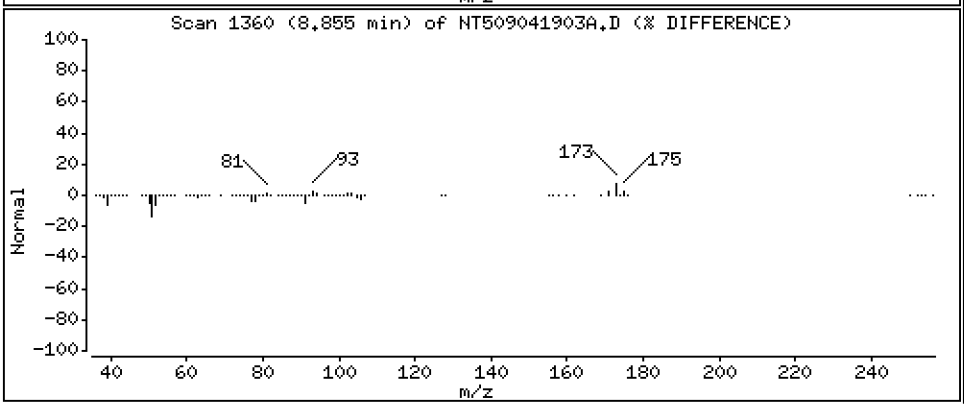
Column phase: RTXVMS Column diameter: 0.18

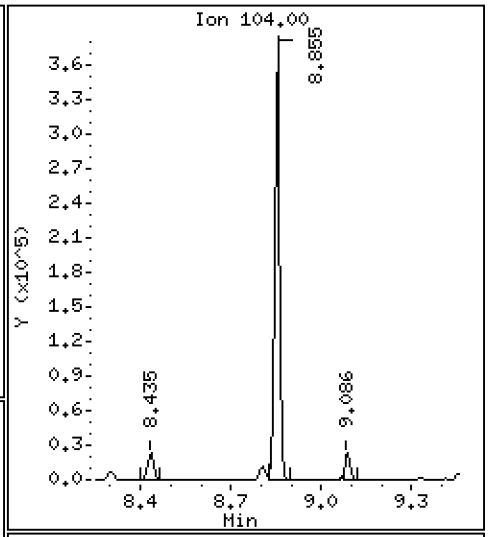
58 Styrene Concentration: 45.282 ug/Kg

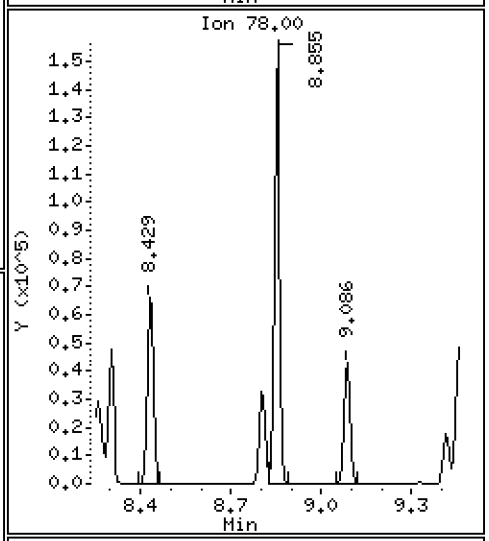


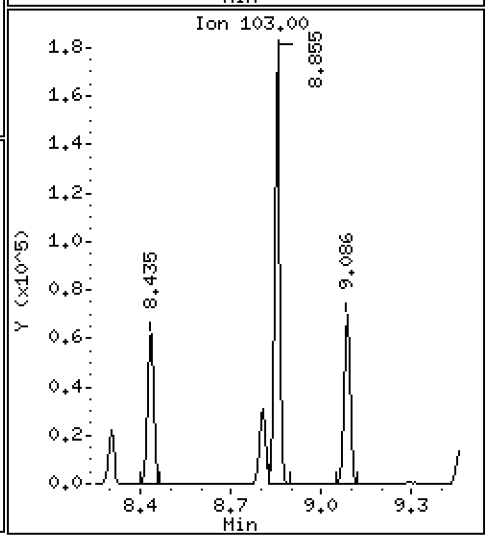












Date : 04-SEP-2019 14:02

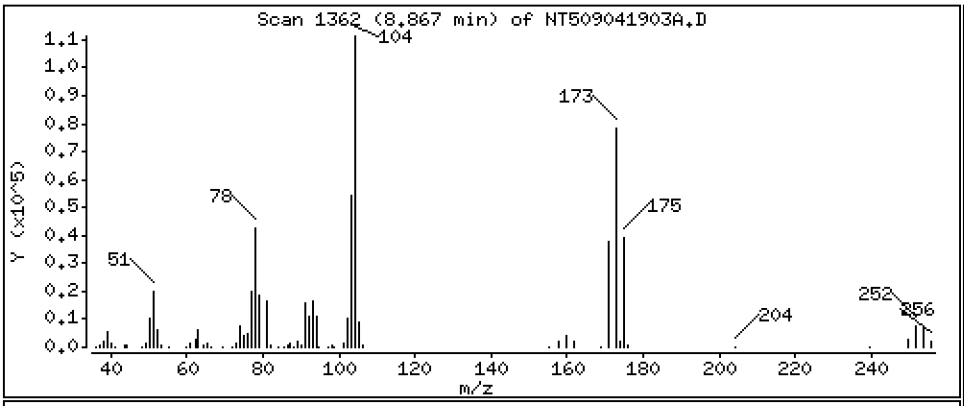
Client ID: Instrument: nt5.i

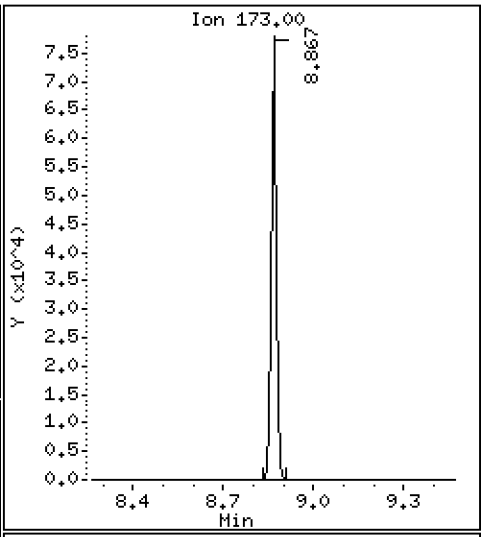
Sample Info: ICV1

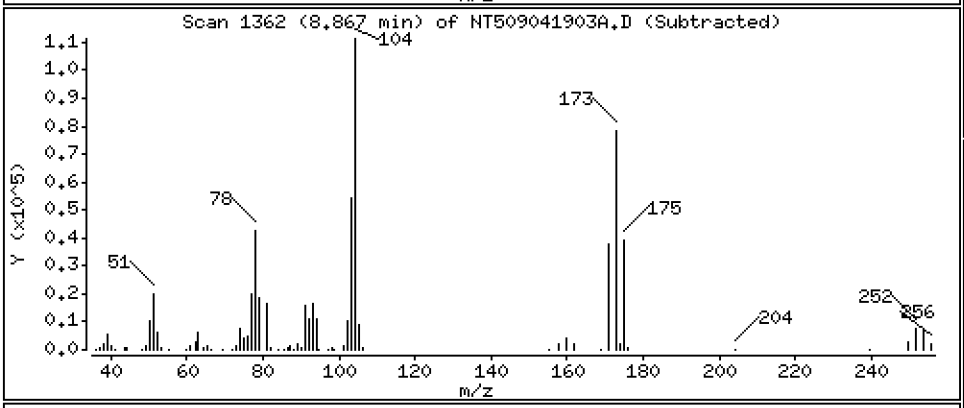
Operator: PB

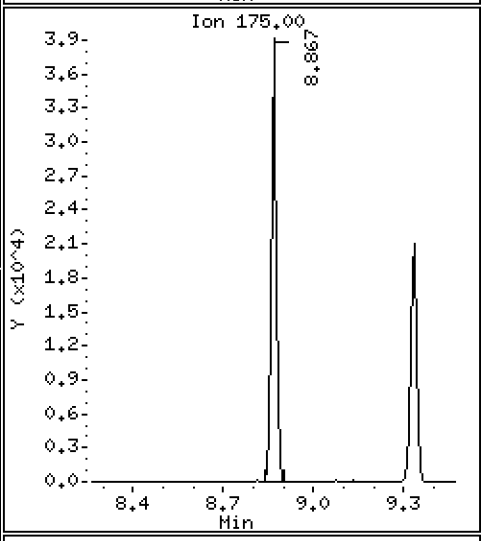
Column phase: RTXVMS Column diameter: 0.18

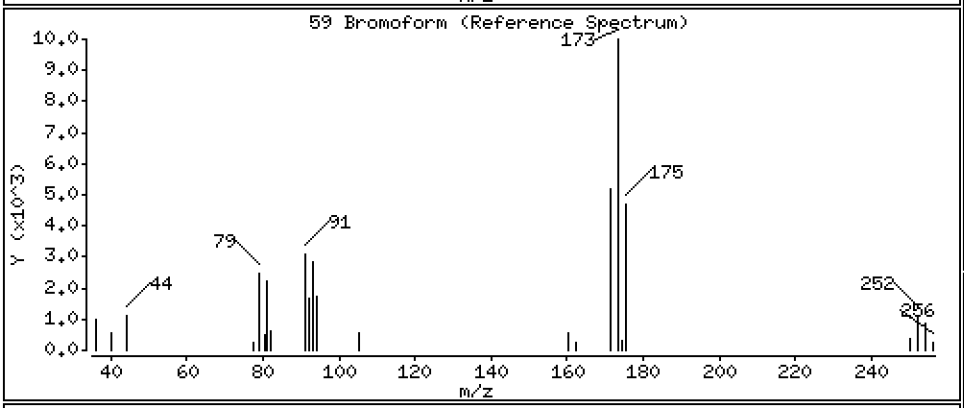
59 Bromoform Concentration: 40.420 ug/Kg

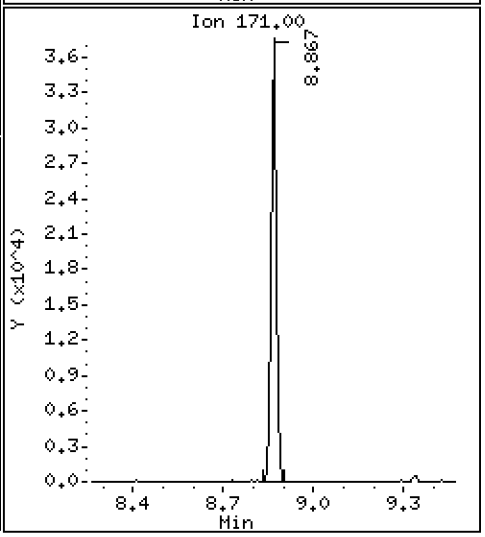


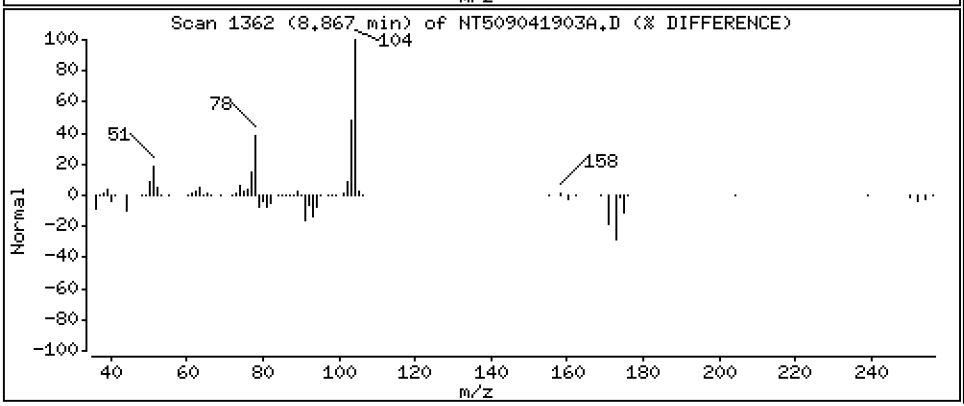












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

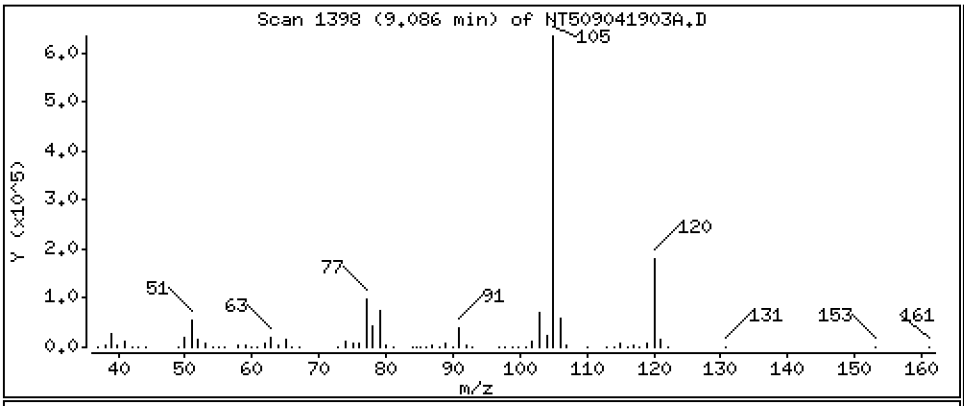
Operator: PB

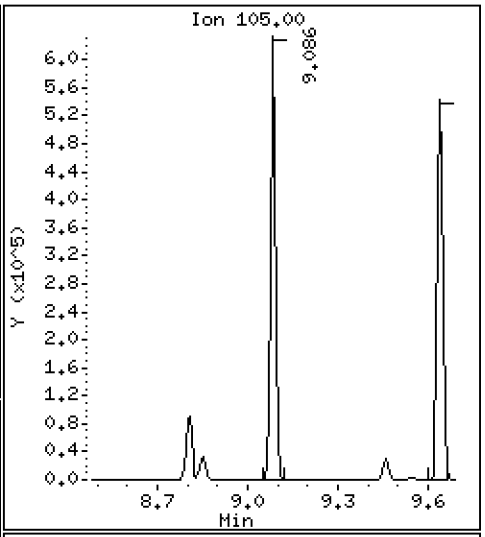
Column phase: RTXVMS

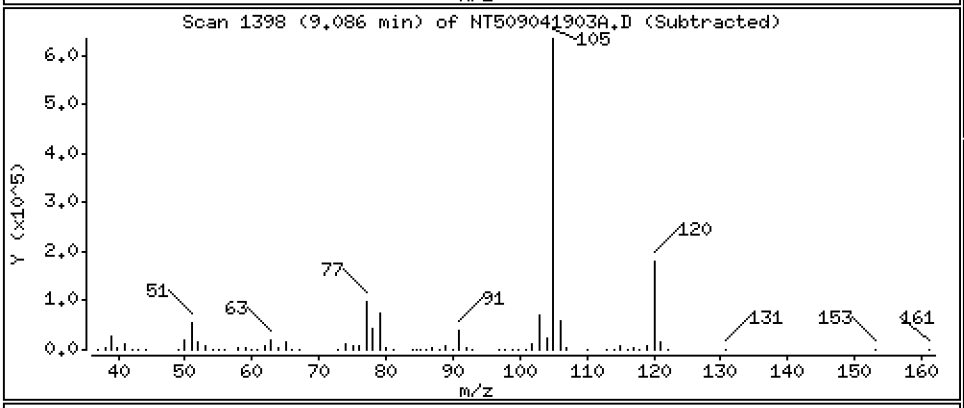
Column diameter: 0.18

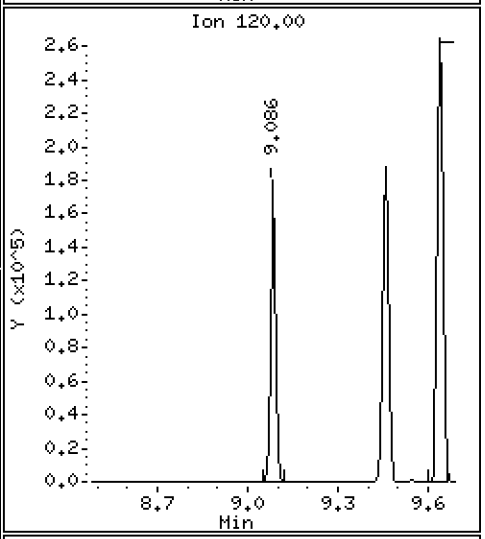
60 Isopropyl Benzene

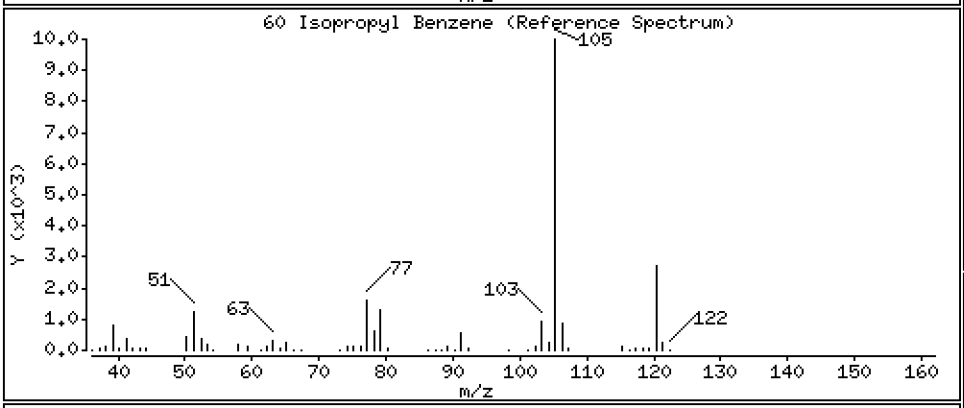
Concentration: 46.473 ug/Kg

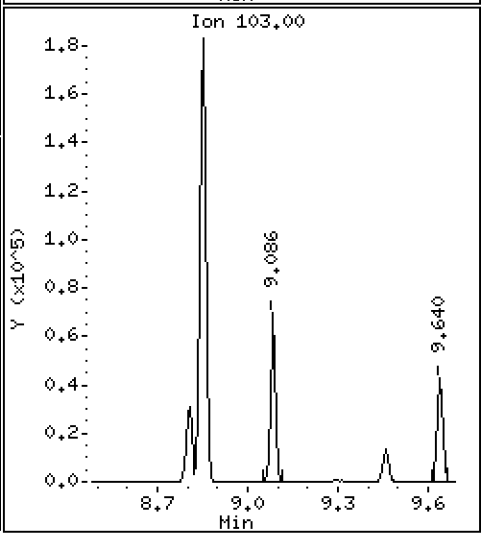


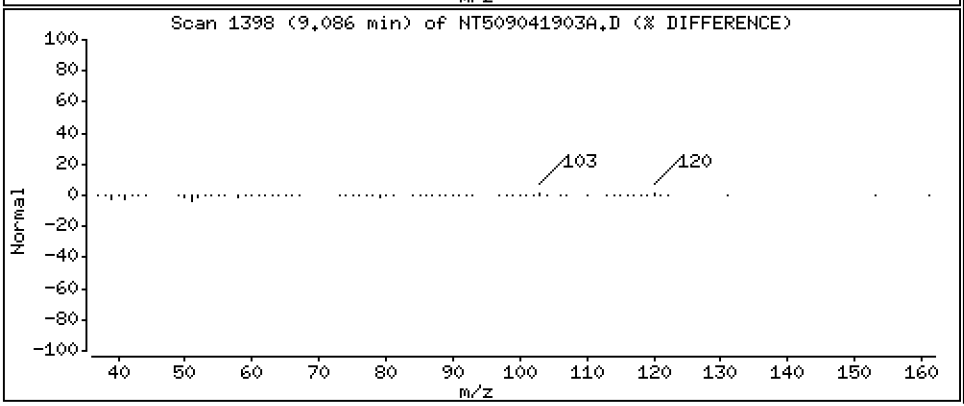












Date : 04-SEP-2019 14:02

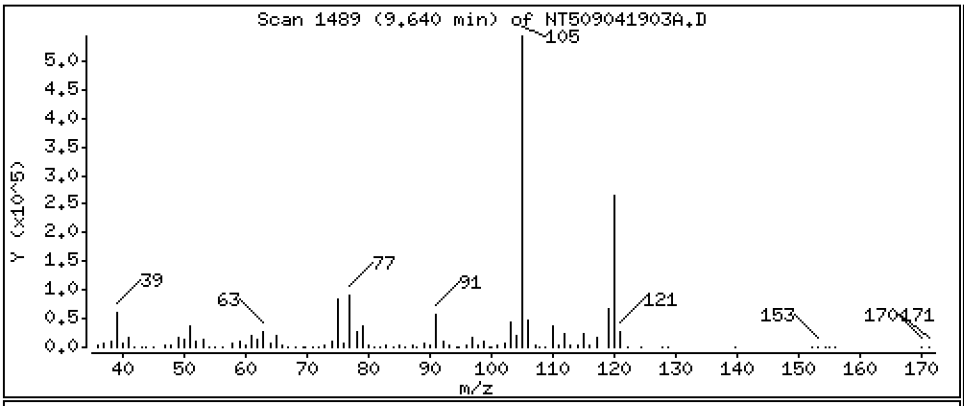
Client ID: Instrument: nt5.i

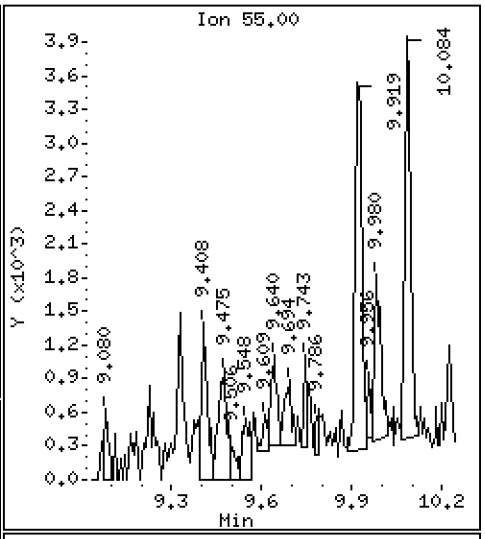
Sample Info: ICV1

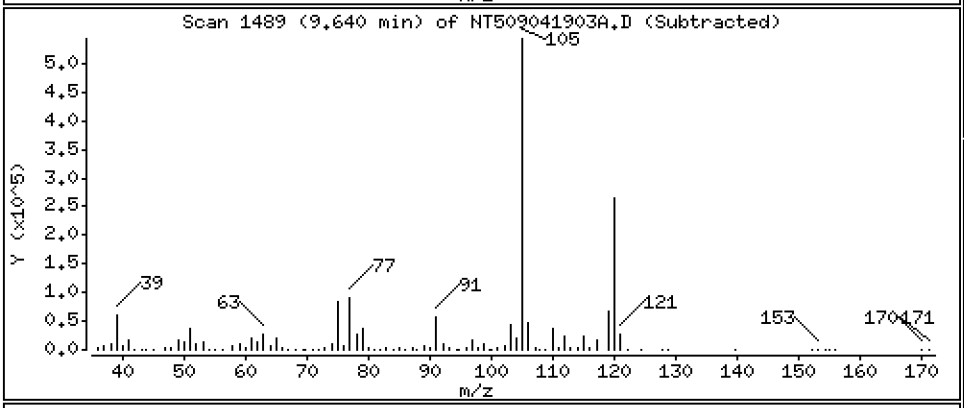
Operator: PB

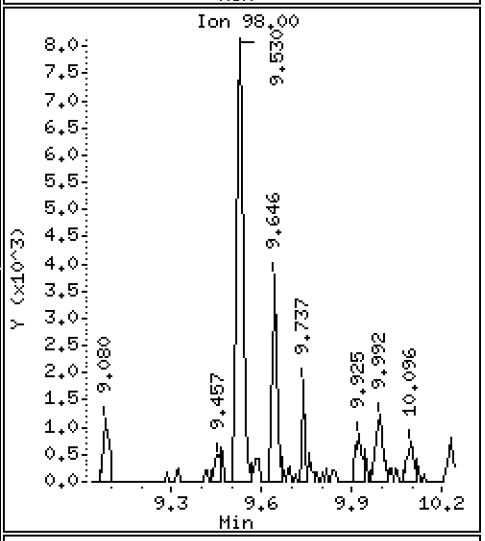
Column phase: RTXVMS Column diameter: 0.18

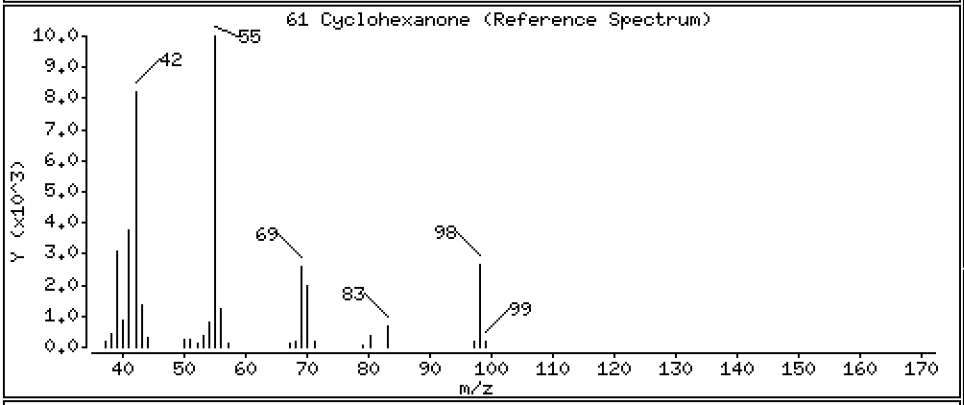
61 Cyclohexanone

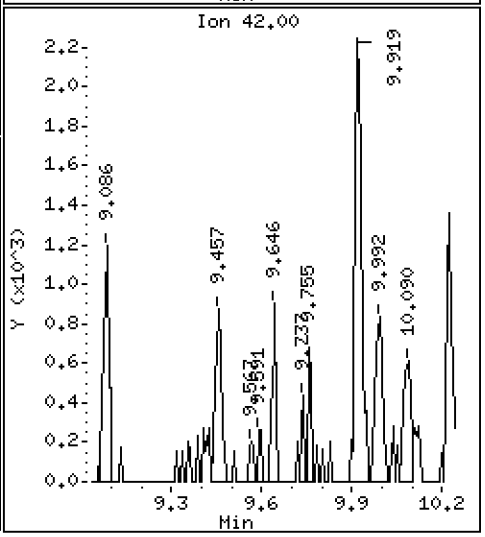


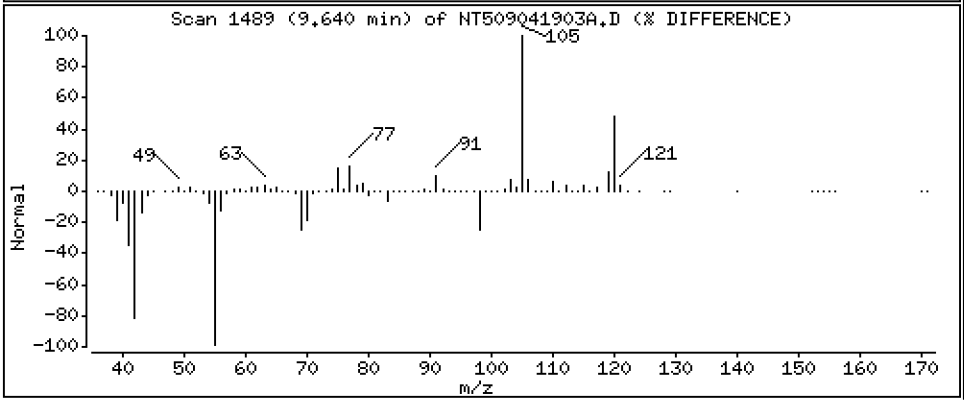












Date : 04-SEP-2019 14:02

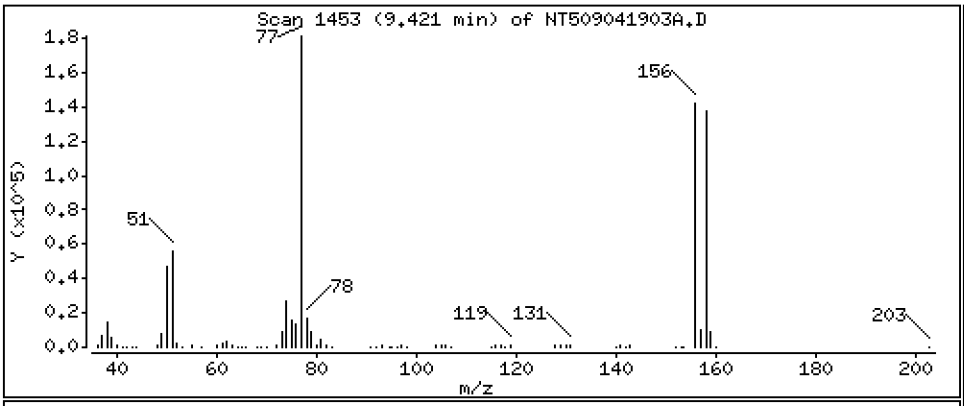
Client ID: Instrument: nt5.i

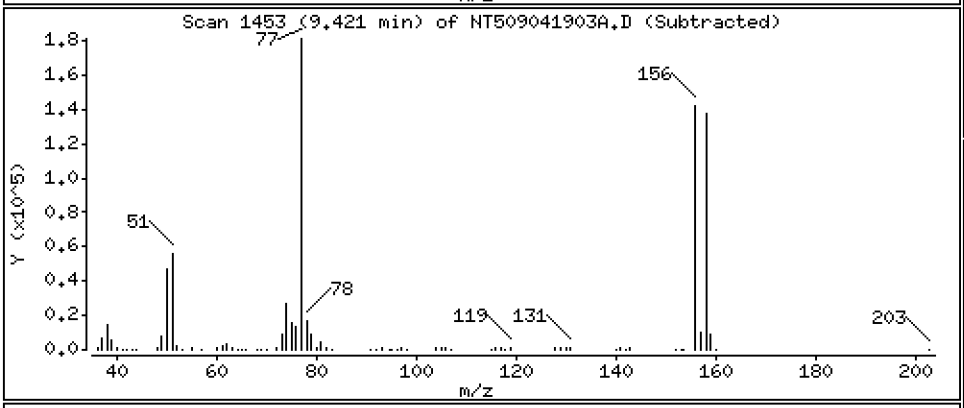
Sample Info: ICV1

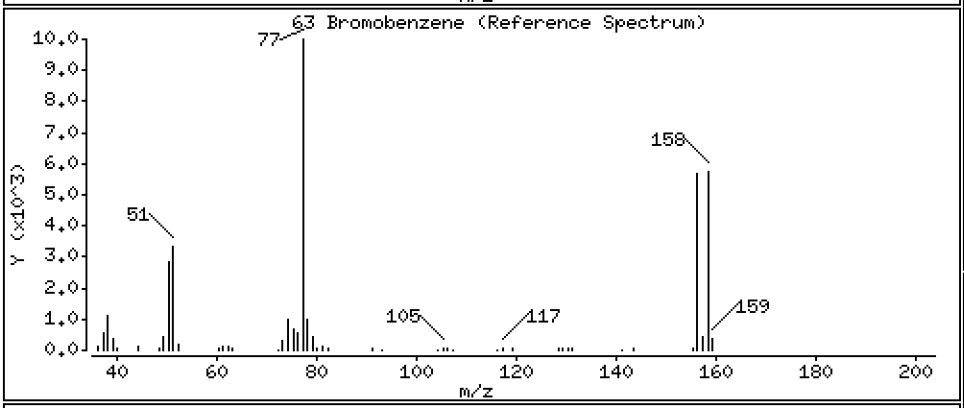
Operator: PB

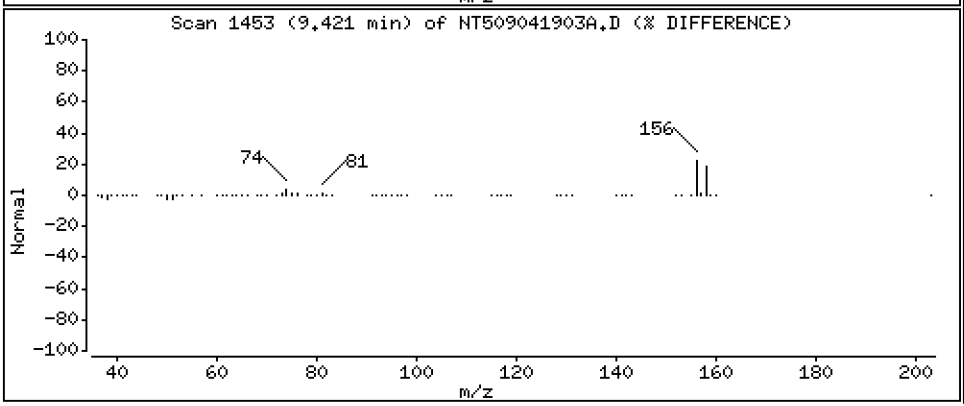
Column phase: RTXVMS Column diameter: 0.18

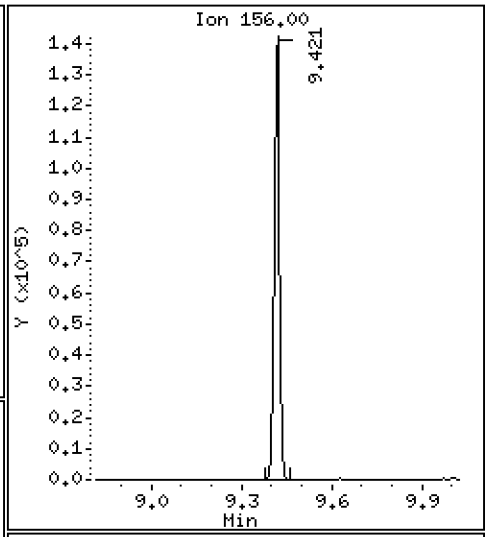
63 Bromobenzene Concentration: 42.415 ug/Kg

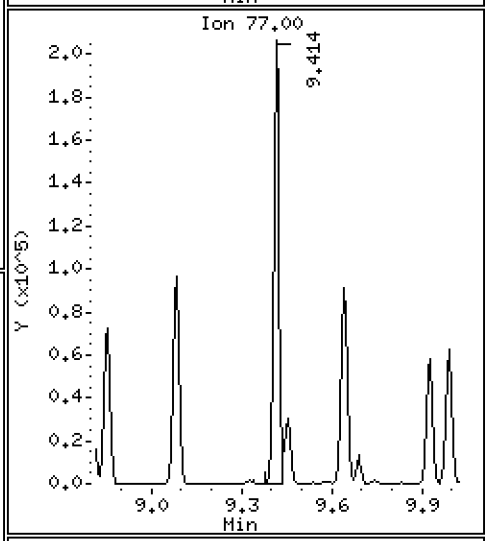


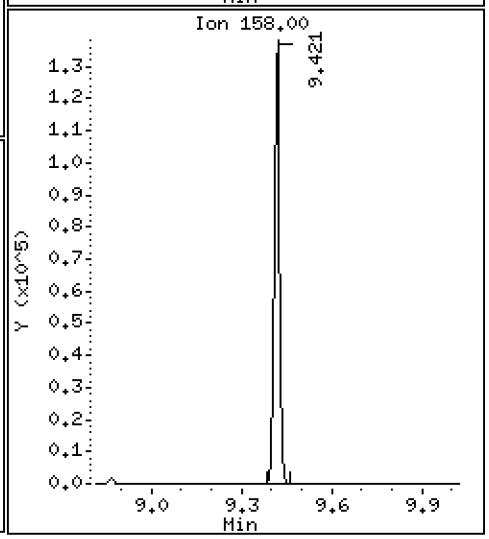












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

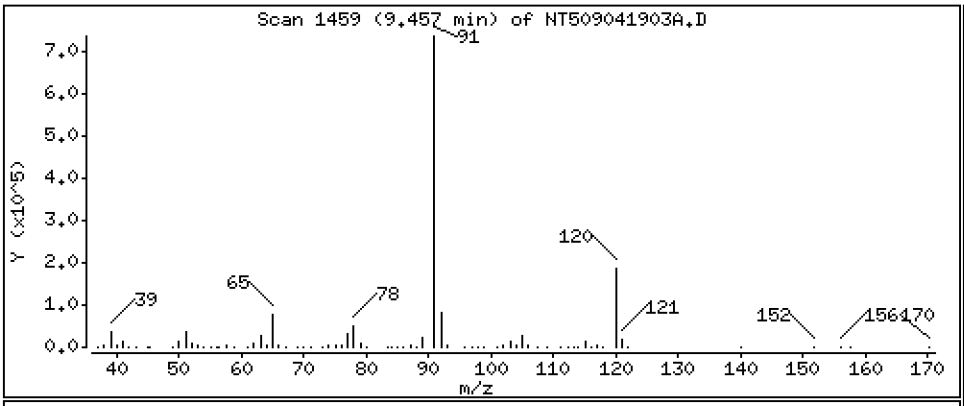
Operator: PB

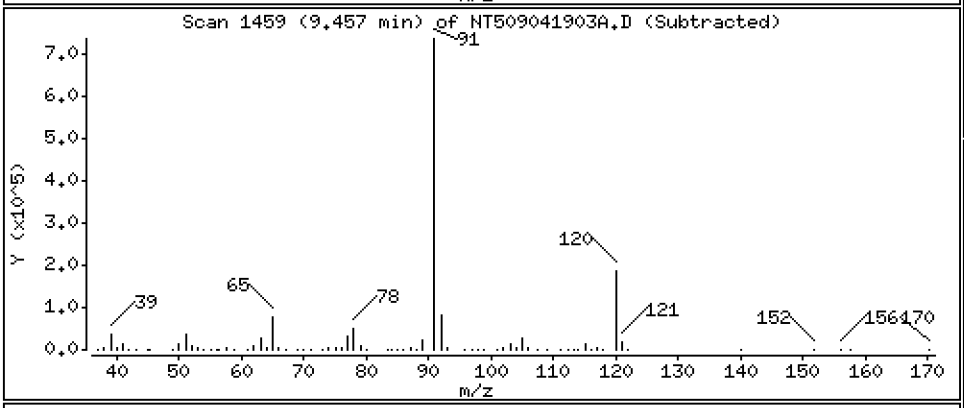
Column phase: RTXVMS

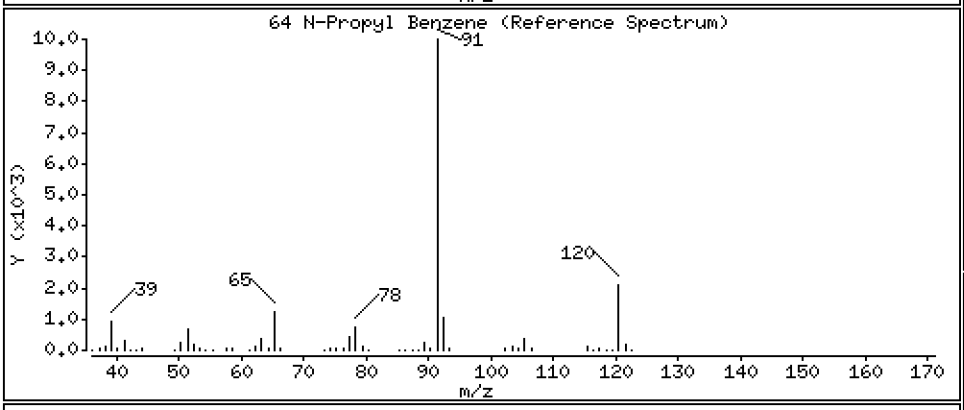
Column diameter: 0.18

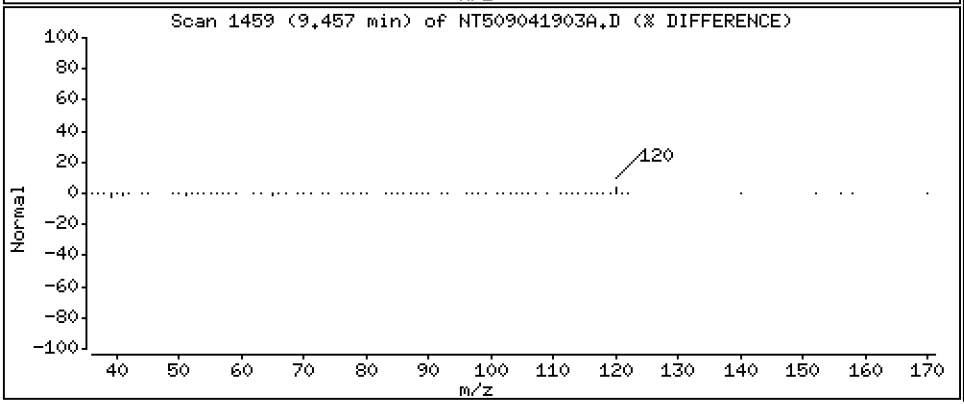
64 N-Propyl Benzene

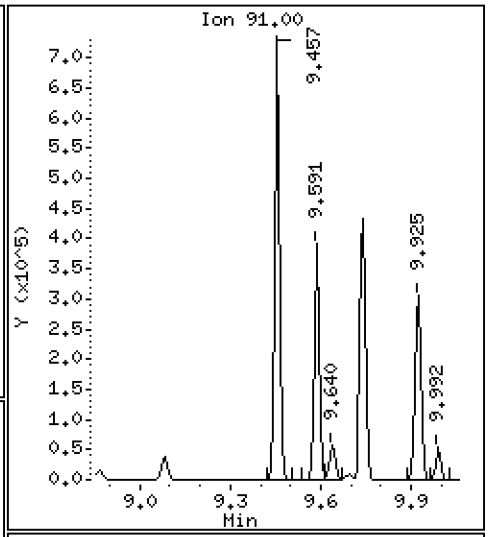
Concentration: 46.160 ug/Kg

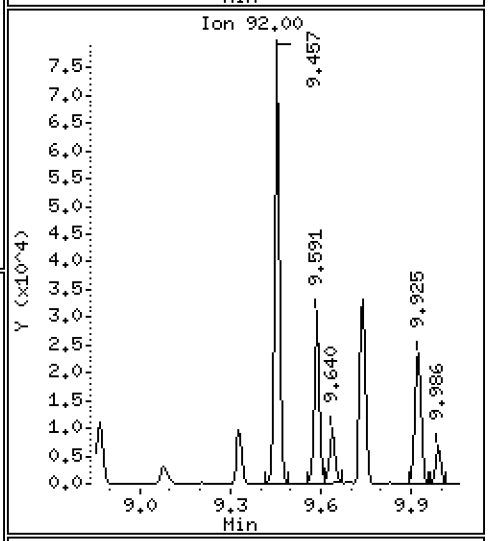


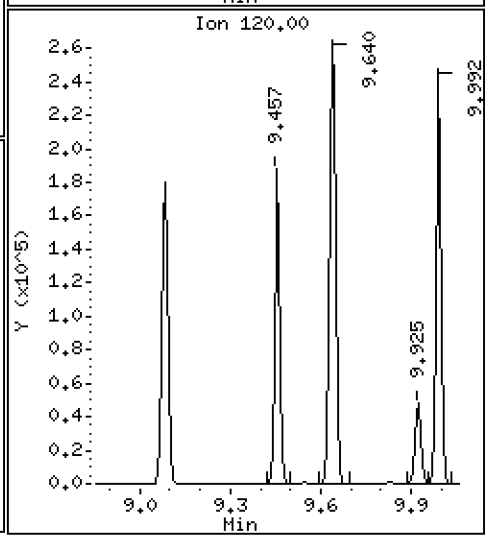












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

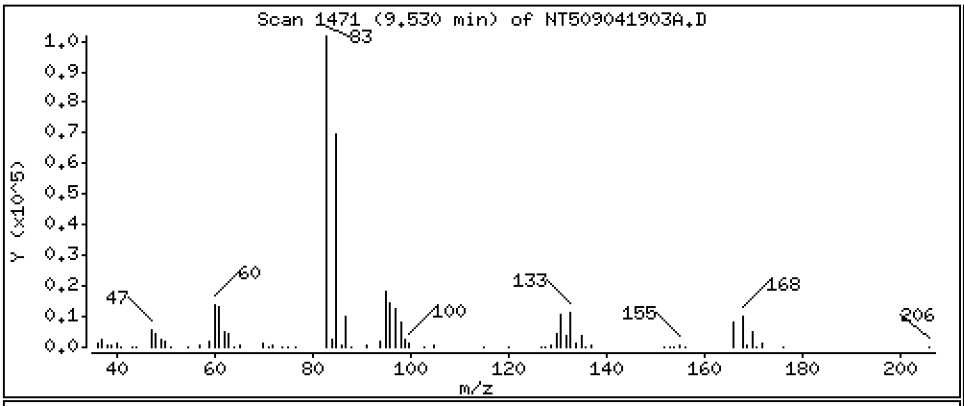
Operator: PB

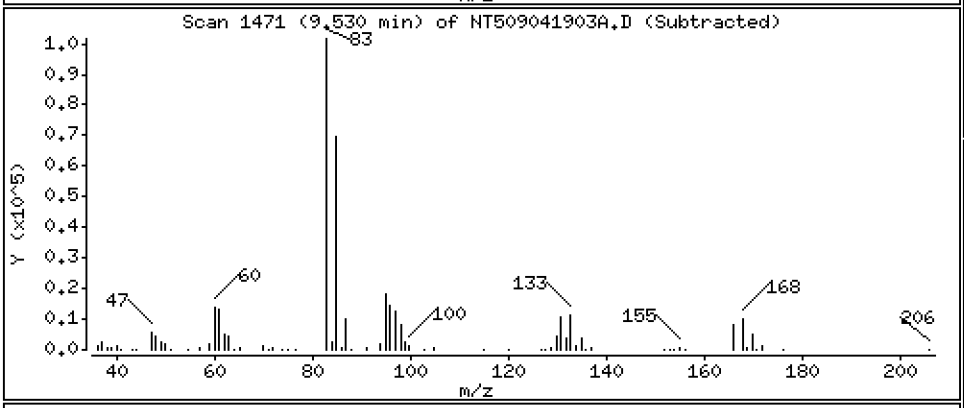
Column phase: RTXVMS

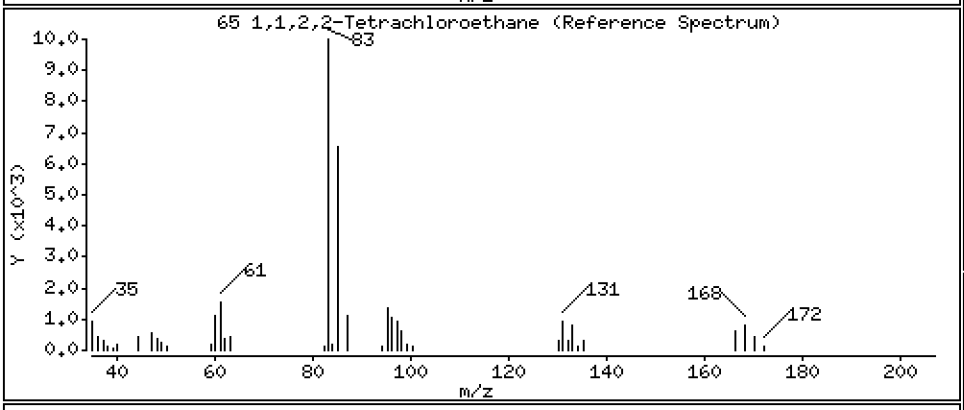
Column diameter: 0.18

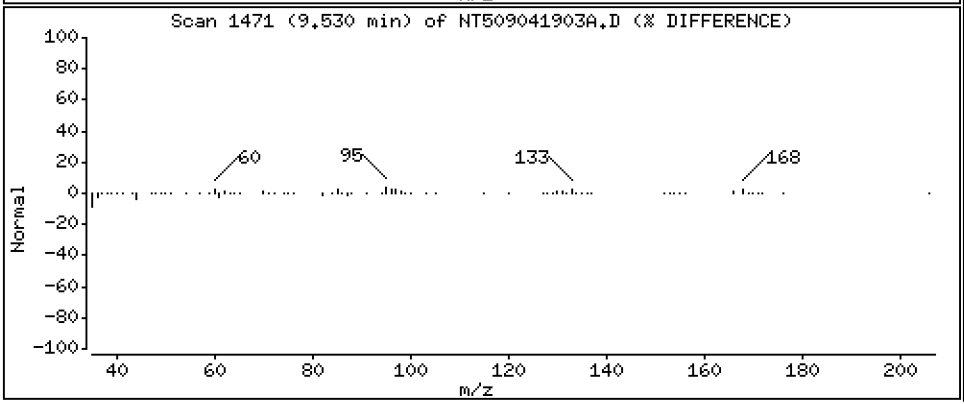
65 1,1,2,2-Tetrachloroethane

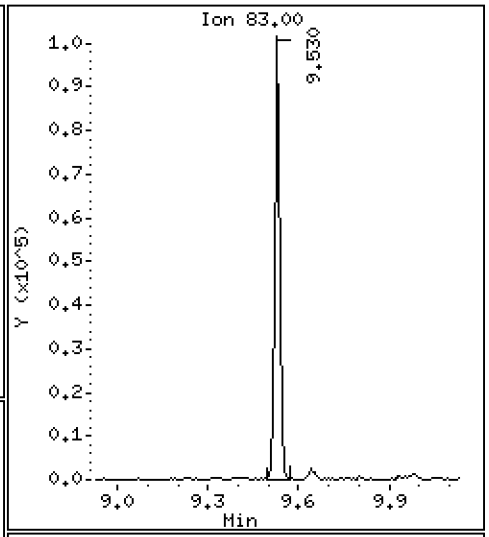
Concentration: 41.819 ug/Kg

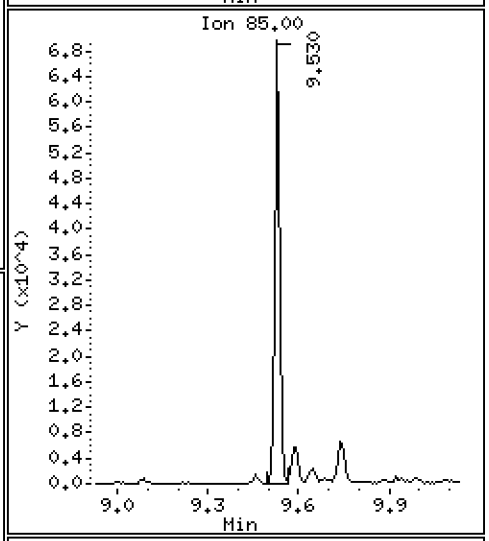


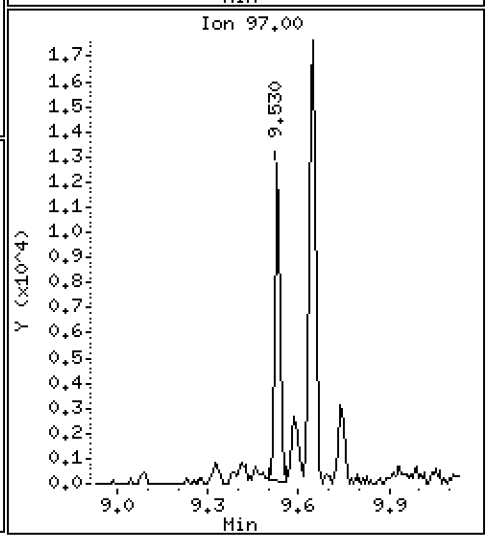












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

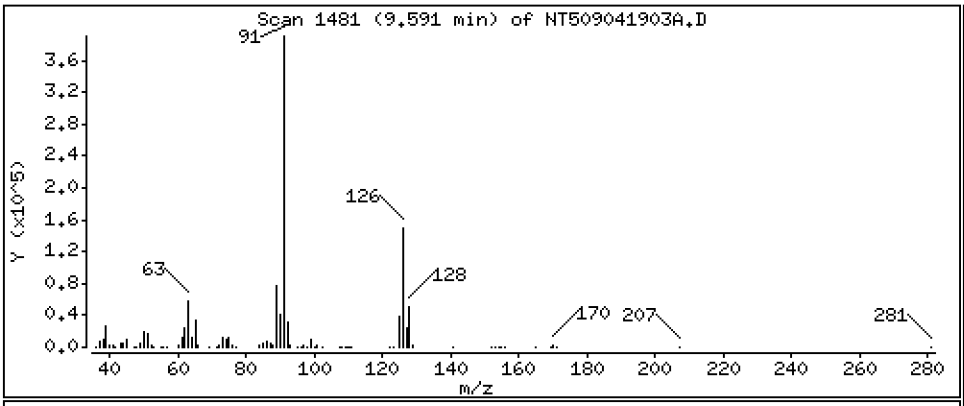
Operator: PB

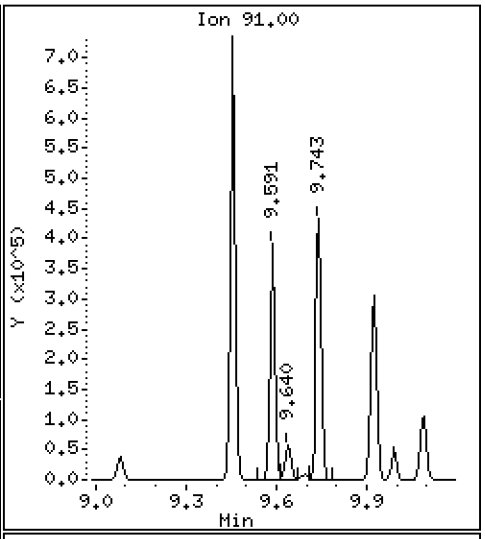
Column phase: RTXVMS

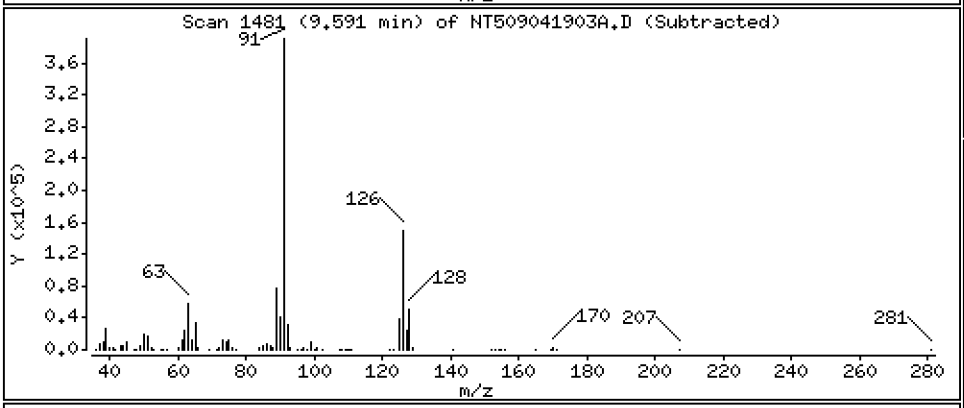
Column diameter: 0.18

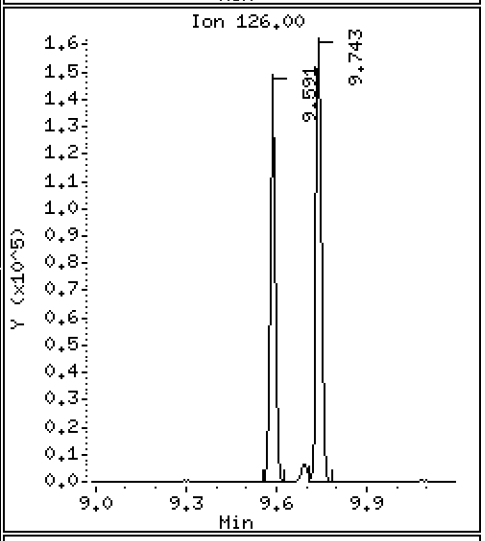
66 2-Chloro Toluene

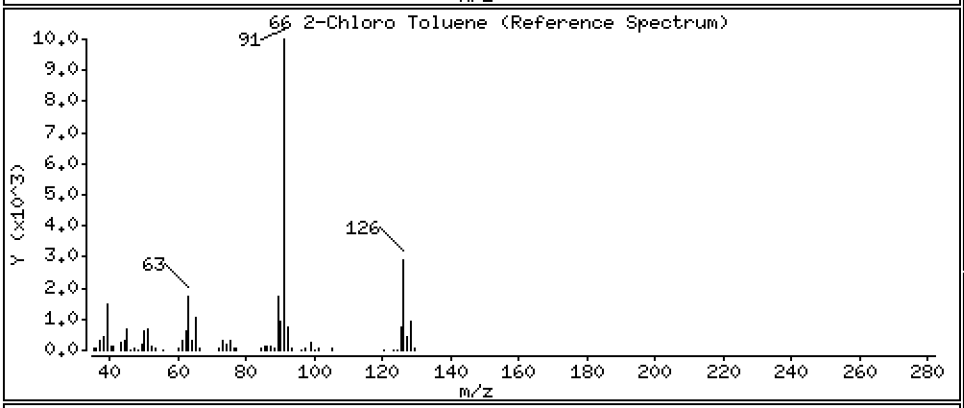
Concentration: 45.264 ug/Kg

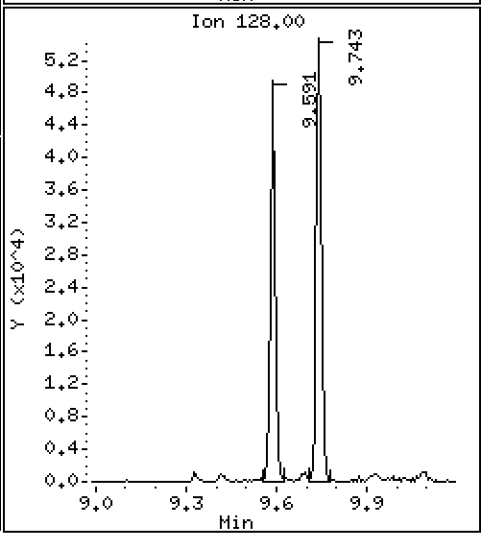


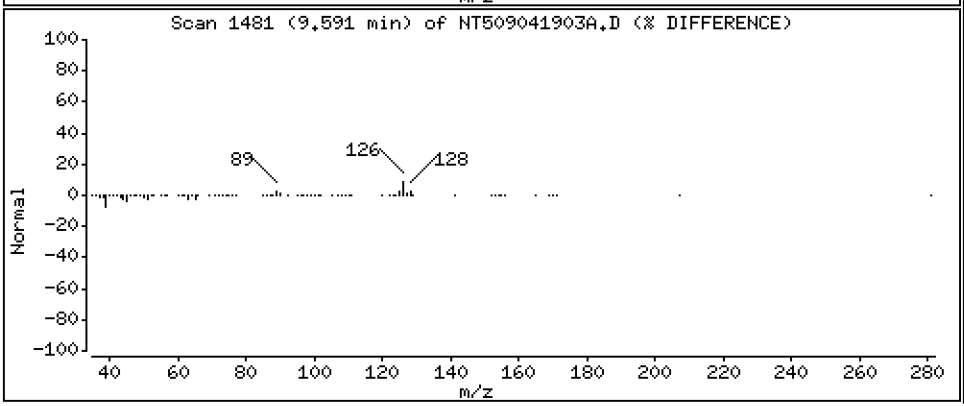












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

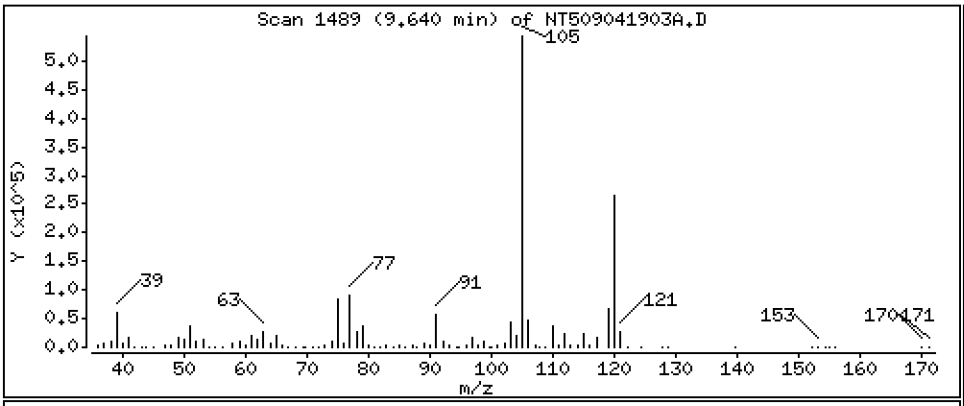
Operator: PB

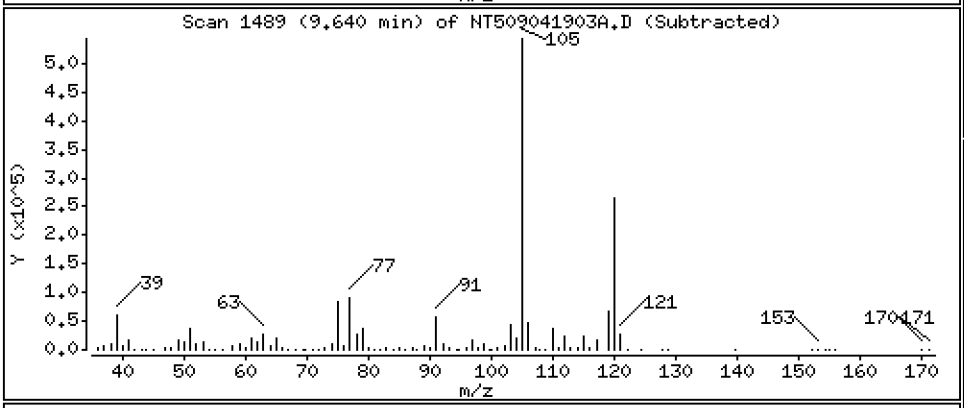
Column phase: RTXVMS

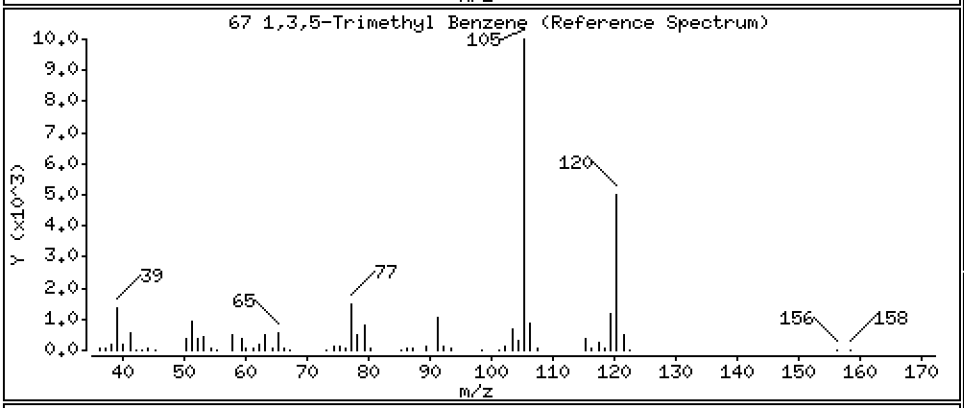
Column diameter: 0.18

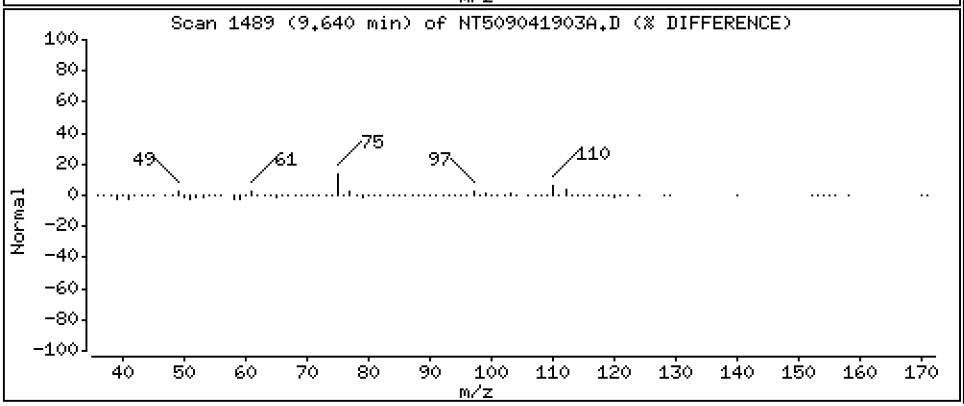
67 1,3,5-Trimethyl Benzene

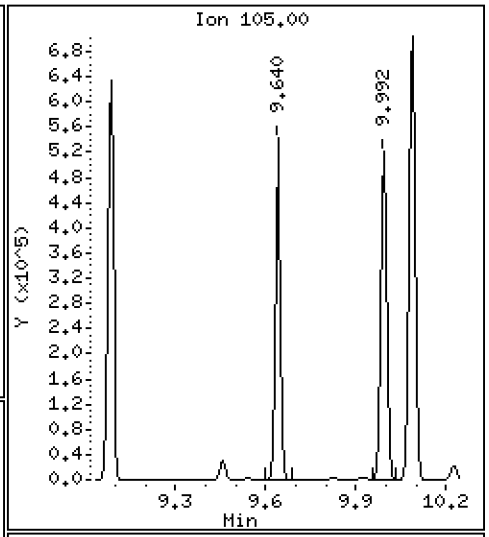
Concentration: 46.633 ug/Kg

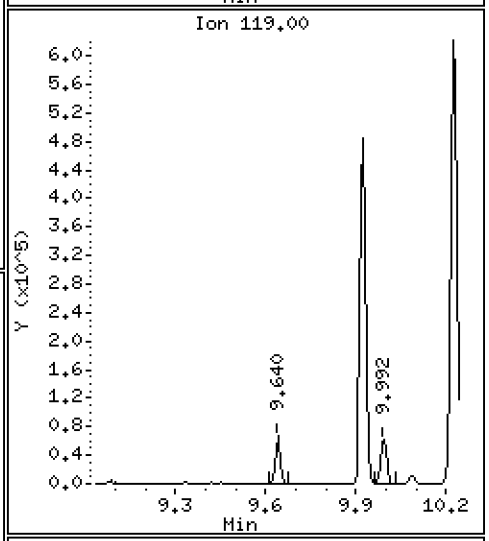


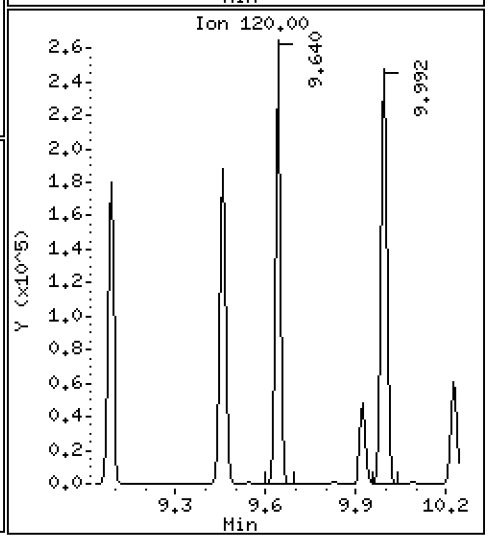












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

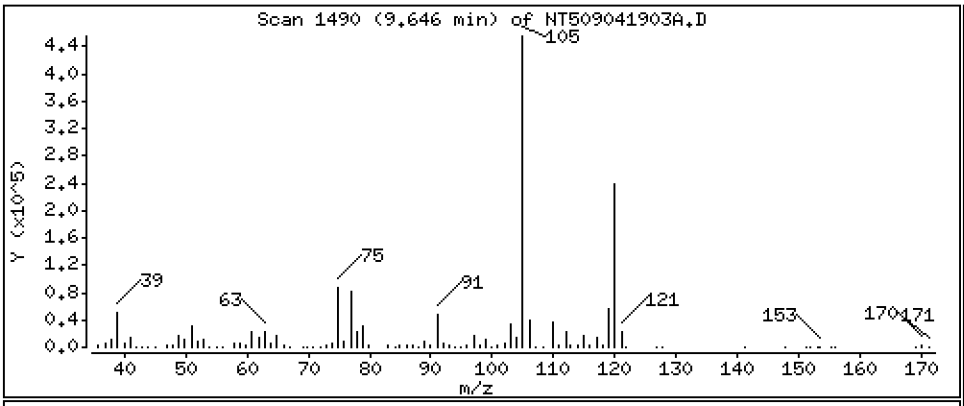
Operator: PB

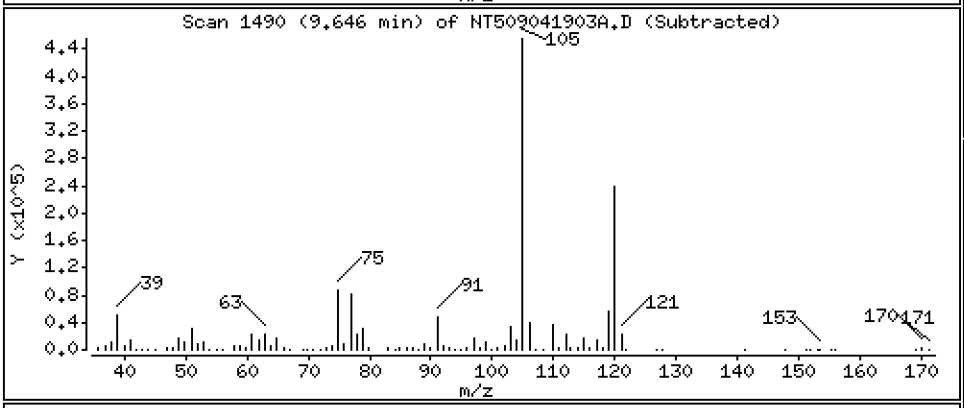
Column phase: RTXVMS

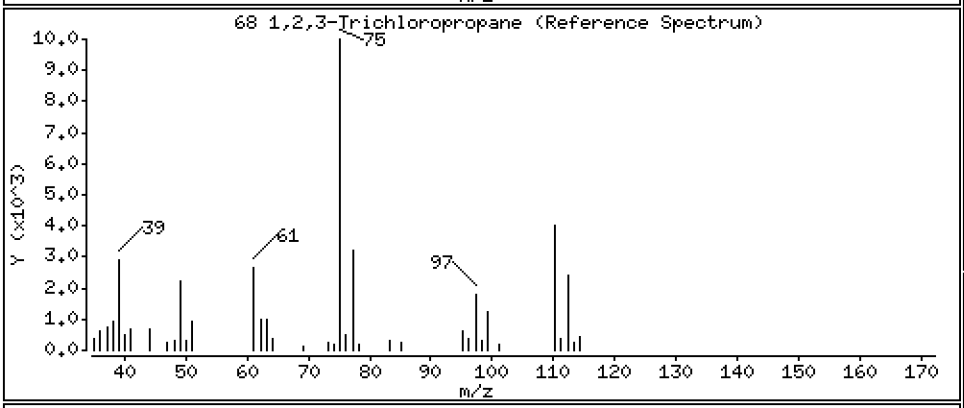
Column diameter: 0.18

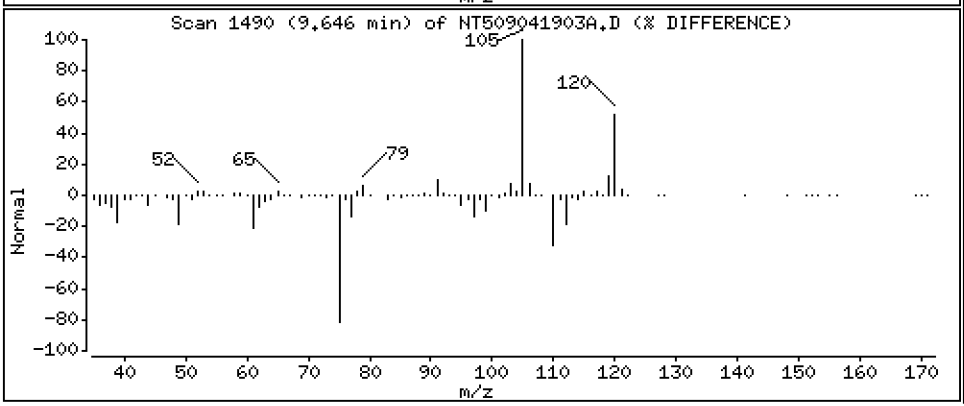
68 1,2,3-Trichloropropane

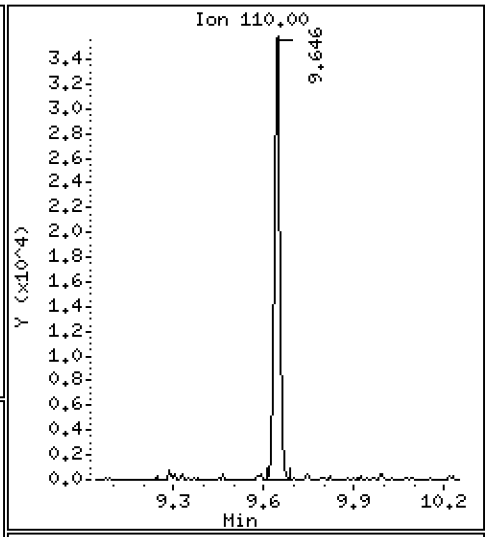
Concentration: 45.227 ug/Kg

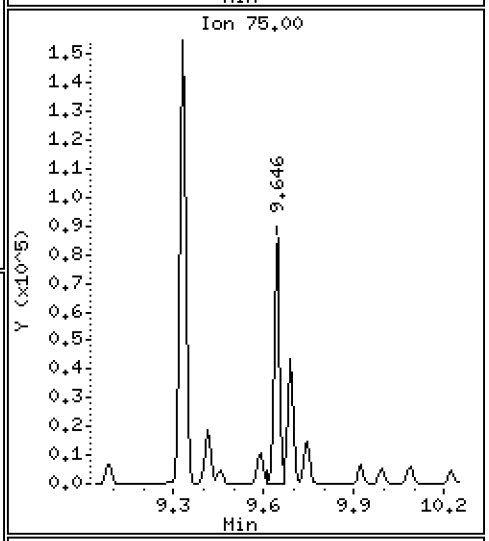


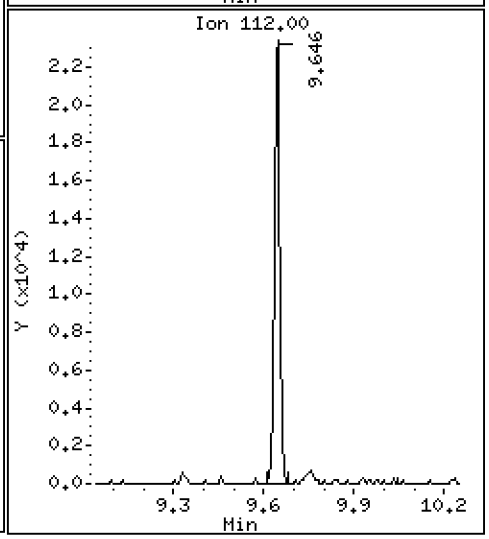












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

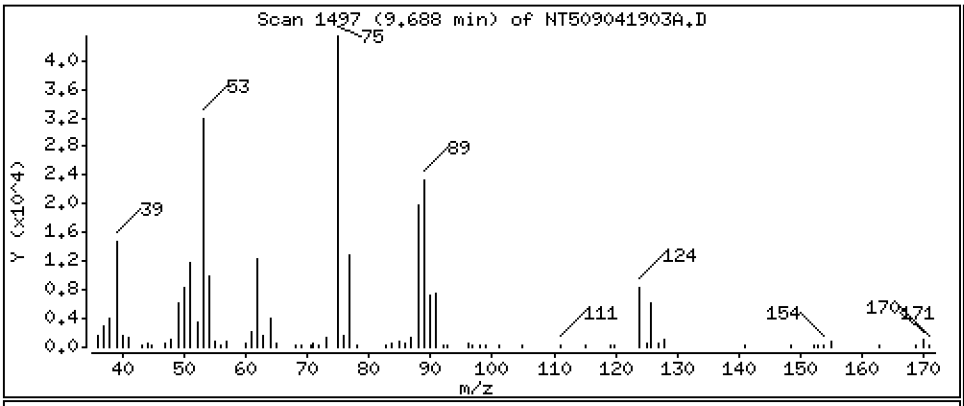
Operator: PB

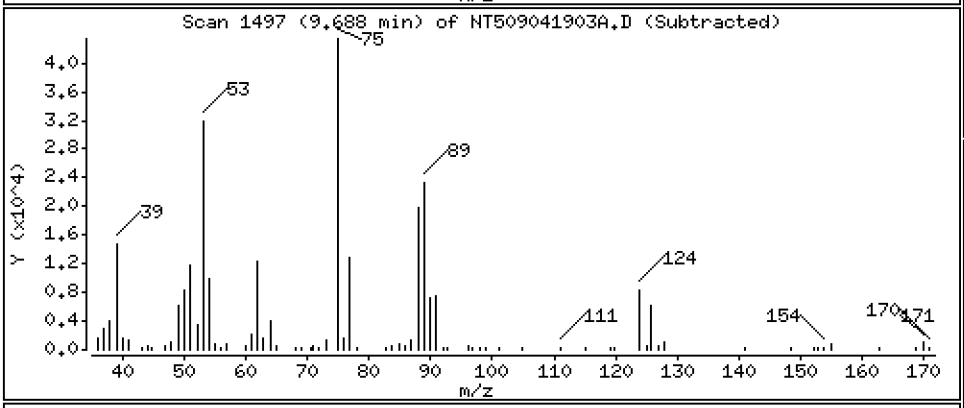
Column phase: RTXVMS

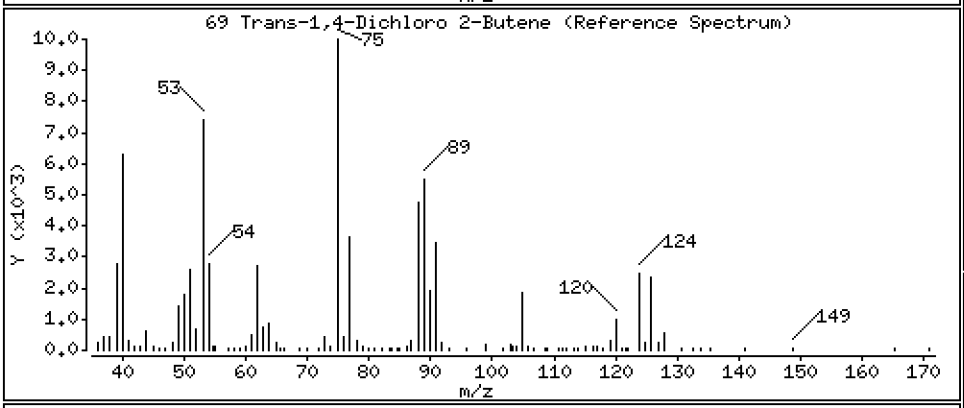
Column diameter: 0.18

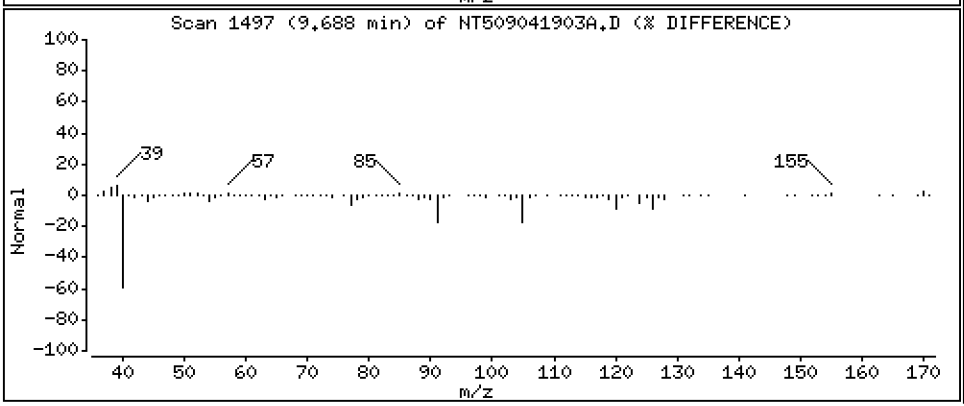
69 Trans-1,4-Dichloro 2-Butene

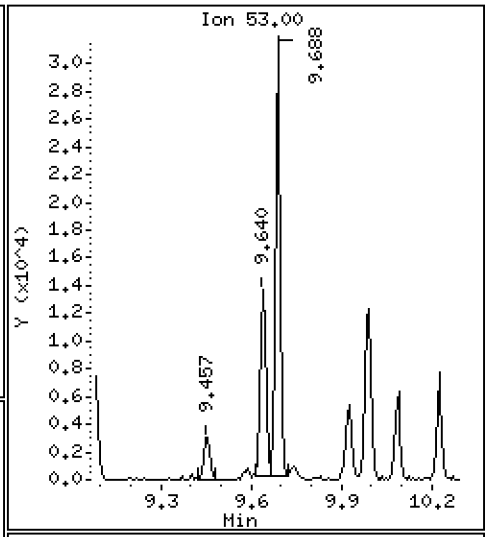
Concentration: 42.121 ug/Kg

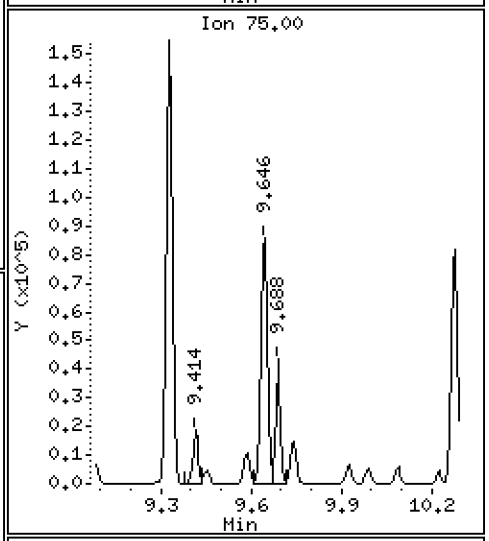


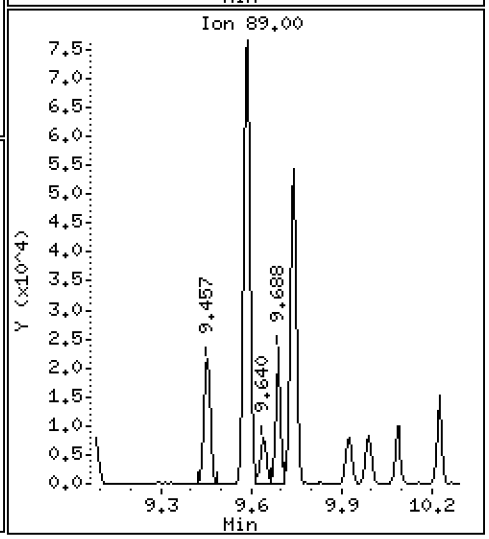












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

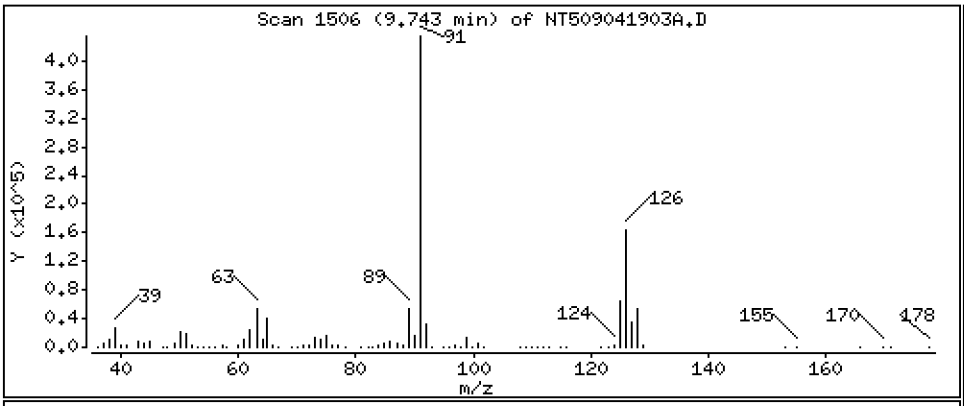
Operator: PB

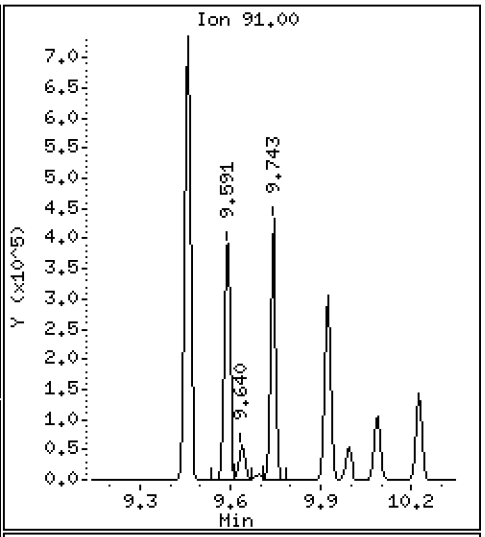
Column phase: RTXVMS

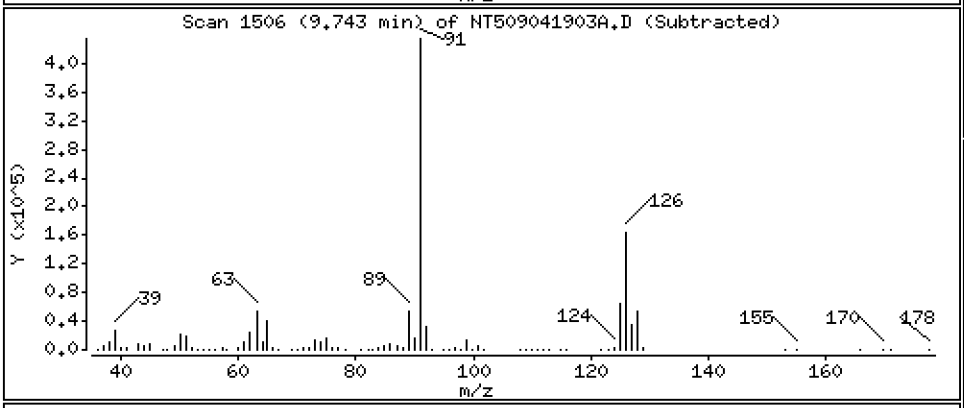
Column diameter: 0.18

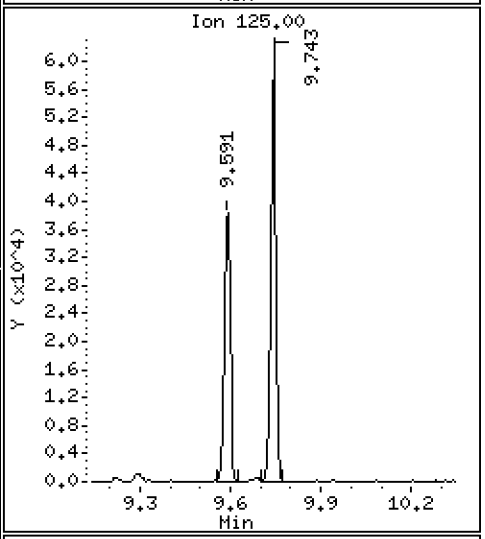
70 4-Chloro Toluene

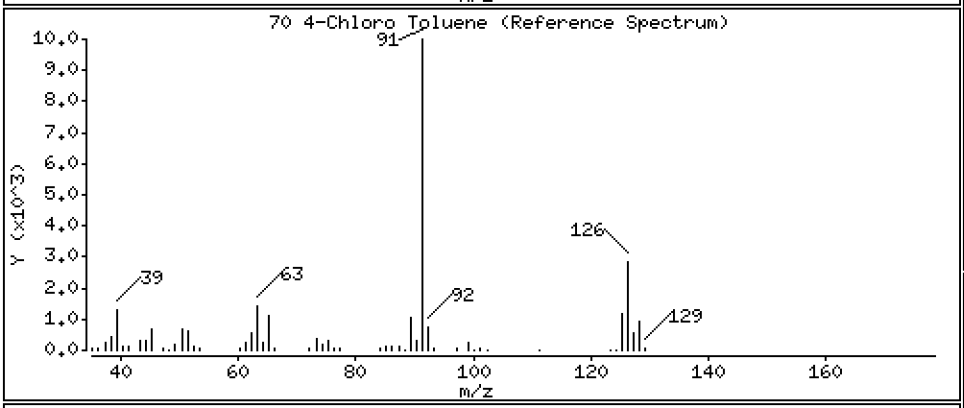
Concentration: 45.319 ug/Kg

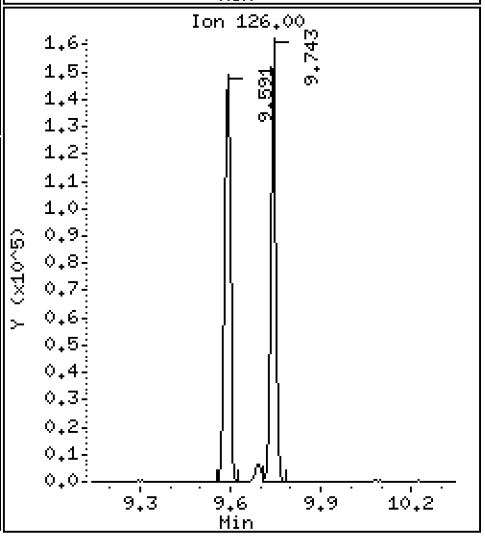


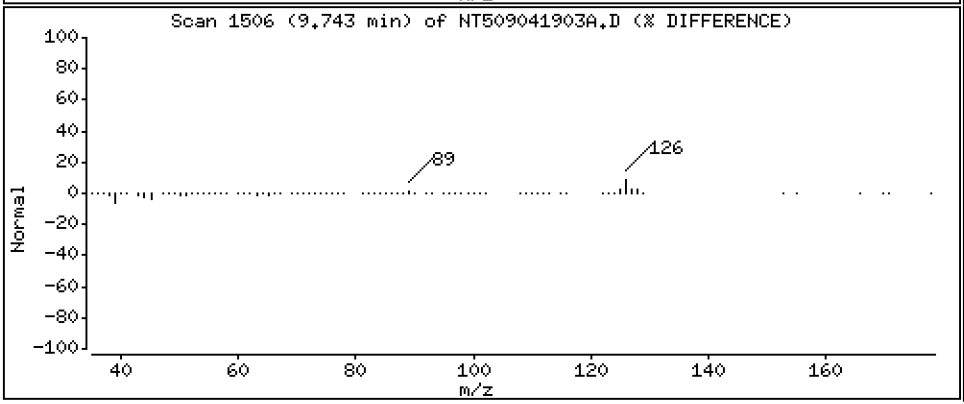












Date : 04-SEP-2019 14:02

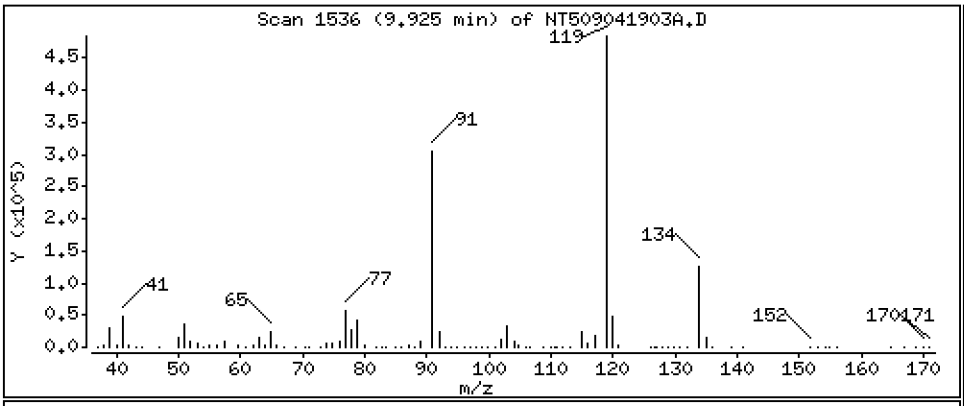
Client ID: Instrument: nt5.i

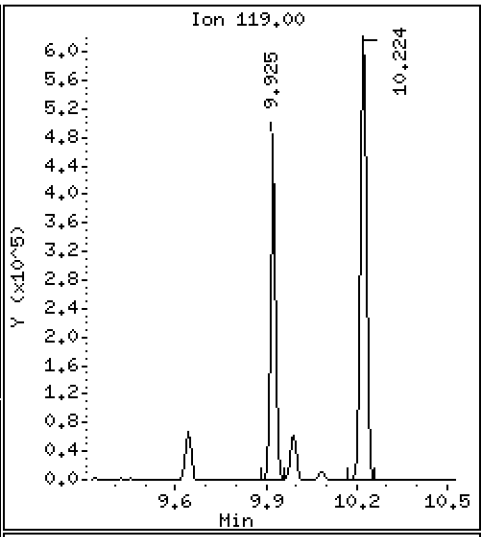
Sample Info: ICV1

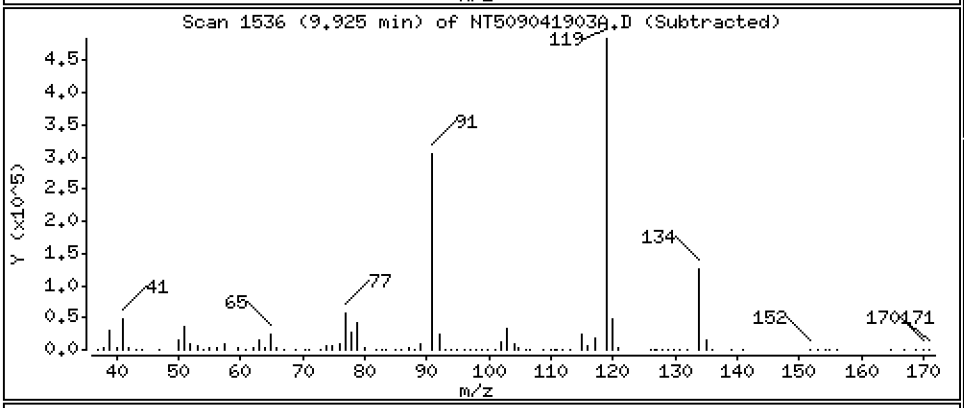
Operator: PB

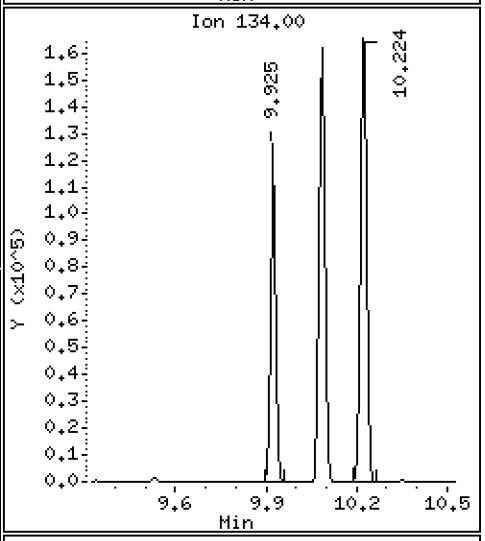
Column phase: RTXVMS Column diameter: 0.18

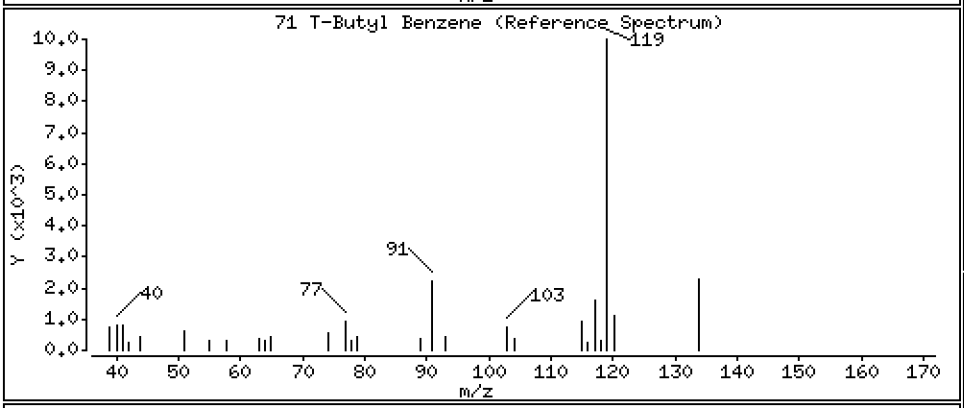
71 T-Butyl Benzene Concentration: 45.672 ug/Kg

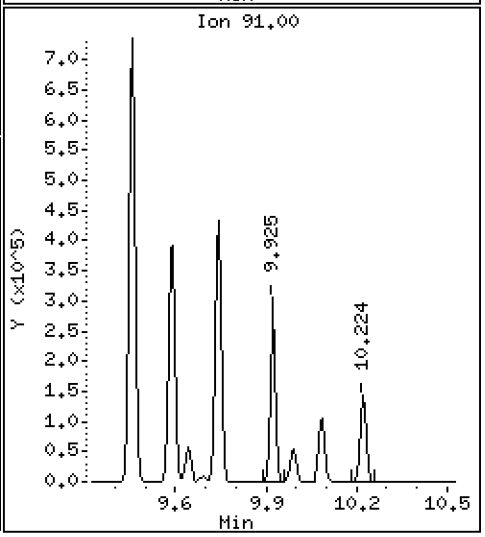


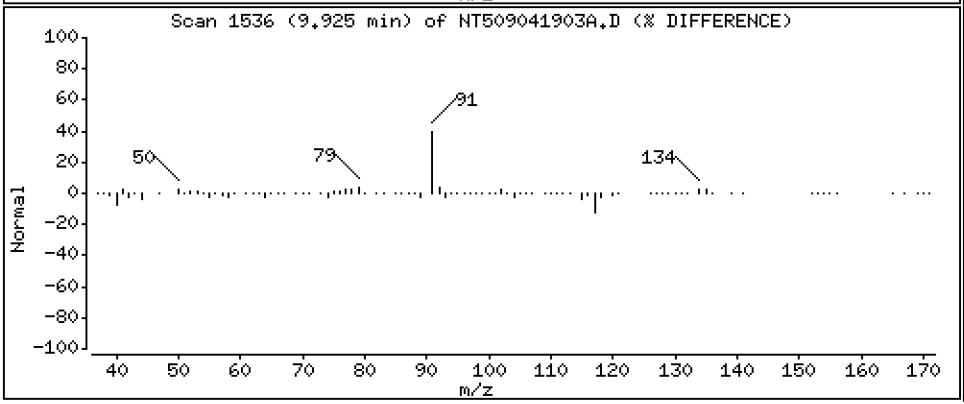












Date : 04-SEP-2019 14:02

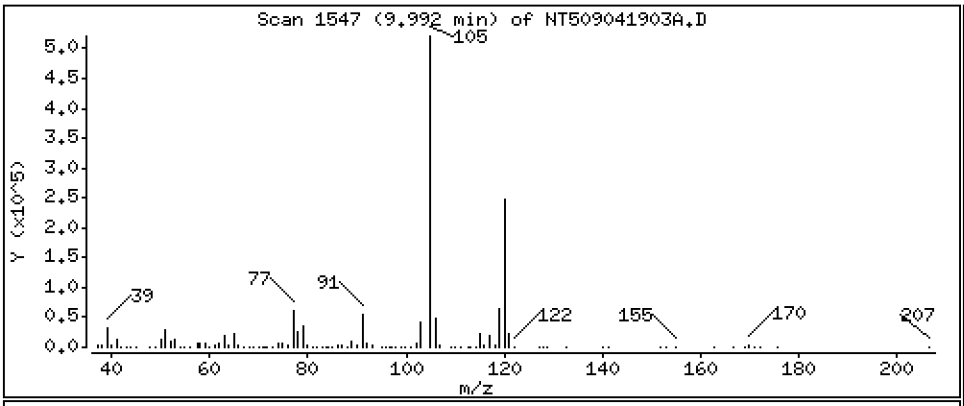
Client ID: Instrument: nt5.i

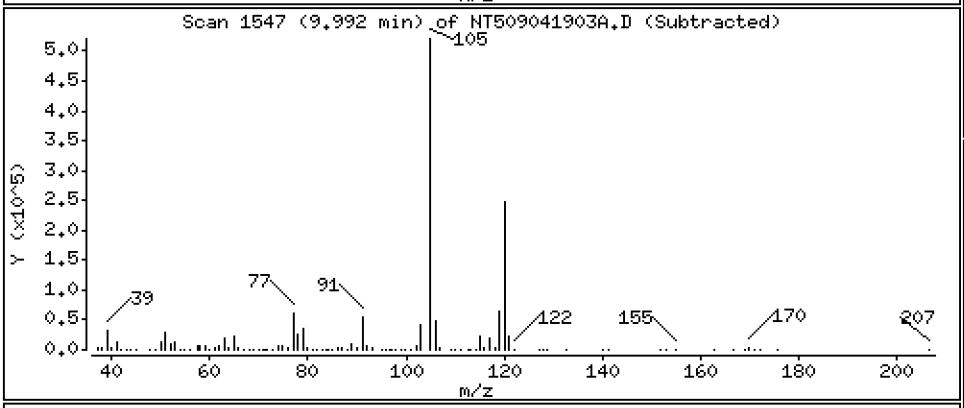
Sample Info: ICV1

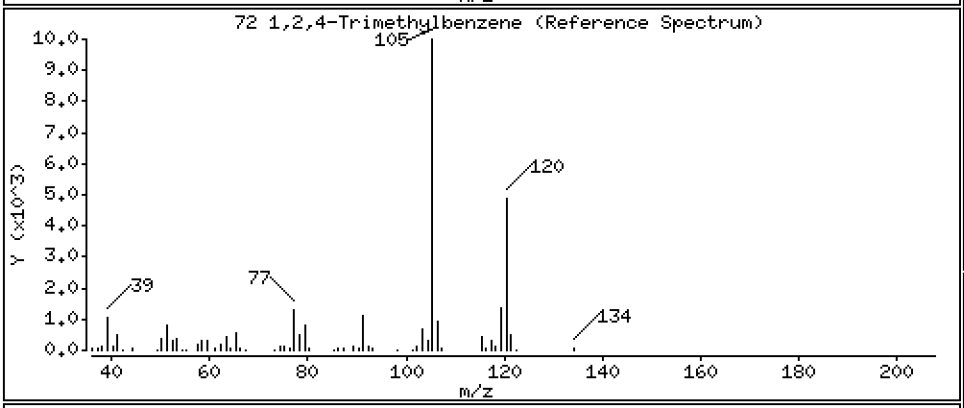
Operator: PB

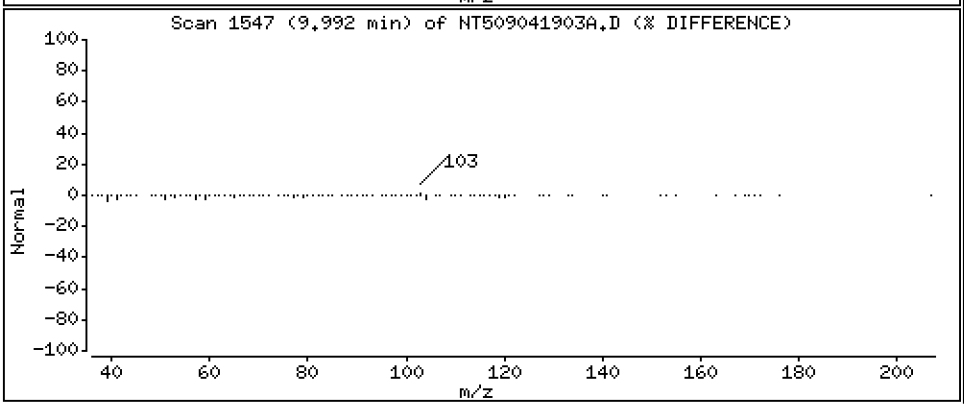
Column phase: RTXVMS Column diameter: 0.18

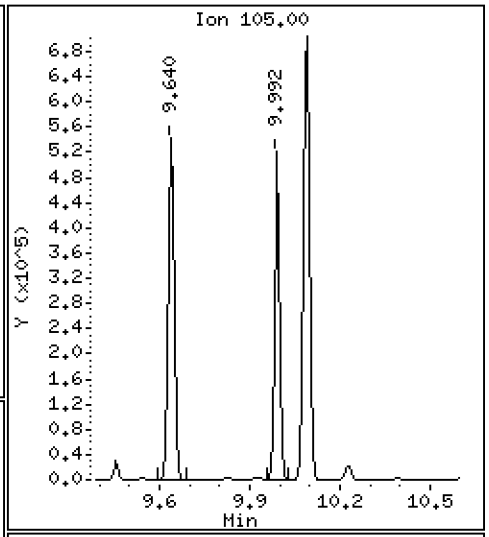
72 1,2,4-Trimethylbenzene Concentration: 46.214 ug/Kg

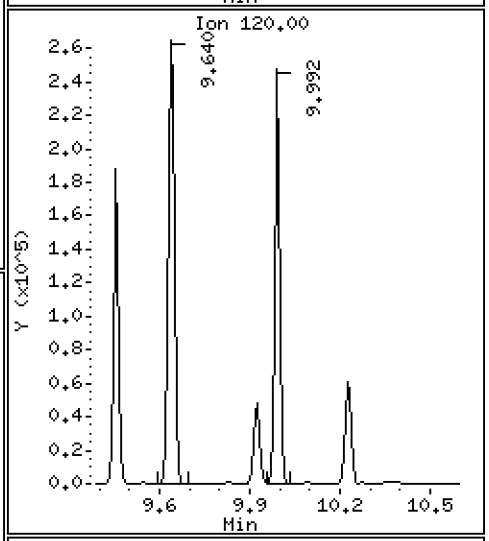


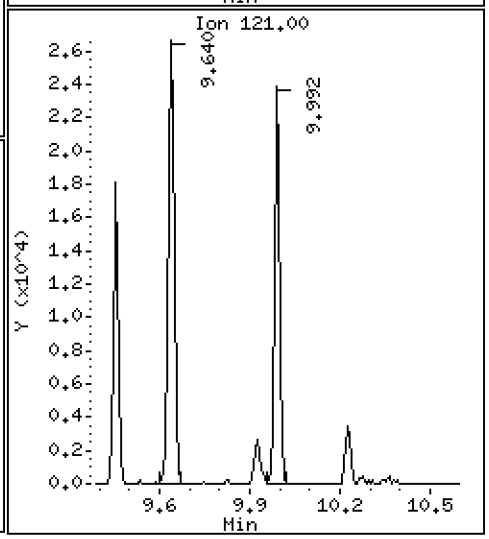












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

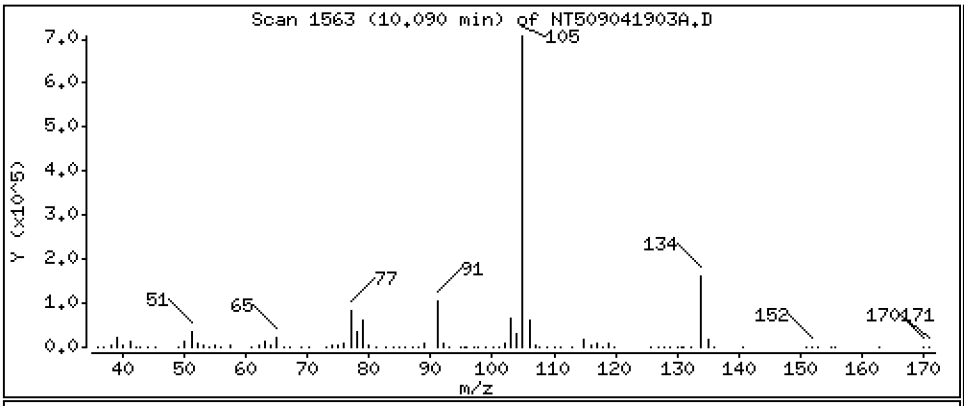
Operator: PB

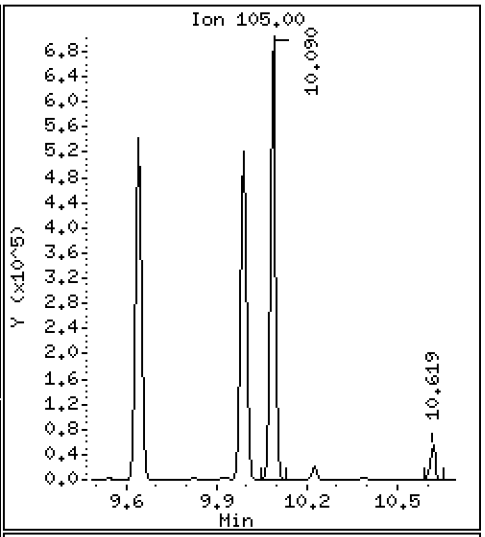
Column phase: RTXVMS

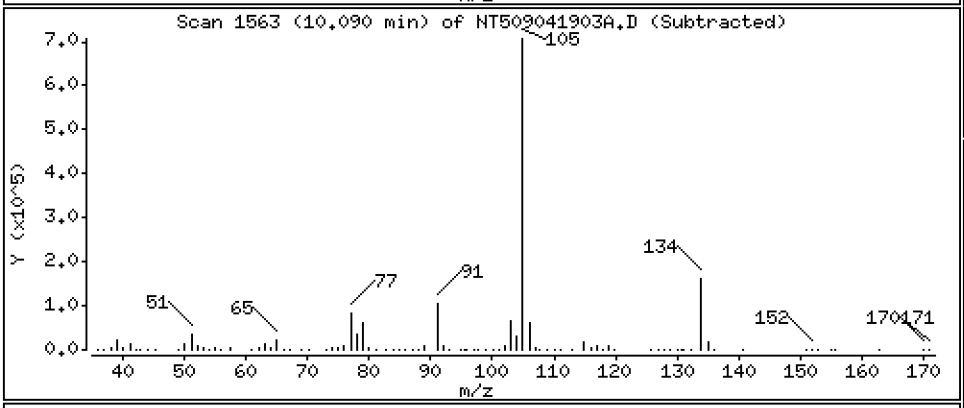
Column diameter: 0.18

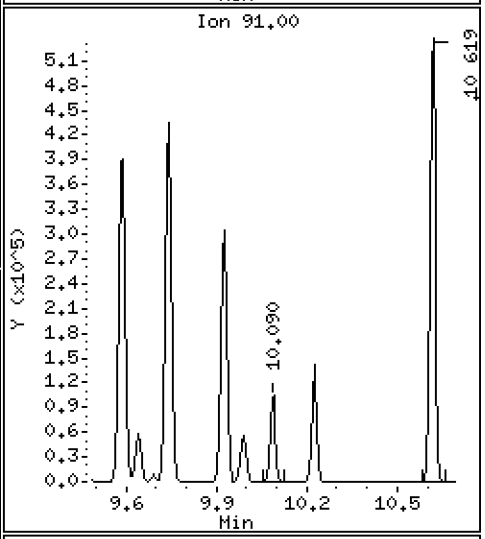
73 S-Butyl Benzene

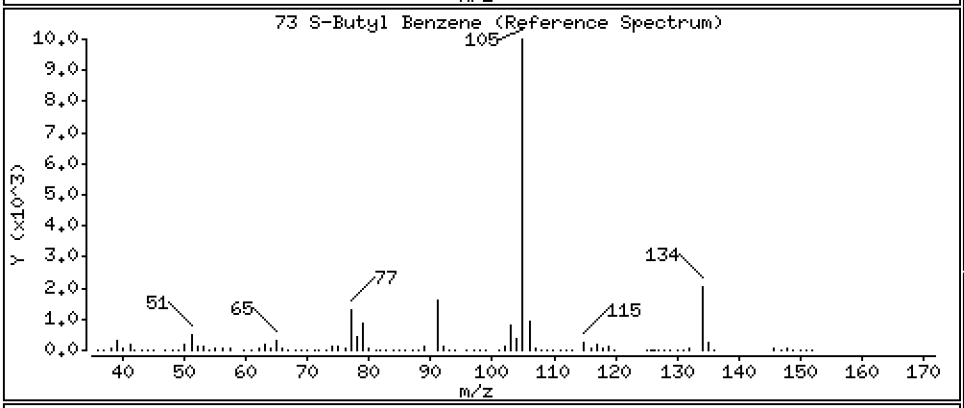
Concentration: 46.981 ug/Kg

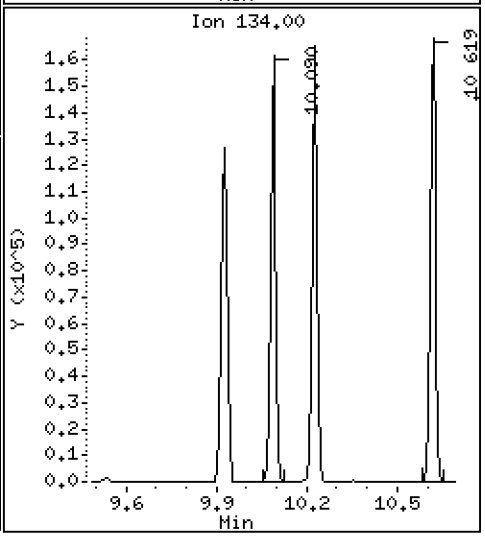


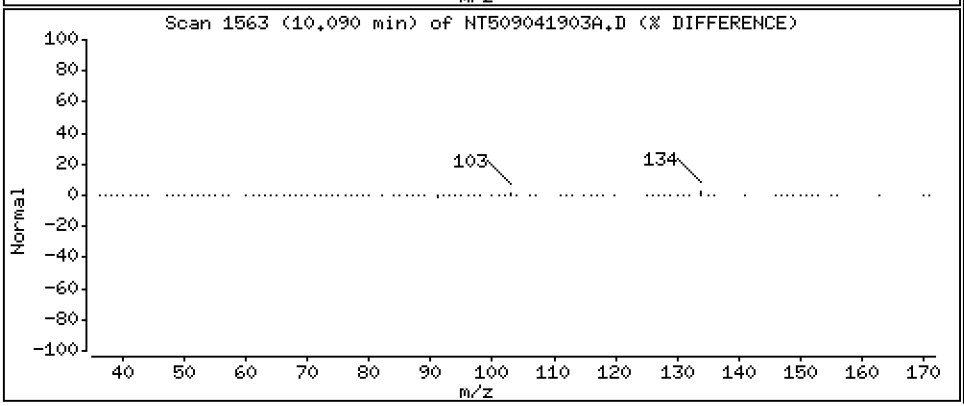












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

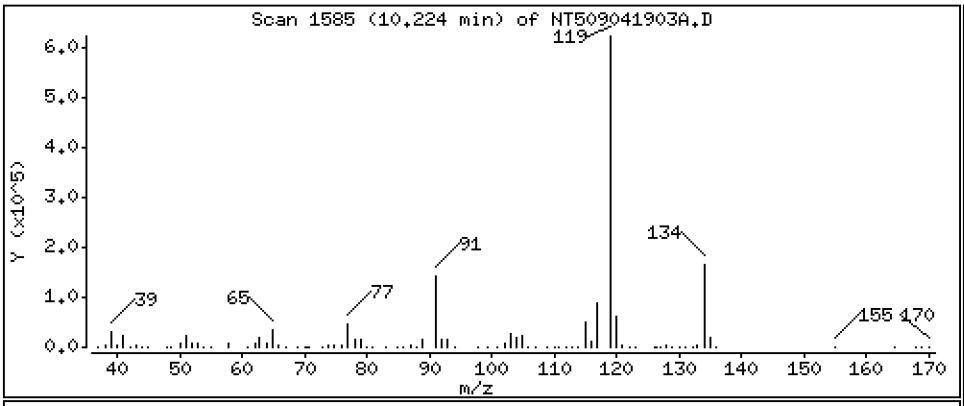
Operator: PB

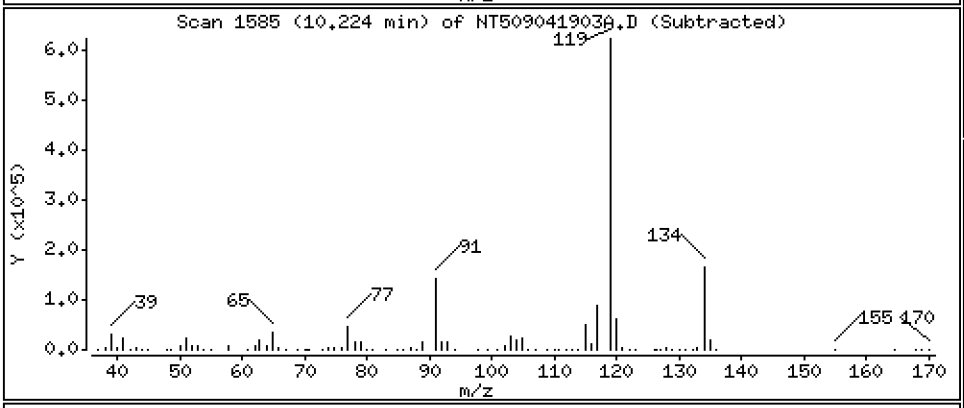
Column phase: RTXVMS

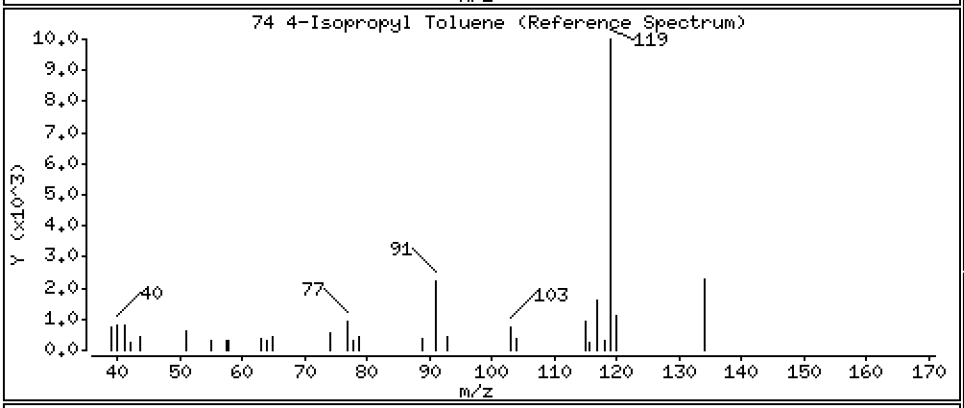
Column diameter: 0.18

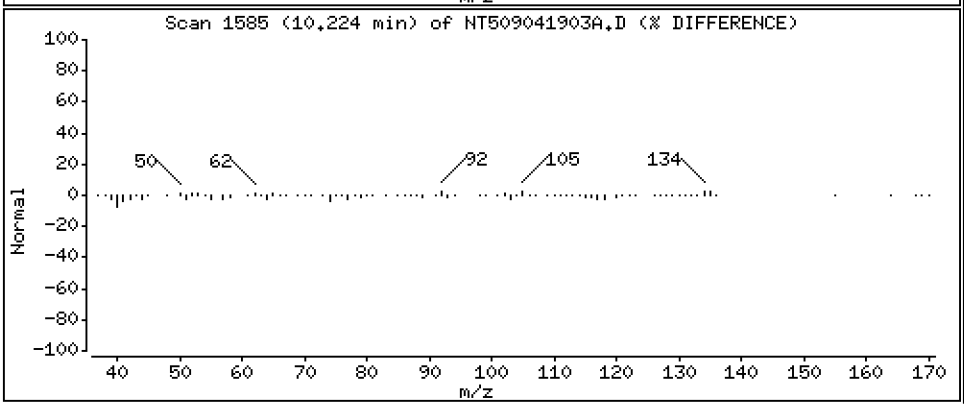
74 4-Isopropyl Toluene

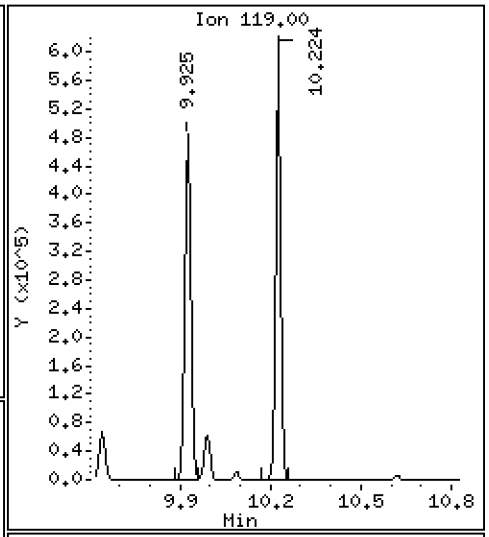
Concentration: 47.854 ug/Kg

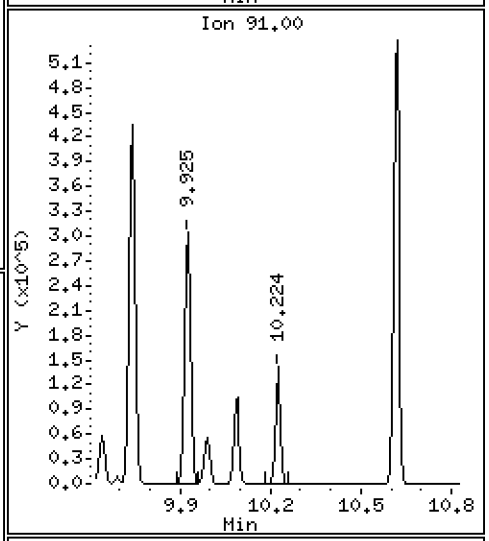


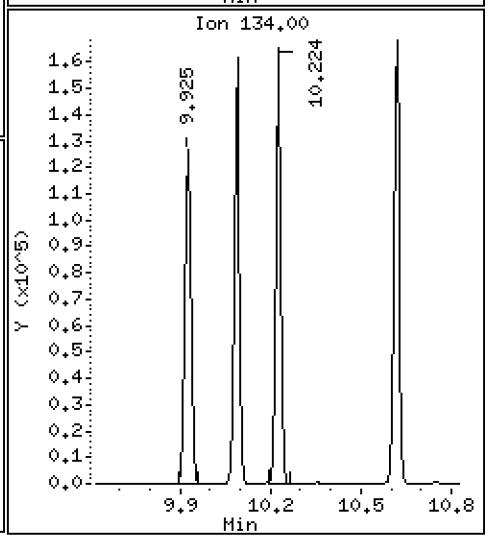












Date : 04-SEP-2019 14:02

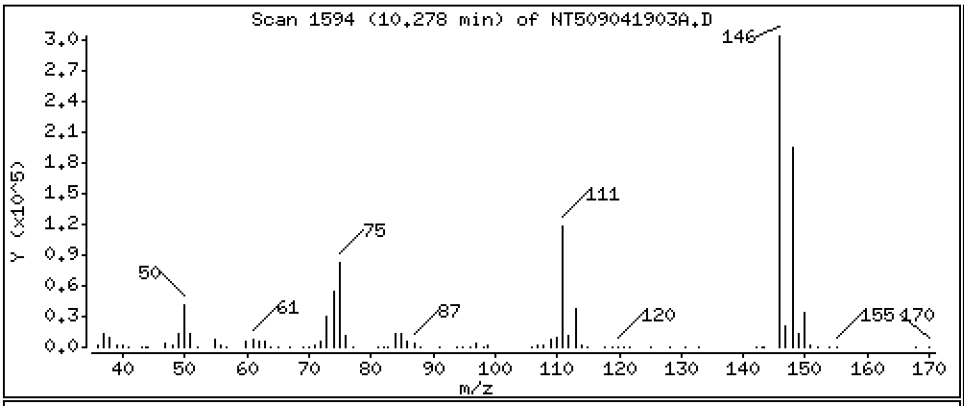
Client ID: Instrument: nt5.i

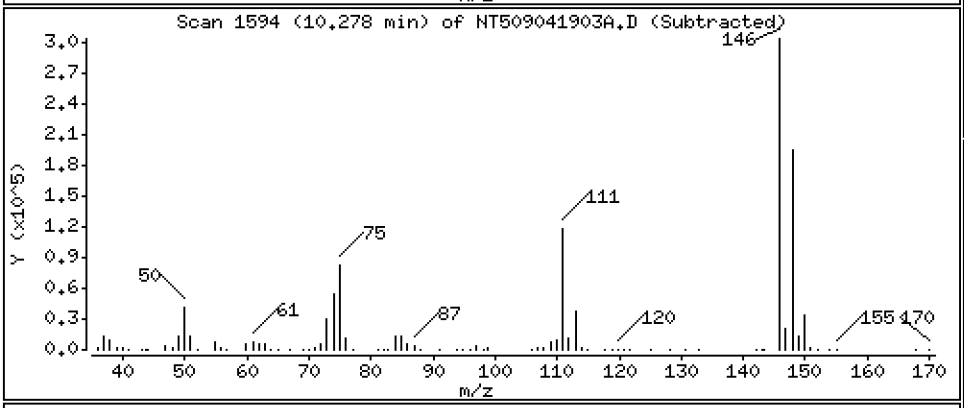
Sample Info: ICV1

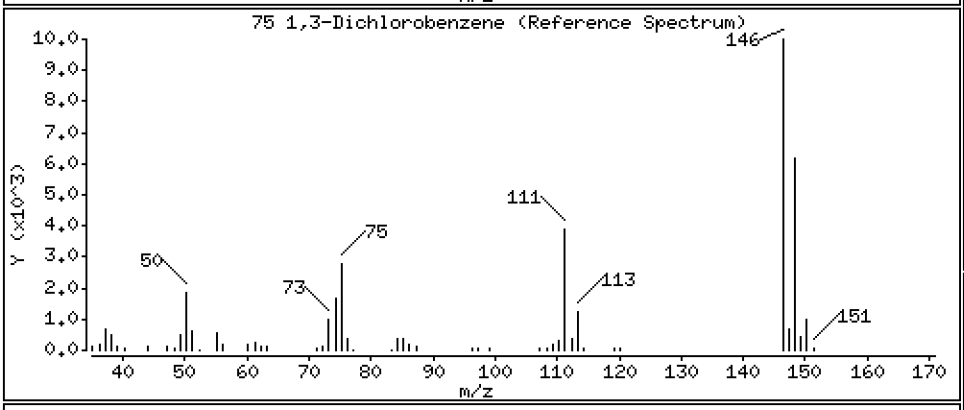
Operator: PB

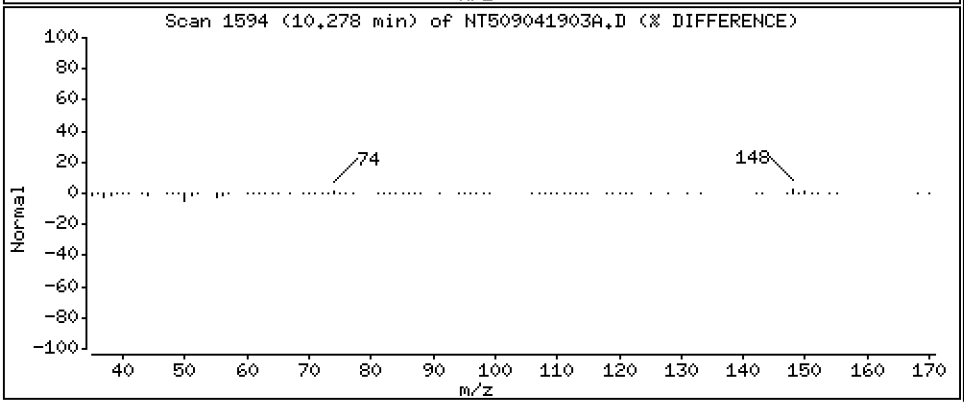
Column phase: RTXVMS Column diameter: 0.18

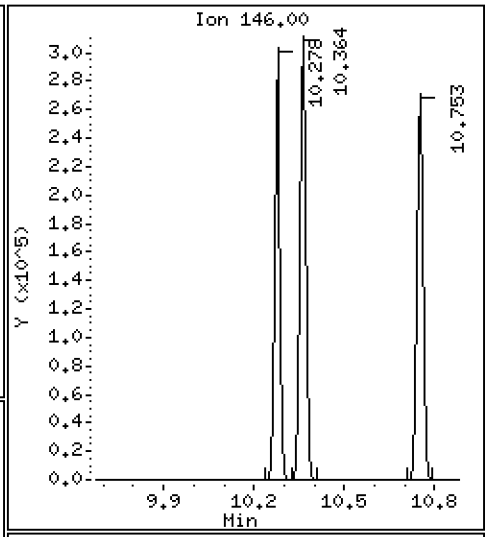
75 1,3-Dichlorobenzene Concentration: 44.552 ug/Kg

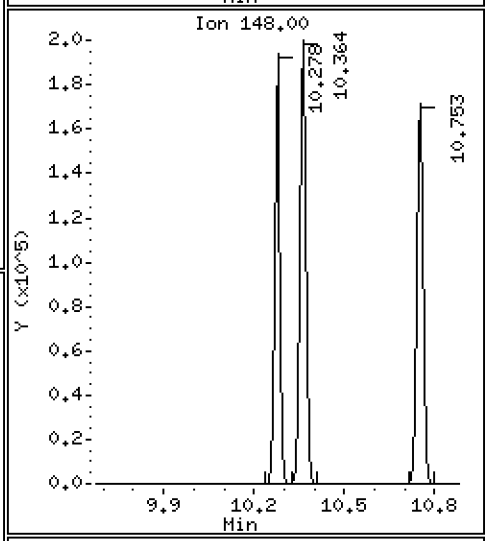


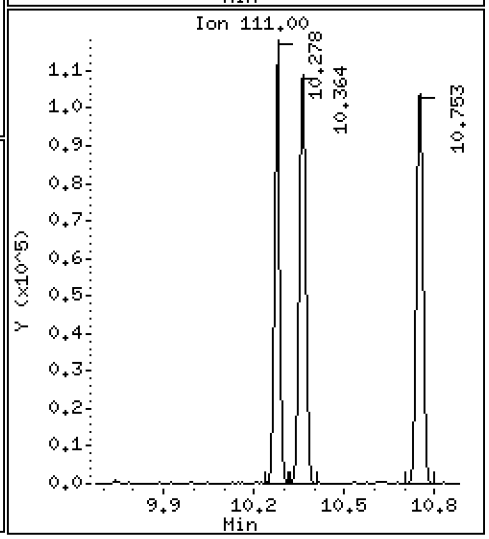












Date : 04-SEP-2019 14:02

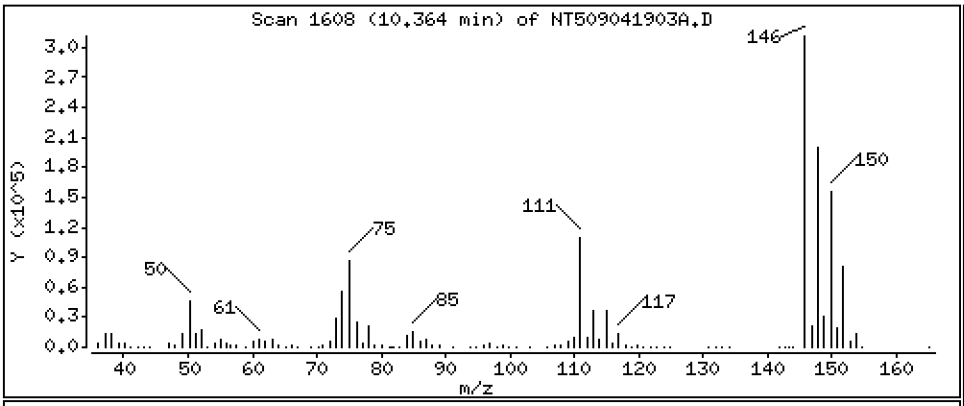
Client ID: Instrument: nt5.i

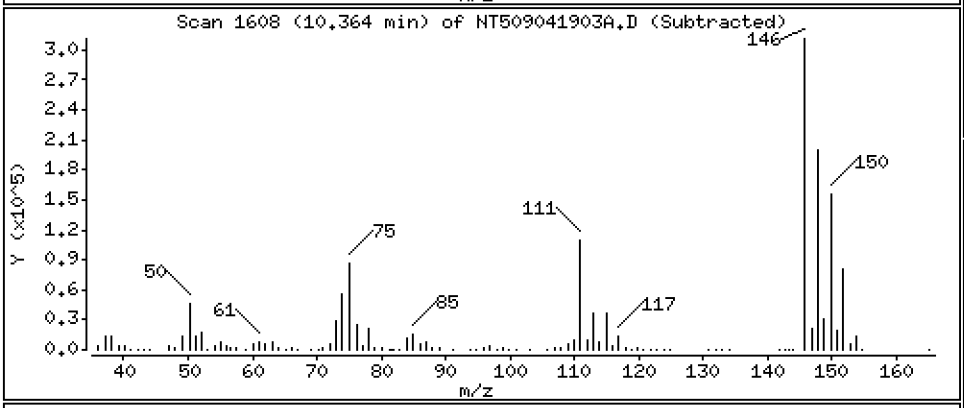
Sample Info: ICV1

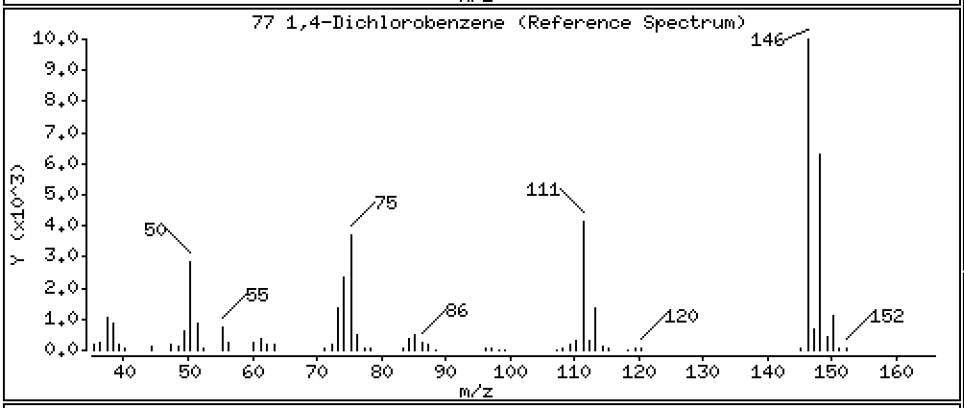
Operator: PB

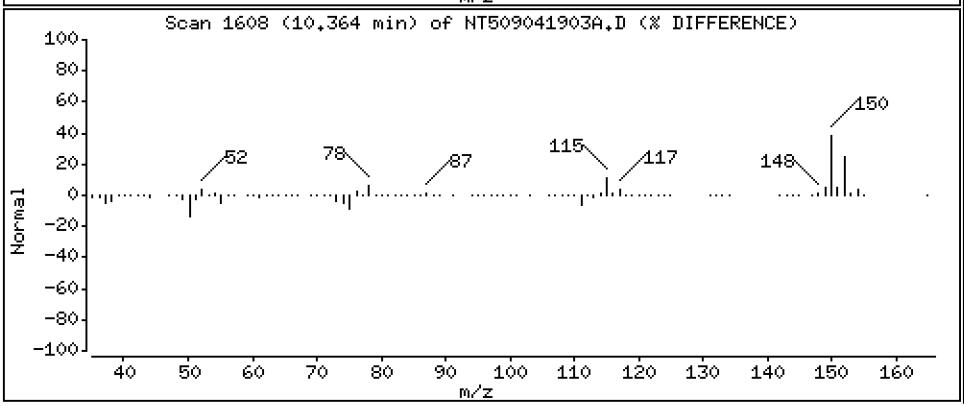
Column phase: RTXVMS Column diameter: 0.18

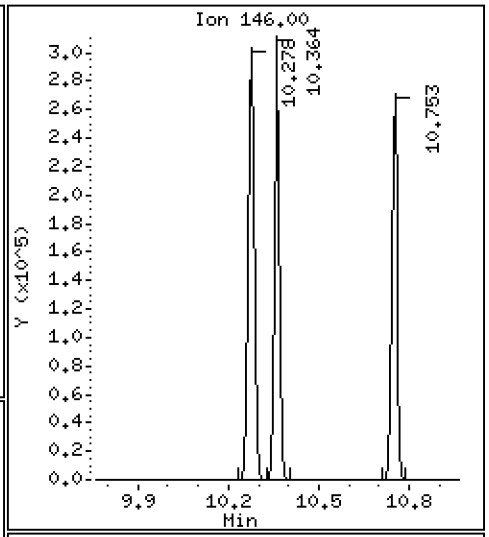
77 1,4-Dichlorobenzene Concentration: 43.719 ug/Kg

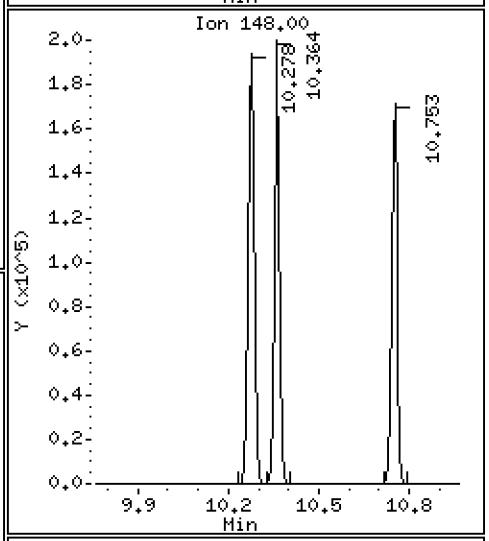


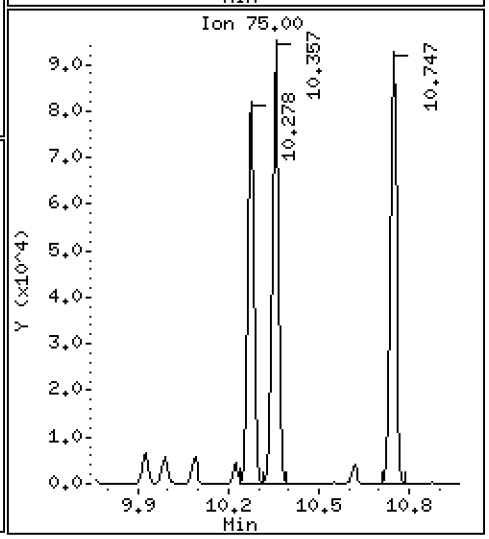












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

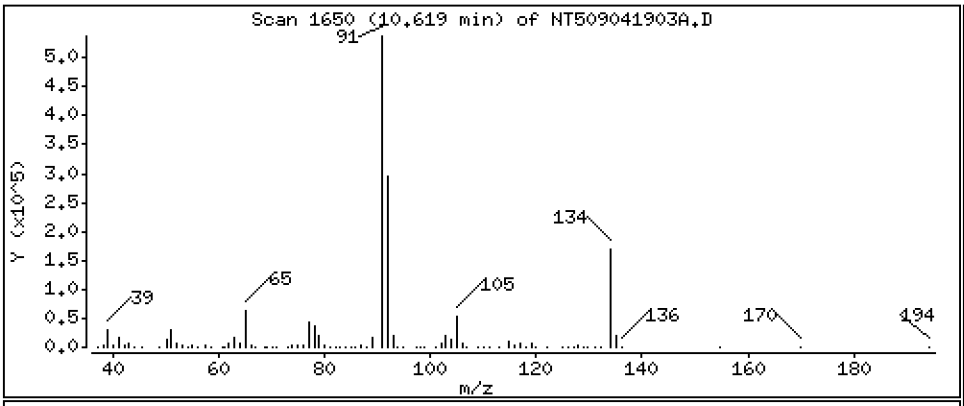
Operator: PB

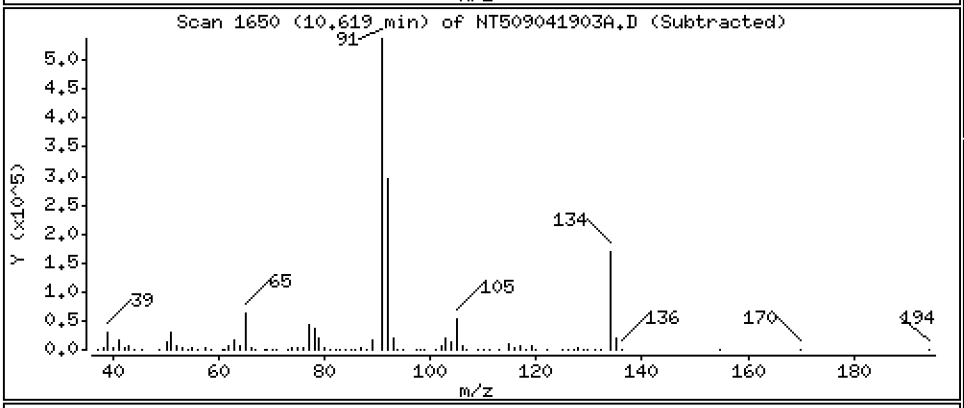
Column phase: RTXVMS

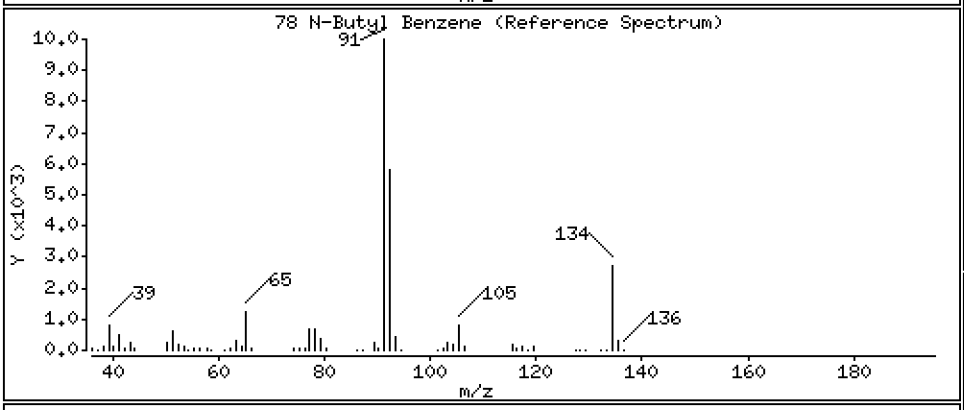
Column diameter: 0.18

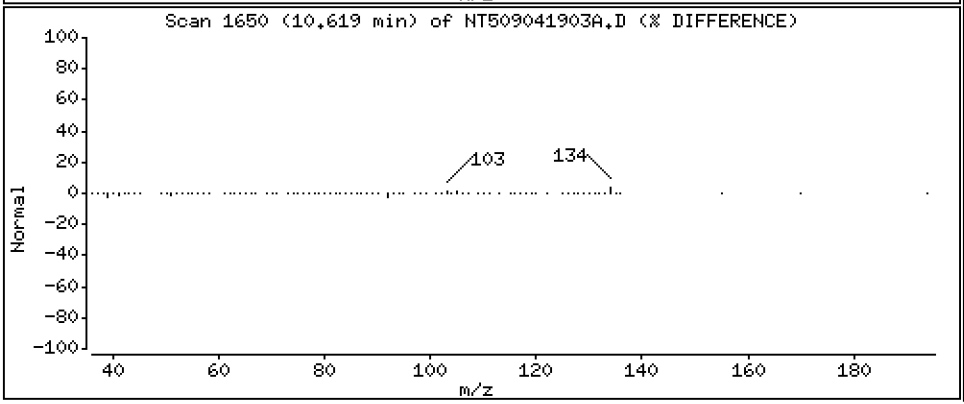
78 N-Butyl Benzene

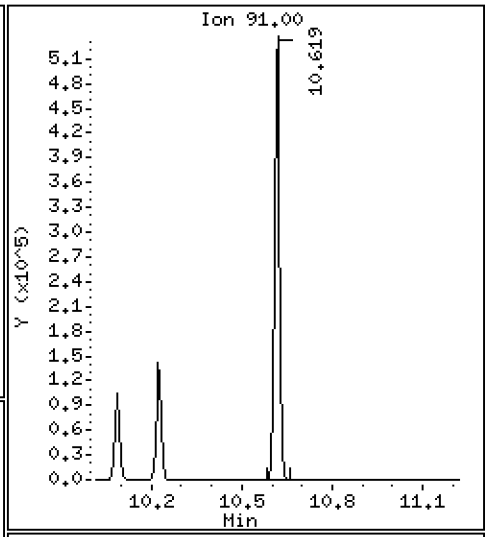
Concentration: 48.167 ug/Kg

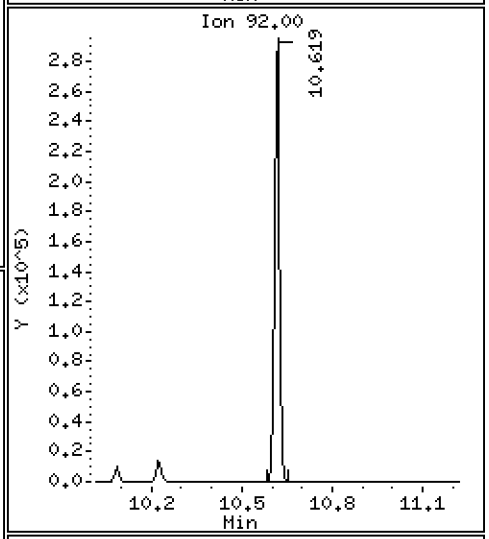


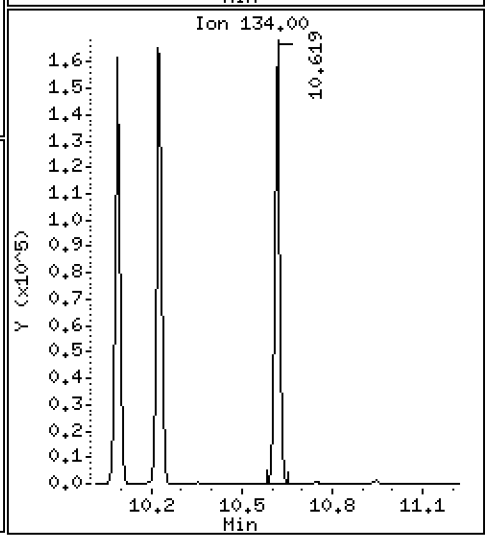












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

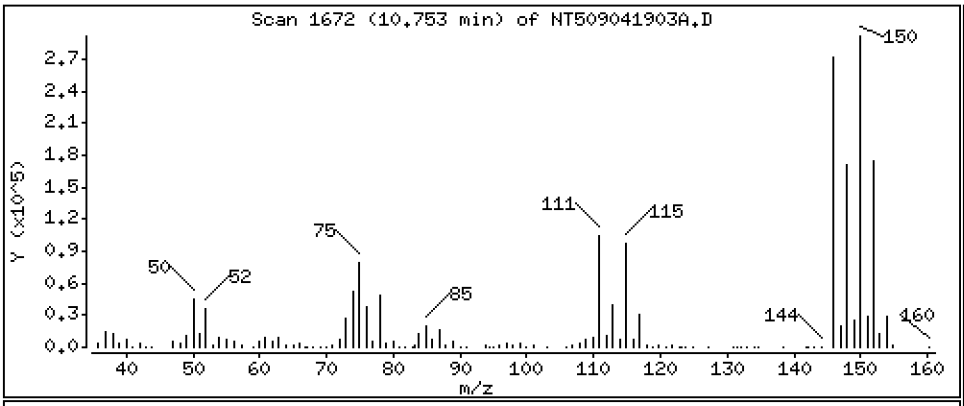
Operator: PB

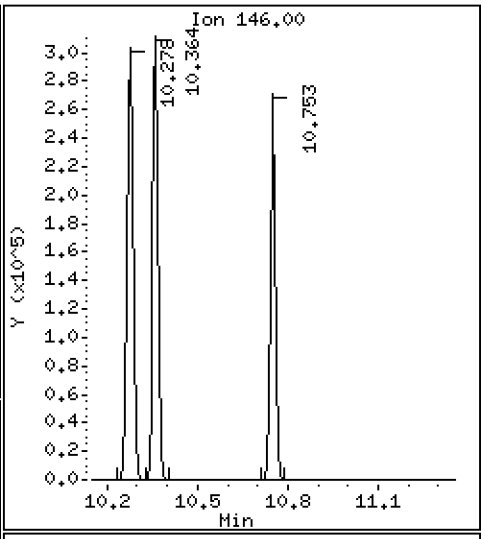
Column phase: RTXVMS

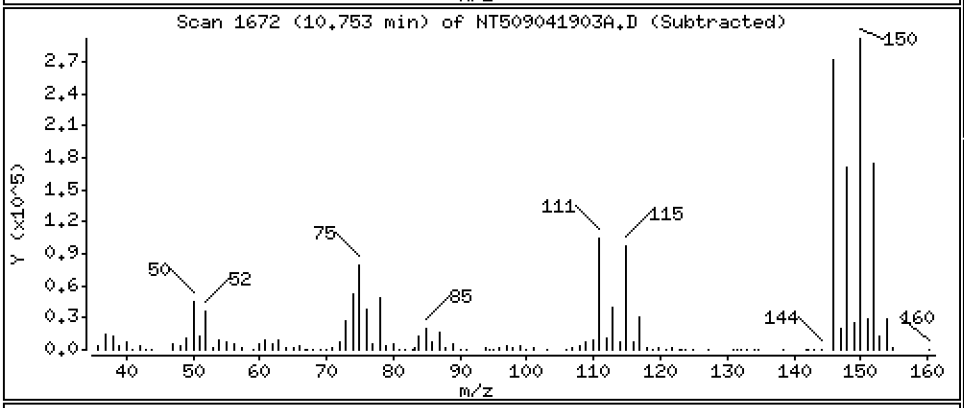
Column diameter: 0.18

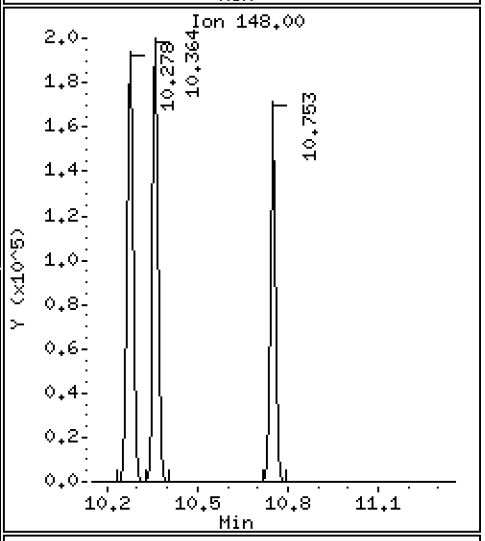
80 1,2-Dichlorobenzene

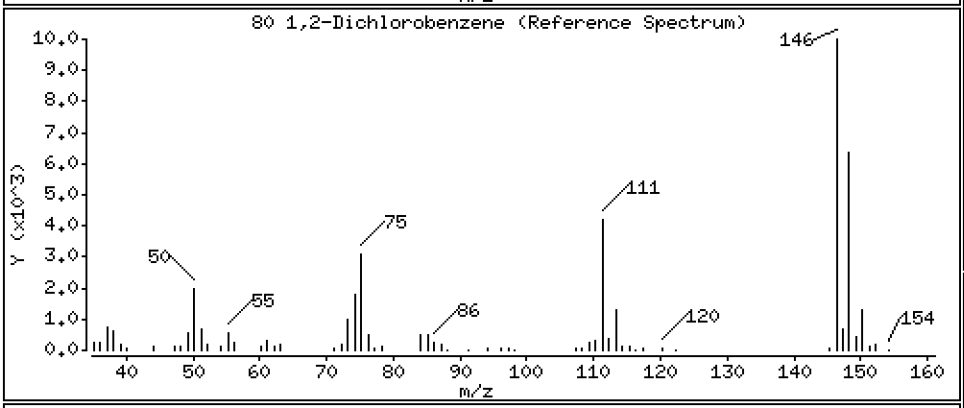
Concentration: 42.137 ug/Kg

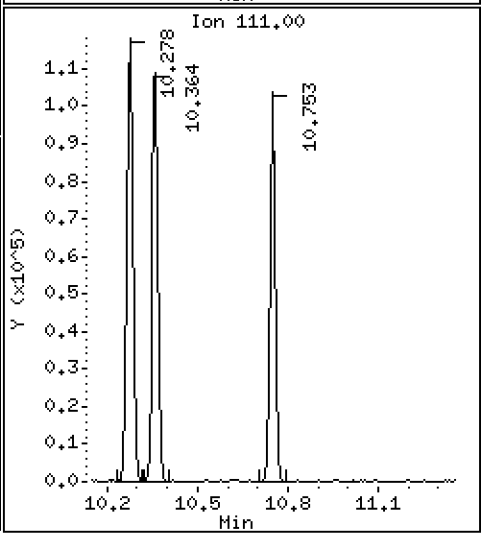


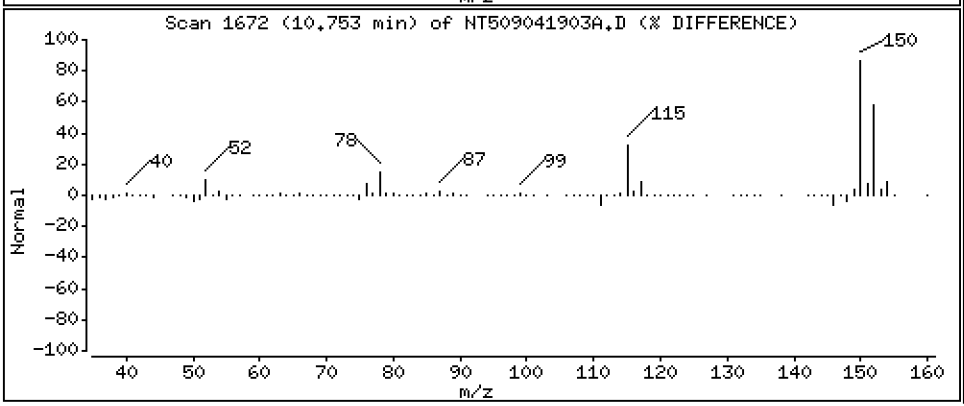












Date : 04-SEP-2019 14:02

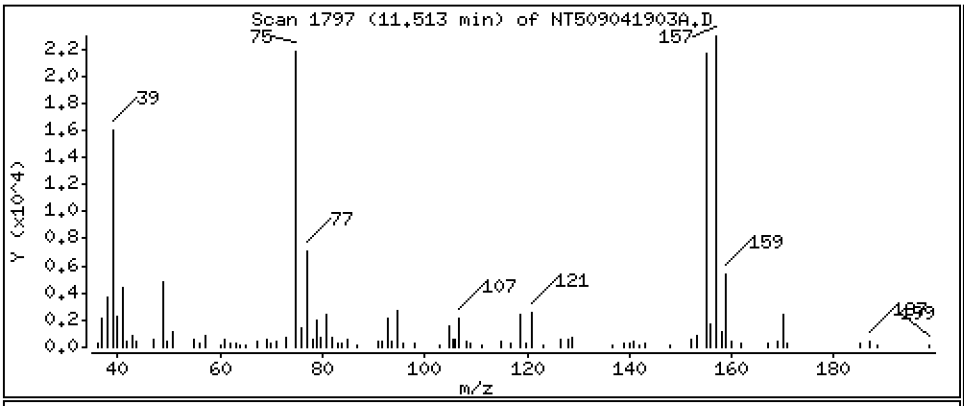
Client ID: Instrument: nt5.i

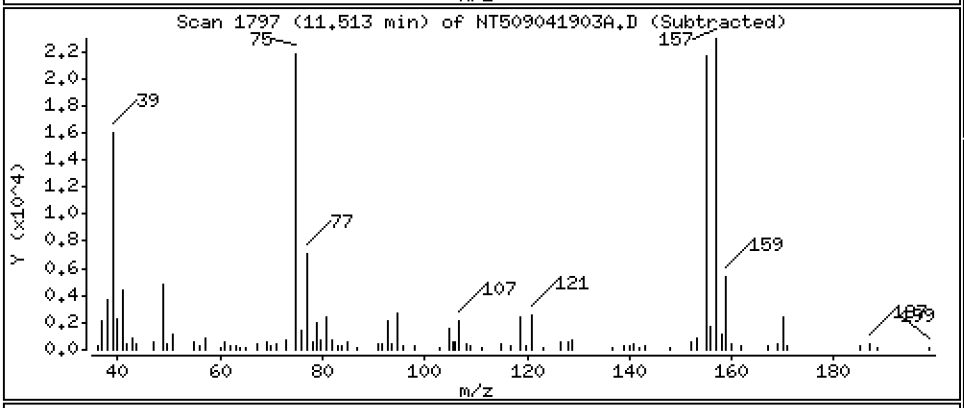
Sample Info: ICV1

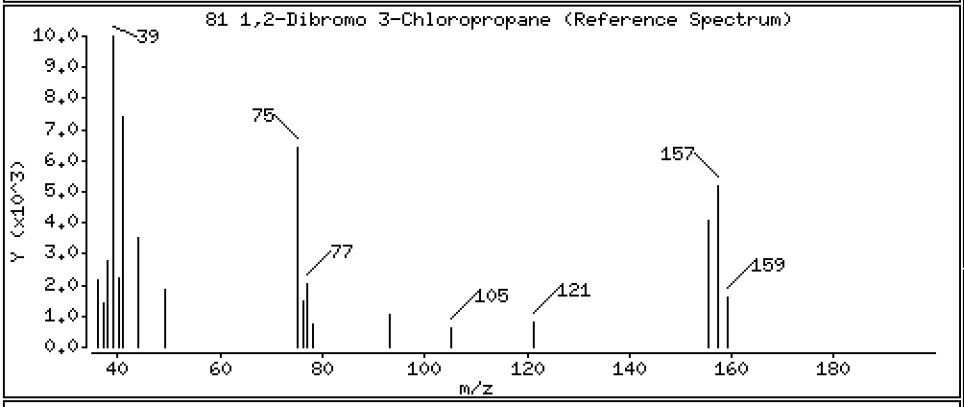
Operator: PB

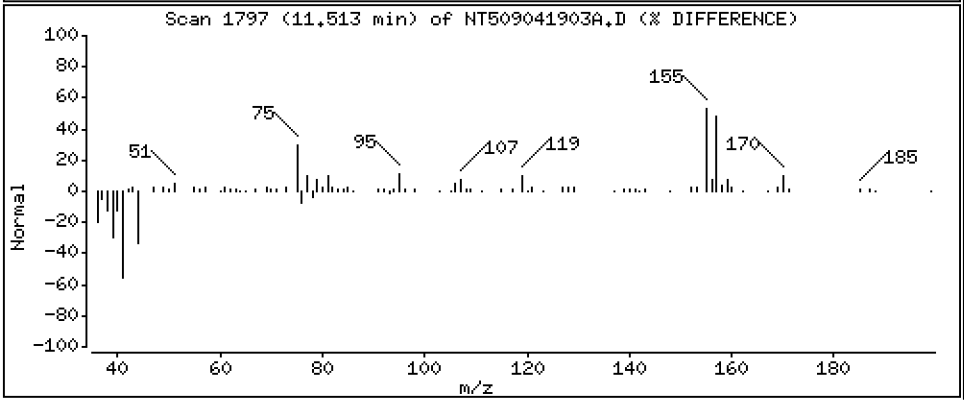
Column phase: RTXVMS Column diameter: 0.18

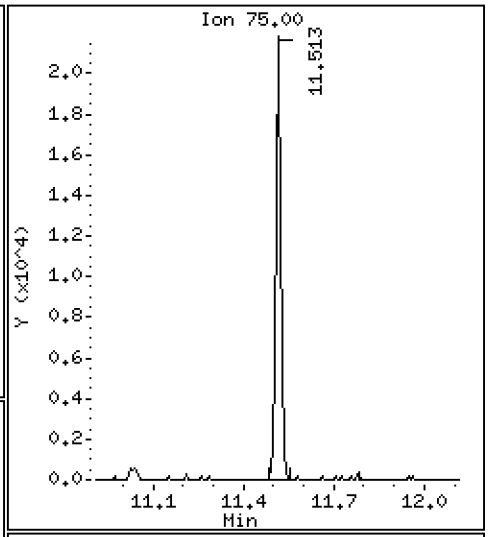
81 1,2-Dibromo 3-Chloropropane Concentration: 45.492 ug/Kg

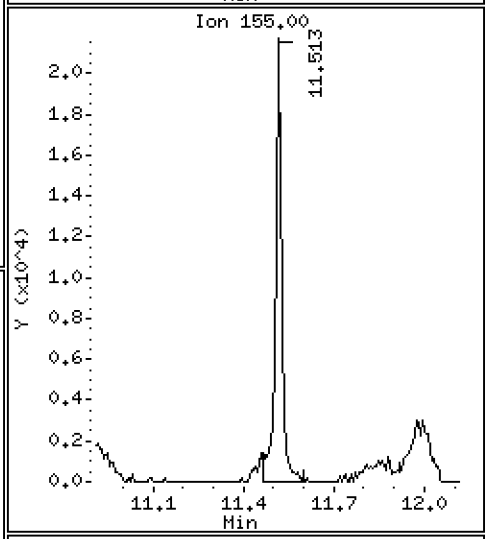


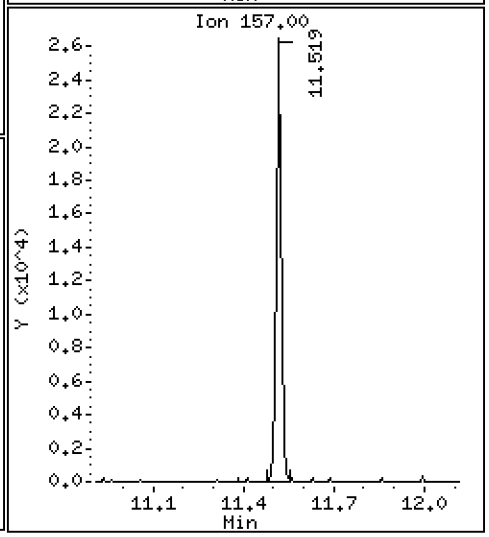












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

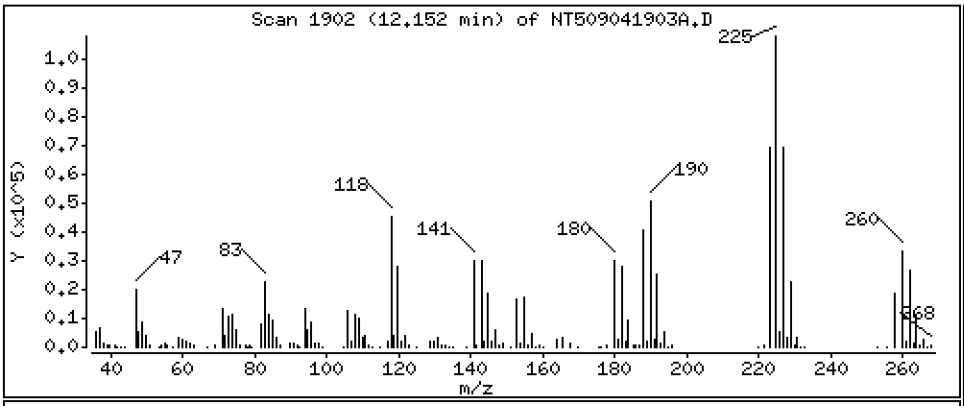
Operator: PB

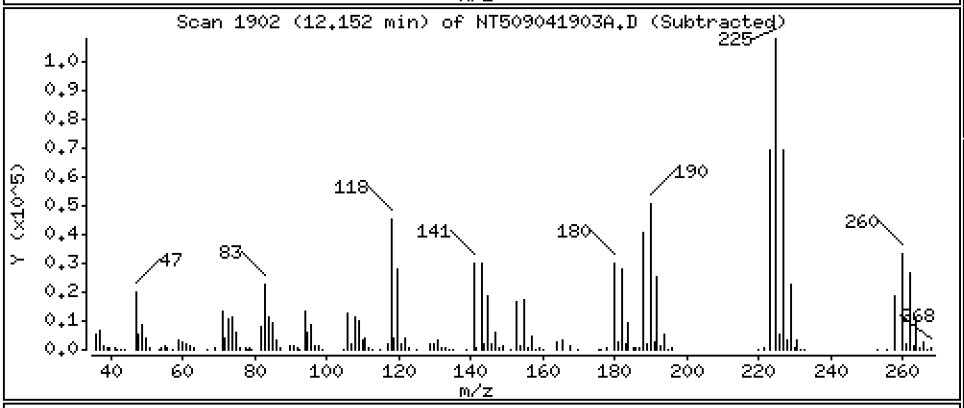
Column phase: RTXVMS

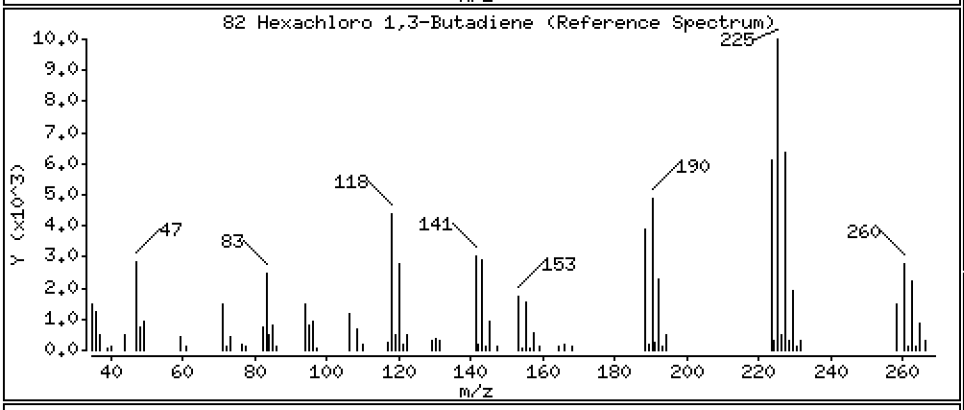
Column diameter: 0.18

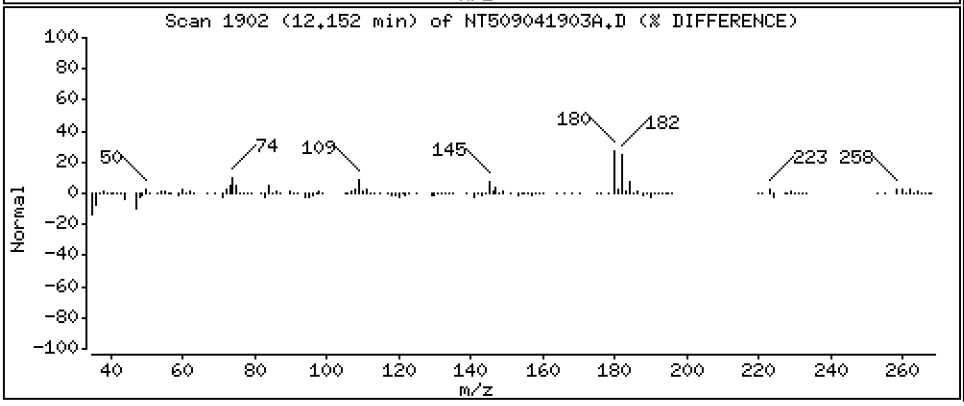
82 Hexachloro 1,3-Butadiene

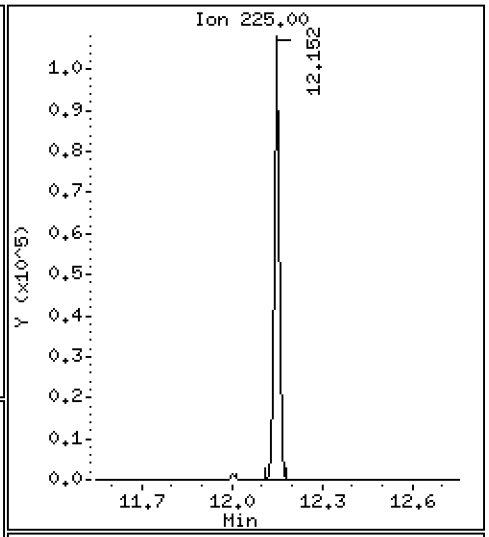
Concentration: 46.551 ug/Kg

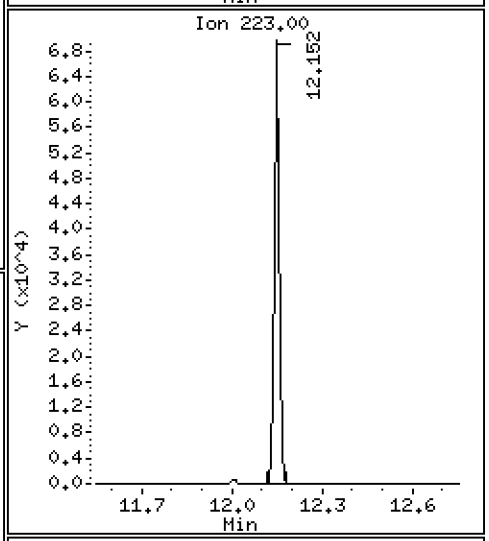


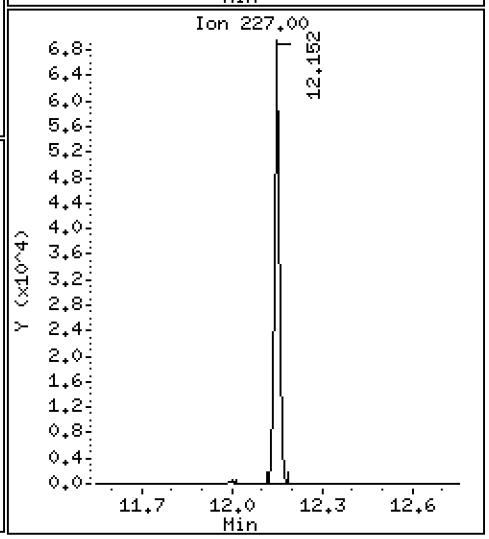












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

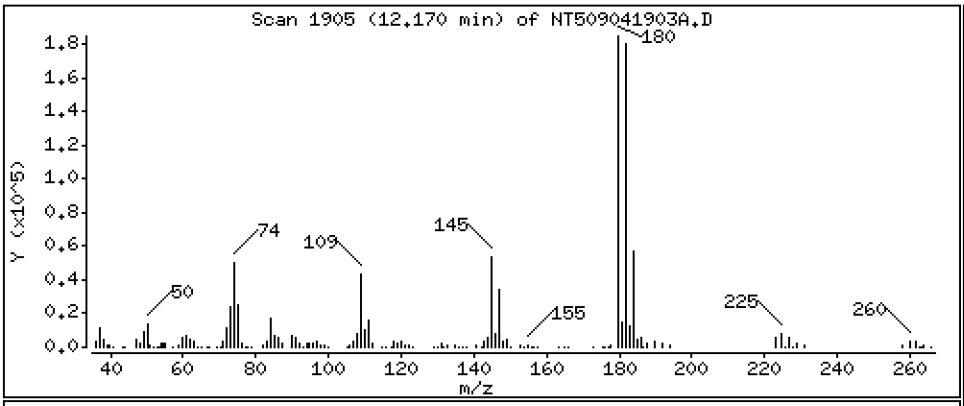
Operator: PB

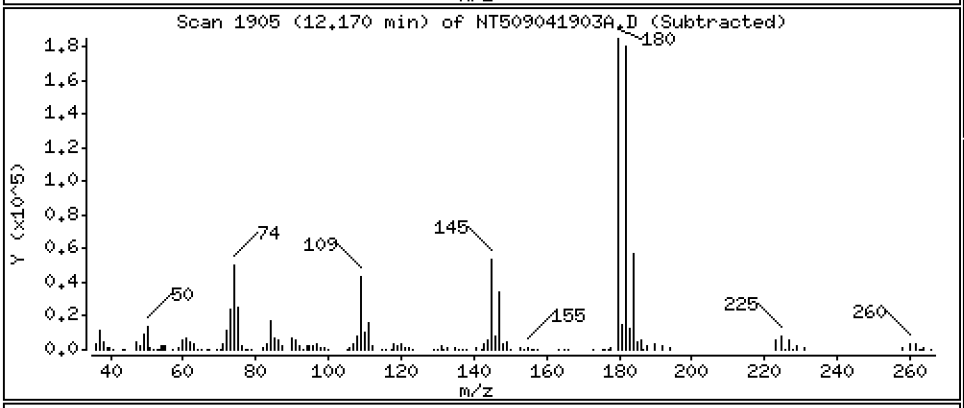
Column phase: RTXVMS

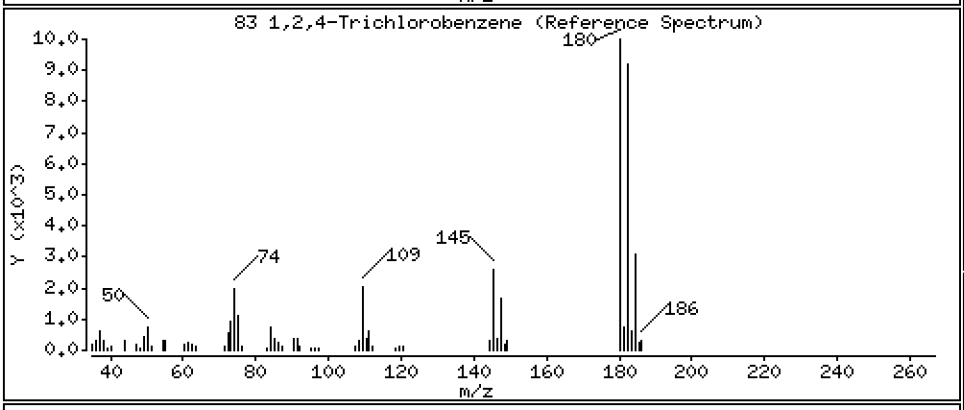
Column diameter: 0.18

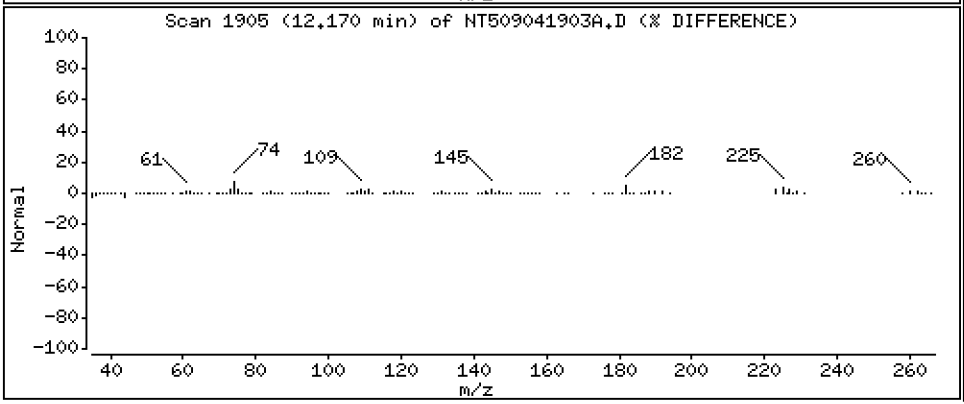
83 1,2,4-Trichlorobenzene

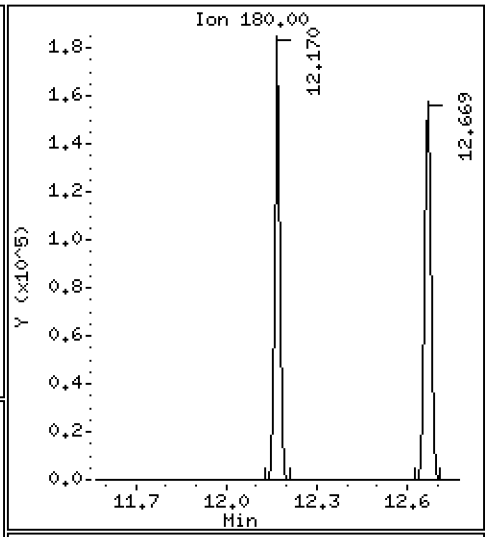
Concentration: 46.074 ug/Kg

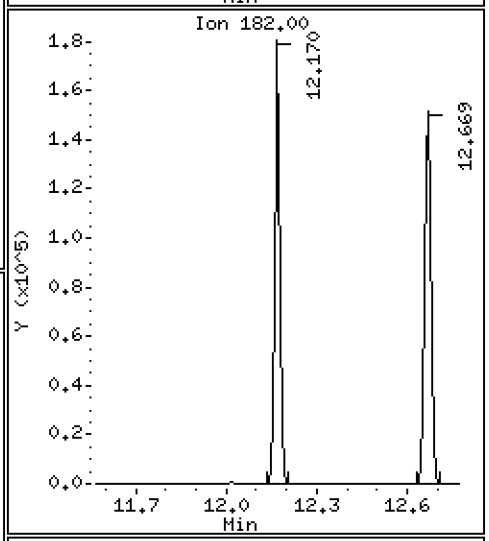


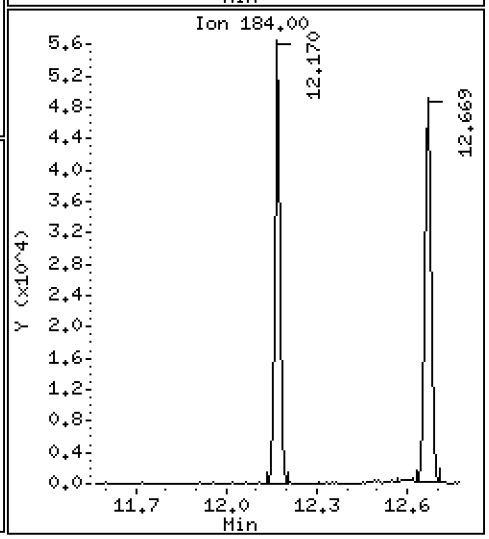












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

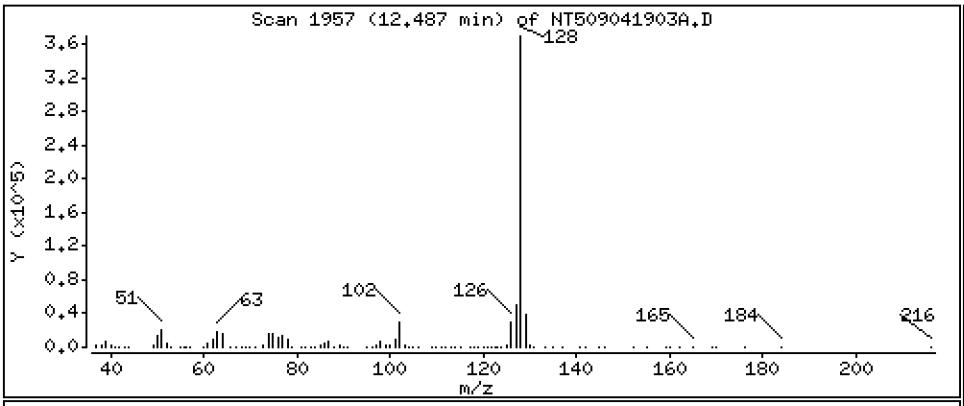
Operator: PB

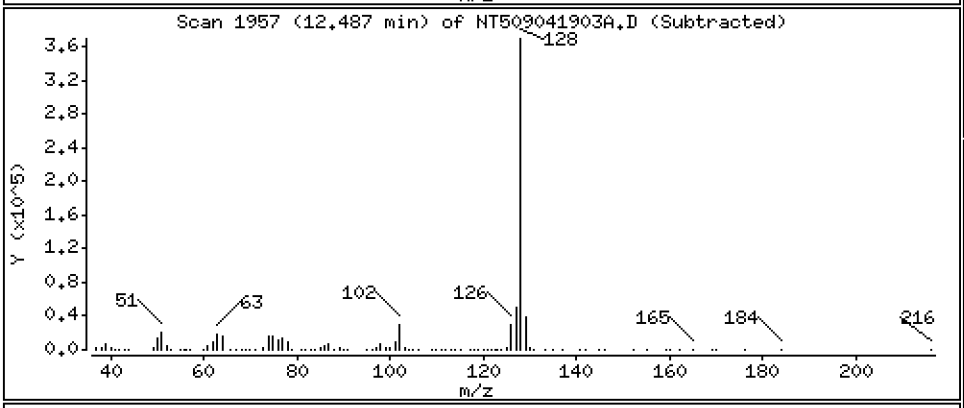
Column phase: RTXVMS

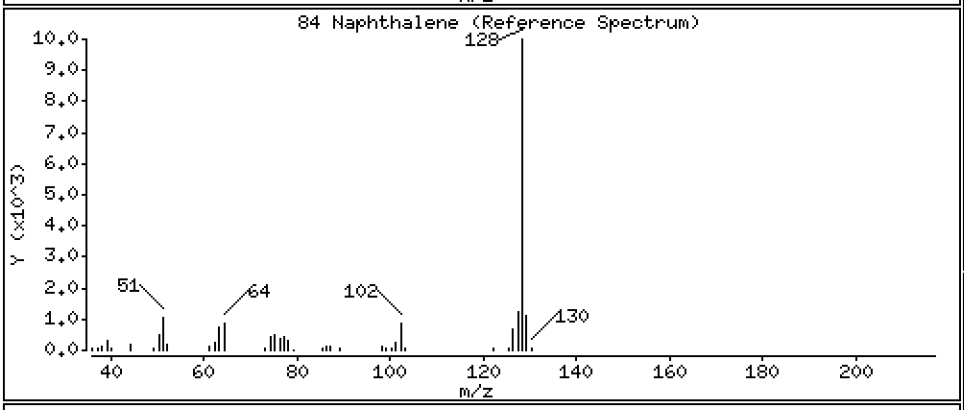
Column diameter: 0.18

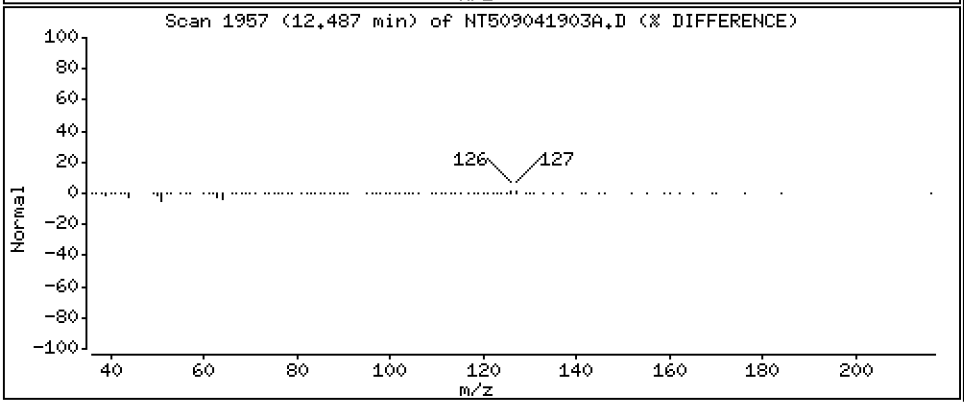
84 Naphthalene

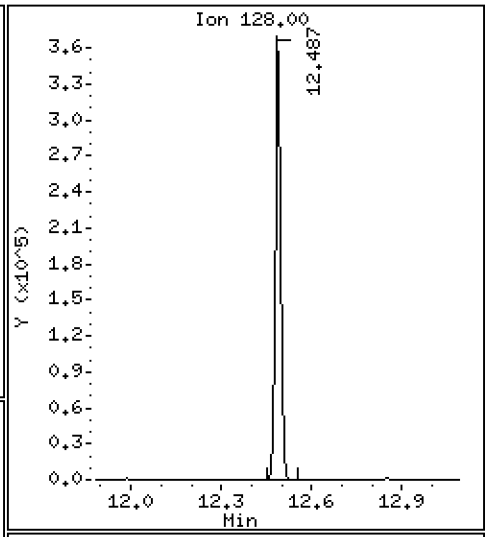
Concentration: 46.331 ug/Kg

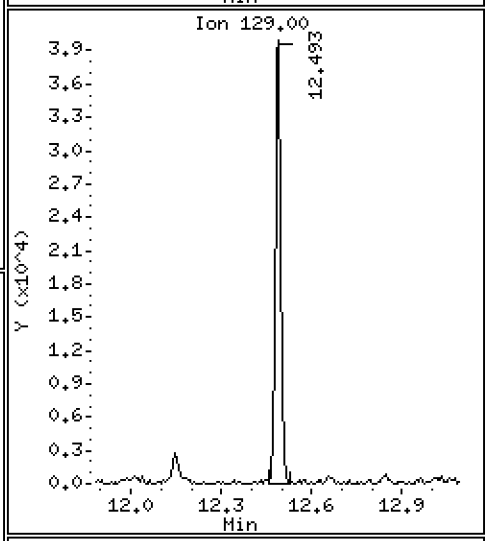


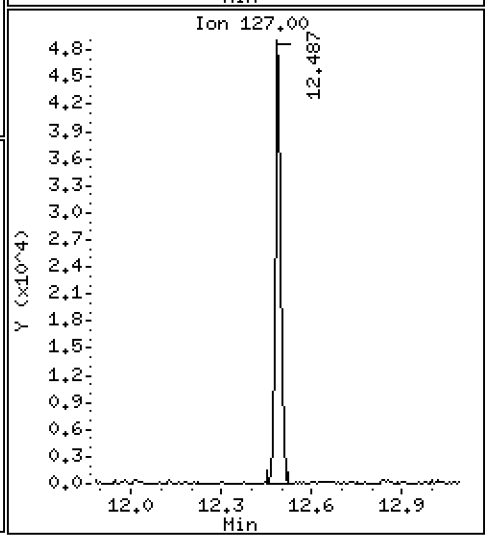












Date : 04-SEP-2019 14:02

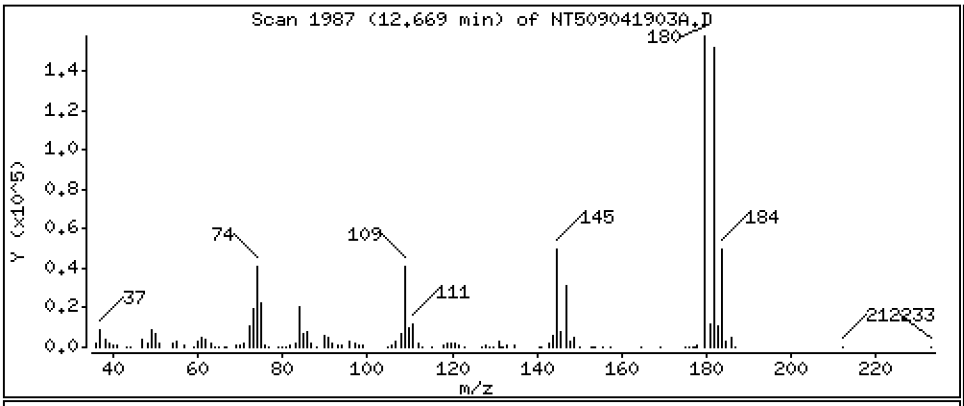
Client ID: Instrument: nt5.i

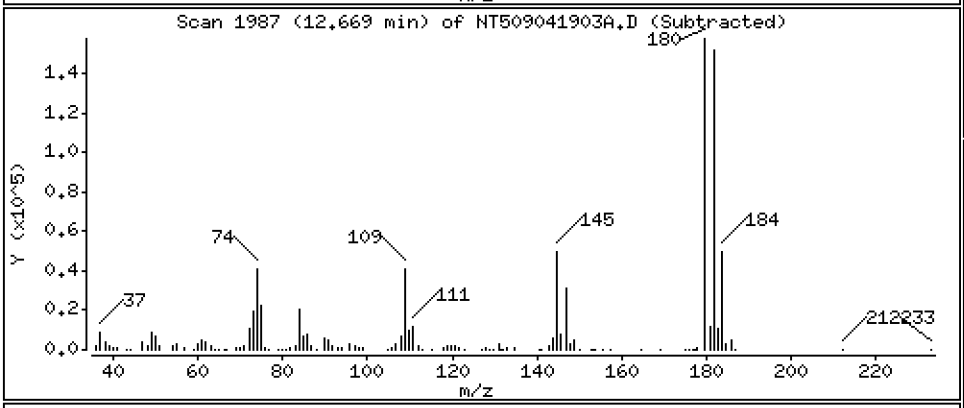
Sample Info: ICV1

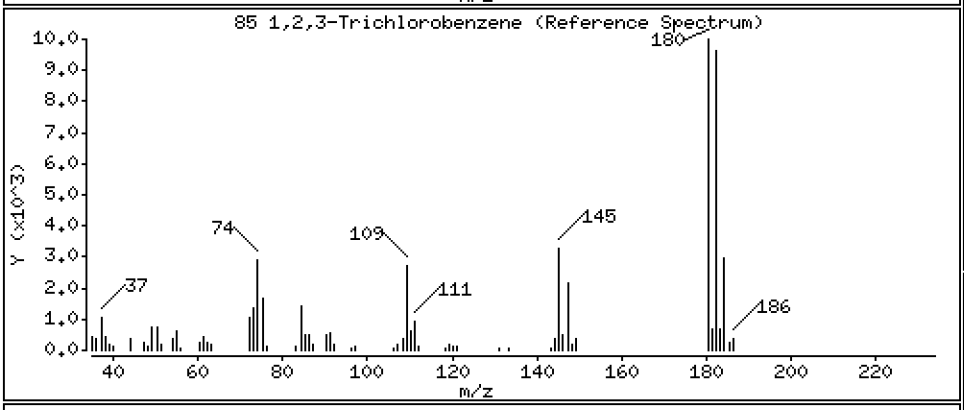
Operator: PB

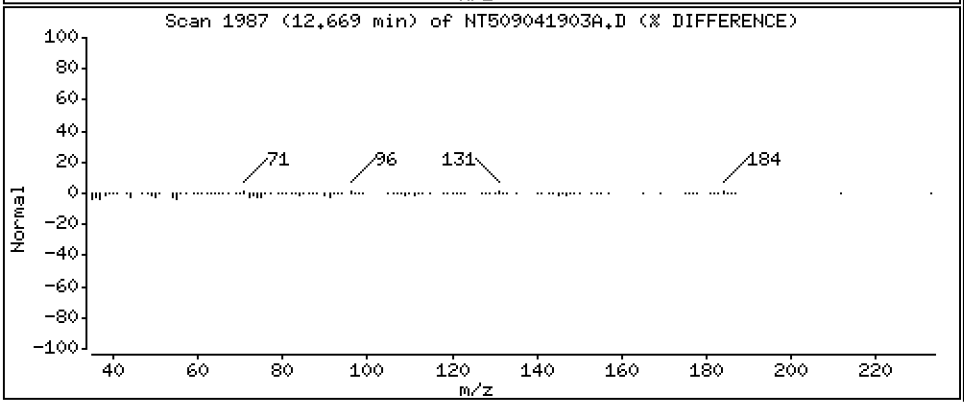
Column phase: RTXVMS Column diameter: 0.18

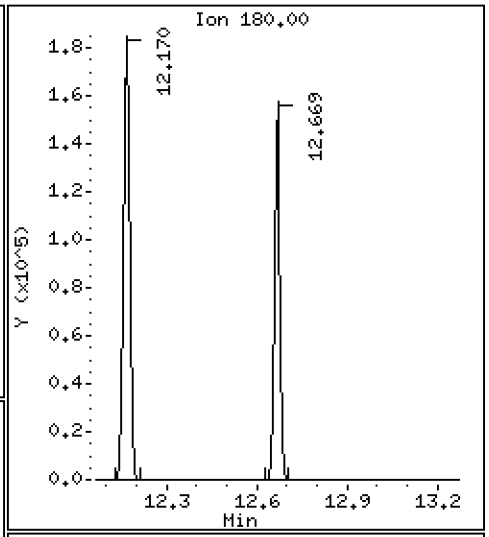
85 1,2,3-Trichlorobenzene Concentration: 44.846 ug/Kg

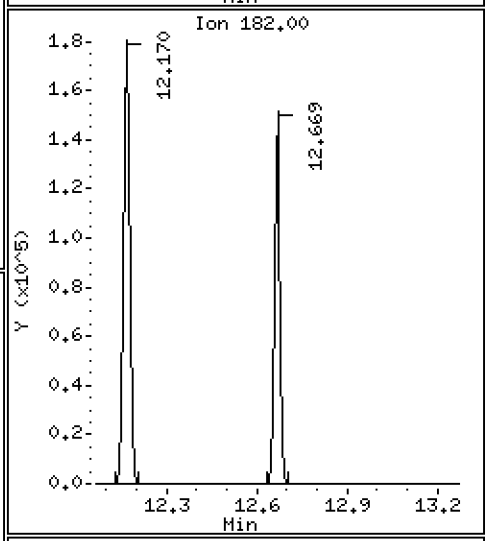


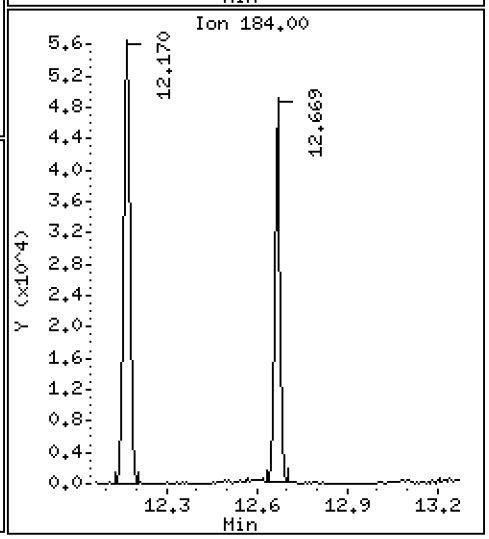












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041903A.D
Lab Smp Id: bhi0097-bs1
Inj Date : 04-SEP-2019 14:02
Operator : PB   Inst ID: nt5.i
Smp Info : ICV1
Misc Info :
Comment   :
Method   : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:04 patrickb   Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29   Cal File: NT508201911.D
Als bottle: 6   QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1	Dichlorodifluoromethane	85	1.329	1.329	(0.249)	183493	65.5503	65.550
2	Chloromethane	50	1.481	1.481	(0.278)	151428	60.0608	60.061
3	Vinyl Chloride	62	1.554	1.554	(0.292)	165641	67.3841	67.384(R)
4	Bromomethane	94	1.840	1.840	(0.345)	116191	53.3100	53.310
5	Chloroethane	64	1.949	1.949	(0.366)	126944	61.5692	61.569
6	Trichlorofluoromethane	101	2.065	2.065	(0.387)	296586	59.3142	59.314
7	1,1-Dichloroethene	96	2.533	2.533	(0.475)	150795	58.2951	58.295
8	Carbon Disulfide	76	2.540	2.540	(0.476)	441258	57.0578	57.058
9	112Trichloro122Trifluoroethane	101	2.588	2.588	(0.485)	148420	58.1654	58.165
10	Iodomethane	142	2.661	2.661	(0.499)	175888	63.4260	63.426
11	Bromoethane	108	2.795	2.795	(0.524)	100806	57.8478	57.848
12	Acrolein	56	2.911	2.911	(0.546)	87928	301.301	301.30
13	Methylene Chloride	84	3.148	3.148	(0.590)	137697	60.4217	60.422
14	Acetone	43	3.257	3.257	(0.611)	149589	303.301	303.30
15	Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	163426	57.4695	57.469
16	Methyl tert butyl ether	73	3.482	3.482	(0.653)	353018	53.8327	53.833
173	n-Hexane	41	Compound Not Detected.					
17	1,1-Dichloroethane	63	3.939	3.939	(0.739)	251472	57.2448	57.245
18	Acrylonitrile	53	4.024	4.024	(0.755)	32162	57.8466	57.847
19	Vinyl Acetate	43	4.243	4.243	(0.796)	249892	54.9473	54.947
20	Cis-1,2-Dichloroethene	96	4.462	4.462	(0.837)	175711	54.7983	54.798
22	2,2-Dichloropropane	77	4.553	4.553	(0.854)	288952	59.3413	59.341
23	Bromochloromethane	128	4.644	4.644	(0.871)	83645	54.8973	54.897
24	Chloroform	83	4.730	4.730	(0.887)	281553	55.2175	55.217
25	Carbon Tetrachloride	117	4.815	4.815	(0.833)	284349	48.2732	48.273
$ 27	Dibromofluoromethane	111	4.894	4.894	(0.918)	283745	63.9545	63.954(R)
26	1,1,1-Trichloroethane	97	4.888	4.888	(0.917)	291750	56.0974	56.097
28	1,1-Dichloropropene	75	4.997	4.997	(0.864)	233320	50.0169	50.017
29	2-Butanone	72	5.046	5.046	(0.946)	70292	285.081	285.08
30	Benzene	78	5.222	5.222	(0.903)	624950	47.6267	47.627
* 31	Pentafluorobenzene	168	5.332	5.332	(1.000)	361253	50.0000	
$ 32	d4-1,2-Dichloroethane	65	5.350	5.350	(1.003)	266022	61.2004	61.200(R)
33	1,2-Dichloroethane	62	5.411	5.411	(0.936)	194928	43.2803	43.280

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.733	5.733	(0.992)	195025	48.5423	48.542
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	820535	50.0000	
	37	Dibromomethane	93	6.092	6.092	(1.054)	84480	44.7033	44.703
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	136380	45.6269	45.627
	39	Bromodichloromethane	83	6.251	6.251	(1.081)	209243	45.0827	45.083
	172	2-Pentanone	86	6.543	6.543	(1.132)	92638	239.776	239.78
	40	2-Chloroethyl Vinyl Ether	63	6.755	6.755	(1.168)	71424	43.8562	43.856
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	243196	45.2822	45.282
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1049607	51.7929	51.793(R)
	43	Toluene	92	6.981	6.981	(1.207)	423359	45.6069	45.607
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	211692	48.4236	48.424
	45	4-Methyl-2-Pentanone	58	7.327	7.327	(1.267)	214340	230.169	230.17
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	222020	45.0423	45.042
	47	1,1,2-Trichloroethane	97	7.479	7.479	(1.294)	115654	43.4392	43.439
	48	Chlorodibromomethane	129	7.619	7.619	(0.923)	159908	42.4104	42.410
	49	1,3-Dichloropropane	76	7.704	7.704	(0.933)	200044	43.2252	43.225
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	122995	45.8774	45.877
	51	2-Hexanone	43	8.045	8.045	(0.974)	387871	233.985	233.99
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	816014	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	479212	43.2200	43.220
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	821817	45.3203	45.320
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	175252	43.9762	43.976
	56	m,p-xylene	106	8.435	8.435	(1.021)	656424	91.6727	91.673
	57	o-Xylene	106	8.806	8.806	(1.066)	309997	46.0363	46.036
	58	Styrene	104	8.854	8.854	(1.072)	501550	45.2818	45.282
	59	Bromoform	173	8.866	8.866	(0.857)	108799	40.4201	40.420
	60	Isopropyl Benzene	105	9.085	9.085	(0.878)	860823	46.4730	46.473
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1360		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	355683	50.2795	50.279(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	200906	42.4146	42.415
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	981168	46.1601	46.160
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	140026	41.8193	41.819
	66	2-Chloro Toluene	91	9.590	9.590	(0.927)	555100	45.2643	45.264
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	717203	46.6326	46.633
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	54101	45.2267	45.227
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	41753	42.1205	42.121
	70	4-Chloro Toluene	91	9.742	9.742	(0.941)	585267	45.3191	45.319
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	647341	45.6719	45.672
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	697533	46.2137	46.214
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	962039	46.9808	46.981
	74	4-Isopropyl Toluene	119	10.223	10.223	(0.988)	839535	47.8539	47.854
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	412087	44.5520	44.552
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	454776	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	411053	43.7187	43.719
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	723917	48.1667	48.167
$	79	d4-1,2-Dichlorobenzene	152	10.740	10.740	(1.038)	434802	51.0287	51.029(R)
	80	1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	369377	42.1369	42.137
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	31159	45.4918	45.492
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	151463	46.5512	46.551
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	254433	46.0743	46.074
	84	Naphthalene	128	12.486	12.486	(1.206)	533485	46.3314	46.331
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	224568	44.8464	44.846

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041903A.D
Lab Smp Id: bhi0097-bs1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	361253	-21.12
35 1,4-Difluorobenze	852165	426083	1704330	820535	-3.71
52 d5-Chlorobenzene	803678	401839	1607356	816014	1.53
76 d4-1,4-Dichlorobe	439766	219883	879532	454776	3.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.33	0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151013
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: bhi0097-bs1
Level:
Operator: PB
Data Type: MS DATA
SampleType: LCS
SpikeList File: voasoil.spk
Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	65.550	131.10	
2	Chloromethane	50.000	60.061	120.12	
3	Vinyl Chloride	50.000	67.384	134.77*	
4	Bromomethane	50.000	53.310	106.62	
5	Chloroethane	50.000	61.569	123.14	
6	Trichlorofluoromet	50.000	59.314	118.63	
12	Acrolein	250.00	301.30	120.52	
9	112Trichloro122Tri	50.000	58.165	116.33	
14	Acetone	250.00	303.30	121.32	
7	1,1-Dichloroethene	50.000	58.295	116.59	
11	Bromoethane	50.000	57.848	115.70	
10	Iodomethane	50.000	63.426	126.85	
13	Methylene Chloride	50.000	60.422	120.84	
8	Carbon Disulfide	50.000	57.058	114.12	
18	Acrylonitrile	50.000	57.847	115.69	
15	Trans-1,2-Dichloro	50.000	57.469	114.94	
19	Vinyl Acetate	50.000	54.947	109.89	
17	1,1-Dichloroethane	50.000	57.245	114.49	
29	2-Butanone	250.00	285.08	114.03	
22	2,2-Dichloropropan	50.000	59.341	118.68	
20	Cis-1,2-Dichloroet	50.000	54.798	109.60	
24	Chloroform	50.000	55.217	110.43	
23	Bromochloromethane	50.000	54.897	109.79	
26	1,1,1-Trichloroeth	50.000	56.097	112.19	
28	1,1-Dichloropropen	50.000	50.017	100.03	
25	Carbon Tetrachlori	50.000	48.273	96.55	
33	1,2-Dichloroethane	50.000	43.280	86.56	
30	Benzene	50.000	47.627	95.25	
34	Trichloroethene	50.000	48.542	97.08	
38	1,2-Dichloropropan	50.000	45.627	91.25	
39	Bromodichlorometha	50.000	45.083	90.17	
172	2-Pentanone	250.00	239.78	95.91	
37	Dibromomethane	50.000	44.703	89.41	
40	2-Chloroethyl Viny	50.000	43.856	87.71	
45	4-Methyl-2-Pentano	250.00	230.17	92.07	
41	Cis 1,3-dichloropr	50.000	45.282	90.56	
43	Toluene	50.000	45.607	91.21	
46	Trans 1,3-Dichloro	50.000	45.042	90.08	
51	2-Hexanone	250.00	233.99	93.59	
47	1,1,2-Trichloroeth	50.000	43.439	86.88	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	43.225	86.45	
44 Tetrachloroethene	50.000	48.424	96.85	
48 Chlorodibromometha	50.000	42.410	84.82	
50 1,2-Dibromoethane	50.000	45.877	91.75	
53 Chlorobenzene	50.000	43.220	86.44	
55 1,1,1,2-Tetrachlor	50.000	43.976	87.95	
54 Ethyl Benzene	50.000	45.320	90.64	
56 m,p-xylene	100.00	91.673	91.67	
57 o-Xylene	50.000	46.036	92.07	
58 Styrene	50.000	45.282	90.56	
60 Isopropyl Benzene	50.000	46.473	92.95	
59 Bromoform	50.000	40.420	80.84	
65 1,1,2,2-Tetrachlor	50.000	41.819	83.64	
68 1,2,3-Trichloropro	50.000	45.227	90.45	
69 Trans-1,4-Dichloro	50.000	42.121	84.24	
64 N-Propyl Benzene	50.000	46.160	92.32	
63 Bromobenzene	50.000	42.415	84.83	
67 1,3,5-Trimethyl Be	50.000	46.633	93.27	
66 2-Chloro Toluene	50.000	45.264	90.53	
70 4-Chloro Toluene	50.000	45.319	90.64	
71 T-Butyl Benzene	50.000	45.672	91.34	
72 1,2,4-Trimethylben	50.000	46.214	92.43	
73 S-Butyl Benzene	50.000	46.981	93.96	
74 4-Isopropyl Toluen	50.000	47.854	95.71	
75 1,3-Dichlorobenzen	50.000	44.552	89.10	
77 1,4-Dichlorobenzen	50.000	43.719	87.44	
78 N-Butyl Benzene	50.000	48.167	96.33	
80 1,2-Dichlorobenzen	50.000	42.137	84.27	
81 1,2-Dibromo 3-Chlo	50.000	45.492	90.98	
83 1,2,4-Trichloroben	50.000	46.074	92.15	
82 Hexachloro 1,3-But	50.000	46.551	93.10	
84 Naphthalene	50.000	46.331	92.66	
85 1,2,3-Trichloroben	50.000	44.846	89.69	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	63.954	127.91	
$ 32 d4-1,2-Dichloroeth	50.000	61.200	122.40	
$ 42 d8-Toluene	50.000	51.793	103.59	
$ 62 4-Bromofluorobenze	50.000	50.279	100.56	
$ 79 d4-1,2-Dichloroben	50.000	51.029	102.06	

REVIEW SUMMARY FOR FILE - NT509041903A.D

Lab ID: bhi0097-bs1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 14:02

RT	CO-ELUTION COMPOUNDS
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500

Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

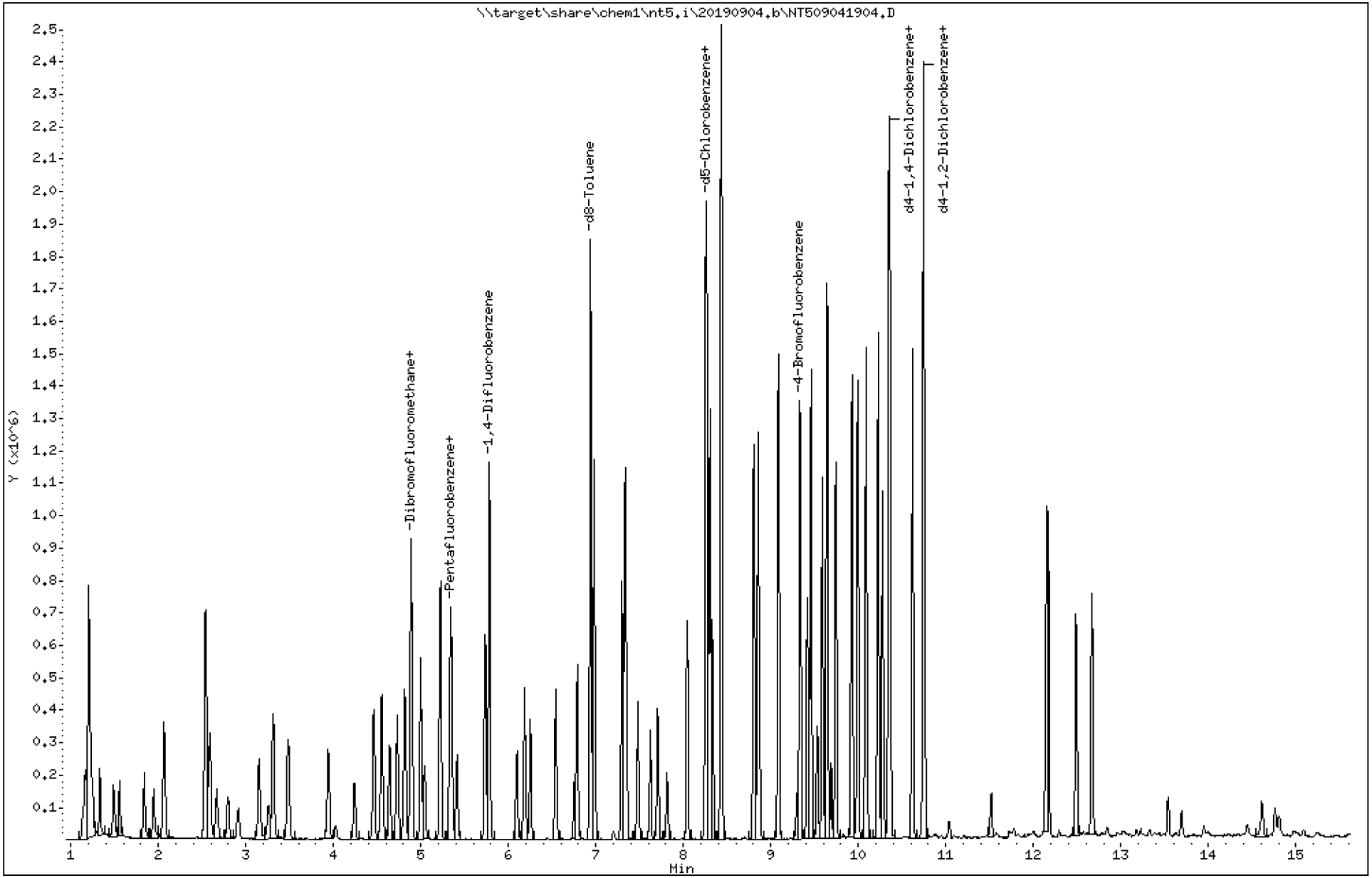
Instrument: nt5.i

Sample Info: BSD1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

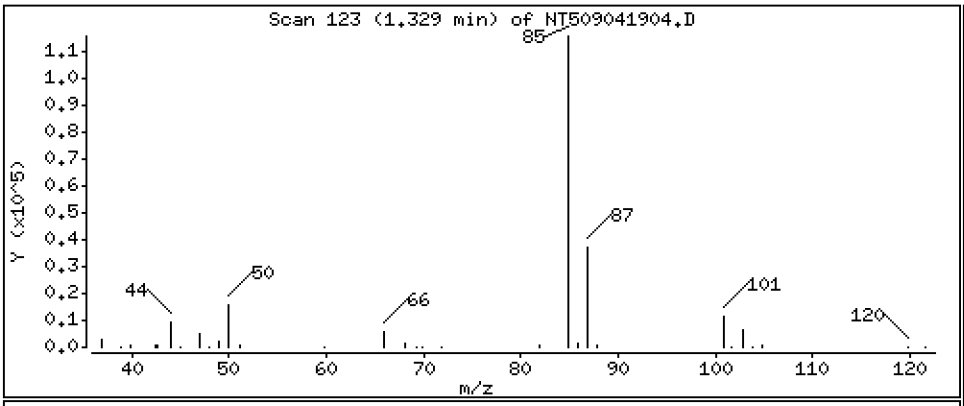
Operator: PB

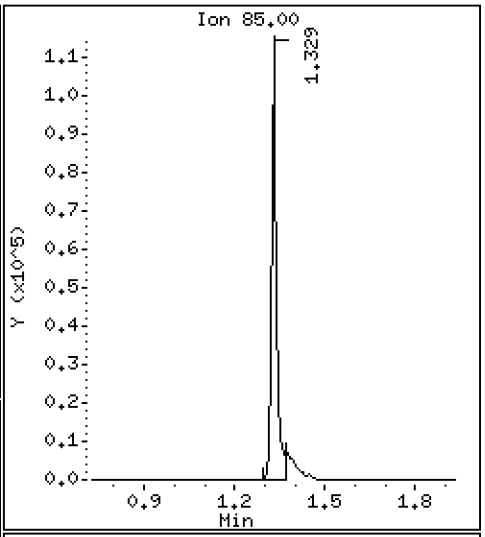
Column phase: RTXVMS

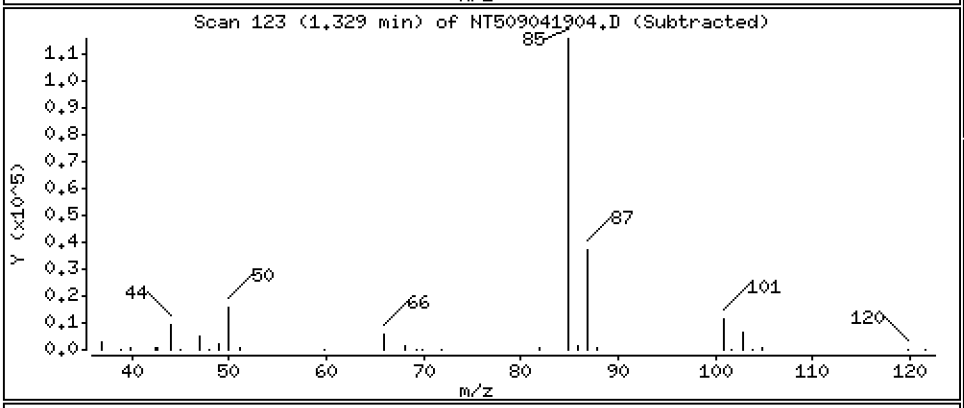
Column diameter: 0.18

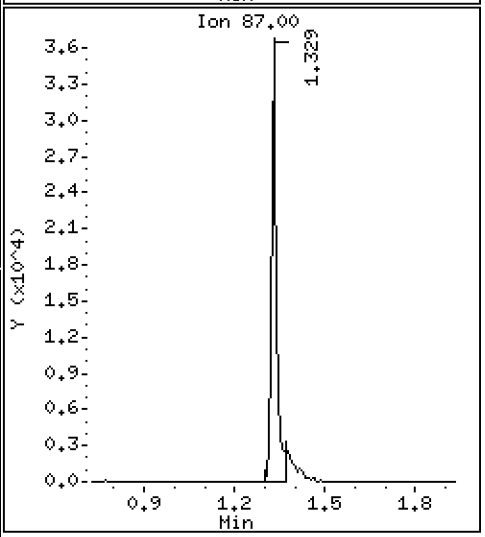
1 Dichlorodifluoromethane

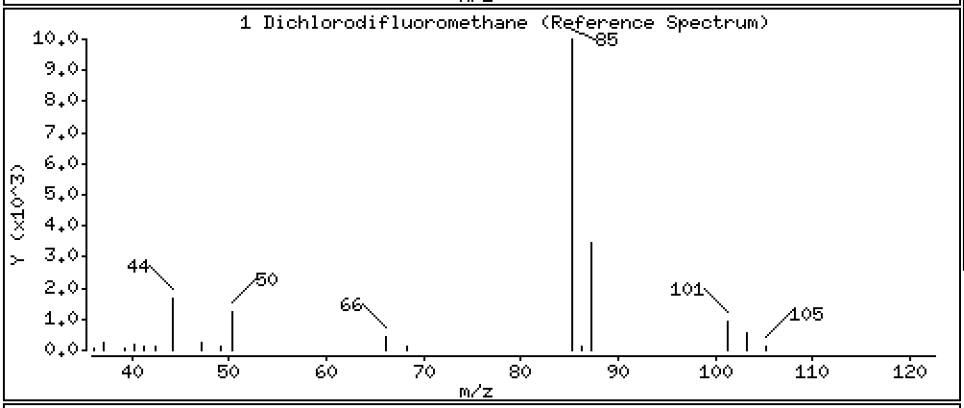
Concentration: 58.577 ug/Kg

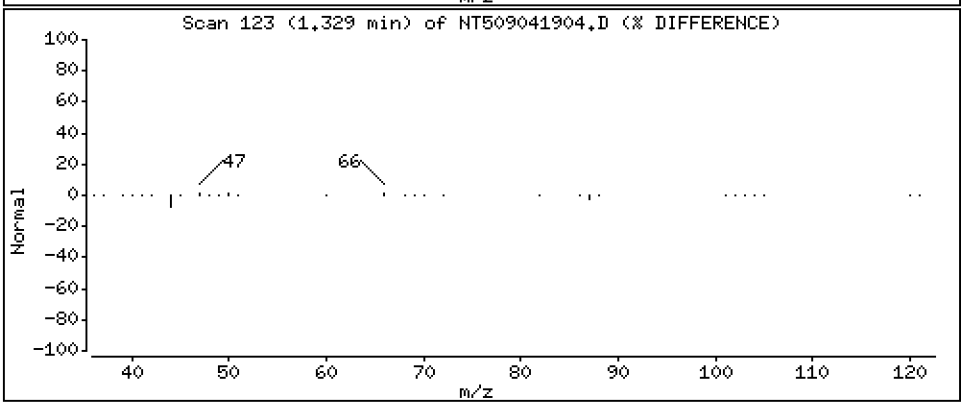












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

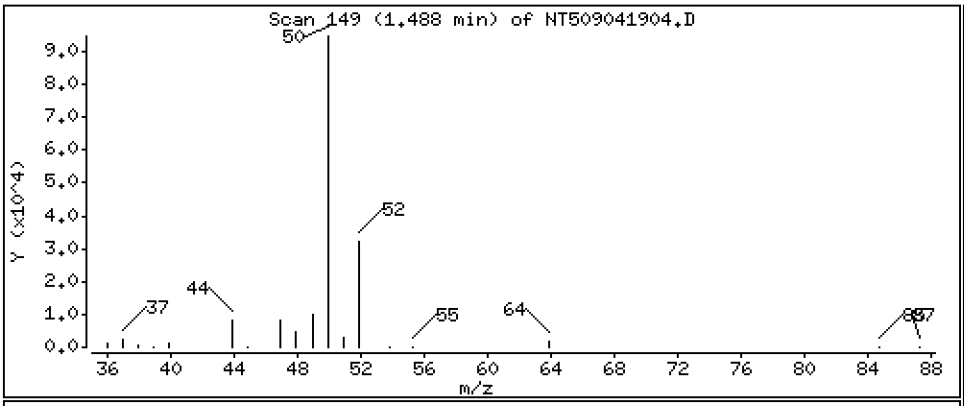
Operator: PB

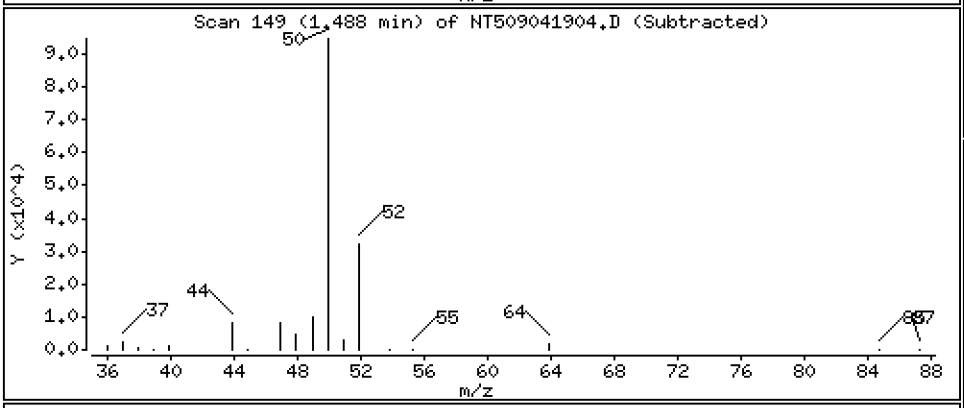
Column phase: RTXVMS

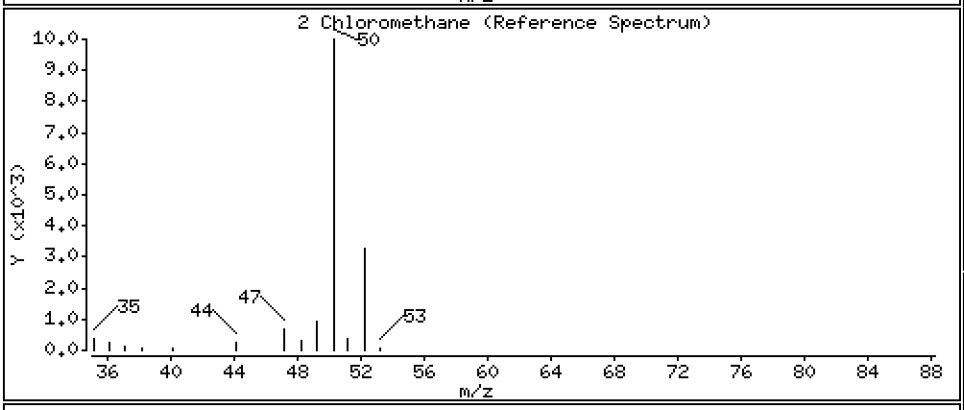
Column diameter: 0.18

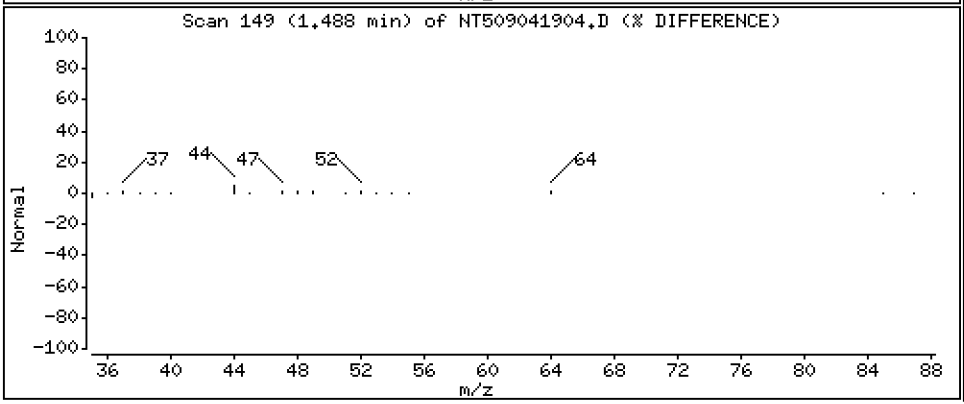
2 Chloromethane

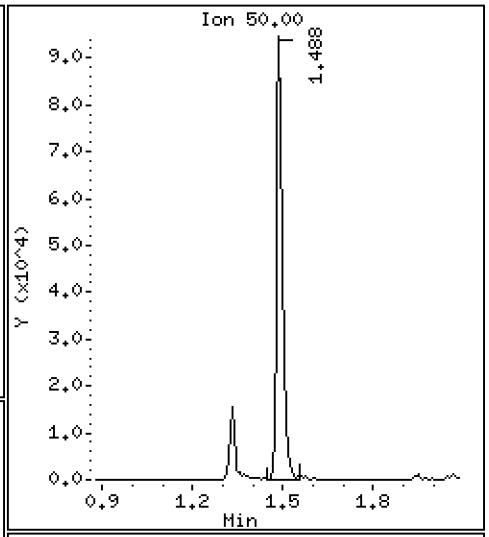
Concentration: 59.835 ug/Kg

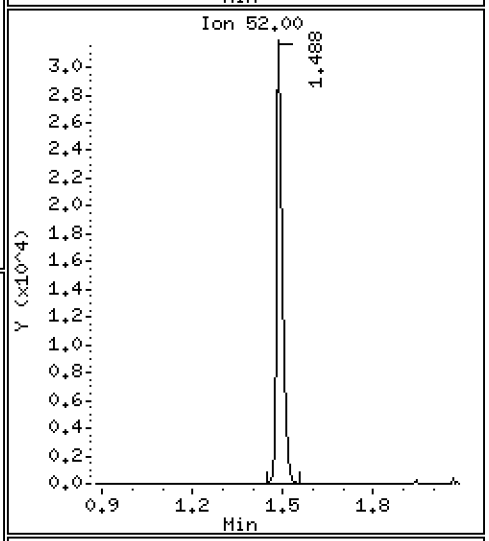


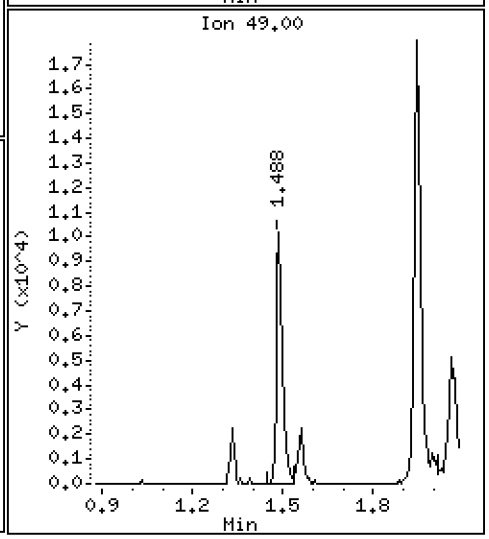












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

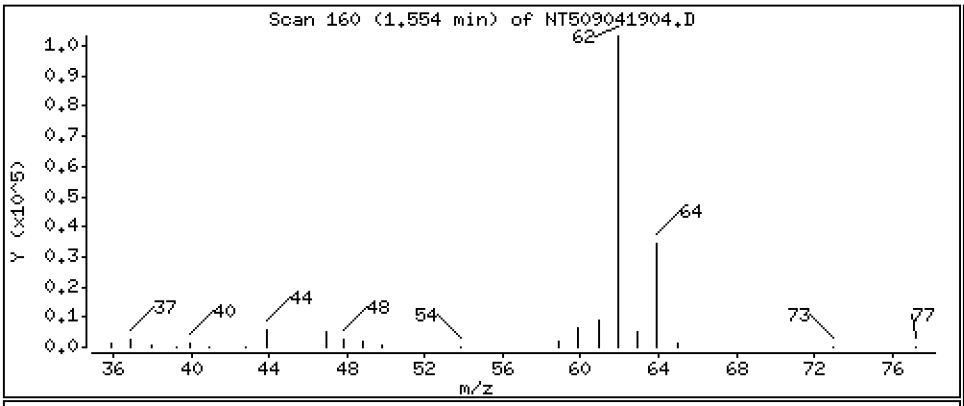
Operator: PB

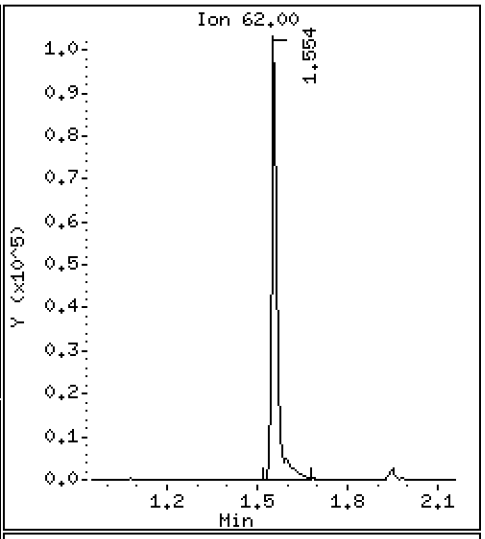
Column phase: RTXVMS

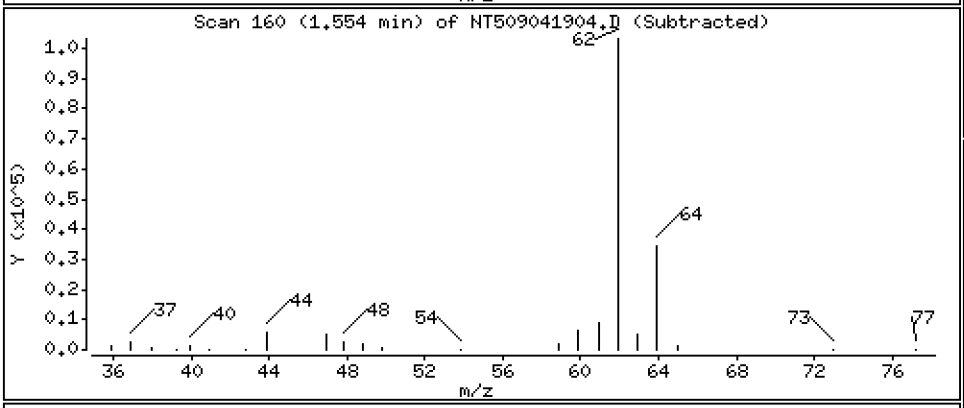
Column diameter: 0.18

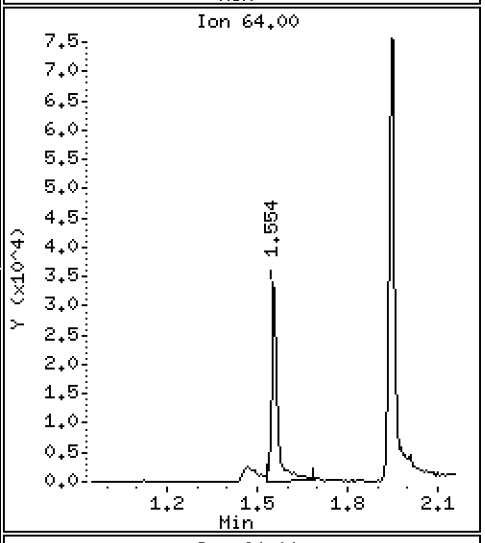
3 Vinyl Chloride

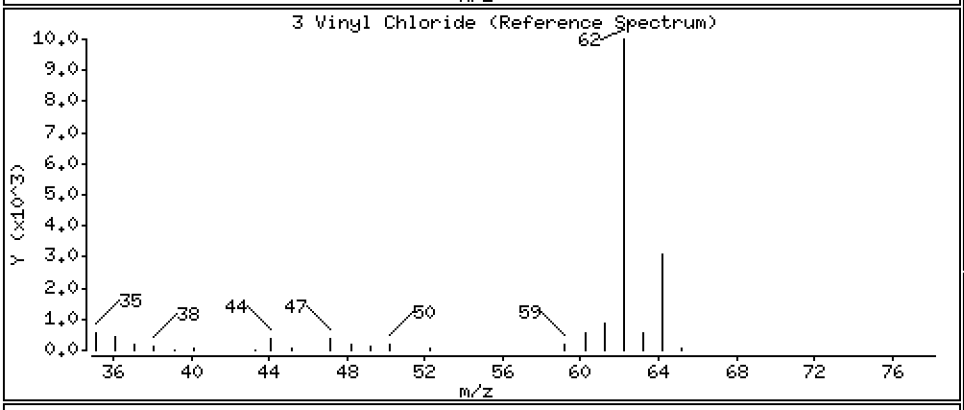
Concentration: 64.574 ug/Kg

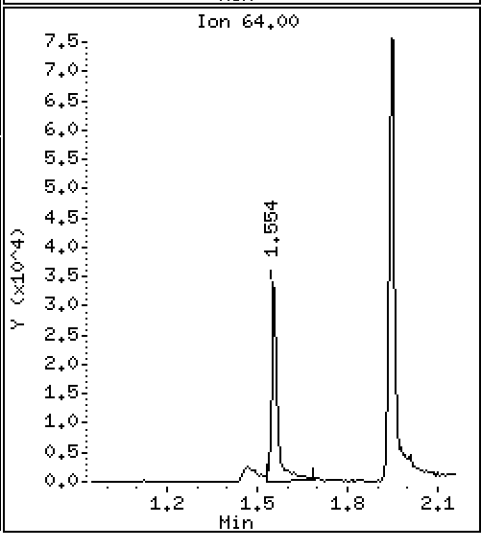


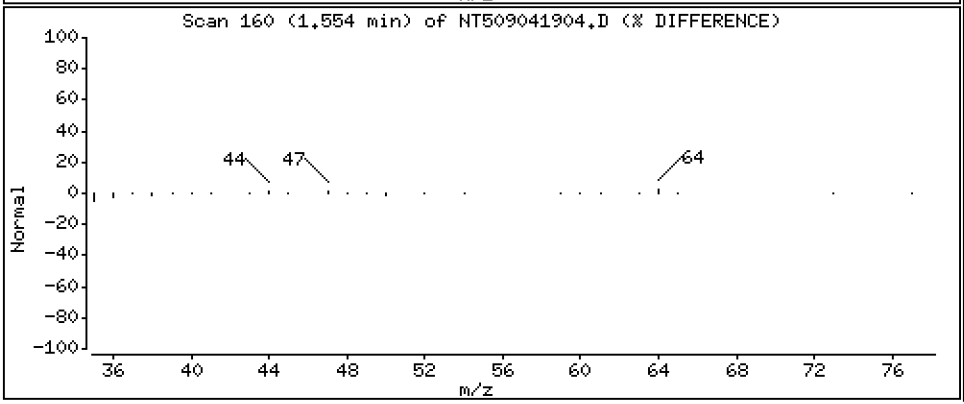












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

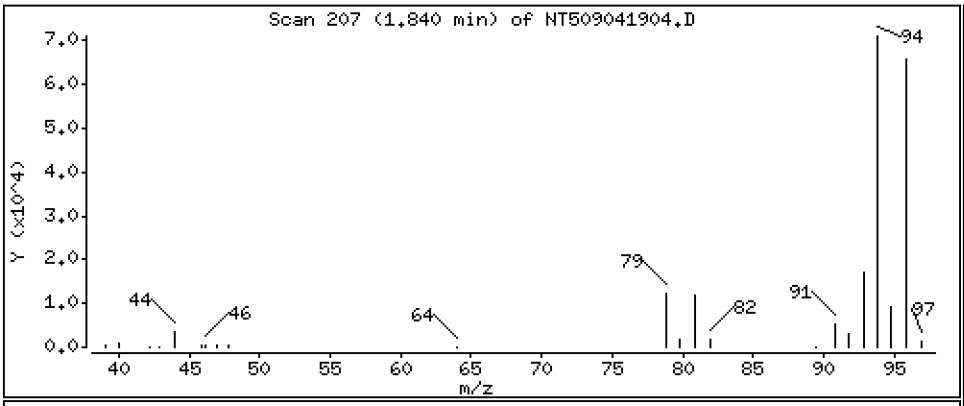
Operator: PB

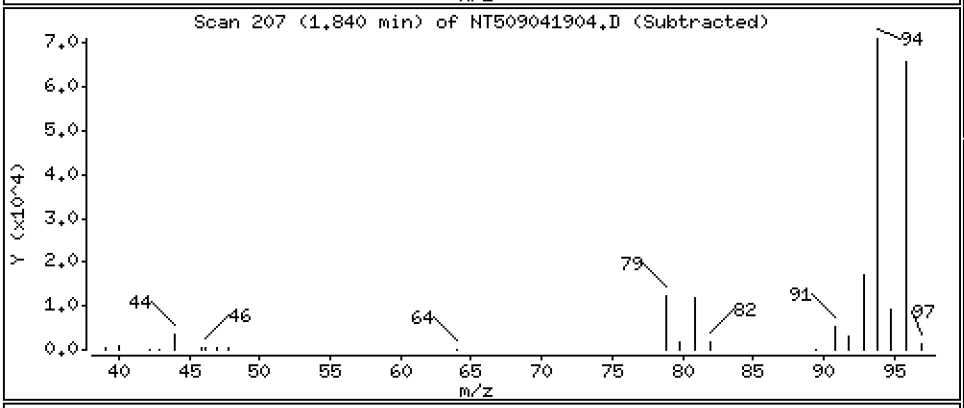
Column phase: RTXVMS

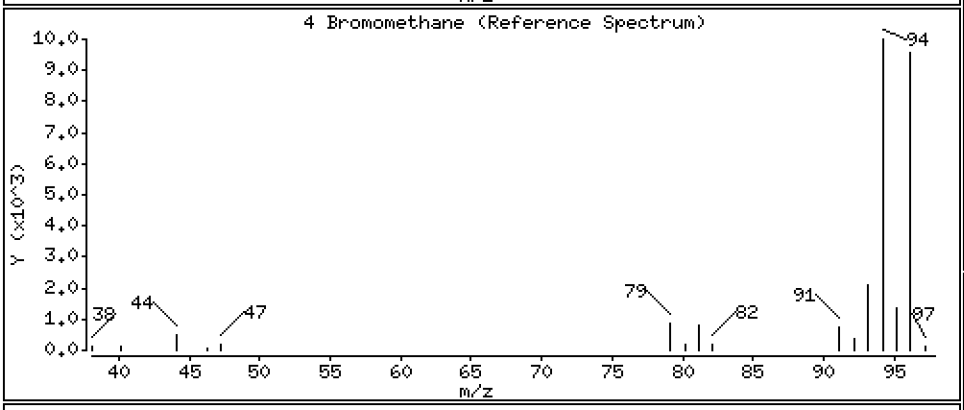
Column diameter: 0.18

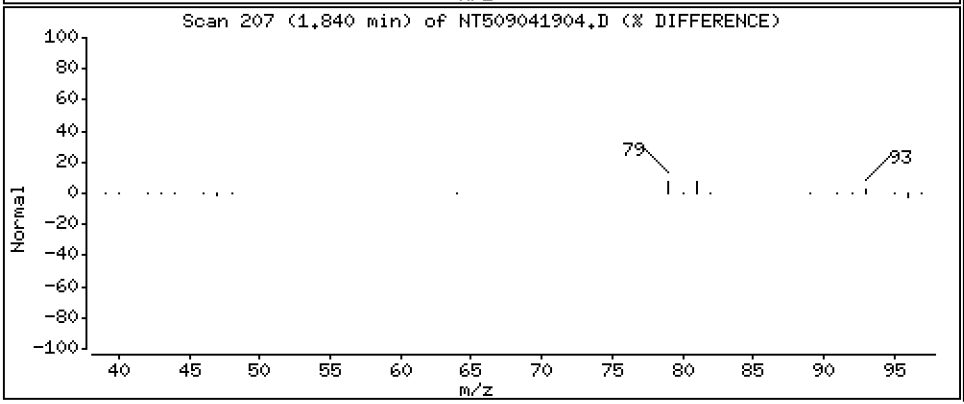
4 Bromomethane

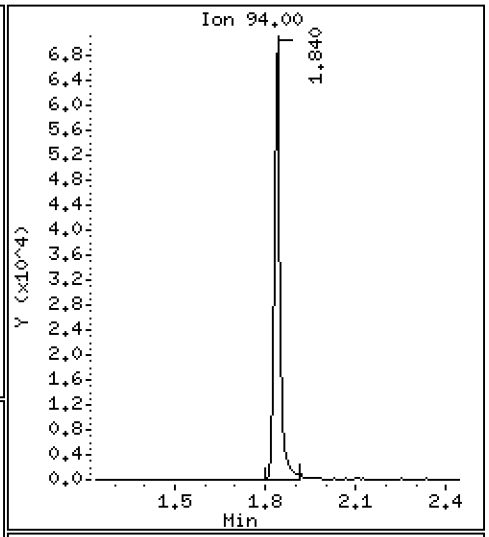
Concentration: 52.511 ug/Kg

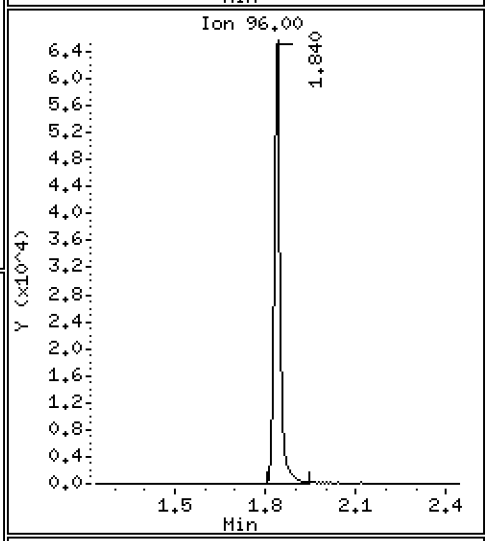


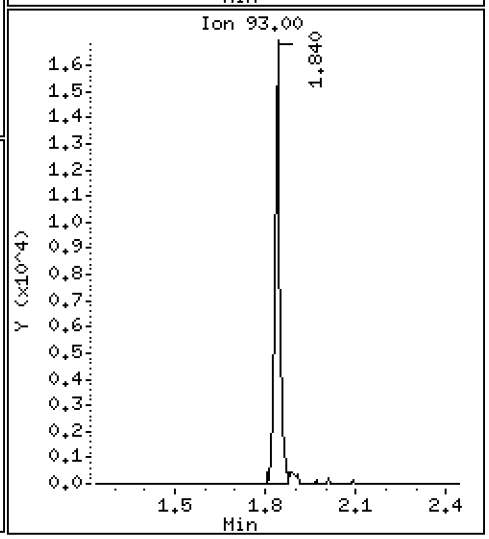












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

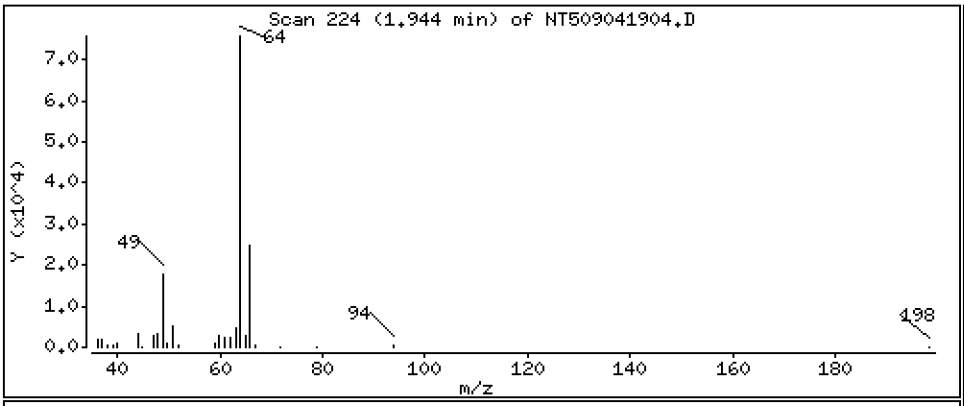
Operator: PB

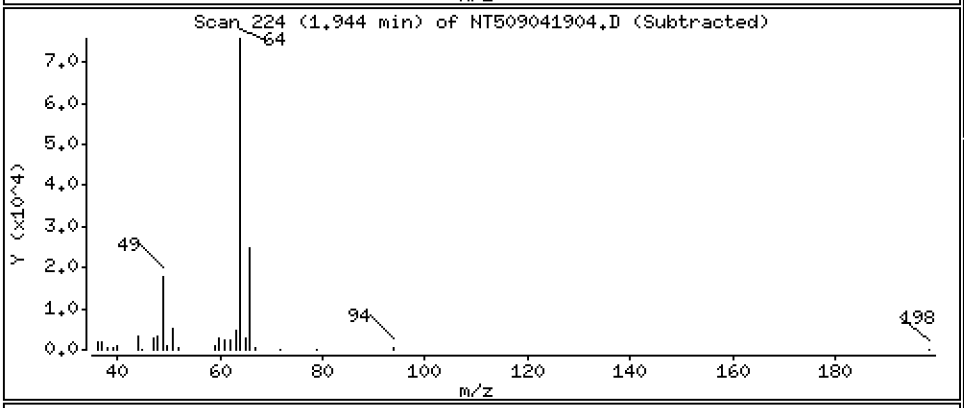
Column phase: RTXVMS

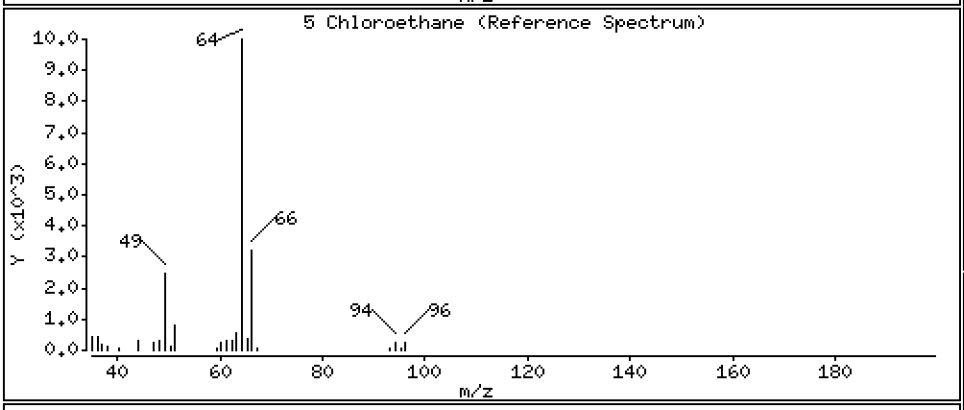
Column diameter: 0.18

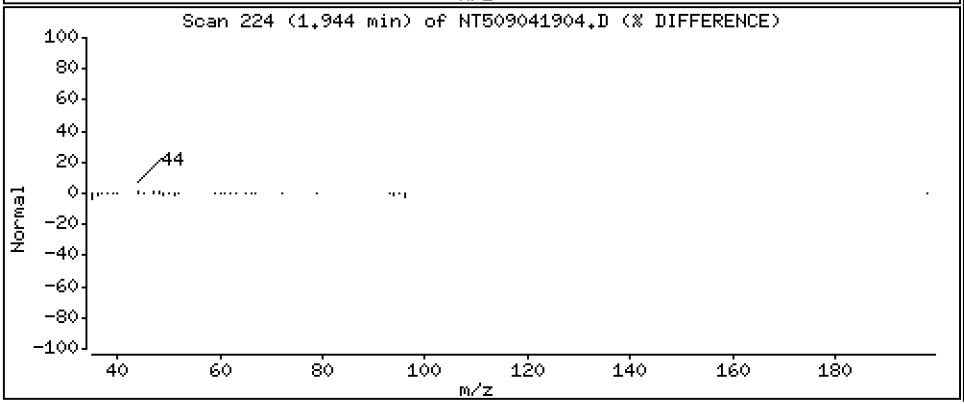
5 Chloroethane

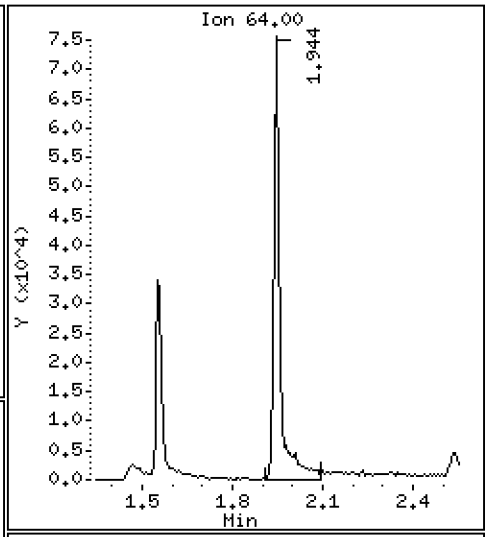
Concentration: 67.055 ug/Kg

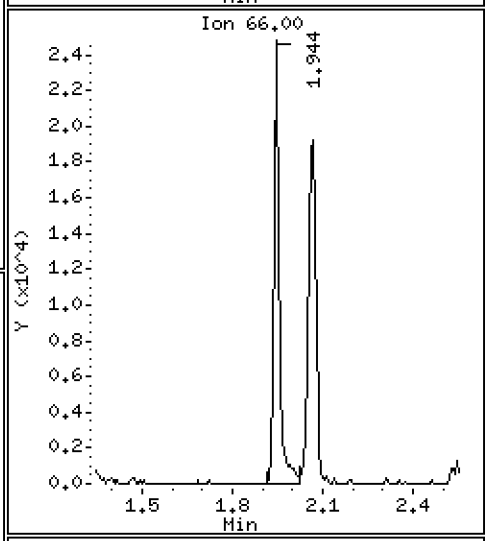


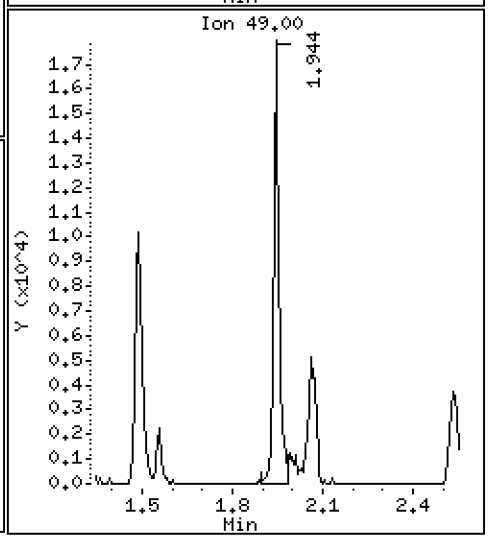












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

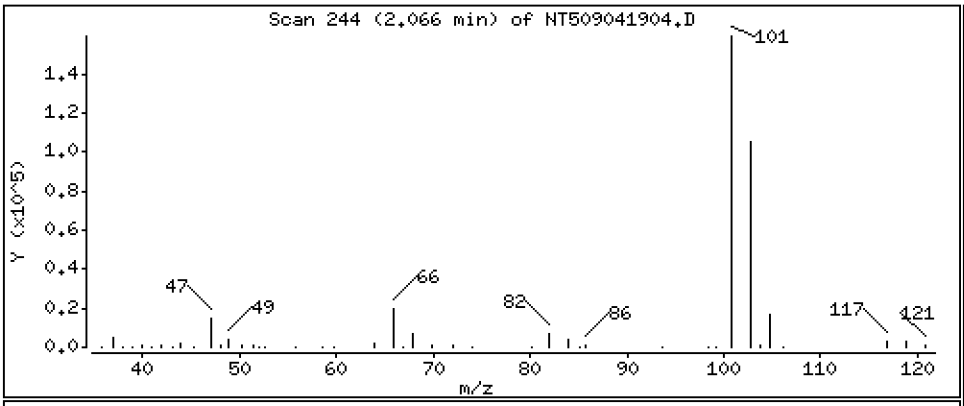
Operator: PB

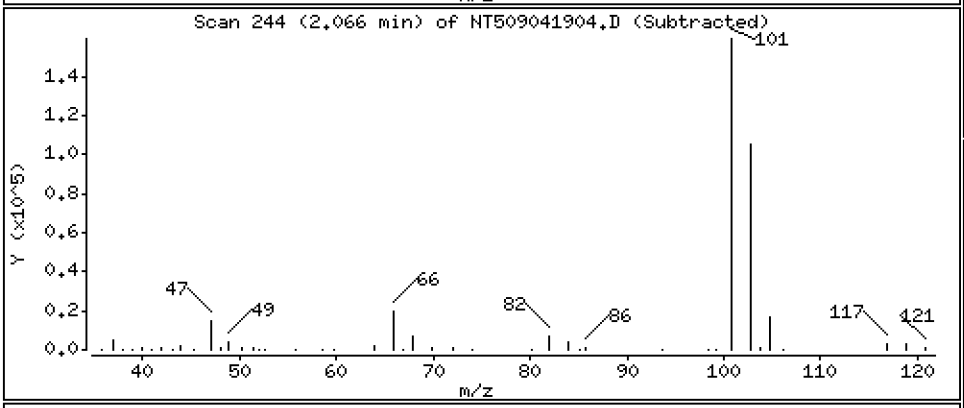
Column phase: RTXVMS

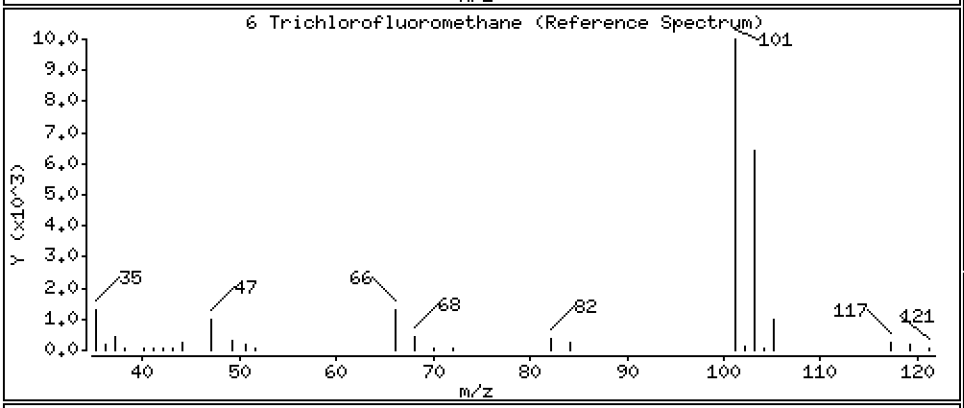
Column diameter: 0.18

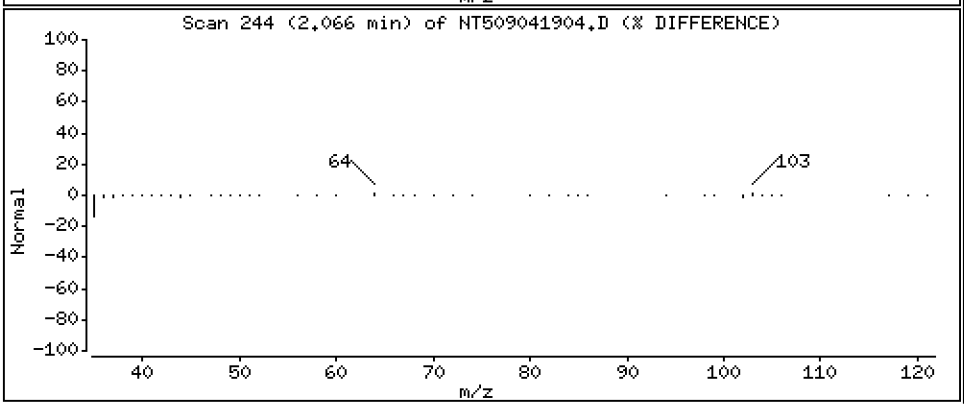
6 Trichlorofluoromethane

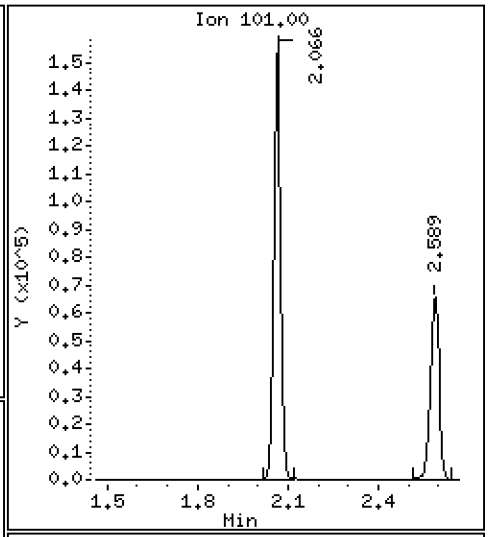
Concentration: 58.742 ug/Kg

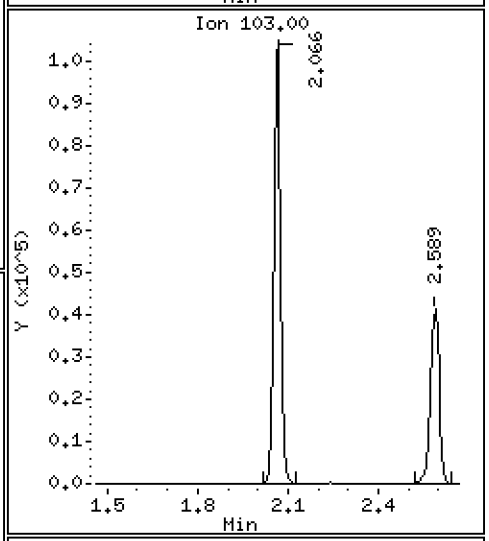


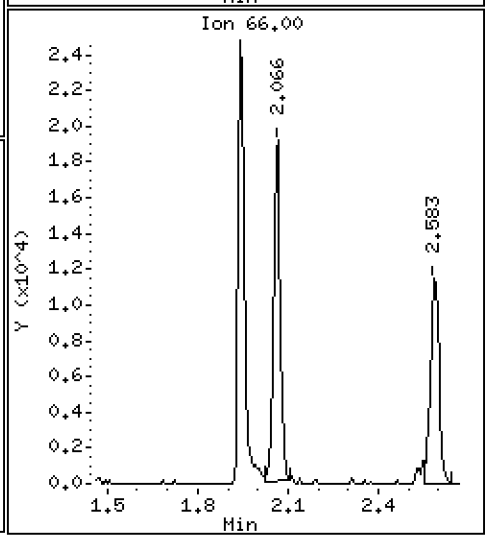












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

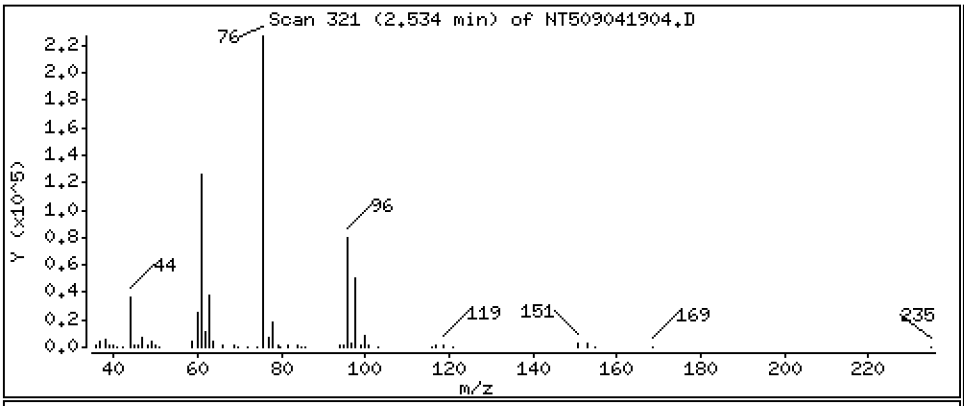
Operator: PB

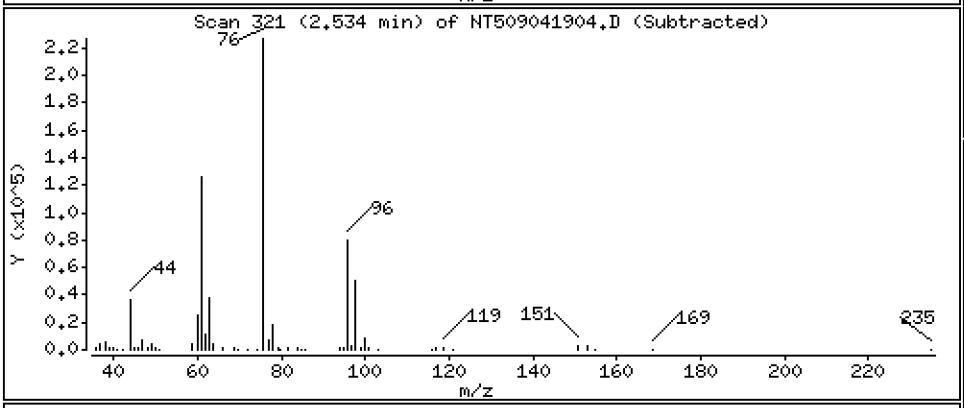
Column phase: RTXVMS

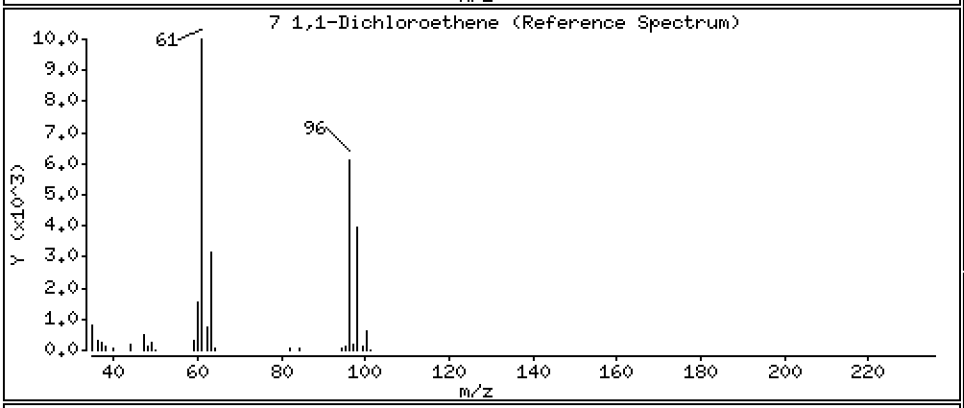
Column diameter: 0.18

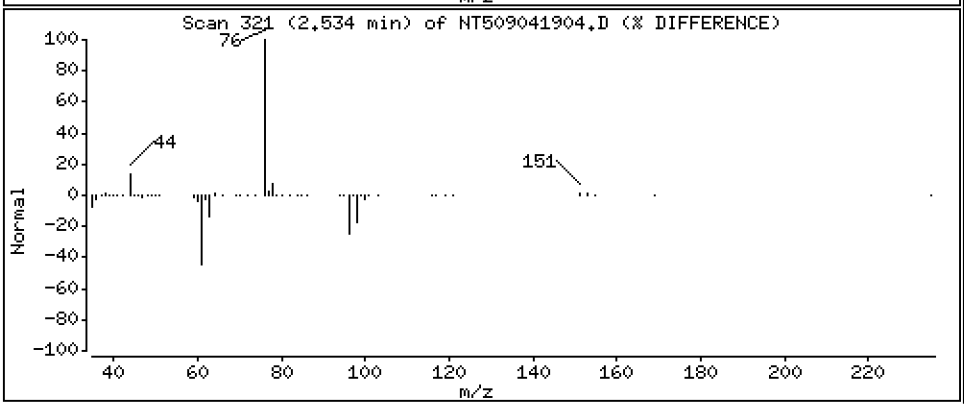
7 1,1-Dichloroethene

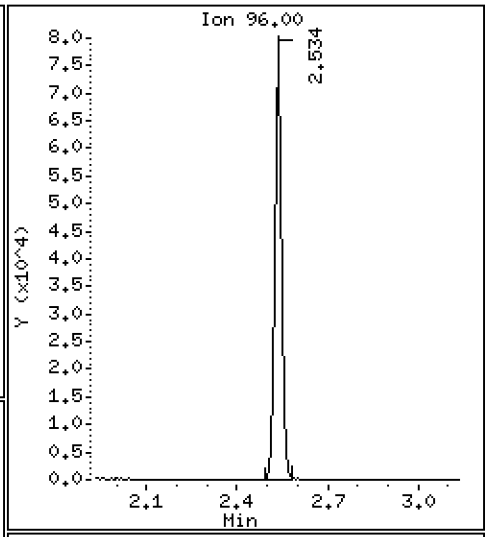
Concentration: 58.197 ug/Kg

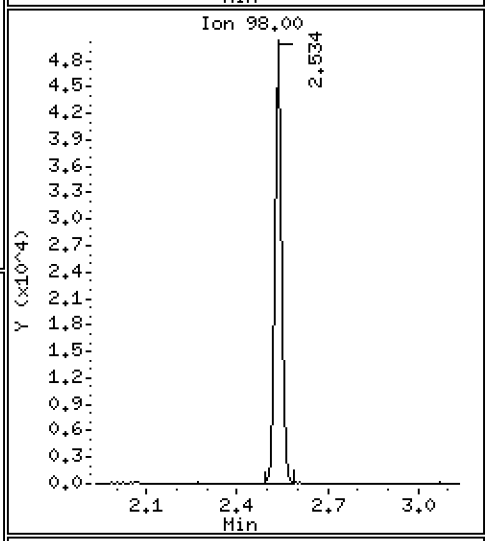


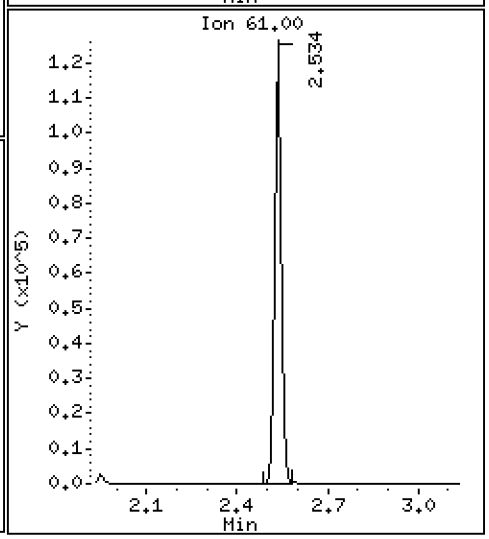












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

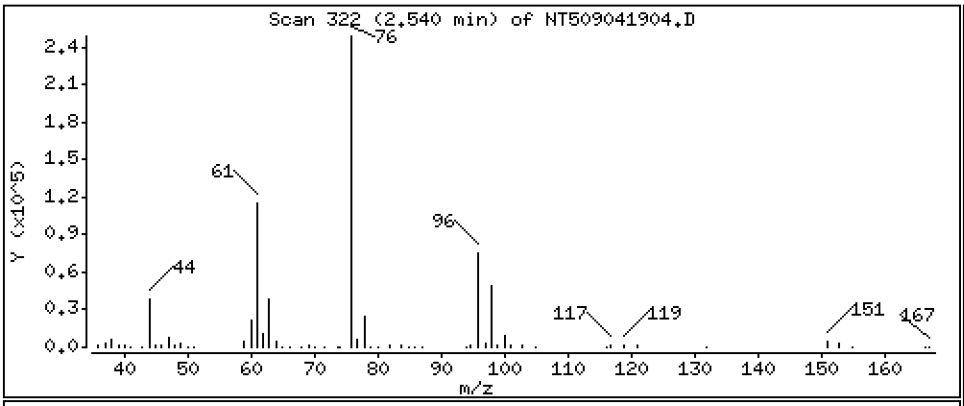
Operator: PB

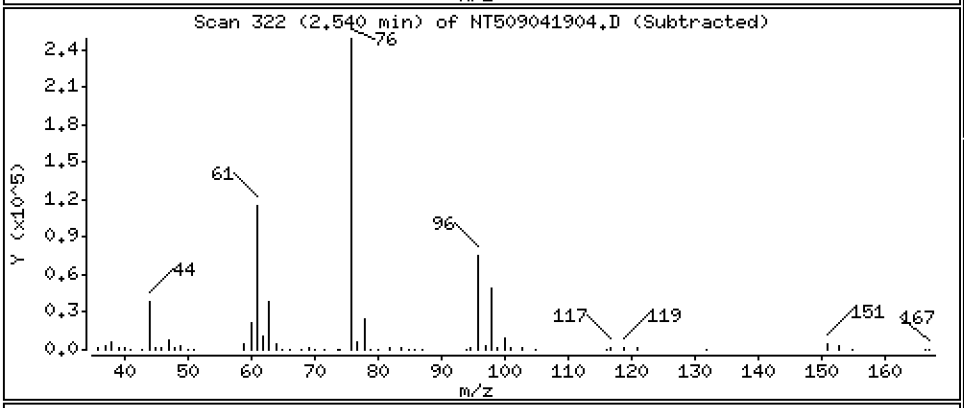
Column phase: RTXVMS

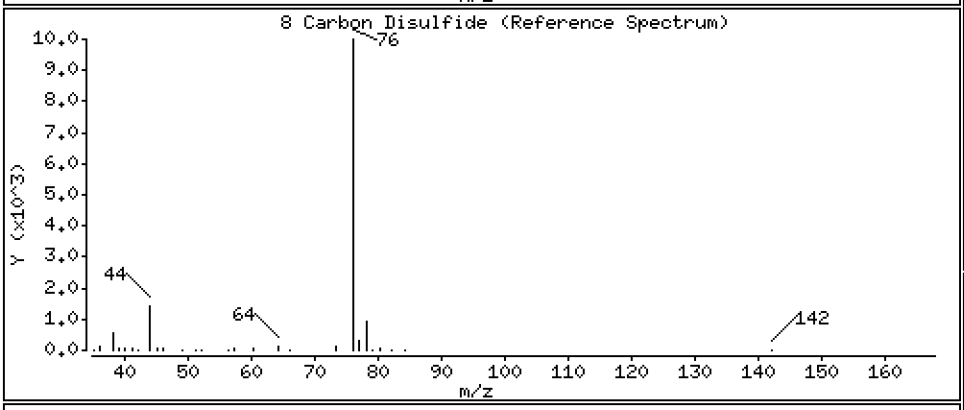
Column diameter: 0.18

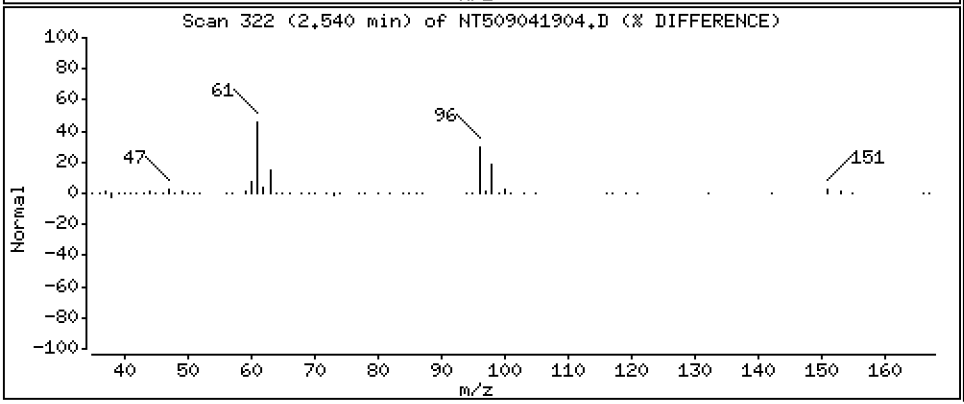
8 Carbon Disulfide

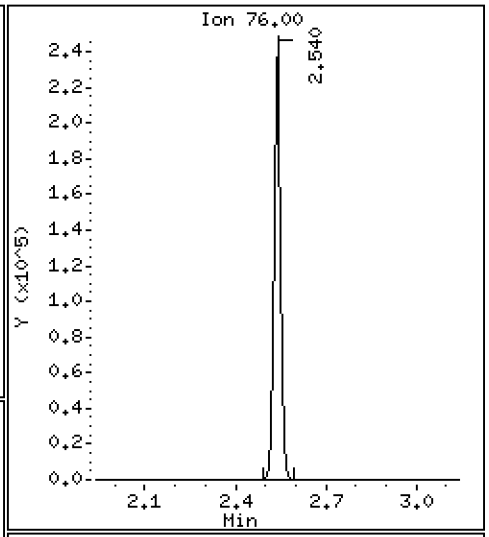
Concentration: 57.568 ug/Kg

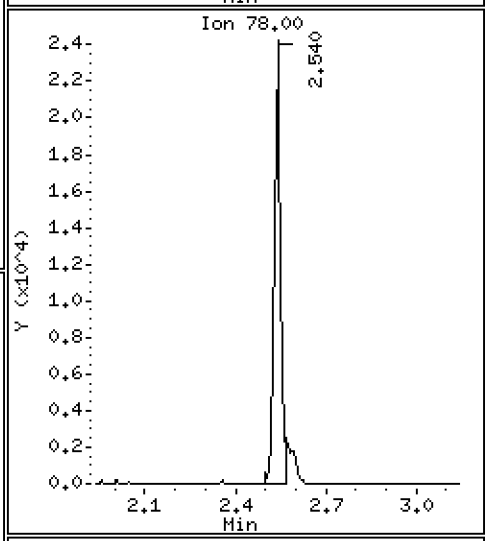


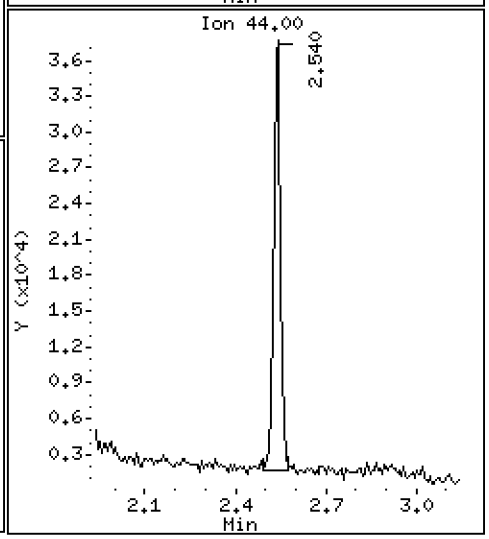












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

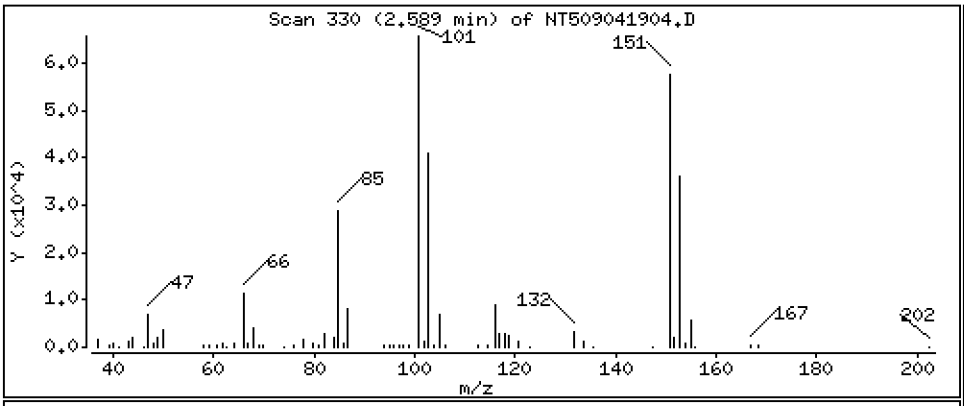
Operator: PB

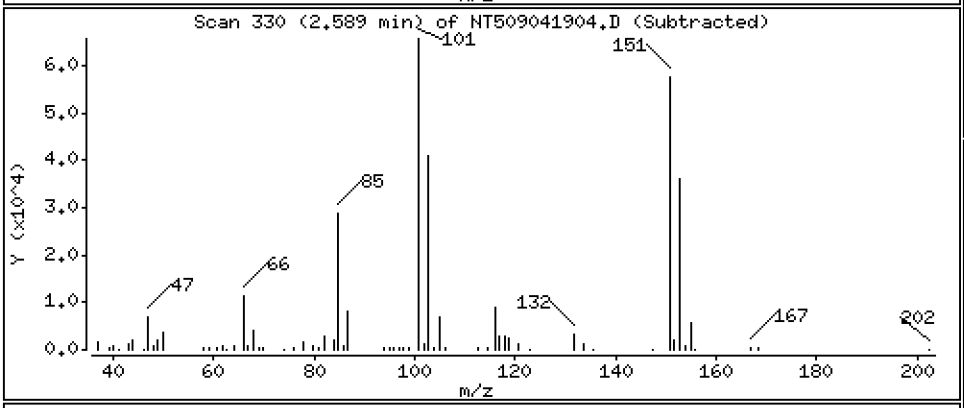
Column phase: RTXVMS

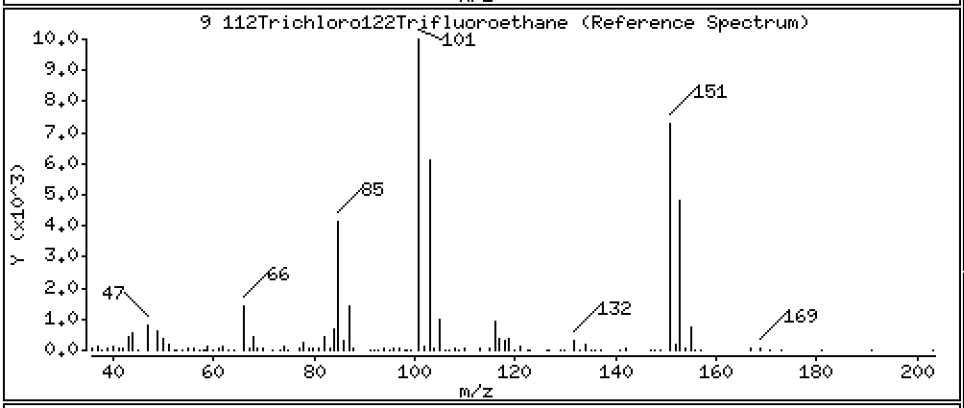
Column diameter: 0.18

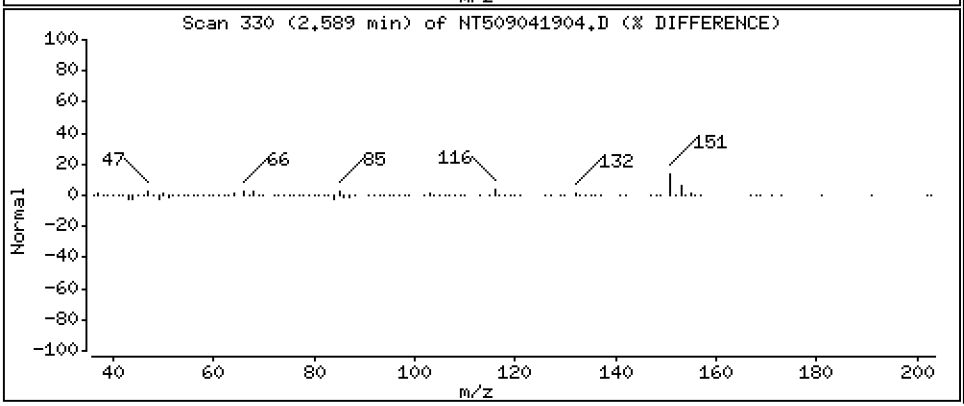
9 112Trichloro122Trifluoroethane

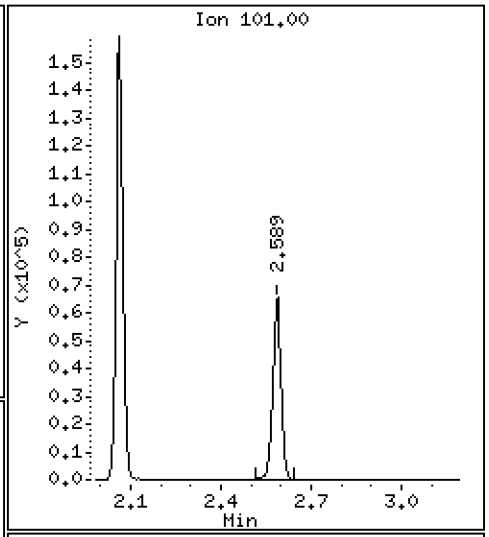
Concentration: 57.877 ug/Kg

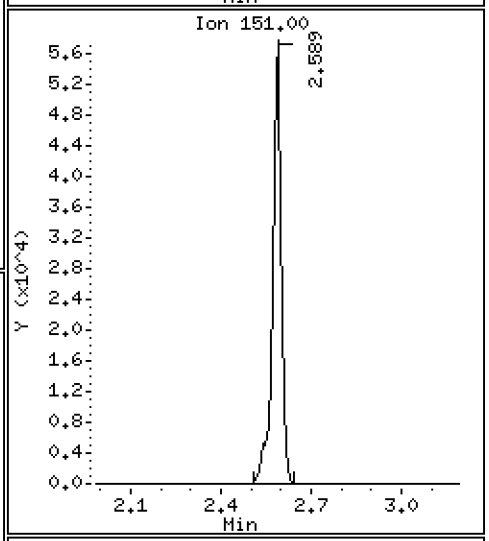


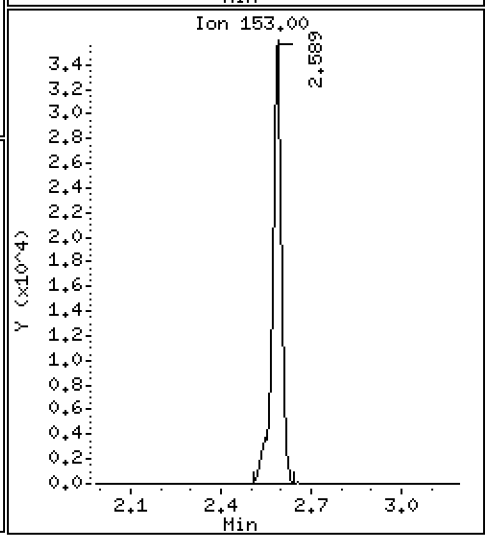












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

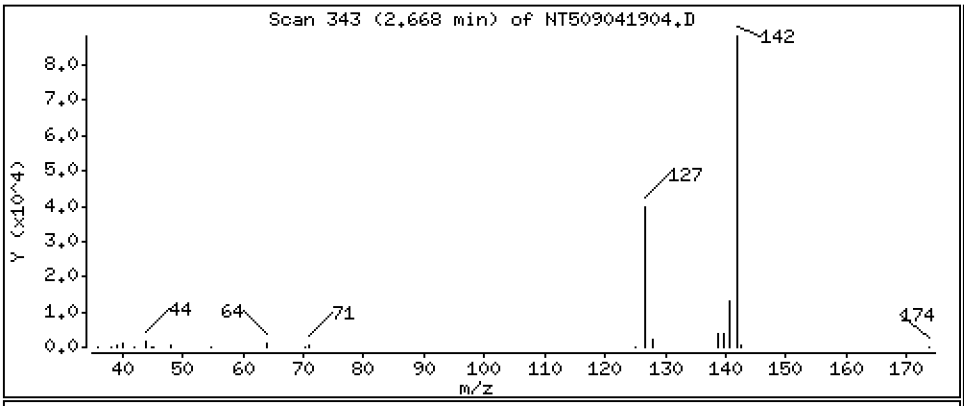
Operator: PB

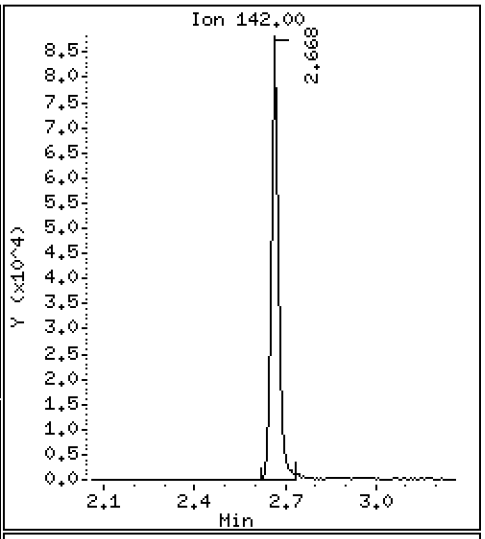
Column phase: RTXVMS

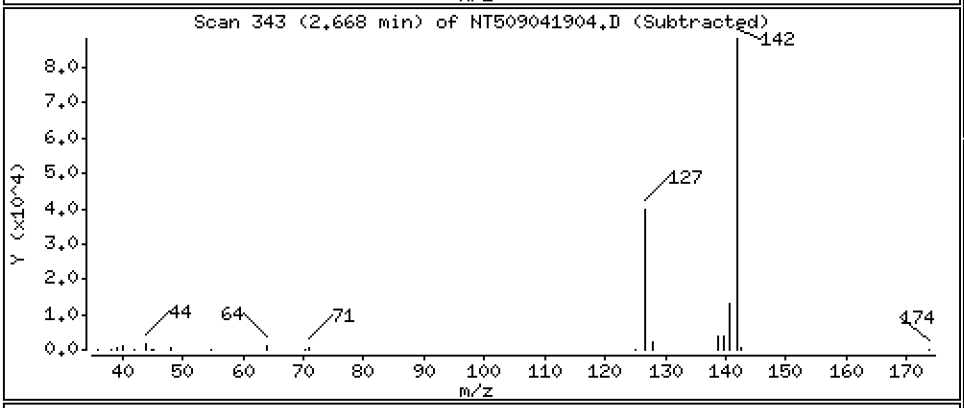
Column diameter: 0.18

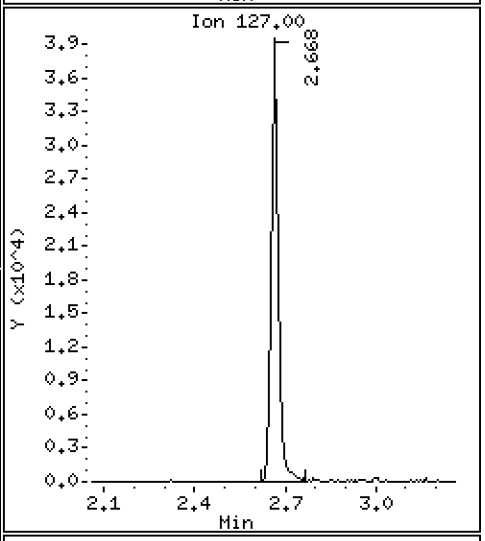
10 Iodomethane

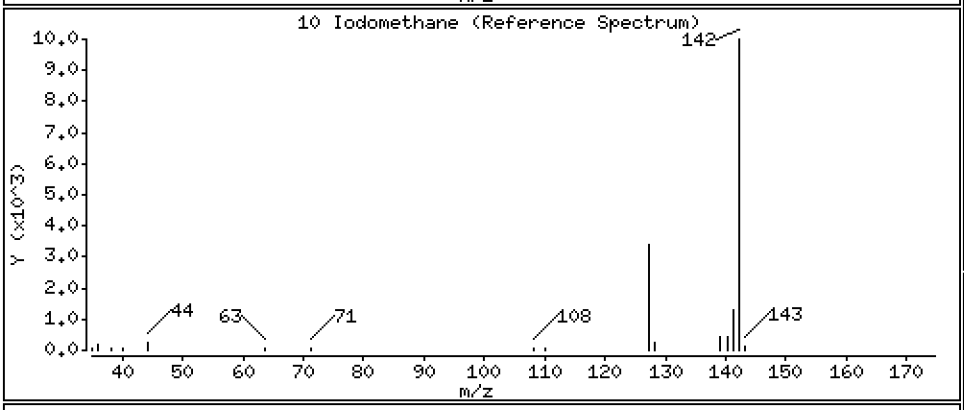
Concentration: 63.242 ug/Kg

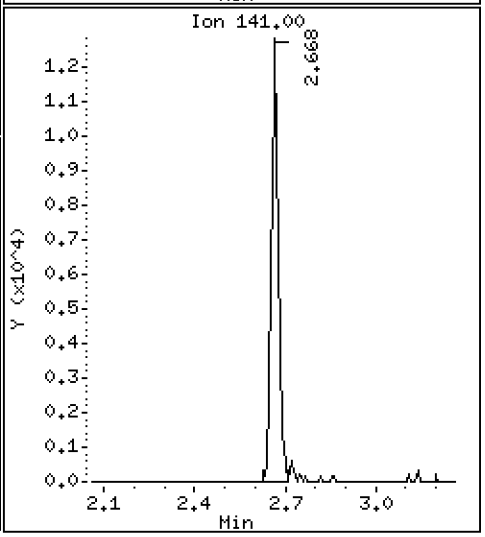


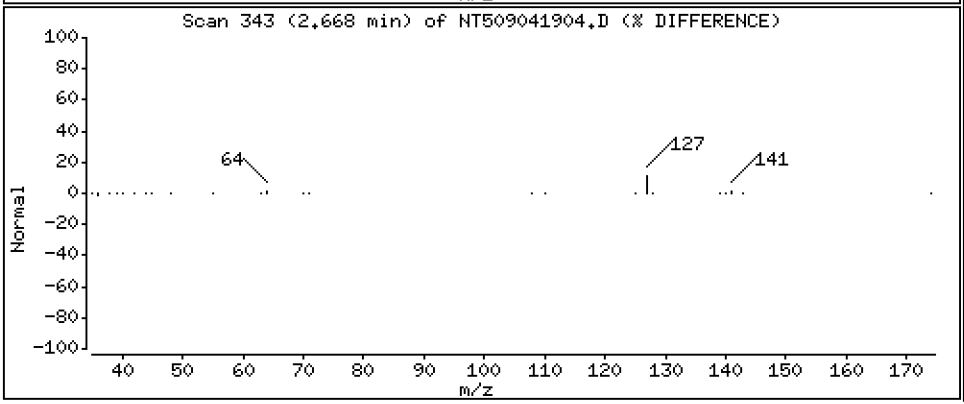












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

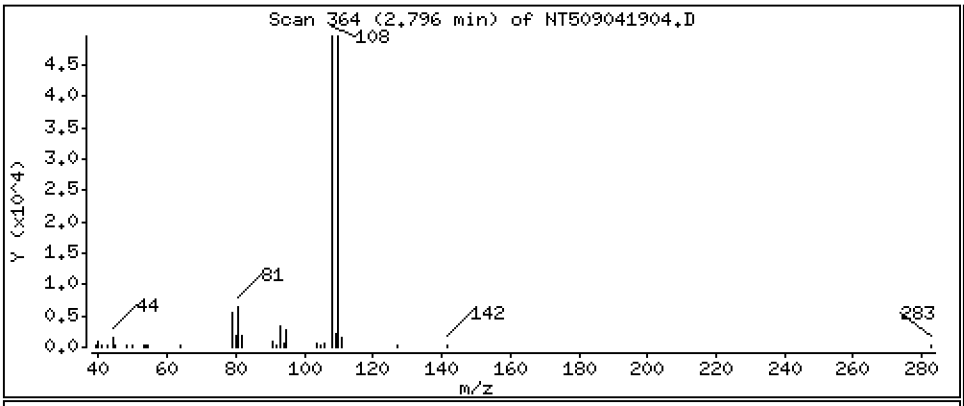
Operator: PB

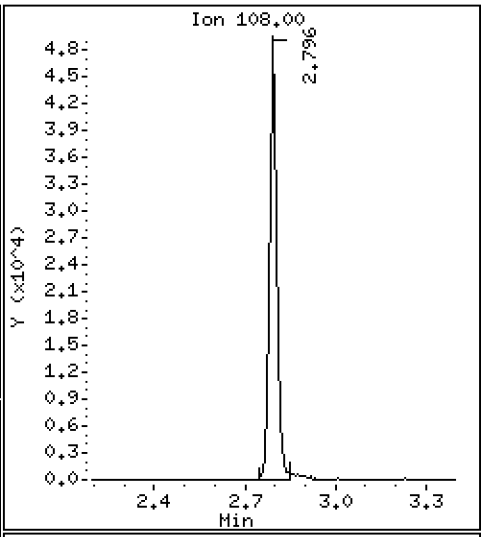
Column phase: RTXVMS

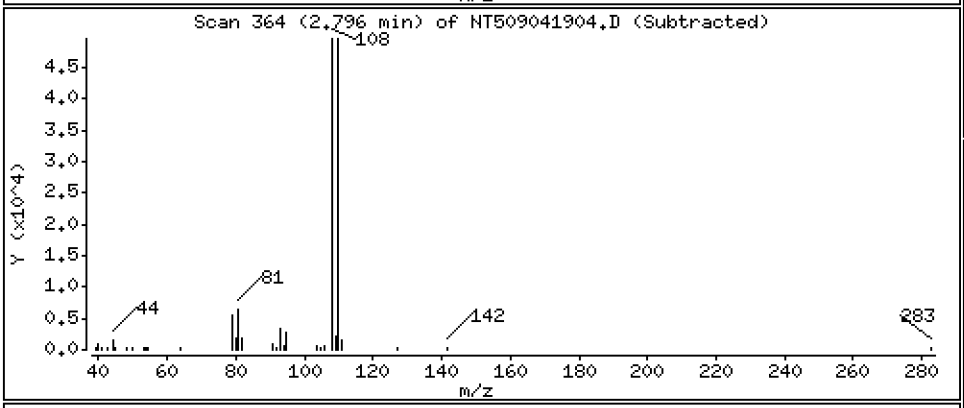
Column diameter: 0.18

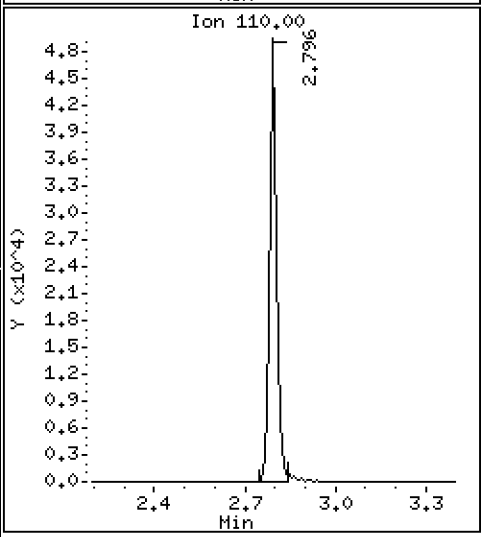
11 Bromoethane

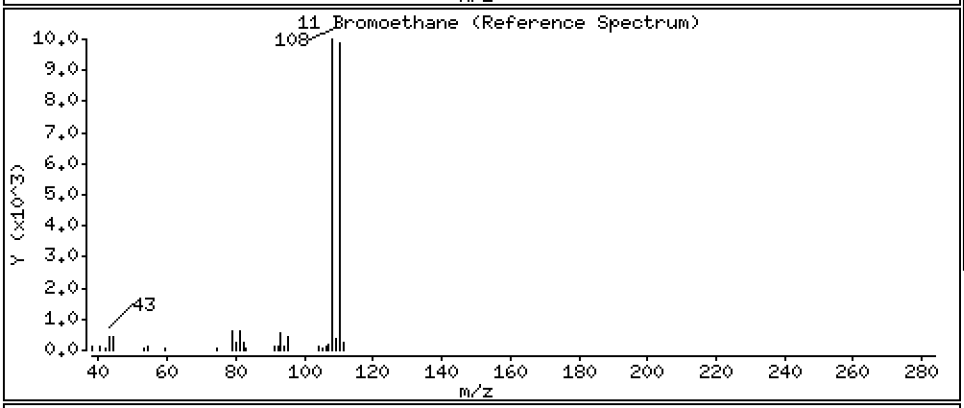
Concentration: 57.250 ug/Kg

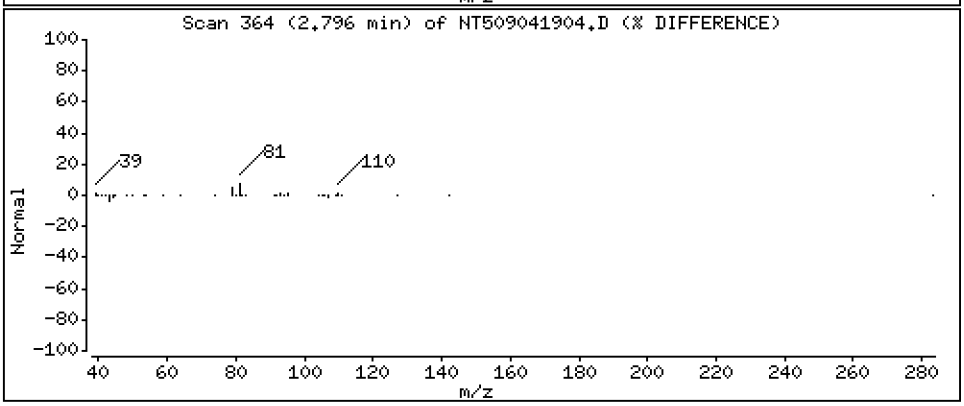












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

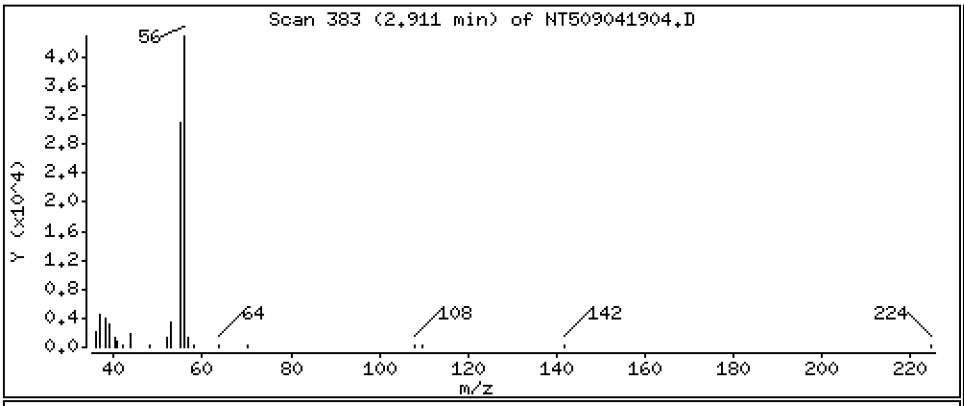
Operator: PB

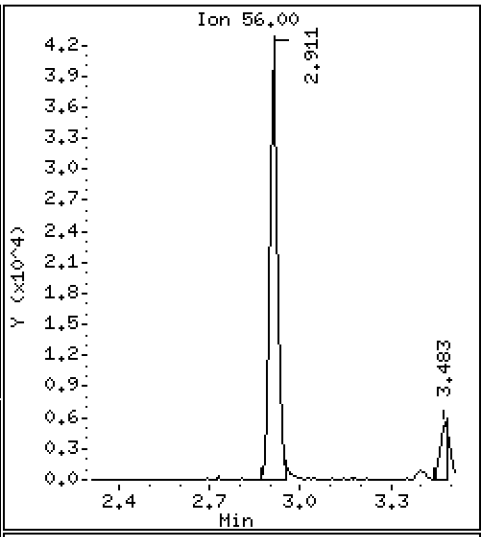
Column phase: RTXVMS

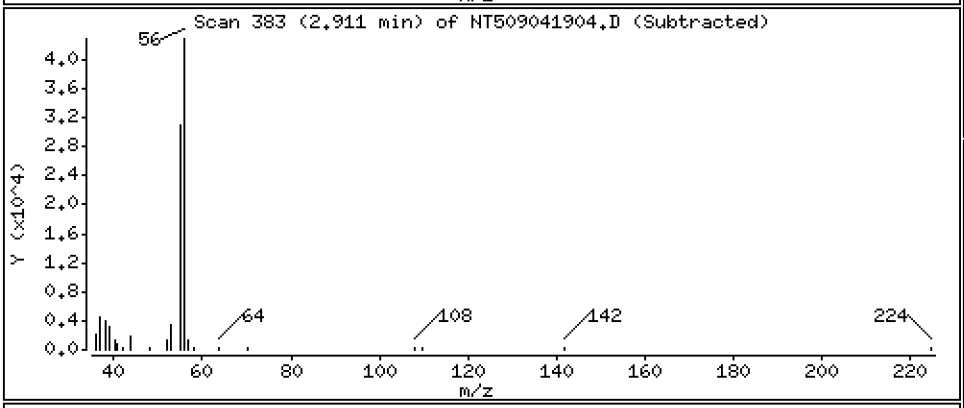
Column diameter: 0.18

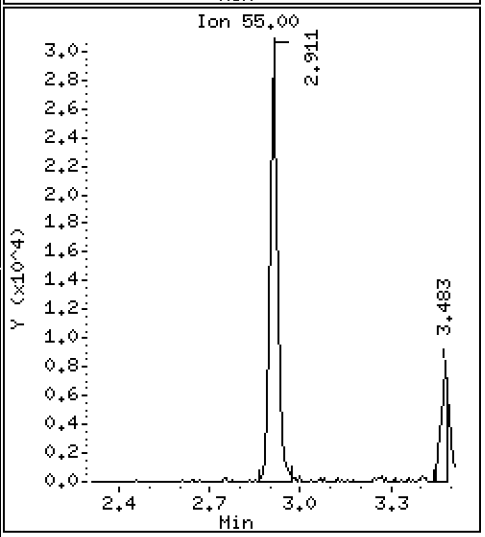
12 Acrolein

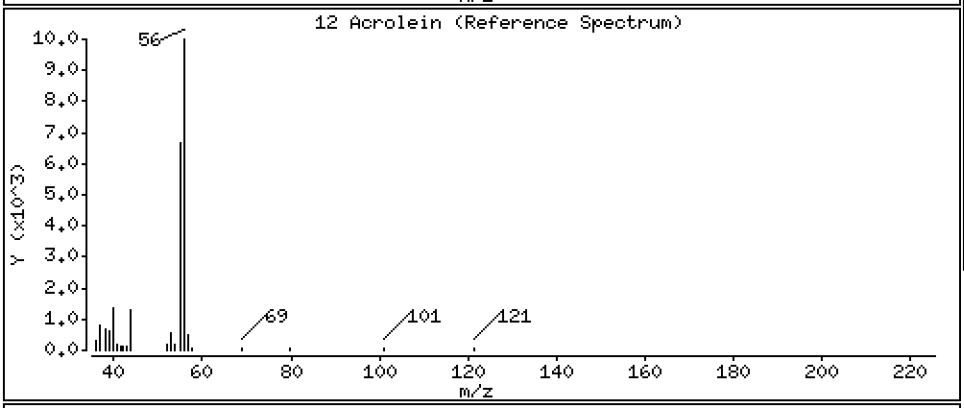
Concentration: 306.36 ug/Kg

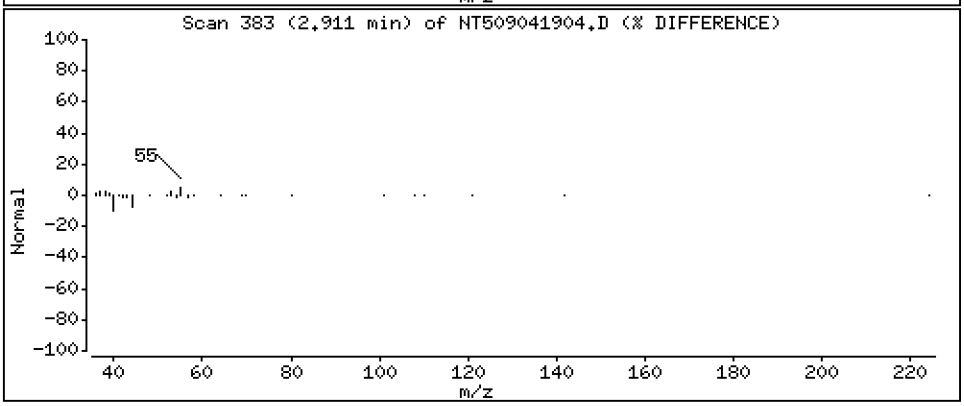












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

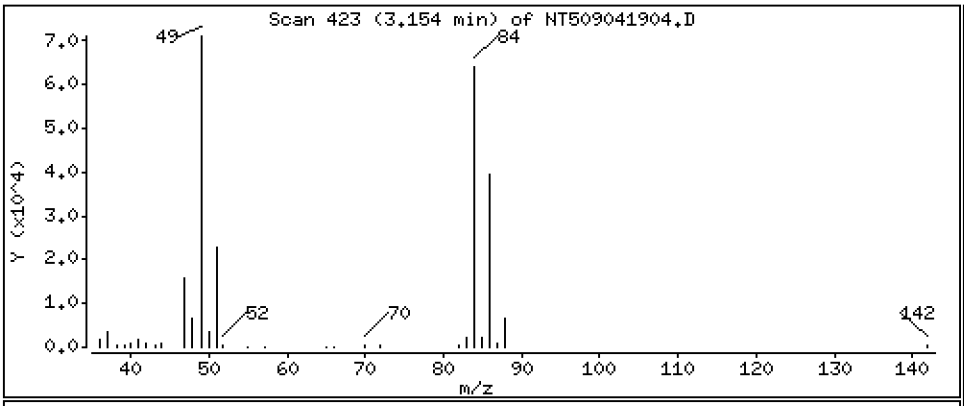
Operator: PB

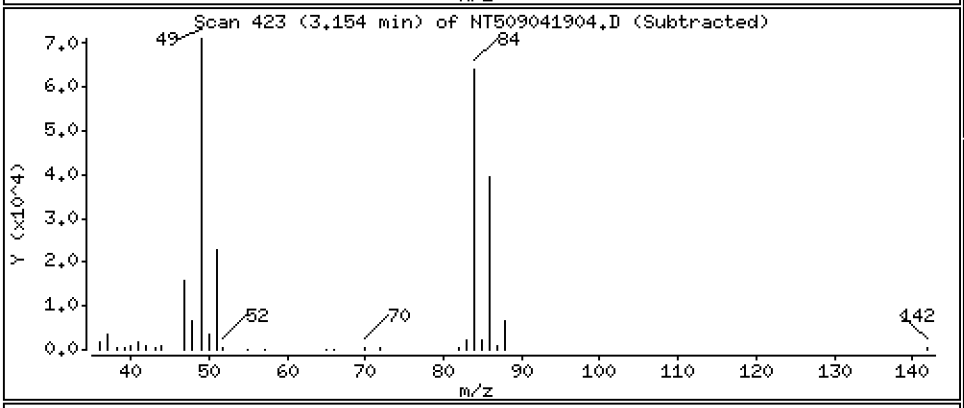
Column phase: RTXVMS

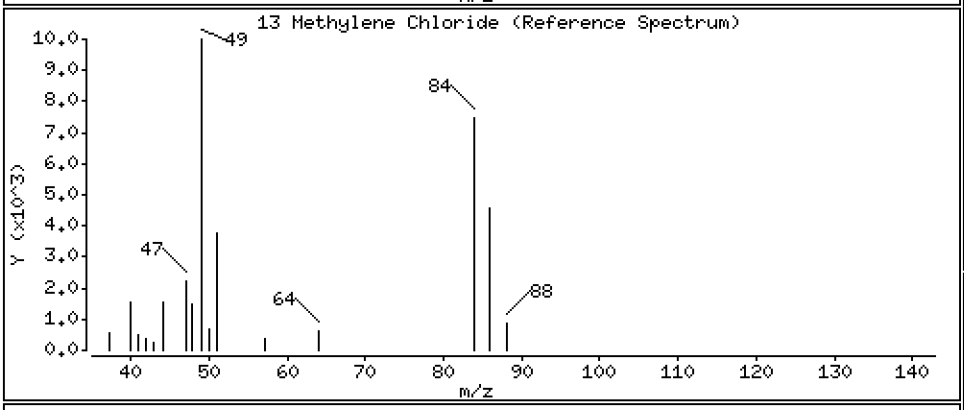
Column diameter: 0.18

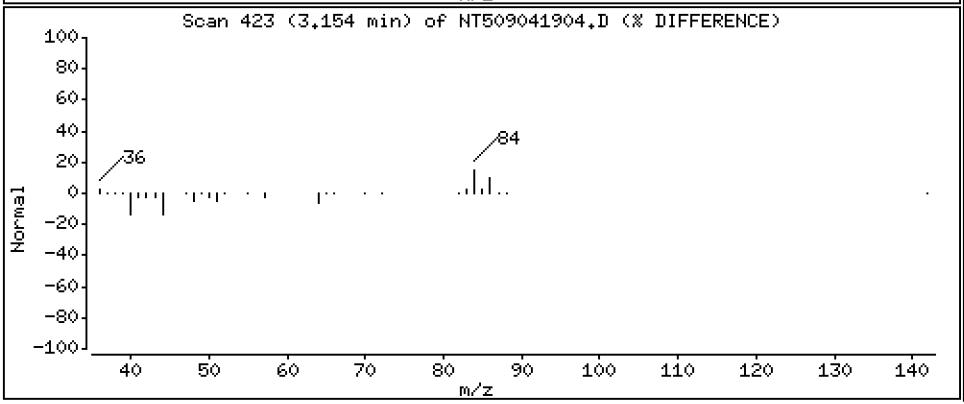
13 Methylene Chloride

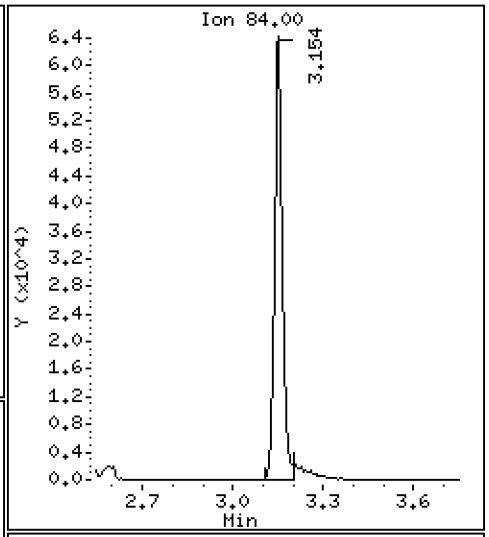
Concentration: 59.896 ug/Kg

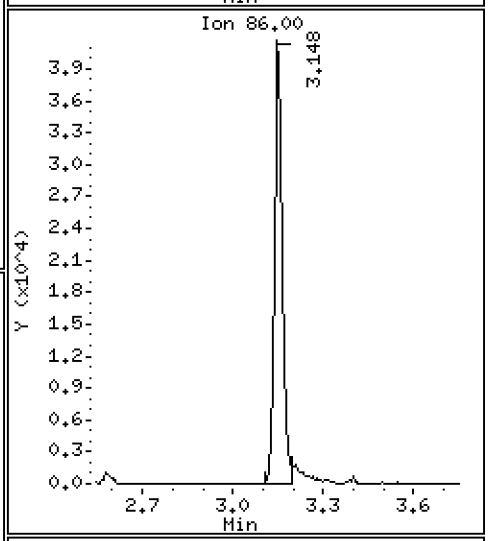


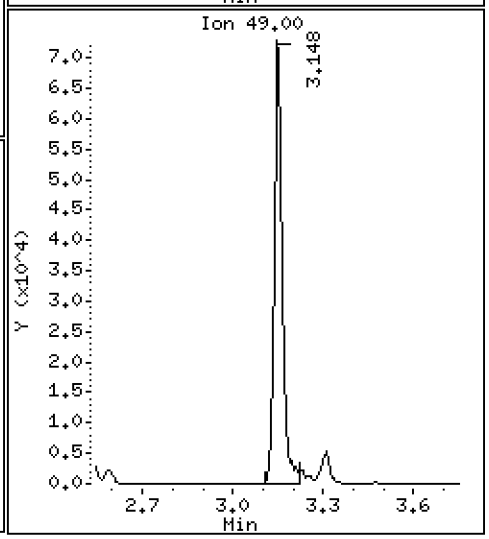












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

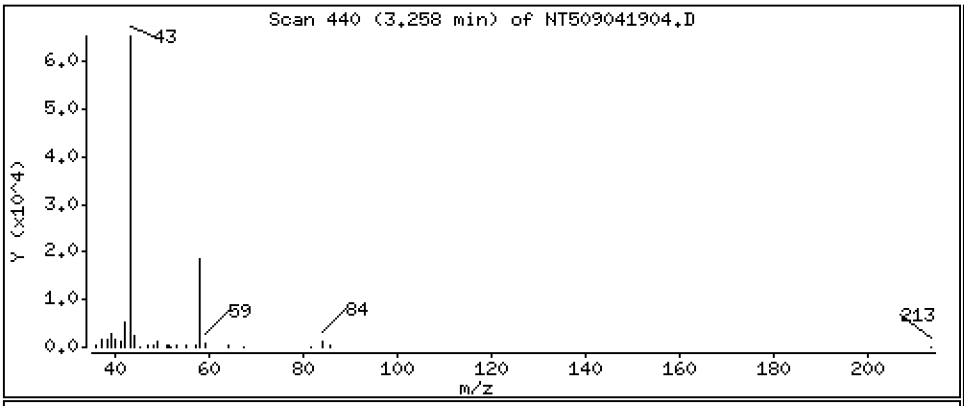
Operator: PB

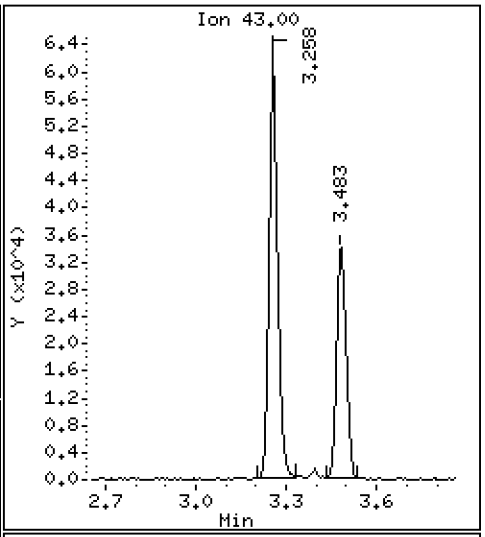
Column phase: RTXVMS

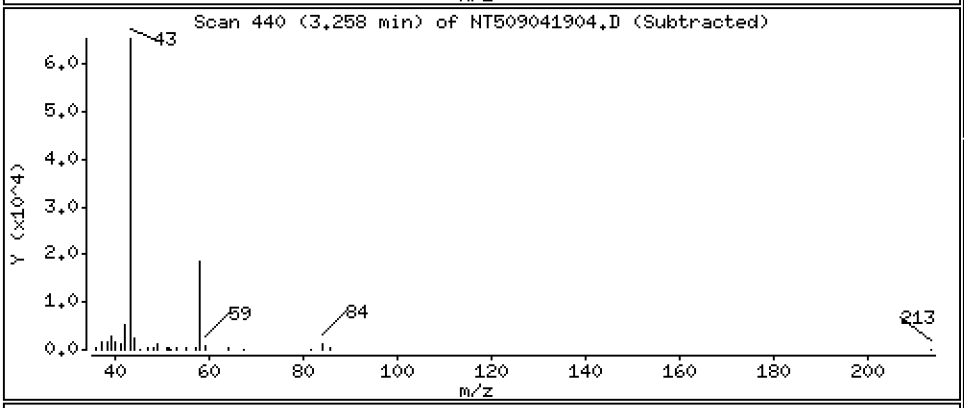
Column diameter: 0.18

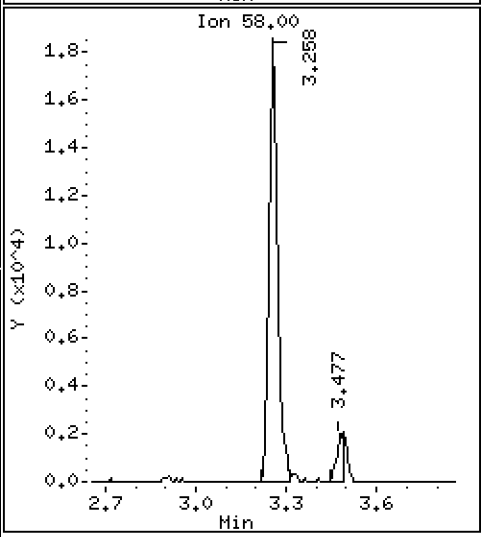
14 Acetone

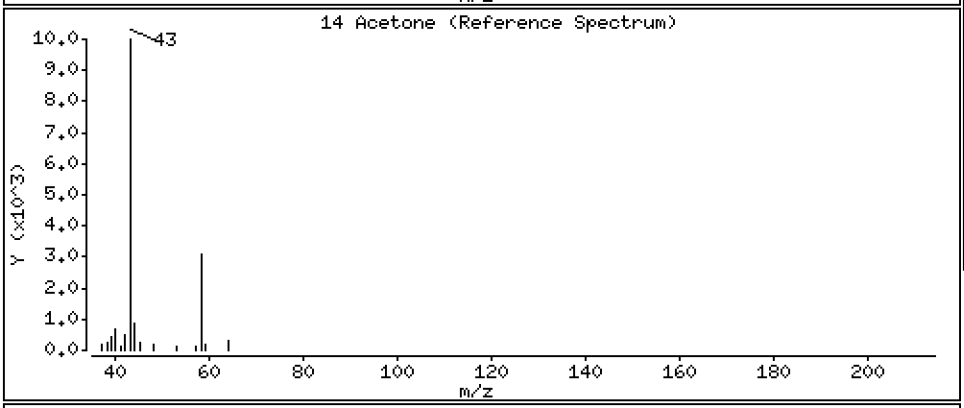
Concentration: 297.67 ug/Kg

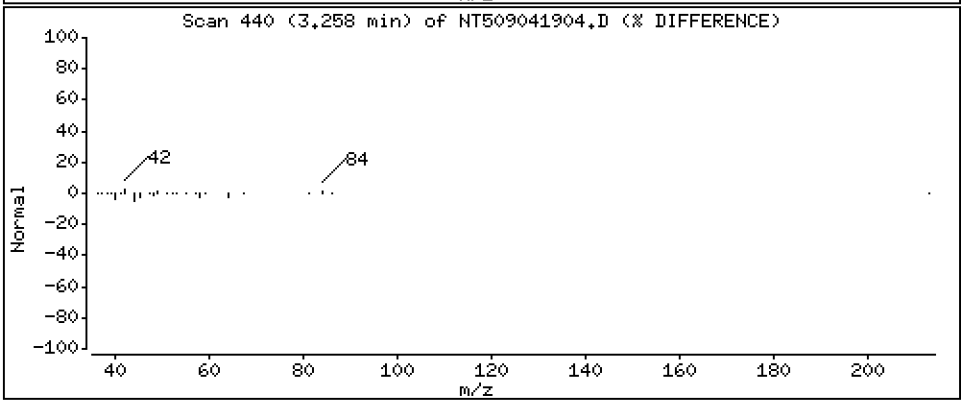












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

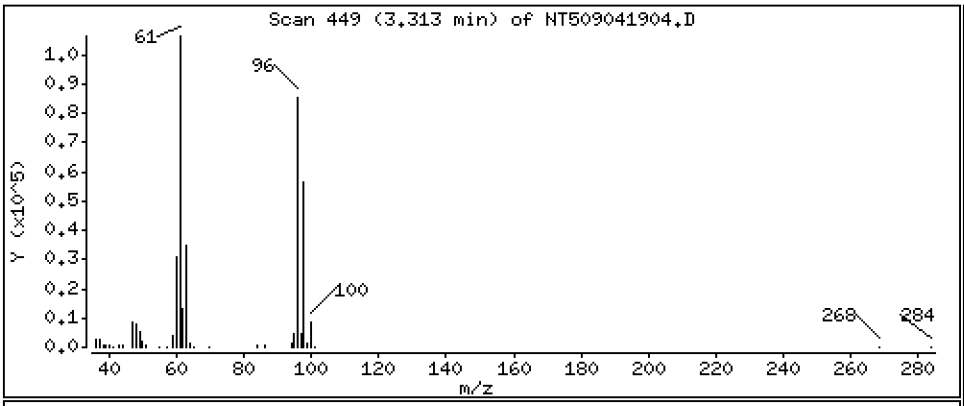
Operator: PB

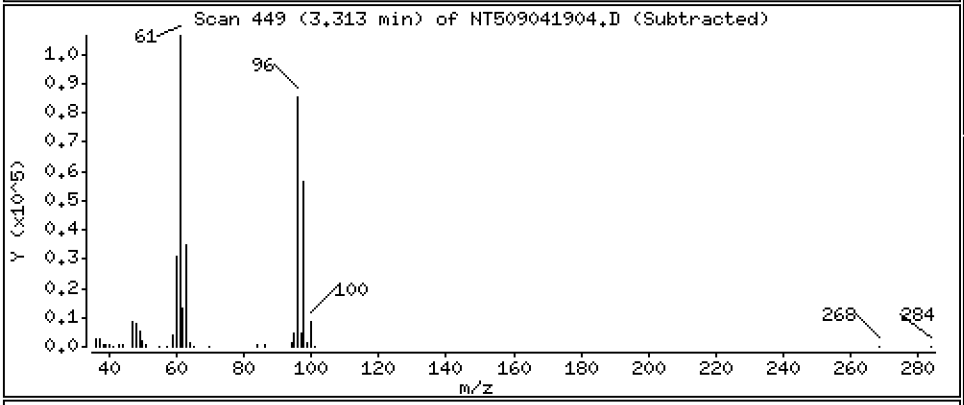
Column phase: RTXVMS

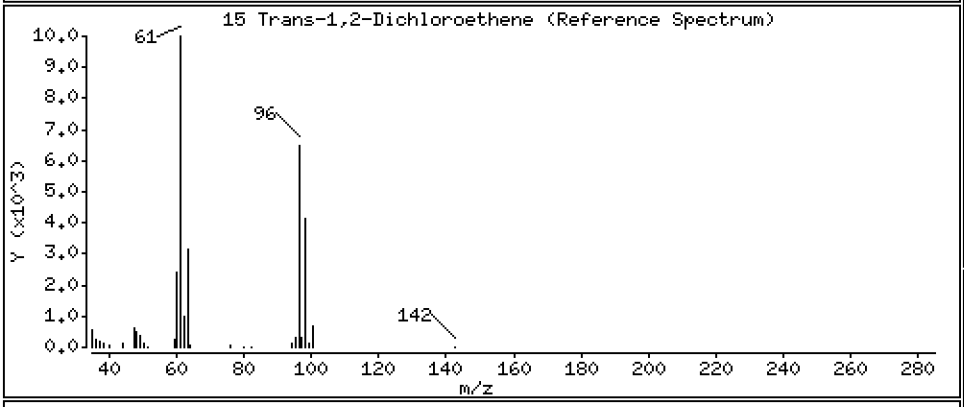
Column diameter: 0.18

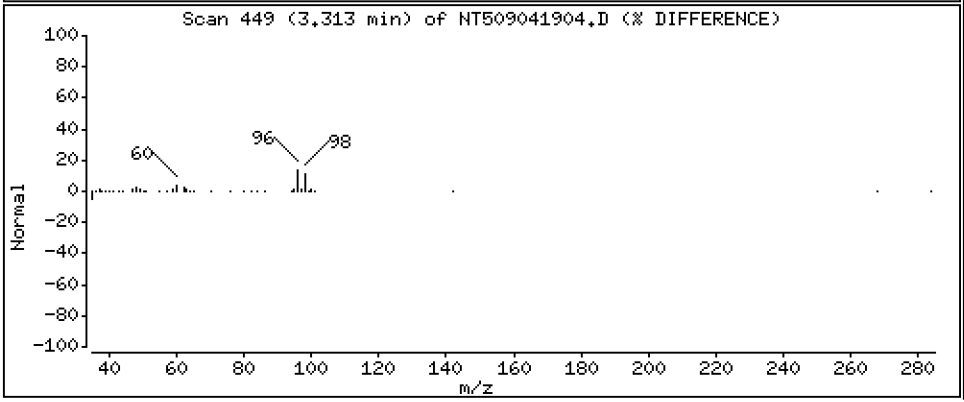
15 Trans-1,2-Dichloroethene

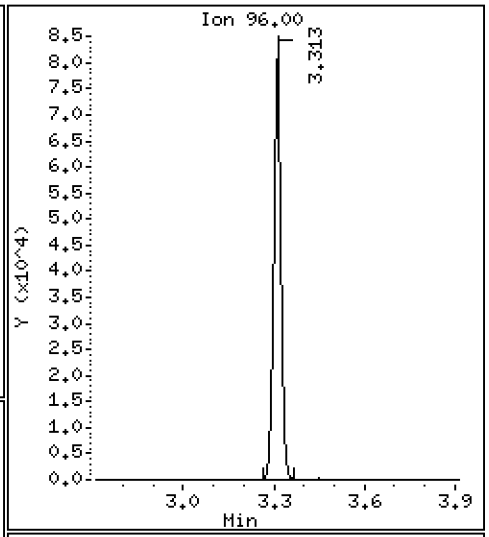
Concentration: 58.010 ug/Kg

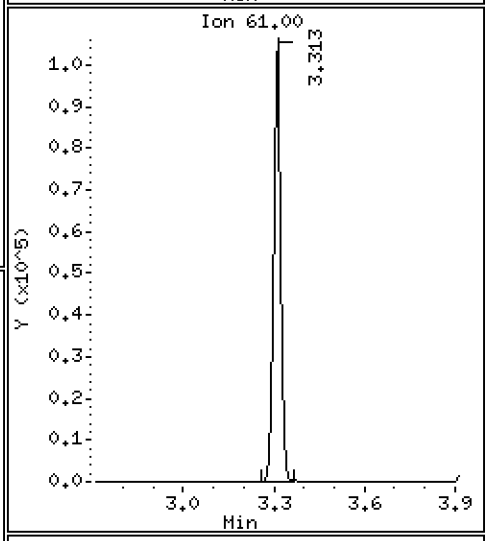


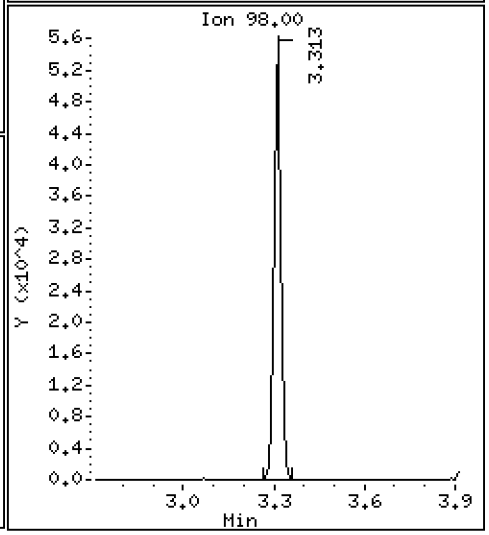












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

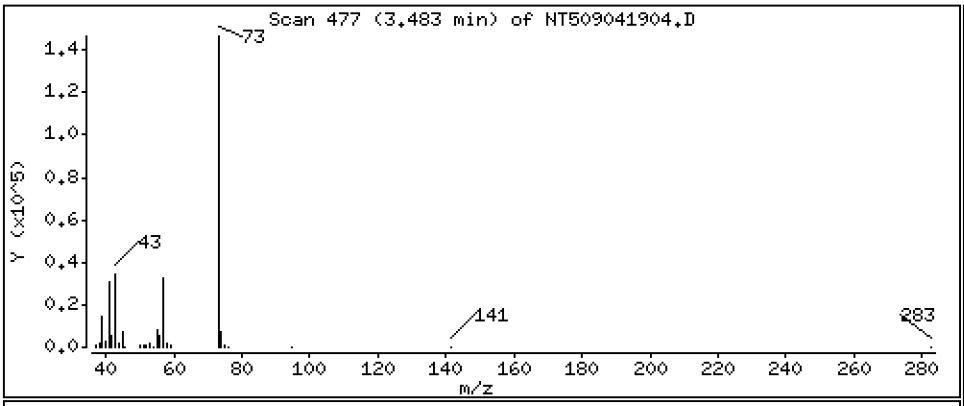
Operator: PB

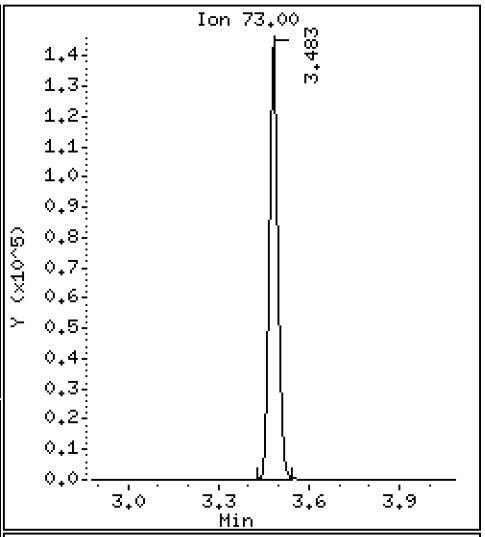
Column phase: RTXVMS

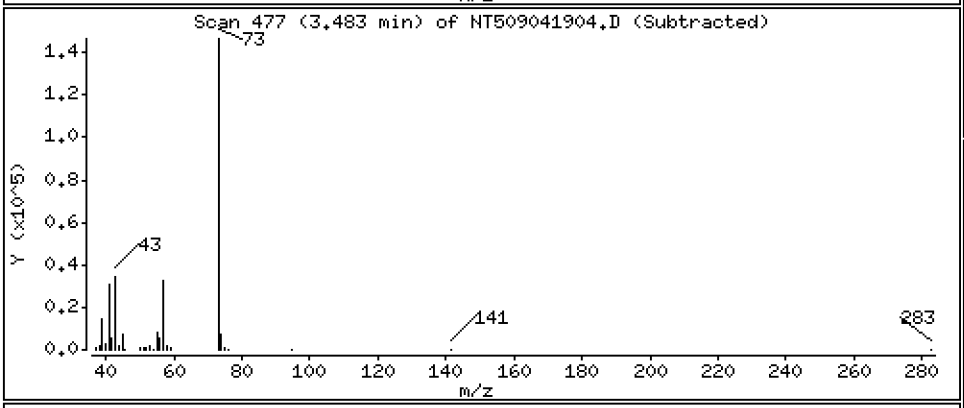
Column diameter: 0.18

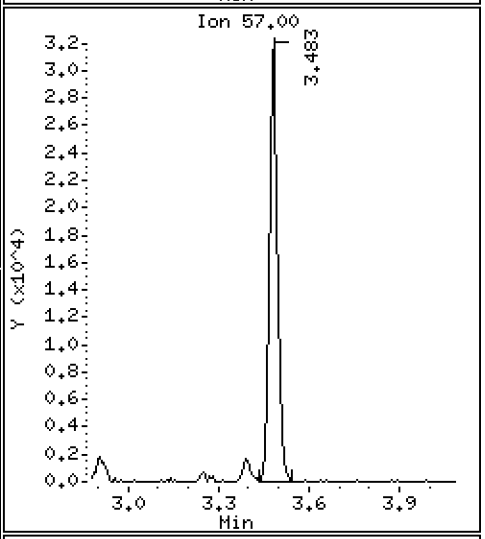
16 Methyl tert butyl ether

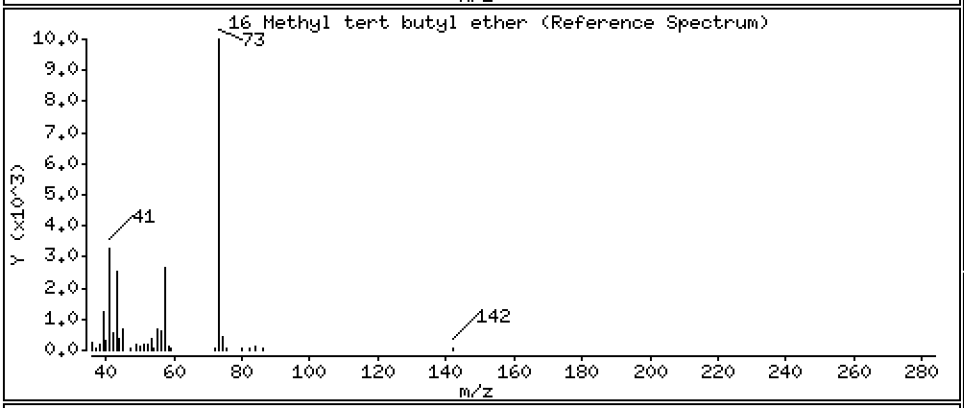
Concentration: 51.962 ug/Kg

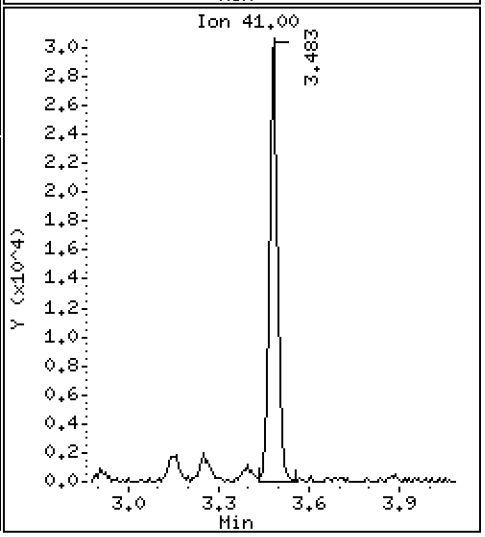


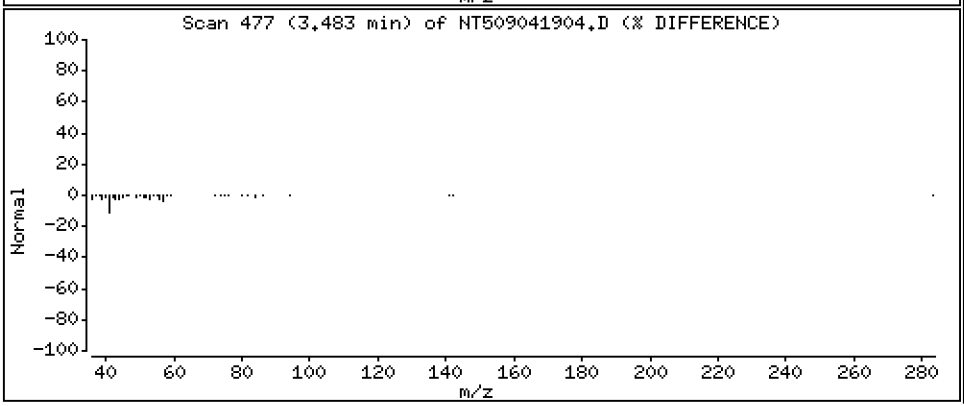












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

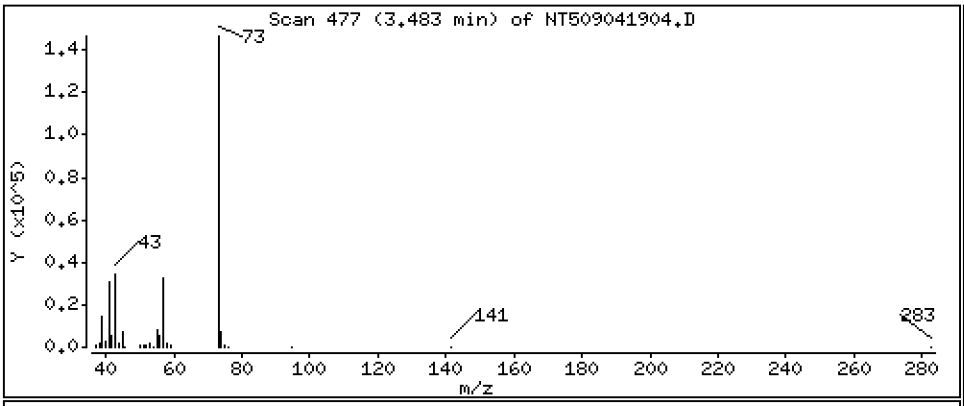
Operator: PB

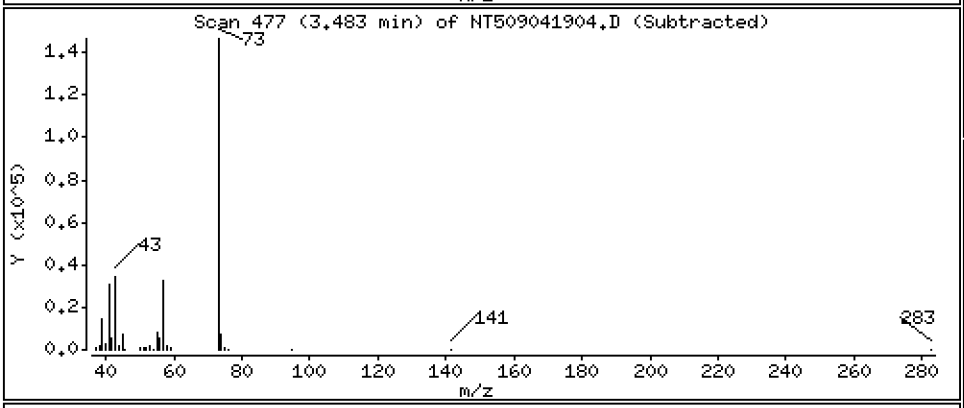
Column phase: RTXVMS

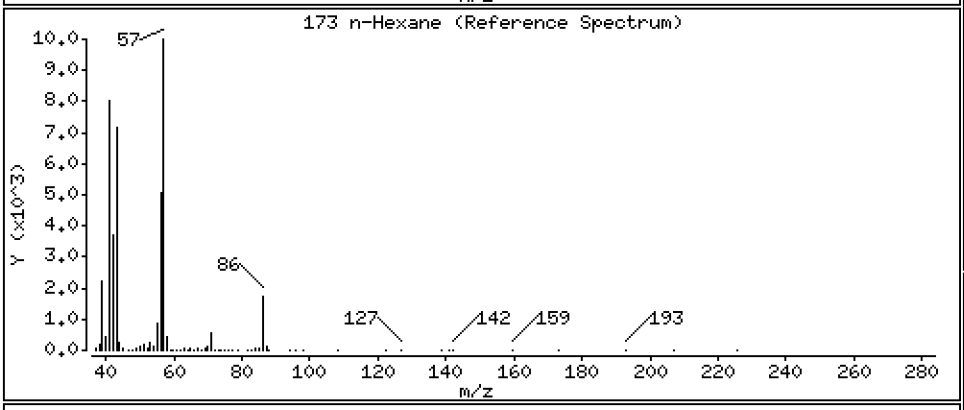
Column diameter: 0.18

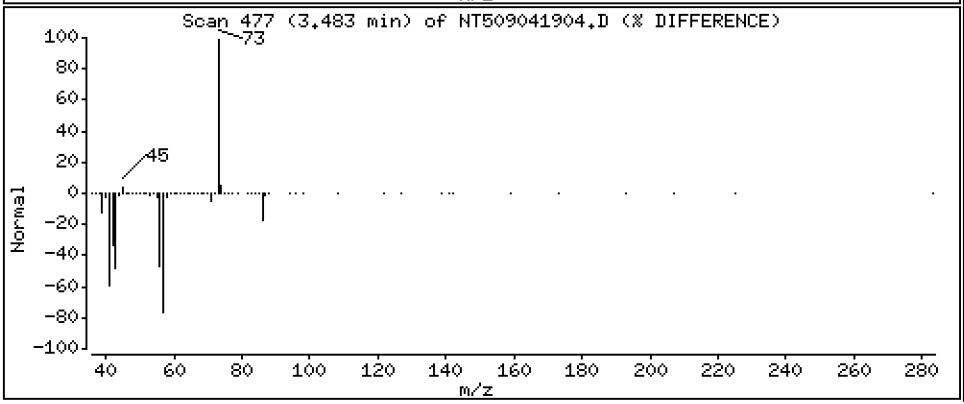
173 n-Hexane

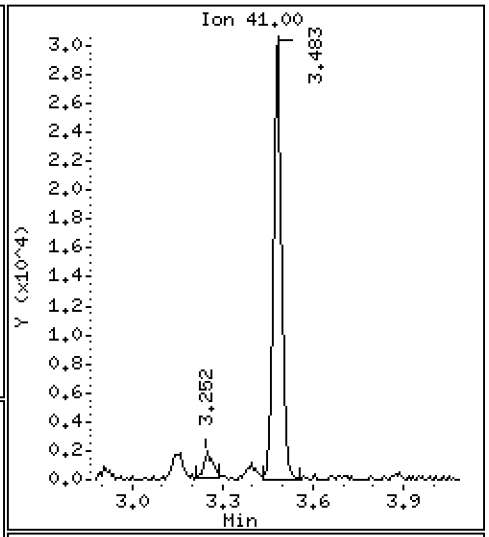
Concentration: 26.153 ug/Kg

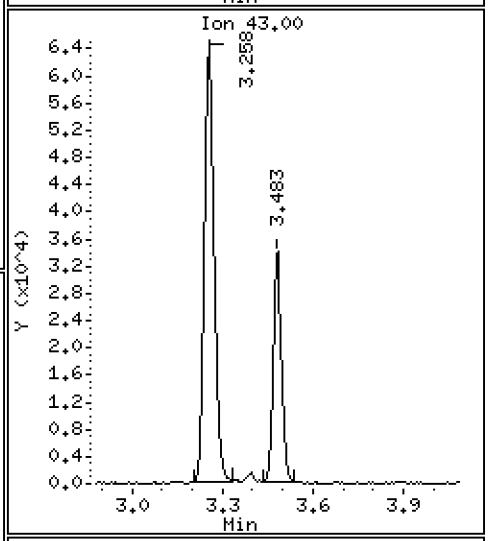


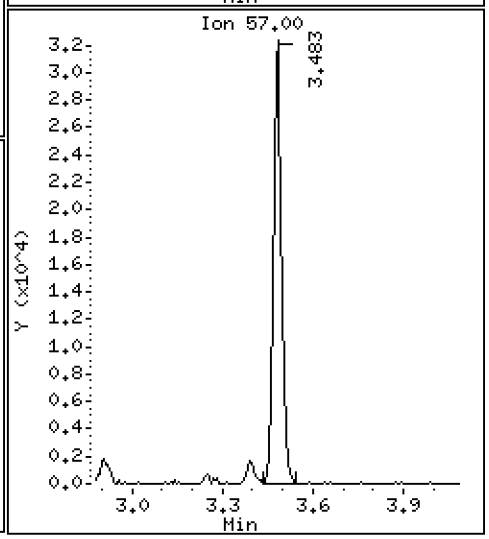












Date : 04-SEP-2019 15:04

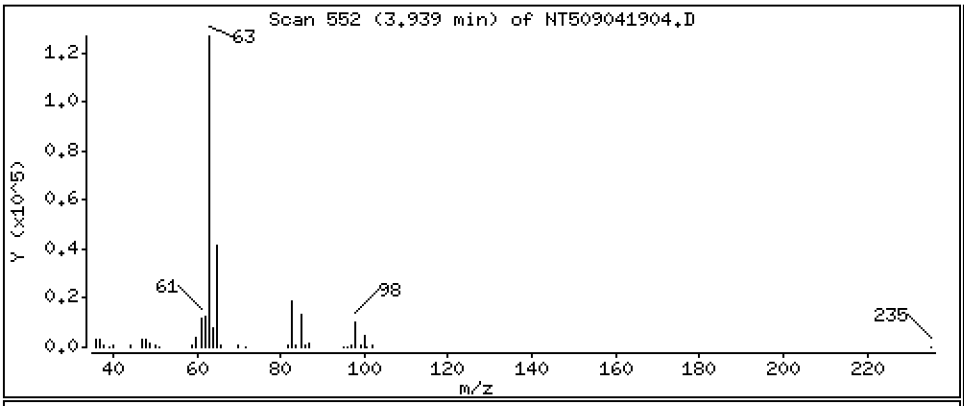
Client ID: Instrument: nt5.i

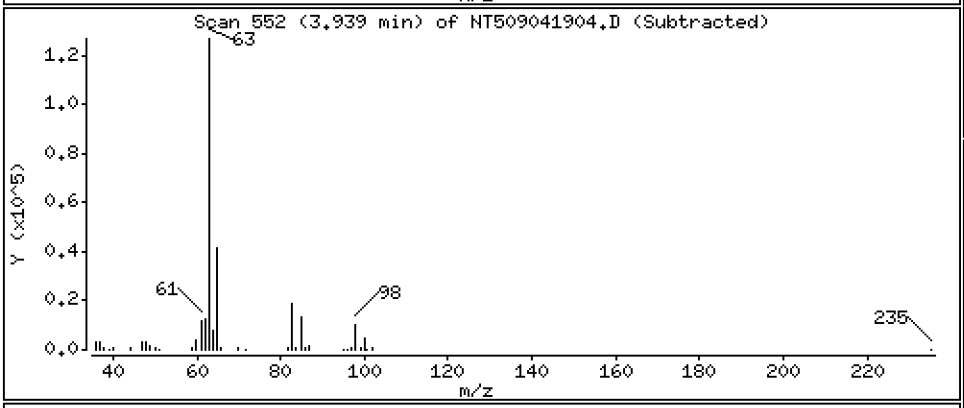
Sample Info: BSD1

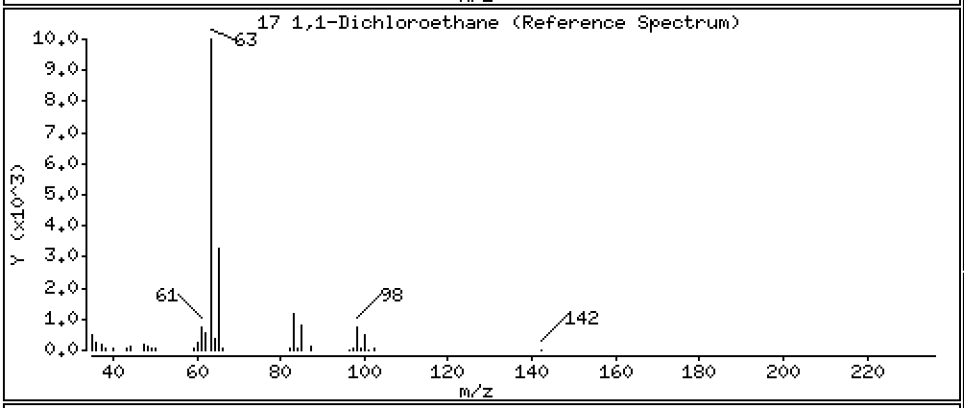
Operator: PB

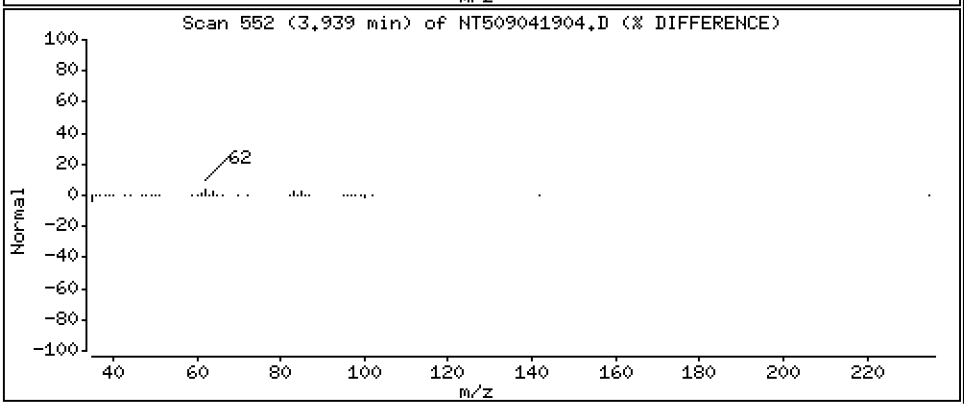
Column phase: RTXVMS Column diameter: 0.18

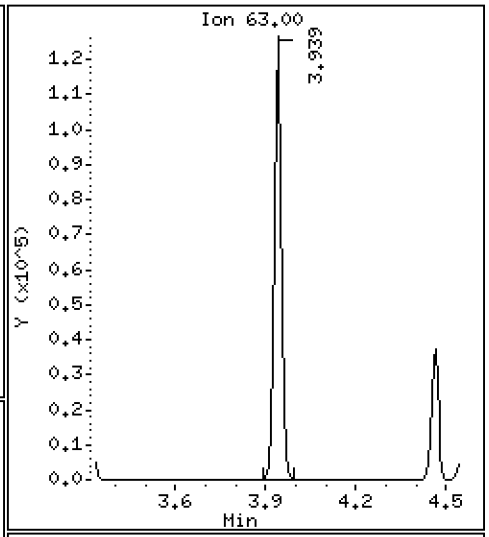
17 1,1-Dichloroethane Concentration: 57.106 ug/Kg

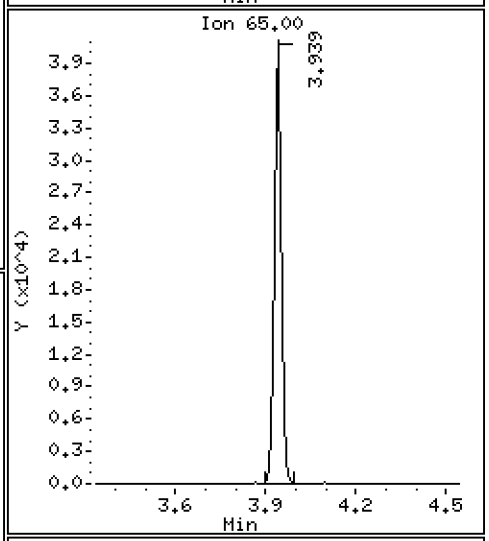


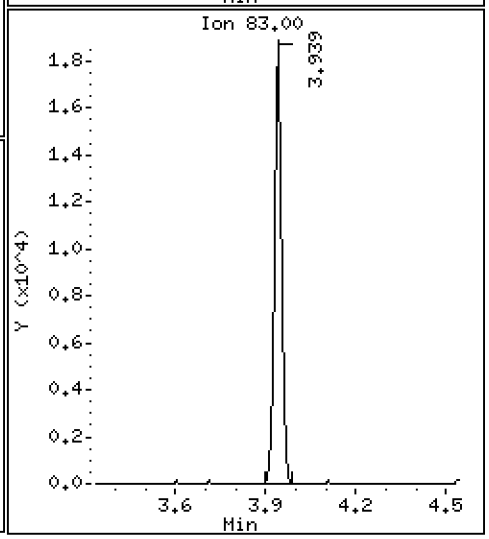












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

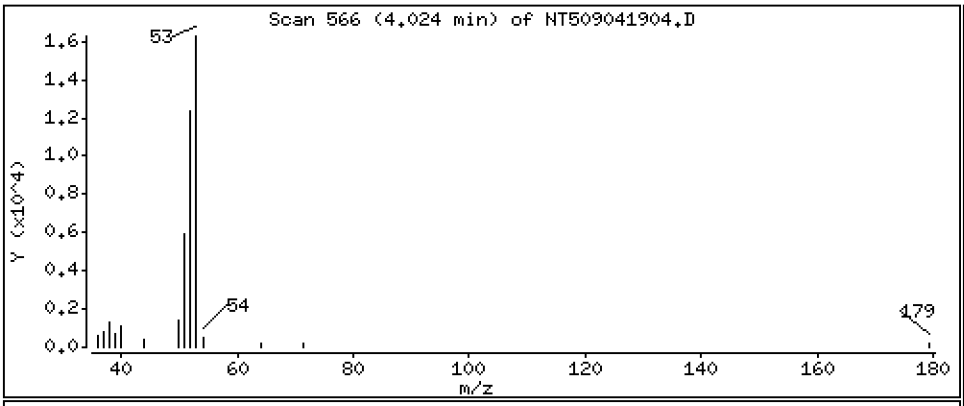
Operator: PB

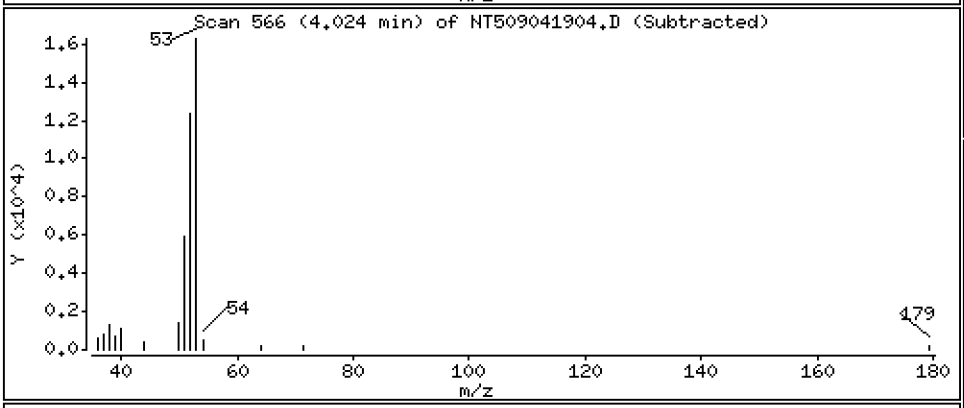
Column phase: RTXVMS

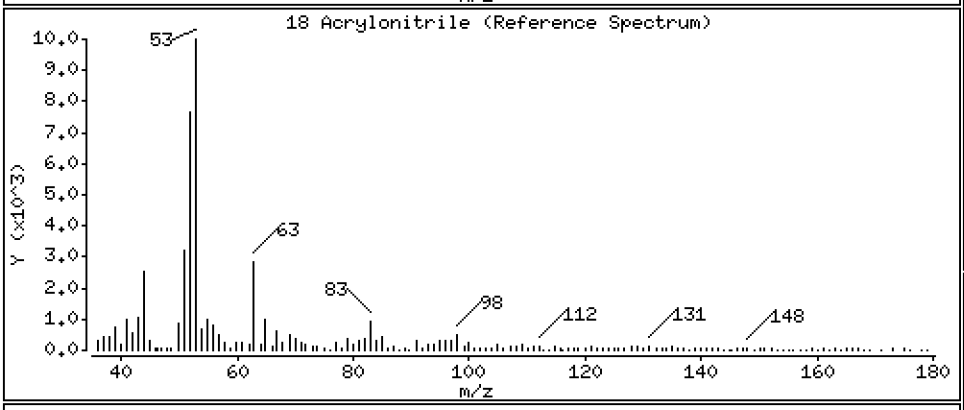
Column diameter: 0.18

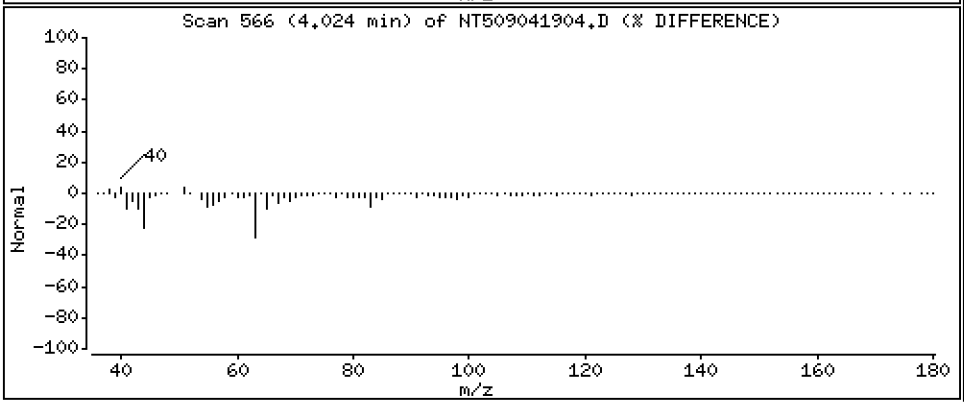
18 Acrylonitrile

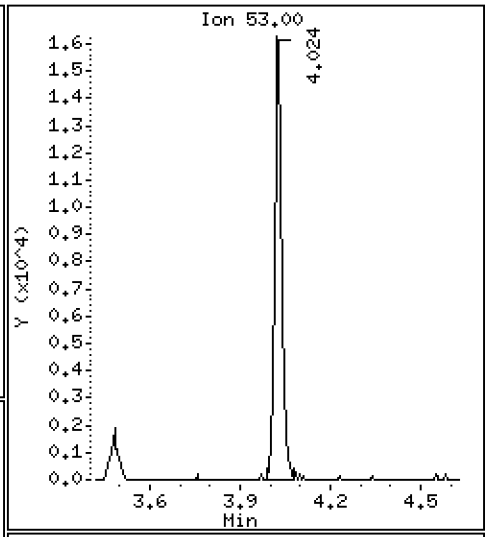
Concentration: 57.046 ug/Kg

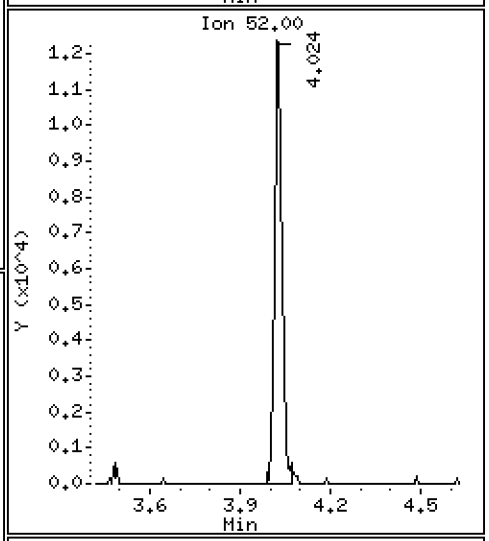


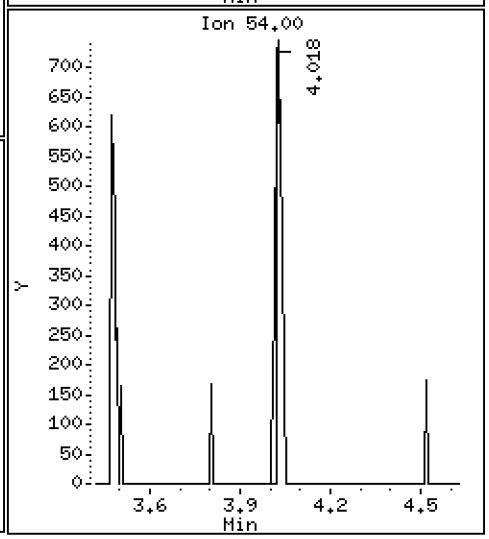












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

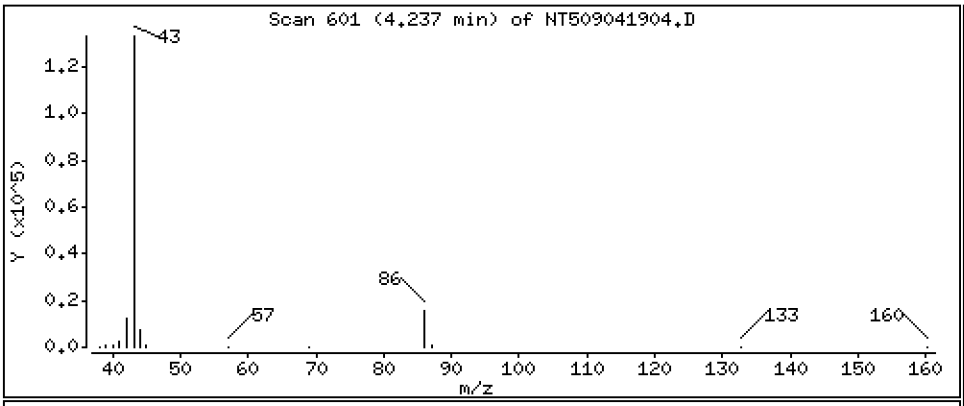
Operator: PB

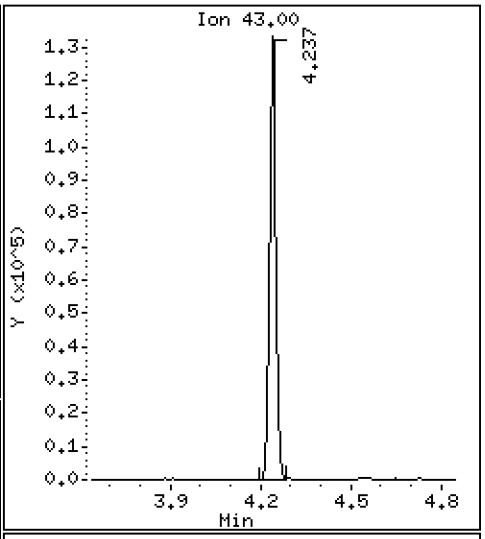
Column phase: RTXVMS

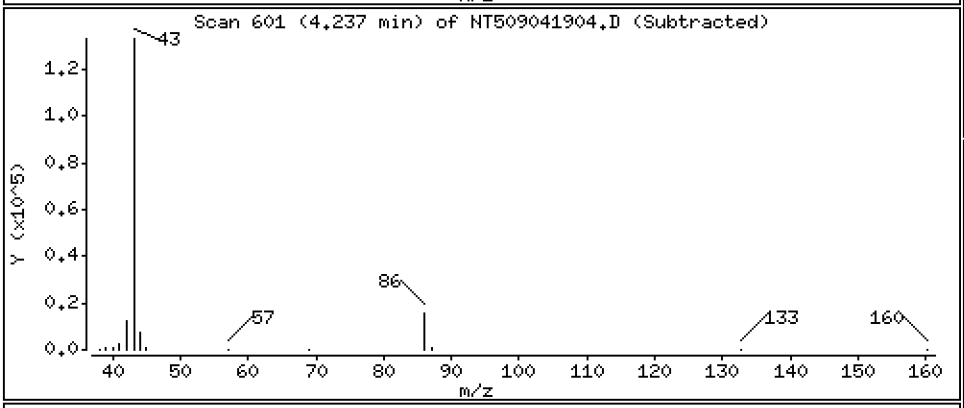
Column diameter: 0.18

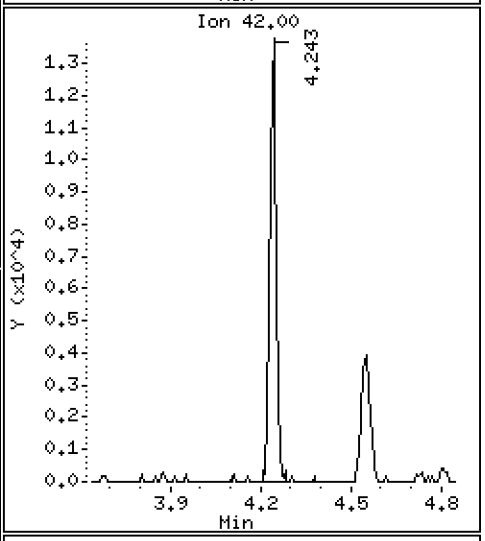
19 Vinyl Acetate

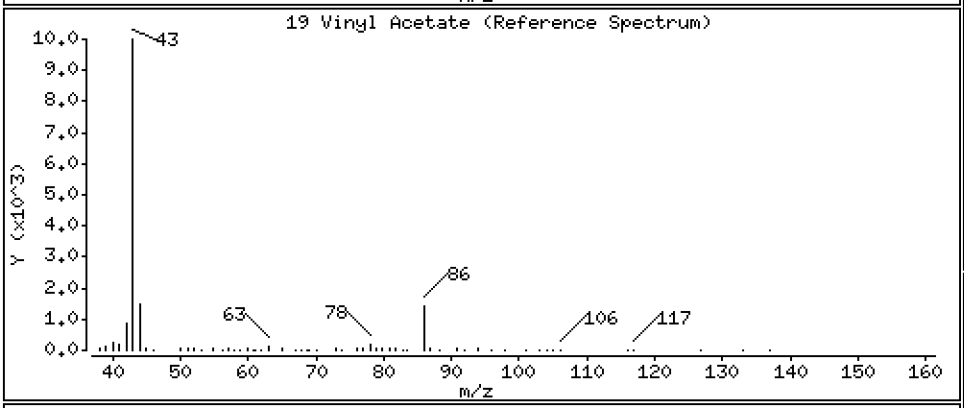
Concentration: 51.699 ug/Kg

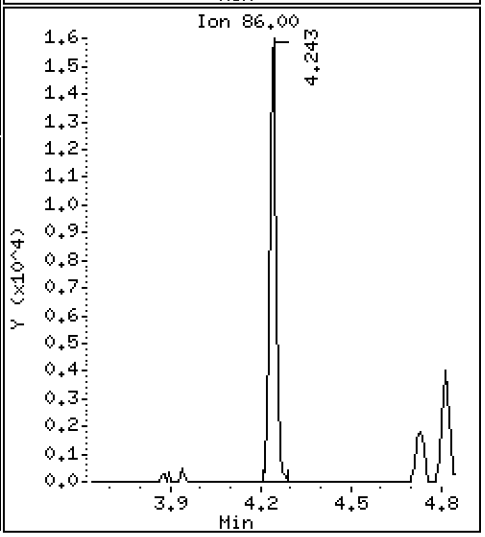


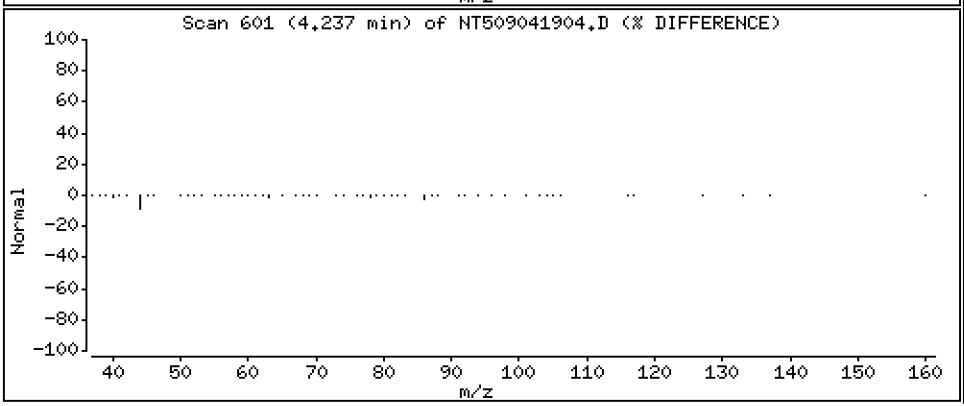












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

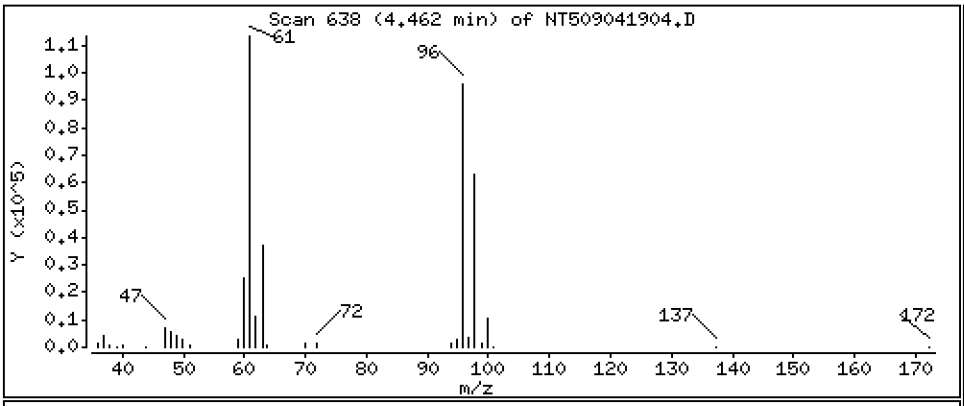
Operator: PB

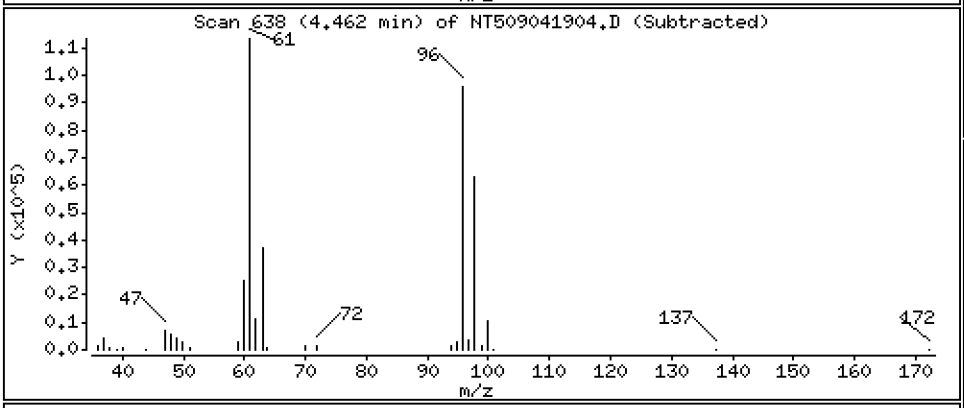
Column phase: RTXVMS

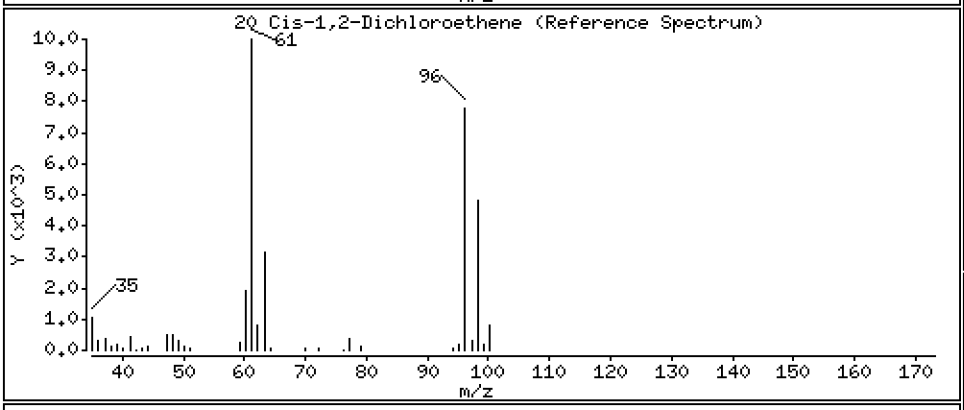
Column diameter: 0.18

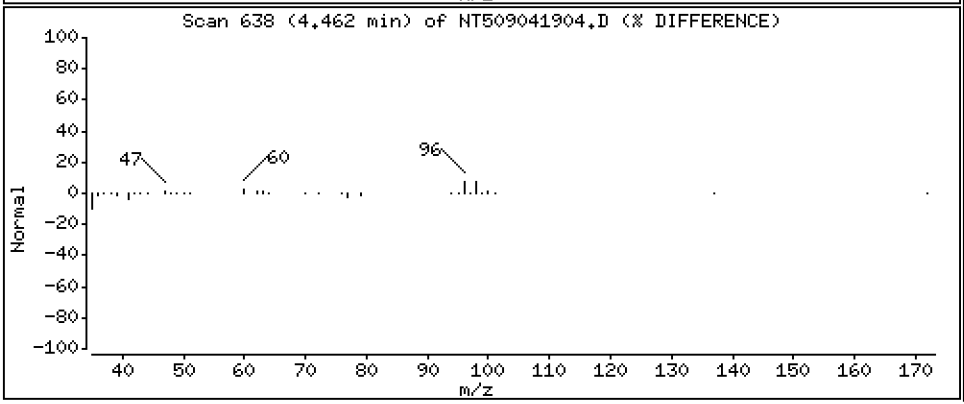
20 Cis-1,2-Dichloroethene

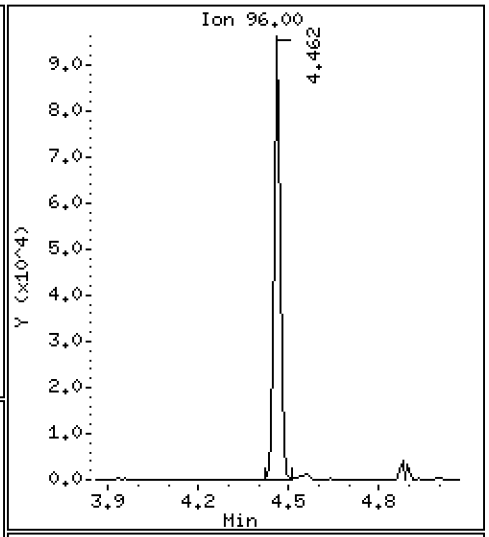
Concentration: 53.692 ug/Kg

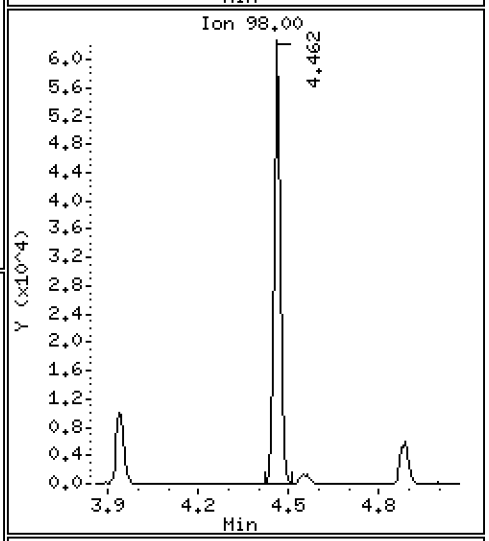


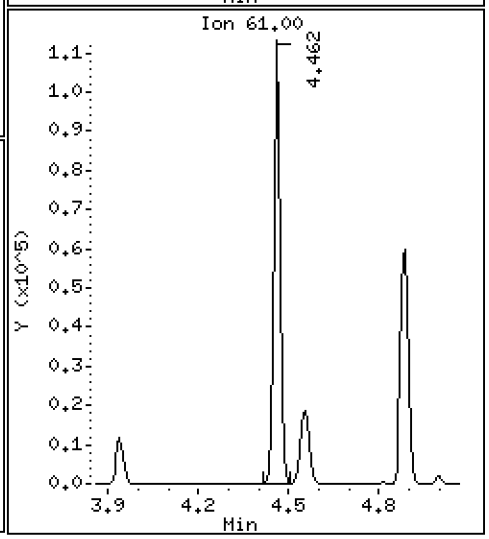












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

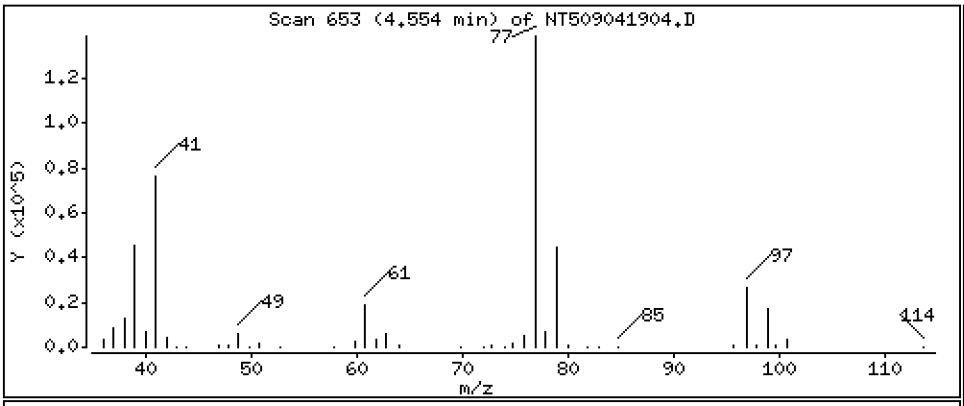
Operator: PB

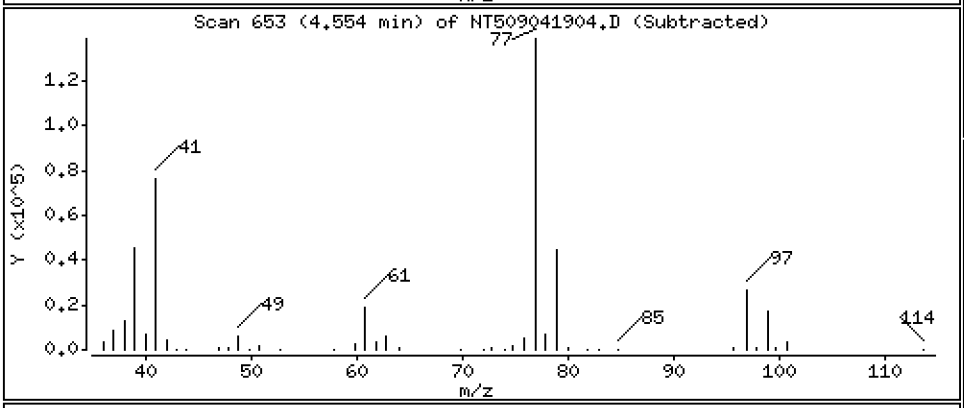
Column phase: RTXVMS

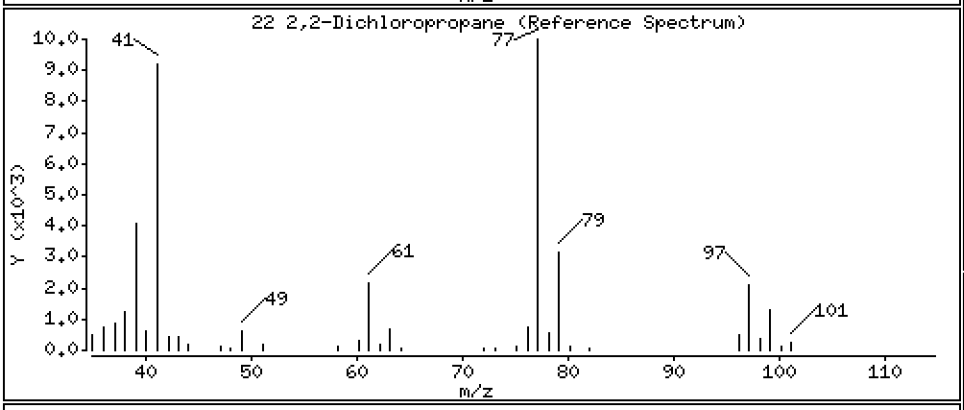
Column diameter: 0.18

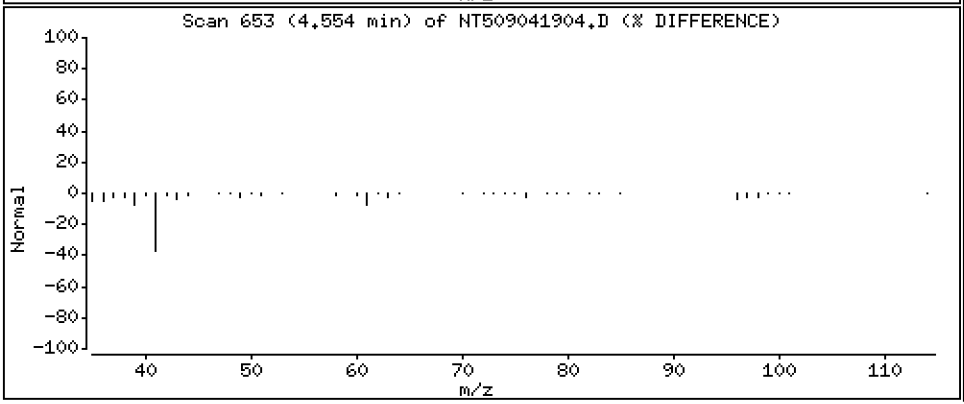
22 2,2-Dichloropropane

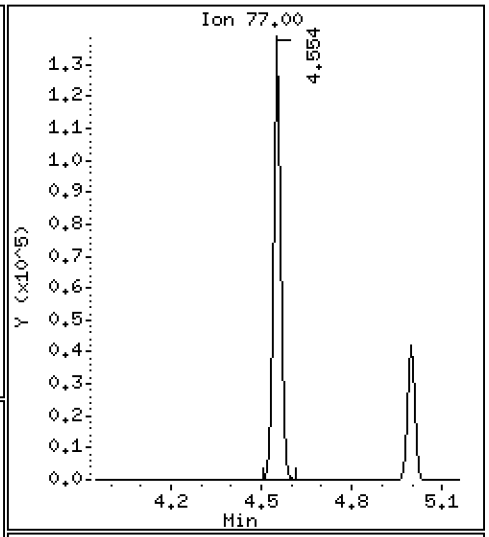
Concentration: 56.973 ug/Kg

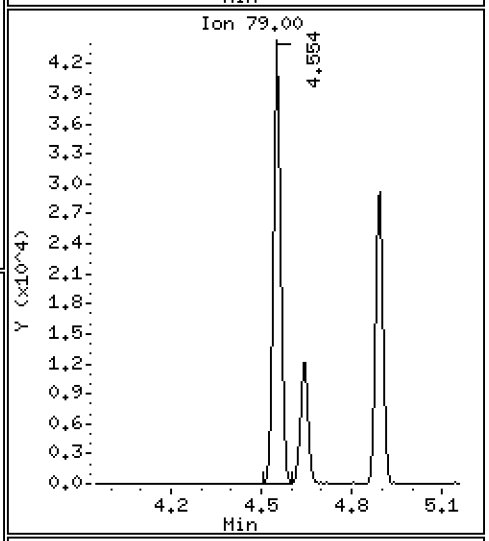


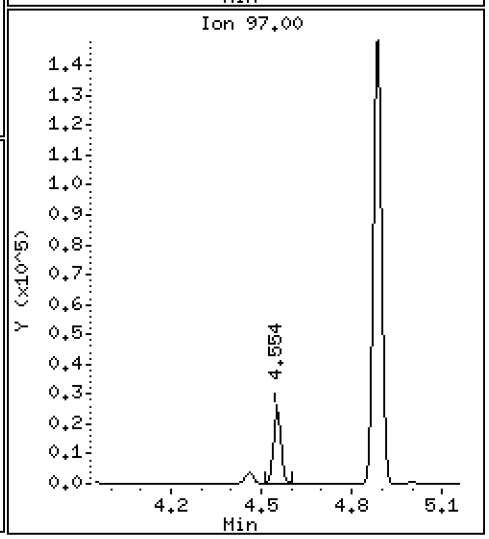












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

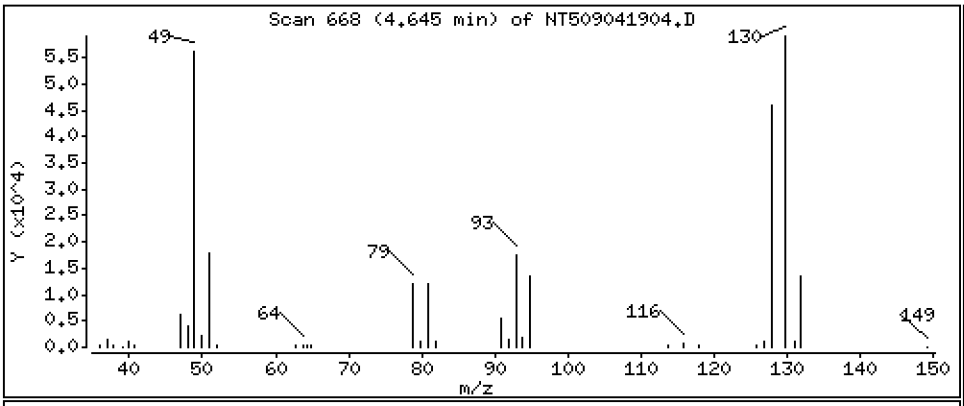
Operator: PB

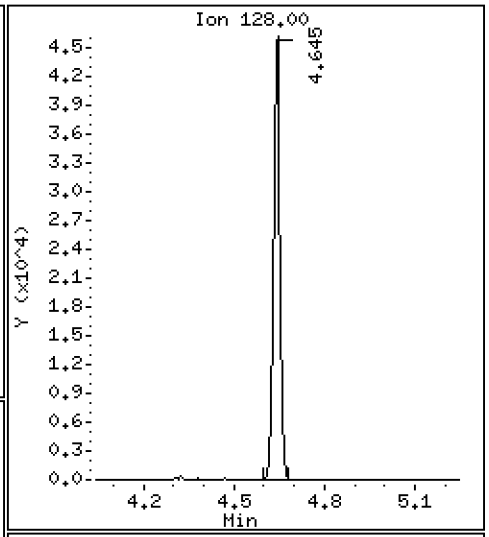
Column phase: RTXVMS

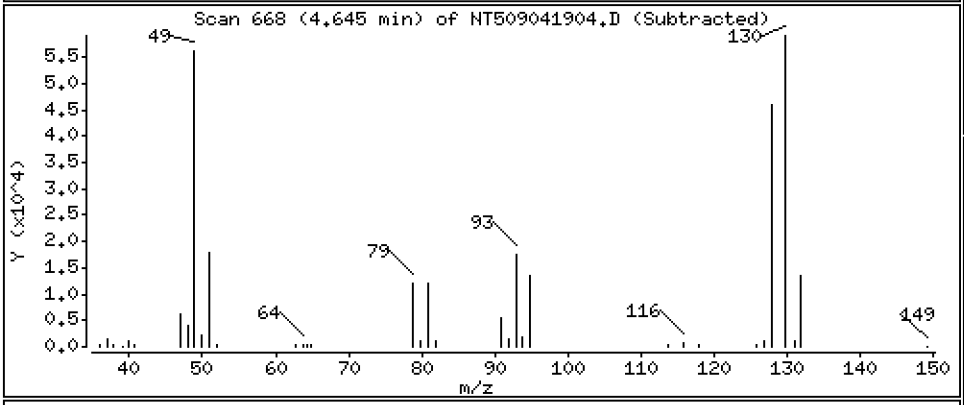
Column diameter: 0.18

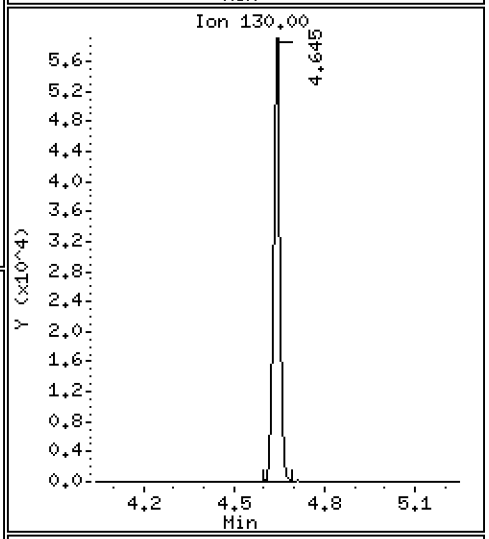
23 Bromochloromethane

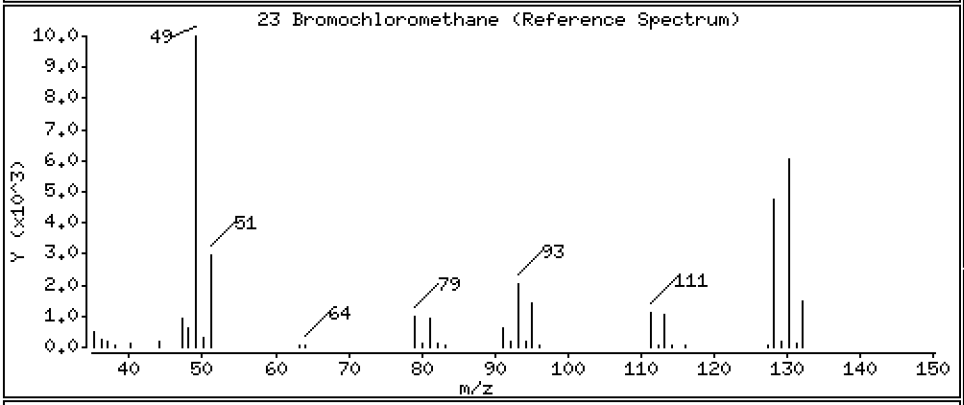
Concentration: 53.722 ug/Kg

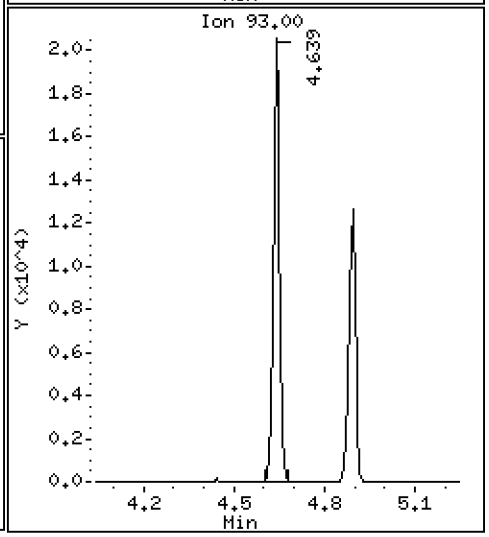


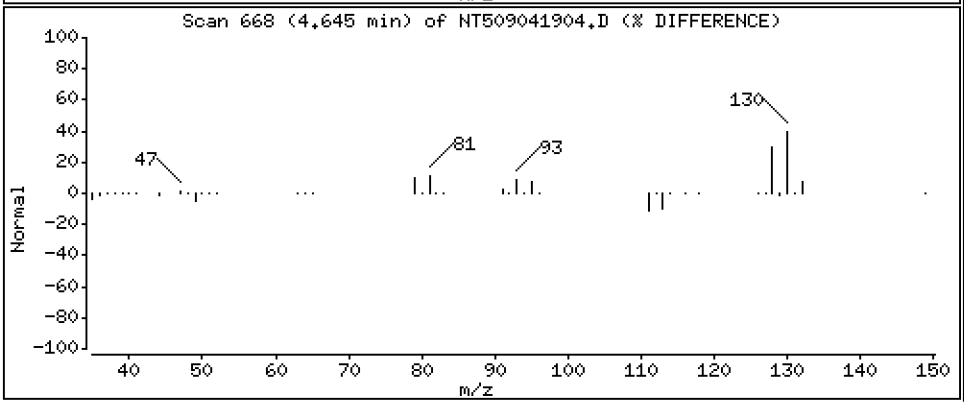












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

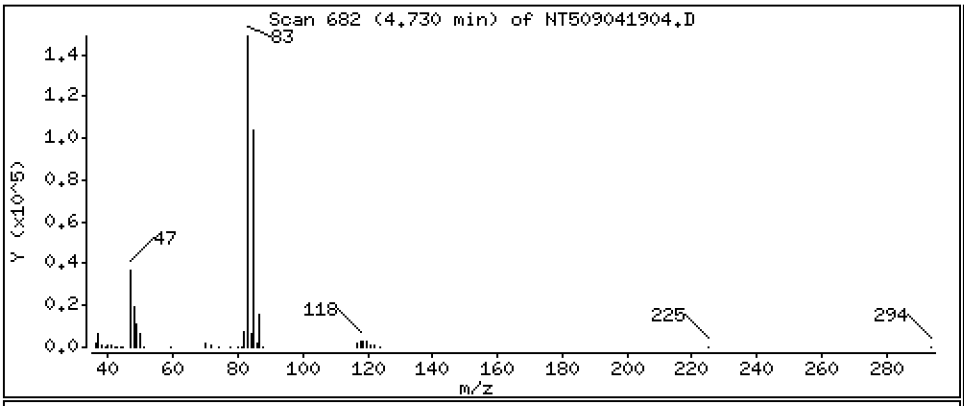
Operator: PB

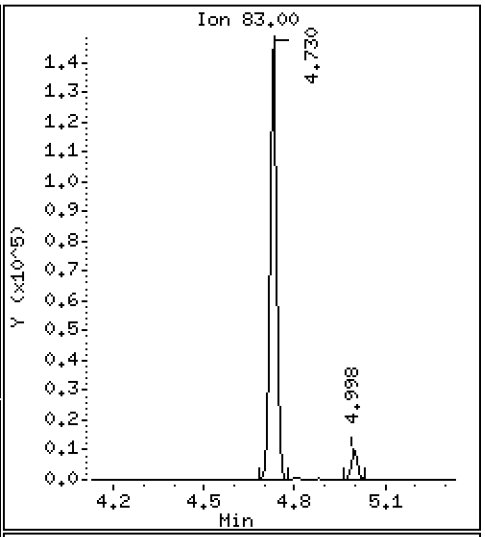
Column phase: RTXVMS

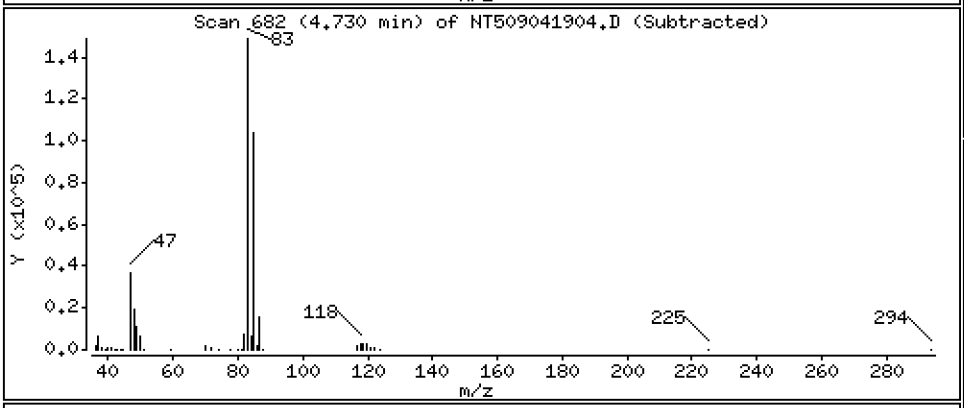
Column diameter: 0.18

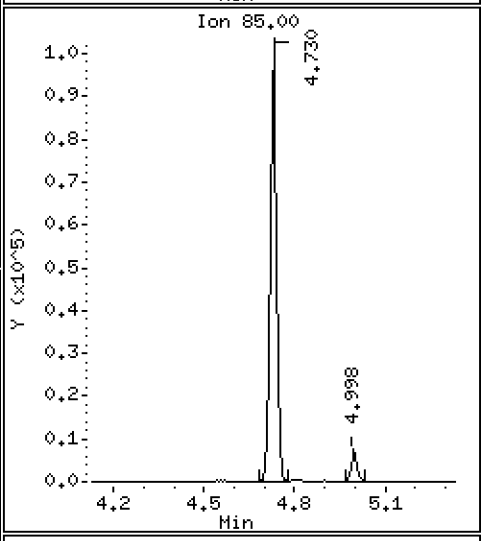
24 Chloroform

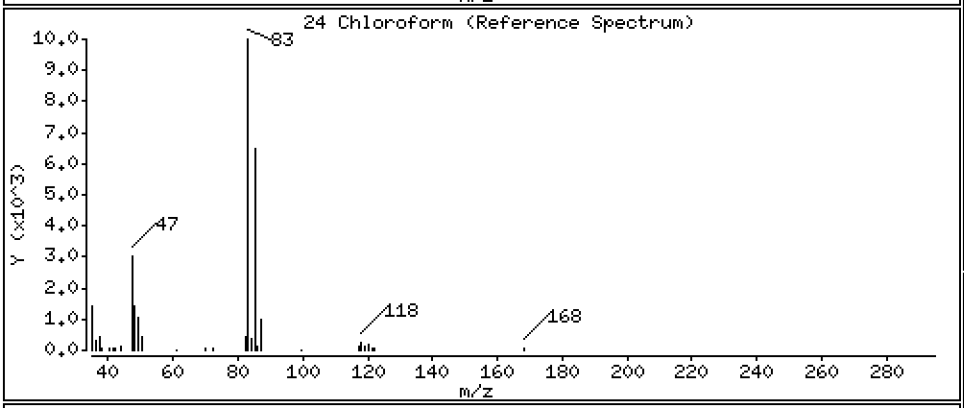
Concentration: 53.702 ug/Kg

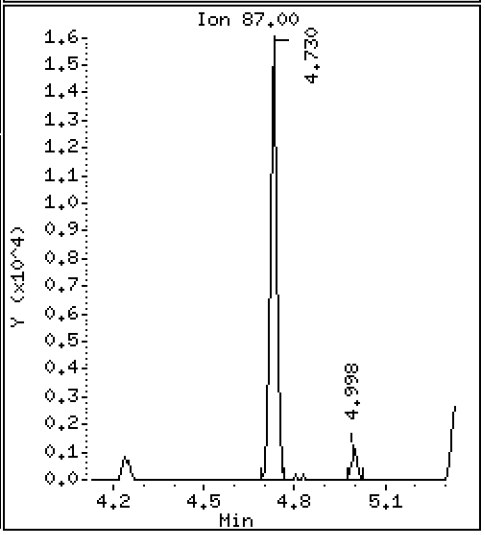


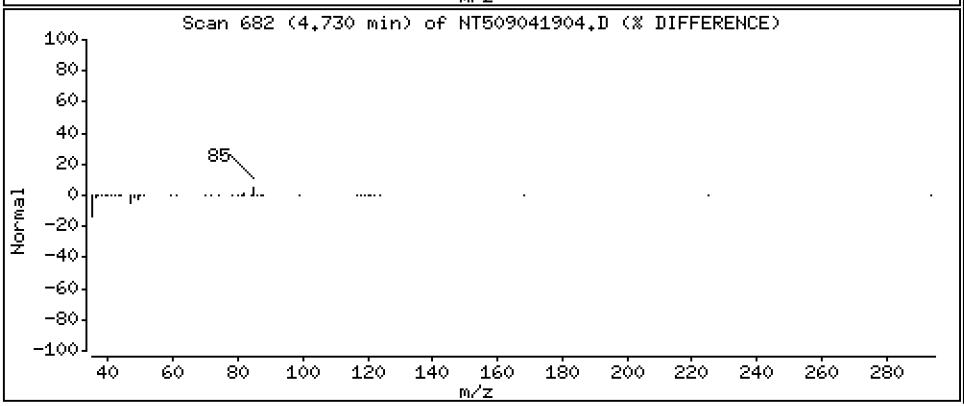












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

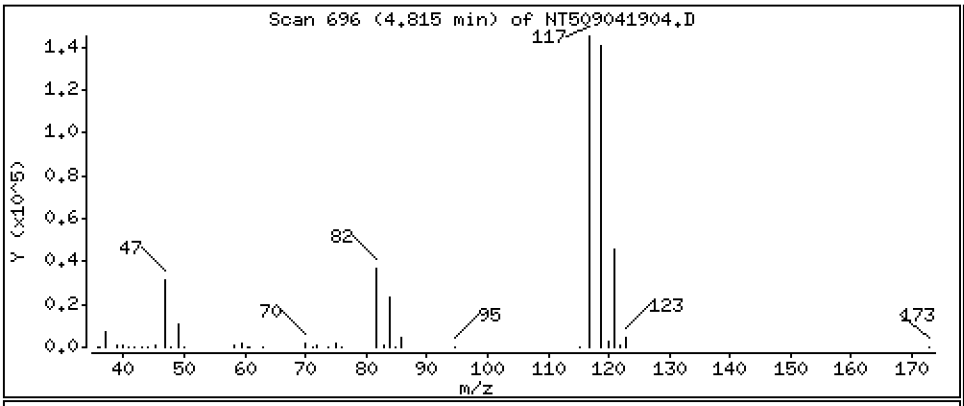
Operator: PB

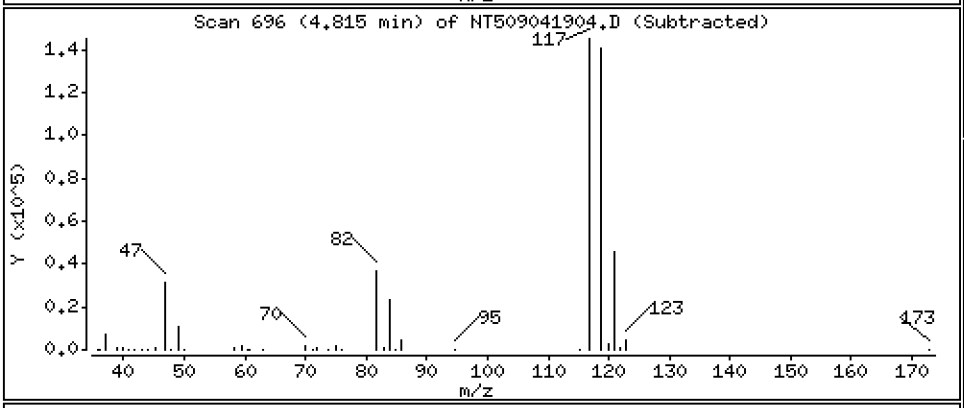
Column phase: RTXVMS

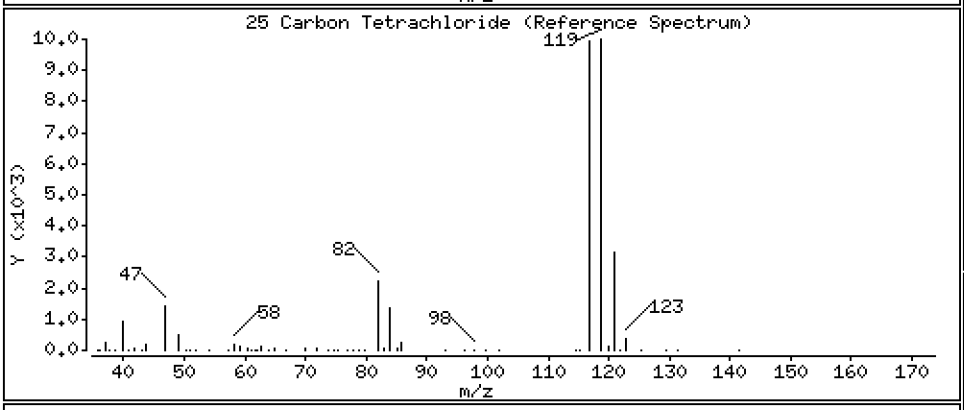
Column diameter: 0.18

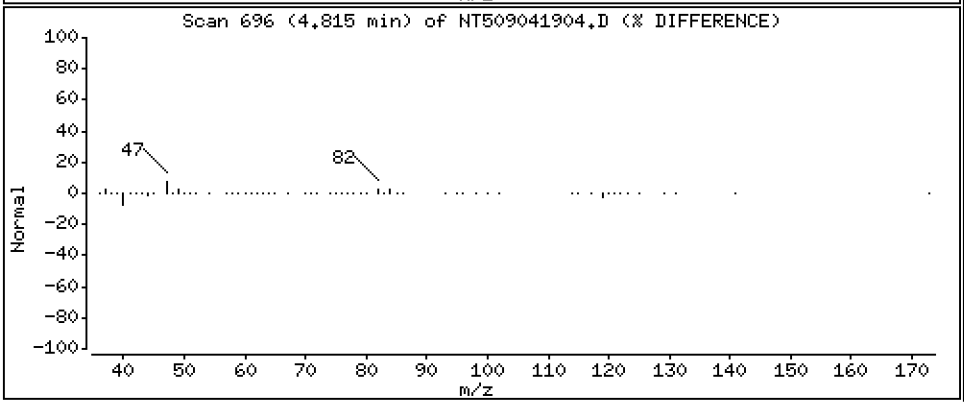
25 Carbon Tetrachloride

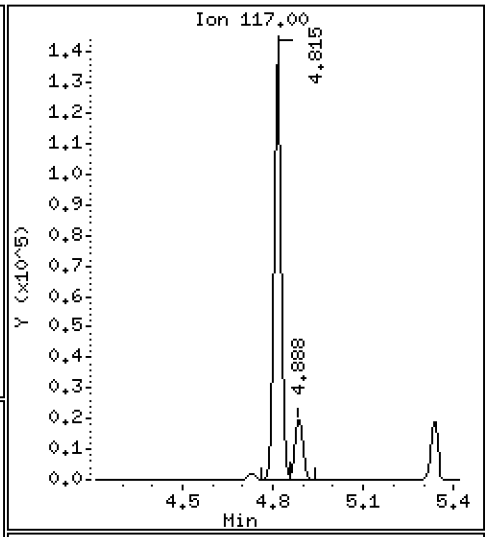
Concentration: 47.428 ug/Kg

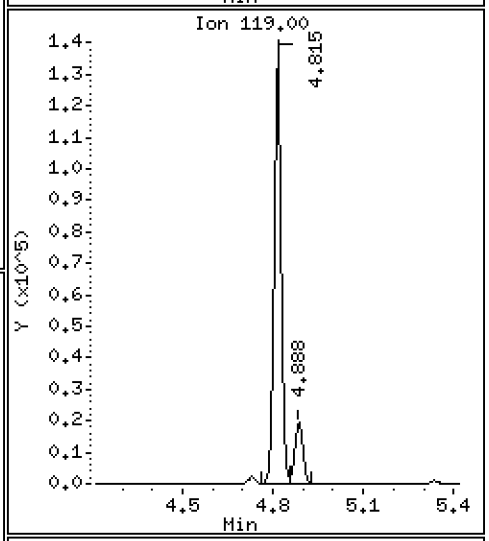


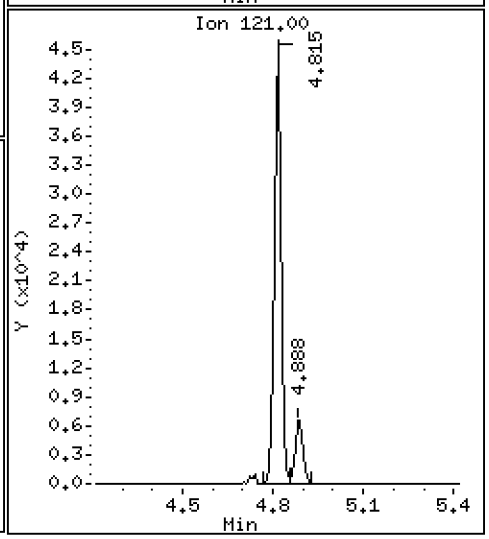












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

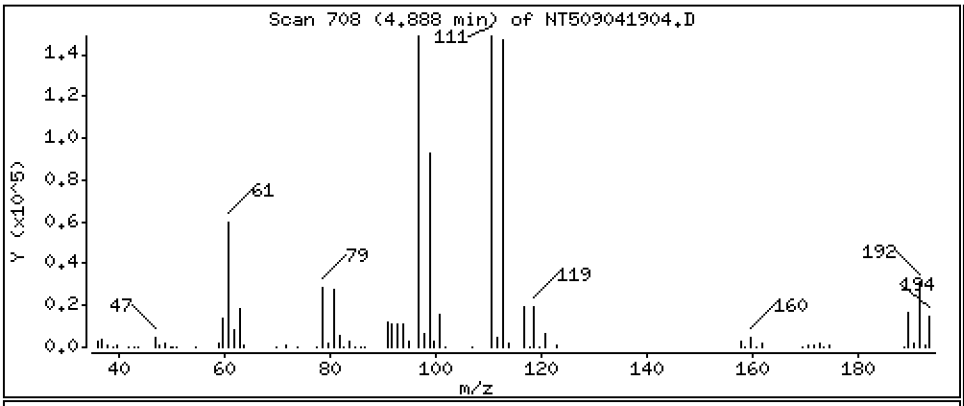
Operator: PB

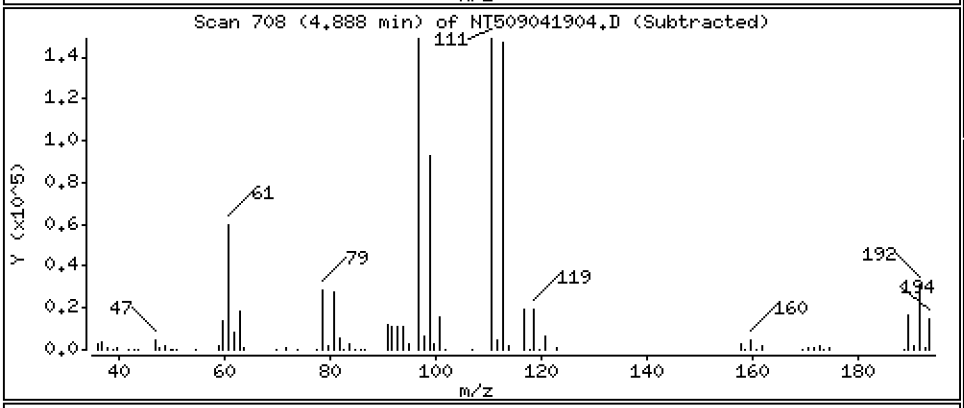
Column phase: RTXVMS

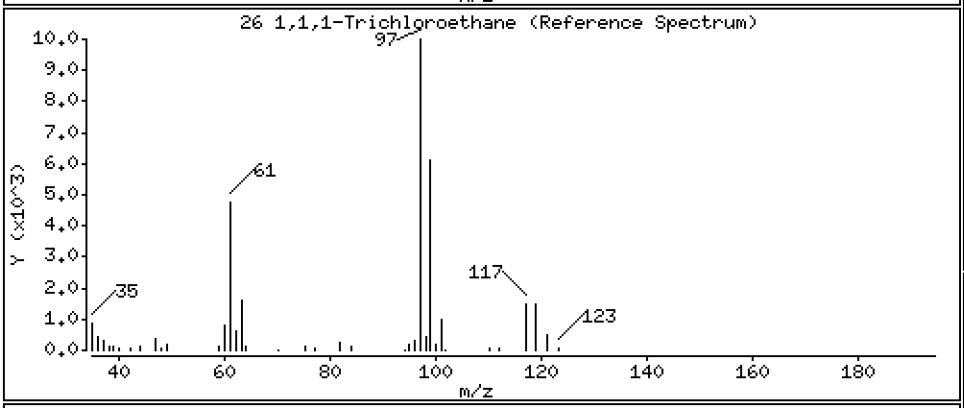
Column diameter: 0.18

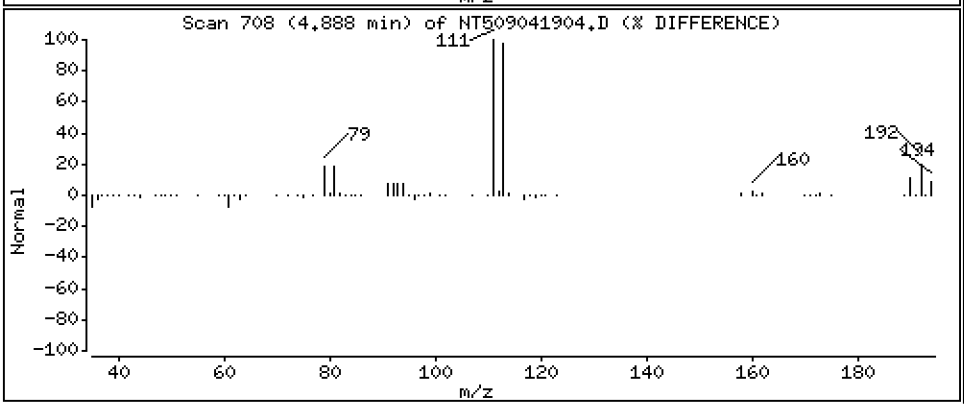
26 1,1,1-Trichloroethane

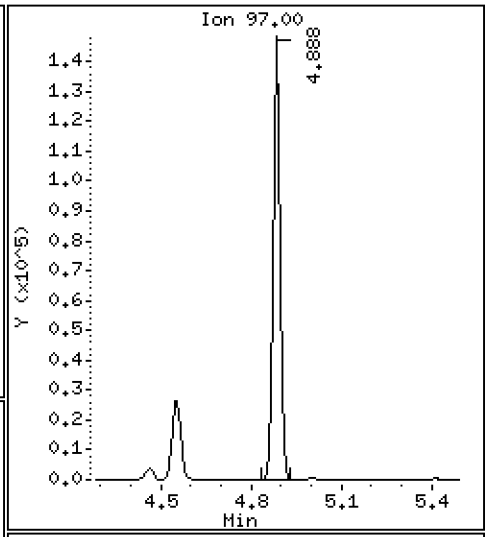
Concentration: 55.347 ug/Kg

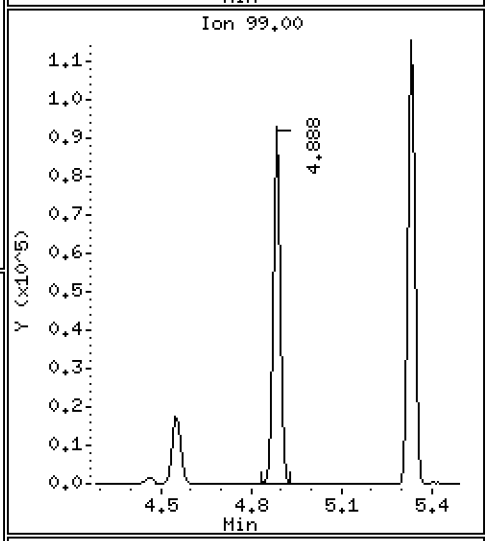


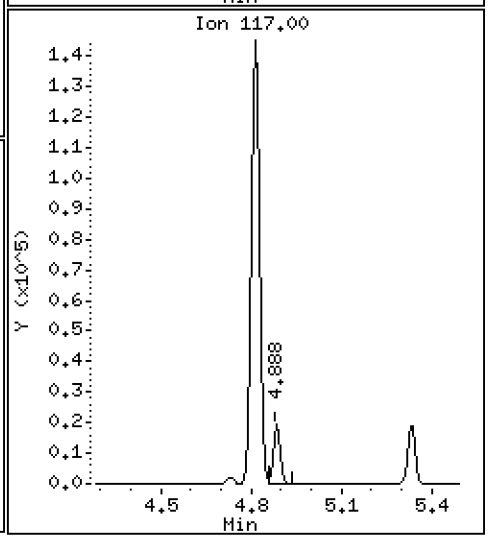












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

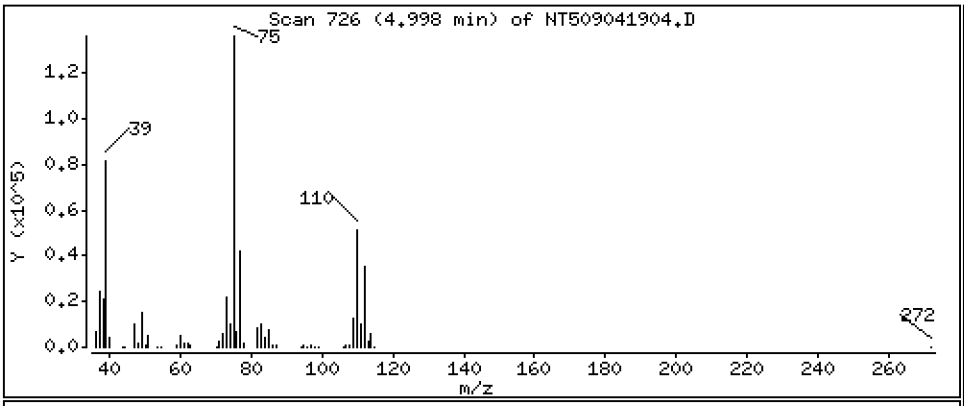
Operator: PB

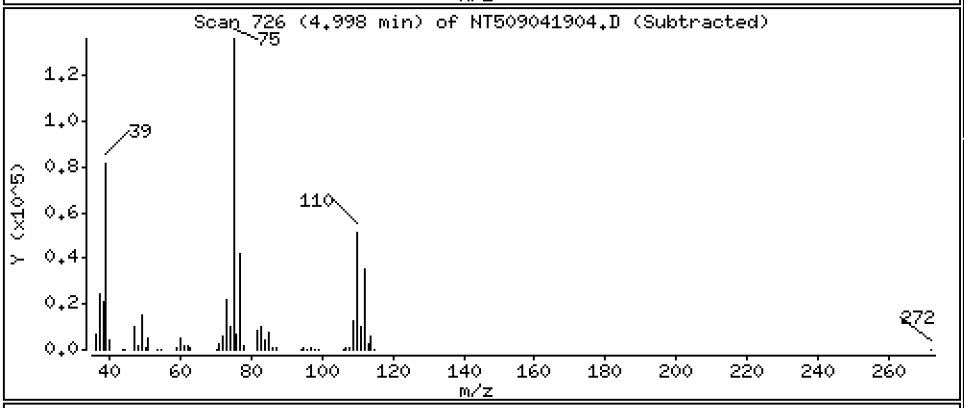
Column phase: RTXVMS

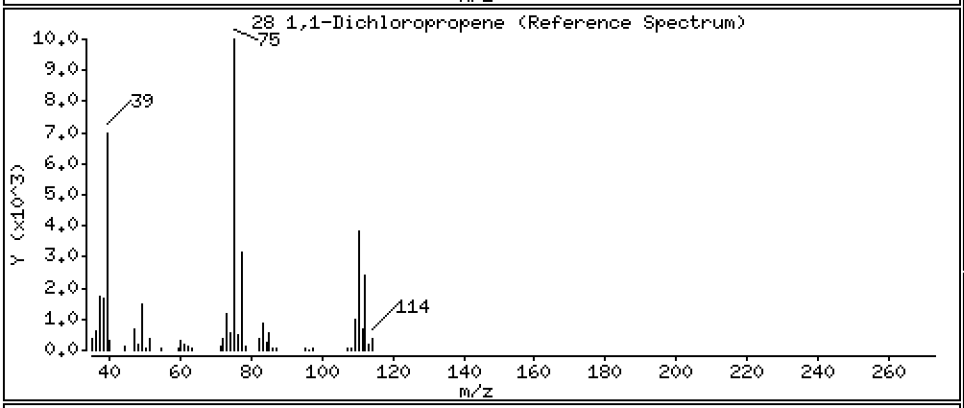
Column diameter: 0.18

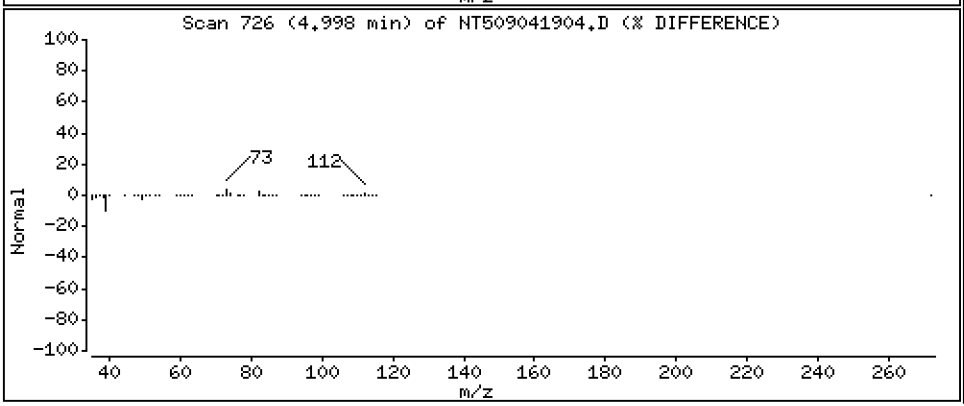
28 1,1-Dichloropropene

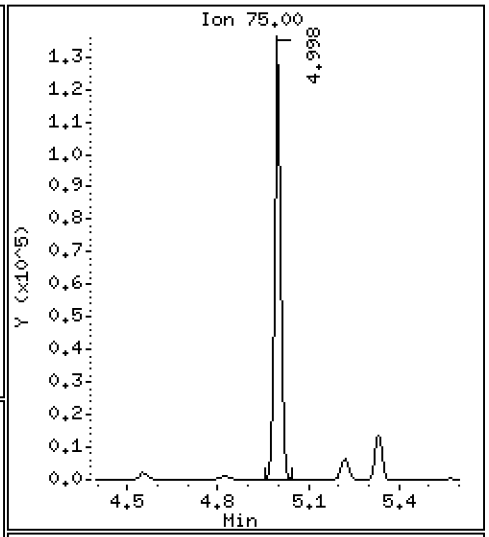
Concentration: 49.019 ug/Kg

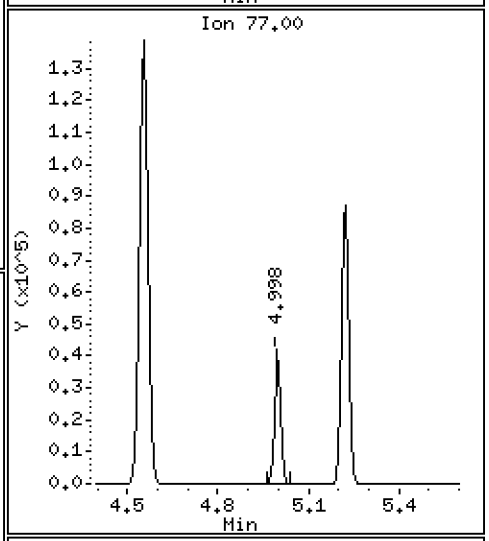


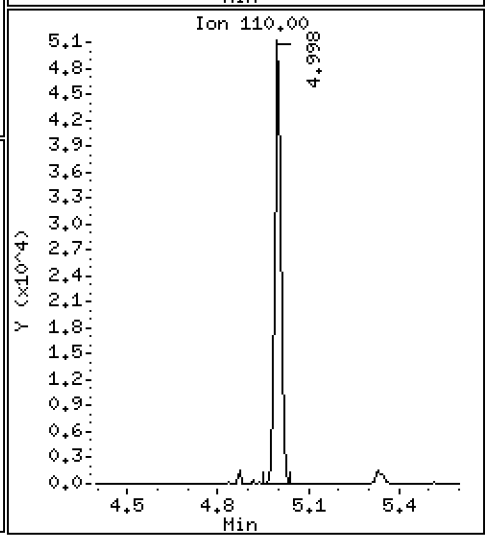












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

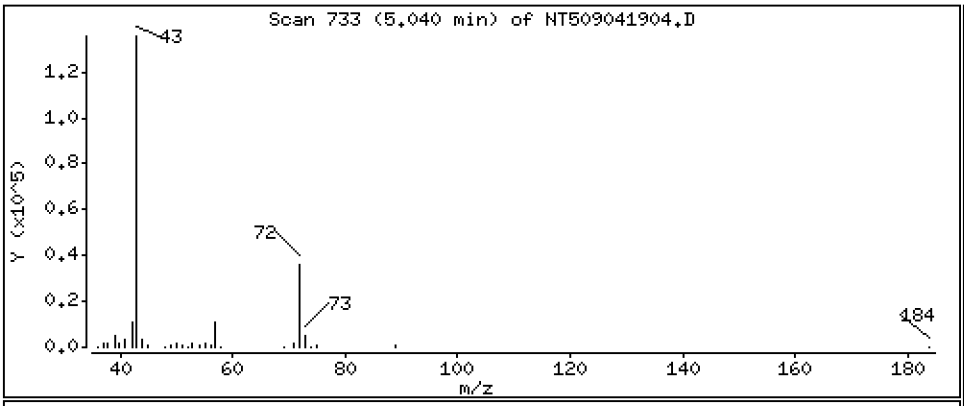
Operator: PB

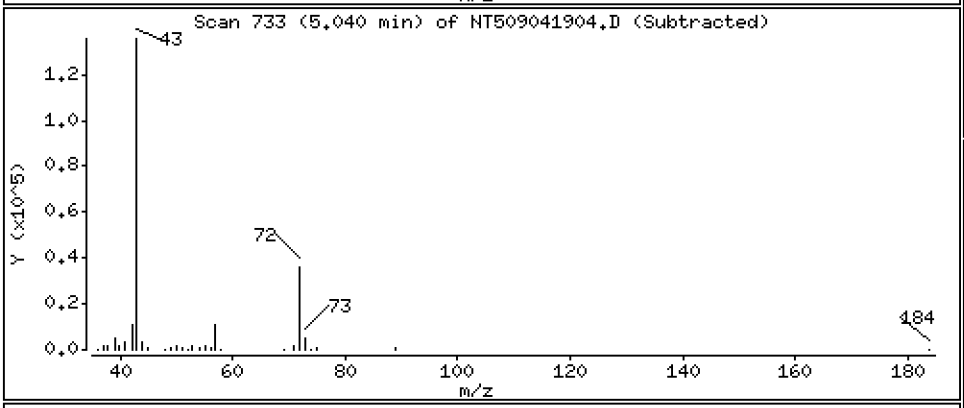
Column phase: RTXVMS

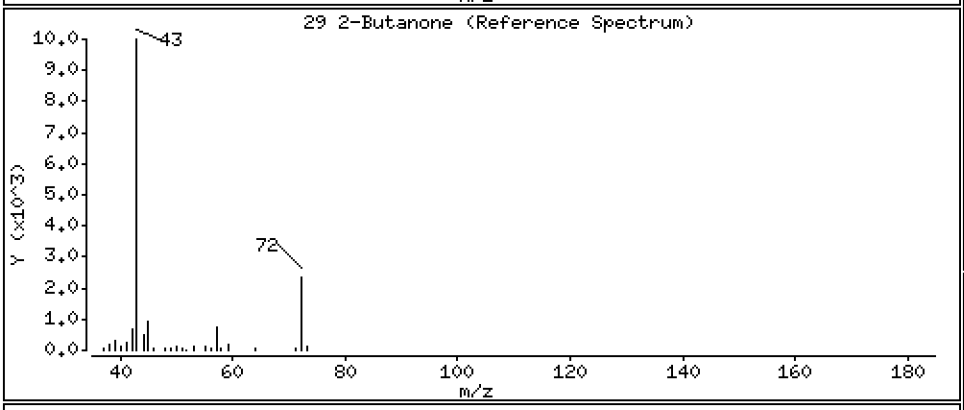
Column diameter: 0.18

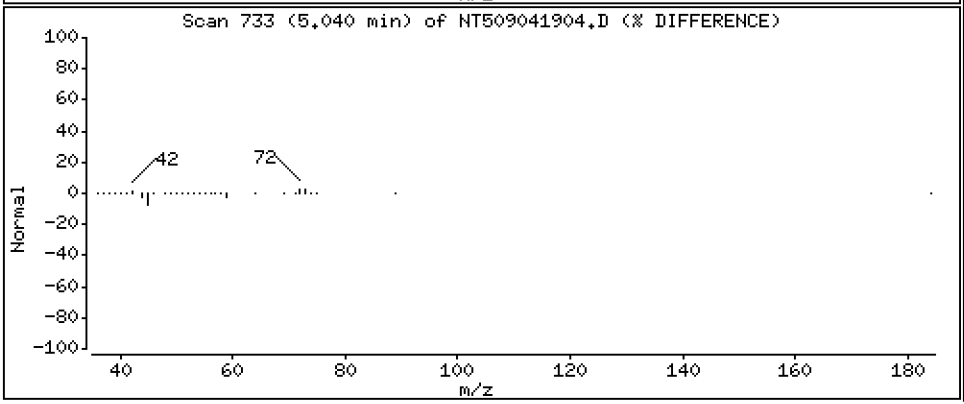
29 2-Butanone

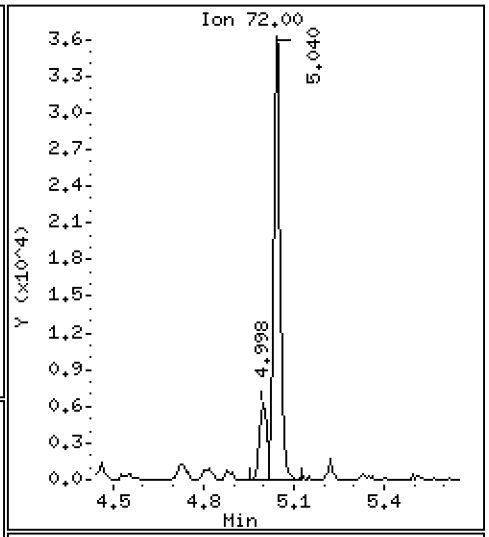
Concentration: 268.53 ug/Kg

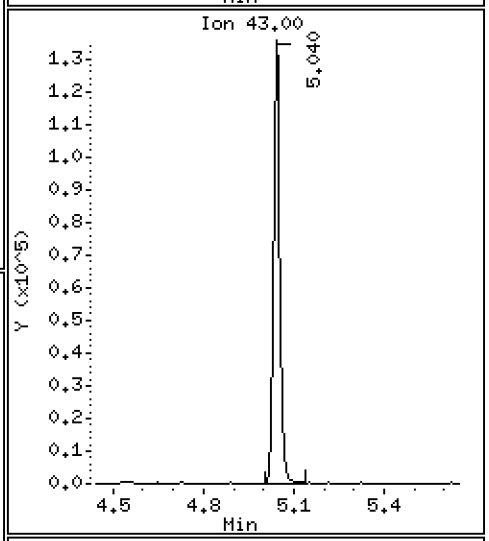


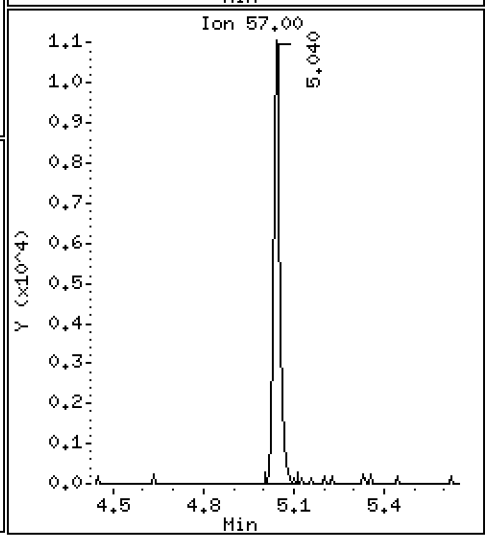












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

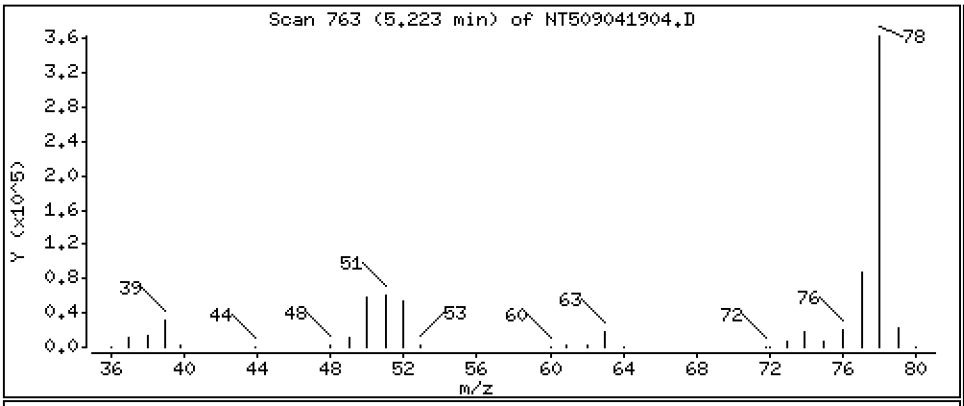
Operator: PB

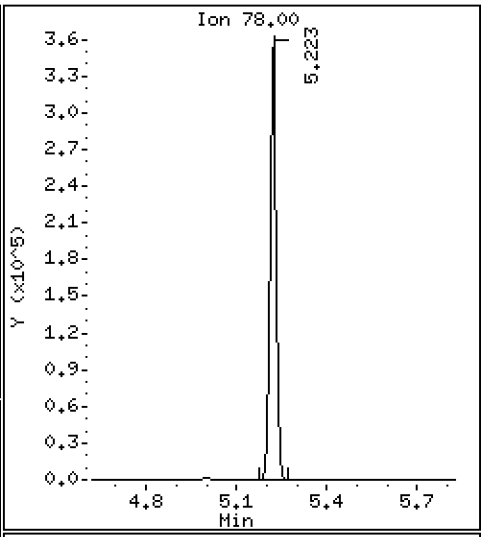
Column phase: RTXVMS

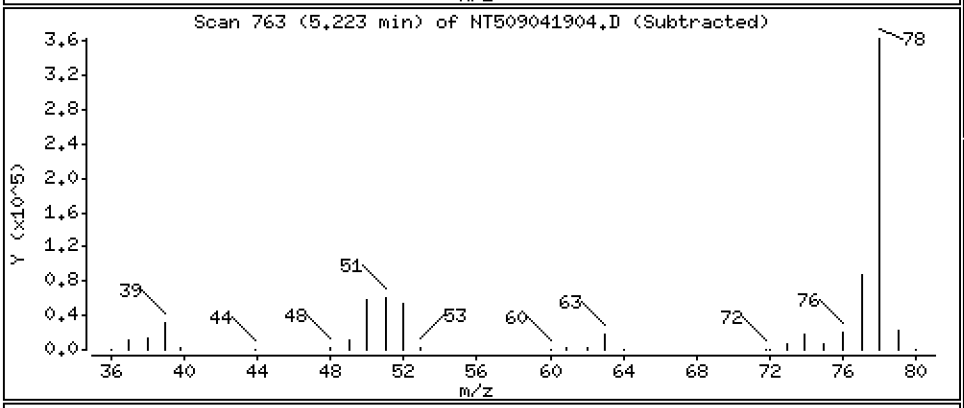
Column diameter: 0.18

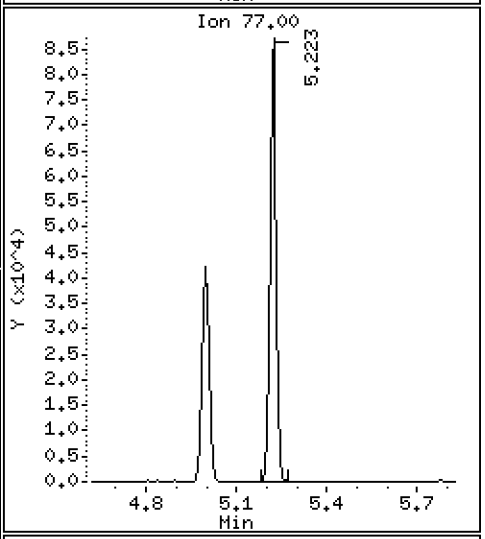
30 Benzene

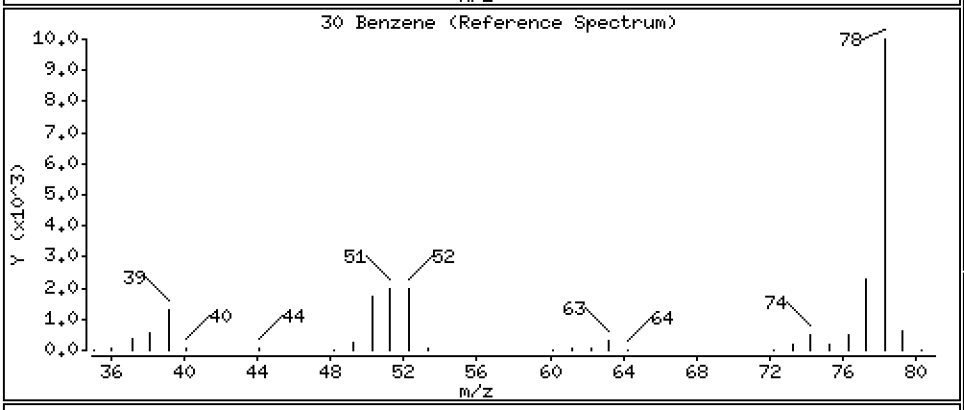
Concentration: 47.177 ug/Kg

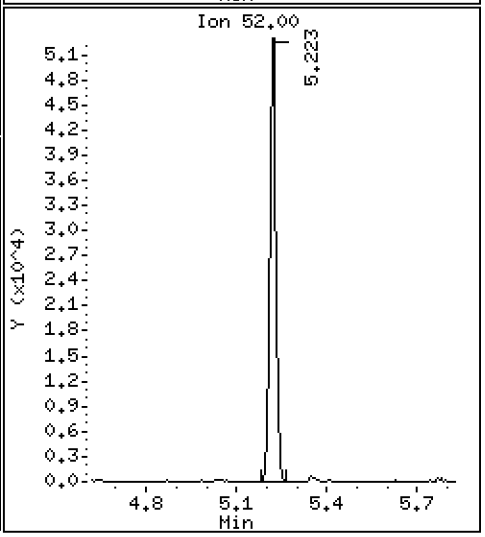


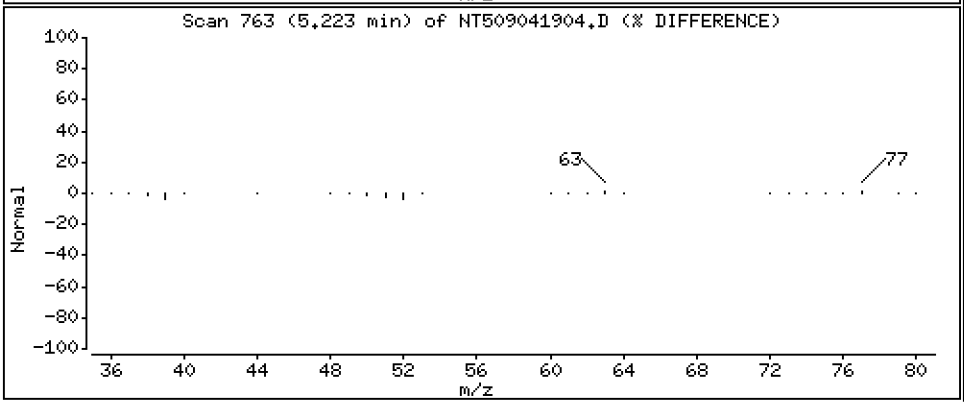












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

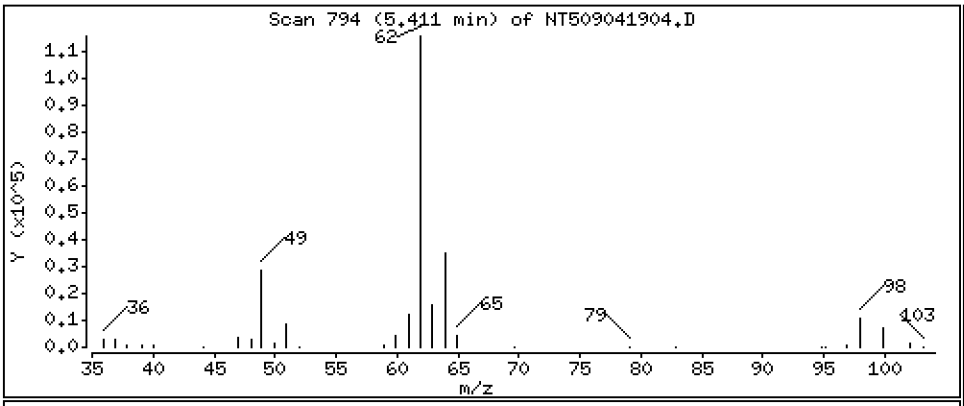
Operator: PB

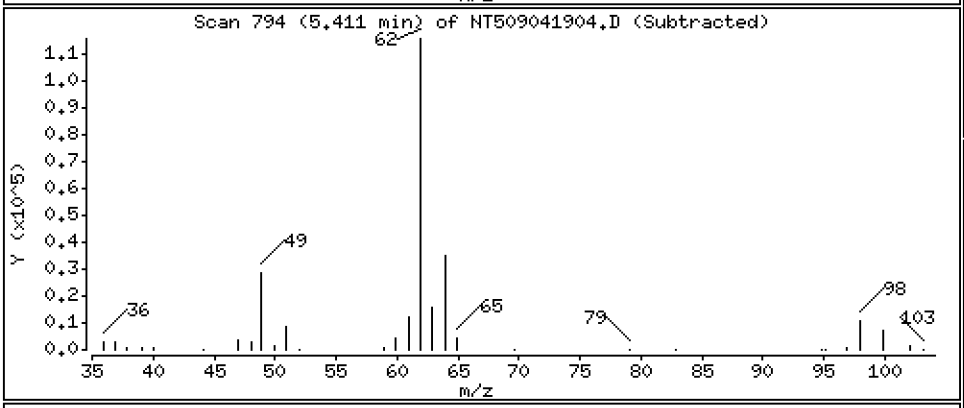
Column phase: RTXVMS

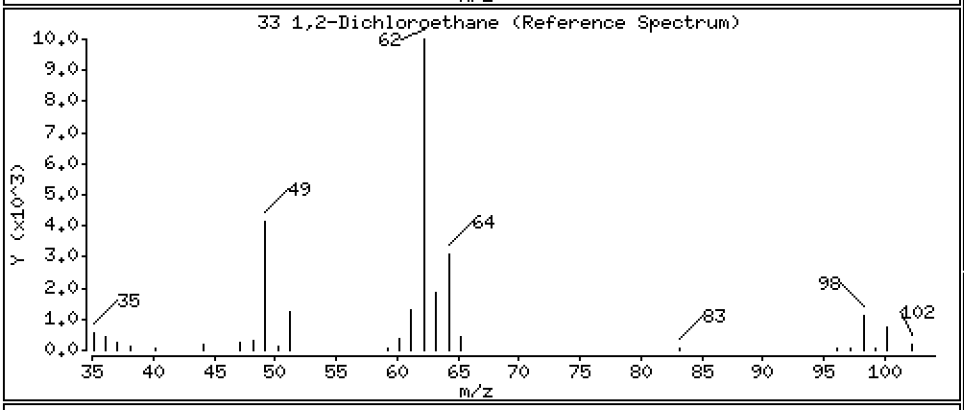
Column diameter: 0.18

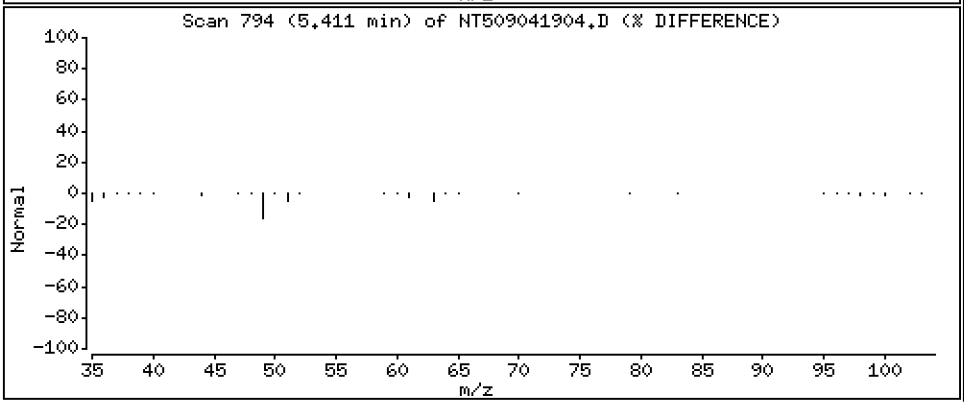
33 1,2-Dichloroethane

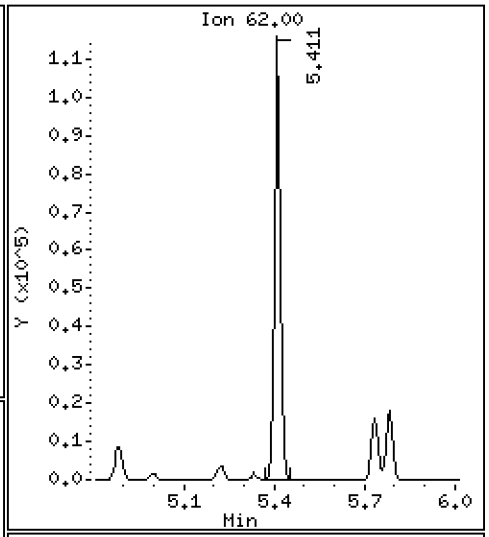
Concentration: 41.743 ug/Kg

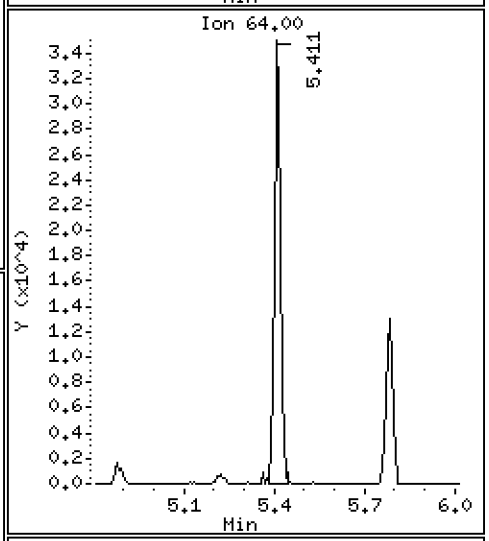


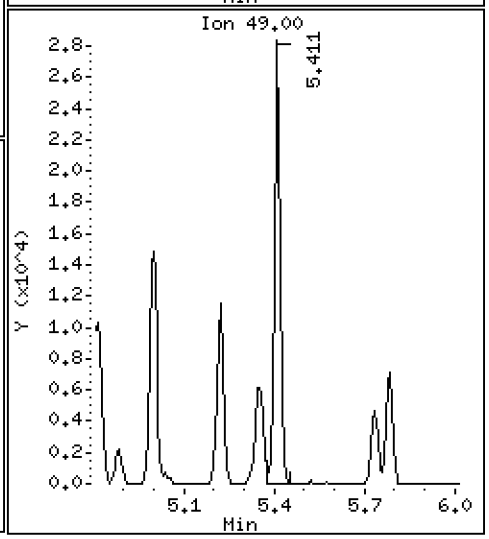












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

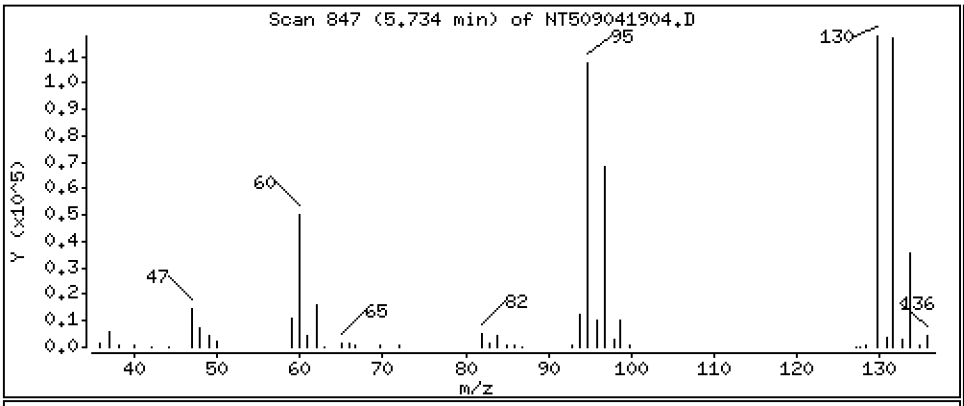
Operator: PB

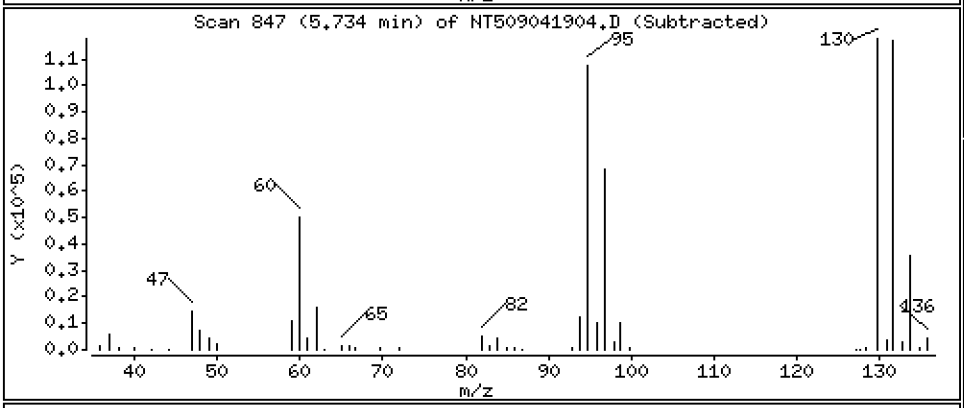
Column phase: RTXVMS

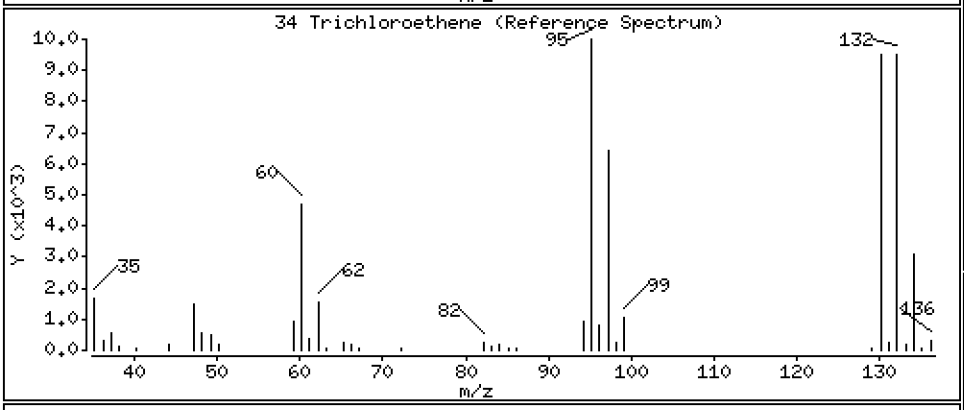
Column diameter: 0.18

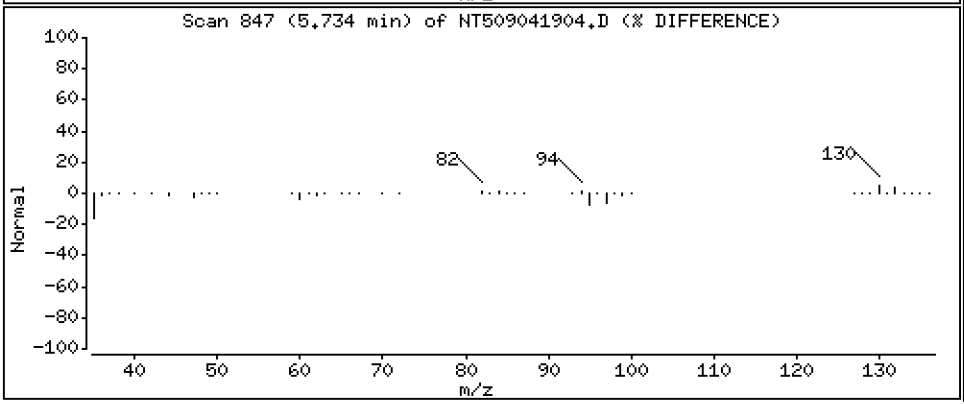
34 Trichloroethene

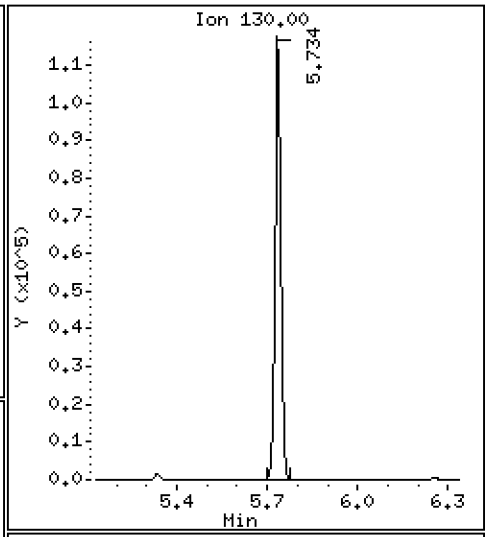
Concentration: 47.834 ug/Kg

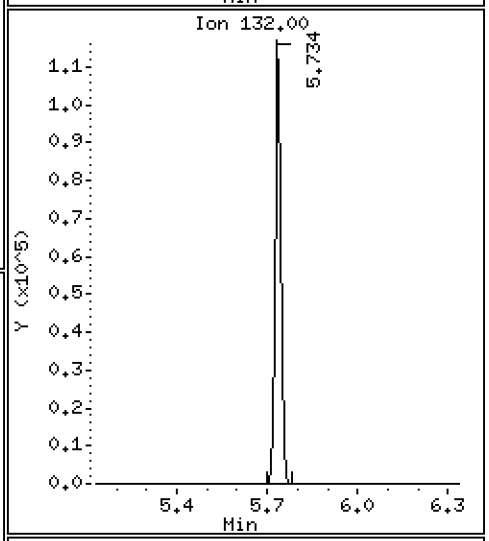


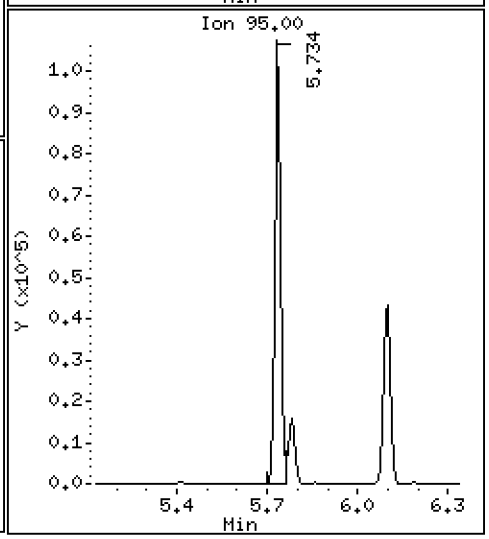












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

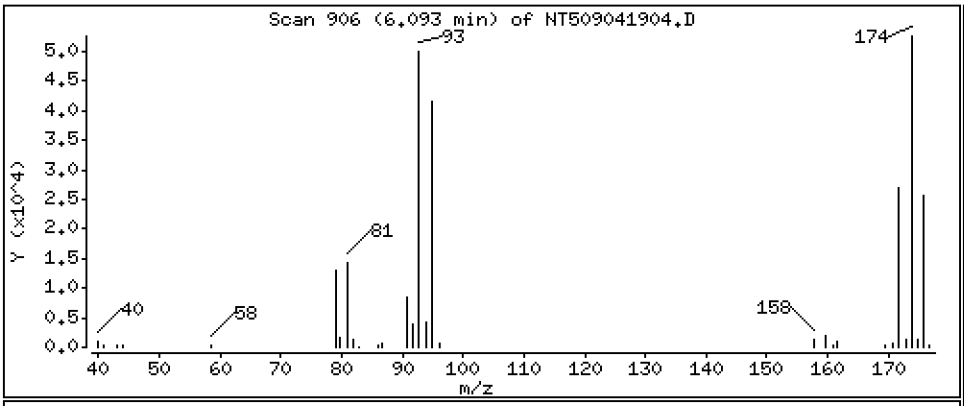
Operator: PB

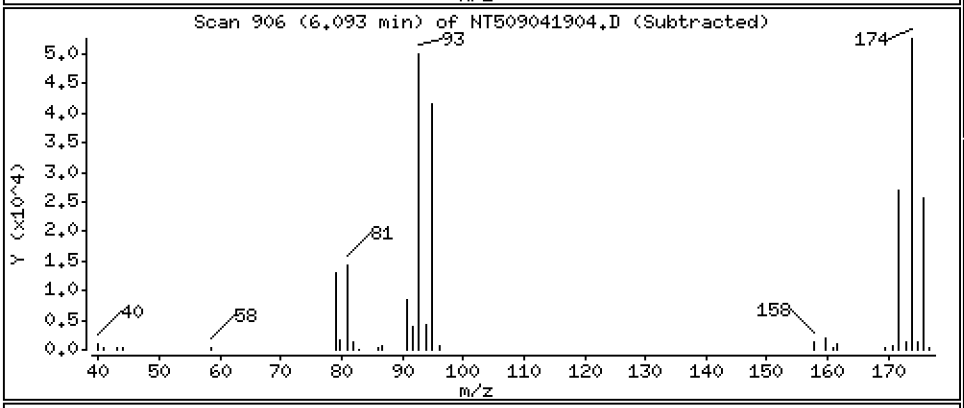
Column phase: RTXVMS

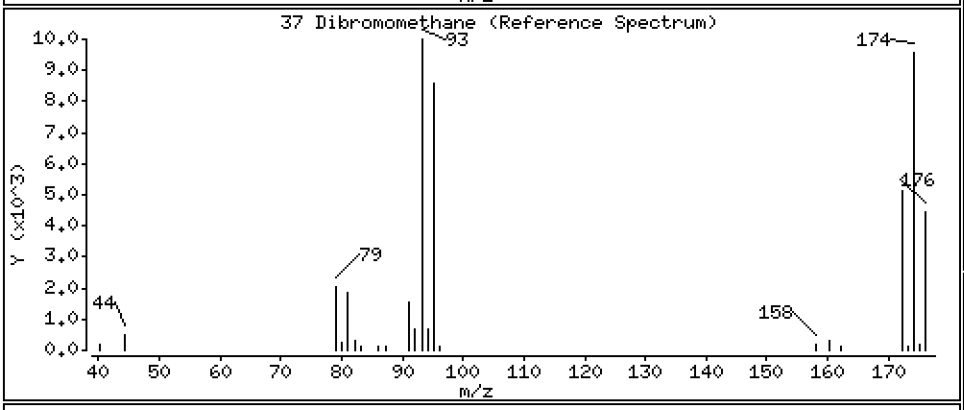
Column diameter: 0.18

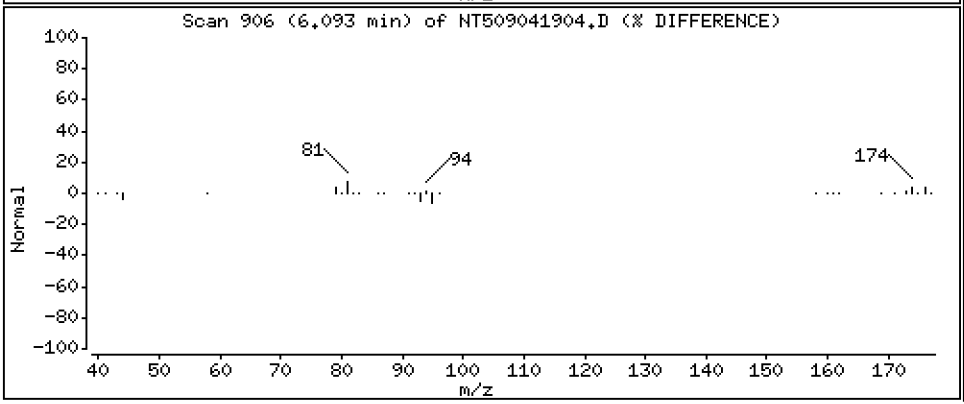
37 Dibromomethane

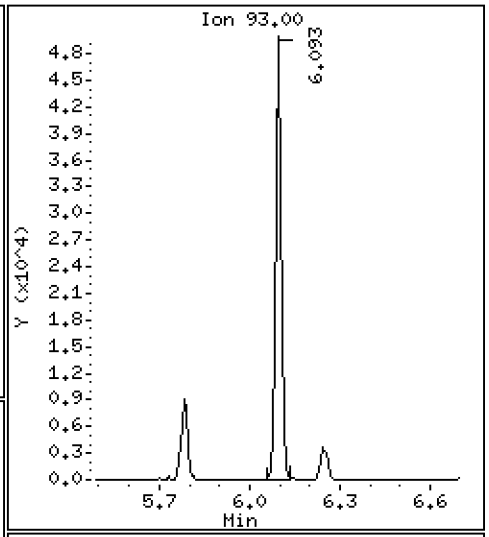
Concentration: 43.275 ug/Kg

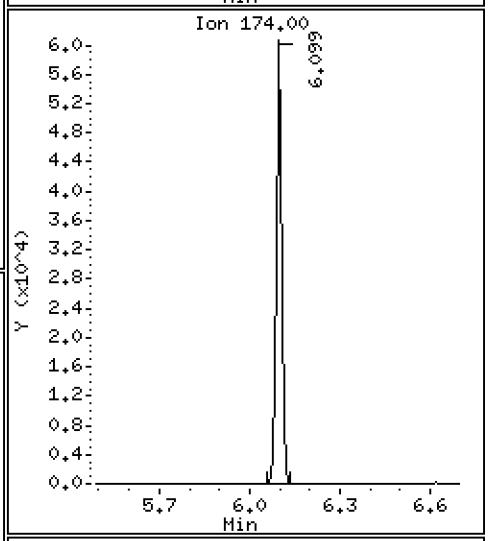


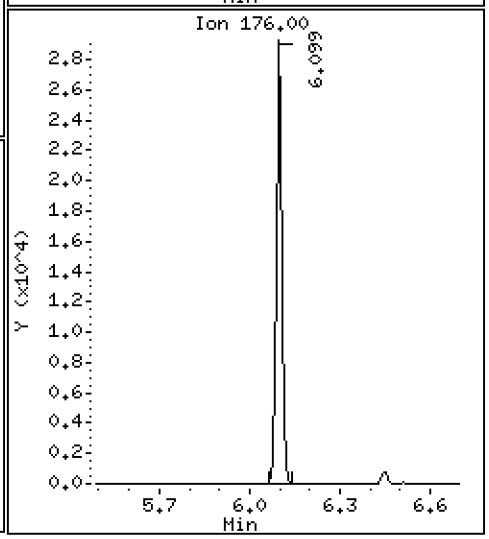












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

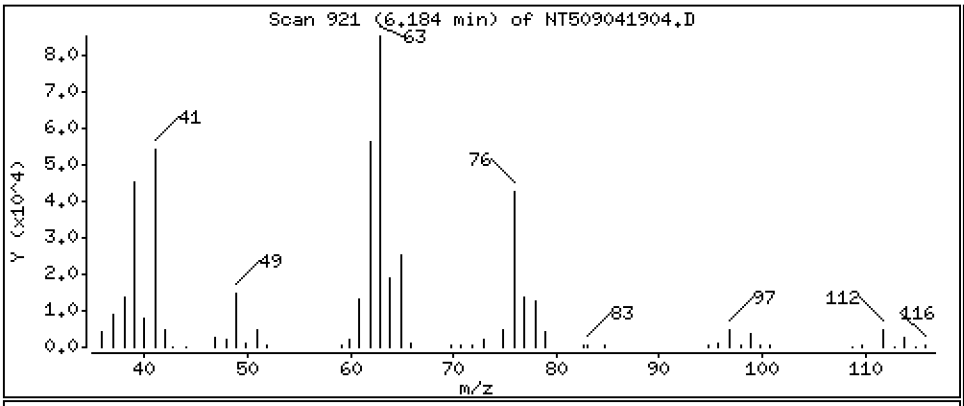
Operator: PB

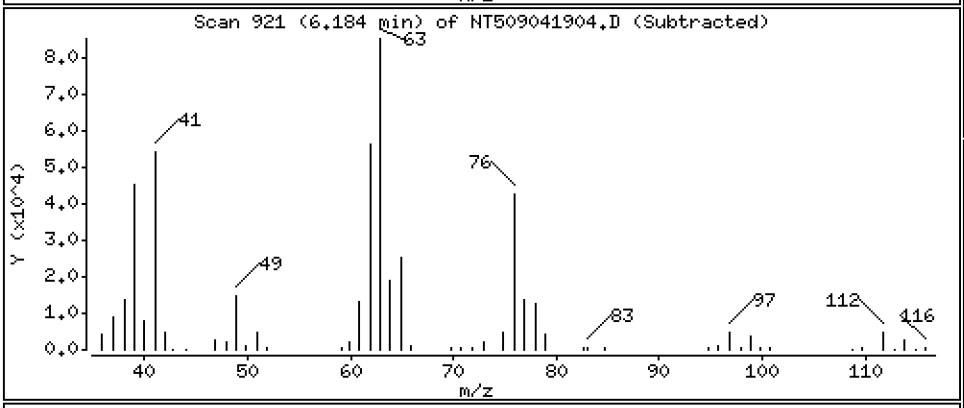
Column phase: RTXVMS

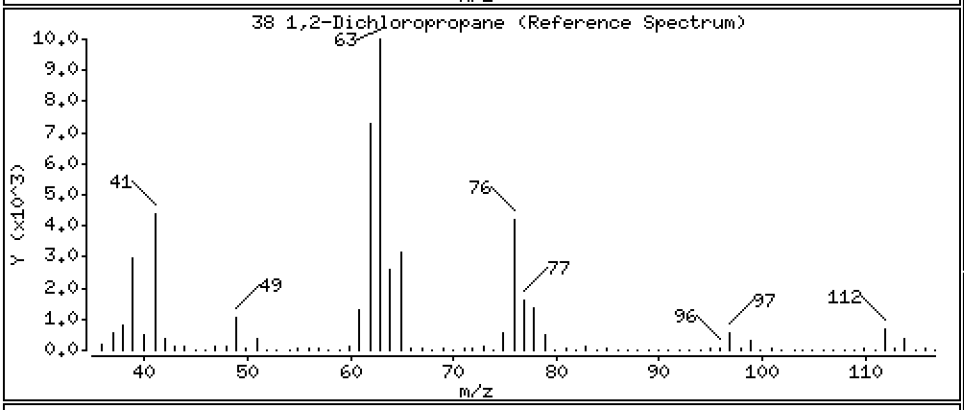
Column diameter: 0.18

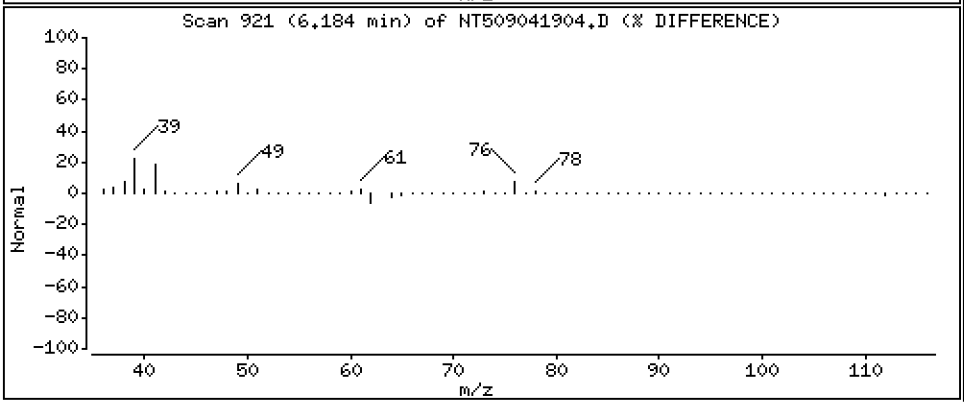
38 1,2-Dichloropropane

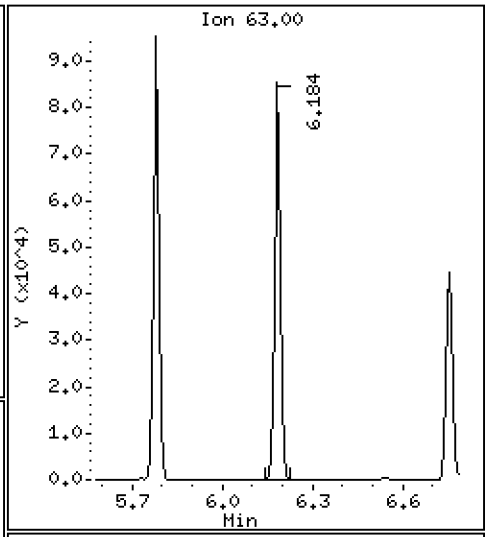
Concentration: 45.616 ug/Kg

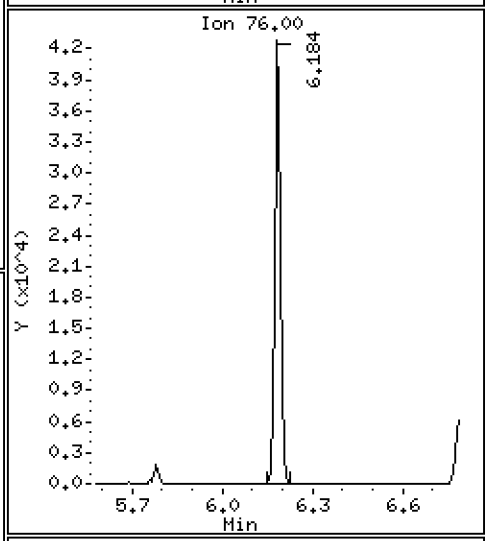


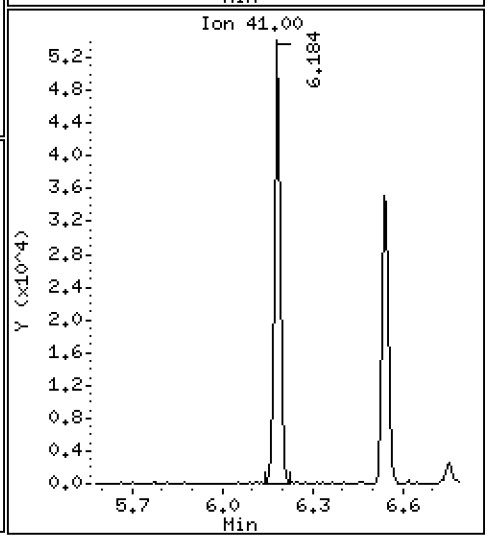












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

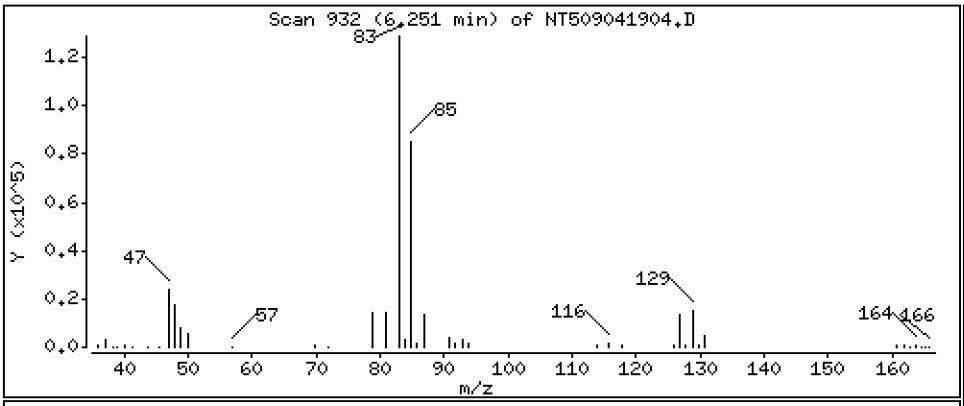
Operator: PB

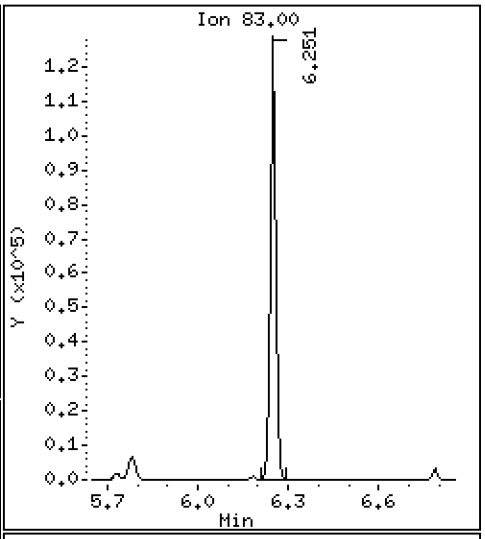
Column phase: RTXVMS

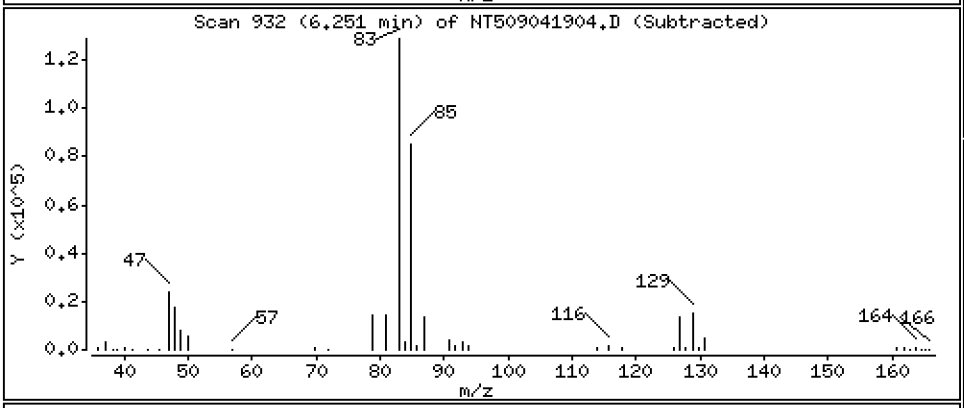
Column diameter: 0.18

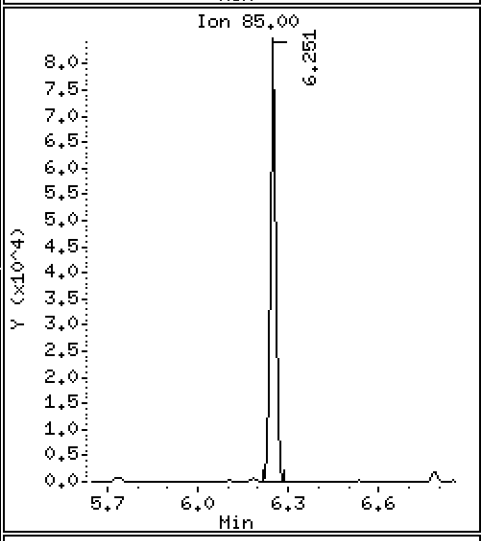
39 Bromodichloromethane

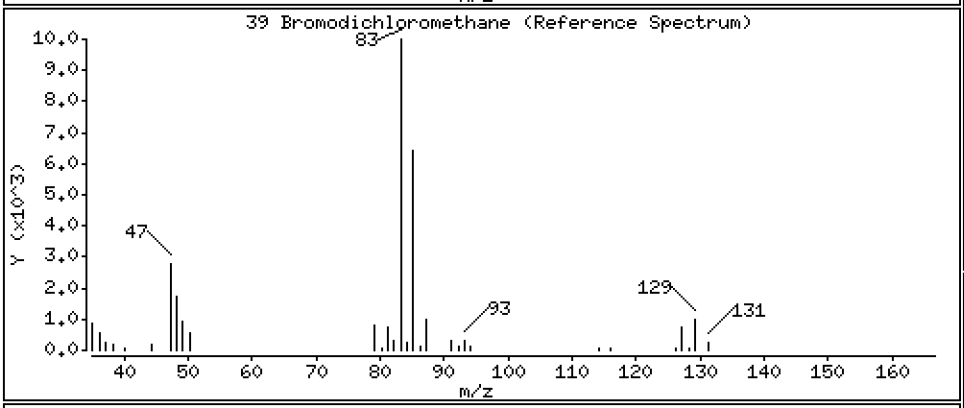
Concentration: 43.825 ug/Kg

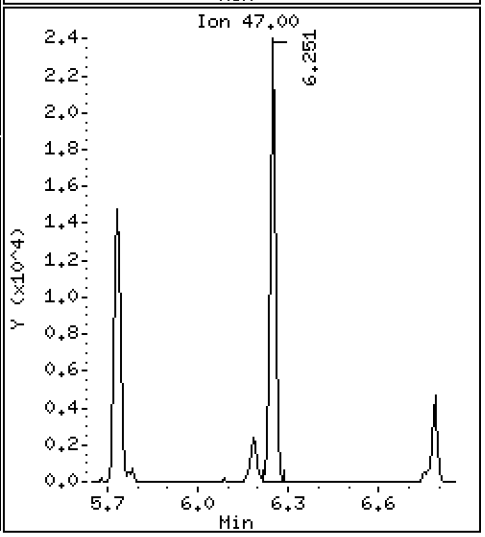


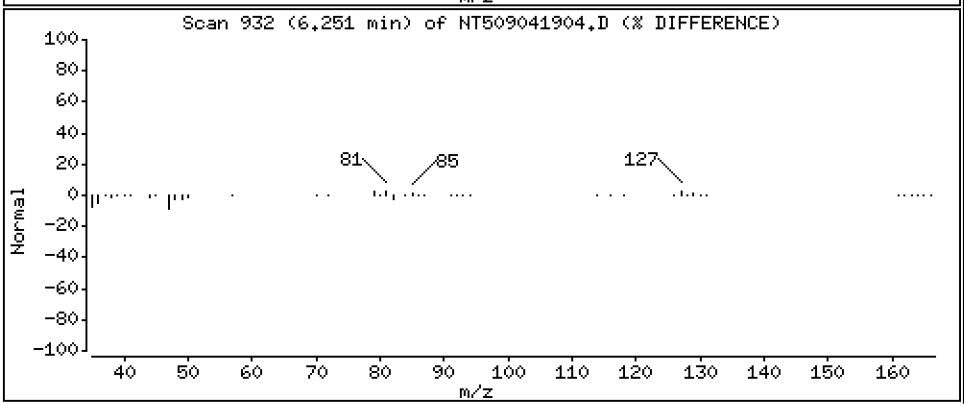












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

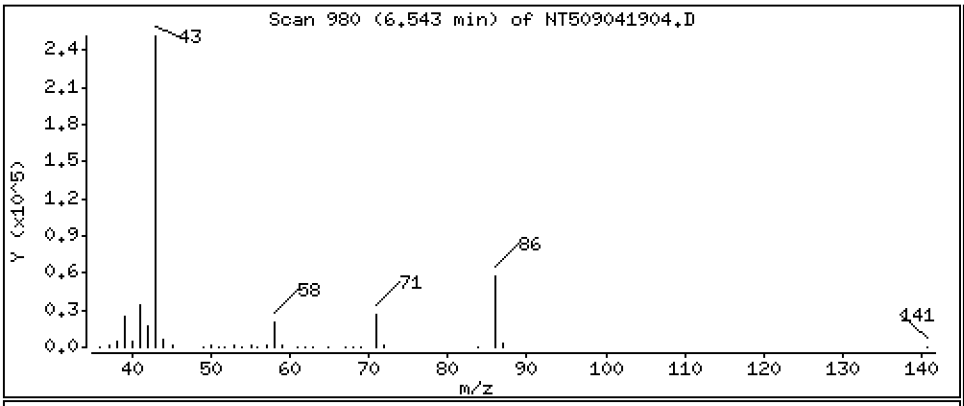
Operator: PB

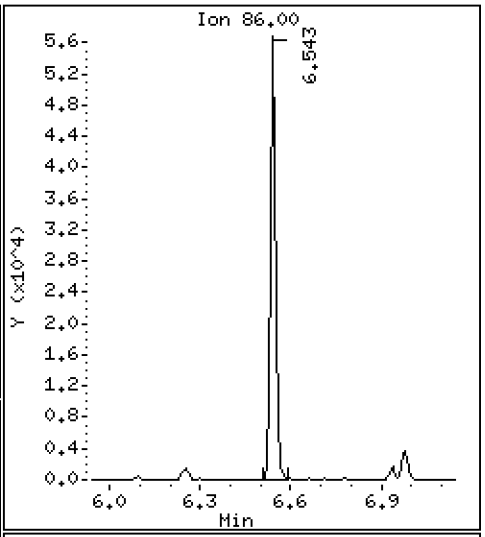
Column phase: RTXVMS

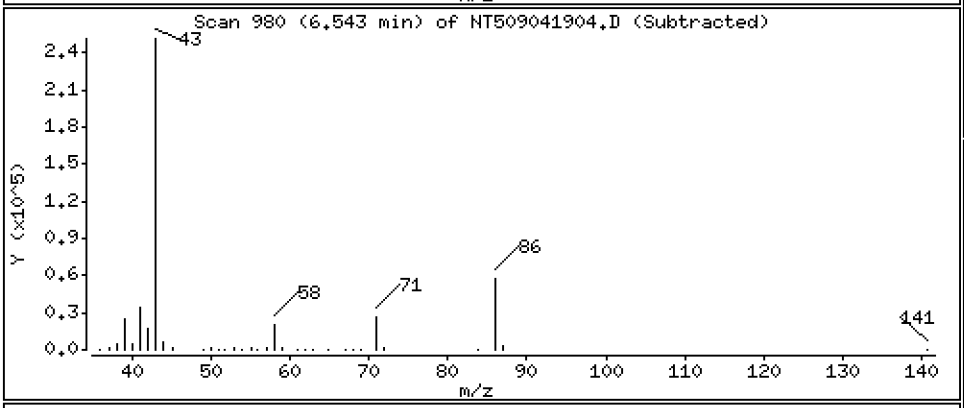
Column diameter: 0.18

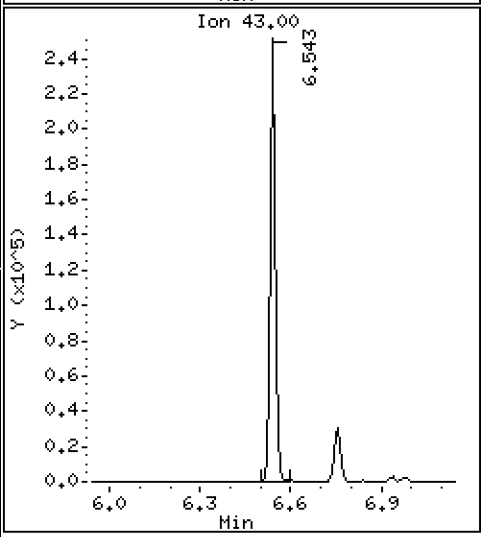
172 2-Pentanone

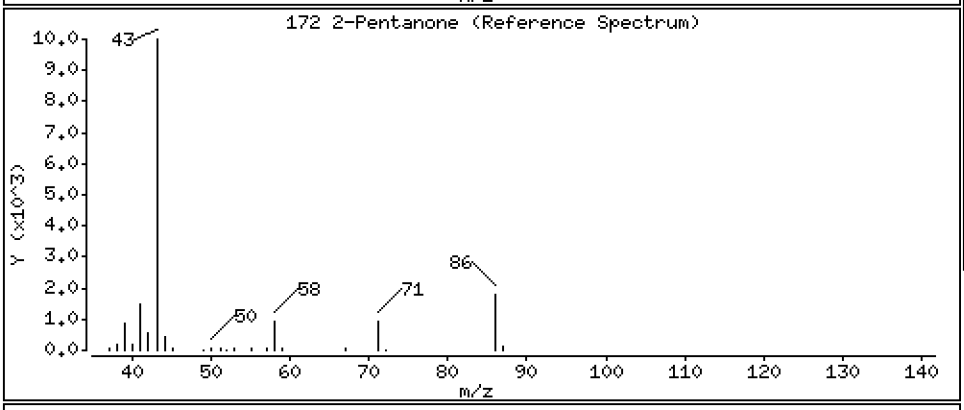
Concentration: 227.46 ug/Kg

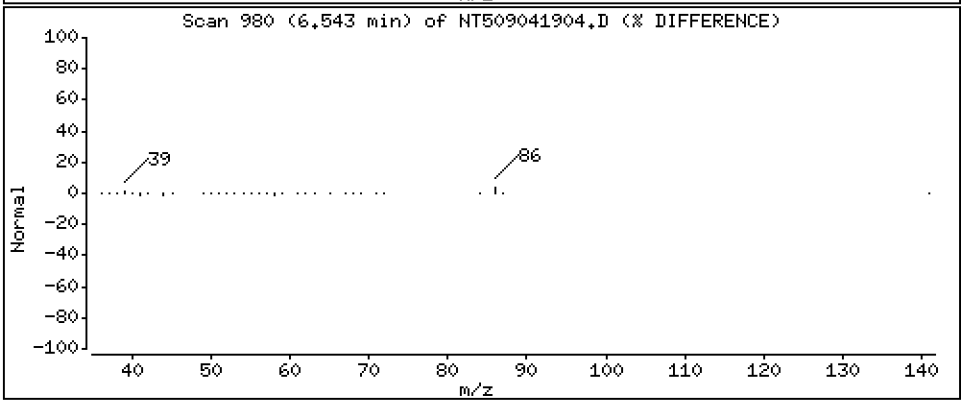












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

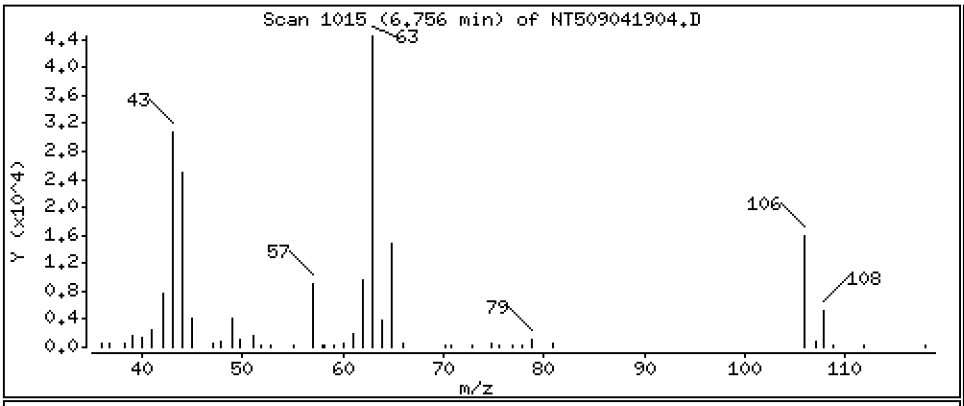
Operator: PB

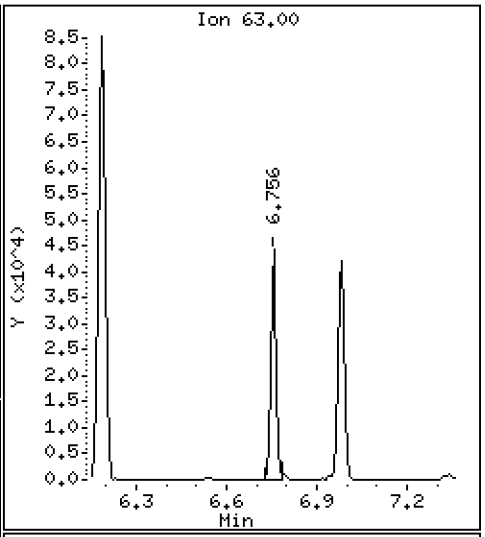
Column phase: RTXVMS

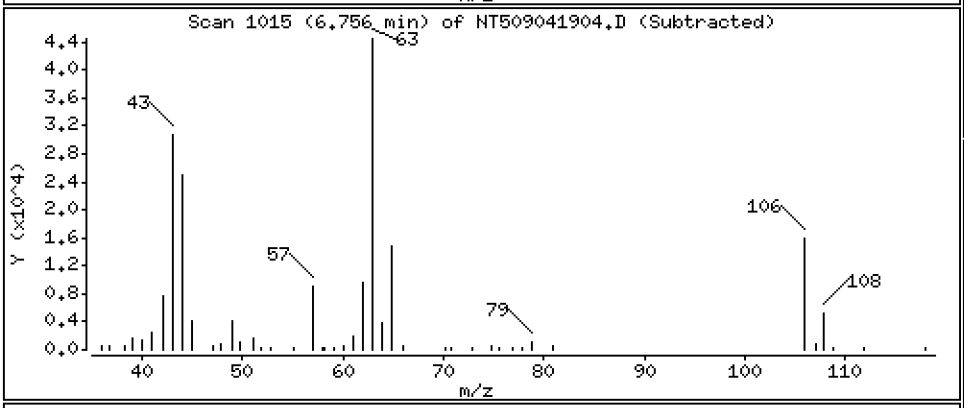
Column diameter: 0.18

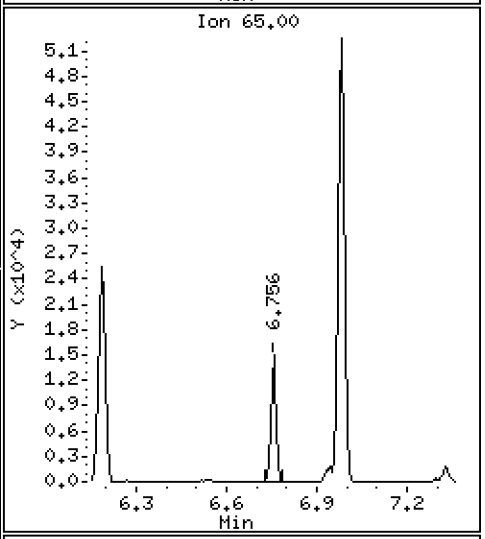
40 2-Chloroethyl Vinyl Ether

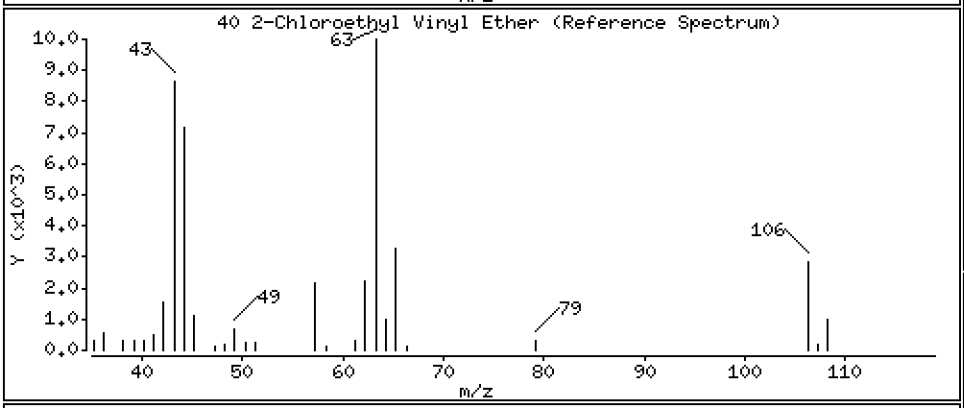
Concentration: 41.188 ug/Kg

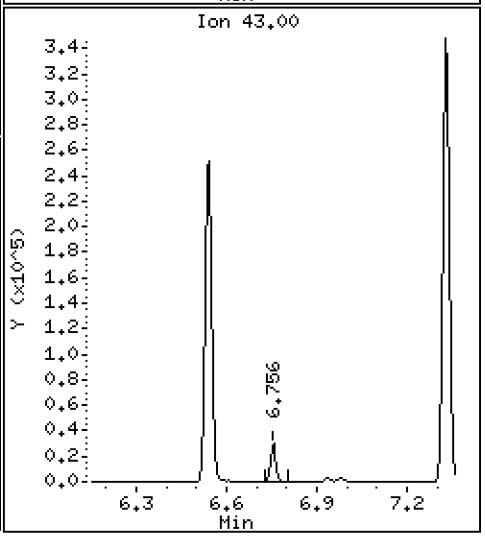


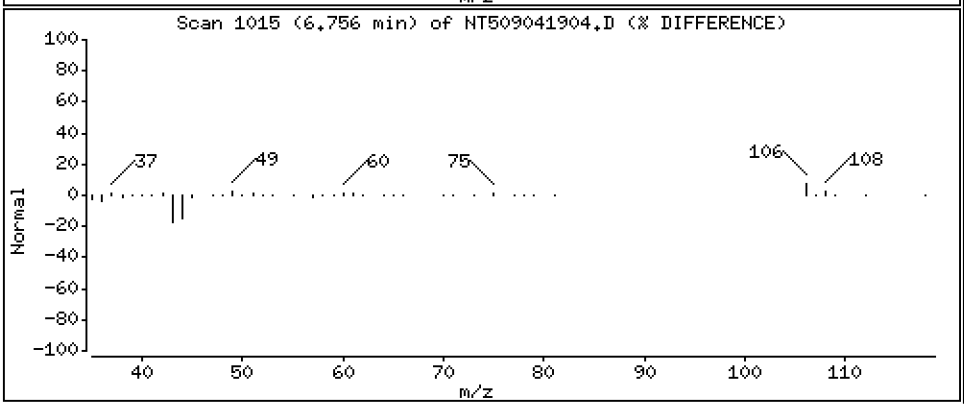












Date : 04-SEP-2019 15:04

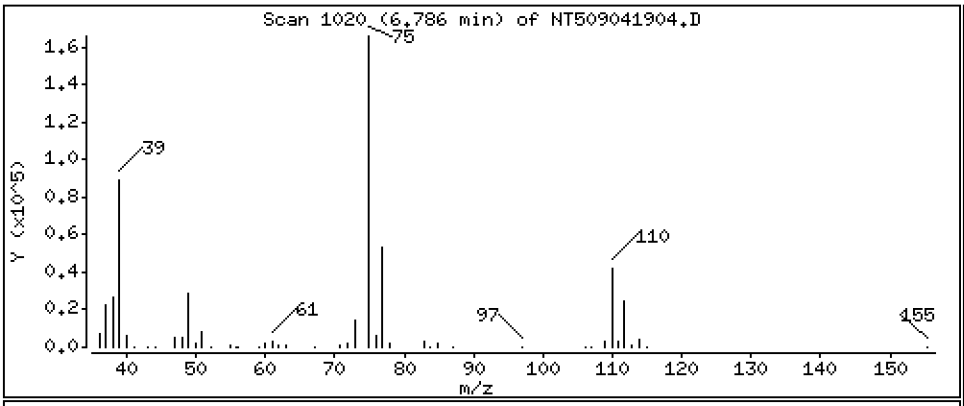
Client ID: Instrument: nt5.i

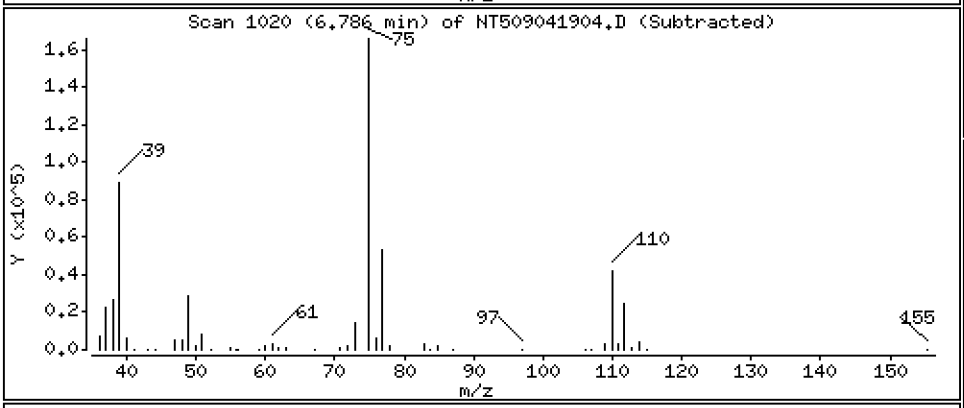
Sample Info: BSD1

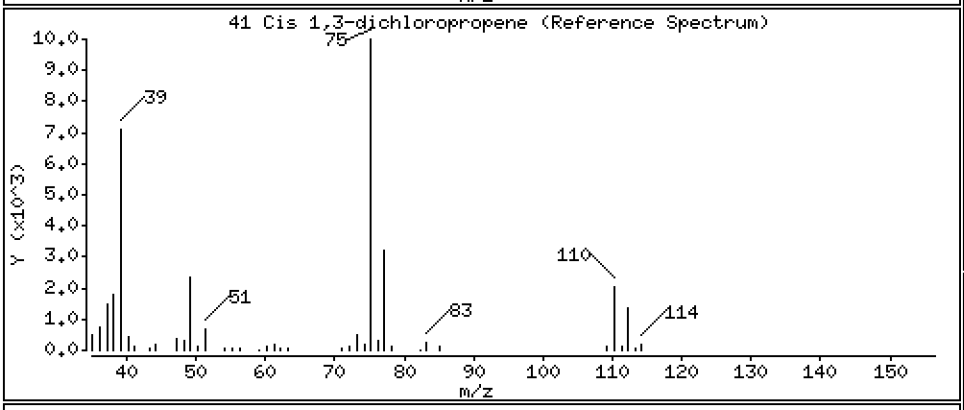
Operator: PB

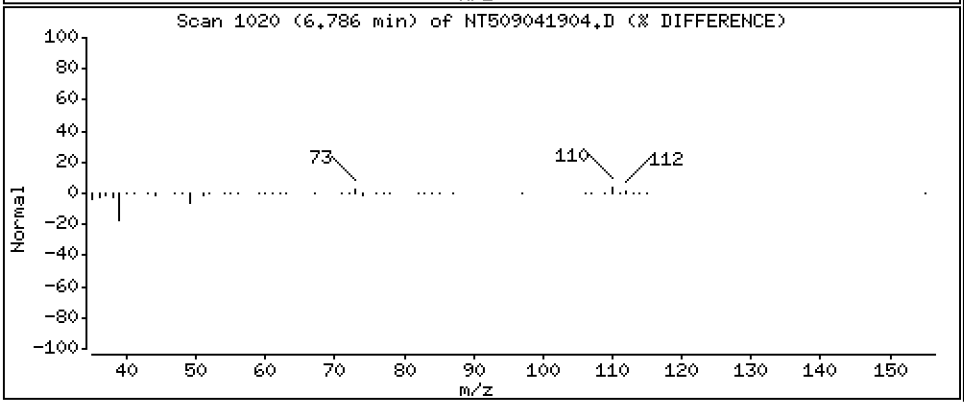
Column phase: RTXVMS Column diameter: 0.18

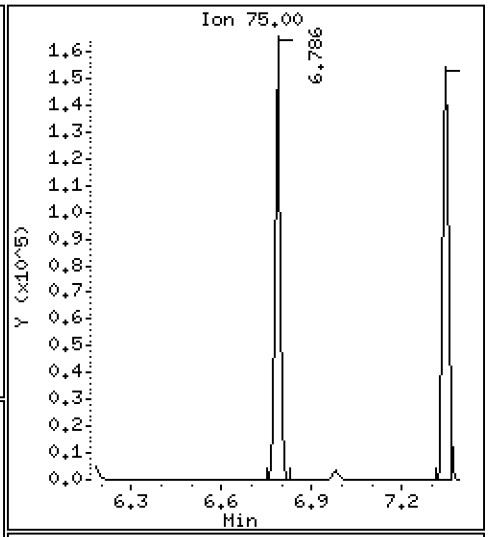
41 Cis 1,3-dichloropropene Concentration: 44.426 ug/Kg

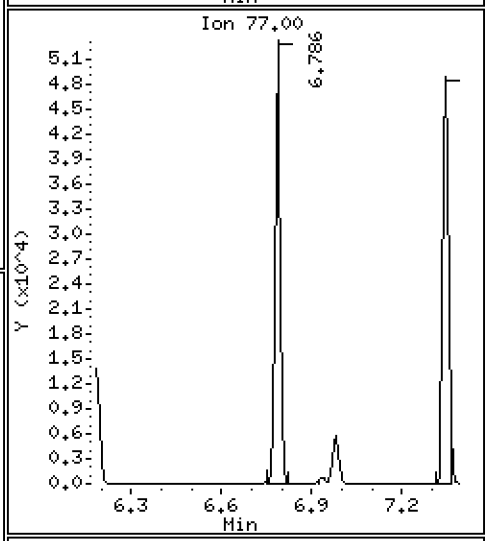


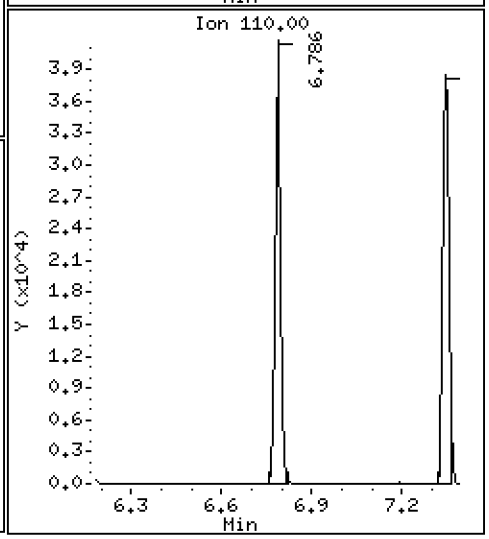












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

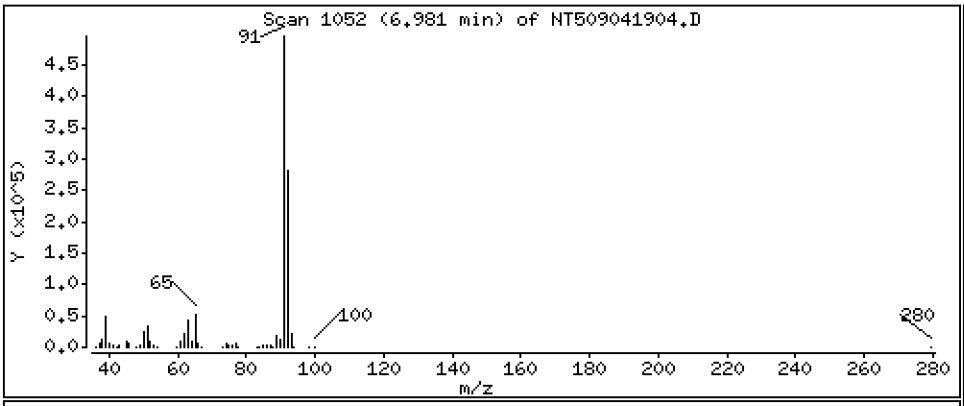
Operator: PB

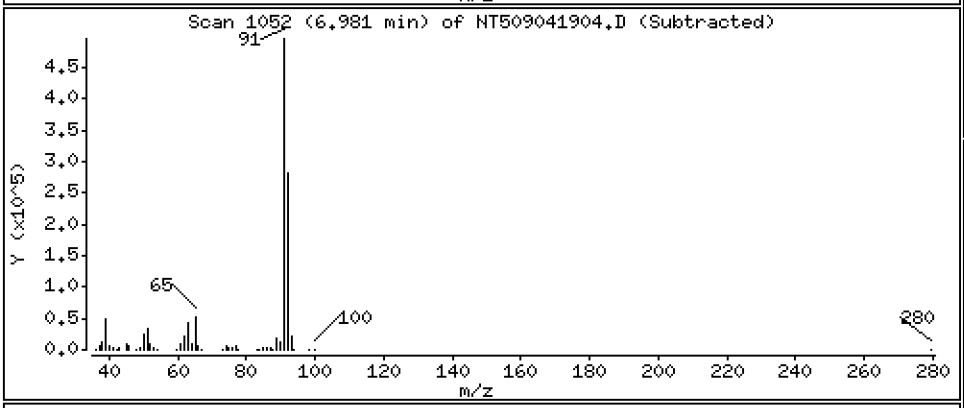
Column phase: RTXVMS

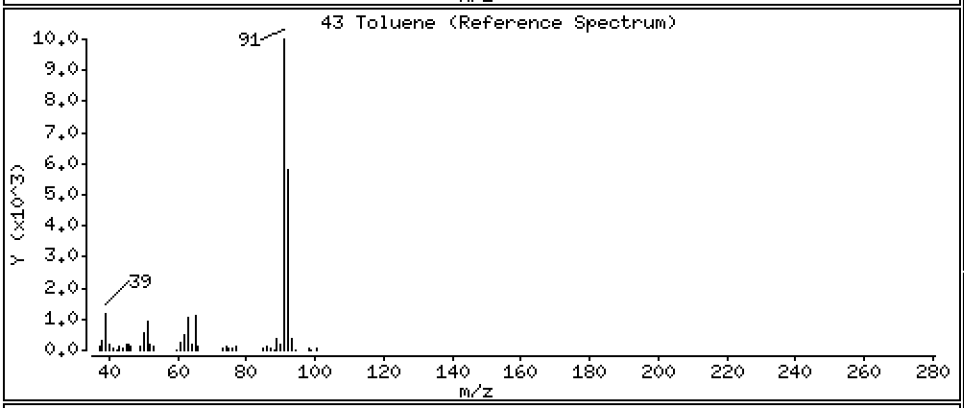
Column diameter: 0.18

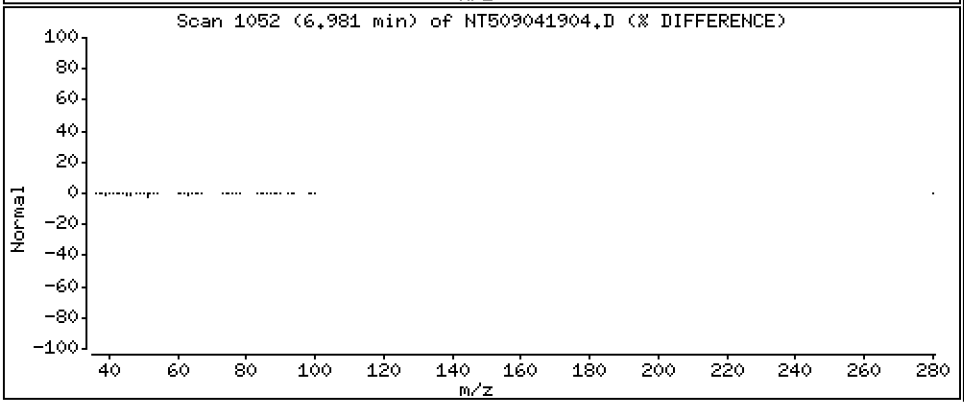
43 Toluene

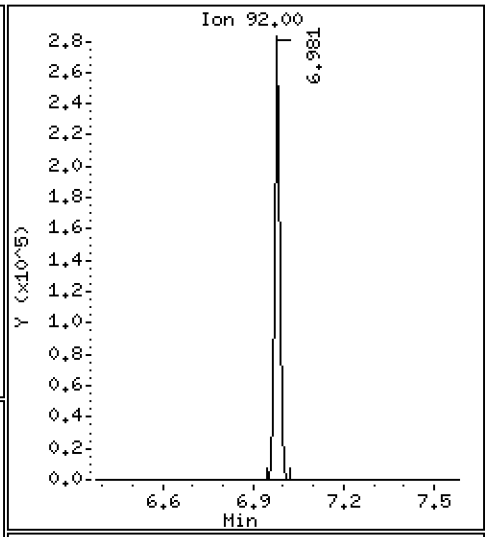
Concentration: 45.271 ug/Kg

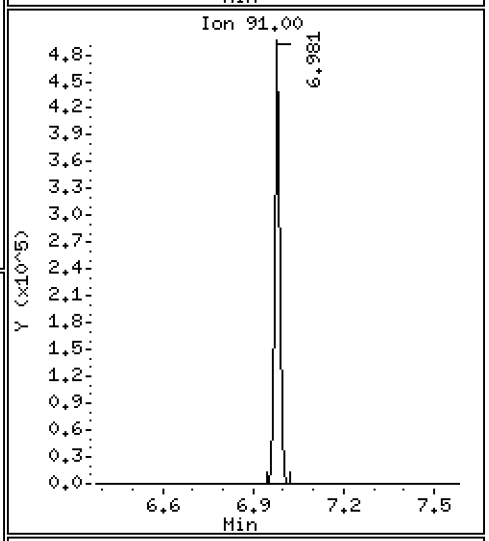


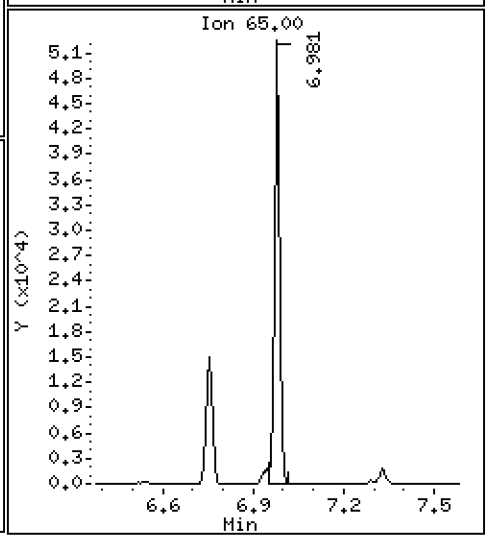












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

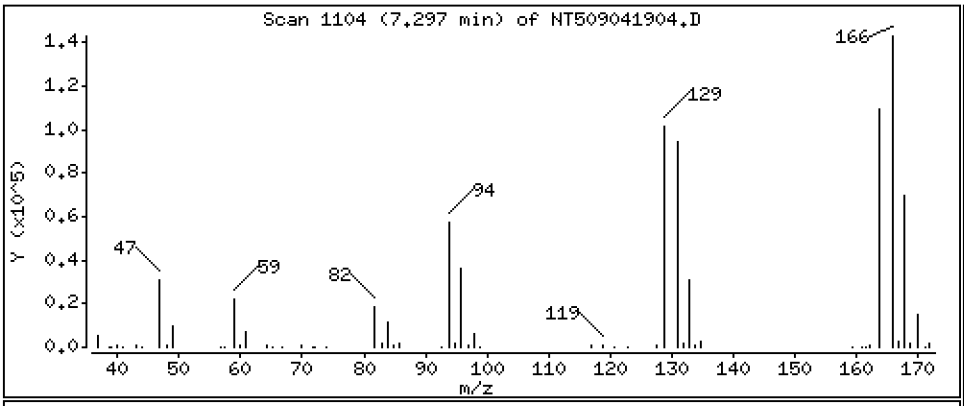
Operator: PB

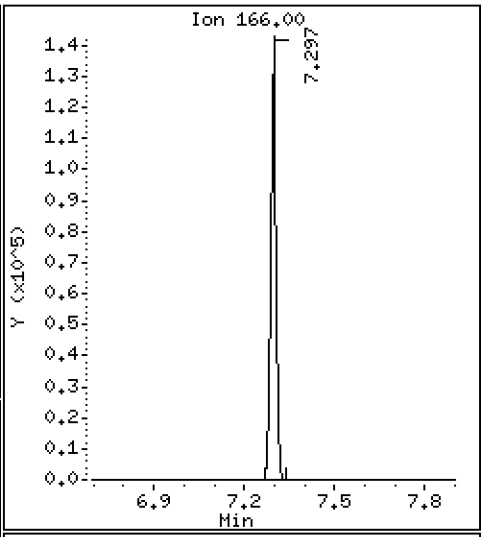
Column phase: RTXVMS

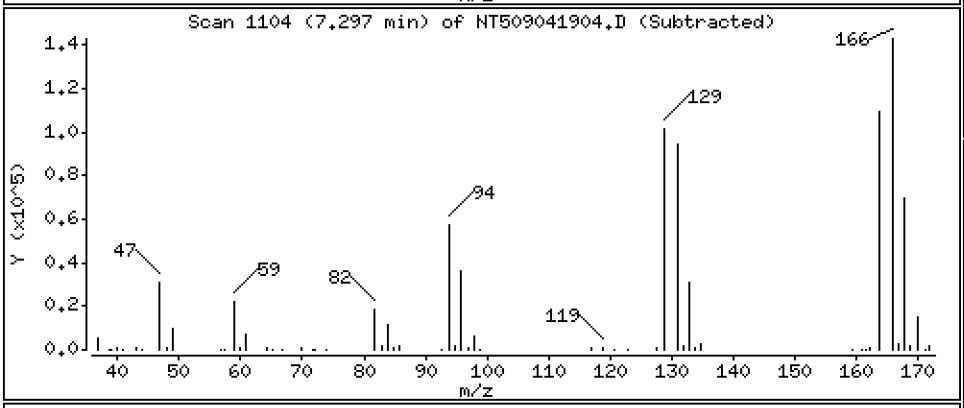
Column diameter: 0.18

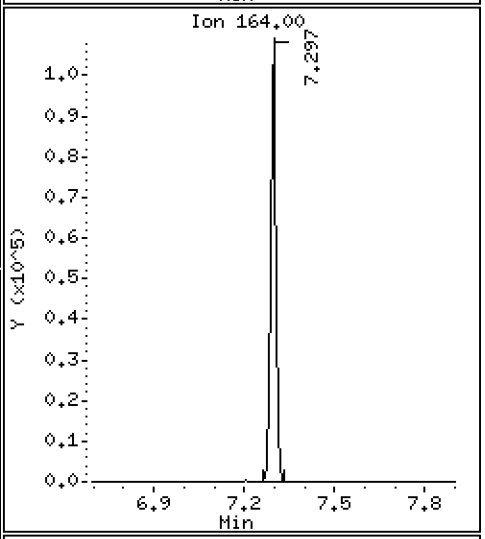
44 Tetrachloroethene

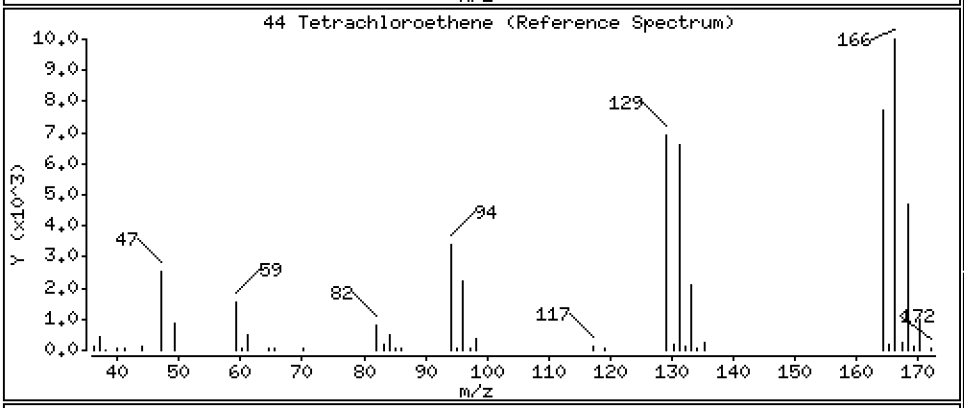
Concentration: 48.700 ug/Kg

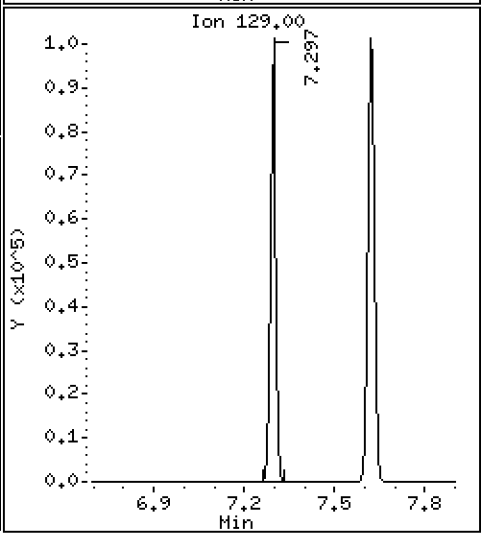


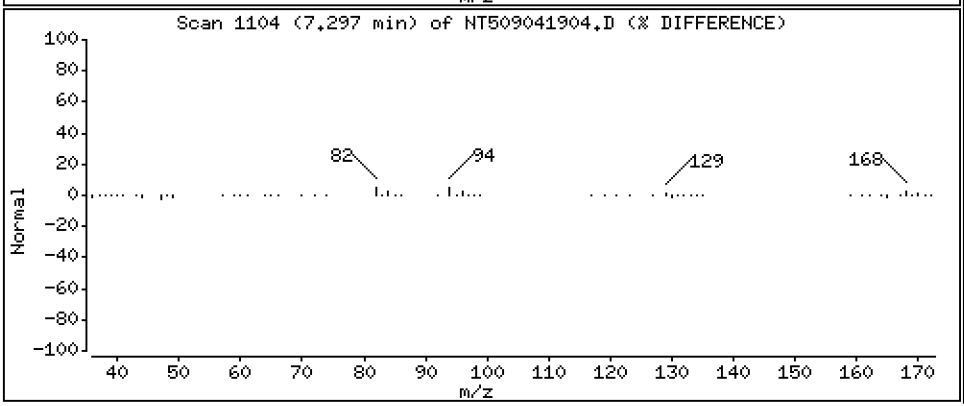












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

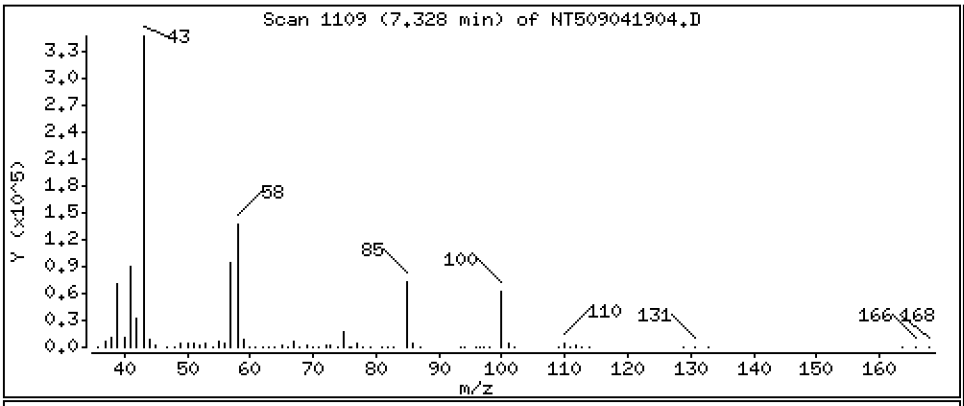
Operator: PB

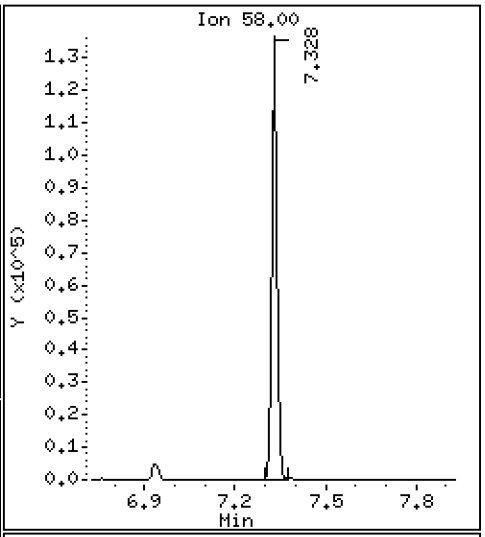
Column phase: RTXVMS

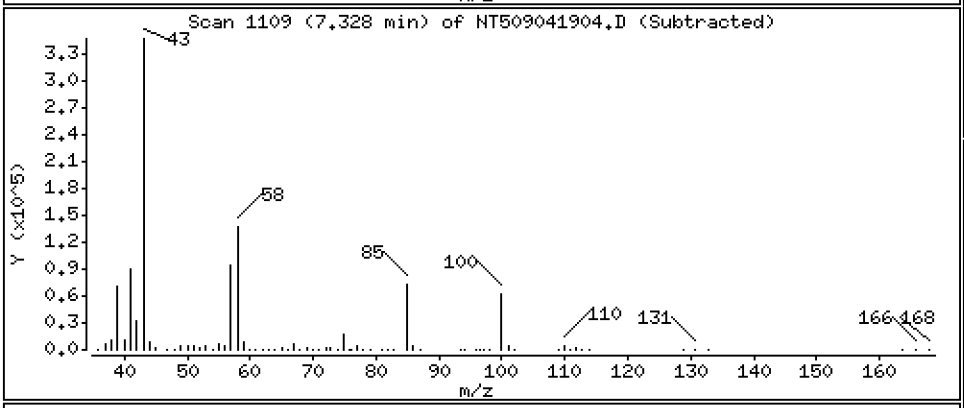
Column diameter: 0.18

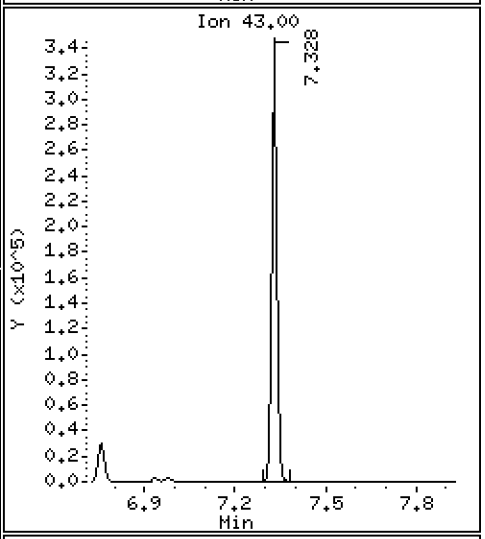
45 4-Methyl-2-Pentanone

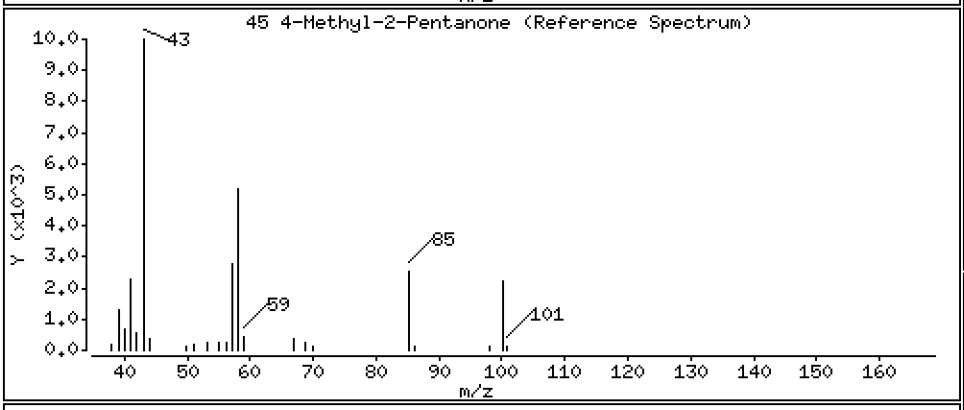
Concentration: 223.25 ug/Kg

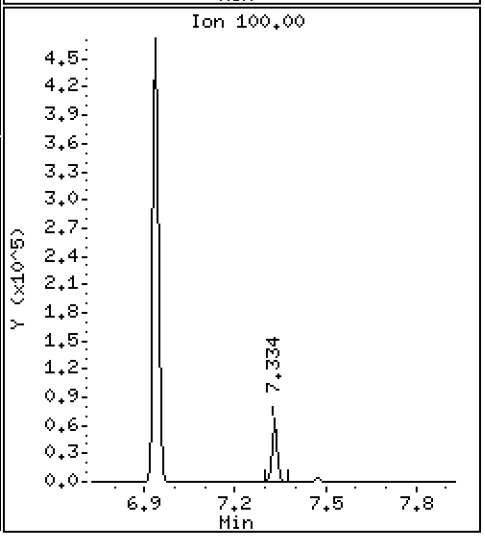


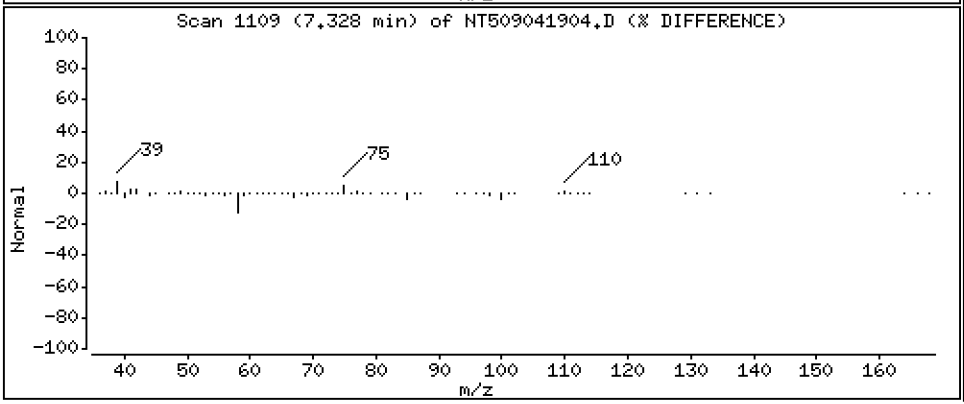












Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

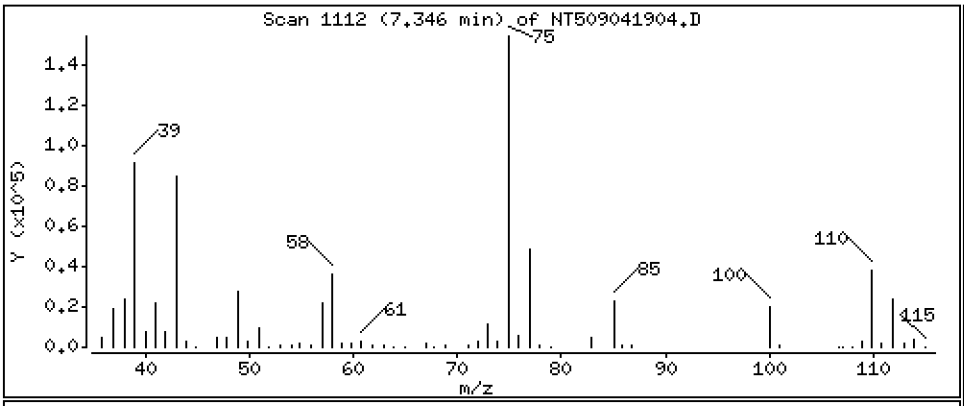
Operator: PB

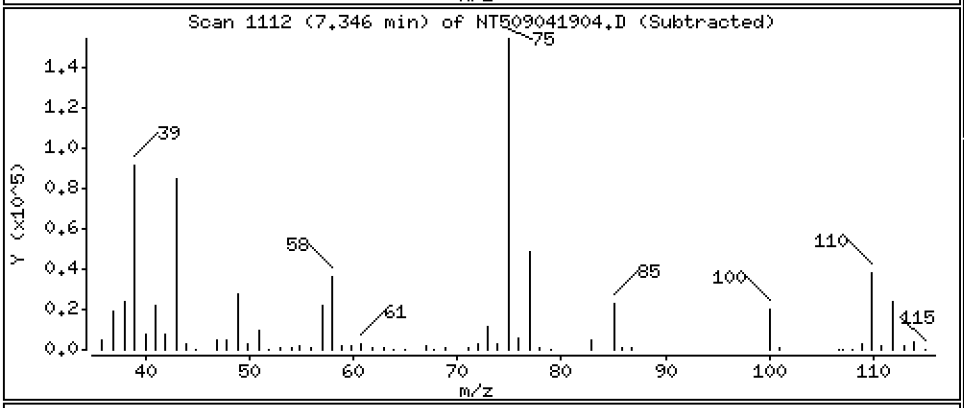
Column phase: RTXVMS

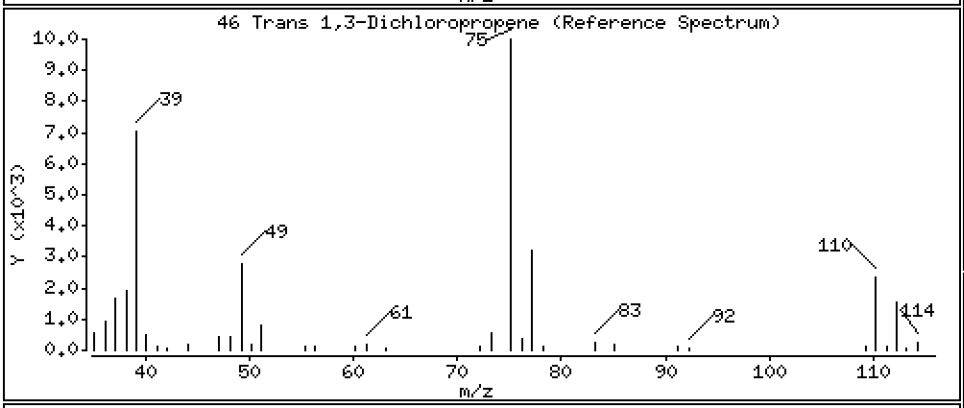
Column diameter: 0.18

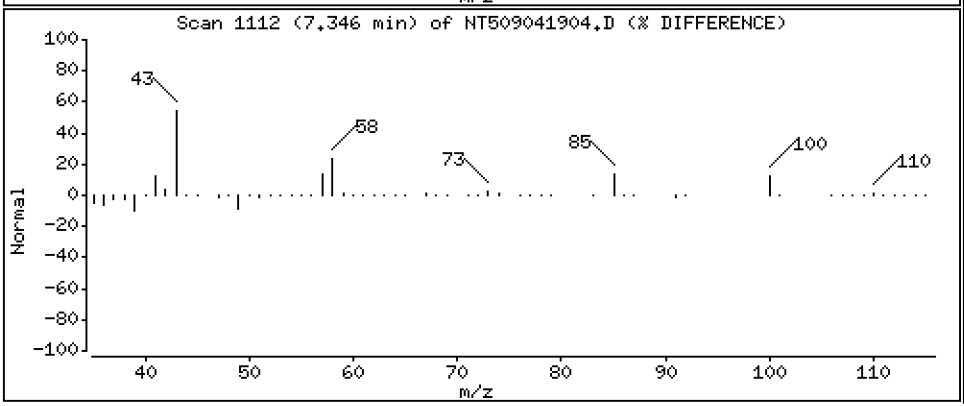
46 Trans 1,3-Dichloropropene

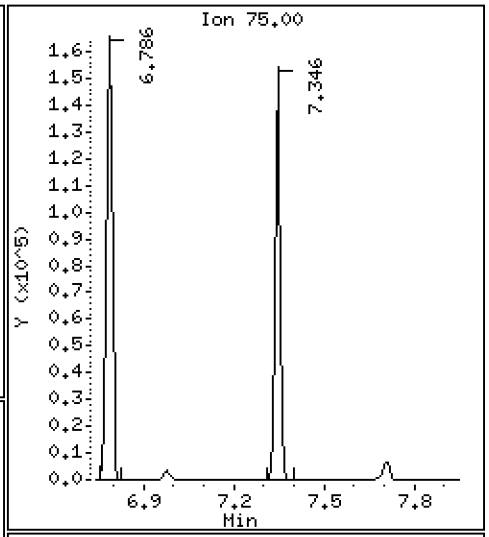
Concentration: 45.059 ug/Kg

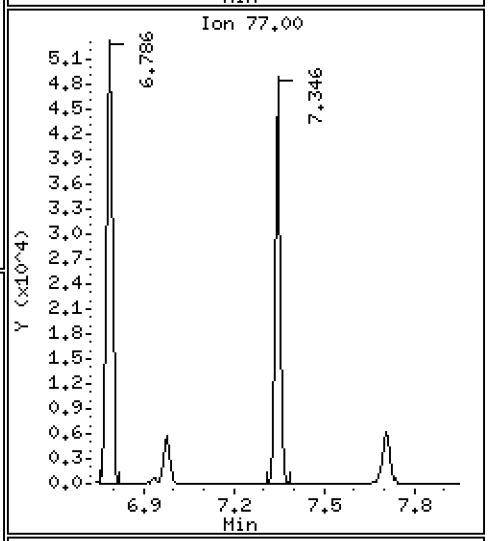


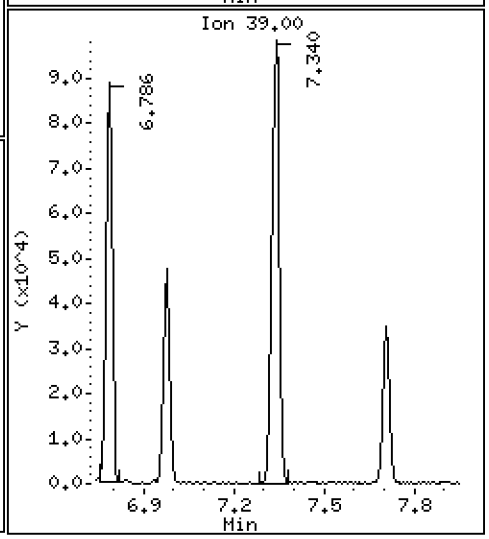












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

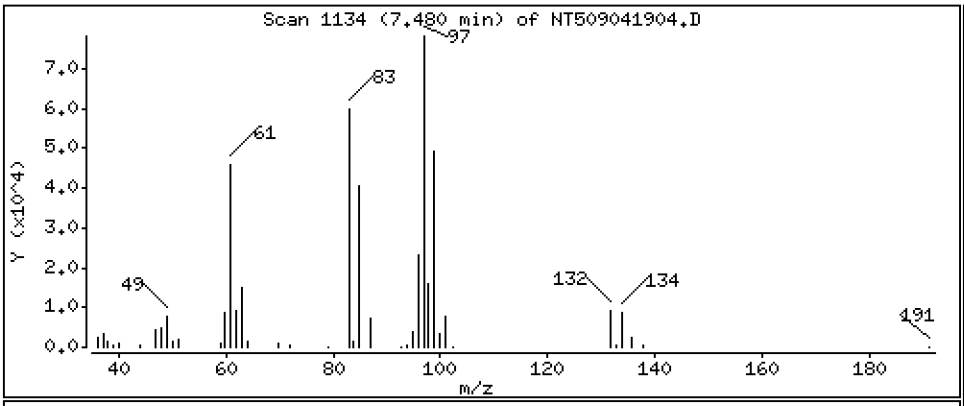
Operator: PB

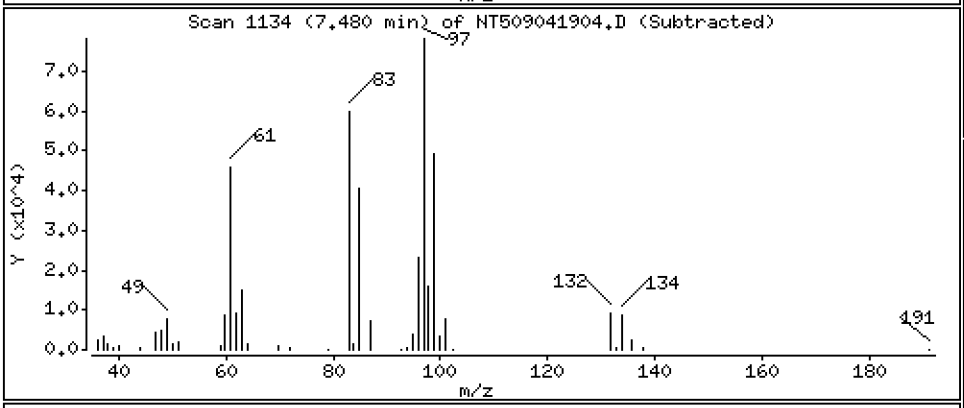
Column phase: RTXVMS

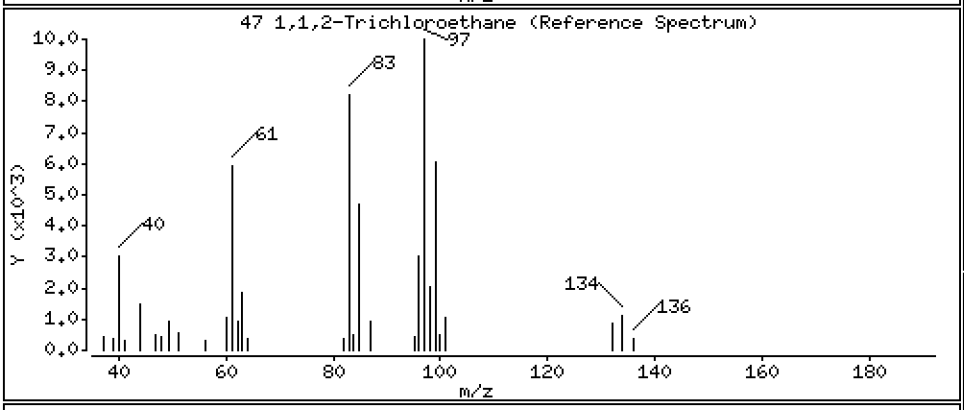
Column diameter: 0.18

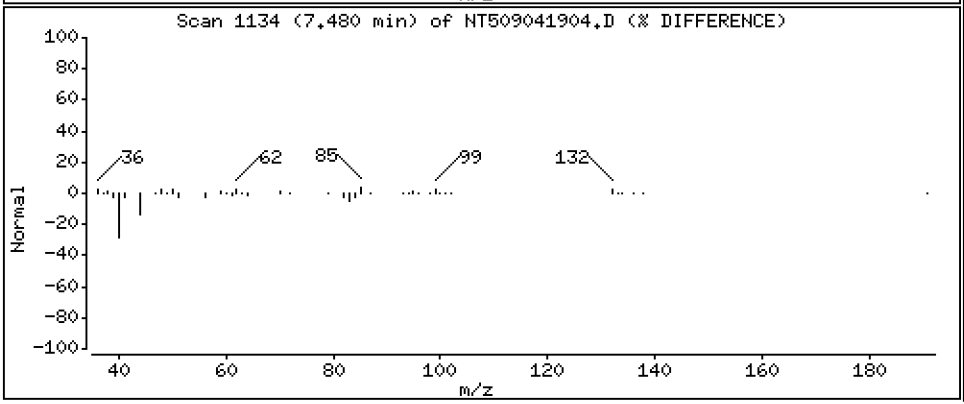
47 1,1,2-Trichloroethane

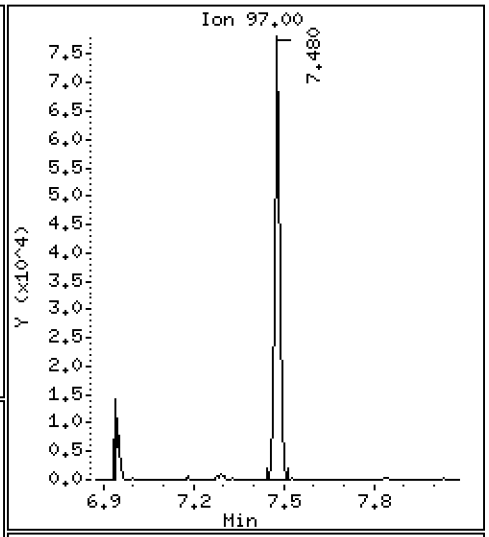
Concentration: 42.895 ug/Kg

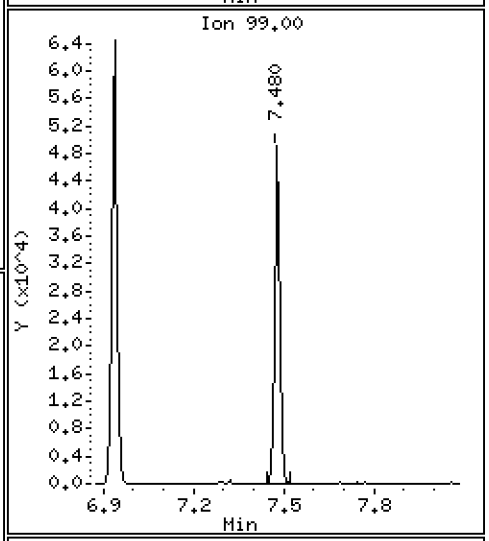


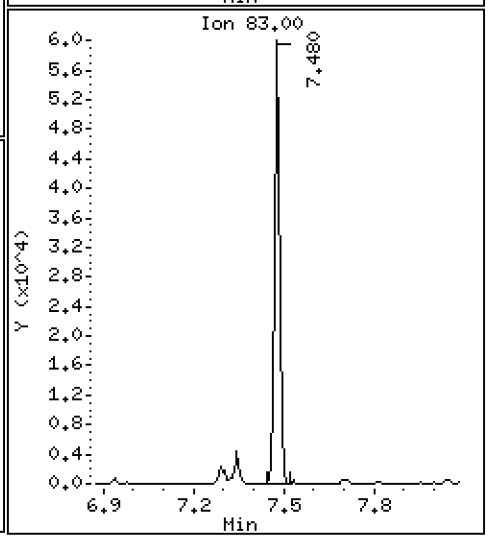












Date : 04-SEP-2019 15:04

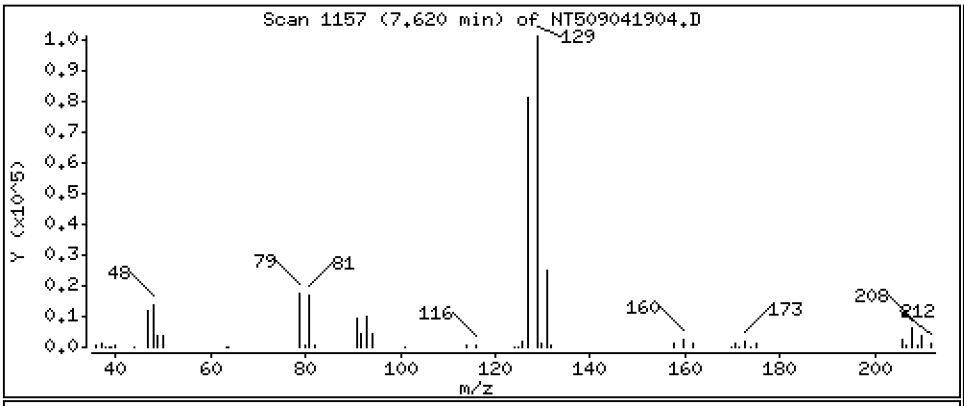
Client ID: Instrument: nt5.i

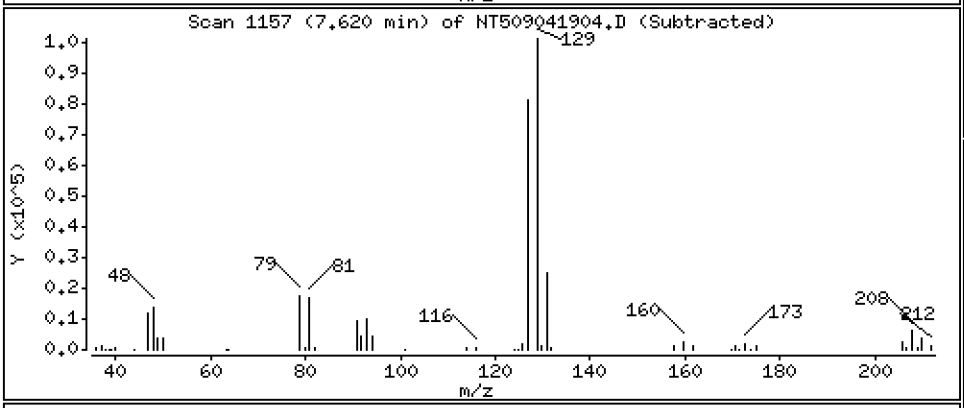
Sample Info: BSD1

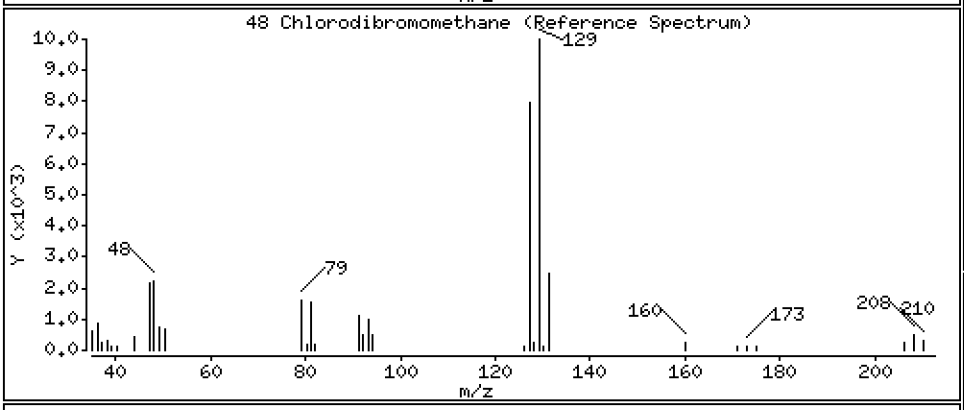
Operator: PB

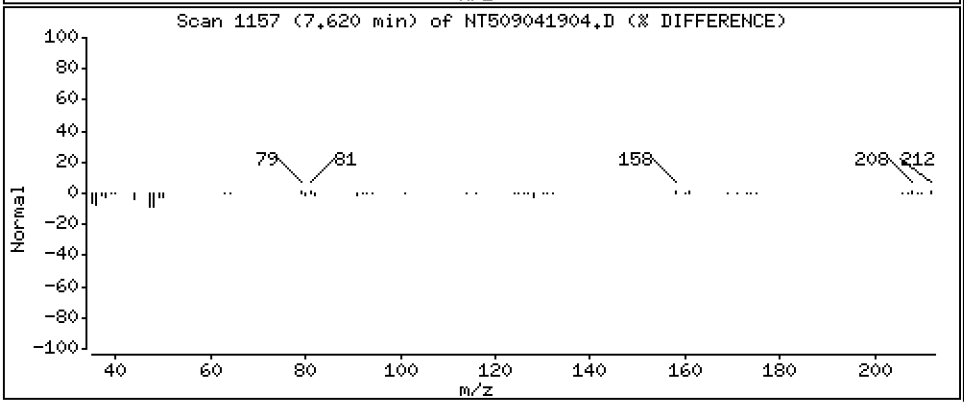
Column phase: RTXVMS Column diameter: 0.18

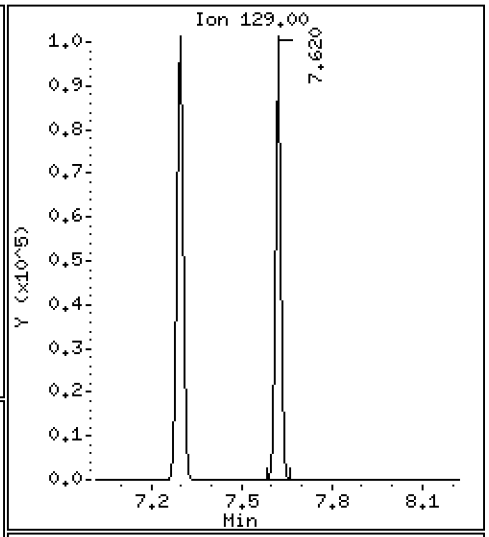
48 Chlorodibromomethane Concentration: 41.803 ug/Kg

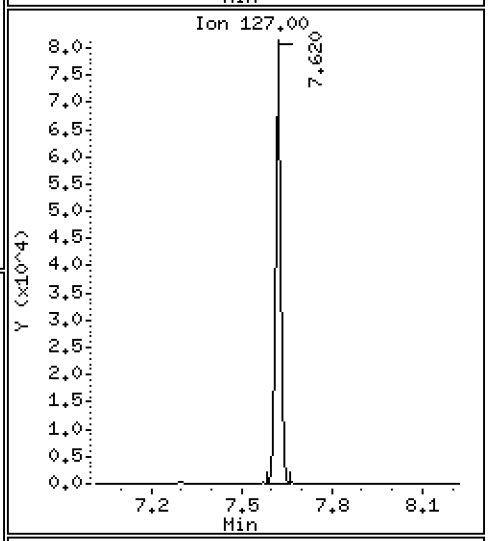


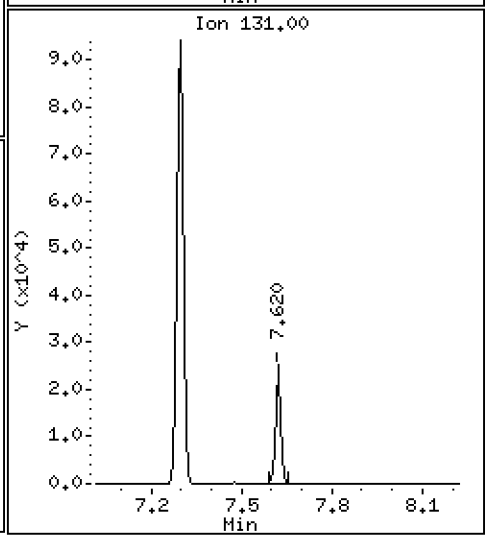












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

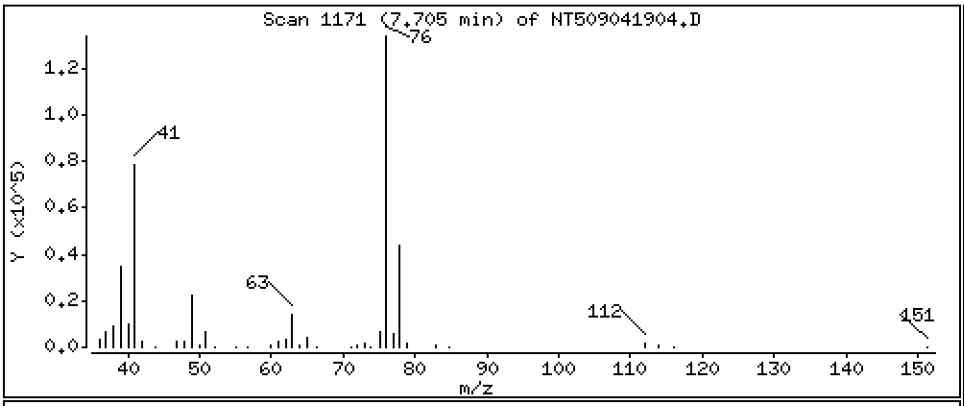
Operator: PB

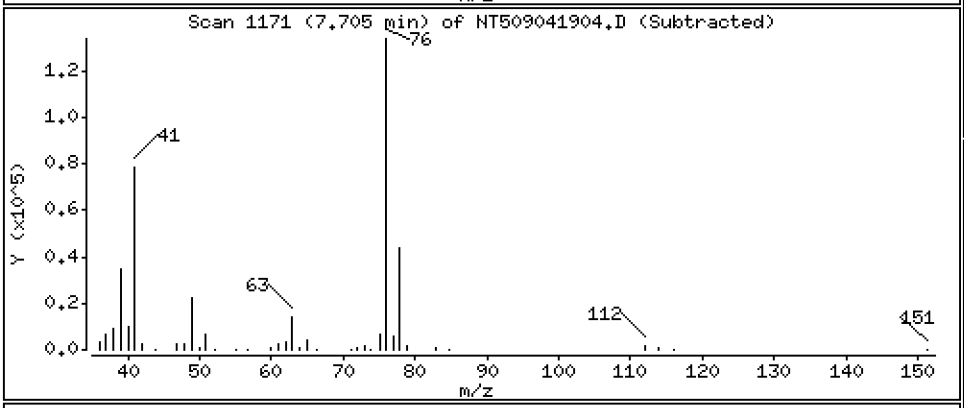
Column phase: RTXVMS

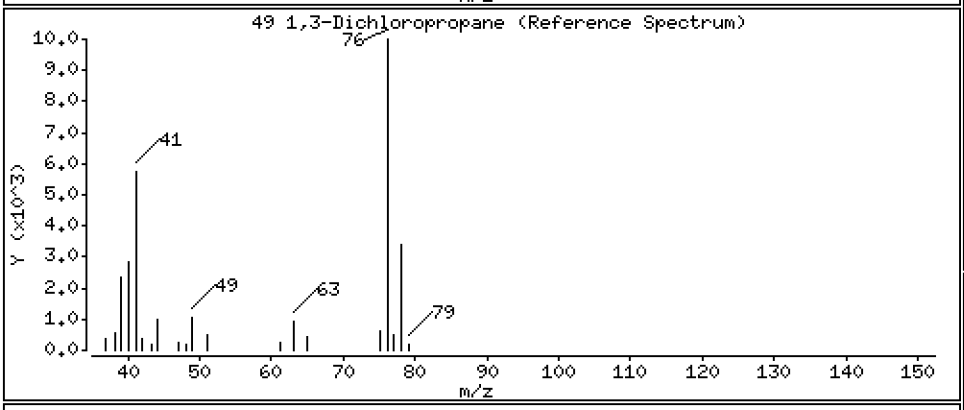
Column diameter: 0.18

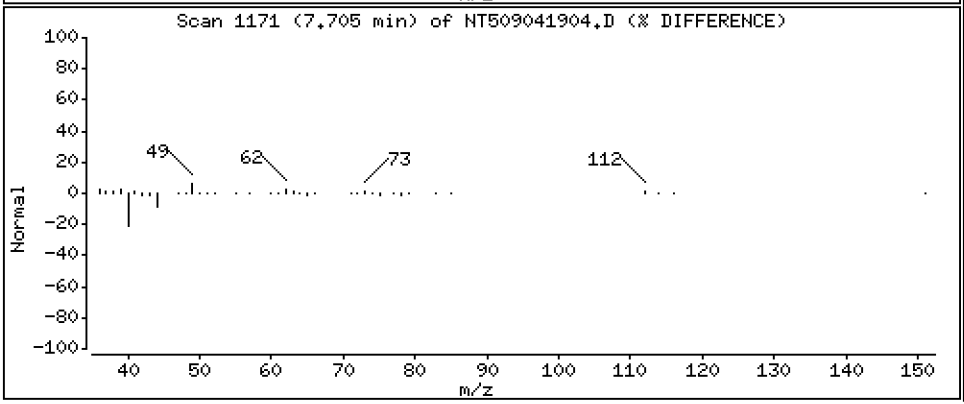
49 1,3-Dichloropropane

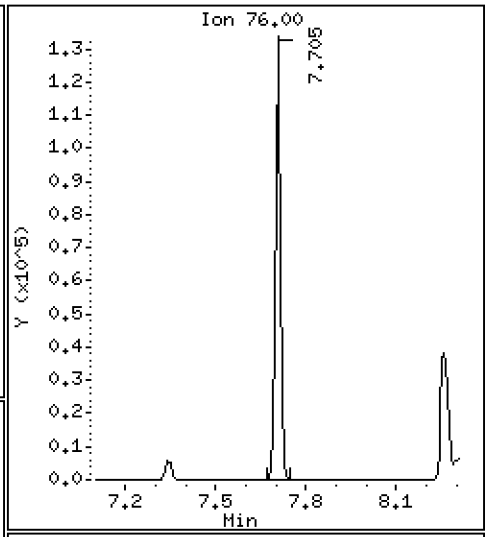
Concentration: 42.833 ug/Kg

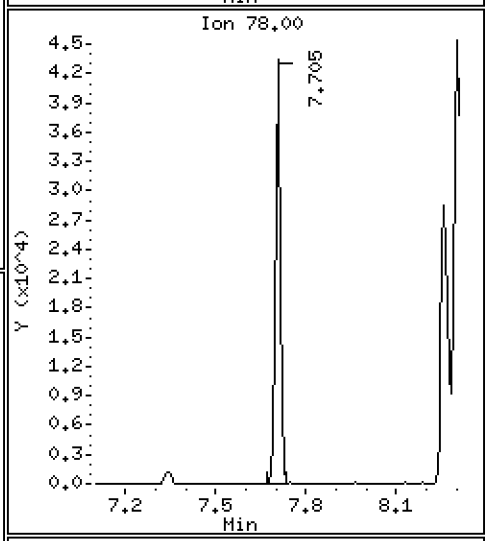


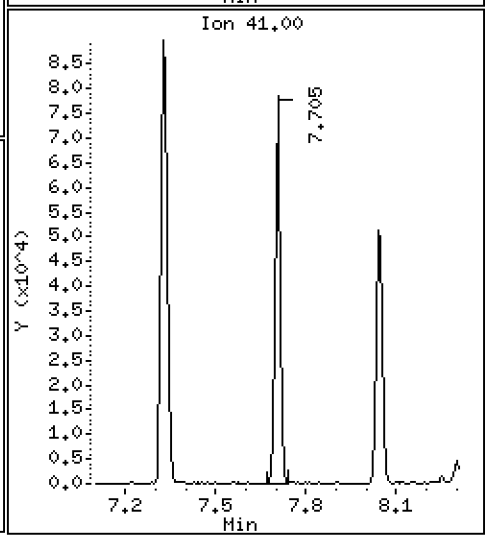












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

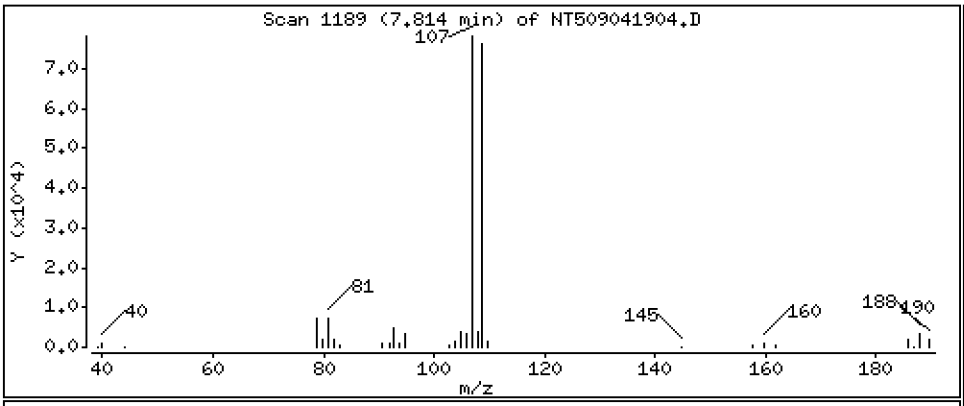
Operator: PB

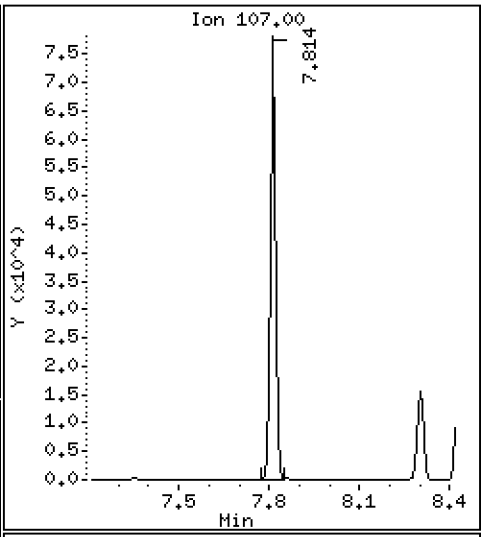
Column phase: RTXVMS

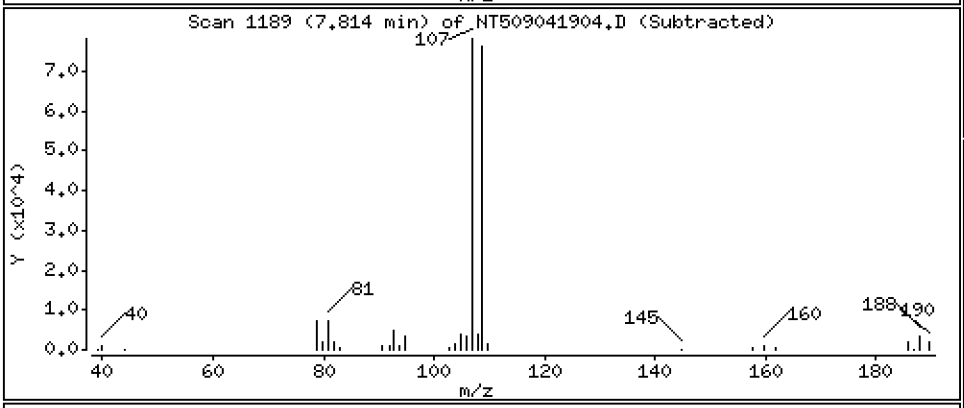
Column diameter: 0.18

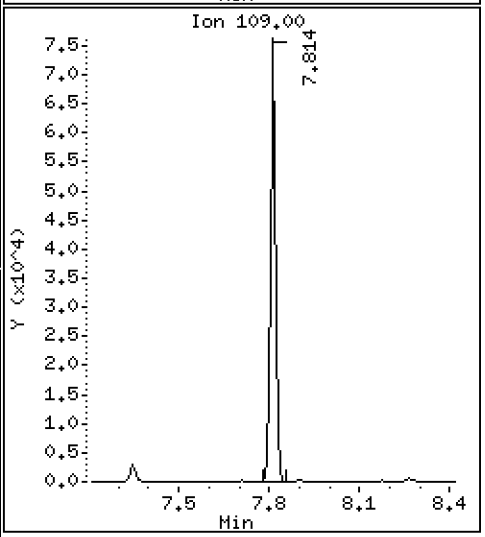
50 1,2-Dibromoethane

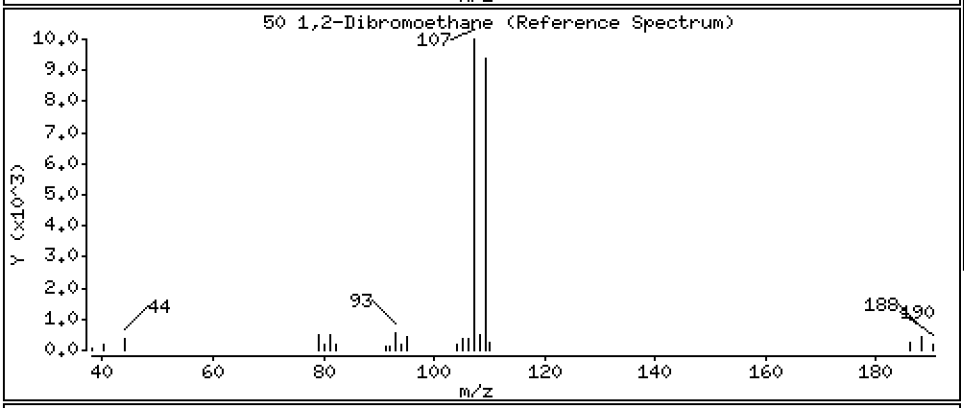
Concentration: 43.510 ug/Kg

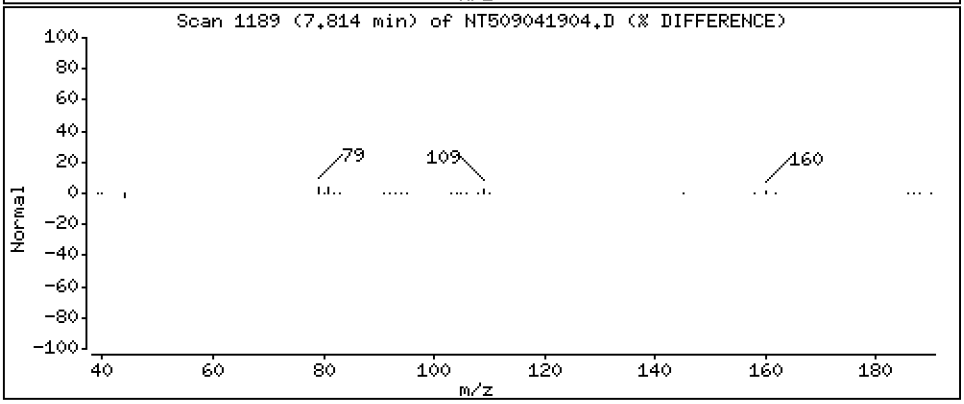












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

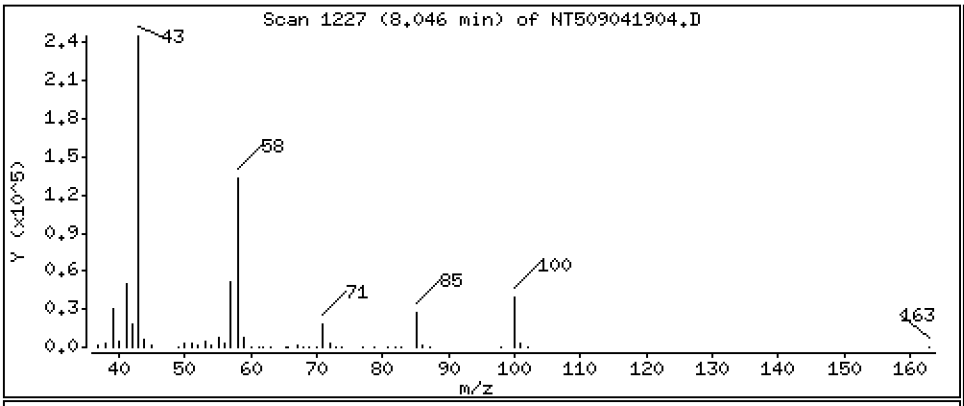
Operator: PB

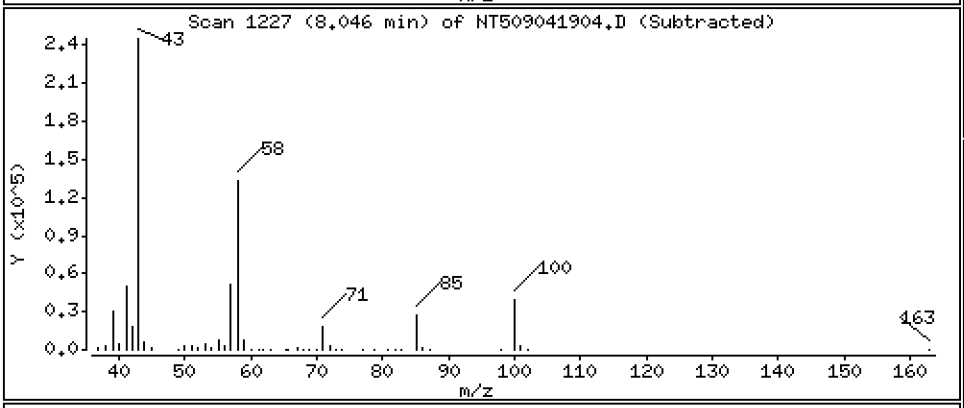
Column phase: RTXVMS

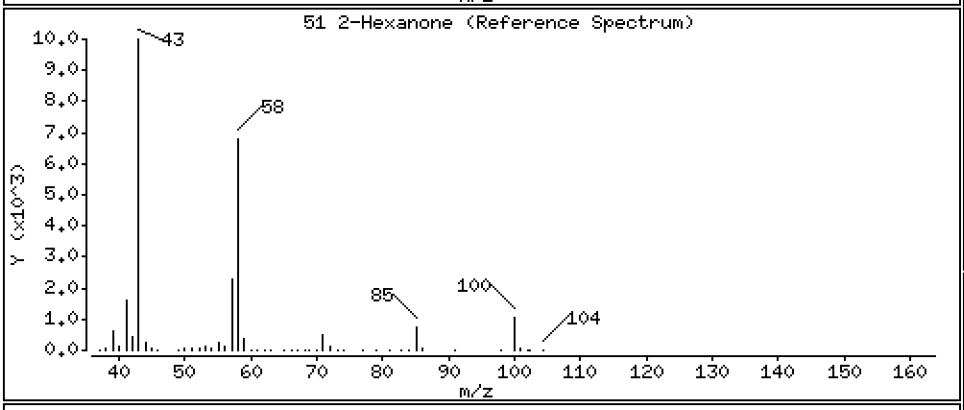
Column diameter: 0.18

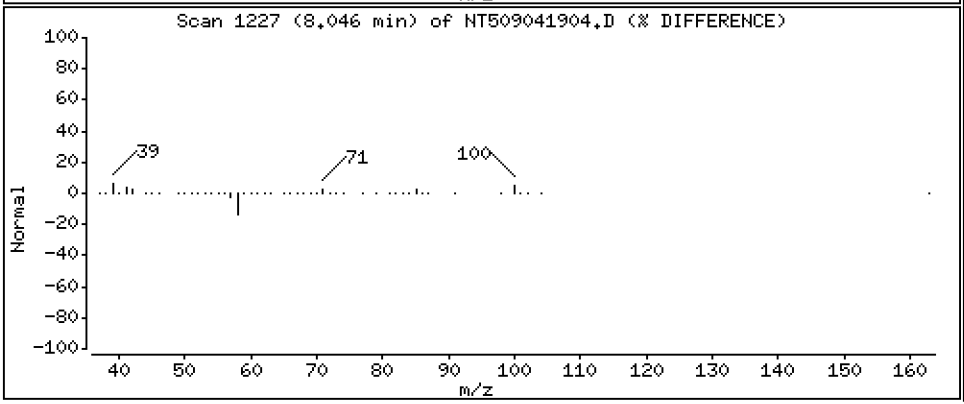
51 2-Hexanone

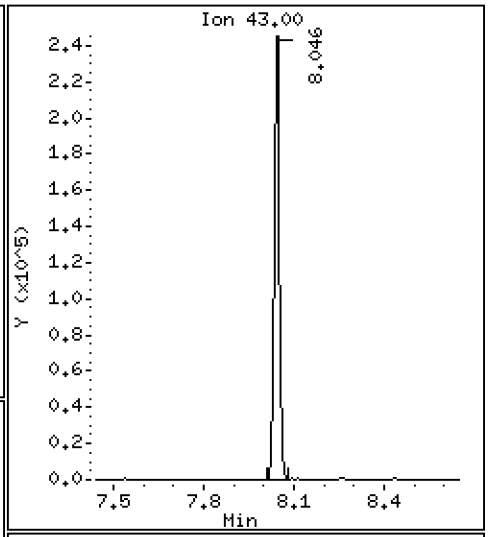
Concentration: 220.19 ug/Kg

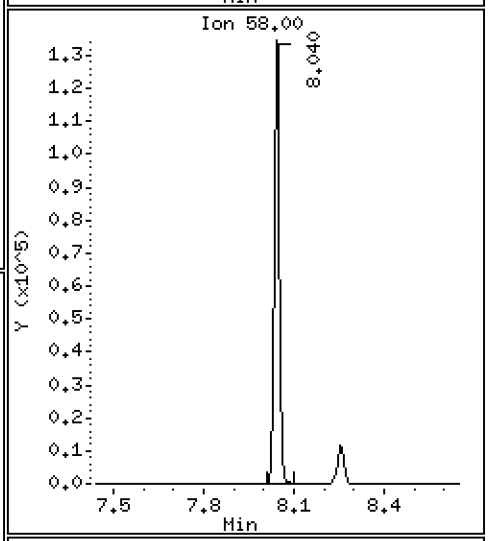


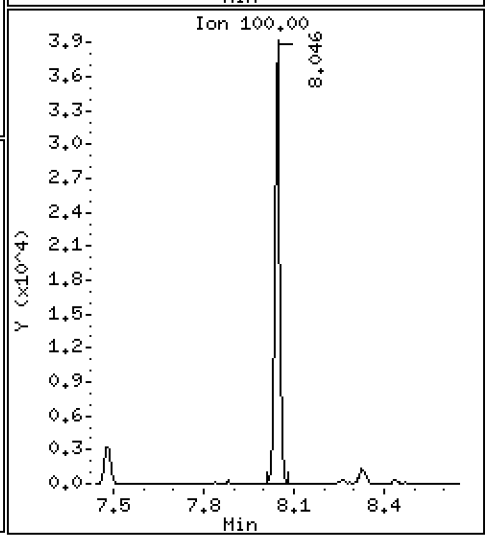












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

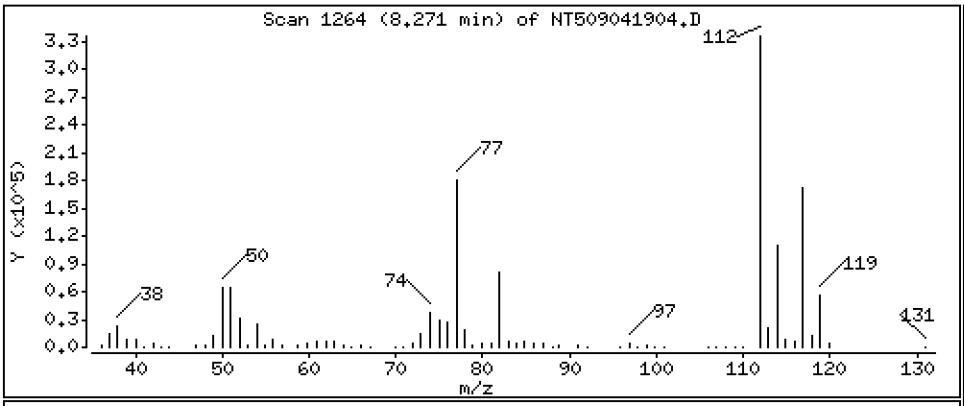
Operator: PB

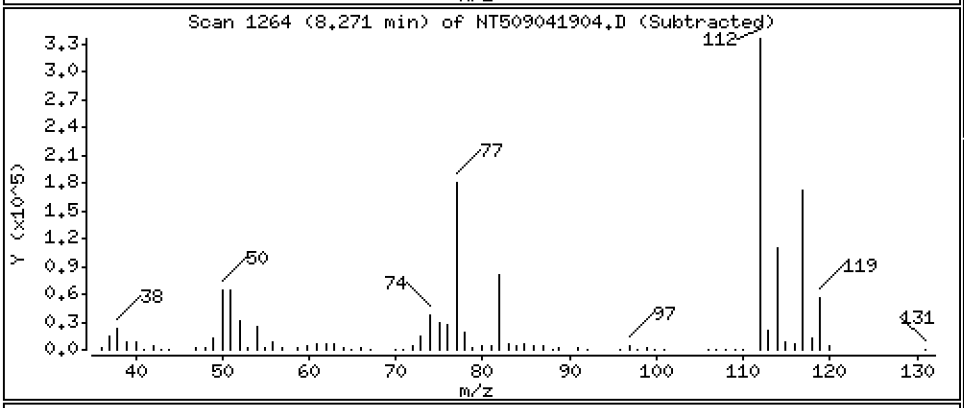
Column phase: RTXVMS

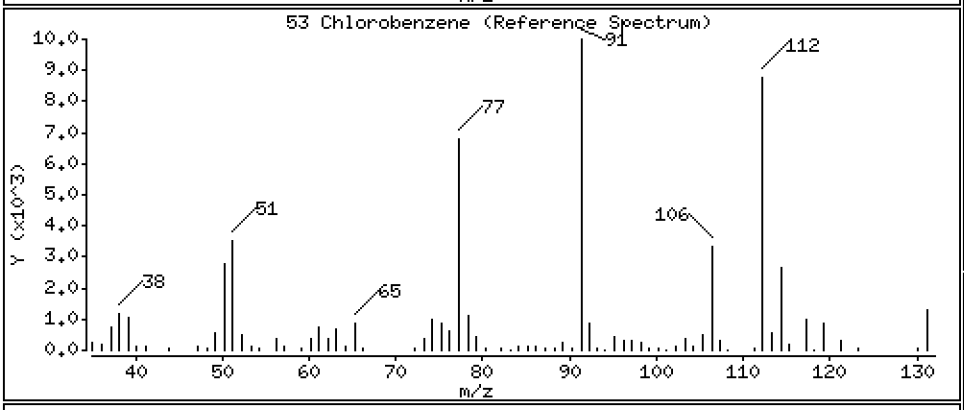
Column diameter: 0.18

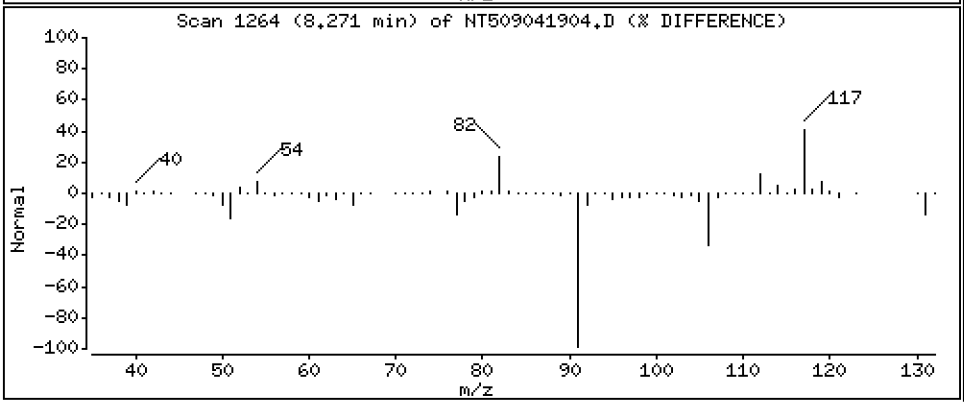
53 Chlorobenzene

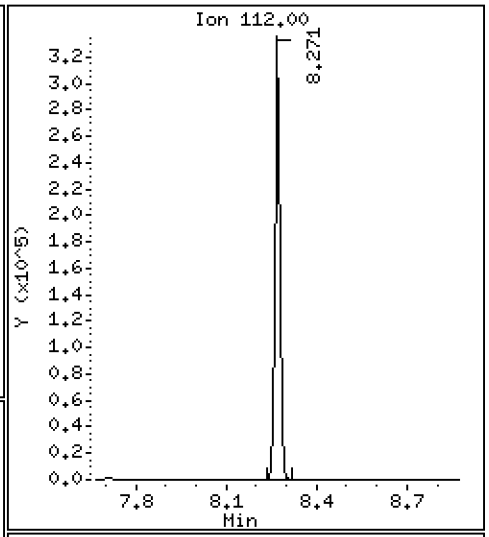
Concentration: 43.765 ug/Kg

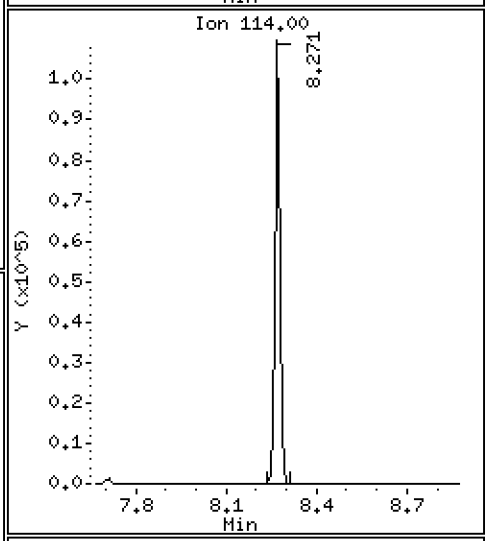


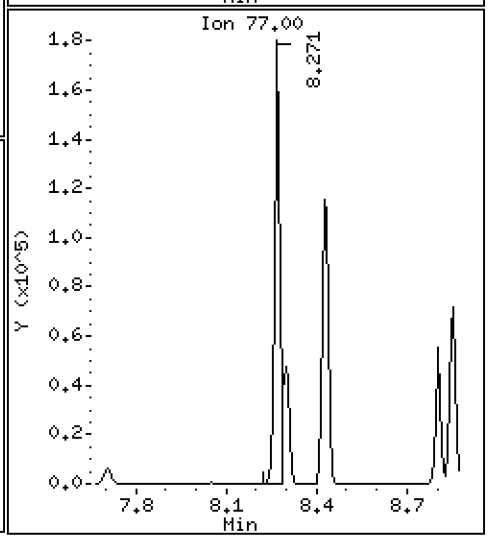












Date : 04-SEP-2019 15:04

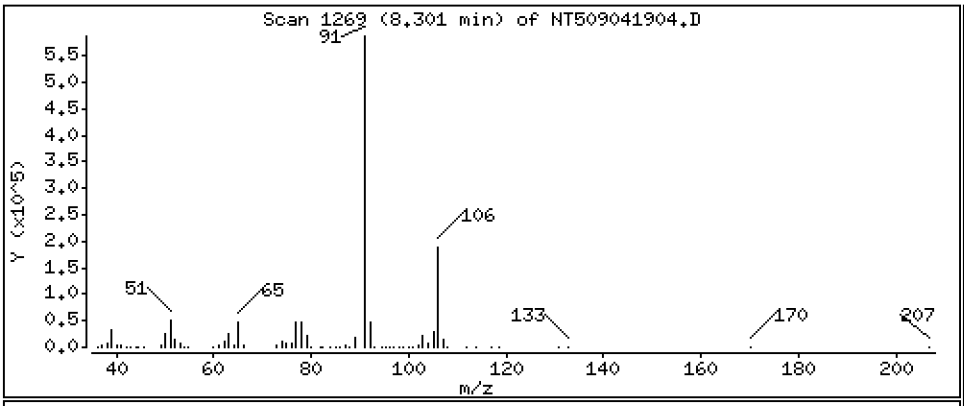
Client ID: Instrument: nt5.i

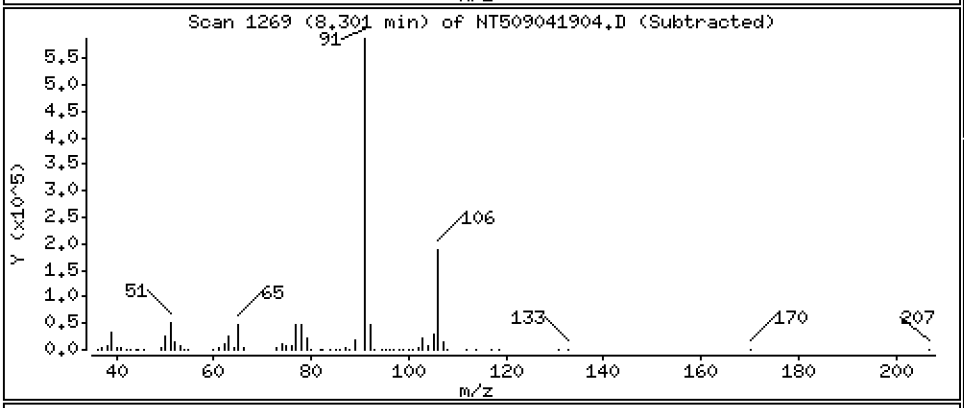
Sample Info: BSD1

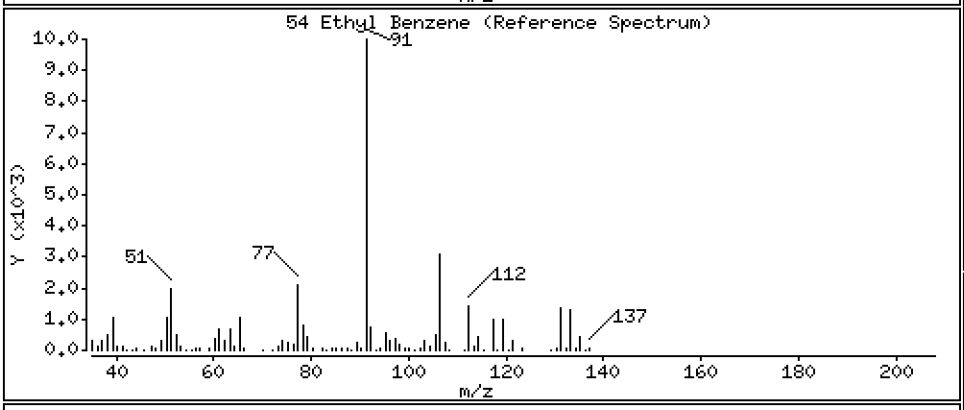
Operator: PB

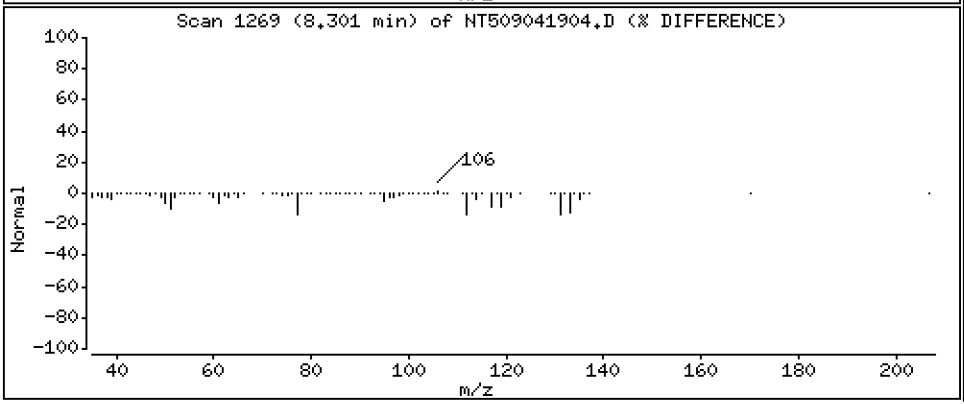
Column phase: RTXVMS Column diameter: 0.18

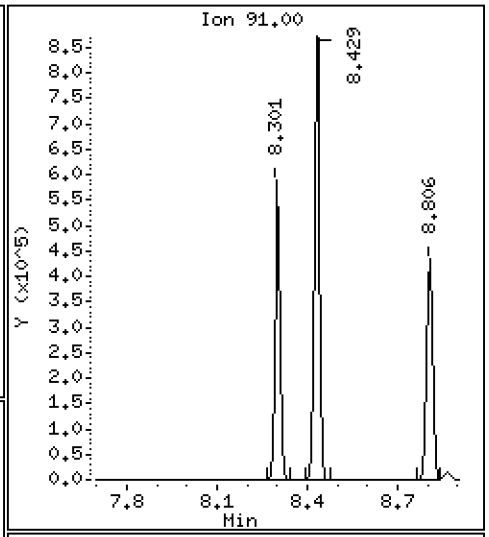
54 Ethyl Benzene Concentration: 45.756 ug/Kg

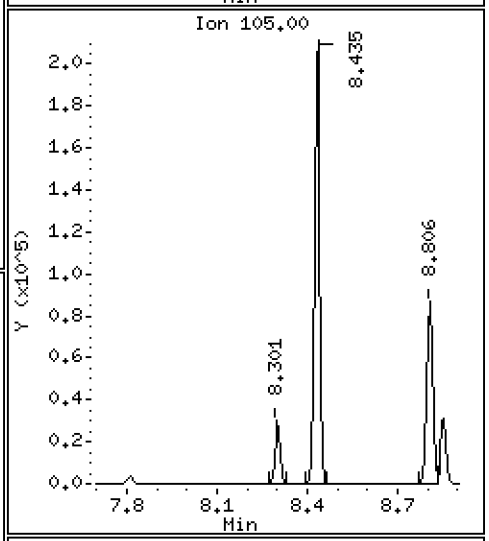


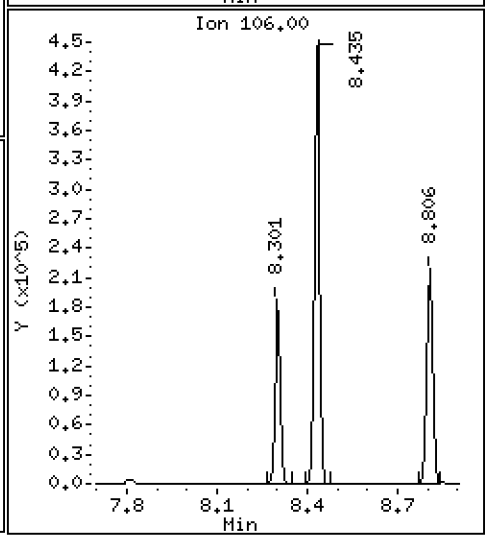












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

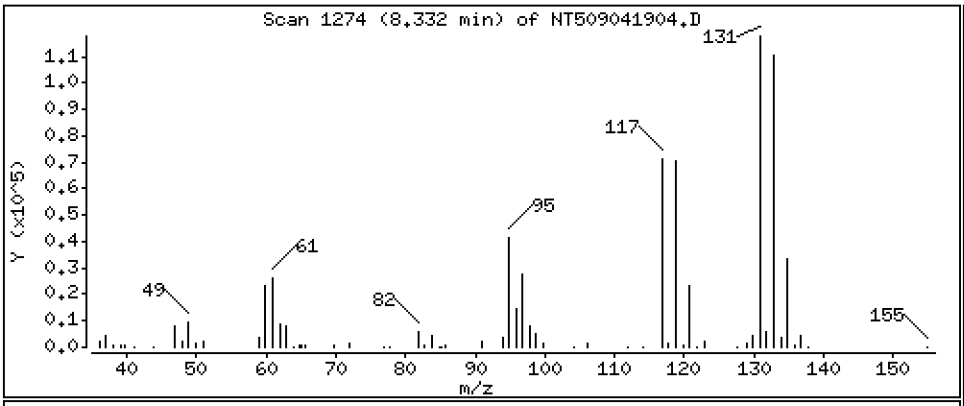
Operator: PB

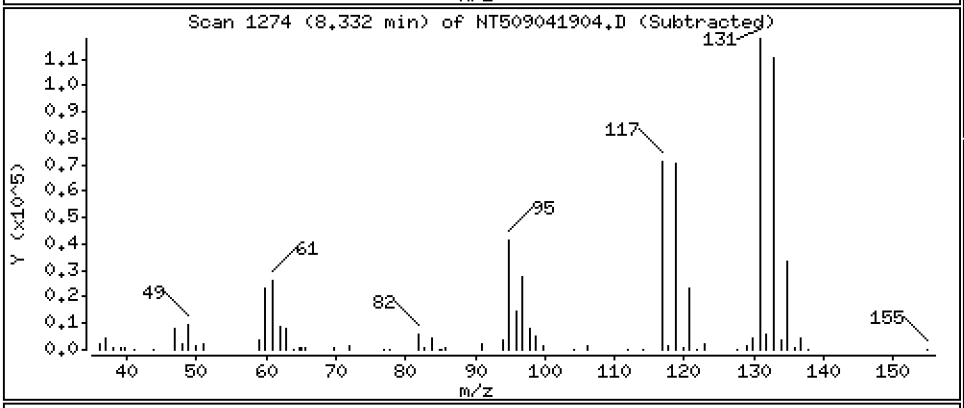
Column phase: RTXVMS

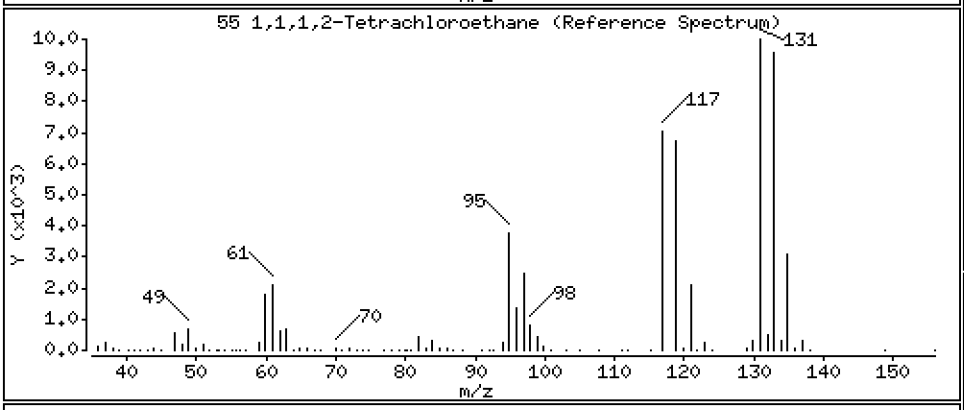
Column diameter: 0.18

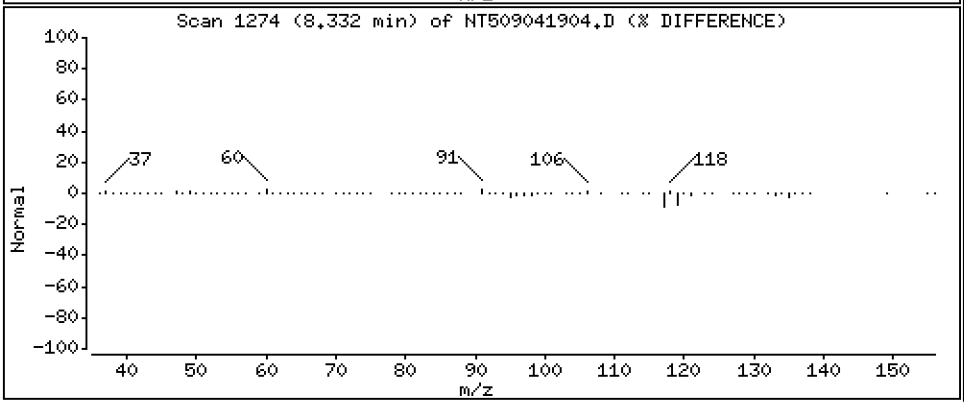
55 1,1,1,2-Tetrachloroethane

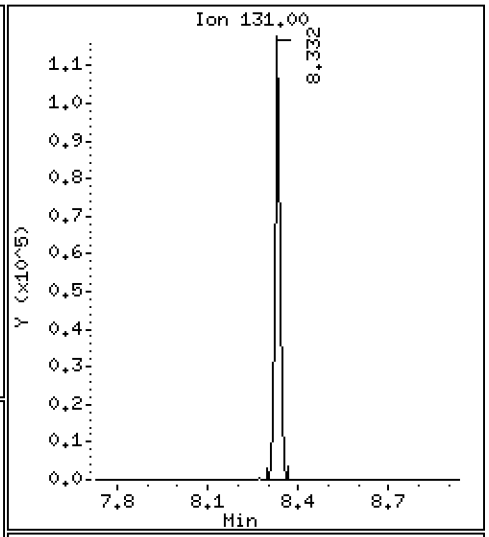
Concentration: 43.527 ug/Kg

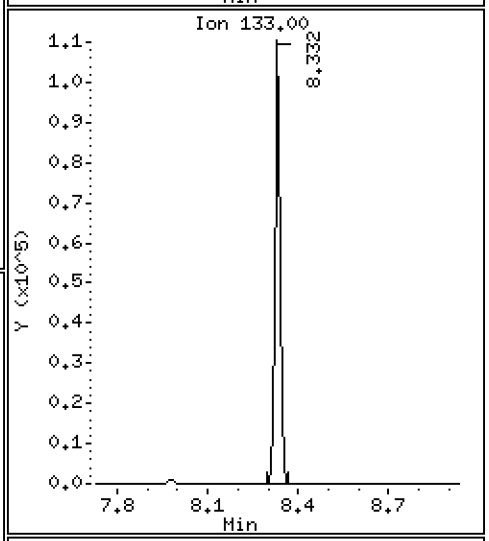


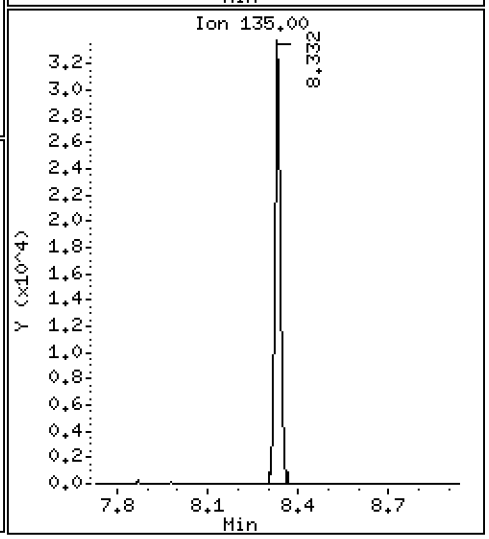












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

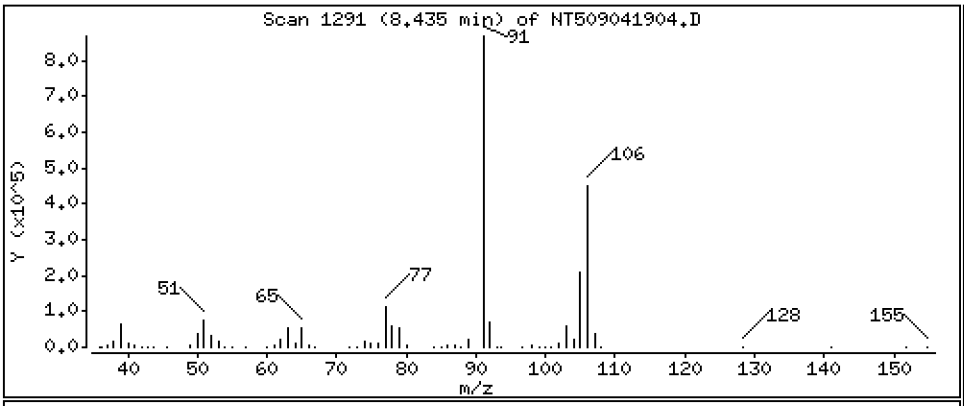
Operator: PB

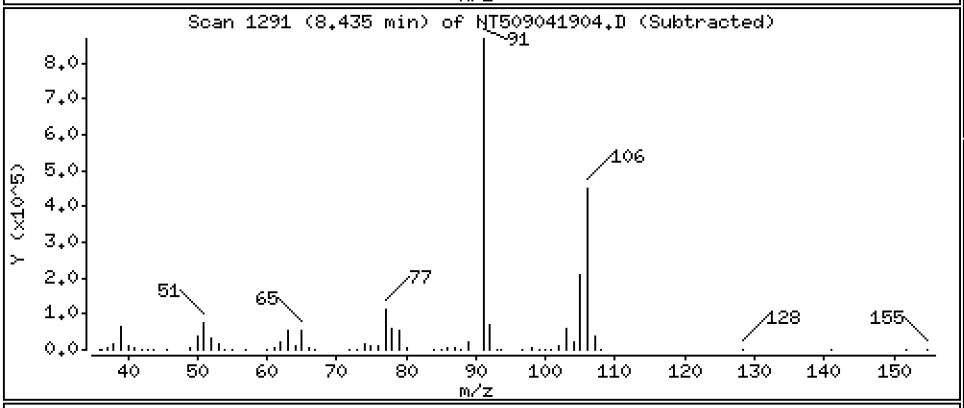
Column phase: RTXVMS

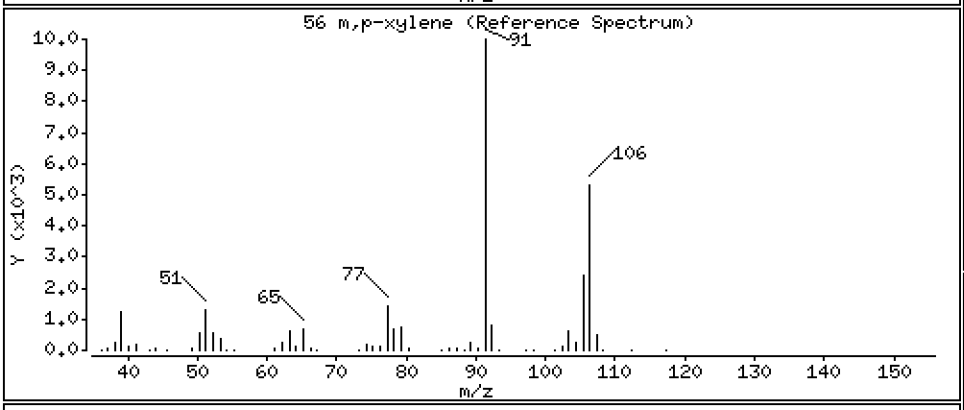
Column diameter: 0.18

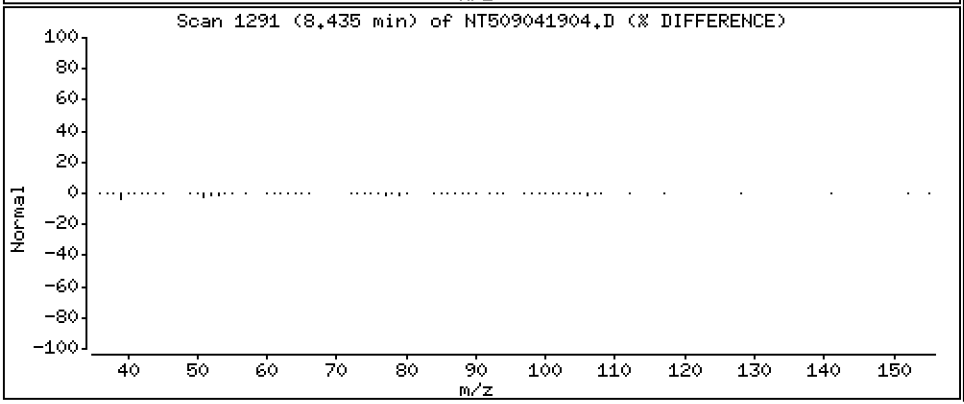
56 m,p-xylene

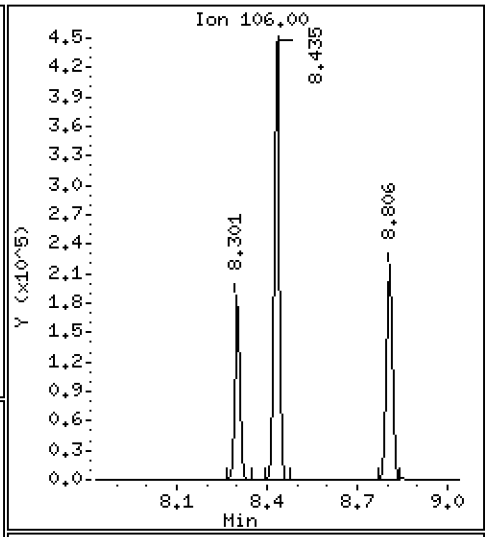
Concentration: 92.614 ug/Kg

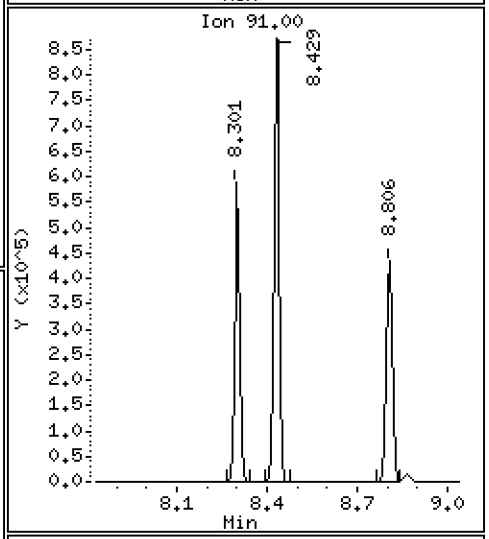


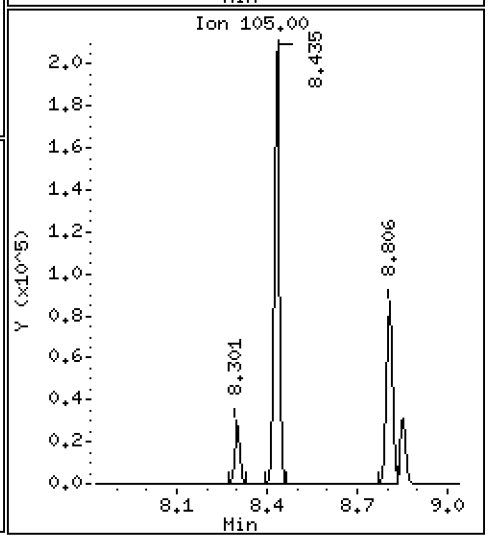












Date : 04-SEP-2019 15:04

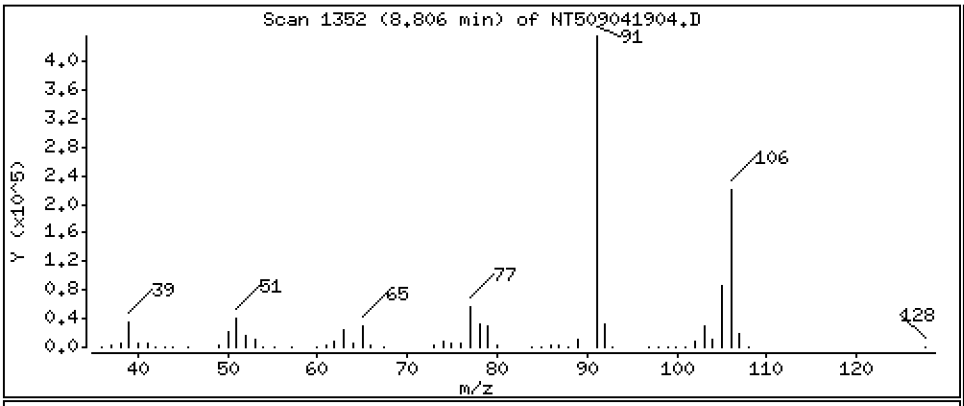
Client ID: Instrument: nt5.i

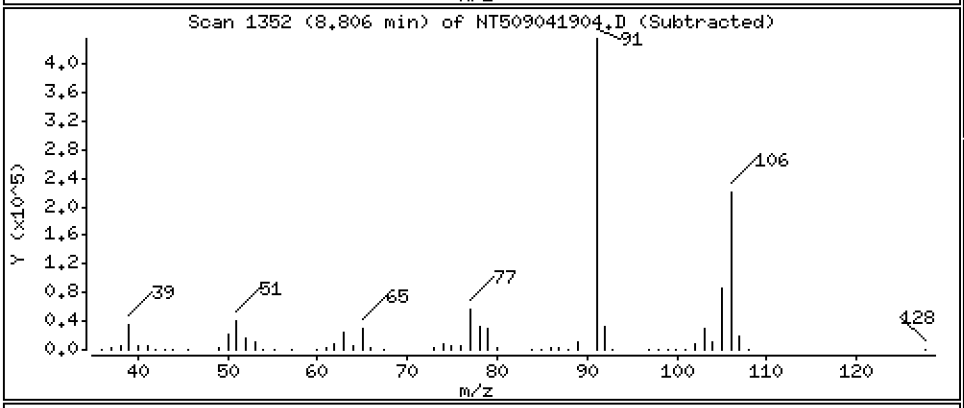
Sample Info: BSD1

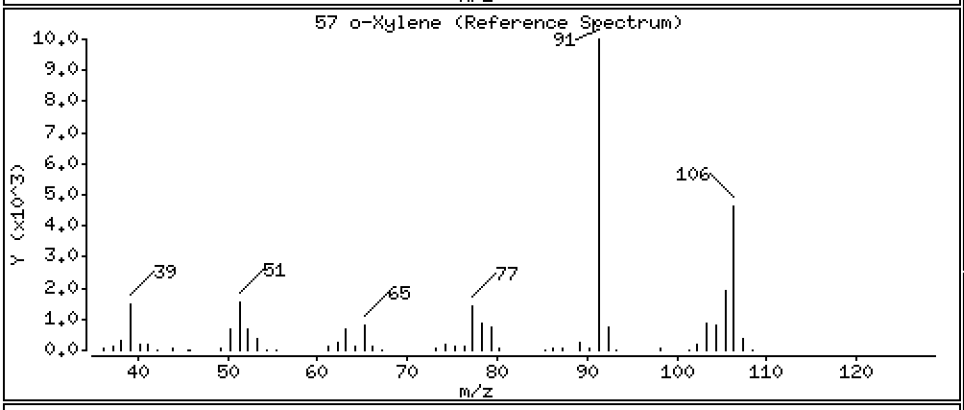
Operator: PB

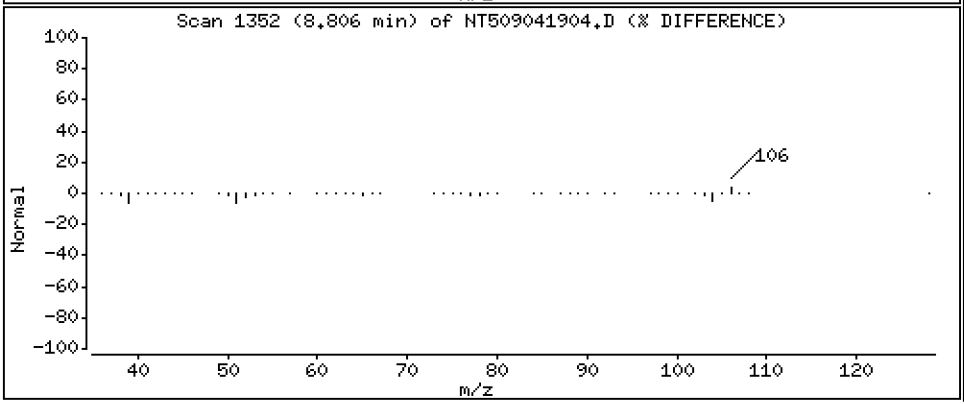
Column phase: RTXVMS Column diameter: 0.18

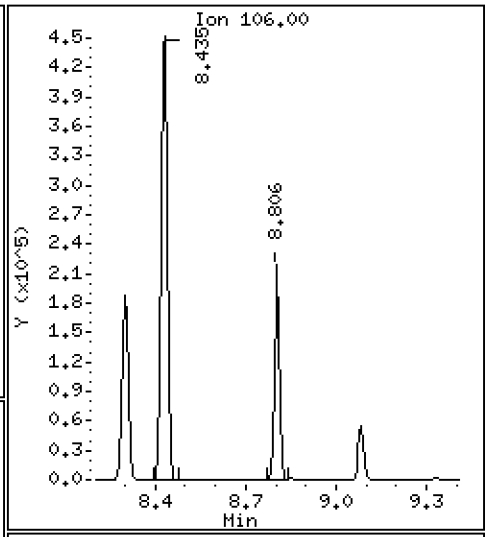
57 o-Xylene Concentration: 46.326 ug/Kg

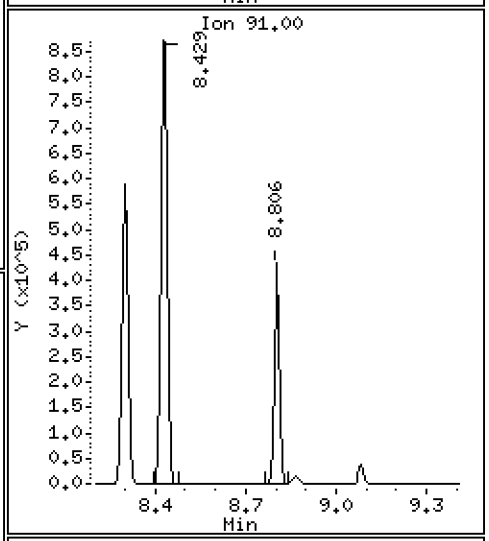


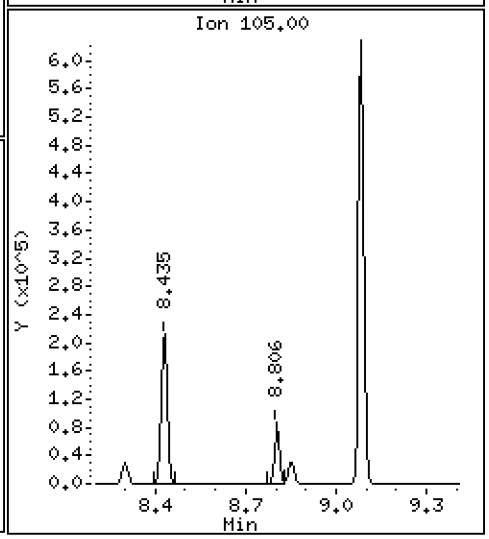












Date : 04-SEP-2019 15:04

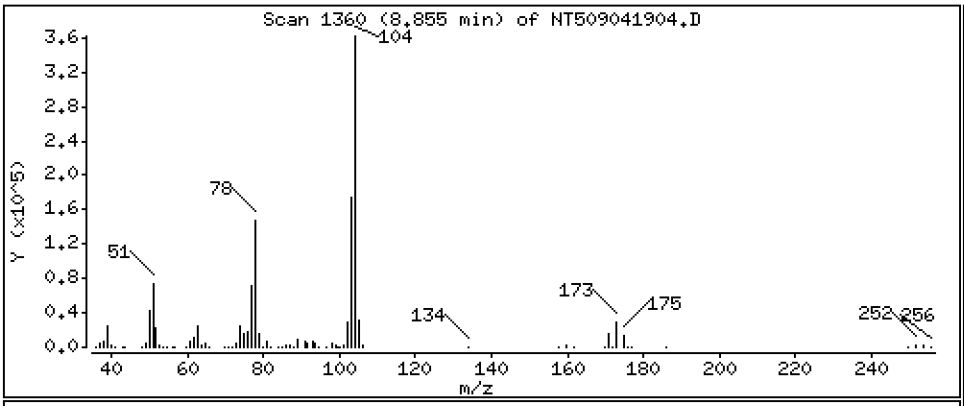
Client ID: Instrument: nt5.i

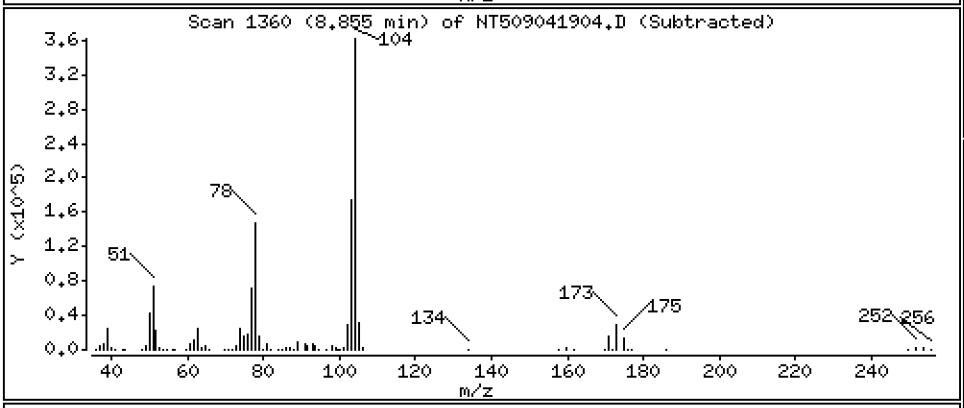
Sample Info: BSD1

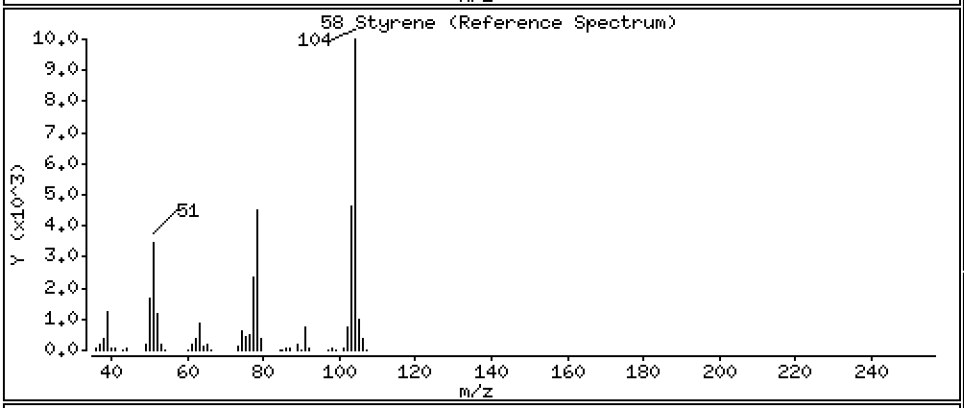
Operator: PB

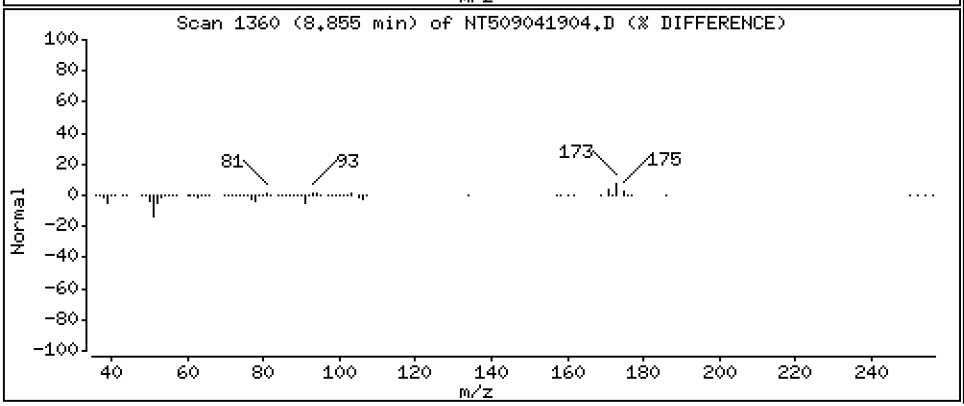
Column phase: RTXVMS Column diameter: 0.18

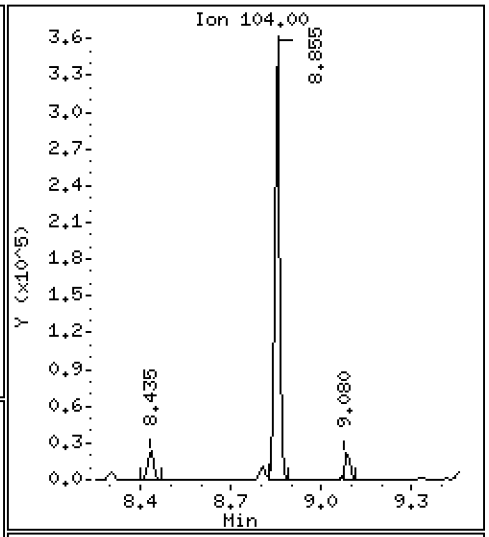
58 Styrene Concentration: 45.725 ug/Kg

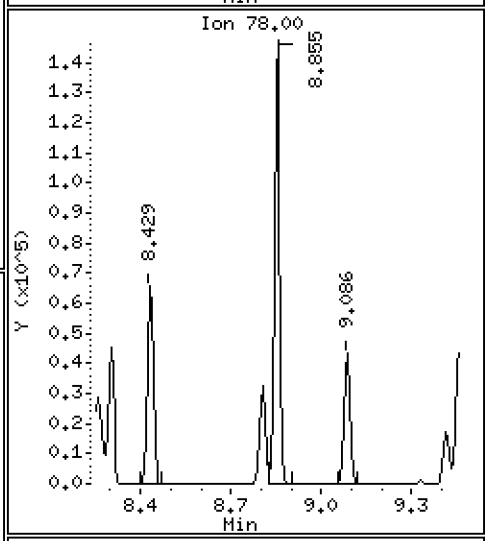


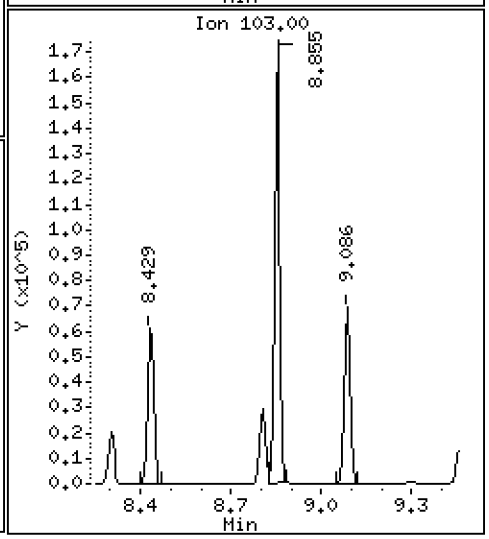












Date : 04-SEP-2019 15:04

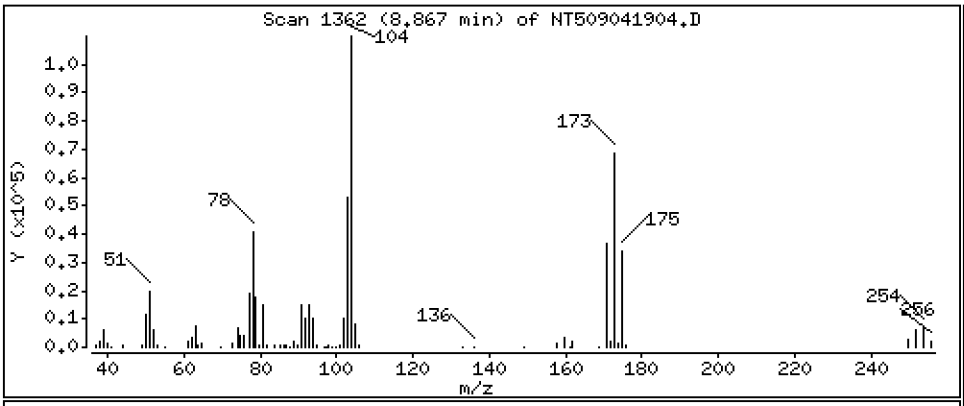
Client ID: Instrument: nt5.i

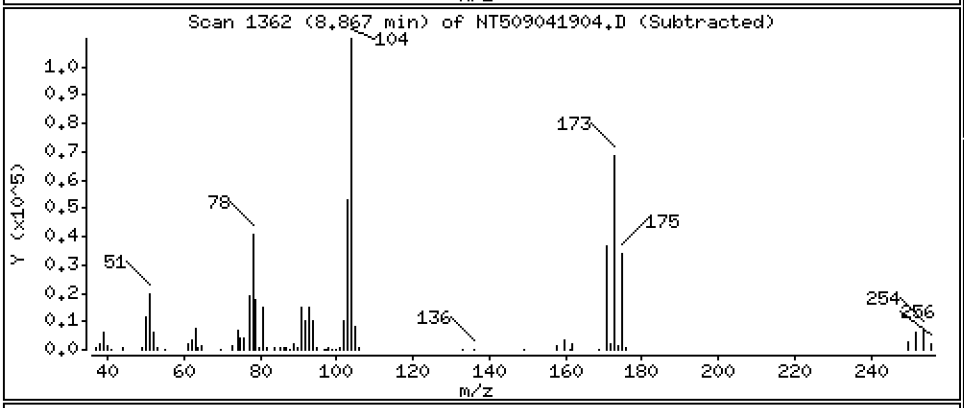
Sample Info: BSD1

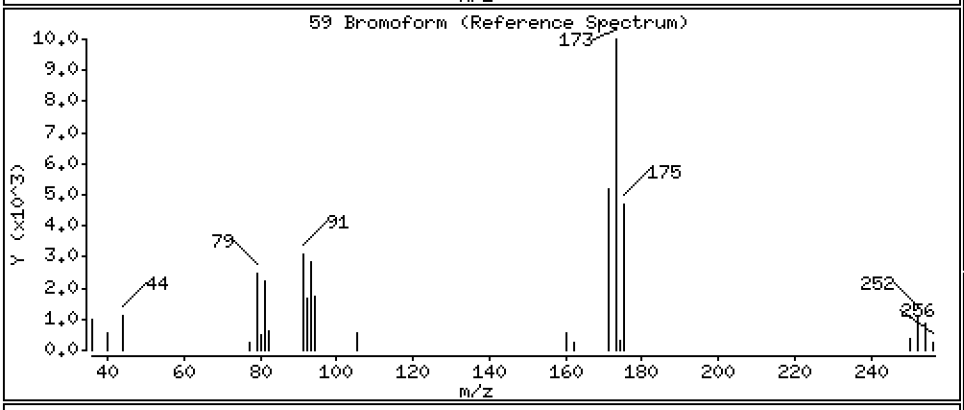
Operator: PB

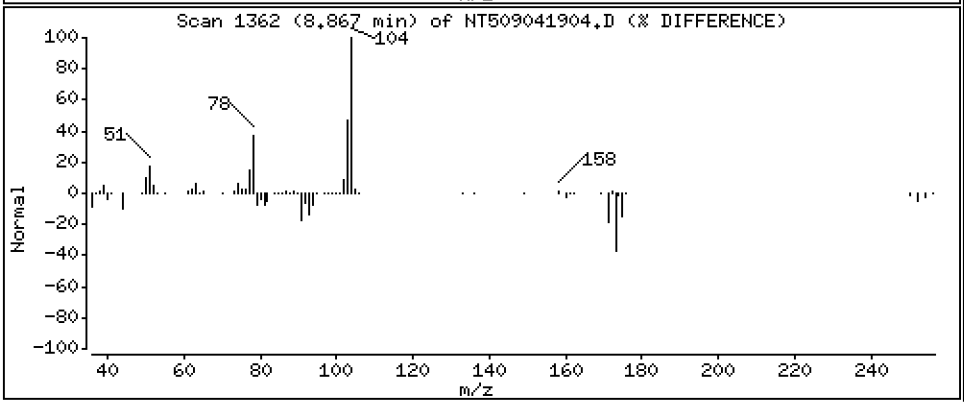
Column phase: RTXVMS Column diameter: 0.18

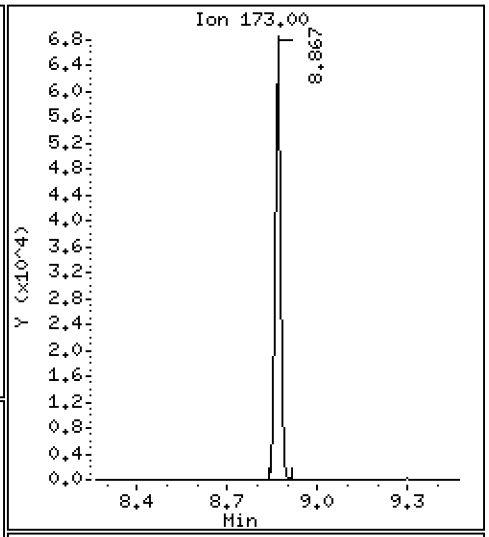
59 Bromoform Concentration: 41.575 ug/Kg

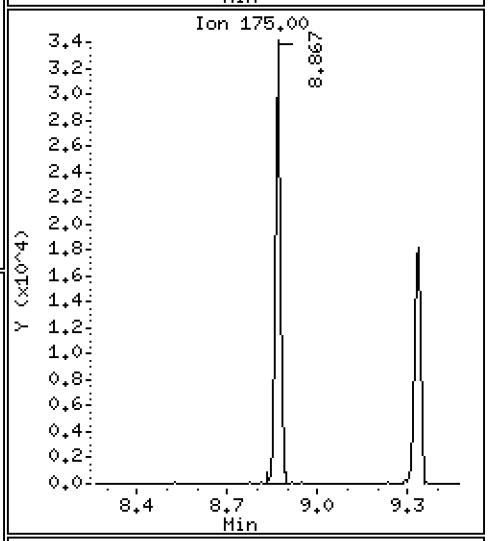


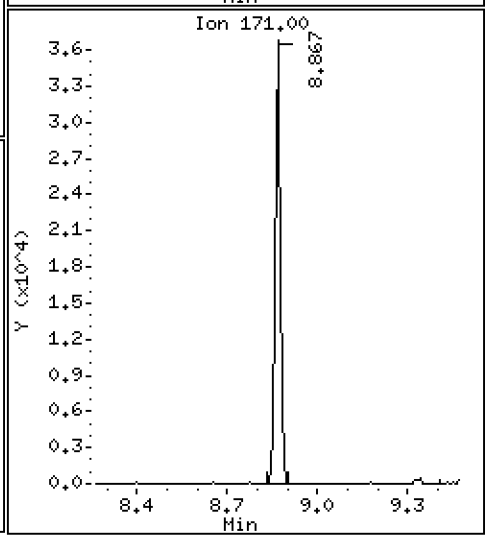












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

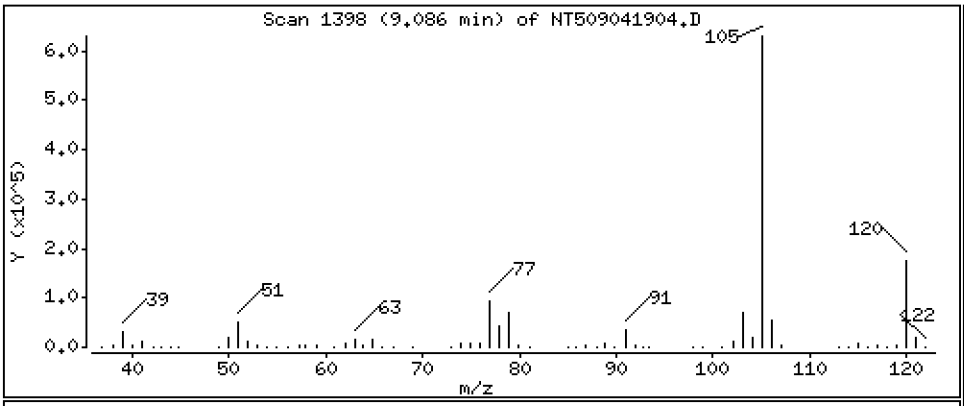
Operator: PB

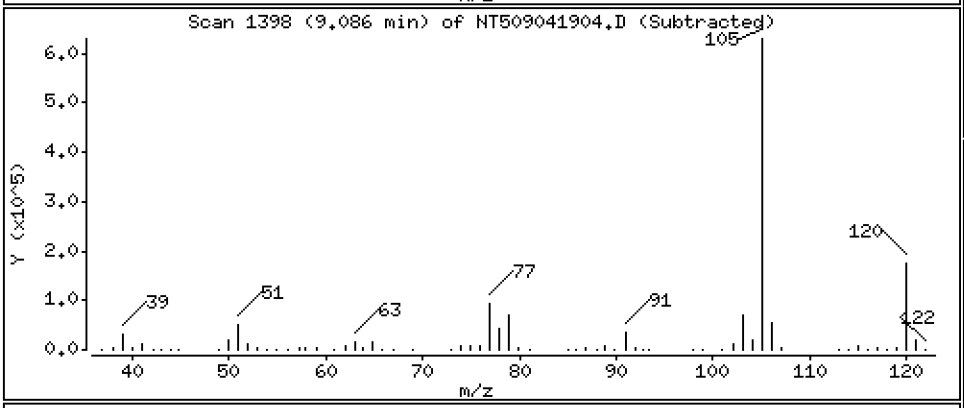
Column phase: RTXVMS

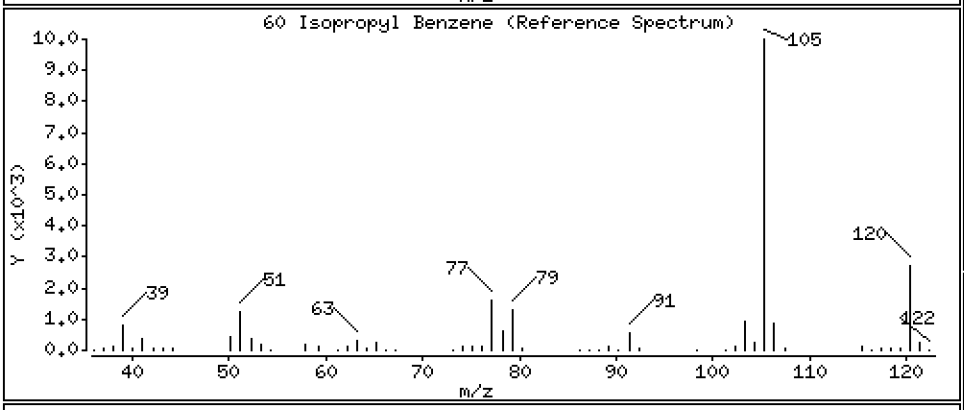
Column diameter: 0.18

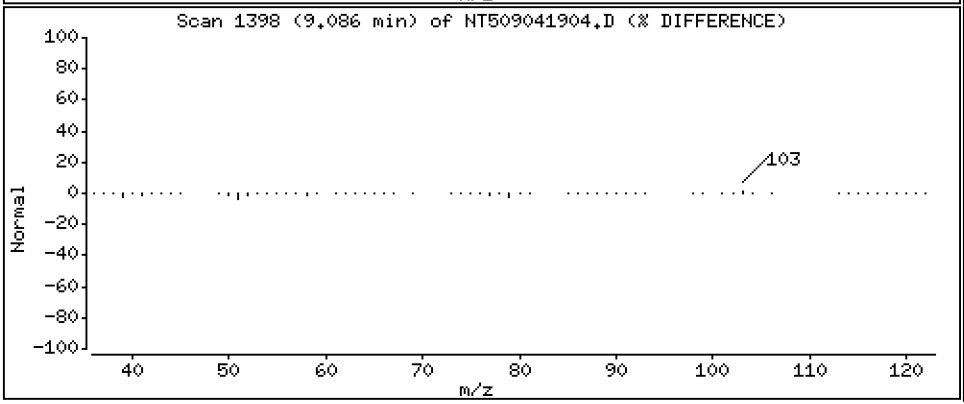
60 Isopropyl Benzene

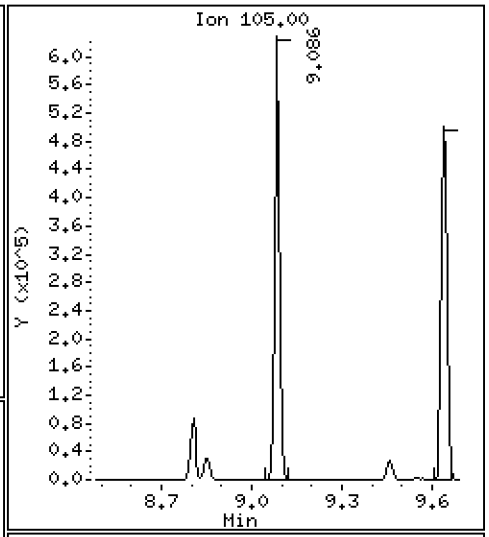
Concentration: 48.563 ug/Kg

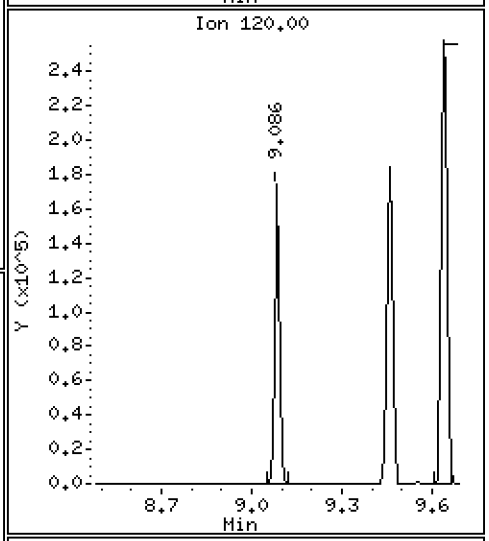


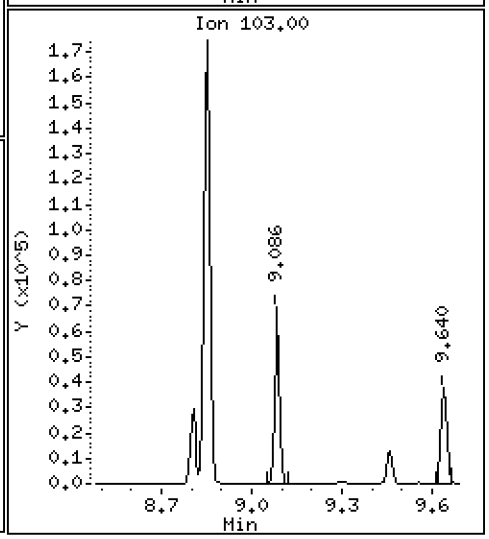












Date : 04-SEP-2019 15:04

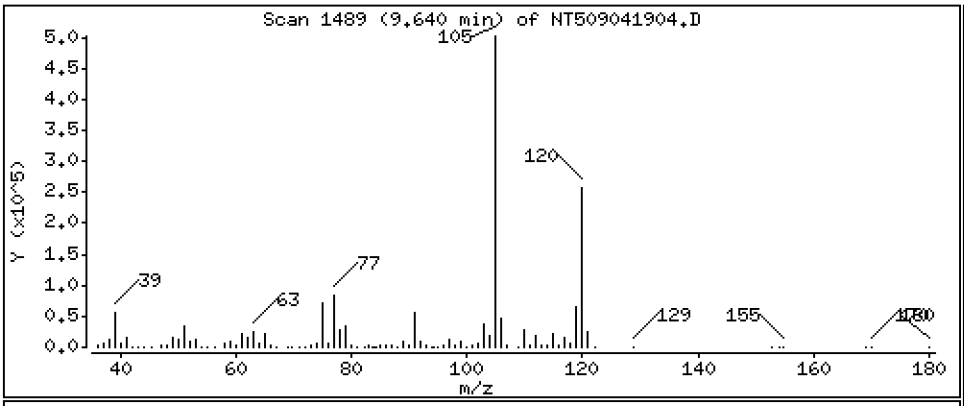
Client ID: Instrument: nt5.i

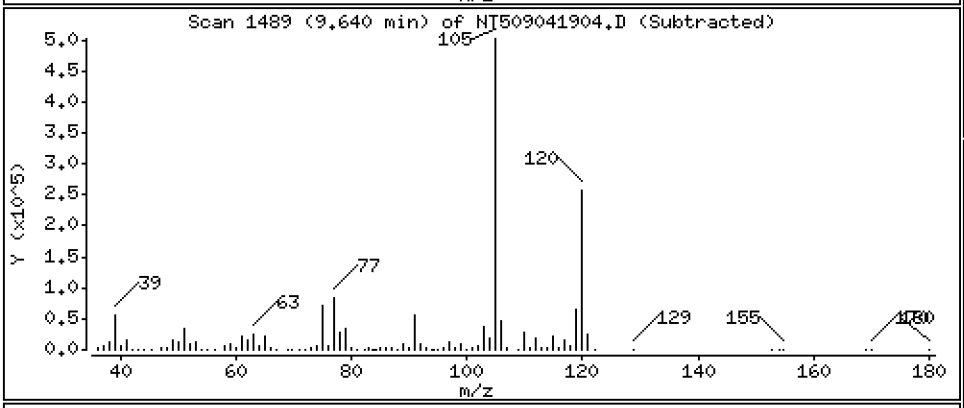
Sample Info: BSD1

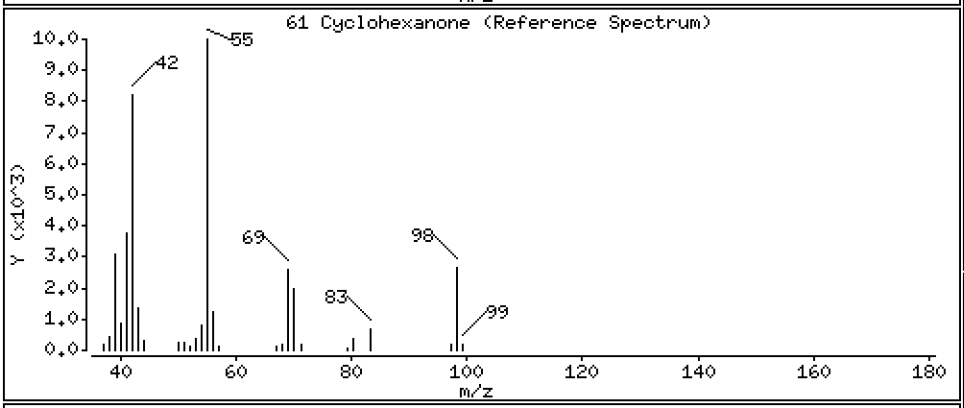
Operator: PB

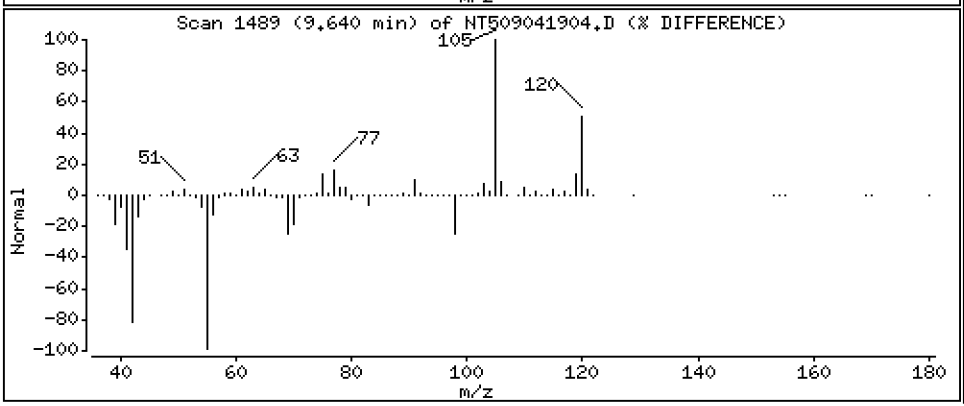
Column phase: RTXVMS Column diameter: 0.18

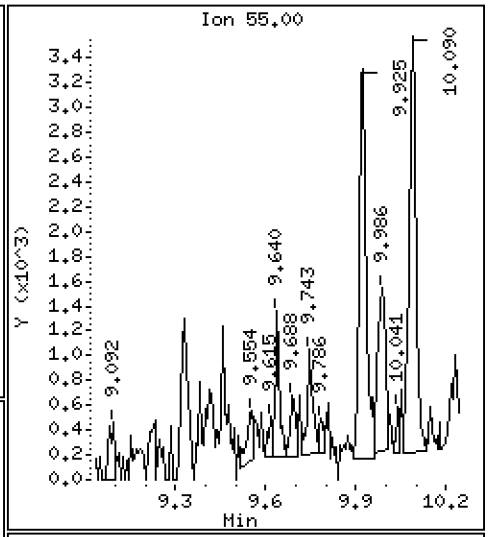
61 Cyclohexanone

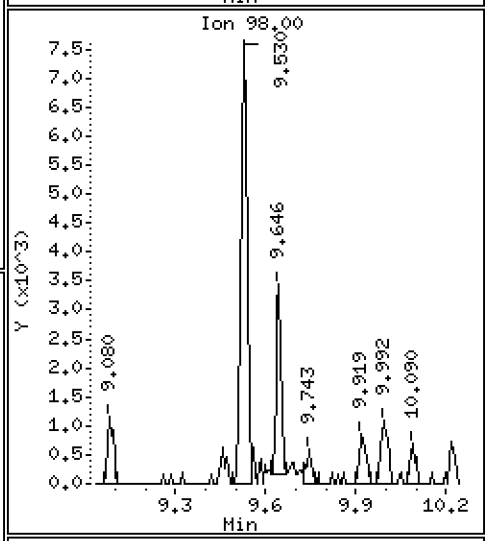


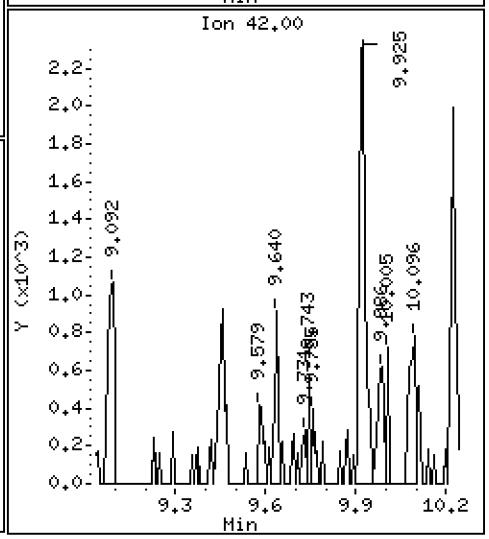












Date : 04-SEP-2019 15:04

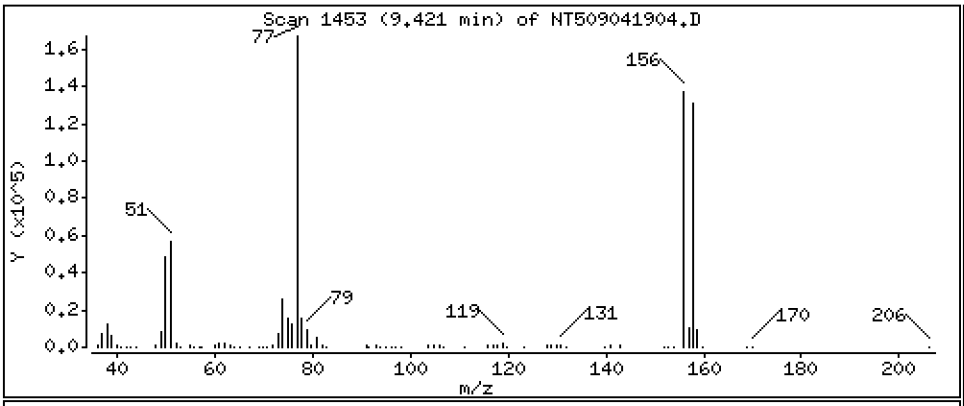
Client ID: Instrument: nt5.i

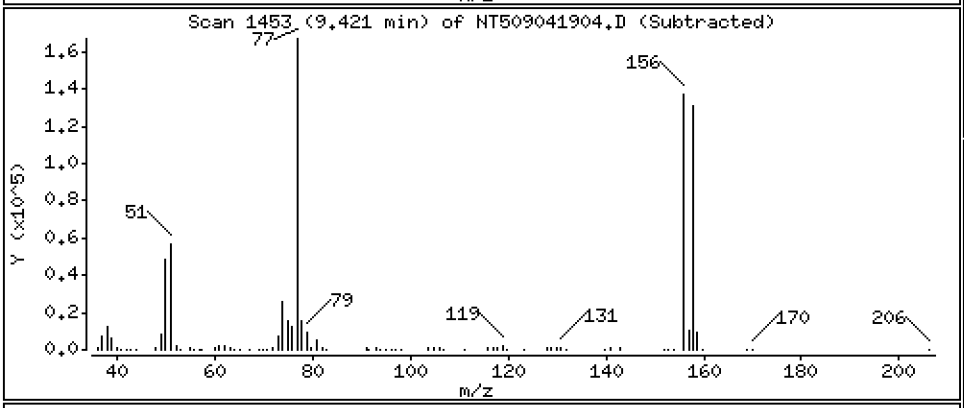
Sample Info: BSD1

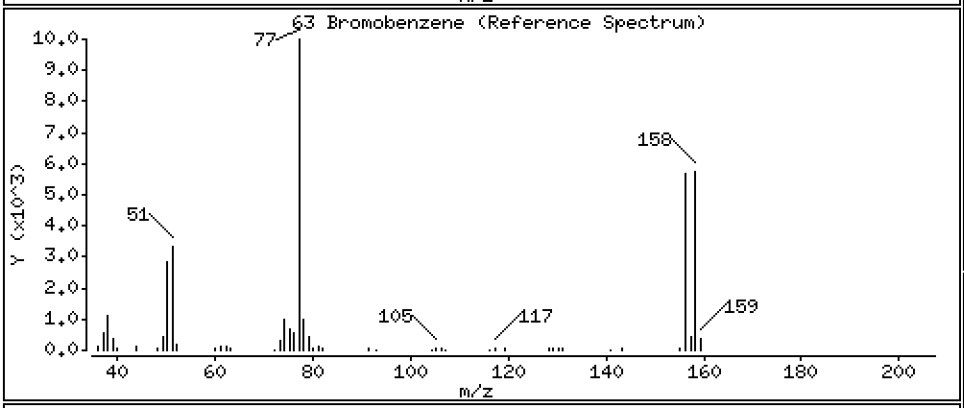
Operator: PB

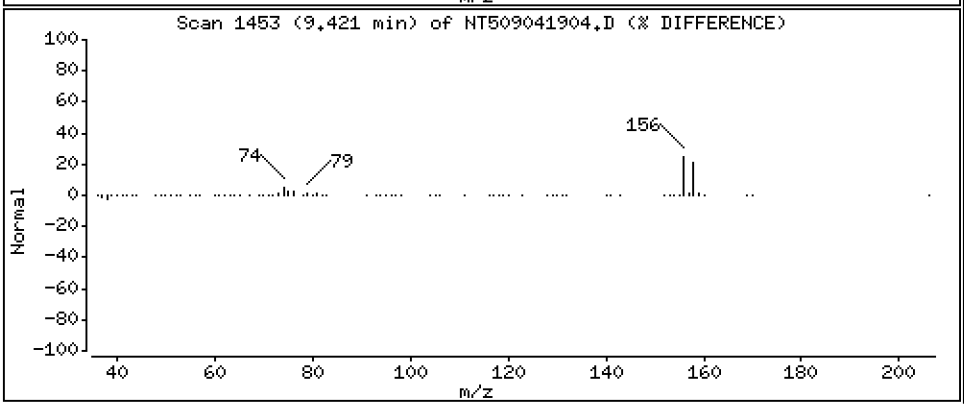
Column phase: RTXVMS Column diameter: 0.18

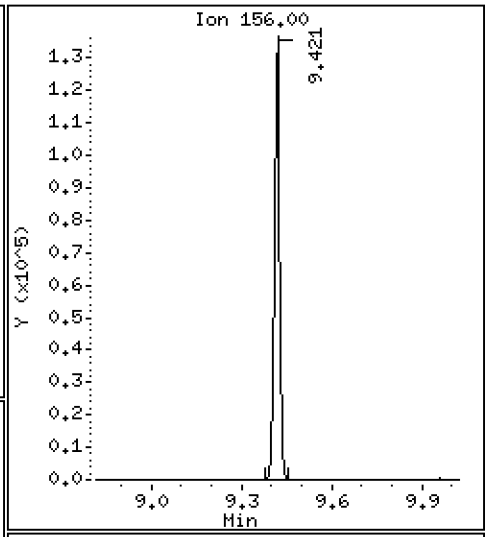
63 Bromobenzene Concentration: 43.640 ug/Kg

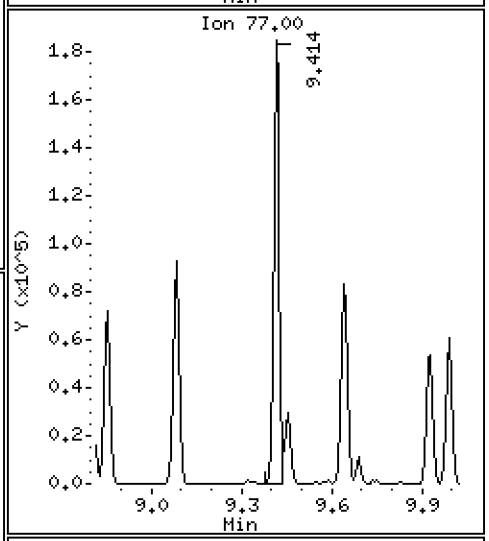


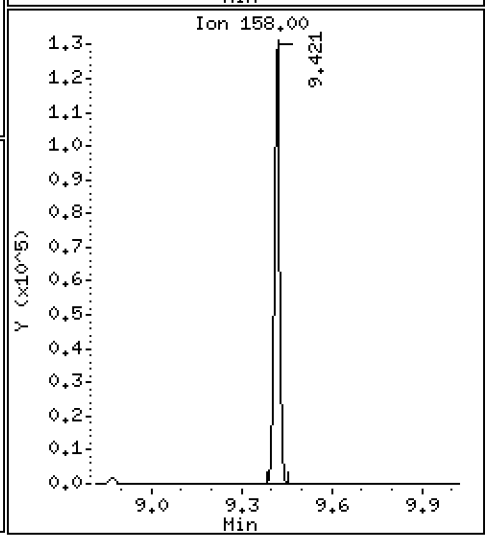












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

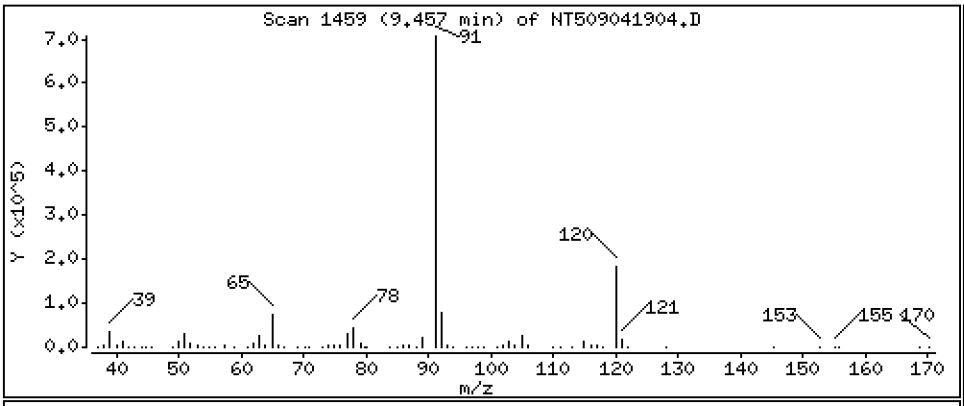
Operator: PB

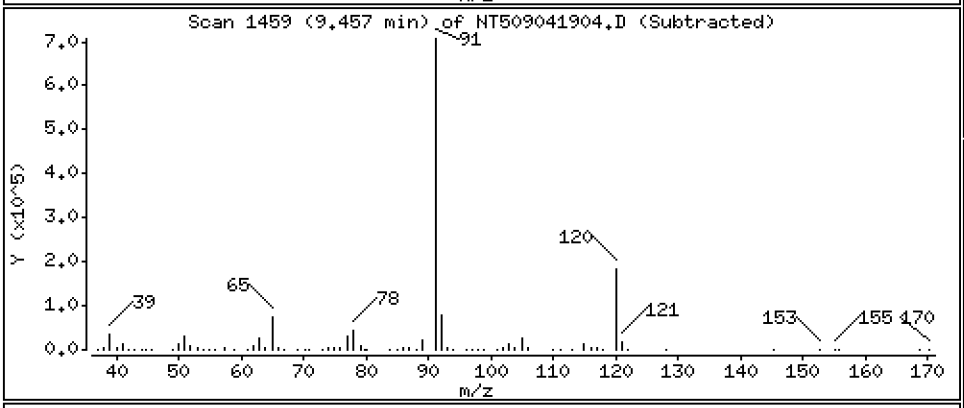
Column phase: RTXVMS

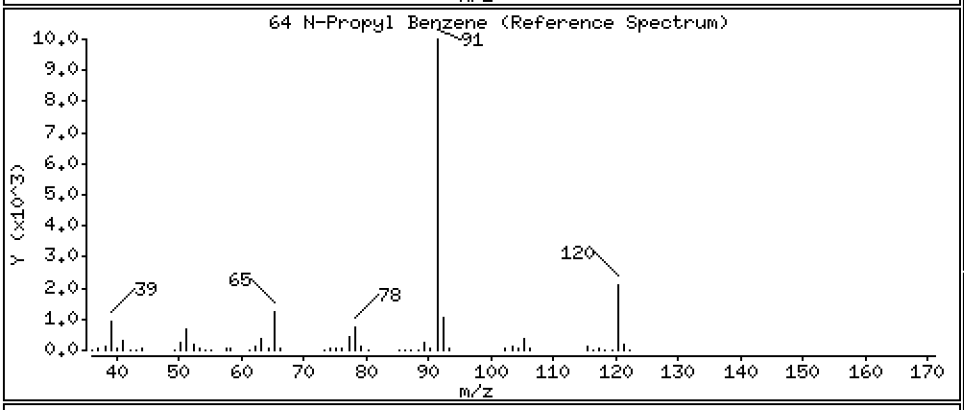
Column diameter: 0.18

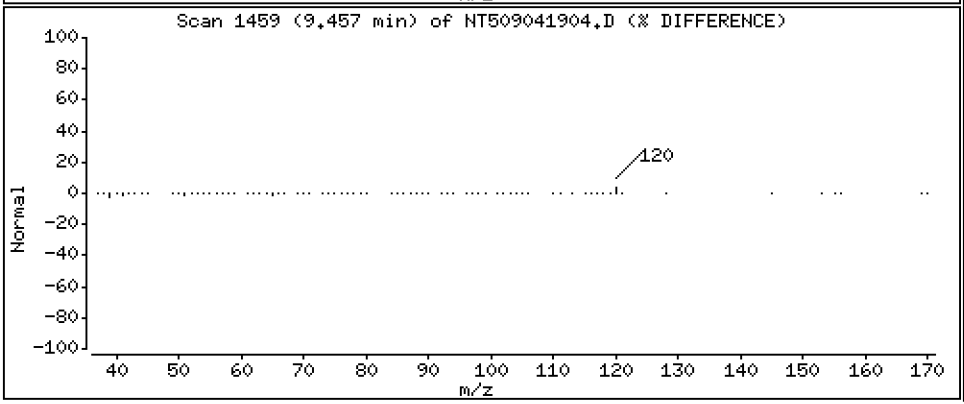
64 N-Propyl Benzene

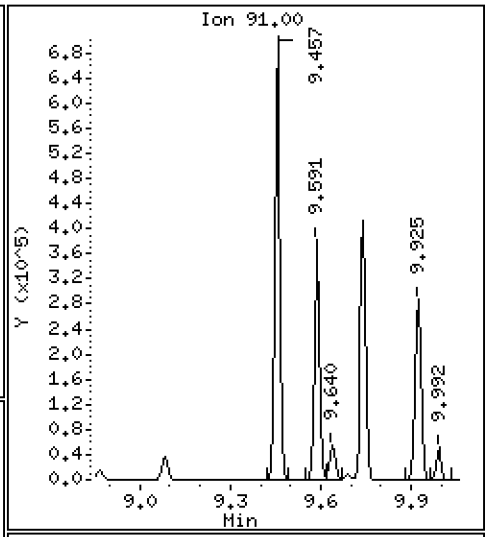
Concentration: 48.017 ug/Kg

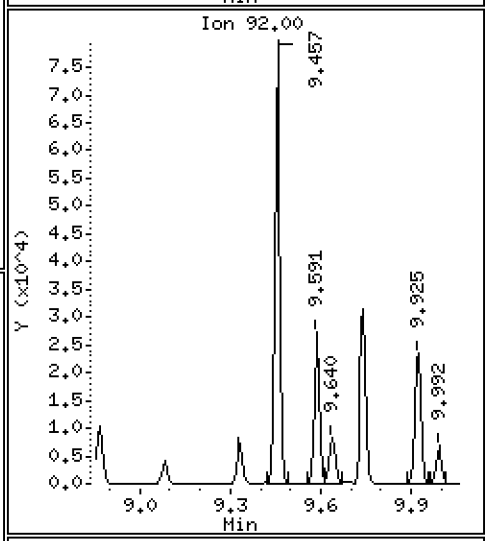


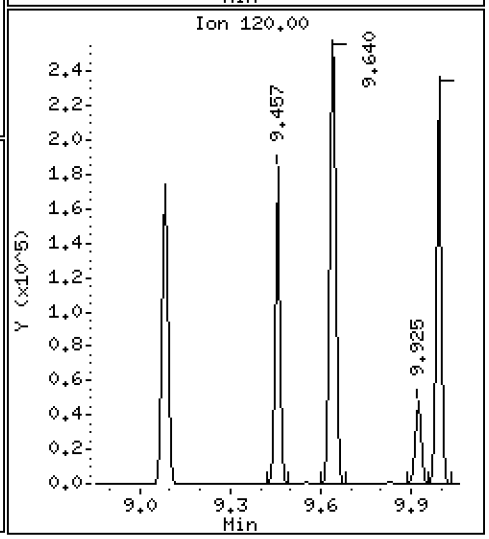












Date : 04-SEP-2019 15:04

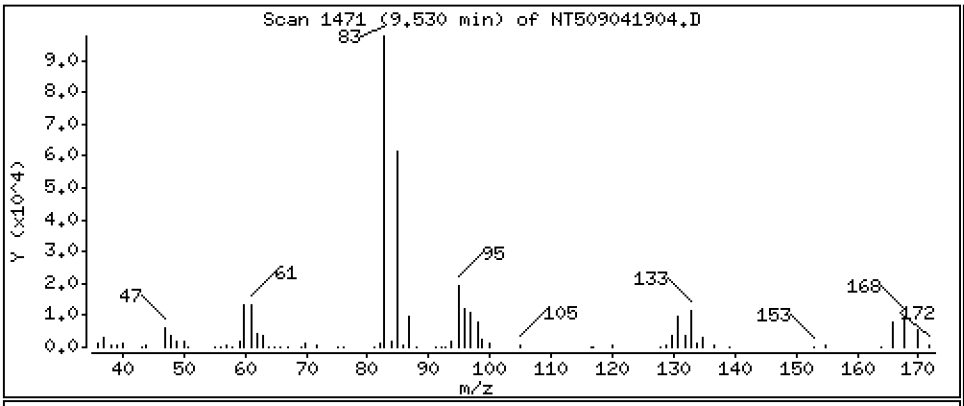
Client ID: Instrument: nt5.i

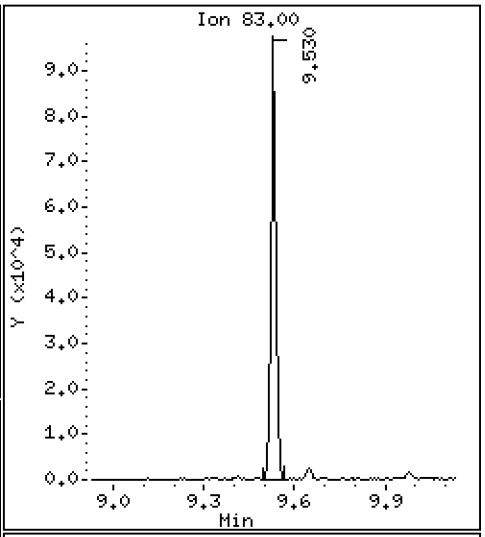
Sample Info: BSD1

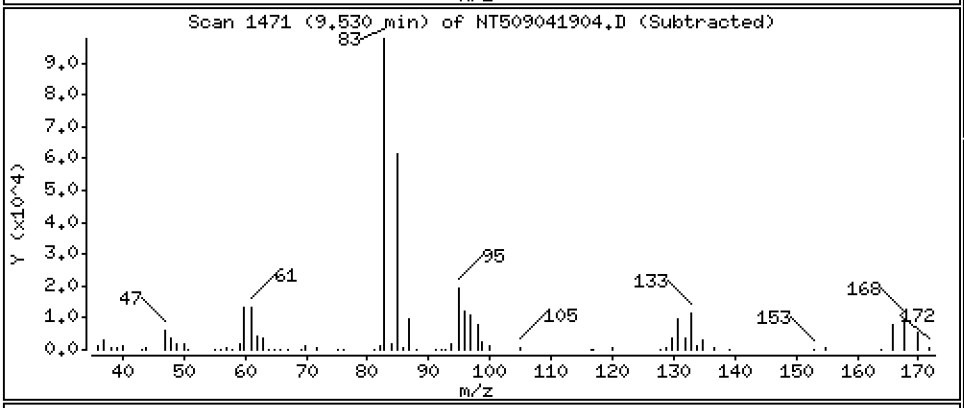
Operator: PB

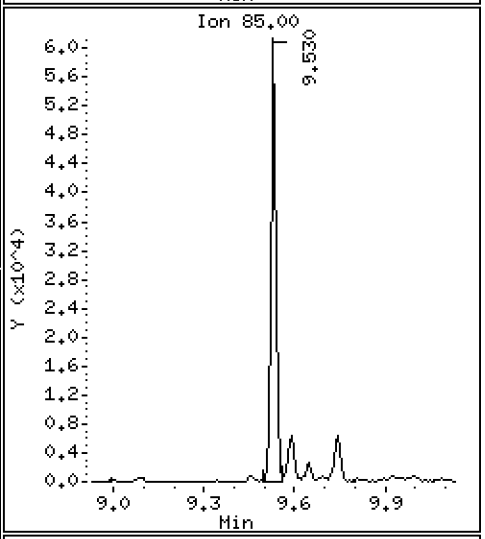
Column phase: RTXVMS Column diameter: 0.18

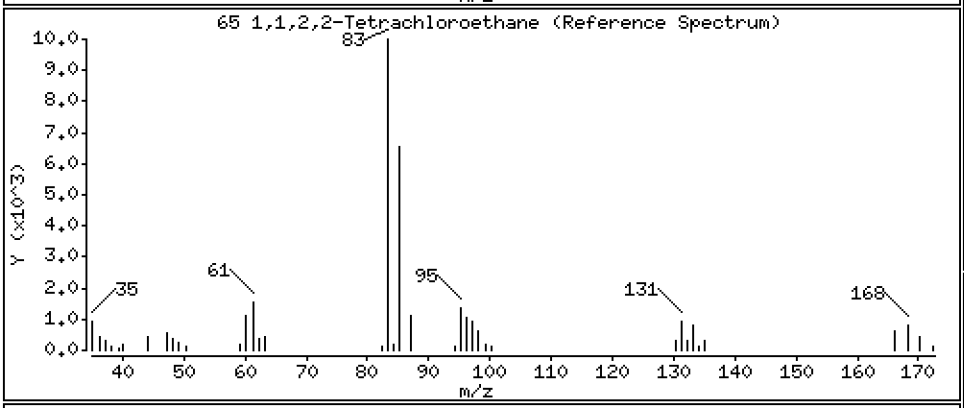
65 1,1,2,2-Tetrachloroethane Concentration: 43.092 ug/Kg

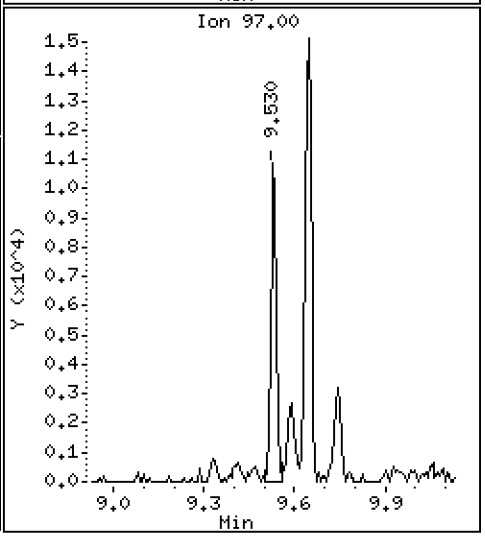


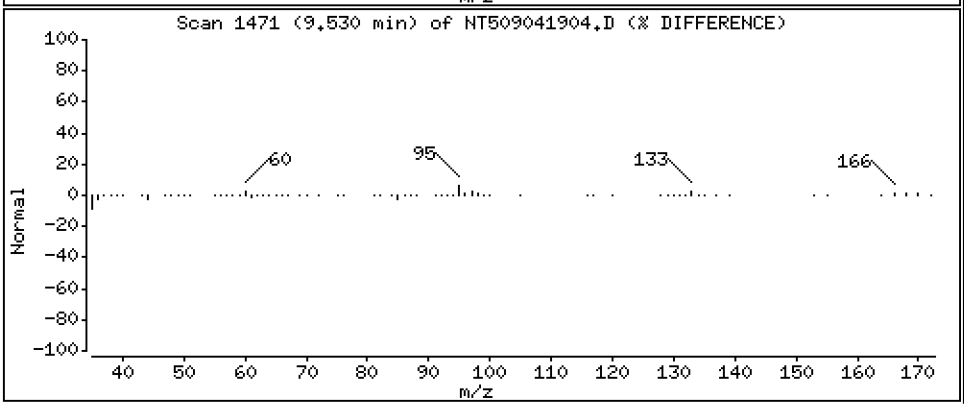












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

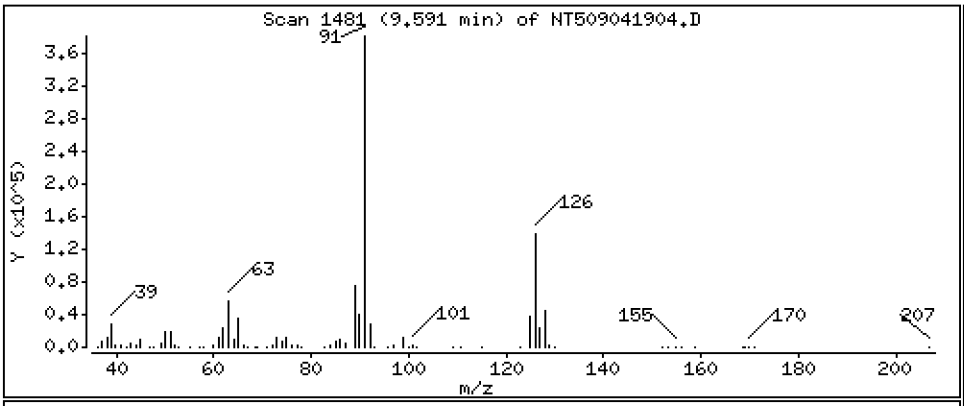
Operator: PB

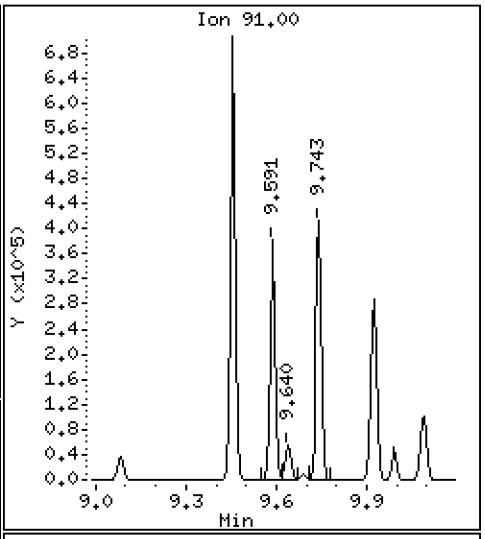
Column phase: RTXVMS

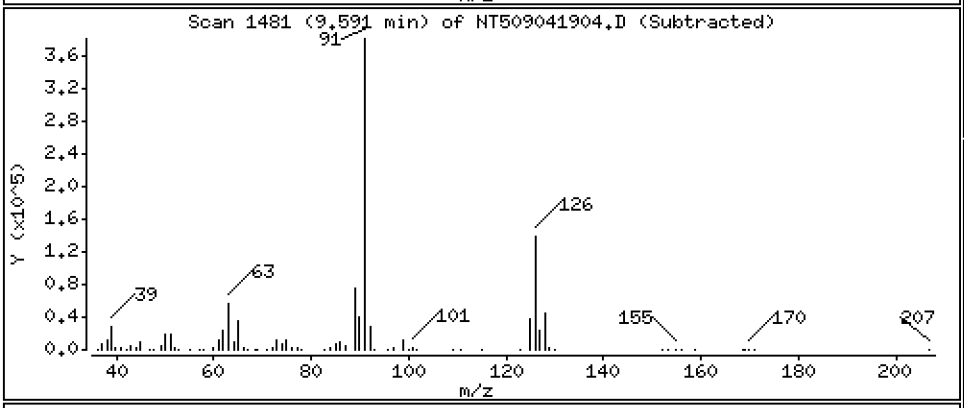
Column diameter: 0.18

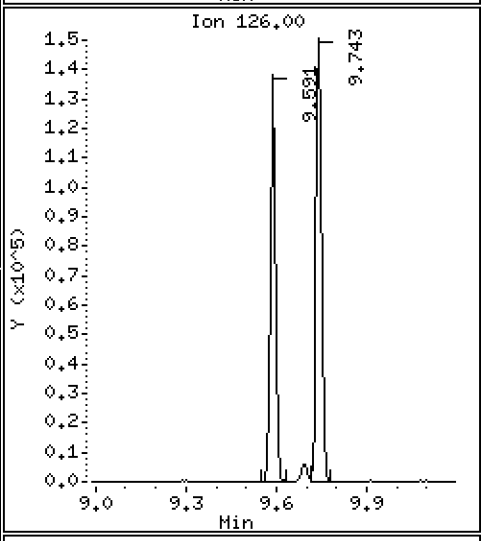
66 2-Chloro Toluene

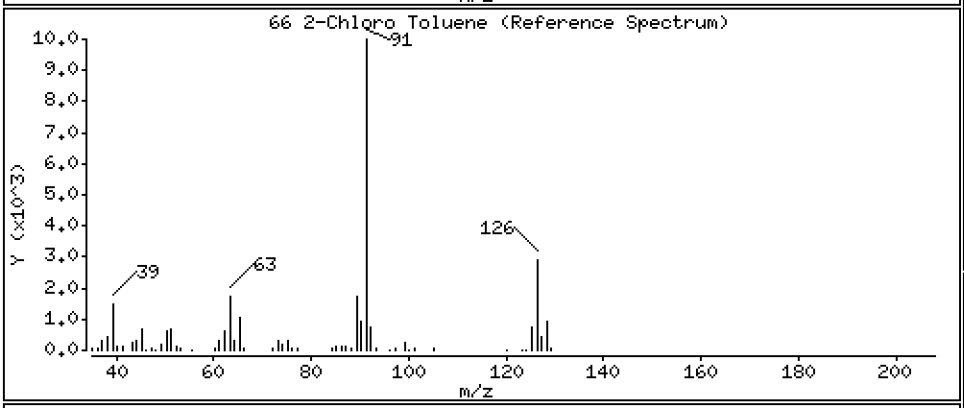
Concentration: 47.337 ug/Kg

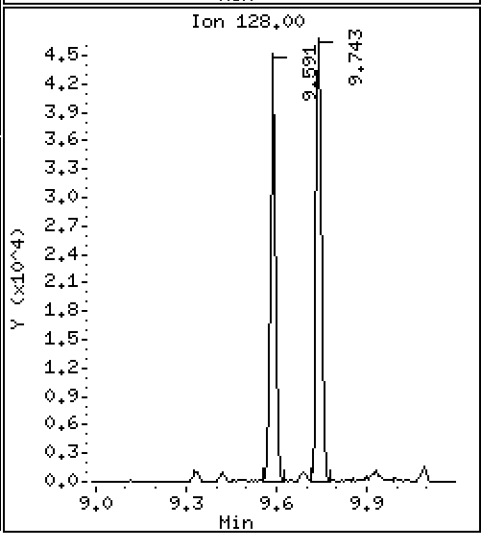


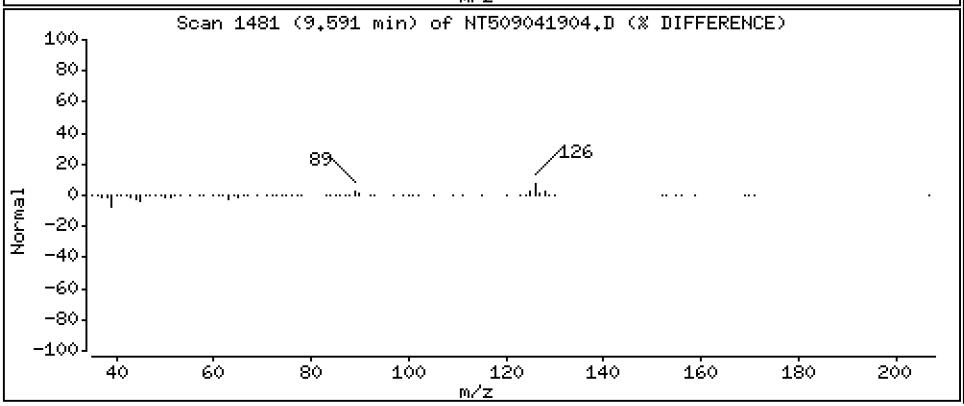












Date : 04-SEP-2019 15:04

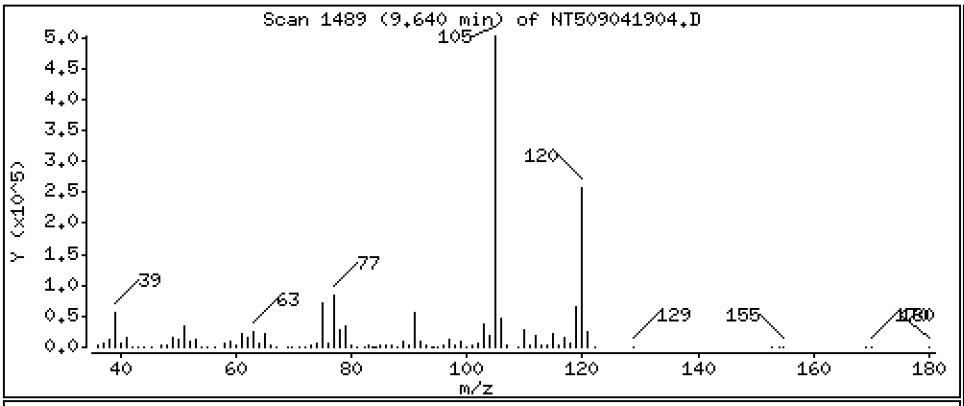
Client ID: Instrument: nt5.i

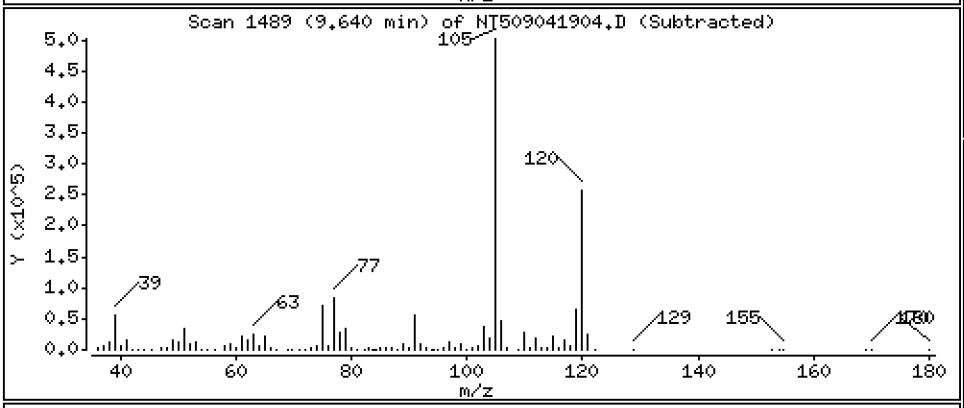
Sample Info: BSD1

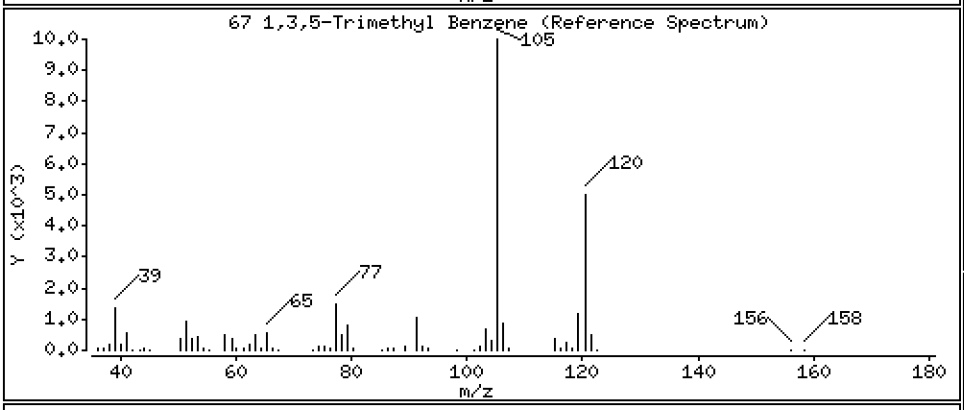
Operator: PB

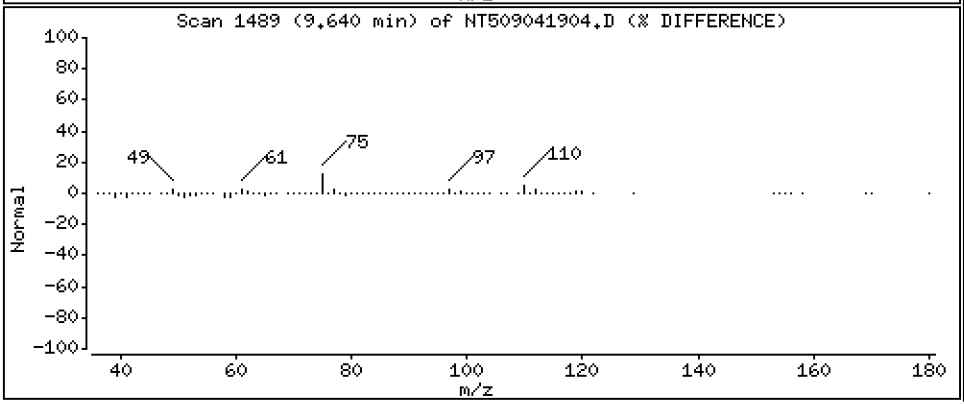
Column phase: RTXVMS Column diameter: 0.18

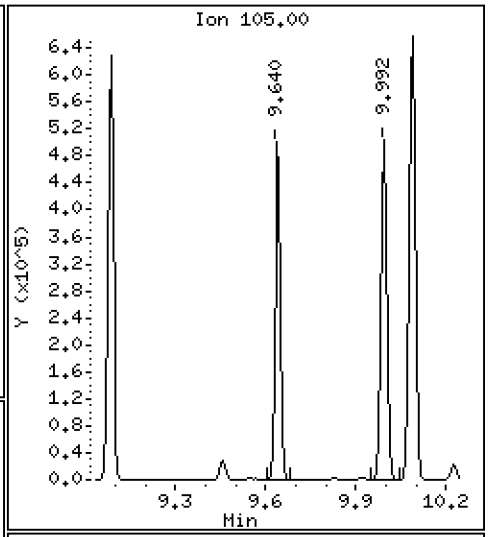
67 1,3,5-Trimethyl Benzene Concentration: 48.314 ug/Kg

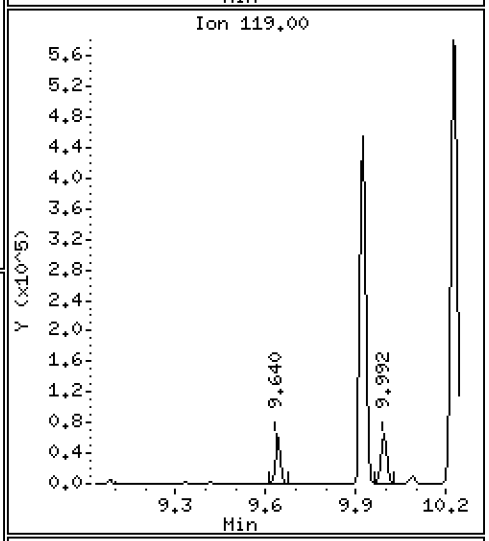


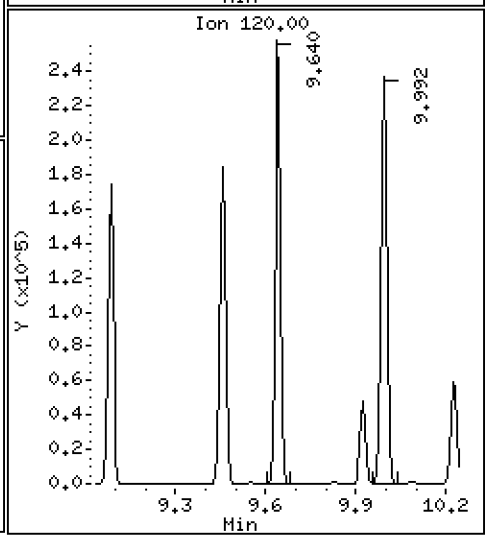












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

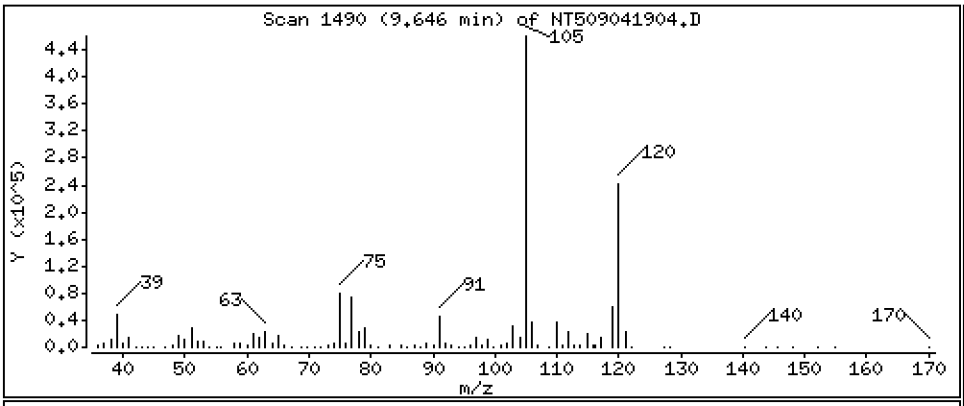
Operator: PB

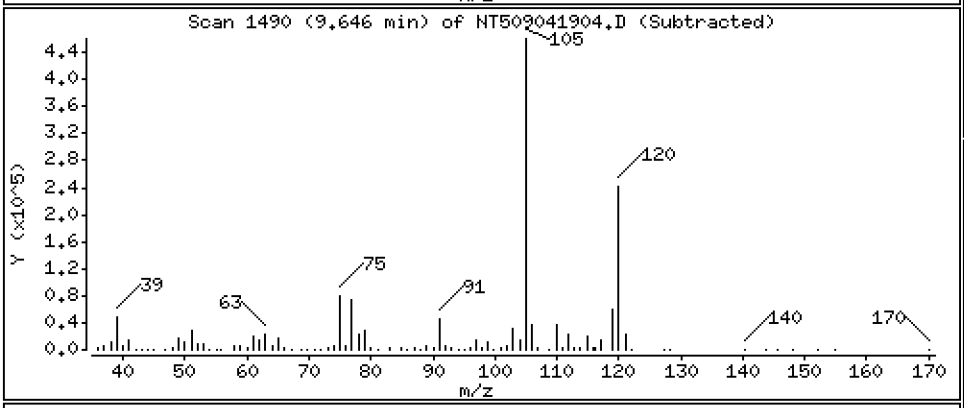
Column phase: RTXVMS

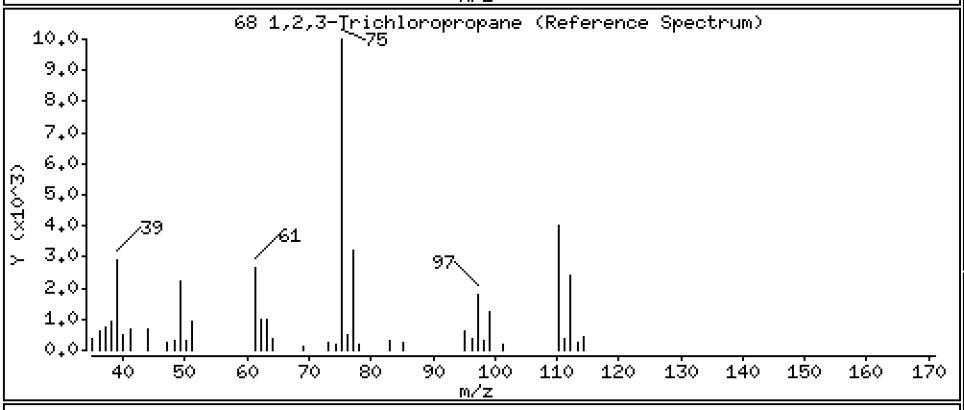
Column diameter: 0.18

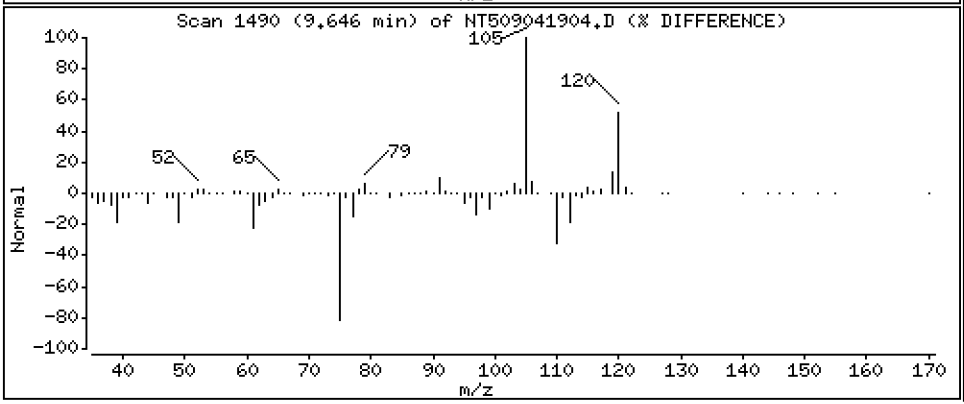
68 1,2,3-Trichloropropane

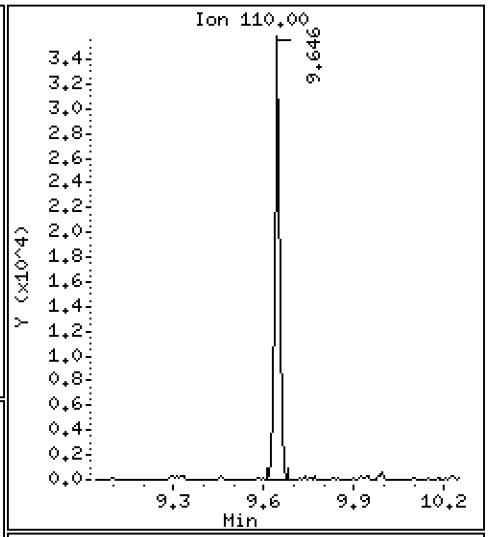
Concentration: 43.755 ug/Kg

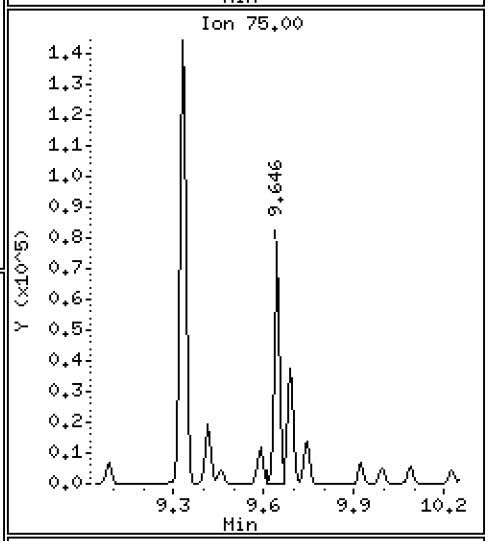


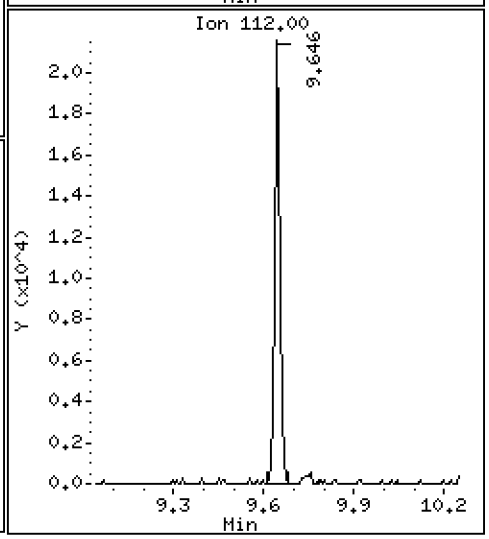












Date : 04-SEP-2019 15:04

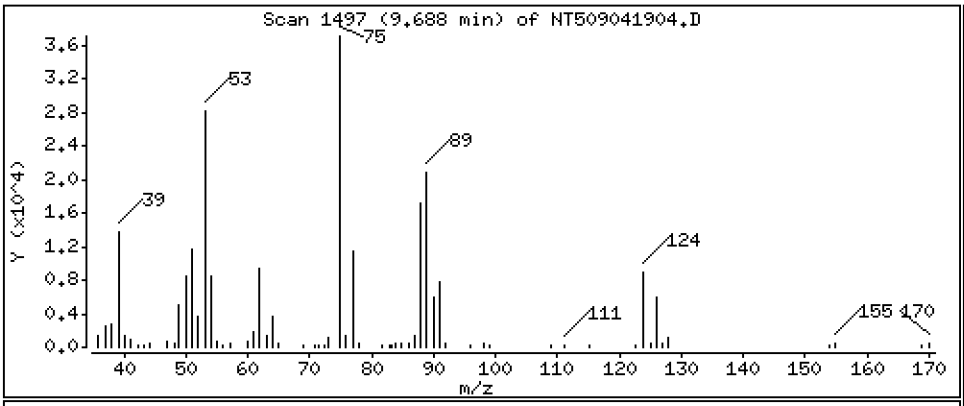
Client ID: Instrument: nt5.i

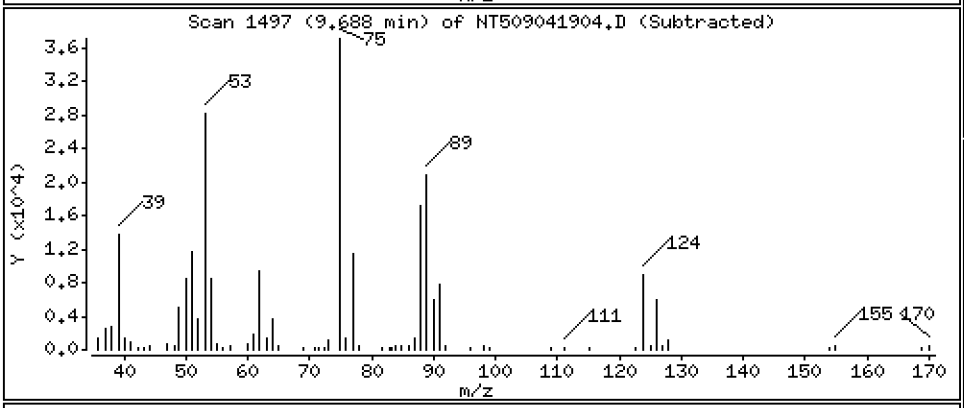
Sample Info: BSD1

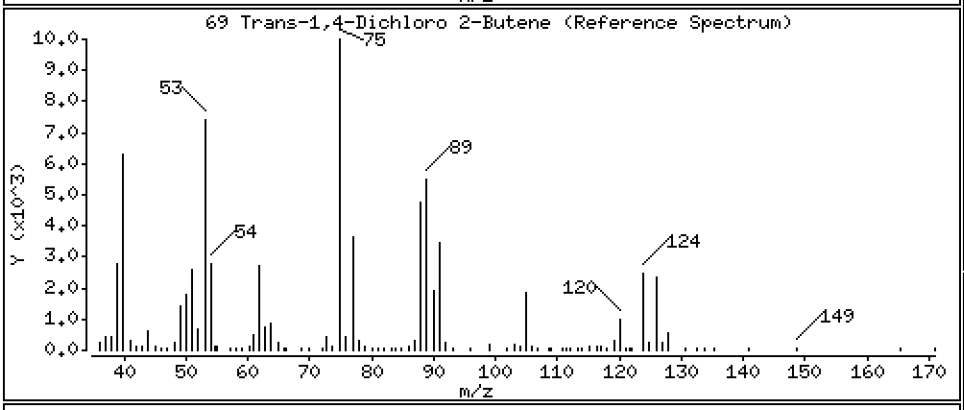
Operator: PB

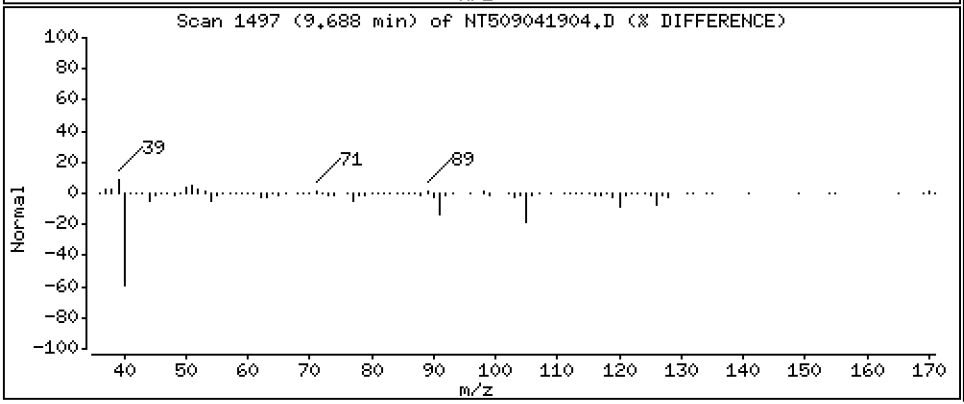
Column phase: RTXVMS Column diameter: 0.18

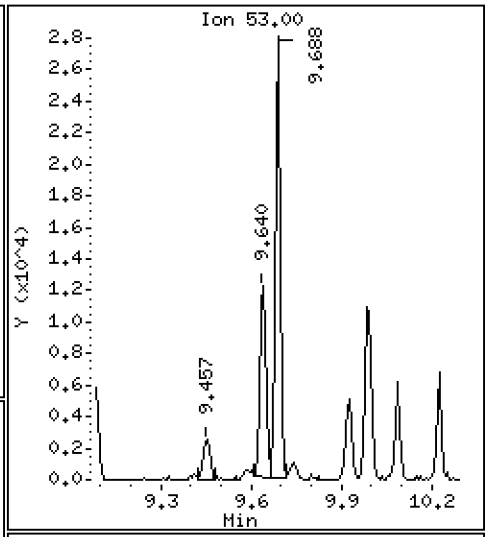
69 Trans-1,4-Dichloro 2-Butene Concentration: 43.061 ug/Kg

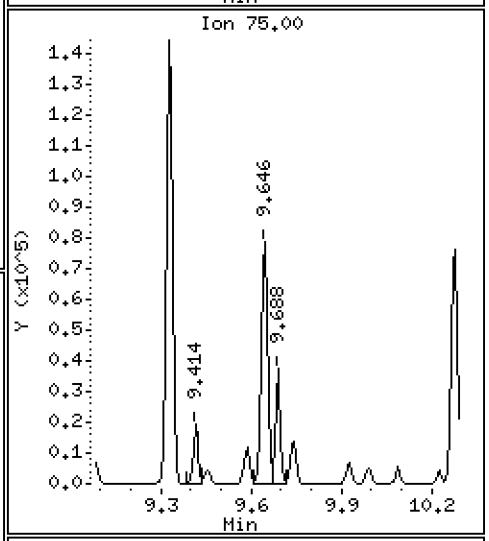


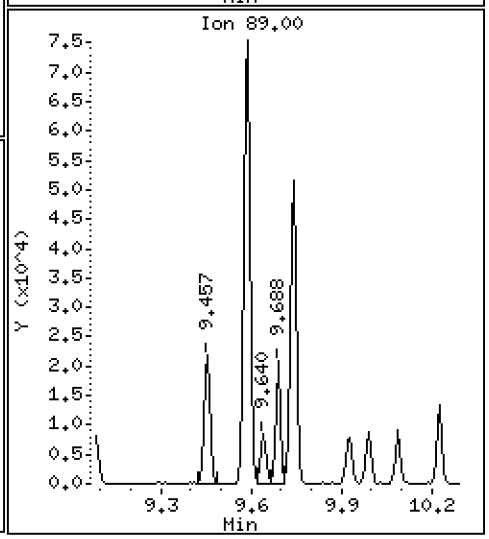












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

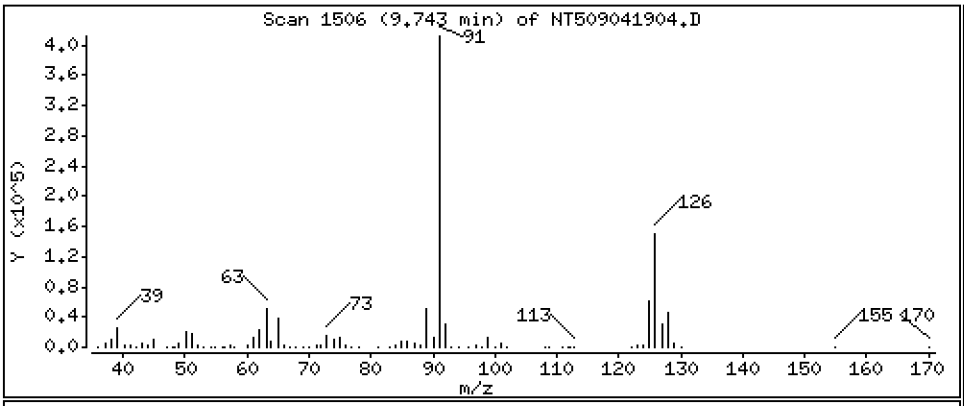
Operator: PB

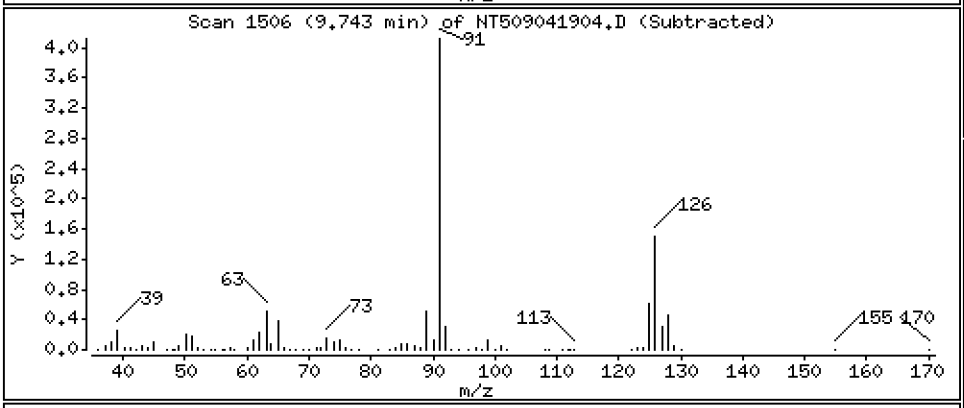
Column phase: RTXVMS

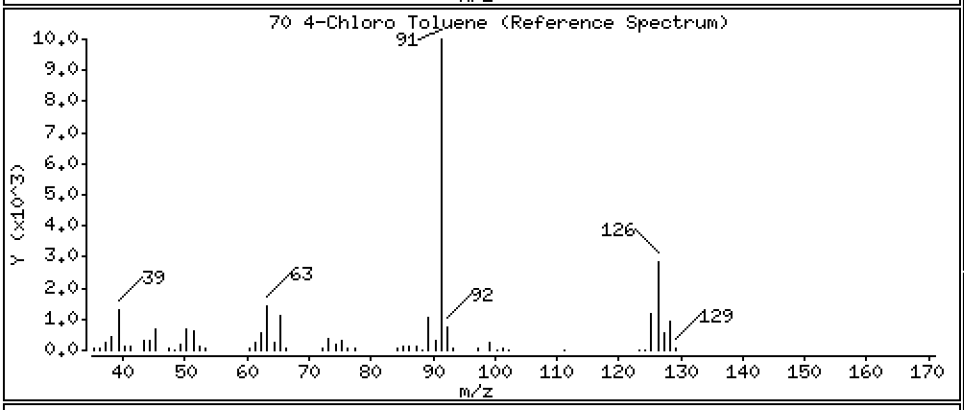
Column diameter: 0.18

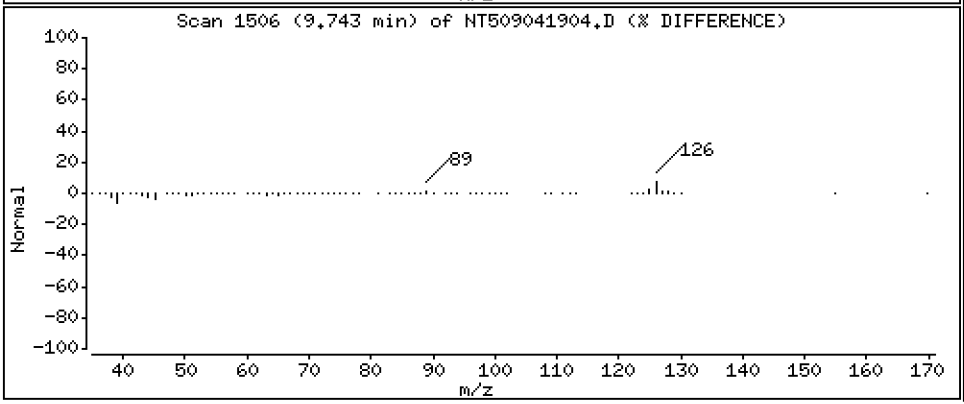
70 4-Chloro Toluene

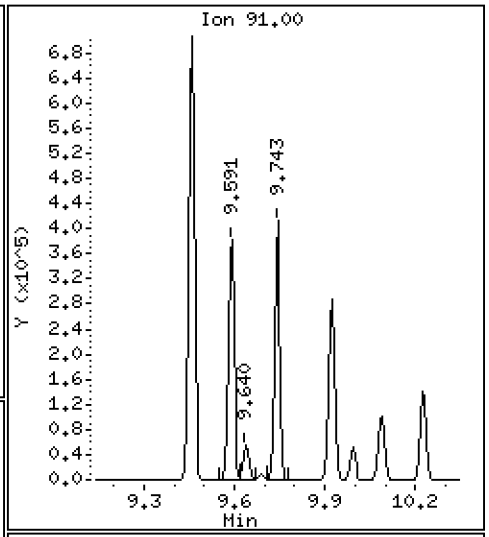
Concentration: 46.756 ug/Kg

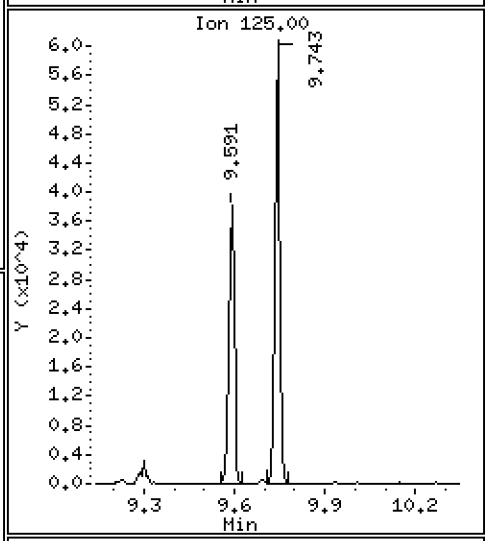


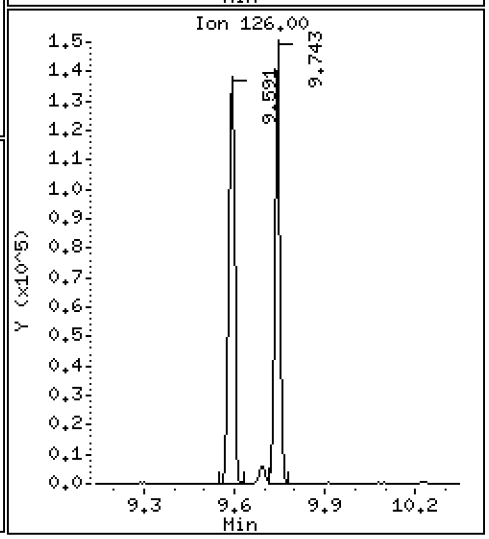












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

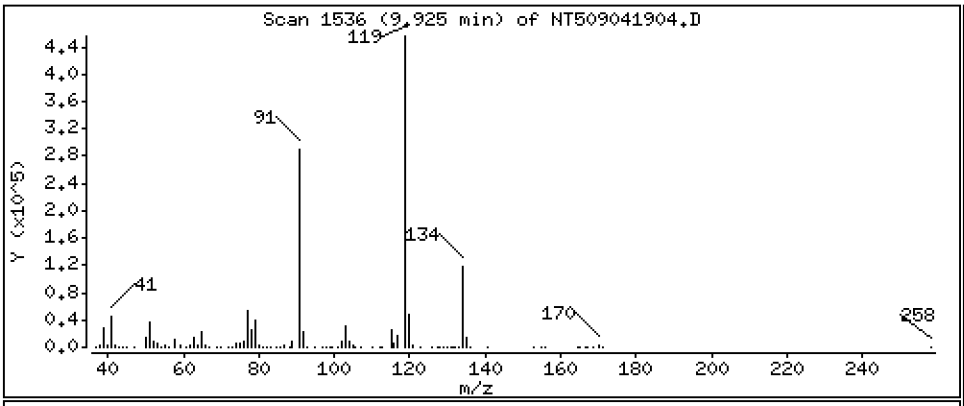
Operator: PB

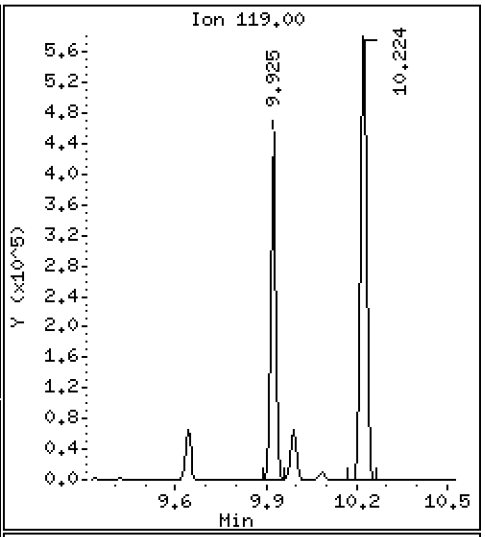
Column phase: RTXVMS

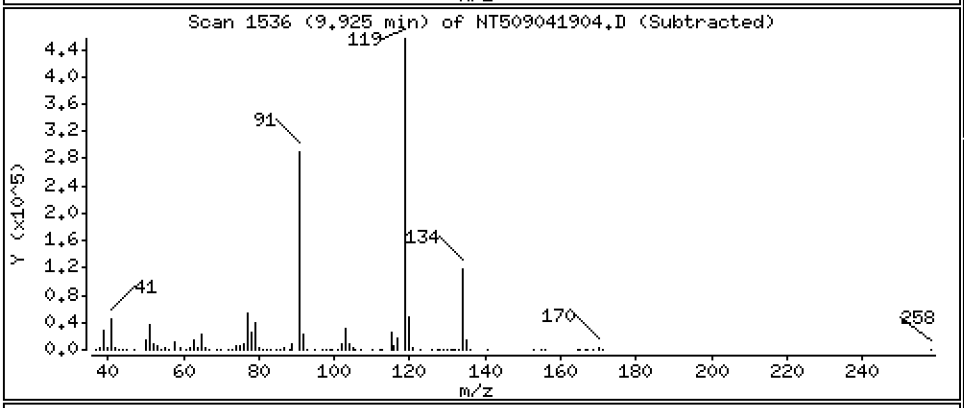
Column diameter: 0.18

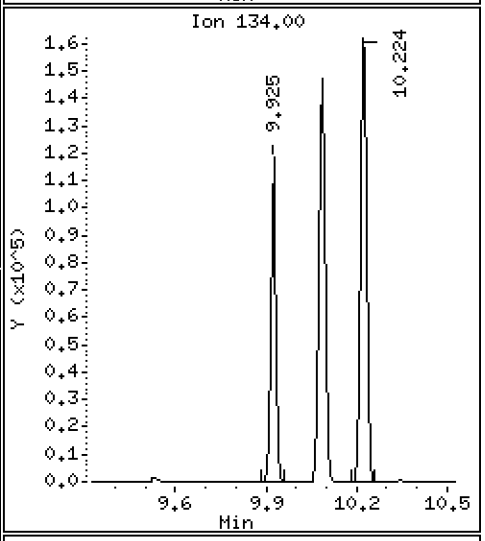
71 T-Butyl Benzene

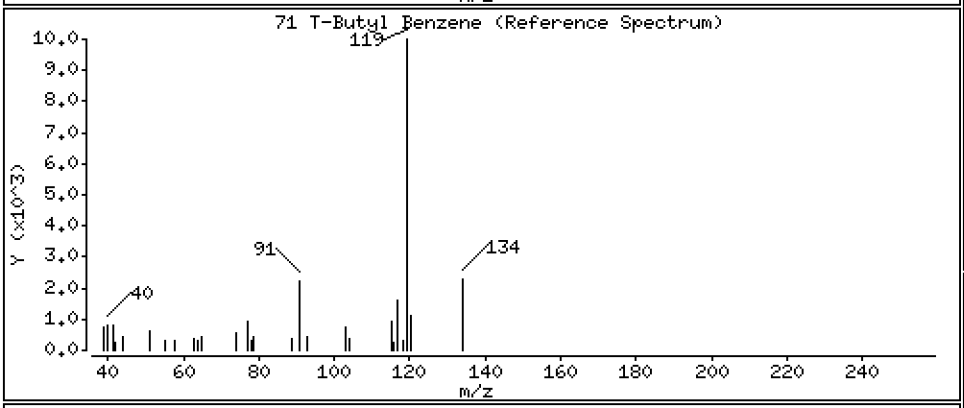
Concentration: 47.427 ug/Kg

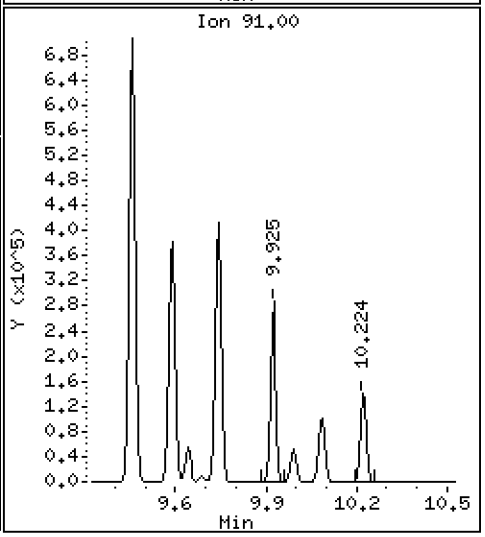


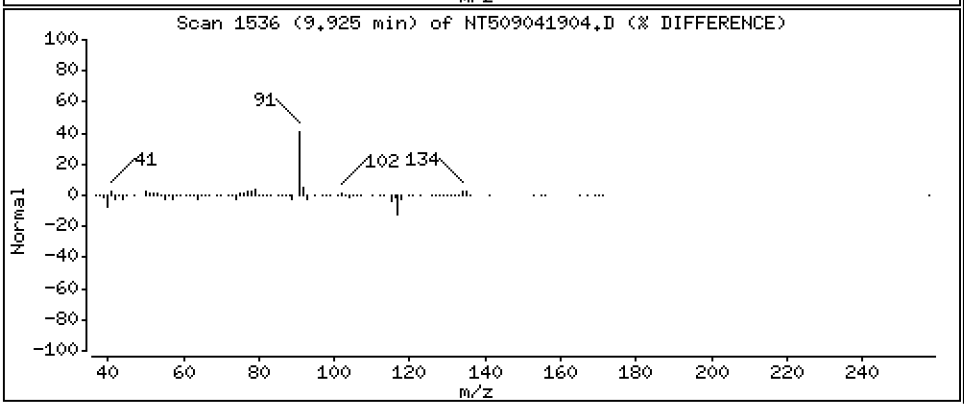












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

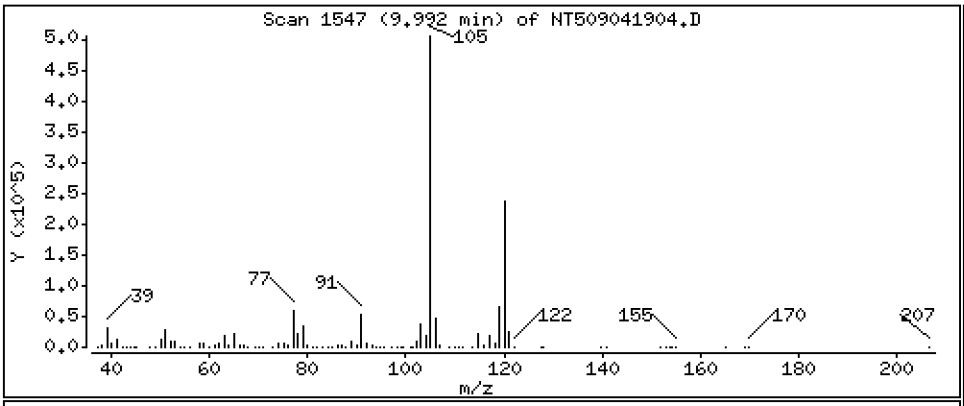
Operator: PB

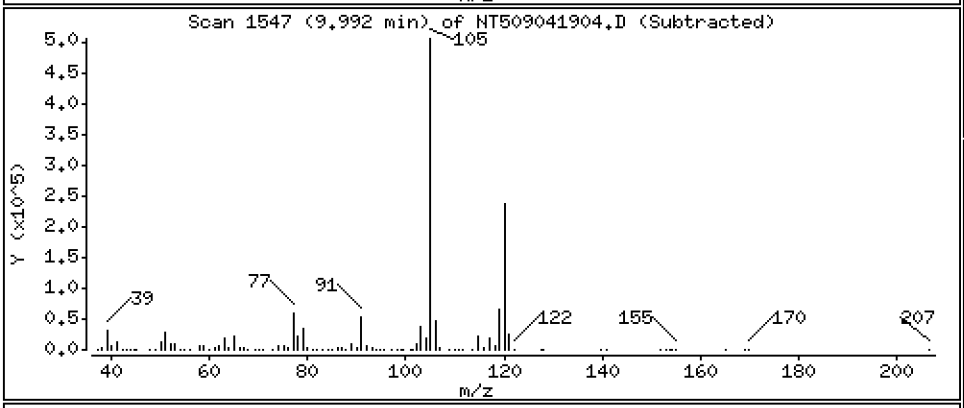
Column phase: RTXVMS

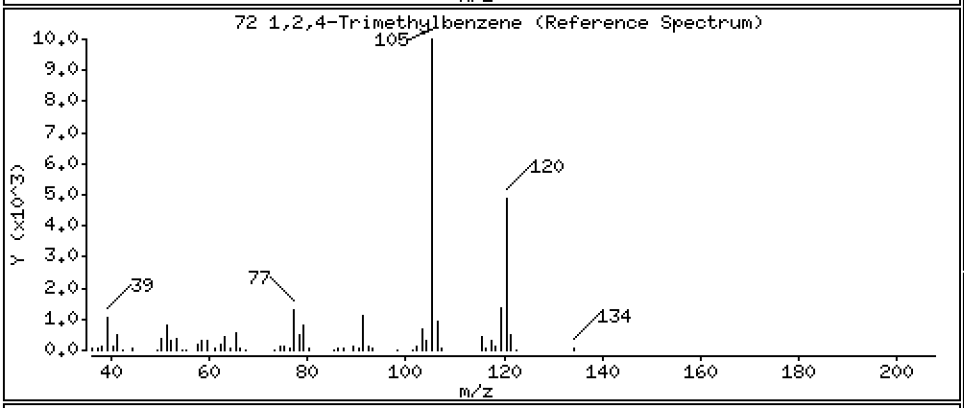
Column diameter: 0.18

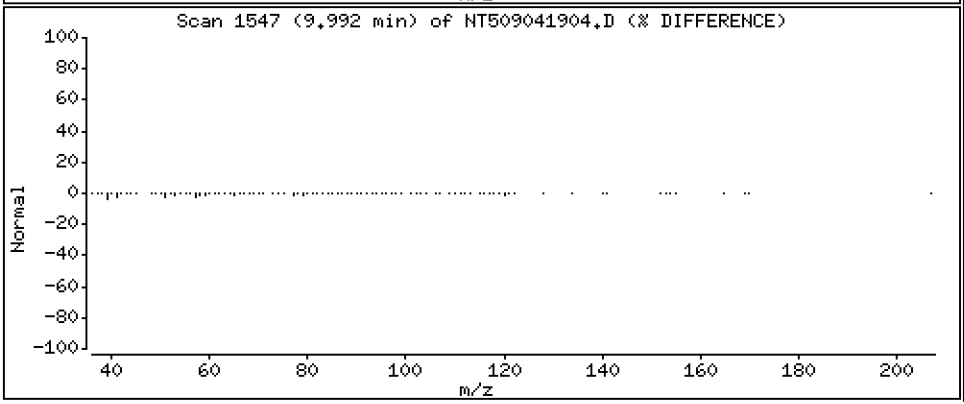
72 1,2,4-Trimethylbenzene

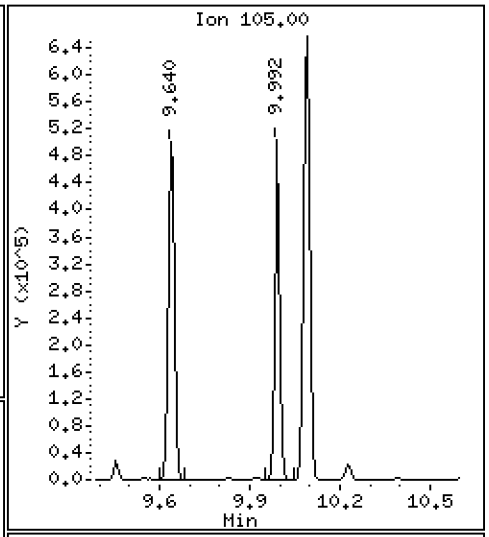
Concentration: 47.913 ug/Kg

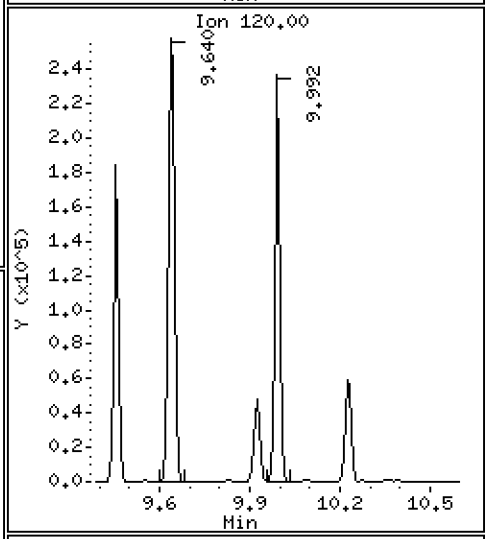


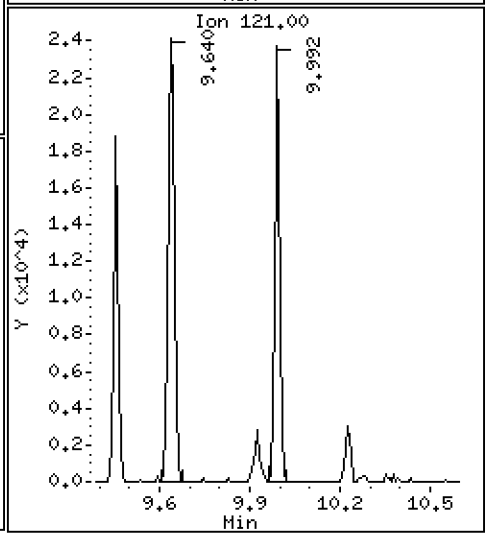












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

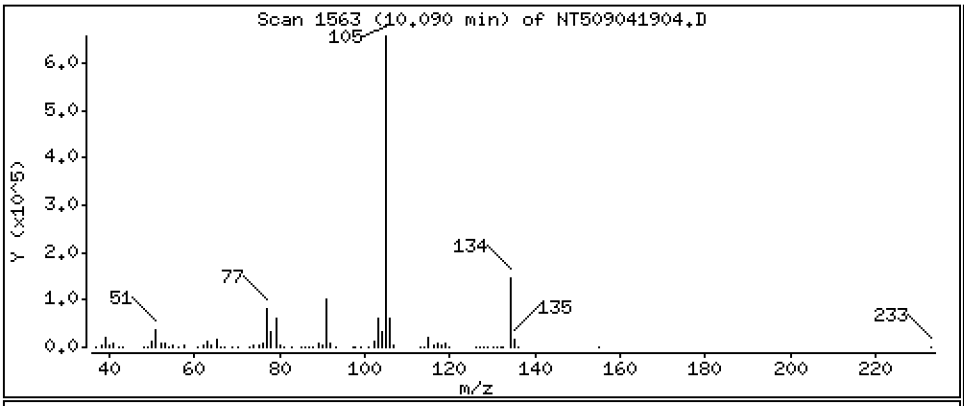
Operator: PB

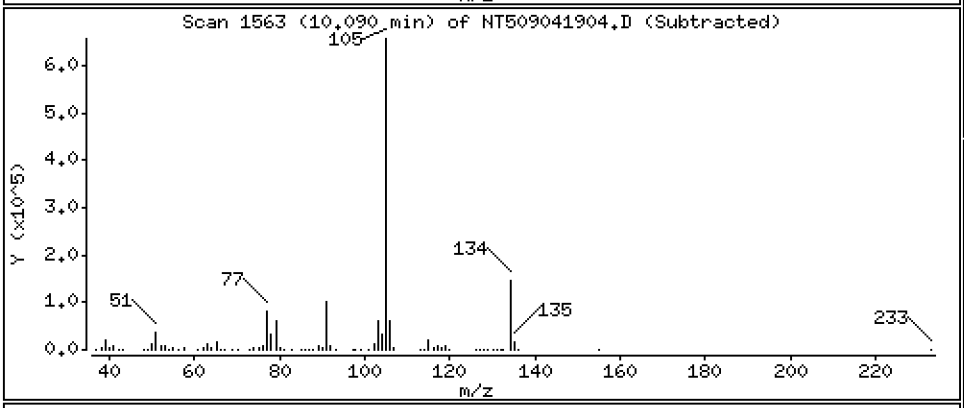
Column phase: RTXVMS

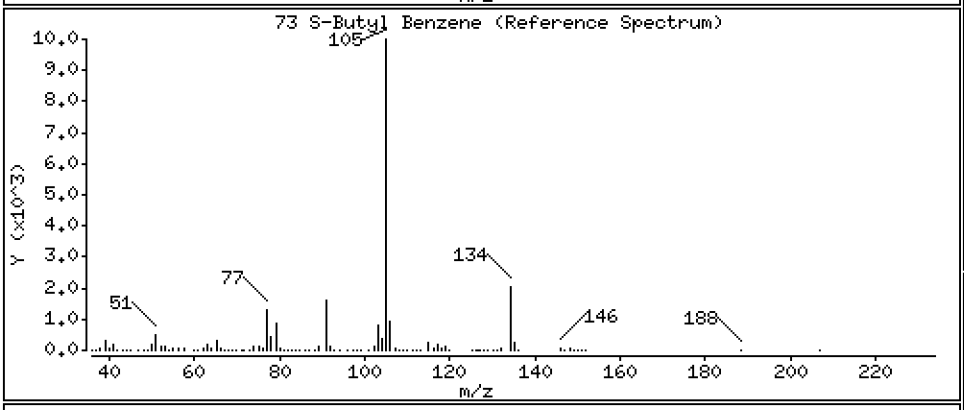
Column diameter: 0.18

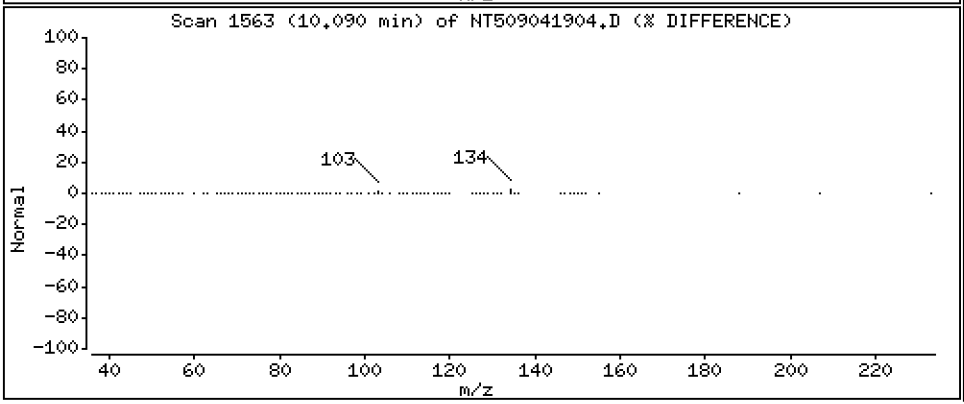
73 S-Butyl Benzene

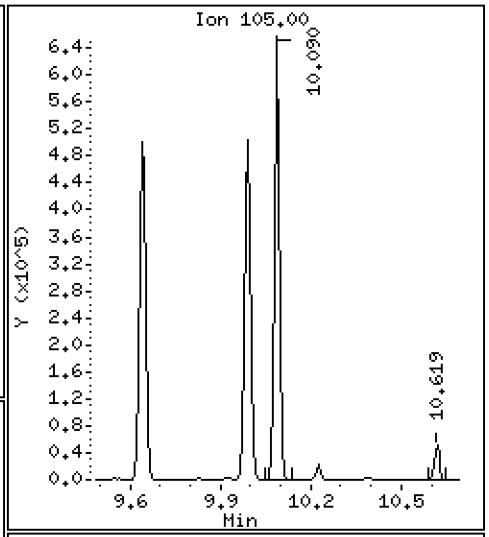
Concentration: 48.606 ug/Kg

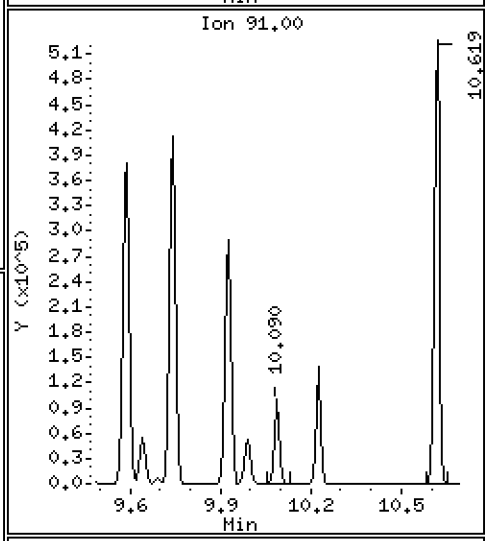


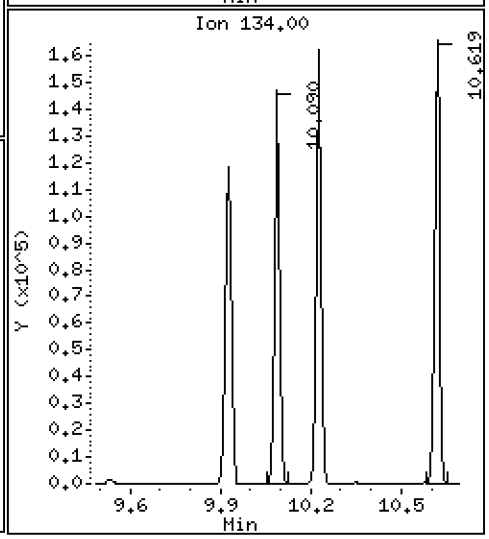












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

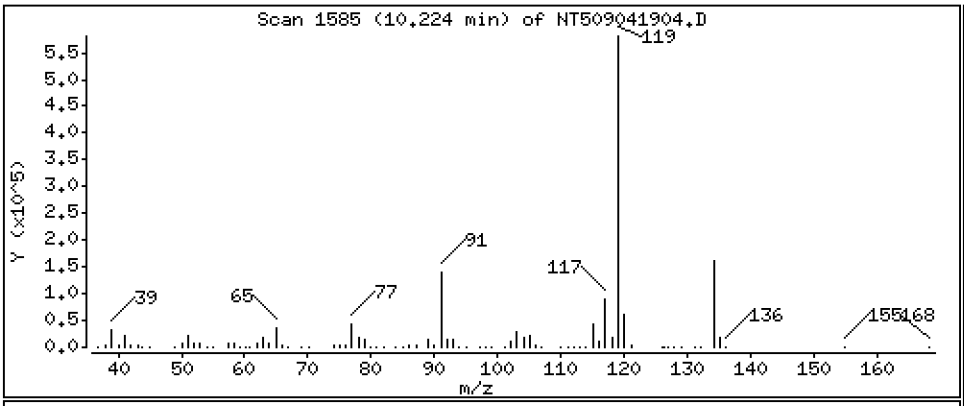
Operator: PB

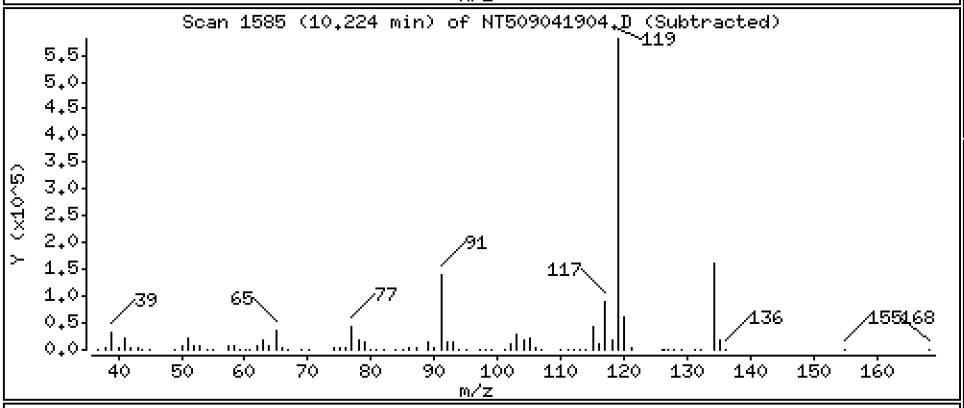
Column phase: RTXVMS

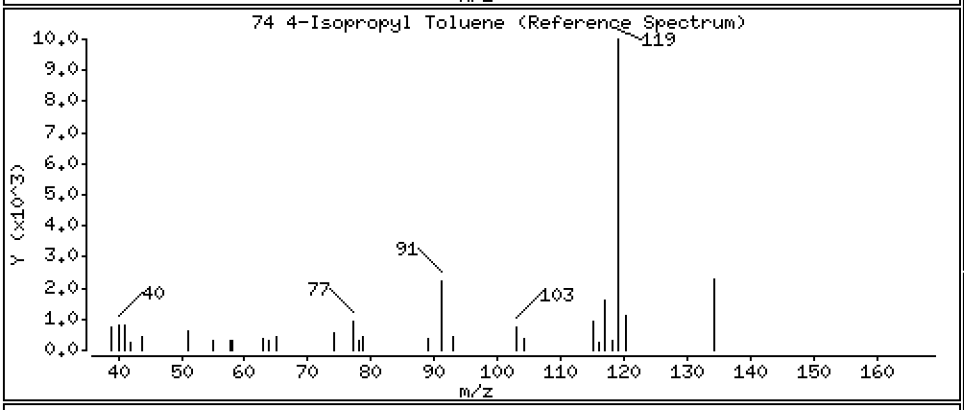
Column diameter: 0.18

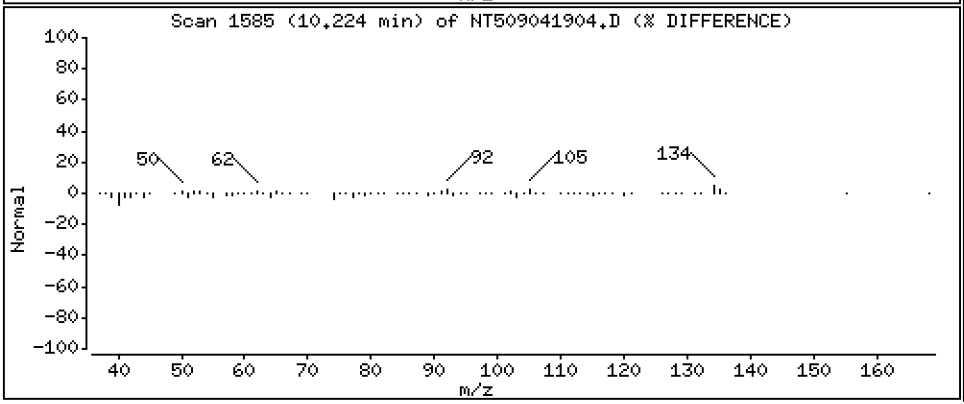
74 4-Isopropyl Toluene

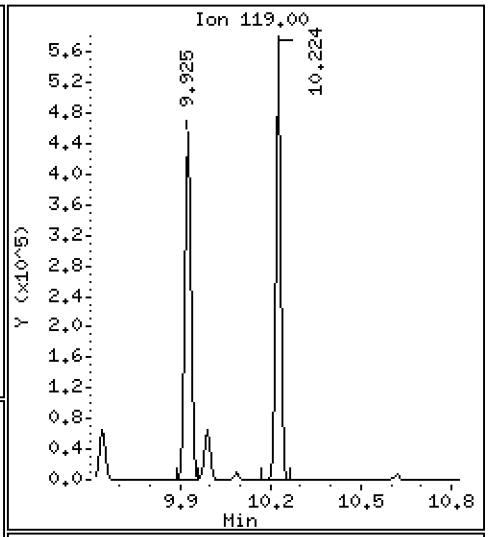
Concentration: 49.612 ug/Kg

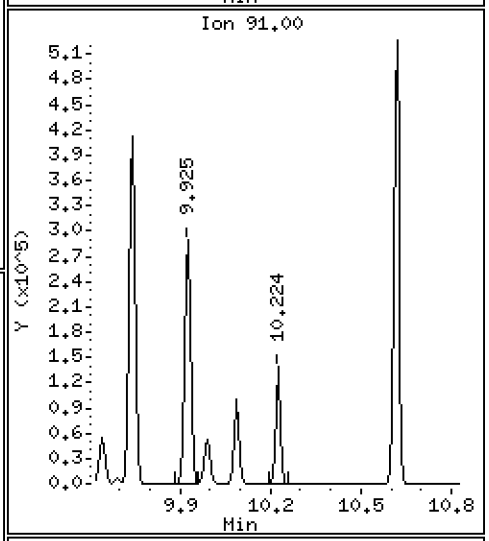


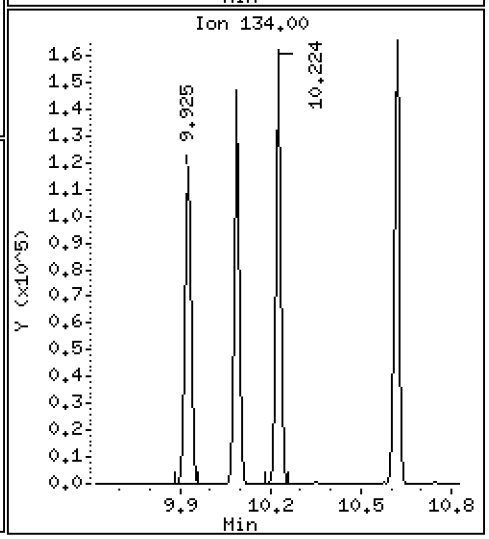












Date : 04-SEP-2019 15:04

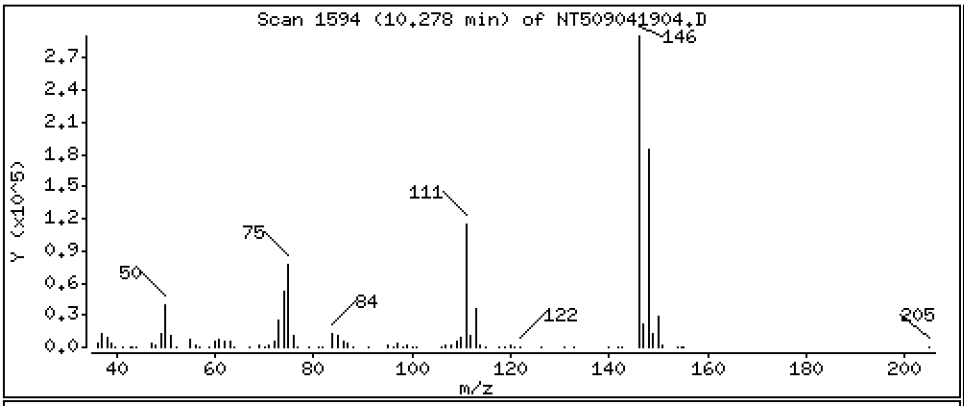
Client ID: Instrument: nt5.i

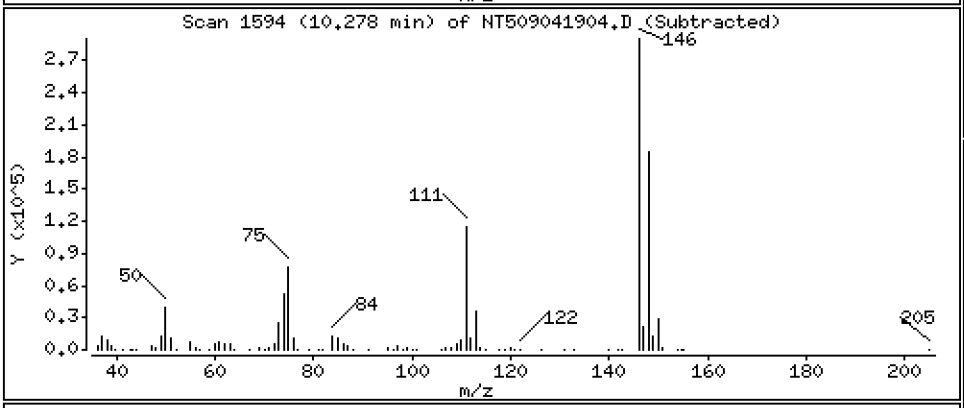
Sample Info: BSD1

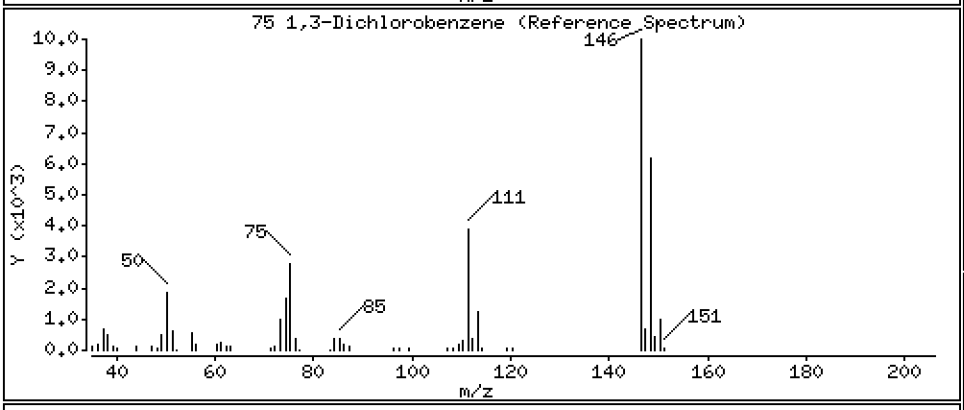
Operator: PB

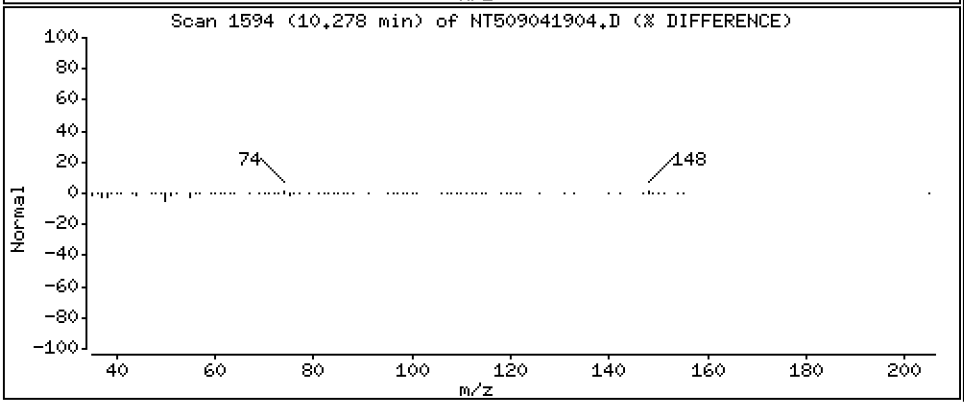
Column phase: RTXVMS Column diameter: 0.18

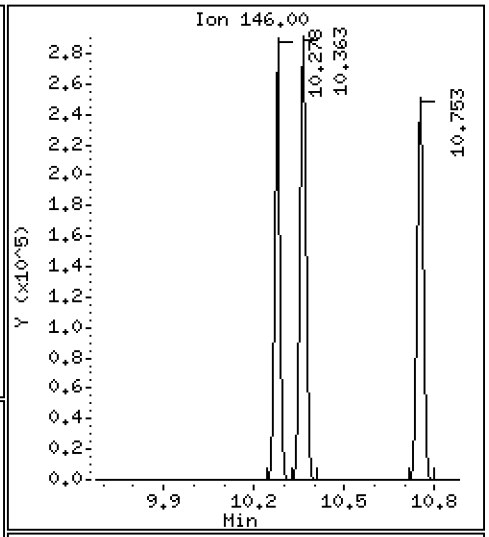
75 1,3-Dichlorobenzene Concentration: 46.849 ug/Kg

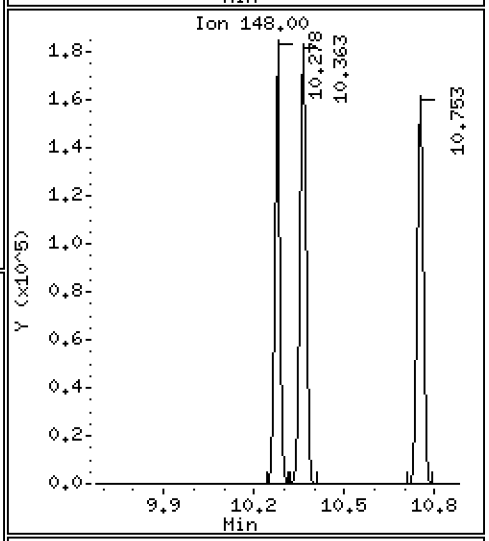


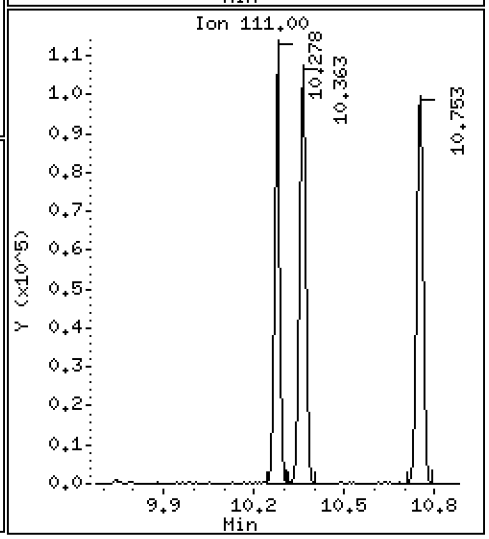












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

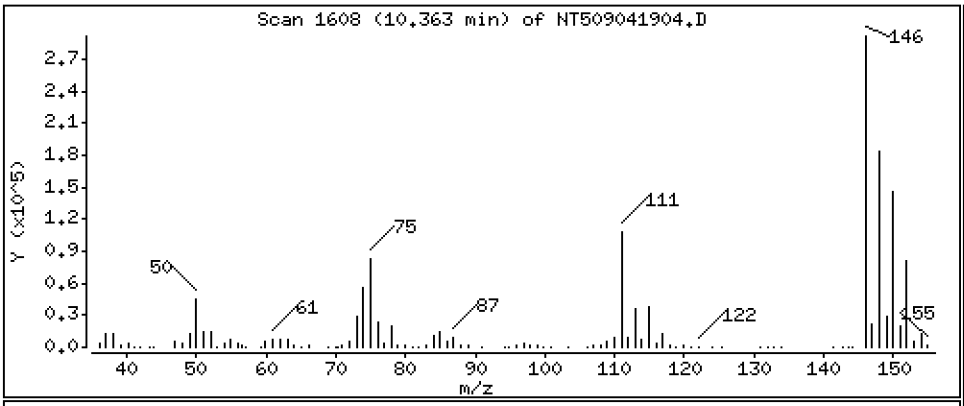
Operator: PB

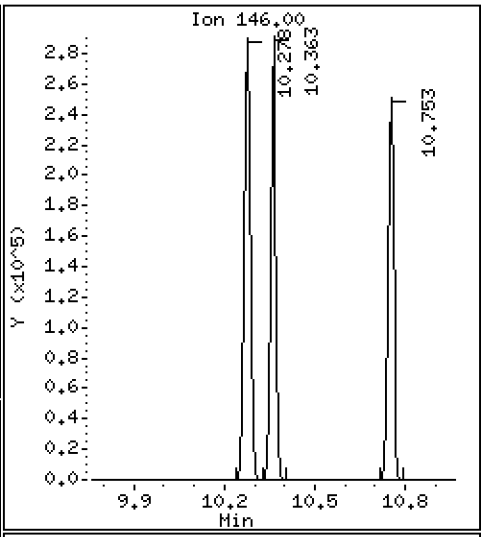
Column phase: RTXVMS

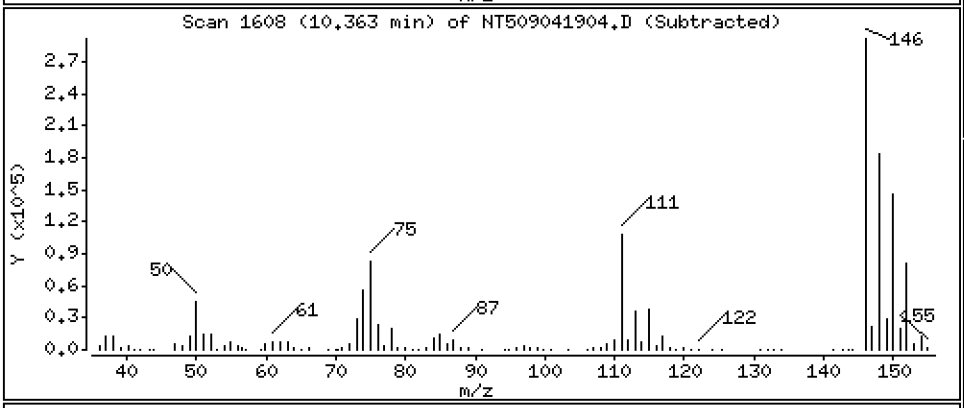
Column diameter: 0.18

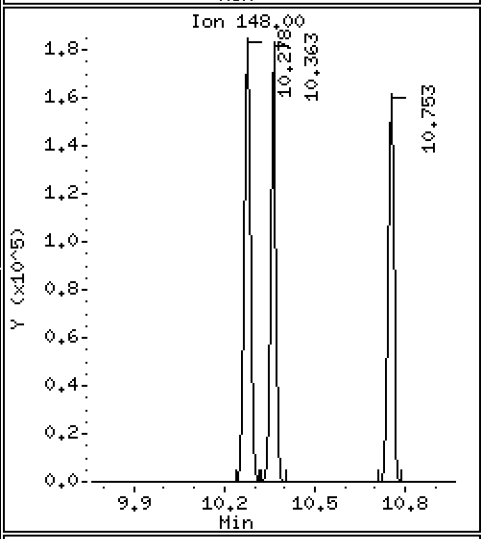
77 1,4-Dichlorobenzene

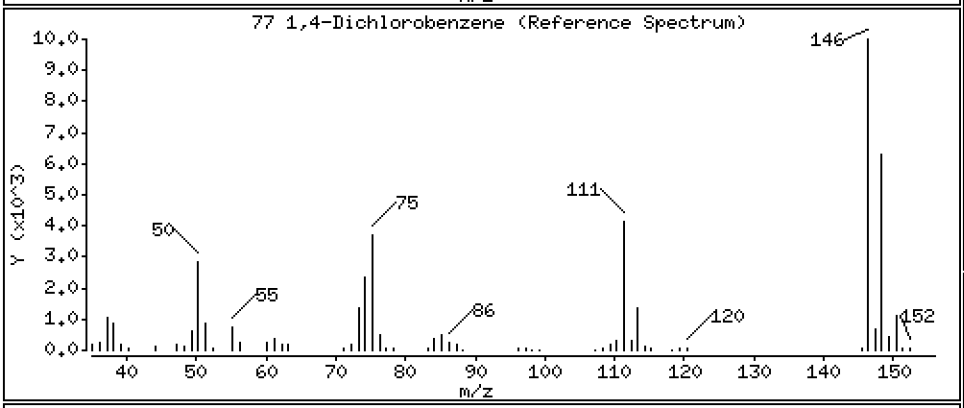
Concentration: 44.881 ug/Kg

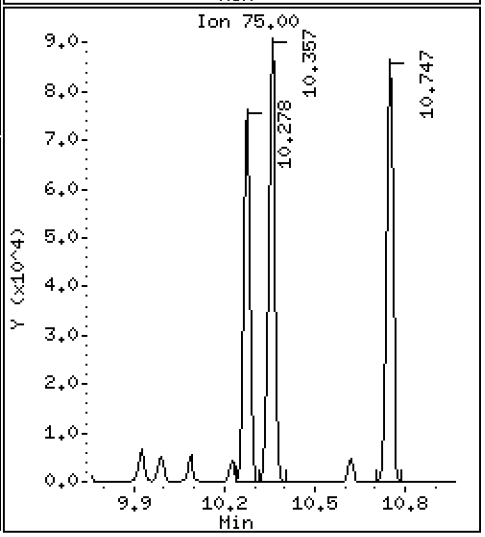


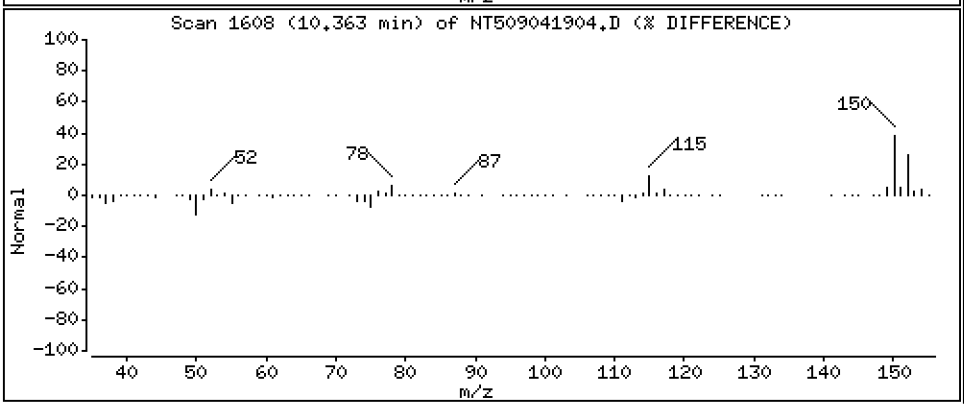












Date : 04-SEP-2019 15:04

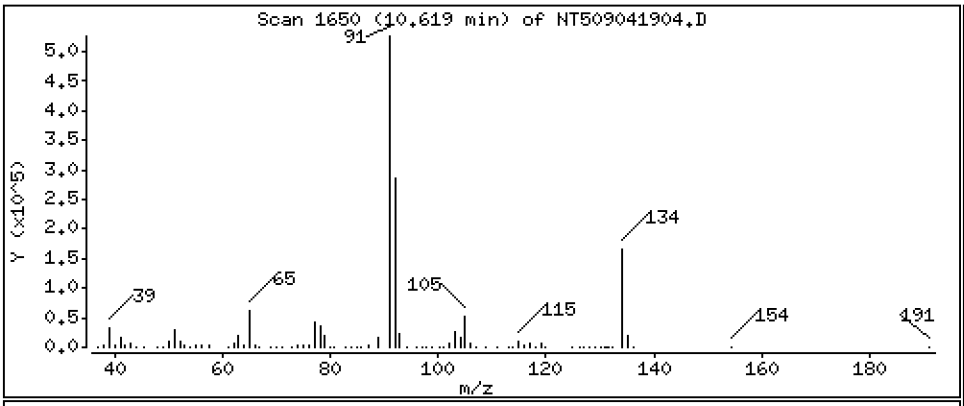
Client ID: Instrument: nt5.i

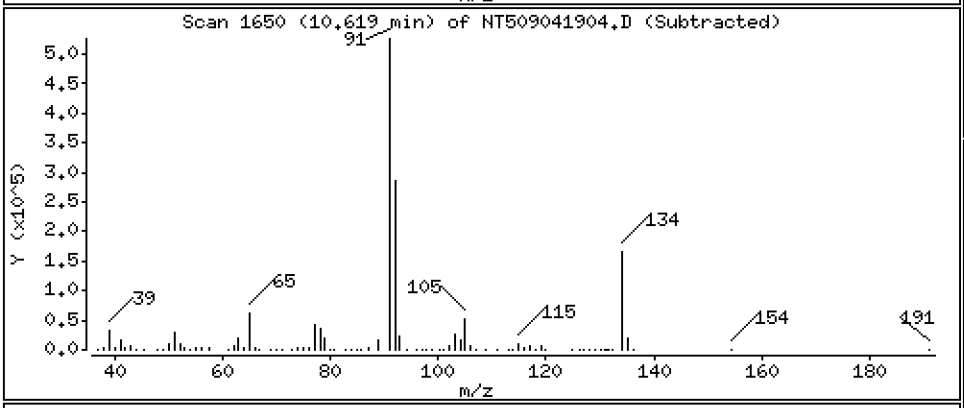
Sample Info: BSD1

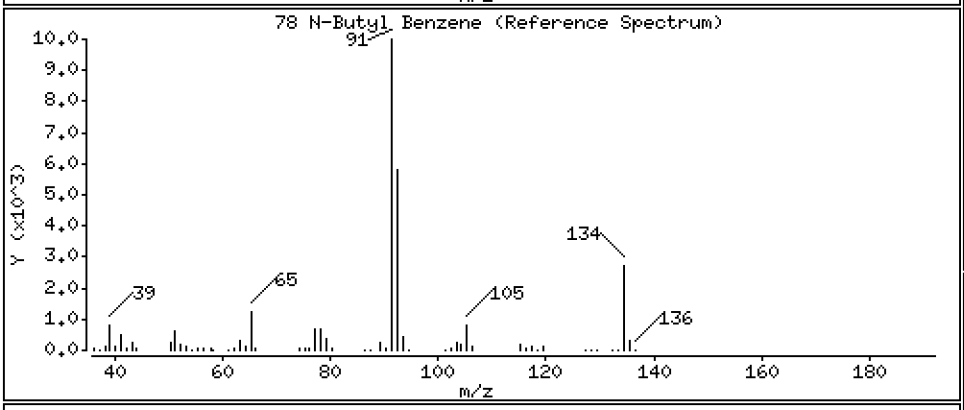
Operator: PB

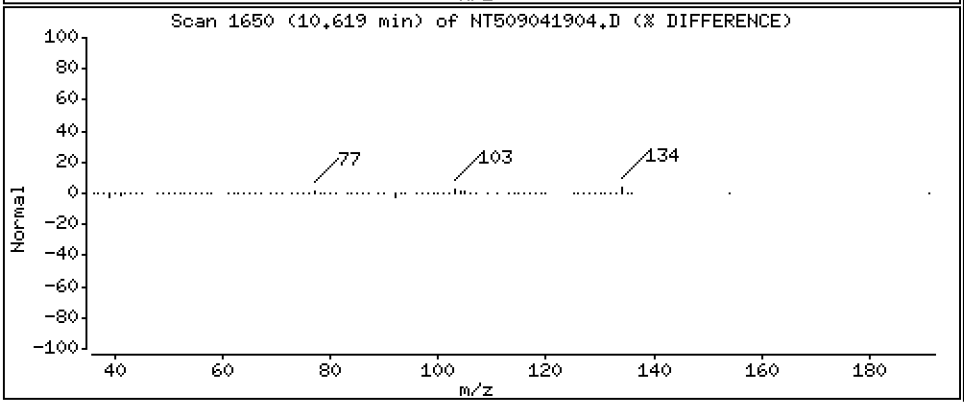
Column phase: RTXVMS Column diameter: 0.18

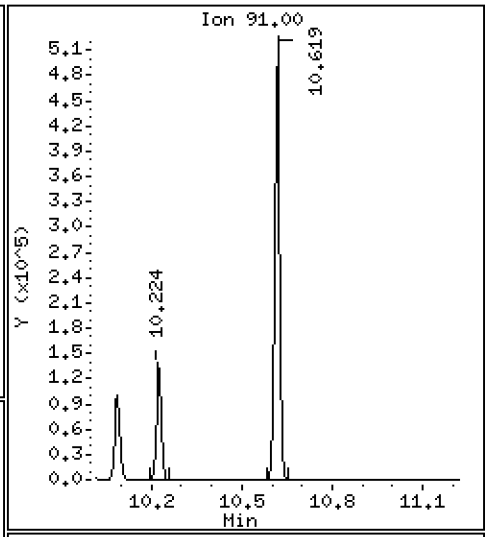
78 N-Butyl Benzene Concentration: 50.470 ug/Kg

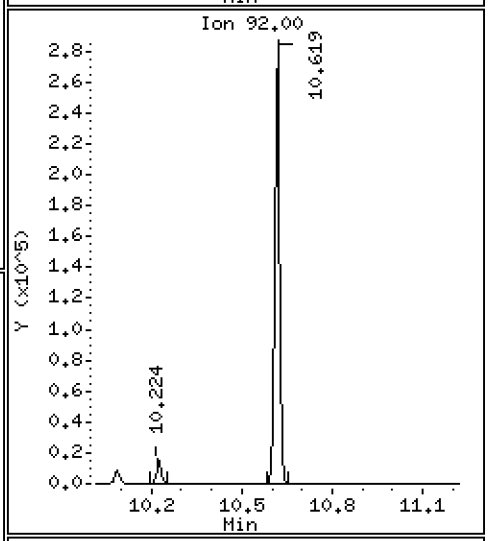


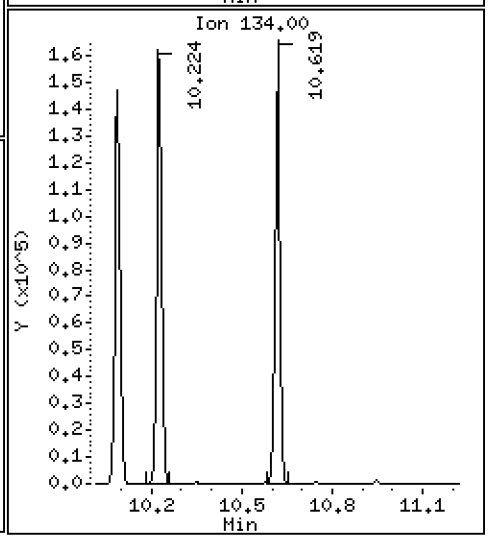












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

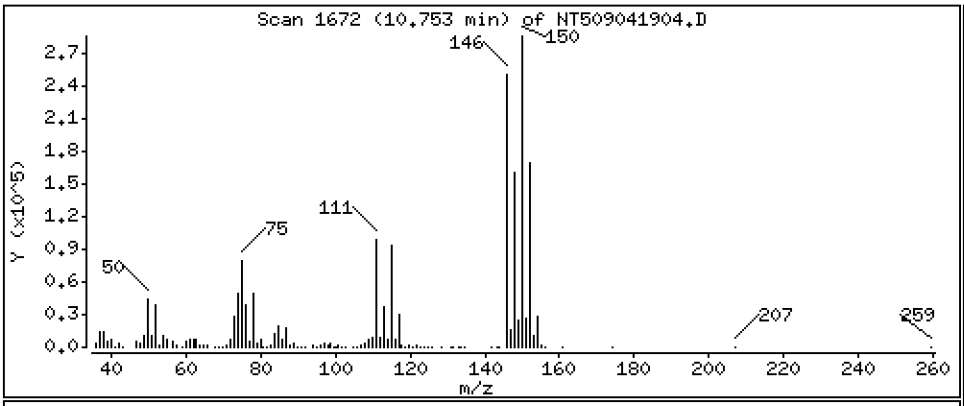
Operator: PB

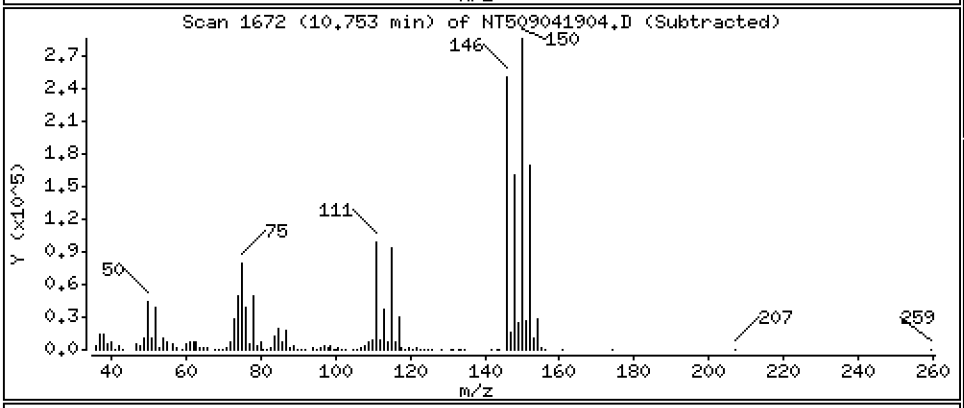
Column phase: RTXVMS

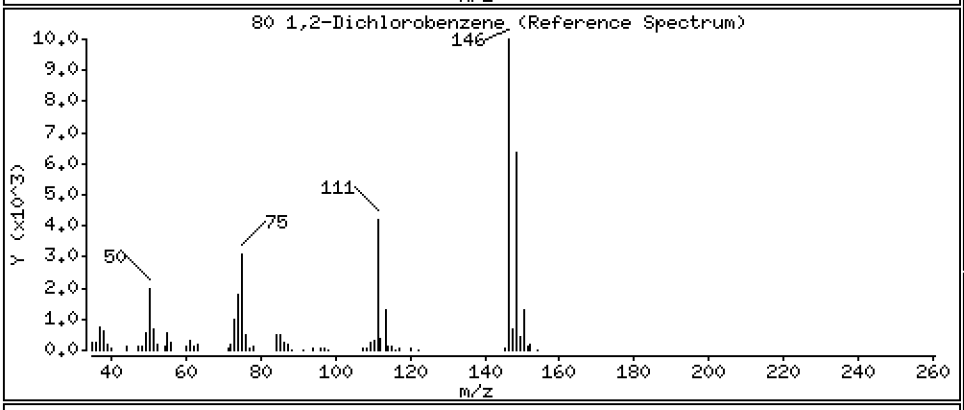
Column diameter: 0.18

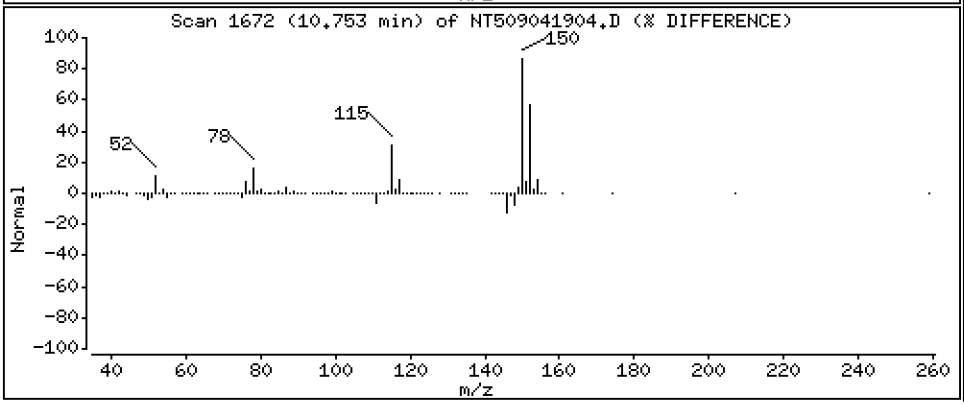
80 1,2-Dichlorobenzene

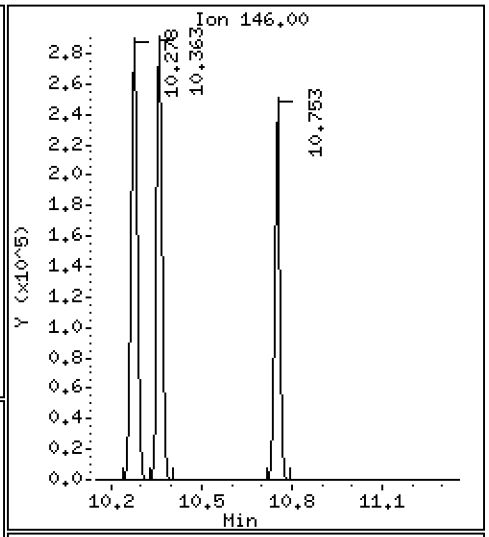
Concentration: 42.926 ug/Kg

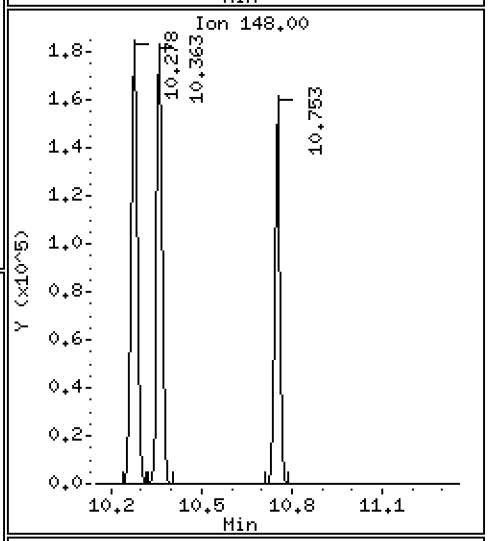


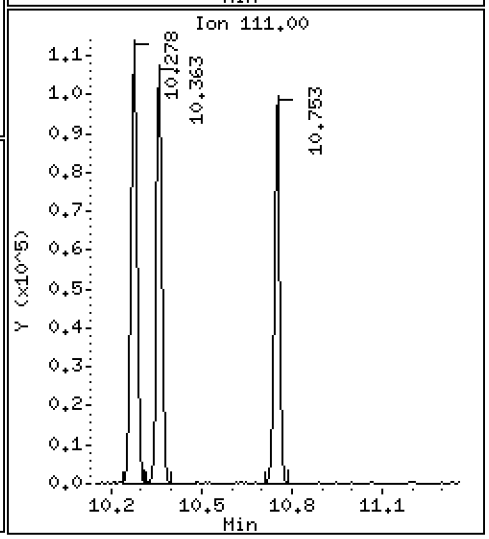












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

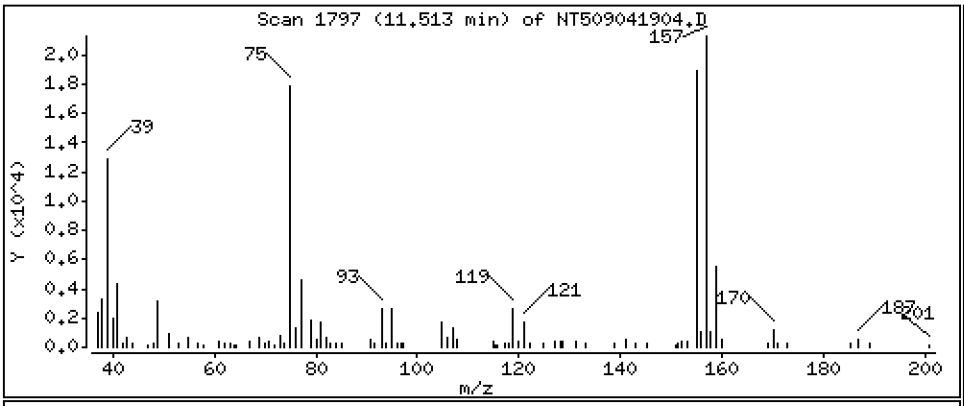
Operator: PB

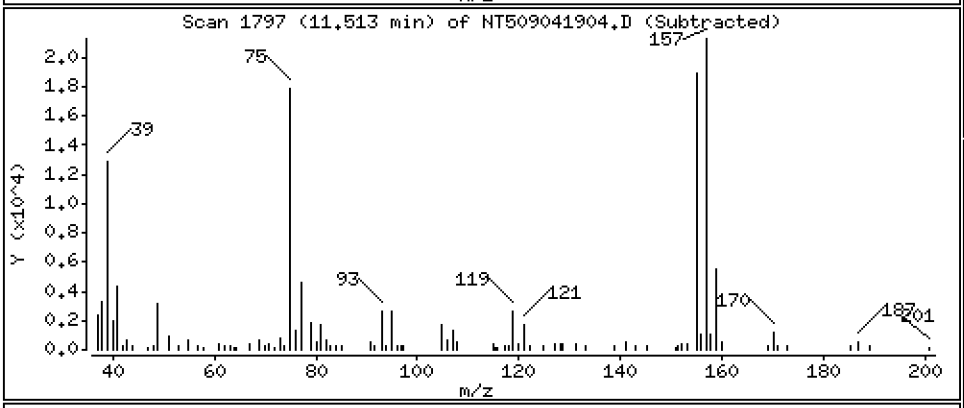
Column phase: RTXVMS

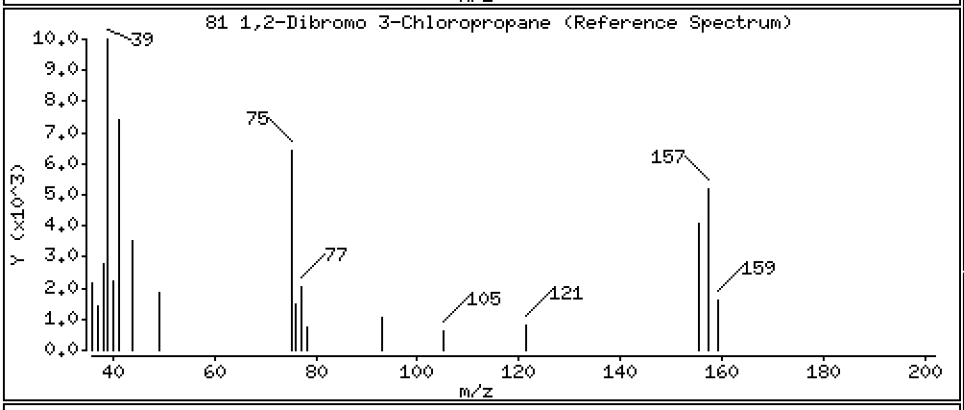
Column diameter: 0.18

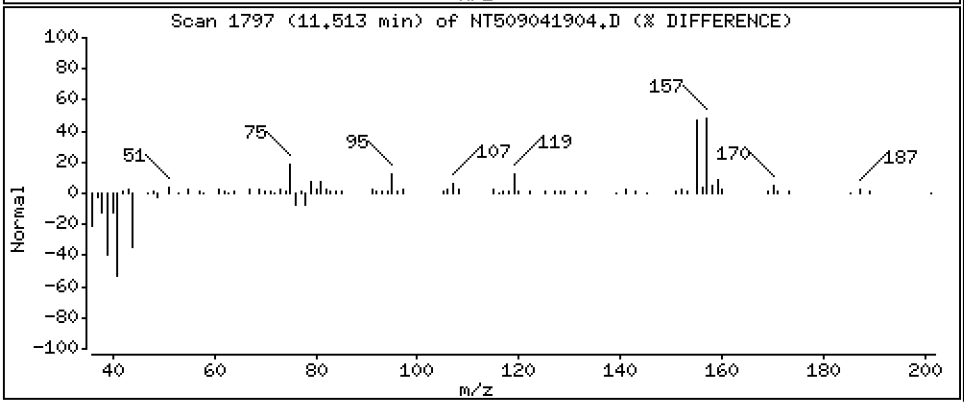
81 1,2-Dibromo 3-Chloropropane

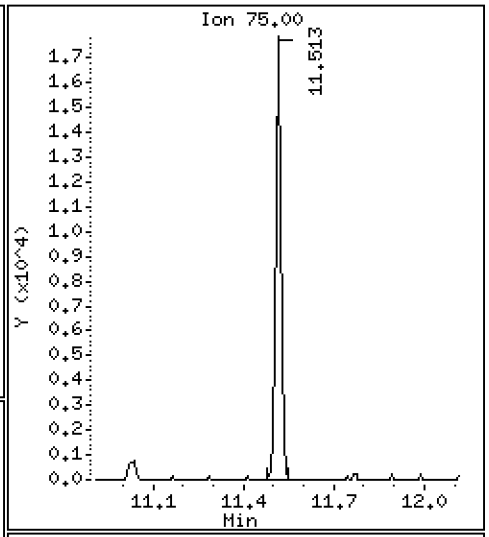
Concentration: 42.451 ug/Kg

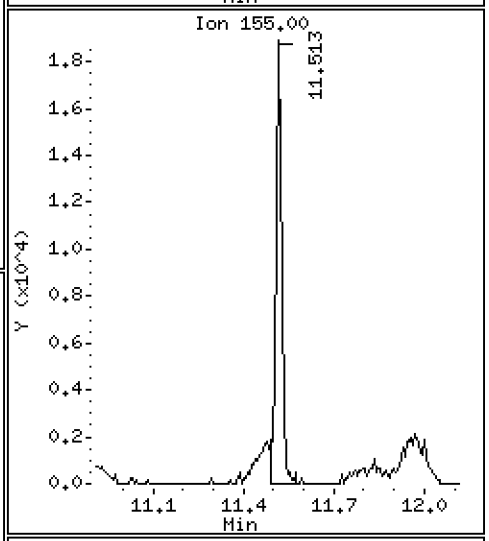


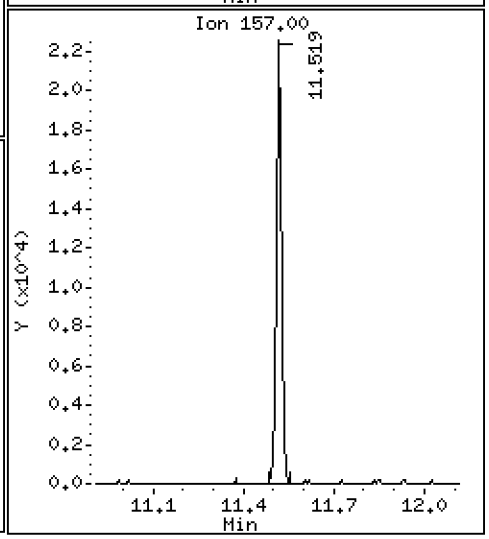












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

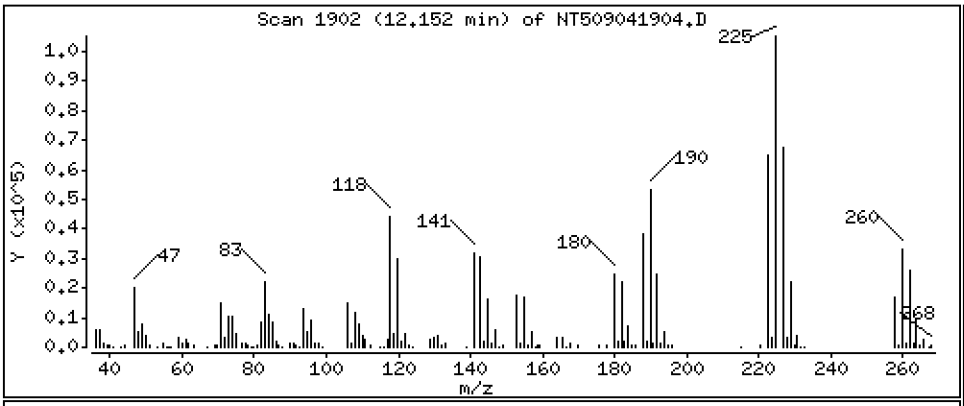
Operator: PB

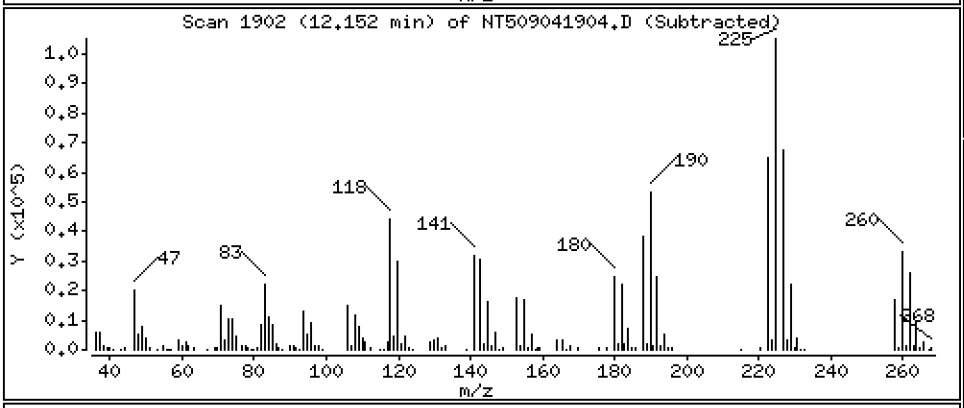
Column phase: RTXVMS

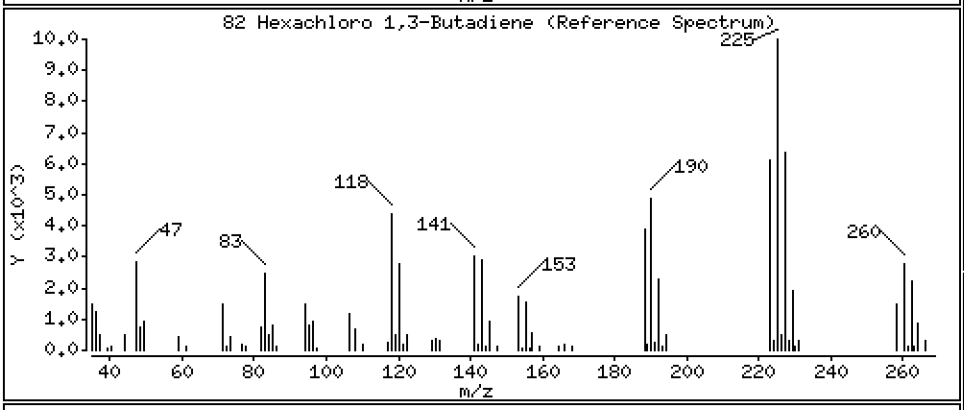
Column diameter: 0.18

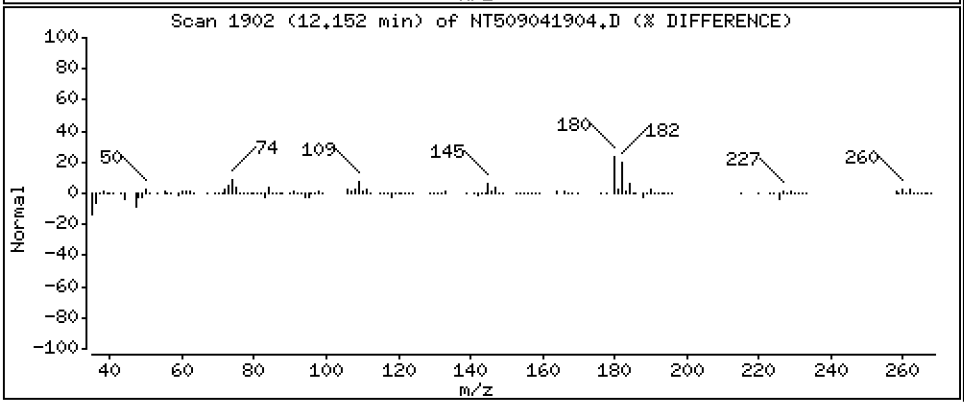
82 Hexachloro 1,3-Butadiene

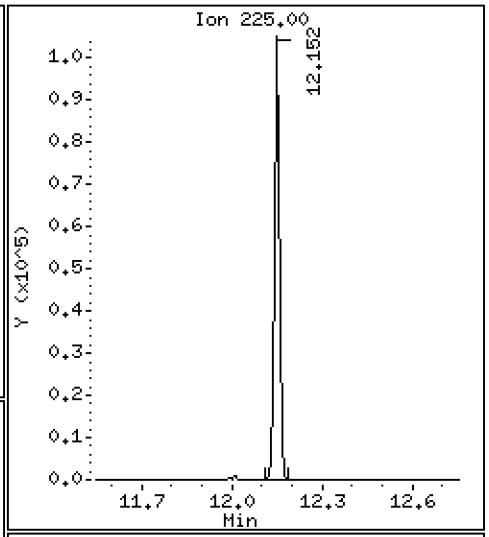
Concentration: 49.910 ug/Kg

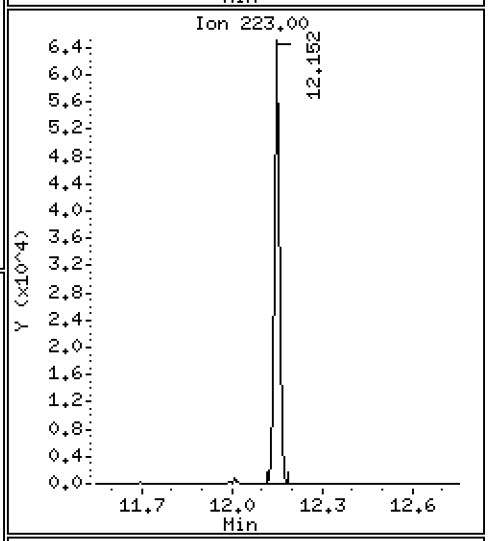


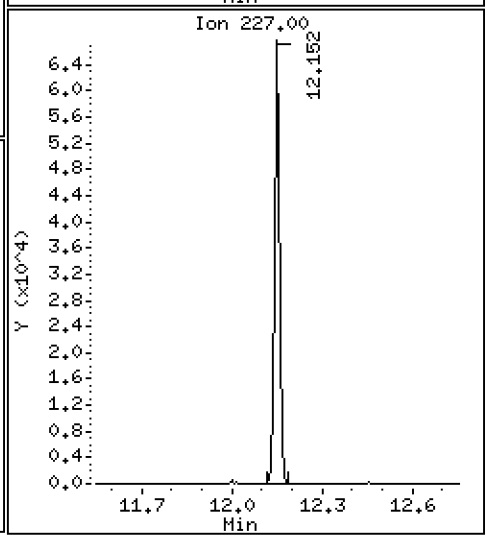












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

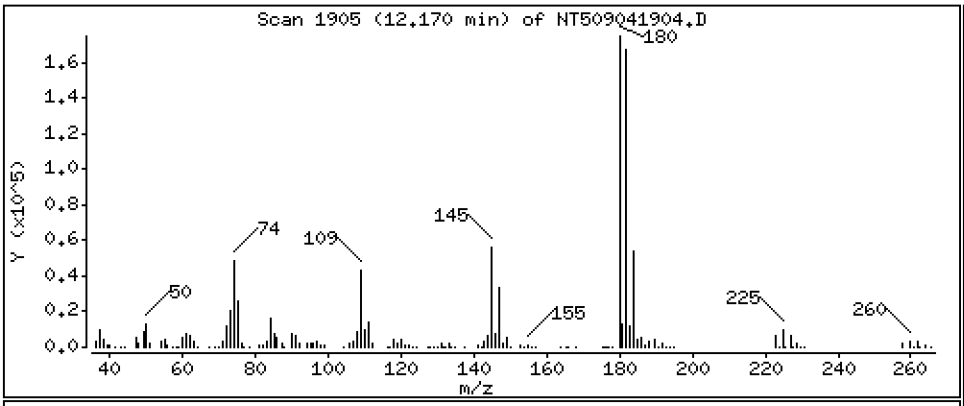
Operator: PB

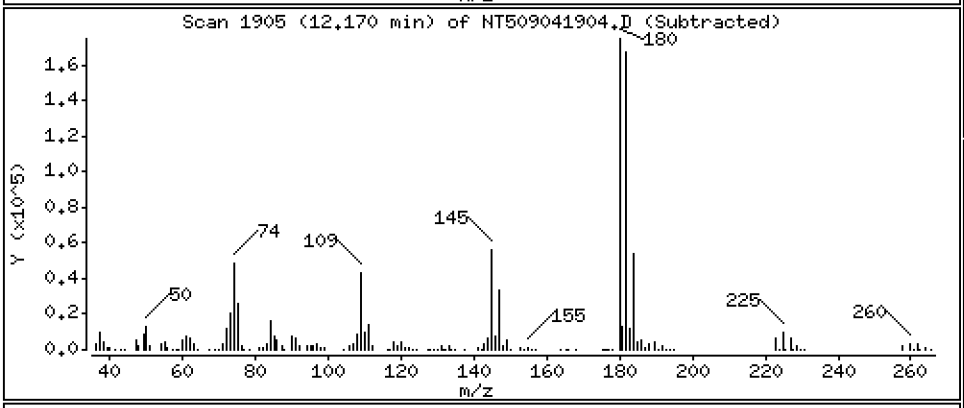
Column phase: RTXVMS

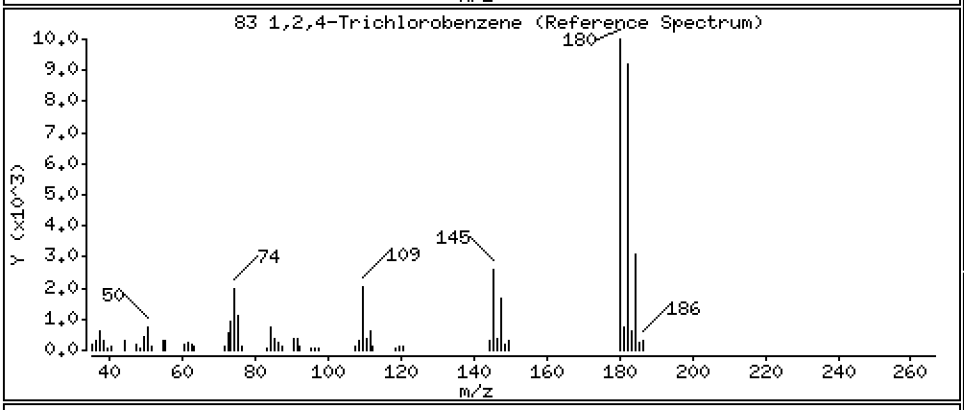
Column diameter: 0.18

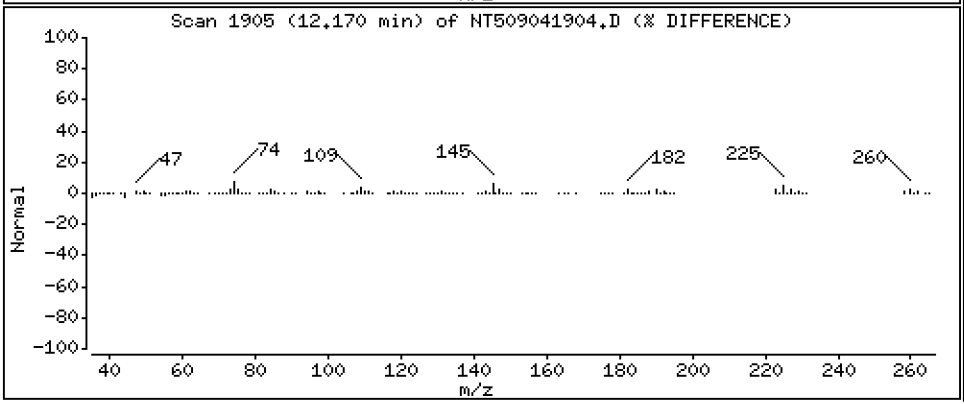
83 1,2,4-Trichlorobenzene

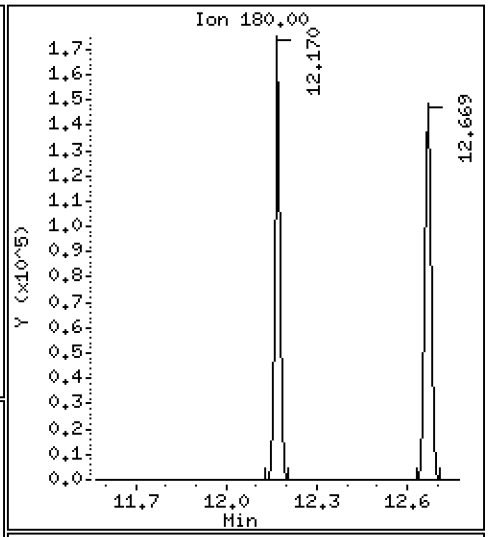
Concentration: 47.239 ug/Kg

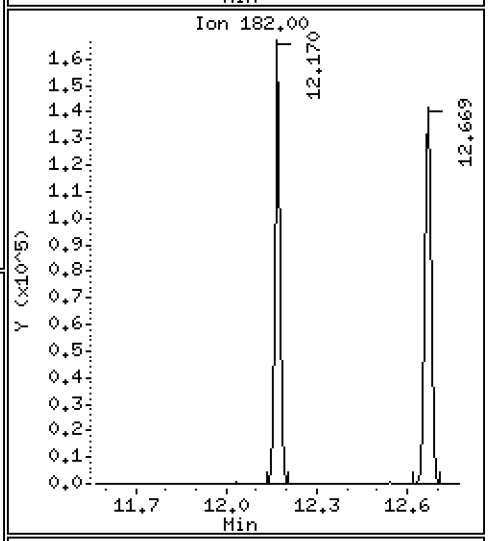


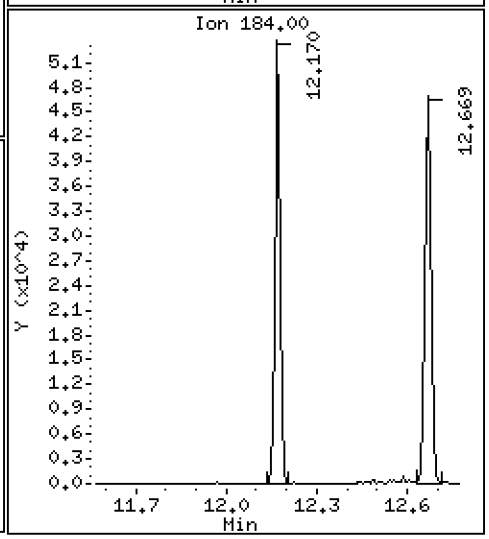












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

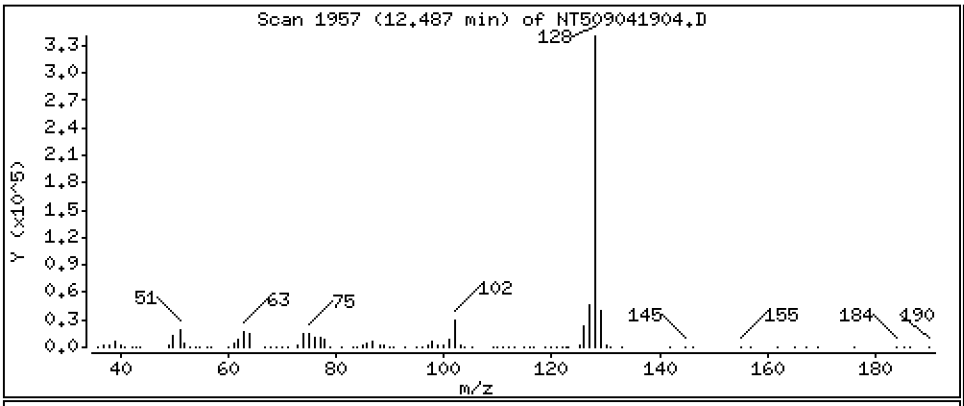
Operator: PB

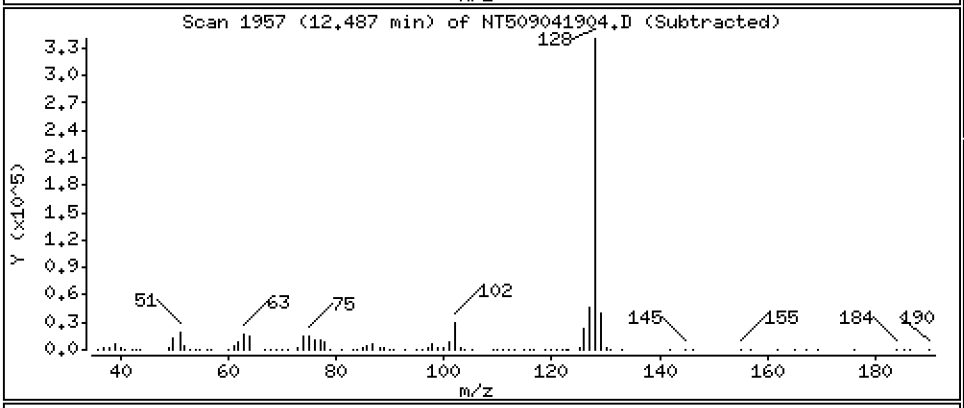
Column phase: RTXVMS

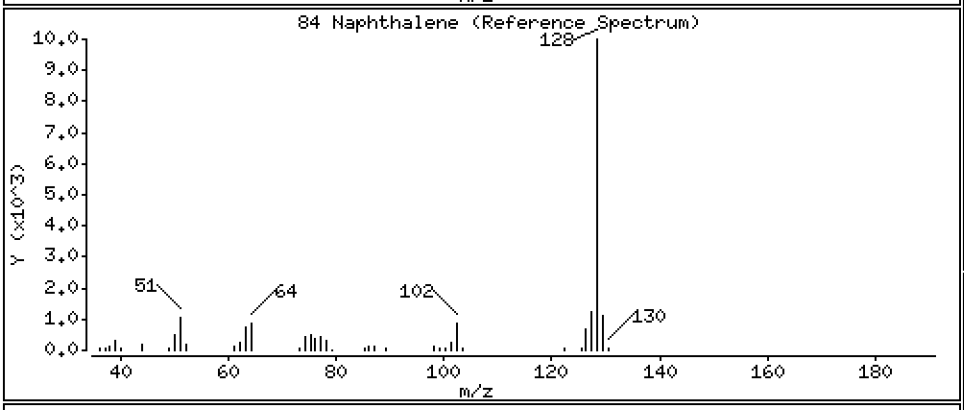
Column diameter: 0.18

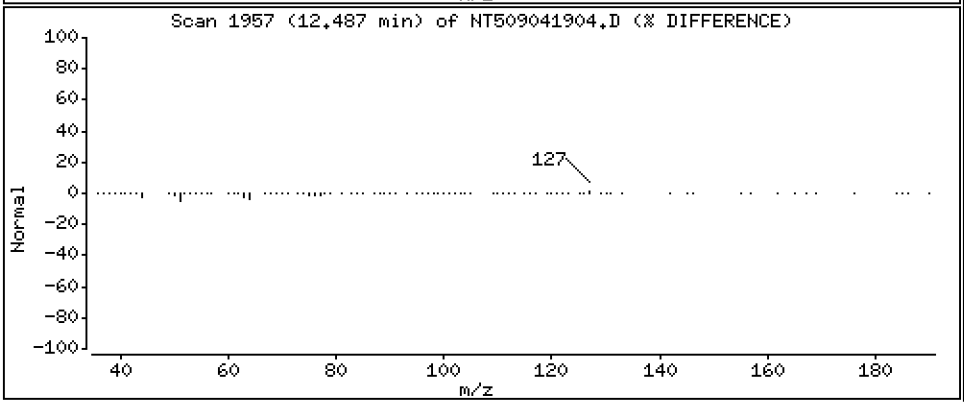
84 Naphthalene

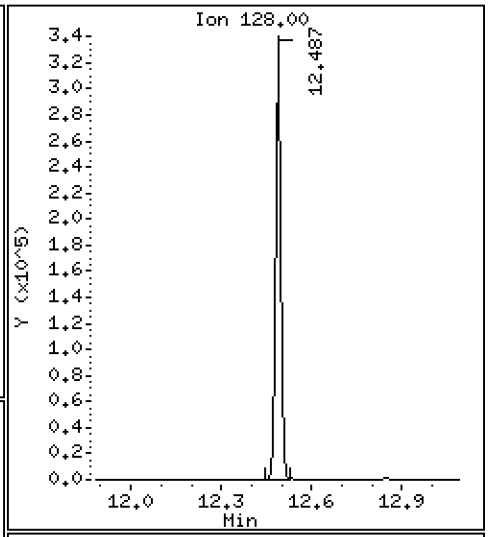
Concentration: 46.281 ug/Kg

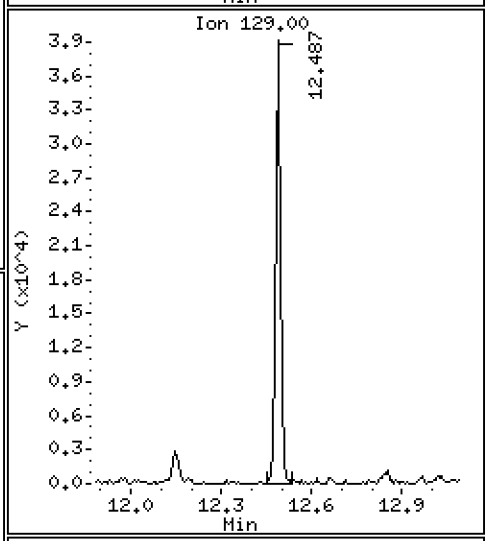


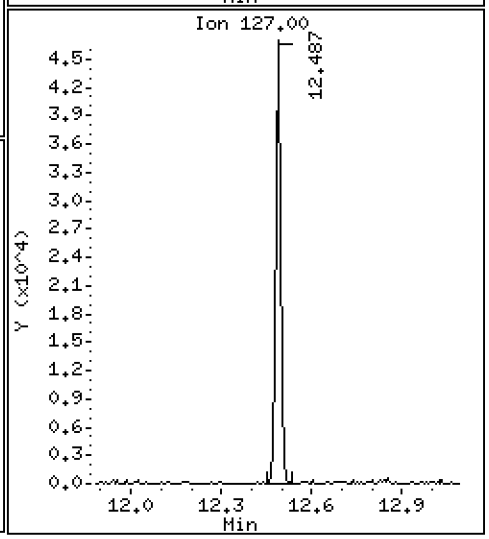












Date : 04-SEP-2019 15:04

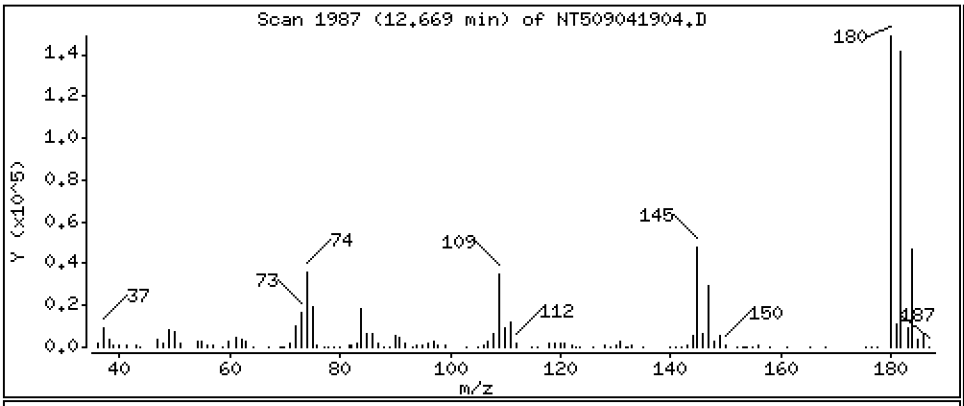
Client ID: Instrument: nt5.i

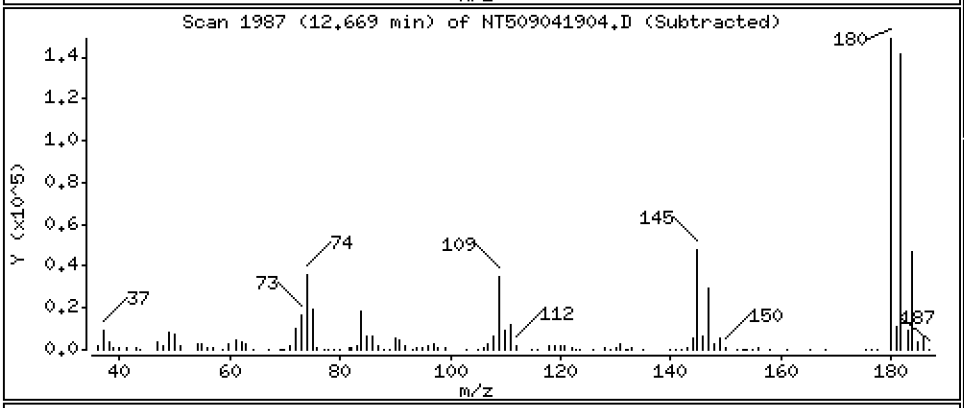
Sample Info: BSD1

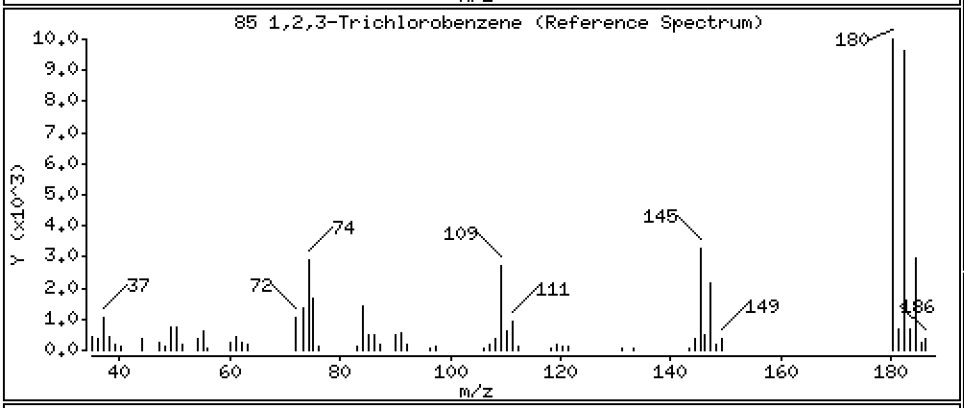
Operator: PB

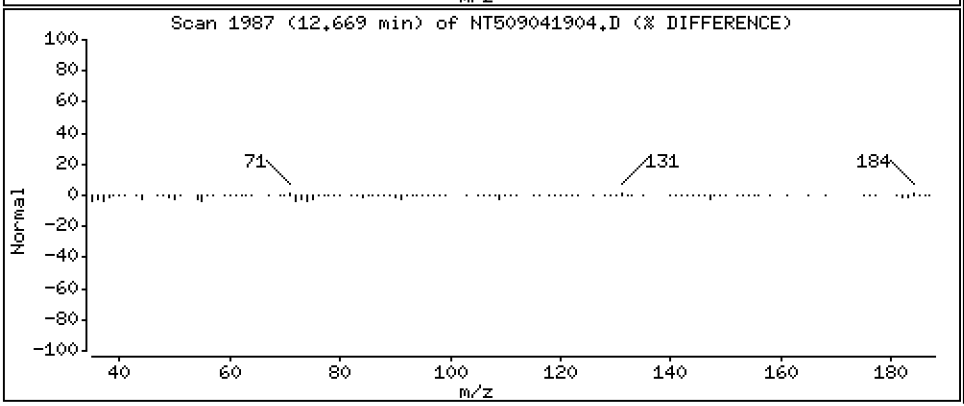
Column phase: RTXVMS Column diameter: 0.18

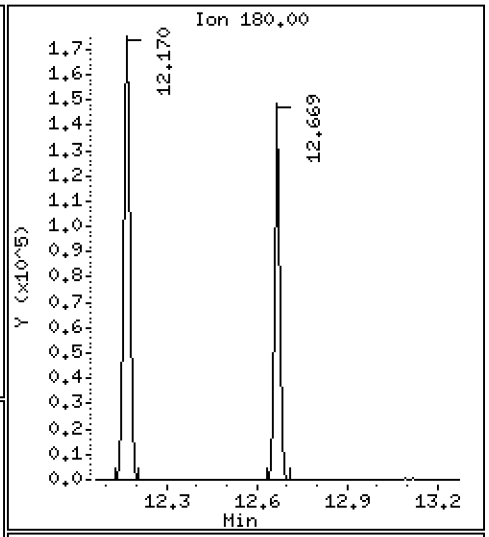
85 1,2,3-Trichlorobenzene Concentration: 45.569 ug/Kg

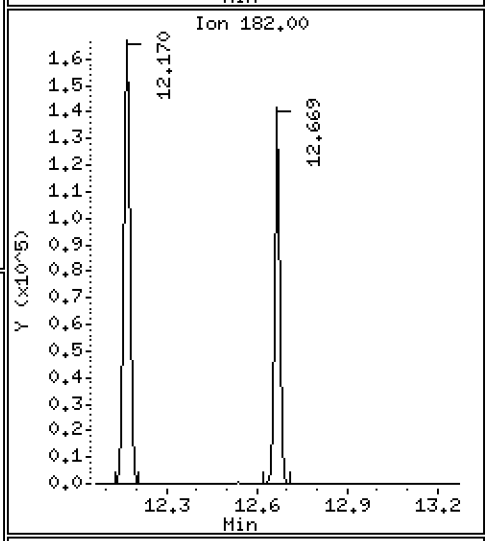


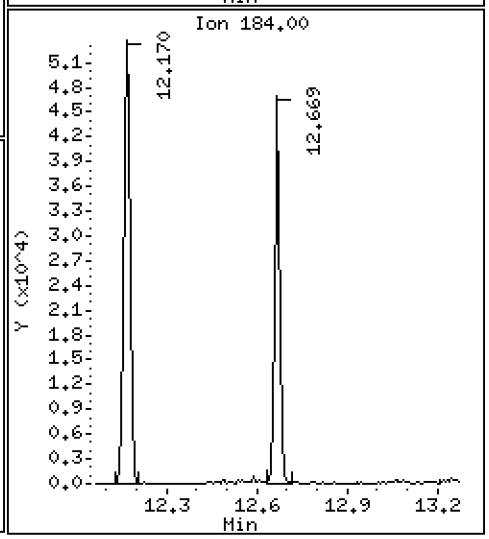












ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041904.D
Lab Smp Id: bhi0097-BSD1
Inj Date : 04-SEP-2019 15:04
Operator : PB Inst ID: nt5.i
Smp Info : BSD1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 7 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	155314	58.5768	58.577
	2 Chloromethane	50	1.487	1.481	(0.279)	142892	59.8346	59.835
	3 Vinyl Chloride	62	1.554	1.554	(0.292)	150352	64.5741	64.574
	4 Bromomethane	94	1.840	1.840	(0.345)	108406	52.5109	52.511
	5 Chloroethane	64	1.943	1.949	(0.365)	130955	67.0552	67.055
	6 Trichlorofluoromethane	101	2.065	2.065	(0.387)	278217	58.7424	58.742
	7 1,1-Dichloroethene	96	2.533	2.533	(0.475)	142593	58.1973	58.197
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	421696	57.5680	57.568
	9 112Trichloro122Trifluoroethane	101	2.588	2.588	(0.485)	139887	57.8774	57.877
	10 Iodomethane	142	2.667	2.661	(0.500)	166118	63.2423	63.242
	11 Bromoethane	108	2.795	2.795	(0.524)	94497	57.2503	57.250
	12 Acrolein	56	2.911	2.911	(0.546)	84685	306.365	306.36
	13 Methylene Chloride	84	3.154	3.148	(0.592)	129292	59.8963	59.896
	14 Acetone	43	3.257	3.257	(0.611)	139062	297.675	297.67
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	156252	58.0097	58.010
	16 Methyl tert butyl ether	73	3.482	3.482	(0.653)	322759	51.9621	51.962
	173 n-Hexane	41	3.482	3.482	(0.653)	64010	26.1531	26.153
	17 1,1-Dichloroethane	63	3.939	3.939	(0.739)	237618	57.1065	57.106
	18 Acrylonitrile	53	4.024	4.024	(0.755)	30042	57.0457	57.046
	19 Vinyl Acetate	43	4.237	4.243	(0.795)	222704	51.6989	51.699
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.837)	163073	53.6920	53.692
	22 2,2-Dichloropropane	77	4.553	4.553	(0.854)	262771	56.9729	56.973
	23 Bromochloromethane	128	4.644	4.644	(0.871)	77532	53.7219	53.722
	24 Chloroform	83	4.730	4.730	(0.887)	259367	53.7020	53.702
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	265026	47.4281	47.428
$	27 Dibromofluoromethane	111	4.894	4.894	(0.918)	258397	61.4879	61.488(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.917)	272649	55.3471	55.347
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	216924	49.0191	49.019
	29 2-Butanone	72	5.040	5.046	(0.945)	62715	268.530	268.53
	30 Benzene	78	5.222	5.222	(0.903)	587262	47.1770	47.177
*	31 Pentafluorobenzene	168	5.332	5.332	(1.000)	342178	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.003)	238497	57.9268	57.927(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	178351	41.7431	41.743

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.733	5.733	(0.992)	182311	47.8339	47.834
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	778402	50.0000	
	37	Dibromomethane	93	6.092	6.092	(1.054)	77581	43.2747	43.275
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	129347	45.6162	45.616
	39	Bromodichloromethane	83	6.250	6.251	(1.081)	192960	43.8248	43.825
	172	2-Pentanone	86	6.543	6.543	(1.132)	83369	227.465	227.46
	40	2-Chloroethyl Vinyl Ether	63	6.755	6.755	(1.168)	63634	41.1878	41.188
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	226345	44.4258	44.426
$	42	d8-Toluene	98	6.938	6.938	(1.200)	981331	51.0449	51.045(R)
	43	Toluene	92	6.981	6.981	(1.207)	398662	45.2710	45.271
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	199810	48.6997	48.700
	45	4-Methyl-2-Pentanone	58	7.327	7.327	(1.267)	197226	223.255	223.25
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	210698	45.0591	45.059
	47	1,1,2-Trichloroethane	97	7.479	7.479	(1.294)	108342	42.8955	42.895
	48	Chlorodibromomethane	129	7.619	7.619	(0.923)	147929	41.8034	41.803
	49	1,3-Dichloropropane	76	7.704	7.704	(0.933)	186043	42.8332	42.833
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	110658	43.5098	43.510
	51	2-Hexanone	43	8.045	8.045	(0.974)	342570	220.194	220.19
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	765846	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	455425	43.7653	43.765
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	778706	45.7559	45.756
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	162796	43.5266	43.527
	56	m,p-xylene	106	8.435	8.435	(1.021)	622396	92.6144	92.614
	57	o-Xylene	106	8.806	8.806	(1.066)	292770	46.3260	46.326
	58	Styrene	104	8.854	8.854	(1.072)	475326	45.7253	45.725
	59	Bromoform	173	8.866	8.866	(0.857)	102523	41.5753	41.575
	60	Isopropyl Benzene	105	9.085	9.085	(0.878)	824100	48.5633	48.563
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1441		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	328237	49.4392	49.439(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	189374	43.6400	43.640
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	935036	48.0168	48.017
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	132185	43.0916	43.092
	66	2-Chloro Toluene	91	9.590	9.590	(0.927)	531833	47.3371	47.337
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	680749	48.3144	48.314
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	47951	43.7551	43.755
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	39105	43.0606	43.061
	70	4-Chloro Toluene	91	9.742	9.742	(0.941)	553187	46.7564	46.756
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	615834	47.4266	47.427
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	662534	47.9133	47.913
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	911847	48.6062	48.606
	74	4-Isopropyl Toluene	119	10.223	10.223	(0.988)	797385	49.6122	49.612
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	396987	46.8486	46.849
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	416635	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	386588	44.8807	44.881
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	694920	50.4701	50.470
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	399896	51.2285	51.229(R)
	80	1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	344739	42.9265	42.926
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	26638	42.4515	42.451
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	148772	49.9100	49.910
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	238988	47.2392	47.239
	84	Naphthalene	128	12.486	12.486	(1.206)	488208	46.2807	46.281
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	209047	45.5686	45.569

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041904.D
Lab Smp Id: bhi0097-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	342178	-25.28
35 1,4-Difluorobenze	852165	426083	1704330	778402	-8.66
52 d5-Chlorobenzene	803678	401839	1607356	765846	-4.71
76 d4-1,4-Dichlorobe	439766	219883	879532	416635	-5.26

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.33	-0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	-0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: bhi0097-BSD1
Level: Operator: PB
Data Type: MS DATA SampleType: LCS
SpikeList File: voasoil.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	58.577	117.15	
2	Chloromethane	50.000	59.835	119.67	
3	Vinyl Chloride	50.000	64.574	129.15	
4	Bromomethane	50.000	52.511	105.02	
5	Chloroethane	50.000	67.055	134.11	
6	Trichlorofluoromet	50.000	58.742	117.48	
12	Acrolein	250.00	306.36	122.55	
9	112Trichloro122Tri	50.000	57.877	115.75	
14	Acetone	250.00	297.67	119.07	
7	1,1-Dichloroethene	50.000	58.197	116.39	
11	Bromoethane	50.000	57.250	114.50	
10	Iodomethane	50.000	63.242	126.48	
13	Methylene Chloride	50.000	59.896	119.79	
8	Carbon Disulfide	50.000	57.568	115.14	
18	Acrylonitrile	50.000	57.046	114.09	
15	Trans-1,2-Dichloro	50.000	58.010	116.02	
19	Vinyl Acetate	50.000	51.699	103.40	
17	1,1-Dichloroethane	50.000	57.106	114.21	
29	2-Butanone	250.00	268.53	107.41	
22	2,2-Dichloropropan	50.000	56.973	113.95	
20	Cis-1,2-Dichloroet	50.000	53.692	107.38	
24	Chloroform	50.000	53.702	107.40	
23	Bromochloromethane	50.000	53.722	107.44	
26	1,1,1-Trichloroeth	50.000	55.347	110.69	
28	1,1-Dichloropropen	50.000	49.019	98.04	
25	Carbon Tetrachlori	50.000	47.428	94.86	
33	1,2-Dichloroethane	50.000	41.743	83.49	
30	Benzene	50.000	47.177	94.35	
34	Trichloroethene	50.000	47.834	95.67	
38	1,2-Dichloropropan	50.000	45.616	91.23	
39	Bromodichlorometha	50.000	43.825	87.65	
172	2-Pentanone	250.00	227.46	90.99	
37	Dibromomethane	50.000	43.275	86.55	
40	2-Chloroethyl Viny	50.000	41.188	82.38	
45	4-Methyl-2-Pentano	250.00	223.25	89.30	
41	Cis 1,3-dichloropr	50.000	44.426	88.85	
43	Toluene	50.000	45.271	90.54	
46	Trans 1,3-Dichloro	50.000	45.059	90.12	
51	2-Hexanone	250.00	220.19	88.08	
47	1,1,2-Trichloroeth	50.000	42.895	85.79	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	42.833	85.67	
44 Tetrachloroethene	50.000	48.700	97.40	
48 Chlorodibromometha	50.000	41.803	83.61	
50 1,2-Dibromoethane	50.000	43.510	87.02	
53 Chlorobenzene	50.000	43.765	87.53	
55 1,1,1,2-Tetrachlor	50.000	43.527	87.05	
54 Ethyl Benzene	50.000	45.756	91.51	
56 m,p-xylene	100.00	92.614	92.61	
57 o-Xylene	50.000	46.326	92.65	
58 Styrene	50.000	45.725	91.45	
60 Isopropyl Benzene	50.000	48.563	97.13	
59 Bromoform	50.000	41.575	83.15	
65 1,1,2,2-Tetrachlor	50.000	43.092	86.18	
68 1,2,3-Trichloropro	50.000	43.755	87.51	
69 Trans-1,4-Dichloro	50.000	43.061	86.12	
64 N-Propyl Benzene	50.000	48.017	96.03	
63 Bromobenzene	50.000	43.640	87.28	
67 1,3,5-Trimethyl Be	50.000	48.314	96.63	
66 2-Chloro Toluene	50.000	47.337	94.67	
70 4-Chloro Toluene	50.000	46.756	93.51	
71 T-Butyl Benzene	50.000	47.427	94.85	
72 1,2,4-Trimethylben	50.000	47.913	95.83	
73 S-Butyl Benzene	50.000	48.606	97.21	
74 4-Isopropyl Toluen	50.000	49.612	99.22	
75 1,3-Dichlorobenzen	50.000	46.849	93.70	
77 1,4-Dichlorobenzen	50.000	44.881	89.76	
78 N-Butyl Benzene	50.000	50.470	100.94	
80 1,2-Dichlorobenzen	50.000	42.926	85.85	
81 1,2-Dibromo 3-Chlo	50.000	42.451	84.90	
83 1,2,4-Trichloroben	50.000	47.239	94.48	
82 Hexachloro 1,3-But	50.000	49.910	99.82	
84 Naphthalene	50.000	46.281	92.56	
85 1,2,3-Trichloroben	50.000	45.569	91.14	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	61.488	122.98	
$ 32 d4-1,2-Dichloroeth	50.000	57.927	115.85	
$ 42 d8-Toluene	50.000	51.045	102.09	
$ 62 4-Bromofluorobenze	50.000	49.439	98.88	
$ 79 d4-1,2-Dichloroben	50.000	51.229	102.46	

REVIEW SUMMARY FOR FILE - NT509041904.D

Lab ID: bhi0097-BSD1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 15:04

RT	CO-ELUTION COMPOUNDS
3.483	n-Hexane and Methyl tert butyl ether
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.653	0.000	0.6532	n-Hexane

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/04/19 14:02
Batch:	BHI0098	Laboratory ID:	BHI0098-BS1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Benzene	2500	2380		95.3	80 - 120
Toluene	2500	2280		91.2	77 - 120
Ethylbenzene	2500	2270		90.6	79 - 122
m,p-Xylene	5000	4580		91.7	81 - 122
o-Xylene	2500	2300		92.1	79 - 120

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	2500	2360		94.4	0.949	30	80 - 120
Toluene	2500	2260		90.5	0.739	30	77 - 120
Ethylbenzene	2500	2290		91.5	0.957	30	79 - 122
m,p-Xylene	5000	4630		92.6	1.02	30	81 - 122
o-Xylene	2500	2320		92.7	0.627	30	79 - 120

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

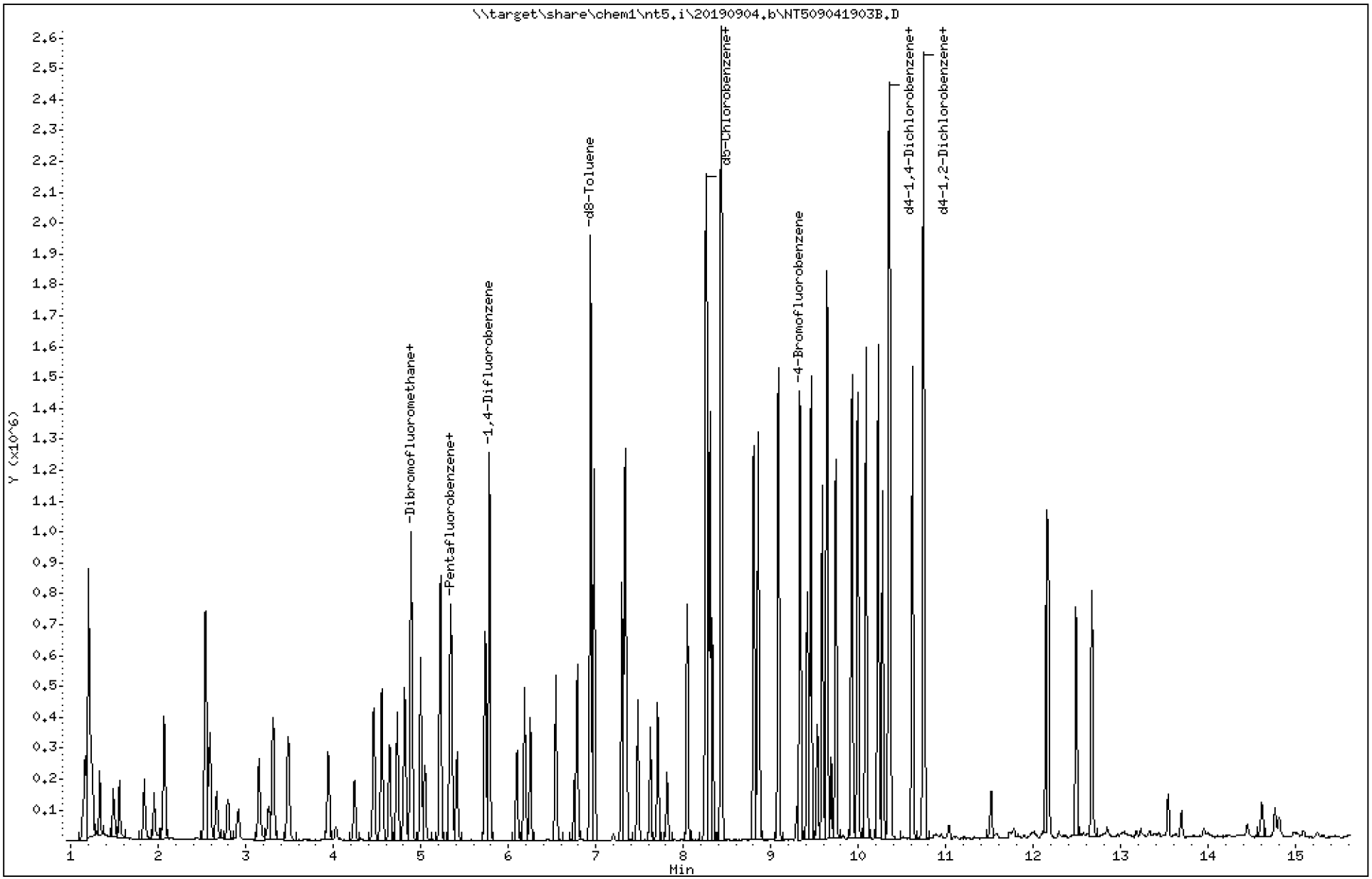
Instrument: nt5.i

Sample Info: ICV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

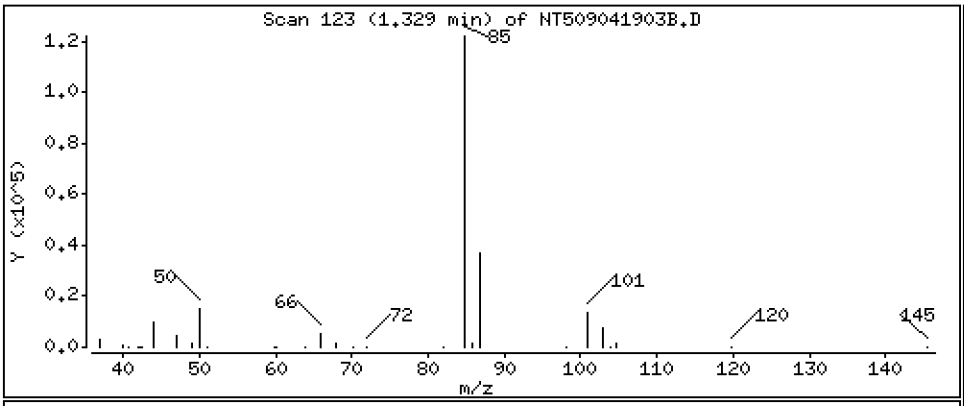
Operator: PB

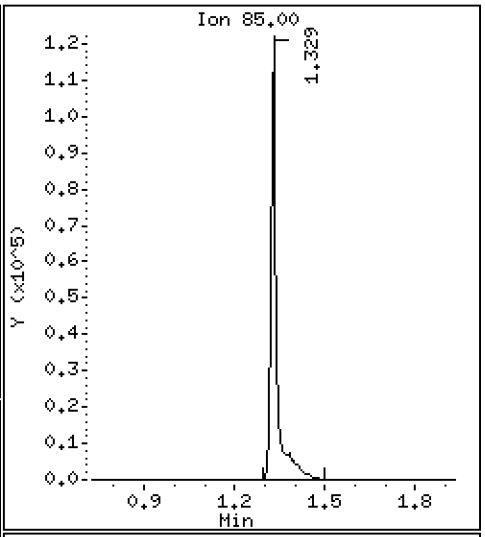
Column phase: RTXVMS

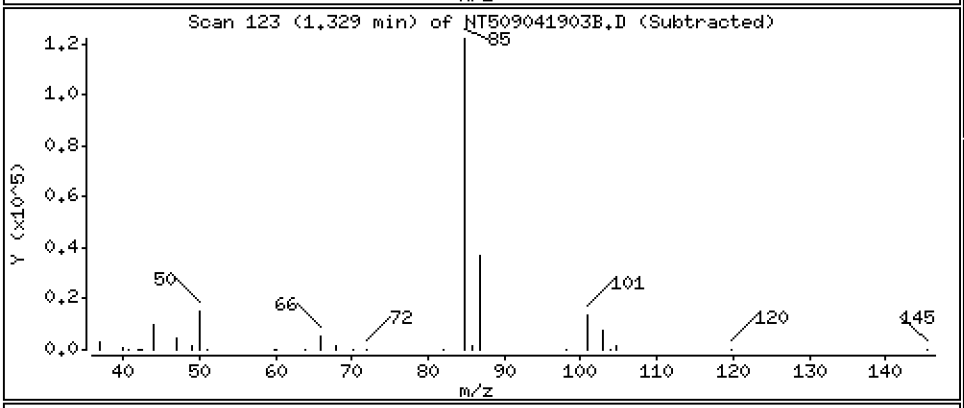
Column diameter: 0.18

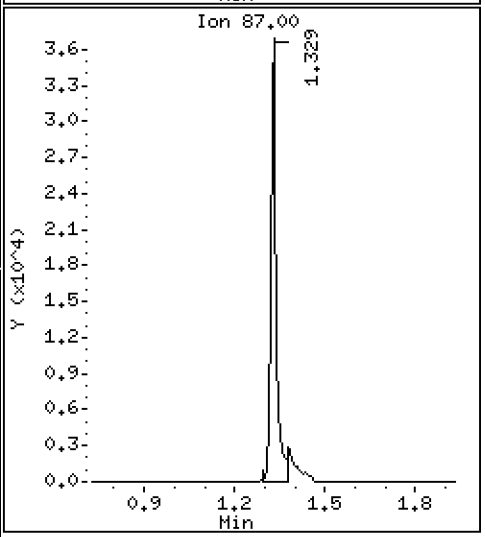
1 Dichlorodifluoromethane

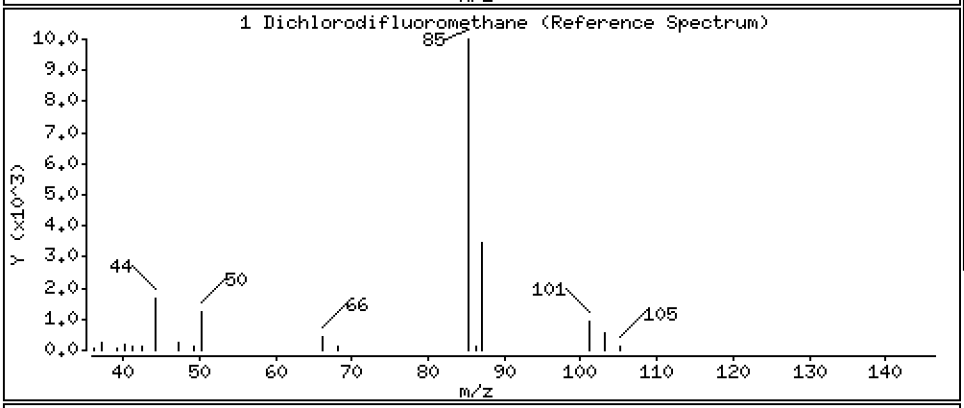
Concentration: 65.550 ug/Kg

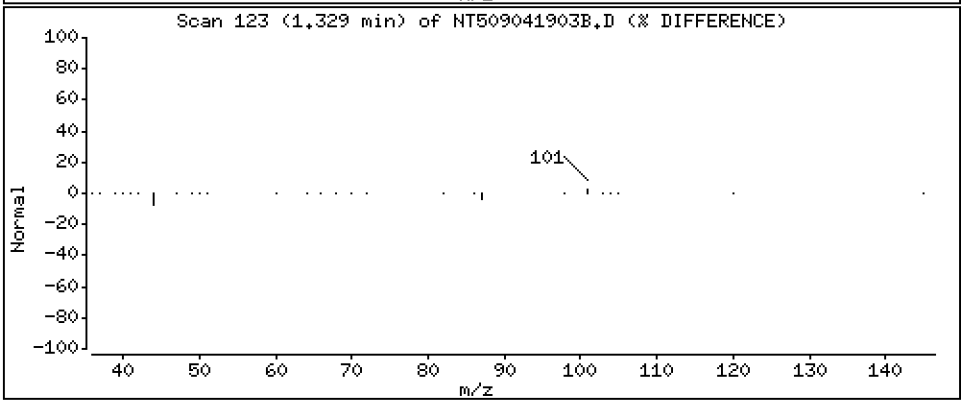












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

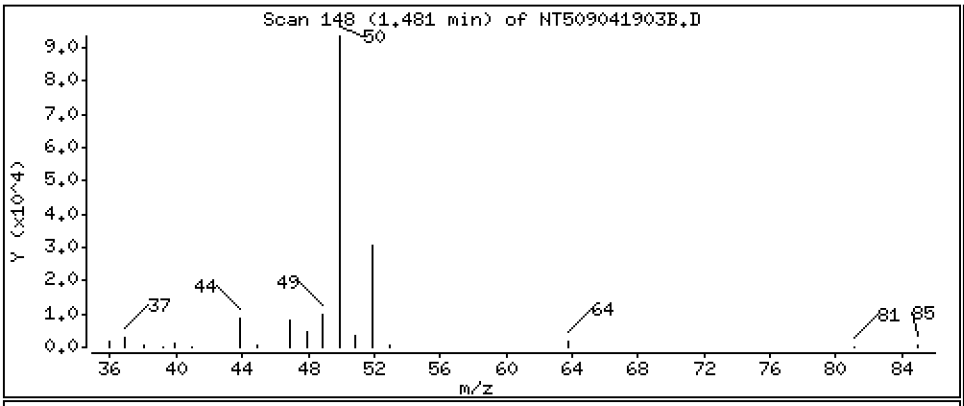
Operator: PB

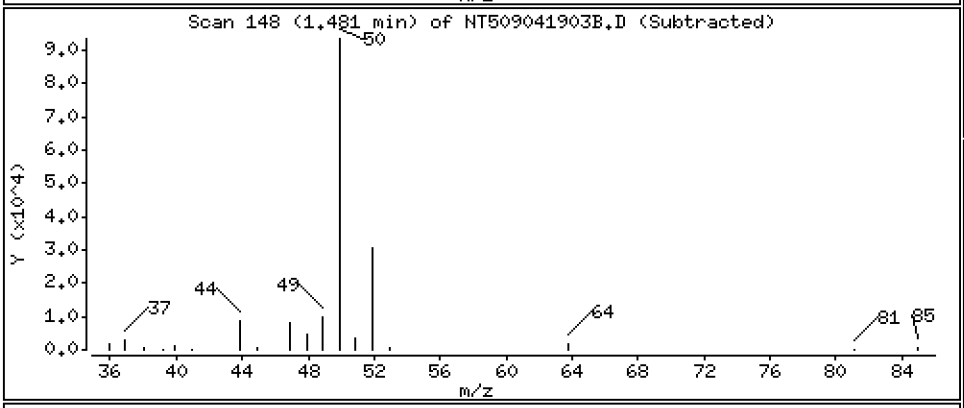
Column phase: RTXVMS

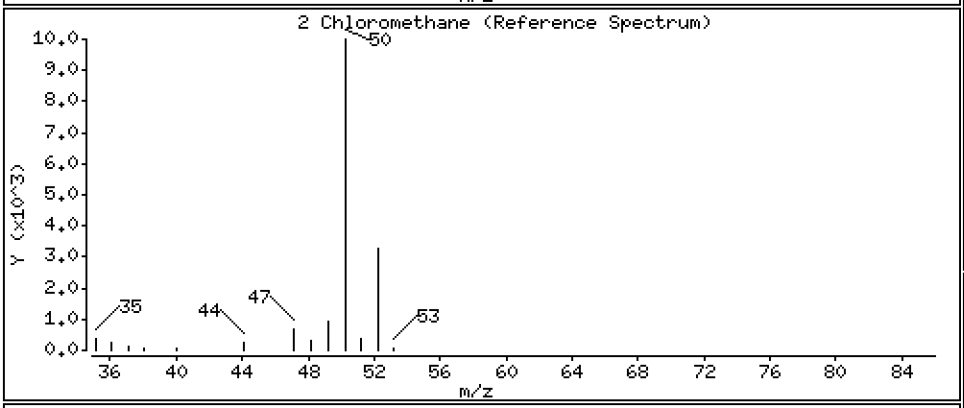
Column diameter: 0.18

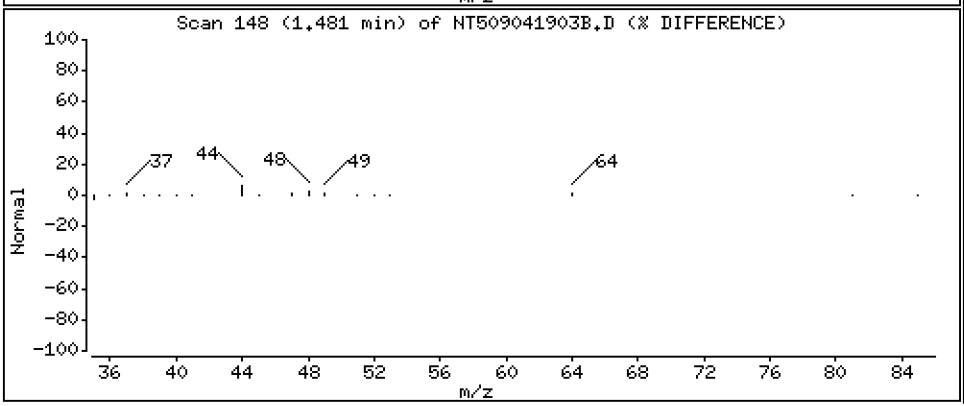
2 Chloromethane

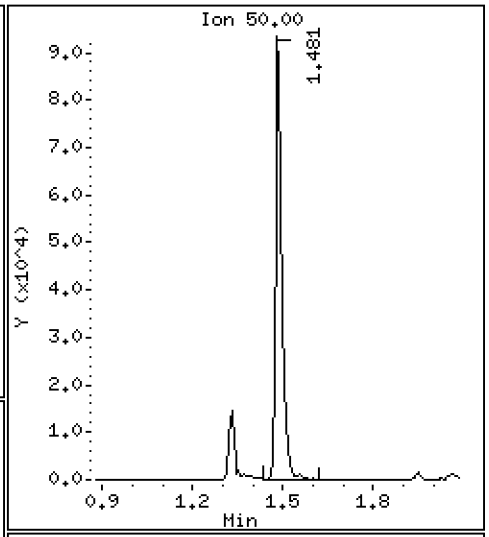
Concentration: 60.061 ug/Kg

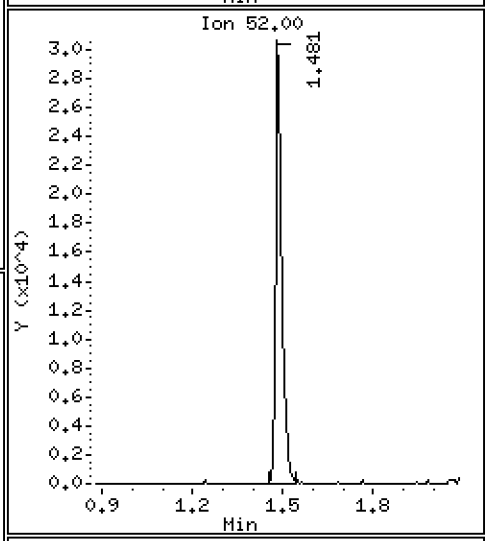


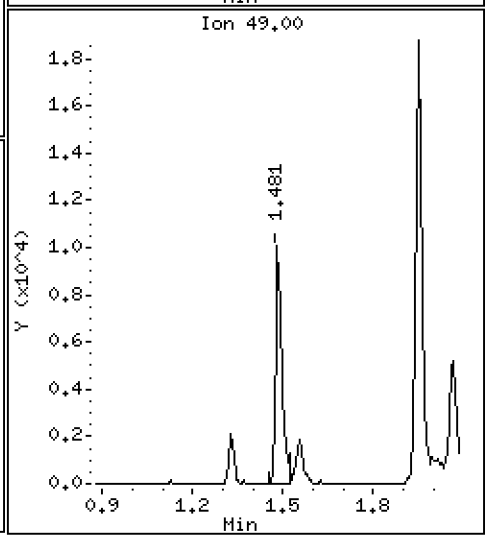












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

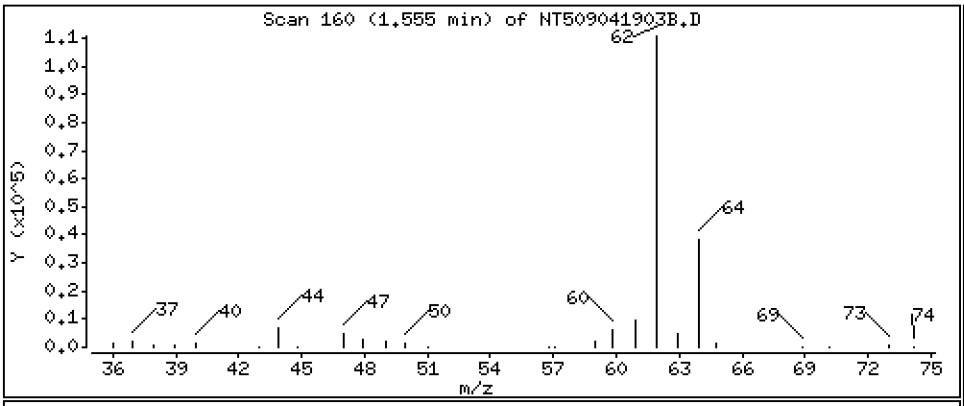
Operator: PB

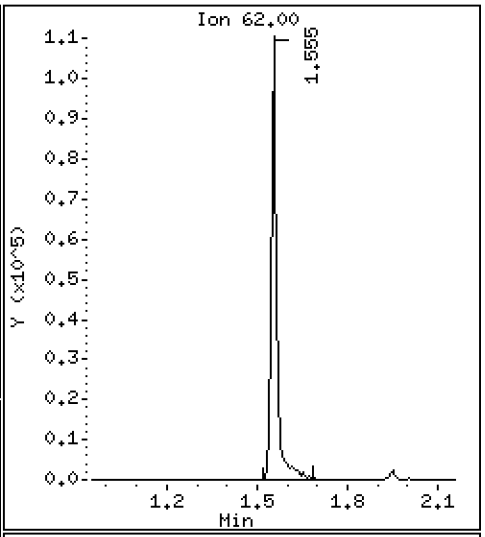
Column phase: RTXVMS

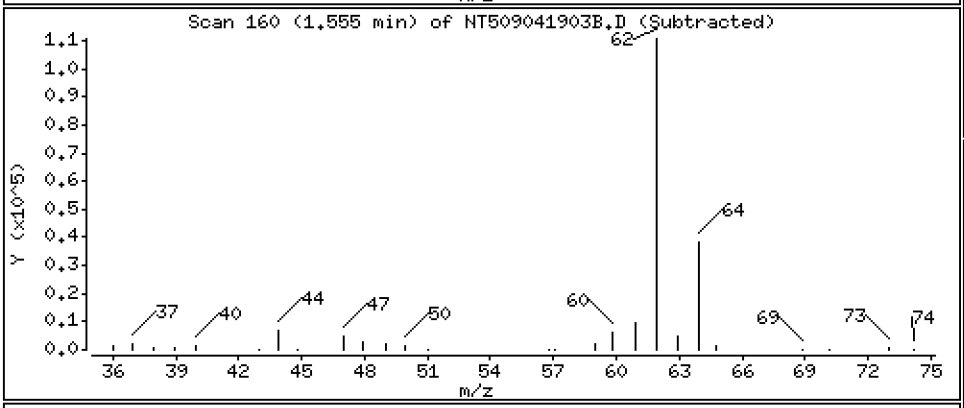
Column diameter: 0.18

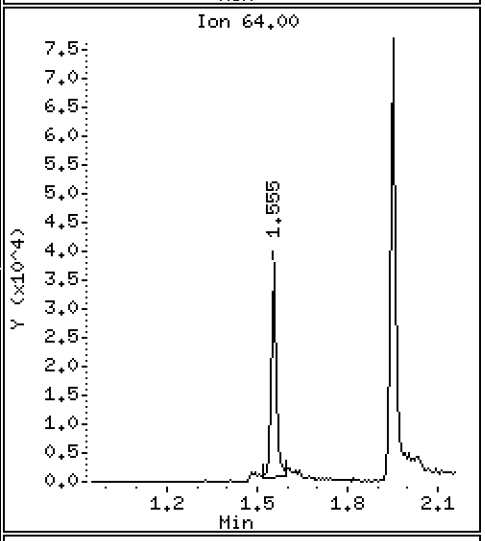
3 Vinyl Chloride

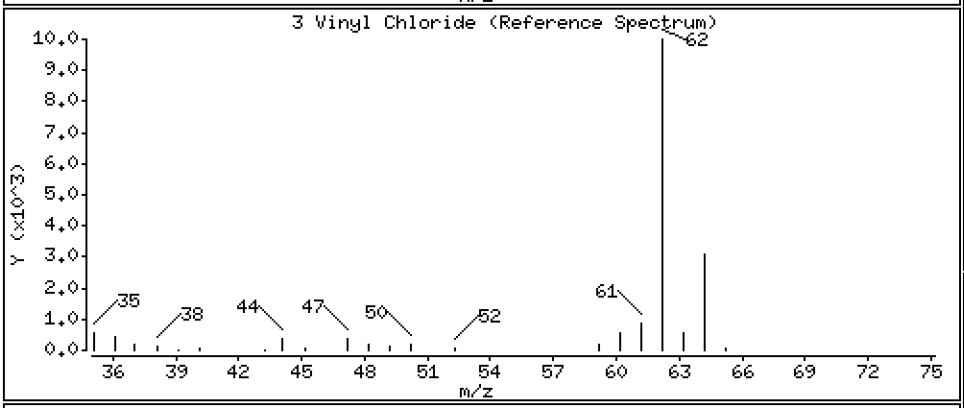
Concentration: 67.384 ug/Kg

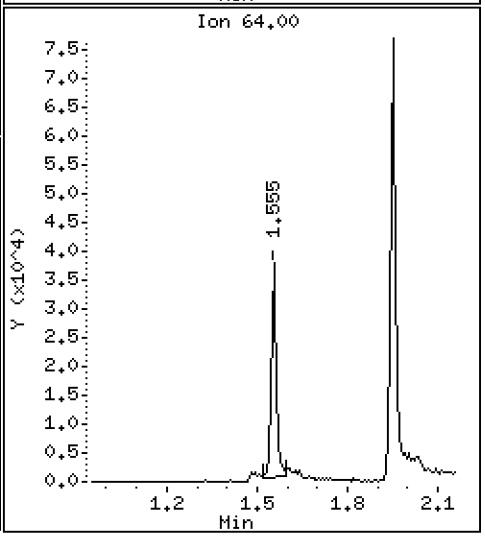


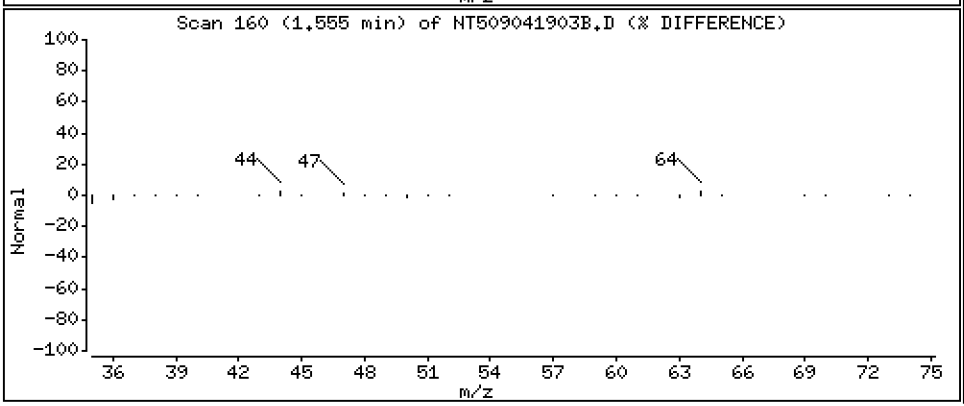












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

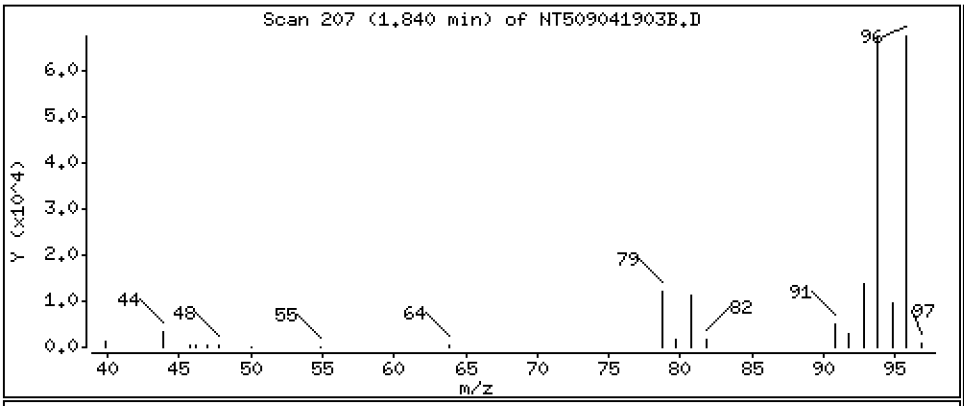
Operator: PB

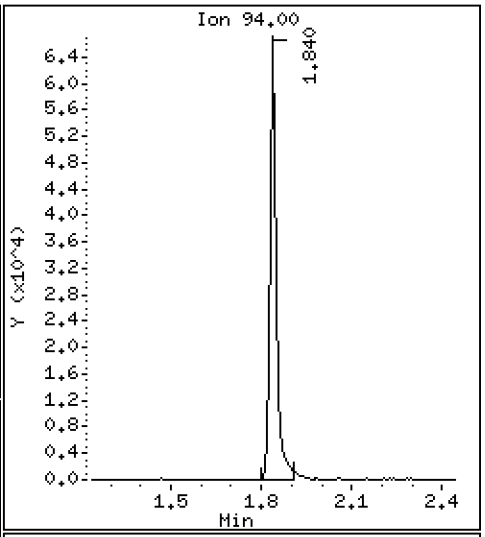
Column phase: RTXVMS

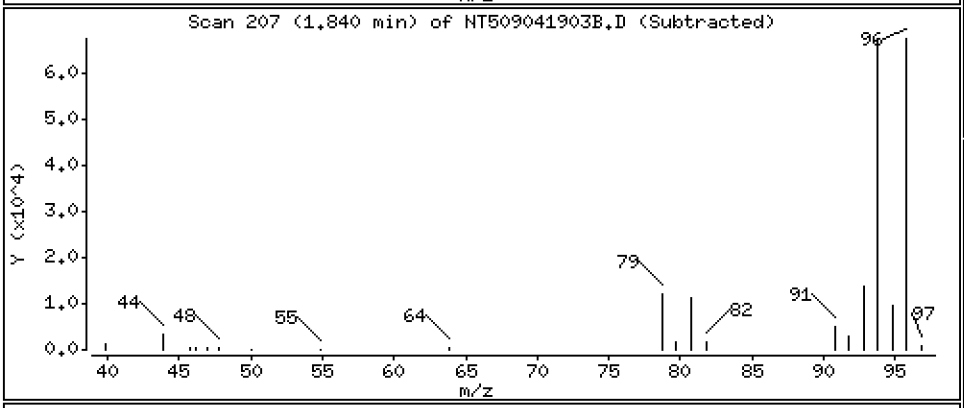
Column diameter: 0.18

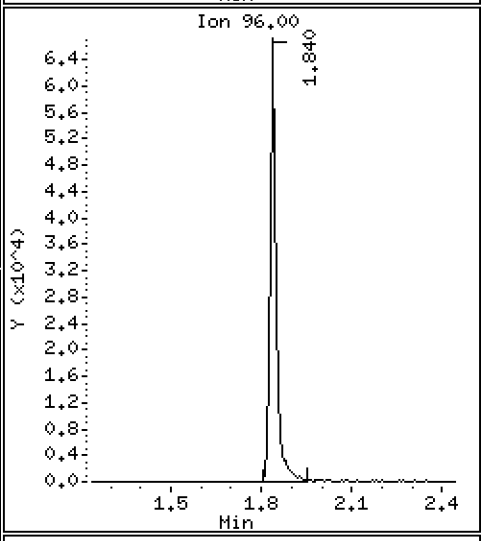
4 Bromomethane

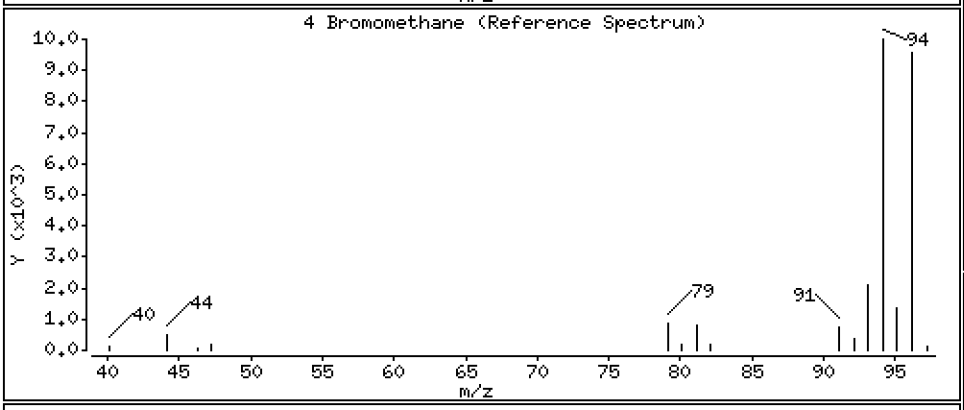
Concentration: 53.310 ug/Kg

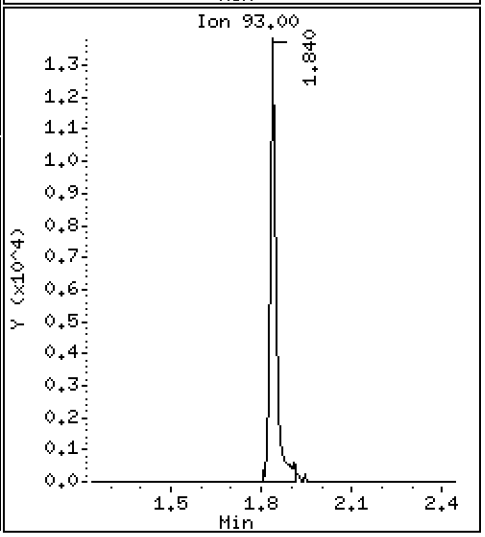


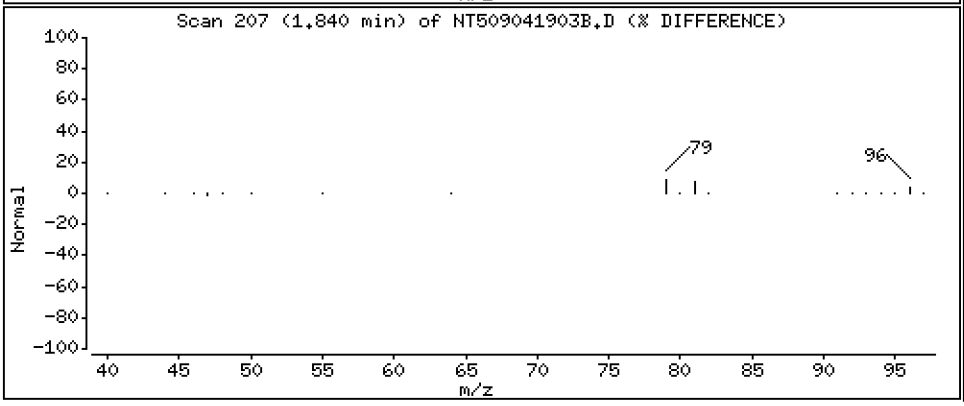












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

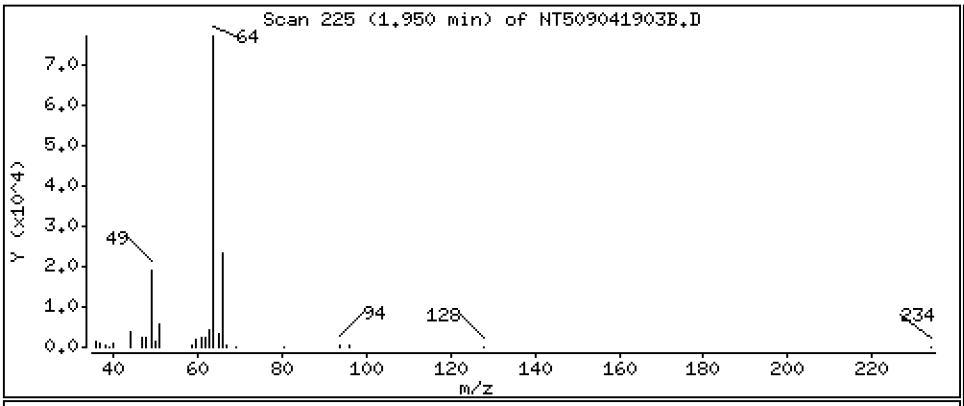
Operator: PB

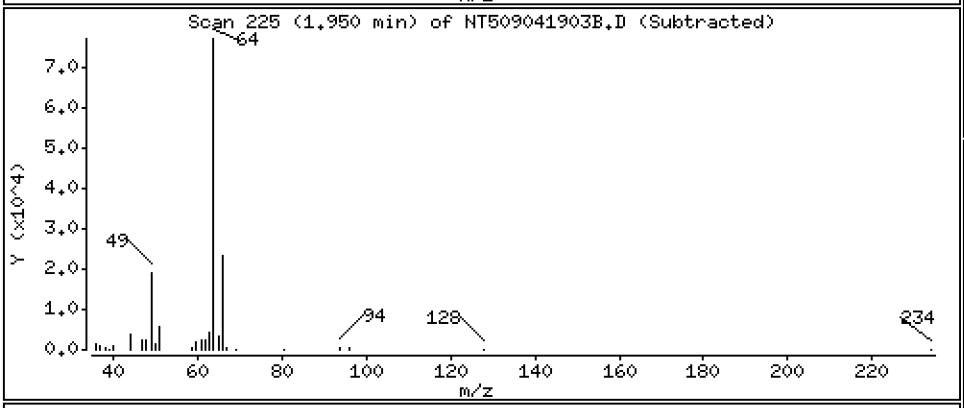
Column phase: RTXVMS

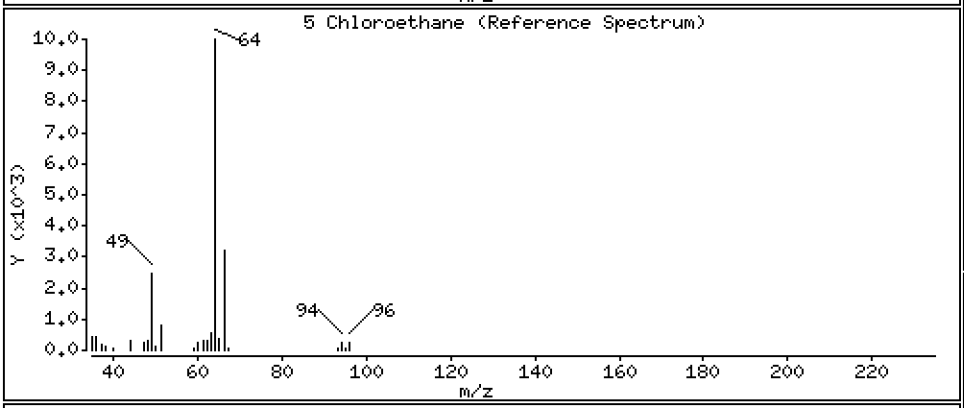
Column diameter: 0.18

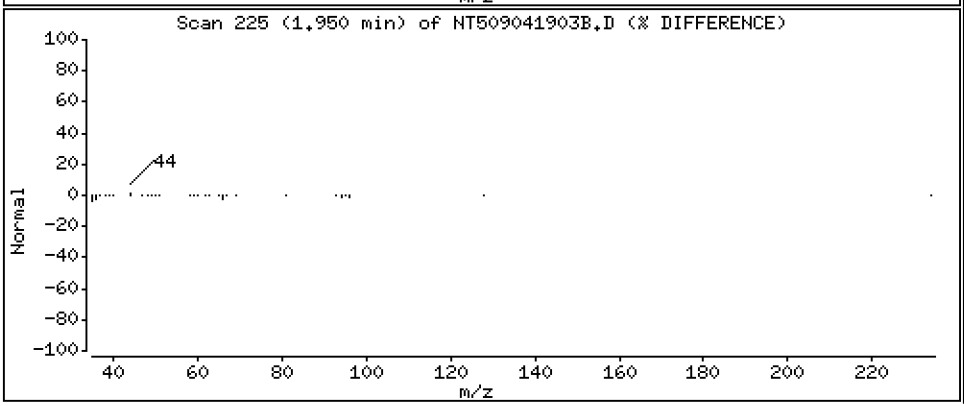
5 Chloroethane

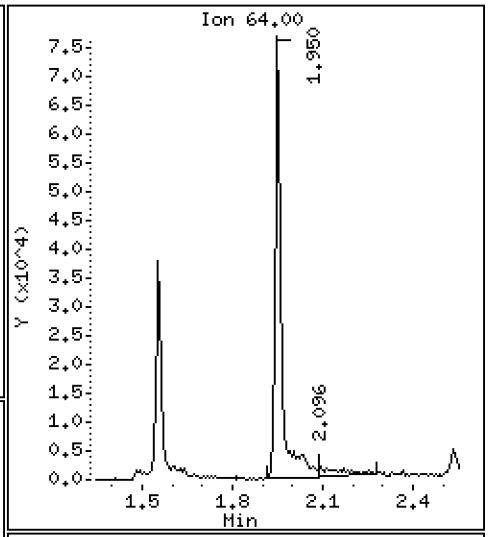
Concentration: 61.569 ug/Kg

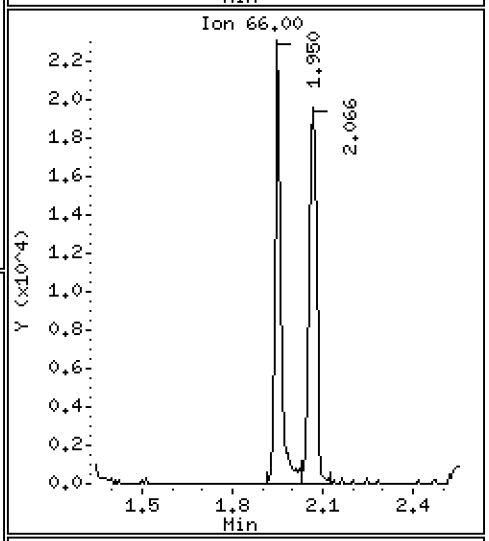


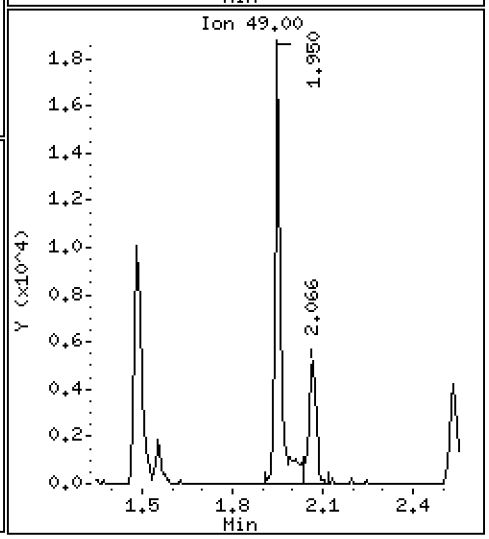












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

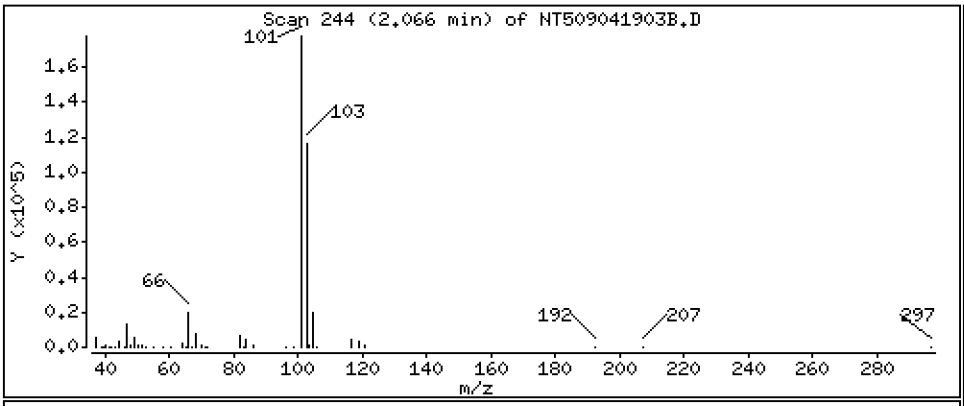
Operator: PB

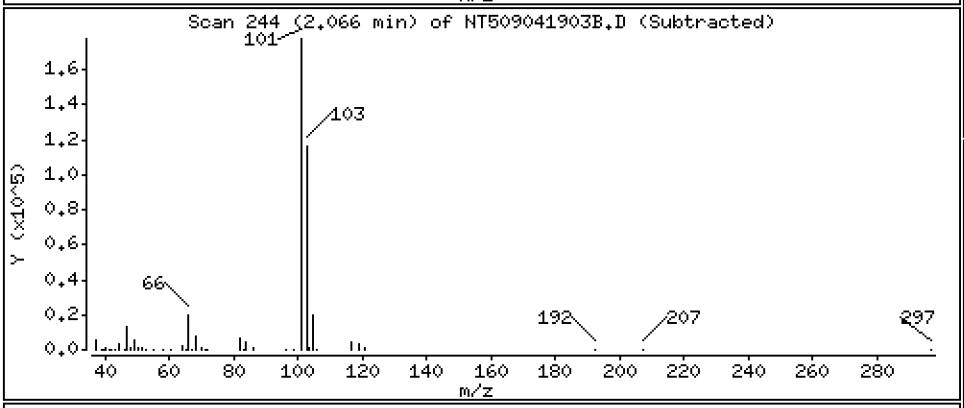
Column phase: RTXVMS

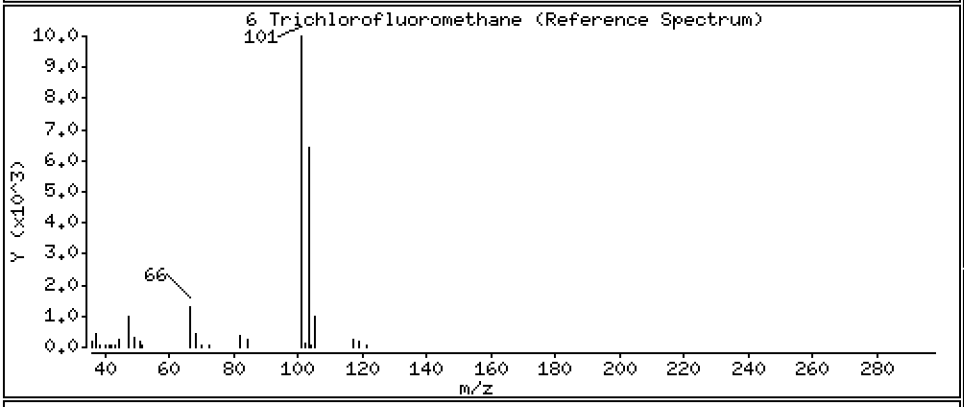
Column diameter: 0.18

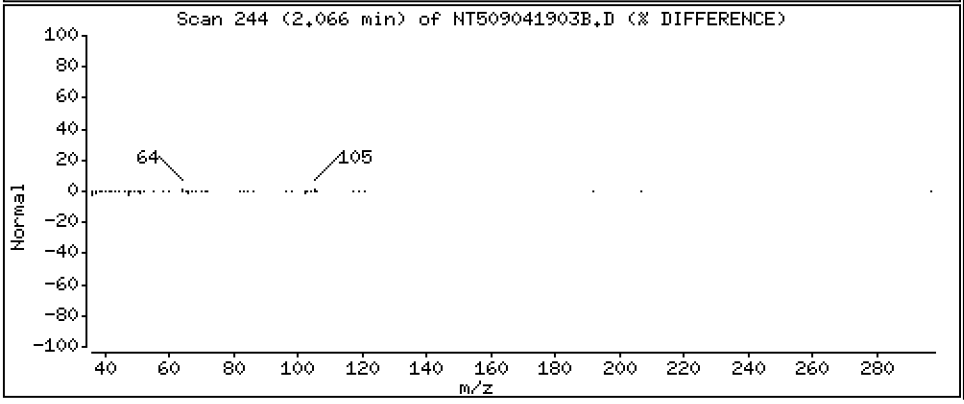
6 Trichlorofluoromethane

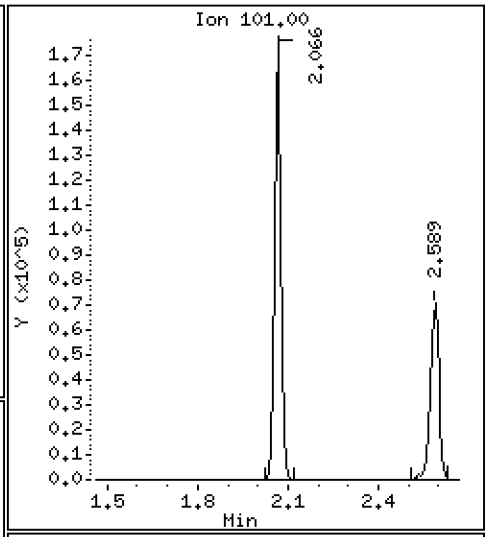
Concentration: 59.314 ug/Kg

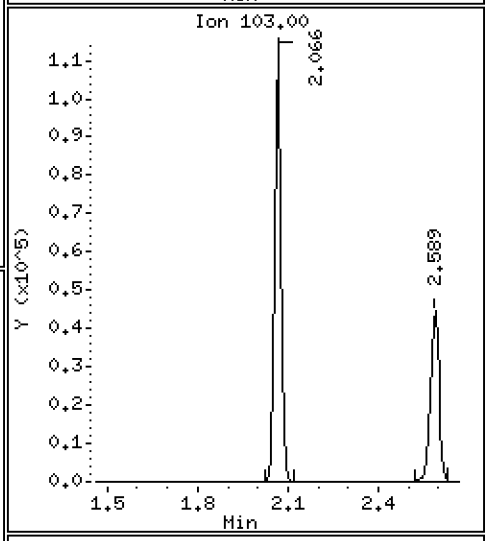


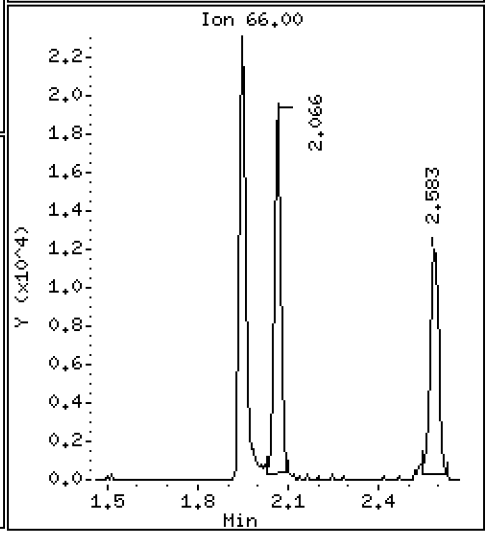












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

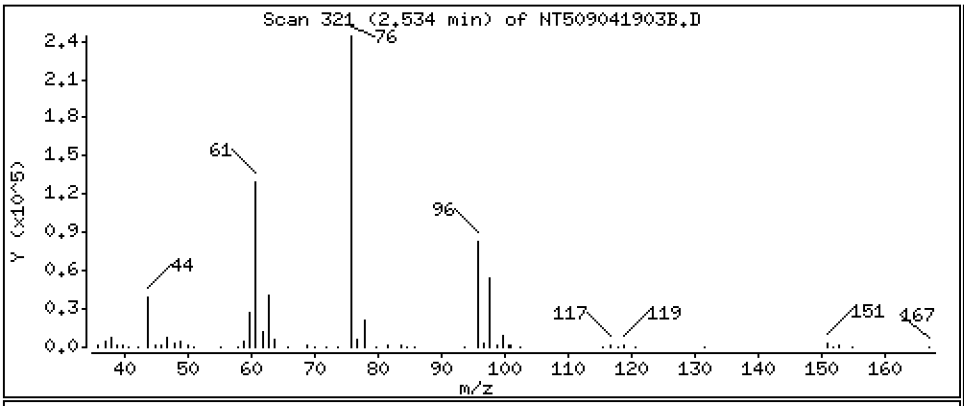
Operator: PB

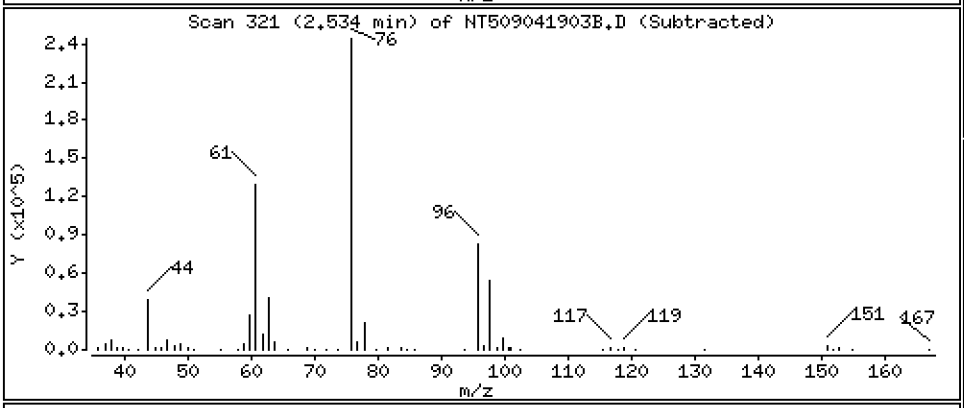
Column phase: RTXVMS

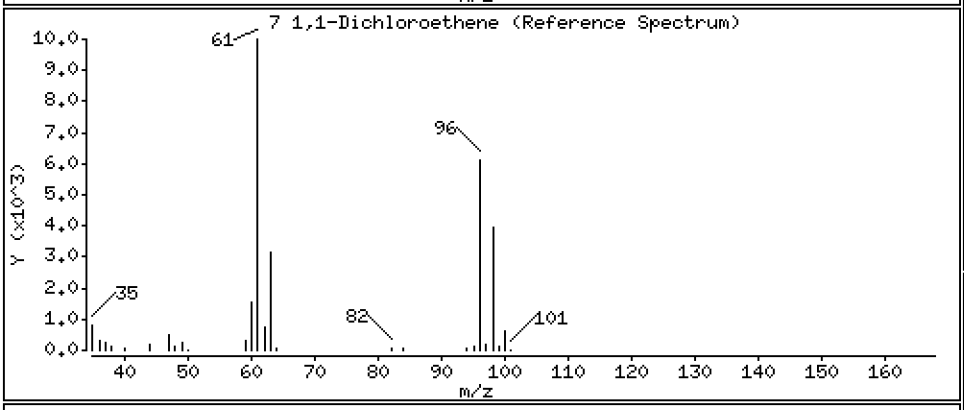
Column diameter: 0.18

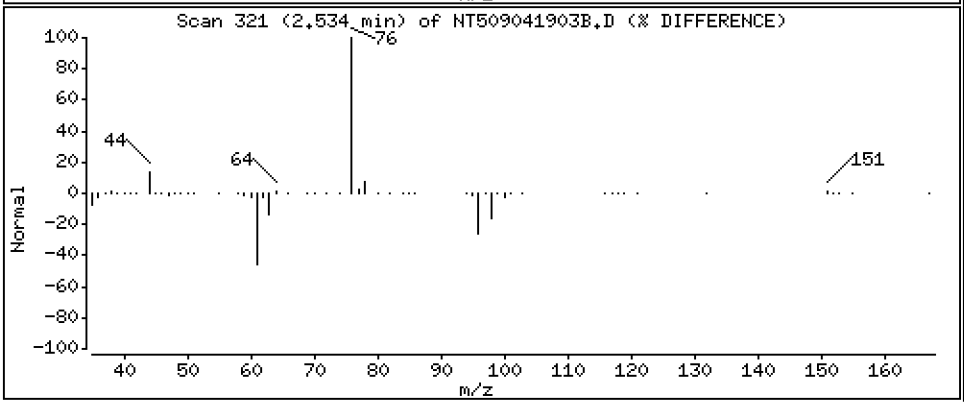
7 1,1-Dichloroethene

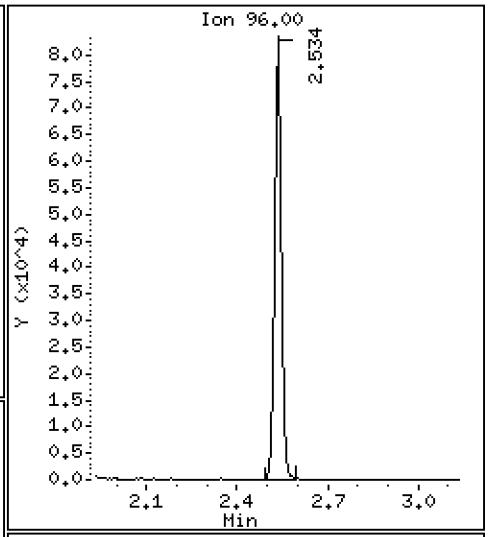
Concentration: 58.295 ug/Kg

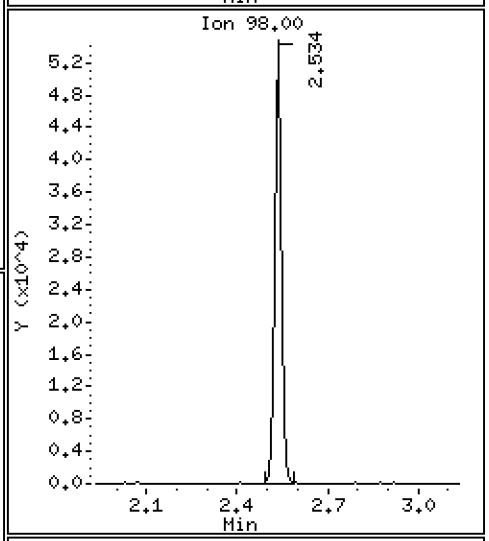


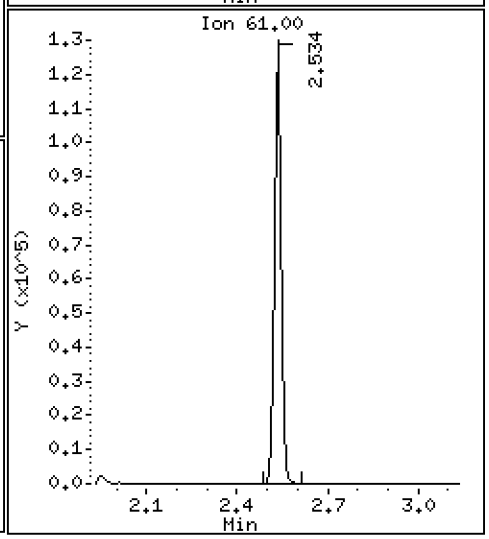












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

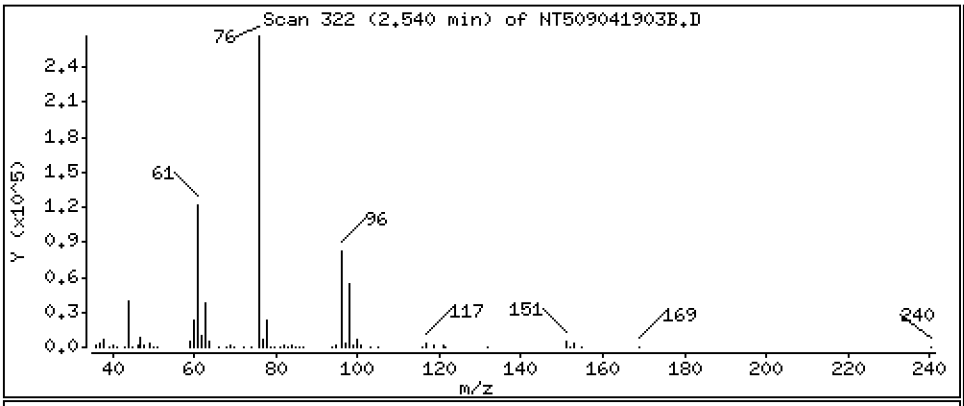
Operator: PB

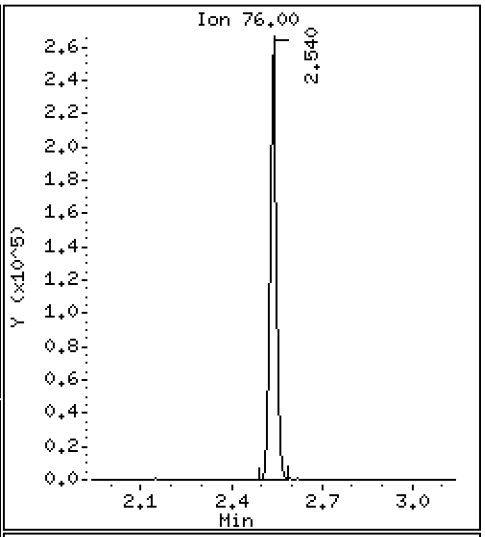
Column phase: RTXVMS

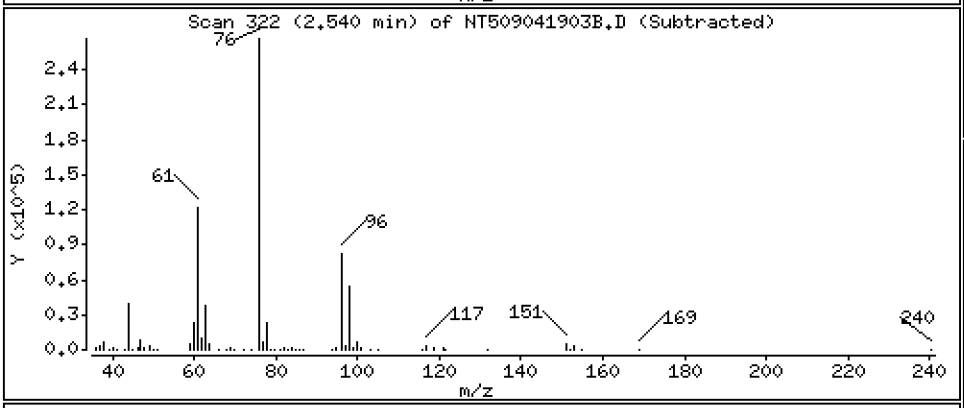
Column diameter: 0.18

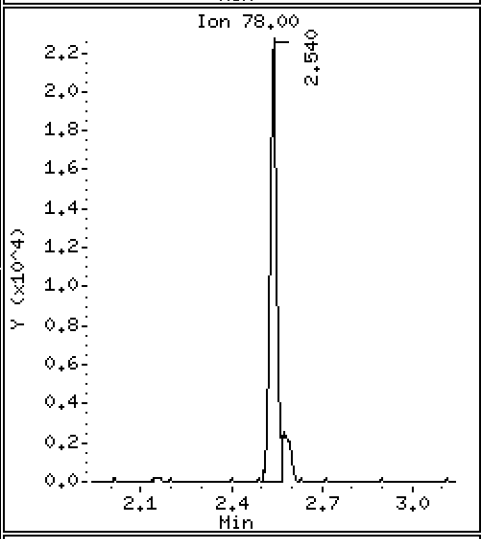
8 Carbon Disulfide

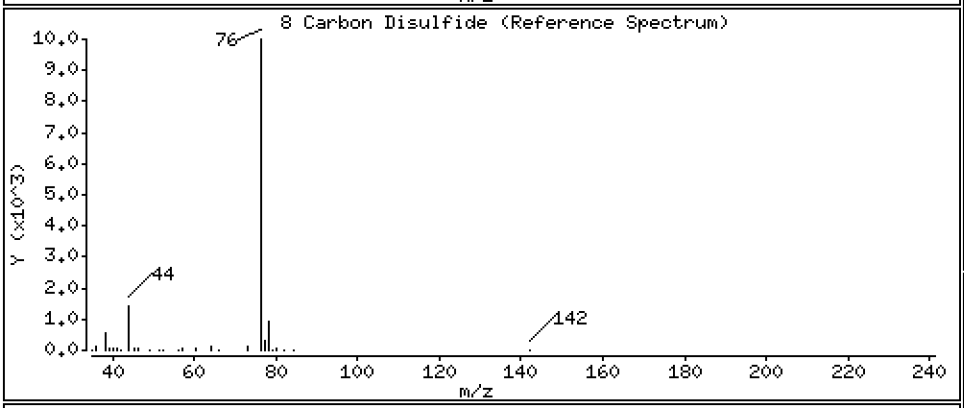
Concentration: 57.058 ug/Kg

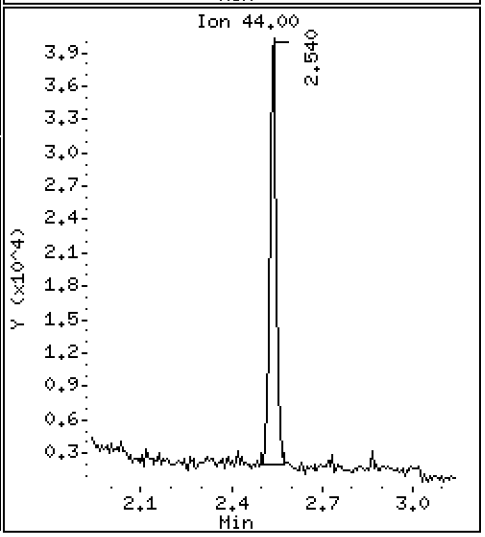


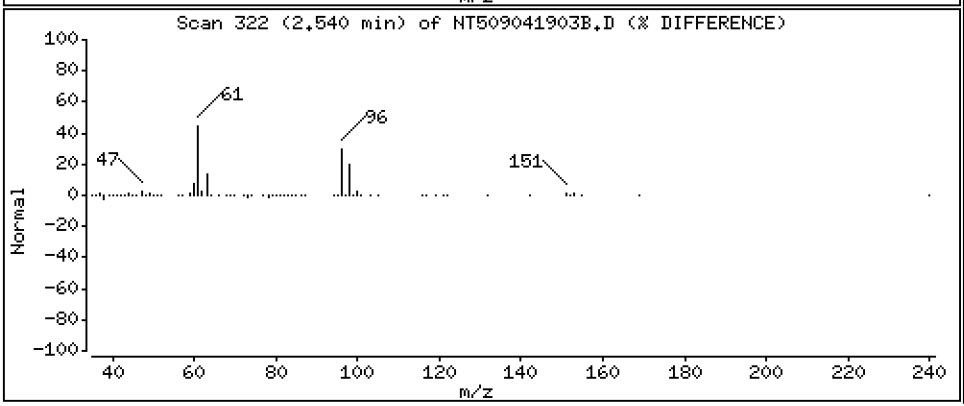












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

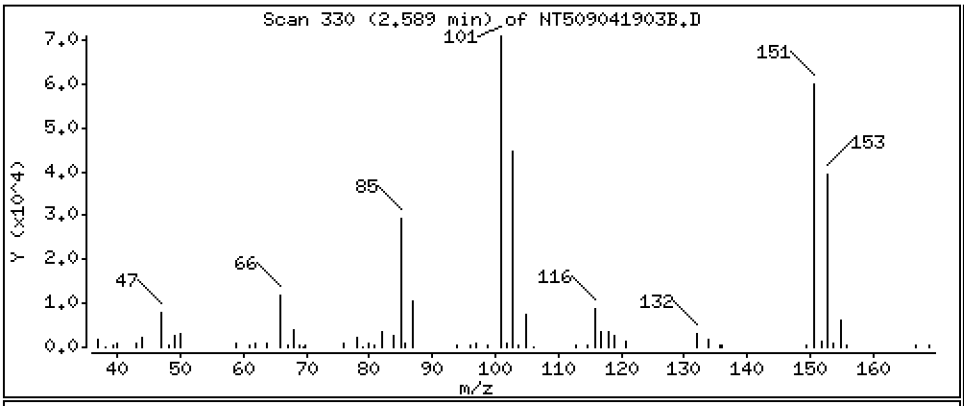
Operator: PB

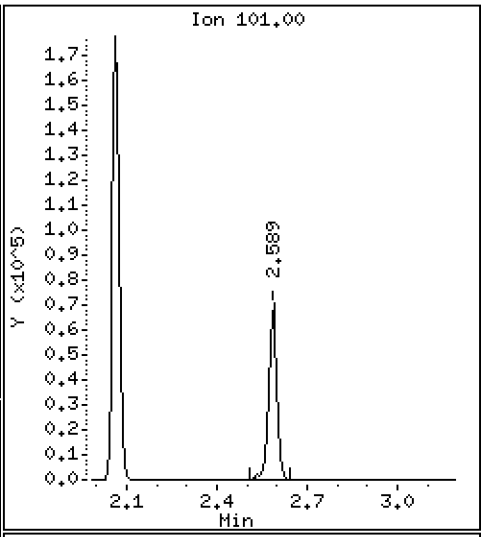
Column phase: RTXVMS

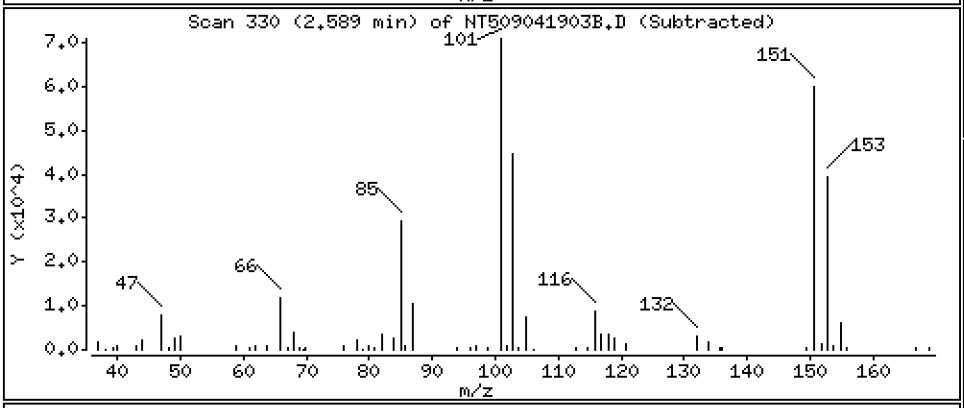
Column diameter: 0.18

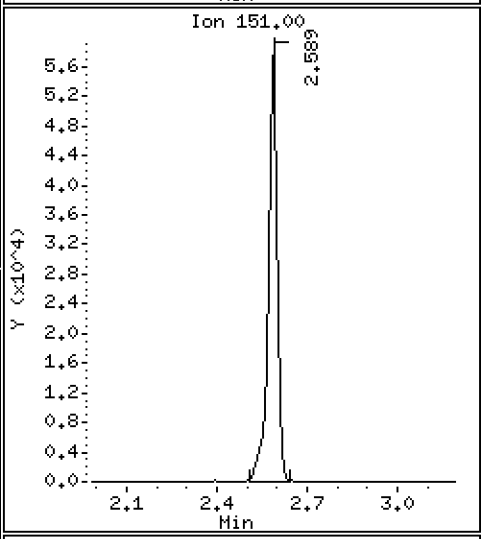
9 112Trichloro122Trifluoroethane

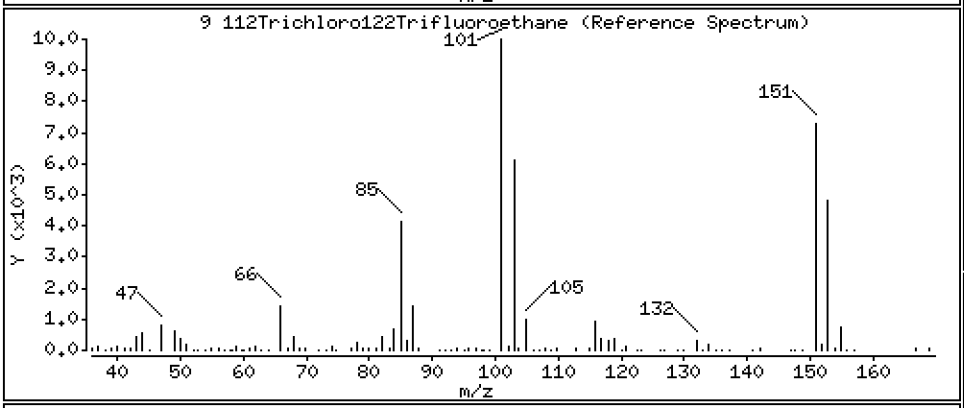
Concentration: 58.165 ug/Kg

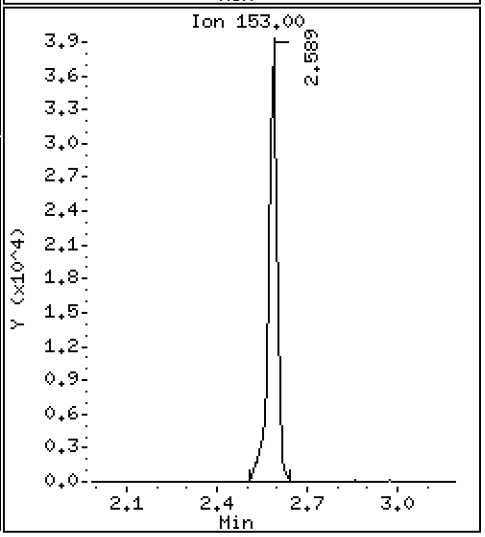


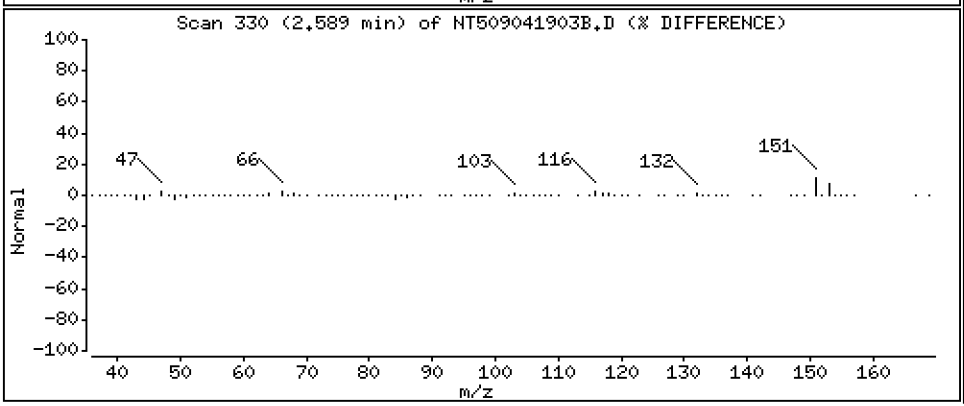












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

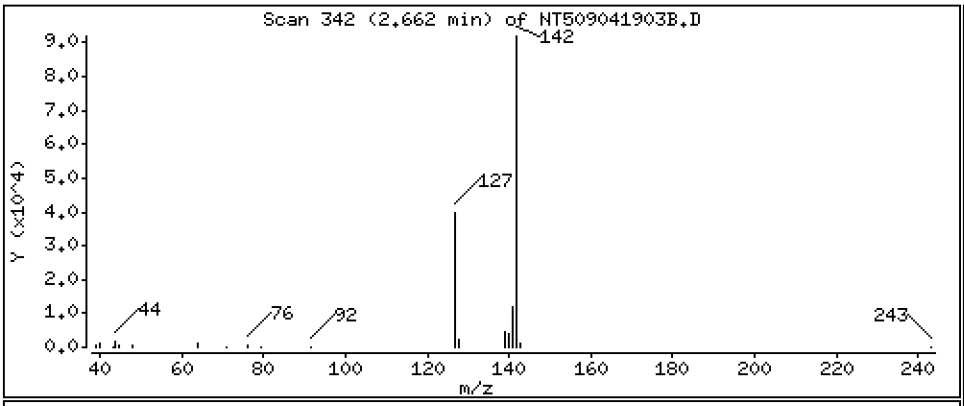
Operator: PB

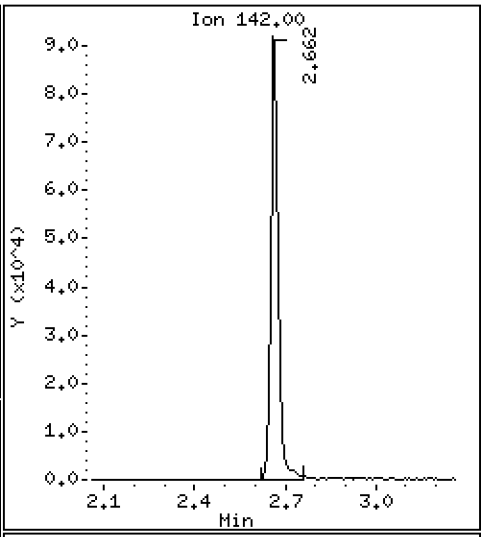
Column phase: RTXVMS

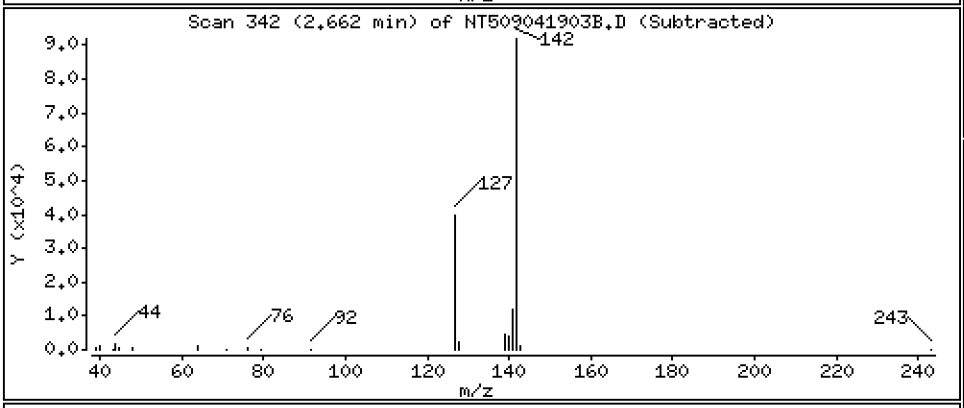
Column diameter: 0.18

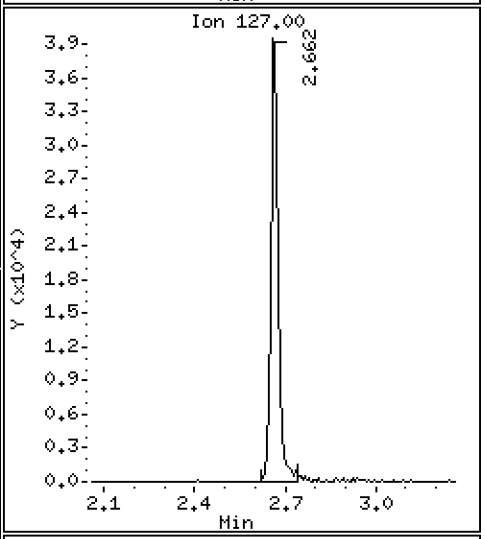
10 Iodomethane

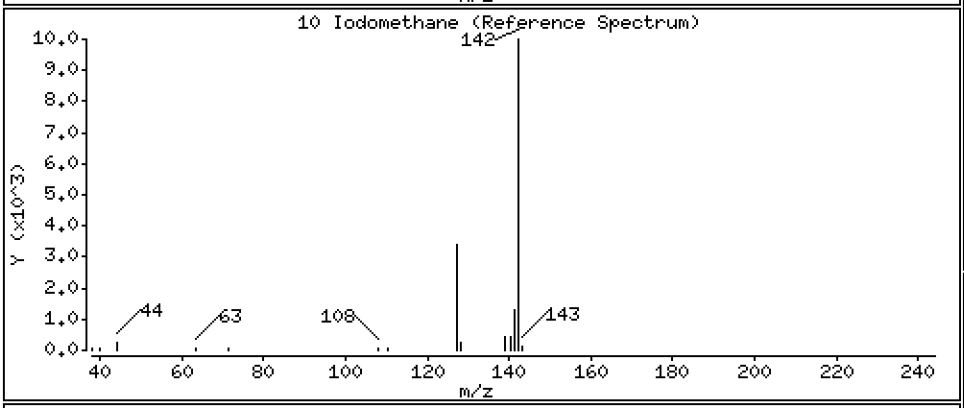
Concentration: 63.426 ug/Kg

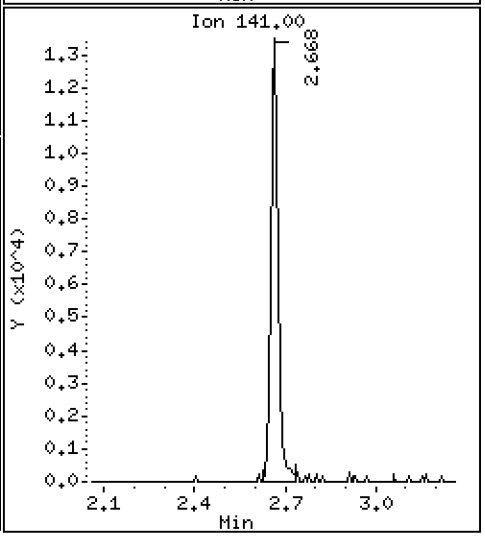


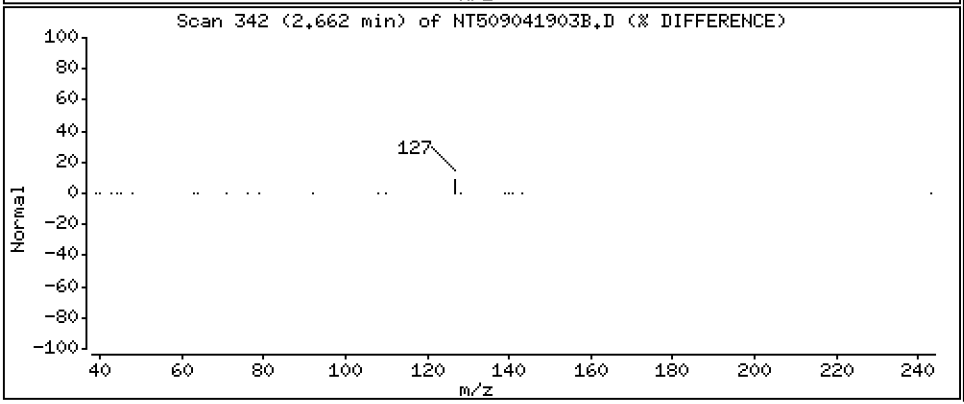












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

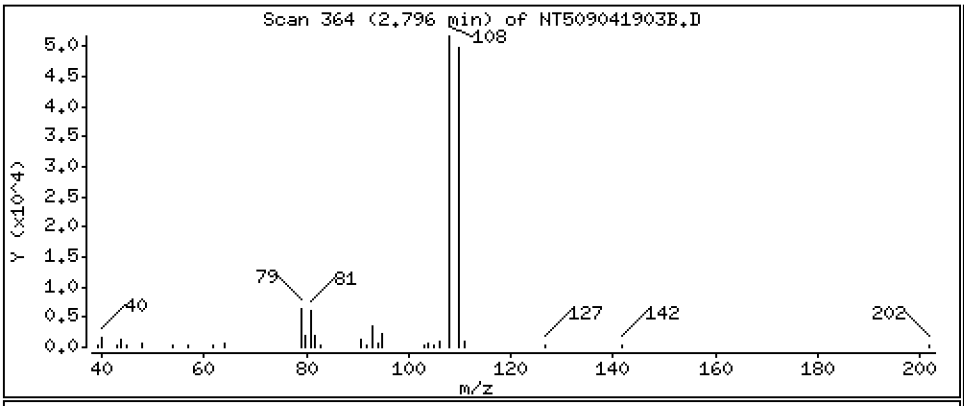
Operator: PB

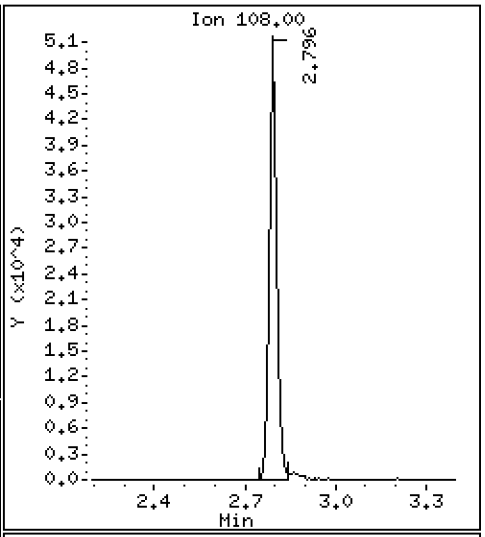
Column phase: RTXVMS

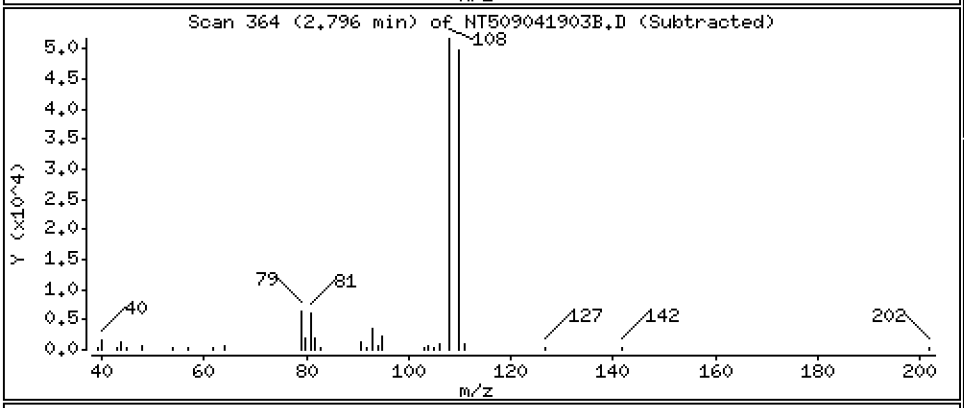
Column diameter: 0.18

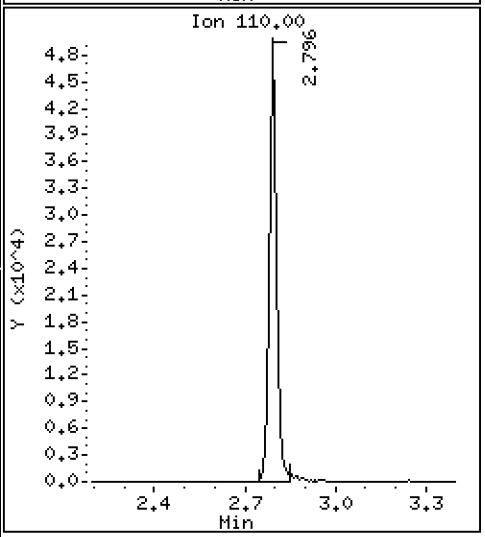
11 Bromoethane

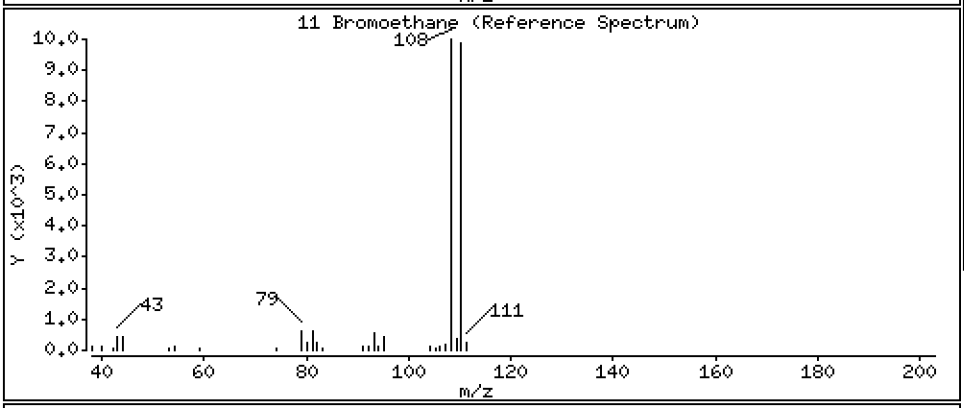
Concentration: 57.848 ug/Kg

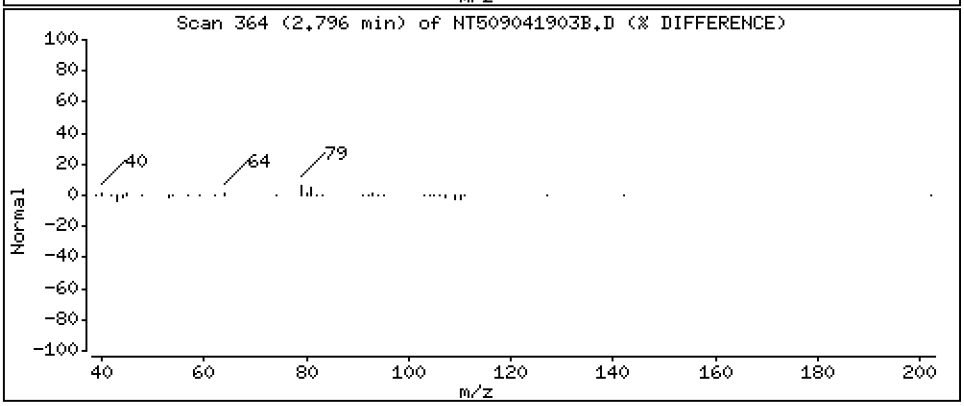












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

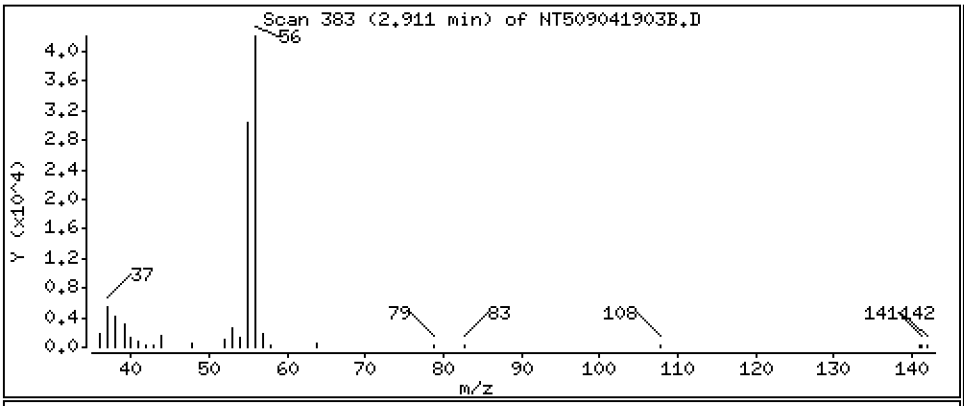
Operator: PB

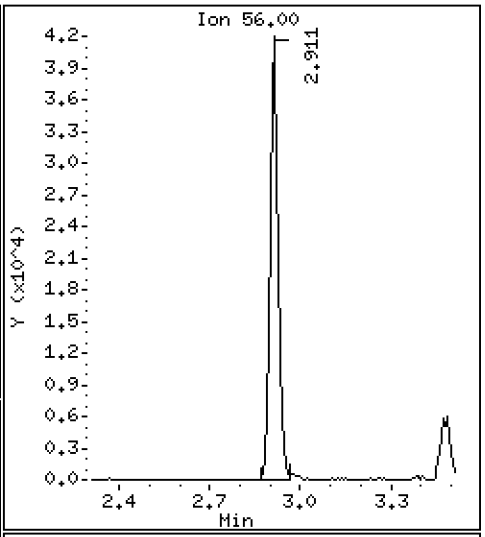
Column phase: RTXVMS

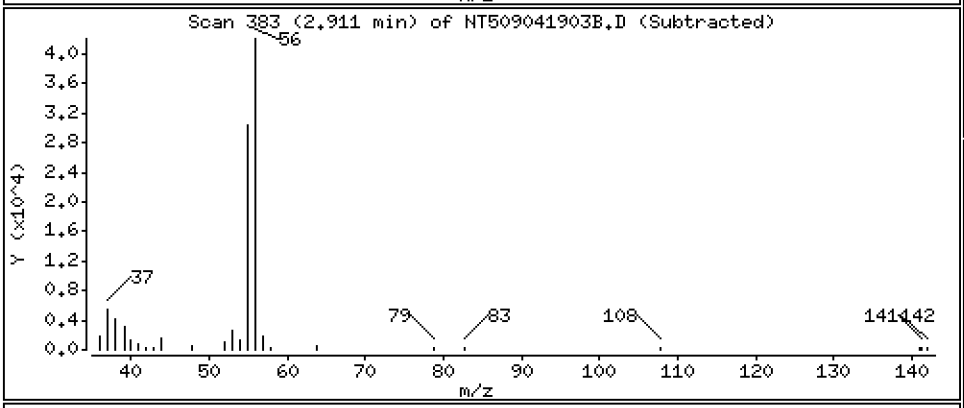
Column diameter: 0.18

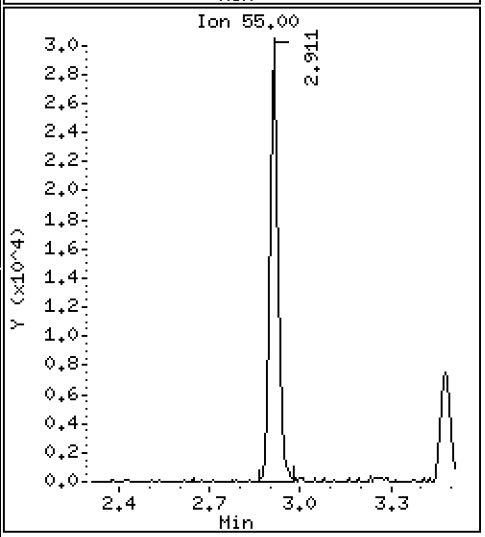
12 Acrolein

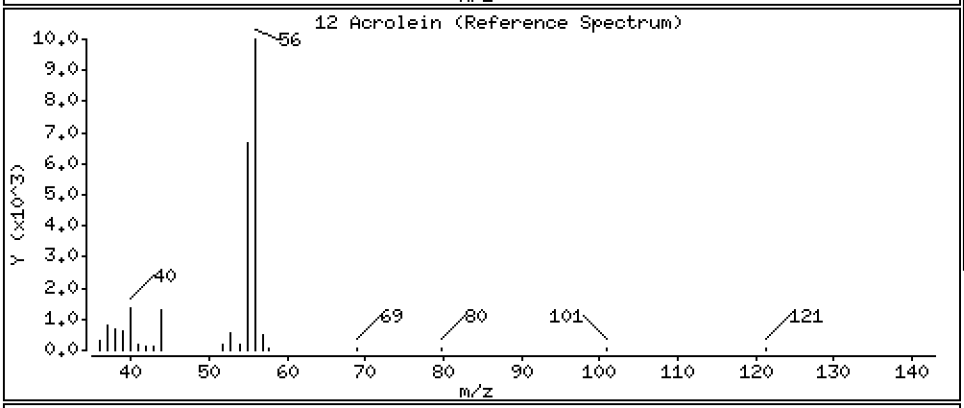
Concentration: 301.30 ug/Kg

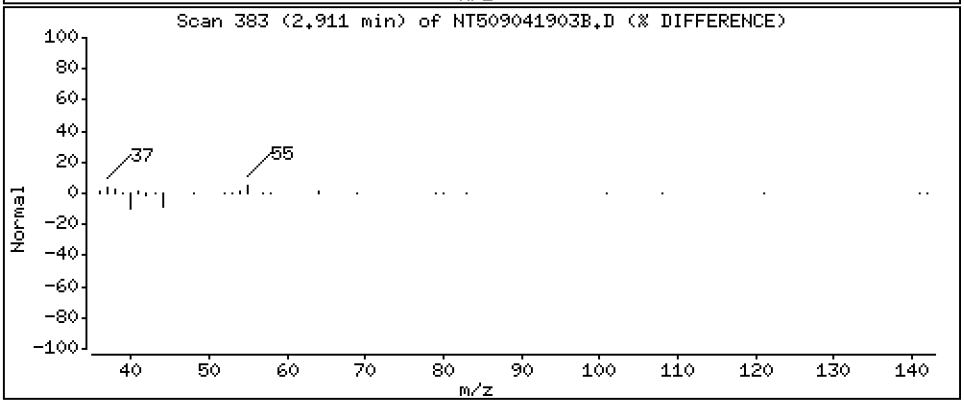












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

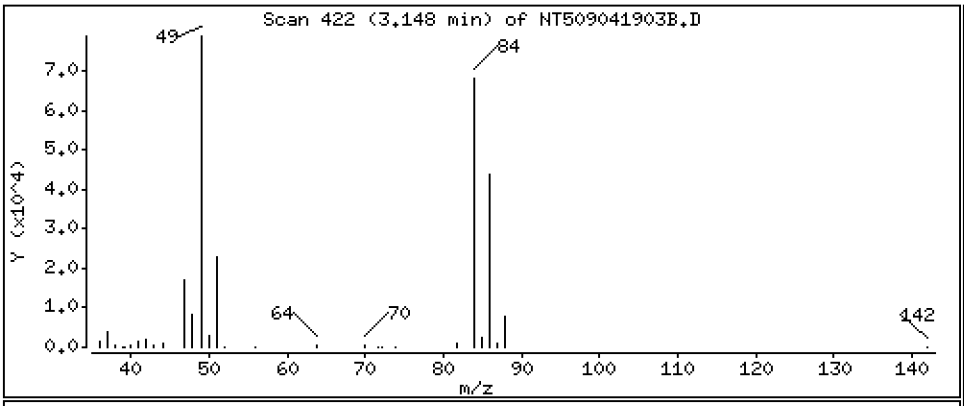
Operator: PB

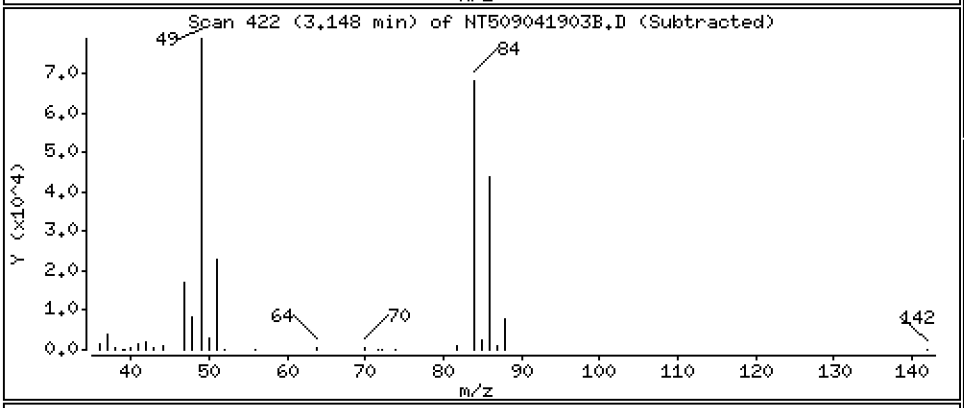
Column phase: RTXVMS

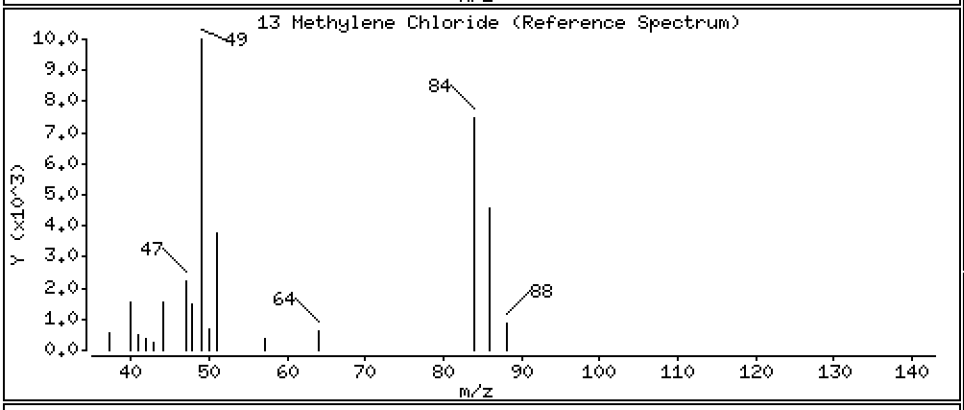
Column diameter: 0.18

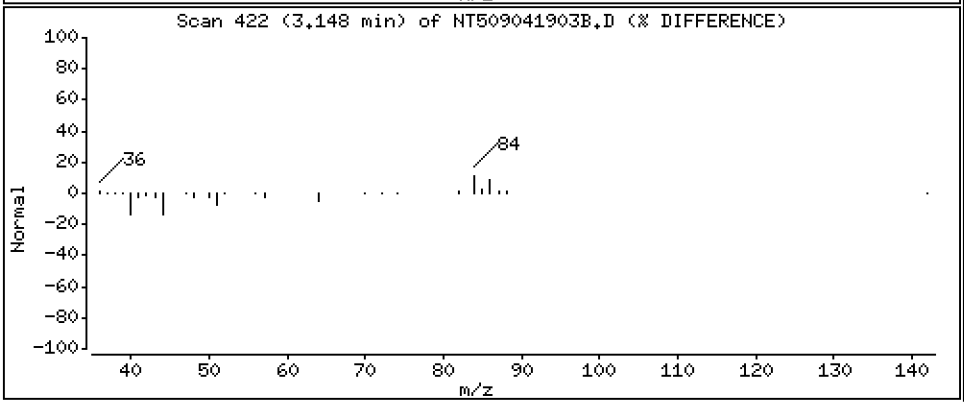
13 Methylene Chloride

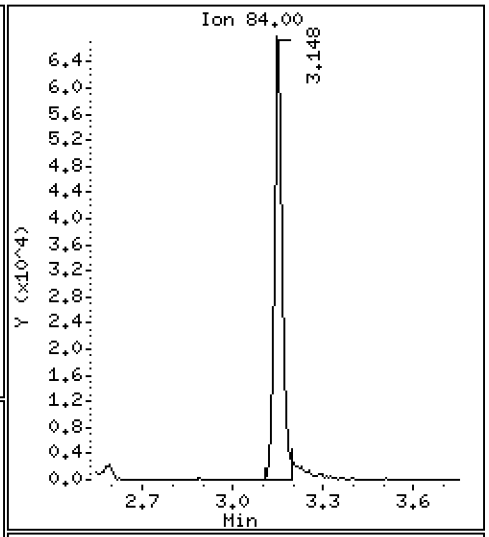
Concentration: 60.422 ug/Kg

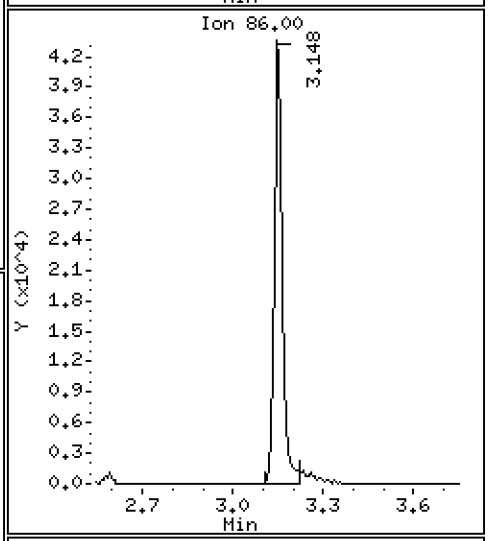


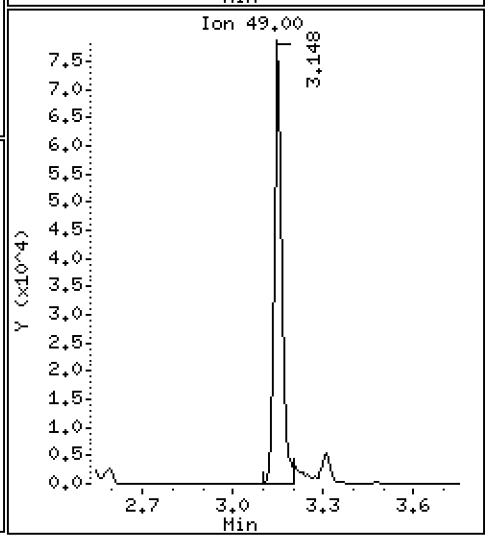












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

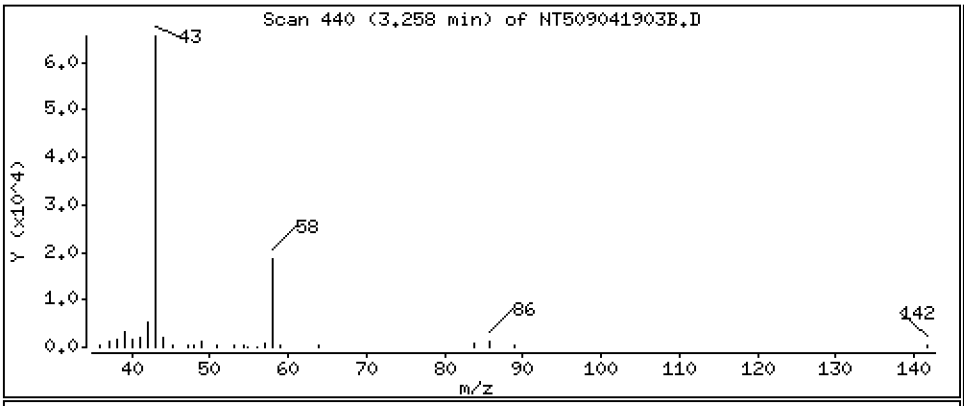
Operator: PB

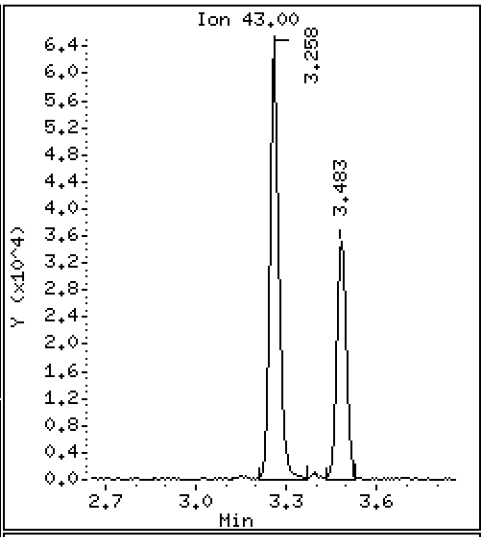
Column phase: RTXVMS

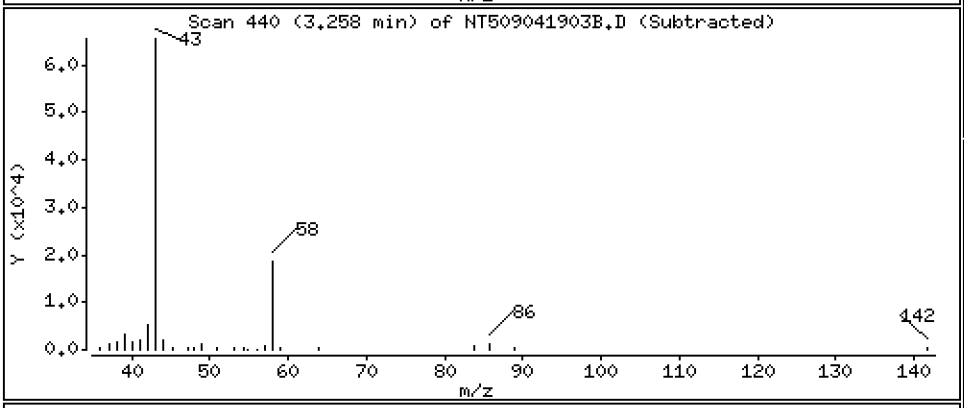
Column diameter: 0.18

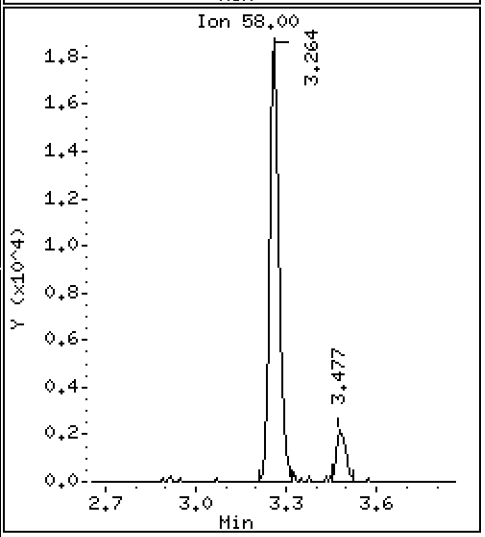
14 Acetone

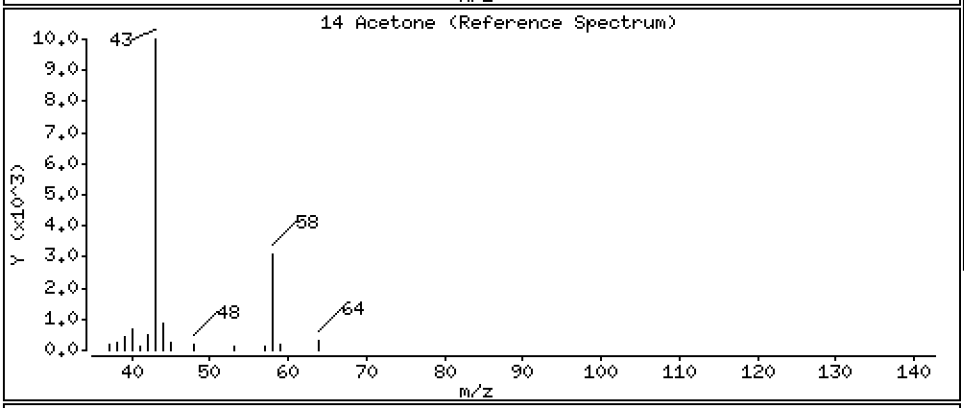
Concentration: 303.30 ug/Kg

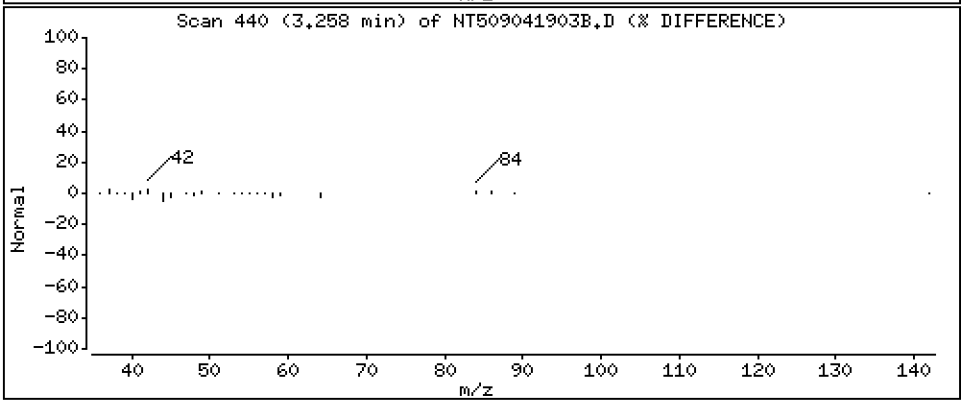












Date : 04-SEP-2019 14:02

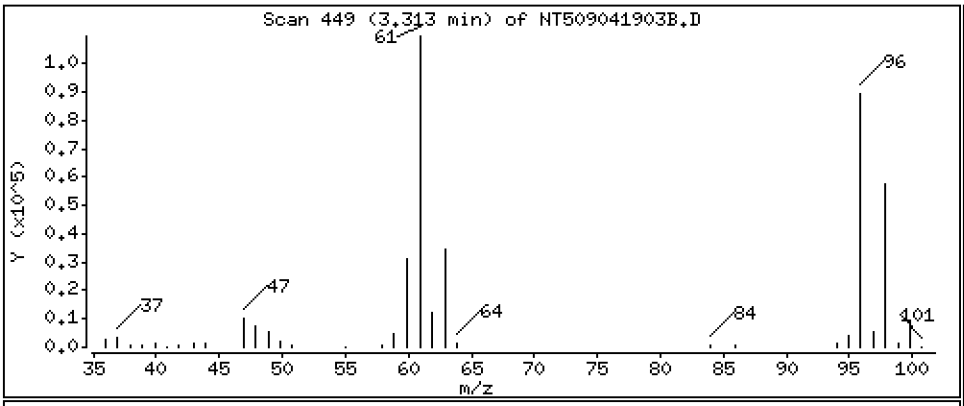
Client ID: Instrument: nt5.i

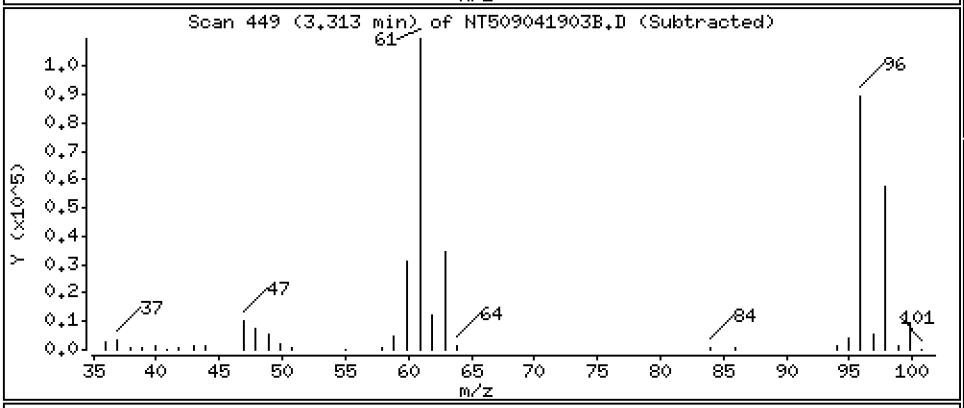
Sample Info: ICV1

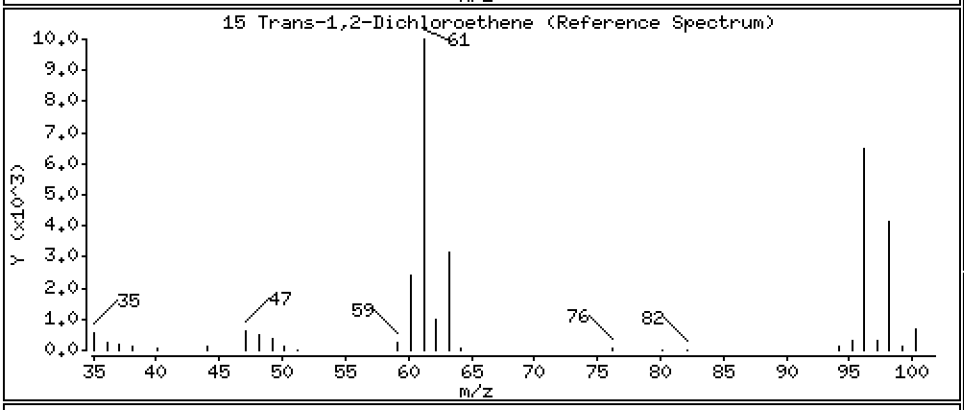
Operator: PB

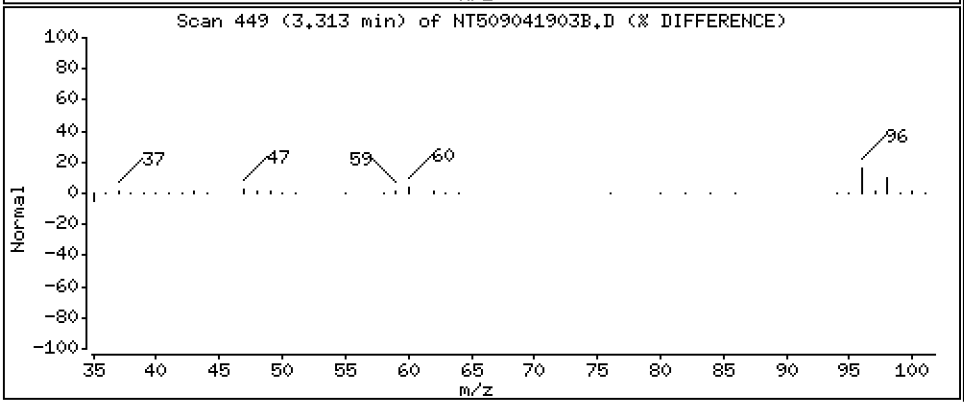
Column phase: RTXVMS Column diameter: 0.18

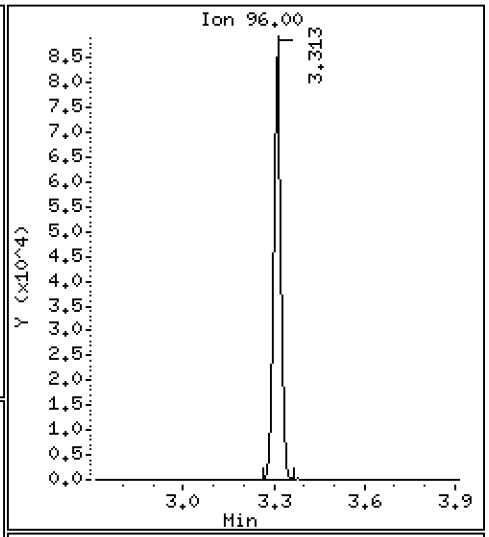
15 Trans-1,2-Dichloroethene Concentration: 57.469 ug/Kg

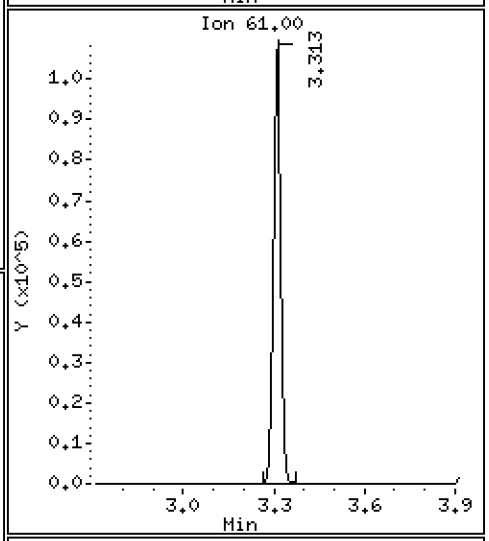


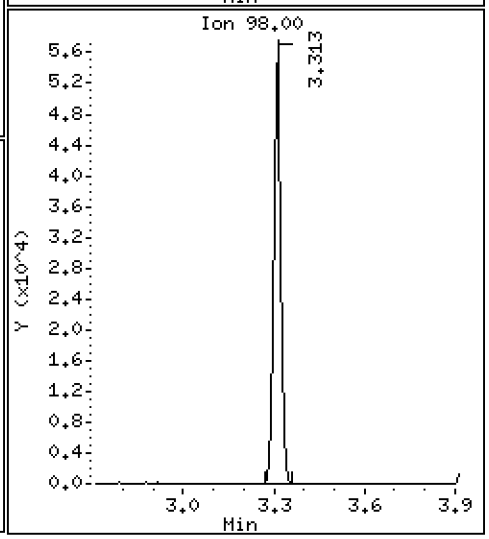












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

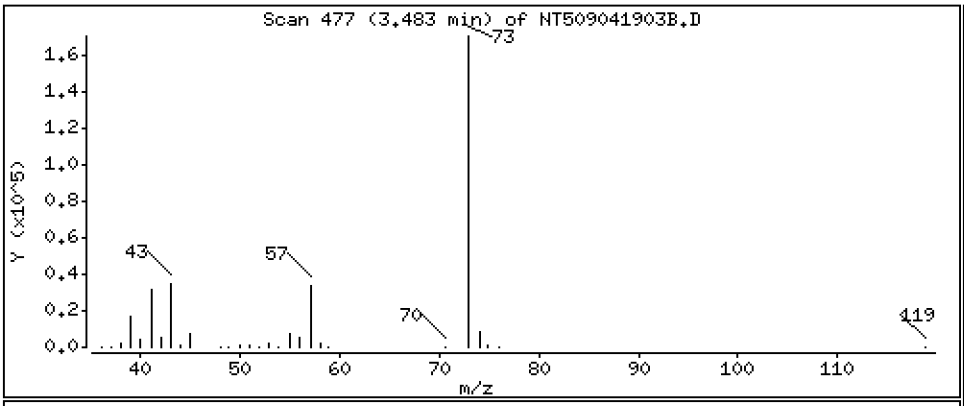
Operator: PB

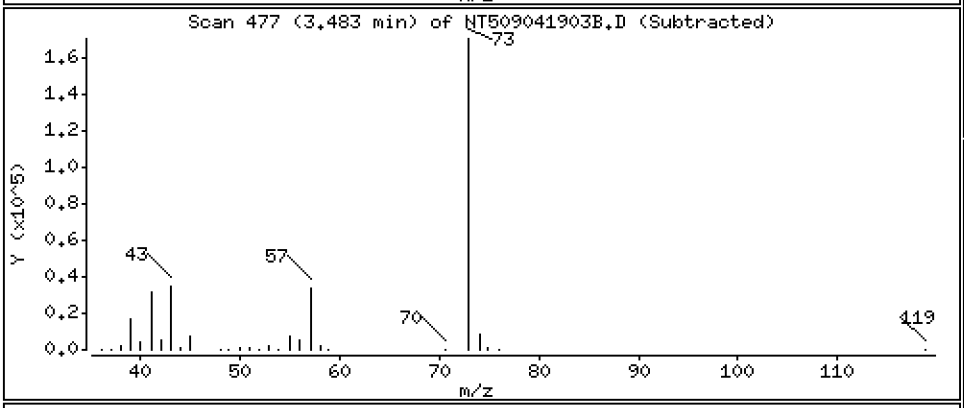
Column phase: RTXVMS

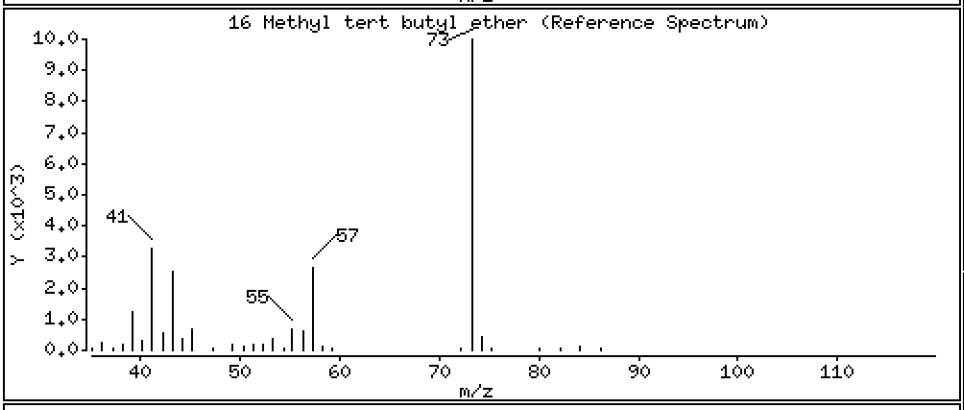
Column diameter: 0.18

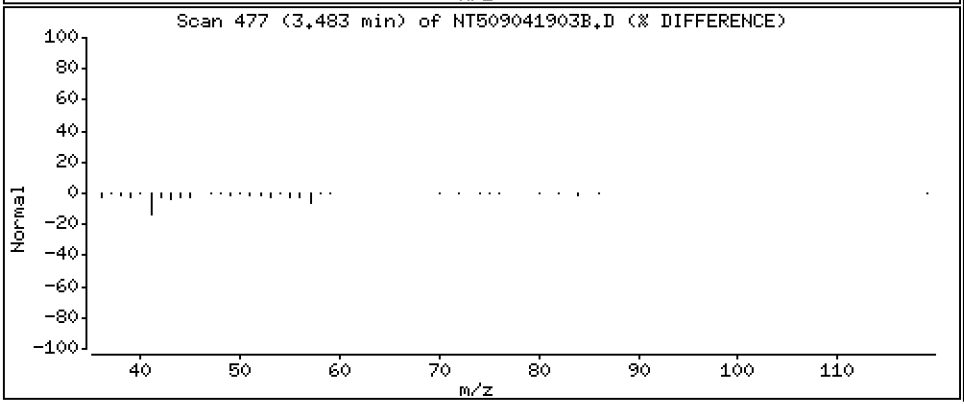
16 Methyl tert butyl ether

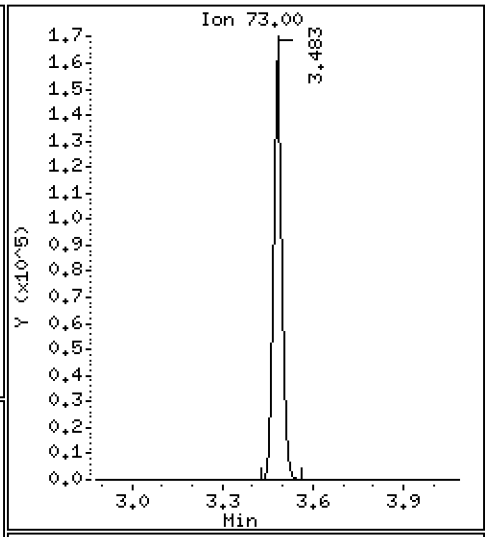
Concentration: 53.833 ug/Kg

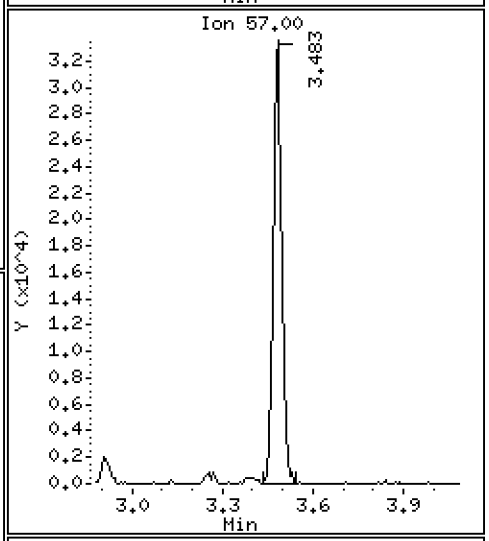


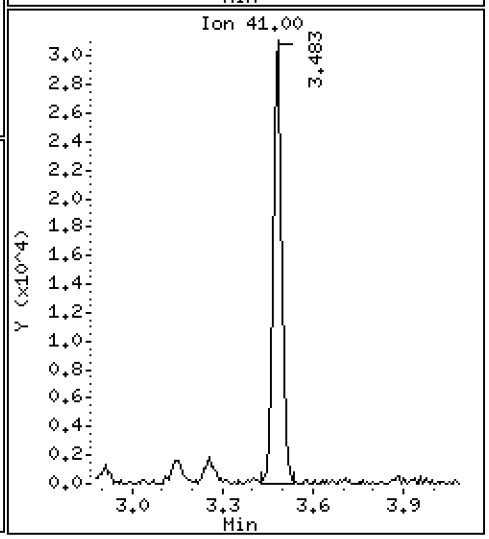












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

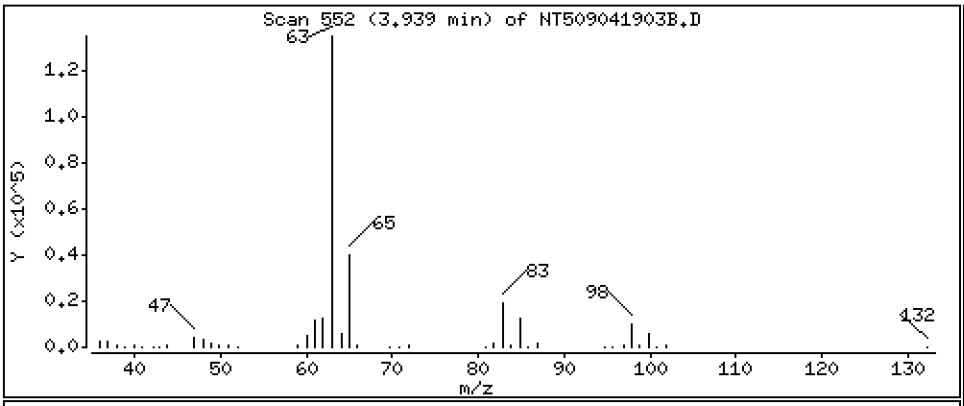
Operator: PB

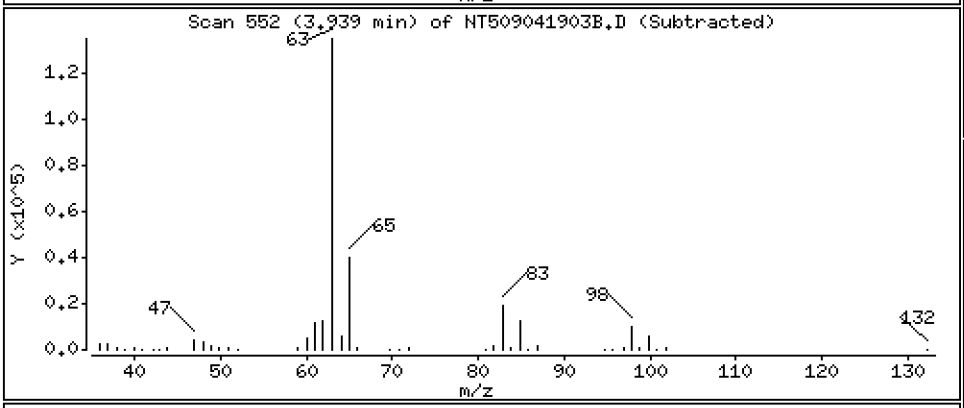
Column phase: RTXVMS

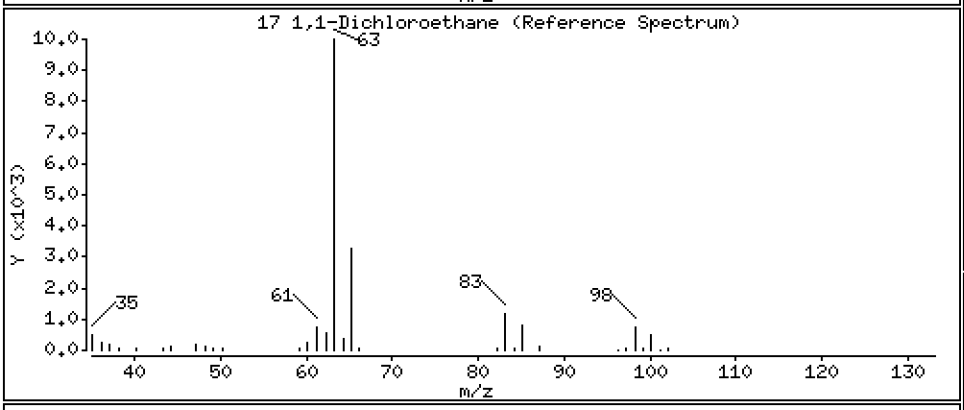
Column diameter: 0.18

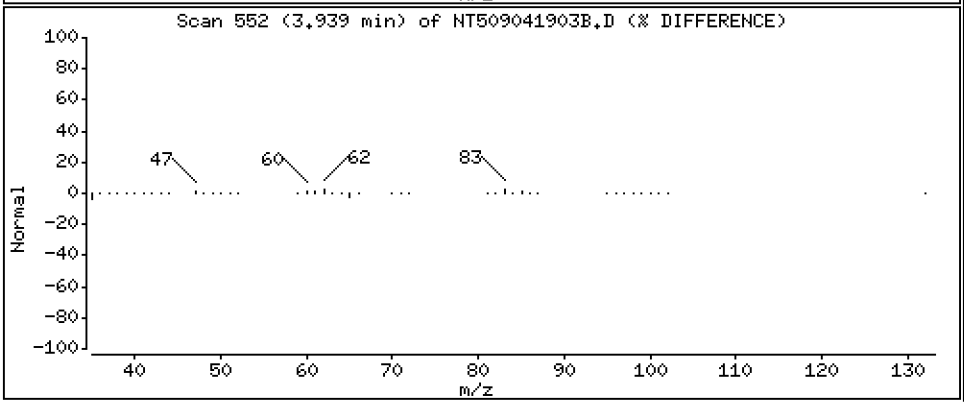
17 1,1-Dichloroethane

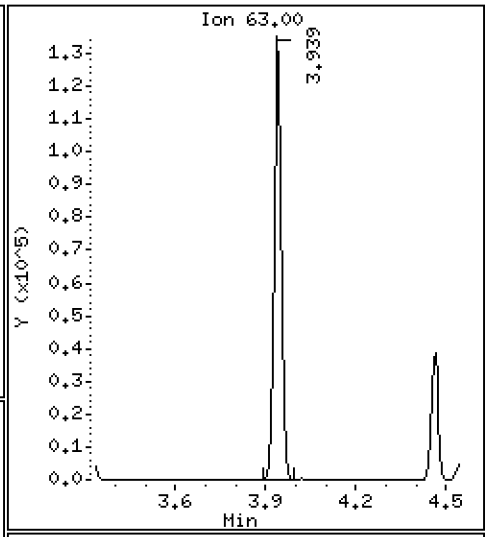
Concentration: 57.245 ug/Kg

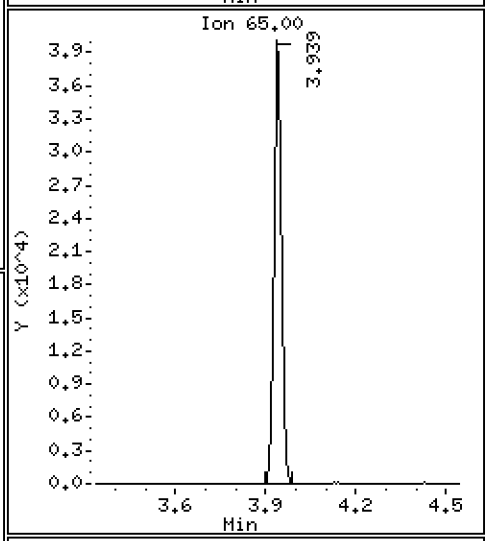


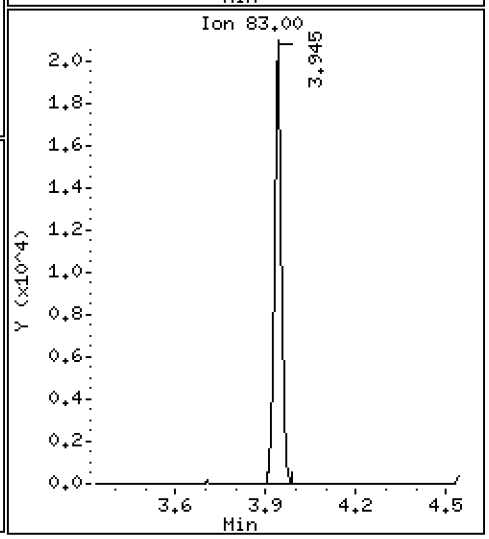












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

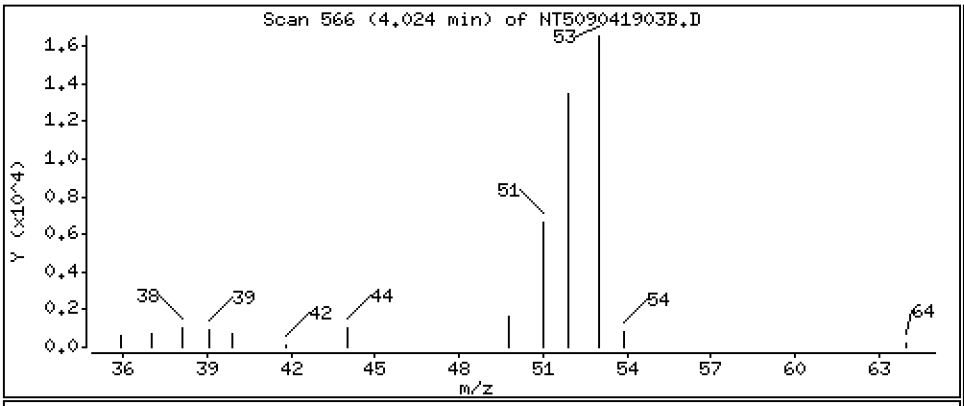
Operator: PB

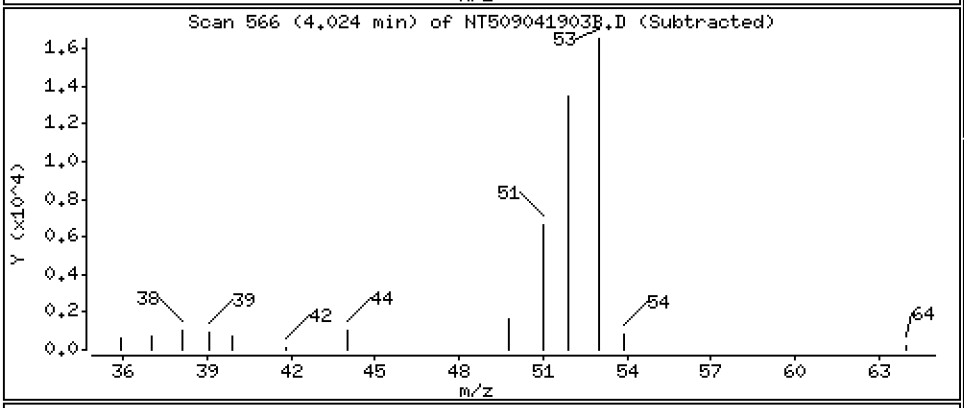
Column phase: RTXVMS

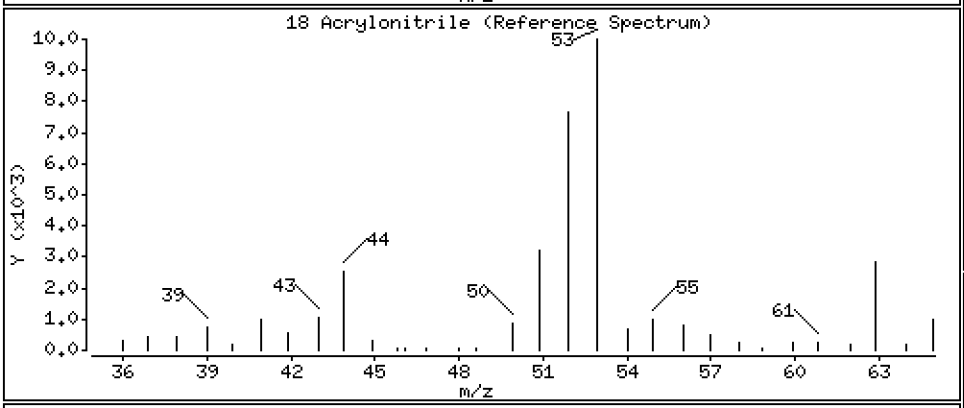
Column diameter: 0.18

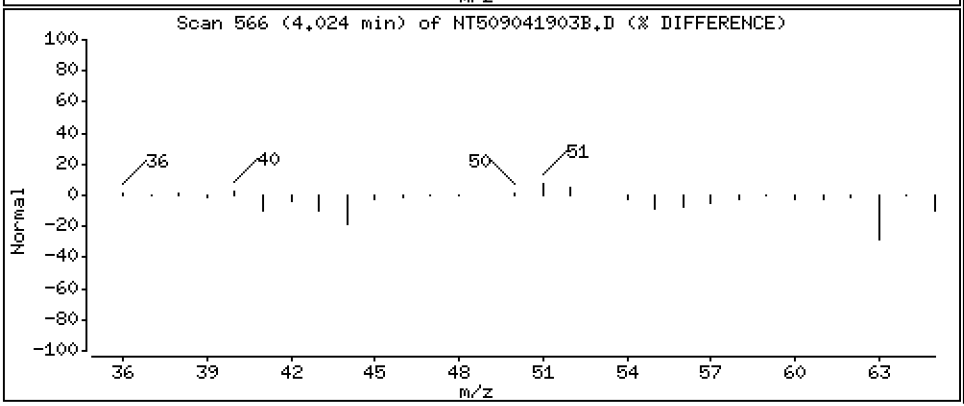
18 Acrylonitrile

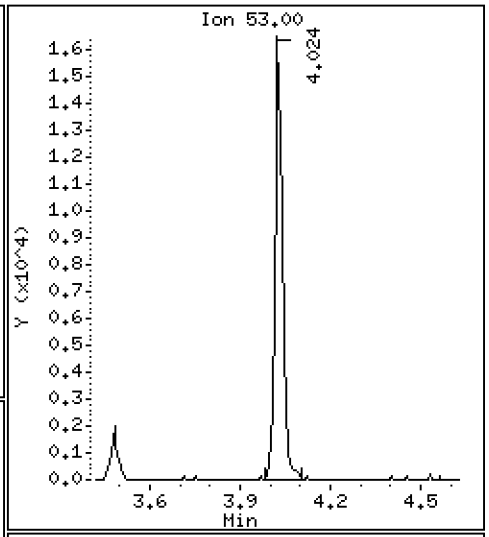
Concentration: 57.847 ug/Kg

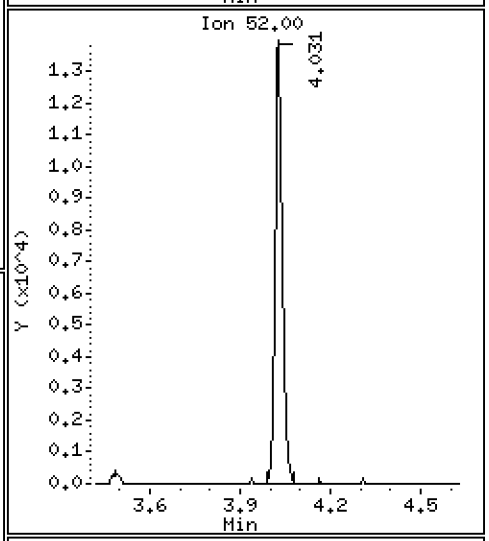


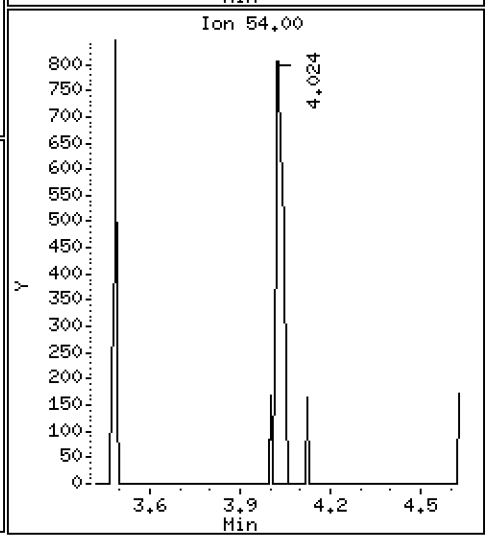












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

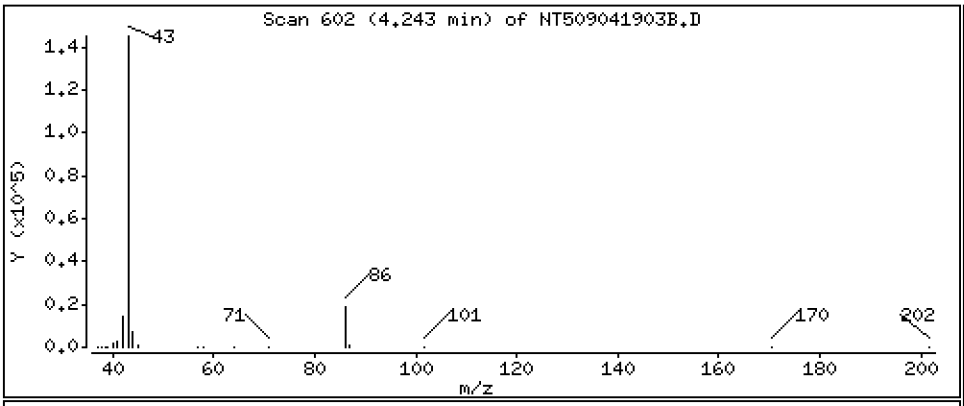
Operator: PB

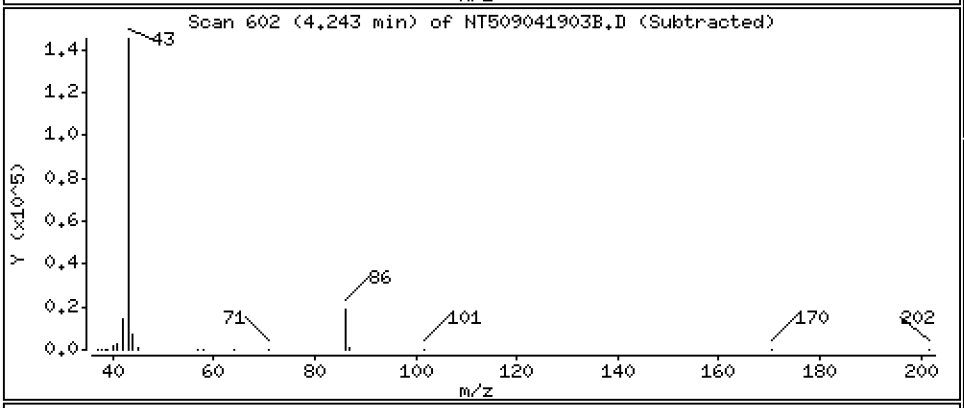
Column phase: RTXVMS

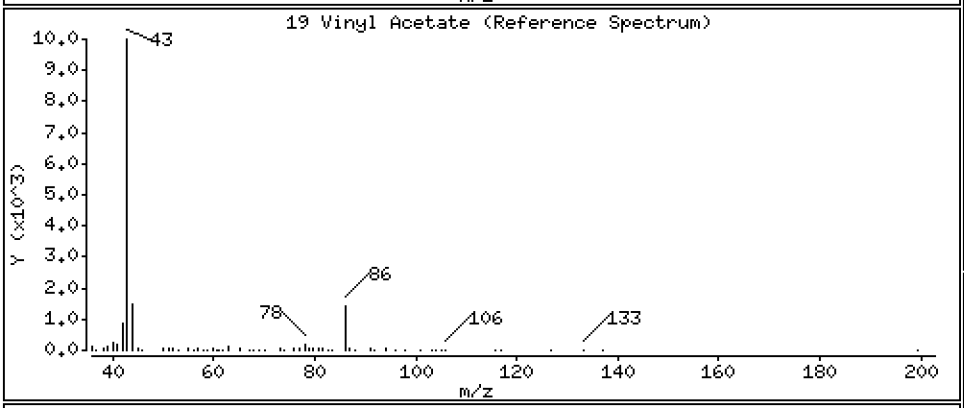
Column diameter: 0.18

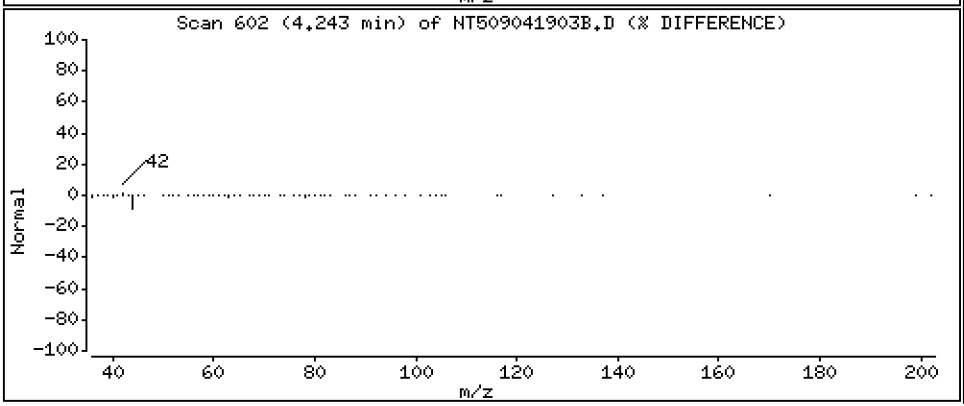
19 Vinyl Acetate

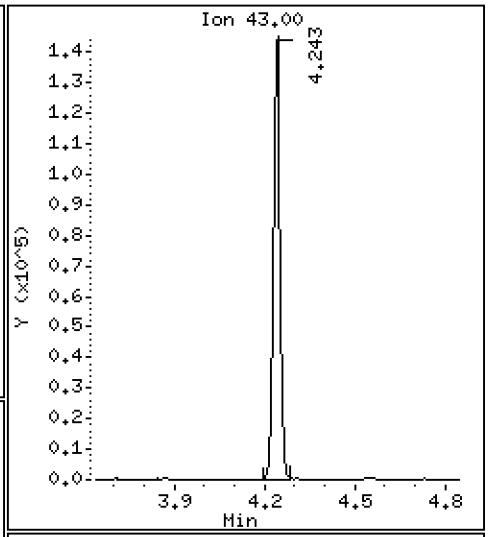
Concentration: 54.947 ug/Kg

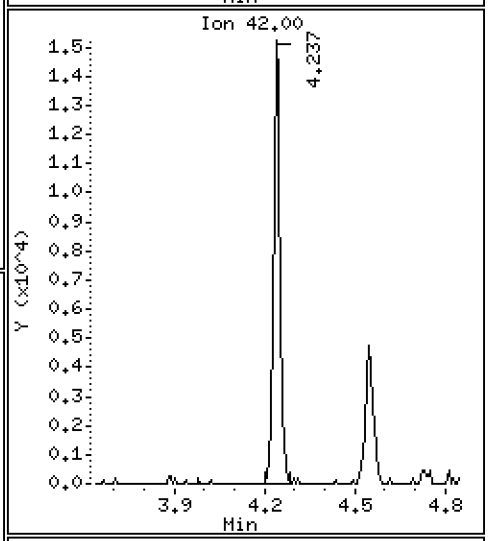


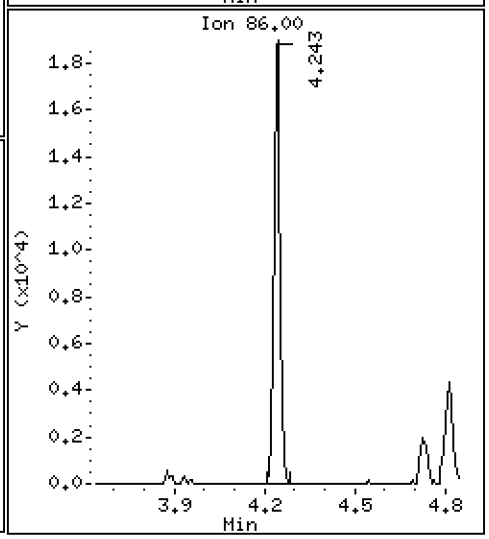












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

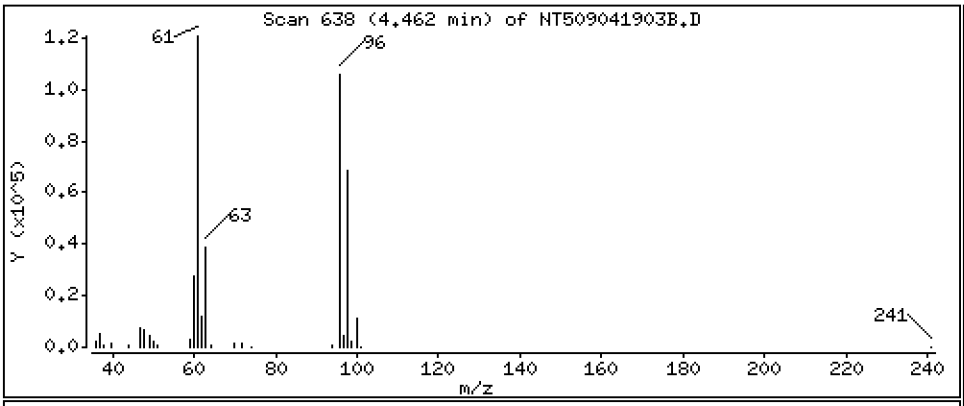
Operator: PB

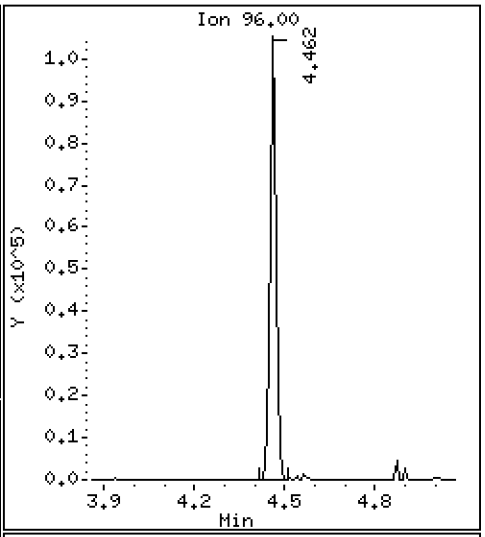
Column phase: RTXVMS

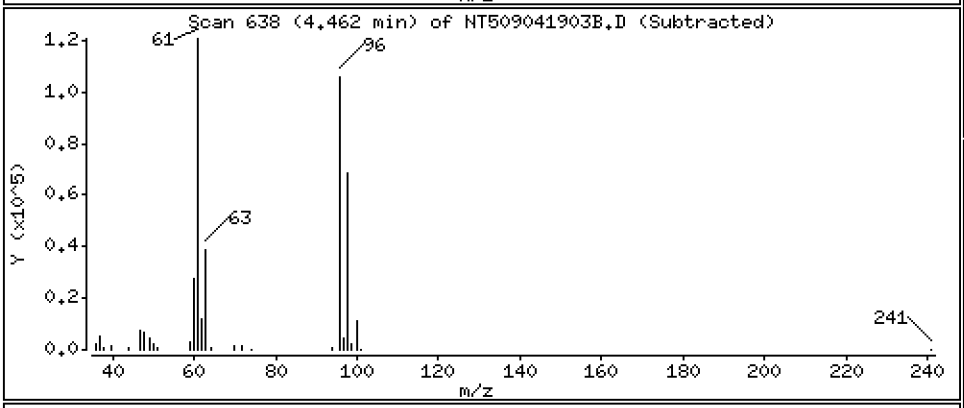
Column diameter: 0.18

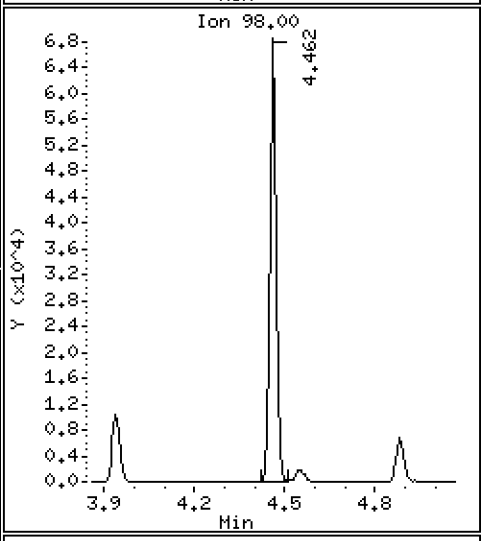
20 Cis-1,2-Dichloroethene

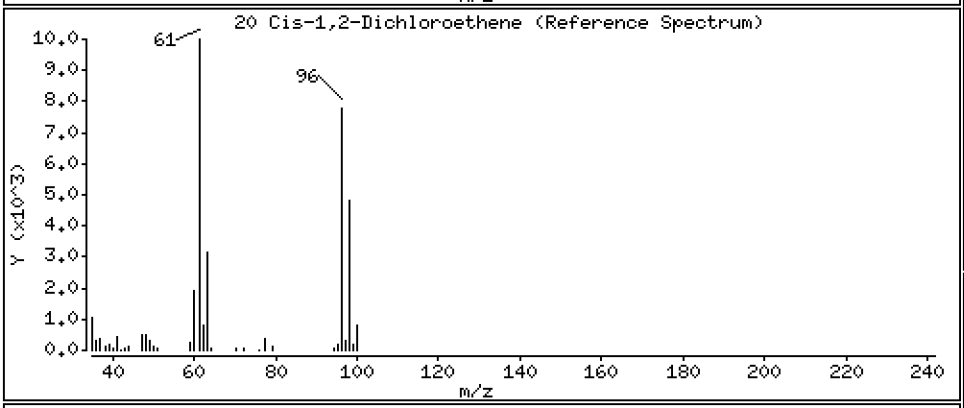
Concentration: 54.798 ug/Kg

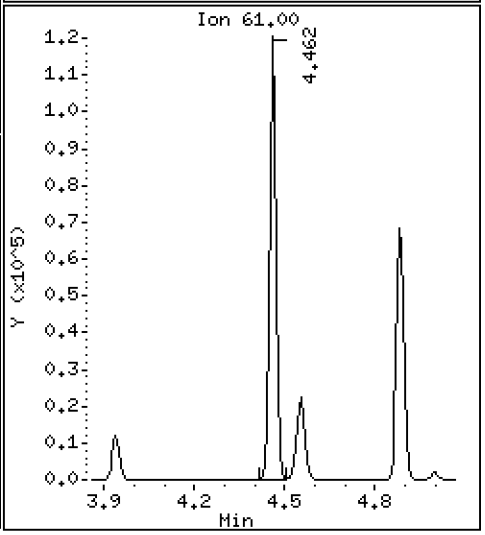


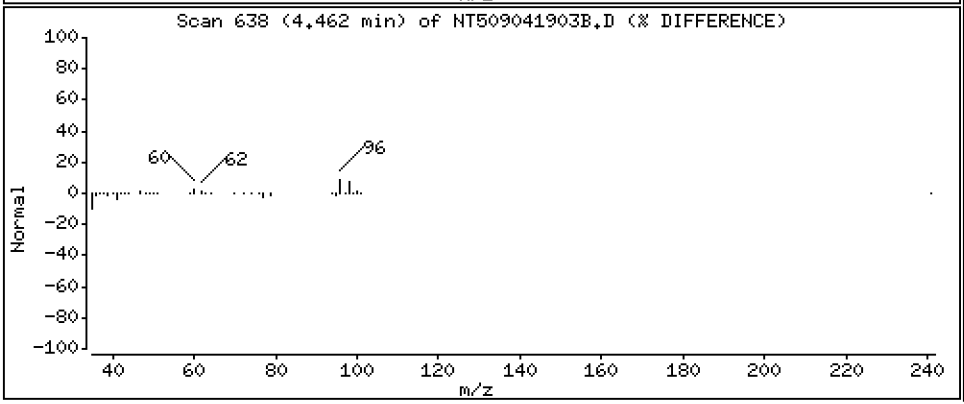












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

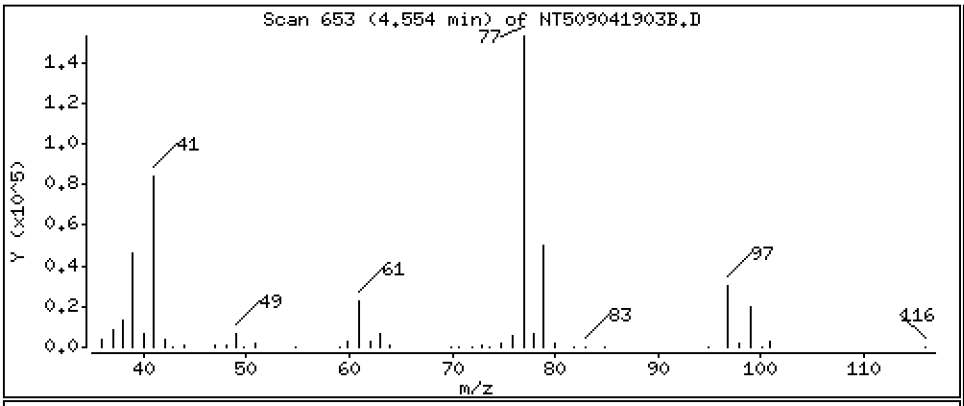
Operator: PB

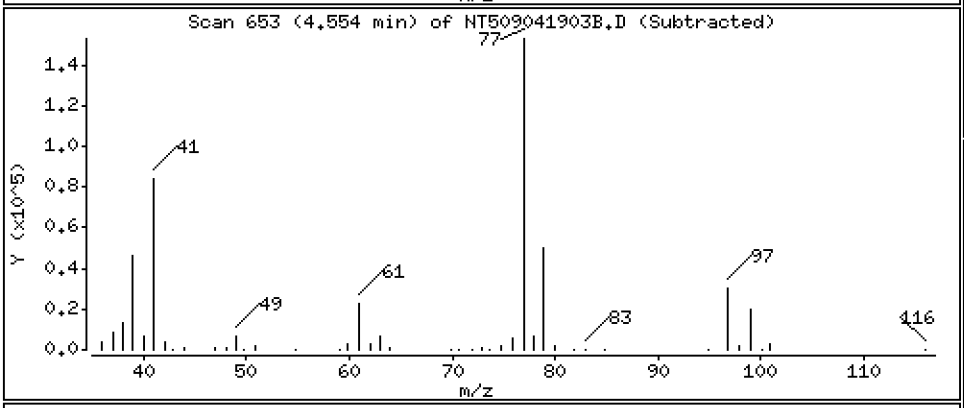
Column phase: RTXVMS

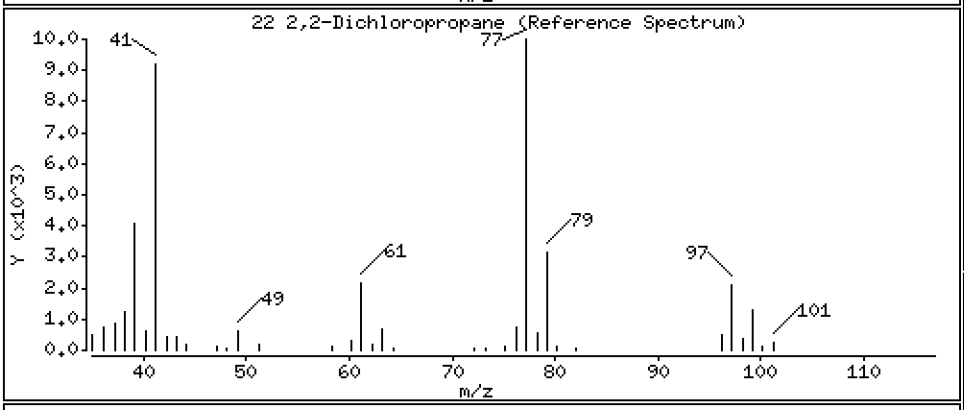
Column diameter: 0.18

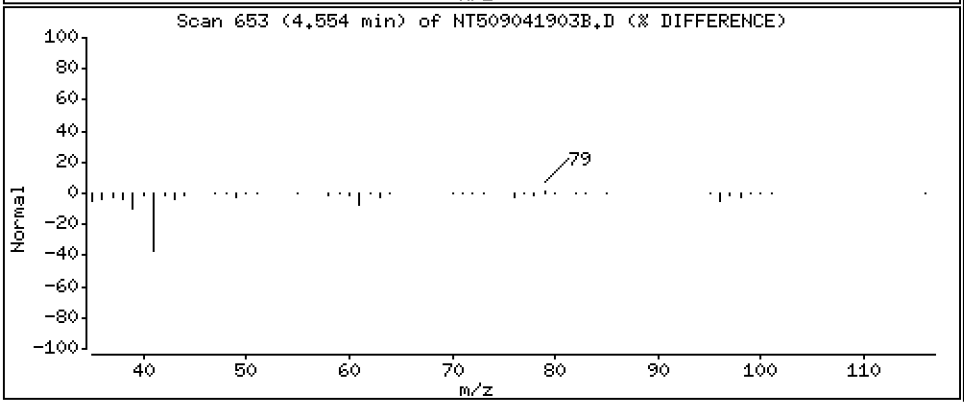
22 2,2-Dichloropropane

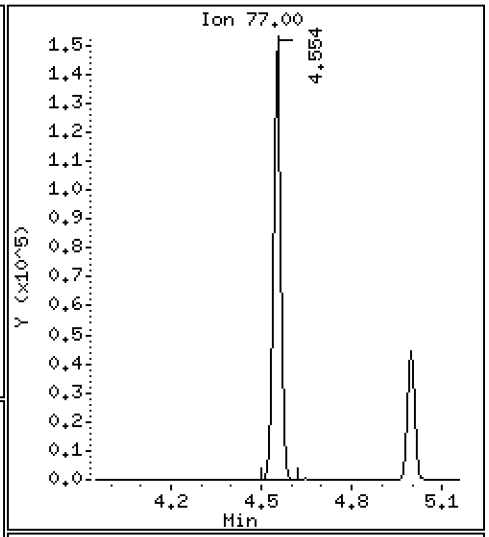
Concentration: 59.341 ug/Kg

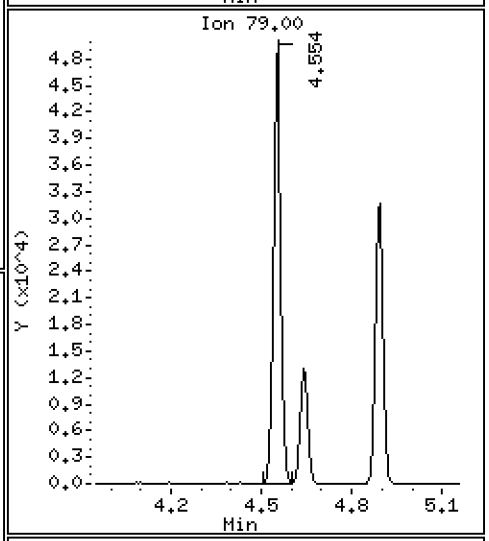


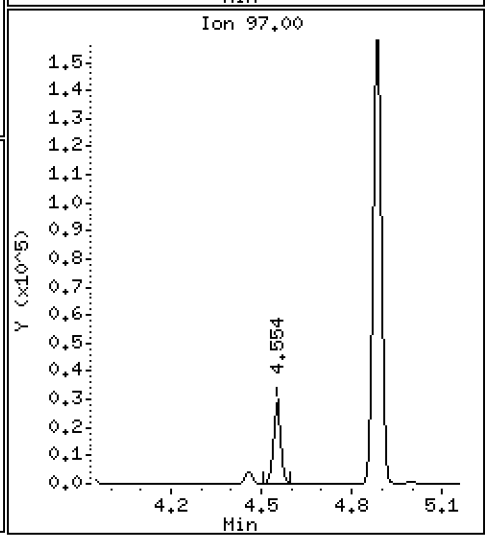












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

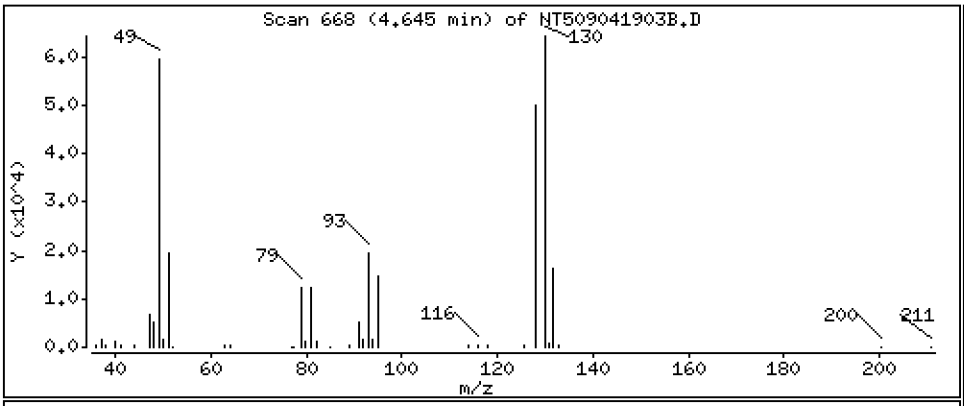
Operator: PB

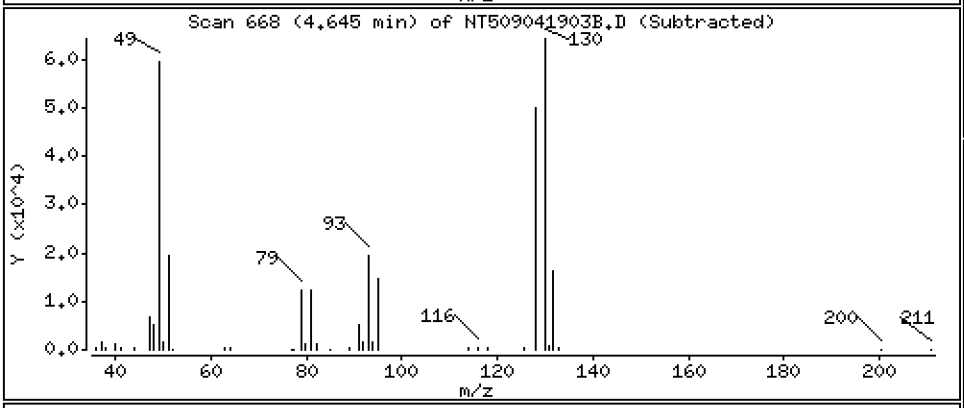
Column phase: RTXVMS

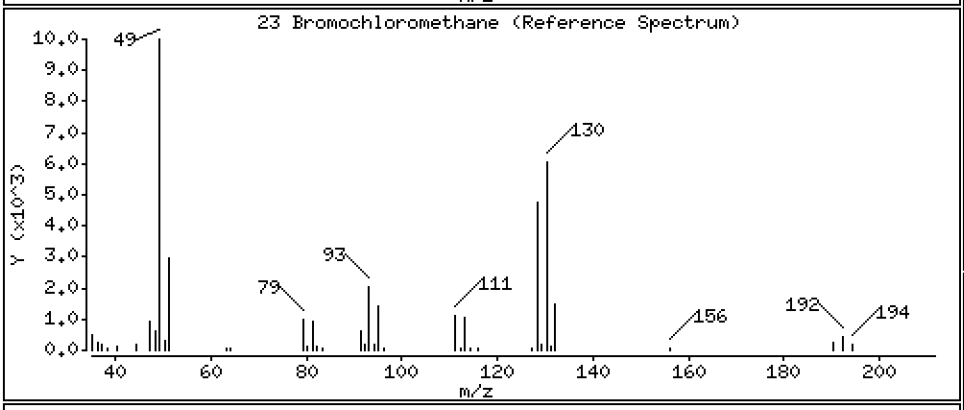
Column diameter: 0.18

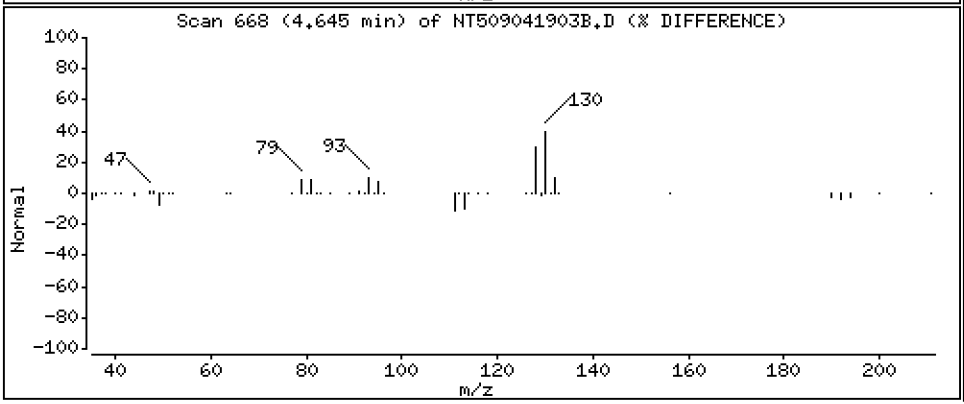
23 Bromochloromethane

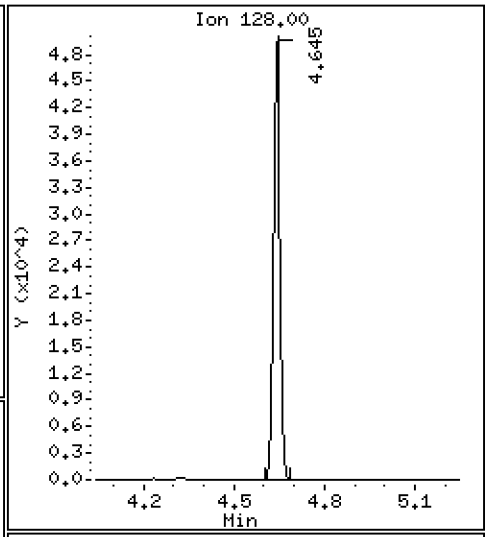
Concentration: 54.897 ug/Kg

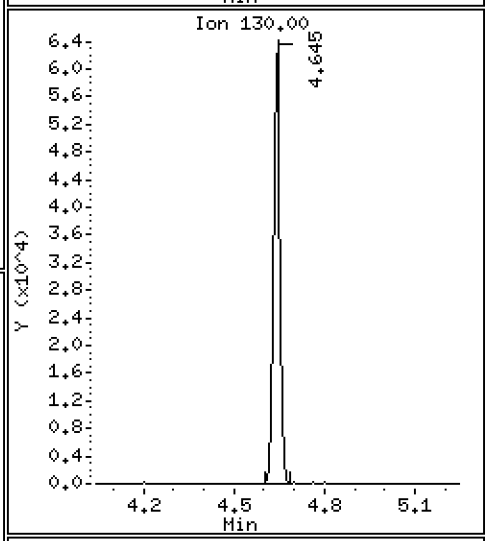


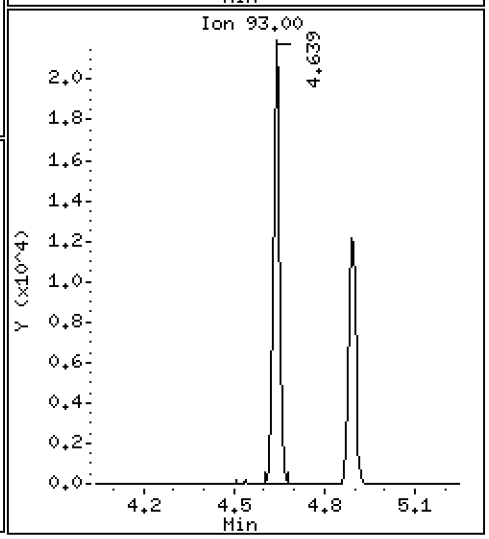












Date : 04-SEP-2019 14:02

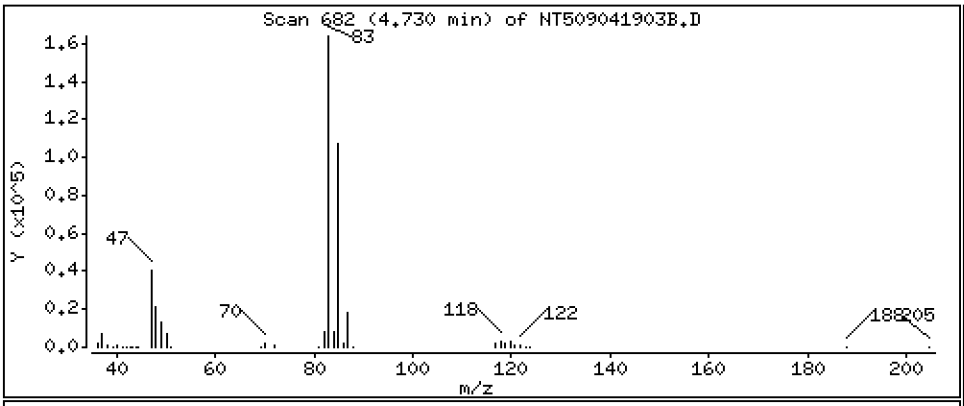
Client ID: Instrument: nt5.i

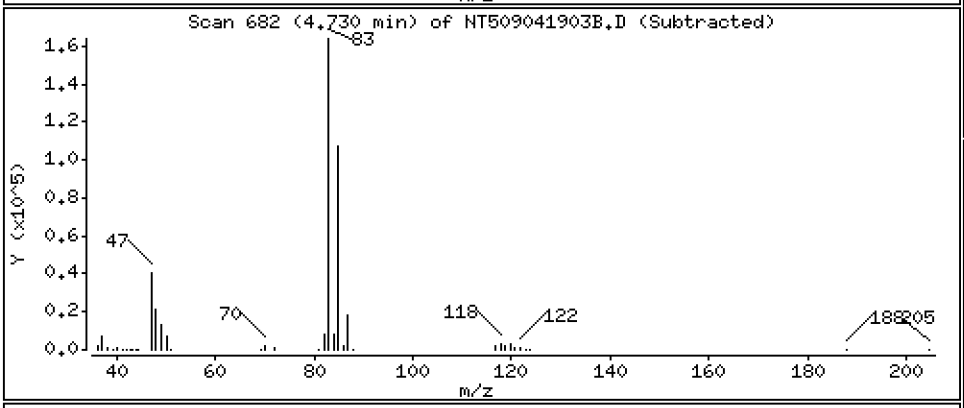
Sample Info: ICV1

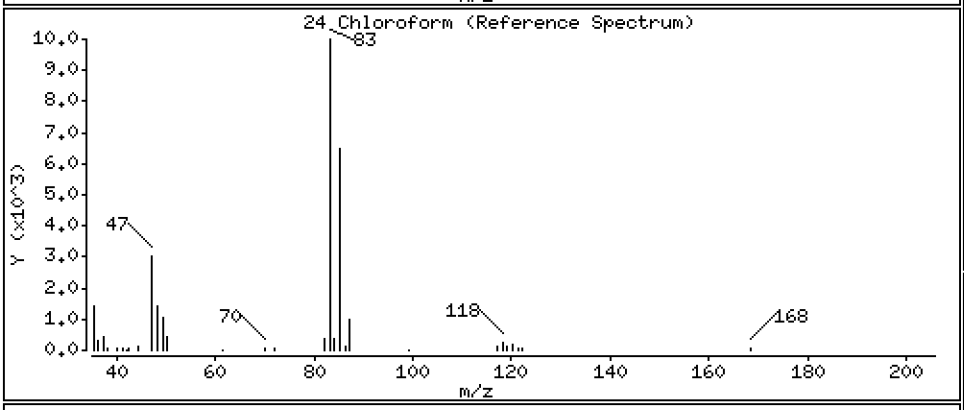
Operator: PB

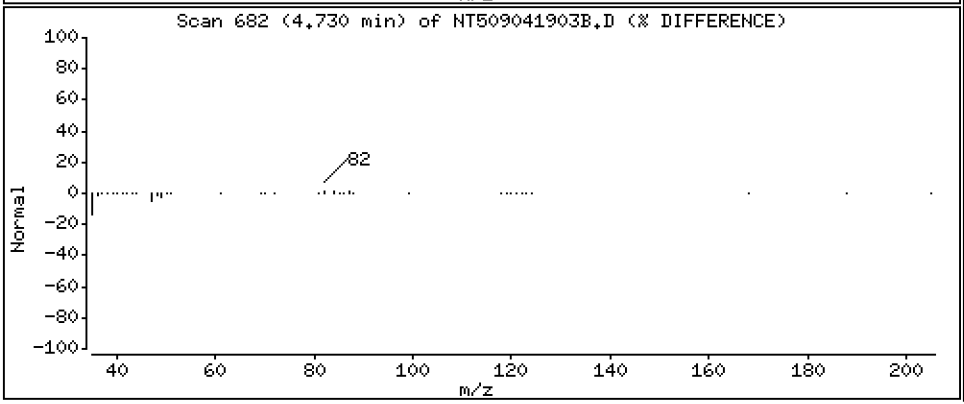
Column phase: RTXVMS Column diameter: 0.18

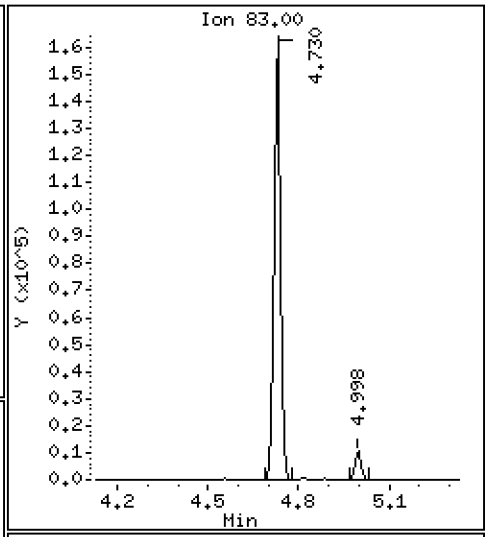
24 Chloroform Concentration: 55.217 ug/Kg

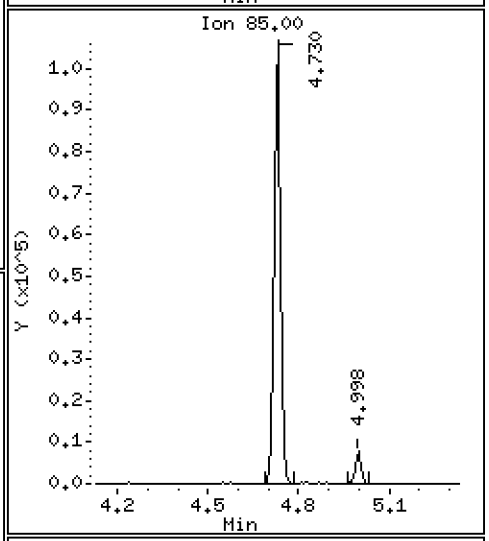


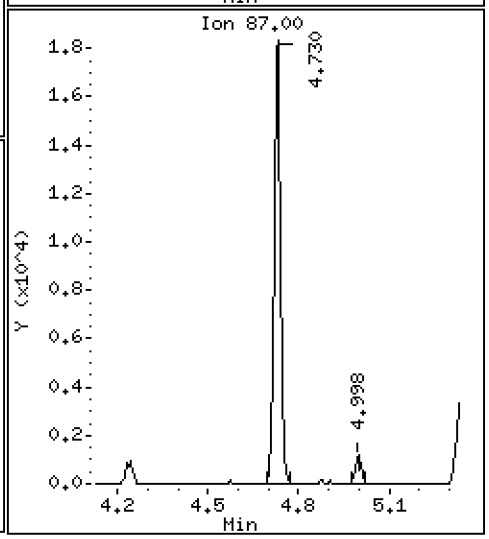












Date : 04-SEP-2019 14:02

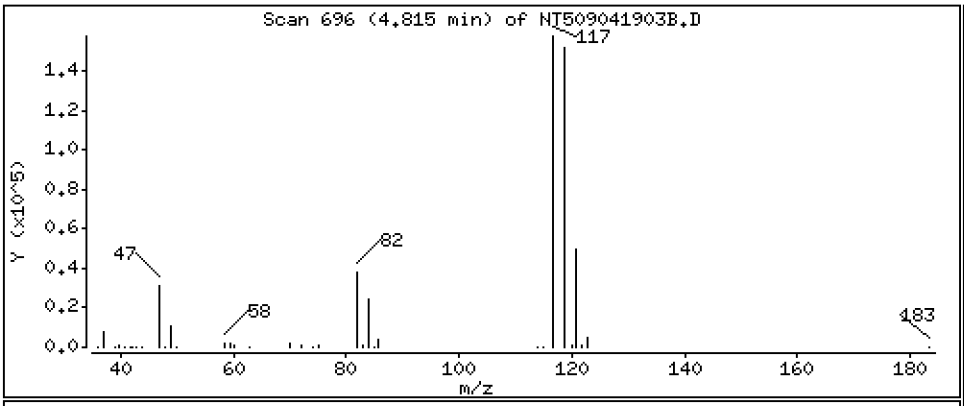
Client ID: Instrument: nt5.i

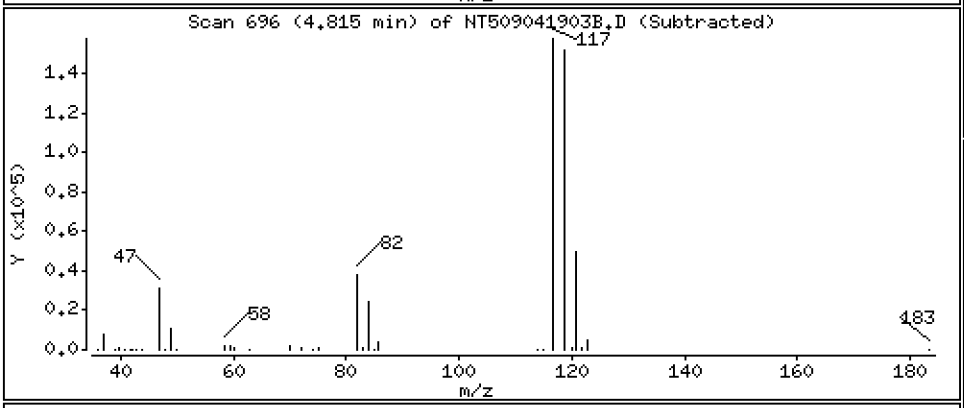
Sample Info: ICV1

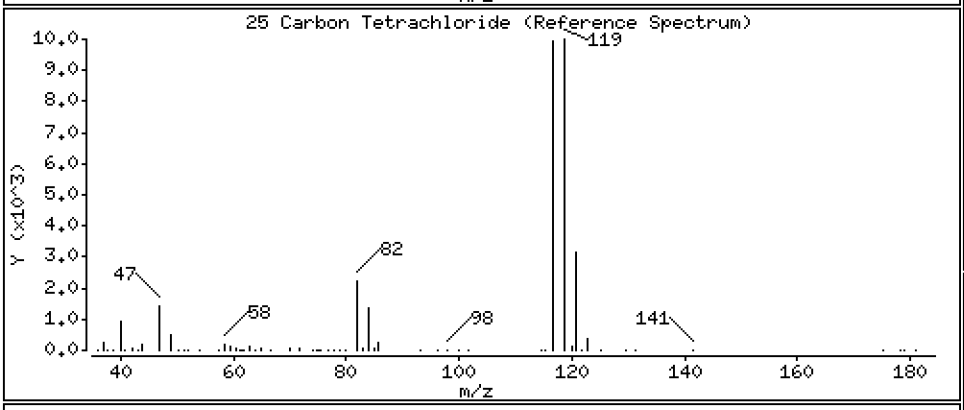
Operator: PB

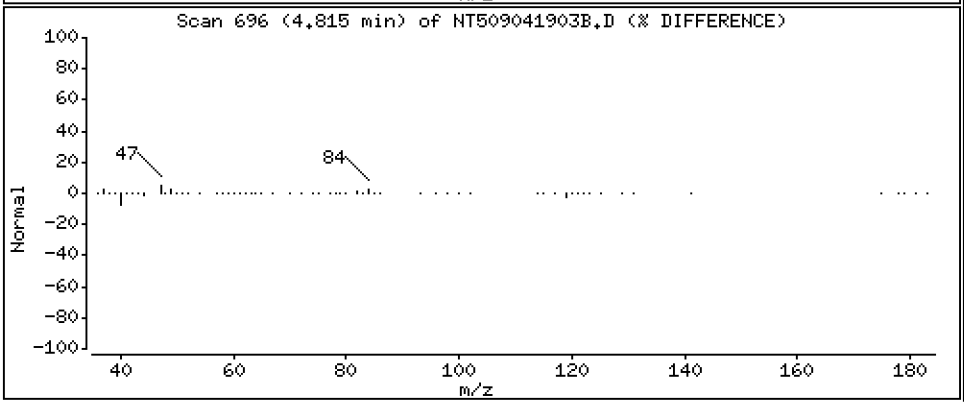
Column phase: RTXVMS Column diameter: 0.18

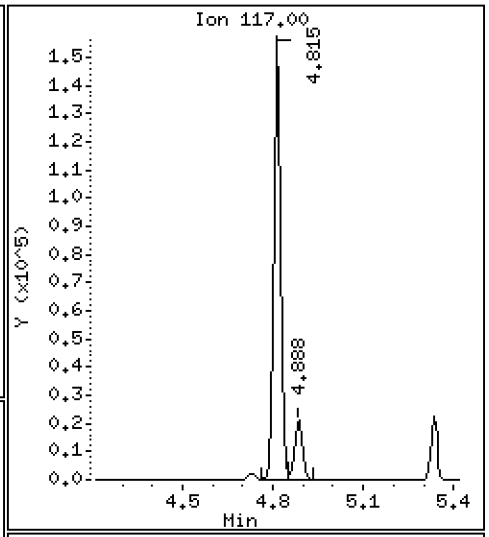
25 Carbon Tetrachloride Concentration: 48.273 ug/Kg

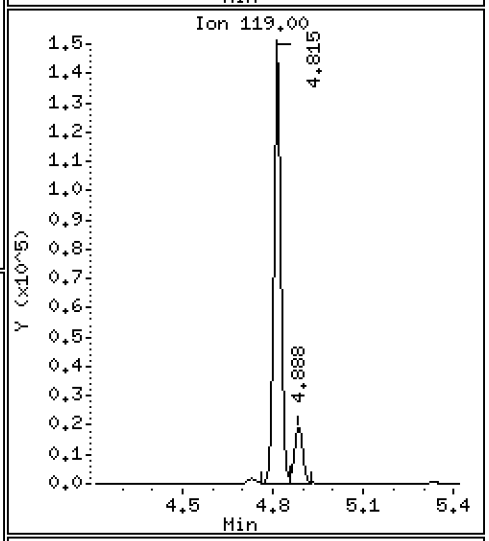


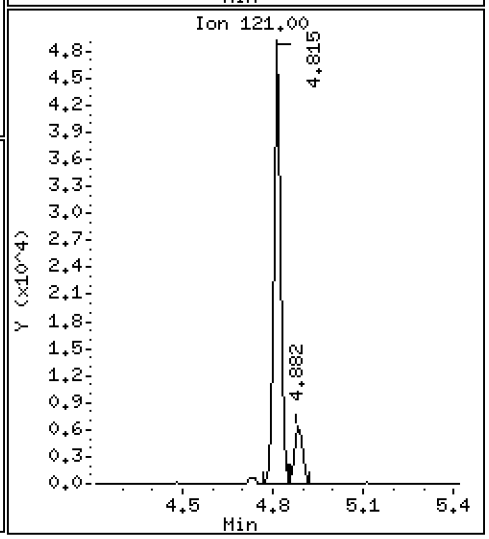












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

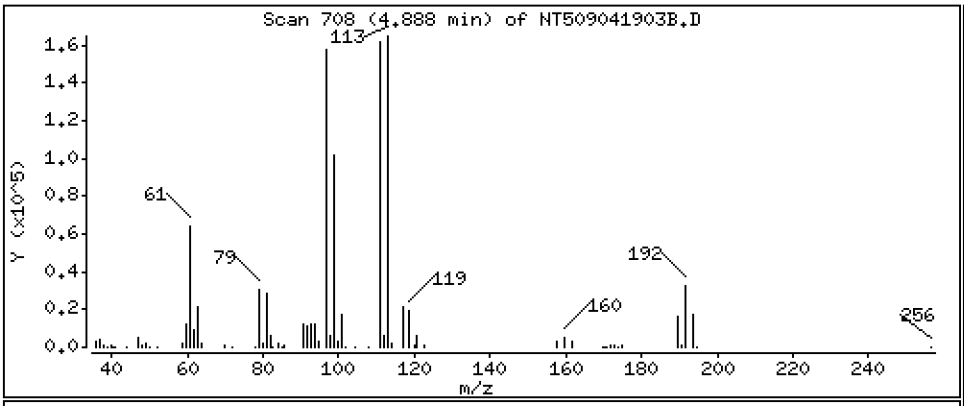
Operator: PB

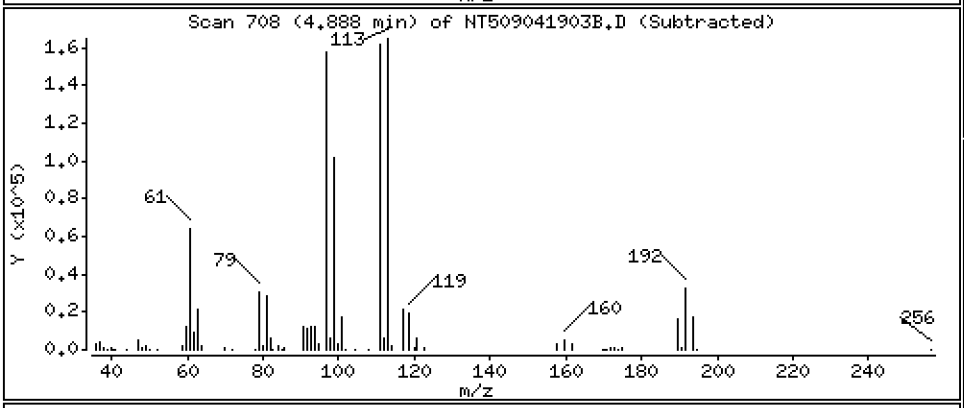
Column phase: RTXVMS

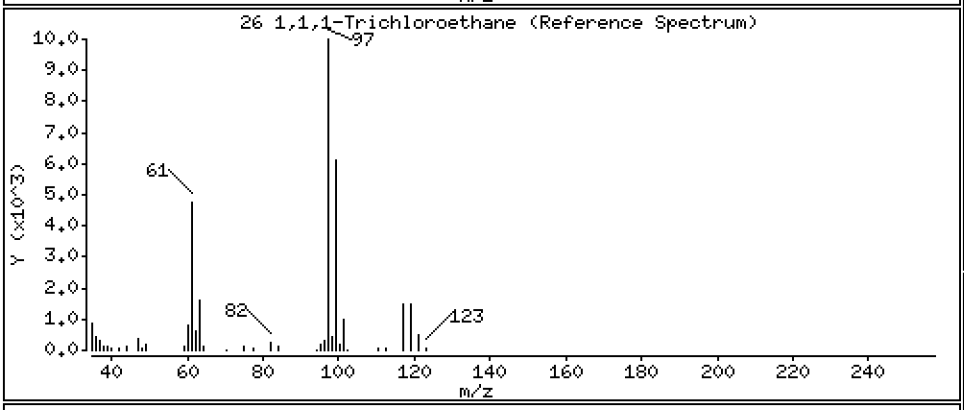
Column diameter: 0.18

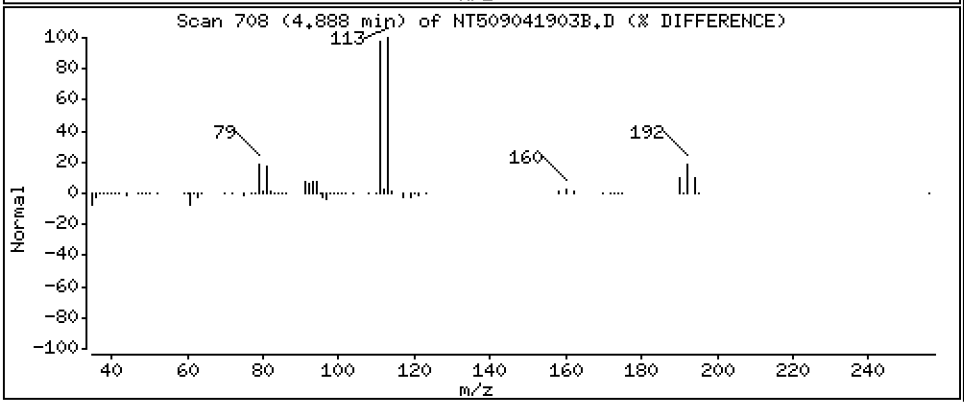
26 1,1,1-Trichloroethane

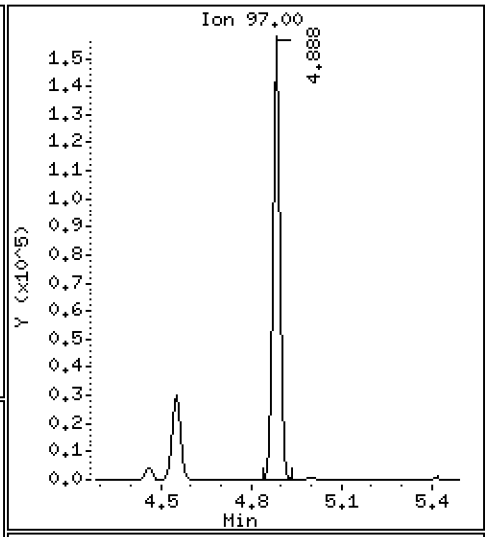
Concentration: 56.097 ug/Kg

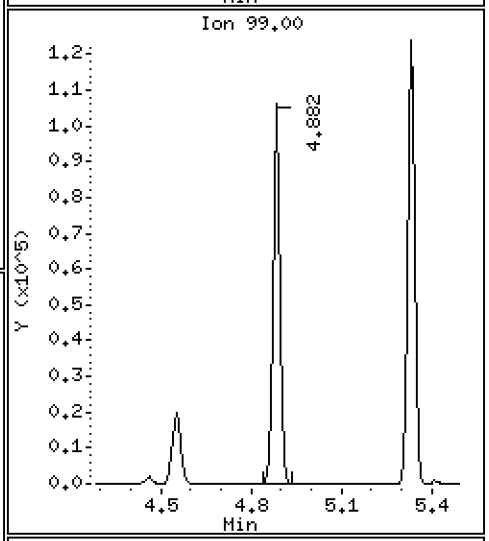


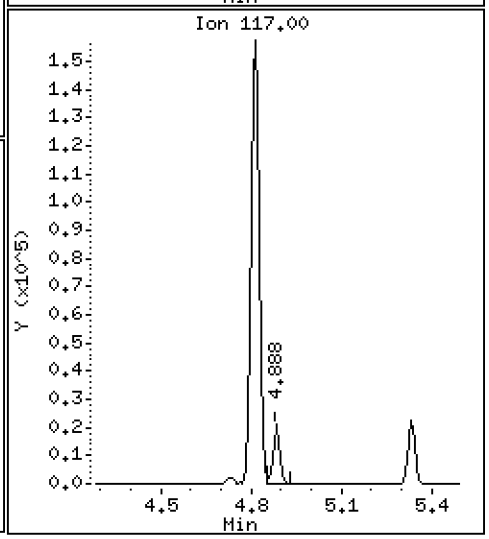












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

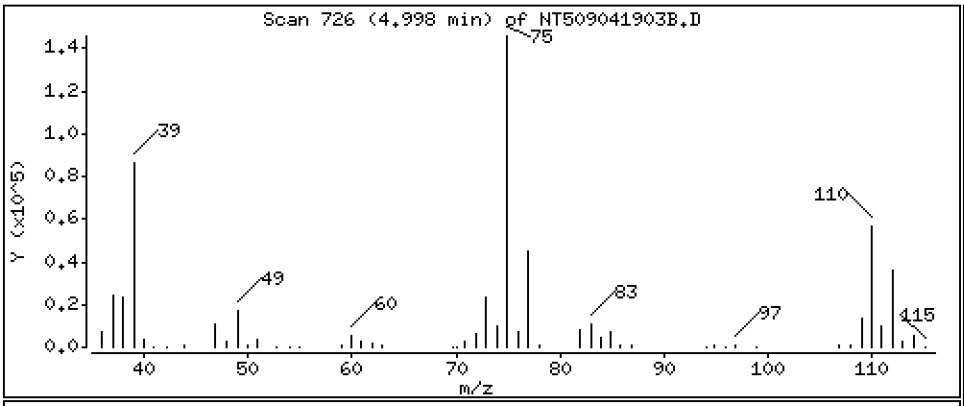
Operator: PB

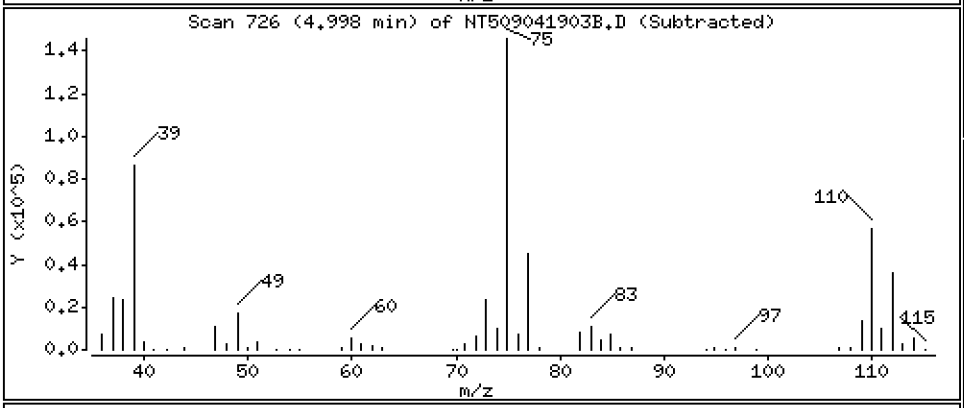
Column phase: RTXVMS

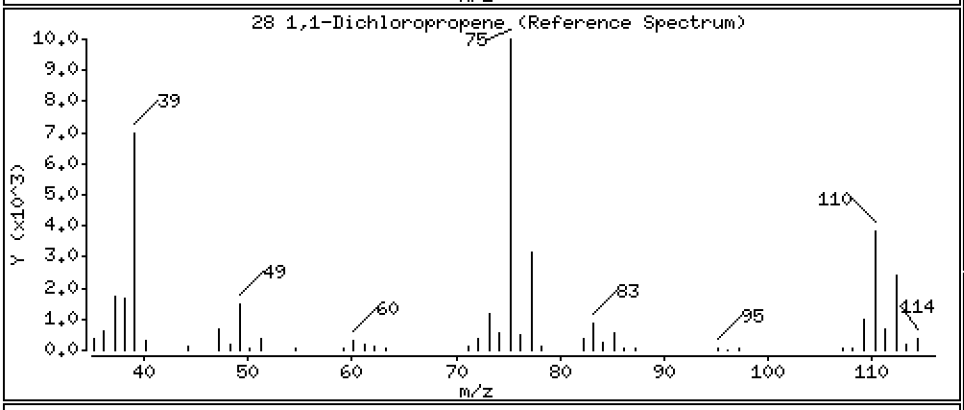
Column diameter: 0.18

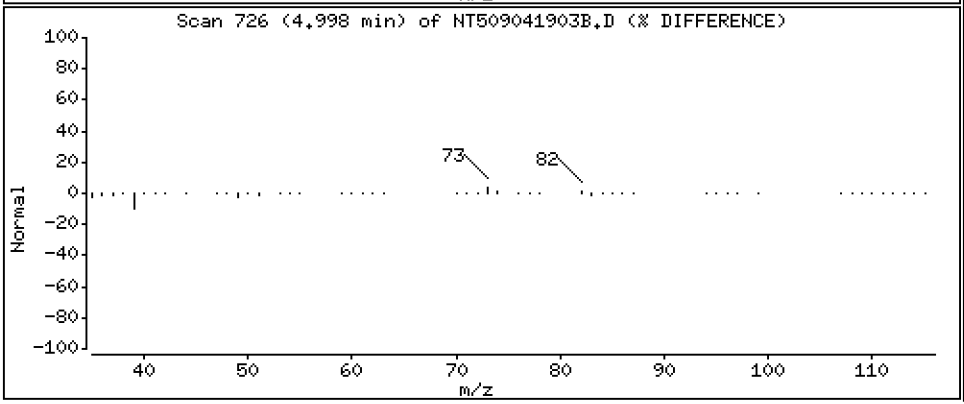
28 1,1-Dichloropropene

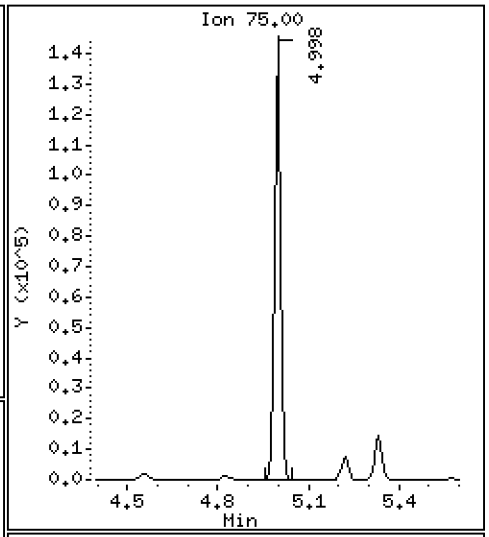
Concentration: 50.017 ug/Kg

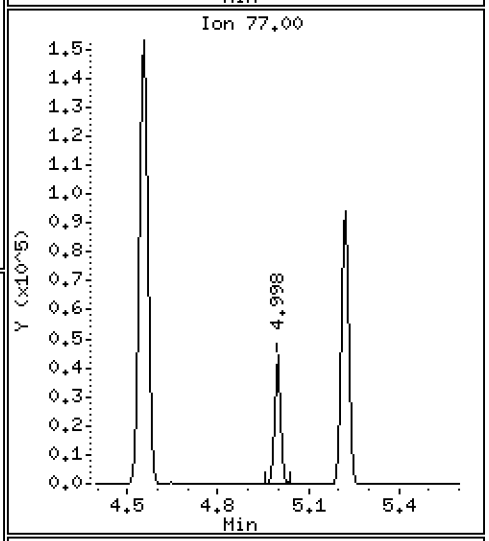


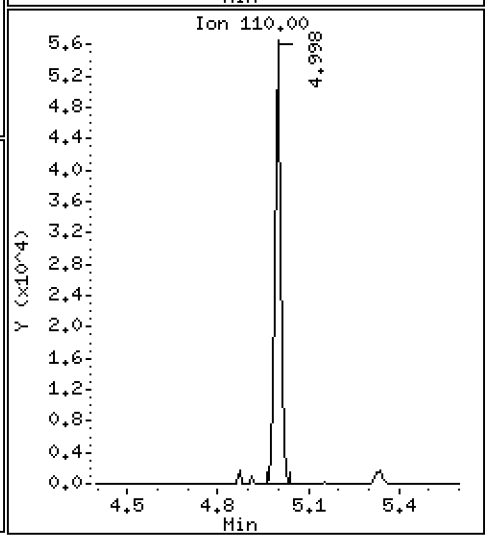












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

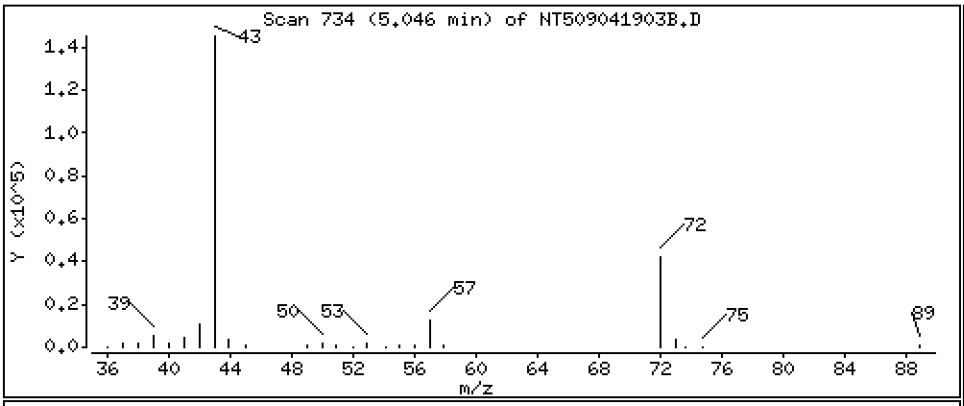
Operator: PB

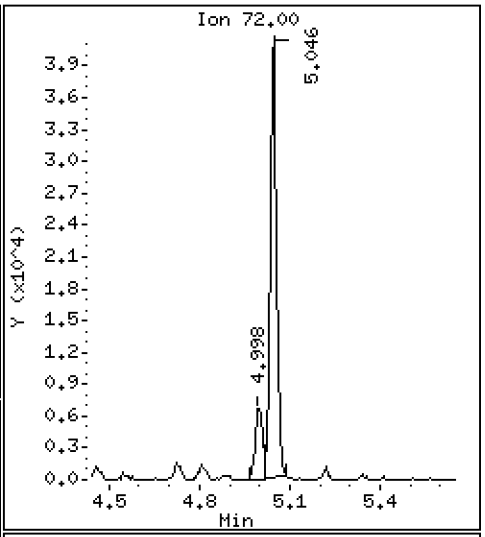
Column phase: RTXVMS

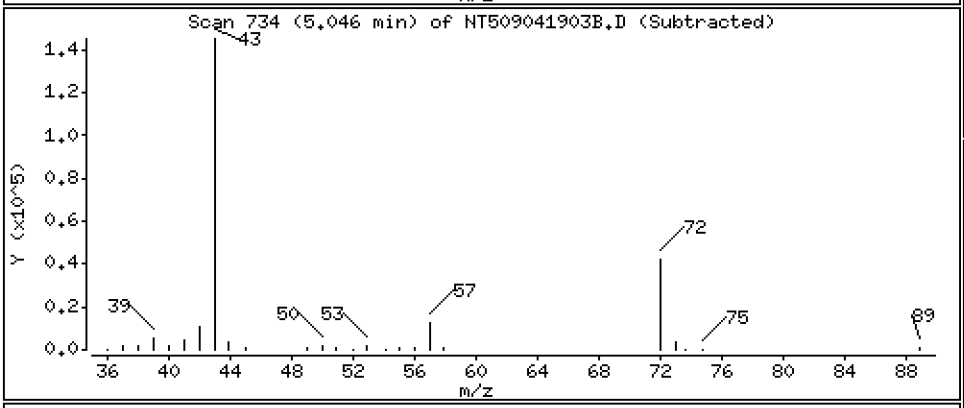
Column diameter: 0.18

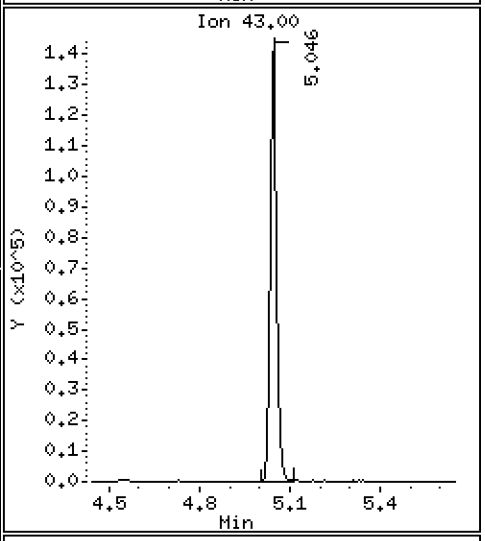
29 2-Butanone

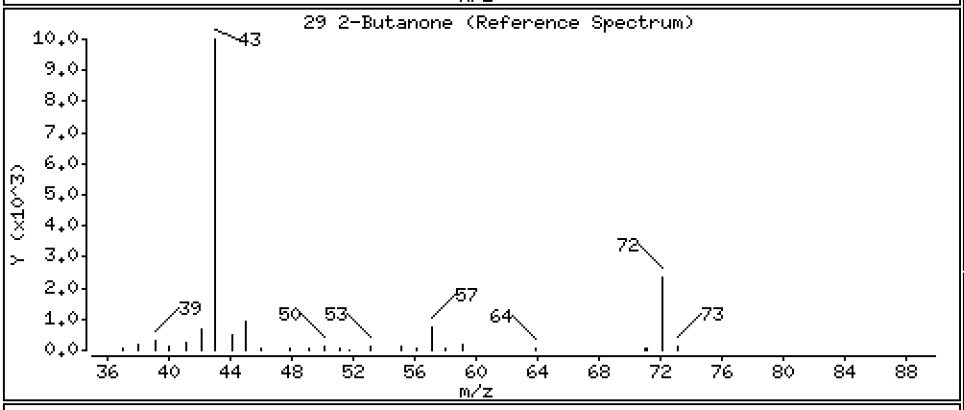
Concentration: 285.08 ug/Kg

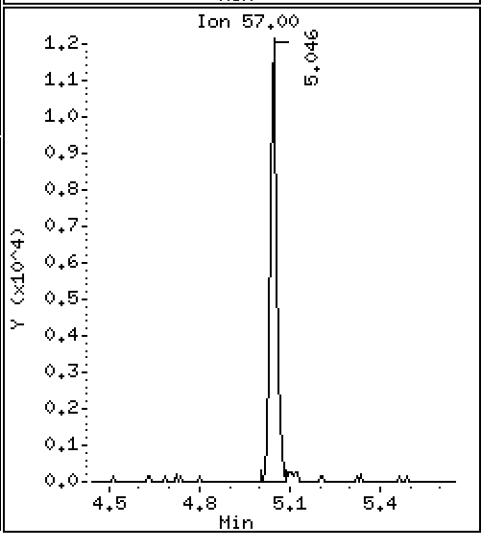


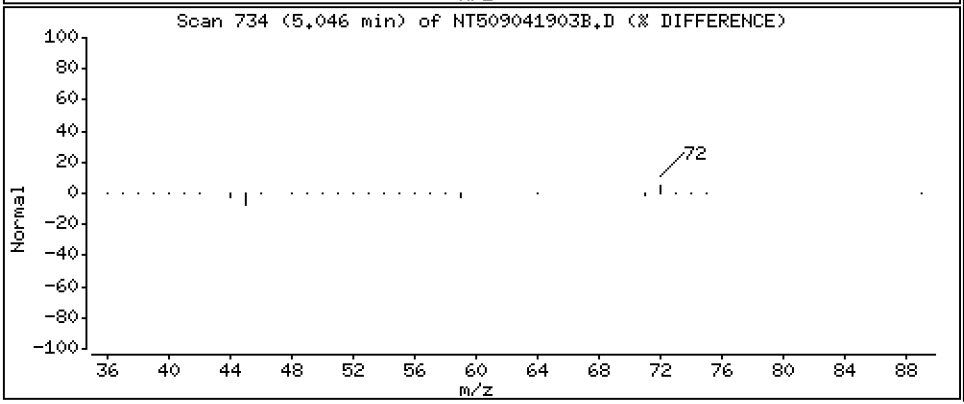












Date : 04-SEP-2019 14:02

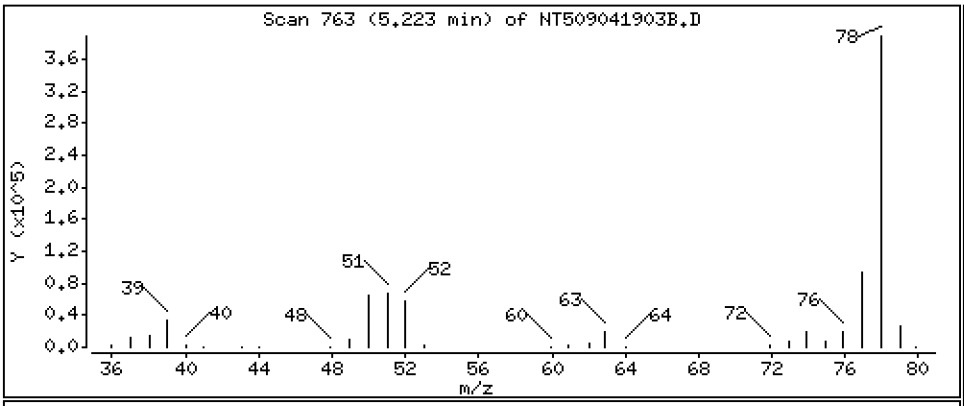
Client ID: Instrument: nt5.i

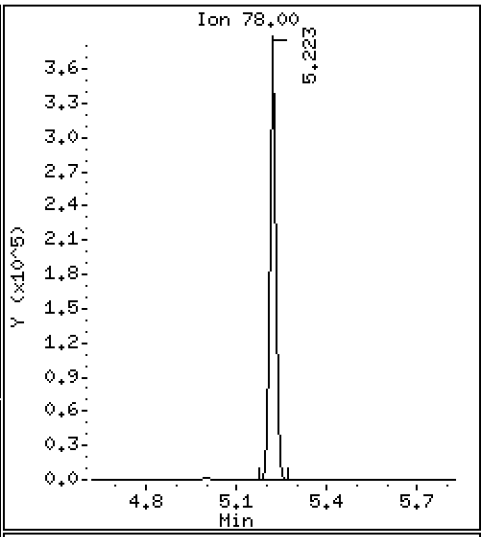
Sample Info: ICV1

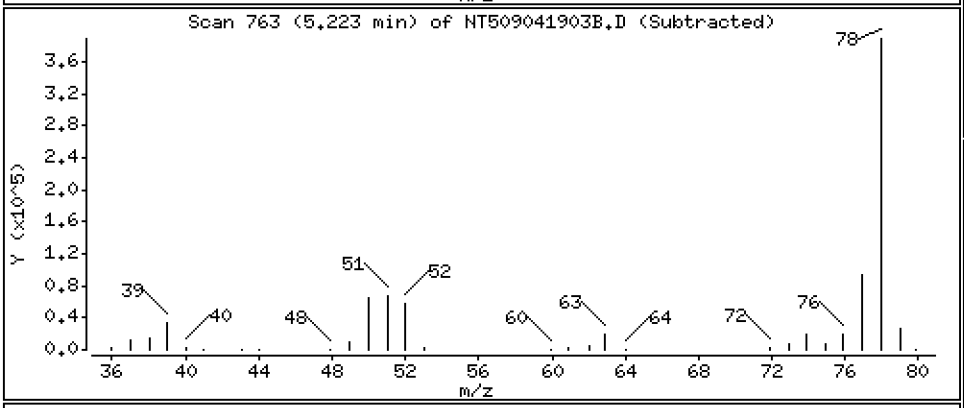
Operator: PB

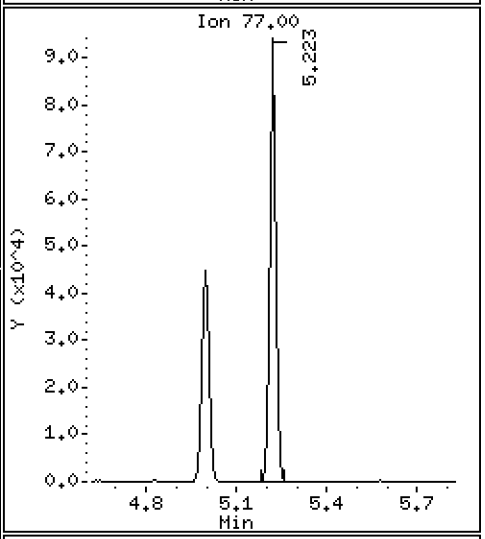
Column phase: RTXVMS Column diameter: 0.18

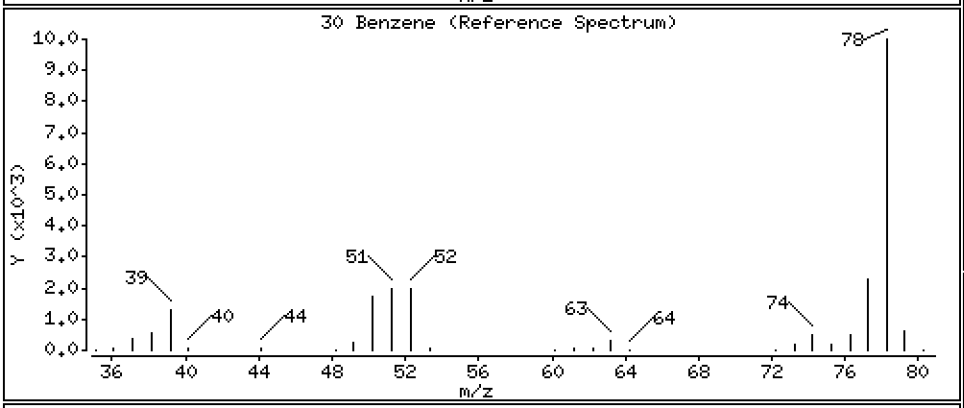
30 Benzene Concentration: 47.627 ug/Kg

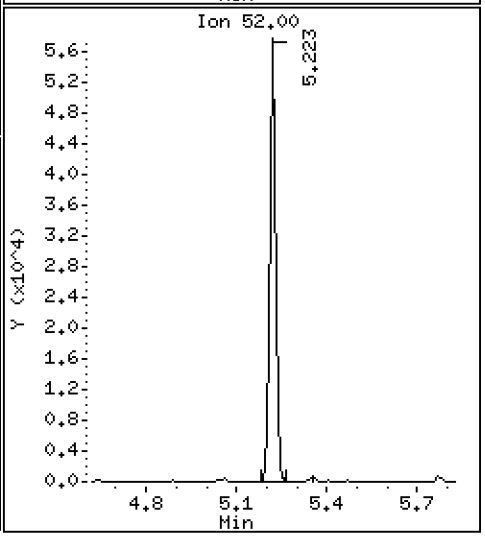


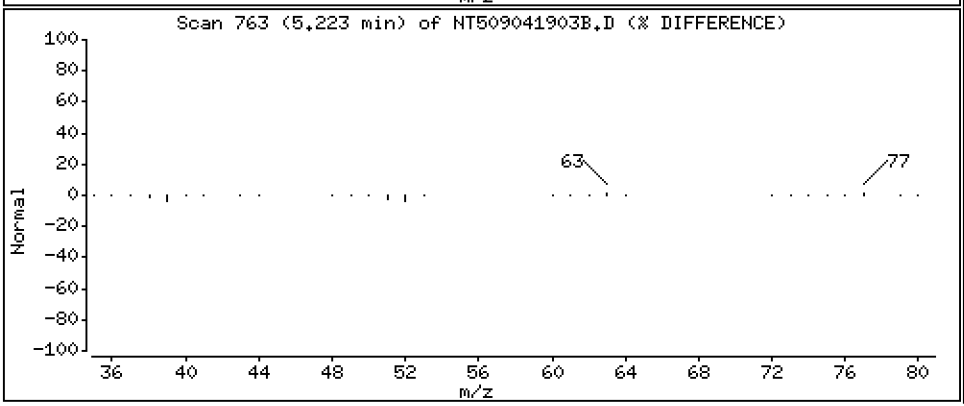












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

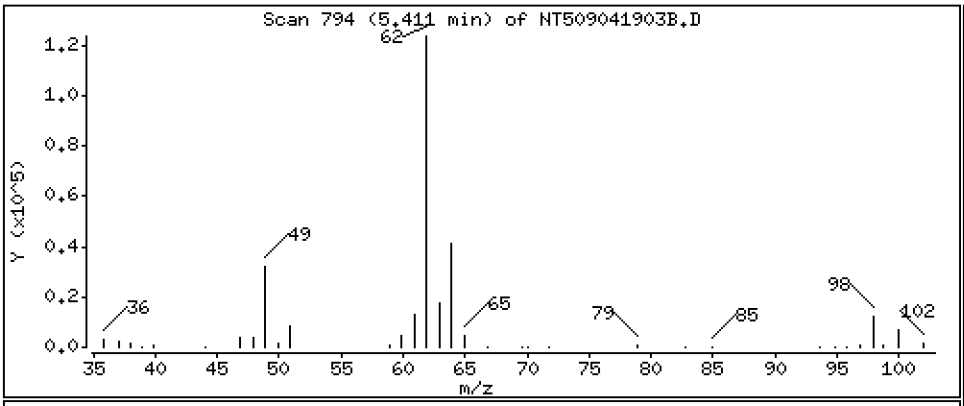
Operator: PB

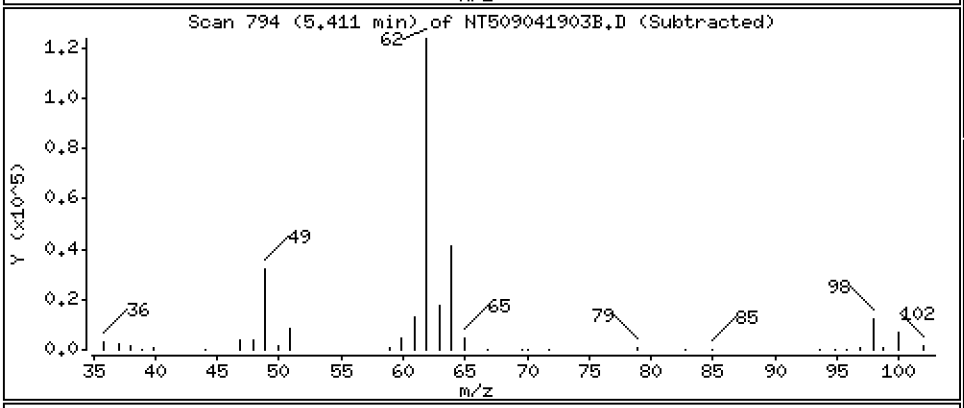
Column phase: RTXVMS

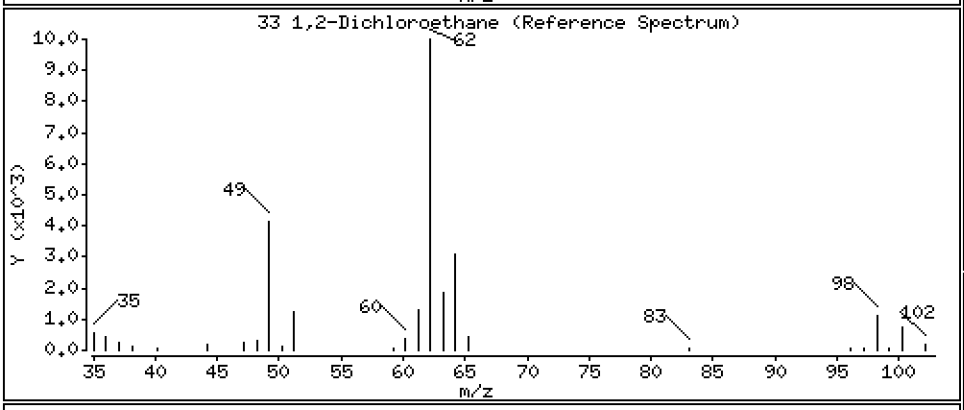
Column diameter: 0.18

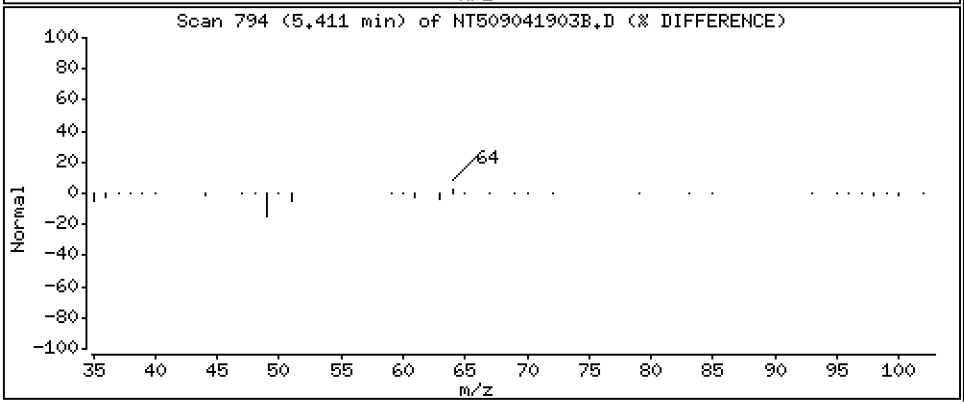
33 1,2-Dichloroethane

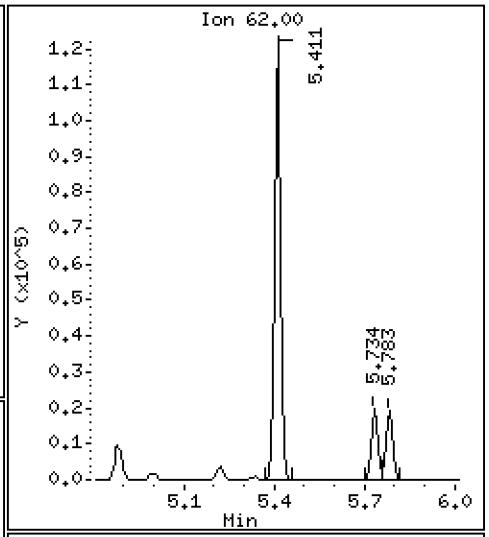
Concentration: 43.280 ug/Kg

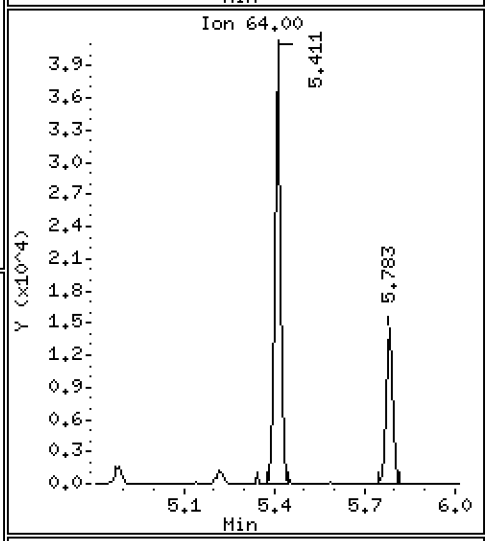


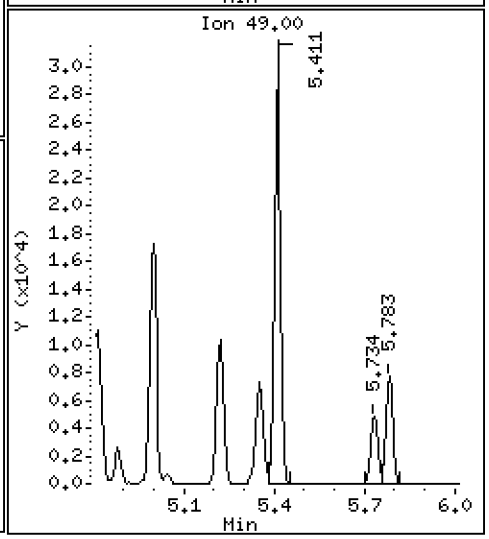












Date : 04-SEP-2019 14:02

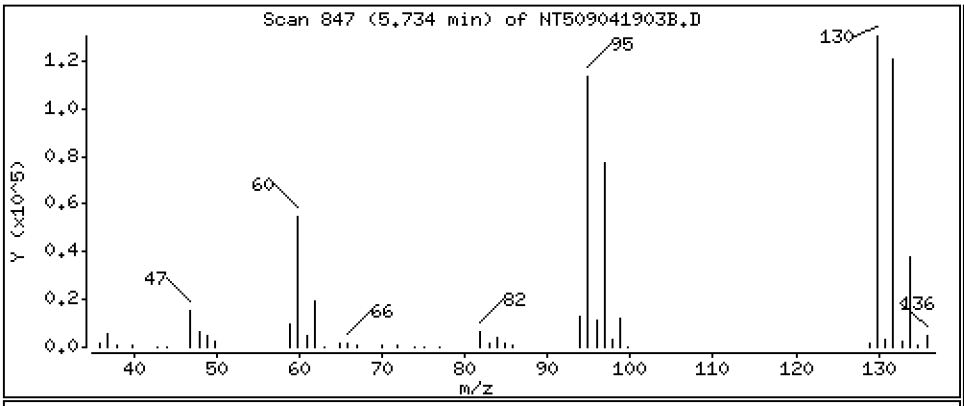
Client ID: Instrument: nt5.i

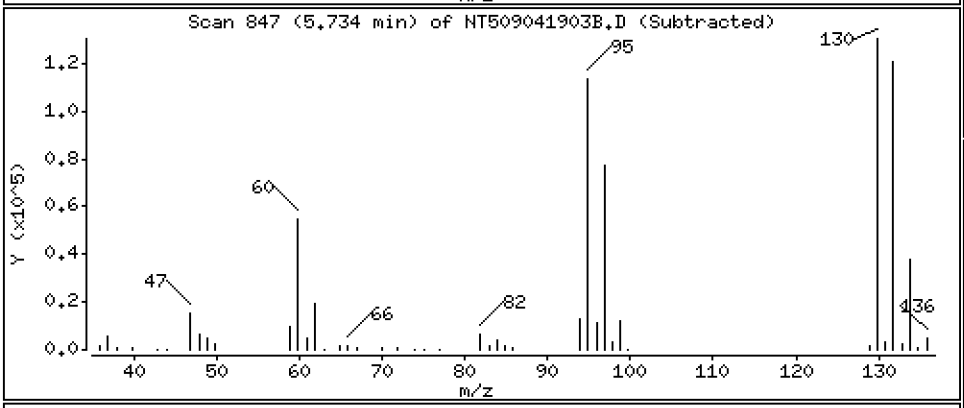
Sample Info: ICV1

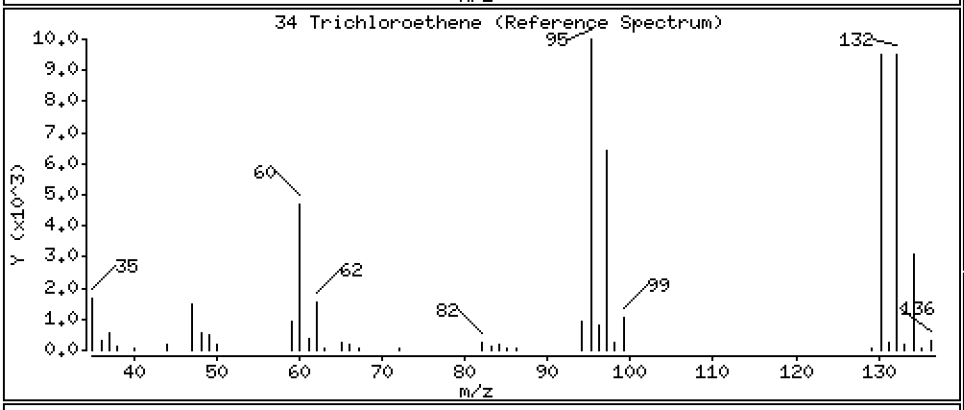
Operator: PB

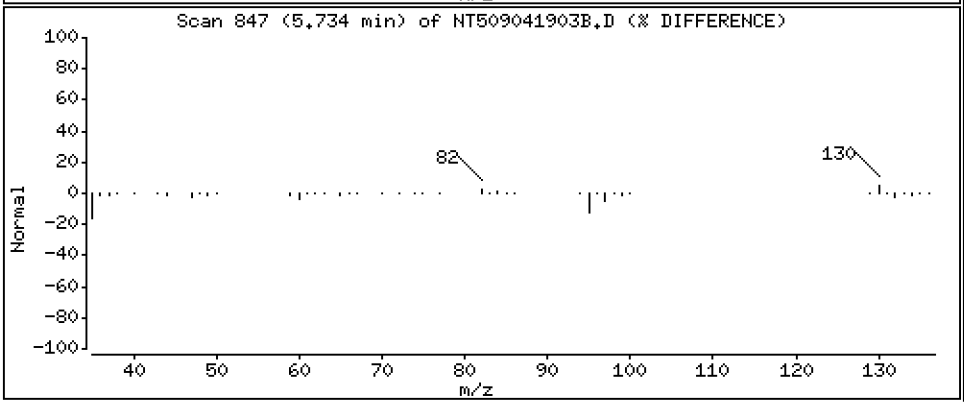
Column phase: RTXVMS Column diameter: 0.18

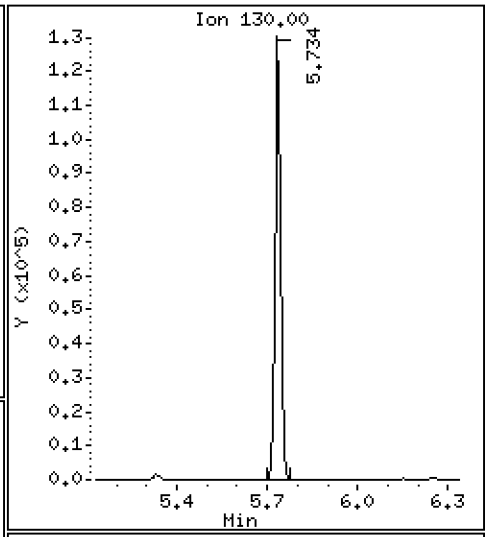
34 Trichloroethene Concentration: 48.542 ug/Kg

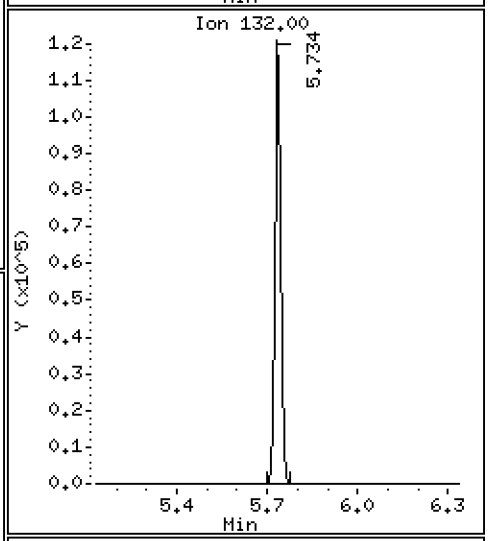


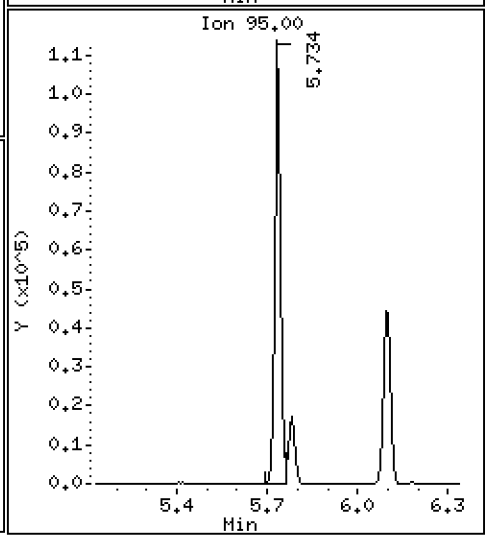












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

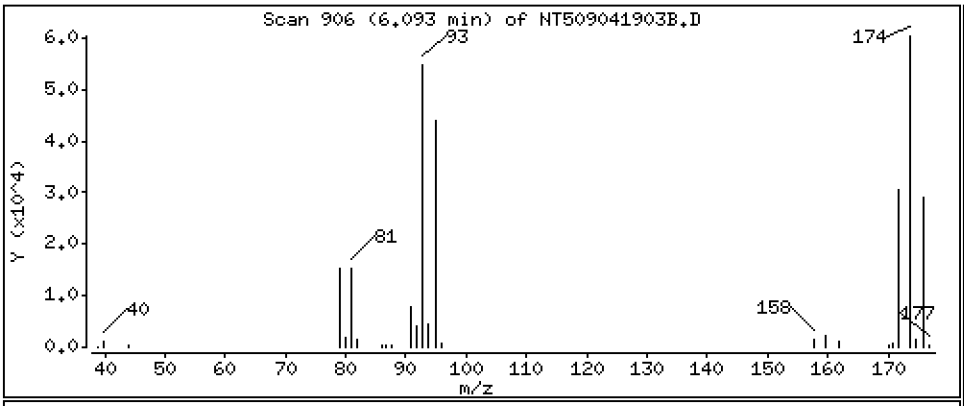
Operator: PB

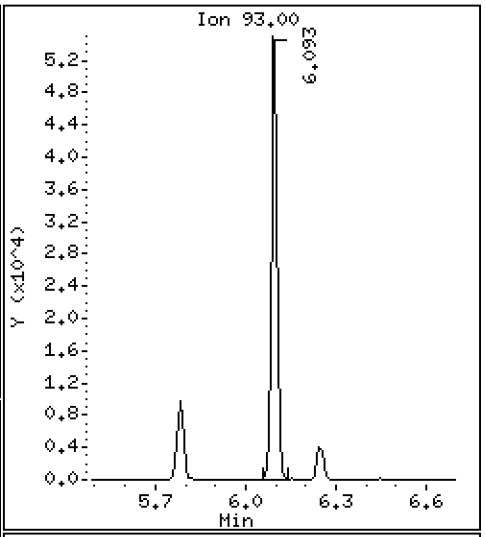
Column phase: RTXVMS

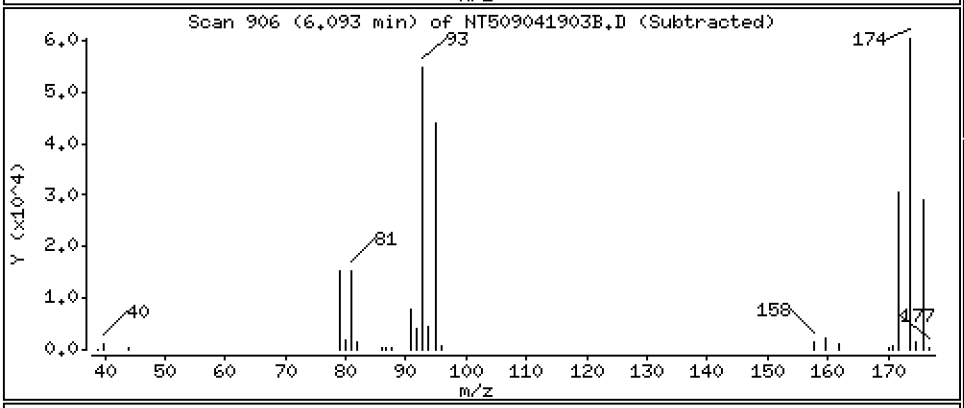
Column diameter: 0.18

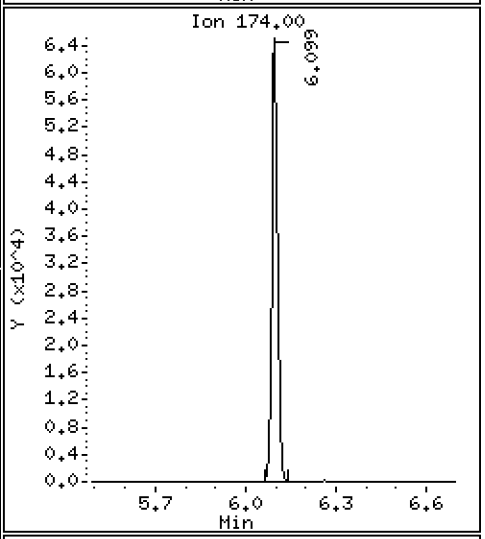
37 Dibromomethane

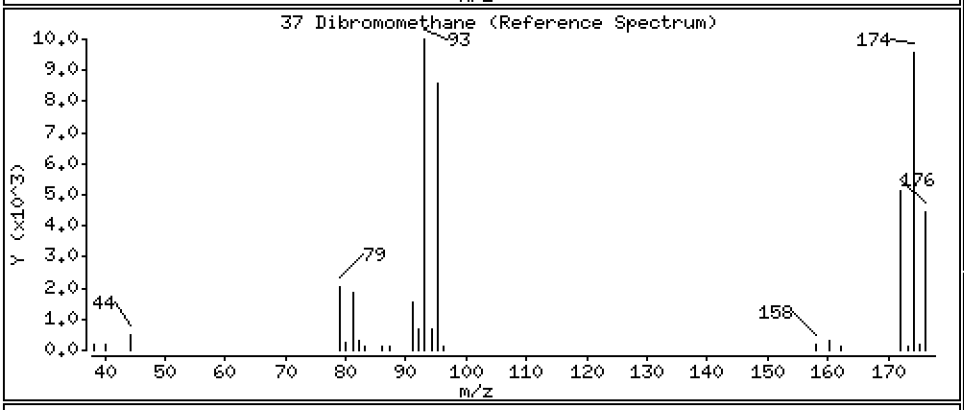
Concentration: 44.703 ug/Kg

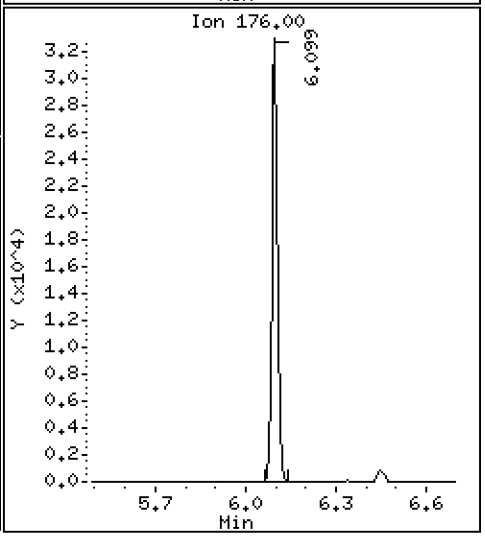


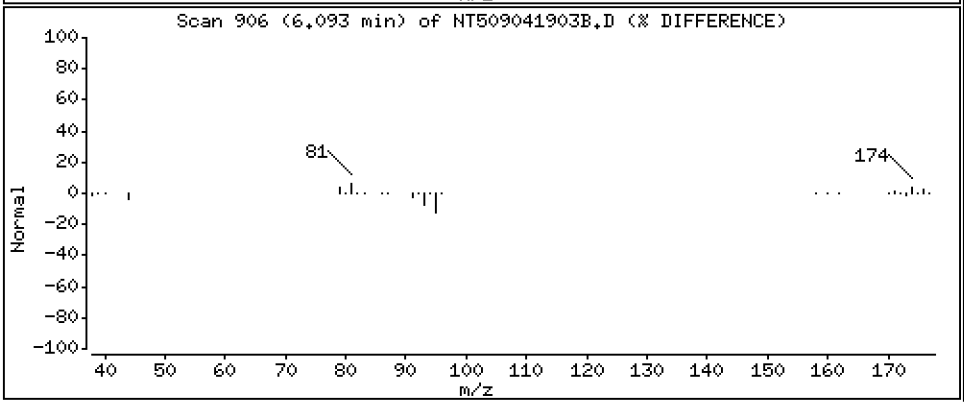












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

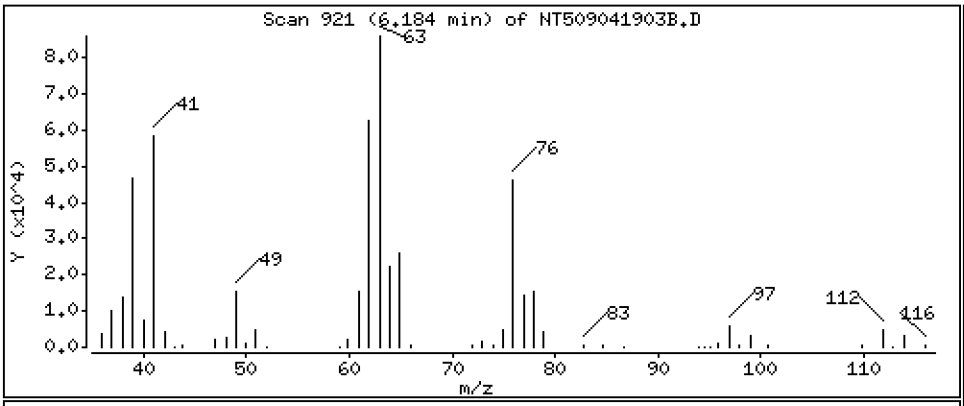
Operator: PB

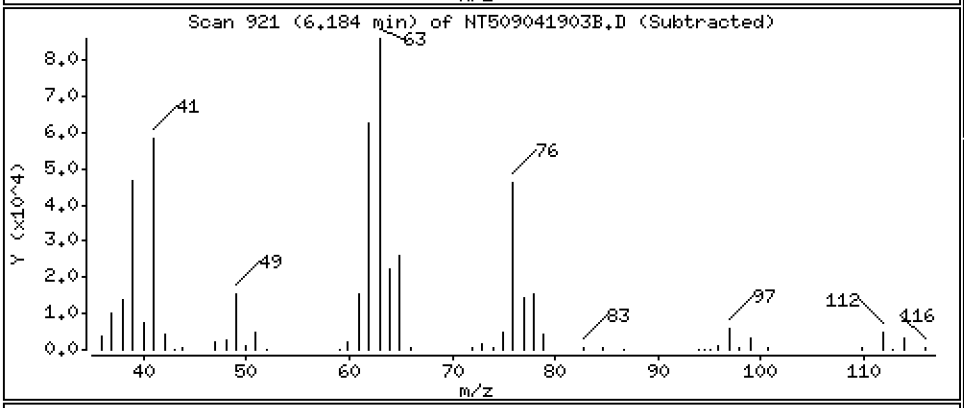
Column phase: RTXVMS

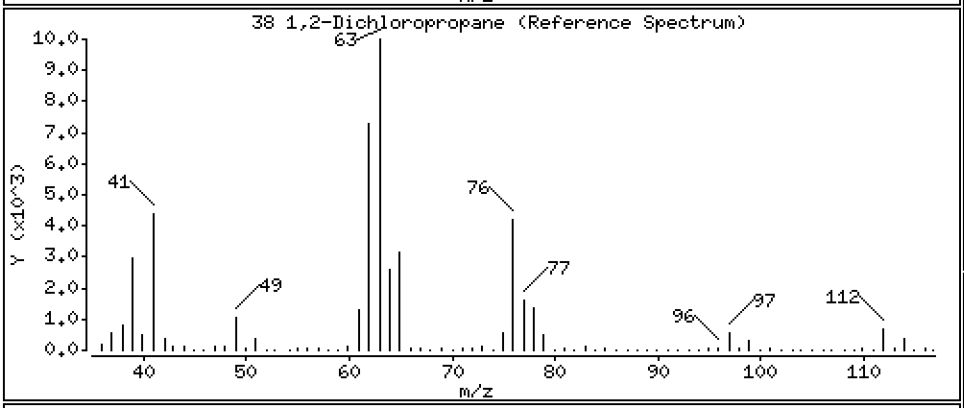
Column diameter: 0.18

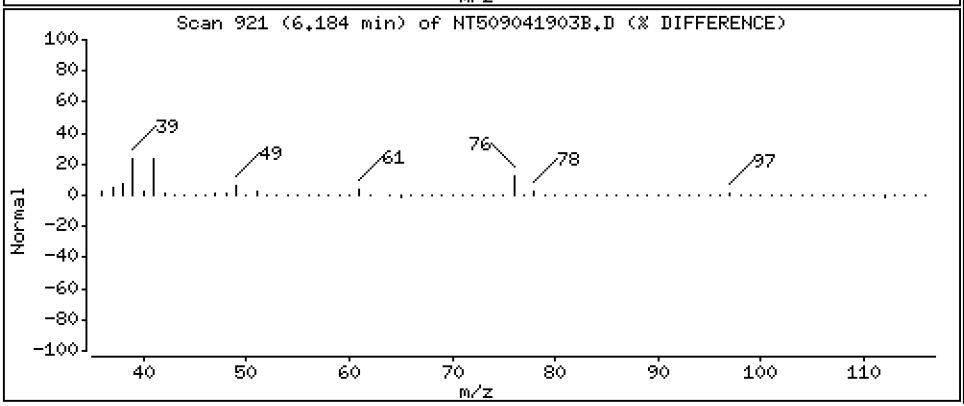
38 1,2-Dichloropropane

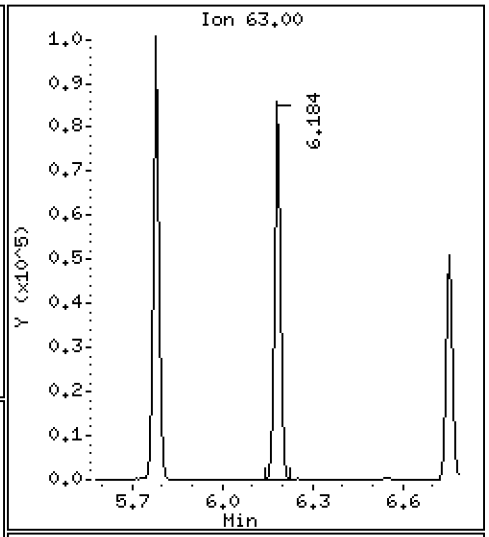
Concentration: 45.627 ug/Kg

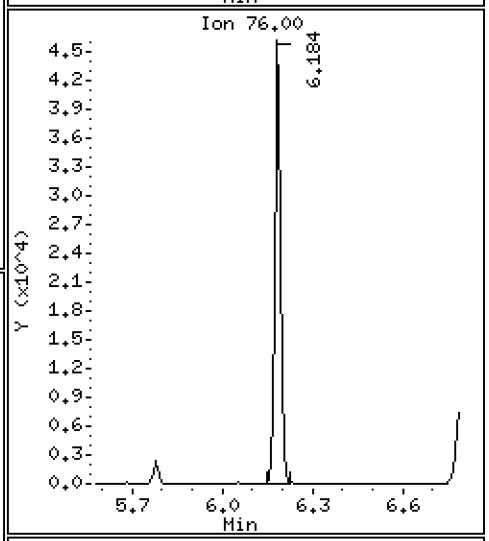


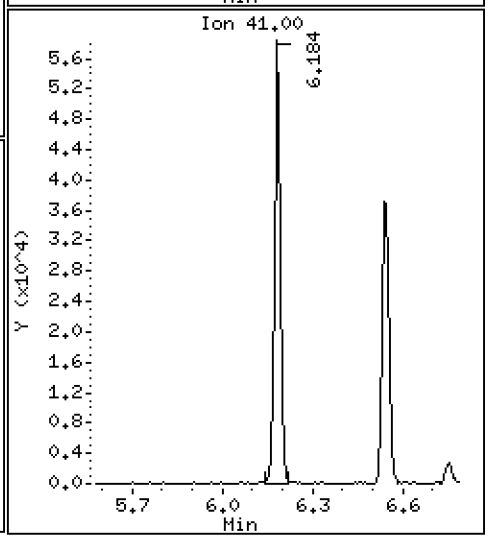












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

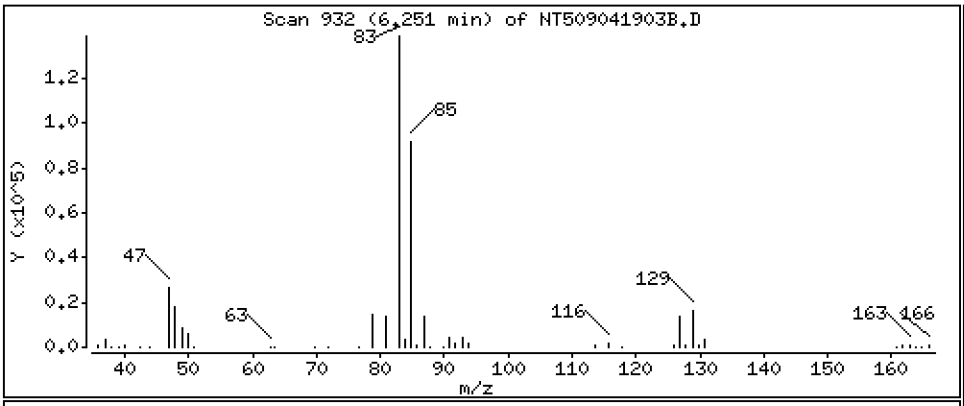
Operator: PB

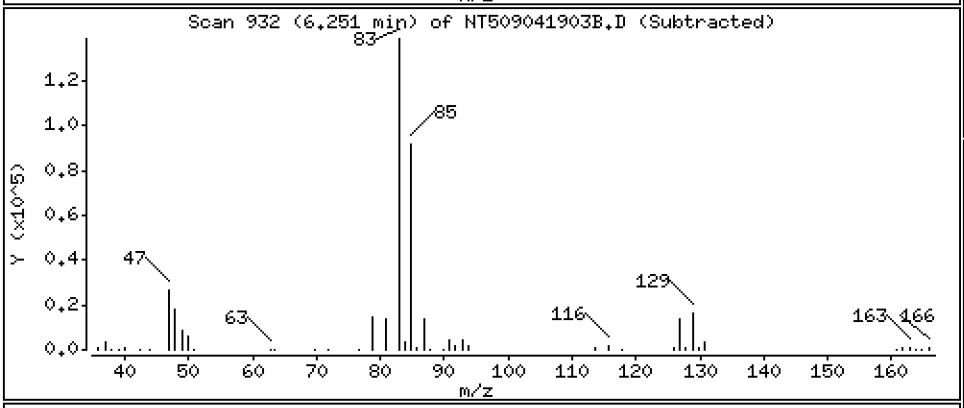
Column phase: RTXVMS

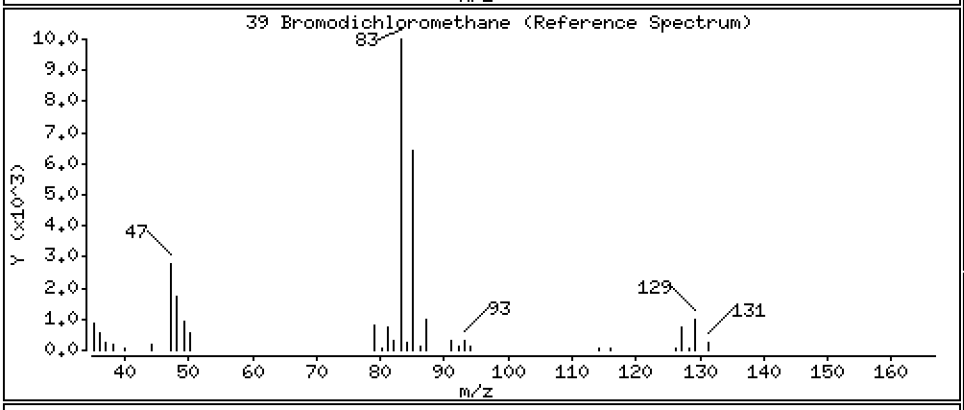
Column diameter: 0.18

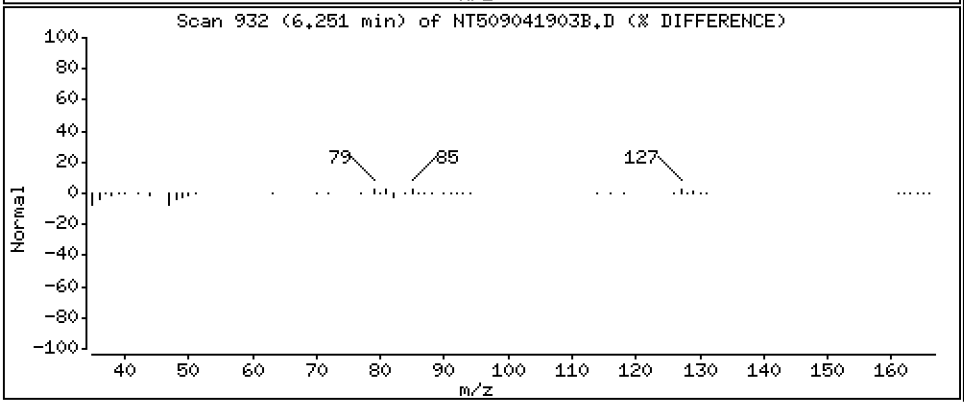
39 Bromodichloromethane

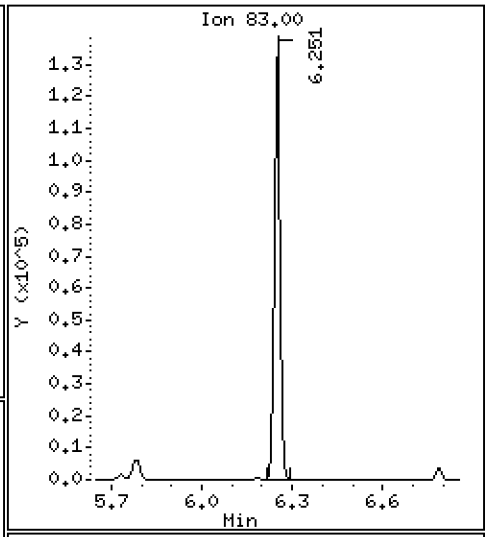
Concentration: 45.083 ug/Kg

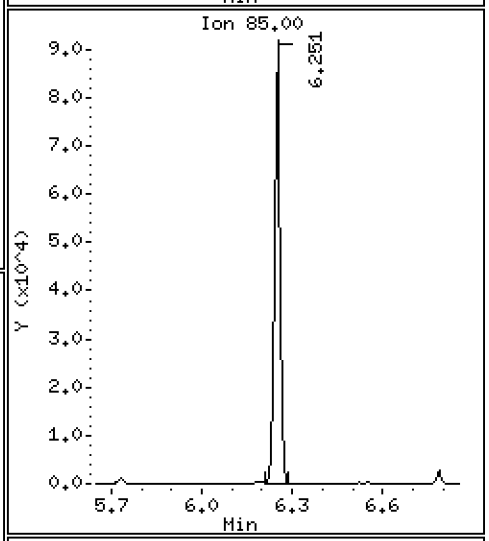


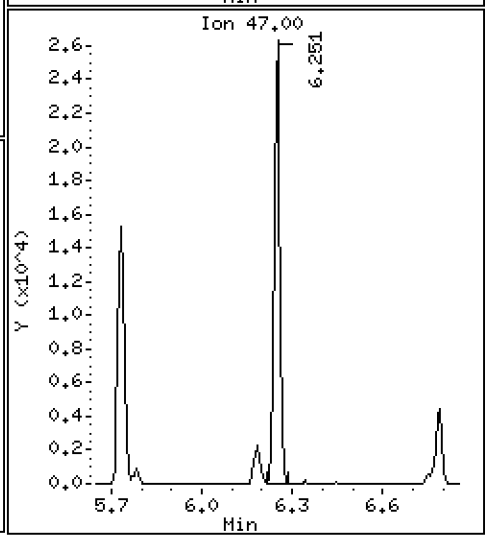












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

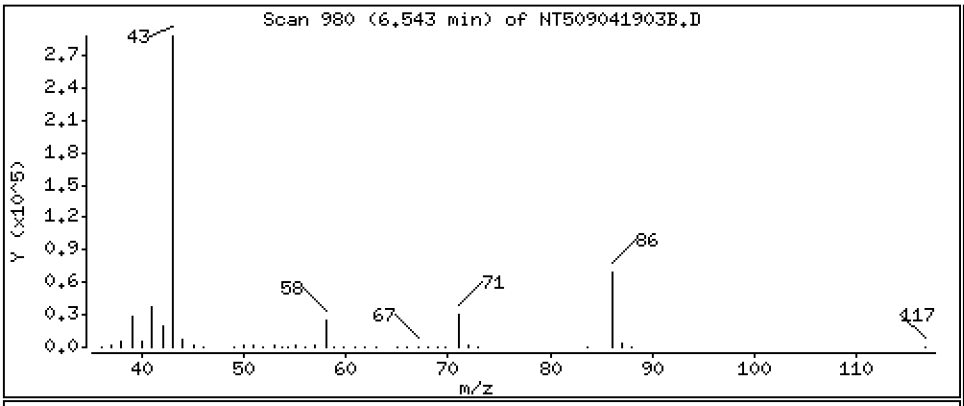
Operator: PB

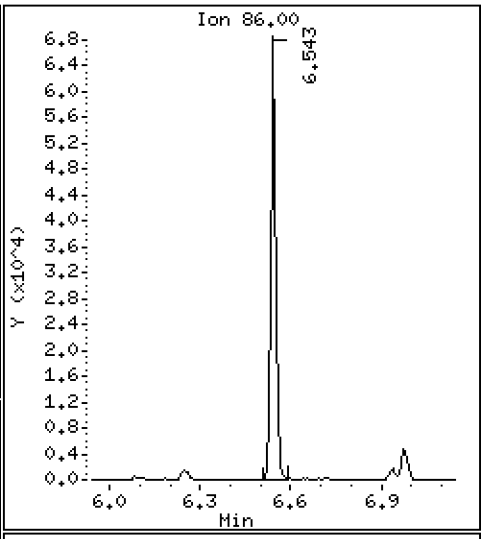
Column phase: RTXVMS

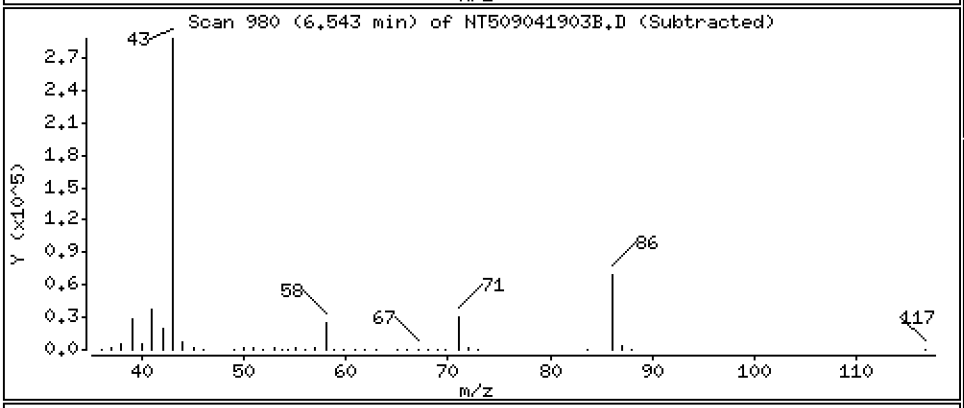
Column diameter: 0.18

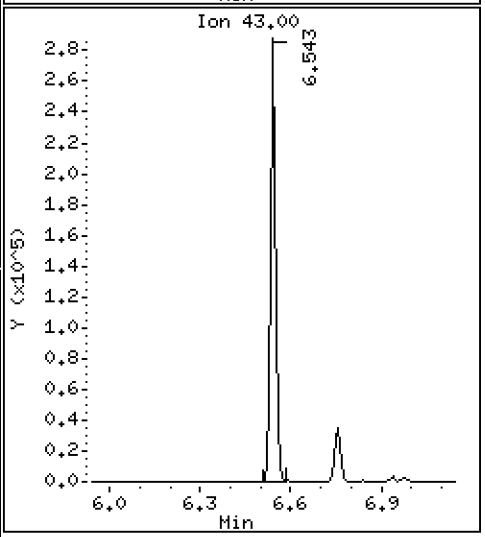
172 2-Pentanone

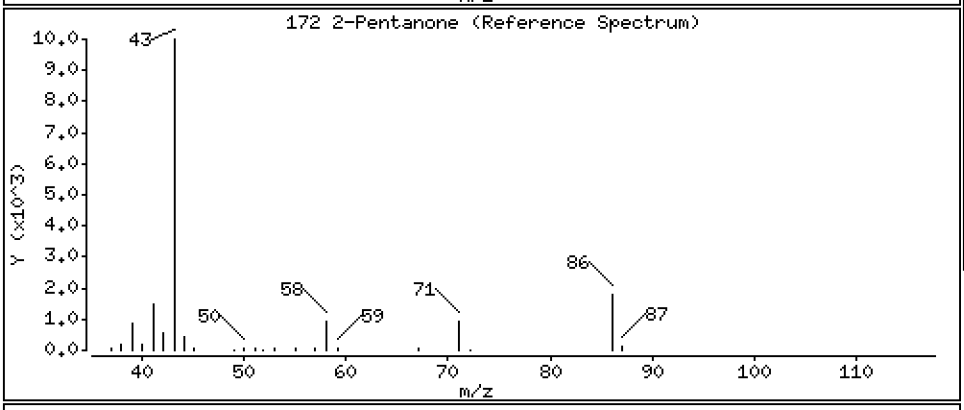
Concentration: 239.78 ug/Kg

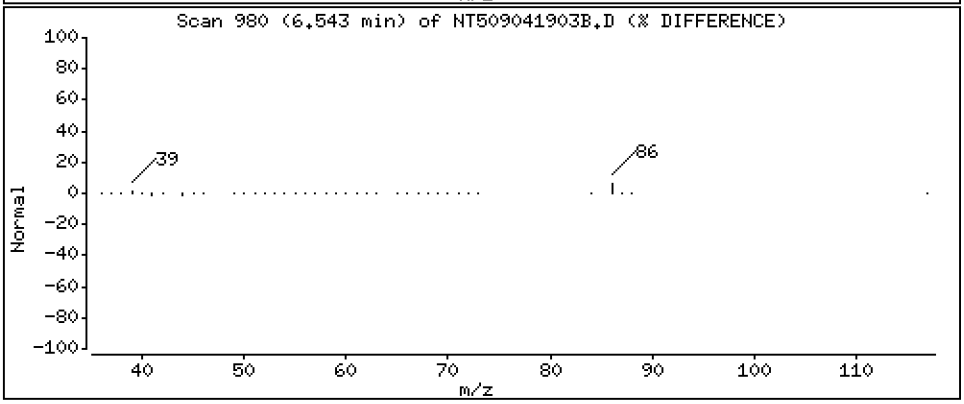












Date : 04-SEP-2019 14:02

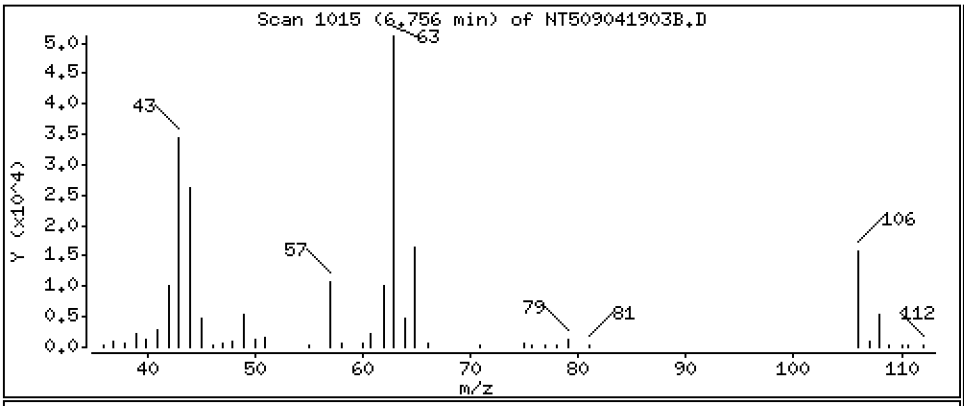
Client ID: Instrument: nt5.i

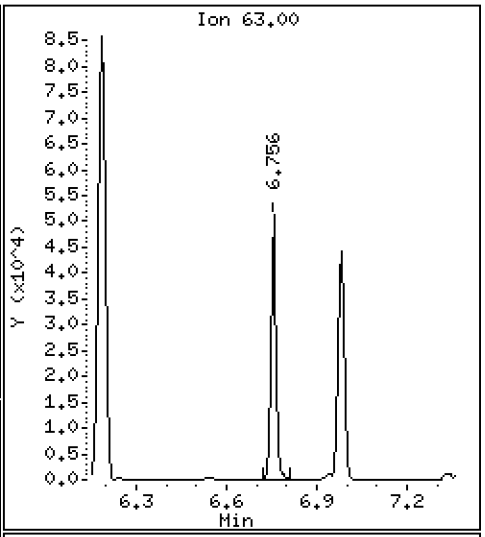
Sample Info: ICV1

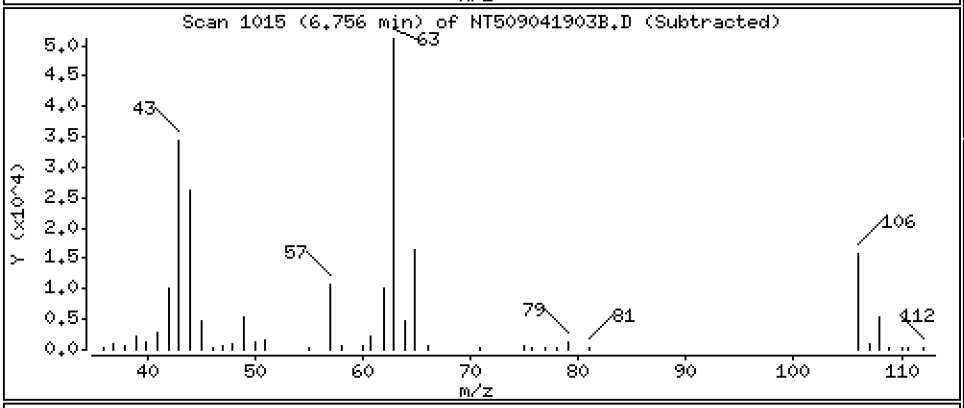
Operator: PB

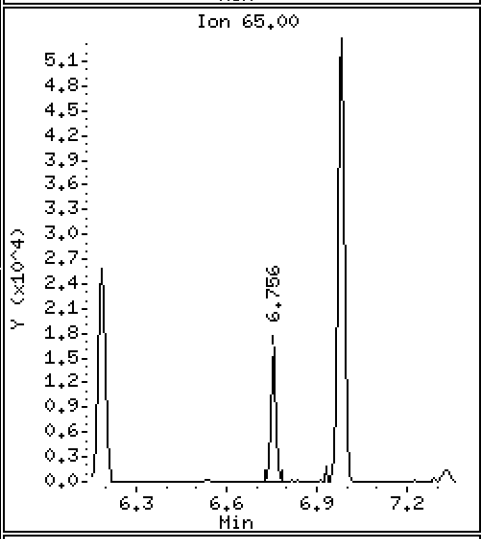
Column phase: RTXVMS Column diameter: 0.18

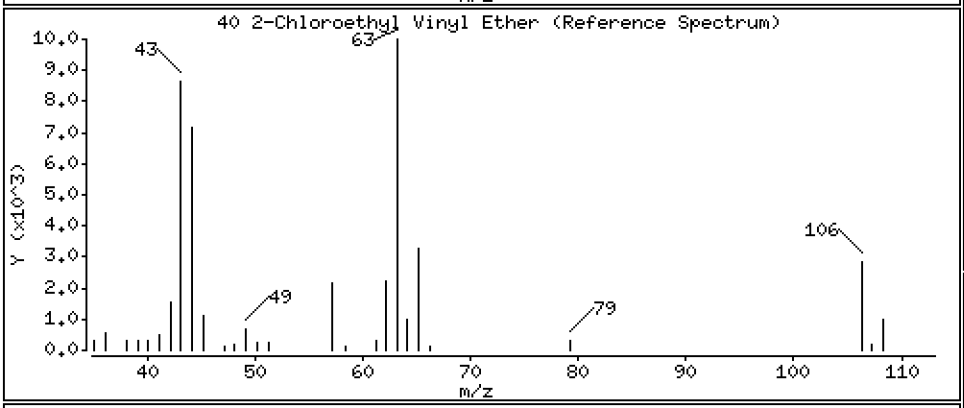
40 2-Chloroethyl Vinyl Ether Concentration: 43.856 ug/Kg

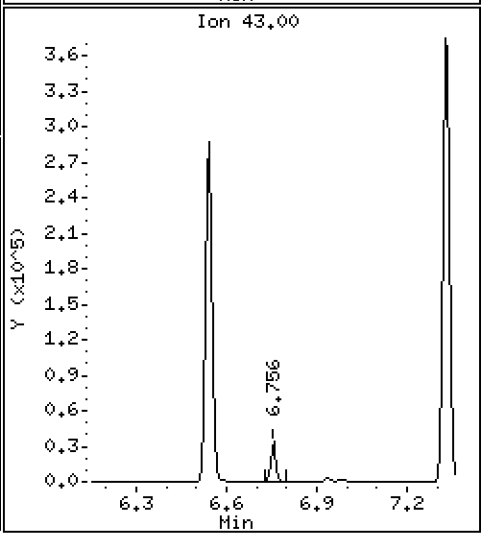


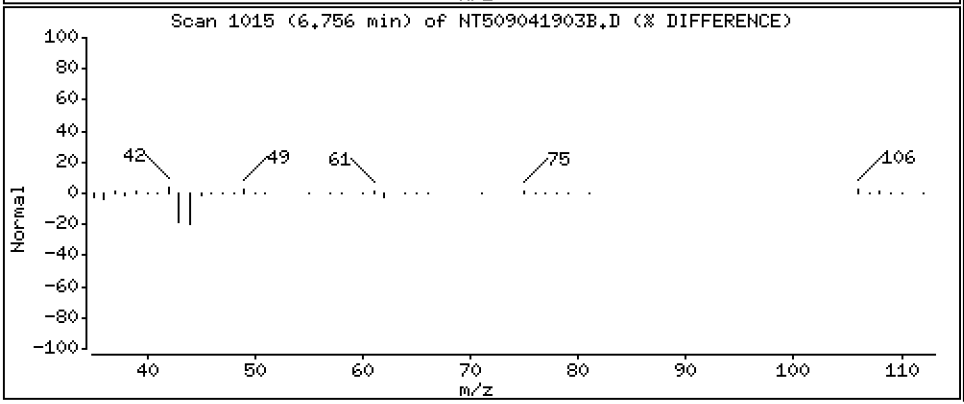












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

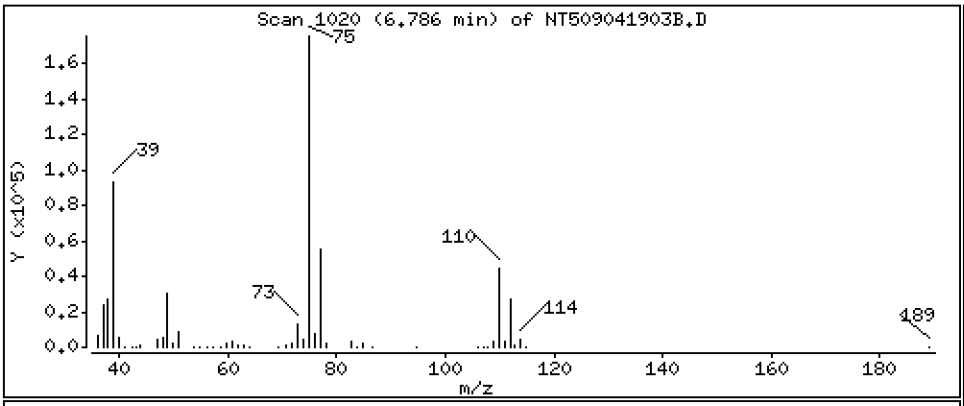
Operator: PB

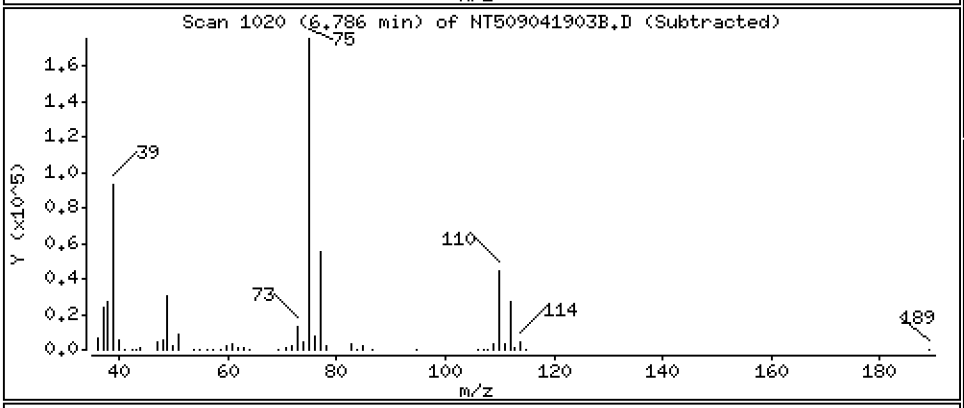
Column phase: RTXVMS

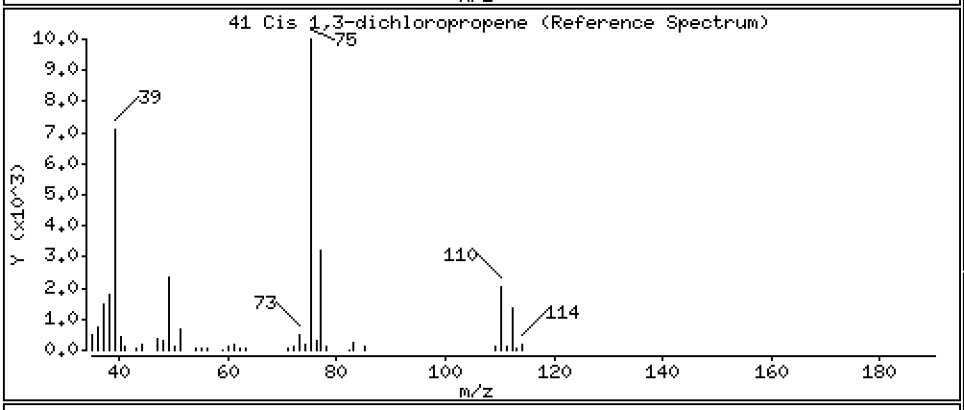
Column diameter: 0.18

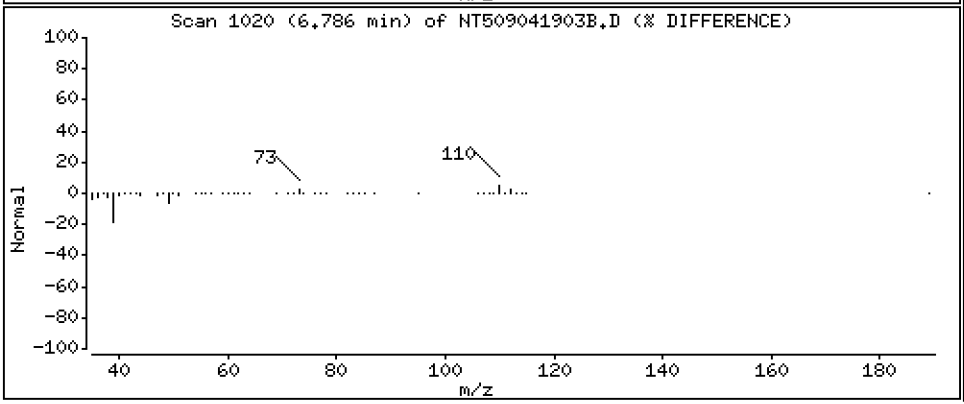
41 Cis 1,3-dichloropropene

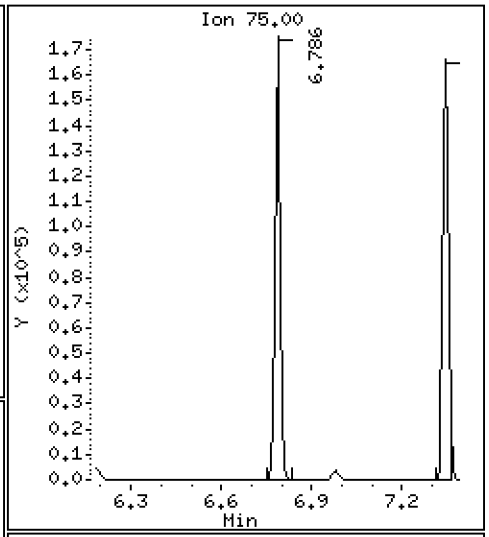
Concentration: 45.282 ug/Kg

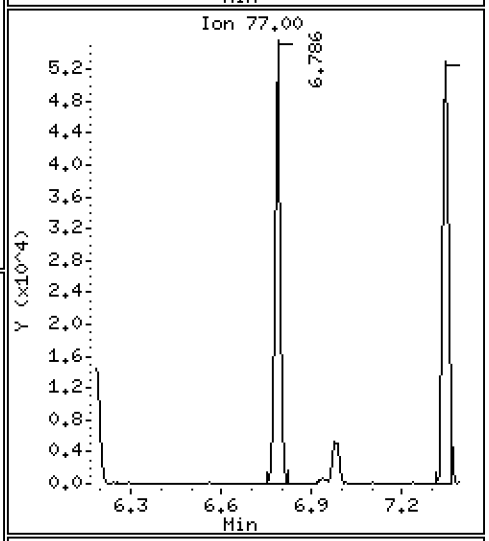


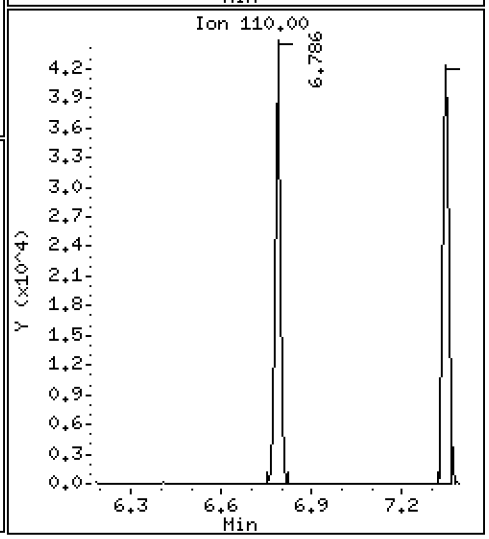












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

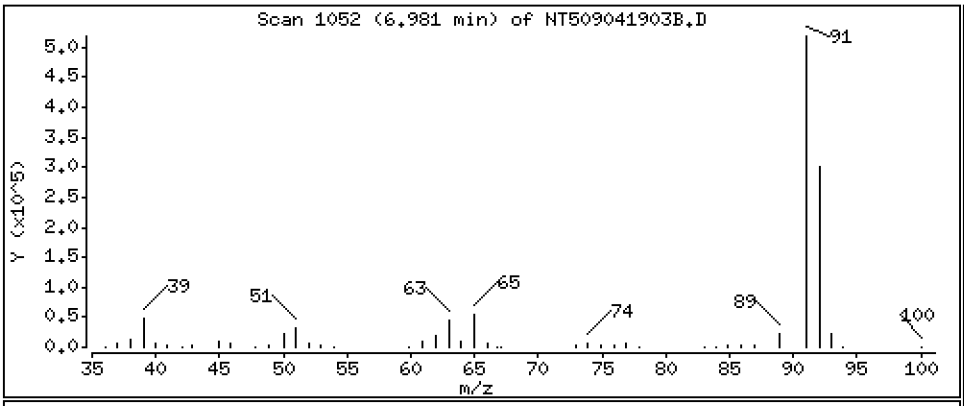
Operator: PB

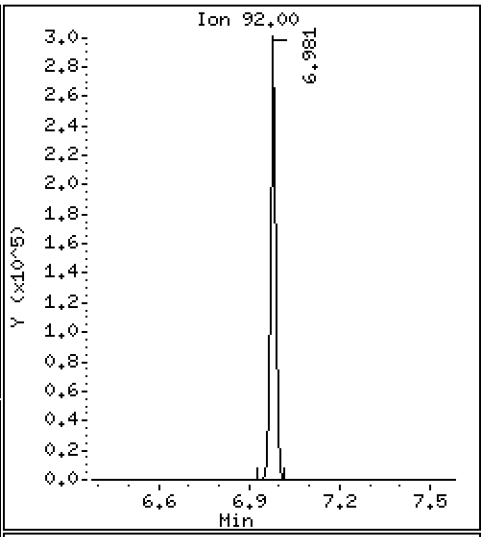
Column phase: RTXVMS

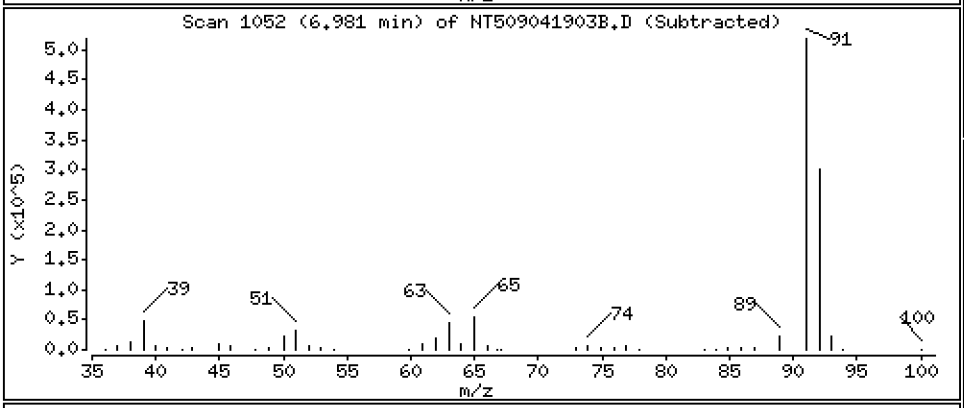
Column diameter: 0.18

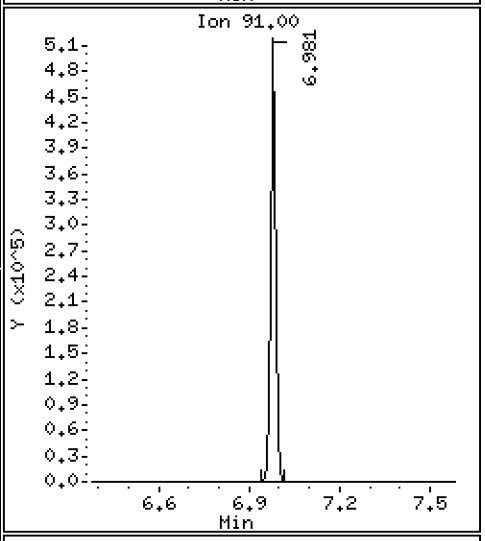
43 Toluene

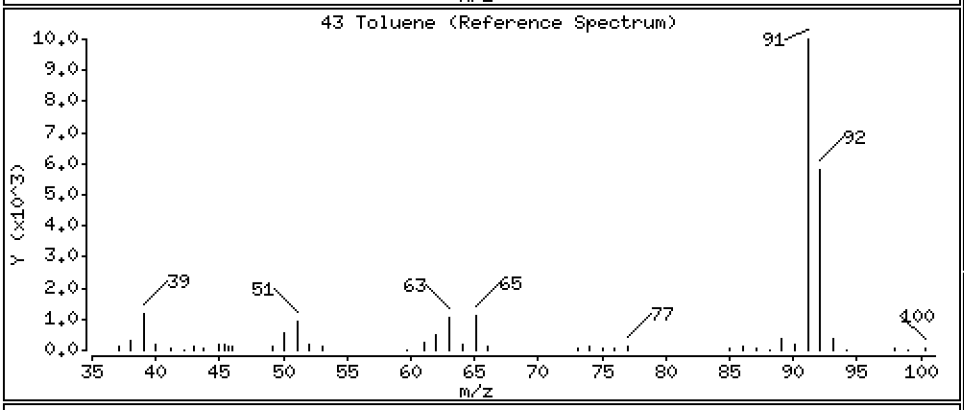
Concentration: 45.607 ug/Kg

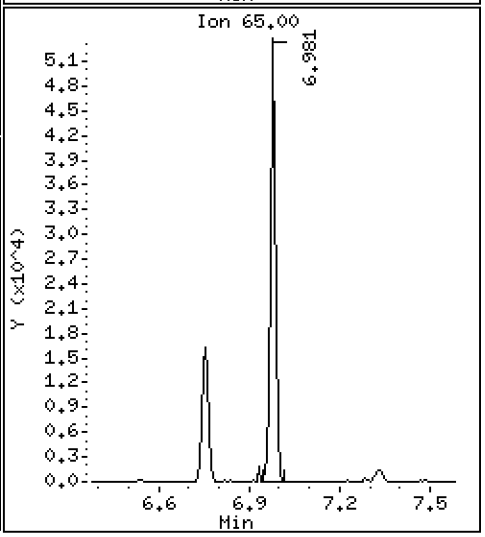


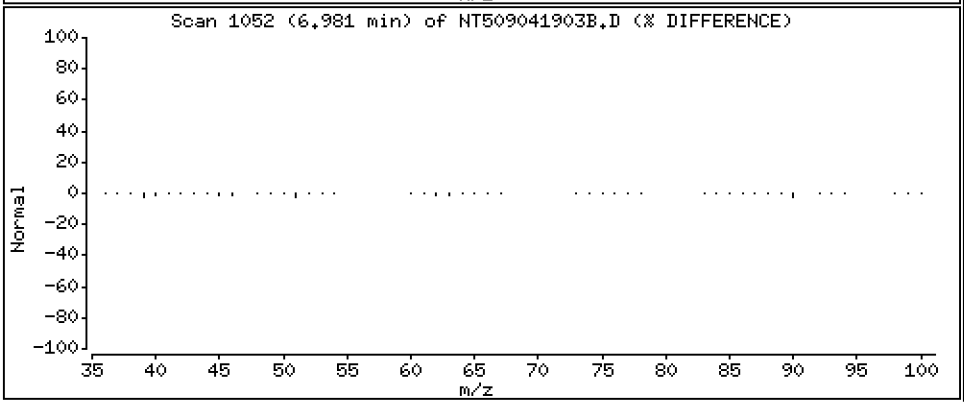












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

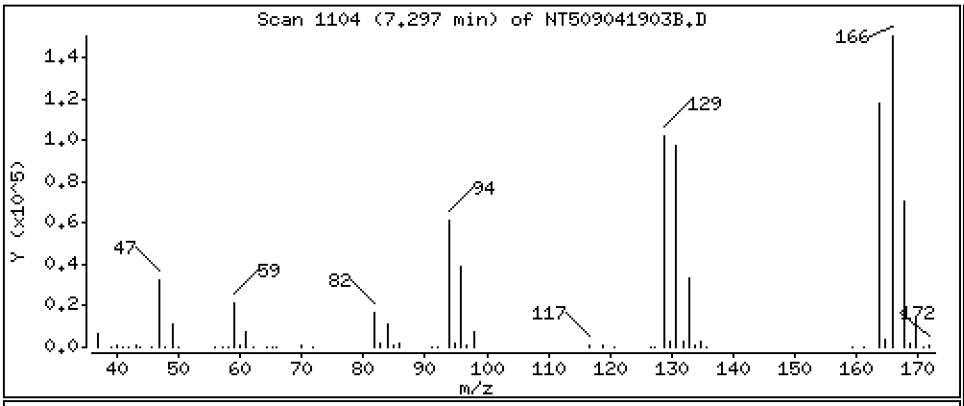
Operator: PB

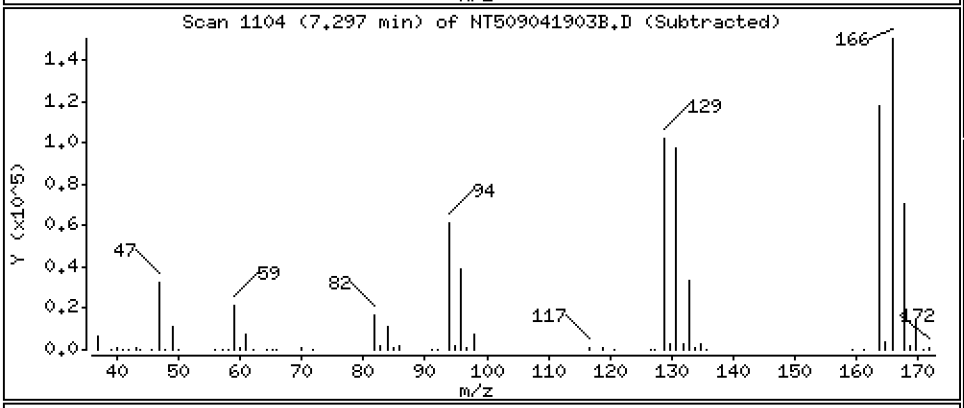
Column phase: RTXVMS

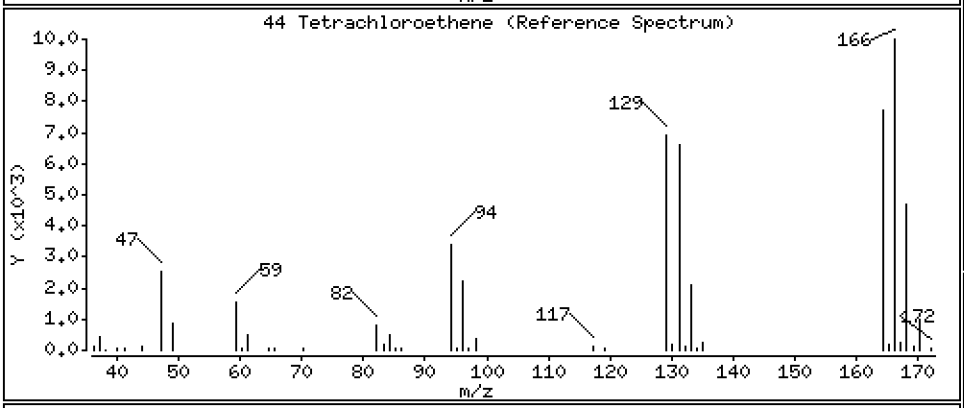
Column diameter: 0.18

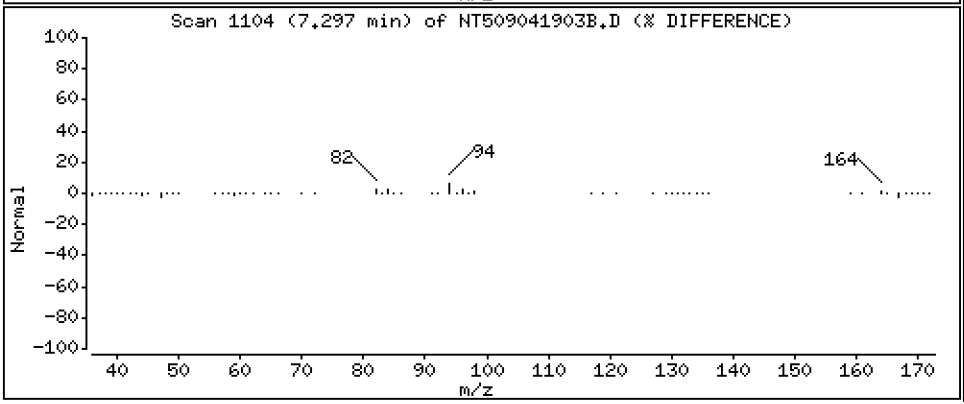
44 Tetrachloroethene

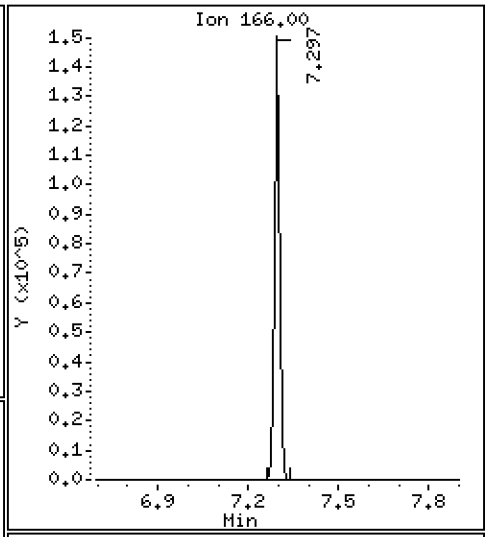
Concentration: 48.424 ug/Kg

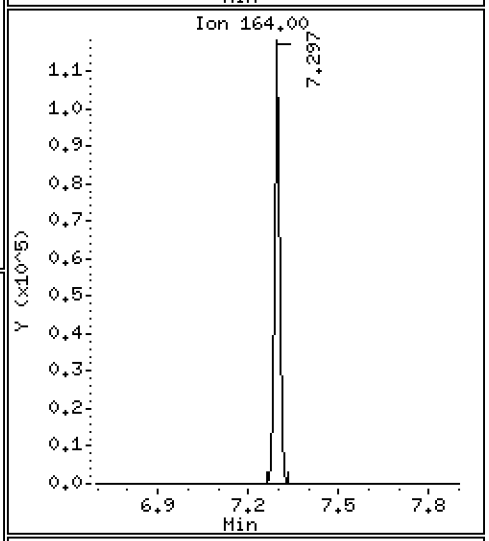


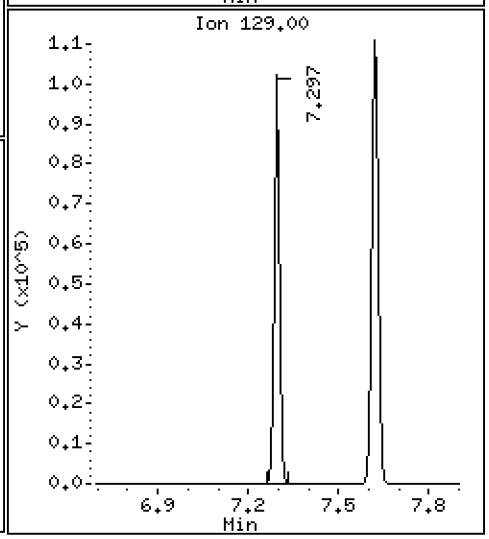












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

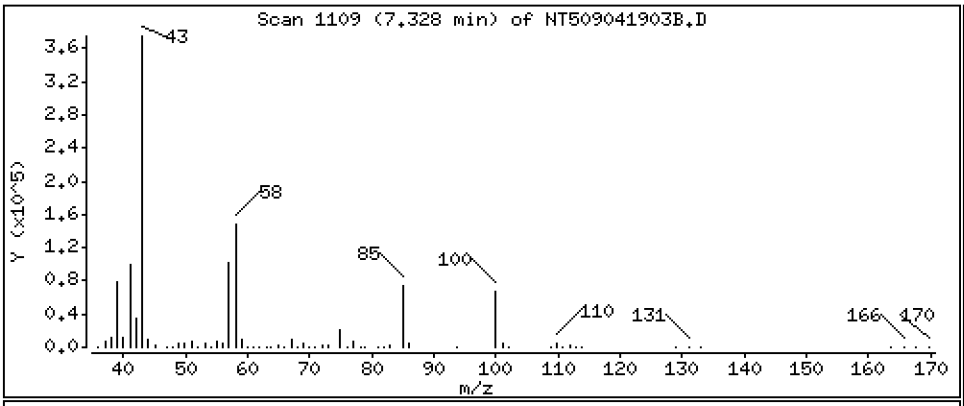
Operator: PB

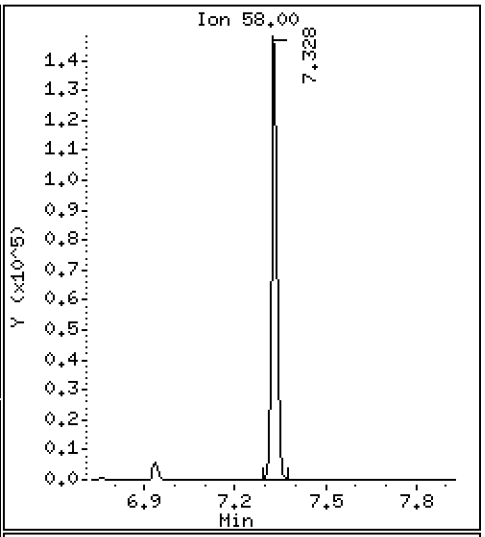
Column phase: RTXVMS

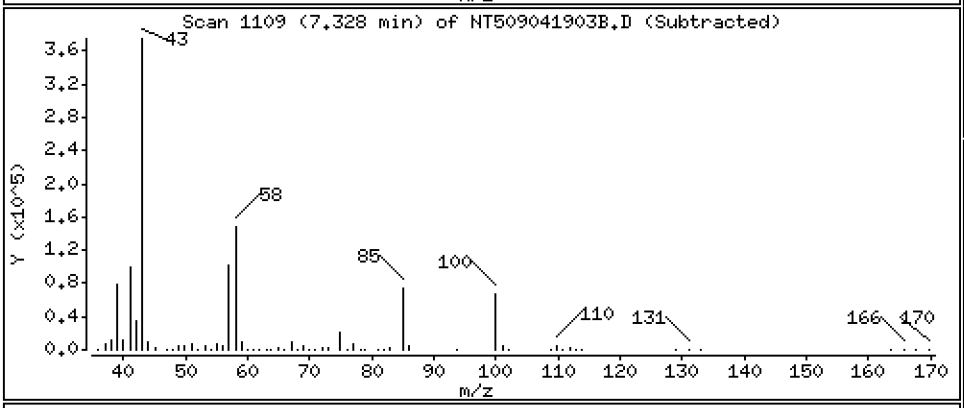
Column diameter: 0.18

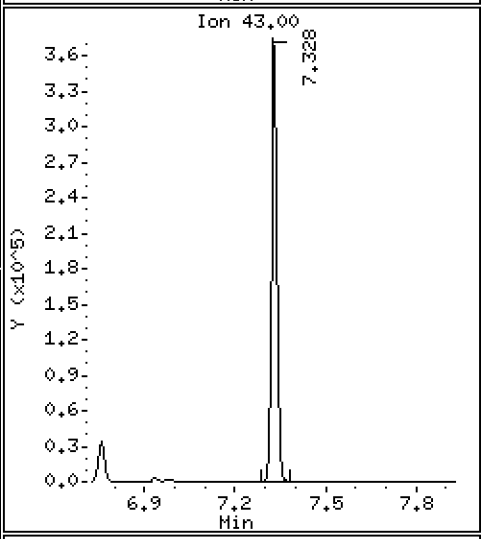
45 4-Methyl-2-Pentanone

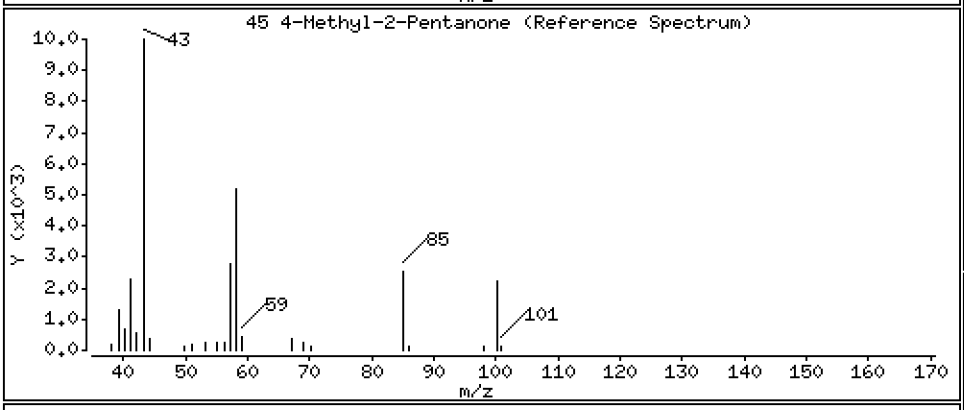
Concentration: 230.17 ug/Kg

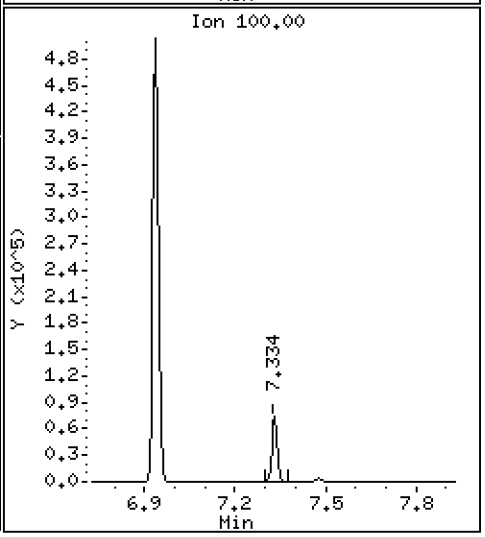


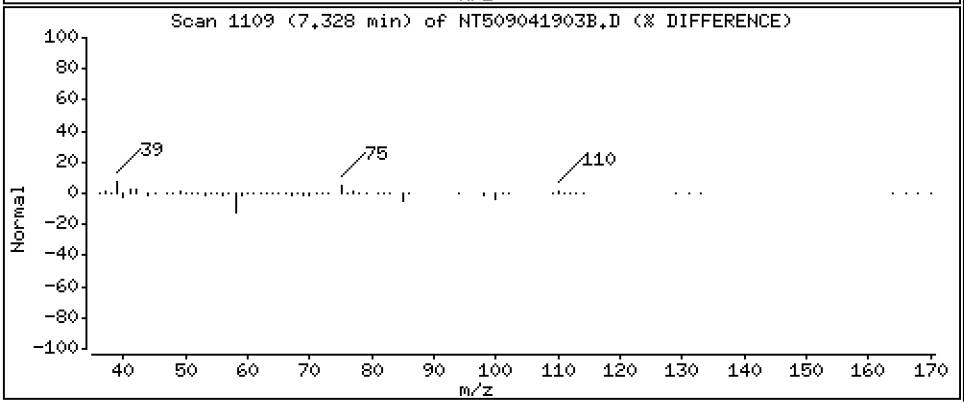












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

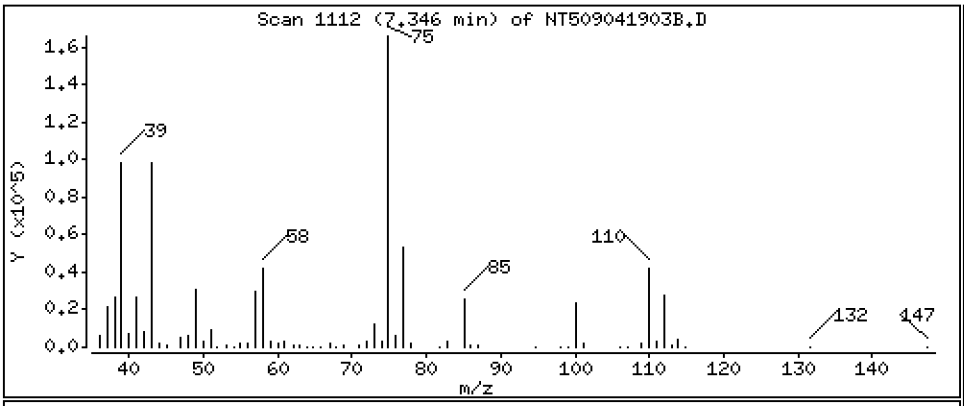
Operator: PB

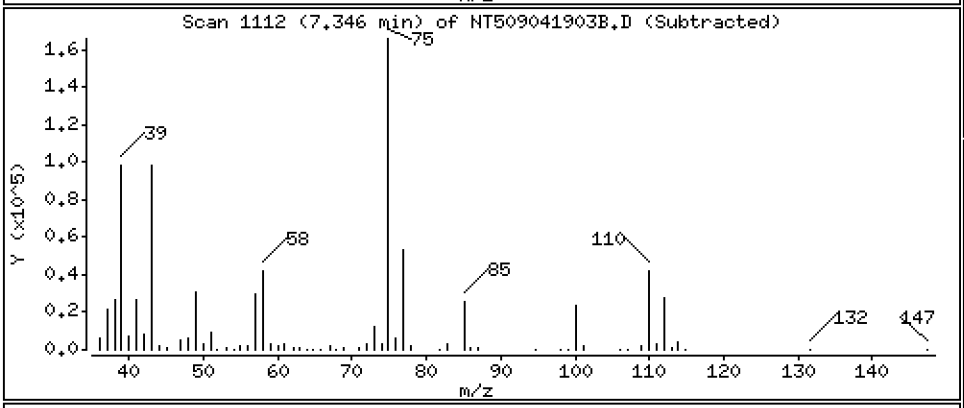
Column phase: RTXVMS

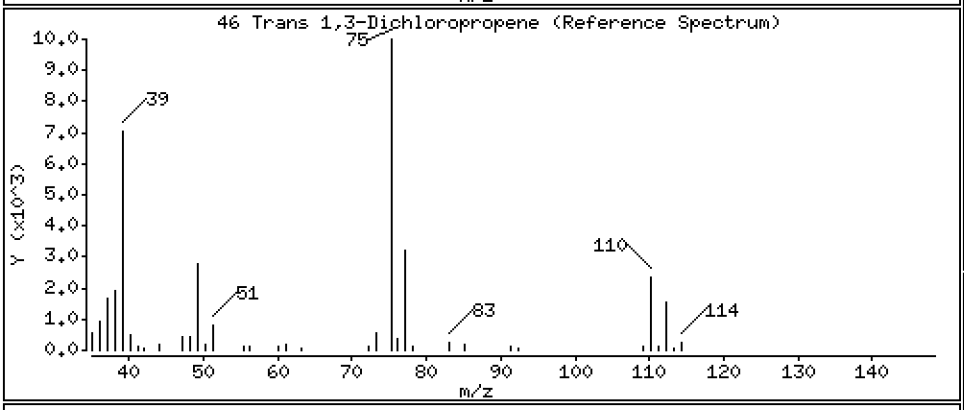
Column diameter: 0.18

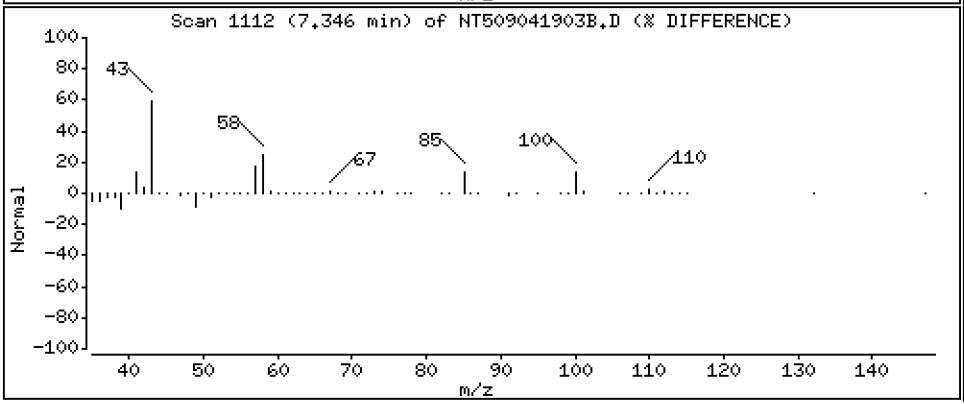
46 Trans 1,3-Dichloropropene

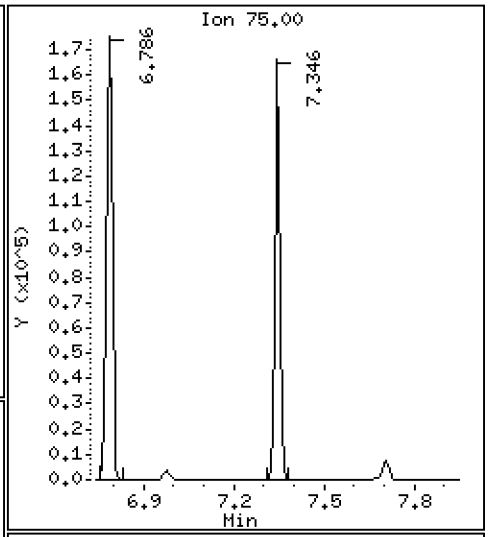
Concentration: 45.042 ug/Kg

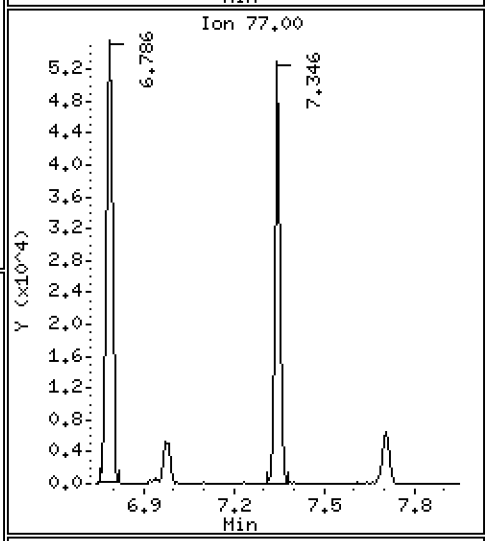


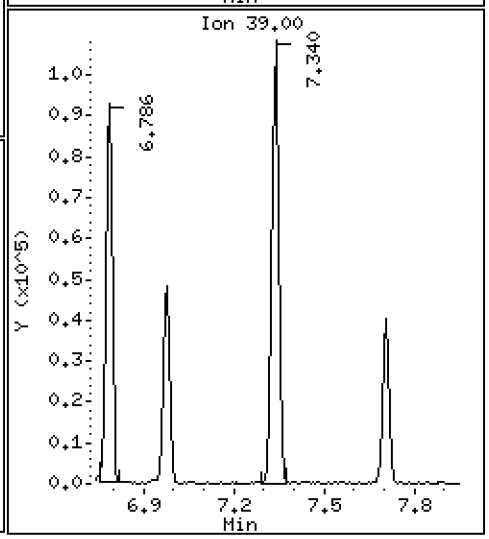












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

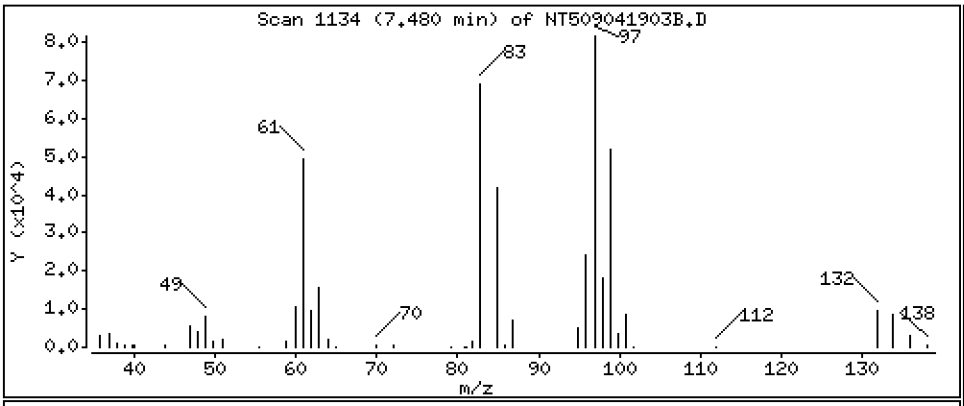
Operator: PB

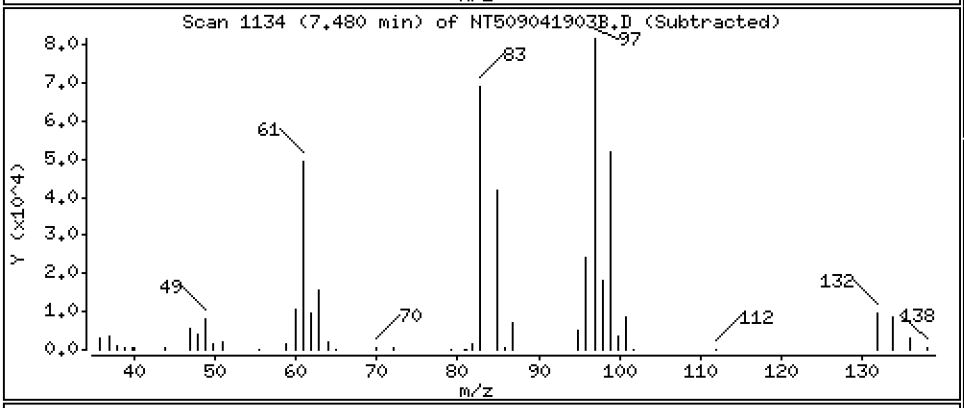
Column phase: RTXVMS

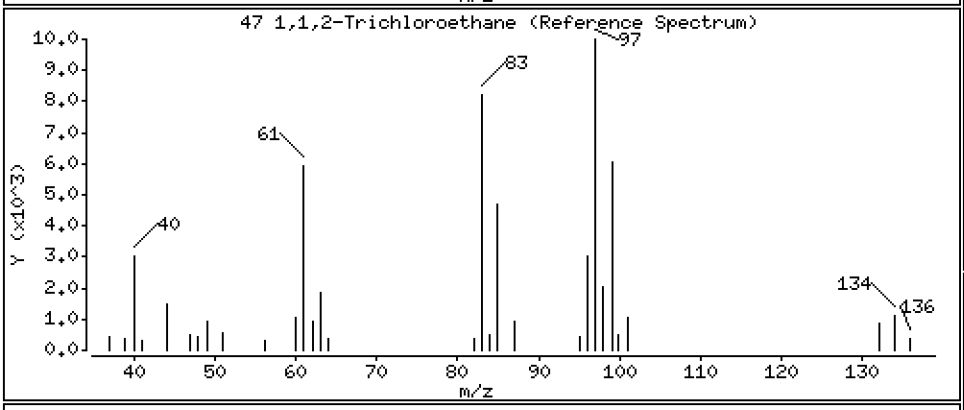
Column diameter: 0.18

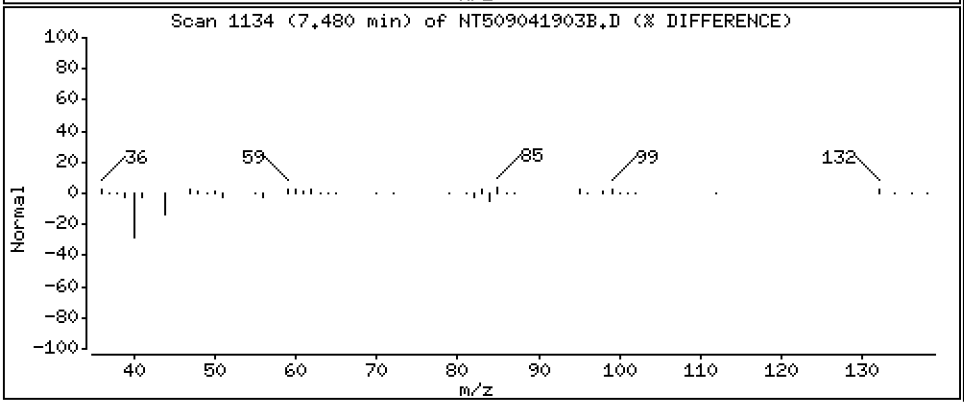
47 1,1,2-Trichloroethane

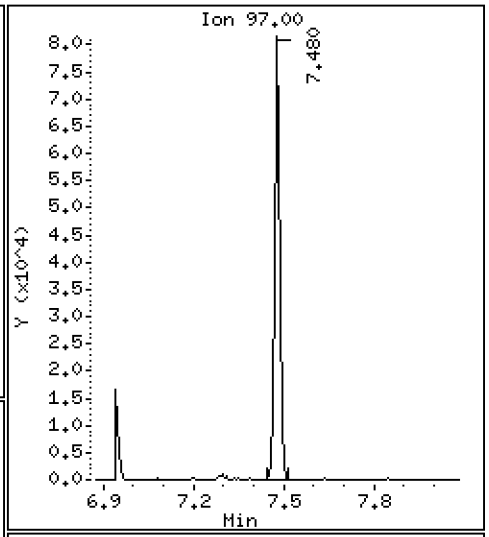
Concentration: 43.439 ug/Kg

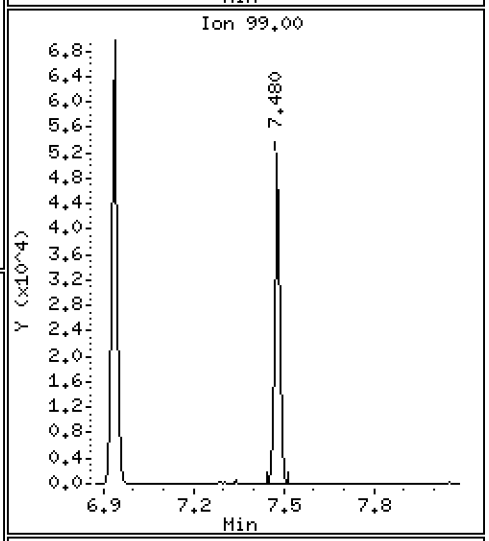


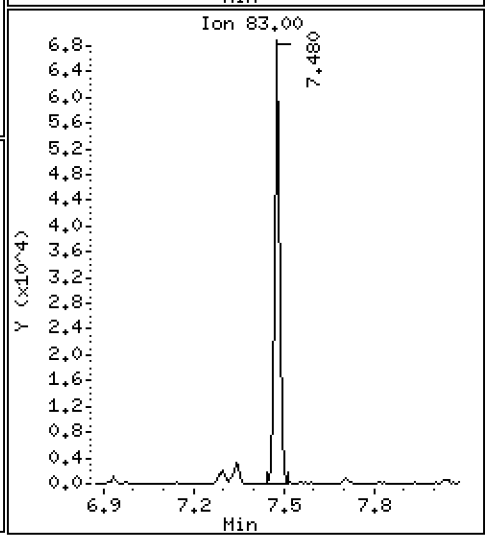












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

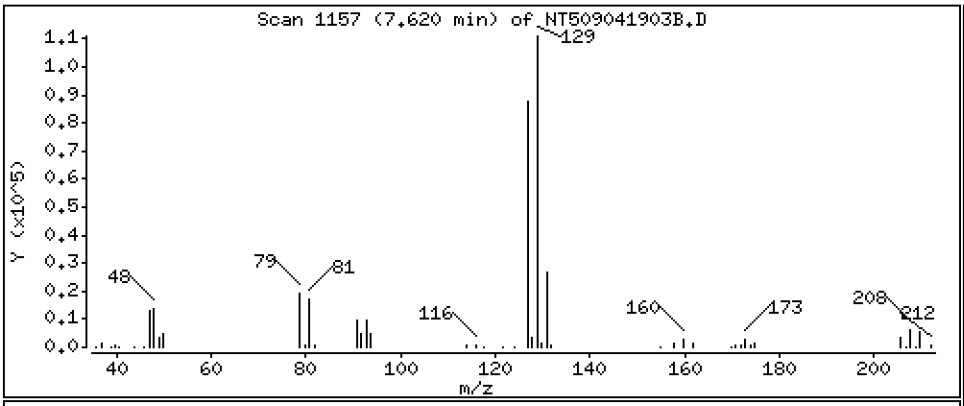
Operator: PB

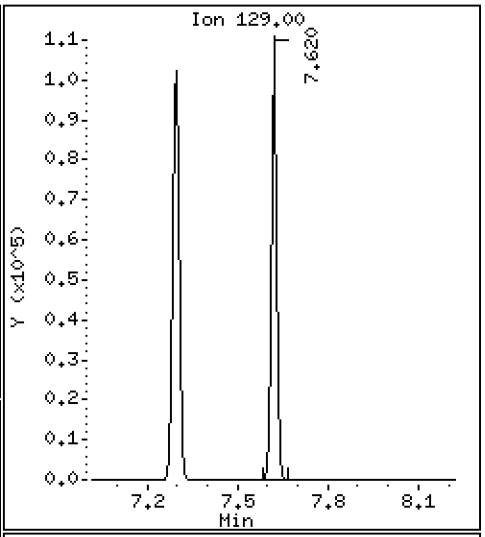
Column phase: RTXVMS

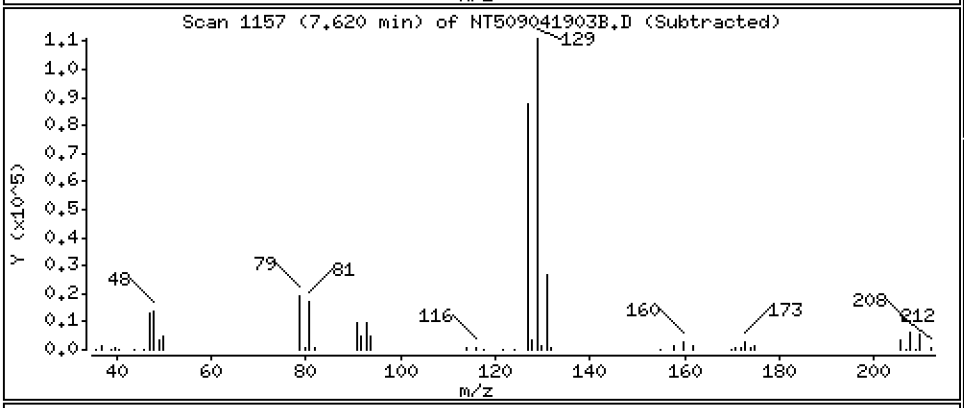
Column diameter: 0.18

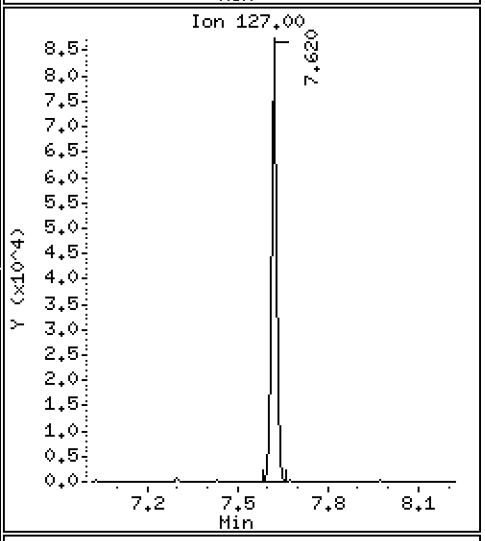
48 Chlorodibromomethane

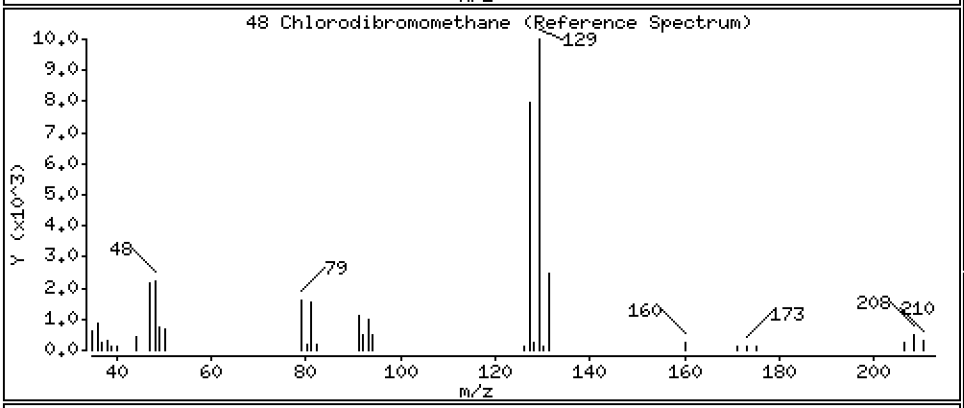
Concentration: 42.410 ug/Kg

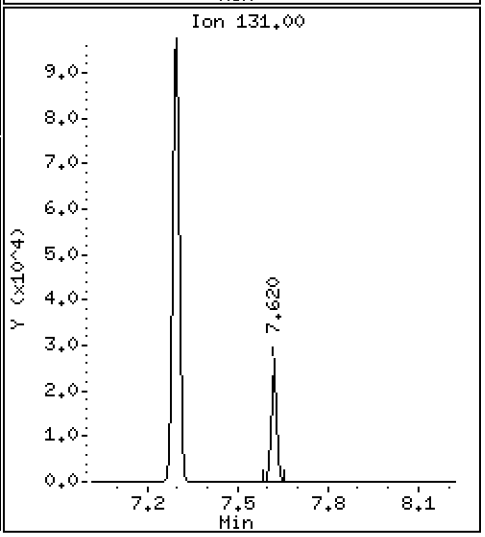


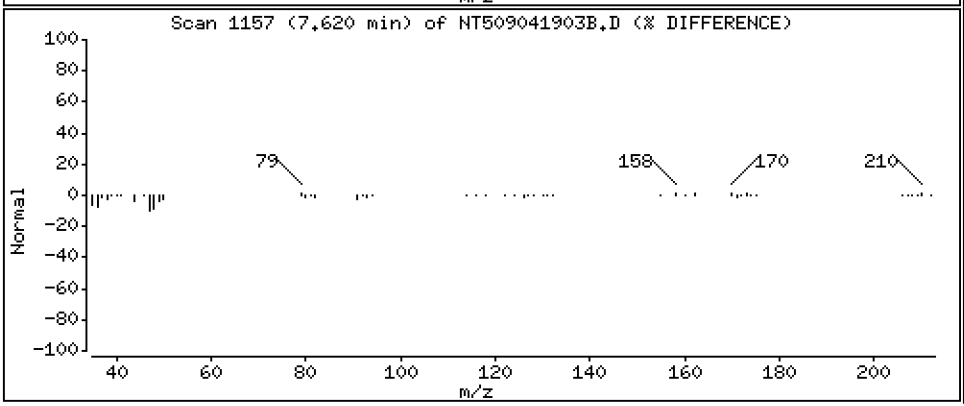












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

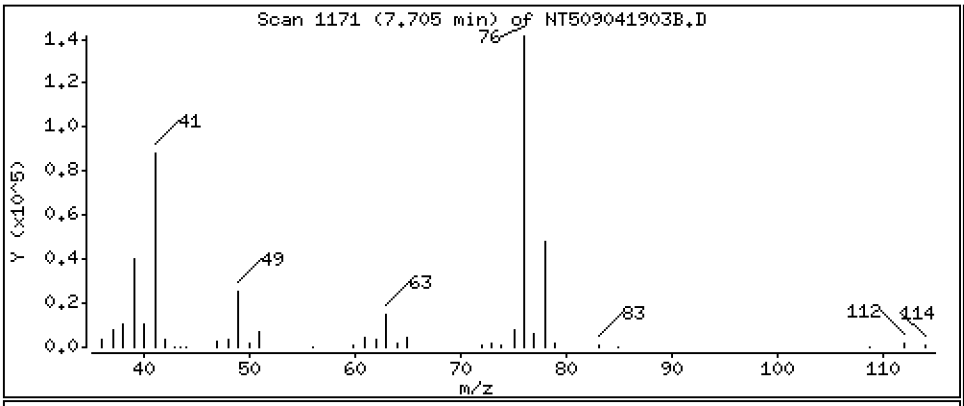
Operator: PB

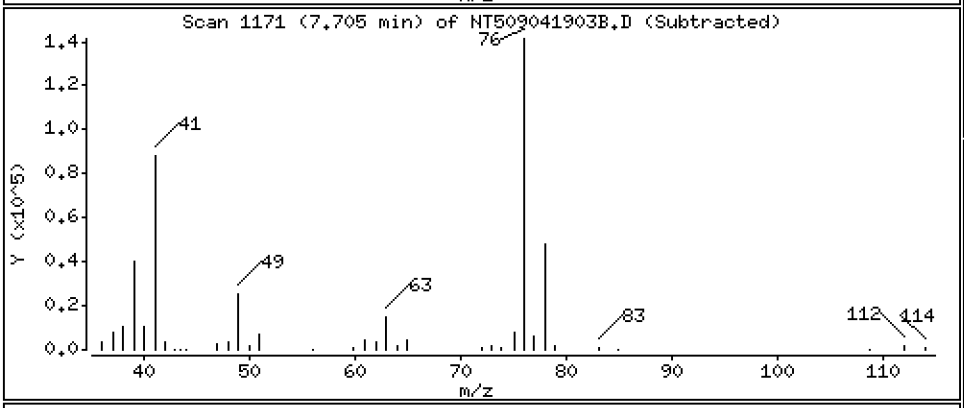
Column phase: RTXVMS

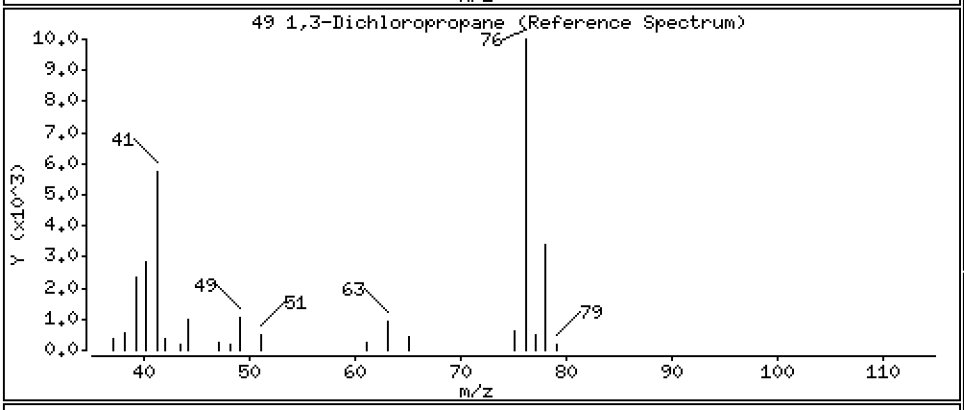
Column diameter: 0.18

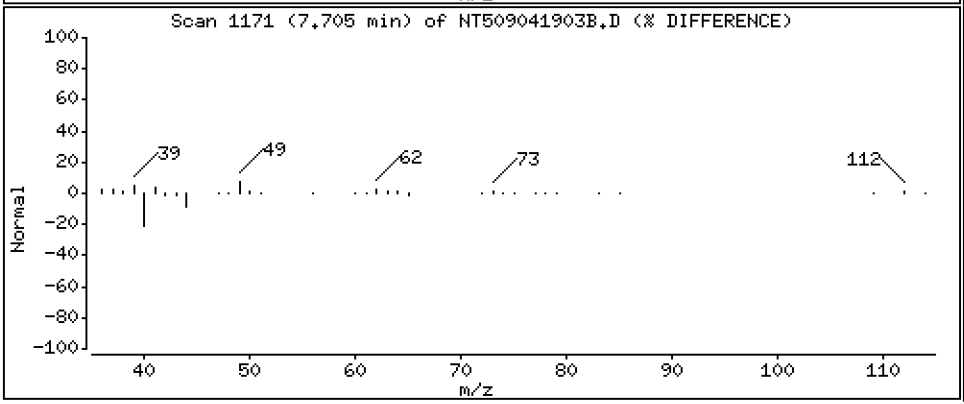
49 1,3-Dichloropropane

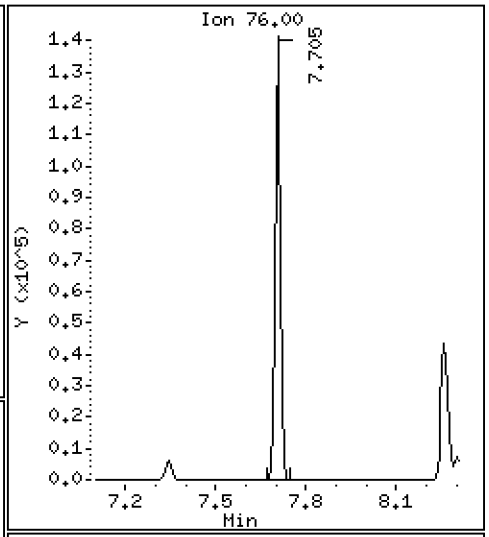
Concentration: 43.225 ug/Kg

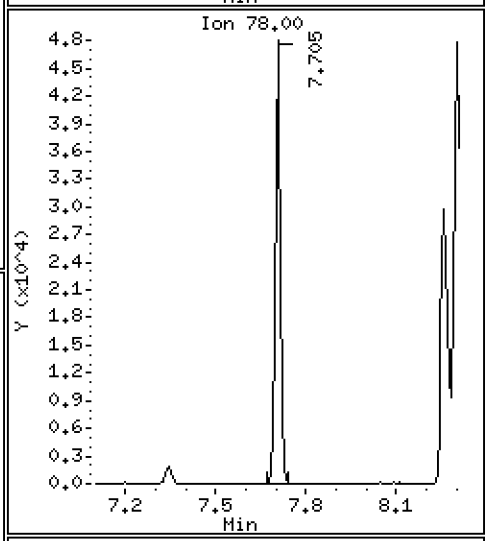


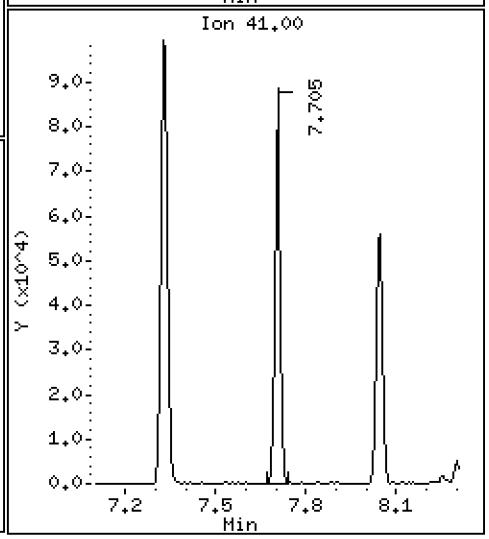












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

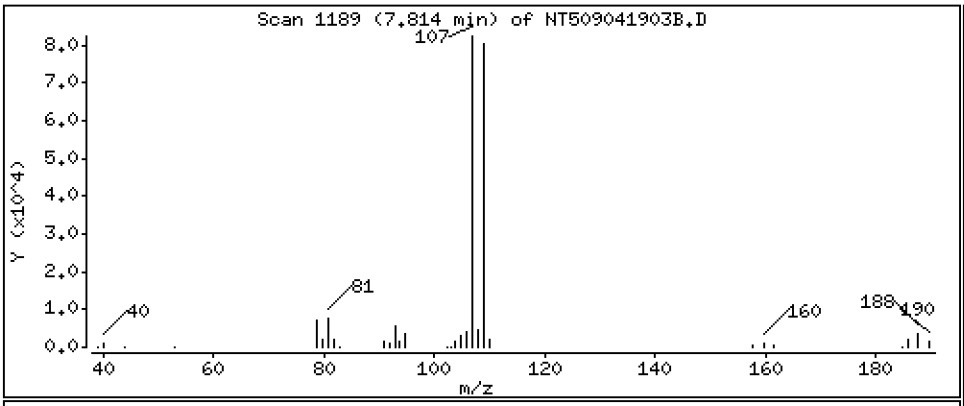
Operator: PB

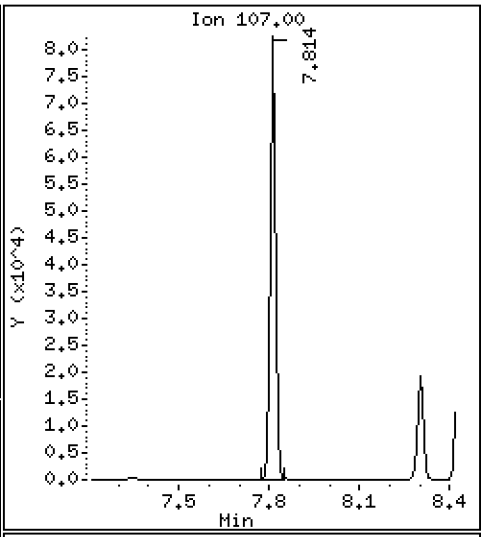
Column phase: RTXVMS

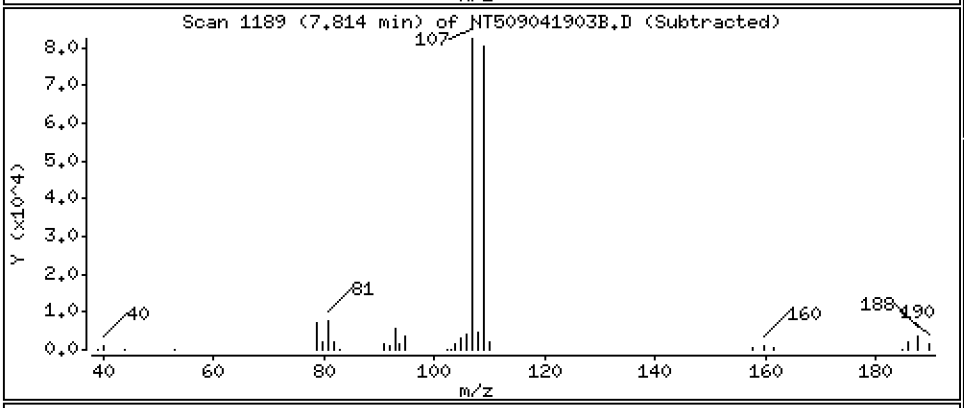
Column diameter: 0.18

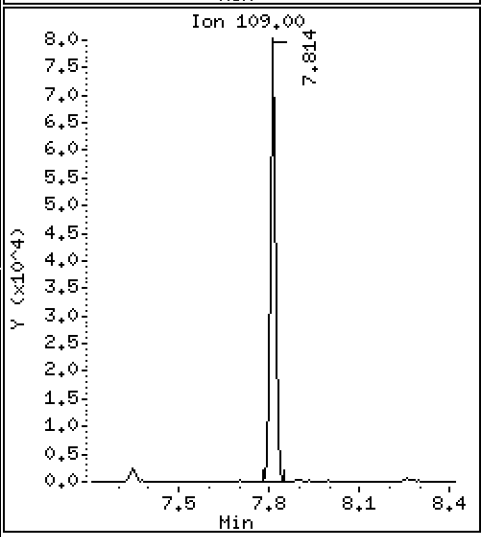
50 1,2-Dibromoethane

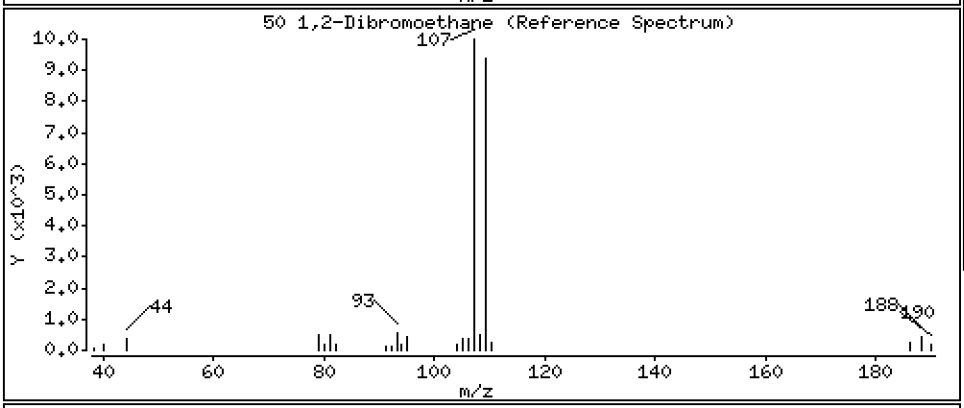
Concentration: 45.877 ug/Kg

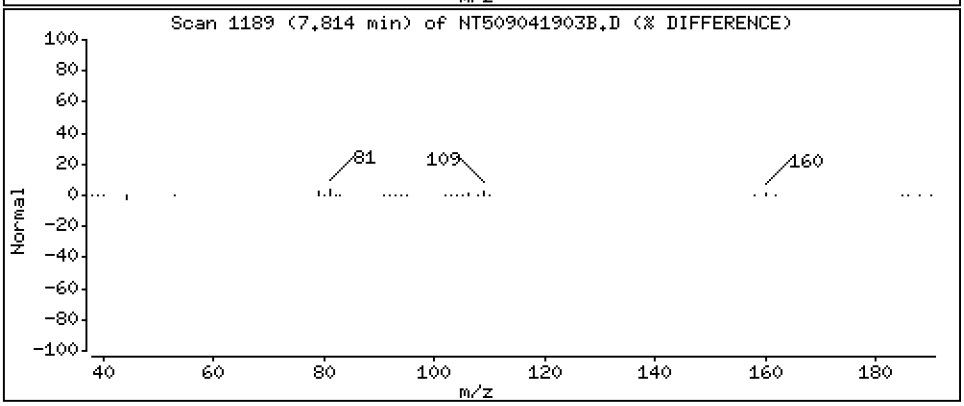












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

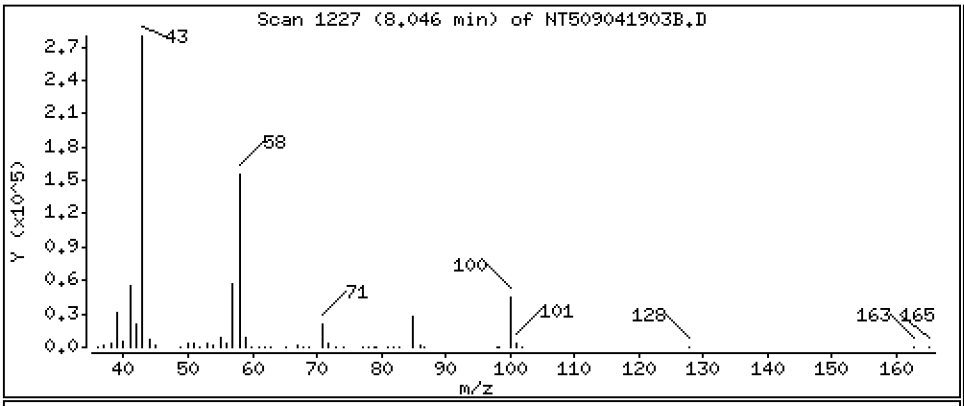
Operator: PB

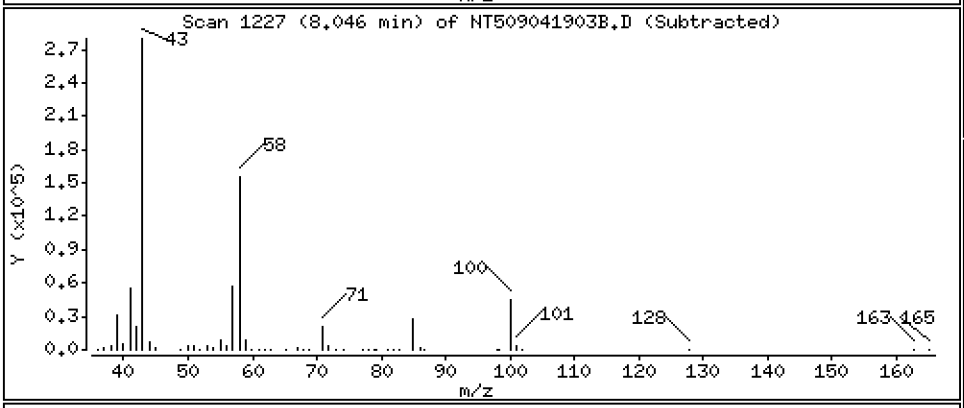
Column phase: RTXVMS

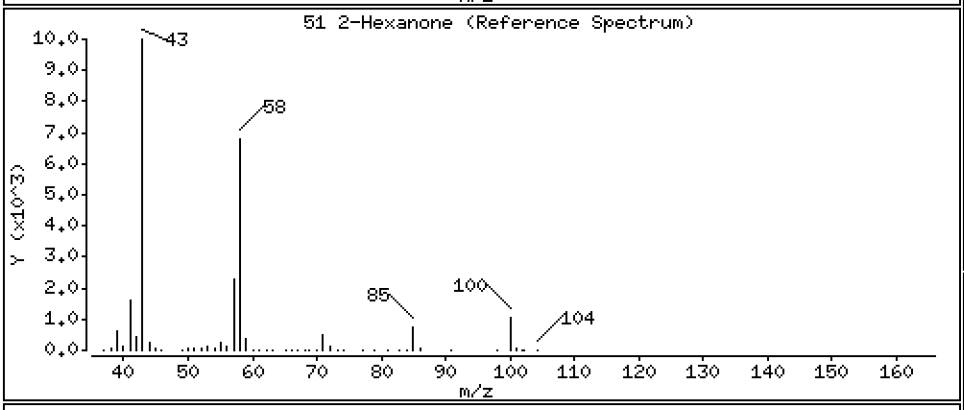
Column diameter: 0.18

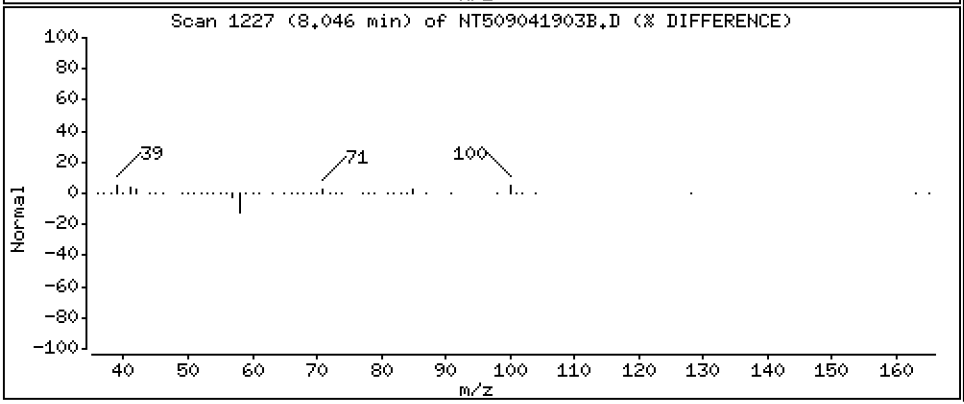
51 2-Hexanone

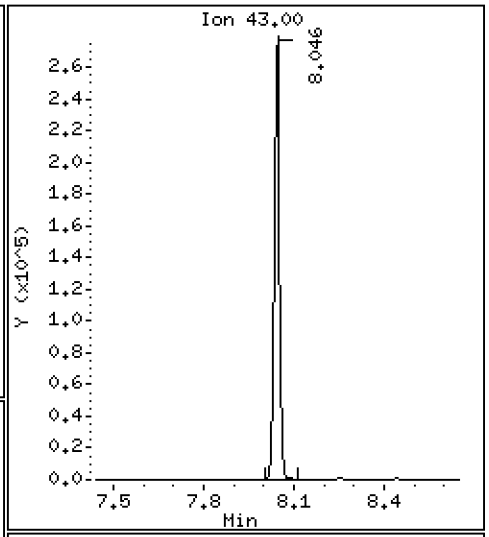
Concentration: 233.99 ug/Kg

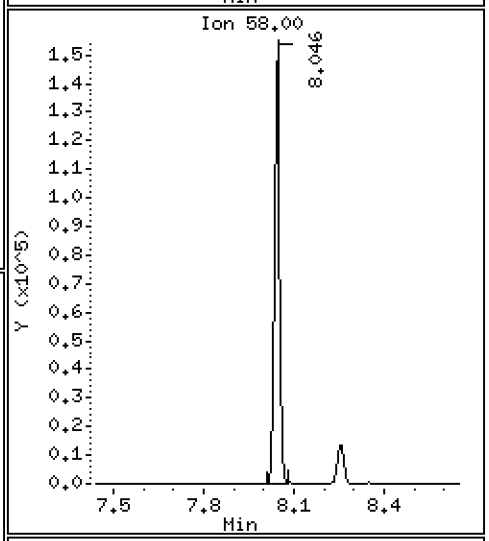


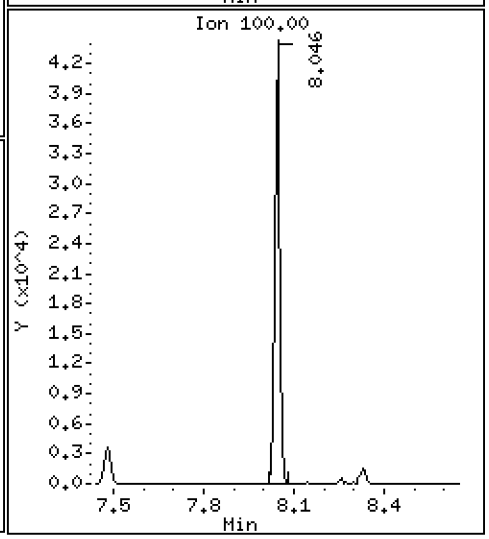












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

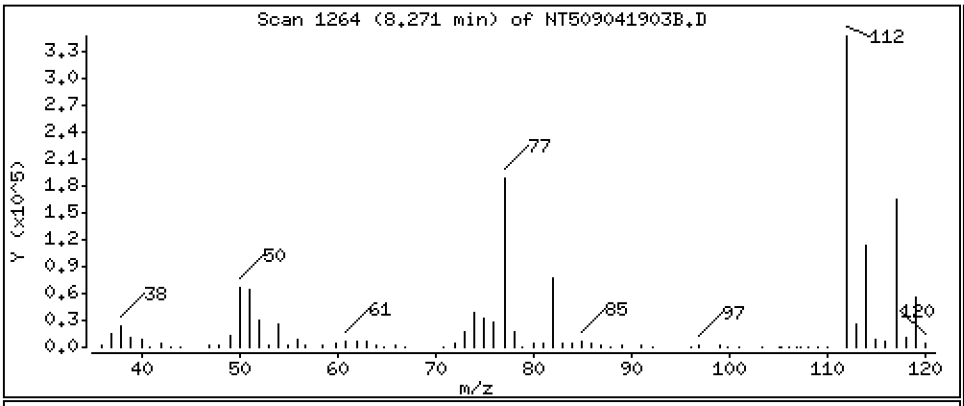
Operator: PB

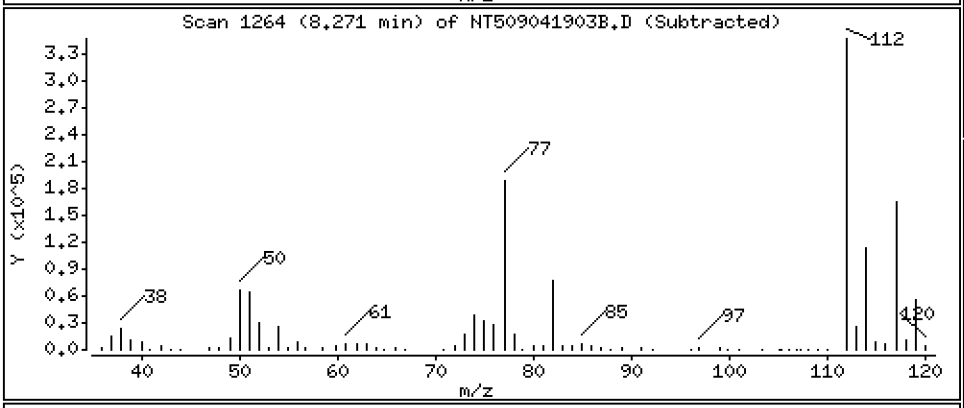
Column phase: RTXVMS

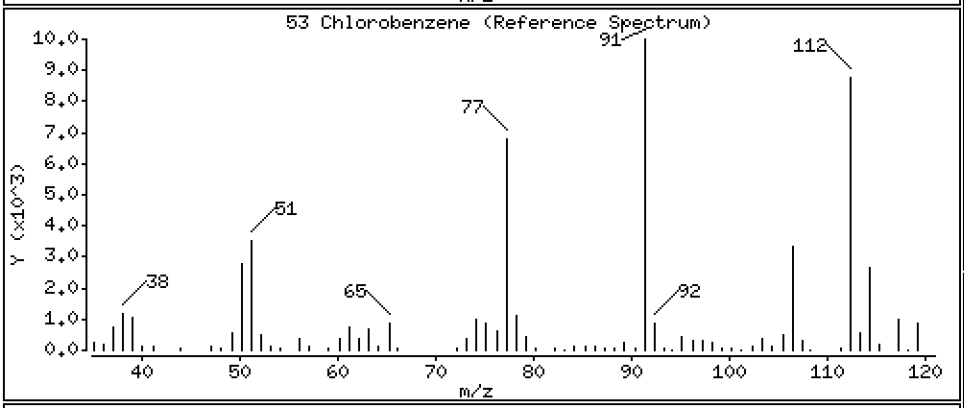
Column diameter: 0.18

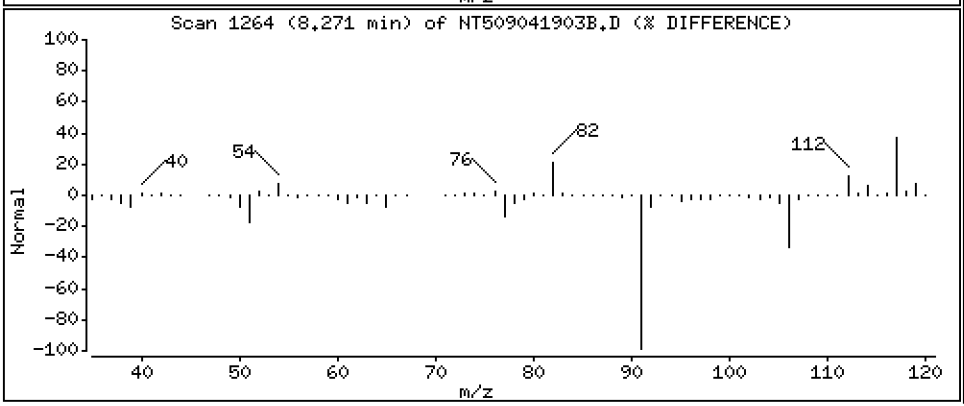
53 Chlorobenzene

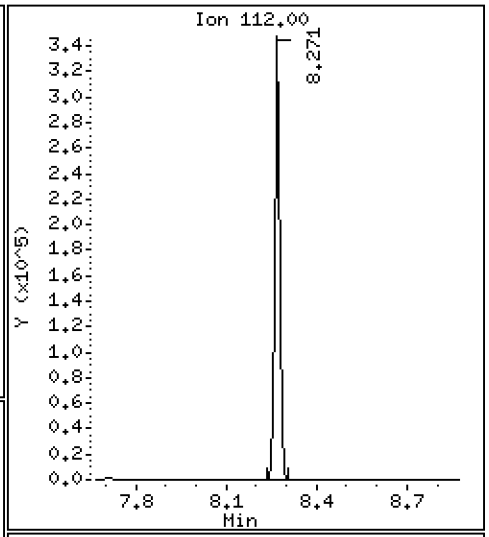
Concentration: 43.220 ug/Kg

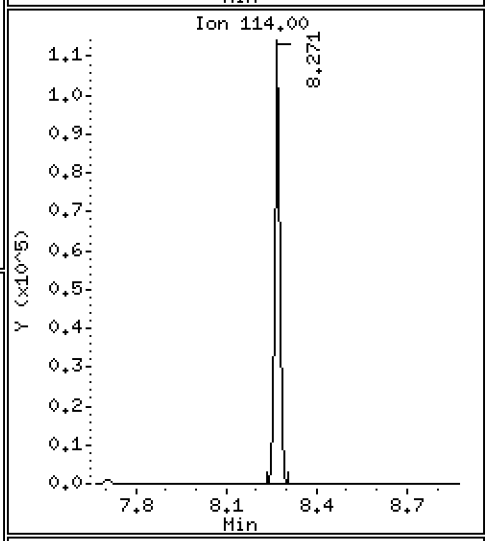


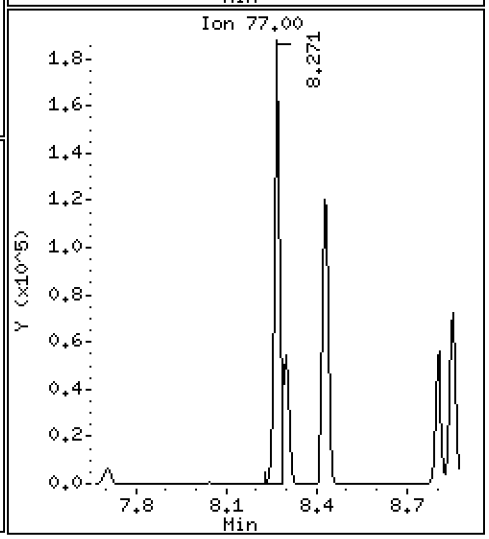












Date : 04-SEP-2019 14:02

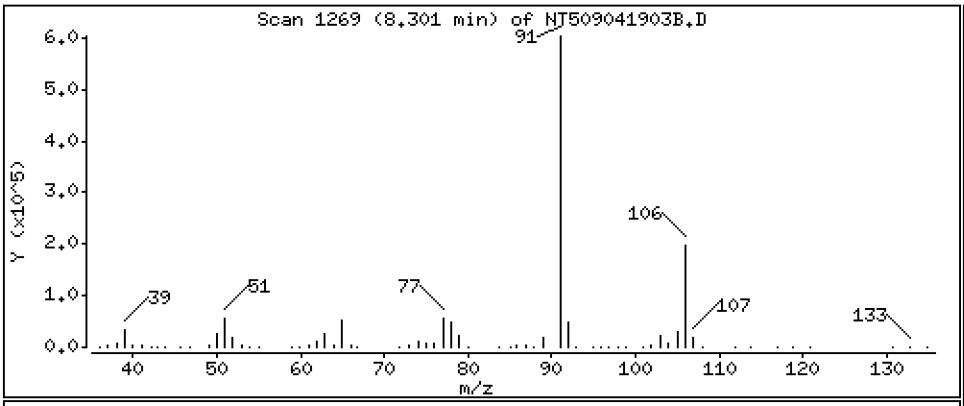
Client ID: Instrument: nt5.i

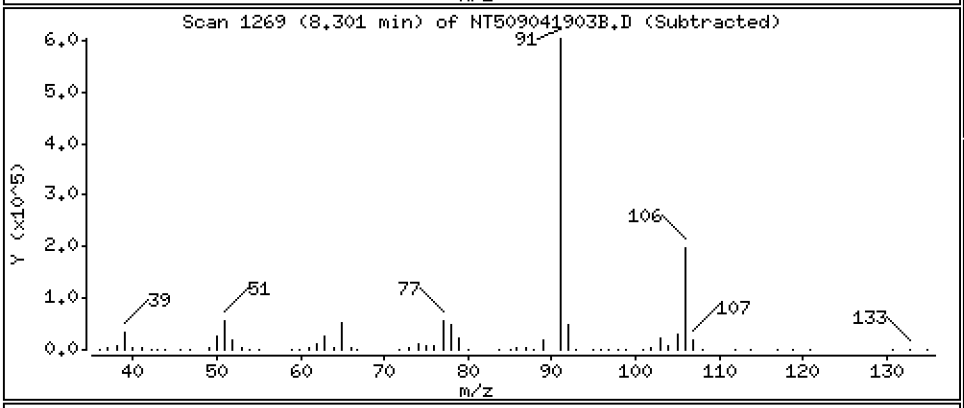
Sample Info: ICV1

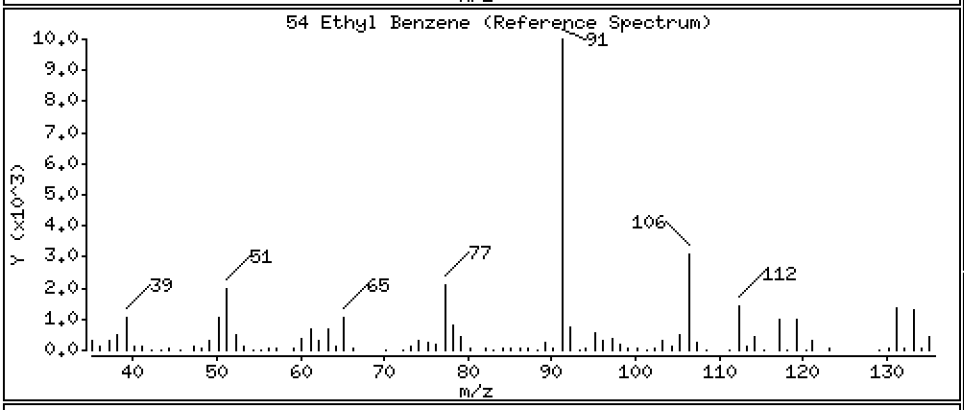
Operator: PB

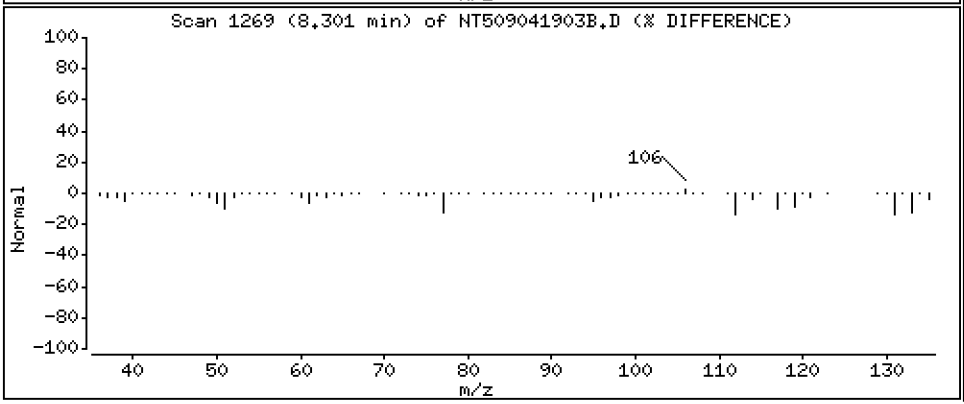
Column phase: RTXVMS Column diameter: 0.18

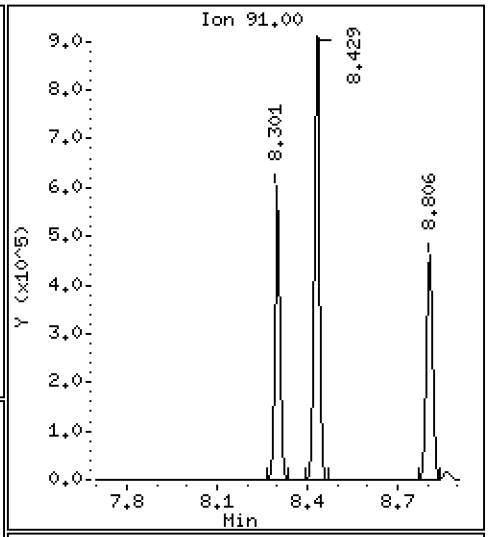
54 Ethyl Benzene Concentration: 45.320 ug/Kg

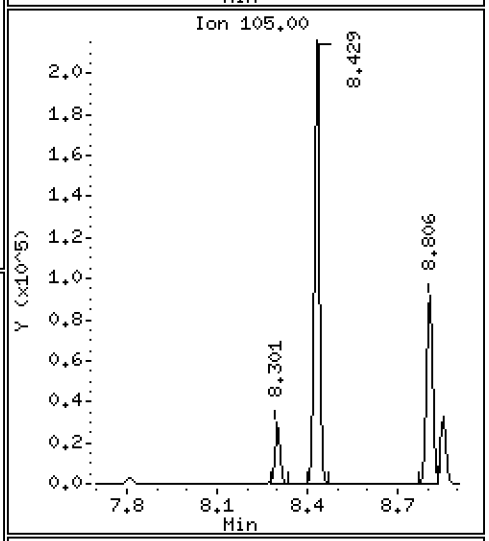


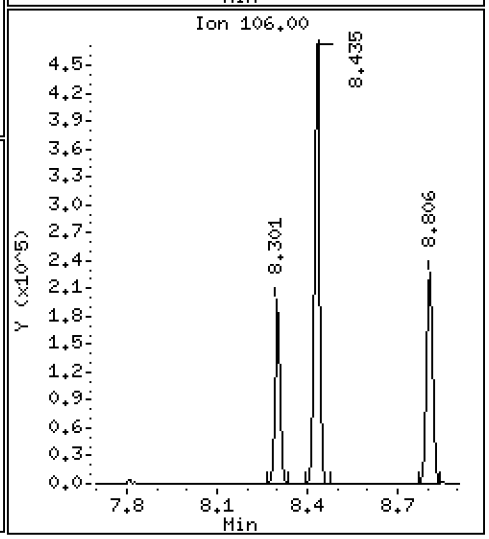












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

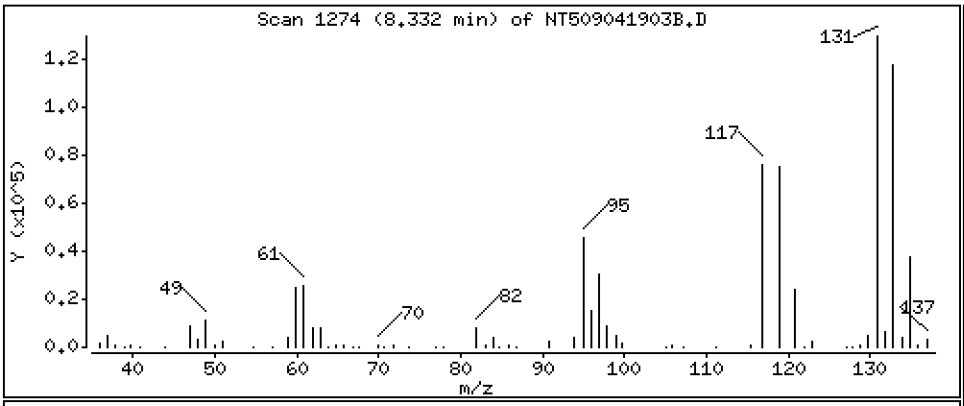
Operator: PB

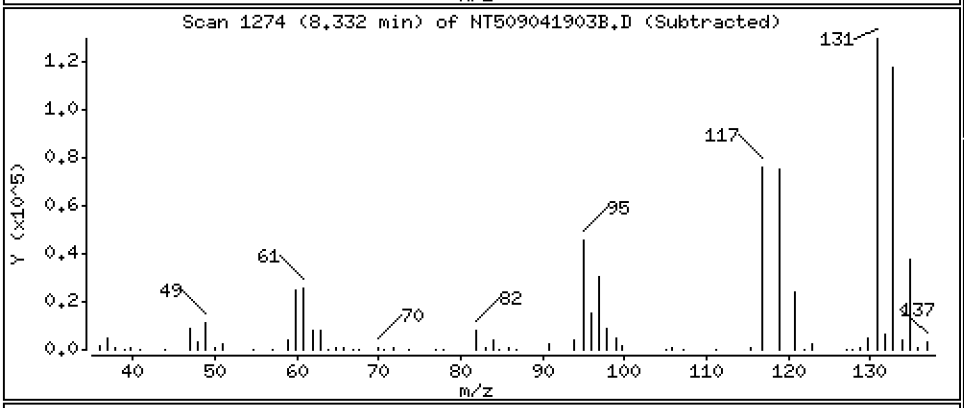
Column phase: RTXVMS

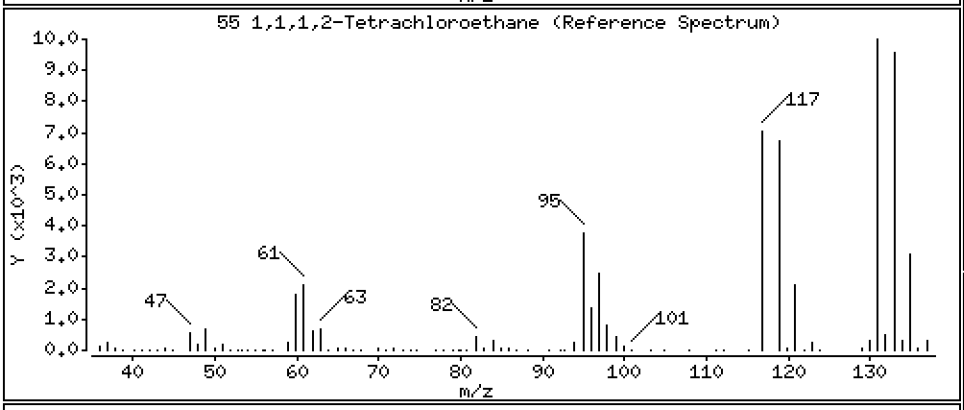
Column diameter: 0.18

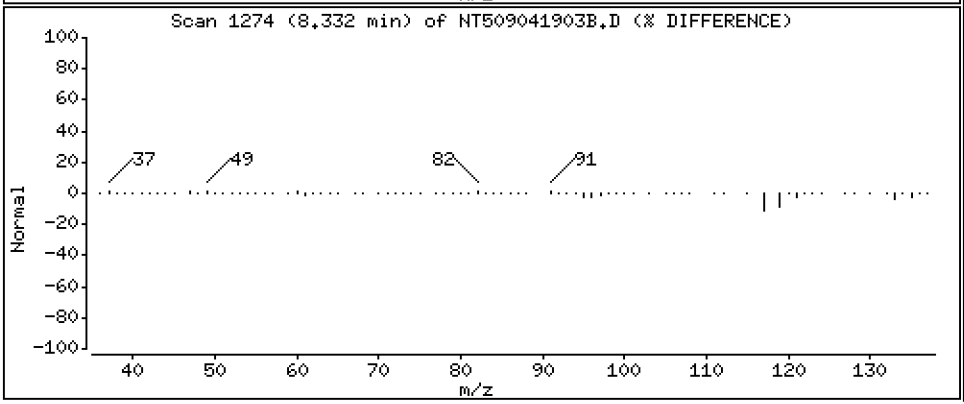
55 1,1,1,2-Tetrachloroethane

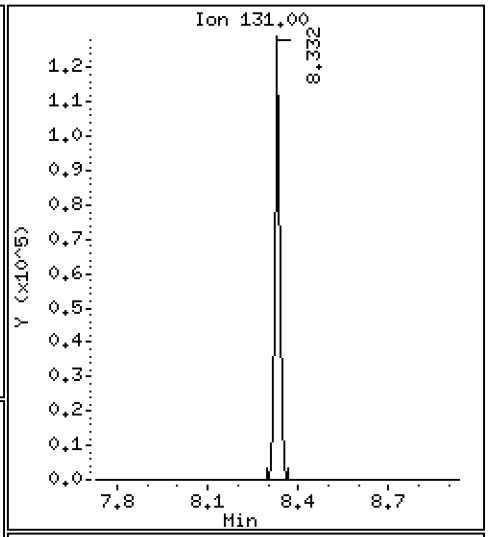
Concentration: 43.976 ug/Kg

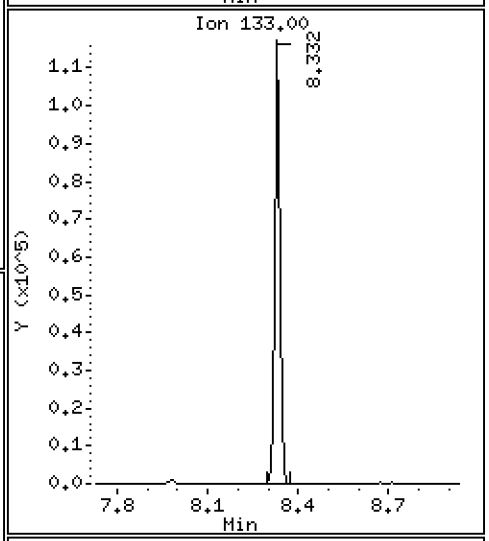


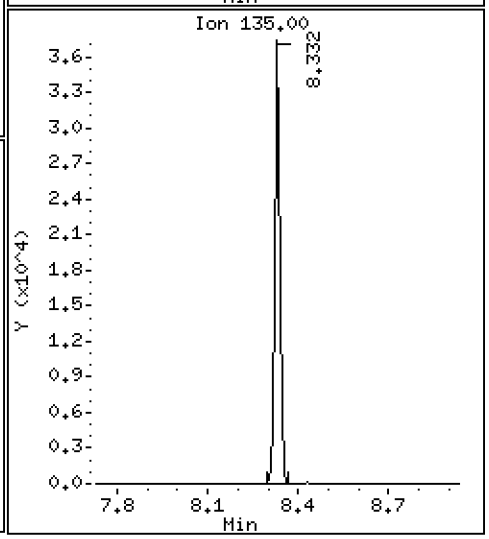












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

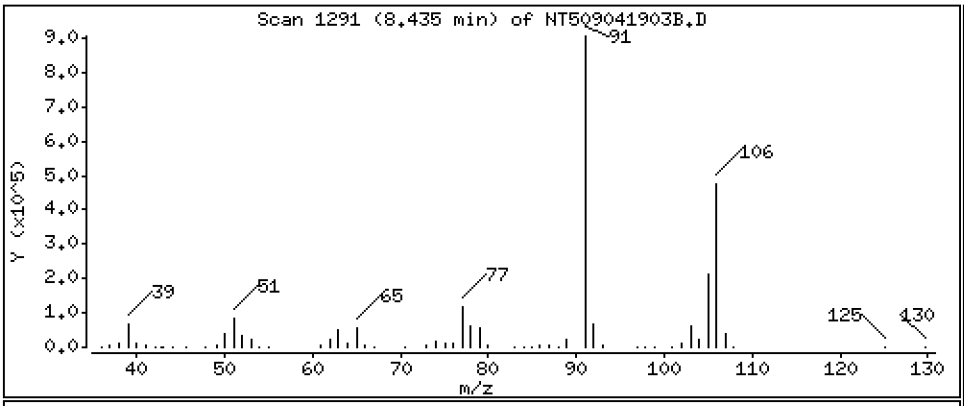
Operator: PB

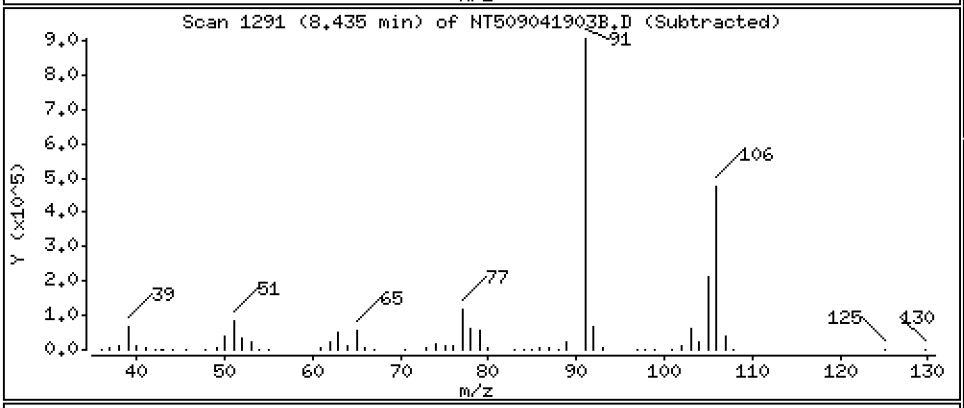
Column phase: RTXVMS

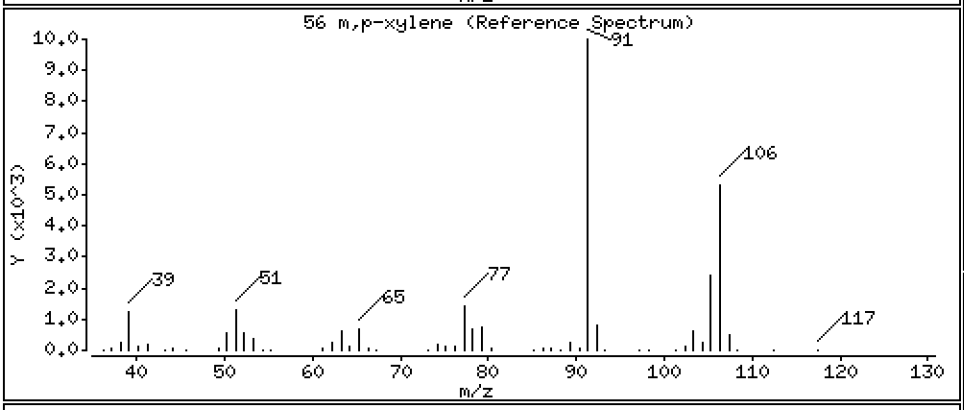
Column diameter: 0.18

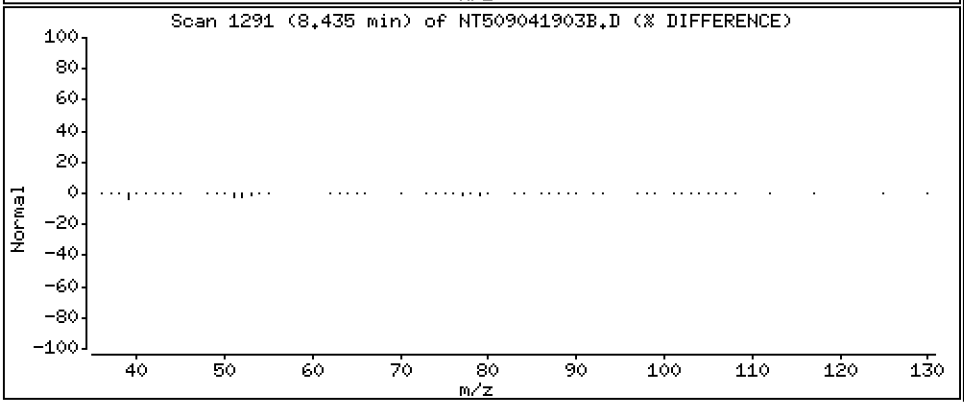
56 m,p-xylene

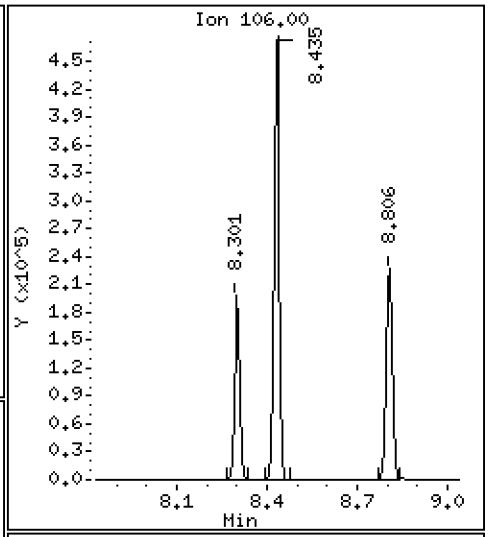
Concentration: 91.673 ug/Kg

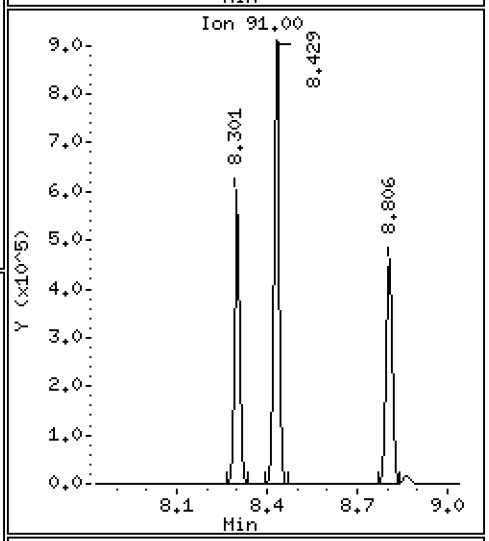


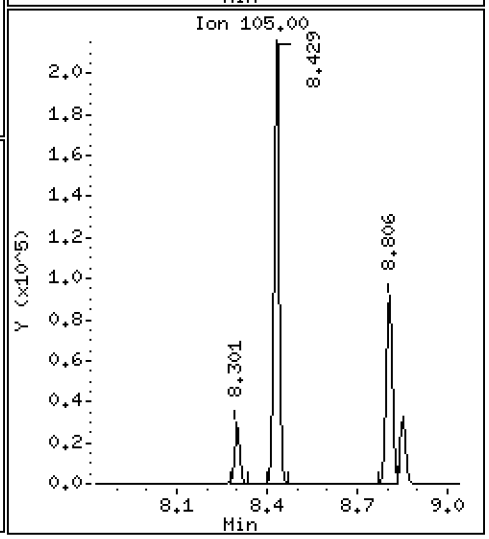












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

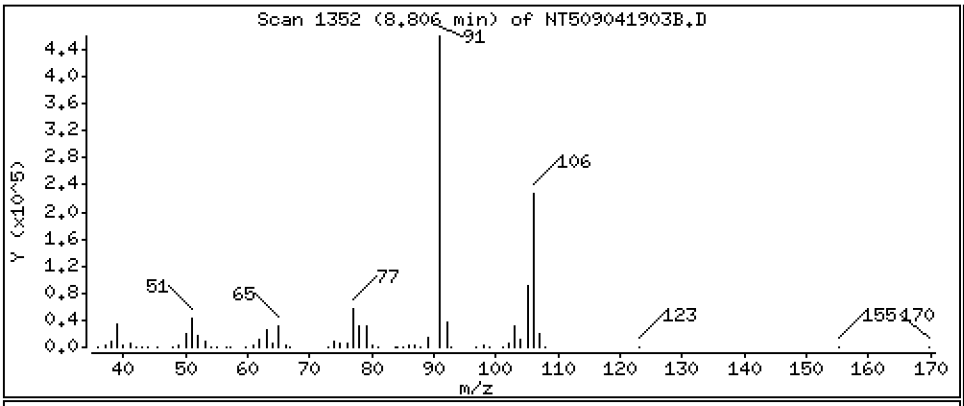
Operator: PB

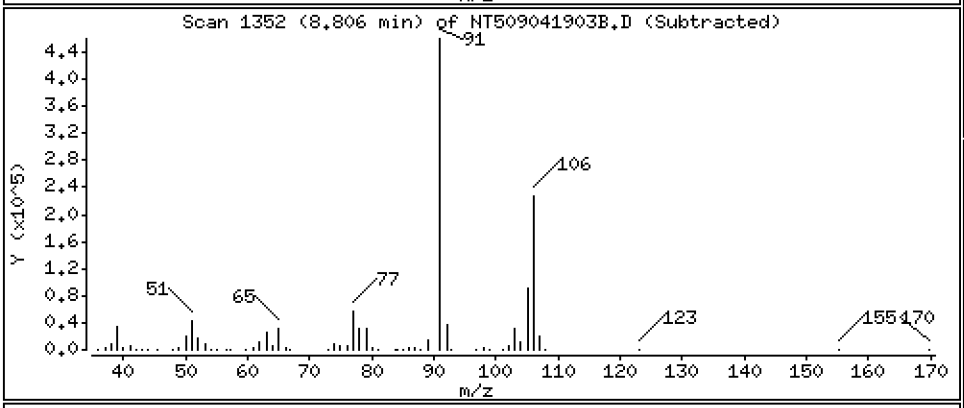
Column phase: RTXVMS

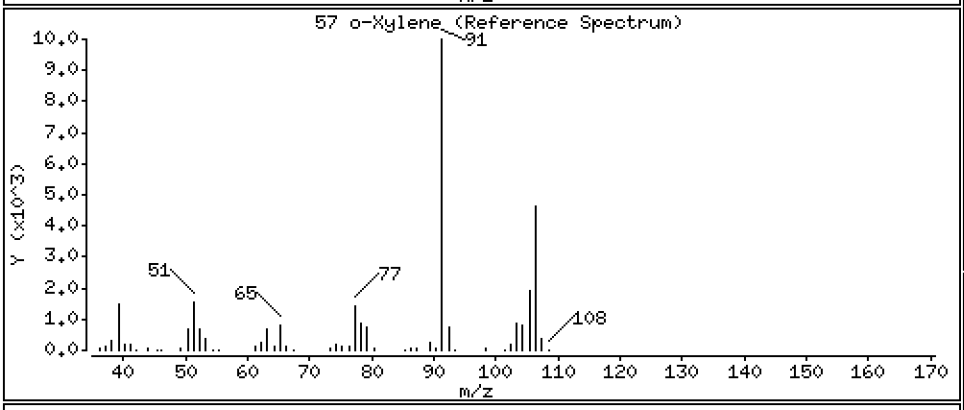
Column diameter: 0.18

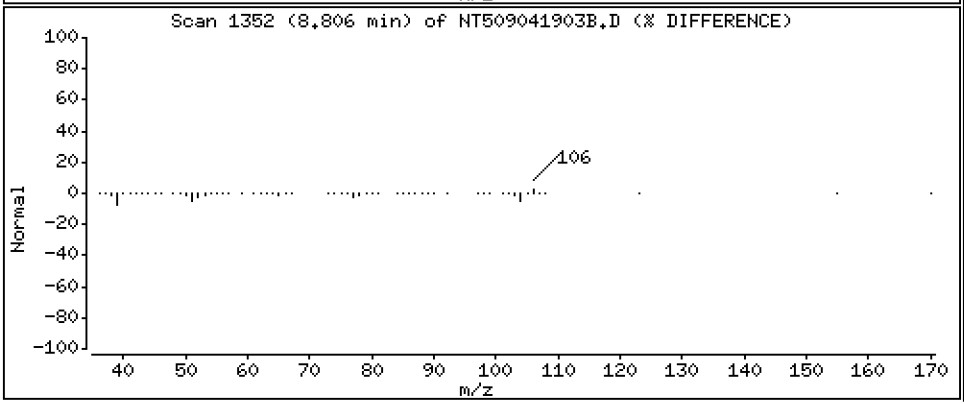
57 o-Xylene

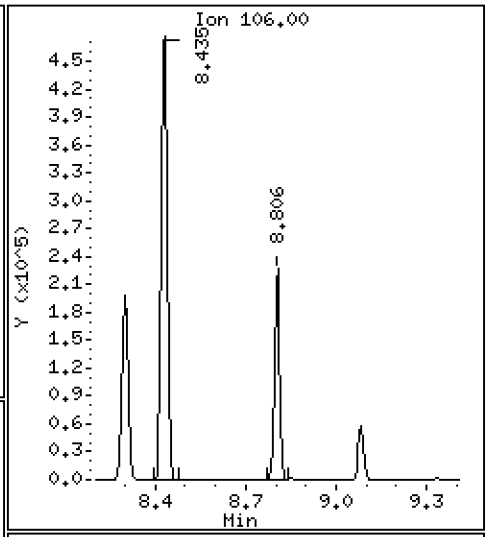
Concentration: 46.036 ug/Kg

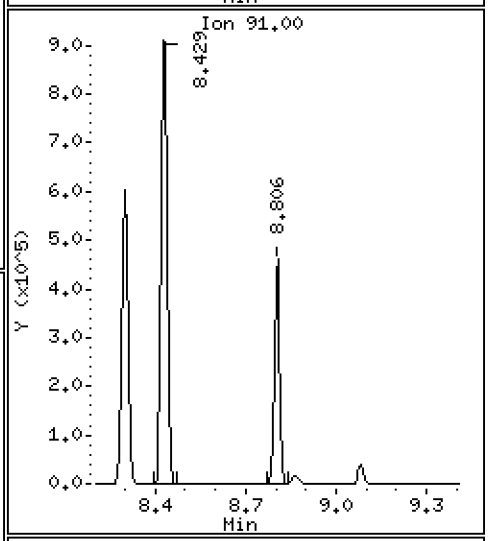


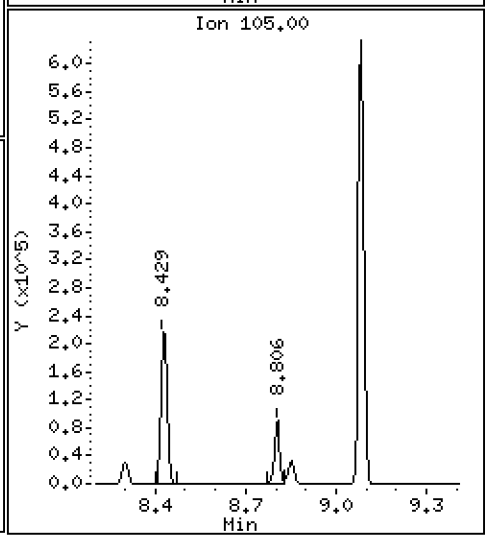












Date : 04-SEP-2019 14:02

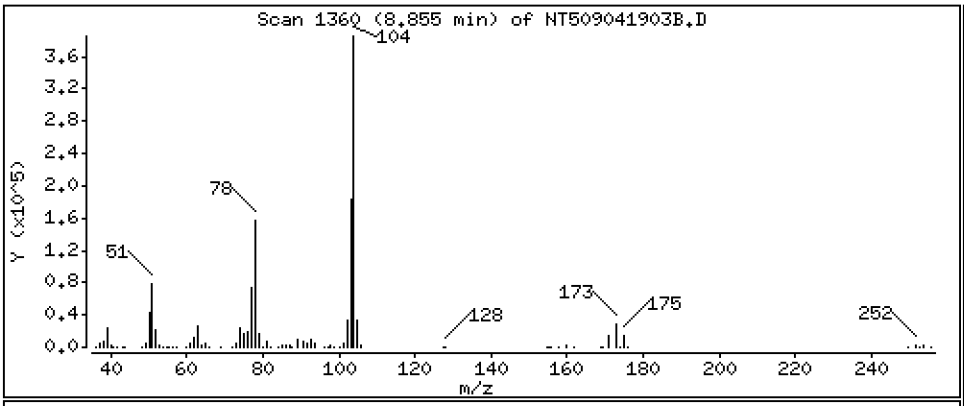
Client ID: Instrument: nt5.i

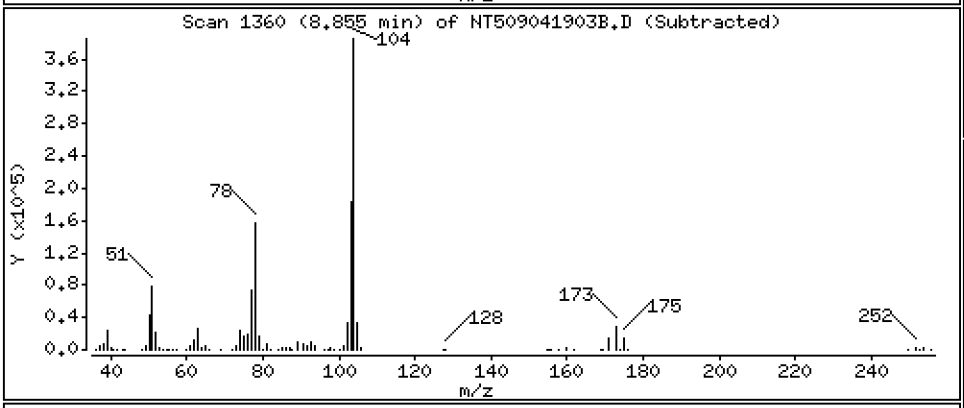
Sample Info: ICV1

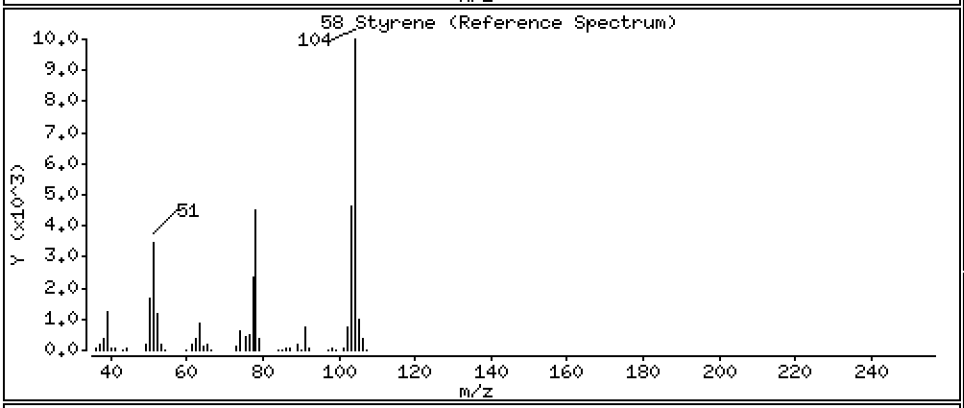
Operator: PB

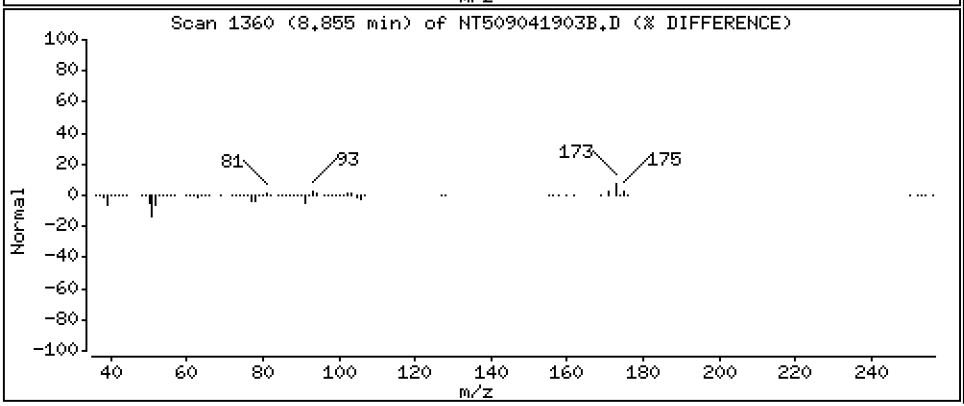
Column phase: RTXVMS Column diameter: 0.18

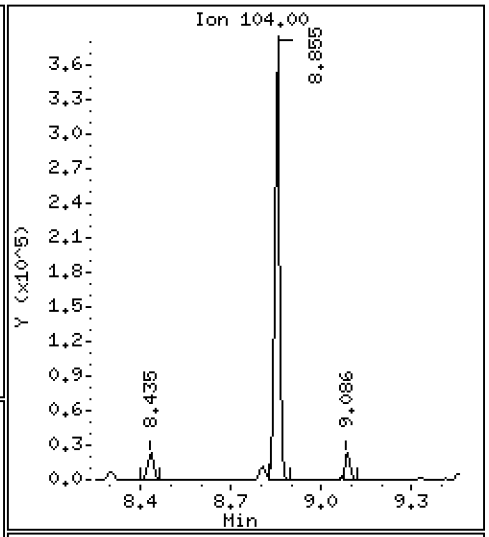
58 Styrene Concentration: 45.282 ug/Kg

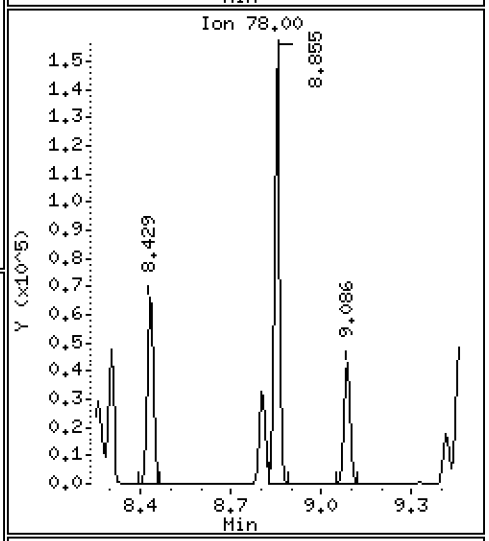


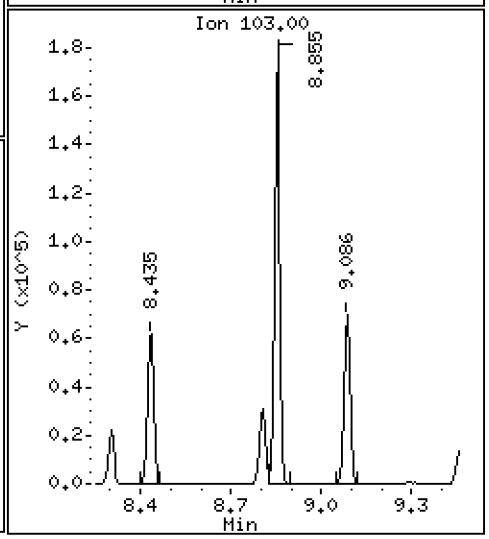












Date : 04-SEP-2019 14:02

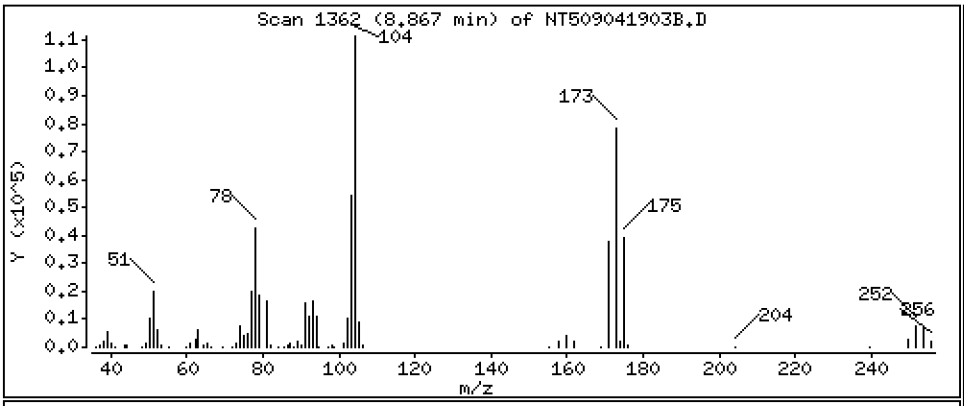
Client ID: Instrument: nt5.i

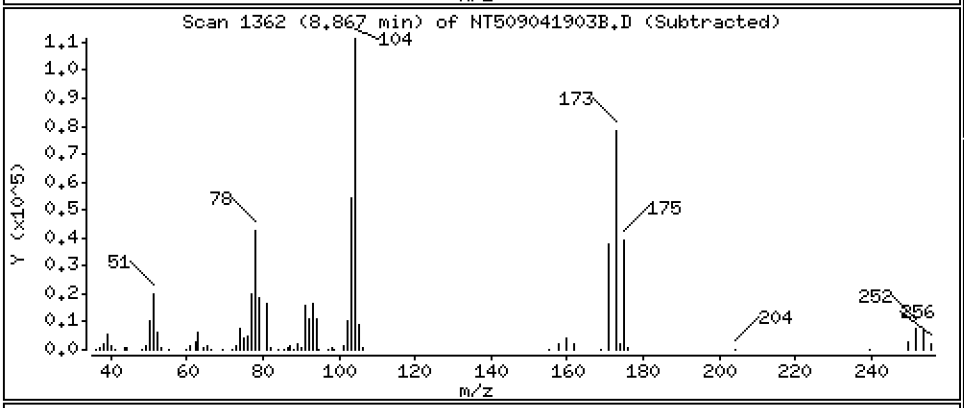
Sample Info: ICV1

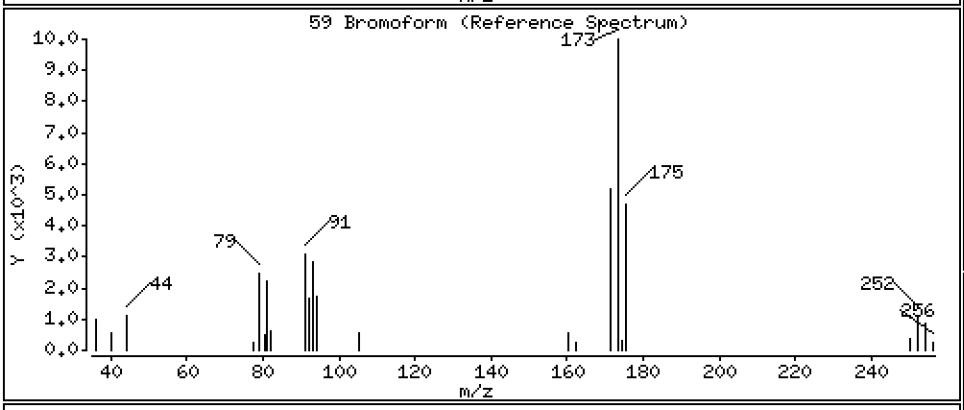
Operator: PB

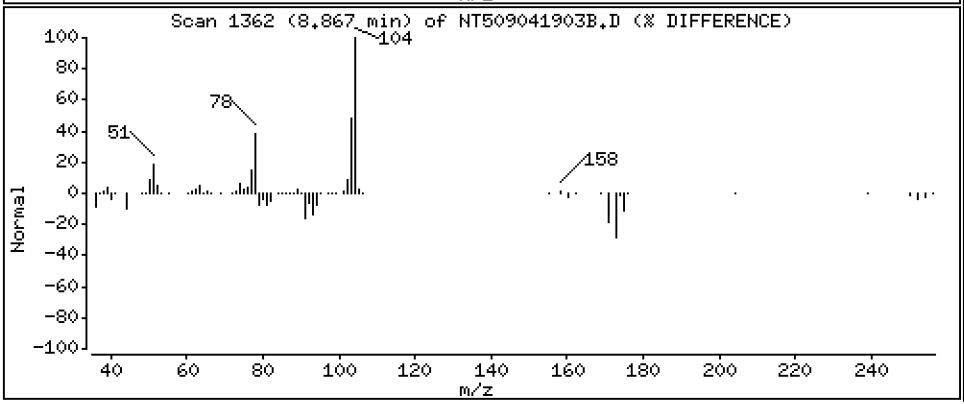
Column phase: RTXVMS Column diameter: 0.18

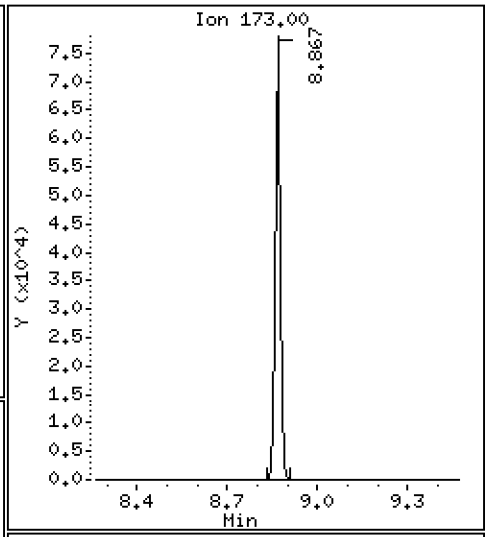
59 Bromoform Concentration: 40.420 ug/Kg

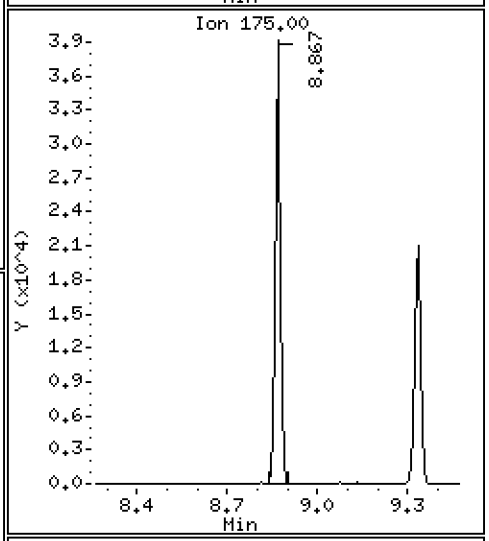


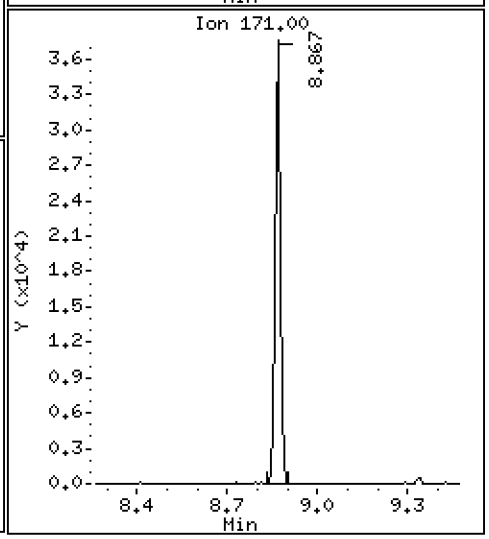












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

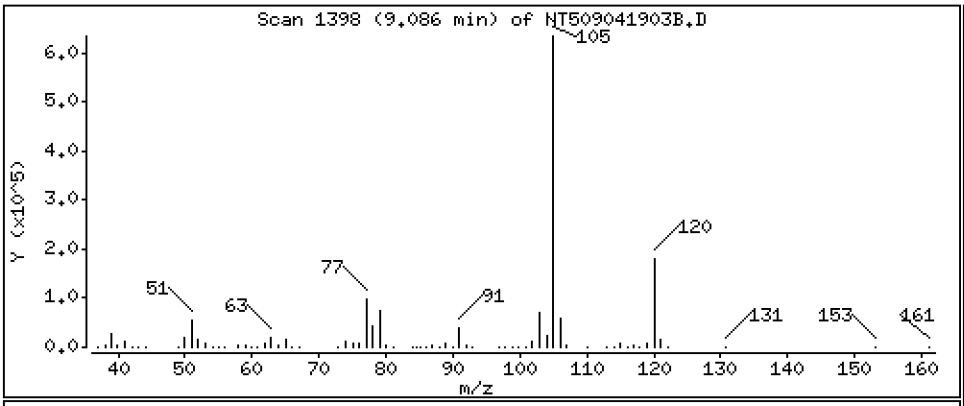
Operator: PB

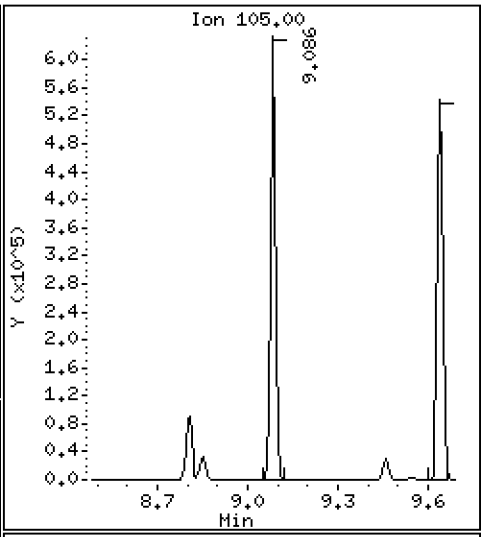
Column phase: RTXVMS

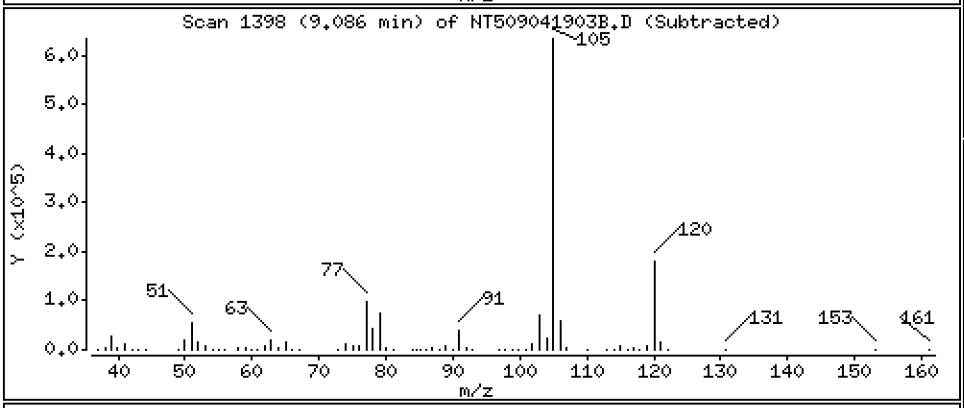
Column diameter: 0.18

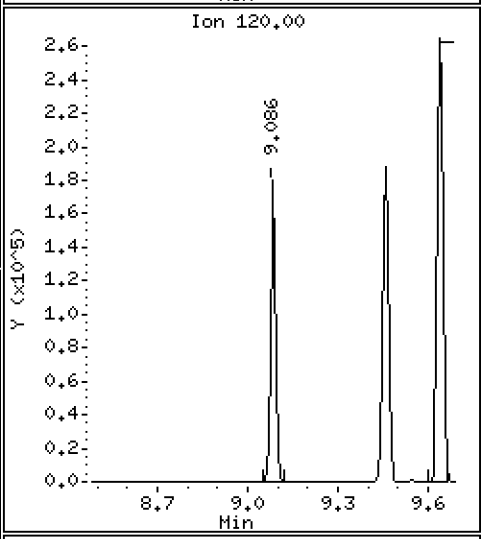
60 Isopropyl Benzene

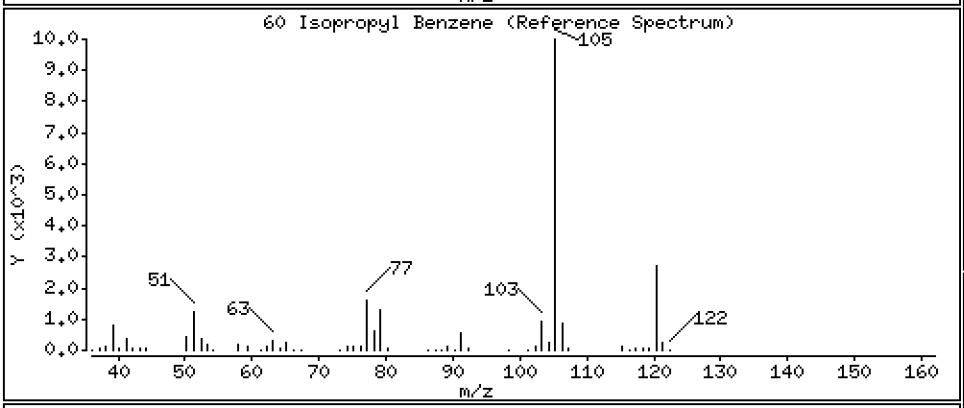
Concentration: 46.473 ug/Kg

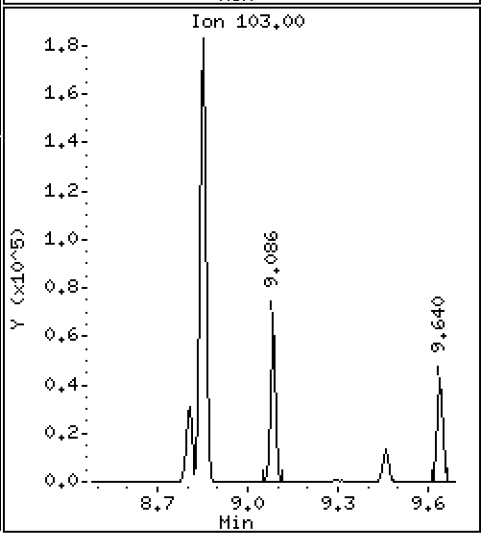


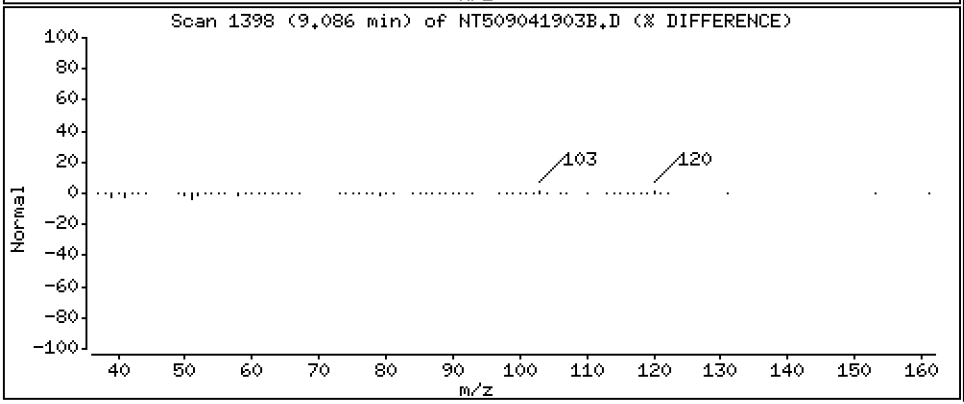












Date : 04-SEP-2019 14:02

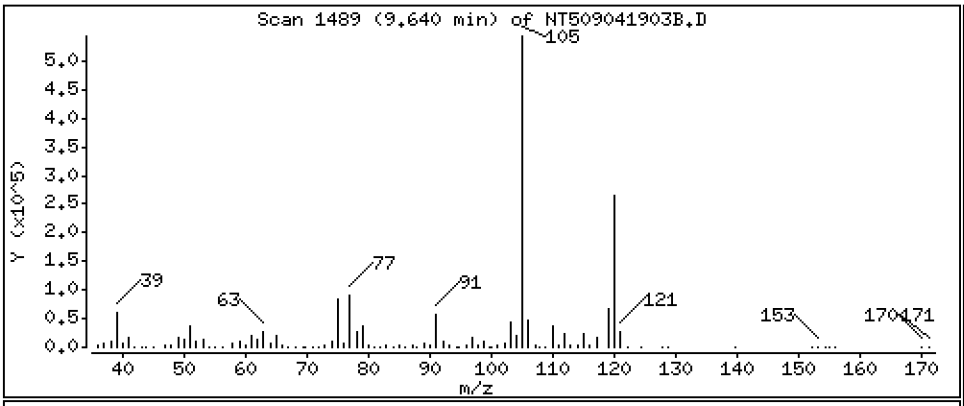
Client ID: Instrument: nt5.i

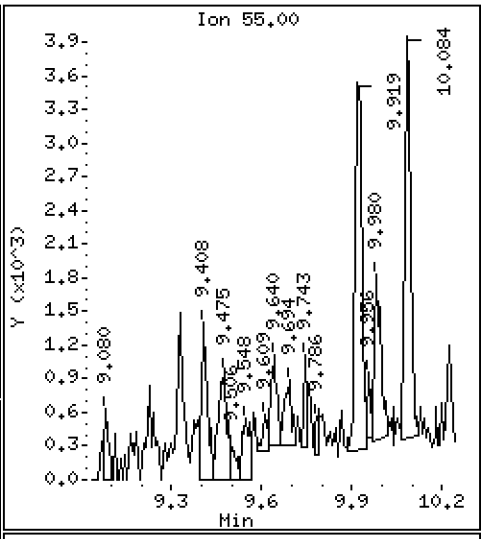
Sample Info: ICV1

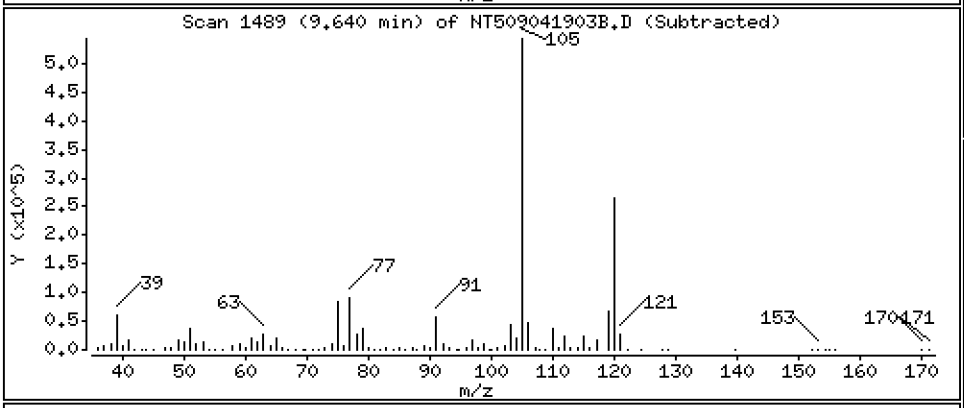
Operator: PB

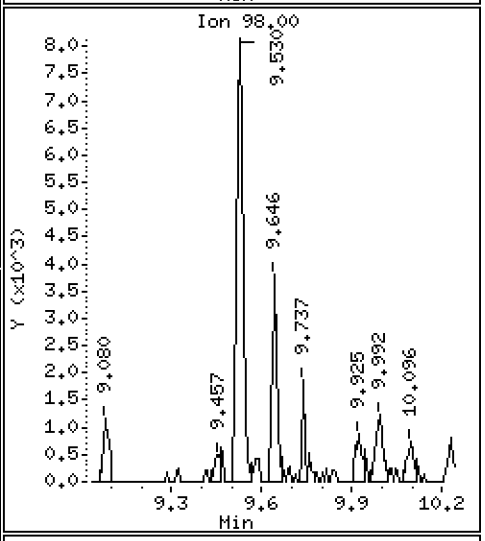
Column phase: RTXVMS Column diameter: 0.18

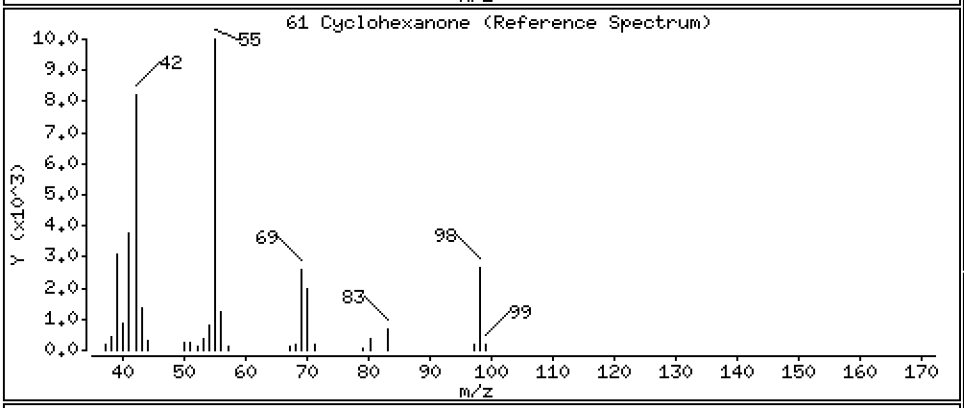
61 Cyclohexanone

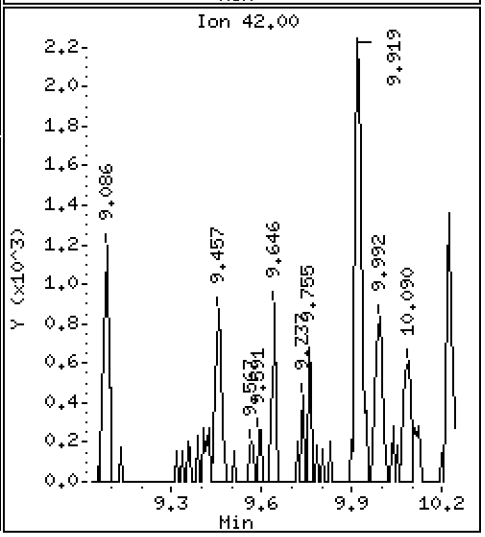


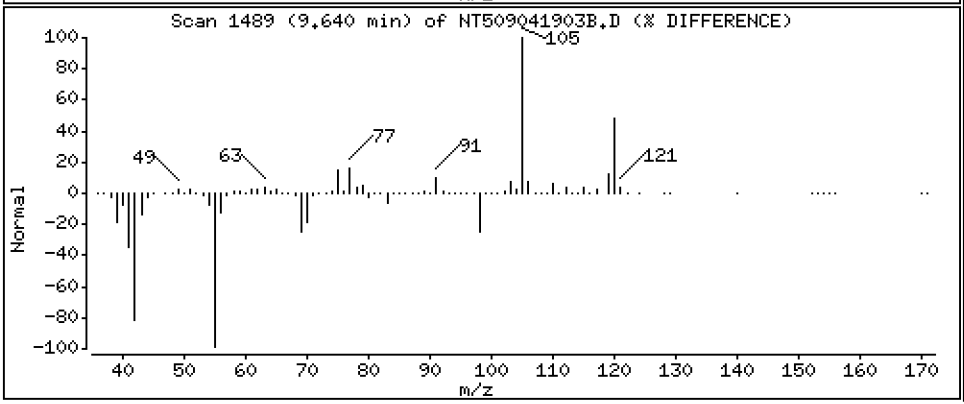












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

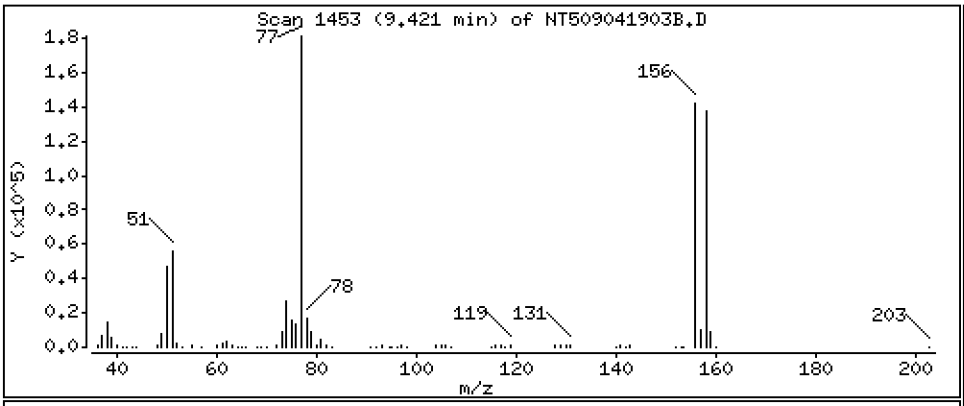
Operator: PB

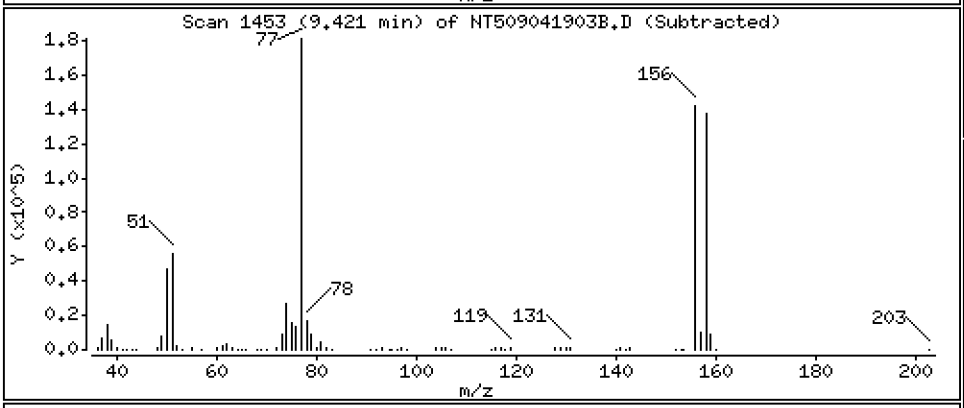
Column phase: RTXVMS

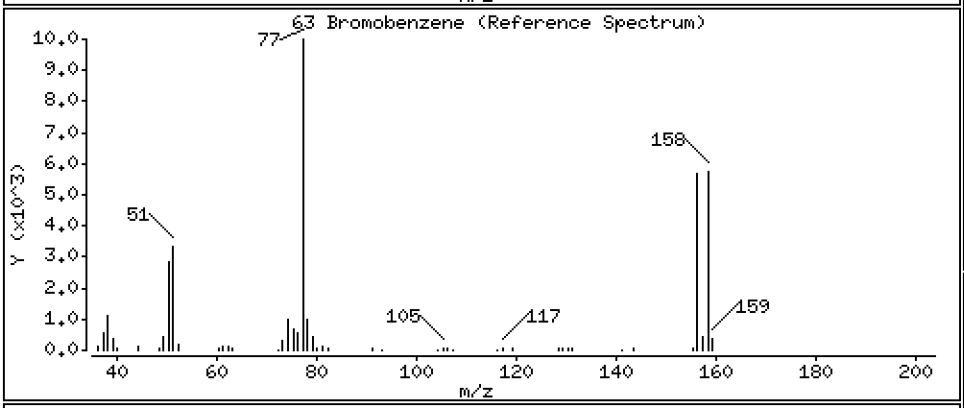
Column diameter: 0.18

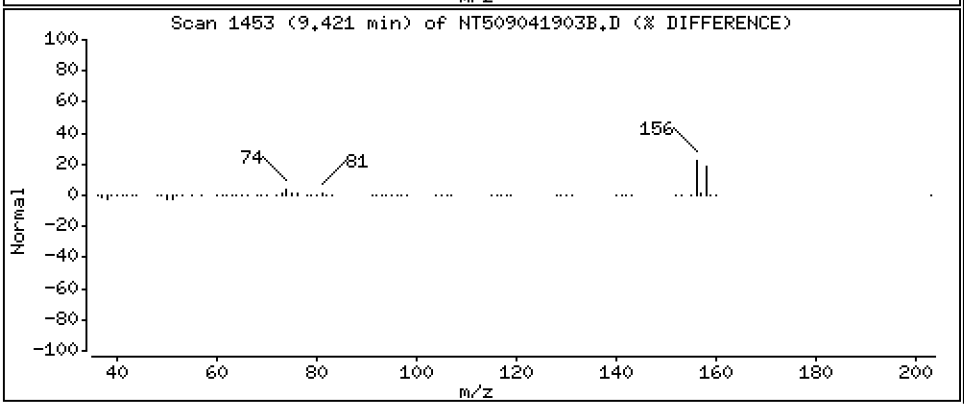
63 Bromobenzene

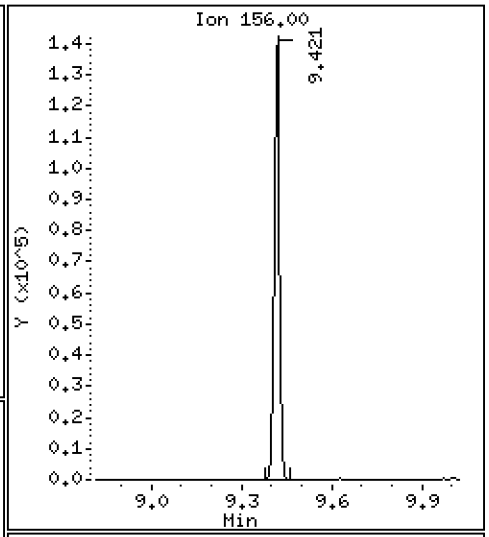
Concentration: 42.415 ug/Kg

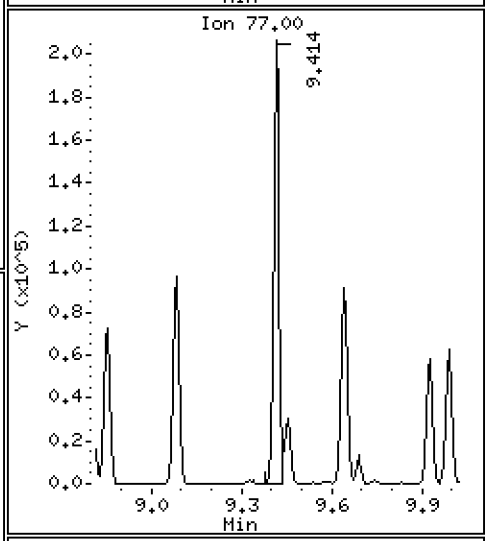


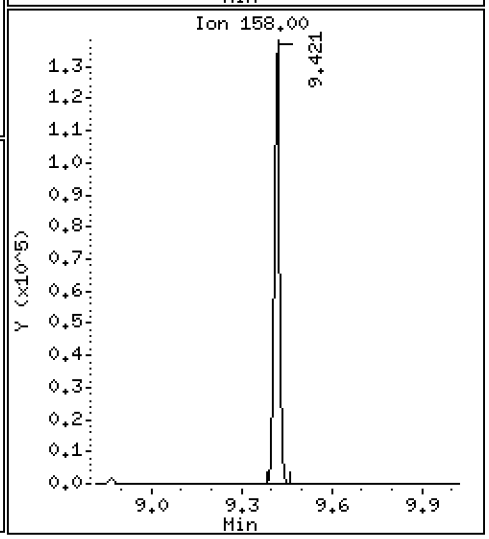












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

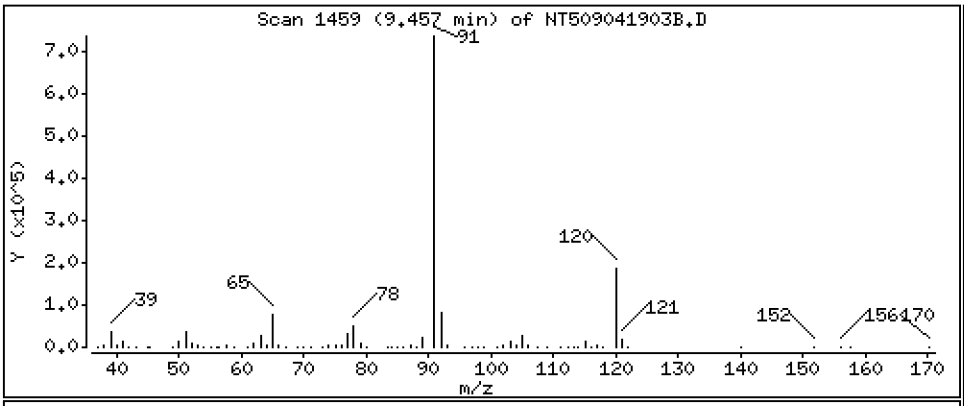
Operator: PB

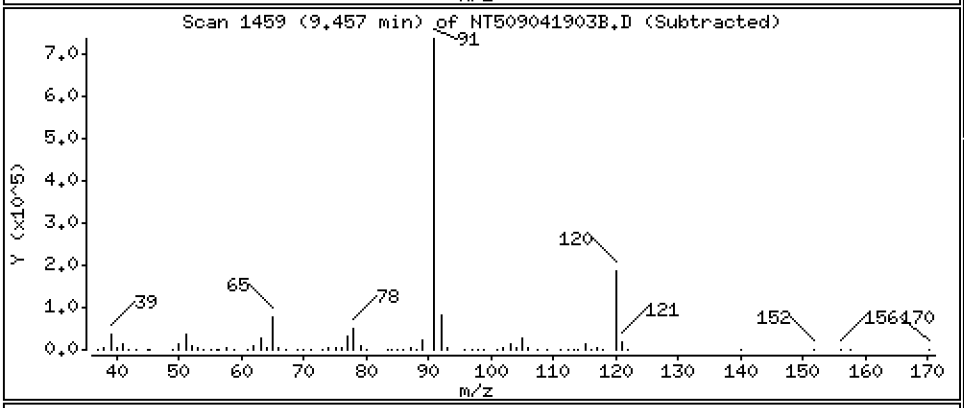
Column phase: RTXVMS

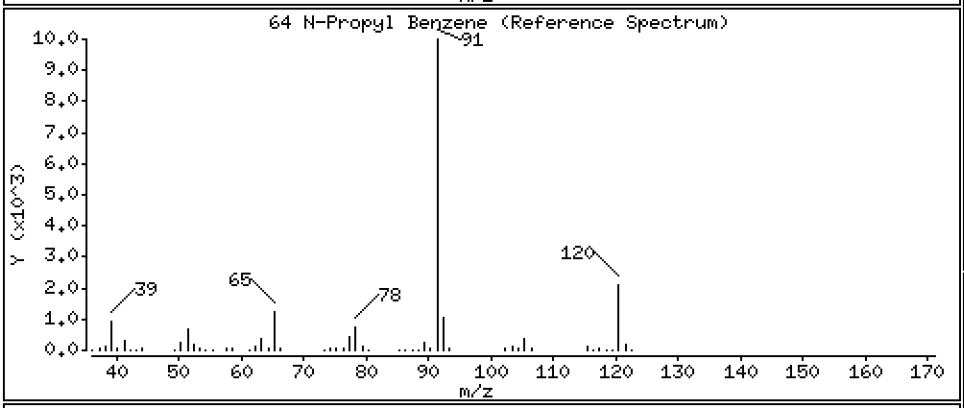
Column diameter: 0.18

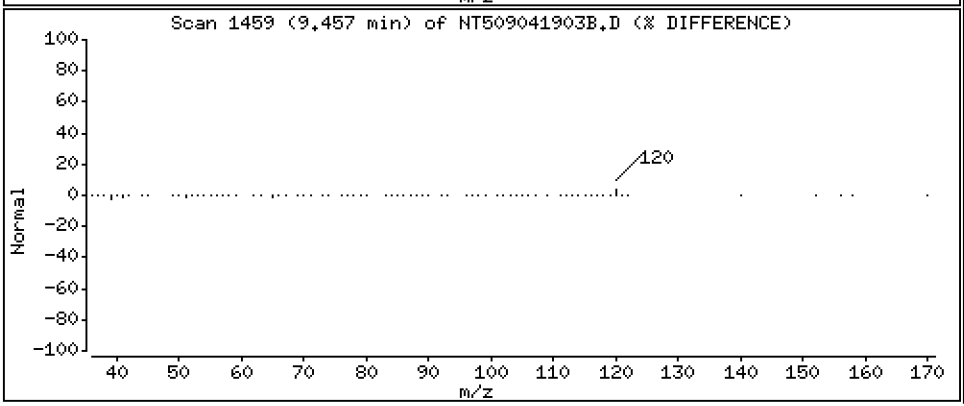
64 N-Propyl Benzene

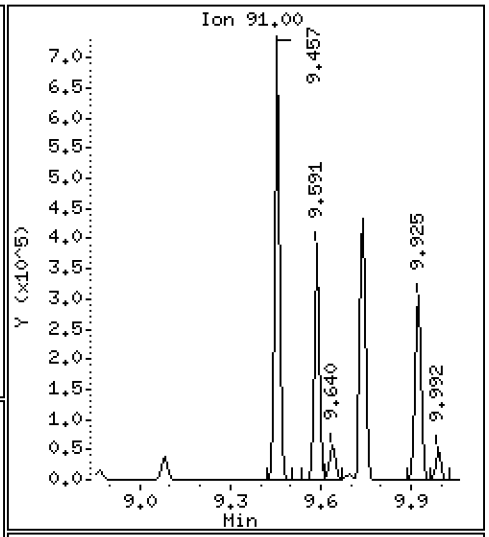
Concentration: 46.160 ug/Kg

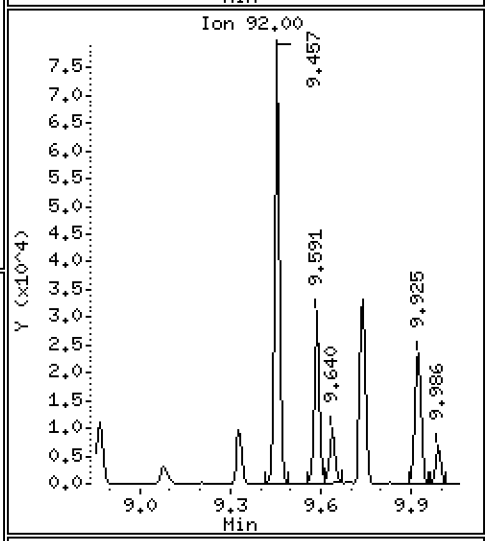


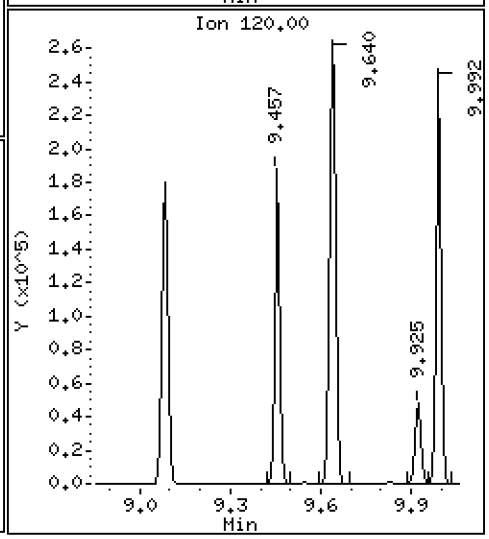












Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

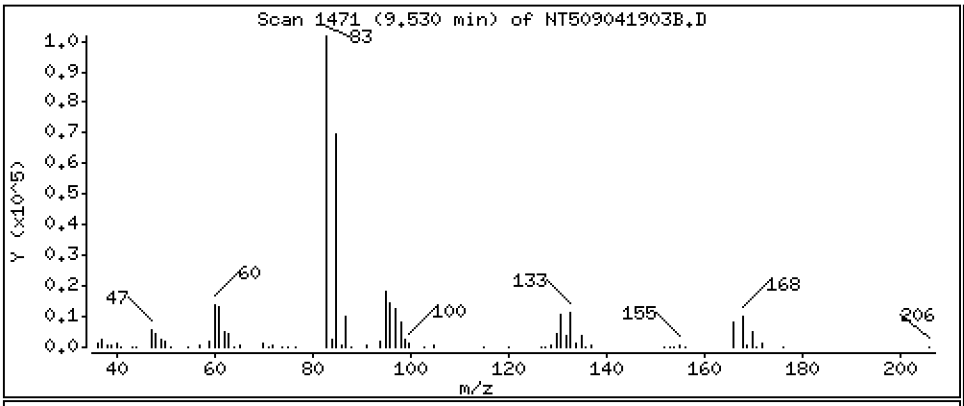
Operator: PB

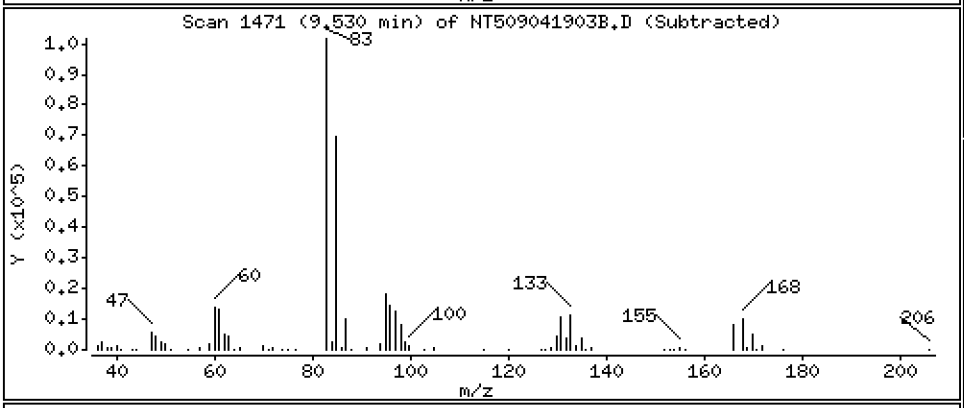
Column phase: RTXVMS

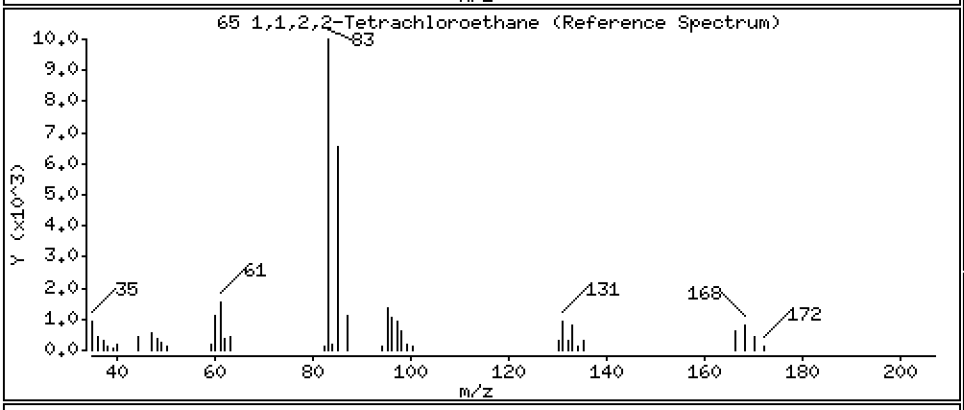
Column diameter: 0.18

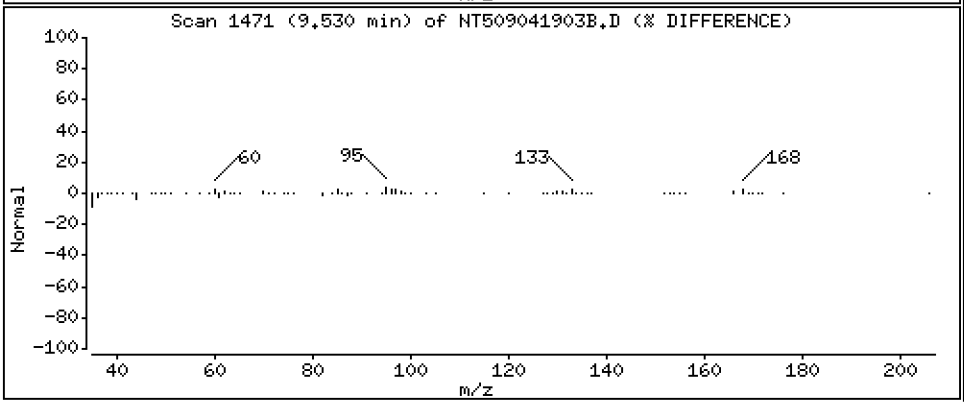
65 1,1,2,2-Tetrachloroethane

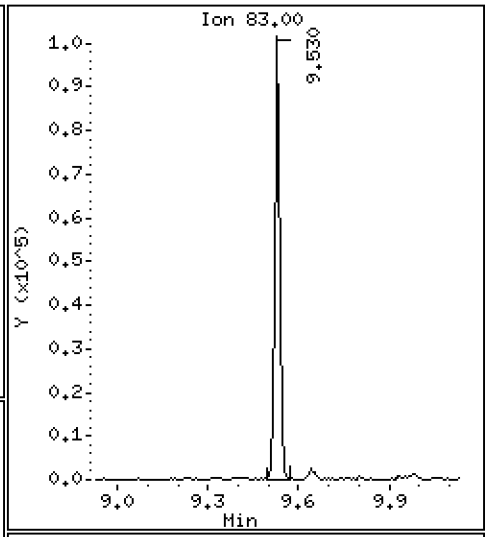
Concentration: 41.819 ug/Kg

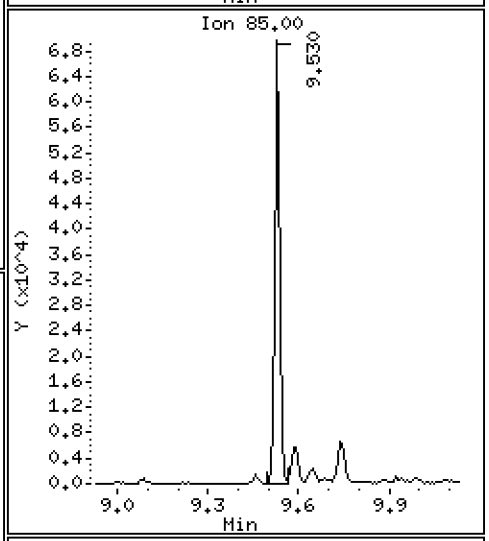


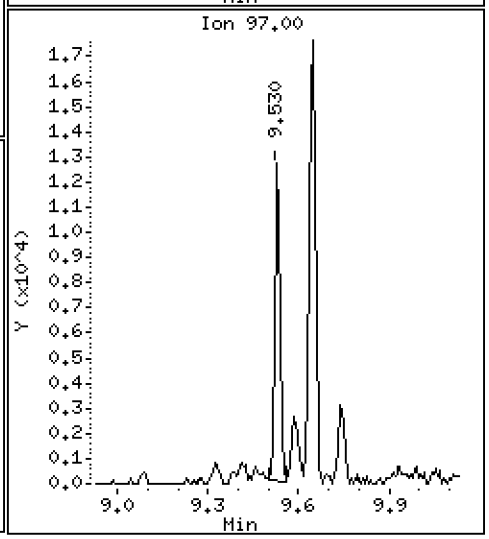












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

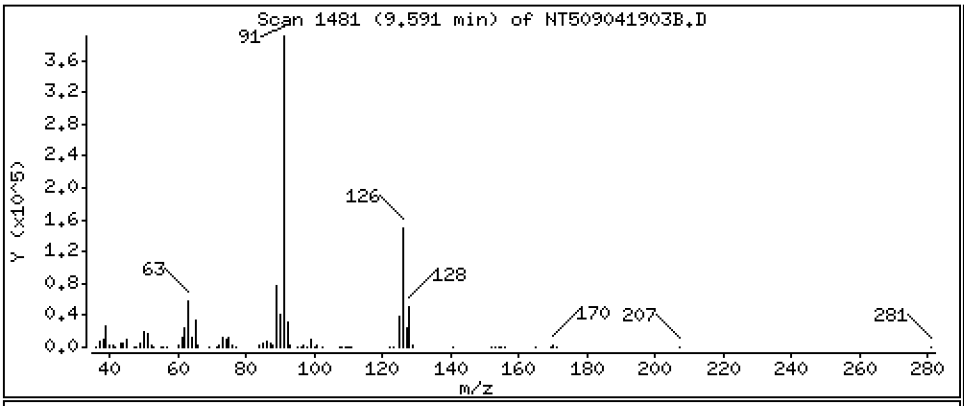
Operator: PB

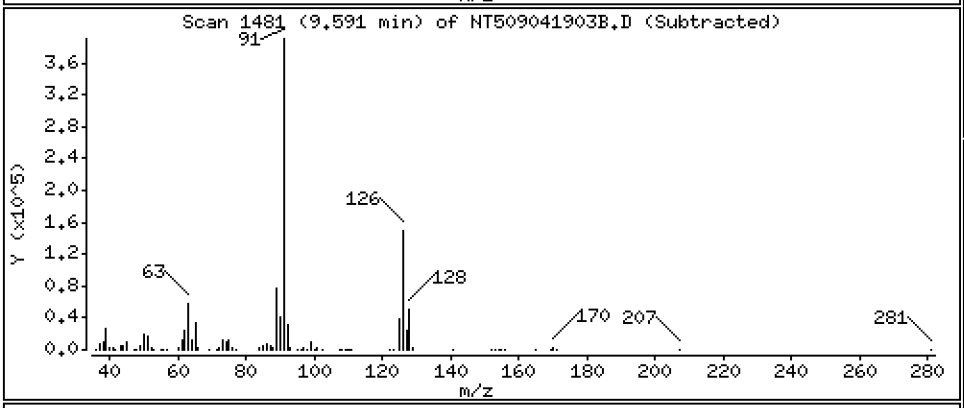
Column phase: RTXVMS

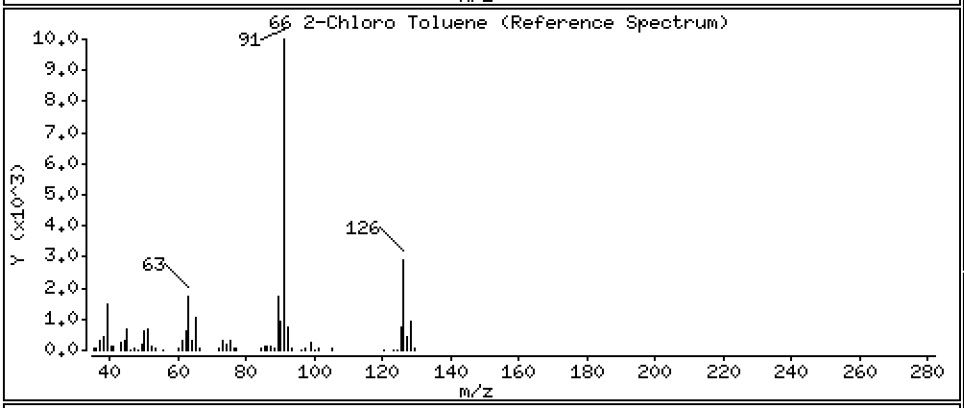
Column diameter: 0.18

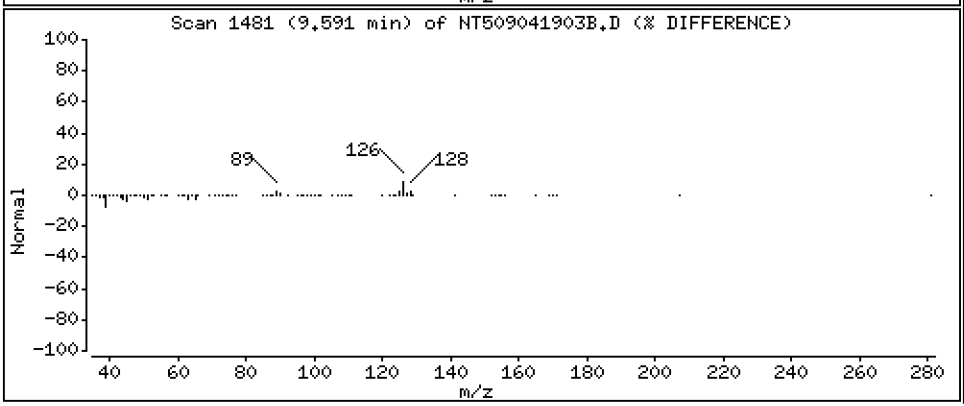
66 2-Chloro Toluene

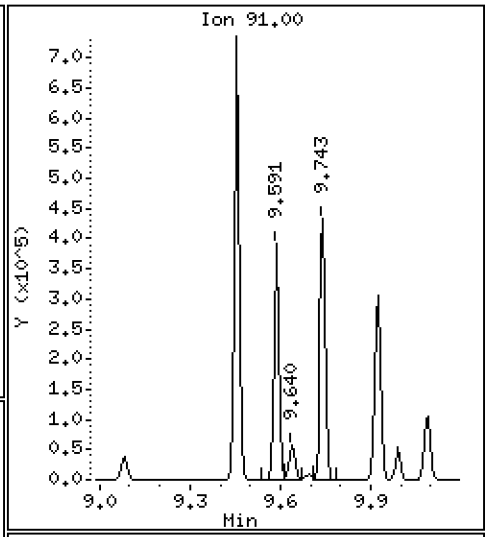
Concentration: 45.264 ug/Kg

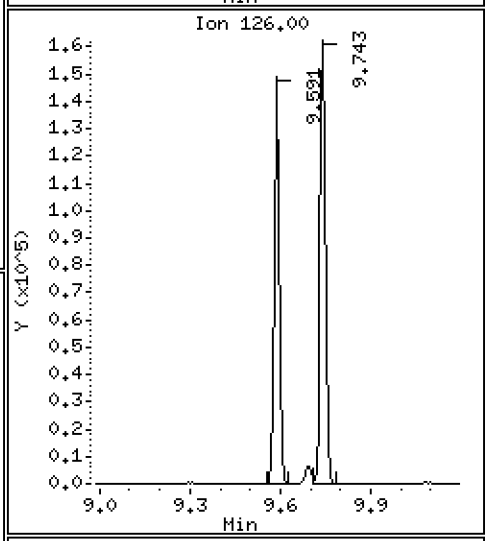


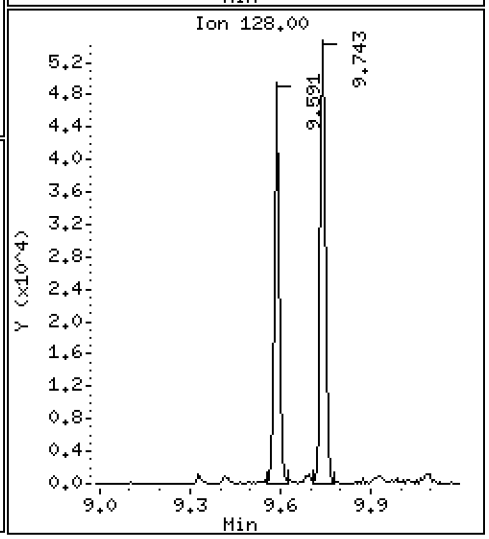












Date : 04-SEP-2019 14:02

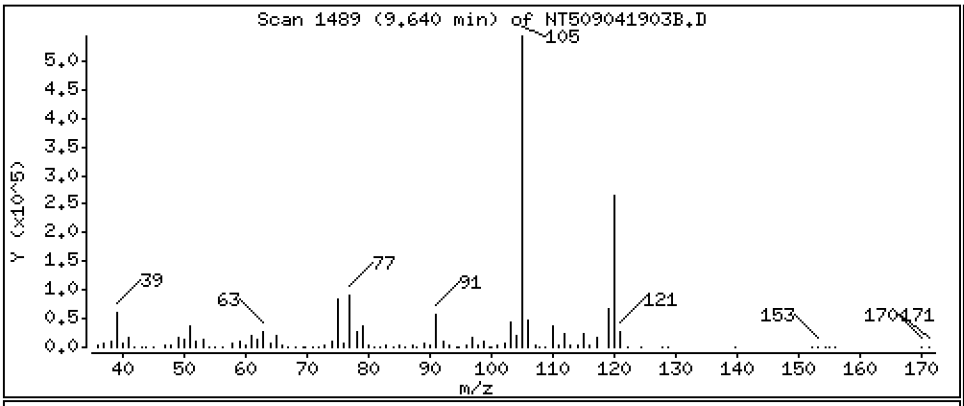
Client ID: Instrument: nt5.i

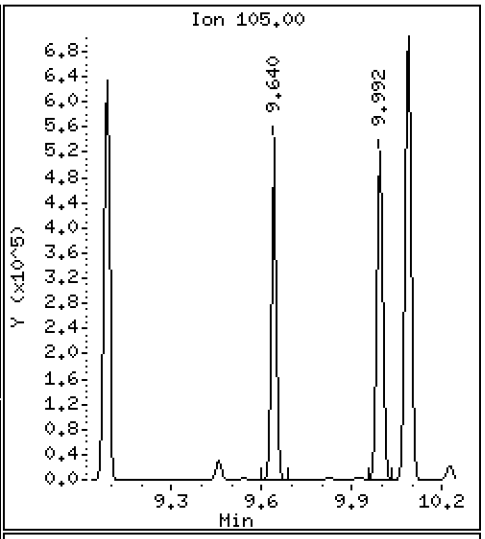
Sample Info: ICV1

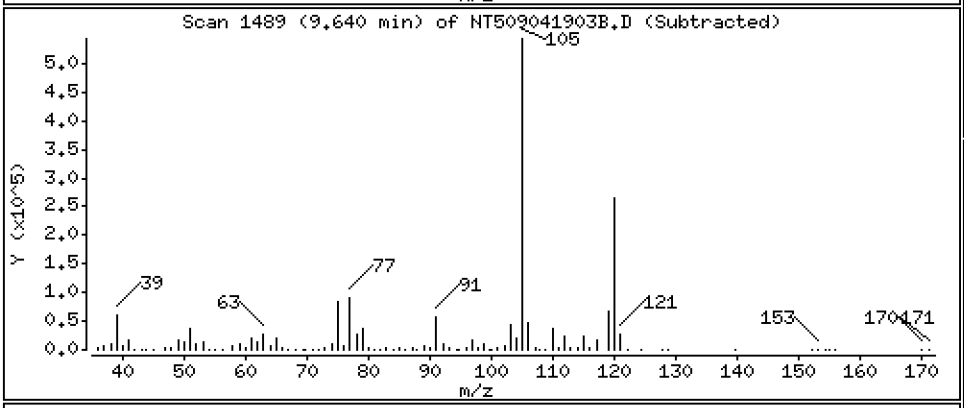
Operator: PB

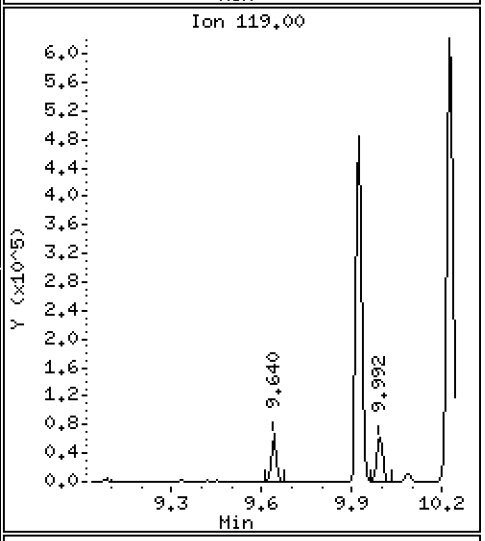
Column phase: RTXVMS Column diameter: 0.18

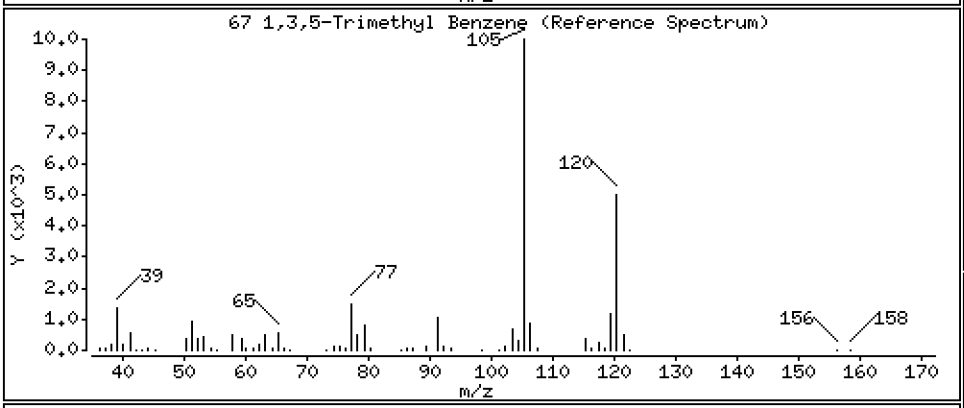
67 1,3,5-Trimethyl Benzene Concentration: 46.633 ug/Kg

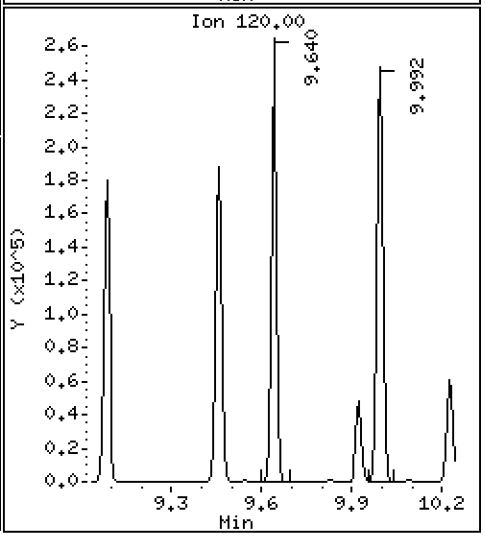


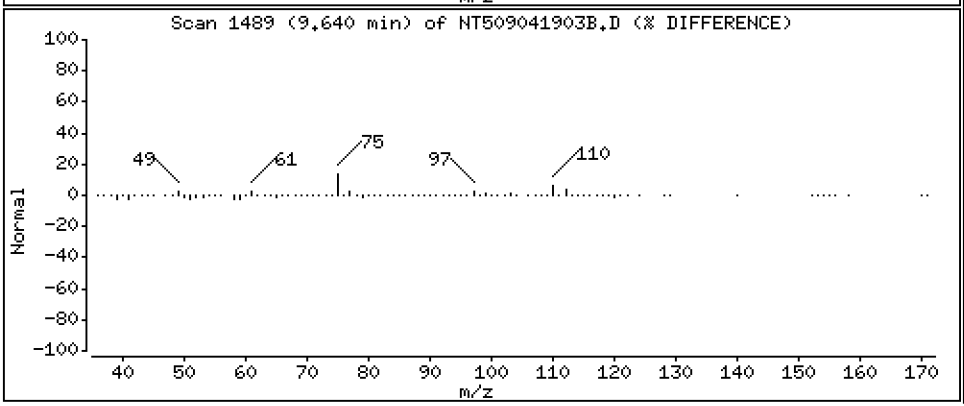












Date : 04-SEP-2019 14:02

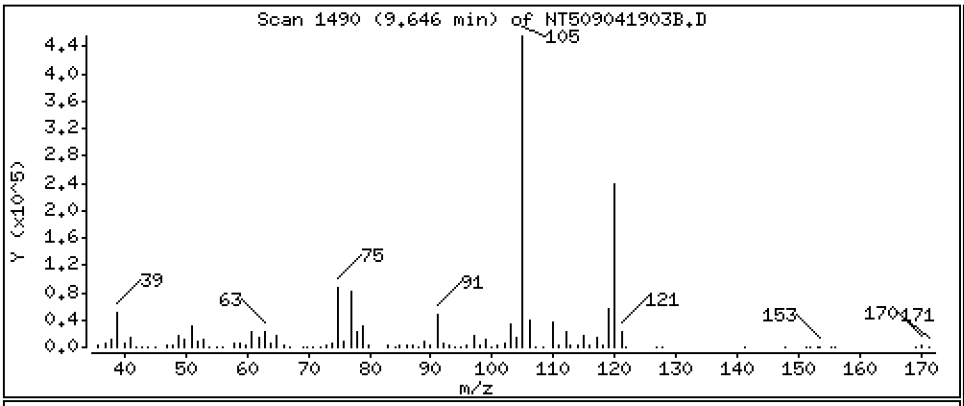
Client ID: Instrument: nt5.i

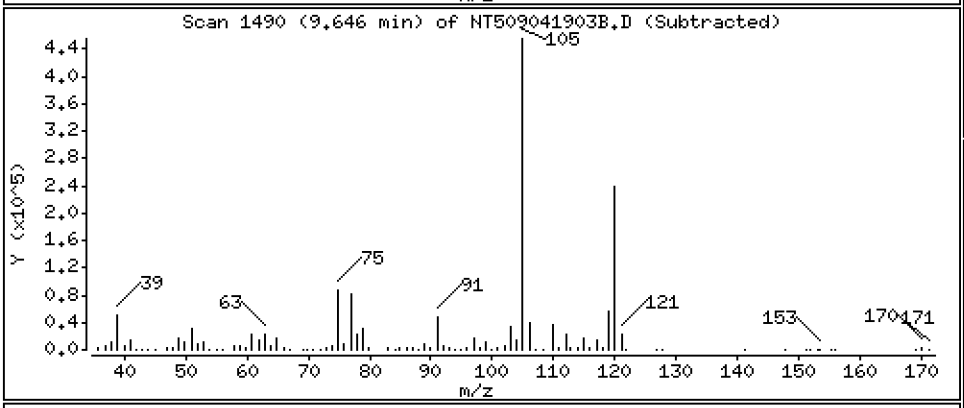
Sample Info: ICV1

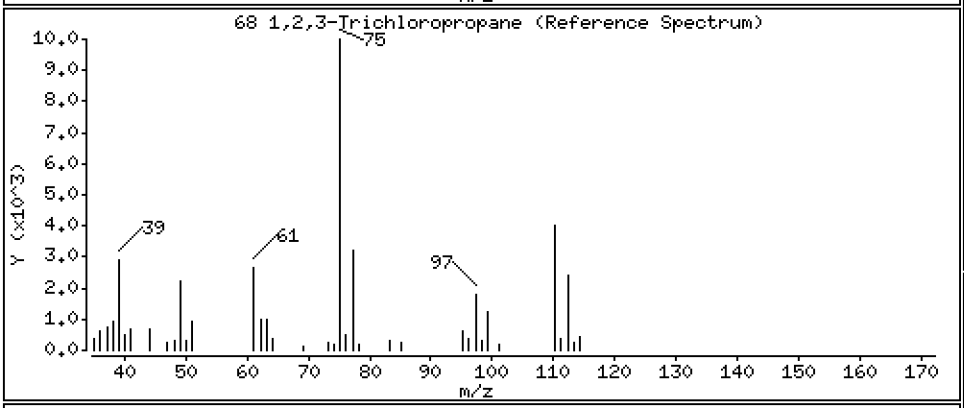
Operator: PB

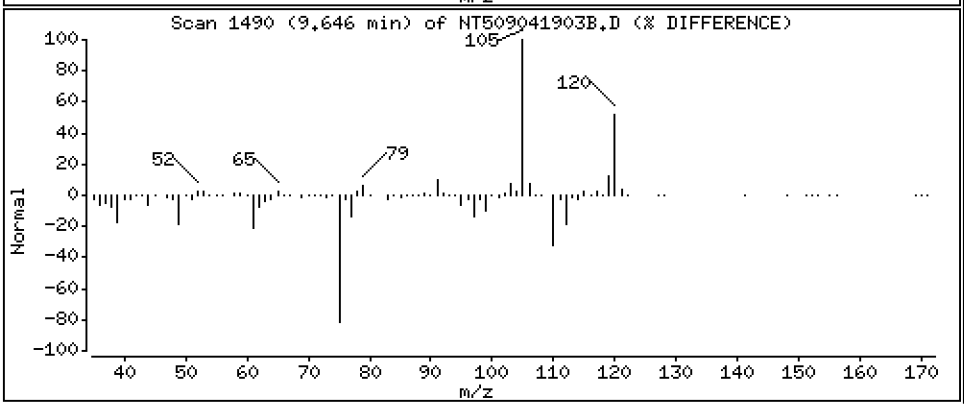
Column phase: RTXVMS Column diameter: 0.18

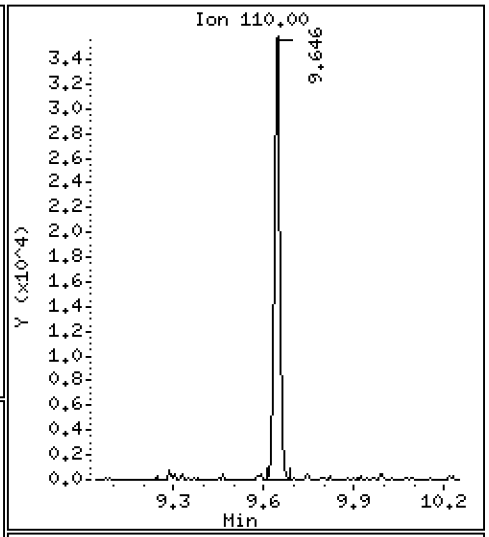
68 1,2,3-Trichloropropane Concentration: 45.227 ug/Kg

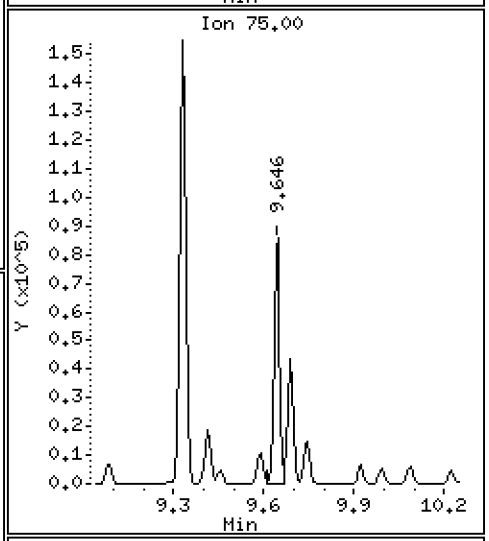


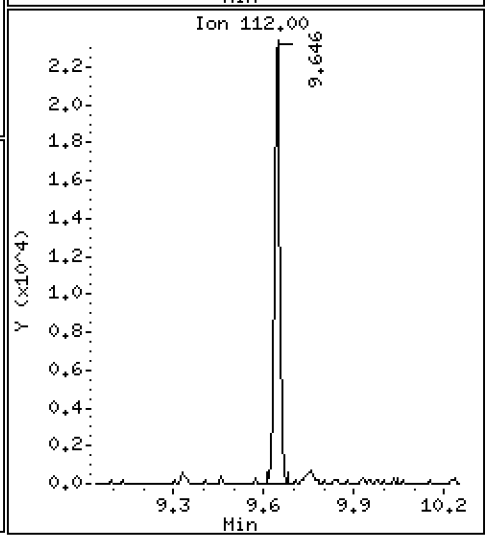












Date : 04-SEP-2019 14:02

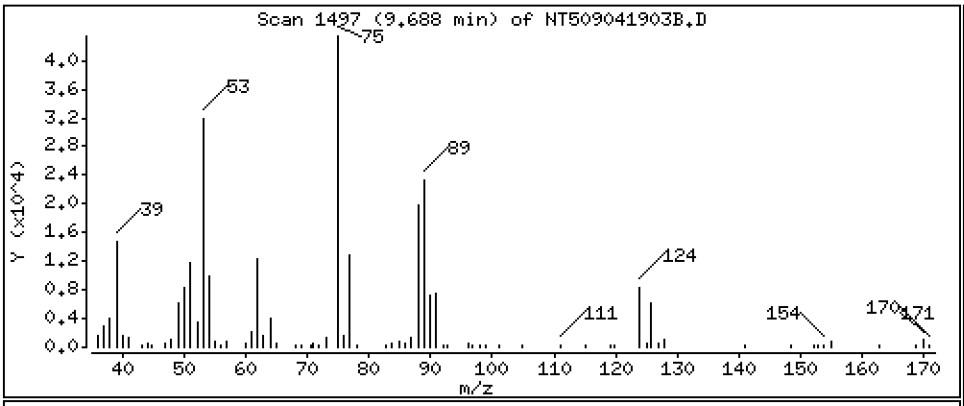
Client ID: Instrument: nt5.i

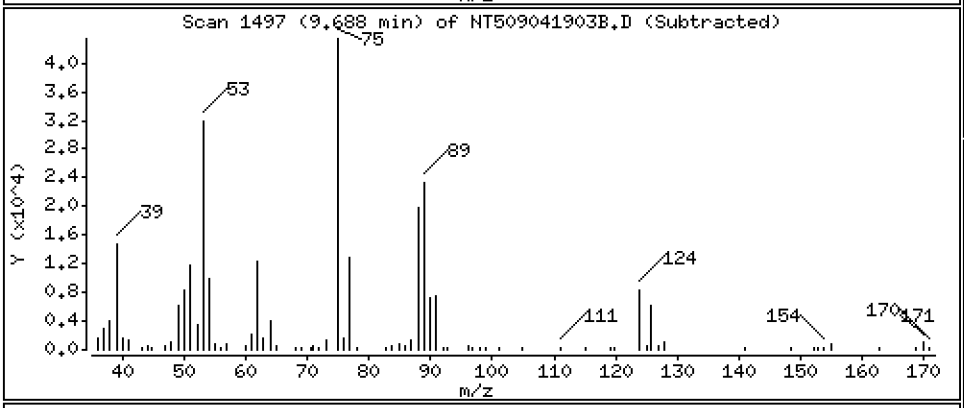
Sample Info: ICV1

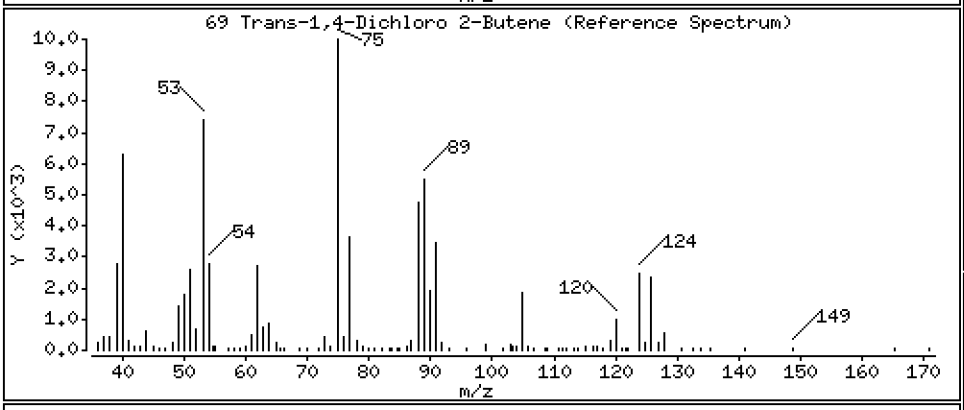
Operator: PB

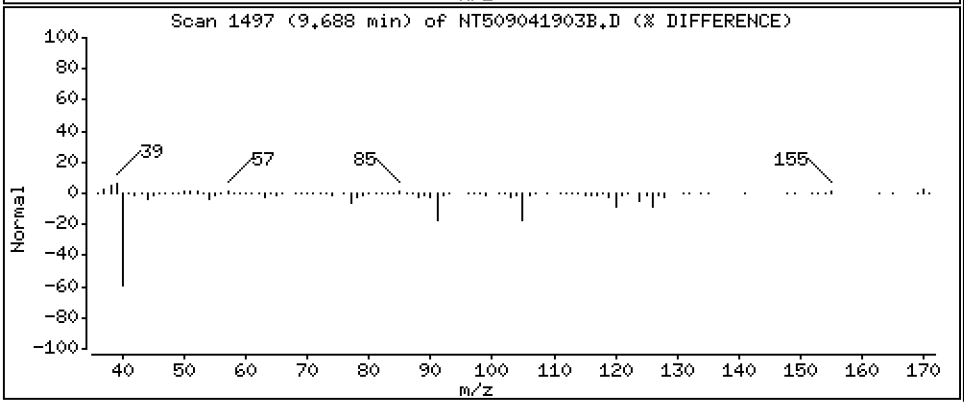
Column phase: RTXVMS Column diameter: 0.18

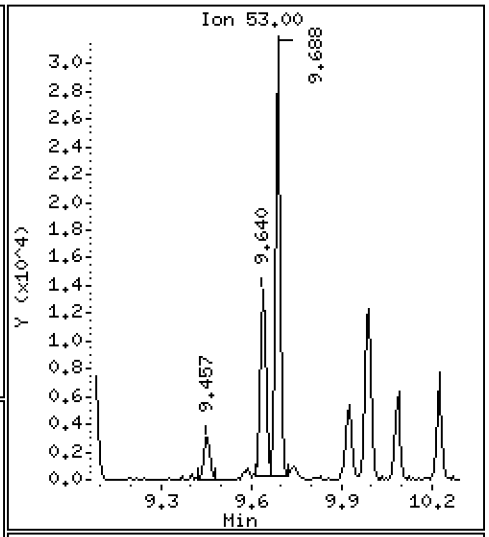
69 Trans-1,4-Dichloro 2-Butene Concentration: 42.121 ug/Kg

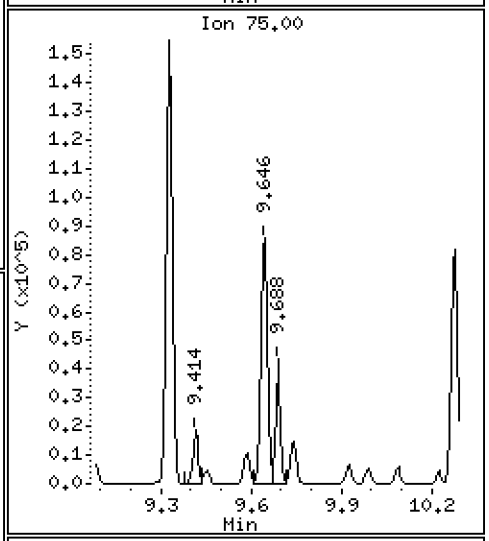


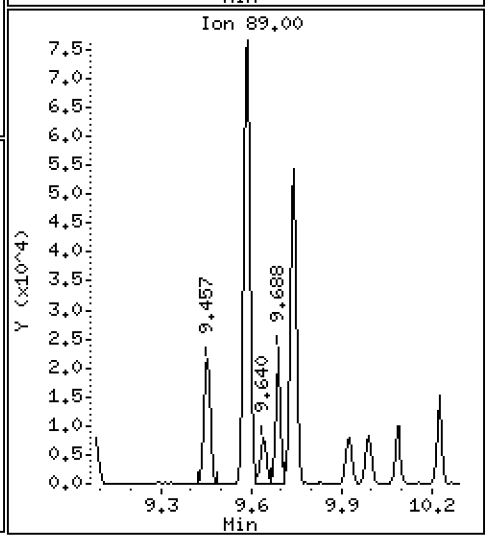












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

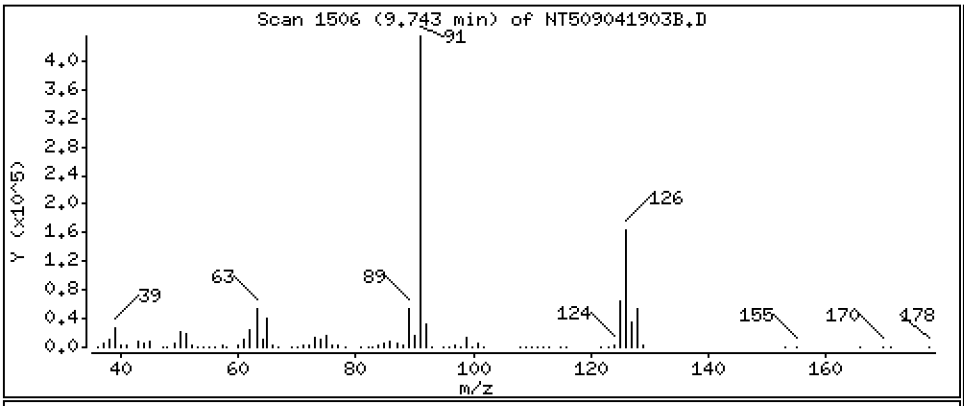
Operator: PB

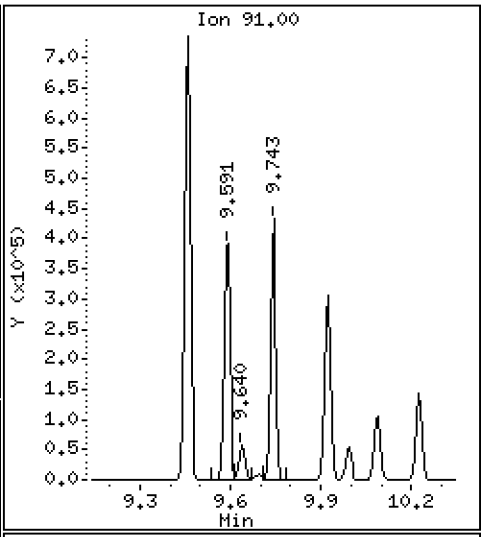
Column phase: RTXVMS

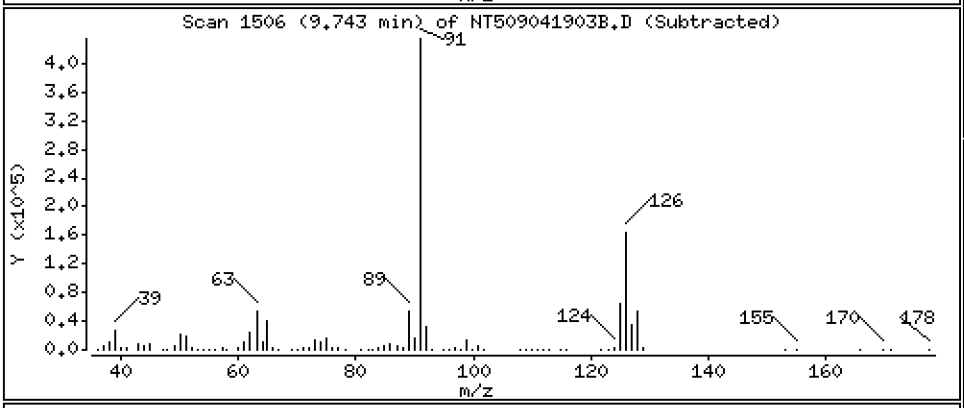
Column diameter: 0.18

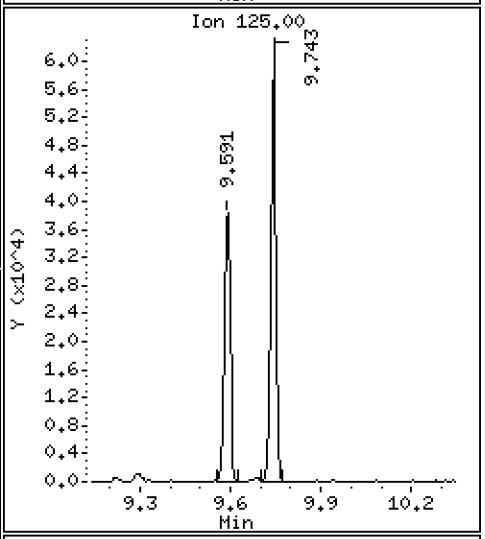
70 4-Chloro Toluene

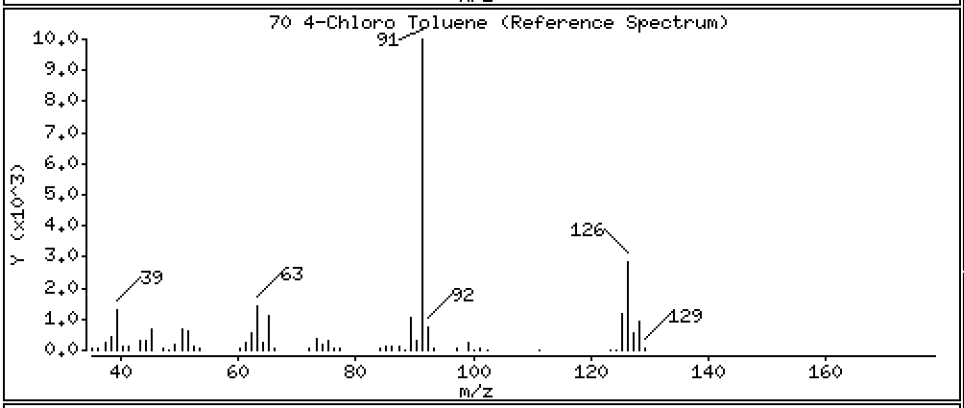
Concentration: 45.319 ug/Kg

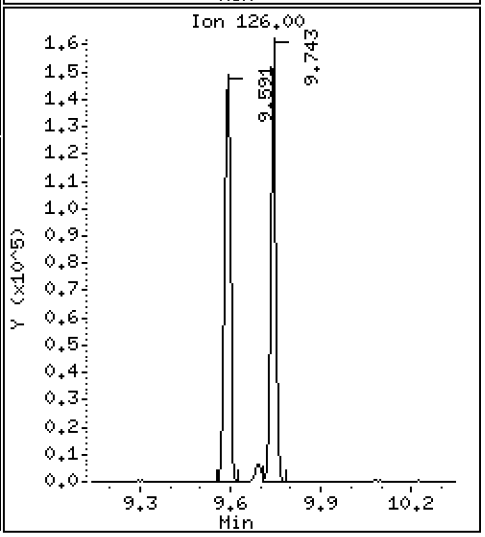


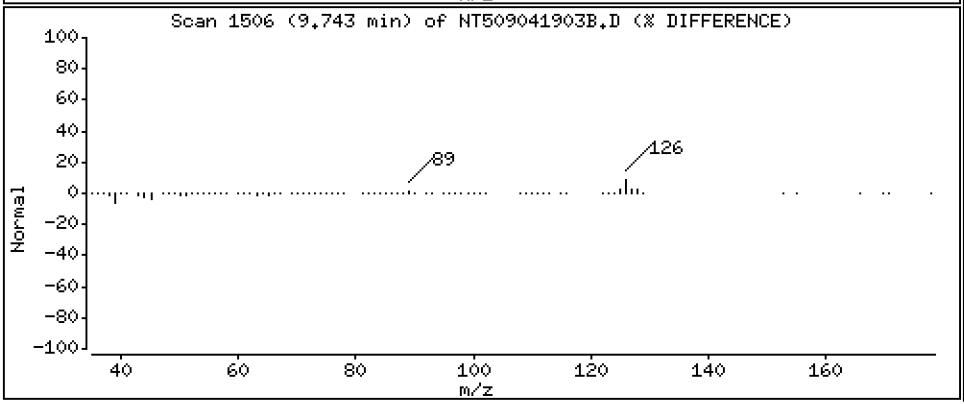












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903B.D

Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

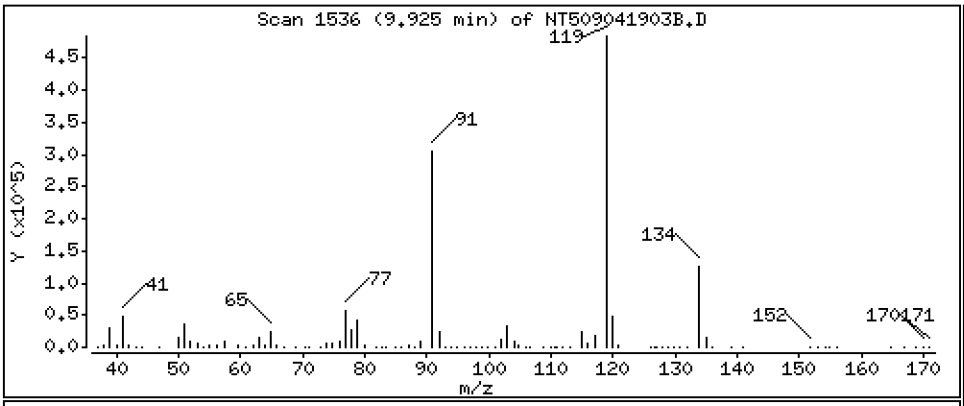
Operator: PB

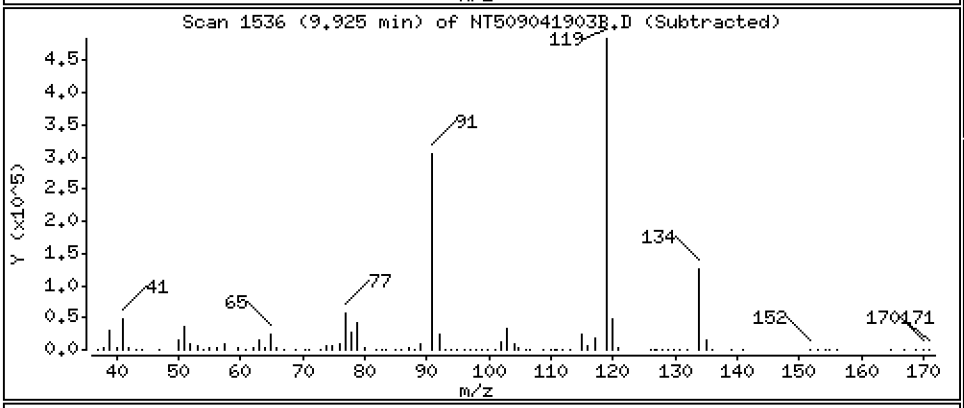
Column phase: RTXVMS

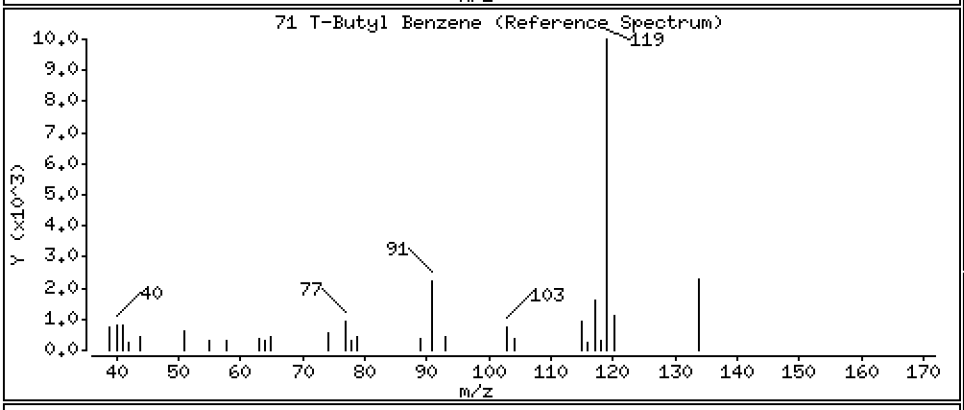
Column diameter: 0.18

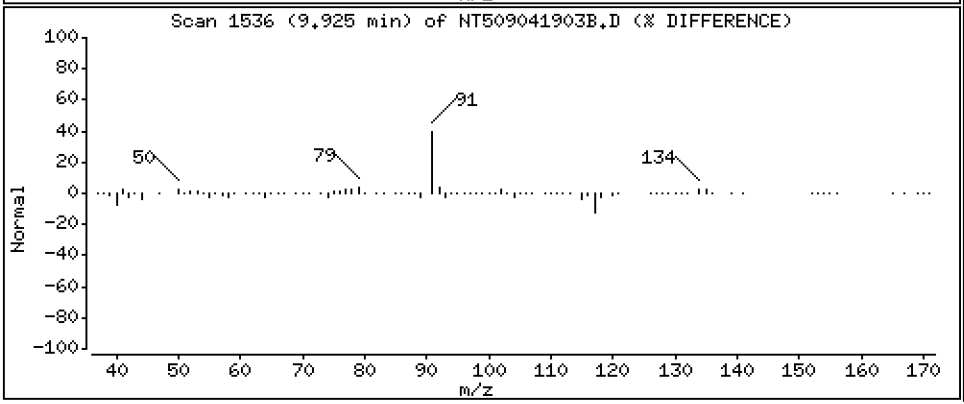
71 T-Butyl Benzene

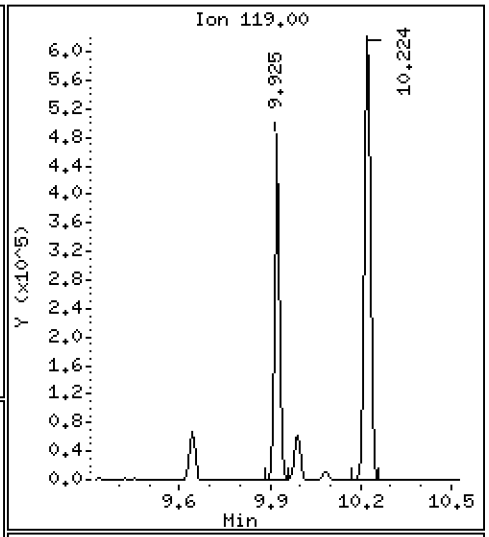
Concentration: 45.672 ug/Kg

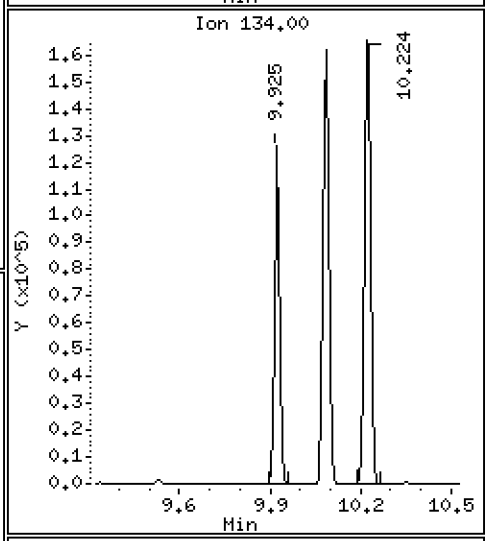


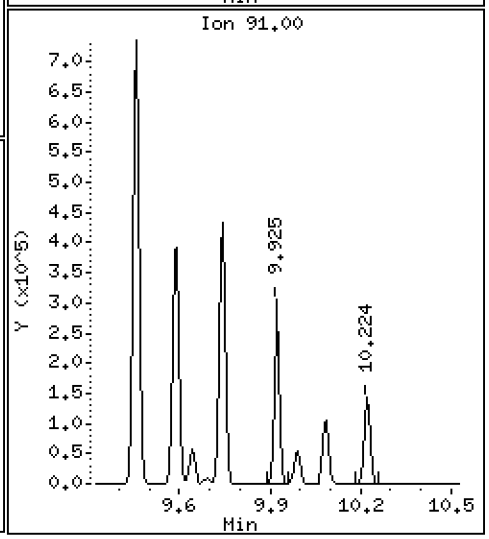












Date : 04-SEP-2019 14:02

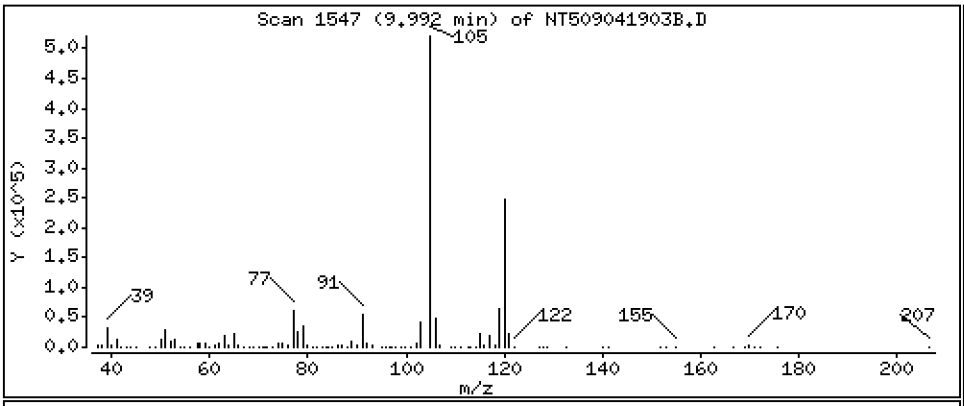
Client ID: Instrument: nt5.i

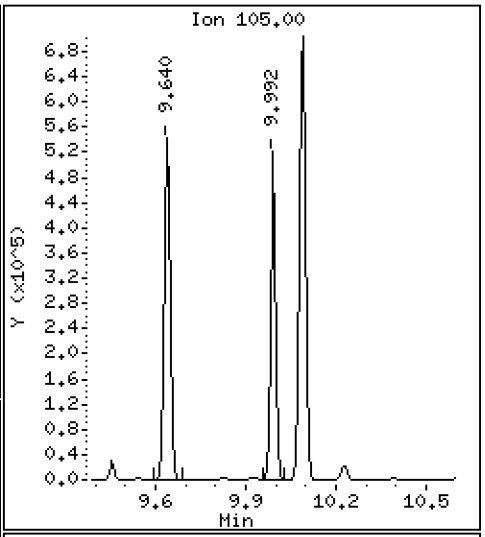
Sample Info: ICV1

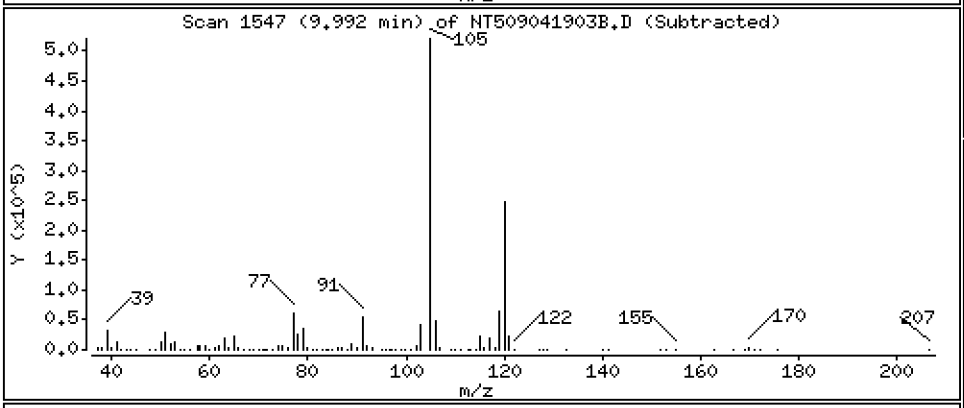
Operator: PB

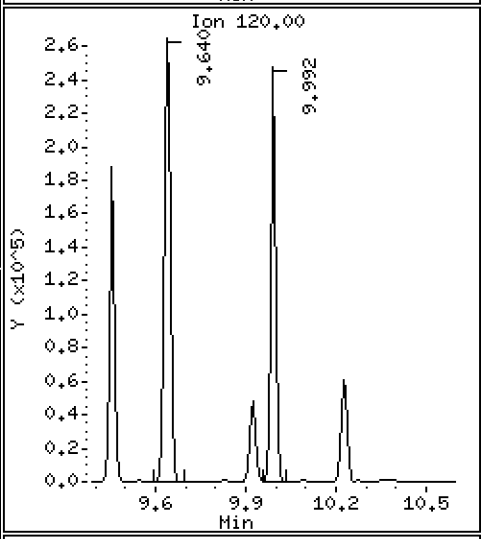
Column phase: RTXVMS Column diameter: 0.18

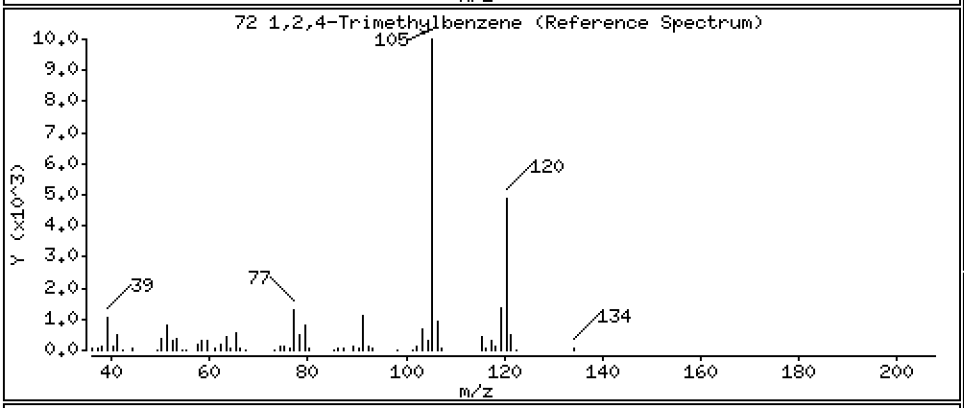
72 1,2,4-Trimethylbenzene Concentration: 46.214 ug/Kg

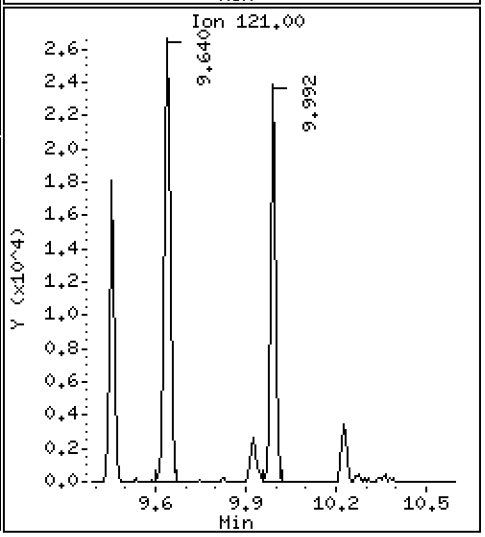


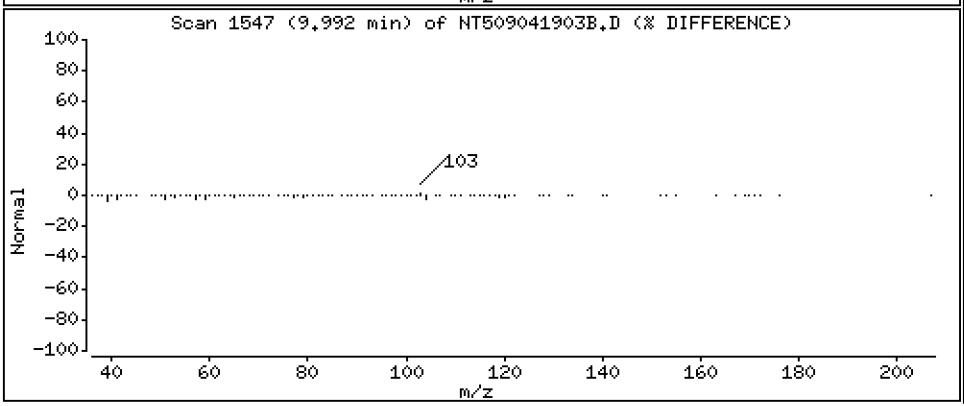












Date : 04-SEP-2019 14:02

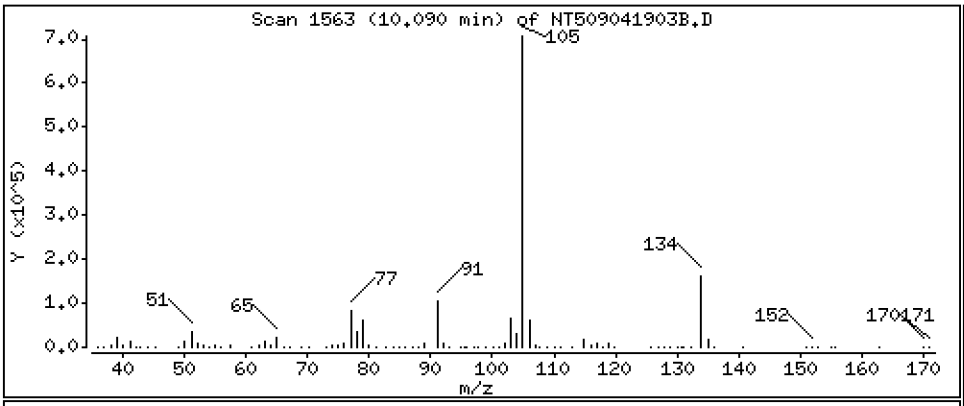
Client ID: Instrument: nt5.i

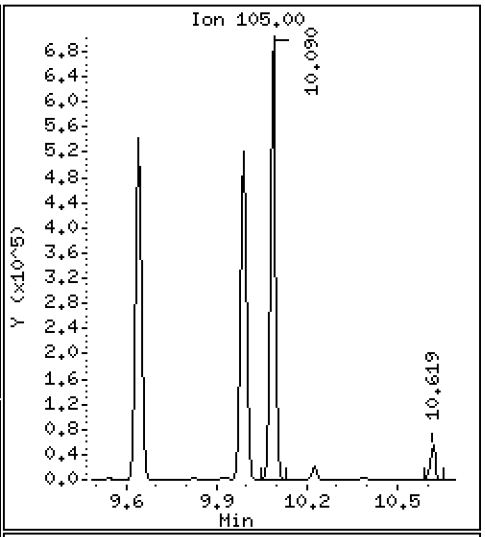
Sample Info: ICV1

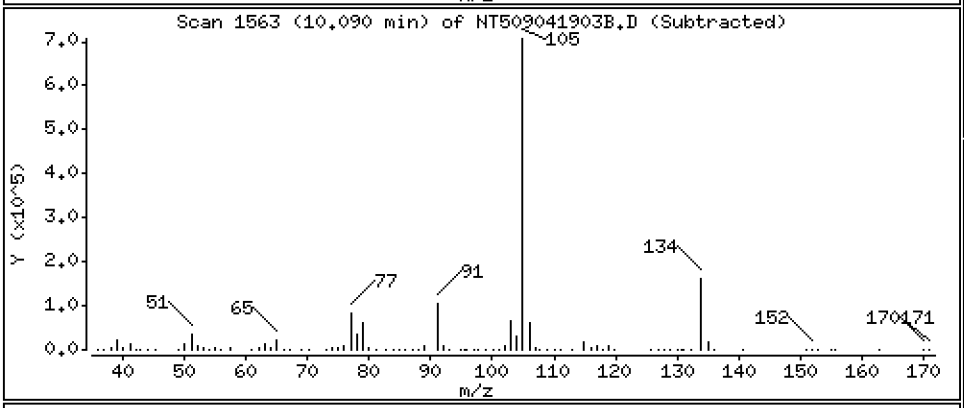
Operator: PB

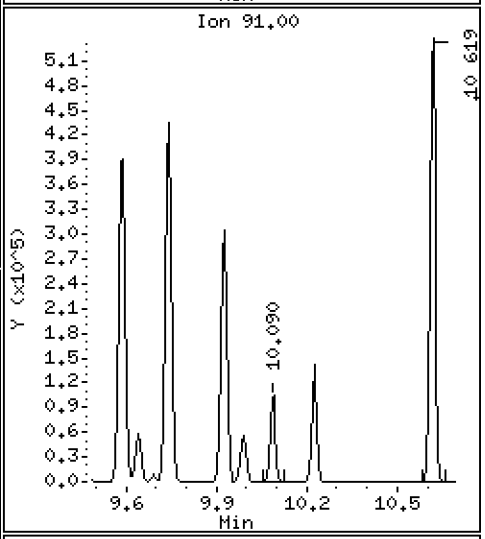
Column phase: RTXVMS Column diameter: 0.18

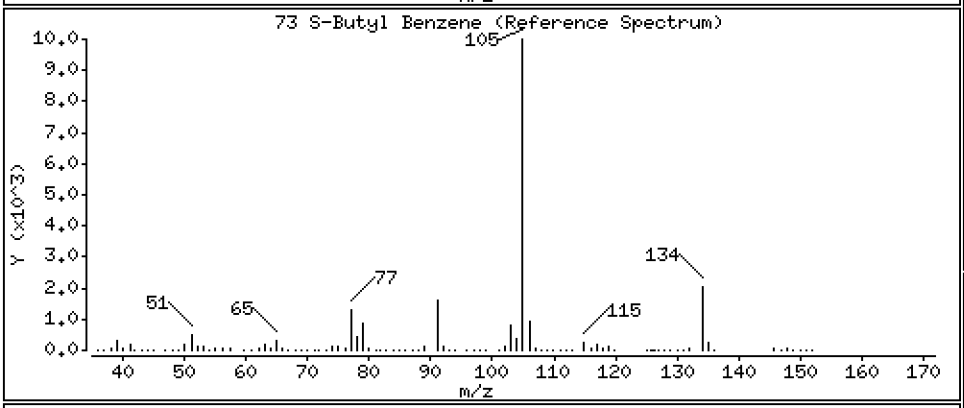
73 S-Butyl Benzene Concentration: 46.981 ug/Kg

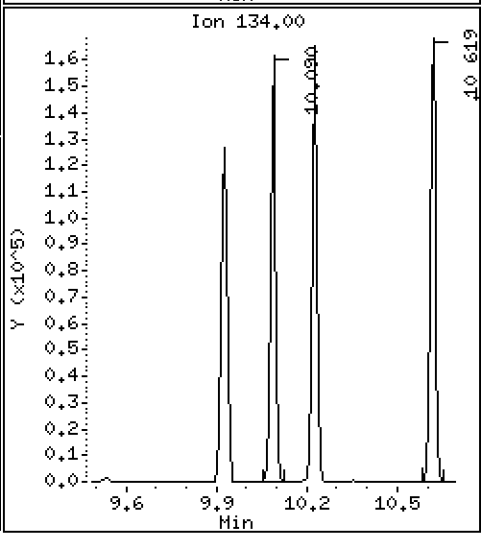


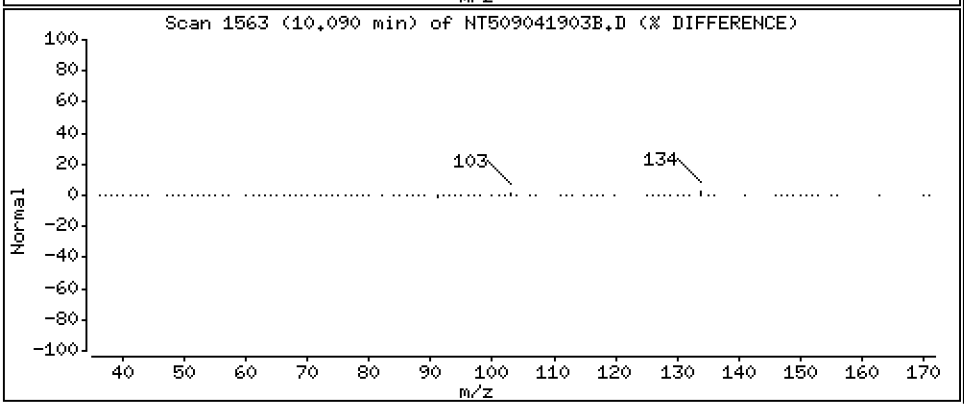












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

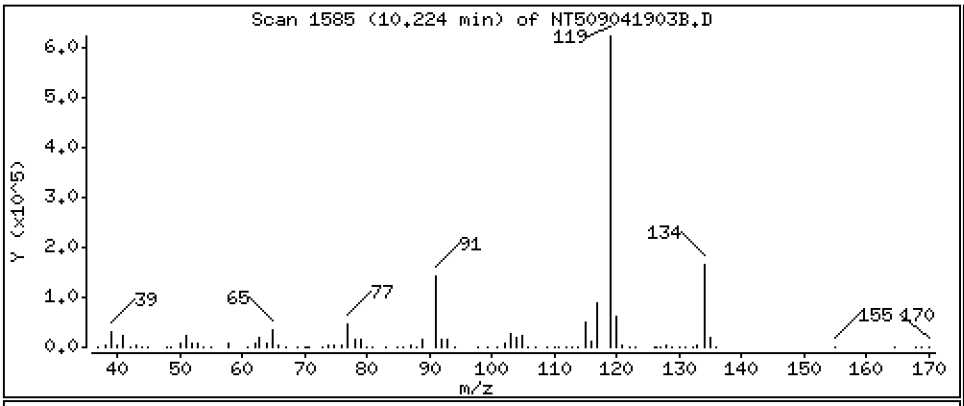
Operator: PB

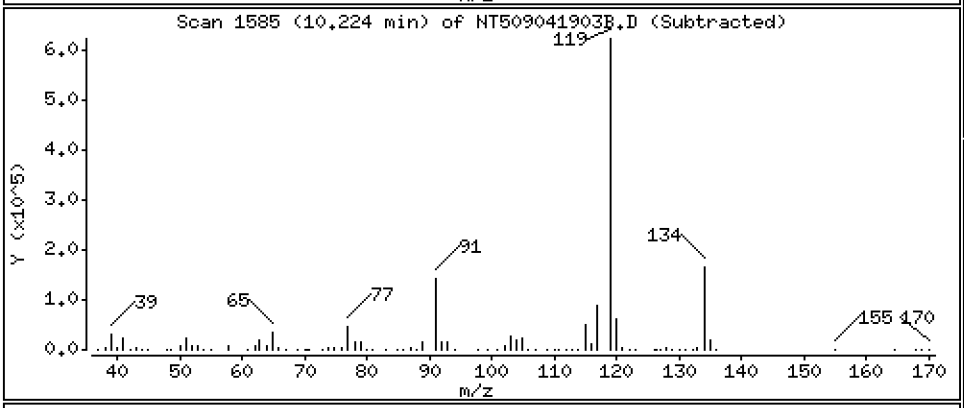
Column phase: RTXVMS

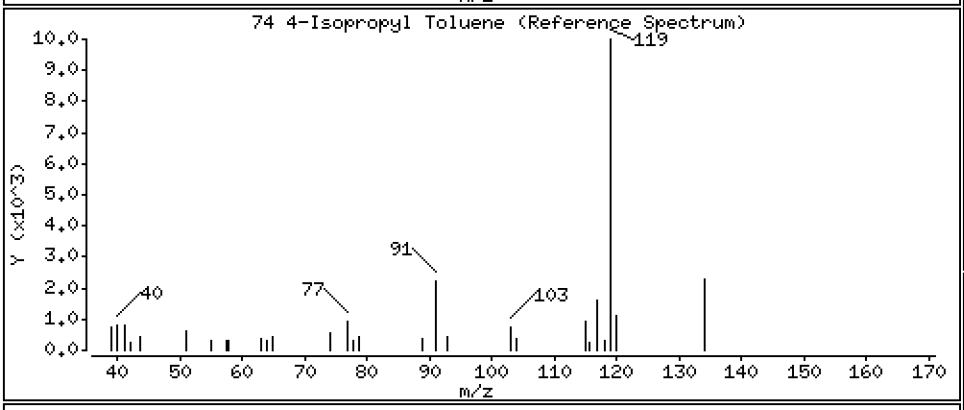
Column diameter: 0.18

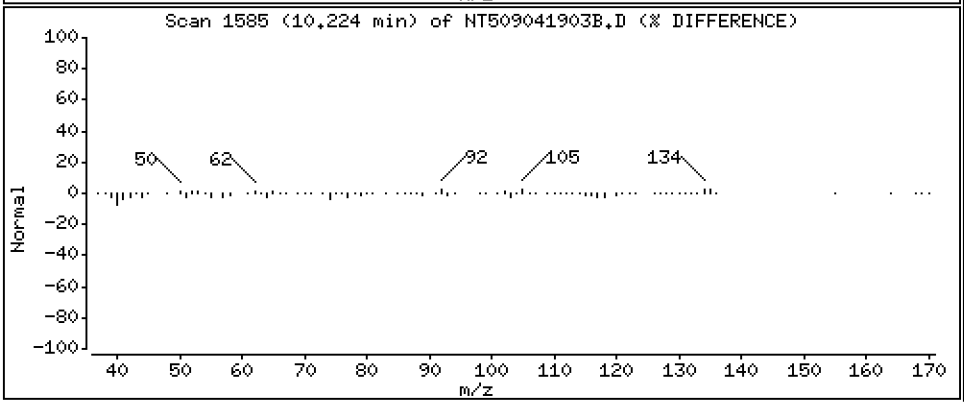
74 4-Isopropyl Toluene

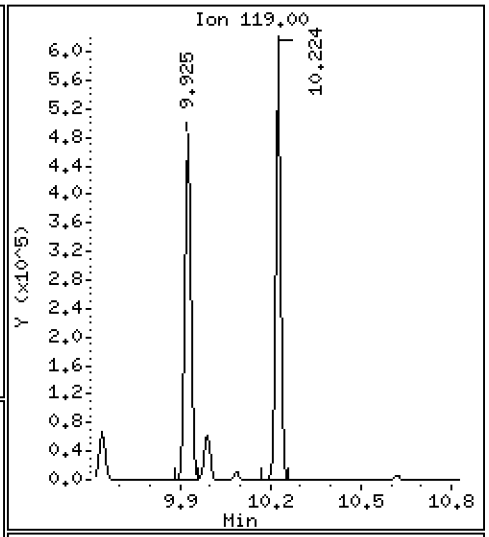
Concentration: 47.854 ug/Kg

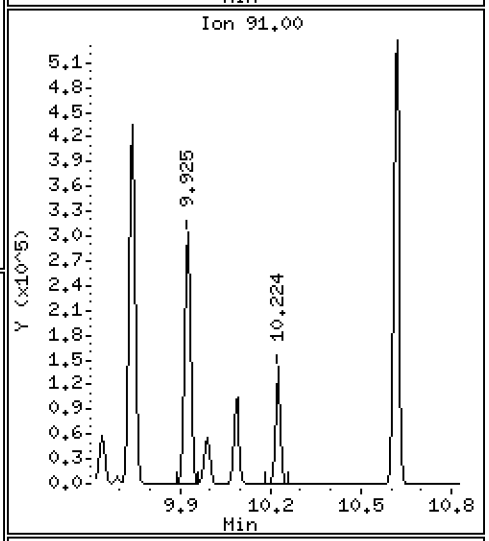


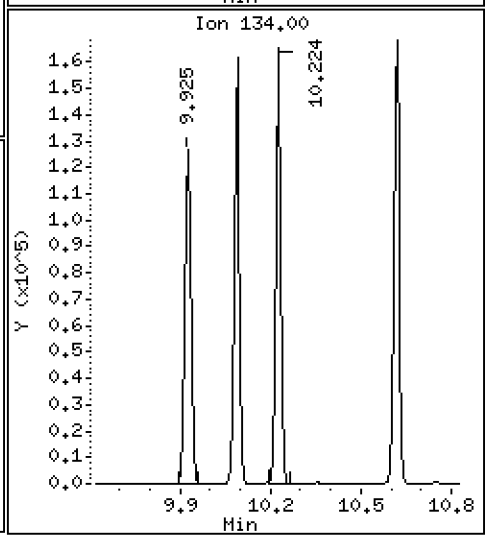












Date : 04-SEP-2019 14:02

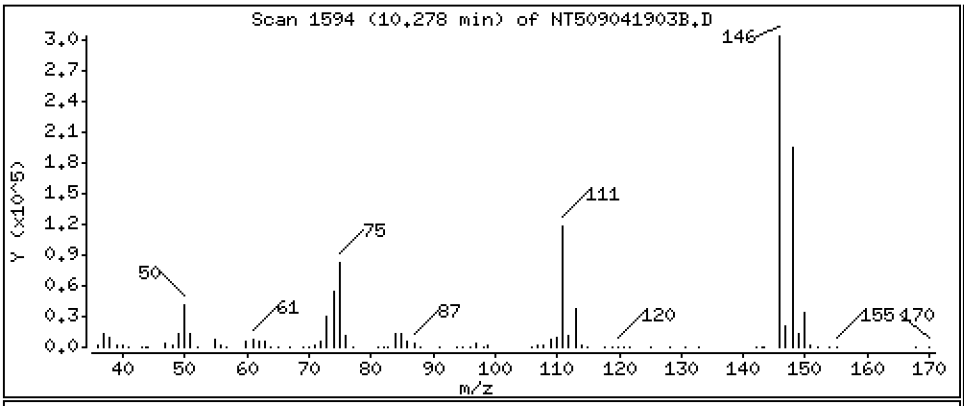
Client ID: Instrument: nt5.i

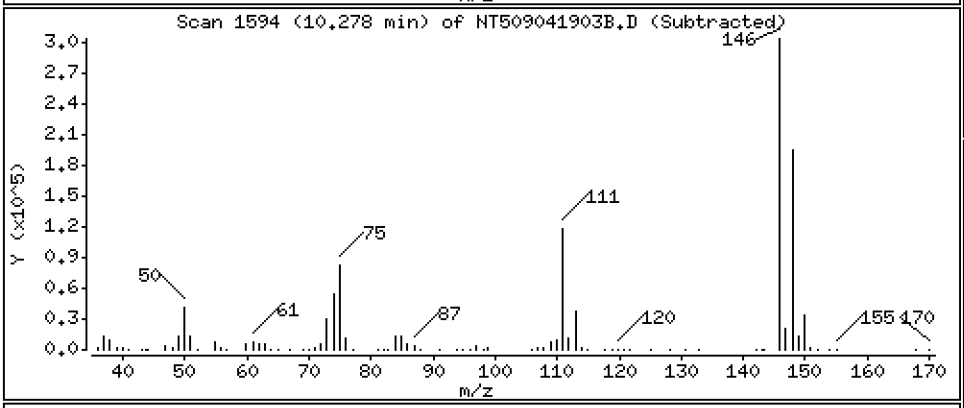
Sample Info: ICV1

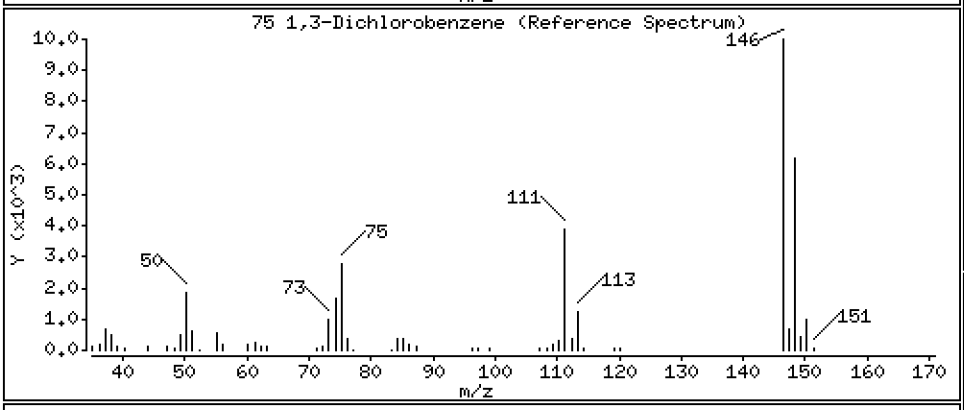
Operator: PB

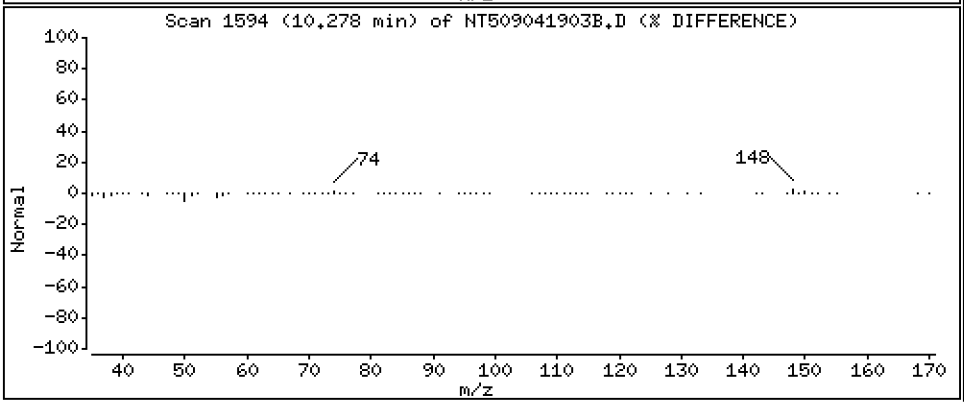
Column phase: RTXVMS Column diameter: 0.18

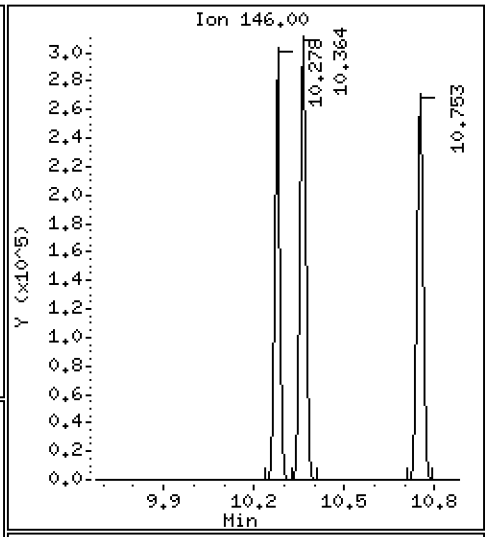
75 1,3-Dichlorobenzene Concentration: 44.552 ug/Kg

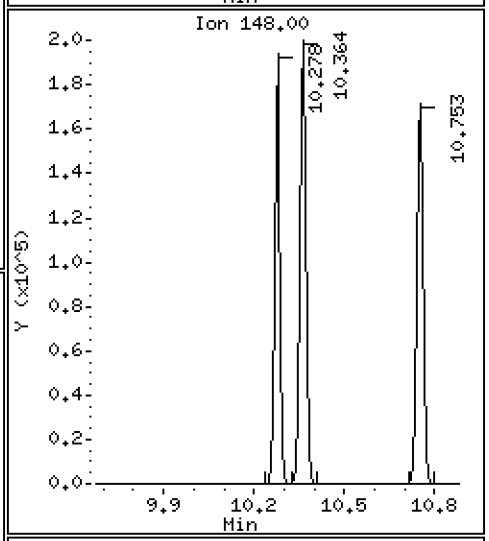


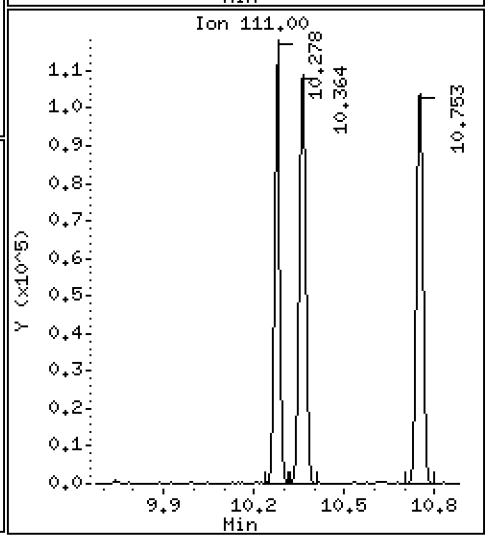












Date : 04-SEP-2019 14:02

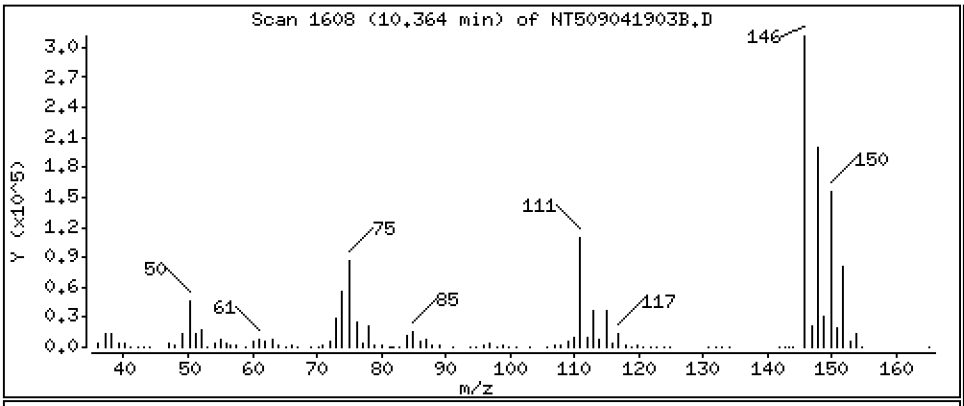
Client ID: Instrument: nt5.i

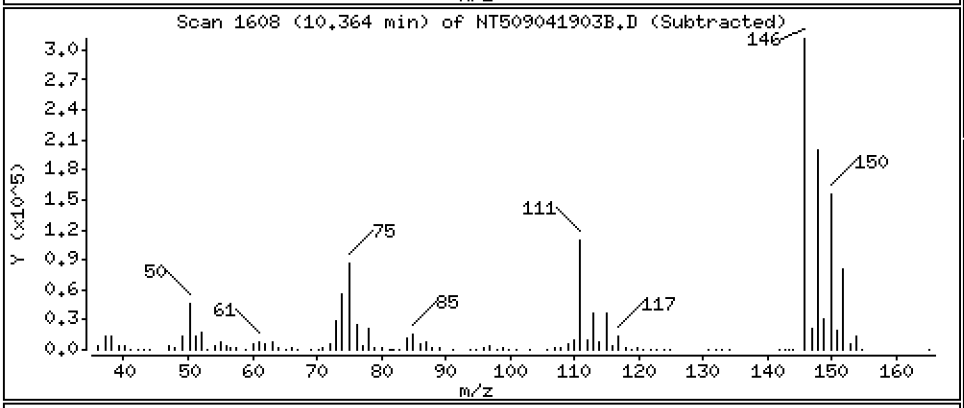
Sample Info: ICV1

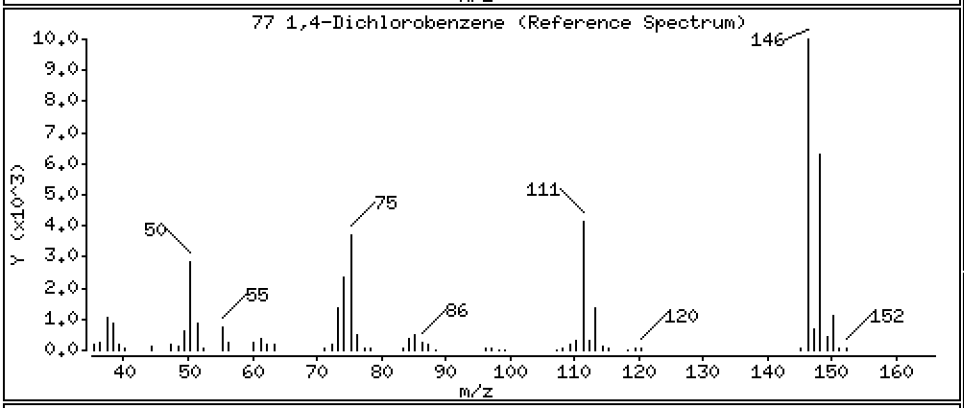
Operator: PB

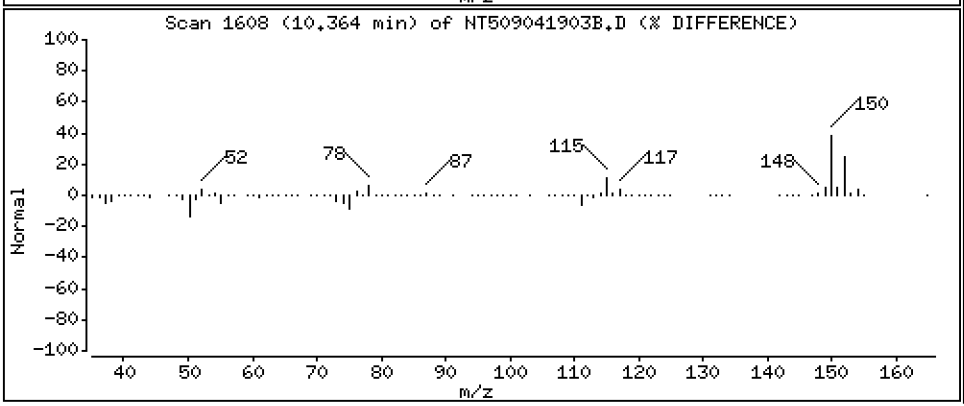
Column phase: RTXVMS Column diameter: 0.18

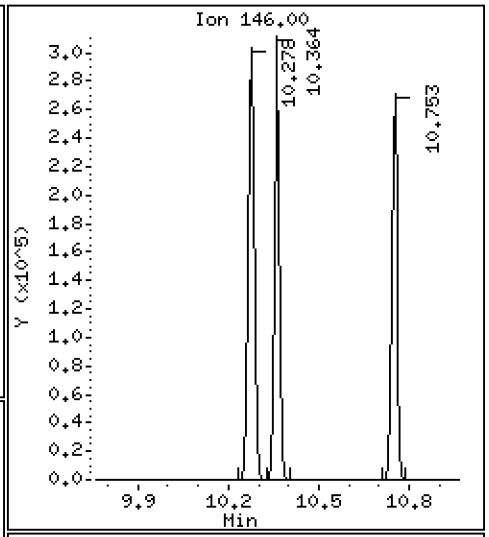
77 1,4-Dichlorobenzene Concentration: 43.719 ug/Kg

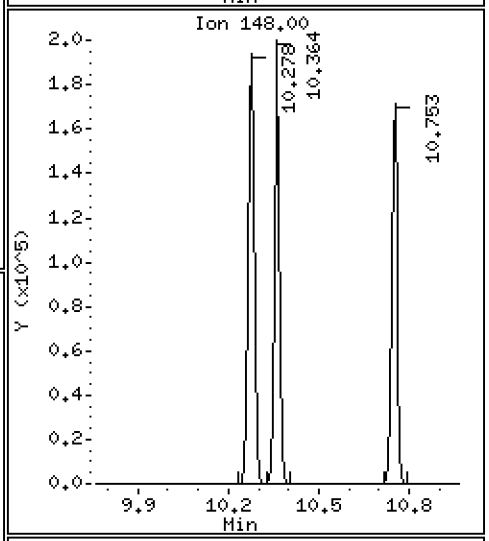


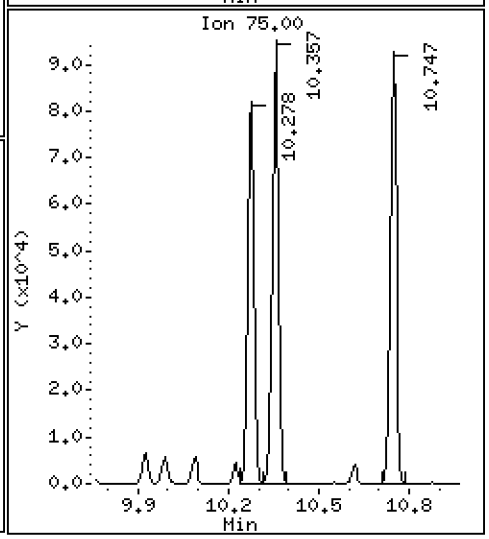












Date : 04-SEP-2019 14:02

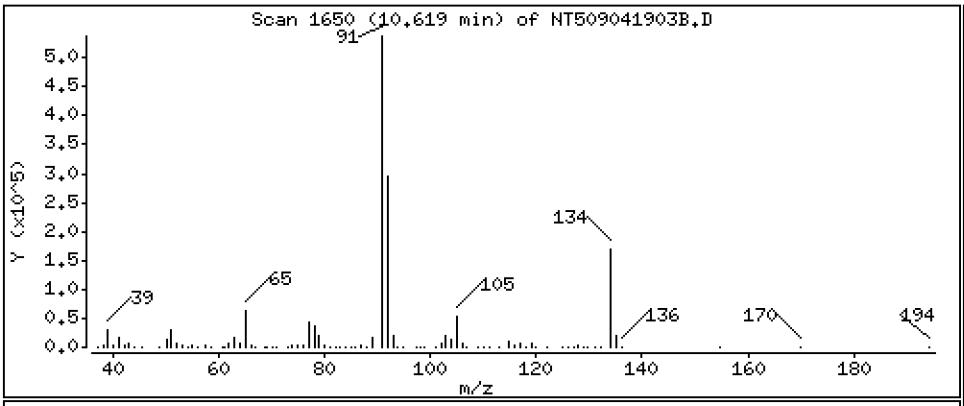
Client ID: Instrument: nt5.i

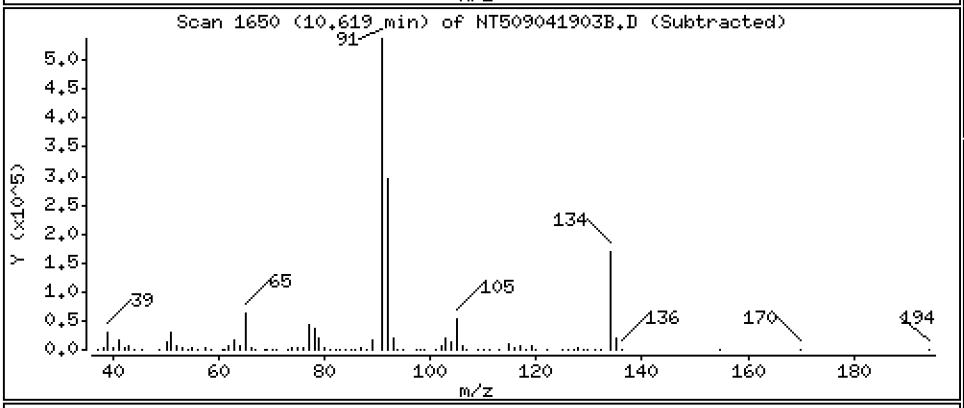
Sample Info: ICV1

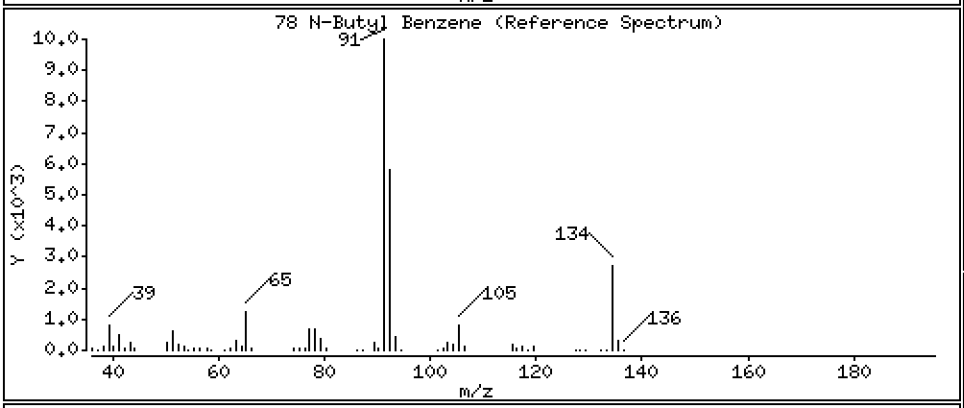
Operator: PB

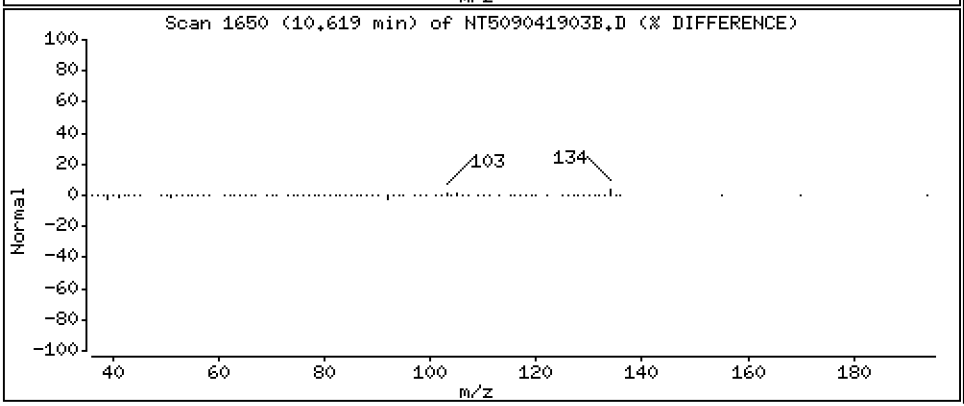
Column phase: RTXVMS Column diameter: 0.18

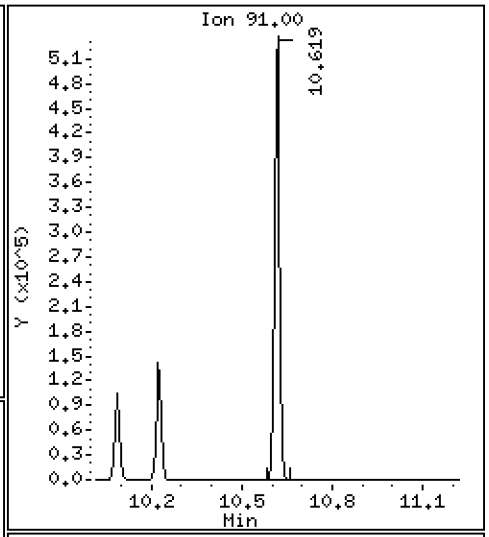
78 N-Butyl Benzene Concentration: 48.167 ug/Kg

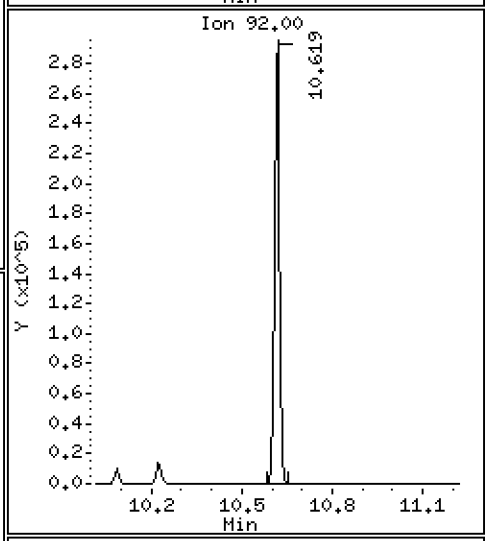


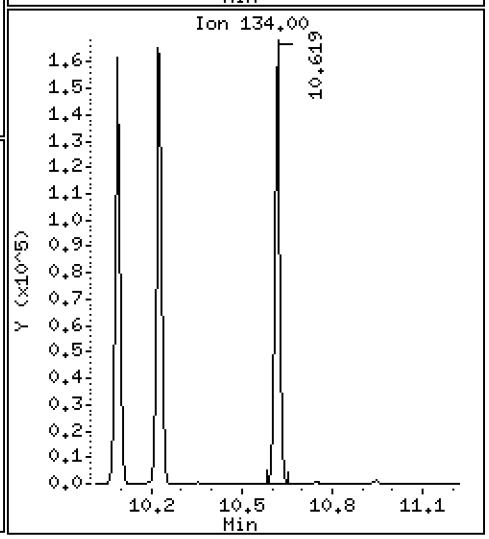












Date : 04-SEP-2019 14:02

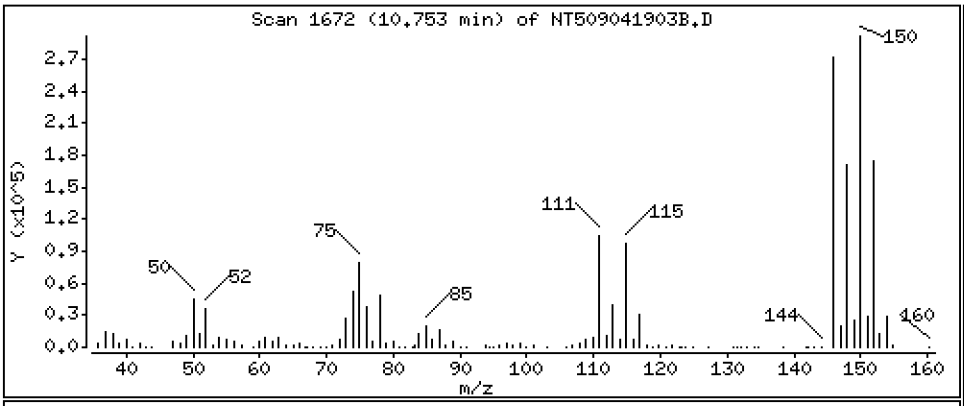
Client ID: Instrument: nt5.i

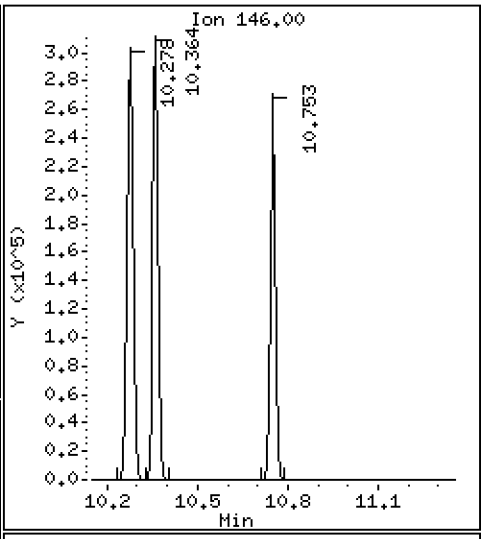
Sample Info: ICV1

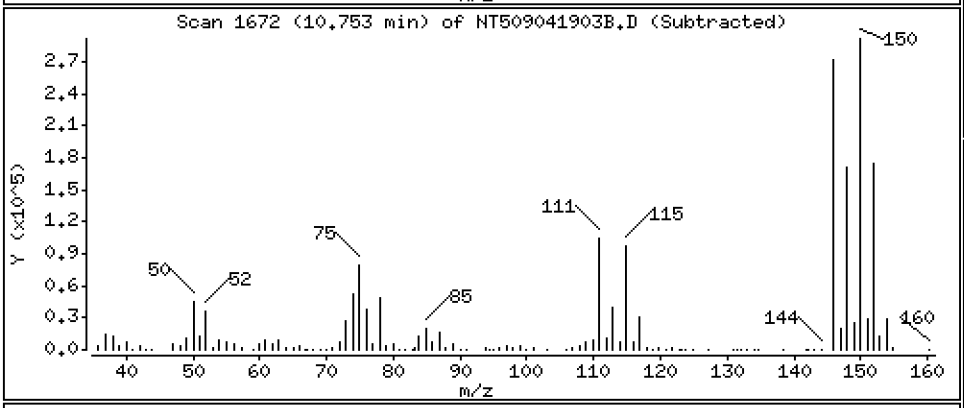
Operator: PB

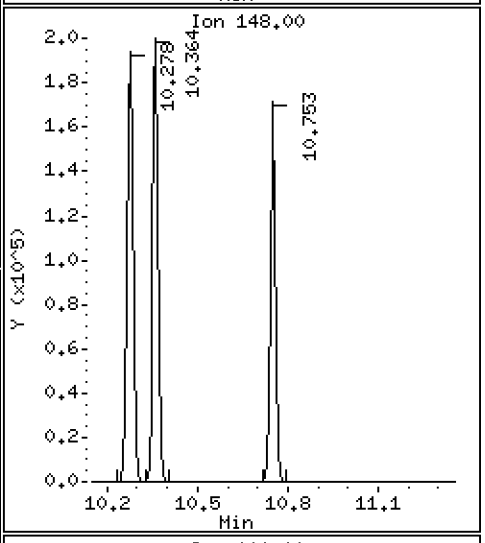
Column phase: RTXVMS Column diameter: 0.18

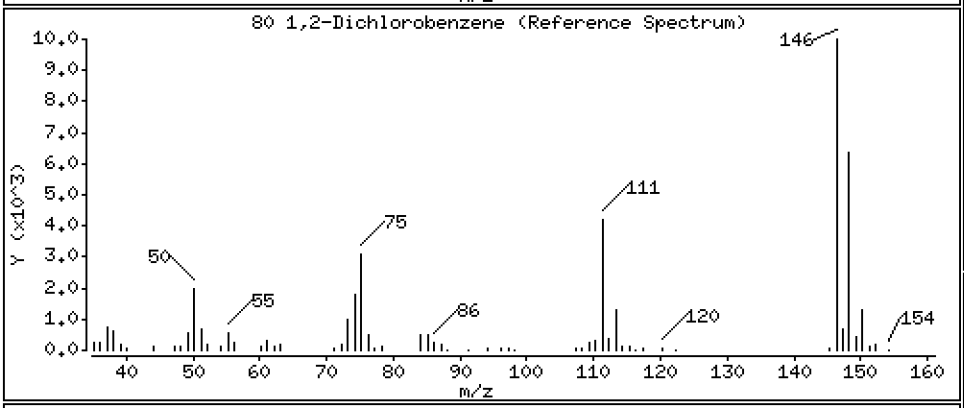
80 1,2-Dichlorobenzene Concentration: 42.137 ug/Kg

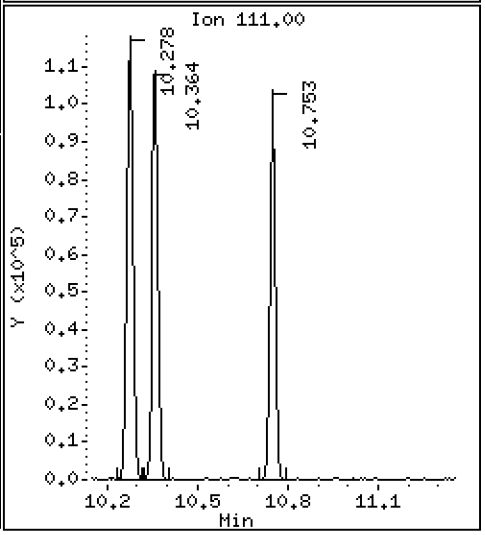


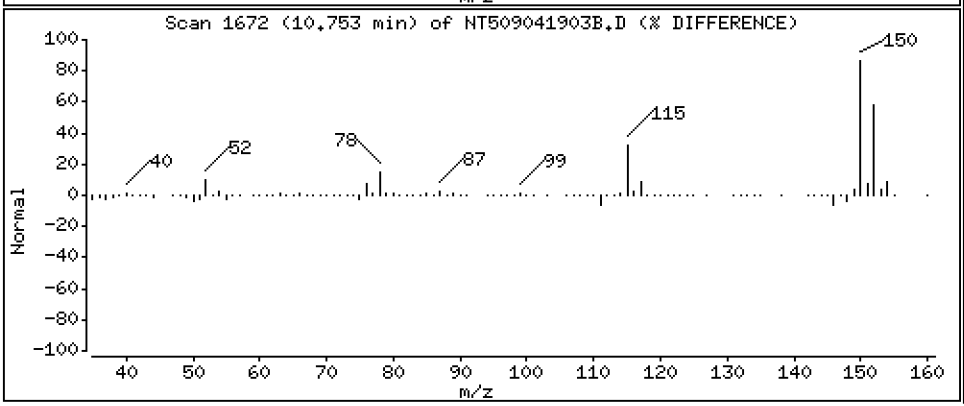












Date : 04-SEP-2019 14:02

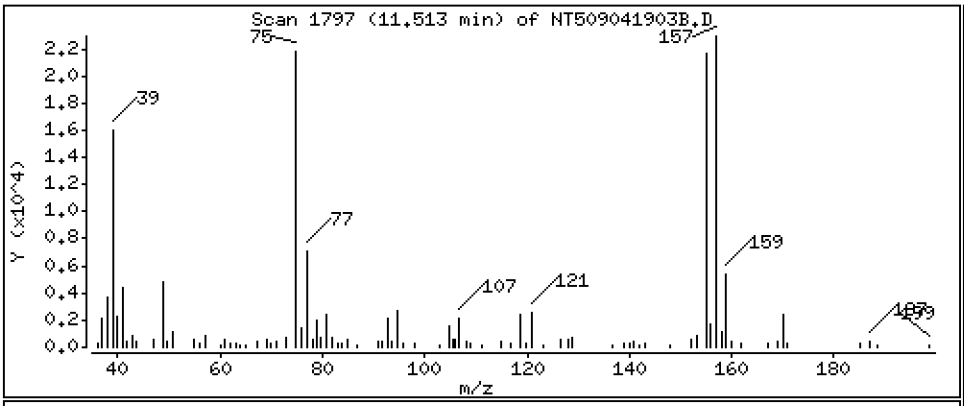
Client ID: Instrument: nt5.i

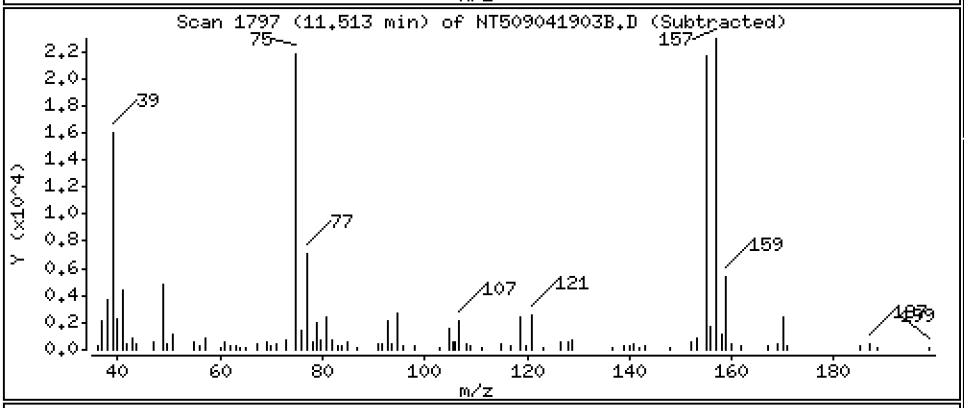
Sample Info: ICV1

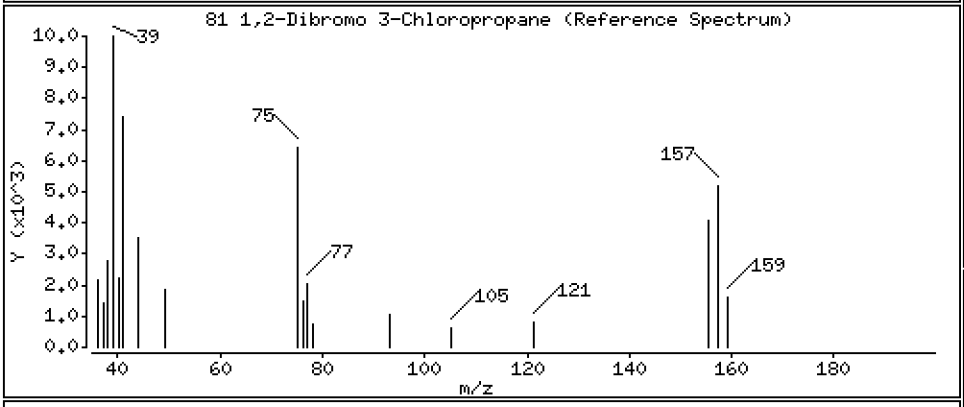
Operator: PB

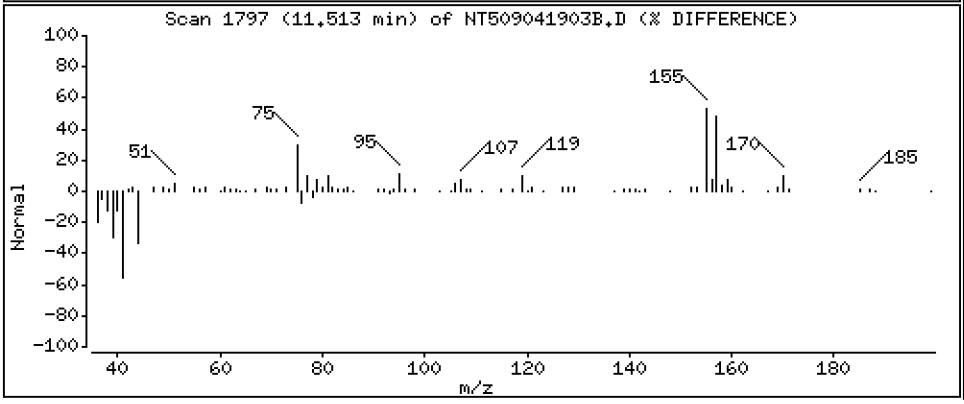
Column phase: RTXVMS Column diameter: 0.18

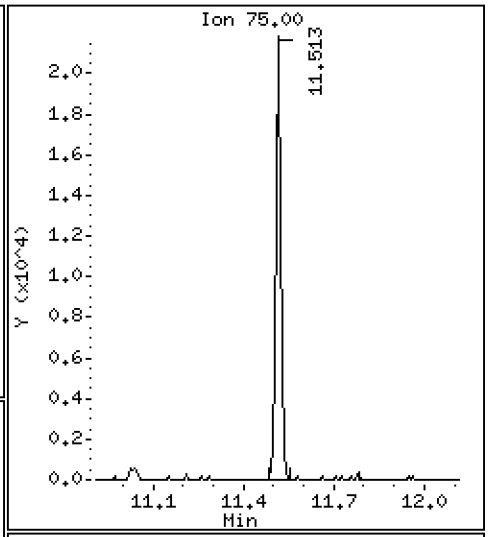
81 1,2-Dibromo 3-Chloropropane Concentration: 45.492 ug/Kg

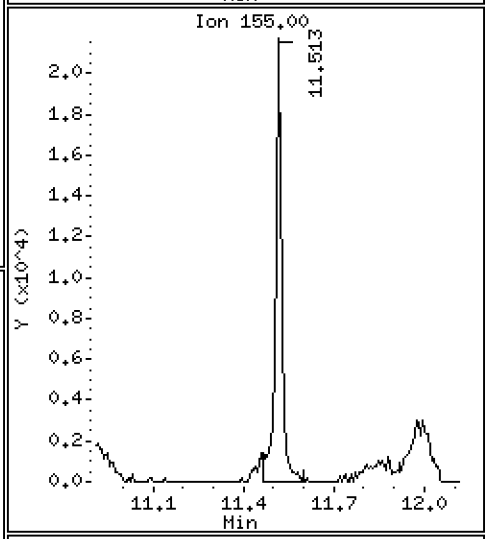


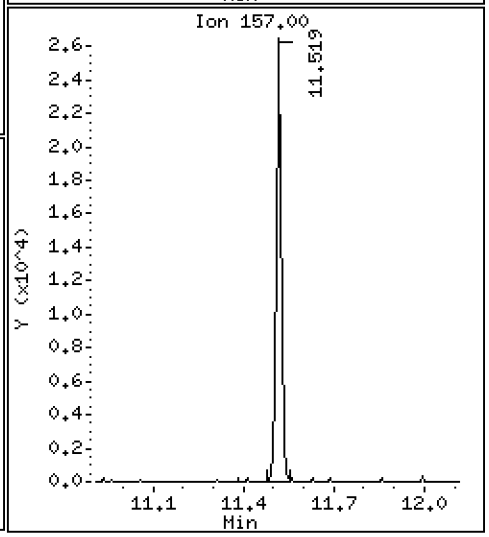












Date : 04-SEP-2019 14:02

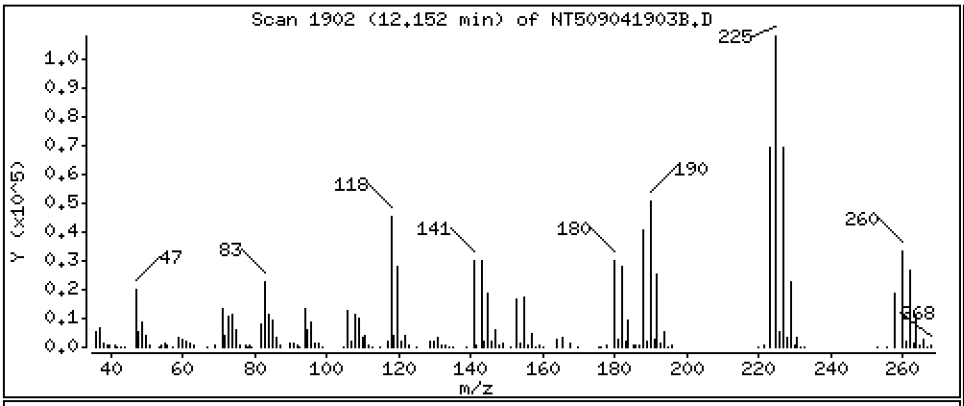
Client ID: Instrument: nt5.i

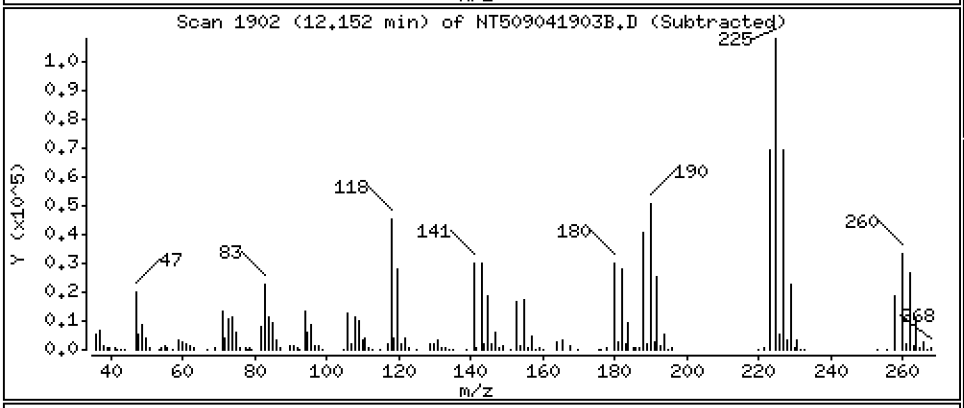
Sample Info: ICV1

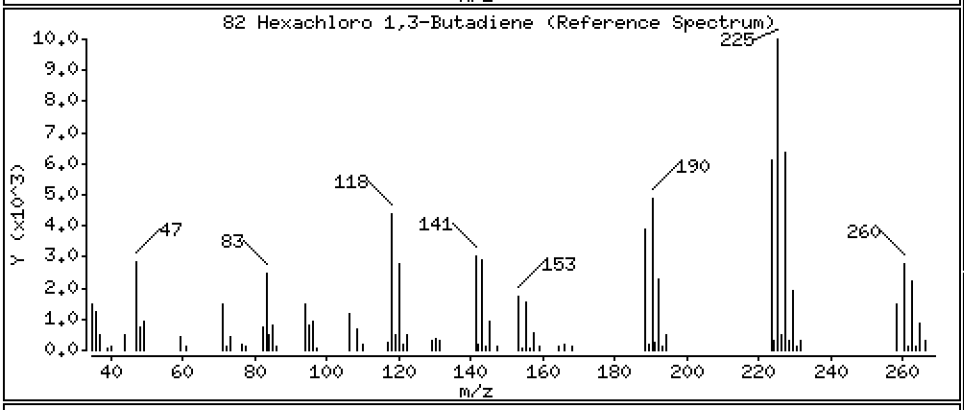
Operator: PB

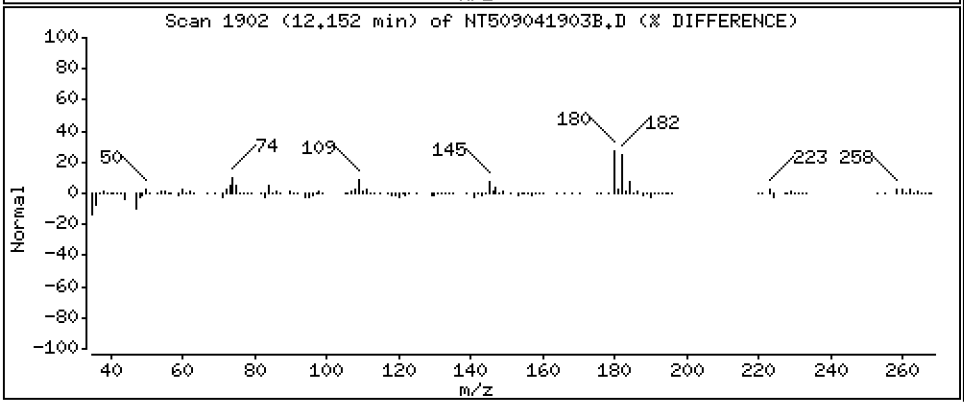
Column phase: RTXVMS Column diameter: 0.18

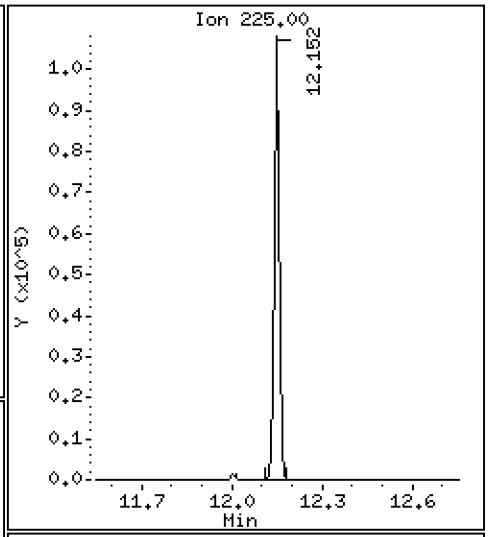
82 Hexachloro 1,3-Butadiene Concentration: 46.551 ug/Kg

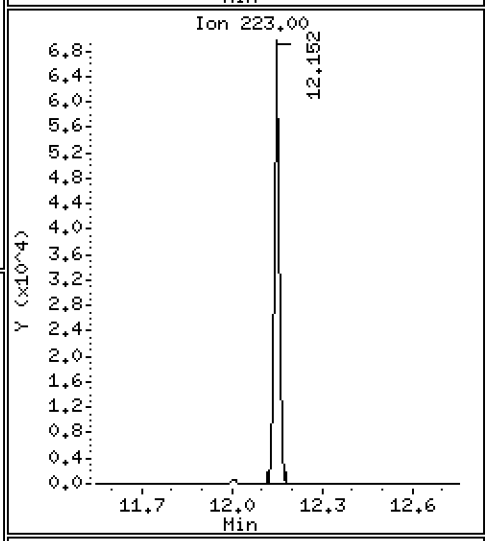


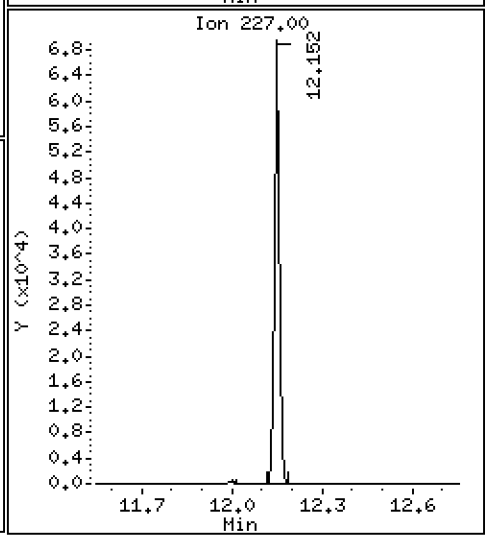












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

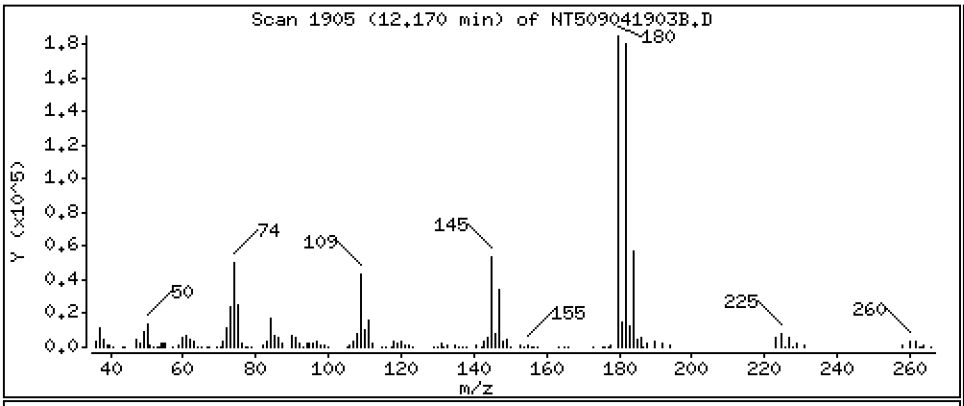
Operator: PB

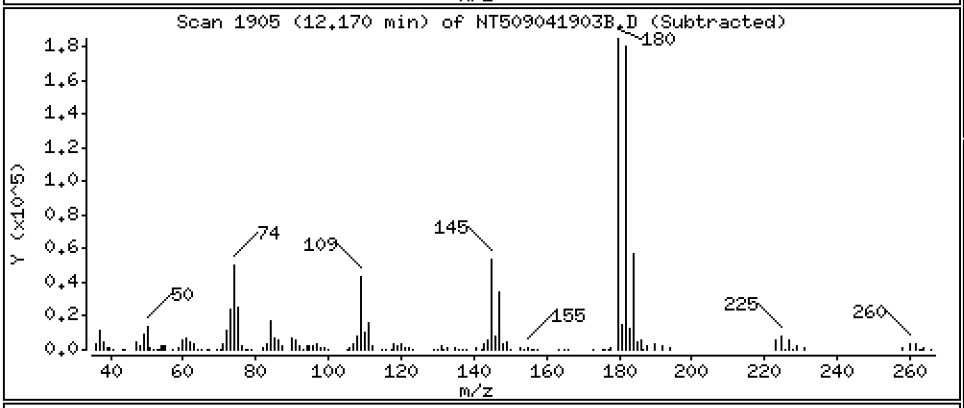
Column phase: RTXVMS

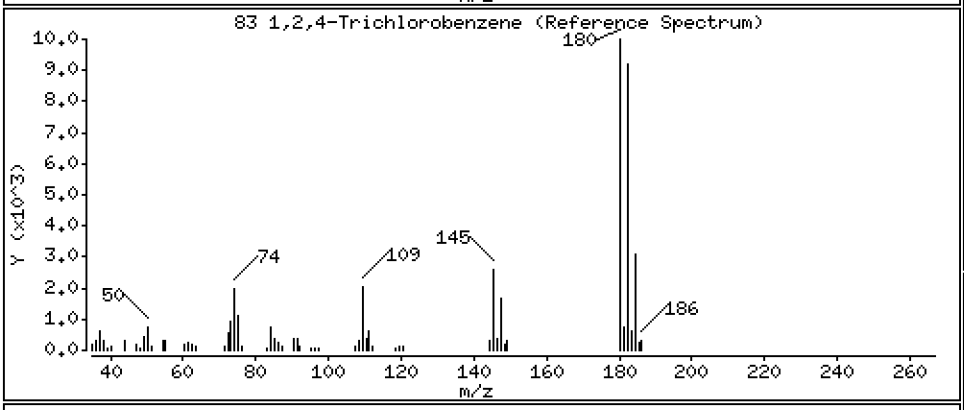
Column diameter: 0.18

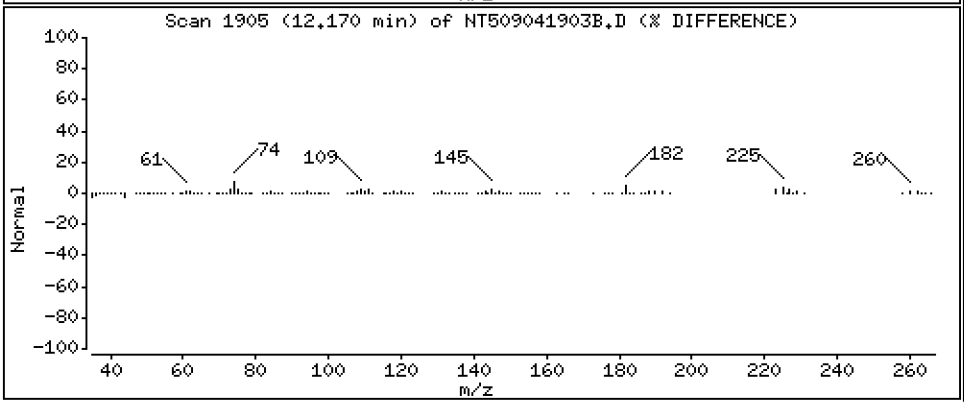
83 1,2,4-Trichlorobenzene

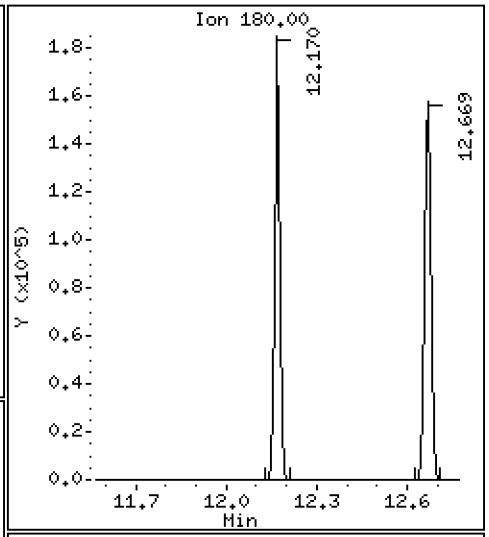
Concentration: 46.074 ug/Kg

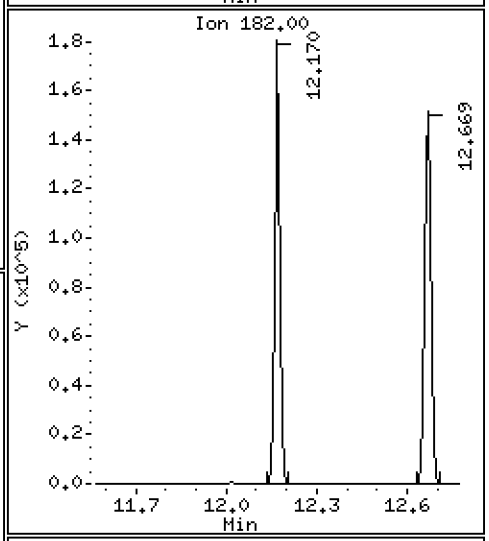


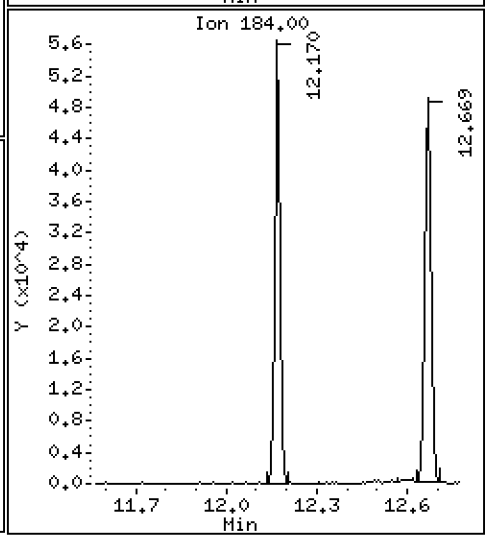












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Date : 04-SEP-2019 14:02

Client ID:

Instrument: nt5.i

Sample Info: ICV1

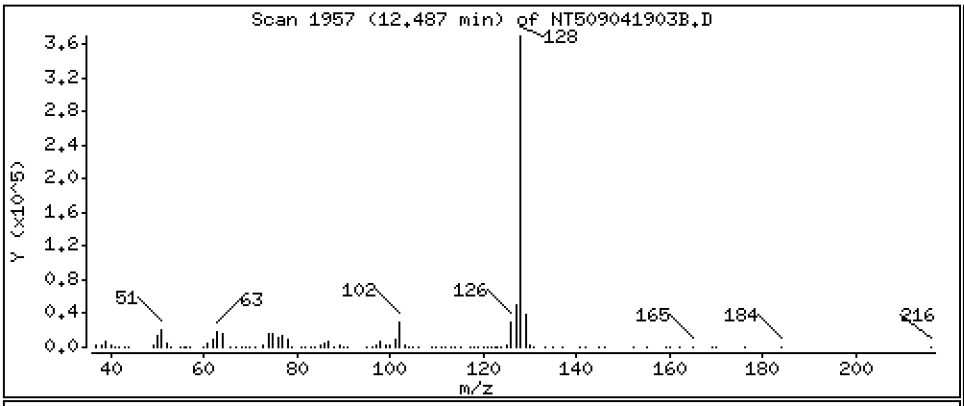
Operator: PB

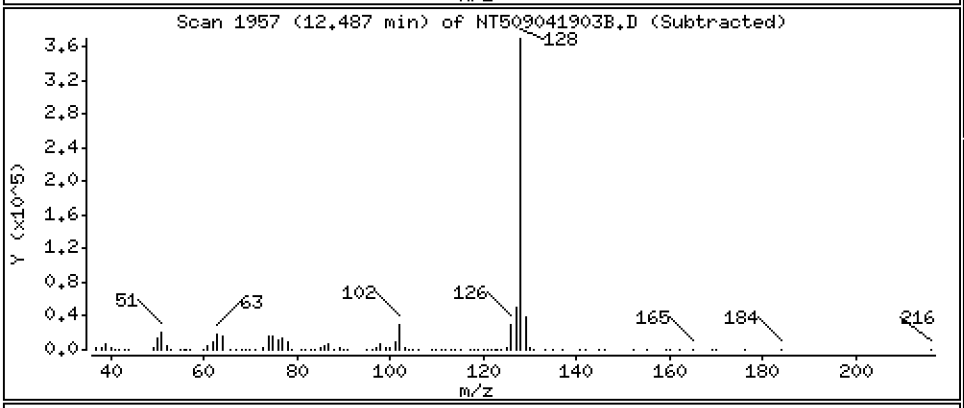
Column phase: RTXVMS

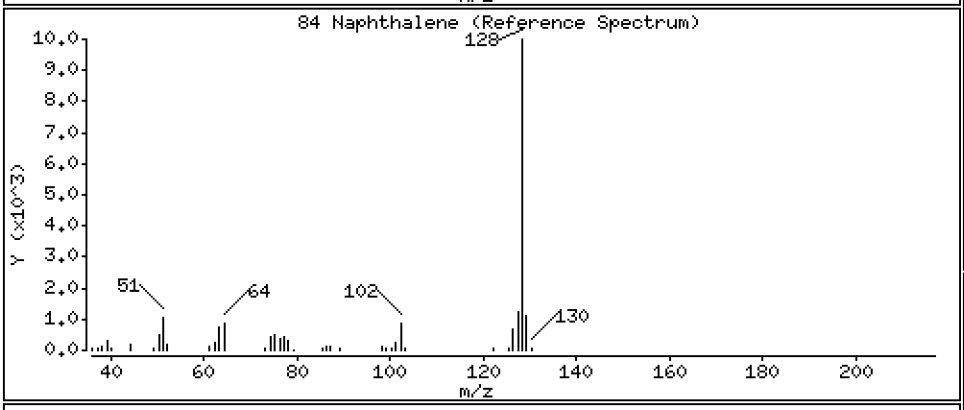
Column diameter: 0.18

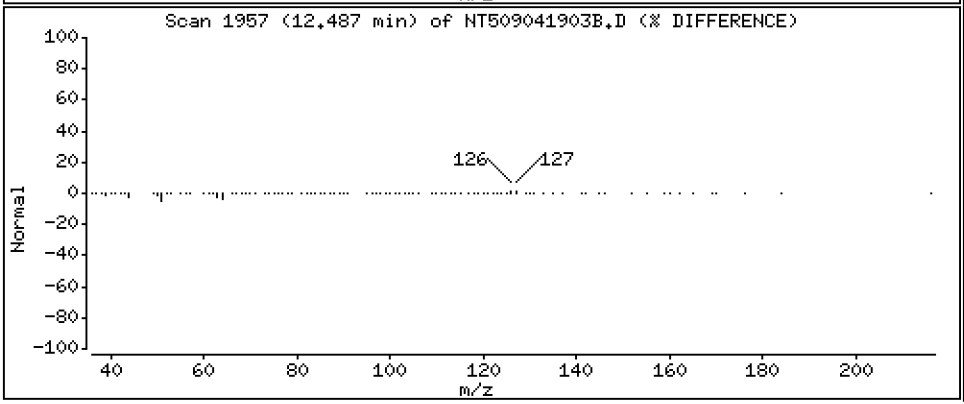
84 Naphthalene

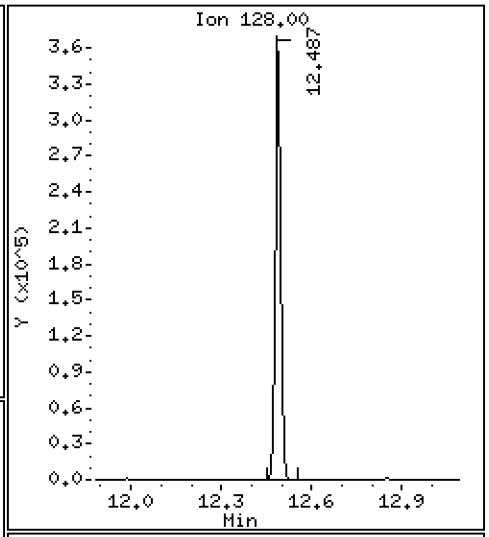
Concentration: 46.331 ug/Kg

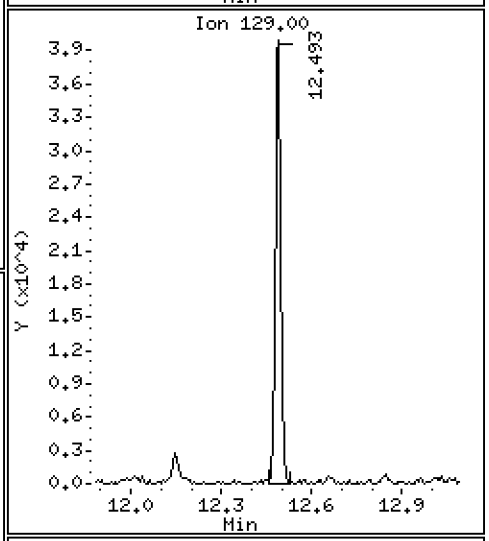


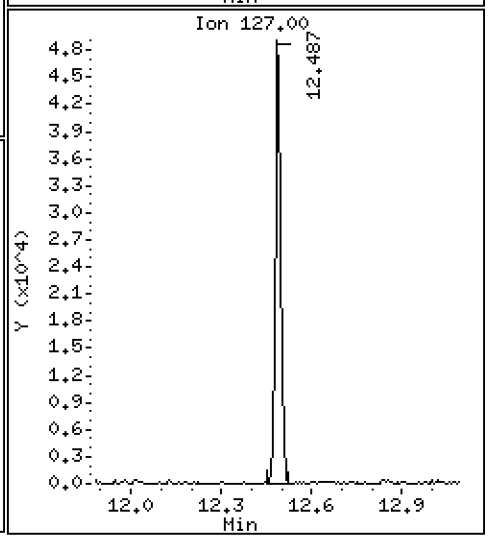












Date : 04-SEP-2019 14:02

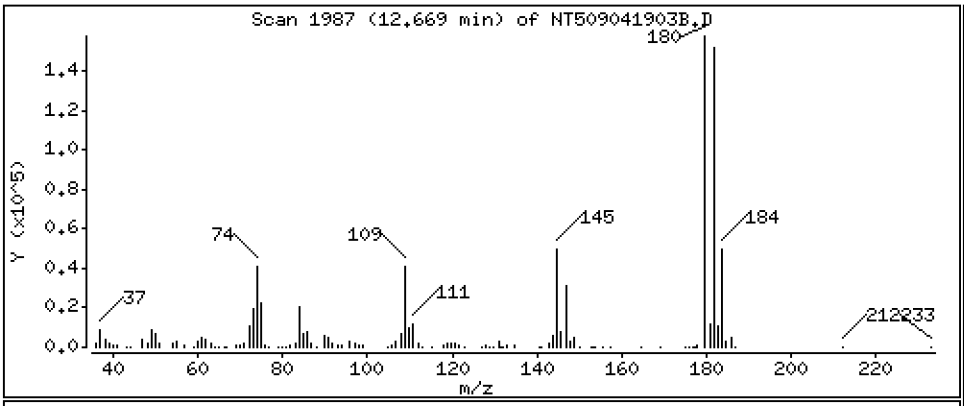
Client ID: Instrument: nt5.i

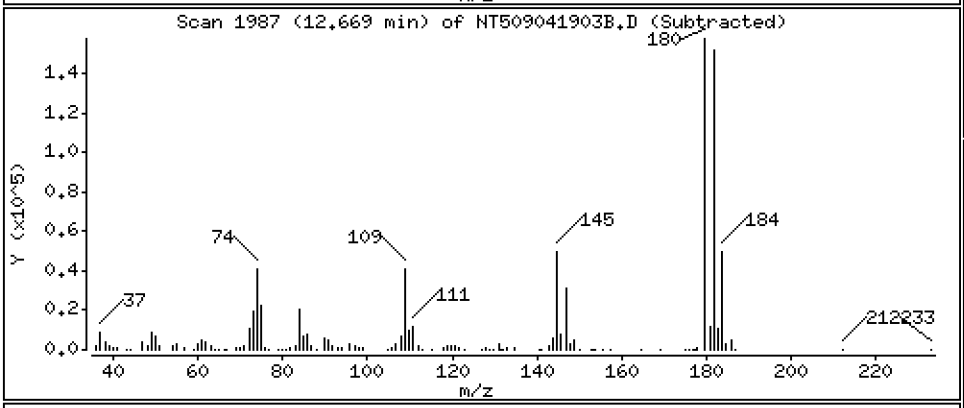
Sample Info: ICV1

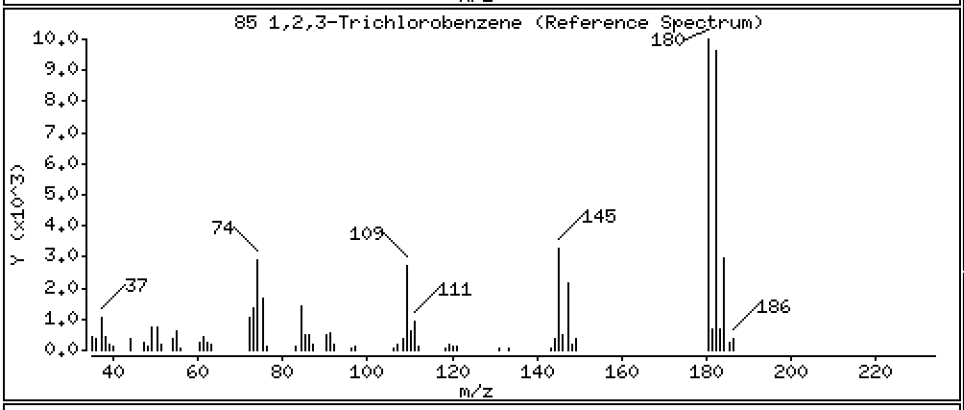
Operator: PB

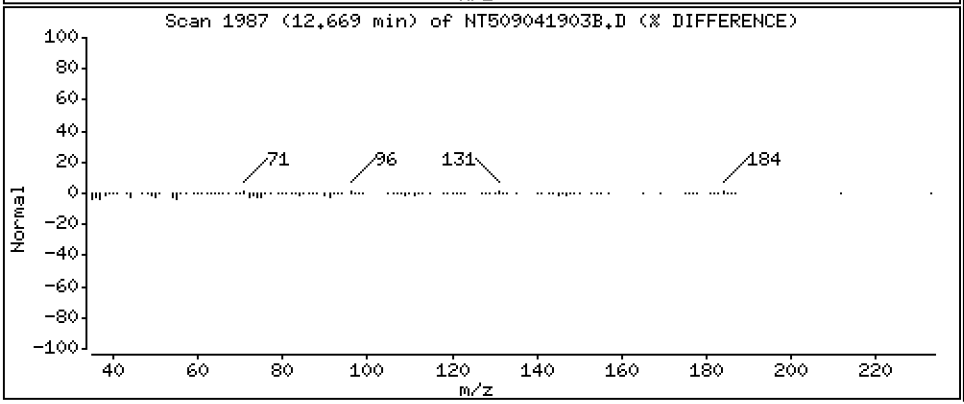
Column phase: RTXVMS Column diameter: 0.18

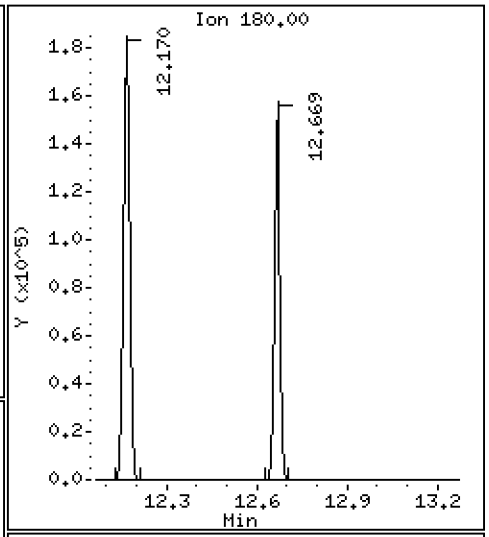
85 1,2,3-Trichlorobenzene Concentration: 44.846 ug/Kg

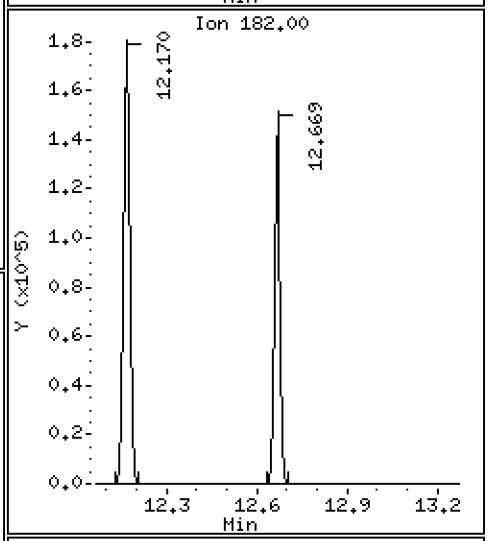


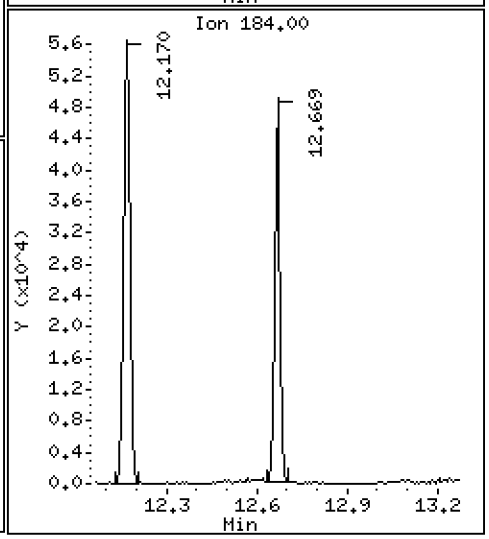












ARI Labs, Inc.

8260C

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Inj Date : 04-SEP-2019 14:02
Operator : PB   Inst ID: nt5.i
Smp Info : ICV1
Misc Info :
Comment   :
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Meth Date : 05-Sep-2019 13:04 patrickb   Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29   Cal File: NT508201911.D
Als bottle: 6   QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	183493	65.5503	65.550
	2 Chloromethane	50	1.481	1.481	(0.278)	151428	60.0608	60.061
	3 Vinyl Chloride	62	1.554	1.554	(0.292)	165641	67.3841	67.384(R)
	4 Bromomethane	94	1.840	1.840	(0.345)	116191	53.3100	53.310
	5 Chloroethane	64	1.949	1.949	(0.366)	126944	61.5692	61.569
	6 Trichlorofluoromethane	101	2.065	2.065	(0.387)	296586	59.3142	59.314
	7 1,1-Dichloroethene	96	2.533	2.533	(0.475)	150795	58.2951	58.295
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	441258	57.0578	57.058
	9 112Trichloro122Trifluoroethane	101	2.588	2.588	(0.485)	148420	58.1654	58.165
	10 Iodomethane	142	2.661	2.661	(0.499)	175888	63.4260	63.426
	11 Bromoethane	108	2.795	2.795	(0.524)	100806	57.8478	57.848
	12 Acrolein	56	2.911	2.911	(0.546)	87928	301.301	301.30
	13 Methylene Chloride	84	3.148	3.148	(0.590)	137697	60.4217	60.422
	14 Acetone	43	3.257	3.257	(0.611)	149589	303.301	303.30
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	163426	57.4695	57.469
	16 Methyl tert butyl ether	73	3.482	3.482	(0.653)	353018	53.8327	53.833
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	3.939	3.939	(0.739)	251472	57.2448	57.245
	18 Acrylonitrile	53	4.024	4.024	(0.755)	32162	57.8466	57.847
	19 Vinyl Acetate	43	4.243	4.243	(0.796)	249892	54.9473	54.947
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.837)	175711	54.7983	54.798
	22 2,2-Dichloropropane	77	4.553	4.553	(0.854)	288952	59.3413	59.341
	23 Bromochloromethane	128	4.644	4.644	(0.871)	83645	54.8973	54.897
	24 Chloroform	83	4.730	4.730	(0.887)	281553	55.2175	55.217
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	284349	48.2732	48.273
$	27 Dibromofluoromethane	111	4.894	4.894	(0.918)	283745	63.9545	63.954(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.917)	291750	56.0974	56.097
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	233320	50.0169	50.017
	29 2-Butanone	72	5.046	5.046	(0.946)	70292	285.081	285.08
	30 Benzene	78	5.222	5.222	(0.903)	624950	47.6267	47.627
*	31 Pentafluorobenzene	168	5.332	5.332	(1.000)	361253	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.003)	266022	61.2004	61.200(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	194928	43.2803	43.280

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34	Trichloroethene	130	5.733	5.733	(0.992)	195025	48.5423	48.542
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	820535	50.0000	
	37	Dibromomethane	93	6.092	6.092	(1.054)	84480	44.7033	44.703
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	136380	45.6269	45.627
	39	Bromodichloromethane	83	6.251	6.251	(1.081)	209243	45.0827	45.083
	172	2-Pentanone	86	6.543	6.543	(1.132)	92638	239.776	239.78
	40	2-Chloroethyl Vinyl Ether	63	6.755	6.755	(1.168)	71424	43.8562	43.856
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	243196	45.2822	45.282
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1049607	51.7929	51.793(R)
	43	Toluene	92	6.981	6.981	(1.207)	423359	45.6069	45.607
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	211692	48.4236	48.424
	45	4-Methyl-2-Pentanone	58	7.327	7.327	(1.267)	214340	230.169	230.17
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	222020	45.0423	45.042
	47	1,1,2-Trichloroethane	97	7.479	7.479	(1.294)	115654	43.4392	43.439
	48	Chlorodibromomethane	129	7.619	7.619	(0.923)	159908	42.4104	42.410
	49	1,3-Dichloropropane	76	7.704	7.704	(0.933)	200044	43.2252	43.225
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	122995	45.8774	45.877
	51	2-Hexanone	43	8.045	8.045	(0.974)	387871	233.985	233.99
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	816014	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	479212	43.2200	43.220
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	821817	45.3203	45.320
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	175252	43.9762	43.976
	56	m,p-xylene	106	8.435	8.435	(1.021)	656424	91.6727	91.673
	57	o-Xylene	106	8.806	8.806	(1.066)	309997	46.0363	46.036
	58	Styrene	104	8.854	8.854	(1.072)	501550	45.2818	45.282
	59	Bromoform	173	8.866	8.866	(0.857)	108799	40.4201	40.420
	60	Isopropyl Benzene	105	9.085	9.085	(0.878)	860823	46.4730	46.473
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1360		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	355683	50.2795	50.279(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	200906	42.4146	42.415
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	981168	46.1601	46.160
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	140026	41.8193	41.819
	66	2-Chloro Toluene	91	9.590	9.590	(0.927)	555100	45.2643	45.264
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	717203	46.6326	46.633
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	54101	45.2267	45.227
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	41753	42.1205	42.121
	70	4-Chloro Toluene	91	9.742	9.742	(0.941)	585267	45.3191	45.319
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	647341	45.6719	45.672
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	697533	46.2137	46.214
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	962039	46.9808	46.981
	74	4-Isopropyl Toluene	119	10.223	10.223	(0.988)	839535	47.8539	47.854
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	412087	44.5520	44.552
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	454776	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	411053	43.7187	43.719
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	723917	48.1667	48.167
$	79	d4-1,2-Dichlorobenzene	152	10.740	10.740	(1.038)	434802	51.0287	51.029(R)
	80	1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	369377	42.1369	42.137
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	31159	45.4918	45.492
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	151463	46.5512	46.551
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	254433	46.0743	46.074
	84	Naphthalene	128	12.486	12.486	(1.206)	533485	46.3314	46.331
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	224568	44.8464	44.846

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041903B.D
Lab Smp Id: bhi0098-bs1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	361253	-21.12
35 1,4-Difluorobenze	852165	426083	1704330	820535	-3.71
52 d5-Chlorobenzene	803678	401839	1607356	816014	1.53
76 d4-1,4-Dichlorobe	439766	219883	879532	454776	3.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.33	0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151013
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: bhi0098-bs1
Level:
Operator: PB
Data Type: MS DATA
SampleType: LCS
SpikeList File: voasoil.spk
Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	65.550	131.10	
2	Chloromethane	50.000	60.061	120.12	
3	Vinyl Chloride	50.000	67.384	134.77*	
4	Bromomethane	50.000	53.310	106.62	
5	Chloroethane	50.000	61.569	123.14	
6	Trichlorofluoromet	50.000	59.314	118.63	
12	Acrolein	250.00	301.30	120.52	
9	112Trichloro122Tri	50.000	58.165	116.33	
14	Acetone	250.00	303.30	121.32	
7	1,1-Dichloroethene	50.000	58.295	116.59	
11	Bromoethane	50.000	57.848	115.70	
10	Iodomethane	50.000	63.426	126.85	
13	Methylene Chloride	50.000	60.422	120.84	
8	Carbon Disulfide	50.000	57.058	114.12	
18	Acrylonitrile	50.000	57.847	115.69	
15	Trans-1,2-Dichloro	50.000	57.469	114.94	
19	Vinyl Acetate	50.000	54.947	109.89	
17	1,1-Dichloroethane	50.000	57.245	114.49	
29	2-Butanone	250.00	285.08	114.03	
22	2,2-Dichloropropan	50.000	59.341	118.68	
20	Cis-1,2-Dichloroet	50.000	54.798	109.60	
24	Chloroform	50.000	55.217	110.43	
23	Bromochloromethane	50.000	54.897	109.79	
26	1,1,1-Trichloroeth	50.000	56.097	112.19	
28	1,1-Dichloropropen	50.000	50.017	100.03	
25	Carbon Tetrachlori	50.000	48.273	96.55	
33	1,2-Dichloroethane	50.000	43.280	86.56	
30	Benzene	50.000	47.627	95.25	
34	Trichloroethene	50.000	48.542	97.08	
38	1,2-Dichloropropan	50.000	45.627	91.25	
39	Bromodichlorometha	50.000	45.083	90.17	
172	2-Pentanone	250.00	239.78	95.91	
37	Dibromomethane	50.000	44.703	89.41	
40	2-Chloroethyl Viny	50.000	43.856	87.71	
45	4-Methyl-2-Pentano	250.00	230.17	92.07	
41	Cis 1,3-dichloropr	50.000	45.282	90.56	
43	Toluene	50.000	45.607	91.21	
46	Trans 1,3-Dichloro	50.000	45.042	90.08	
51	2-Hexanone	250.00	233.99	93.59	
47	1,1,2-Trichloroeth	50.000	43.439	86.88	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	43.225	86.45	
44 Tetrachloroethene	50.000	48.424	96.85	
48 Chlorodibromometha	50.000	42.410	84.82	
50 1,2-Dibromoethane	50.000	45.877	91.75	
53 Chlorobenzene	50.000	43.220	86.44	
55 1,1,1,2-Tetrachlor	50.000	43.976	87.95	
54 Ethyl Benzene	50.000	45.320	90.64	
56 m,p-xylene	100.00	91.673	91.67	
57 o-Xylene	50.000	46.036	92.07	
58 Styrene	50.000	45.282	90.56	
60 Isopropyl Benzene	50.000	46.473	92.95	
59 Bromoform	50.000	40.420	80.84	
65 1,1,2,2-Tetrachlor	50.000	41.819	83.64	
68 1,2,3-Trichloropro	50.000	45.227	90.45	
69 Trans-1,4-Dichloro	50.000	42.121	84.24	
64 N-Propyl Benzene	50.000	46.160	92.32	
63 Bromobenzene	50.000	42.415	84.83	
67 1,3,5-Trimethyl Be	50.000	46.633	93.27	
66 2-Chloro Toluene	50.000	45.264	90.53	
70 4-Chloro Toluene	50.000	45.319	90.64	
71 T-Butyl Benzene	50.000	45.672	91.34	
72 1,2,4-Trimethylben	50.000	46.214	92.43	
73 S-Butyl Benzene	50.000	46.981	93.96	
74 4-Isopropyl Toluen	50.000	47.854	95.71	
75 1,3-Dichlorobenzen	50.000	44.552	89.10	
77 1,4-Dichlorobenzen	50.000	43.719	87.44	
78 N-Butyl Benzene	50.000	48.167	96.33	
80 1,2-Dichlorobenzen	50.000	42.137	84.27	
81 1,2-Dibromo 3-Chlo	50.000	45.492	90.98	
83 1,2,4-Trichloroben	50.000	46.074	92.15	
82 Hexachloro 1,3-But	50.000	46.551	93.10	
84 Naphthalene	50.000	46.331	92.66	
85 1,2,3-Trichloroben	50.000	44.846	89.69	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	63.954	127.91	
$ 32 d4-1,2-Dichloroeth	50.000	61.200	122.40	
$ 42 d8-Toluene	50.000	51.793	103.59	
$ 62 4-Bromofluorobenze	50.000	50.279	100.56	
$ 79 d4-1,2-Dichloroben	50.000	51.029	102.06	

REVIEW SUMMARY FOR FILE - NT509041903B.D

Lab ID: bhi0098-bs1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 14:02

RT	CO-ELUTION COMPOUNDS
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500

Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

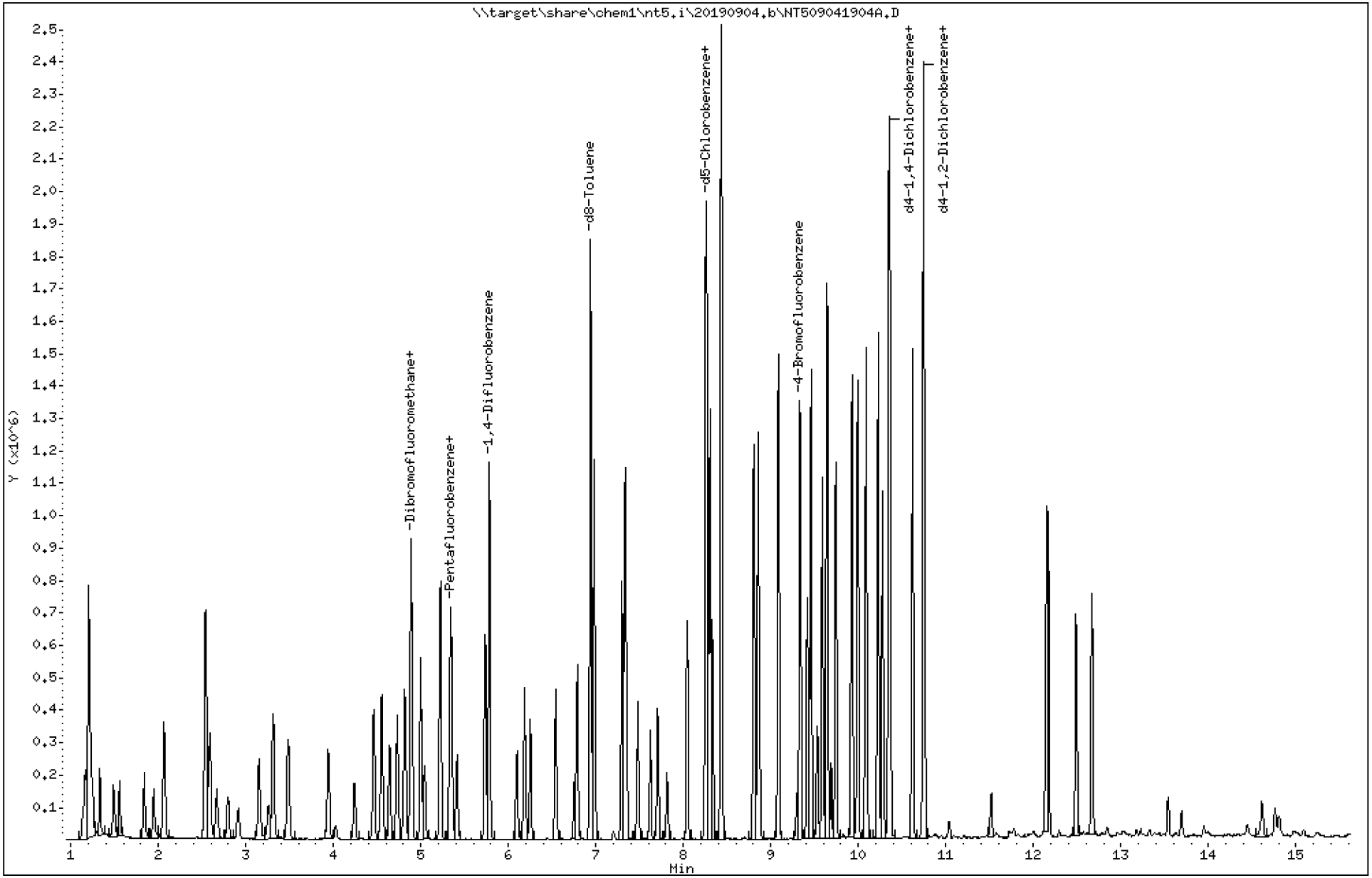
Instrument: nt5.i

Sample Info: BSD1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

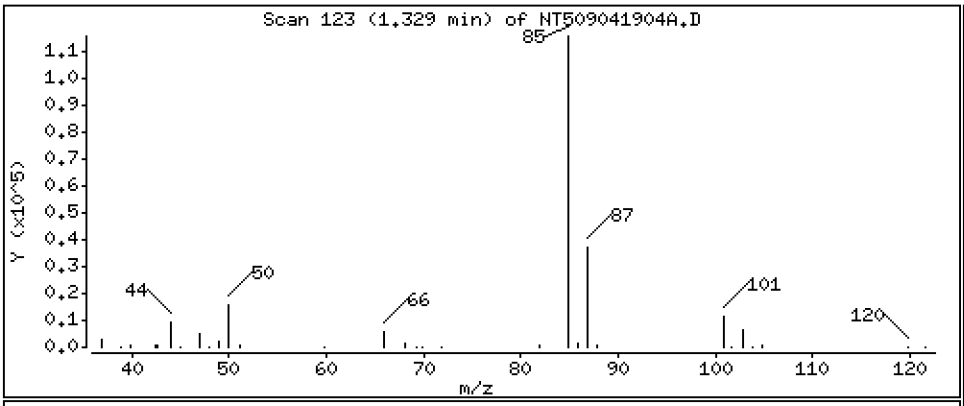
Operator: PB

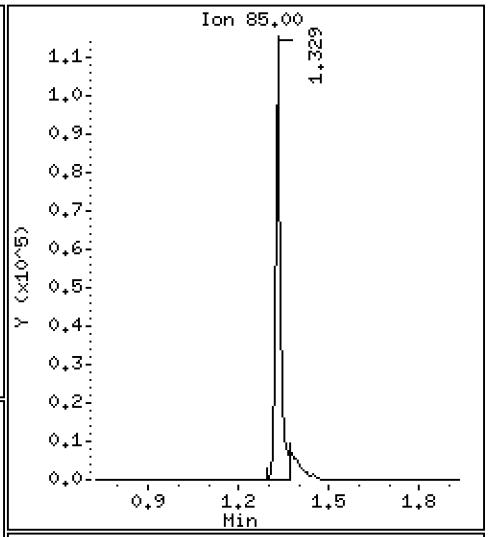
Column phase: RTXVMS

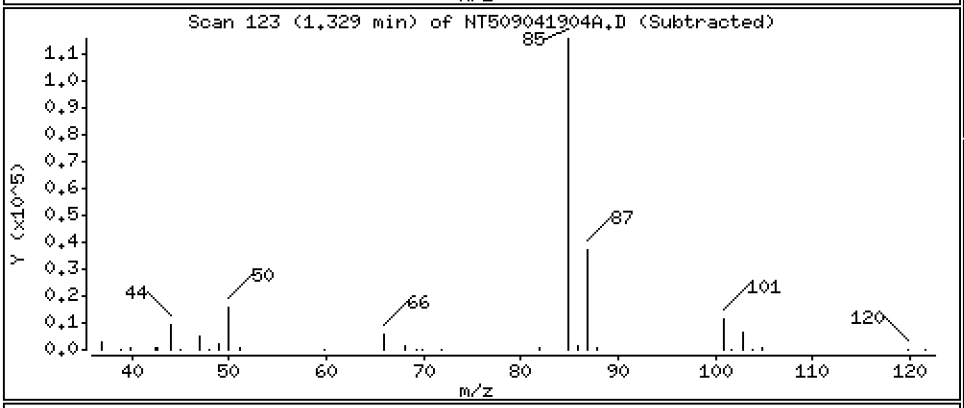
Column diameter: 0.18

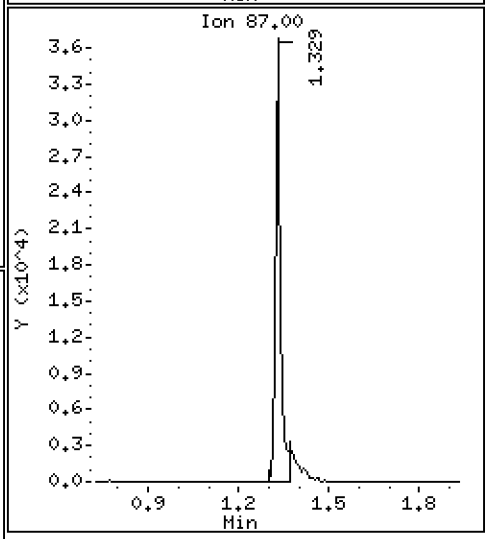
1 Dichlorodifluoromethane

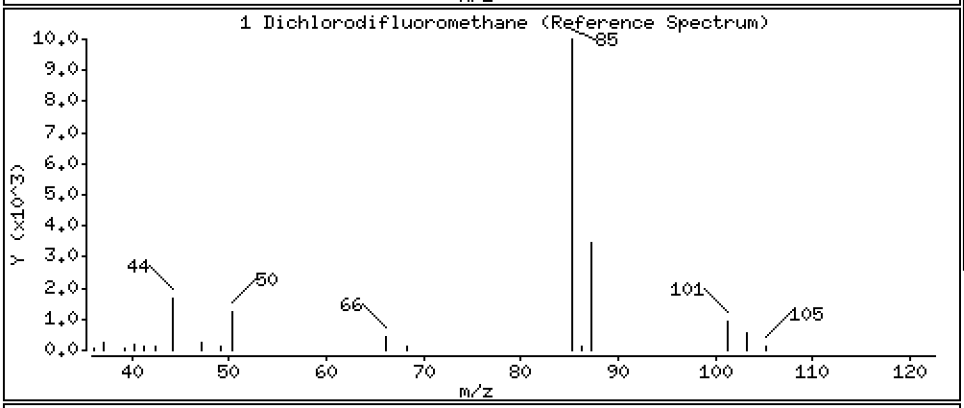
Concentration: 58.577 ug/Kg

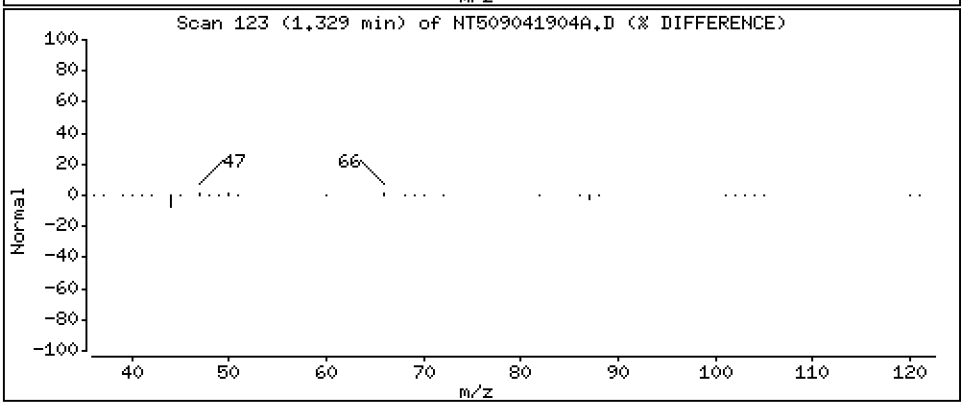












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

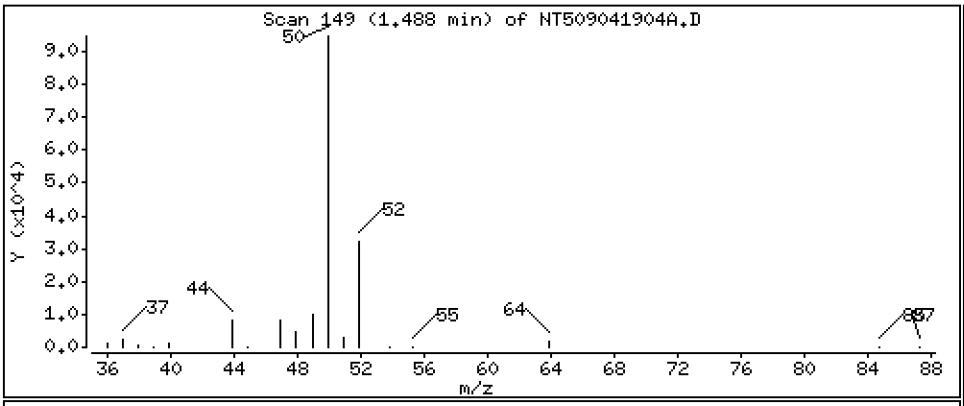
Operator: PB

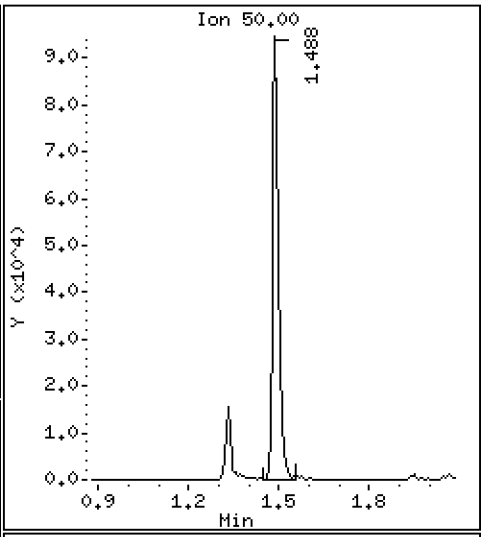
Column phase: RTXVMS

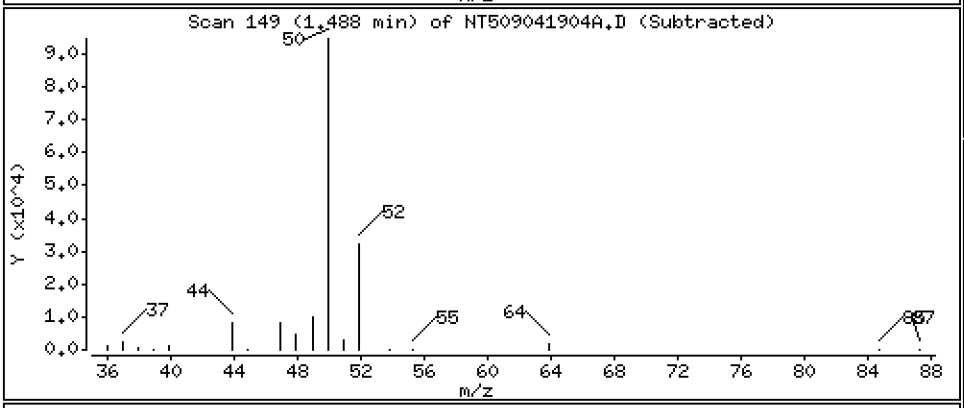
Column diameter: 0.18

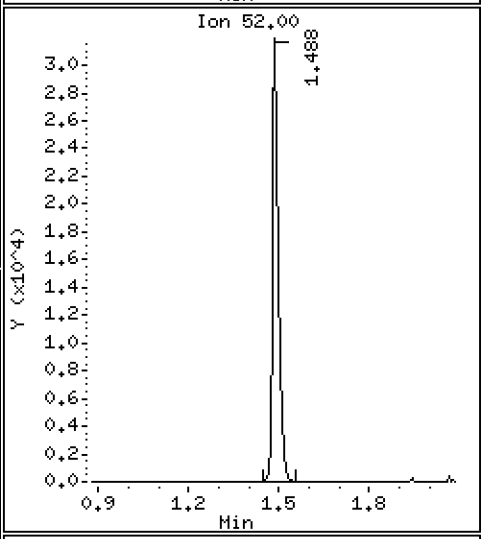
2 Chloromethane

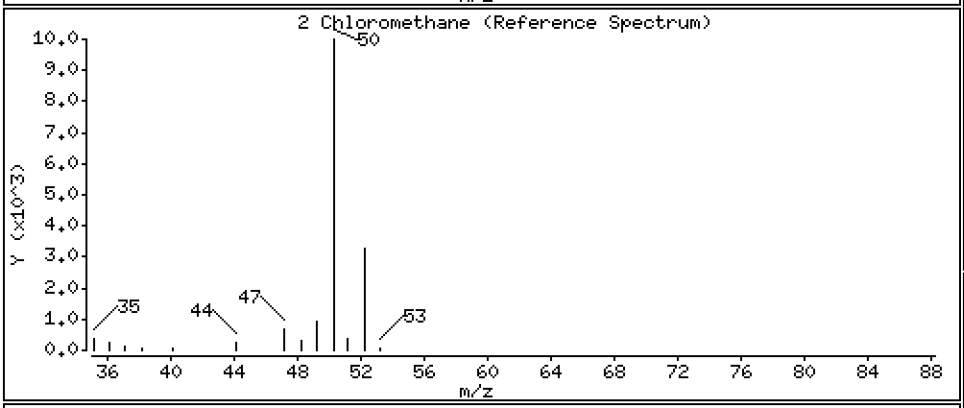
Concentration: 59.835 ug/Kg

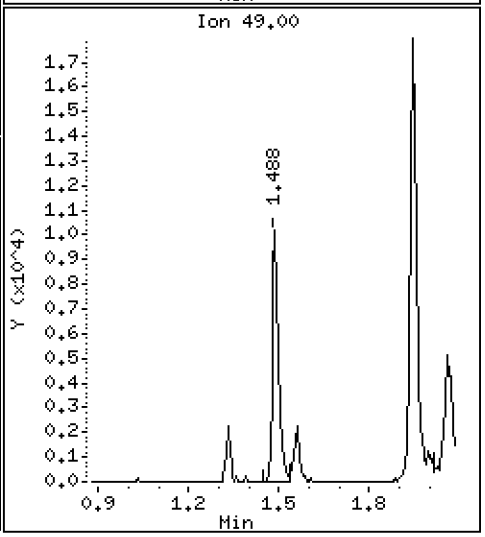


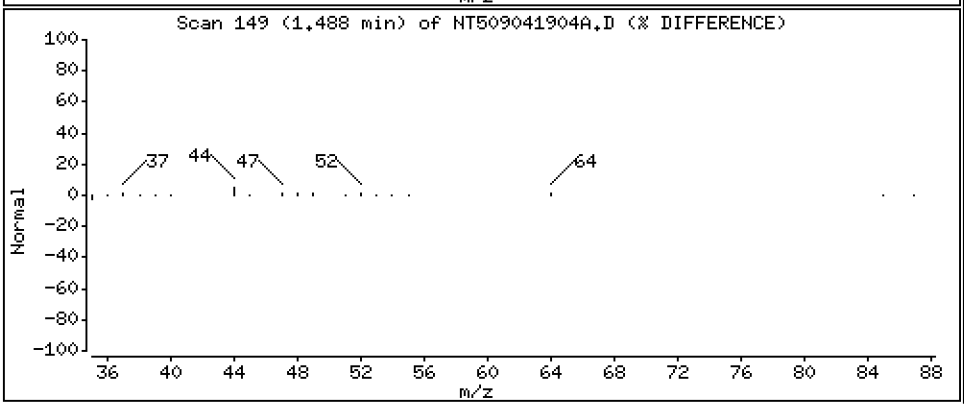












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

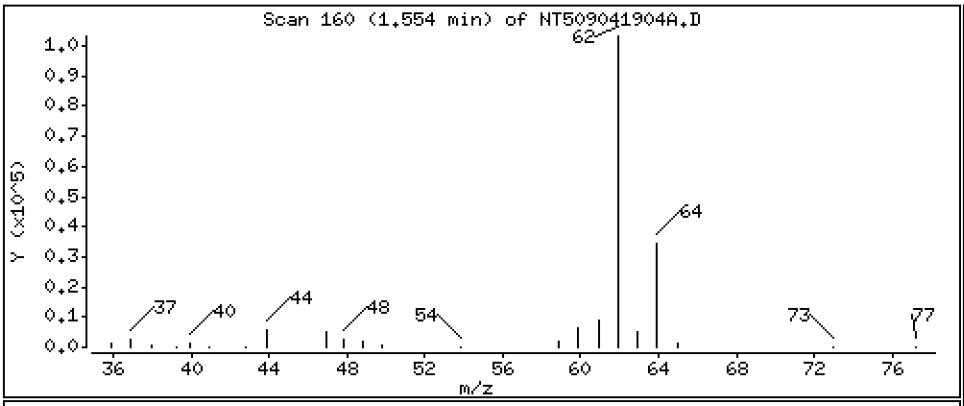
Operator: PB

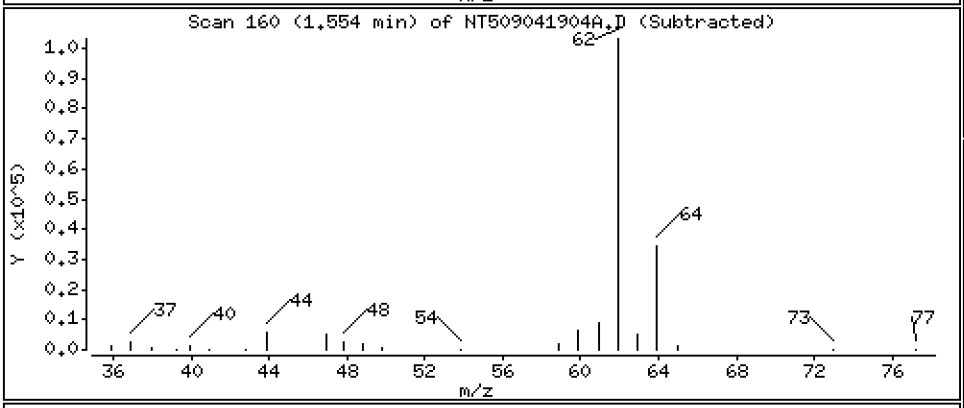
Column phase: RTXVMS

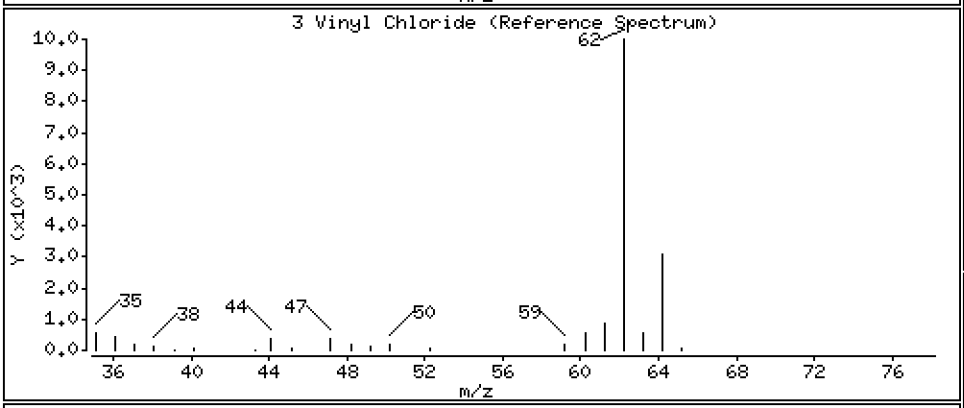
Column diameter: 0.18

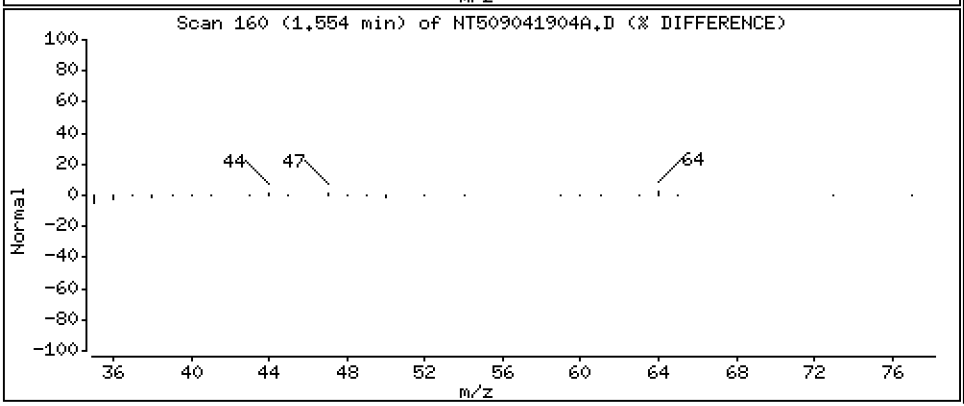
3 Vinyl Chloride

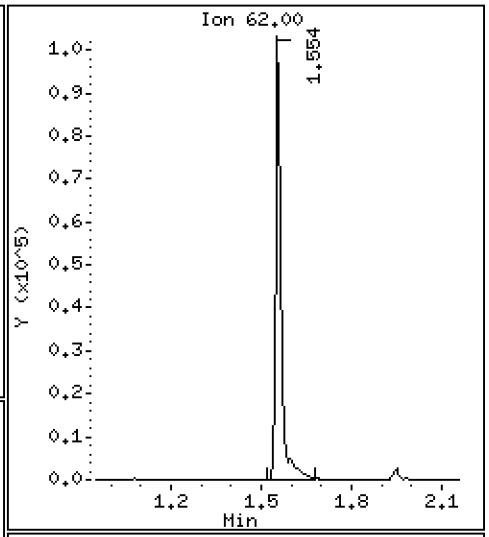
Concentration: 64.574 ug/Kg

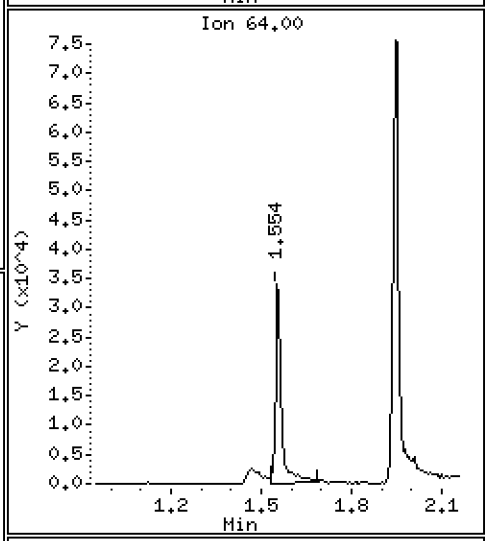


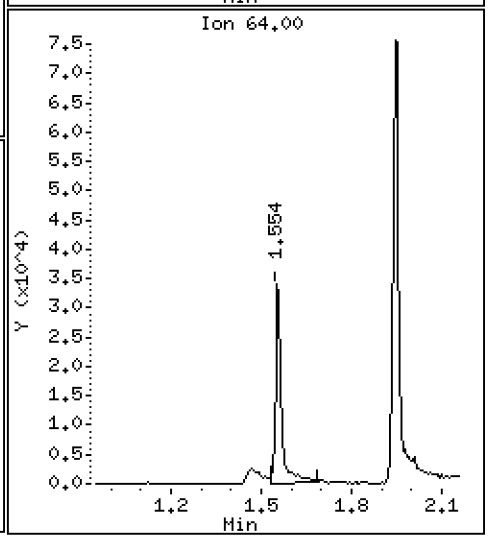












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

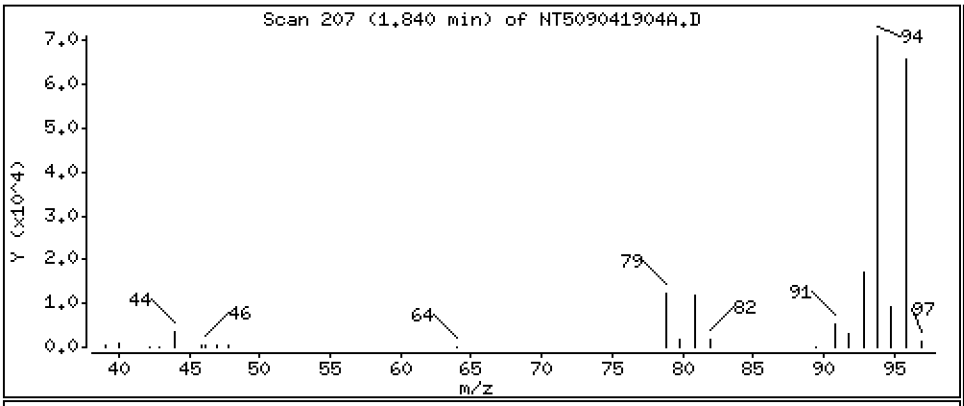
Operator: PB

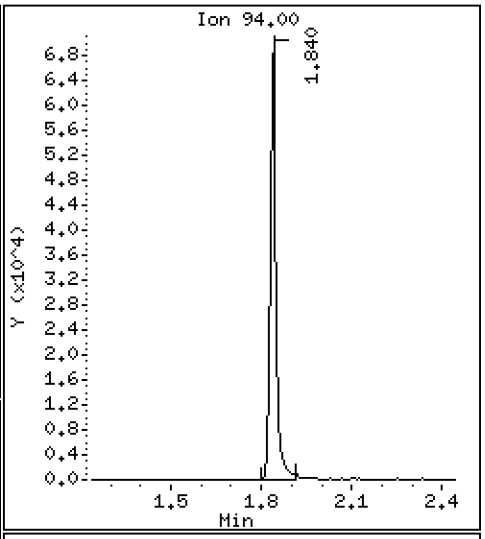
Column phase: RTXVMS

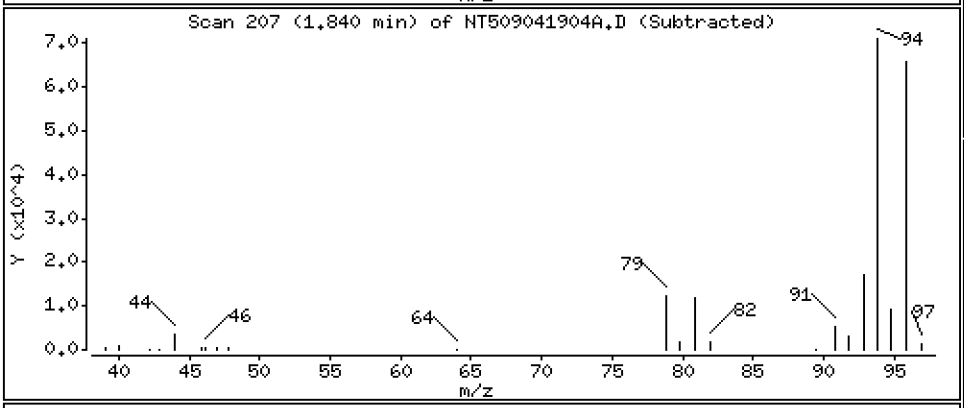
Column diameter: 0.18

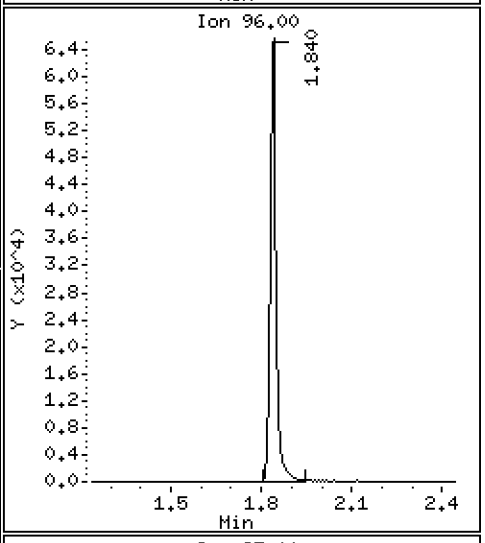
4 Bromomethane

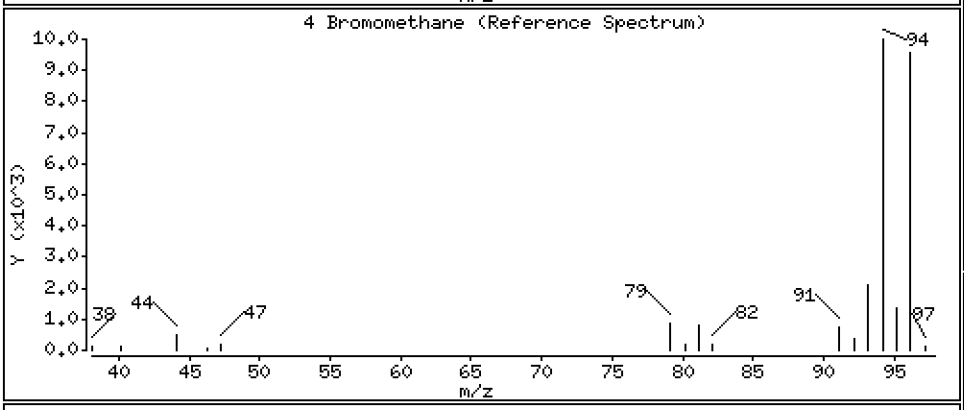
Concentration: 52.511 ug/Kg

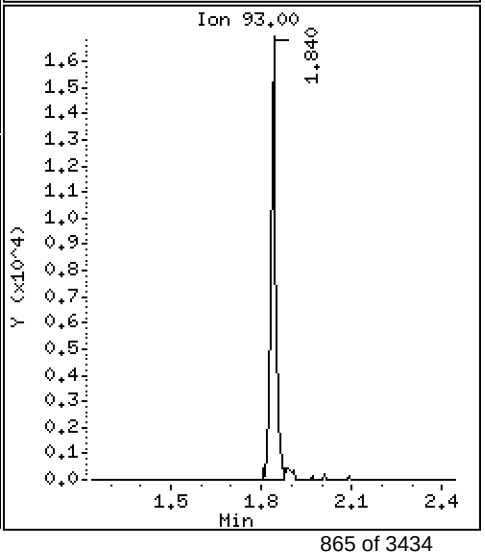


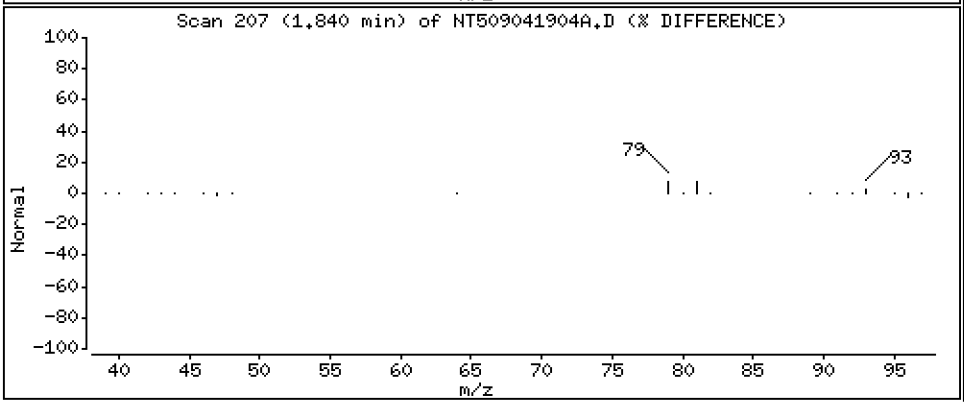












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

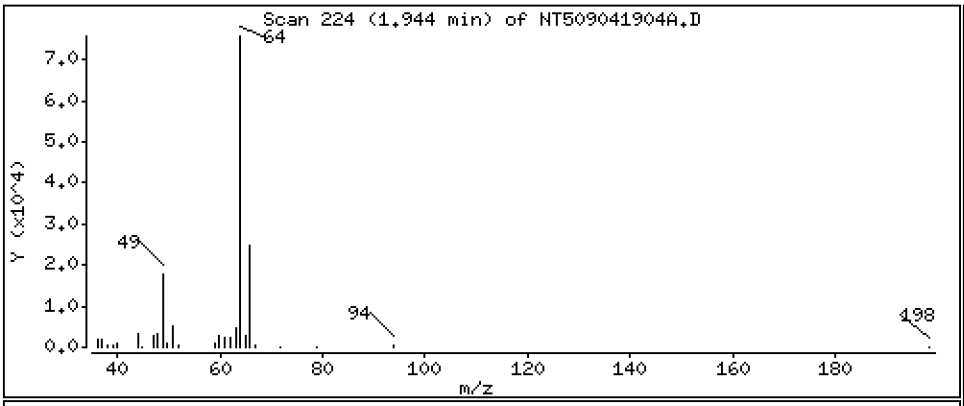
Operator: PB

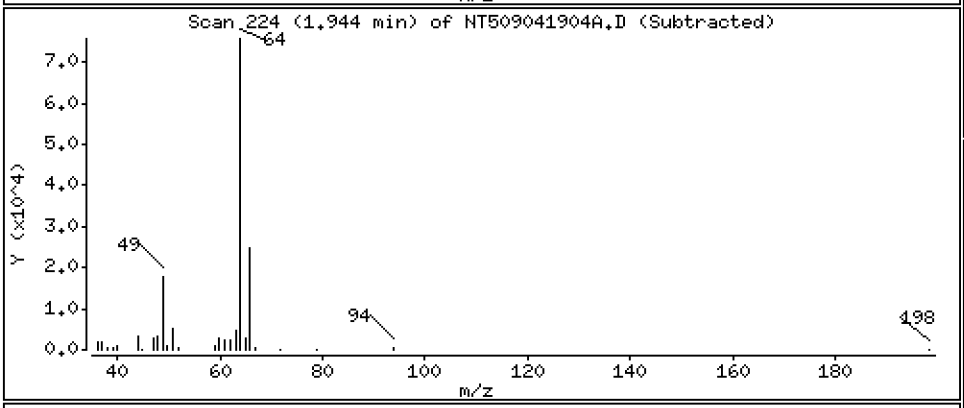
Column phase: RTXVMS

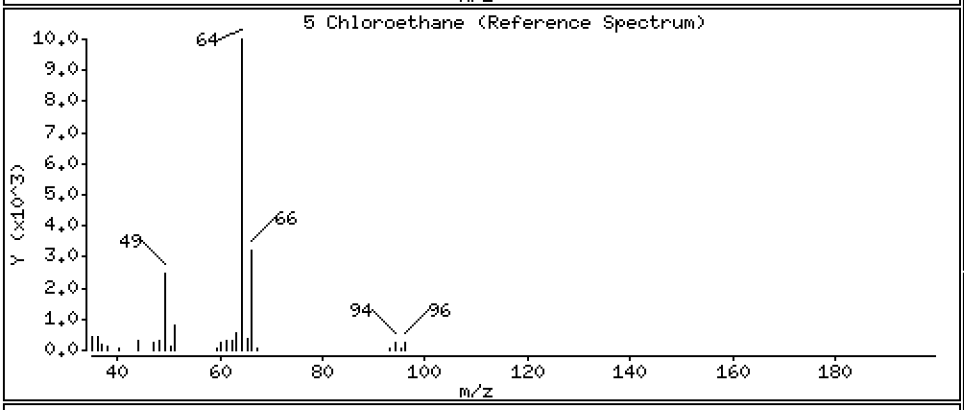
Column diameter: 0.18

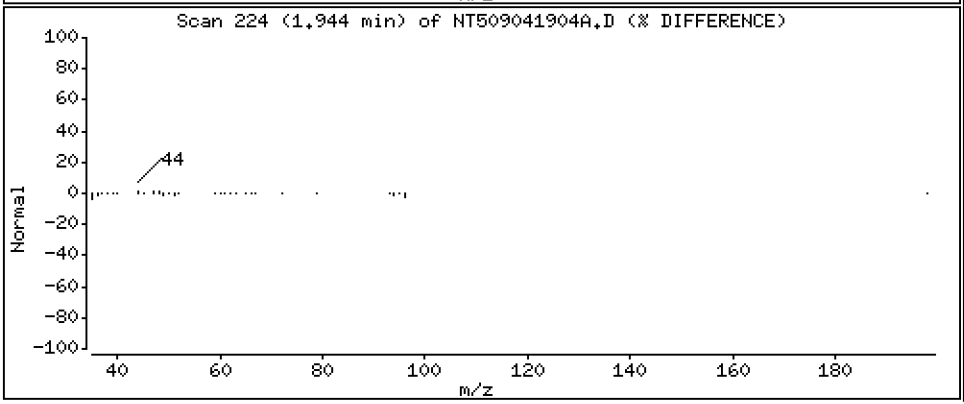
5 Chloroethane

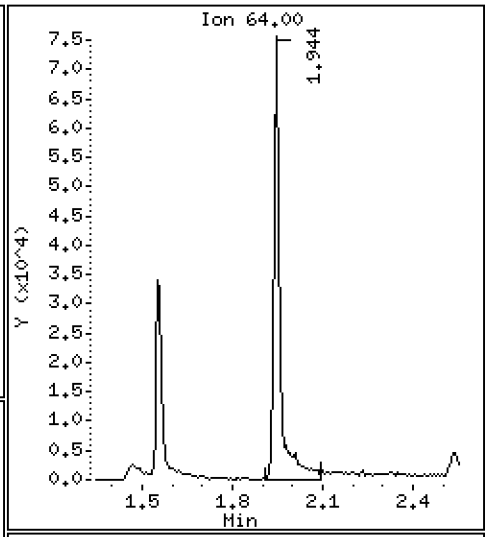
Concentration: 67.055 ug/Kg

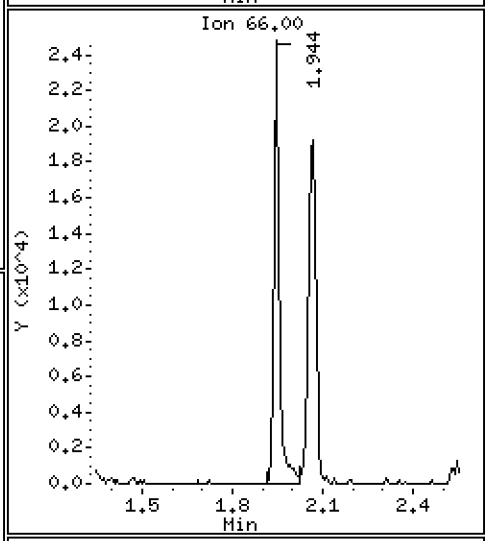


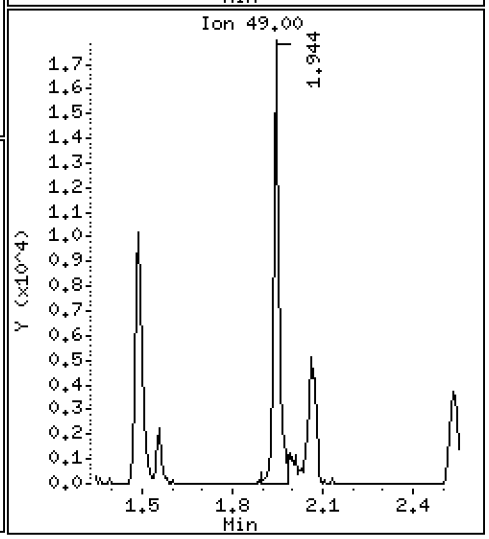












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

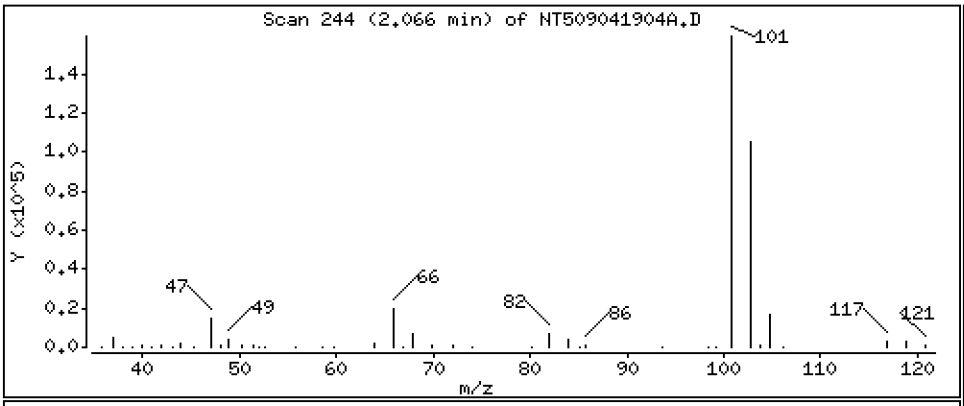
Operator: PB

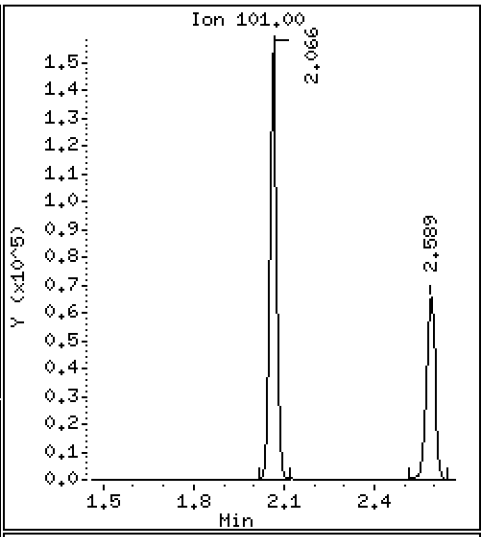
Column phase: RTXVMS

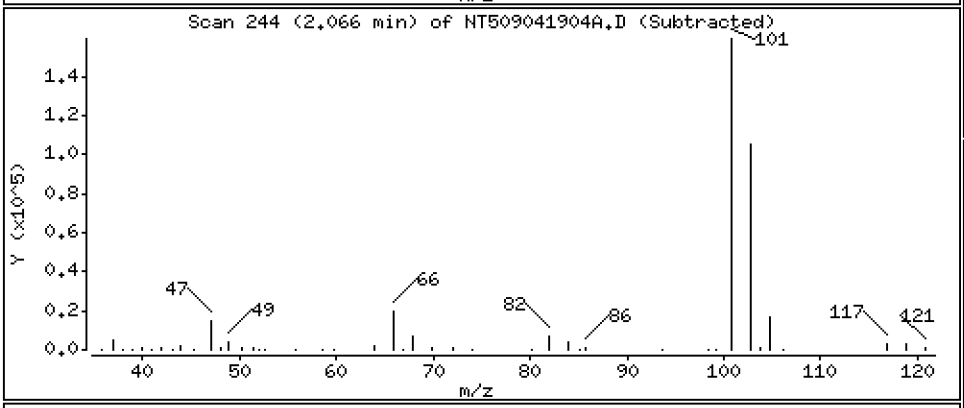
Column diameter: 0.18

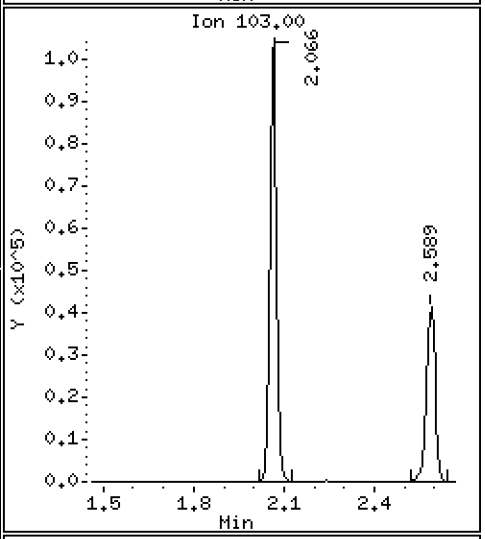
6 Trichlorofluoromethane

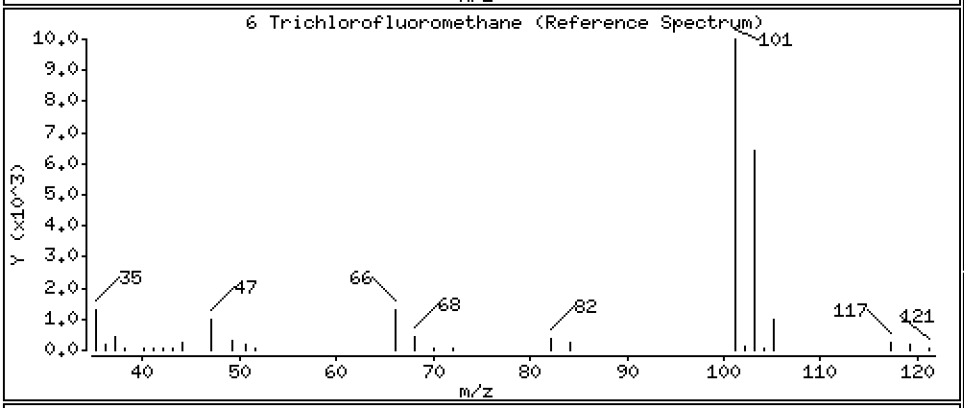
Concentration: 58.742 ug/Kg

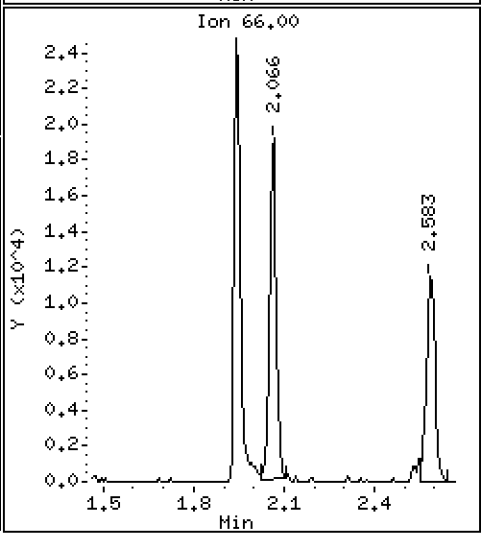


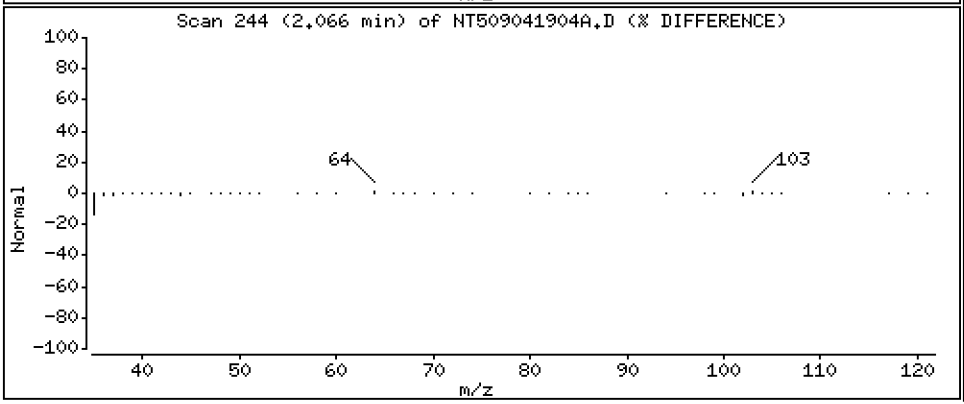












Data File: \\target\share\chem1\nt5.i\20190904.b\NT5090419O4A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

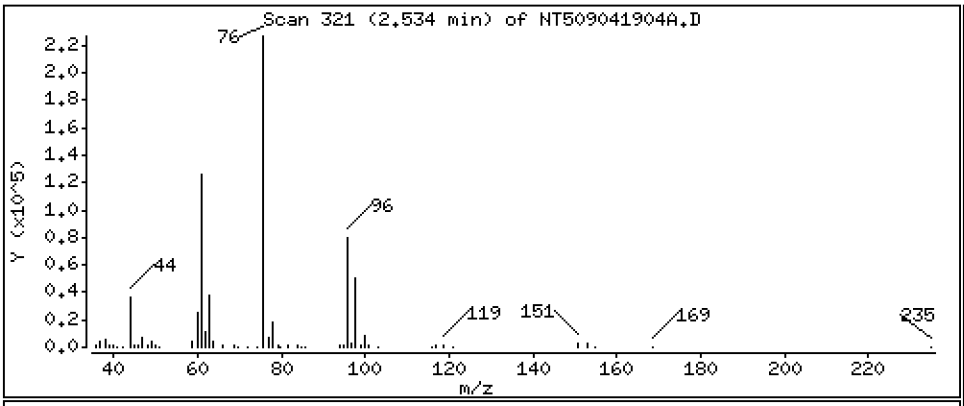
Operator: PB

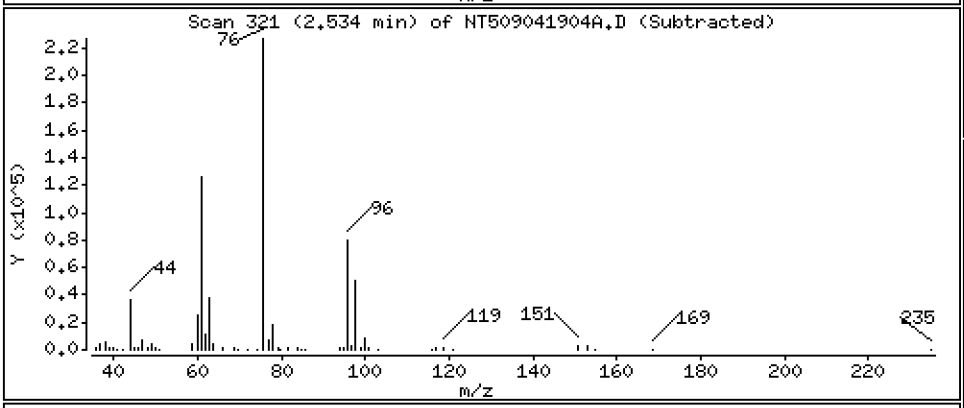
Column phase: RTXVMS

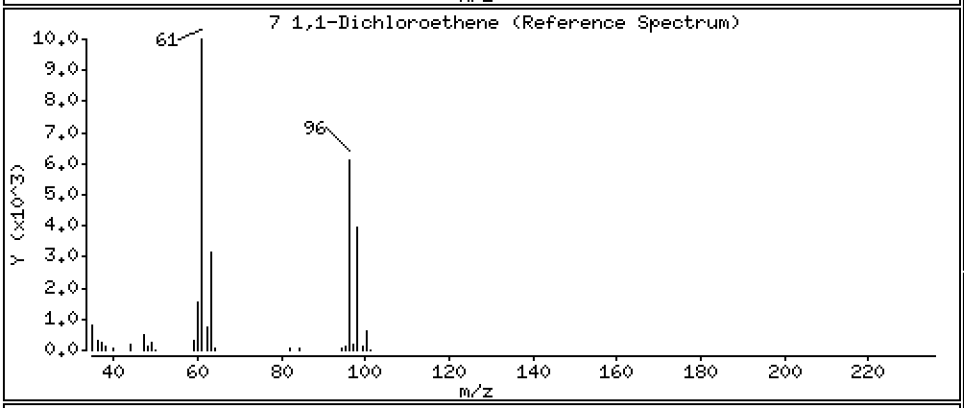
Column diameter: 0.18

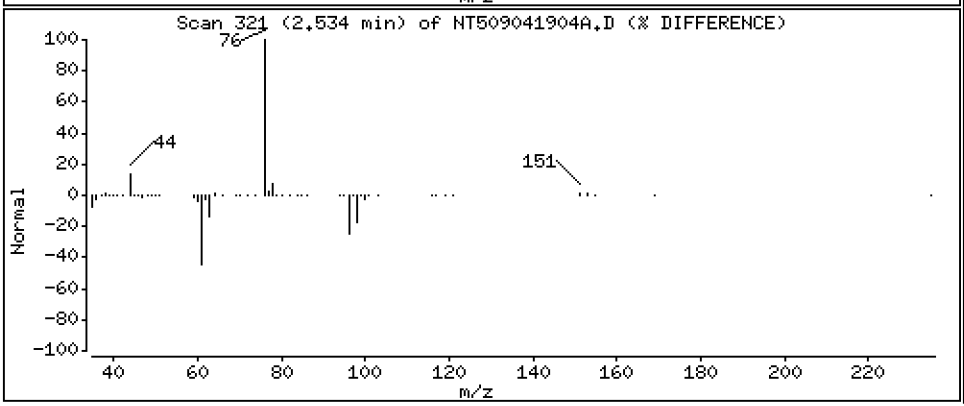
7 1,1-Dichloroethene

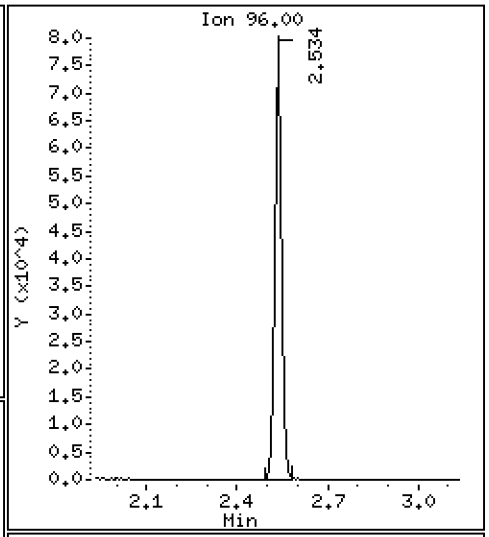
Concentration: 58.197 ug/Kg

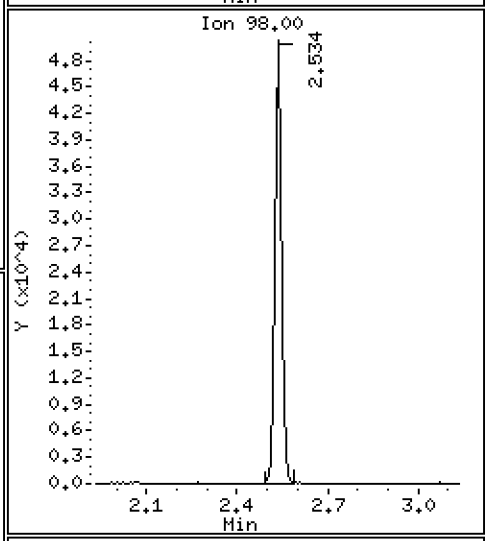


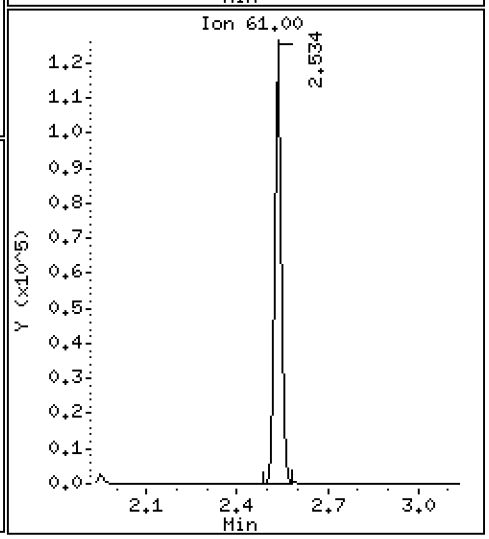












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

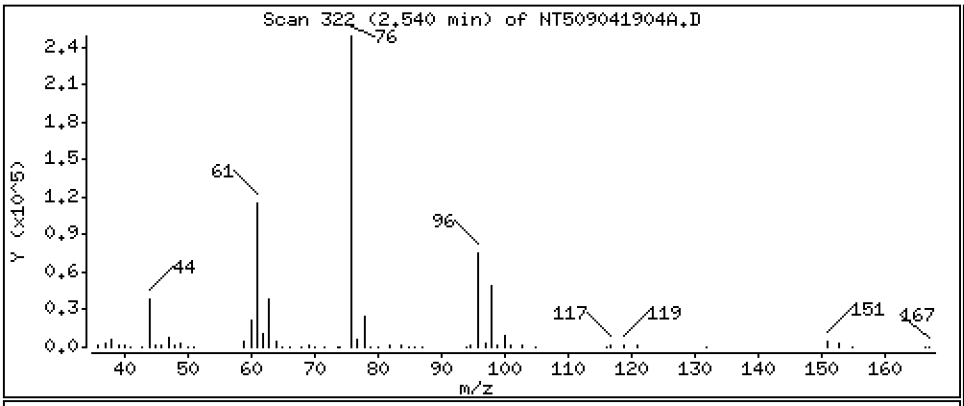
Operator: PB

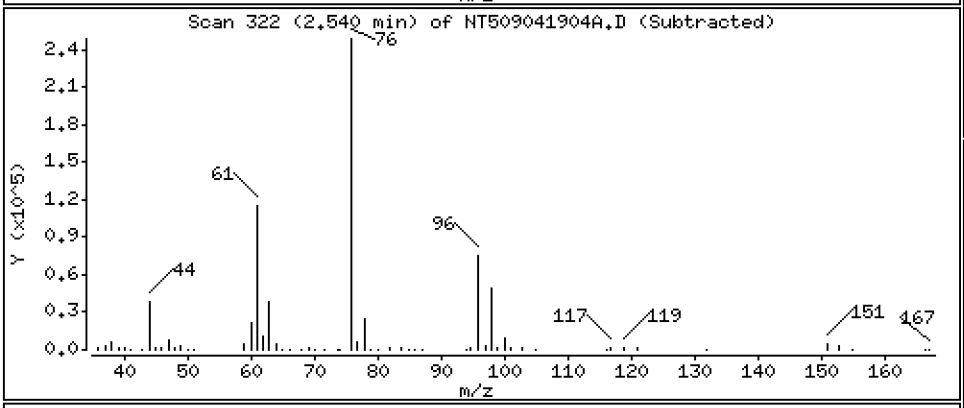
Column phase: RTXVMS

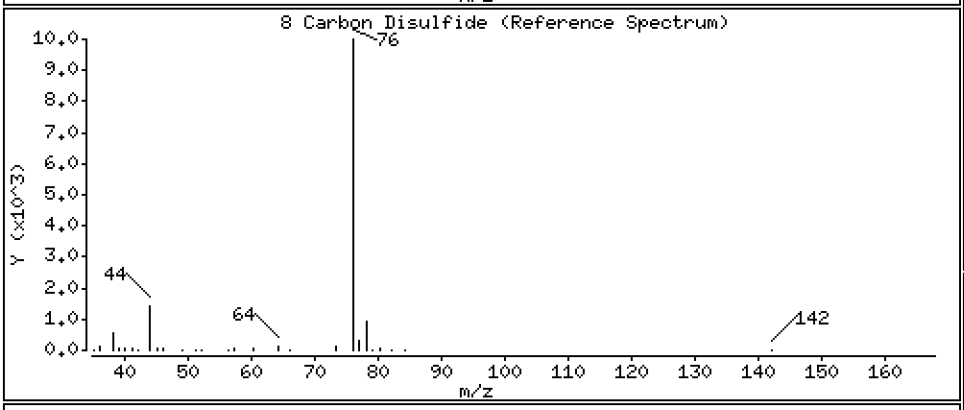
Column diameter: 0.18

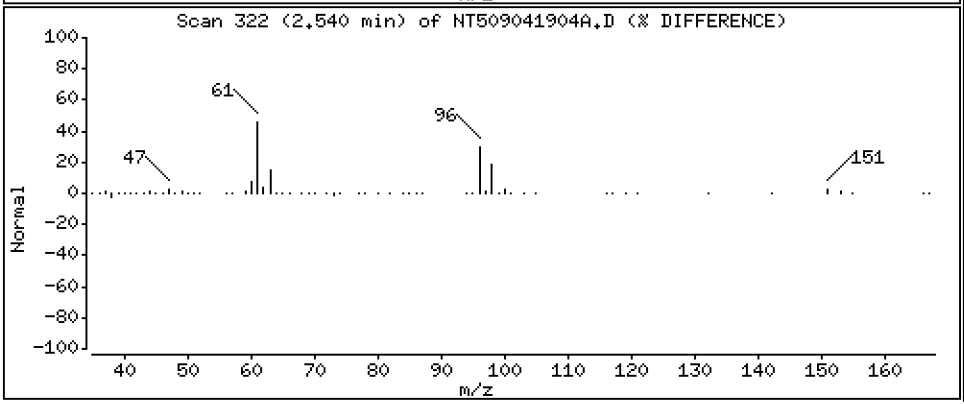
8 Carbon Disulfide

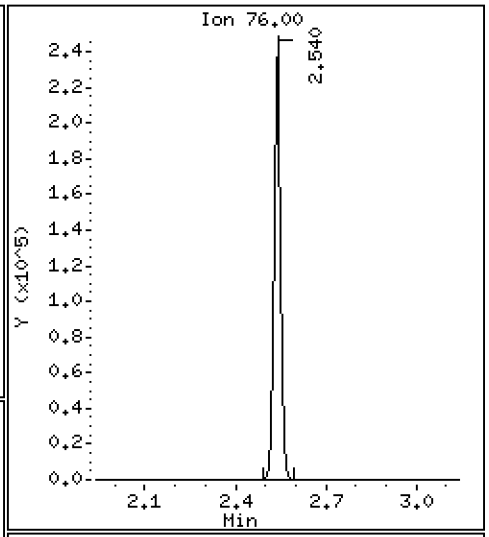
Concentration: 57.568 ug/Kg

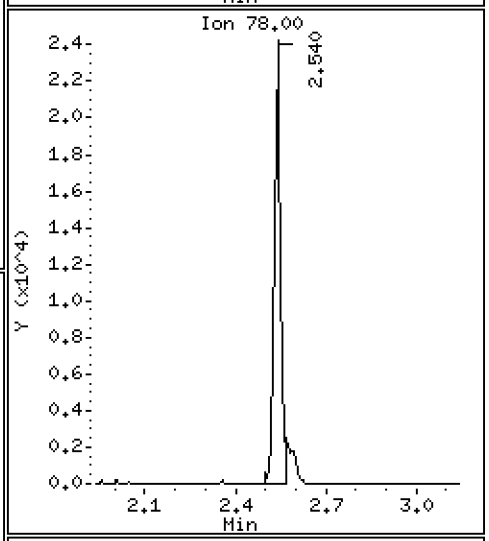


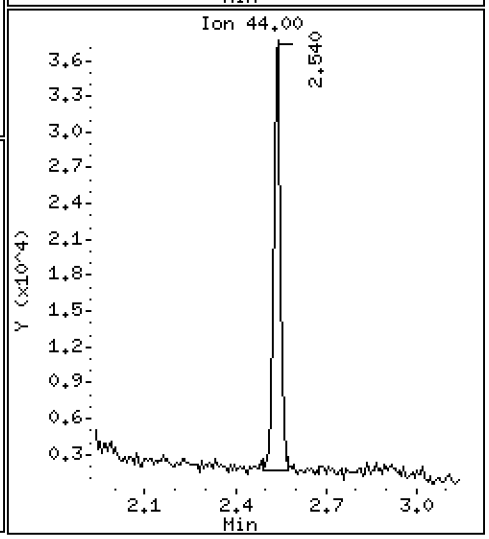












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

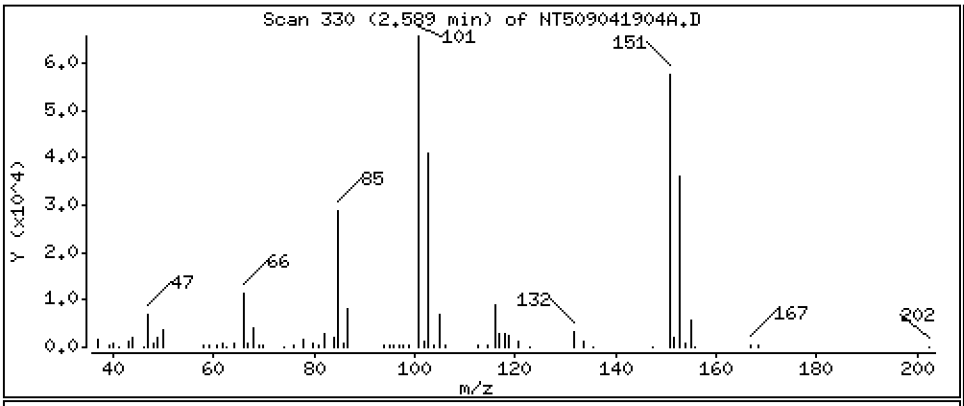
Operator: PB

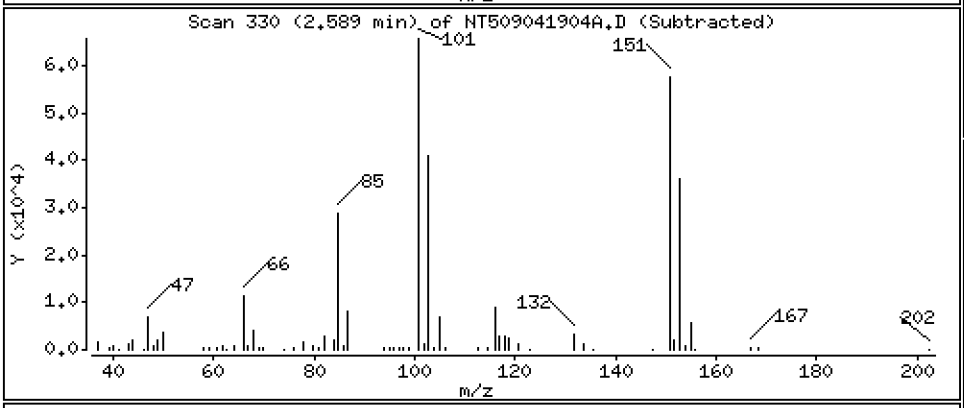
Column phase: RTXVMS

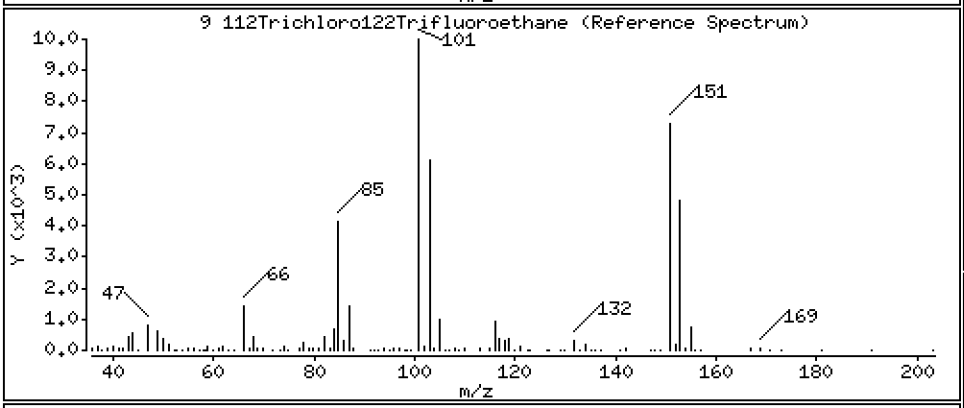
Column diameter: 0.18

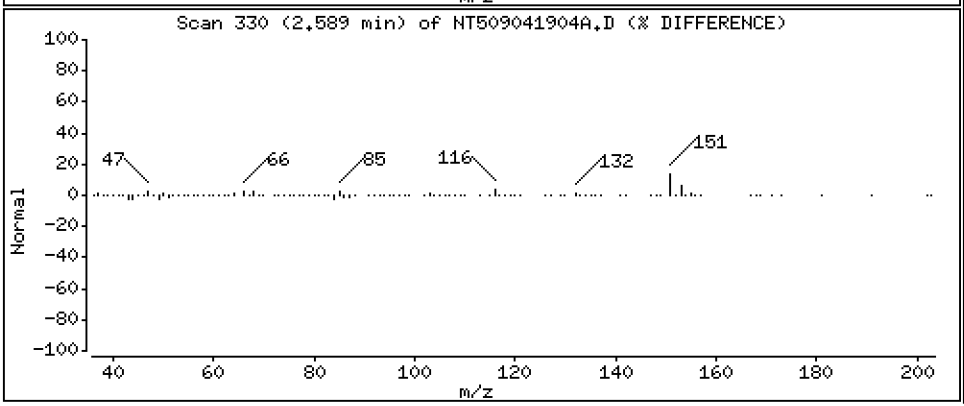
9 112Trichloro122Trifluoroethane

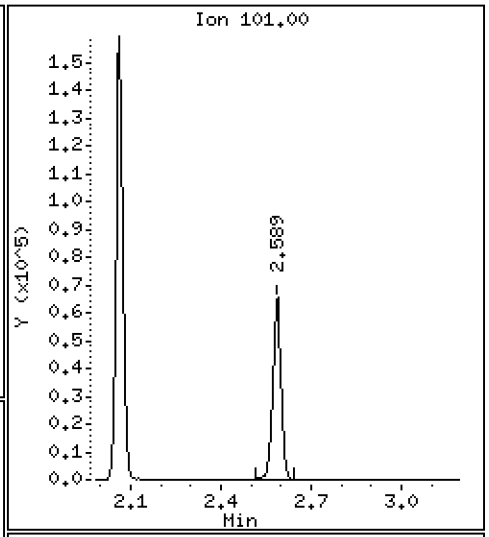
Concentration: 57.877 ug/Kg

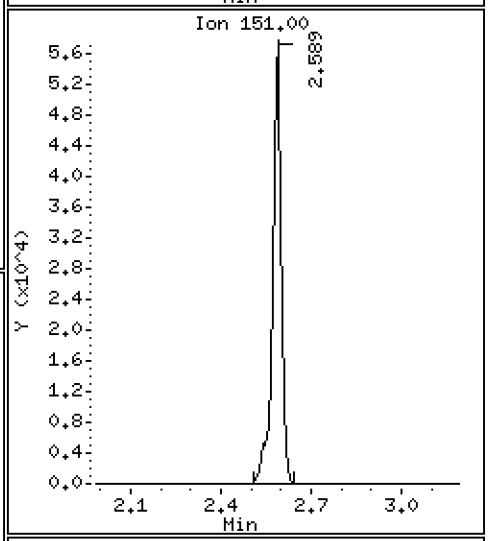


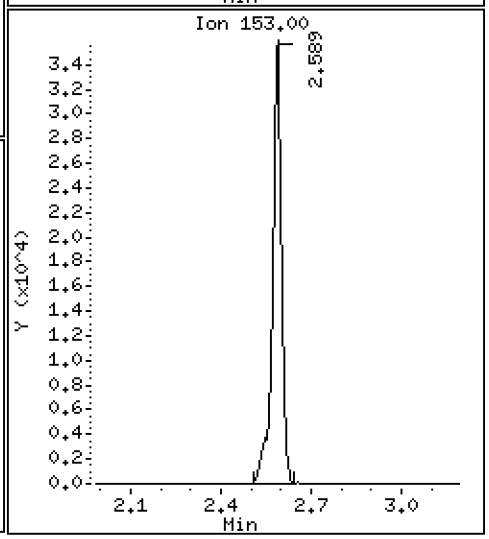












Date : 04-SEP-2019 15:04

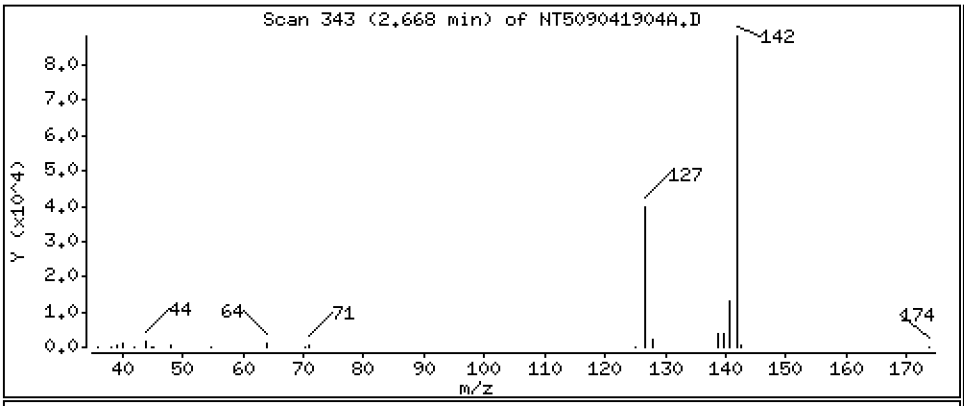
Client ID: Instrument: nt5.i

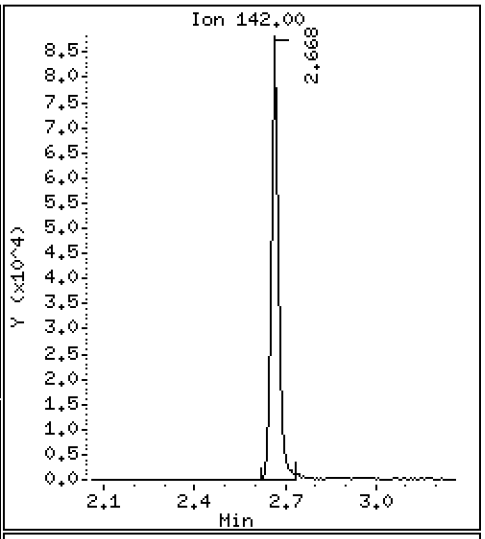
Sample Info: BSD1

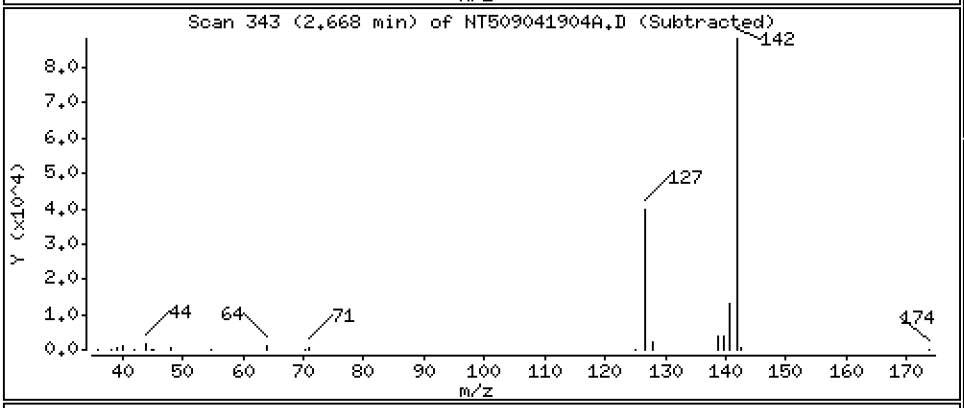
Operator: PB

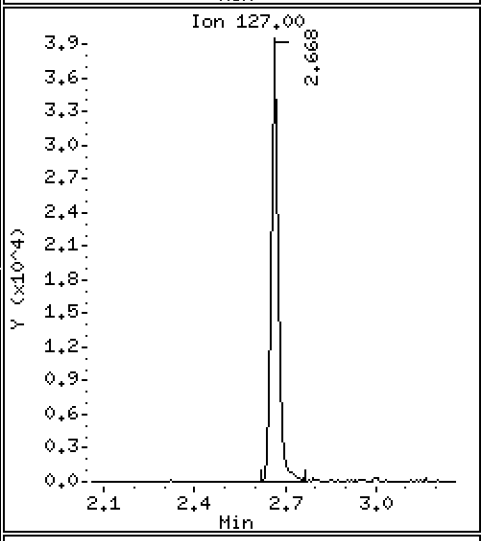
Column phase: RTXVMS Column diameter: 0.18

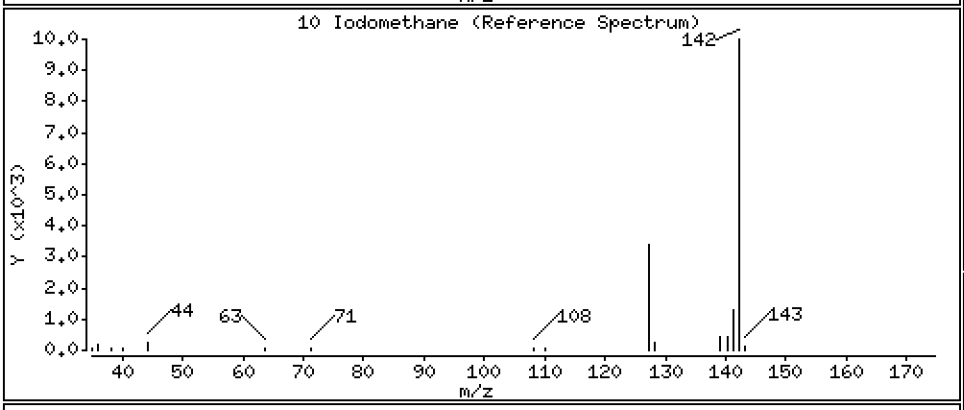
10 Iodomethane Concentration: 63.242 ug/Kg

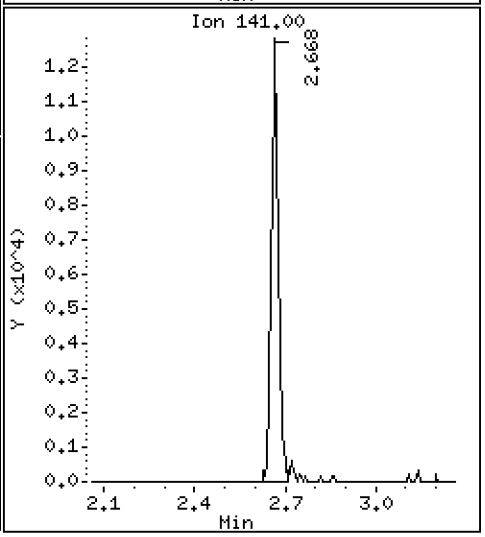


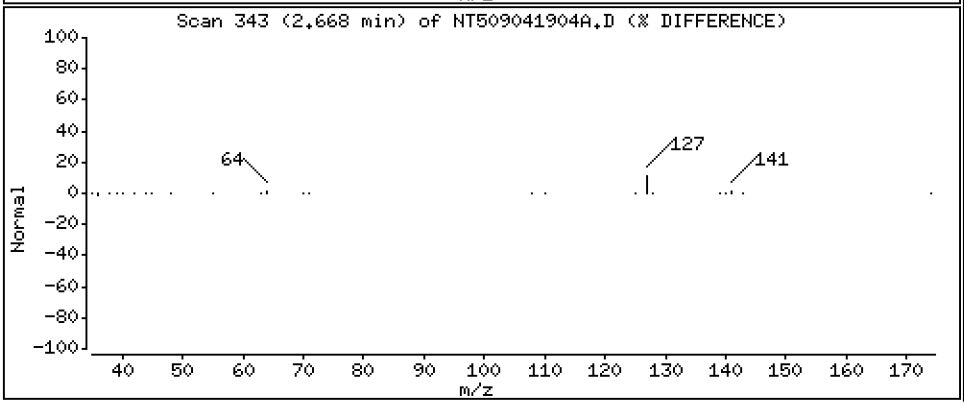












Date : 04-SEP-2019 15:04

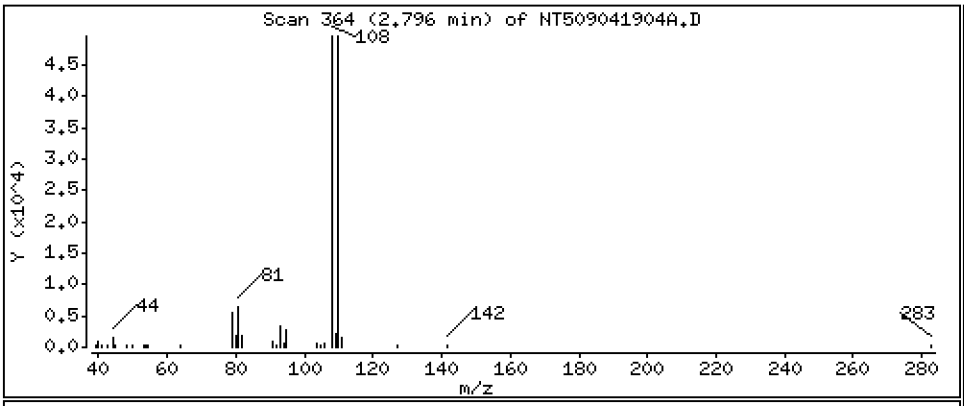
Client ID: Instrument: nt5.i

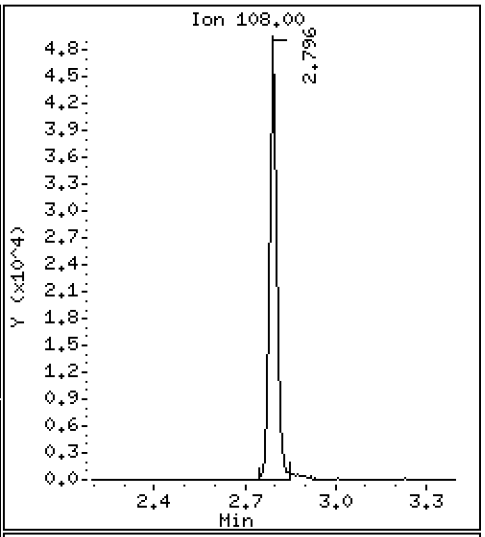
Sample Info: BSD1

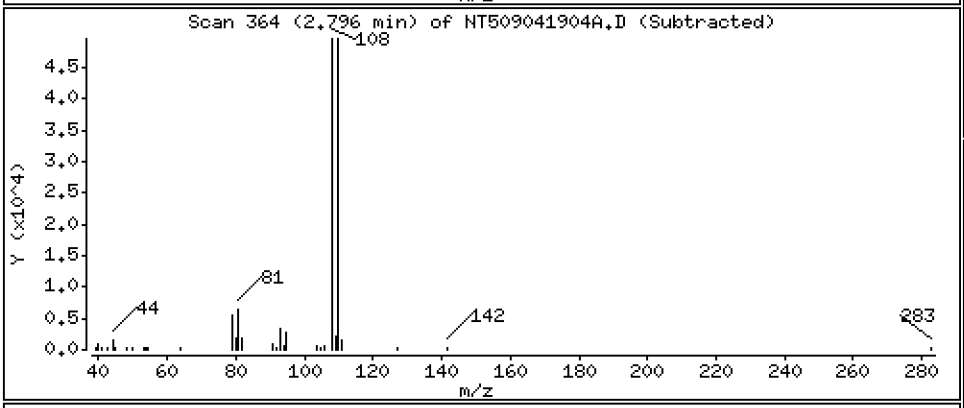
Operator: PB

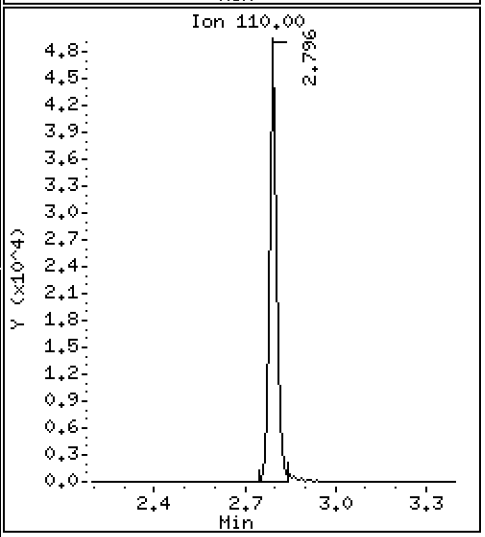
Column phase: RTXVMS Column diameter: 0.18

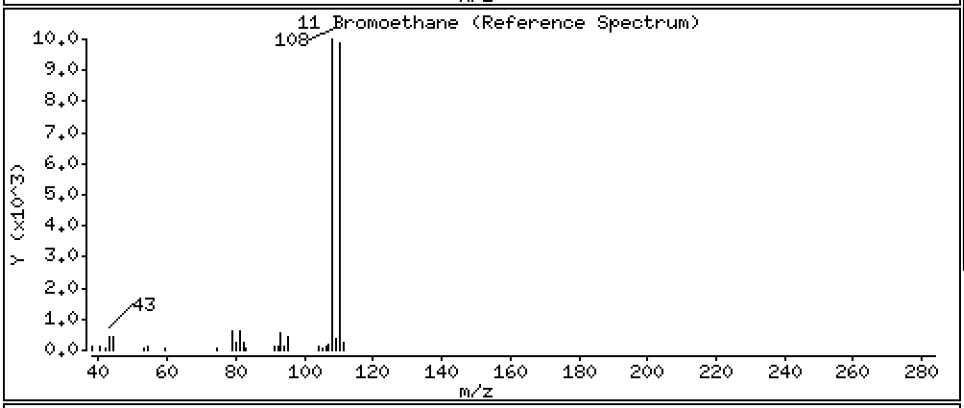
11 Bromoethane Concentration: 57.250 ug/Kg

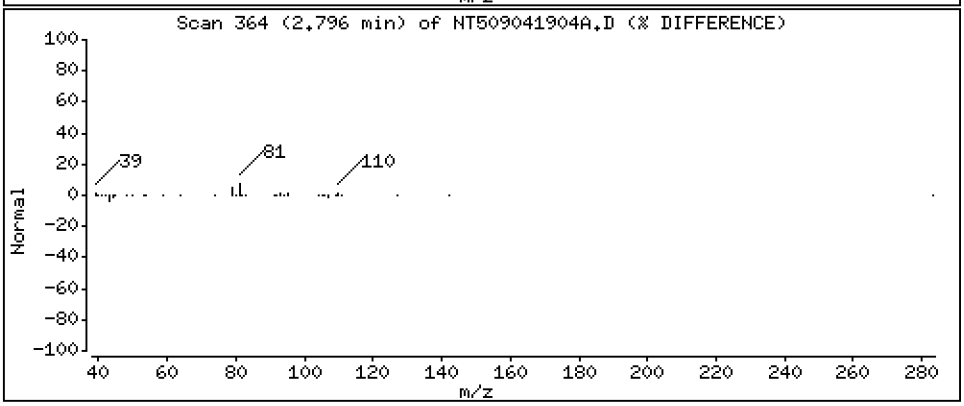












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

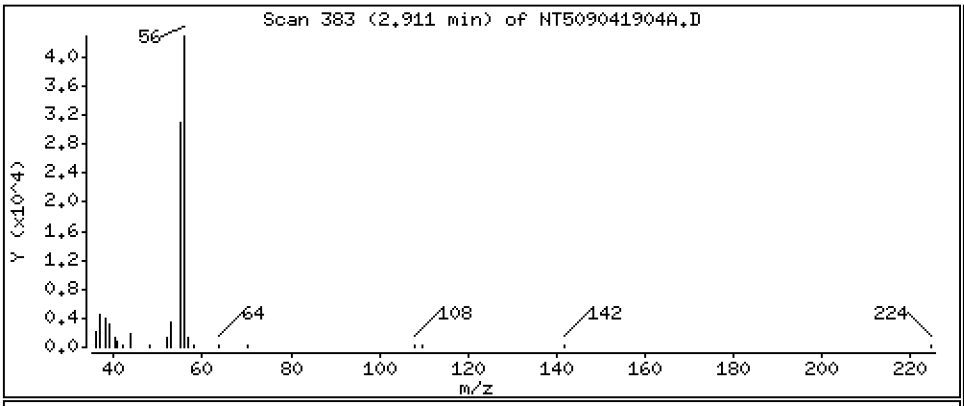
Operator: PB

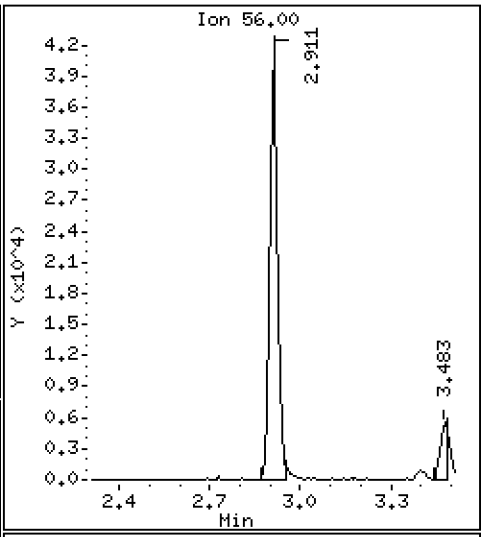
Column phase: RTXVMS

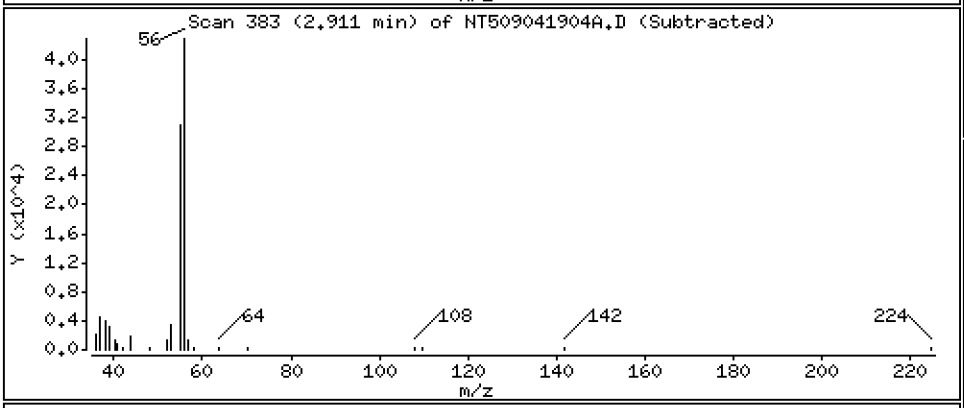
Column diameter: 0.18

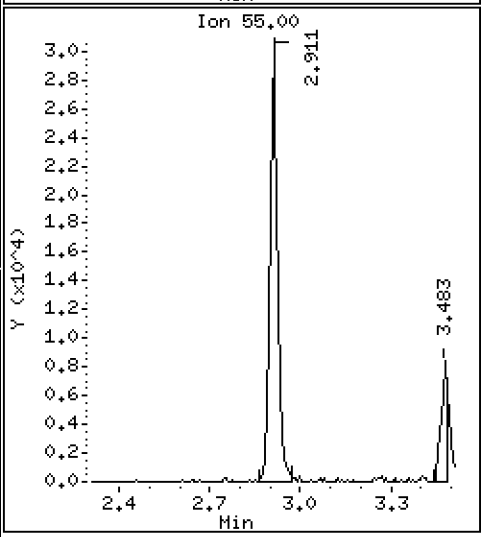
12 Acrolein

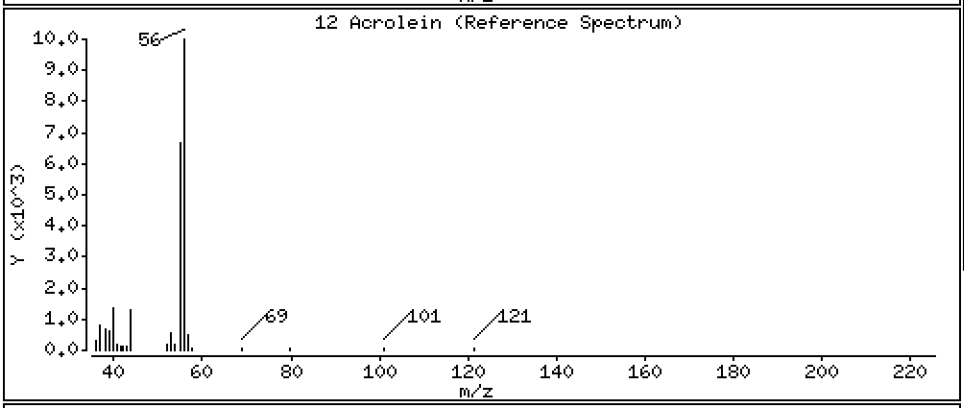
Concentration: 306.36 ug/Kg

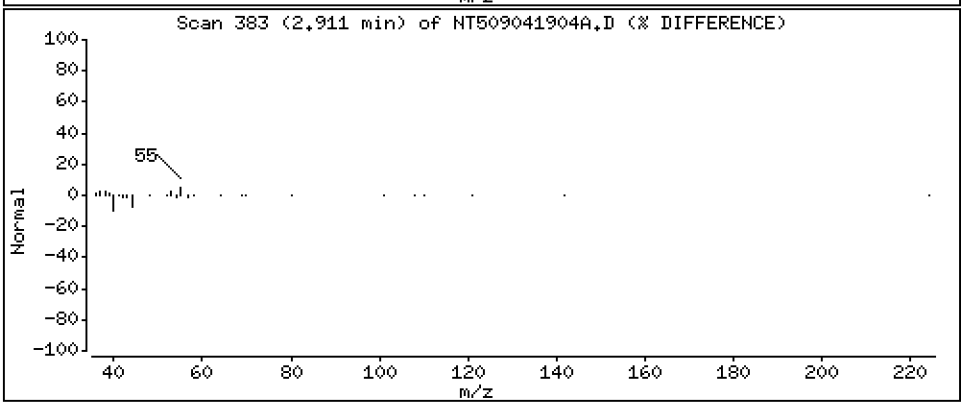












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

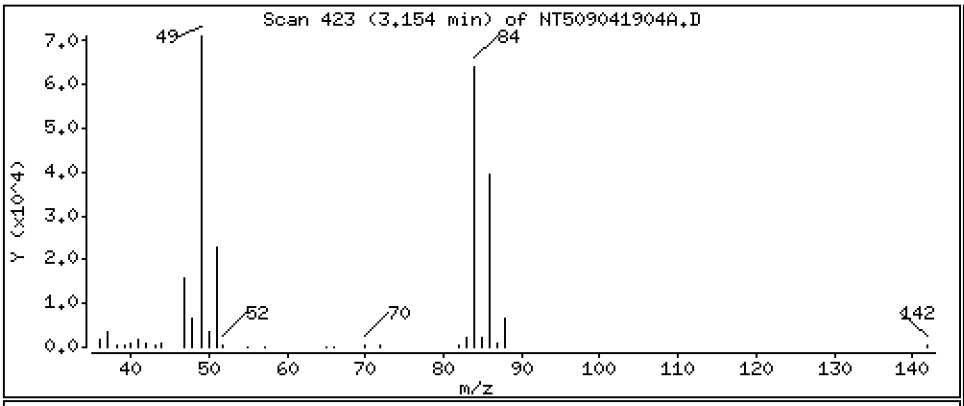
Operator: PB

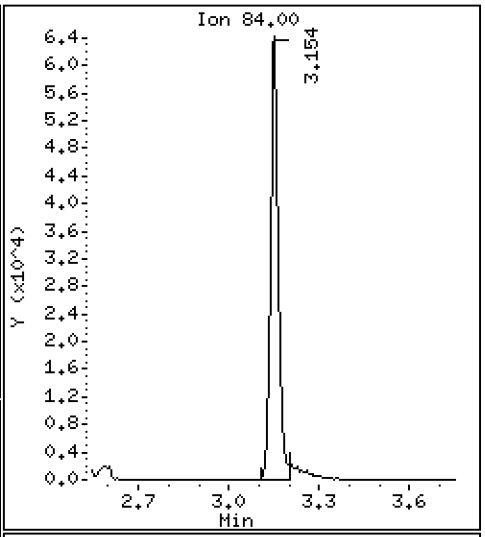
Column phase: RTXVMS

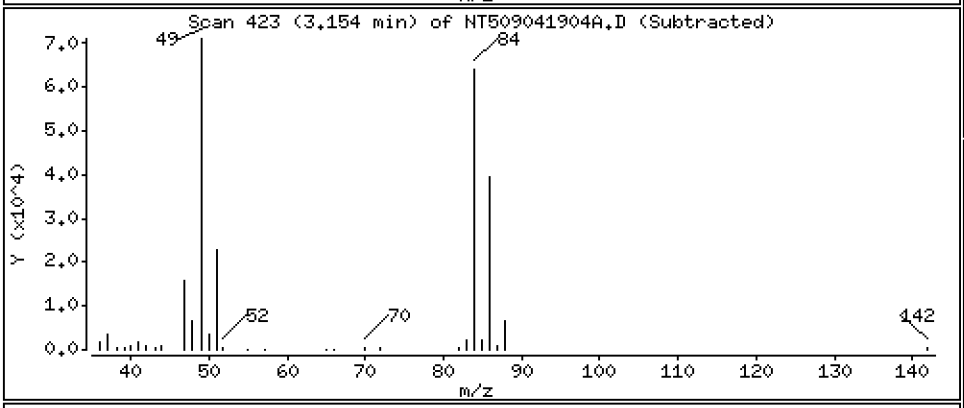
Column diameter: 0.18

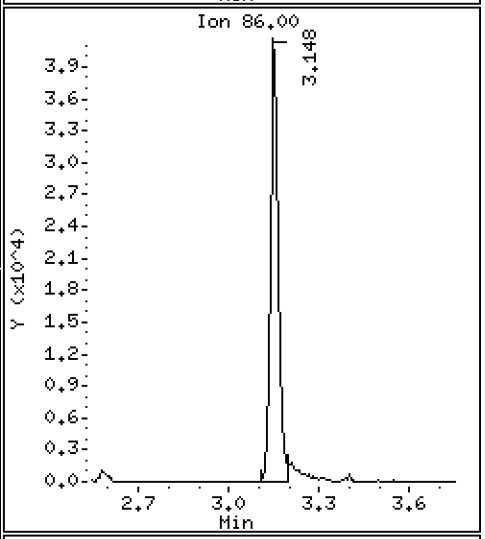
13 Methylene Chloride

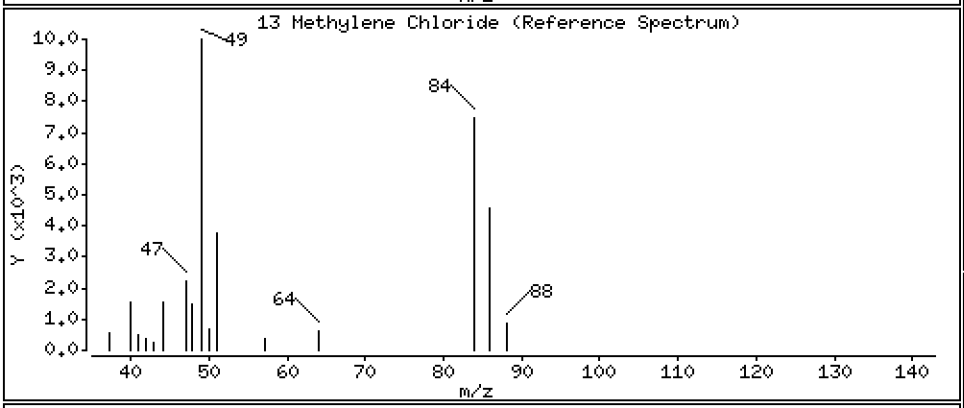
Concentration: 59.896 ug/Kg

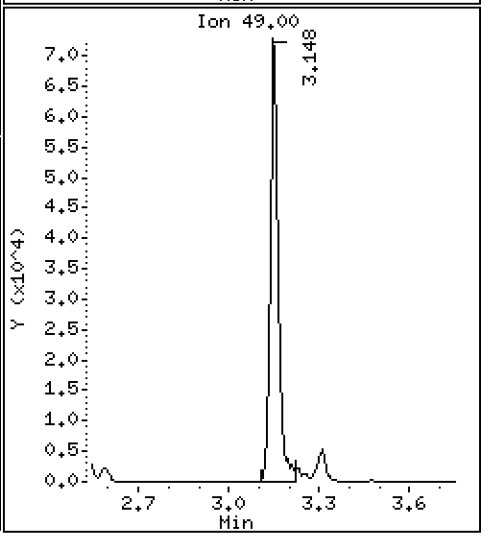


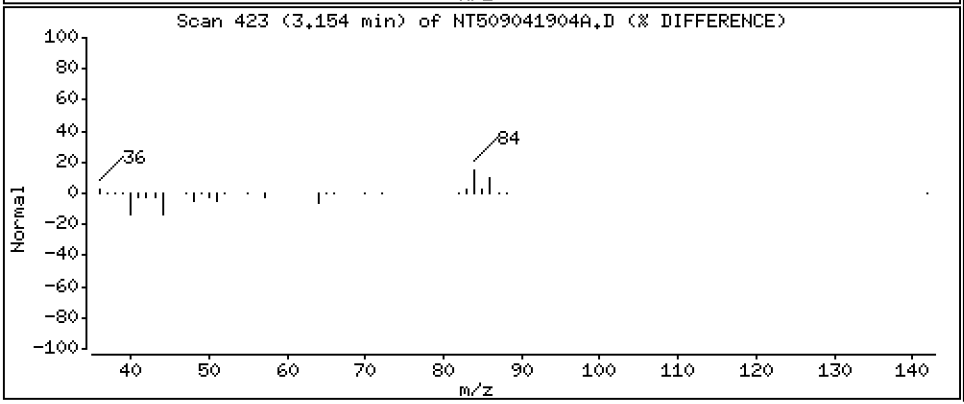












Date : 04-SEP-2019 15:04

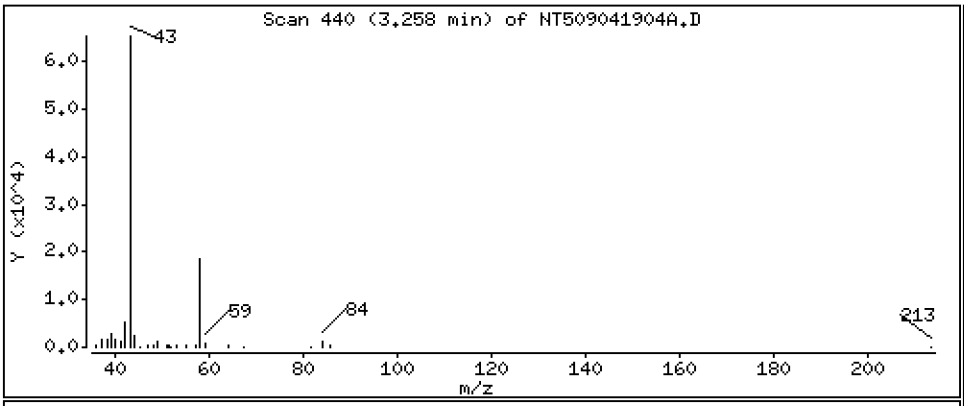
Client ID: Instrument: nt5.i

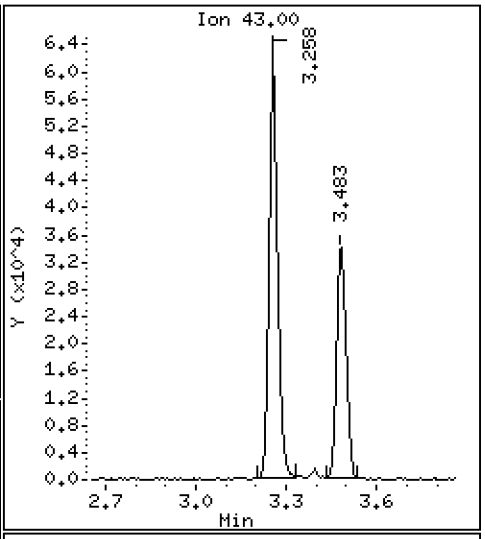
Sample Info: BSD1

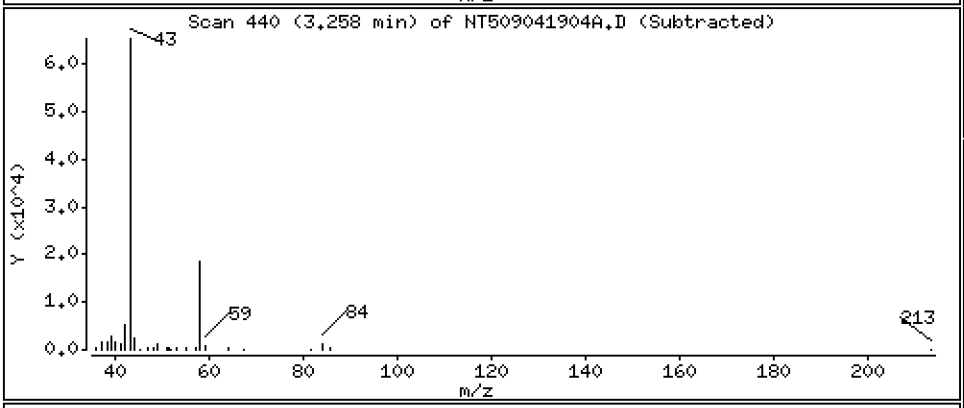
Operator: PB

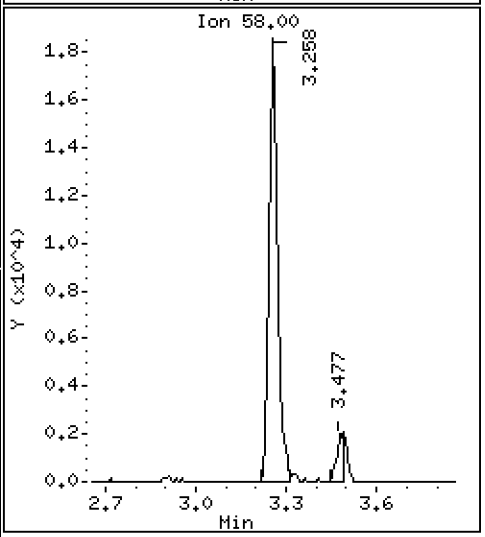
Column phase: RTXVMS Column diameter: 0.18

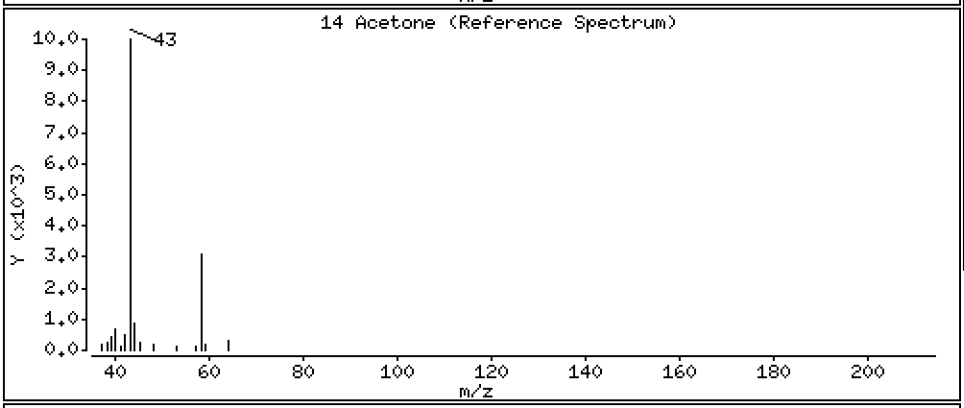
14 Acetone Concentration: 297.67 ug/Kg

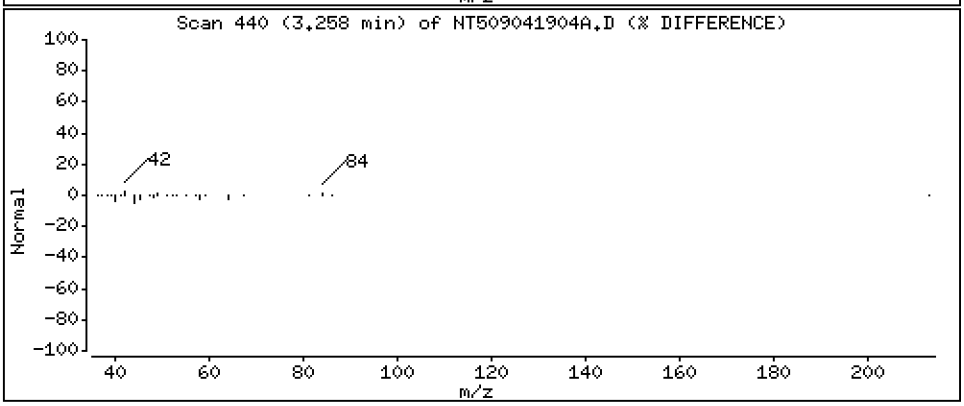












Date : 04-SEP-2019 15:04

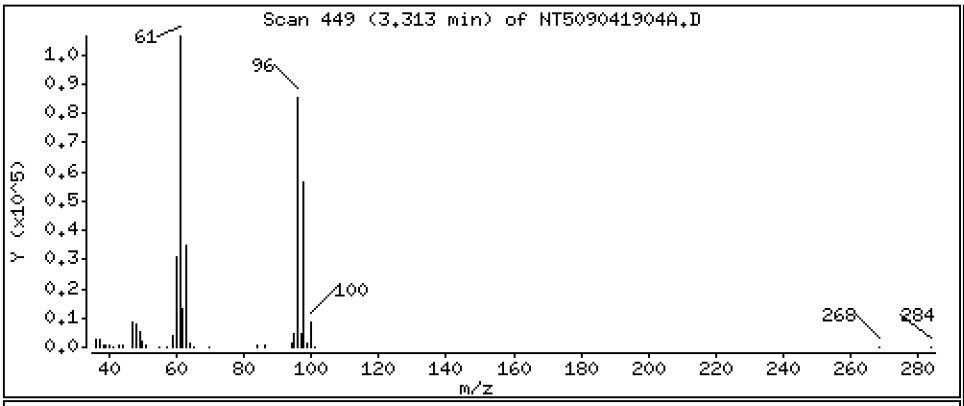
Client ID: Instrument: nt5.i

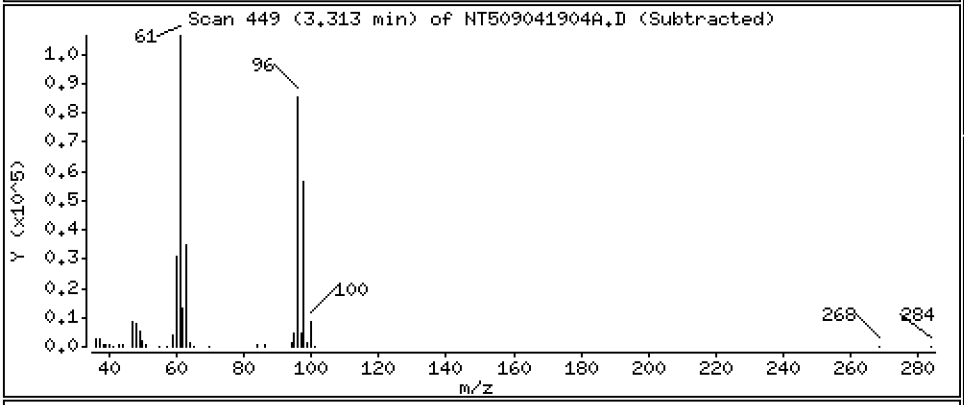
Sample Info: BSD1

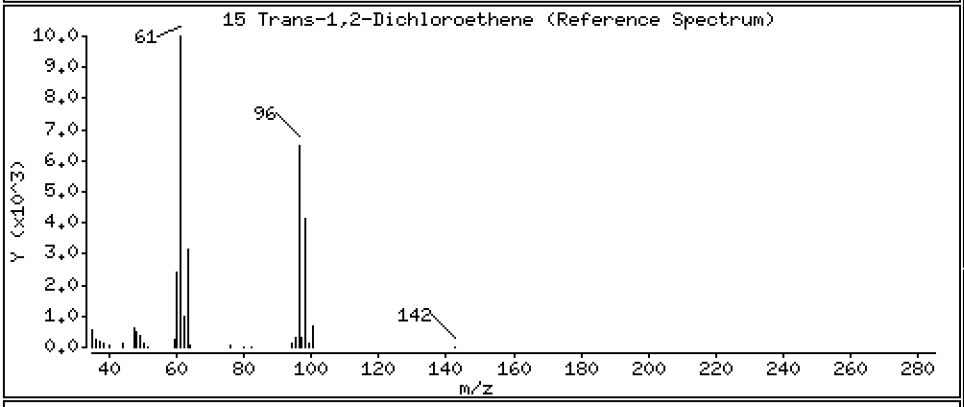
Operator: PB

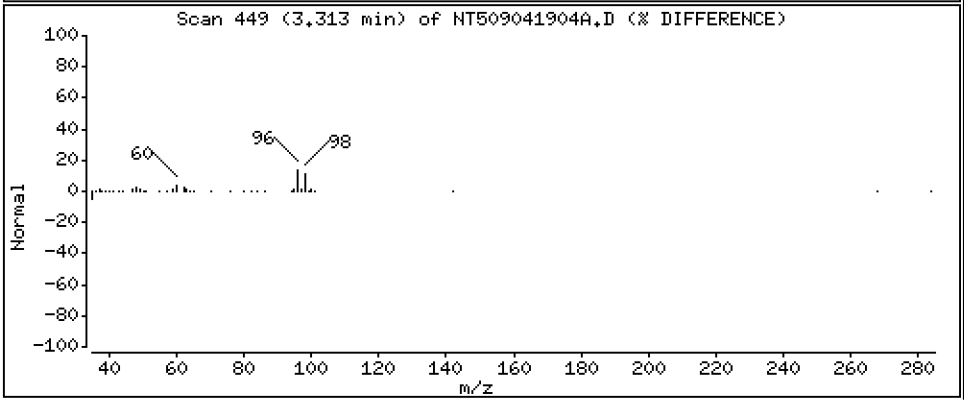
Column phase: RTXVMS Column diameter: 0.18

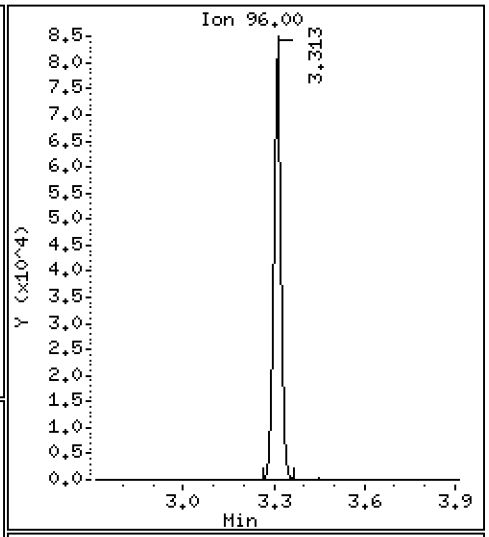
15 Trans-1,2-Dichloroethene Concentration: 58.010 ug/Kg

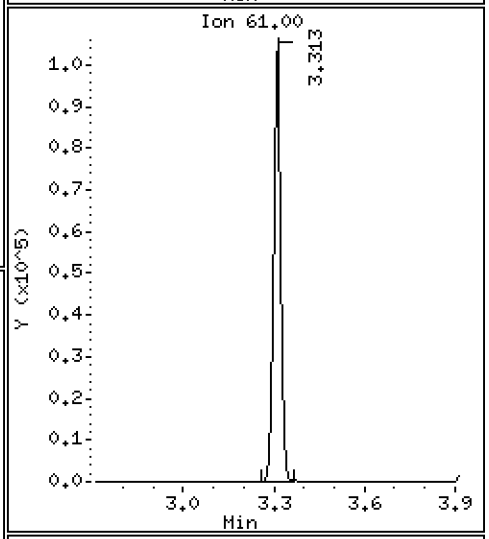


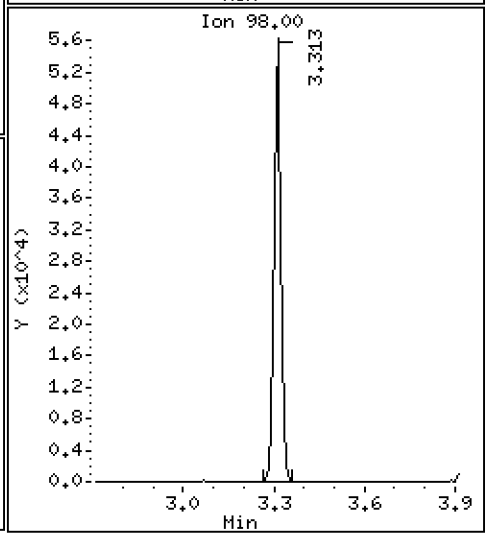












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

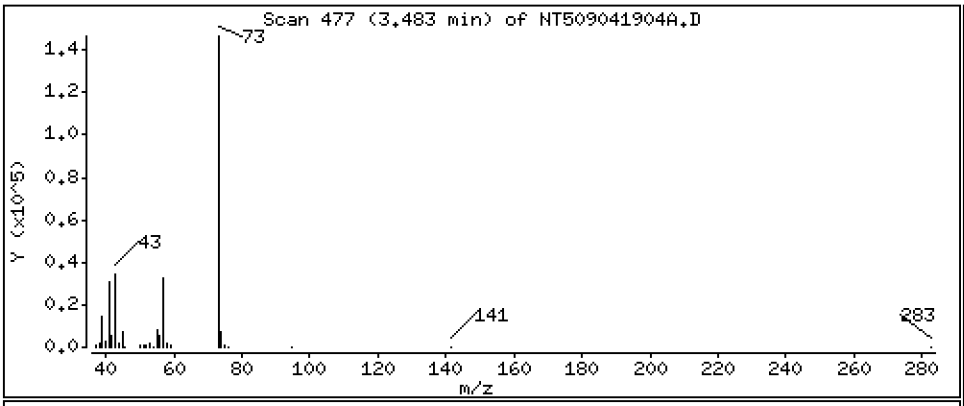
Operator: PB

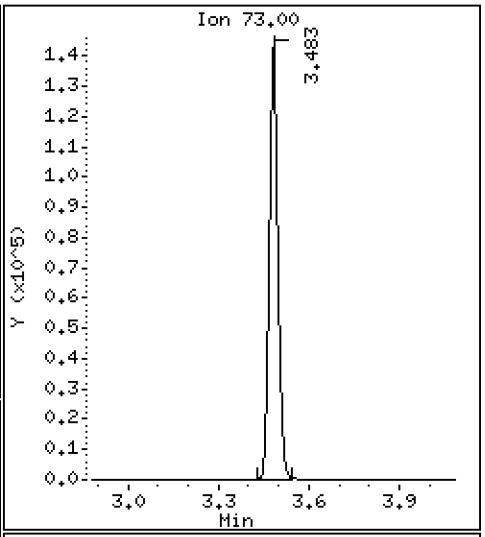
Column phase: RTXVMS

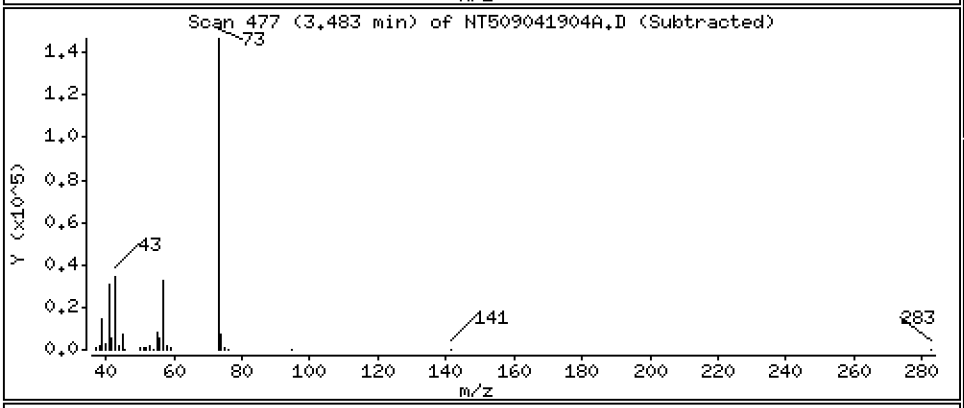
Column diameter: 0.18

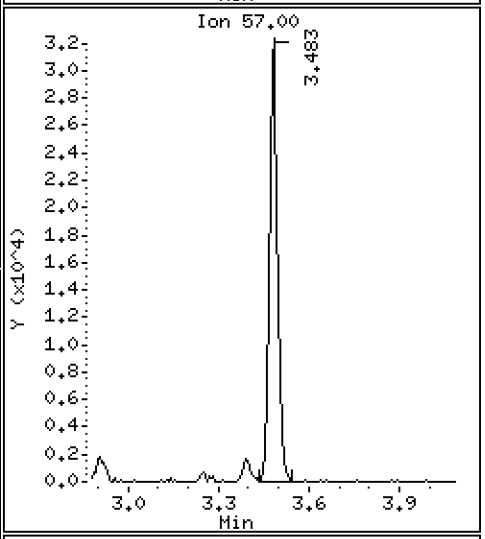
16 Methyl tert butyl ether

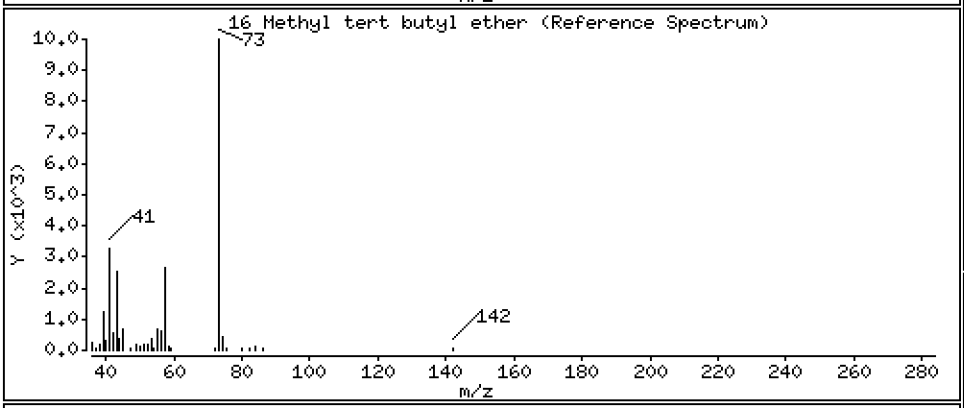
Concentration: 51.962 ug/Kg

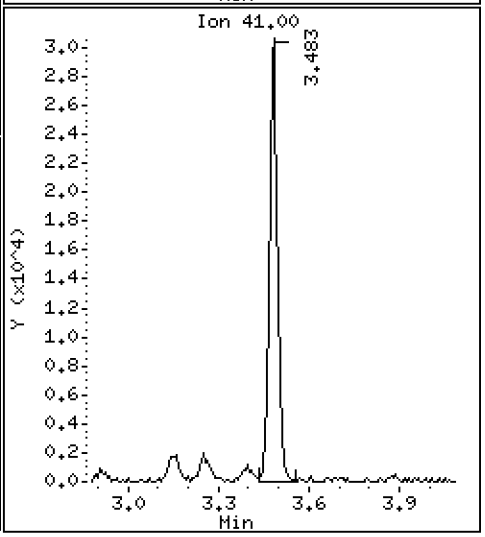


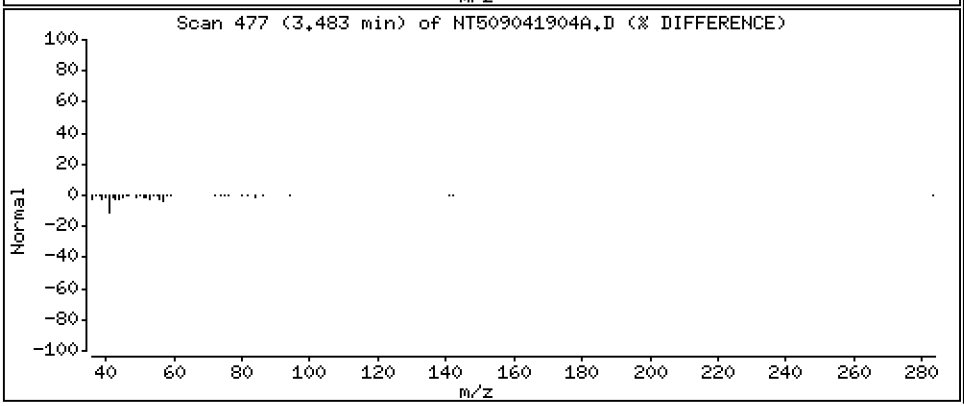












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

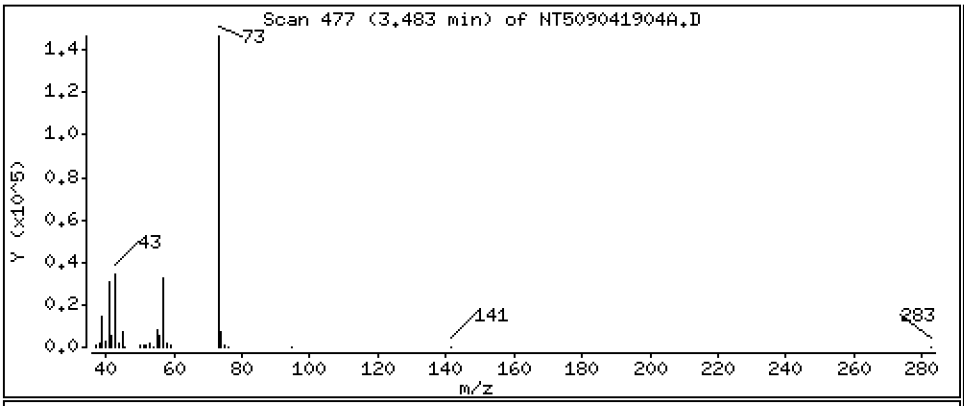
Operator: PB

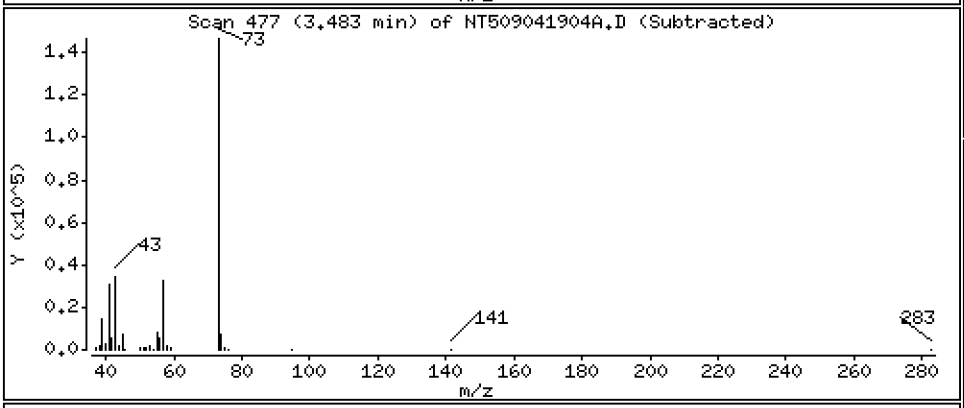
Column phase: RTXVMS

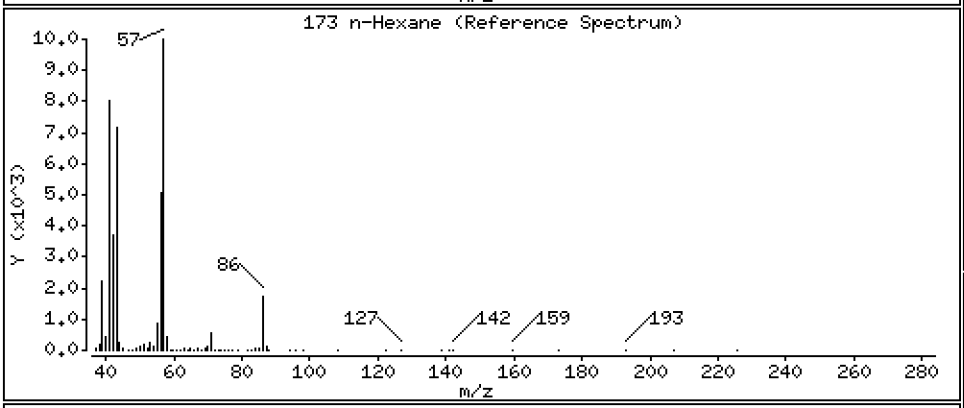
Column diameter: 0.18

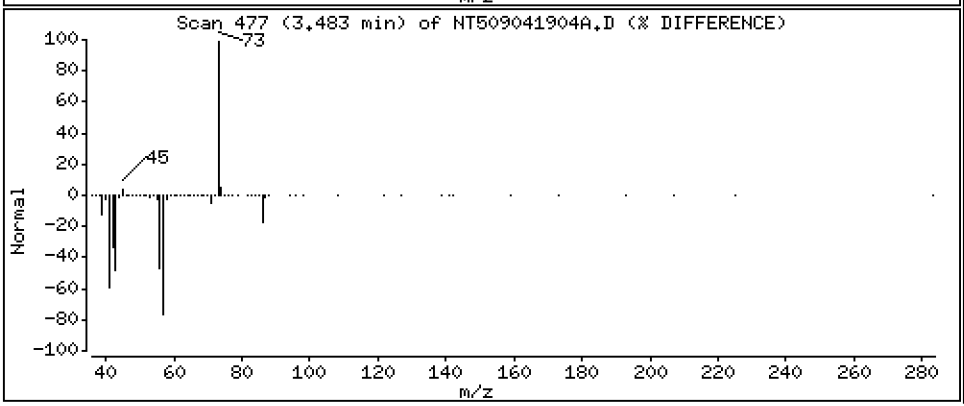
173 n-Hexane

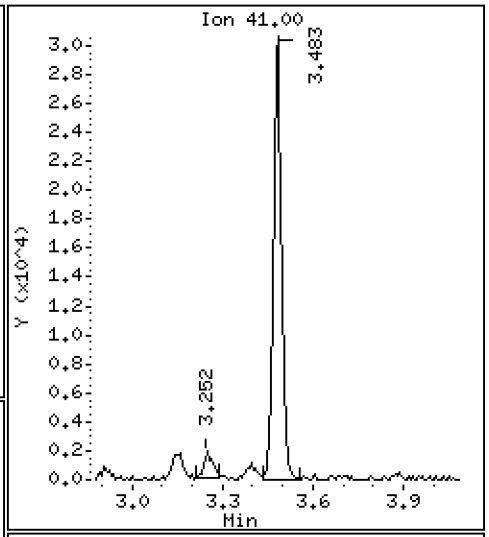
Concentration: 26.153 ug/Kg

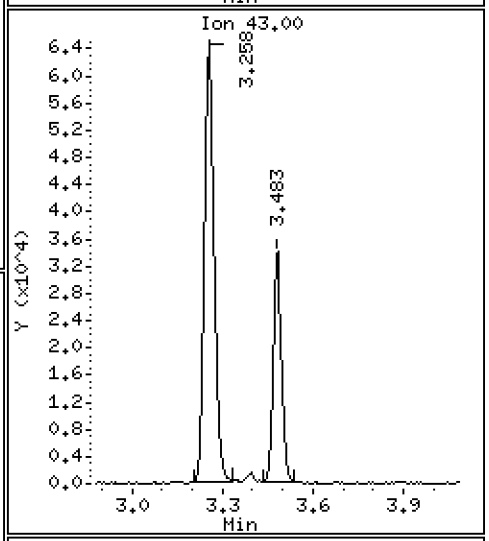


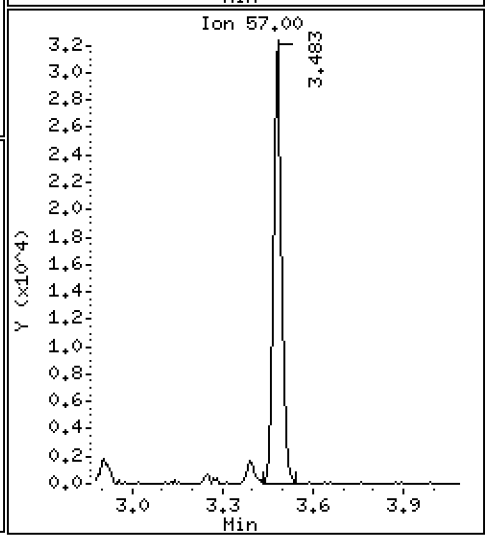












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

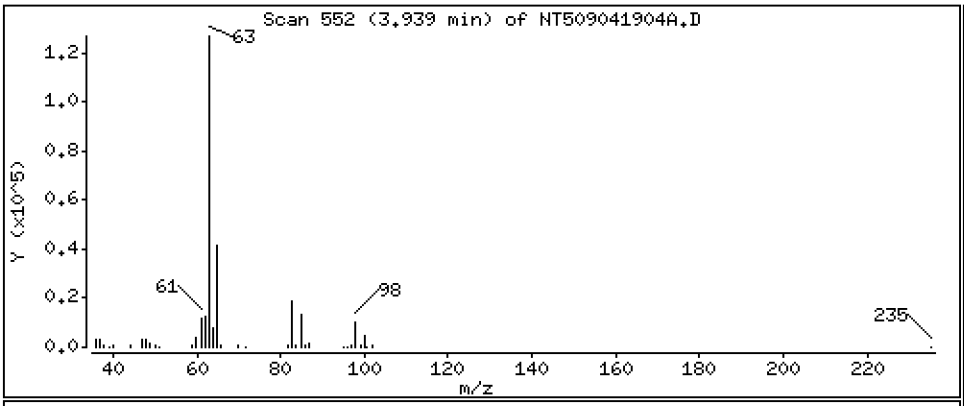
Operator: PB

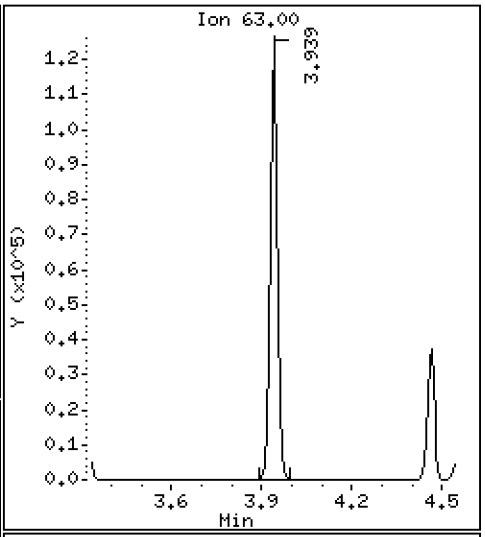
Column phase: RTXVMS

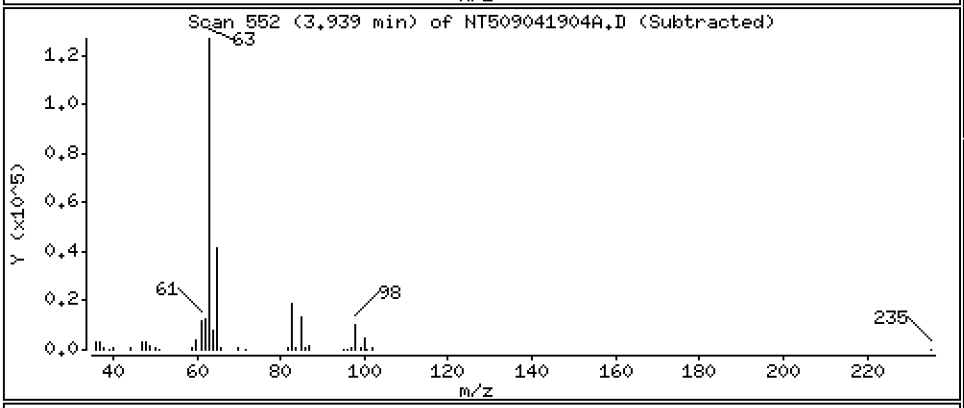
Column diameter: 0.18

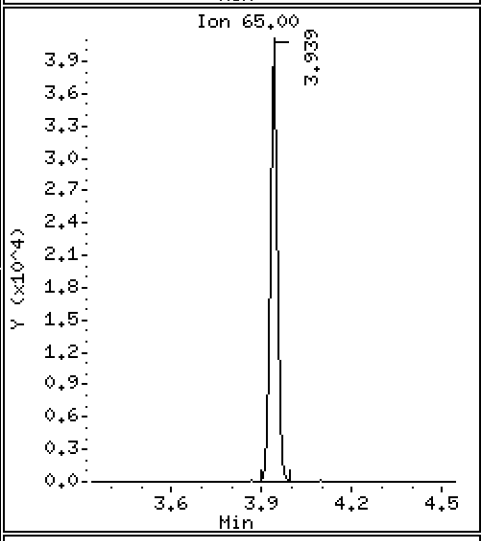
17 1,1-Dichloroethane

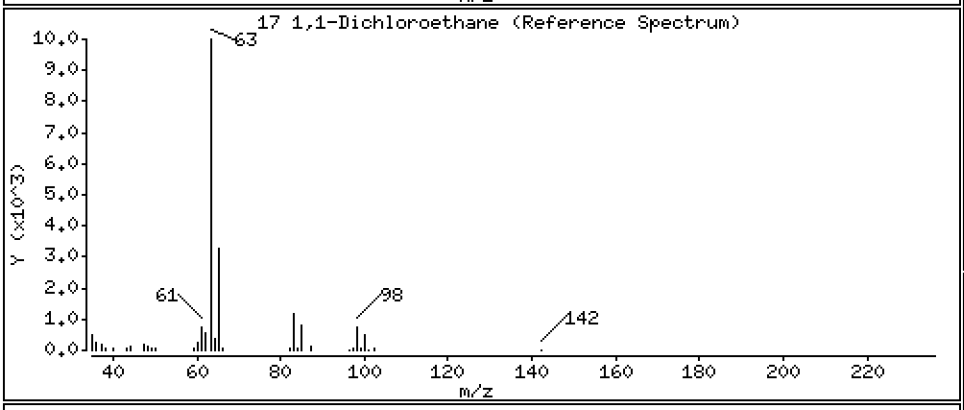
Concentration: 57.106 ug/Kg

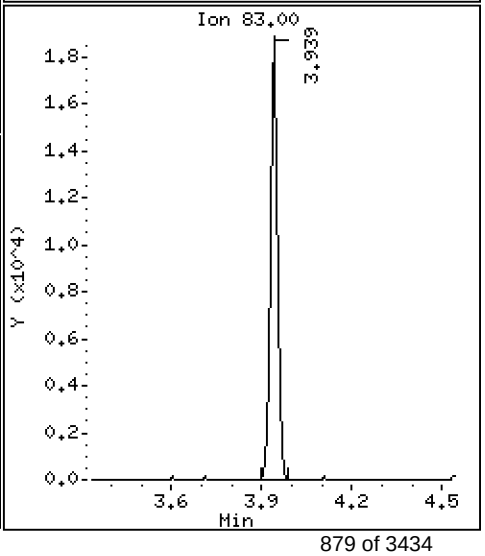


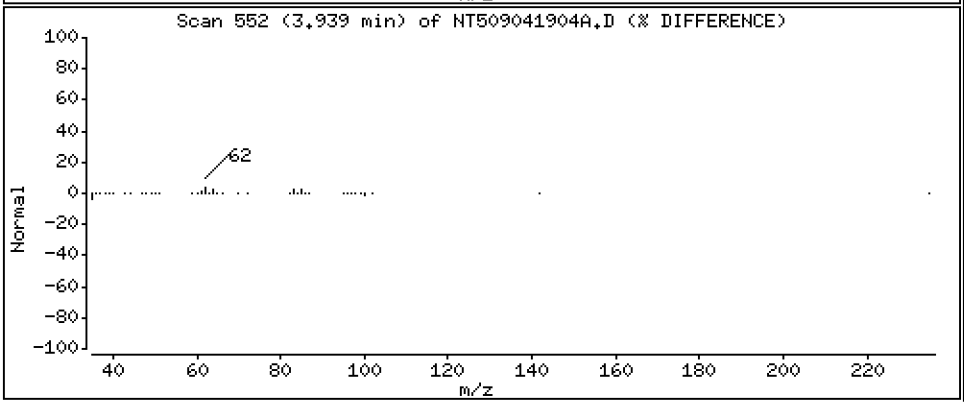












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

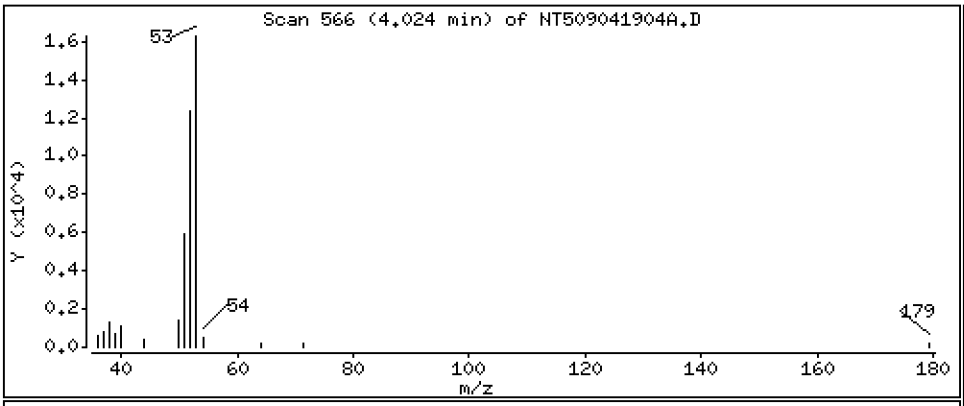
Operator: PB

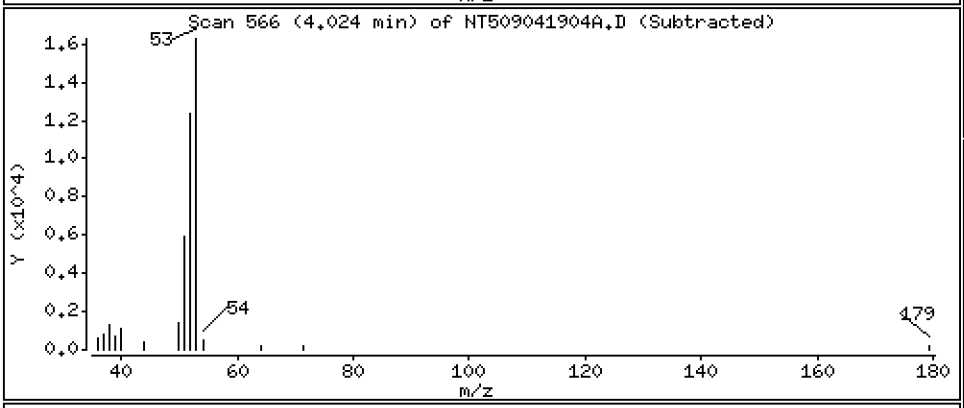
Column phase: RTXVMS

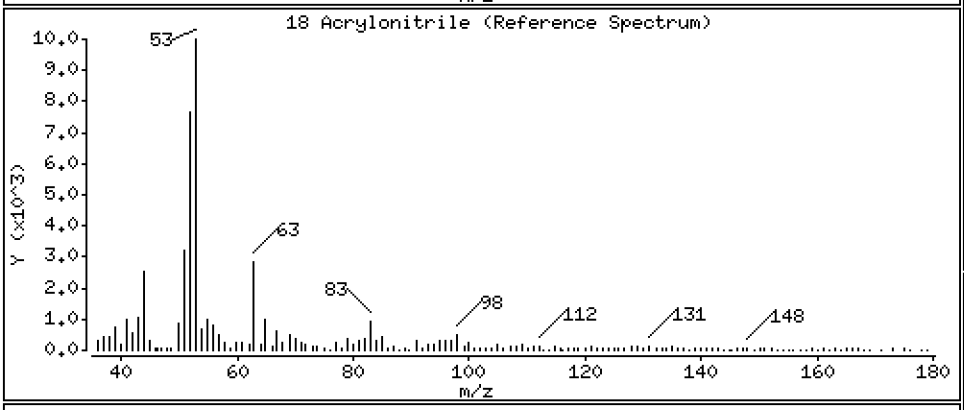
Column diameter: 0.18

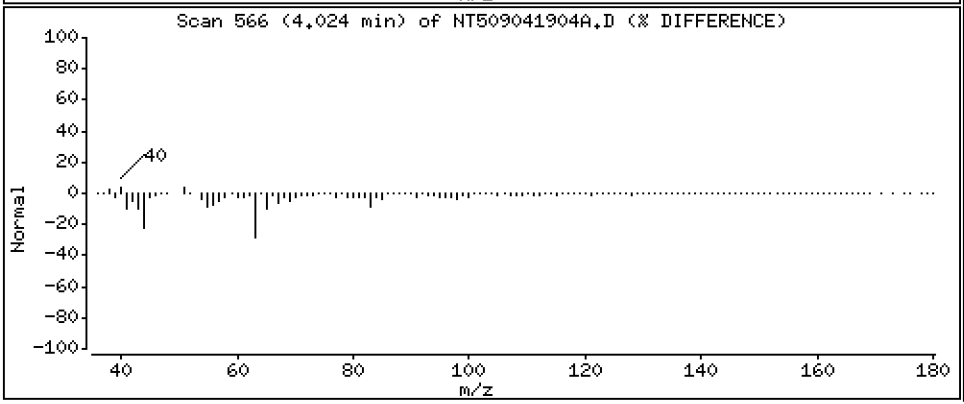
18 Acrylonitrile

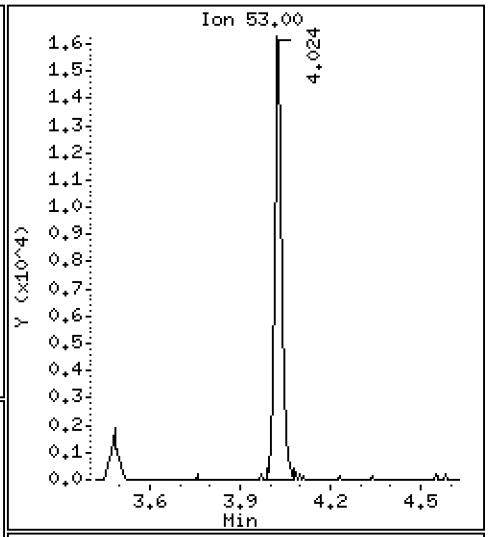
Concentration: 57.046 ug/Kg

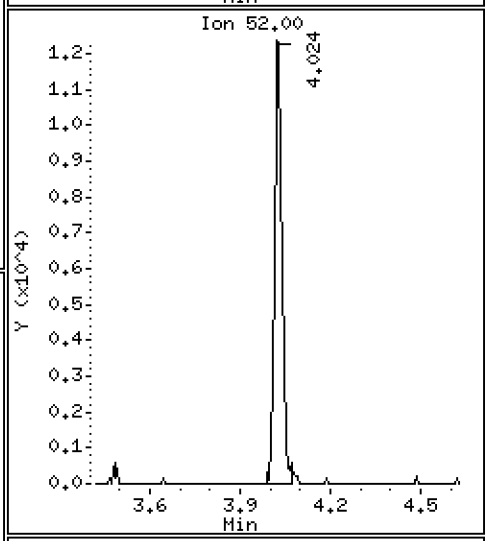


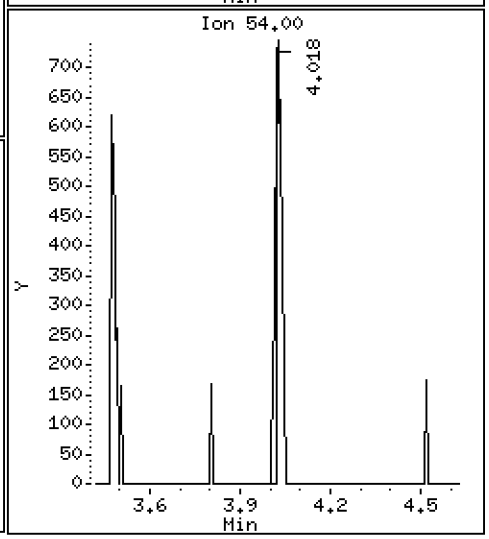












Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

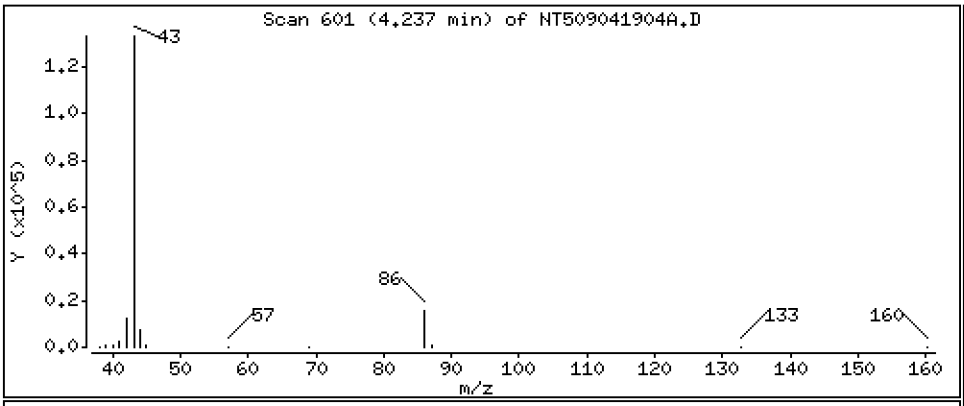
Operator: PB

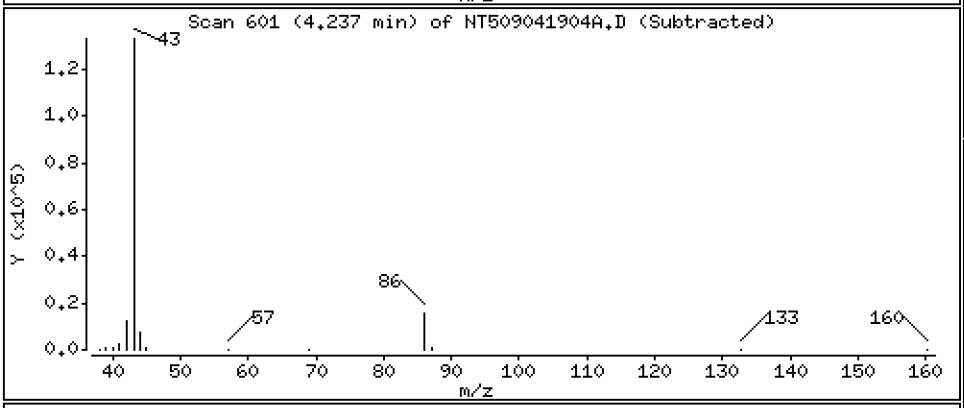
Column phase: RTXVMS

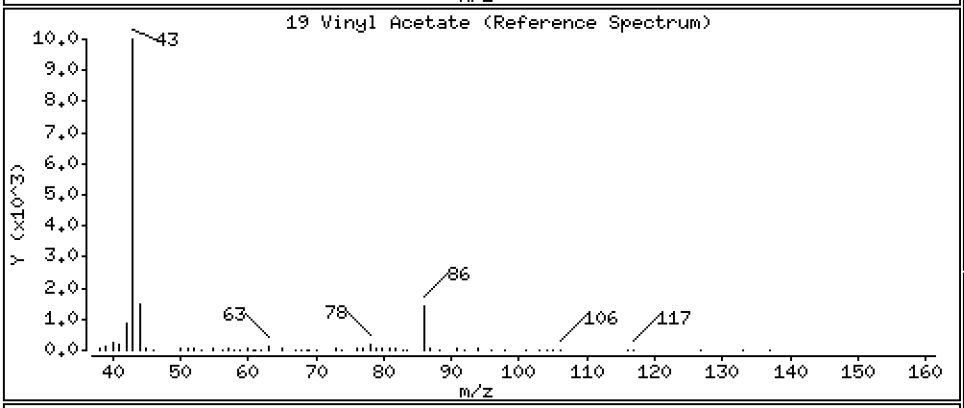
Column diameter: 0.18

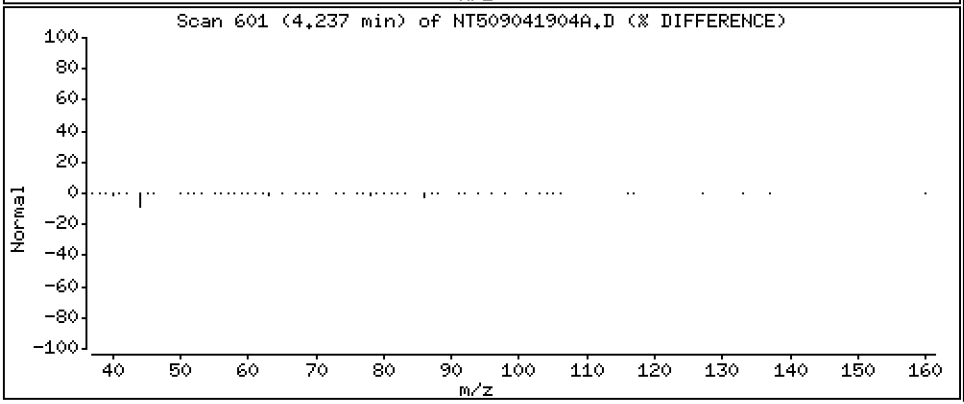
19 Vinyl Acetate

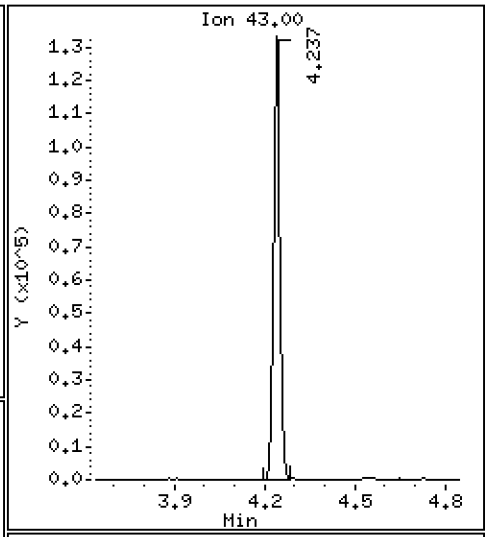
Concentration: 51.699 ug/Kg

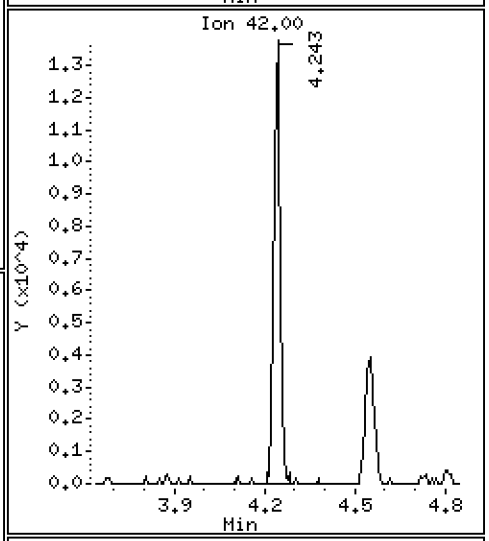


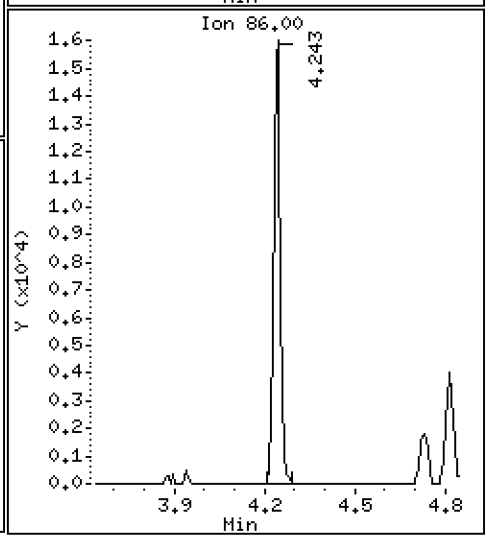












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

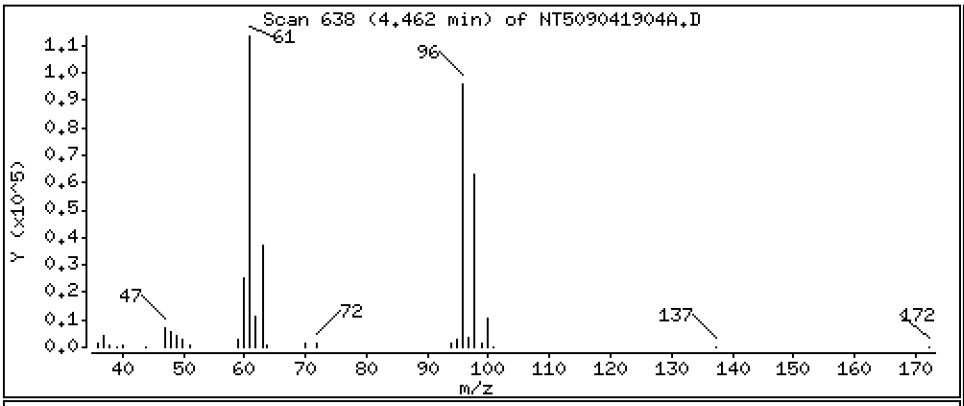
Operator: PB

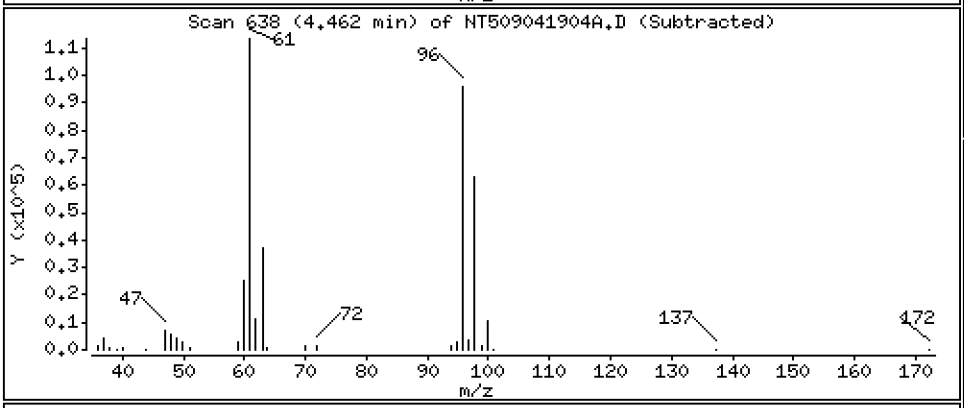
Column phase: RTXVMS

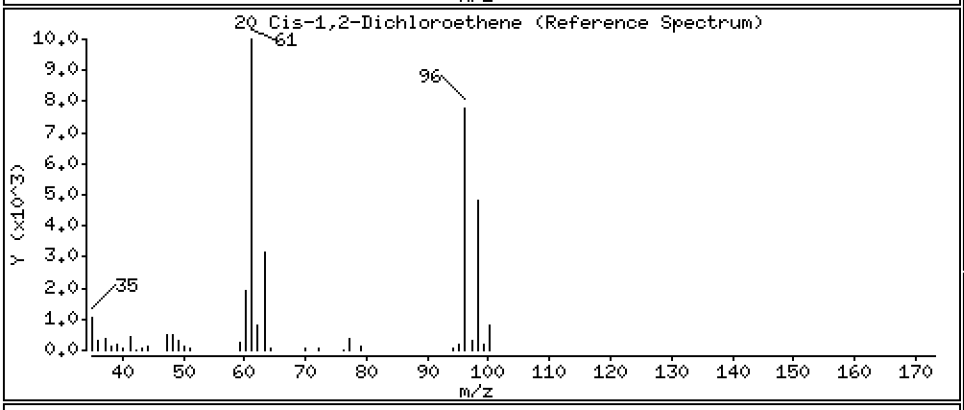
Column diameter: 0.18

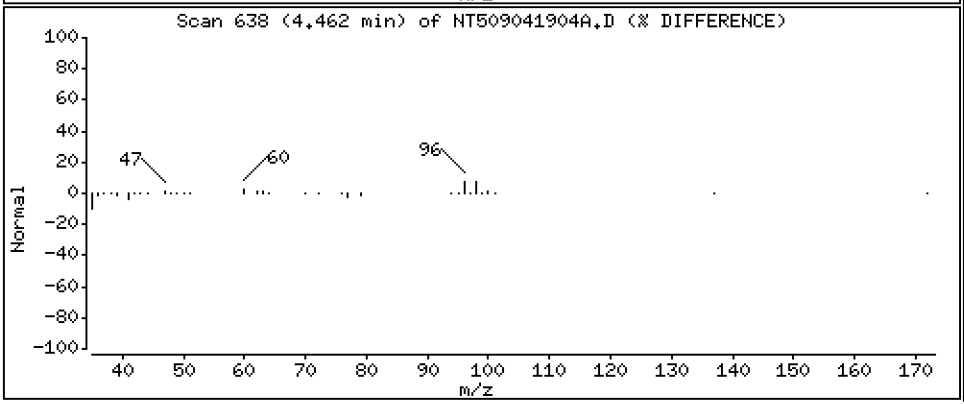
20 Cis-1,2-Dichloroethene

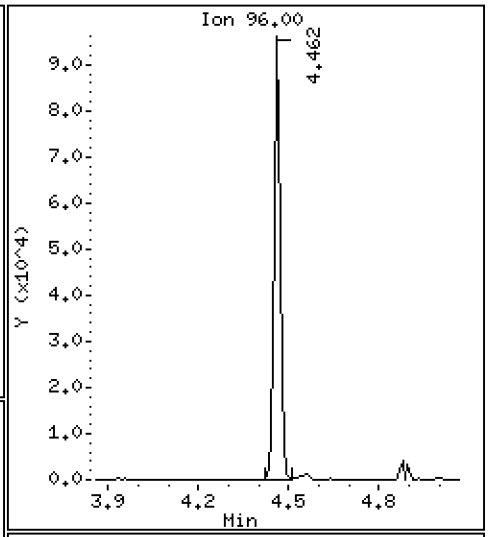
Concentration: 53.692 ug/Kg

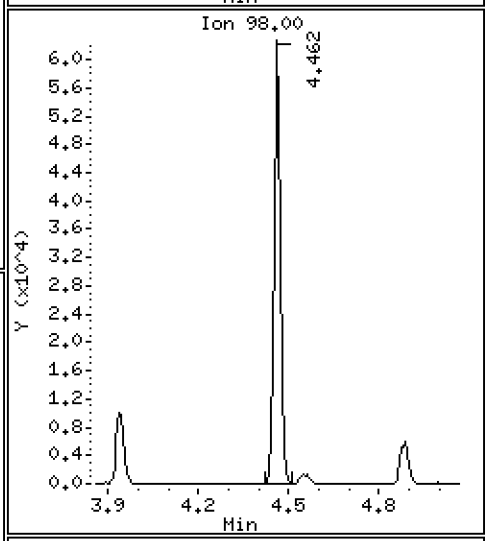


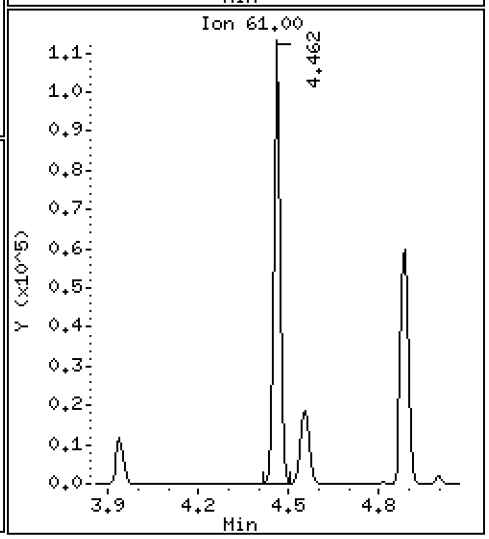












Date : 04-SEP-2019 15:04

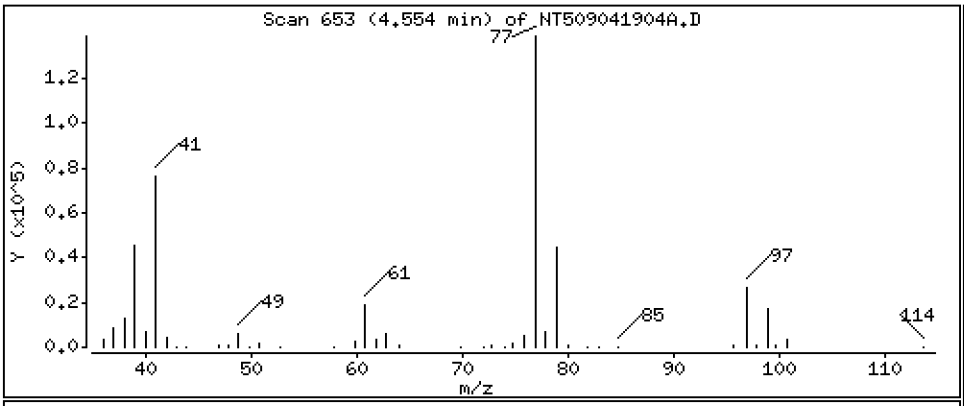
Client ID: Instrument: nt5.i

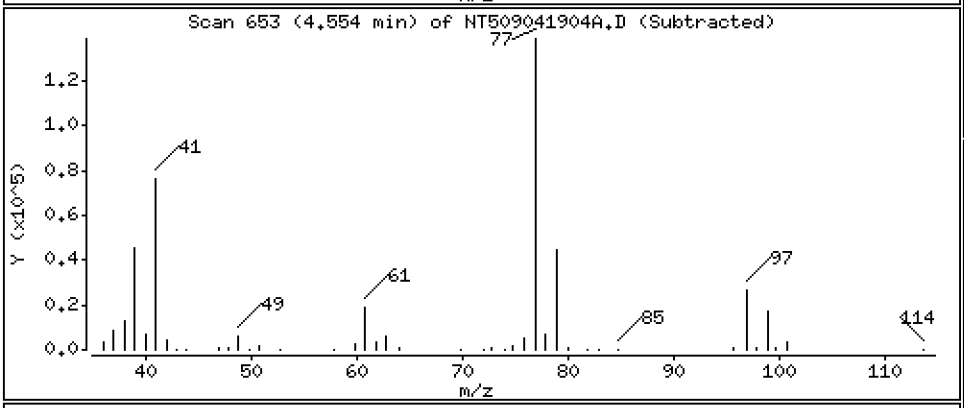
Sample Info: BSD1

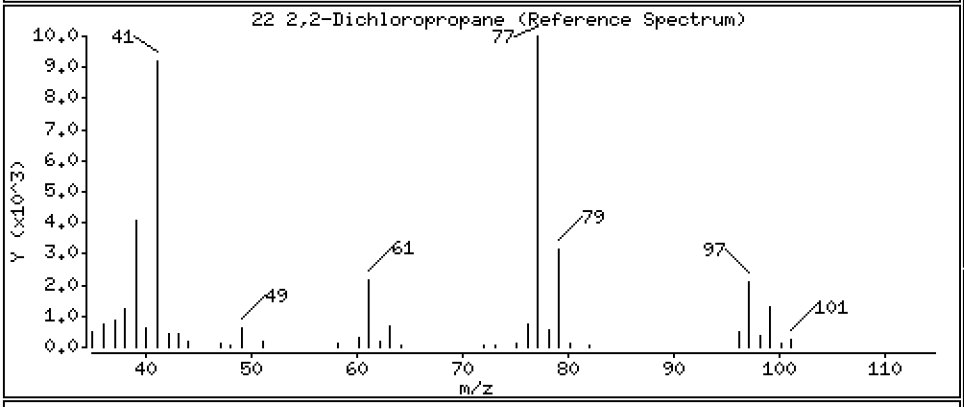
Operator: PB

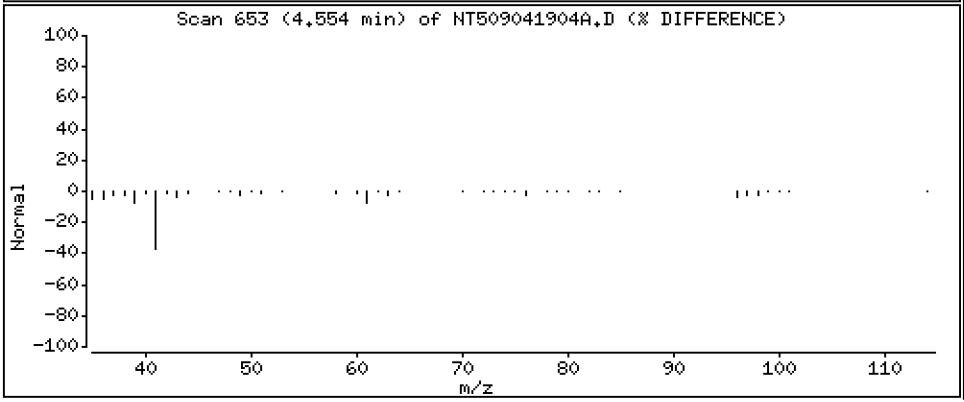
Column phase: RTXVMS Column diameter: 0.18

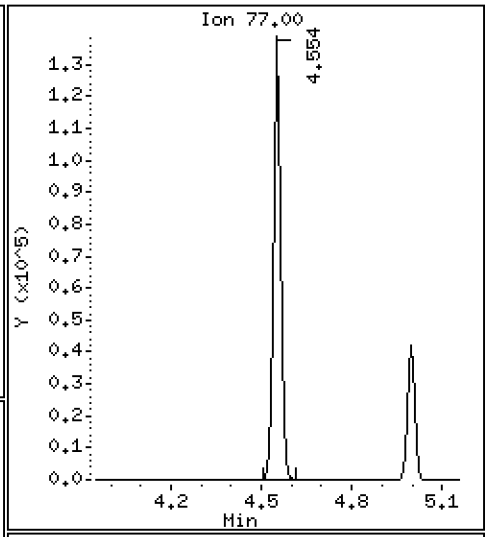
22 2,2-Dichloropropane Concentration: 56.973 ug/Kg

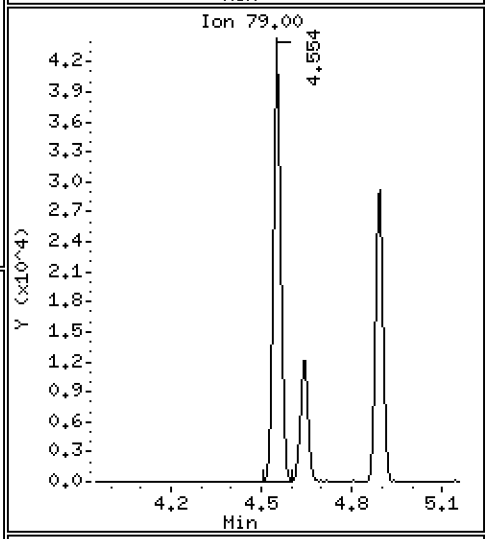


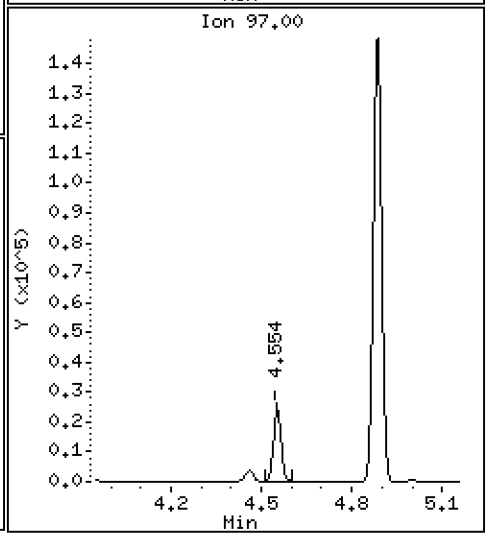












Date : 04-SEP-2019 15:04

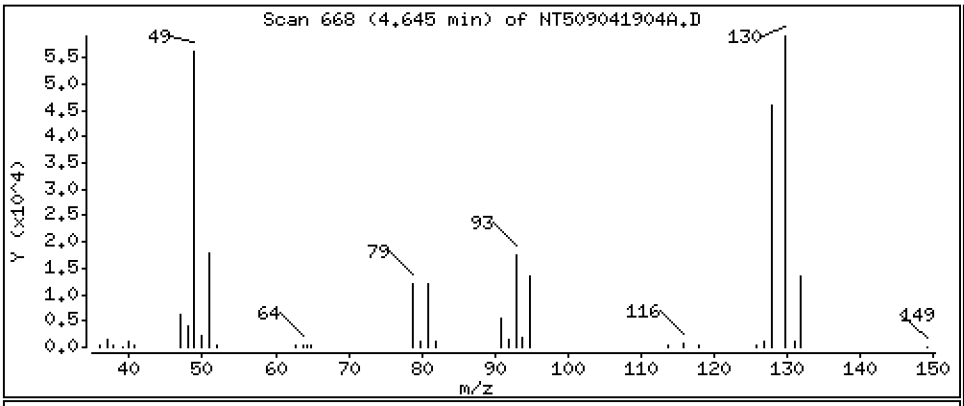
Client ID: Instrument: nt5.i

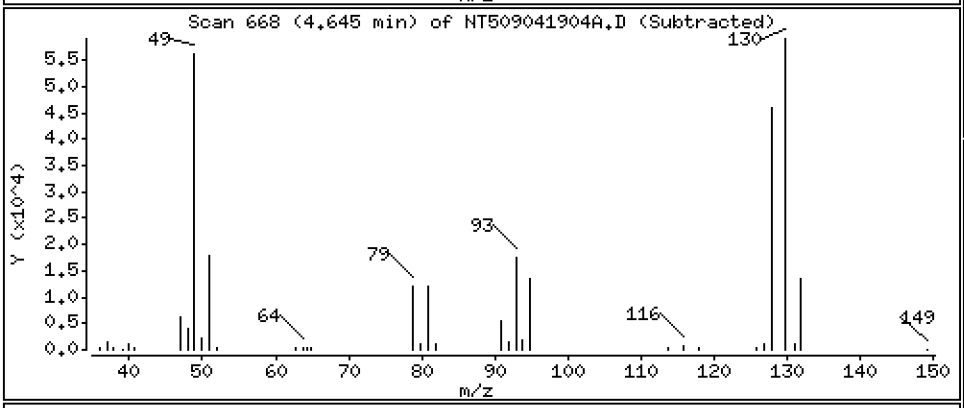
Sample Info: BSD1

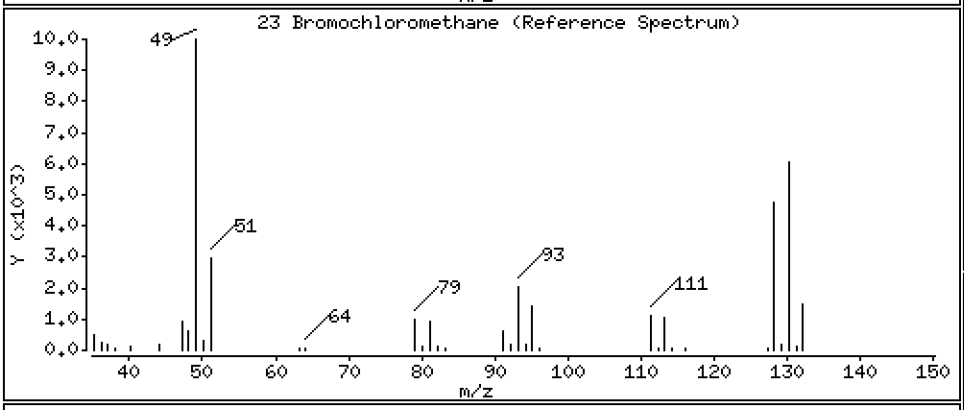
Operator: PB

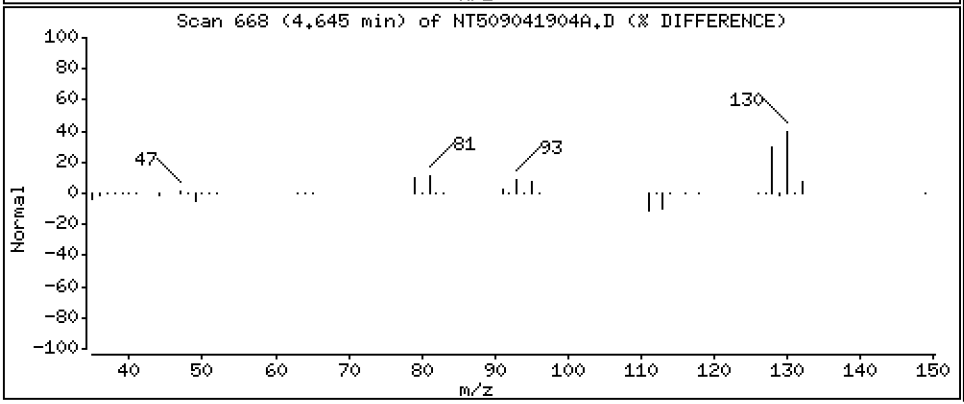
Column phase: RTXVMS Column diameter: 0.18

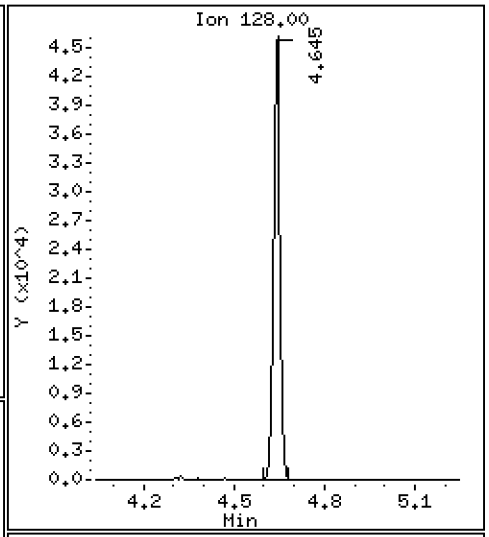
23 Bromochloromethane Concentration: 53.722 ug/Kg

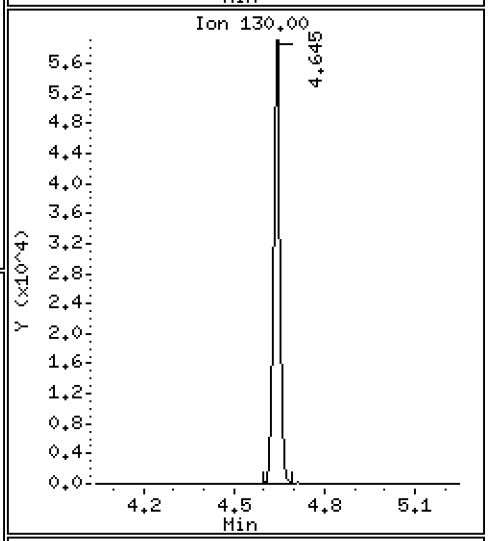


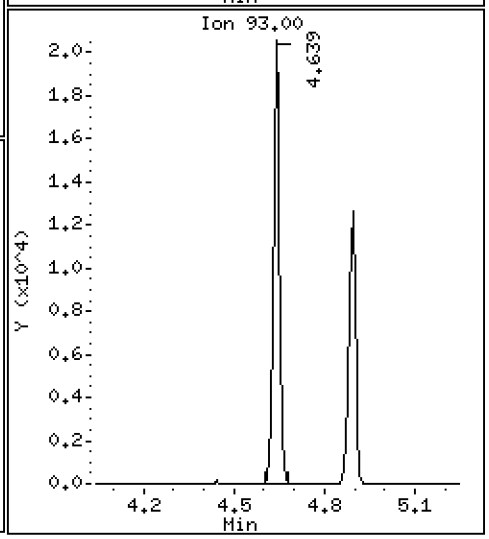












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

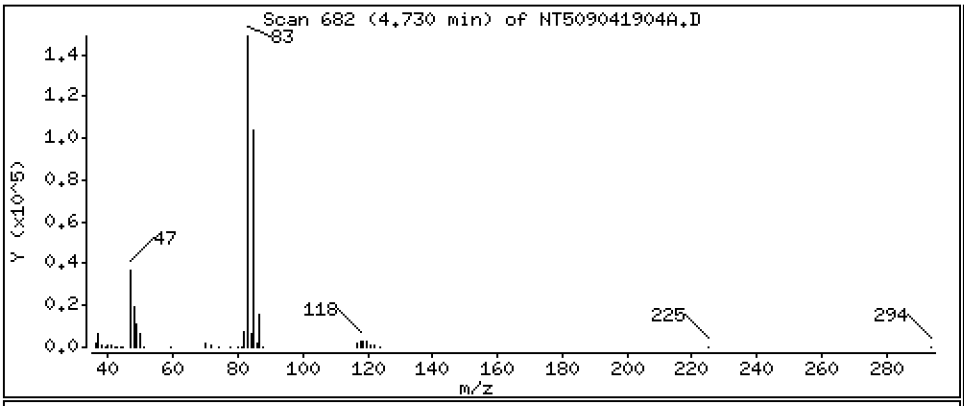
Operator: PB

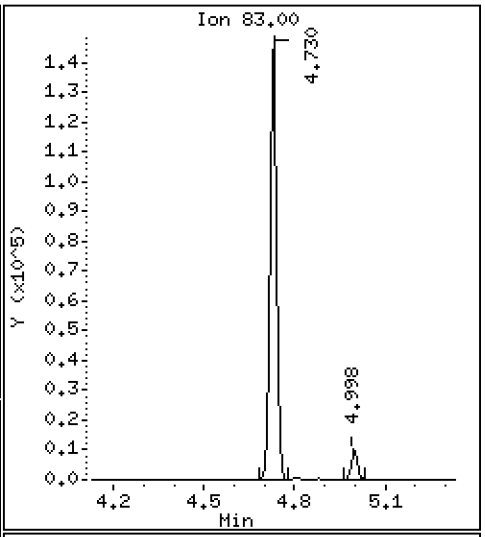
Column phase: RTXVMS

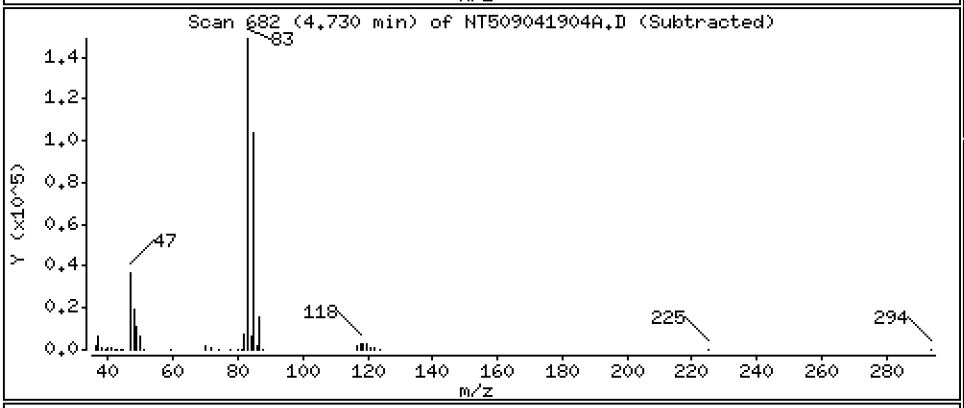
Column diameter: 0.18

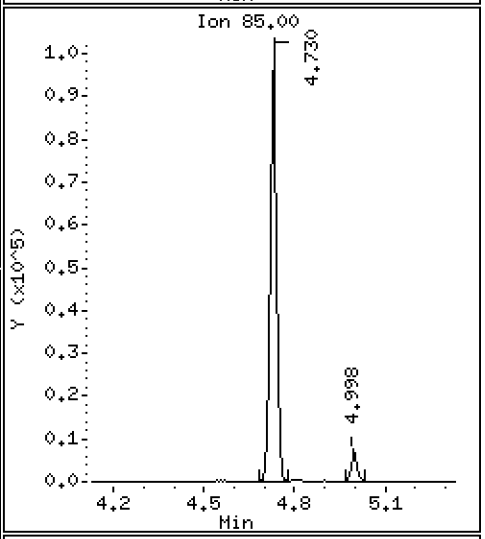
24 Chloroform

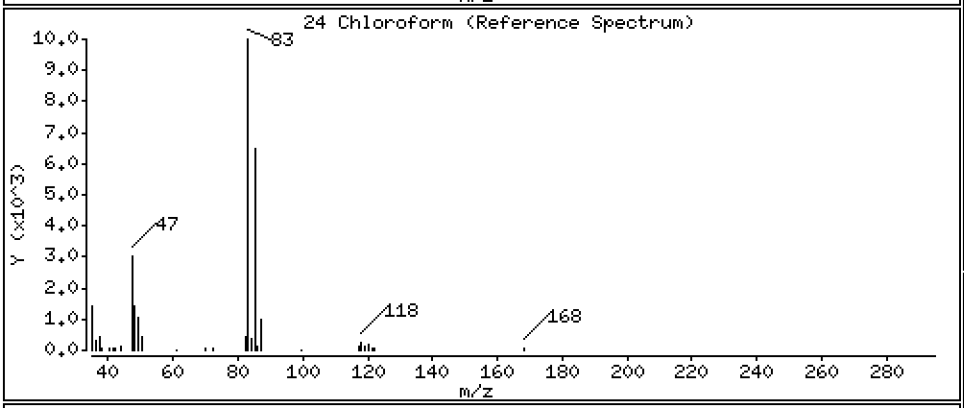
Concentration: 53.702 ug/Kg

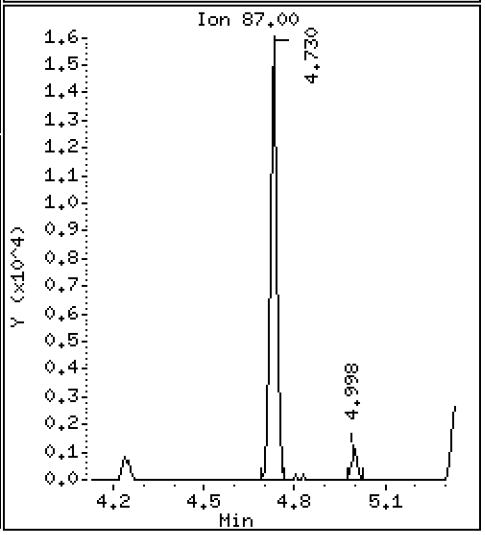


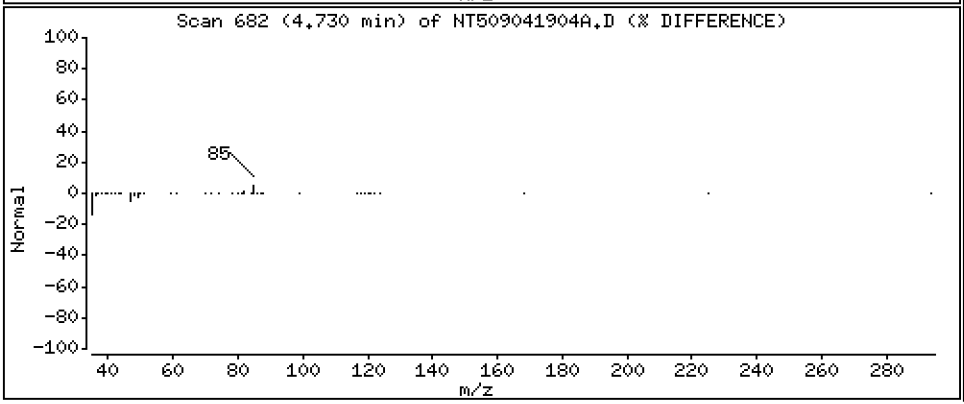












Date : 04-SEP-2019 15:04

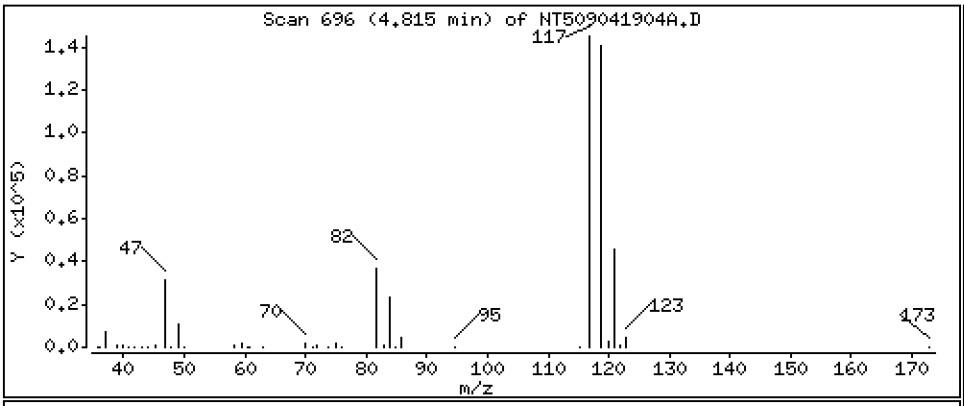
Client ID: Instrument: nt5.i

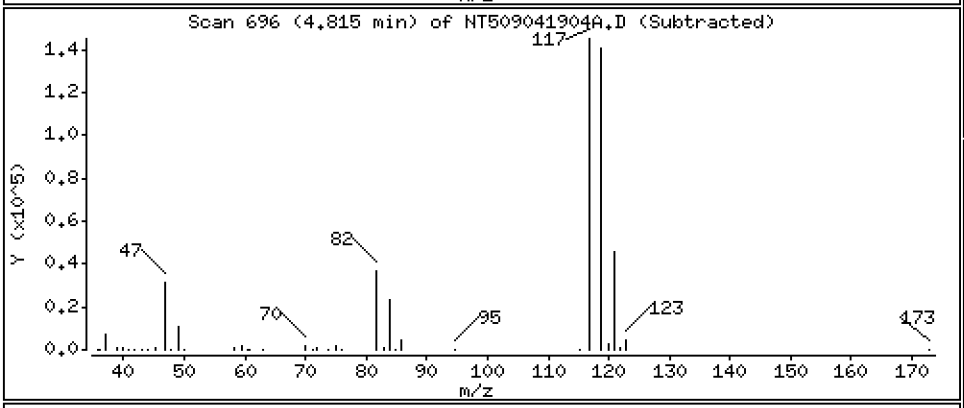
Sample Info: BSD1

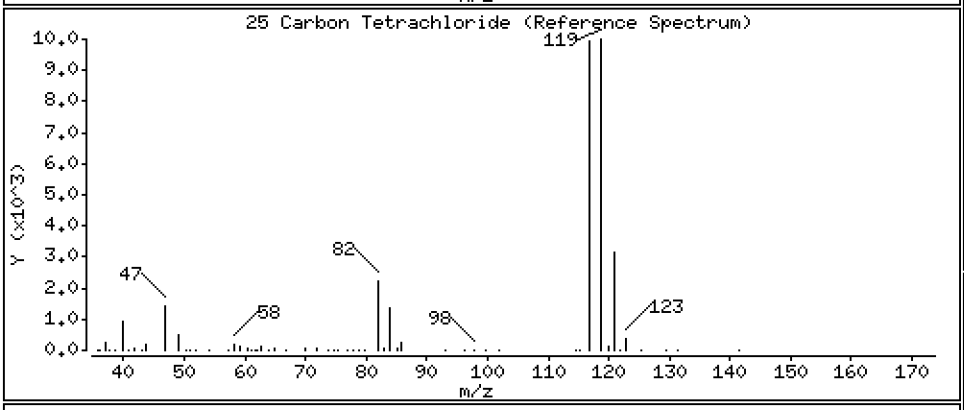
Operator: PB

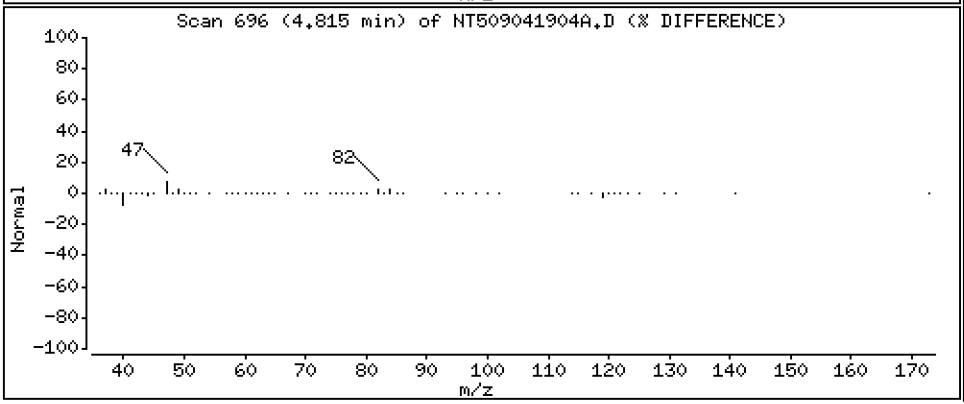
Column phase: RTXVMS Column diameter: 0.18

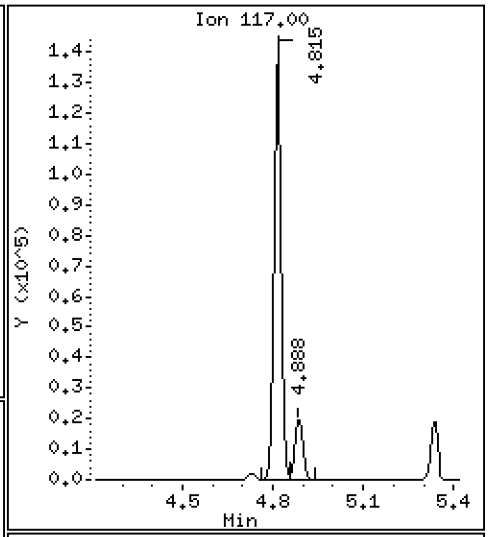
25 Carbon Tetrachloride Concentration: 47.428 ug/Kg

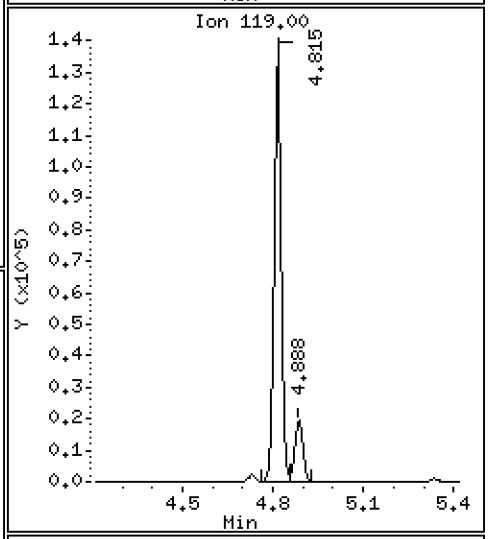


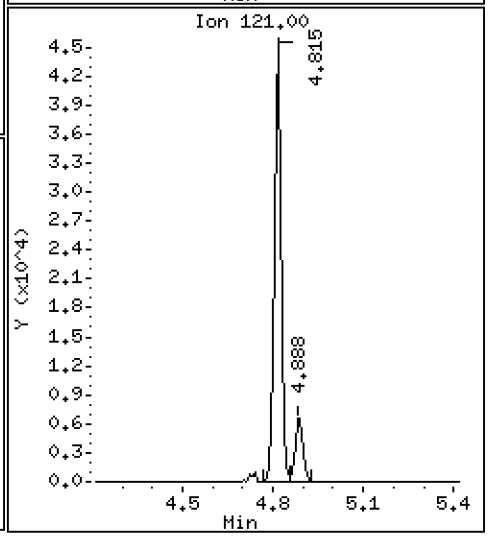












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

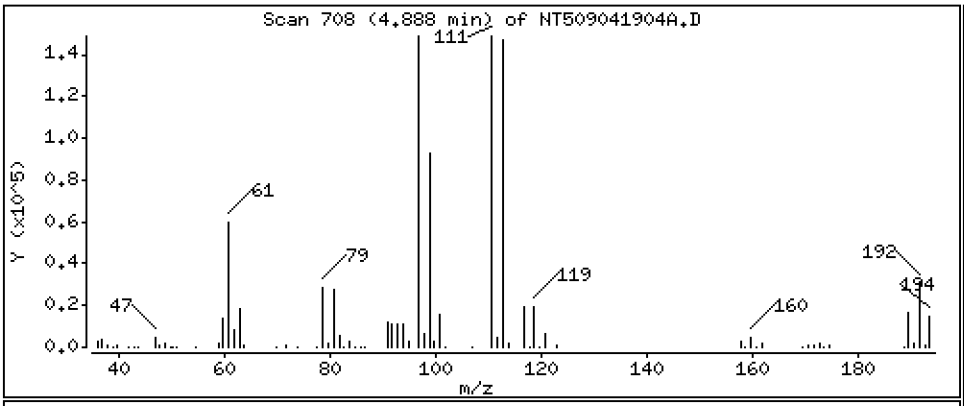
Operator: PB

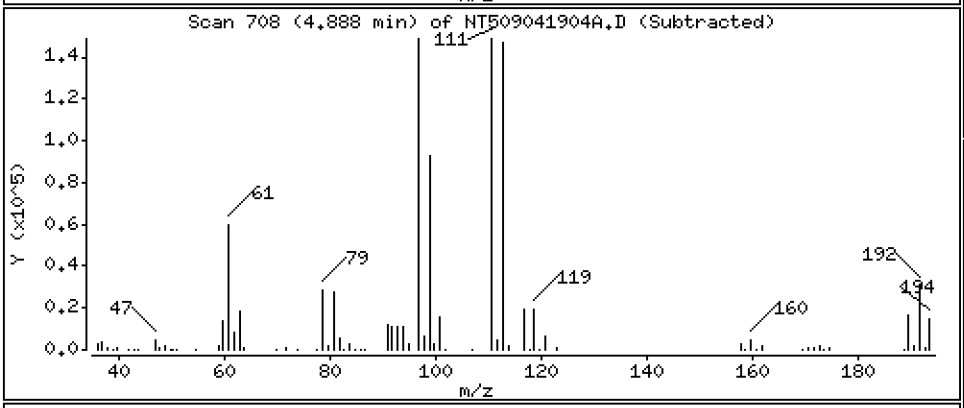
Column phase: RTXVMS

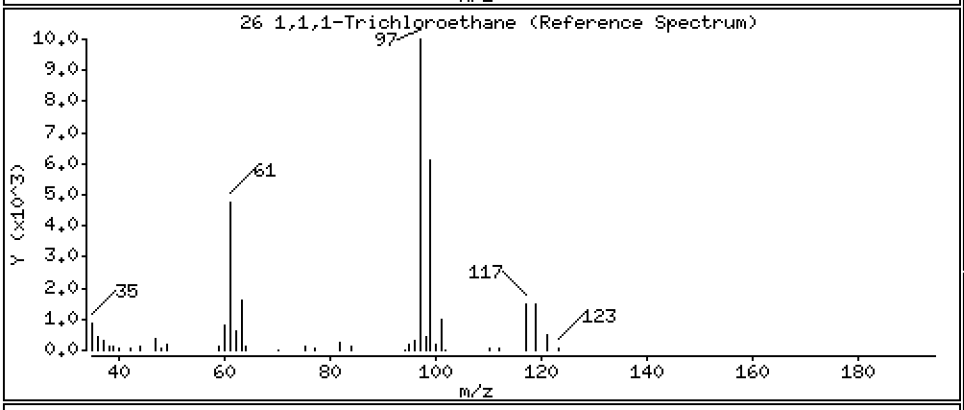
Column diameter: 0.18

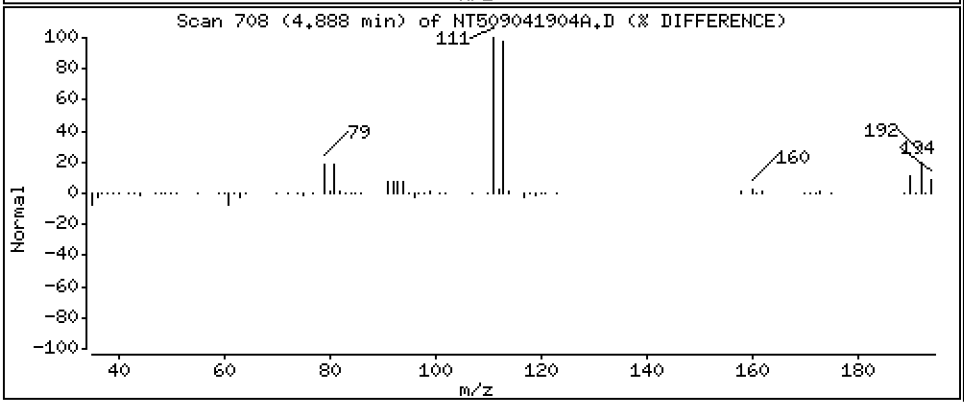
26 1,1,1-Trichloroethane

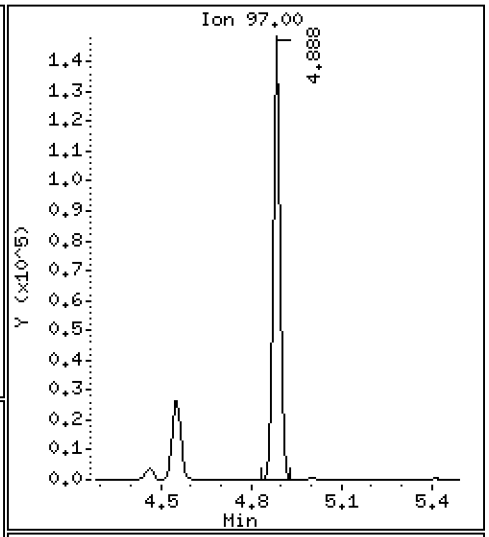
Concentration: 55.347 ug/Kg

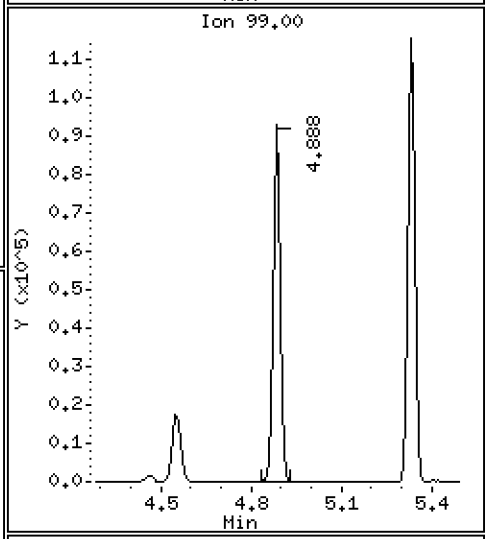


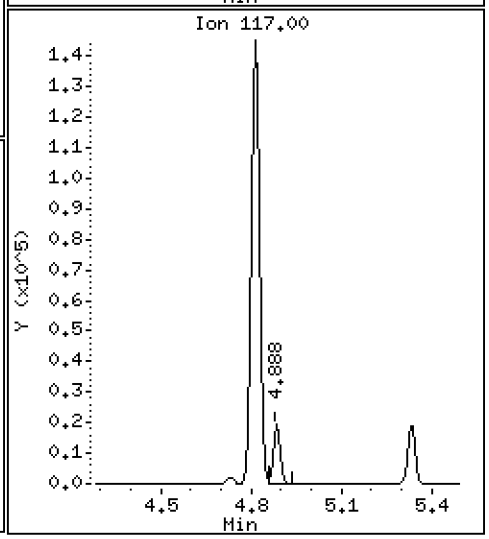












Data File: \\target\share\chem1\nt5.i\20190904.b\NT5090419O4A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

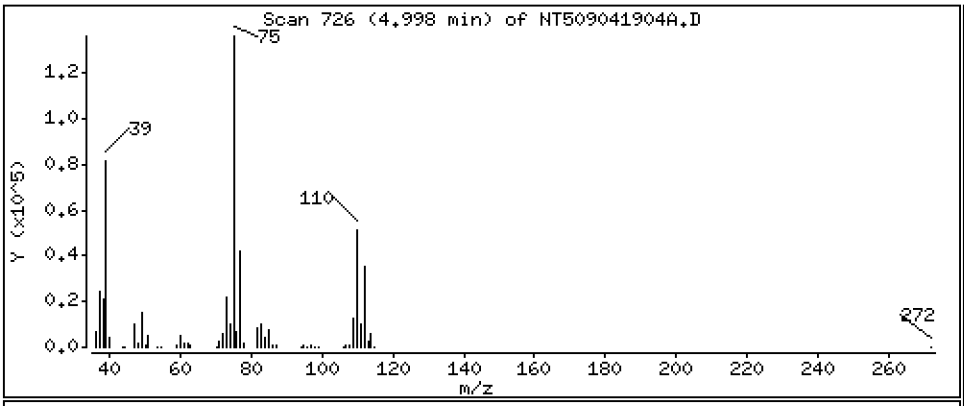
Operator: PB

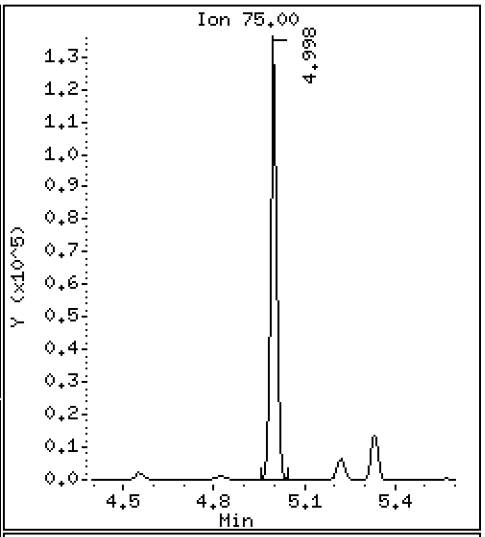
Column phase: RTXVMS

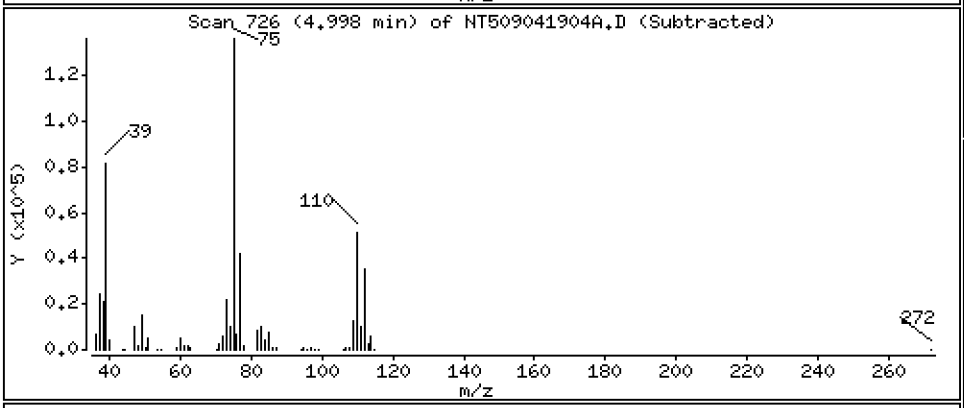
Column diameter: 0.18

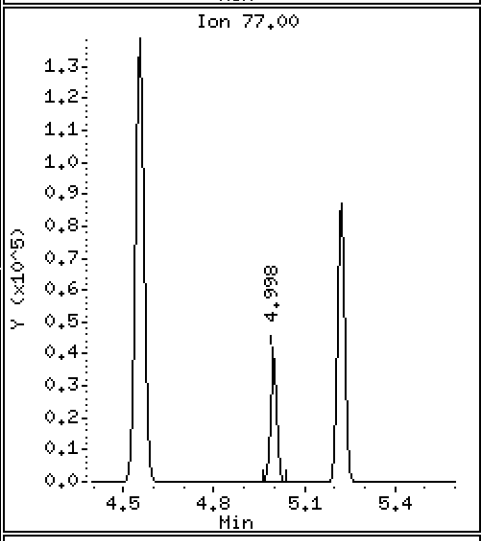
28 1,1-Dichloropropene

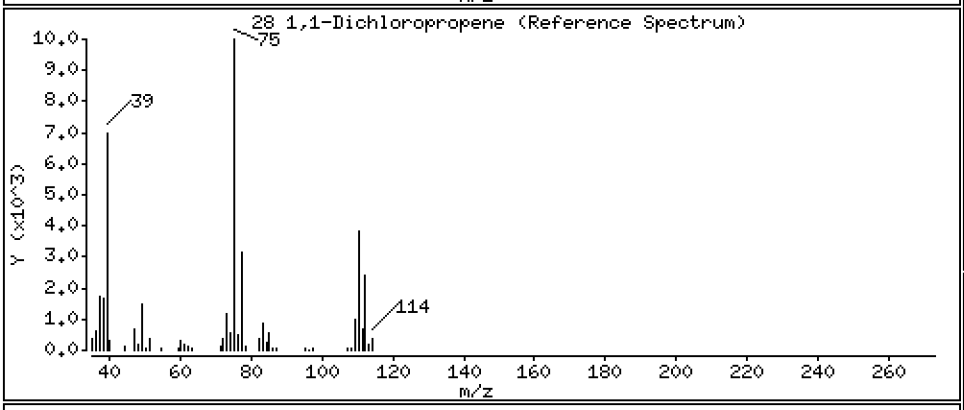
Concentration: 49.019 ug/Kg

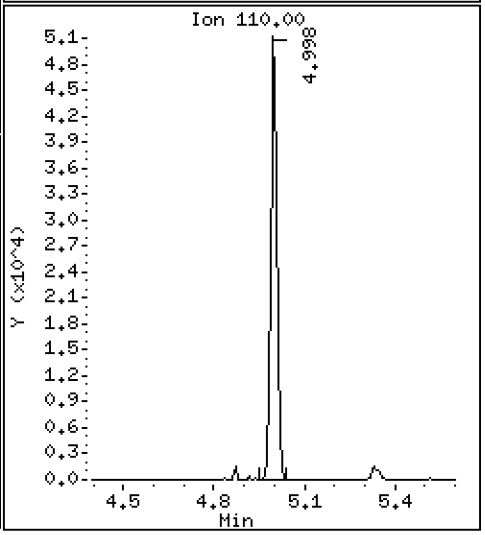


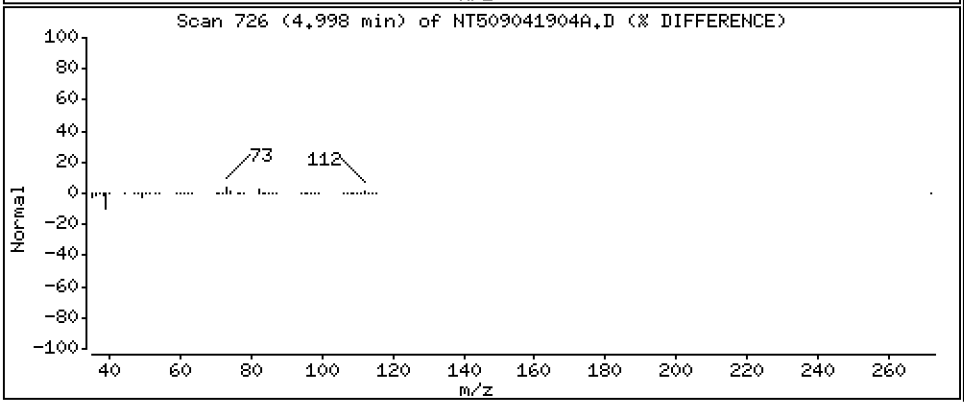












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

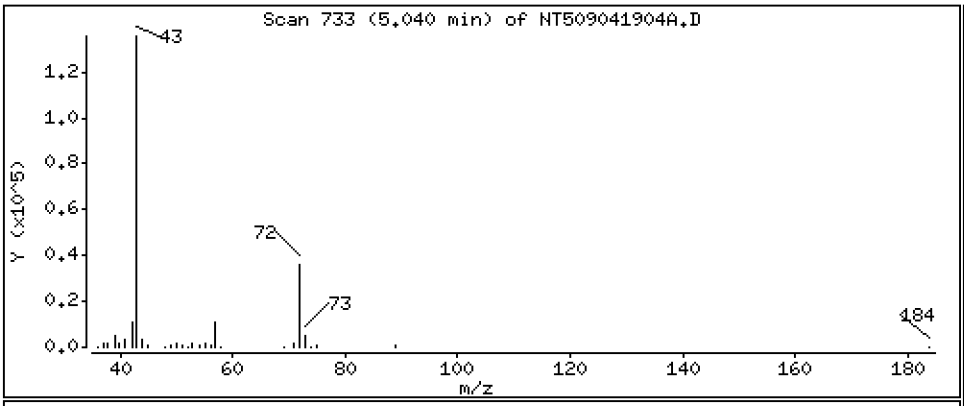
Operator: PB

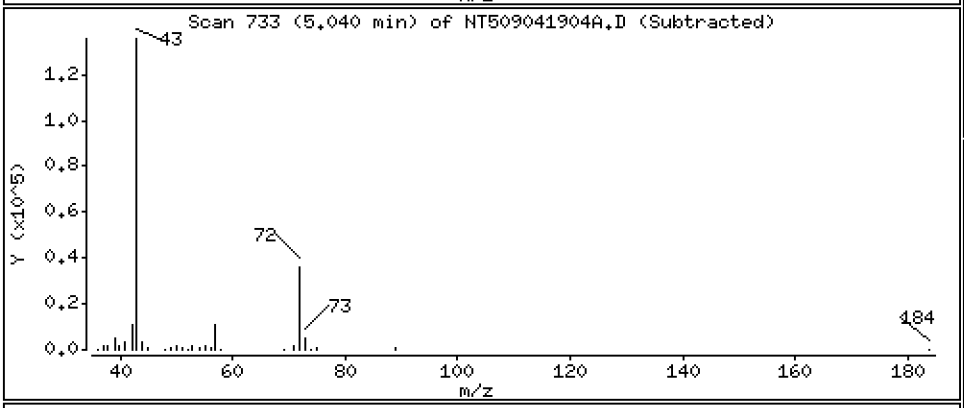
Column phase: RTXVMS

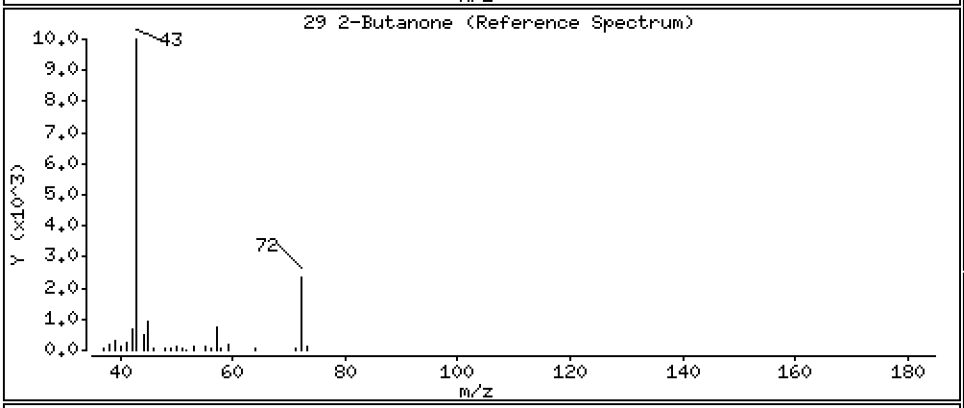
Column diameter: 0.18

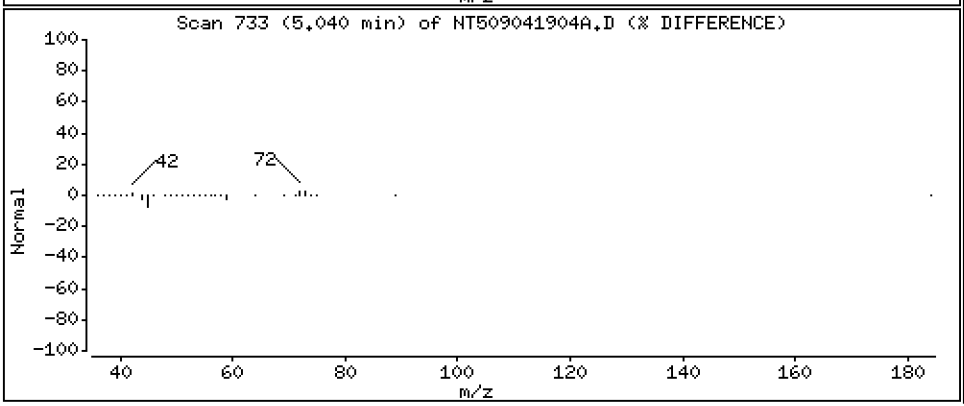
29 2-Butanone

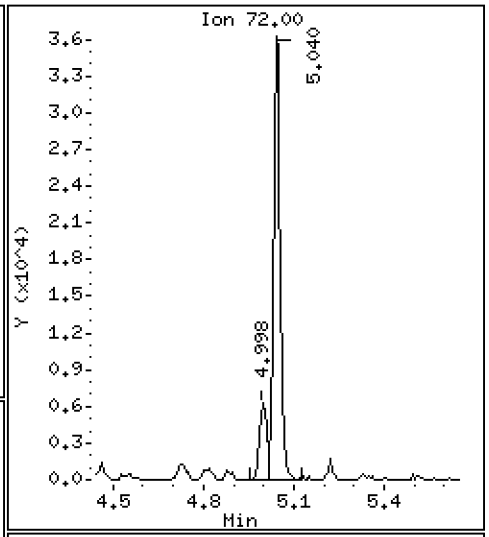
Concentration: 268.53 ug/Kg

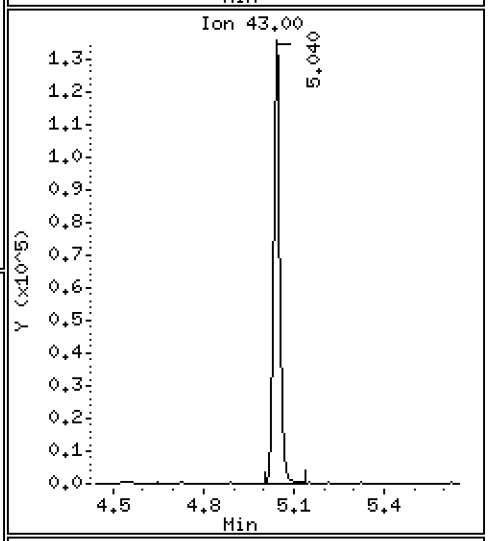


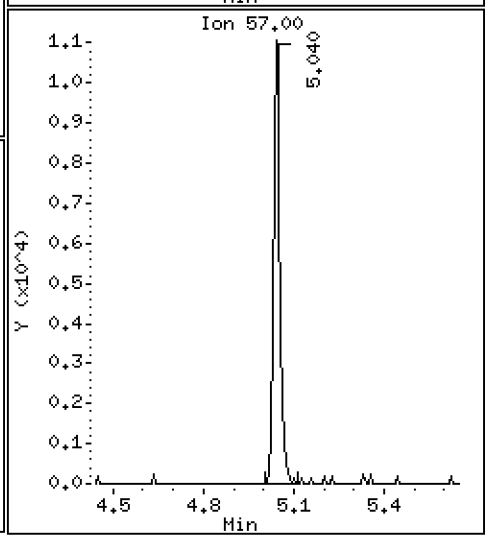












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

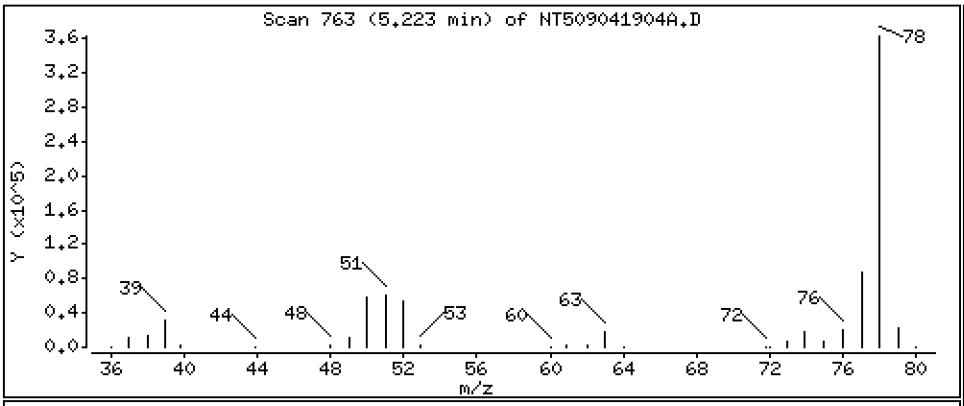
Operator: PB

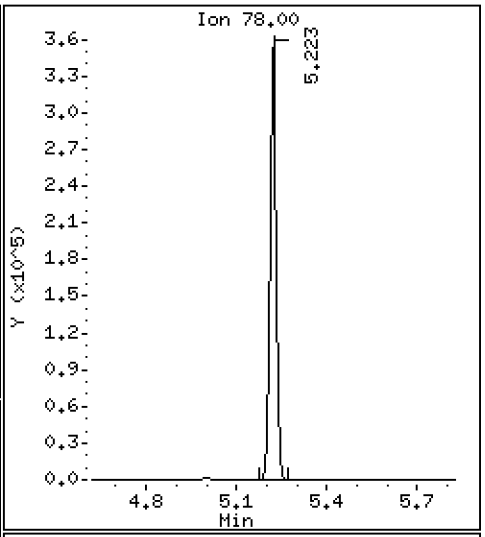
Column phase: RTXVMS

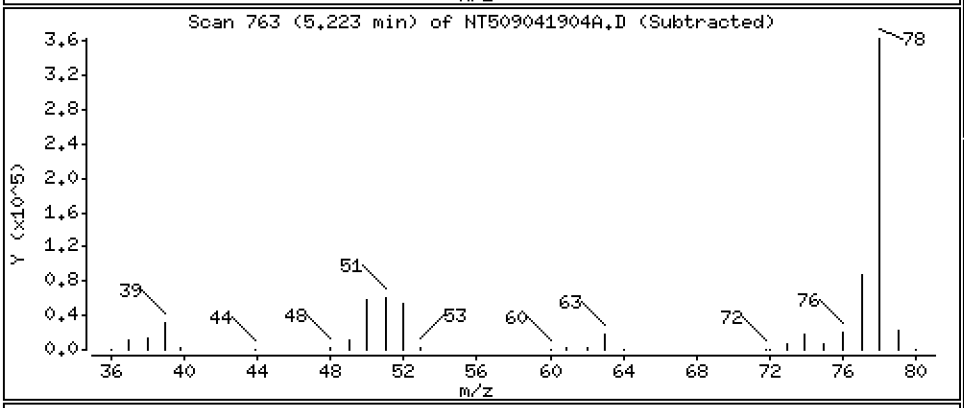
Column diameter: 0.18

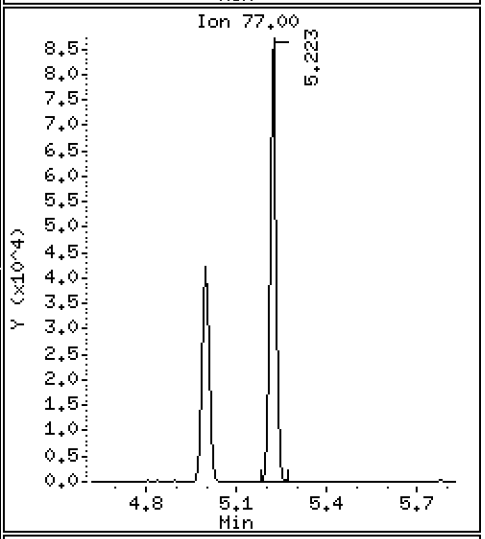
30 Benzene

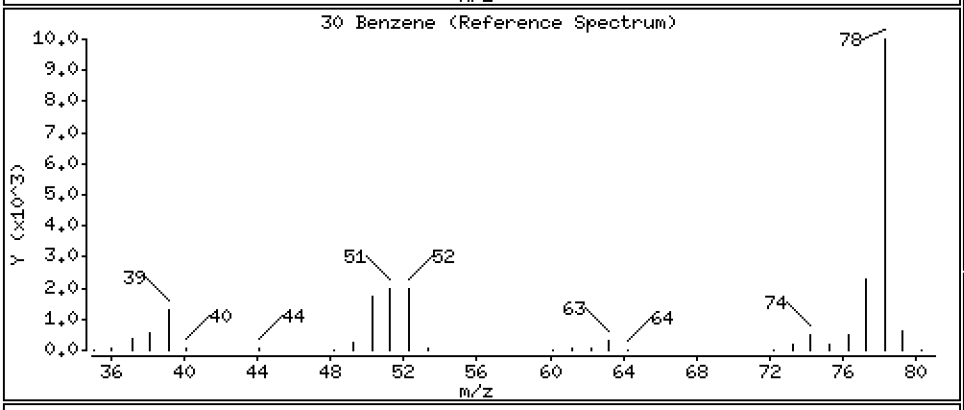
Concentration: 47.177 ug/Kg

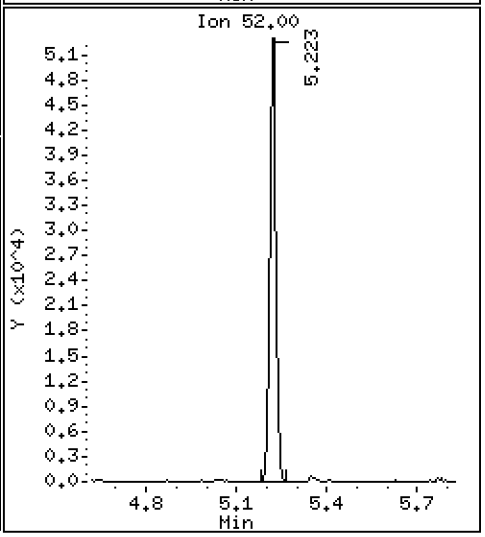


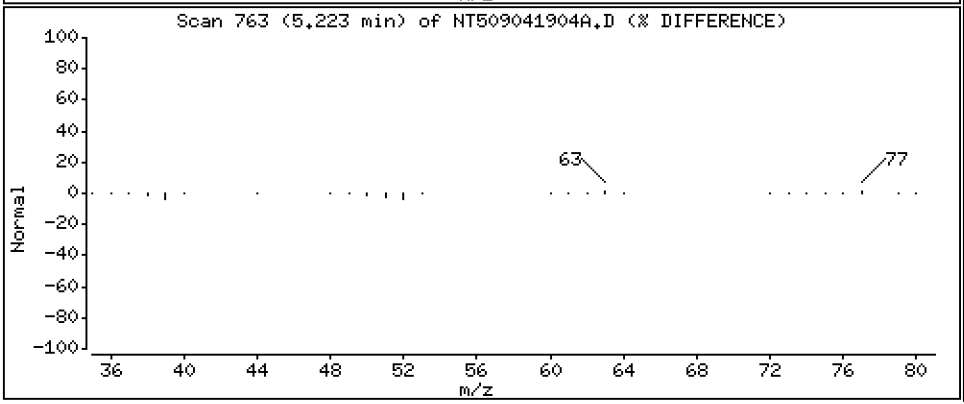












Date : 04-SEP-2019 15:04

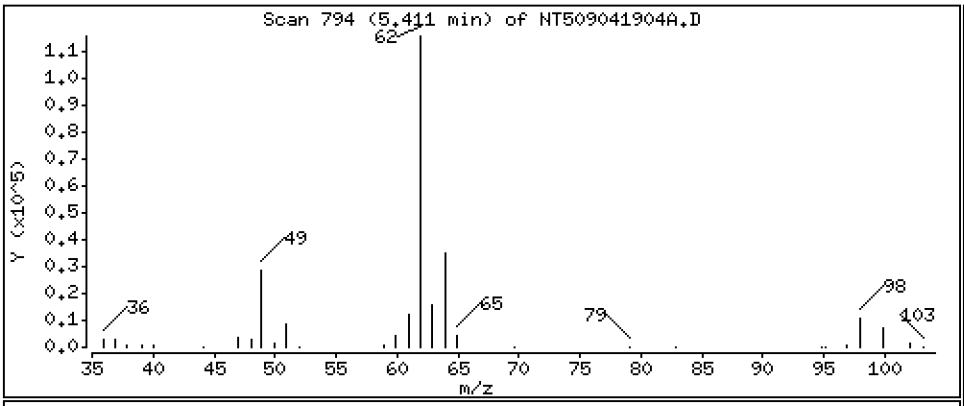
Client ID: Instrument: nt5.i

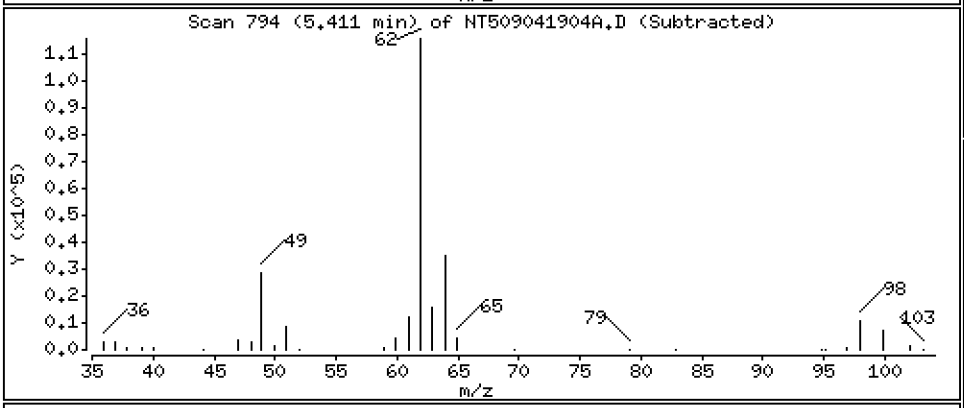
Sample Info: BSD1

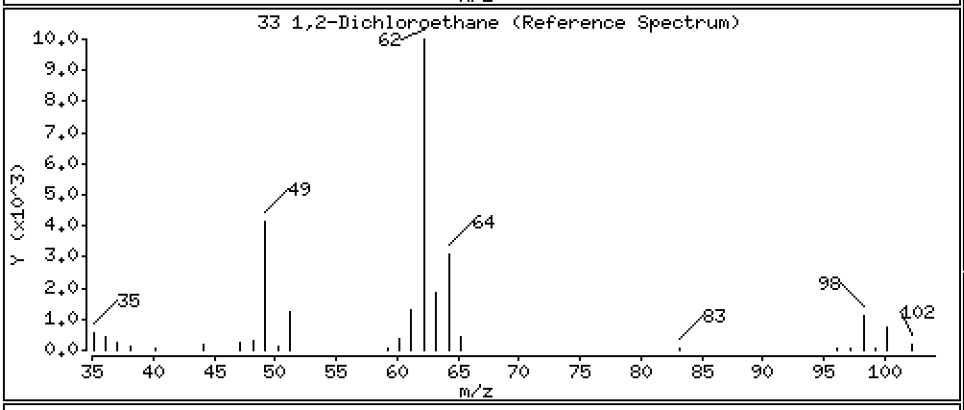
Operator: PB

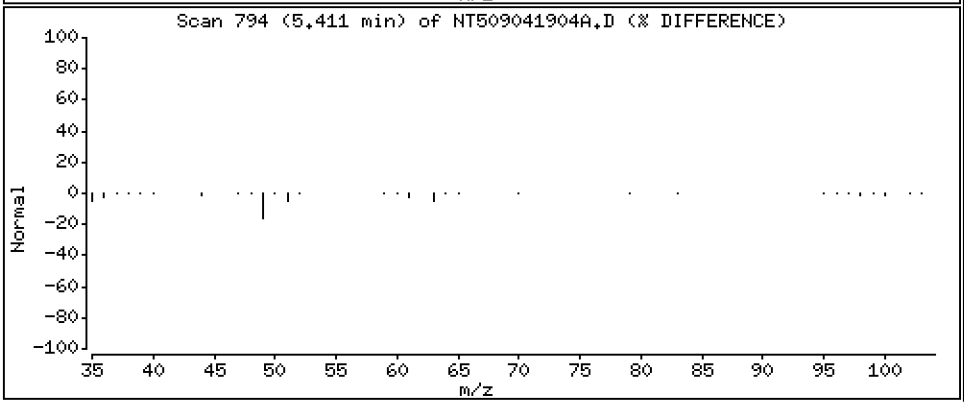
Column phase: RTXVMS Column diameter: 0.18

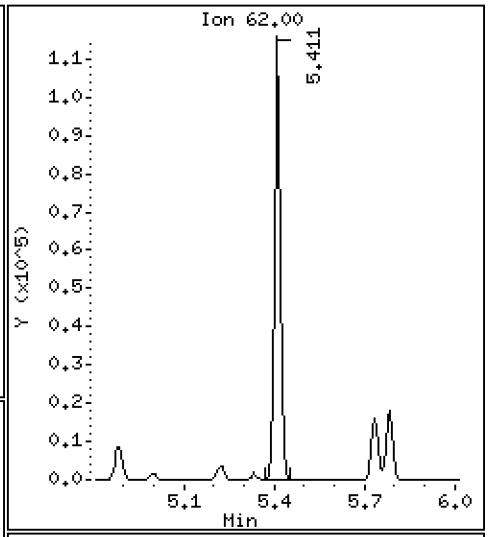
33 1,2-Dichloroethane Concentration: 41.743 ug/Kg

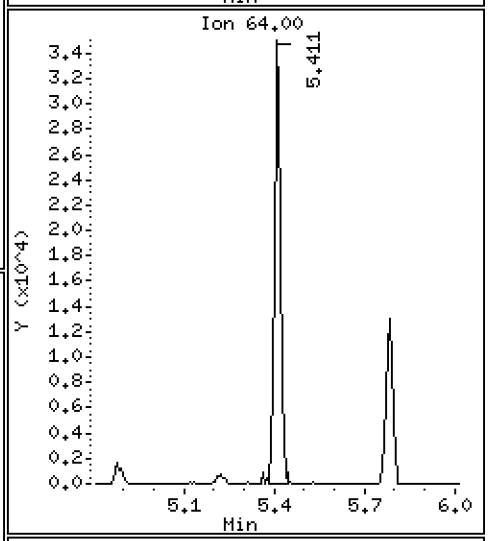


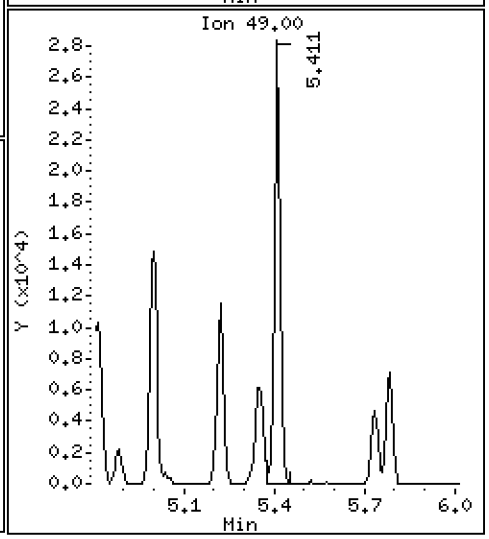












Date : 04-SEP-2019 15:04

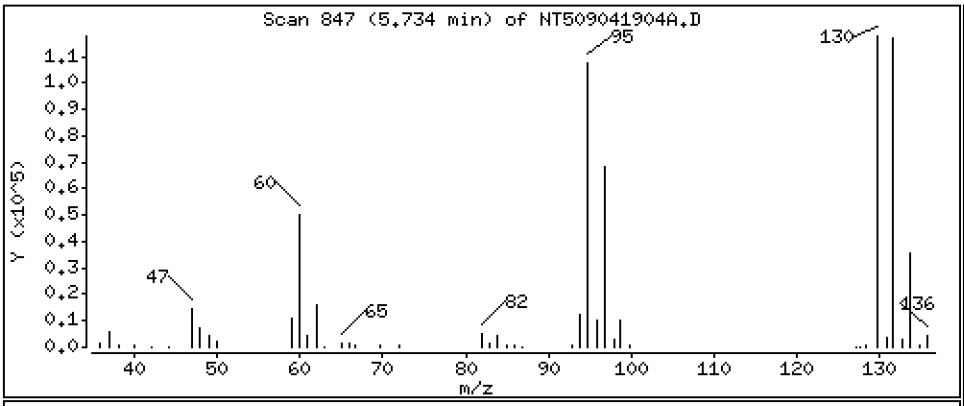
Client ID: Instrument: nt5.i

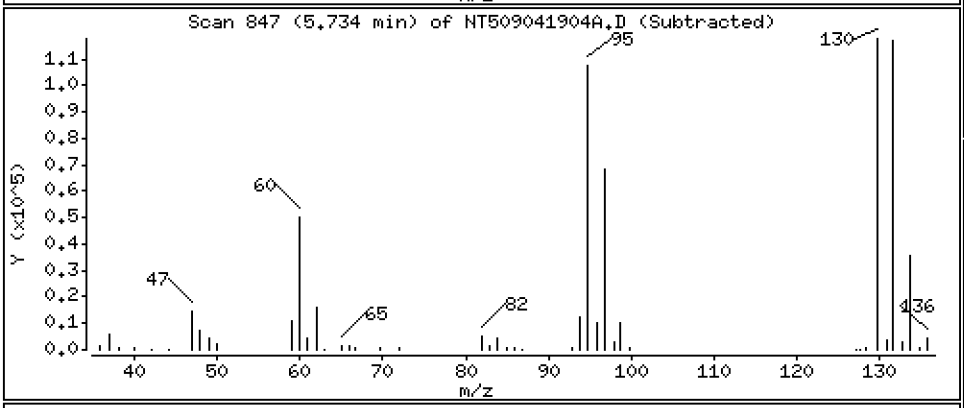
Sample Info: BSD1

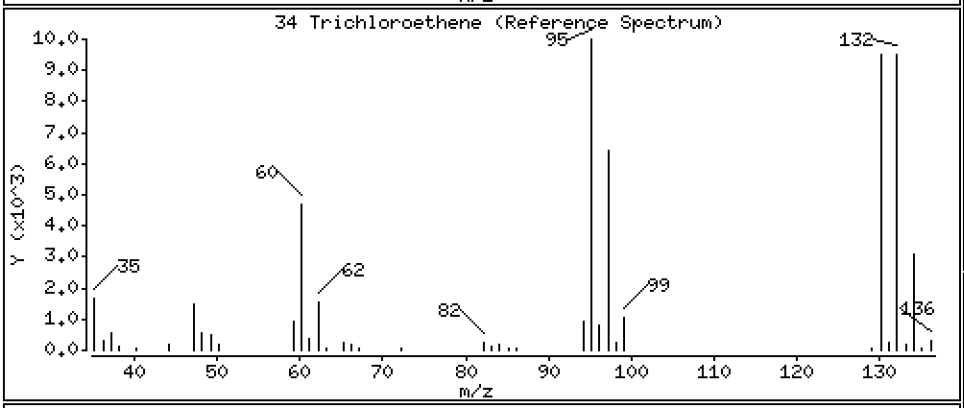
Operator: PB

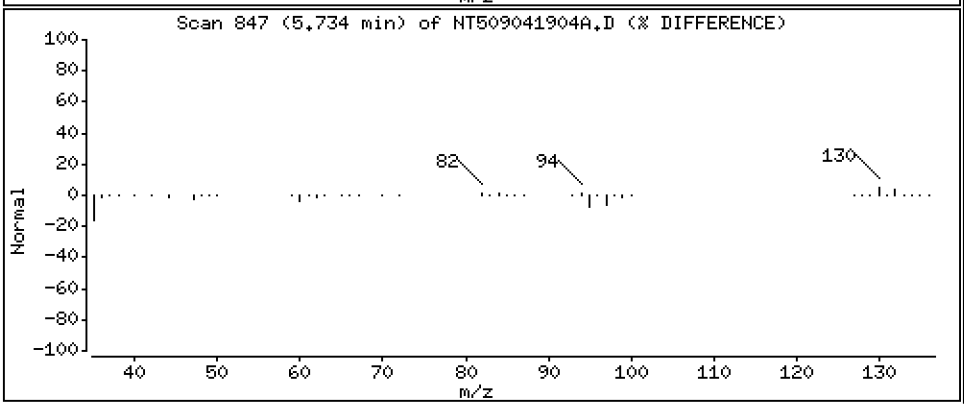
Column phase: RTXVMS Column diameter: 0.18

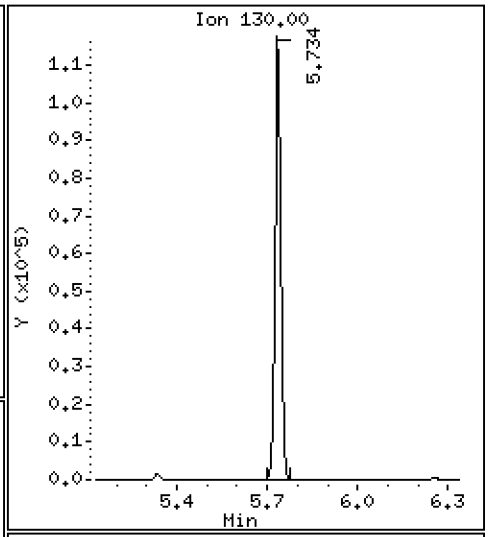
34 Trichloroethene Concentration: 47.834 ug/Kg

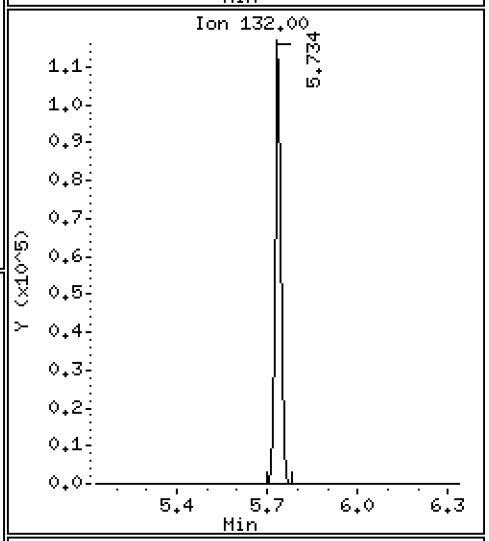


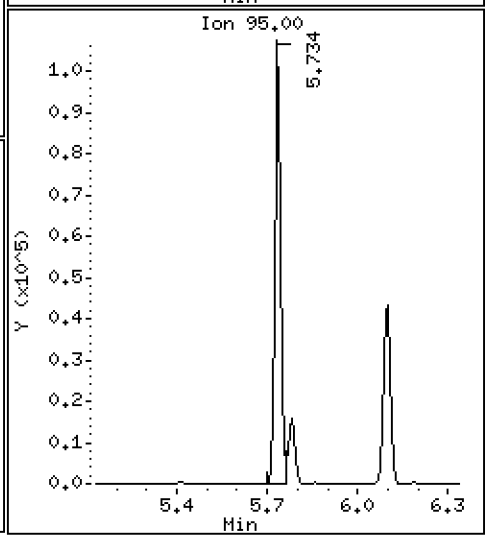












Date : 04-SEP-2019 15:04

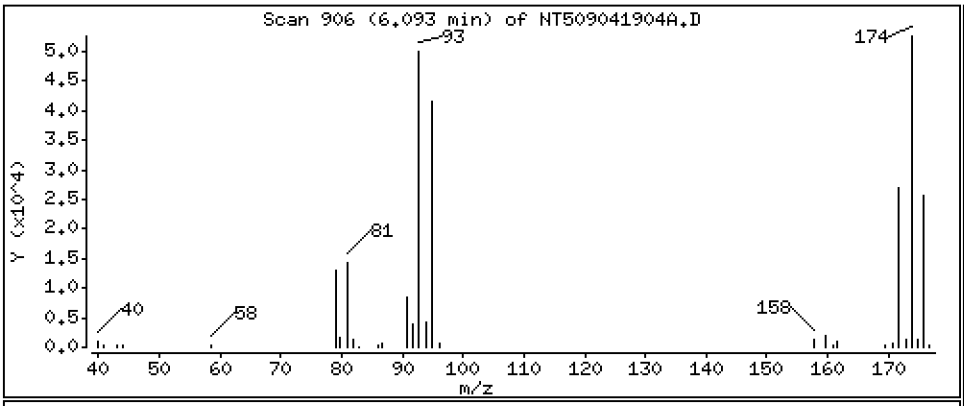
Client ID: Instrument: nt5.i

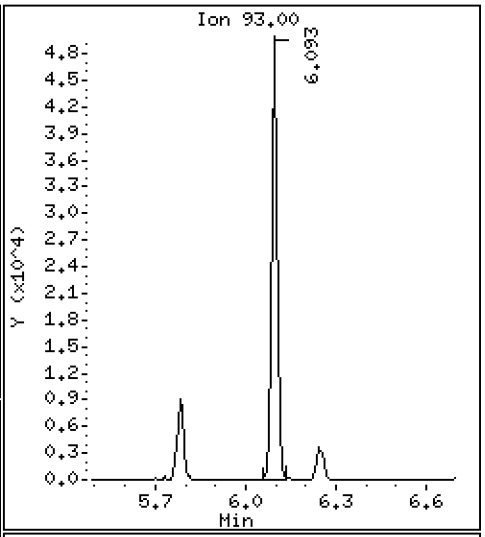
Sample Info: BSD1

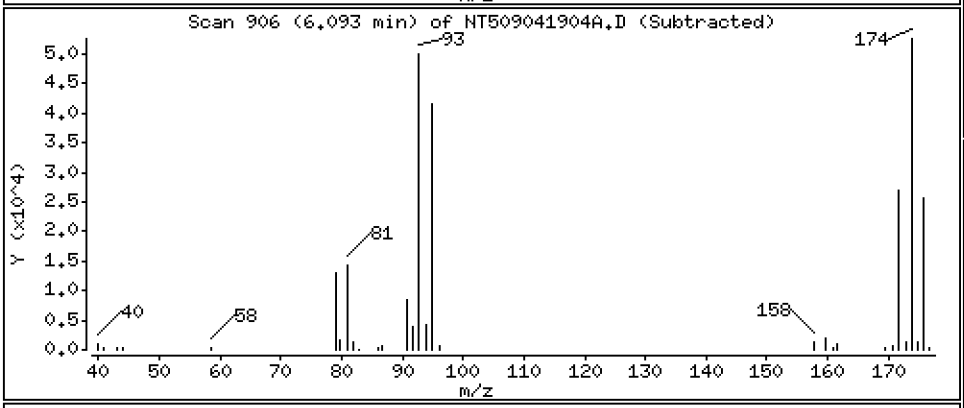
Operator: PB

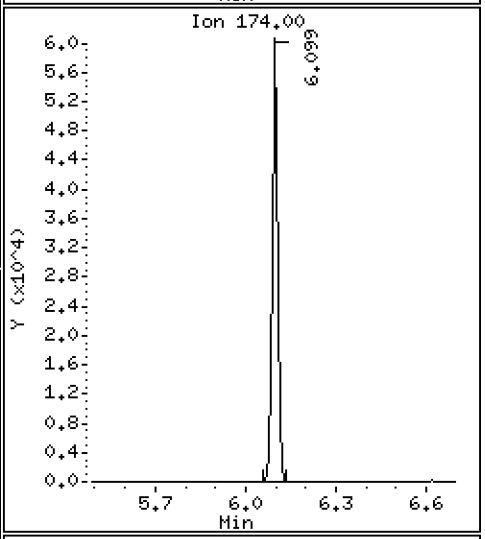
Column phase: RTXVMS Column diameter: 0.18

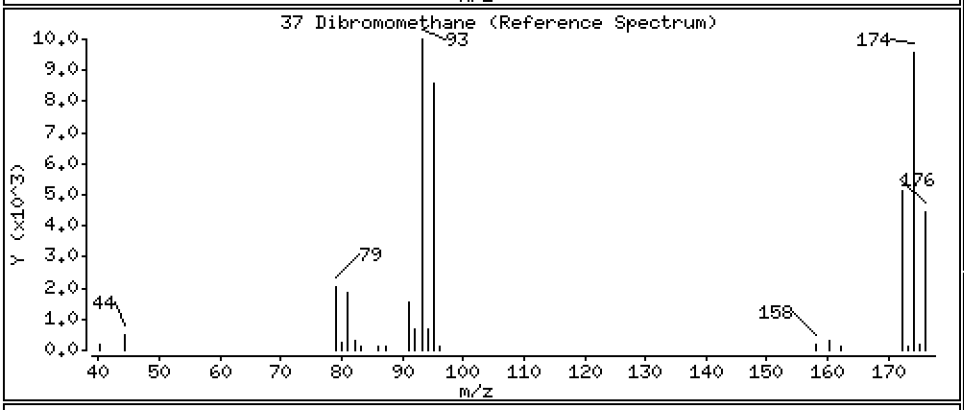
37 Dibromomethane Concentration: 43.275 ug/Kg

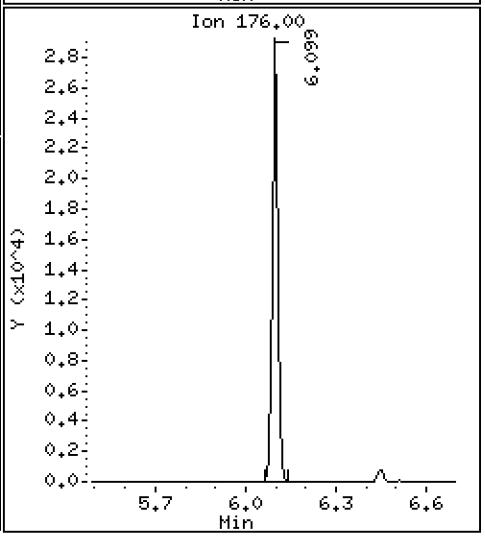


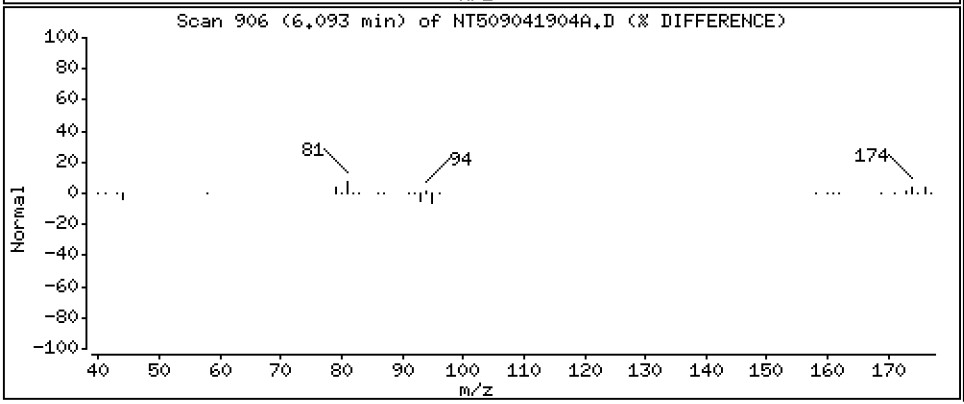












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

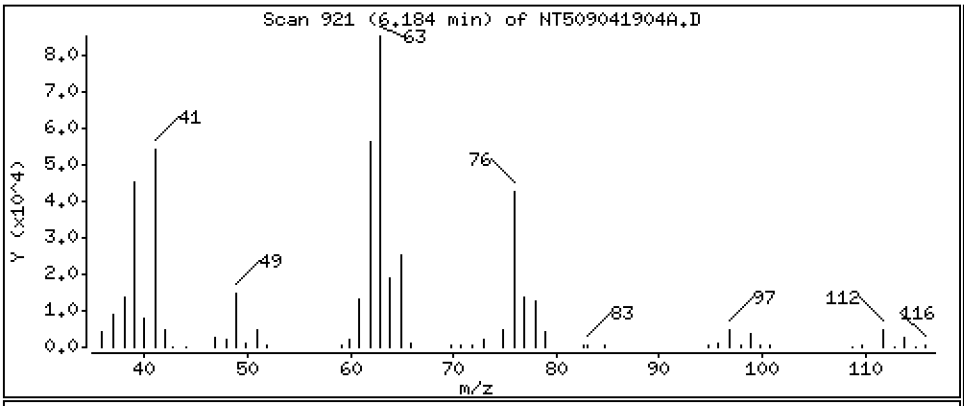
Operator: PB

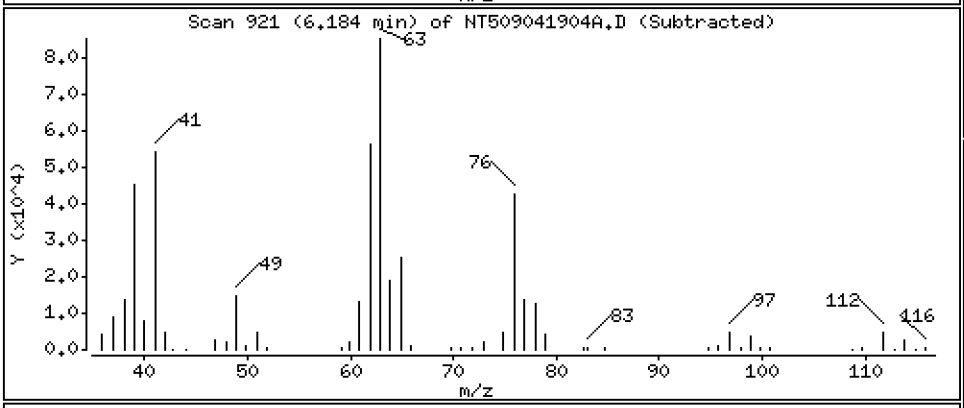
Column phase: RTXVMS

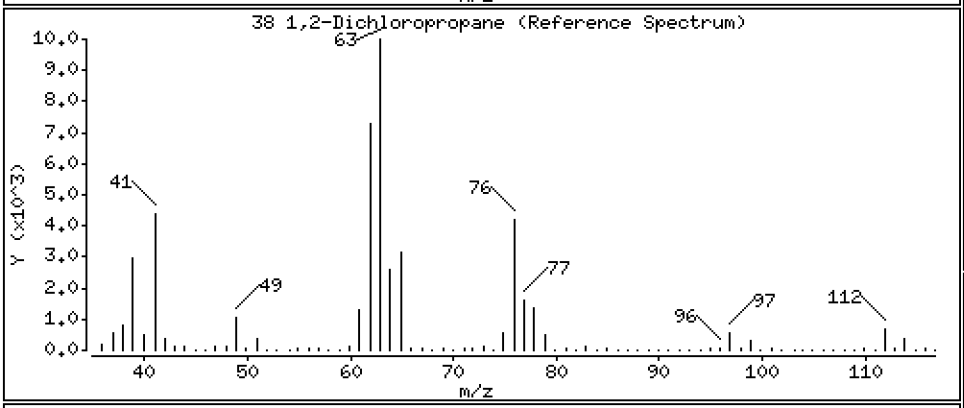
Column diameter: 0.18

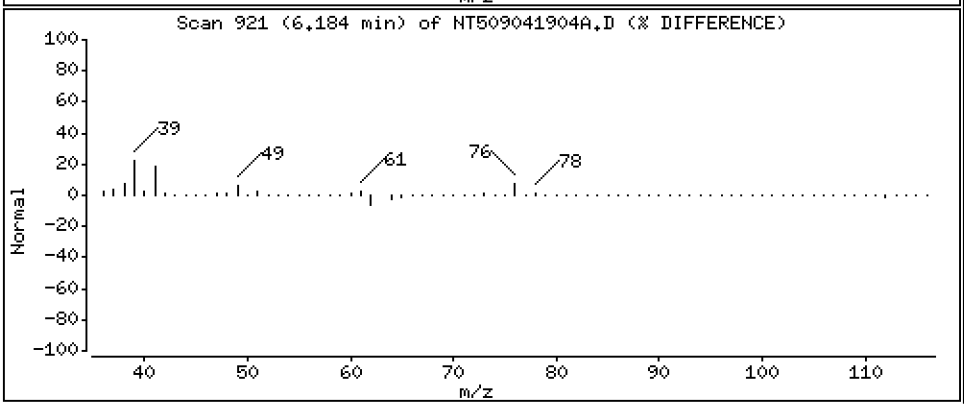
38 1,2-Dichloropropane

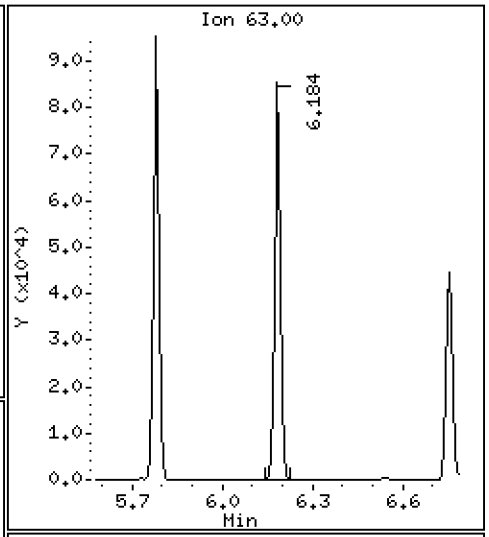
Concentration: 45.616 ug/Kg

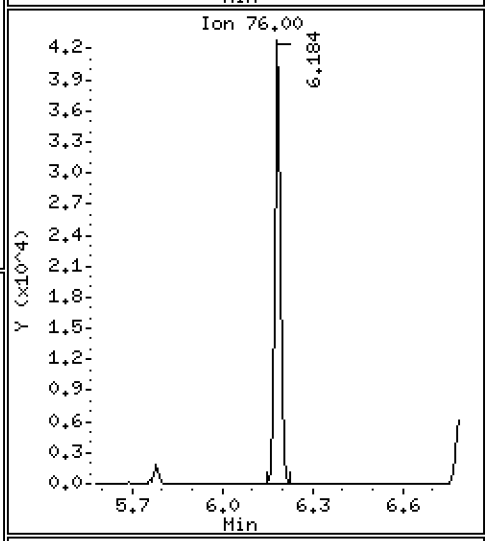


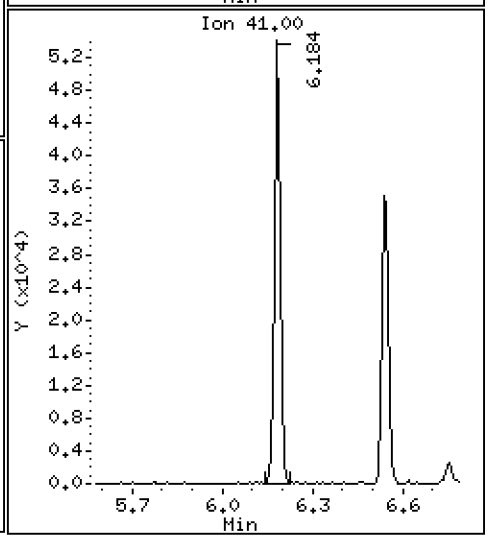












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

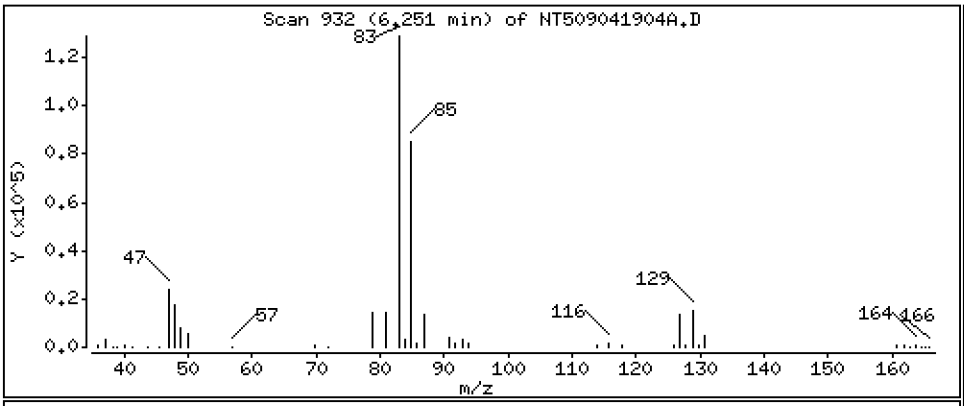
Operator: PB

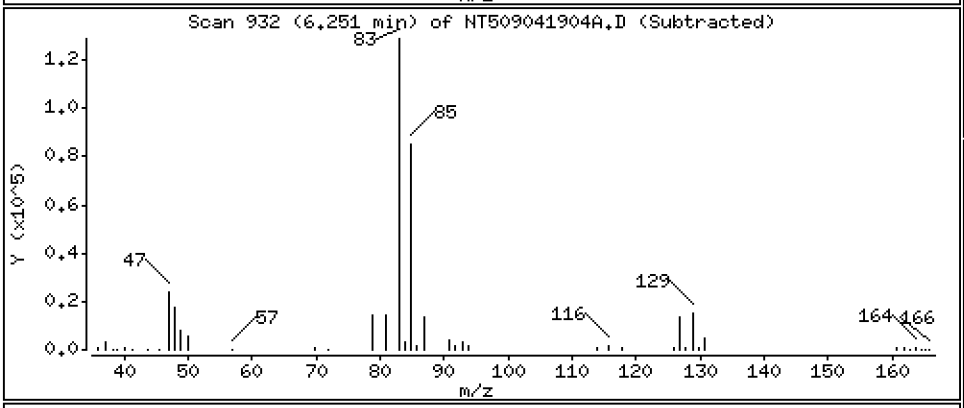
Column phase: RTXVMS

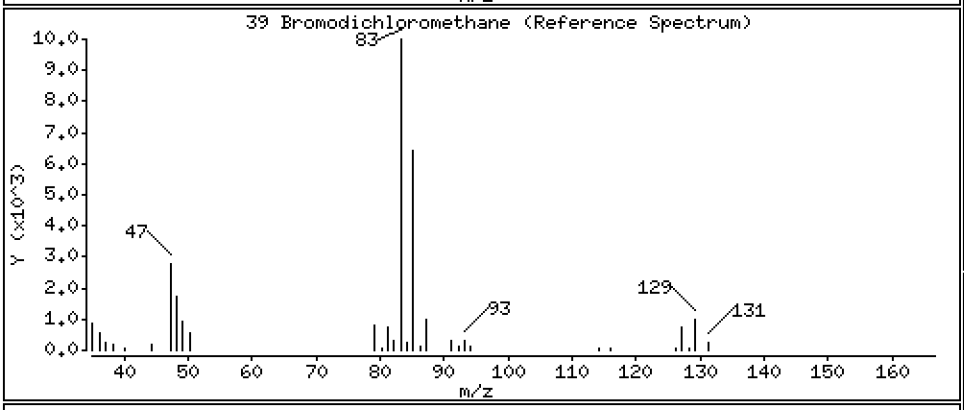
Column diameter: 0.18

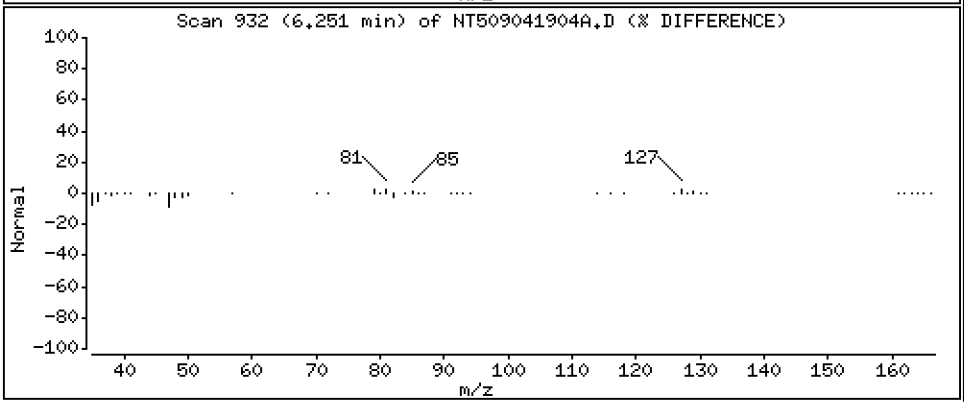
39 Bromodichloromethane

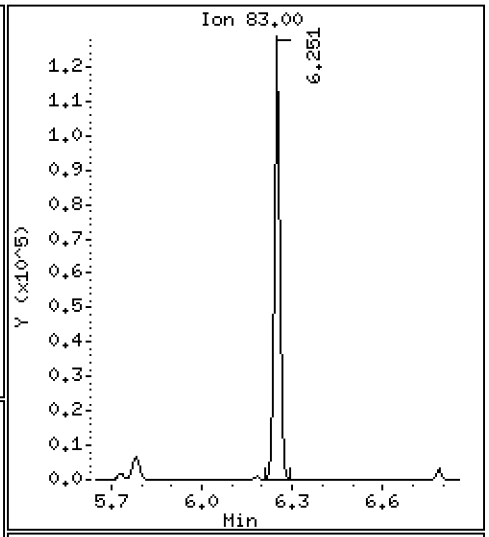
Concentration: 43.825 ug/Kg

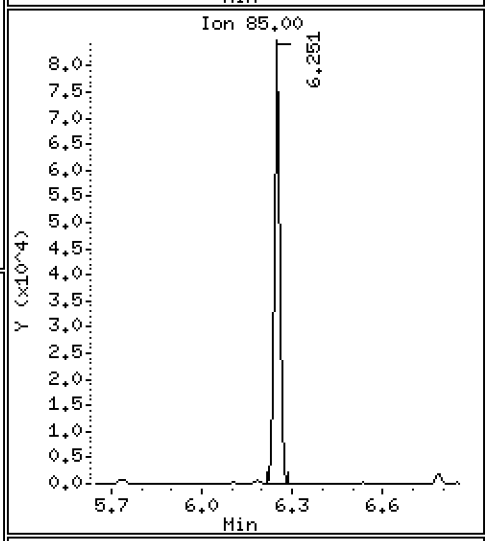


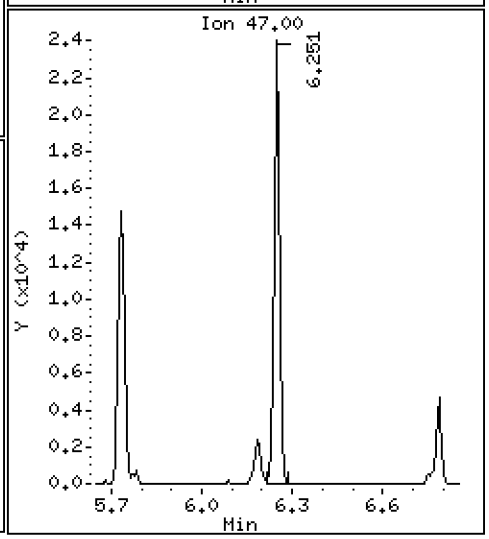












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

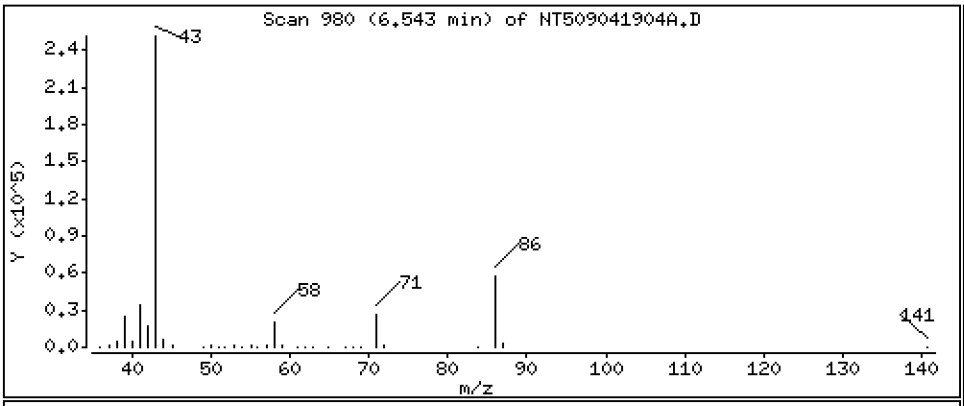
Operator: PB

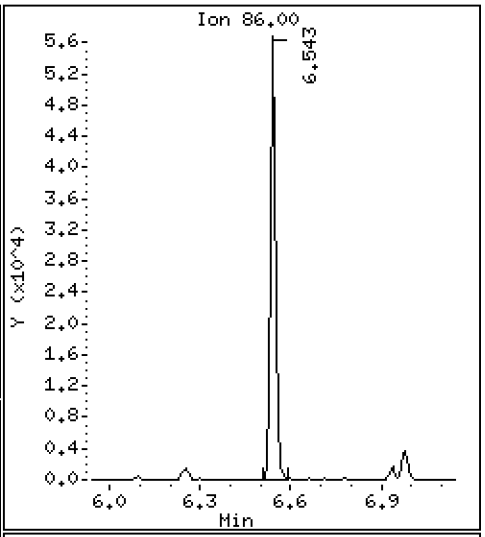
Column phase: RTXVMS

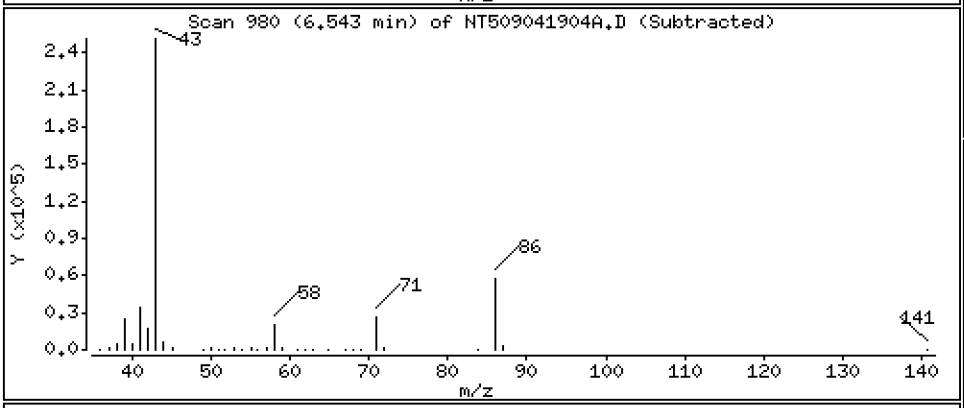
Column diameter: 0.18

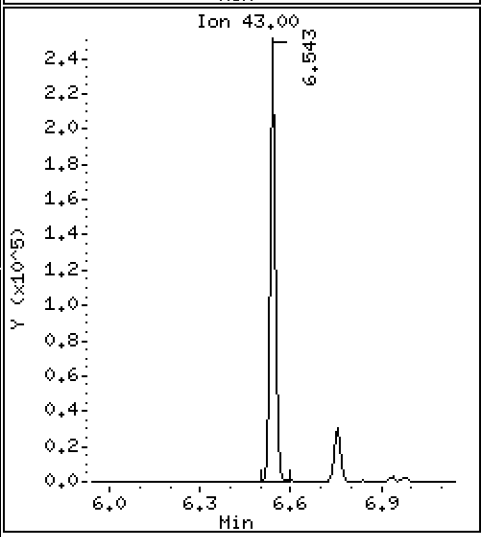
172 2-Pentanone

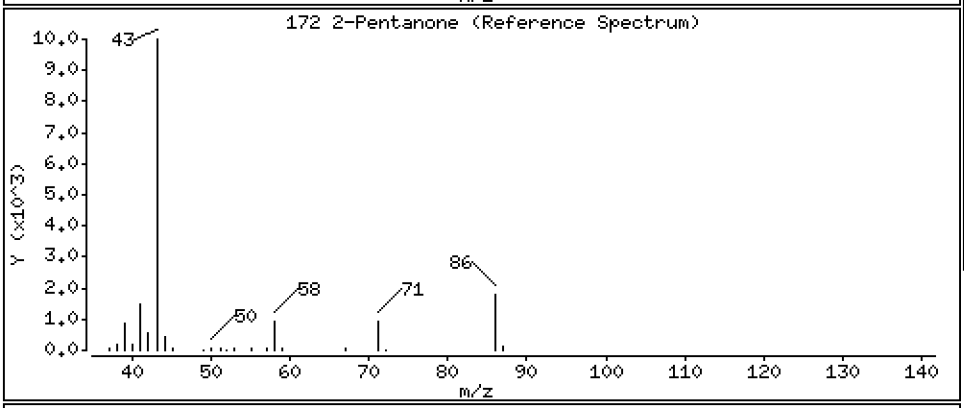
Concentration: 227.46 ug/Kg

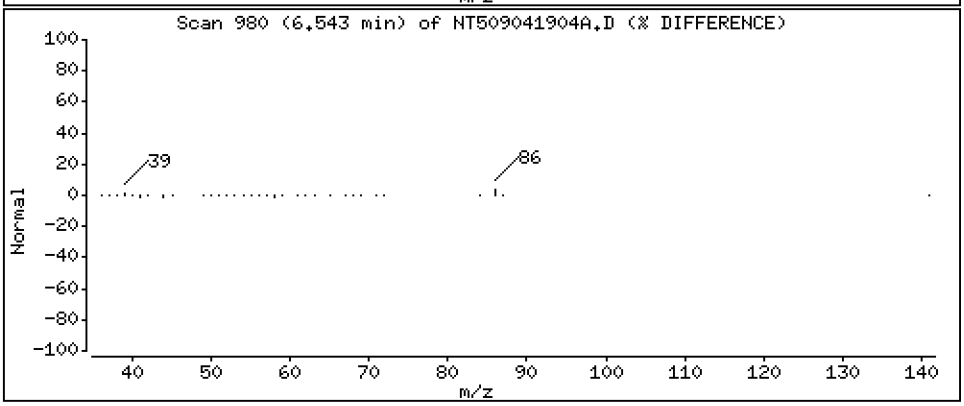












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

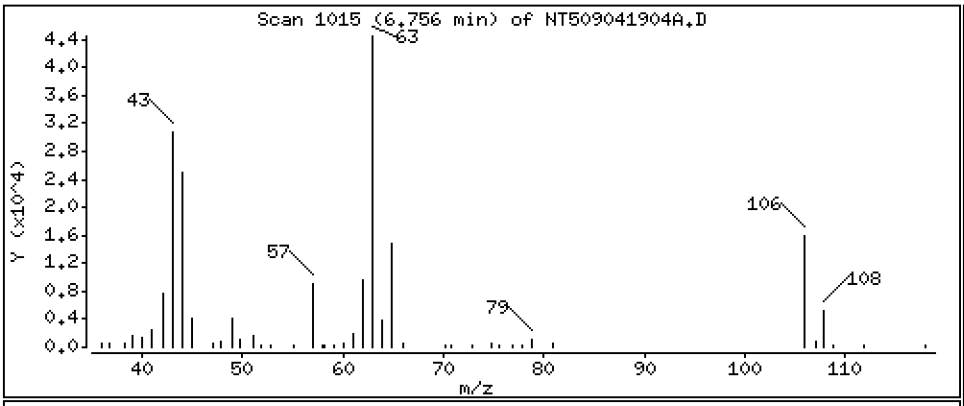
Operator: PB

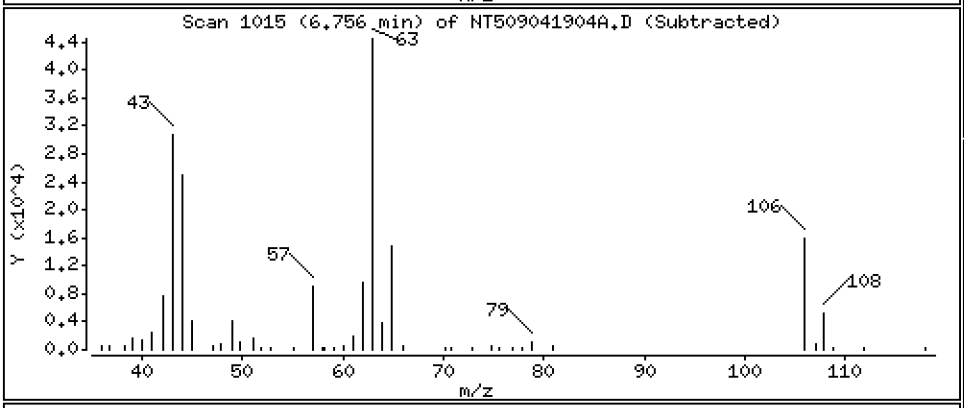
Column phase: RTXVMS

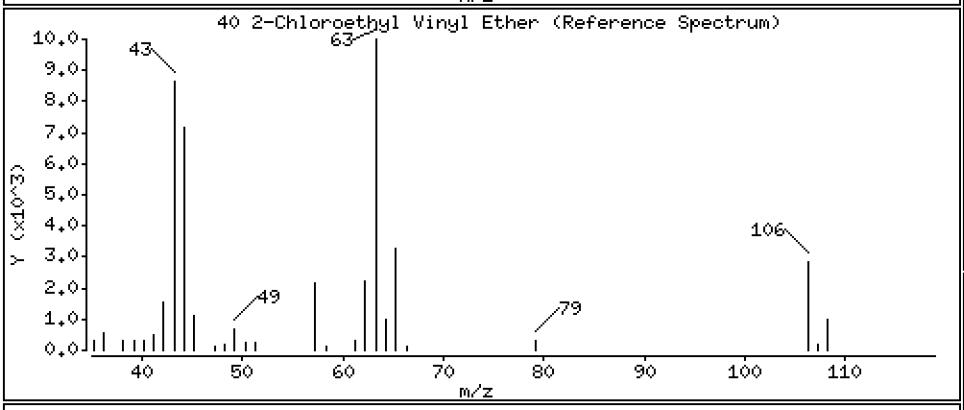
Column diameter: 0.18

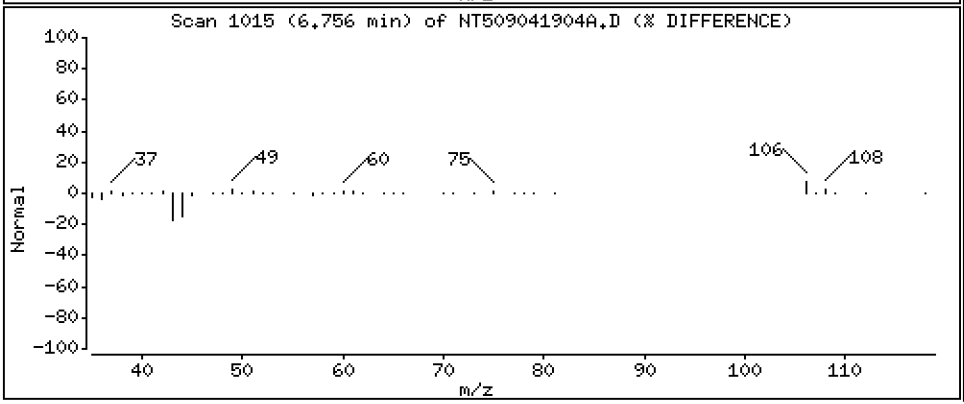
40 2-Chloroethyl Vinyl Ether

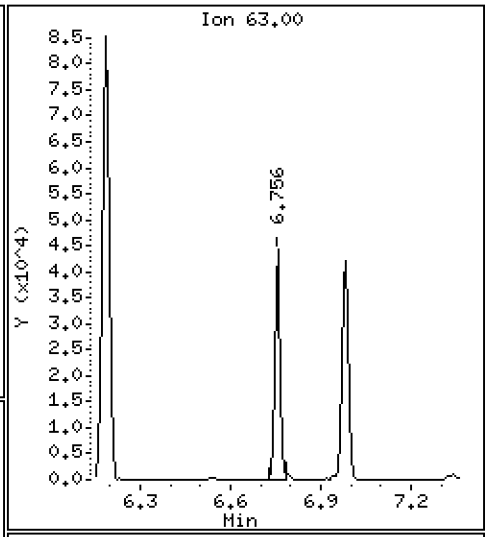
Concentration: 41.188 ug/Kg

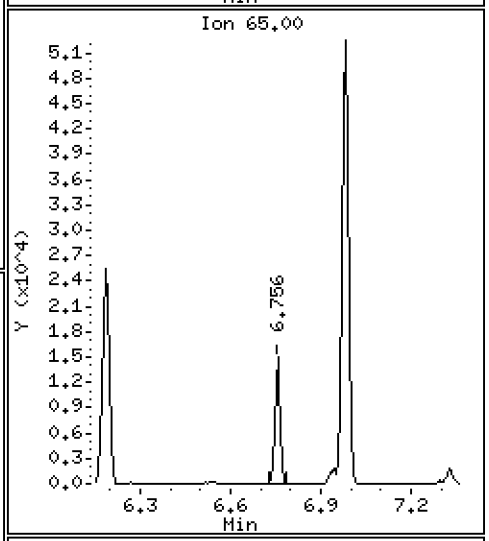


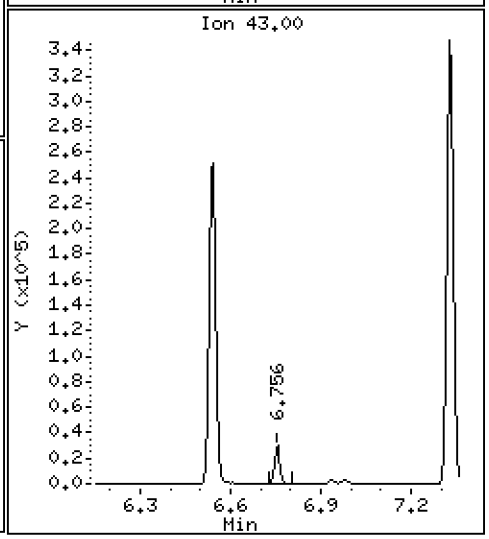












Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

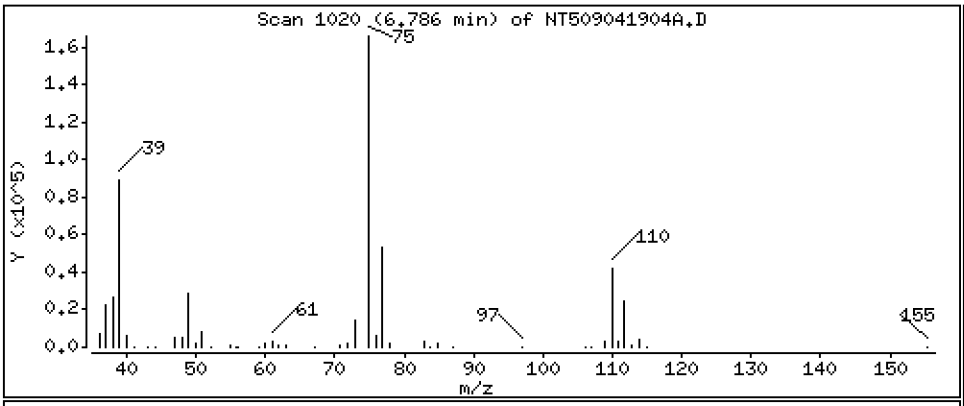
Operator: PB

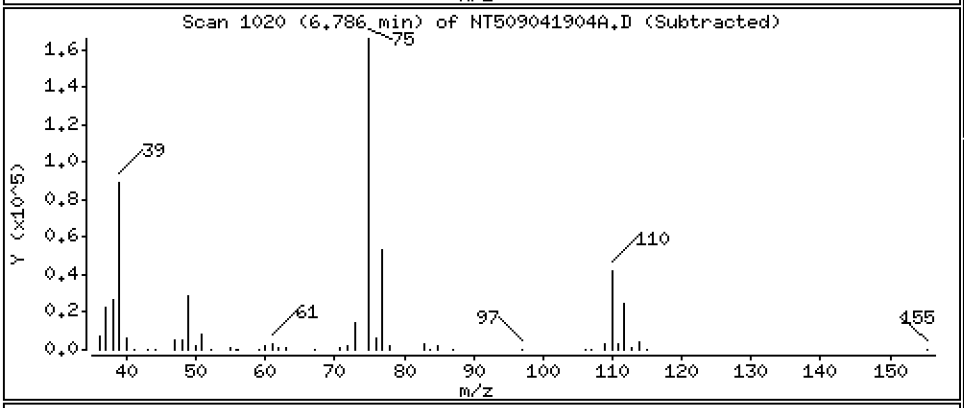
Column phase: RTXVMS

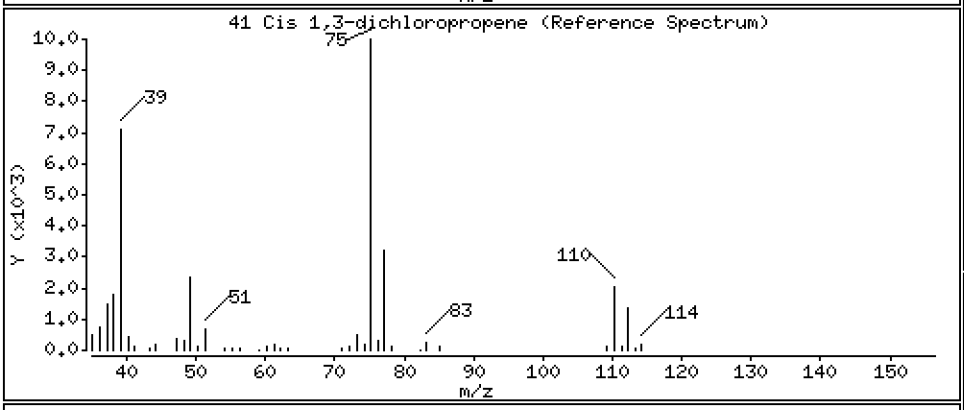
Column diameter: 0.18

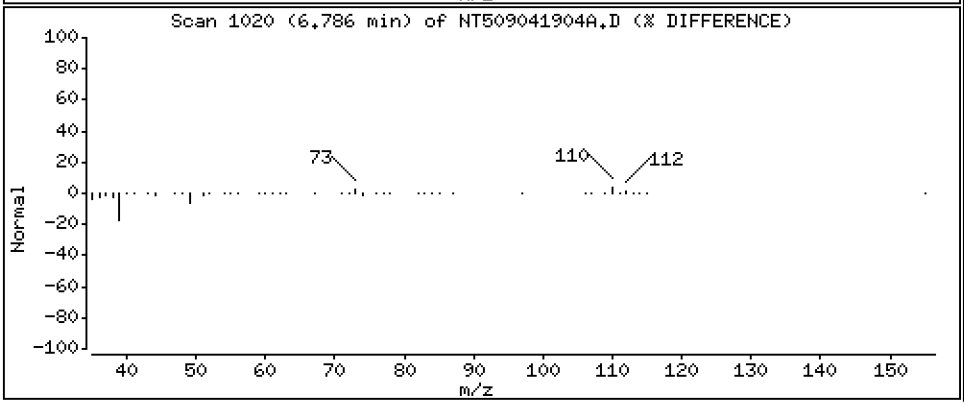
41 Cis 1,3-dichloropropene

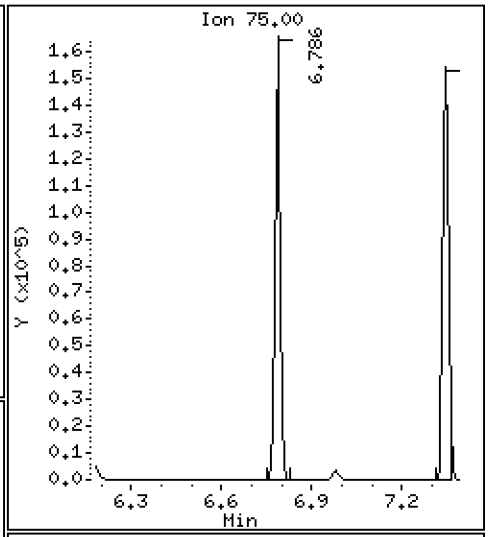
Concentration: 44.426 ug/Kg

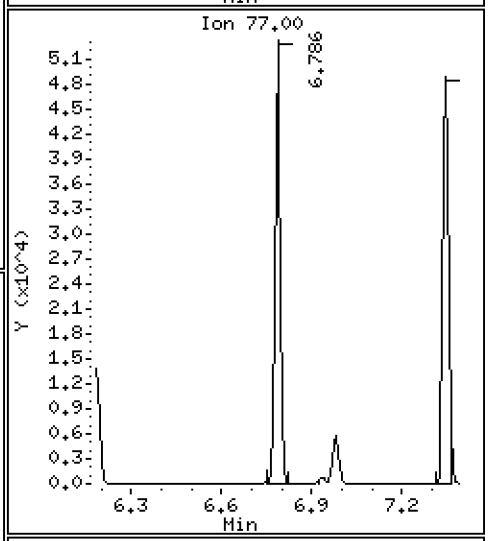


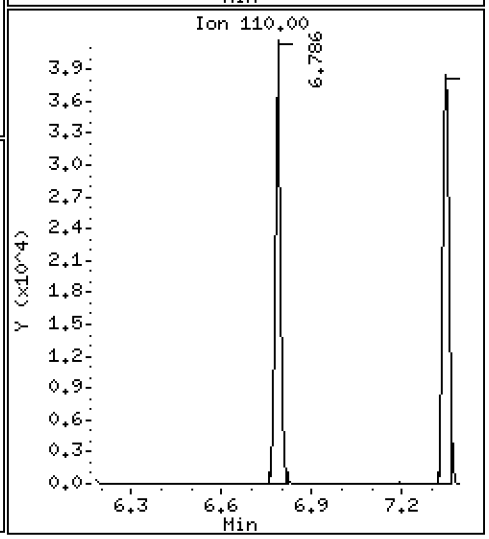












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

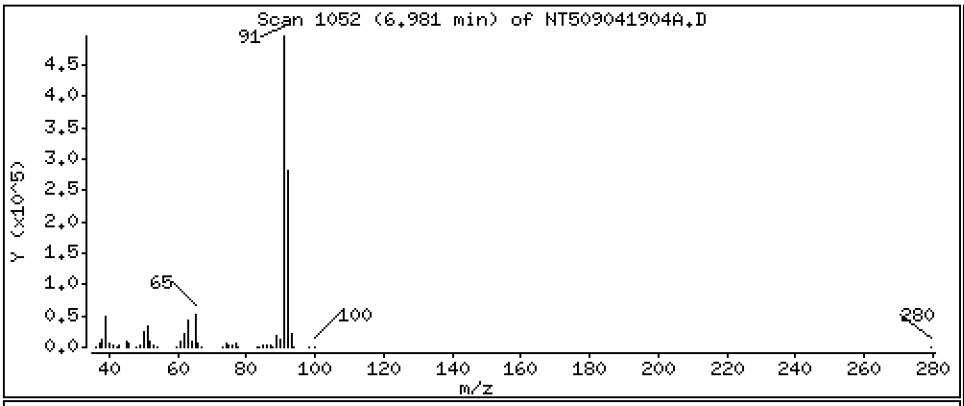
Operator: PB

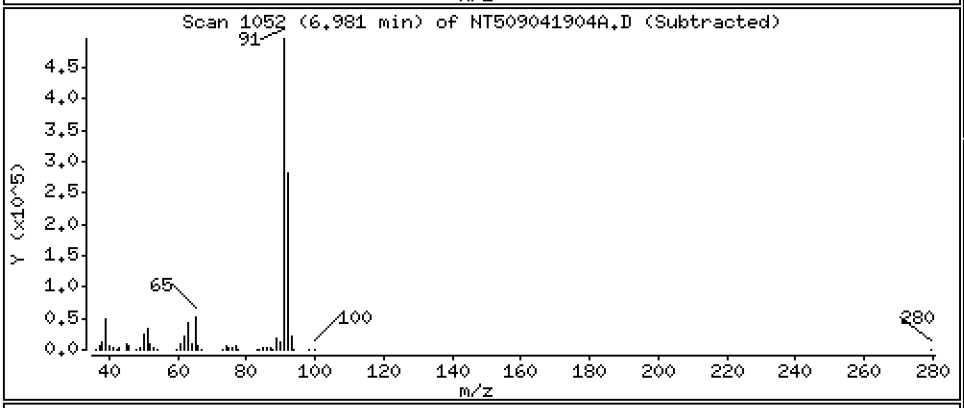
Column phase: RTXVMS

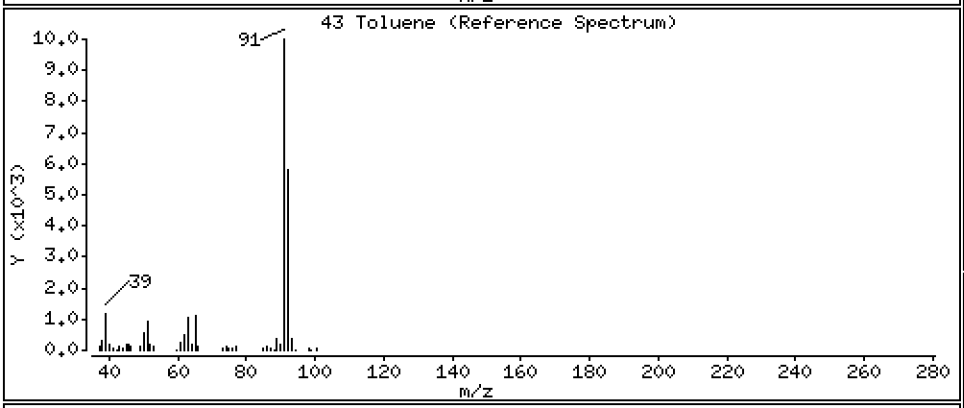
Column diameter: 0.18

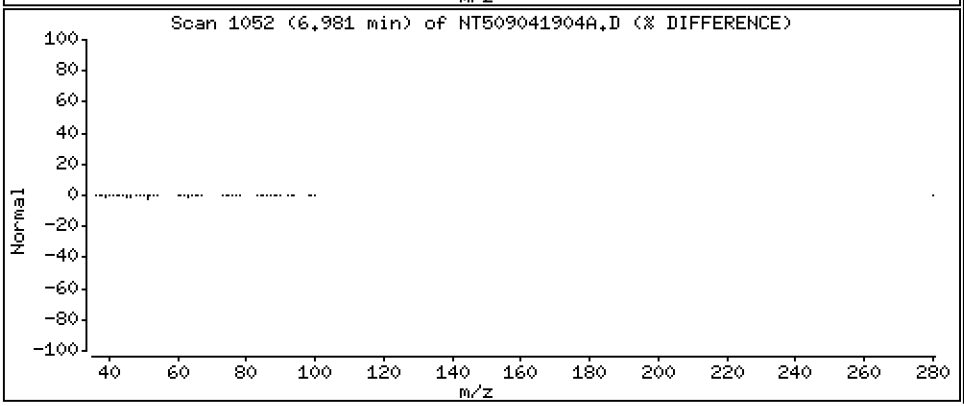
43 Toluene

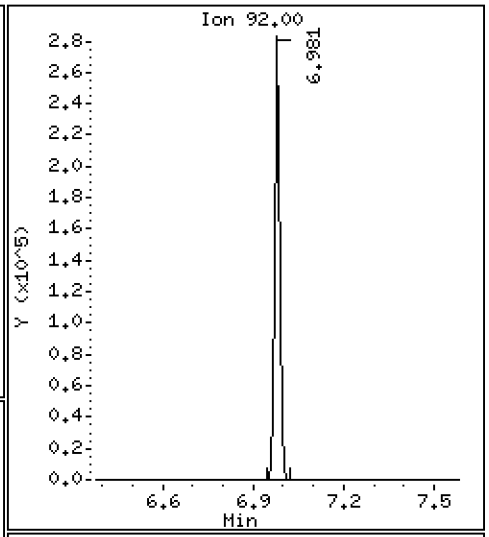
Concentration: 45.271 ug/Kg

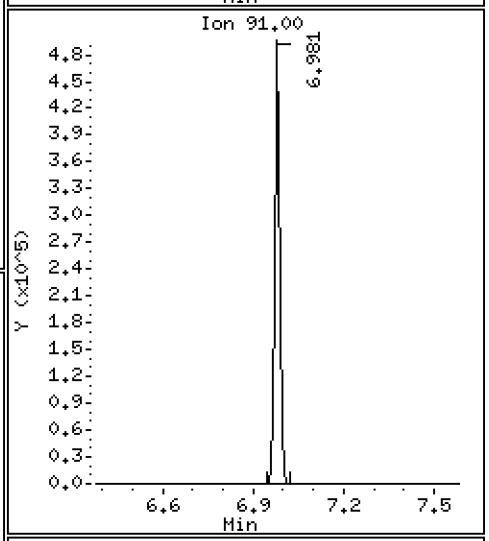


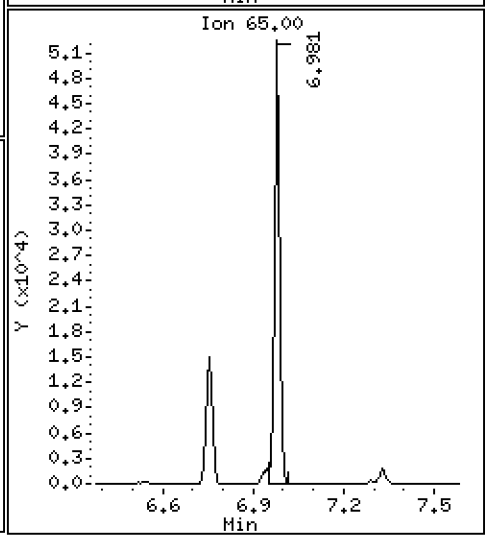












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

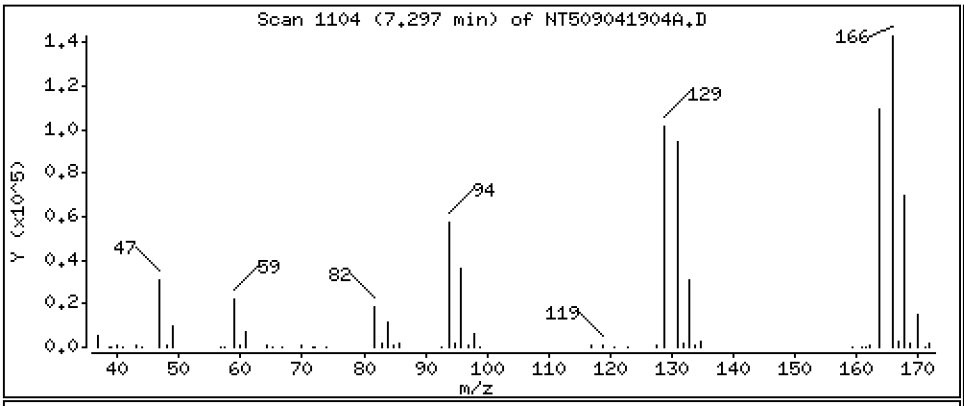
Operator: PB

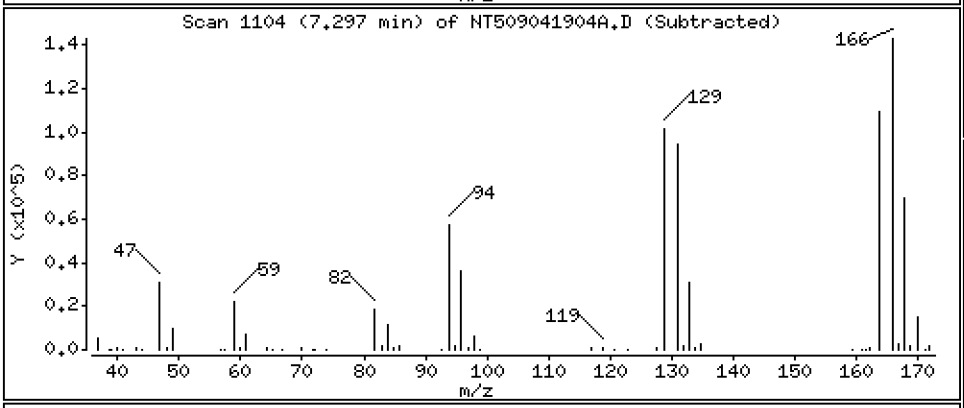
Column phase: RTXVMS

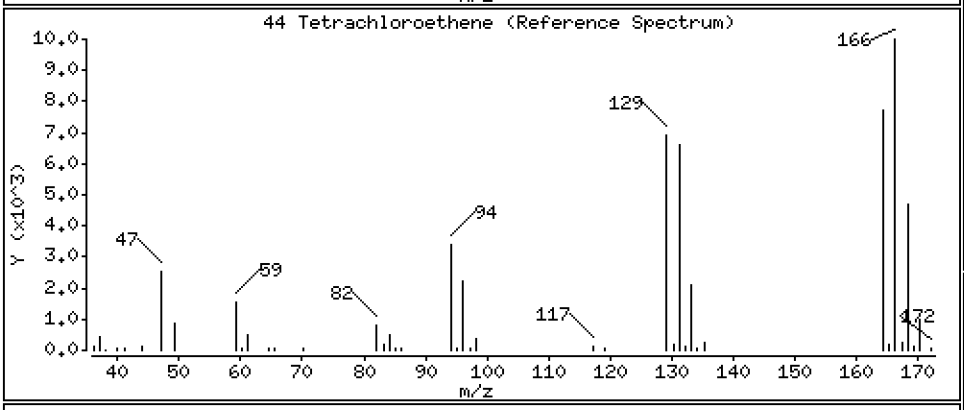
Column diameter: 0.18

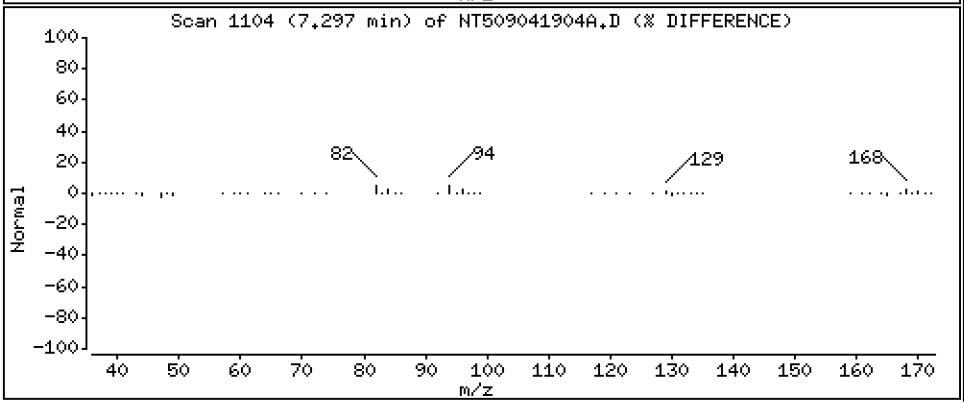
44 Tetrachloroethene

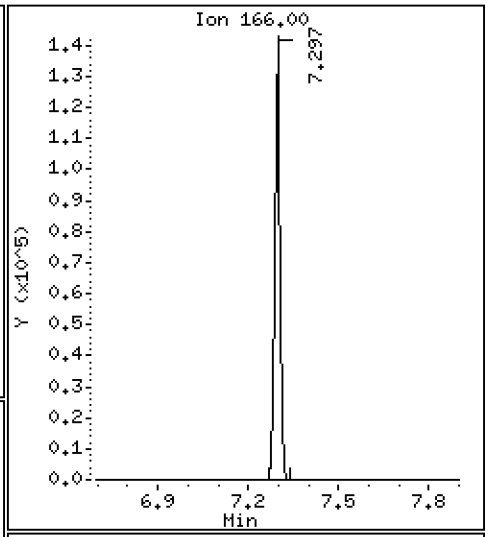
Concentration: 48.700 ug/Kg

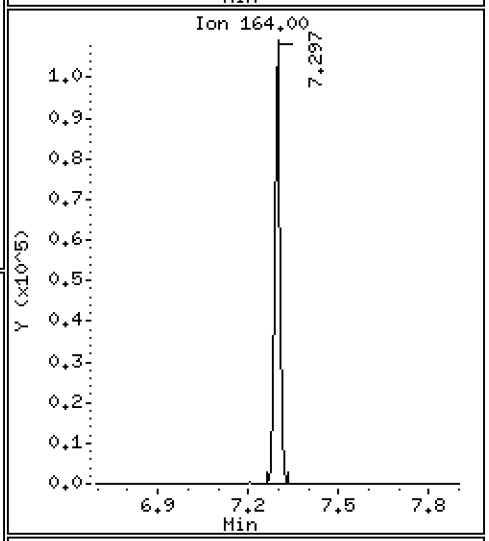


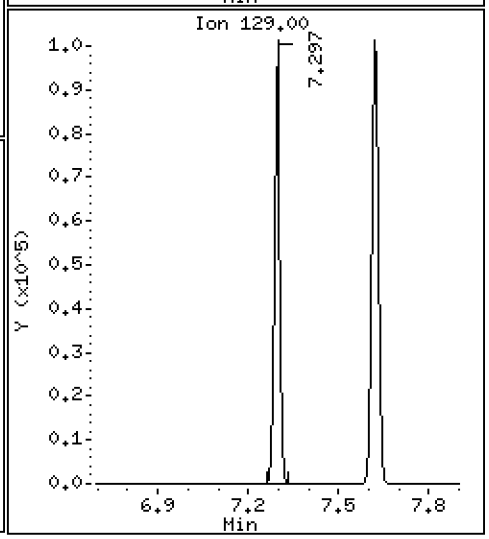












Date : 04-SEP-2019 15:04

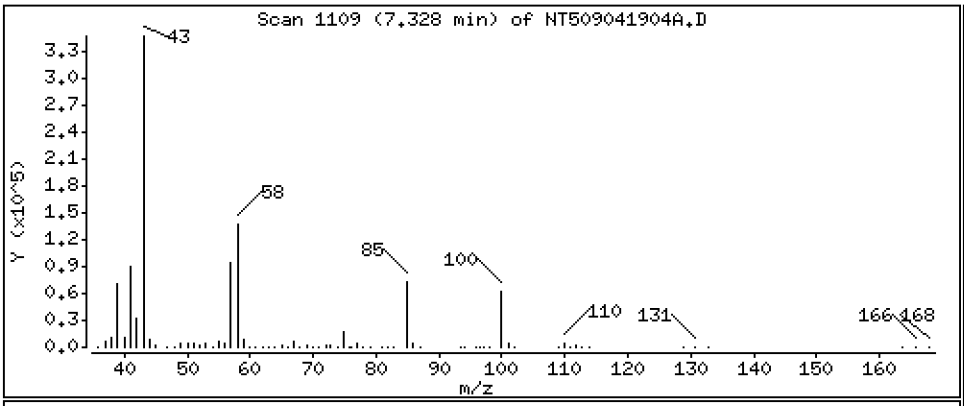
Client ID: Instrument: nt5.i

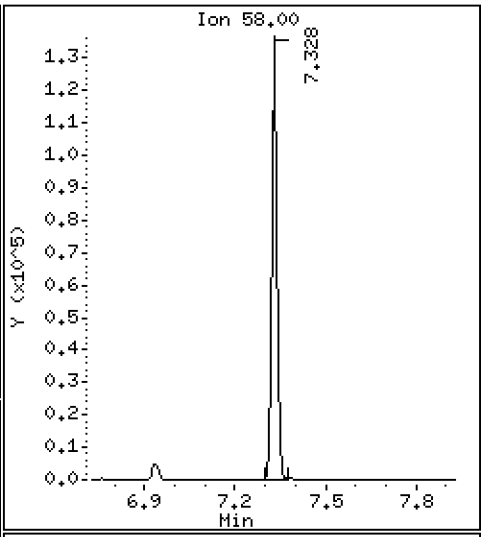
Sample Info: BSD1

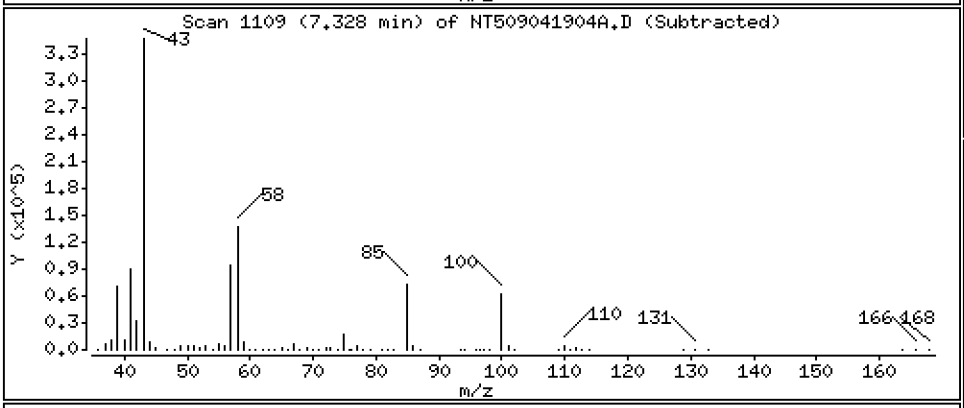
Operator: PB

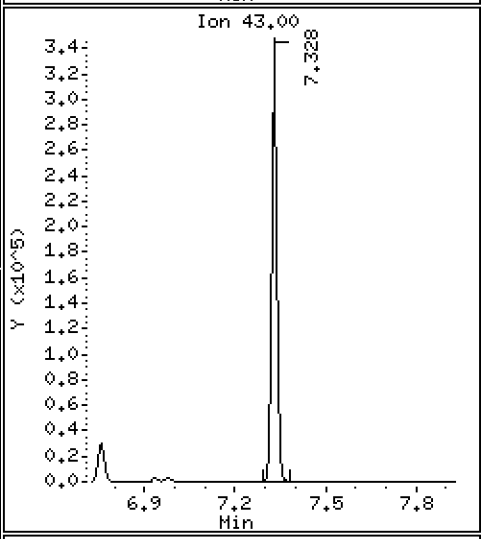
Column phase: RTXVMS Column diameter: 0.18

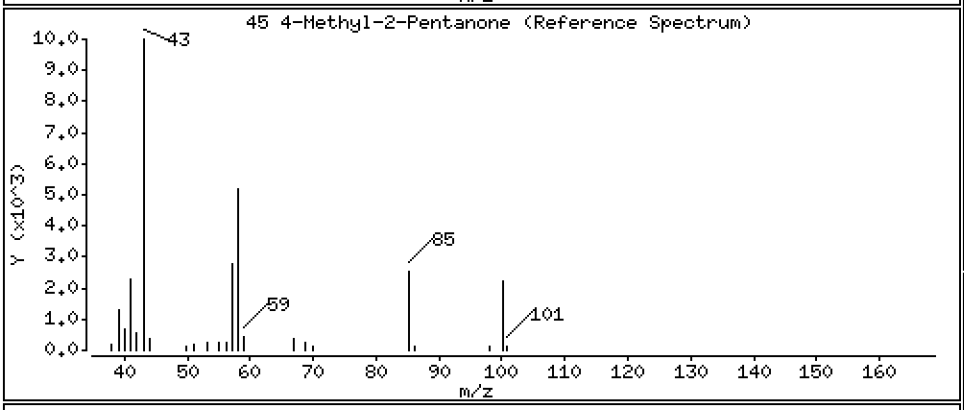
45 4-Methyl-2-Pentanone Concentration: 223.25 ug/Kg

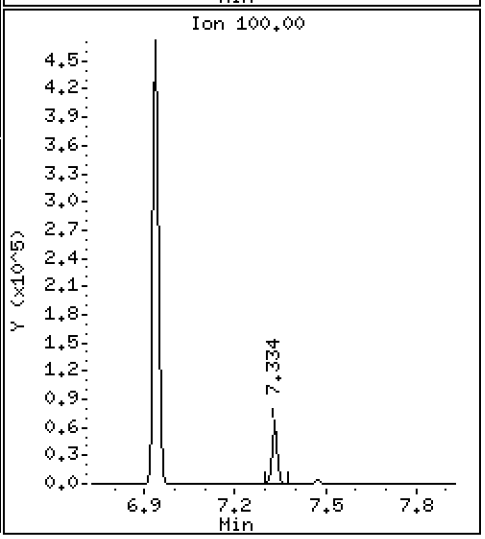


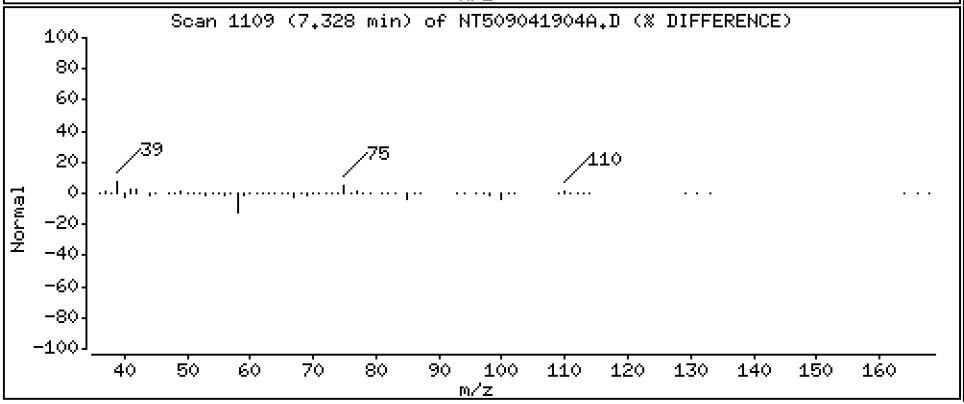












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

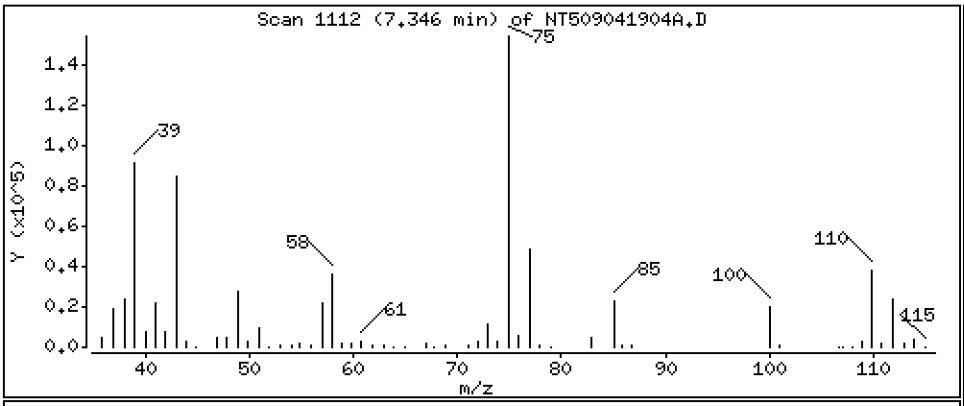
Operator: PB

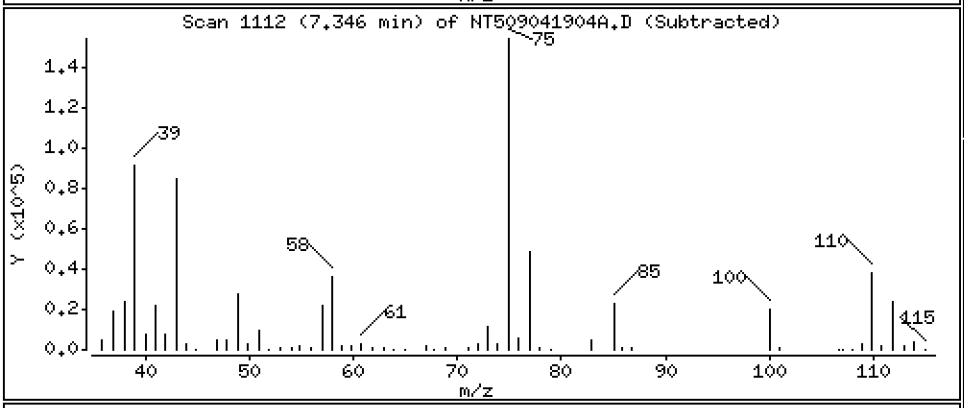
Column phase: RTXVMS

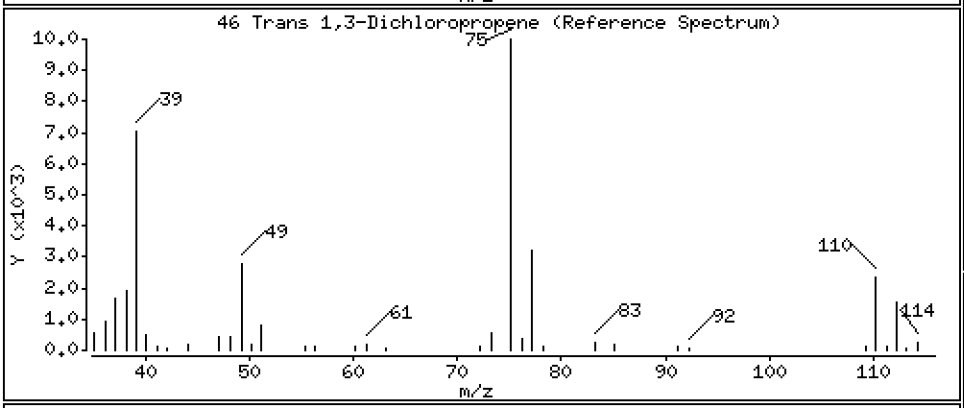
Column diameter: 0.18

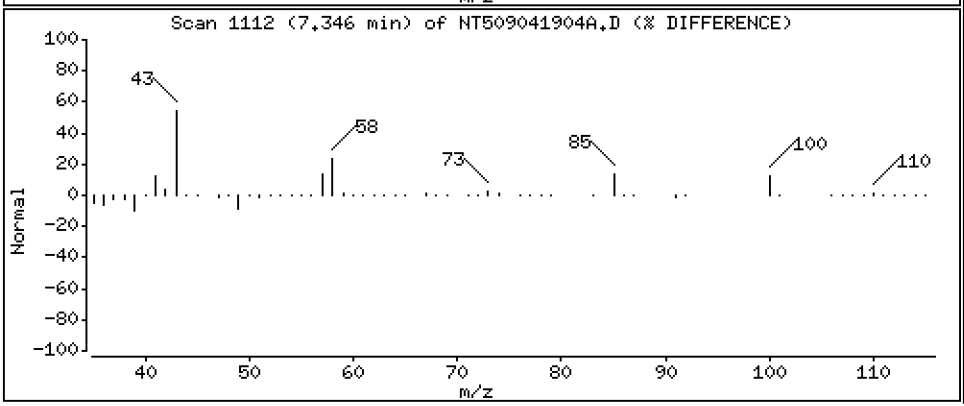
46 Trans 1,3-Dichloropropene

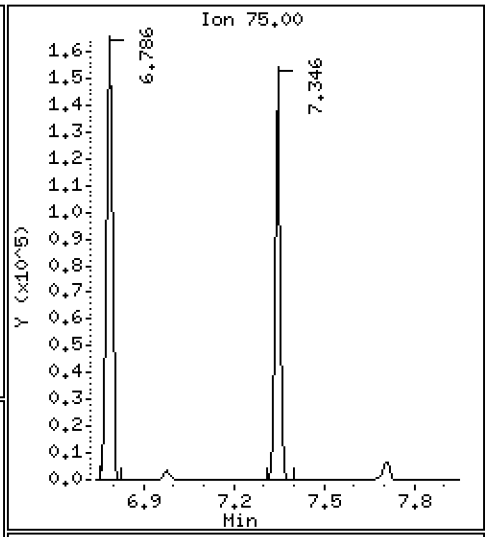
Concentration: 45.059 ug/Kg

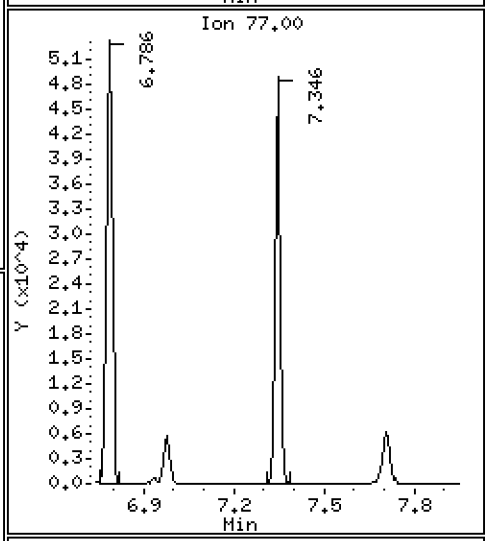


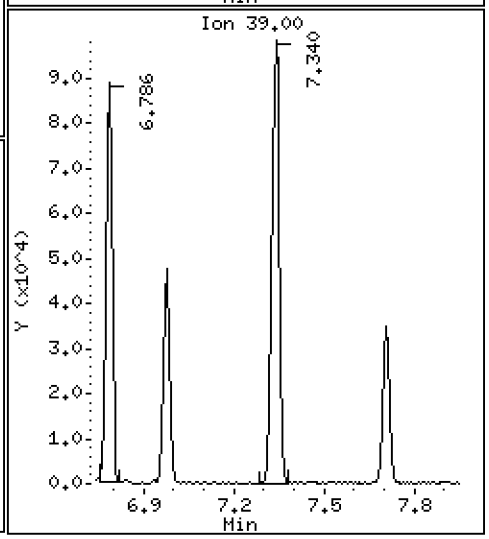












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

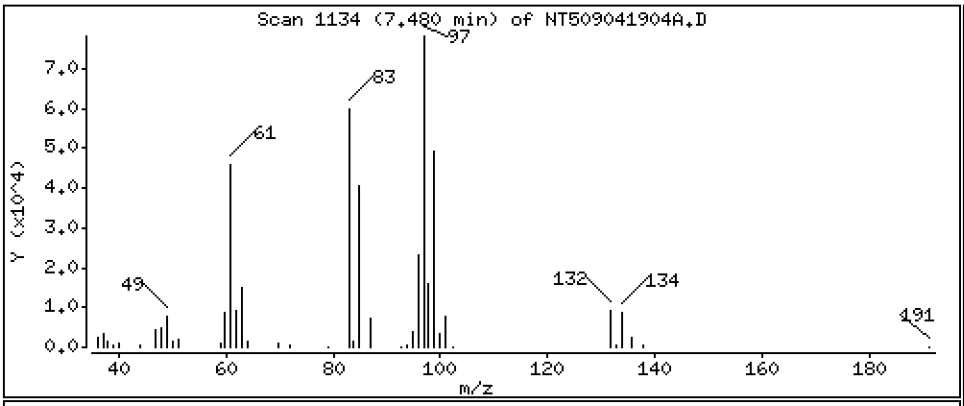
Operator: PB

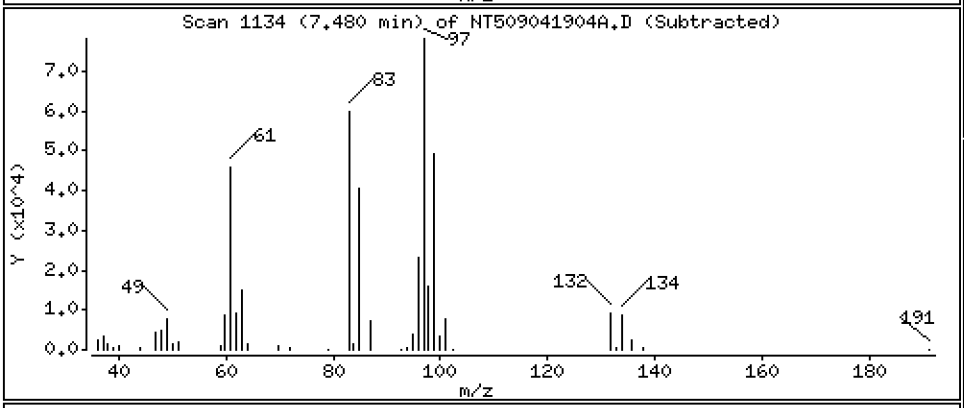
Column phase: RTXVMS

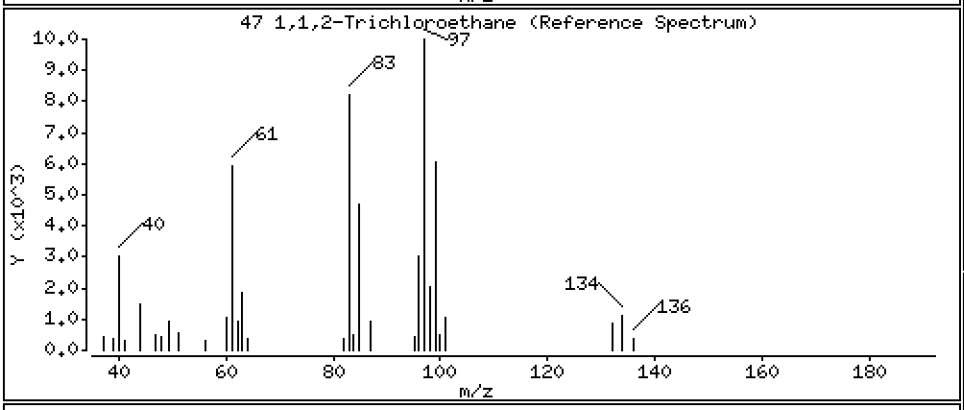
Column diameter: 0.18

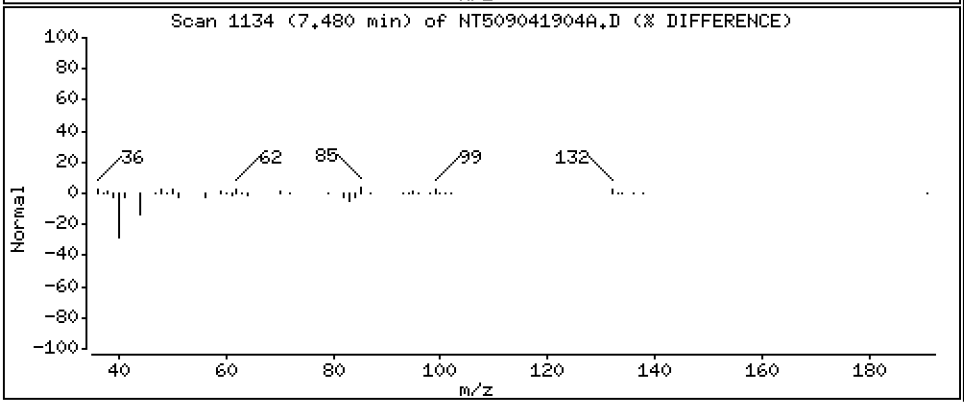
47 1,1,2-Trichloroethane

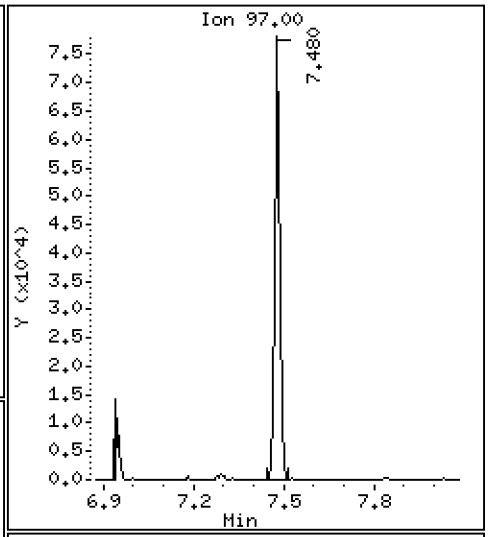
Concentration: 42.895 ug/Kg

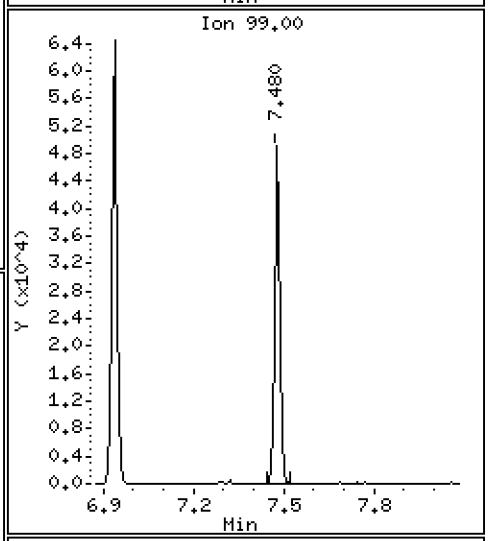


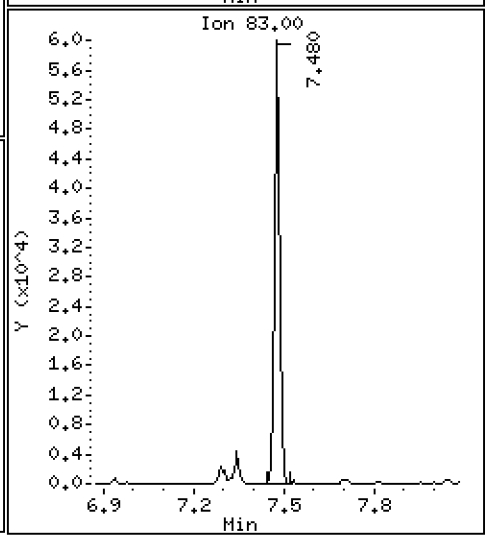












Date : 04-SEP-2019 15:04

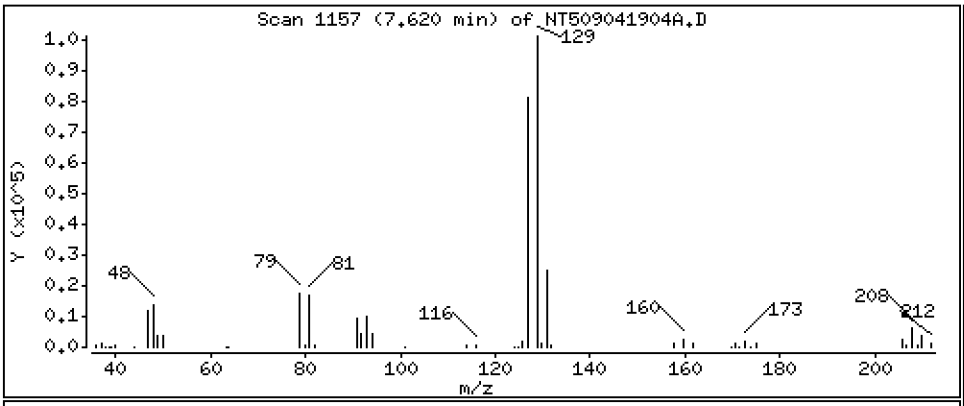
Client ID: Instrument: nt5.i

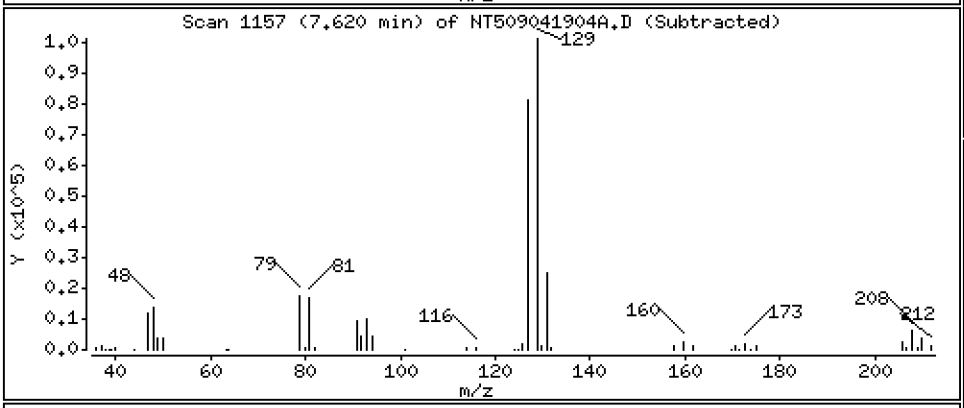
Sample Info: BSD1

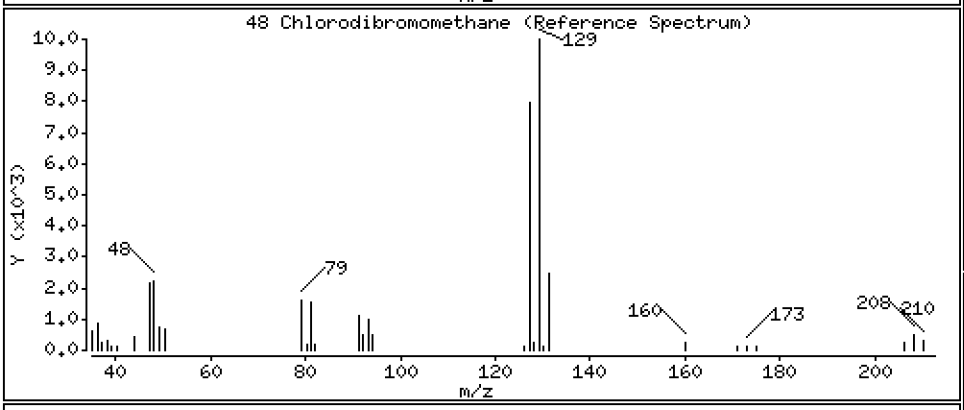
Operator: PB

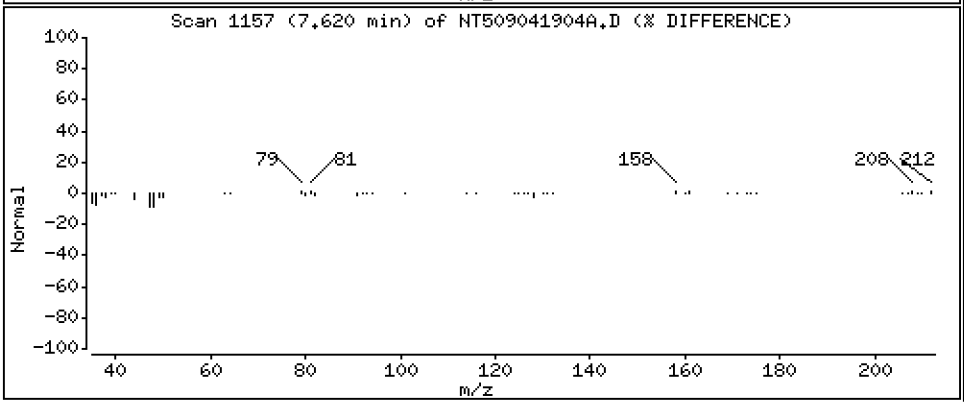
Column phase: RTXVMS Column diameter: 0.18

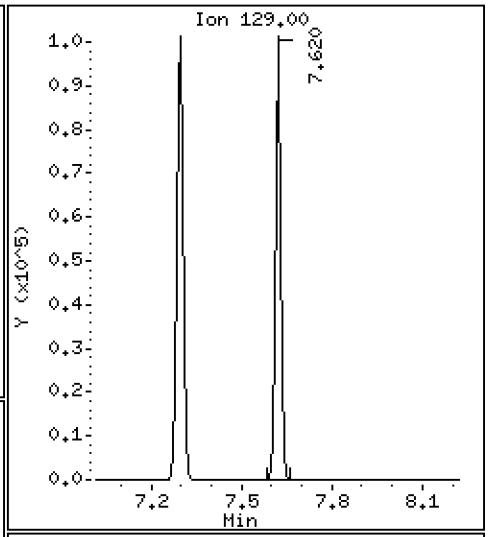
48 Chlorodibromomethane Concentration: 41.803 ug/Kg

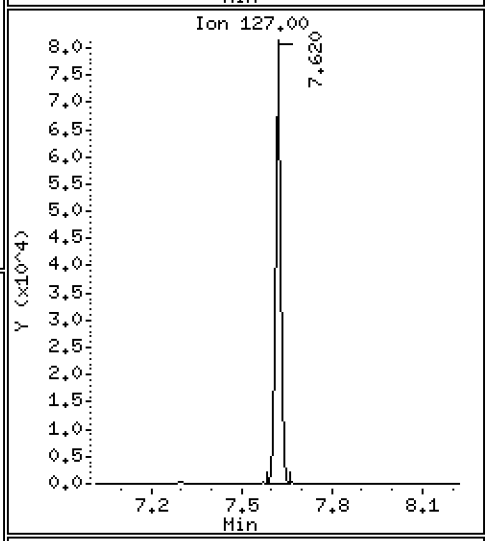


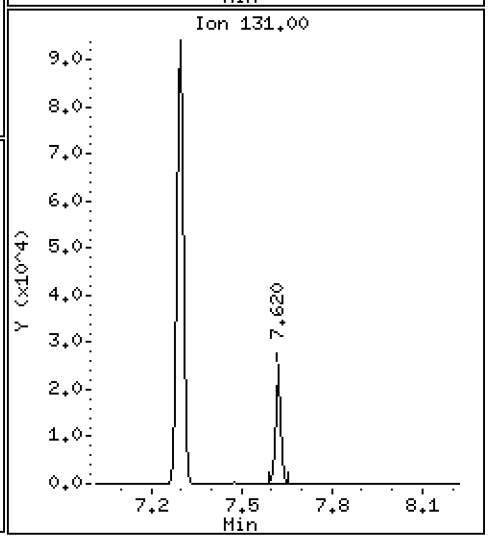












Date : 04-SEP-2019 15:04

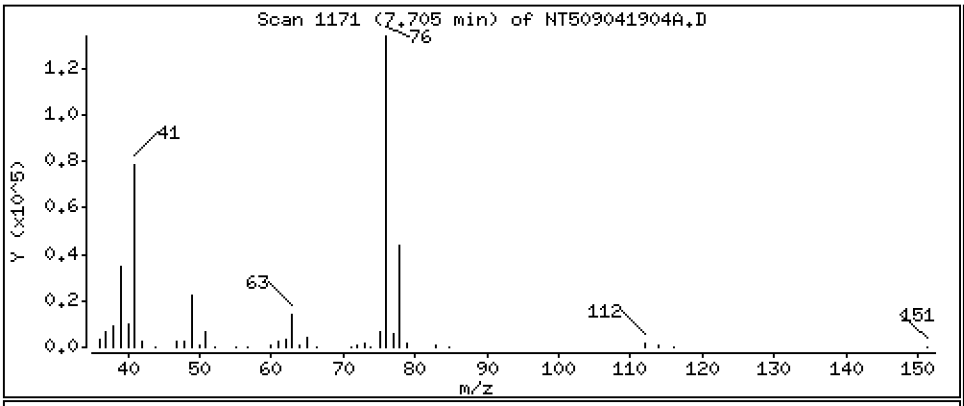
Client ID: Instrument: nt5.i

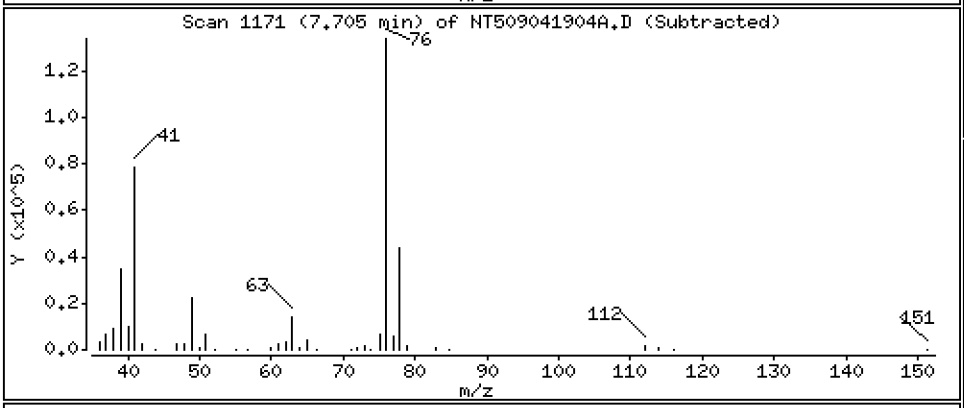
Sample Info: BSD1

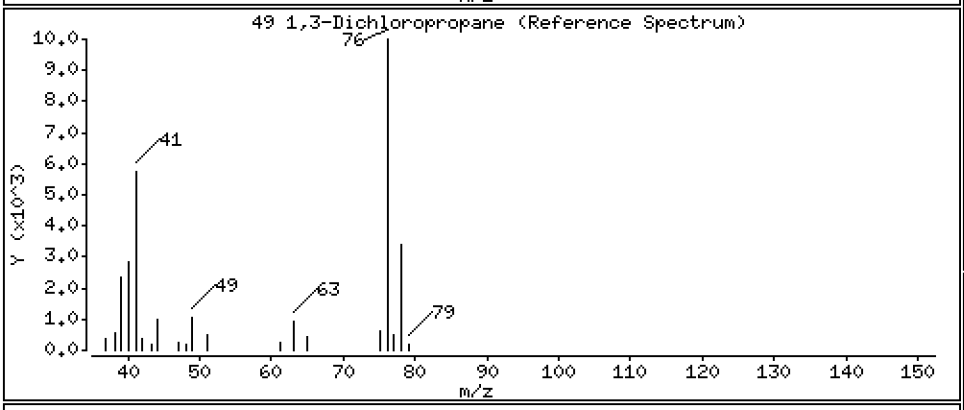
Operator: PB

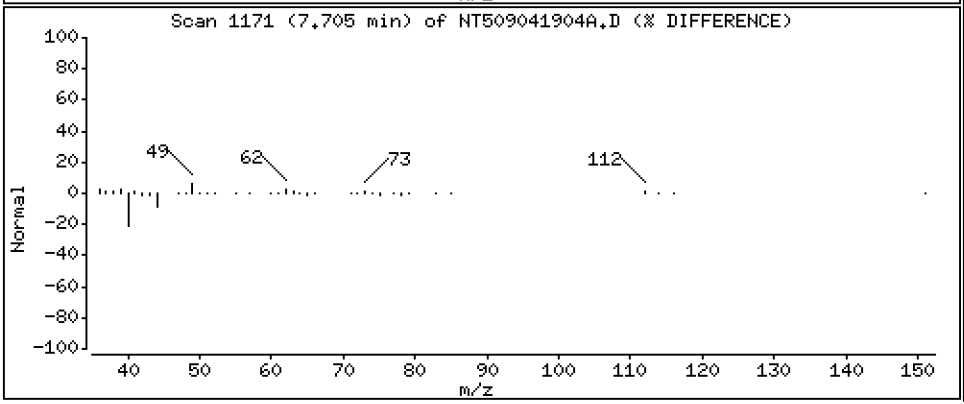
Column phase: RTXVMS Column diameter: 0.18

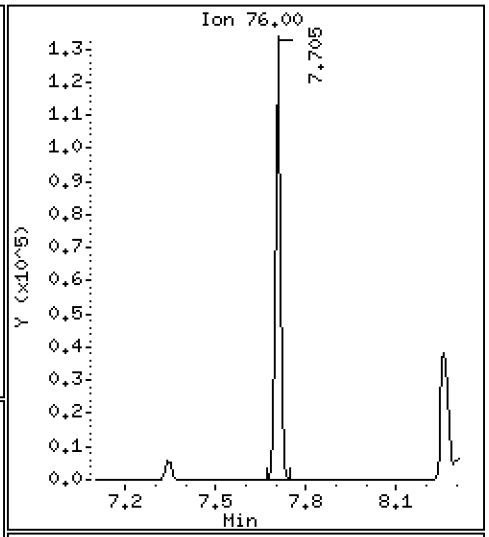
49 1,3-Dichloropropane Concentration: 42.833 ug/Kg

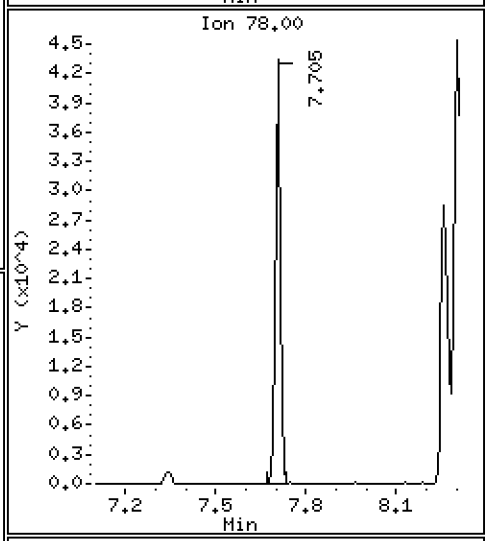


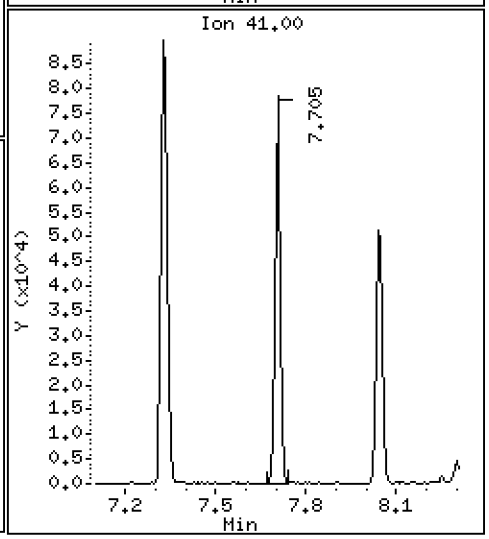












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

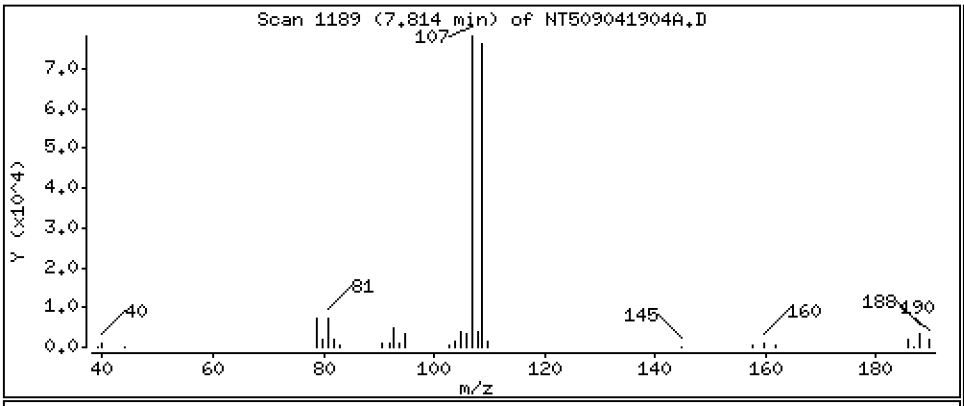
Operator: PB

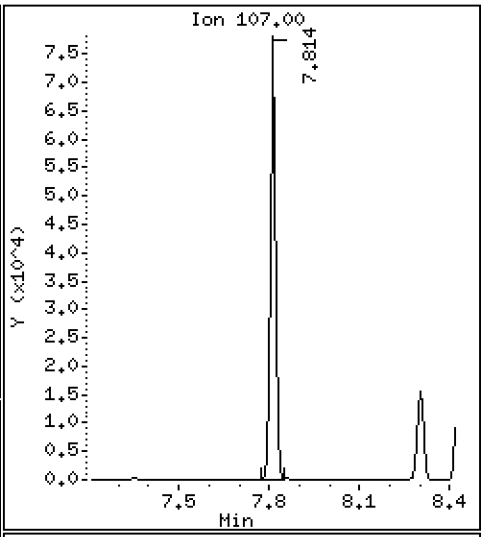
Column phase: RTXVMS

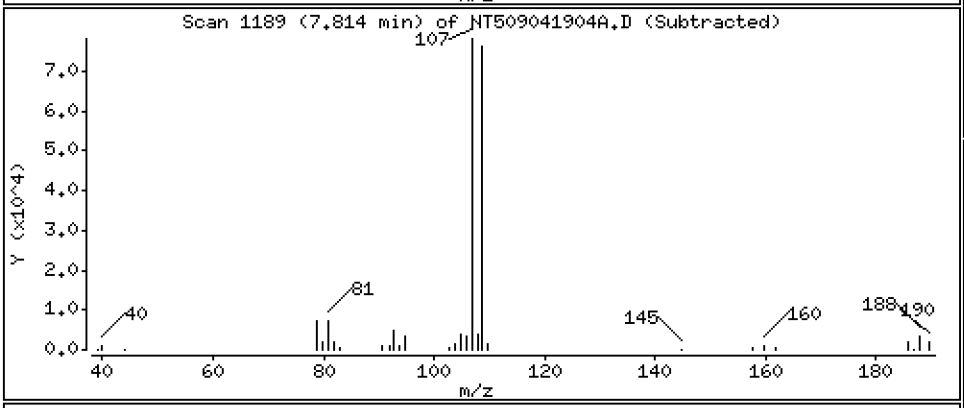
Column diameter: 0.18

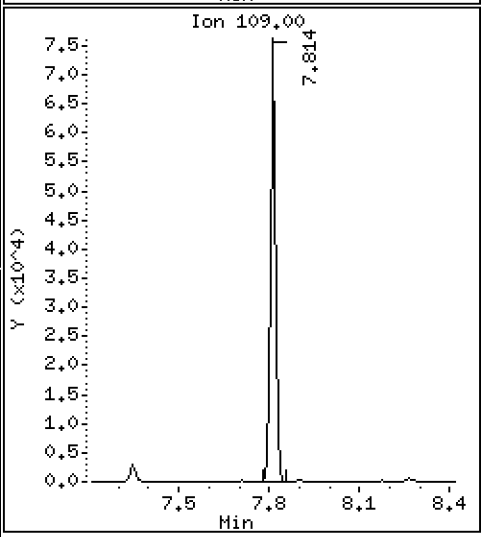
50 1,2-Dibromoethane

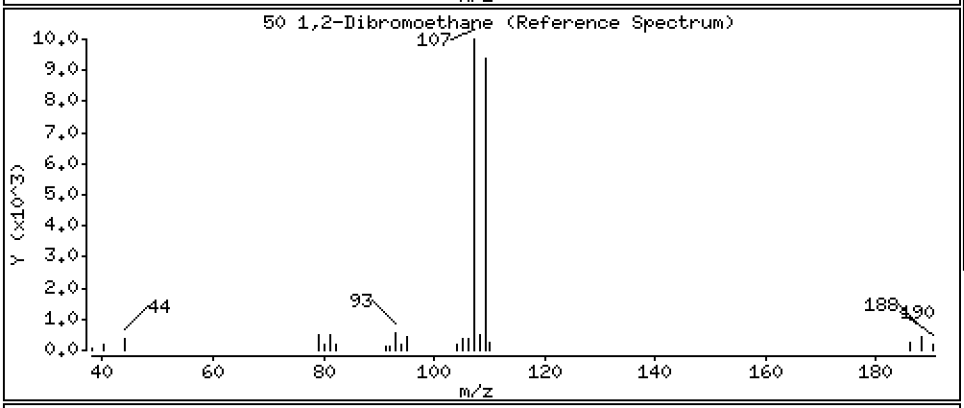
Concentration: 43.510 ug/Kg

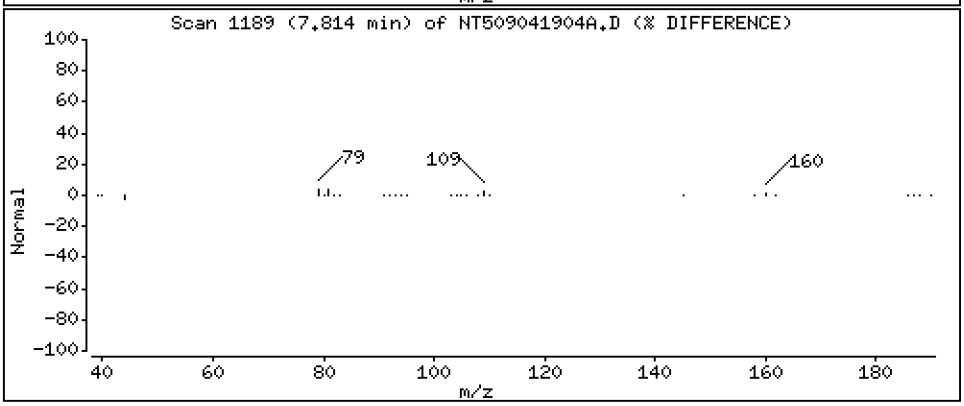












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

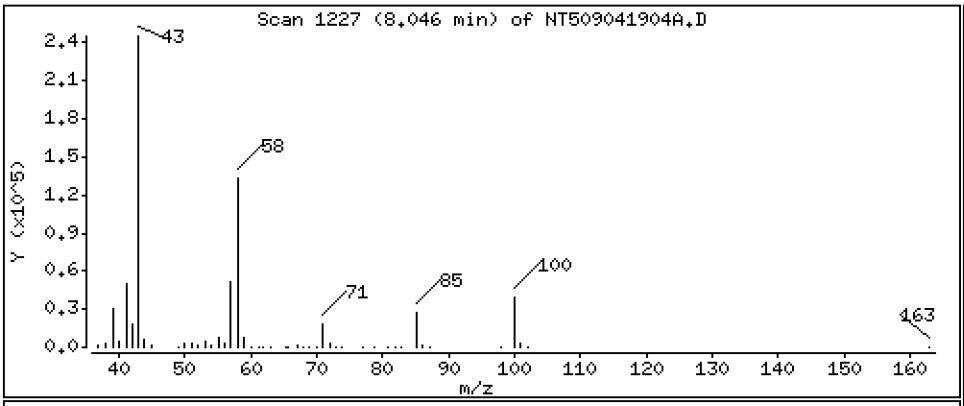
Operator: PB

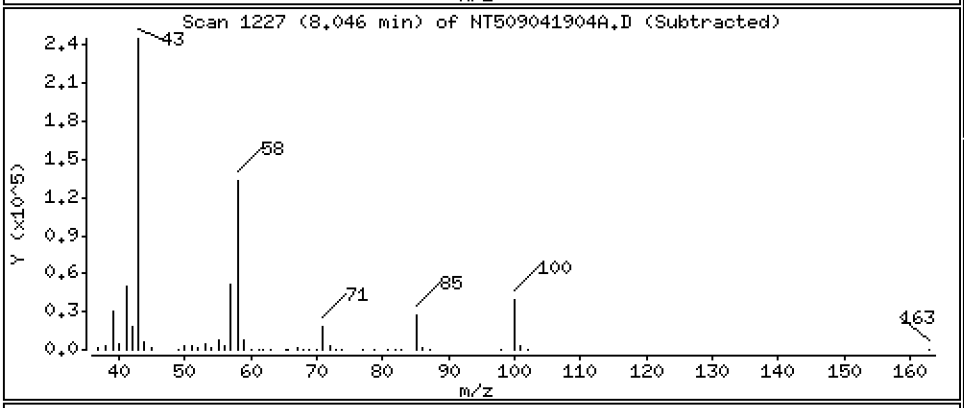
Column phase: RTXVMS

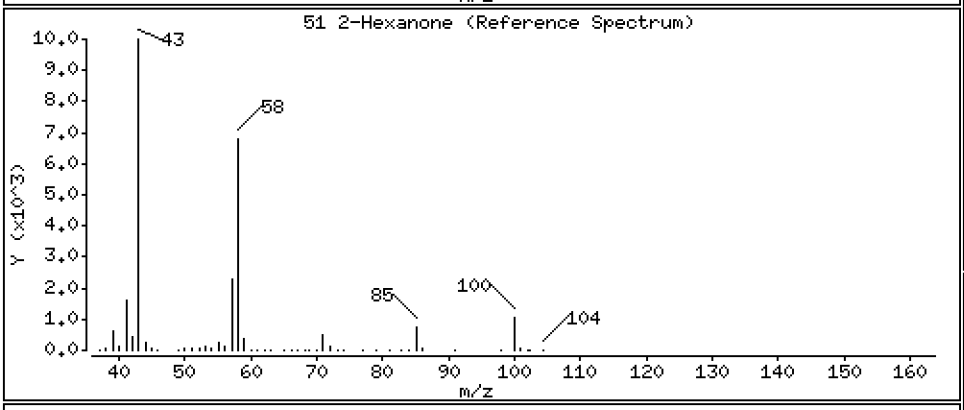
Column diameter: 0.18

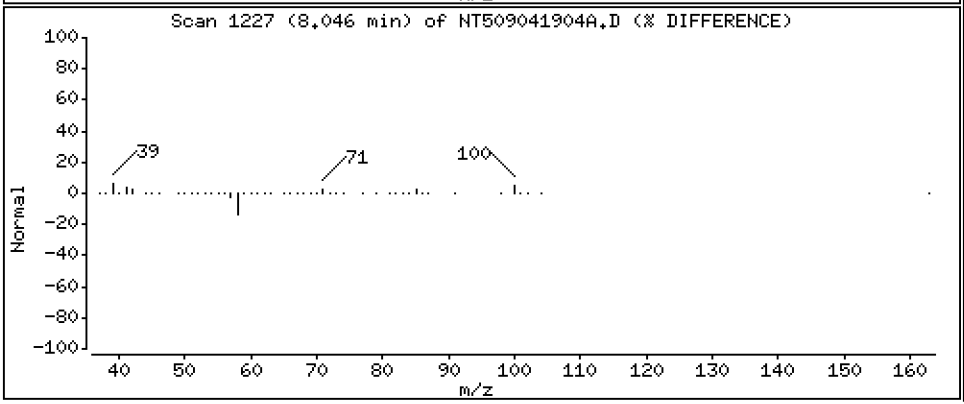
51 2-Hexanone

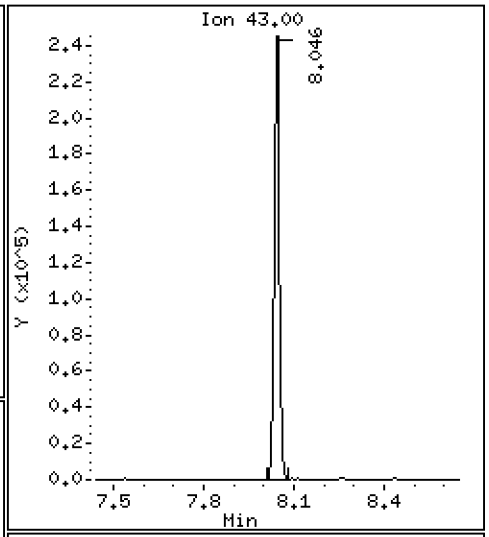
Concentration: 220.19 ug/Kg

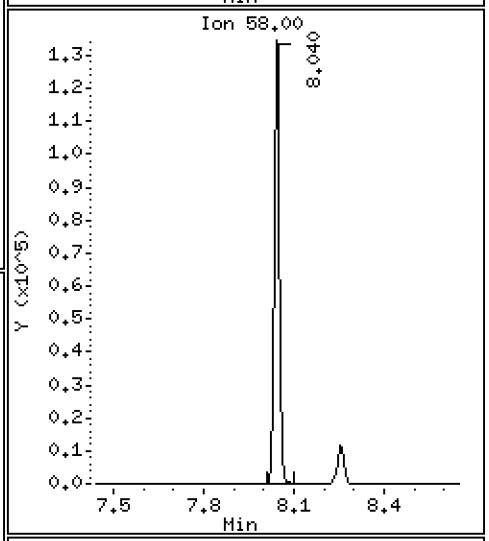


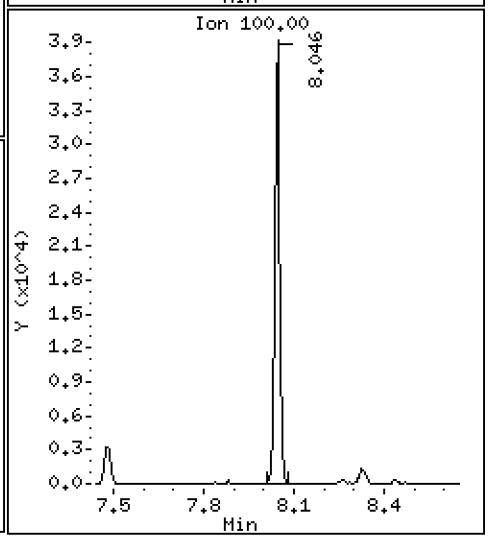












Data File: \\target\share\chem1\nt5.i\20190904.b\NT5090419O4A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

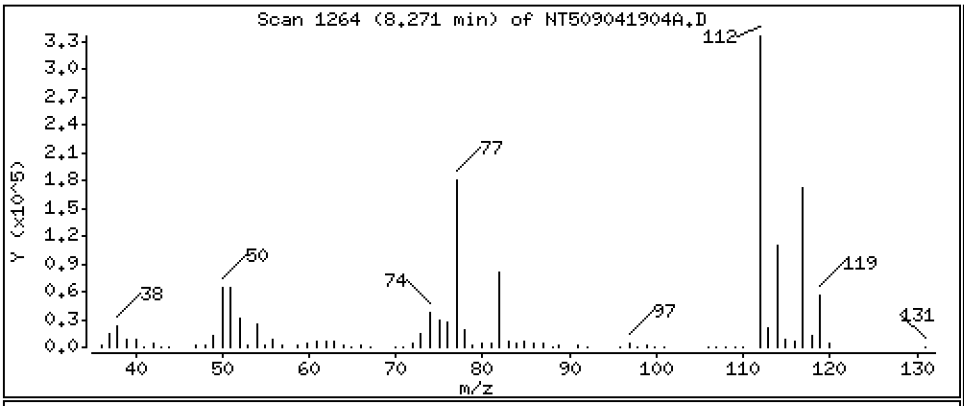
Operator: PB

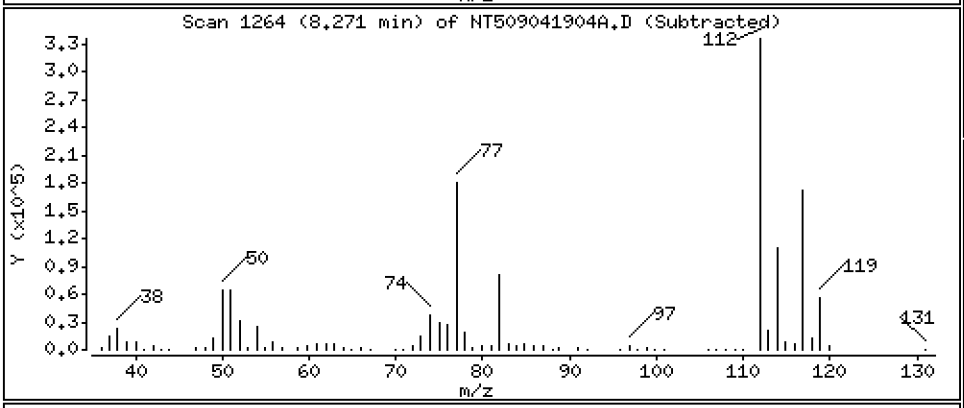
Column phase: RTXVMS

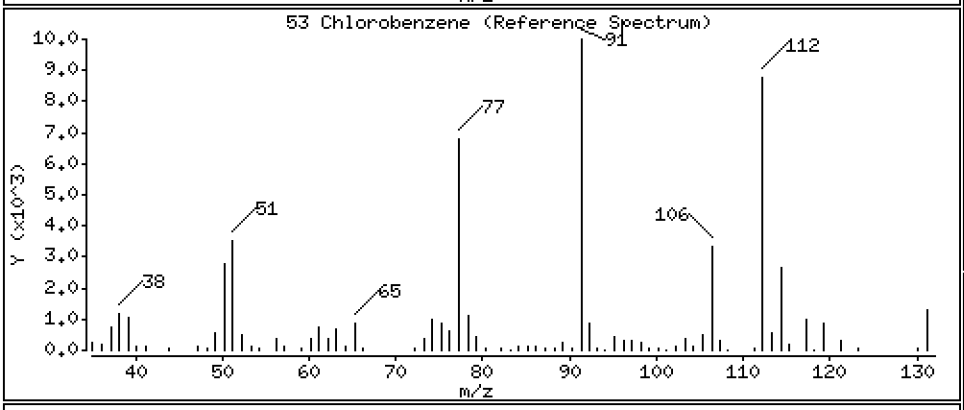
Column diameter: 0.18

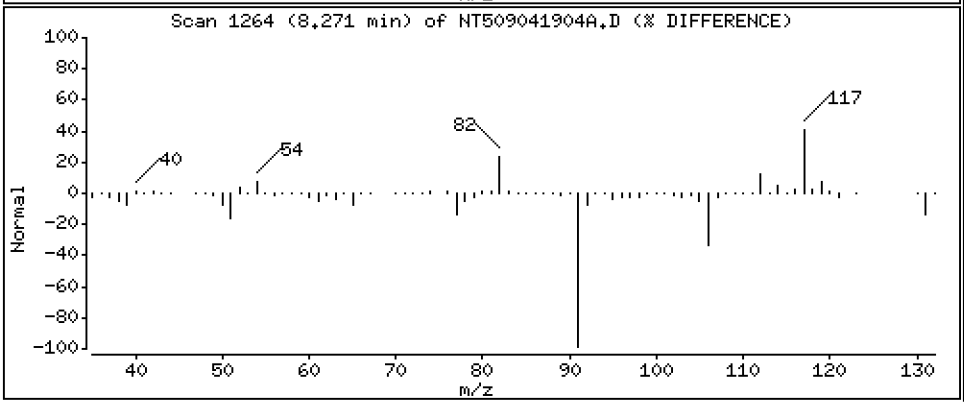
53 Chlorobenzene

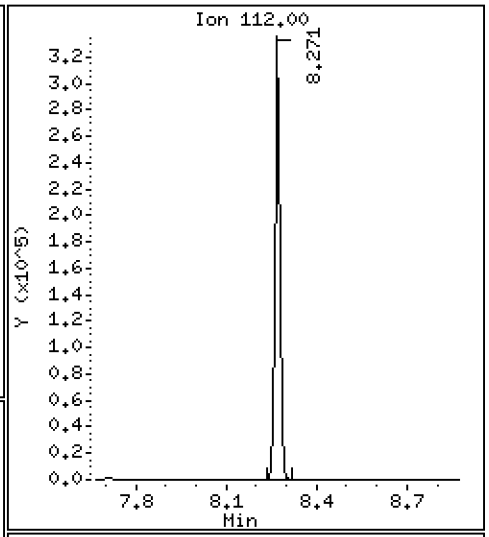
Concentration: 43.765 ug/Kg

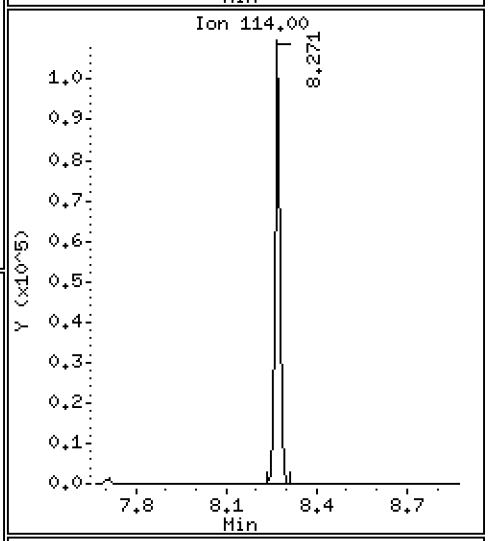


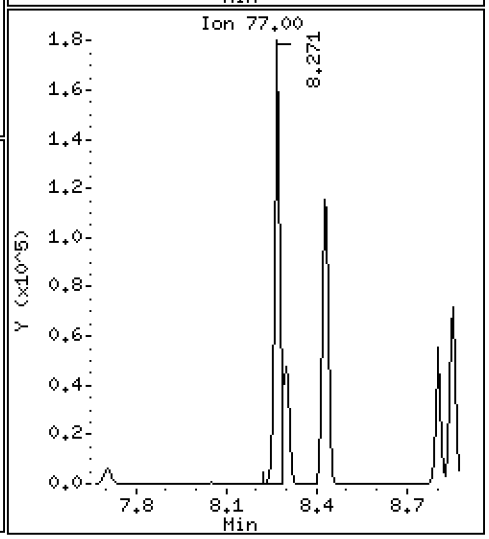












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

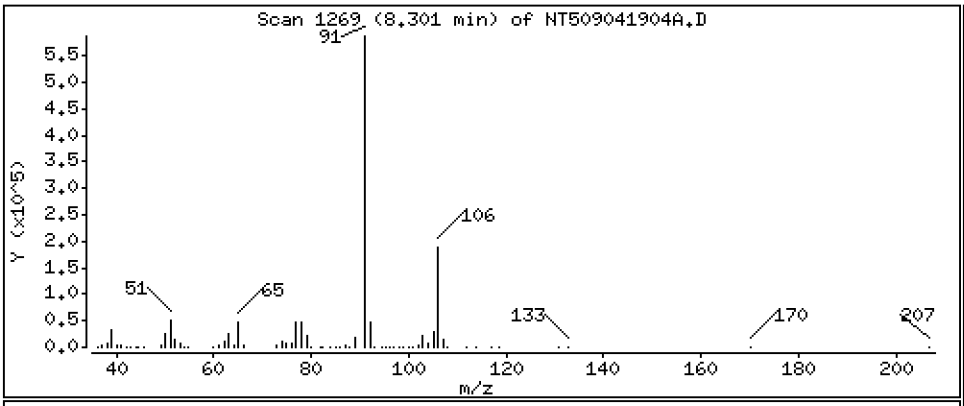
Operator: PB

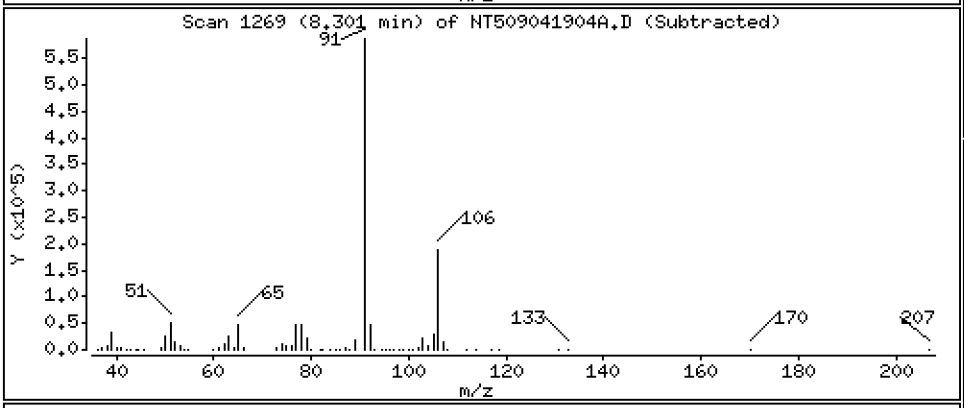
Column phase: RTXVMS

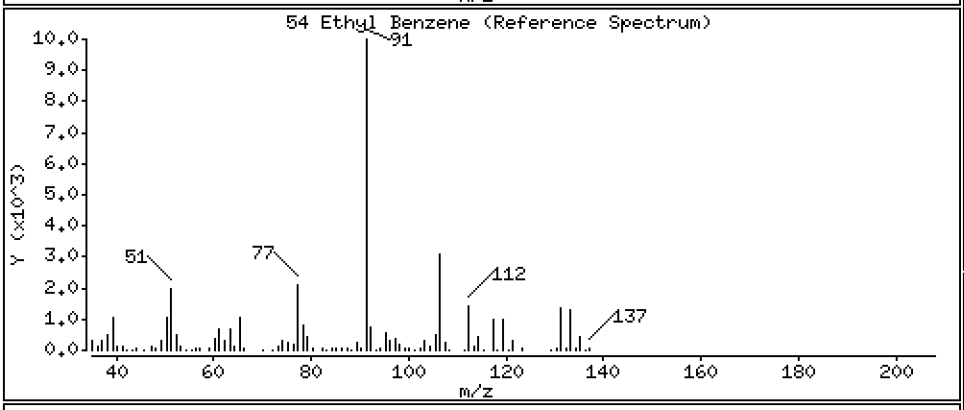
Column diameter: 0.18

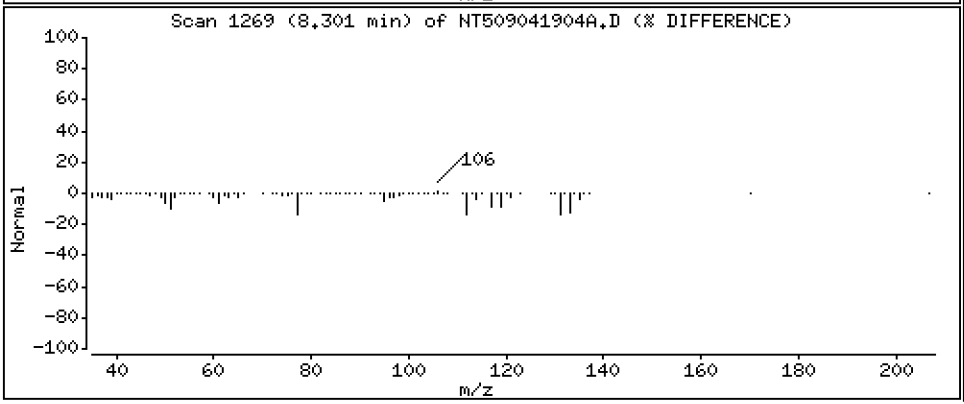
54 Ethyl Benzene

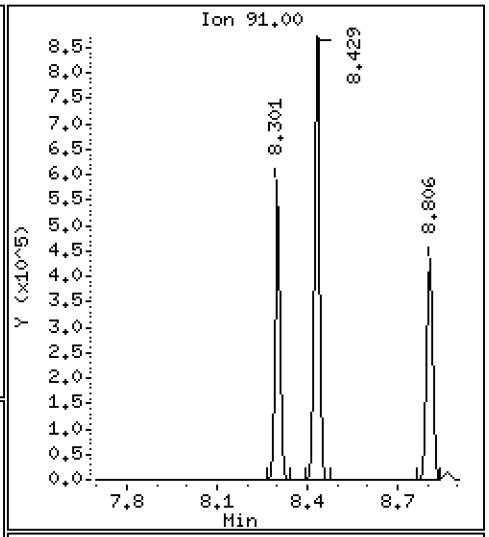
Concentration: 45.756 ug/Kg

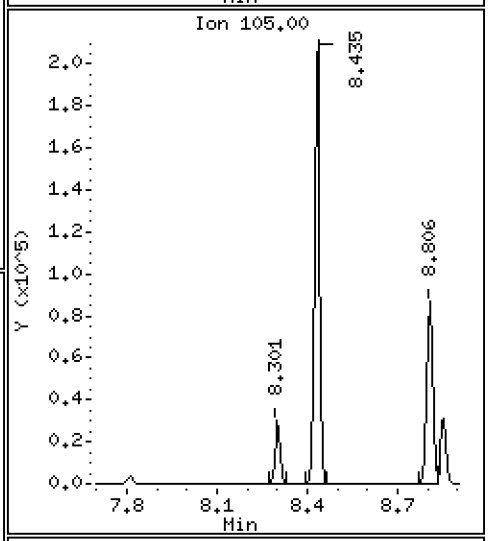


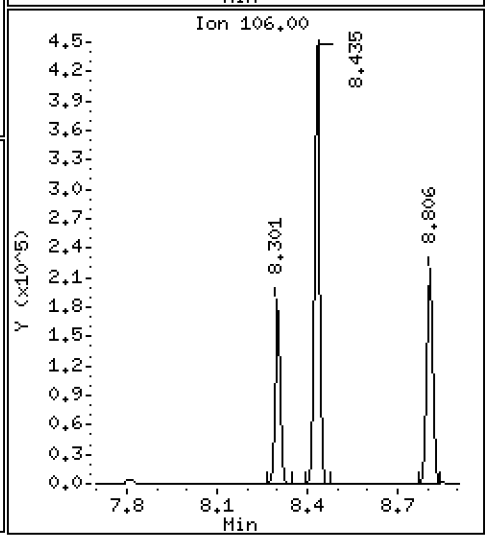












Date : 04-SEP-2019 15:04

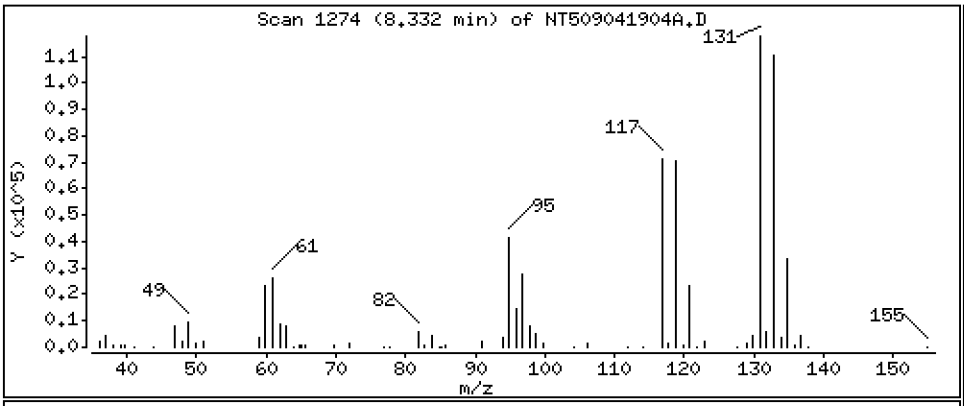
Client ID: Instrument: nt5.i

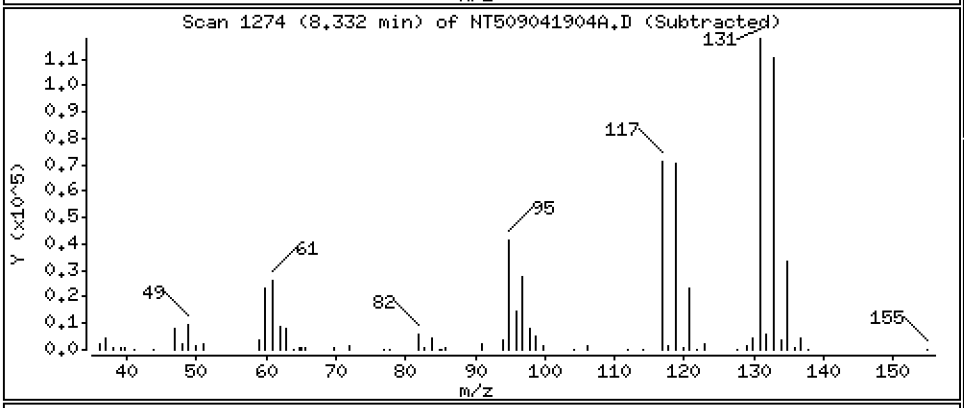
Sample Info: BSD1

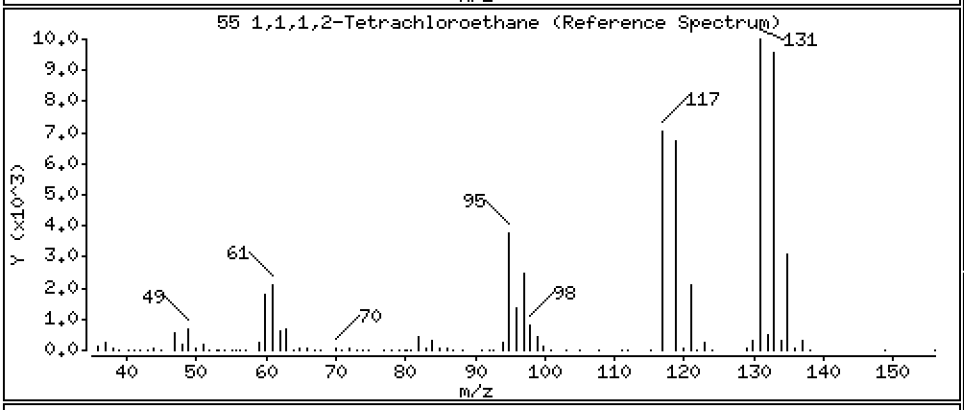
Operator: PB

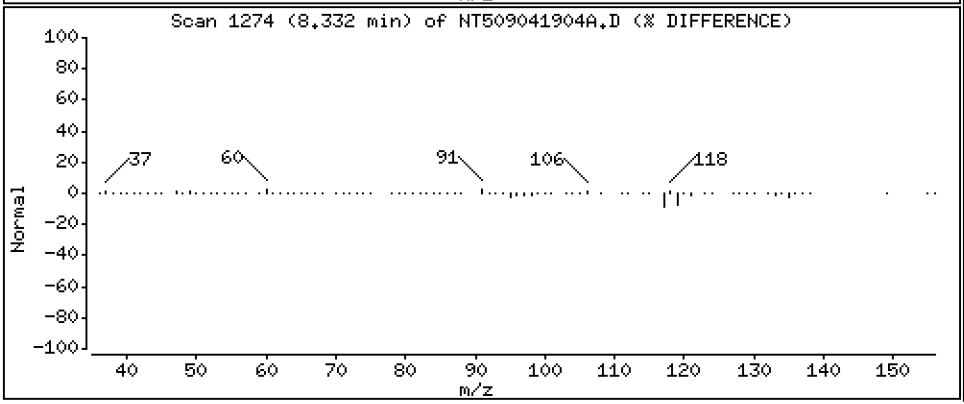
Column phase: RTXVMS Column diameter: 0.18

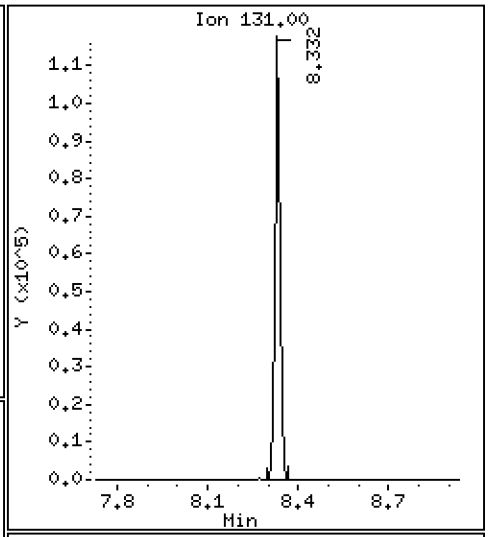
55 1,1,1,2-Tetrachloroethane Concentration: 43.527 ug/Kg

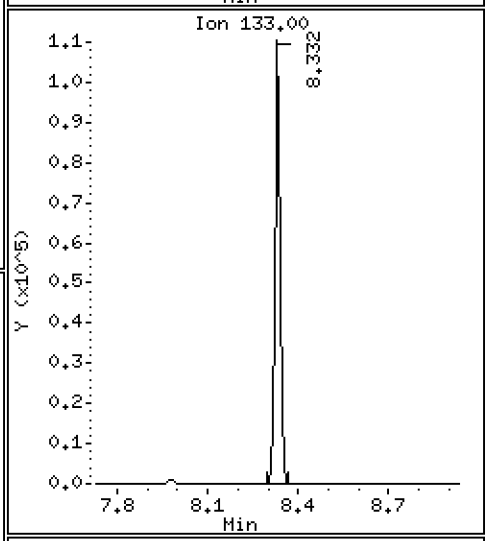


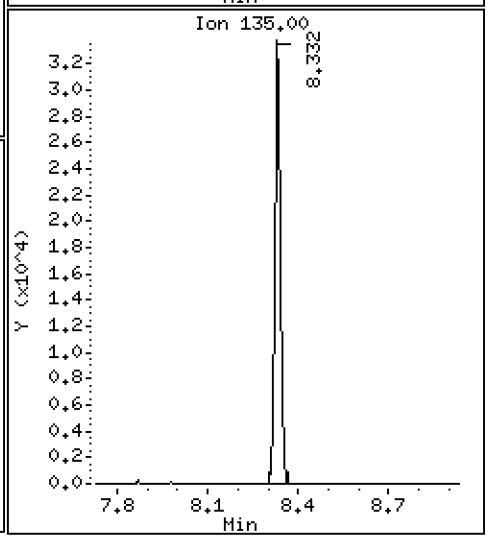












Date : 04-SEP-2019 15:04

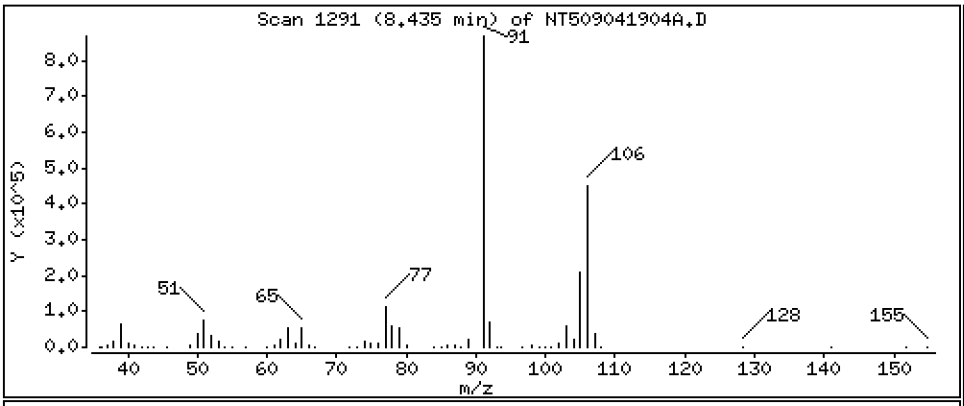
Client ID: Instrument: nt5.i

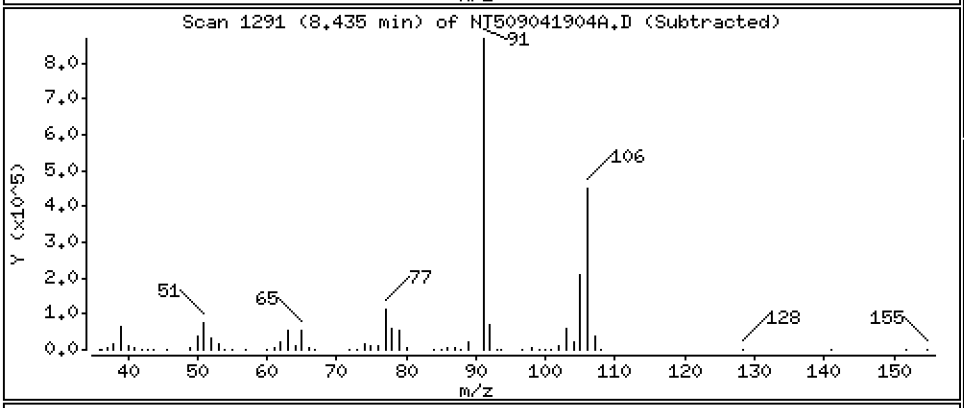
Sample Info: BSD1

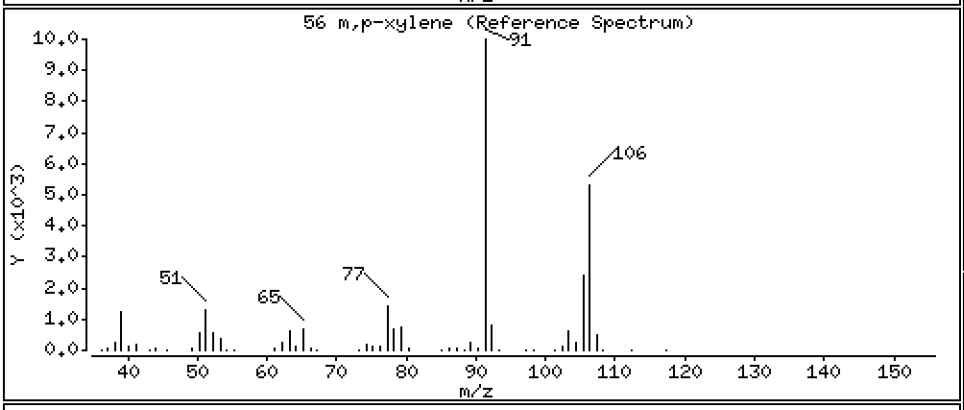
Operator: PB

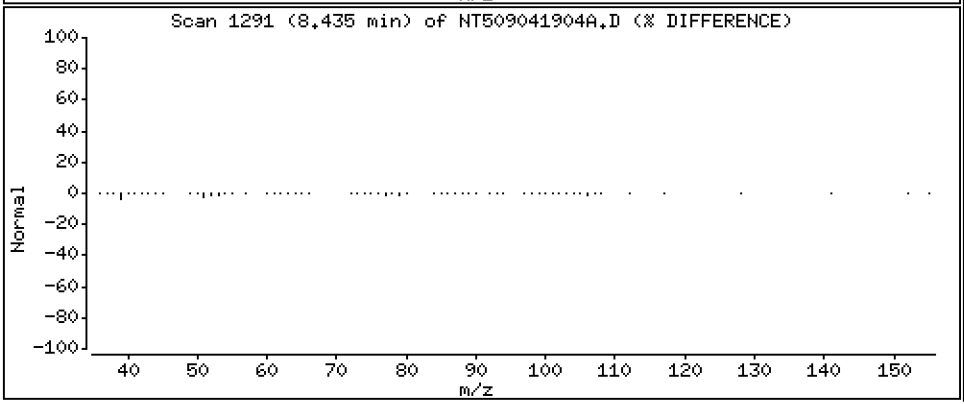
Column phase: RTXVMS Column diameter: 0.18

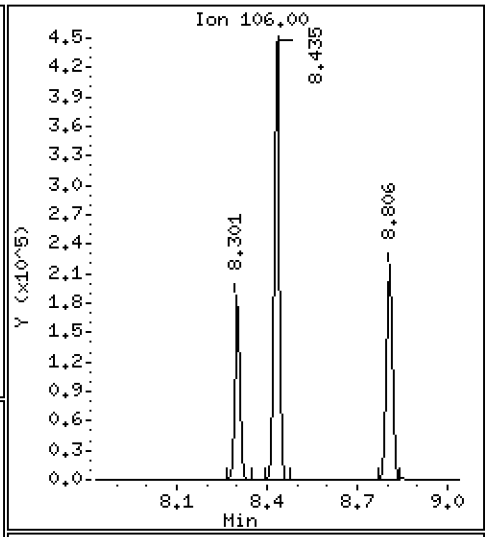
56 m,p-xylene Concentration: 92.614 ug/Kg

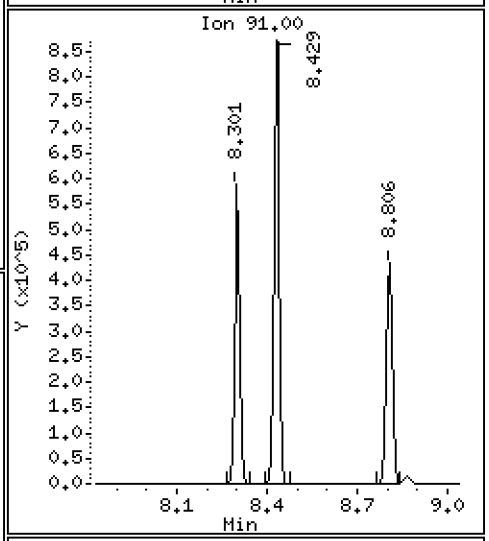


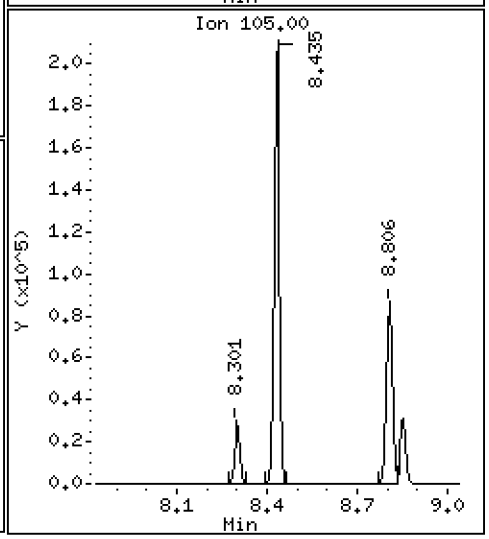












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

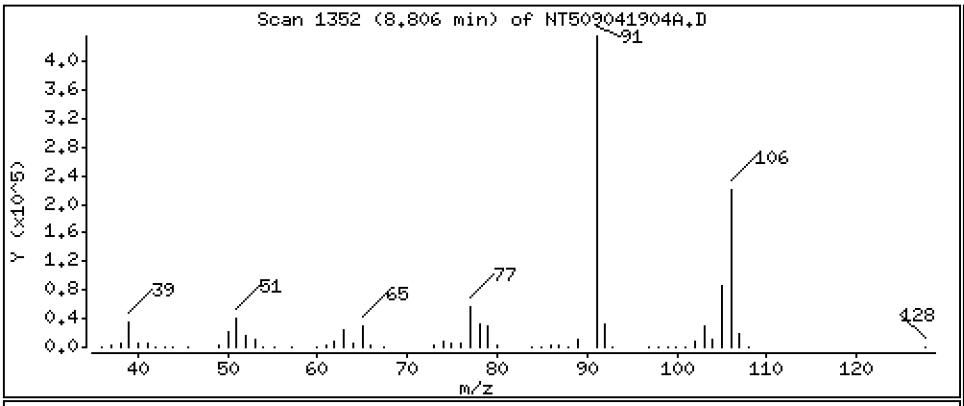
Operator: PB

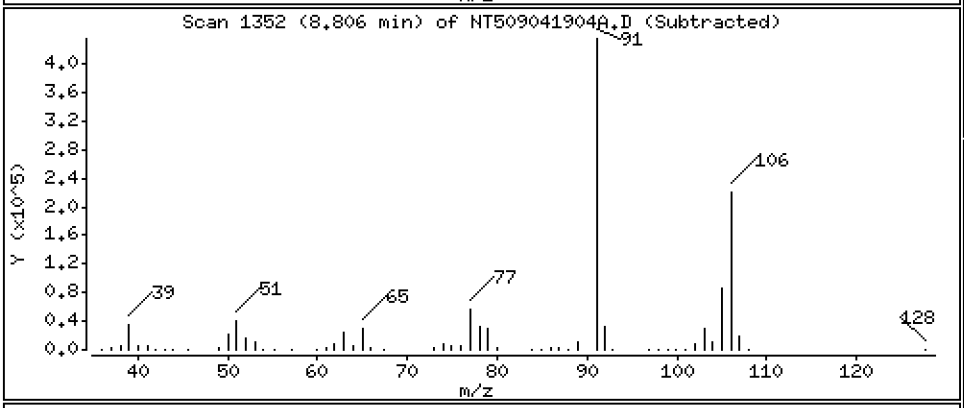
Column phase: RTXVMS

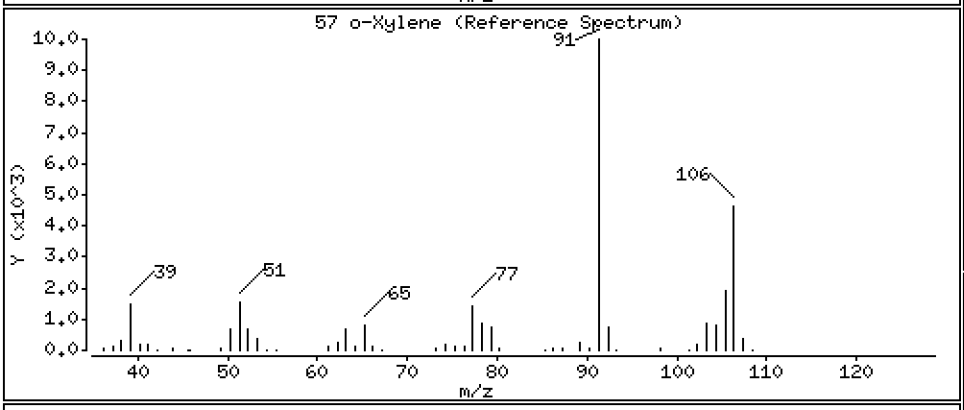
Column diameter: 0.18

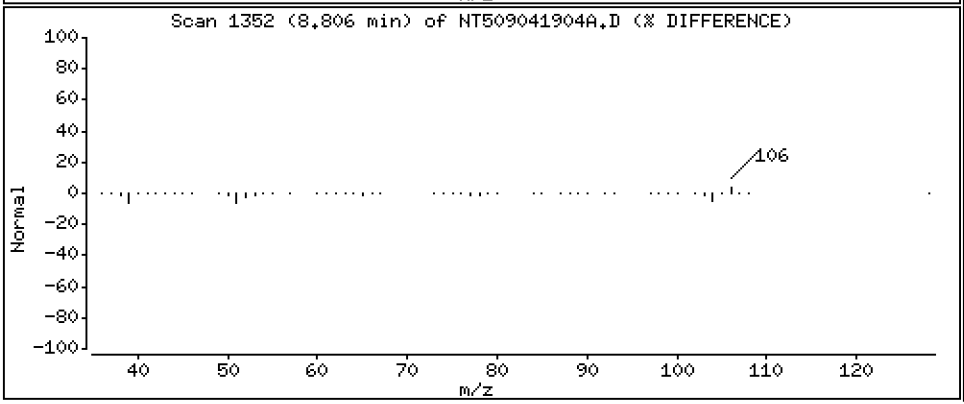
57 o-Xylene

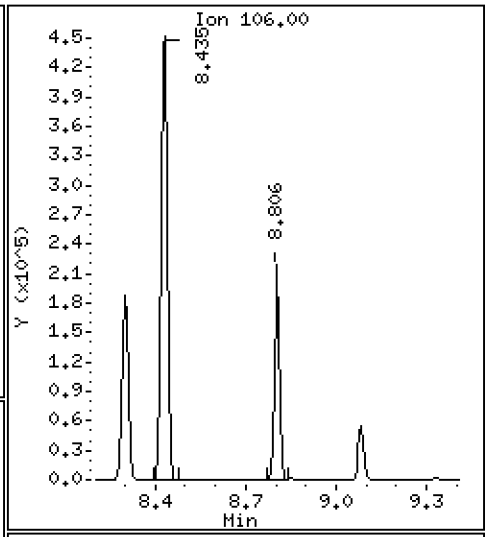
Concentration: 46.326 ug/Kg

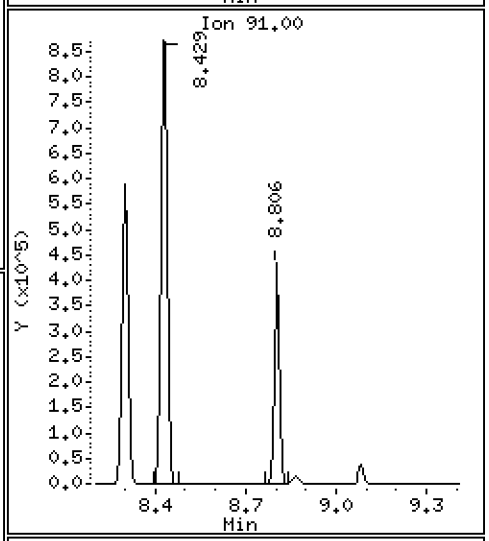


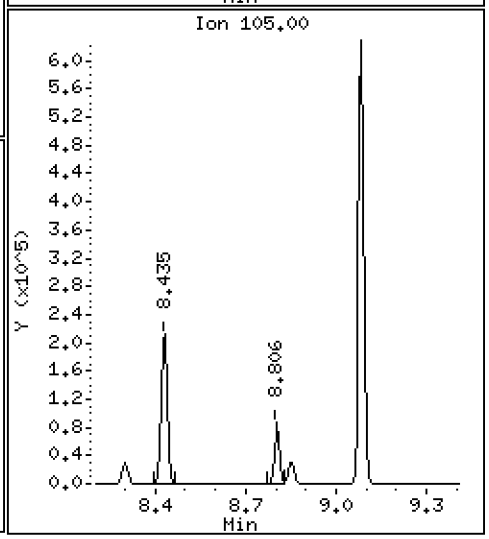












Date : 04-SEP-2019 15:04

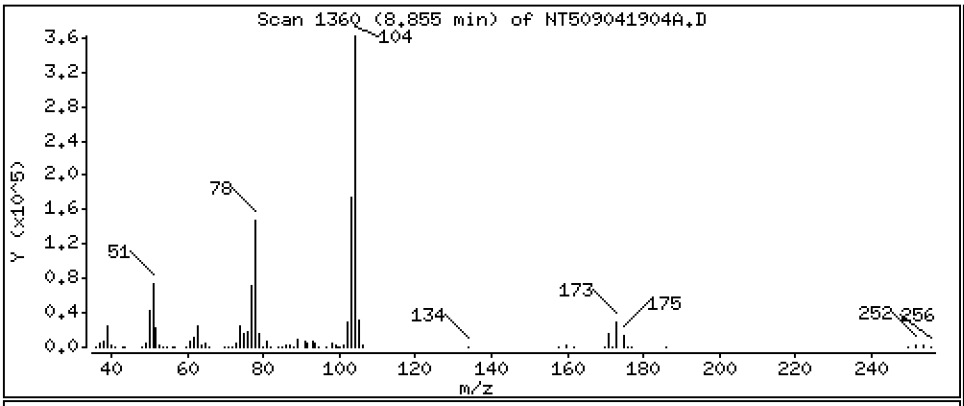
Client ID: Instrument: nt5.i

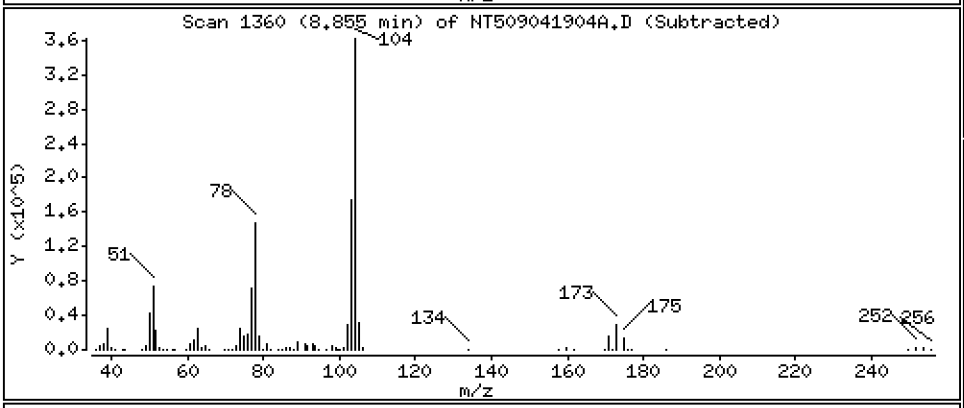
Sample Info: BSD1

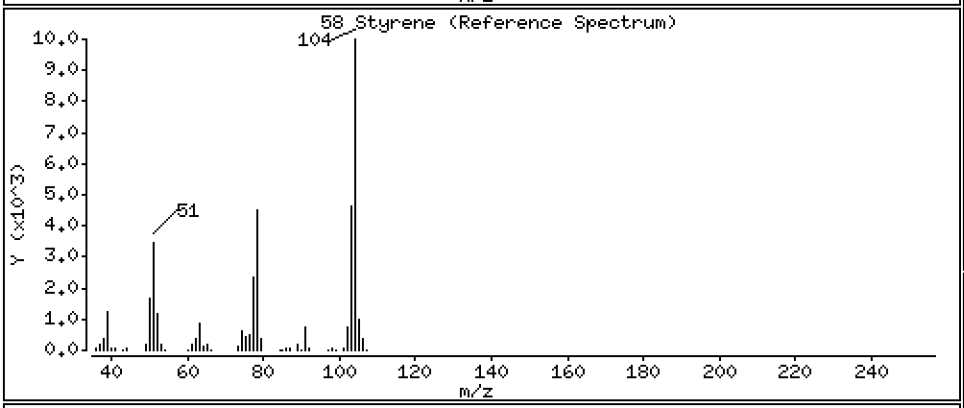
Operator: PB

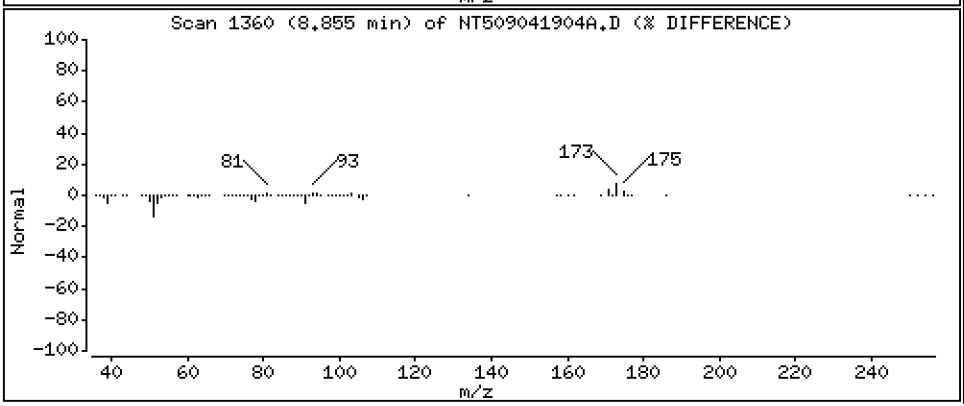
Column phase: RTXVMS Column diameter: 0.18

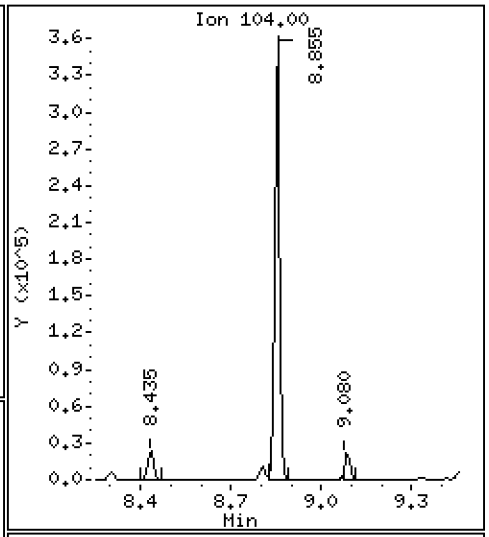
58 Styrene Concentration: 45.725 ug/Kg

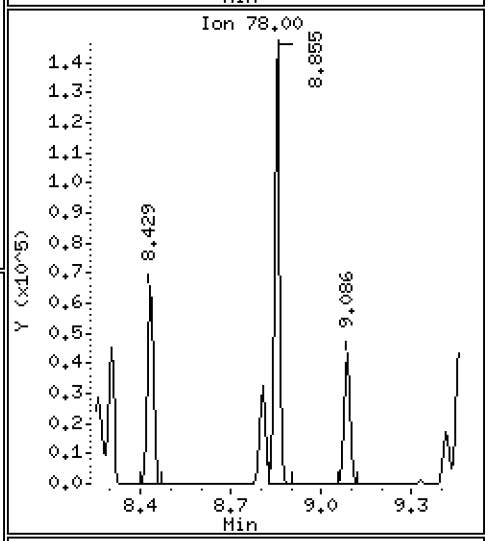


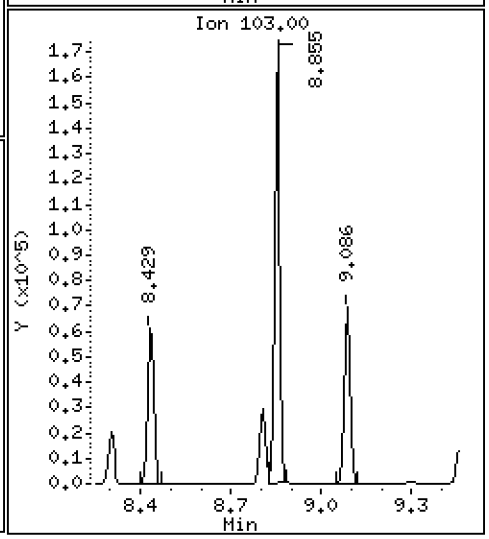












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

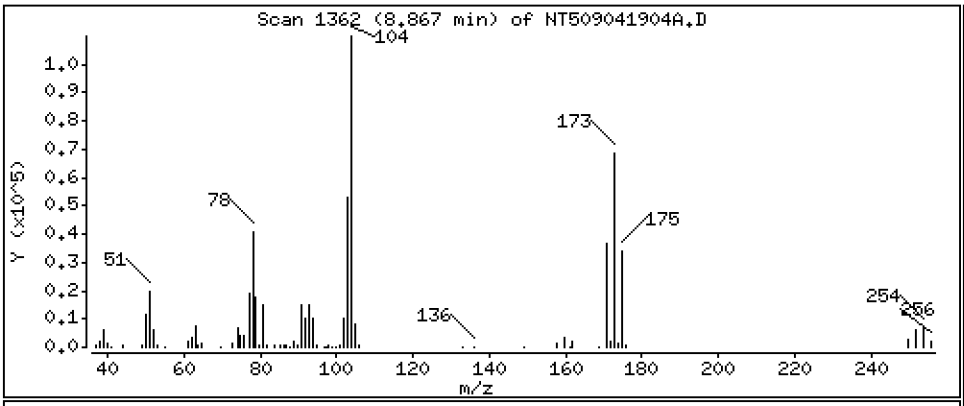
Operator: PB

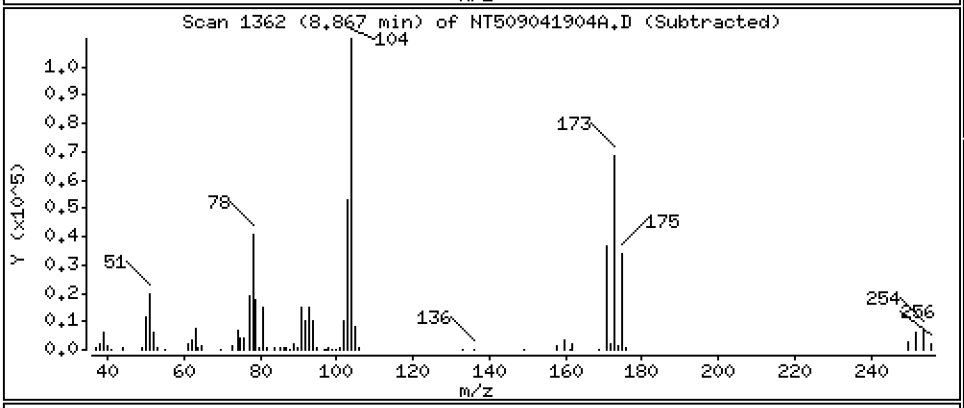
Column phase: RTXVMS

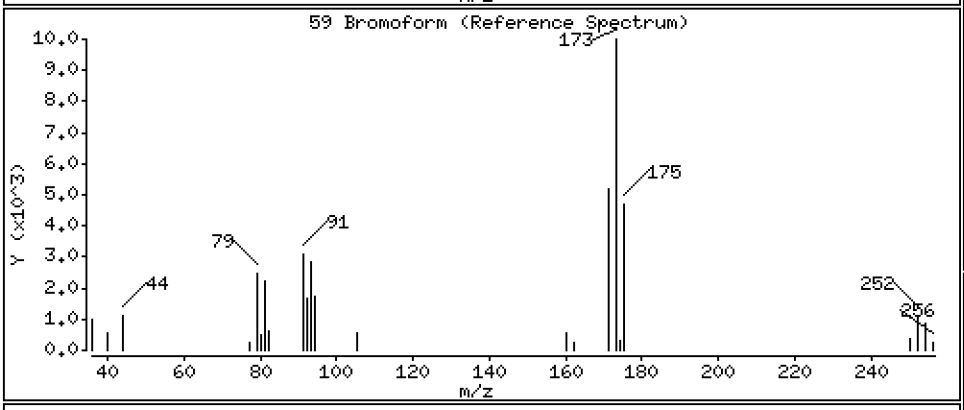
Column diameter: 0.18

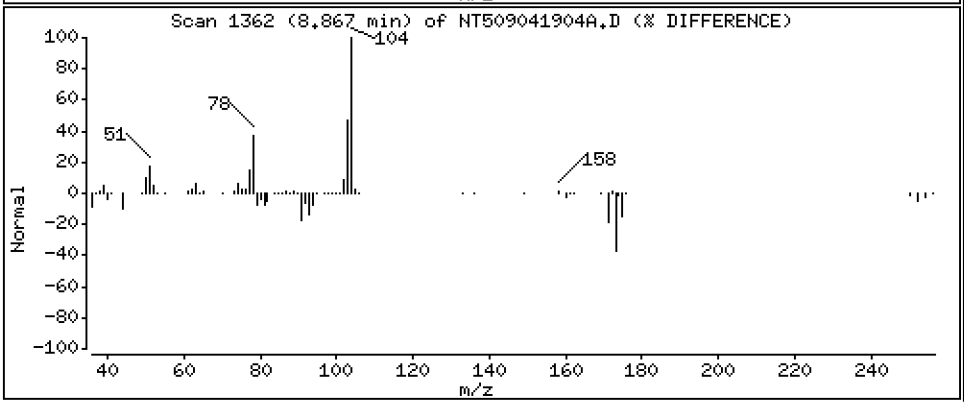
59 Bromoform

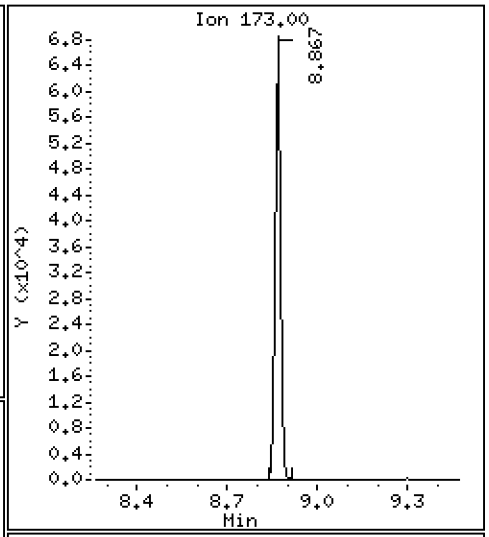
Concentration: 41.575 ug/Kg

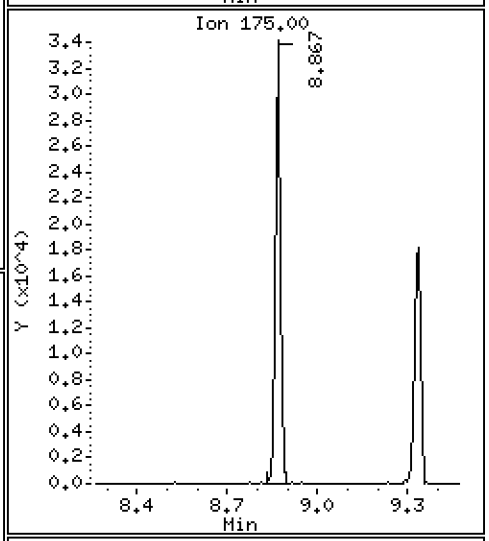


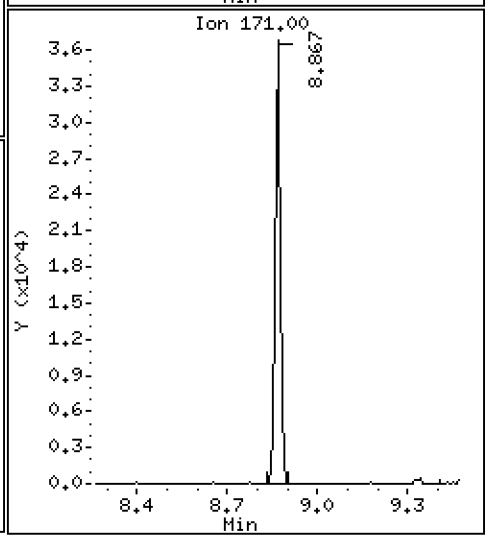












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

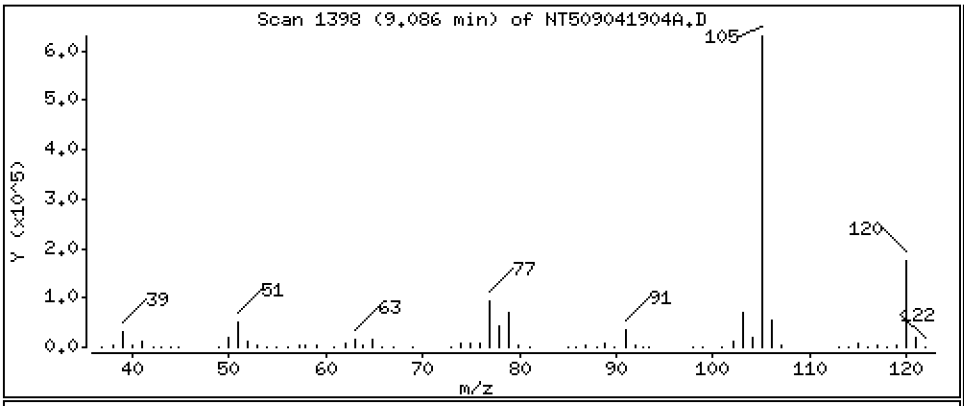
Operator: PB

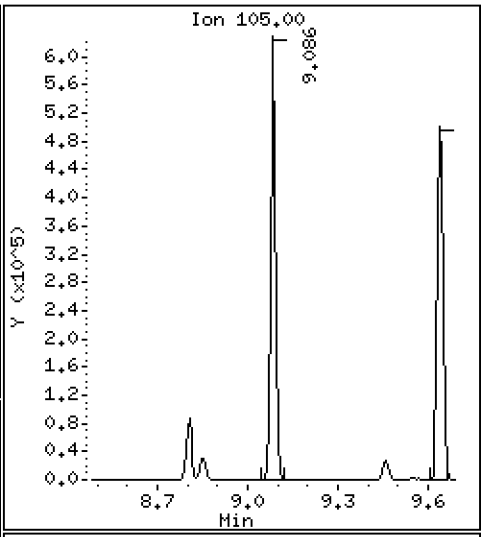
Column phase: RTXVMS

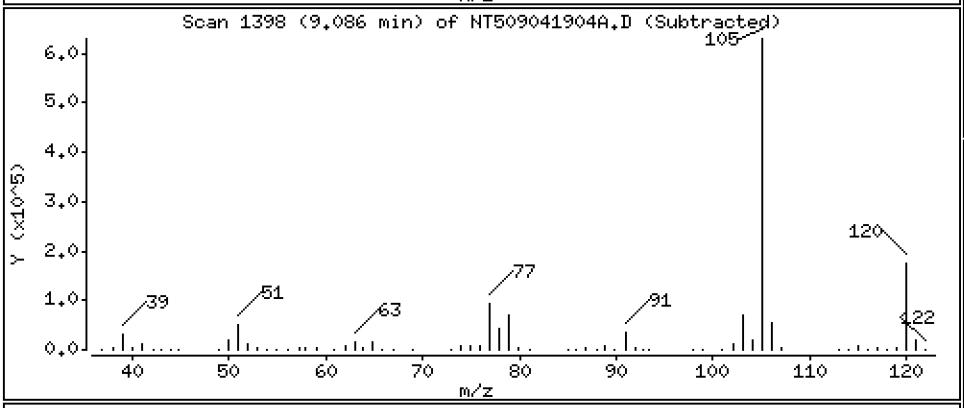
Column diameter: 0.18

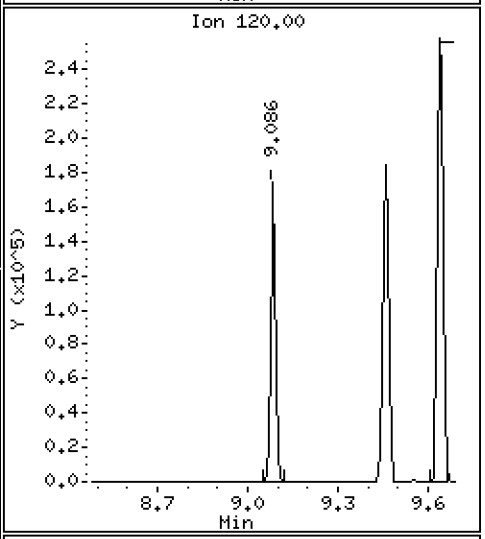
60 Isopropyl Benzene

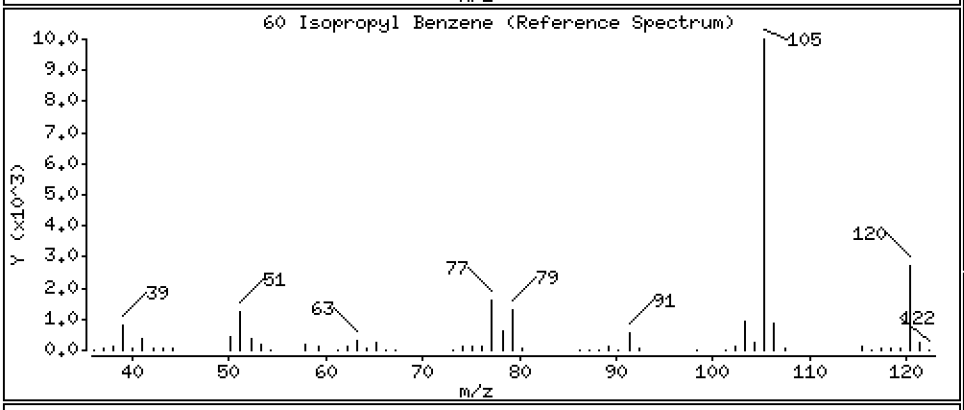
Concentration: 48.563 ug/Kg

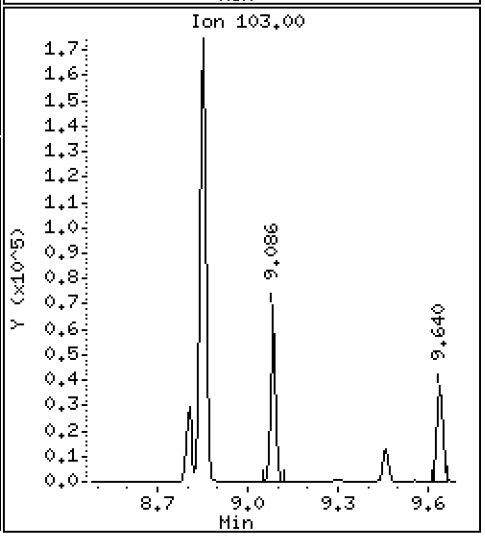


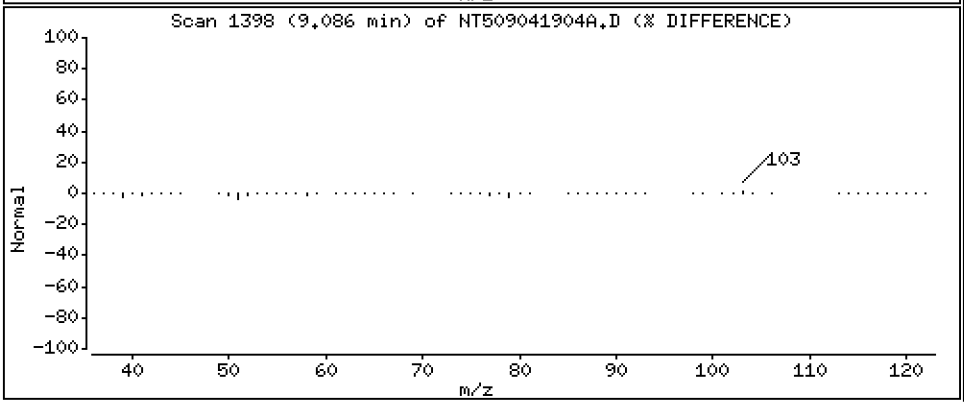












Date : 04-SEP-2019 15:04

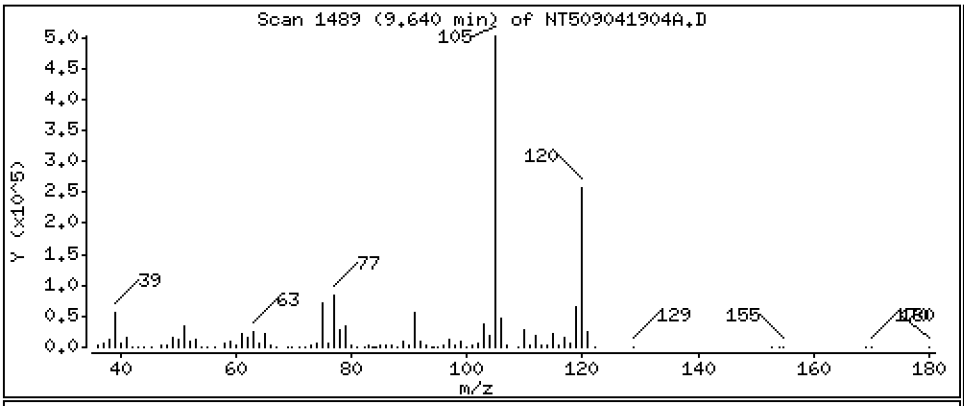
Client ID: Instrument: nt5.i

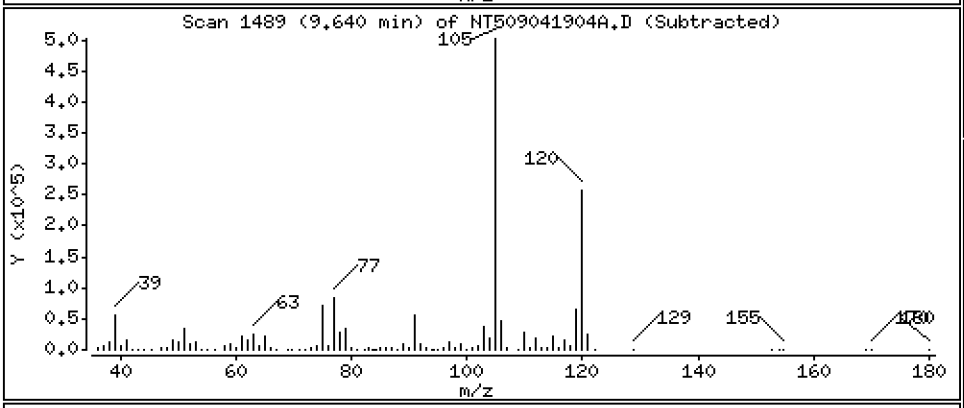
Sample Info: BSD1

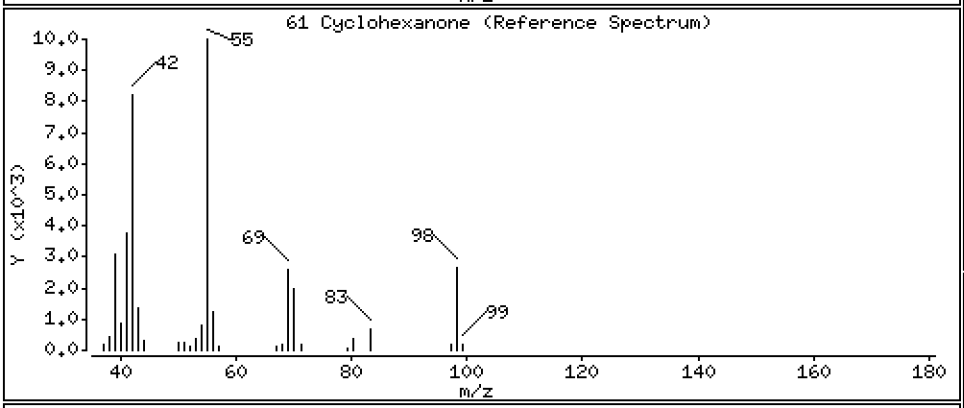
Operator: PB

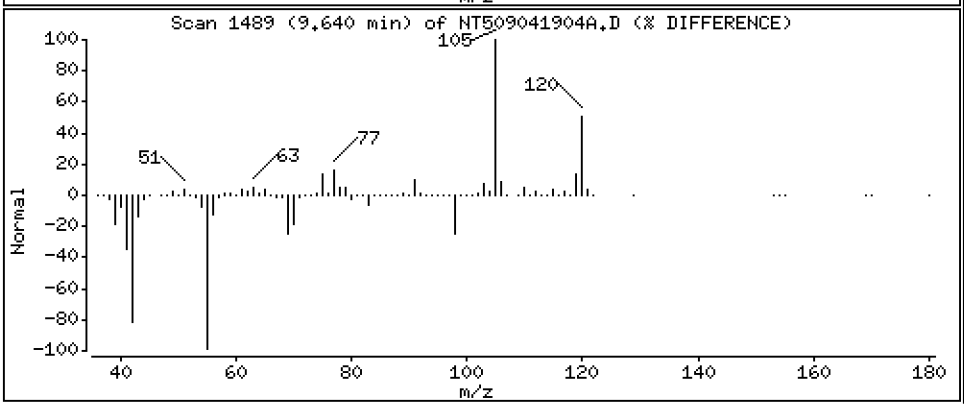
Column phase: RTXVMS Column diameter: 0.18

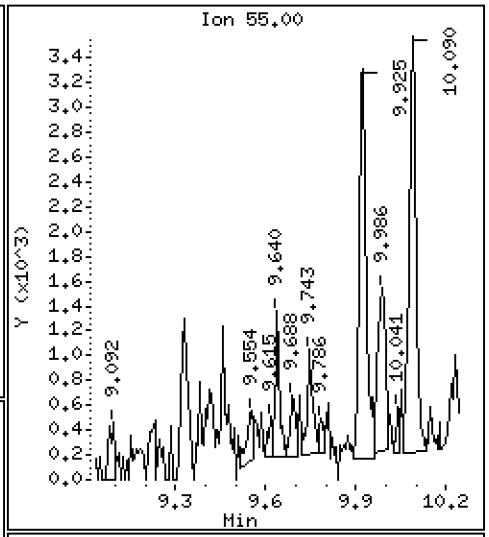
61 Cyclohexanone

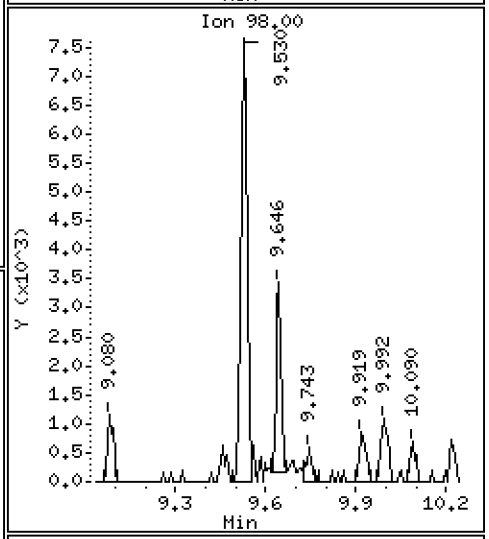


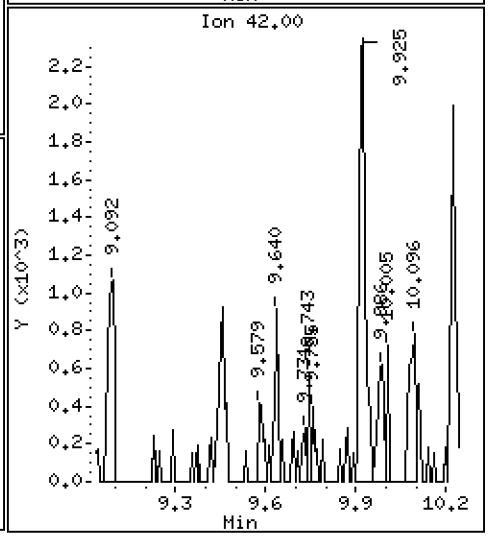












Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041904A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

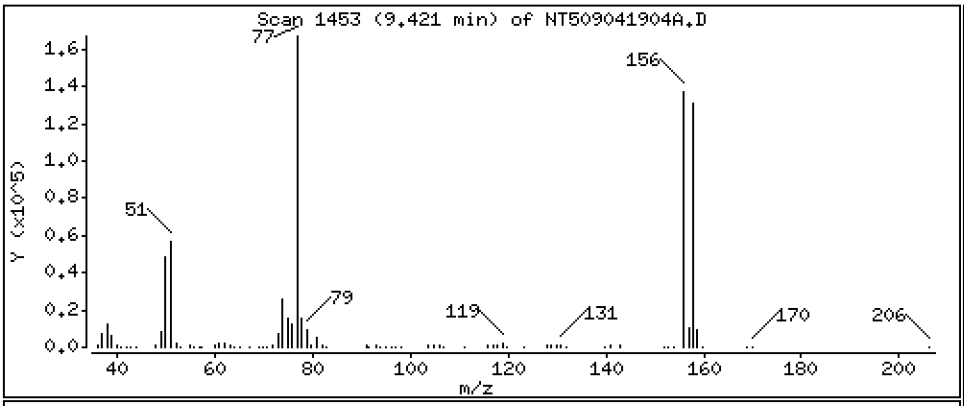
Operator: PB

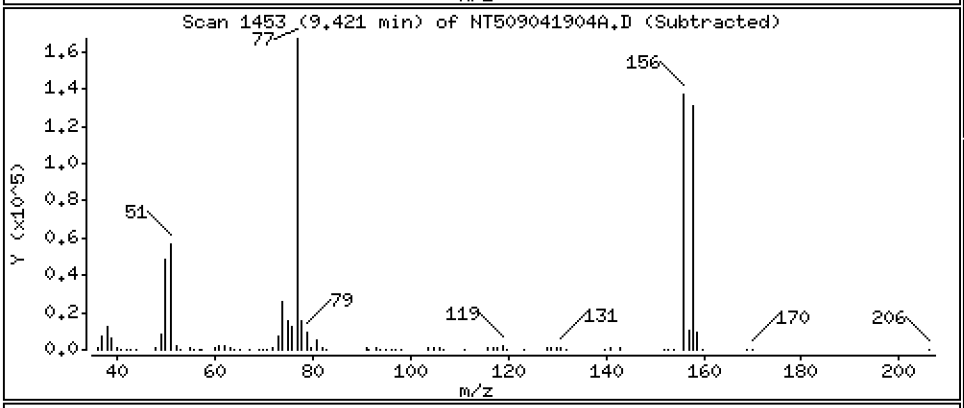
Column phase: RTXVMS

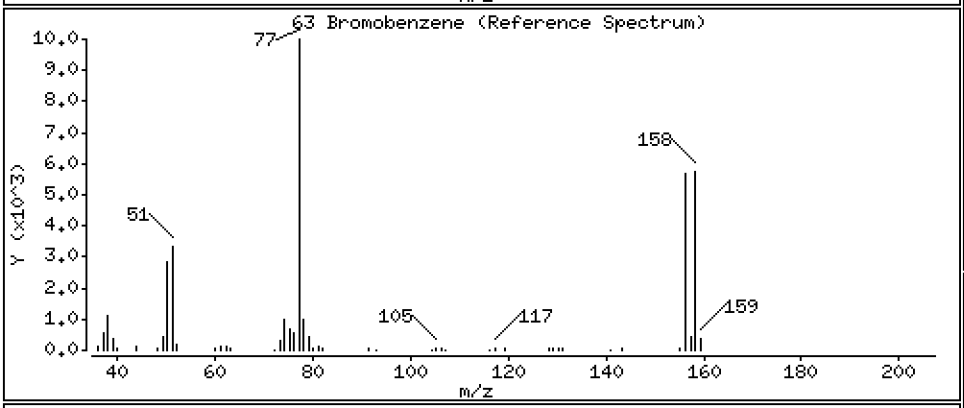
Column diameter: 0.18

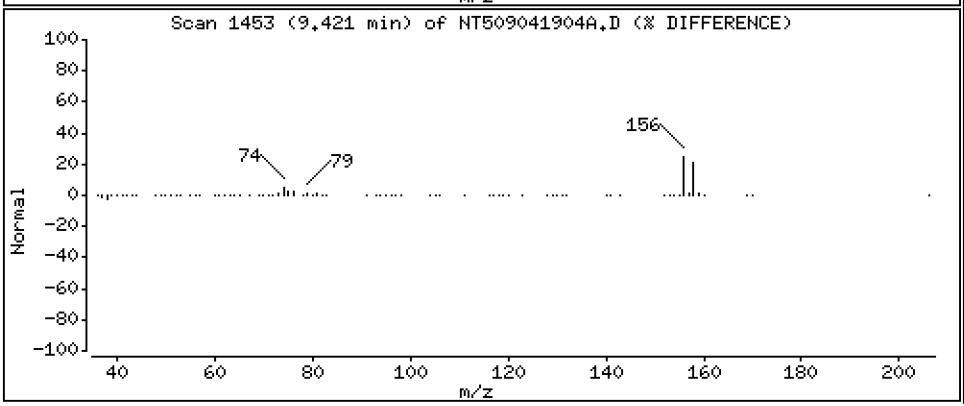
63 Bromobenzene

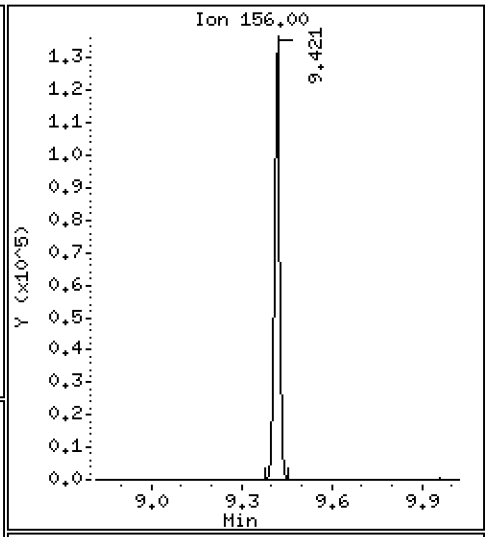
Concentration: 43.640 ug/Kg

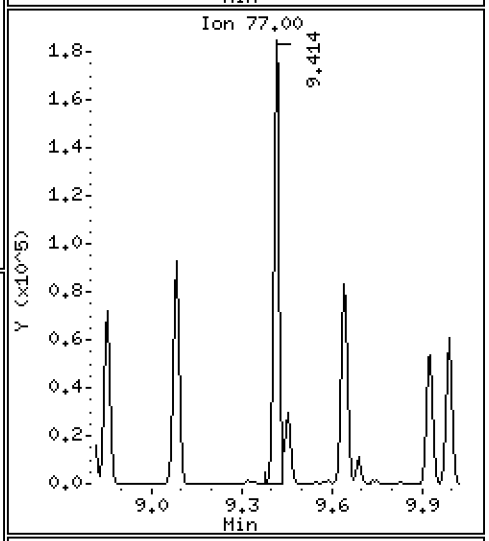


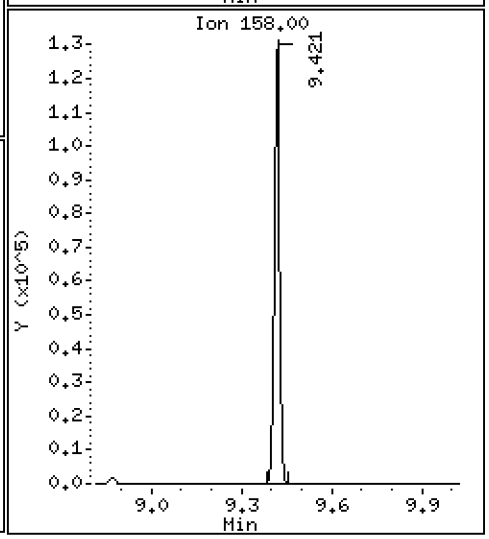












Data File: \\target\share\chem1\nt5.i\20190904.b\NT5090419O4A.D

Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

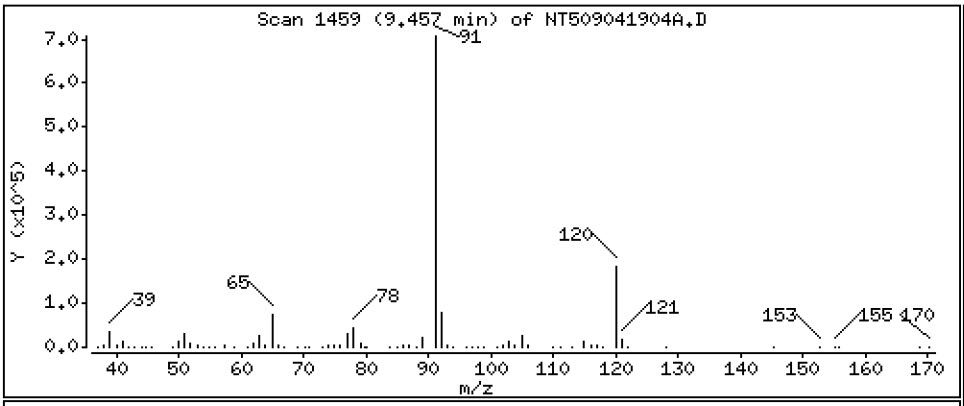
Operator: PB

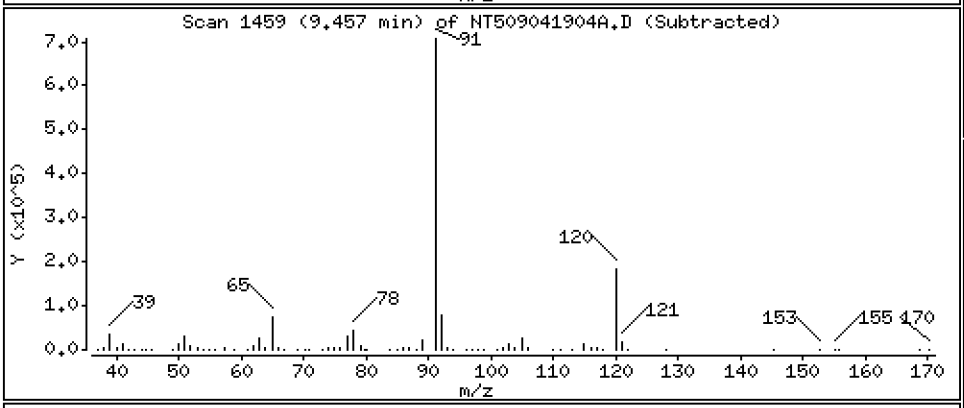
Column phase: RTXVMS

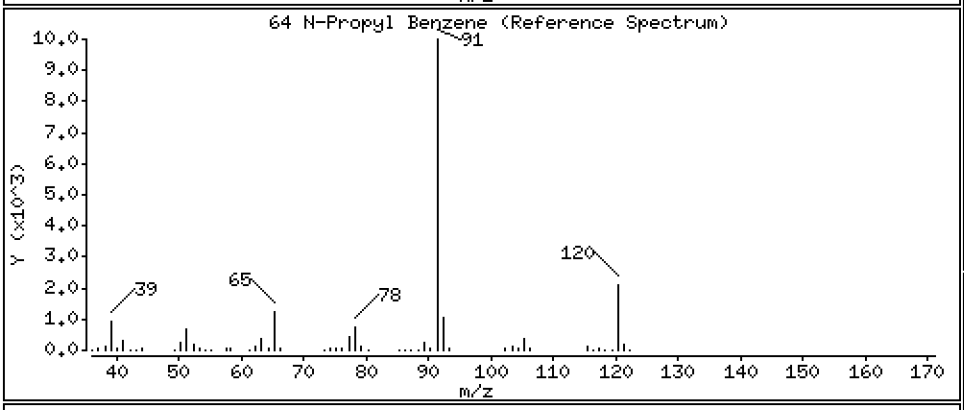
Column diameter: 0.18

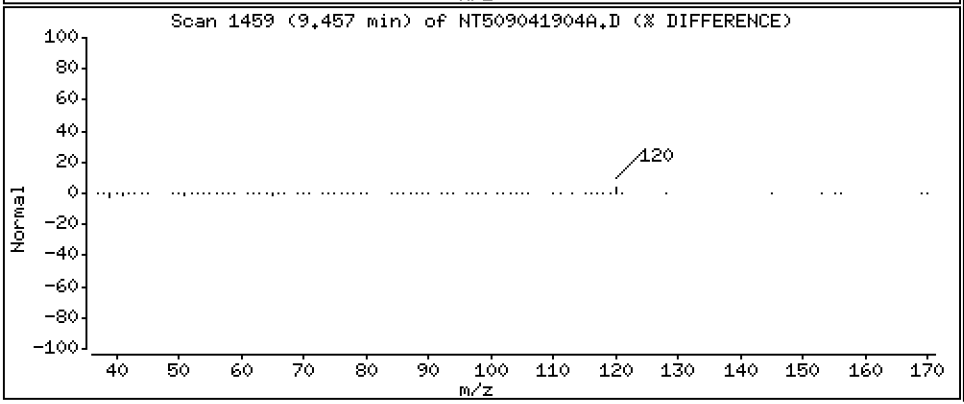
64 N-Propyl Benzene

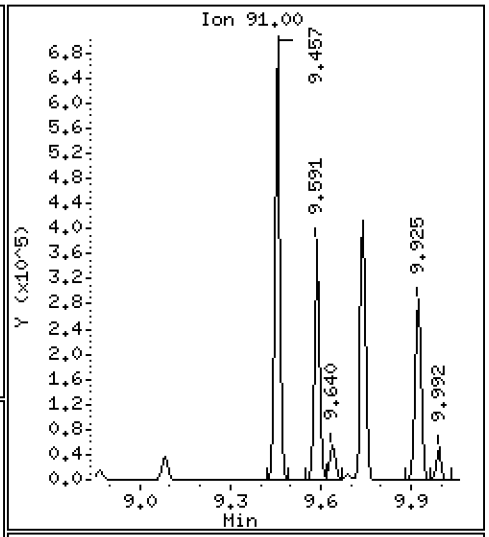
Concentration: 48.017 ug/Kg

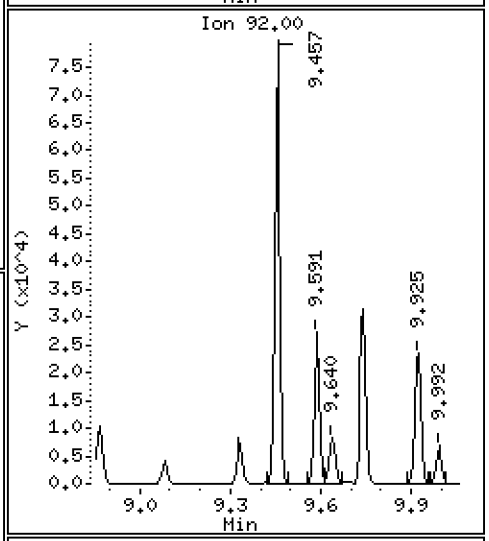


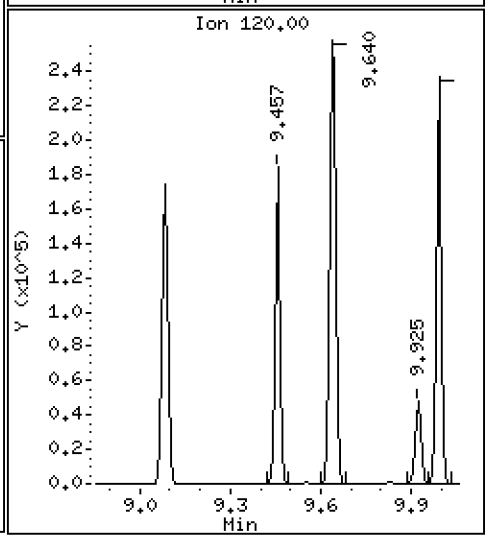












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

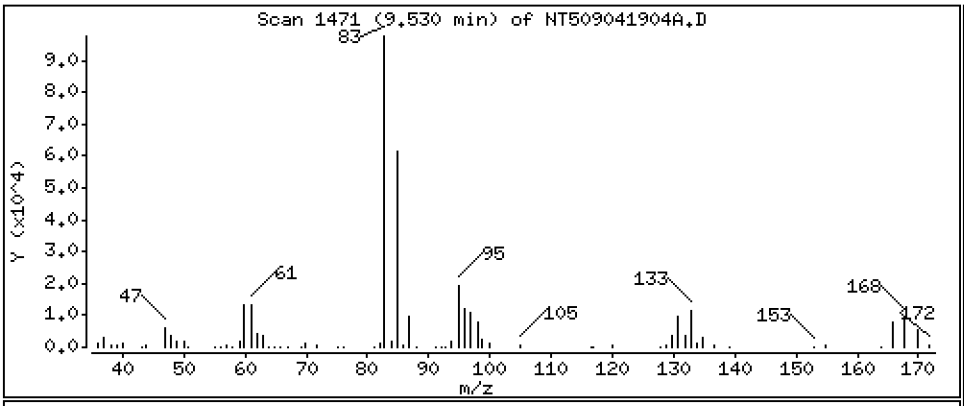
Operator: PB

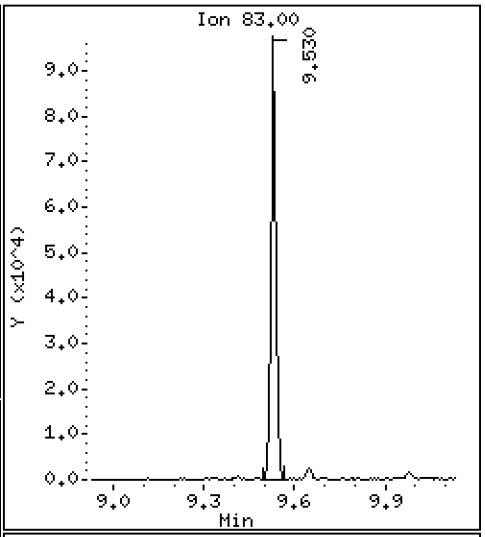
Column phase: RTXVMS

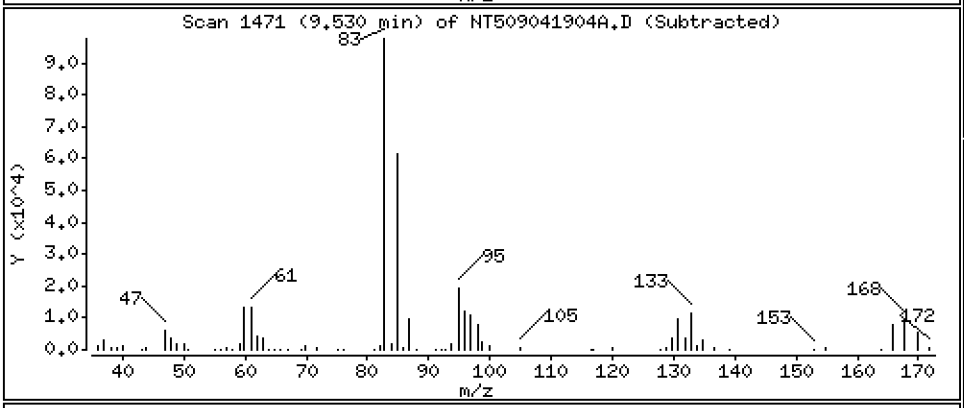
Column diameter: 0.18

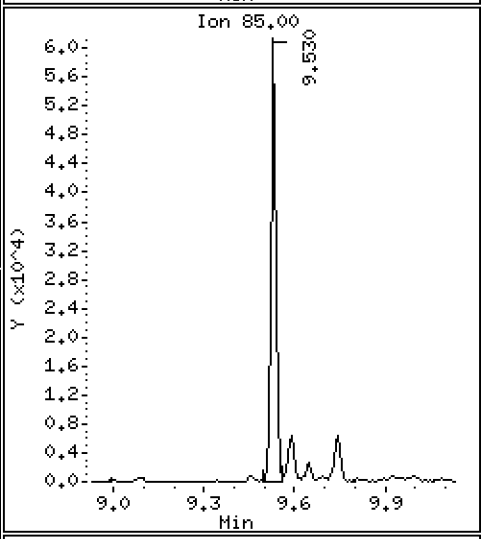
65 1,1,2,2-Tetrachloroethane

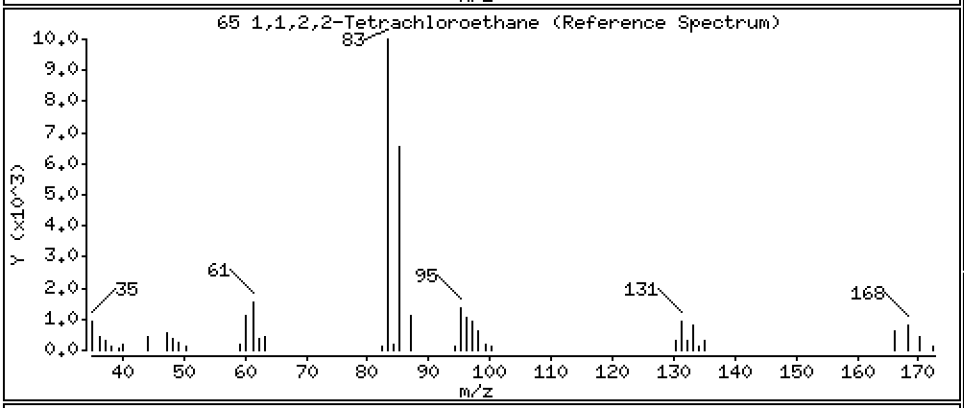
Concentration: 43.092 ug/Kg

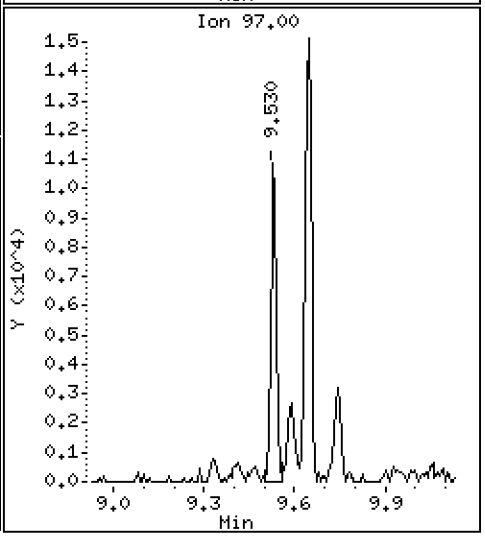


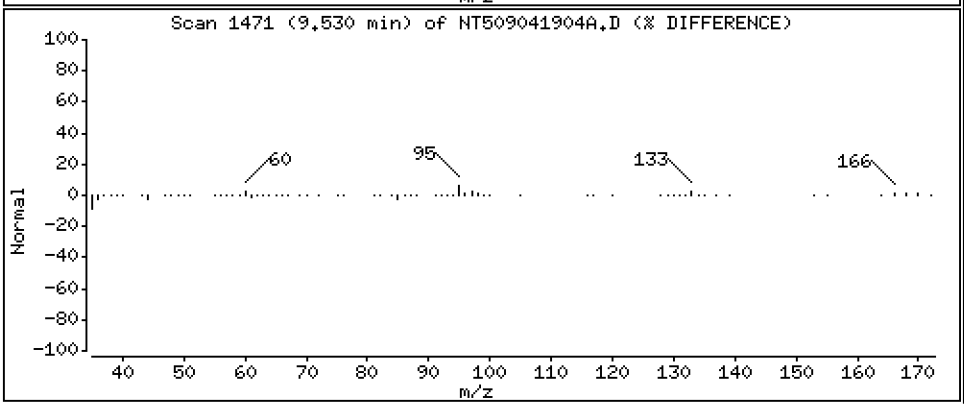












Date : 04-SEP-2019 15:04

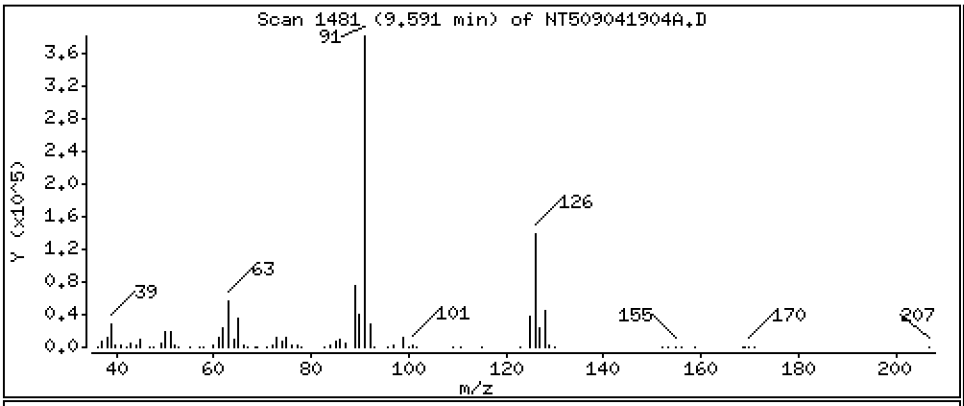
Client ID: Instrument: nt5.i

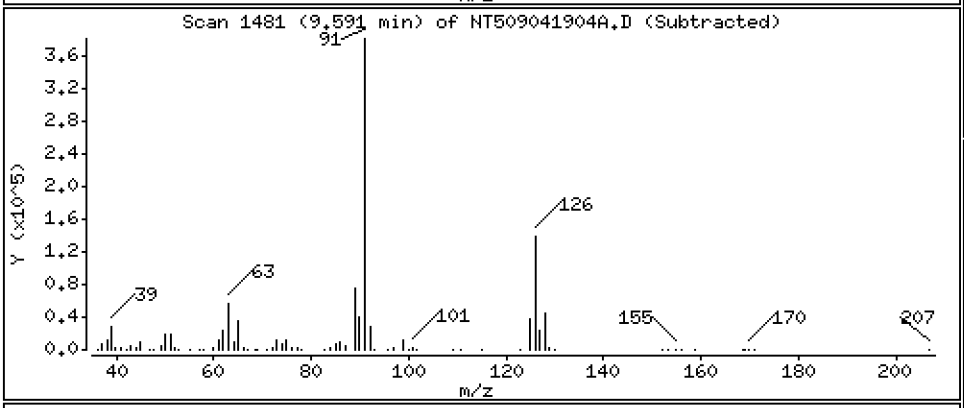
Sample Info: BSD1

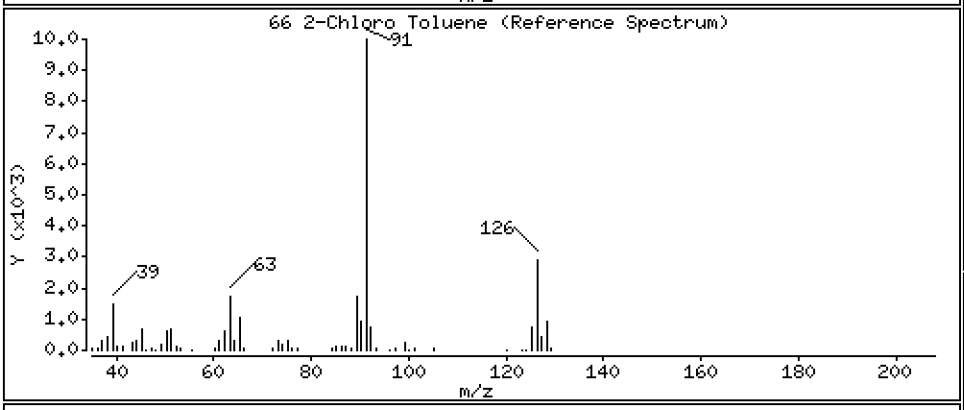
Operator: PB

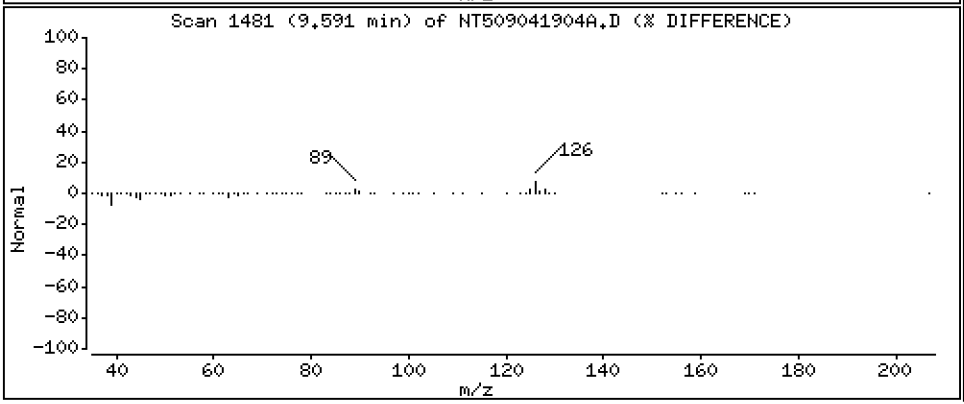
Column phase: RTXVMS Column diameter: 0.18

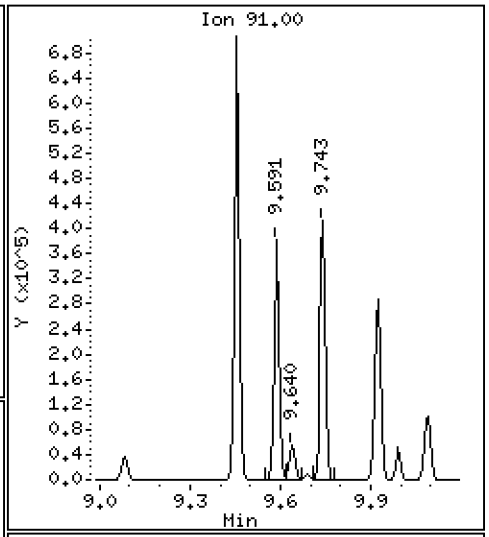
66 2-Chloro Toluene Concentration: 47.337 ug/Kg

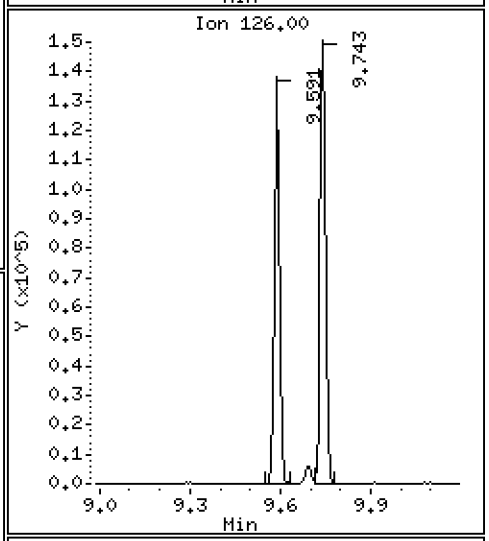


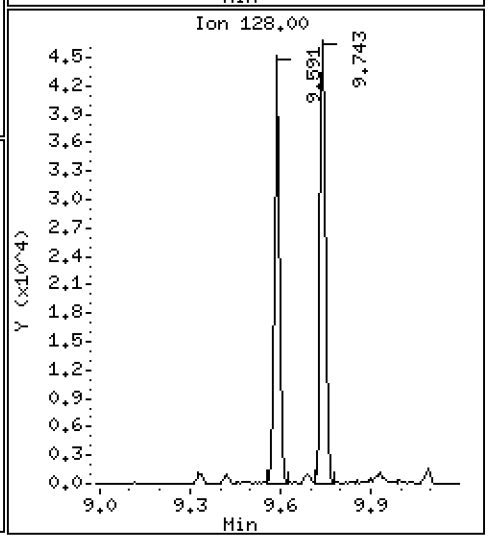












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

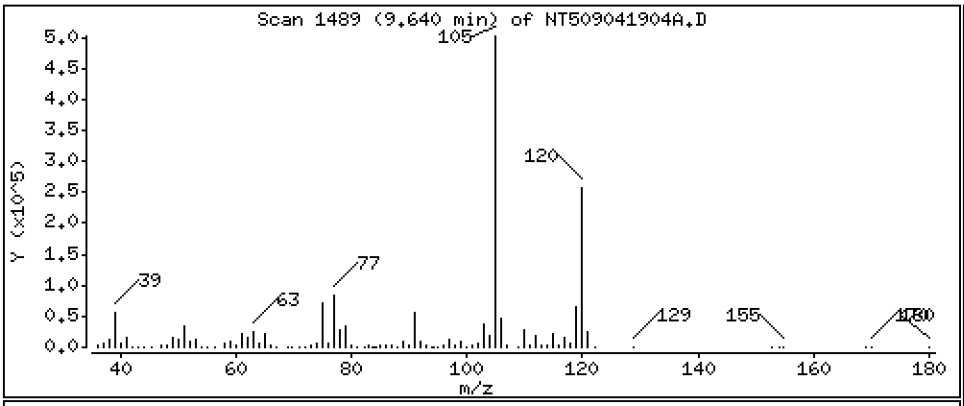
Operator: PB

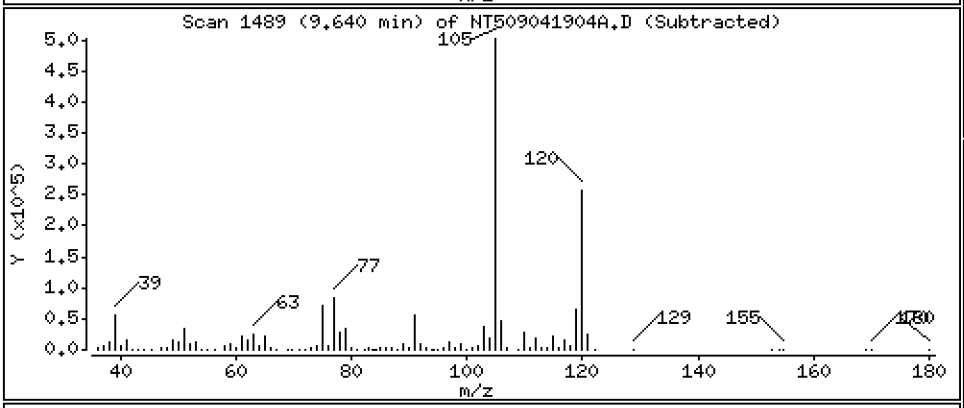
Column phase: RTXVMS

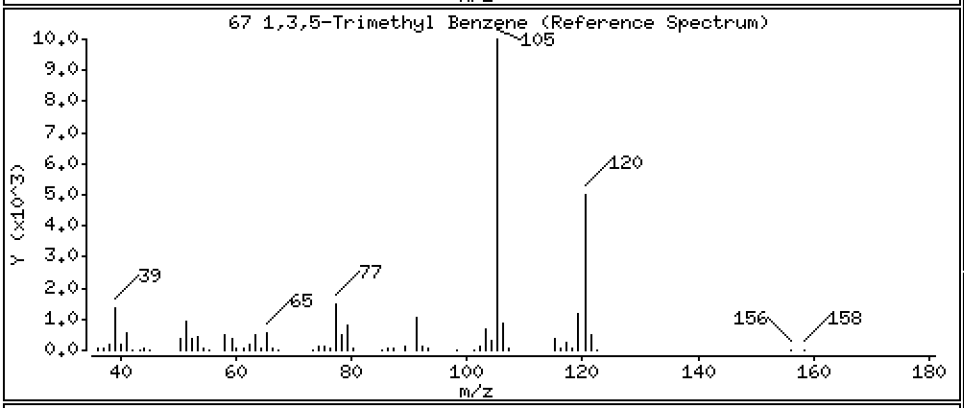
Column diameter: 0.18

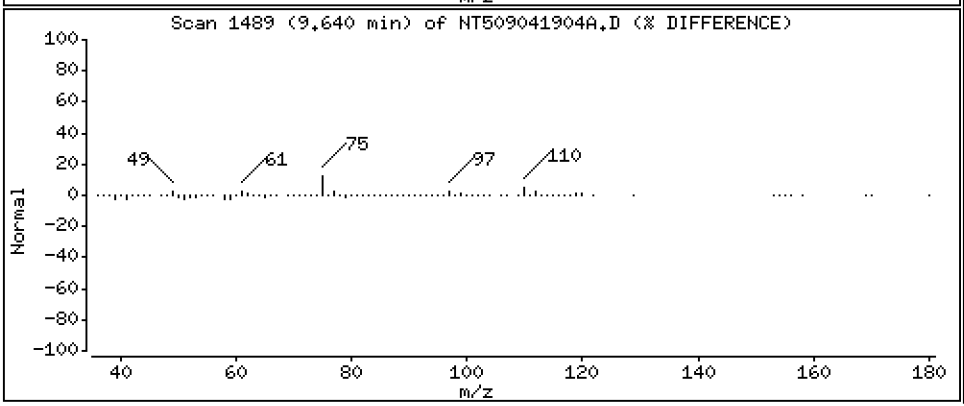
67 1,3,5-Trimethyl Benzene

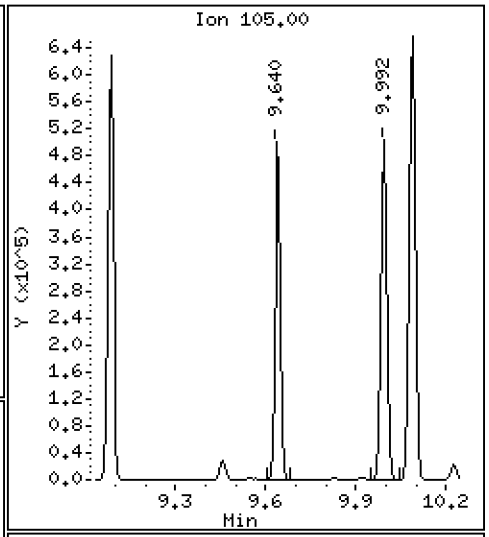
Concentration: 48.314 ug/Kg

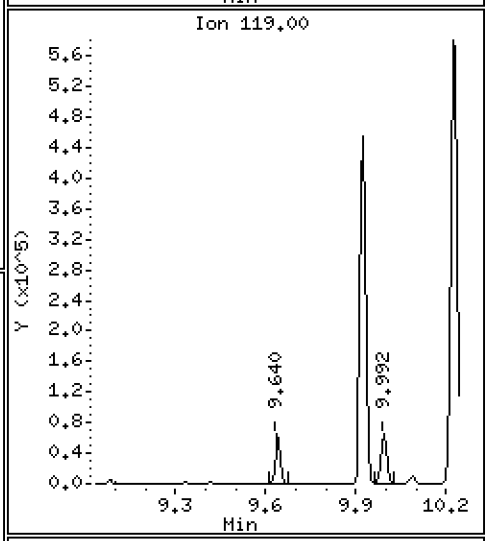


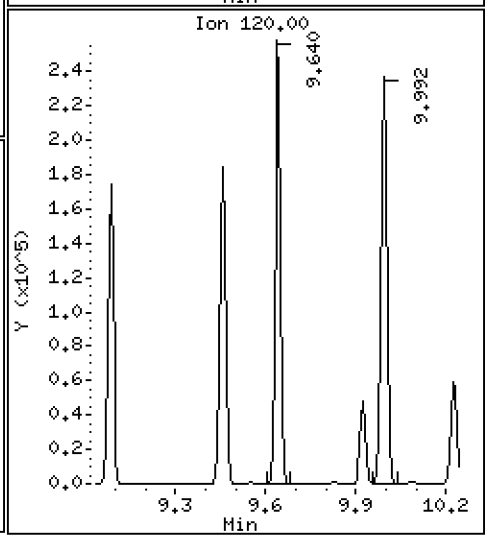












Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

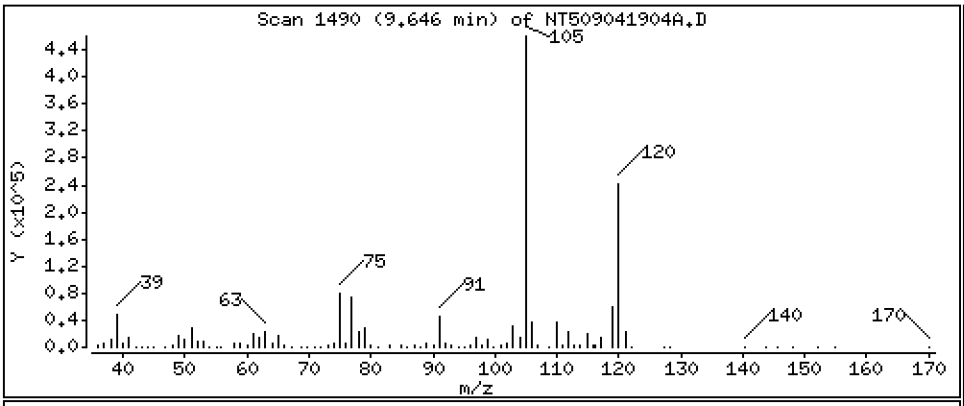
Operator: PB

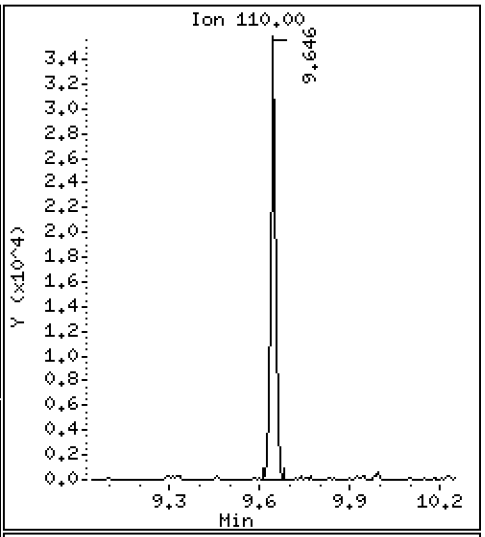
Column phase: RTXVMS

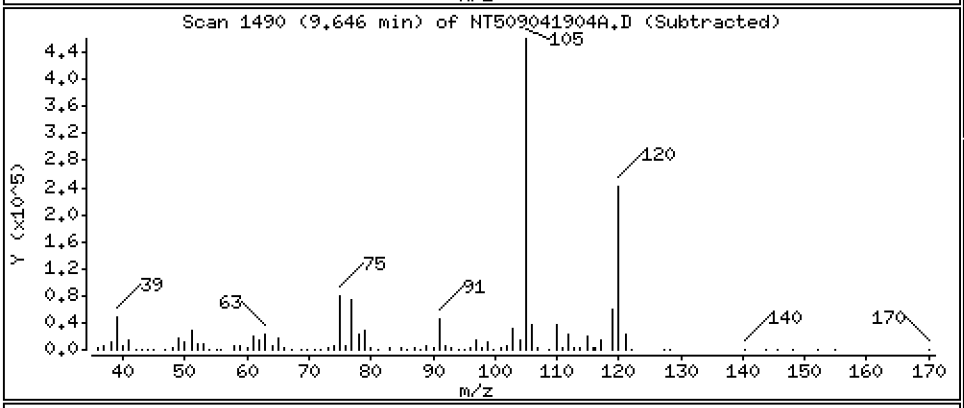
Column diameter: 0.18

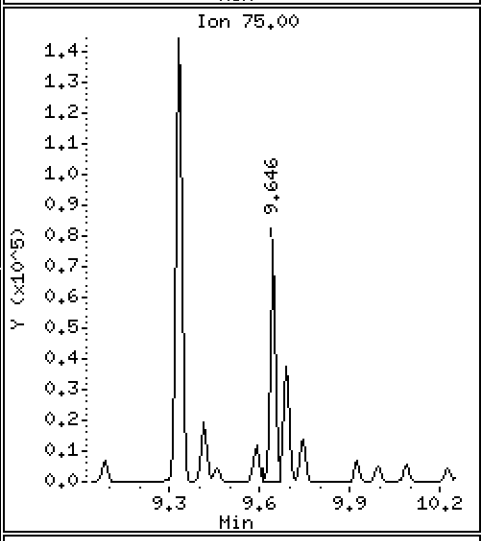
68 1,2,3-Trichloropropane

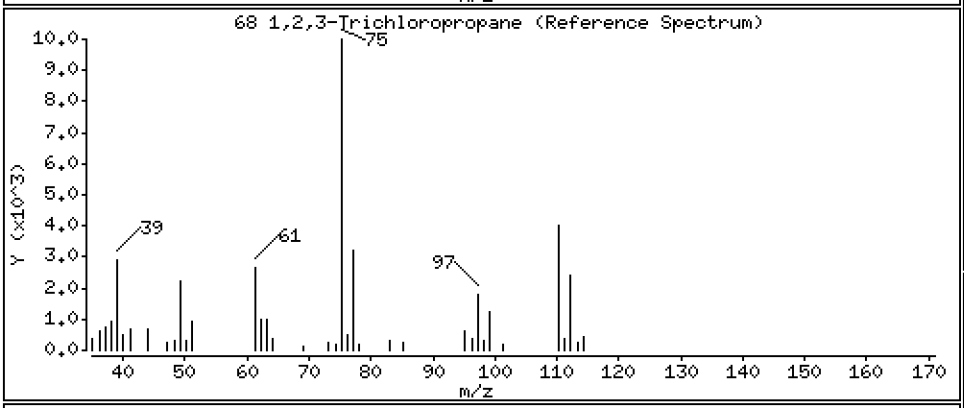
Concentration: 43.755 ug/Kg

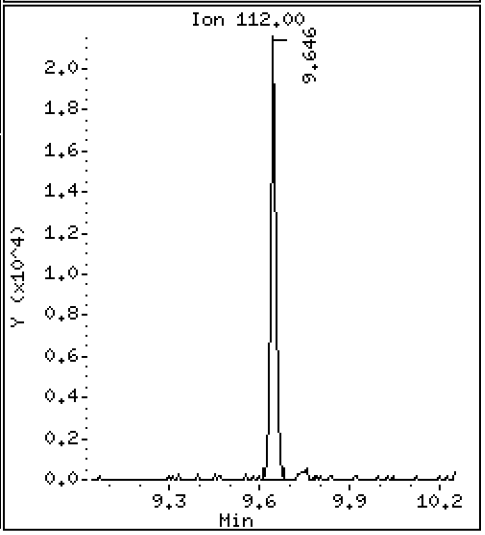


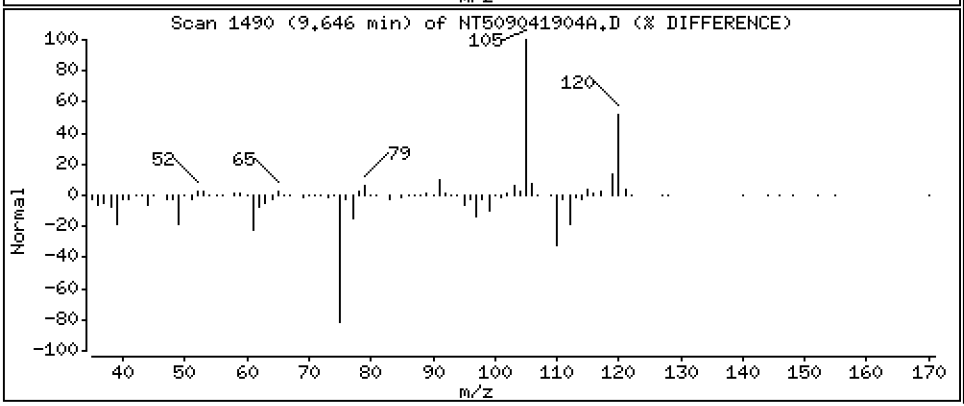












Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

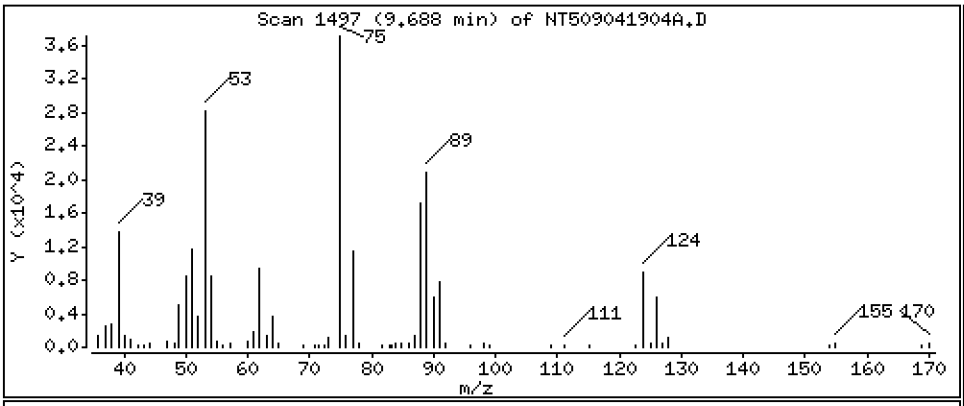
Operator: PB

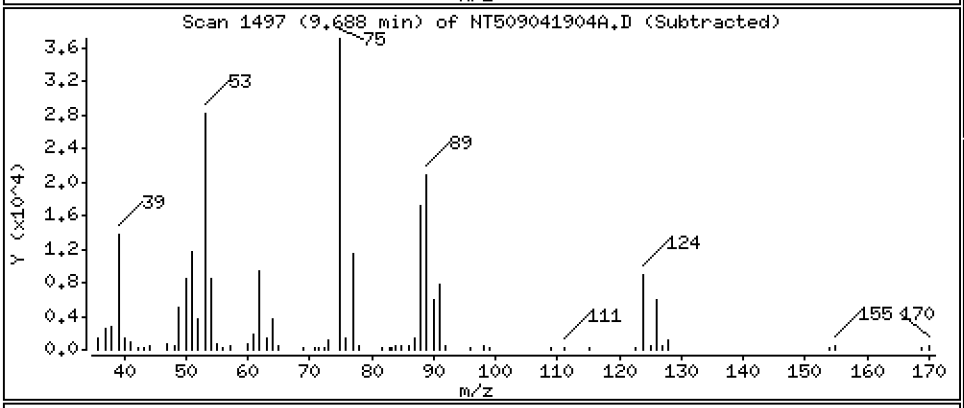
Column phase: RTXVMS

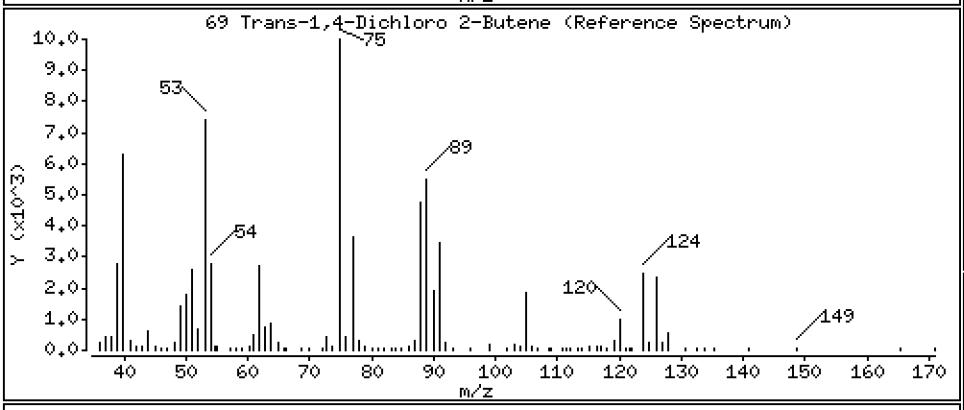
Column diameter: 0.18

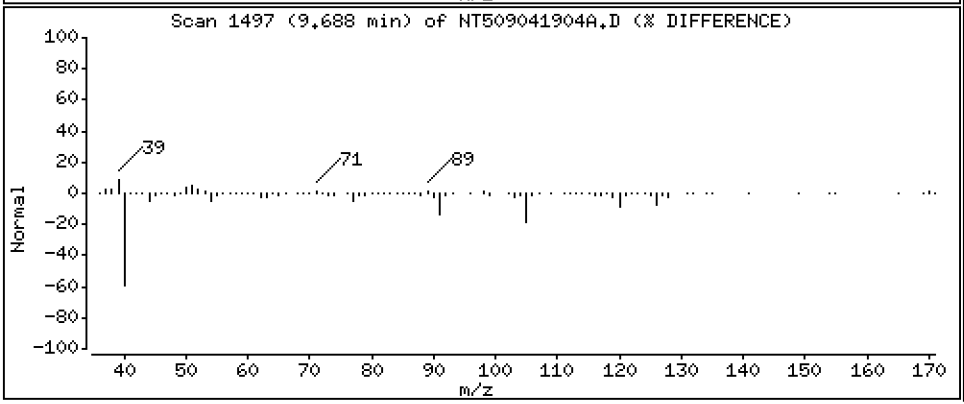
69 Trans-1,4-Dichloro 2-Butene

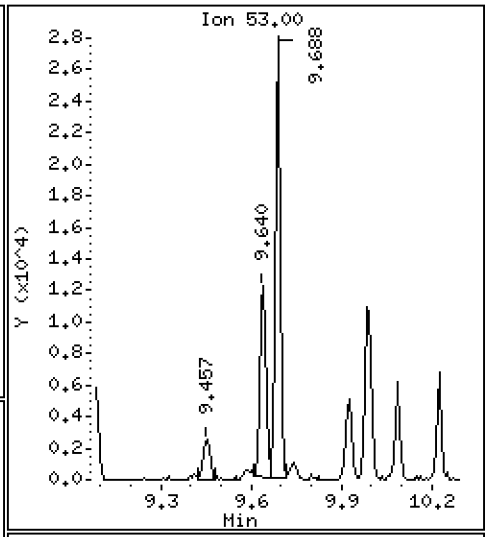
Concentration: 43.061 ug/Kg

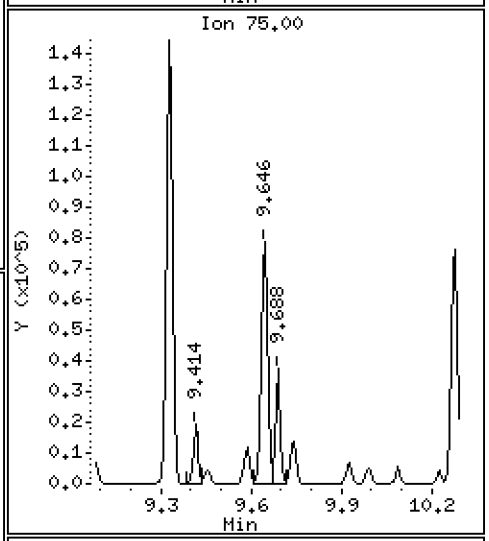


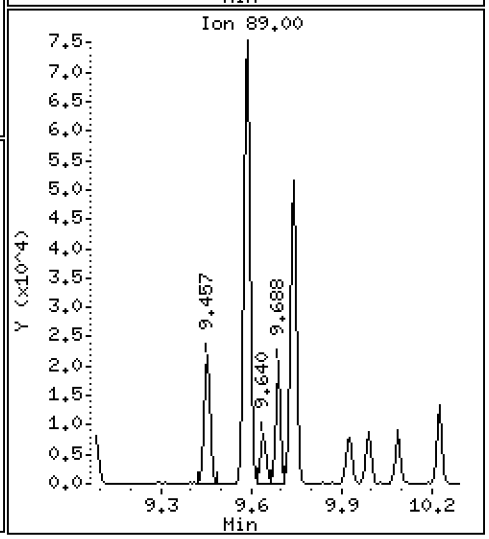












Date : 04-SEP-2019 15:04

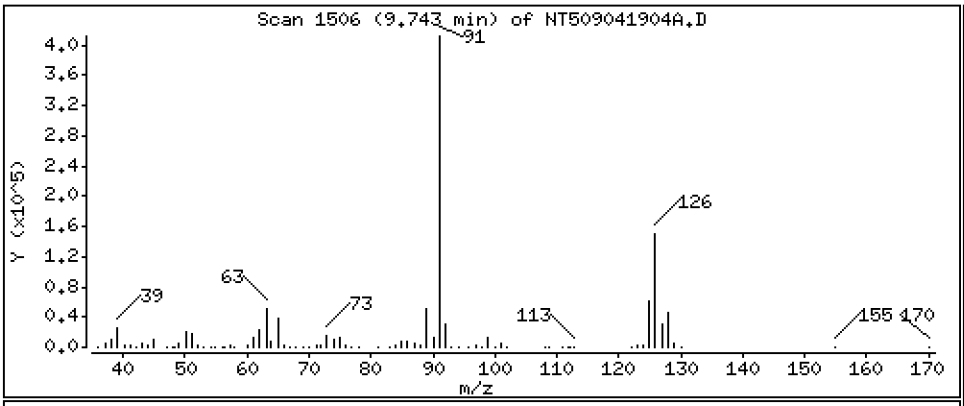
Client ID: Instrument: nt5.i

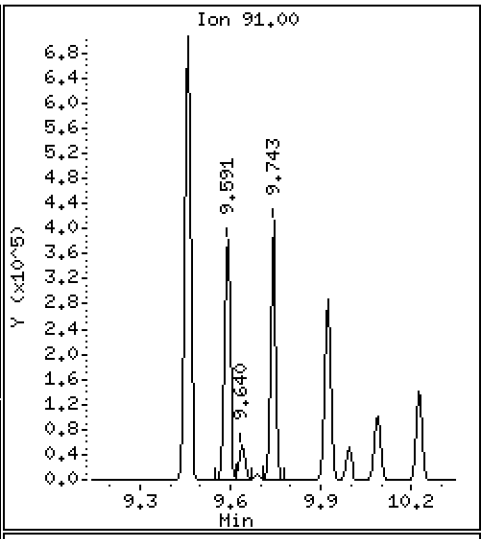
Sample Info: BSD1

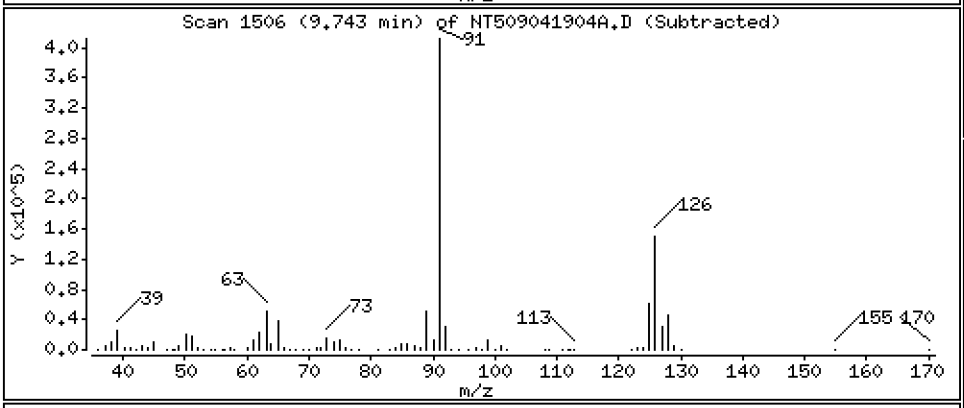
Operator: PB

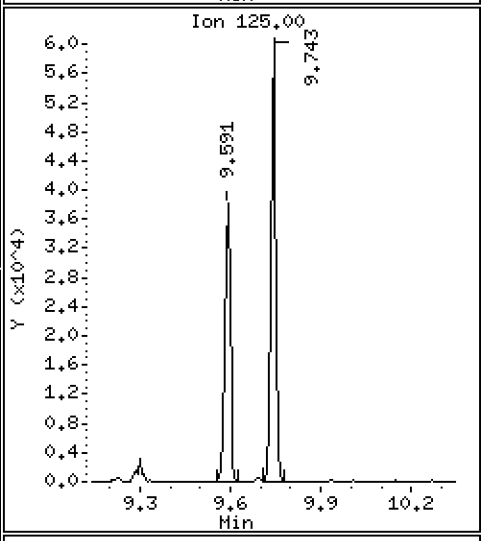
Column phase: RTXVMS Column diameter: 0.18

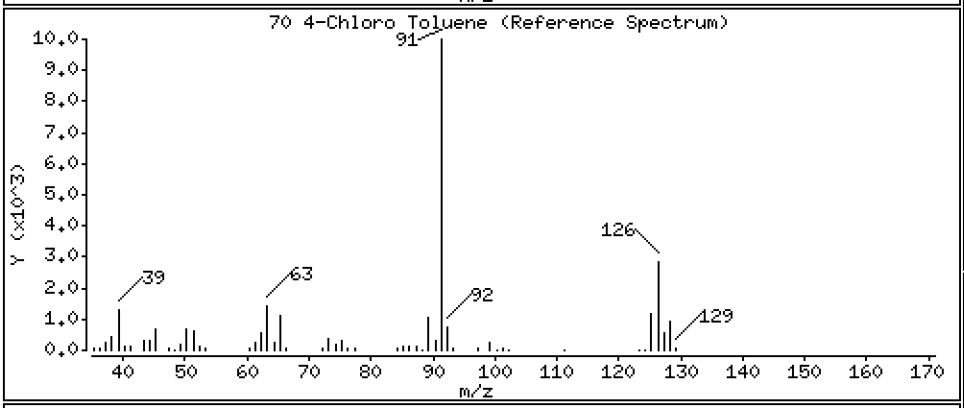
70 4-Chloro Toluene Concentration: 46.756 ug/Kg

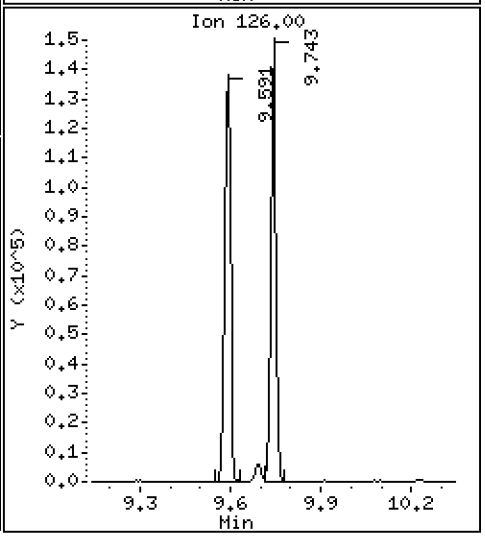


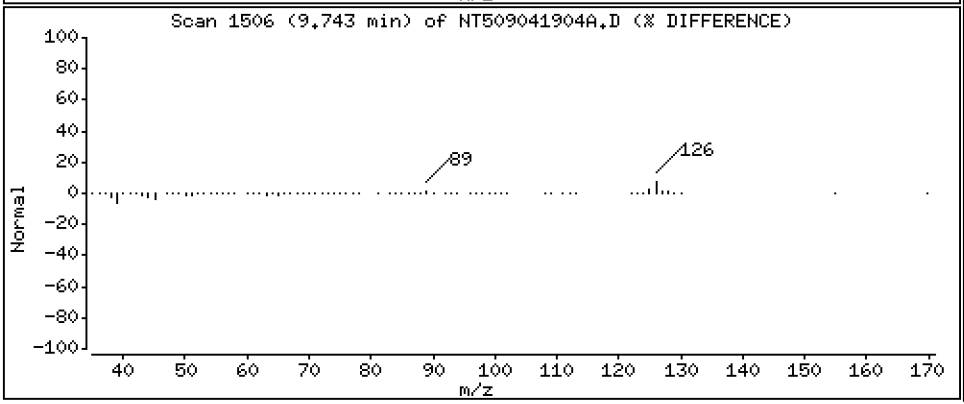












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

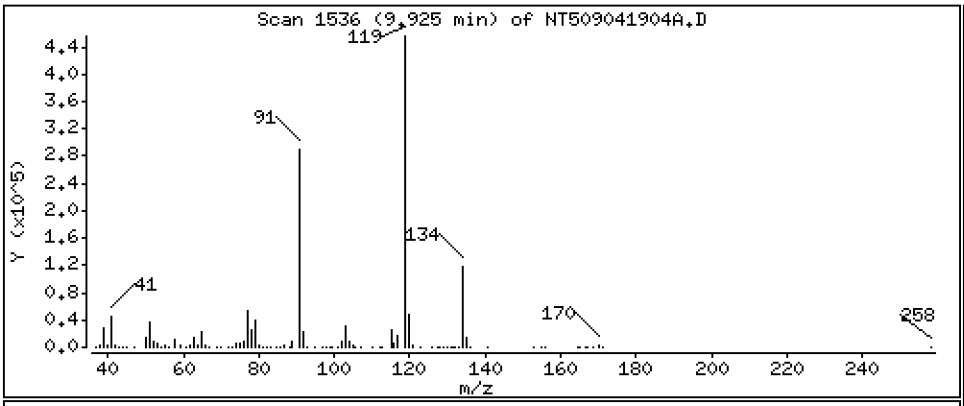
Operator: PB

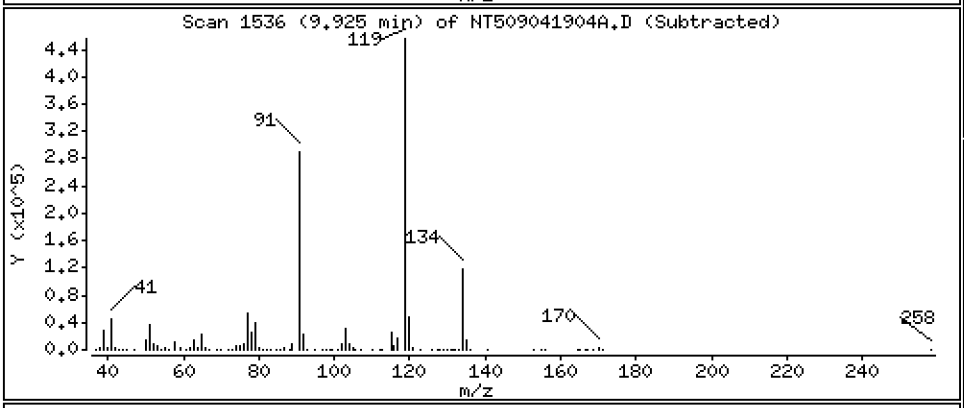
Column phase: RTXVMS

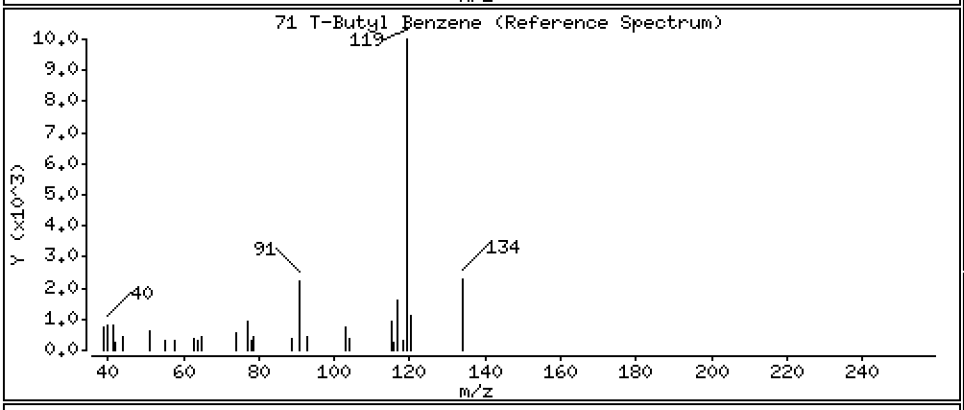
Column diameter: 0.18

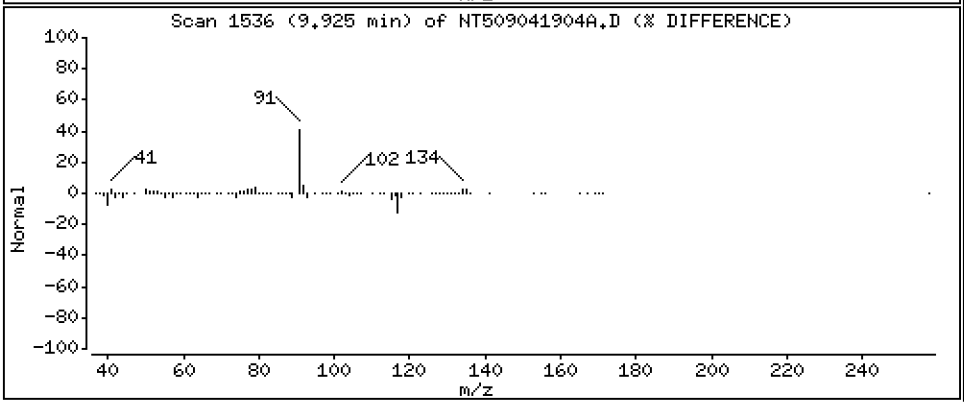
71 T-Butyl Benzene

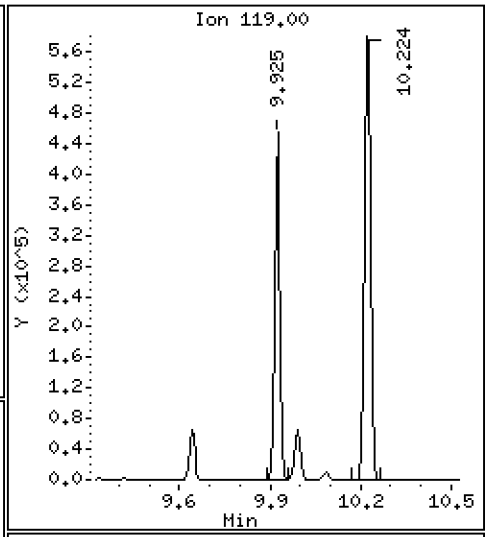
Concentration: 47.427 ug/Kg

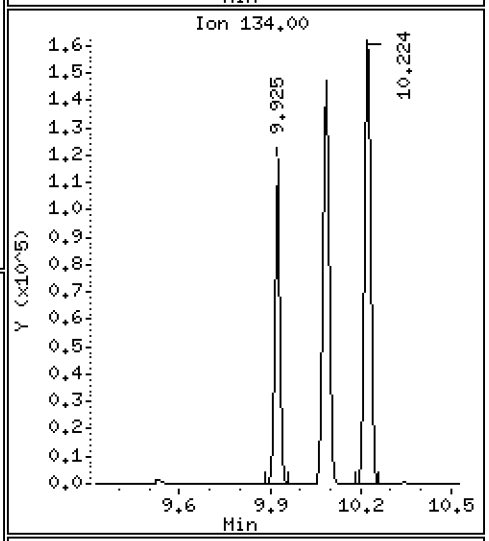


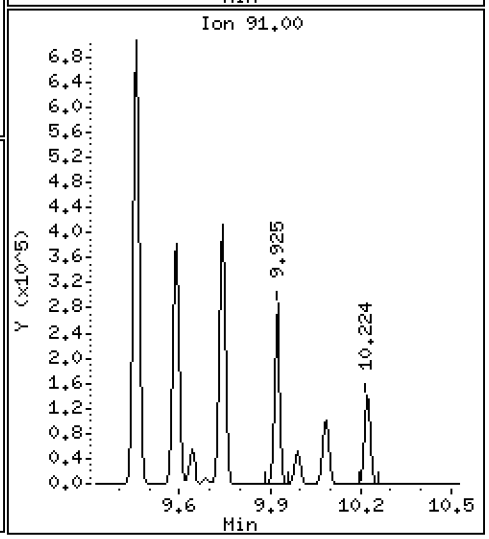












Date : 04-SEP-2019 15:04

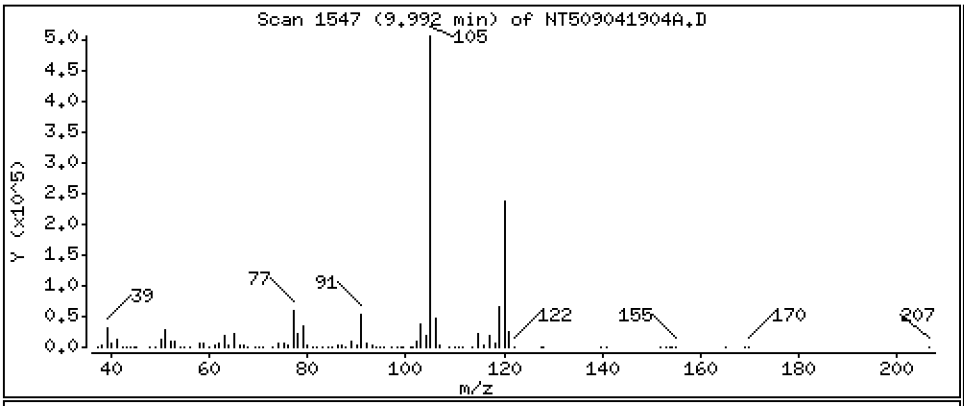
Client ID: Instrument: nt5.i

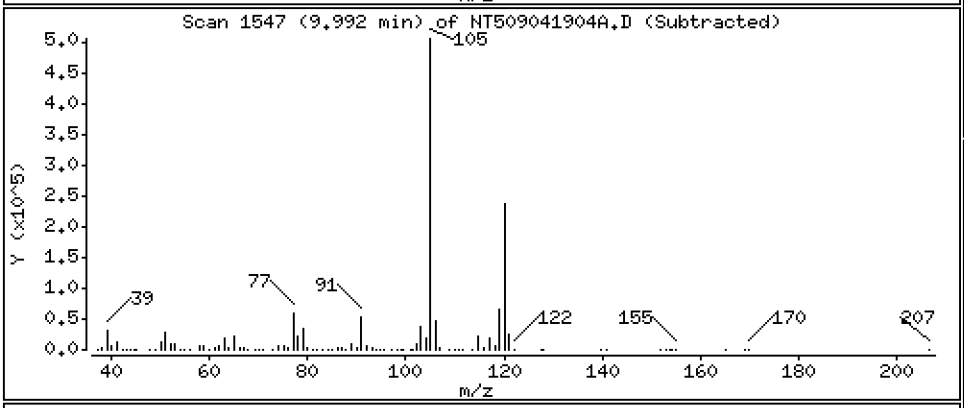
Sample Info: BSD1

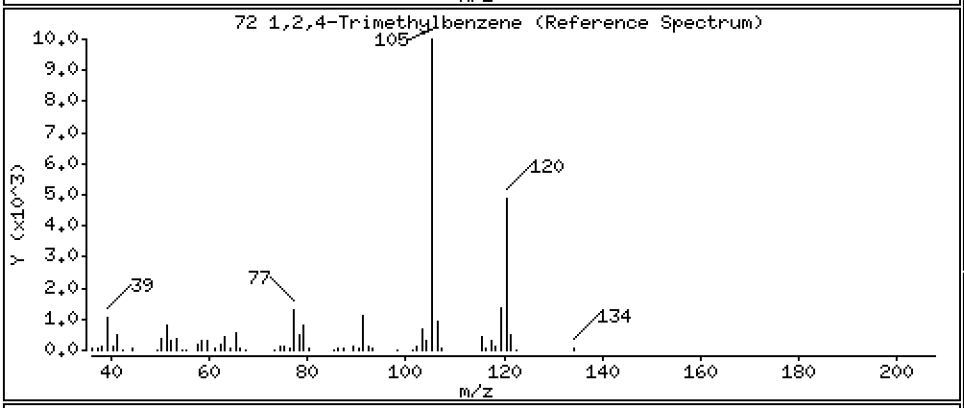
Operator: PB

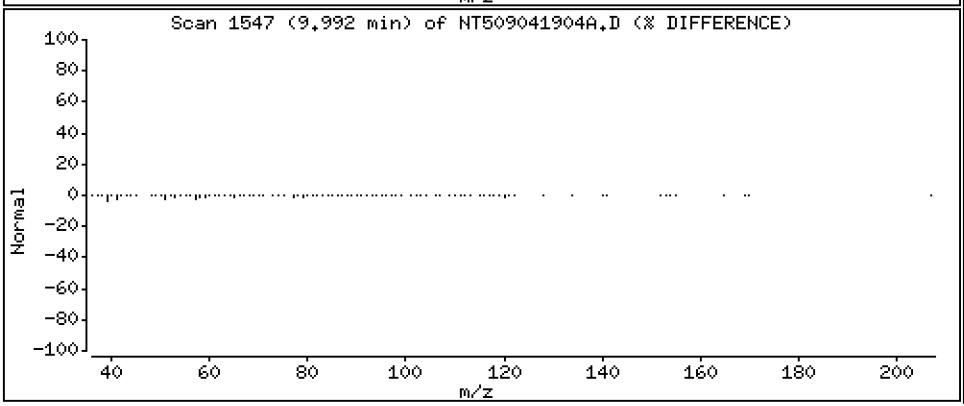
Column phase: RTXVMS Column diameter: 0.18

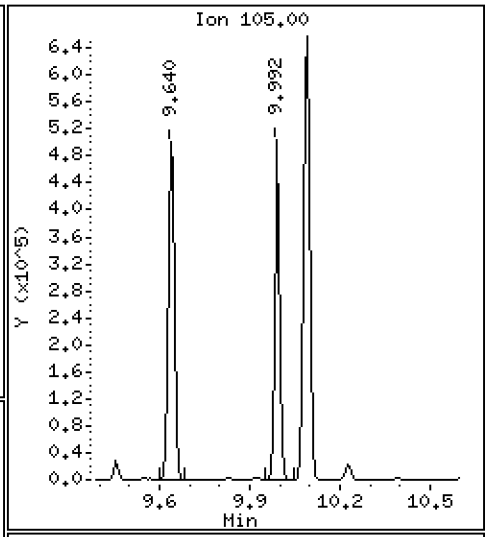
72 1,2,4-Trimethylbenzene Concentration: 47.913 ug/Kg

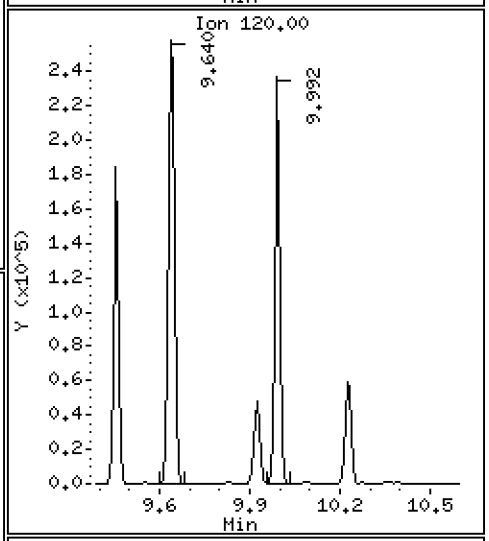


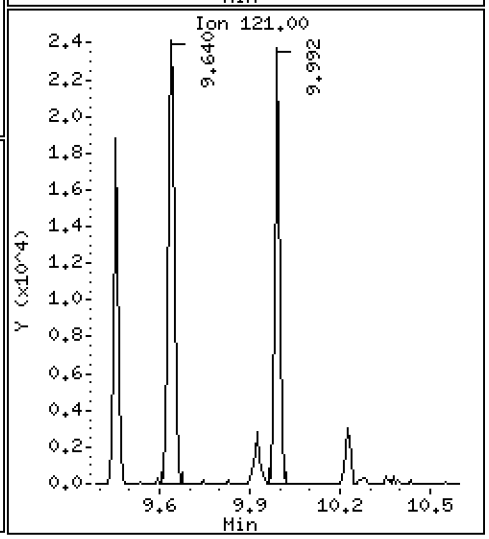












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

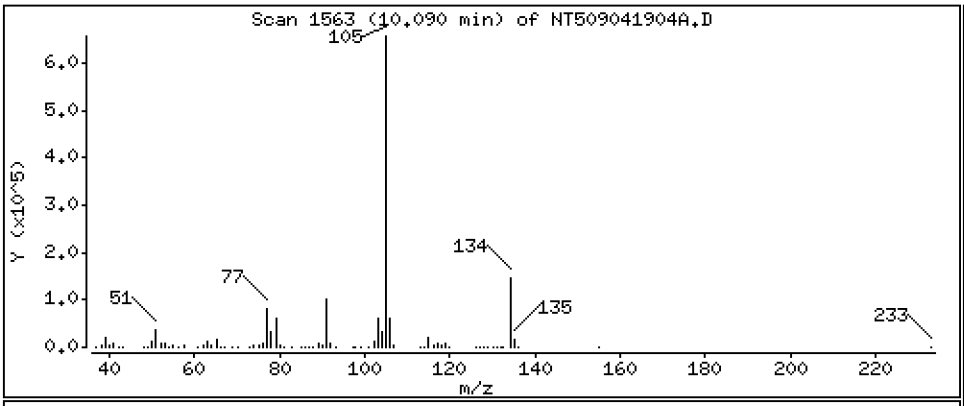
Operator: PB

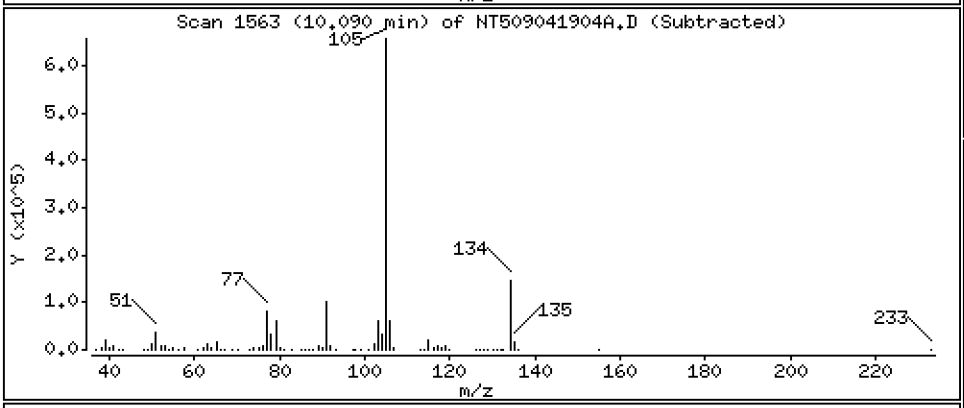
Column phase: RTXVMS

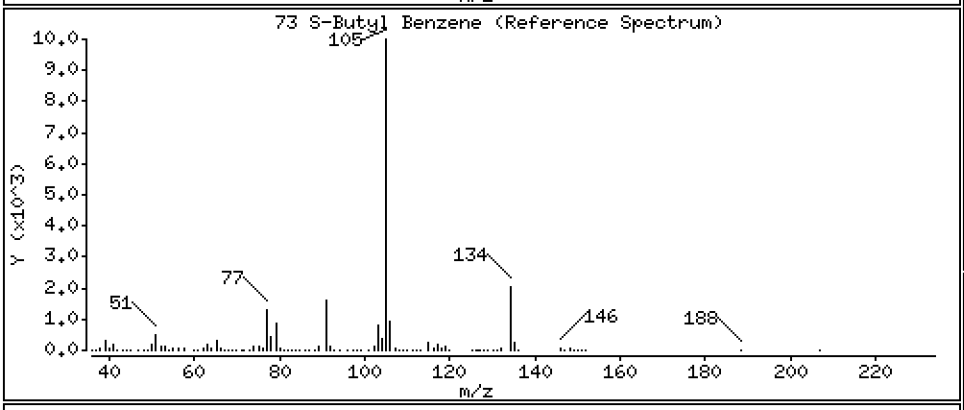
Column diameter: 0.18

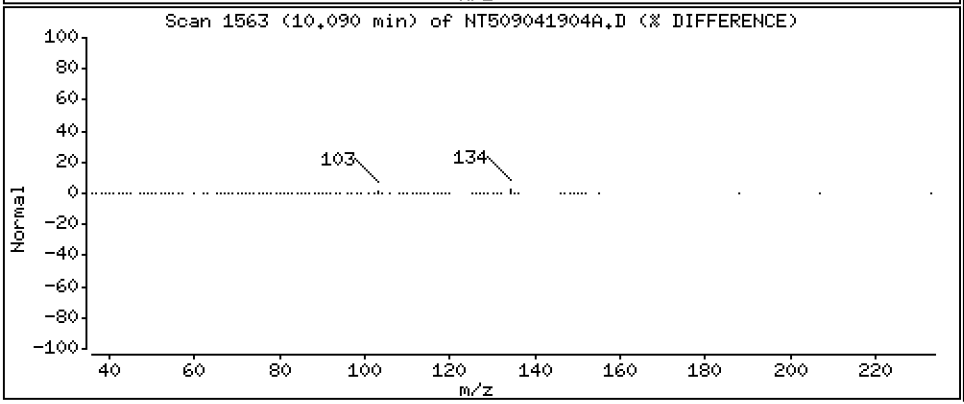
73 S-Butyl Benzene

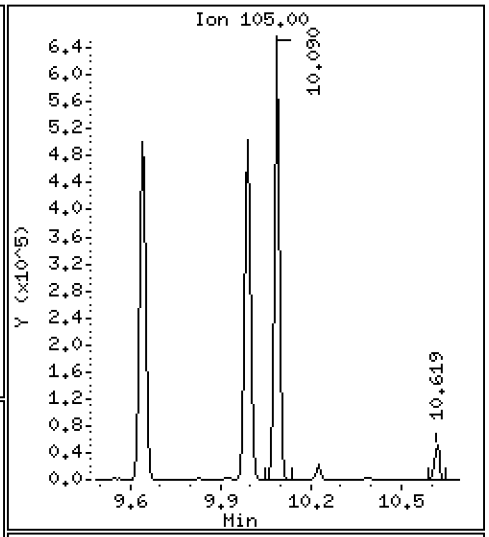
Concentration: 48.606 ug/Kg

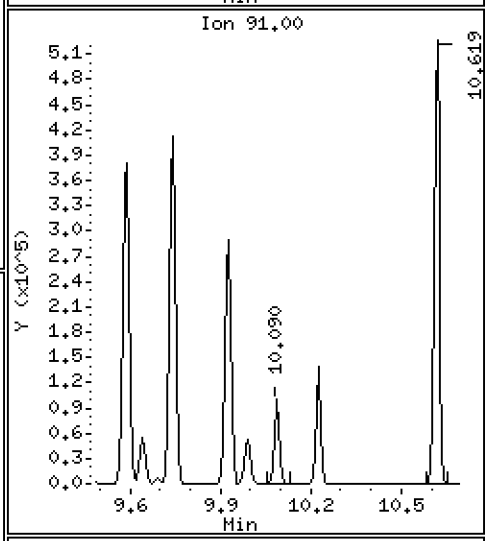


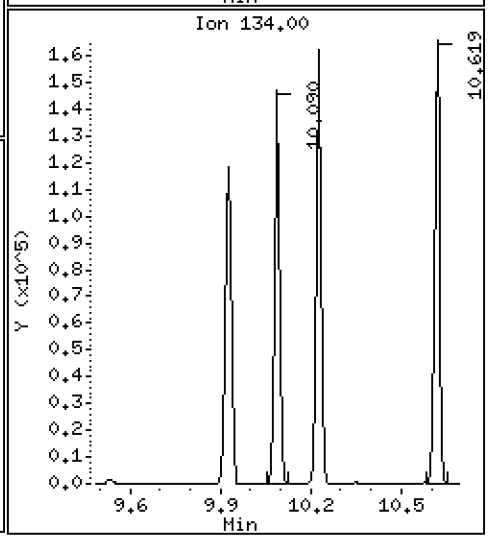












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

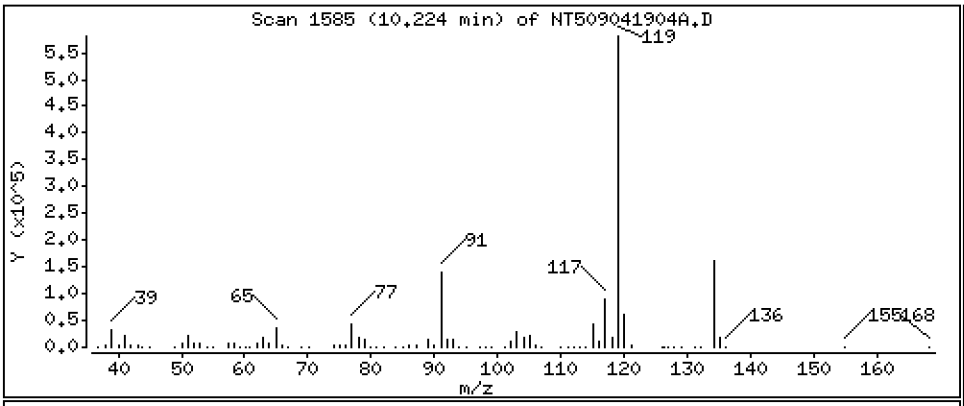
Operator: PB

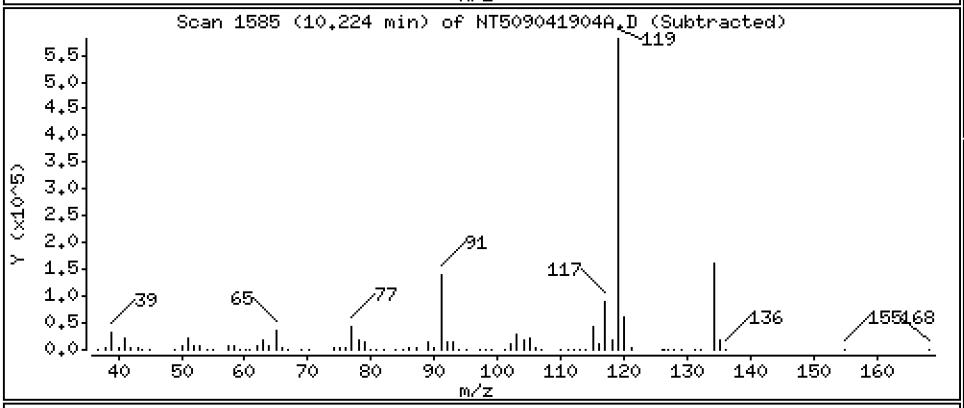
Column phase: RTXVMS

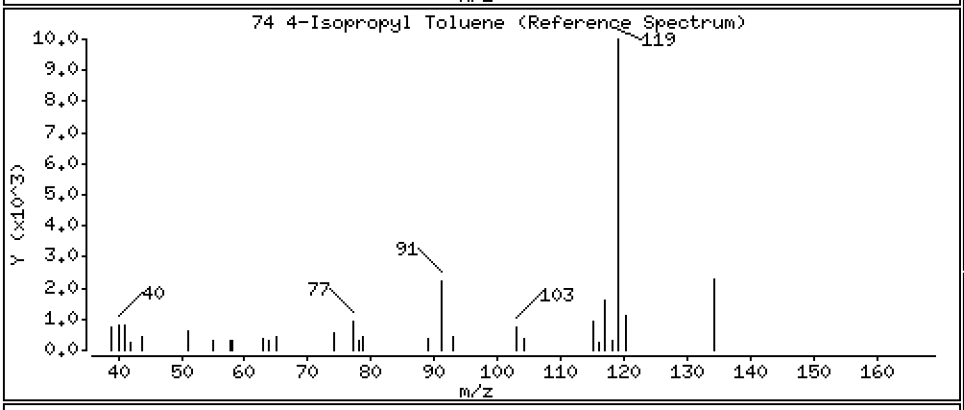
Column diameter: 0.18

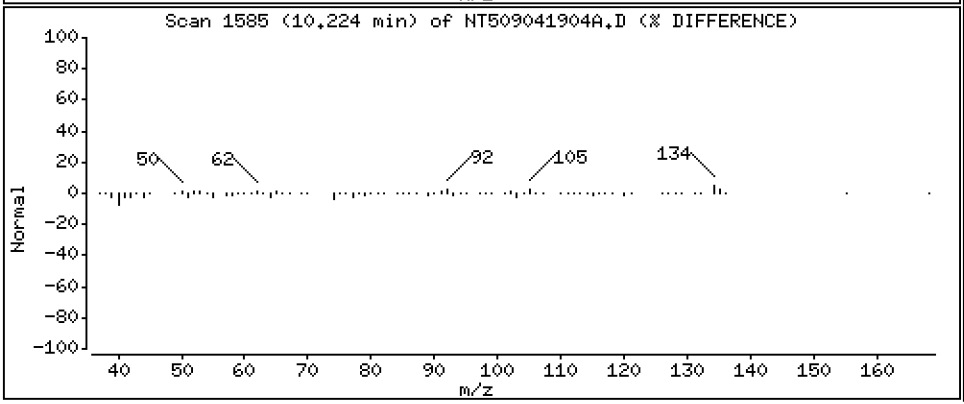
74 4-Isopropyl Toluene

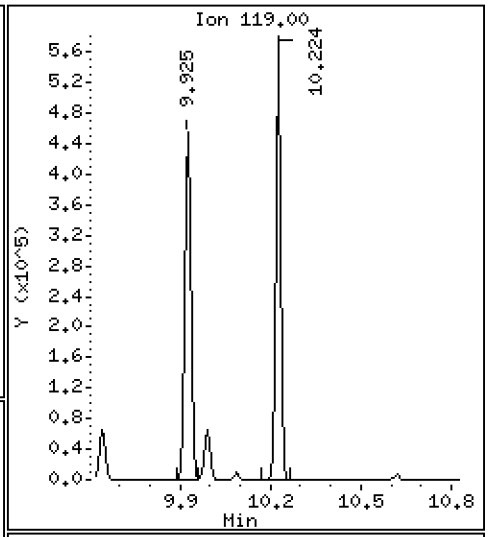
Concentration: 49.612 ug/Kg

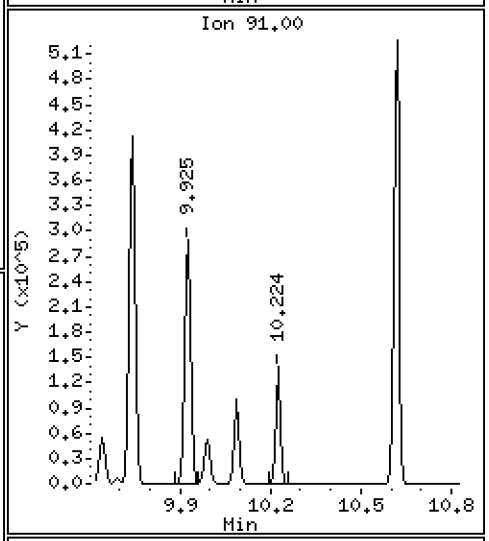


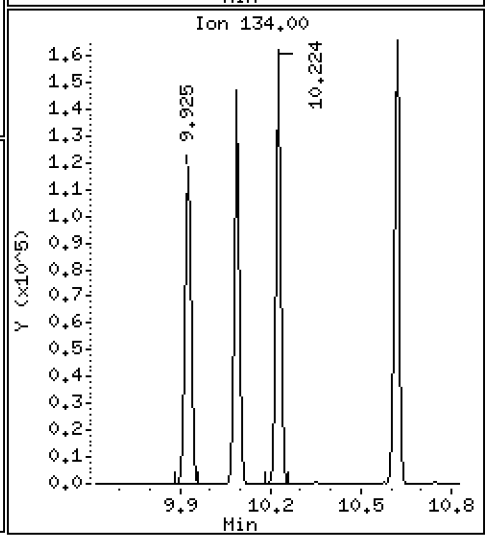












Date : 04-SEP-2019 15:04

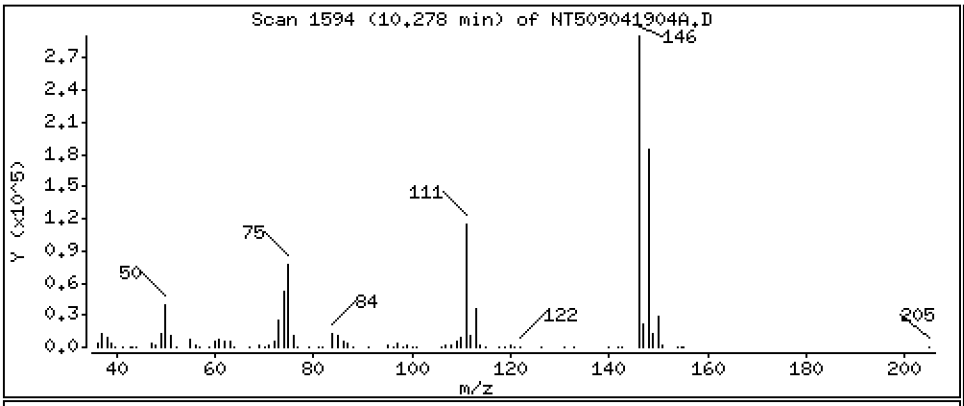
Client ID: Instrument: nt5.i

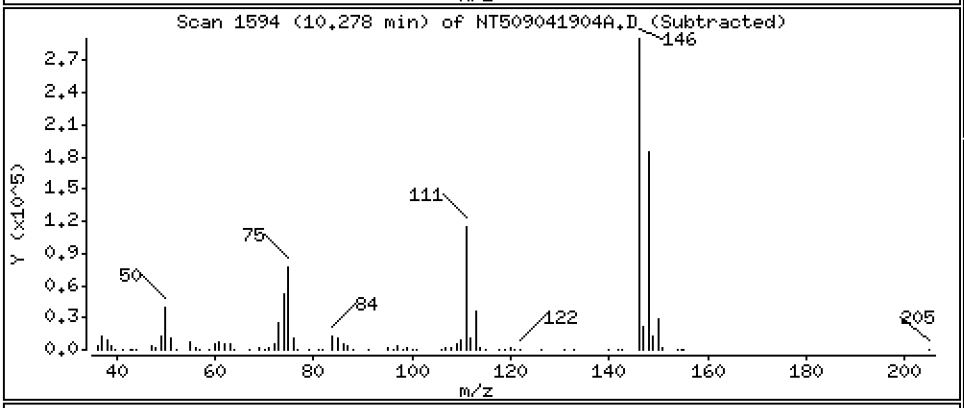
Sample Info: BSD1

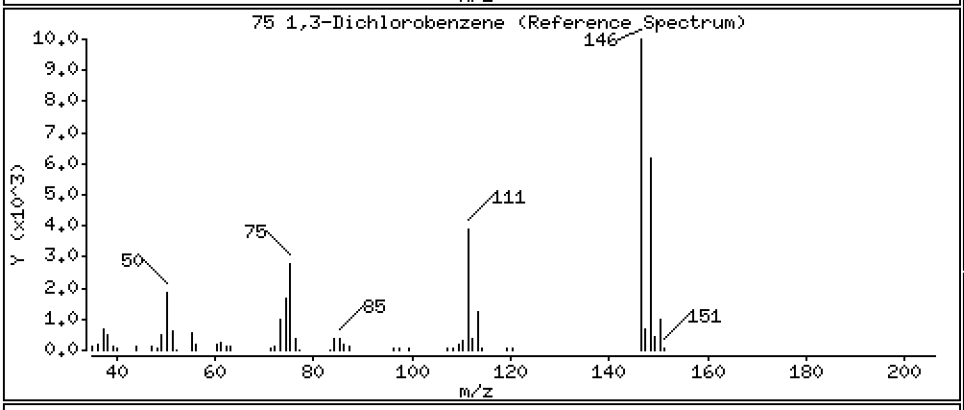
Operator: PB

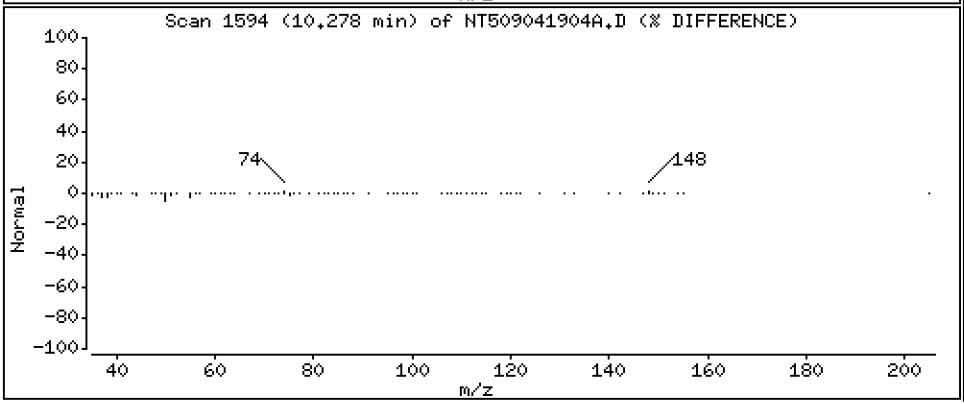
Column phase: RTXVMS Column diameter: 0.18

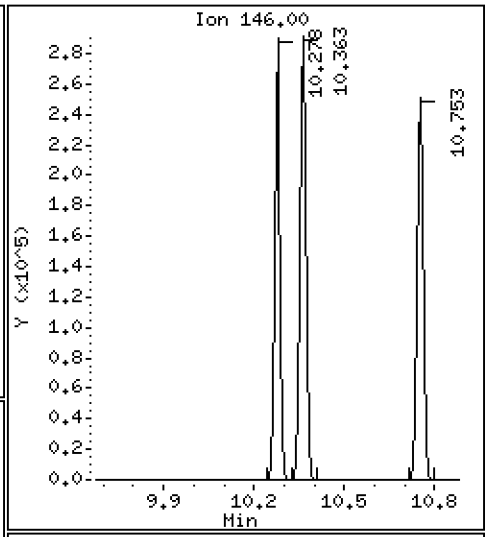
75 1,3-Dichlorobenzene Concentration: 46.849 ug/Kg

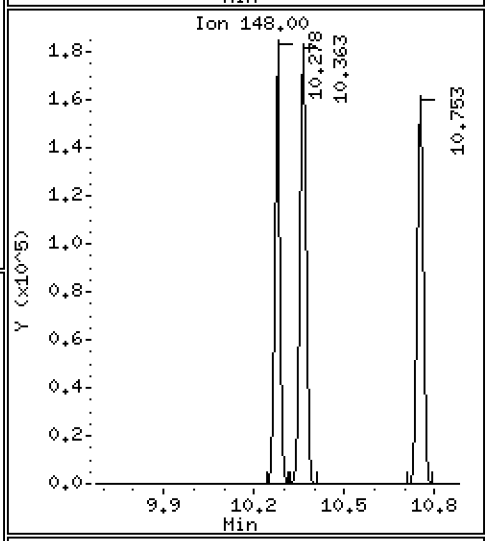


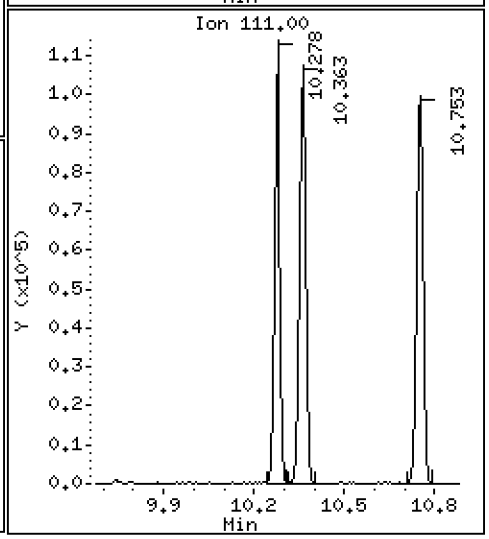












Date : 04-SEP-2019 15:04

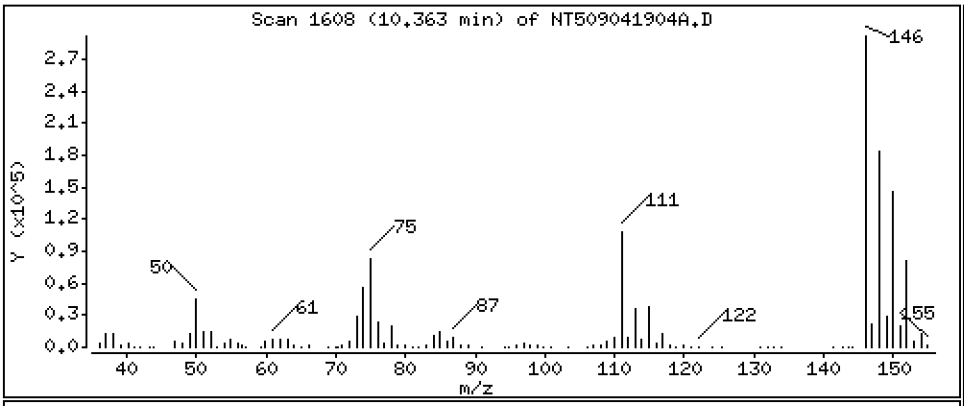
Client ID: Instrument: nt5.i

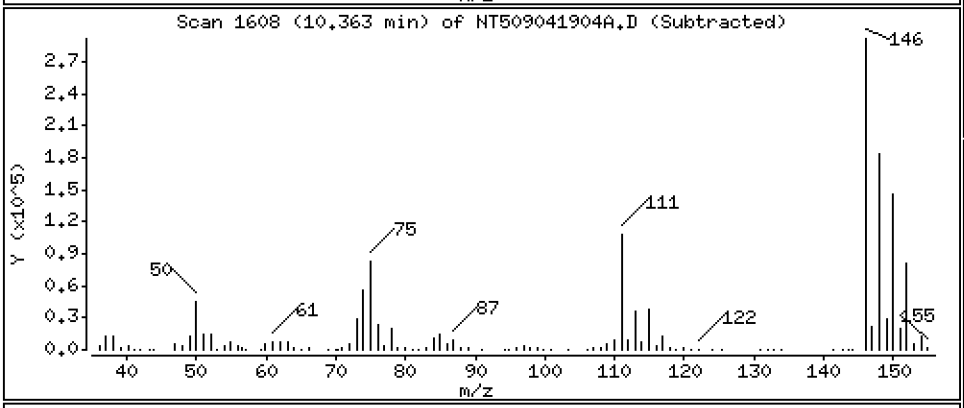
Sample Info: BSD1

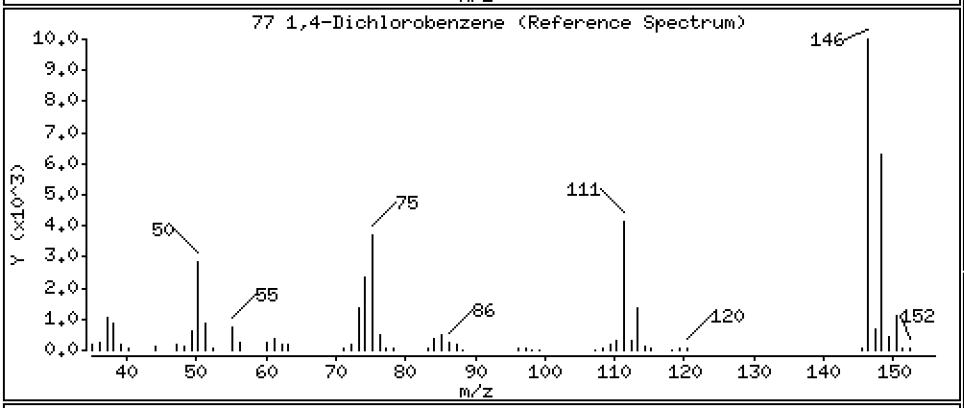
Operator: PB

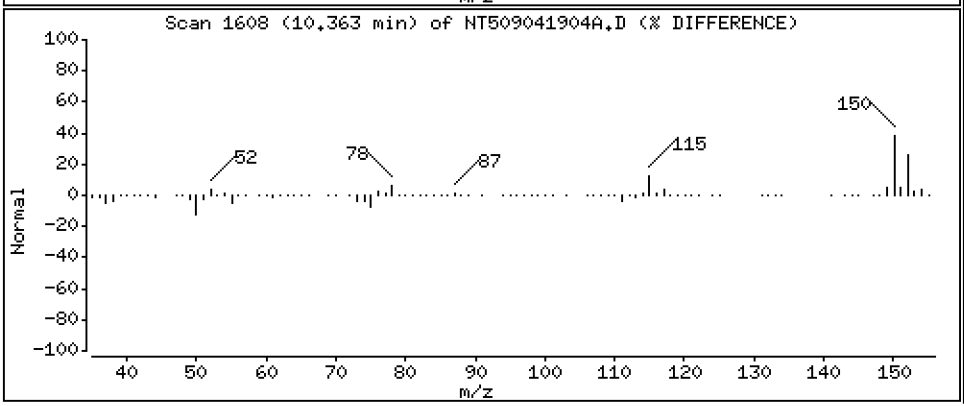
Column phase: RTXVMS Column diameter: 0.18

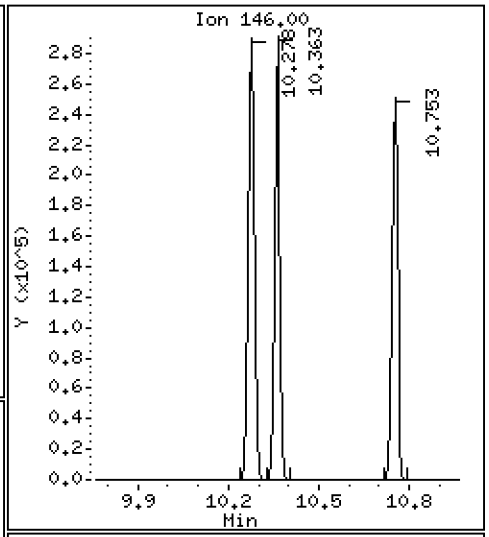
77 1,4-Dichlorobenzene Concentration: 44.881 ug/Kg

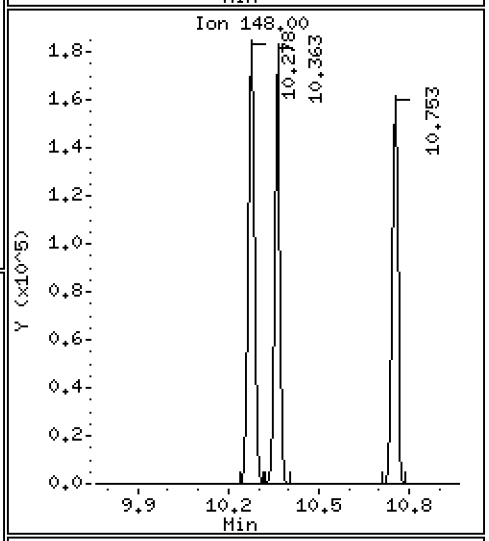


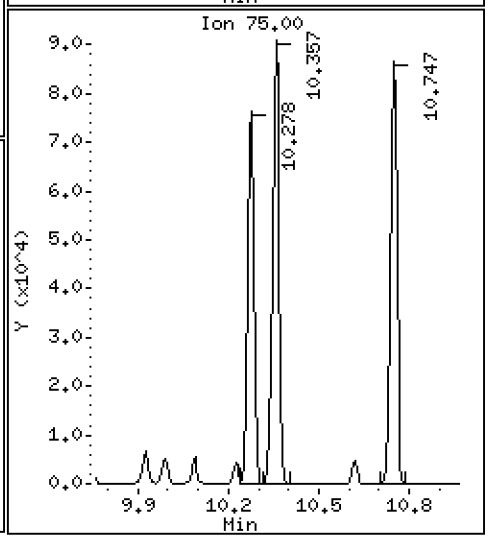












Date : 04-SEP-2019 15:04

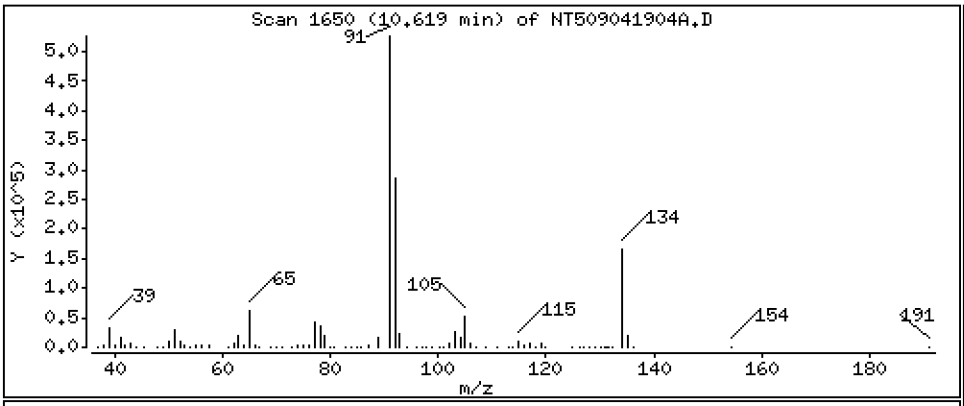
Client ID: Instrument: nt5.i

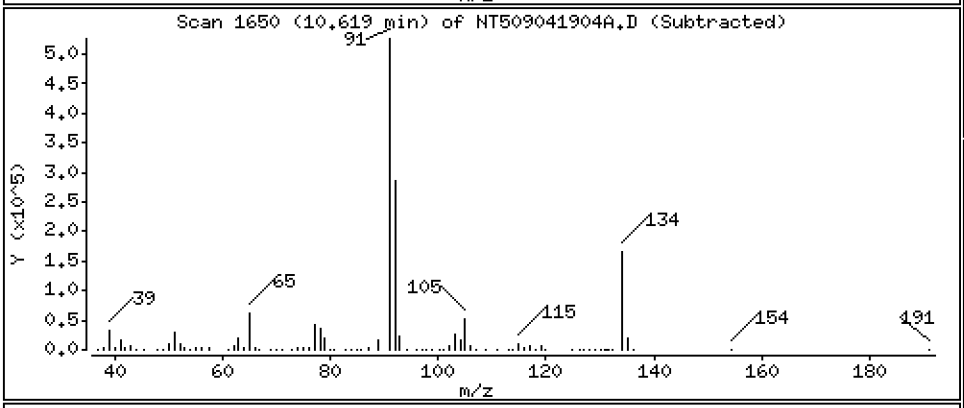
Sample Info: BSD1

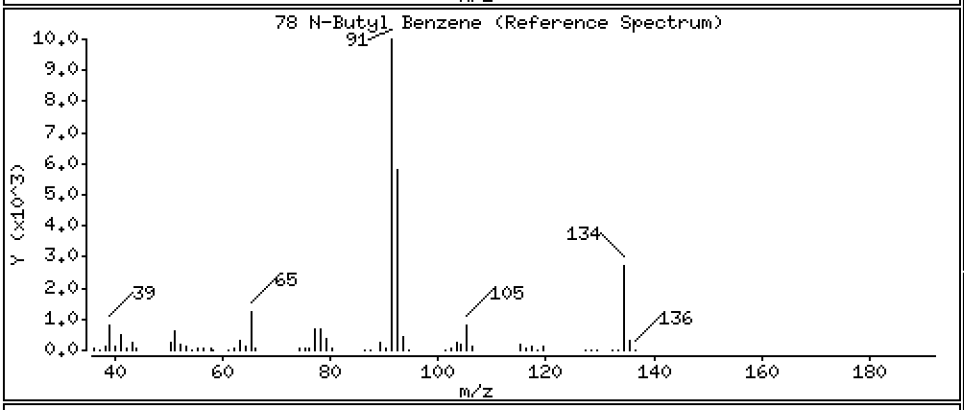
Operator: PB

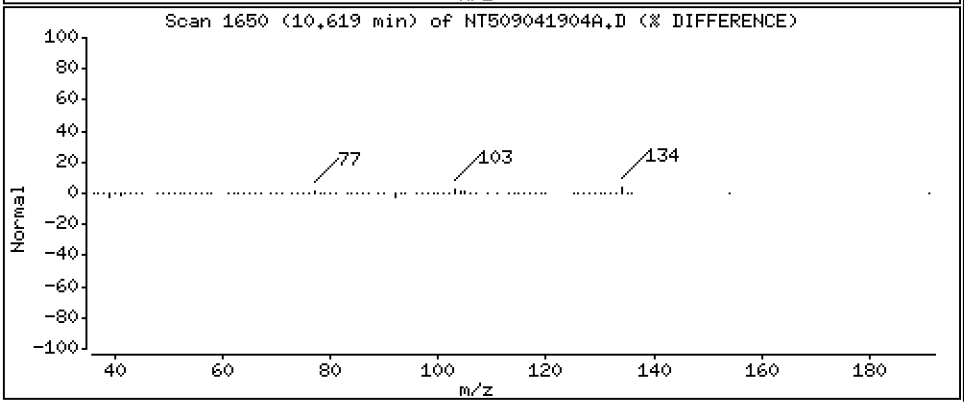
Column phase: RTXVMS Column diameter: 0.18

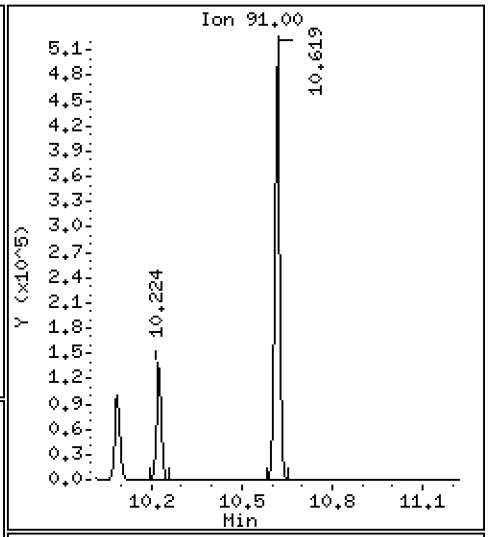
78 N-Butyl Benzene Concentration: 50.470 ug/Kg

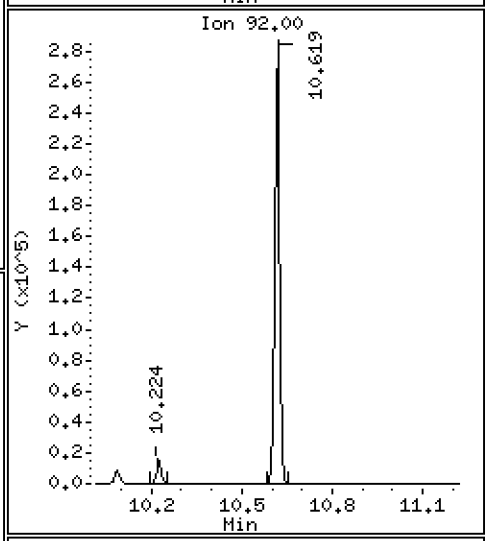


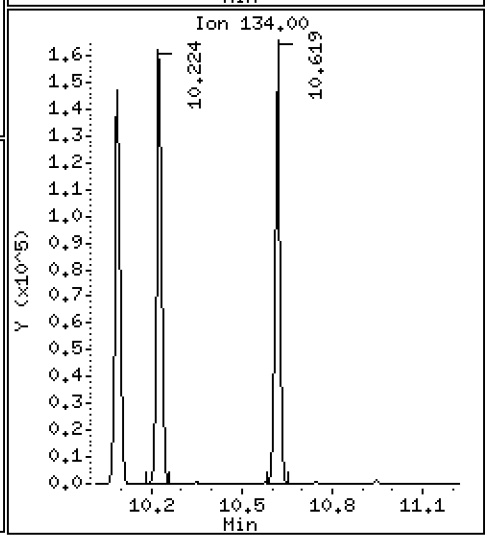












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

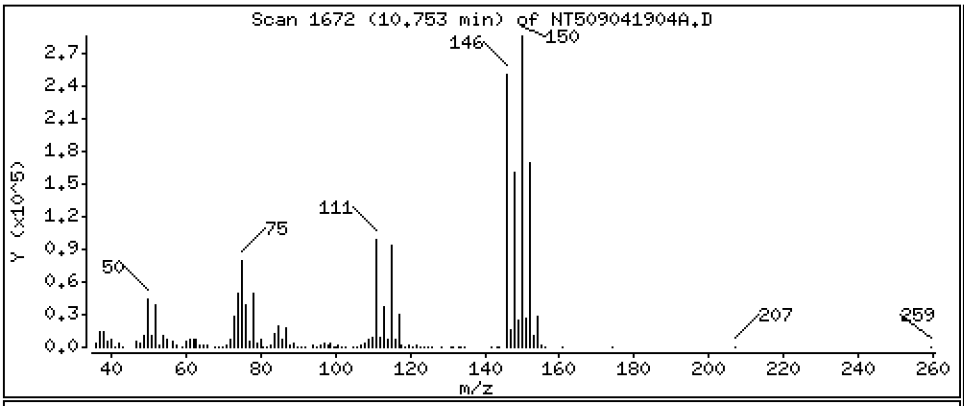
Operator: PB

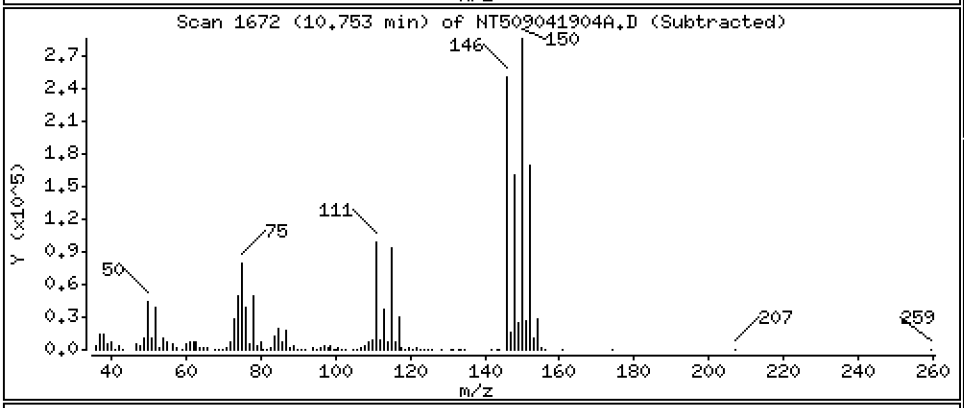
Column phase: RTXVMS

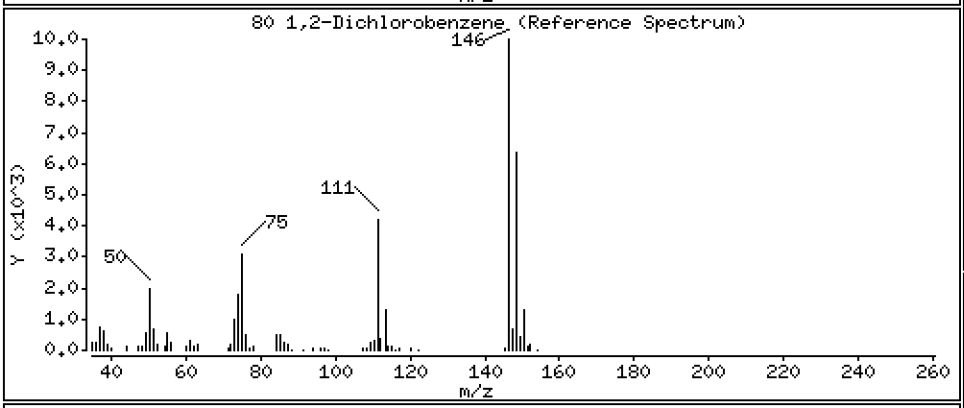
Column diameter: 0.18

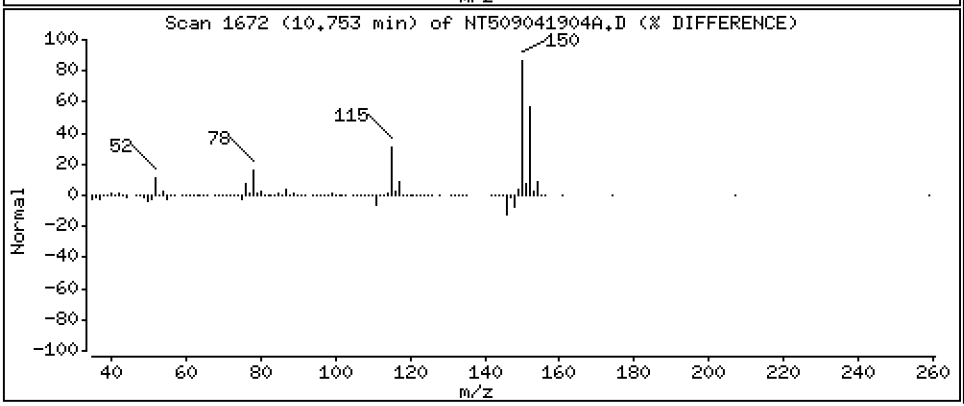
80 1,2-Dichlorobenzene

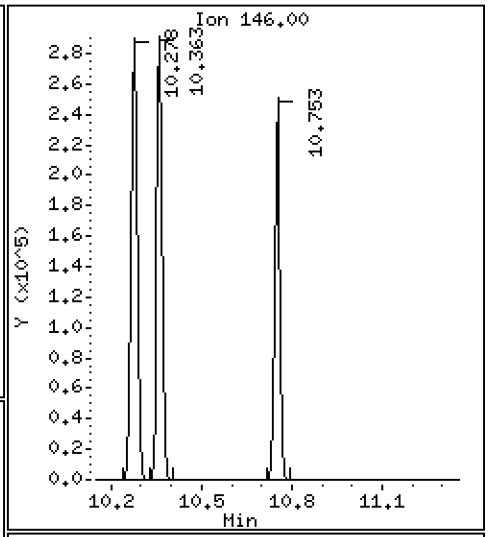
Concentration: 42.926 ug/Kg

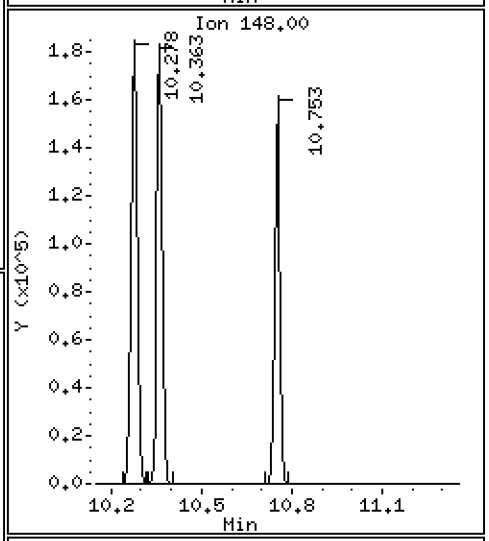


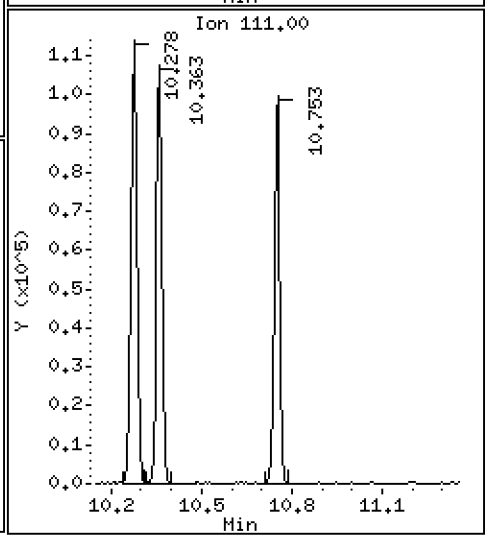












Date : 04-SEP-2019 15:04

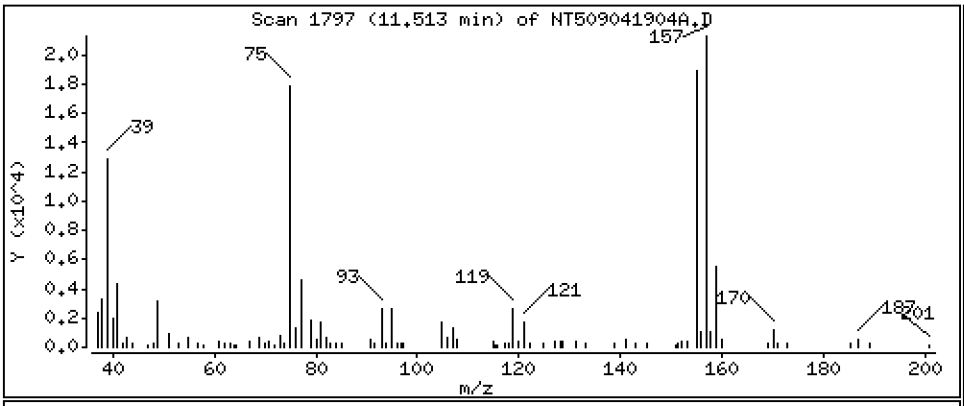
Client ID: Instrument: nt5.i

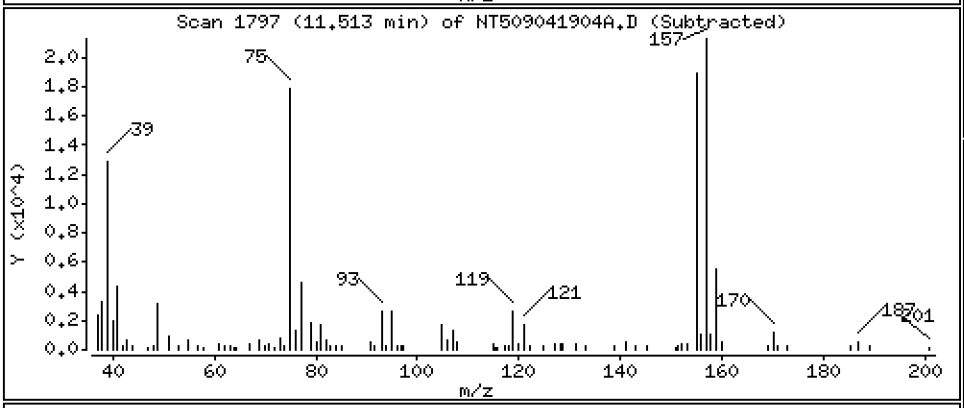
Sample Info: BSD1

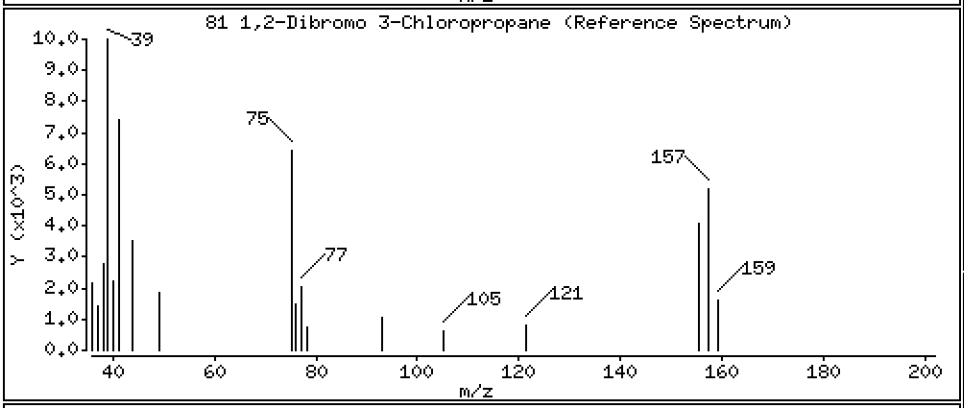
Operator: PB

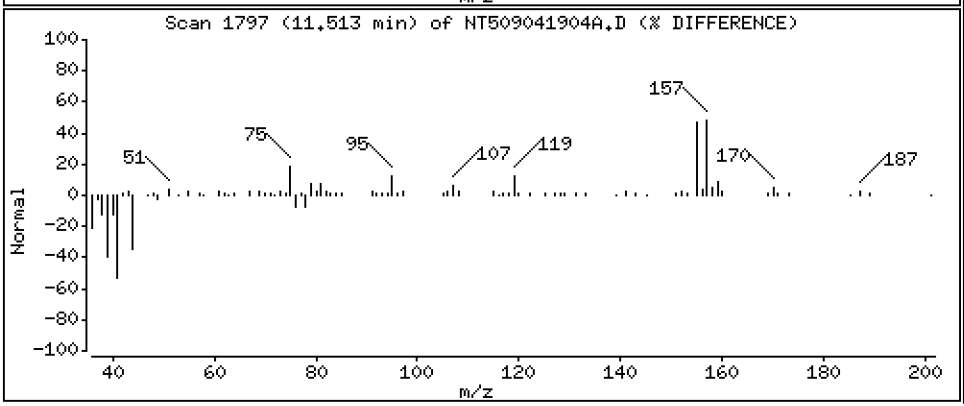
Column phase: RTXVMS Column diameter: 0.18

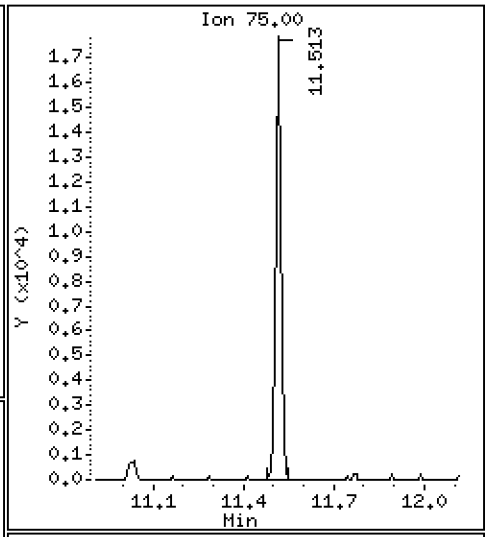
81 1,2-Dibromo 3-Chloropropane Concentration: 42.451 ug/Kg

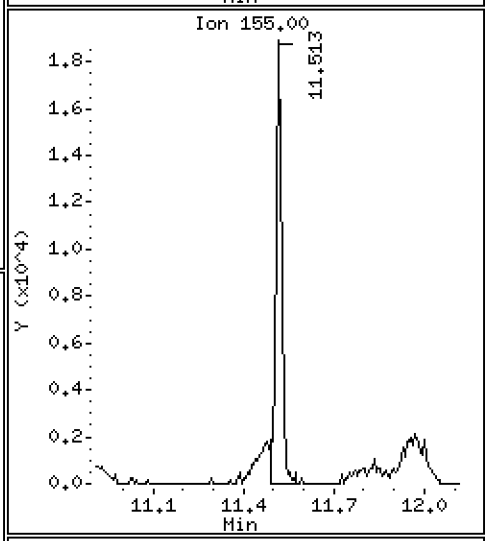


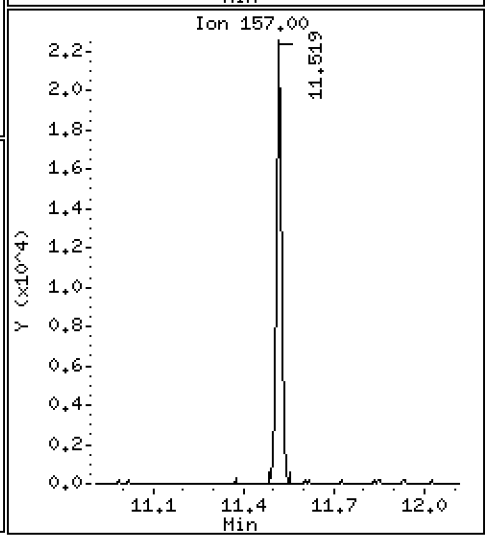












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Date : 04-SEP-2019 15:04

Client ID:

Instrument: nt5.i

Sample Info: BSD1

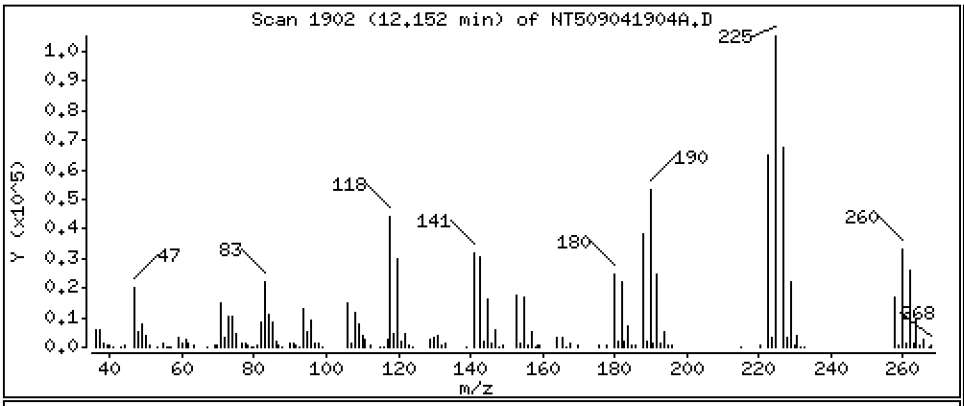
Operator: PB

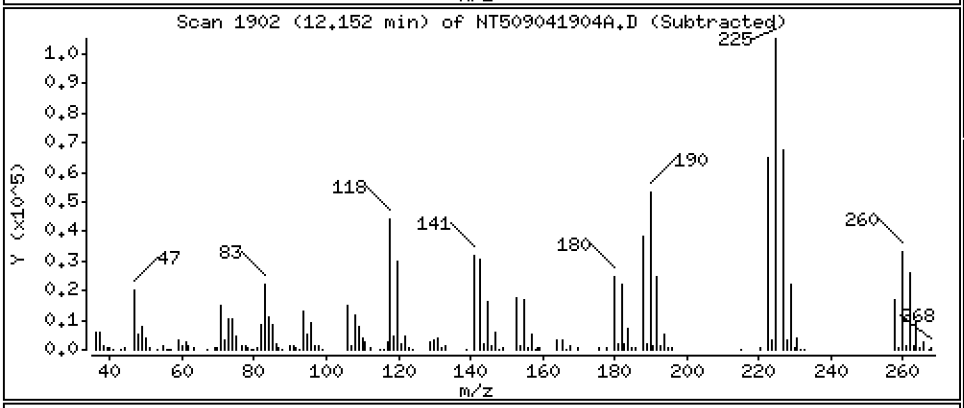
Column phase: RTXVMS

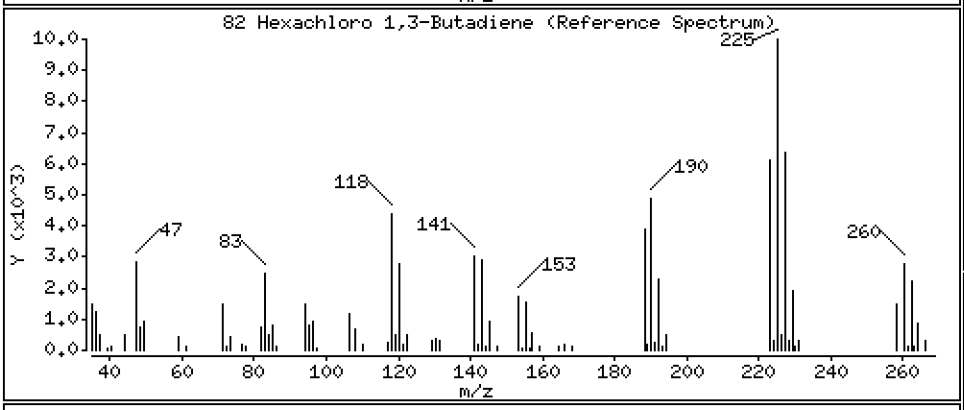
Column diameter: 0.18

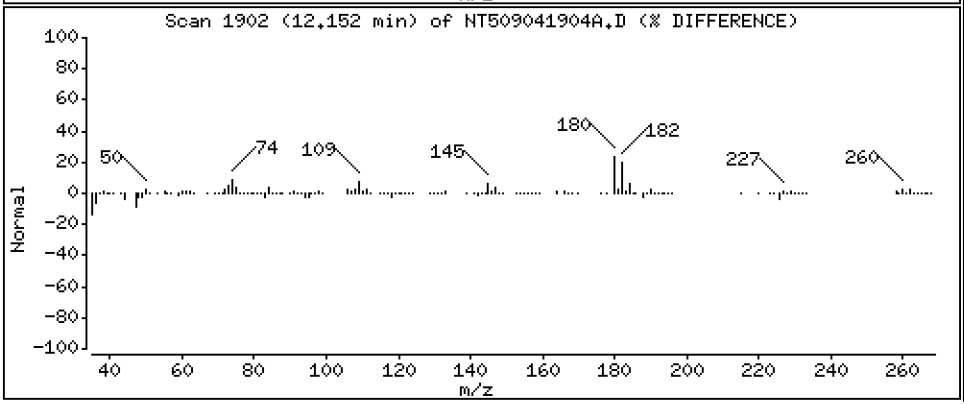
82 Hexachloro 1,3-Butadiene

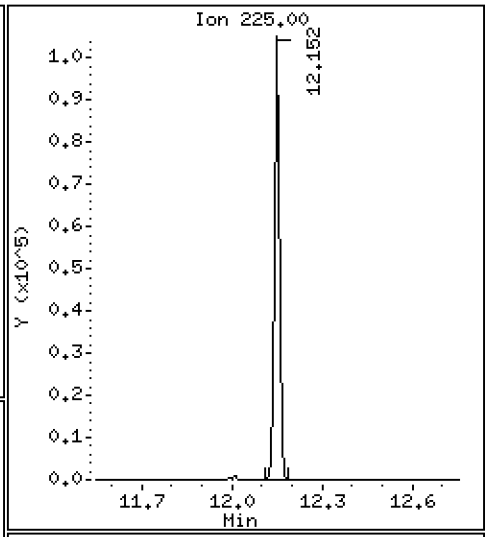
Concentration: 49.910 ug/Kg

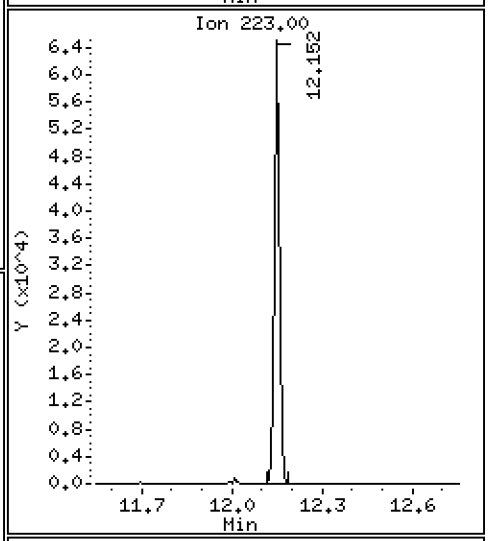


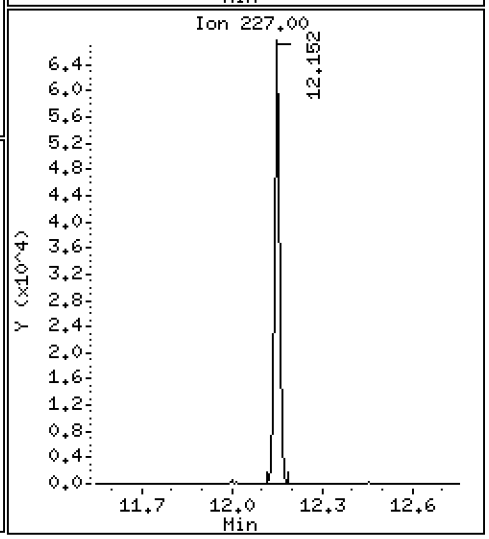












Date : 04-SEP-2019 15:04

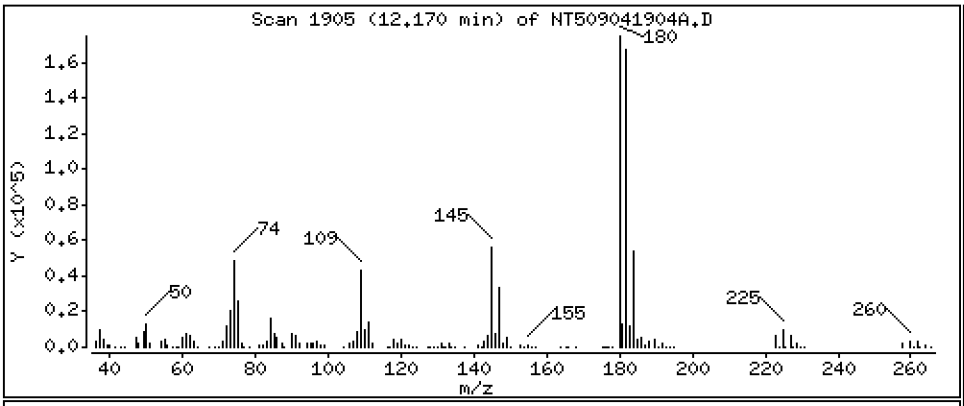
Client ID: Instrument: nt5.i

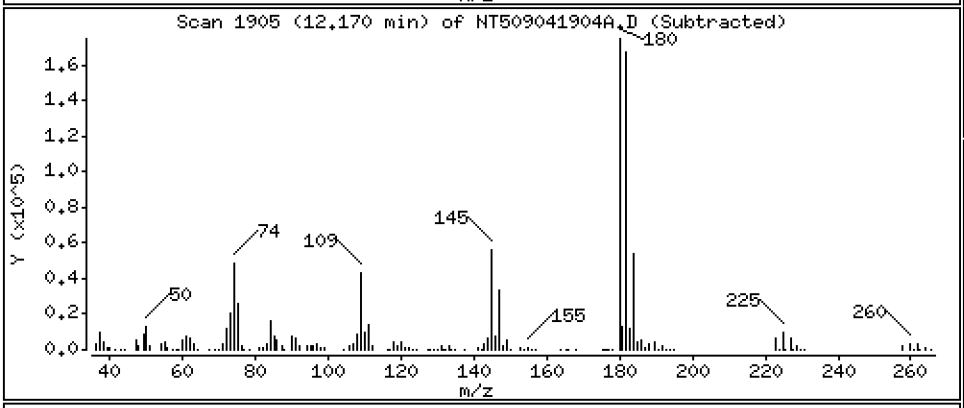
Sample Info: BSD1

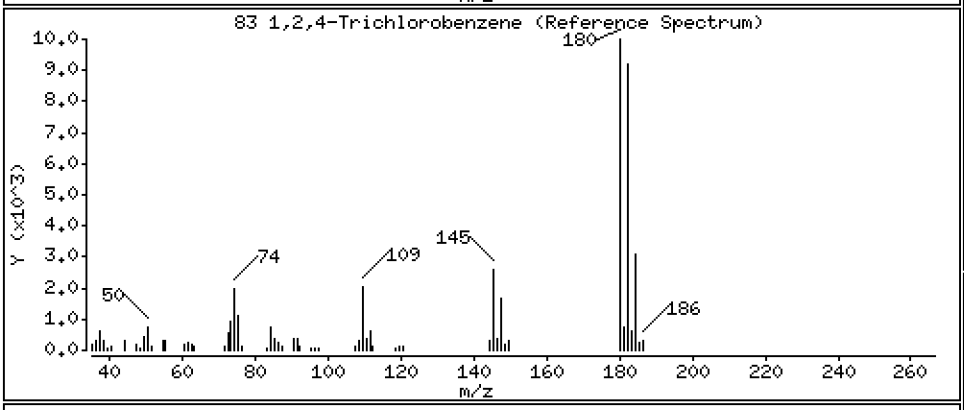
Operator: PB

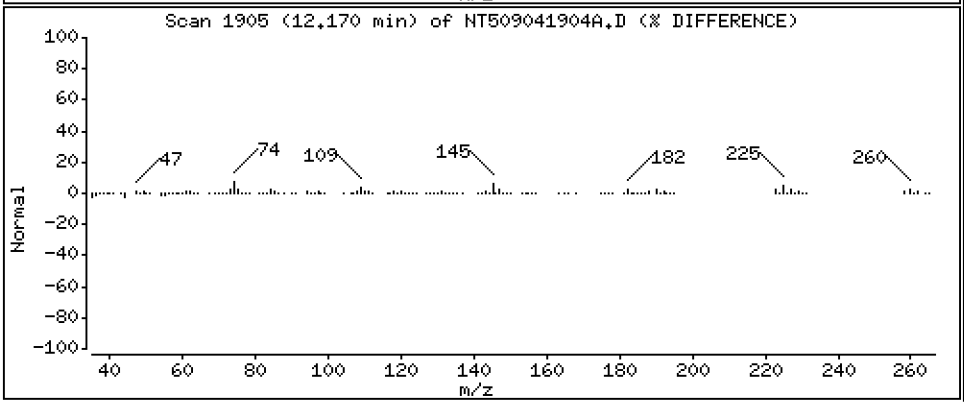
Column phase: RTXVMS Column diameter: 0.18

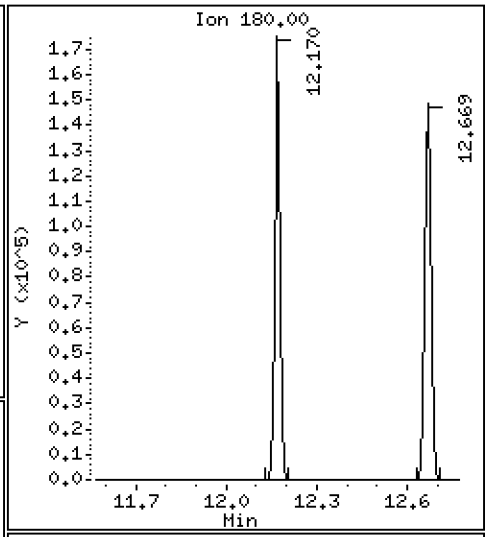
83 1,2,4-Trichlorobenzene Concentration: 47.239 ug/Kg

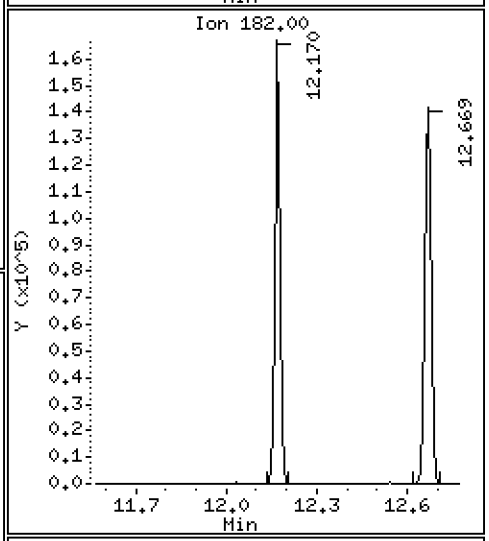


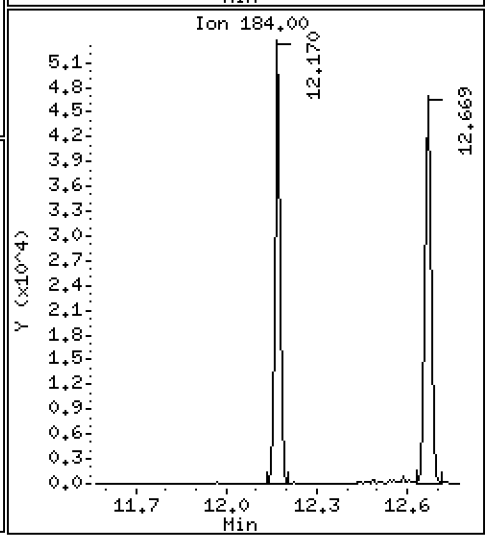












Date : 04-SEP-2019 15:04

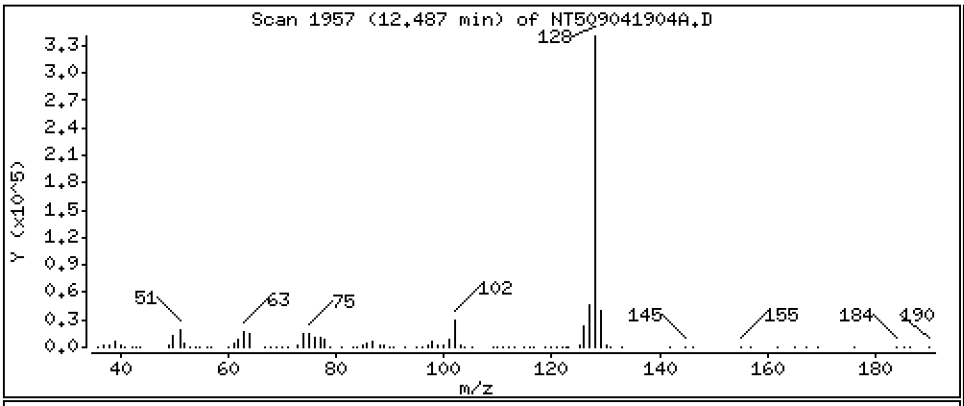
Client ID: Instrument: nt5.i

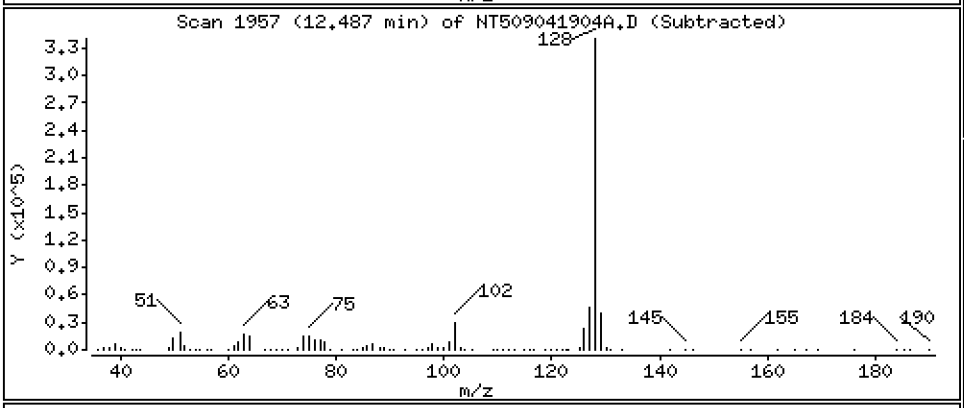
Sample Info: BSD1

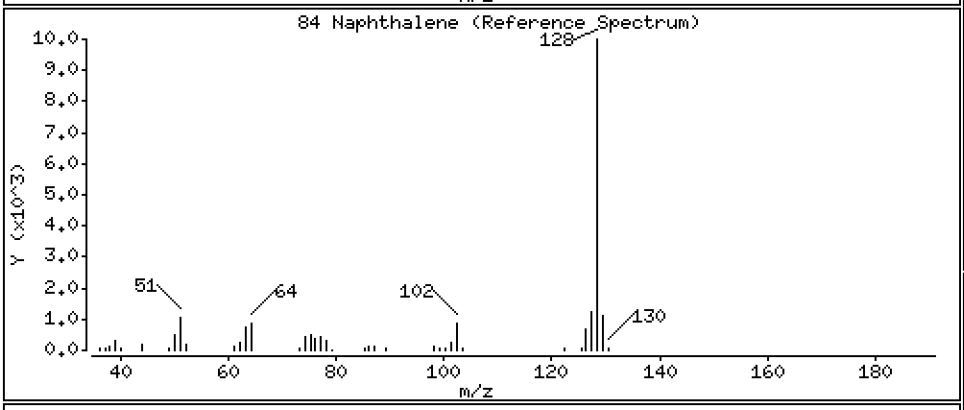
Operator: PB

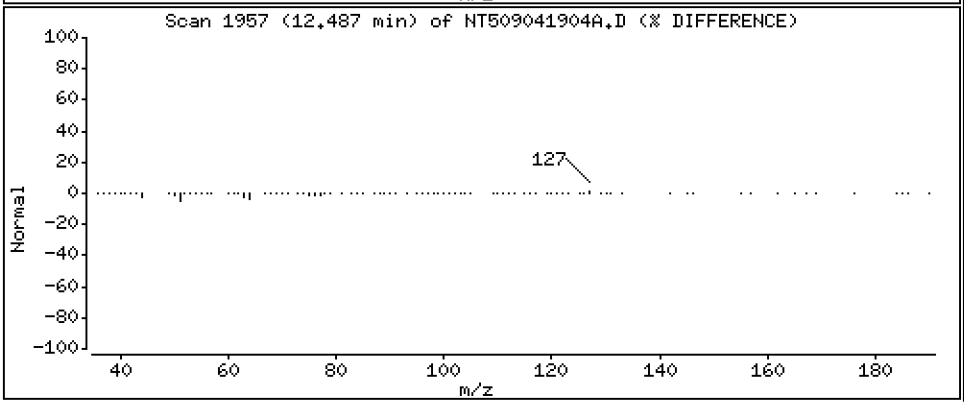
Column phase: RTXVMS Column diameter: 0.18

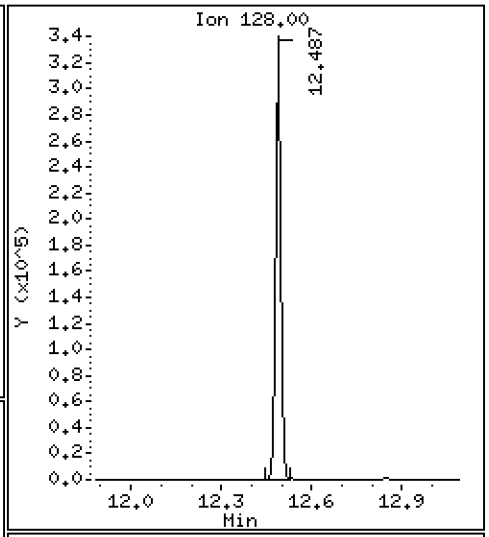
84 Naphthalene Concentration: 46.281 ug/Kg

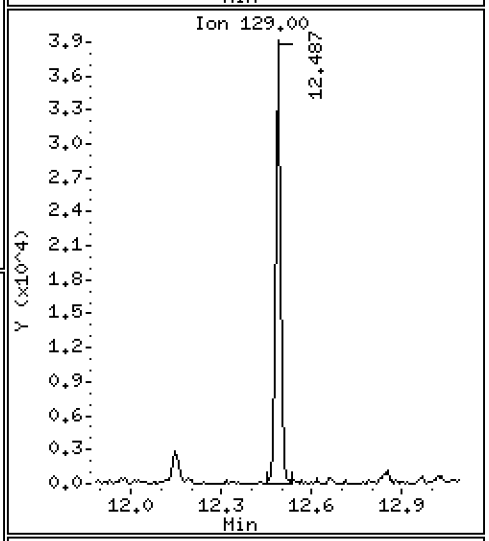


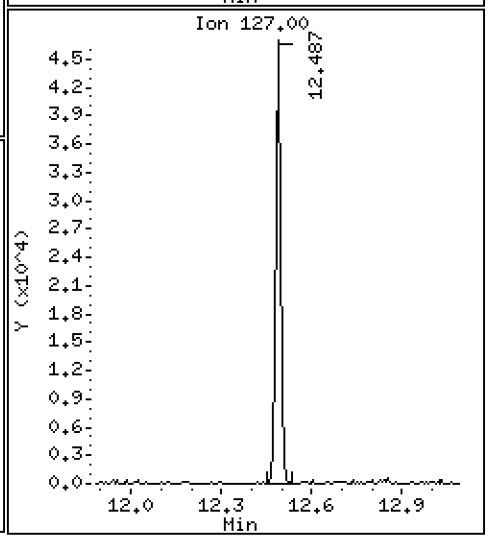












Date : 04-SEP-2019 15:04

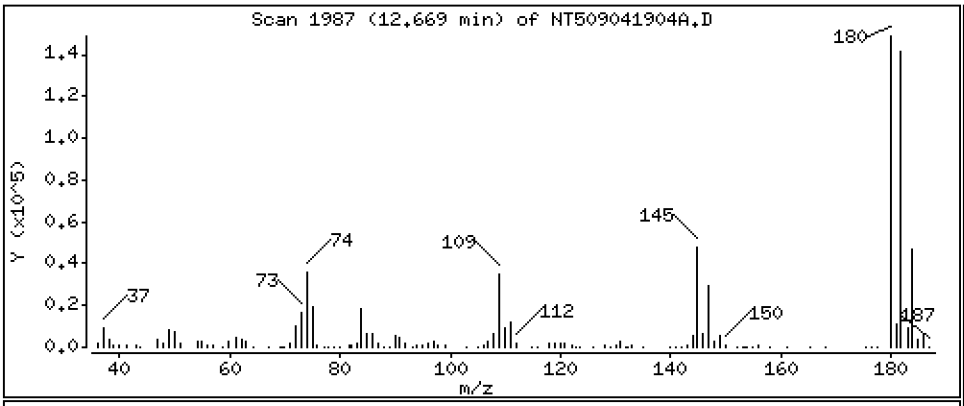
Client ID: Instrument: nt5.i

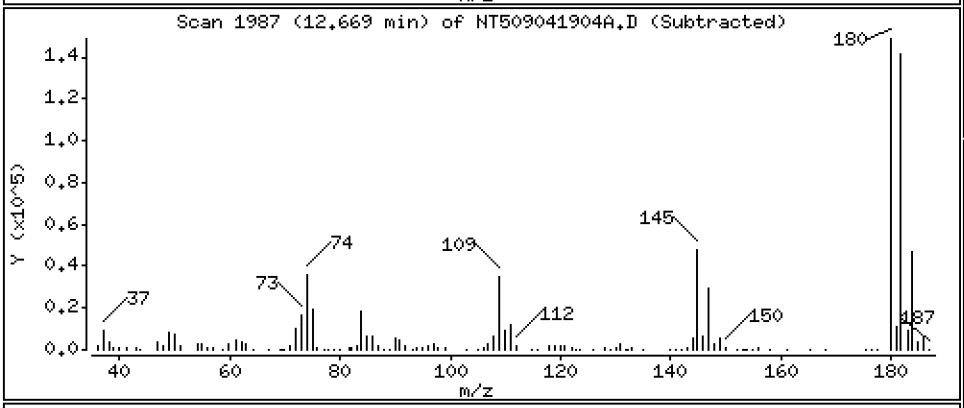
Sample Info: BSD1

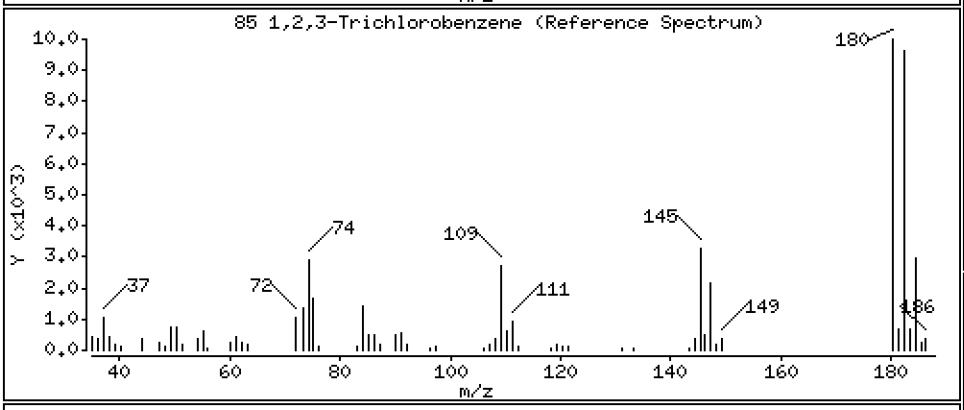
Operator: PB

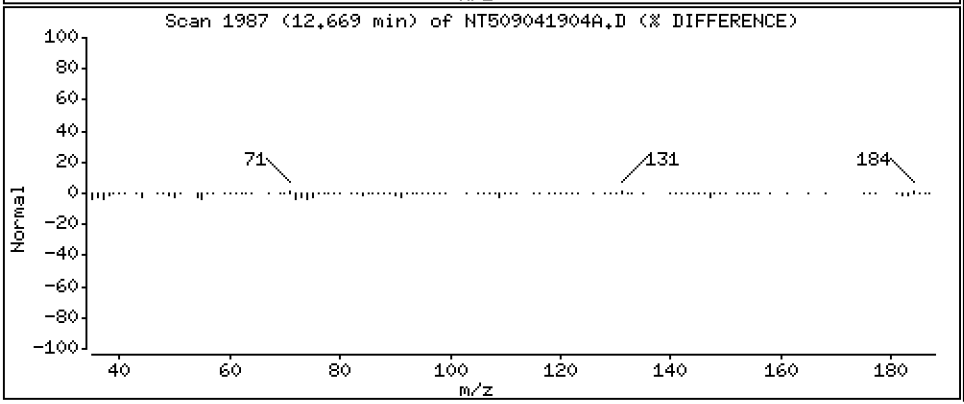
Column phase: RTXVMS Column diameter: 0.18

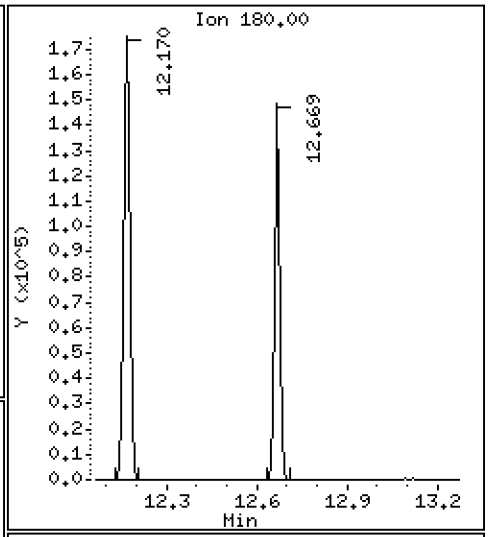
85 1,2,3-Trichlorobenzene Concentration: 45.569 ug/Kg

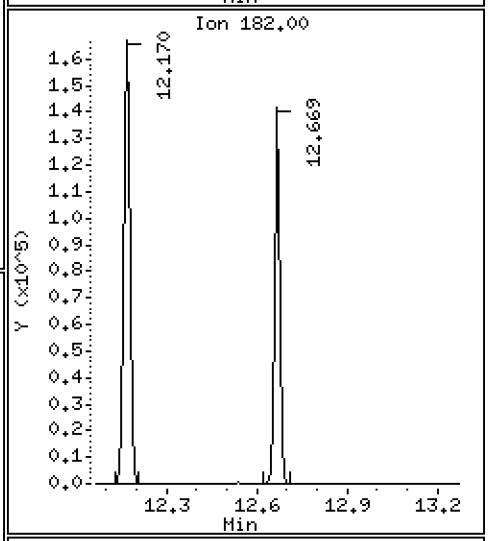


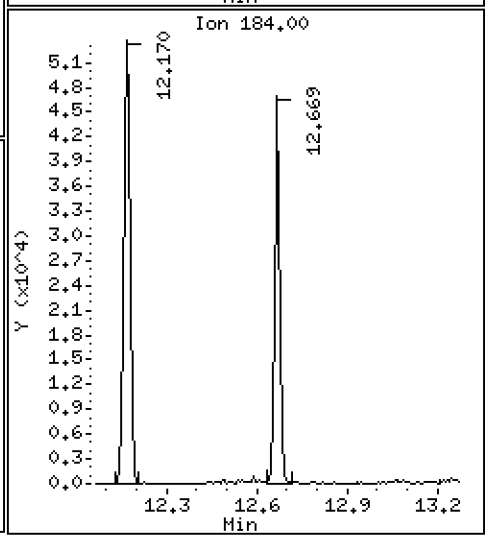












ARI Labs, Inc.

8260C

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Inj Date : 04-SEP-2019 15:04
Operator : PB   Inst ID: nt5.i
Smp Info : BSD1
Misc Info :
Comment   :
Method   : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i   Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29   Cal File: NT508201911.D
Als bottle: 7   QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	155314	58.5768	58.577
	2 Chloromethane	50	1.487	1.481	(0.279)	142892	59.8346	59.835
	3 Vinyl Chloride	62	1.554	1.554	(0.292)	150352	64.5741	64.574
	4 Bromomethane	94	1.840	1.840	(0.345)	108406	52.5109	52.511
	5 Chloroethane	64	1.943	1.949	(0.365)	130955	67.0552	67.055
	6 Trichlorofluoromethane	101	2.065	2.065	(0.387)	278217	58.7424	58.742
	7 1,1-Dichloroethene	96	2.533	2.533	(0.475)	142593	58.1973	58.197
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	421696	57.5680	57.568
	9 112Trichloro122Trifluoroethane	101	2.588	2.588	(0.485)	139887	57.8774	57.877
	10 Iodomethane	142	2.667	2.661	(0.500)	166118	63.2423	63.242
	11 Bromoethane	108	2.795	2.795	(0.524)	94497	57.2503	57.250
	12 Acrolein	56	2.911	2.911	(0.546)	84685	306.365	306.36
	13 Methylene Chloride	84	3.154	3.148	(0.592)	129292	59.8963	59.896
	14 Acetone	43	3.257	3.257	(0.611)	139062	297.675	297.67
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	156252	58.0097	58.010
	16 Methyl tert butyl ether	73	3.482	3.482	(0.653)	322759	51.9621	51.962
	173 n-Hexane	41	3.482	3.482	(0.653)	64010	26.1531	26.153
	17 1,1-Dichloroethane	63	3.939	3.939	(0.739)	237618	57.1065	57.106
	18 Acrylonitrile	53	4.024	4.024	(0.755)	30042	57.0457	57.046
	19 Vinyl Acetate	43	4.237	4.243	(0.795)	222704	51.6989	51.699
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.837)	163073	53.6920	53.692
	22 2,2-Dichloropropane	77	4.553	4.553	(0.854)	262771	56.9729	56.973
	23 Bromochloromethane	128	4.644	4.644	(0.871)	77532	53.7219	53.722
	24 Chloroform	83	4.730	4.730	(0.887)	259367	53.7020	53.702
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	265026	47.4281	47.428
$	27 Dibromofluoromethane	111	4.894	4.894	(0.918)	258397	61.4879	61.488(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.917)	272649	55.3471	55.347
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	216924	49.0191	49.019
	29 2-Butanone	72	5.040	5.046	(0.945)	62715	268.530	268.53
	30 Benzene	78	5.222	5.222	(0.903)	587262	47.1770	47.177
*	31 Pentafluorobenzene	168	5.332	5.332	(1.000)	342178	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.003)	238497	57.9268	57.927(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	178351	41.7431	41.743

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.733	5.733	(0.992)	182311	47.8339	47.834
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	778402	50.0000	
	37	Dibromomethane	93	6.092	6.092	(1.054)	77581	43.2747	43.275
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	129347	45.6162	45.616
	39	Bromodichloromethane	83	6.250	6.251	(1.081)	192960	43.8248	43.825
	172	2-Pentanone	86	6.543	6.543	(1.132)	83369	227.465	227.46
	40	2-Chloroethyl Vinyl Ether	63	6.755	6.755	(1.168)	63634	41.1878	41.188
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	226345	44.4258	44.426
$	42	d8-Toluene	98	6.938	6.938	(1.200)	981331	51.0449	51.045(R)
	43	Toluene	92	6.981	6.981	(1.207)	398662	45.2710	45.271
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	199810	48.6997	48.700
	45	4-Methyl-2-Pentanone	58	7.327	7.327	(1.267)	197226	223.255	223.25
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	210698	45.0591	45.059
	47	1,1,2-Trichloroethane	97	7.479	7.479	(1.294)	108342	42.8955	42.895
	48	Chlorodibromomethane	129	7.619	7.619	(0.923)	147929	41.8034	41.803
	49	1,3-Dichloropropane	76	7.704	7.704	(0.933)	186043	42.8332	42.833
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	110658	43.5098	43.510
	51	2-Hexanone	43	8.045	8.045	(0.974)	342570	220.194	220.19
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	765846	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	455425	43.7653	43.765
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	778706	45.7559	45.756
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	162796	43.5266	43.527
	56	m,p-xylene	106	8.435	8.435	(1.021)	622396	92.6144	92.614
	57	o-Xylene	106	8.806	8.806	(1.066)	292770	46.3260	46.326
	58	Styrene	104	8.854	8.854	(1.072)	475326	45.7253	45.725
	59	Bromoform	173	8.866	8.866	(0.857)	102523	41.5753	41.575
	60	Isopropyl Benzene	105	9.085	9.085	(0.878)	824100	48.5633	48.563
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1441		
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	328237	49.4392	49.439(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	189374	43.6400	43.640
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	935036	48.0168	48.017
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	132185	43.0916	43.092
	66	2-Chloro Toluene	91	9.590	9.590	(0.927)	531833	47.3371	47.337
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	680749	48.3144	48.314
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	47951	43.7551	43.755
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	39105	43.0606	43.061
	70	4-Chloro Toluene	91	9.742	9.742	(0.941)	553187	46.7564	46.756
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	615834	47.4266	47.427
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	662534	47.9133	47.913
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	911847	48.6062	48.606
	74	4-Isopropyl Toluene	119	10.223	10.223	(0.988)	797385	49.6122	49.612
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	396987	46.8486	46.849
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	416635	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	386588	44.8807	44.881
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	694920	50.4701	50.470
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.740	(1.038)	399896	51.2285	51.229(R)
	80	1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	344739	42.9265	42.926
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	26638	42.4515	42.451
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	148772	49.9100	49.910
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	238988	47.2392	47.239
	84	Naphthalene	128	12.486	12.486	(1.206)	488208	46.2807	46.281
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	209047	45.5686	45.569

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041904A.D
Lab Smp Id: bhi0098-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 14:02
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	342178	-25.28
35 1,4-Difluorobenze	852165	426083	1704330	778402	-8.66
52 d5-Chlorobenzene	803678	401839	1607356	765846	-4.71
76 d4-1,4-Dichlorobe	439766	219883	879532	416635	-5.26

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.33	4.83	5.83	5.33	-0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	-0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151013
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: bhi0098-BSD1
Level:
Operator: PB
Data Type: MS DATA
SampleType: LCS
SpikeList File: voasoil.spk
Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	58.577	117.15	
2	Chloromethane	50.000	59.835	119.67	
3	Vinyl Chloride	50.000	64.574	129.15	
4	Bromomethane	50.000	52.511	105.02	
5	Chloroethane	50.000	67.055	134.11	
6	Trichlorofluoromet	50.000	58.742	117.48	
12	Acrolein	250.00	306.36	122.55	
9	112Trichloro122Tri	50.000	57.877	115.75	
14	Acetone	250.00	297.67	119.07	
7	1,1-Dichloroethene	50.000	58.197	116.39	
11	Bromoethane	50.000	57.250	114.50	
10	Iodomethane	50.000	63.242	126.48	
13	Methylene Chloride	50.000	59.896	119.79	
8	Carbon Disulfide	50.000	57.568	115.14	
18	Acrylonitrile	50.000	57.046	114.09	
15	Trans-1,2-Dichloro	50.000	58.010	116.02	
19	Vinyl Acetate	50.000	51.699	103.40	
17	1,1-Dichloroethane	50.000	57.106	114.21	
29	2-Butanone	250.00	268.53	107.41	
22	2,2-Dichloropropan	50.000	56.973	113.95	
20	Cis-1,2-Dichloroet	50.000	53.692	107.38	
24	Chloroform	50.000	53.702	107.40	
23	Bromochloromethane	50.000	53.722	107.44	
26	1,1,1-Trichloroeth	50.000	55.347	110.69	
28	1,1-Dichloropropen	50.000	49.019	98.04	
25	Carbon Tetrachlori	50.000	47.428	94.86	
33	1,2-Dichloroethane	50.000	41.743	83.49	
30	Benzene	50.000	47.177	94.35	
34	Trichloroethene	50.000	47.834	95.67	
38	1,2-Dichloropropan	50.000	45.616	91.23	
39	Bromodichlorometha	50.000	43.825	87.65	
172	2-Pentanone	250.00	227.46	90.99	
37	Dibromomethane	50.000	43.275	86.55	
40	2-Chloroethyl Viny	50.000	41.188	82.38	
45	4-Methyl-2-Pentano	250.00	223.25	89.30	
41	Cis 1,3-dichloropr	50.000	44.426	88.85	
43	Toluene	50.000	45.271	90.54	
46	Trans 1,3-Dichloro	50.000	45.059	90.12	
51	2-Hexanone	250.00	220.19	88.08	
47	1,1,2-Trichloroeth	50.000	42.895	85.79	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
49 1,3-Dichloropropan	50.000	42.833	85.67	
44 Tetrachloroethene	50.000	48.700	97.40	
48 Chlorodibromometha	50.000	41.803	83.61	
50 1,2-Dibromoethane	50.000	43.510	87.02	
53 Chlorobenzene	50.000	43.765	87.53	
55 1,1,1,2-Tetrachlor	50.000	43.527	87.05	
54 Ethyl Benzene	50.000	45.756	91.51	
56 m,p-xylene	100.00	92.614	92.61	
57 o-Xylene	50.000	46.326	92.65	
58 Styrene	50.000	45.725	91.45	
60 Isopropyl Benzene	50.000	48.563	97.13	
59 Bromoform	50.000	41.575	83.15	
65 1,1,2,2-Tetrachlor	50.000	43.092	86.18	
68 1,2,3-Trichloropro	50.000	43.755	87.51	
69 Trans-1,4-Dichloro	50.000	43.061	86.12	
64 N-Propyl Benzene	50.000	48.017	96.03	
63 Bromobenzene	50.000	43.640	87.28	
67 1,3,5-Trimethyl Be	50.000	48.314	96.63	
66 2-Chloro Toluene	50.000	47.337	94.67	
70 4-Chloro Toluene	50.000	46.756	93.51	
71 T-Butyl Benzene	50.000	47.427	94.85	
72 1,2,4-Trimethylben	50.000	47.913	95.83	
73 S-Butyl Benzene	50.000	48.606	97.21	
74 4-Isopropyl Toluen	50.000	49.612	99.22	
75 1,3-Dichlorobenzen	50.000	46.849	93.70	
77 1,4-Dichlorobenzen	50.000	44.881	89.76	
78 N-Butyl Benzene	50.000	50.470	100.94	
80 1,2-Dichlorobenzen	50.000	42.926	85.85	
81 1,2-Dibromo 3-Chlo	50.000	42.451	84.90	
83 1,2,4-Trichloroben	50.000	47.239	94.48	
82 Hexachloro 1,3-But	50.000	49.910	99.82	
84 Naphthalene	50.000	46.281	92.56	
85 1,2,3-Trichloroben	50.000	45.569	91.14	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	61.488	122.98	
$ 32 d4-1,2-Dichloroeth	50.000	57.927	115.85	
$ 42 d8-Toluene	50.000	51.045	102.09	
$ 62 4-Bromofluorobenze	50.000	49.439	98.88	
$ 79 d4-1,2-Dichloroben	50.000	51.229	102.46	

REVIEW SUMMARY FOR FILE - NT509041904A.D

Lab ID: bhi0098-BSD1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 15:04

RT	CO-ELUTION COMPOUNDS
3.483	n-Hexane and Methyl tert butyl ether
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.653	0.000	0.6532	n-Hexane

RRT check based on Ccal File: NT509041903.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

LCS / LCS DUPLICATE RECOVERY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Water	Analyzed:	09/05/19 12:30
Batch:	BHI0133	Laboratory ID:	BHI0133-BS1
Preparation:	EPA 5030 (Purge and Trap)	Sequence Name:	LCS
Initial/Final:	10 mL / 10 ml		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Benzene	10.0	10.6		106	80 - 120
Toluene	10.0	10.6		106	80 - 120
Ethylbenzene	10.0	10.7		107	80 - 120
m,p-Xylene	20.0	21.6		108	80 - 121
o-Xylene	10.0	10.7		107	80 - 121

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzene	10.0	9.80		98.0	7.78	30	80 - 120
Toluene	10.0	9.68		96.8	9.39	30	80 - 120
Ethylbenzene	10.0	9.89		98.9	7.66	30	80 - 120
m,p-Xylene	20.0	19.5		97.4	10.5	30	80 - 121
o-Xylene	10.0	9.79		97.9	8.91	30	80 - 121

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

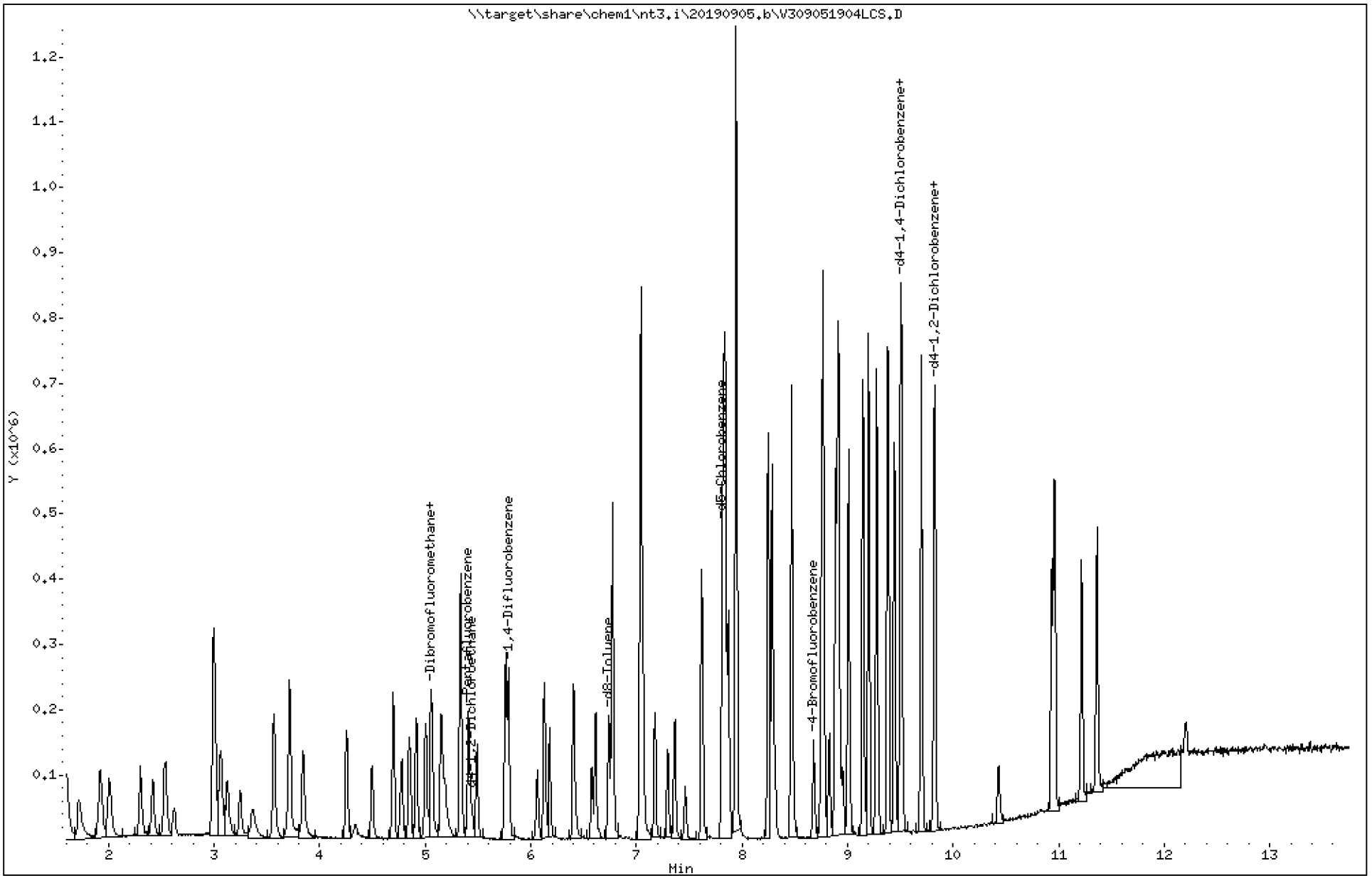
Sample Info: BHI0133-BS1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

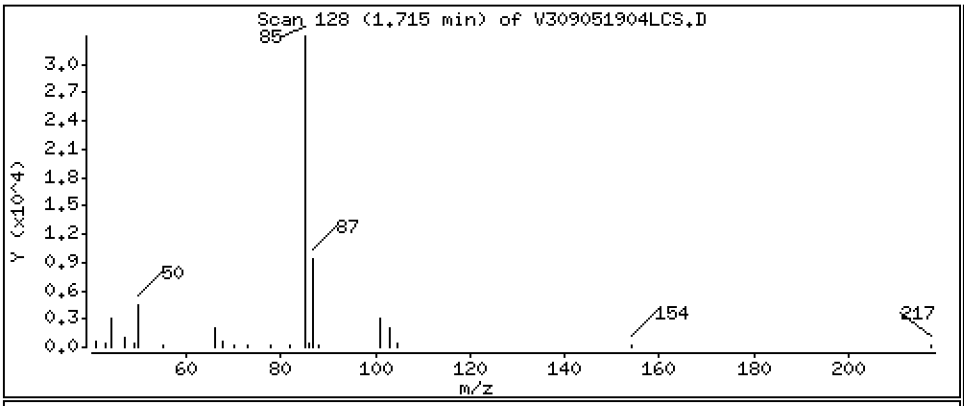
Operator: PKC

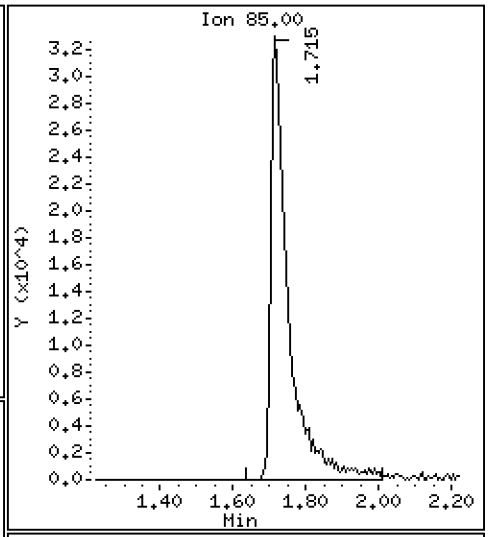
Column phase: RTXVMS

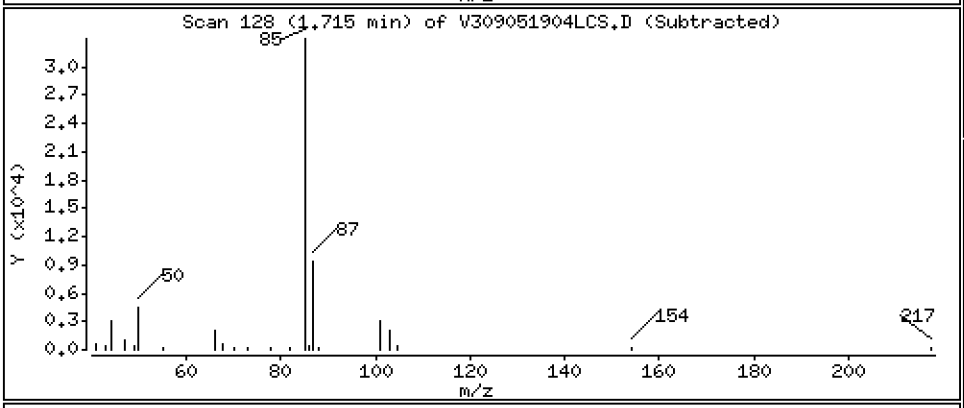
Column diameter: 0.18

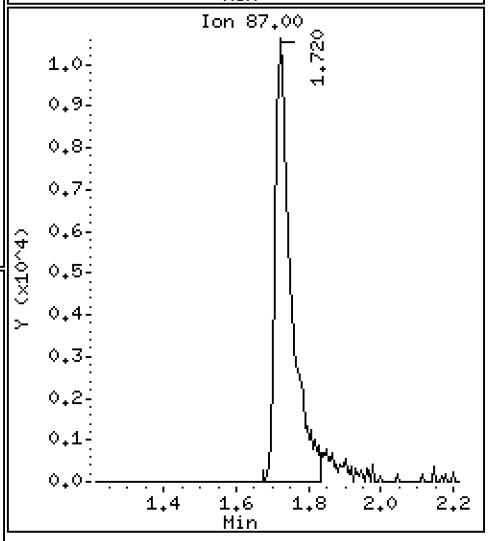
1 Dichlorodifluoromethane

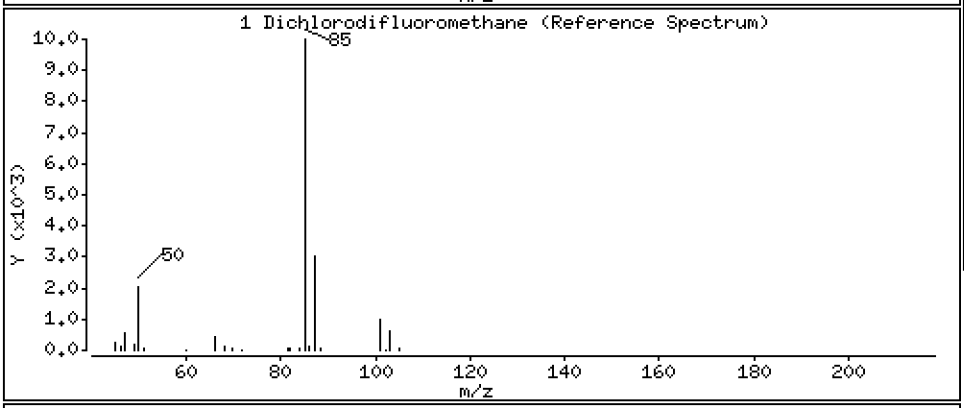
Concentration: 11.100 ug/L

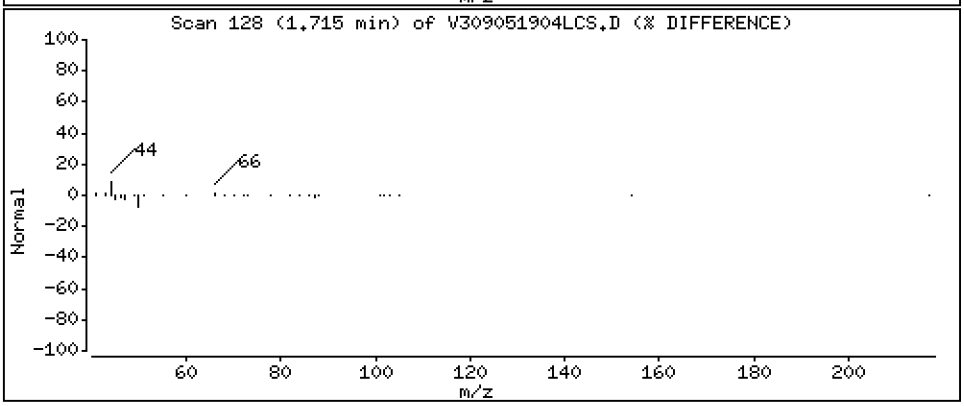












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

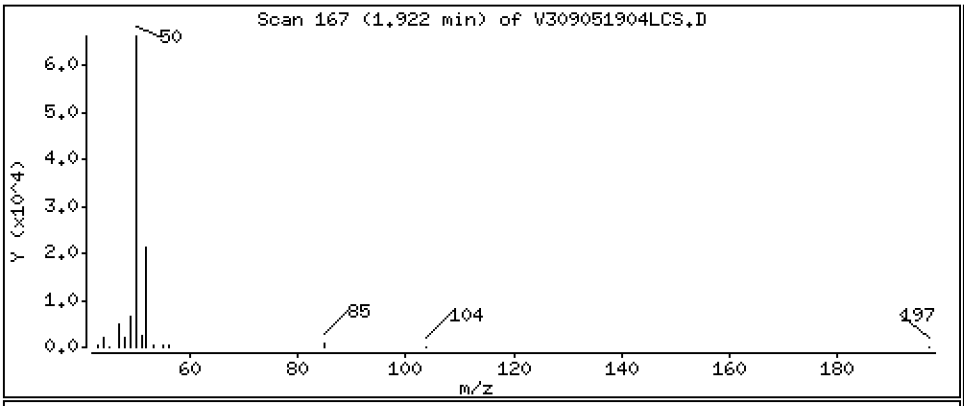
Operator: PKC

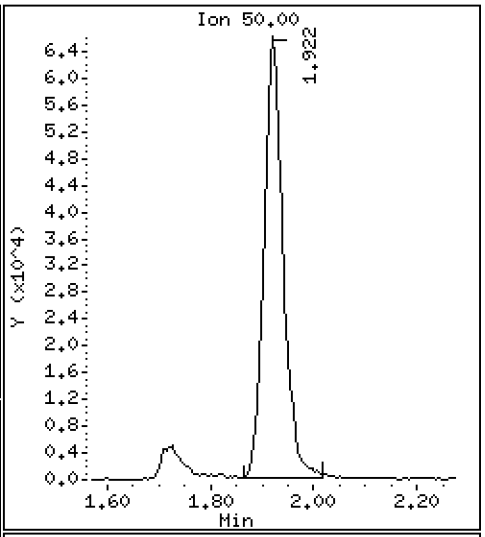
Column phase: RTXVMS

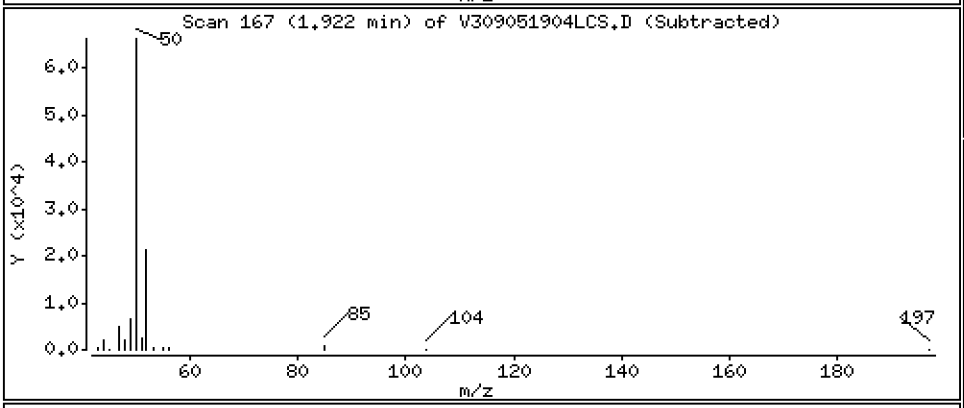
Column diameter: 0.18

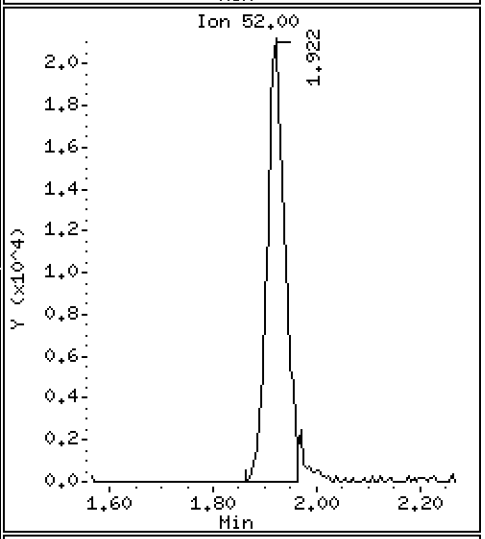
2 Chloromethane

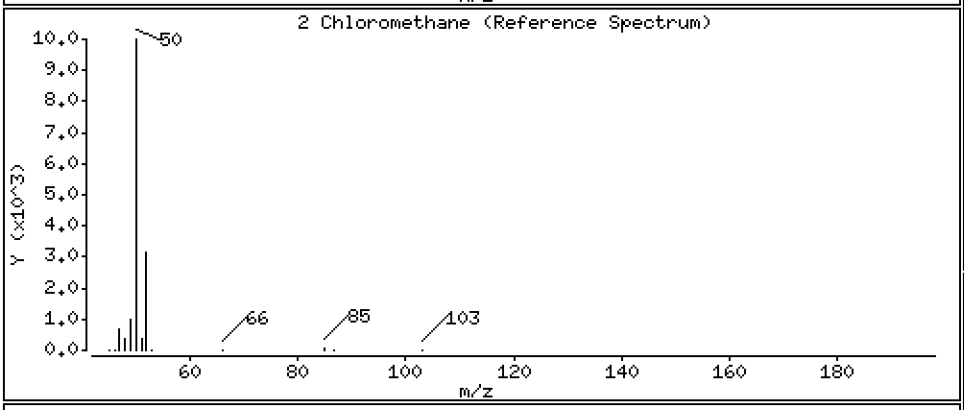
Concentration: 10.125 ug/L

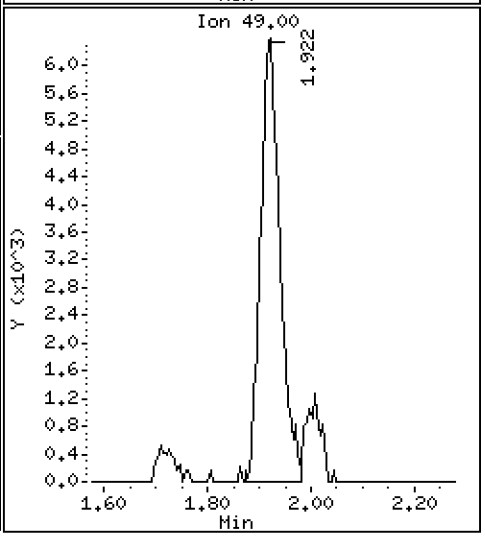


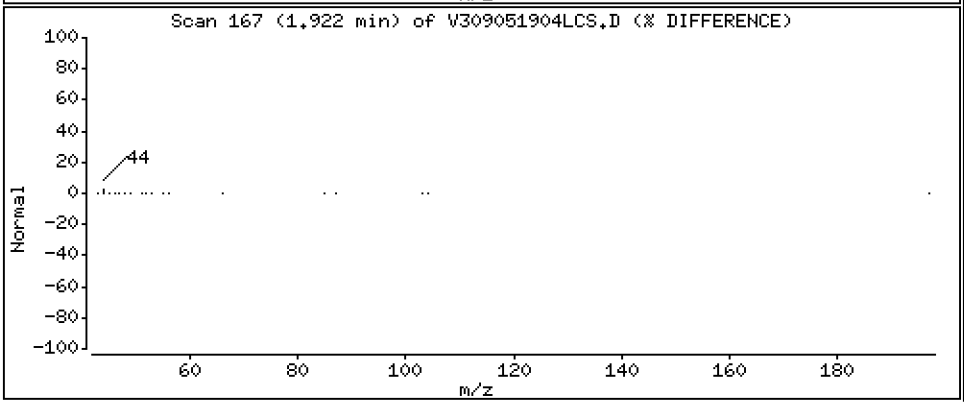












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

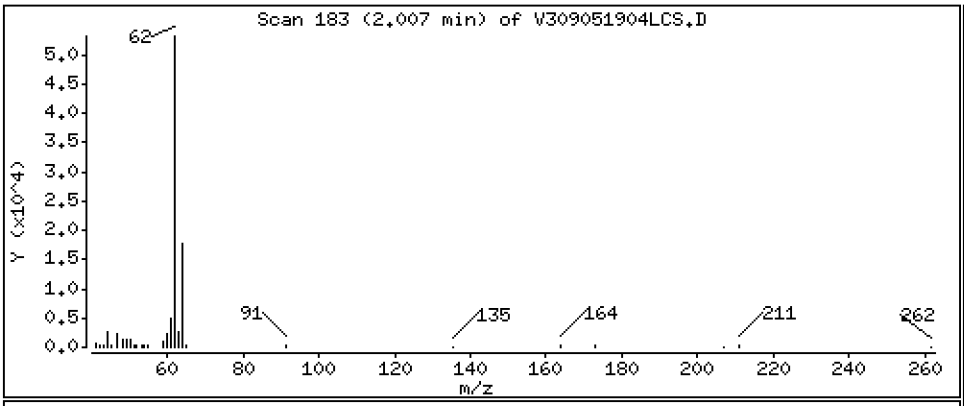
Operator: PKC

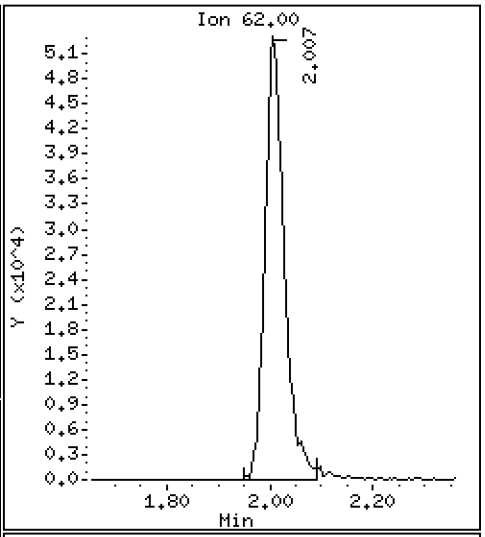
Column phase: RTXVMS

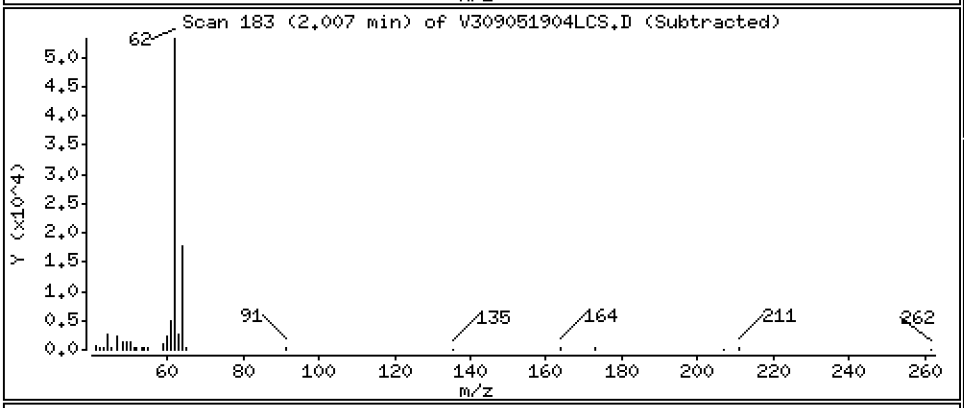
Column diameter: 0.18

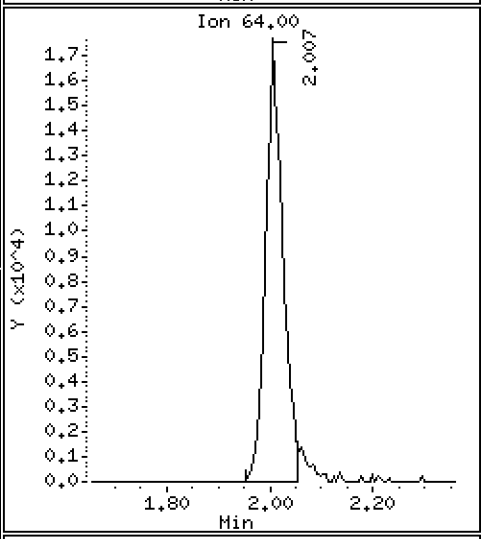
3 Vinyl Chloride

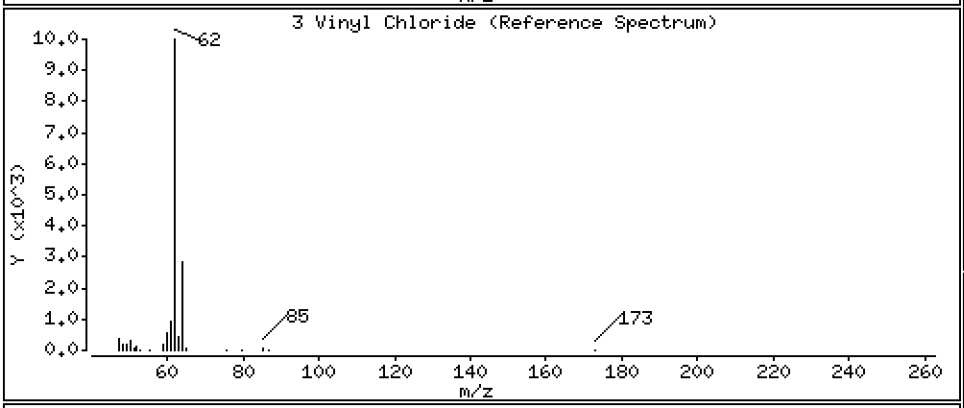
Concentration: 10.258 ug/L

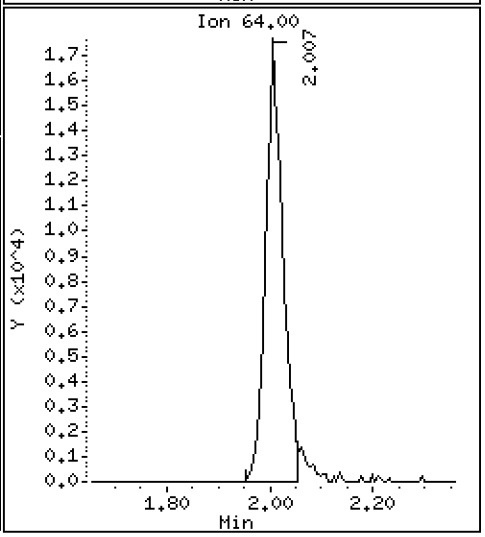


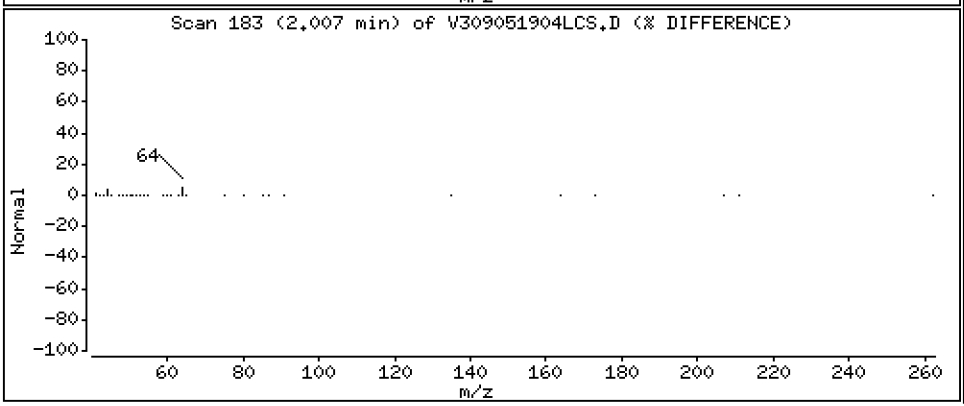












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

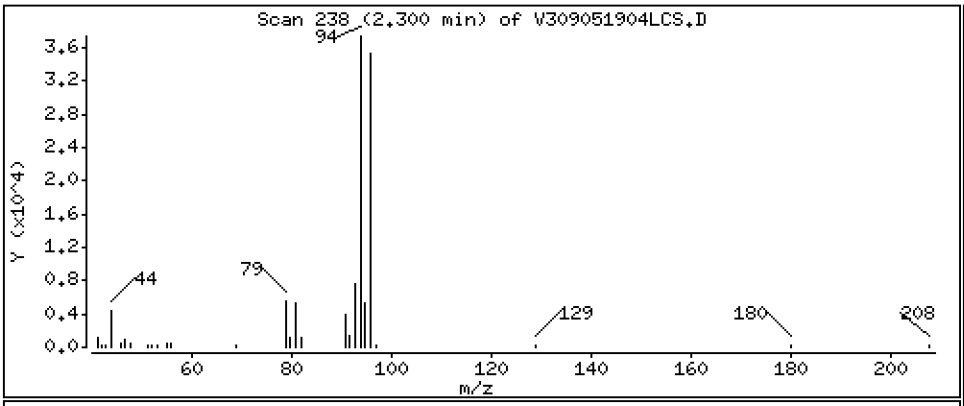
Operator: PKC

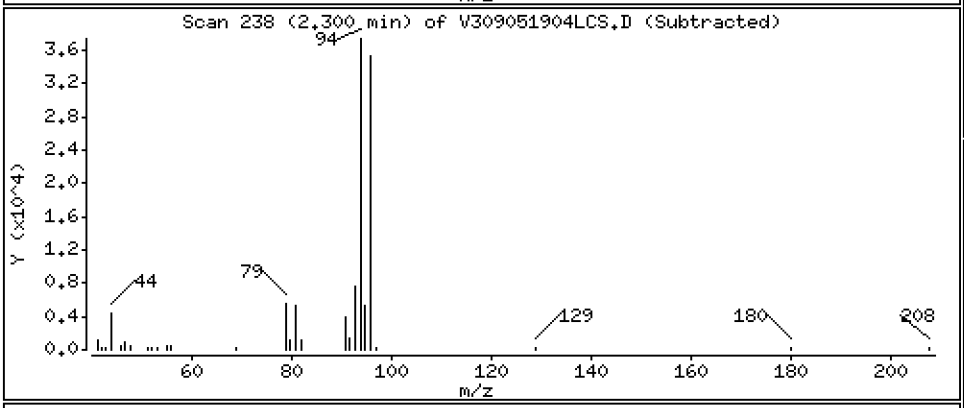
Column phase: RTXVMS

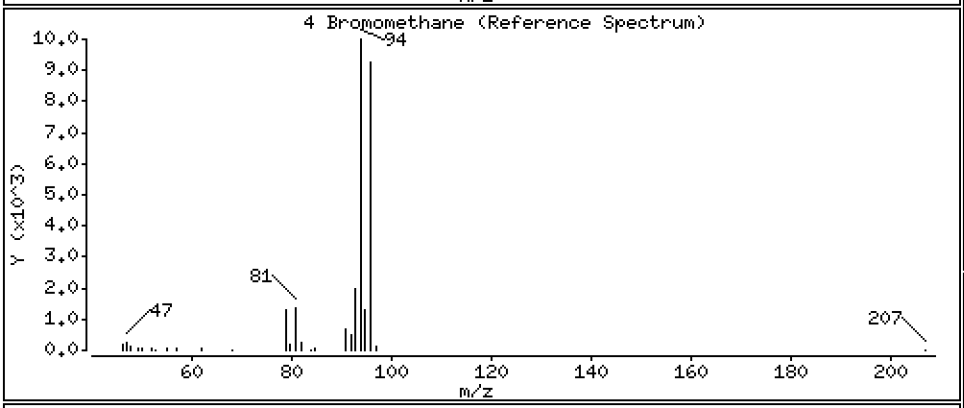
Column diameter: 0.18

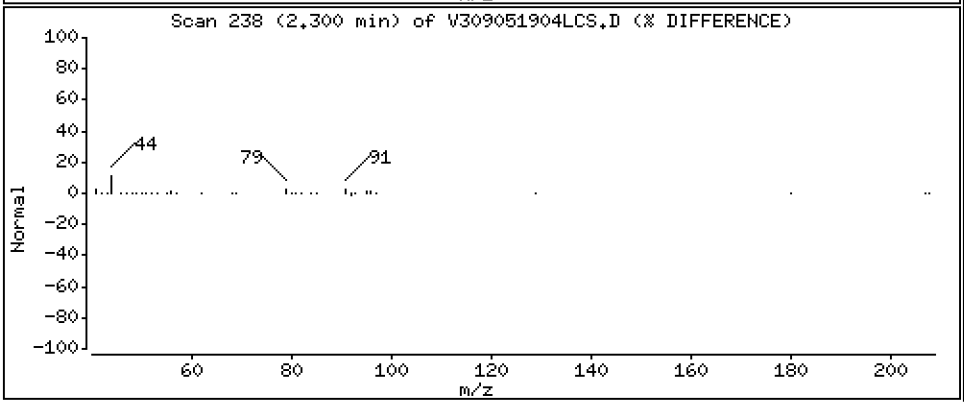
4 Bromomethane

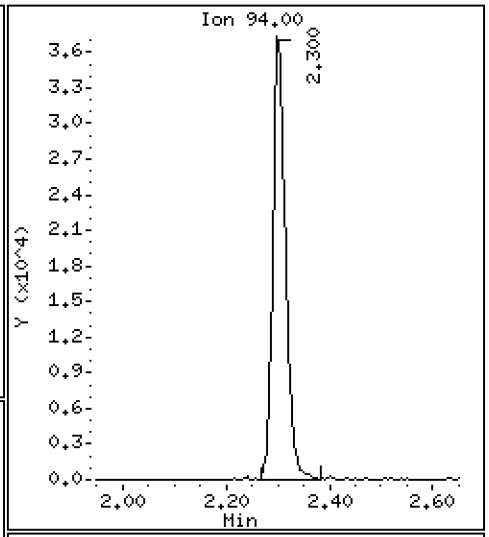
Concentration: 10.385 ug/L

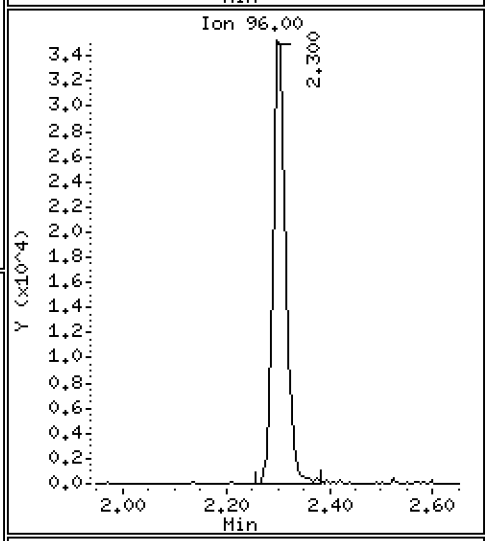


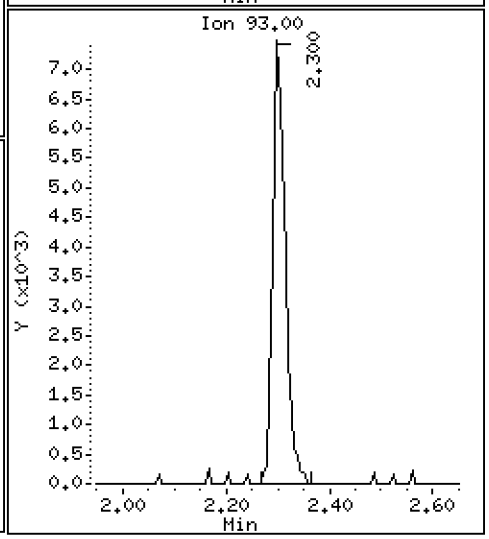












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

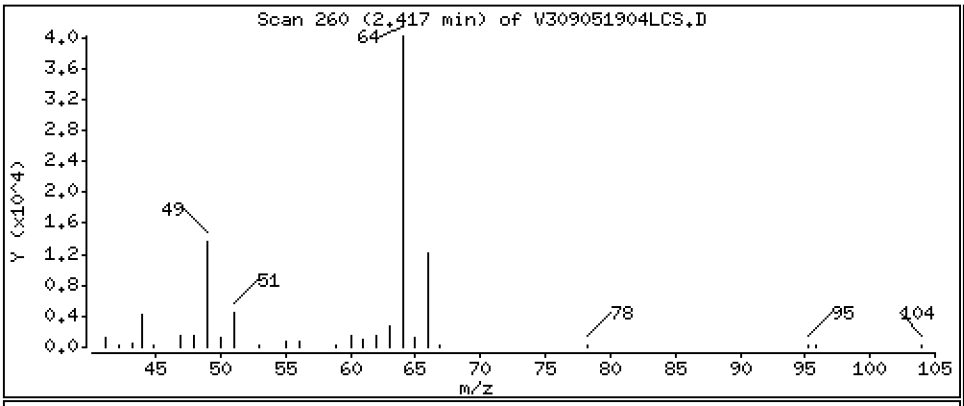
Operator: PKC

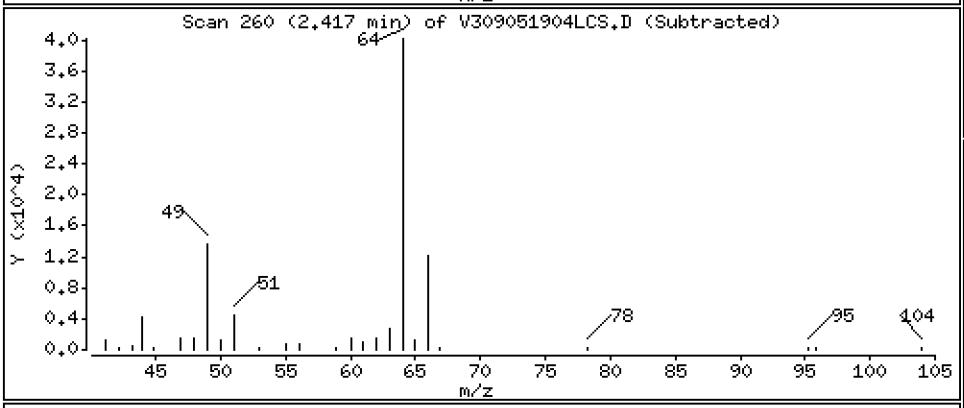
Column phase: RTXVMS

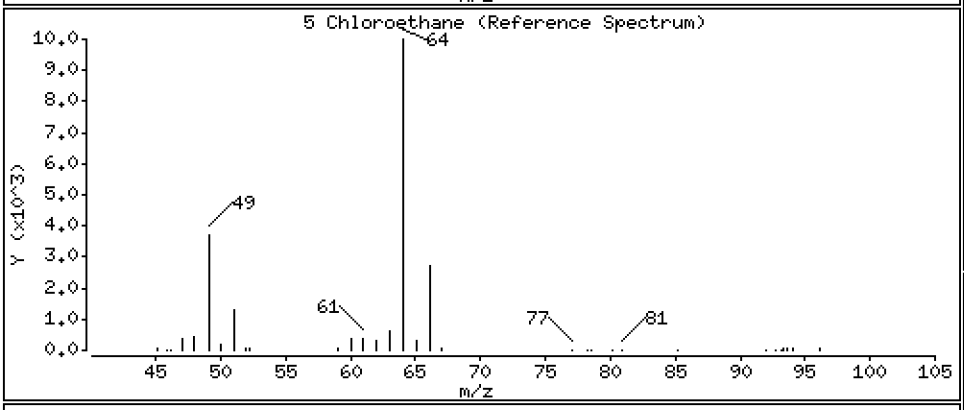
Column diameter: 0.18

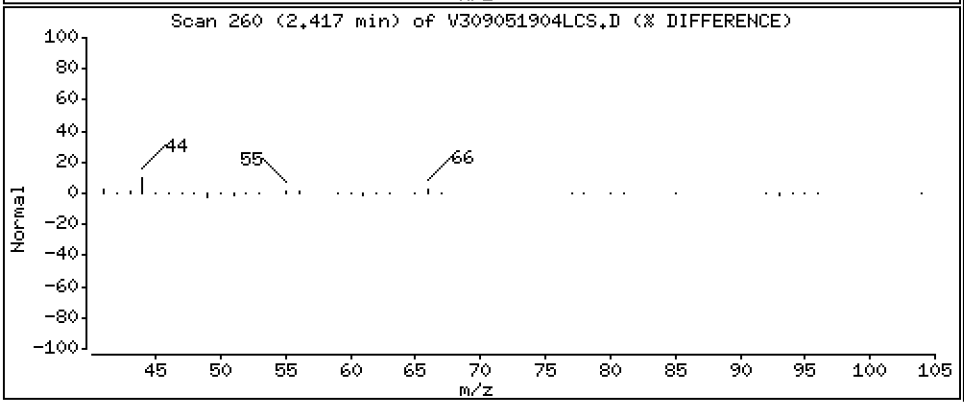
5 Chloroethane

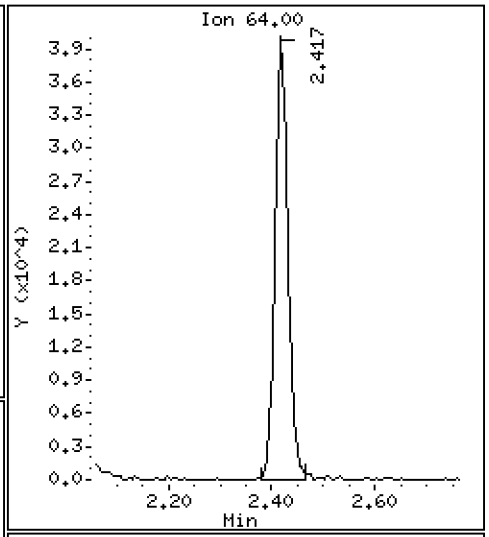
Concentration: 9.804 ug/L

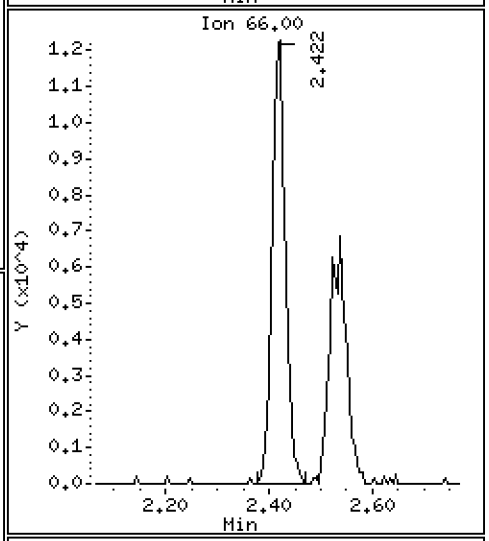


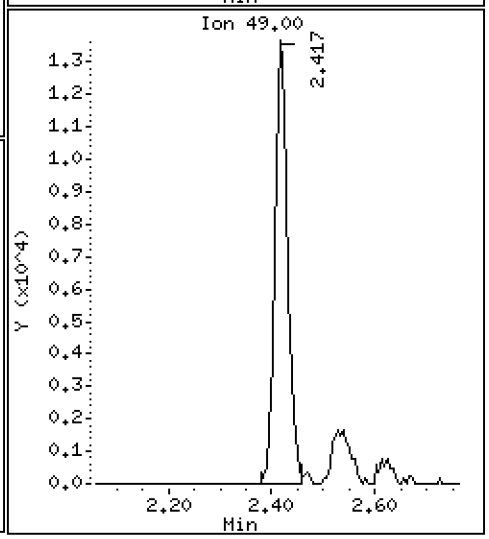












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

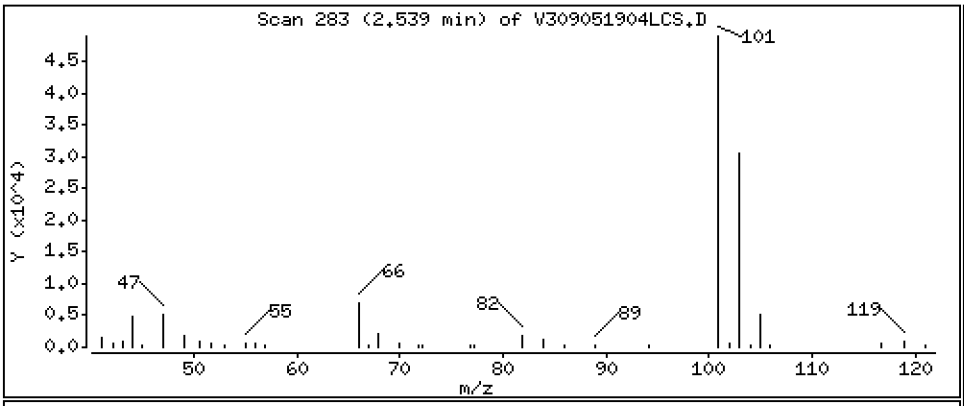
Operator: PKC

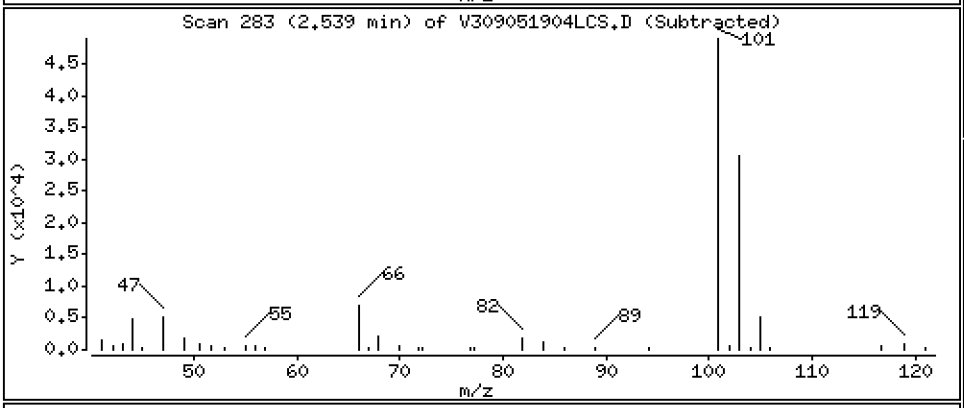
Column phase: RTXVMS

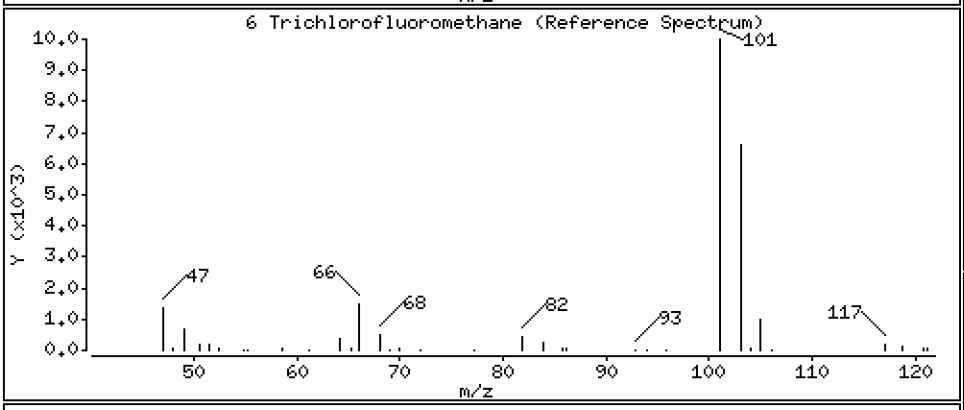
Column diameter: 0.18

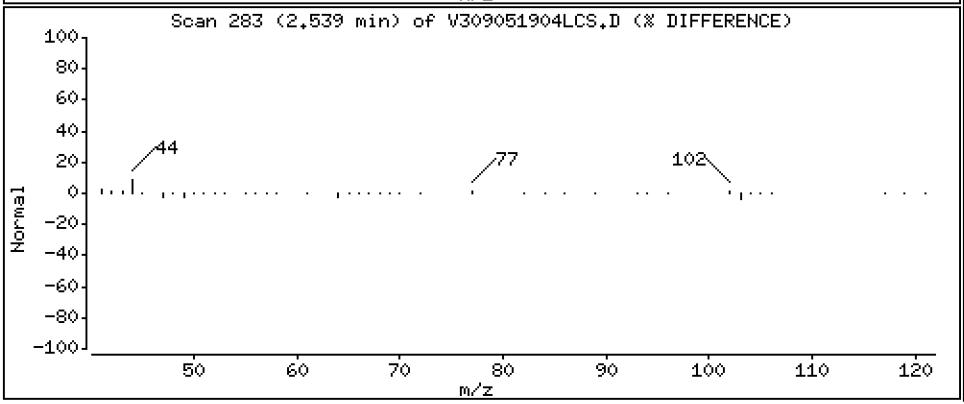
6 Trichlorofluoromethane

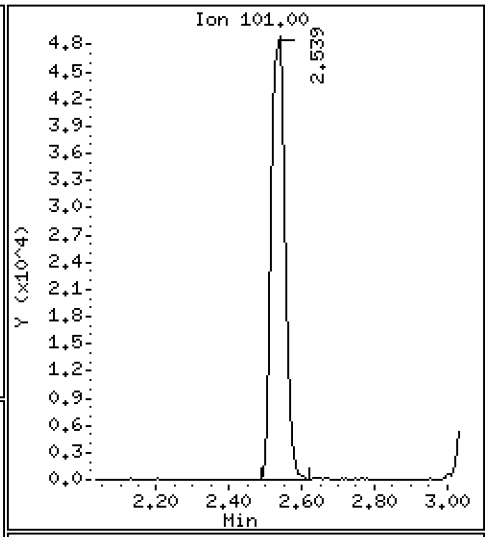
Concentration: 10.661 ug/L

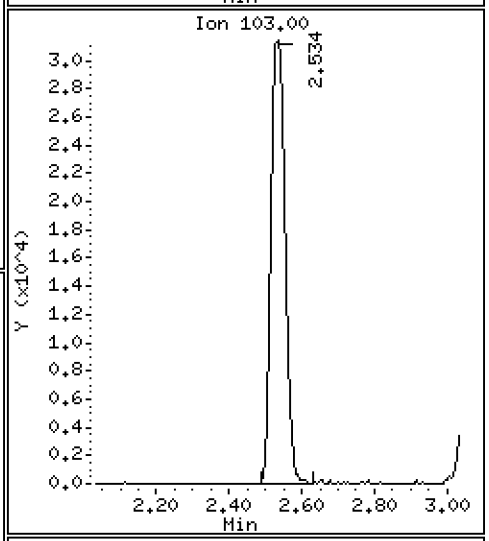


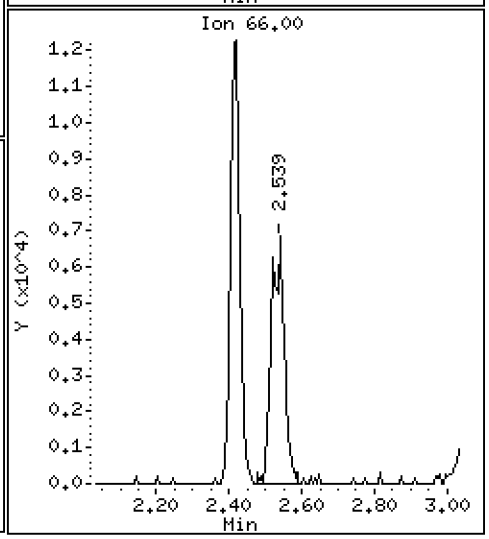












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

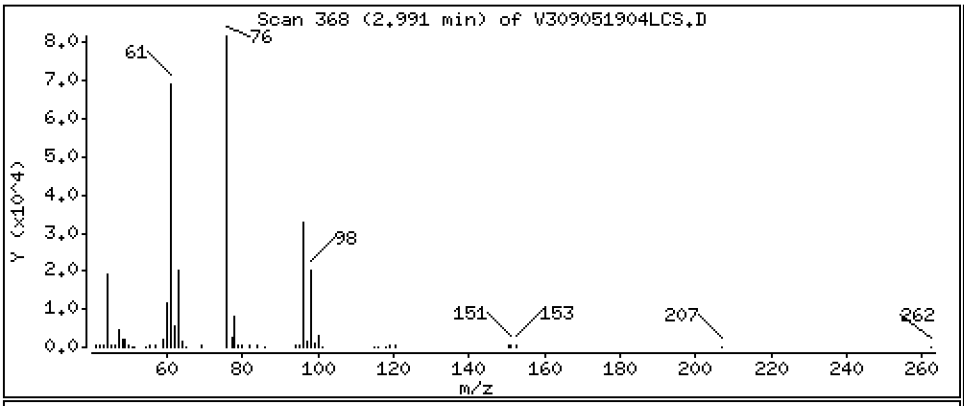
Operator: PKC

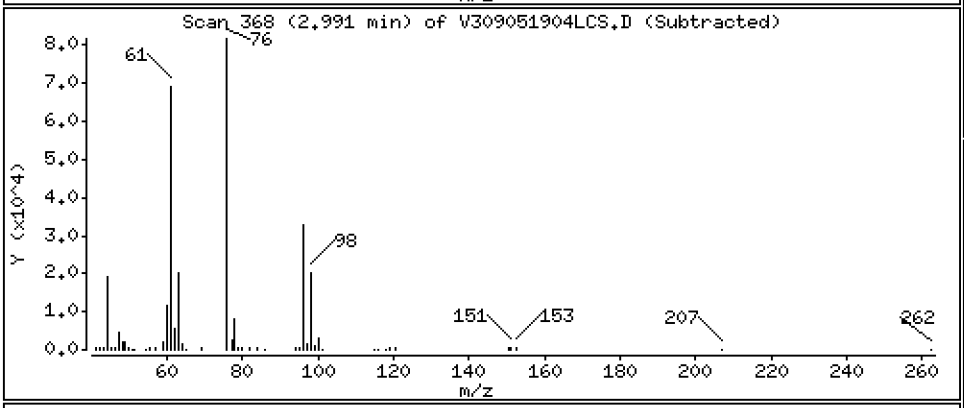
Column phase: RTXVMS

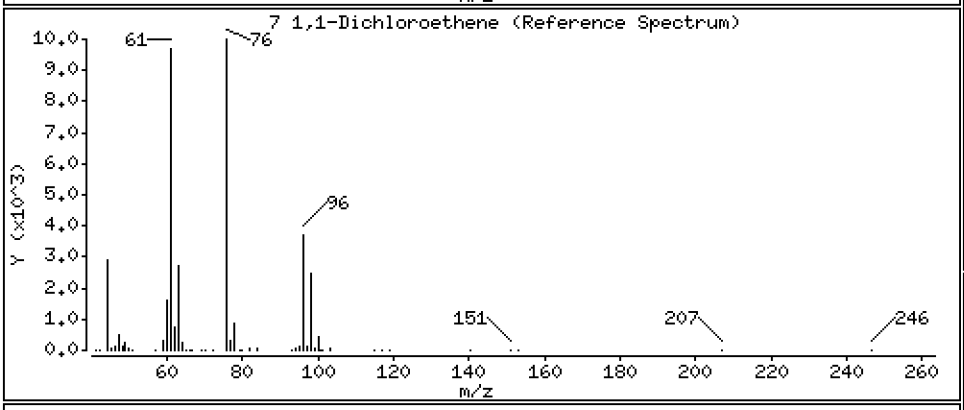
Column diameter: 0.18

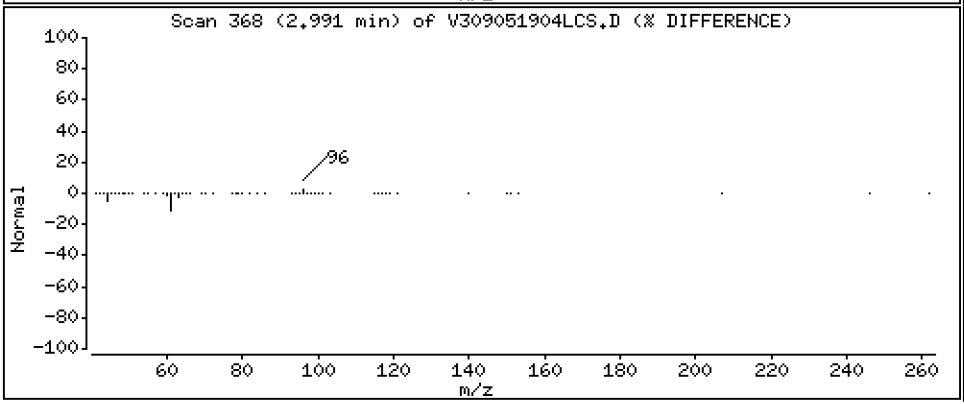
7 1,1-Dichloroethene

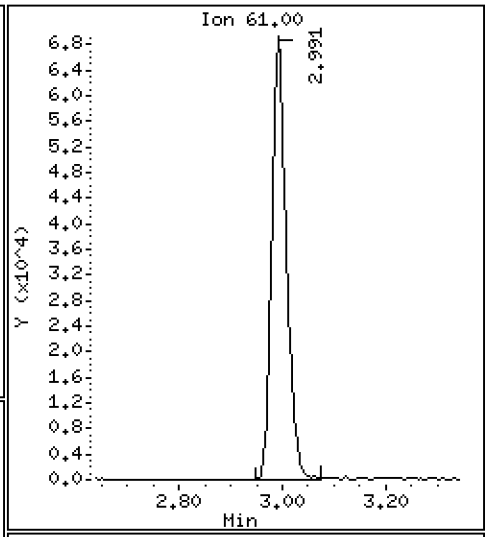
Concentration: 10.339 ug/L

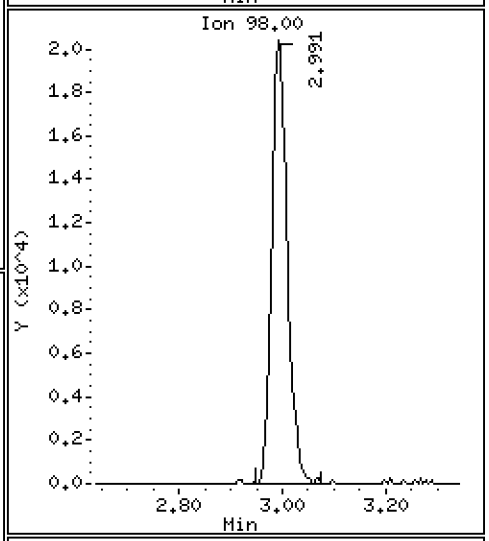


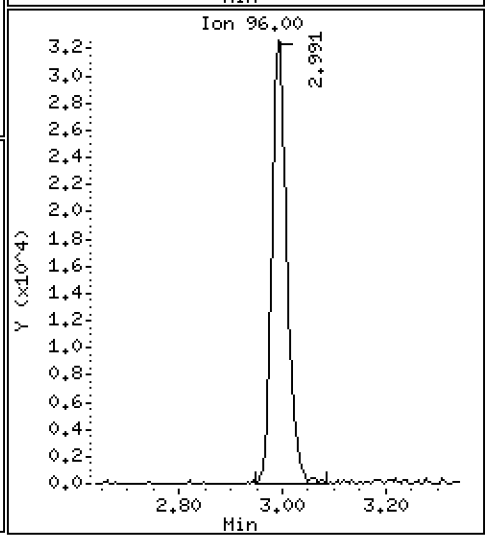












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

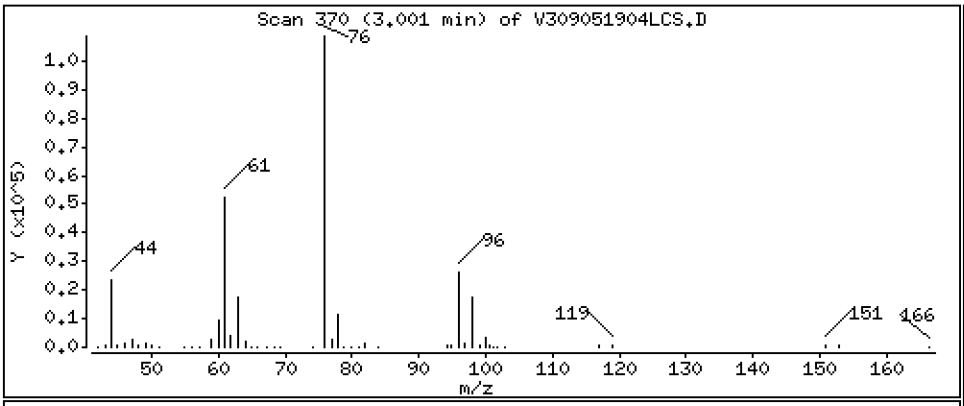
Operator: PKC

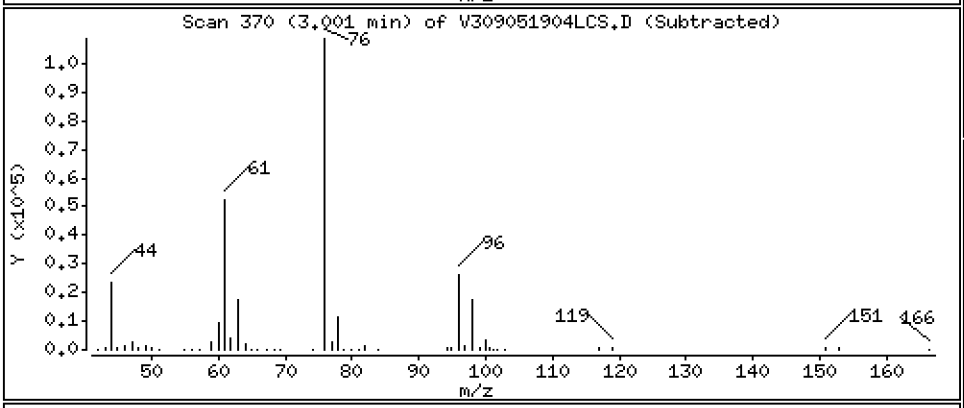
Column phase: RTXVMS

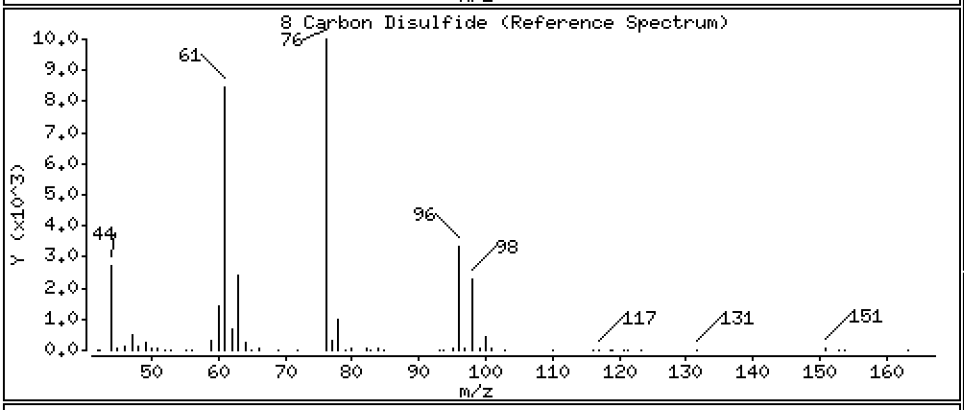
Column diameter: 0.18

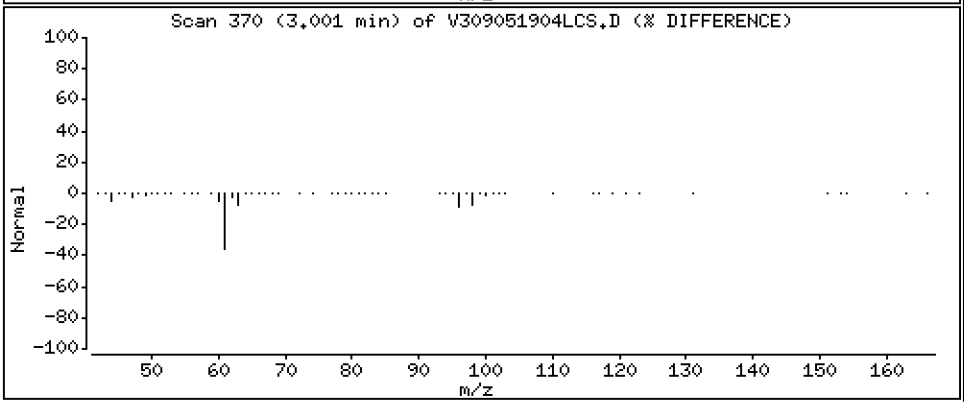
8 Carbon Disulfide

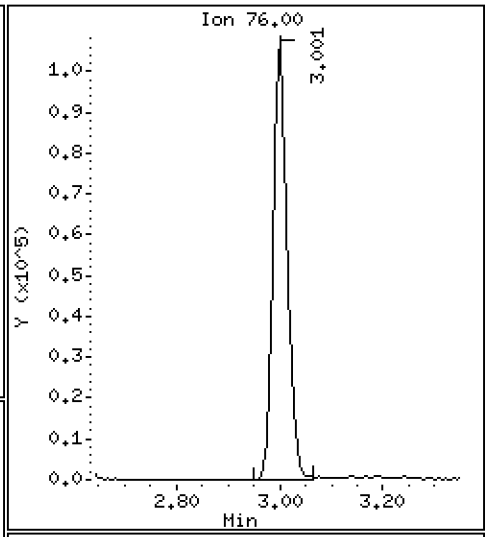
Concentration: 10.592 ug/L

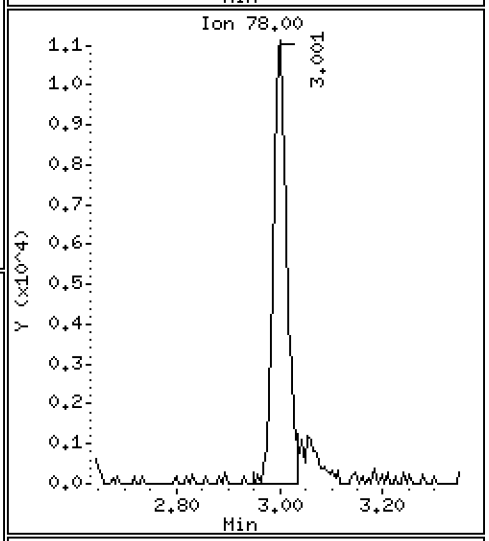


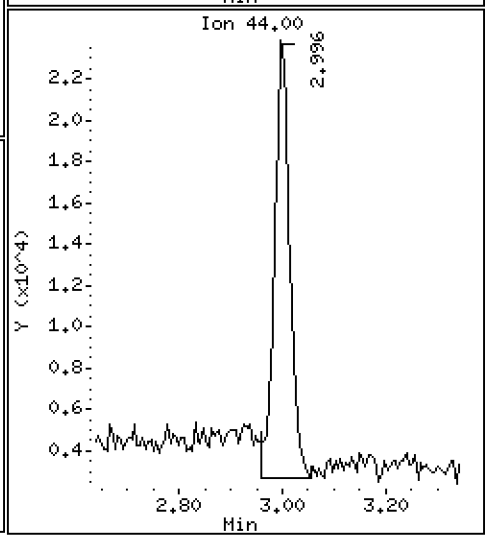












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

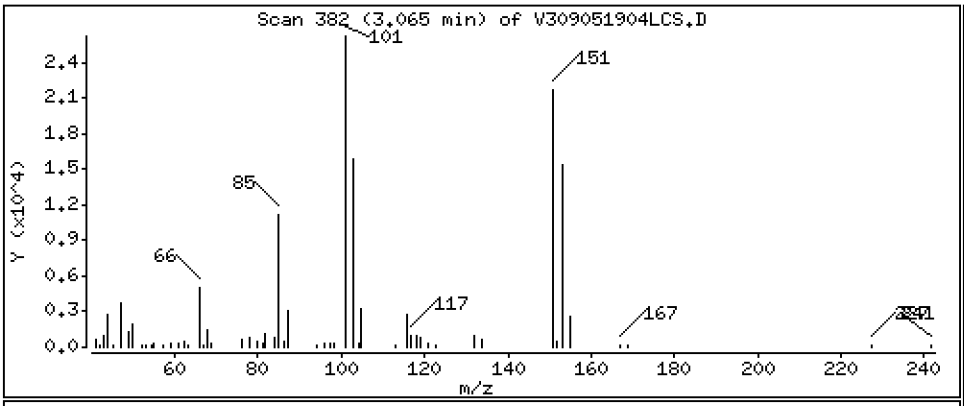
Operator: PKC

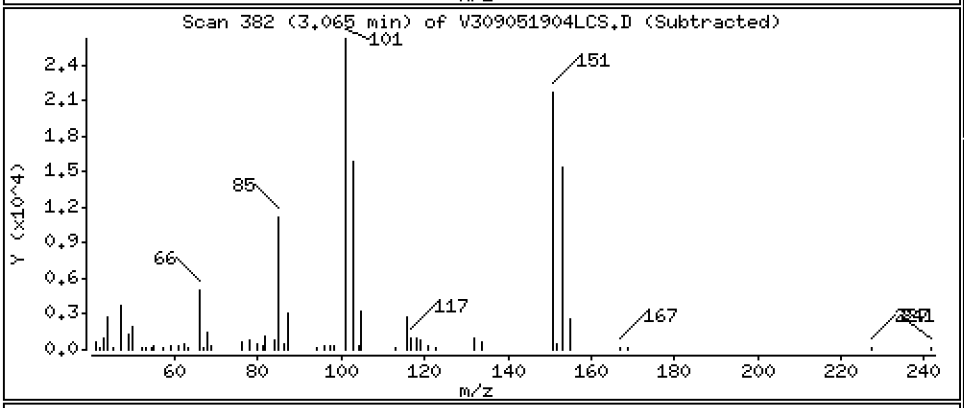
Column phase: RTXVMS

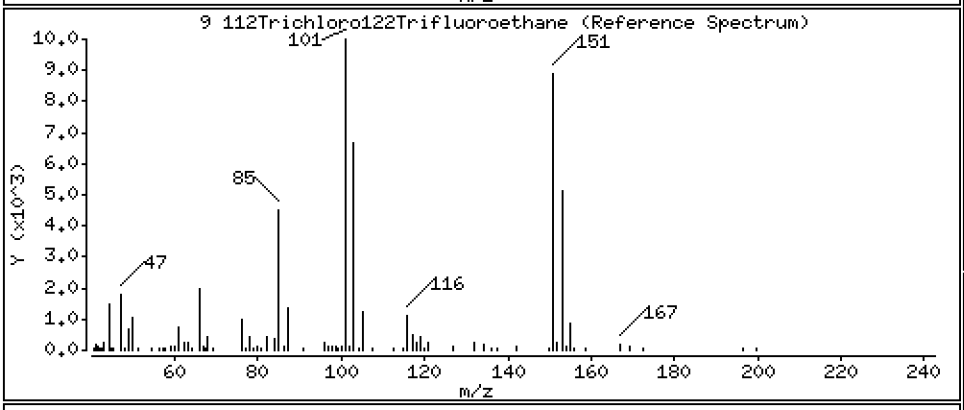
Column diameter: 0.18

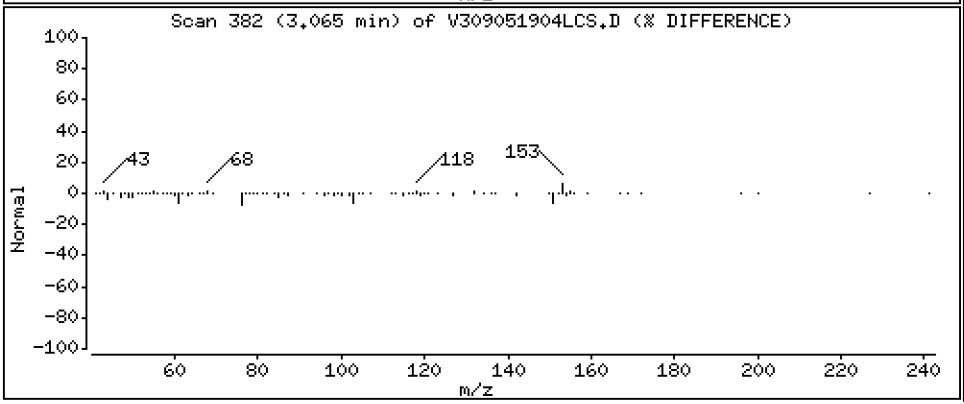
9 112Trichloro122Trifluoroethane

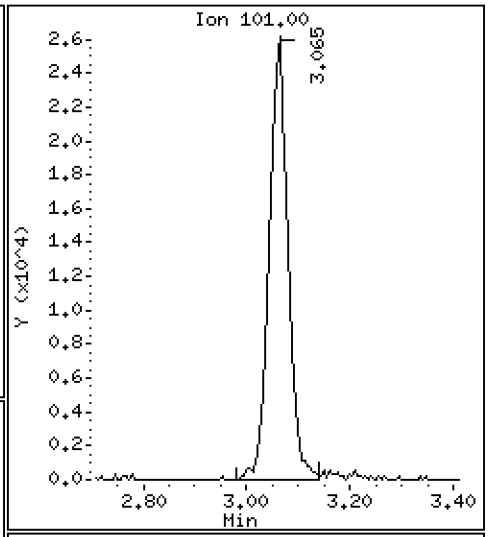
Concentration: 11.118 ug/L

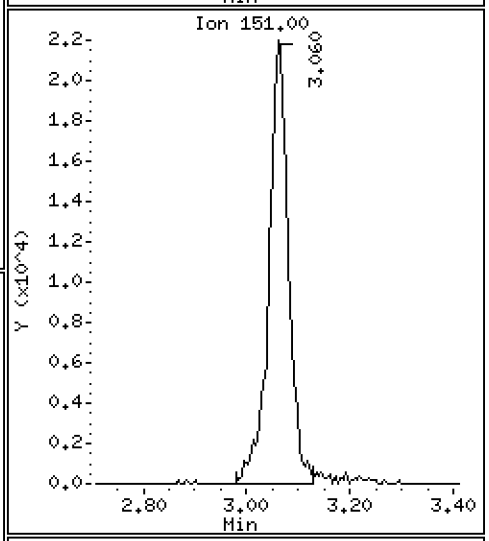


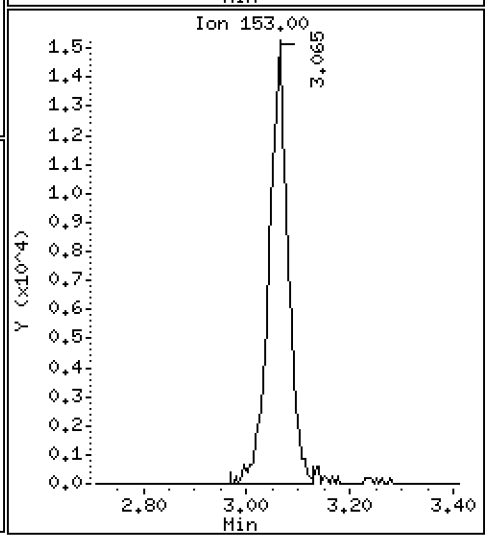












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

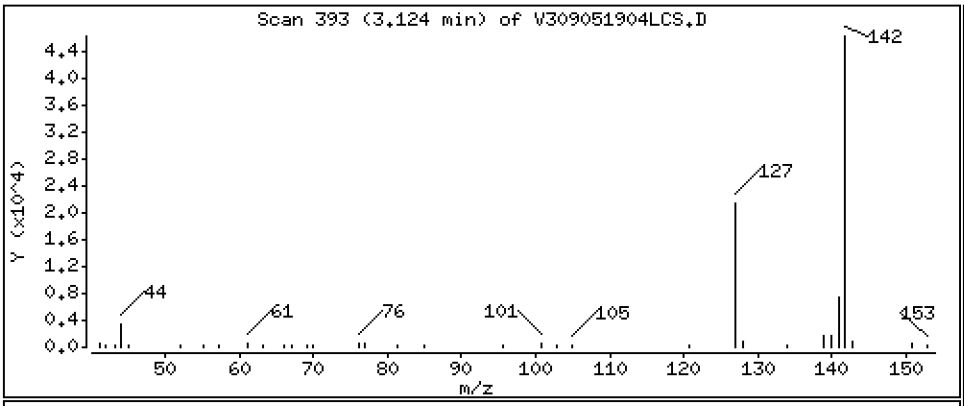
Operator: PKC

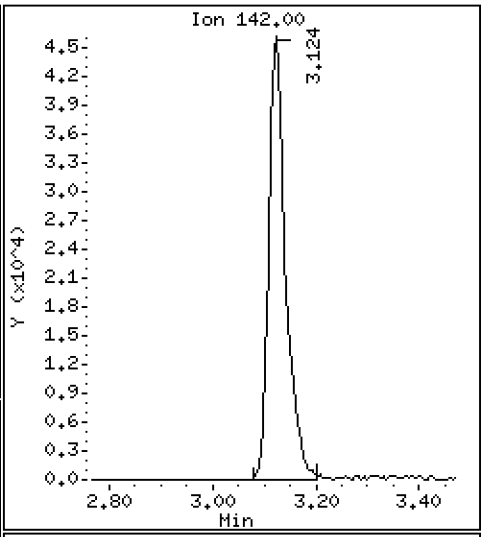
Column phase: RTXVMS

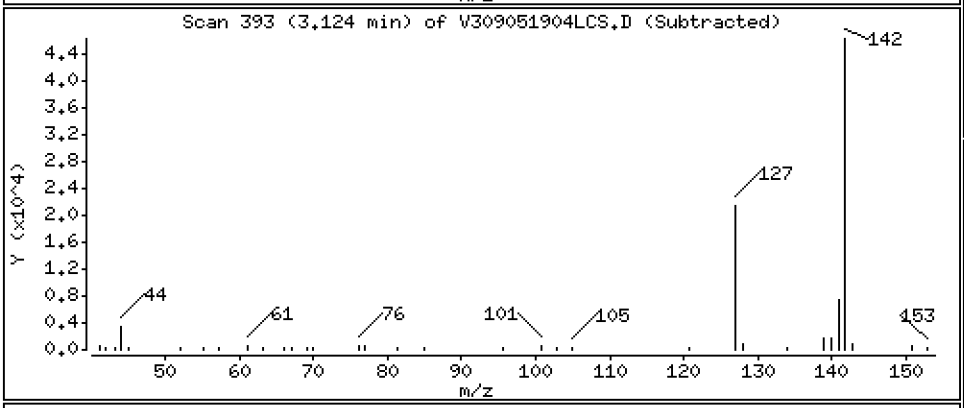
Column diameter: 0.18

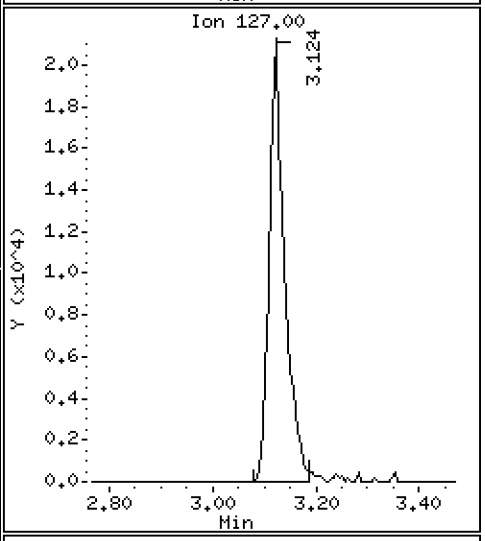
10 Iodomethane

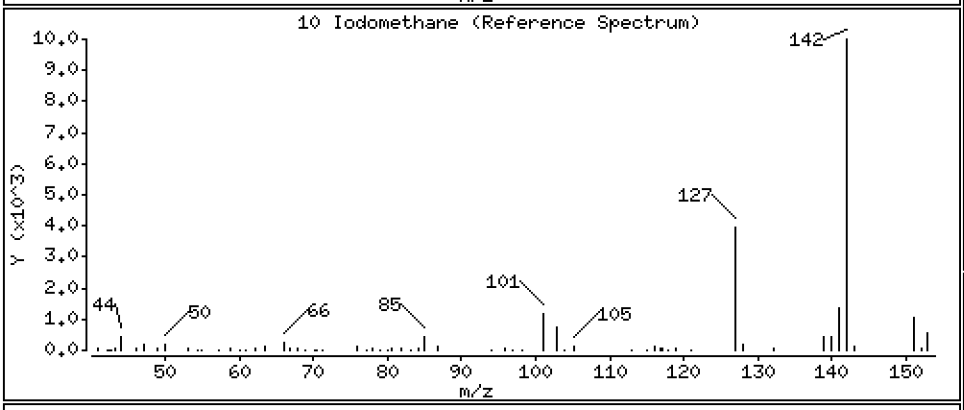
Concentration: 10.475 ug/L

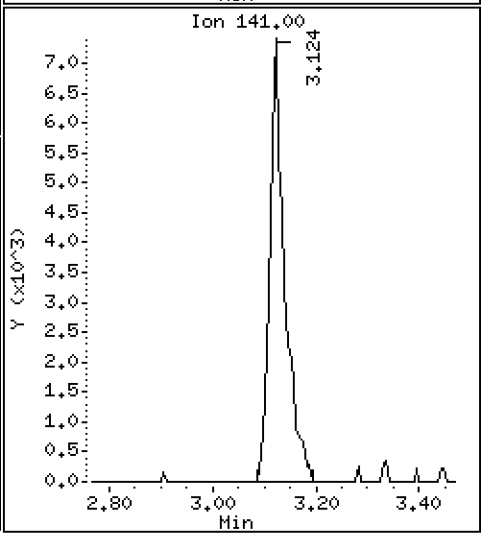


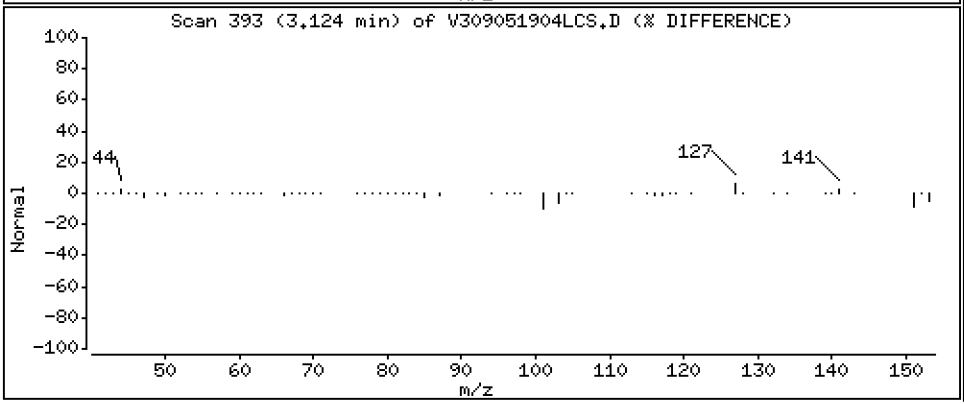












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

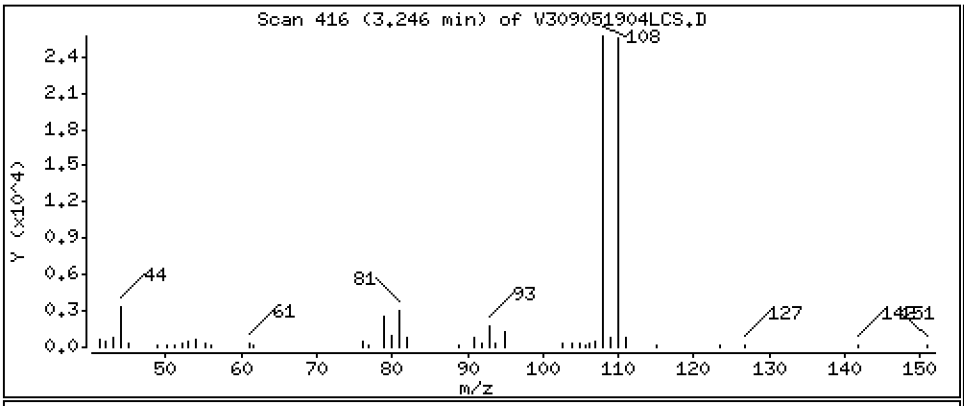
Operator: PKC

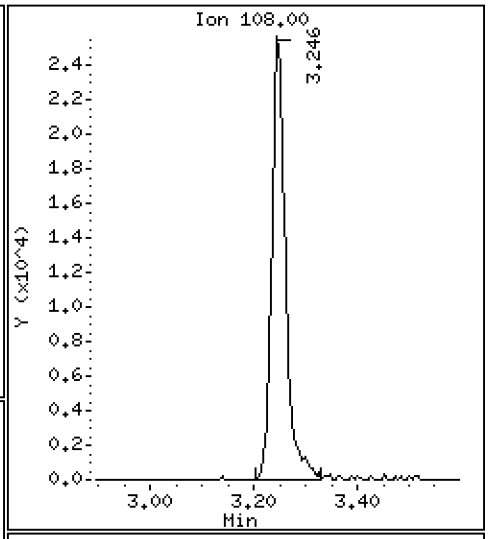
Column phase: RTXVMS

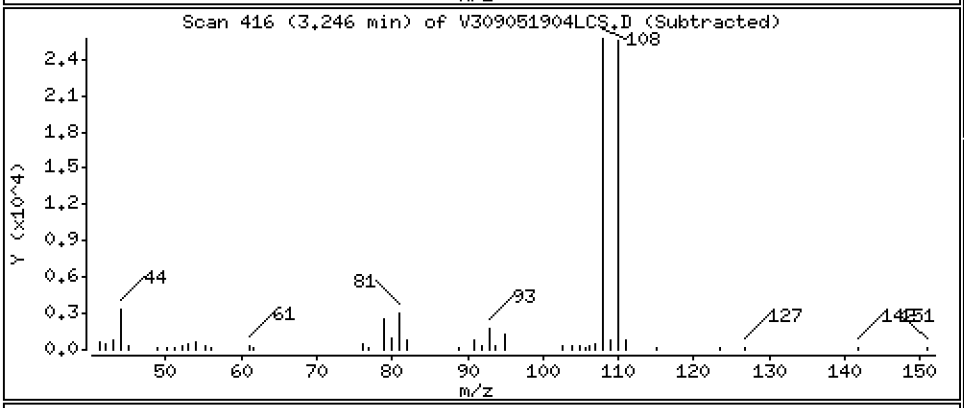
Column diameter: 0.18

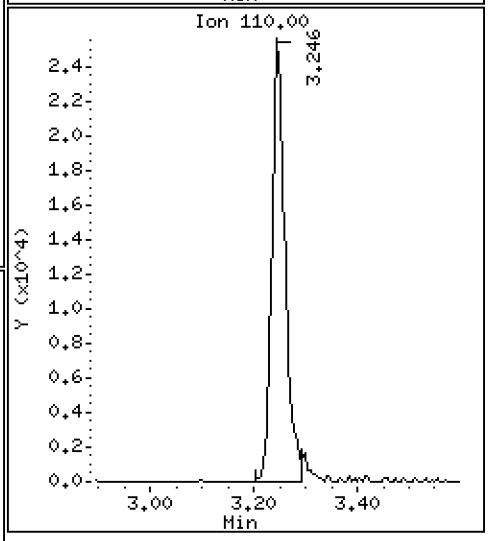
11 Bromoethane

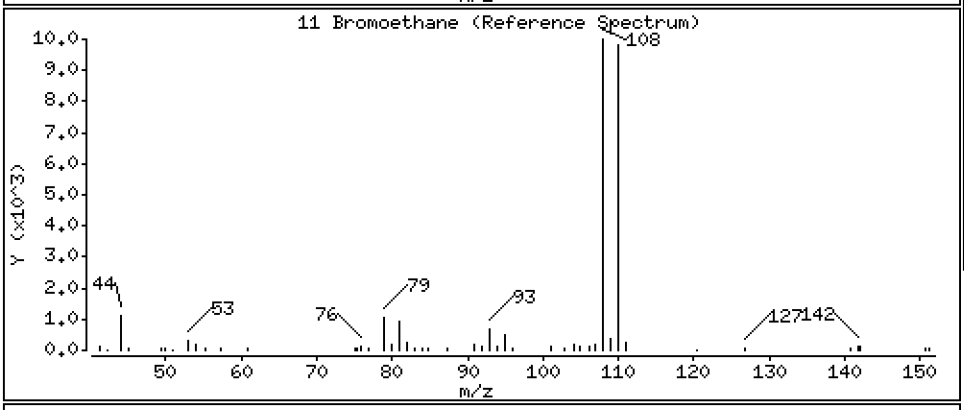
Concentration: 10.300 ug/L

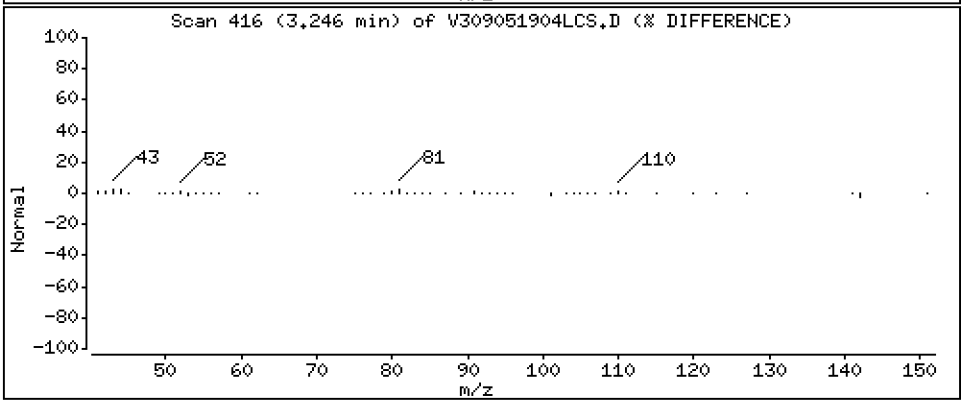












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

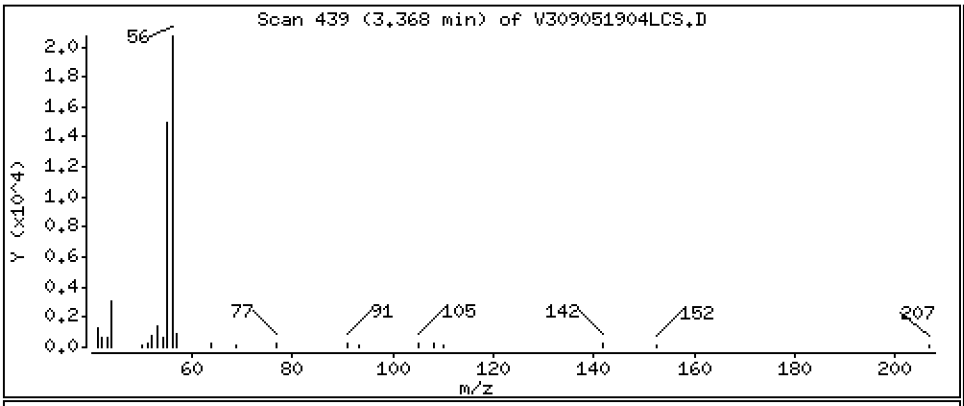
Operator: PKC

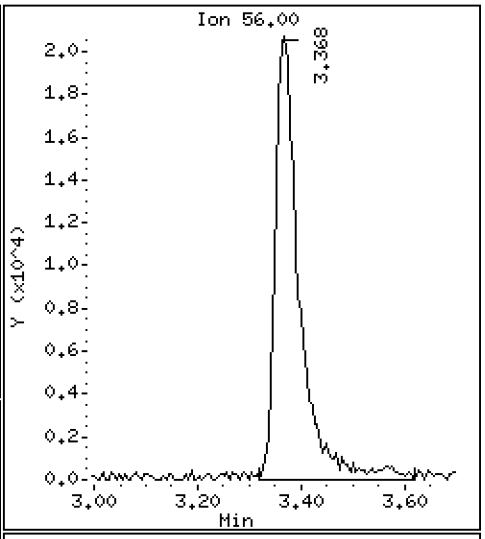
Column phase: RTXVMS

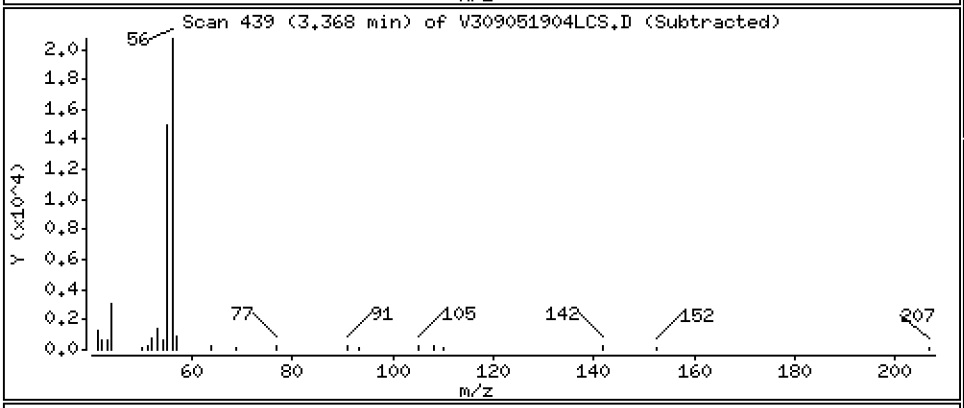
Column diameter: 0.18

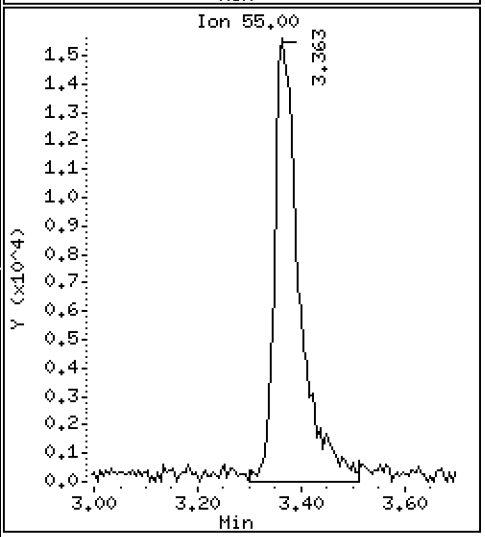
12 Acrolein

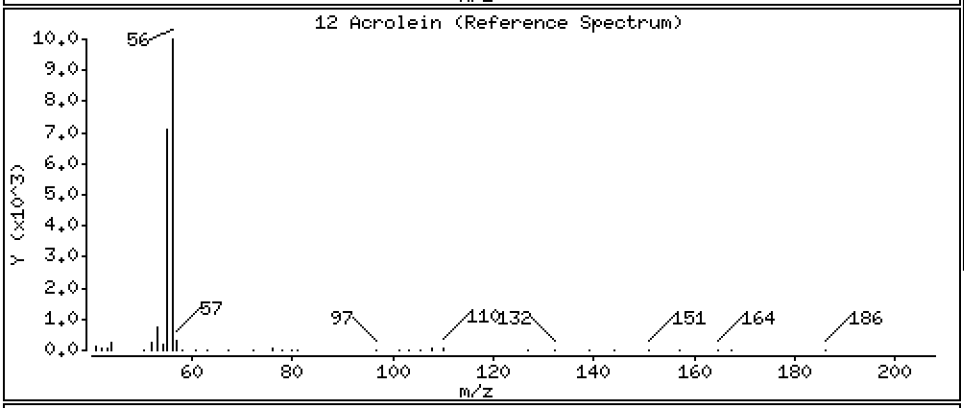
Concentration: 57.671 ug/L

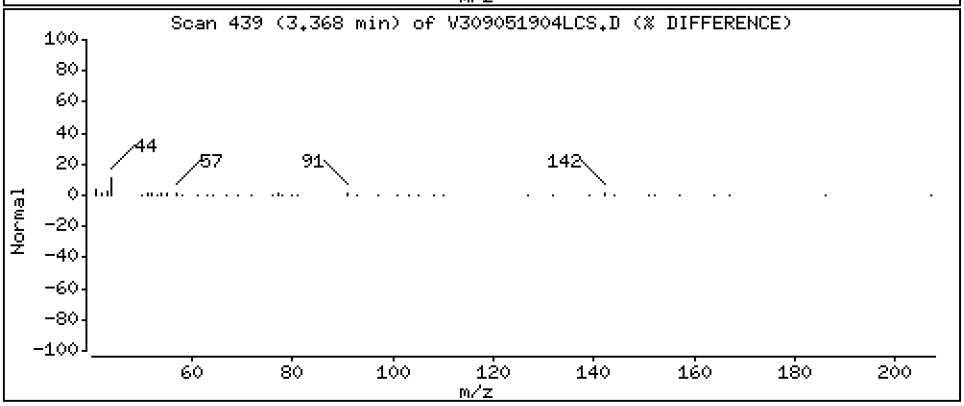












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

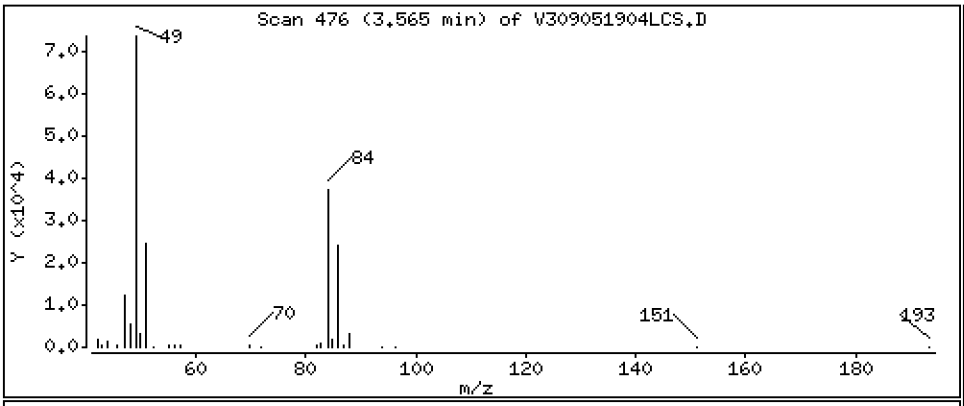
Operator: PKC

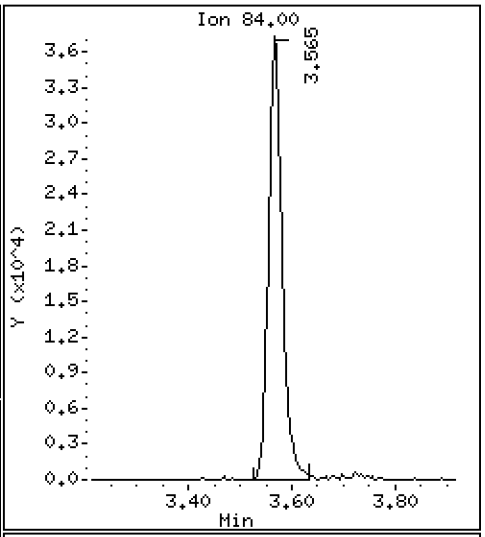
Column phase: RTXVMS

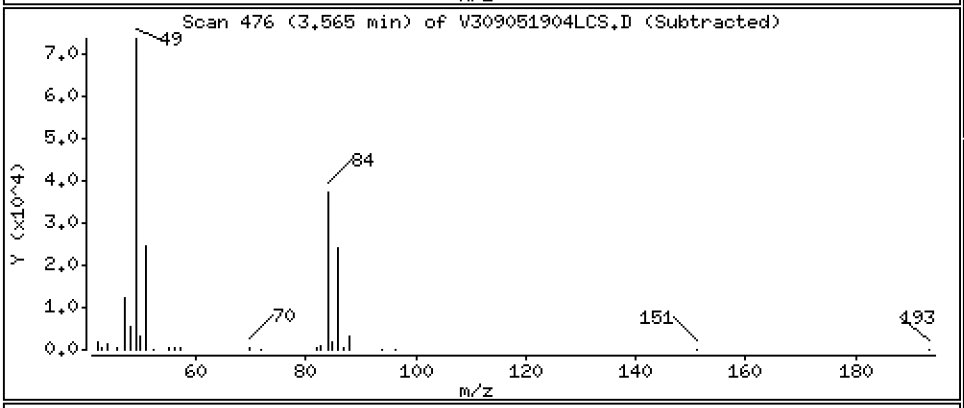
Column diameter: 0.18

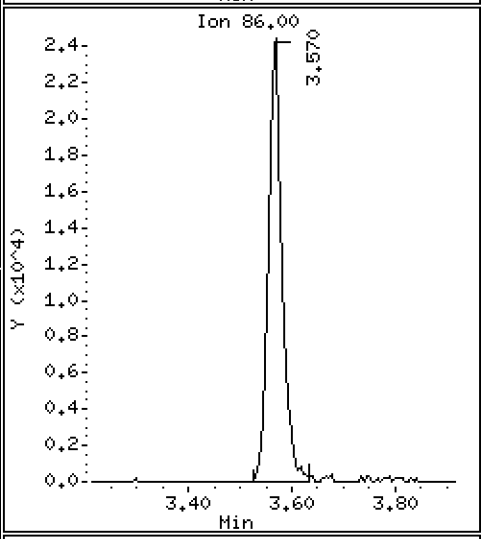
13 Methylene Chloride

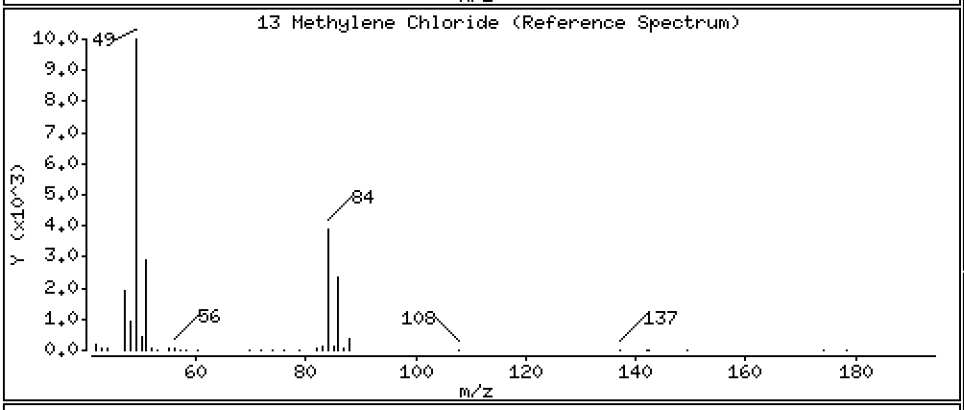
Concentration: 11.360 ug/L

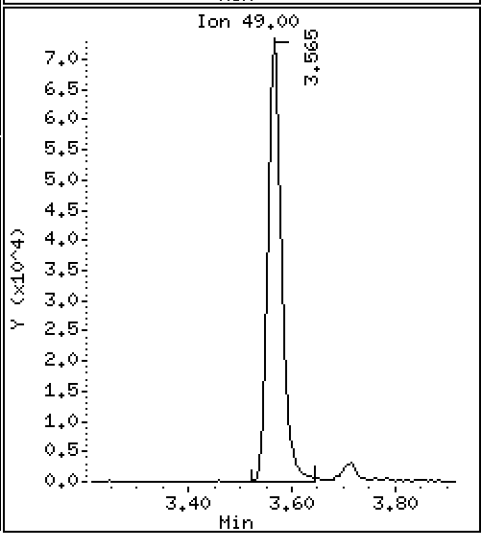


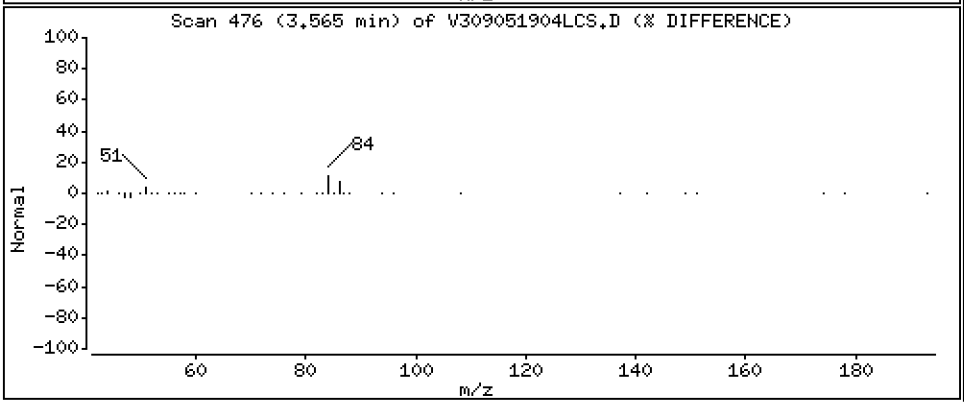












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

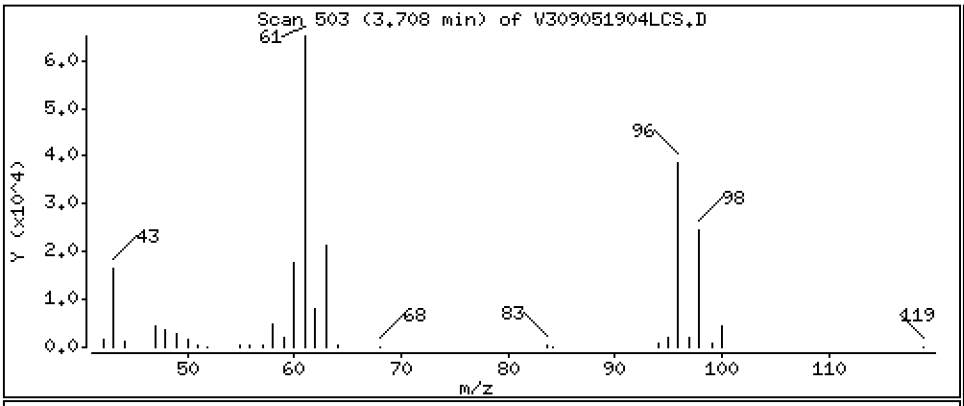
Operator: PKC

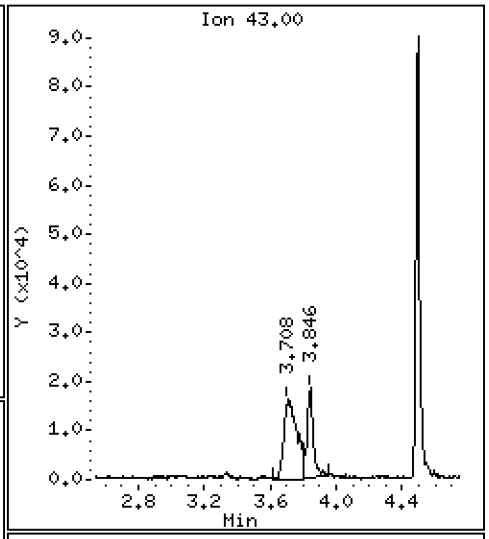
Column phase: RTXVMS

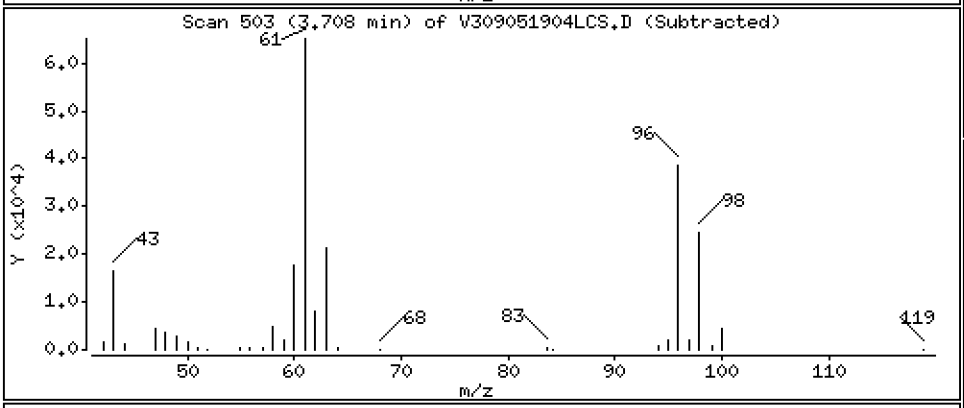
Column diameter: 0.18

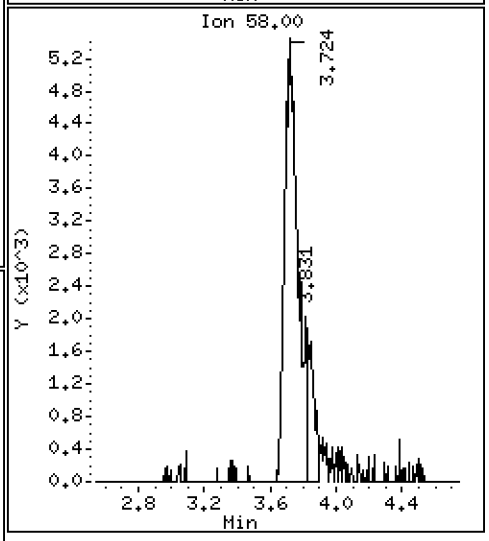
14 Acetone

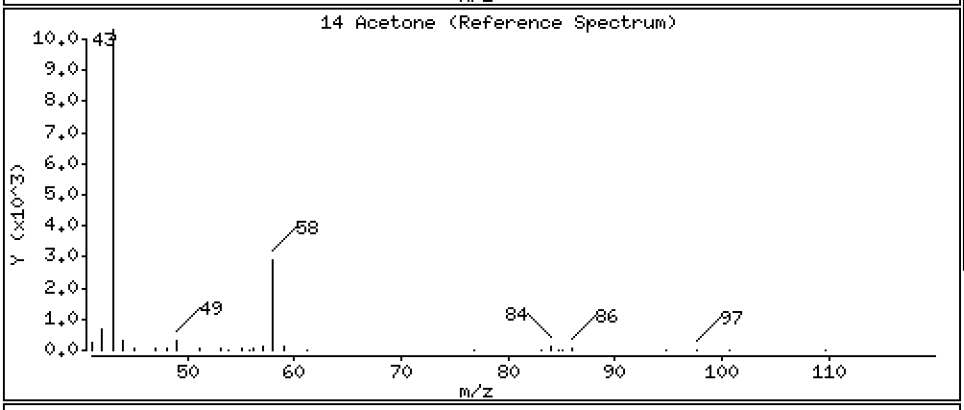
Concentration: 52.959 ug/L

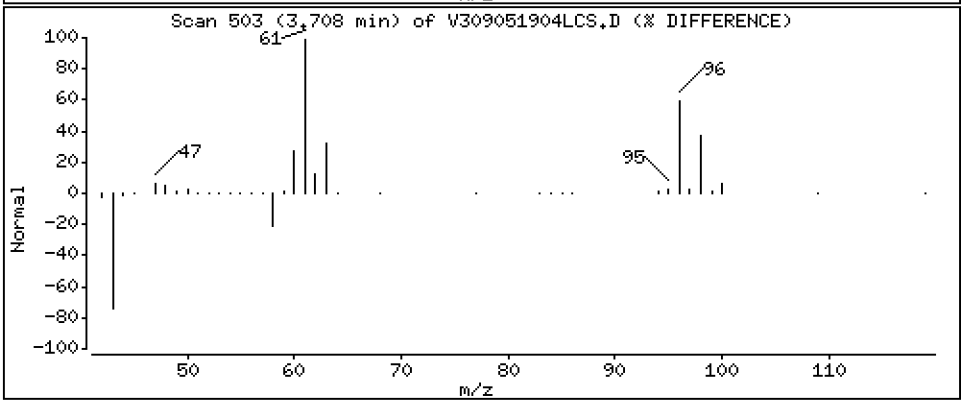












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

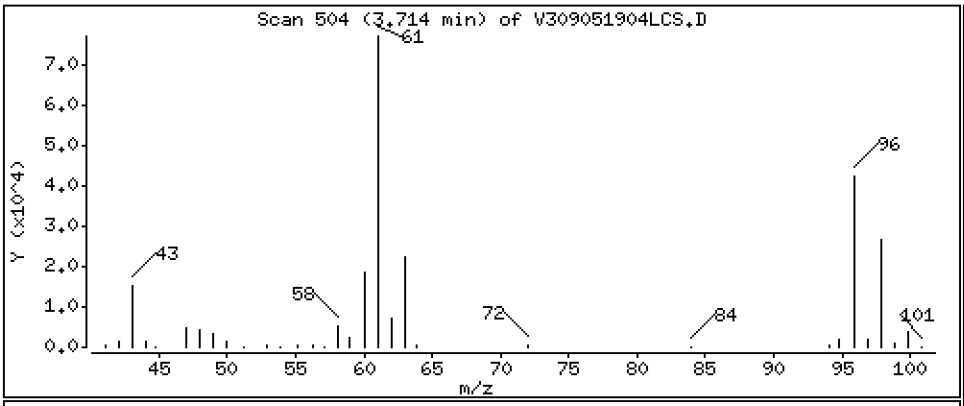
Operator: PKC

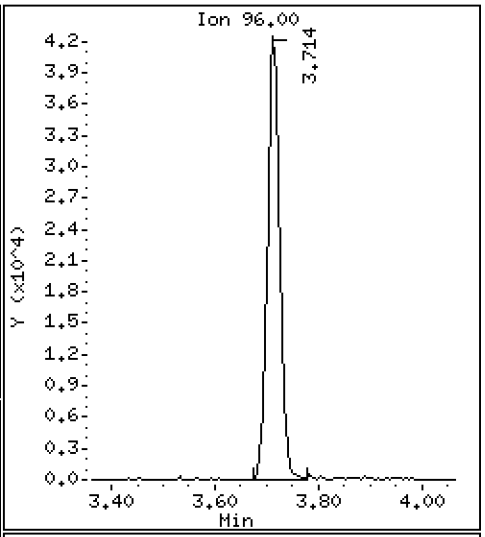
Column phase: RTXVMS

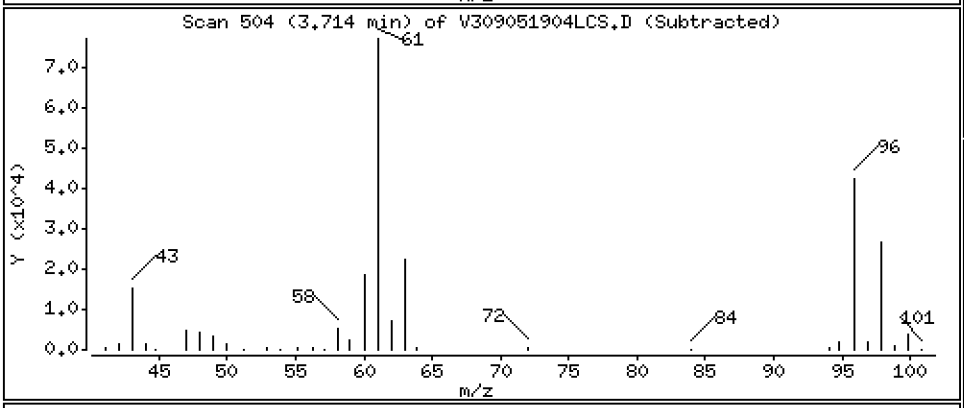
Column diameter: 0.18

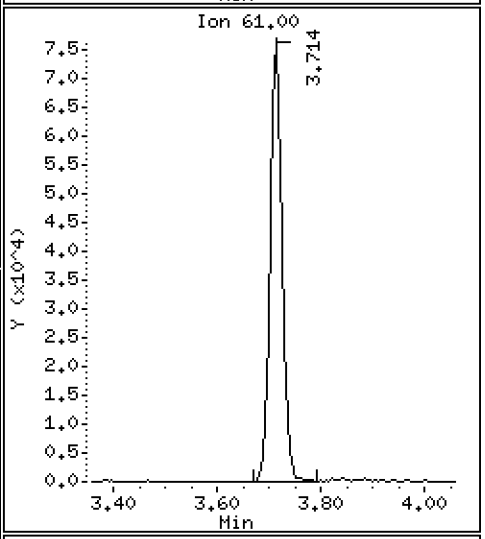
15 Trans-1,2-Dichloroethene

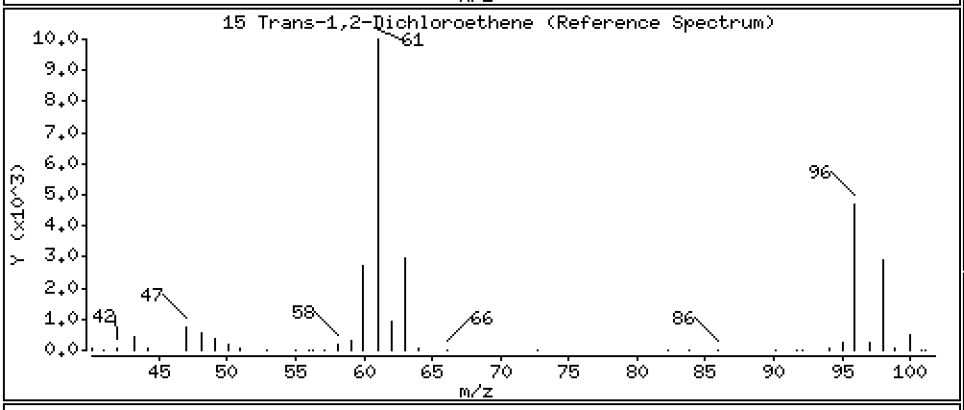
Concentration: 10.124 ug/L

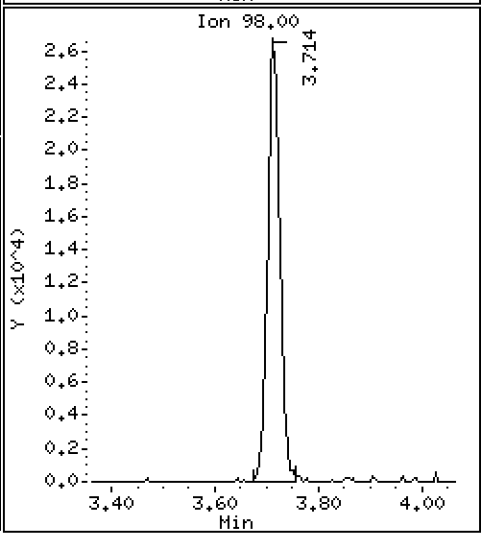


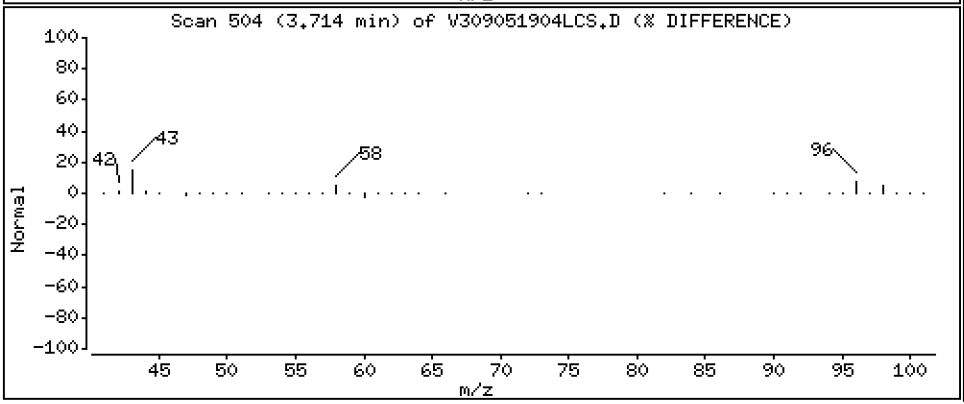












Date : 05-SEP-2019 12:30

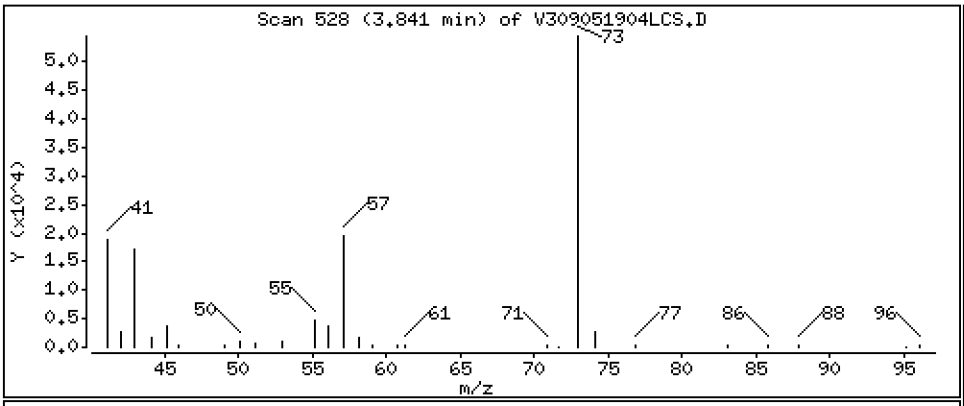
Client ID: Instrument: nt3.i

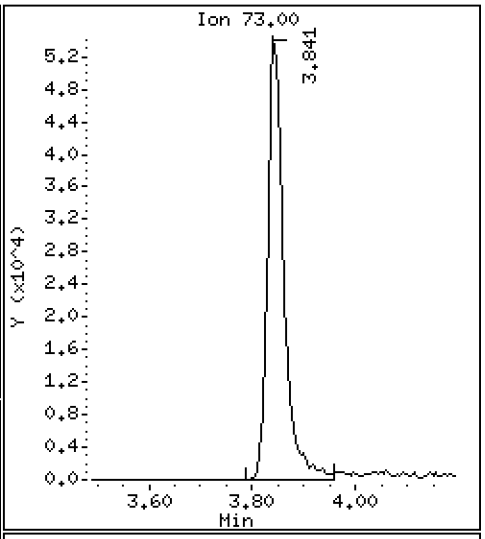
Sample Info: BHI0133-BS1

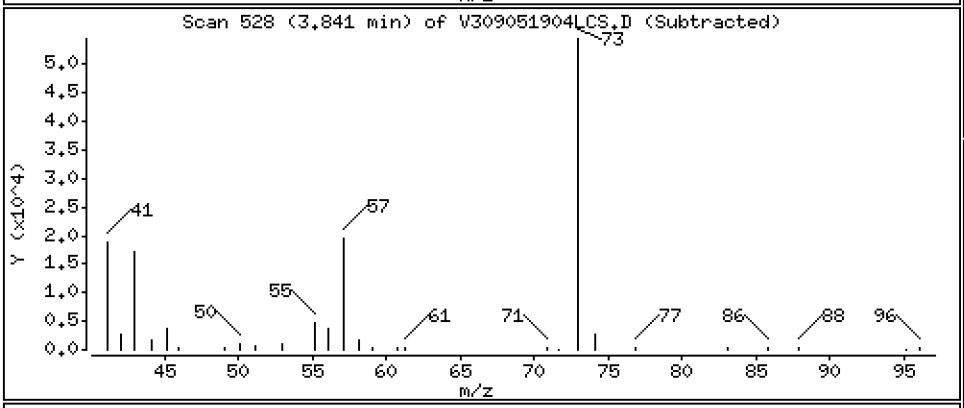
Operator: PKC

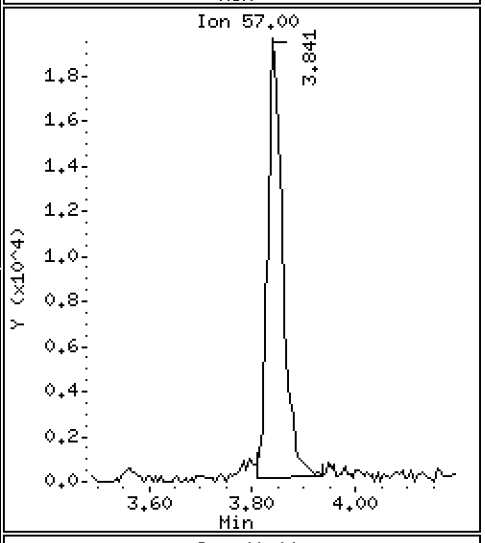
Column phase: RTXVMS Column diameter: 0.18

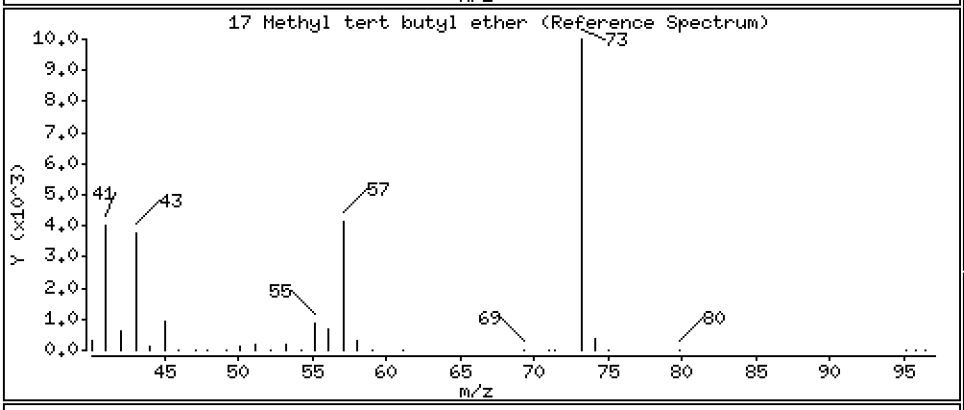
17 Methyl tert butyl ether Concentration: 9.949 ug/L

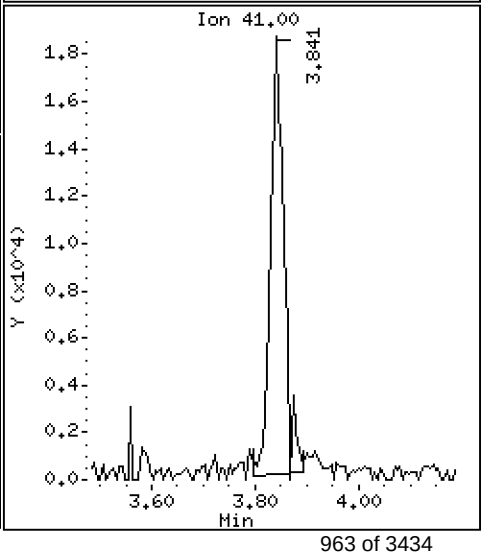


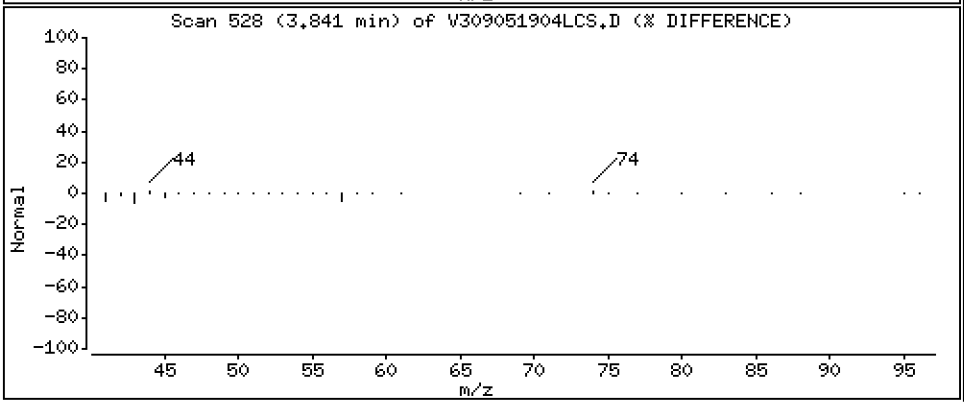












Date : 05-SEP-2019 12:30

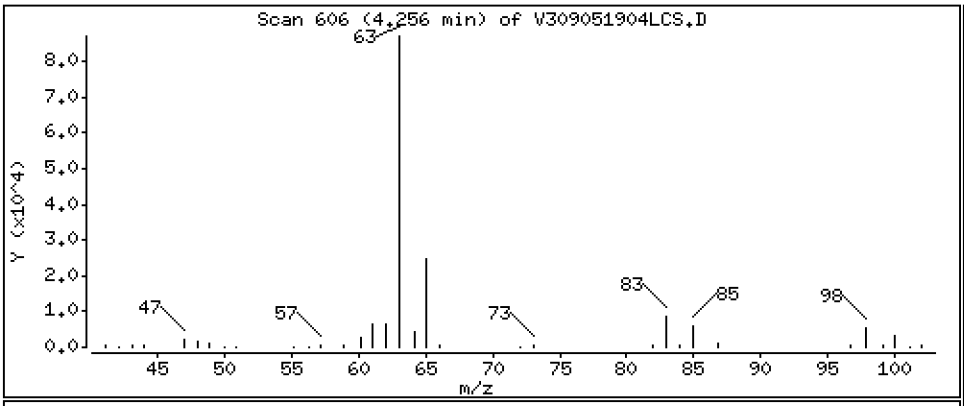
Client ID: Instrument: nt3.i

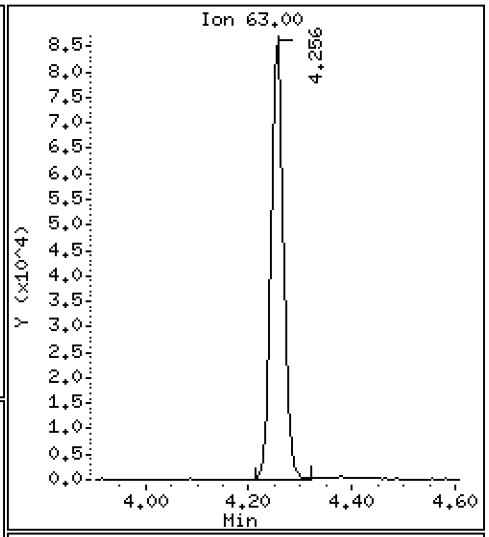
Sample Info: BHI0133-BS1

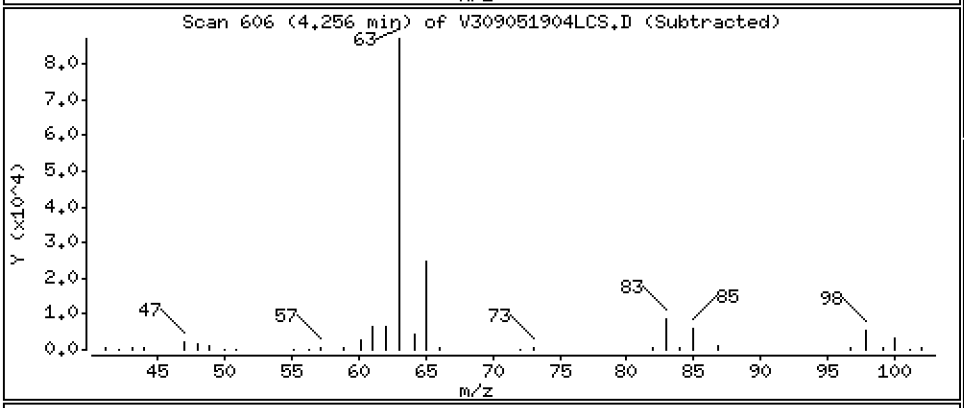
Operator: PKC

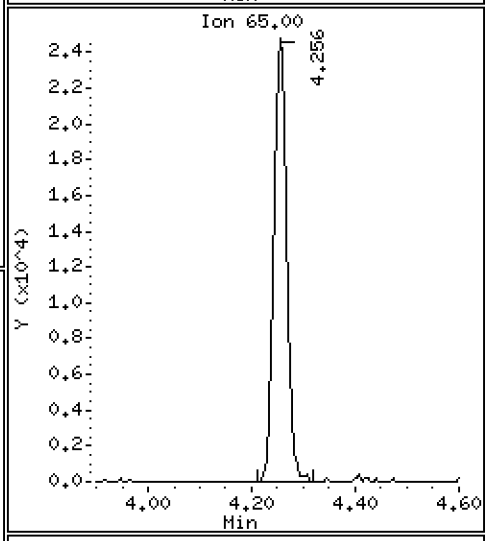
Column phase: RTXVMS Column diameter: 0.18

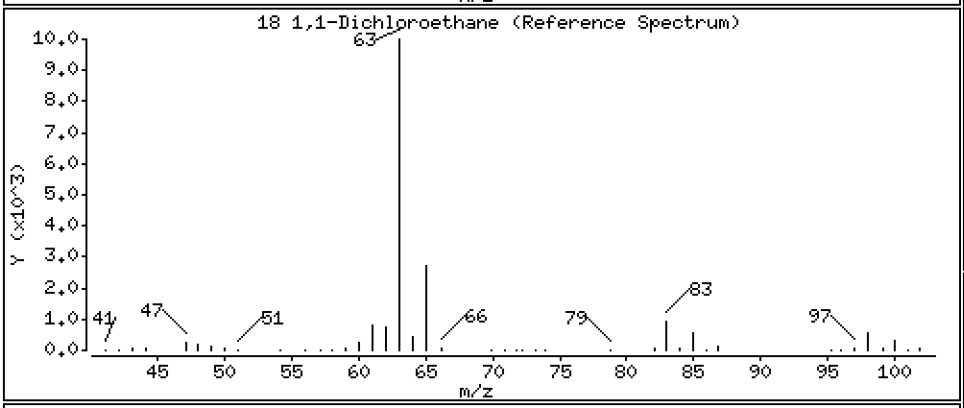
18 1,1-Dichloroethane Concentration: 10.358 ug/L

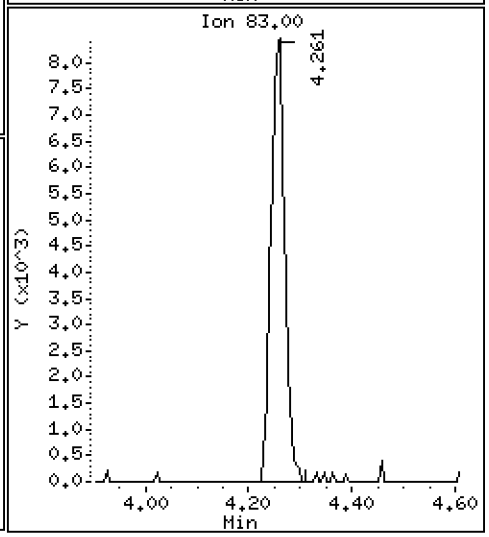


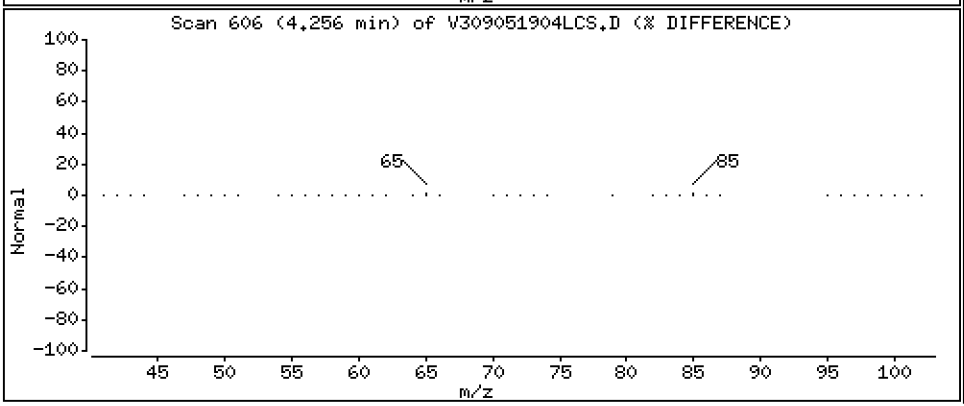












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

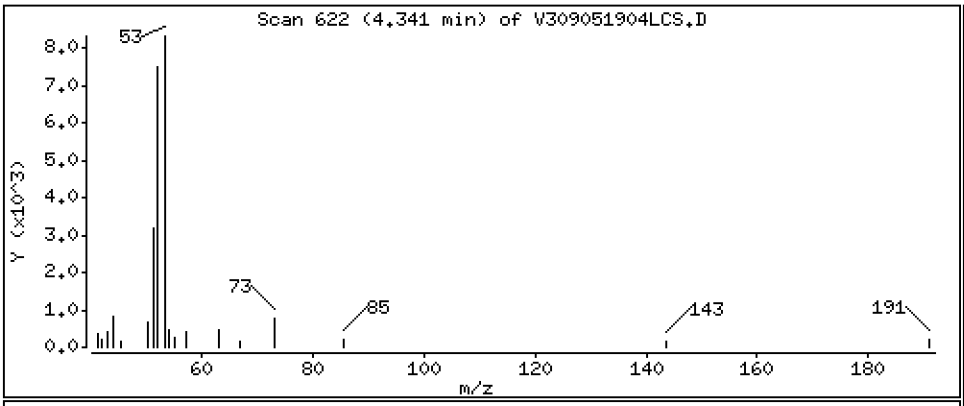
Operator: PKC

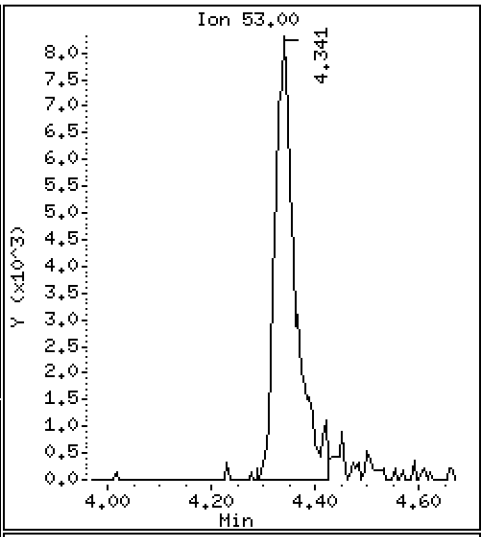
Column phase: RTXVMS

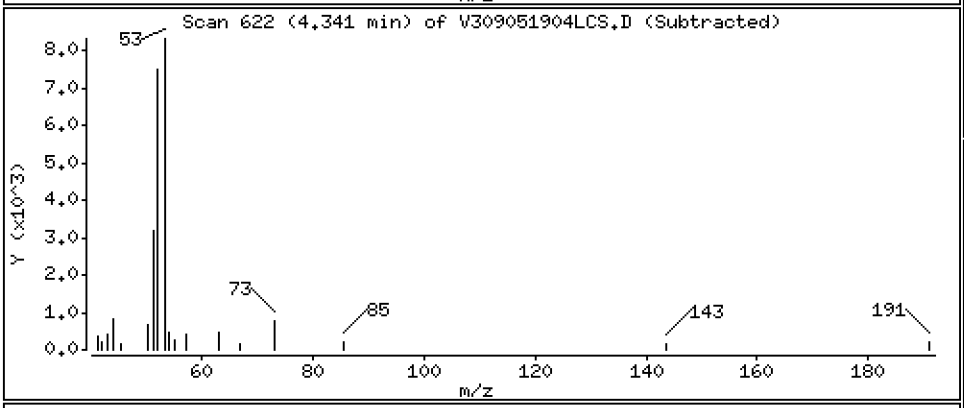
Column diameter: 0.18

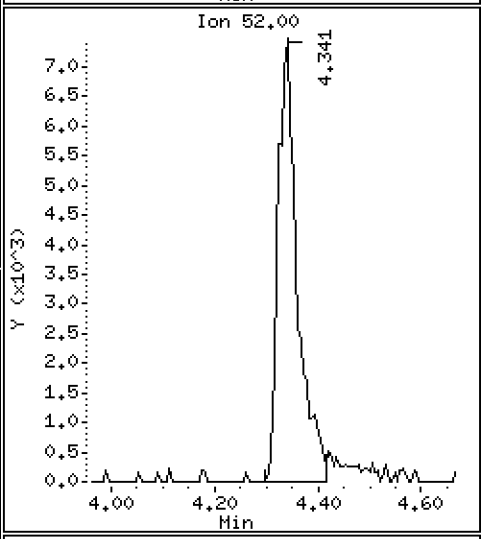
19 Acrylonitrile

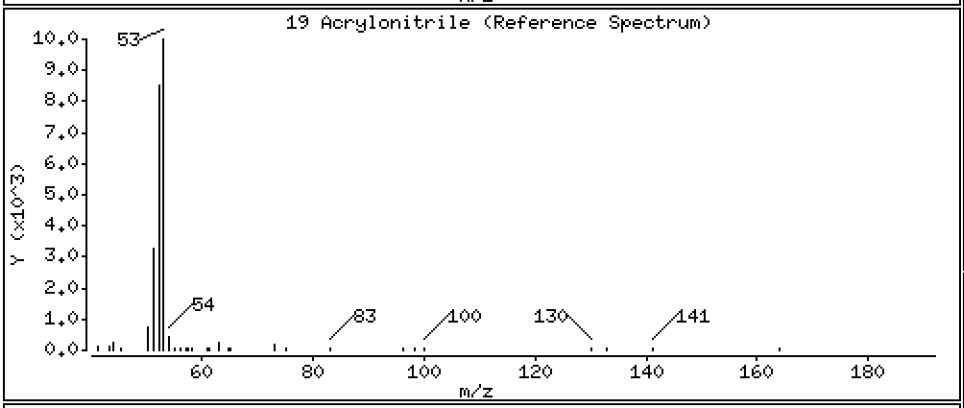
Concentration: 11.444 ug/L

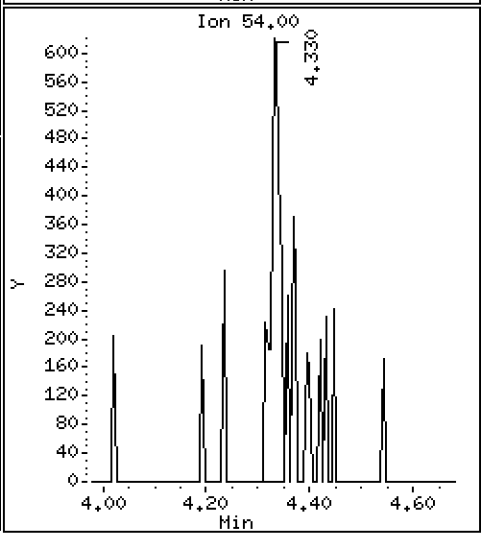


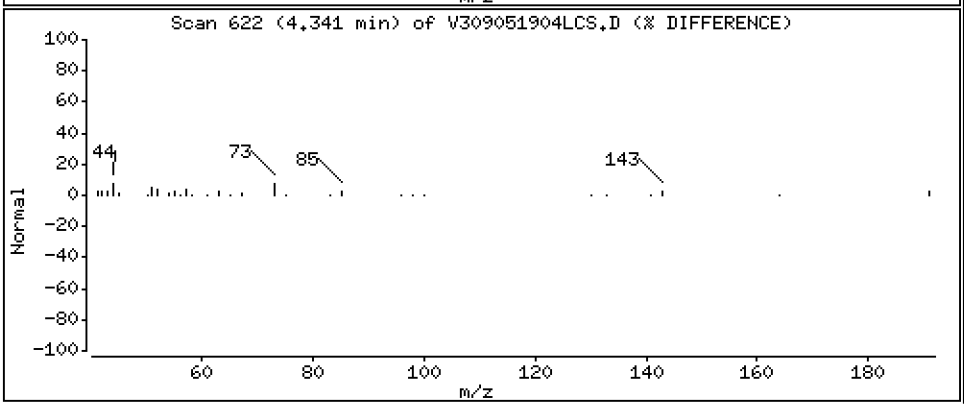












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

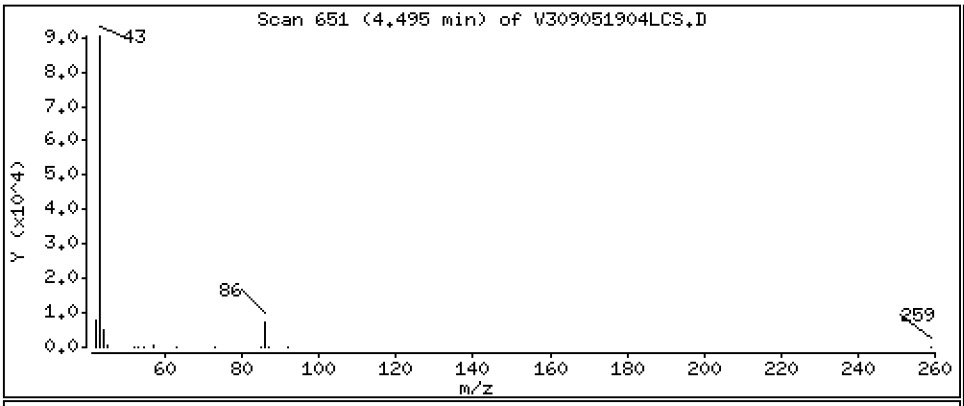
Operator: PKC

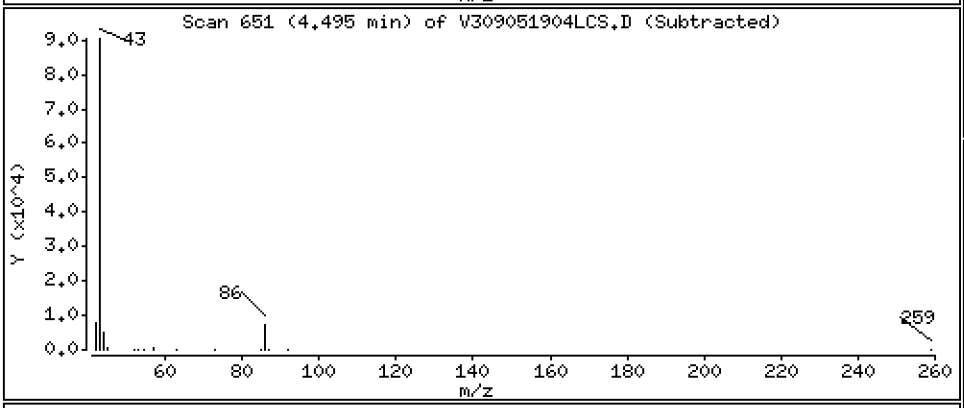
Column phase: RTXVMS

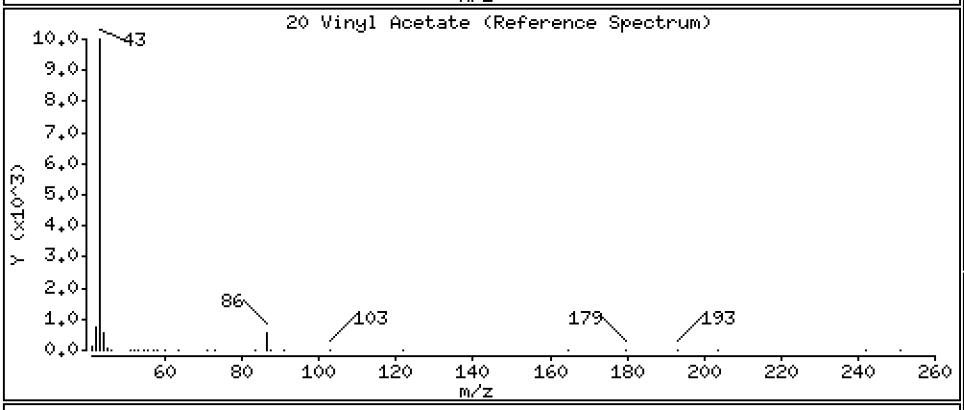
Column diameter: 0.18

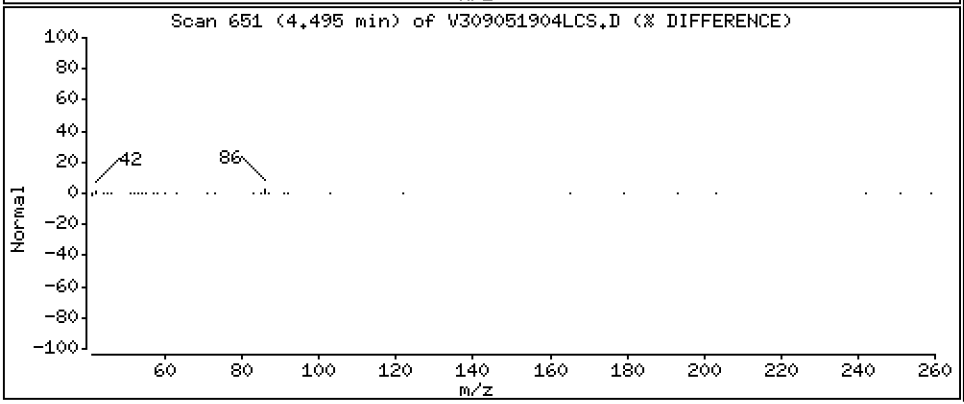
20 Vinyl Acetate

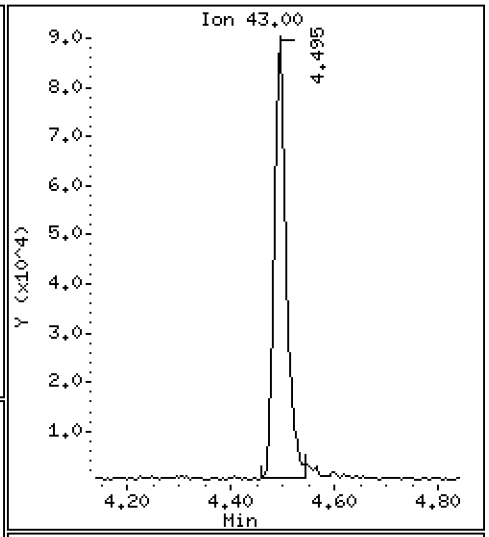
Concentration: 9.998 ug/L

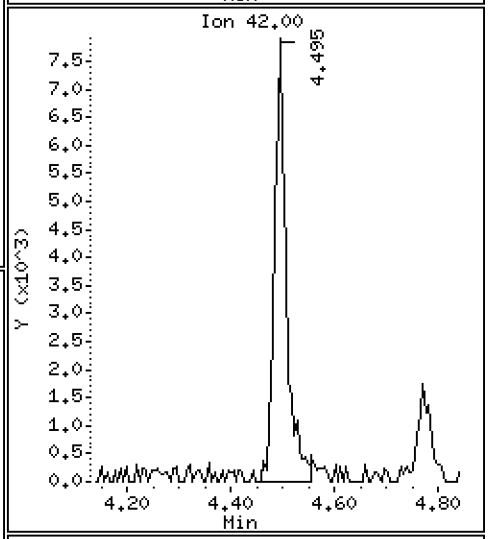


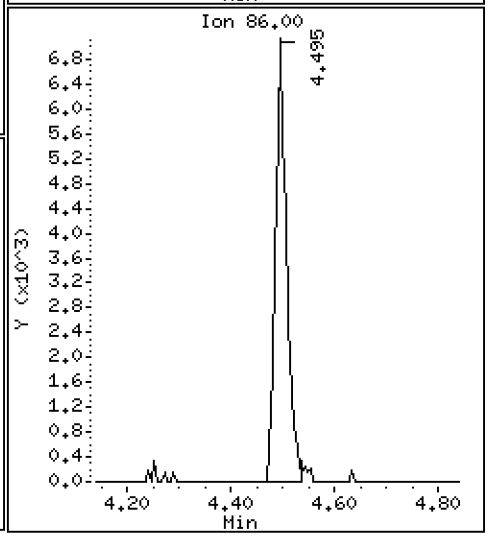












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

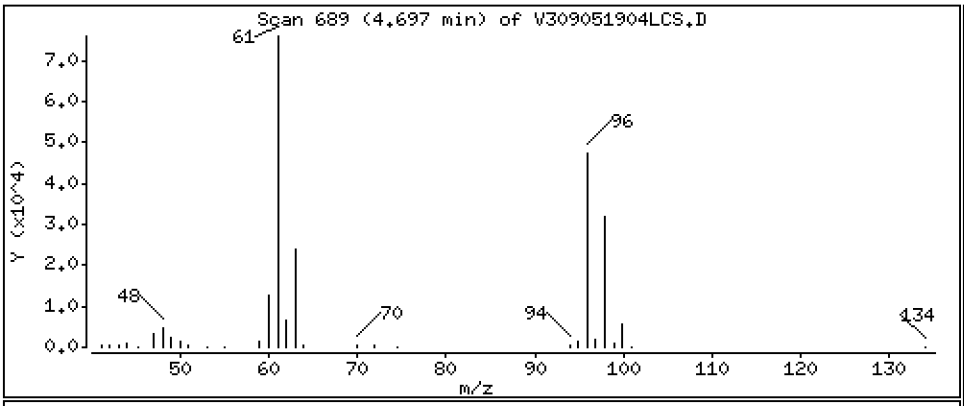
Operator: PKC

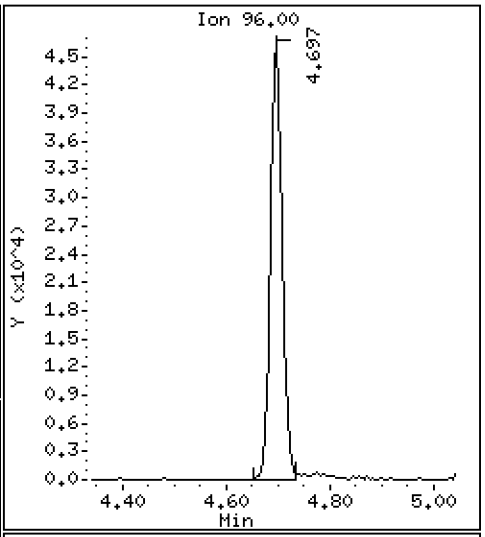
Column phase: RTXVMS

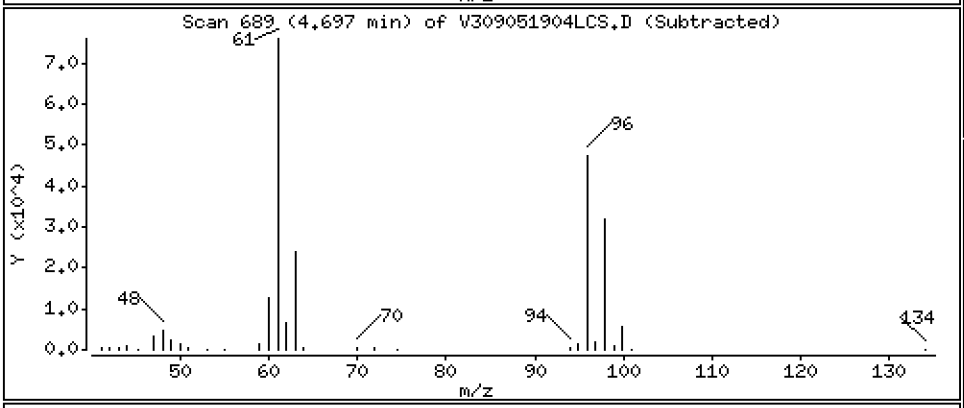
Column diameter: 0.18

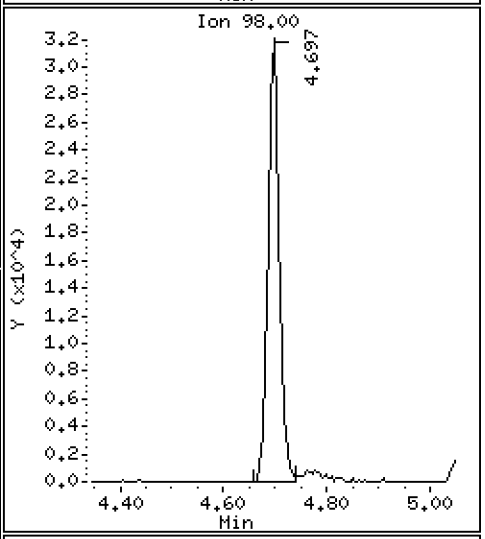
22 Cis-1,2-Dichloroethene

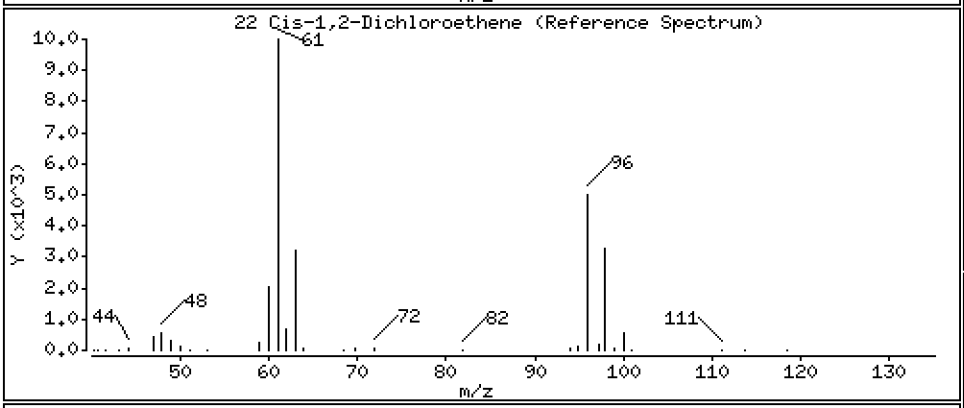
Concentration: 10.387 ug/L

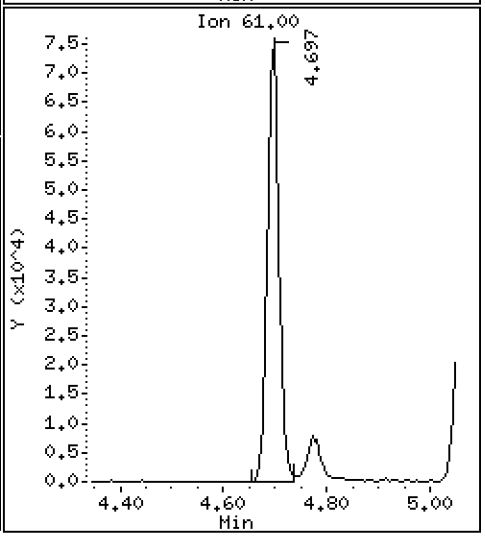


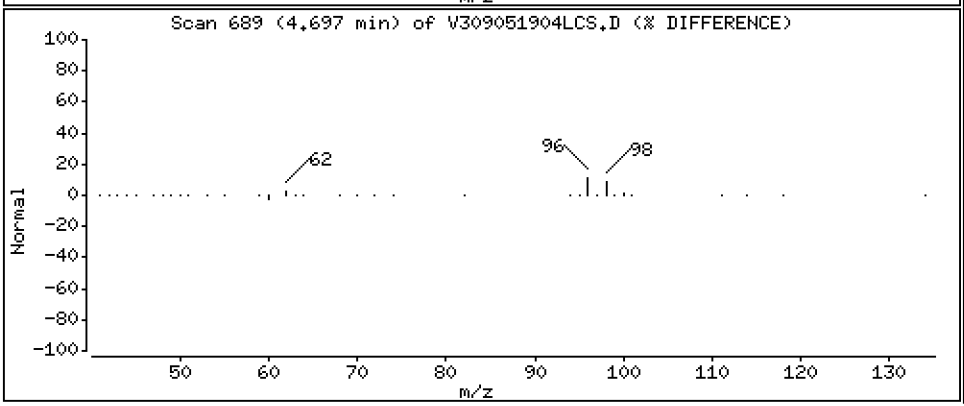












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

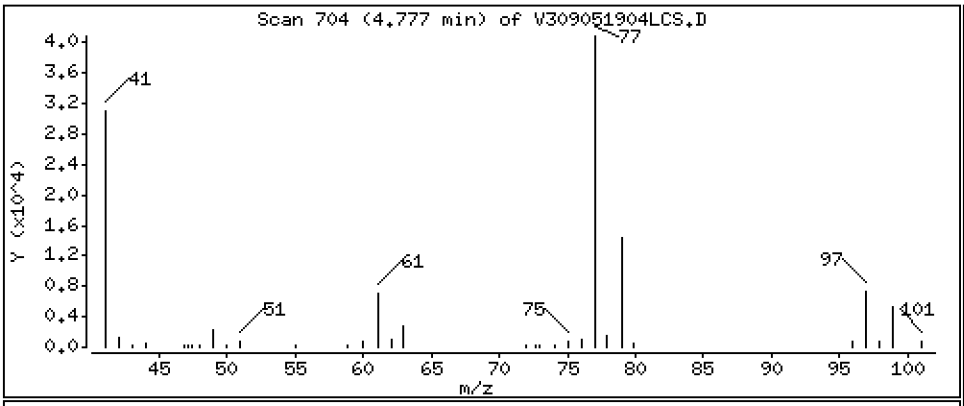
Operator: PKC

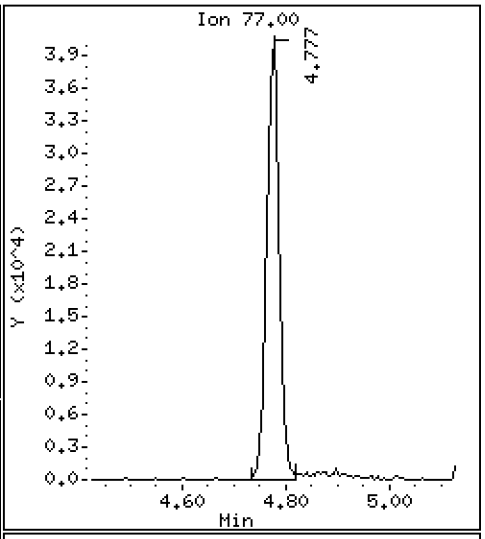
Column phase: RTXVMS

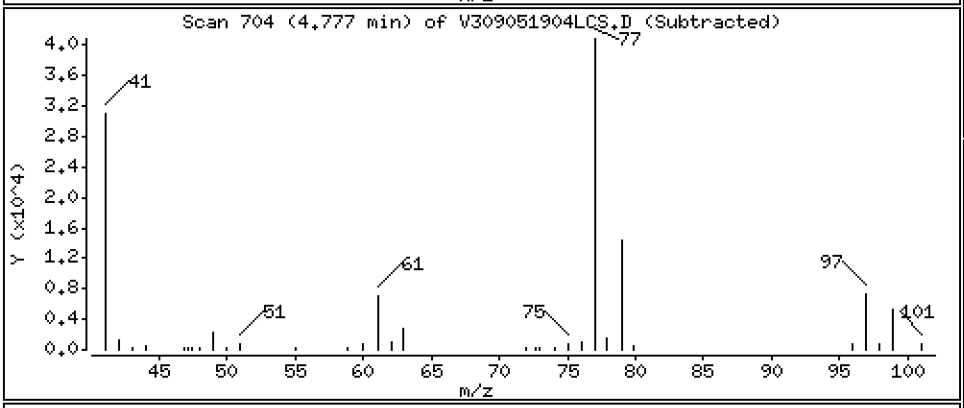
Column diameter: 0.18

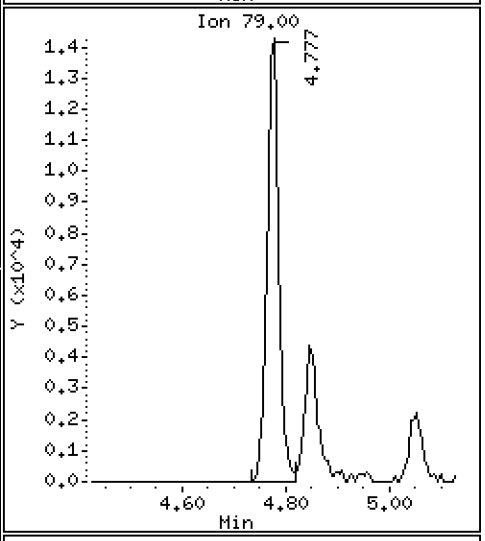
23 2,2-Dichloropropane

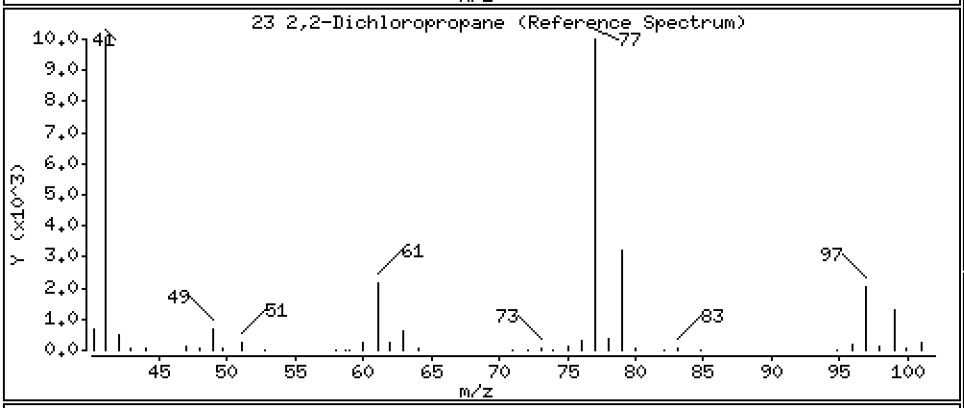
Concentration: 10.466 ug/L

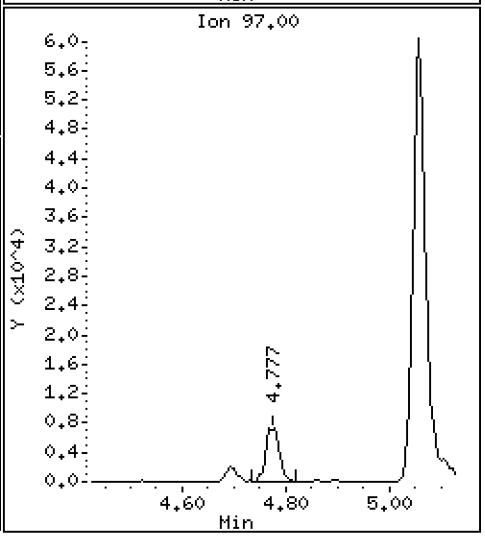


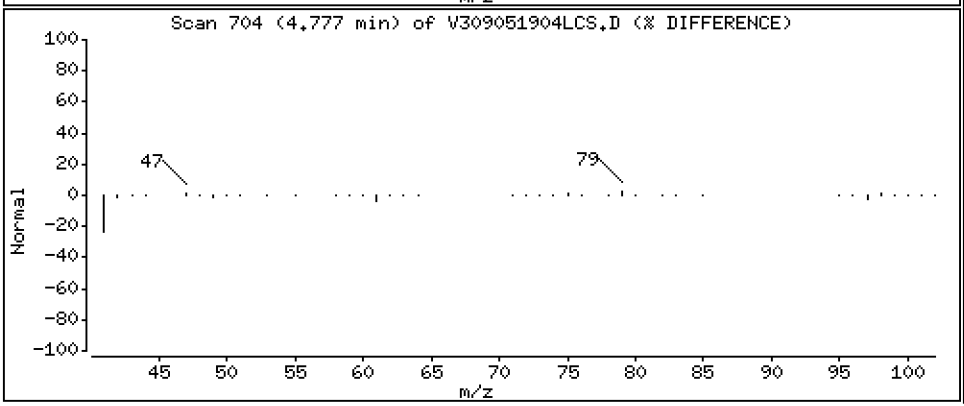












Date : 05-SEP-2019 12:30

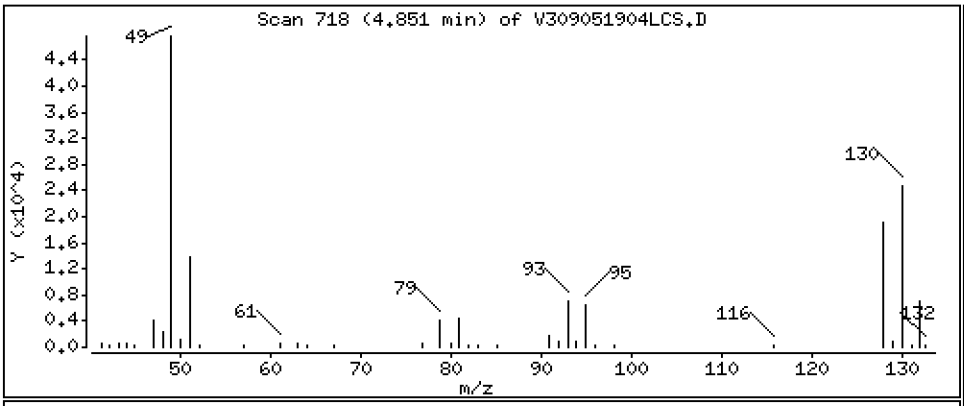
Client ID: Instrument: nt3.i

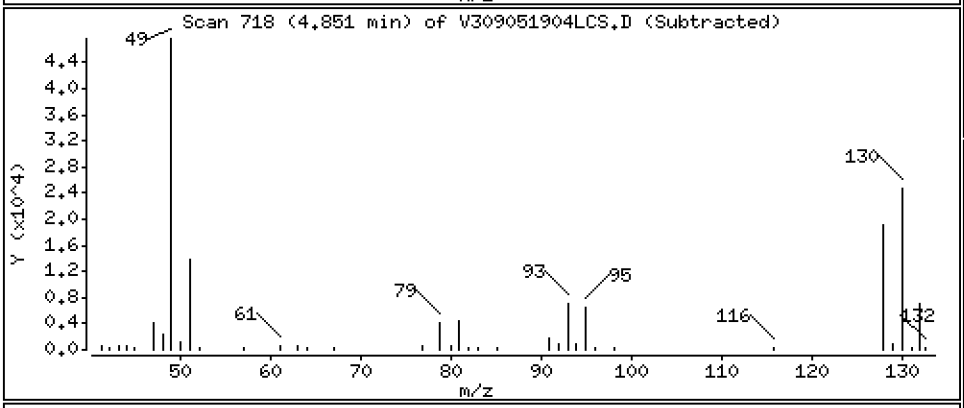
Sample Info: BHI0133-BS1

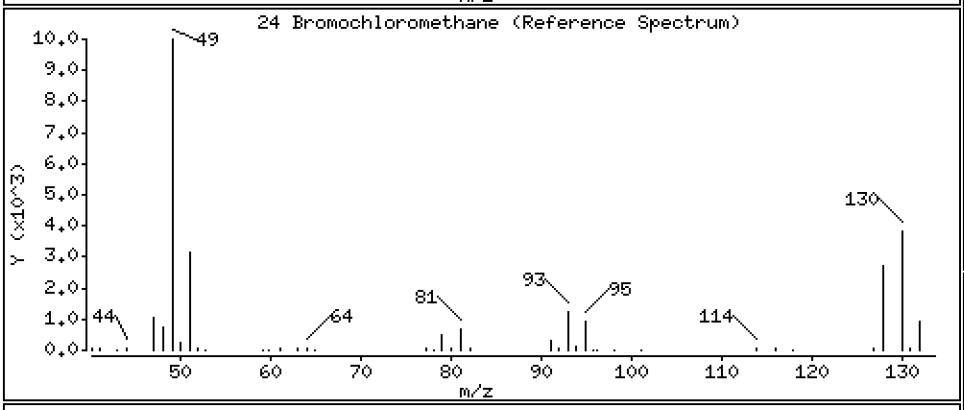
Operator: PKC

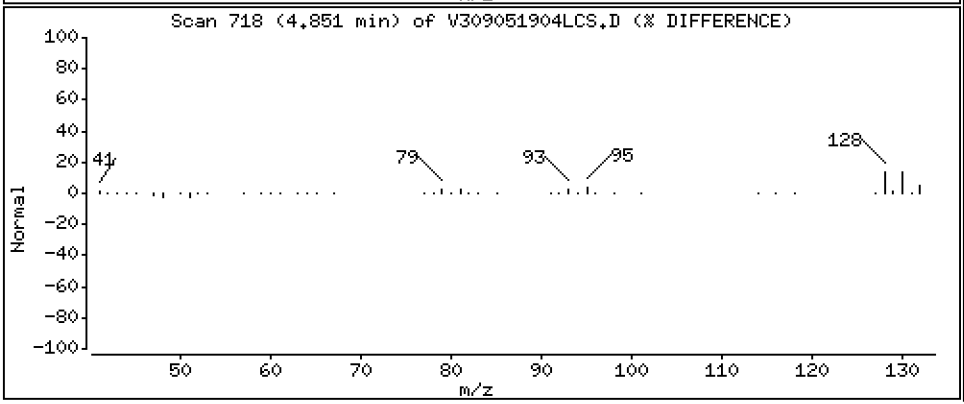
Column phase: RTXVMS Column diameter: 0.18

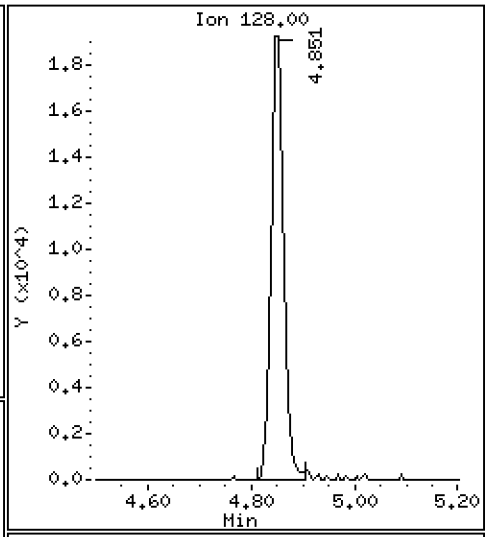
24 Bromochloromethane Concentration: 10.449 ug/L

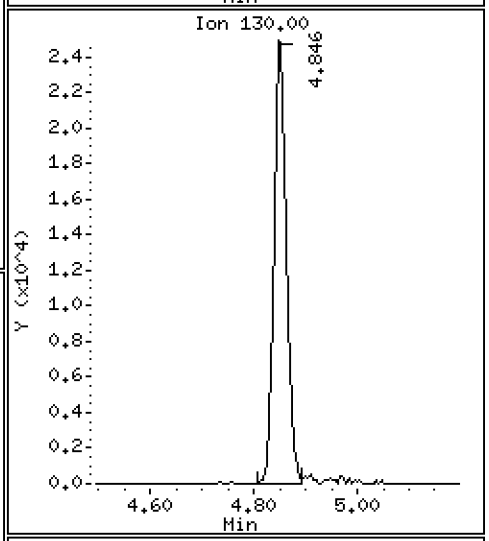


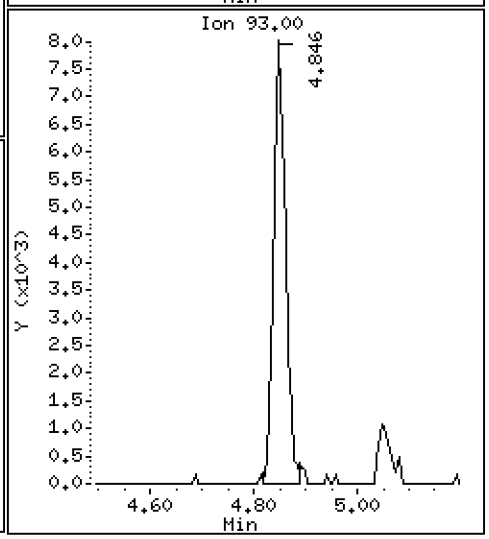












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

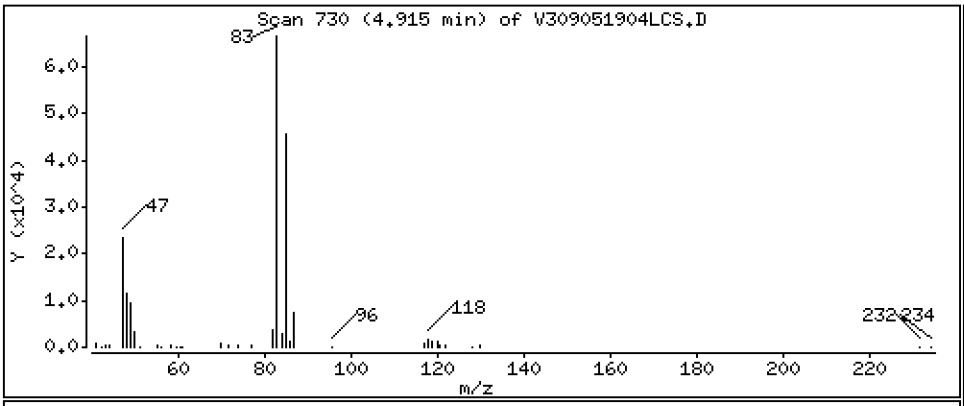
Operator: PKC

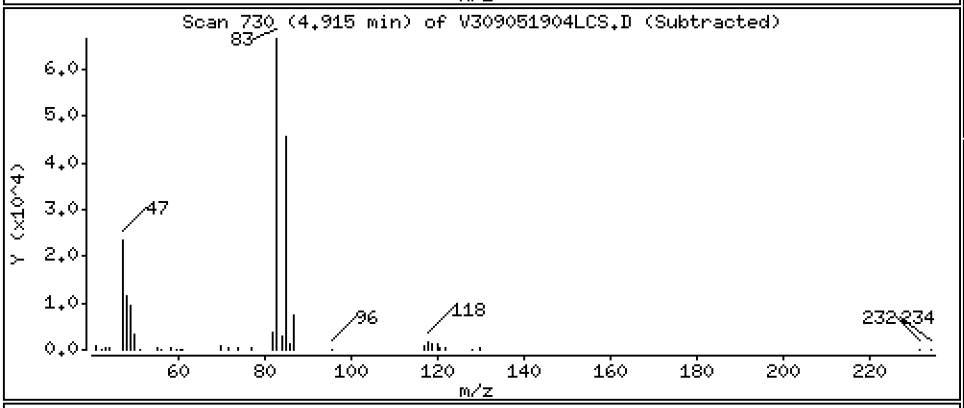
Column phase: RTXVMS

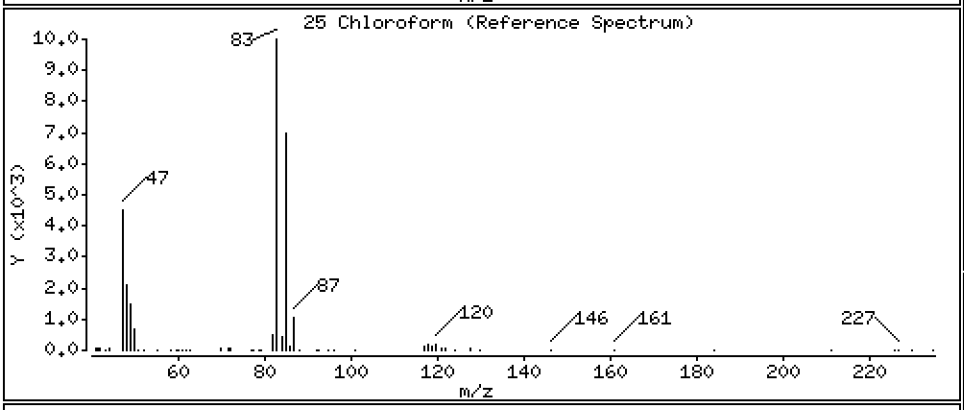
Column diameter: 0.18

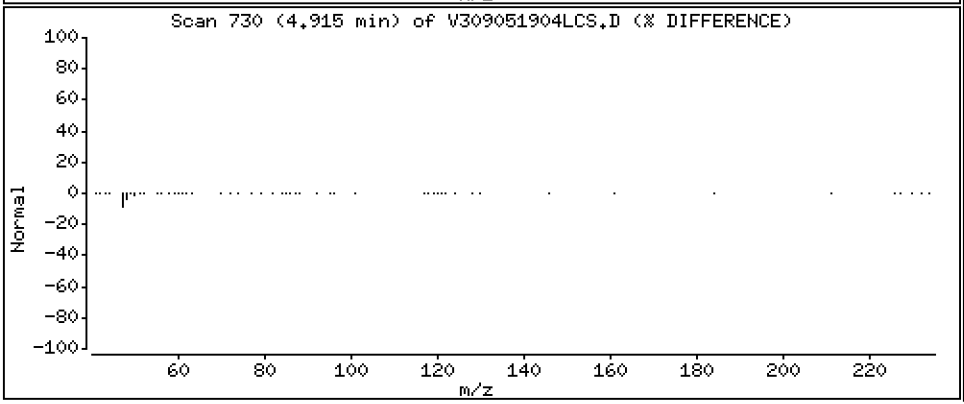
25 Chloroform

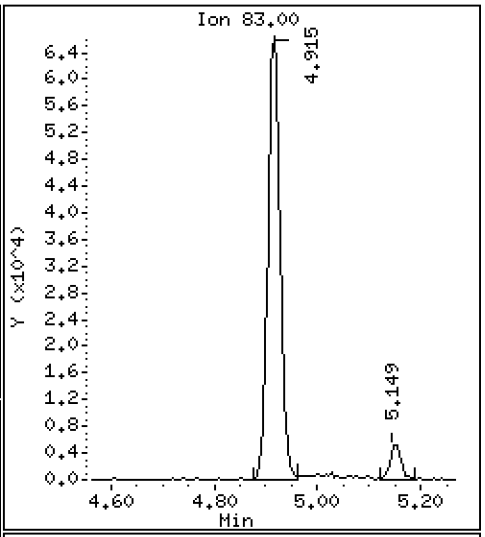
Concentration: 10.180 ug/L

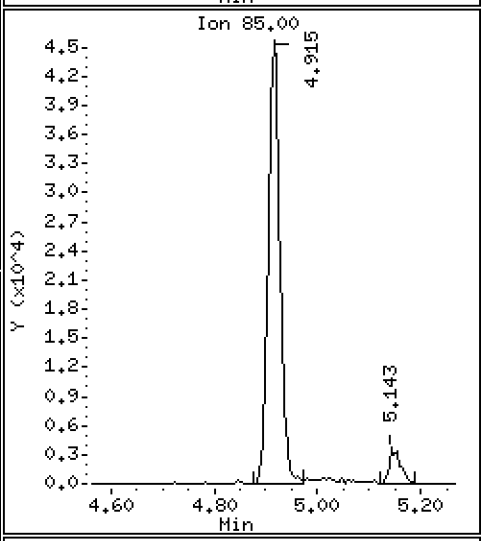


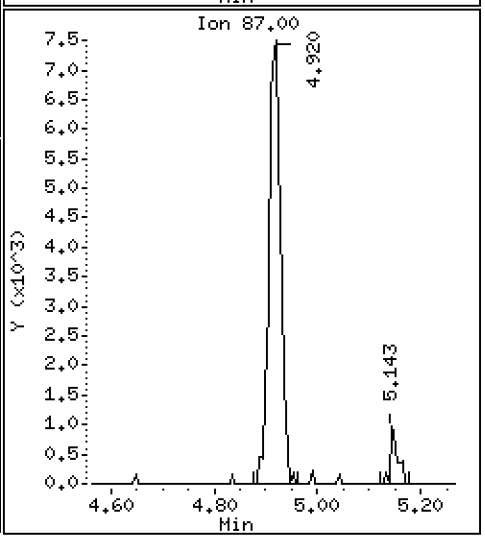












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

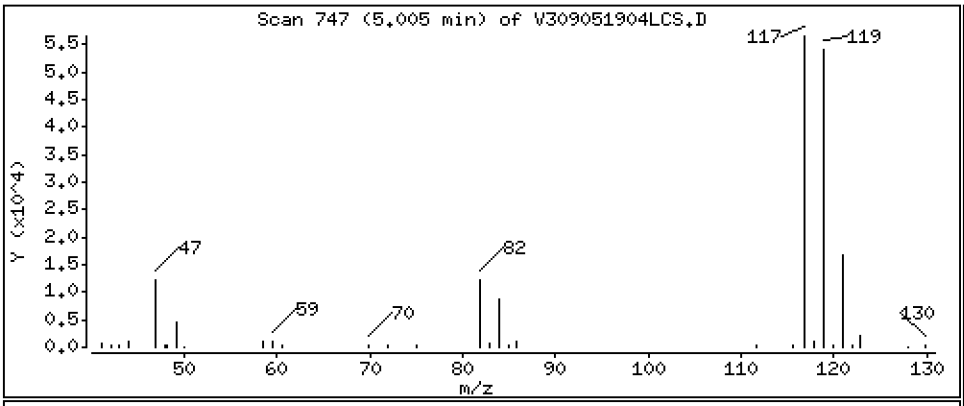
Operator: PKC

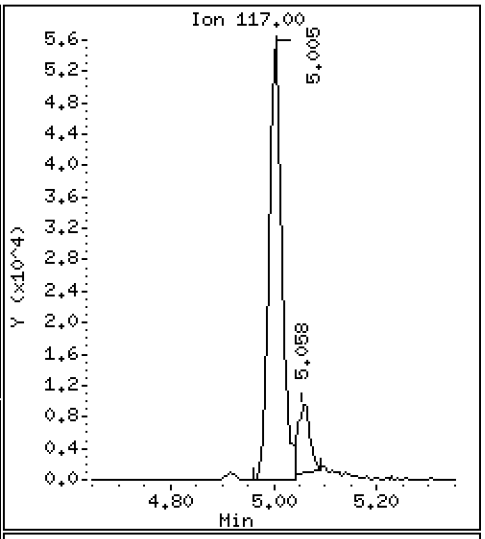
Column phase: RTXVMS

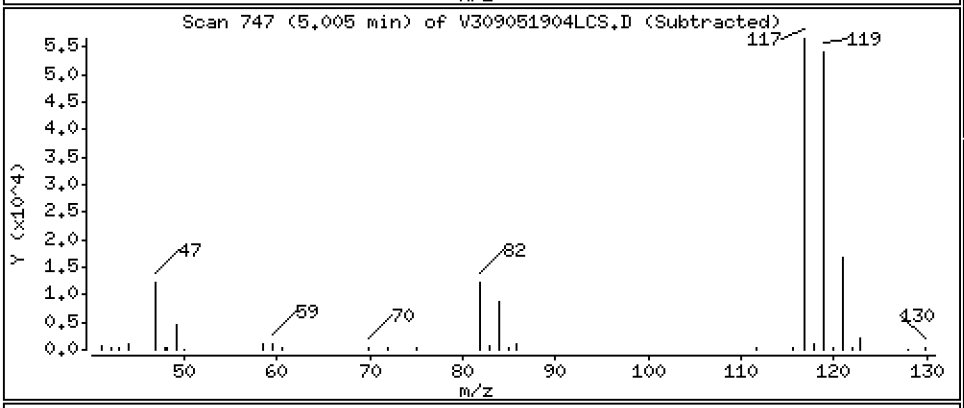
Column diameter: 0.18

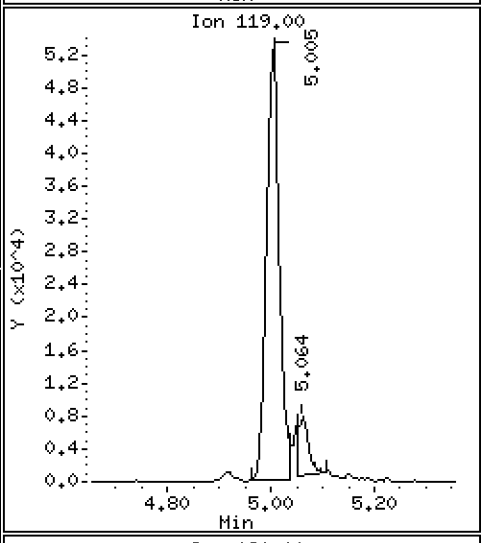
26 Carbon Tetrachloride

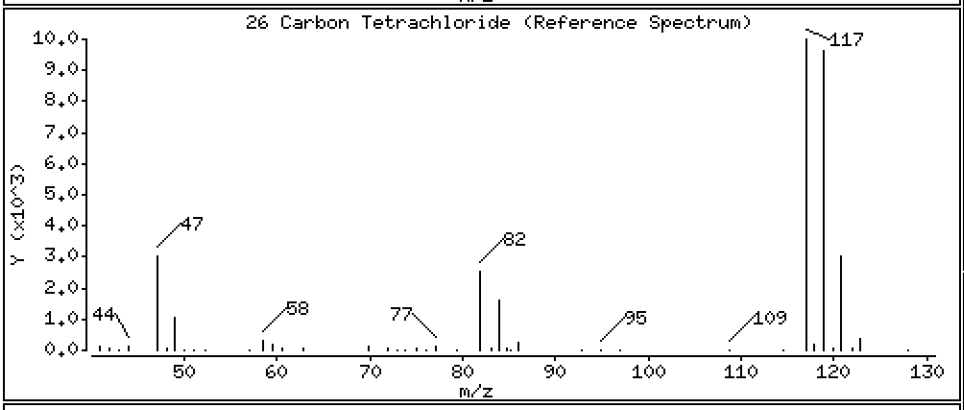
Concentration: 10.721 ug/L

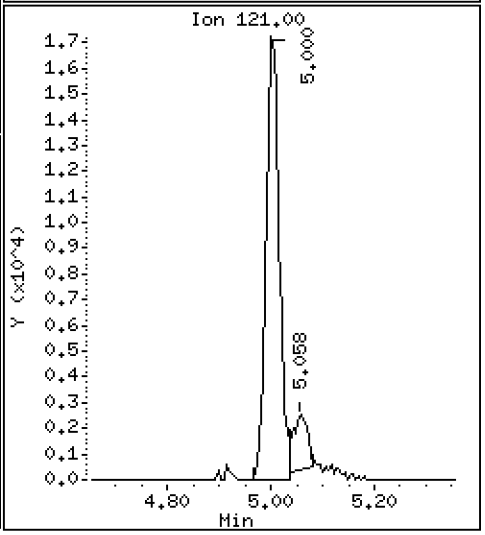


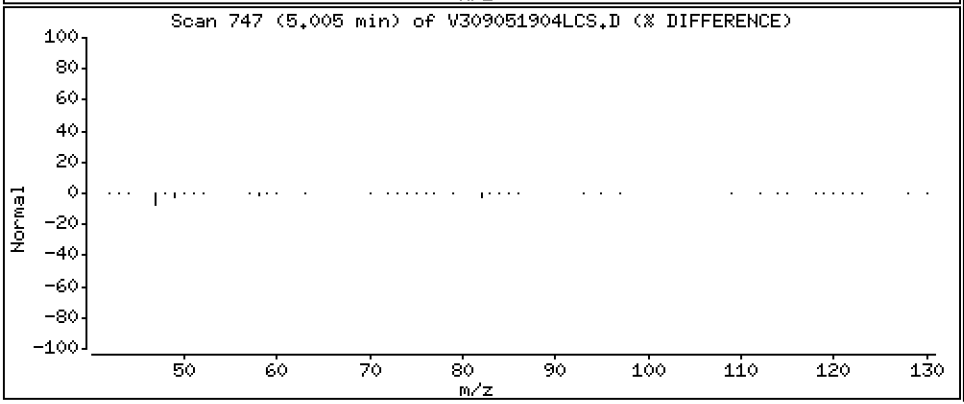












Date : 05-SEP-2019 12:30

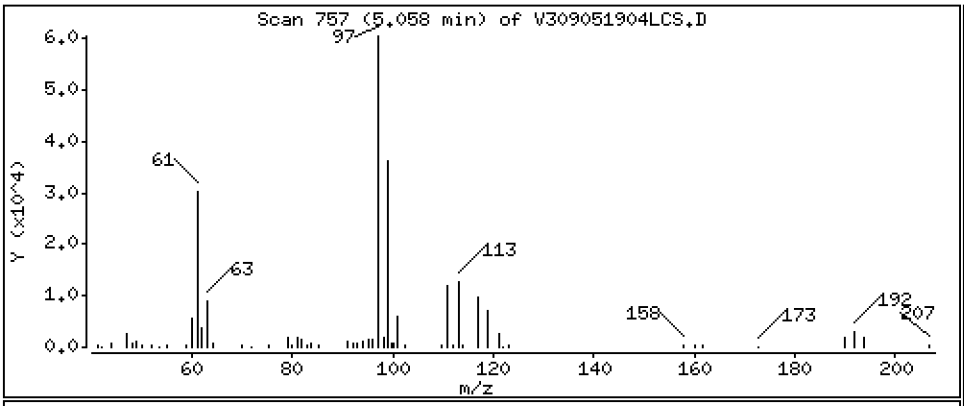
Client ID: Instrument: nt3.i

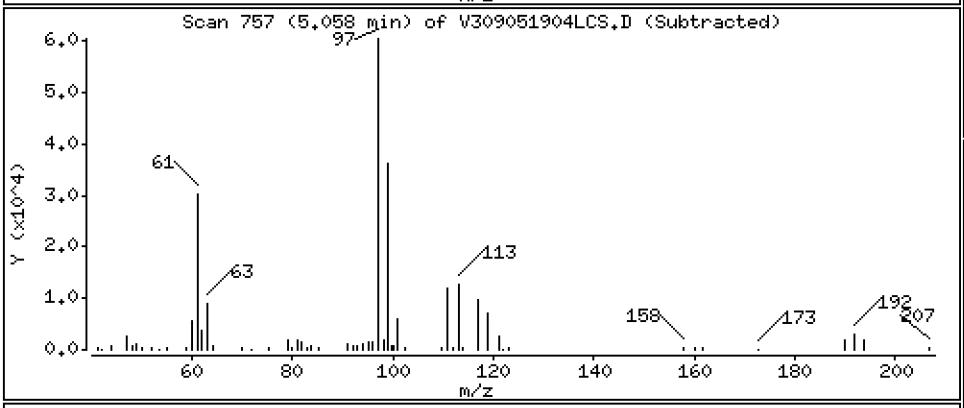
Sample Info: BHI0133-BS1

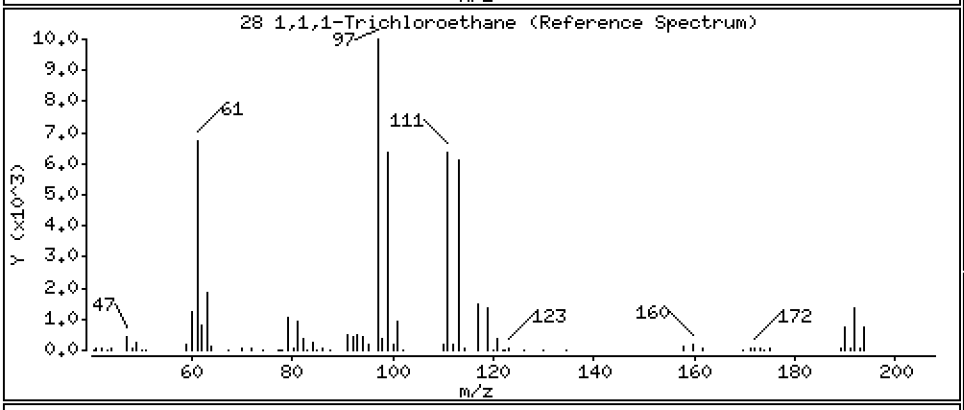
Operator: PKC

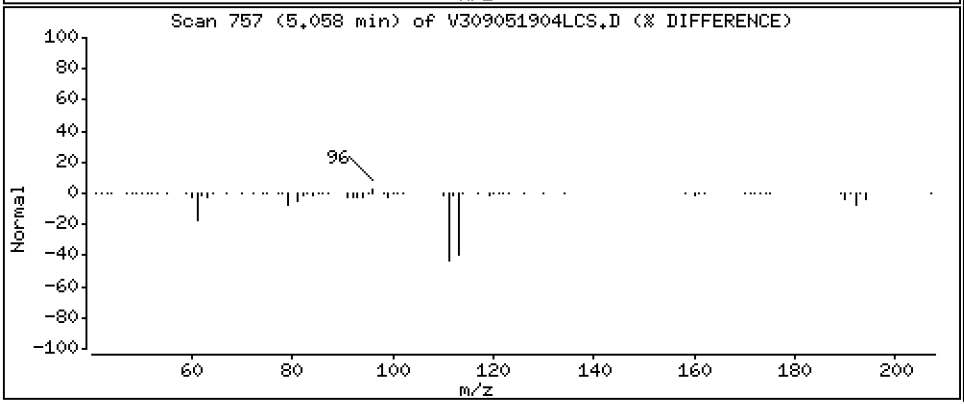
Column phase: RTXVMS Column diameter: 0.18

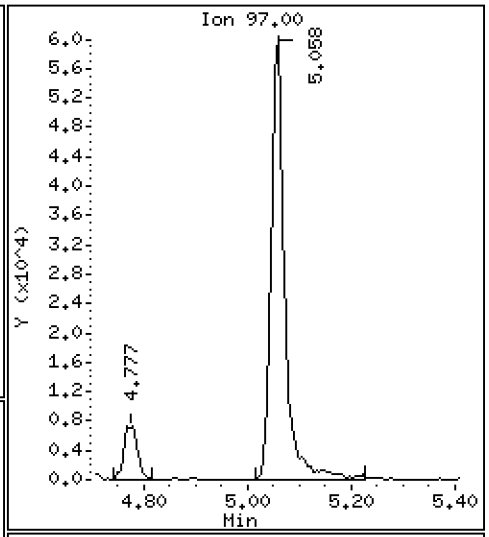
28 1,1,1-Trichloroethane Concentration: 10.602 ug/L

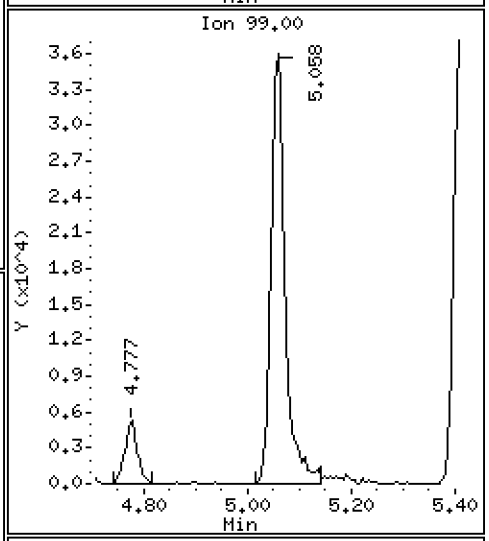


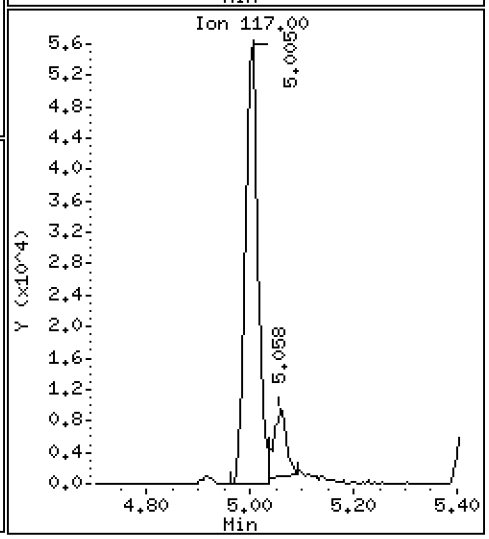












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

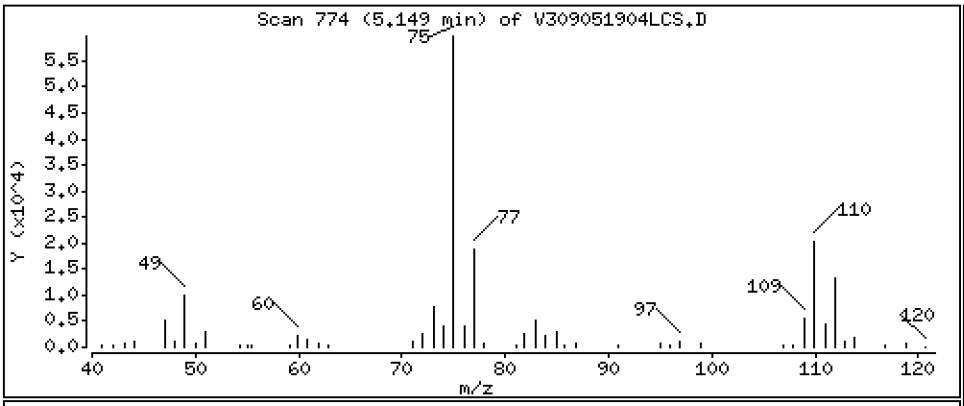
Operator: PKC

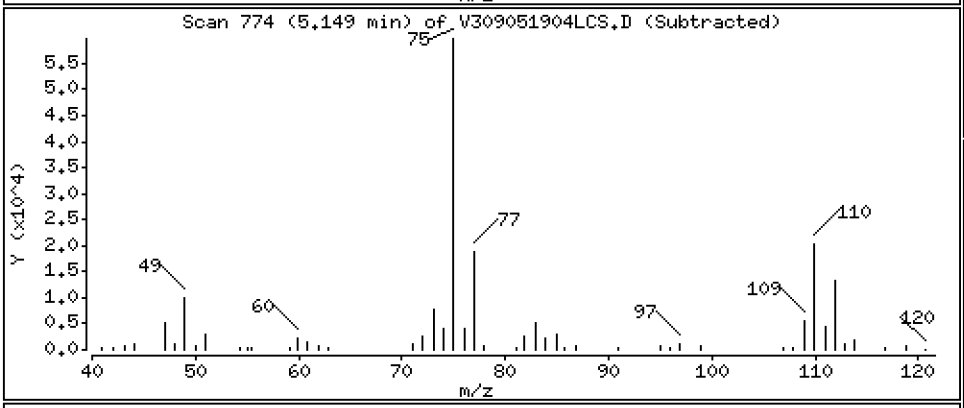
Column phase: RTXVMS

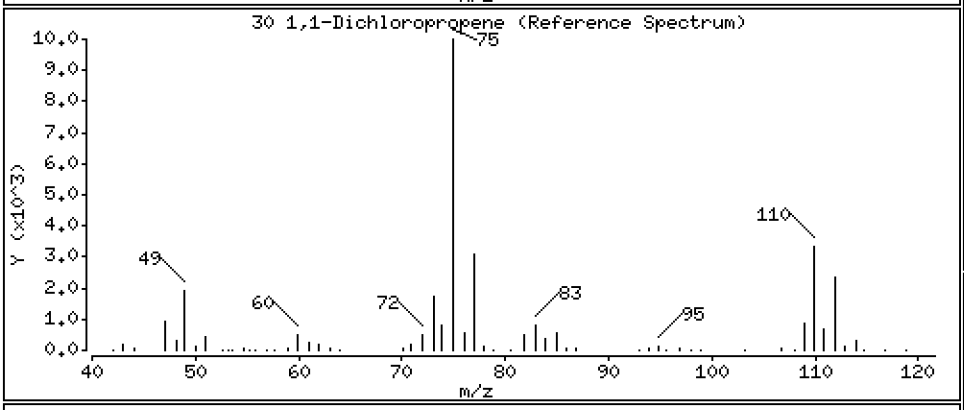
Column diameter: 0.18

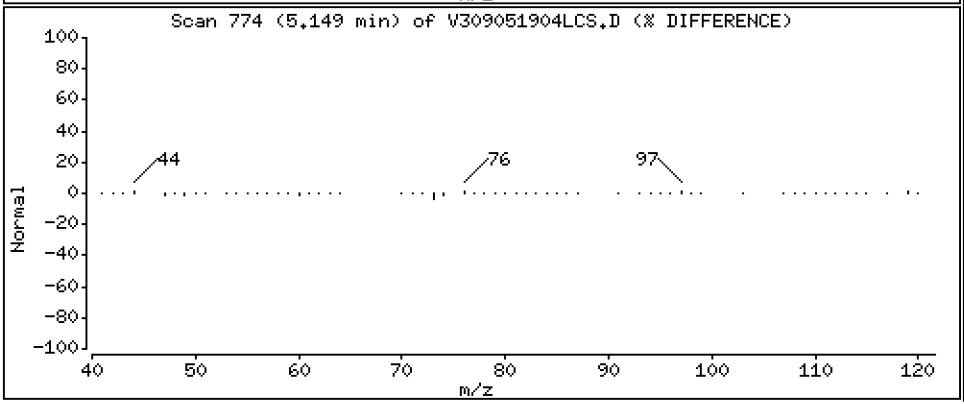
30 1,1-Dichloropropene

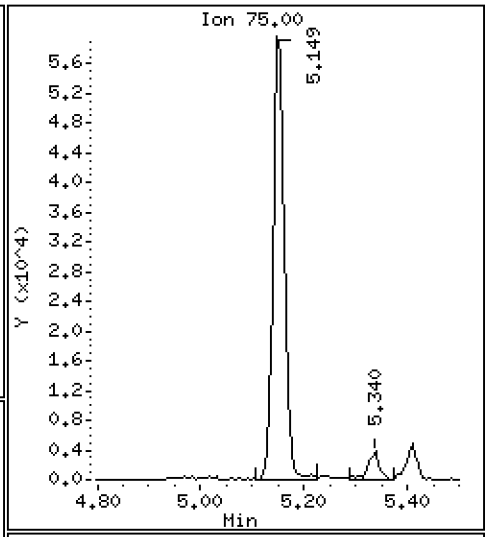
Concentration: 10.433 ug/L

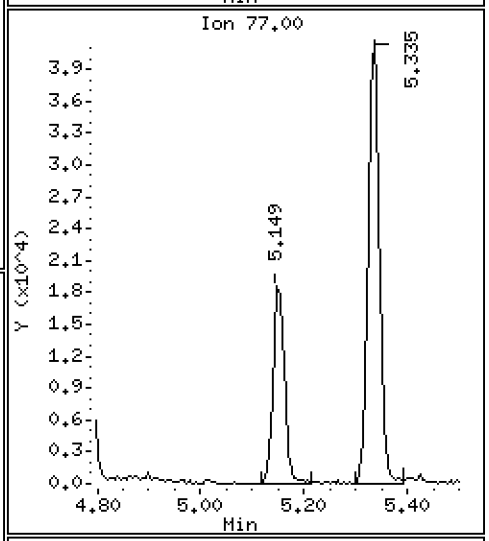


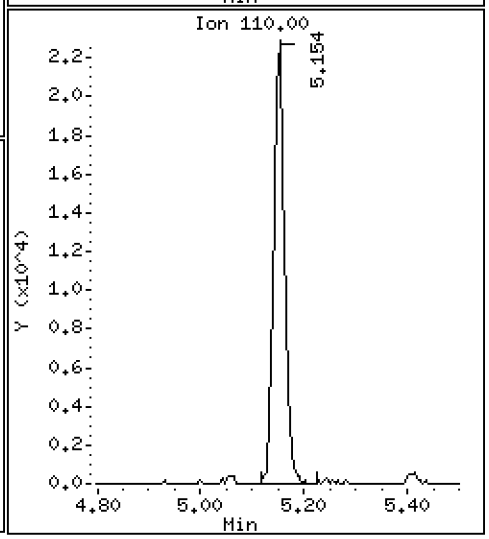












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

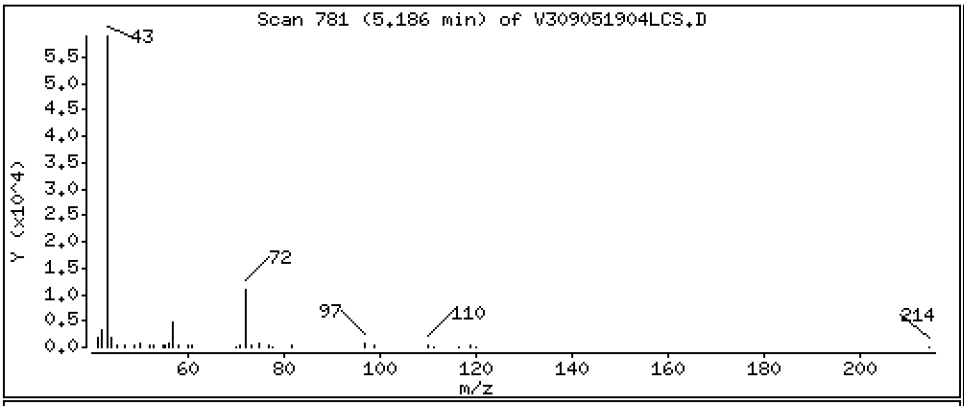
Operator: PKC

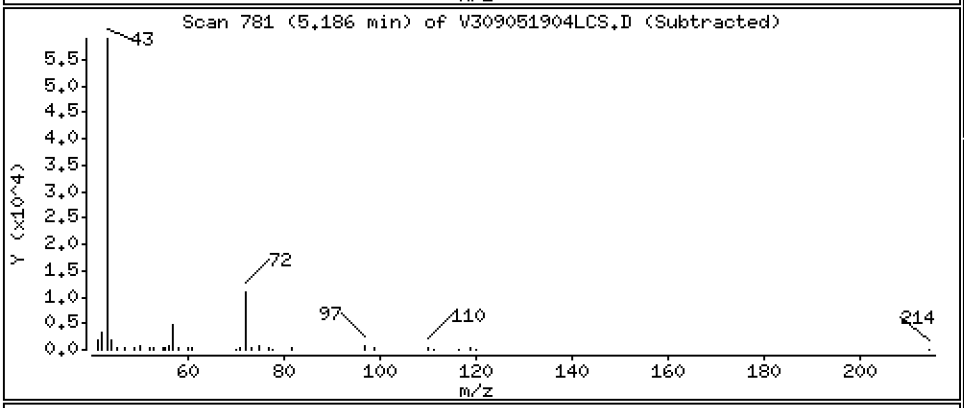
Column phase: RTXVMS

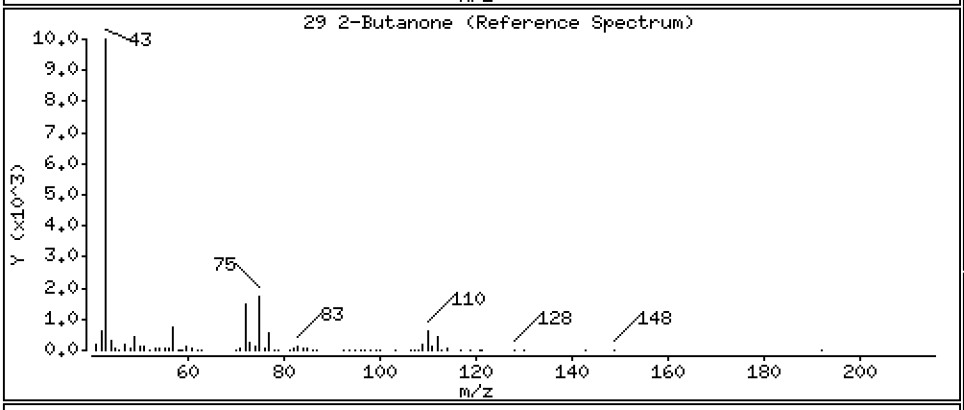
Column diameter: 0.18

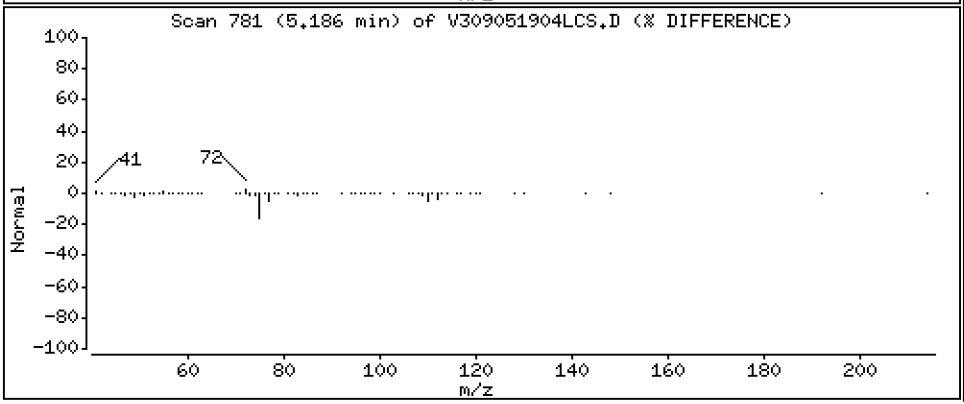
29 2-Butanone

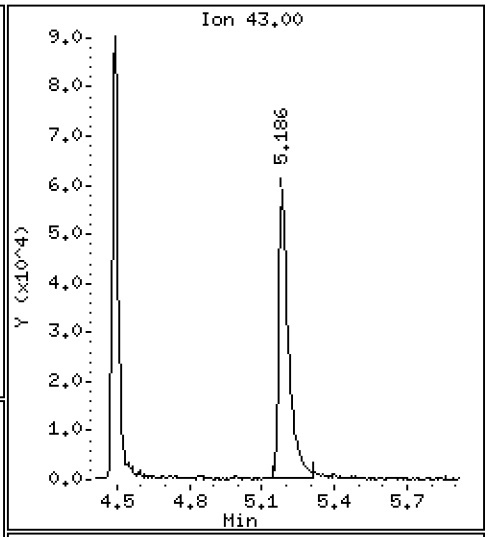
Concentration: 61.187 ug/L

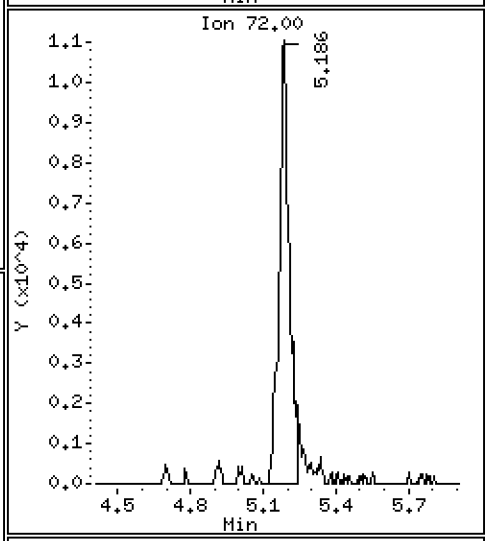


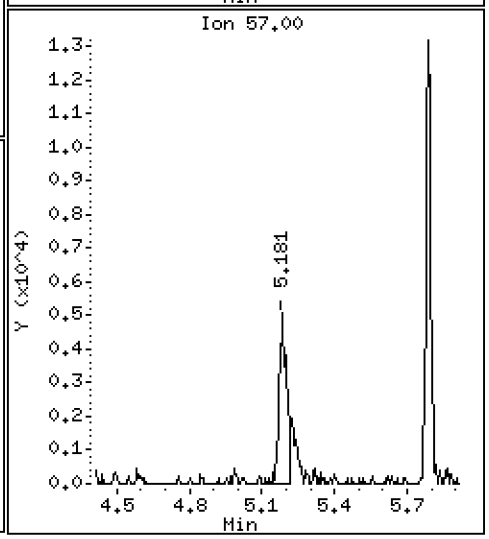












Date : 05-SEP-2019 12:30

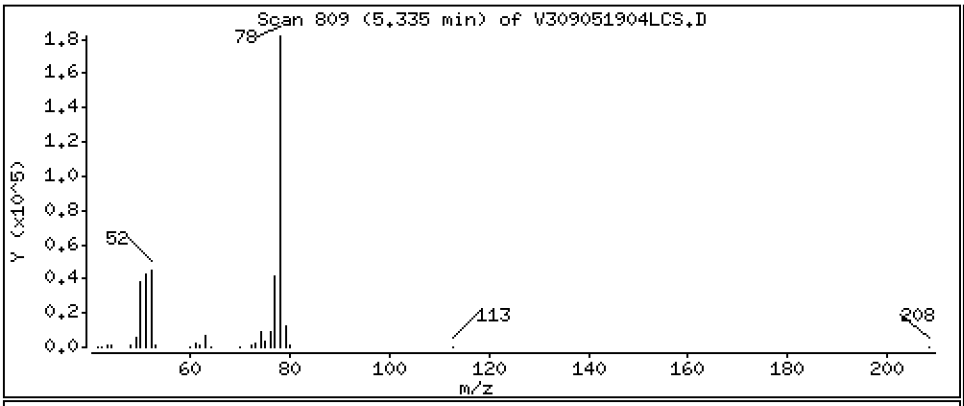
Client ID: Instrument: nt3.i

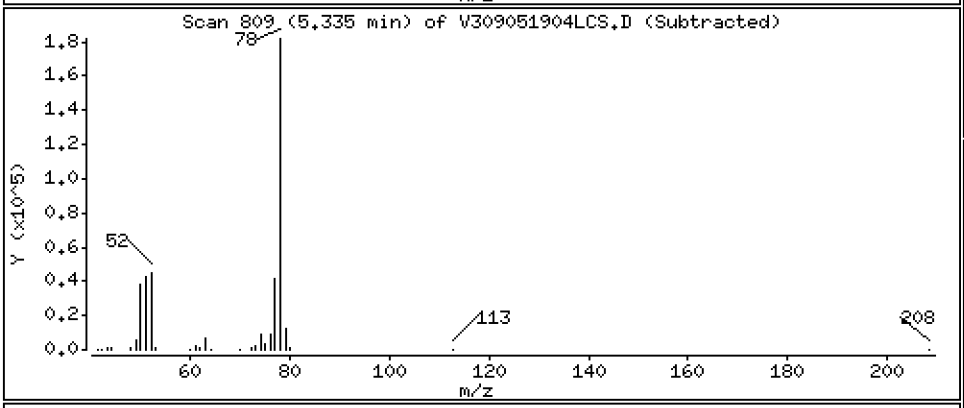
Sample Info: BHI0133-BS1

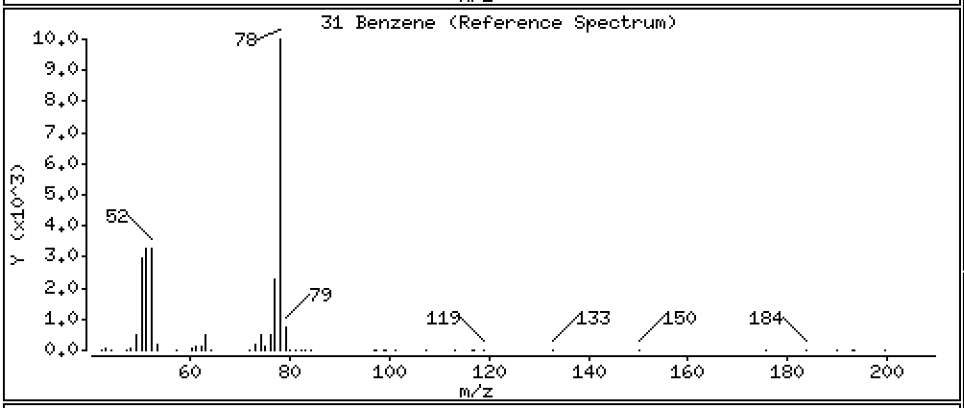
Operator: PKC

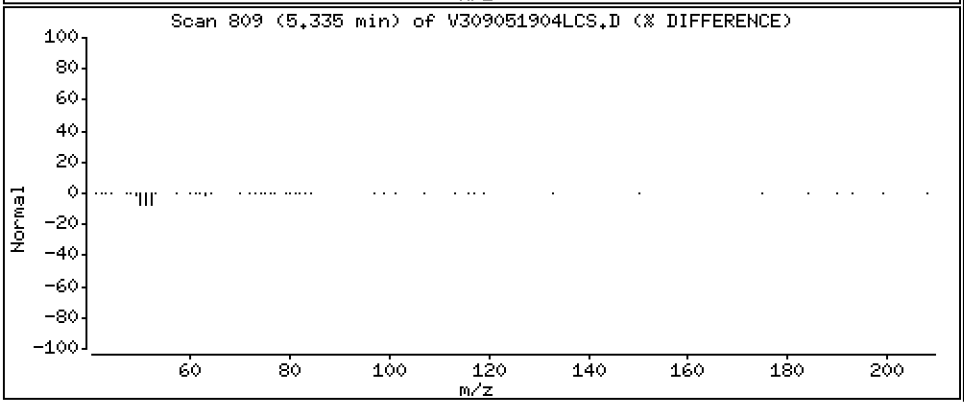
Column phase: RTXVMS Column diameter: 0.18

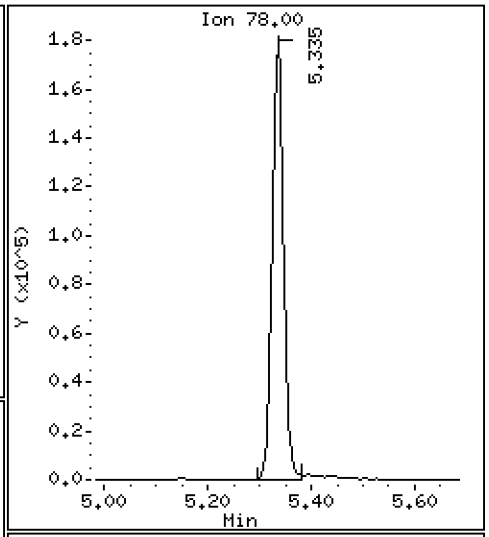
31 Benzene Concentration: 10.590 ug/L

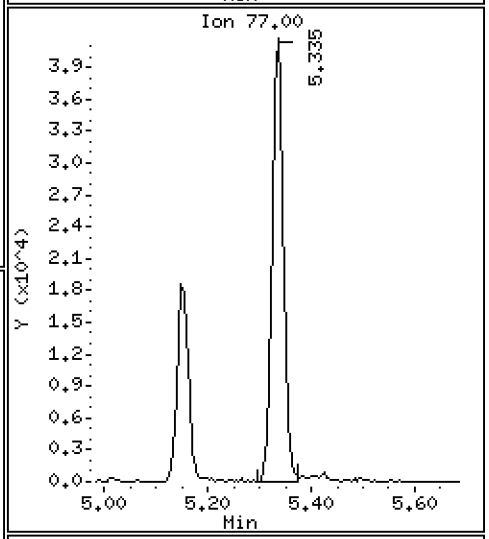


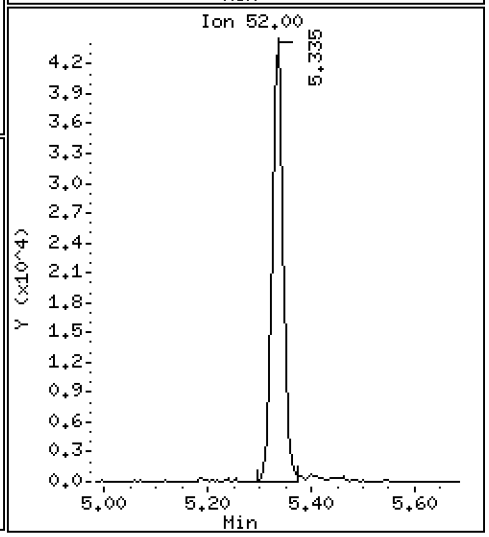












Date : 05-SEP-2019 12:30

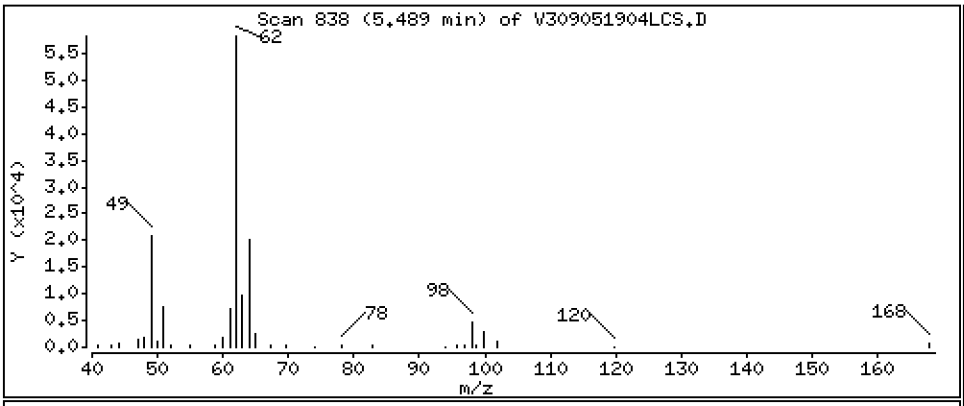
Client ID: Instrument: nt3.i

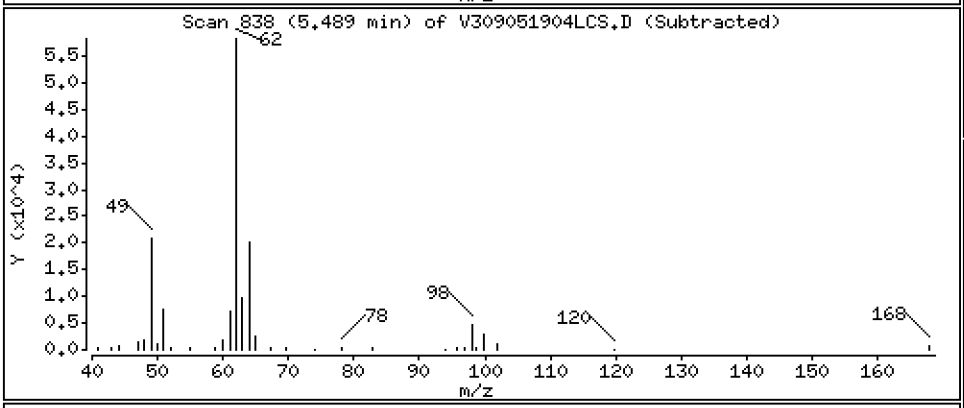
Sample Info: BHI0133-BS1

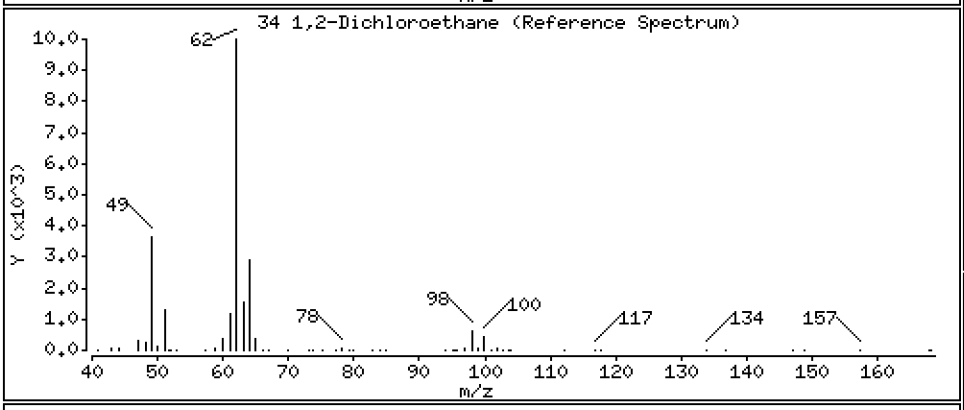
Operator: PKC

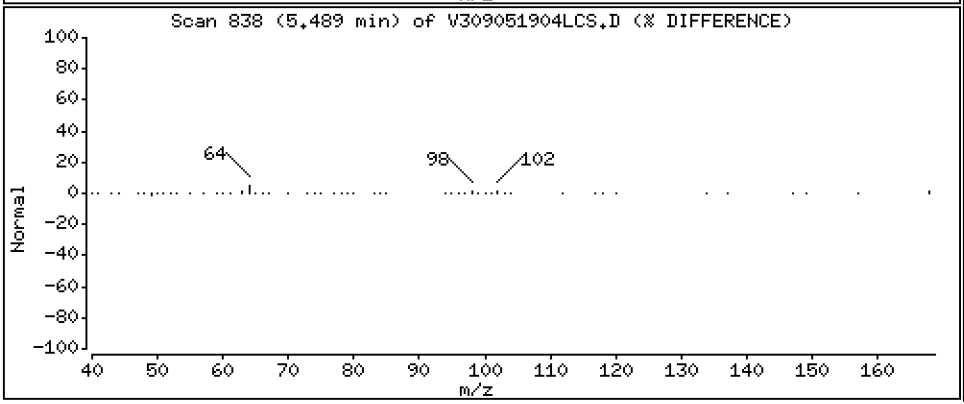
Column phase: RTXVMS Column diameter: 0.18

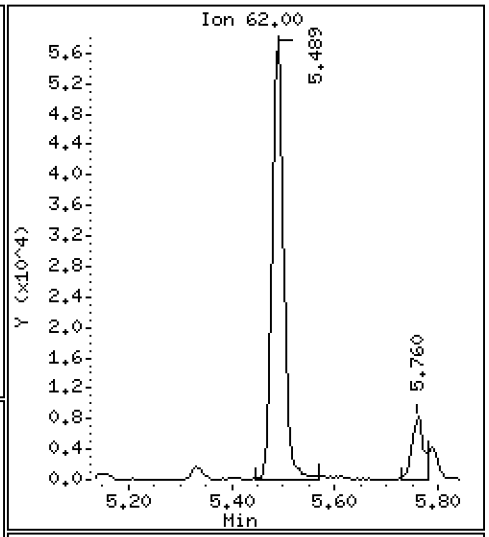
34 1,2-Dichloroethane Concentration: 10.742 ug/L

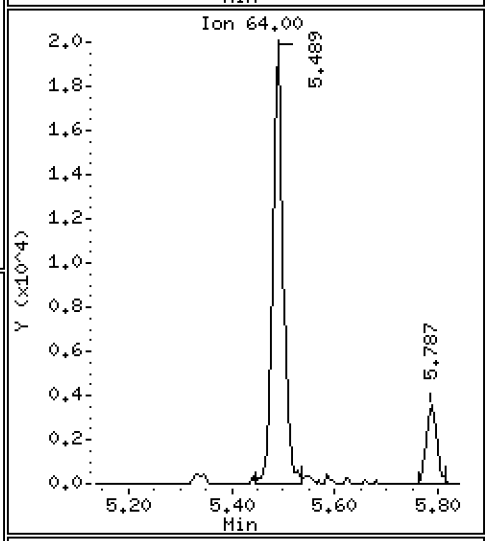


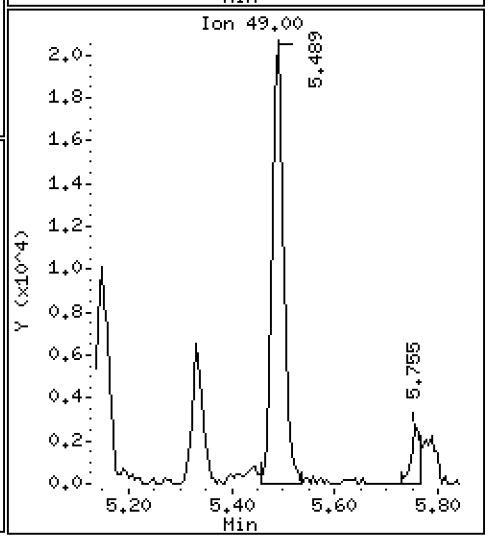












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

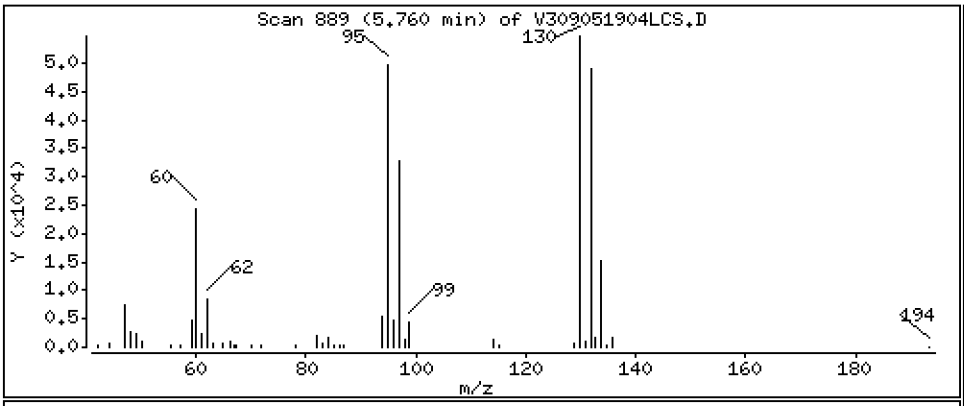
Operator: PKC

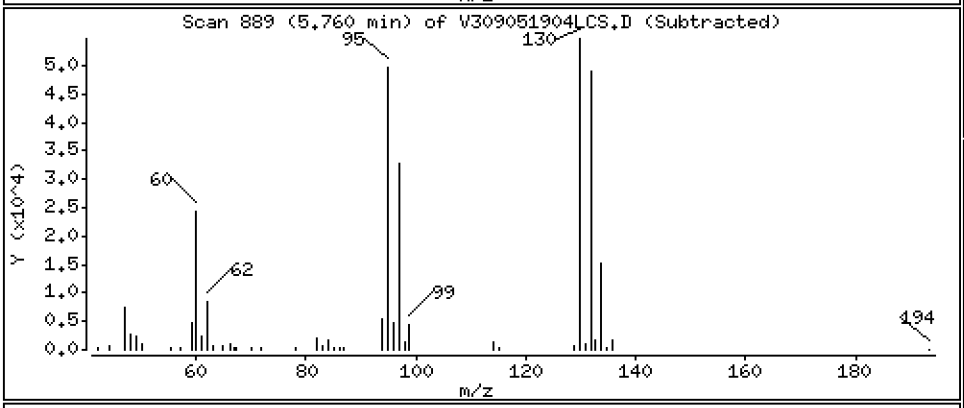
Column phase: RTXVMS

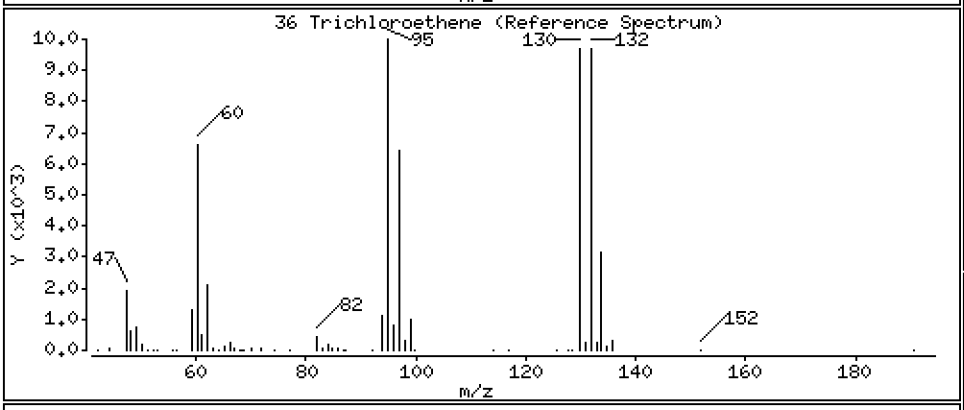
Column diameter: 0.18

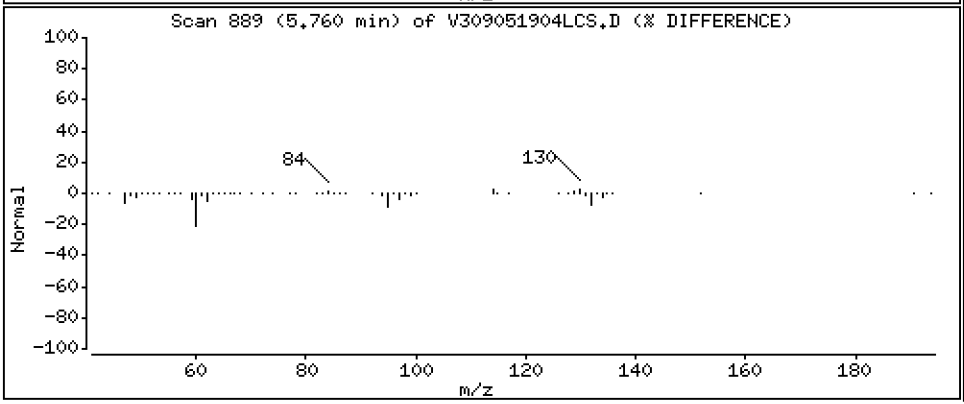
36 Trichloroethene

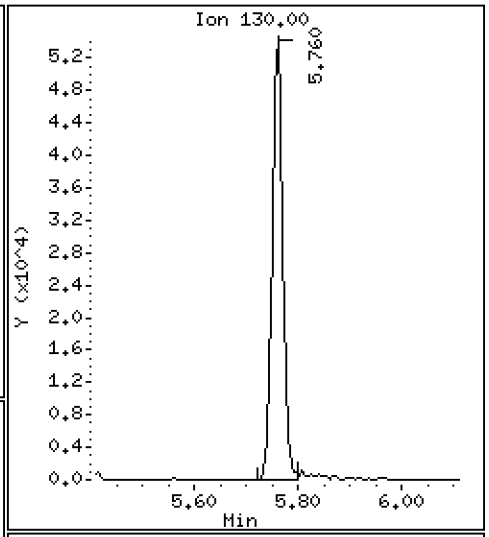
Concentration: 11.140 ug/L

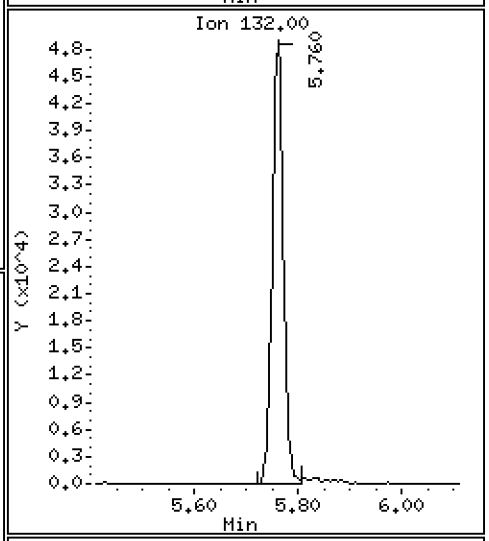


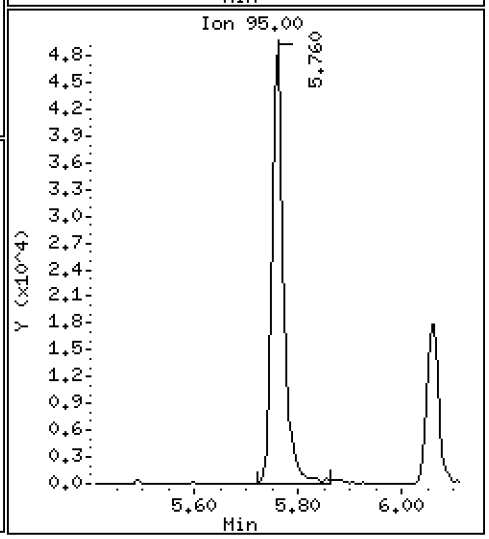












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

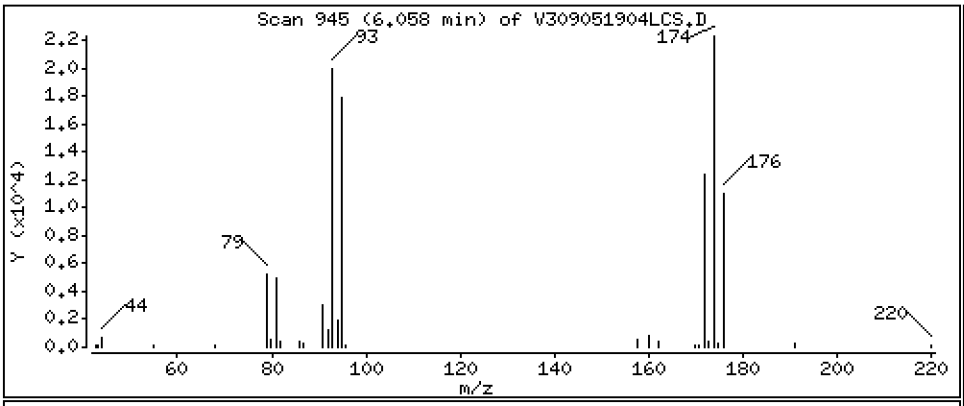
Operator: PKC

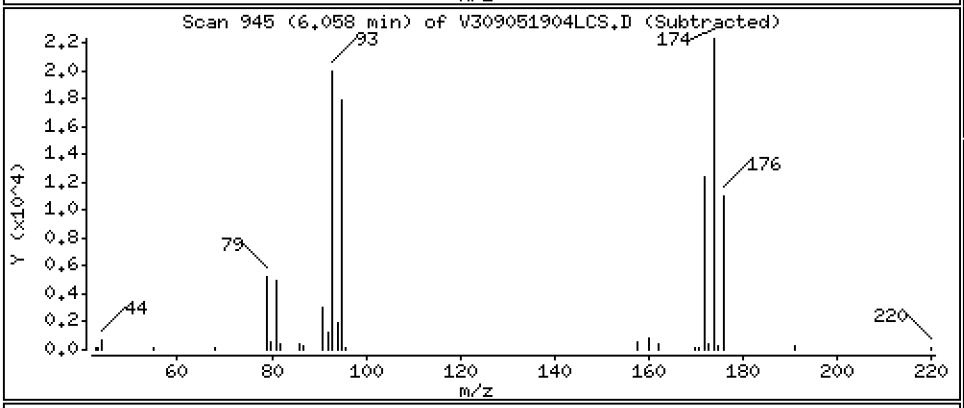
Column phase: RTXVMS

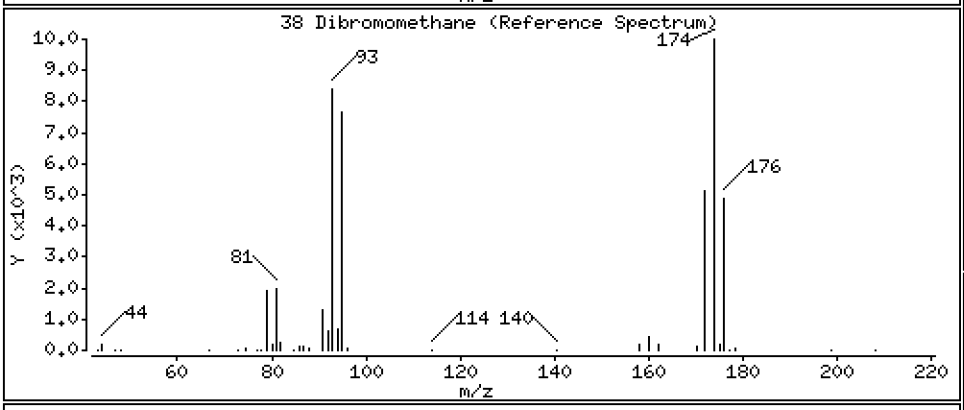
Column diameter: 0.18

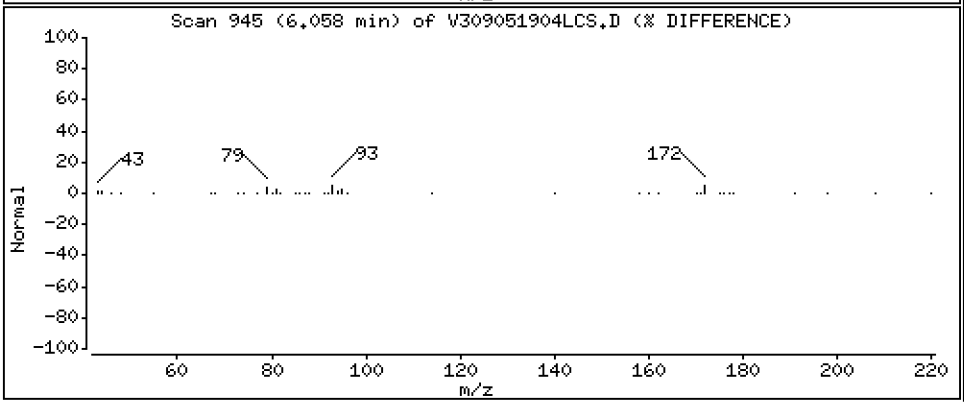
38 Dibromomethane

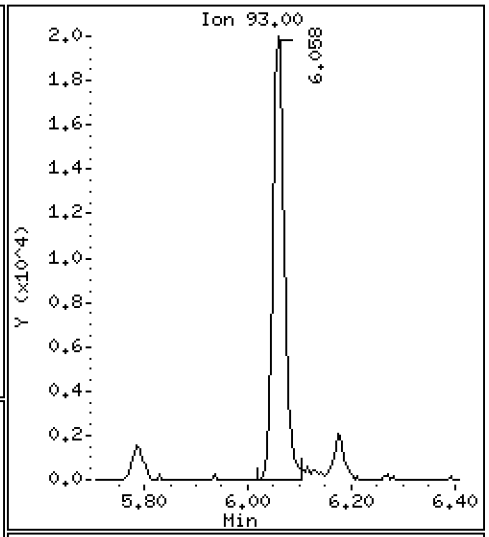
Concentration: 10.444 ug/L

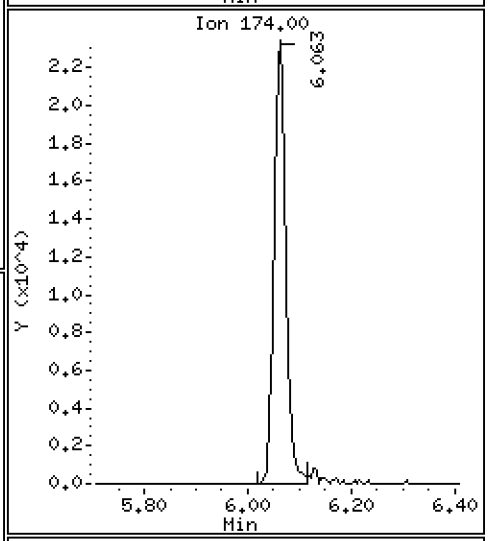


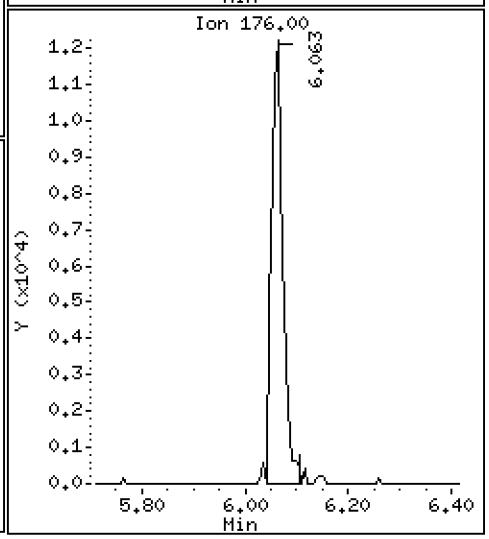












Date : 05-SEP-2019 12:30

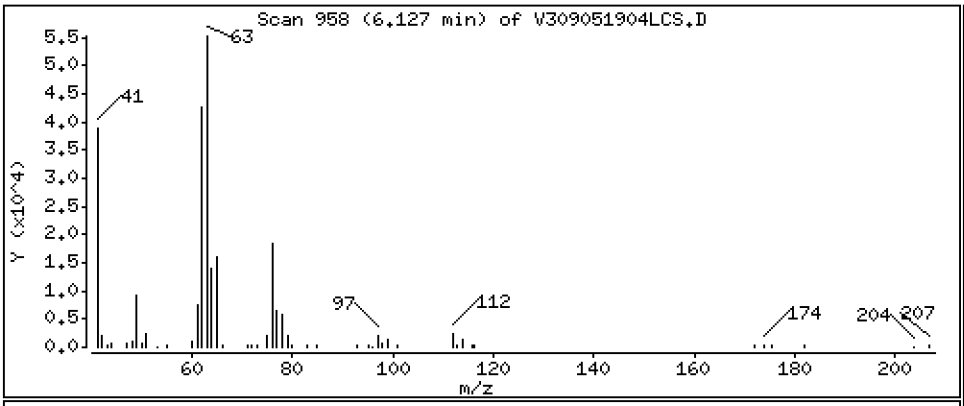
Client ID: Instrument: nt3.i

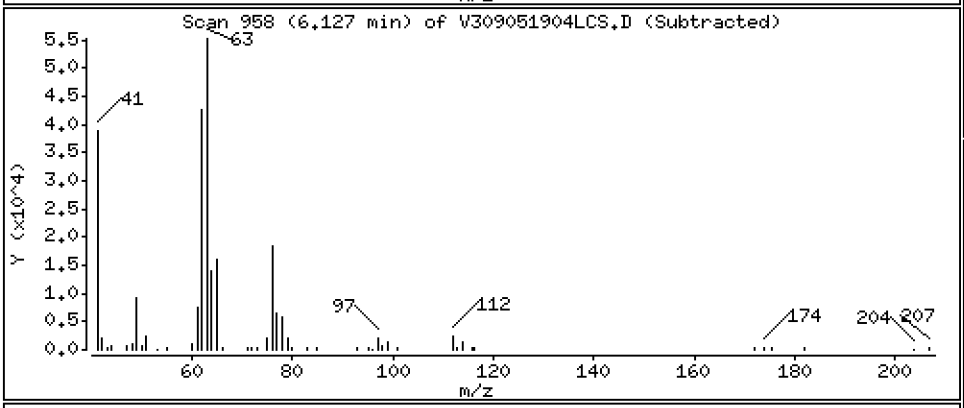
Sample Info: BHI0133-BS1

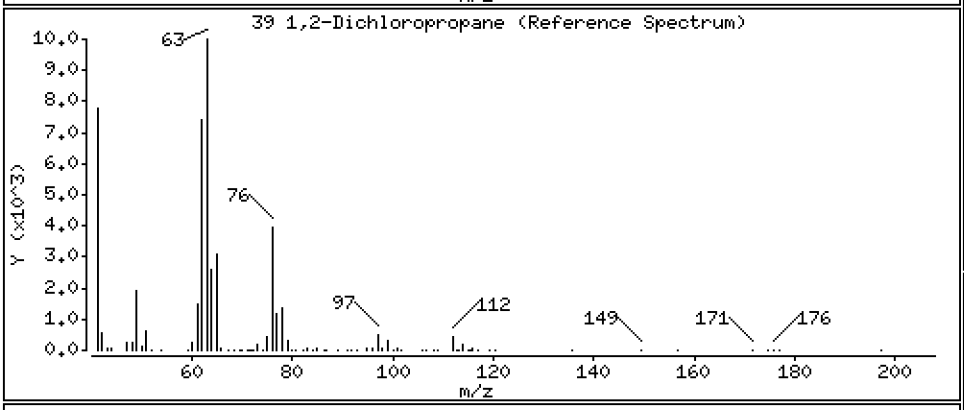
Operator: PKC

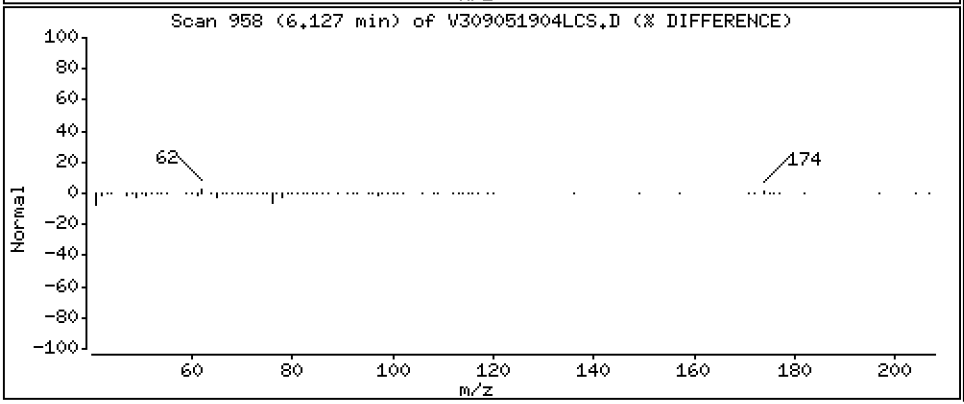
Column phase: RTXVMS Column diameter: 0.18

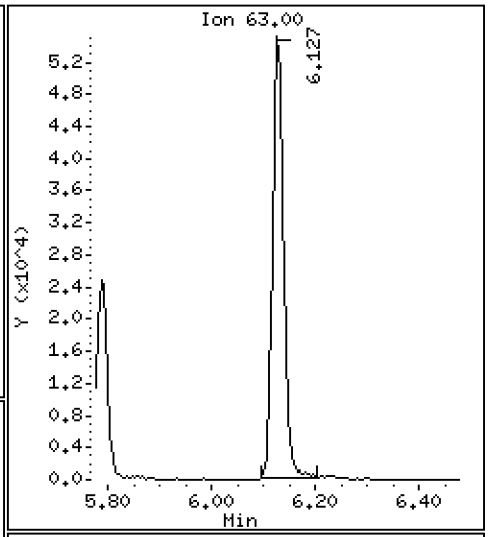
39 1,2-Dichloropropane Concentration: 10.405 ug/L

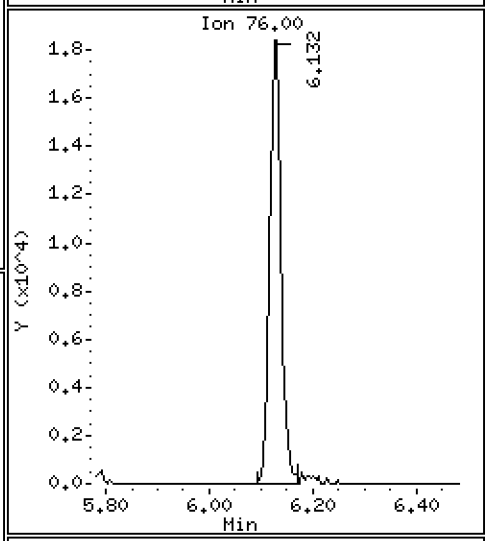


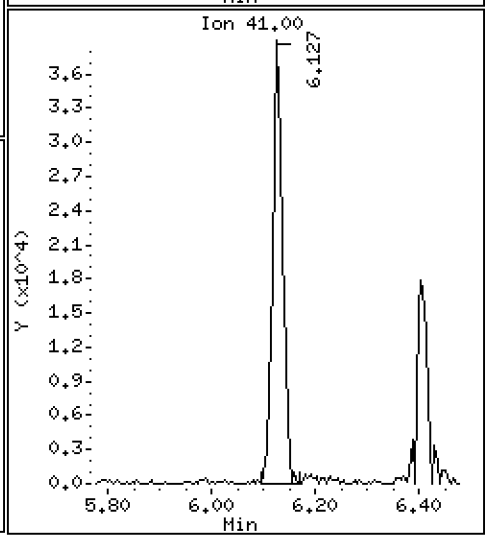












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

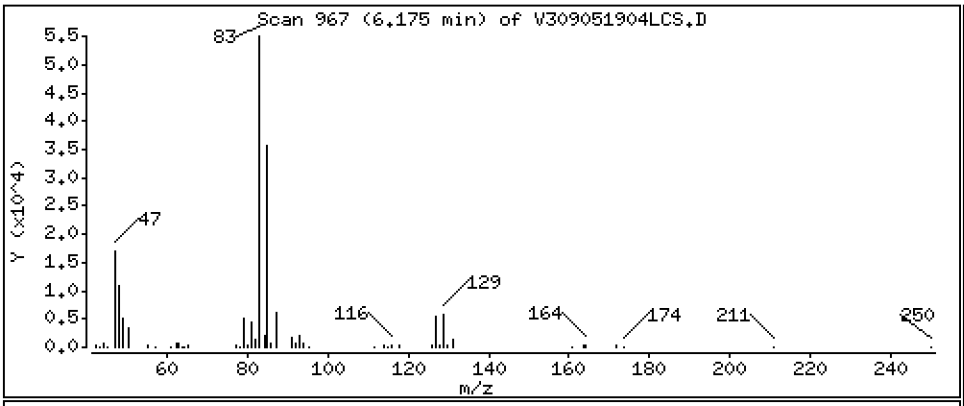
Operator: PKC

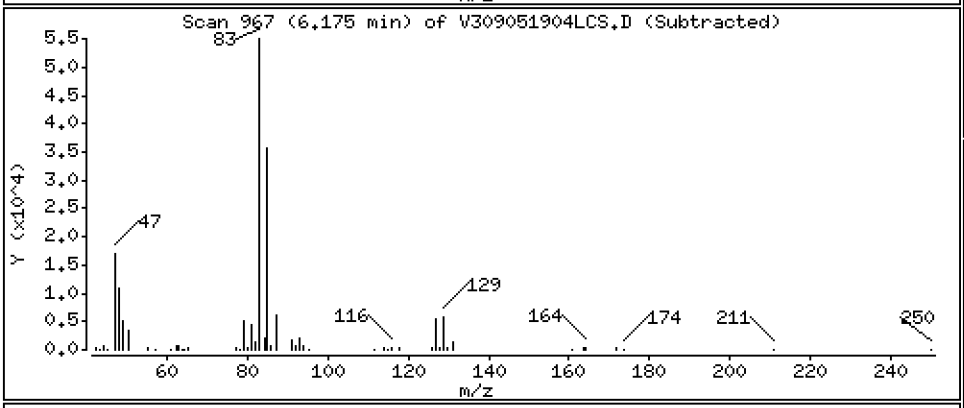
Column phase: RTXVMS

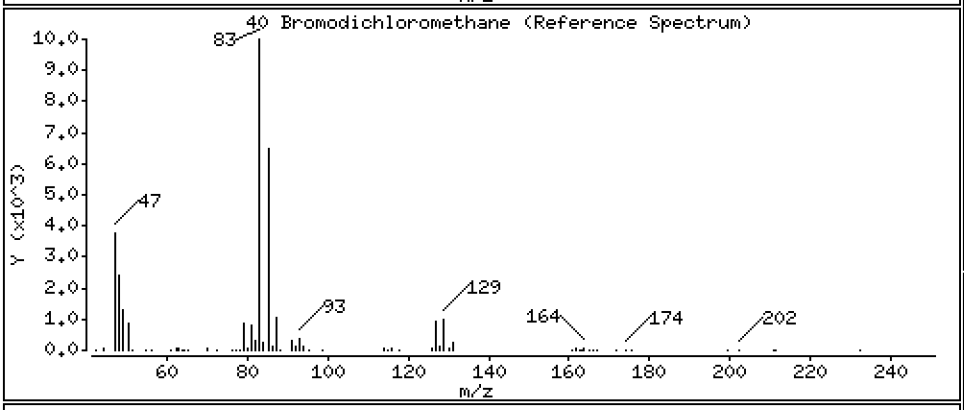
Column diameter: 0.18

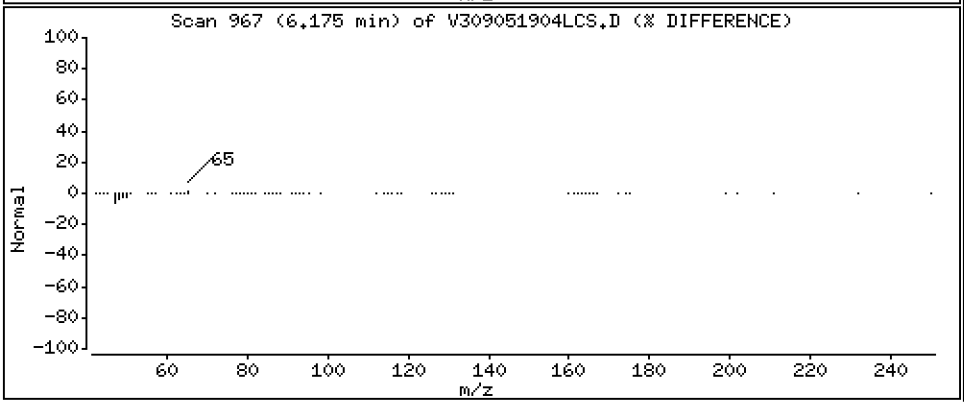
40 Bromodichloromethane

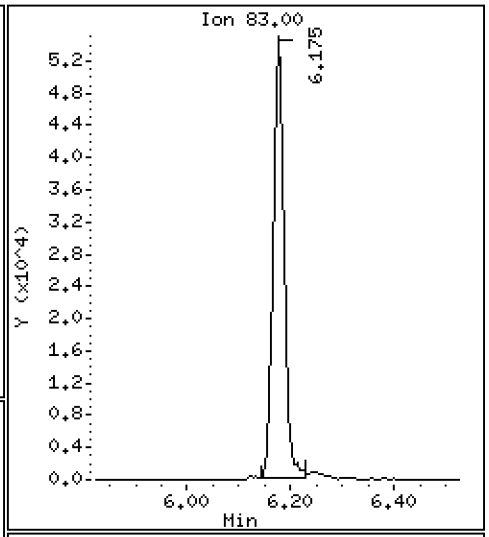
Concentration: 10.343 ug/L

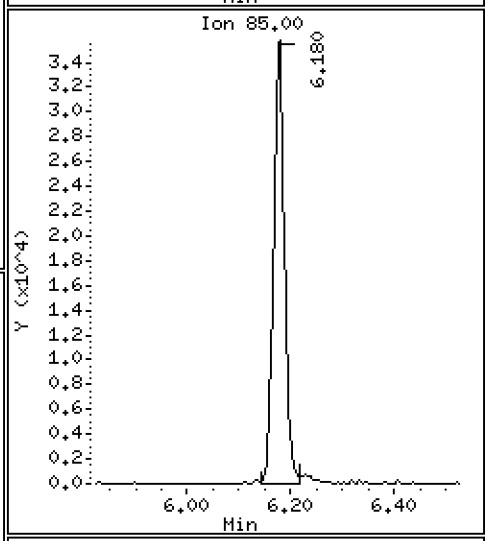


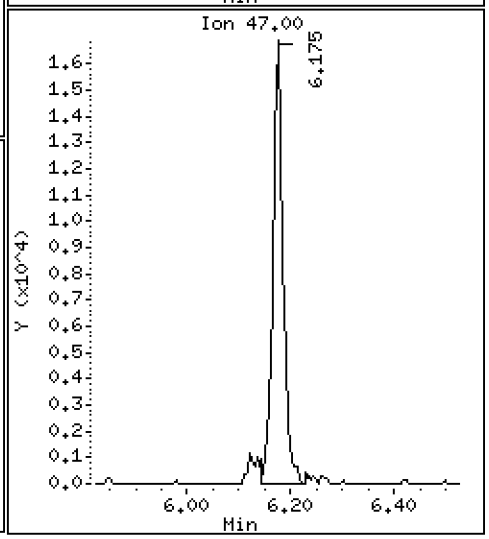












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

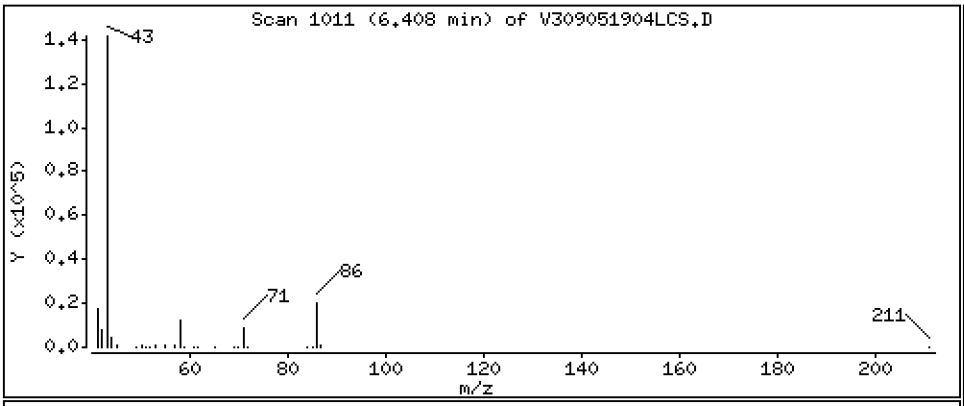
Operator: PKC

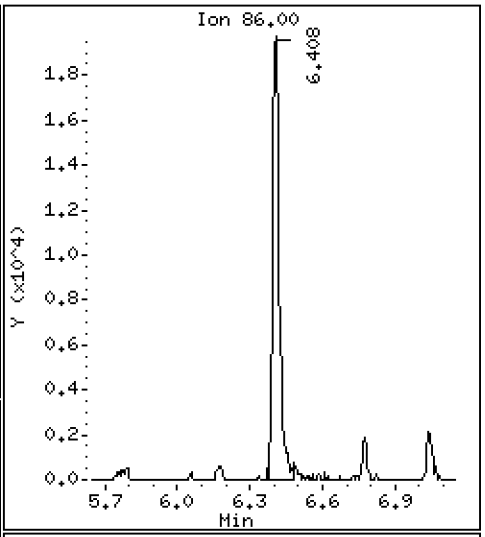
Column phase: RTXVMS

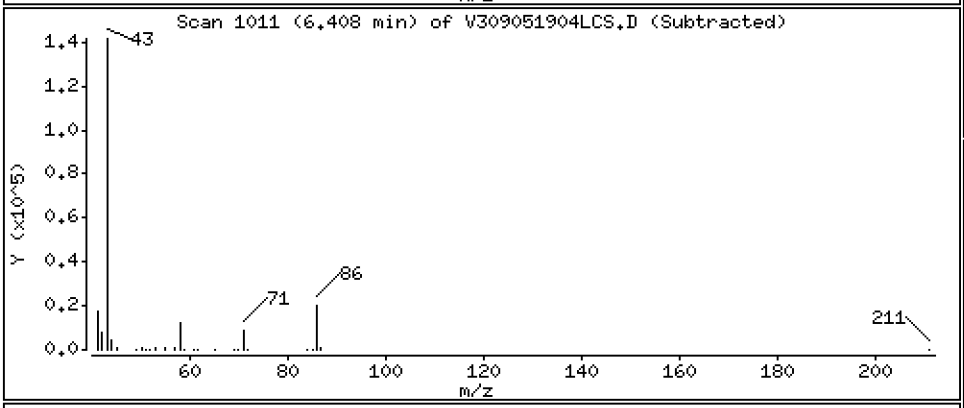
Column diameter: 0.18

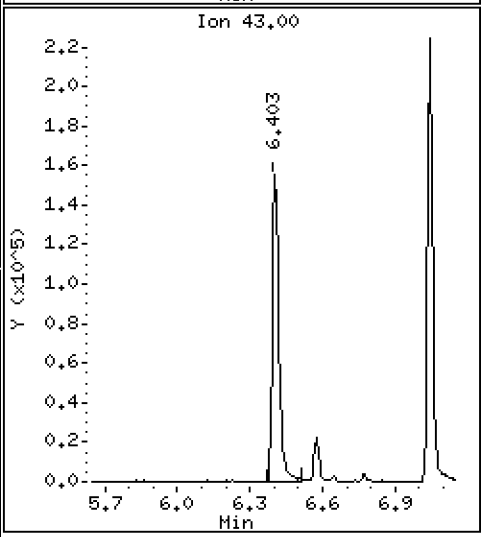
173 2-Pentanone

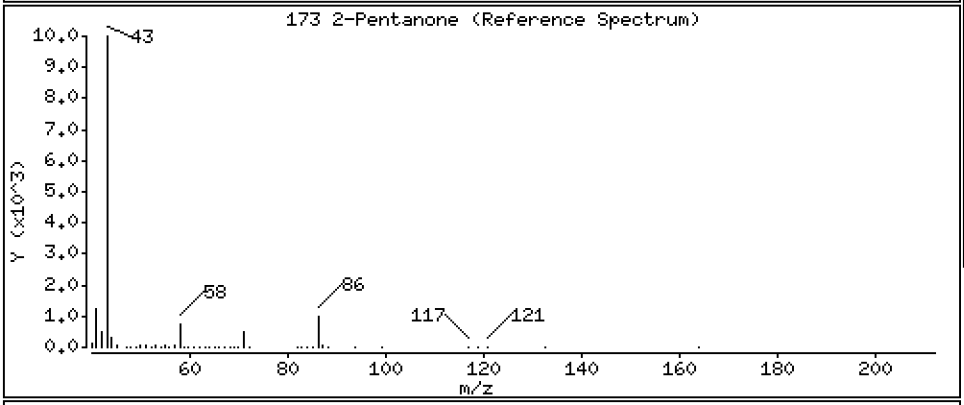
Concentration: 61.467 ug/L

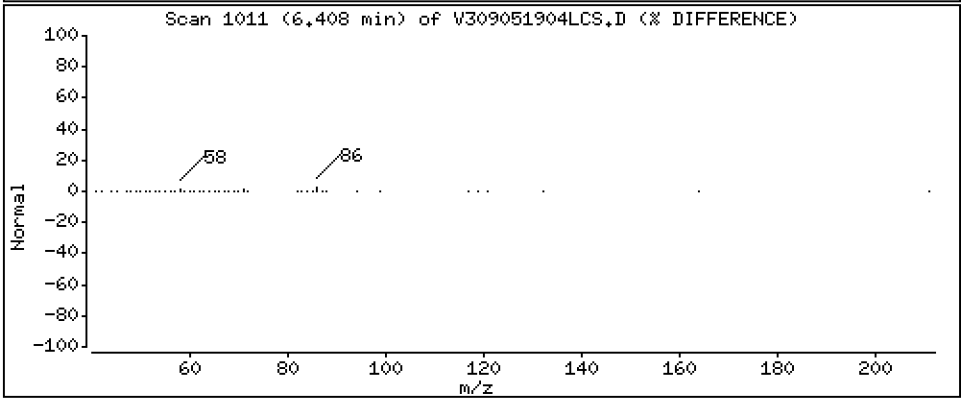












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

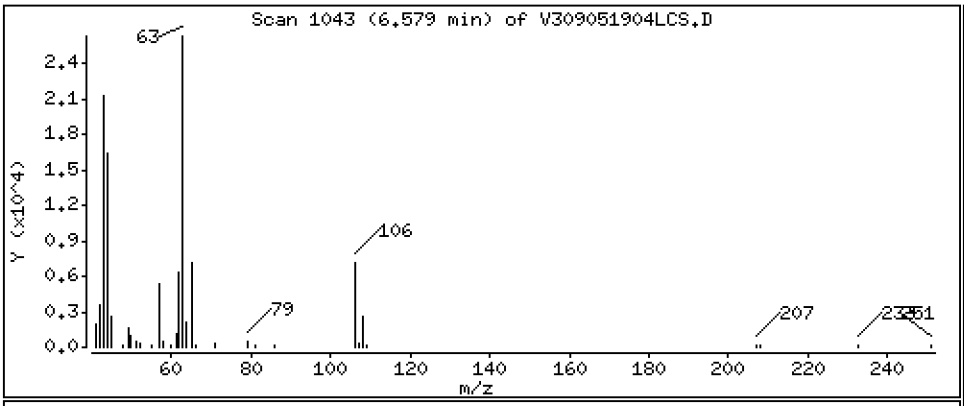
Operator: PKC

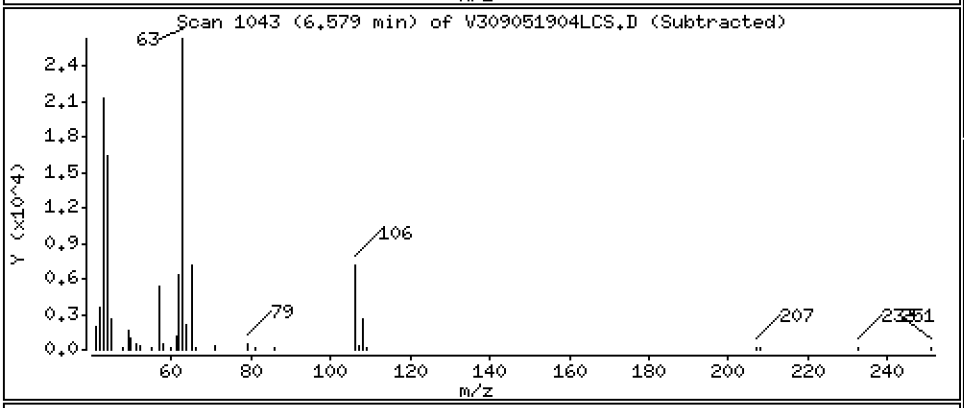
Column phase: RTXVMS

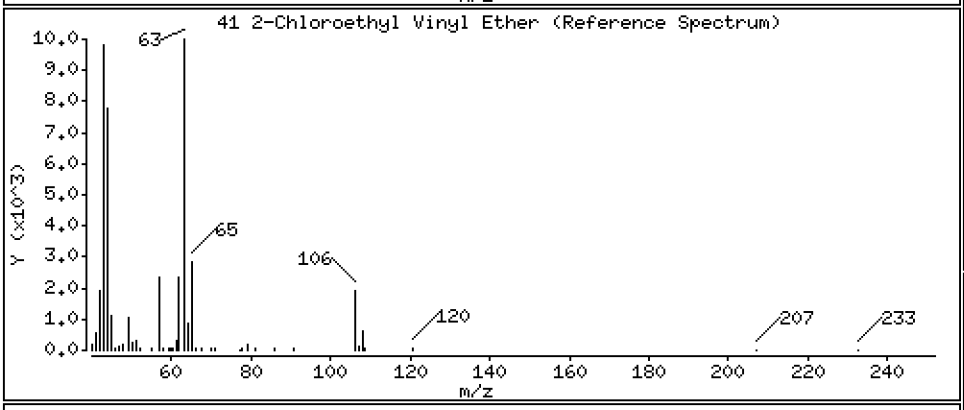
Column diameter: 0.18

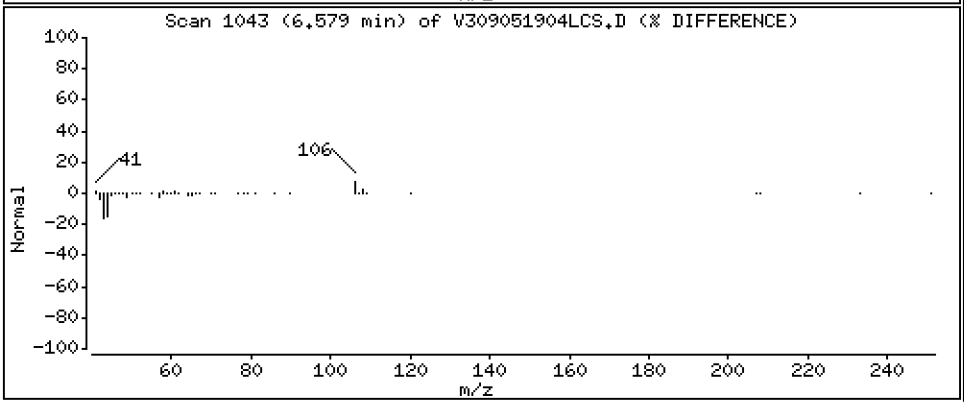
41 2-Chloroethyl Vinyl Ether

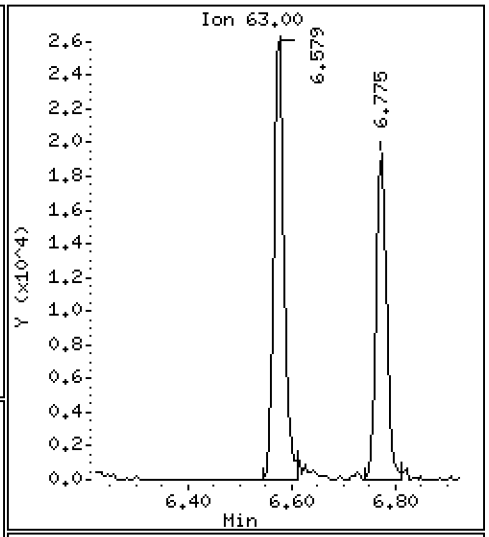
Concentration: 10.798 ug/L

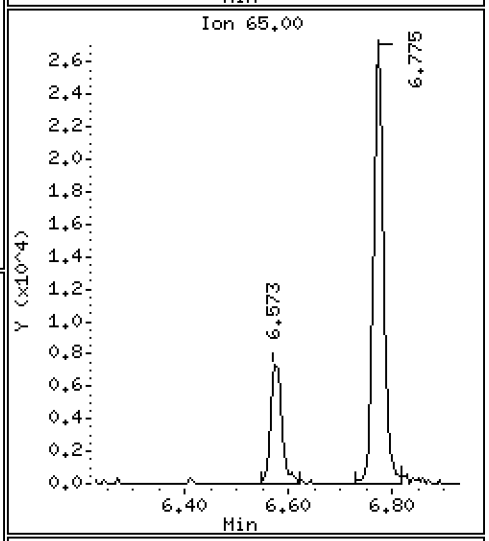


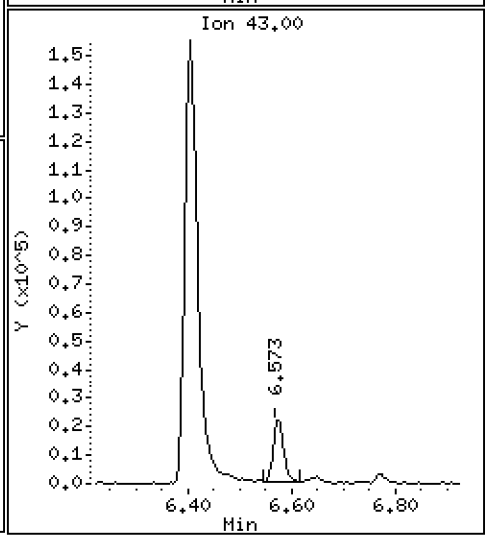












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

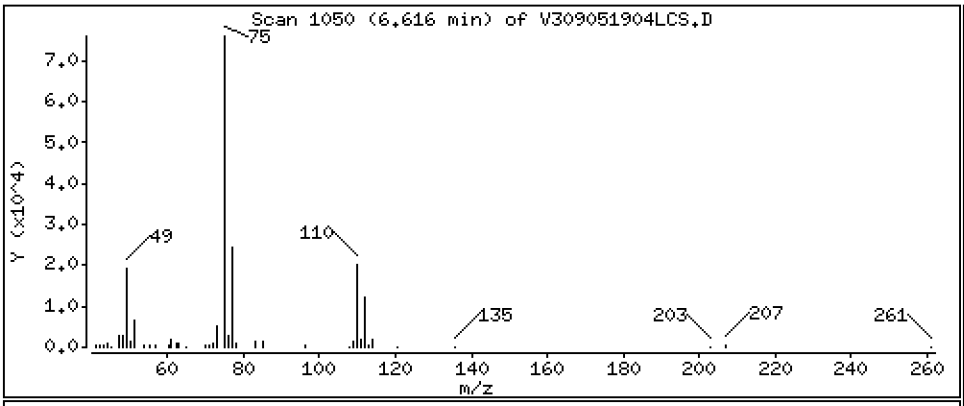
Operator: PKC

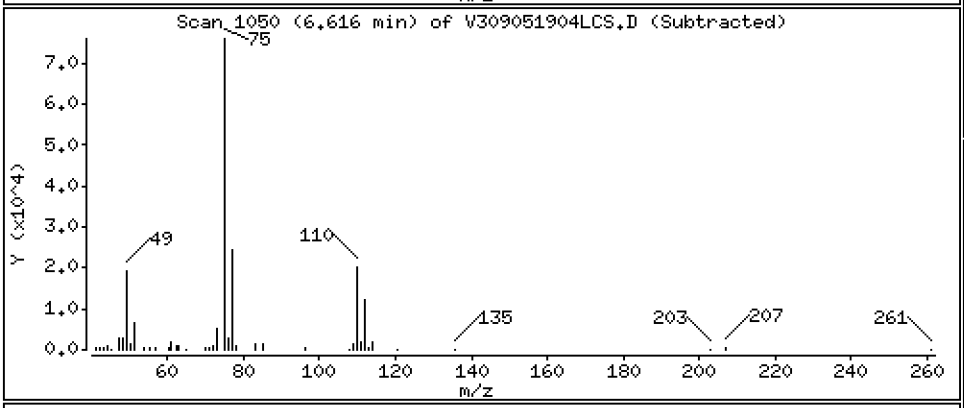
Column phase: RTXVMS

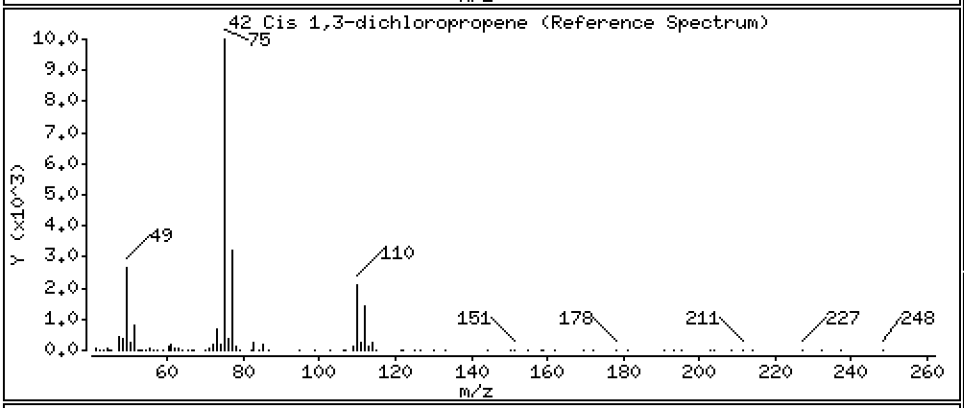
Column diameter: 0.18

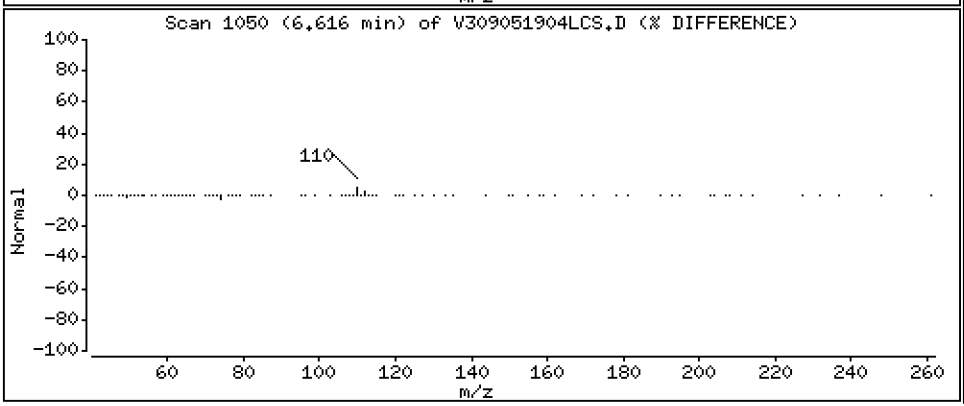
42 Cis 1,3-dichloropropene

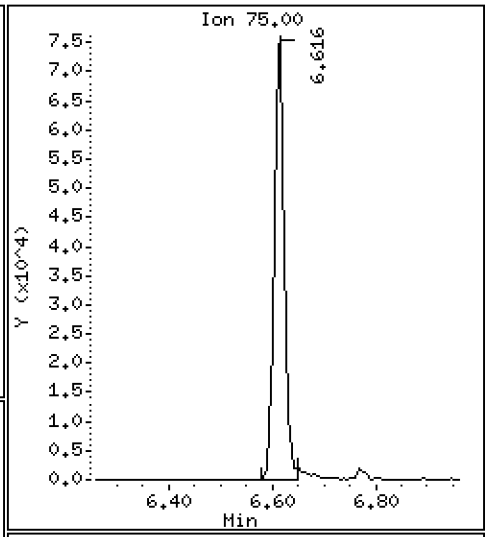
Concentration: 10.334 ug/L

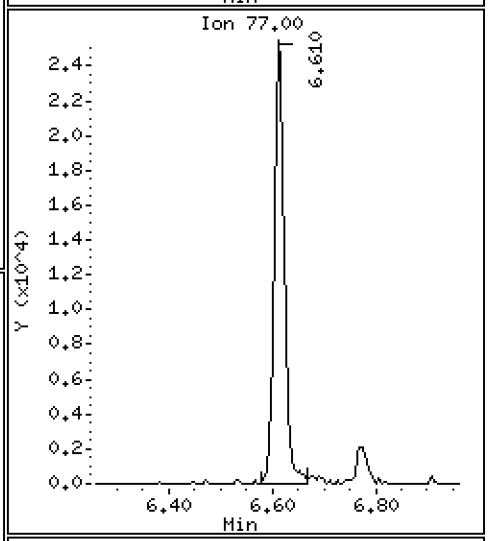


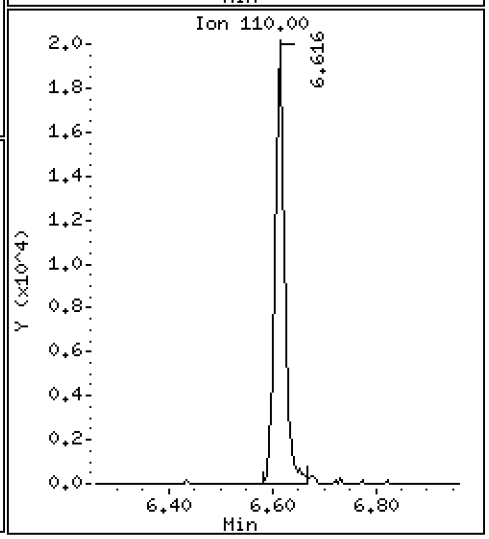












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

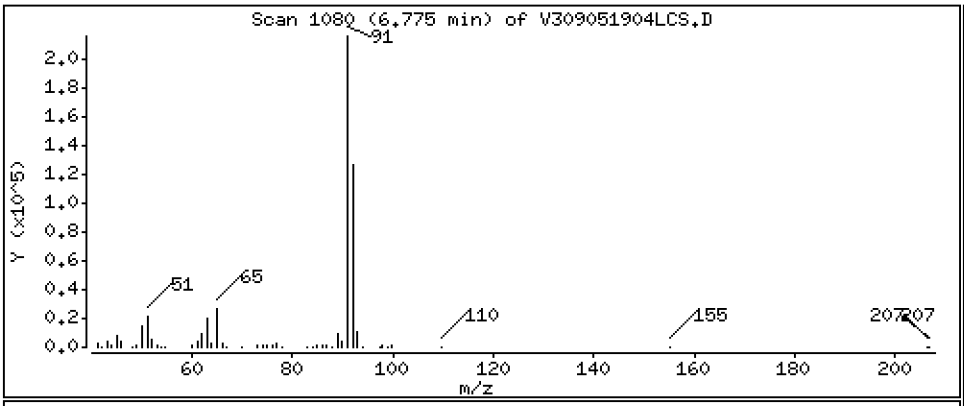
Operator: PKC

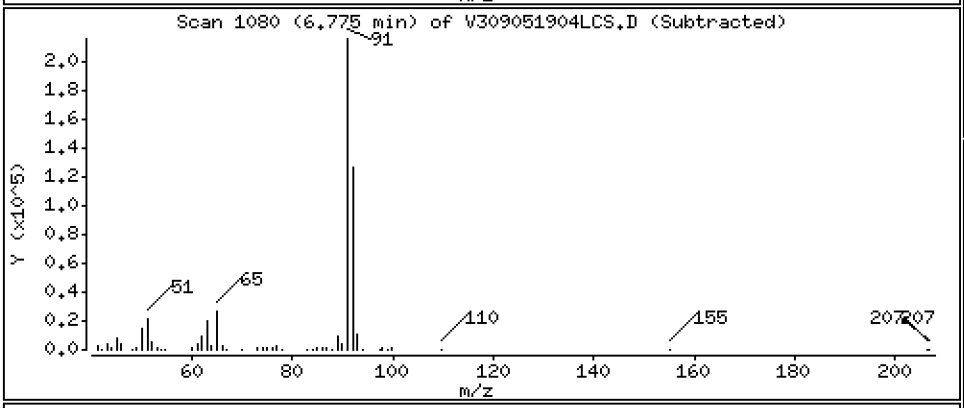
Column phase: RTXVMS

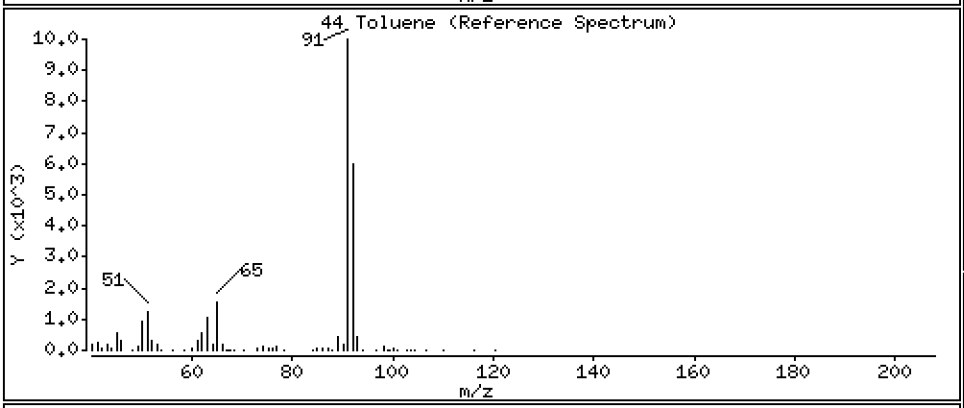
Column diameter: 0.18

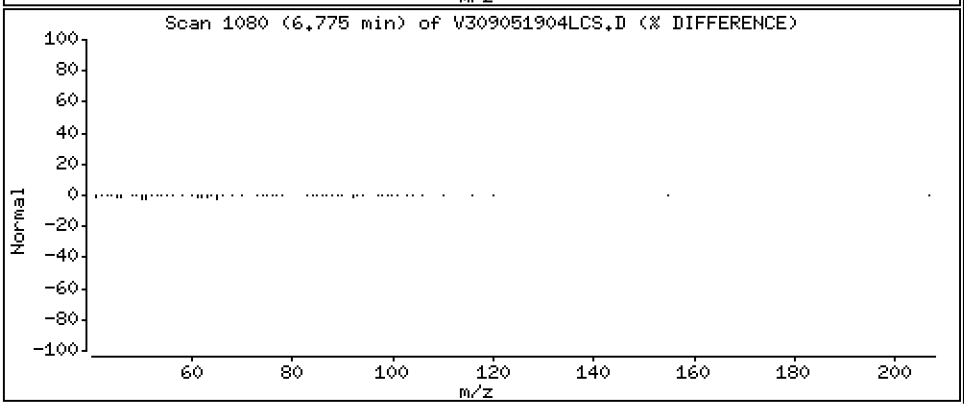
44 Toluene

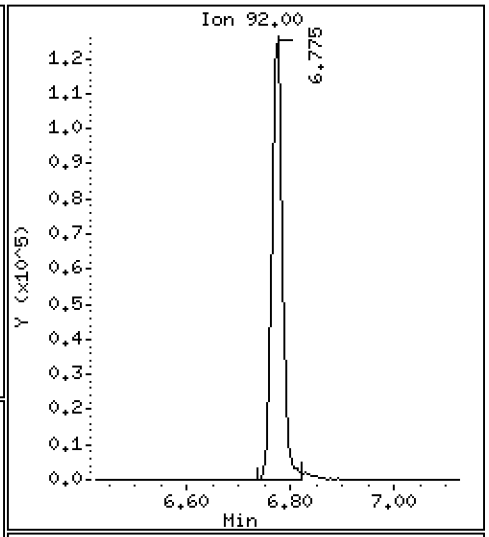
Concentration: 10.634 ug/L

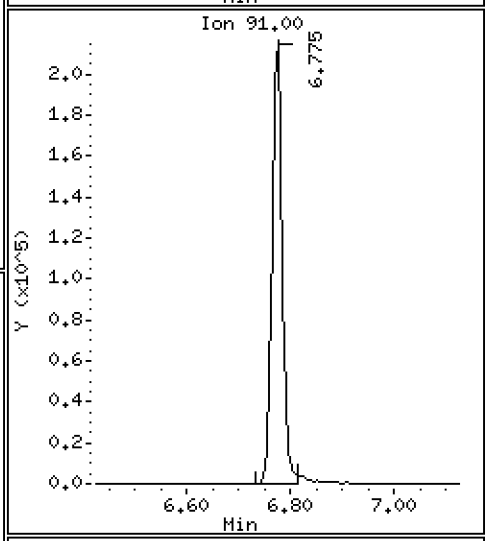


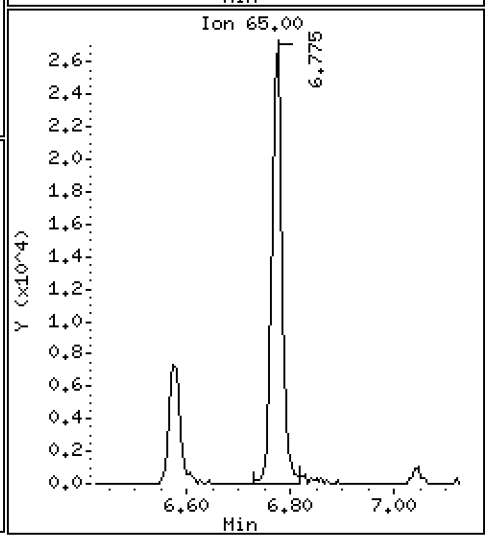












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

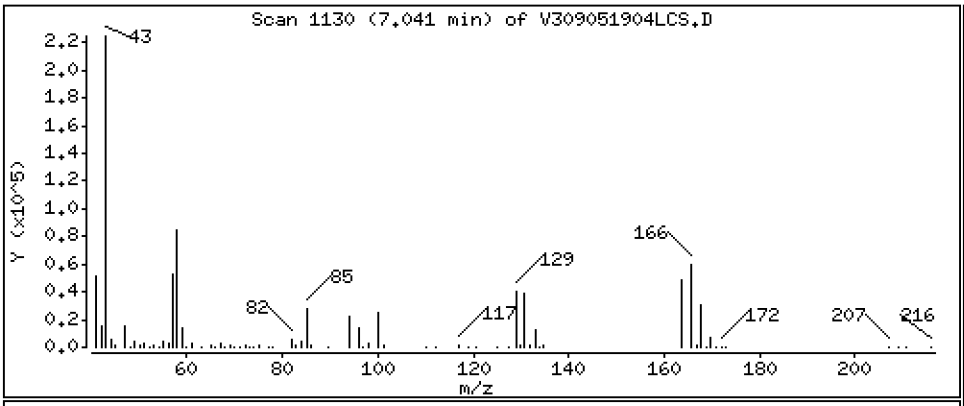
Operator: PKC

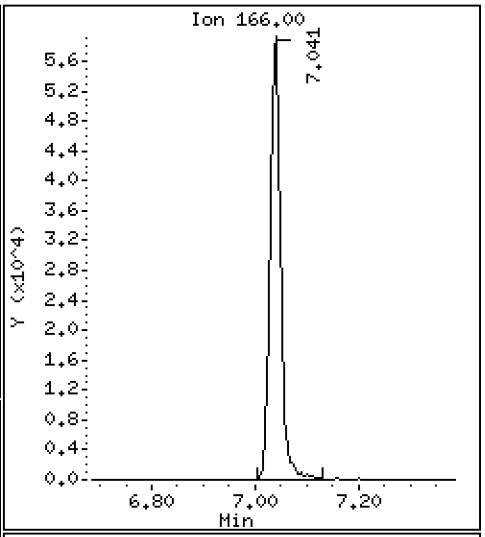
Column phase: RTXVMS

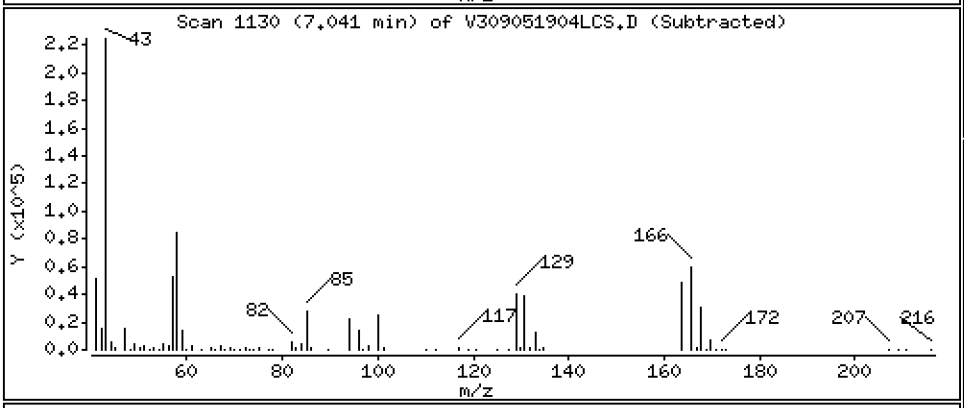
Column diameter: 0.18

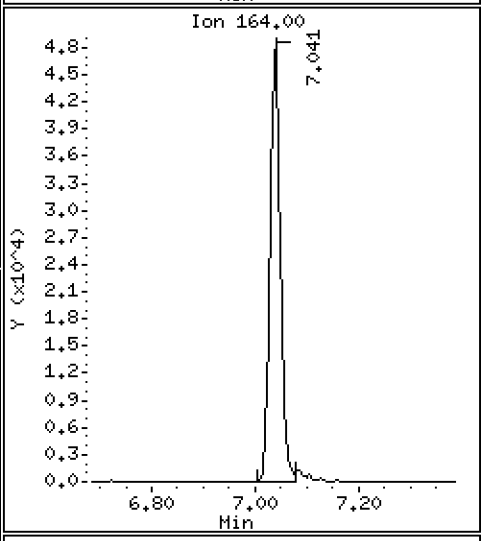
46 Tetrachloroethene

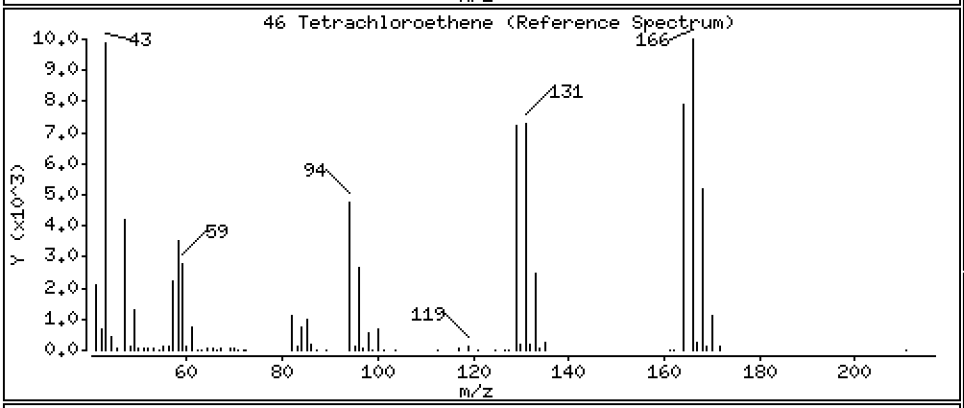
Concentration: 10.765 ug/L

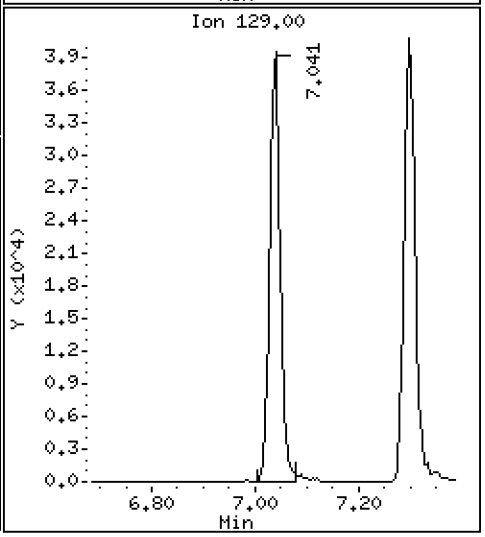


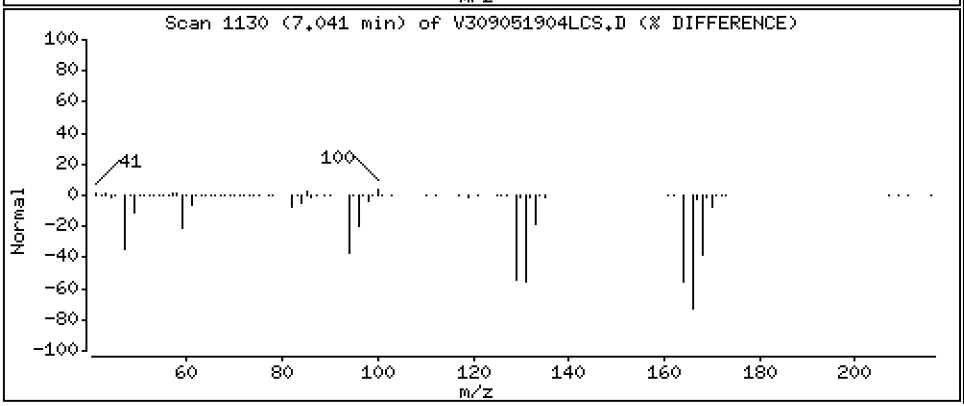












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

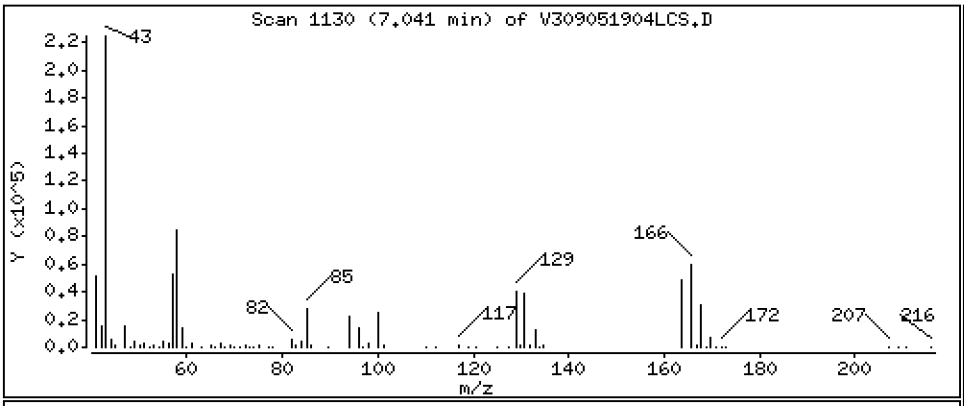
Operator: PKC

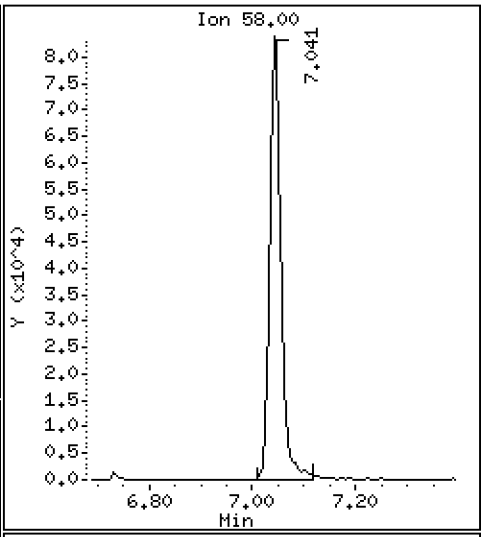
Column phase: RTXVMS

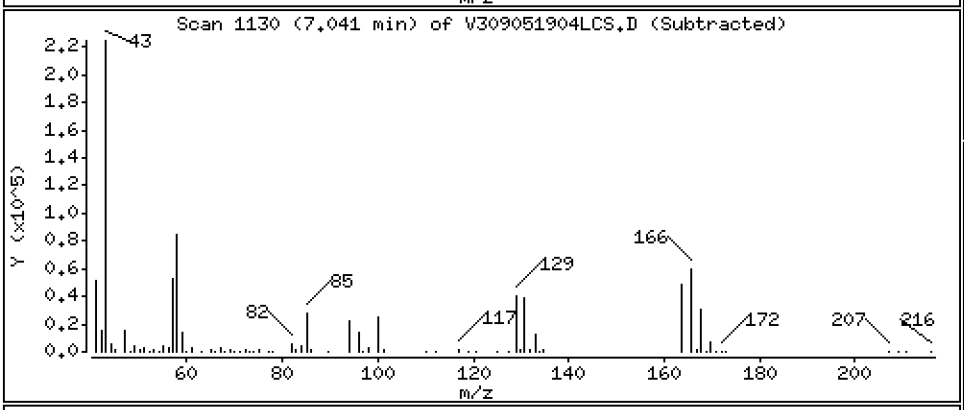
Column diameter: 0.18

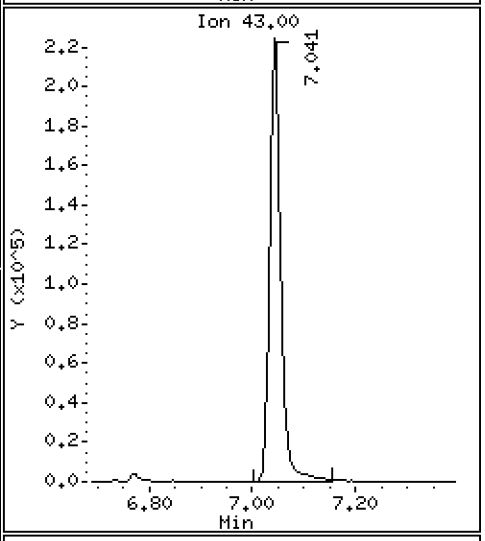
45 4-Methyl-2-Pentanone

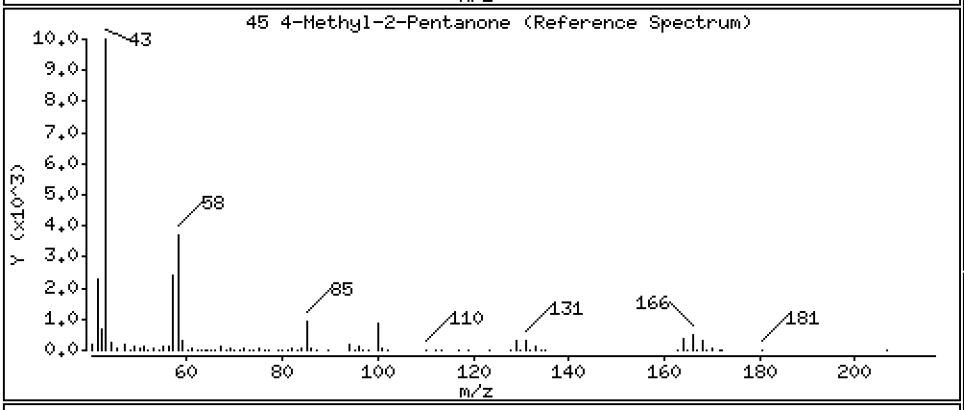
Concentration: 57.337 ug/L

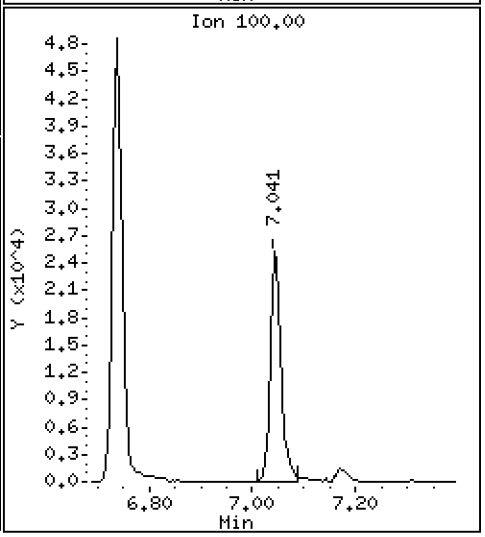


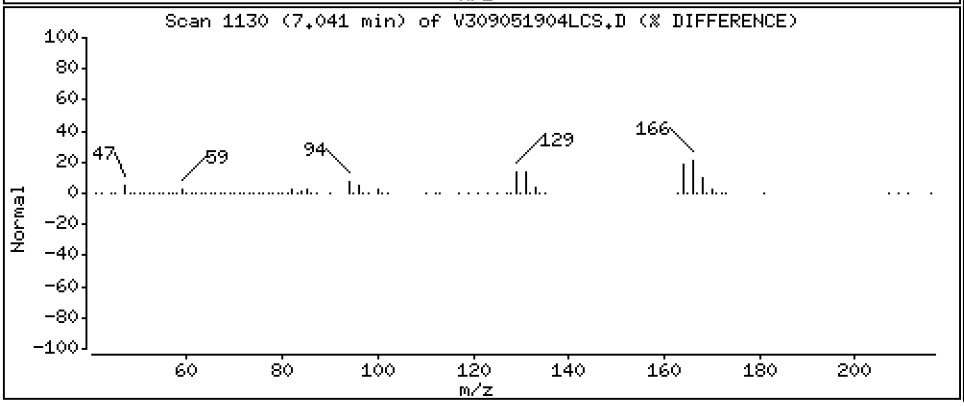












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

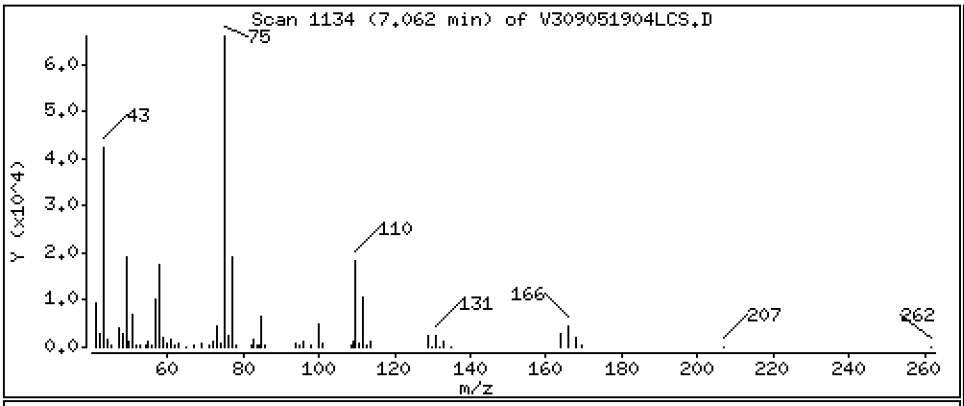
Operator: PKC

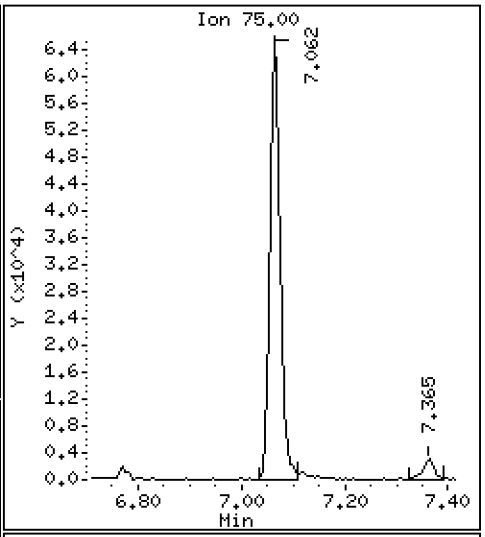
Column phase: RTXVMS

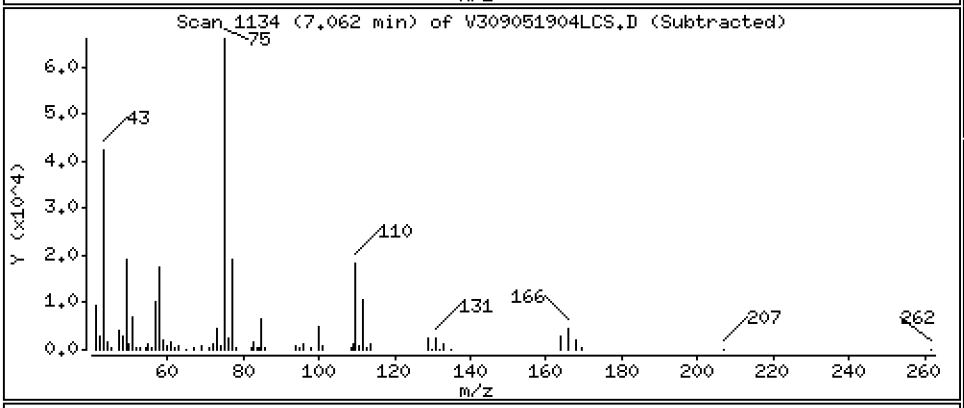
Column diameter: 0.18

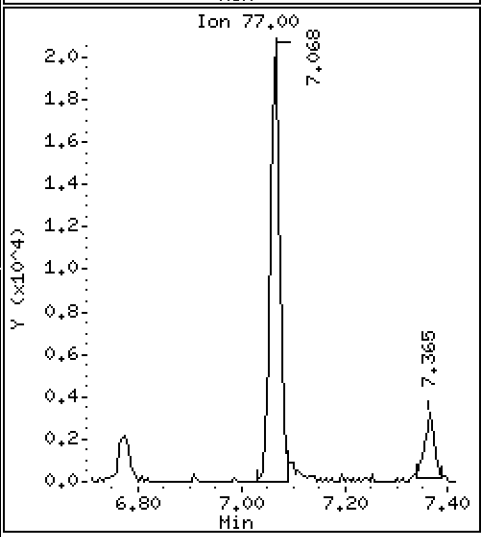
47 Trans 1,3-Dichloropropene

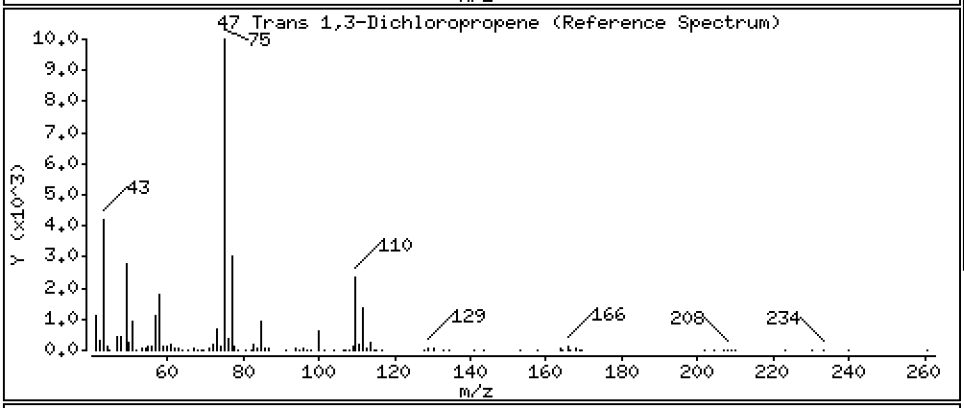
Concentration: 10.837 ug/L

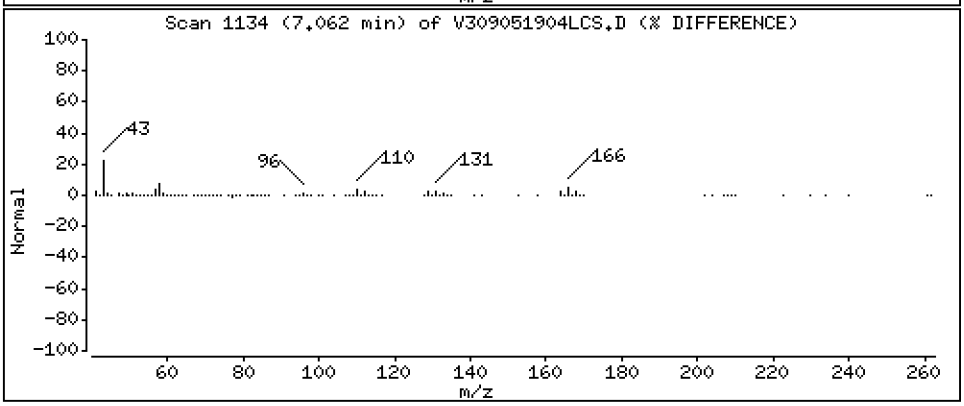












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

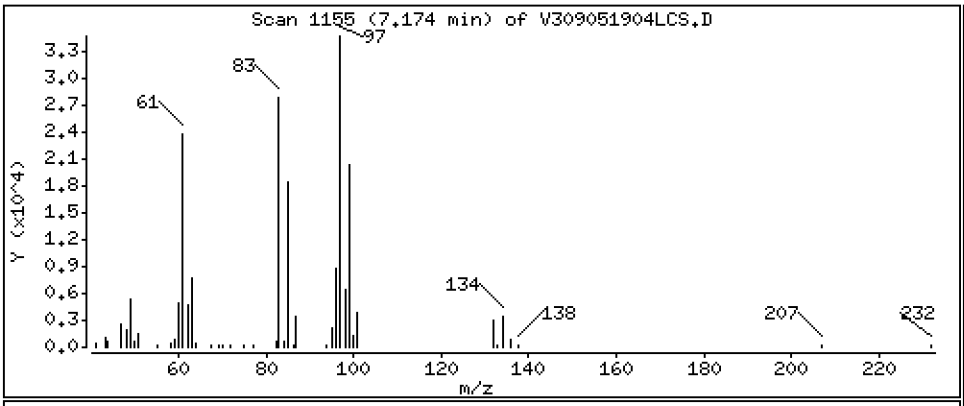
Operator: PKC

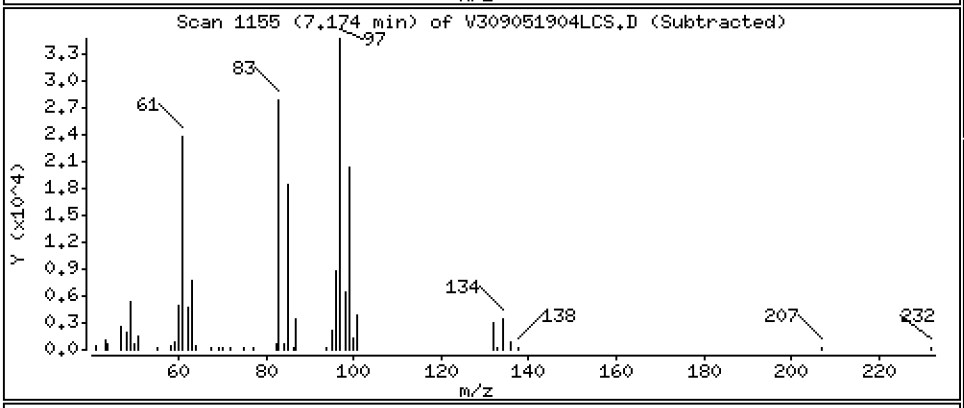
Column phase: RTXVMS

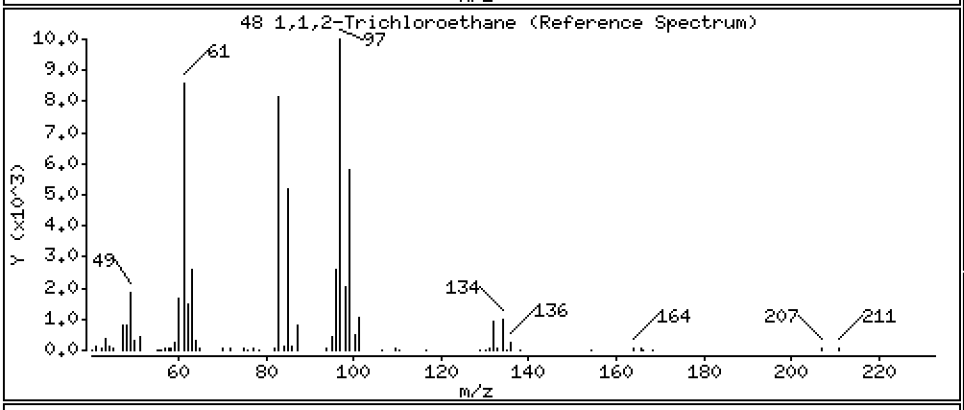
Column diameter: 0.18

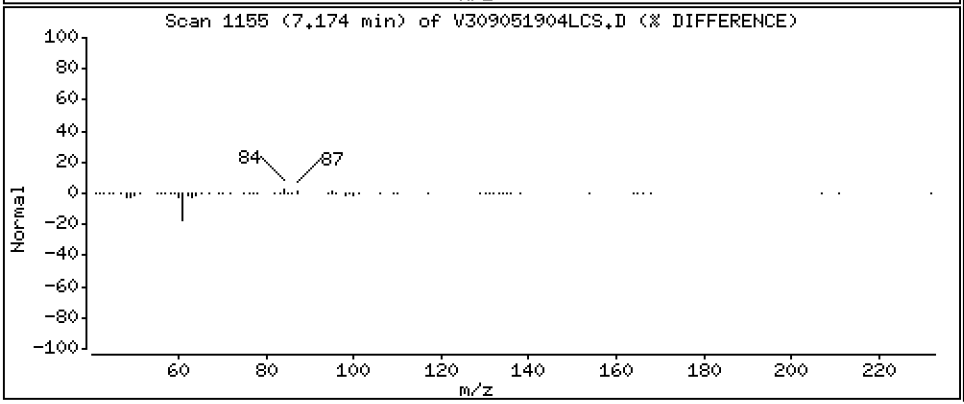
48 1,1,2-Trichloroethane

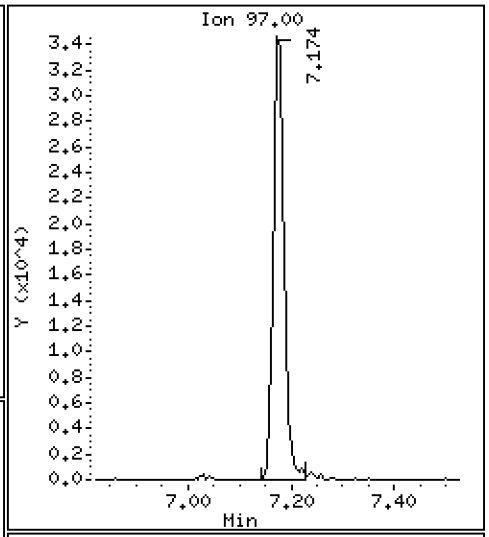
Concentration: 10.788 ug/L

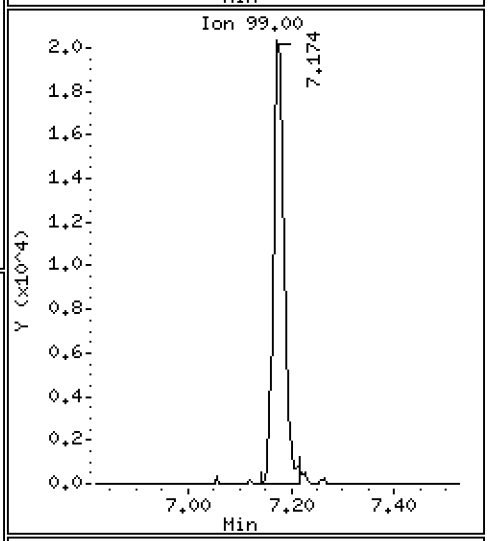


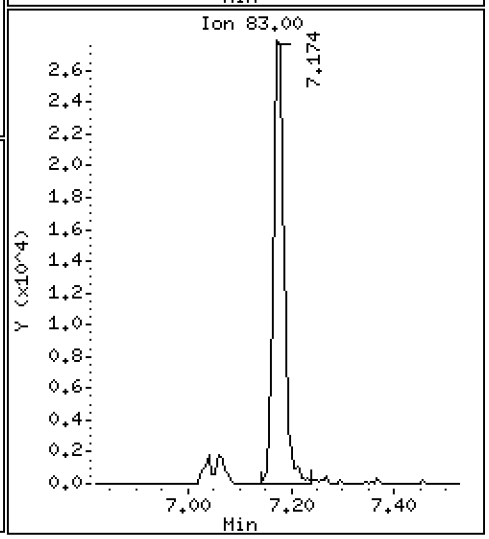












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

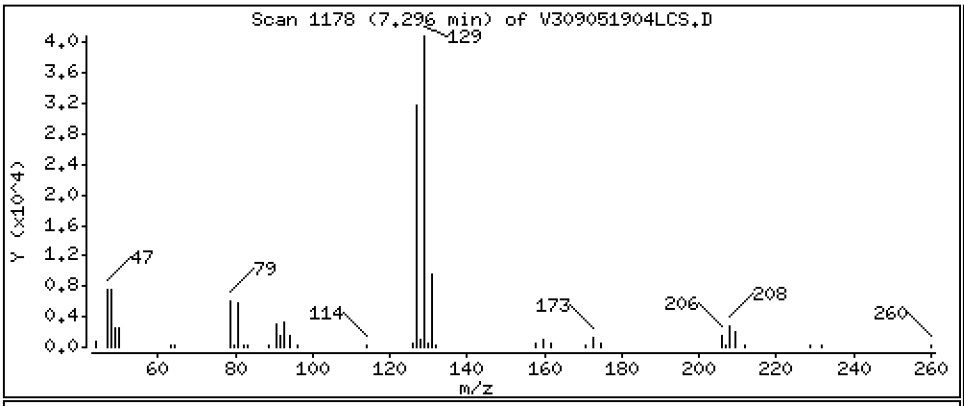
Operator: PKC

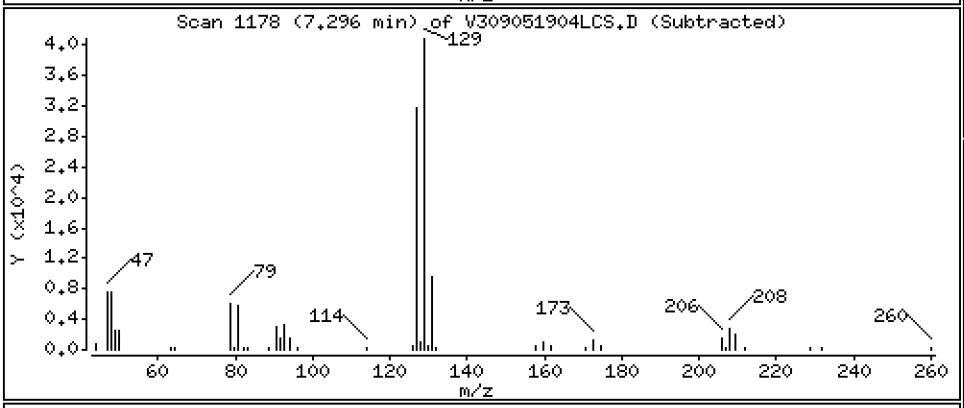
Column phase: RTXVMS

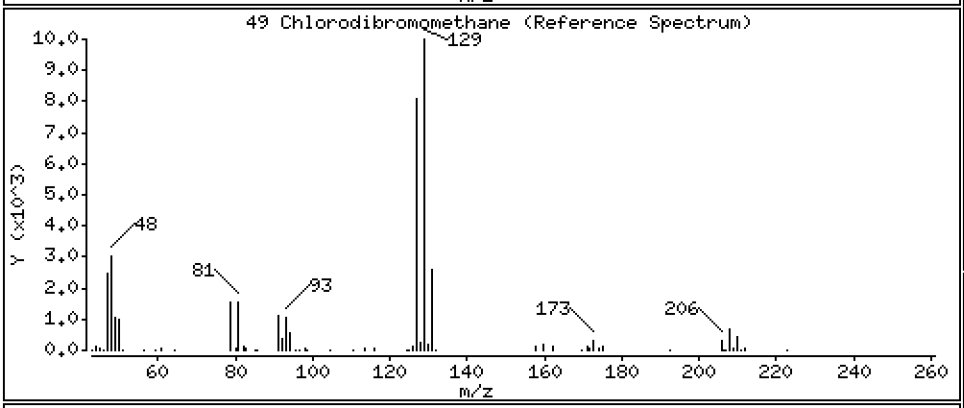
Column diameter: 0.18

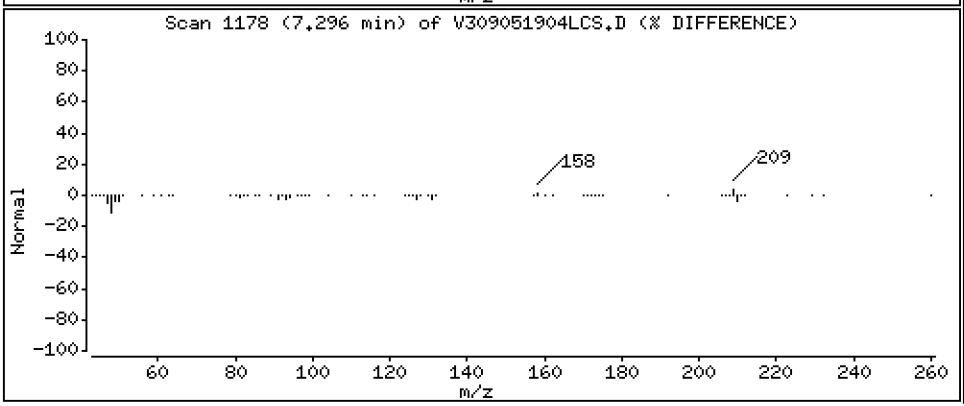
49 Chlorodibromomethane

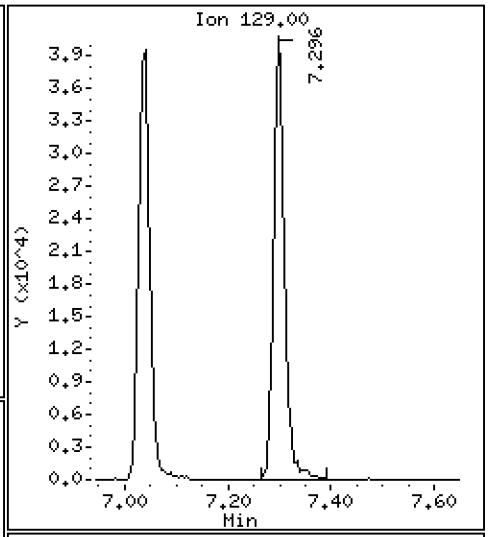
Concentration: 10.575 ug/L

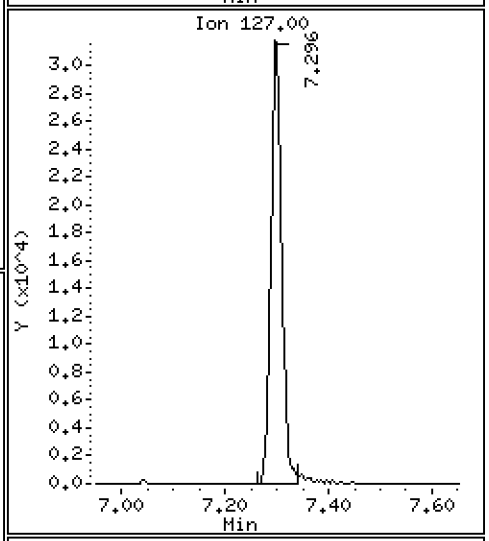


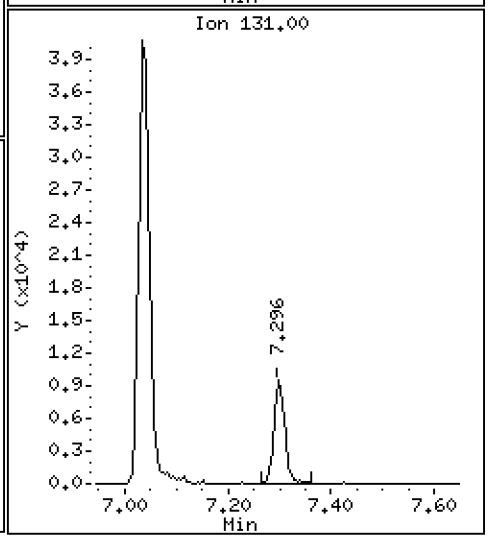












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

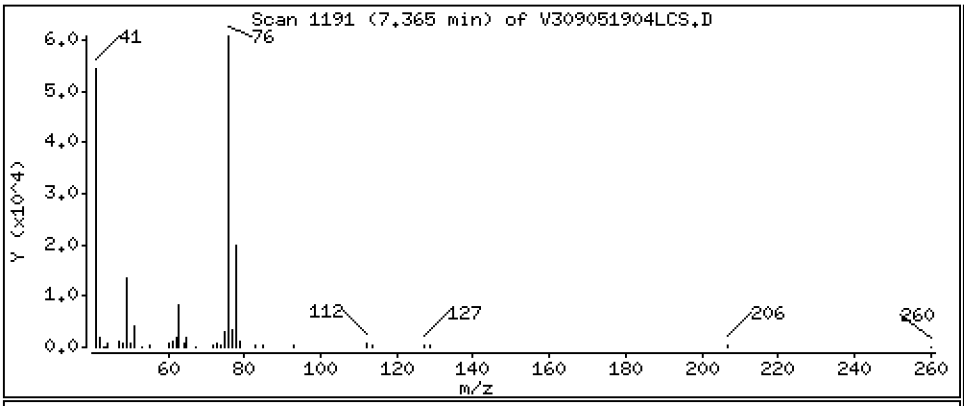
Operator: PKC

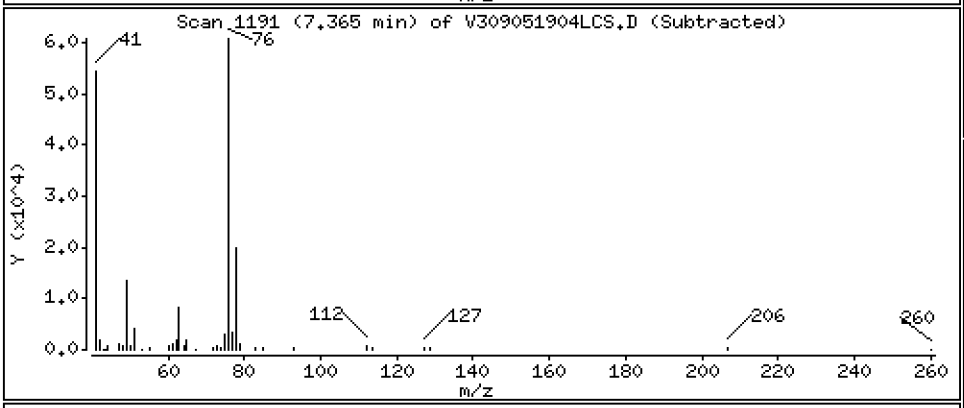
Column phase: RTXVMS

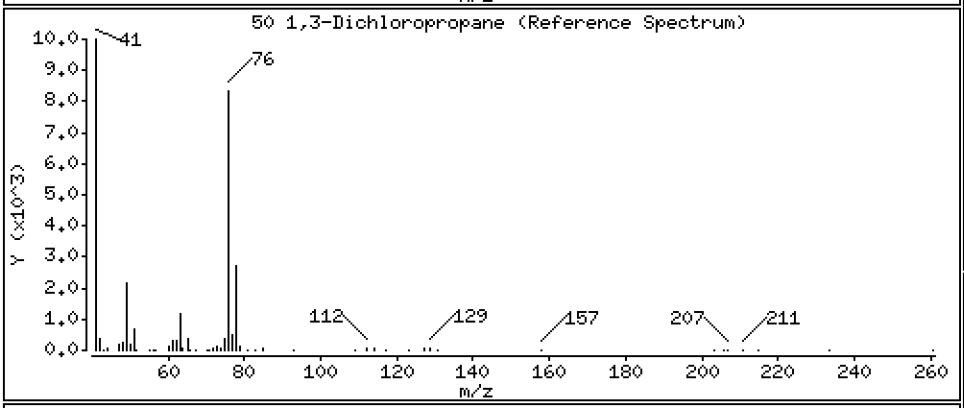
Column diameter: 0.18

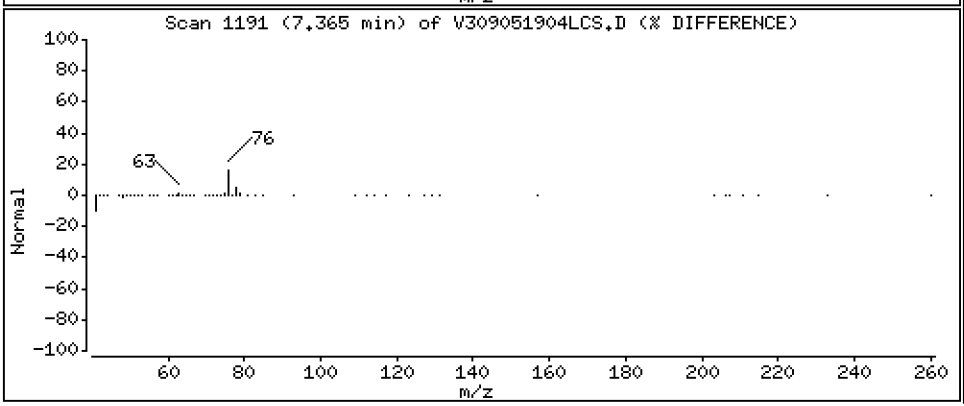
50 1,3-Dichloropropane

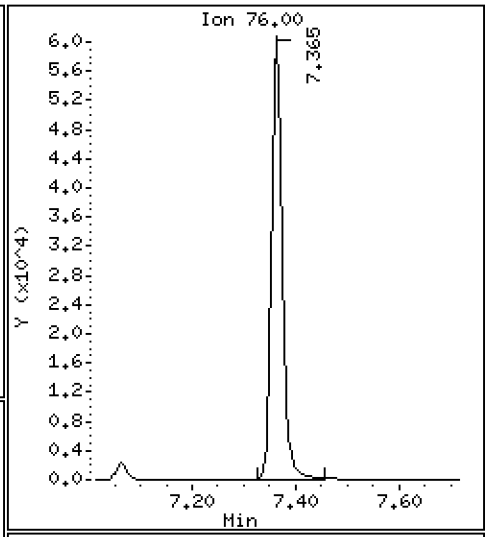
Concentration: 10.704 ug/L

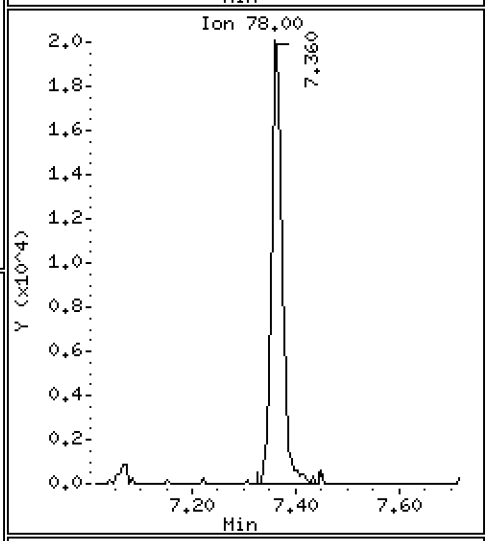


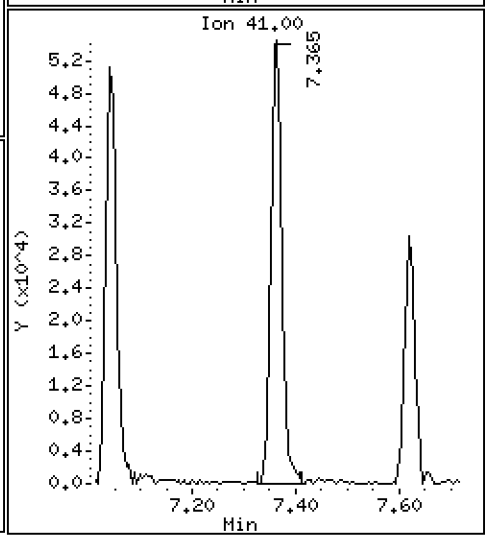












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

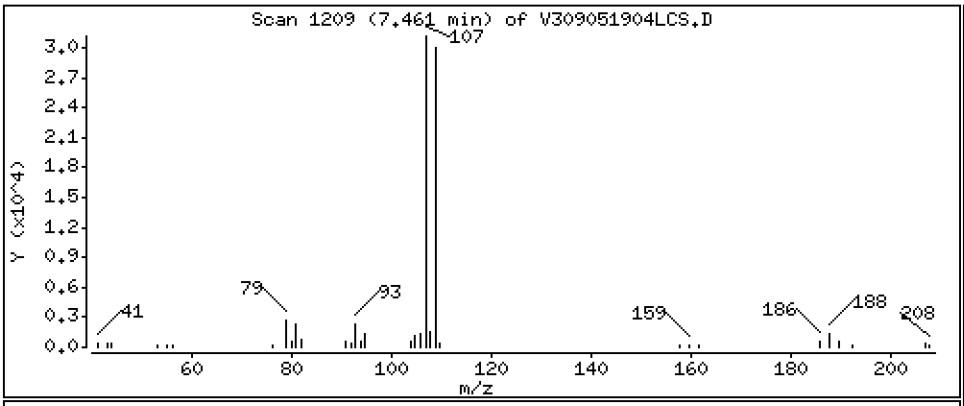
Operator: PKC

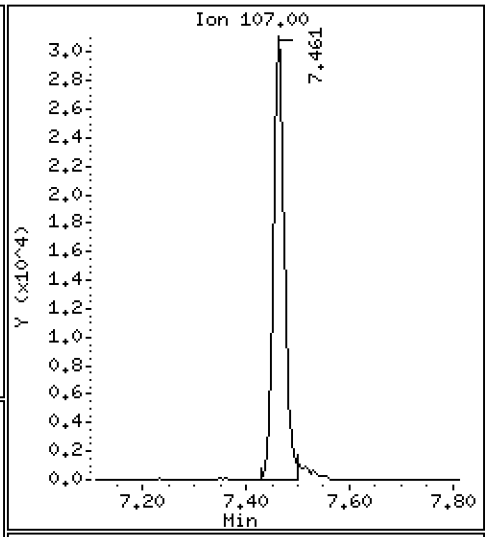
Column phase: RTXVMS

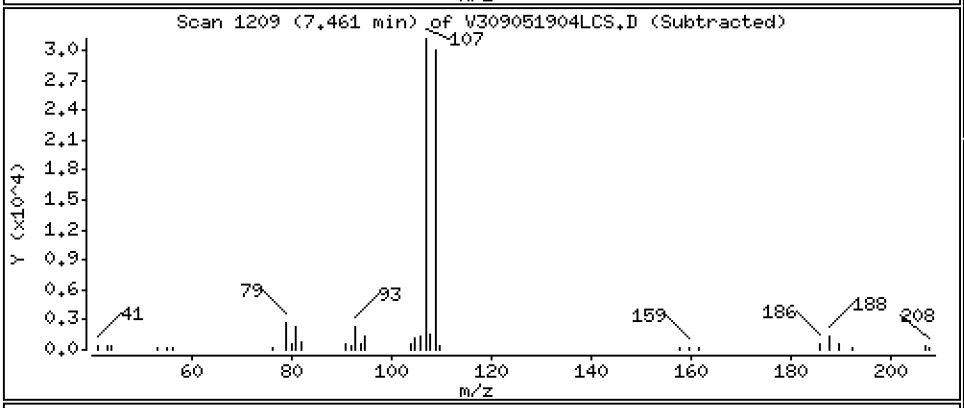
Column diameter: 0.18

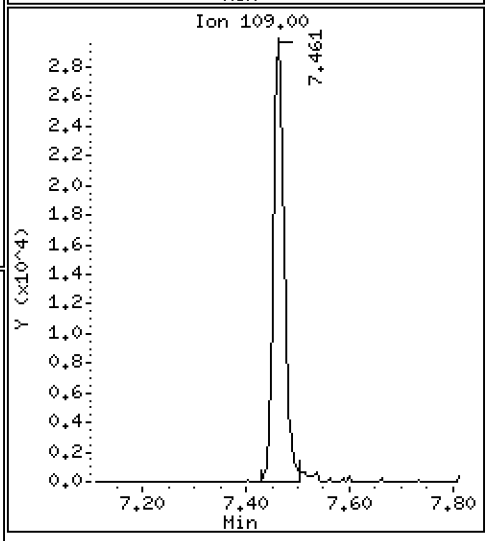
51 1,2-Dibromoethane

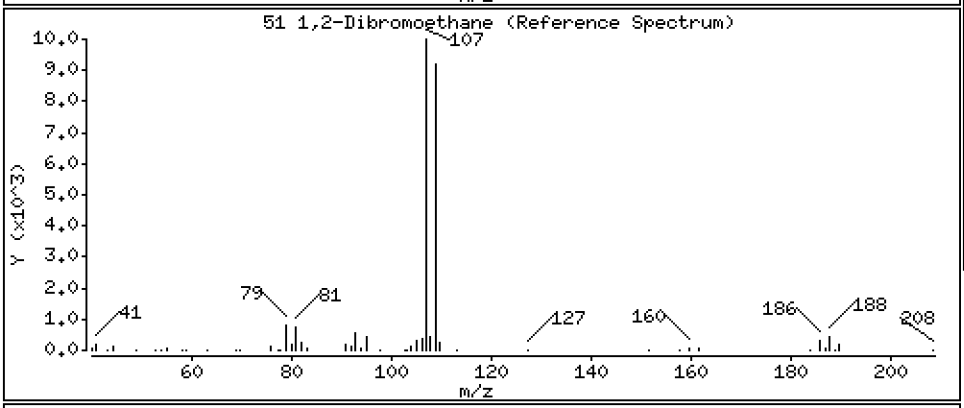
Concentration: 10.044 ug/L

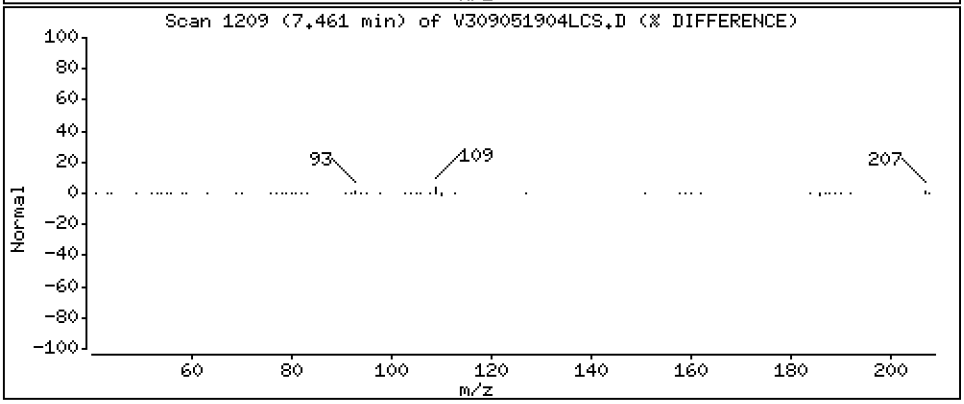












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

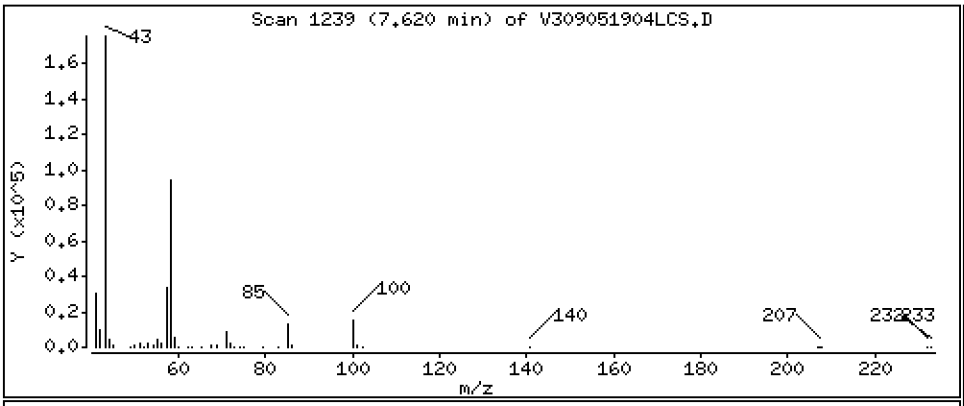
Operator: PKC

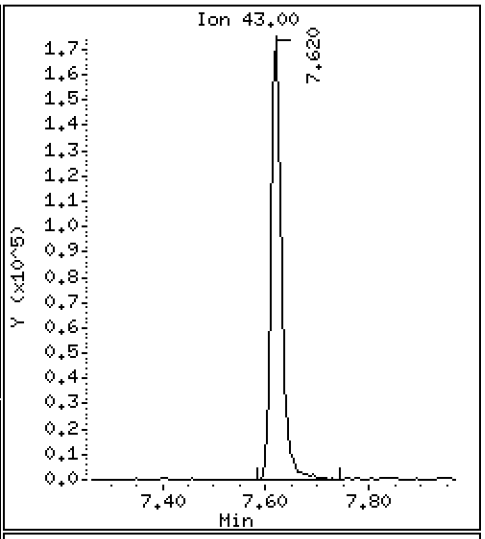
Column phase: RTXVMS

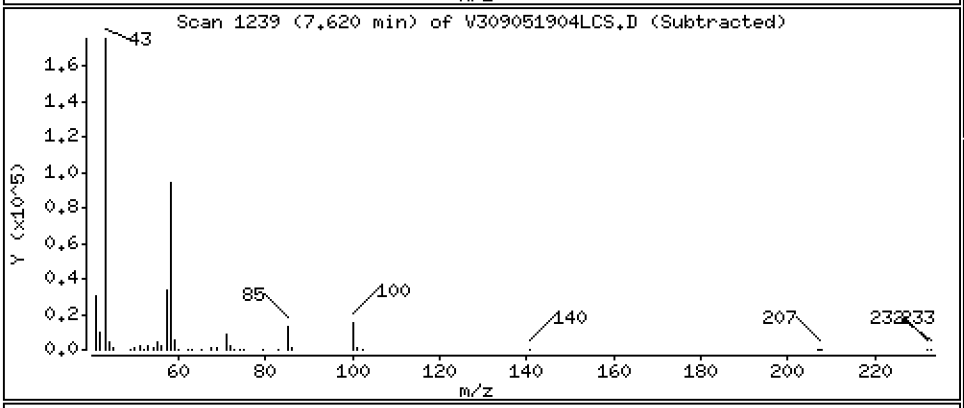
Column diameter: 0.18

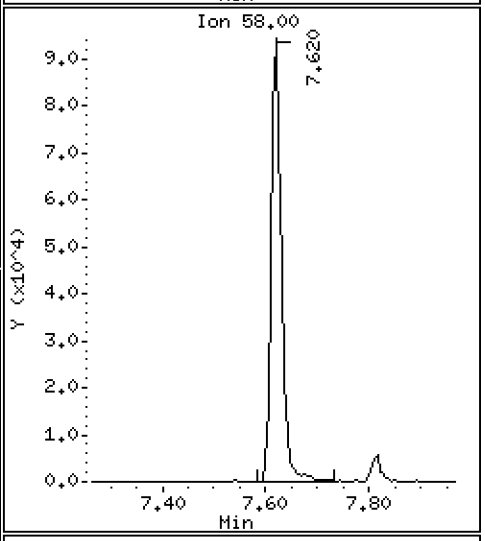
52 2-Hexanone

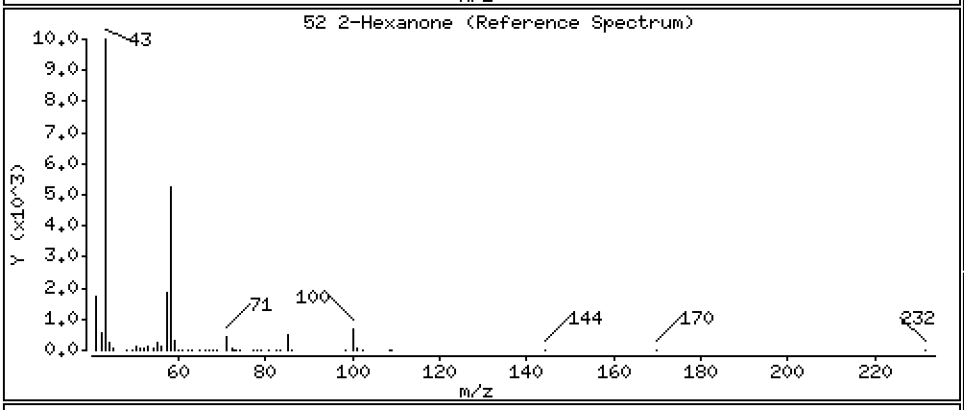
Concentration: 58.863 ug/L

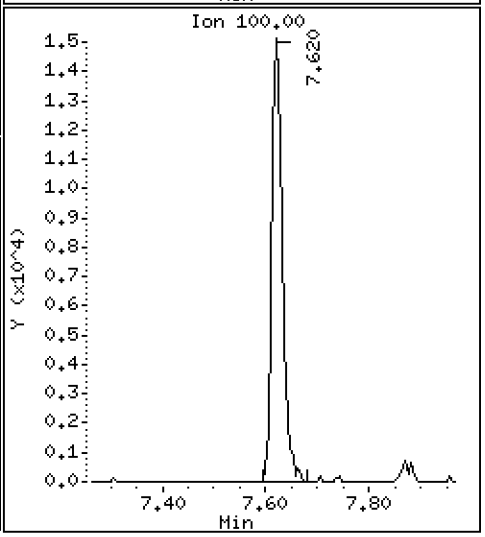


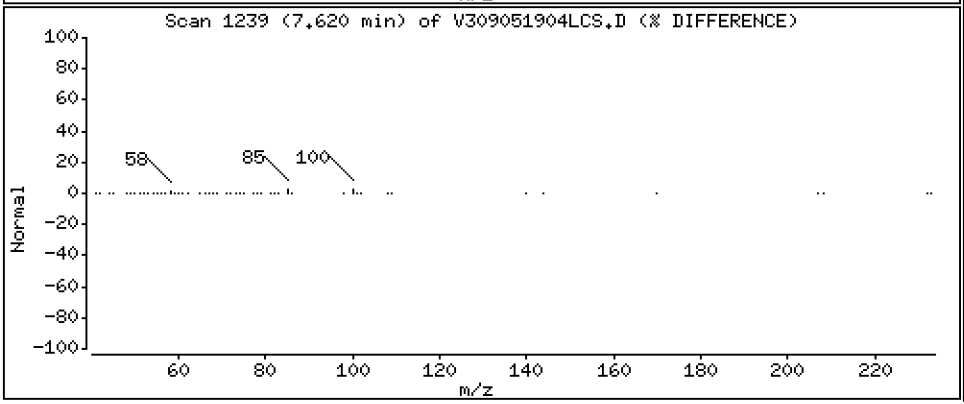












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

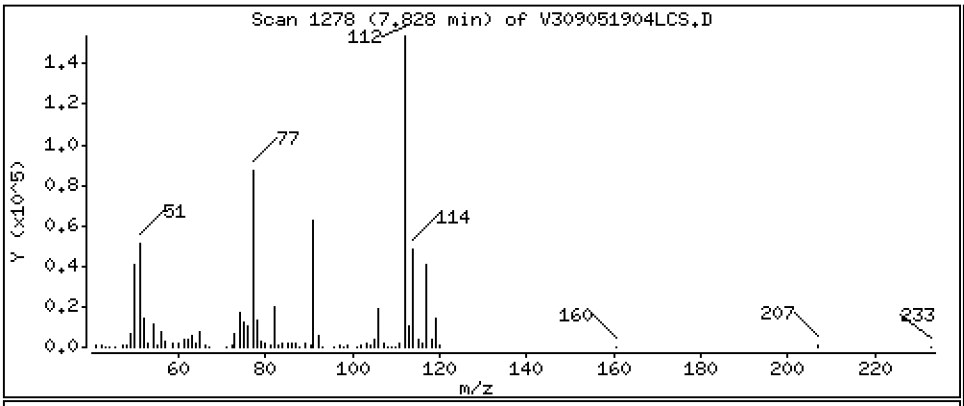
Operator: PKC

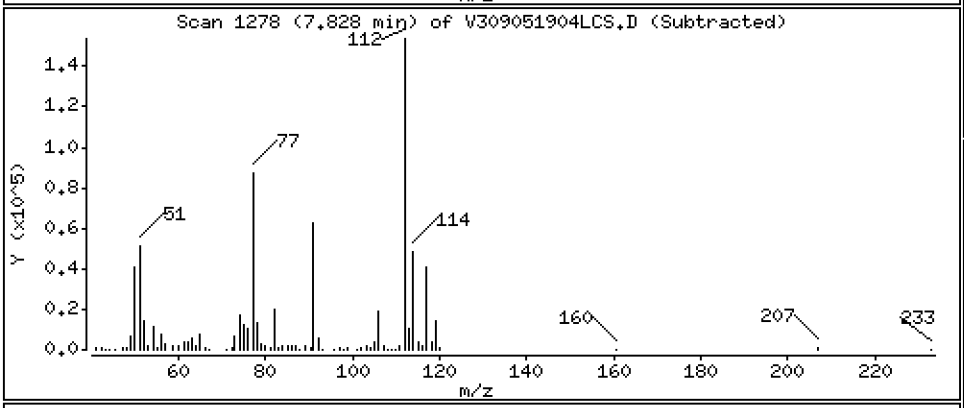
Column phase: RTXVMS

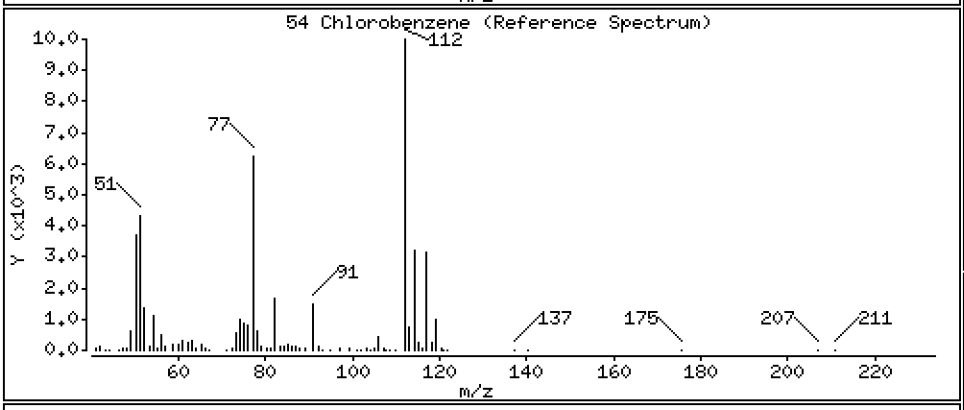
Column diameter: 0.18

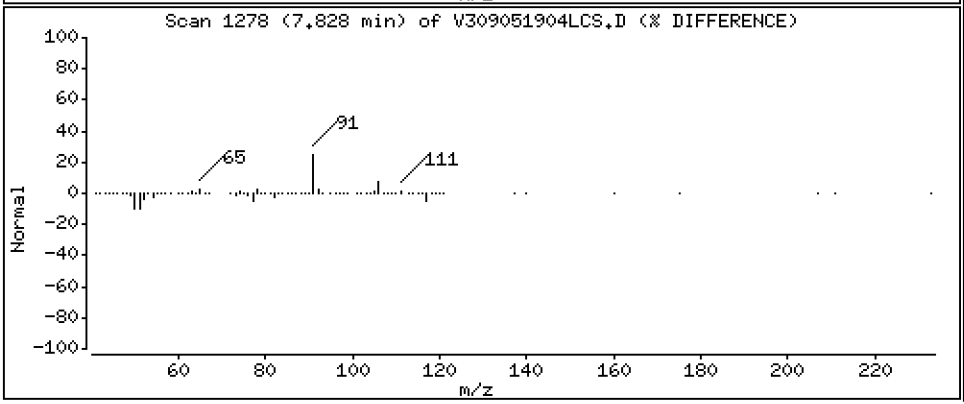
54 Chlorobenzene

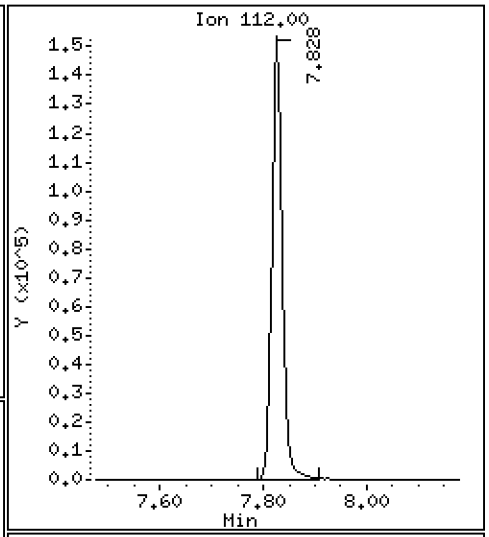
Concentration: 10.715 ug/L

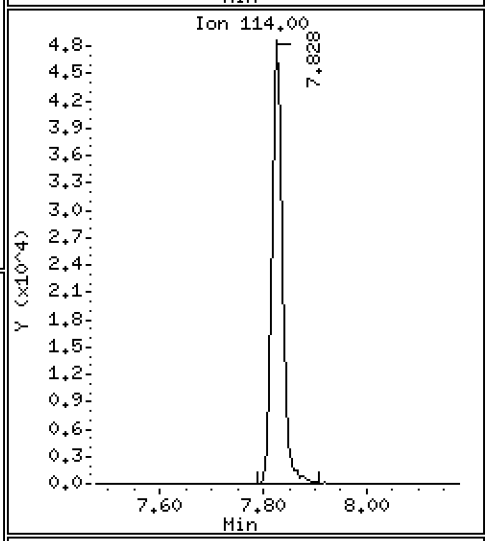


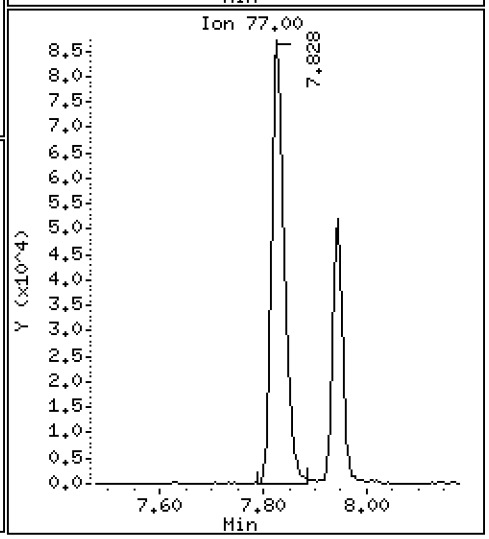












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

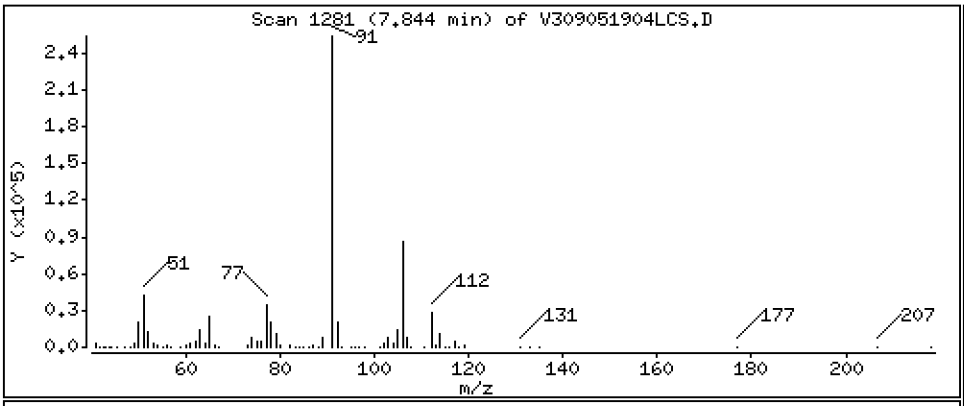
Operator: PKC

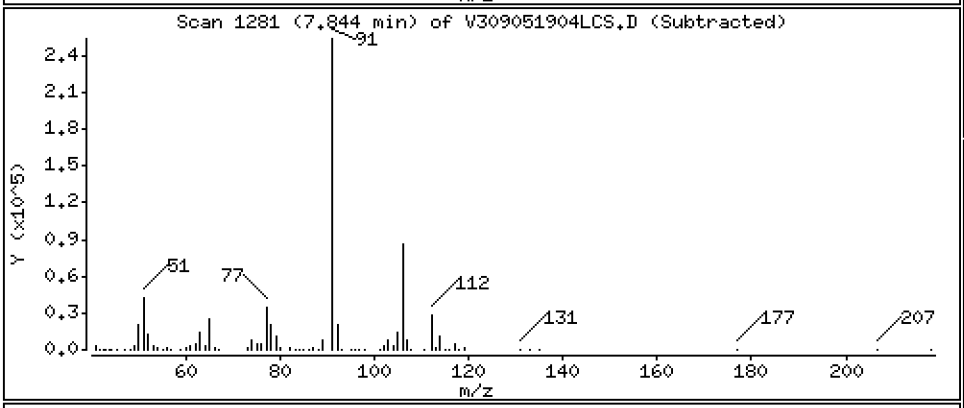
Column phase: RTXVMS

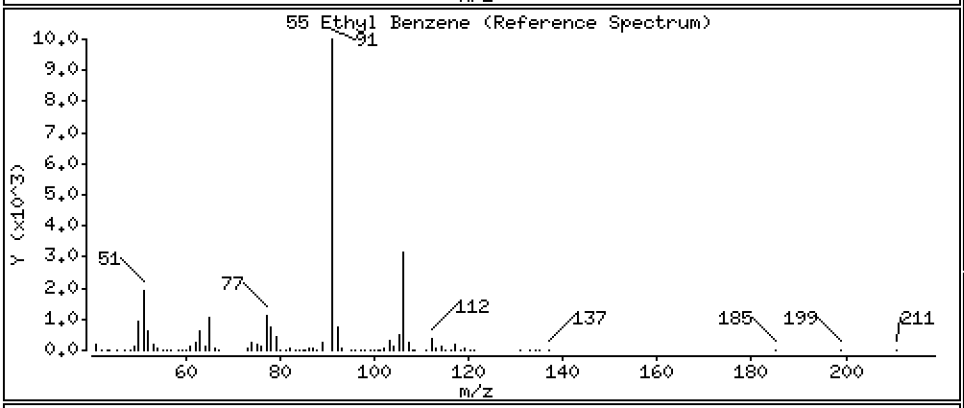
Column diameter: 0.18

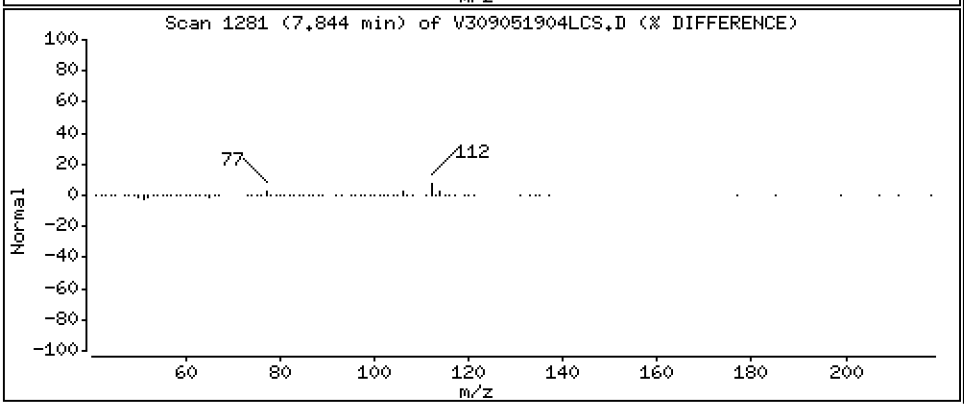
55 Ethyl Benzene

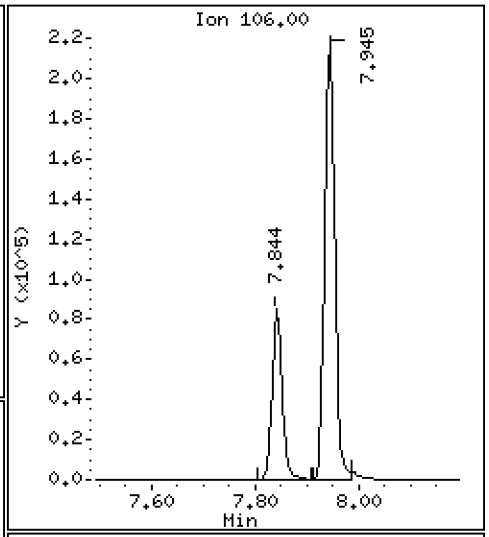
Concentration: 10.675 ug/L

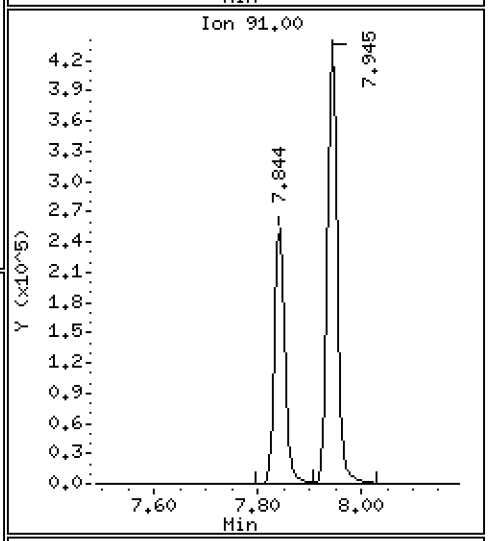


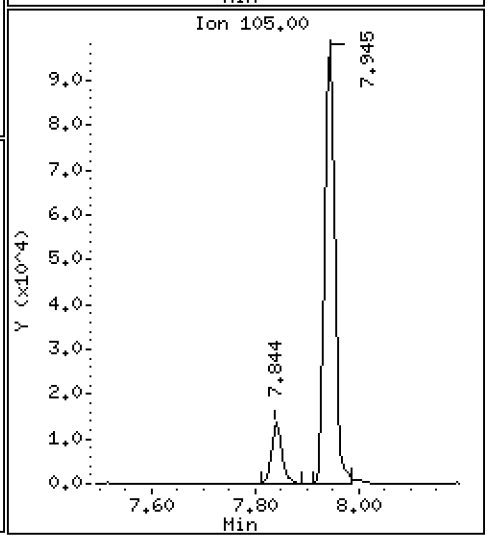












Date : 05-SEP-2019 12:30

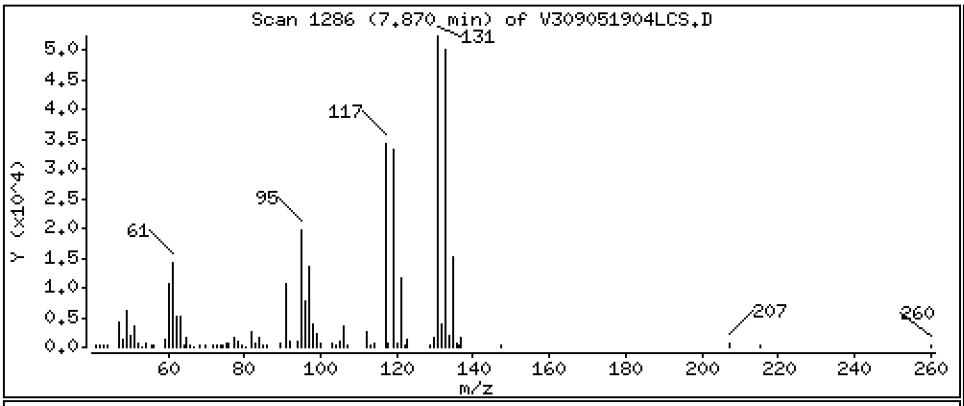
Client ID: Instrument: nt3.i

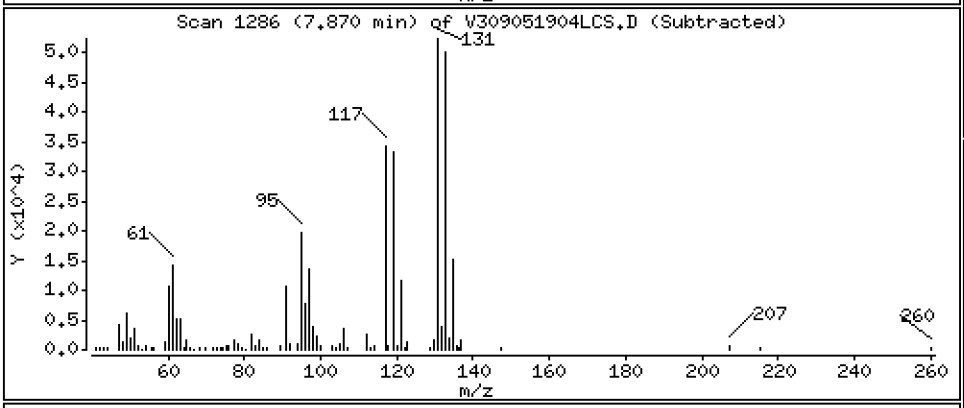
Sample Info: BHI0133-BS1

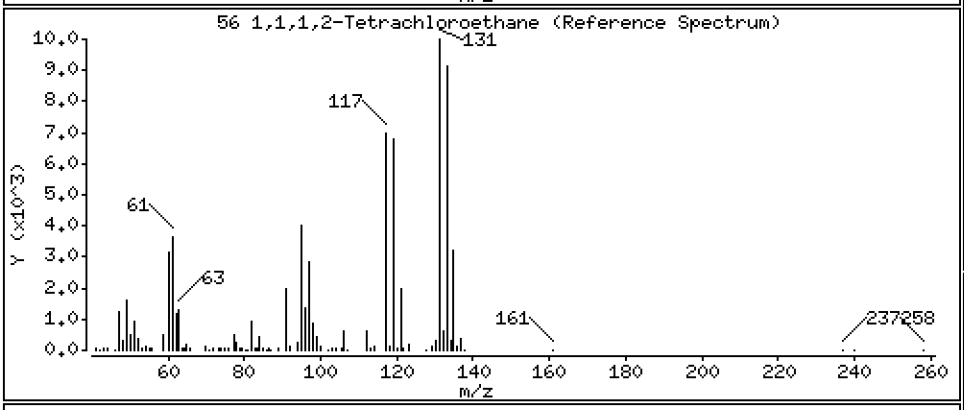
Operator: PKC

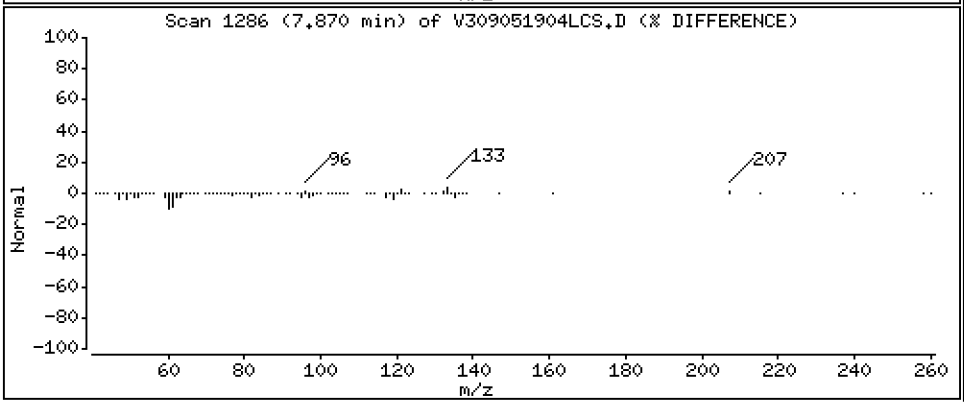
Column phase: RTXVMS Column diameter: 0.18

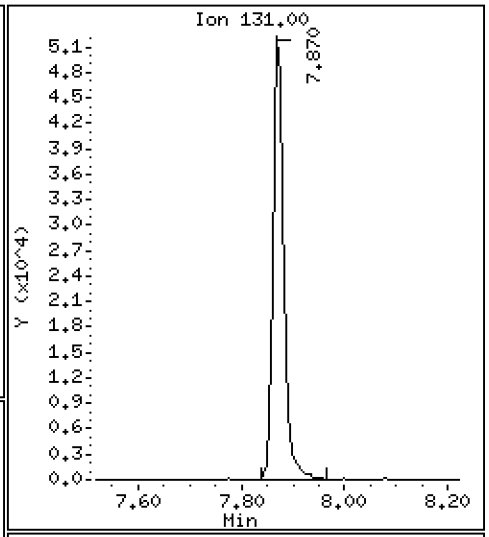
56 1,1,1,2-Tetrachloroethane Concentration: 10.619 ug/L

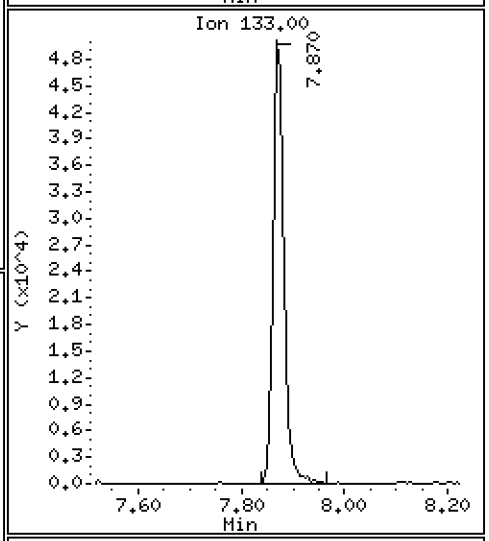


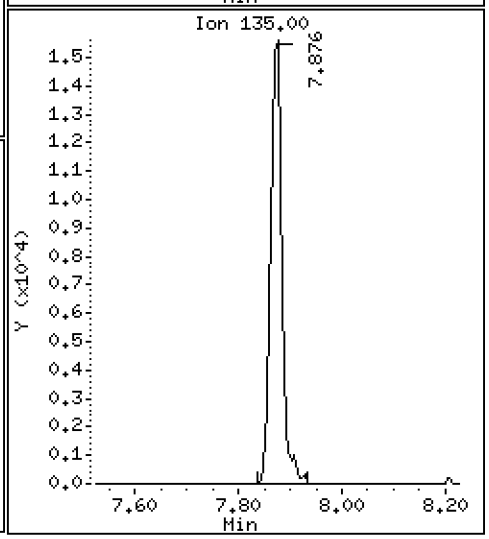












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

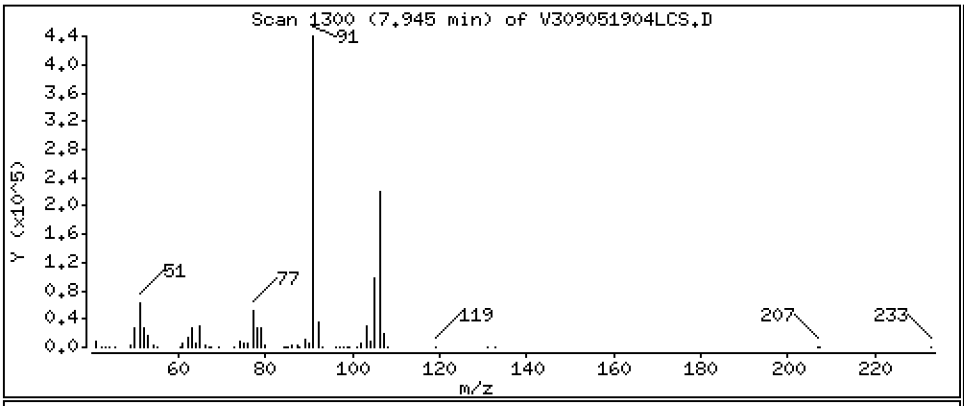
Operator: PKC

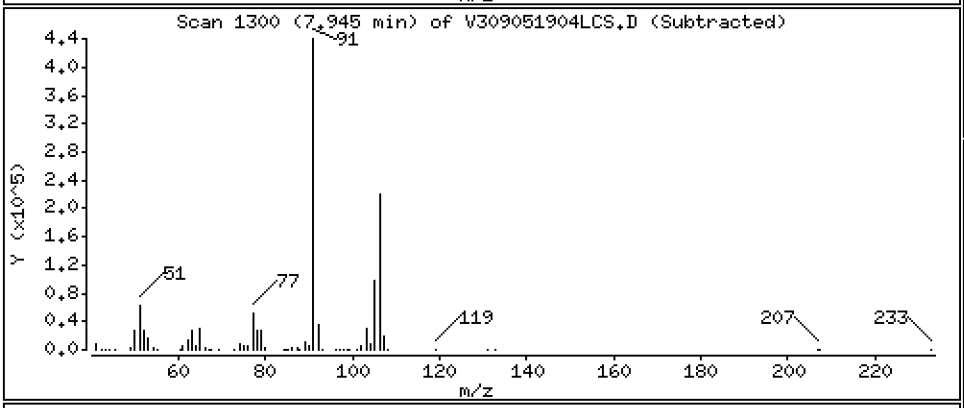
Column phase: RTXVMS

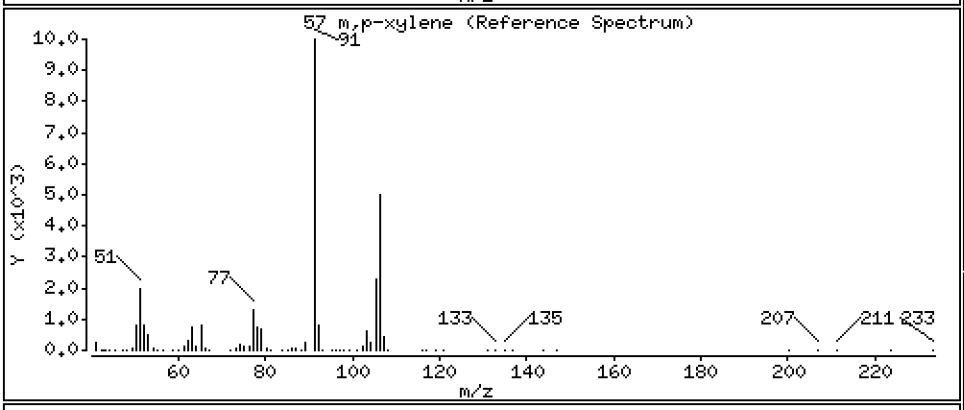
Column diameter: 0.18

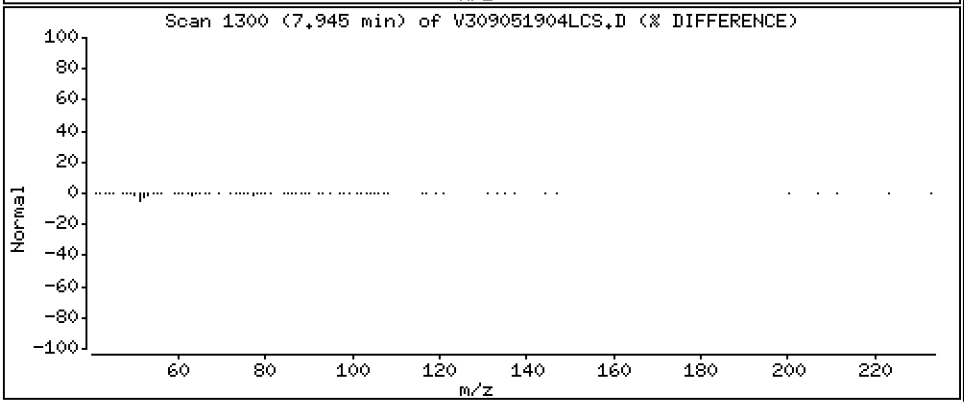
57 m,p-xylene

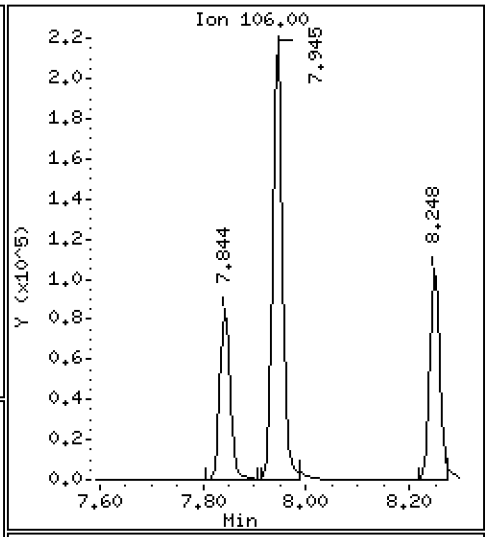
Concentration: 21.639 ug/L

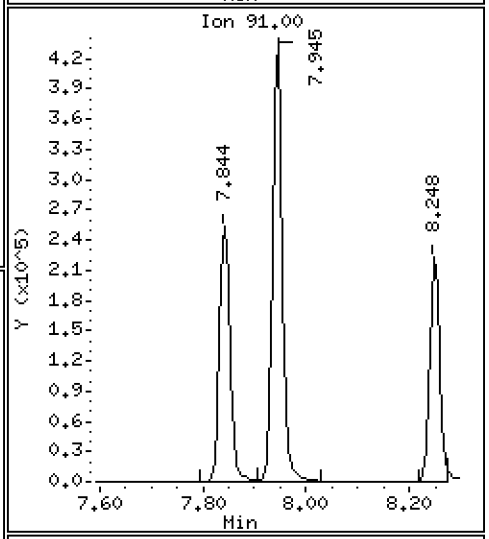


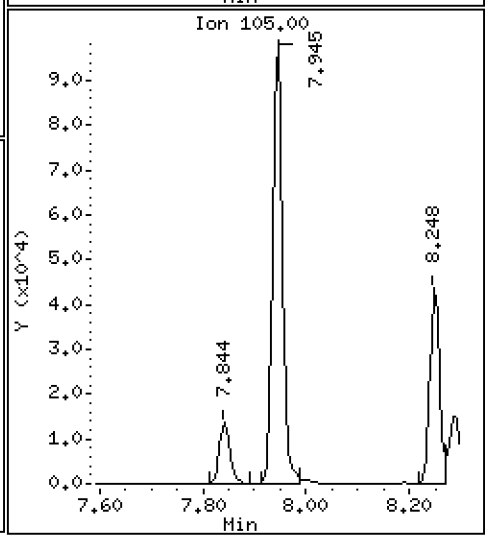












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

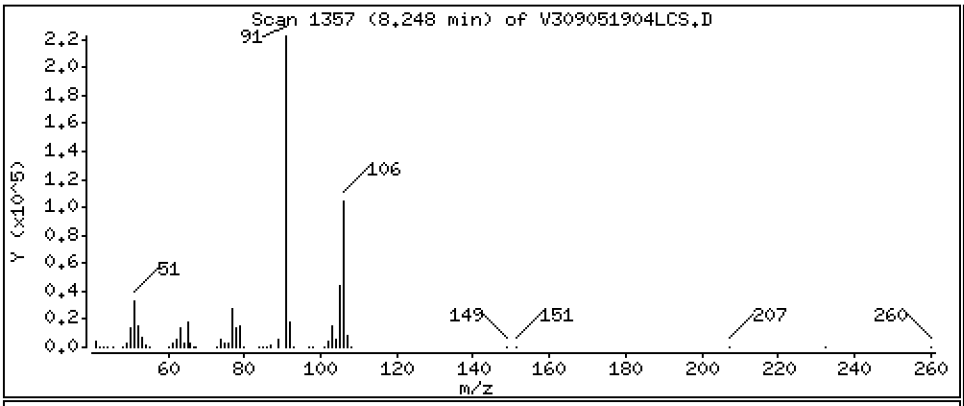
Operator: PKC

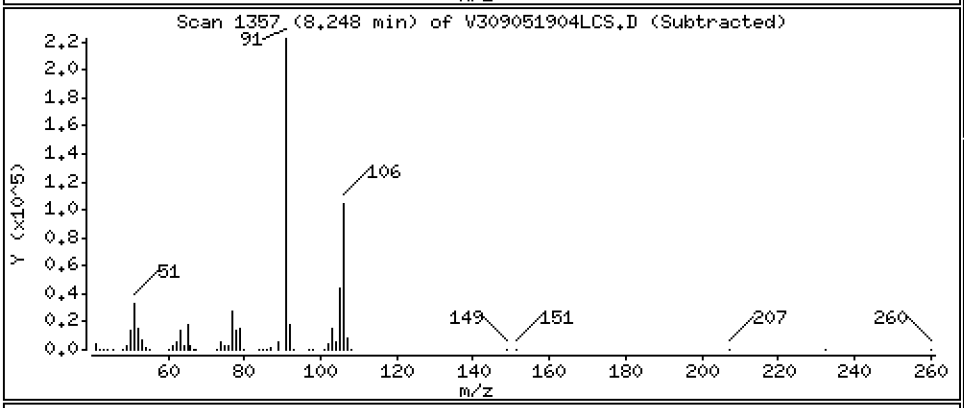
Column phase: RTXVMS

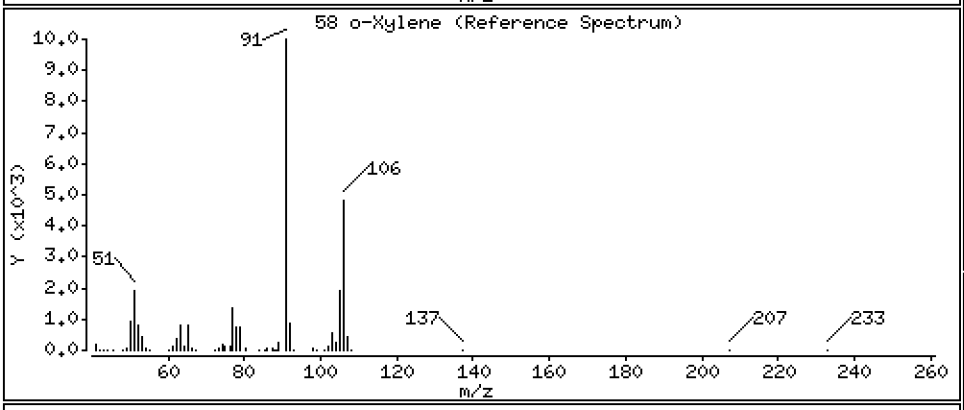
Column diameter: 0.18

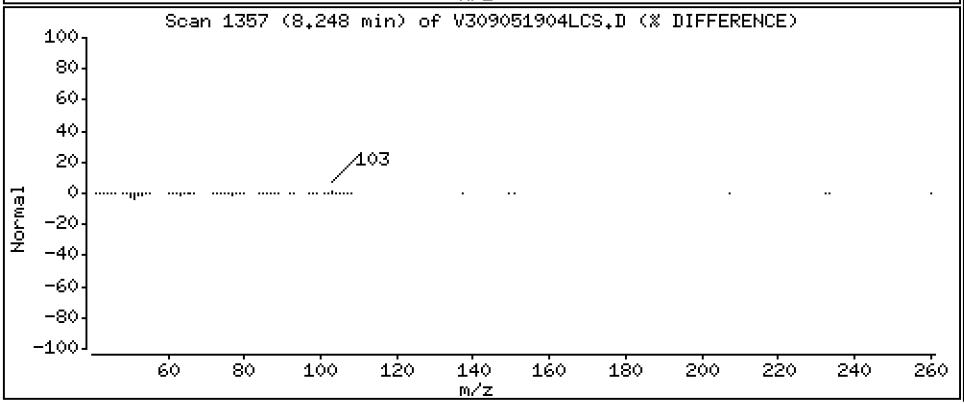
58 o-Xylene

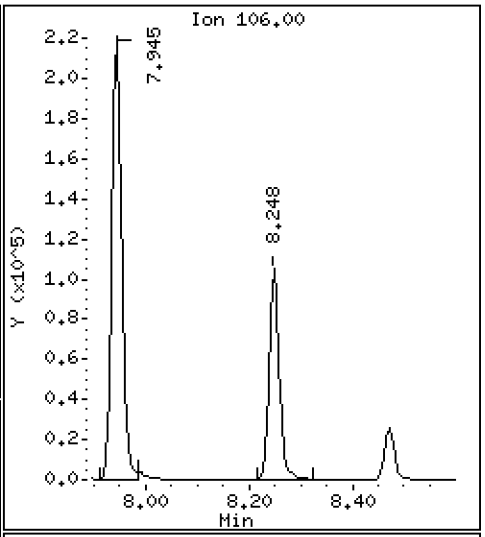
Concentration: 10.701 ug/L

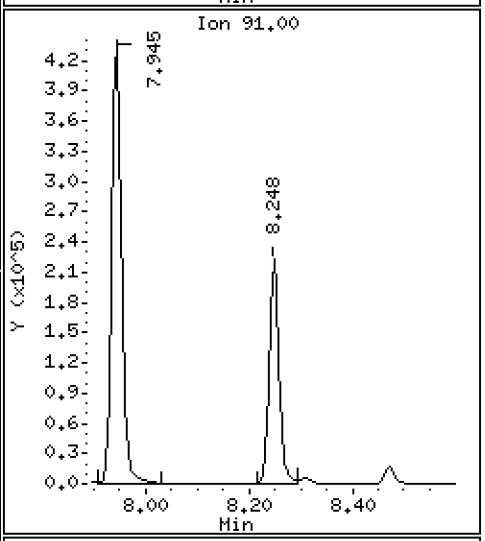


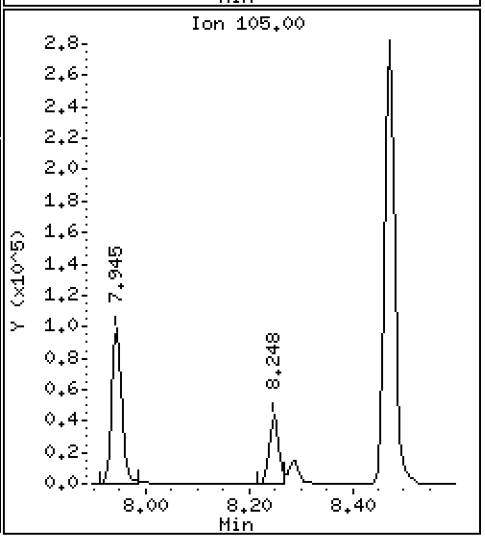












Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

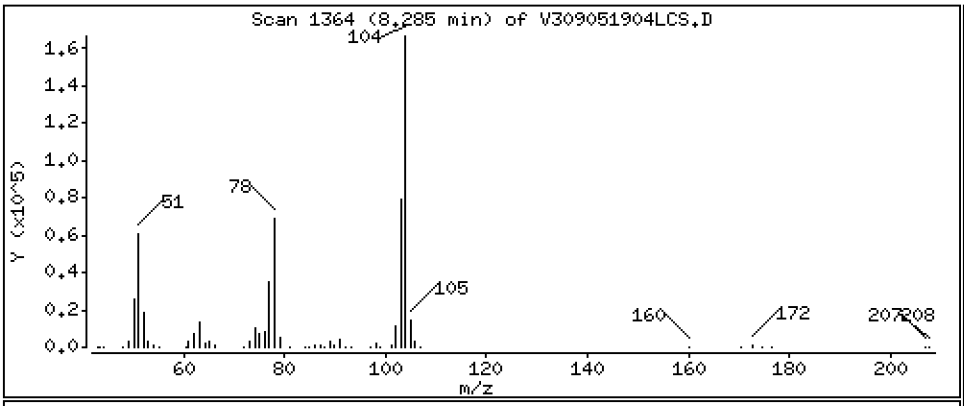
Operator: PKC

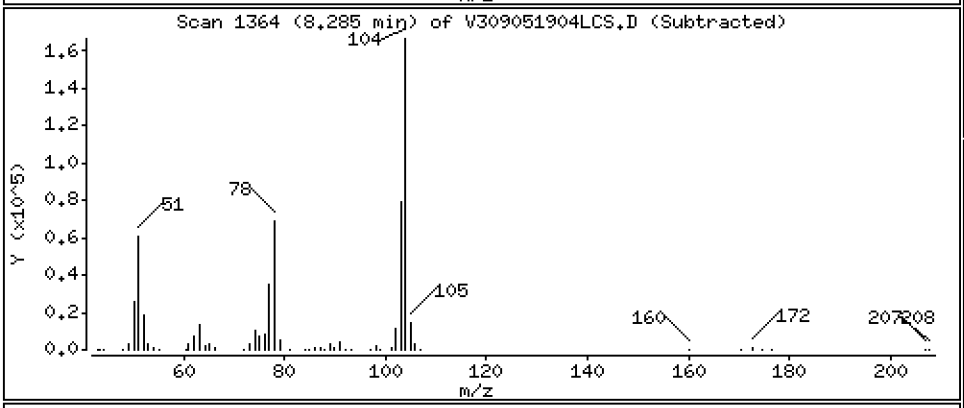
Column phase: RTXVMS

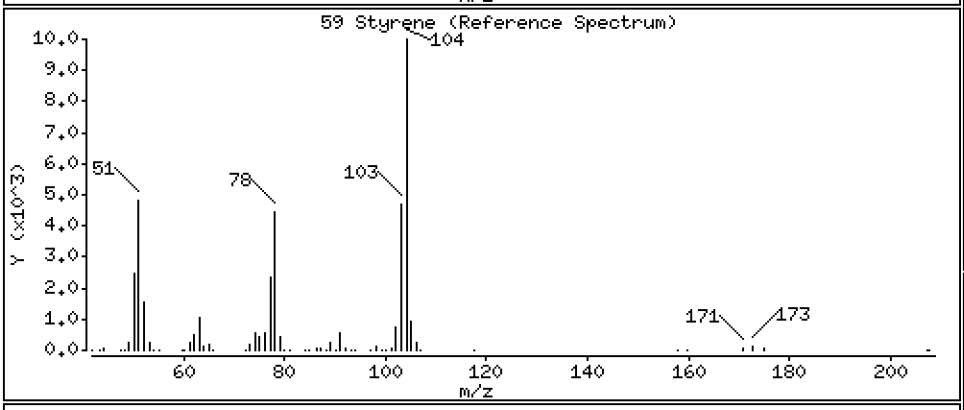
Column diameter: 0.18

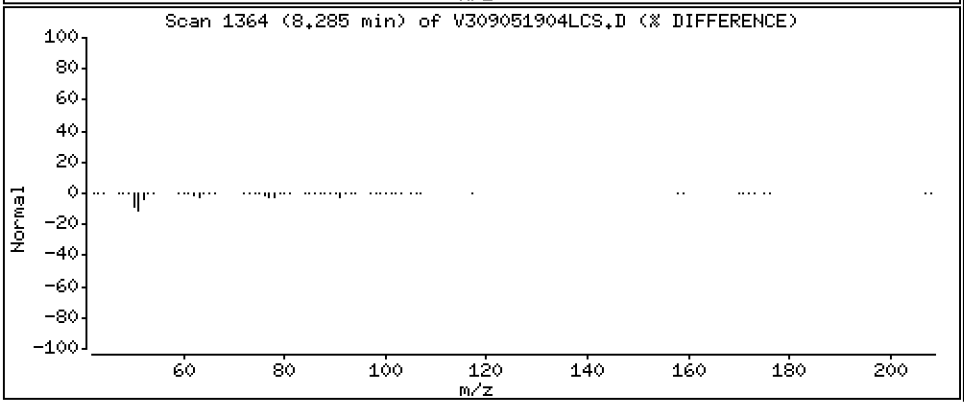
59 Styrene

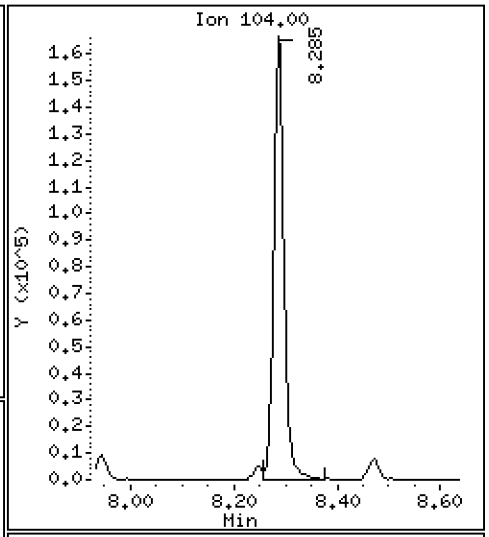
Concentration: 11.044 ug/L

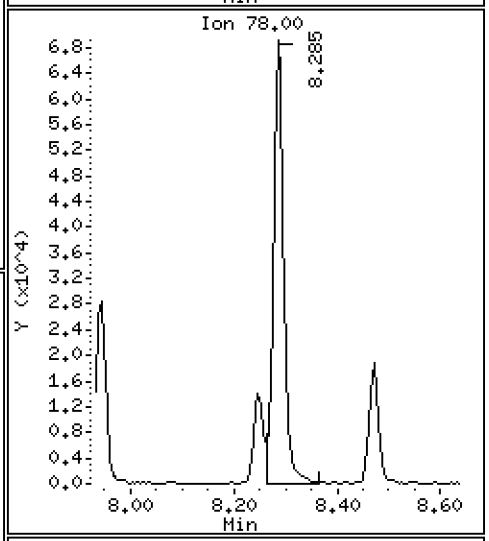


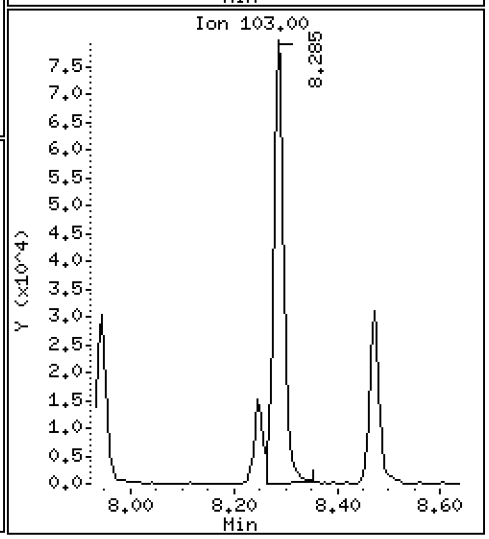












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

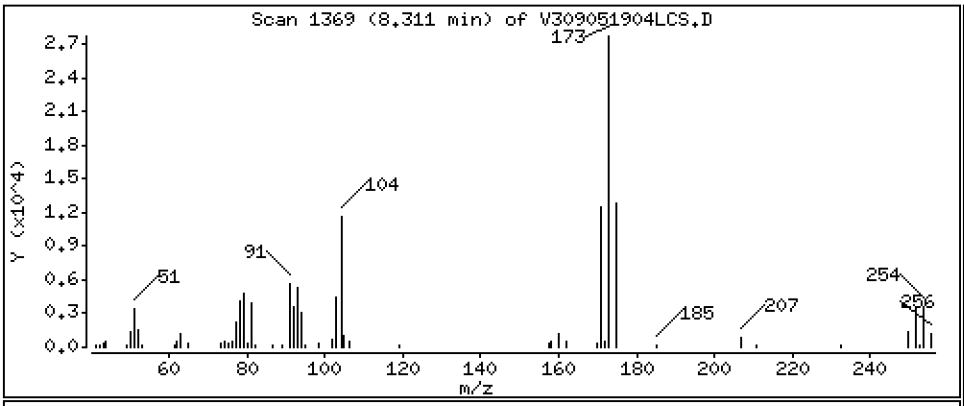
Operator: PKC

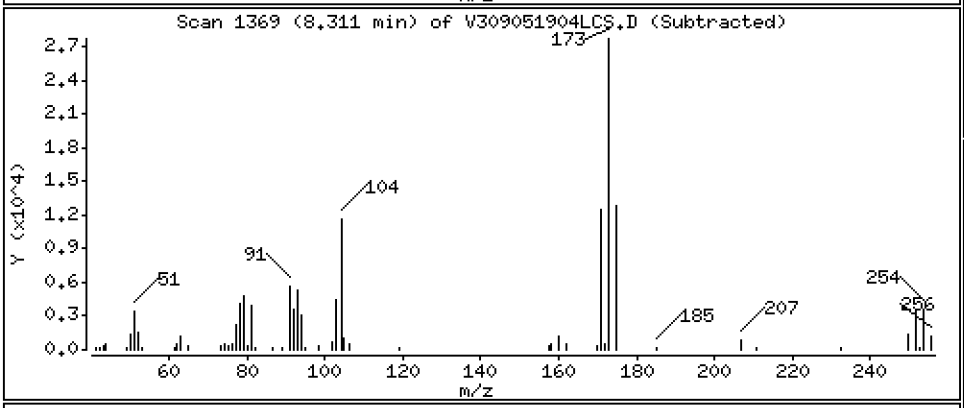
Column phase: RTXVMS

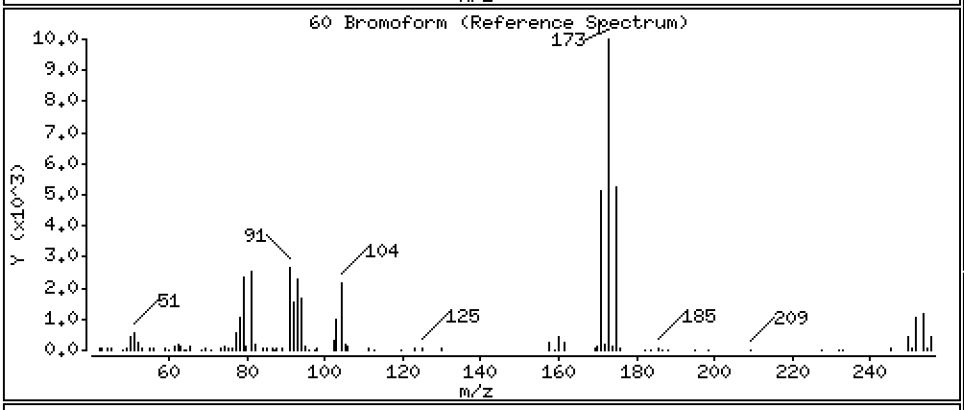
Column diameter: 0.18

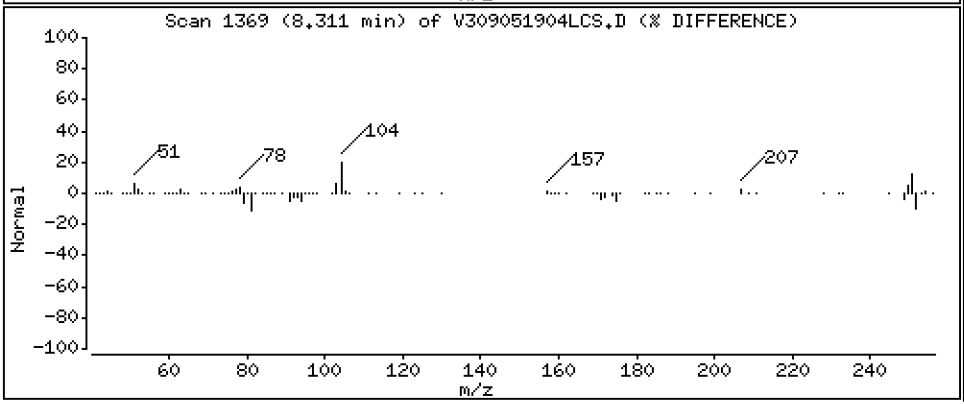
60 Bromoform

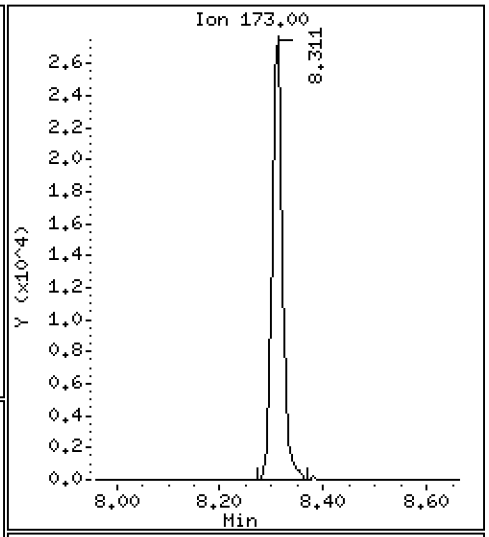
Concentration: 10.797 ug/L

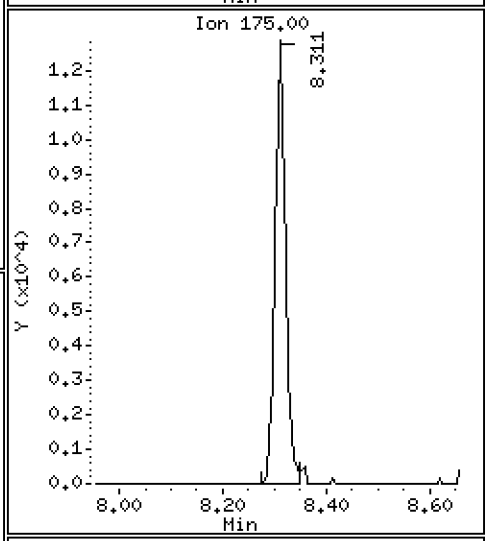


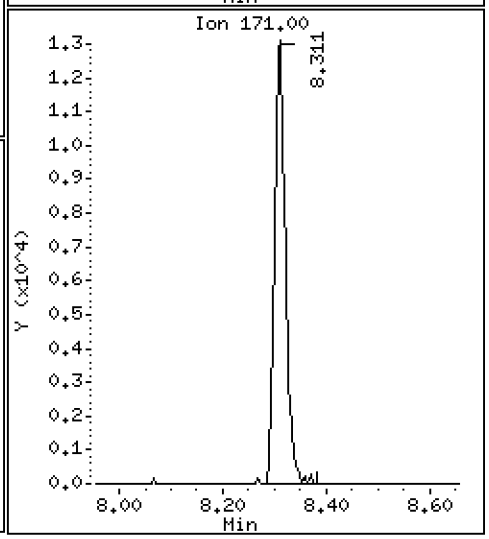












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

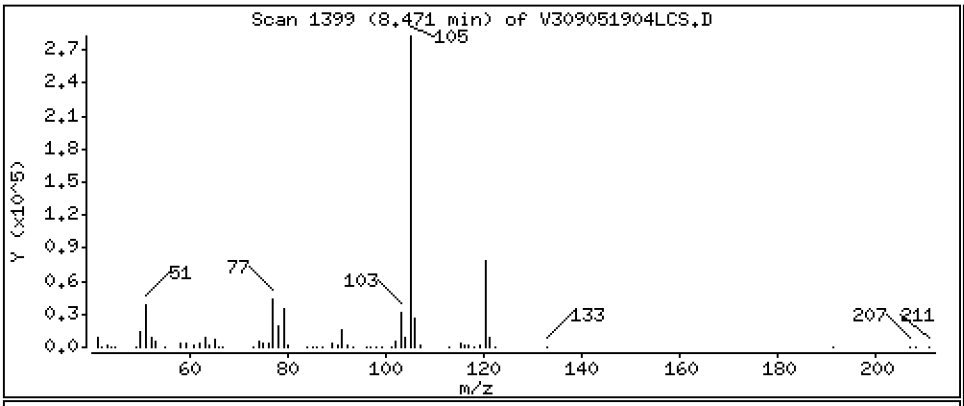
Operator: PKC

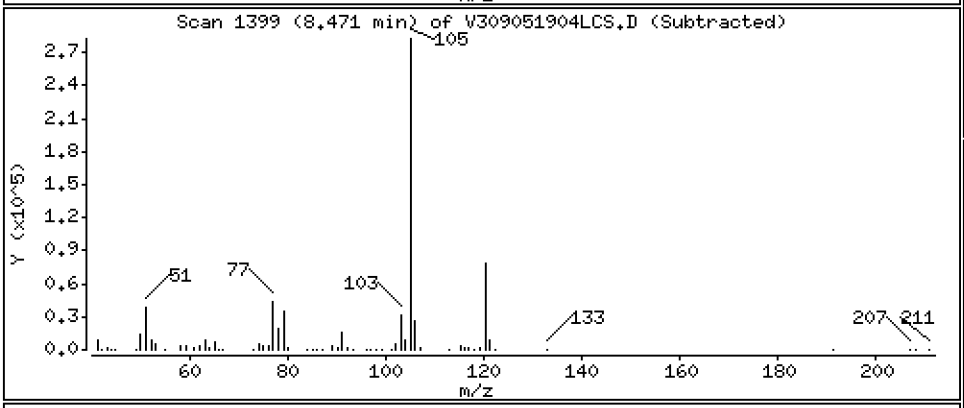
Column phase: RTXVMS

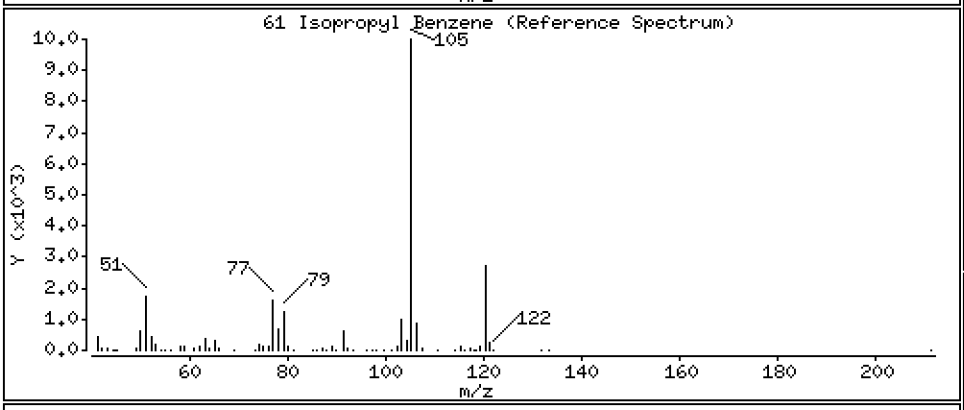
Column diameter: 0.18

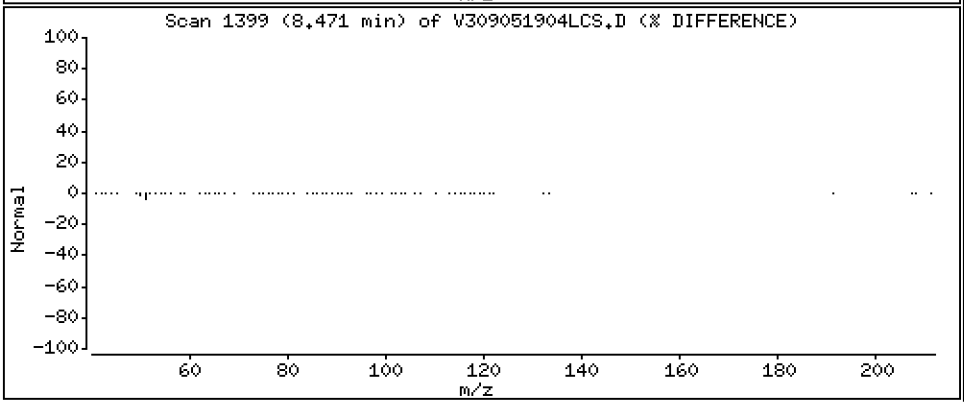
61 Isopropyl Benzene

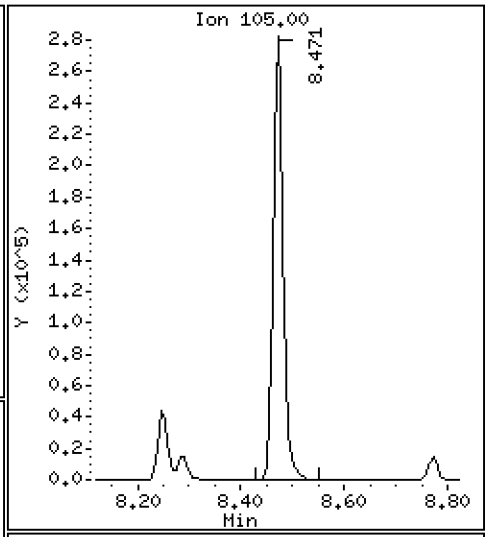
Concentration: 10.632 ug/L

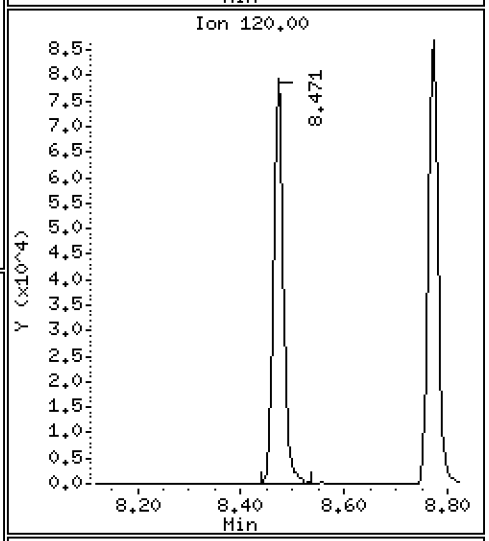


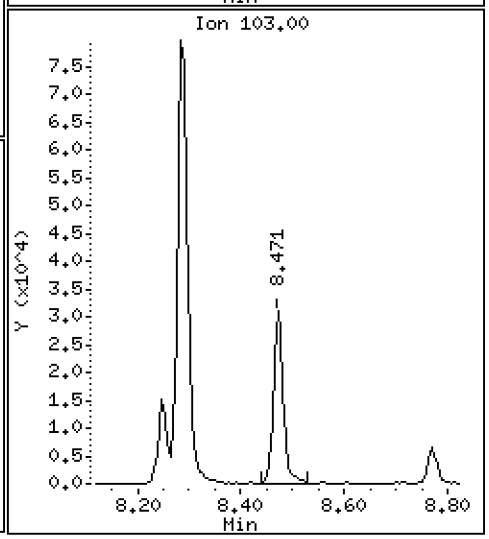












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

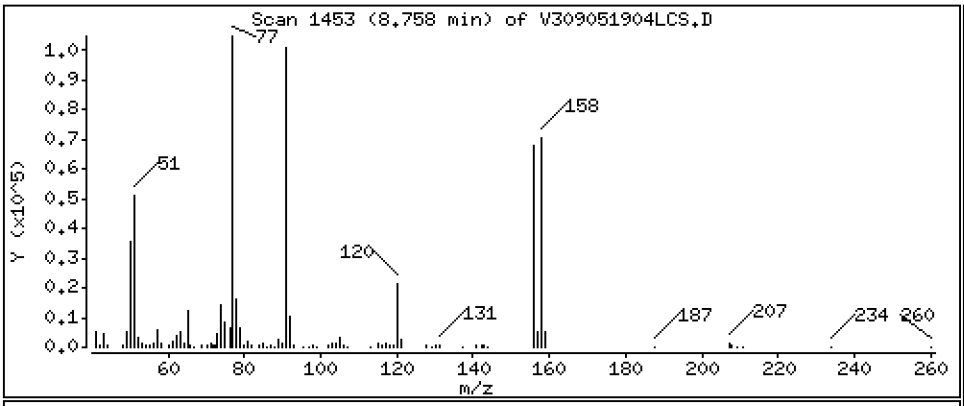
Operator: PKC

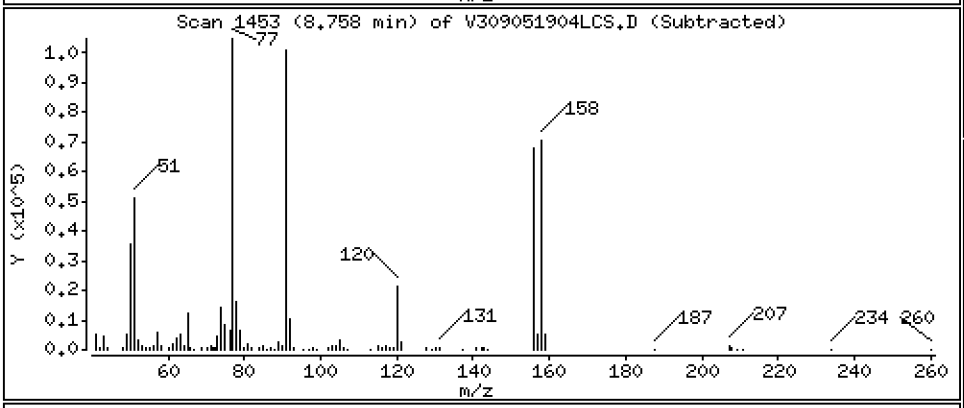
Column phase: RTXVMS

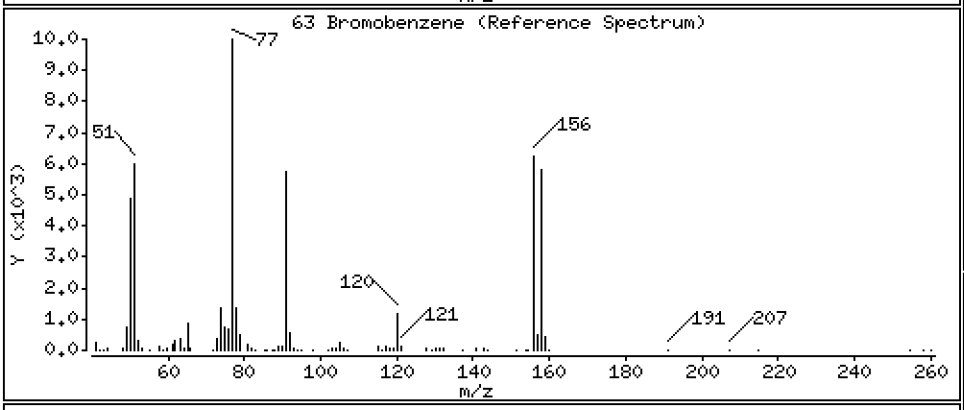
Column diameter: 0.18

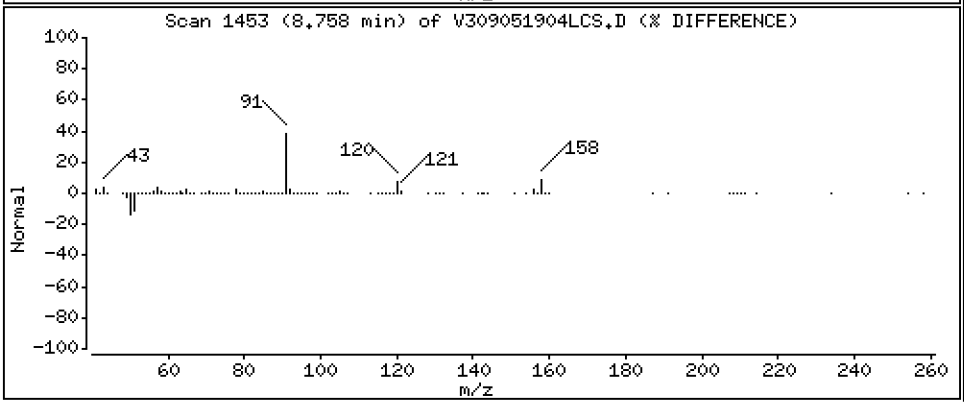
63 Bromobenzene

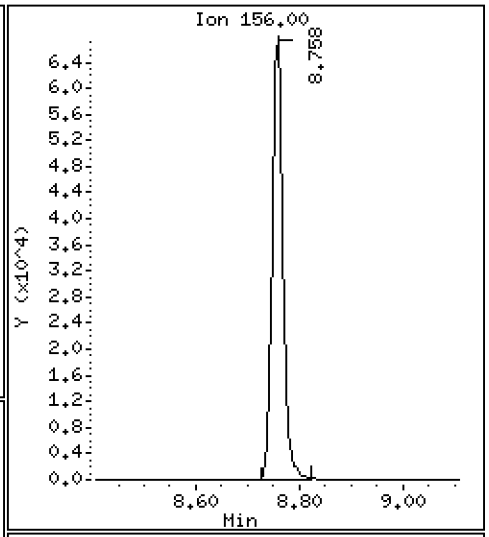
Concentration: 10.320 ug/L

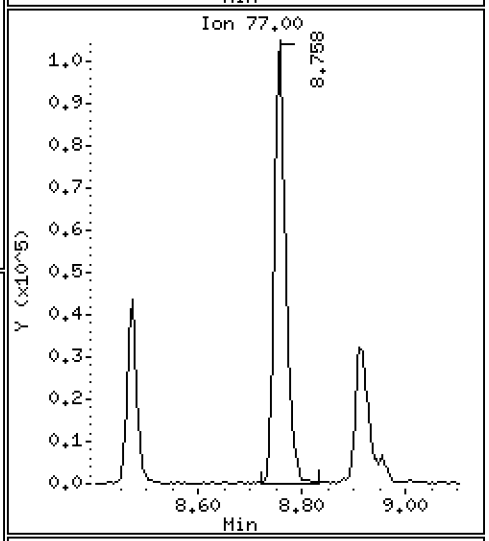


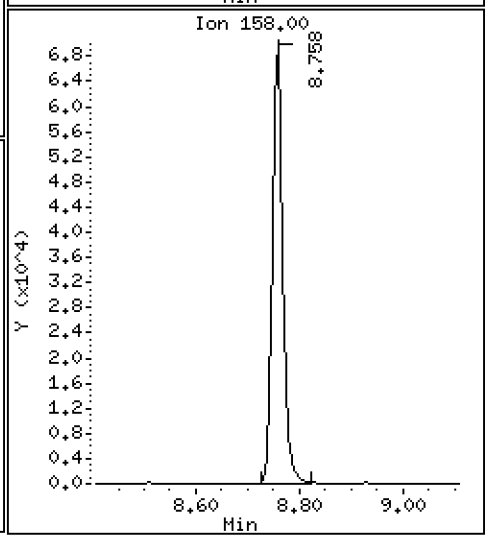












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

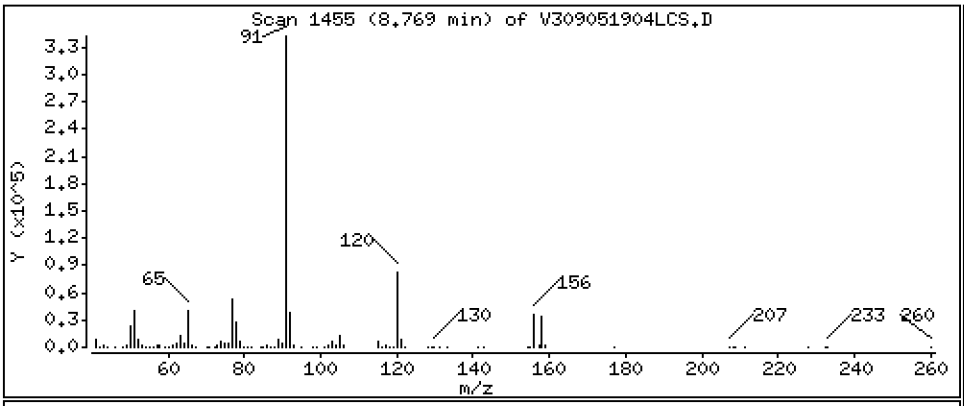
Operator: PKC

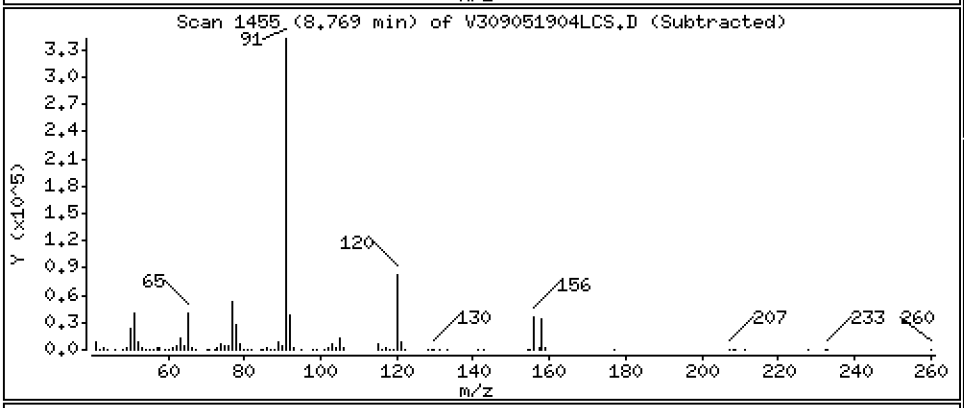
Column phase: RTXVMS

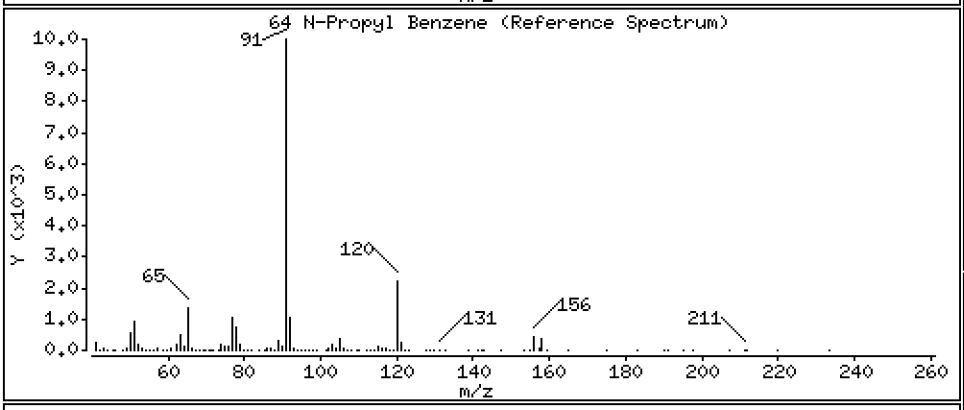
Column diameter: 0.18

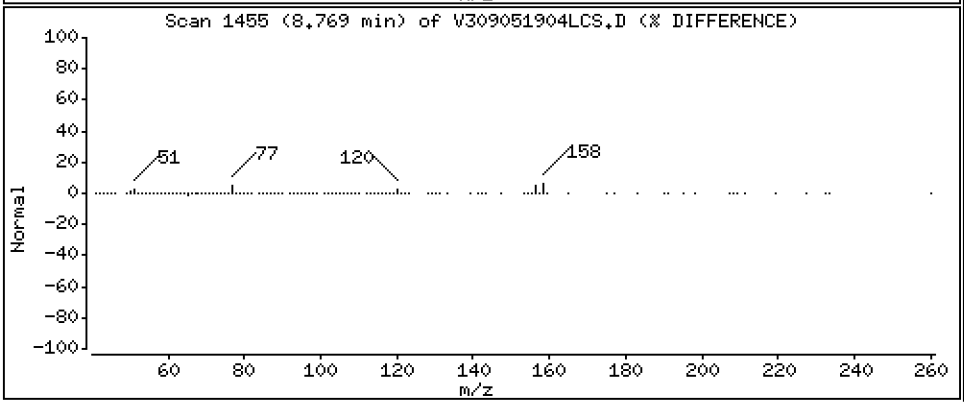
64 N-Propyl Benzene

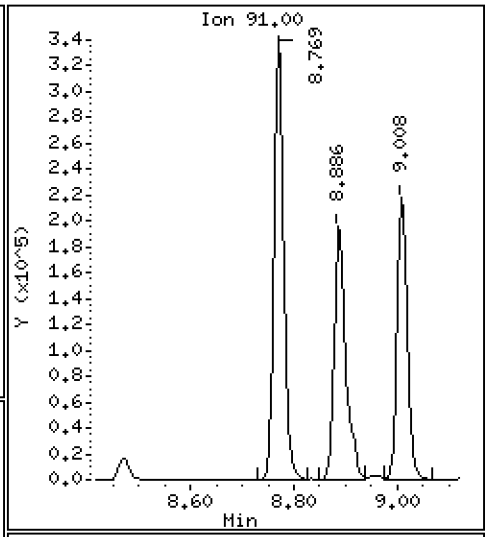
Concentration: 11.069 ug/L

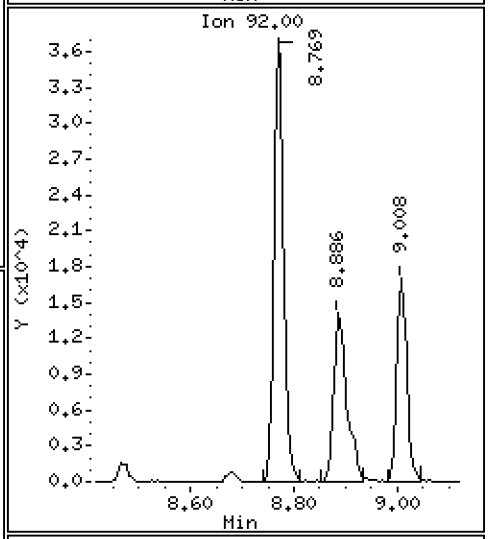


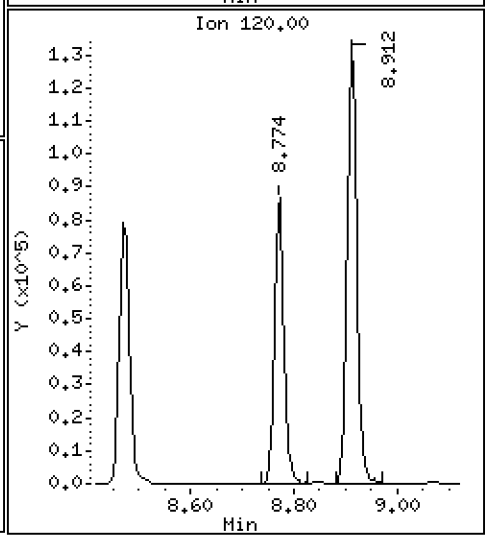












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

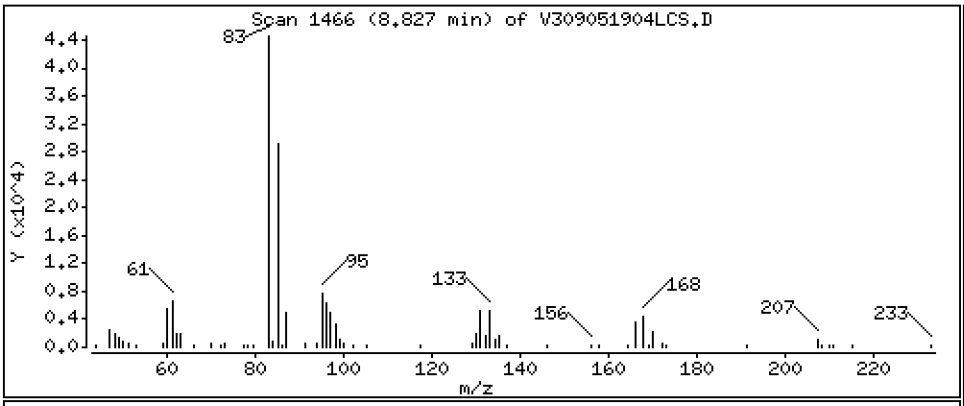
Operator: PKC

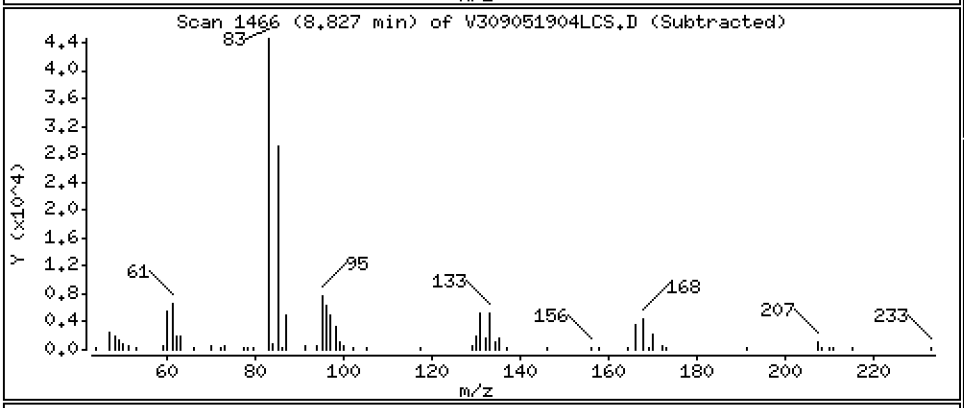
Column phase: RTXVMS

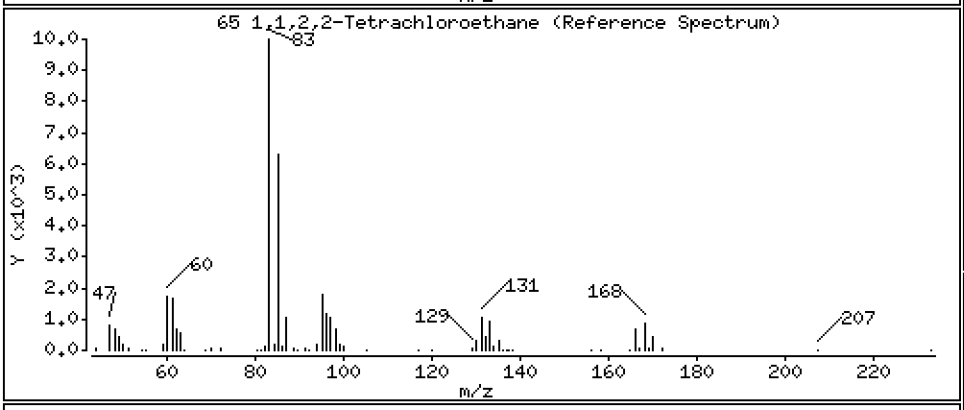
Column diameter: 0.18

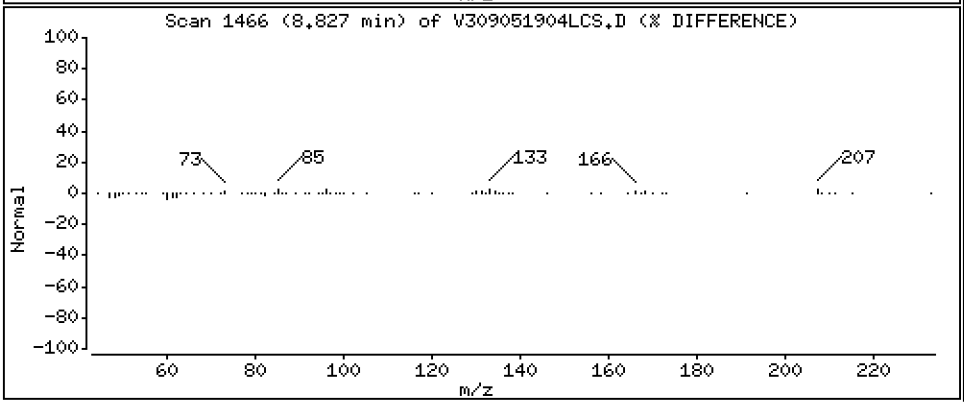
65 1,1,2,2-Tetrachloroethane

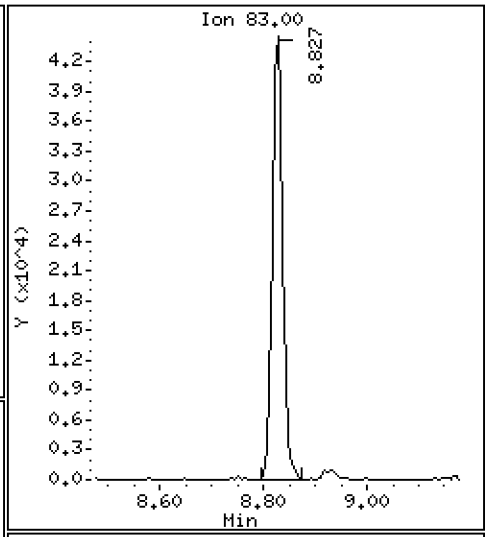
Concentration: 10.250 ug/L

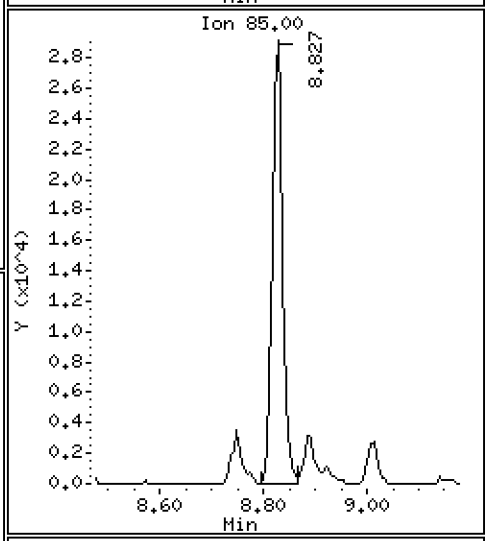


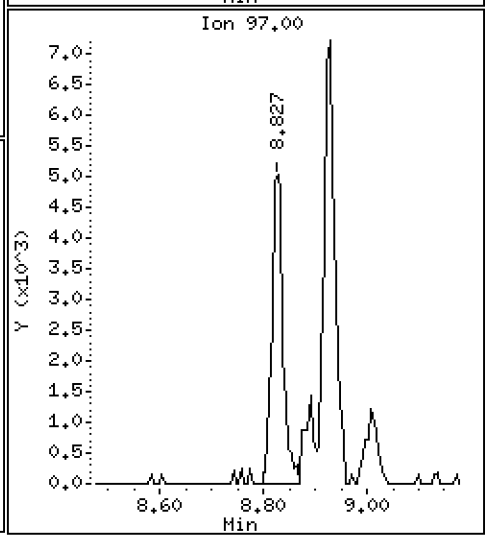












Date : 05-SEP-2019 12:30

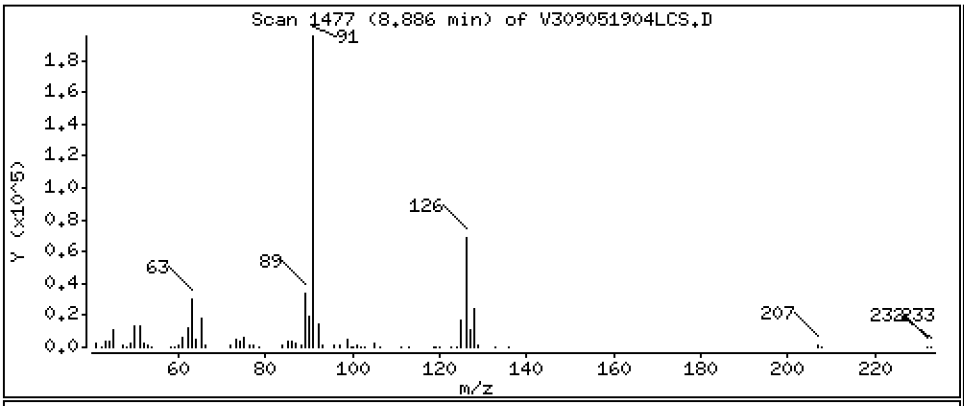
Client ID: Instrument: nt3.i

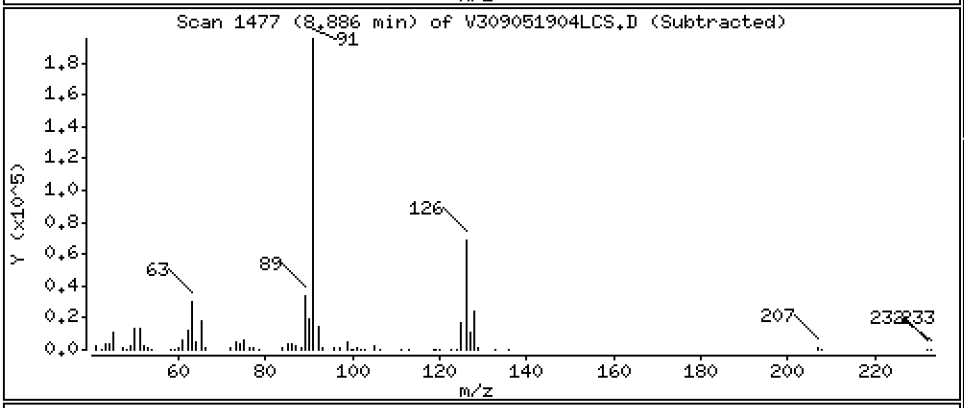
Sample Info: BHI0133-BS1

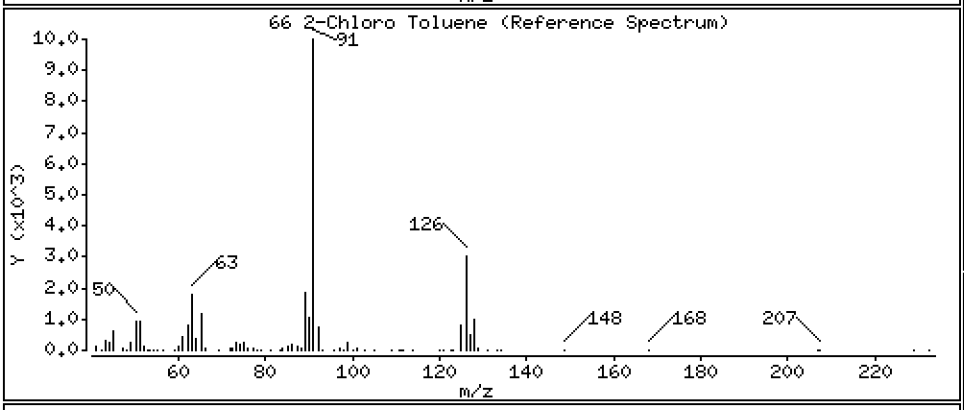
Operator: PKC

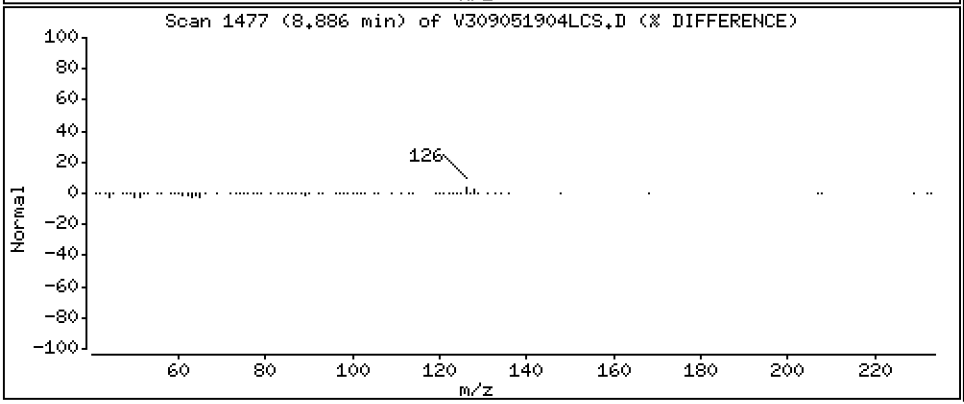
Column phase: RTXVMS Column diameter: 0.18

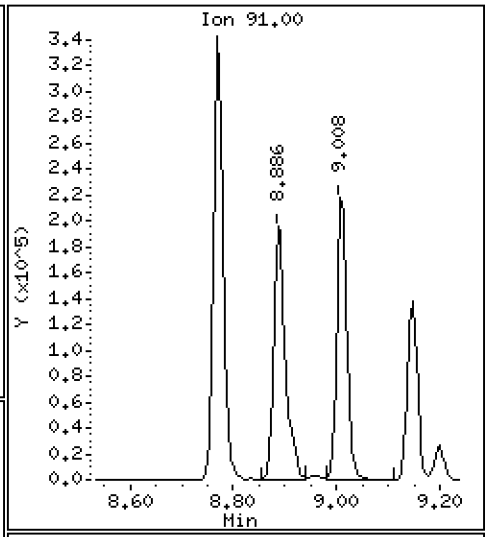
66 2-Chloro Toluene Concentration: 10.554 ug/L

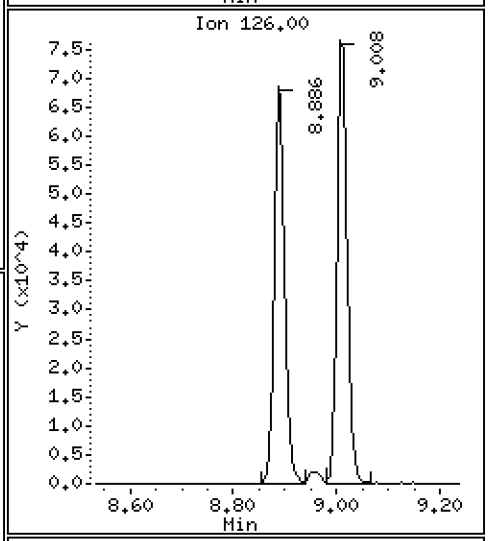


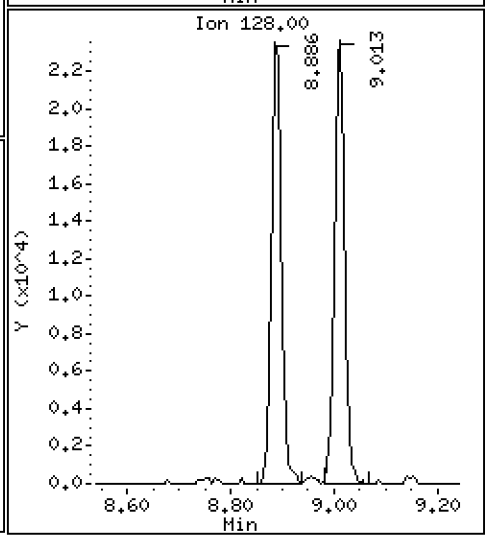












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

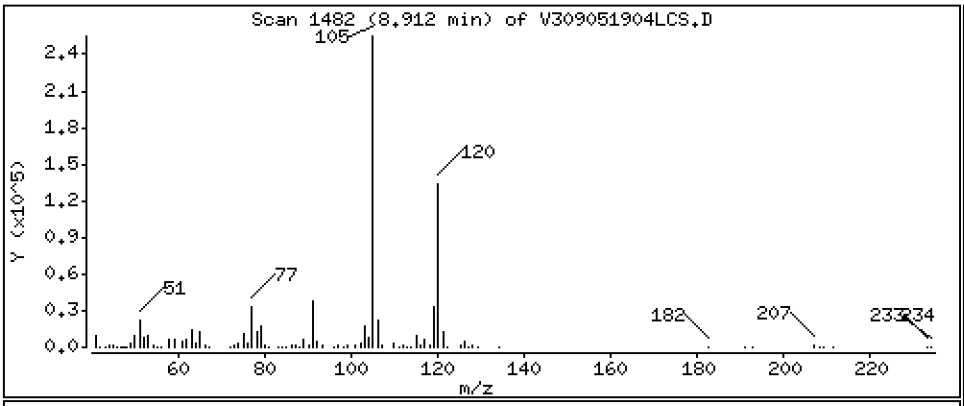
Operator: PKC

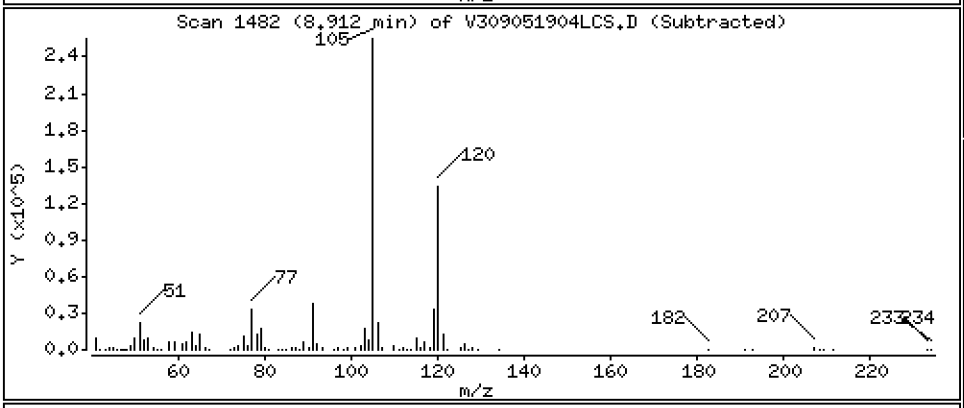
Column phase: RTXVMS

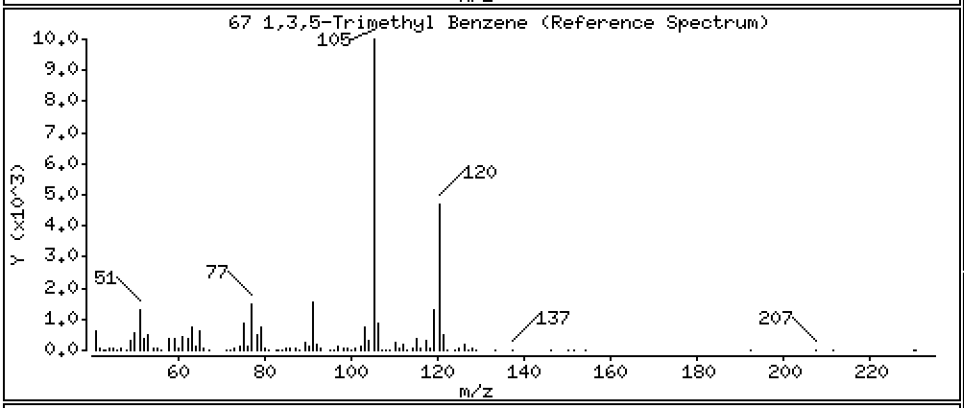
Column diameter: 0.18

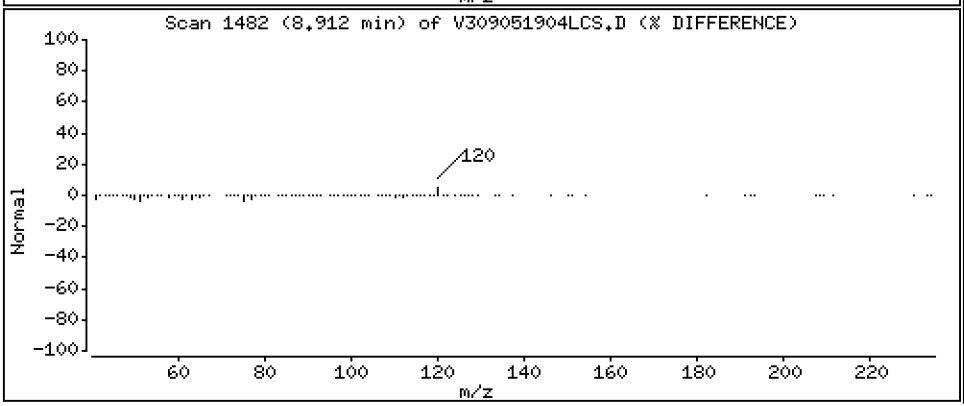
67 1,3,5-Trimethyl Benzene

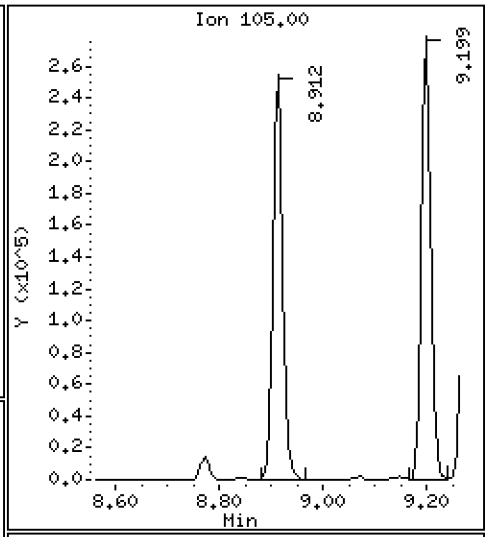
Concentration: 10.698 ug/L

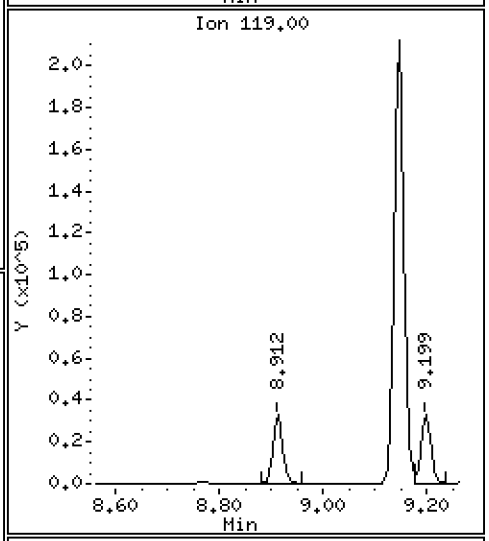


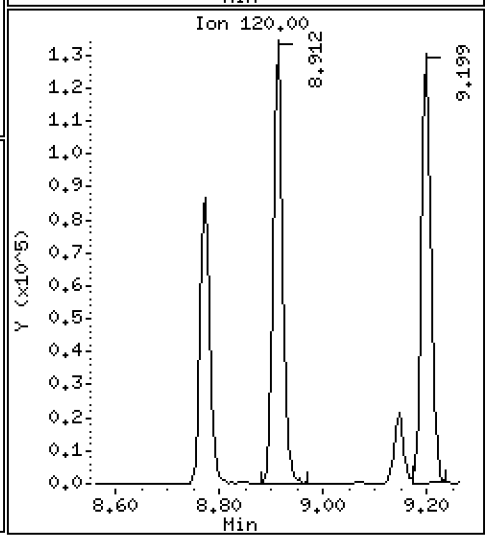












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

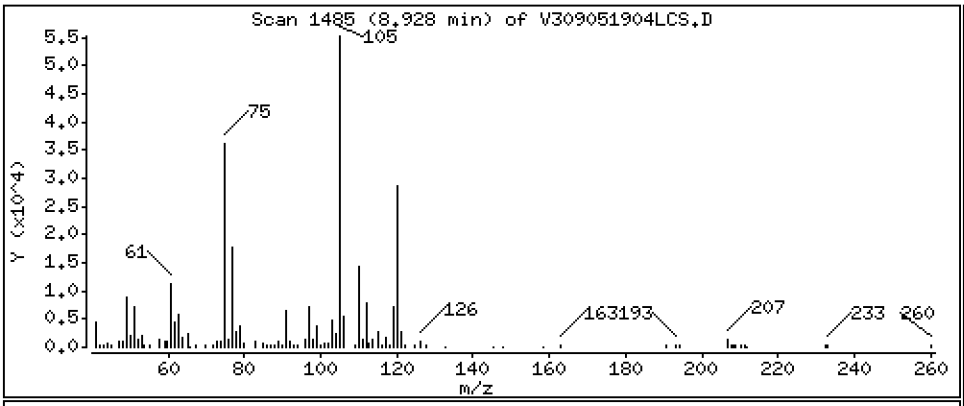
Operator: PKC

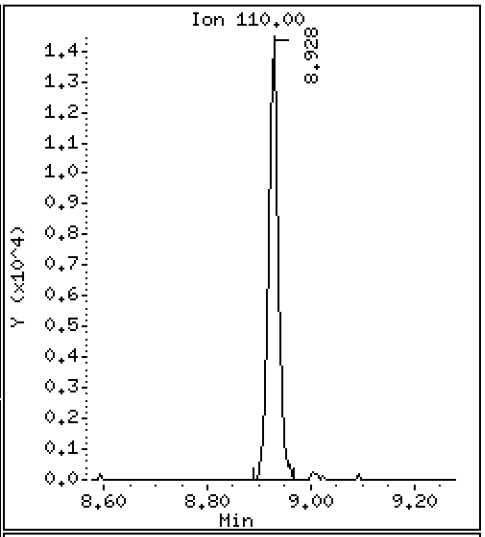
Column phase: RTXVMS

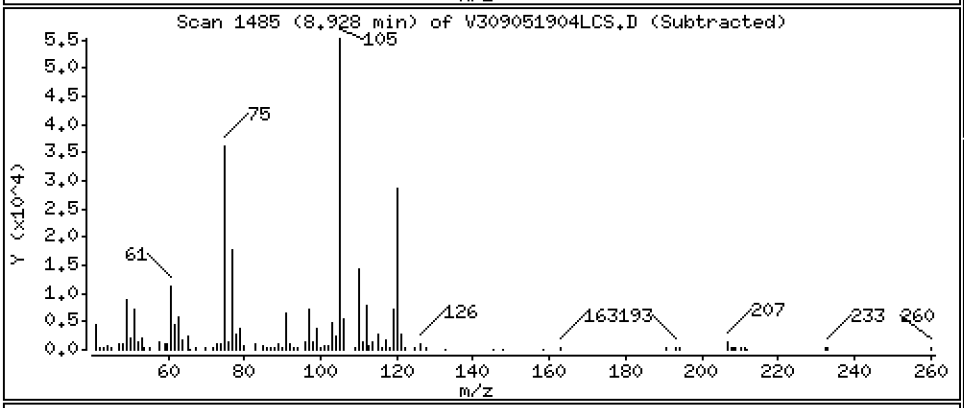
Column diameter: 0.18

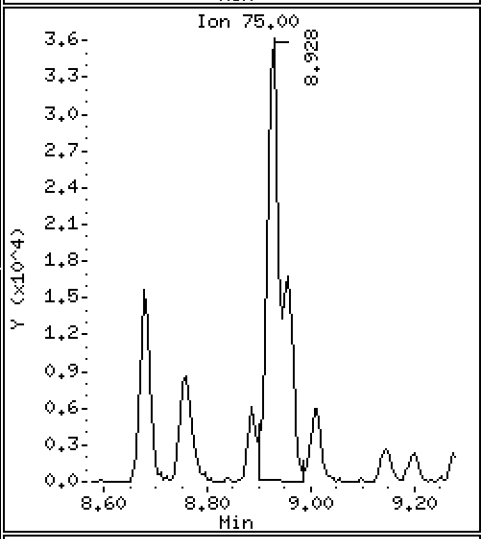
68 1,2,3-Trichloropropane

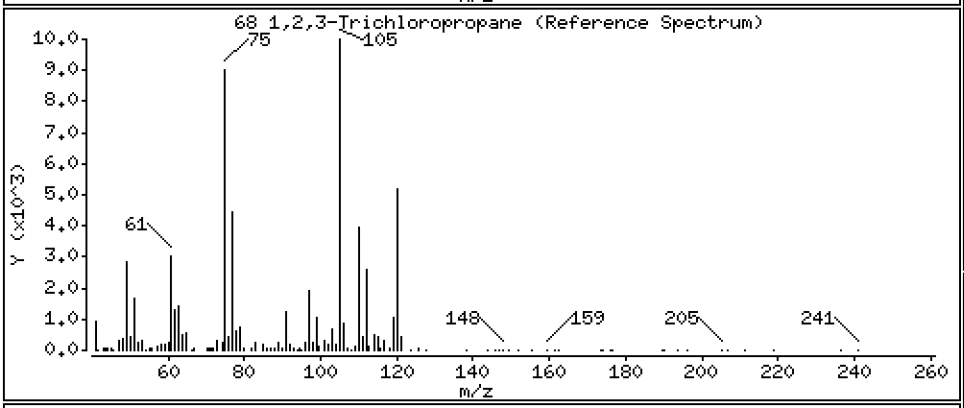
Concentration: 9.318 ug/L

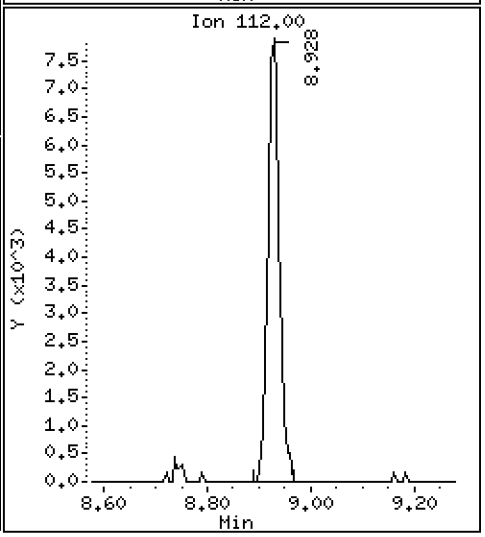


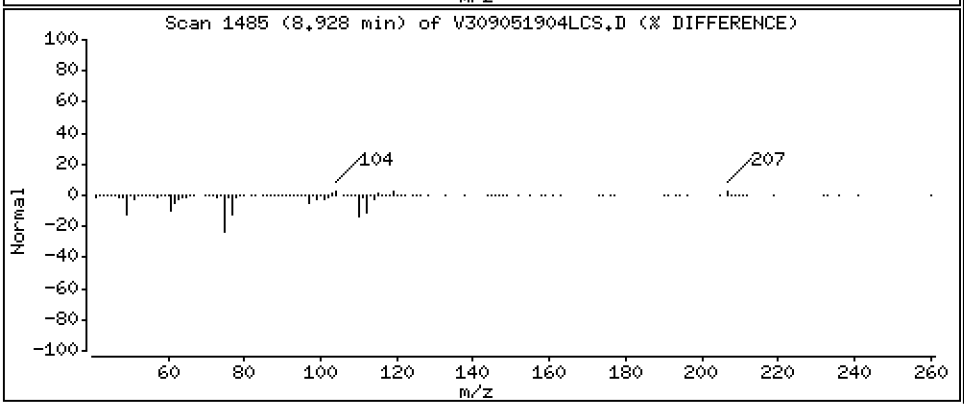












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

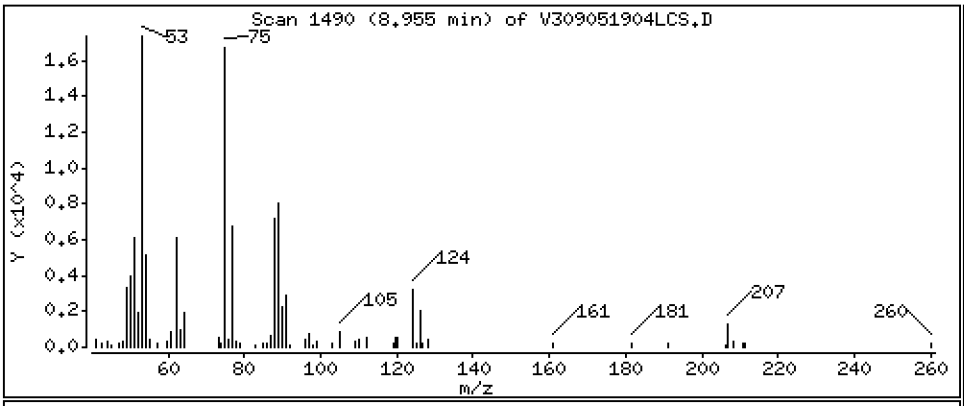
Operator: PKC

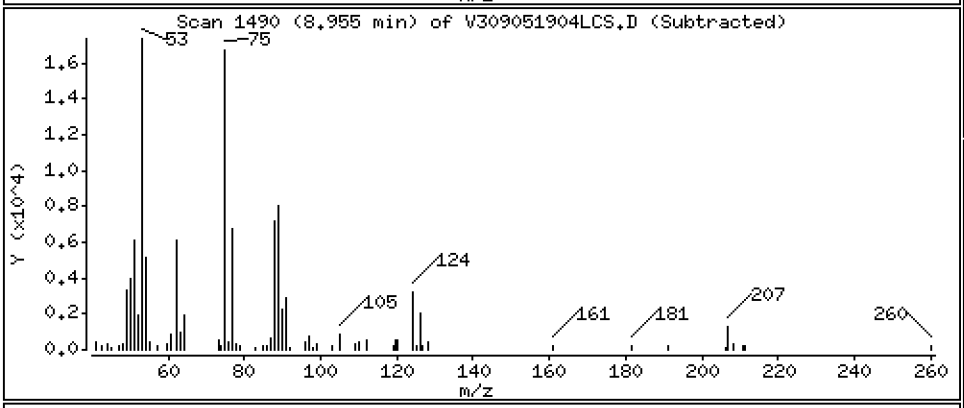
Column phase: RTXVMS

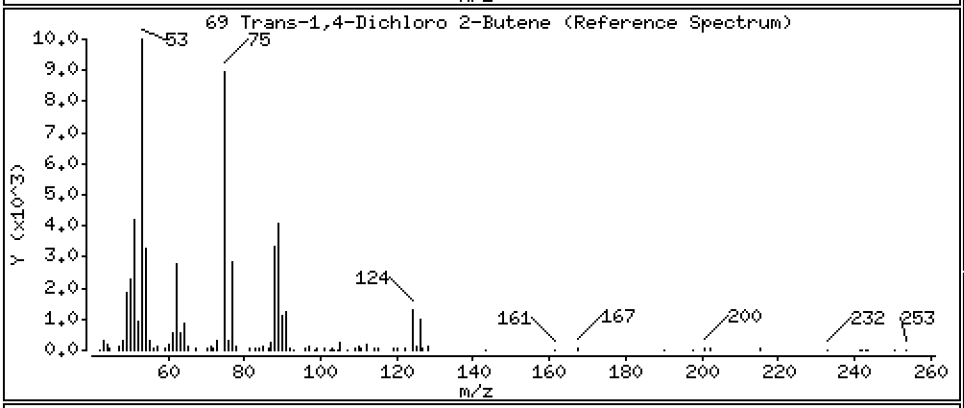
Column diameter: 0.18

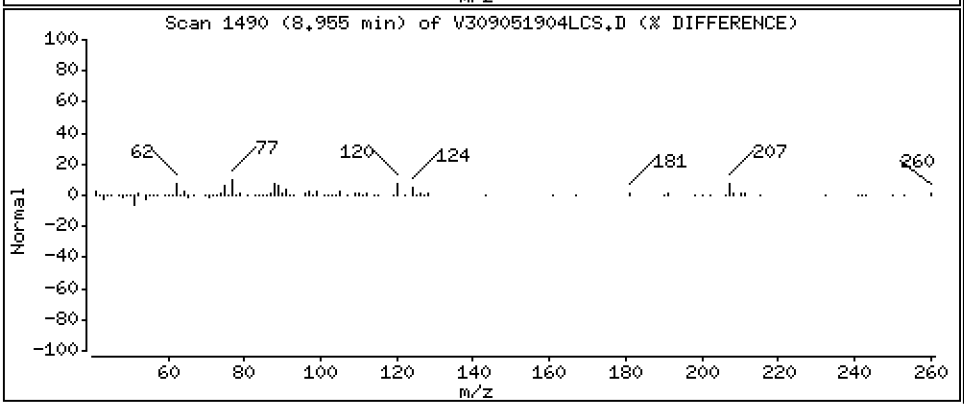
69 Trans-1,4-Dichloro 2-Butene

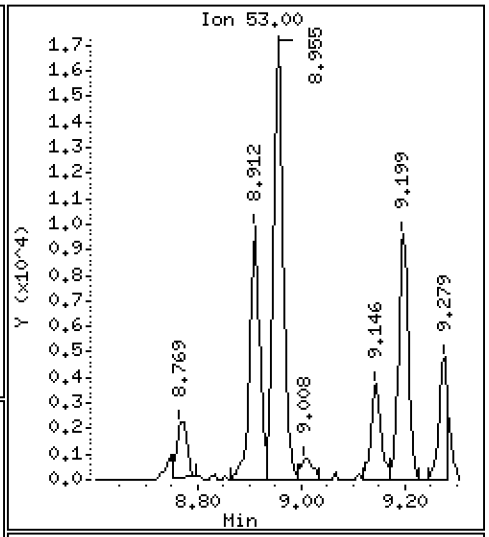
Concentration: 10.496 ug/L

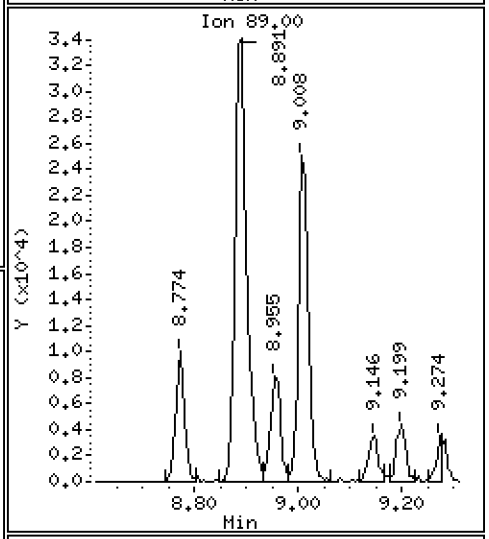


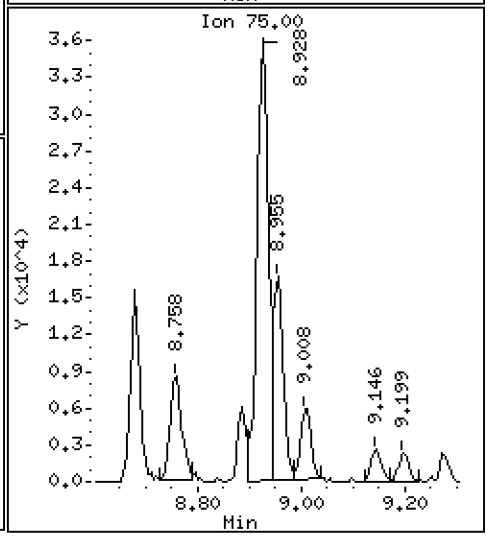












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

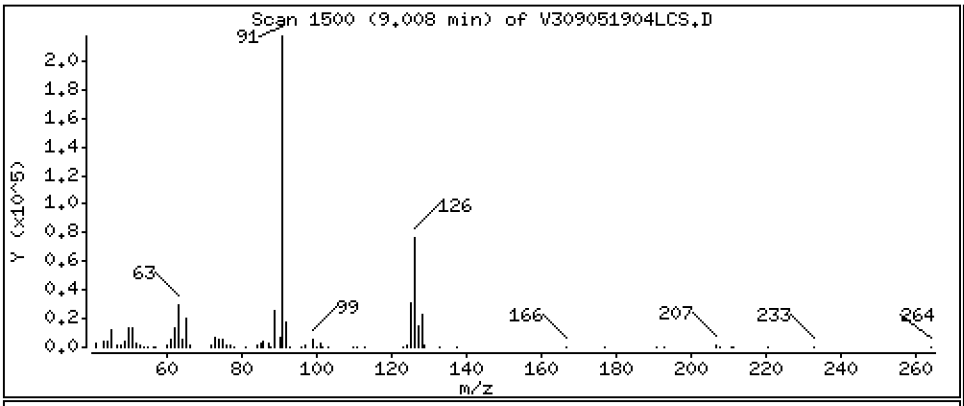
Operator: PKC

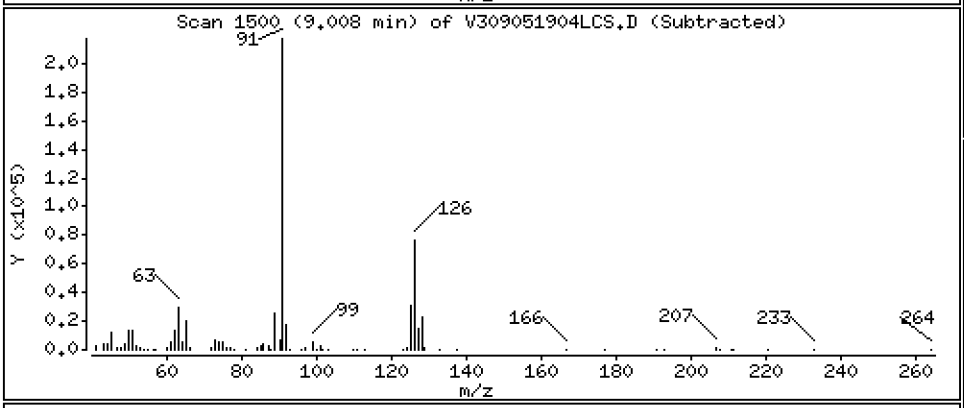
Column phase: RTXVMS

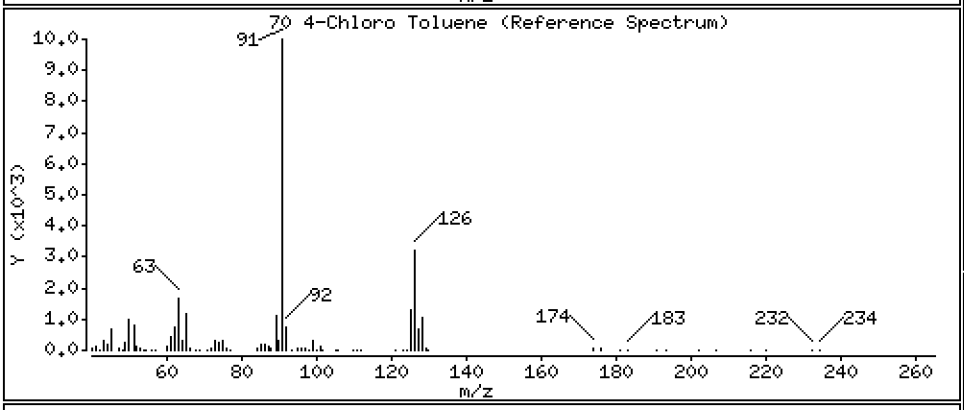
Column diameter: 0.18

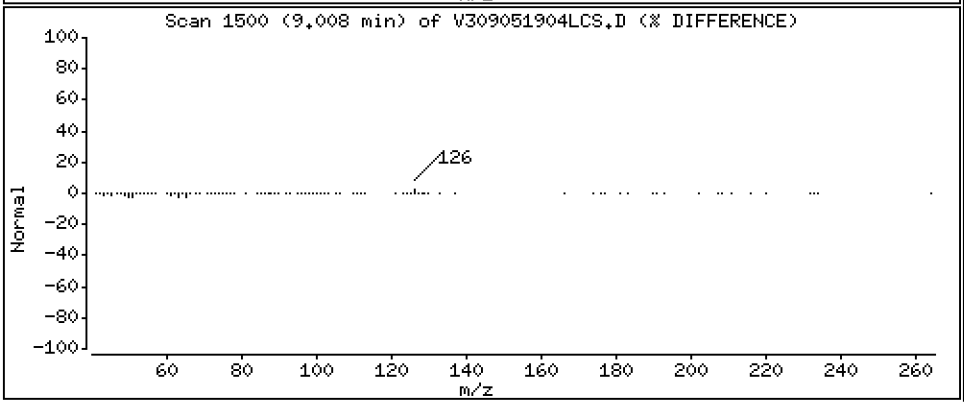
70 4-Chloro Toluene

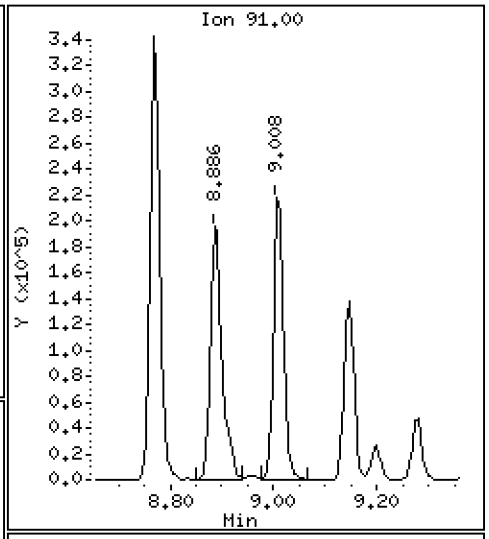
Concentration: 10.874 ug/L

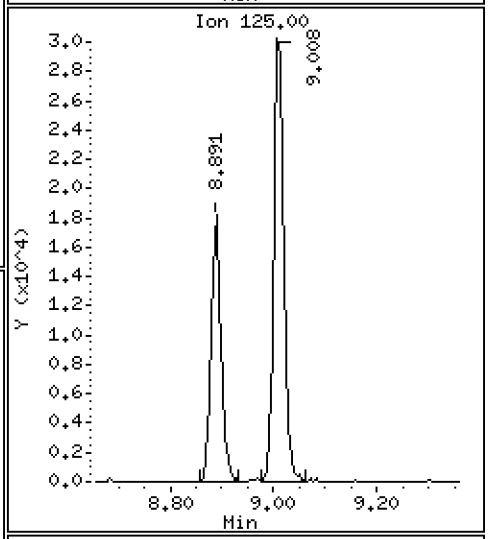


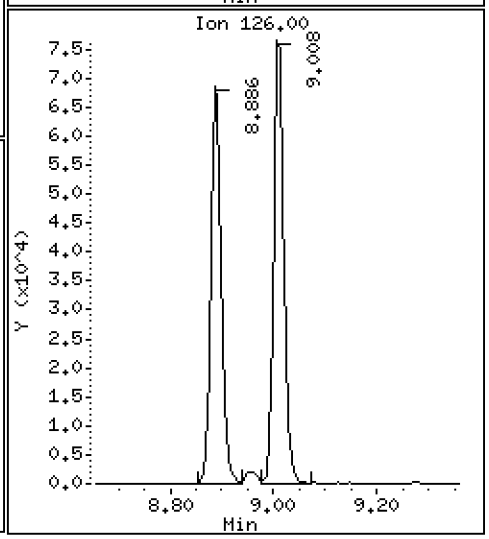












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

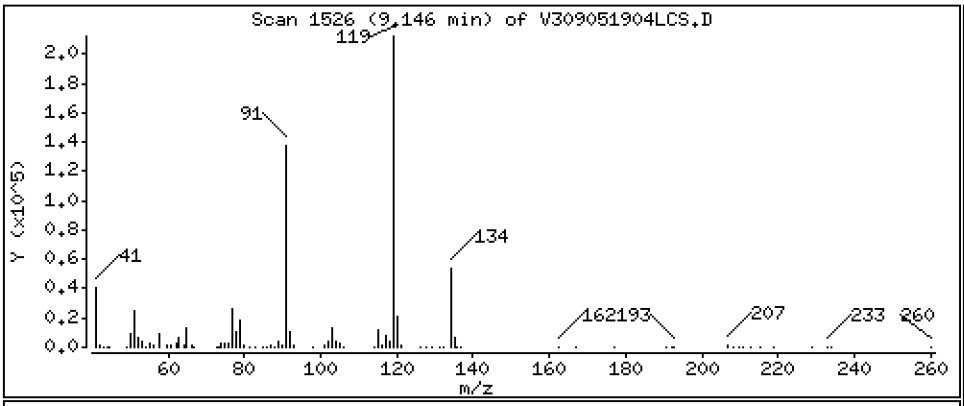
Operator: PKC

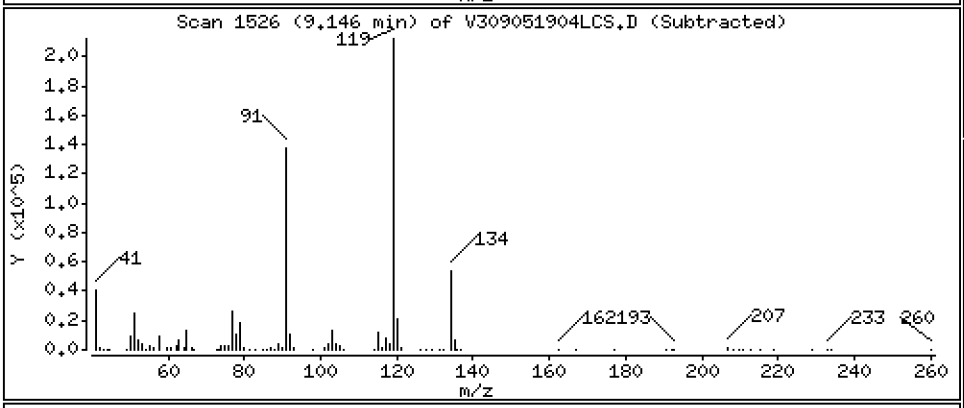
Column phase: RTXVMS

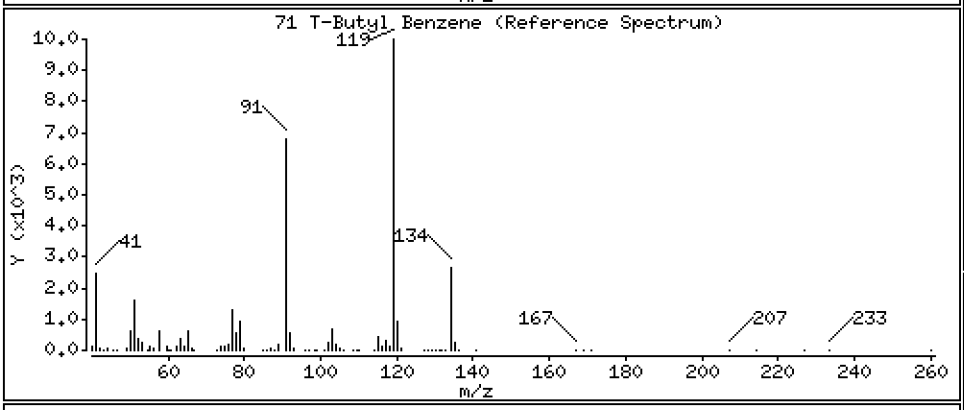
Column diameter: 0.18

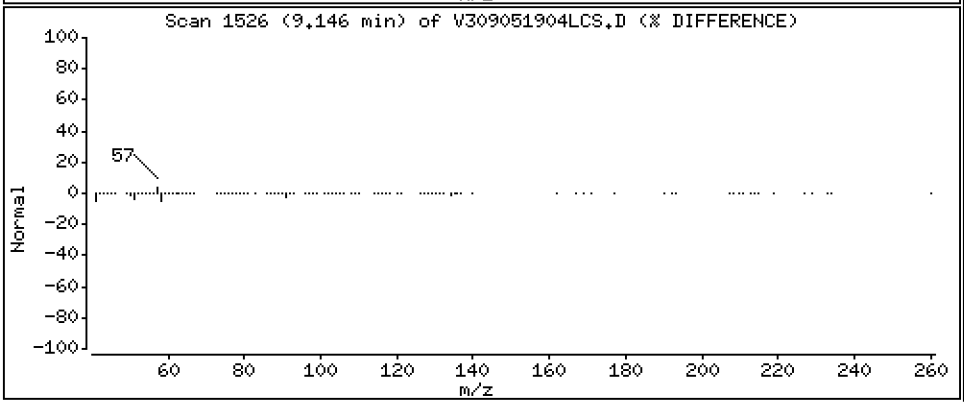
71 T-Butyl Benzene

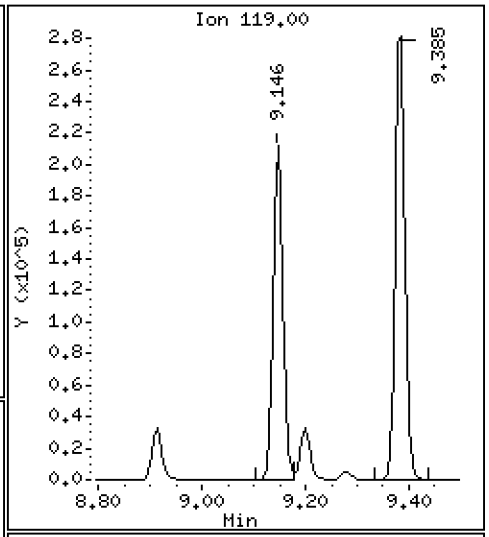
Concentration: 10.689 ug/L

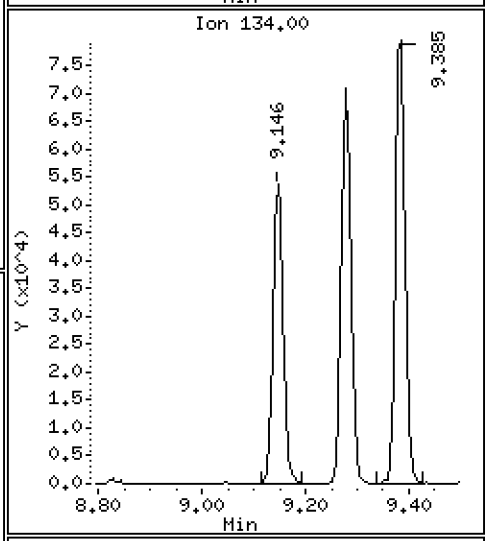


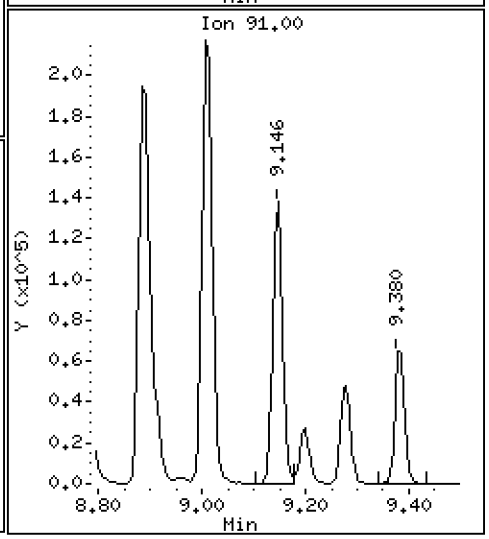












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

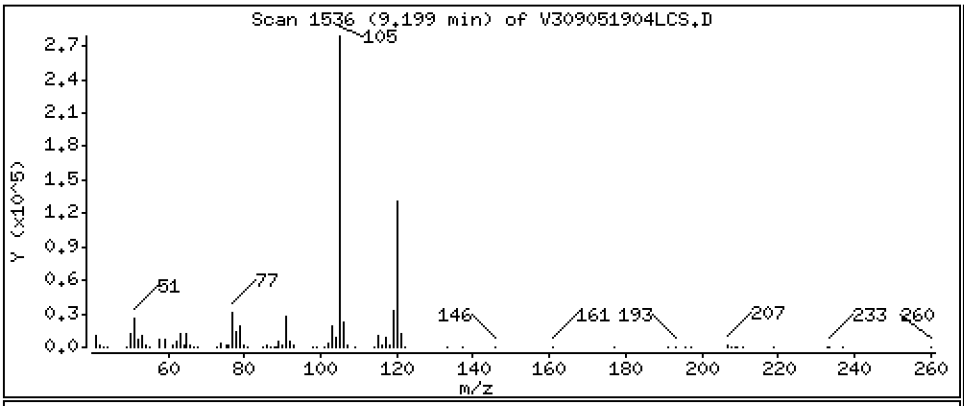
Operator: PKC

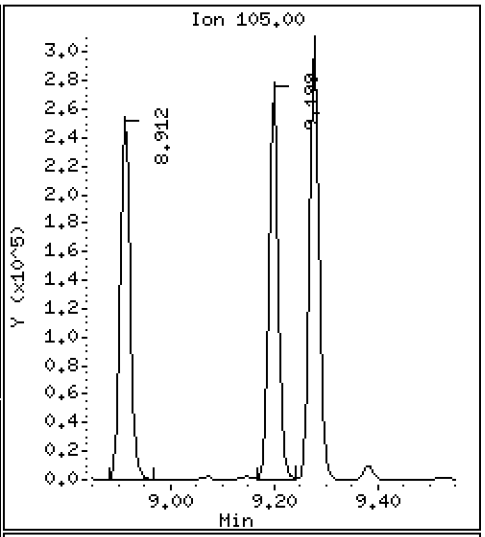
Column phase: RTXVMS

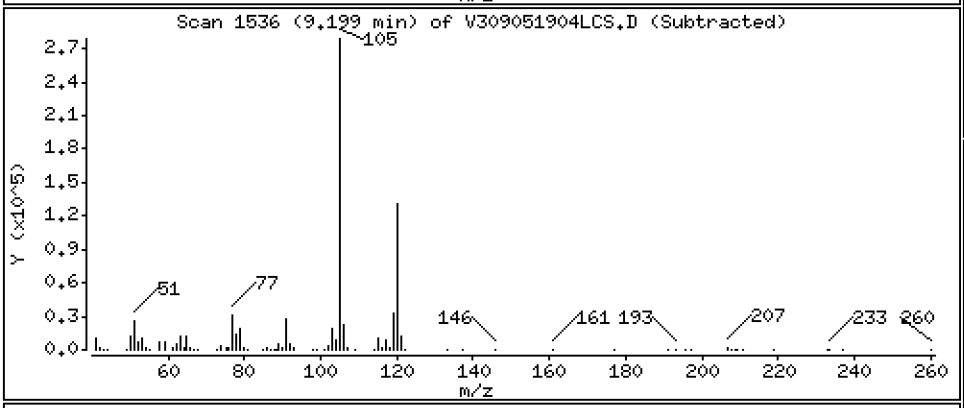
Column diameter: 0.18

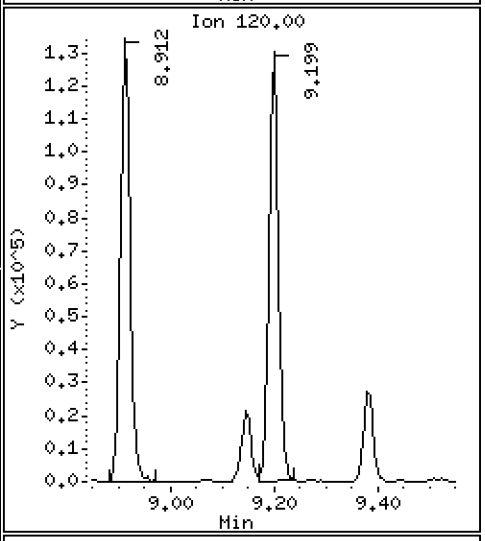
72 1,2,4-Trimethylbenzene

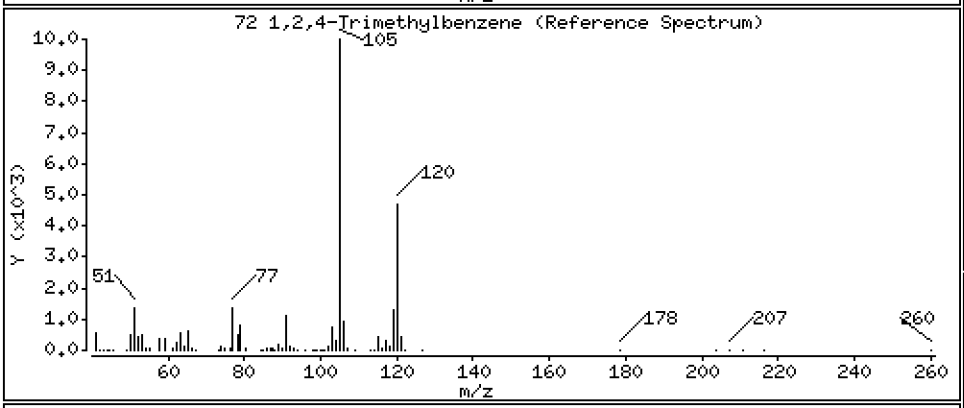
Concentration: 10.931 ug/L

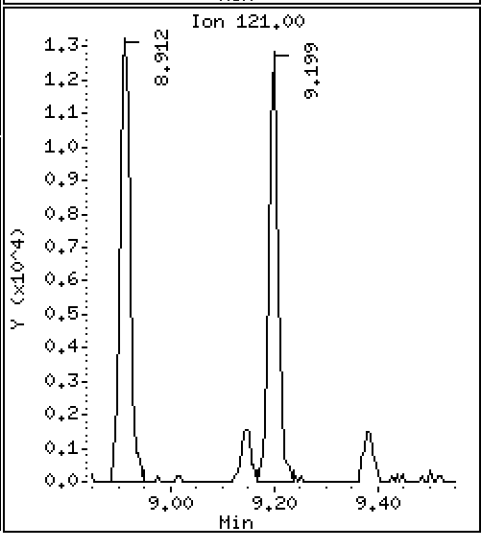


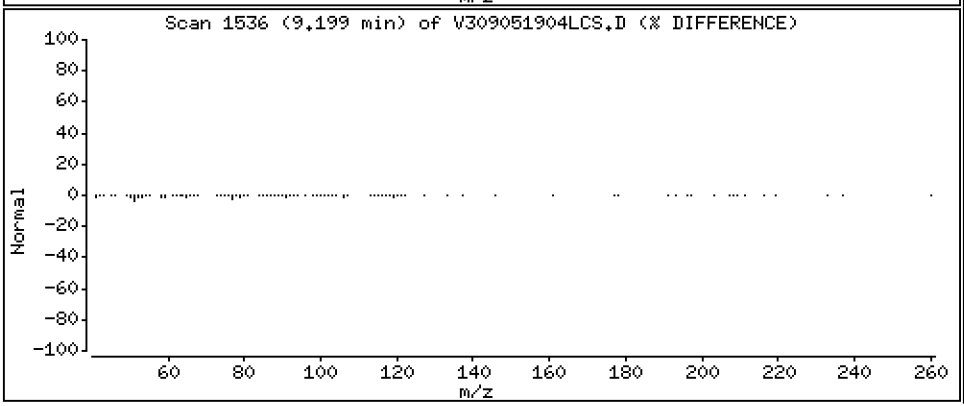












Date : 05-SEP-2019 12:30

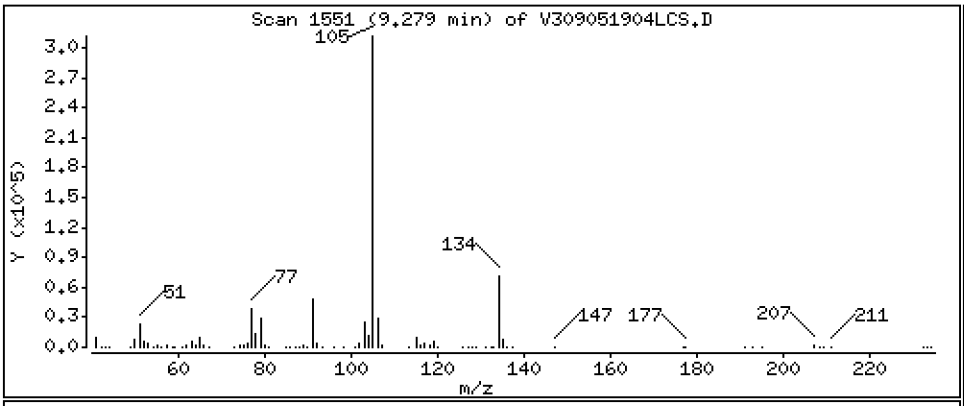
Client ID: Instrument: nt3.i

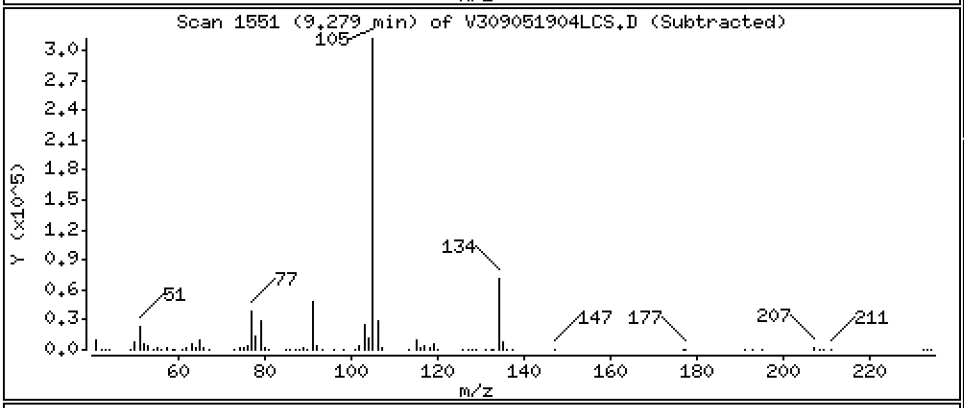
Sample Info: BHI0133-BS1

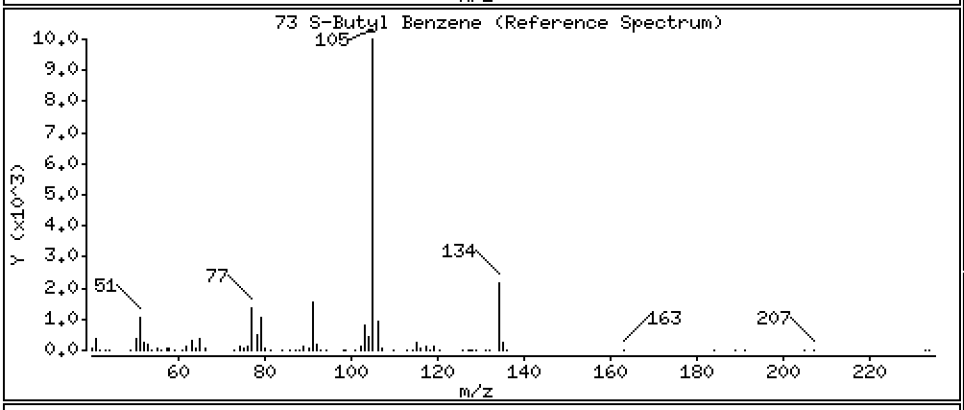
Operator: PKC

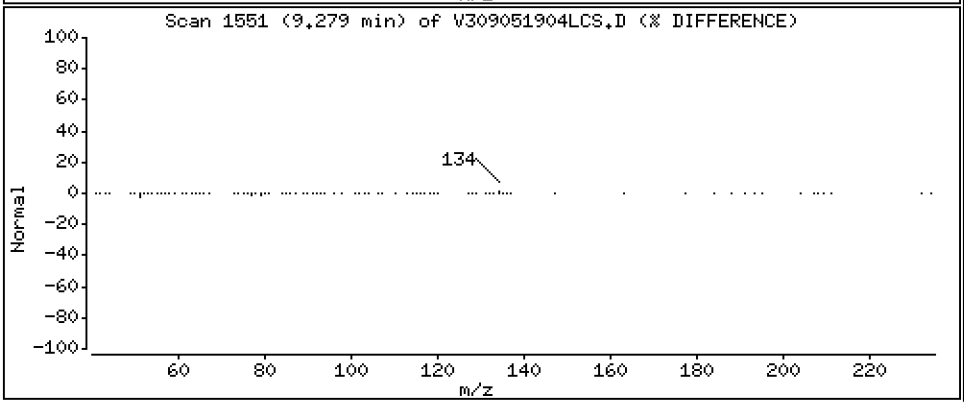
Column phase: RTXVMS Column diameter: 0.18

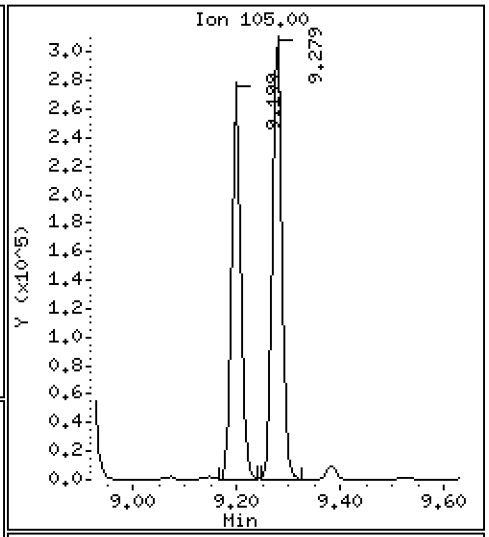
73 S-Butyl Benzene Concentration: 10.971 ug/L

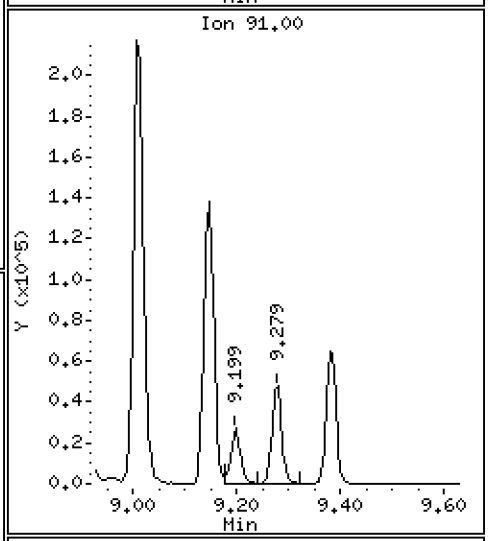


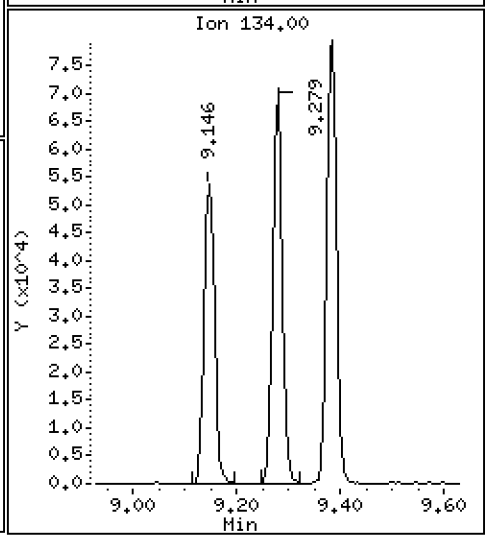












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

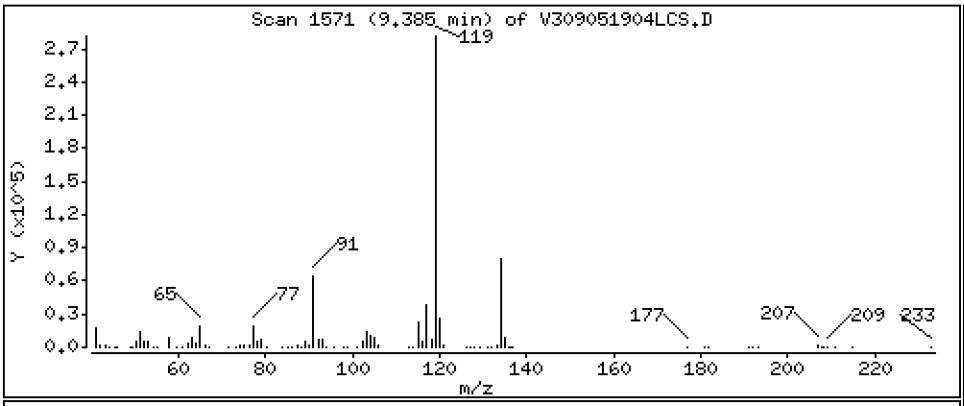
Operator: PKC

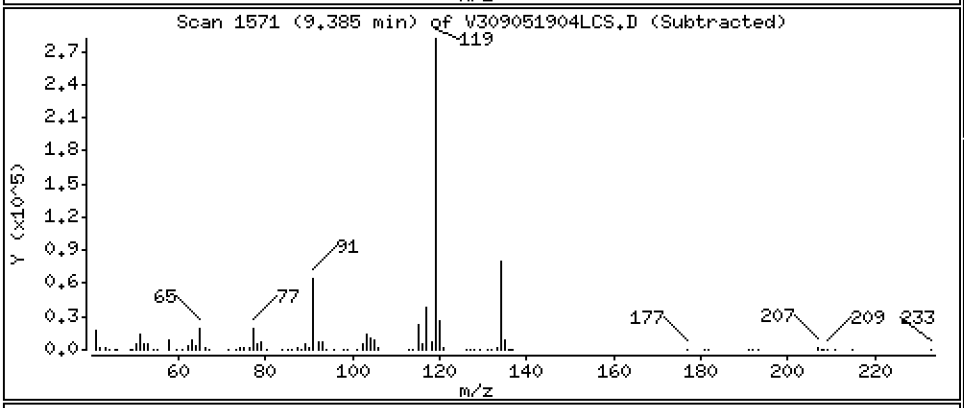
Column phase: RTXVMS

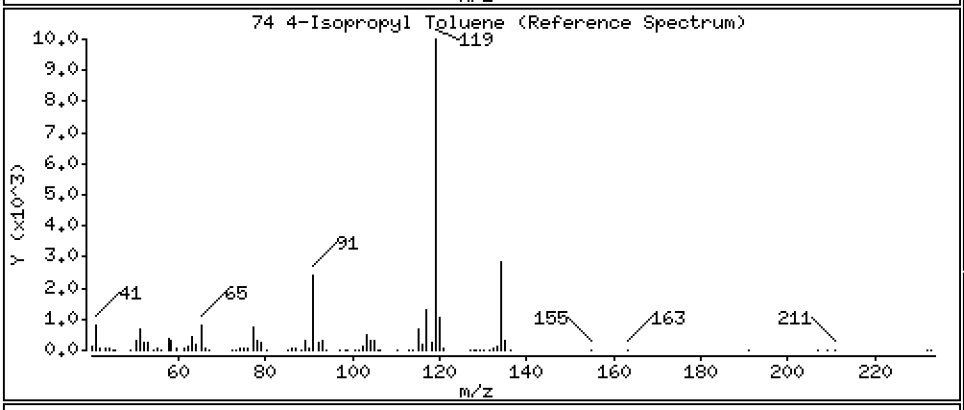
Column diameter: 0.18

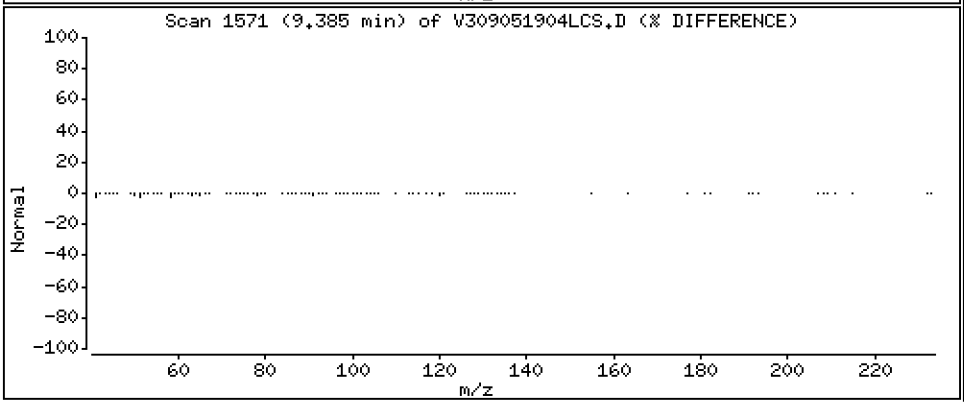
74 4-Isopropyl Toluene

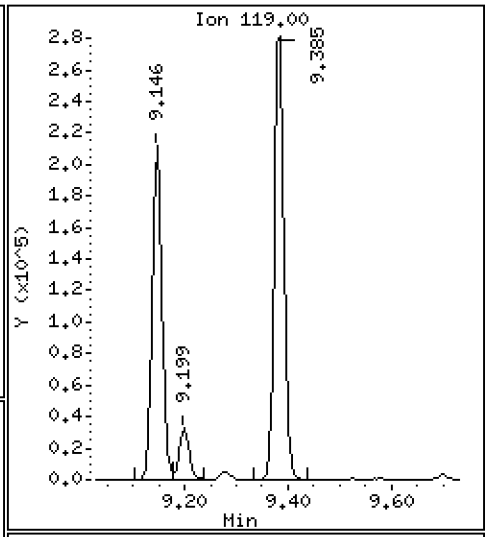
Concentration: 11.010 ug/L

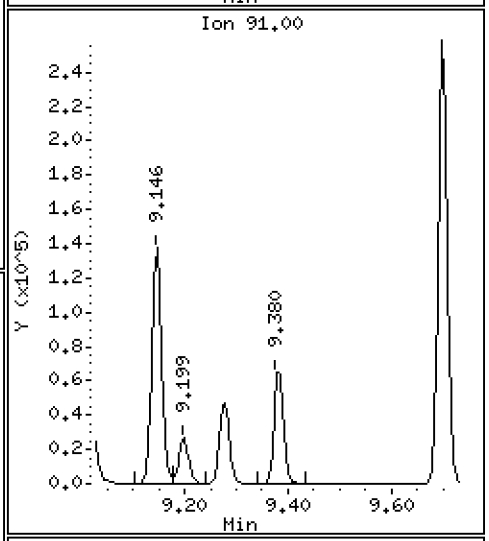


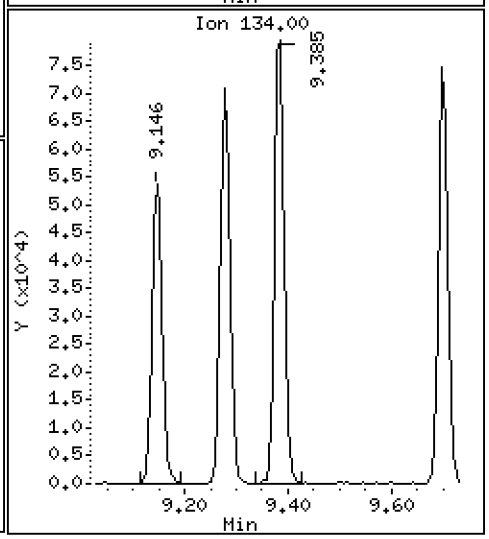












Date : 05-SEP-2019 12:30

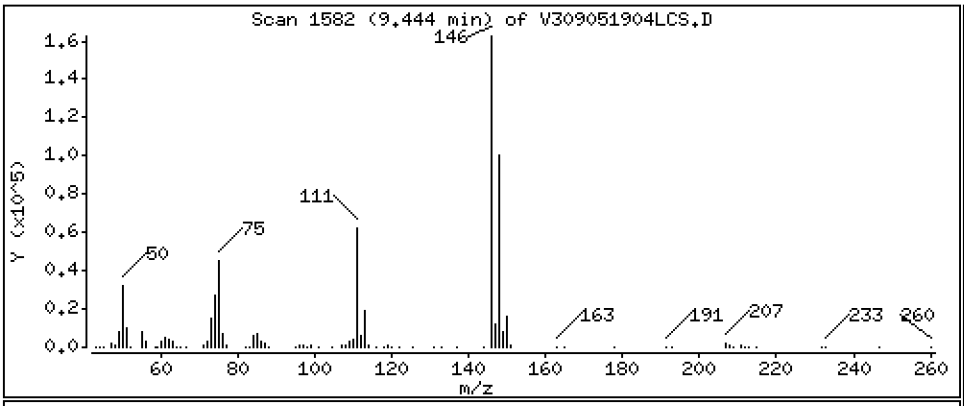
Client ID: Instrument: nt3.i

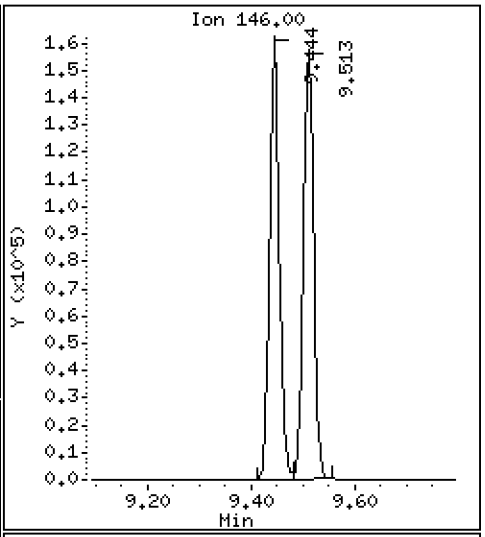
Sample Info: BHI0133-BS1

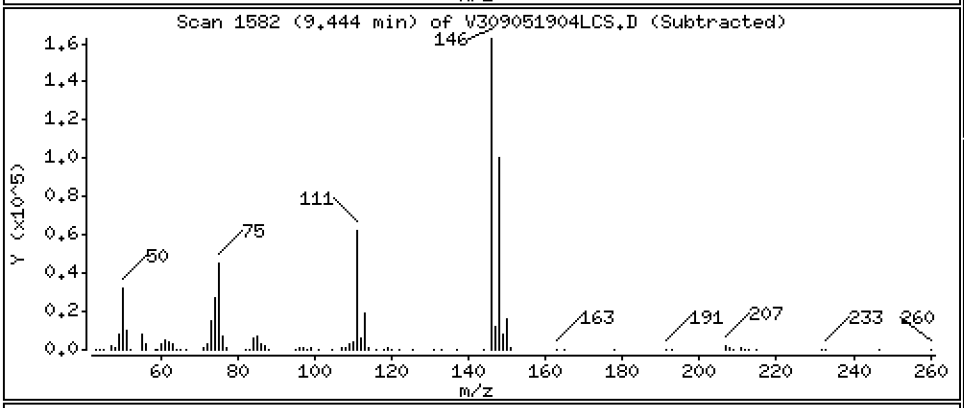
Operator: PKC

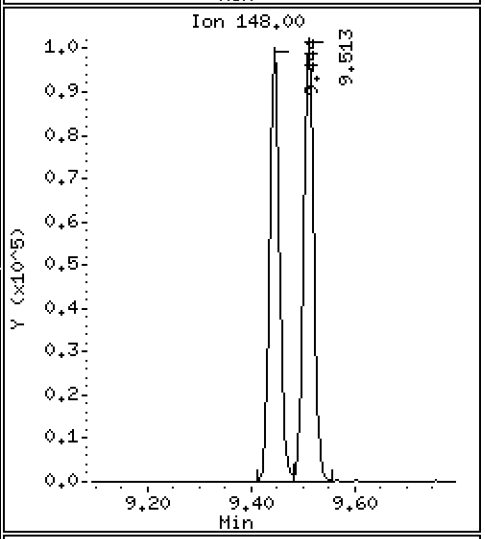
Column phase: RTXVMS Column diameter: 0.18

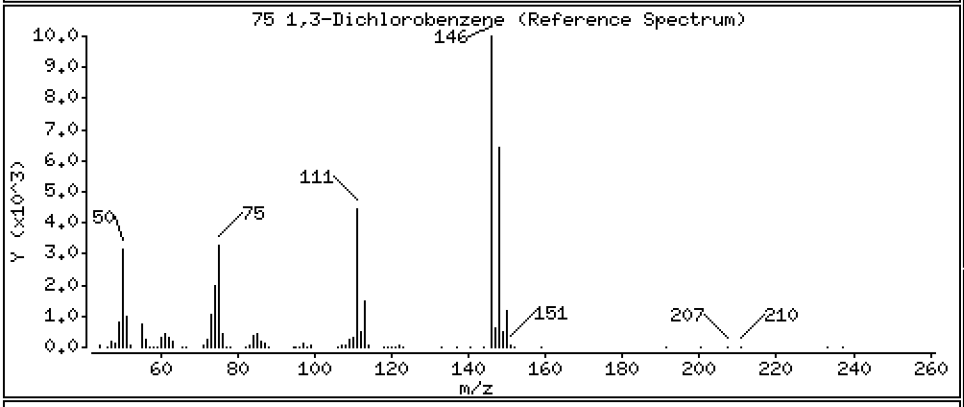
75 1,3-Dichlorobenzene Concentration: 10.512 ug/L

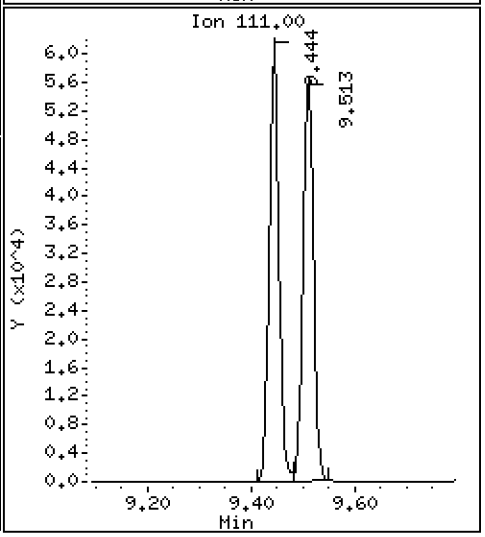


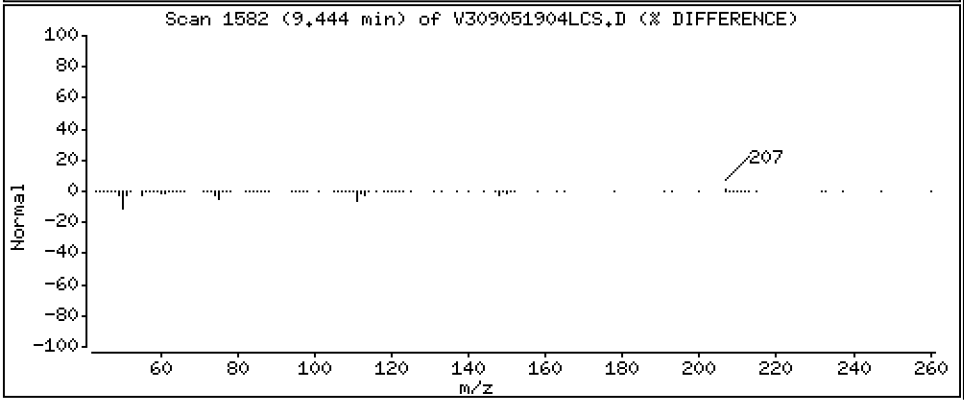












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904LCS.D

Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

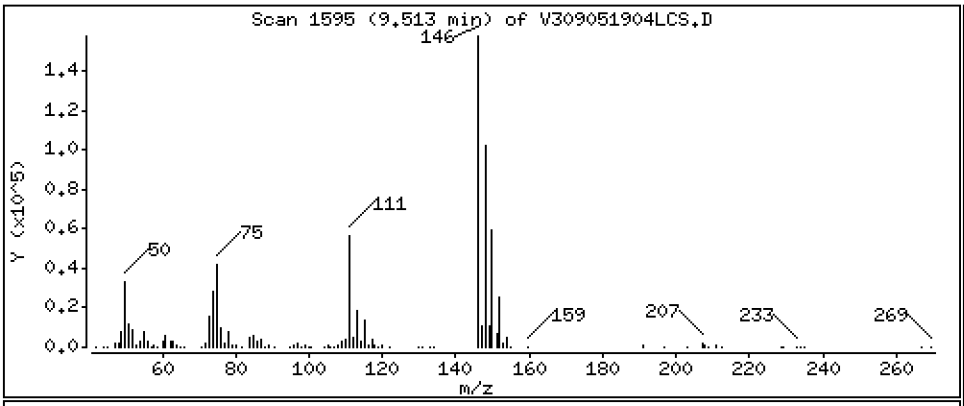
Operator: PKC

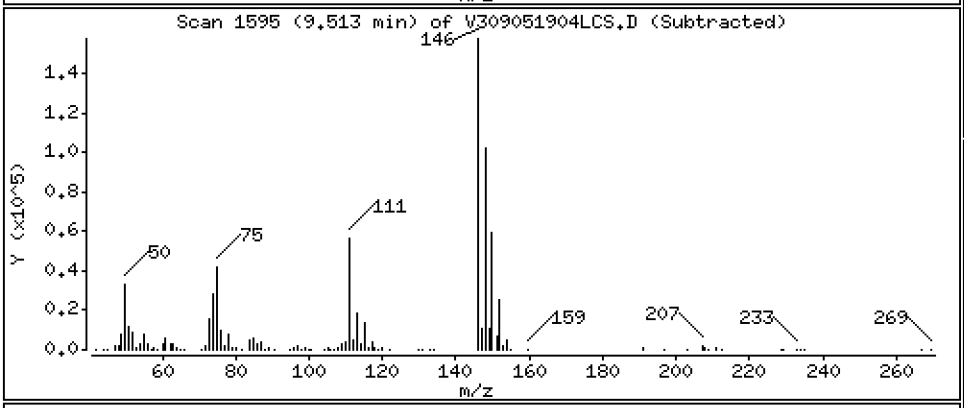
Column phase: RTXVMS

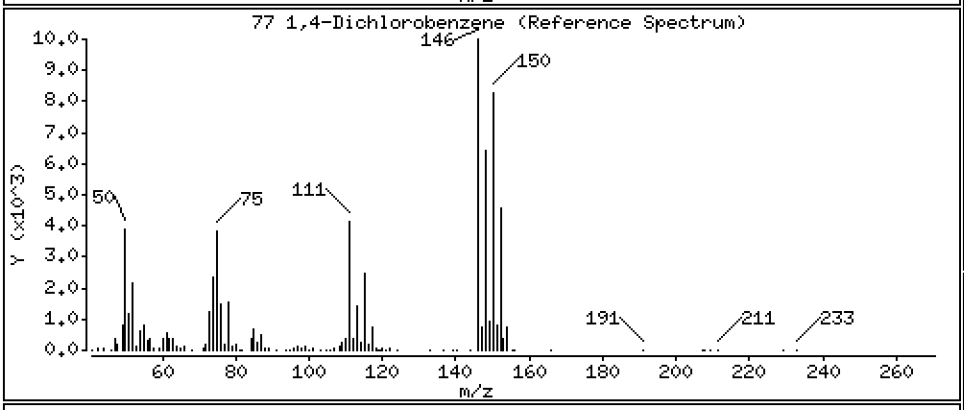
Column diameter: 0.18

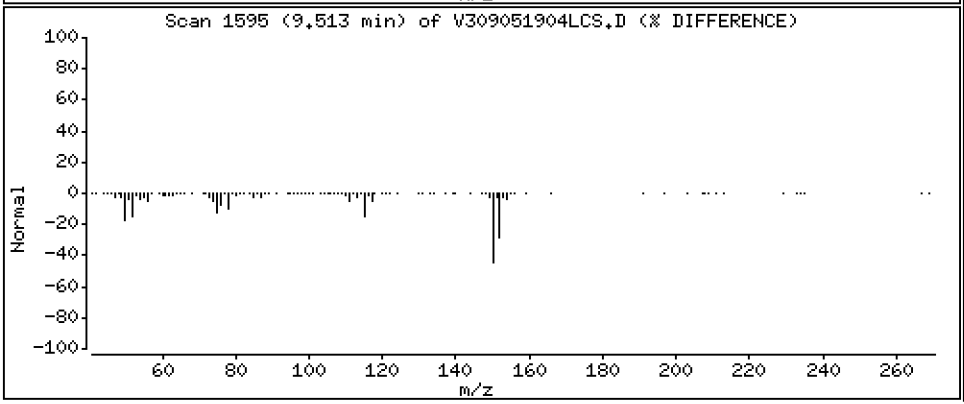
77 1,4-Dichlorobenzene

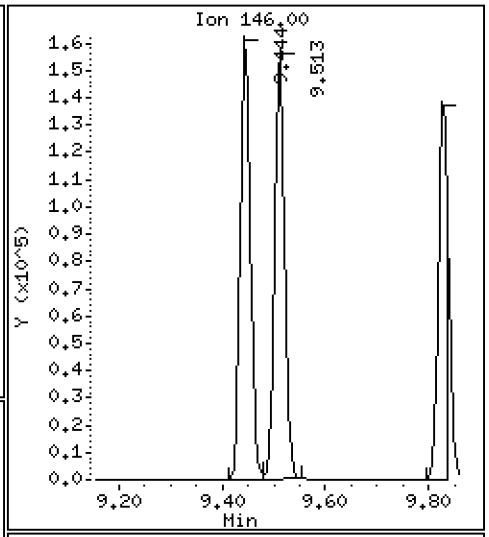
Concentration: 10.490 ug/L

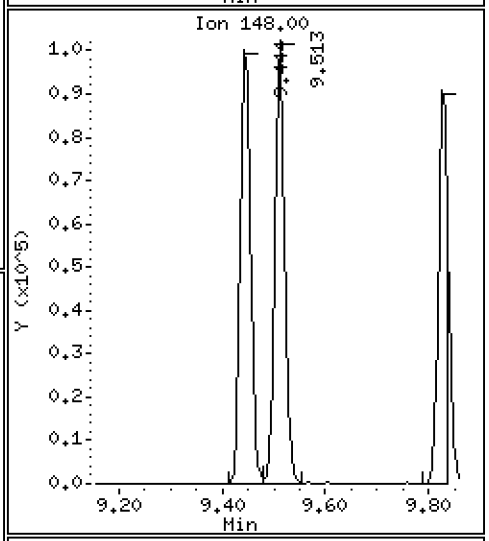


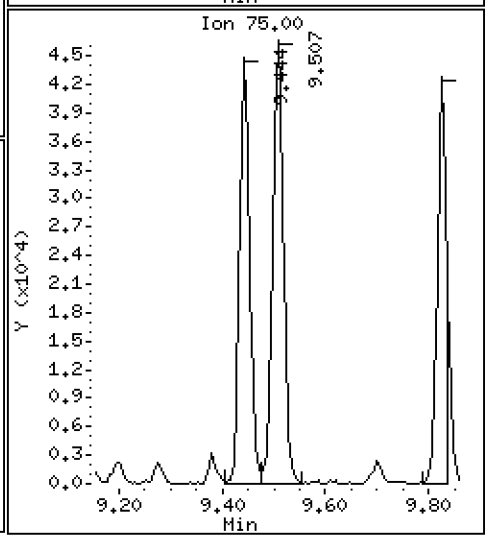












Date : 05-SEP-2019 12:30

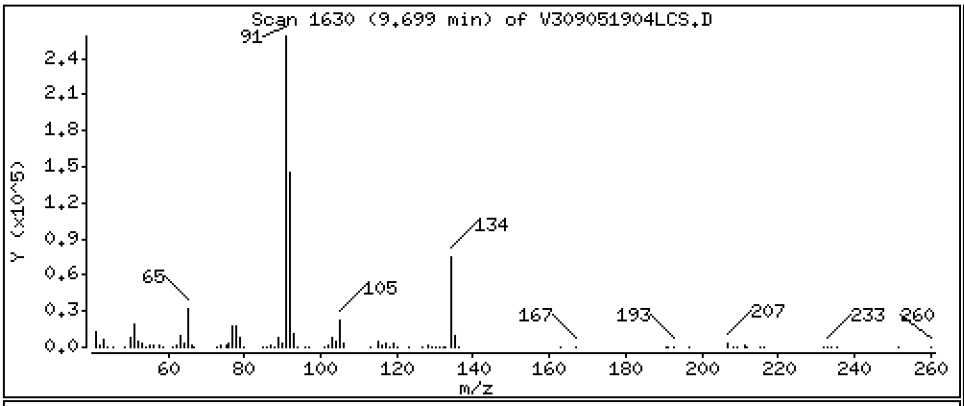
Client ID: Instrument: nt3.i

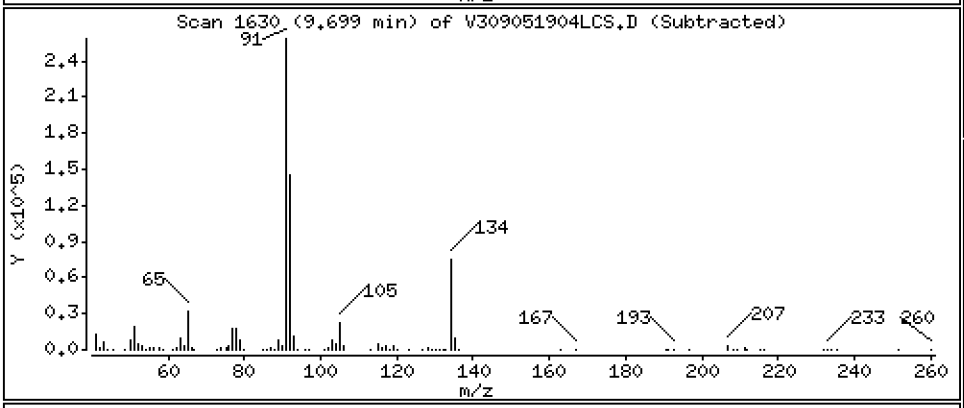
Sample Info: BHI0133-BS1

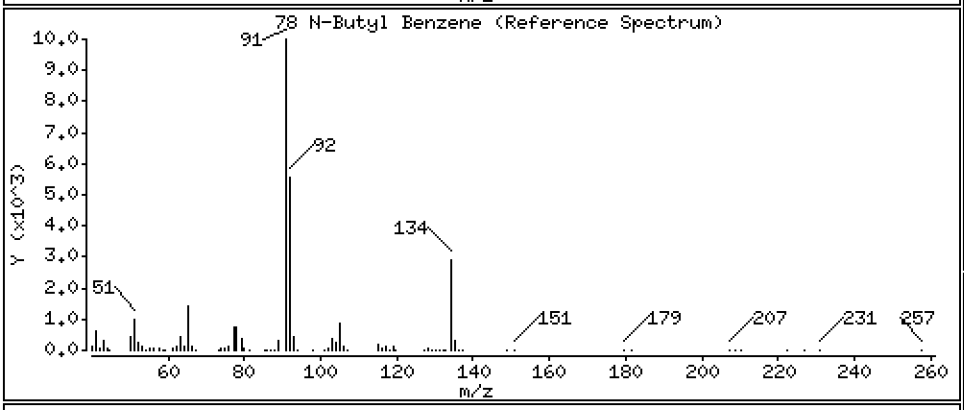
Operator: PKC

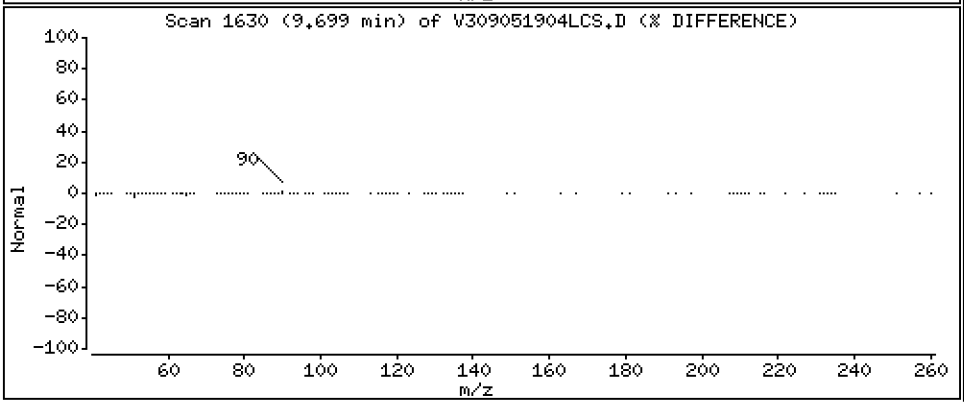
Column phase: RTXVMS Column diameter: 0.18

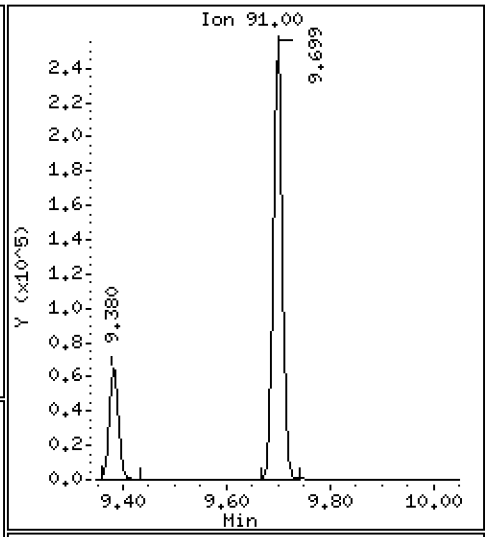
78 N-Butyl Benzene Concentration: 11.137 ug/L

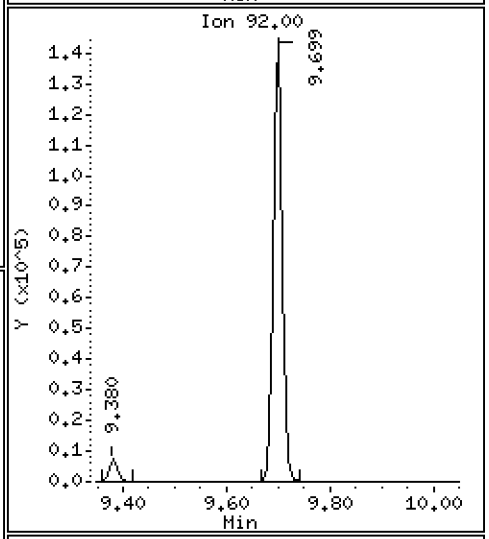


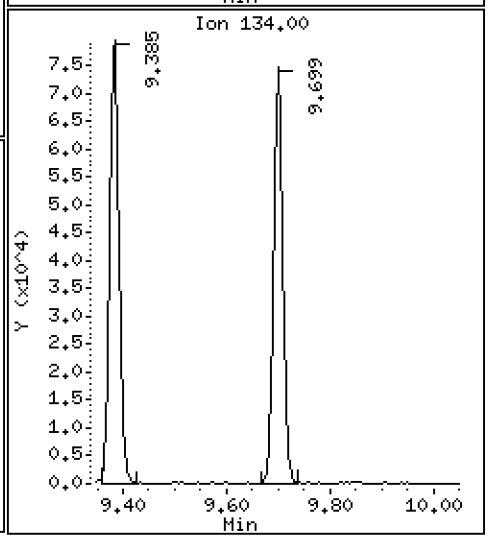












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

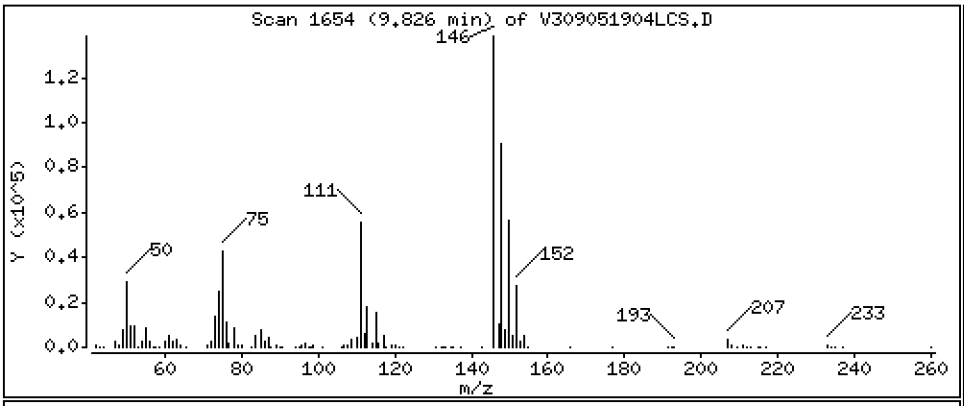
Operator: PKC

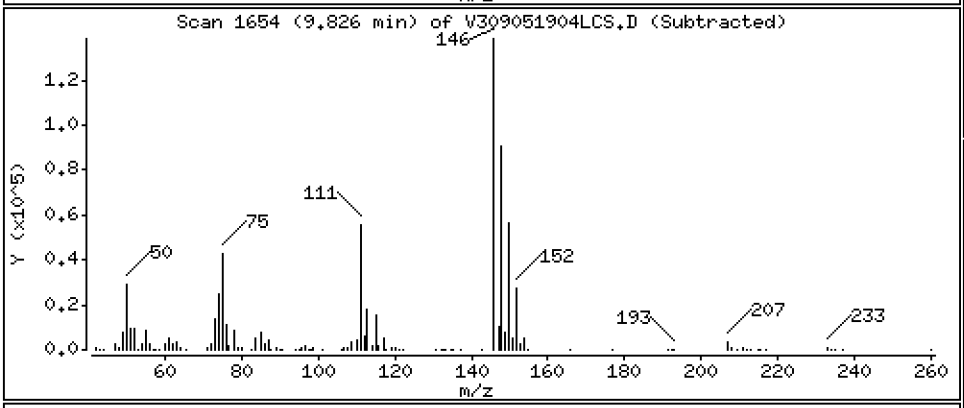
Column phase: RTXVMS

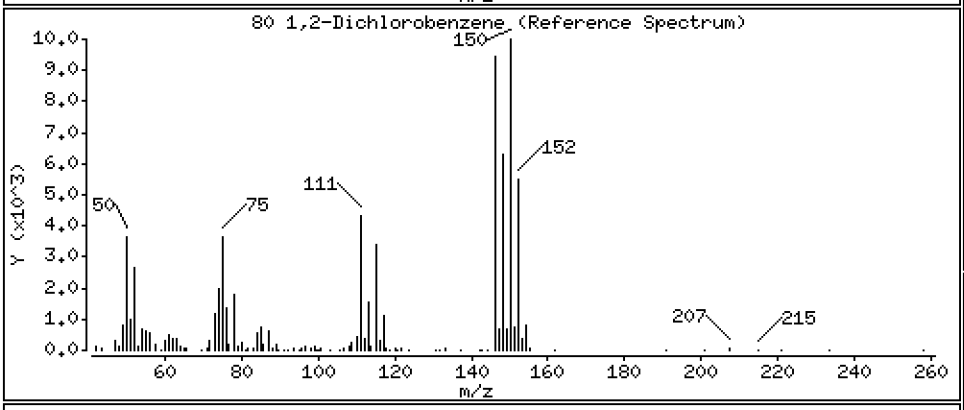
Column diameter: 0.18

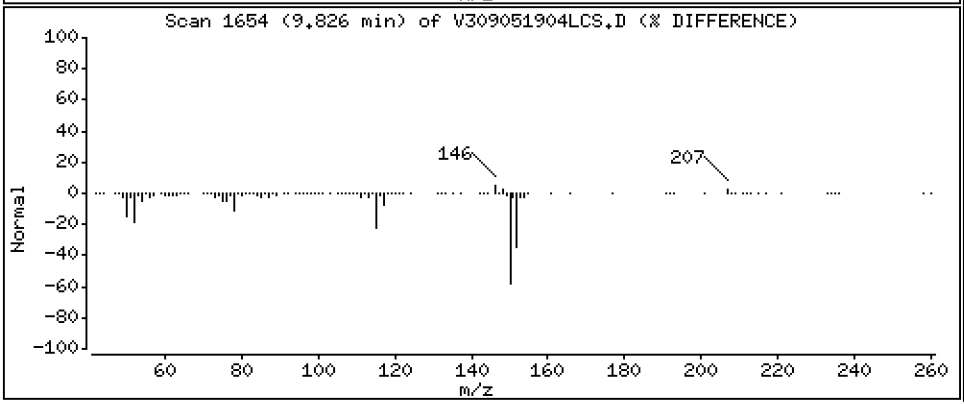
80 1,2-Dichlorobenzene

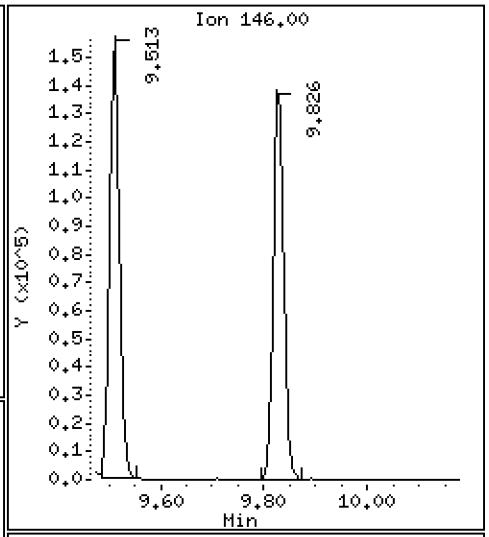
Concentration: 10.269 ug/L

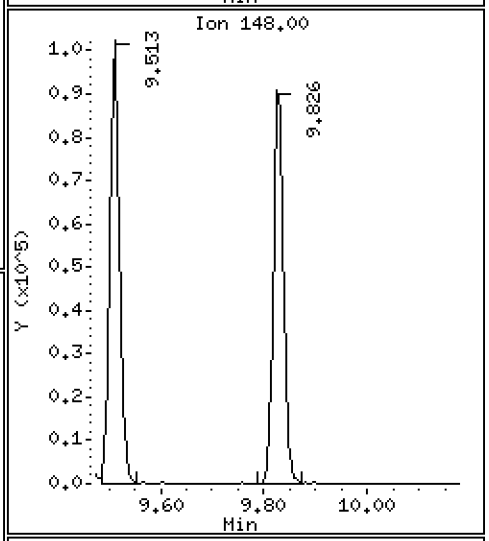


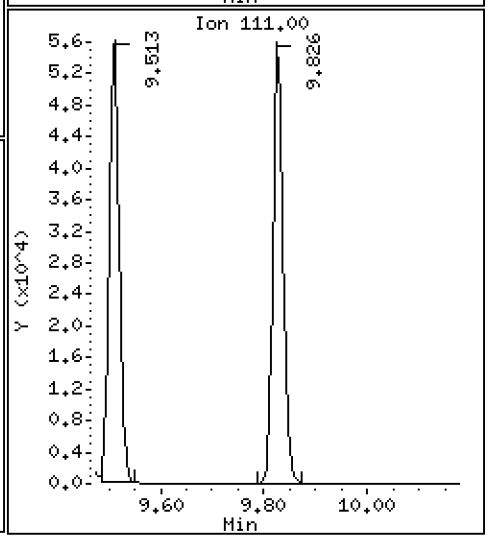












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

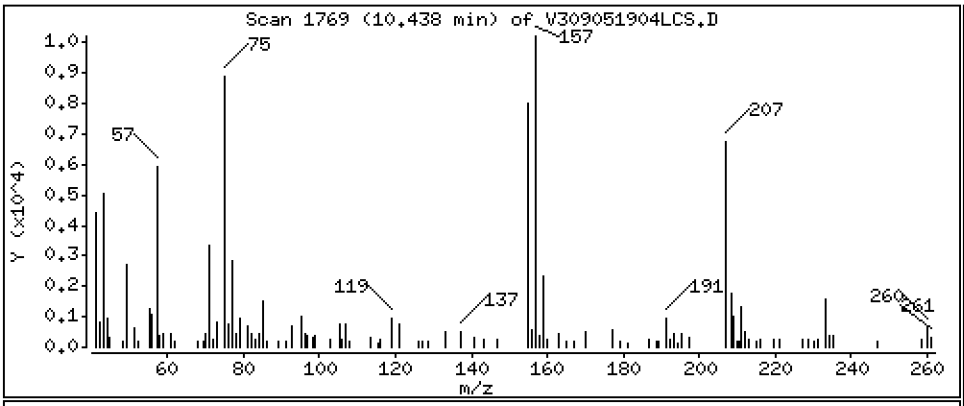
Operator: PKC

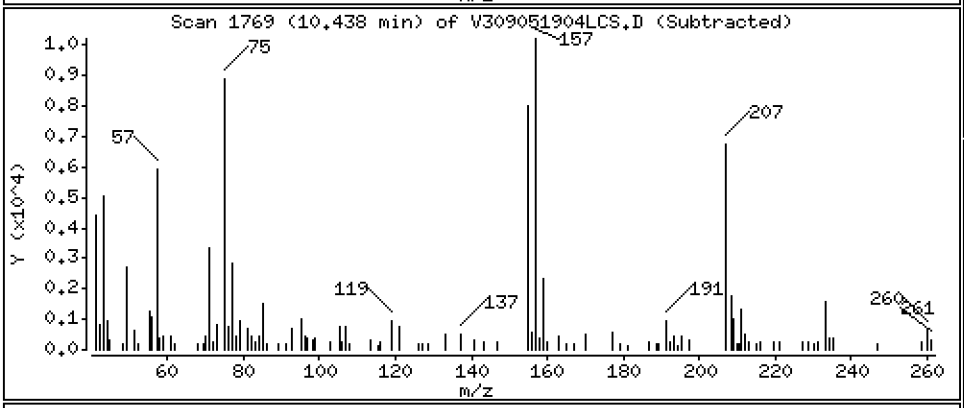
Column phase: RTXVMS

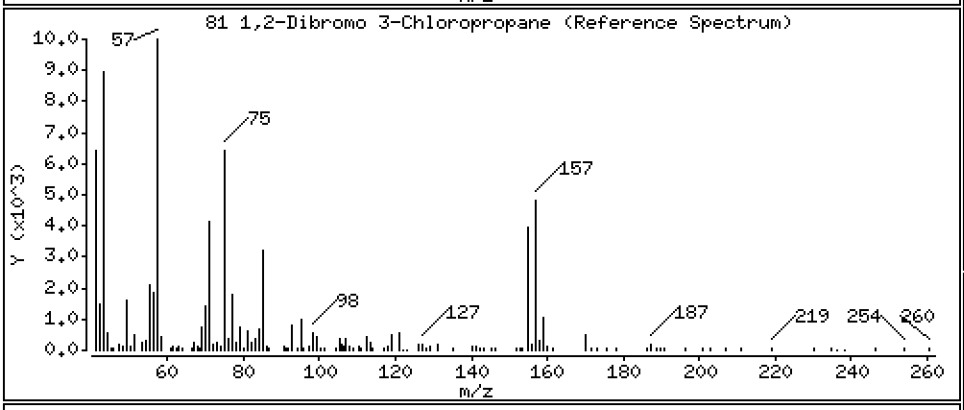
Column diameter: 0.18

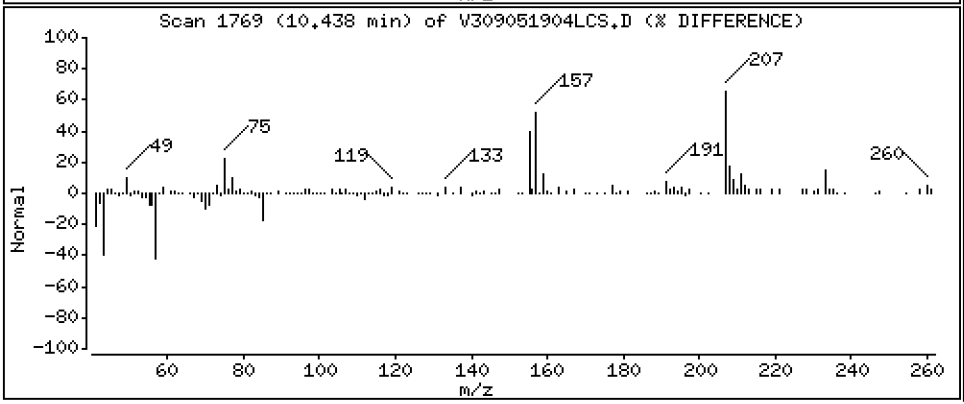
81 1,2-Dibromo 3-Chloropropane

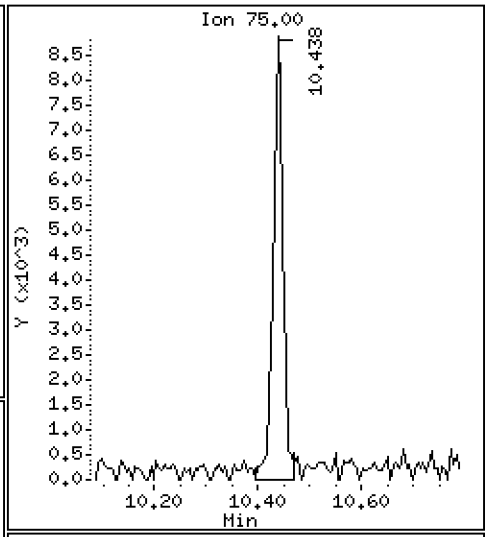
Concentration: 10.354 ug/L

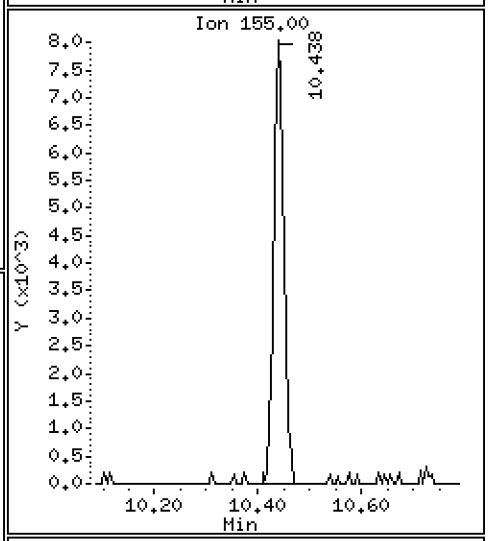


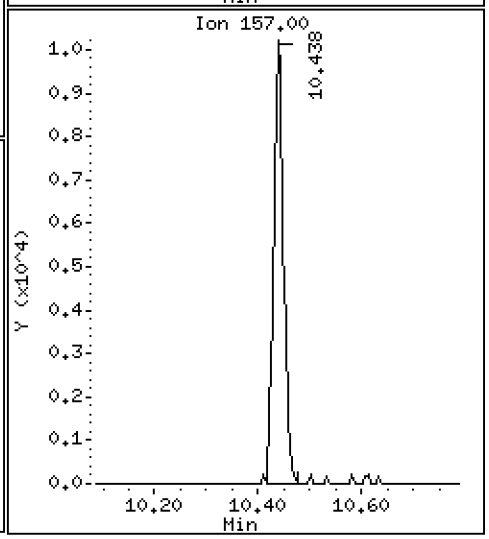












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

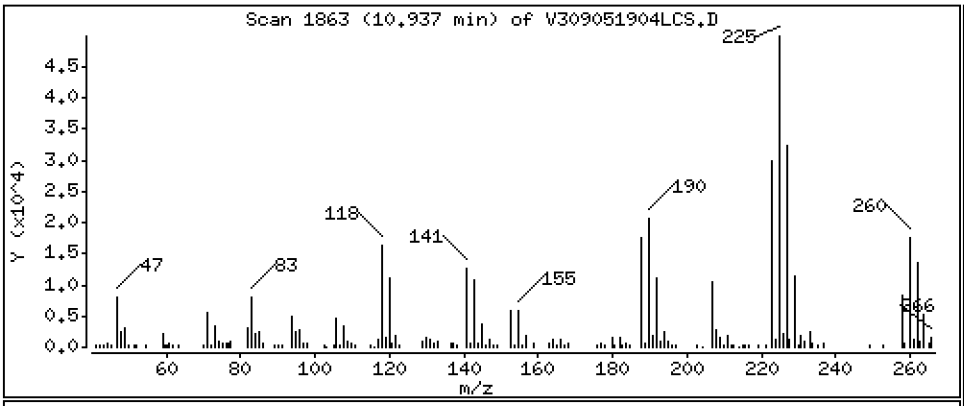
Operator: PKC

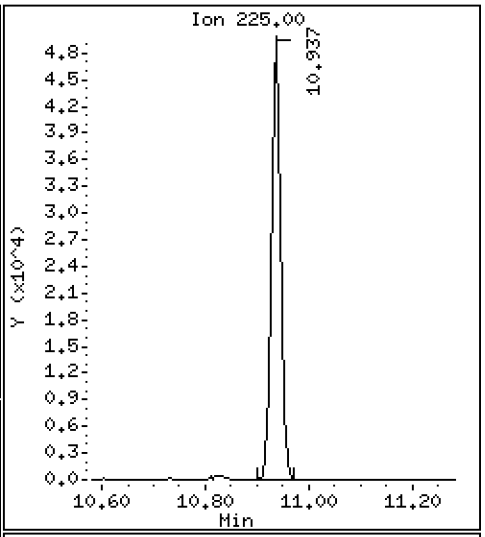
Column phase: RTXVMS

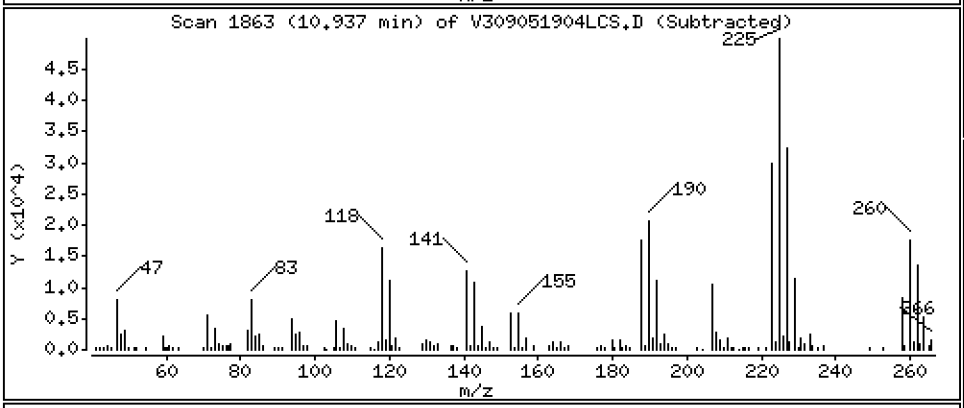
Column diameter: 0.18

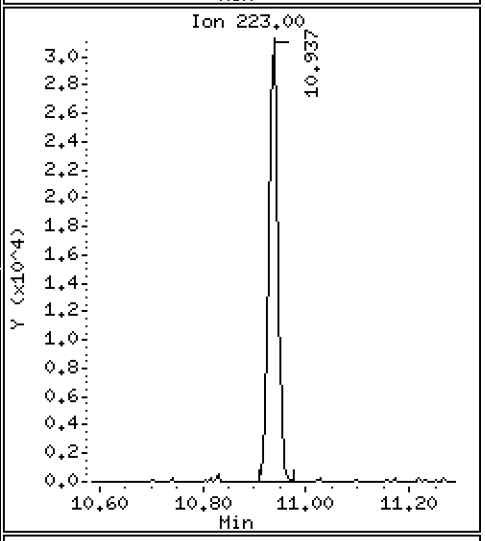
83 Hexachloro 1,3-Butadiene

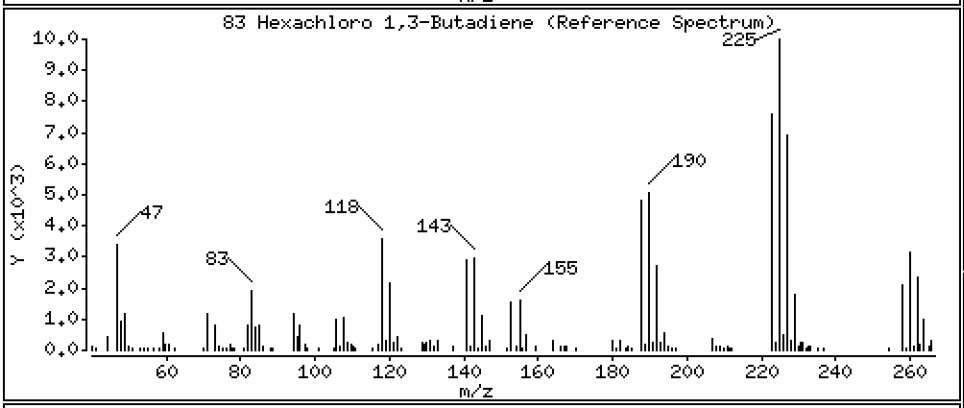
Concentration: 11.611 ug/L

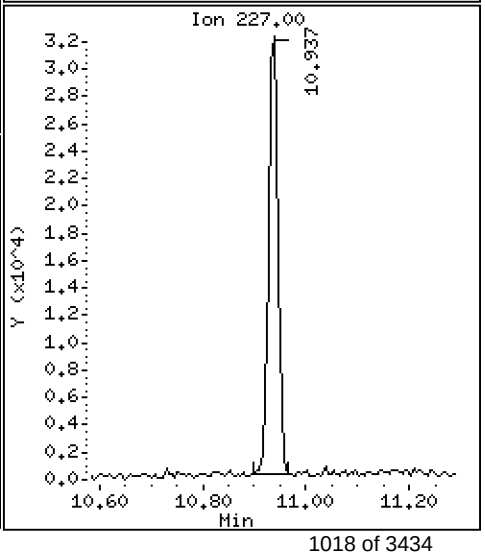


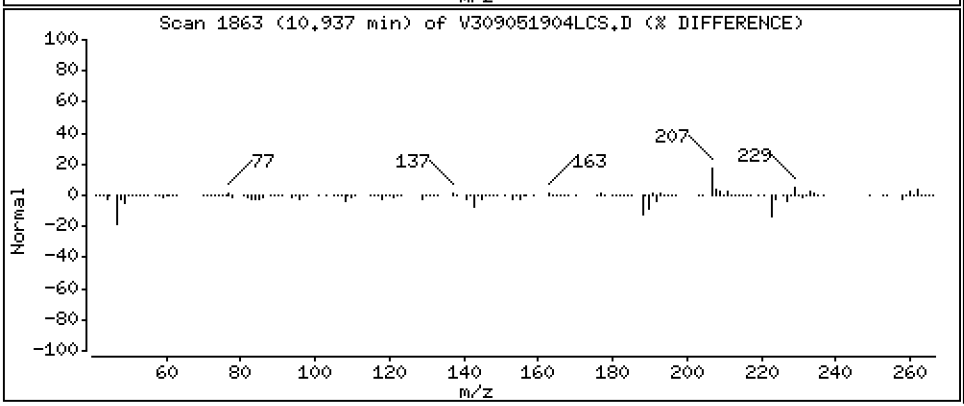












Date : 05-SEP-2019 12:30

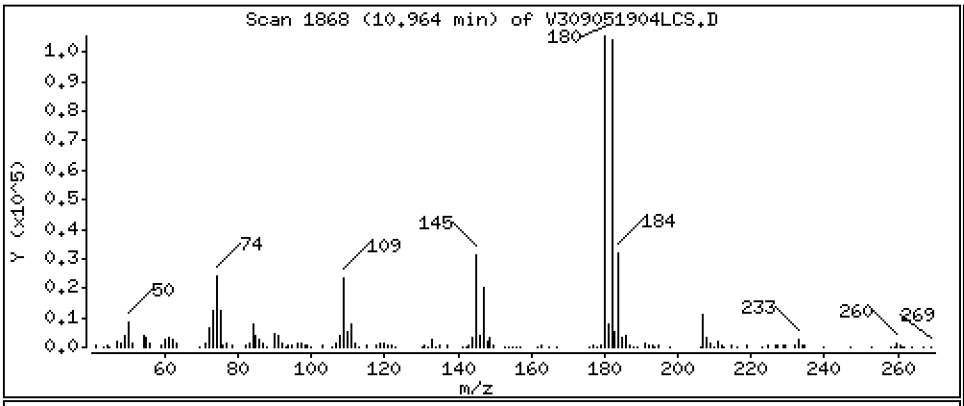
Client ID: Instrument: nt3.i

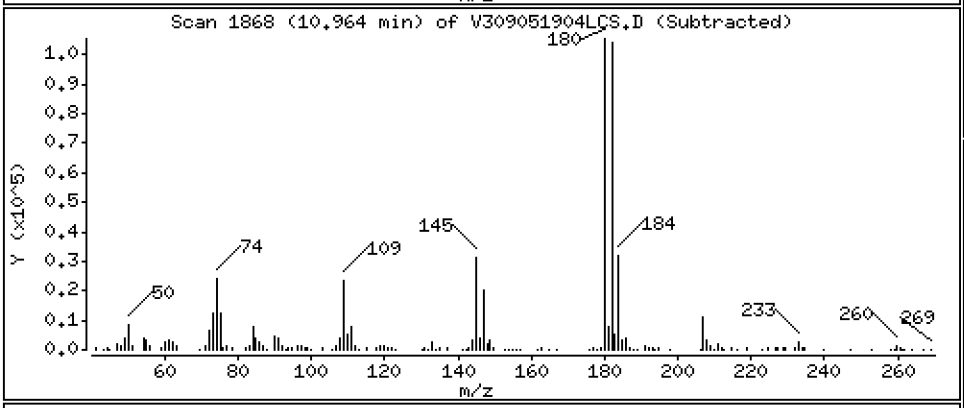
Sample Info: BHI0133-BS1

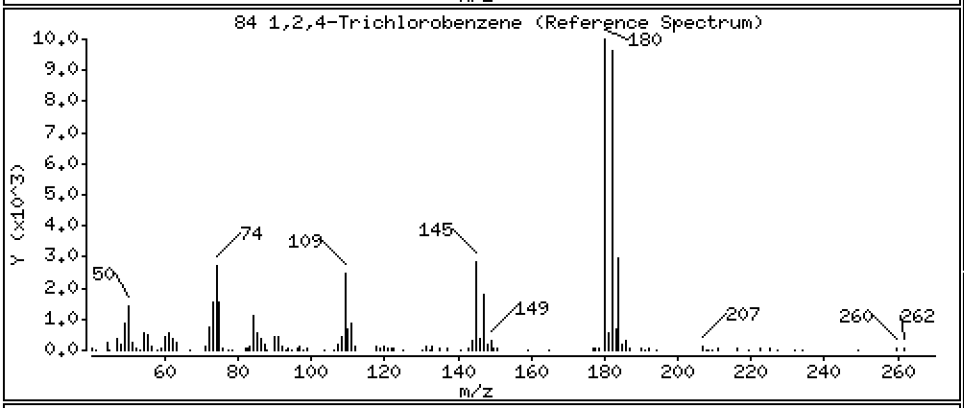
Operator: PKC

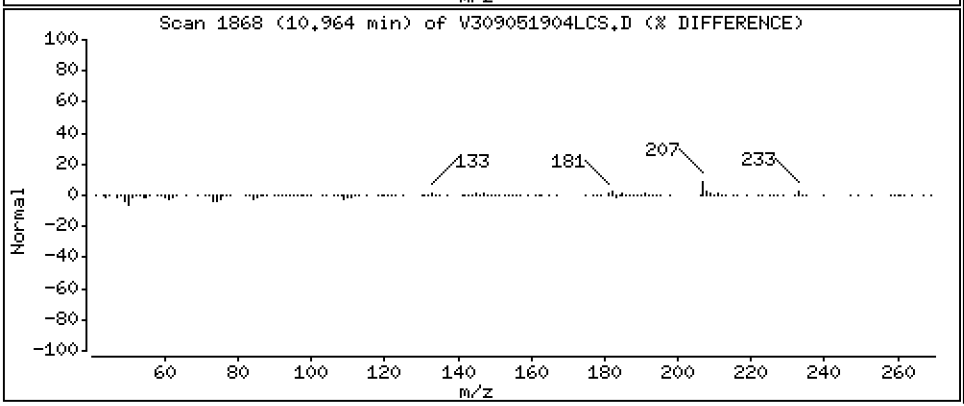
Column phase: RTXVMS Column diameter: 0.18

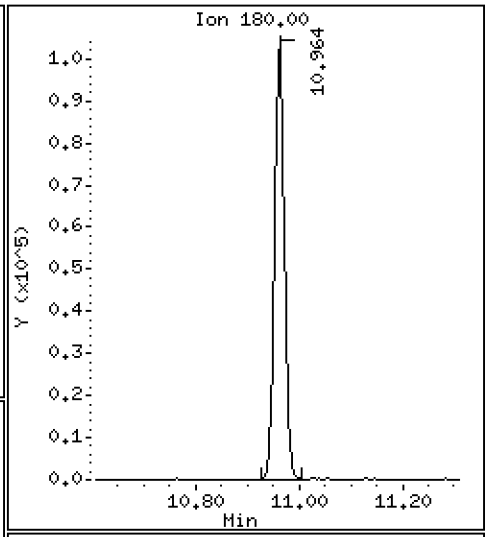
84 1,2,4-Trichlorobenzene Concentration: 10.571 ug/L

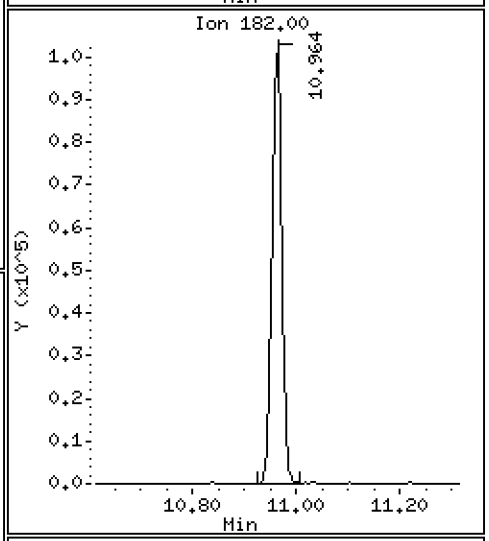


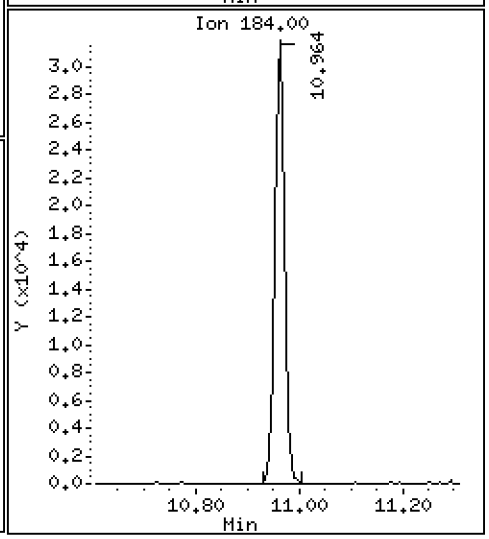












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

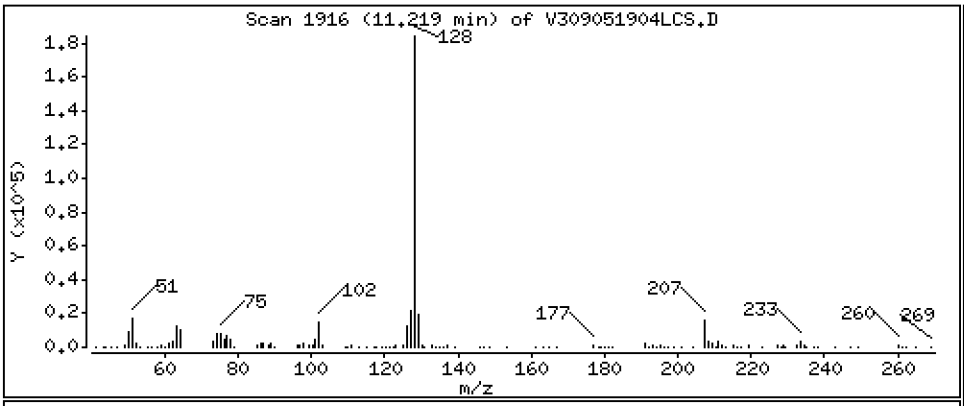
Operator: PKC

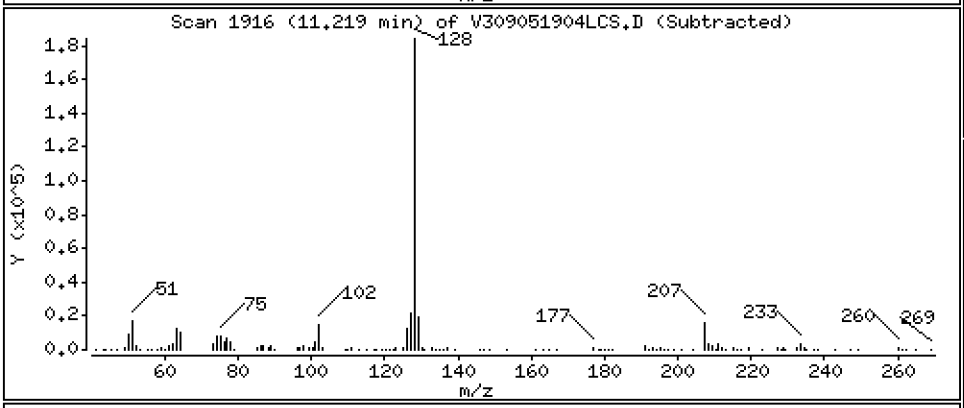
Column phase: RTXVMS

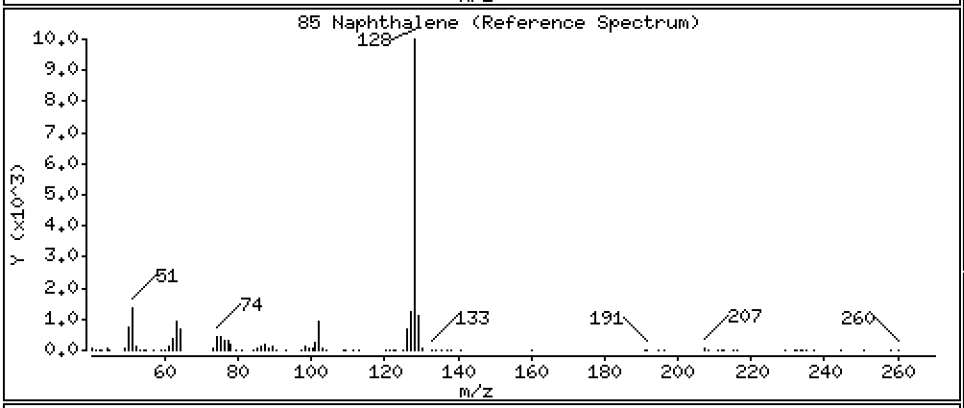
Column diameter: 0.18

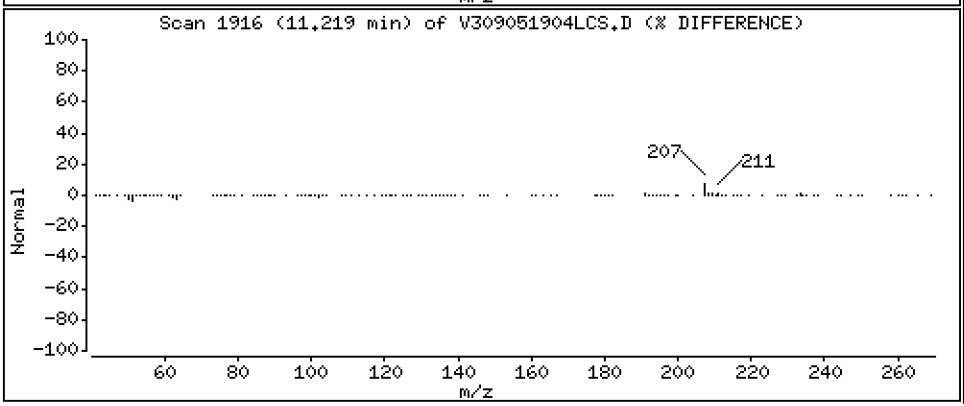
85 Naphthalene

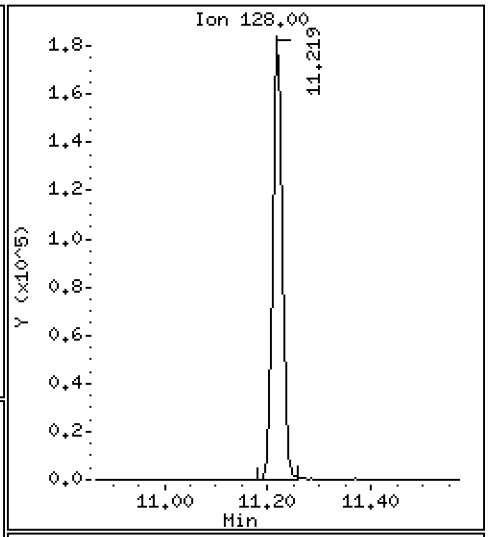
Concentration: 10.768 ug/L

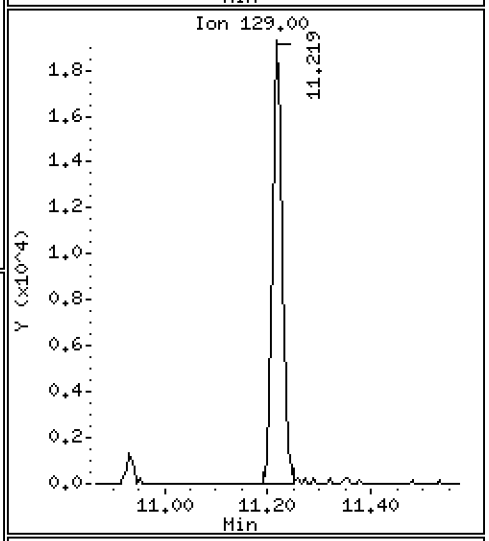


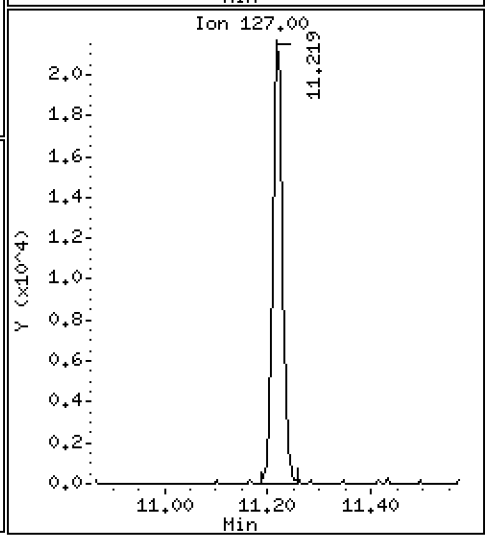












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Date : 05-SEP-2019 12:30

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BS1

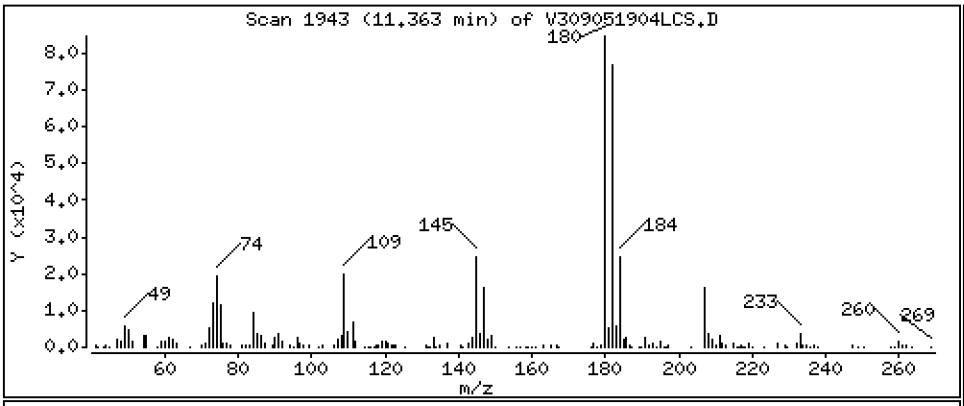
Operator: PKC

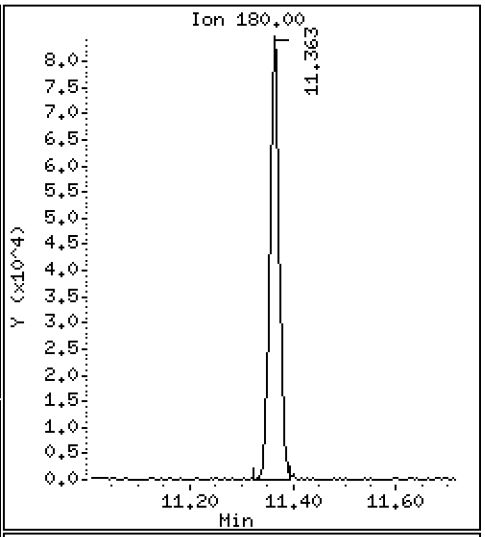
Column phase: RTXVMS

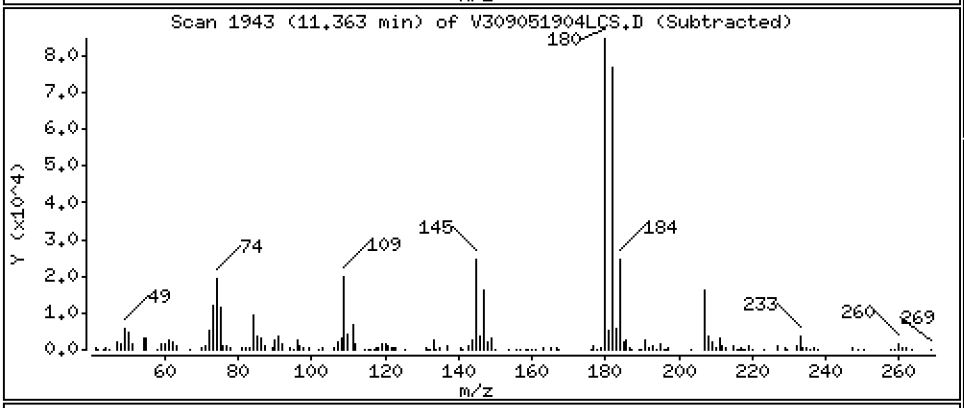
Column diameter: 0.18

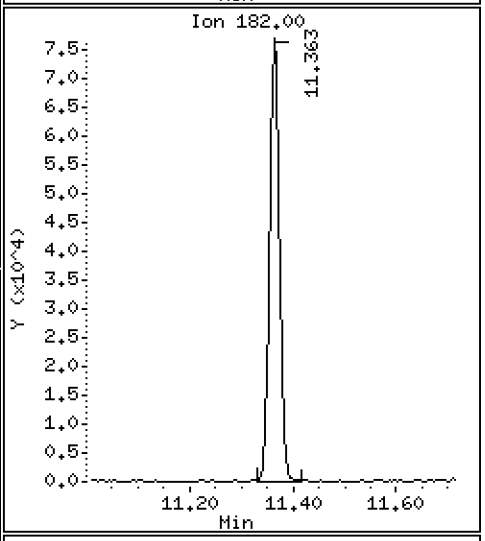
86 1,2,3-Trichlorobenzene

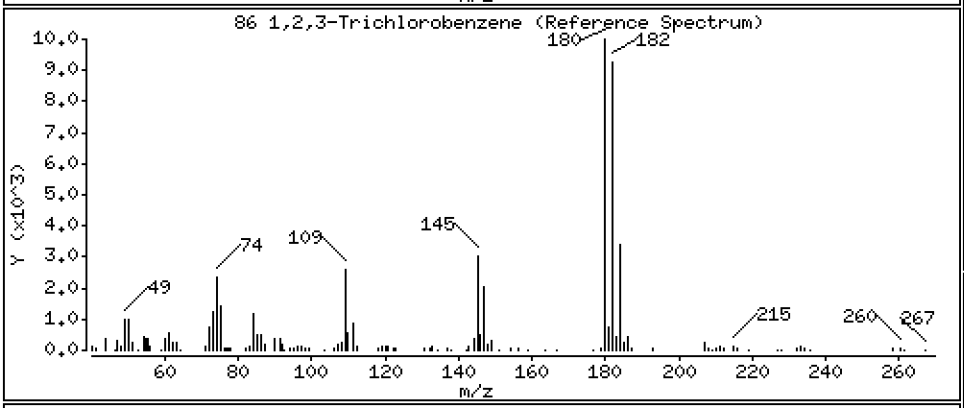
Concentration: 10.093 ug/L

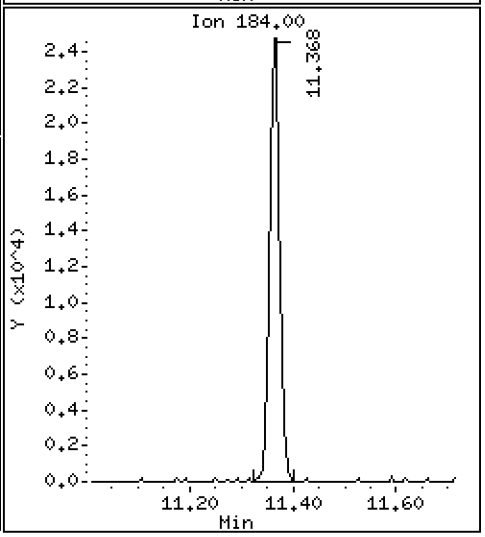


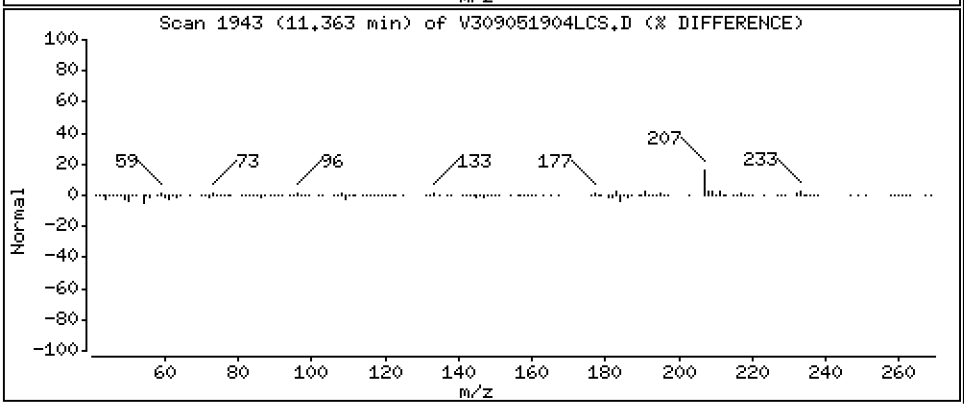












ARI Labs, Inc.

8260C 10 ml purge

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Inj Date : 05-SEP-2019 12:30
Operator : PKC Inst ID: nt3.i
Smp Info : BHI0133-BS1
Misc Info : 16-
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Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	1.714	1.720	(0.317)	110990	11.1003	11.100(M)
	2 Chloromethane	50	1.922	1.922	(0.355)	169917	10.1251	10.125
	3 Vinyl Chloride	62	2.007	2.007	(0.371)	138697	10.2582	10.258
	4 Bromomethane	94	2.299	2.299	(0.425)	64067	10.3854	10.385
	5 Chloroethane	64	2.416	2.411	(0.446)	70668	9.80392	9.804
	6 Trichlorofluoromethane	101	2.538	2.533	(0.469)	117268	10.6615	10.661
	7 1,1-Dichloroethene	61	2.990	2.990	(0.552)	137419	10.3391	10.339
	8 Carbon Disulfide	76	3.001	2.996	(0.554)	206766	10.5920	10.592
	9 112Trichloro122Trifluoroethane	101	3.065	3.060	(0.566)	66306	11.1183	11.118
	10 Iodomethane	142	3.123	3.118	(0.577)	106597	10.4753	10.475
	11 Bromoethane	108	3.245	3.246	(0.599)	48120	10.2996	10.300
	12 Acrolein	56	3.368	3.347	(0.622)	68202	57.6707	57.671(M)
	13 Methylene Chloride	84	3.564	3.565	(0.658)	69591	11.3602	11.360
	14 Acetone	43	3.708	3.644	(0.685)	90163	52.9588	52.959
	15 Trans-1,2-Dichloroethene	96	3.713	3.713	(0.686)	71571	10.1237	10.124
	17 Methyl tert butyl ether	73	3.841	3.841	(0.709)	119683	9.94939	9.949
	18 1,1-Dichloroethane	63	4.255	4.256	(0.786)	147072	10.3585	10.358
	19 Acrylonitrile	53	4.340	4.319	(0.802)	22854	11.4435	11.444
	20 Vinyl Acetate	43	4.494	4.489	(0.830)	149289	9.99779	9.998
	22 Cis-1,2-Dichloroethene	96	4.696	4.691	(0.867)	75561	10.3872	10.387
	23 2,2-Dichloropropane	77	4.776	4.776	(0.882)	69108	10.4658	10.466
	24 Bromochloromethane	128	4.851	4.851	(0.896)	33007	10.4495	10.449
	25 Chloroform	83	4.914	4.915	(0.908)	111405	10.1798	10.180
	26 Carbon Tetrachloride	117	5.005	5.000	(0.865)	98651	10.7213	10.721
$	27 Dibromofluoromethane	111	5.053	5.053	(0.933)	23228	5.01614	5.016(R)
	28 1,1,1-Trichloroethane	97	5.058	5.058	(0.934)	112280	10.6016	10.602
	30 1,1-Dichloropropene	75	5.148	5.149	(0.890)	91693	10.4332	10.433
	29 2-Butanone	43	5.185	5.164	(0.958)	169985	61.1871	61.187
	31 Benzene	78	5.334	5.335	(0.922)	279906	10.5904	10.590
*	32 Pentafluorobenzene	168	5.414	5.409	(1.000)	107094	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.005)	25505	4.94366	4.944(R)
	34 1,2-Dichloroethane	62	5.488	5.489	(0.949)	91888	10.7416	10.742
	36 Trichloroethene	130	5.760	5.760	(0.995)	78746	11.1404	11.140
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	154442	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
	38 Dibromomethane	93	6.057	6.057	(1.047)	32088	10.4439	10.444
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	82871	10.4049	10.405
	40 Bromodichloromethane	83	6.174	6.174	(1.067)	82206	10.3430	10.343
	173 2-Pentanone	86	6.408	6.398	(1.107)	35310	61.4671	61.467
	41 2-Chloroethyl Vinyl Ether	63	6.578	6.573	(1.137)	36466	10.7975	10.798
	42 Cis 1,3-dichloropropene	75	6.615	6.610	(1.143)	104987	10.3340	10.334
$	43 d8-Toluene	98	6.738	6.738	(1.164)	96898	5.18626	5.186(R)
	44 Toluene	92	6.775	6.775	(1.171)	183277	10.6344	10.634
	46 Tetrachloroethene	166	7.041	7.036	(0.901)	87499	10.7646	10.765
	45 4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	130034	57.3373	57.337
	47 Trans 1,3-Dichloropropene	75	7.062	7.062	(1.220)	92973	10.8368	10.837
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	50979	10.7879	10.788
	49 Chlorodibromomethane	129	7.296	7.296	(0.934)	61455	10.5753	10.575
	50 1,3-Dichloropropane	76	7.365	7.365	(0.943)	90262	10.7035	10.704
	51 1,2-Dibromoethane	107	7.460	7.461	(1.289)	46989	10.0443	10.044
	52 2-Hexanone	43	7.620	7.615	(0.976)	247996	58.8632	58.863
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	156589	10.0000	
	54 Chlorobenzene	112	7.827	7.828	(1.002)	216145	10.7149	10.715
	55 Ethyl Benzene	106	7.843	7.843	(1.004)	117572	10.6751	10.675
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	77027	10.6195	10.619
	57 m,p-xylene	106	7.944	7.944	(1.017)	293485	21.6392	21.639
	58 o-Xylene	106	8.247	8.247	(1.056)	146512	10.7008	10.701
	59 Styrene	104	8.284	8.285	(1.061)	234081	11.0444	11.044
	60 Bromoform	173	8.311	8.311	(0.875)	39251	10.7966	10.797
	61 Isopropyl Benzene	105	8.470	8.471	(0.892)	381918	10.6324	10.632
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	38090	5.11907	5.119(R)
	63 Bromobenzene	156	8.757	8.758	(0.922)	100836	10.3198	10.320
	64 N-Propyl Benzene	91	8.768	8.768	(0.923)	456034	11.0694	11.069
	65 1,1,2,2-Tetrachloroethane	83	8.827	8.827	(0.929)	63707	10.2500	10.250
	66 2-Chloro Toluene	91	8.885	8.885	(0.936)	309080	10.5541	10.554
	67 1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	338264	10.6982	10.698
	68 1,2,3-Trichloropropane	110	8.928	8.928	(0.940)	19227	9.31790	9.318
	69 Trans-1,4-Dichloro 2-Butene	53	8.954	8.954	(0.943)	23435	10.4959	10.496
	70 4-Chloro Toluene	91	9.007	9.008	(0.949)	295006	10.8741	10.874
	71 T-Butyl Benzene	119	9.145	9.146	(0.963)	285373	10.6887	10.689
	72 1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	350405	10.9314	10.931
	73 S-Butyl Benzene	105	9.278	9.279	(0.977)	409469	10.9708	10.971
	74 4-Isopropyl Toluene	119	9.385	9.380	(0.988)	368777	11.0104	11.010
	75 1,3-Dichlorobenzene	146	9.443	9.443	(0.994)	215799	10.5123	10.512
*	76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	101121	10.0000	
	77 1,4-Dichlorobenzene	146	9.512	9.507	(1.002)	215054	10.4898	10.490
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	319238	11.1367	11.137
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	45786	4.81893	4.819(R)
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.035)	196610	10.2693	10.269
	81 1,2-Dibromo 3-Chloropropane	75	10.437	10.437	(1.099)	12057	10.3537	10.354
	83 Hexachloro 1,3-Butadiene	225	10.937	10.932	(1.152)	63475	11.6113	11.611
	84 1,2,4-Trichlorobenzene	180	10.963	10.958	(1.154)	142364	10.5711	10.571
	85 Naphthalene	128	11.218	11.219	(1.181)	241590	10.7676	10.768
	86 1,2,3-Trichlorobenzene	180	11.362	11.362	(1.196)	110668	10.0934	10.093

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051904LCS.D
Lab Smp Id: BHI0133-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	107094	10.52
37 1,4-Difluorobenze	140121	70061	280242	154442	10.22
53 d5-Chlorobenzene	140128	70064	280256	156589	11.75
76 d4-1,4-Dichlorobe	90137	45069	180274	101121	12.19

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.09
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0133-BS1
Level: Operator: PKC
Data Type: MS DATA SampleType: LCS
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SPIKE	COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
1	Dichlorodifluorome	10.000	11.100	111.00	
2	Chloromethane	10.000	10.125	101.25	
3	Vinyl Chloride	10.000	10.258	102.58	
4	Bromomethane	10.000	10.385	103.85	
5	Chloroethane	10.000	9.804	98.04	
6	Trichlorofluoromet	10.000	10.661	106.61	
7	1,1-Dichloroethene	10.000	10.339	103.39	
8	Carbon Disulfide	10.000	10.592	105.92	
9	112Trichloro122Tri	10.000	11.118	111.18	
10	Iodomethane	10.000	10.475	104.75	
11	Bromoethane	10.000	10.300	103.00	
12	Acrolein	50.000	57.671	115.34	
13	Methylene Chloride	10.000	11.360	113.60	
14	Acetone	50.000	52.959	105.92	
15	Trans-1,2-Dichloro	10.000	10.124	101.24	
17	Methyl tert butyl	10.000	9.949	99.49	
18	1,1-Dichloroethane	10.000	10.358	103.58	
19	Acrylonitrile	10.000	11.444	114.44	
20	Vinyl Acetate	10.000	9.998	99.98	
22	Cis-1,2-Dichloroet	10.000	10.387	103.87	
23	2,2-Dichloropropan	10.000	10.466	104.66	
24	Bromochloromethane	10.000	10.449	104.49	
25	Chloroform	10.000	10.180	101.80	
26	Carbon Tetrachlori	10.000	10.721	107.21	
28	1,1,1-Trichloroeth	10.000	10.602	106.02	
30	1,1-Dichloropropen	10.000	10.433	104.33	
29	2-Butanone	50.000	61.187	122.37	
31	Benzene	10.000	10.590	105.90	
34	1,2-Dichloroethane	10.000	10.742	107.42	
36	Trichloroethene	10.000	11.140	111.40	
38	Dibromomethane	10.000	10.444	104.44	
39	1,2-Dichloropropan	10.000	10.405	104.05	
40	Bromodichlorometha	10.000	10.343	103.43	
173	2-Pentanone	50.000	61.467	122.93	
41	2-Chloroethyl Viny	10.000	10.798	107.98	
42	Cis 1,3-dichloropr	10.000	10.334	103.34	
44	Toluene	10.000	10.634	106.34	
46	Tetrachloroethene	10.000	10.765	107.65	
45	4-Methyl-2-Pentano	50.000	57.337	114.67	
47	Trans 1,3-Dichloro	10.000	10.837	108.37	

SPIKE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
48 1,1,2-Trichloroeth	10.000	10.788	107.88	
49 Chlorodibromometha	10.000	10.575	105.75	
50 1,3-Dichloropropan	10.000	10.704	107.04	
51 1,2-Dibromoethane	10.000	10.044	100.44	
52 2-Hexanone	50.000	58.863	117.73	
54 Chlorobenzene	10.000	10.715	107.15	
55 Ethyl Benzene	10.000	10.675	106.75	
56 1,1,1,2-Tetrachlor	10.000	10.619	106.19	
57 m,p-xylene	20.000	21.639	108.20	
58 o-Xylene	10.000	10.701	107.01	
59 Styrene	10.000	11.044	110.44	
60 Bromoform	10.000	10.797	107.97	
61 Isopropyl Benzene	10.000	10.632	106.32	
63 Bromobenzene	10.000	10.320	103.20	
64 N-Propyl Benzene	10.000	11.069	110.69	
65 1,1,2,2-Tetrachlor	10.000	10.250	102.50	
66 2-Chloro Toluene	10.000	10.554	105.54	
67 1,3,5-Trimethyl Be	10.000	10.698	106.98	
68 1,2,3-Trichloropro	10.000	9.318	93.18	
69 Trans-1,4-Dichloro	10.000	10.496	104.96	
70 4-Chloro Toluene	10.000	10.874	108.74	
71 T-Butyl Benzene	10.000	10.689	106.89	
72 1,2,4-Trimethylben	10.000	10.931	109.31	
73 S-Butyl Benzene	10.000	10.971	109.71	
74 4-Isopropyl Toluen	10.000	11.010	110.10	
75 1,3-Dichlorobenzen	10.000	10.512	105.12	
77 1,4-Dichlorobenzen	10.000	10.490	104.90	
78 N-Butyl Benzene	10.000	11.137	111.37	
80 1,2-Dichlorobenzen	10.000	10.269	102.69	
81 1,2-Dibromo 3-Chlo	10.000	10.354	103.54	
83 Hexachloro 1,3-But	10.000	11.611	116.11	
84 1,2,4-Trichloroben	10.000	10.571	105.71	
85 Naphthalene	10.000	10.768	107.68	
86 1,2,3-Trichloroben	10.000	10.093	100.93	

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.016	100.32	
$ 33 d4-1,2-Dichloroeth	5.000	4.944	98.87	
$ 43 d8-Toluene	5.000	5.186	103.73	
$ 62 4-Bromofluorobenze	5.000	5.119	102.38	
$ 79 d4-1,2-Dichloroben	5.000	4.819	96.38	

REVIEW SUMMARY FOR FILE - V309051904LCS.D

Lab ID: BHI0133-BS1
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 12:30

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.685	0.674	0.0111	Acetone

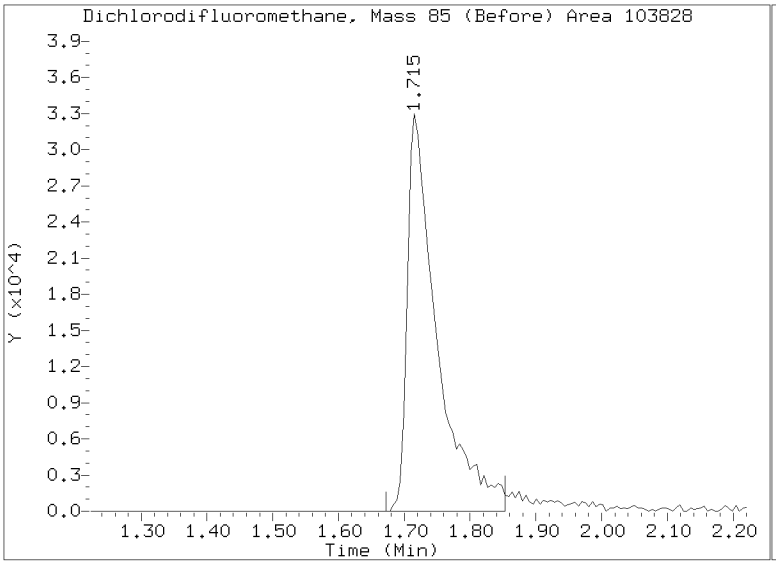
RRT check based on Ccal File: V309051928.D

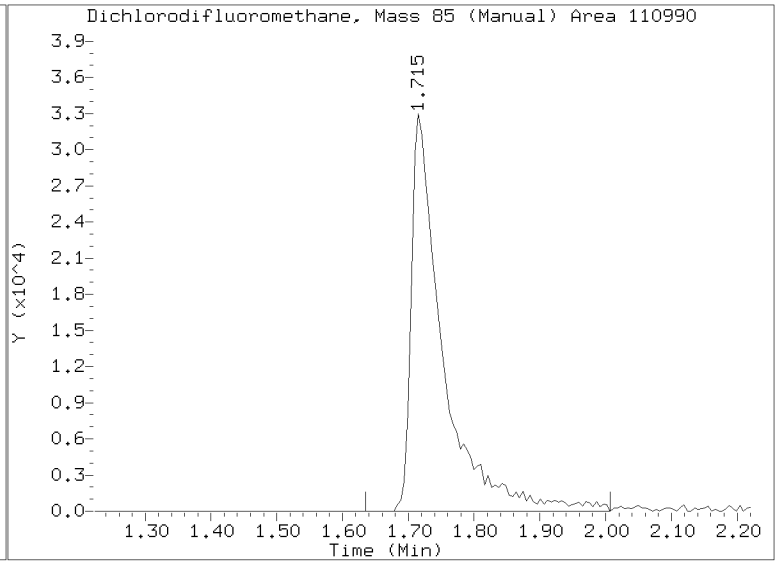
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

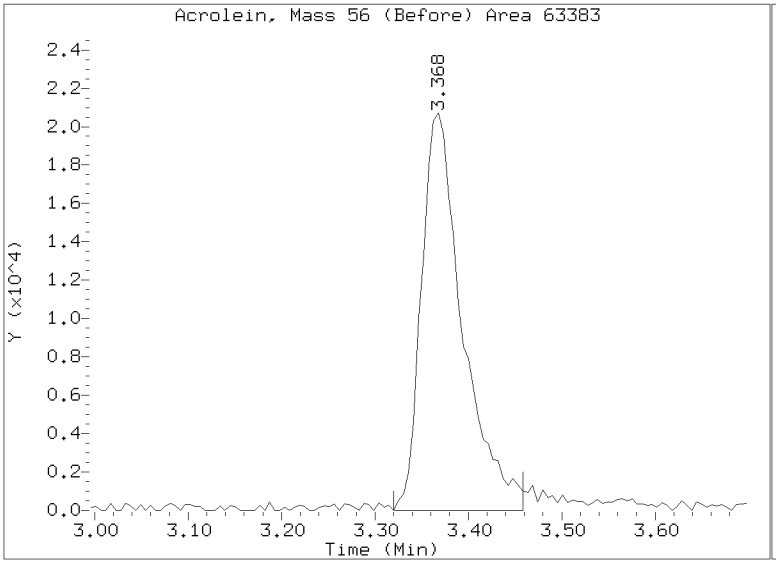
* Only compounds listed in the work order have been verified by the analyst *

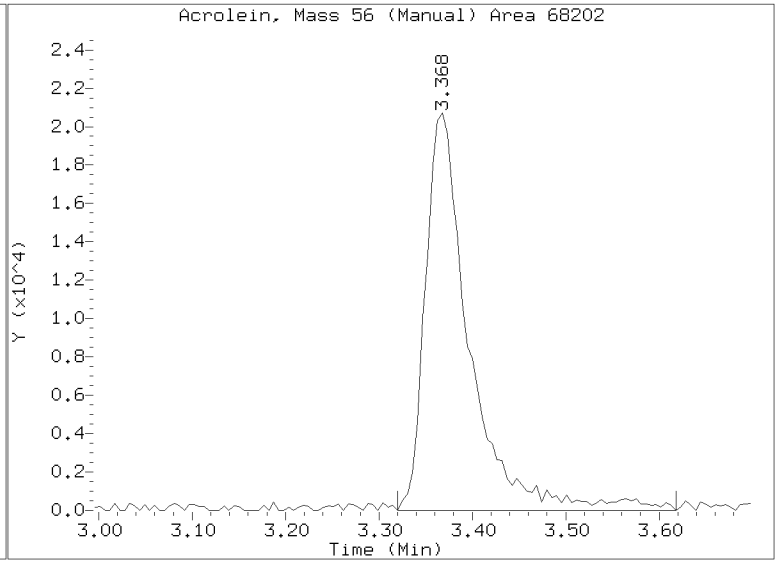
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051904.D
Injection Date: 05-SEP-2019 12:30
Lab ID:SHI0085-ICV1 Client ID:
Report Date: 09/06/2019 14:39









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Date : 05-SEP-2019 12:57

Client ID:

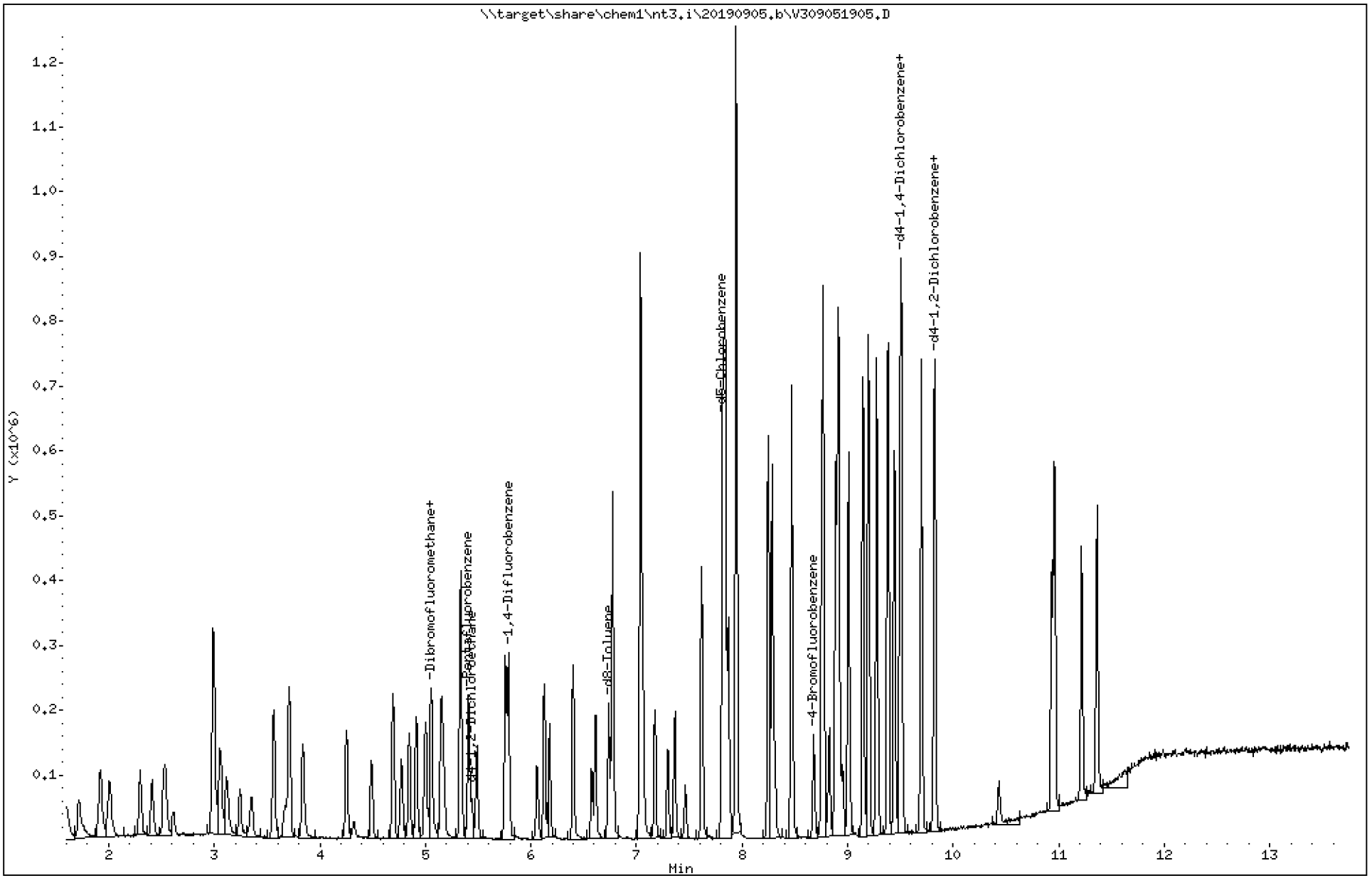
Instrument: nt3.i

Sample Info: BHI0133-BSD1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

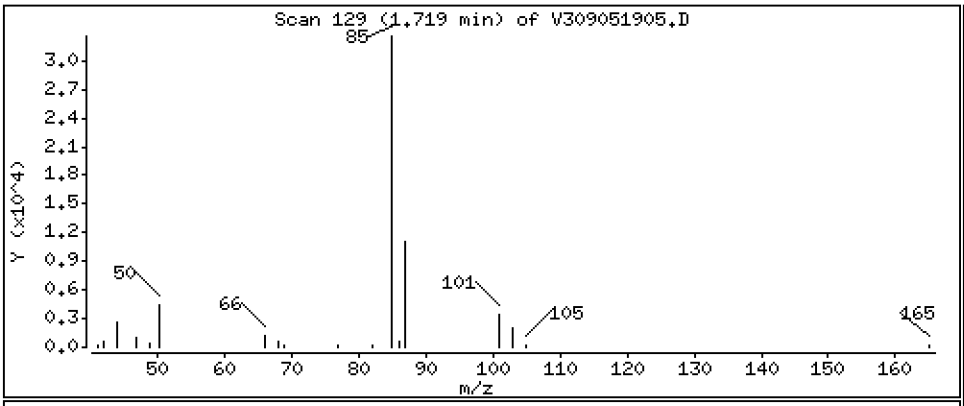
Operator: PKC

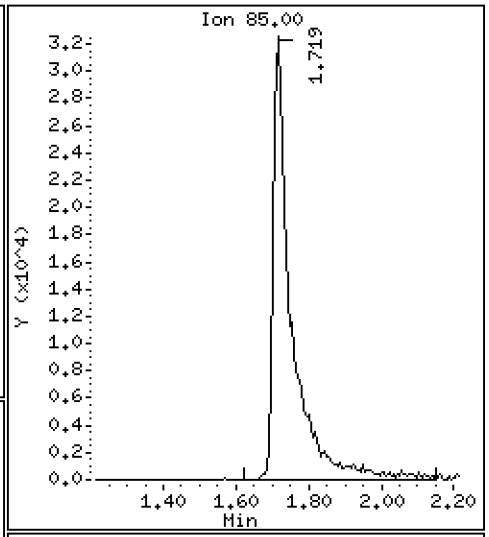
Column phase: RTXVMS

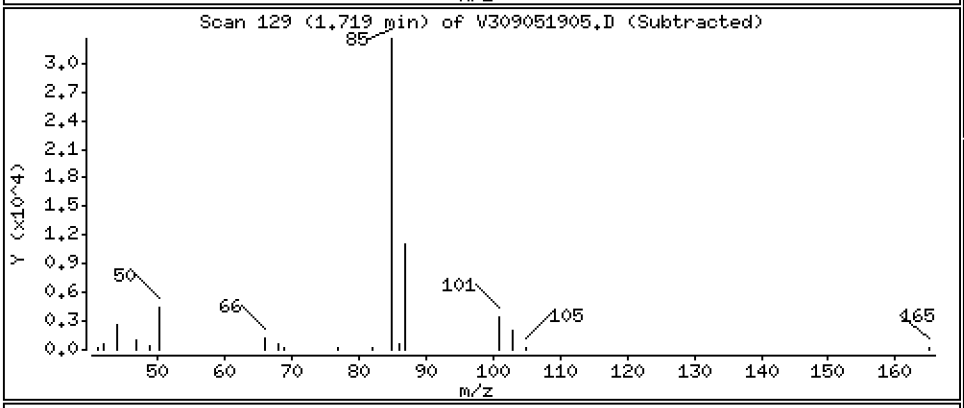
Column diameter: 0.18

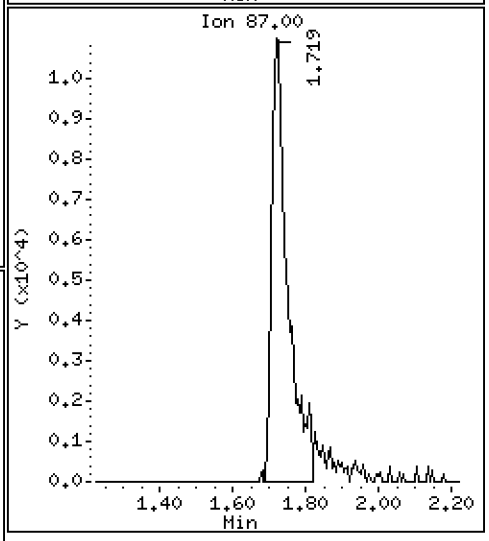
1 Dichlorodifluoromethane

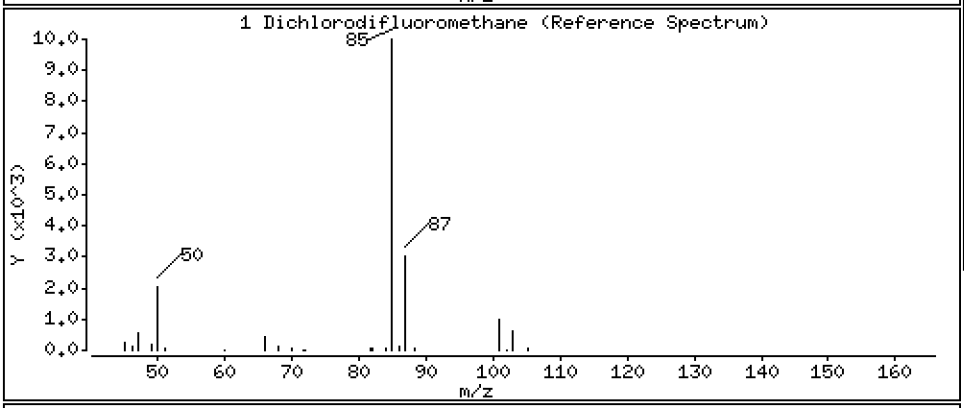
Concentration: 10.532 ug/L

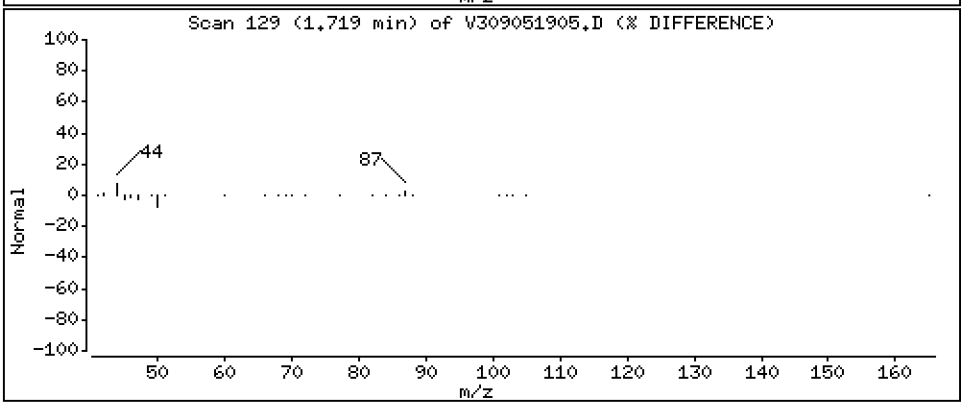












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

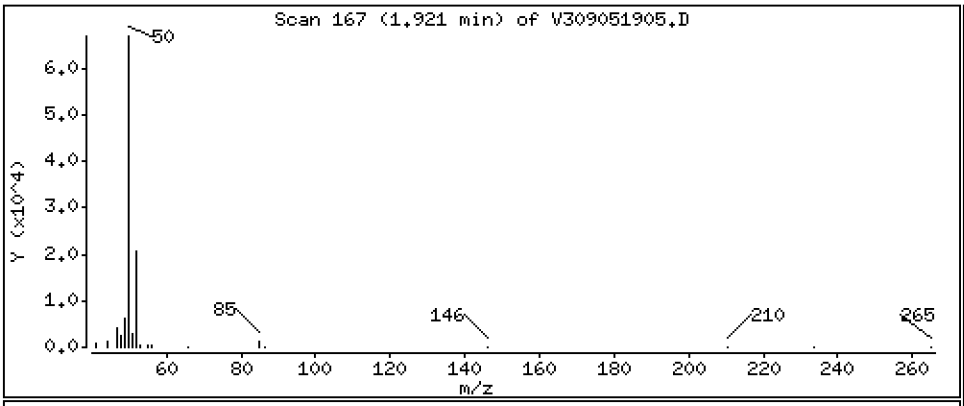
Operator: PKC

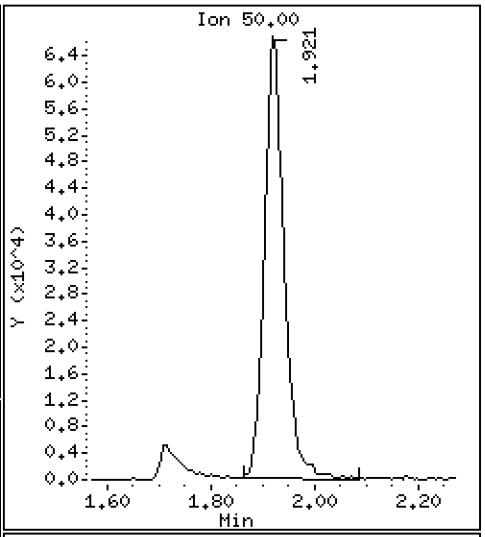
Column phase: RTXVMS

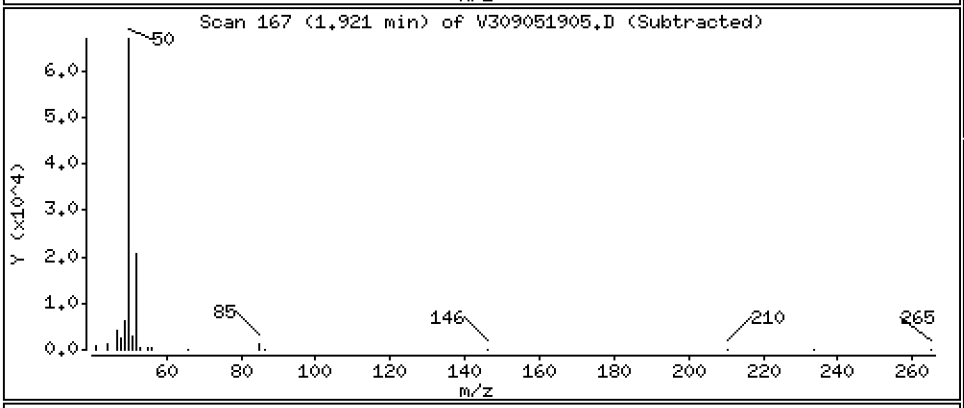
Column diameter: 0.18

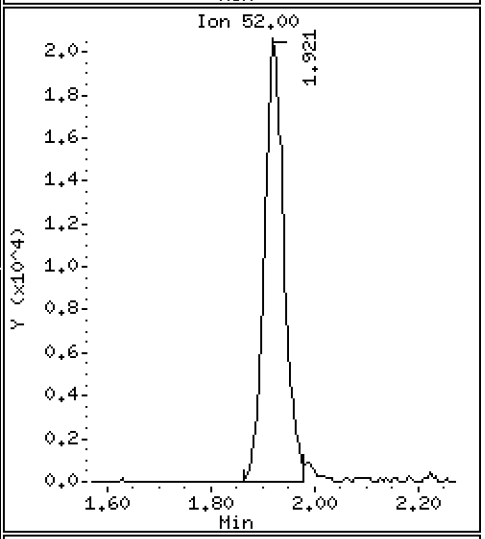
2 Chloromethane

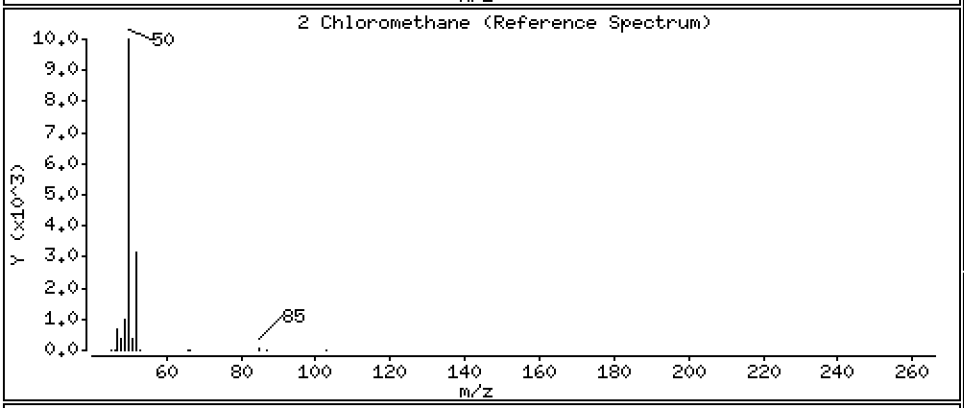
Concentration: 9.915 ug/L

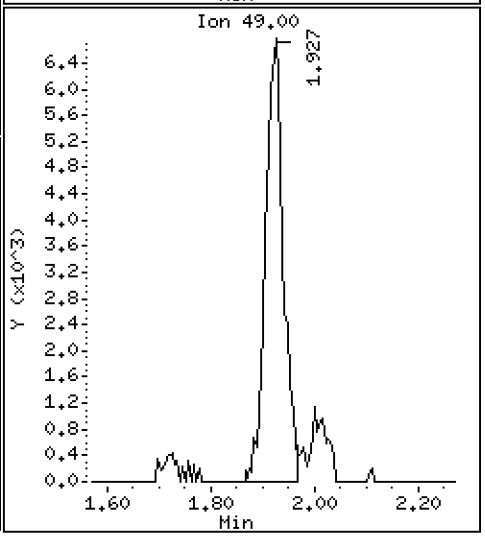


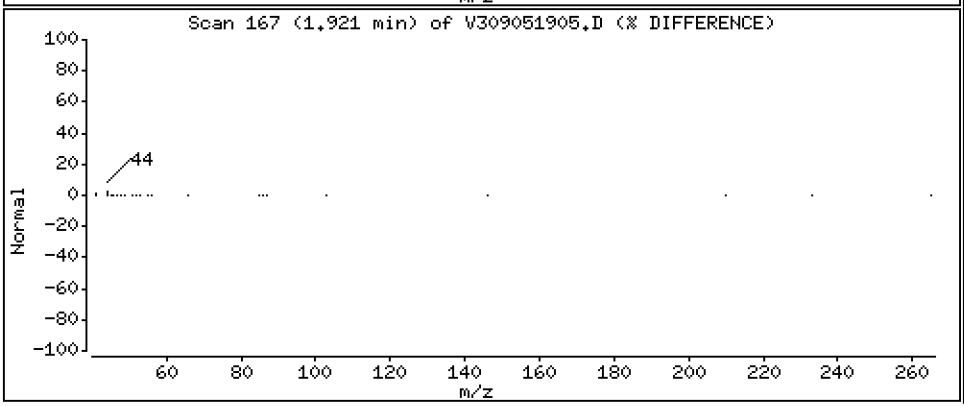












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

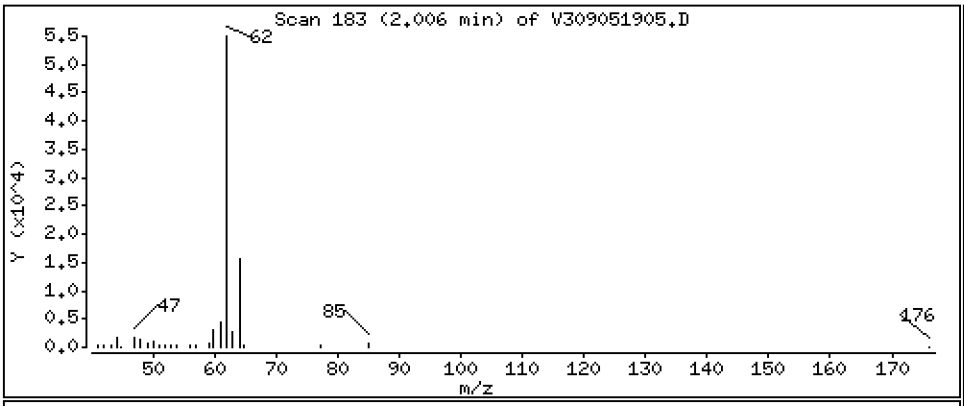
Operator: PKC

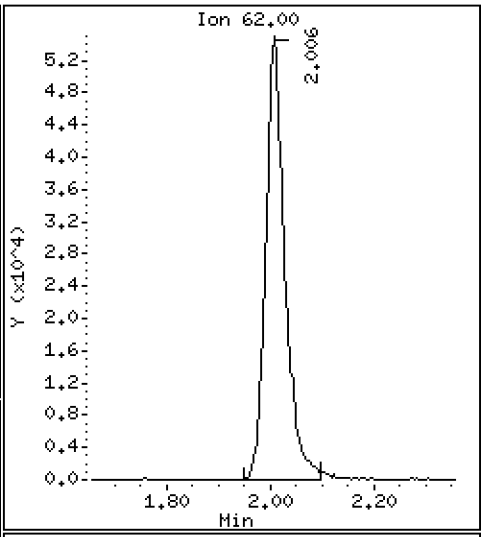
Column phase: RTXVMS

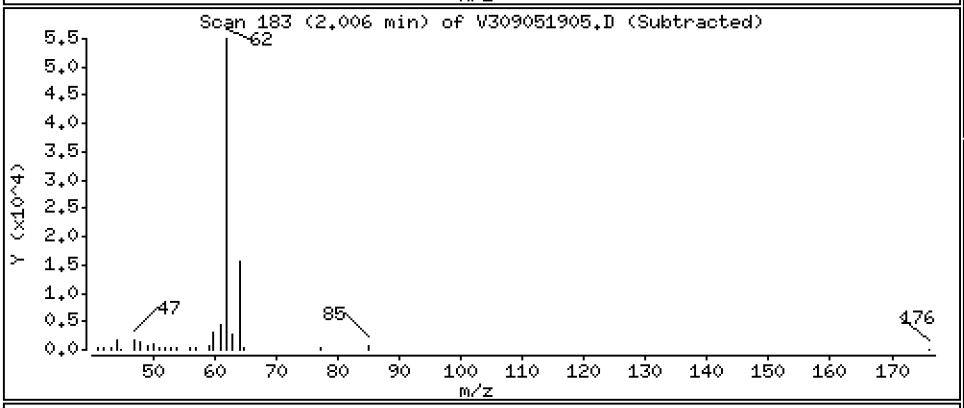
Column diameter: 0.18

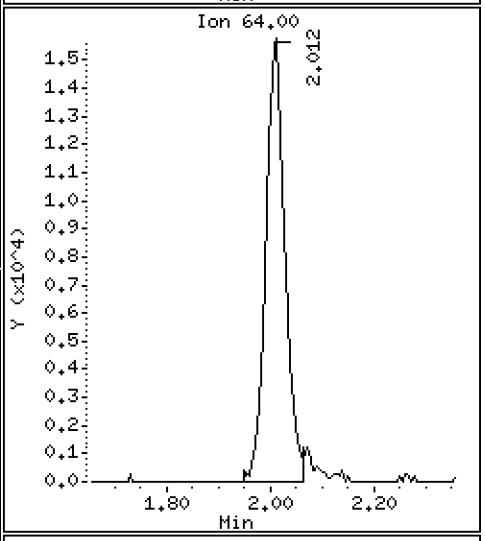
3 Vinyl Chloride

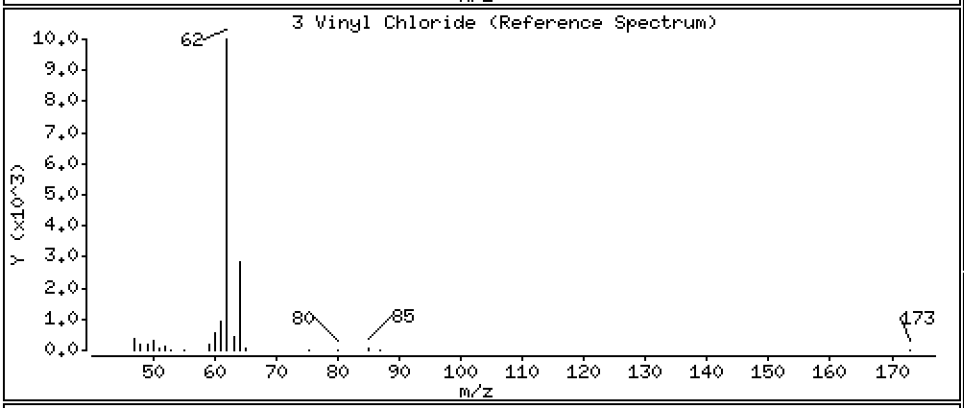
Concentration: 9.789 ug/L

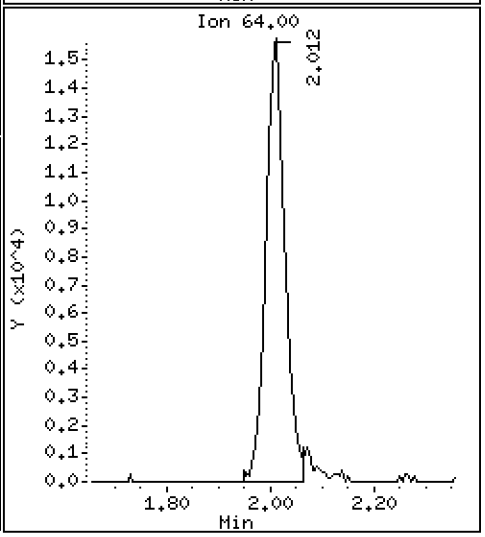


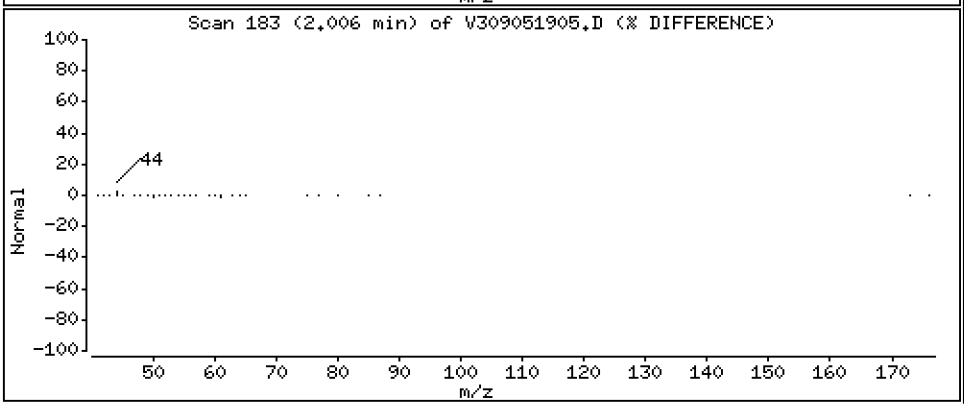












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

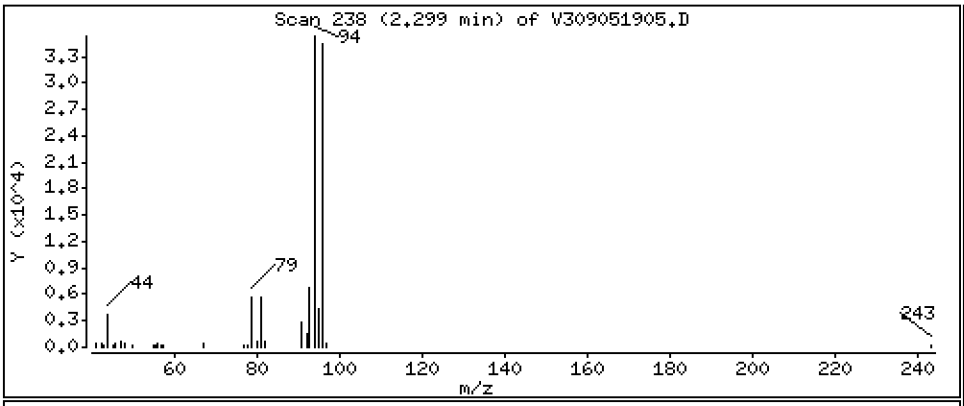
Operator: PKC

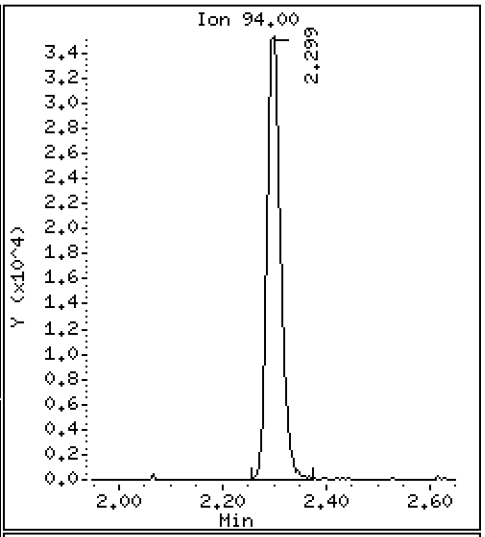
Column phase: RTXVMS

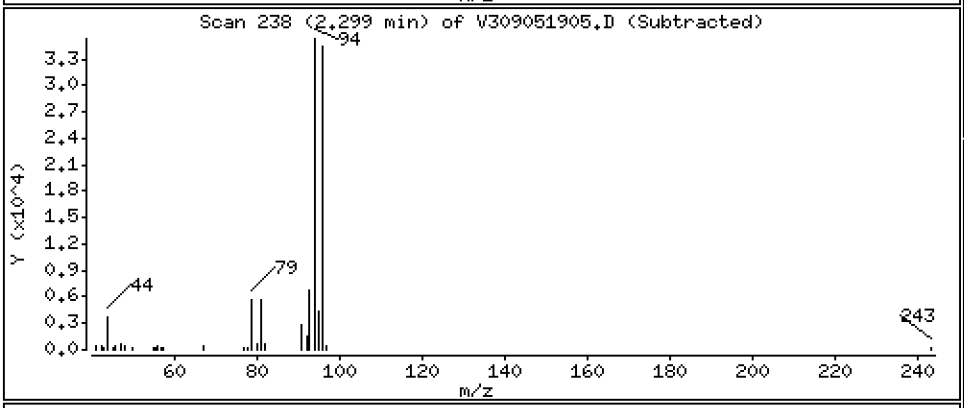
Column diameter: 0.18

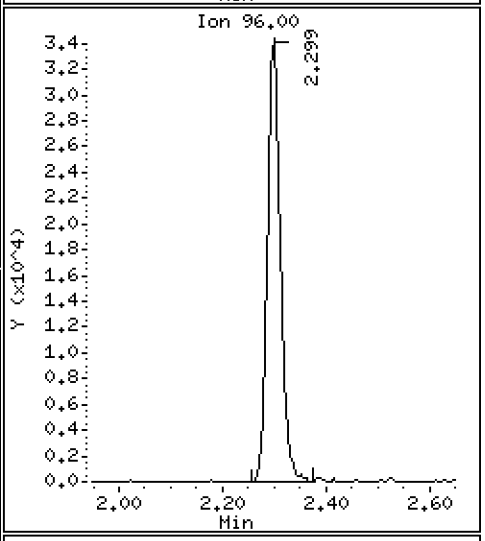
4 Bromomethane

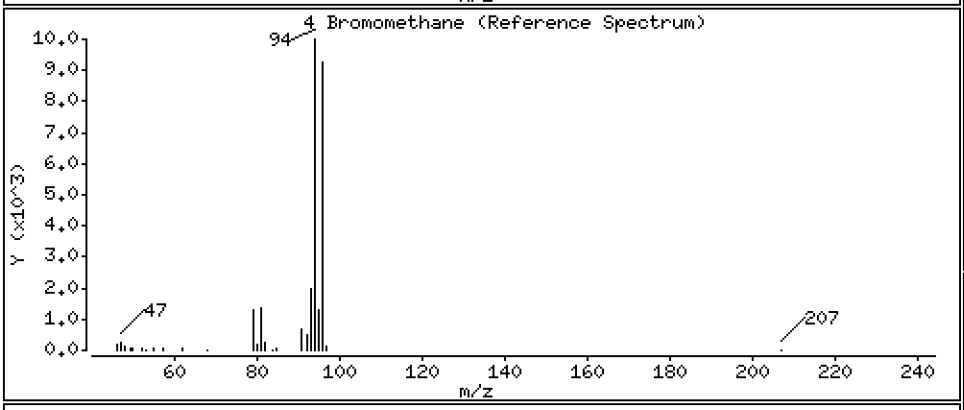
Concentration: 10.086 ug/L

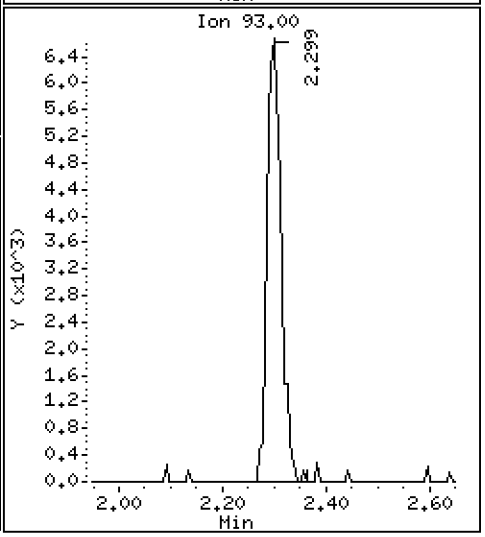


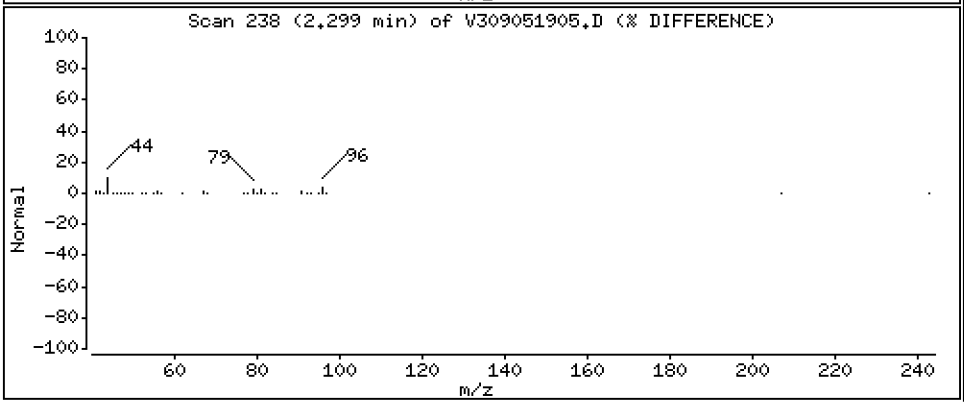












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

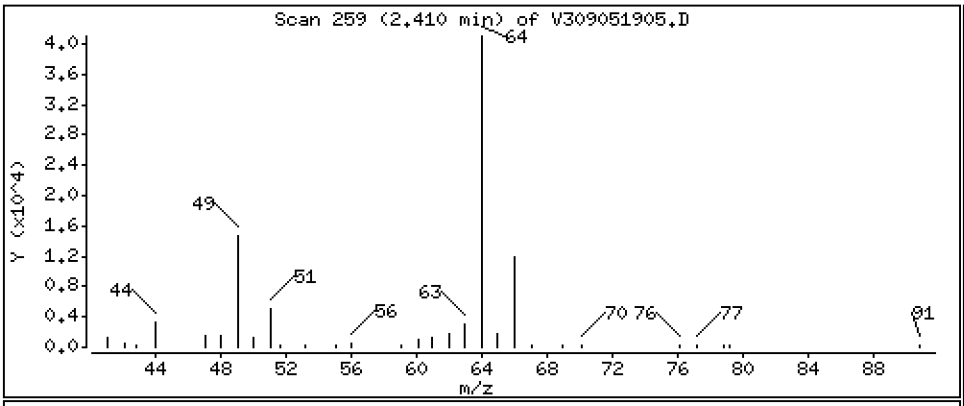
Operator: PKC

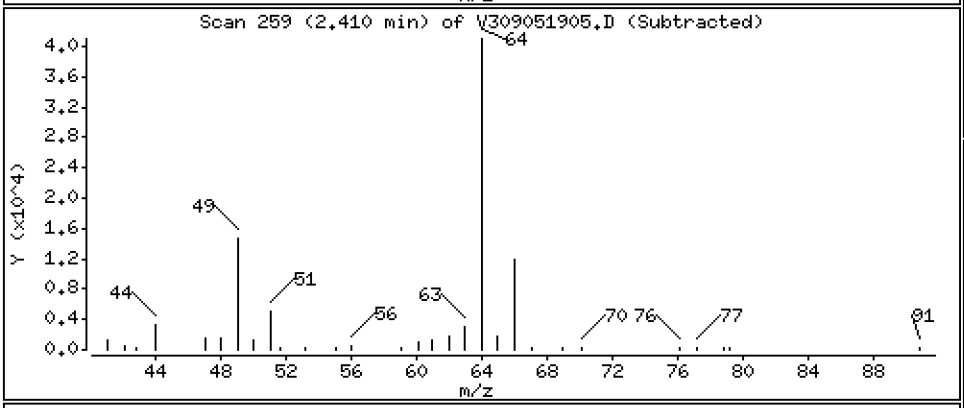
Column phase: RTXVMS

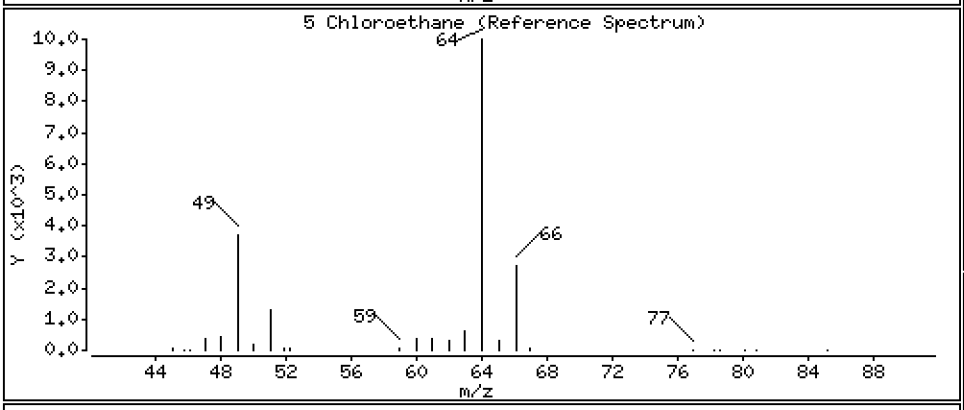
Column diameter: 0.18

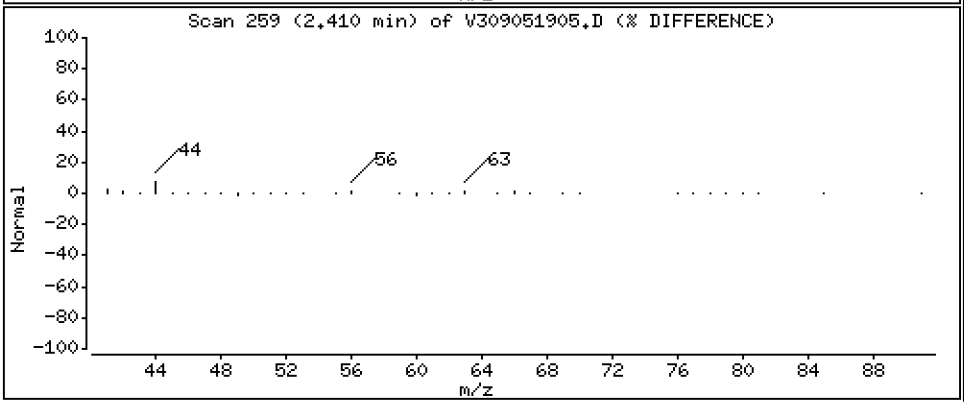
5 Chloroethane

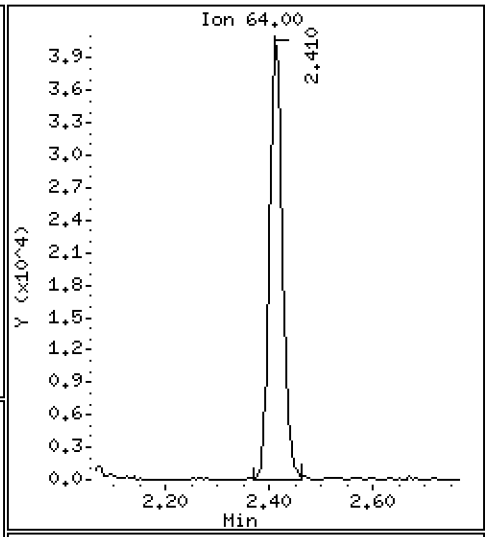
Concentration: 9.310 ug/L

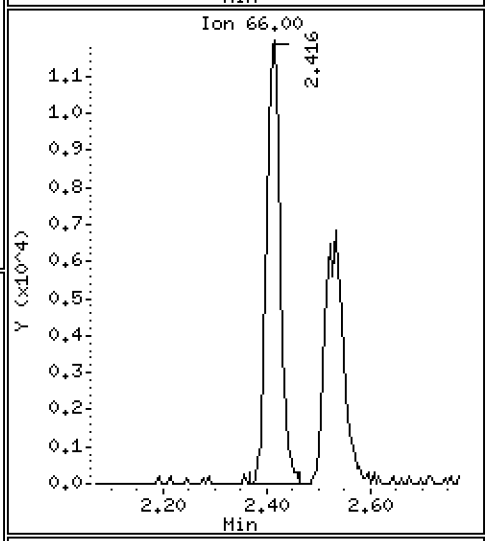


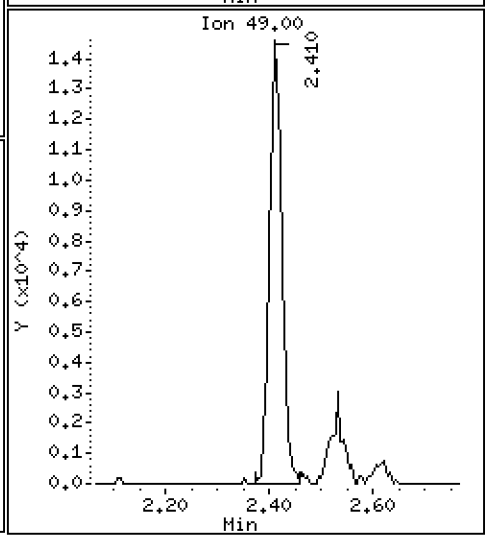












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

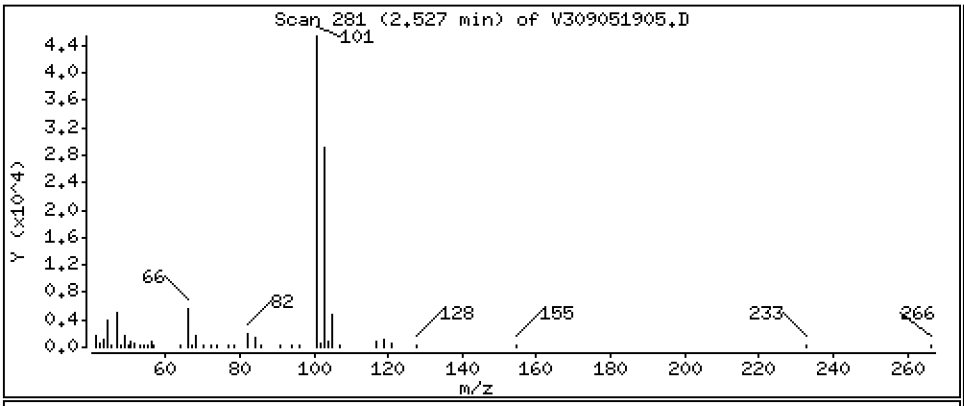
Operator: PKC

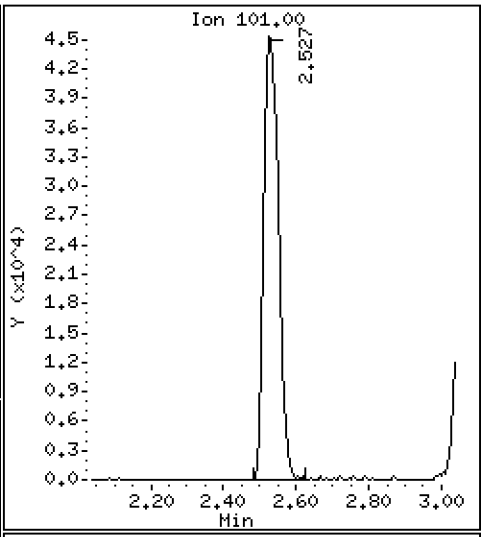
Column phase: RTXVMS

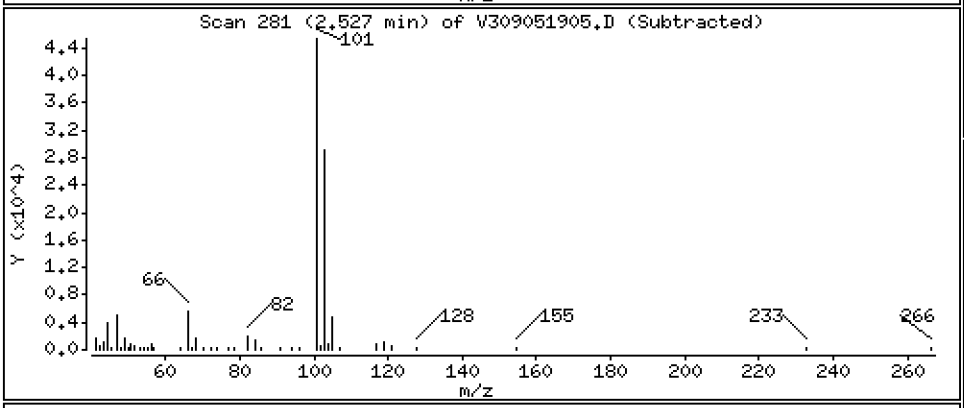
Column diameter: 0.18

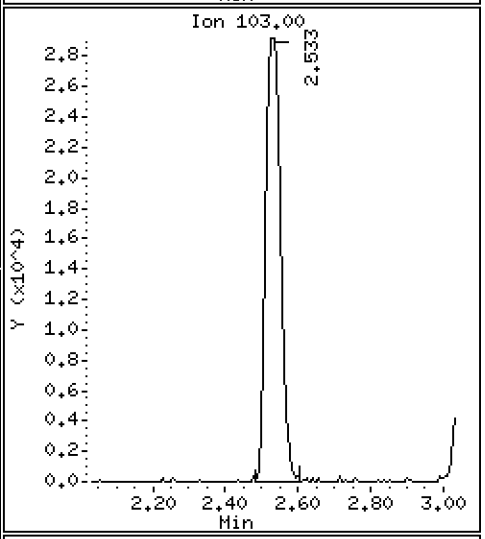
6 Trichlorofluoromethane

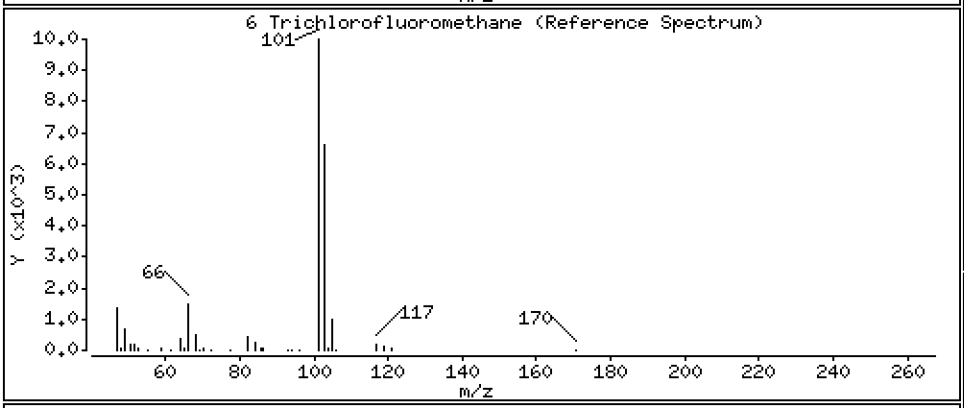
Concentration: 10.086 ug/L

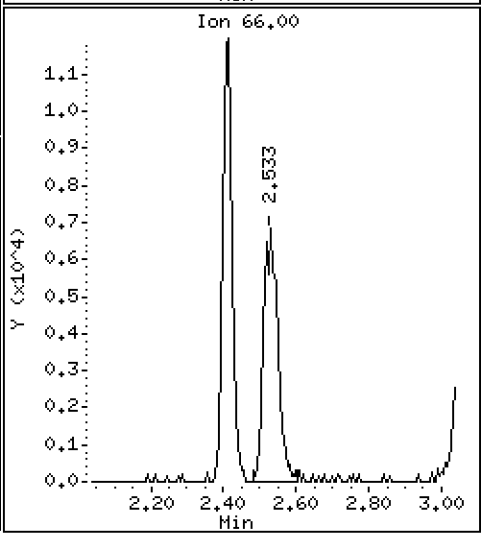


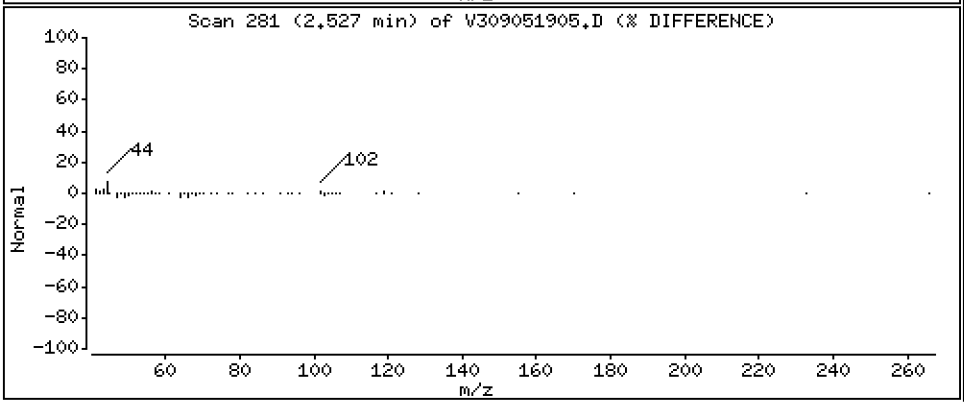












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

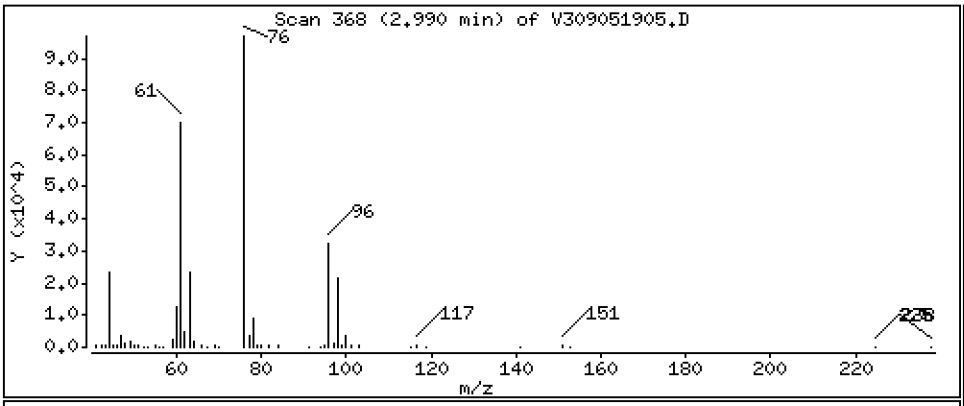
Operator: PKC

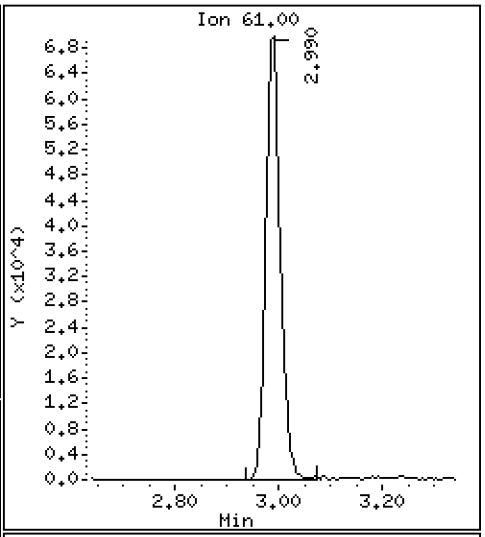
Column phase: RTXVMS

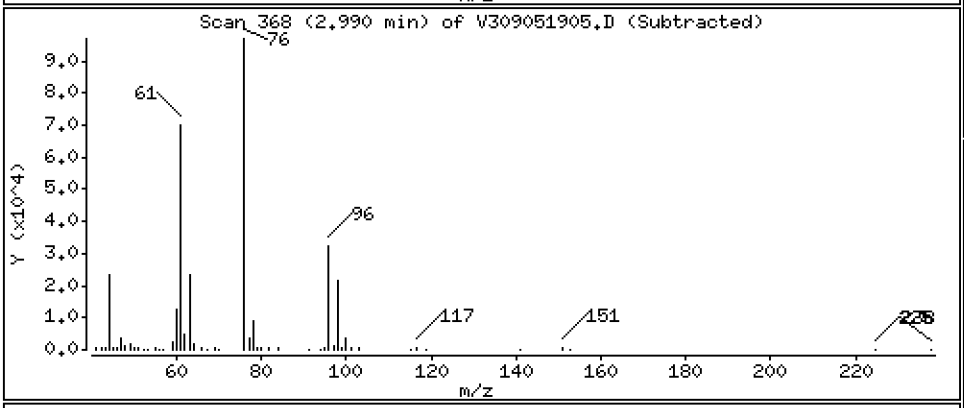
Column diameter: 0.18

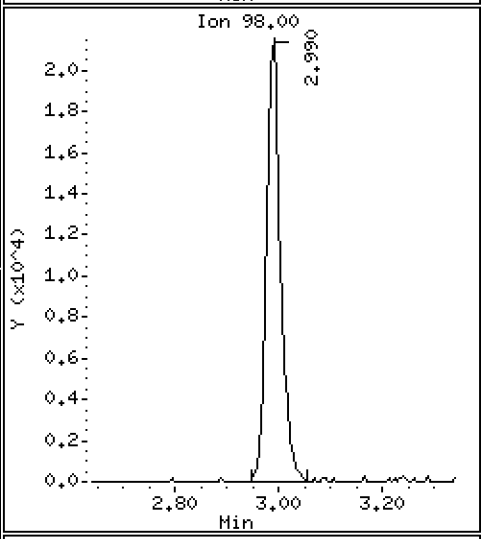
7 1,1-Dichloroethene

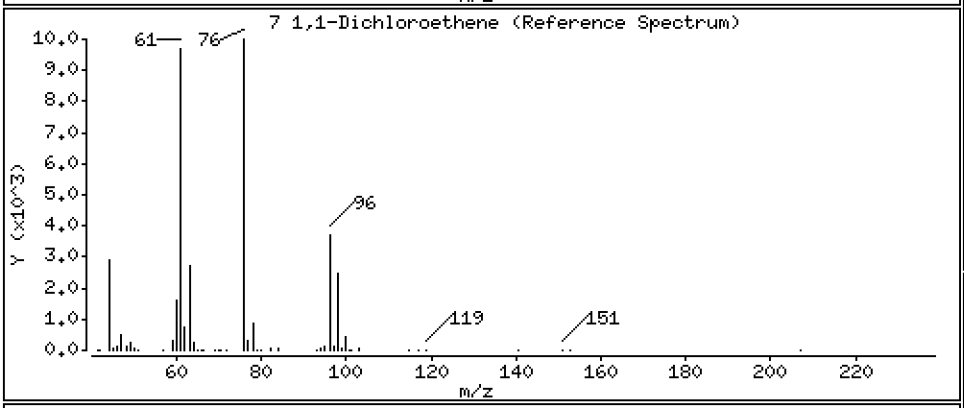
Concentration: 9.699 ug/L

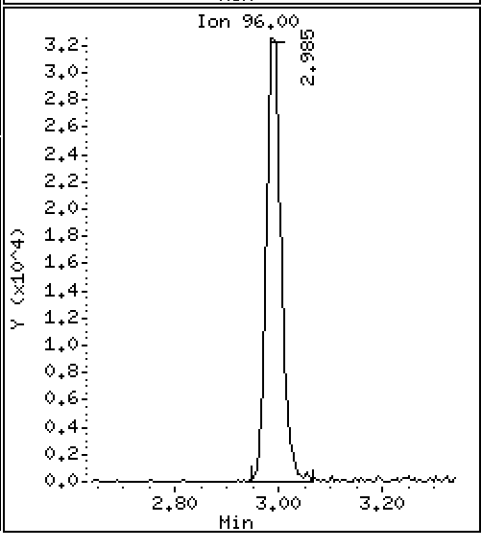


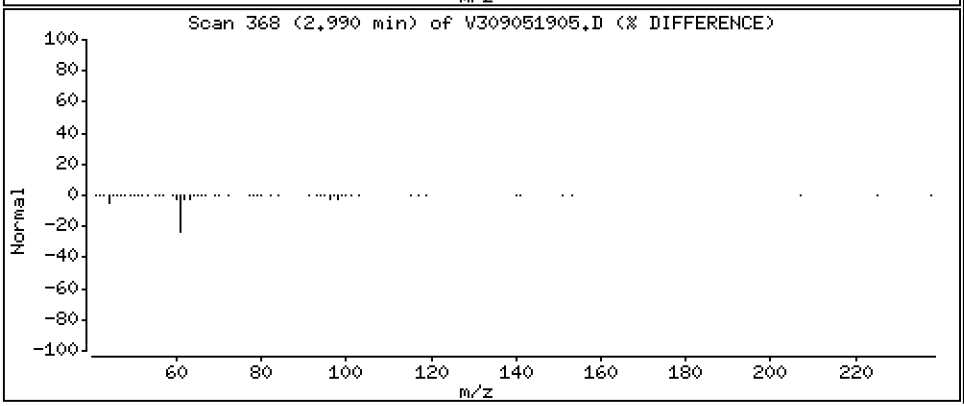












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

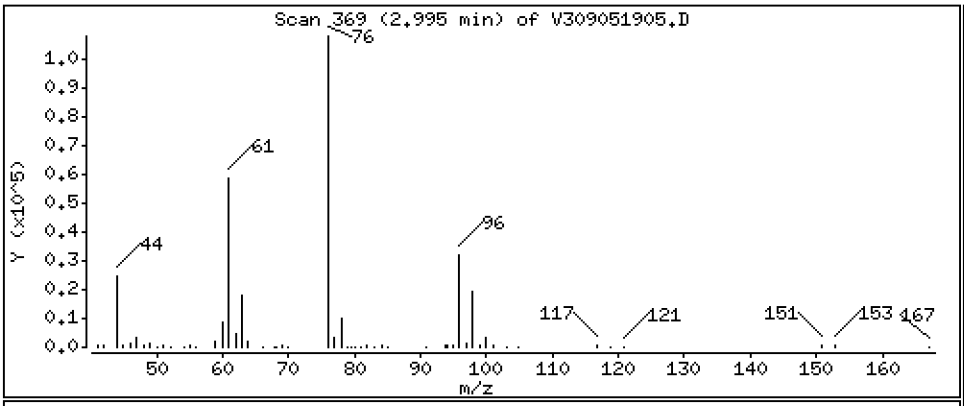
Operator: PKC

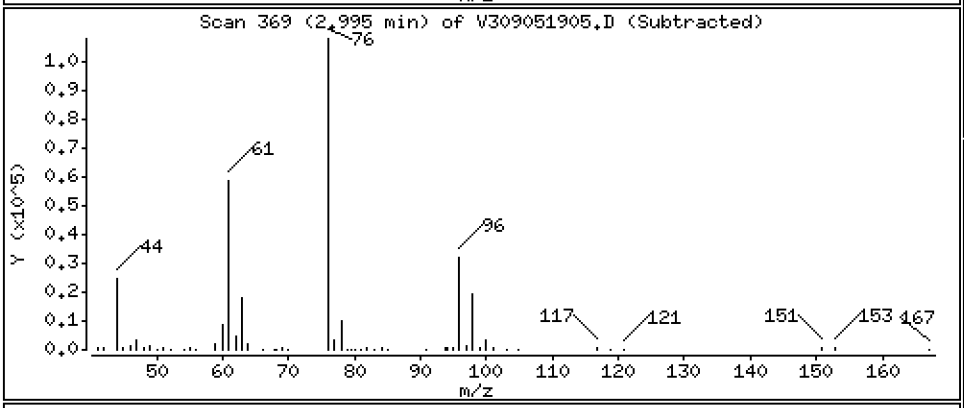
Column phase: RTXVMS

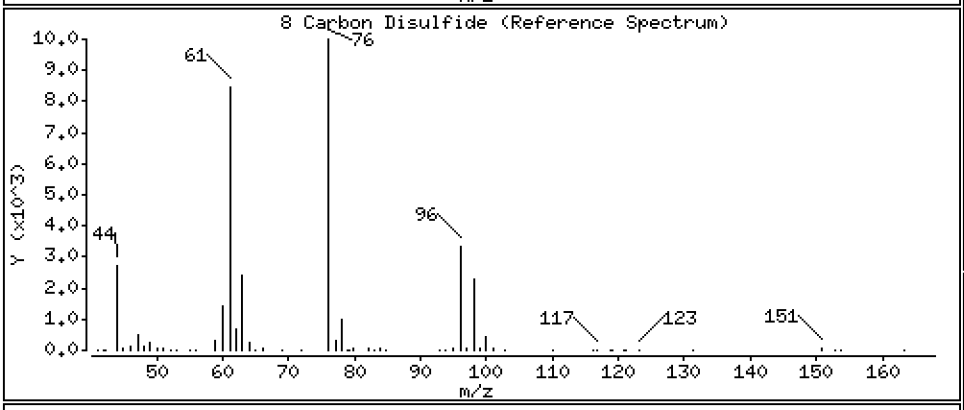
Column diameter: 0.18

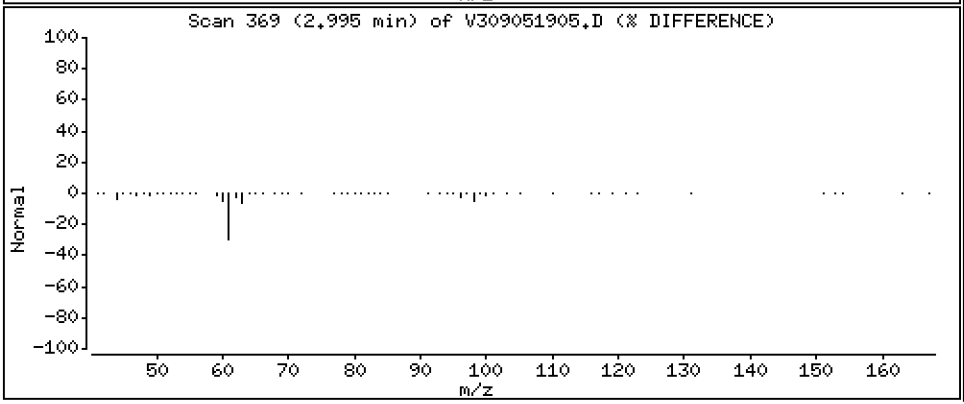
8 Carbon Disulfide

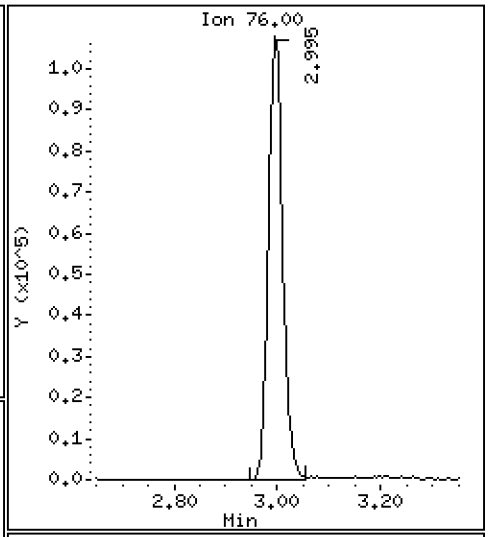
Concentration: 9.996 ug/L

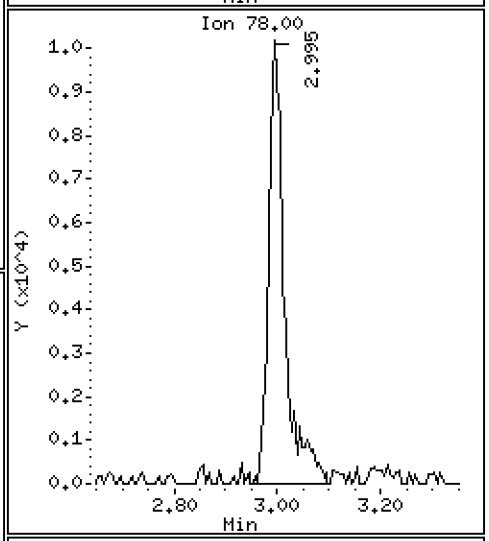


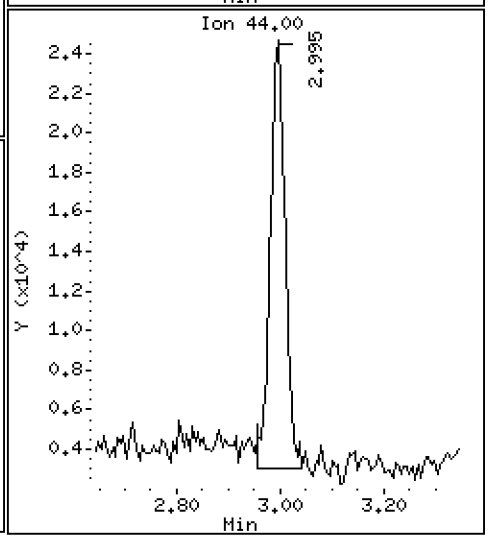












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

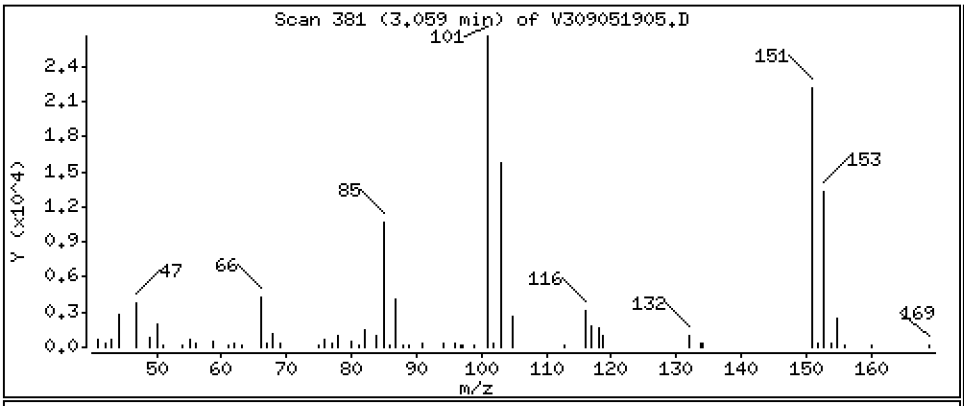
Operator: PKC

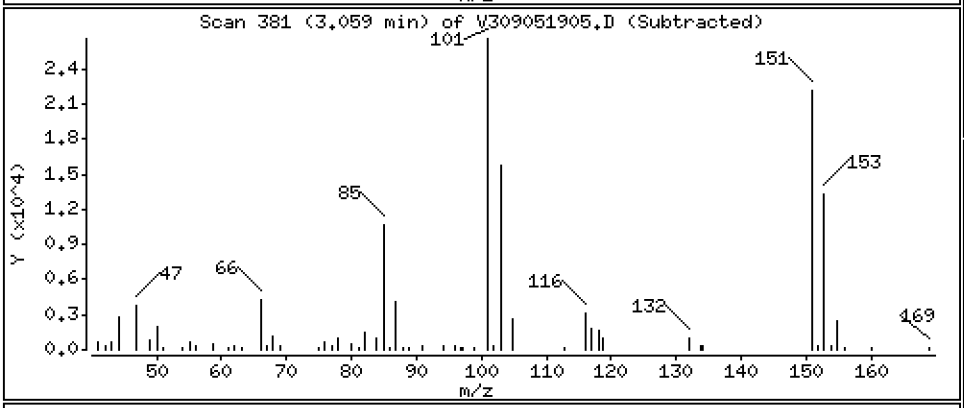
Column phase: RTXVMS

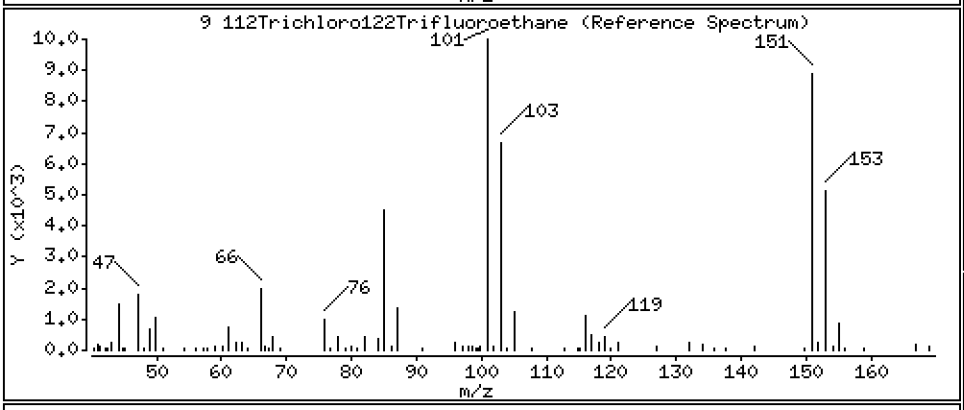
Column diameter: 0.18

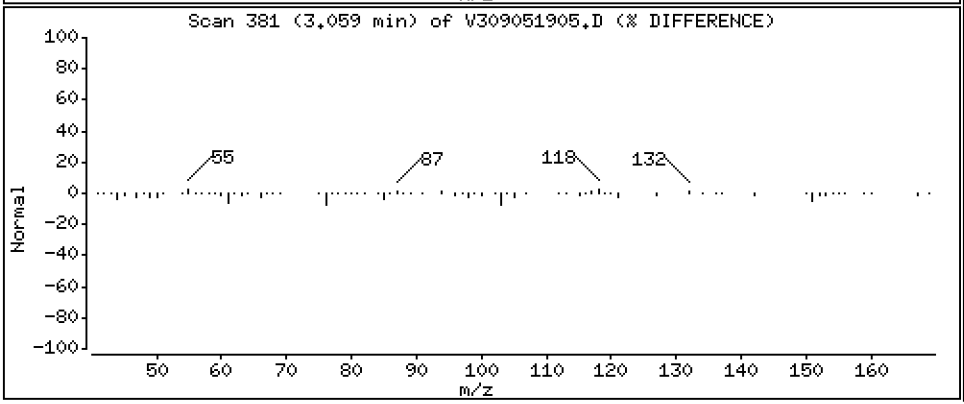
9 112Trichloro122Trifluoroethane

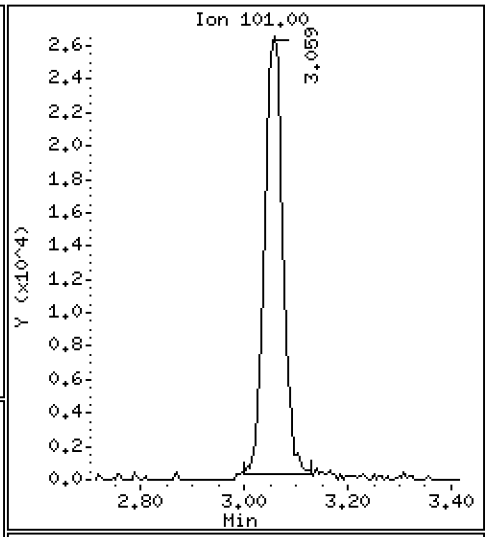
Concentration: 10.117 ug/L

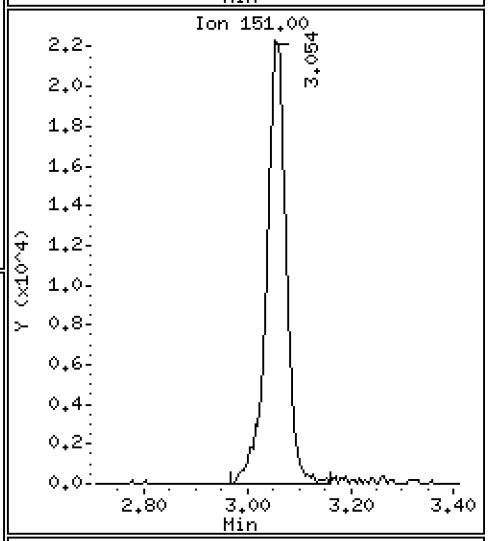


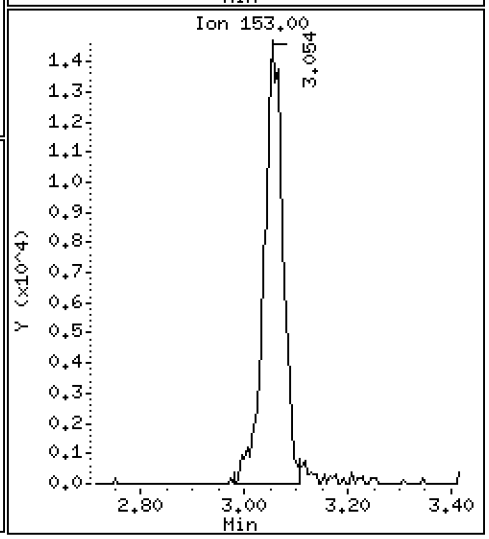












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

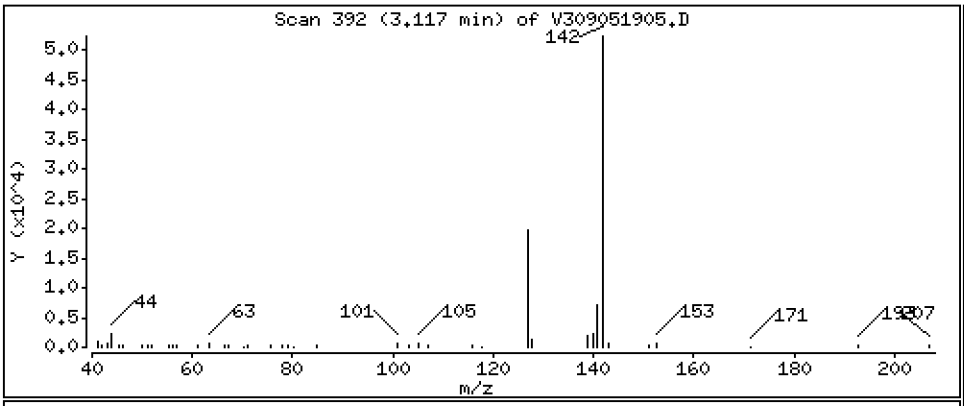
Operator: PKC

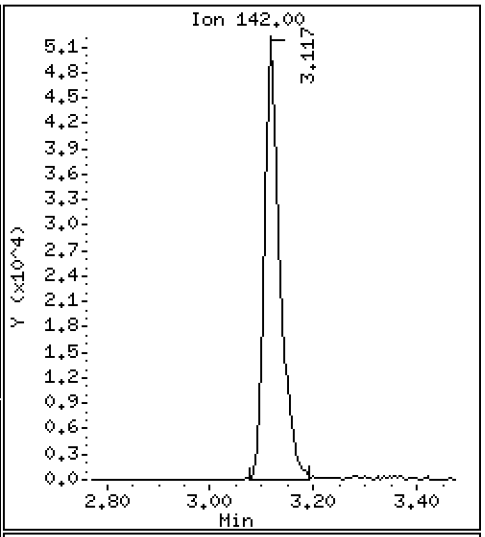
Column phase: RTXVMS

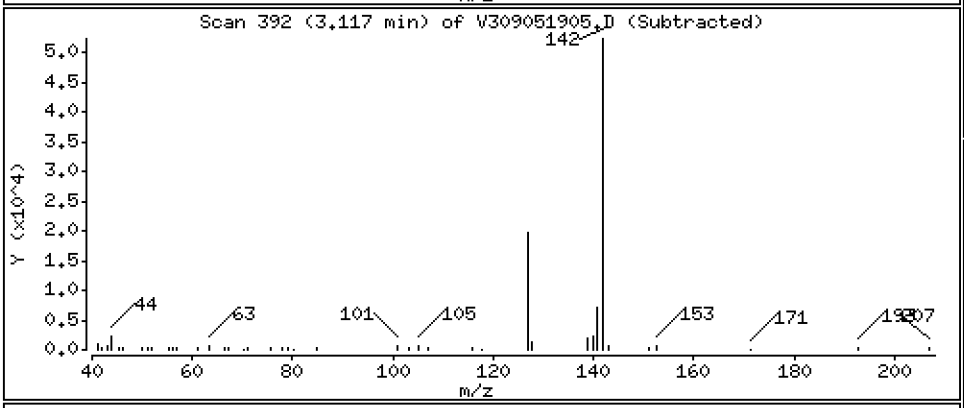
Column diameter: 0.18

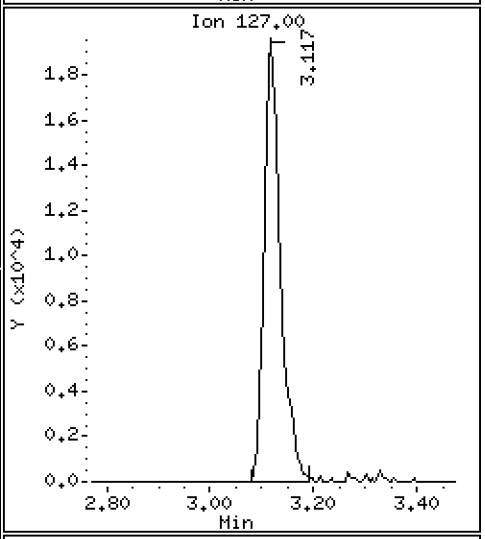
10 Iodomethane

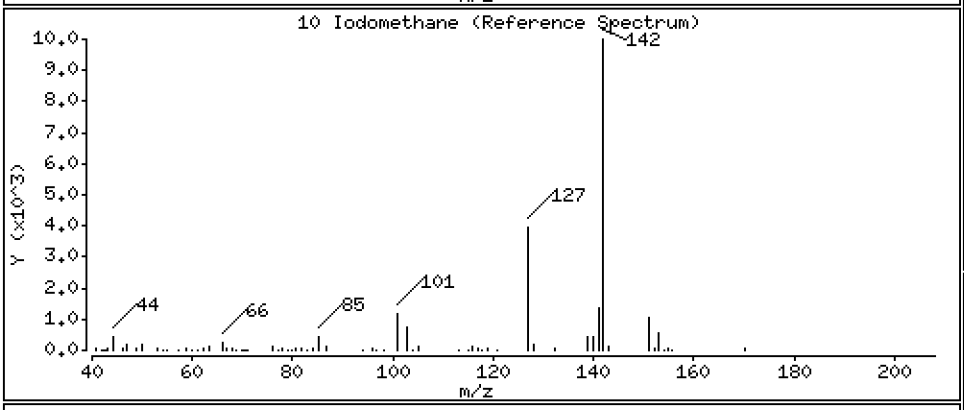
Concentration: 10.093 ug/L

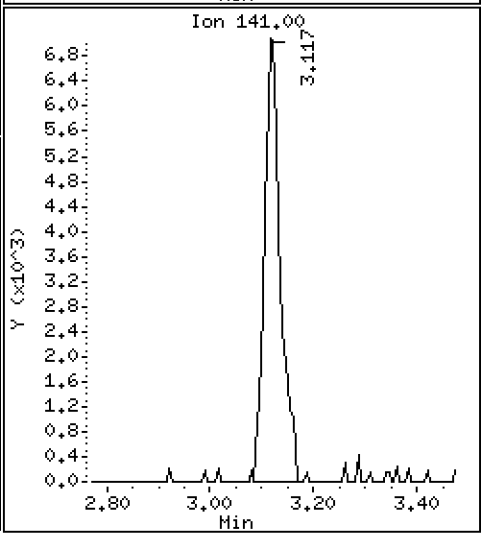


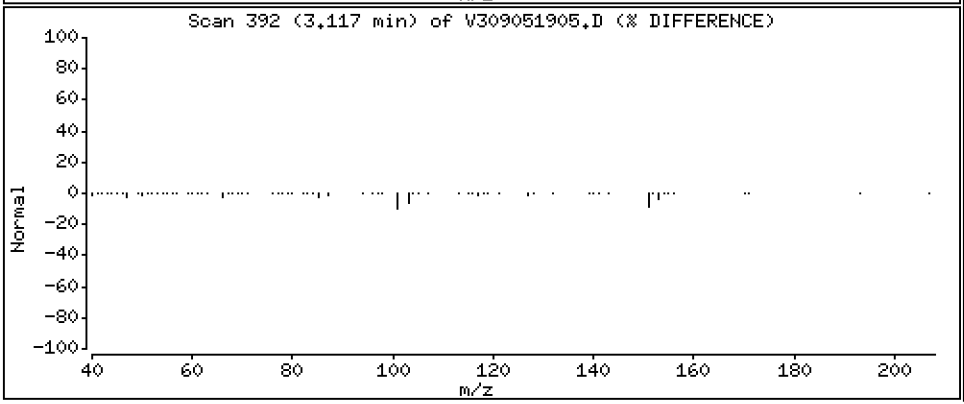












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

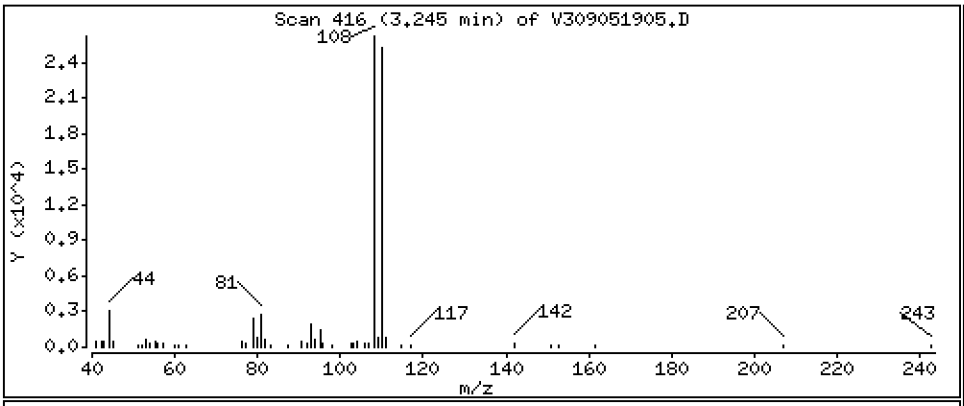
Operator: PKC

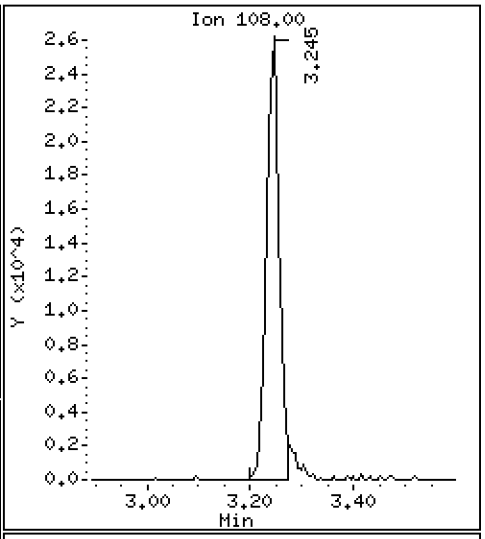
Column phase: RTXVMS

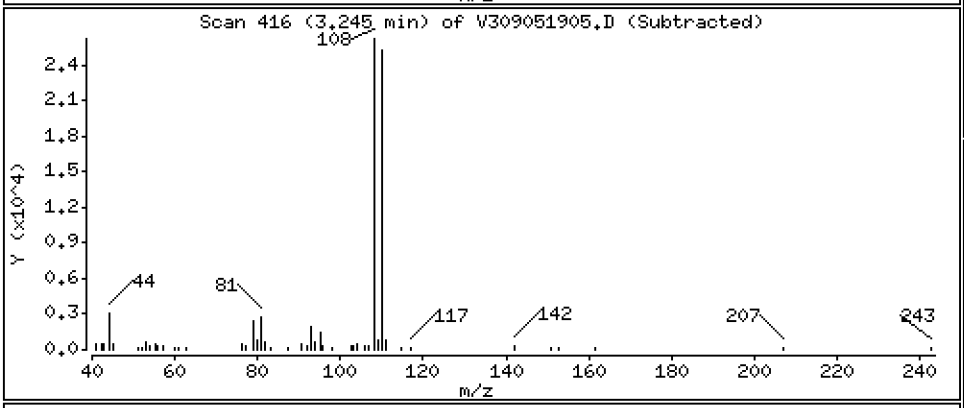
Column diameter: 0.18

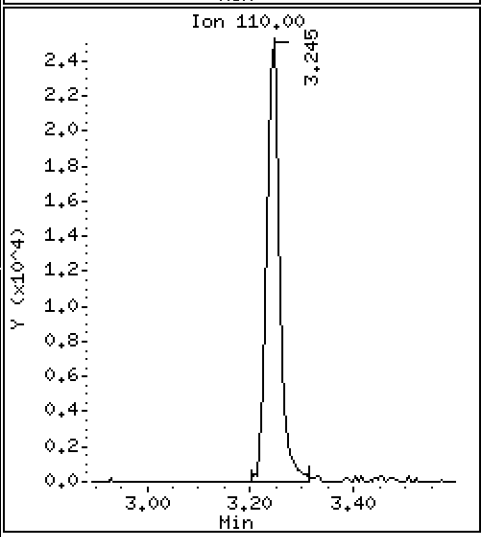
11 Bromoethane

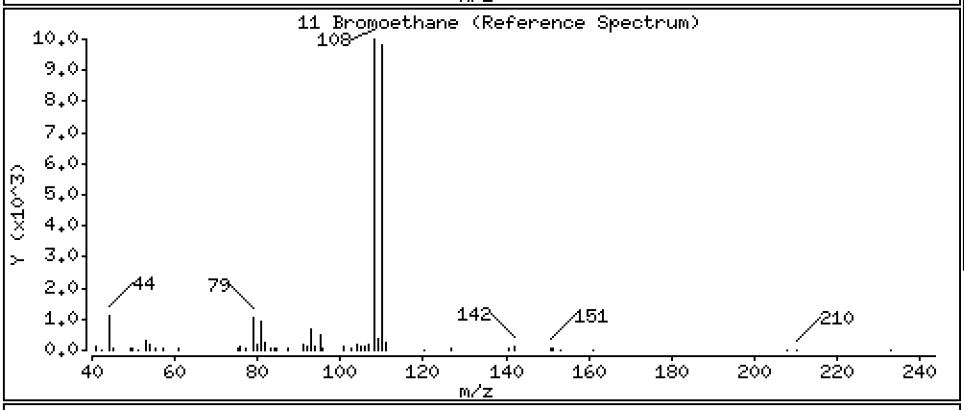
Concentration: 9.088 ug/L

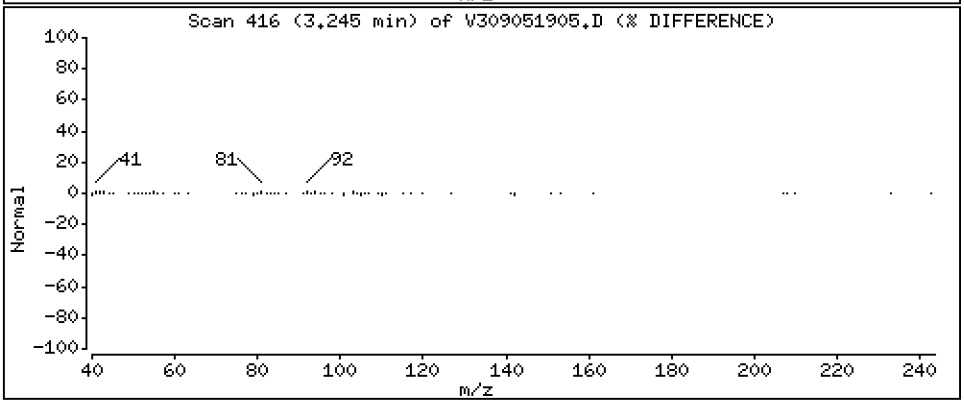












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

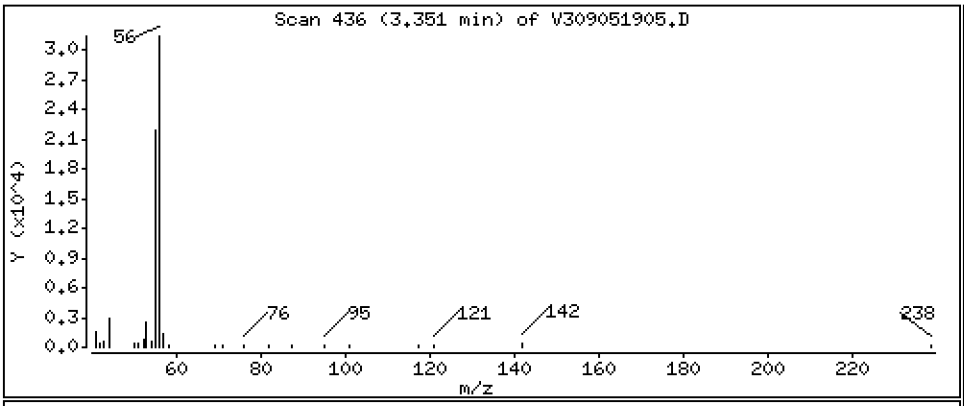
Operator: PKC

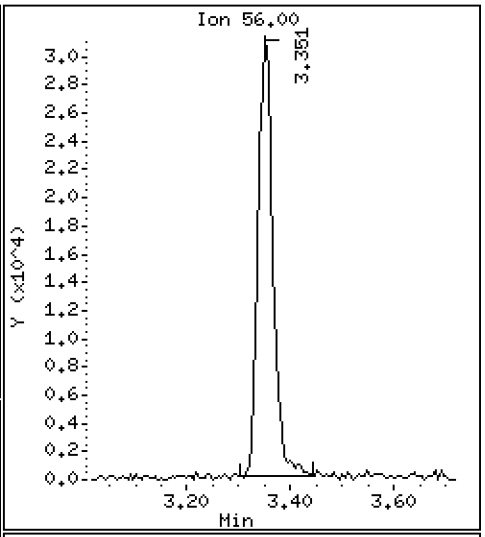
Column phase: RTXVMS

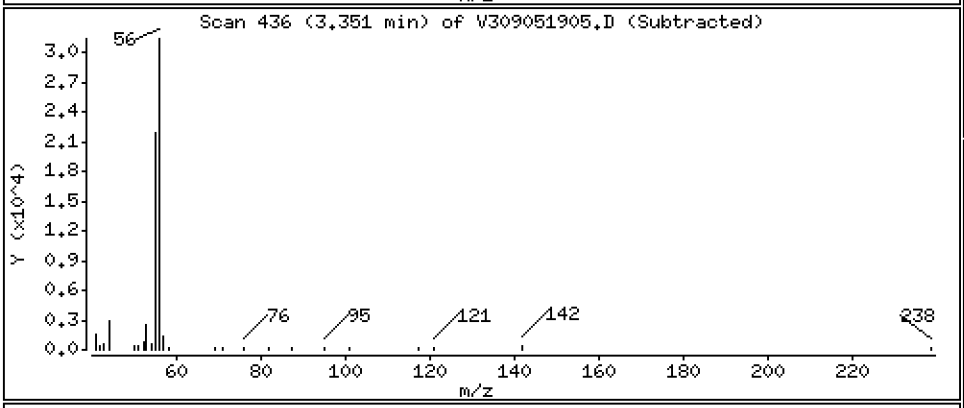
Column diameter: 0.18

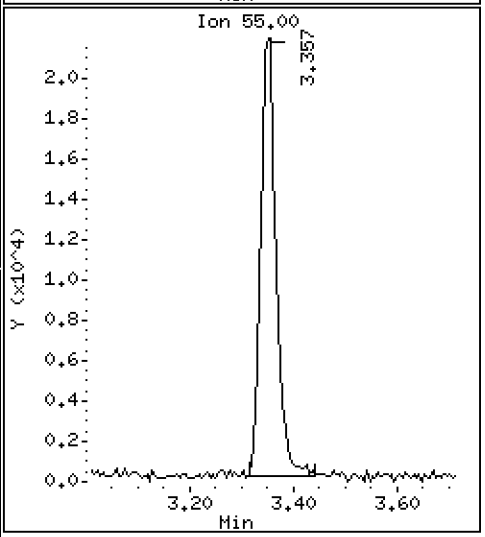
12 Acrolein

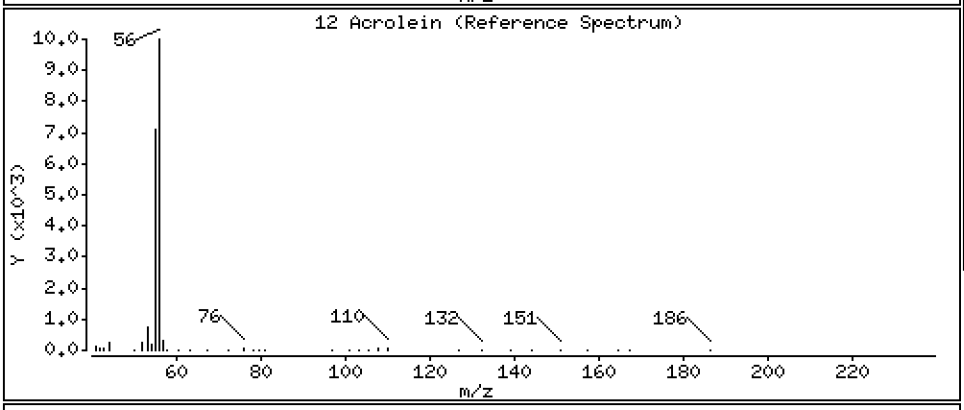
Concentration: 49.714 ug/L

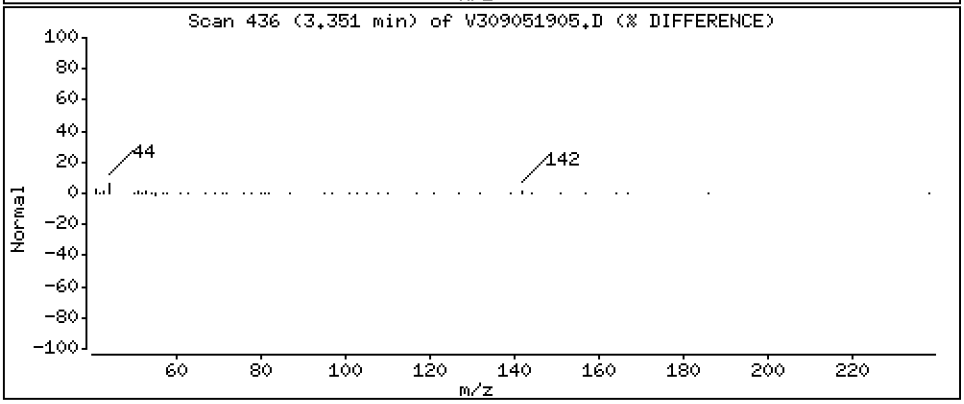












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

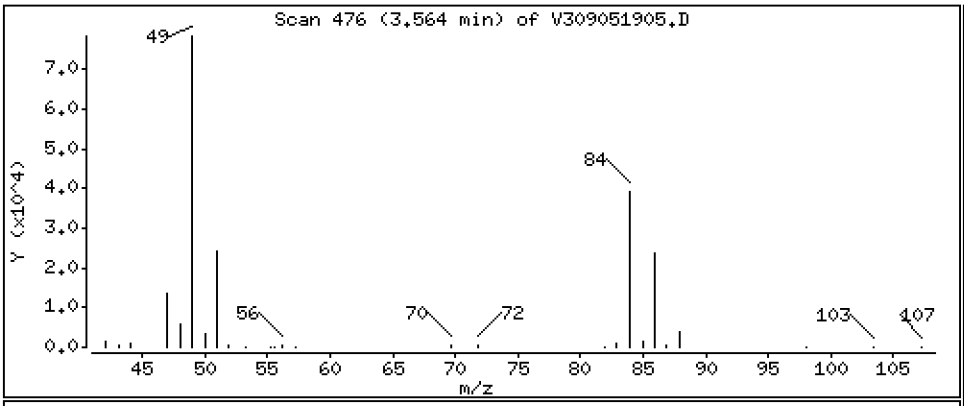
Operator: PKC

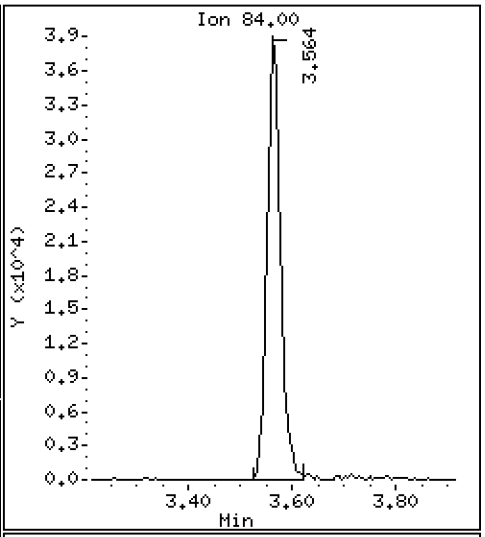
Column phase: RTXVMS

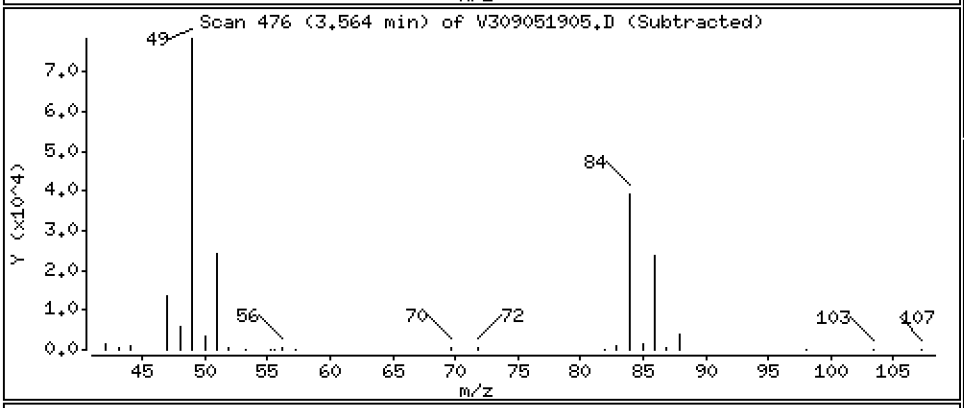
Column diameter: 0.18

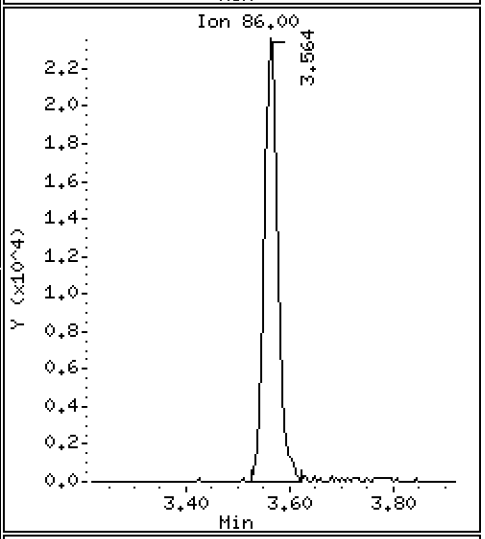
13 Methylene Chloride

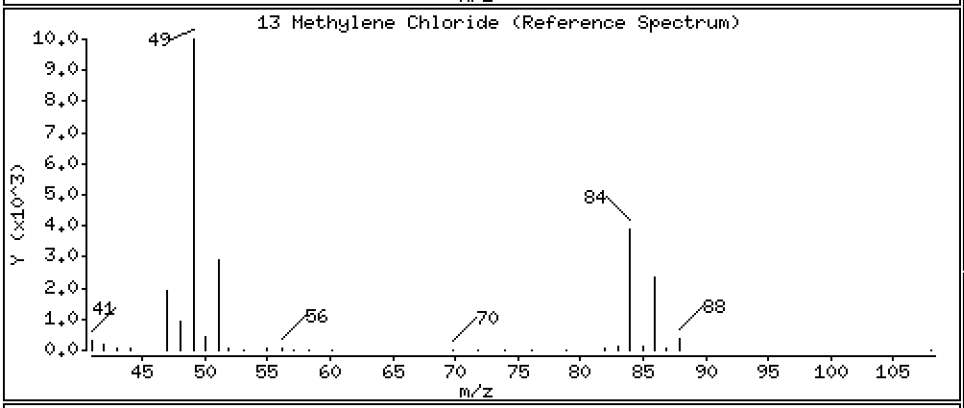
Concentration: 10.855 ug/L

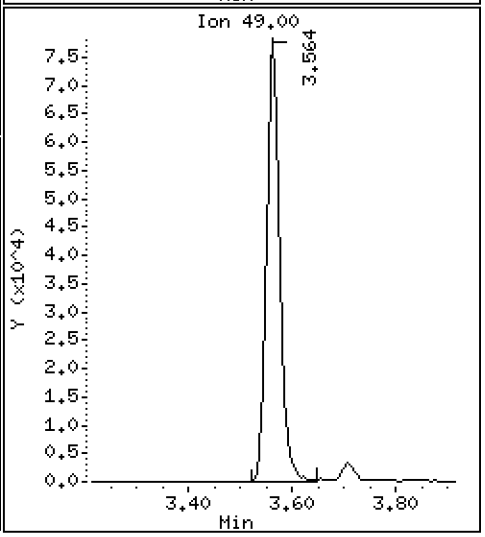


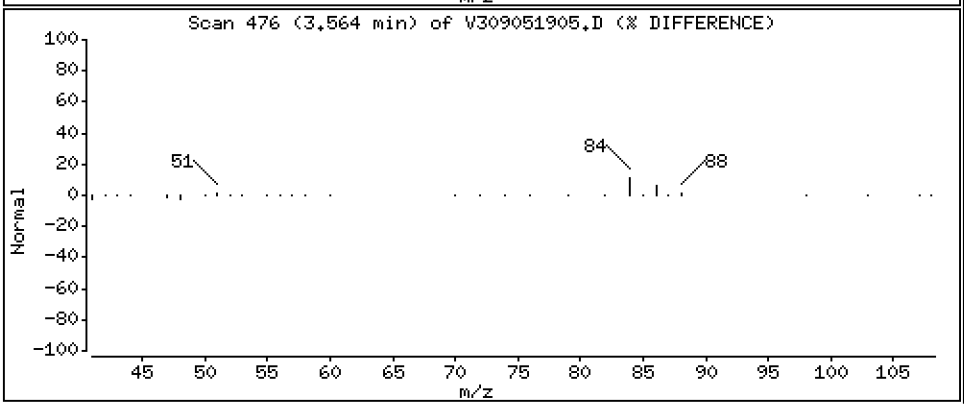












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

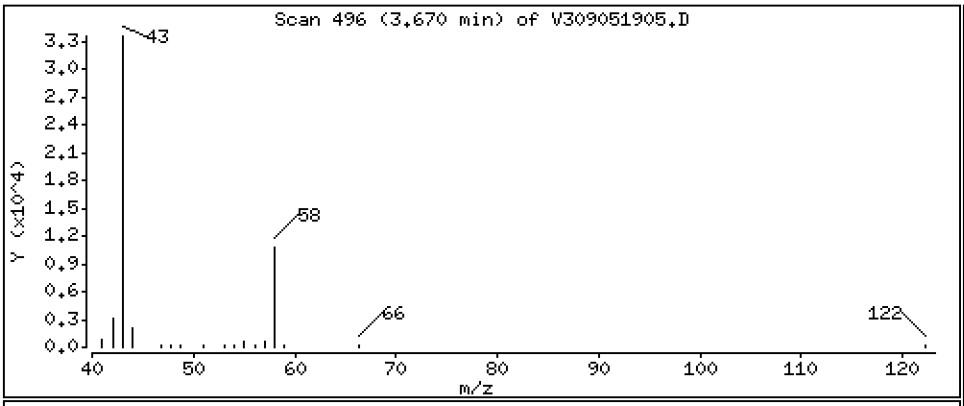
Operator: PKC

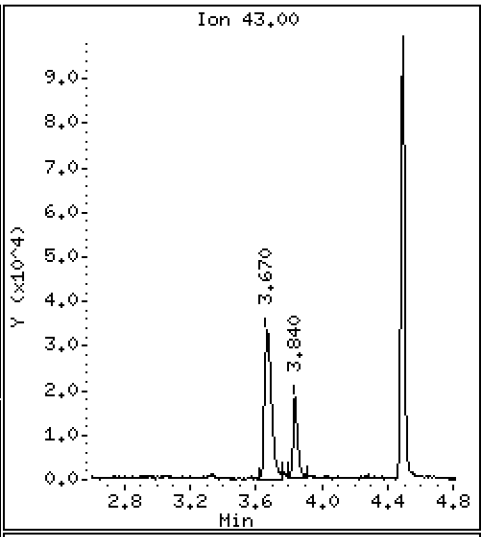
Column phase: RTXVMS

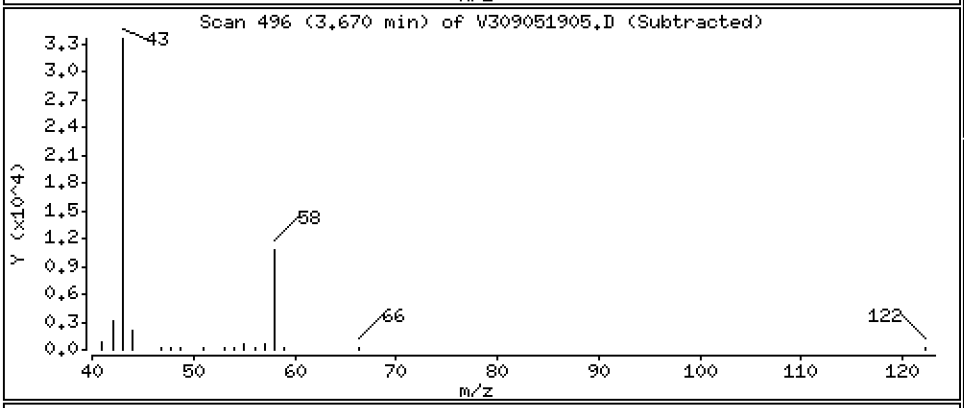
Column diameter: 0.18

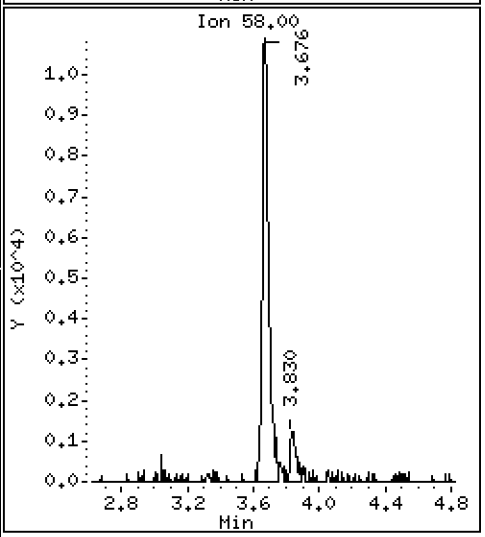
14 Acetone

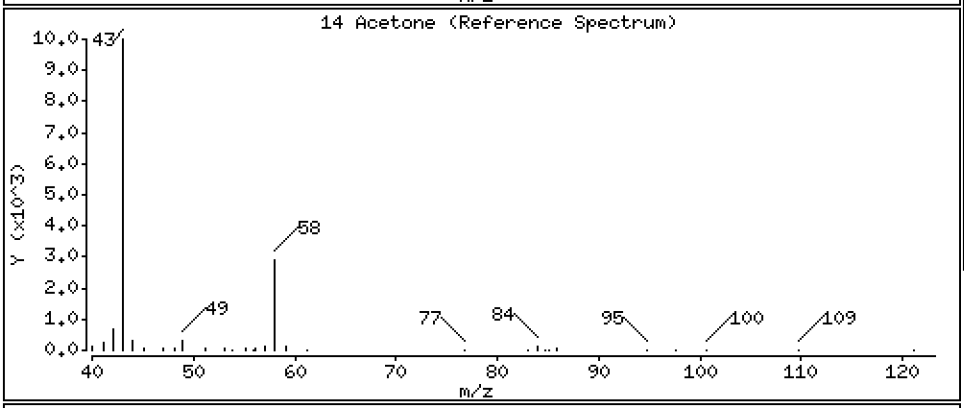
Concentration: 53.241 ug/L

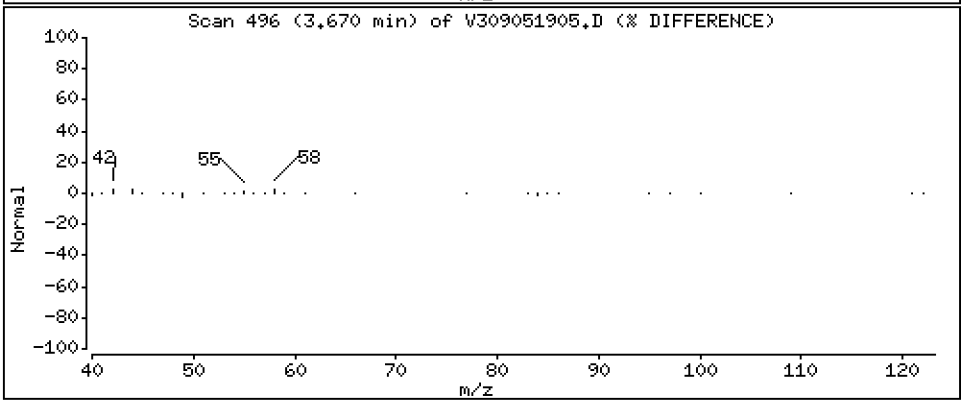












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

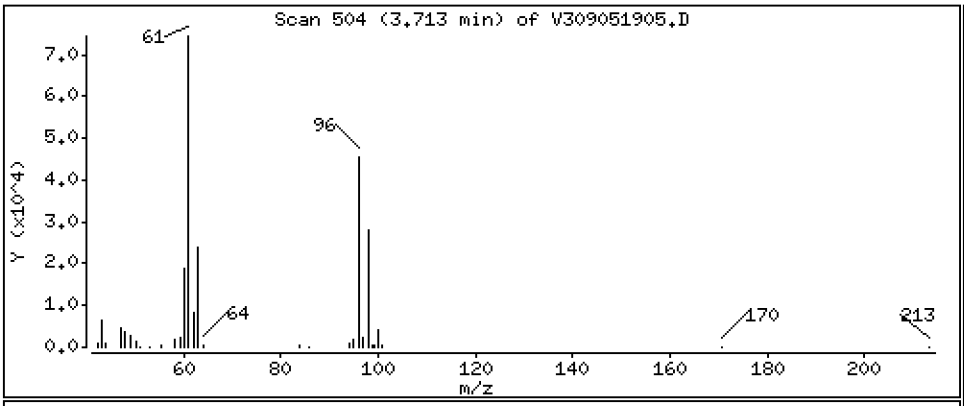
Operator: PKC

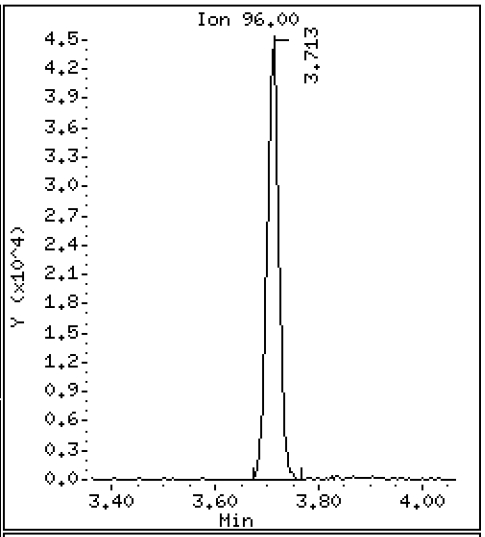
Column phase: RTXVMS

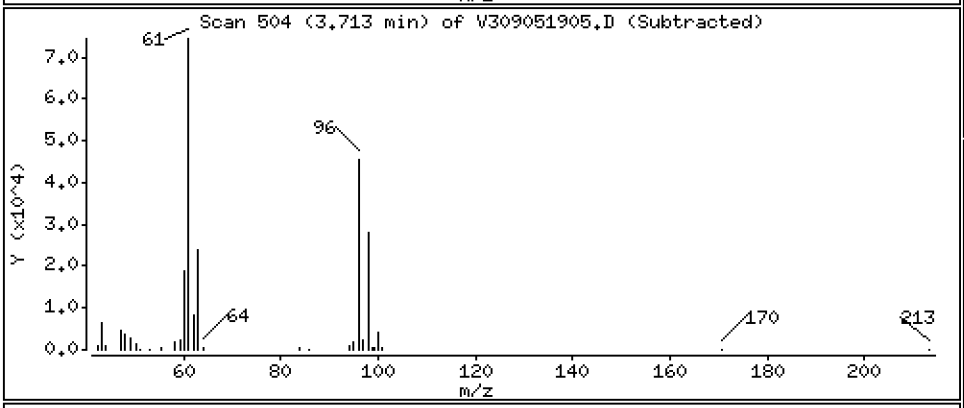
Column diameter: 0.18

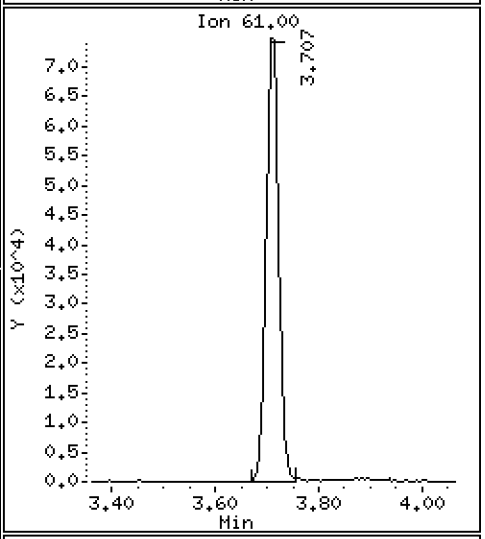
15 Trans-1,2-Dichloroethene

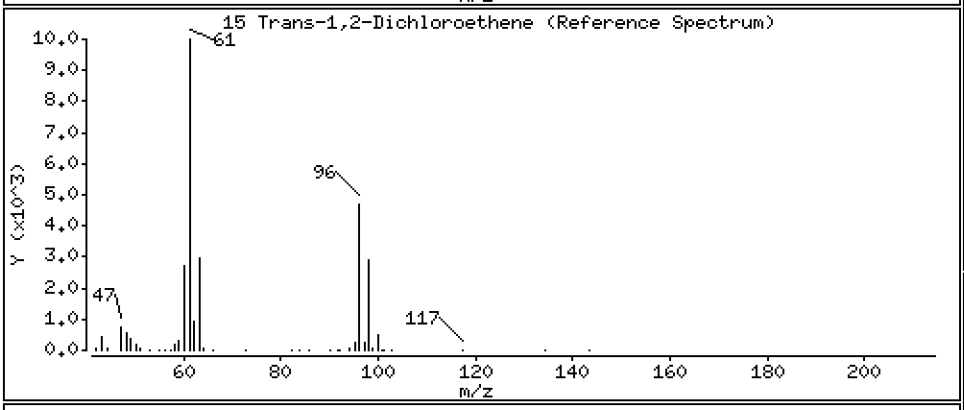
Concentration: 9.549 ug/L

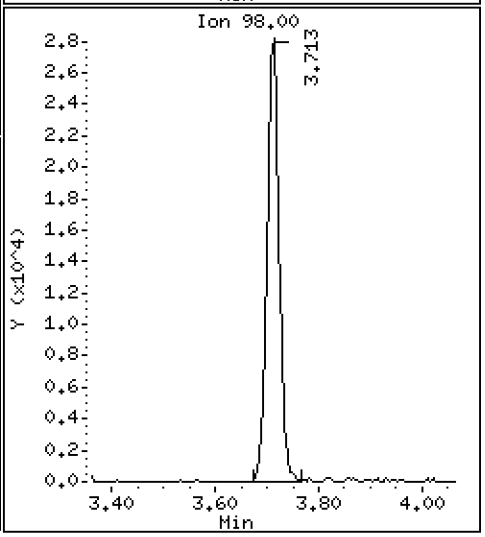


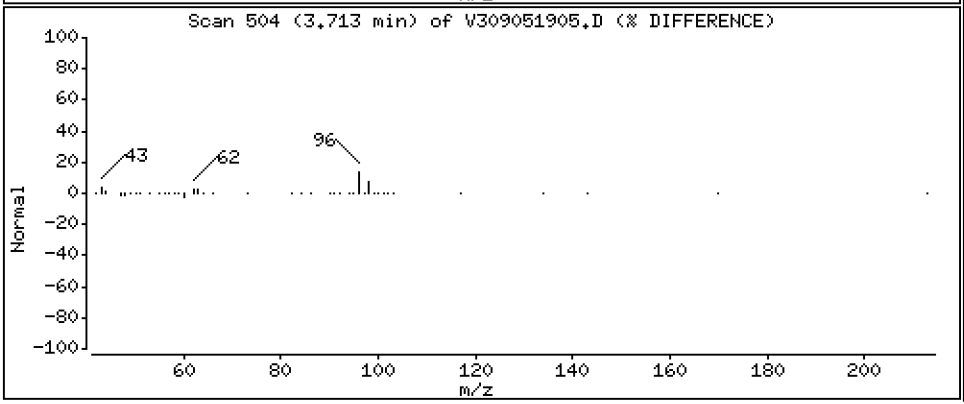












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

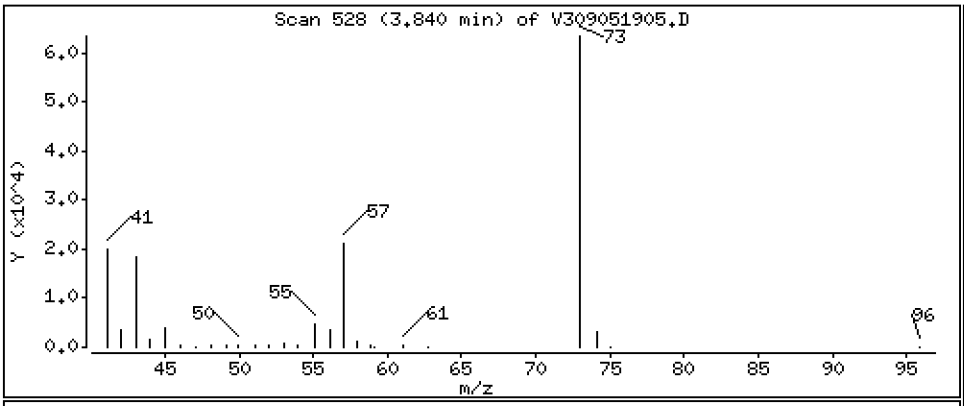
Operator: PKC

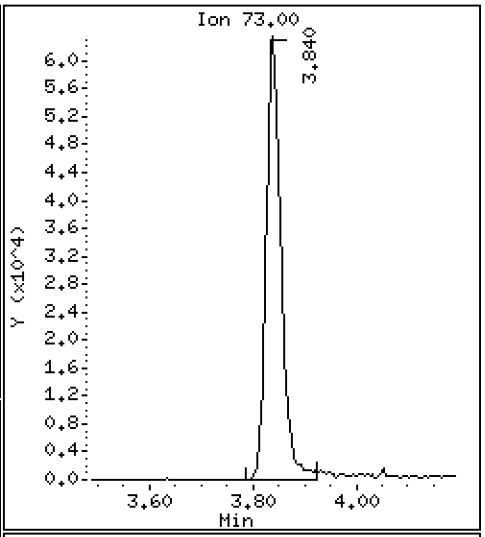
Column phase: RTXVMS

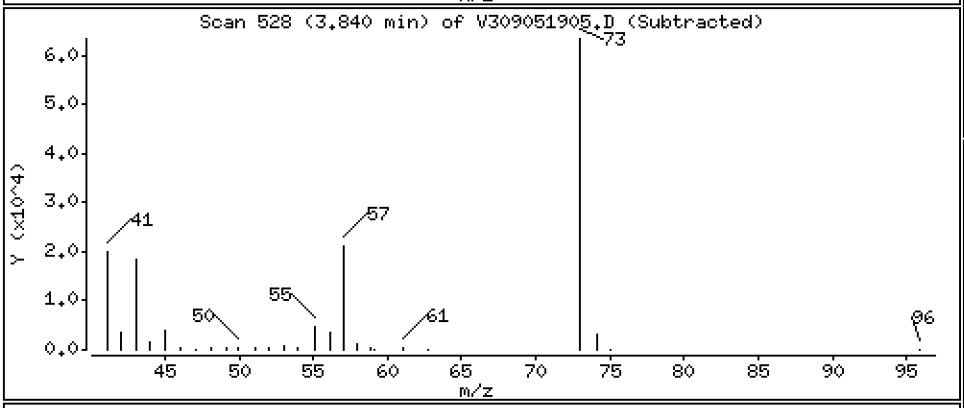
Column diameter: 0.18

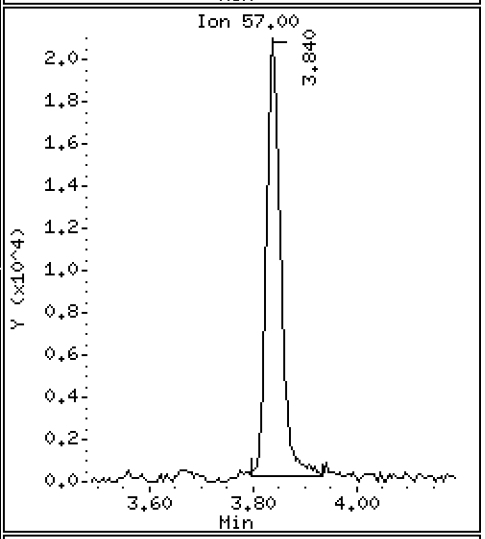
17 Methyl tert butyl ether

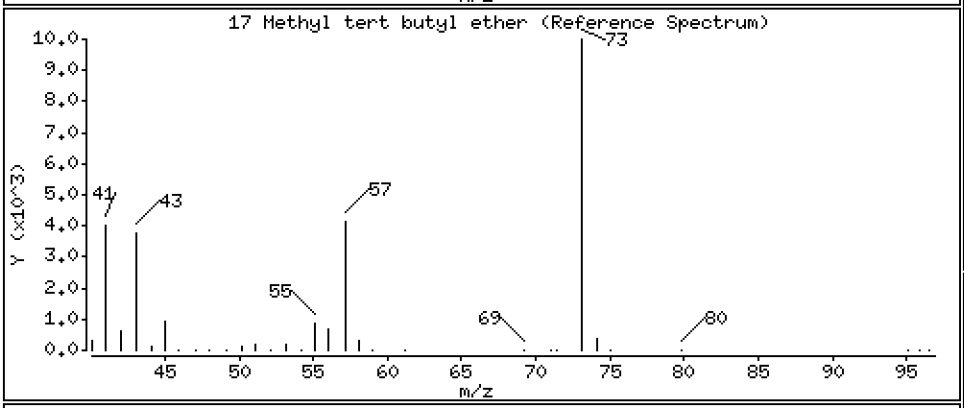
Concentration: 10.062 ug/L

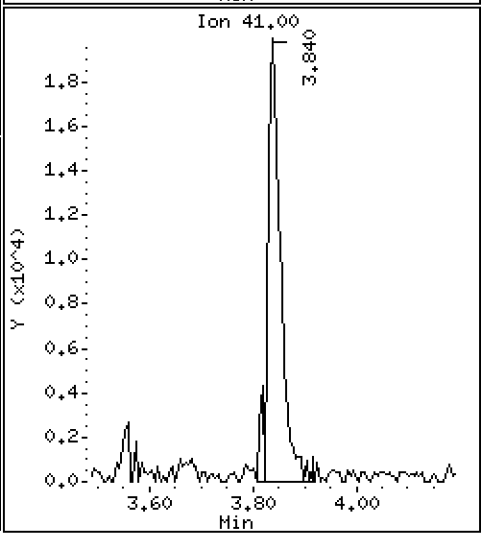


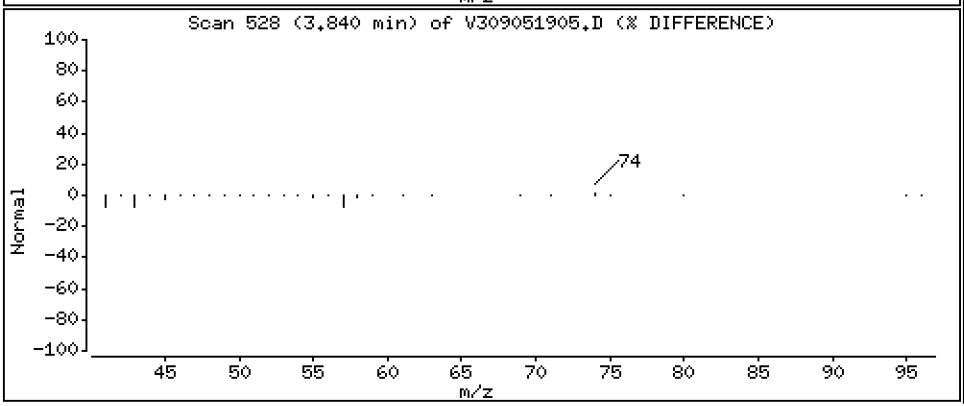












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

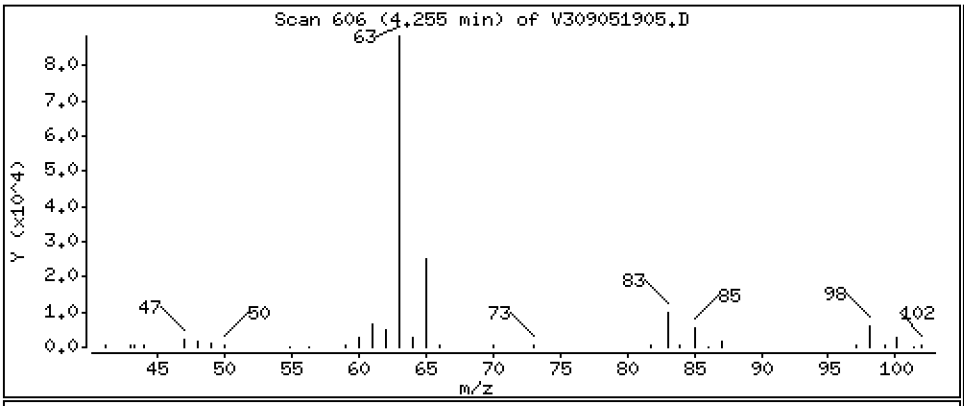
Operator: PKC

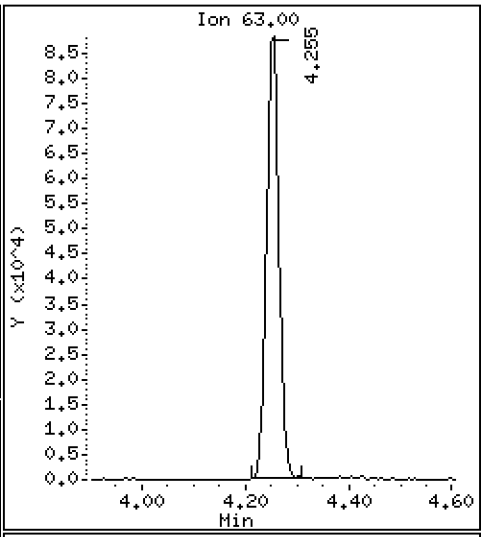
Column phase: RTXVMS

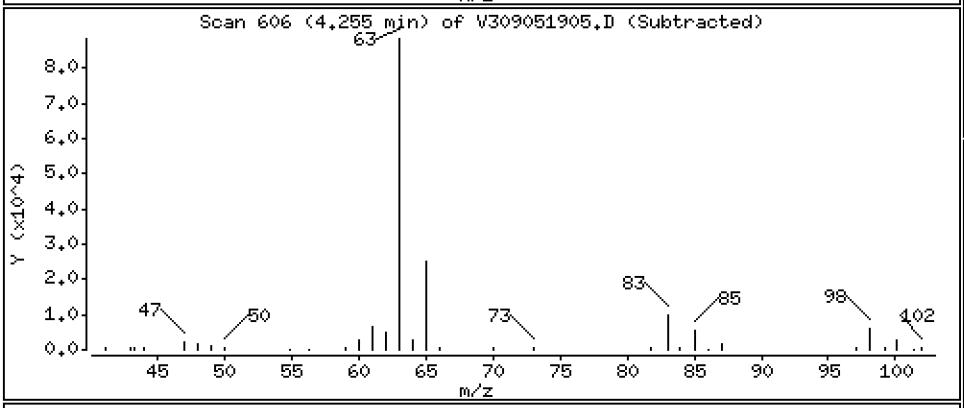
Column diameter: 0.18

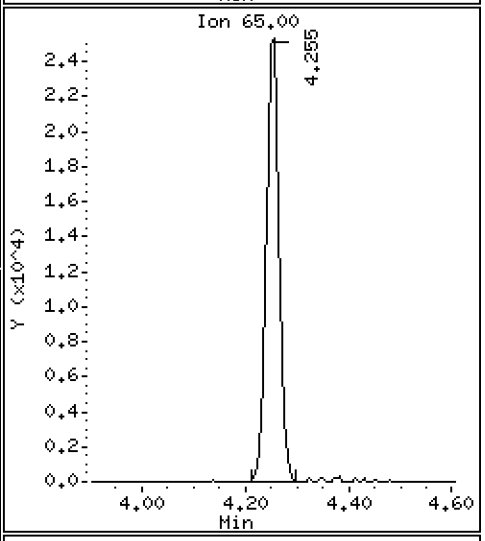
18 1,1-Dichloroethane

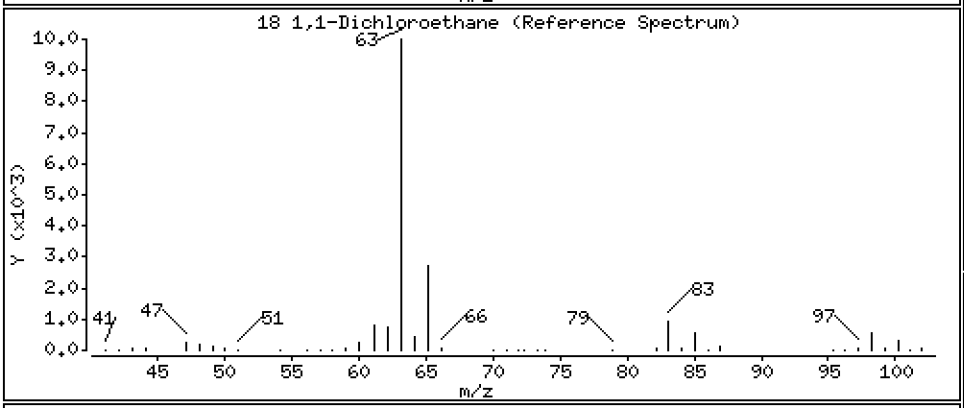
Concentration: 9.814 ug/L

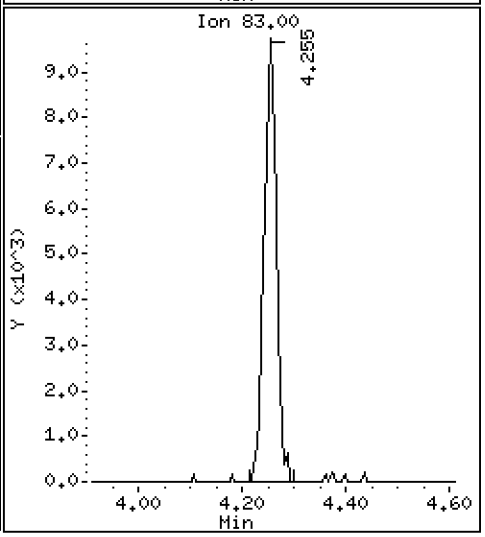


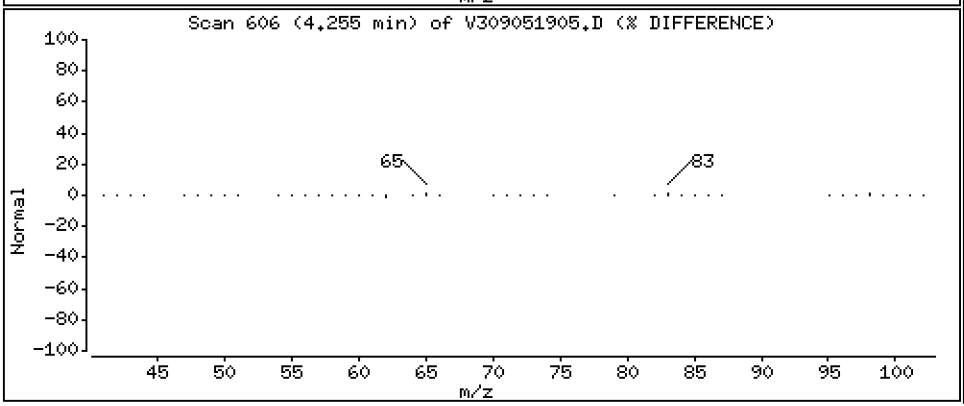












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Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

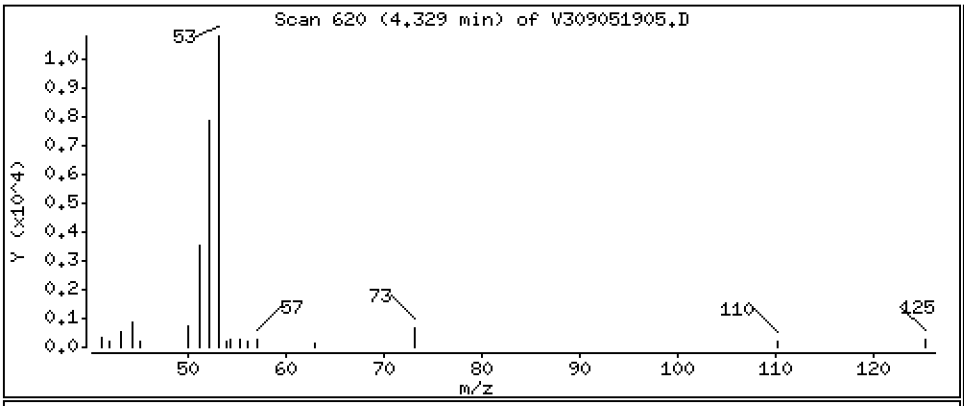
Operator: PKC

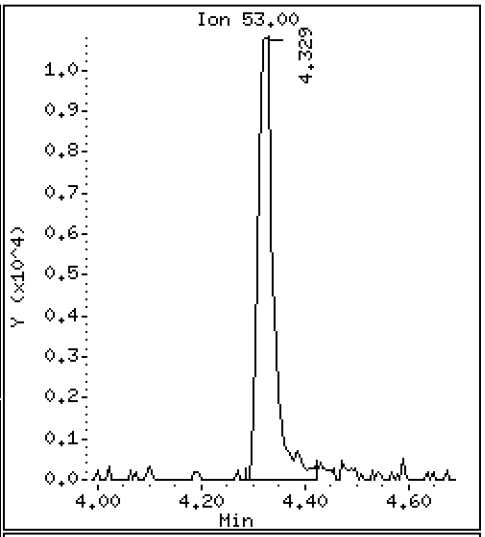
Column phase: RTXVMS

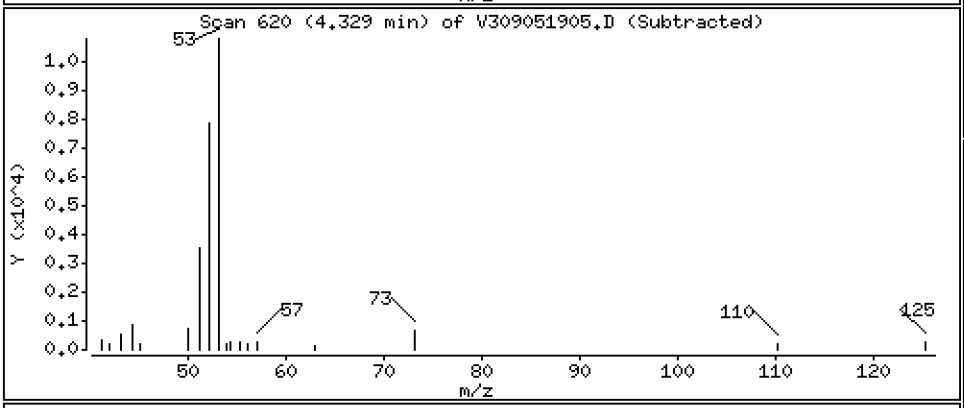
Column diameter: 0.18

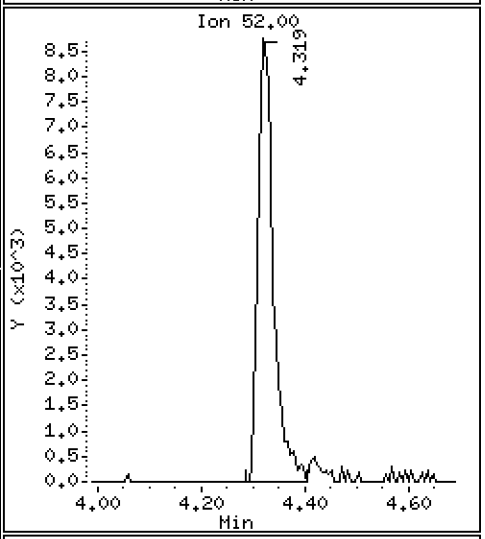
19 Acrylonitrile

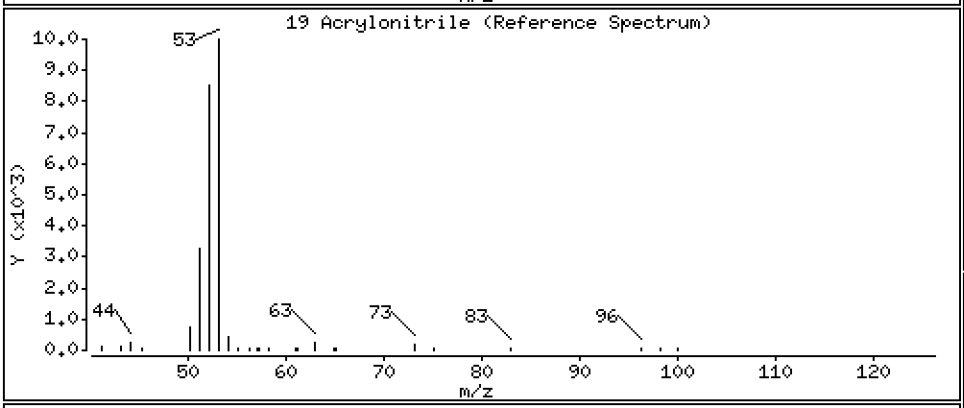
Concentration: 10.671 ug/L

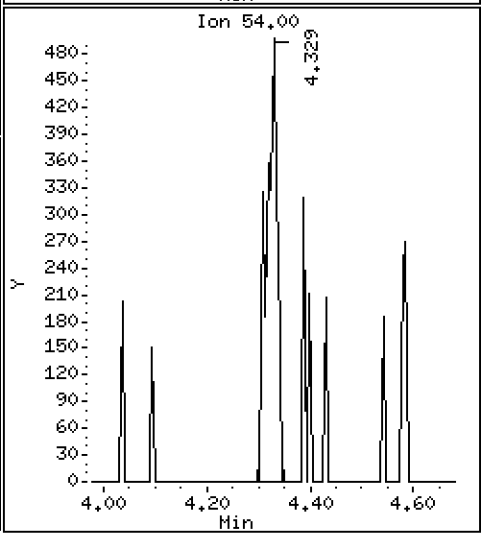


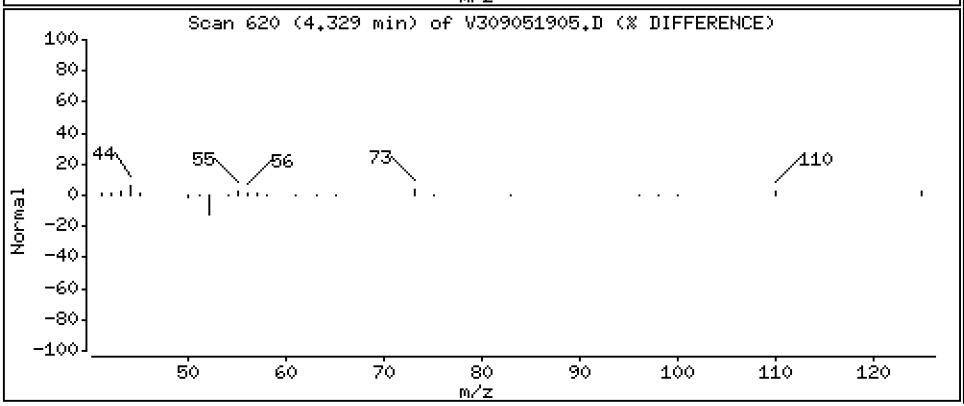












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

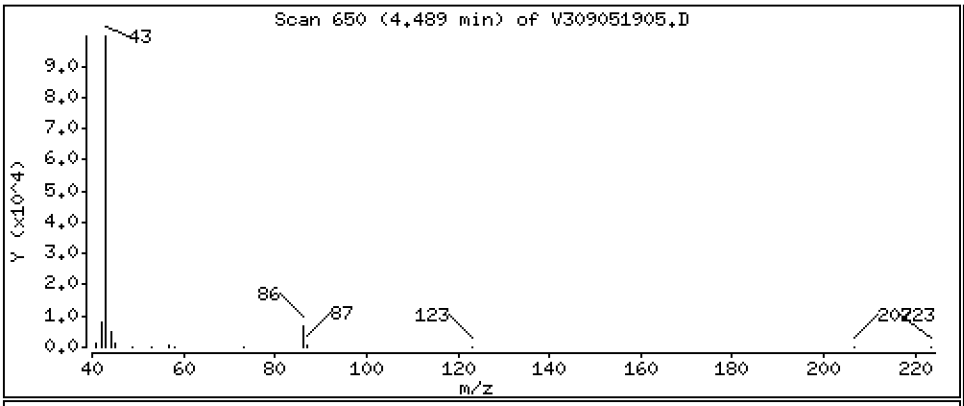
Operator: PKC

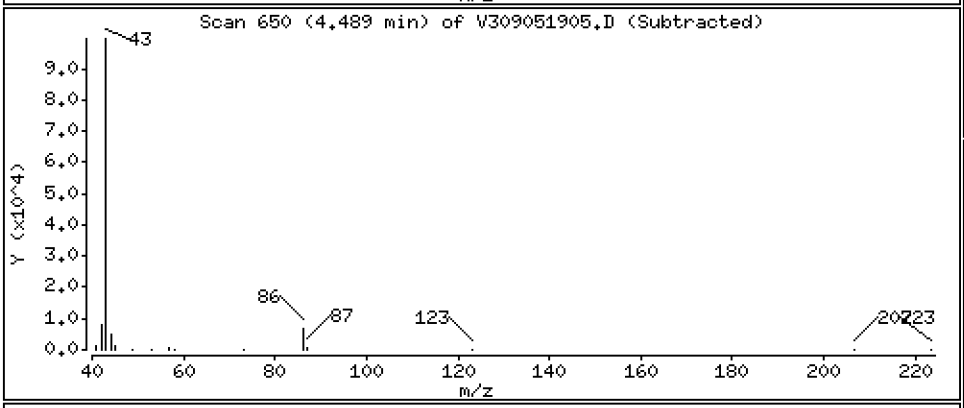
Column phase: RTXVMS

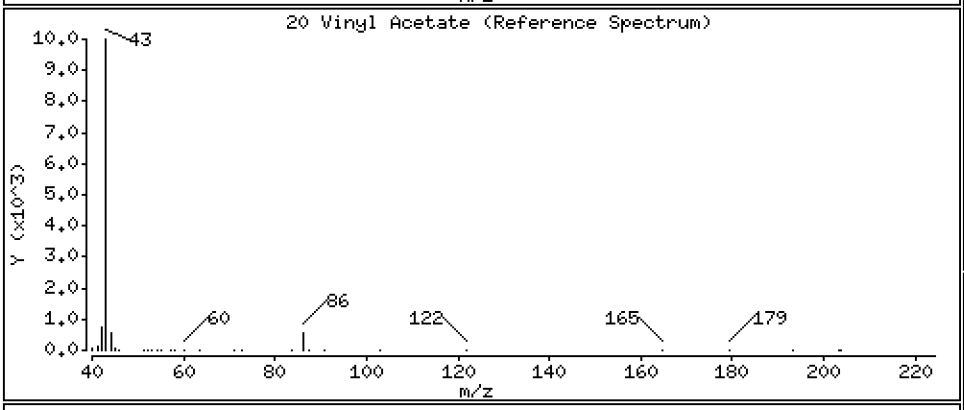
Column diameter: 0.18

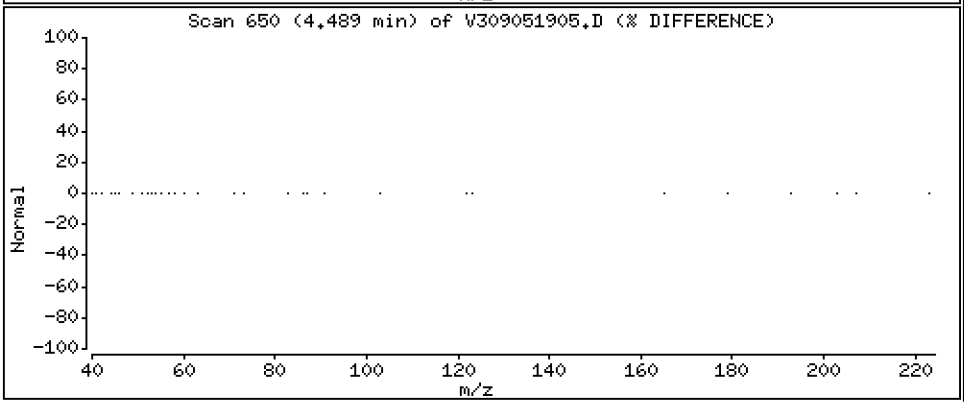
20 Vinyl Acetate

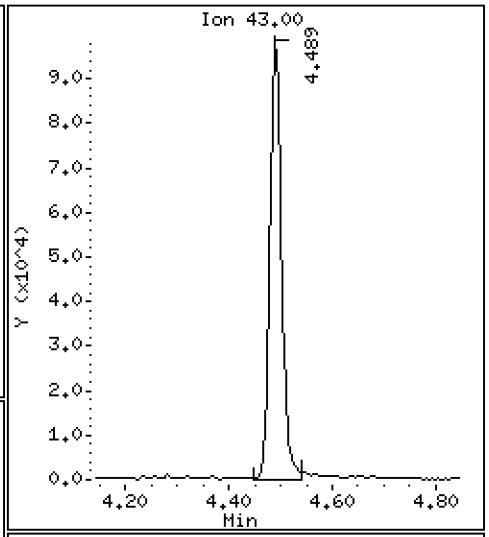
Concentration: 9.771 ug/L

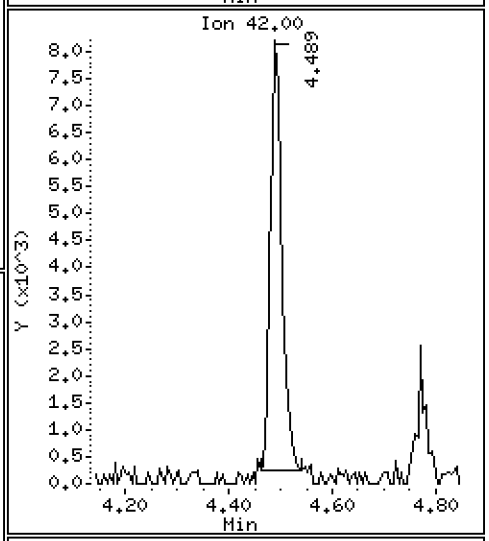


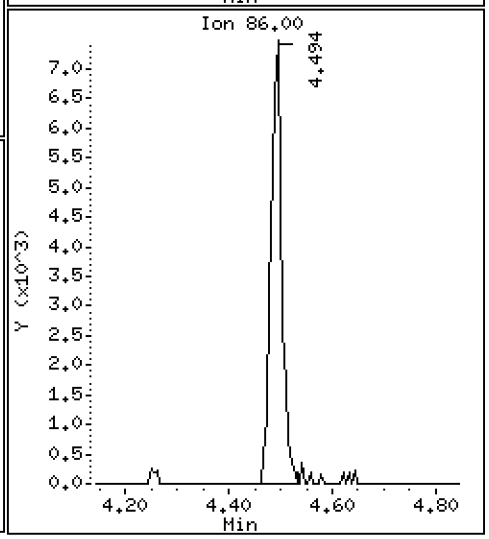












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

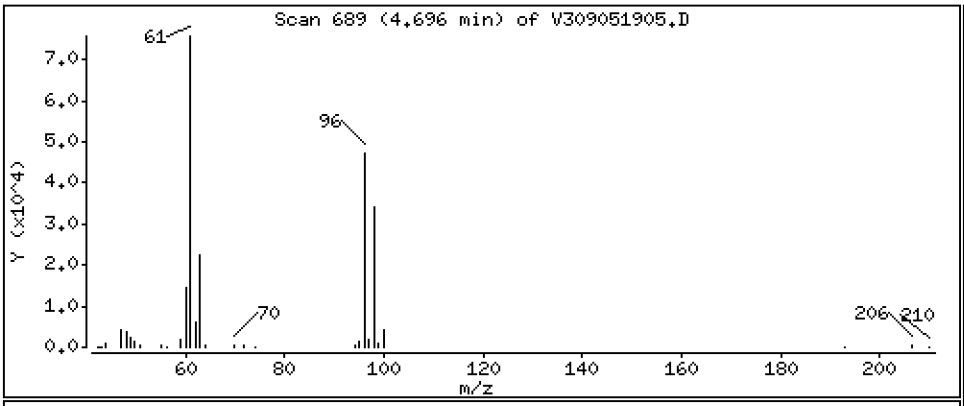
Operator: PKC

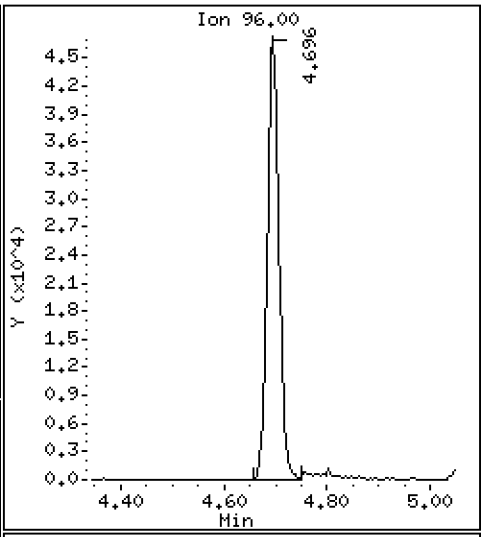
Column phase: RTXVMS

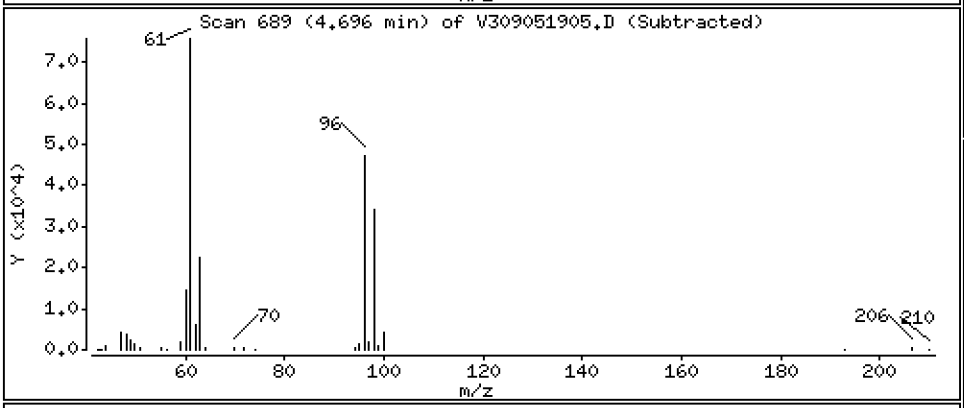
Column diameter: 0.18

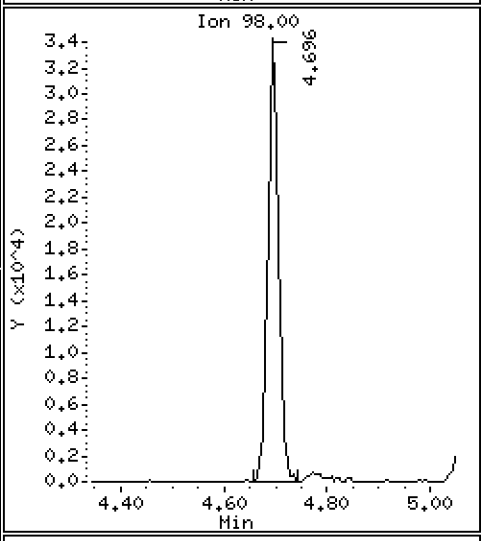
22 Cis-1,2-Dichloroethene

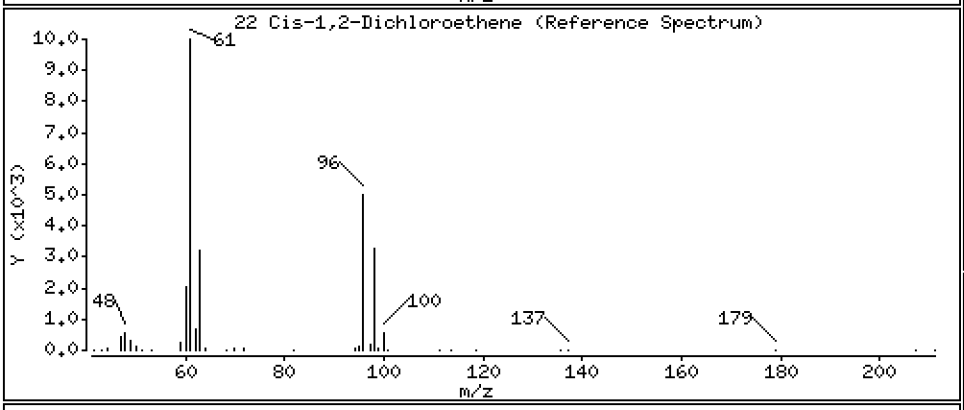
Concentration: 9.708 ug/L

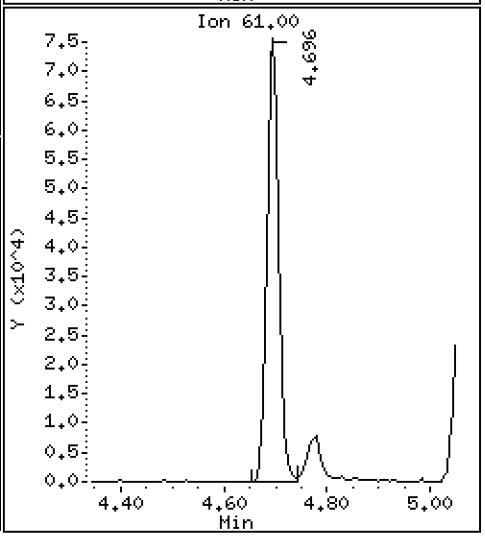


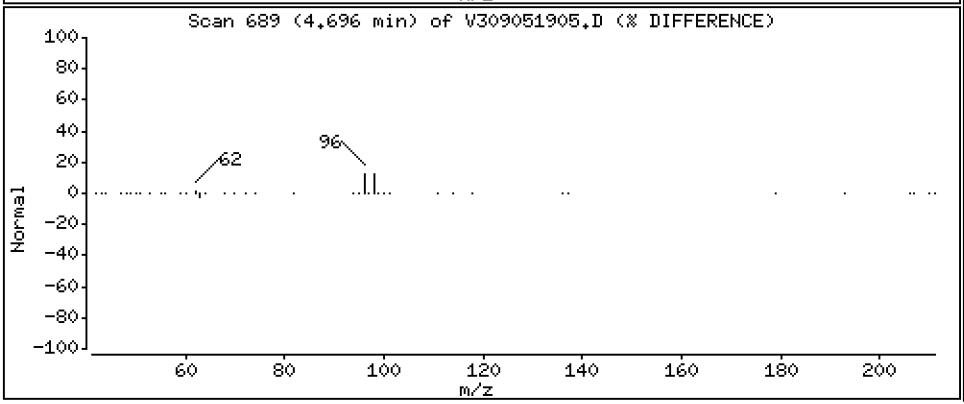












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

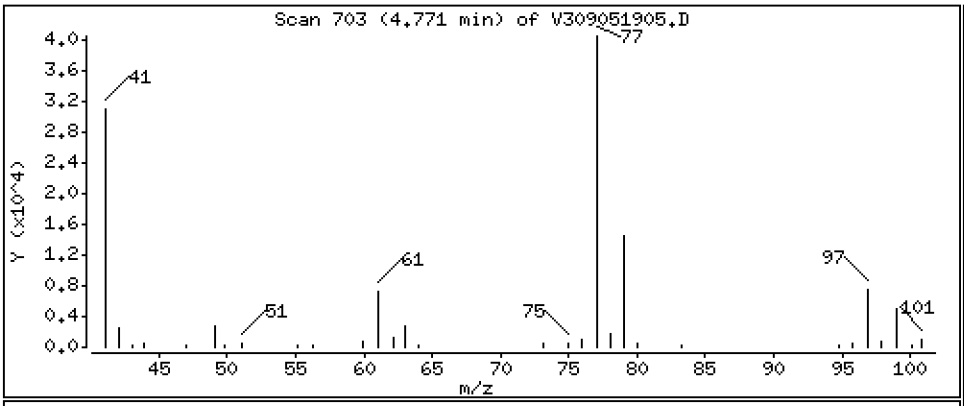
Operator: PKC

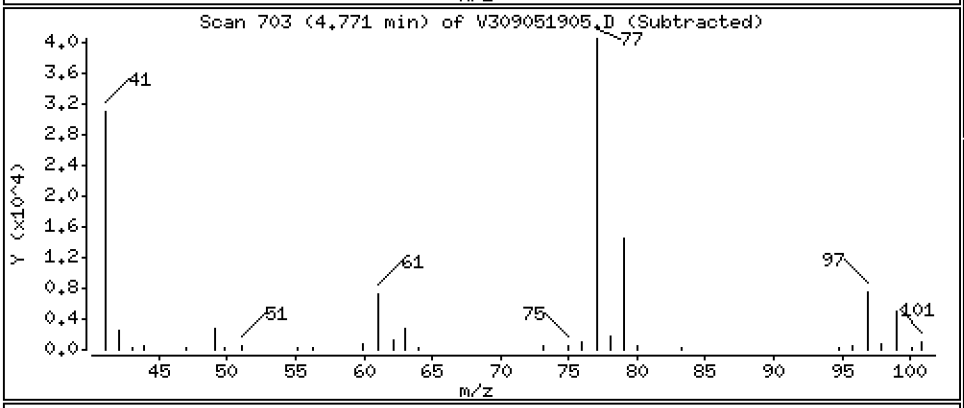
Column phase: RTXVMS

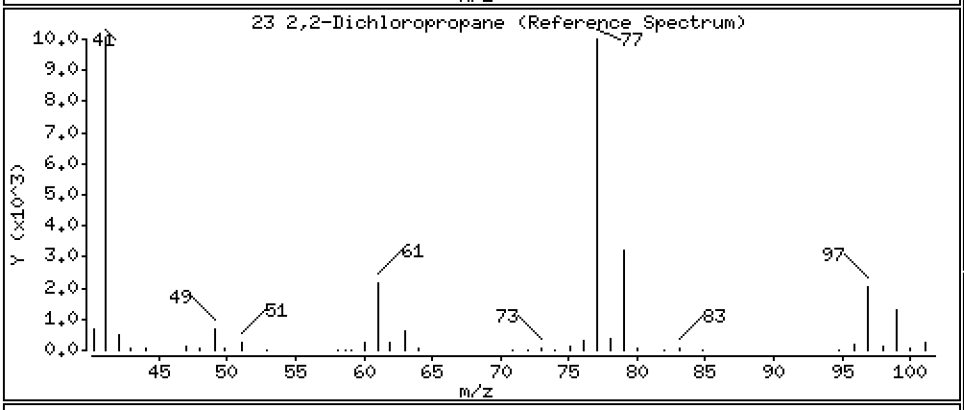
Column diameter: 0.18

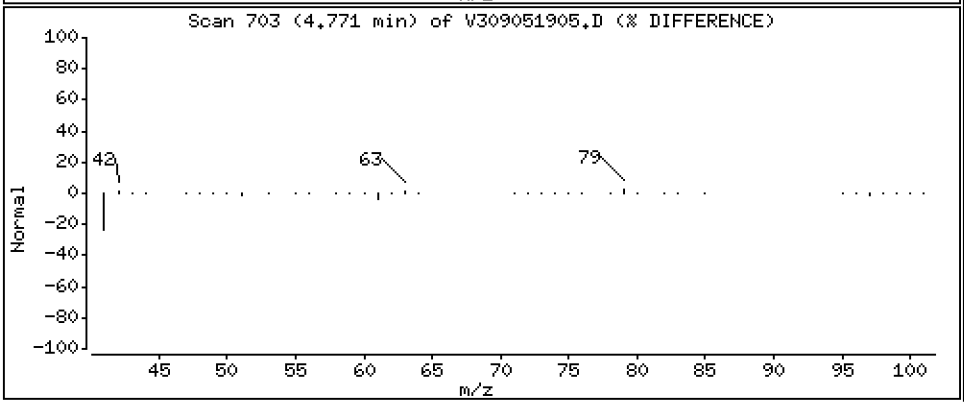
23 2,2-Dichloropropane

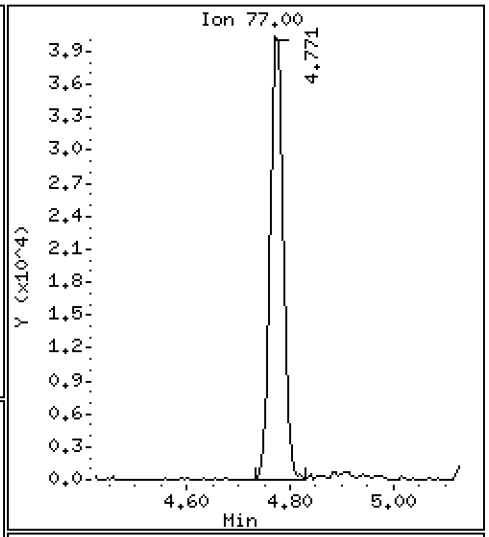
Concentration: 10.258 ug/L

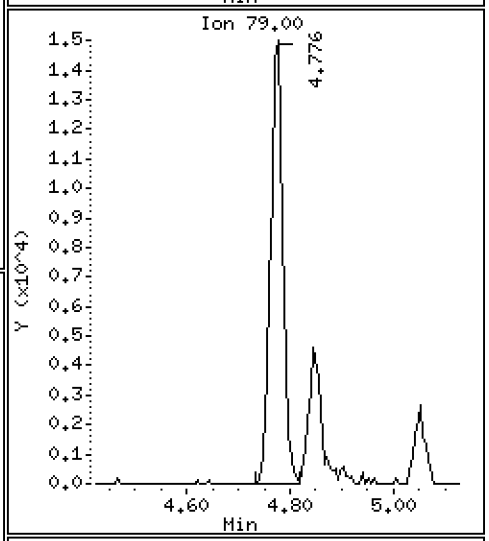


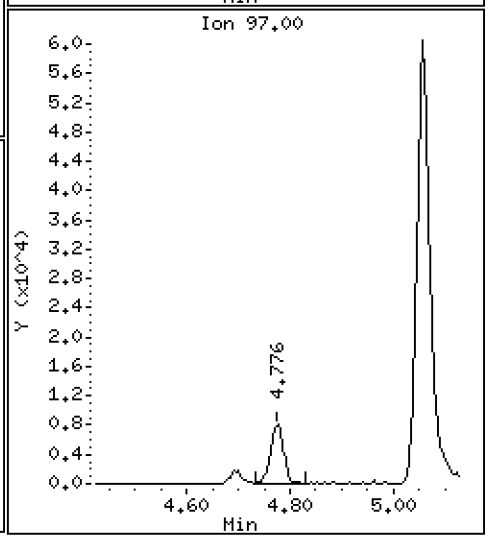












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

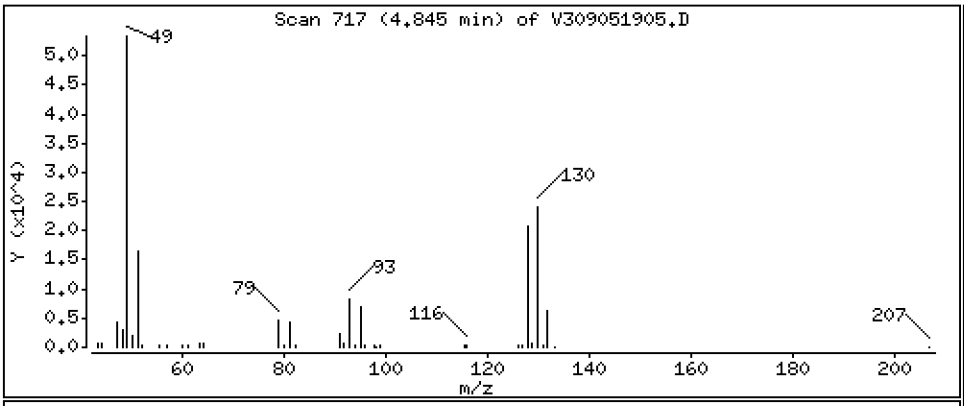
Operator: PKC

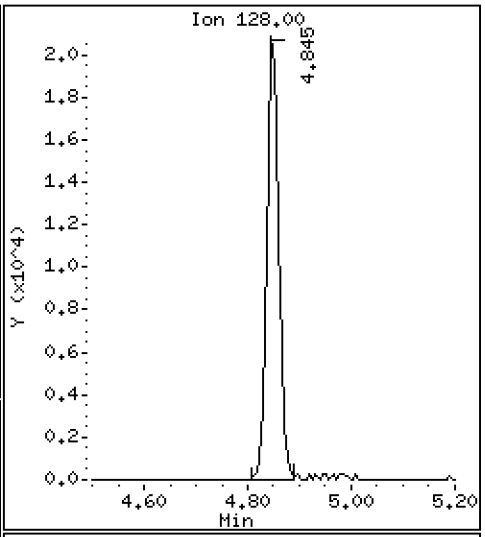
Column phase: RTXVMS

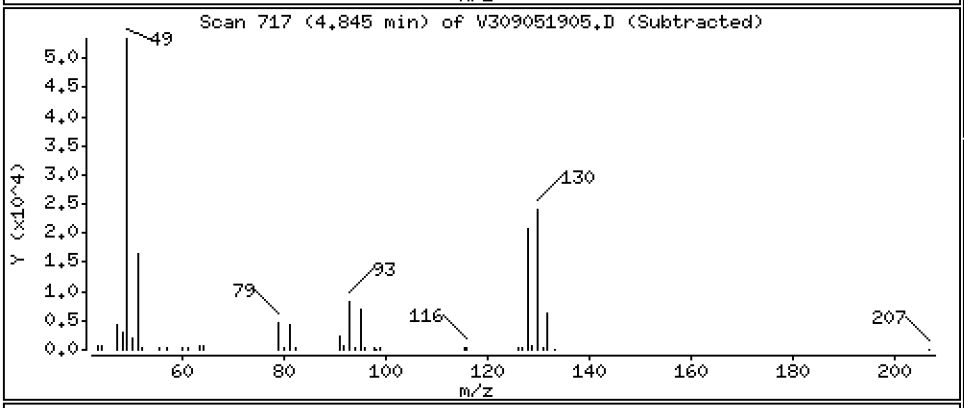
Column diameter: 0.18

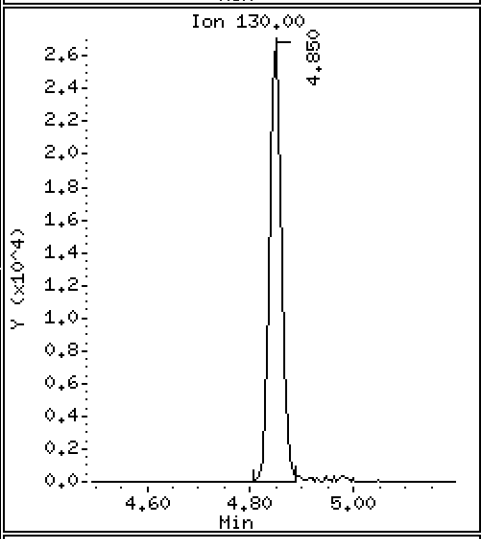
24 Bromochloromethane

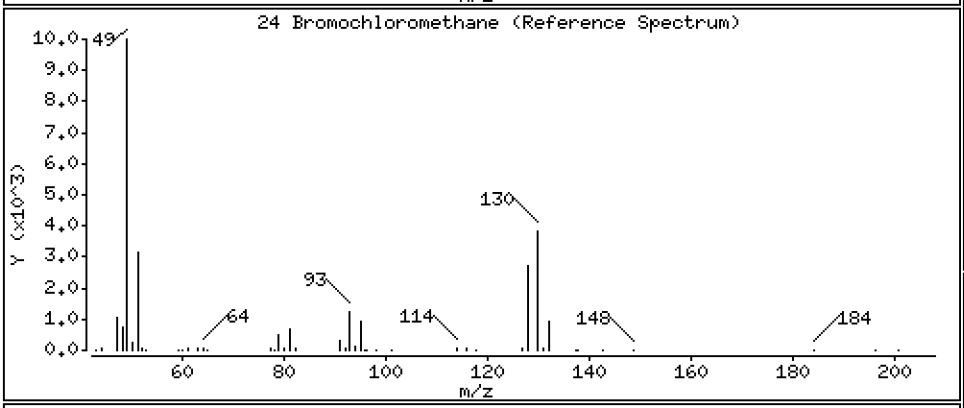
Concentration: 10.002 ug/L

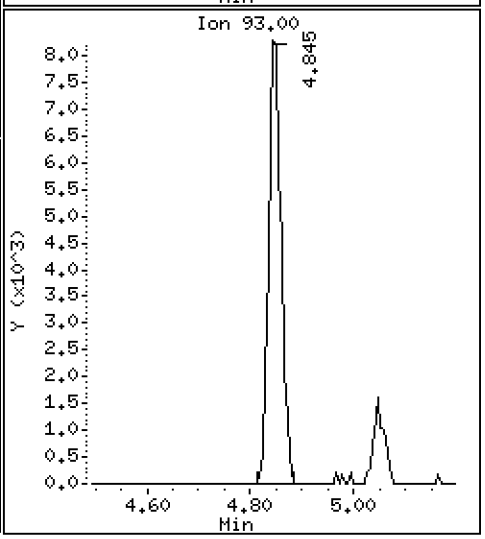


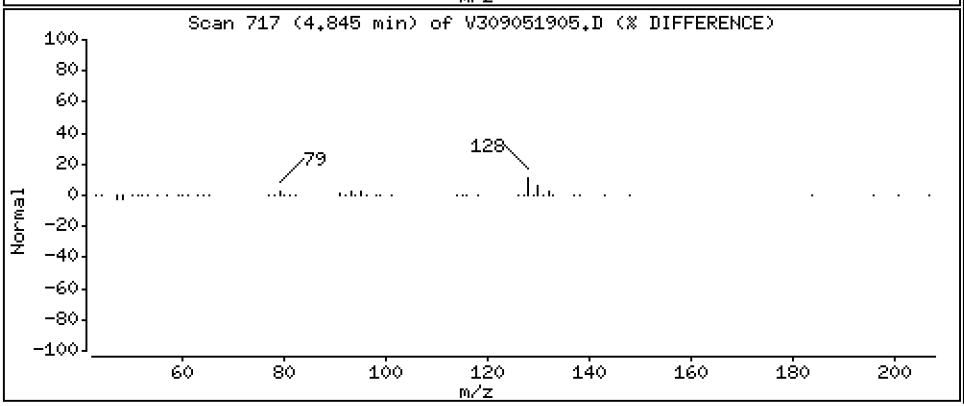












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

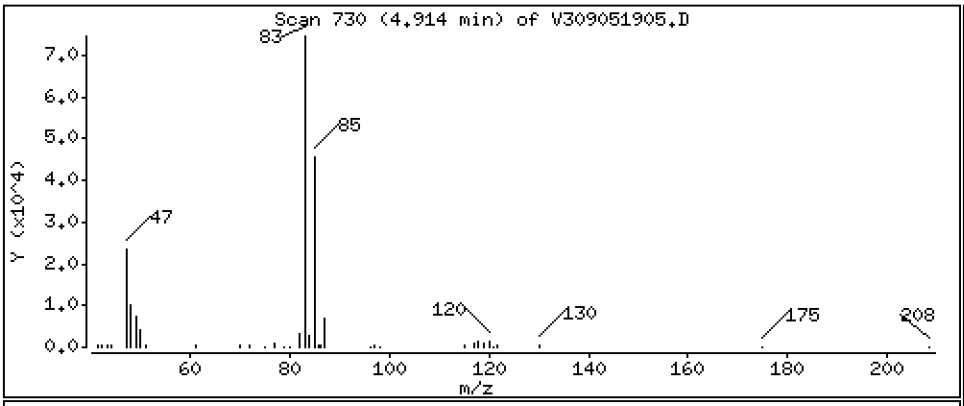
Operator: PKC

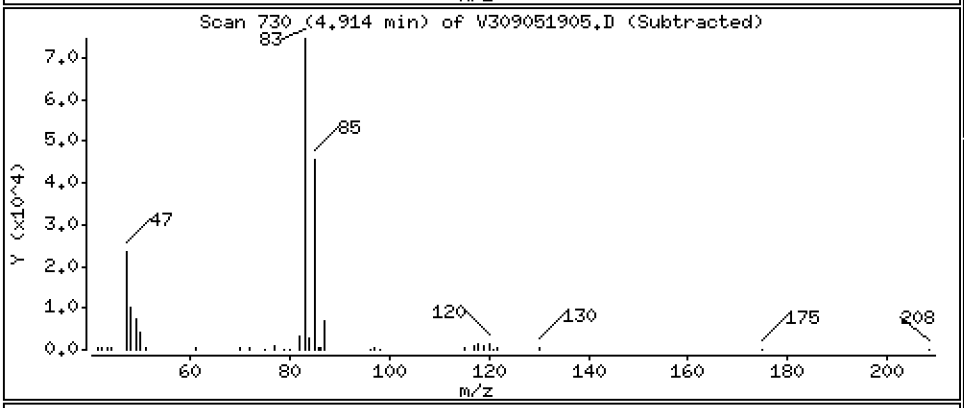
Column phase: RTXVMS

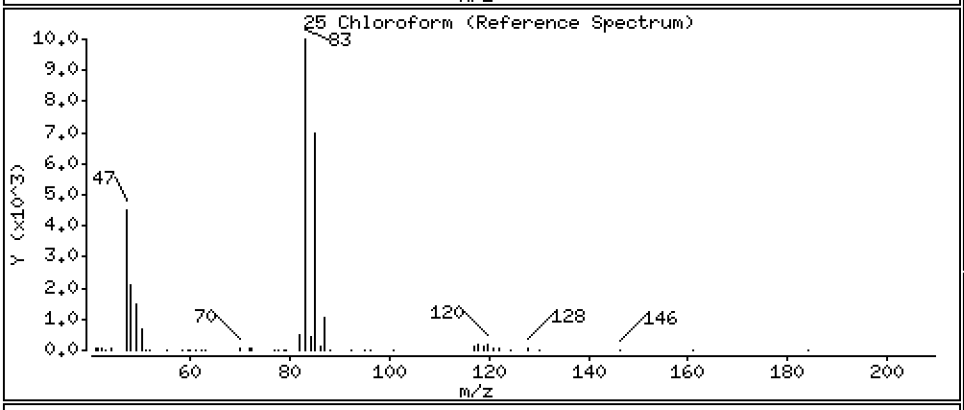
Column diameter: 0.18

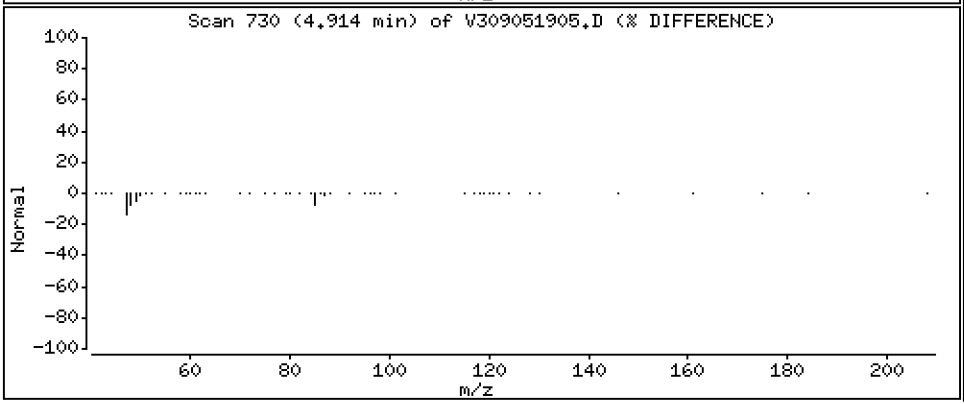
25 Chloroform

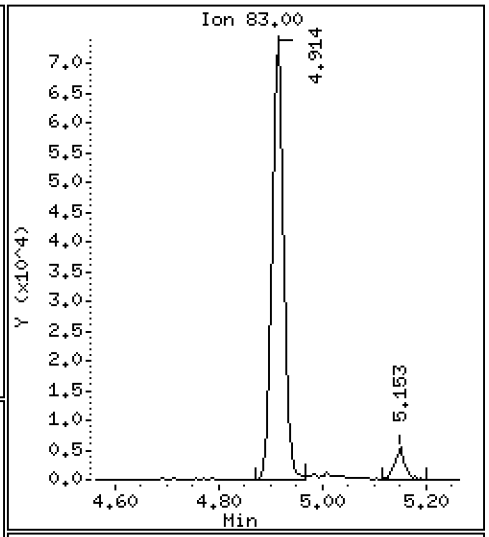
Concentration: 10.00 ug/L

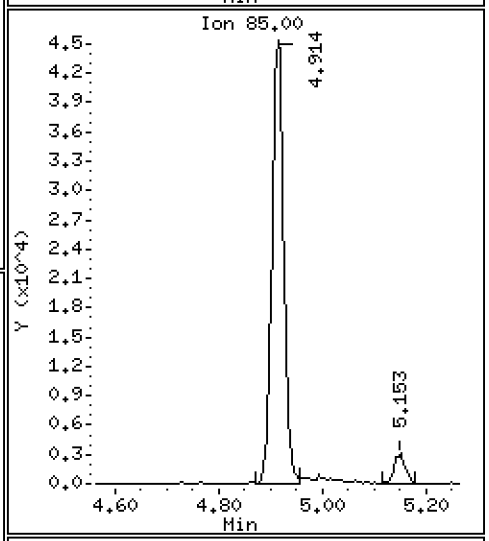


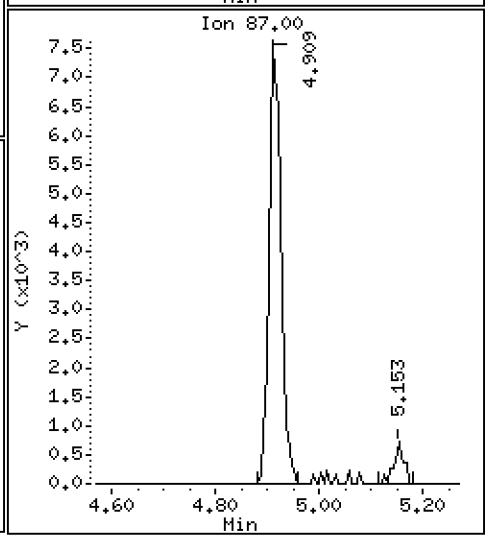












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

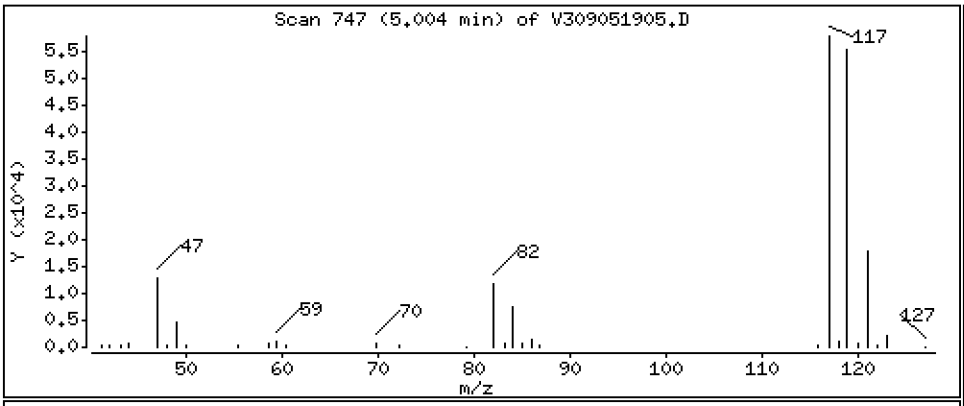
Operator: PKC

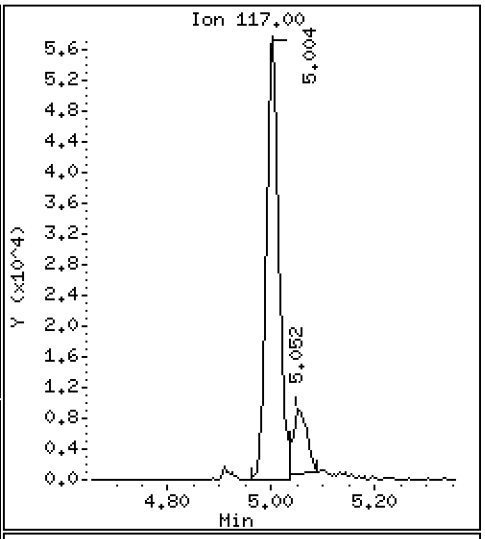
Column phase: RTXVMS

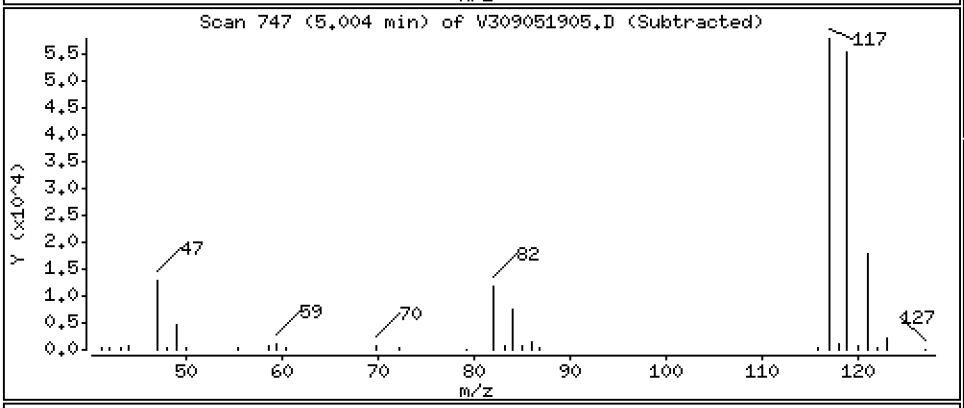
Column diameter: 0.18

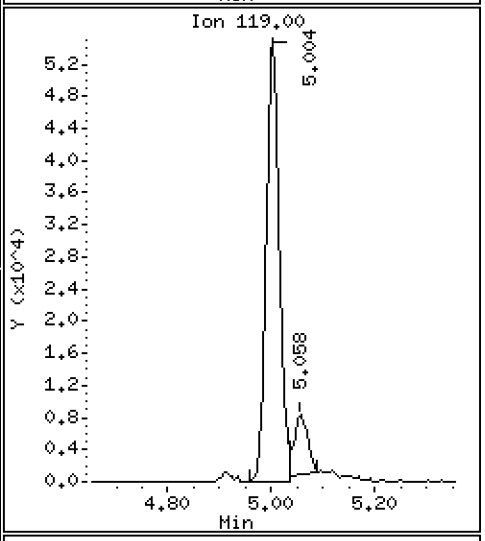
26 Carbon Tetrachloride

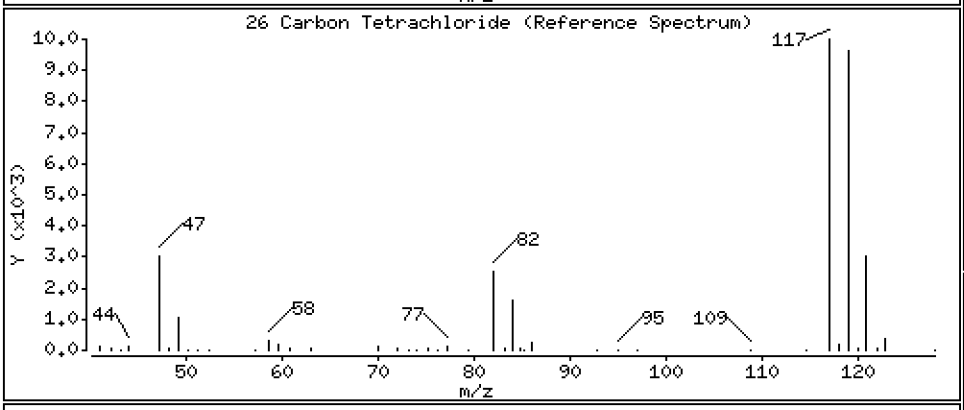
Concentration: 9.909 ug/L

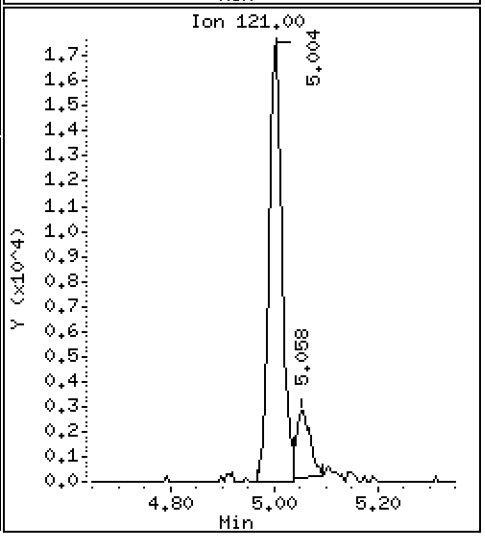


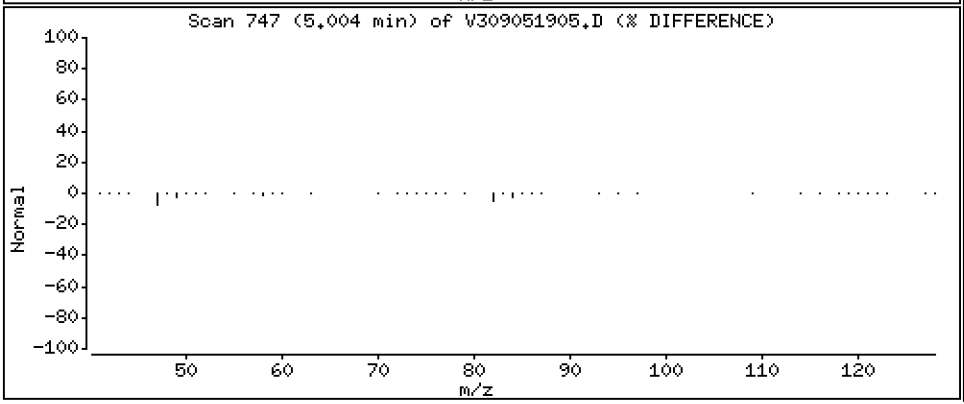












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

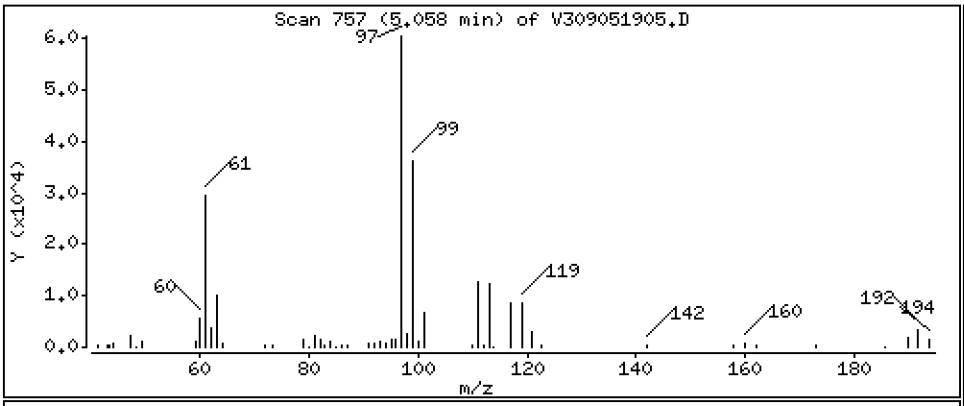
Operator: PKC

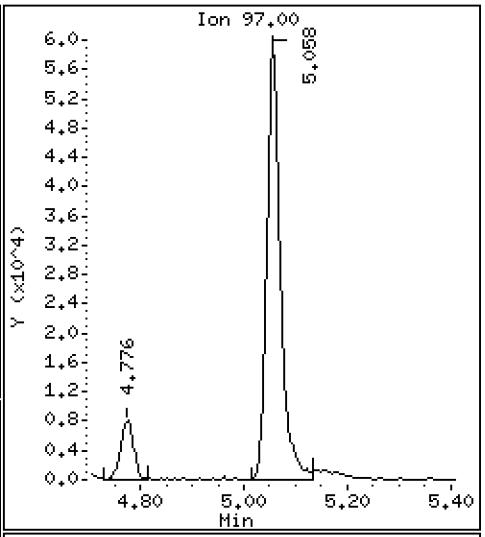
Column phase: RTXVMS

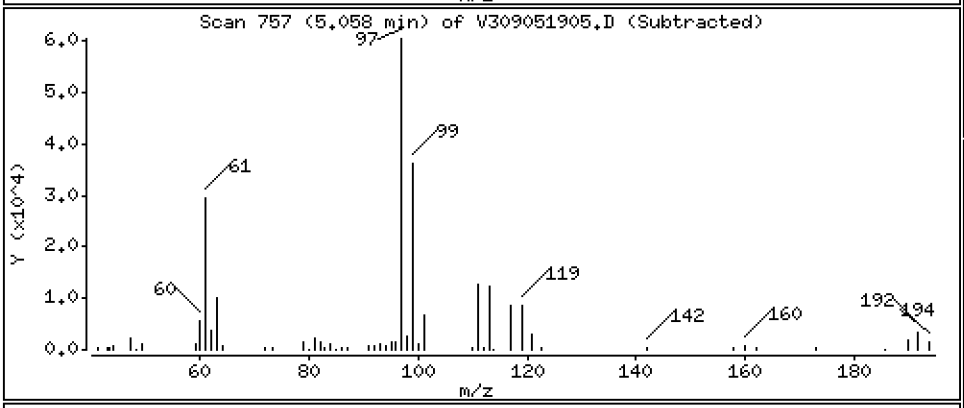
Column diameter: 0.18

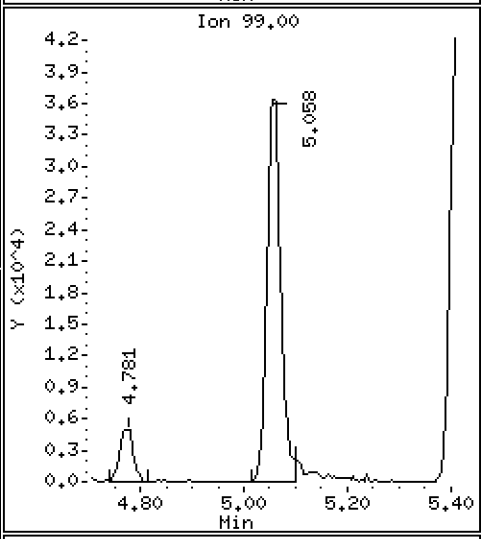
28 1,1,1-Trichloroethane

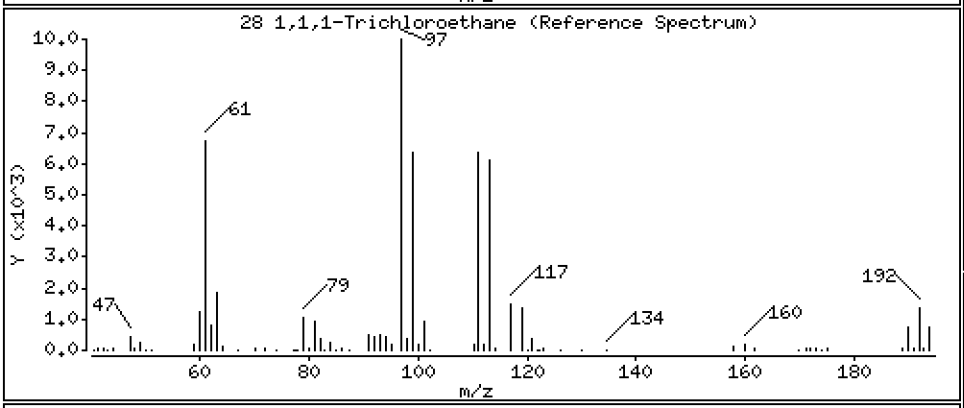
Concentration: 9.770 ug/L

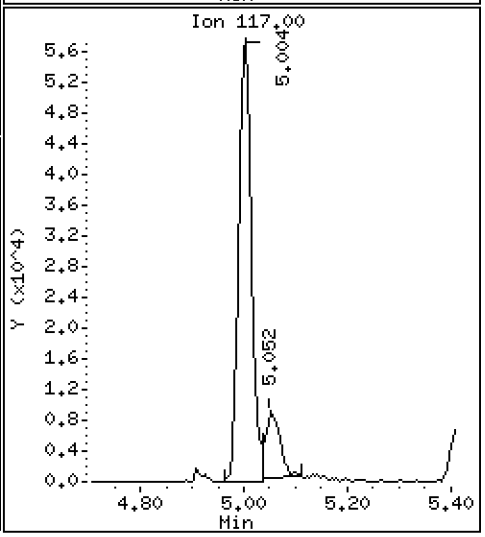


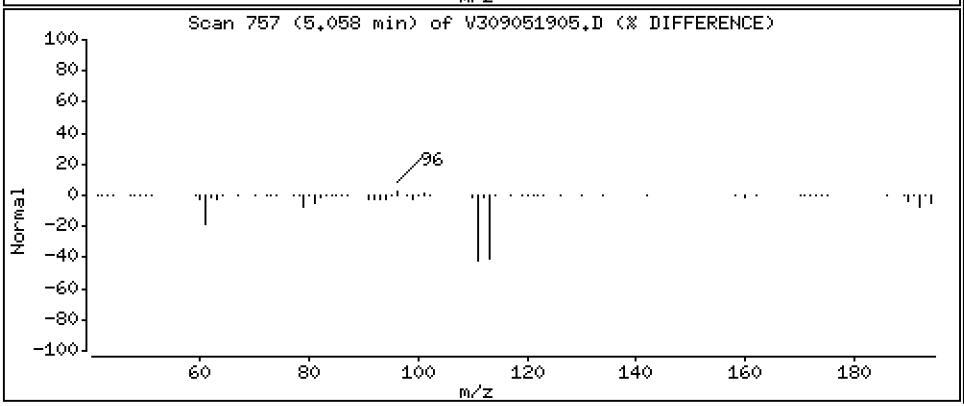












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

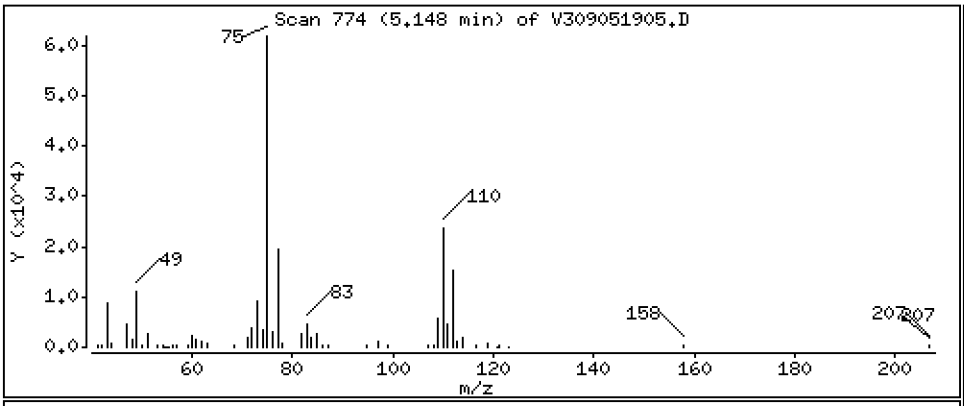
Operator: PKC

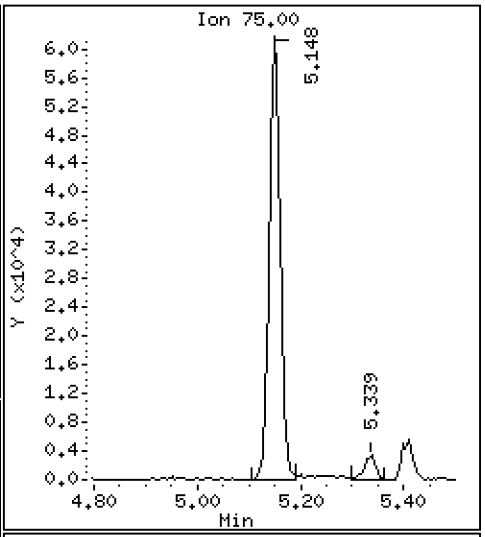
Column phase: RTXVMS

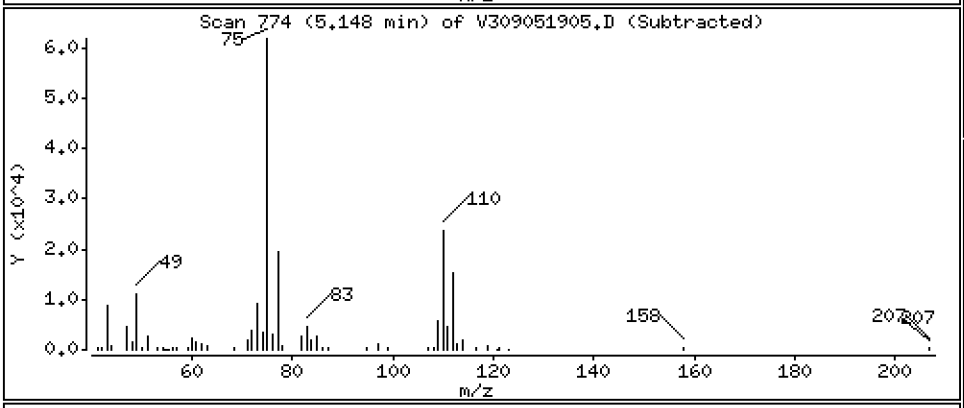
Column diameter: 0.18

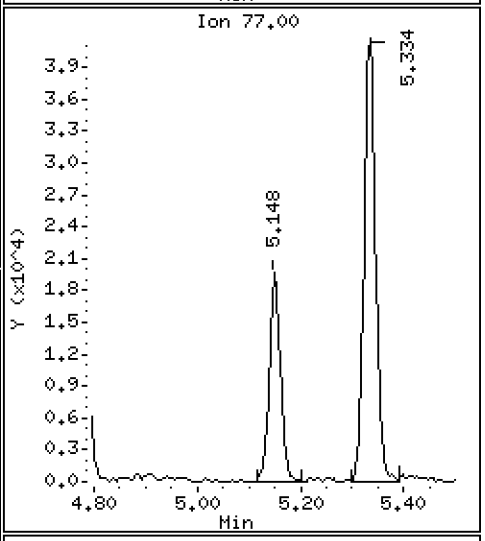
30 1,1-Dichloropropene

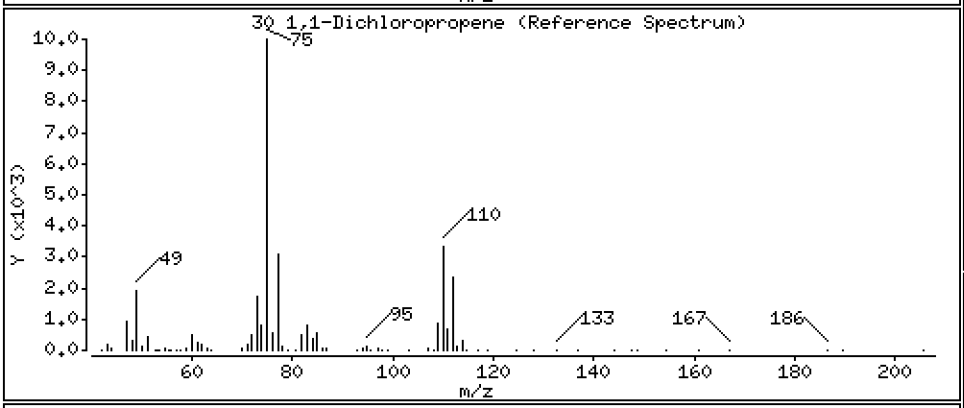
Concentration: 9.790 ug/L

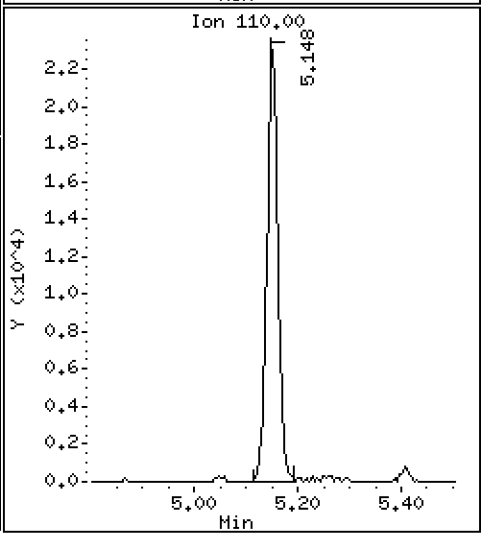


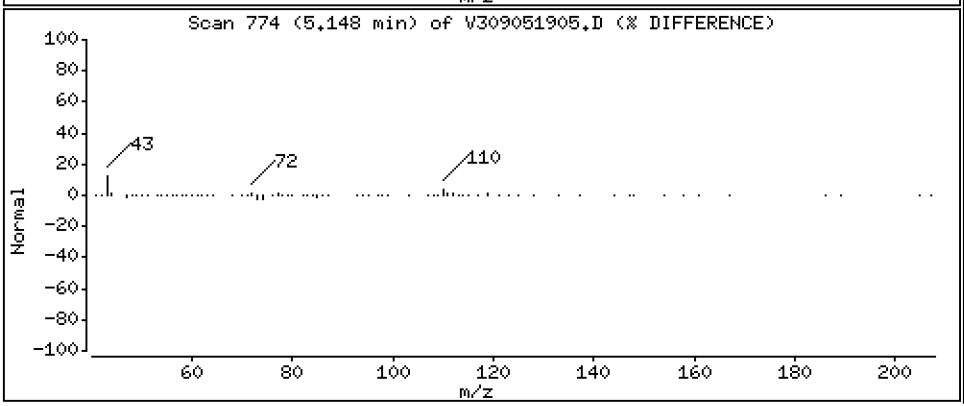












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

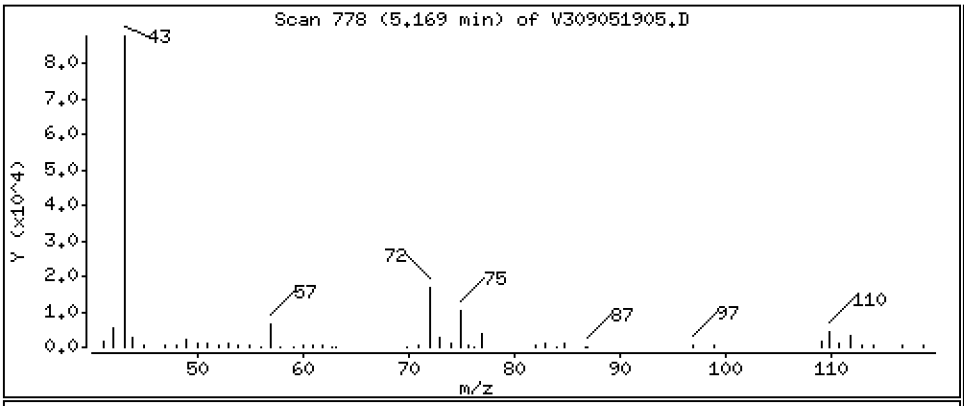
Operator: PKC

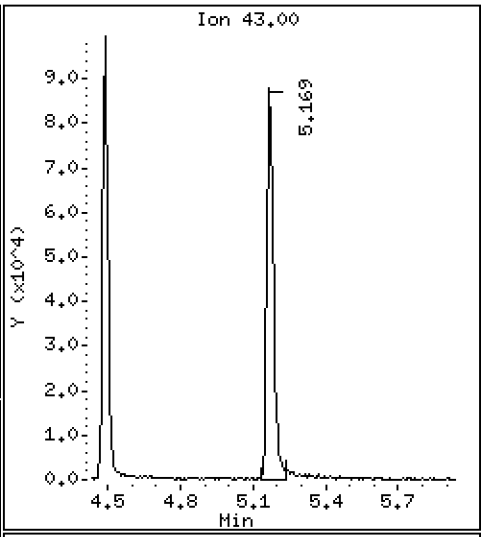
Column phase: RTXVMS

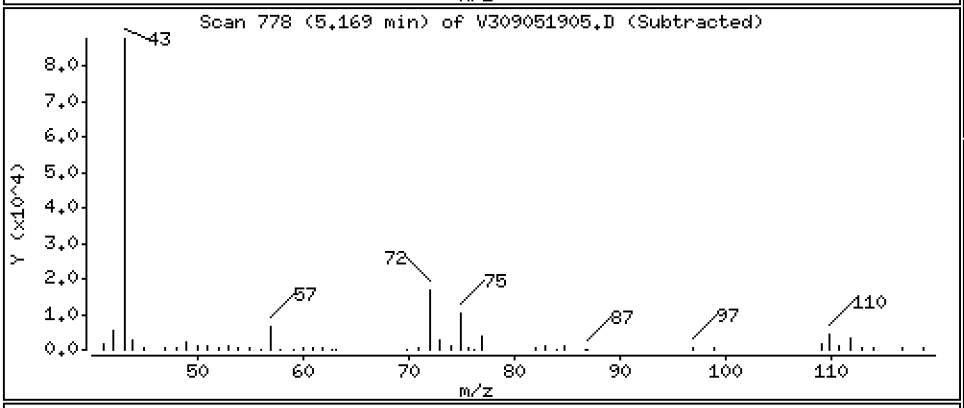
Column diameter: 0.18

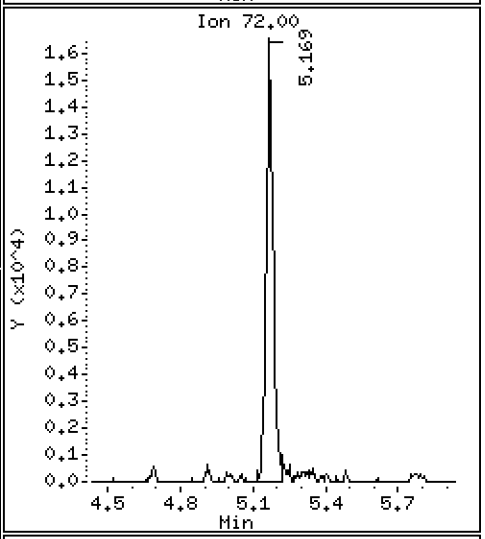
29 2-Butanone

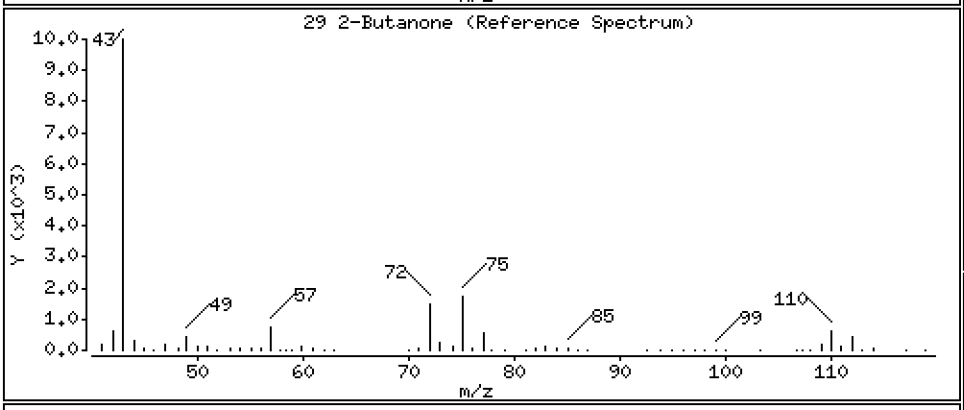
Concentration: 53.927 ug/L

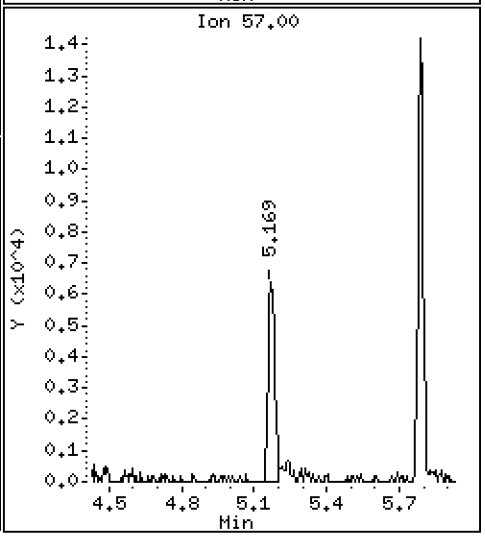


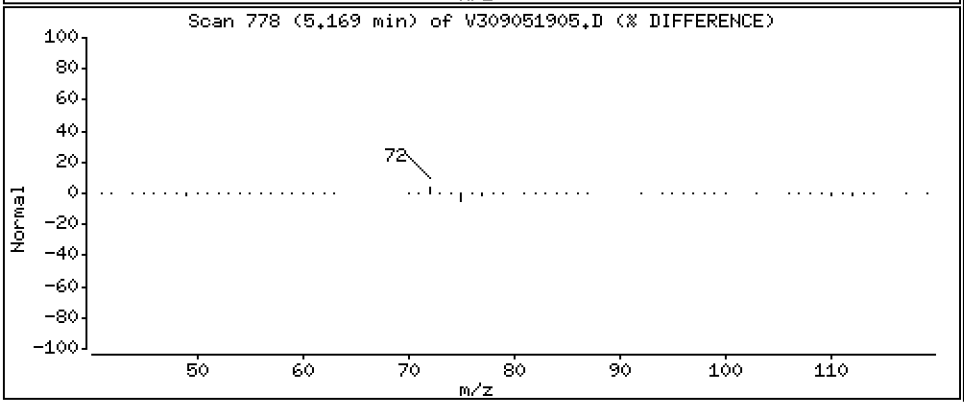












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

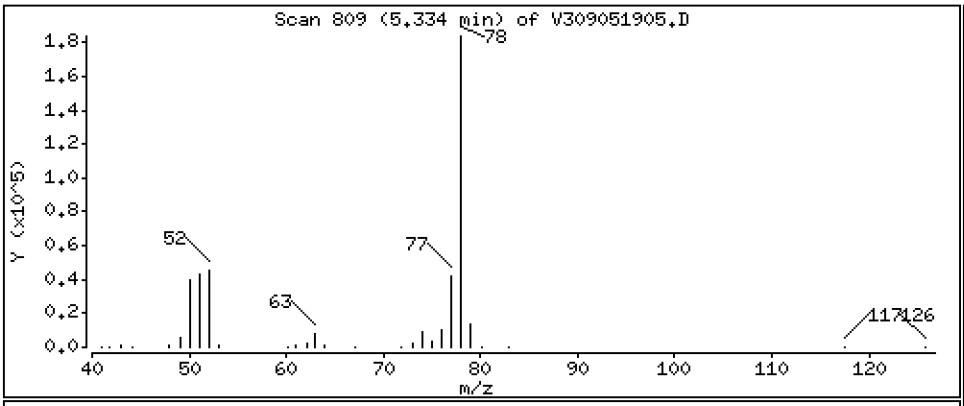
Operator: PKC

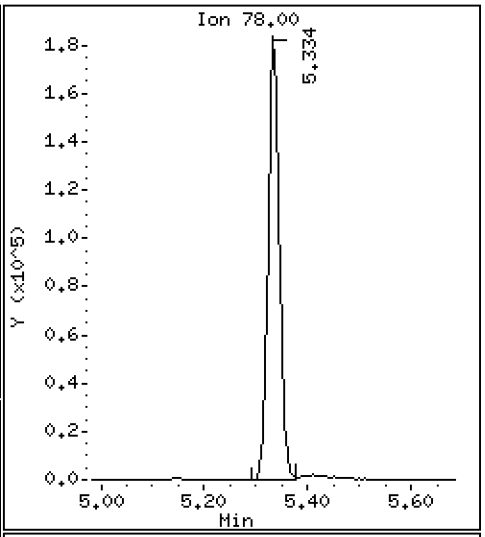
Column phase: RTXVMS

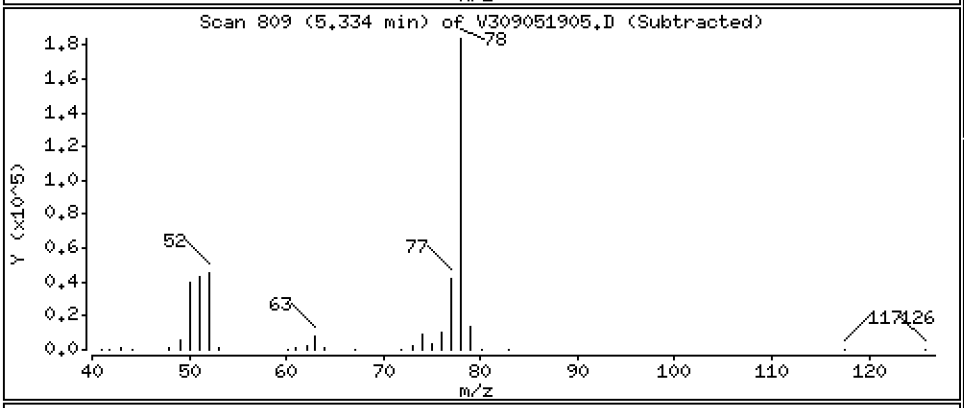
Column diameter: 0.18

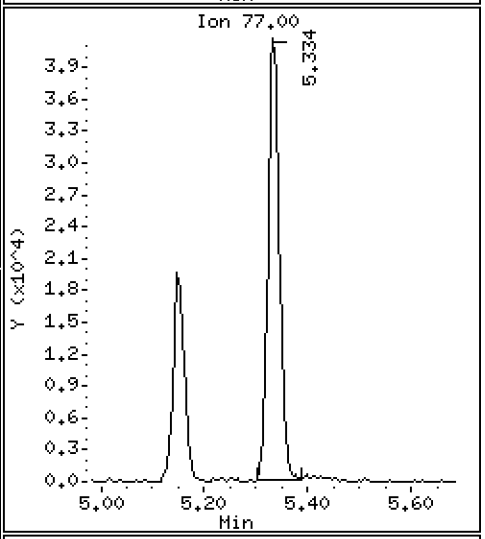
31 Benzene

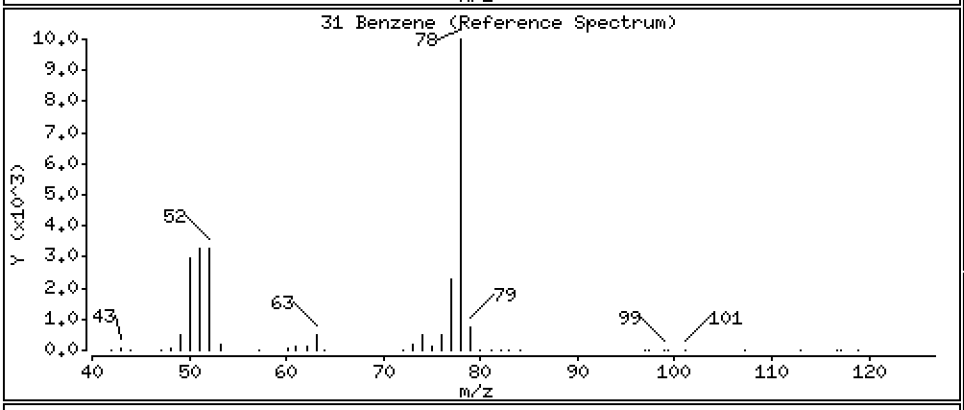
Concentration: 9.798 ug/L

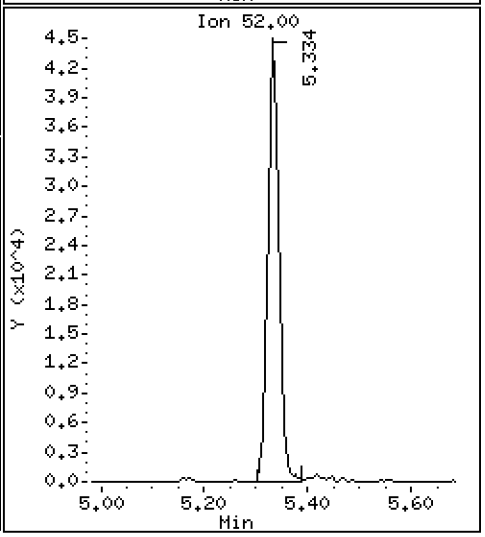


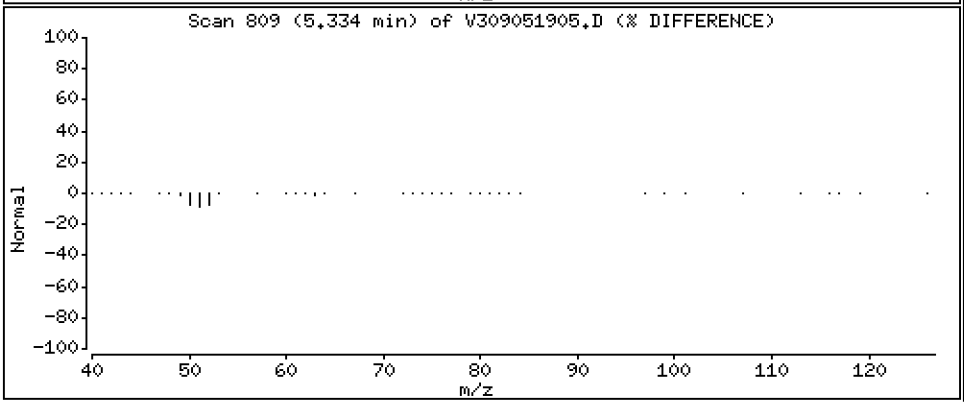












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

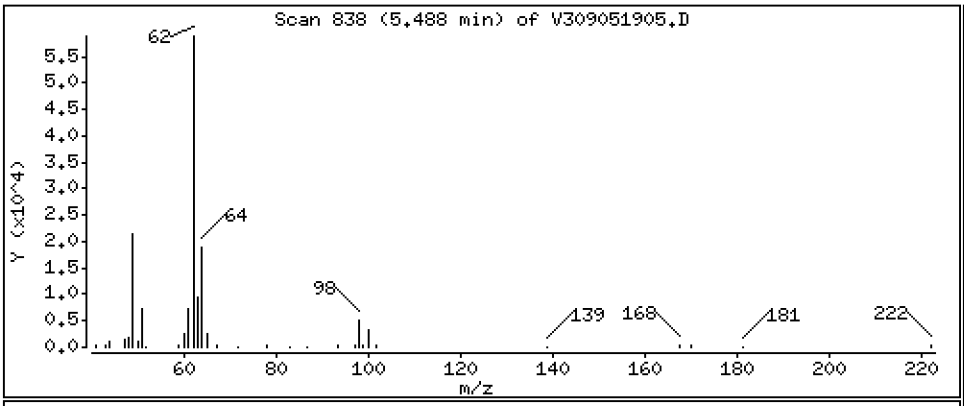
Operator: PKC

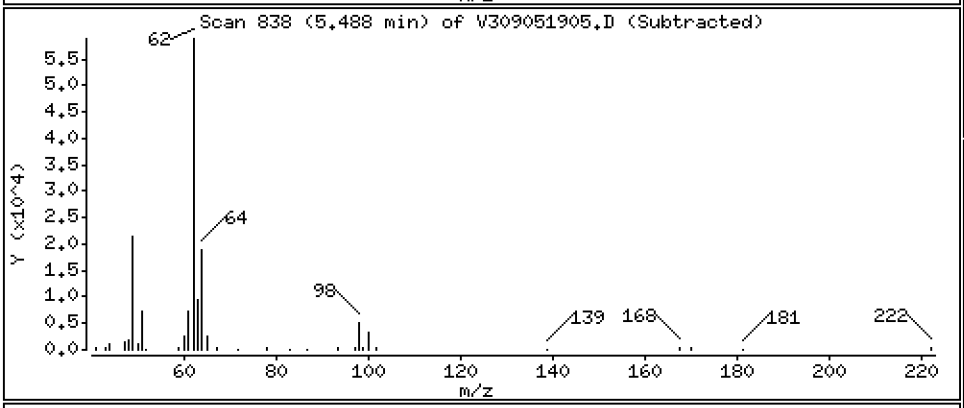
Column phase: RTXVMS

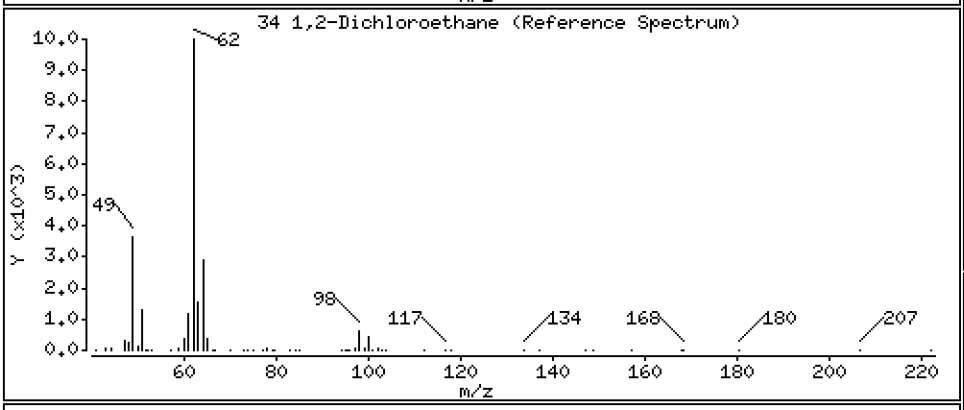
Column diameter: 0.18

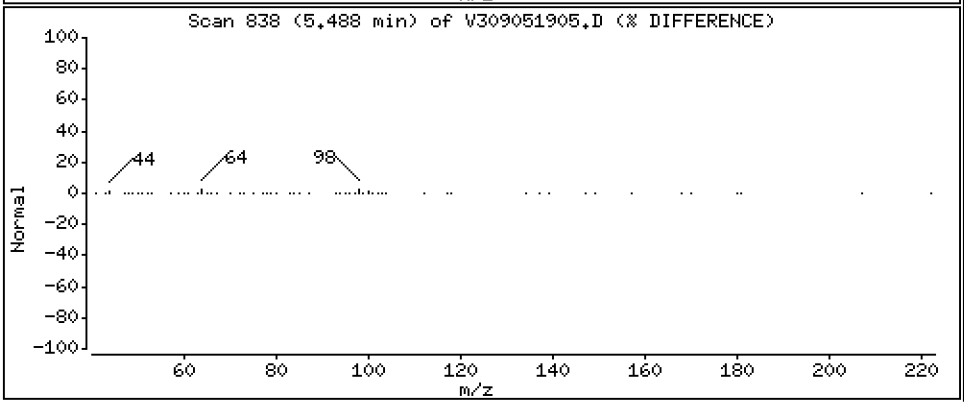
34 1,2-Dichloroethane

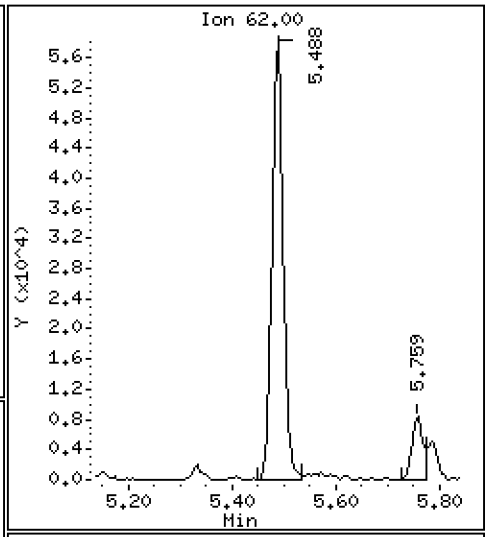
Concentration: 9.577 ug/L

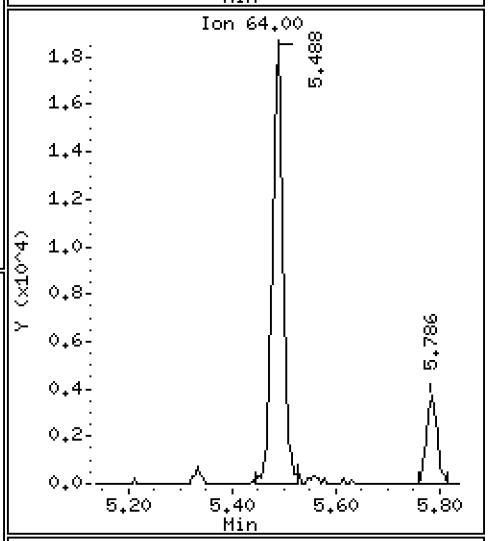


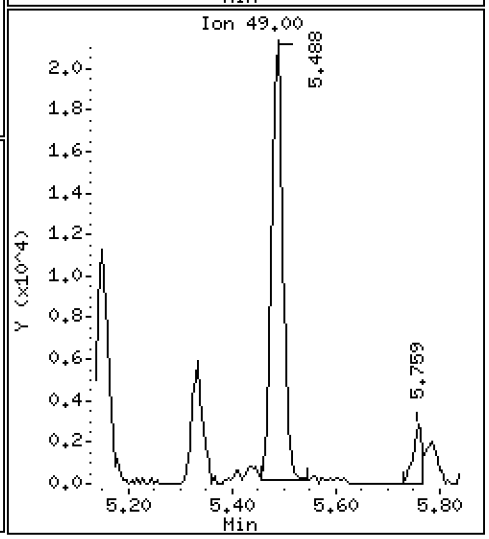












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

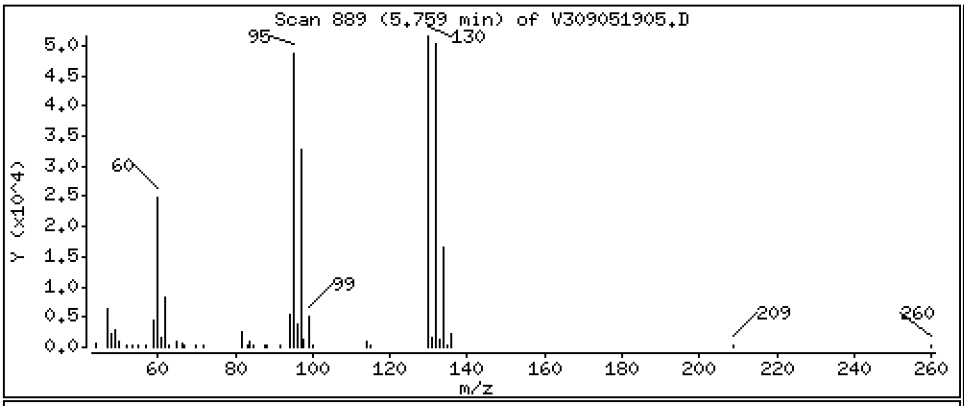
Operator: PKC

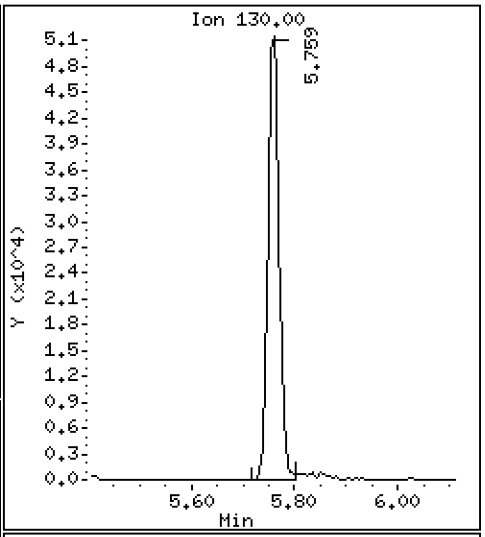
Column phase: RTXVMS

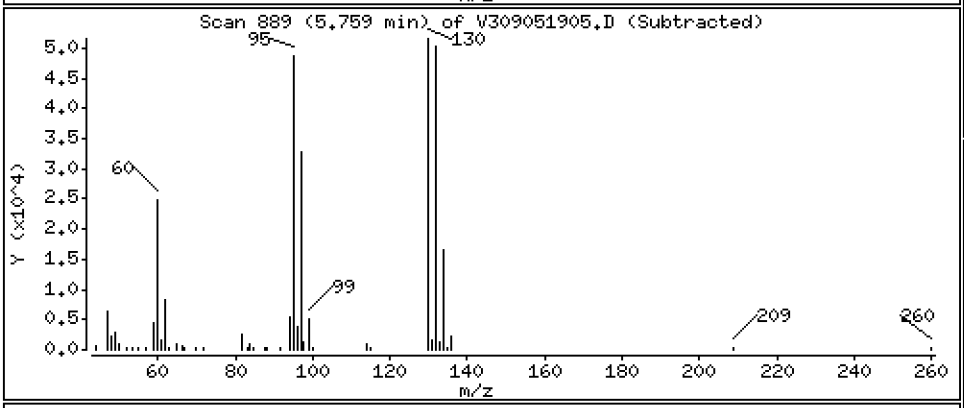
Column diameter: 0.18

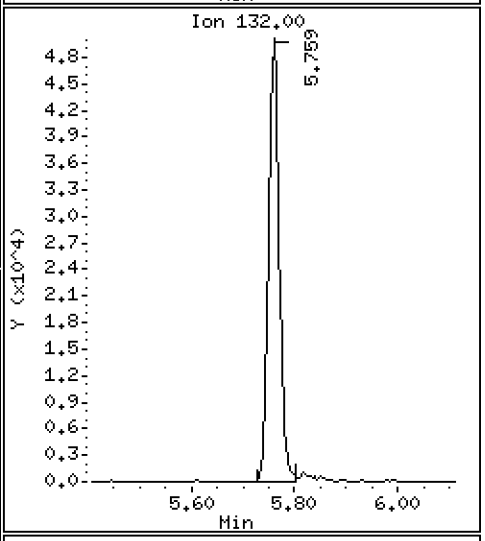
36 Trichloroethene

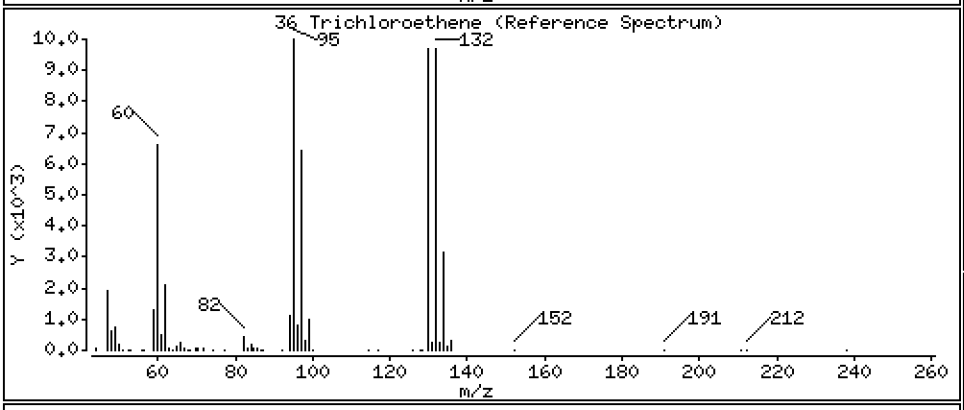
Concentration: 10.383 ug/L

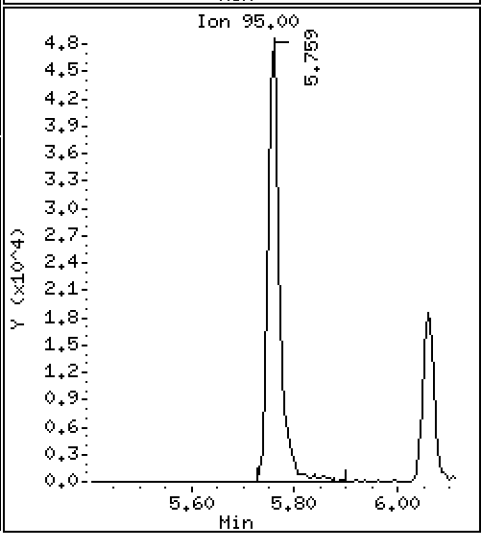


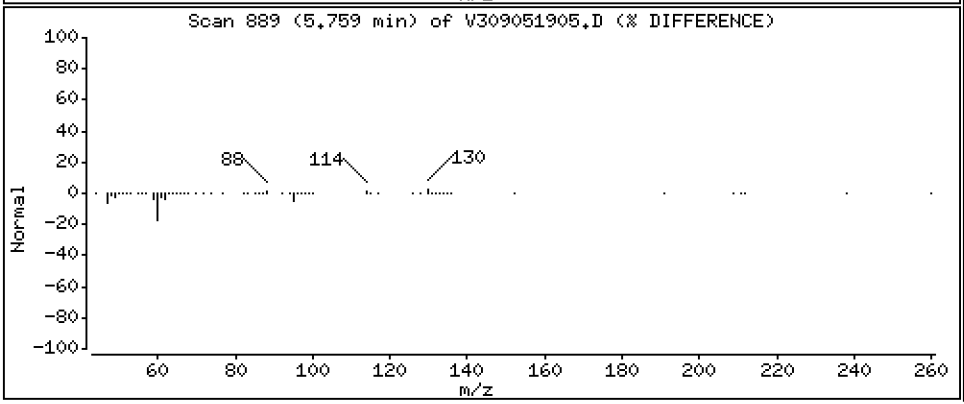












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

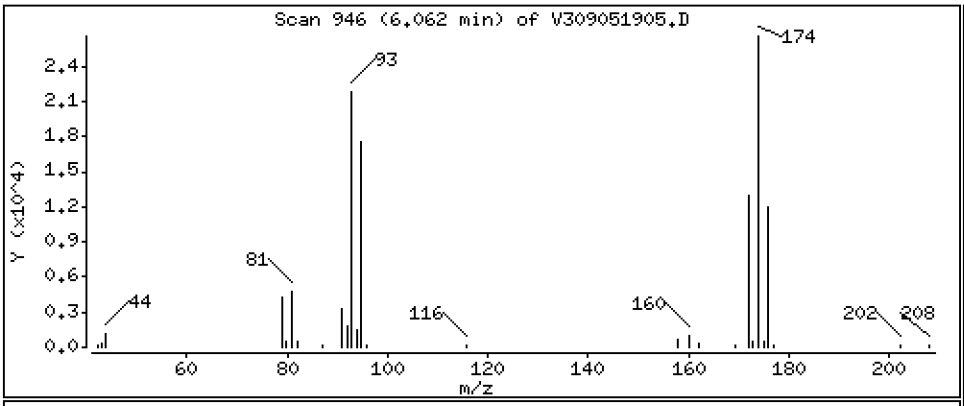
Operator: PKC

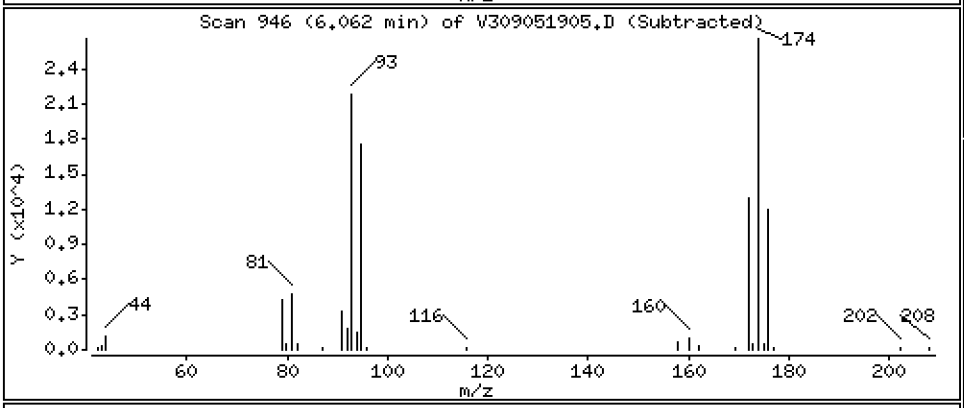
Column phase: RTXVMS

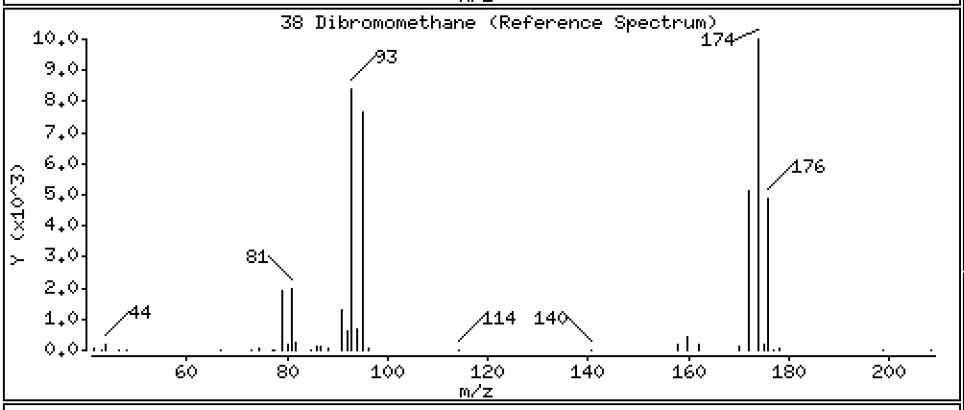
Column diameter: 0.18

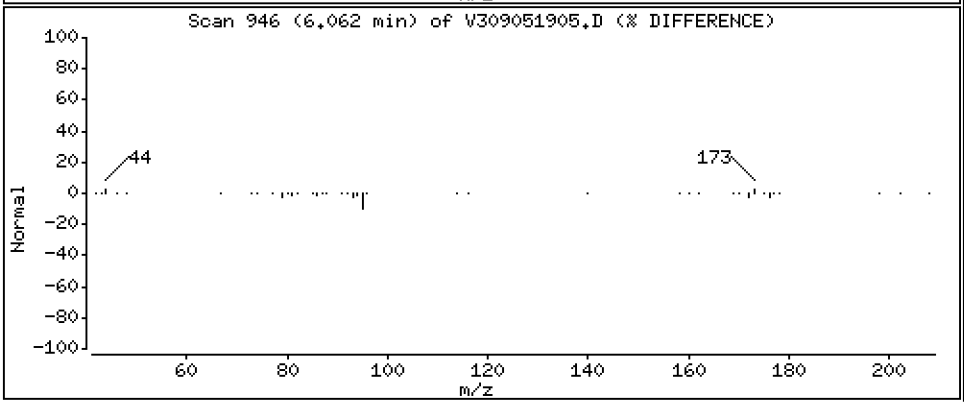
38 Dibromomethane

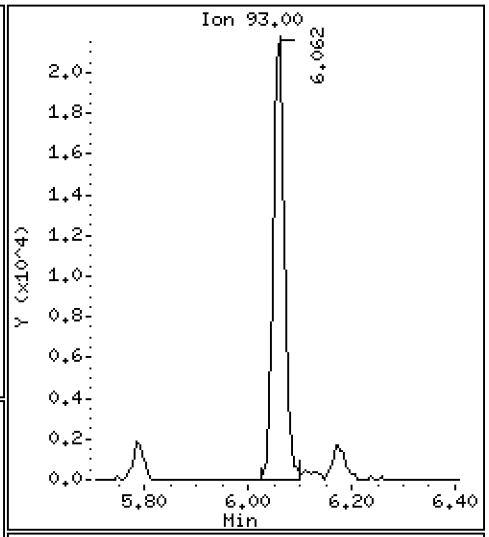
Concentration: 10.015 ug/L

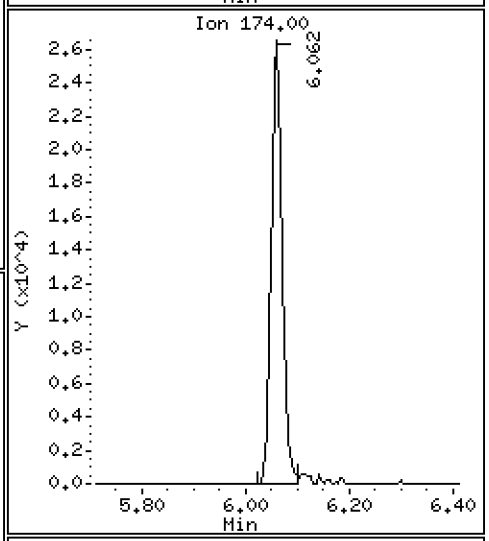


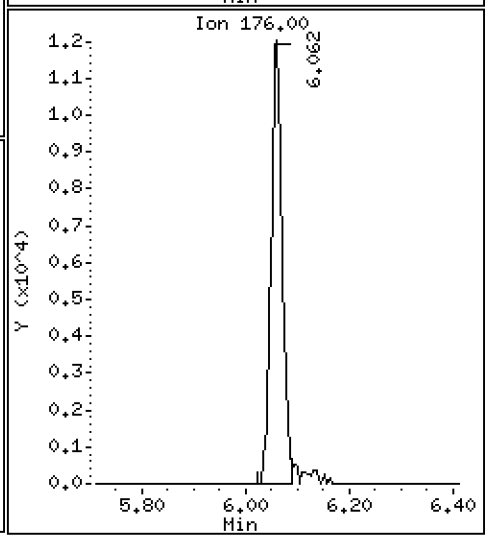












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

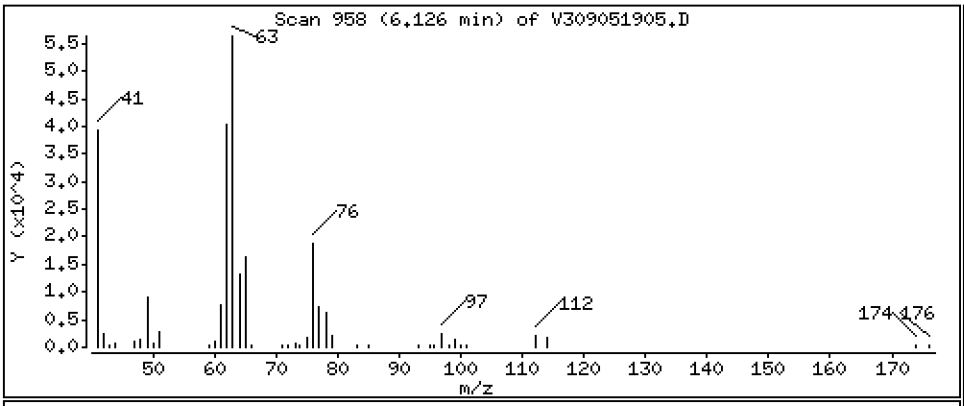
Operator: PKC

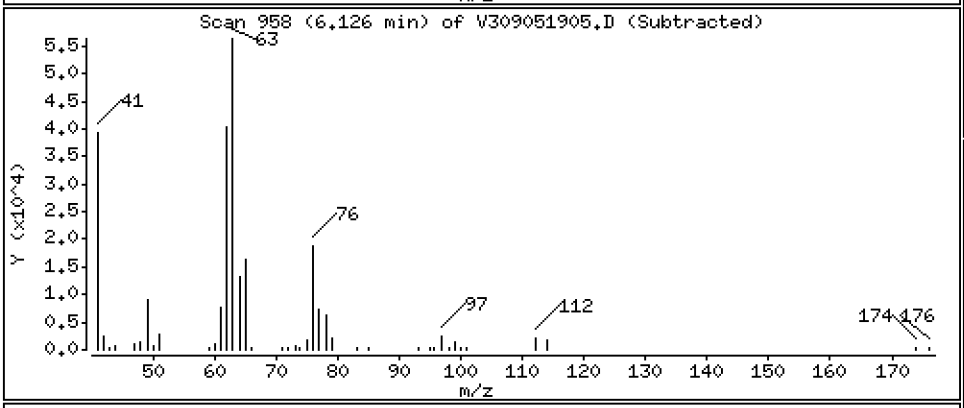
Column phase: RTXVMS

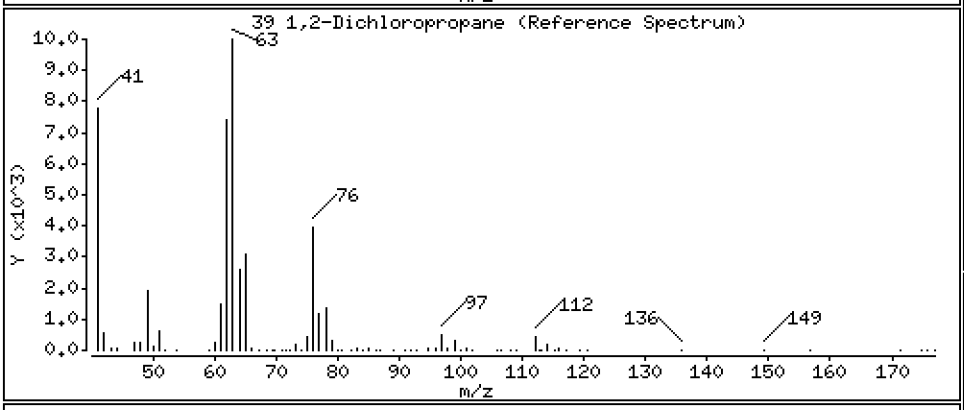
Column diameter: 0.18

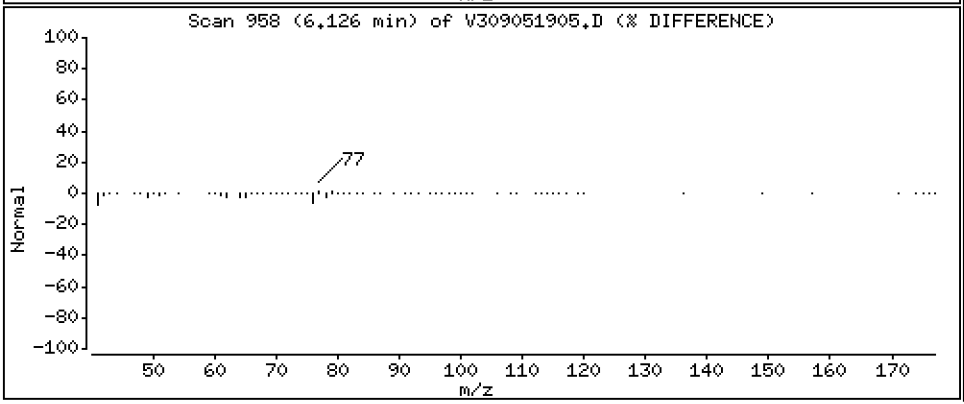
39 1,2-Dichloropropane

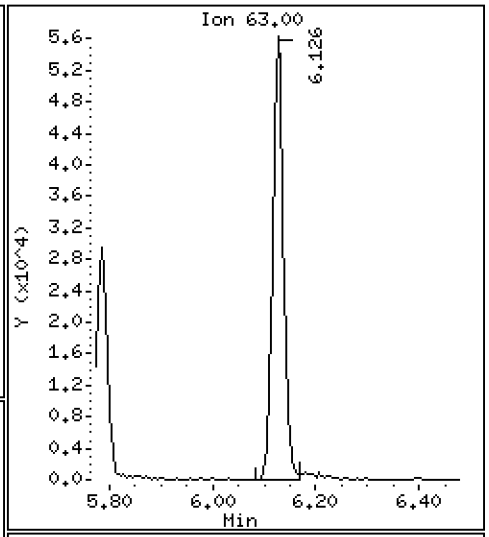
Concentration: 9.663 ug/L

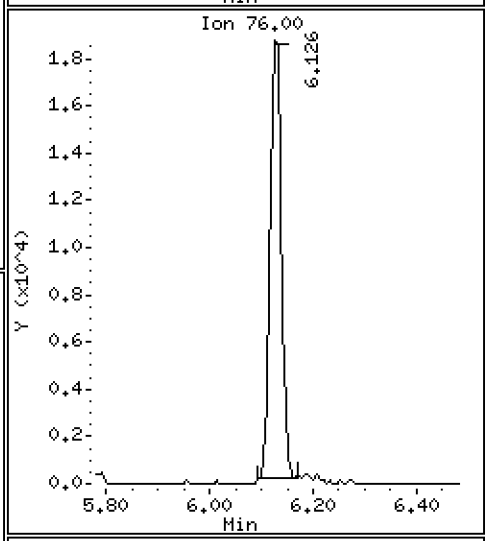


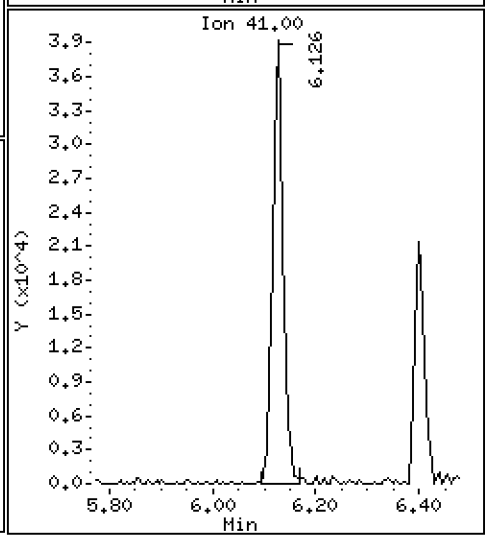












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Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

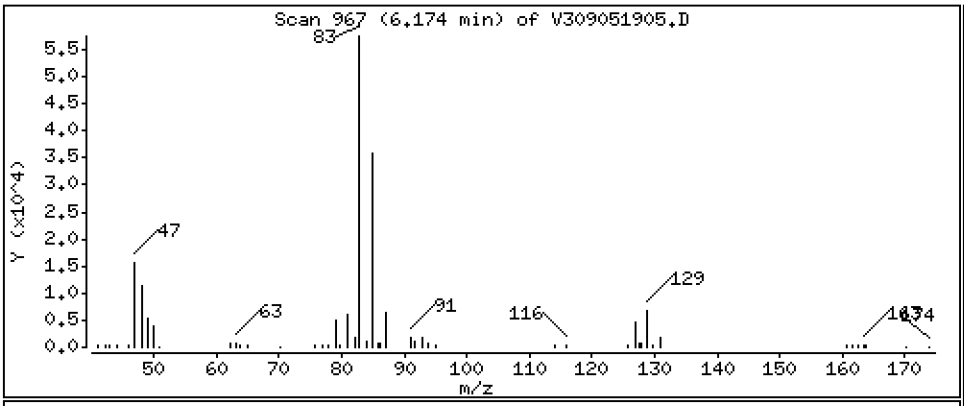
Operator: PKC

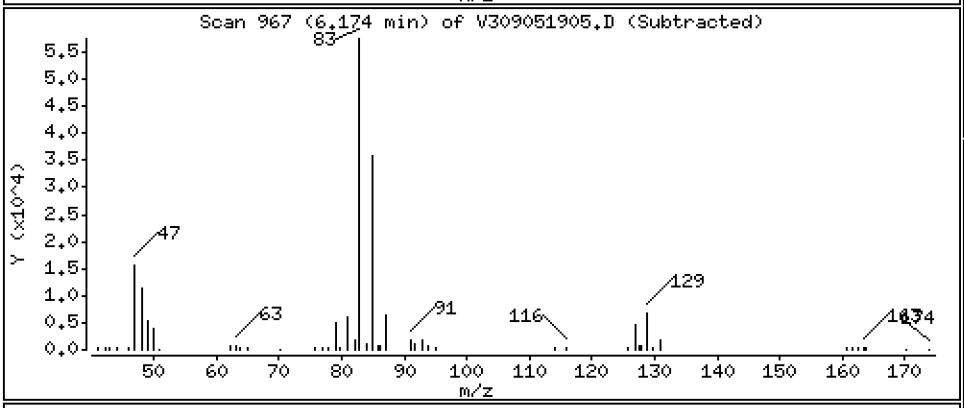
Column phase: RTXVMS

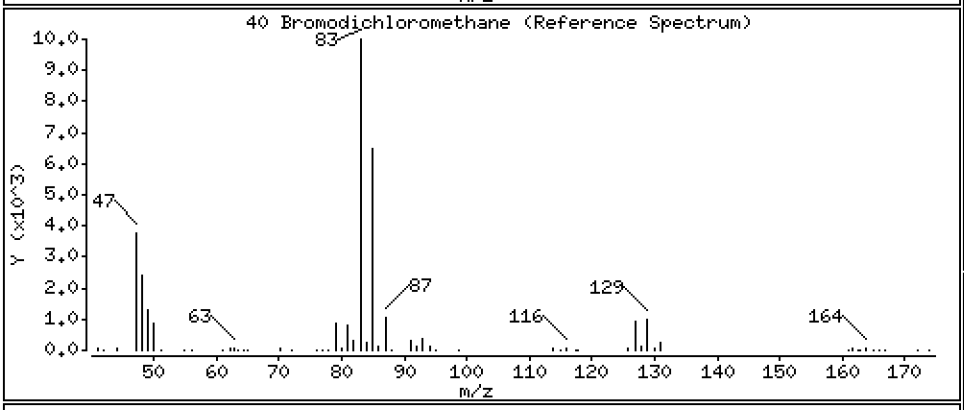
Column diameter: 0.18

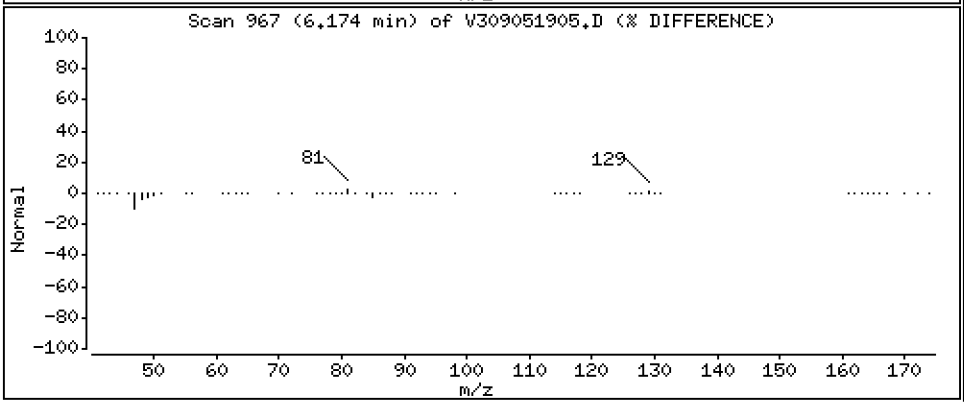
40 Bromodichloromethane

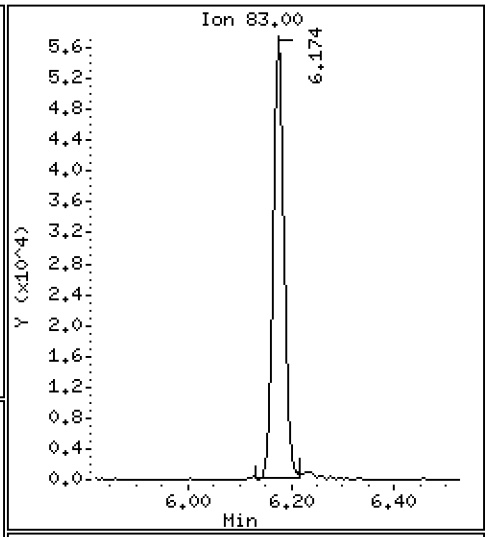
Concentration: 9.873 ug/L

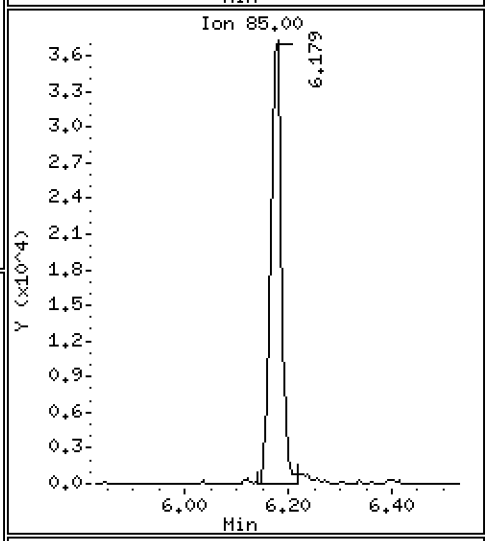


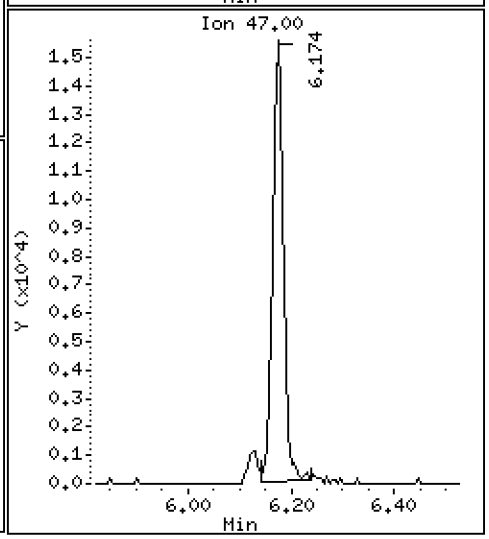












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

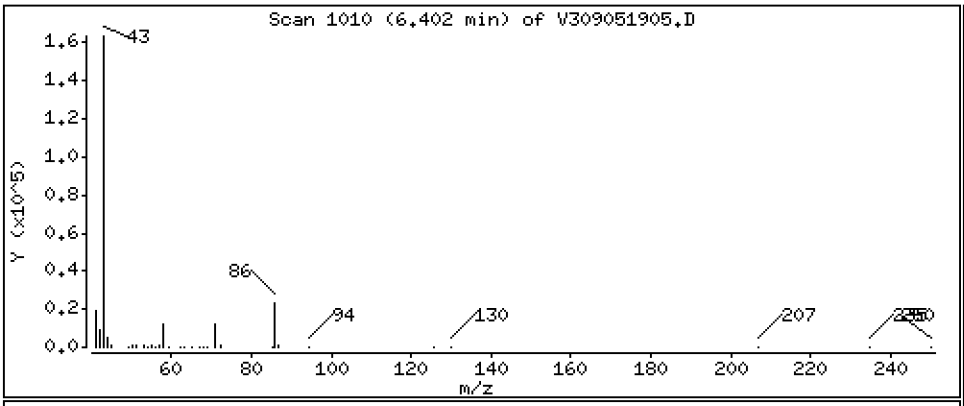
Operator: PKC

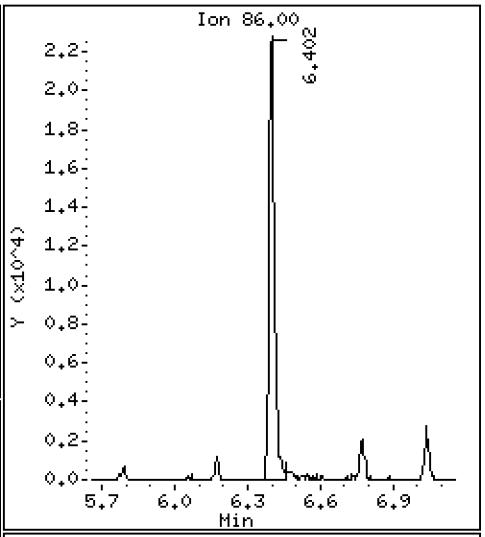
Column phase: RTXVMS

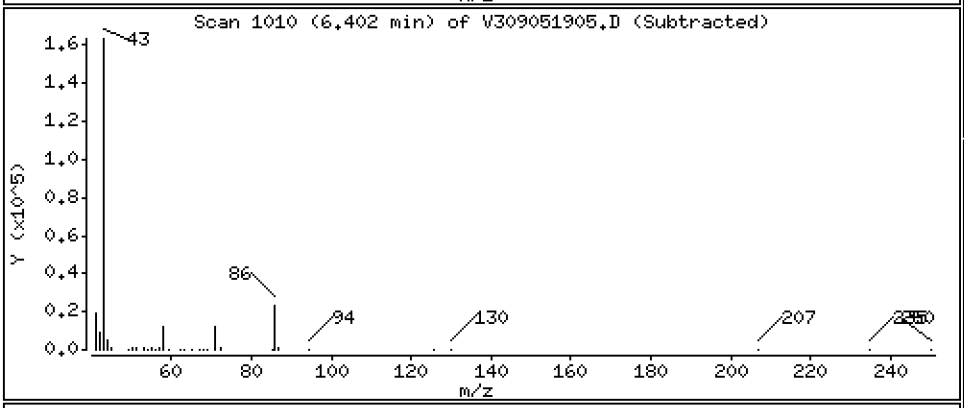
Column diameter: 0.18

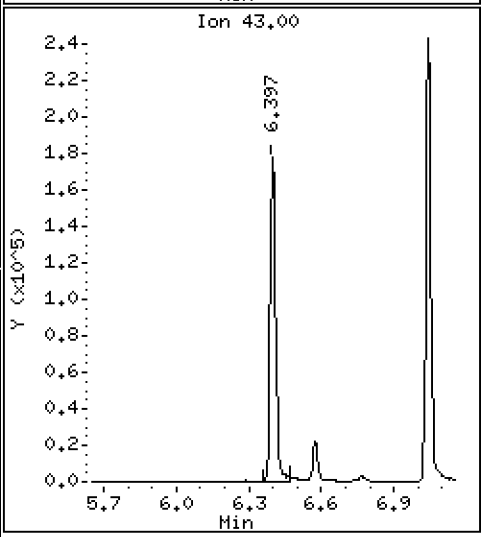
173 2-Pentanone

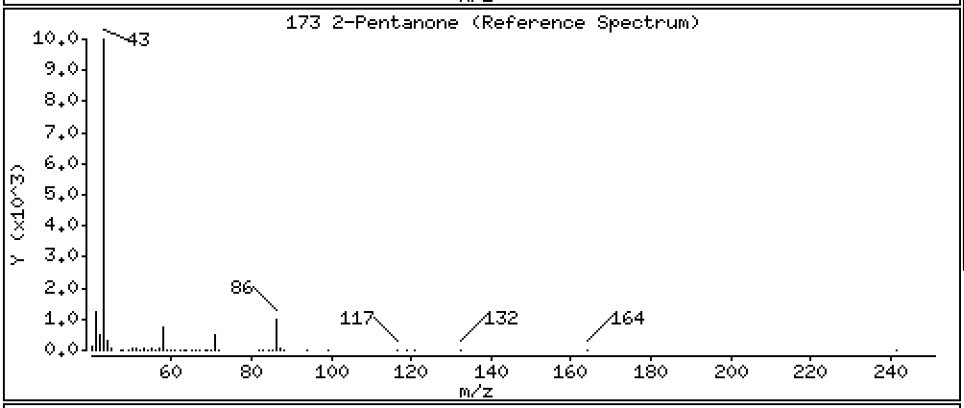
Concentration: 55.842 ug/L

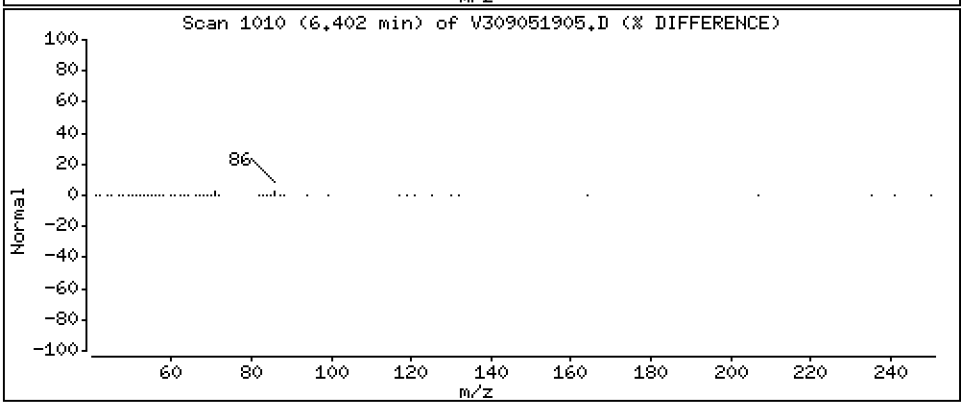












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

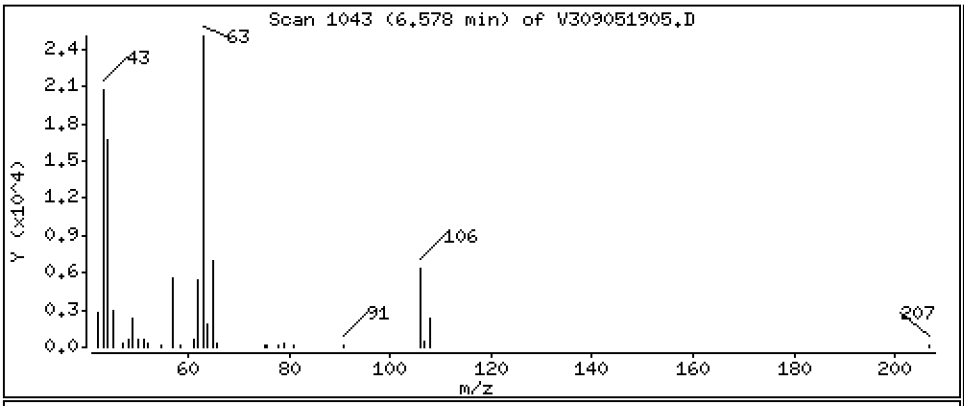
Operator: PKC

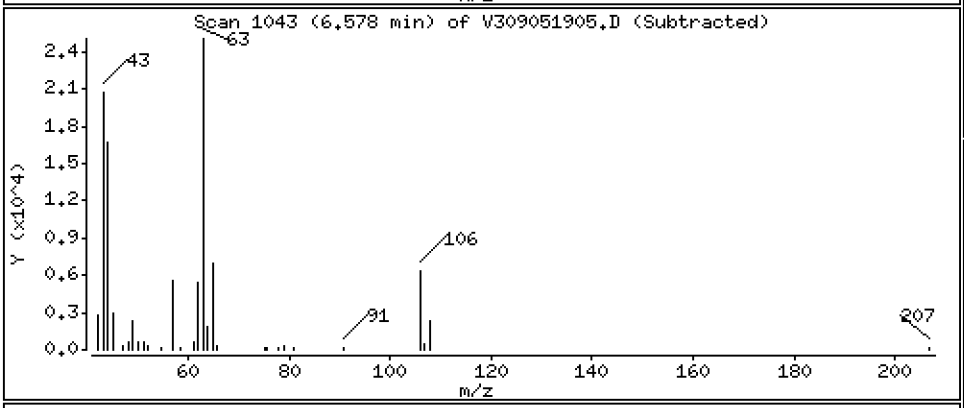
Column phase: RTXVMS

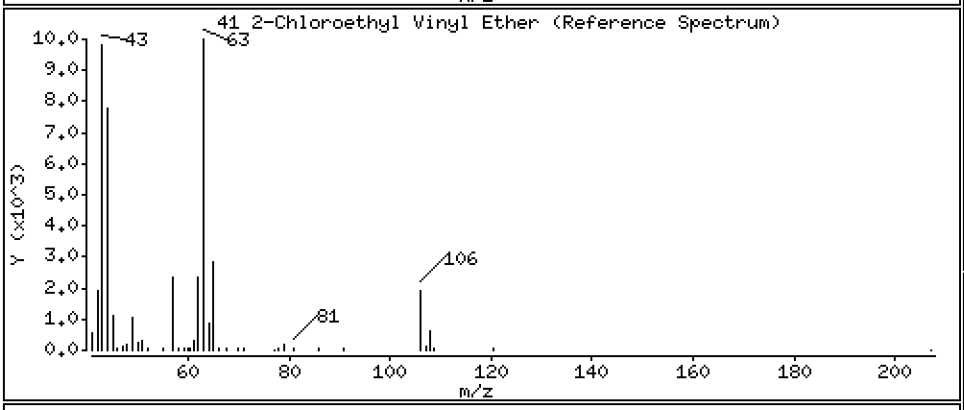
Column diameter: 0.18

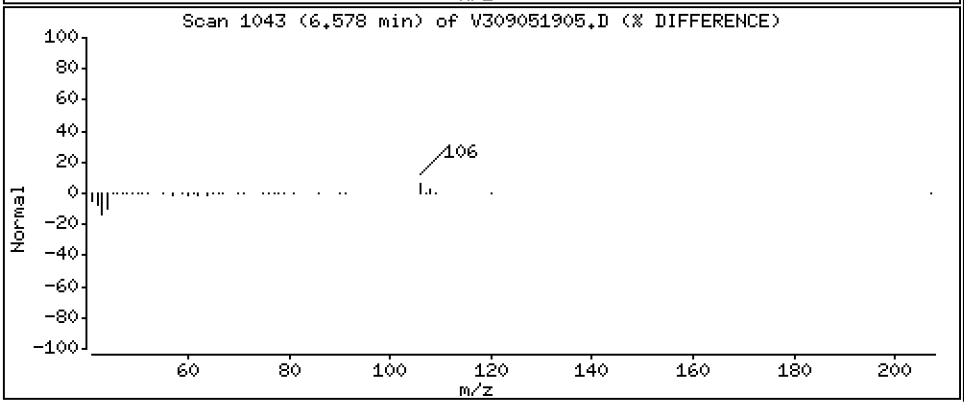
41 2-Chloroethyl Vinyl Ether

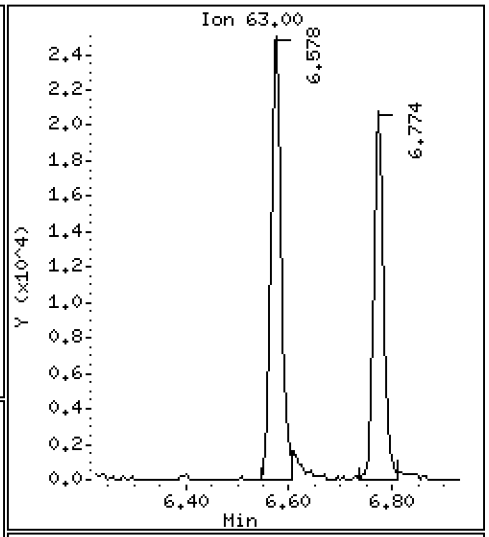
Concentration: 9.770 ug/L

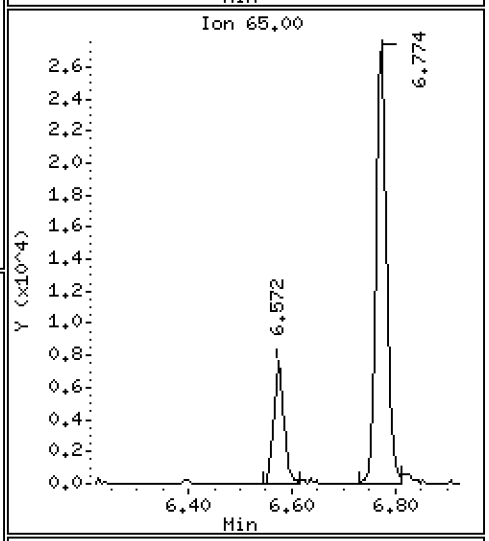


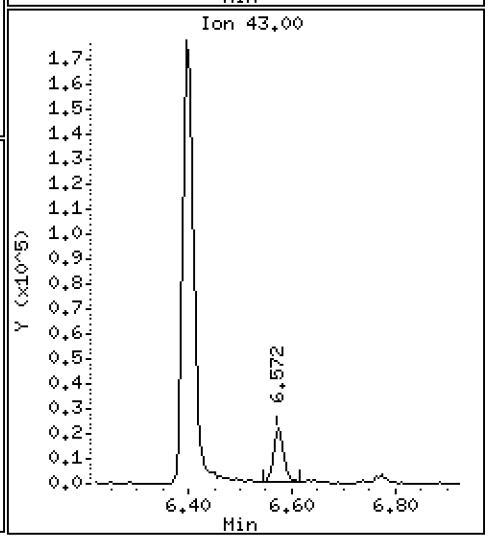












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Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

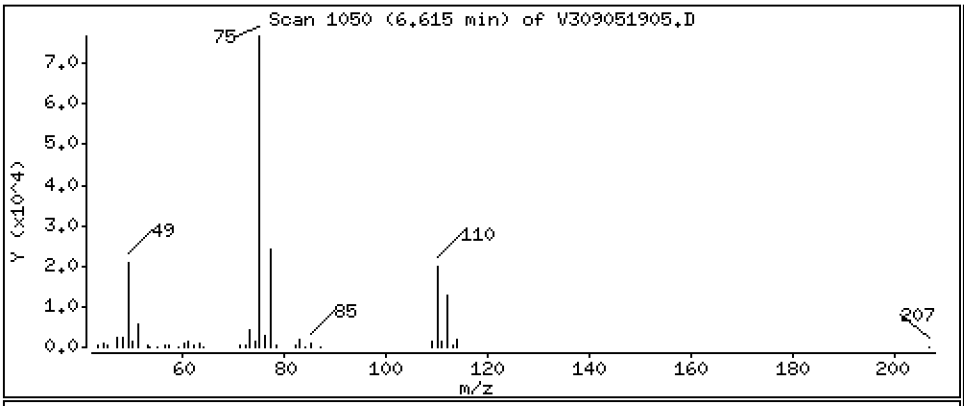
Operator: PKC

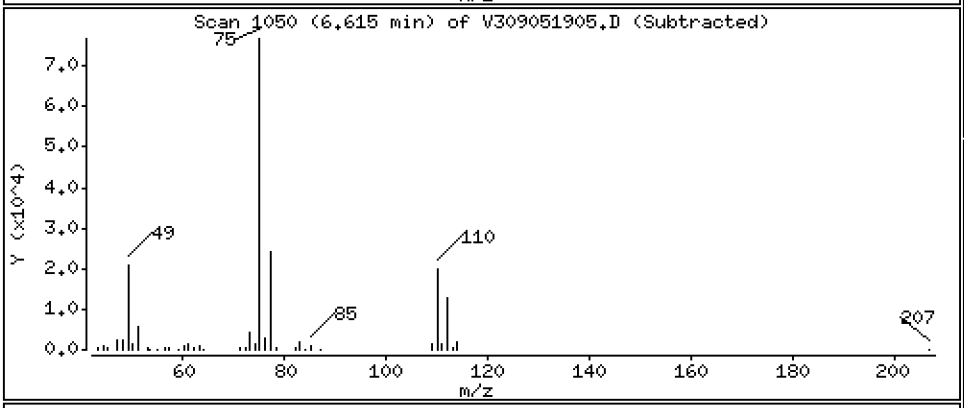
Column phase: RTXVMS

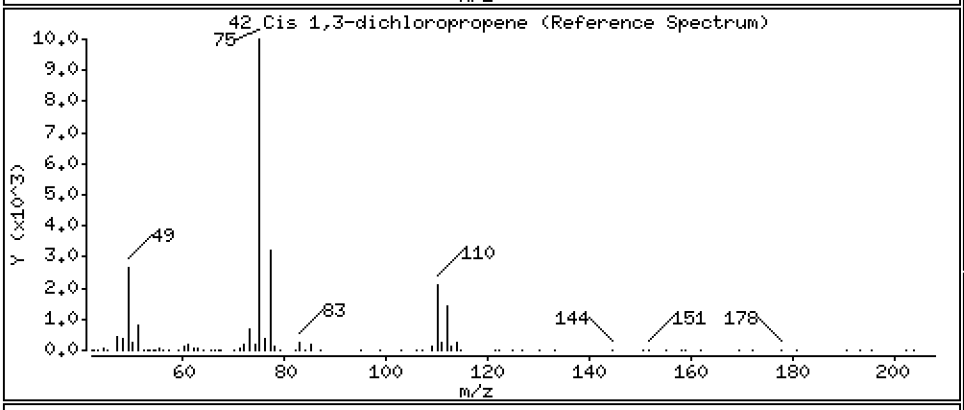
Column diameter: 0.18

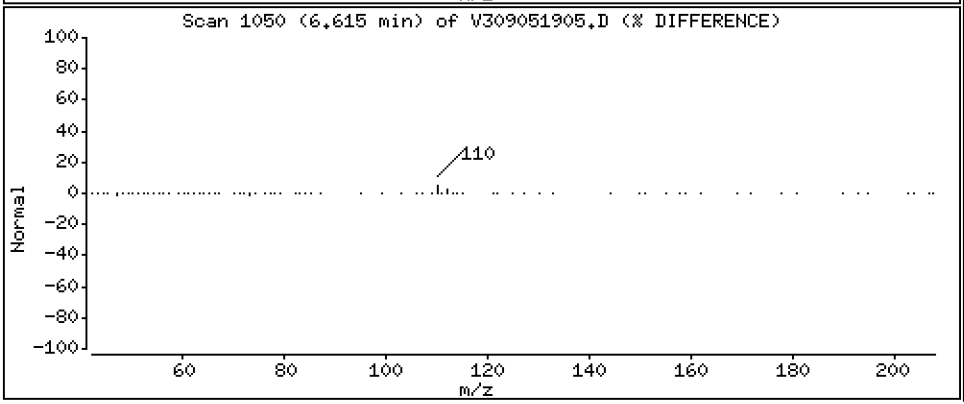
42 Cis 1,3-dichloropropene

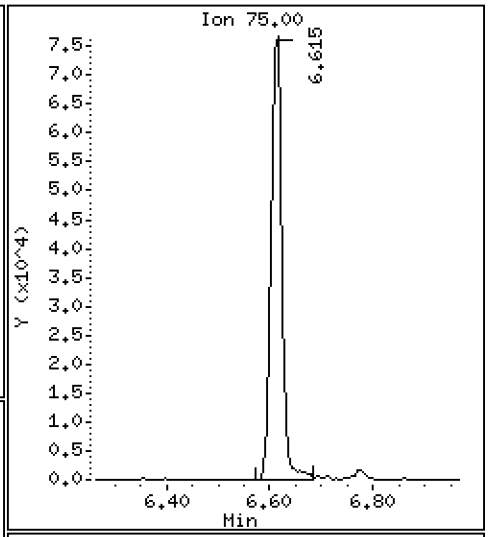
Concentration: 10.399 ug/L

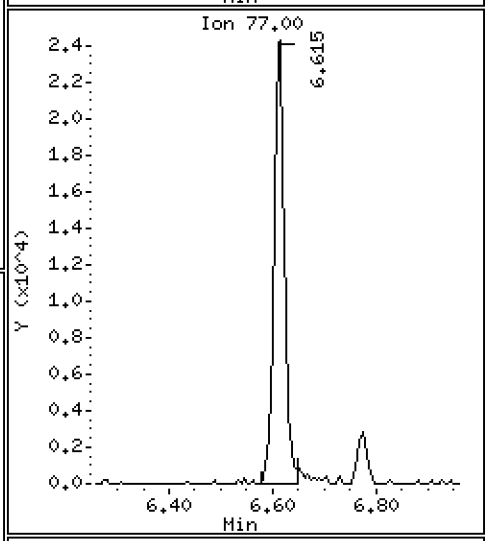


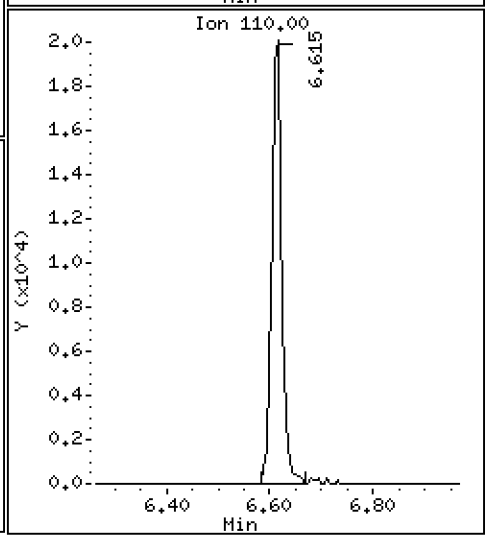












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Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

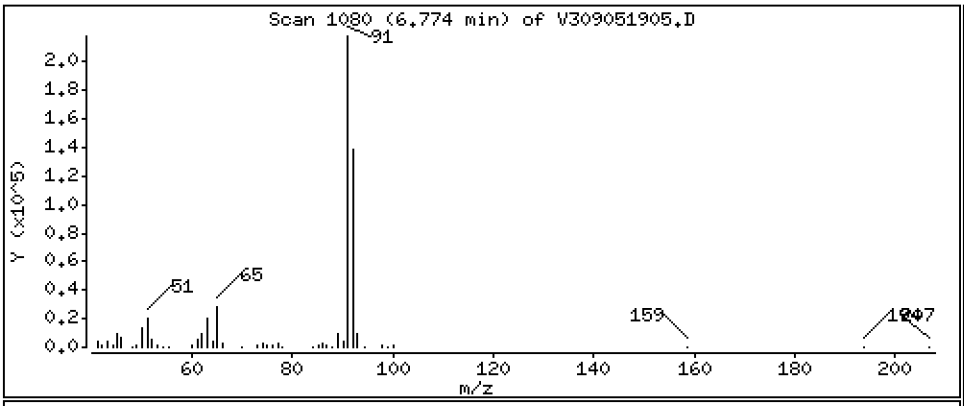
Operator: PKC

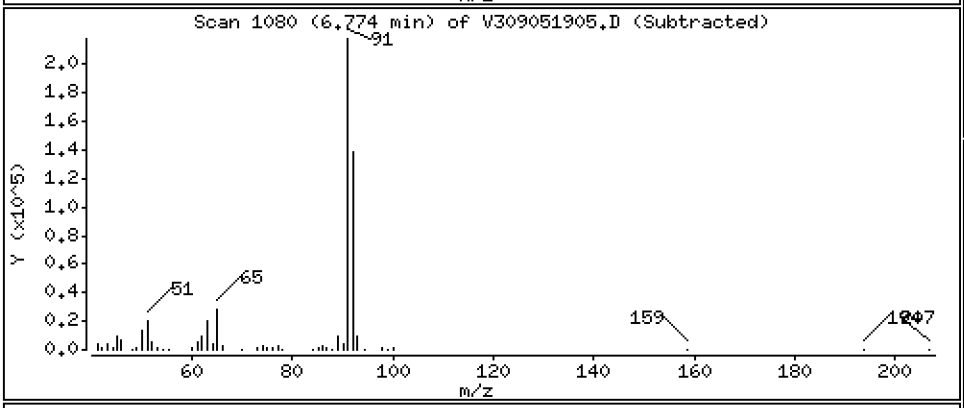
Column phase: RTXVMS

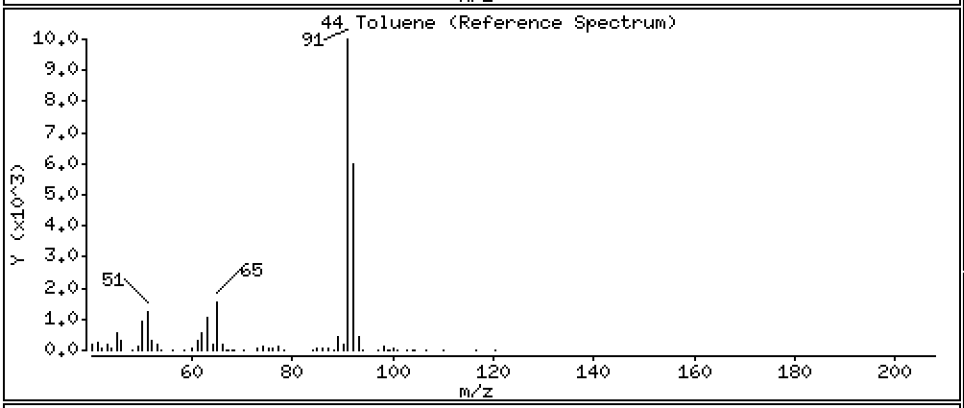
Column diameter: 0.18

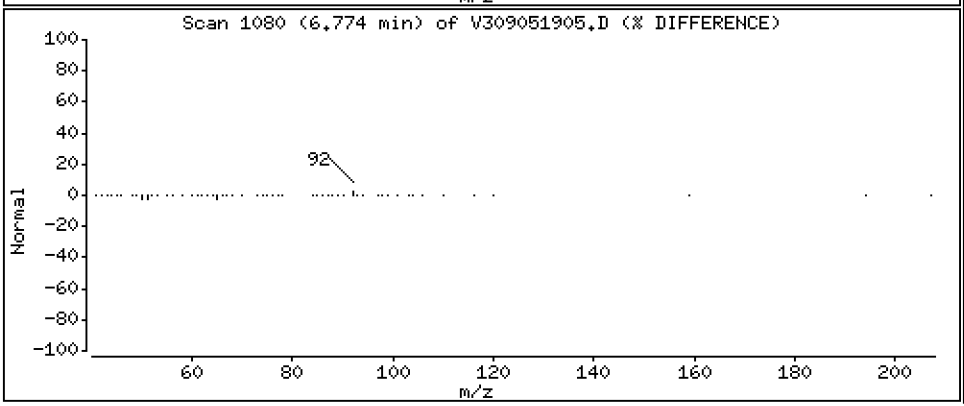
44 Toluene

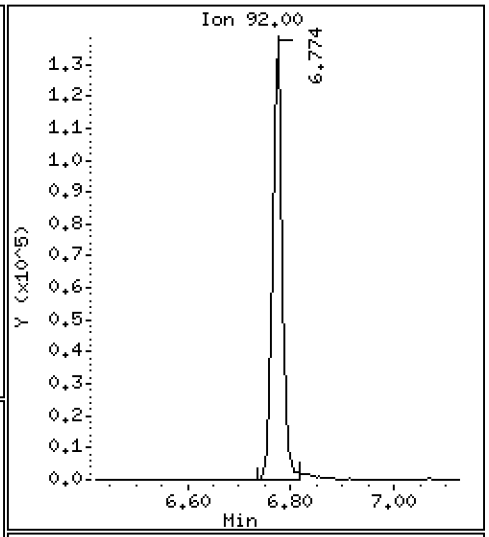
Concentration: 9.680 ug/L

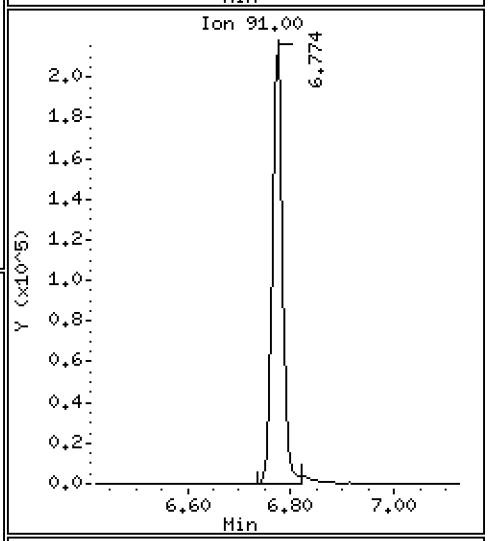


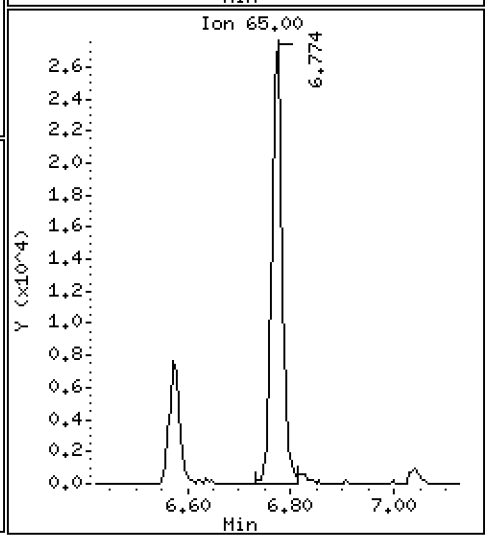












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

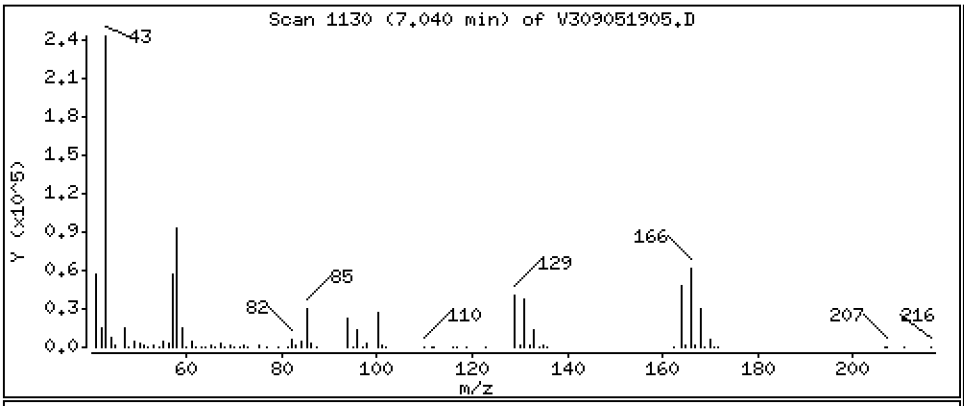
Operator: PKC

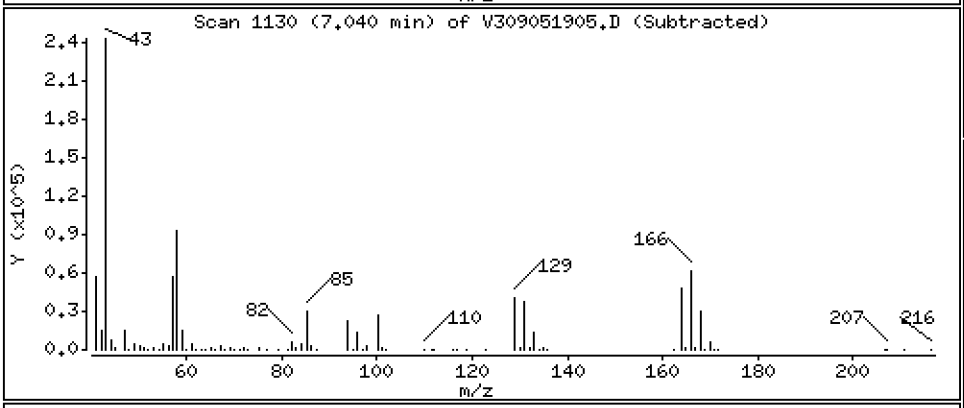
Column phase: RTXVMS

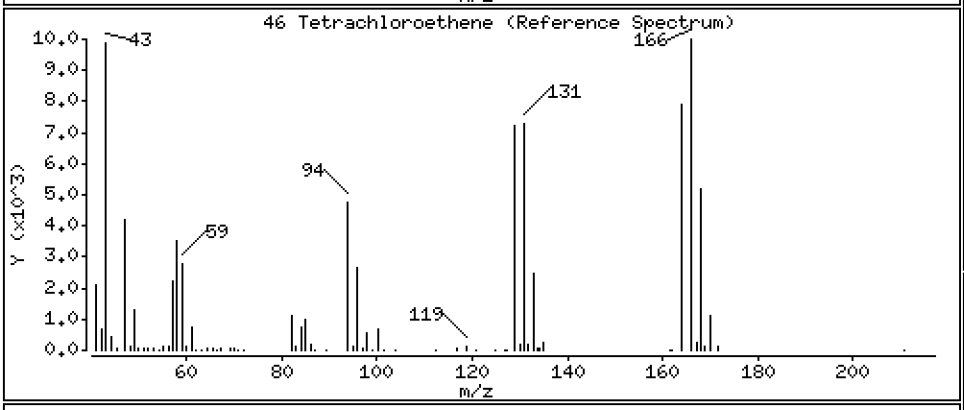
Column diameter: 0.18

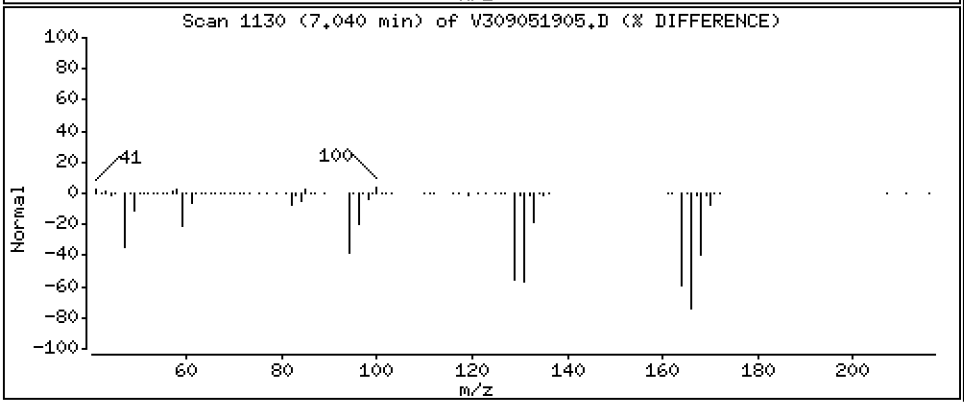
46 Tetrachloroethene

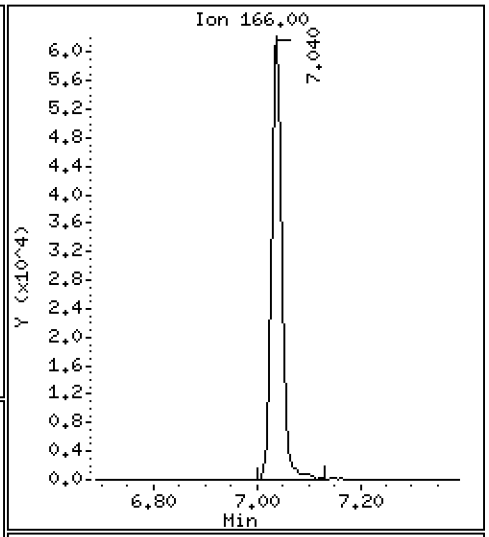
Concentration: 9.971 ug/L

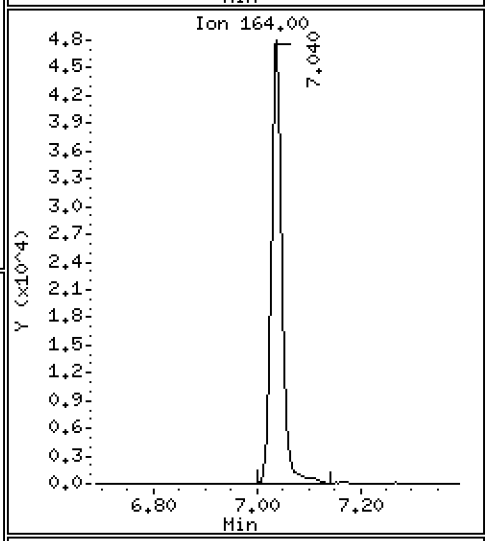


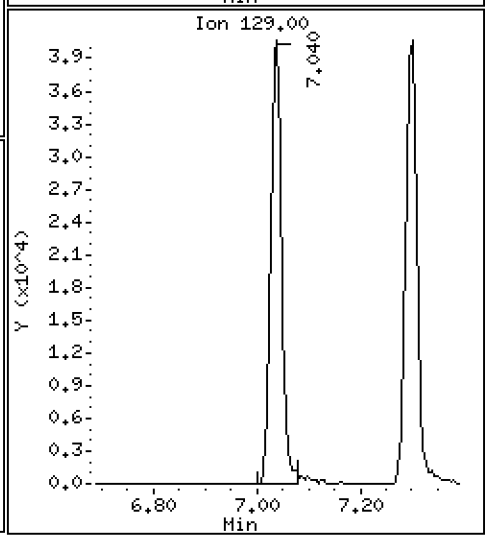












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

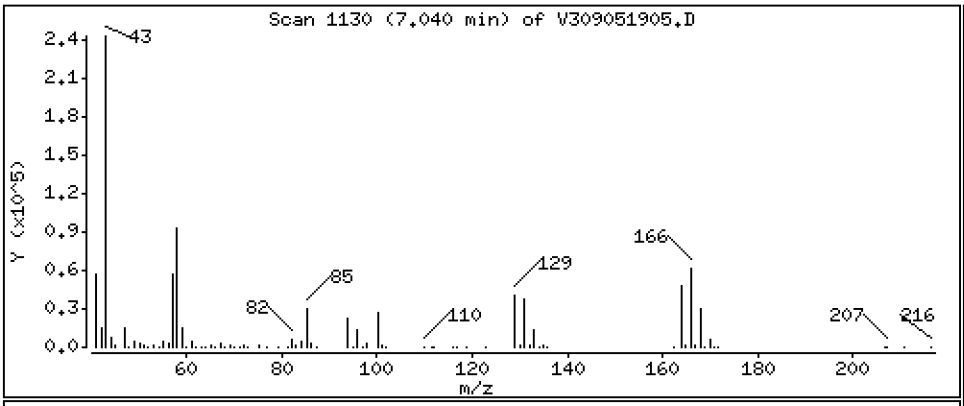
Operator: PKC

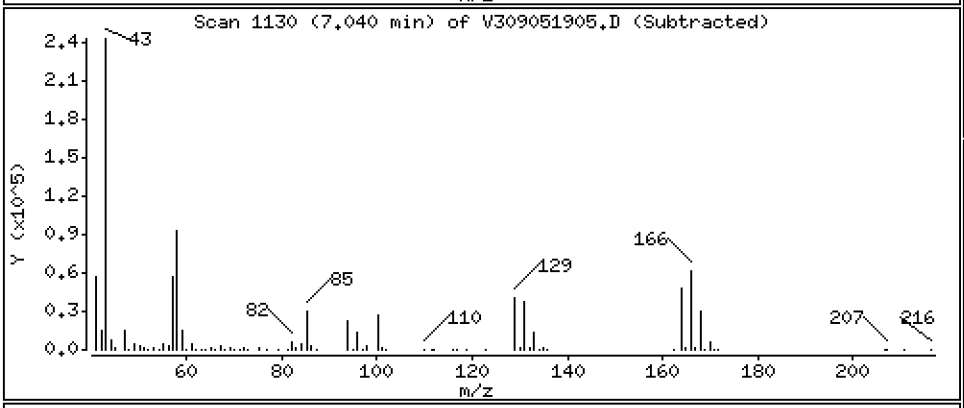
Column phase: RTXVMS

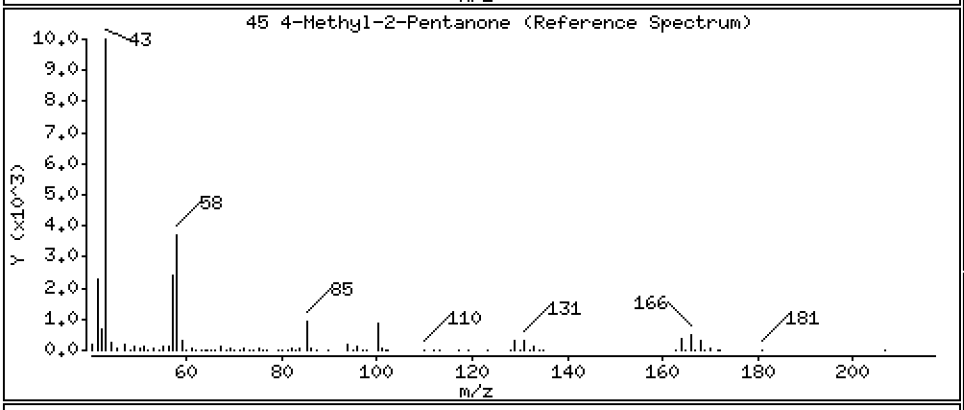
Column diameter: 0.18

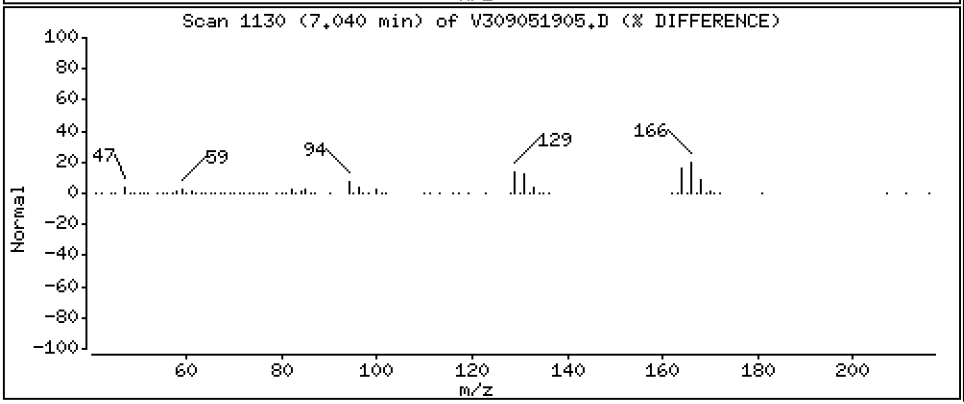
45 4-Methyl-2-Pentanone

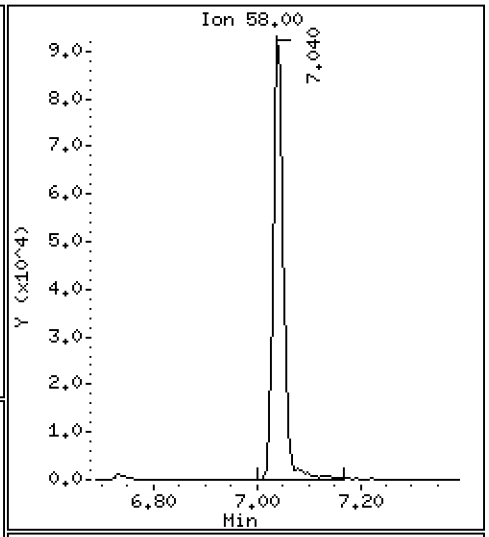
Concentration: 53.489 ug/L

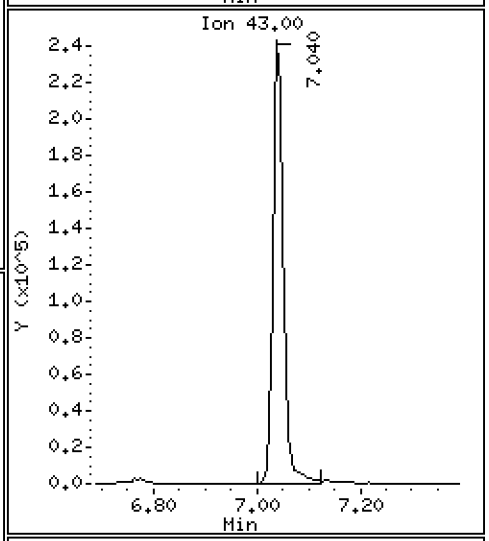


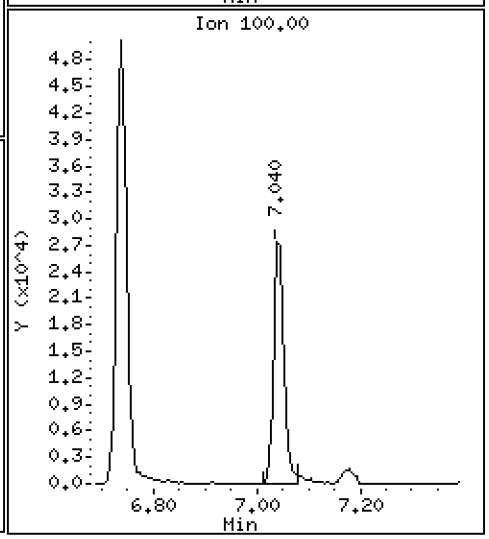












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

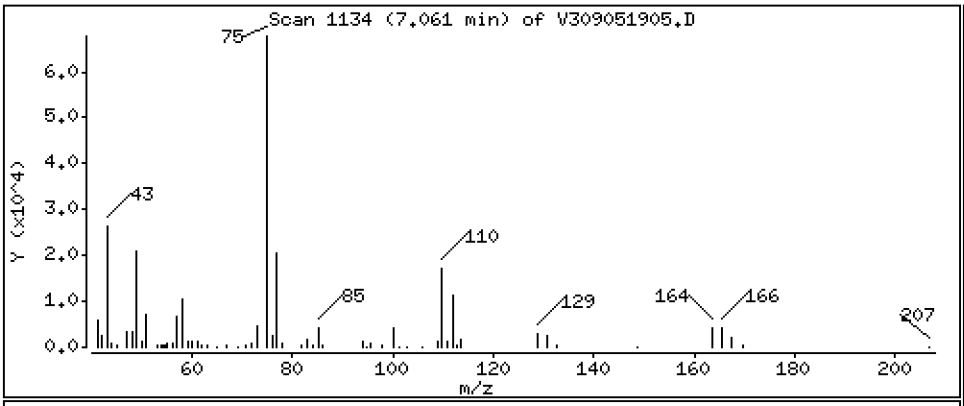
Operator: PKC

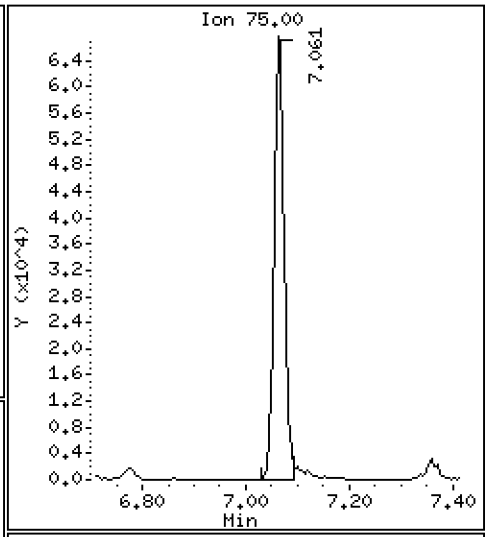
Column phase: RTXVMS

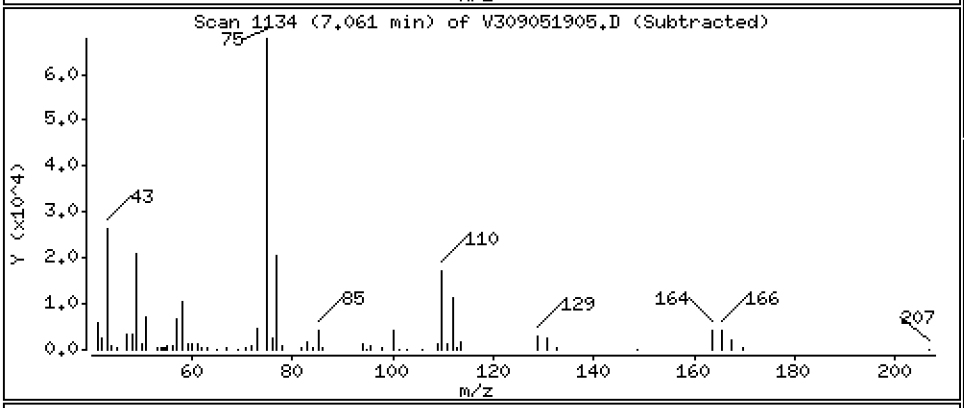
Column diameter: 0.18

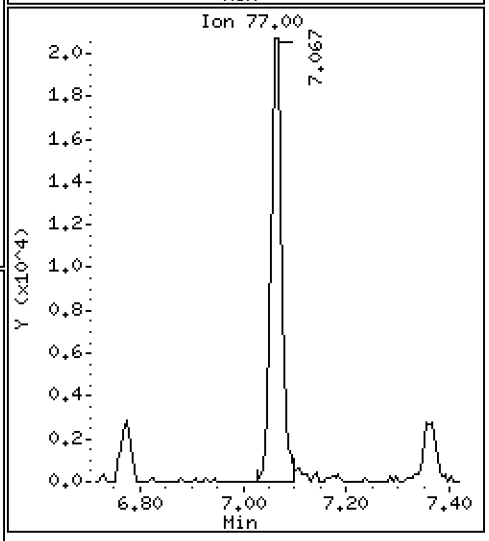
47 Trans 1,3-Dichloropropene

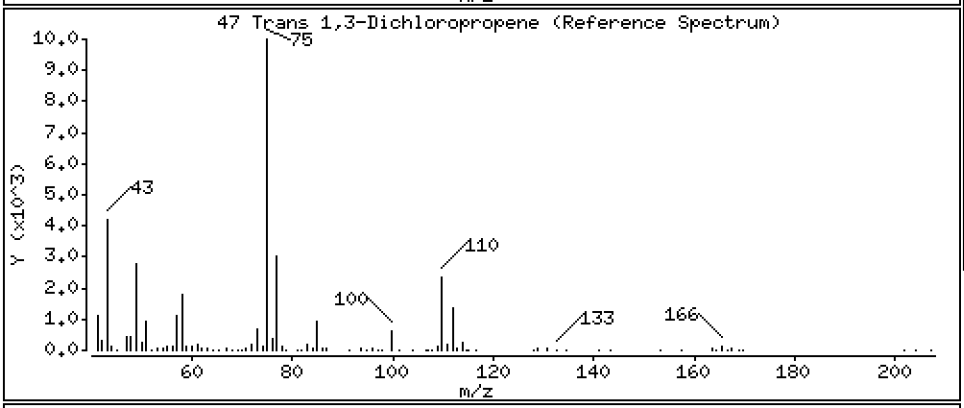
Concentration: 10.081 ug/L

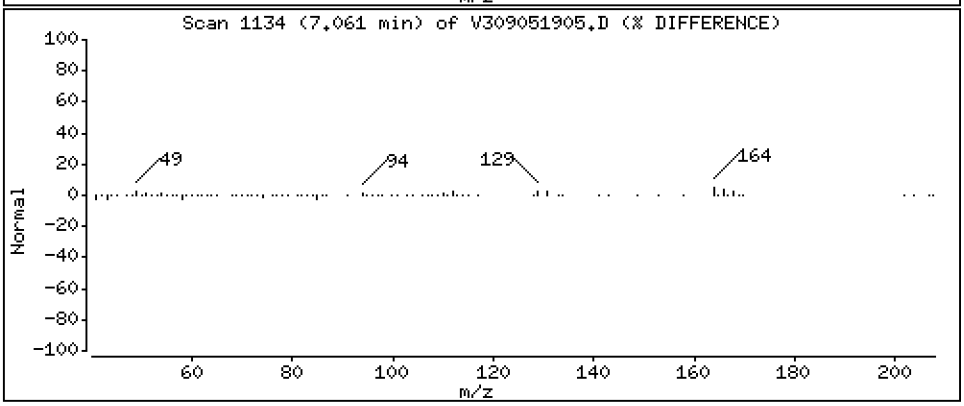












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

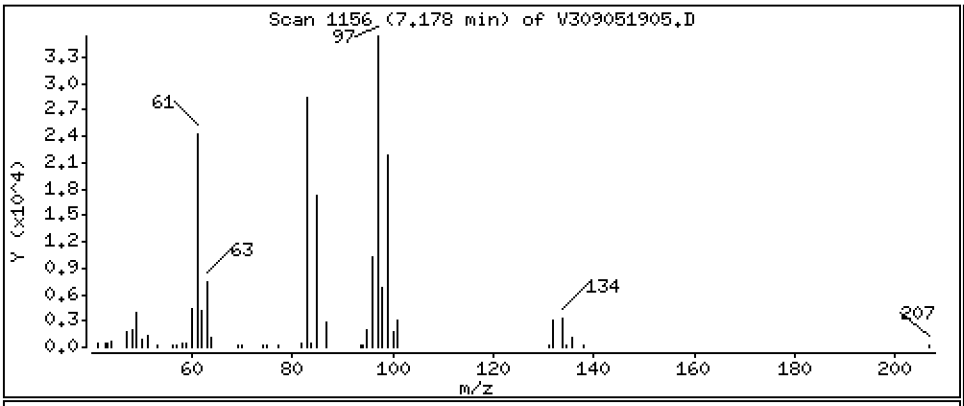
Operator: PKC

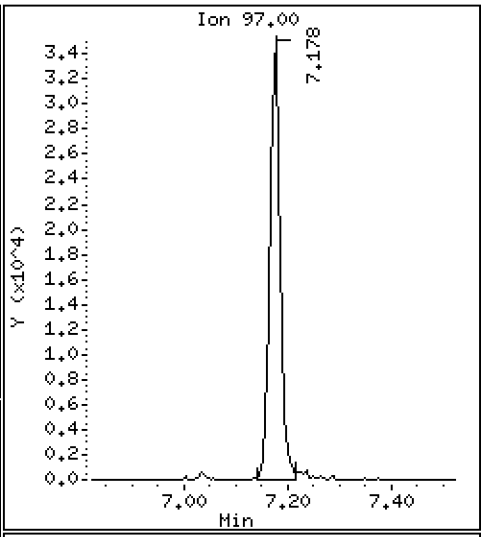
Column phase: RTXVMS

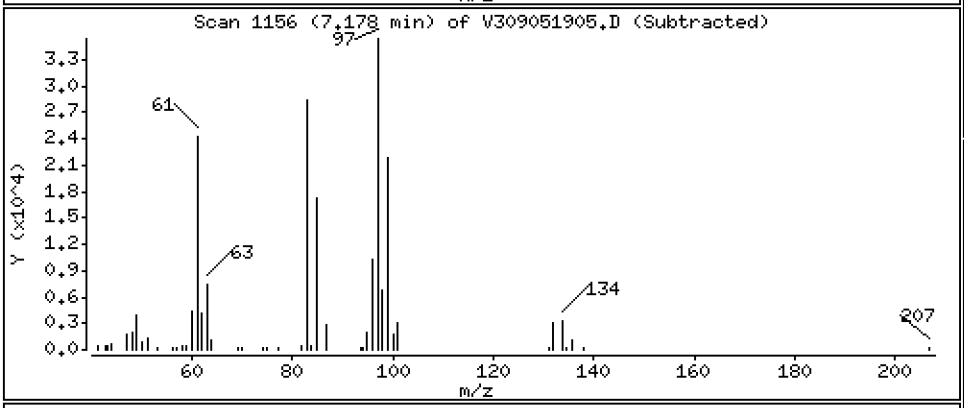
Column diameter: 0.18

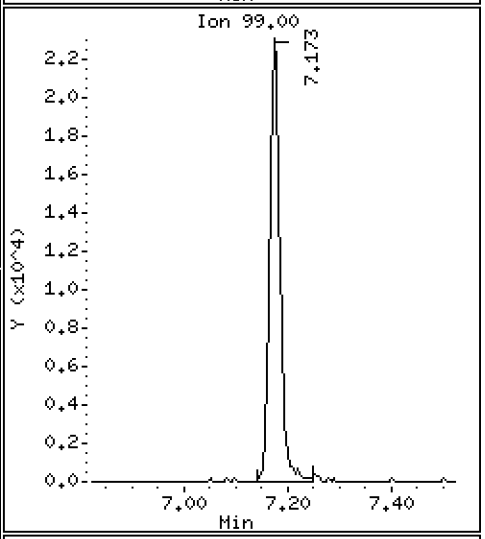
48 1,1,2-Trichloroethane

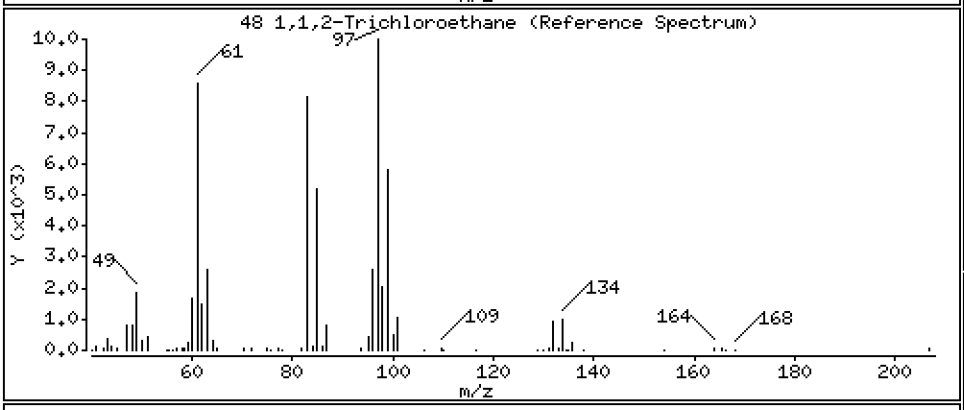
Concentration: 9.860 ug/L

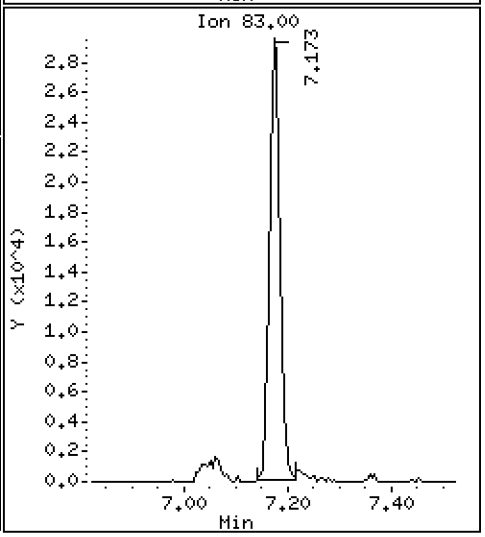


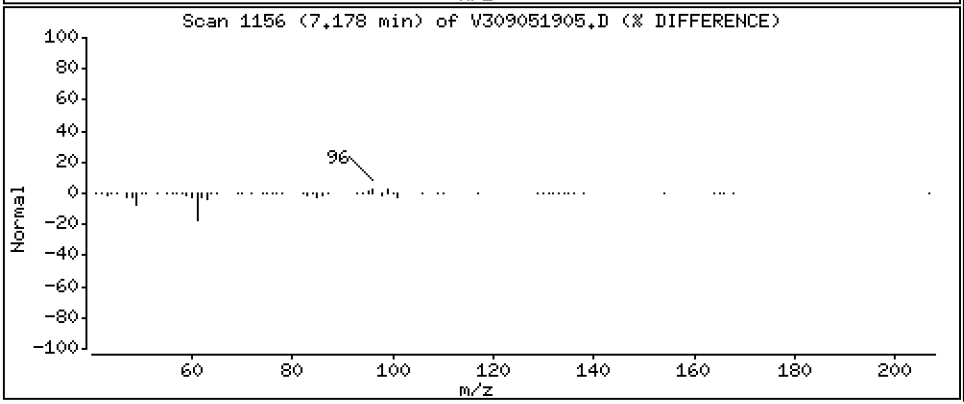












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

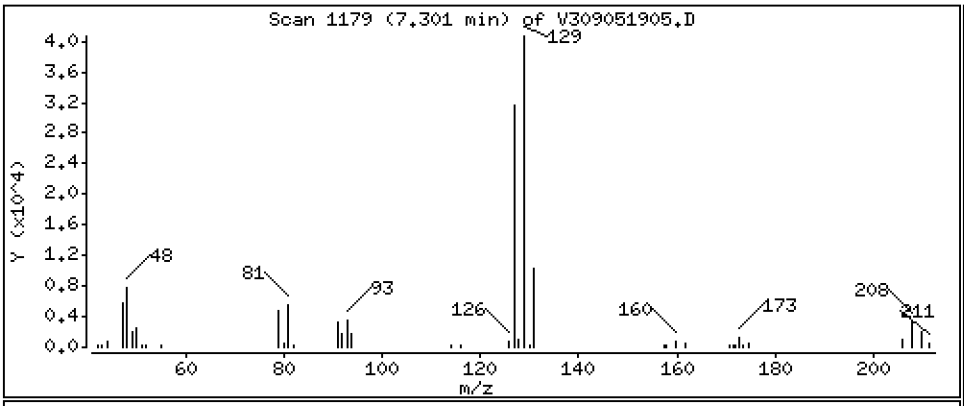
Operator: PKC

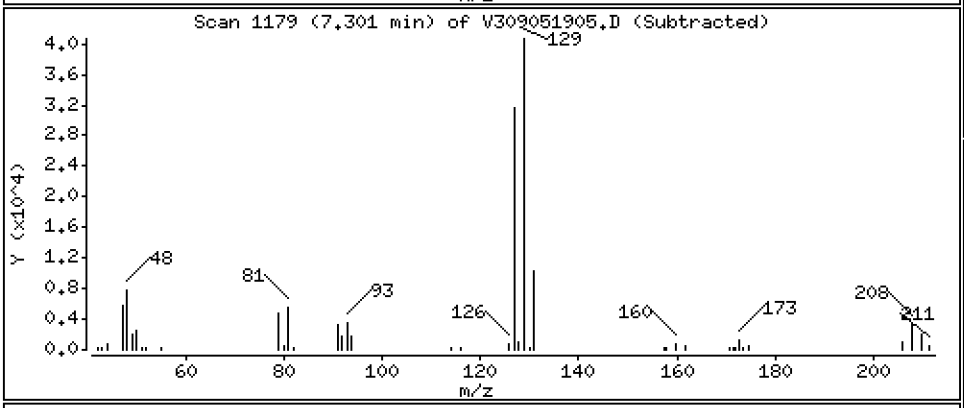
Column phase: RTXVMS

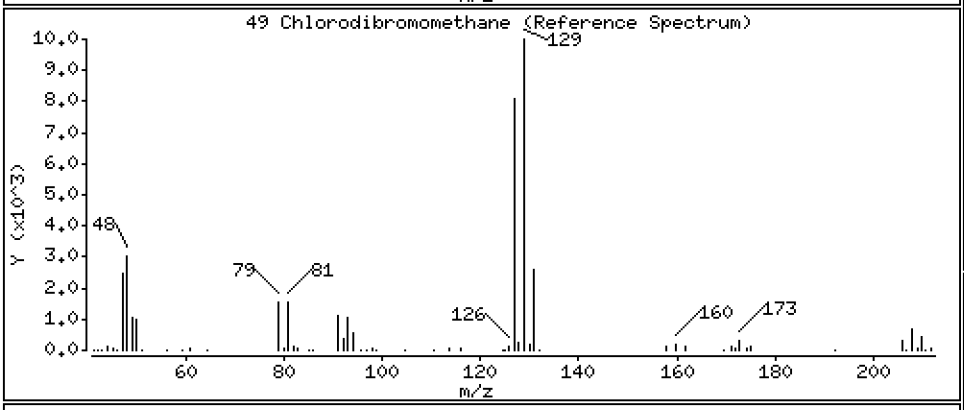
Column diameter: 0.18

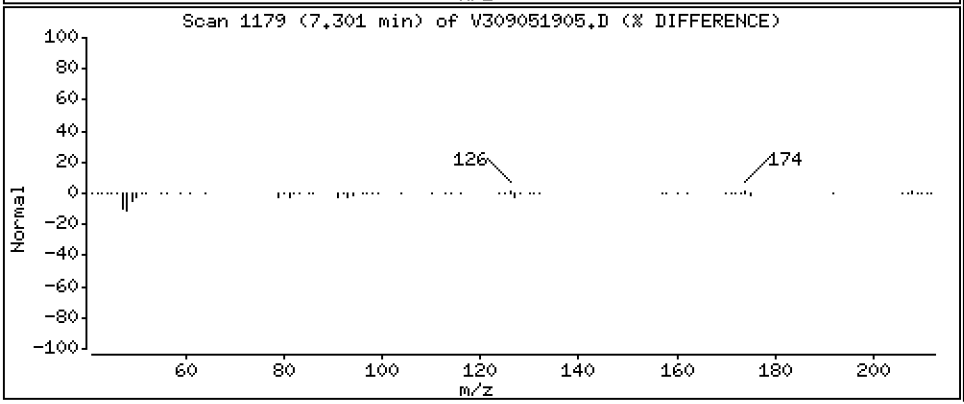
49 Chlorodibromomethane

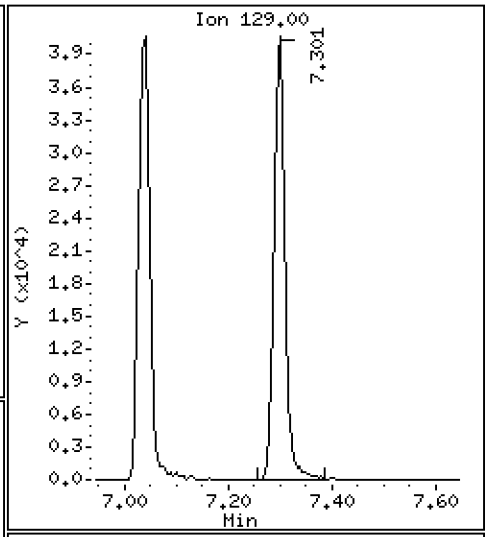
Concentration: 9.624 ug/L

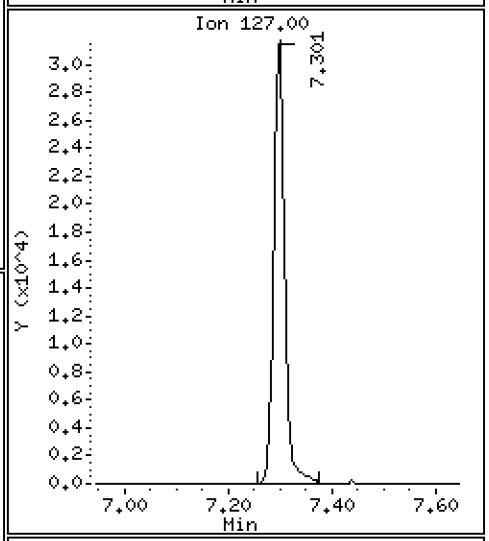


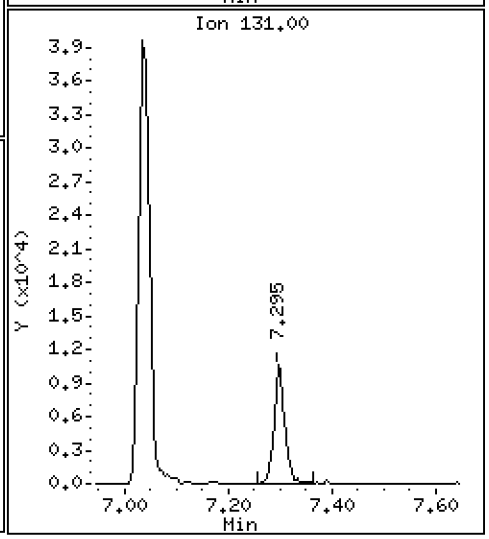












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

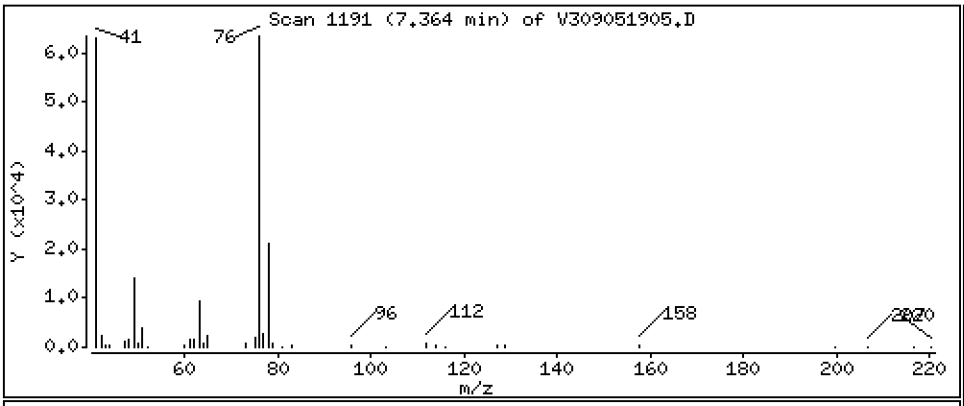
Operator: PKC

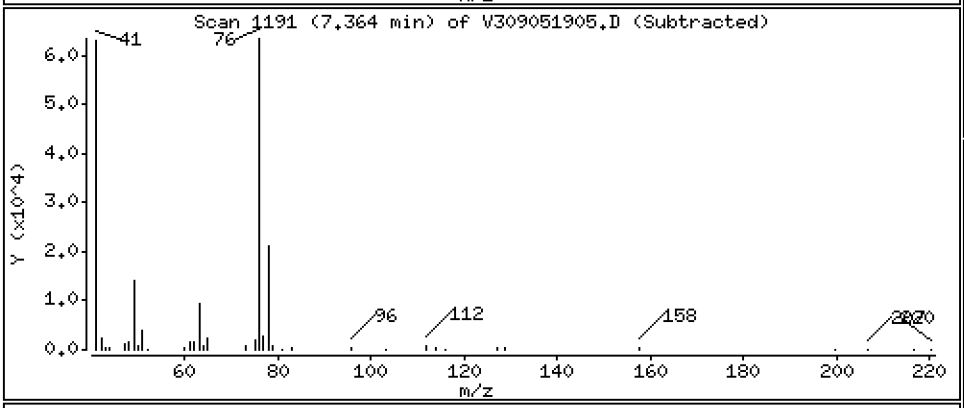
Column phase: RTXVMS

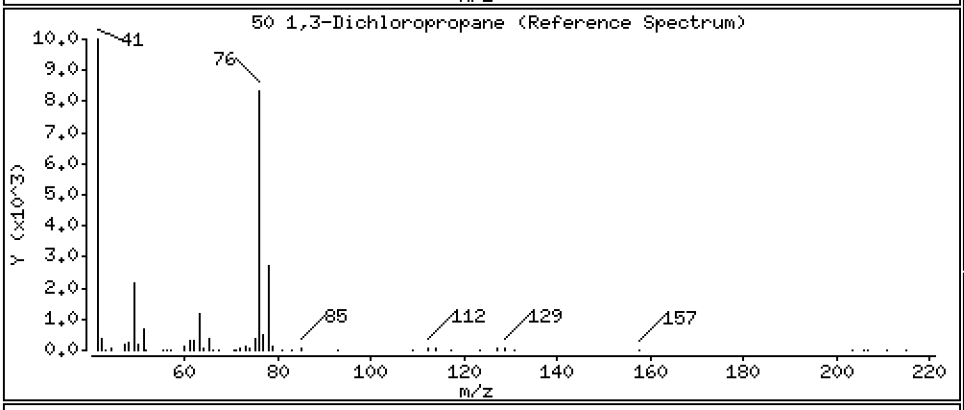
Column diameter: 0.18

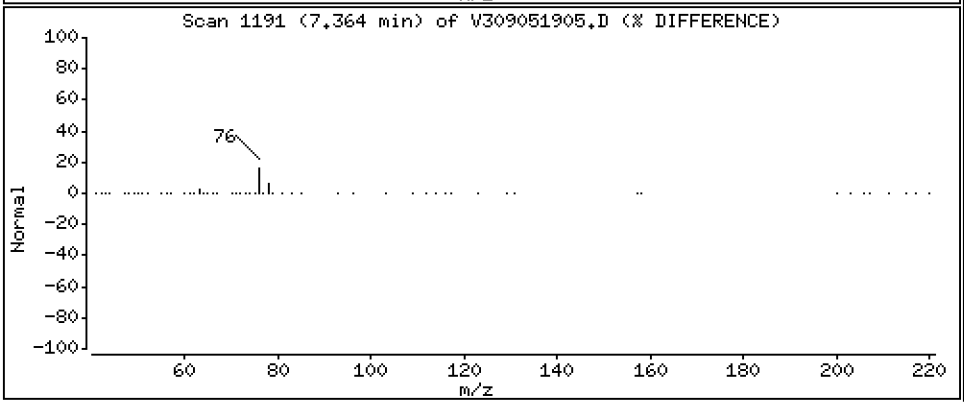
50 1,3-Dichloropropane

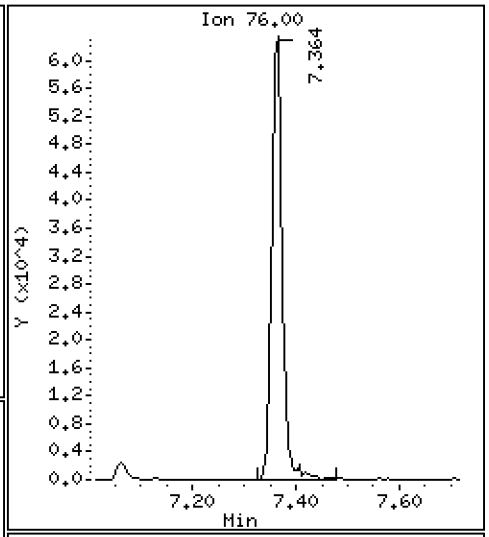
Concentration: 9.791 ug/L

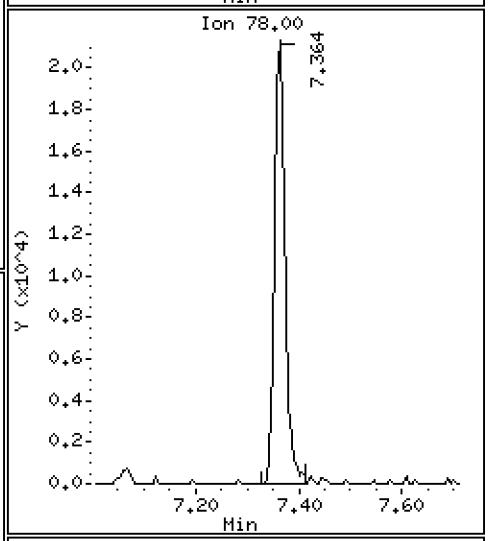


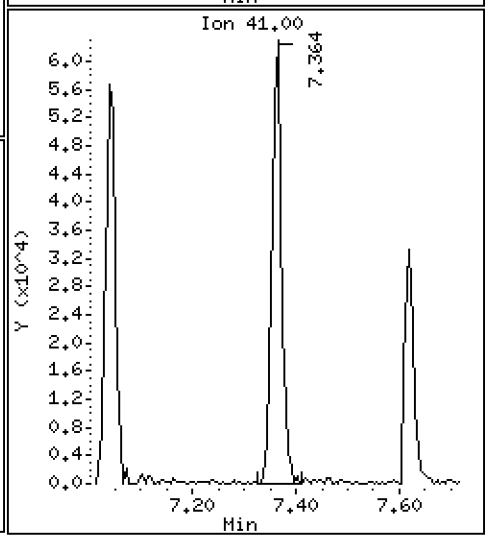












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

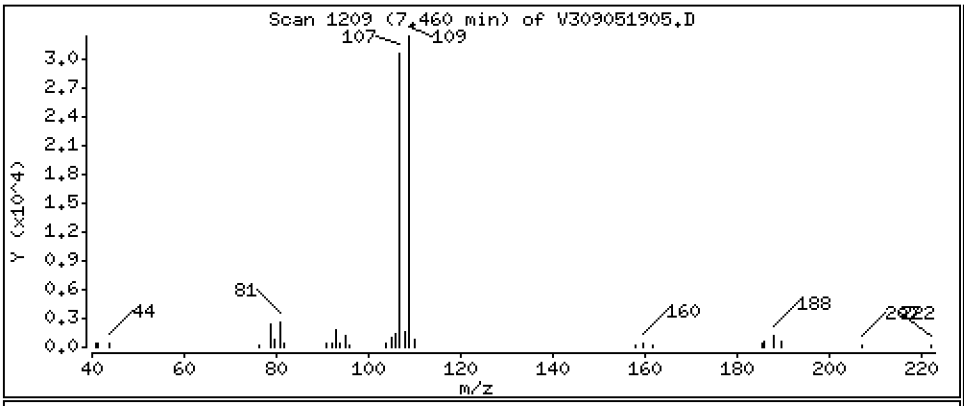
Operator: PKC

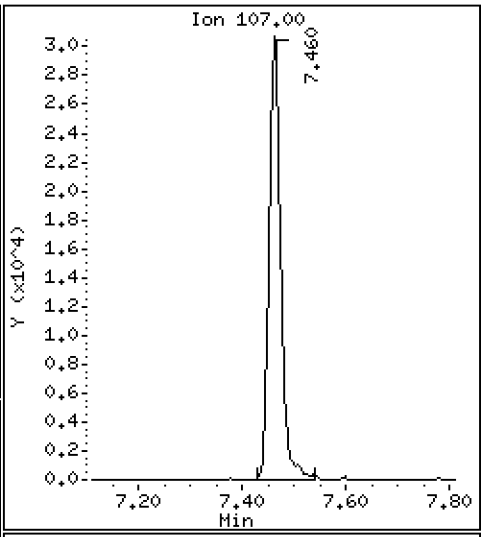
Column phase: RTXVMS

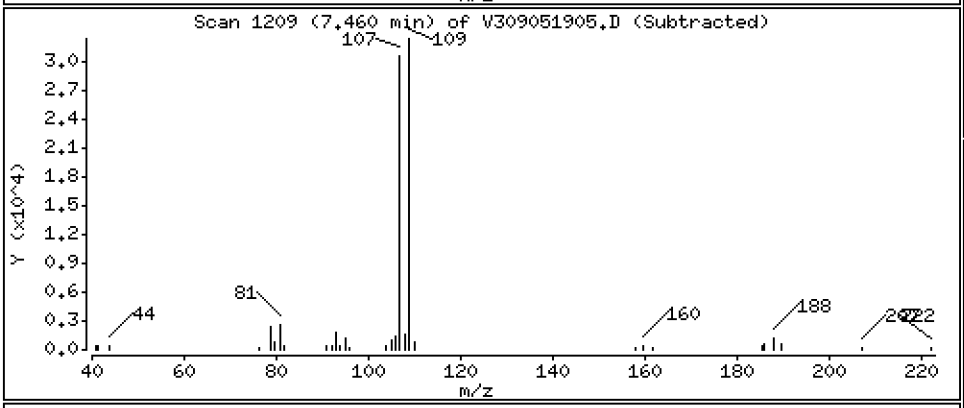
Column diameter: 0.18

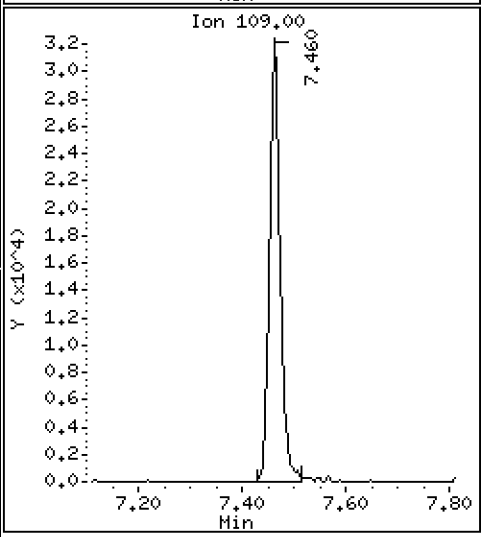
51 1,2-Dibromoethane

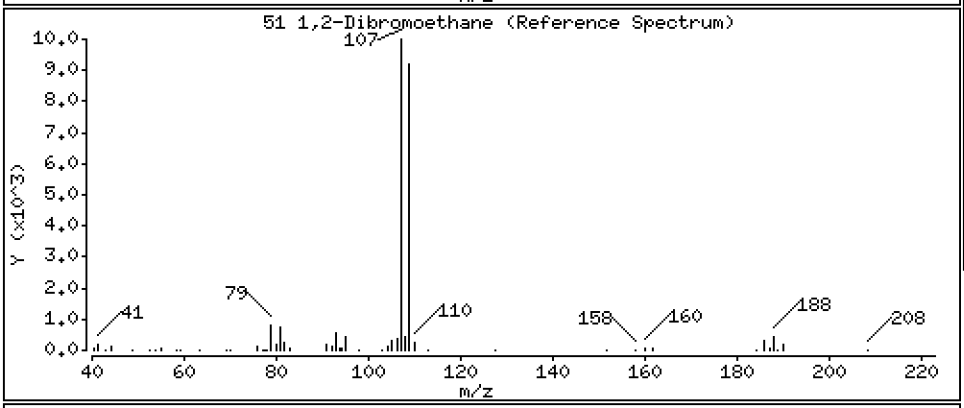
Concentration: 9.766 ug/L

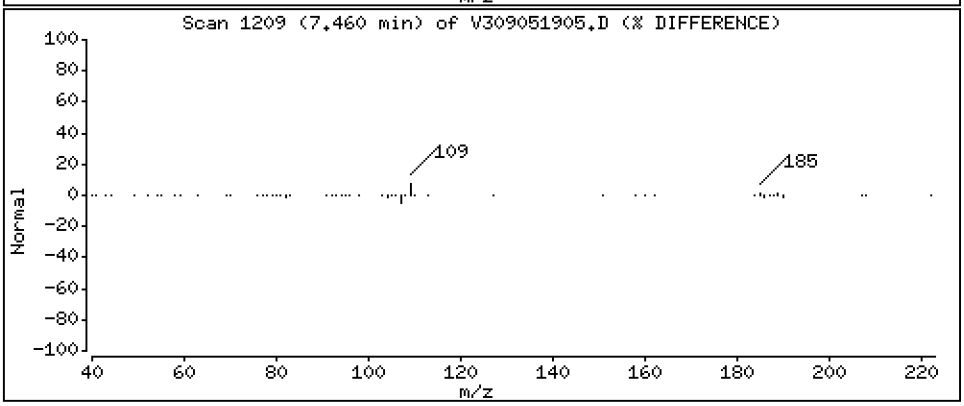












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

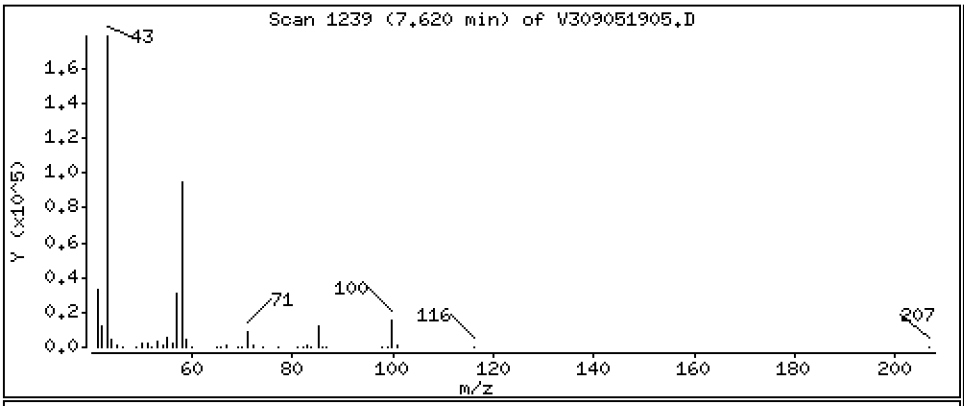
Operator: PKC

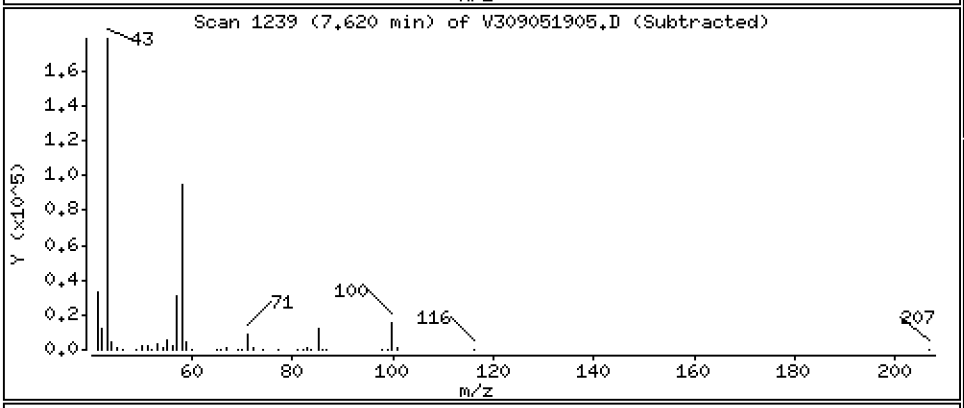
Column phase: RTXVMS

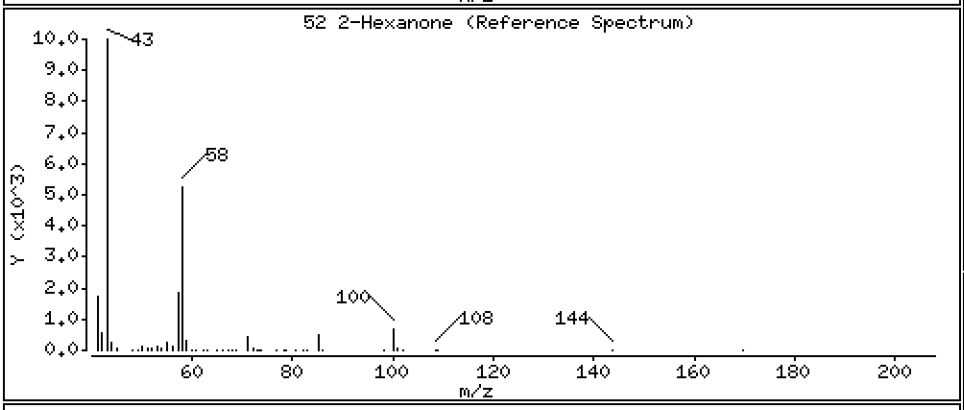
Column diameter: 0.18

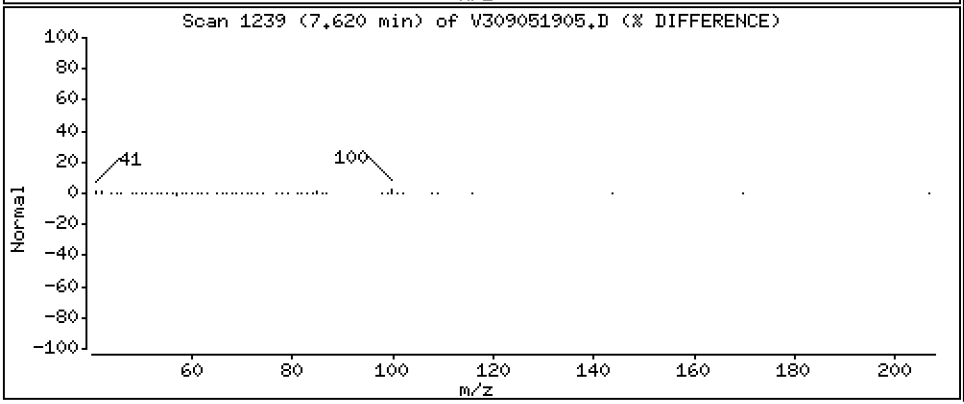
52 2-Hexanone

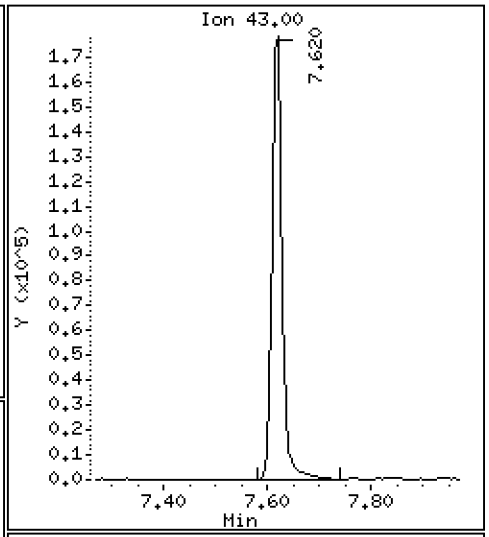
Concentration: 52.732 ug/L

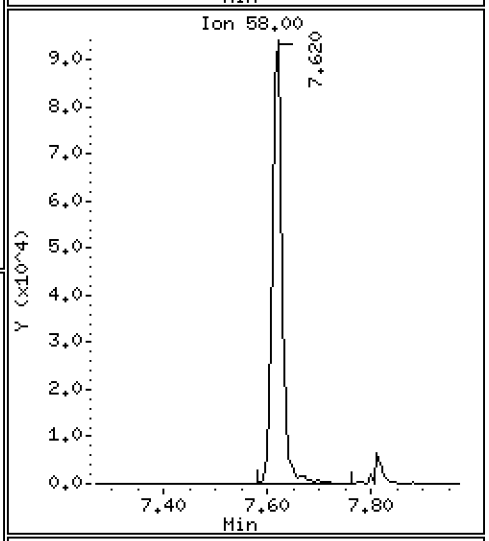


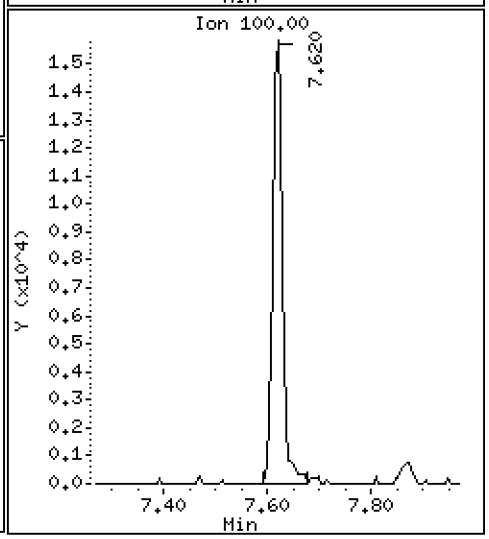












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

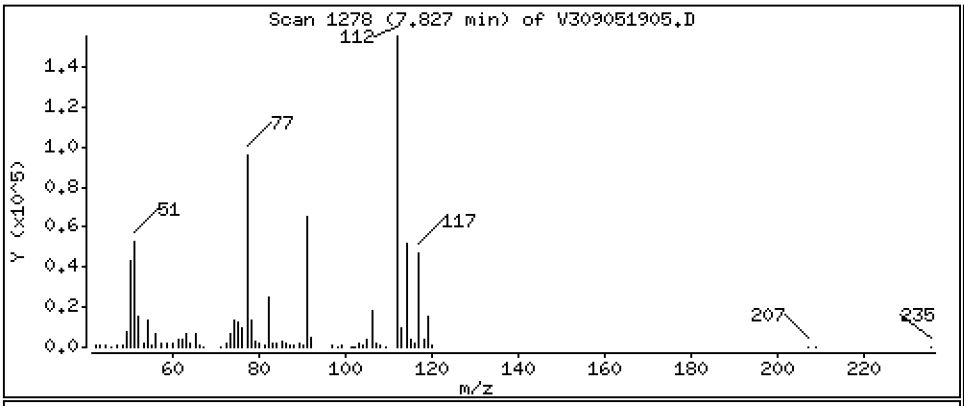
Operator: PKC

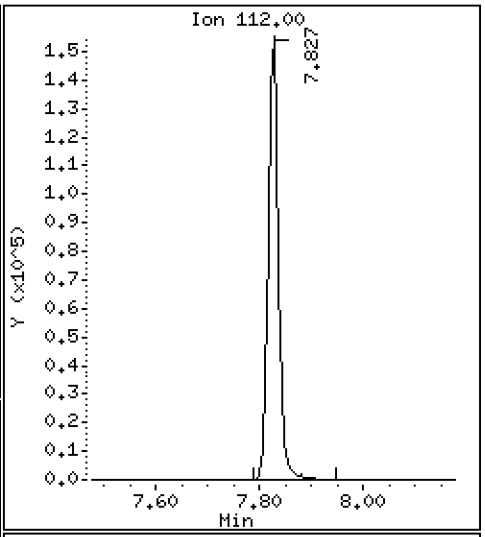
Column phase: RTXVMS

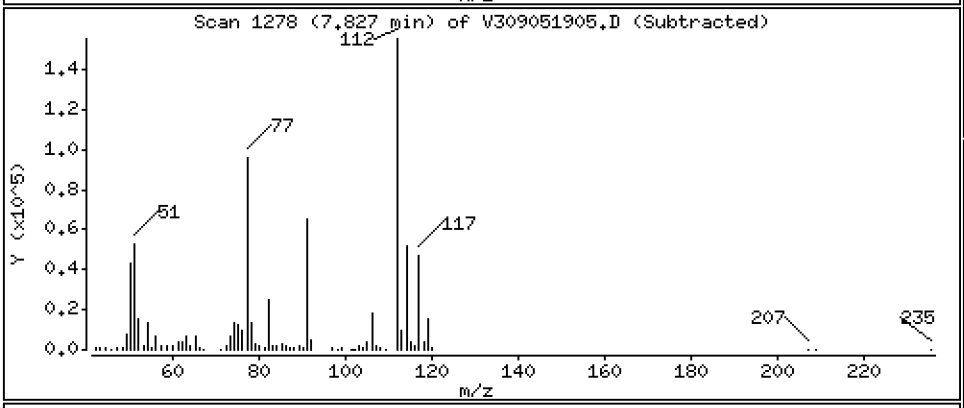
Column diameter: 0.18

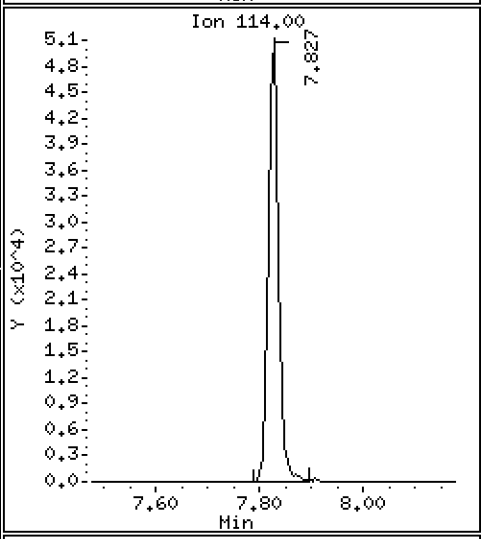
54 Chlorobenzene

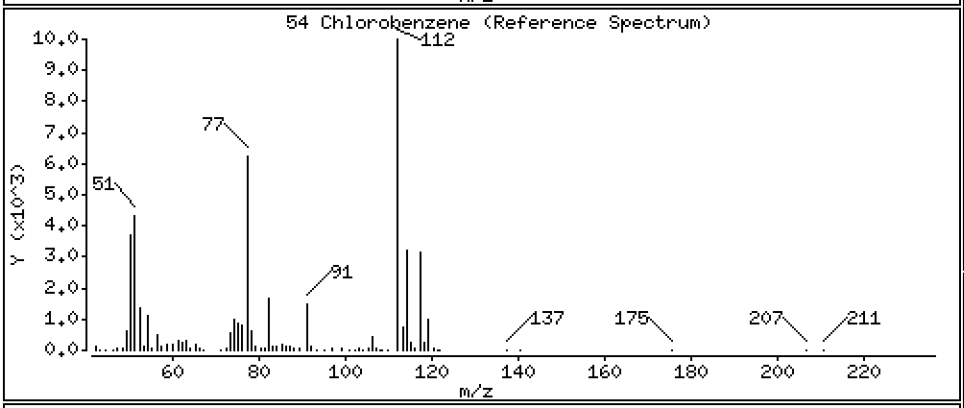
Concentration: 9.764 ug/L

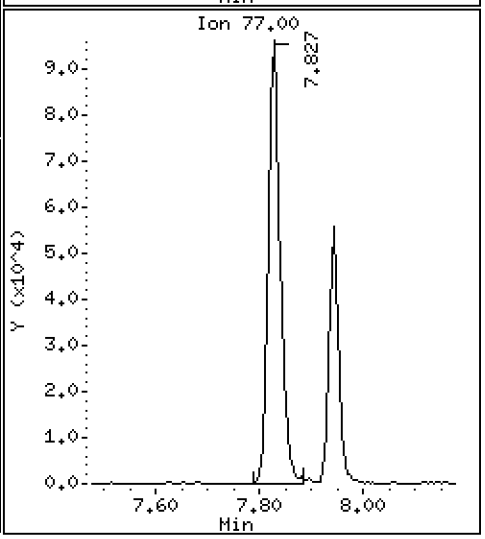


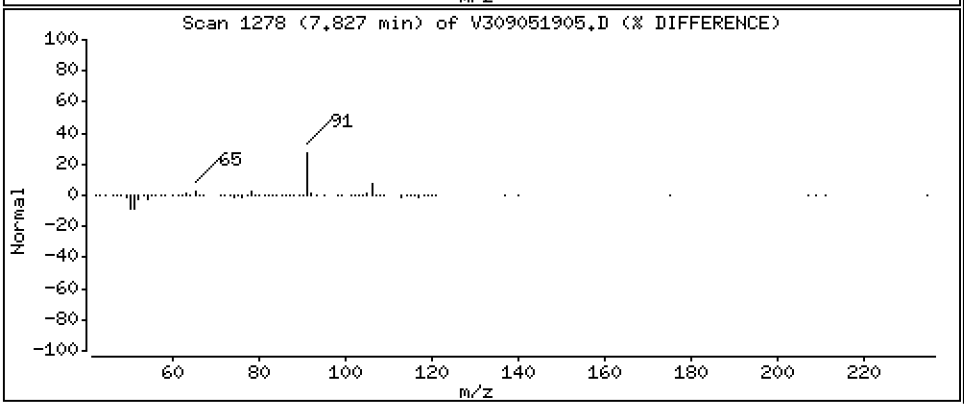












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

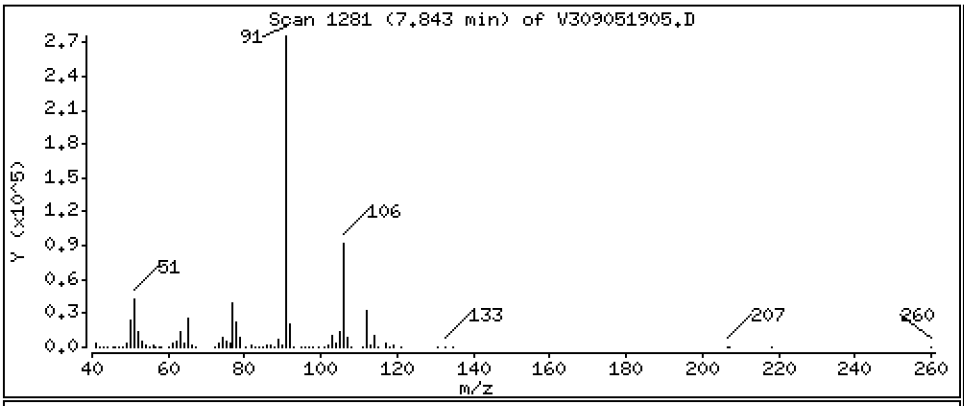
Operator: PKC

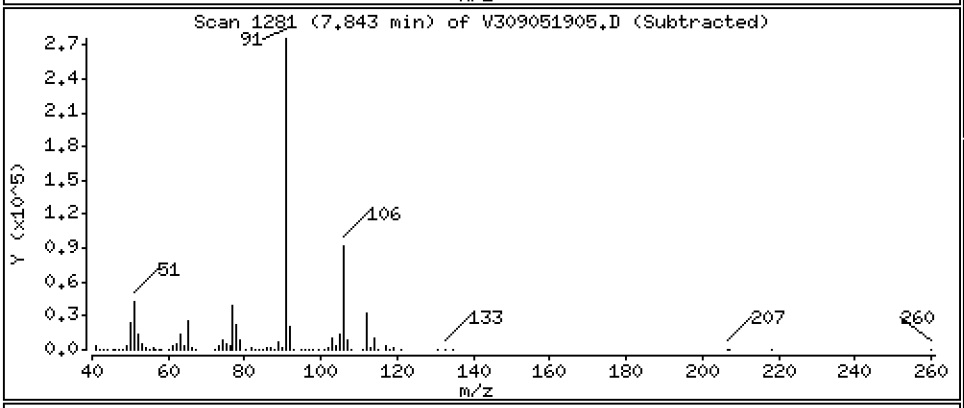
Column phase: RTXVMS

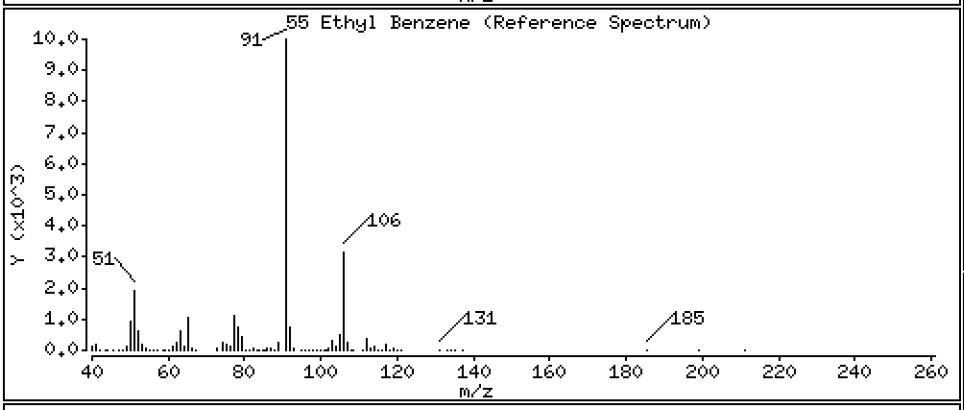
Column diameter: 0.18

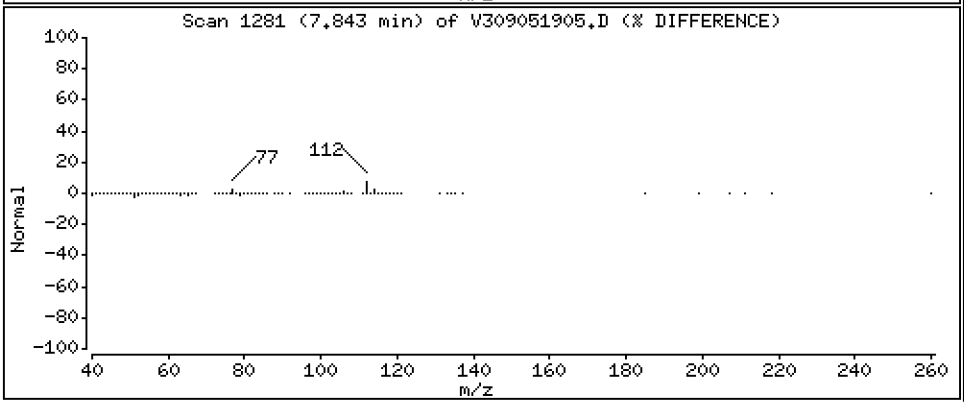
55 Ethyl Benzene

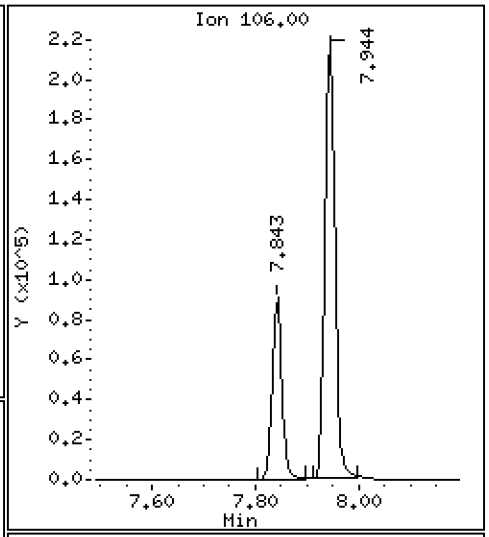
Concentration: 9.888 ug/L

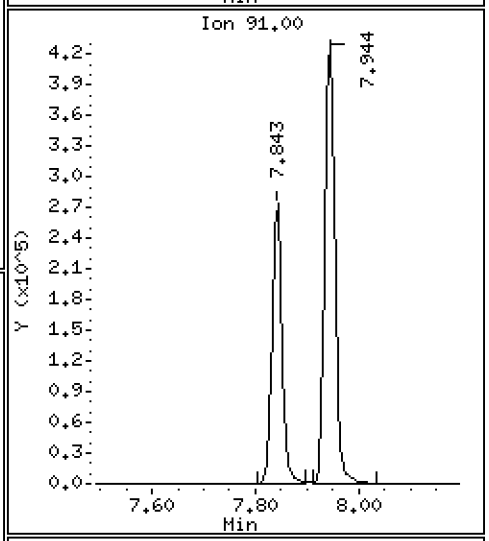


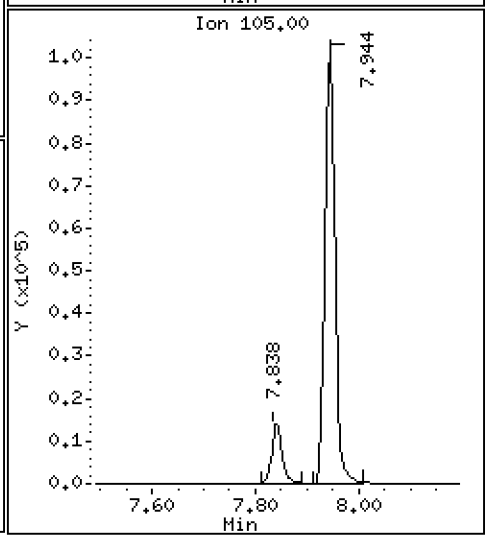












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

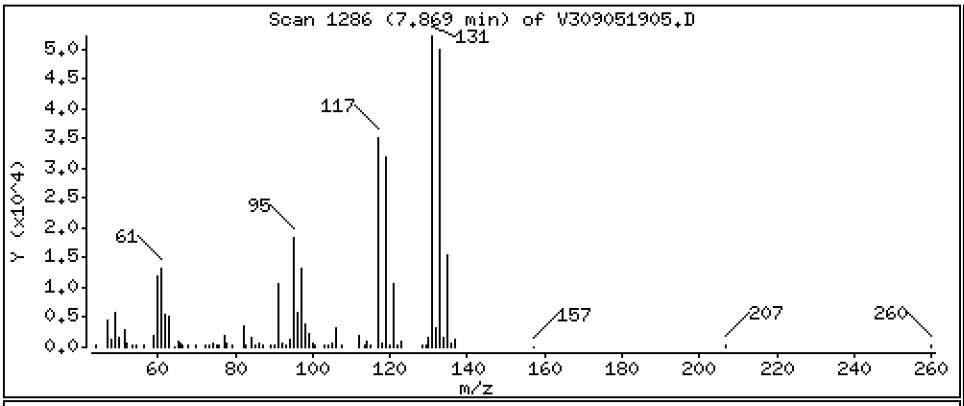
Operator: PKC

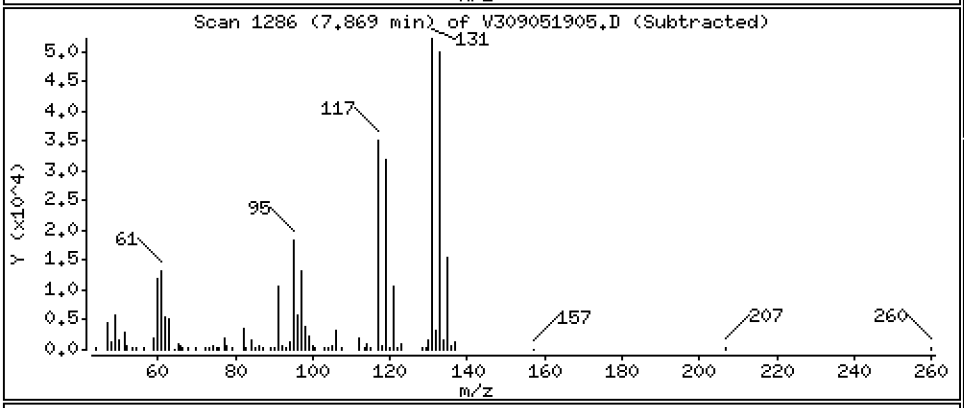
Column phase: RTXVMS

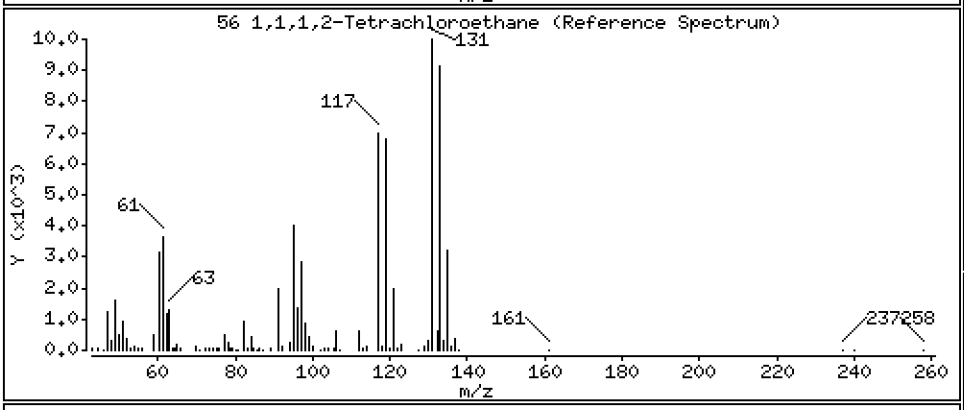
Column diameter: 0.18

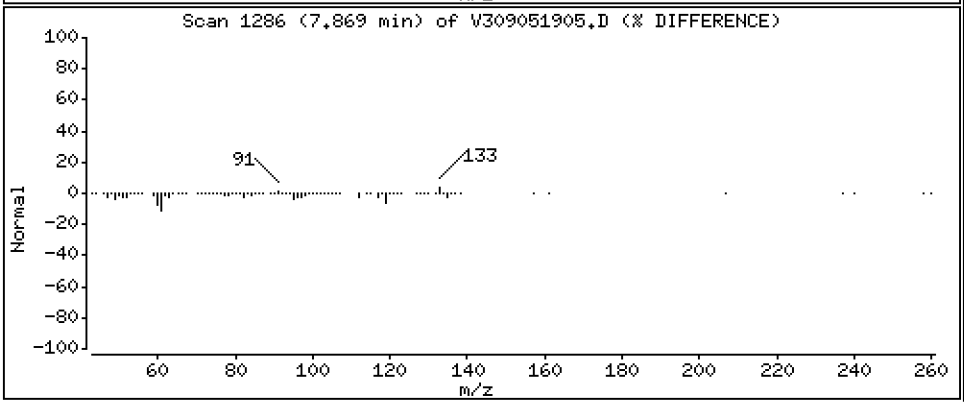
56 1,1,1,2-Tetrachloroethane

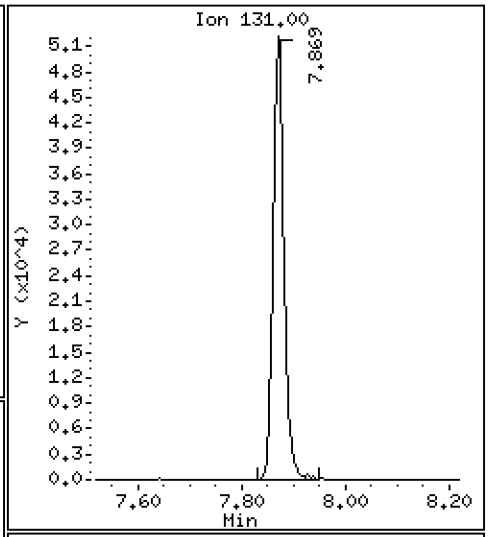
Concentration: 9.780 ug/L

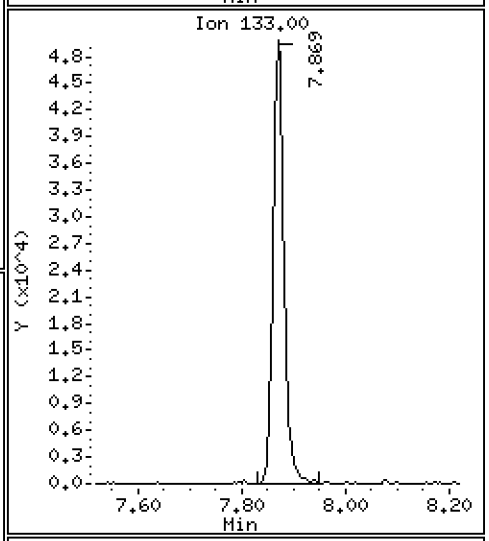


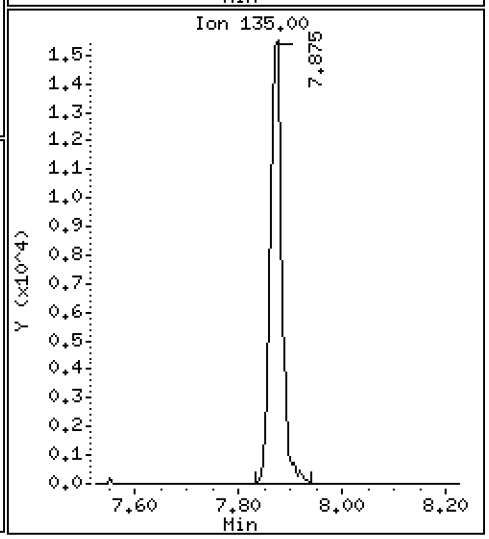












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

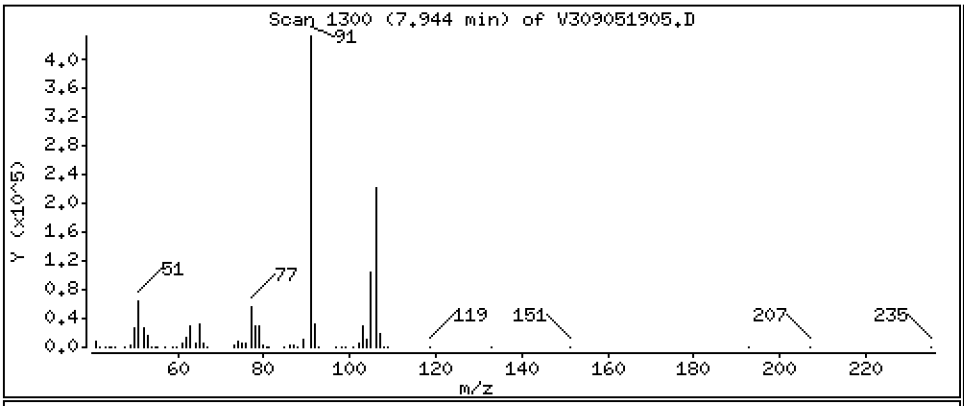
Operator: PKC

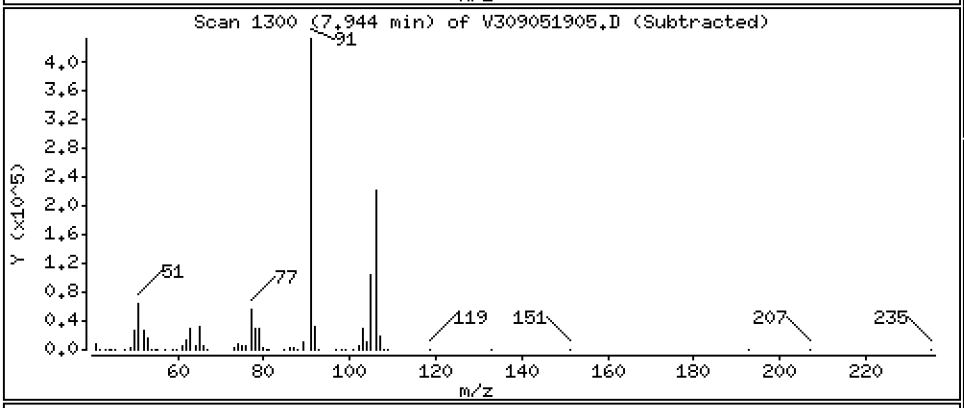
Column phase: RTXVMS

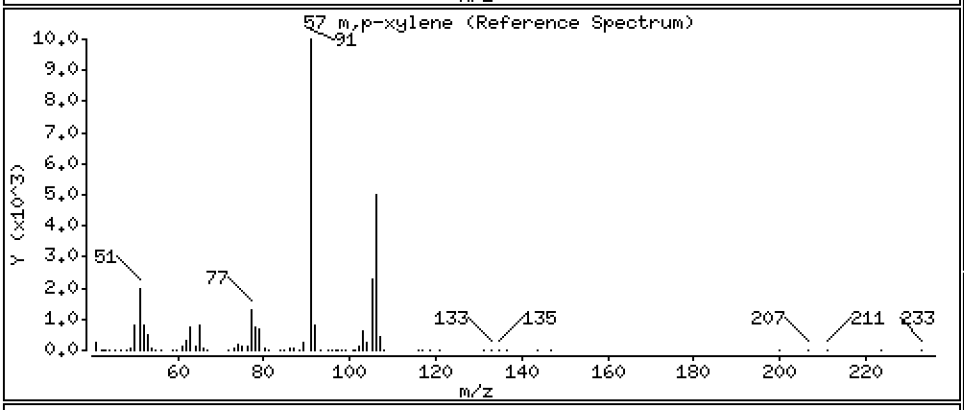
Column diameter: 0.18

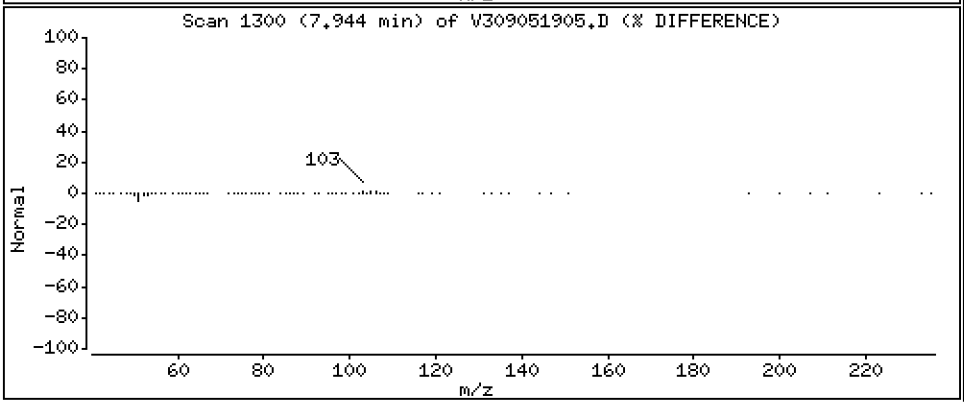
57 m,p-xylene

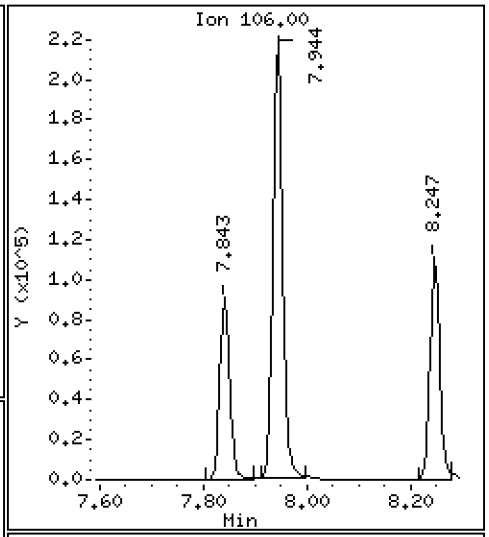
Concentration: 19.475 ug/L

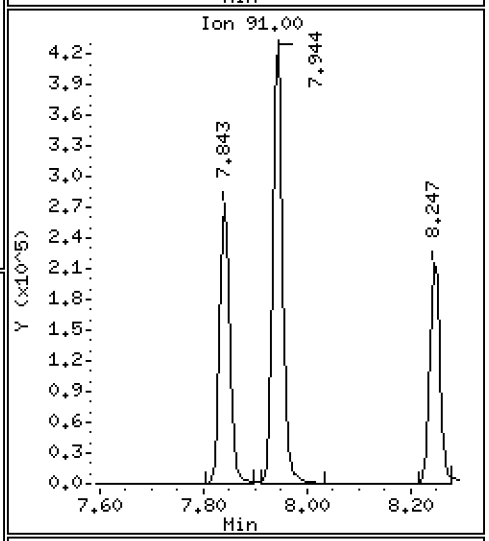


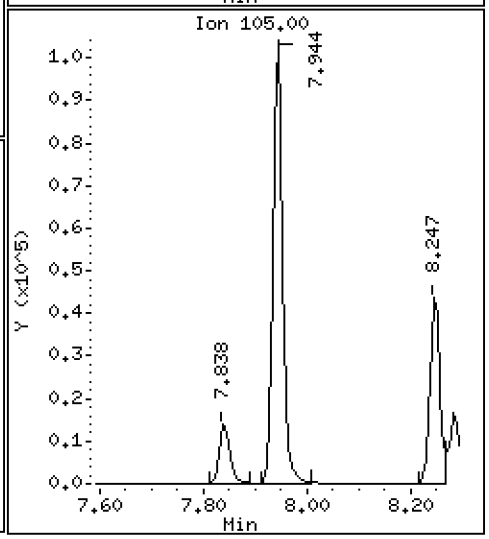












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

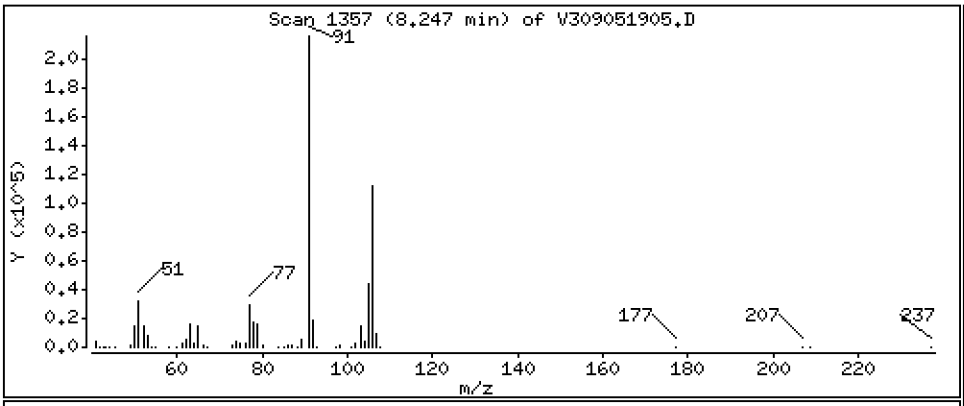
Operator: PKC

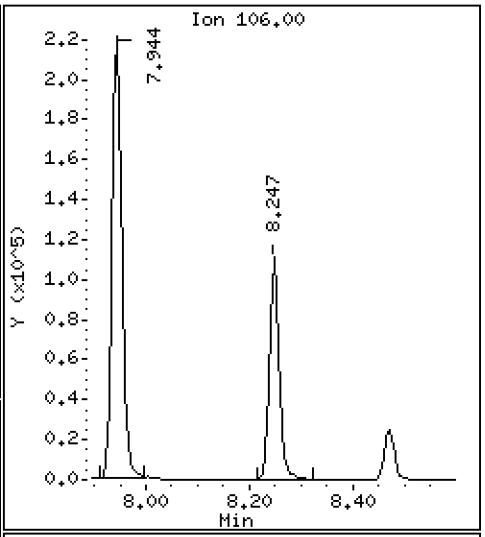
Column phase: RTXVMS

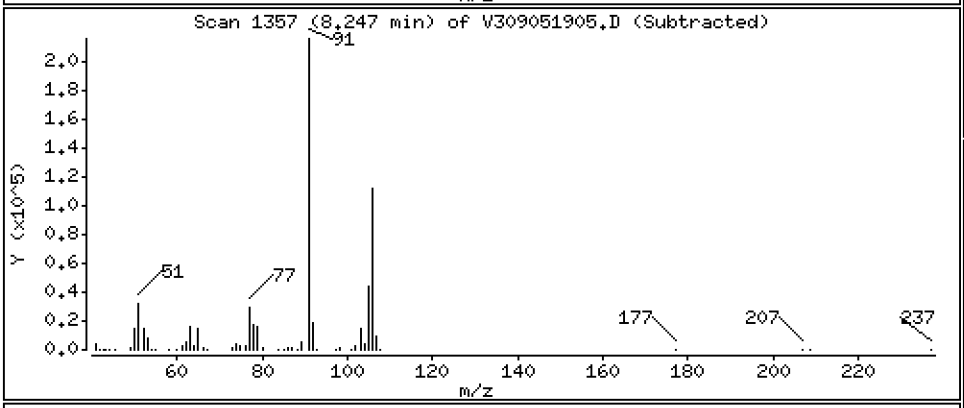
Column diameter: 0.18

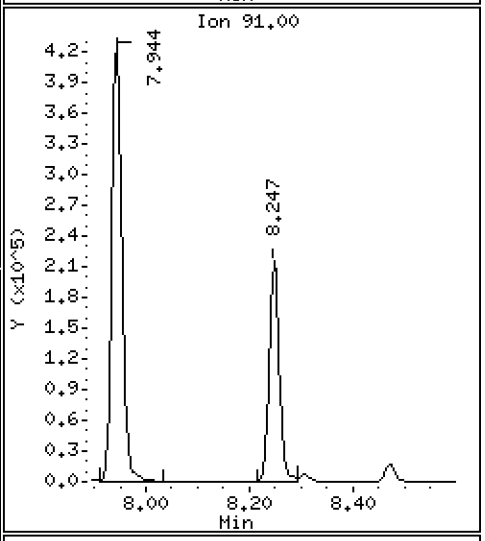
58 o-Xylene

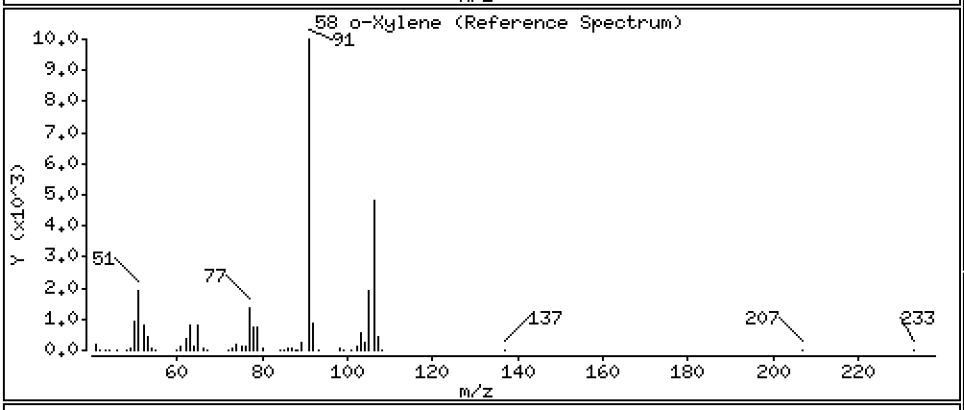
Concentration: 9.788 ug/L

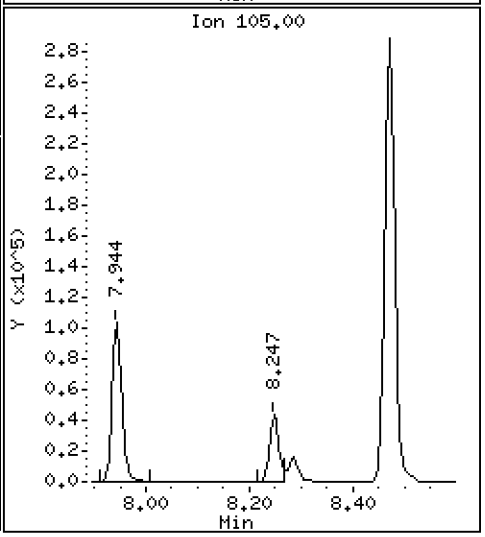


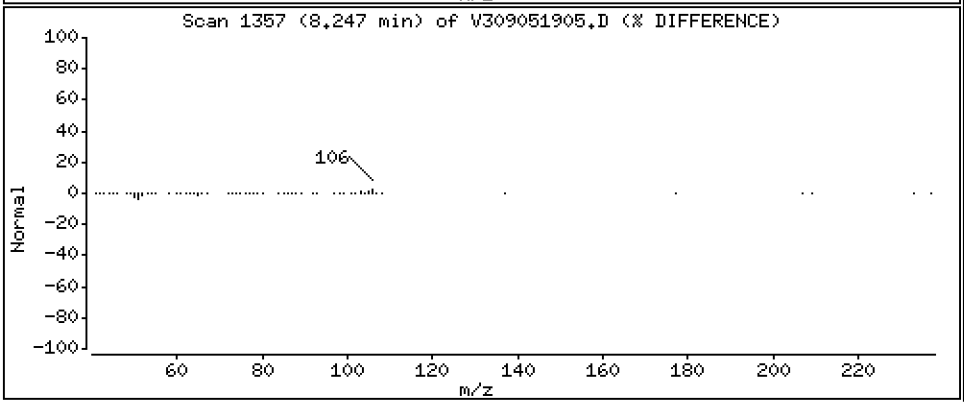












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

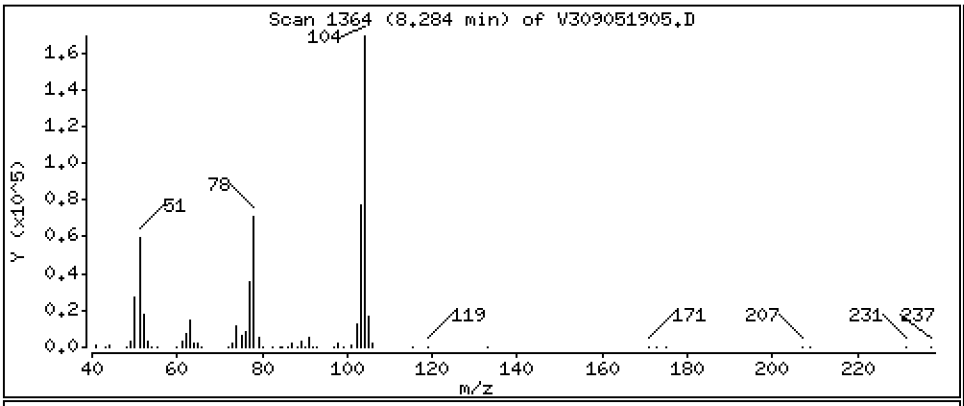
Operator: PKC

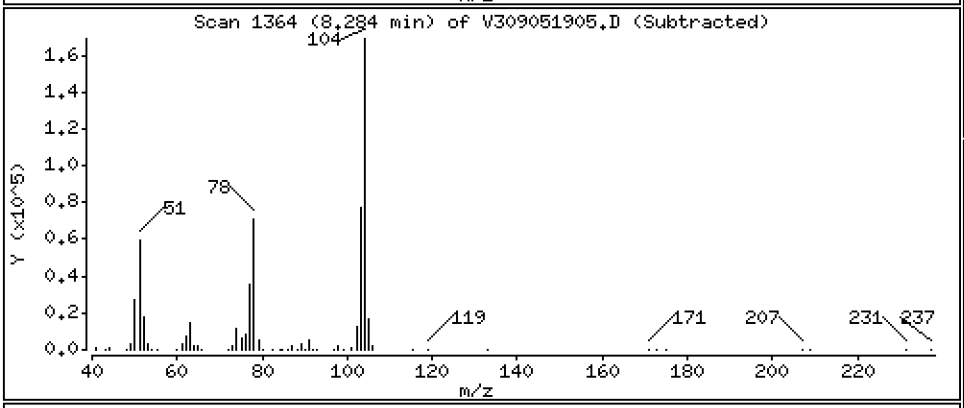
Column phase: RTXVMS

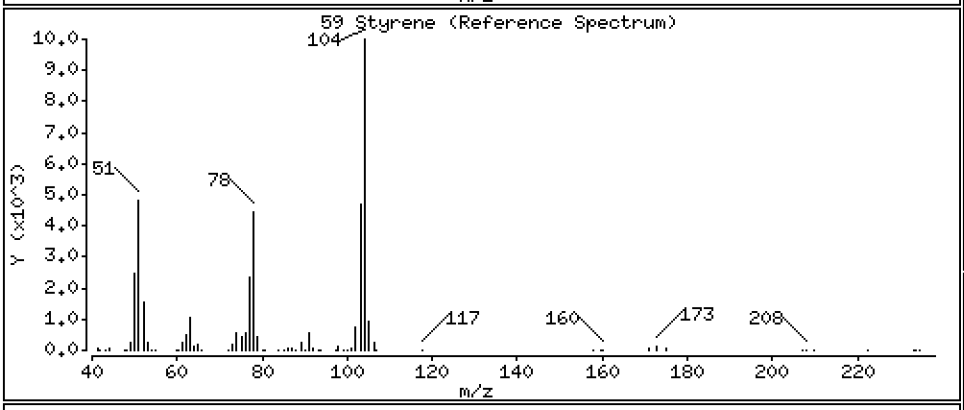
Column diameter: 0.18

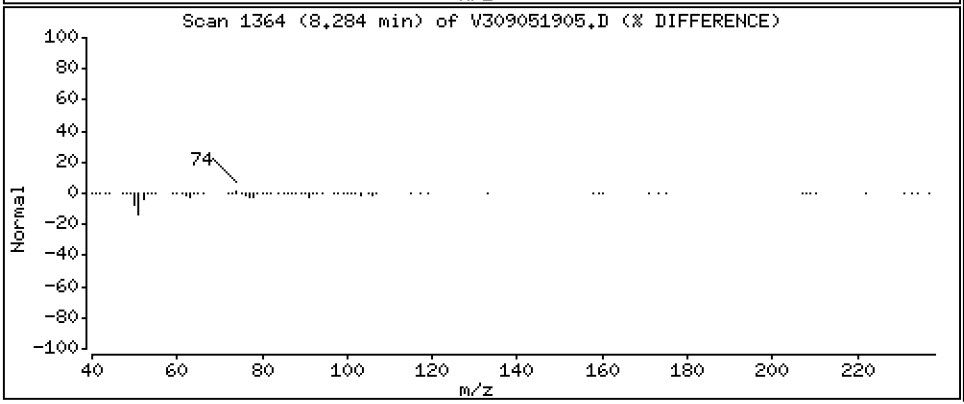
59 Styrene

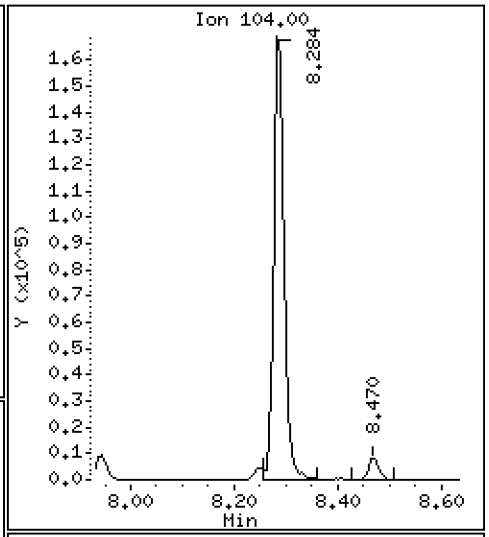
Concentration: 10.000 ug/L

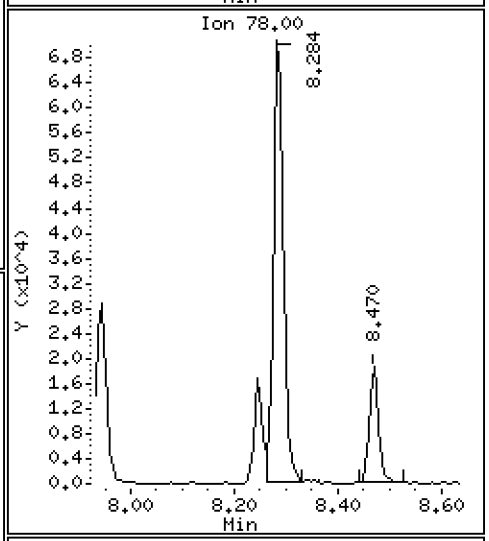


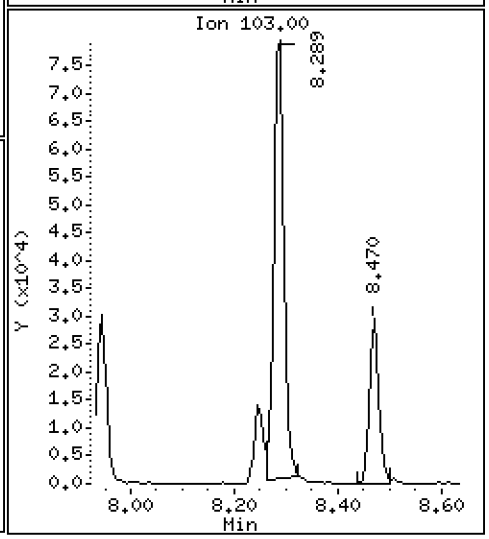












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

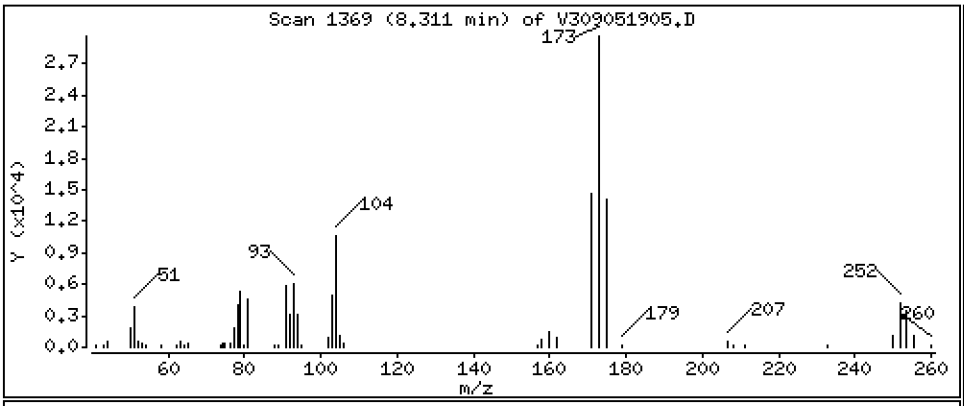
Operator: PKC

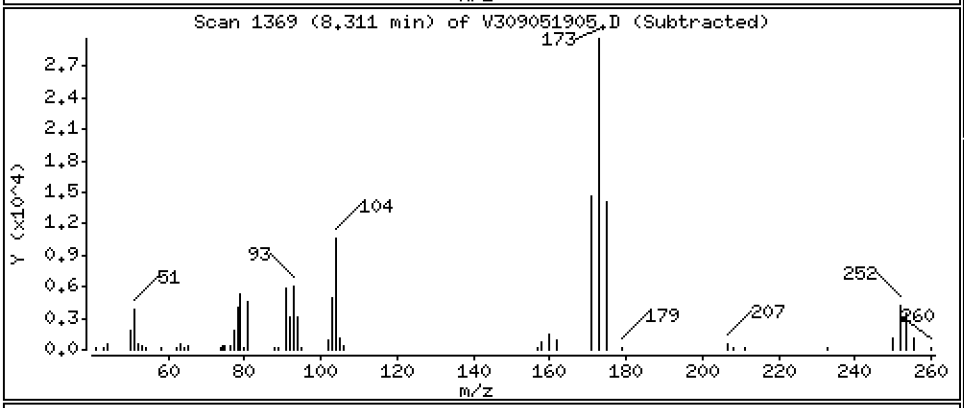
Column phase: RTXVMS

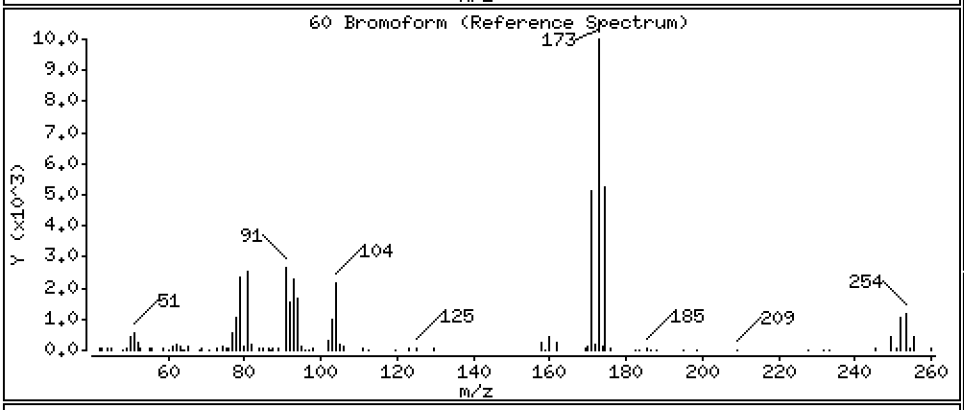
Column diameter: 0.18

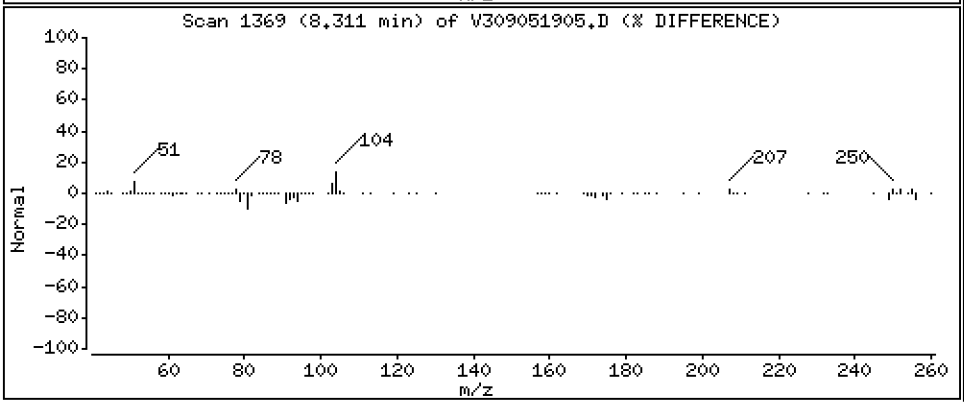
60 Bromoform

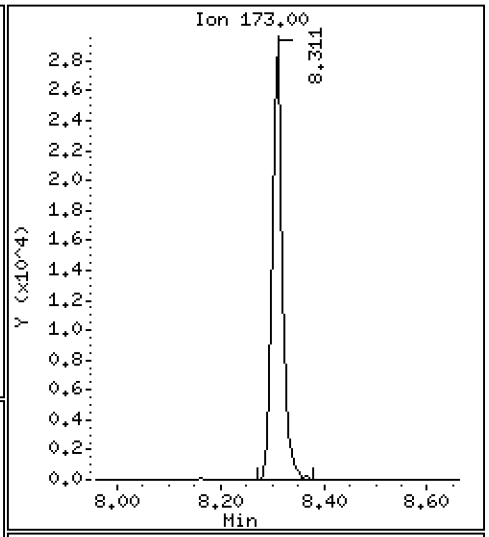
Concentration: 10.277 ug/L

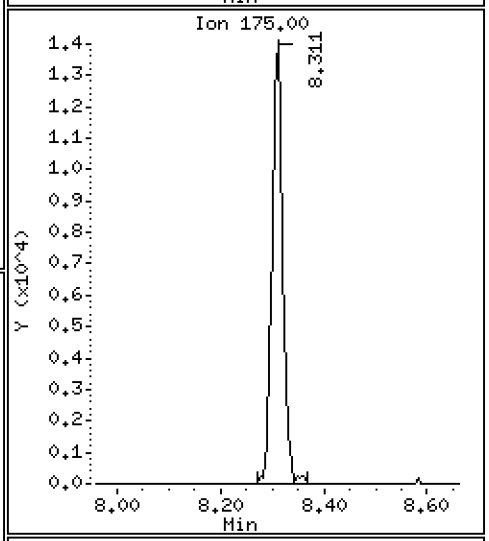


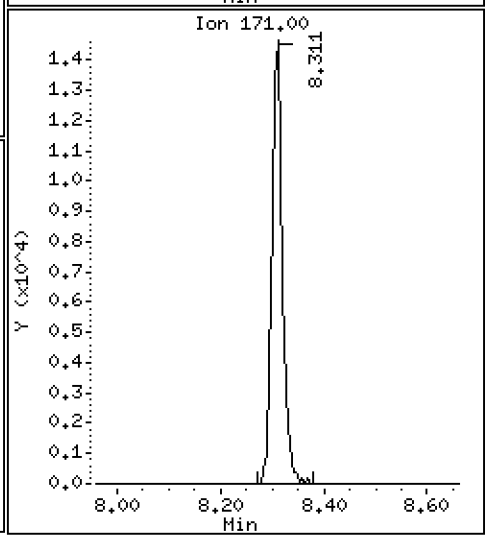












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

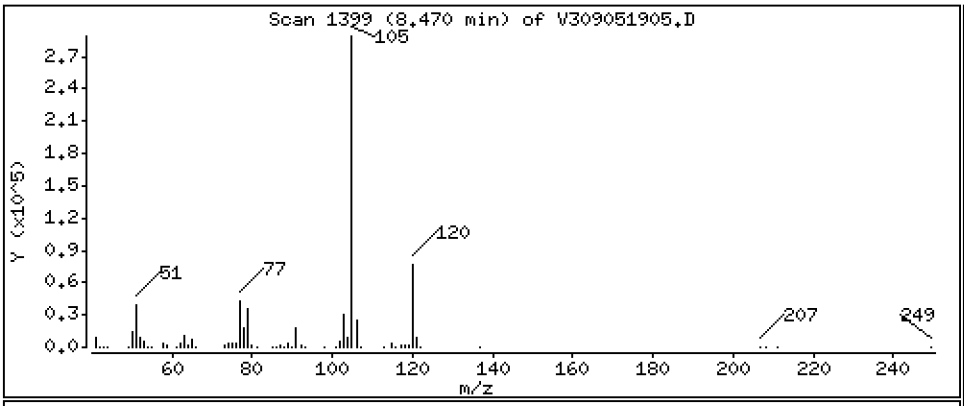
Operator: PKC

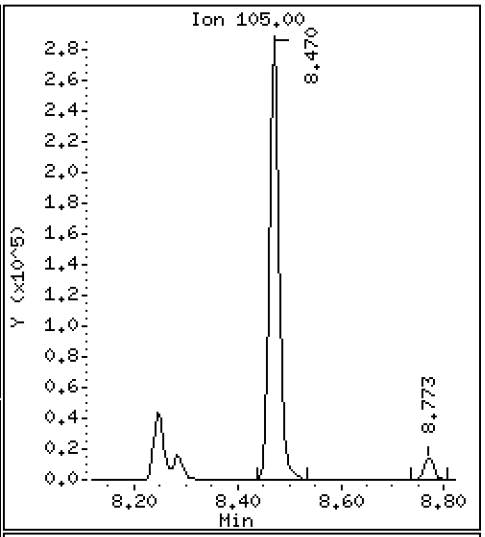
Column phase: RTXVMS

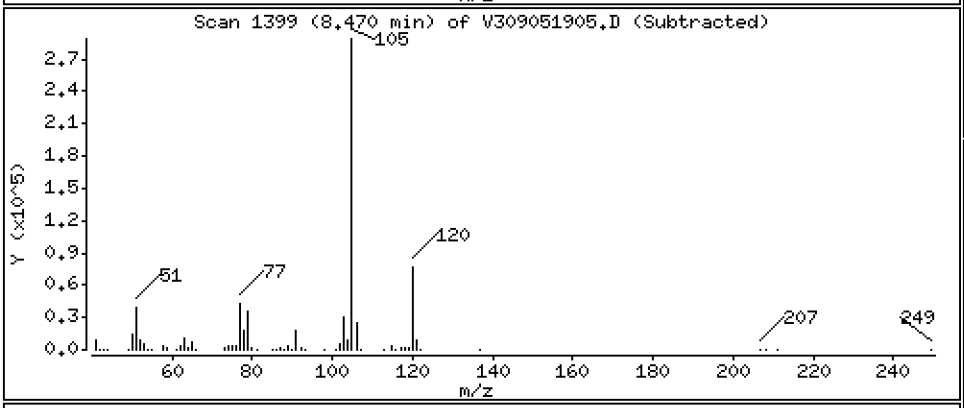
Column diameter: 0.18

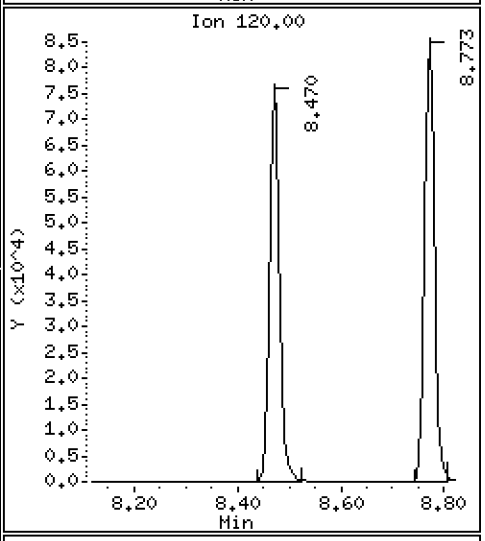
61 Isopropyl Benzene

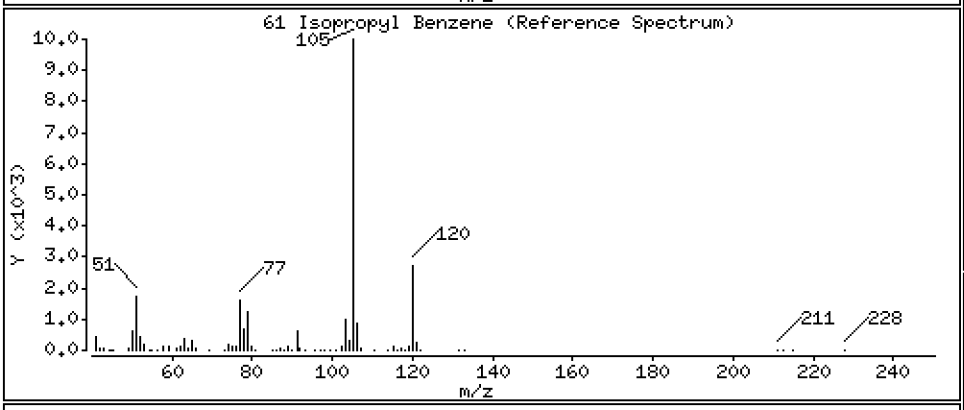
Concentration: 9.848 ug/L

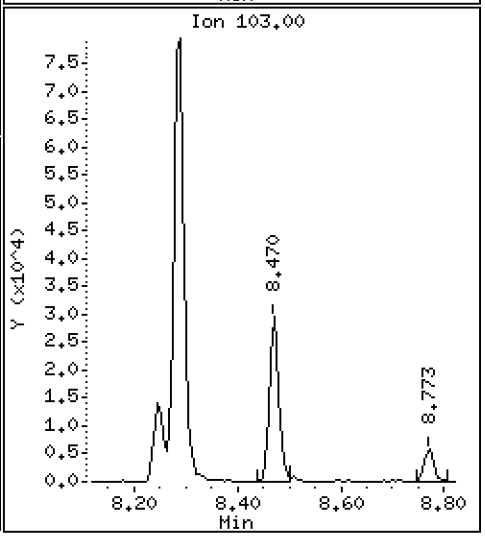


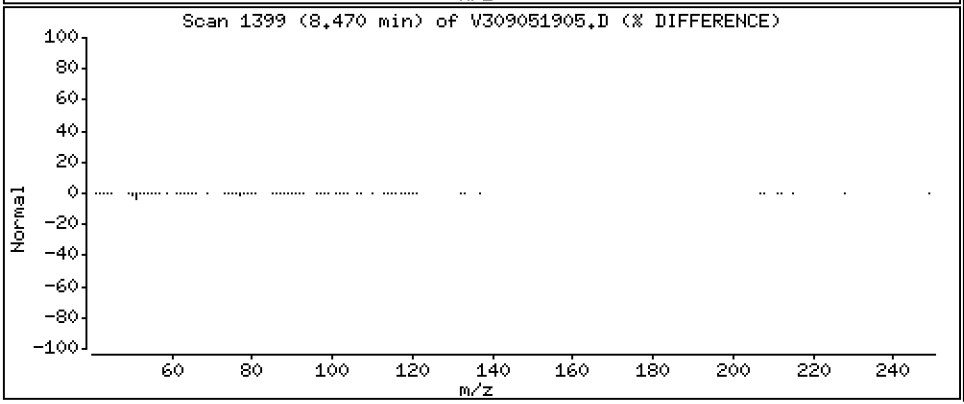












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

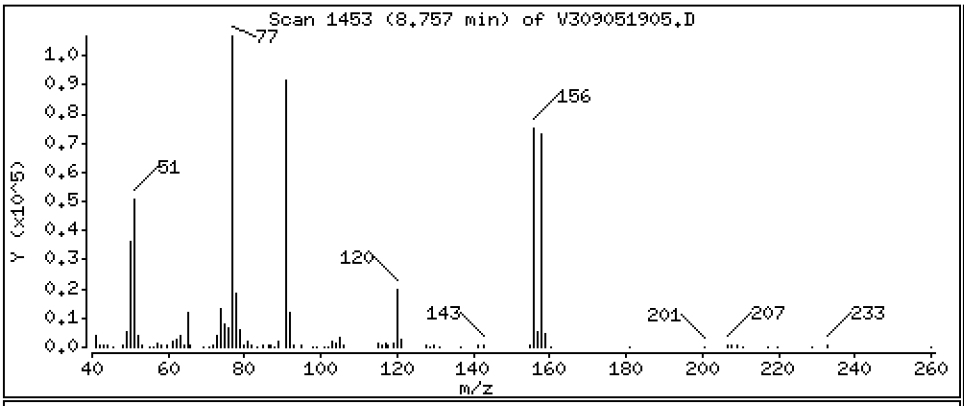
Operator: PKC

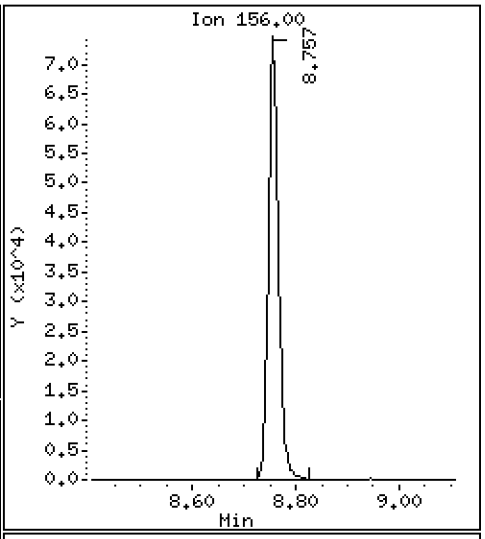
Column phase: RTXVMS

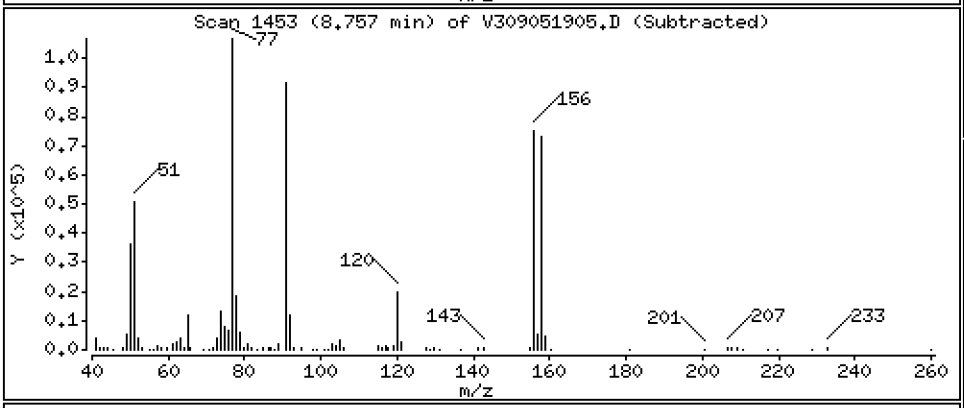
Column diameter: 0.18

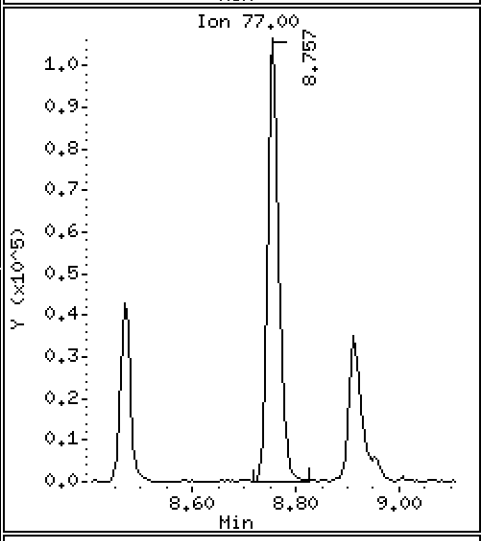
63 Bromobenzene

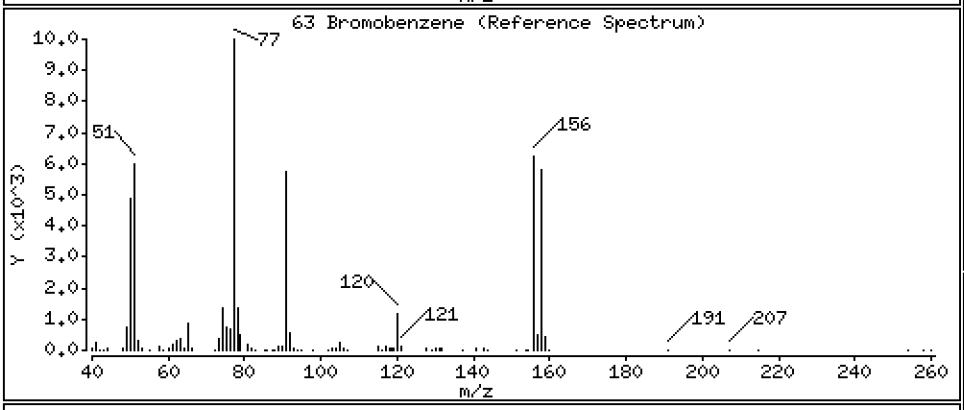
Concentration: 9.743 ug/L

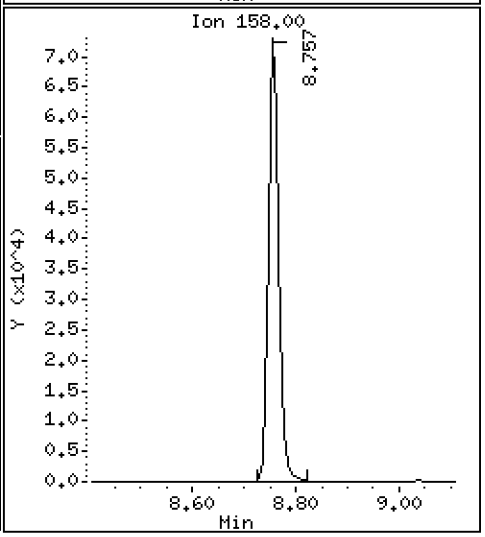


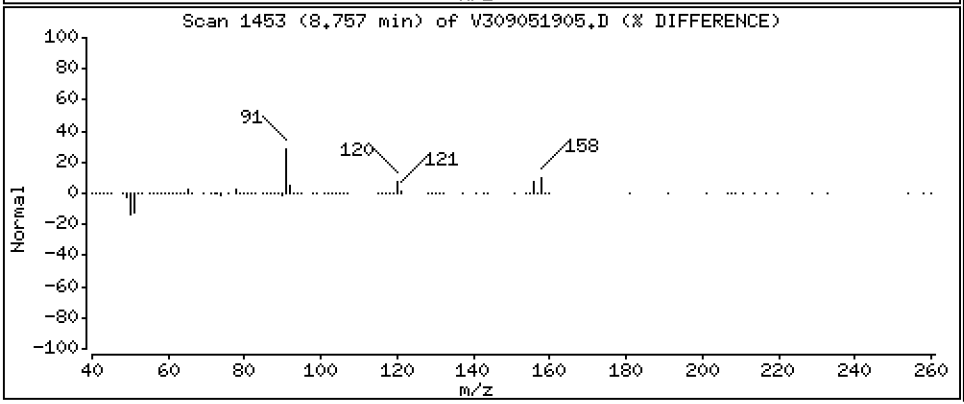












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

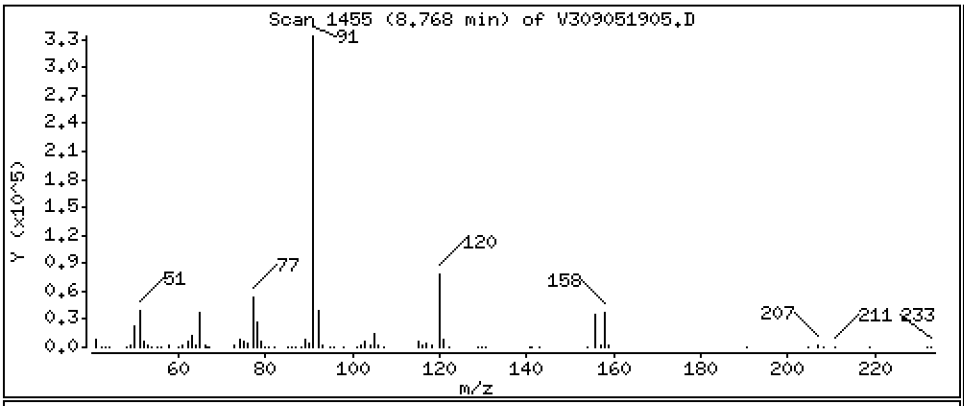
Operator: PKC

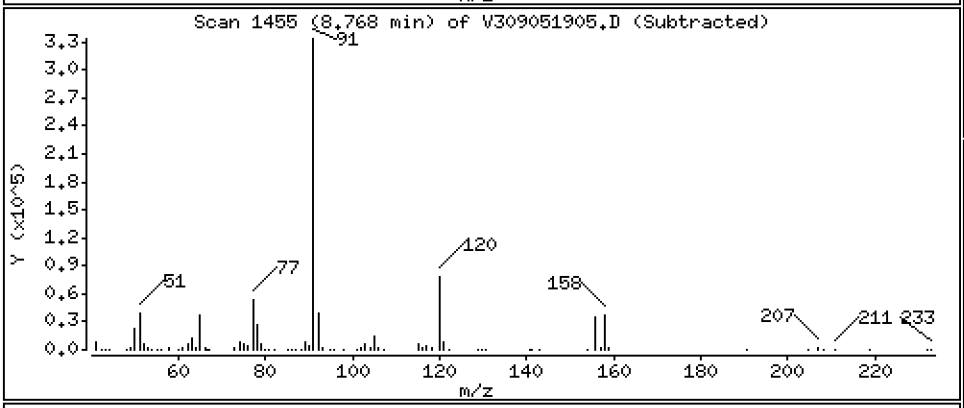
Column phase: RTXVMS

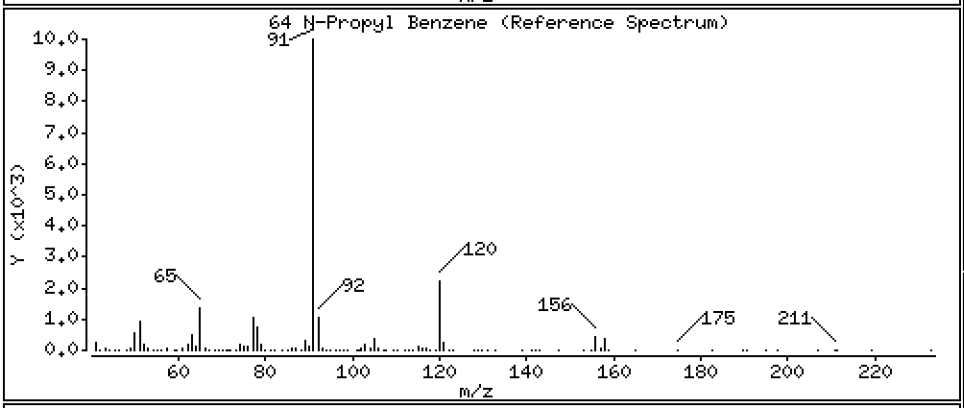
Column diameter: 0.18

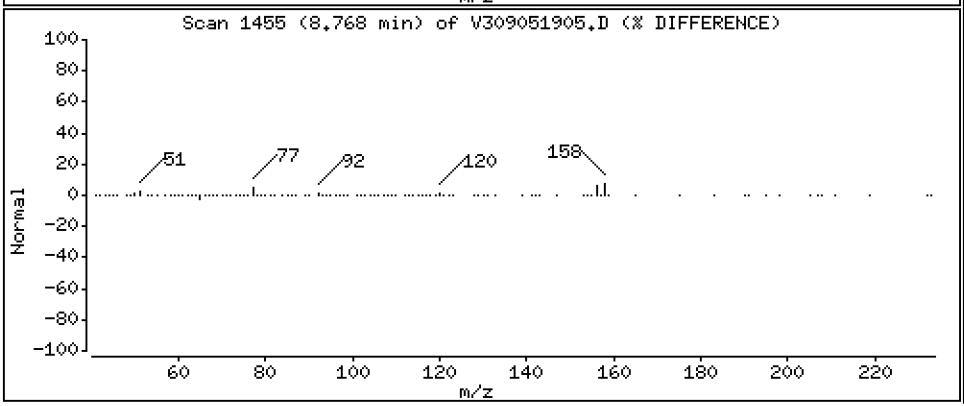
64 N-Propyl Benzene

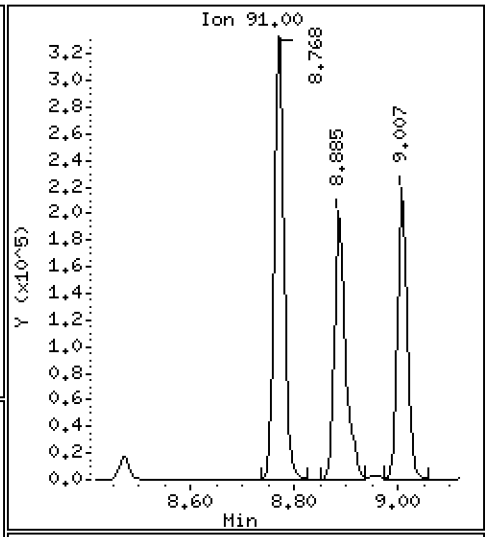
Concentration: 10.160 ug/L

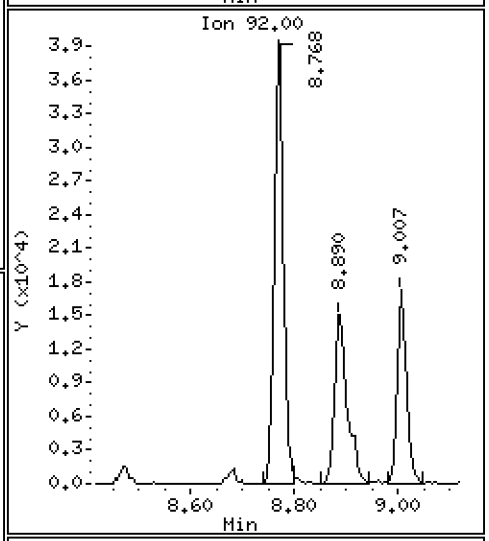


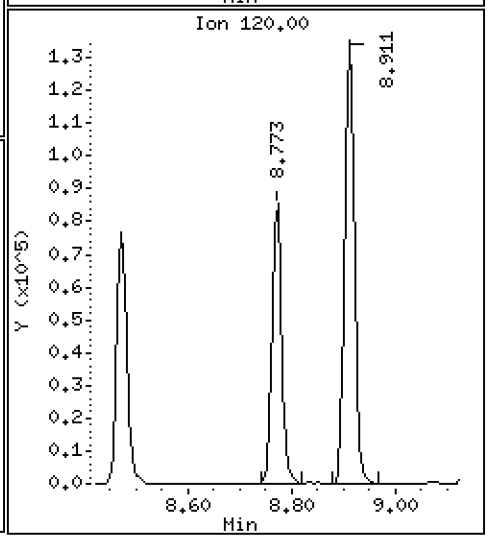












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

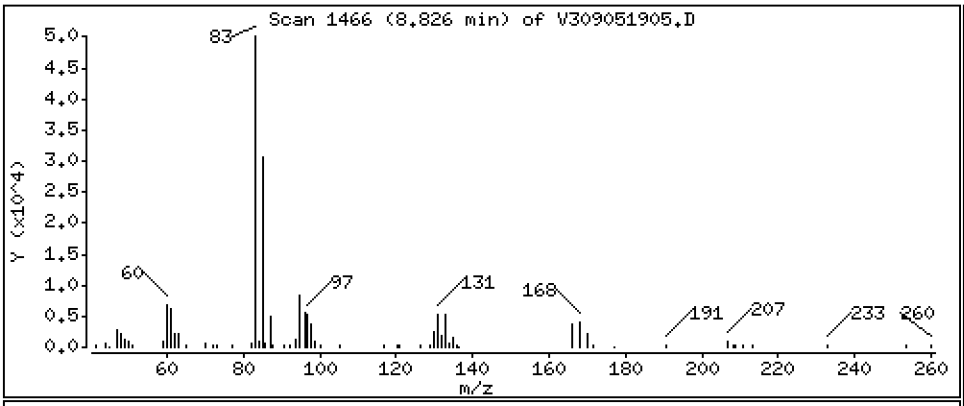
Operator: PKC

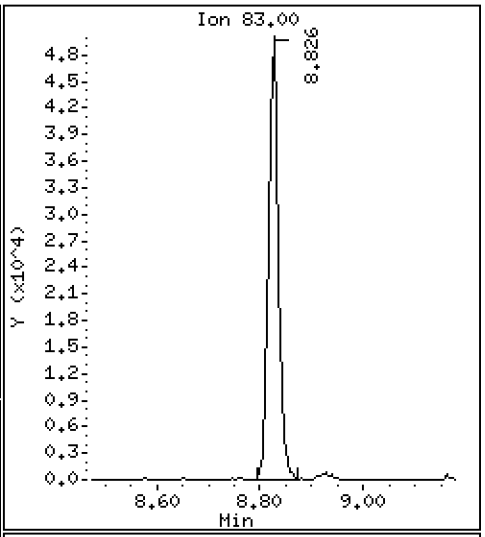
Column phase: RTXVMS

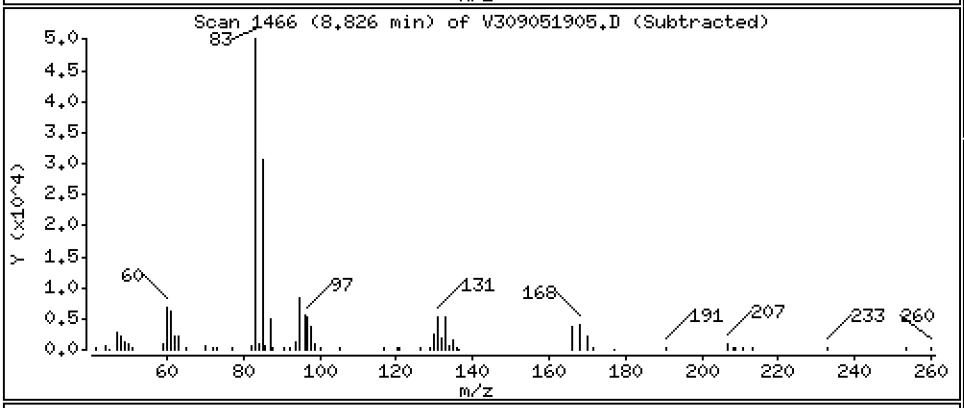
Column diameter: 0.18

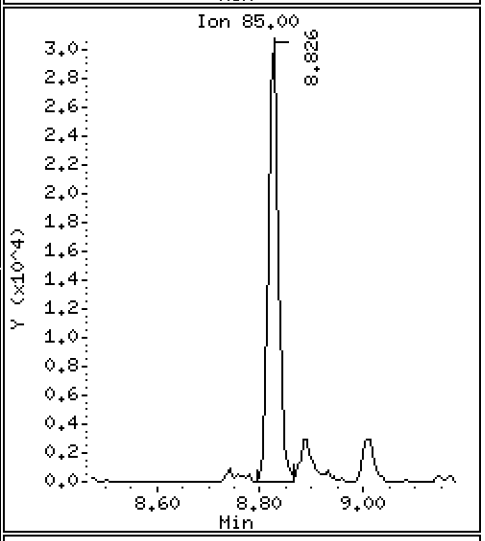
65 1,1,2,2-Tetrachloroethane

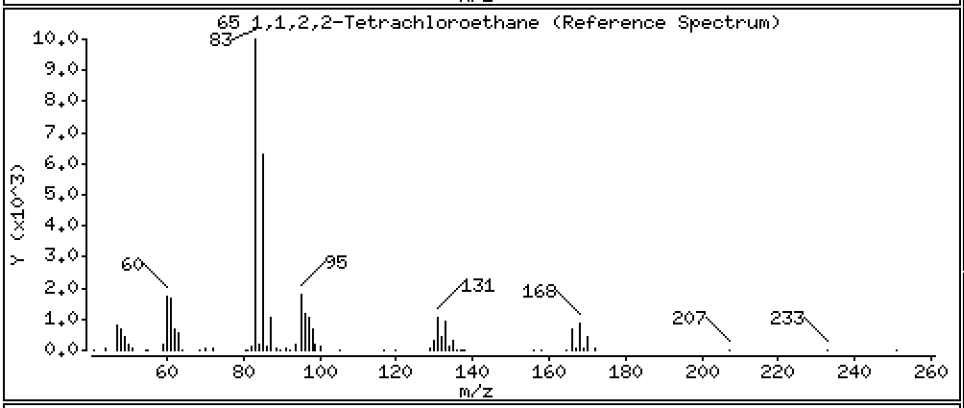
Concentration: 10.091 ug/L

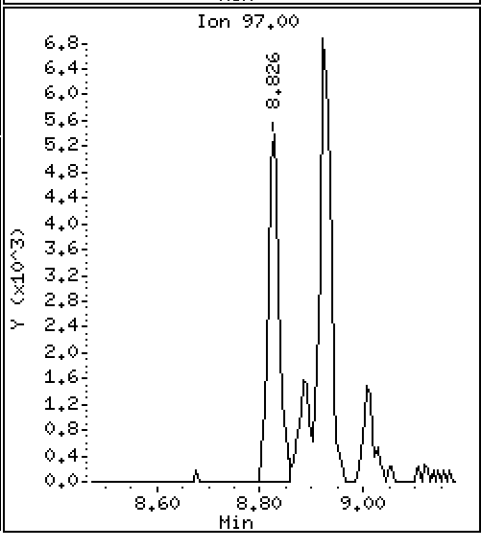


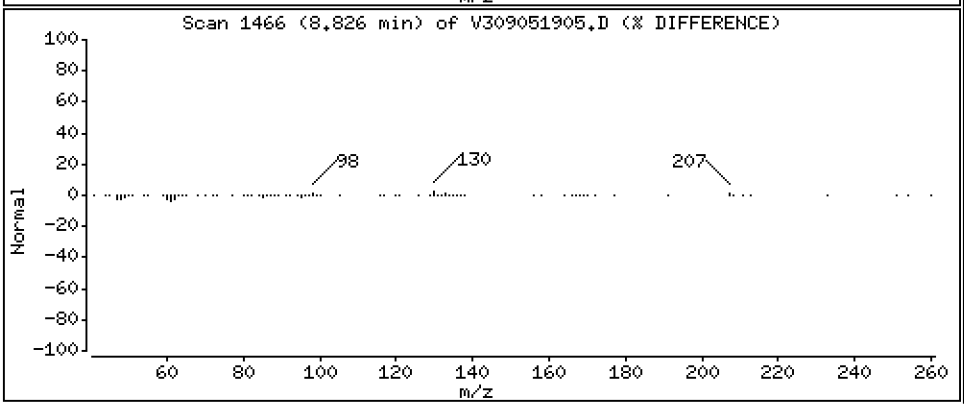












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

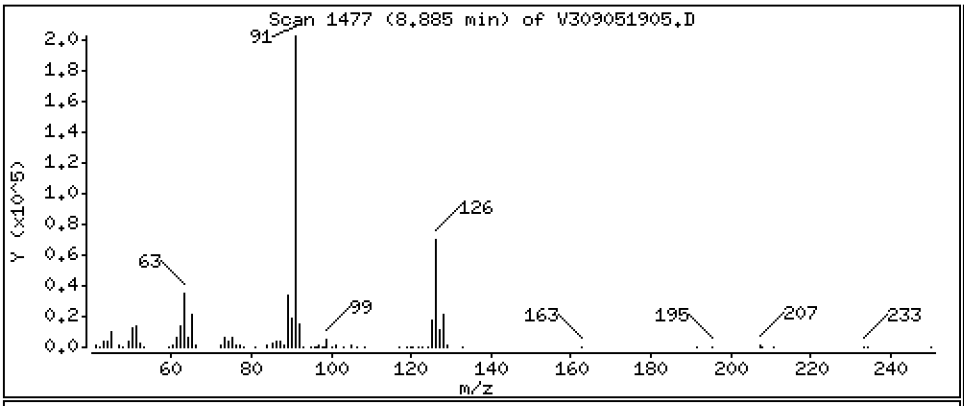
Operator: PKC

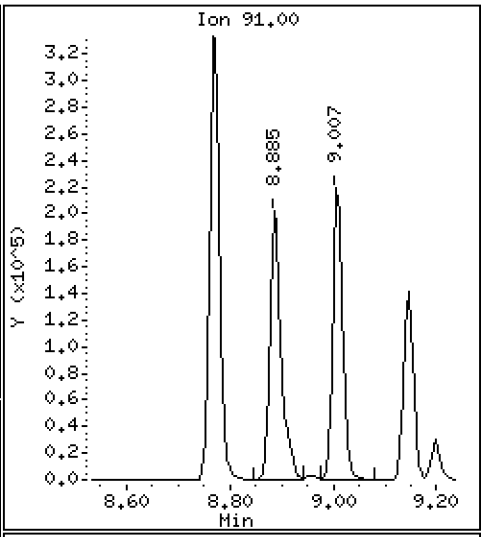
Column phase: RTXVMS

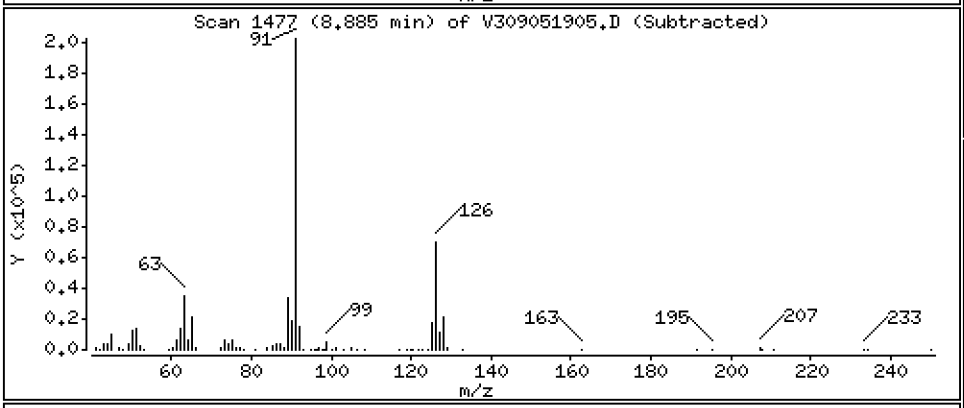
Column diameter: 0.18

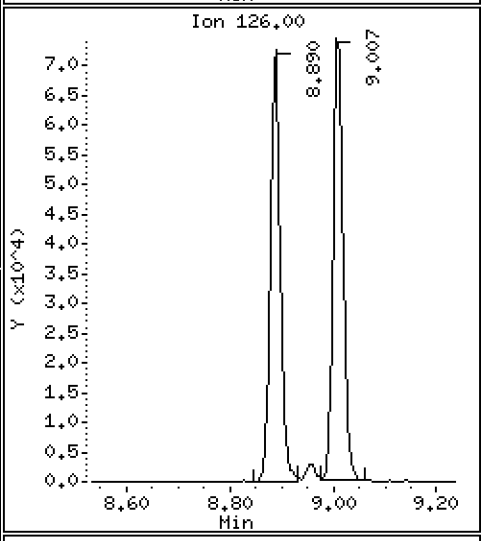
66 2-Chloro Toluene

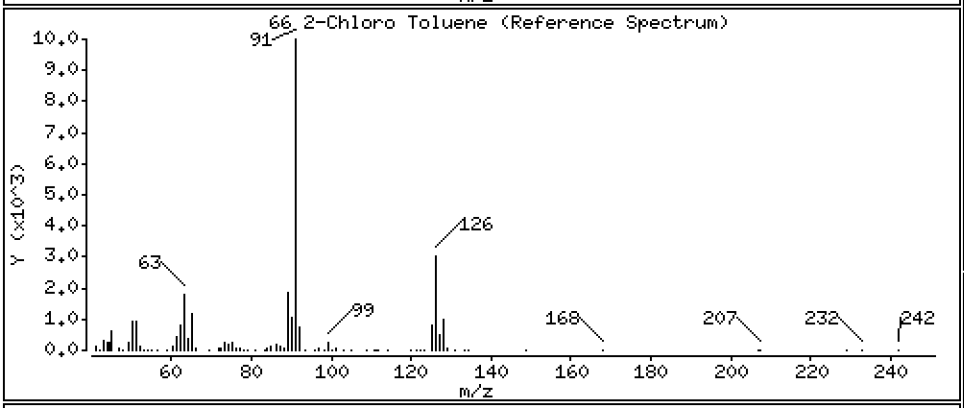
Concentration: 9.726 ug/L

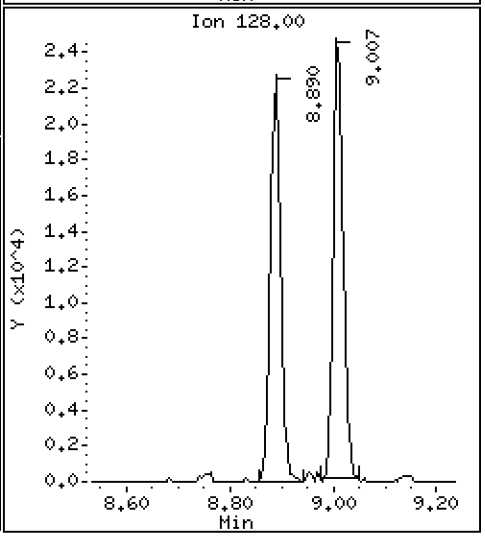


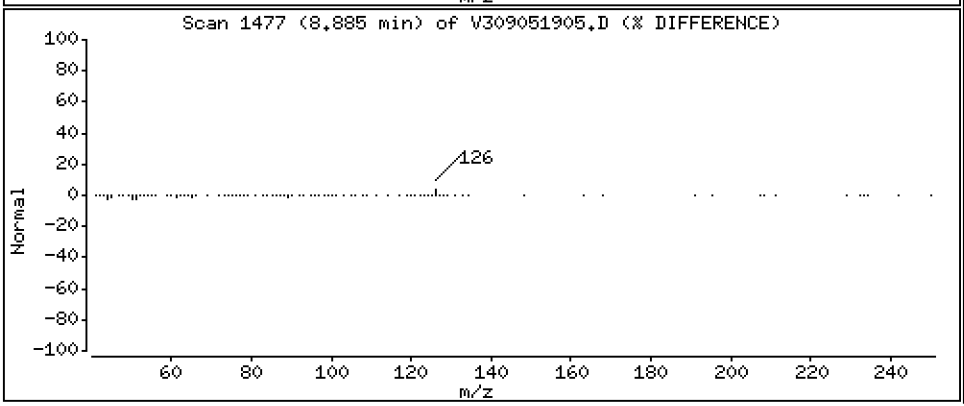












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

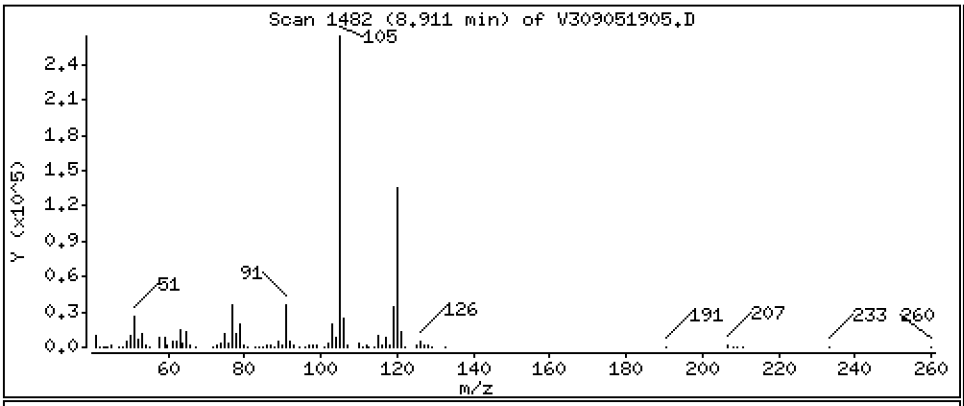
Operator: PKC

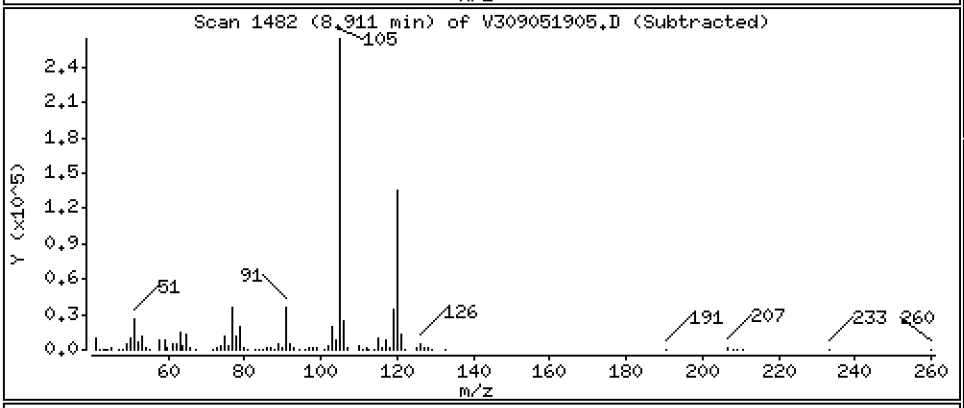
Column phase: RTXVMS

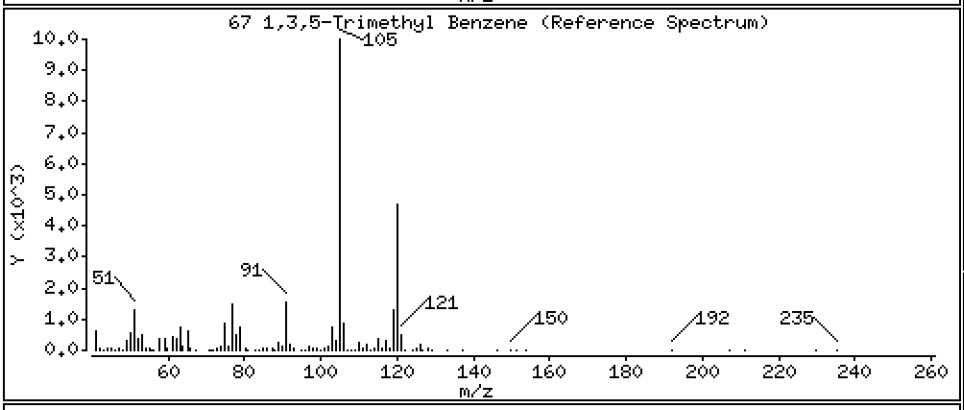
Column diameter: 0.18

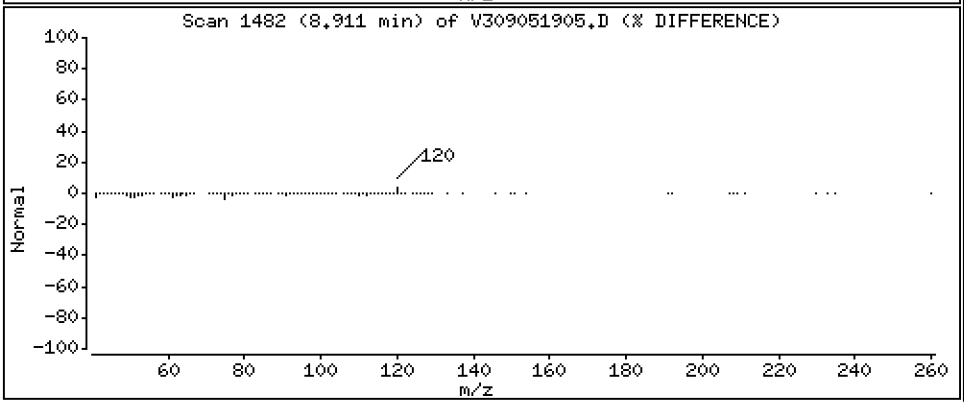
67 1,3,5-Trimethyl Benzene

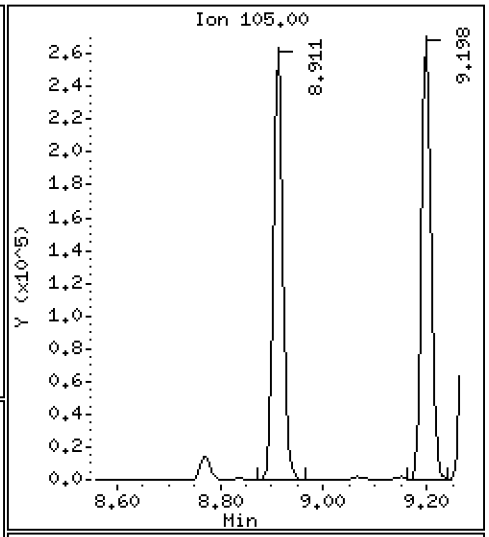
Concentration: 10.049 ug/L

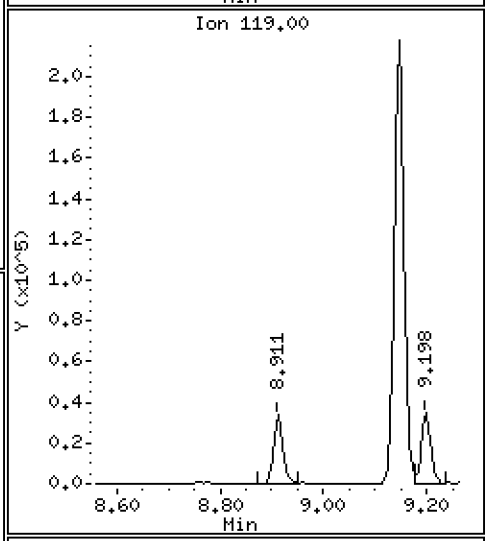


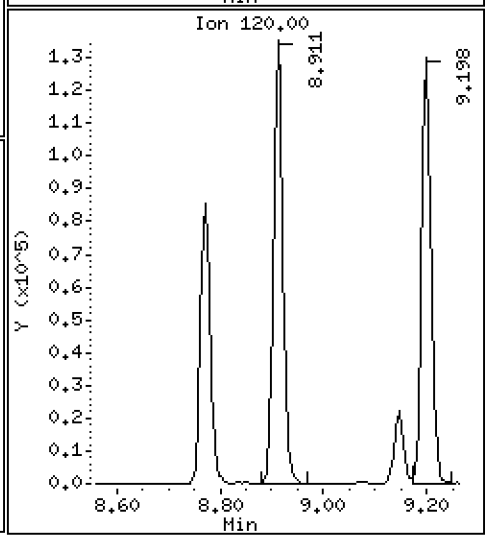












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

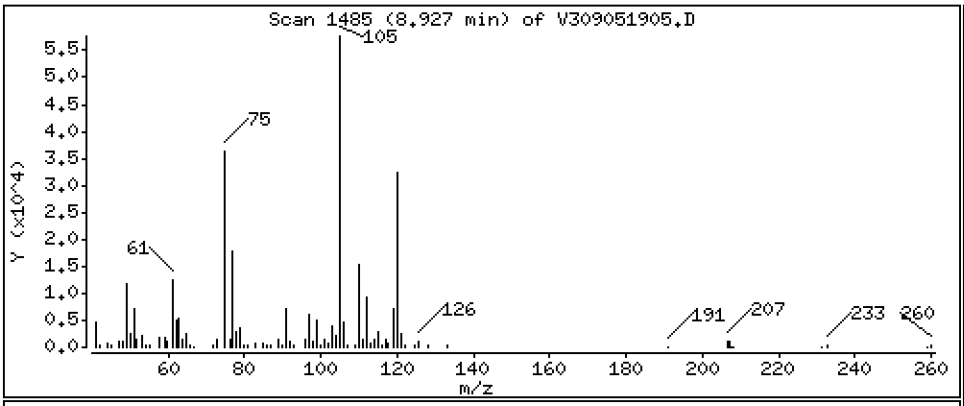
Operator: PKC

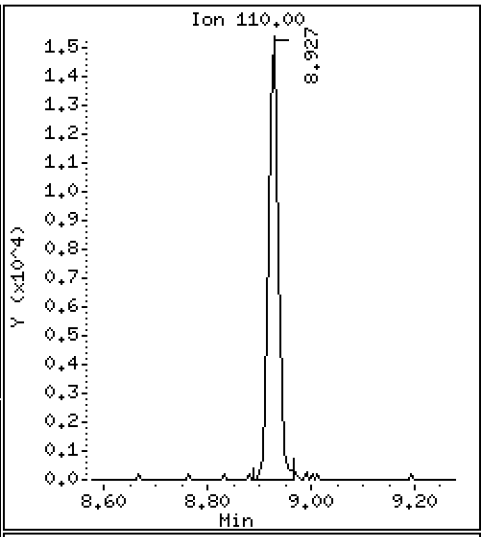
Column phase: RTXVMS

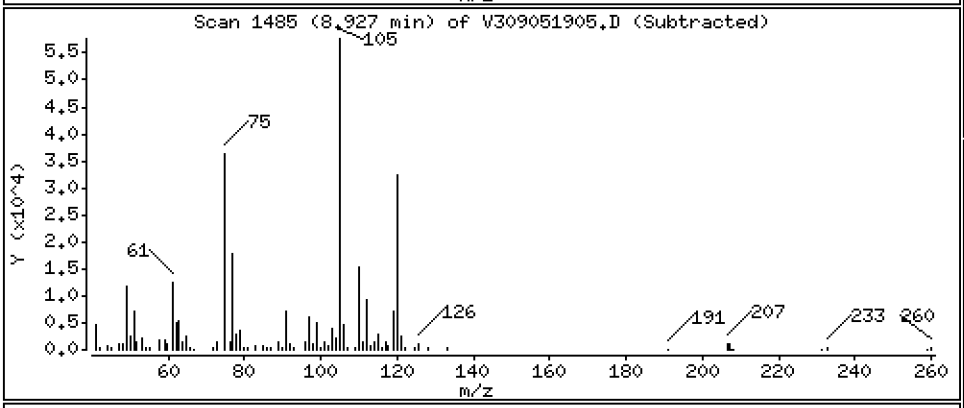
Column diameter: 0.18

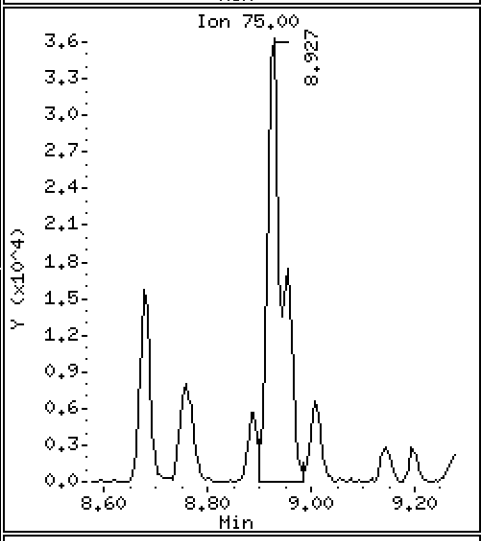
68 1,2,3-Trichloropropane

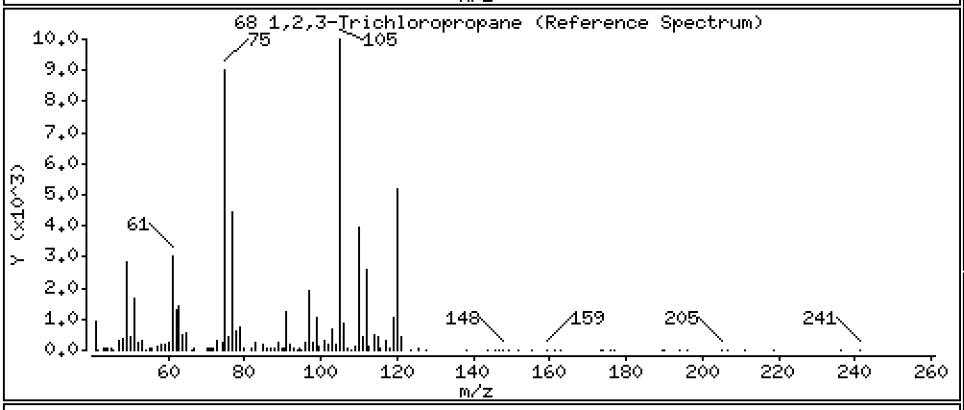
Concentration: 9.238 ug/L

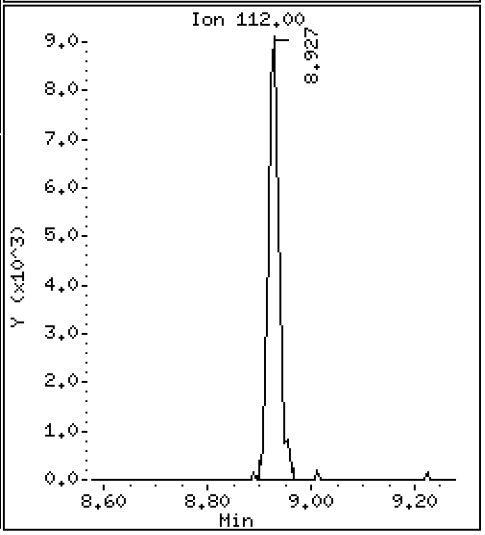


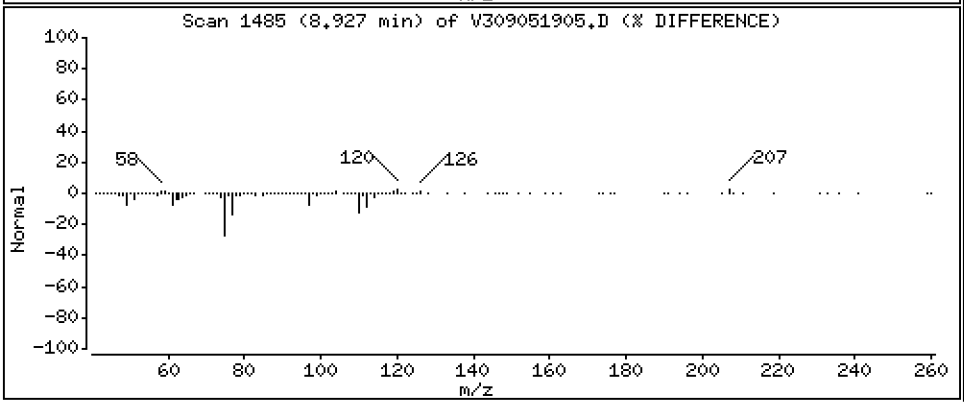












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

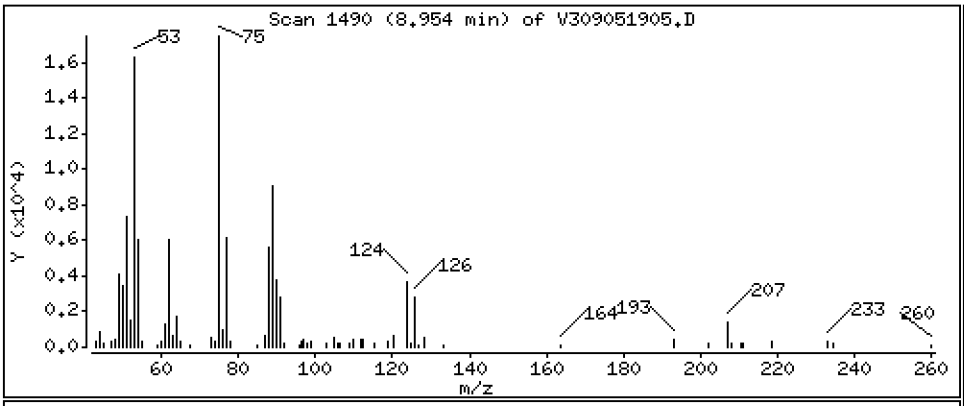
Operator: PKC

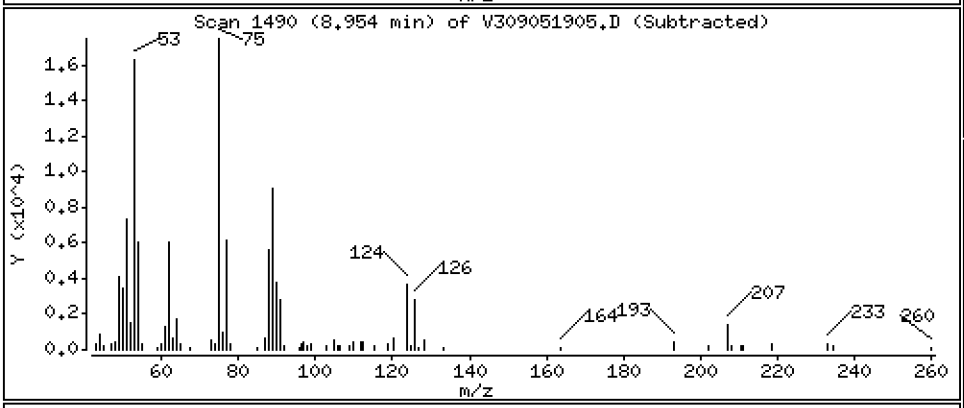
Column phase: RTXVMS

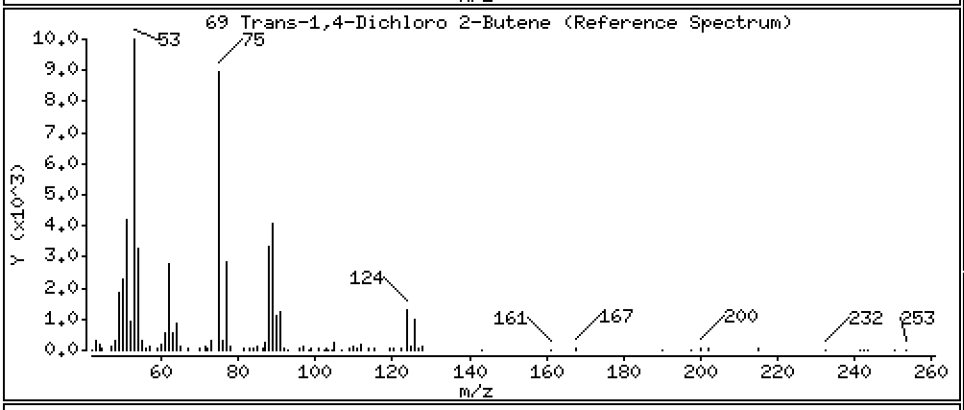
Column diameter: 0.18

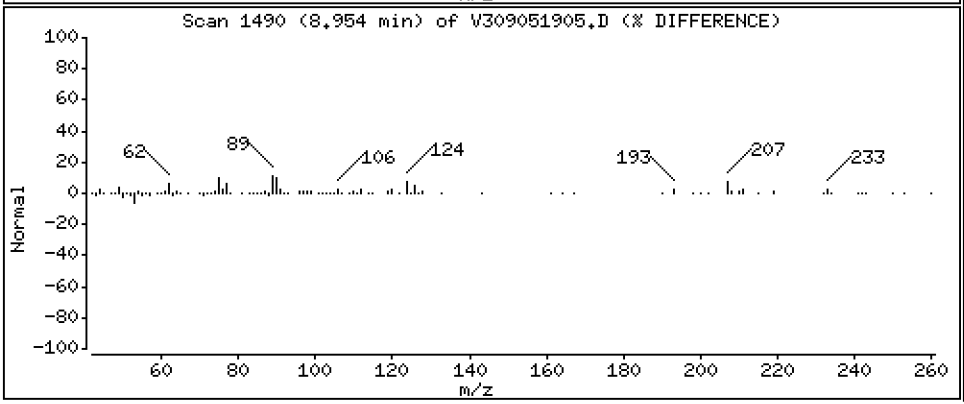
69 Trans-1,4-Dichloro 2-Butene

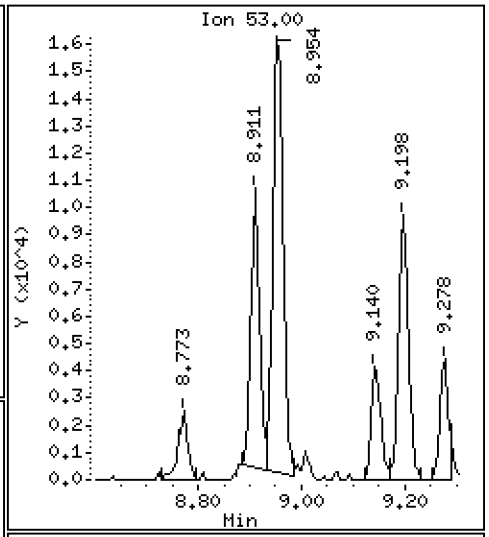
Concentration: 9.445 ug/L

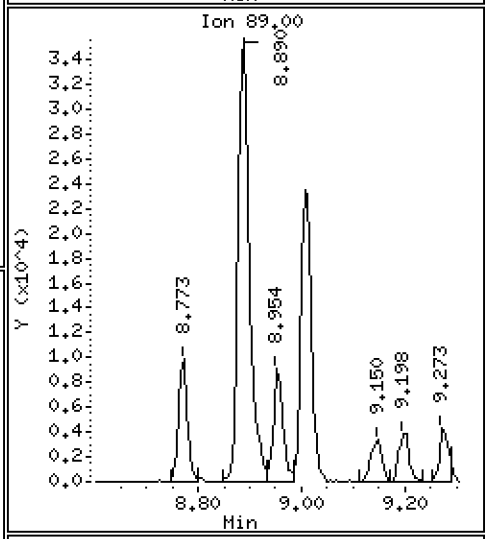


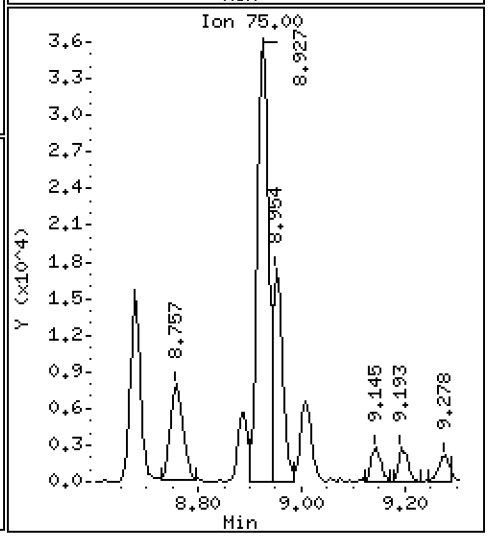












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

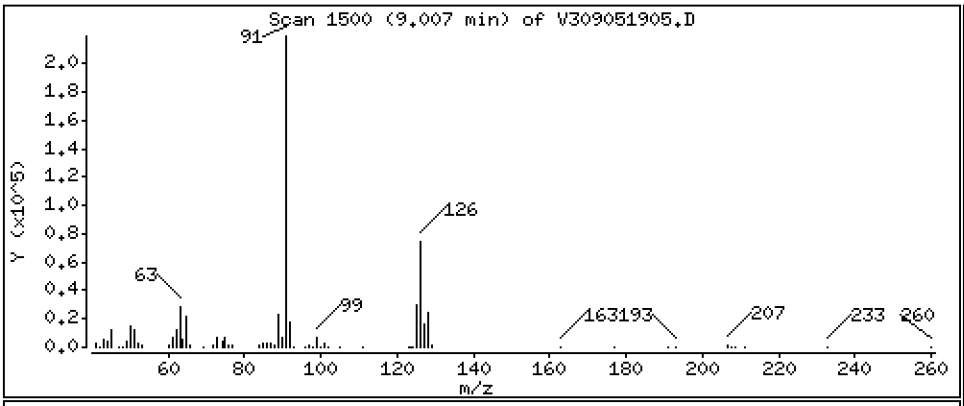
Operator: PKC

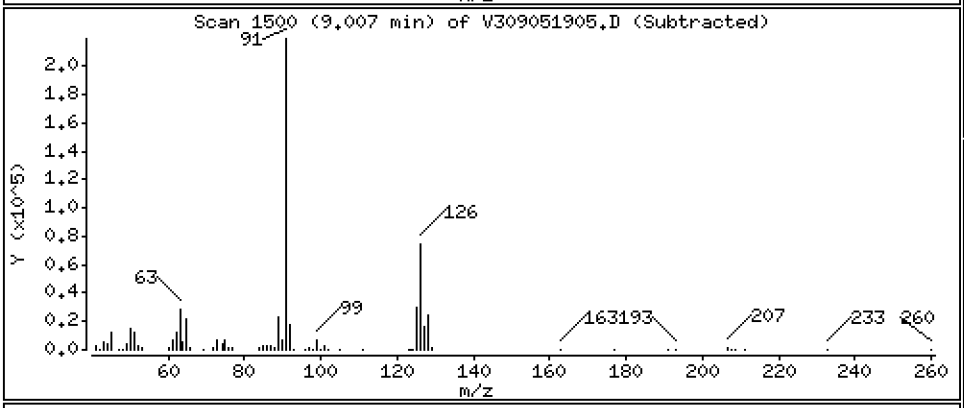
Column phase: RTXVMS

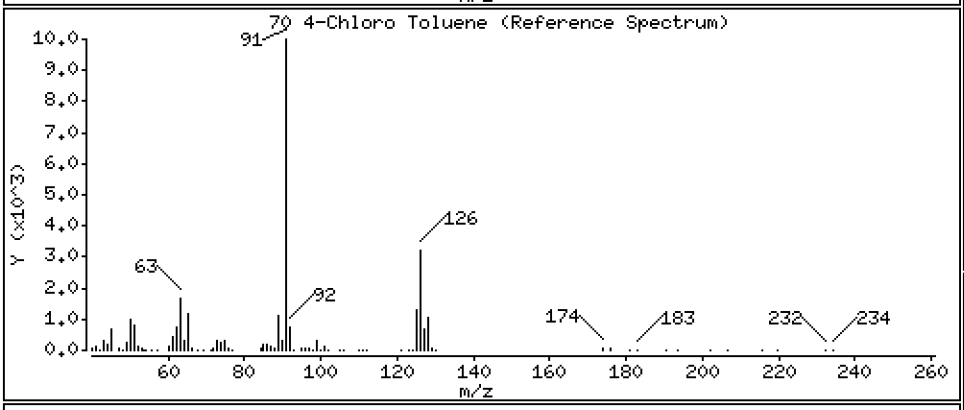
Column diameter: 0.18

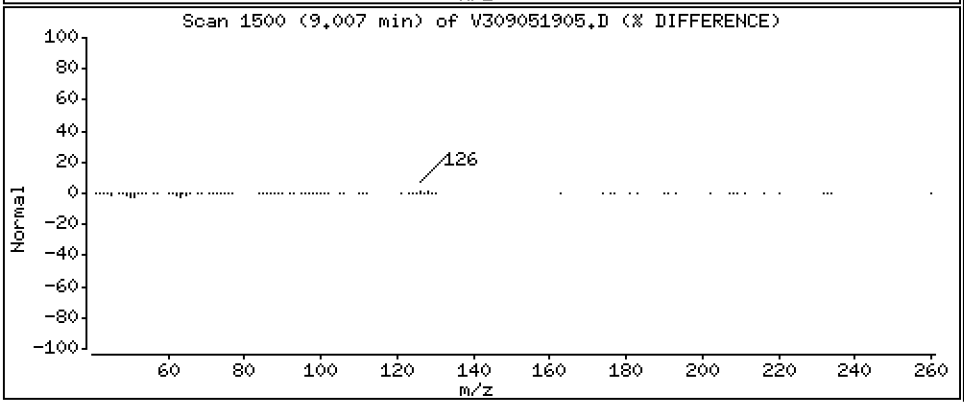
70 4-Chloro Toluene

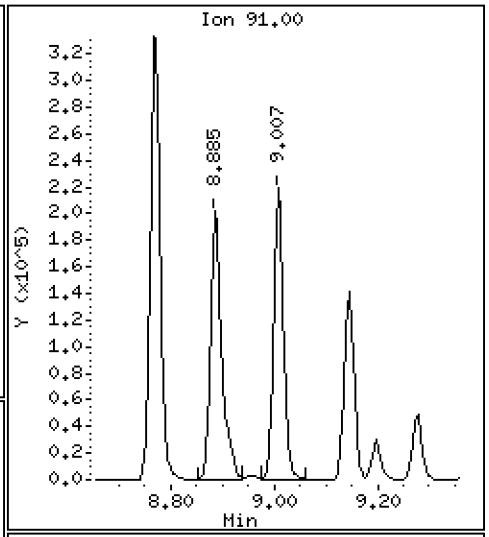
Concentration: 9.966 ug/L

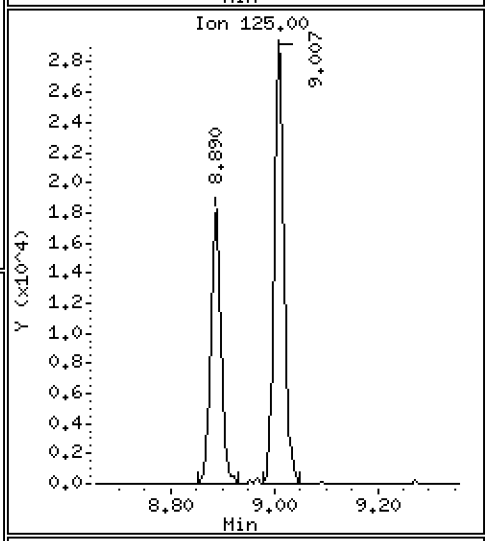


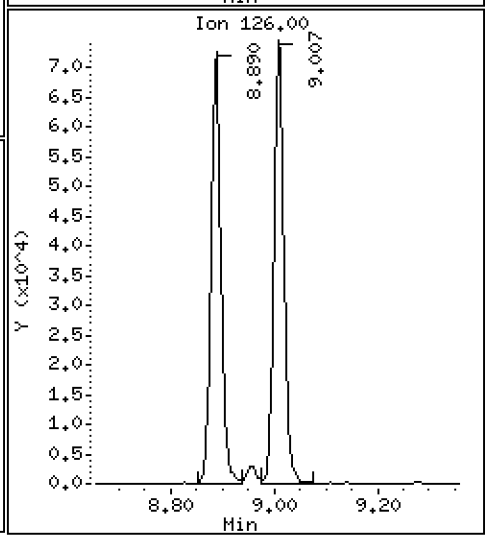












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

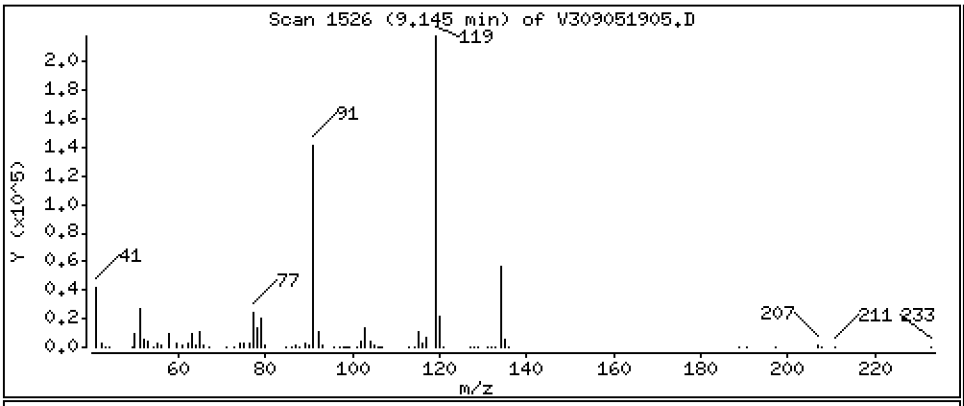
Operator: PKC

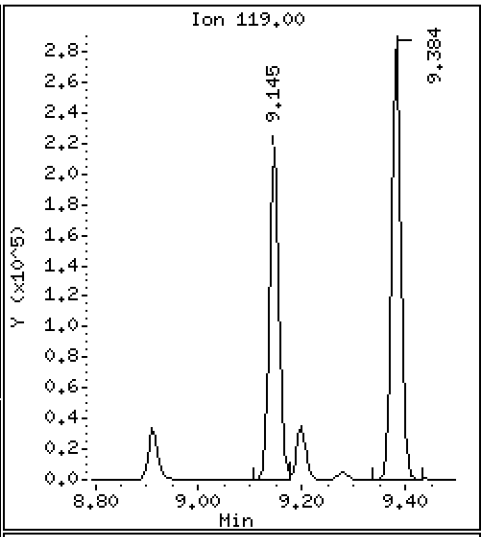
Column phase: RTXVMS

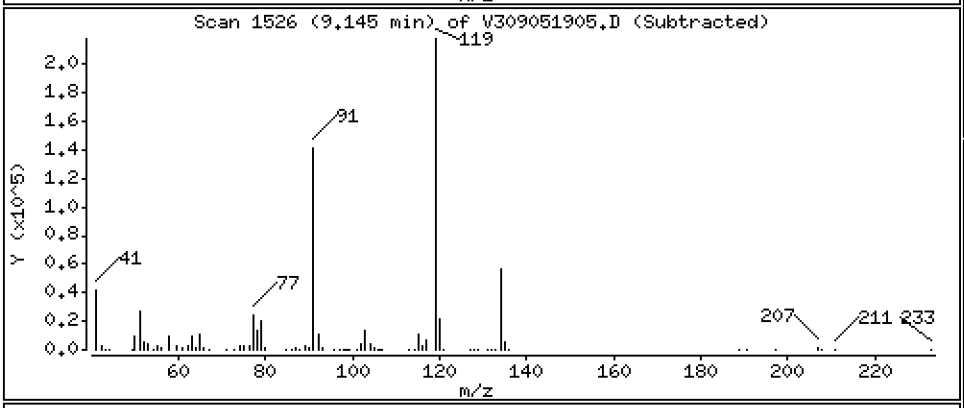
Column diameter: 0.18

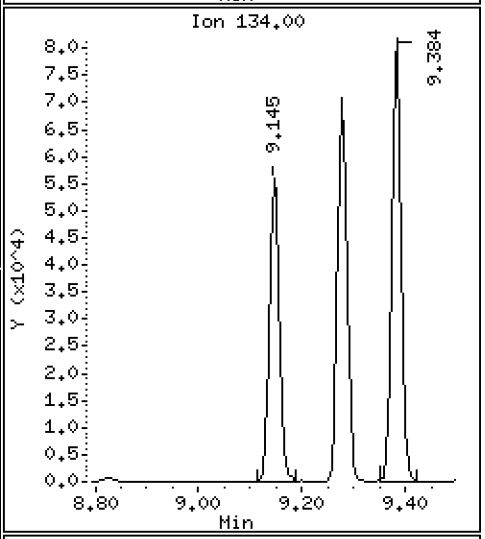
71 T-Butyl Benzene

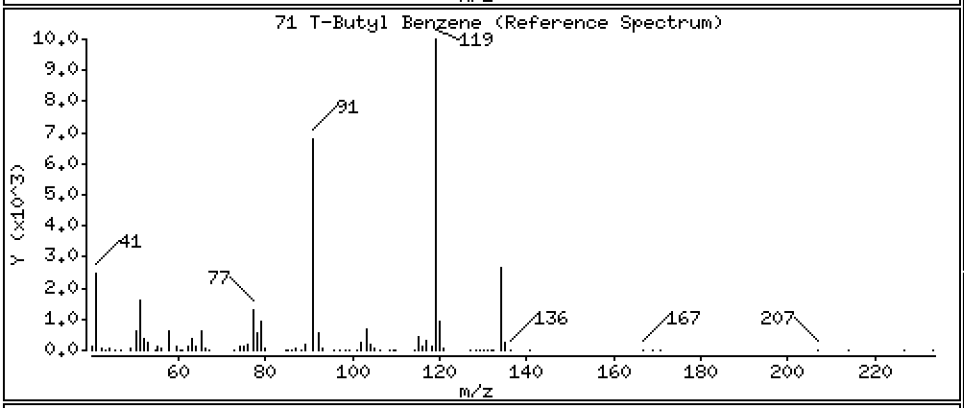
Concentration: 10.030 ug/L

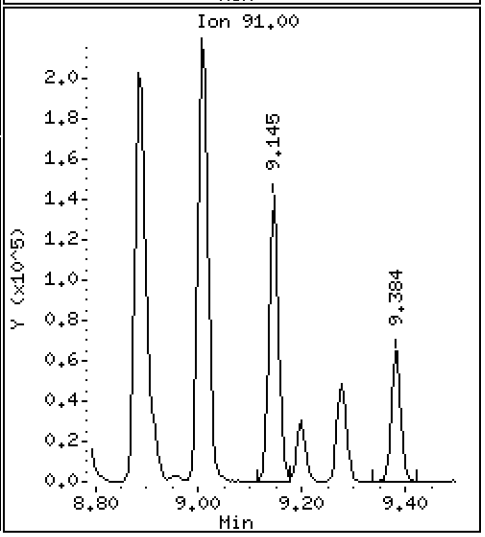


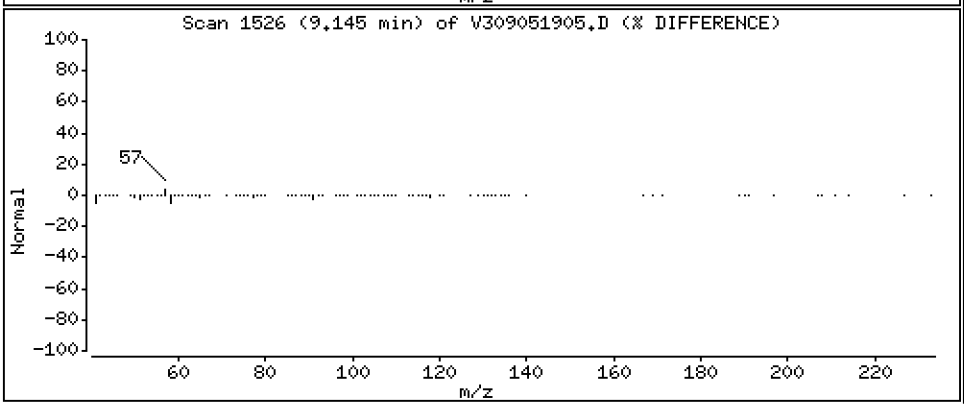












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

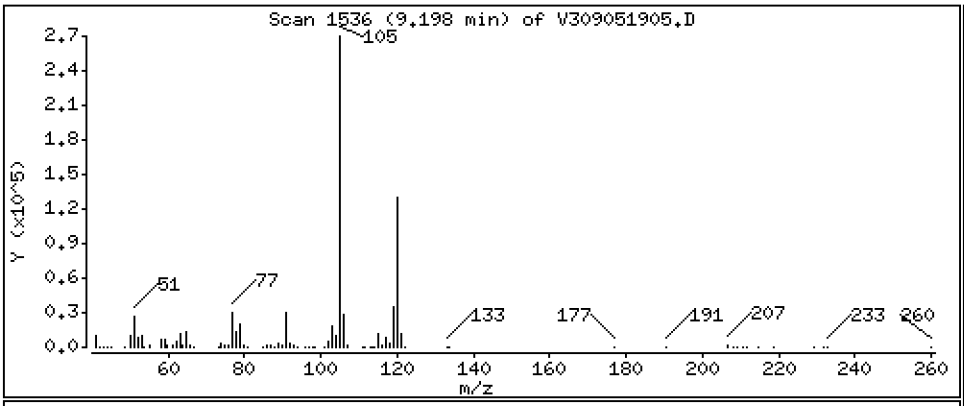
Operator: PKC

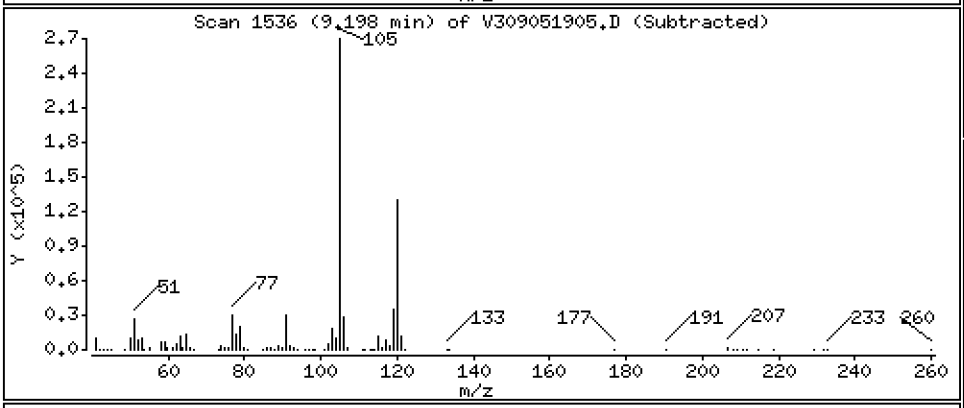
Column phase: RTXVMS

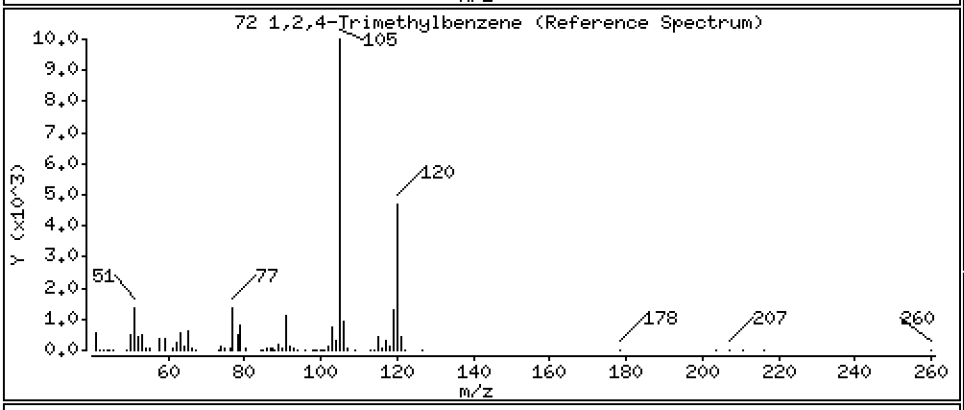
Column diameter: 0.18

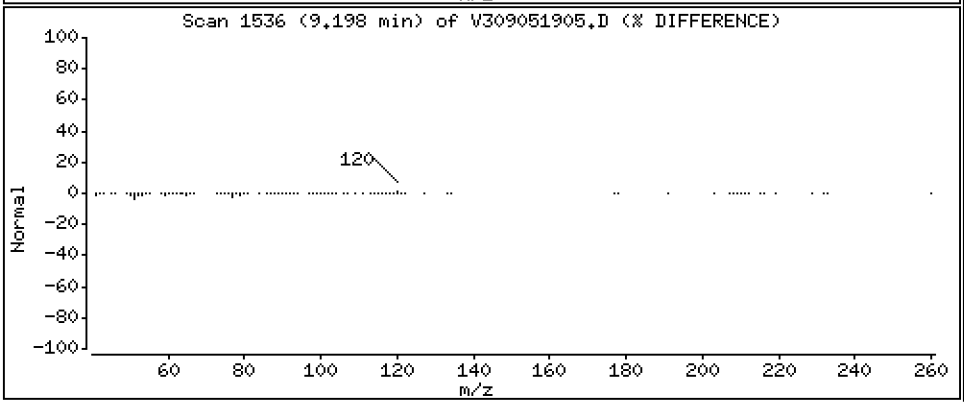
72 1,2,4-Trimethylbenzene

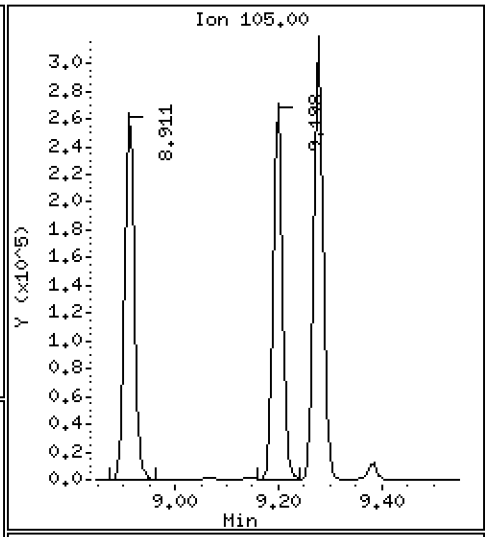
Concentration: 9.955 ug/L

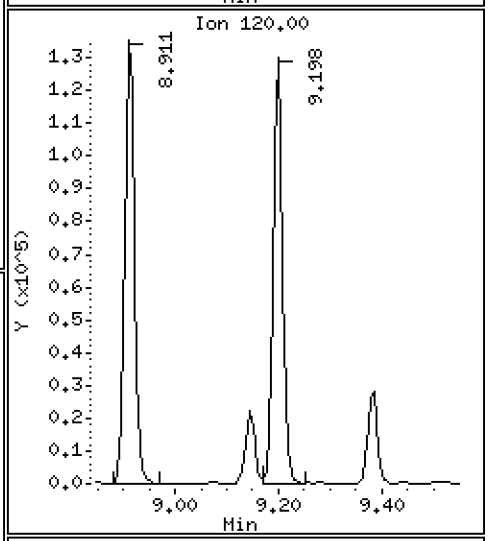


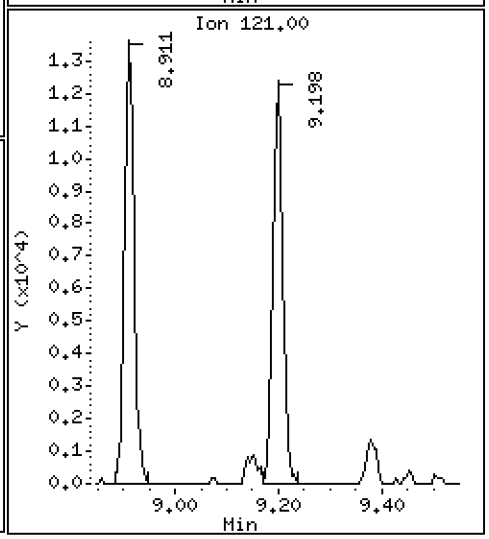












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

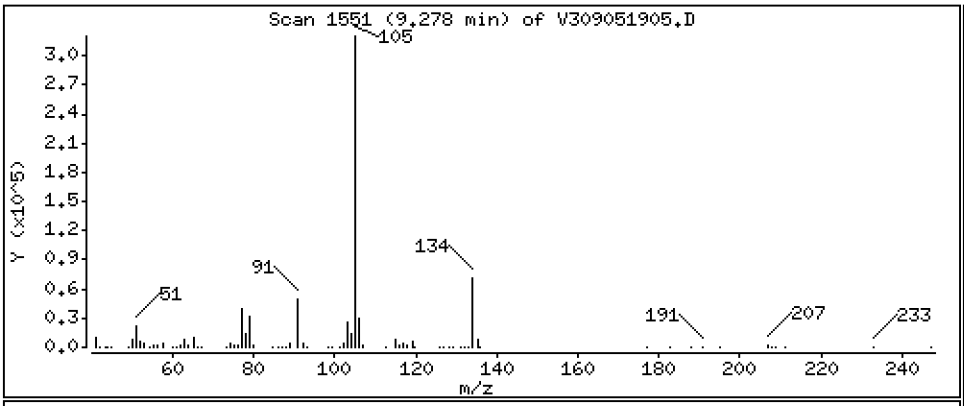
Operator: PKC

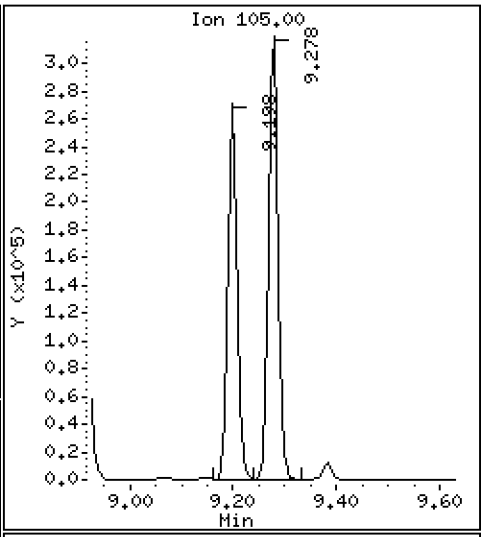
Column phase: RTXVMS

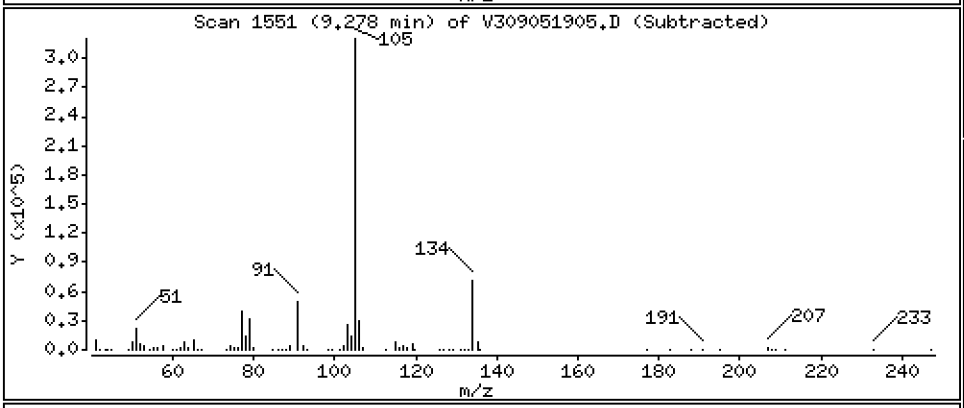
Column diameter: 0.18

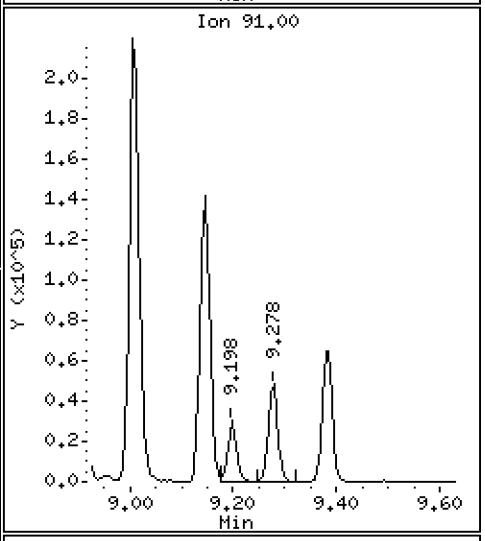
73 S-Butyl Benzene

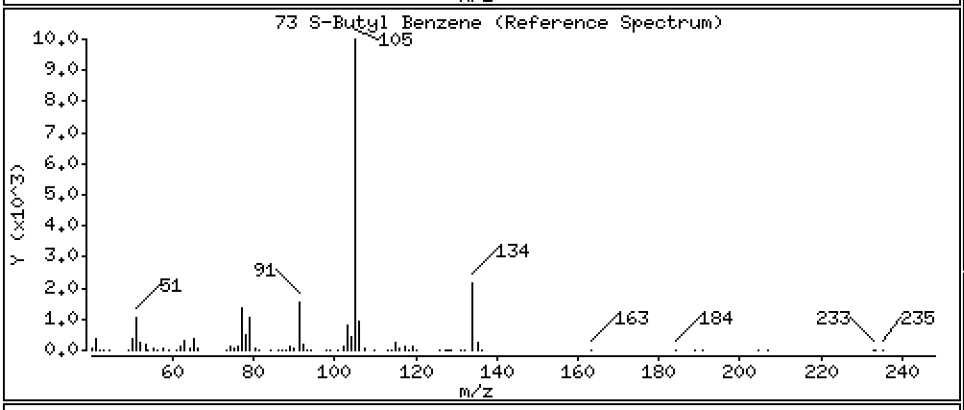
Concentration: 10.299 ug/L

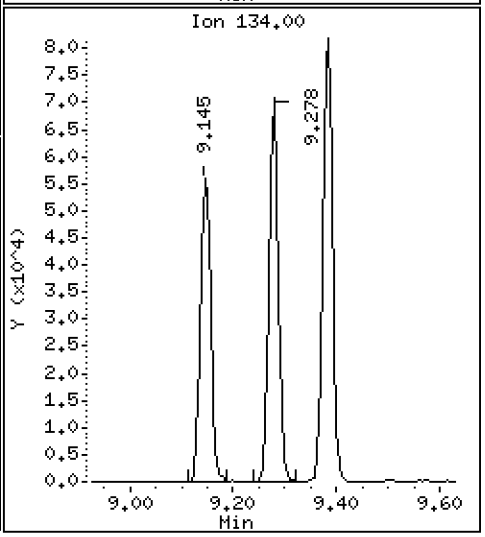


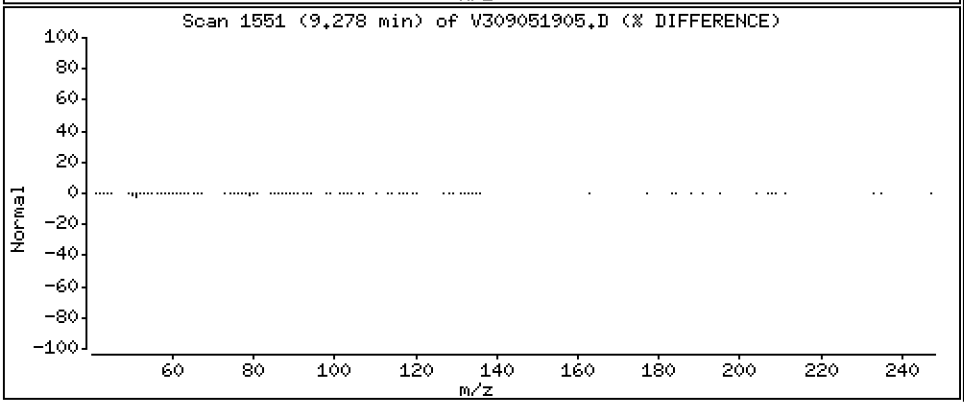












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

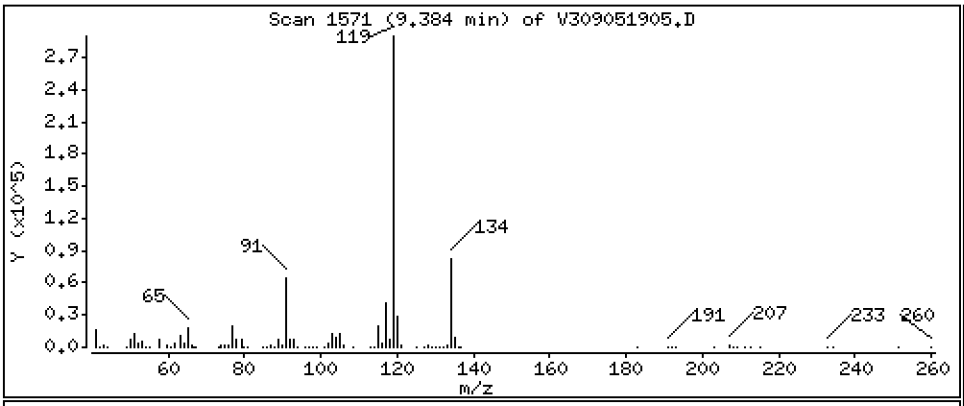
Operator: PKC

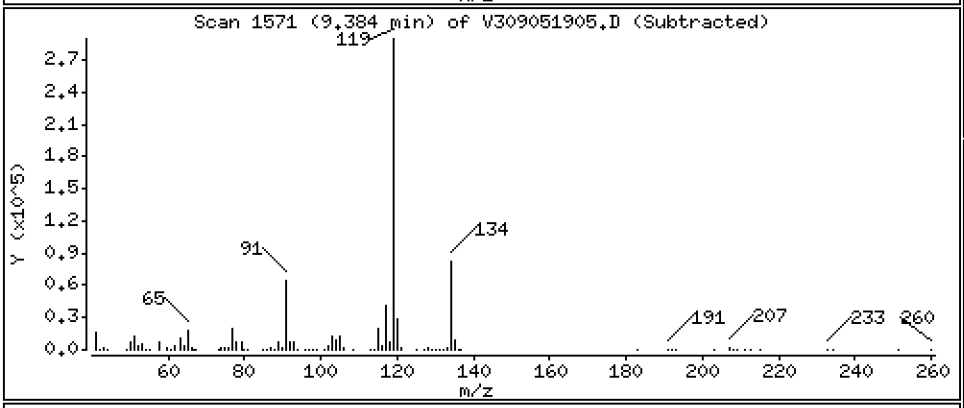
Column phase: RTXVMS

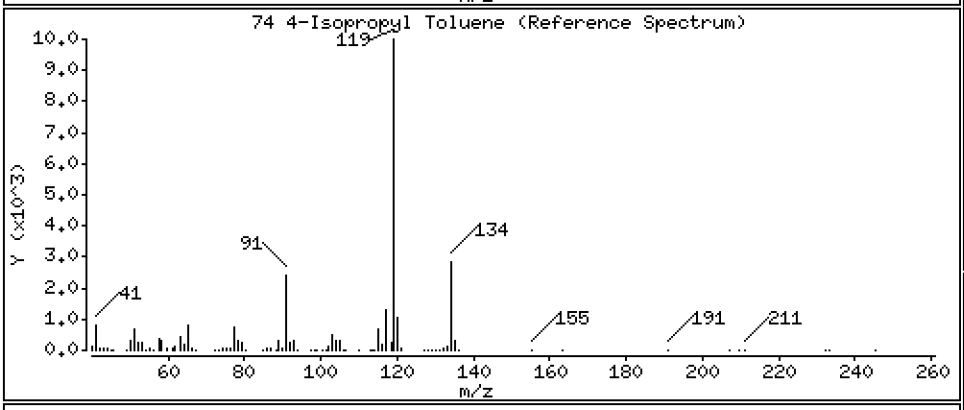
Column diameter: 0.18

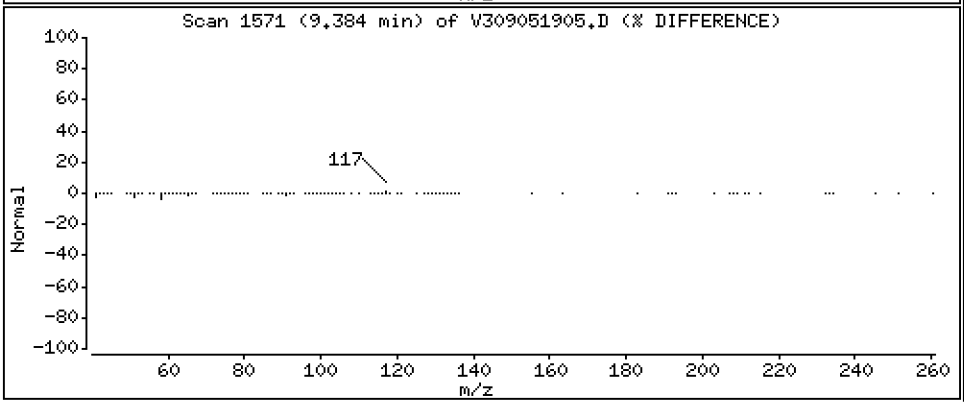
74 4-Isopropyl Toluene

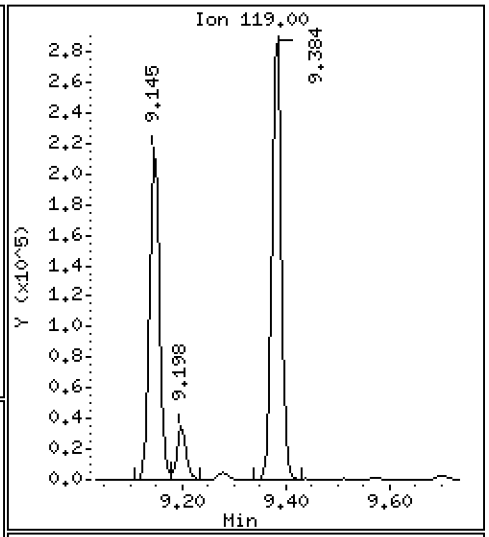
Concentration: 10.208 ug/L

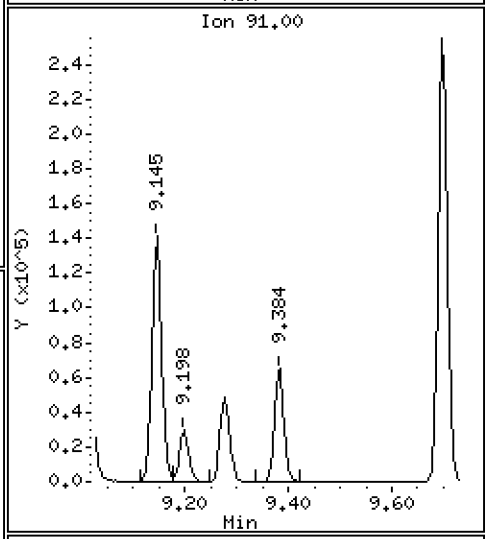


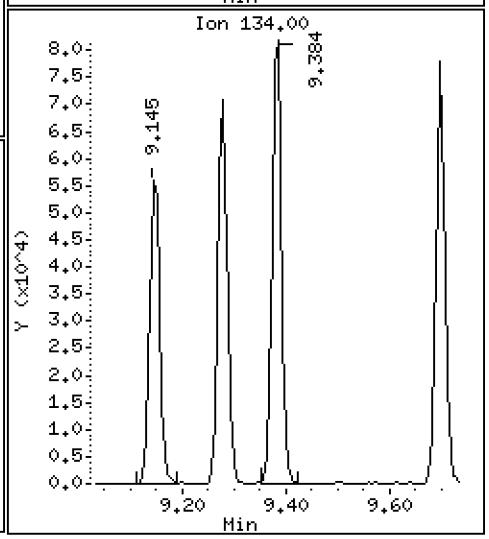












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

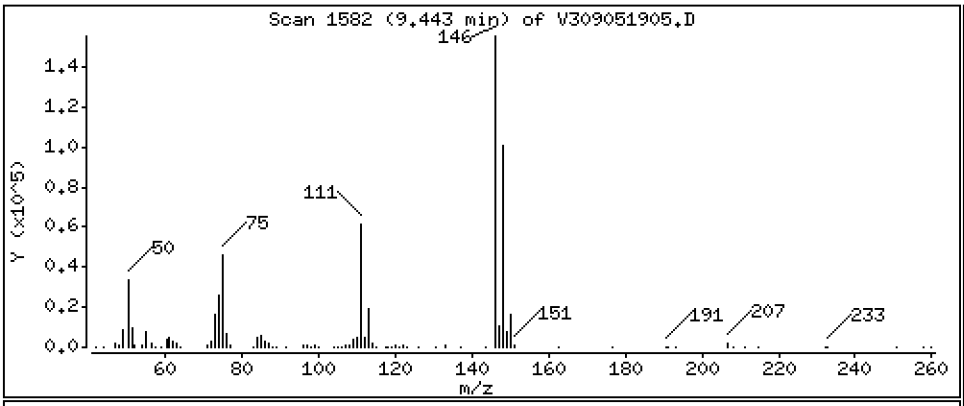
Operator: PKC

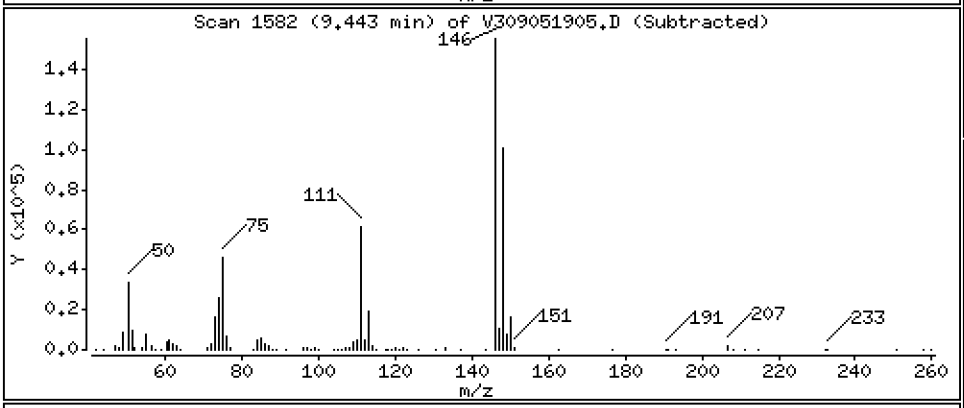
Column phase: RTXVMS

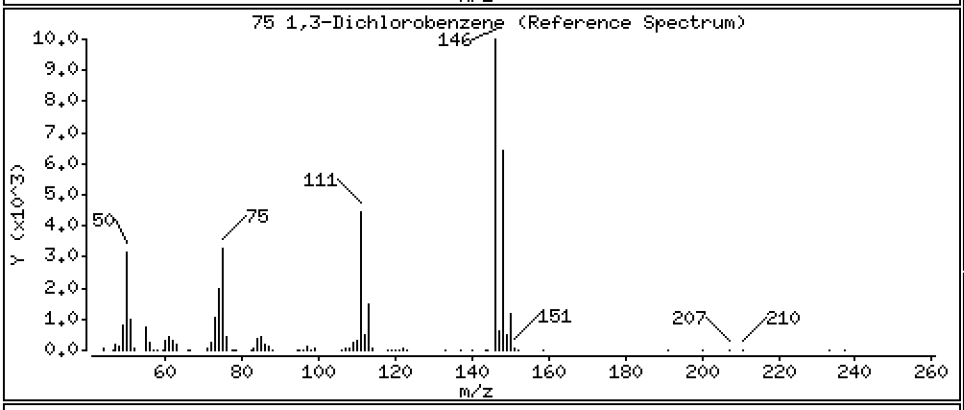
Column diameter: 0.18

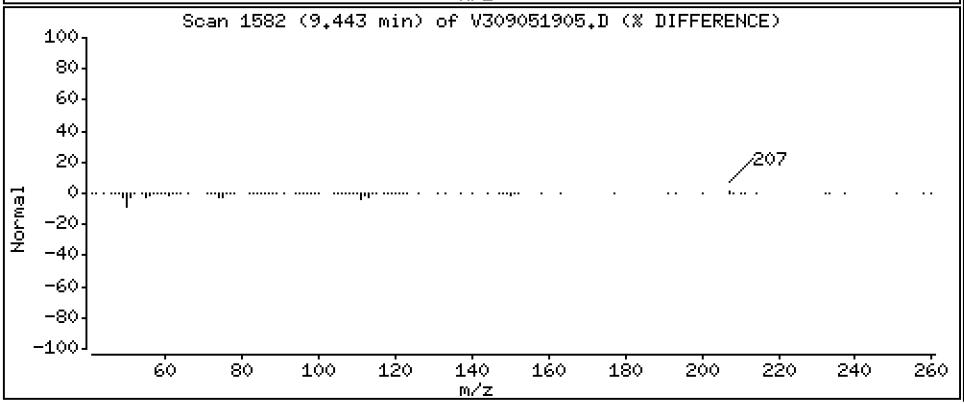
75 1,3-Dichlorobenzene

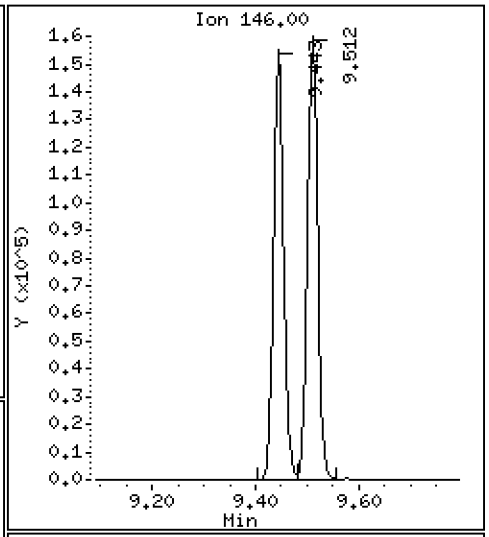
Concentration: 9.660 ug/L

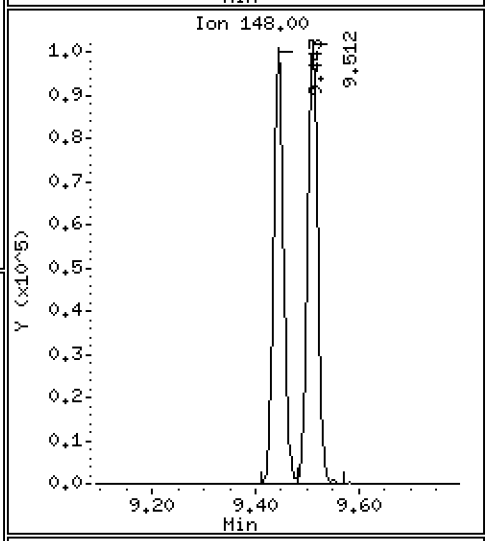


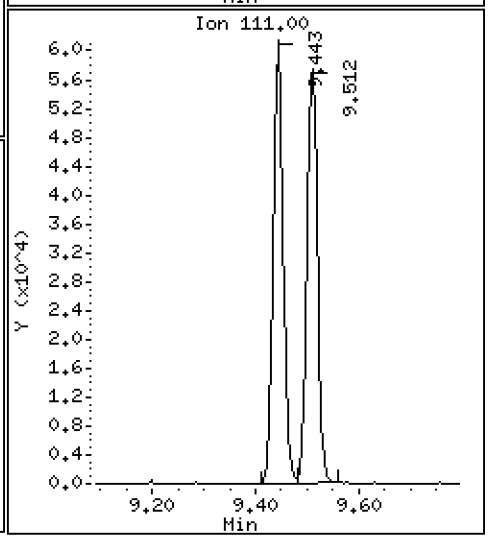












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

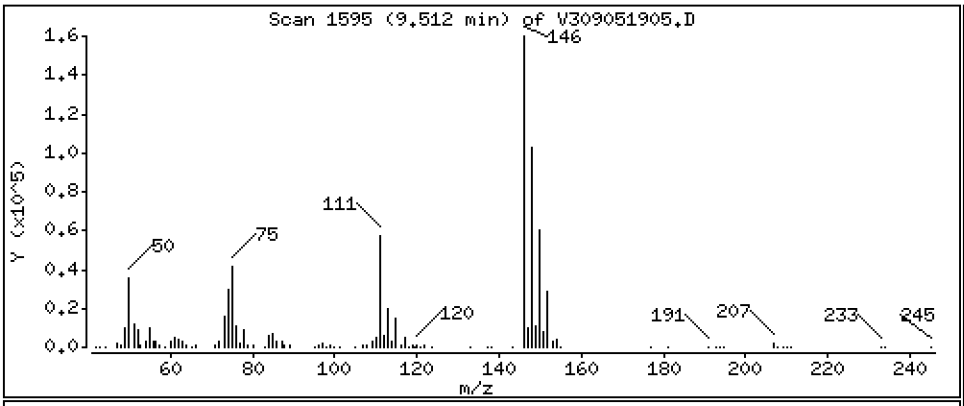
Operator: PKC

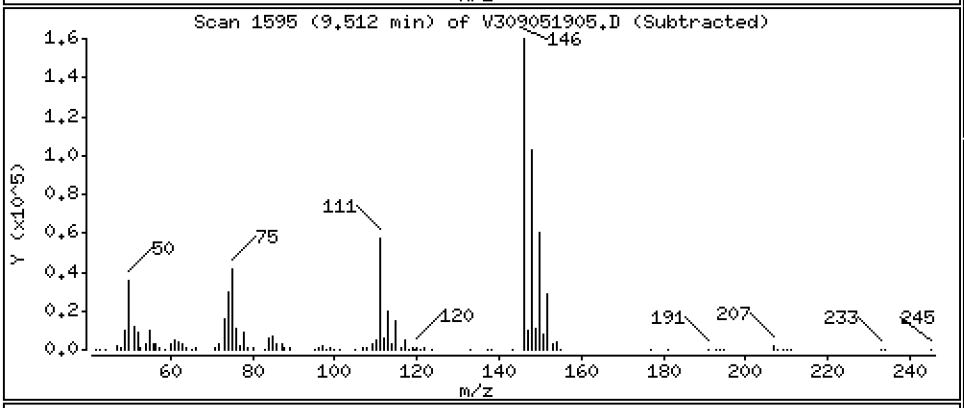
Column phase: RTXVMS

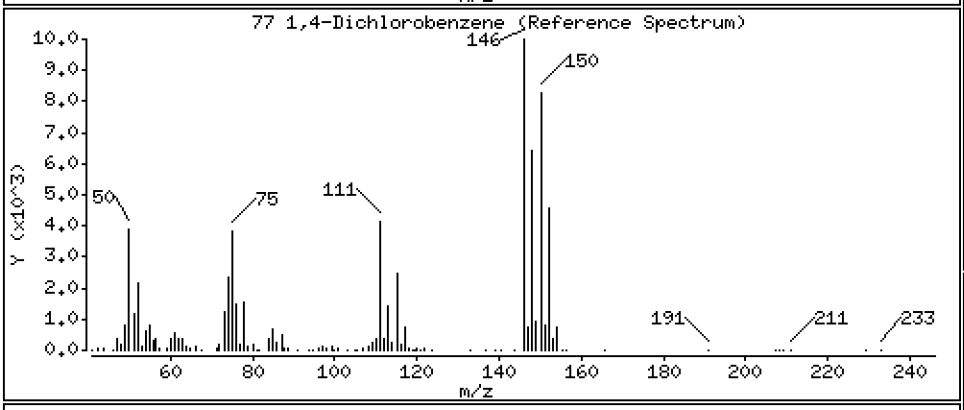
Column diameter: 0.18

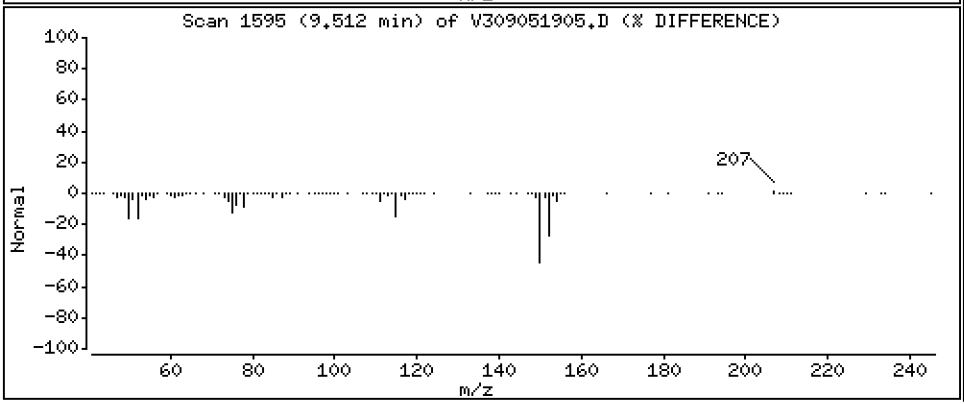
77 1,4-Dichlorobenzene

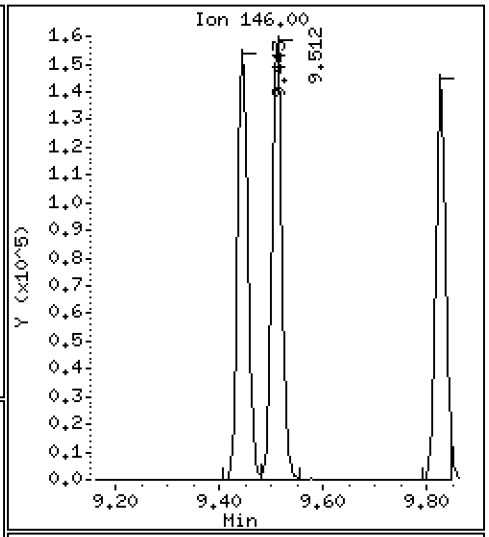
Concentration: 9.806 ug/L

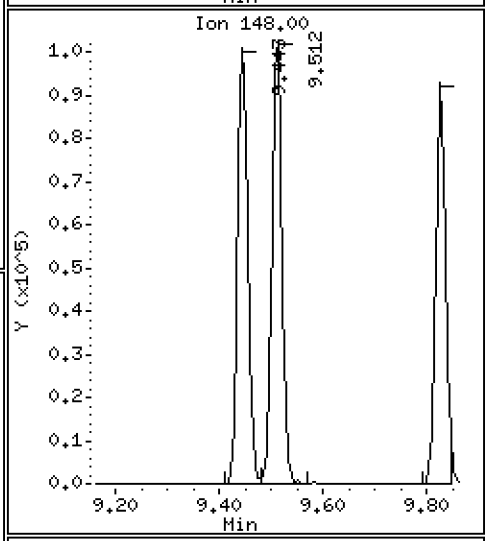


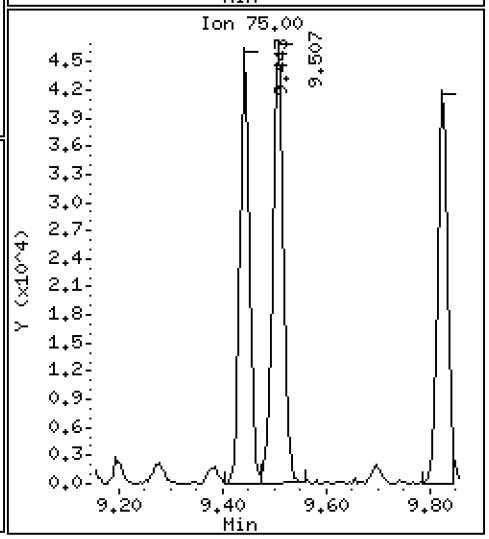












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

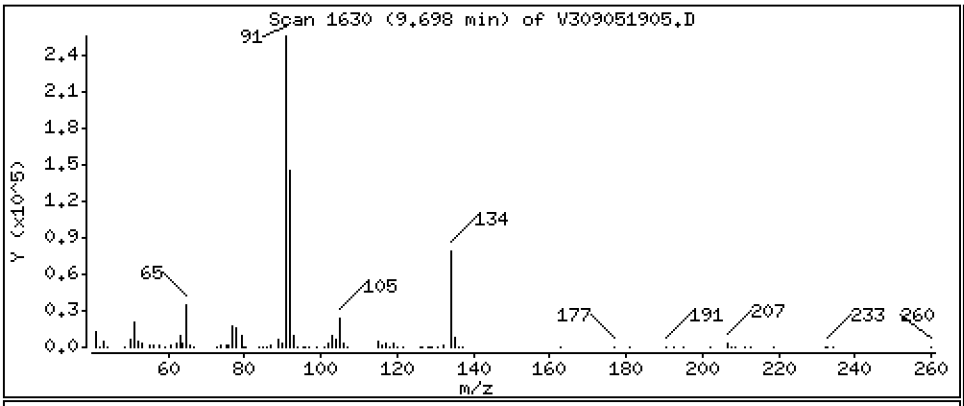
Operator: PKC

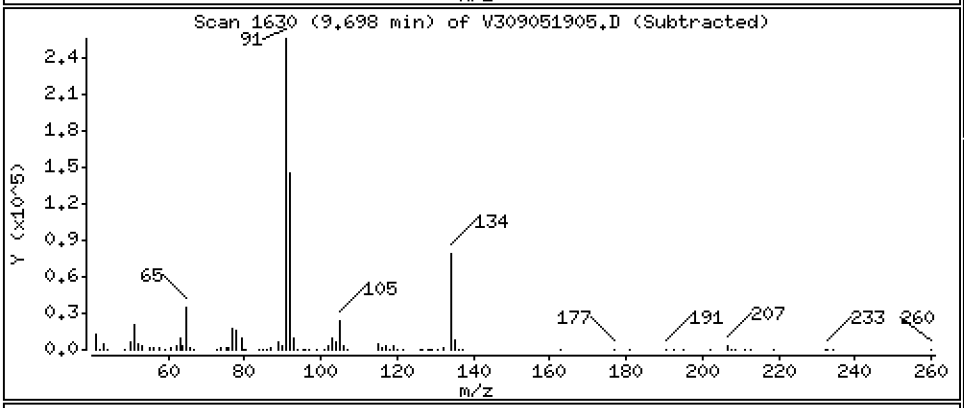
Column phase: RTXVMS

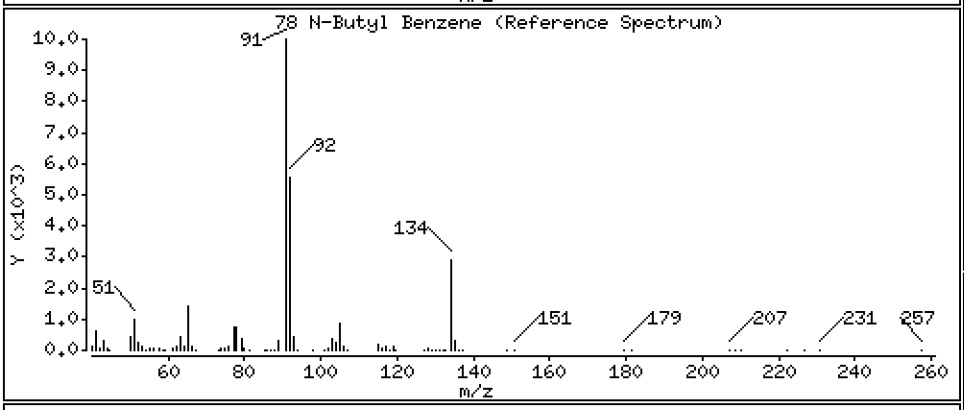
Column diameter: 0.18

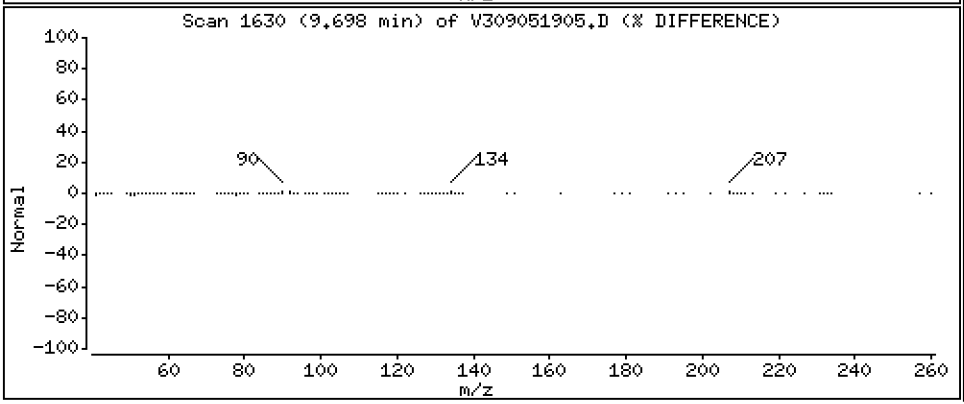
78 N-Butyl Benzene

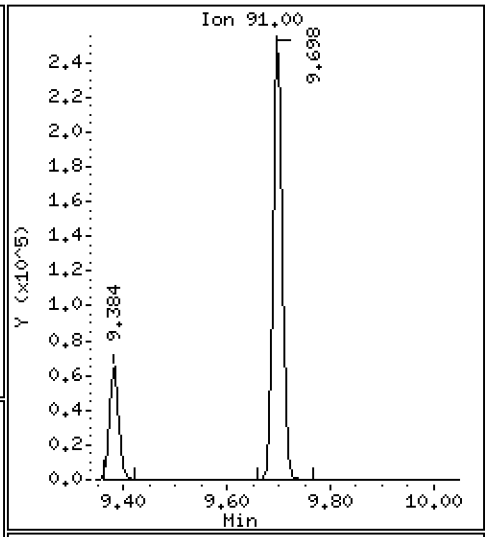
Concentration: 10.347 ug/L

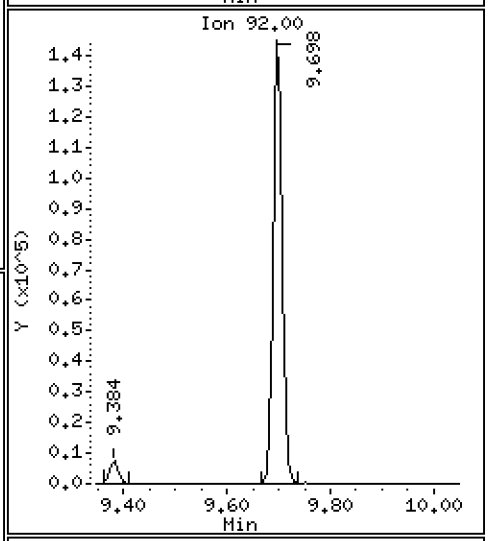


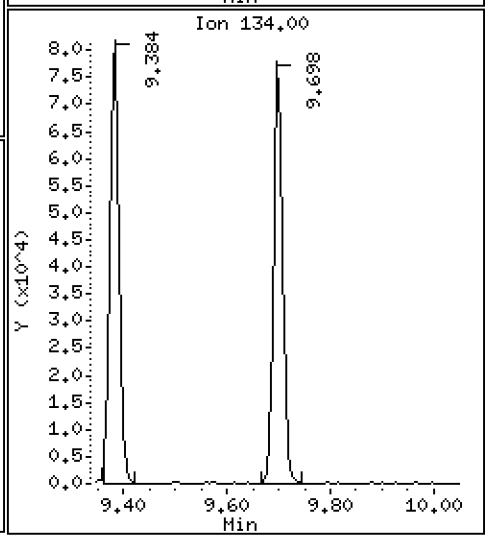












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

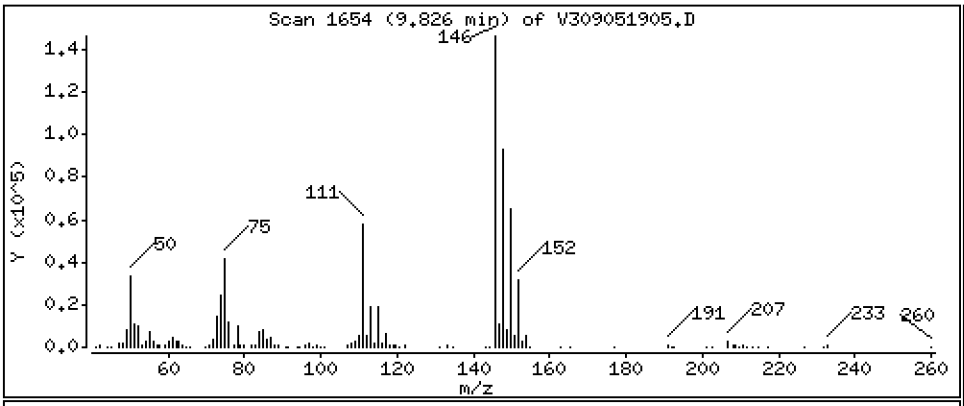
Operator: PKC

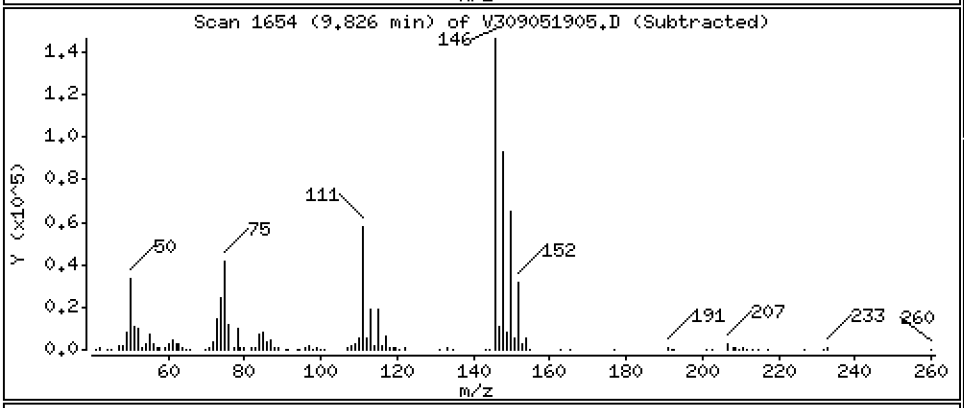
Column phase: RTXVMS

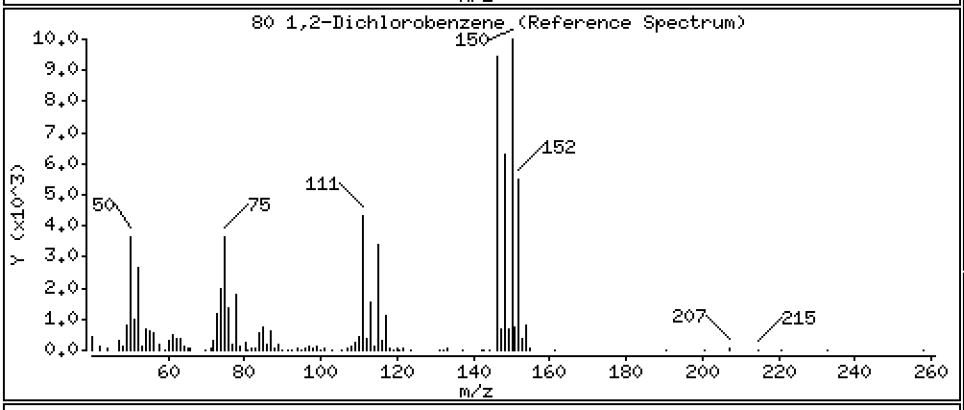
Column diameter: 0.18

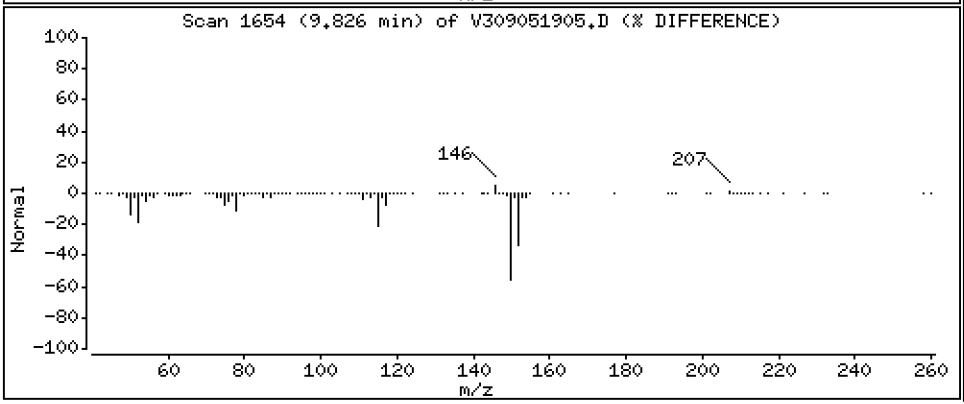
80 1,2-Dichlorobenzene

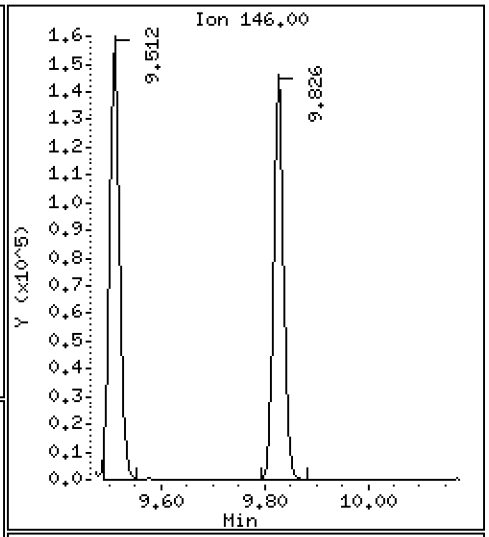
Concentration: 9.598 ug/L

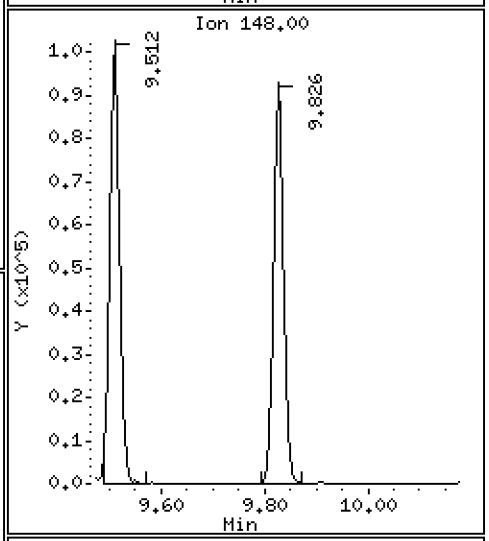


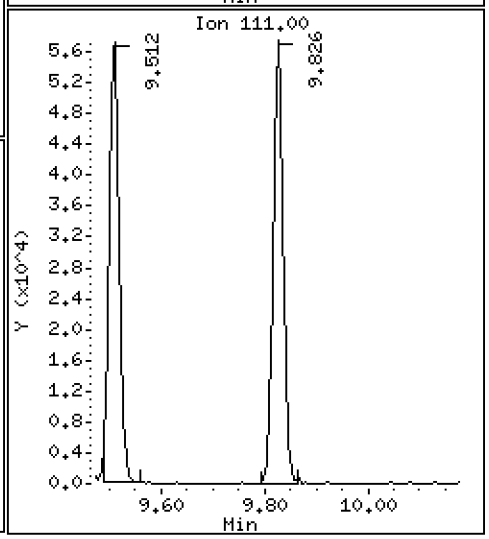












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Page 71

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

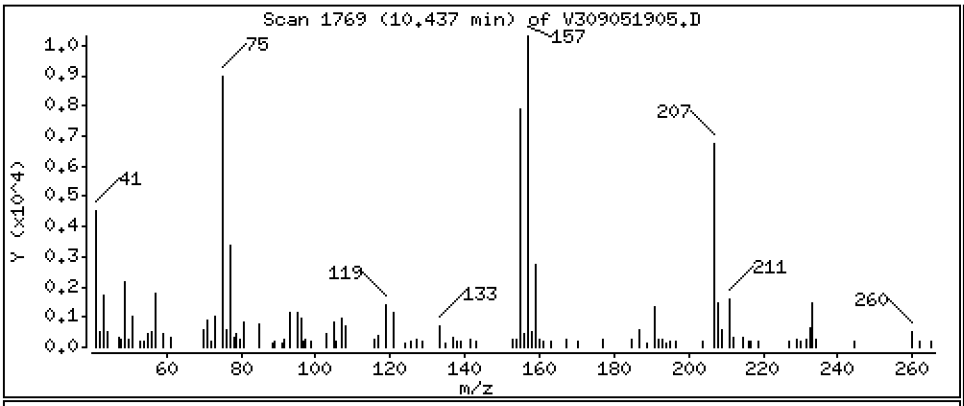
Operator: PKC

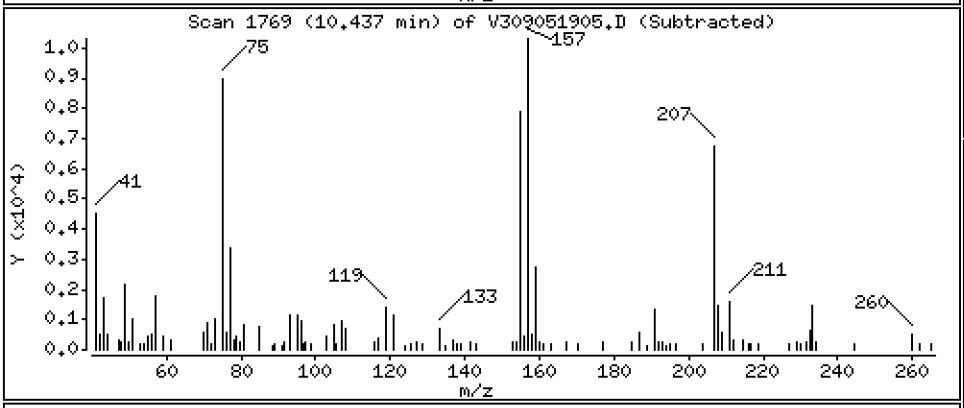
Column phase: RTXVMS

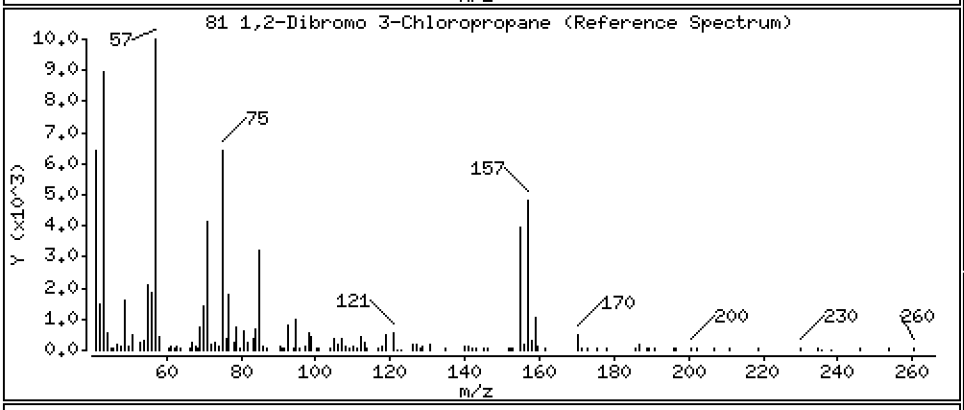
Column diameter: 0.18

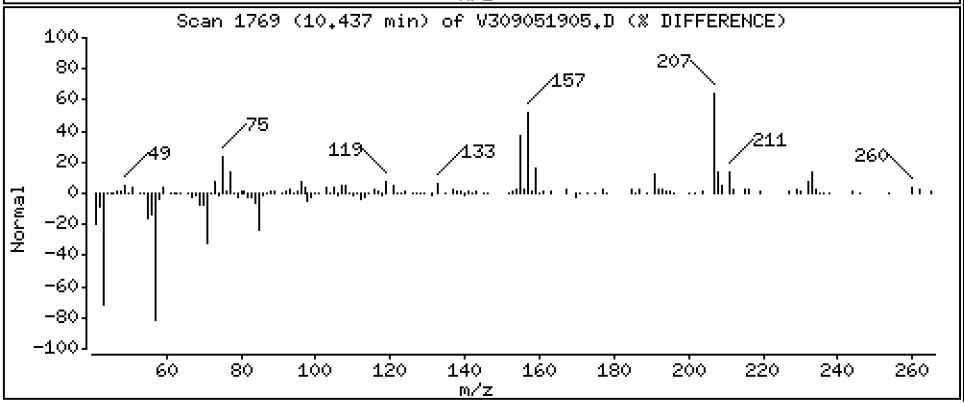
81 1,2-Dibromo 3-Chloropropane

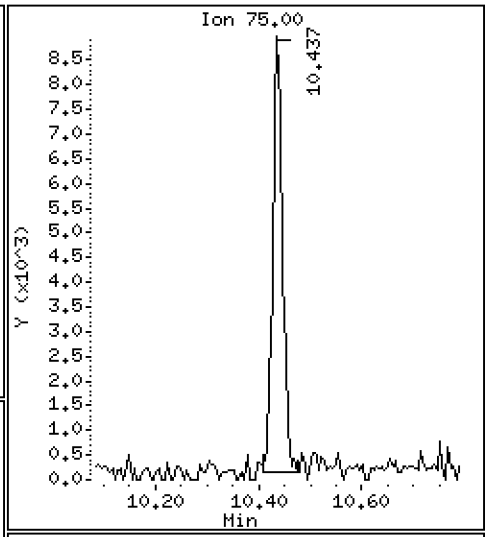
Concentration: 9.407 ug/L

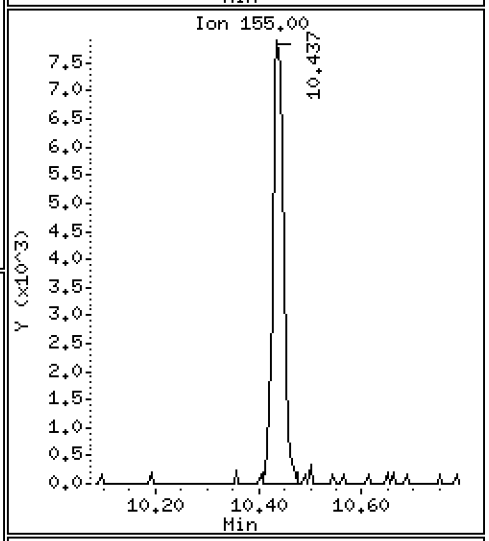


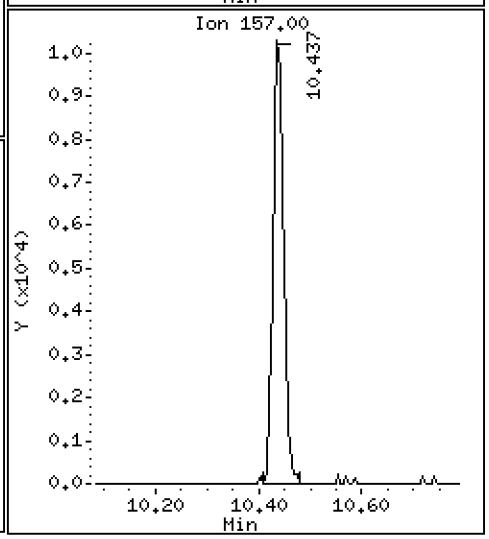












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

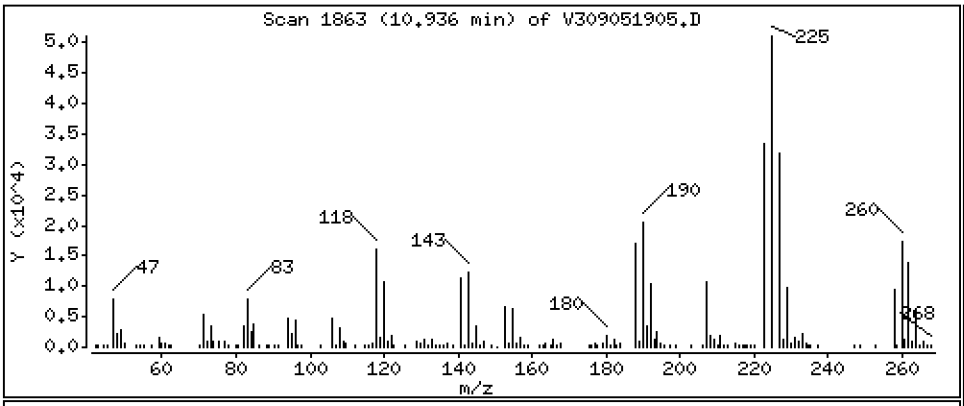
Operator: PKC

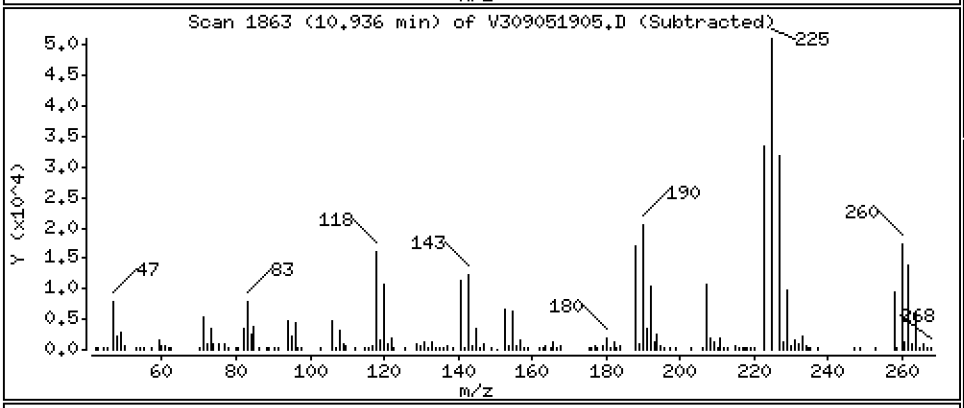
Column phase: RTXVMS

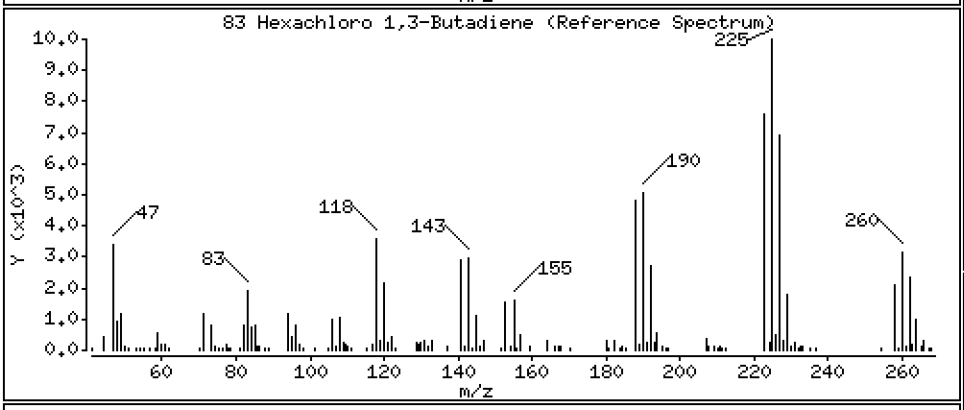
Column diameter: 0.18

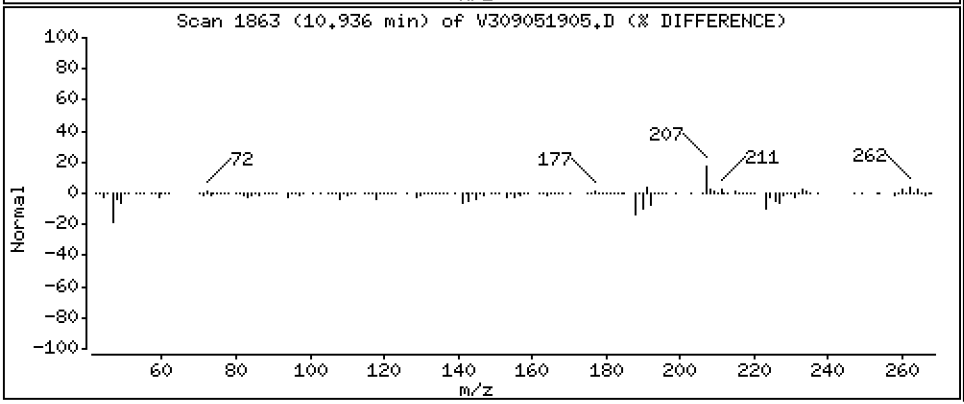
83 Hexachloro 1,3-Butadiene

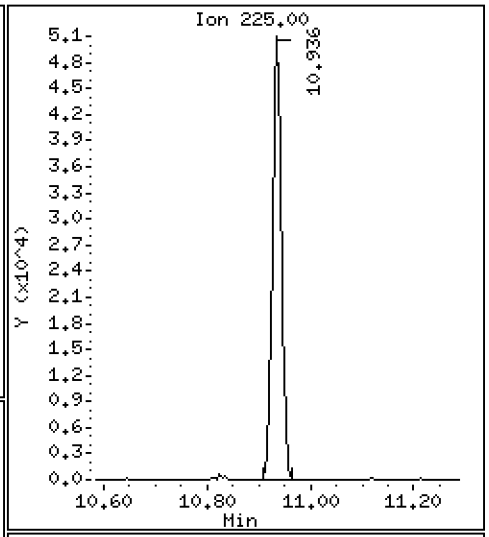
Concentration: 10.692 ug/L

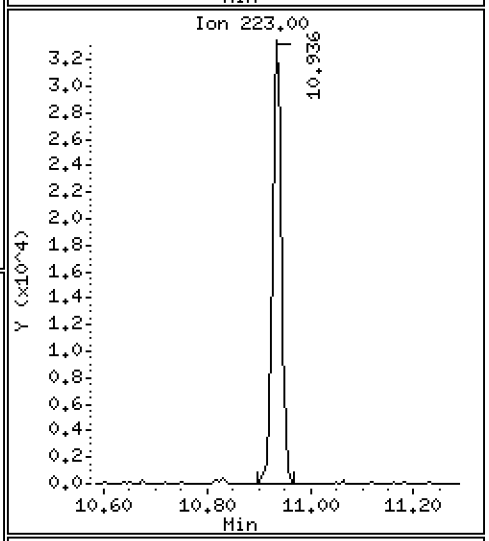


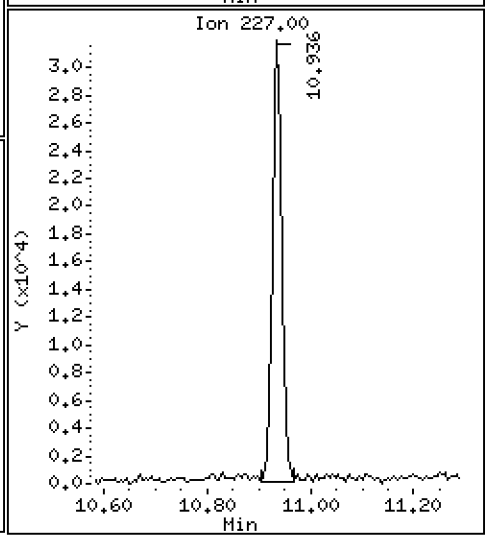












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

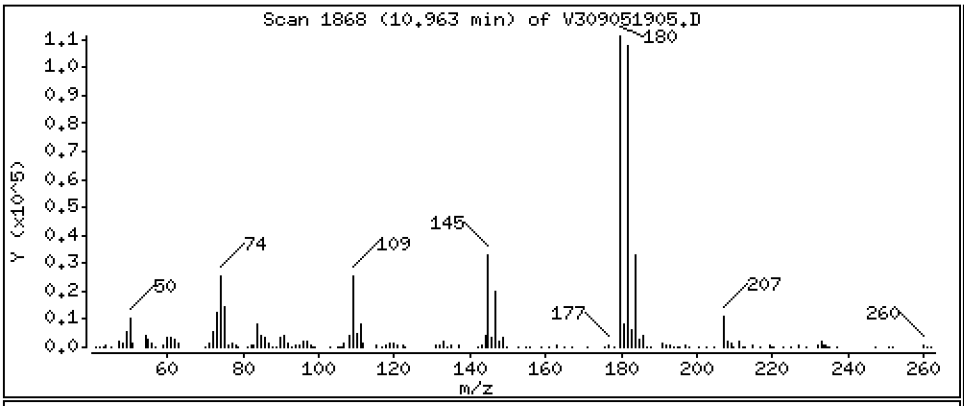
Operator: PKC

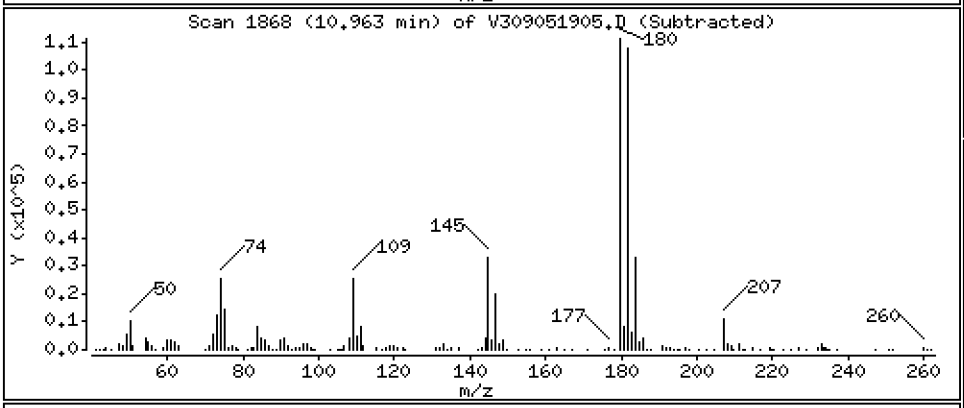
Column phase: RTXVMS

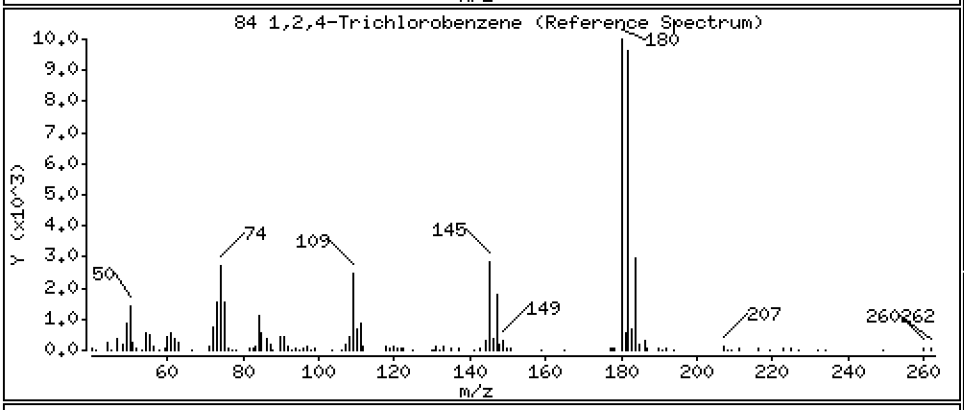
Column diameter: 0.18

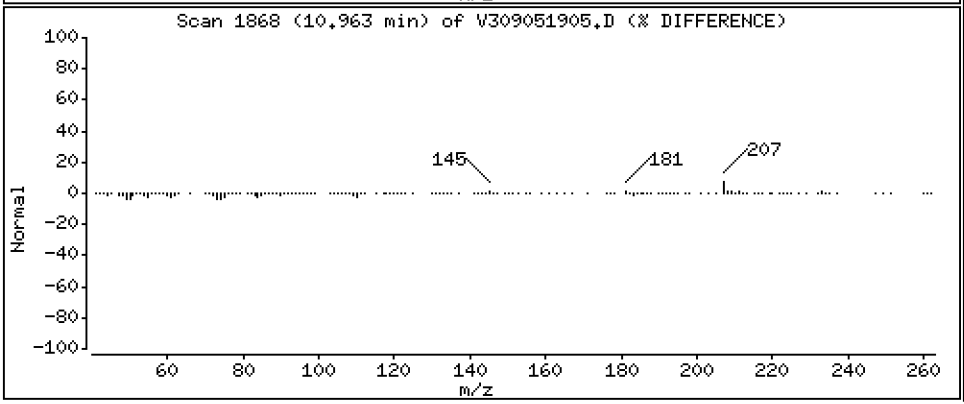
84 1,2,4-Trichlorobenzene

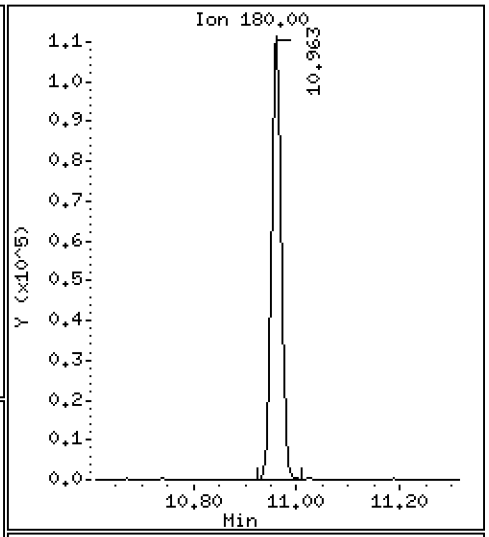
Concentration: 10.333 ug/L

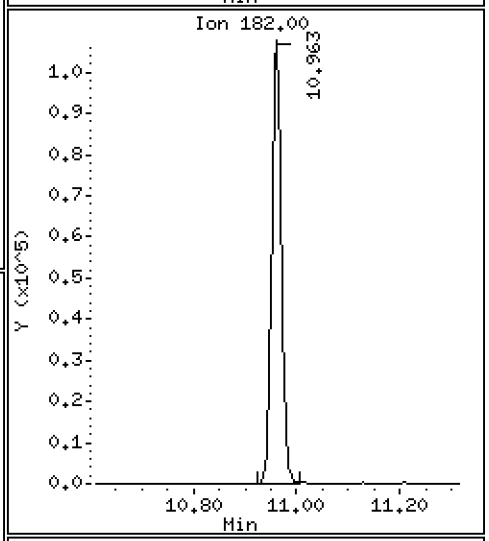


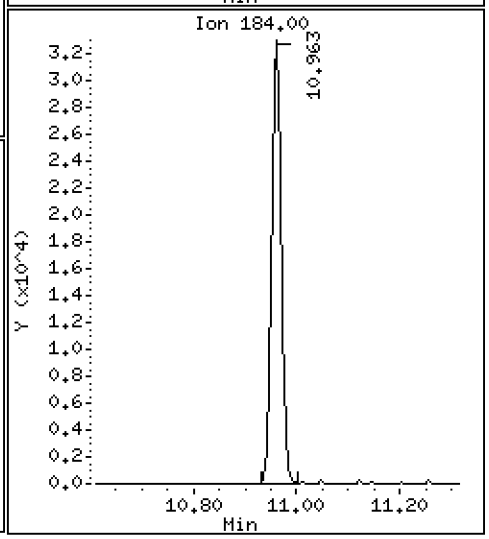












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Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

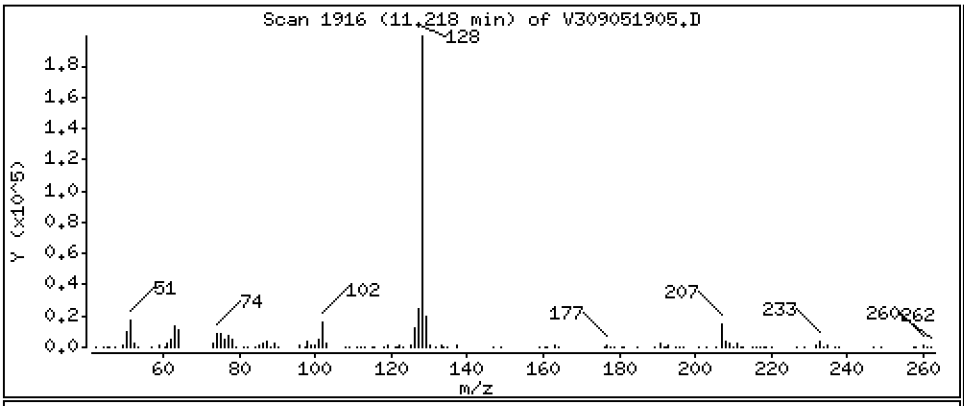
Operator: PKC

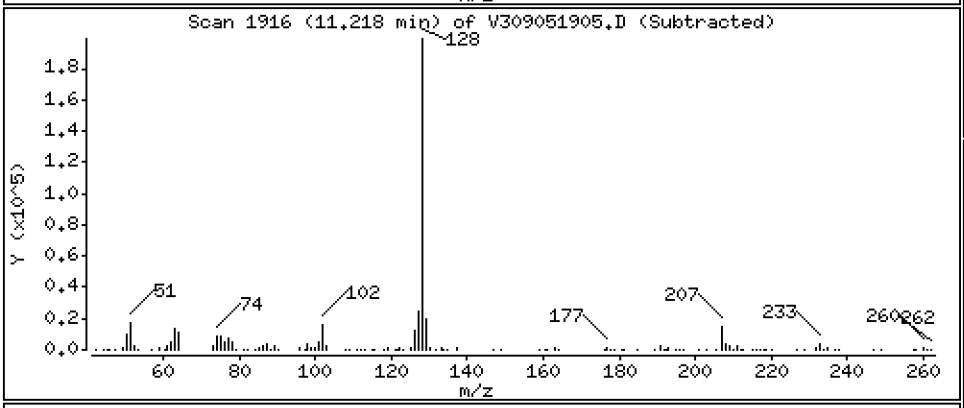
Column phase: RTXVMS

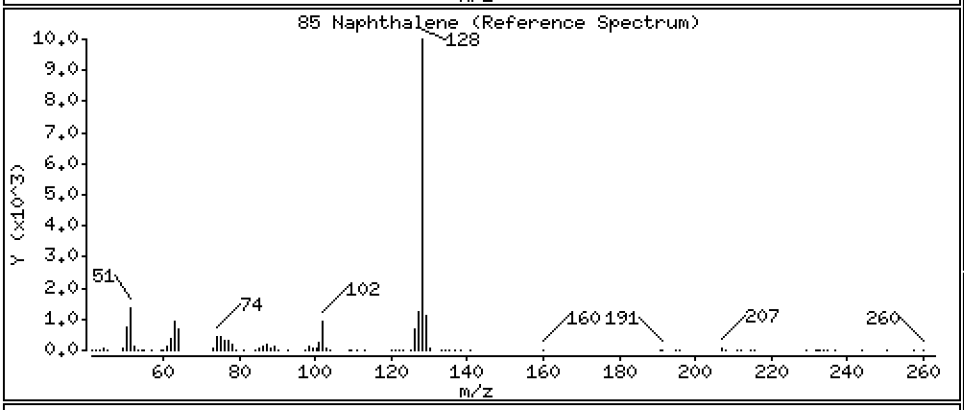
Column diameter: 0.18

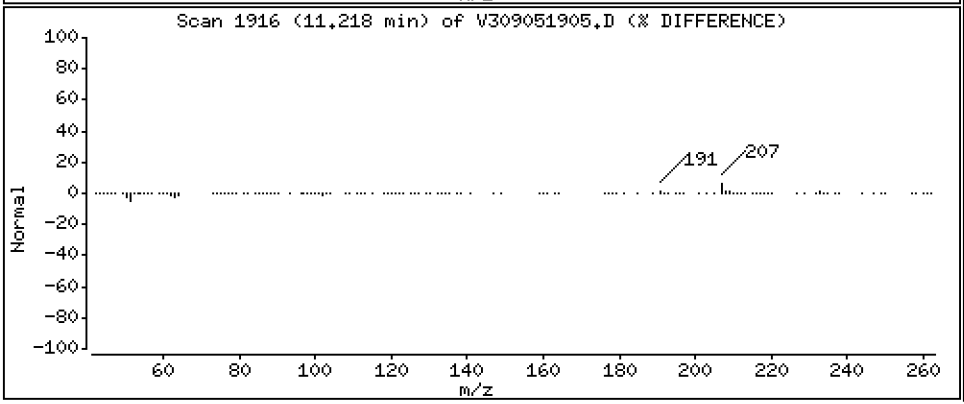
85 Naphthalene

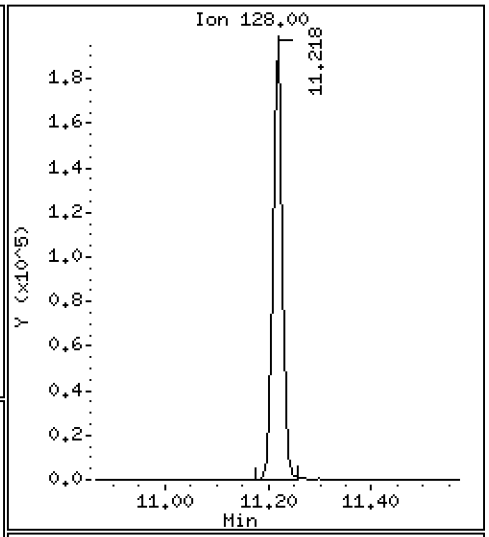
Concentration: 10.296 ug/L

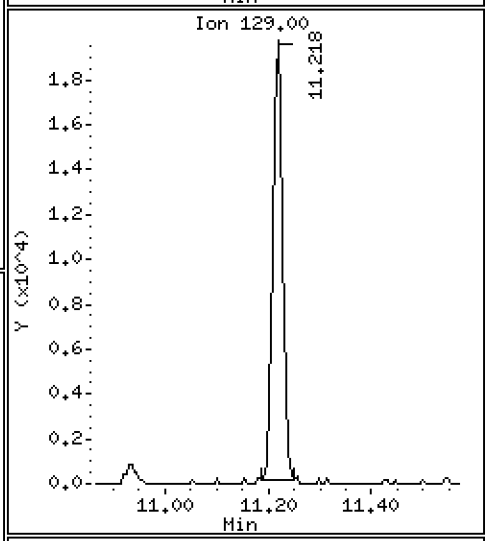


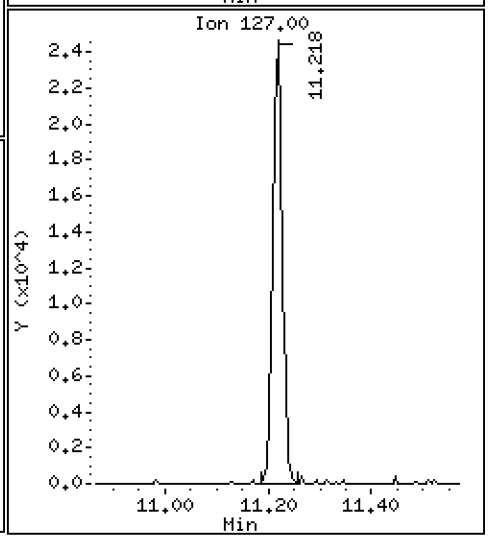












Data File: \\target\share\chem1\nt3.i\20190905.b\V309051905.D

Date : 05-SEP-2019 12:57

Client ID:

Instrument: nt3.i

Sample Info: BHI0133-BSD1

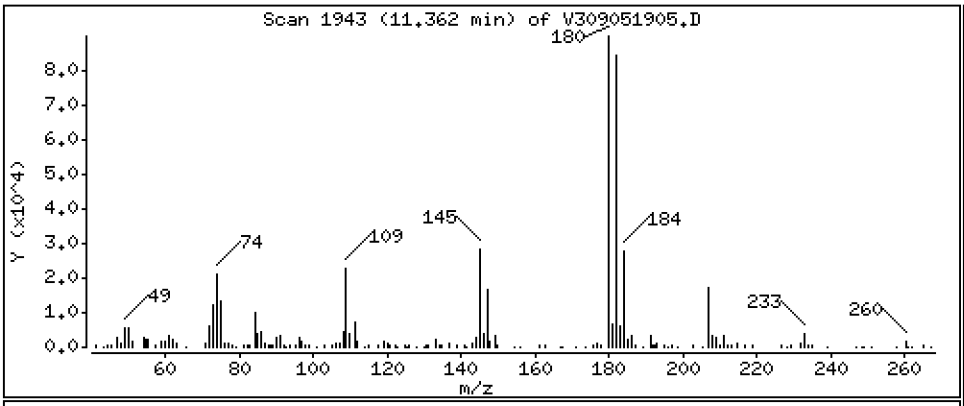
Operator: PKC

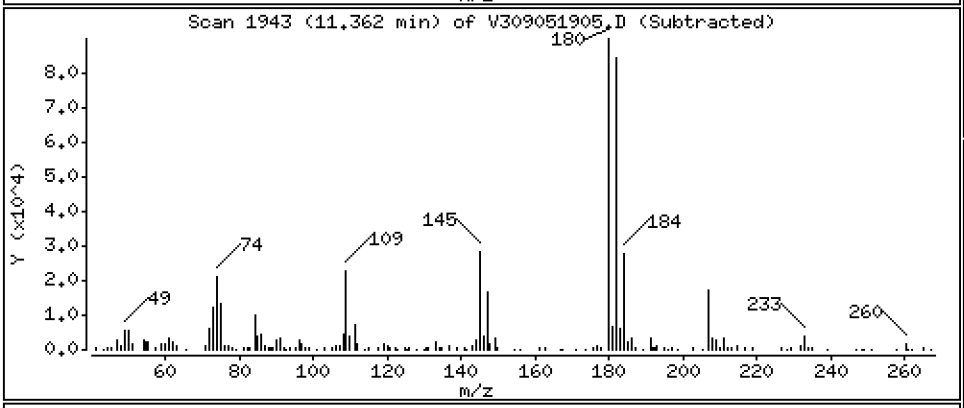
Column phase: RTXVMS

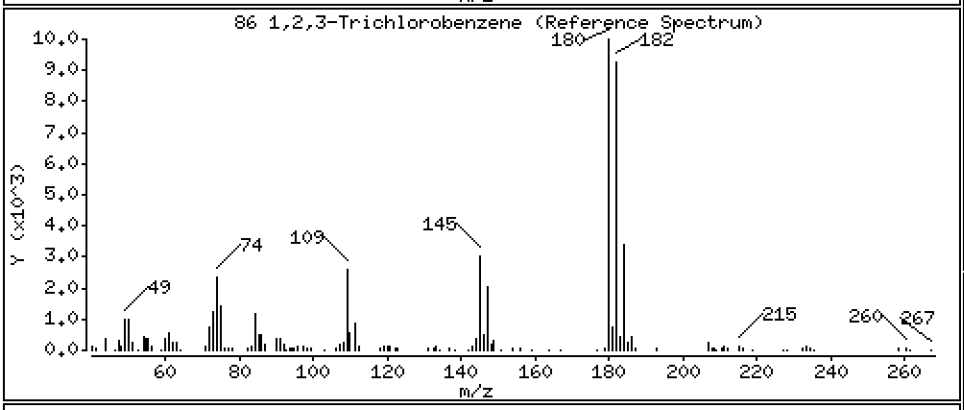
Column diameter: 0.18

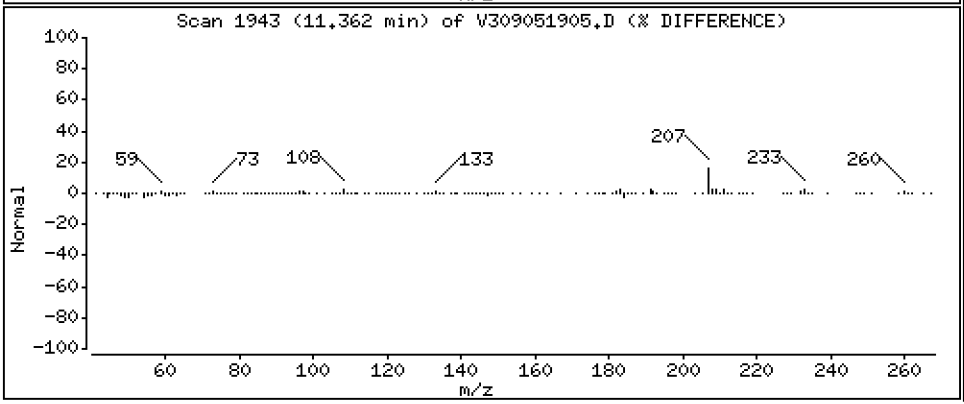
86 1,2,3-Trichlorobenzene

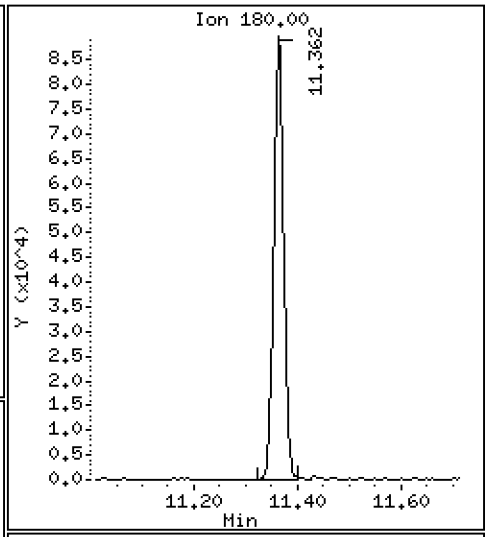
Concentration: 10.272 ug/L

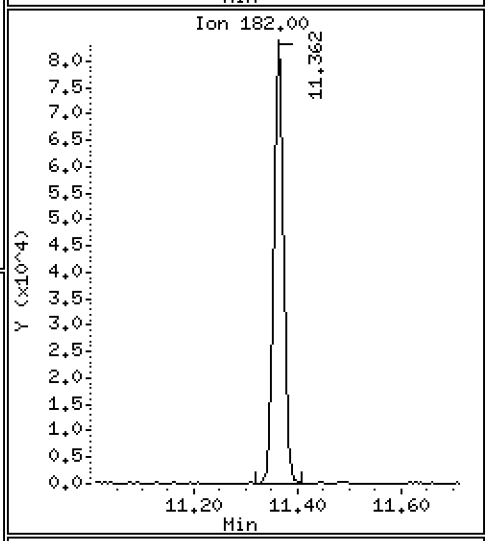


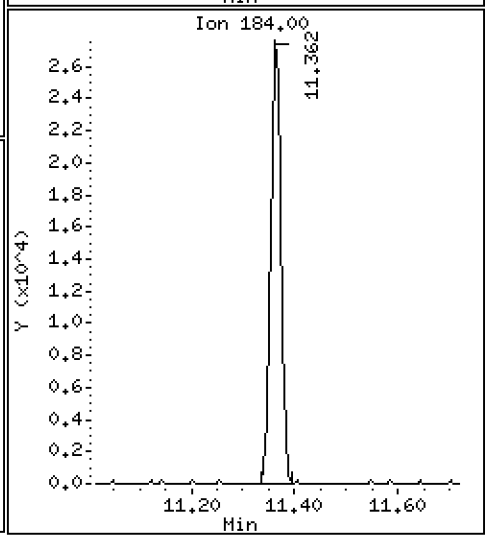












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051905.D
Lab Smp Id: BHI0133-BSD1
Inj Date : 05-SEP-2019 12:57
Operator : PKC Inst ID: nt3.i
Smp Info : BHI0133-BSD1
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:36 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14
Processing Host: ORGDATA11

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	1.719	1.714	(0.318)	112595	10.5319	10.532(M)
	2 Chloromethane	50	1.921	1.922	(0.355)	177915	9.91542	9.915(M)
	3 Vinyl Chloride	62	2.006	2.007	(0.371)	141511	9.78882	9.789
	4 Bromomethane	94	2.298	2.299	(0.425)	66528	10.0863	10.086
	5 Chloroethane	64	2.410	2.416	(0.446)	71749	9.30957	9.310
	6 Trichlorofluoromethane	101	2.527	2.538	(0.467)	118621	10.0864	10.086
	7 1,1-Dichloroethene	61	2.989	2.990	(0.553)	137836	9.69918	9.699
	8 Carbon Disulfide	76	2.995	3.001	(0.554)	208627	9.99553	9.996
	9 112Trichloro122Trifluoroethane	101	3.058	3.065	(0.566)	64511	10.1171	10.117
	10 Iodomethane	142	3.117	3.123	(0.576)	109812	10.0928	10.093
	11 Bromoethane	108	3.244	3.245	(0.600)	45397	9.08780	9.088
	12 Acrolein	56	3.351	3.368	(0.620)	62861	49.7138	49.714
	13 Methylene Chloride	84	3.563	3.564	(0.659)	71099	10.8551	10.855
	14 Acetone	43	3.670	3.708	(0.679)	96916	53.2405	53.241
	15 Trans-1,2-Dichloroethene	96	3.712	3.713	(0.686)	72177	9.54855	9.549
	17 Methyl tert butyl ether	73	3.840	3.841	(0.710)	129418	10.0623	10.062
	18 1,1-Dichloroethane	63	4.254	4.255	(0.787)	148980	9.81364	9.814
	19 Acrylonitrile	53	4.329	4.340	(0.800)	22786	10.6710	10.671
	20 Vinyl Acetate	43	4.488	4.494	(0.830)	155998	9.77085	9.771
	22 Cis-1,2-Dichloroethene	96	4.696	4.696	(0.868)	75511	9.70837	9.708
	23 2,2-Dichloropropane	77	4.770	4.776	(0.882)	72427	10.2585	10.258
	24 Bromochloromethane	128	4.844	4.851	(0.896)	33781	10.0023	10.002
	25 Chloroform	83	4.914	4.914	(0.909)	117011	9.99994	10.00
	26 Carbon Tetrachloride	117	5.004	5.005	(0.865)	98877	9.90922	9.909
$	27 Dibromofluoromethane	111	5.052	5.053	(0.934)	25412	5.13255	5.133(R)
	28 1,1,1-Trichloroethane	97	5.057	5.058	(0.935)	110629	9.76954	9.770
	30 1,1-Dichloropropene	75	5.147	5.148	(0.890)	93302	9.78973	9.790
	29 2-Butanone	43	5.169	5.185	(0.956)	160185	53.9272	53.927
	31 Benzene	78	5.333	5.334	(0.922)	280818	9.79769	9.798
*	32 Pentafluorobenzene	168	5.408	5.414	(1.000)	114506	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.441	(1.006)	27467	4.97933	4.979(R)
	34 1,2-Dichloroethane	62	5.488	5.488	(0.949)	88840	9.57674	9.577
	36 Trichloroethene	130	5.759	5.760	(0.995)	79588	10.3830	10.383

		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
*	37	1,4-Difluorobenzene	114	5.785	5.786	(1.000)	167481	10.0000	
	38	Dibromomethane	93	6.062	6.057	(1.048)	33369	10.0153	10.015
	39	1,2-Dichloropropane	63	6.125	6.126	(1.059)	83461	9.66316	9.663
	40	Bromodichloromethane	83	6.173	6.174	(1.067)	85099	9.87346	9.873
	173	2-Pentanone	86	6.402	6.408	(1.107)	34787	55.8421	55.842
	41	2-Chloroethyl Vinyl Ether	63	6.577	6.578	(1.137)	35782	9.77015	9.770
	42	Cis 1,3-dichloropropene	75	6.614	6.615	(1.143)	114571	10.3994	10.399
$	43	d8-Toluene	98	6.737	6.738	(1.164)	104010	5.13351	5.134(R)
	44	Toluene	92	6.774	6.775	(1.171)	180922	9.68046	9.680
	46	Tetrachloroethene	166	7.040	7.041	(0.901)	89657	9.97057	9.971
	45	4-Methyl-2-Pentanone	58	7.040	7.041	(1.217)	131547	53.4886	53.489(M)
	47	Trans 1,3-Dichloropropene	75	7.061	7.062	(1.220)	93793	10.0812	10.081
	48	1,1,2-Trichloroethane	97	7.178	7.173	(1.241)	50530	9.86040	9.860
	49	Chlorodibromomethane	129	7.300	7.296	(0.934)	61868	9.62371	9.624
	50	1,3-Dichloropropane	76	7.364	7.365	(0.942)	91339	9.79079	9.791
	51	1,2-Dibromoethane	107	7.460	7.460	(1.289)	49546	9.76634	9.766
	52	2-Hexanone	43	7.619	7.620	(0.975)	245775	52.7324	52.732
*	53	d5-Chlorobenzene	117	7.816	7.811	(1.000)	173229	10.0000	
	54	Chlorobenzene	112	7.826	7.827	(1.001)	217891	9.76391	9.764
	55	Ethyl Benzene	106	7.842	7.843	(1.003)	120476	9.88801	9.888
	56	1,1,1,2-Tetrachloroethane	131	7.869	7.870	(1.007)	78474	9.77973	9.780
	57	m,p-xylene	106	7.943	7.944	(1.016)	292202	19.4751	19.475
	58	o-Xylene	106	8.246	8.247	(1.055)	148250	9.78769	9.788
	59	Styrene	104	8.284	8.284	(1.060)	234472	10.0002	10.000
	60	Bromoform	173	8.310	8.311	(0.875)	40529	10.2771	10.277
	61	Isopropyl Benzene	105	8.470	8.470	(0.891)	383736	9.84828	9.848
$	62	4-Bromofluorobenzene	174	8.682	8.678	(1.111)	41302	5.01755	5.018(R)
	63	Bromobenzene	156	8.757	8.757	(0.922)	103268	9.74288	9.743
	64	N-Propyl Benzene	91	8.767	8.768	(0.923)	454050	10.1601	10.160
	65	1,1,2,2-Tetrachloroethane	83	8.826	8.827	(0.929)	68037	10.0913	10.091
	66	2-Chloro Toluene	91	8.884	8.885	(0.935)	308985	9.72646	9.726
	67	1,3,5-Trimethyl Benzene	105	8.911	8.912	(0.938)	344666	10.0489	10.049
	68	1,2,3-Trichloropropane	110	8.927	8.928	(0.940)	20678	9.23808	9.238
	69	Trans-1,4-Dichloro 2-Butene	53	8.953	8.954	(0.942)	22875	9.44456	9.445
	70	4-Chloro Toluene	91	9.006	9.007	(0.948)	293277	9.96567	9.966
	71	T-Butyl Benzene	119	9.145	9.145	(0.963)	290478	10.0298	10.030
	72	1,2,4-Trimethylbenzene	105	9.198	9.199	(0.968)	346147	9.95483	9.955
	73	S-Butyl Benzene	105	9.278	9.278	(0.977)	416970	10.2988	10.299
	74	4-Isopropyl Toluene	119	9.384	9.385	(0.988)	370888	10.2082	10.208
	75	1,3-Dichlorobenzene	146	9.442	9.443	(0.994)	215103	9.65967	9.660
*	76	d4-1,4-Dichlorobenzene	152	9.501	9.496	(1.000)	109692	10.0000	
	77	1,4-Dichlorobenzene	146	9.511	9.512	(1.001)	218078	9.80618	9.806
	78	N-Butyl Benzene	91	9.697	9.698	(1.021)	321741	10.3470	10.347
$	79	d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	50921	4.94062	4.941(R)
	80	1,2-Dichlorobenzene	146	9.825	9.826	(1.034)	199337	9.59815	9.598
	81	1,2-Dibromo 3-Chloropropane	75	10.436	10.437	(1.098)	11883	9.40698	9.407
	83	Hexachloro 1,3-Butadiene	225	10.936	10.937	(1.151)	63401	10.6916	10.692
	84	1,2,4-Trichlorobenzene	180	10.963	10.963	(1.154)	150959	10.3335	10.333
	85	Naphthalene	128	11.218	11.218	(1.181)	250589	10.2960	10.296
	86	1,2,3-Trichlorobenzene	180	11.361	11.362	(1.196)	122177	10.2724	10.272

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051905.D
Lab Smp Id: BHI0133-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 05-SEP-2019
Calibration Time: 12:30
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	114506	18.17
37 1,4-Difluorobenze	140121	70061	280242	167481	19.53
53 d5-Chlorobenzene	140128	70064	280256	173229	23.62
76 d4-1,4-Dichlorobe	90137	45069	180274	109692	21.69

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.11
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.82	0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0133-BSD1
Level: Operator: PKC
Data Type: MS DATA SampleType: LCS
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

SPIKE	COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
1	Dichlorodifluorome	10.000	10.532	105.32	
2	Chloromethane	10.000	9.915	99.15	
3	Vinyl Chloride	10.000	9.789	97.89	
4	Bromomethane	10.000	10.086	100.86	
5	Chloroethane	10.000	9.310	93.10	
6	Trichlorofluoromet	10.000	10.086	100.86	
7	1,1-Dichloroethene	10.000	9.699	96.99	
8	Carbon Disulfide	10.000	9.996	99.96	
9	112Trichloro122Tri	10.000	10.117	101.17	
10	Iodomethane	10.000	10.093	100.93	
11	Bromoethane	10.000	9.088	90.88	
12	Acrolein	50.000	49.714	99.43	
13	Methylene Chloride	10.000	10.855	108.55	
14	Acetone	50.000	53.241	106.48	
15	Trans-1,2-Dichloro	10.000	9.549	95.49	
17	Methyl tert butyl	10.000	10.062	100.62	
18	1,1-Dichloroethane	10.000	9.814	98.14	
19	Acrylonitrile	10.000	10.671	106.71	
20	Vinyl Acetate	10.000	9.771	97.71	
22	Cis-1,2-Dichloroet	10.000	9.708	97.08	
23	2,2-Dichloropropan	10.000	10.258	102.58	
24	Bromochloromethane	10.000	10.002	100.02	
25	Chloroform	10.000	10.00	100.00	
26	Carbon Tetrachlori	10.000	9.909	99.09	
28	1,1,1-Trichloroeth	10.000	9.770	97.70	
30	1,1-Dichloropropen	10.000	9.790	97.90	
29	2-Butanone	50.000	53.927	107.85	
31	Benzene	10.000	9.798	97.98	
34	1,2-Dichloroethane	10.000	9.577	95.77	
36	Trichloroethene	10.000	10.383	103.83	
38	Dibromomethane	10.000	10.015	100.15	
39	1,2-Dichloropropan	10.000	9.663	96.63	
40	Bromodichlorometha	10.000	9.873	98.73	
173	2-Pentanone	50.000	55.842	111.68	
41	2-Chloroethyl Viny	10.000	9.770	97.70	
42	Cis 1,3-dichloropr	10.000	10.399	103.99	
44	Toluene	10.000	9.680	96.80	
46	Tetrachloroethene	10.000	9.971	99.71	
45	4-Methyl-2-Pentano	50.000	53.489	106.98	
47	Trans 1,3-Dichloro	10.000	10.081	100.81	

	SPIKE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
48	1,1,2-Trichloroeth	10.000	9.860	98.60	
49	Chlorodibromometha	10.000	9.624	96.24	
50	1,3-Dichloropropan	10.000	9.791	97.91	
51	1,2-Dibromoethane	10.000	9.766	97.66	
52	2-Hexanone	50.000	52.732	105.46	
54	Chlorobenzene	10.000	9.764	97.64	
55	Ethyl Benzene	10.000	9.888	98.88	
56	1,1,1,2-Tetrachlor	10.000	9.780	97.80	
57	m,p-xylene	20.000	19.475	97.38	
58	o-Xylene	10.000	9.788	97.88	
59	Styrene	10.000	10.000	100.00	
60	Bromoform	10.000	10.277	102.77	
61	Isopropyl Benzene	10.000	9.848	98.48	
63	Bromobenzene	10.000	9.743	97.43	
64	N-Propyl Benzene	10.000	10.160	101.60	
65	1,1,2,2-Tetrachlor	10.000	10.091	100.91	
66	2-Chloro Toluene	10.000	9.726	97.26	
67	1,3,5-Trimethyl Be	10.000	10.049	100.49	
68	1,2,3-Trichloropro	10.000	9.238	92.38	
69	Trans-1,4-Dichloro	10.000	9.445	94.45	
70	4-Chloro Toluene	10.000	9.966	99.66	
71	T-Butyl Benzene	10.000	10.030	100.30	
72	1,2,4-Trimethylben	10.000	9.955	99.55	
73	S-Butyl Benzene	10.000	10.299	102.99	
74	4-Isopropyl Toluen	10.000	10.208	102.08	
75	1,3-Dichlorobenzen	10.000	9.660	96.60	
77	1,4-Dichlorobenzen	10.000	9.806	98.06	
78	N-Butyl Benzene	10.000	10.347	103.47	
80	1,2-Dichlorobenzen	10.000	9.598	95.98	
81	1,2-Dibromo 3-Chlo	10.000	9.407	94.07	
83	Hexachloro 1,3-But	10.000	10.692	106.92	
84	1,2,4-Trichloroben	10.000	10.333	103.33	
85	Naphthalene	10.000	10.296	102.96	
86	1,2,3-Trichloroben	10.000	10.272	102.72	

	SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27	Dibromofluorometha	5.000	5.133	102.65	
$ 33	d4-1,2-Dichloroeth	5.000	4.979	99.59	
$ 43	d8-Toluene	5.000	5.134	102.67	
$ 62	4-Bromofluorobenze	5.000	5.018	100.35	
$ 79	d4-1,2-Dichloroben	5.000	4.941	98.81	

REVIEW SUMMARY FOR FILE - V309051905.D

Lab ID: BHI0133-BSD1
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 12:57

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.679	0.685	-0.0063	Acetone

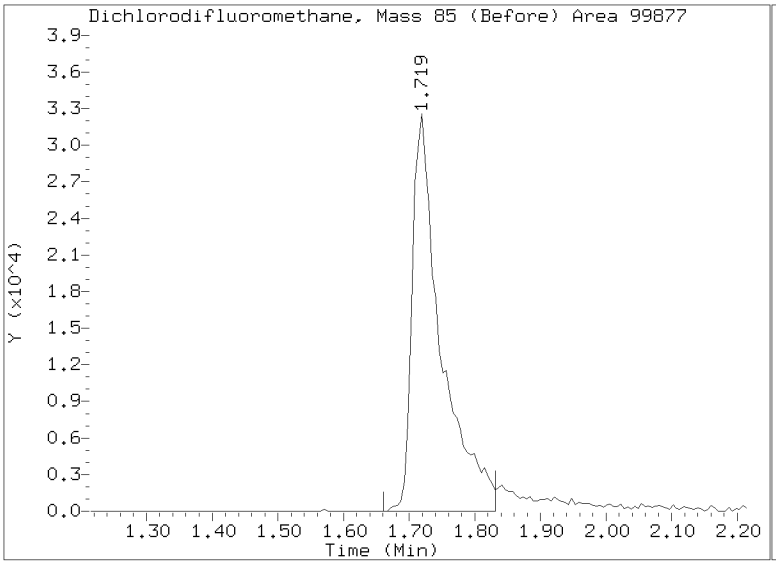
RRT check based on Ccal File: V309051904.D

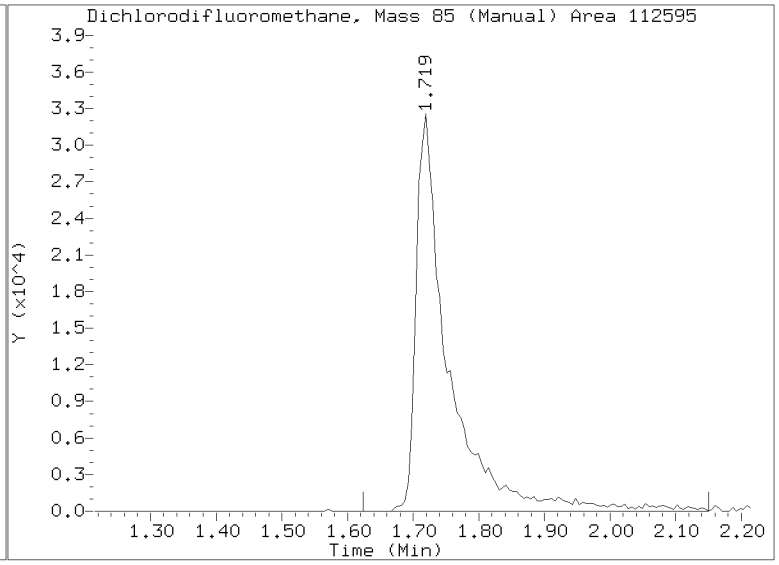
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

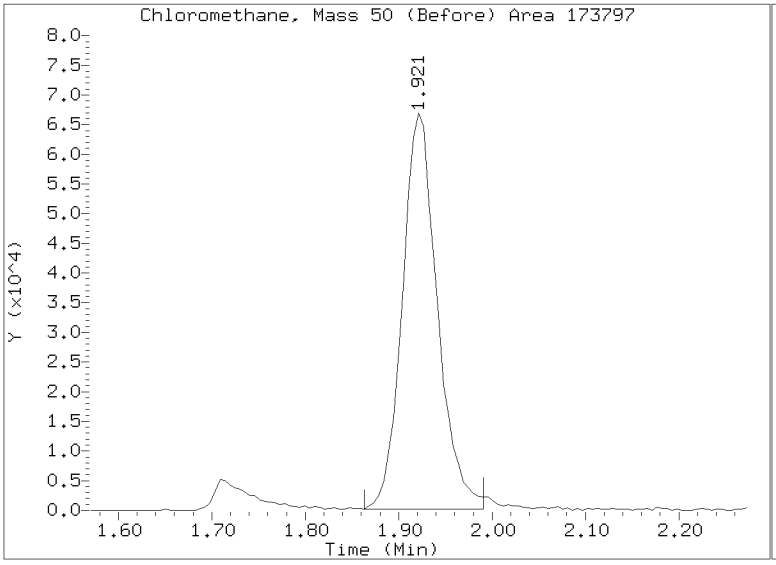
* Only compounds listed in the work order have been verified by the analyst *

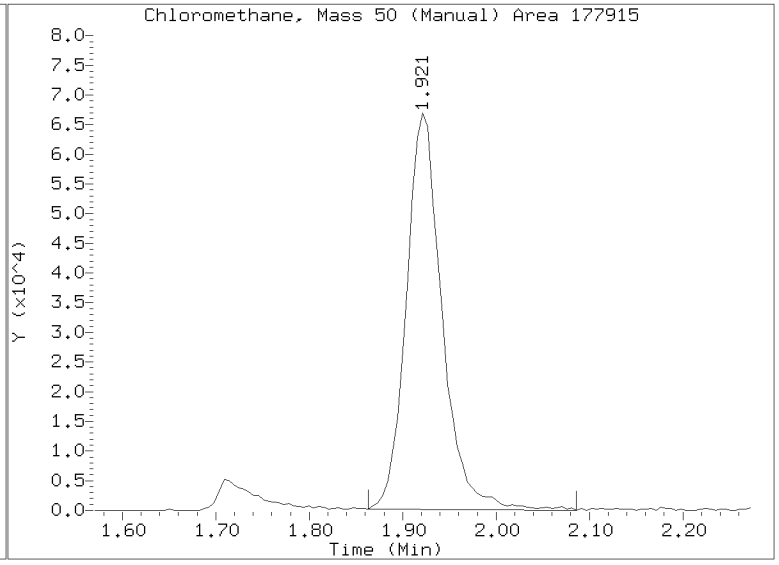
Quant Ion Manual Peak Adjustment Report

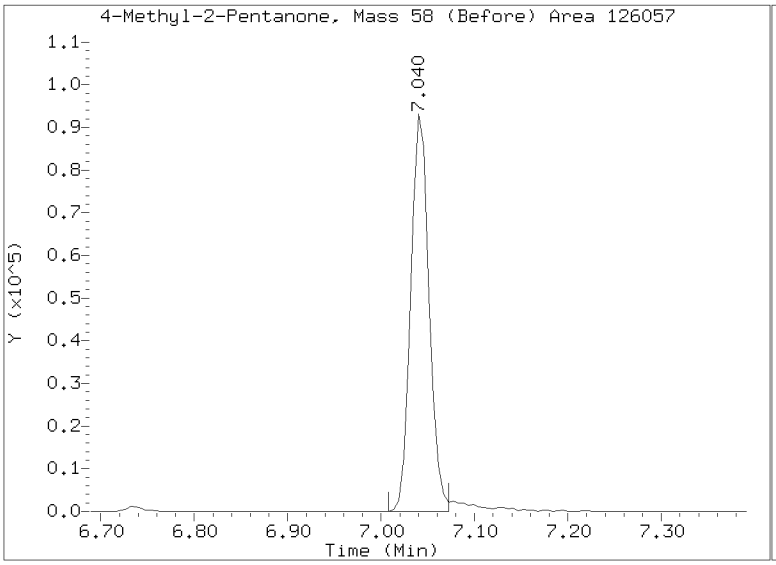
Datafile: //target/share/chem1/nt3.i/20190905.b/V309051905.D
Injection Date: 05-SEP-2019 12:57
Lab ID:BHI0133-BSD1 Client ID:
Report Date: 09/06/2019 14:36

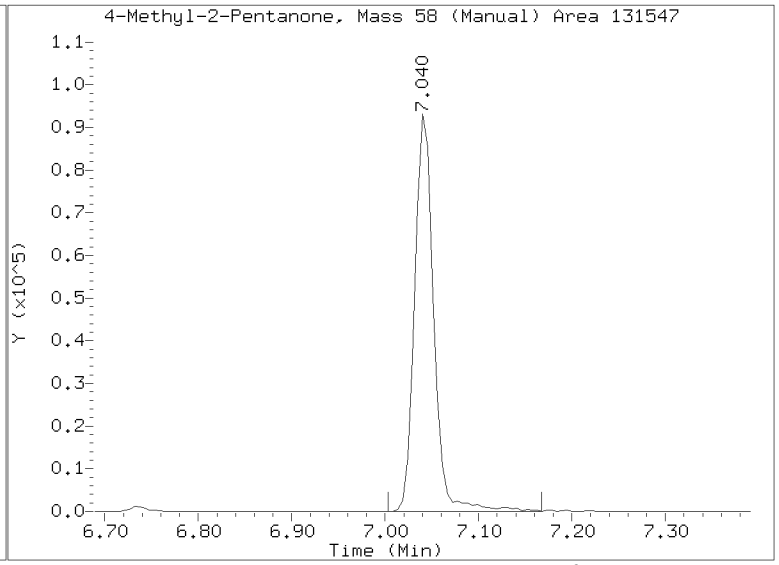












Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	NT508201902.D	Injection Date:	08/20/19
Instrument ID:	NT5	Injection Time:	11:37
Sequence:	SHH0255	Lab Sample ID:	SHH0255-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.1	PASS
75	30 - 80% of 95	51.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.53	PASS
173	Less than 2% of 174	0	PASS
174	50 - 120% of 95	94.9	PASS
175	5 - 9% of 174	7.29	PASS
176	95 - 101% of 174	95.1	PASS
177	5 - 9% of 176	6.36	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHH0255-TUN1	NT508201902.D	08/20/2019	11:37
Cal Standard	SHH0255-CAL1	NT508201904.D	08/20/2019	13:53
Cal Standard	SHH0255-CAL2	NT508201905.D	08/20/2019	14:15
Cal Standard	SHH0255-CAL3	NT508201906.D	08/20/2019	14:37
Cal Standard	SHH0255-CAL4	NT508201907.D	08/20/2019	14:59
Cal Standard	SHH0255-CAL5	NT508201908.D	08/20/2019	15:21
Cal Standard	SHH0255-CAL6	NT508201909.D	08/20/2019	15:44
Cal Standard	SHH0255-CAL7	NT508201910.D	08/20/2019	16:06
Cal Standard	SHH0255-CAL8	NT508201911.D	08/20/2019	16:29
Secondary Cal Check	SHH0255-SCV1	NT508211903.D	08/21/2019	12:47

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8260C

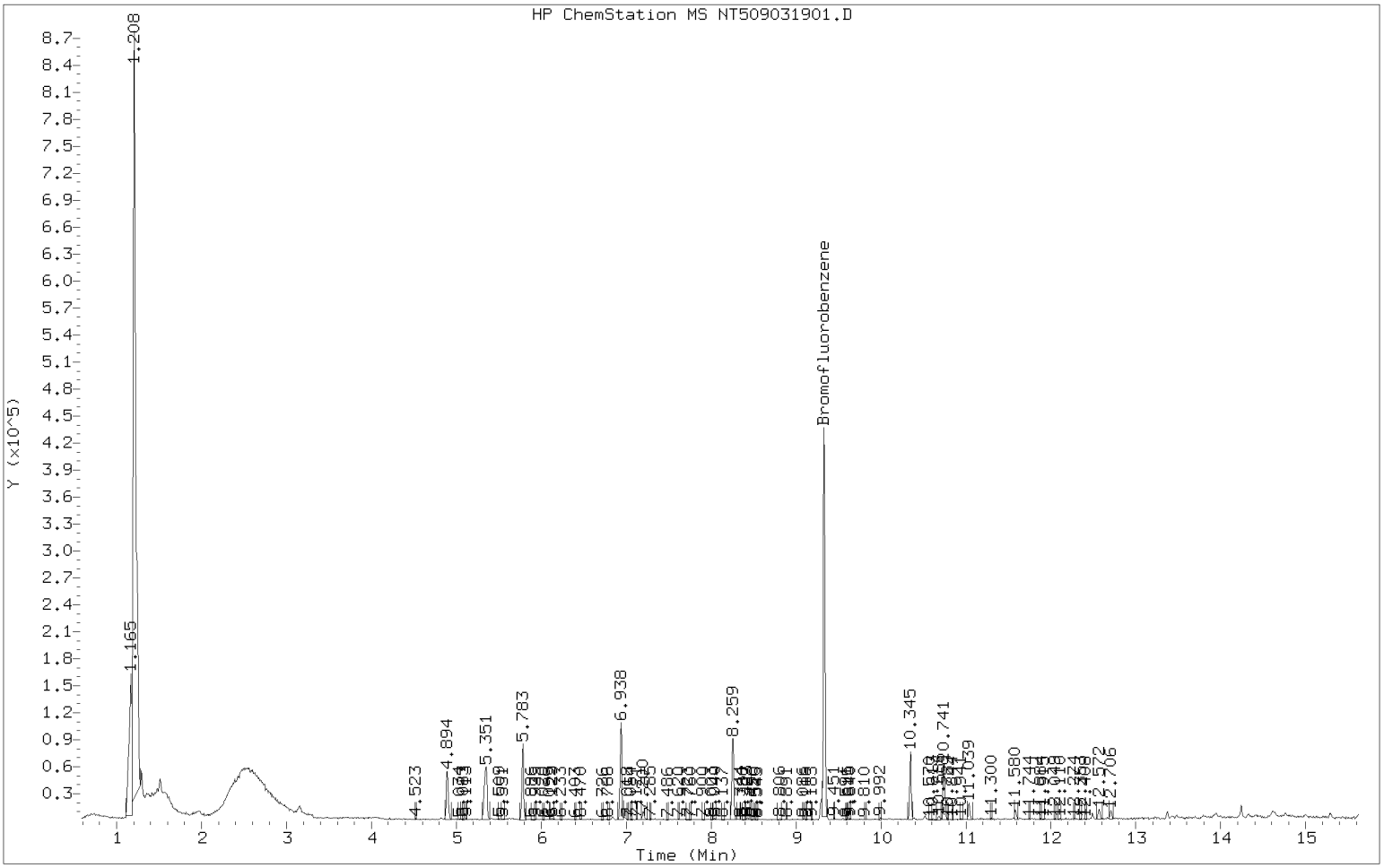
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	NT509031901.D	Injection Date:	09/03/19
Instrument ID:	NT5	Injection Time:	11:26
Sequence:	SHI0046	Lab Sample ID:	SHI0046-TUN1

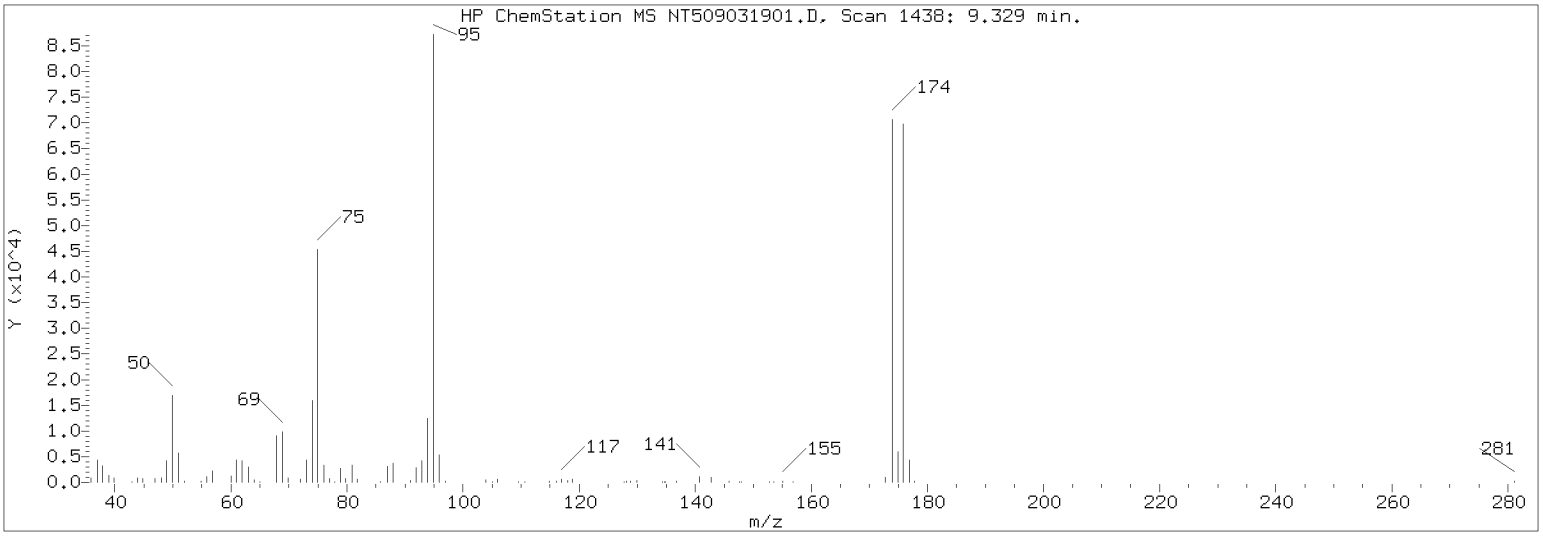
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19	PASS
75	30 - 80% of 95	51.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.25	PASS
173	Less than 2% of 174	0.538	PASS
174	50 - 120% of 95	83.8	PASS
175	5 - 9% of 174	7.76	PASS
176	95 - 101% of 174	98	PASS
177	5 - 9% of 176	6.1	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0046-TUN1	NT509031901.D	09/03/2019	11:26
LCS	BHI0056-BS1	NT509031902A.D	09/03/2019	12:38
LCS	BHI0057-BS1	NT509031902B.D	09/03/2019	12:38
Initial Cal Check	SHI0046-ICV1	NT509031902.D	09/03/2019	12:38
LCS Dup	BHI0056-BSD1	NT509031903.D	09/03/2019	13:27
LCS Dup	BHI0057-BSD1	NT509031903A.D	09/03/2019	13:27
Blank	BHI0057-BLK1	NT509031904A.D	09/03/2019	13:48
Blank	BHI0056-BLK1	NT509031904.D	09/03/2019	13:48
ZZZZZ	19H0393-01	NT509031905.D	09/03/2019	14:44
ZZZZZ	19H0393-01RE1	NT509031906.D	09/03/2019	15:06
ZZZZZ	19H0394-01	NT509031907.D	09/03/2019	15:27
ZZZZZ	19H0394-01RE1	NT509031908.D	09/03/2019	15:50
ZZZZZ	19H0460-01	NT509031910.D	09/03/2019	16:15
ZZZZZ	19H0460-01	NT509031910.D	09/03/2019	16:37
ZZZZZ	19H0461-01	NT509031911.D	09/03/2019	16:59
ZZZZZ	19H0461-02	NT509031912.D	09/03/2019	17:21
ZZZZZ	19H0461-03	NT509031913.D	09/03/2019	17:43
ZZZZZ	19H0461-04	NT509031914.D	09/03/2019	18:05
ZZZZZ	19H0461-05	NT509031915.D	09/03/2019	18:27
ZZZZZ	19H0462-01	NT509031916.D	09/03/2019	18:49
ZZZZZ	19H0462-02	NT509031917.D	09/03/2019	19:11
ZZZZZ	19H0420-01	NT509031918.D	09/03/2019	19:33
P40-UST-01-4.5'-083019	19H0481-06	NT509031919.D	09/03/2019	19:55
P40-UST-01-9'-083019	19H0481-08	NT509031920.D	09/03/2019	20:17
P40-UST-02-4.5'-083019	19H0481-12	NT509031921.D	09/03/2019	20:38
P40-UST-02-9'-083019	19H0481-14	NT509031922.D	09/03/2019	21:00
P40-UST-03-4.5'-083019	19H0481-18	NT509031923.D	09/03/2019	21:22
Calibration Check	SHI0046-CCV1	NT509031925.D	09/03/2019	22:06

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190903.b/NT509031901.D
Method Used: \20190903.b\bfb8260.m Inst: nt5
Injection Date: 03-SEP-2019 11:26 Operator: PB
Sample Info: shi0046-TUN1 TUN1
Report Date: 09/04/2019 16:34





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.04
75	30.00 - 60.00% of mass 95	51.80
96	5.00 - 9.00% of mass 95	6.25
173	Less than 2.00% of mass 174	0.45 (0.54)
174	50.00 - 100.00% of mass 95	83.83
175	5.00 - 9.00% of mass 174	6.50 (7.76)
176	95.00 - 101.00% of mass 174	82.18 (98.02)
177	5.00 - 9.00% of mass 176	5.01 (6.10)

Data File: NT509031901.D
Spectrum: Avg. Scans 1437-1439 (9.33), Background Scan 1433
Location of Maximum: 95.00
Number of points: 86

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	656	63.00	2676	91.00	430	135.00	188
37.00	3795	64.00	430	92.00	2342	137.00	69
38.00	3168	65.00	60	93.00	3371	141.00	1129
39.00	1261	67.00	196	94.00	9621	142.00	63
41.00	122	68.00	7578	95.00	74776	143.00	1075
42.00	70	69.00	8016	96.00	4670	145.00	60
43.00	169	70.00	724	97.00	72	146.00	177
44.00	506	72.00	549	104.00	427	148.00	153
45.00	565	73.00	3205	105.00	115	153.00	117
47.00	725	74.00	13147	106.00	414	154.00	58
48.00	634	75.00	38736	107.00	62	155.00	234
49.00	3259	76.00	2970	109.00	57	157.00	104
50.00	14238	77.00	616	111.00	112	159.00	64
51.00	4238	78.00	260	113.00	50	171.00	76
52.00	211	79.00	2153	115.00	71	173.00	337
55.00	233	80.00	728	116.00	280	174.00	62688
56.00	1057	81.00	2683	117.00	528	175.00	4863
57.00	1909	82.00	542	118.00	240	176.00	61448
58.00	64	83.00	71	119.00	189	177.00	3749
60.00	992	86.00	147	128.00	249	178.00	122
61.00	3770	87.00	2862	129.00	86		
62.00	3593	88.00	2634	130.00	315		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8260C

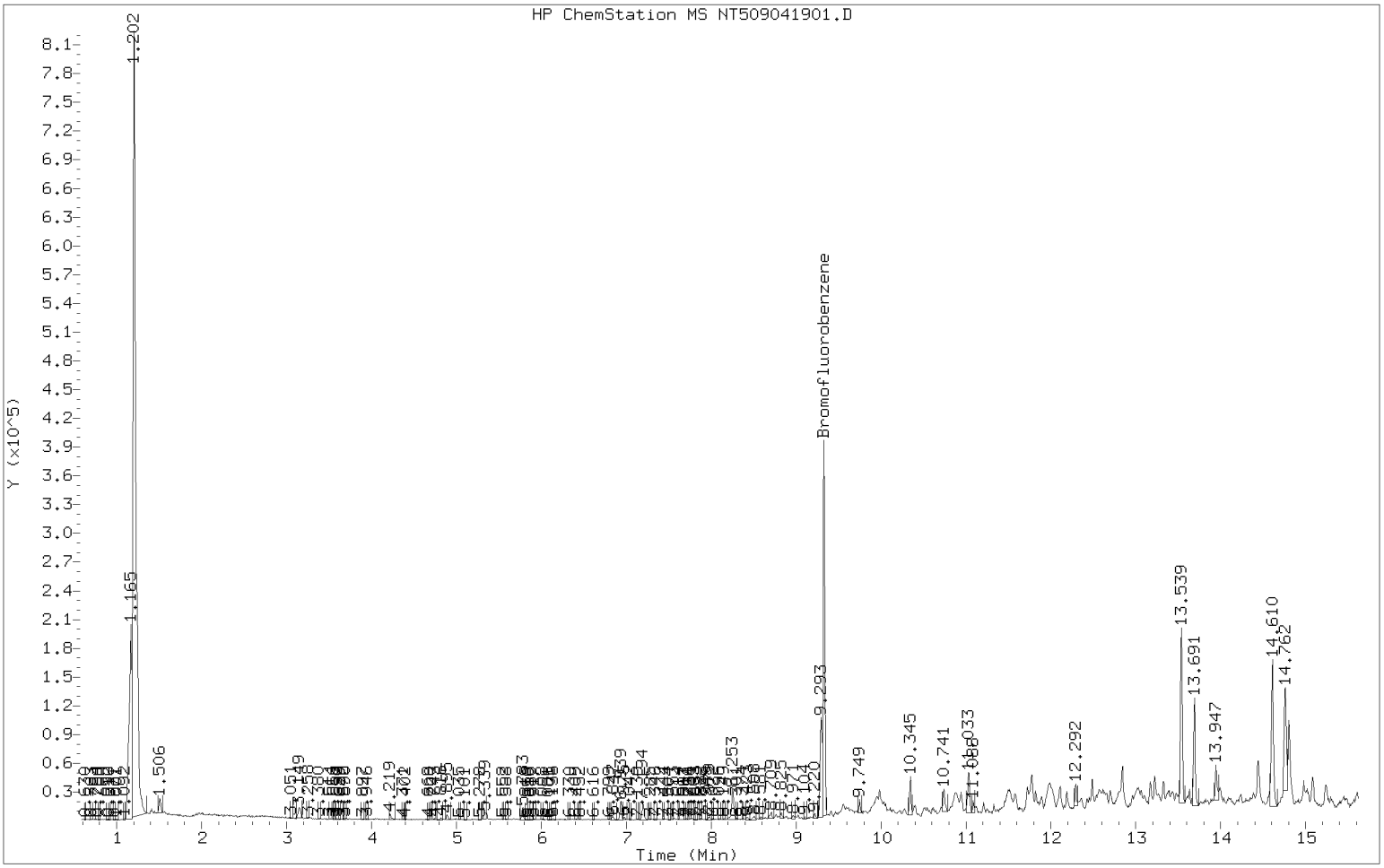
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	NT509041901.D	Injection Date:	09/04/19
Instrument ID:	NT5	Injection Time:	12:39
Sequence:	SHI0061	Lab Sample ID:	SHI0061-TUN1

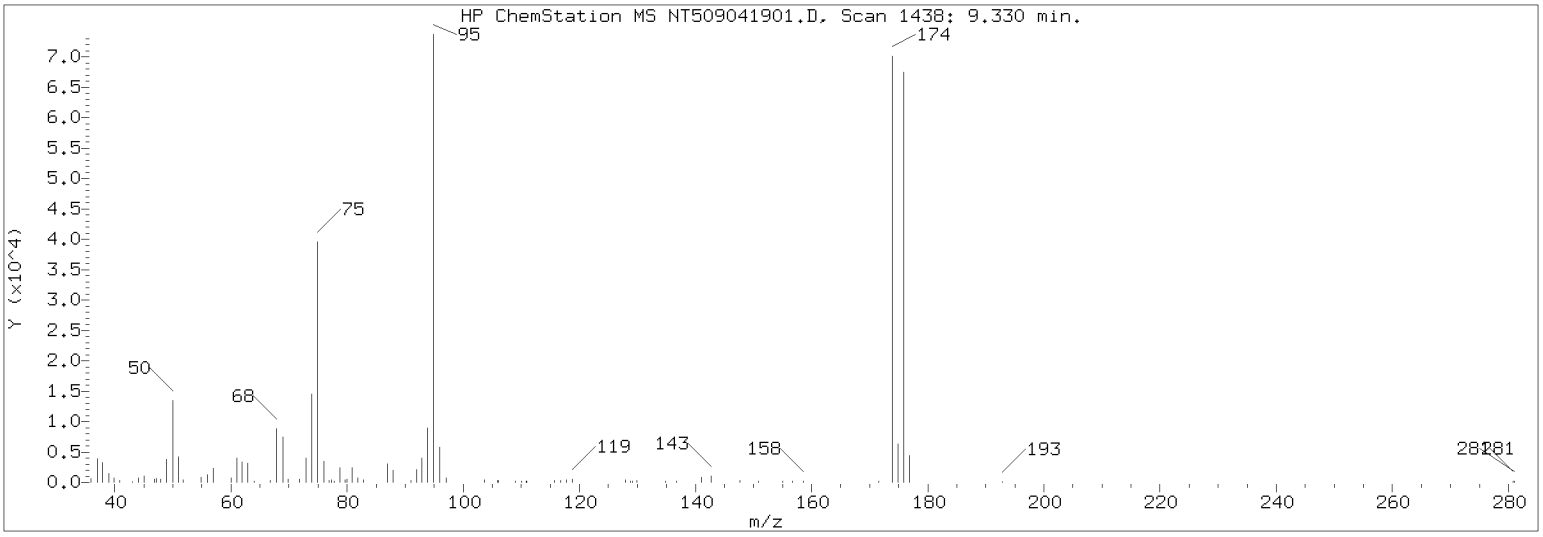
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	17.1	PASS
75	30 - 80% of 95	50.8	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.22	PASS
173	Less than 2% of 174	0	PASS
174	50 - 120% of 95	88.9	PASS
175	5 - 9% of 174	8.35	PASS
176	95 - 101% of 174	96.4	PASS
177	5 - 9% of 176	6.87	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0061-TUN1	NT509041901.D	09/04/2019	12:39
LCS	BHI0097-BS1	NT509041903A.D	09/04/2019	14:02
LCS	BHI0098-BS1	NT509041903B.D	09/04/2019	14:02
Initial Cal Check	SHI0061-ICV1	NT509041903.D	09/04/2019	14:02
LCS Dup	BHI0097-BSD1	NT509041904.D	09/04/2019	15:04
LCS Dup	BHI0098-BSD1	NT509041904A.D	09/04/2019	15:04
Blank	BHI0097-BLK1	NT509041905.D	09/04/2019	15:26
Blank	BHI0098-BLK1	NT509041905A.D	09/04/2019	15:26
ZZZZZ	19I0001-01	NT509041906.D	09/04/2019	16:14
ZZZZZ	19I0001-02	NT509041907.D	09/04/2019	16:36
ZZZZZ	19I0001-03	NT509041908.D	09/04/2019	16:58
P40-UST-04-4.5'-083019	19H0481-24	NT509041909.D	09/04/2019	17:36
P40-UST-04-14.5'-083019	19H0481-26	NT509041910.D	09/04/2019	17:58
P40-UST-05-4.5'-083019	19H0481-30	NT509041911.D	09/04/2019	18:20
P40-UST-505-4.5'-083019	19H0481-32	NT509041912.D	09/04/2019	18:42
P40-UST-05-11'-083019	19H0481-34	NT509041913.D	09/04/2019	19:04
P40-UST-03-8'-083019	19H0481-20	NT509041914.D	09/04/2019	19:26
Calibration Check	SHI0061-CCV1	NT509041918.D	09/04/2019	20:55

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190904.b/NT509041901.D
Method Used: \20190904.b\bfb8260.m Inst: nt5
Injection Date: 04-SEP-2019 12:39 Operator: PB
Sample Info: shi0061-TUN1 TUN1
Report Date: 09/05/2019 13:03





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.08
75	30.00 - 60.00% of mass 95	50.77
96	5.00 - 9.00% of mass 95	7.22
173	Less than 2.00% of mass 174	0.00 (0.00)
174	50.00 - 100.00% of mass 95	88.95
175	5.00 - 9.00% of mass 174	7.43 (8.35)
176	95.00 - 101.00% of mass 174	85.72 (96.37)
177	5.00 - 9.00% of mass 176	5.88 (6.87)

Data File: NT509041901.D
Spectrum: Average Spectrum: 9.323 to 9.336 min. (SUB)
Location of Maximum: 95.00
Number of points: 94

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	602	69.00	6489	104.00	91	147.00	79
37.00	3286	70.00	197	105.00	59	148.00	157
38.00	2727	71.00	51	106.00	476	150.00	56
39.00	1299	72.00	483	107.00	53	151.00	67
44.00	384	73.00	3311	109.00	75	153.00	69
45.00	703	74.00	12327	110.00	71	155.00	191
46.00	51	75.00	34048	111.00	334	156.00	57
47.00	749	76.00	3146	113.00	79	157.00	56
48.00	486	77.00	581	116.00	424	158.00	69
49.00	3038	78.00	235	117.00	497	161.00	71
50.00	11455	79.00	2180	118.00	413	164.00	52
51.00	3748	80.00	746	119.00	149	170.00	74
52.00	214	81.00	2353	123.00	59	171.00	319
54.00	57	82.00	567	128.00	369	172.00	140
55.00	152	83.00	330	129.00	192	174.00	59656
56.00	1098	87.00	2487	130.00	170	175.00	4981
57.00	1854	88.00	1746	131.00	67	176.00	57488
60.00	686	91.00	300	135.00	204	177.00	3947
61.00	3503	92.00	2025	137.00	172	193.00	51
62.00	3167	93.00	3365	141.00	854	249.00	56
63.00	2400	94.00	8304	142.00	66	281.00	513
64.00	137	95.00	67064	143.00	884	283.00	89
67.00	204	96.00	4844	145.00	122		
68.00	7219	97.00	234	146.00	163		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8260C

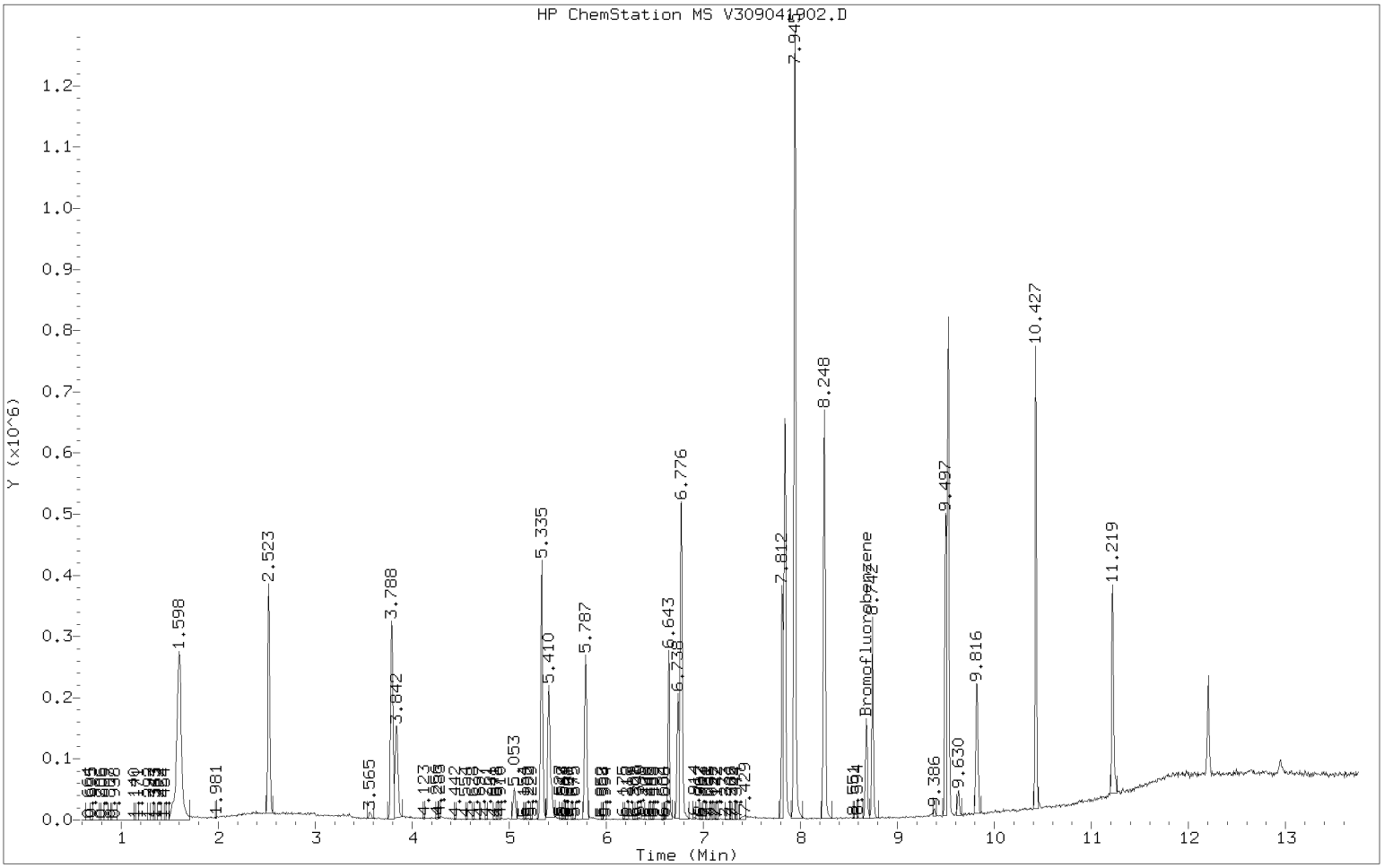
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V309041902.D	Injection Date:	09/04/19
Instrument ID:	NT3	Injection Time:	15:17
Sequence:	SHI0071	Lab Sample ID:	SHI0071-TUN1

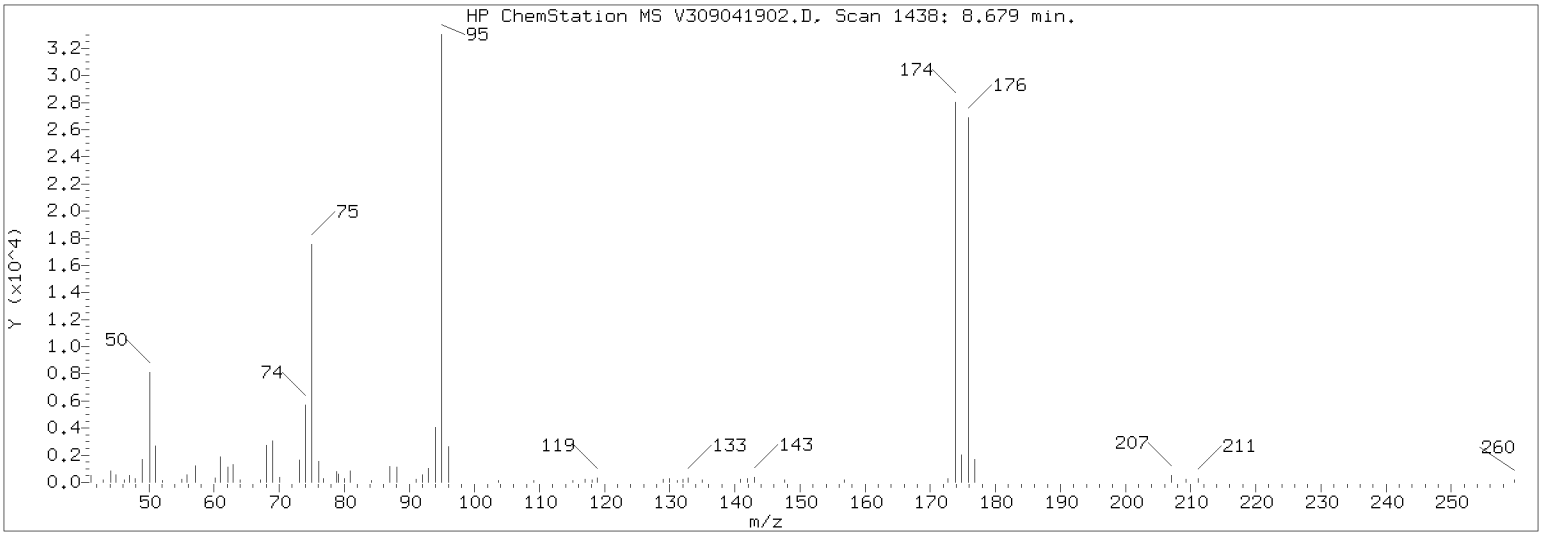
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	26	PASS
75	30 - 80% of 95	50.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.82	PASS
173	Less than 2% of 174	0.364	PASS
174	50 - 120% of 95	85.8	PASS
175	5 - 9% of 174	7.93	PASS
176	95 - 101% of 174	96.6	PASS
177	5 - 9% of 176	6.99	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0071-TUN1	V309041902.D	09/04/2019	15:17
Cal Standard	SHI0071-CAL1	V309041905.D	09/04/2019	17:27
Cal Standard	SHI0071-CAL2	V309041906.D	09/04/2019	17:54
Cal Standard	SHI0071-CAL3	V309041907.D	09/04/2019	18:21
Cal Standard	SHI0071-CAL4	V309041908.D	09/04/2019	18:48
Cal Standard	SHI0071-CAL5	V309041909.D	09/04/2019	19:15
Cal Standard	SHI0071-CAL6	V309041910.D	09/04/2019	19:41
Cal Standard	SHI0071-CAL7	V309041911.D	09/04/2019	20:08
Cal Standard	SHI0071-CAL8	V309041912.D	09/04/2019	20:35
Initial Cal Blank	SHI0071-ICB1	V309041913.D	09/04/2019	21:01
Secondary Cal Check	SHI0071-SCV1	V309041914.D	09/04/2019	21:28

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190904.b/V309041902.D
Method Used: \20190904.b\bfb8260.m Inst: nt3
Injection Date: 04-SEP-2019 15:17 Operator: PKC
Sample Info: SHI0071-TUN1 SHI0071-TUN1
Report Date: 09/06/2019 09:20





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.97
75	30.00 - 60.00% of mass 95	50.38
96	5.00 - 9.00% of mass 95	5.82
173	Less than 2.00% of mass 174	0.31 (0.36)
174	50.00 - 100.00% of mass 95	85.79
175	5.00 - 9.00% of mass 174	6.80 (7.93)
176	95.00 - 101.00% of mass 174	82.91 (96.64)
177	5.00 - 9.00% of mass 176	5.79 (6.99)

Data File: V309041902.D
Spectrum: Avg. Scans 1437-1439 (8.68), Background Scan 1431
Location of Maximum: 95.00
Number of points: 81

m/z	Y	m/z	Y	m/z	Y	m/z	Y
41.00	179	69.00	2507	96.00	1698	147.00	139
44.00	385	70.00	311	98.00	108	155.00	54
45.00	559	72.00	166	104.00	104	157.00	115
46.00	128	73.00	1552	109.00	52	159.00	51
47.00	617	74.00	4500	115.00	51	161.00	60
48.00	263	75.00	14691	117.00	136	173.00	91
49.00	1616	76.00	1206	118.00	59	174.00	25016
50.00	7574	77.00	71	119.00	163	175.00	1983
51.00	2177	78.00	149	128.00	129	176.00	24176
52.00	51	79.00	937	129.00	143	177.00	1689
53.00	53	80.00	287	130.00	150	192.00	65
55.00	178	81.00	807	131.00	124	209.00	194
56.00	495	84.00	51	132.00	73	211.00	66
57.00	895	86.00	58	133.00	106	235.00	54
60.00	325	87.00	1135	135.00	124	241.00	59
61.00	1470	88.00	1137	137.00	104	242.00	51
62.00	1119	91.00	71	138.00	81	260.00	62
63.00	1019	92.00	746	141.00	305	265.00	51
64.00	69	93.00	897	142.00	96		
67.00	66	94.00	3615	143.00	415		
68.00	2781	95.00	29160	146.00	53		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V309051903.D	Injection Date:	09/05/19
Instrument ID:	NT3	Injection Time:	11:49
Sequence:	SHI0085	Lab Sample ID:	SHI0085-TUN1

m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	24.9	PASS
75	30 - 80% of 95	47.6	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.25	PASS
173	Less than 2% of 174	0.25	PASS
174	50 - 120% of 95	90.9	PASS
175	5 - 9% of 174	6.64	PASS
176	95 - 101% of 174	97	PASS
177	5 - 9% of 176	7.37	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0085-TUN1	V309051903.D	09/05/2019	11:49
LCS	BHI0133-BS1	V309051904LCS.D	09/05/2019	12:30
Initial Cal Check	SHI0085-ICV1	V309051904.D	09/05/2019	12:30
LCS Dup	BHI0133-BSD1	V309051905.D	09/05/2019	12:57
Blank	BHI0133-BLK1	V309051908.D	09/05/2019	14:16
ZZZZZ	19H0426-08	V309051909.D	09/05/2019	14:43
P40-UST-TB-083019	19H0481-05	V309051910.D	09/05/2019	15:10
ZZZZZ	19H0429-04	V309051911.D	09/05/2019	15:37
ZZZZZ	19H0429-05	V309051912.D	09/05/2019	16:04
ZZZZZ	19H0429-06	V309051913.D	09/05/2019	16:31
ZZZZZ	19H0429-07	V309051914.D	09/05/2019	17:08
ZZZZZ	19H0426-04	V309051915.D	09/05/2019	17:35
ZZZZZ	19H0426-05	V309051916.D	09/05/2019	18:02
ZZZZZ	19H0426-07	V309051918.D	09/05/2019	18:55
P40-UST-01-083019	19H0481-01	V309051919.D	09/05/2019	19:21
P40-UST-101-083019	19H0481-03	V309051920.D	09/05/2019	19:48
P40-UST-02-083019	19H0481-10	V309051921.D	09/05/2019	20:15
P40-UST-03-083019	19H0481-16	V309051922.D	09/05/2019	20:41
P40-UST-04-083019	19H0481-22	V309051923.D	09/05/2019	21:08
P40-UST-05-083019	19H0481-28	V309051924.D	09/05/2019	21:35
Calibration Check	SHI0085-CCV1	V309051928.D	09/05/2019	23:22

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051903.D

Date : 05-SEP-2019 11:49

Client ID:

Instrument: nt3.i

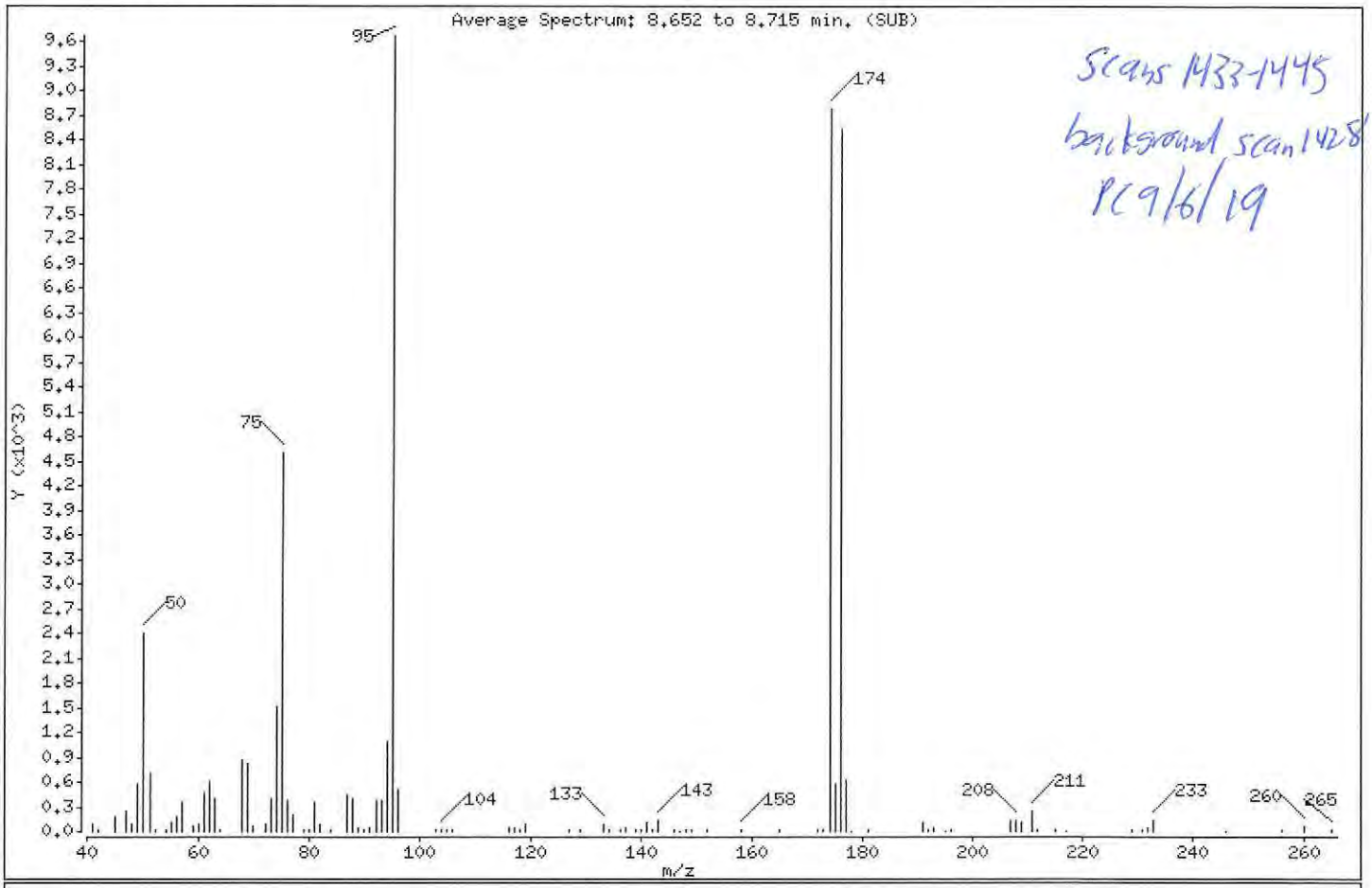
Sample Info: SHI0085-TUN1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18

1 Bromofluorobenzene



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	24.90
75	30.00 - 60.00% of mass 95	47.59
96	5.00 - 9.00% of mass 95	5.25
173	Less than 2.00% of mass 174	0.23 (0.25)
174	50.00 - 100.00% of mass 95	90.89
175	5.00 - 9.00% of mass 174	6.04 (6.64)
176	95.00 - 101.00% of mass 174	88.18 (97.02)
177	5.00 - 9.00% of mass 176	6.50 (7.37)

Date : 05-SEP-2019 11:49

Client ID:

Instrument: nt3.i

Sample Info: SHI0085-TUN1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18

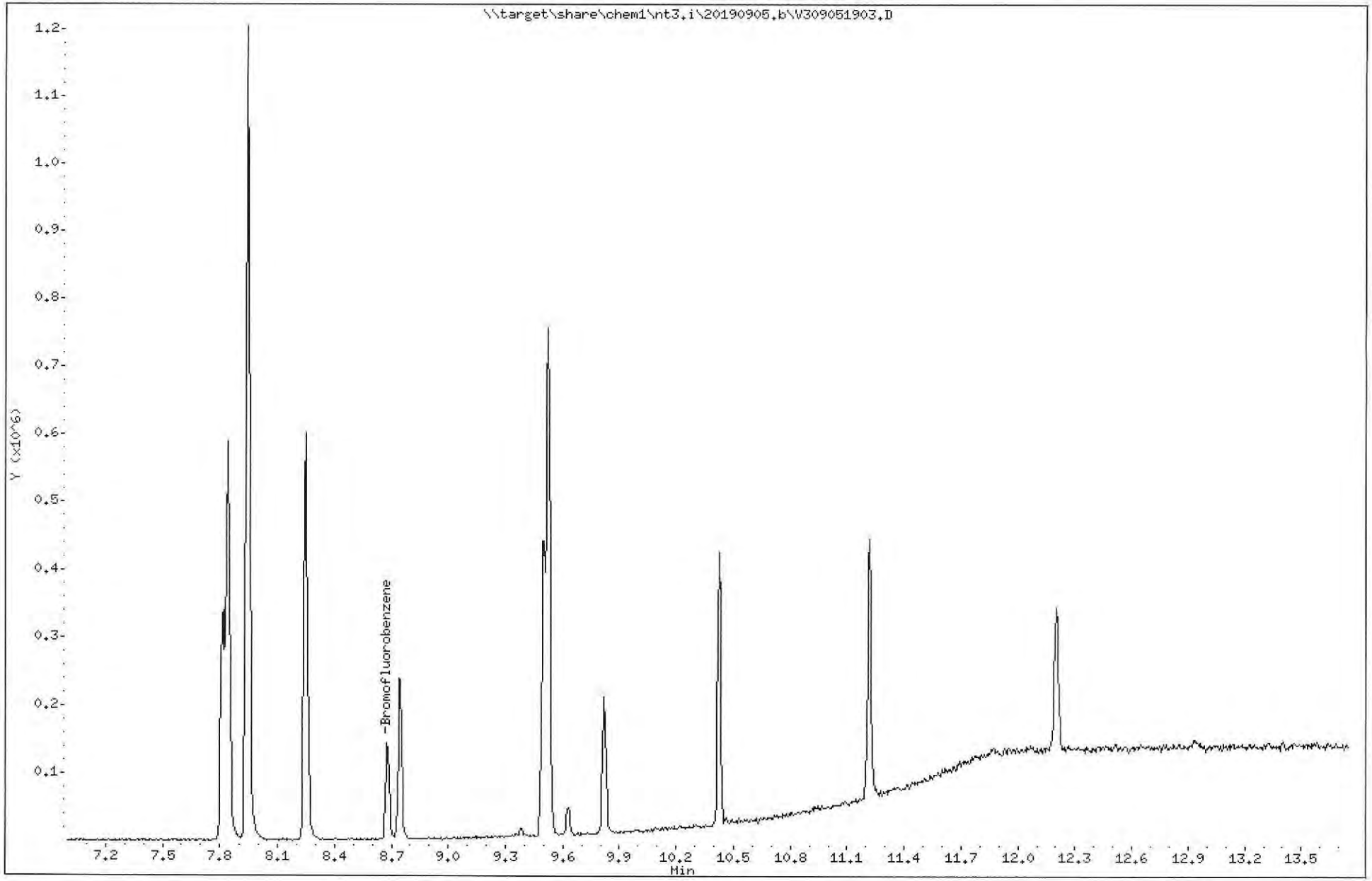
Data File: W309051903.D
Spectrum: Average Spectrum: 8.652 to 8.715 min. (SUB)
Location of Maximum: 95.00
Number of points: 97

m/z	Y	m/z	Y	m/z	Y	m/z	Y
41.00	90	75.00	4604	119.00	79	178.00	11
42.00	12	76.00	372	127.00	12	181.00	25
45.00	170	77.00	207	129.00	30	191.00	114
47.00	245	79.00	21	133.00	89	192.00	13
48.00	92	80.00	33	134.00	12	193.00	47
49.00	583	81.00	345	136.00	14	195.00	11
50.00	2409	82.00	87	137.00	36	196.00	12
51.00	719	84.00	20	139.00	12	207.00	128
52.00	24	87.00	453	140.00	16	208.00	135
54.00	12	88.00	398	141.00	121	209.00	104
55.00	102	89.00	42	142.00	21	211.00	252
56.00	183	90.00	12	143.00	135	212.00	14
57.00	348	91.00	42	146.00	14	215.00	28
59.00	72	92.00	367	147.00	11	217.00	11
60.00	89	93.00	380	148.00	32	229.00	13
61.00	458	94.00	1092	149.00	14	231.00	16
62.00	592	95.00	9674	152.00	12	232.00	44
63.00	391	96.00	508	158.00	15	233.00	133
64.00	14	103.00	12	165.00	12	246.00	11
68.00	866	104.00	30	172.00	24	256.00	13
69.00	819	105.00	17	173.00	22	260.00	77
70.00	70	106.00	13	174.00	8793	265.00	12
72.00	91	116.00	42	175.00	584		
73.00	390	117.00	50	176.00	8531		
74.00	1507	118.00	26	177.00	629		

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051903.D
Date : 05-SEP-2019 11:49
Client ID:
Sample Info: SHI0085-TUN1

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00068	Instrument:	NT5
Calibration Date:	08/20/2019 0:34	Column (1):	RTX-VMS

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Benzene	1	0.7615854	2	0.7869316	5	0.8301062	10	0.8327018	50	0.7381857	100	0.787119
Toluene	1	0.5790465	2	0.5925038	5	0.5780479	10	0.5852631	50	0.5082725	100	0.5394999
Ethylbenzene	1	1.118984	2	1.10698	5	1.147742	10	1.201195	50	1.037615	100	1.064784
m,p-Xylene	2	0.4151693	4	0.4257511	10	0.4433955	20	0.4689455	100	0.4134834	200	0.4296505
o-Xylene	1	0.3857446	2	0.3842356	5	0.4051573	10	0.4351422	50	0.3940098	100	0.4183872
Toluene-d8	50	1.228896	50	1.223845	50	1.230983	50	1.226953	50	1.236102	50	1.245614
4-Bromofluorobenzene	50	0.429651	50	0.4312426	50	0.4341529	50	0.4296261	50	0.4292702	50	0.4370463
Benzene	1	0.7615854	2	0.7869316	5	0.8301062	10	0.8327018	50	0.7381857	100	0.787119
Toluene	1	0.5790465	2	0.5925038	5	0.5780479	10	0.5852631	50	0.5082725	100	0.5394999
Ethylbenzene	1	1.118984	2	1.10698	5	1.147742	10	1.201195	50	1.037615	100	1.064784
m,p-Xylene	2	0.4151693	4	0.4257511	10	0.4433955	20	0.4689455	100	0.4134834	200	0.4296505
o-Xylene	1	0.3857446	2	0.3842356	5	0.4051573	10	0.4351422	50	0.3940098	100	0.4183872
Toluene-d8	50	1.228896	50	1.223845	50	1.230983	50	1.226953	50	1.236102	50	1.245614
4-Bromofluorobenzene	50	0.429651	50	0.4312426	50	0.4341529	50	0.4296261	50	0.4292702	50	0.4370463

INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00068	Instrument:	NT5
Calibration Date:	08/20/2019 0:34	Column (1):	RTX-VMS

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Benzene	150	0.8104072	200	0.8496862								
Toluene	150	0.5562419	200	0.5863582								
Ethylbenzene	150	1.102875	200	1.108662								
m,p-Xylene	300	0.448564	400	0.4650374								
o-Xylene	150	0.4275628	200	0.4505659								
Toluene-d8	50	1.233713	50	1.253043								
4-Bromofluorobenzene	50	0.4366432	50	0.4400132								
Benzene	150	0.8104072	200	0.8496862								
Toluene	150	0.5562419	200	0.5863582								
Ethylbenzene	150	1.102875	200	1.108662								
m,p-Xylene	300	0.448564	400	0.4650374								
o-Xylene	150	0.4275628	200	0.4505659								
Toluene-d8	50	1.233713	50	1.253043								
4-Bromofluorobenzene	50	0.4366432	50	0.4400132								

INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00068	Instrument:	NT5
Calibration Date:	08/20/2019 0:34	Column (1):	RTX-VMS

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Benzene	0.7995904	4.8			RSD (15)	
Toluene	0.5656542	5.1			RSD (15)	
Ethylbenzene	1.111105	4.5			RSD (15)	
m,p-Xylene	0.4387496	4.8			RSD (15)	
o-Xylene	0.4126007	5.9			RSD (15)	
Toluene-d8	1.234894	0.8			RSD (15)	
4-Bromofluorobenzene	0.4334557	0.9			RSD (15)	
Benzene	0.7995904	4.8			RSD (15)	
Toluene	0.5656542	5.1			RSD (15)	
Ethylbenzene	1.111105	4.5			RSD (15)	
m,p-Xylene	0.4387496	4.8			RSD (15)	
o-Xylene	0.4126007	5.9			RSD (15)	
Toluene-d8	1.234894	0.8			RSD (15)	
4-Bromofluorobenzene	0.4334557	0.9			RSD (15)	

Printed: 8/22/2019 1:29:44PM

ANALYSIS SEQUENCE

SHH0255

Instrument: NT5 Element Column ID: RTXVMS
Calibration ID: CH00024 Tune File: bfb.u
EM Voltage: 2000

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0255-TUN1	MS Tune	QC		1	H005698	H006572	
SHH0255-CAL1	1	QC		2	H007494	H006572	
SHH0255-CAL2	2	QC		3	H007495	H006572	
SHH0255-CAL3	5	QC		4	H007496	H006572	
SHH0255-CAL4	10	QC		5	H007497	H006572	
SHH0255-CAL5	50	QC		6	H007498	H006572	
SHH0255-CAL6	100	QC		7	H007499	H006572	
SHH0255-CAL7	150	QC		8	H007500	H006572	
SHH0255-CAL8	200	QC		9	H007501	H006572	
SHH0255-SCV1	8260C SCV	QC		10	H007277	H006572	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190820.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF									
1	1114	NT508201901.D					1									
2	1137	NT508201902.D	shh0255-TUN1				1									
3	1240	NT508201903.D					1	5.34	480816	5.79	909456	8.26	851271	10.35	453810	
4	1353	NT508201904.D	SHH0255-CAL1				1	5.34	461139	5.79	894056	8.26	830083	10.35	444634	
5	1415	NT508201905.D	SHH0255-CAL2				1	5.34	460915	5.79	875775	8.26	822282	10.35	438862	
6	1437	NT508201906.D	SHH0255-CAL3				1	5.34	486804	5.79	928833	8.26	874648	10.35	483827	
7	1459	NT508201907.D	SHH0255-CAL4				1	5.34	457703	5.79	878844	8.26	814343	10.36	441899	
8	1521	NT508201908.D	SHH0255-CAL5				1	5.34	457969	5.79	852165	8.26	803678	10.36	439766	
9	1544	NT508201909.D	SHH0255-CAL6				1	5.34	488873	5.79	925179	8.26	905618	10.36	512239	
10	1606	NT508201910.D	SHH0255-CAL7				1	5.34	498178	5.79	937462	8.26	914314	10.36	511427	
11	1629	NT508201911.D	SHH0255-CAL8				1	5.34	503836	5.79	963085	8.26	970655	10.36	552542	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190820.b

ARI Job No.: shh0 Method: bfb8260.m Instrument: nt5.i Date: 20-AUG-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1137	NT508201902.D	shh0255-TUN1		1	NO MANUAL INTEGRATION
1353	NT508201904.D	SHH0255-CAL1		1	Trichlorofluoromethane, 1,1-Dichloroethene, Acrylonitrile, 2,2-Dichloropropane, 1,1,1-Trichloroethane, 1,2-Dichloropropane, 4-Methyl-2-Pentanone, 1,1,2-Trichloroethane, 1,3-Dichloropropane, Bromoform, 1,2,3-Trichloropropane, Trans-1,4-Dichloro 2-Butene, n-Hexane,
1415	NT508201905.D	SHH0255-CAL2		1	Acrolein, 1,1,1-Trichloroethane, 1,2-Dichloropropane, 4-Methyl-2-Pentanone, 1,1,2-Trichloroethane, 1,2,3-Trichloropropane, Trans-1,4-Dichloro 2-Butene, Dichlorodifluoromethane,
1437	NT508201906.D	SHH0255-CAL3		1	Vinyl Chloride, 4-Methyl-2-Pentanone, Dichlorodifluoromethane,
1459	NT508201907.D	SHH0255-CAL4		1	4-Methyl-2-Pentanone, Dichlorodifluoromethane,
1521	NT508201908.D	SHH0255-CAL5		1	NO MANUAL INTEGRATION
1544	NT508201909.D	SHH0255-CAL6		1	NO MANUAL INTEGRATION
1606	NT508201910.D	SHH0255-CAL7		1	Dichlorodifluoromethane,
1629	NT508201911.D	SHH0255-CAL8		1	NO MANUAL INTEGRATION

Security Status Report

Date: 22-Aug-2019 13:28

NT508201902.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201904.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201905.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201906.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201907.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201908.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201909.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201910.D	Data Locked	patrickb, 22-Aug-2019 13:28
NT508201911.D	Data Locked	patrickb, 22-Aug-2019 13:28

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Calibration File Names:
Level 1: \\target\share\chem1\nt5.i\20190820.b\NT508201904.D
Level 2: \\target\share\chem1\nt5.i\20190820.b\NT508201905.D
Level 3: \\target\share\chem1\nt5.i\20190820.b\NT508201906.D
Level 4: \\target\share\chem1\nt5.i\20190820.b\NT508201907.D
Level 5: \\target\share\chem1\nt5.i\20190820.b\NT508201908.D
Level 6: \\target\share\chem1\nt5.i\20190820.b\NT508201909.D
Level 7: \\target\share\chem1\nt5.i\20190820.b\NT508201910.D
Level 8: \\target\share\chem1\nt5.i\20190820.b\NT508201911.D

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	150.0000 Level 7	200.0000 Level 8	Curve	Coefficients b	m1	m2	%RSD or R^2
1 Dichlorodifluoromethane	0.35434	0.41450	0.34264	0.36324	0.39231	0.40382	0.39404	0.43462	AVRG		0.38744		8.15130
2 Chloromethane	0.39945	0.38532	0.32652	0.33370	0.32964	0.33359	0.32394	0.35950	AVRG		0.34896		8.35740
3 Vinyl Chloride	0.33710	0.32202	0.33940	0.35602	0.32250	0.33860	0.33838	0.36780	AVRG		0.34023		4.54224

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
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Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150.0000 Level 7	200.0000 Level 8									
4 Bromomethane	0.36930	0.34057	0.28806	0.31074	0.25524	0.27408					
	0.26970	0.30561					AVRG		0.30166		12.72211
5 Chloroethane	4947	5847	14894	30441	121729	282772					
	+++++	+++++					LINR	0.000e+000	0.28537		0.99782
6 Trichlorofluoromethane	0.67301	0.73902	0.69336	0.72703	0.64740	0.65134					
	0.72185	0.68356					AVRG		0.69207		5.00717
7 1,1-Dichloroethene	0.39565	0.35853	0.34948	0.36916	0.31538	0.33491					
	0.35240	0.38869					AVRG		0.35803		7.41841
8 Carbon Disulfide	1.02865	1.11978	1.05839	1.14004	0.96631	1.03650					
	1.05556	1.15777					AVRG		1.07038		6.01475
9 112Trichloro122Trifluoroethan	+++++	0.38120	0.34685	0.38557	0.31269	0.33086					
	0.34469	0.37034					AVRG		0.35317		7.64859
10 Iodomethane	0.32593	0.31747	0.33683	0.39724	0.38304	0.42010					
	0.42731	0.46264					AVRG		0.38382		13.77322

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
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Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	150.0000 Level 7	200.0000 Level 8										
11 Bromoethane	+++++	0.26887	0.25439	0.25495	0.21797	0.22843						
	0.22036	0.24336					AVRG		0.24119		8.06498	
12 Acrolein	0.03832	0.04295	0.04411	0.04594	0.04014	0.03881						
	0.04335	0.02952					AVRG		0.04039		12.72854	
13 Methylene Chloride	+++++	8558	18541	34573	140209	315233						
	467438	+++++					LINR	0.000e+000	0.31542		0.99921	
14 Acetone	5249	7315	17600	35409	152867	317081						
	483395	714766					LINR	0.000e+000	0.06826		0.99636	<-
15 Trans-1,2-Dichloroethene	0.41636	0.41152	0.39361	0.41045	0.34399	0.37347						
	0.38078	0.41853					AVRG		0.39359		6.63557	
16 Methyl tert butyl ether	0.85278	0.90451	0.92070	0.92123	0.84374	0.90893						
	0.91087	0.99830					AVRG		0.90763		5.21608	
173 n-Hexane	0.43772	0.39893	0.37111	0.38315	0.30735	0.31786						
	0.31276	0.33220					AVRG		0.35764		13.25194	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150.0000 Level 7	200.0000 Level 8									
17 1,1-Dichloroethane	0.58713	0.61400	0.60291	0.65520	0.55228	0.59184					
	0.60467	0.65607					AVRG		0.60801		5.70151
18 Acrylonitrile	+++++	+++++	0.06643	0.08762	0.07613	0.07503					
	0.07612	0.08038					AVRG		0.07695		9.02782
19 Vinyl Acetate	+++++	+++++	0.62060	0.65839	0.59040	0.62454					
	0.60893	0.67388					AVRG		0.62945		4.95279
20 Cis-1,2-Dichloroethene	0.48781	0.46777	0.43574	0.45731	0.38210	0.42673					
	0.41702	0.47595					AVRG		0.44380		7.90152
21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000 <-
22 2,2-Dichloropropane	0.70760	0.68180	0.67668	0.70525	0.59961	0.65103					
	0.64117	0.72846					AVRG		0.67395		6.21408
23 Bromochloromethane	0.20005	0.22922	0.21154	0.21441	0.19606	0.20817					
	0.20245	0.22520					AVRG		0.21089		5.58058

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150.0000 Level 7	200.0000 Level 8									
24 Chloroform	0.69946	0.71944	0.72766	0.73223	0.62426	0.68264					
	0.69721	0.76297					AVRG		0.70574		5.84947
25 Carbon Tetrachloride	0.36698	0.36702	0.35990	0.37145	0.32770	0.34790					
	0.35164	0.37890					AVRG		0.35894		4.51318
26 1,1,1-Trichloroethane	0.71866	0.72383	0.73181	0.76718	0.63424	0.69287					
	0.71605	0.77396					AVRG		0.71982		6.07836
28 1,1-Dichloropropene	0.27901	0.26762	0.29388	0.29838	0.26140	0.27883					
	0.29135	0.30356					AVRG		0.28426		5.27079
29 2-Butanone	0.03127	0.03229	0.03433	0.03734	0.03521	0.03335					
	0.03332	0.03591					AVRG		0.03413		5.80256
30 Benzene	0.76159	0.78693	0.83011	0.83270	0.73819	0.78712					
	0.81041	0.84969					AVRG		0.79959		4.77047
33 1,2-Dichloroethane	0.31407	0.27076	0.27101	0.27565	0.24736	0.26294					
	0.26779	0.28599					AVRG		0.27445		7.07737

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	150.0000 Level 7	200.0000 Level 8										
34 Trichloroethene	0.23455	0.25420	0.25096	0.24920	0.22231	0.23922						
	0.24671	0.26139					AVRG		0.24482		5.04232	
36 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+000		0.000e+000	<-
37 Dibromomethane	0.10889	0.10716	0.11634	0.12017	0.11017	0.11603						
	0.11795	0.12454					AVRG		0.11516		5.20255	
38 1,2-Dichloropropane	0.18511	0.18689	0.17759	0.18610	0.16222	0.17865						
	0.18441	0.19613					AVRG		0.18214		5.40145	
39 Bromodichloromethane	0.26050	0.27019	0.29033	0.29065	0.26310	0.28299						
	0.29120	0.31362					AVRG		0.28282		6.24410	
172 2-Pentanone	0.01879	0.02268	0.02149	0.02393	0.02534	0.02465						
	0.02490	0.02657					AVRG		0.02354		10.53905	
40 2-Chloroethyl Vinyl Ether	+++++	+++++	0.09130	0.10278	0.09321	0.09812						
	0.10177	0.10826					AVRG		0.09924		6.39066	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	150.0000 Level 7	200.0000 Level 8										
41 Cis 1,3-dichloropropene	0.29730	0.32094	0.32840	0.33257	0.30304	0.33299						
	0.34054	0.36235					AVRG		0.32727		6.31968	
43 Toluene	0.57905	0.59250	0.57805	0.58526	0.50827	0.53950						
	0.55624	0.58636					AVRG		0.56565		5.14650	
44 Tetrachloroethene	0.23937	0.30434	0.27074	0.28989	0.24633	0.25528						
	0.26522	0.27177					AVRG		0.26787		8.08067	
45 4-Methyl-2-Pentanone	0.05001	0.05747	0.05084	0.05914	0.05809	0.05775						
	0.05863	0.06203					AVRG		0.05675		7.32141	<-
46 Trans 1,3-Dichloropropene	0.25630	0.31338	0.29738	0.29682	0.28411	0.30826						
	0.31301	0.33363					AVRG		0.30036		7.68025	
47 1,1,2-Trichloroethane	0.15799	0.15398	0.16093	0.16243	0.15268	0.16595						
	0.16578	0.17815					AVRG		0.16224		4.99098	
48 Chlorodibromomethane	0.20522	0.24274	0.22066	0.24389	0.21659	0.23183						
	0.23801	0.24931					AVRG		0.23103		6.68164	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	150.0000 Level 7	200.0000 Level 8										
49 1,3-Dichloropropane	0.28220	0.27217	0.28505	0.29387	0.26929	0.28421						
	0.28506	0.29671					AVRG		0.28357		3.31696	
50 1,2-Dibromoethane	0.15144	0.14918	0.15967	0.17050	0.15942	0.16574						
	0.16894	0.18203					AVRG		0.16337		6.57828	
51 2-Hexanone	0.09203	0.09238	0.09648	0.10879	0.10944	0.10287						
	0.10466	0.10593					AVRG		0.10157		6.91843	<-
53 Chlorobenzene	0.71445	0.67410	0.70048	0.72691	0.62502	0.64680						
	0.66627	0.68105					AVRG		0.67938		5.02330	
54 Ethyl Benzene	1.11898	1.10698	1.14774	1.20120	1.03761	1.06478						
	1.10288	1.10866					AVRG		1.11110		4.45581	
55 1,1,1,2-Tetrachloroethane	0.21594	0.24408	0.24683	0.25731	0.23414	0.24567						
	0.24910	0.26041					AVRG		0.24418		5.72391	
56 m,p-xylene	0.41517	0.42575	0.44340	0.46895	0.41348	0.42965						
	0.44856	0.46504					AVRG		0.43875		4.84788	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
	150.0000 Level 7	200.0000 Level 8										
57 o-Xylene	0.38574	0.38424	0.40516	0.43514	0.39401	0.41839						
	0.42756	0.45057					AVRG		0.41260		5.88965	
58 Styrene	0.61337	0.61928	0.67077	0.69679	0.65545	0.70007						
	0.72134	0.75234					AVRG		0.67868		7.13780	
59 Bromoform	0.33634	0.30271	0.28051	0.29864	0.28146	0.28364						
	0.28614	0.29805					AVRG		0.29594		6.23765	
60 Isopropyl Benzene	1.96499	1.96098	2.01754	2.18978	1.95245	1.99246						
	2.10475	2.10910					AVRG		2.03651		4.29694	
61 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++						
	+++++	+++++					AVRG		0.000e+000		0.000e+000	<-
63 Bromobenzene	0.51717	0.54100	0.50144	0.54618	0.49078	0.50975						
	0.52049	0.53939					AVRG		0.52077		3.84671	
64 N-Propyl Benzene	2.33428	2.39477	2.38606	2.54288	2.20857	2.23013						
	2.30267	2.29622					AVRG		2.33695		4.54280	

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
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Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150.0000 Level 7	200.0000 Level 8									
65 1,1,2,2-Tetrachloroethane	0.33544	0.39506	0.36453	0.38082	0.36123	0.35779					
	0.37176	0.37842					AVRG		0.36813		4.86025
66 2-Chloro Toluene	1.31873	1.35504	1.35458	1.42894	1.27478	1.31922					
	1.35589	1.37927					AVRG		1.34830		3.40217
67 1,3,5-Trimethyl Benzene	1.59884	1.61372	1.67401	1.83529	1.63939	1.66954					
	1.74444	1.75219					AVRG		1.69093		4.75736
68 1,2,3-Trichloropropane	+++++	0.12099	0.11539	0.14138	0.13429	0.13291					
	0.13673	0.13892					AVRG		0.13152		7.34349
69 Trans-1,4-Dichloro 2-Butene	+++++	+++++	0.09439	0.12019	0.11352	0.10701					
	0.10928	0.10953					AVRG		0.10898		7.82045
70 4-Chloro Toluene	1.46143	1.41115	1.44058	1.50084	1.35497	1.36853					
	1.39887	1.42250					AVRG		1.41986		3.37601
71 T-Butyl Benzene	1.52699	1.53693	1.50355	1.68887	1.47727	1.51297					
	1.58997	1.63000					AVRG		1.55832		4.61774

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	150.0000 Level 7	200.0000 Level 8	Curve	Coefficients b	m1	m2	%RSD or R^2
72 1,2,4-Trimethylbenzene	1.59817	1.59754	1.63711	1.74133	1.60987	1.65275							
	1.70676	1.73215							AVRG		1.65946		3.58801
73 S-Butyl Benzene	2.14086	2.31200	2.25653	2.43094	2.15636	2.17678							
	2.26579	2.27159							AVRG		2.25136		4.22610
74 4-Isopropyl Toluene	1.84995	1.84728	1.92414	2.03304	1.86416	1.91238							
	1.98458	2.01511							AVRG		1.92883		3.85786
75 1,3-Dichlorobenzene	0.99498	1.02111	1.02855	1.06743	0.96605	0.99317							
	1.01181	1.05241							AVRG		1.01694		3.24488
77 1,4-Dichlorobenzene	1.08797	1.06531	1.04236	1.10093	0.96243	0.97790							
	0.99813	1.03472							AVRG		1.03372		4.90530
78 N-Butyl Benzene	1.54824	1.71056	1.64881	1.79720	1.58545	1.60384							
	1.64771	1.67737							AVRG		1.65240		4.72644
80 1,2-Dichlorobenzene	1.03478	1.00903	0.95482	0.99911	0.88597	0.91397							
	0.93405	0.97853							AVRG		0.96378		5.26951

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	150.0000 Level 7	200.0000 Level 8									
81 1,2-Dibromo 3-Chloropropane	+++++	+++++	0.06746	0.08148	0.07791	0.07282					
	0.07343	0.07873					AVRG		0.07530		6.71359
82 Hexachloro 1,3-Butadiene	+++++	+++++	0.38299	0.38686	0.33282	0.33364					
	0.34659	0.36344					AVRG		0.35772		6.66744
83 1,2,4-Trichlorobenzene	+++++	+++++	0.65143	0.63553	0.56932	0.58851					
	0.58219	0.61585					AVRG		0.60714		5.33384
84 Naphthalene	+++++	+++++	1.20717	1.28644	1.25475	1.23848					
	1.28350	1.32543					AVRG		1.26596		3.27623
85 1,2,3-Trichlorobenzene	+++++	+++++	0.58854	0.55371	0.51053	0.53306					
	0.54357	0.57387					AVRG		0.55054		5.10731
$ 27 Dibromofluoromethane	0.61274	0.60106	0.61037	0.59890	0.60591	0.62759					
	0.62019	0.63578					AVRG		0.61407		2.10812
$ 32 d4-1,2-Dichloroethane	0.60142	0.59929	0.59405	0.60120	0.59395	0.60242					
	0.59814	0.62250					AVRG		0.60162		1.50061

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Compound	1.0000 Level 1	2.0000 Level 2	5.0000 Level 3	10.0000 Level 4	50.0000 Level 5	100.0000 Level 6	150.0000 Level 7	200.0000 Level 8	Curve	Coefficients b	m1	m2	%RSD or R^2
$ 42 d8-Toluene	1.22890	1.22385	1.23098	1.22695	1.23610	1.24561							
	1.23371	1.25304							AVRG		1.23489		0.80023
$ 62 4-Bromofluorobenzene	0.42965	0.43124	0.43415	0.42963	0.42927	0.43705							
	0.43664	0.44001							AVRG		0.43346		0.94760
$ 79 d4-1,2-Dichlorobenzene	0.93495	0.93683	0.92923	0.92845	0.94672	0.92780							
	0.94459	0.94588							AVRG		0.93681		0.85891

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 20-AUG-2019 13:53
End Cal Date : 20-AUG-2019 16:29
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Last Edit : 22-Aug-2019 13:13 nt5.i

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Linear	Amt = b + Rsp/m1	Response

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Batch File: \\target\share\chem1\nt5.i\20190820.b
Inst ID: nt5.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	NT508201904	NT508201905	NT508201906	NT508201907	NT508201908	NT508201909	NT508201910	NT508201911
INJ.DATE:	20-AUG-2019	20-AUG-2019	20-AUG-2019	20-AUG-2019	20-AUG-2019	20-AUG-2019	20-AUG-2019	20-AUG-2019
INJ.TIME:	13:53	14:15	14:37	14:59	15:21	15:44	16:06	16:29

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	1.336	1.329	1.330	1.329	1.329	1.330	1.329	1.323	1.329	1.222-1.436	1.329	0.003
2 Chloromethane	1.488	1.488	1.488	1.488	1.488	1.488	1.481	1.482	1.488	1.381-1.594	1.486	0.003
3 Vinyl Chloride	1.561	1.561	1.555	1.554	1.561	1.555	1.554	1.555	1.561	1.454-1.667	1.557	0.003
4 Bromomethane	1.834	1.840	1.841	1.840	1.840	1.841	1.840	1.834	1.840	1.733-1.947	1.839	0.003
5 Chloroethane	1.950	1.950	1.944	1.944	1.950	1.950	1.962	1.944	1.950	1.843-2.057	1.949	0.006
6 Trichlorofluoromethane	2.084	2.066	2.060	2.053	2.059	2.060	2.078	2.053	2.059	1.952-2.166	2.064	0.011
7 1,1-Dichloroethene	2.546	2.540	2.528	2.516	2.540	2.534	2.528	2.516	2.540	2.433-2.647	2.531	0.011
8 Carbon Disulfide	2.546	2.546	2.528	2.516	2.540	2.534	2.534	2.516	2.540	2.433-2.647	2.532	0.012
9 112Trichloro122Trifluo	2.595	2.595	2.577	2.564	2.589	2.583	2.583	2.564	2.589	2.482-2.696	2.581	0.012
10 Iodomethane	2.674	2.668	2.662	2.650	2.674	2.668	2.662	2.650	2.674	2.567-2.781	2.663	0.010
11 Bromoethane	2.802	2.796	2.790	2.777	2.802	2.796	2.796	2.783	2.802	2.695-2.908	2.793	0.009
12 Acrolein	2.917	2.911	2.930	2.929	2.917	2.923	2.929	2.929	2.917	2.810-3.024	2.923	0.007
13 Methylene Chloride	3.148	3.161	3.155	3.154	3.161	3.161	3.161	3.155	3.161	3.054-3.267	3.157	0.005
14 Acetone	3.258	3.270	3.270	3.294	3.270	3.270	3.288	3.288	3.270	3.163-3.377	3.276	0.013
15 Trans-1,2-Dichloroethe	3.325	3.319	3.313	3.307	3.319	3.319	3.319	3.307	3.319	3.212-3.426	3.316	0.007
16 Methyl tert butyl ethe	3.495	3.501	3.501	3.507	3.495	3.495	3.501	3.507	3.495	3.388-3.602	3.501	0.005
173 n-Hexane	3.416	3.410	3.392	3.386	3.410	3.404	3.398	3.392	3.410	3.303-3.517	3.401	0.011

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Batch File: \\target\share\chem1\nt5.i\20190820.b
Inst ID: nt5.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	17 1,1-Dichloroethane	3.945	3.951	3.946	3.945	3.951	3.952	3.951	3.945	3.951	3.844-4.058	3.948	0.003
	18 Acrylonitrile	4.031	4.037	4.037	4.043	4.043	4.043	4.049	4.049	4.043	3.936-4.149	4.041	0.006
	19 Vinyl Acetate	4.244	4.250	4.250	4.250	4.249	4.250	4.256	4.256	4.249	4.143-4.356	4.250	0.004
	20 Cis-1,2-Dichloroethene	4.463	4.469	4.469	4.469	4.469	4.469	4.469	4.469	4.469	4.362-4.575	4.468	0.002
	21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.548	4.441-4.655	+++++	+++++
	22 2,2-Dichloropropane	4.560	4.560	4.560	4.560	4.560	4.560	4.560	4.560	4.560	4.453-4.667	4.560	0.000
	23 Bromochloromethane	4.651	4.657	4.651	4.651	4.651	4.651	4.651	4.651	4.651	4.544-4.758	4.652	0.002
	24 Chloroform	4.730	4.736	4.736	4.736	4.742	4.736	4.736	4.742	4.742	4.635-4.849	4.737	0.004
	25 Carbon Tetrachloride	4.821	4.821	4.822	4.821	4.827	4.822	4.821	4.821	4.827	4.712-4.943	4.822	0.002
	26 1,1,1-Trichloroethane	4.888	4.900	4.889	4.894	4.894	4.895	4.888	4.894	4.894	4.787-5.001	4.893	0.004
$	27 Dibromofluoromethane	4.894	4.900	4.901	4.900	4.900	4.901	4.900	4.900	4.900	4.793-5.007	4.900	0.002
	28 1,1-Dichloropropene	5.010	5.010	5.004	4.998	5.010	5.010	5.004	5.004	5.010	4.894-5.126	5.006	0.005
	29 2-Butanone	5.047	5.059	5.053	5.065	5.053	5.053	5.065	5.065	5.053	4.946-5.159	5.057	0.007
	30 Benzene	5.229	5.229	5.229	5.229	5.229	5.229	5.229	5.229	5.229	5.113-5.345	5.229	0.000
*	31 Pentafluorobenzene	5.339	5.345	5.345	5.345	5.345	5.345	5.345	5.345	5.345	5.238-5.451	5.344	0.002
$	32 d4-1,2-Dichloroethane	5.357	5.363	5.357	5.363	5.363	5.363	5.363	5.363	5.363	5.256-5.470	5.361	0.003
	33 1,2-Dichloroethane	5.418	5.424	5.418	5.418	5.424	5.418	5.424	5.424	5.424	5.308-5.539	5.421	0.003
	34 Trichloroethene	5.740	5.740	5.740	5.740	5.746	5.746	5.746	5.746	5.746	5.630-5.862	5.743	0.003
*	35 1,4-Difluorobenzene	5.789	5.789	5.789	5.789	5.789	5.789	5.789	5.789	5.789	5.673-5.904	5.789	0.000
	36 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.693	5.577-5.809	+++++	+++++
	37 Dibromomethane	6.093	6.105	6.105	6.105	6.105	6.105	6.105	6.105	6.105	5.989-6.221	6.104	0.004
	38 1,2-Dichloropropane	6.196	6.190	6.190	6.190	6.196	6.196	6.196	6.196	6.196	6.080-6.312	6.194	0.003

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Batch File: \\target\share\chem1\nt5.i\20190820.b
Inst ID: nt5.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	39 Bromodichloromethane	6.251	6.257	6.257	6.257	6.257	6.257	6.257	6.257	6.257	6.141-6.373	6.256	0.002
	172 2-Pentanone	6.549	6.549	6.549	6.555	6.549	6.549	6.561	6.555	6.549	6.433-6.665	6.552	0.005
	40 2-Chloroethyl Vinyl Et	6.750	6.762	6.762	6.762	6.762	6.762	6.768	6.768	6.762	6.646-6.878	6.762	0.006
	41 Cis 1,3-dichloropropen	6.793	6.792	6.793	6.792	6.792	6.793	6.799	6.799	6.792	6.677-6.908	6.794	0.003
$	42 d8-Toluene	6.945	6.945	6.945	6.945	6.945	6.945	6.951	6.945	6.945	6.829-7.060	6.945	0.002
	43 Toluene	6.987	6.987	6.987	6.987	6.987	6.987	6.993	6.993	6.987	6.871-7.103	6.989	0.003
	44 Tetrachloroethene	7.297	7.304	7.304	7.303	7.303	7.304	7.303	7.304	7.303	7.138-7.469	7.303	0.002
	45 4-Methyl-2-Pentanone	7.340	7.340	7.340	7.340	7.340	7.340	7.346	7.346	7.340	7.224-7.456	7.342	0.003
	46 Trans 1,3-Dichloroprop	7.346	7.352	7.352	7.352	7.352	7.352	7.358	7.358	7.352	7.236-7.468	7.353	0.004
	47 1,1,2-Trichloroethane	7.486	7.486	7.486	7.486	7.486	7.486	7.492	7.492	7.486	7.370-7.602	7.488	0.003
	48 Chlorodibromomethane	7.626	7.626	7.626	7.626	7.632	7.632	7.632	7.632	7.632	7.467-7.797	7.629	0.003
	49 1,3-Dichloropropane	7.711	7.711	7.711	7.711	7.711	7.711	7.717	7.717	7.711	7.546-7.876	7.713	0.003
	50 1,2-Dibromoethane	7.815	7.821	7.821	7.821	7.821	7.821	7.821	7.827	7.821	7.705-7.936	7.821	0.003
	51 2-Hexanone	8.046	8.052	8.052	8.052	8.052	8.052	8.058	8.058	8.052	7.886-8.217	8.053	0.004
*	52 d5-Chlorobenzene	8.259	8.265	8.265	8.265	8.265	8.265	8.265	8.265	8.265	8.099-8.430	8.264	0.002
	53 Chlorobenzene	8.277	8.277	8.277	8.277	8.277	8.277	8.283	8.283	8.277	8.111-8.442	8.278	0.003
	54 Ethyl Benzene	8.307	8.307	8.307	8.307	8.307	8.314	8.313	8.313	8.307	8.142-8.473	8.310	0.003
	55 1,1,1,2-Tetrachloroeth	8.332	8.338	8.338	8.338	8.338	8.338	8.344	8.344	8.338	8.172-8.503	8.338	0.004
	56 m,p-xylene	8.435	8.435	8.441	8.441	8.441	8.441	8.441	8.447	8.441	8.276-8.606	8.440	0.004
	57 o-Xylene	8.812	8.812	8.812	8.812	8.812	8.812	8.812	8.818	8.812	8.647-8.977	8.813	0.002
	58 Styrene	8.855	8.861	8.861	8.861	8.861	8.861	8.861	8.867	8.861	8.696-9.026	8.861	0.003
	59 Bromoform	8.873	8.873	8.873	8.873	8.873	8.879	8.879	8.879	8.873	8.666-9.080	8.875	0.003
	60 Isopropyl Benzene	9.092	9.092	9.092	9.092	9.092	9.092	9.092	9.098	9.092	8.885-9.299	9.093	0.002
	61 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.646	9.480-9.811	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Batch File: \\target\share\chem1\nt5.i\20190820.b
Inst ID: nt5.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$	62 4-Bromofluorobenzene	9.335	9.335	9.336	9.341	9.341	9.342	9.341	9.341	9.341	9.176-9.507	9.339	0.003
	63 Bromobenzene	9.421	9.421	9.421	9.427	9.427	9.427	9.427	9.427	9.427	9.219-9.634	9.424	0.003
	64 N-Propyl Benzene	9.463	9.463	9.463	9.463	9.463	9.463	9.463	9.469	9.463	9.256-9.670	9.464	0.002
	65 1,1,2,2-Tetrachloroeth	9.536	9.536	9.536	9.536	9.536	9.536	9.542	9.542	9.536	9.329-9.743	9.538	0.003
	66 2-Chloro Toluene	9.597	9.597	9.591	9.597	9.597	9.597	9.597	9.597	9.597	9.390-9.804	9.596	0.002
	67 1,3,5-Trimethyl Benzen	9.640	9.646	9.646	9.646	9.646	9.646	9.652	9.652	9.646	9.438-9.853	9.646	0.004
	68 1,2,3-Trichloropropane	9.652	9.652	9.646	9.652	9.652	9.652	9.652	9.658	9.652	9.444-9.859	9.652	0.003
	69 Trans-1,4-Dichloro 2-B	9.688	9.694	9.695	9.694	9.694	9.694	9.700	9.700	9.694	9.487-9.901	9.695	0.004
	70 4-Chloro Toluene	9.743	9.749	9.749	9.749	9.749	9.749	9.755	9.755	9.749	9.542-9.956	9.750	0.004
	71 T-Butyl Benzene	9.926	9.932	9.932	9.932	9.932	9.932	9.932	9.938	9.932	9.724-10.139	9.932	0.003
	72 1,2,4-Trimethylbenzene	9.999	9.999	9.999	9.998	9.998	9.999	10.005	10.005	9.998	9.791-10.205	10.000	0.003
	73 S-Butyl Benzene	10.096	10.096	10.096	10.096	10.096	10.096	10.096	10.102	10.096	9.889-10.303	10.097	0.002
	74 4-Isopropyl Toluene	10.230	10.230	10.230	10.230	10.230	10.236	10.236	10.236	10.230	10.022-10.437	10.232	0.003
	75 1,3-Dichlorobenzene	10.285	10.278	10.279	10.284	10.284	10.285	10.290	10.291	10.284	10.077-10.492	10.284	0.005
*	76 d4-1,4-Dichlorobenzene	10.351	10.351	10.352	10.357	10.357	10.358	10.357	10.357	10.357	10.150-10.565	10.355	0.003
	77 1,4-Dichlorobenzene	10.364	10.370	10.370	10.370	10.370	10.370	10.370	10.376	10.370	10.162-10.577	10.370	0.003
	78 N-Butyl Benzene	10.619	10.625	10.625	10.625	10.625	10.625	10.625	10.625	10.625	10.418-10.832	10.624	0.002
$	79 d4-1,2-Dichlorobenzene	10.747	10.747	10.747	10.747	10.753	10.753	10.753	10.753	10.753	10.546-10.960	10.750	0.003
	80 1,2-Dichlorobenzene	10.759	10.753	10.759	10.759	10.759	10.759	10.759	10.759	10.759	10.552-10.966	10.758	0.002
	81 1,2-Dibromo 3-Chloropr	11.519	11.519	11.520	11.525	11.525	11.520	11.525	11.526	11.525	11.318-11.733	11.522	0.003
	82 Hexachloro 1,3-Butadie	12.158	12.158	12.152	12.158	12.158	12.158	12.158	12.158	12.158	11.951-12.365	12.157	0.002
	83 1,2,4-Trichlorobenzene	12.176	12.176	12.177	12.176	12.176	12.177	12.176	12.176	12.176	11.969-12.383	12.176	0.000
	84 Naphthalene	12.493	12.493	12.493	12.493	12.493	12.493	12.499	12.499	12.493	12.285-12.700	12.494	0.003

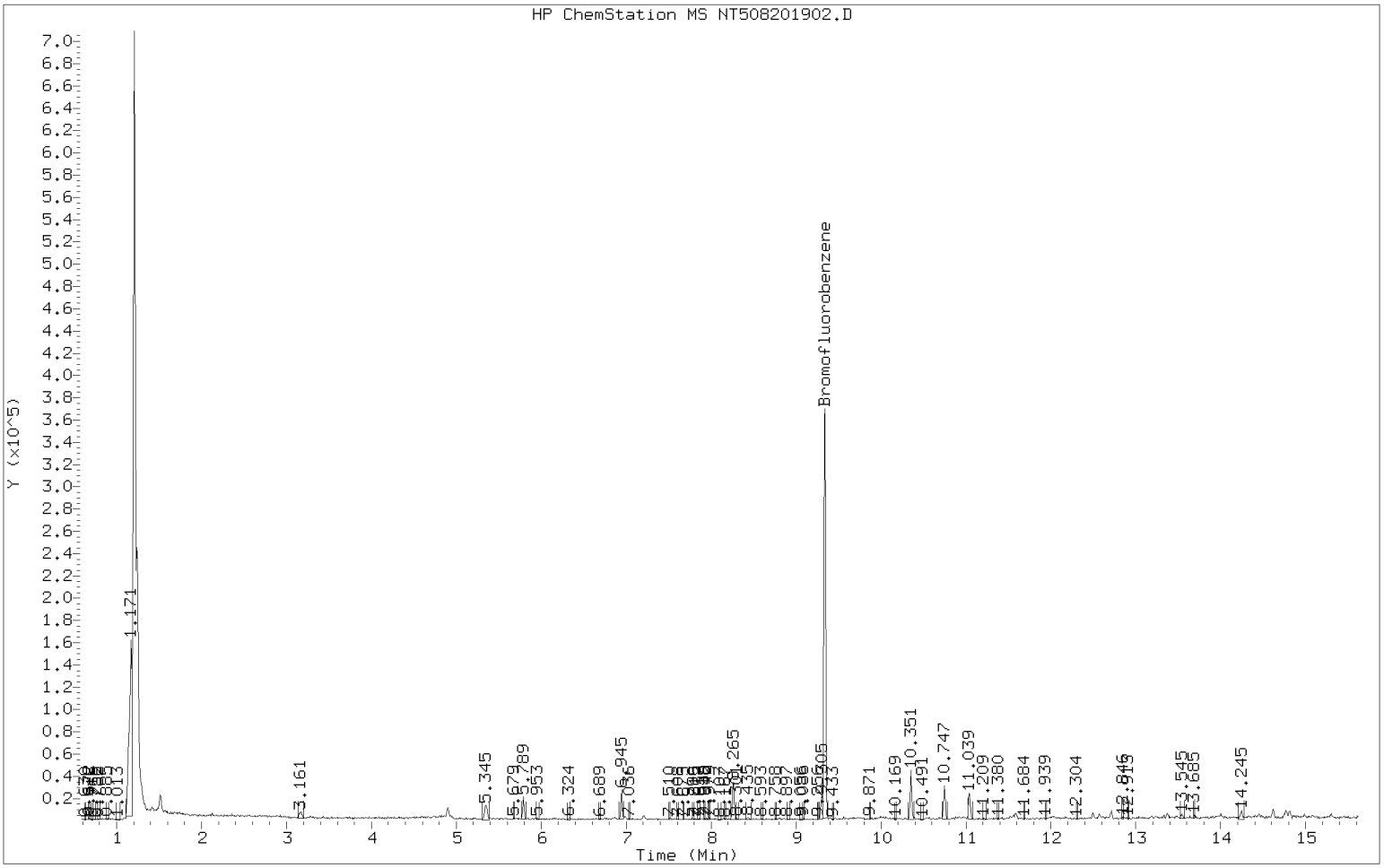
ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

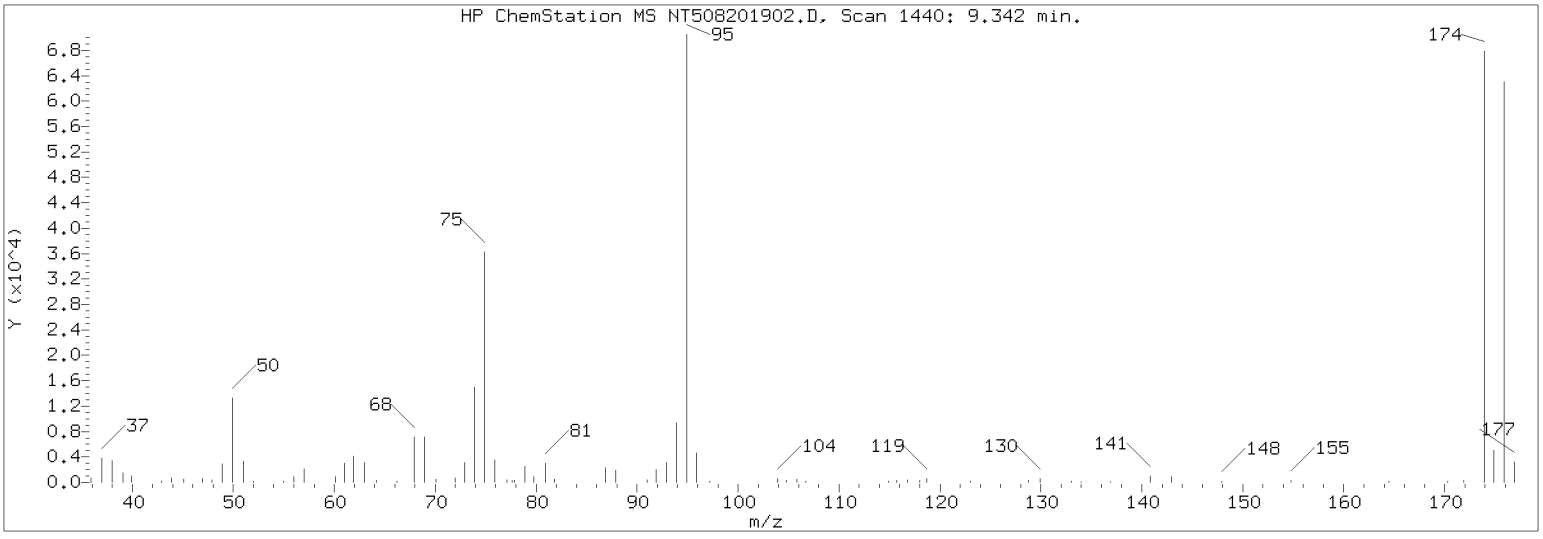
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Batch File: \\target\share\chem1\nt5.i\20190820.b
Inst ID: nt5.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
85 1,2,3-Trichlorobenzene	12.669	12.675	12.675	12.675	12.675	12.675	12.675	12.675	12.675	12.468-12.882	12.675	0.002

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190820.b/NT508201902.D
Method Used: \20190820.b\bfb8260.m Inst: nt5
Injection Date: 20-AUG-2019 11:37 Operator: PB
Sample Info: shh0255-TUN1 TUN1
Report Date: 08/22/2019 13:12





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.11
75	30.00 - 60.00% of mass 95	51.77
96	5.00 - 9.00% of mass 95	6.53
173	Less than 2.00% of mass 174	0.00 (0.00)
174	50.00 - 100.00% of mass 95	94.91
175	5.00 - 9.00% of mass 174	6.92 (7.29)
176	95.00 - 101.00% of mass 174	90.24 (95.09)
177	5.00 - 9.00% of mass 176	5.74 (6.36)

Data File: NT508201902.D
Spectrum: Avg. Scans 1439-1441 (9.34), Background Scan 1434
Location of Maximum: 95.00
Number of points: 85

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	578	65.00	99	91.00	437	130.00	363
37.00	3196	66.00	77	92.00	2042	135.00	80
38.00	2753	67.00	173	93.00	2907	137.00	111
39.00	1086	68.00	6539	94.00	8477	140.00	62
41.00	124	69.00	5951	95.00	61424	141.00	1031
44.00	354	70.00	537	96.00	4009	142.00	77
45.00	536	71.00	138	97.00	119	143.00	876
47.00	643	72.00	447	104.00	589	146.00	52
48.00	510	73.00	1780	105.00	85	148.00	61
49.00	2637	74.00	12575	106.00	539	155.00	179
50.00	11741	75.00	31800	107.00	57	156.00	57
51.00	3358	76.00	2983	110.00	55	164.00	55
52.00	105	77.00	353	112.00	54	170.00	60
55.00	182	78.00	221	113.00	119	172.00	243
56.00	869	79.00	2194	115.00	64	174.00	58296
57.00	1766	80.00	723	116.00	345	175.00	4252
58.00	70	81.00	2233	117.00	361	176.00	55432
60.00	742	82.00	542	118.00	355	177.00	3526
61.00	2779	83.00	55	119.00	271	178.00	70
62.00	3320	85.00	55	123.00	50		
63.00	2415	87.00	2097	128.00	47		
64.00	323	88.00	1923	129.00	219		

Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201904.D

Date : 20-AUG-2019 13:53

Client ID:

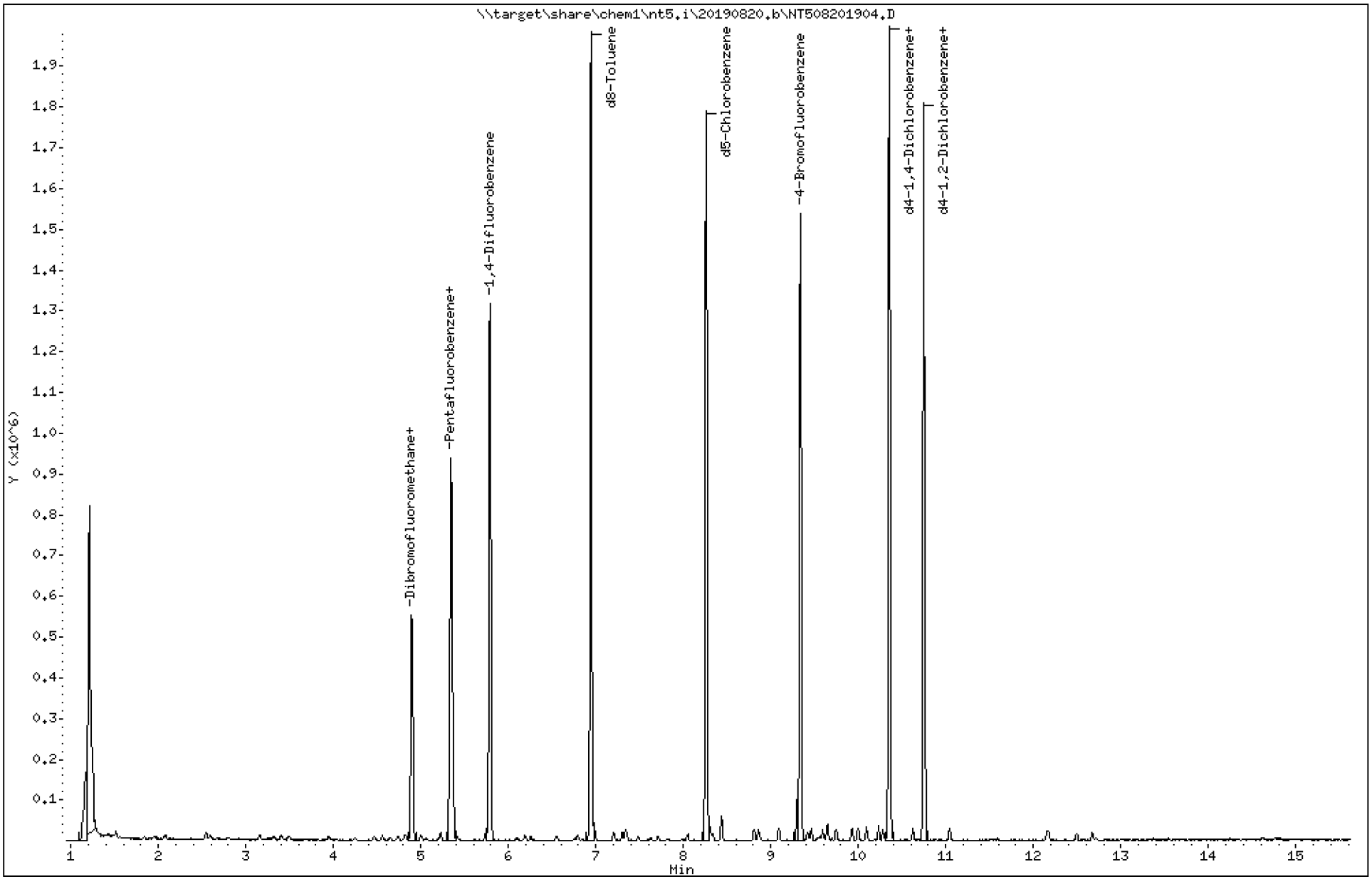
Instrument: nt5.i

Sample Info: SHH0255-CAL1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201904.D
Lab Smp Id: SHH0255-CAL1
Inj Date : 20-AUG-2019 13:53
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 6 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.335	1.329	(0.250)	3268	1.00000	0.9146
	2 Chloromethane	50	1.487	1.487	(0.279)	3684	1.00000	1.145
	3 Vinyl Chloride	62	1.560	1.560	(0.292)	3109	1.00000	0.9908
	4 Bromomethane	94	1.834	1.840	(0.344)	3406	1.00000	1.224
	5 Chloroethane	64	1.950	1.950	(0.365)	4947	1.00000	1.880
	6 Trichlorofluoromethane	101	2.083	2.059	(0.390)	6207	1.00000	0.9725(M)
	7 1,1-Dichloroethene	96	2.546	2.540	(0.477)	3649	1.00000	1.105(M)
	8 Carbon Disulfide	76	2.546	2.540	(0.477)	9487	1.00000	0.9610
	9 112Trichloro122Trifluoroethane	101	2.594	2.588	(0.486)	3928	1.00000	1.206
	10 Iodomethane	142	2.673	2.673	(0.501)	3006	1.00000	0.8492
	11 Bromoethane	108	2.801	2.801	(0.525)	2711	1.00000	1.219
	12 Acrolein	56	2.917	2.917	(0.546)	1767	5.00000	4.743
	13 Methylene Chloride	84	3.148	3.161	(0.590)	5380	1.00000	1.849
	14 Acetone	43	3.257	3.270	(0.610)	5249	5.00000	8.337
	15 Trans-1,2-Dichloroethene	96	3.324	3.318	(0.623)	3840	1.00000	1.058
	16 Methyl tert butyl ether	73	3.495	3.495	(0.655)	7865	1.00000	0.9396
	173 n-Hexane	41	3.416	3.409	(0.640)	4037	1.00000	1.224(M)
	17 1,1-Dichloroethane	63	3.945	3.951	(0.739)	5415	1.00000	0.9657
	18 Acrylonitrile	53	4.030	4.042	(0.755)	670	1.00000	0.9440(TM)
	19 Vinyl Acetate	43	4.243	4.249	(0.795)	5360	1.00000	0.9233
	20 Cis-1,2-Dichloroethene	96	4.462	4.468	(0.836)	4499	1.00000	1.099
	22 2,2-Dichloropropane	77	4.559	4.559	(0.854)	6526	1.00000	1.050(M)
	23 Bromochloromethane	128	4.651	4.651	(0.871)	1845	1.00000	0.9486
	24 Chloroform	83	4.730	4.742	(0.886)	6451	1.00000	0.9911
	25 Carbon Tetrachloride	117	4.821	4.827	(0.833)	6562	1.00000	1.022
$	27 Dibromofluoromethane	111	4.894	4.900	(0.917)	282559	50.0000	49.892
	26 1,1,1-Trichloroethane	97	4.888	4.894	(0.916)	6628	1.00000	0.9984(M)
	28 1,1-Dichloropropene	75	5.010	5.009	(0.865)	4989	1.00000	0.9815
	29 2-Butanone	72	5.046	5.052	(0.945)	1442	5.00000	4.581
	30 Benzene	78	5.229	5.228	(0.903)	13618	1.00000	0.9525
*	31 Pentafluorobenzene	168	5.338	5.344	(1.000)	461139	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.362	(1.003)	277337	50.0000	49.983
	33 1,2-Dichloroethane	62	5.417	5.423	(0.936)	5616	1.00000	1.144

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	5.740	5.746	(0.992)	4194	1.00000	0.9581
* 35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	894056	50.0000	
37	Dibromomethane	93	6.092	6.104	(1.053)	1947	1.00000	0.9455
38	1,2-Dichloropropane	63	6.196	6.196	(1.070)	3310	1.00000	1.016(M)
39	Bromodichloromethane	83	6.251	6.257	(1.080)	4658	1.00000	0.9211
172	2-Pentanone	86	6.549	6.549	(1.131)	1680	5.00000	3.991
40	2-Chloroethyl Vinyl Ether	63	6.749	6.762	(1.166)	1519	1.00000	0.8560
41	Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	5316	1.00000	0.9084
$ 42	d8-Toluene	98	6.944	6.944	(1.200)	1098702	50.0000	49.757
43	Toluene	92	6.987	6.987	(1.207)	10354	1.00000	1.024
44	Tetrachloroethene	166	7.297	7.303	(0.884)	3974	1.00000	0.8936
45	4-Methyl-2-Pentanone	58	7.340	7.339	(1.268)	4471	5.00000	4.406(TM)
46	Trans 1,3-Dichloropropene	75	7.346	7.352	(1.269)	4583	1.00000	0.8533
47	1,1,2-Trichloroethane	97	7.486	7.485	(1.293)	2825	1.00000	0.9738(TM)
48	Chlorodibromomethane	129	7.625	7.631	(0.923)	3407	1.00000	0.8883
49	1,3-Dichloropropane	76	7.711	7.711	(0.934)	4685	1.00000	0.9952(TM)
50	1,2-Dibromoethane	107	7.814	7.820	(1.350)	2708	1.00000	0.9270
51	2-Hexanone	43	8.045	8.051	(0.974)	7639	5.00000	4.530
* 52	d5-Chlorobenzene	117	8.258	8.264	(1.000)	830083	50.0000	
53	Chlorobenzene	112	8.276	8.276	(1.002)	11861	1.00000	1.052
54	Ethyl Benzene	91	8.307	8.307	(1.006)	18577	1.00000	1.007
55	1,1,1,2-Tetrachloroethane	131	8.331	8.337	(1.009)	3585	1.00000	0.8843
56	m,p-xylene	106	8.435	8.441	(1.021)	13785	2.00000	1.893
57	o-Xylene	106	8.812	8.812	(1.067)	6404	1.00000	0.9349
58	Styrene	104	8.854	8.860	(1.072)	10183	1.00000	0.9038
59	Bromoform	173	8.873	8.873	(0.857)	2991	1.00000	1.137(M)
60	Isopropyl Benzene	105	9.092	9.092	(0.878)	17474	1.00000	0.9649
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.335	9.341	(1.130)	356646	50.0000	49.561
63	Bromobenzene	156	9.420	9.426	(0.910)	4599	1.00000	0.9931
64	N-Propyl Benzene	91	9.463	9.463	(0.914)	20758	1.00000	0.9989
65	1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	2983	1.00000	0.9112
66	2-Chloro Toluene	91	9.597	9.596	(0.927)	11727	1.00000	0.9781
67	1,3,5-Trimethyl Benzene	105	9.639	9.645	(0.931)	14218	1.00000	0.9455
68	1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	1300	1.00000	1.112(TM)
69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.694	(0.936)	823	1.00000	0.8492(M)
70	4-Chloro Toluene	91	9.743	9.749	(0.941)	12996	1.00000	1.029
71	T-Butyl Benzene	119	9.925	9.931	(0.959)	13579	1.00000	0.9799
72	1,2,4-Trimethylbenzene	105	9.998	9.998	(0.966)	14212	1.00000	0.9631
73	S-Butyl Benzene	105	10.095	10.095	(0.975)	19038	1.00000	0.9509
74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	16451	1.00000	0.9591
75	1,3-Dichlorobenzene	146	10.284	10.284	(0.994)	8848	1.00000	0.9784
* 76	d4-1,4-Dichlorobenzene	152	10.351	10.357	(1.000)	444634	50.0000	
77	1,4-Dichlorobenzene	146	10.363	10.369	(1.001)	9675	1.00000	1.052
78	N-Butyl Benzene	91	10.619	10.625	(1.026)	13768	1.00000	0.9370
$ 79	d4-1,2-Dichlorobenzene	152	10.746	10.752	(1.038)	415712	50.0000	49.901
80	1,2-Dichlorobenzene	146	10.759	10.758	(1.039)	9202	1.00000	1.074
81	1,2-Dibromo 3-Chloropropane	75	11.519	11.525	(1.113)	479	1.00000	0.7153
82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.175)	3449	1.00000	1.084
83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	5758	1.00000	1.066
84	Naphthalene	128	12.492	12.492	(1.207)	10508	1.00000	0.9334
85	1,2,3-Trichlorobenzene	180	12.669	12.675	(1.224)	4156	1.00000	0.8489

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201904.D
Lab Smp Id: SHH0255-CAL1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	461139	0.69
35 1,4-Difluorobenze	852165	426083	1704330	894056	4.92
52 d5-Chlorobenzene	803678	401839	1607356	830083	3.29
76 d4-1,4-Dichlorobe	439766	219883	879532	444634	1.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.11
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.07
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201904.D

Lab ID: SHH0255-CAL1
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 13:53

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.390	0.384	0.0061	Trichlorofluoromethane
0.486	0.480	0.0062	112Trichloro122Trifluoroethane
0.477	0.471	0.0062	1,1-Dichloroethene
0.501	0.496	0.0051	Iodomethane
0.477	0.471	0.0062	Carbon Disulfide
0.640	0.635	0.0053	n-Hexane

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

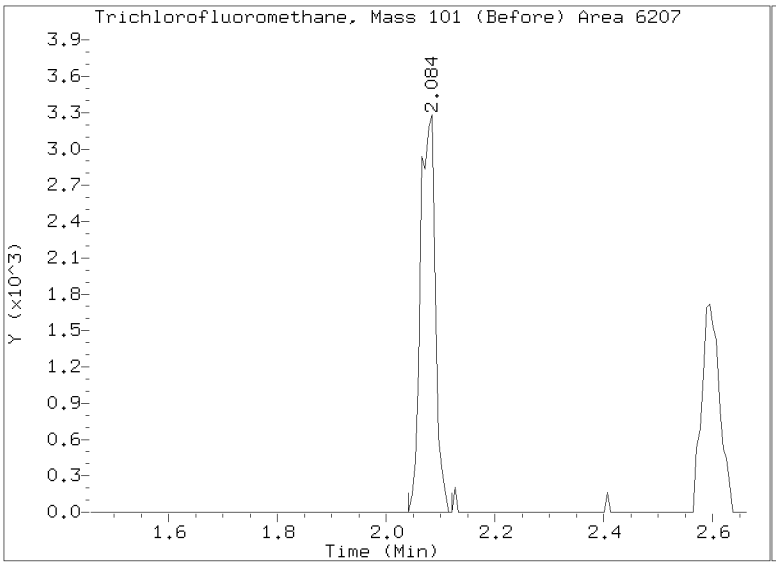
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500

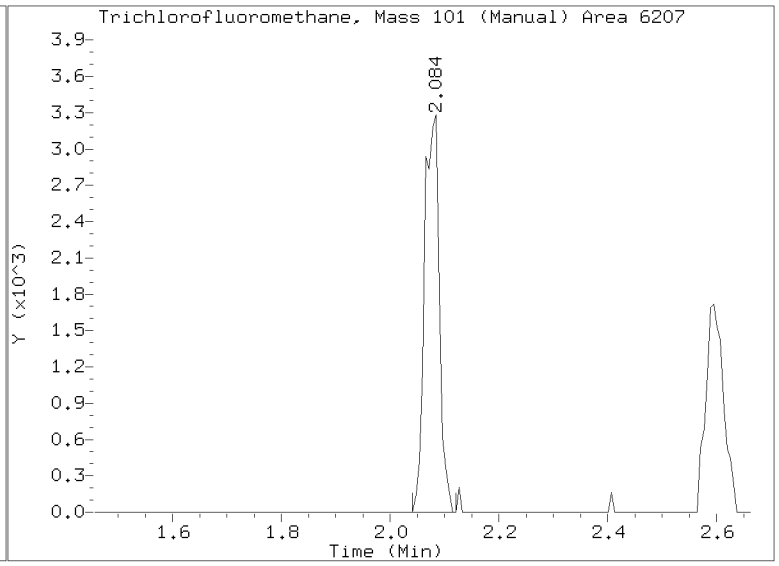
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

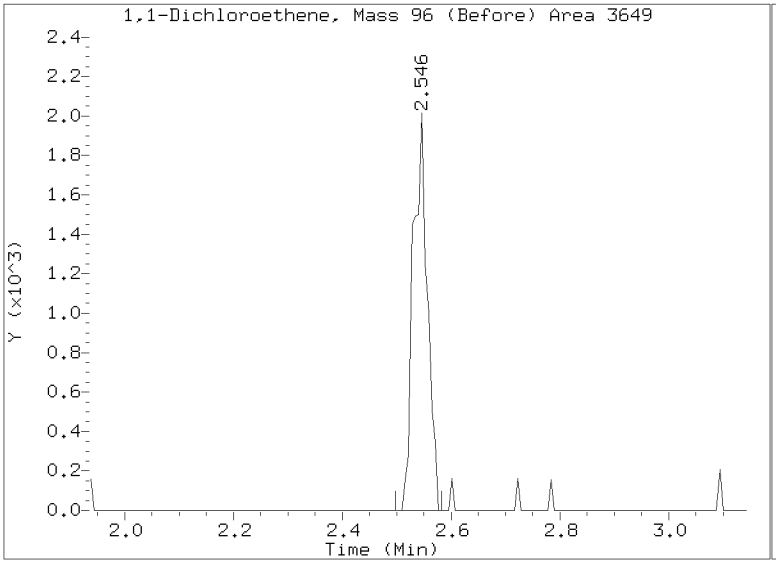
* Only compounds listed in the work order have been verified by the analyst *

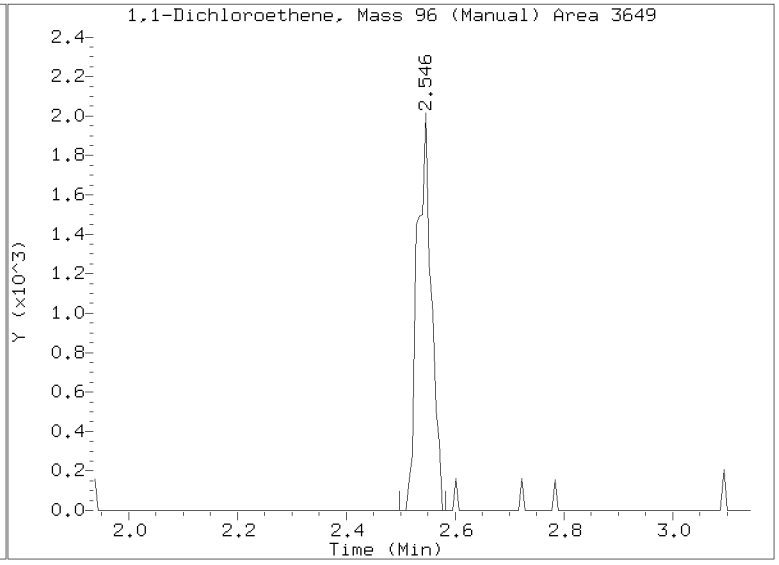
Quant Ion Manual Peak Adjustment Report

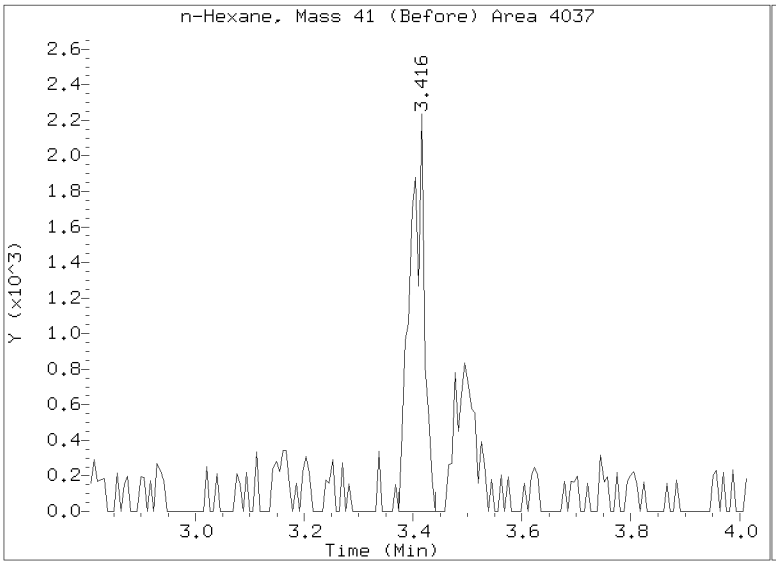
Datafile: //target/share/chem1/nt5.i/20190820.b/NT508201904.D
Injection Date: 20-AUG-2019 13:53
Lab ID:SHH0255-CAL1 Client ID:
Report Date: 08/22/2019 13:32

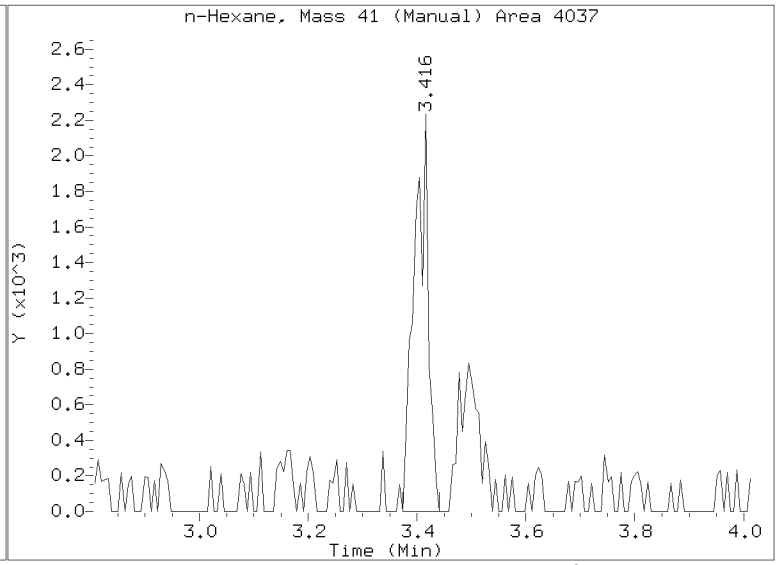












Quant Ion Manual Peak Adjustment Report

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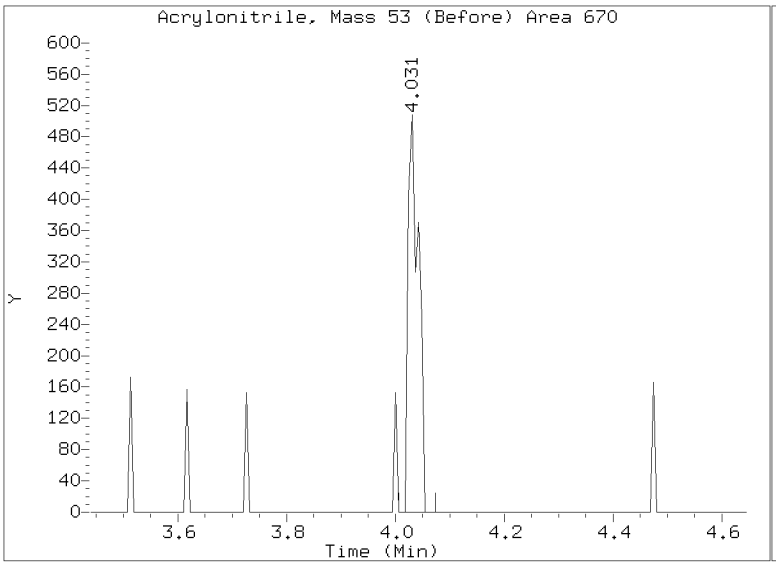
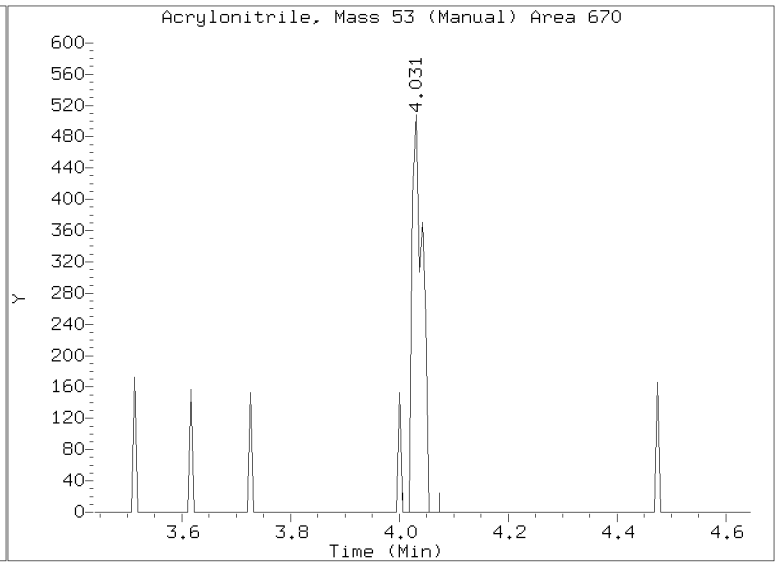
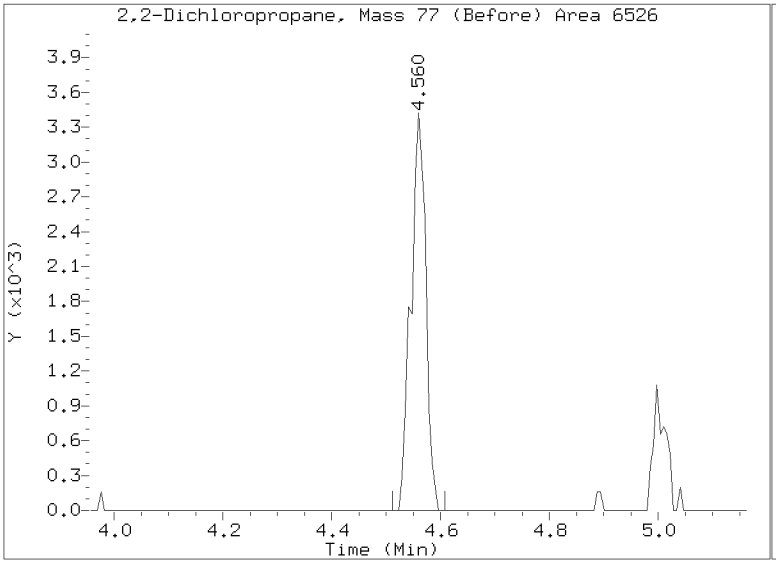
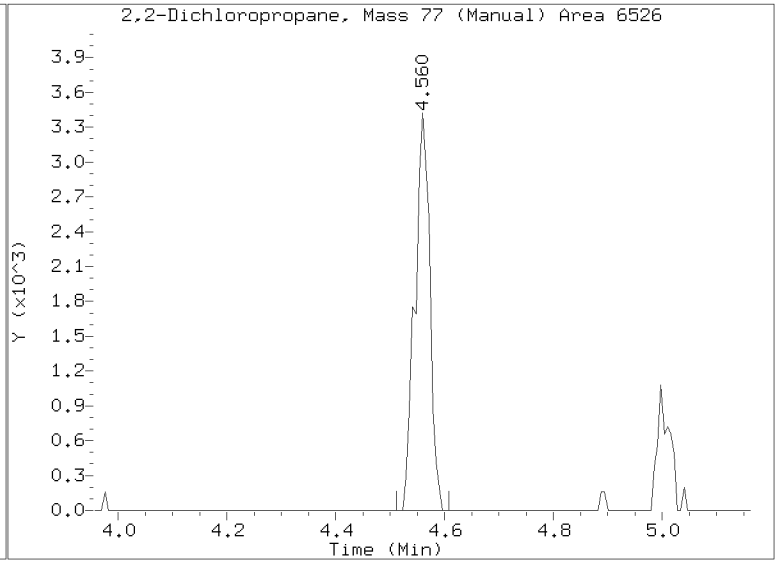
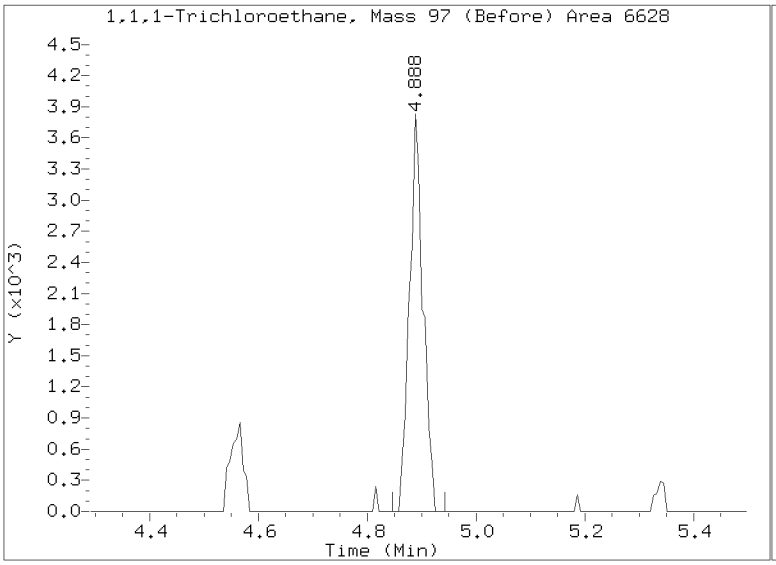
Injection Date: 20-AUG-2019 13:53
Lab ID:SHH0255-CAL1 Client ID:
Report Date: 08/22/2019 13:32

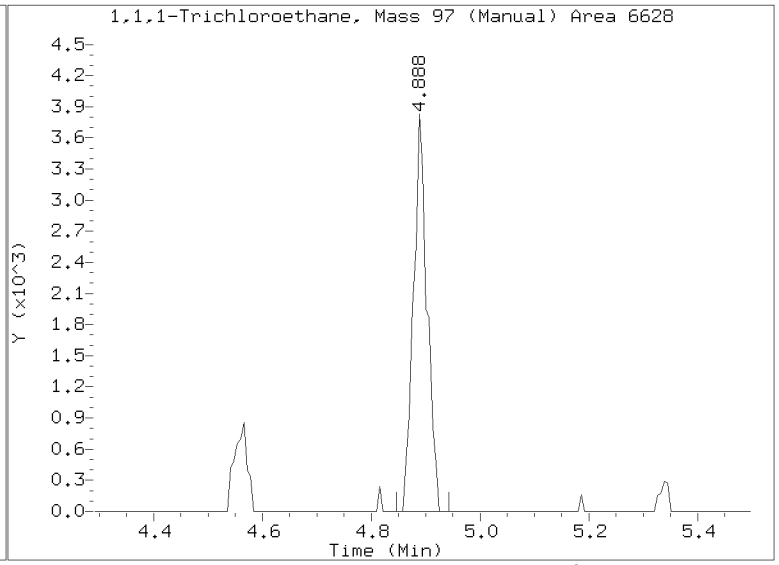












Quant Ion Manual Peak Adjustment Report

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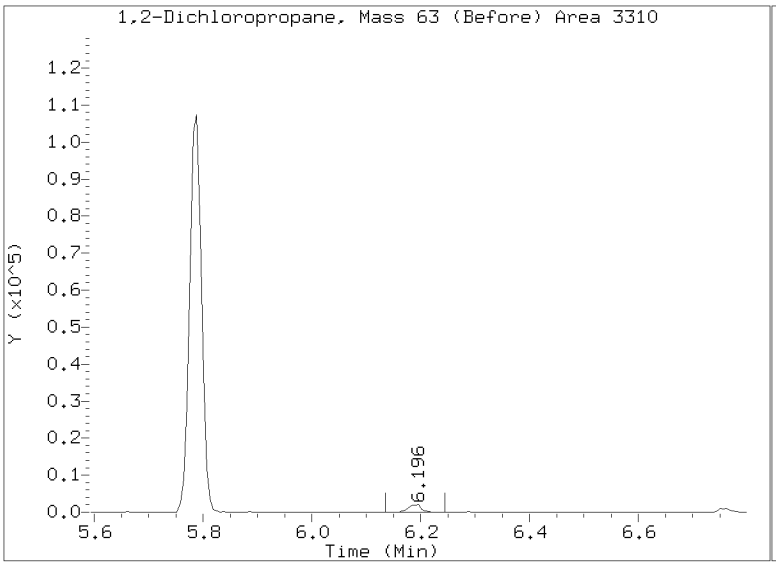
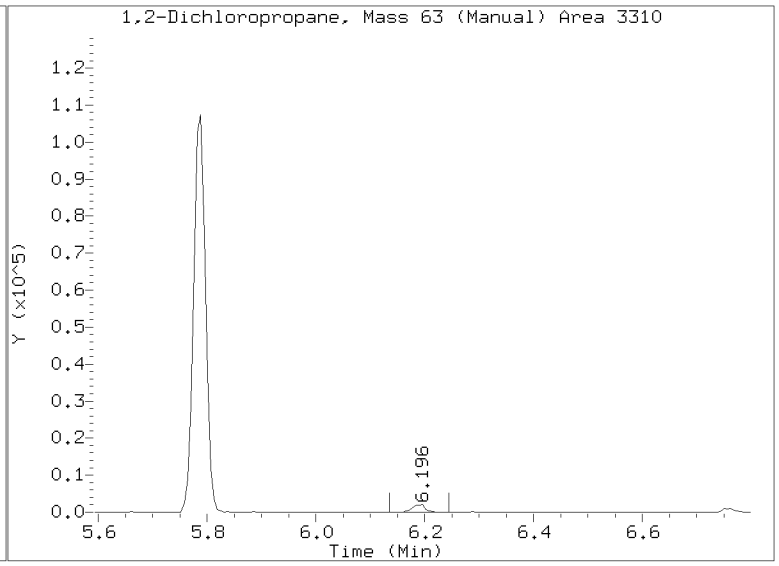
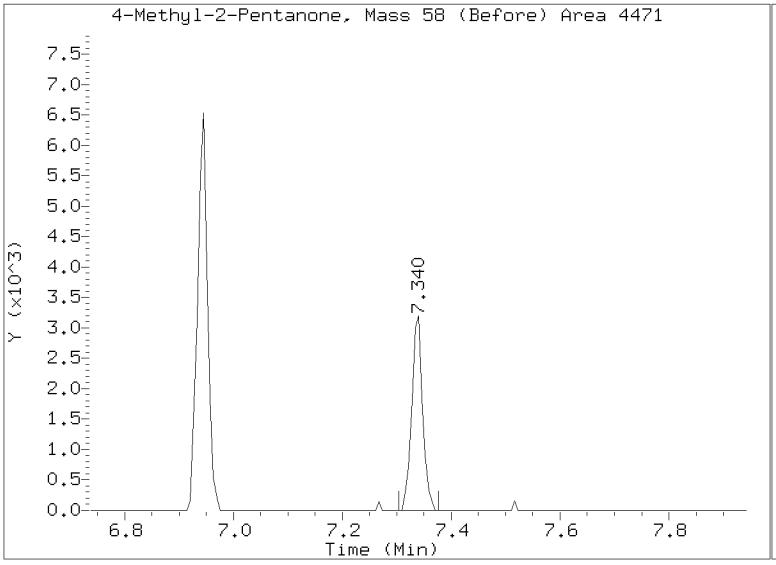
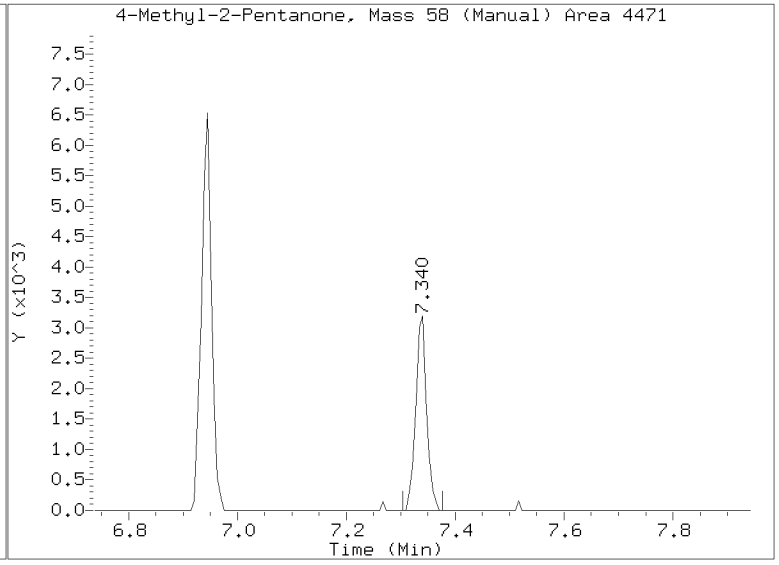
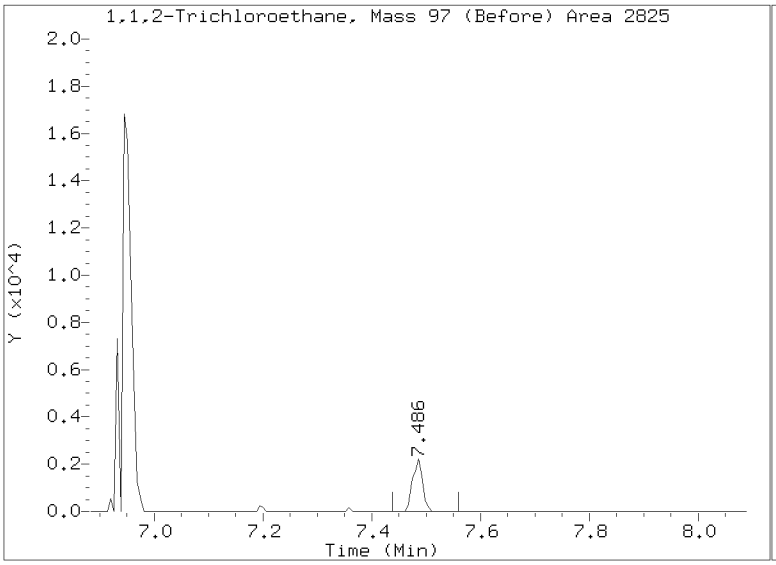
Lab ID:SHH0255-CAL1 Client ID:
Report Date: 08/22/2019 13:32

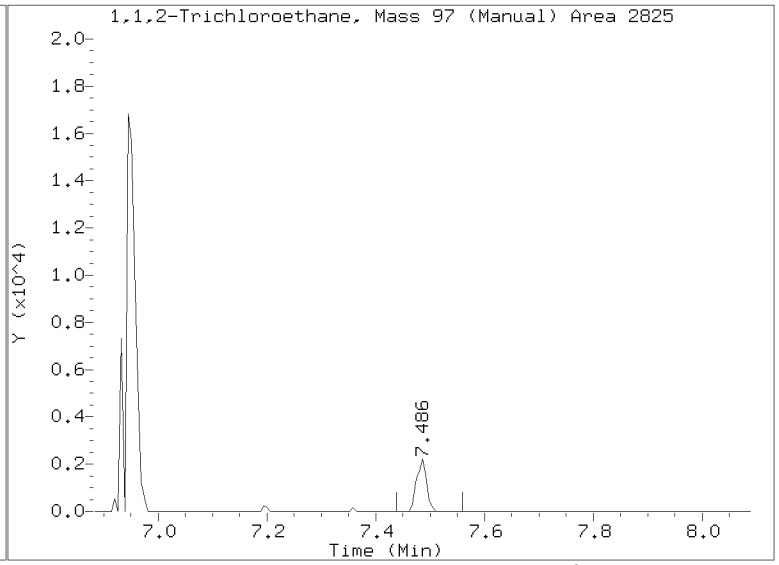












Quant Ion Manual Peak Adjustment Report

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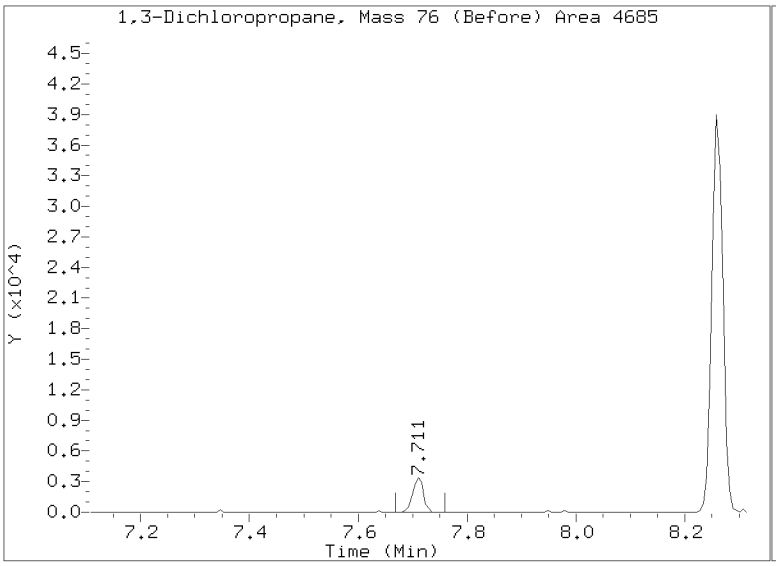
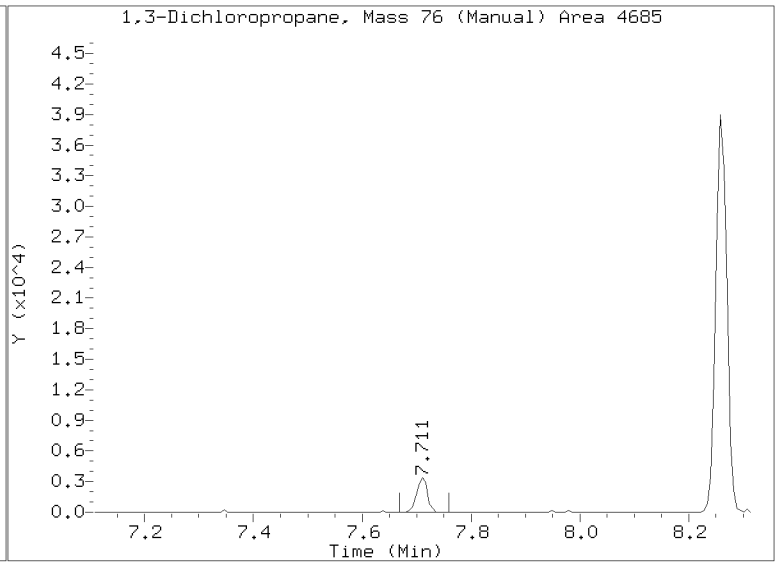
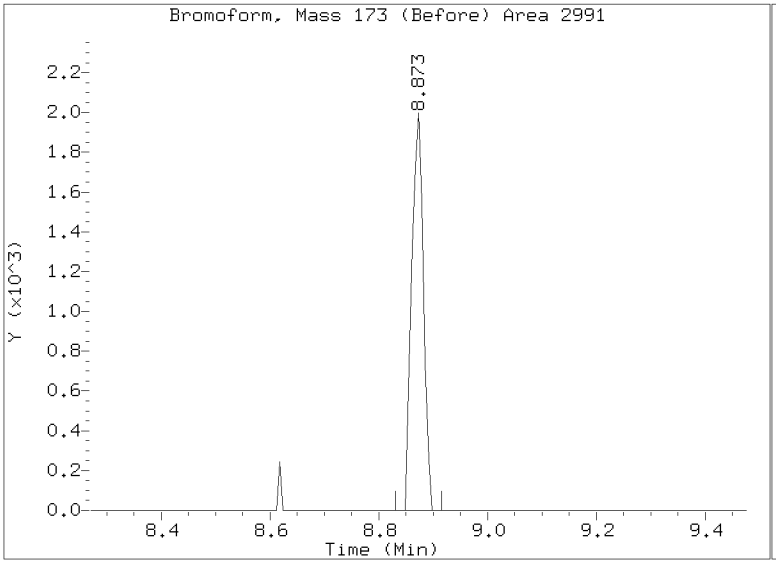
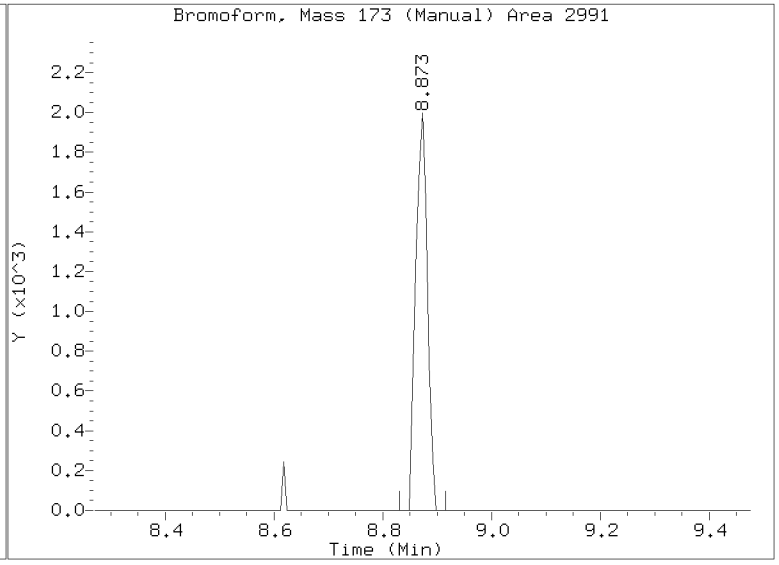
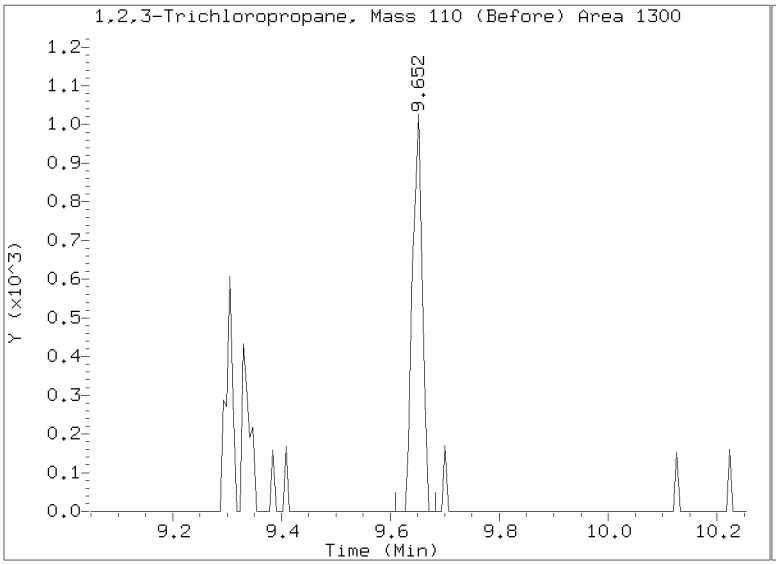
Lab ID:SHH0255-CAL1 Client ID:
Report Date: 08/22/2019 13:32

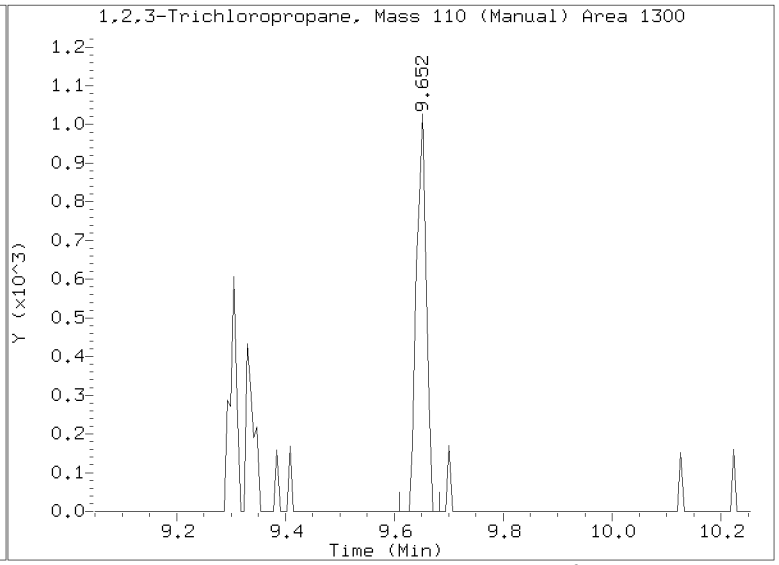












Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190820.b/NT508201904.D
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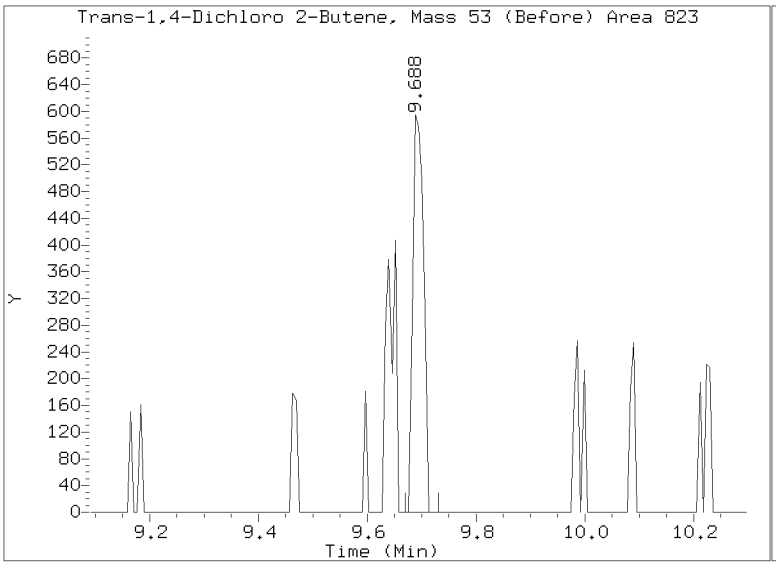
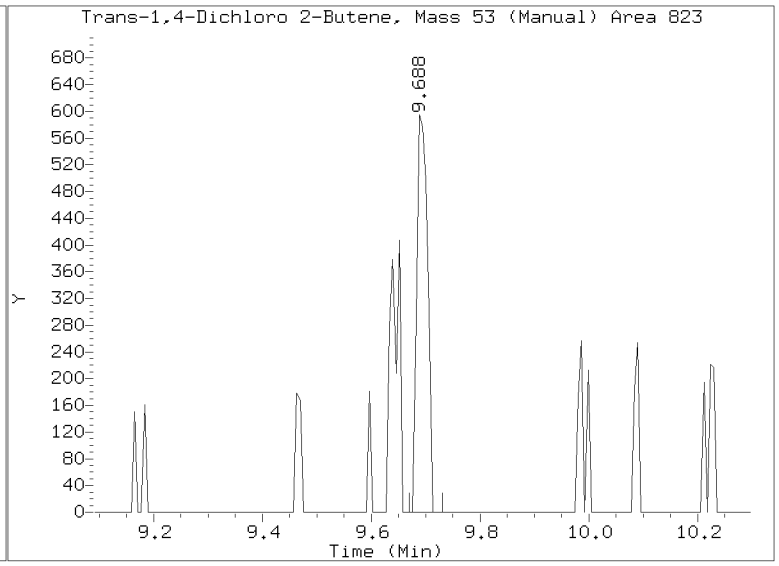
Lab ID:SHH0255-CAL1 Client ID:
Report Date: 08/22/2019 13:32





Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201905.D

Date : 20-AUG-2019 14:15

Client ID:

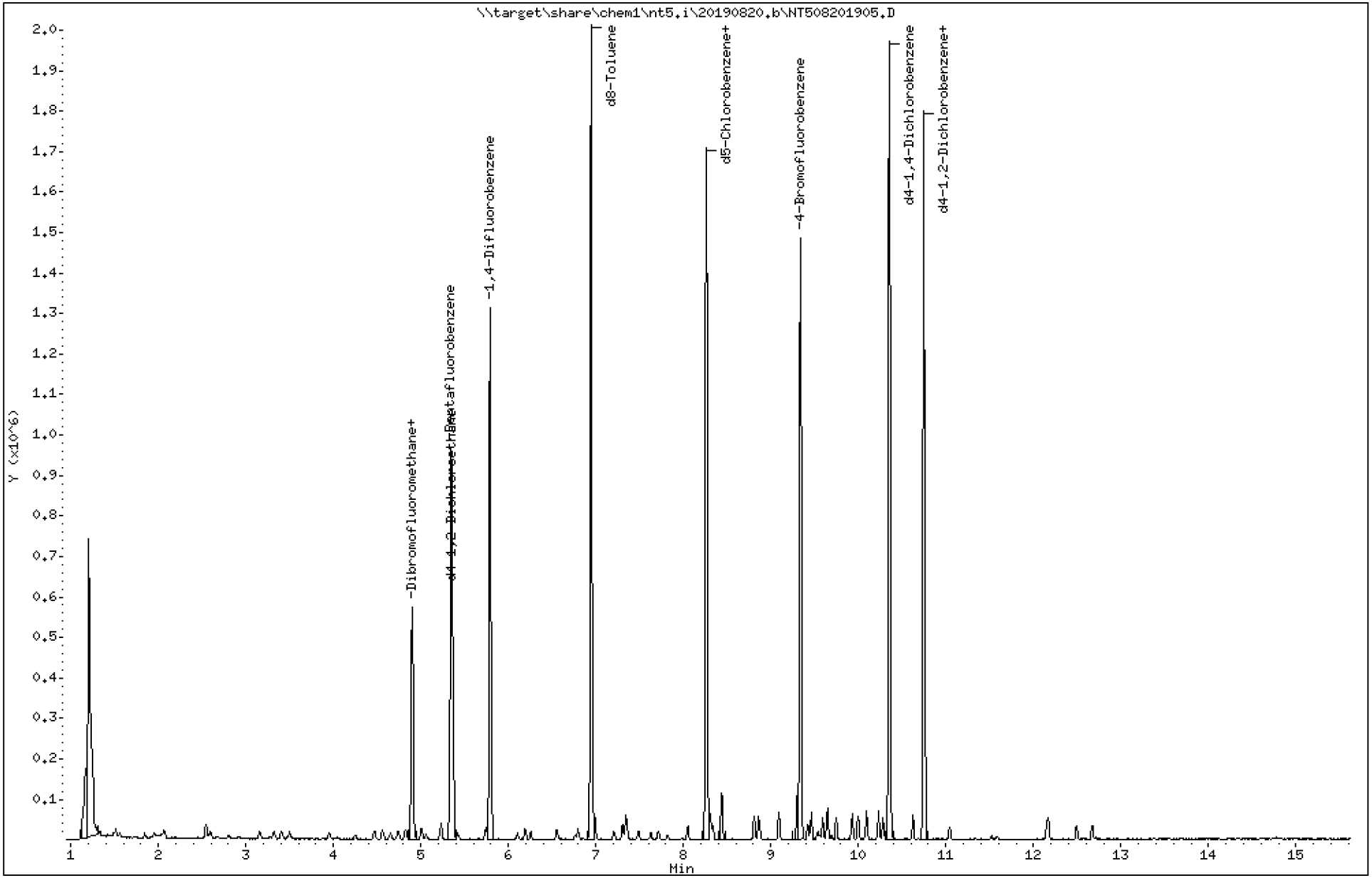
Sample Info: SHH0255-CAL2

Instrument: nt5.i

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201905.D
Lab Smp Id: SHH0255-CAL2
Inj Date : 20-AUG-2019 14:15
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL2
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 13:53 Cal File: NT508201904.D
Als bottle: 7 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	7642	2.00000	2.140(M)
	2 Chloromethane	50	1.487	1.487	(0.278)	7104	2.00000	2.208
	3 Vinyl Chloride	62	1.560	1.560	(0.292)	5937	2.00000	1.893
	4 Bromomethane	94	1.840	1.840	(0.344)	6279	2.00000	2.258
	5 Chloroethane	64	1.949	1.950	(0.365)	5847	2.00000	2.223
	6 Trichlorofluoromethane	101	2.065	2.059	(0.386)	13625	2.00000	2.136
	7 1,1-Dichloroethene	96	2.540	2.540	(0.475)	6610	2.00000	2.003
	8 Carbon Disulfide	76	2.546	2.540	(0.476)	20645	2.00000	2.092
	9 112Trichloro122Trifluoroethane	101	2.594	2.588	(0.486)	7028	2.00000	2.159
	10 Iodomethane	142	2.667	2.673	(0.499)	5853	2.00000	1.654
	11 Bromoethane	108	2.795	2.801	(0.523)	4957	2.00000	2.230
	12 Acrolein	56	2.911	2.917	(0.545)	3959	10.0000	10.633(M)
	13 Methylene Chloride	84	3.160	3.161	(0.591)	8558	2.00000	2.943
	14 Acetone	43	3.270	3.270	(0.612)	7315	10.0000	11.625
	15 Trans-1,2-Dichloroethene	96	3.318	3.318	(0.621)	7587	2.00000	2.091
	16 Methyl tert butyl ether	73	3.501	3.495	(0.655)	16676	2.00000	1.993
	173 n-Hexane	41	3.410	3.409	(0.638)	7355	2.00000	2.231(H)
	17 1,1-Dichloroethane	63	3.951	3.951	(0.739)	11320	2.00000	2.020
	18 Acrylonitrile	53	4.036	4.042	(0.755)	1448	2.00000	2.041(T)
	19 Vinyl Acetate	43	4.249	4.249	(0.795)	11266	2.00000	1.942
	20 Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	8624	2.00000	2.108
	22 2,2-Dichloropropane	77	4.559	4.559	(0.853)	12570	2.00000	2.023
	23 Bromochloromethane	128	4.657	4.651	(0.871)	4226	2.00000	2.174
	24 Chloroform	83	4.736	4.742	(0.886)	13264	2.00000	2.039
	25 Carbon Tetrachloride	117	4.821	4.827	(0.833)	12857	2.00000	2.045
$	27 Dibromofluoromethane	111	4.900	4.900	(0.917)	277037	50.0000	48.941
	26 1,1,1-Trichloroethane	97	4.900	4.894	(0.917)	13345	2.00000	2.011(M)
	28 1,1-Dichloropropene	75	5.009	5.009	(0.865)	9375	2.00000	1.883
	29 2-Butanone	72	5.058	5.052	(0.947)	2977	10.0000	9.463
	30 Benzene	78	5.229	5.228	(0.903)	27567	2.00000	1.968
*	31 Pentafluorobenzene	168	5.344	5.344	(1.000)	460915	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	276222	50.0000	49.806
	33 1,2-Dichloroethane	62	5.423	5.423	(0.937)	9485	2.00000	1.973

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	5.740	5.746	(0.992)	8905	2.00000	2.077
* 35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	875775	50.0000	
37	Dibromomethane	93	6.105	6.104	(1.055)	3754	2.00000	1.861
38	1,2-Dichloropropane	63	6.190	6.196	(1.069)	6547	2.00000	2.052(M)
39	Bromodichloromethane	83	6.257	6.257	(1.081)	9465	2.00000	1.911
172	2-Pentanone	86	6.549	6.549	(1.131)	3973	10.0000	9.635
40	2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	2915	2.00000	1.677
41	Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	11243	2.00000	1.961
$ 42	d8-Toluene	98	6.944	6.944	(1.200)	1071813	50.0000	49.553
43	Toluene	92	6.987	6.987	(1.207)	20756	2.00000	2.095
44	Tetrachloroethene	166	7.303	7.303	(0.884)	10010	2.00000	2.272
45	4-Methyl-2-Pentanone	58	7.340	7.339	(1.268)	10066	10.0000	10.128(TM)
46	Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	10978	2.00000	2.087
47	1,1,2-Trichloroethane	97	7.486	7.485	(1.293)	5394	2.00000	1.898(TM)
48	Chlorodibromomethane	129	7.625	7.631	(0.923)	7984	2.00000	2.101
49	1,3-Dichloropropane	76	7.711	7.711	(0.933)	8952	2.00000	1.920
50	1,2-Dibromoethane	107	7.820	7.820	(1.351)	5226	2.00000	1.826
51	2-Hexanone	43	8.051	8.051	(0.974)	15193	10.0000	9.095
* 52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	822282	50.0000	
53	Chlorobenzene	112	8.276	8.276	(1.001)	22172	2.00000	1.984
54	Ethyl Benzene	91	8.307	8.307	(1.005)	36410	2.00000	1.993
55	1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	8028	2.00000	1.999
56	m,p-xylene	106	8.435	8.441	(1.021)	28007	4.00000	3.881
57	o-Xylene	106	8.812	8.812	(1.066)	12638	2.00000	1.863
58	Styrene	104	8.860	8.860	(1.072)	20369	2.00000	1.825
59	Bromoform	173	8.873	8.873	(0.857)	5314	2.00000	2.046
60	Isopropyl Benzene	105	9.092	9.092	(0.878)	34424	2.00000	1.926
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.335	9.341	(1.130)	354603	50.0000	49.745
63	Bromobenzene	156	9.420	9.426	(0.910)	9497	2.00000	2.078
64	N-Propyl Benzene	91	9.463	9.463	(0.914)	42039	2.00000	2.049
65	1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	6935	2.00000	2.146
66	2-Chloro Toluene	91	9.597	9.596	(0.927)	23787	2.00000	2.010
67	1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.932)	28328	2.00000	1.909
68	1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	2124	2.00000	1.840(TM)
69	Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.937)	2109	2.00000	2.205(M)
70	4-Chloro Toluene	91	9.749	9.749	(0.942)	24772	2.00000	1.988
71	T-Butyl Benzene	119	9.931	9.931	(0.959)	26980	2.00000	1.973
72	1,2,4-Trimethylbenzene	105	9.998	9.998	(0.966)	28044	2.00000	1.925
73	S-Butyl Benzene	105	10.095	10.095	(0.975)	40586	2.00000	2.054
74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	32428	2.00000	1.915
75	1,3-Dichlorobenzene	146	10.278	10.284	(0.993)	17925	2.00000	2.008
* 76	d4-1,4-Dichlorobenzene	152	10.351	10.357	(1.000)	438862	50.0000	
77	1,4-Dichlorobenzene	146	10.369	10.369	(1.002)	18701	2.00000	2.061
78	N-Butyl Benzene	91	10.625	10.625	(1.026)	30028	2.00000	2.070
$ 79	d4-1,2-Dichlorobenzene	152	10.746	10.752	(1.038)	411137	50.0000	50.001
80	1,2-Dichlorobenzene	146	10.752	10.758	(1.039)	17713	2.00000	2.094
81	1,2-Dibromo 3-Chloropropane	75	11.519	11.525	(1.113)	1549	2.00000	2.344
82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.175)	6940	2.00000	2.210
83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	11470	2.00000	2.152
84	Naphthalene	128	12.492	12.492	(1.207)	23030	2.00000	2.073
85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.225)	9577	2.00000	1.982

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201905.D
Lab Smp Id: SHH0255-CAL2
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	460915	0.64
35 1,4-Difluorobenze	852165	426083	1704330	875775	2.77
52 d5-Chlorobenzene	803678	401839	1607356	822282	2.31
76 d4-1,4-Dichlorobe	439766	219883	879532	438862	-0.21

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201905.D

Lab ID: SHH0255-CAL2
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 14:15

RT	CO-ELUTION COMPOUNDS
4.900	Dibromofluoromethane and 1,1,1-Trichloroethane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.485	0.480	0.0057	112Trichloro122Trifluoroethane
0.476	0.471	0.0057	Carbon Disulfide

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

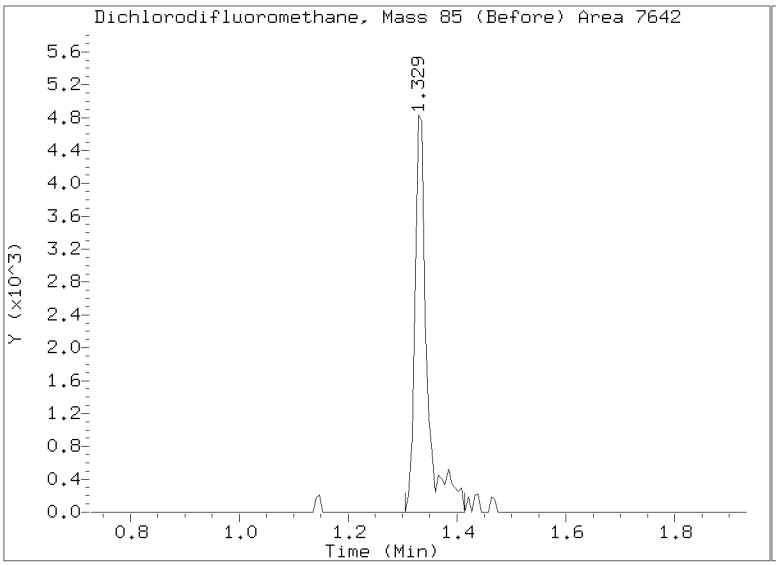
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500

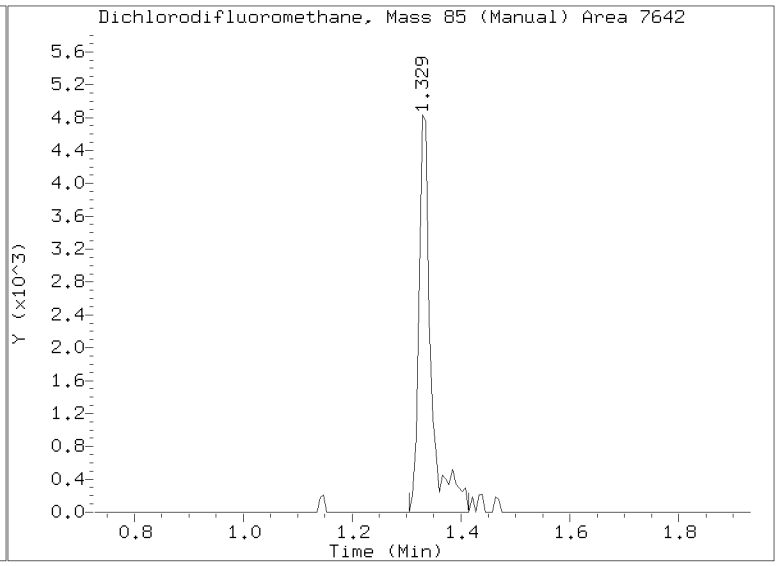
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

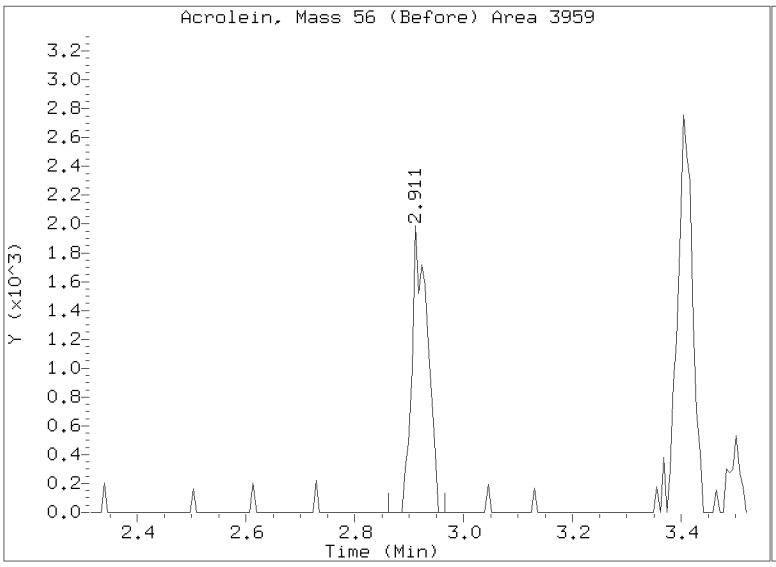
* Only compounds listed in the work order have been verified by the analyst *

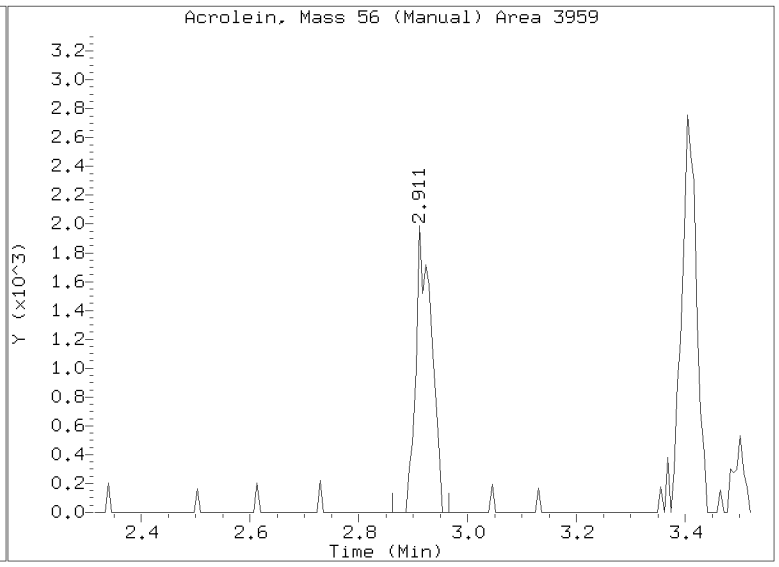
Quant Ion Manual Peak Adjustment Report

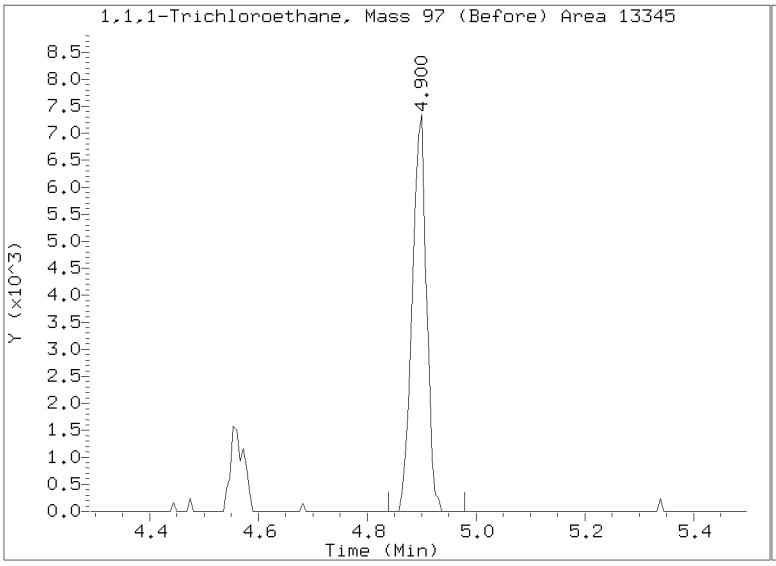
Datafile: //target/share/chem1/nt5.i/20190820.b/NT508201905.D
Injection Date: 20-AUG-2019 14:15
Lab ID:SHH0255-CAL2 Client ID:
Report Date: 08/22/2019 13:32

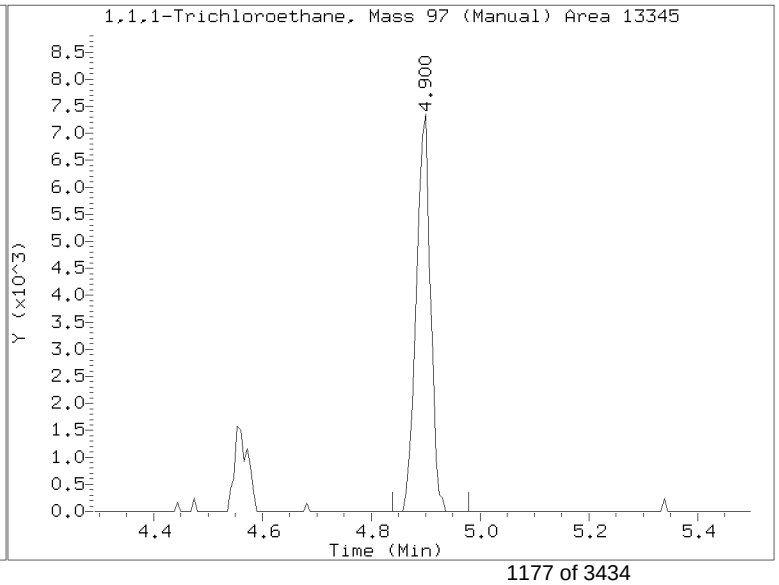












Quant Ion Manual Peak Adjustment Report

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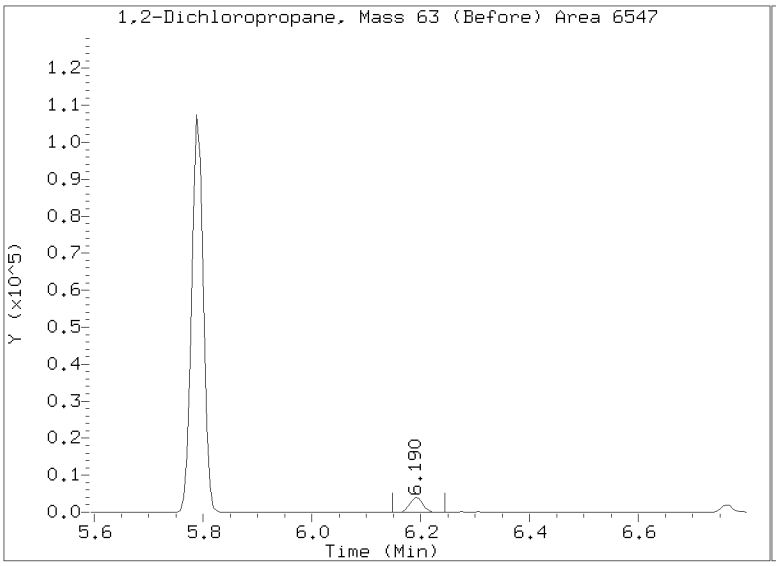
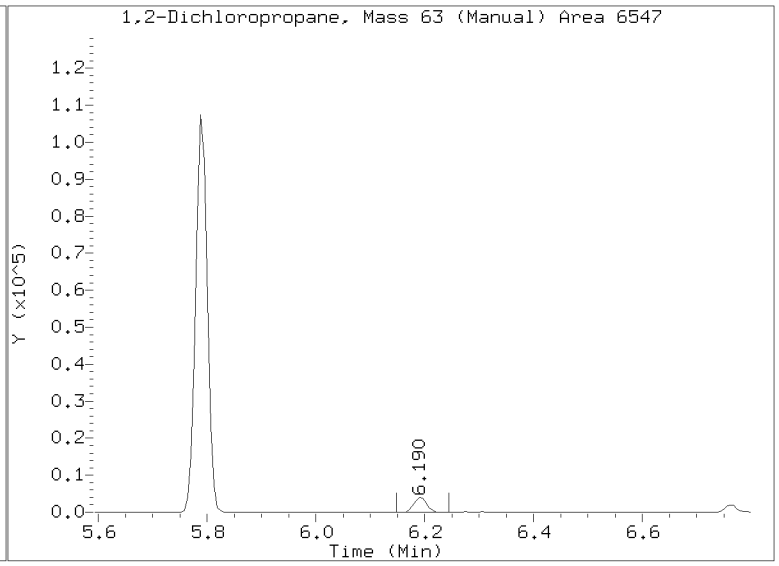
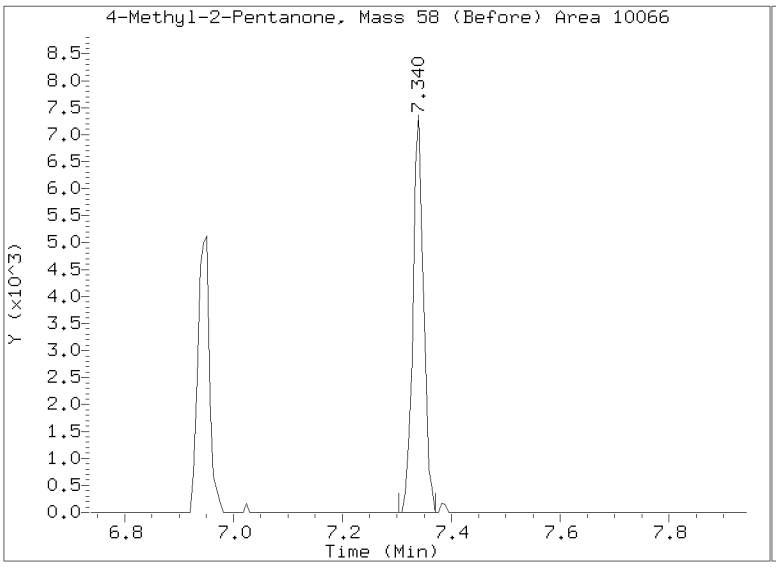
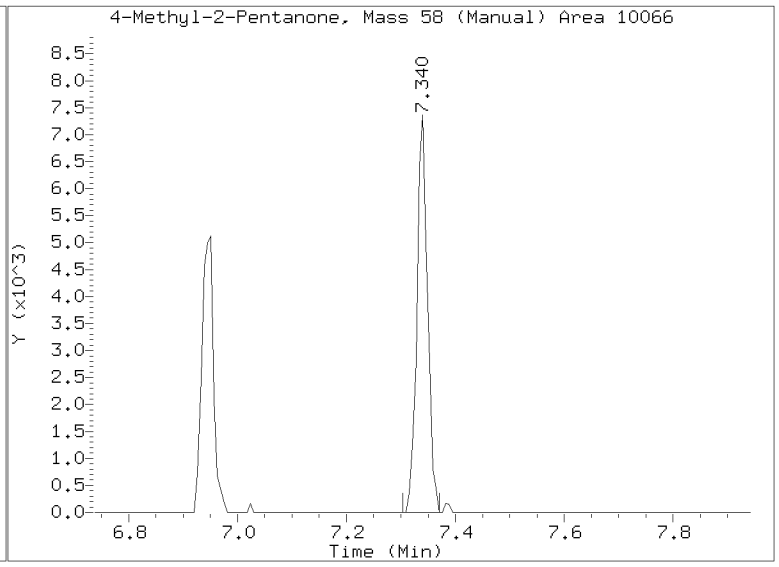
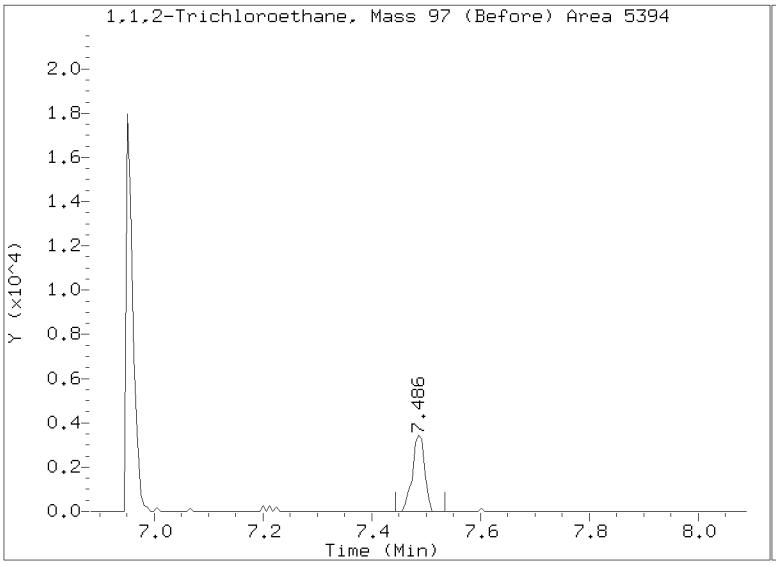
Injection Date: 20-AUG-2019 14:15
Lab ID:SHH0255-CAL2 Client ID:
Report Date: 08/22/2019 13:32

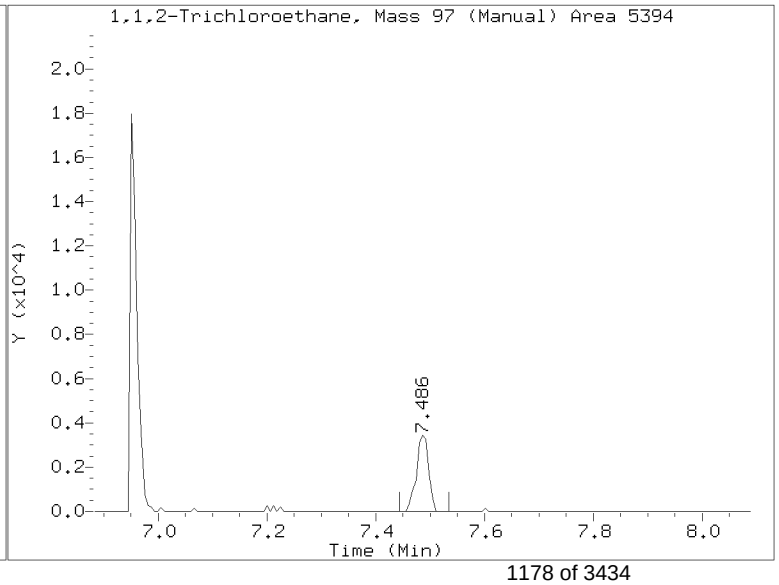












Quant Ion Manual Peak Adjustment Report

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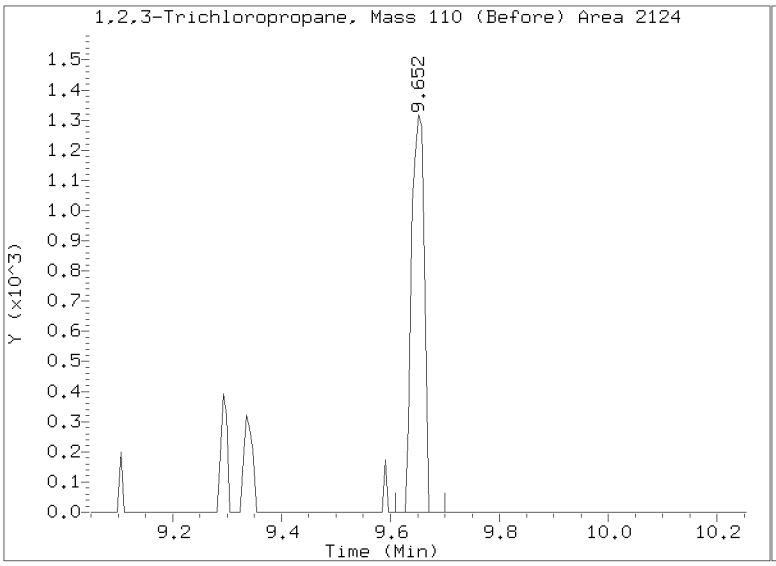
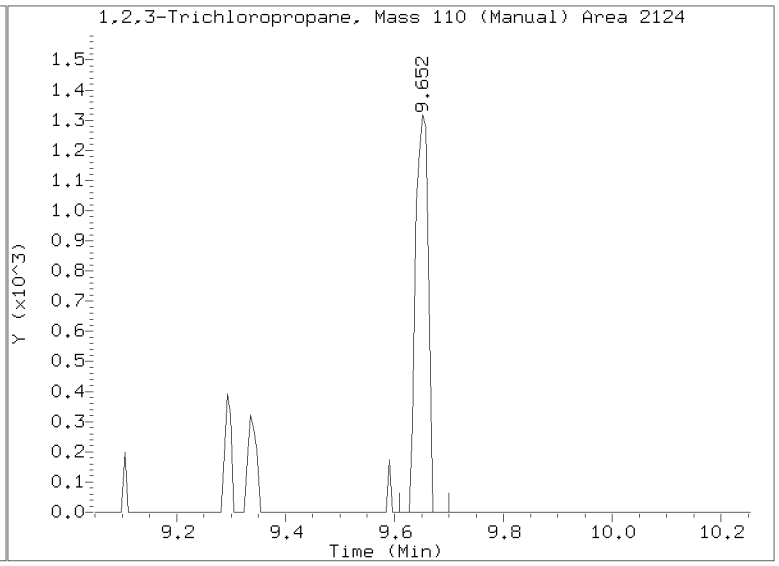
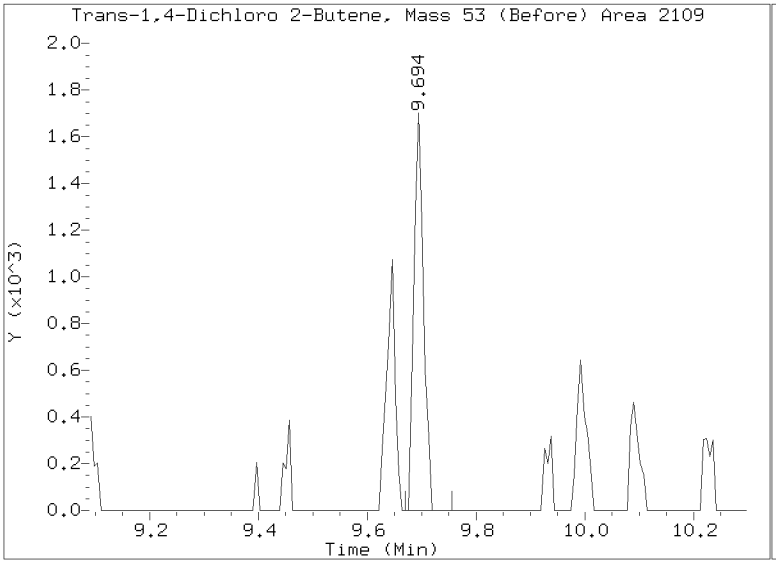
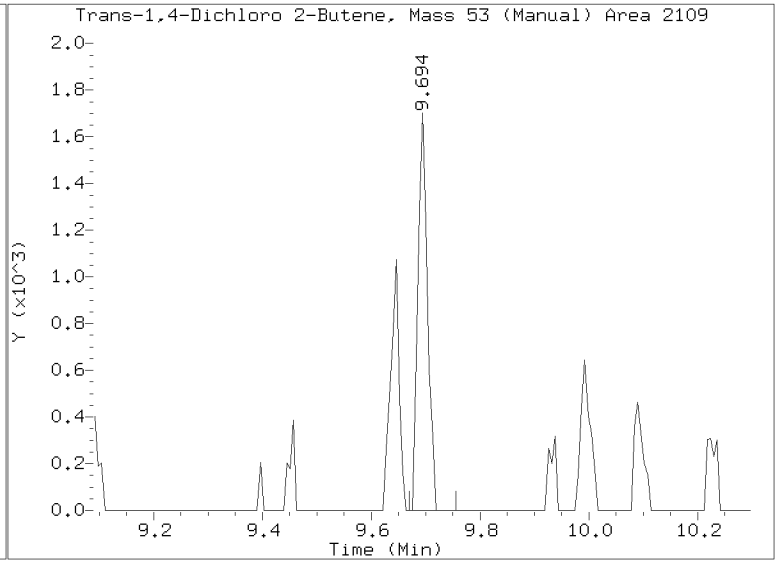
Injection Date: 20-AUG-2019 14:15
Lab ID:SHH0255-CAL2 Client ID:
Report Date: 08/22/2019 13:32









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Date : 20-AUG-2019 14:37

Client ID:

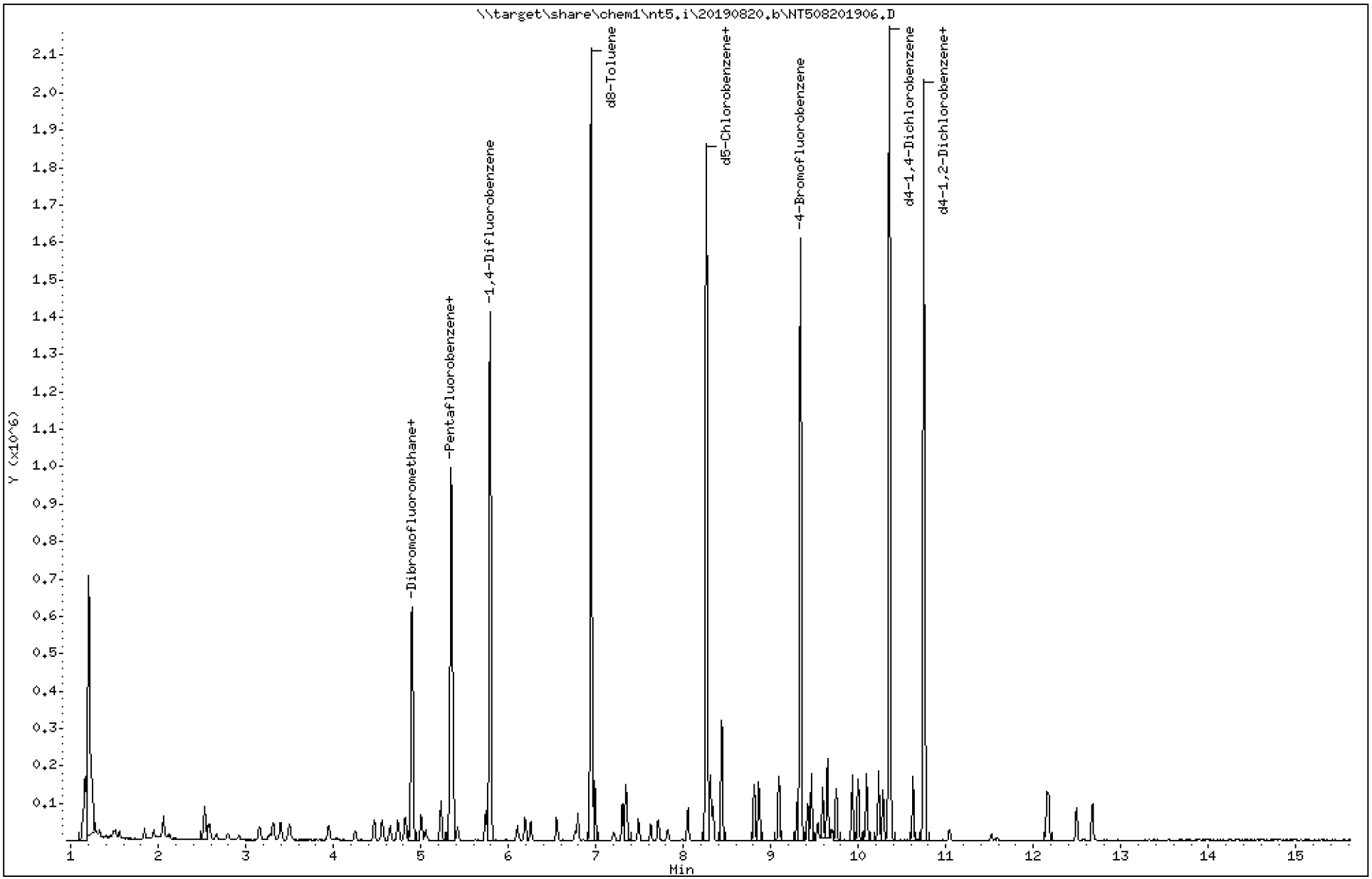
Instrument: nt5.i

Sample Info: SHH0255-CAL3

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



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8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201906.D
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Inj Date : 20-AUG-2019 14:37
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL3
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 14:15 Cal File: NT508201905.D
Als bottle: 8 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	16680	5.00000	4.422(M)
	2 Chloromethane	50	1.487	1.487	(0.278)	15895	5.00000	4.678
	3 Vinyl Chloride	62	1.554	1.560	(0.291)	16522	5.00000	4.988(M)
	4 Bromomethane	94	1.840	1.840	(0.344)	14023	5.00000	4.775
	5 Chloroethane	64	1.944	1.950	(0.364)	14894	5.00000	5.361
	6 Trichlorofluoromethane	101	2.059	2.059	(0.385)	33753	5.00000	5.009
	7 1,1-Dichloroethene	96	2.528	2.540	(0.473)	17013	5.00000	4.881
	8 Carbon Disulfide	76	2.528	2.540	(0.473)	51523	5.00000	4.944
	9 112Trichloro122Trifluoroethane	101	2.576	2.588	(0.482)	16885	5.00000	4.911
	10 Iodomethane	142	2.661	2.673	(0.498)	16397	5.00000	4.388
	11 Bromoethane	108	2.789	2.801	(0.522)	12384	5.00000	5.274
	12 Acrolein	56	2.929	2.917	(0.548)	10737	25.0000	27.303
	13 Methylene Chloride	84	3.154	3.161	(0.590)	18541	5.00000	6.038
	14 Acetone	43	3.270	3.270	(0.612)	17600	25.0000	26.482
	15 Trans-1,2-Dichloroethene	96	3.312	3.318	(0.620)	19161	5.00000	5.000
	16 Methyl tert butyl ether	73	3.501	3.495	(0.655)	44820	5.00000	5.072
	173 n-Hexane	41	3.391	3.409	(0.635)	18066	5.00000	5.188(H)
	17 1,1-Dichloroethane	63	3.945	3.951	(0.738)	29350	5.00000	4.958
	18 Acrylonitrile	53	4.036	4.042	(0.755)	3234	5.00000	4.317(T)
	19 Vinyl Acetate	43	4.249	4.249	(0.795)	30211	5.00000	4.930
	20 Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	21212	5.00000	4.909
	22 2,2-Dichloropropane	77	4.559	4.559	(0.853)	32941	5.00000	5.020
	23 Bromochloromethane	128	4.651	4.651	(0.870)	10298	5.00000	5.016
	24 Chloroform	83	4.736	4.742	(0.886)	35423	5.00000	5.155
	25 Carbon Tetrachloride	117	4.821	4.827	(0.833)	33429	5.00000	5.013
$	27 Dibromofluoromethane	111	4.900	4.900	(0.917)	297130	50.0000	49.699
	26 1,1,1-Trichloroethane	97	4.888	4.894	(0.915)	35625	5.00000	5.083
	28 1,1-Dichloropropene	75	5.004	5.009	(0.864)	27297	5.00000	5.169
	29 2-Butanone	72	5.052	5.052	(0.945)	8355	25.0000	25.146
	30 Benzene	78	5.229	5.228	(0.903)	77103	5.00000	5.191
*	31 Pentafluorobenzene	168	5.344	5.344	(1.000)	486804	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.362	(1.002)	289185	50.0000	49.371
	33 1,2-Dichloroethane	62	5.417	5.423	(0.936)	25172	5.00000	4.937

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	34	Trichloroethene	130	5.740	5.746	(0.992)	23310	5.00000	5.125
*	35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	928833	50.0000	
	37	Dibromomethane	93	6.105	6.104	(1.055)	10806	5.00000	5.051
	38	1,2-Dichloropropane	63	6.190	6.196	(1.069)	16495	5.00000	4.875
	39	Bromodichloromethane	83	6.257	6.257	(1.081)	26967	5.00000	5.133
	172	2-Pentanone	86	6.549	6.549	(1.131)	9980	25.0000	22.820
	40	2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	8480	5.00000	4.600
	41	Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	30503	5.00000	5.017
$	42	d8-Toluene	98	6.944	6.944	(1.200)	1143378	50.0000	49.842
	43	Toluene	92	6.987	6.987	(1.207)	53691	5.00000	5.110
	44	Tetrachloroethene	166	7.303	7.303	(0.884)	23680	5.00000	5.054
	45	4-Methyl-2-Pentanone	58	7.340	7.339	(1.268)	23612	25.0000	22.399(TM)
	46	Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	27622	5.00000	4.950
	47	1,1,2-Trichloroethane	97	7.486	7.485	(1.293)	14948	5.00000	4.960
	48	Chlorodibromomethane	129	7.626	7.631	(0.923)	19300	5.00000	4.776
	49	1,3-Dichloropropane	76	7.711	7.711	(0.933)	24932	5.00000	5.026
	50	1,2-Dibromoethane	107	7.820	7.820	(1.351)	14831	5.00000	4.887
	51	2-Hexanone	43	8.051	8.051	(0.974)	42193	25.0000	23.747
*	52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	874648	50.0000	
	53	Chlorobenzene	112	8.277	8.276	(1.001)	61267	5.00000	5.155
	54	Ethyl Benzene	91	8.307	8.307	(1.005)	100387	5.00000	5.165
	55	1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	21589	5.00000	5.054
	56	m,p-xylene	106	8.441	8.441	(1.021)	77563	10.0000	10.106
	57	o-Xylene	106	8.812	8.812	(1.066)	35437	5.00000	4.910
	58	Styrene	104	8.861	8.860	(1.072)	58669	5.00000	4.942
	59	Bromoform	173	8.873	8.873	(0.857)	13572	5.00000	4.739
	60	Isopropyl Benzene	105	9.092	9.092	(0.878)	97614	5.00000	4.953
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.341	(1.130)	379731	50.0000	50.080
	63	Bromobenzene	156	9.420	9.426	(0.910)	24261	5.00000	4.814
	64	N-Propyl Benzene	91	9.463	9.463	(0.914)	115444	5.00000	5.105
	65	1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	17637	5.00000	4.951
	66	2-Chloro Toluene	91	9.591	9.596	(0.927)	65538	5.00000	5.023
	67	1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.932)	80993	5.00000	4.950
	68	1,2,3-Trichloropropane	110	9.645	9.651	(0.932)	5583	5.00000	4.387
	69	Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.937)	4567	5.00000	4.331
	70	4-Chloro Toluene	91	9.749	9.749	(0.942)	69699	5.00000	5.073
	71	T-Butyl Benzene	119	9.931	9.931	(0.959)	72746	5.00000	4.824
	72	1,2,4-Trimethylbenzene	105	9.998	9.998	(0.966)	79208	5.00000	4.933
	73	S-Butyl Benzene	105	10.096	10.095	(0.975)	109177	5.00000	5.011
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	93095	5.00000	4.988
	75	1,3-Dichlorobenzene	146	10.278	10.284	(0.993)	49764	5.00000	5.057
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.357	(1.000)	483827	50.0000	
	77	1,4-Dichlorobenzene	146	10.369	10.369	(1.002)	50432	5.00000	5.042
	78	N-Butyl Benzene	91	10.625	10.625	(1.026)	79774	5.00000	4.989
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.752	(1.038)	449585	50.0000	49.595
	80	1,2-Dichlorobenzene	146	10.759	10.758	(1.039)	46197	5.00000	4.954
	81	1,2-Dibromo 3-Chloropropane	75	11.519	11.525	(1.113)	3264	5.00000	4.479
	82	Hexachloro 1,3-Butadiene	225	12.152	12.158	(1.174)	18530	5.00000	5.353
	83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	31518	5.00000	5.365
	84	Naphthalene	128	12.492	12.492	(1.207)	58406	5.00000	4.768
	85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	28475	5.00000	5.345

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201906.D
Lab Smp Id: SHH0255-CAL3
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	486804	6.30
35 1,4-Difluorobenze	852165	426083	1704330	928833	9.00
52 d5-Chlorobenzene	803678	401839	1607356	874648	8.83
76 d4-1,4-Dichlorobe	439766	219883	879532	483827	10.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201906.D

Lab ID: SHH0255-CAL3
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 14:37

RT	CO-ELUTION COMPOUNDS
9.646	1,2,3-Trichloropropane and 1,3,5-Trimethyl Benzene
9.646	1,3,5-Trimethyl Benzene and 1,2,3-Trichloropropane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

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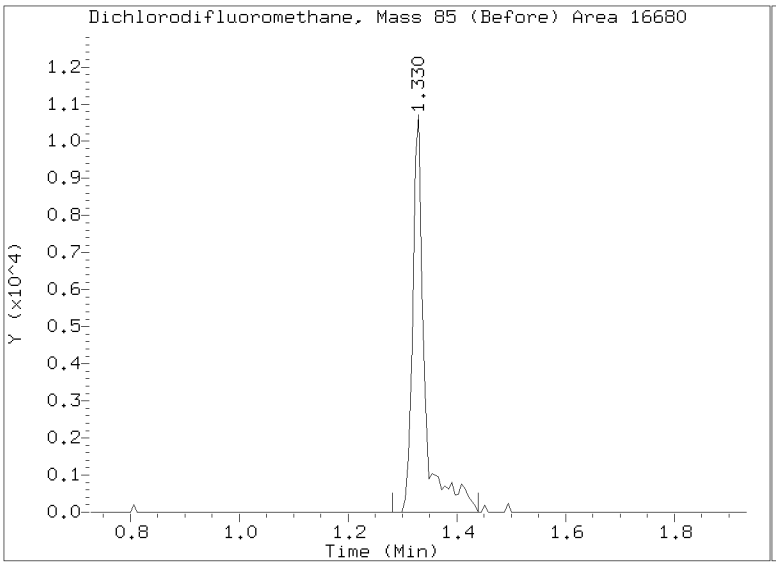
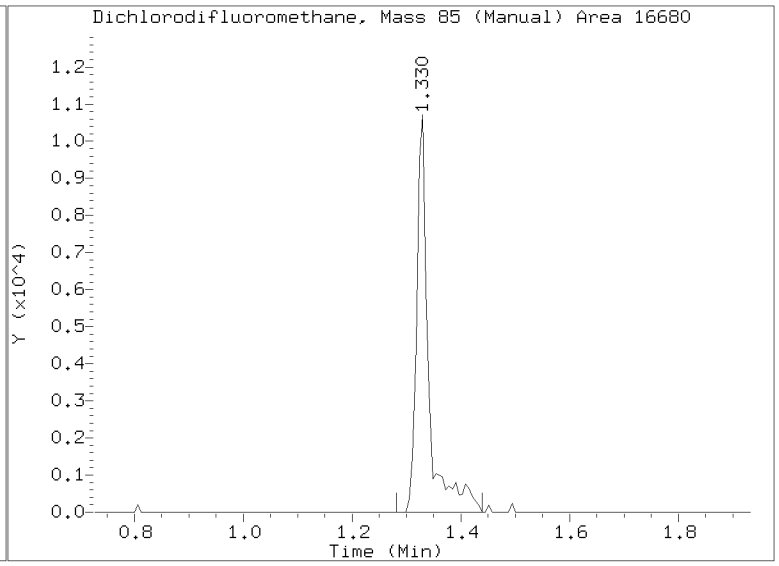
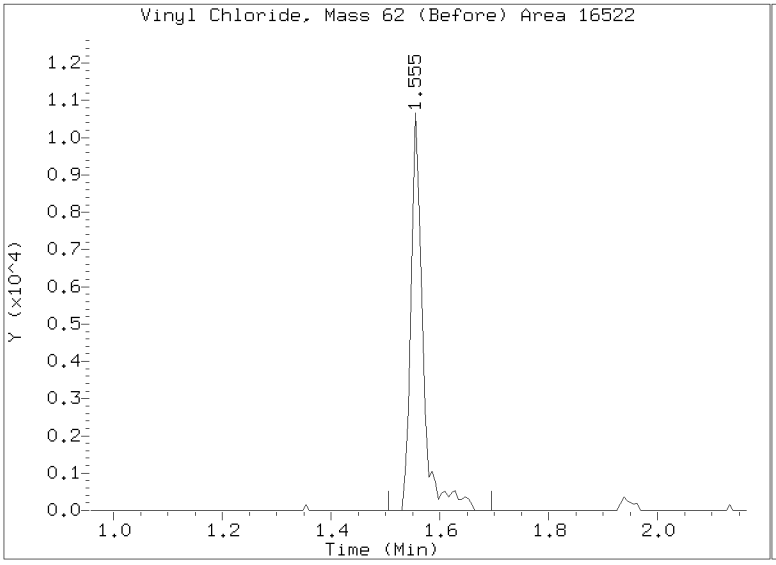
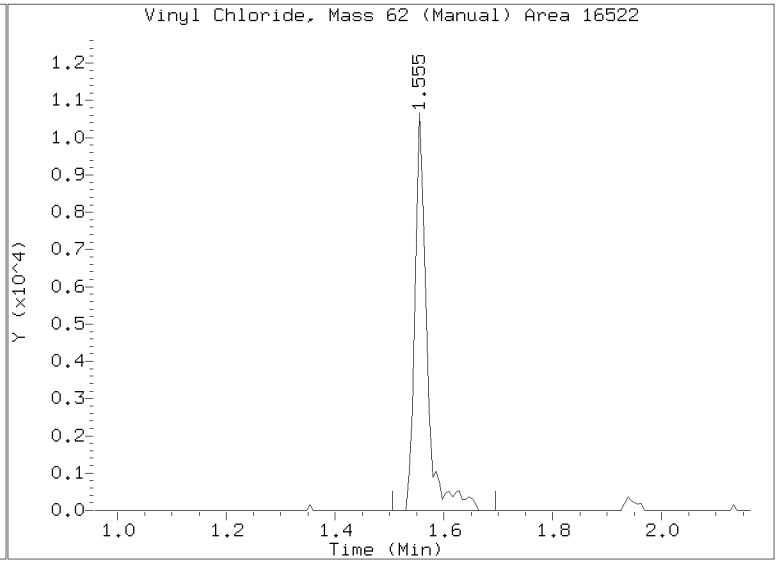
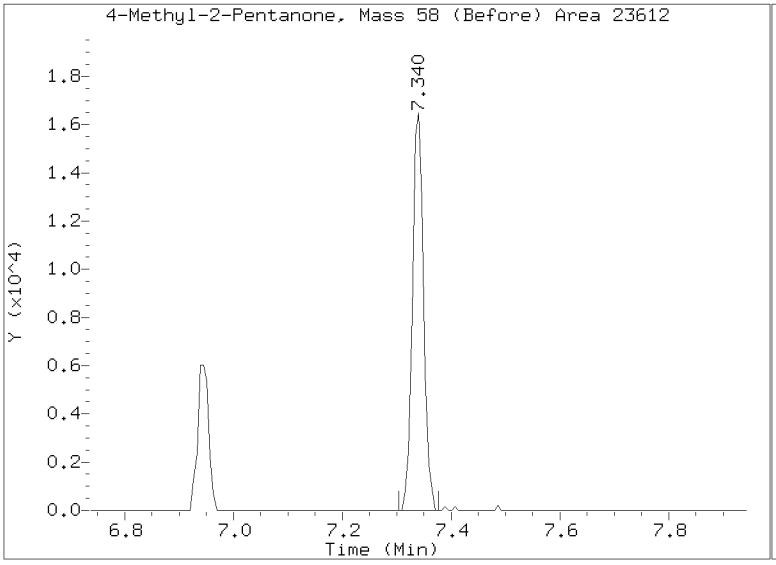
Injection Date: 20-AUG-2019 14:37
Lab ID:SHH0255-CAL3 Client ID:
Report Date: 08/22/2019 13:32

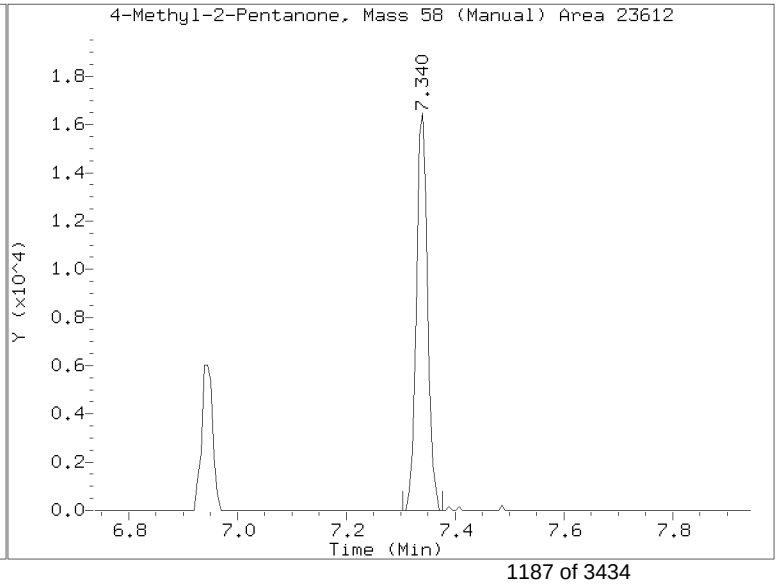












Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201907.D

Date : 20-AUG-2019 14:59

Client ID:

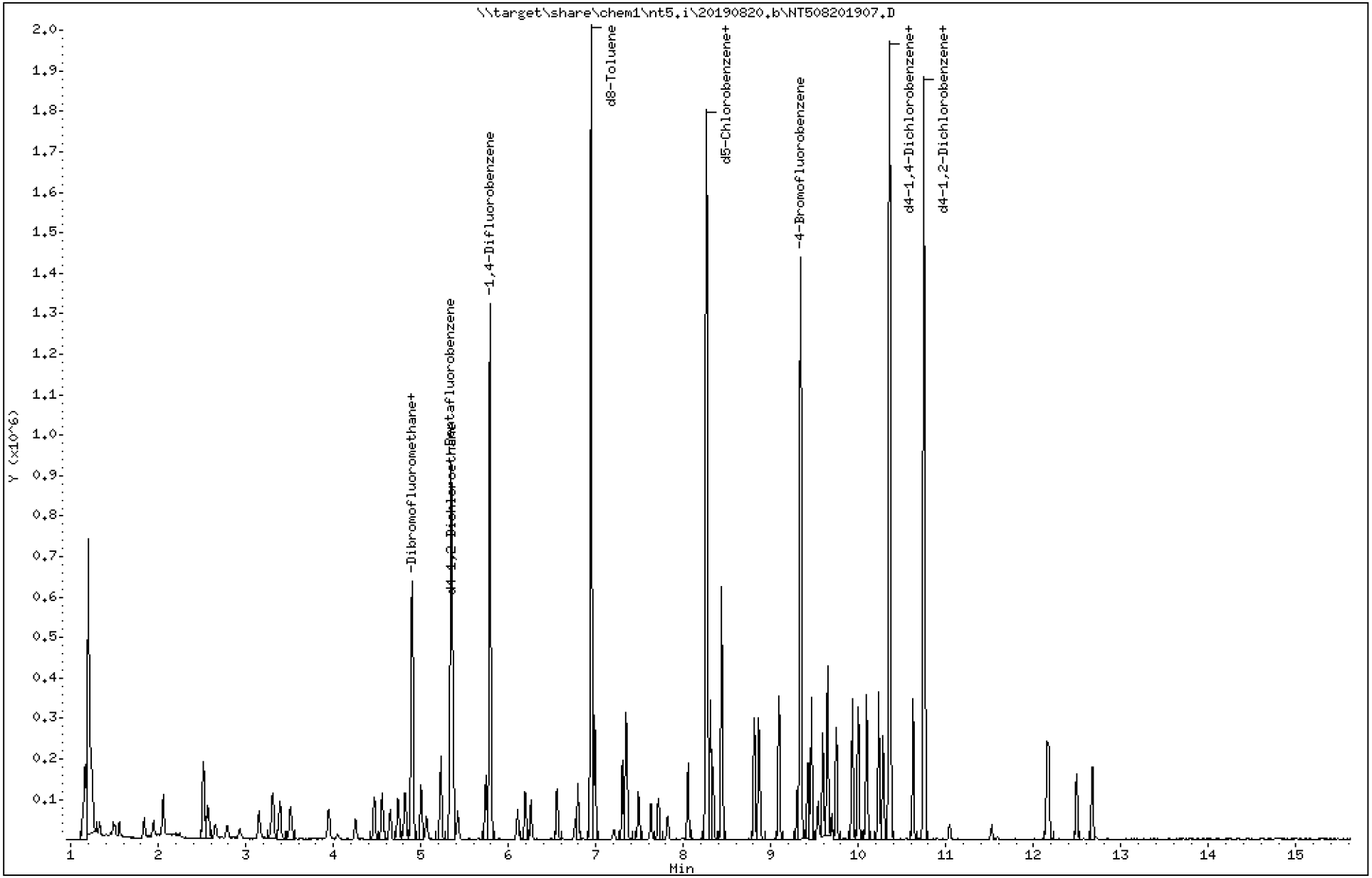
Instrument: nt5.i

Sample Info: SHH0255-CAL4

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201907.D
Lab Smp Id: SHH0255-CAL4
Inj Date : 20-AUG-2019 14:59
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL4
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 14:37 Cal File: NT508201906.D
Als bottle: 9 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	33251	10.0000	9.375(M)
	2 Chloromethane	50	1.487	1.487	(0.278)	30547	10.0000	9.563
	3 Vinyl Chloride	62	1.554	1.560	(0.291)	32590	10.0000	10.464
	4 Bromomethane	94	1.840	1.840	(0.344)	28445	10.0000	10.301
	5 Chloroethane	64	1.943	1.950	(0.364)	30441	10.0000	11.653
	6 Trichlorofluoromethane	101	2.053	2.059	(0.384)	66553	10.0000	10.505
	7 1,1-Dichloroethene	96	2.515	2.540	(0.471)	33793	10.0000	10.311
	8 Carbon Disulfide	76	2.515	2.540	(0.471)	104360	10.0000	10.651
	9 112Trichloro122Trifluoroethane	101	2.564	2.588	(0.480)	35295	10.0000	10.917
	10 Iodomethane	142	2.649	2.673	(0.496)	36364	10.0000	10.350
	11 Bromoethane	108	2.777	2.801	(0.520)	23338	10.0000	10.570
	12 Acrolein	56	2.929	2.917	(0.548)	21028	50.0000	56.872
	13 Methylene Chloride	84	3.154	3.161	(0.590)	34573	10.0000	11.974
	14 Acetone	43	3.294	3.270	(0.616)	35409	50.0000	56.665
	15 Trans-1,2-Dichloroethene	96	3.306	3.318	(0.619)	37573	10.0000	10.428
	16 Methyl tert butyl ether	73	3.507	3.495	(0.656)	84330	10.0000	10.150
	173 n-Hexane	41	3.385	3.409	(0.633)	35074	10.0000	10.713(H)
	17 1,1-Dichloroethane	63	3.945	3.951	(0.738)	59977	10.0000	10.776
	18 Acrylonitrile	53	4.042	4.042	(0.756)	8021	10.0000	11.387
	19 Vinyl Acetate	43	4.249	4.249	(0.795)	60269	10.0000	10.460
	20 Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	41862	10.0000	10.304
	22 2,2-Dichloropropane	77	4.559	4.559	(0.853)	64559	10.0000	10.464
	23 Bromochloromethane	128	4.651	4.651	(0.870)	19627	10.0000	10.167
	24 Chloroform	83	4.736	4.742	(0.886)	67029	10.0000	10.375
	25 Carbon Tetrachloride	117	4.821	4.827	(0.833)	65290	10.0000	10.349
$	27 Dibromofluoromethane	111	4.900	4.900	(0.917)	274117	50.0000	48.765
	26 1,1,1-Trichloroethane	97	4.894	4.894	(0.916)	70228	10.0000	10.658
	28 1,1-Dichloropropene	75	4.997	5.009	(0.863)	52446	10.0000	10.497
	29 2-Butanone	72	5.064	5.052	(0.948)	17089	50.0000	54.702
	30 Benzene	78	5.228	5.228	(0.903)	146363	10.0000	10.414
*	31 Pentafluorobenzene	168	5.344	5.344	(1.000)	457703	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	275170	50.0000	49.965
	33 1,2-Dichloroethane	62	5.417	5.423	(0.936)	48450	10.0000	10.044

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	5.739	5.746	(0.992)	43801	10.0000	10.179
* 35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	878844	50.0000	
37	Dibromomethane	93	6.104	6.104	(1.055)	21123	10.0000	10.436
38	1,2-Dichloropropane	63	6.190	6.196	(1.069)	32710	10.0000	10.217
39	Bromodichloromethane	83	6.257	6.257	(1.081)	51087	10.0000	10.277
172	2-Pentanone	86	6.555	6.549	(1.132)	21035	50.0000	50.833
40	2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	18066	10.0000	10.357
41	Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	58455	10.0000	10.162
$ 42	d8-Toluene	98	6.944	6.944	(1.200)	1078300	50.0000	49.678
43	Toluene	92	6.987	6.987	(1.207)	102871	10.0000	10.347
44	Tetrachloroethene	166	7.303	7.303	(0.884)	47214	10.0000	10.822
45	4-Methyl-2-Pentanone	58	7.339	7.339	(1.268)	51973	50.0000	52.108(M)
46	Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	52172	10.0000	9.882
47	1,1,2-Trichloroethane	97	7.485	7.485	(1.293)	28551	10.0000	10.012
48	Chlorodibromomethane	129	7.625	7.631	(0.923)	39722	10.0000	10.557
49	1,3-Dichloropropane	76	7.711	7.711	(0.933)	47863	10.0000	10.363
50	1,2-Dibromoethane	107	7.820	7.820	(1.351)	29969	10.0000	10.437
51	2-Hexanone	43	8.051	8.051	(0.974)	88596	50.0000	53.556
* 52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	814343	50.0000	
53	Chlorobenzene	112	8.276	8.276	(1.001)	118391	10.0000	10.700
54	Ethyl Benzene	91	8.307	8.307	(1.005)	195637	10.0000	10.811
55	1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	41908	10.0000	10.538
56	m,p-xylene	106	8.441	8.441	(1.021)	152753	20.0000	21.376
57	o-Xylene	106	8.812	8.812	(1.066)	70871	10.0000	10.546
58	Styrene	104	8.860	8.860	(1.072)	113485	10.0000	10.267
59	Bromoform	173	8.873	8.873	(0.857)	26394	10.0000	10.091
60	Isopropyl Benzene	105	9.092	9.092	(0.878)	193532	10.0000	10.753
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.341	9.341	(1.130)	349863	50.0000	49.558
63	Bromobenzene	156	9.426	9.426	(0.910)	48271	10.0000	10.488
64	N-Propyl Benzene	91	9.463	9.463	(0.914)	224739	10.0000	10.881
65	1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	33657	10.0000	10.345
66	2-Chloro Toluene	91	9.596	9.596	(0.927)	126289	10.0000	10.598
67	1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.931)	162203	10.0000	10.854
68	1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	12495	10.0000	10.750
69	Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.936)	10622	10.0000	11.028
70	4-Chloro Toluene	91	9.749	9.749	(0.941)	132644	10.0000	10.570
71	T-Butyl Benzene	119	9.931	9.931	(0.959)	149262	10.0000	10.838
72	1,2,4-Trimethylbenzene	105	9.998	9.998	(0.965)	153898	10.0000	10.493
73	S-Butyl Benzene	105	10.095	10.095	(0.975)	214846	10.0000	10.798
74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	179680	10.0000	10.540
75	1,3-Dichlorobenzene	146	10.284	10.284	(0.993)	94339	10.0000	10.496
* 76	d4-1,4-Dichlorobenzene	152	10.357	10.357	(1.000)	441899	50.0000	
77	1,4-Dichlorobenzene	146	10.369	10.369	(1.001)	97300	10.0000	10.650
78	N-Butyl Benzene	91	10.625	10.625	(1.026)	158836	10.0000	10.876
$ 79	d4-1,2-Dichlorobenzene	152	10.746	10.752	(1.038)	410280	50.0000	49.554
80	1,2-Dichlorobenzene	146	10.758	10.758	(1.039)	88301	10.0000	10.367
81	1,2-Dibromo 3-Chloropropane	75	11.525	11.525	(1.113)	7201	10.0000	10.820
82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.174)	34191	10.0000	10.815
83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	56168	10.0000	10.468
84	Naphthalene	128	12.492	12.492	(1.206)	113695	10.0000	10.162
85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	48937	10.0000	10.058

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201907.D
Lab Smp Id: SHH0255-CAL4
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	457703	-0.06
35 1,4-Difluorobenze	852165	426083	1704330	878844	3.13
52 d5-Chlorobenzene	803678	401839	1607356	814343	1.33
76 d4-1,4-Dichlorobe	439766	219883	879532	441899	0.49

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.36	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201907.D

Lab ID: SHH0255-CAL4
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 14:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

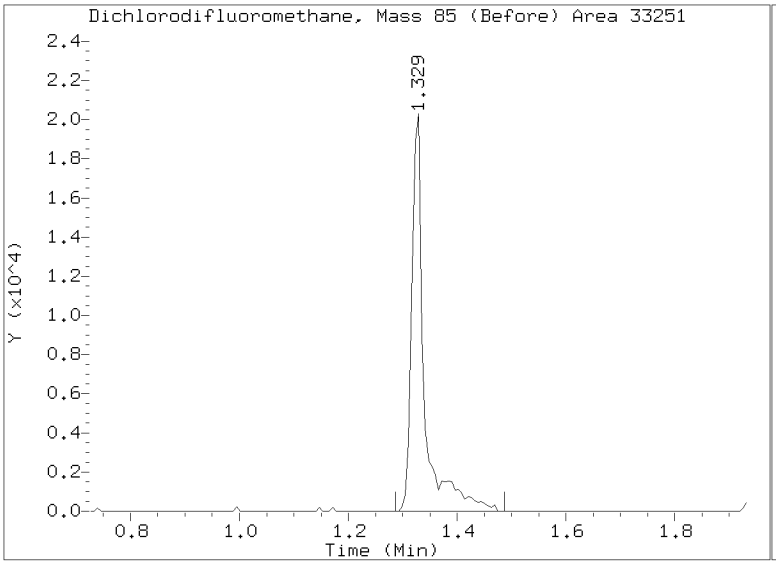
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

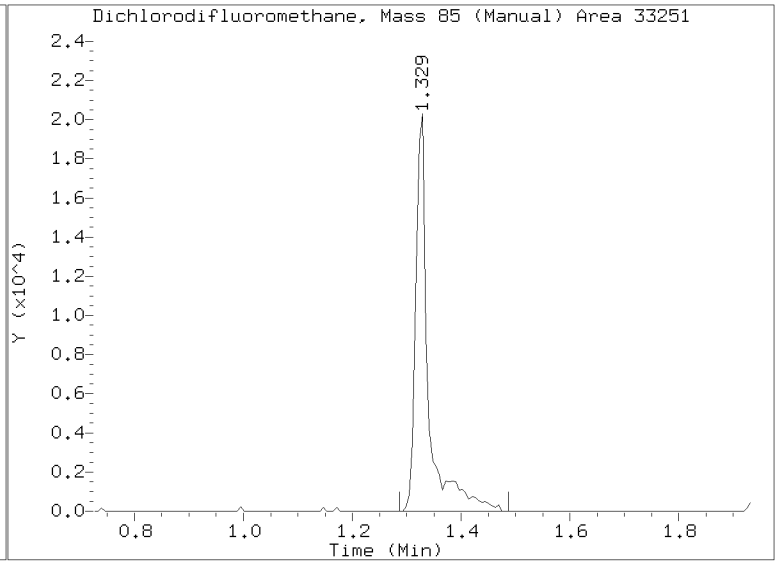
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

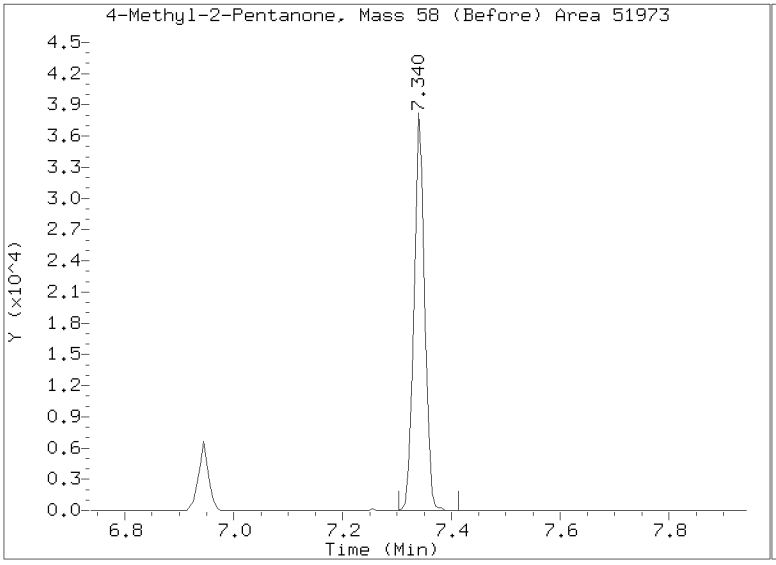
* Only compounds listed in the work order have been verified by the analyst *

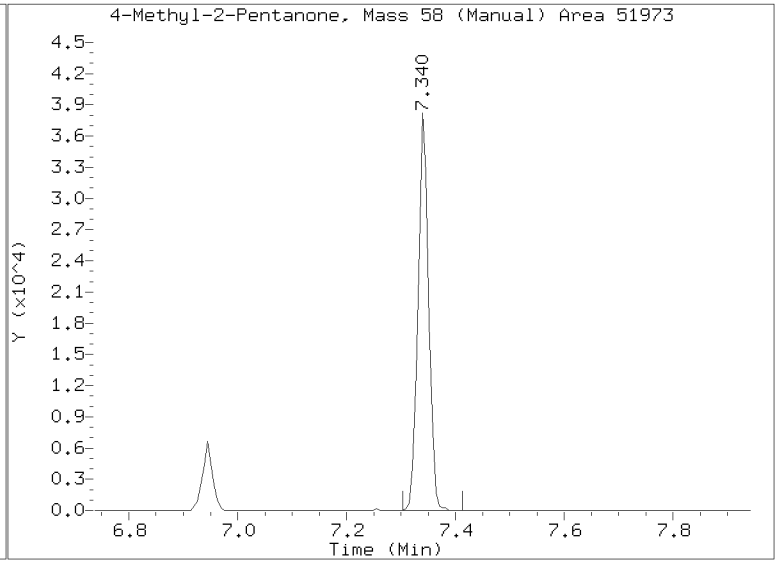
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190820.b/NT508201907.D
Injection Date: 20-AUG-2019 14:59
Lab ID:SHH0255-CAL4 Client ID:
Report Date: 08/22/2019 13:32









Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201908.D

Date : 20-AUG-2019 15:21

Client ID:

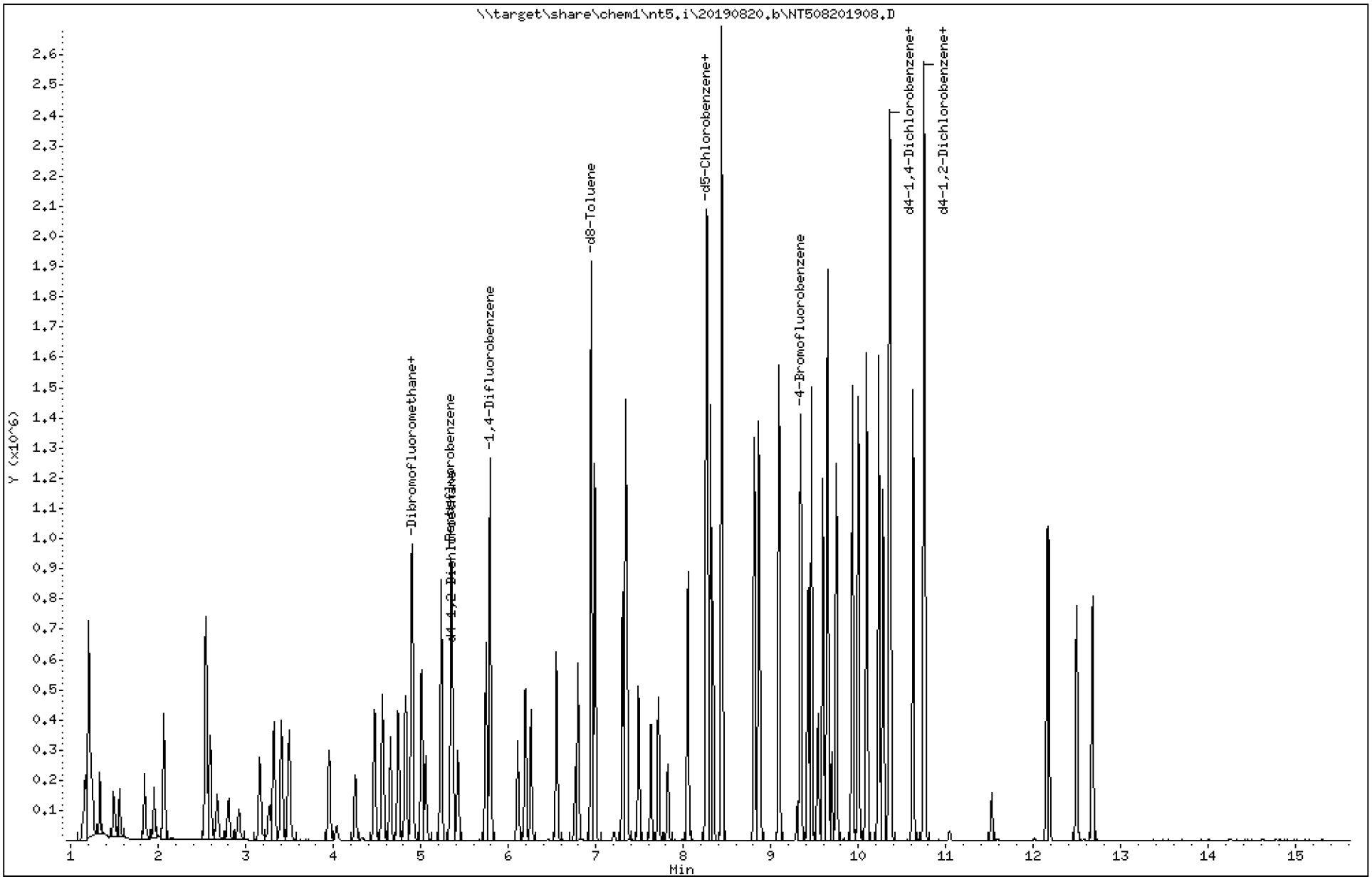
Sample Info: SHH0255-CAL5

Column phase: RTXVMS

Instrument: nt5.i

Operator: PB

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201908.D
Lab Smp Id: SHH0255-CAL5
Inj Date : 20-AUG-2019 15:21
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL5
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 14:59 Cal File: NT508201907.D
Als bottle: 10 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	179665	50.0000	50.628
	2 Chloromethane	50	1.487	1.487	(0.278)	150966	50.0000	47.232
	3 Vinyl Chloride	62	1.560	1.560	(0.292)	147696	50.0000	47.395
	4 Bromomethane	94	1.840	1.840	(0.344)	116890	50.0000	42.305
	5 Chloroethane	64	1.949	1.949	(0.365)	121729	50.0000	46.572
	6 Trichlorofluoromethane	101	2.059	2.059	(0.385)	296487	50.0000	46.772
	7 1,1-Dichloroethene	96	2.540	2.540	(0.475)	144434	50.0000	44.044
	8 Carbon Disulfide	76	2.540	2.540	(0.475)	442541	50.0000	45.139
	9 112Trichloro122Trifluoroethane	101	2.588	2.588	(0.484)	143201	50.0000	44.268
	10 Iodomethane	142	2.673	2.673	(0.500)	175419	50.0000	49.898
	11 Bromoethane	108	2.801	2.801	(0.524)	99822	50.0000	45.186
	12 Acrolein	56	2.917	2.917	(0.546)	91908	250.000	248.43
	13 Methylene Chloride	84	3.160	3.160	(0.591)	140209	50.0000	48.531
	14 Acetone	43	3.270	3.270	(0.612)	152867	250.000	244.49
	15 Trans-1,2-Dichloroethene	96	3.318	3.318	(0.621)	157539	50.0000	43.700
	16 Methyl tert butyl ether	73	3.495	3.495	(0.654)	386406	50.0000	46.480
	173 n-Hexane	41	3.409	3.409	(0.638)	140758	50.0000	42.970(H)
	17 1,1-Dichloroethane	63	3.951	3.951	(0.739)	252927	50.0000	45.417
	18 Acrylonitrile	53	4.042	4.042	(0.756)	34865	50.0000	49.465
	19 Vinyl Acetate	43	4.249	4.249	(0.795)	270383	50.0000	46.897
	20 Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	174990	50.0000	43.048
	22 2,2-Dichloropropane	77	4.559	4.559	(0.853)	274604	50.0000	44.485
	23 Bromochloromethane	128	4.651	4.651	(0.870)	89791	50.0000	46.486
	24 Chloroform	83	4.742	4.742	(0.887)	285894	50.0000	44.228
	25 Carbon Tetrachloride	117	4.827	4.827	(0.834)	279253	50.0000	45.648
$	27 Dibromofluoromethane	111	4.900	4.900	(0.917)	277488	50.0000	49.336
	26 1,1,1-Trichloroethane	97	4.894	4.894	(0.916)	290461	50.0000	44.055
	28 1,1-Dichloropropene	75	5.009	5.009	(0.865)	222756	50.0000	45.980
	29 2-Butanone	72	5.052	5.052	(0.945)	80629	250.000	257.95
	30 Benzene	78	5.228	5.228	(0.903)	629056	50.0000	46.160
*	31 Pentafluorobenzene	168	5.344	5.344	(1.000)	457969	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	272009	50.0000	49.362
	33 1,2-Dichloroethane	62	5.423	5.423	(0.937)	210793	50.0000	45.066

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	34 Trichloroethene	130	5.746	5.746	(0.993)	189445	50.0000	45.403
*	35 1,4-Difluorobenzene	114	5.788	5.788	(1.000)	852165	50.0000	
	37 Dibromomethane	93	6.104	6.104	(1.055)	93884	50.0000	47.836
	38 1,2-Dichloropropane	63	6.196	6.196	(1.070)	138242	50.0000	44.533
	39 Bromodichloromethane	83	6.257	6.257	(1.081)	224204	50.0000	46.513
	172 2-Pentanone	86	6.549	6.549	(1.131)	107954	250.000	269.05
	40 2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	79430	50.0000	46.962
	41 Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	258240	50.0000	46.299
$	42 d8-Toluene	98	6.944	6.944	(1.200)	1053363	50.0000	50.049
	43 Toluene	92	6.987	6.987	(1.207)	433132	50.0000	44.928
	44 Tetrachloroethene	166	7.303	7.303	(0.884)	197972	50.0000	45.980
	45 4-Methyl-2-Pentanone	58	7.339	7.339	(1.268)	247523	250.000	255.94
	46 Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	242106	50.0000	47.294
	47 1,1,2-Trichloroethane	97	7.485	7.485	(1.293)	130111	50.0000	47.055
	48 Chlorodibromomethane	129	7.631	7.631	(0.923)	174071	50.0000	46.875
	49 1,3-Dichloropropane	76	7.711	7.711	(0.933)	216425	50.0000	47.483
	50 1,2-Dibromoethane	107	7.820	7.820	(1.351)	135848	50.0000	48.791
	51 2-Hexanone	43	8.051	8.051	(0.974)	439768	250.000	269.36
*	52 d5-Chlorobenzene	117	8.264	8.264	(1.000)	803678	50.0000	
	53 Chlorobenzene	112	8.276	8.276	(1.001)	502317	50.0000	45.999
	54 Ethyl Benzene	91	8.307	8.307	(1.005)	833908	50.0000	46.693
	55 1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	188171	50.0000	47.943
	56 m,p-xylene	106	8.441	8.441	(1.021)	664615	100.000	94.241
	57 o-Xylene	106	8.812	8.812	(1.066)	316657	50.0000	47.747
	58 Styrene	104	8.860	8.860	(1.072)	526770	50.0000	48.289
	59 Bromoform	173	8.873	8.873	(0.857)	123777	50.0000	47.554
	60 Isopropyl Benzene	105	9.092	9.092	(0.878)	858622	50.0000	47.936
	61 Cyclohexanone	55	Compound Not Detected.					
$	62 4-Bromofluorobenzene	174	9.341	9.341	(1.130)	344995	50.0000	49.517
	63 Bromobenzene	156	9.426	9.426	(0.910)	215829	50.0000	47.120
	64 N-Propyl Benzene	91	9.463	9.463	(0.914)	971252	50.0000	47.253
	65 1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	158858	50.0000	49.063
	66 2-Chloro Toluene	91	9.596	9.596	(0.927)	560604	50.0000	47.273
	67 1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.931)	720950	50.0000	48.476
	68 1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	59057	50.0000	51.055
	69 Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.936)	49921	50.0000	52.079
	70 4-Chloro Toluene	91	9.749	9.749	(0.941)	595868	50.0000	47.715
	71 T-Butyl Benzene	119	9.931	9.931	(0.959)	649654	50.0000	47.400
	72 1,2,4-Trimethylbenzene	105	9.998	9.998	(0.965)	707968	50.0000	48.506
	73 S-Butyl Benzene	105	10.095	10.095	(0.975)	948296	50.0000	47.890
	74 4-Isopropyl Toluene	119	10.229	10.229	(0.988)	819796	50.0000	48.324
	75 1,3-Dichlorobenzene	146	10.284	10.284	(0.993)	424837	50.0000	47.498
*	76 d4-1,4-Dichlorobenzene	152	10.357	10.357	(1.000)	439766	50.0000	
	77 1,4-Dichlorobenzene	146	10.369	10.369	(1.001)	423244	50.0000	46.552
	78 N-Butyl Benzene	91	10.625	10.625	(1.026)	697229	50.0000	47.974
$	79 d4-1,2-Dichlorobenzene	152	10.752	10.752	(1.038)	416336	50.0000	50.529
	80 1,2-Dichlorobenzene	146	10.758	10.758	(1.039)	389618	50.0000	45.963
	81 1,2-Dibromo 3-Chloropropane	75	11.525	11.525	(1.113)	34263	50.0000	51.731
	82 Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.174)	146364	50.0000	46.519
	83 1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	250367	50.0000	46.885
	84 Naphthalene	128	12.492	12.492	(1.206)	551795	50.0000	49.557
	85 1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	224513	50.0000	46.366

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201908.D
Lab Smp Id: SHH0255-CAL5
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	457969	0.00
35 1,4-Difluorobenze	852165	426083	1704330	852165	0.00
52 d5-Chlorobenzene	803678	401839	1607356	803678	0.00
76 d4-1,4-Dichlorobe	439766	219883	879532	439766	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.36	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201908.D

Lab ID: SHH0255-CAL5
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 15:21

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201909.D

Date : 20-AUG-2019 15:44

Client ID:

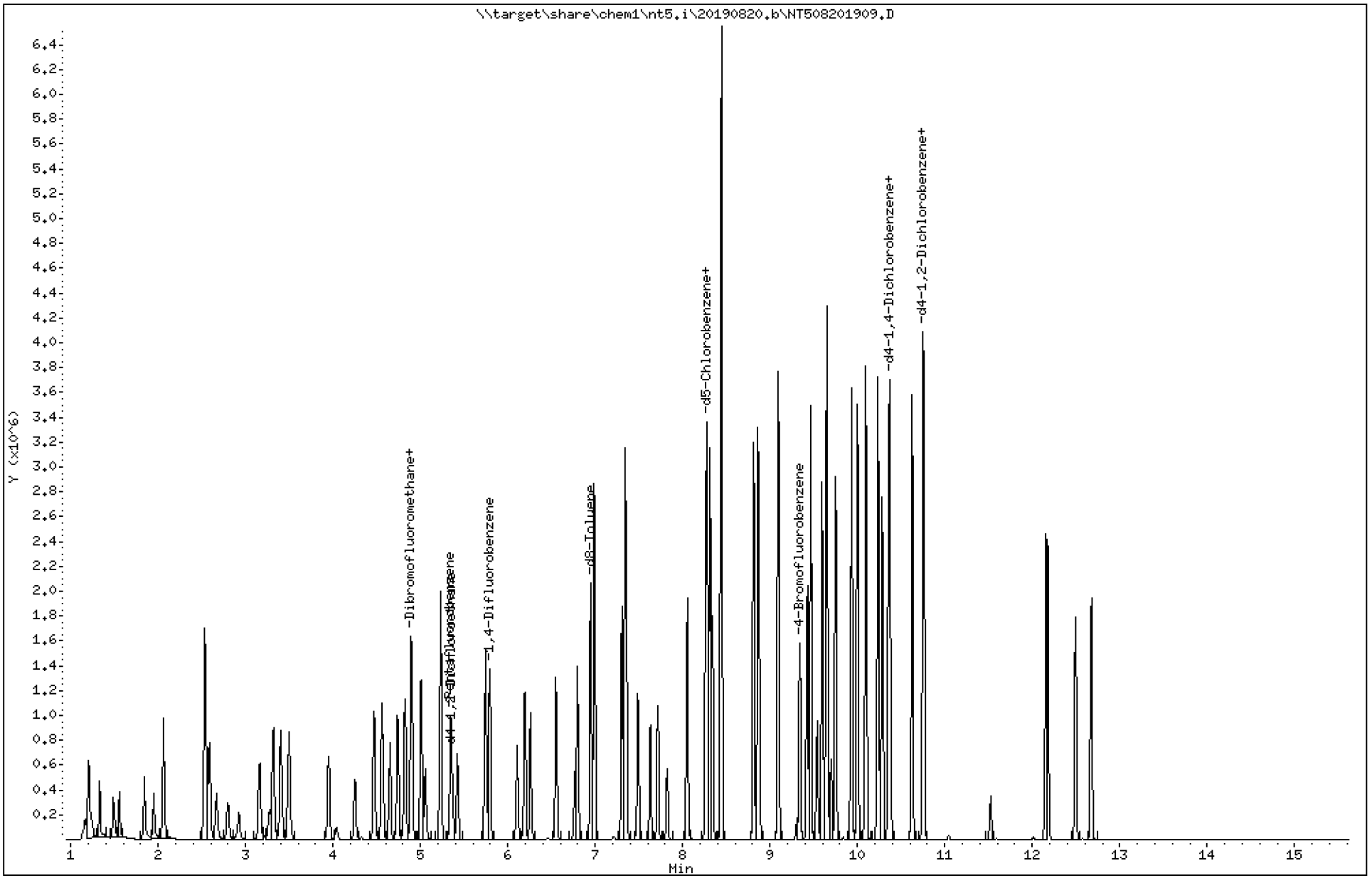
Sample Info: SHH0255-CAL6

Column phase: RTXVMS

Instrument: nt5.i

Operator: PB

Column diameter: 0.18



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8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201909.D
Lab Smp Id: SHH0255-CAL6
Inj Date : 20-AUG-2019 15:44
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL6
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 15:21 Cal File: NT508201908.D
Als bottle: 11 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	394837	100.000	104.23
	2 Chloromethane	50	1.487	1.487	(0.278)	326171	100.000	95.597
	3 Vinyl Chloride	62	1.554	1.560	(0.291)	331061	100.000	99.521
	4 Bromomethane	94	1.840	1.840	(0.344)	267981	100.000	90.856
	5 Chloroethane	64	1.950	1.949	(0.365)	282772	100.000	101.35
	6 Trichlorofluoromethane	101	2.059	2.059	(0.385)	636844	100.000	94.115
	7 1,1-Dichloroethene	96	2.534	2.540	(0.474)	327456	100.000	93.543
	8 Carbon Disulfide	76	2.534	2.540	(0.474)	1013430	100.000	96.835
	9 112Trichloro122Trifluoroethane	101	2.582	2.588	(0.483)	323501	100.000	93.684
	10 Iodomethane	142	2.667	2.673	(0.499)	410754	100.000	109.45
	11 Bromoethane	108	2.795	2.801	(0.523)	223347	100.000	94.710
	12 Acrolein	56	2.923	2.917	(0.547)	189713	500.000	480.38
	13 Methylene Chloride	84	3.160	3.160	(0.591)	315233	100.000	102.22
	14 Acetone	43	3.270	3.270	(0.612)	317081	500.000	475.07
	15 Trans-1,2-Dichloroethene	96	3.318	3.318	(0.621)	365159	100.000	94.888
	16 Methyl tert butyl ether	73	3.495	3.495	(0.654)	888701	100.000	100.14
	173 n-Hexane	41	3.404	3.409	(0.637)	310782	100.000	88.877(H)
	17 1,1-Dichloroethane	63	3.951	3.951	(0.739)	578665	100.000	97.340
	18 Acrylonitrile	53	4.042	4.042	(0.756)	73358	100.000	97.498
	19 Vinyl Acetate	43	4.249	4.249	(0.795)	610639	100.000	99.219
	20 Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	417236	100.000	96.154
	22 2,2-Dichloropropane	77	4.559	4.559	(0.853)	636541	100.000	96.599
	23 Bromochloromethane	128	4.651	4.651	(0.870)	203533	100.000	98.710
	24 Chloroform	83	4.736	4.742	(0.886)	667448	100.000	96.727
	25 Carbon Tetrachloride	117	4.821	4.827	(0.833)	643743	100.000	96.925
$	27 Dibromofluoromethane	111	4.900	4.900	(0.917)	306810	50.0000	51.101
	26 1,1,1-Trichloroethane	97	4.894	4.894	(0.916)	677449	100.000	96.255
	28 1,1-Dichloropropene	75	5.010	5.009	(0.865)	515943	100.000	98.093
	29 2-Butanone	72	5.052	5.052	(0.945)	163050	500.000	488.65
	30 Benzene	78	5.229	5.228	(0.903)	1456452	100.000	98.440
*	31 Pentafluorobenzene	168	5.344	5.344	(1.000)	488873	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	294505	50.0000	50.066
	33 1,2-Dichloroethane	62	5.417	5.423	(0.936)	486531	100.000	95.807

		QUANT SIG					AMOUNTS CAL-AMT	AMOUNTS ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
	34 Trichloroethene	130	5.746	5.746	(0.993)	442642	100.000	97.713
*	35 1,4-Difluorobenzene	114	5.788	5.788	(1.000)	925179	50.0000	
	37 Dibromomethane	93	6.105	6.104	(1.055)	214696	100.000	100.76
	38 1,2-Dichloropropane	63	6.196	6.196	(1.070)	330575	100.000	98.087
	39 Bromodichloromethane	83	6.257	6.257	(1.081)	523641	100.000	100.06
	172 2-Pentanone	86	6.549	6.549	(1.131)	228021	500.000	523.43
	40 2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	181548	100.000	98.867
	41 Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	616159	100.000	101.75
$	42 d8-Toluene	98	6.944	6.944	(1.200)	1152416	50.0000	50.434
	43 Toluene	92	6.987	6.987	(1.207)	998268	100.000	95.376
	44 Tetrachloroethene	166	7.303	7.303	(0.884)	462364	100.000	95.299
	45 4-Methyl-2-Pentanone	58	7.340	7.339	(1.268)	534252	500.000	508.82
	46 Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	570389	100.000	102.63
	47 1,1,2-Trichloroethane	97	7.486	7.485	(1.293)	307067	100.000	102.29
	48 Chlorodibromomethane	129	7.632	7.631	(0.923)	419893	100.000	100.34
	49 1,3-Dichloropropane	76	7.711	7.711	(0.933)	514766	100.000	100.22
	50 1,2-Dibromoethane	107	7.820	7.820	(1.351)	306686	100.000	101.46
	51 2-Hexanone	43	8.051	8.051	(0.974)	931575	500.000	506.37
*	52 d5-Chlorobenzene	117	8.264	8.264	(1.000)	905618	50.0000	
	53 Chlorobenzene	112	8.277	8.276	(1.001)	1171500	100.000	95.203
	54 Ethyl Benzene	91	8.313	8.307	(1.006)	1928575	100.000	95.831
	55 1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	444959	100.000	100.61
	56 m,p-xylene	106	8.441	8.441	(1.021)	1556397	200.000	195.85
	57 o-Xylene	106	8.812	8.812	(1.066)	757798	100.000	101.40
	58 Styrene	104	8.861	8.860	(1.072)	1267985	100.000	103.15
	59 Bromoform	173	8.879	8.873	(0.857)	290579	100.000	95.843
	60 Isopropyl Benzene	105	9.092	9.092	(0.878)	2041233	100.000	97.837
	61 Cyclohexanone	55	Compound Not Detected.					
$	62 4-Bromofluorobenzene	174	9.341	9.341	(1.130)	395797	50.0000	50.414
	63 Bromobenzene	156	9.426	9.426	(0.910)	522226	100.000	97.883
	64 N-Propyl Benzene	91	9.463	9.463	(0.914)	2284724	100.000	95.429
	65 1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	366550	100.000	97.191
	66 2-Chloro Toluene	91	9.597	9.596	(0.927)	1351512	100.000	97.843
	67 1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.931)	1710406	100.000	98.735
	68 1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	136162	100.000	101.06
	69 Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.936)	109625	100.000	98.184
	70 4-Chloro Toluene	91	9.749	9.749	(0.941)	1402029	100.000	96.385
	71 T-Butyl Benzene	119	9.931	9.931	(0.959)	1550004	100.000	97.090
	72 1,2,4-Trimethylbenzene	105	9.998	9.998	(0.965)	1693204	100.000	99.596
	73 S-Butyl Benzene	105	10.096	10.095	(0.975)	2230060	100.000	96.687
	74 4-Isopropyl Toluene	119	10.235	10.229	(0.988)	1959194	100.000	99.147
	75 1,3-Dichlorobenzene	146	10.284	10.284	(0.993)	1017480	100.000	97.663
*	76 d4-1,4-Dichlorobenzene	152	10.357	10.357	(1.000)	512239	50.0000	
	77 1,4-Dichlorobenzene	146	10.369	10.369	(1.001)	1001840	100.000	94.600
	78 N-Butyl Benzene	91	10.625	10.625	(1.026)	1643094	100.000	97.061
$	79 d4-1,2-Dichlorobenzene	152	10.753	10.752	(1.038)	475254	50.0000	49.519
	80 1,2-Dichlorobenzene	146	10.759	10.758	(1.039)	936341	100.000	94.831
	81 1,2-Dibromo 3-Chloropropane	75	11.519	11.525	(1.112)	74601	100.000	96.698
	82 Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.174)	341807	100.000	93.267
	83 1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	602920	100.000	96.933
	84 Naphthalene	128	12.492	12.492	(1.206)	1268791	100.000	97.829
	85 1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	546108	100.000	96.824

QC Flag Legend

H - Operator selected an alternate compound hit.

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INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201909.D
Lab Smp Id: SHH0255-CAL6
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	488873	6.75
35 1,4-Difluorobenze	852165	426083	1704330	925179	8.57
52 d5-Chlorobenzene	803678	401839	1607356	905618	12.68
76 d4-1,4-Dichlorobe	439766	219883	879532	512239	16.48

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.36	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201909.D

Lab ID: SHH0255-CAL6
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 15:44

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
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Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
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Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
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Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201910.D

Date : 20-AUG-2019 16:06

Client ID:

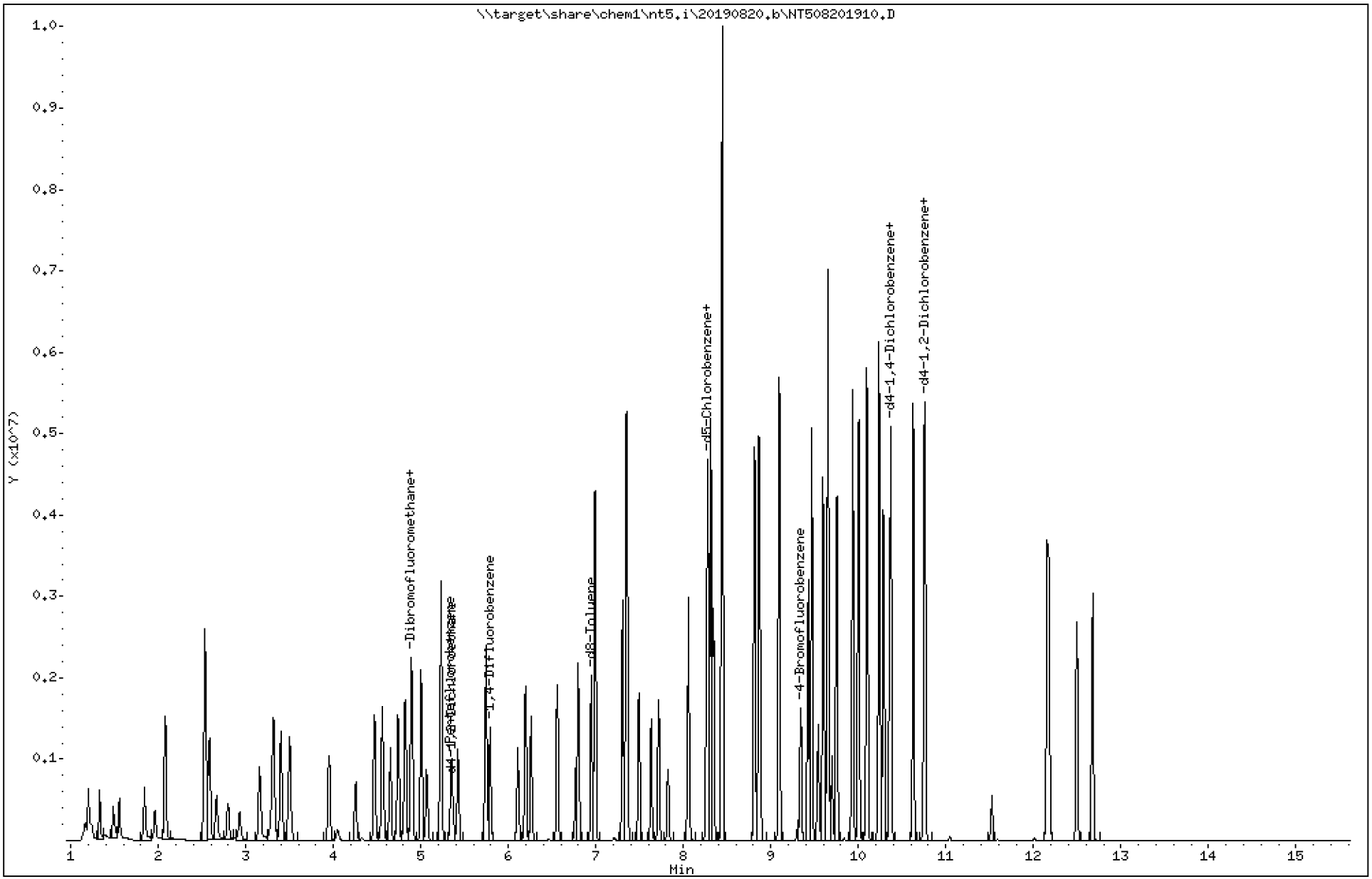
Sample Info: SHH0255-CAL7

Column phase: RTXVMS

Instrument: nt5.i

Operator: PB

Column diameter: 0.18



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Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201910.D
Lab Smp Id: SHH0255-CAL7
Inj Date : 20-AUG-2019 16:06
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL7
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 15:44 Cal File: NT508201909.D
Als bottle: 12 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1	Dichlorodifluoromethane	85	1.329	1.329	(0.249)	588907	150.000	152.56(M)
2	Chloromethane	50	1.481	1.487	(0.277)	484145	150.000	139.25
3	Vinyl Chloride	62	1.554	1.560	(0.291)	505722	150.000	149.19
4	Bromomethane	94	1.840	1.840	(0.344)	403074	150.000	134.11
5	Chloroethane	64	1.962	1.949	(0.367)	339669	150.000	119.46
6	Trichlorofluoromethane	101	2.077	2.059	(0.389)	1078832	150.000	156.45
7	1,1-Dichloroethene	96	2.527	2.540	(0.473)	526675	150.000	147.64
8	Carbon Disulfide	76	2.533	2.540	(0.474)	1577568	150.000	147.92
9	112Trichloro122Trifluoroethane	101	2.582	2.588	(0.483)	515155	150.000	146.40
10	Iodomethane	142	2.661	2.673	(0.498)	638626	150.000	167.00
11	Bromoethane	108	2.795	2.801	(0.523)	329339	150.000	137.05
12	Acrolein	56	2.929	2.917	(0.548)	323918	750.000	804.89
13	Methylene Chloride	84	3.160	3.160	(0.591)	467438	150.000	148.74
14	Acetone	43	3.288	3.270	(0.615)	483395	750.000	710.73
15	Trans-1,2-Dichloroethene	96	3.318	3.318	(0.621)	569088	150.000	145.12
16	Methyl tert butyl ether	73	3.501	3.495	(0.655)	1361322	150.000	150.53
173	n-Hexane	41	3.397	3.409	(0.636)	467434	150.000	131.18(H)
17	1,1-Dichloroethane	63	3.951	3.951	(0.739)	903707	150.000	149.18
18	Acrylonitrile	53	4.048	4.042	(0.758)	113769	150.000	148.38
19	Vinyl Acetate	43	4.255	4.249	(0.796)	910074	150.000	145.11
20	Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	623246	150.000	140.95
22	2,2-Dichloropropane	77	4.559	4.559	(0.853)	958257	150.000	142.71
23	Bromochloromethane	128	4.651	4.651	(0.870)	302561	150.000	144.00
24	Chloroform	83	4.736	4.742	(0.886)	1042010	150.000	148.19
25	Carbon Tetrachloride	117	4.821	4.827	(0.833)	988960	150.000	146.95
$ 27	Dibromofluoromethane	111	4.900	4.900	(0.917)	308966	50.0000	50.499
26	1,1,1-Trichloroethane	97	4.888	4.894	(0.915)	1070164	150.000	149.21
28	1,1-Dichloropropene	75	5.003	5.009	(0.864)	819388	150.000	153.74
29	2-Butanone	72	5.064	5.052	(0.948)	248982	750.000	732.25
30	Benzene	78	5.228	5.228	(0.903)	2279178	150.000	152.03
* 31	Pentafluorobenzene	168	5.344	5.344	(1.000)	498178	50.0000	
$ 32	d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	297979	50.0000	49.711
33	1,2-Dichloroethane	62	5.423	5.423	(0.937)	753121	150.000	146.36

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	5.746	5.746	(0.993)	693844	150.000	151.16
* 35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	937462	50.0000	
37	Dibromomethane	93	6.104	6.104	(1.055)	331712	150.000	153.64
38	1,2-Dichloropropane	63	6.196	6.196	(1.070)	518638	150.000	151.87
39	Bromodichloromethane	83	6.257	6.257	(1.081)	818965	150.000	154.44
172	2-Pentanone	86	6.561	6.549	(1.133)	350088	750.000	793.12
40	2-Chloroethyl Vinyl Ether	63	6.768	6.762	(1.169)	286216	150.000	153.82
41	Cis 1,3-dichloropropene	75	6.798	6.792	(1.174)	957720	150.000	156.08
$ 42	d8-Toluene	98	6.950	6.944	(1.201)	1156559	50.0000	49.952
43	Toluene	92	6.993	6.987	(1.208)	1564367	150.000	147.50
44	Tetrachloroethene	166	7.303	7.303	(0.884)	727477	150.000	148.52
45	4-Methyl-2-Pentanone	58	7.346	7.339	(1.269)	824507	750.000	774.96
46	Trans 1,3-Dichloropropene	75	7.358	7.352	(1.271)	880300	150.000	156.32
47	1,1,2-Trichloroethane	97	7.492	7.485	(1.294)	466238	150.000	153.28
48	Chlorodibromomethane	129	7.631	7.631	(0.923)	652850	150.000	154.53
49	1,3-Dichloropropane	76	7.717	7.711	(0.934)	781901	150.000	150.79
50	1,2-Dibromoethane	107	7.820	7.820	(1.351)	475121	150.000	155.12
51	2-Hexanone	43	8.057	8.051	(0.975)	1435316	750.000	772.77
* 52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	914314	50.0000	
53	Chlorobenzene	112	8.282	8.276	(1.002)	1827550	150.000	147.11
54	Ethyl Benzene	91	8.313	8.307	(1.006)	3025123	150.000	148.89
55	1,1,1,2-Tetrachloroethane	131	8.343	8.337	(1.010)	683266	150.000	153.02
56	m,p-xylene	106	8.441	8.441	(1.021)	2460770	300.000	306.71
57	o-Xylene	106	8.812	8.812	(1.066)	1172780	150.000	155.44
58	Styrene	104	8.860	8.860	(1.072)	1978604	150.000	159.43
59	Bromoform	173	8.879	8.873	(0.857)	439012	150.000	145.03
60	Isopropyl Benzene	105	9.092	9.092	(0.878)	3229276	150.000	155.03
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.341	9.341	(1.130)	399229	50.0000	50.368
63	Bromobenzene	156	9.426	9.426	(0.910)	798580	150.000	149.92
64	N-Propyl Benzene	91	9.463	9.463	(0.914)	3532949	150.000	147.80
65	1,1,2,2-Tetrachloroethane	83	9.542	9.536	(0.921)	570387	150.000	151.48
66	2-Chloro Toluene	91	9.596	9.596	(0.927)	2080319	150.000	150.84
67	1,3,5-Trimethyl Benzene	105	9.651	9.645	(0.932)	2676458	150.000	154.75
68	1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	209785	150.000	155.95
69	Trans-1,4-Dichloro 2-Butene	53	9.700	9.694	(0.937)	167667	150.000	150.41
70	4-Chloro Toluene	91	9.755	9.749	(0.942)	2146266	150.000	147.78
71	T-Butyl Benzene	119	9.931	9.931	(0.959)	2439466	150.000	153.05
72	1,2,4-Trimethylbenzene	105	10.004	9.998	(0.966)	2618650	150.000	154.28
73	S-Butyl Benzene	105	10.095	10.095	(0.975)	3476358	150.000	150.96
74	4-Isopropyl Toluene	119	10.235	10.229	(0.988)	3044908	150.000	154.34
75	1,3-Dichlorobenzene	146	10.290	10.284	(0.994)	1552398	150.000	149.24
* 76	d4-1,4-Dichlorobenzene	152	10.357	10.357	(1.000)	511427	50.0000	
77	1,4-Dichlorobenzene	146	10.369	10.369	(1.001)	1531418	150.000	144.84
78	N-Butyl Benzene	91	10.625	10.625	(1.026)	2528056	150.000	149.57
$ 79	d4-1,2-Dichlorobenzene	152	10.752	10.752	(1.038)	483090	50.0000	50.416
80	1,2-Dichlorobenzene	146	10.758	10.758	(1.039)	1433096	150.000	145.37
81	1,2-Dibromo 3-Chloropropane	75	11.525	11.525	(1.113)	112667	150.000	146.27
82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.174)	531759	150.000	145.33
83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	893238	150.000	143.84
84	Naphthalene	128	12.498	12.492	(1.207)	1969244	150.000	152.08
85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	833982	150.000	148.10

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201910.D
Lab Smp Id: SHH0255-CAL7
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	498178	8.78
35 1,4-Difluorobenze	852165	426083	1704330	937462	10.01
52 d5-Chlorobenzene	803678	401839	1607356	914314	13.77
76 d4-1,4-Dichlorobe	439766	219883	879532	511427	16.30

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.36	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201910.D

Lab ID: SHH0255-CAL7
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 16:06

RT	CO-ELUTION COMPOUNDS
9.652	1,2,3-Trichloropropane and 1,3,5-Trimethyl Benzene
9.652	1,3,5-Trimethyl Benzene and 1,2,3-Trichloropropane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

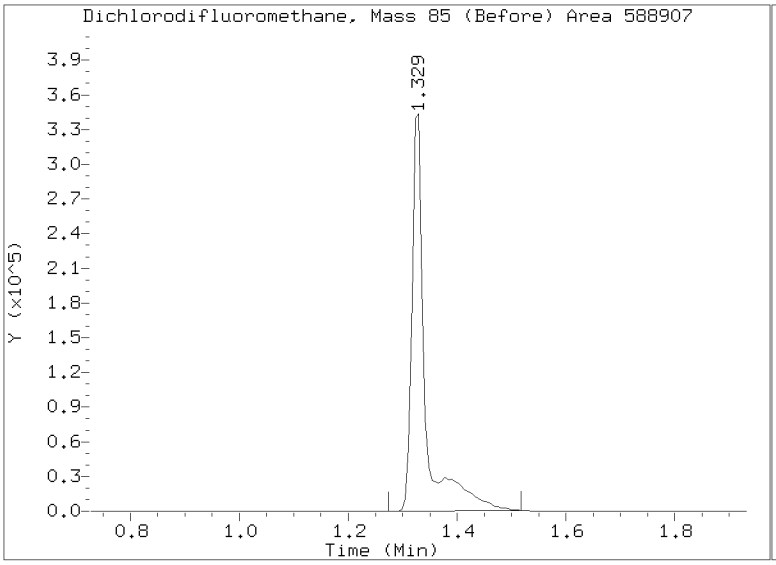
Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

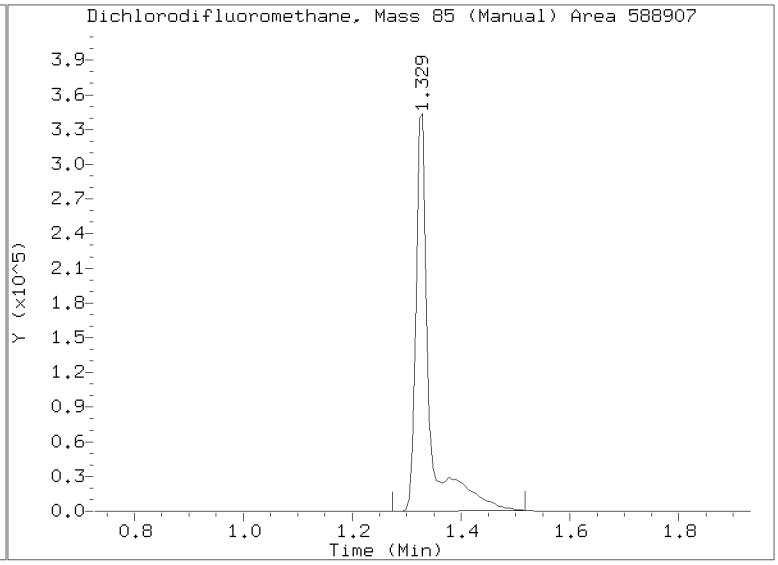
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt5.i/20190820.b/NT508201910.D
Injection Date: 20-AUG-2019 16:06
Lab ID:SHH0255-CAL7 Client ID:
Report Date: 08/22/2019 13:32





Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201911.D

Date : 20-AUG-2019 16:29

Client ID:

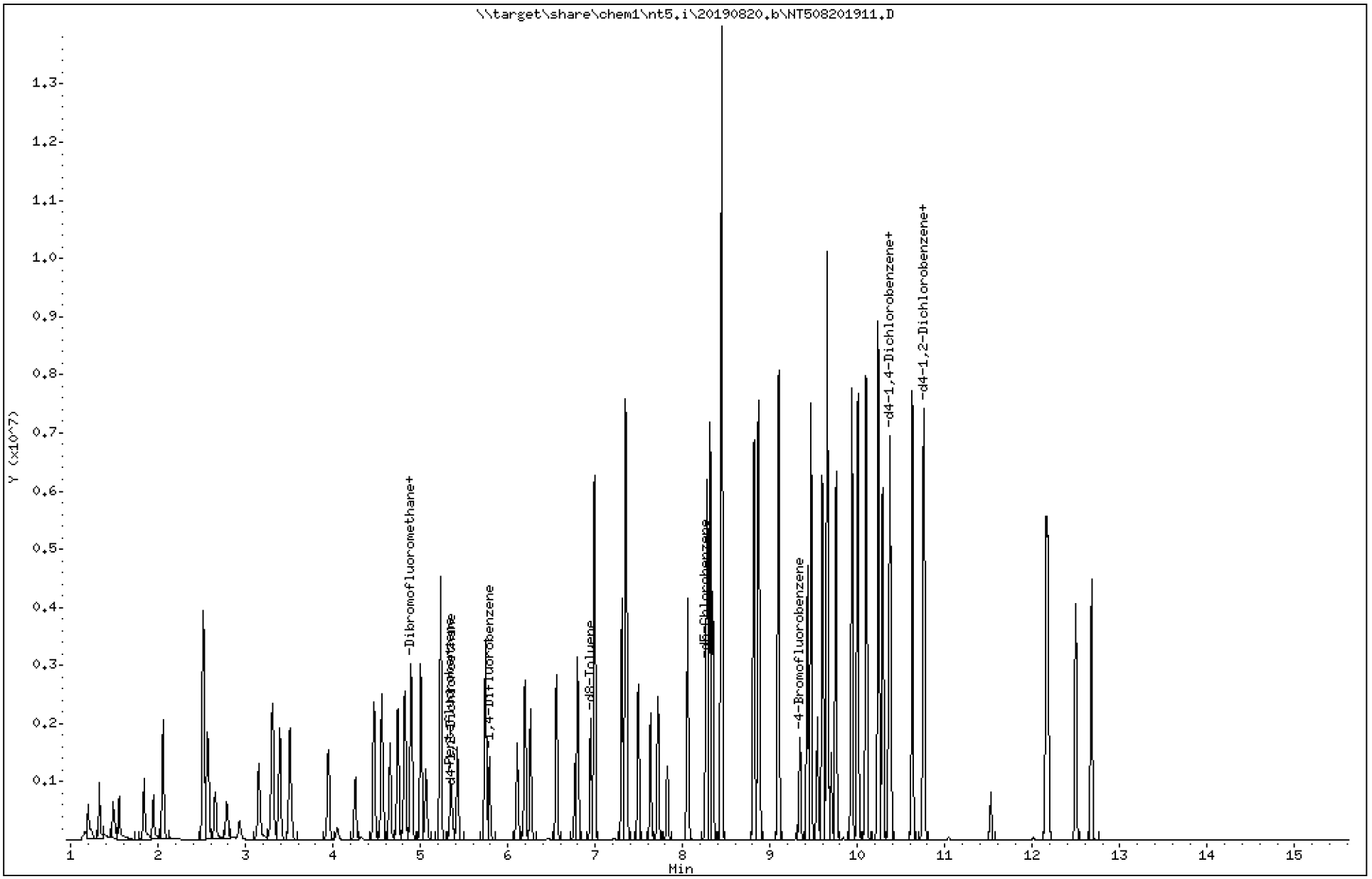
Instrument: nt5.i

Sample Info: SHH0255-CAL8

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201911.D
Lab Smp Id: SHH0255-CAL8
Inj Date : 20-AUG-2019 16:29
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-CAL8
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:32 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:06 Cal File: NT508201910.D
Als bottle: 13 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
1	Dichlorodifluoromethane	85	1.323	1.329	(0.248)	875899	200.000	224.35
2	Chloromethane	50	1.481	1.487	(0.277)	724524	200.000	206.04
3	Vinyl Chloride	62	1.554	1.560	(0.291)	741246	200.000	216.21
4	Bromomethane	94	1.834	1.840	(0.343)	615918	200.000	202.62
5	Chloroethane	64	1.943	1.949	(0.364)	637483	200.000	221.69
6	Trichlorofluoromethane	101	2.053	2.059	(0.384)	1377605	200.000	197.54
7	1,1-Dichloroethene	96	2.515	2.540	(0.471)	783348	200.000	217.13
8	Carbon Disulfide	76	2.515	2.540	(0.471)	2333310	200.000	216.33
9	112Trichloro122Trifluoroethane	101	2.564	2.588	(0.480)	746362	200.000	209.72
10	Iodomethane	142	2.649	2.673	(0.496)	932372	200.000	241.07
11	Bromoethane	108	2.783	2.801	(0.521)	490449	200.000	201.80
12	Acrolein	56	2.929	2.917	(0.548)	297449	1000.00	730.82
13	Methylene Chloride	84	3.154	3.160	(0.590)	741028	200.000	233.14
14	Acetone	43	3.288	3.270	(0.615)	714766	1000.00	1039.1
15	Trans-1,2-Dichloroethene	96	3.306	3.318	(0.619)	843474	200.000	212.67
16	Methyl tert butyl ether	73	3.507	3.495	(0.656)	2011917	200.000	219.98
173	n-Hexane	41	3.391	3.409	(0.635)	669504	200.000	185.78(H)
17	1,1-Dichloroethane	63	3.945	3.951	(0.738)	1322197	200.000	215.81
18	Acrylonitrile	53	4.048	4.042	(0.758)	161993	200.000	208.91
19	Vinyl Acetate	43	4.255	4.249	(0.796)	1358094	200.000	214.11
20	Cis-1,2-Dichloroethene	96	4.468	4.468	(0.836)	959200	200.000	214.49
22	2,2-Dichloropropane	77	4.559	4.559	(0.853)	1468091	200.000	216.18
23	Bromochloromethane	128	4.651	4.651	(0.870)	453849	200.000	213.57
24	Chloroform	83	4.742	4.742	(0.887)	1537646	200.000	216.22
25	Carbon Tetrachloride	117	4.821	4.827	(0.833)	1459656	200.000	211.12
$ 27	Dibromofluoromethane	111	4.900	4.900	(0.917)	320329	50.0000	51.768
26	1,1,1-Trichloroethane	97	4.894	4.894	(0.916)	1559801	200.000	215.04
28	1,1-Dichloropropene	75	5.003	5.009	(0.864)	1169423	200.000	213.58
29	2-Butanone	72	5.064	5.052	(0.948)	361805	1000.00	1052.1
30	Benzene	78	5.229	5.228	(0.903)	3273280	200.000	212.53
* 31	Pentafluorobenzene	168	5.344	5.344	(1.000)	503836	50.0000	
$ 32	d4-1,2-Dichloroethane	65	5.362	5.362	(1.003)	313637	50.0000	51.735
33	1,2-Dichloroethane	62	5.423	5.423	(0.937)	1101747	200.000	208.42

		QUANT SIG					AMOUNTS CAL-AMT	AMOUNTS ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/Kg)	(ug/Kg)
34	Trichloroethene	130	5.746	5.746	(0.993)	1006977	200.000	213.54
* 35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	963085	50.0000	
37	Dibromomethane	93	6.105	6.104	(1.055)	479767	200.000	216.30
38	1,2-Dichloropropane	63	6.196	6.196	(1.070)	755571	200.000	215.37
39	Bromodichloromethane	83	6.257	6.257	(1.081)	1208155	200.000	221.78
172	2-Pentanone	86	6.555	6.549	(1.132)	511694	1000.00	1128.4
40	2-Chloroethyl Vinyl Ether	63	6.768	6.762	(1.169)	417072	200.000	218.19
41	Cis 1,3-dichloropropene	75	6.798	6.792	(1.174)	1395898	200.000	221.44
$ 42	d8-Toluene	98	6.944	6.944	(1.200)	1206787	50.0000	50.735
43	Toluene	92	6.993	6.987	(1.208)	2258851	200.000	207.32
44	Tetrachloroethene	166	7.303	7.303	(0.884)	1055197	200.000	202.92
45	4-Methyl-2-Pentanone	58	7.346	7.339	(1.269)	1194851	1000.00	1093.2
46	Trans 1,3-Dichloropropene	75	7.358	7.352	(1.271)	1285247	200.000	222.15
47	1,1,2-Trichloroethane	97	7.492	7.485	(1.294)	686307	200.000	219.62
48	Chlorodibromomethane	129	7.632	7.631	(0.923)	967969	200.000	215.82
49	1,3-Dichloropropane	76	7.717	7.711	(0.934)	1152005	200.000	209.27
50	1,2-Dibromoethane	107	7.826	7.820	(1.352)	701232	200.000	222.85
51	2-Hexanone	43	8.057	8.051	(0.975)	2056360	1000.00	1042.9
* 52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	970655	50.0000	
53	Chlorobenzene	112	8.282	8.276	(1.002)	2644244	200.000	200.49
54	Ethyl Benzene	91	8.313	8.307	(1.006)	4304514	200.000	199.56
55	1,1,1,2-Tetrachloroethane	131	8.343	8.337	(1.010)	1011066	200.000	213.29
56	m,p-xylene	106	8.447	8.441	(1.022)	3611127	400.000	423.97
57	o-Xylene	106	8.818	8.812	(1.067)	1749376	200.000	218.40
58	Styrene	104	8.866	8.860	(1.073)	2921056	200.000	221.71
59	Bromoform	173	8.879	8.873	(0.857)	658743	200.000	201.43
60	Isopropyl Benzene	105	9.098	9.092	(0.878)	4661471	200.000	207.13
61	Cyclohexanone	55	Compound Not Detected.					
$ 62	4-Bromofluorobenzene	174	9.341	9.341	(1.130)	427101	50.0000	50.756
63	Bromobenzene	156	9.426	9.426	(0.910)	1192150	200.000	207.15
64	N-Propyl Benzene	91	9.469	9.463	(0.914)	5075040	200.000	196.51
65	1,1,2,2-Tetrachloroethane	83	9.542	9.536	(0.921)	836371	200.000	205.59
66	2-Chloro Toluene	91	9.597	9.596	(0.927)	3048419	200.000	204.59
67	1,3,5-Trimethyl Benzene	105	9.651	9.645	(0.932)	3872629	200.000	207.25
68	1,2,3-Trichloropropane	110	9.657	9.651	(0.932)	307045	200.000	211.26
69	Trans-1,4-Dichloro 2-Butene	53	9.700	9.694	(0.937)	242073	200.000	200.99
70	4-Chloro Toluene	91	9.755	9.749	(0.942)	3143964	200.000	200.37
71	T-Butyl Benzene	119	9.937	9.931	(0.959)	3602564	200.000	209.20
72	1,2,4-Trimethylbenzene	105	10.004	9.998	(0.966)	3828336	200.000	208.76
73	S-Butyl Benzene	105	10.101	10.095	(0.975)	5020601	200.000	201.80
74	4-Isopropyl Toluene	119	10.235	10.229	(0.988)	4453722	200.000	208.95
75	1,3-Dichlorobenzene	146	10.290	10.284	(0.994)	2325992	200.000	206.98
* 76	d4-1,4-Dichlorobenzene	152	10.357	10.357	(1.000)	552542	50.0000	
77	1,4-Dichlorobenzene	146	10.375	10.369	(1.002)	2286916	200.000	200.19
78	N-Butyl Benzene	91	10.625	10.625	(1.026)	3707262	200.000	203.02
$ 79	d4-1,2-Dichlorobenzene	152	10.752	10.752	(1.038)	522639	50.0000	50.484
80	1,2-Dichlorobenzene	146	10.758	10.758	(1.039)	2162725	200.000	203.06
81	1,2-Dibromo 3-Chloropropane	75	11.525	11.525	(1.113)	173997	200.000	209.09
82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.174)	803274	200.000	203.20
83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	1361126	200.000	202.87
84	Naphthalene	128	12.498	12.492	(1.207)	2929422	200.000	209.40
85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.224)	1268343	200.000	208.47

QC Flag Legend

H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201911.D
Lab Smp Id: SHH0255-CAL8
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	503836	10.02
35 1,4-Difluorobenze	852165	426083	1704330	963085	13.02
52 d5-Chlorobenzene	803678	401839	1607356	970655	20.78
76 d4-1,4-Dichlorobe	439766	219883	879532	552542	25.64

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	0.00
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.36	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT508201911.D

Lab ID: SHH0255-CAL8
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 16:29

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500

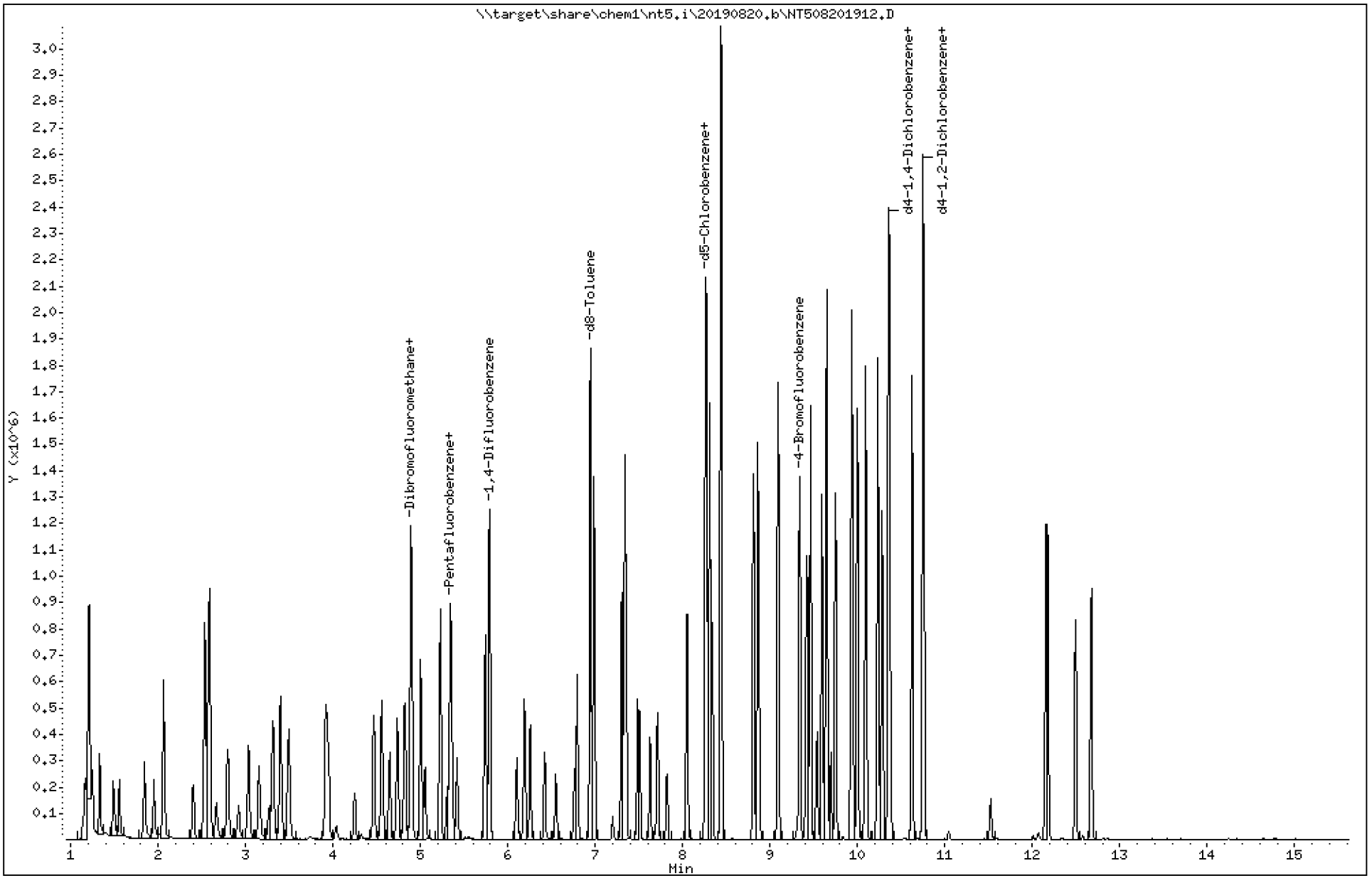
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190820.b\NT508201912.D
Date : 20-AUG-2019 17:22
Client ID:
Sample Info: SHH0255-SCV1

Instrument: nt5.i
Operator: PB
Column diameter: 0.18

Column phase: RTXVMS



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190820.b\NT508201912.D
Lab Smp Id: SHH0255-SCV1
Inj Date : 20-AUG-2019 17:22
Operator : PB Inst ID: nt5.i
Smp Info : SHH0255-SCV1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Meth Date : 22-Aug-2019 13:13 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 14 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
1	Dichlorodifluoromethane	85	1.329	1.329	(0.249)	261070	77.0295	77.029(R)
2	Chloromethane	50	1.487	1.487	(0.279)	201321	65.9506	65.951(R)
3	Vinyl Chloride	62	1.554	1.560	(0.291)	202207	67.9407	67.941(R)
4	Bromomethane	94	1.840	1.840	(0.345)	163976	62.1386	62.139(R)
5	Chloroethane	64	1.949	1.949	(0.365)	168242	59.3913	59.391
6	Trichlorofluoromethane	101	2.059	2.059	(0.386)	398739	65.8630	65.863(R)
7	1,1-Dichloroethene	96	2.534	2.540	(0.475)	162668	51.9388	51.939
8	Carbon Disulfide	76	2.534	2.540	(0.475)	490197	52.3525	52.353
9	112Trichloro122Trifluoroethane	101	2.582	2.588	(0.484)	388167	125.642	125.64(R)
10	Iodomethane	142	2.667	2.673	(0.500)	163969	48.8357	48.836
11	Bromoethane	108	2.795	2.801	(0.524)	250428	118.694	118.69
12	Acrolein	56	2.917	2.917	(0.546)	114787	324.870	324.87(R)
13	Methylene Chloride	84	3.154	3.160	(0.591)	146416	46.2773	46.277
14	Acetone	43	3.270	3.270	(0.613)	162447	243.507	243.51
15	Trans-1,2-Dichloroethene	96	3.312	3.318	(0.621)	176604	51.2934	51.293
16	Methyl tert butyl ether	73	3.489	3.495	(0.654)	439079	55.3014	55.301
173	n-Hexane	41	3.397	3.409	(0.636)	185654	59.3424	59.342
17	1,1-Dichloroethane	63	3.945	3.951	(0.739)	283594	53.3198	53.320
18	Acrylonitrile	53	4.036	4.042	(0.756)	36646	54.4385	54.438
19	Vinyl Acetate	43	4.249	4.249	(0.796)	222470	40.4027	40.403
20	Cis-1,2-Dichloroethene	96	4.468	4.468	(0.837)	191717	49.3826	49.383
22	2,2-Dichloropropane	77	4.553	4.559	(0.853)	308685	52.3590	52.359
23	Bromochloromethane	128	4.645	4.651	(0.870)	86977	47.1476	47.148
24	Chloroform	83	4.736	4.742	(0.887)	306093	49.5809	49.581
25	Carbon Tetrachloride	117	4.821	4.827	(0.833)	297198	50.5029	50.503
$ 27	Dibromofluoromethane	111	4.900	4.900	(0.918)	263501	49.0535	49.053(R)
26	1,1,1-Trichloroethane	97	4.888	4.894	(0.916)	329995	52.4063	52.406
28	1,1-Dichloropropene	75	5.003	5.009	(0.864)	257227	55.1948	55.195
29	2-Butanone	72	5.052	5.052	(0.946)	78627	263.377	263.38
30	Benzene	78	5.229	5.228	(0.903)	656942	50.1129	50.113
* 31	Pentafluorobenzene	168	5.338	5.344	(1.000)	437388	50.0000	
$ 32	d4-1,2-Dichloroethane	65	5.356	5.362	(1.003)	257109	48.8539	48.854(R)
33	1,2-Dichloroethane	62	5.417	5.423	(0.936)	210805	46.8504	46.850

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.740	5.746	(0.992)	217168	54.1056	54.106
*	35	1,4-Difluorobenzene	114	5.788	5.788	(1.000)	819748	50.0000	
	37	Dibromomethane	93	6.098	6.104	(1.054)	90059	47.7012	47.701
	38	1,2-Dichloropropane	63	6.190	6.196	(1.069)	143447	48.0372	48.037
	39	Bromodichloromethane	83	6.257	6.257	(1.081)	223893	48.2855	48.285
	172	2-Pentanone	86	6.549	6.549	(1.131)	43943	113.847	113.85
	40	2-Chloroethyl Vinyl Ether	63	6.762	6.762	(1.168)	87742	53.9276	53.928
	41	Cis 1,3-dichloropropene	75	6.792	6.792	(1.173)	270282	50.3739	50.374
$	42	d8-Toluene	98	6.944	6.944	(1.200)	1007765	49.7759	49.776(R)
	43	Toluene	92	6.987	6.987	(1.207)	477773	51.5181	51.518
	44	Tetrachloroethene	166	7.303	7.303	(0.884)	234070	56.8279	56.828
	45	4-Methyl-2-Pentanone	58	7.340	7.339	(1.268)	243375	261.599	261.60
	46	Trans 1,3-Dichloropropene	75	7.352	7.352	(1.270)	250525	50.8741	50.874
	47	1,1,2-Trichloroethane	97	7.486	7.485	(1.293)	130739	49.1523	49.152
	48	Chlorodibromomethane	129	7.625	7.631	(0.923)	176244	49.6112	49.611
	49	1,3-Dichloropropane	76	7.711	7.711	(0.933)	220708	50.6166	50.617
	50	1,2-Dibromoethane	107	7.820	7.820	(1.351)	131822	49.2171	49.217
	51	2-Hexanone	43	8.045	8.051	(0.974)	426955	273.367	273.37
*	52	d5-Chlorobenzene	117	8.264	8.264	(1.000)	768837	50.0000	
	53	Chlorobenzene	112	8.276	8.276	(1.001)	532369	50.9604	50.960
	54	Ethyl Benzene	91	8.307	8.307	(1.005)	956497	55.9841	55.984
	55	1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.009)	195083	51.9563	51.956
	56	m,p-xylene	106	8.435	8.441	(1.021)	759944	112.642	112.64
	57	o-Xylene	106	8.812	8.812	(1.066)	337135	53.1385	53.139
	58	Styrene	104	8.860	8.860	(1.072)	576179	55.2116	55.212
	59	Bromoform	173	8.873	8.873	(0.857)	116749	45.4926	45.493
	60	Isopropyl Benzene	105	9.092	9.092	(0.878)	967675	54.7938	54.794
	61	Cyclohexanone	55	9.645	9.645	(1.167)	1643		
$	62	4-Bromofluorobenzene	174	9.341	9.341	(1.130)	337713	50.6686	50.669(R)
	63	Bromobenzene	156	9.420	9.426	(0.910)	228015	50.4895	50.490
	64	N-Propyl Benzene	91	9.463	9.463	(0.914)	1084427	53.5105	53.510
	65	1,1,2,2-Tetrachloroethane	83	9.536	9.536	(0.921)	158070	49.5146	49.515
	66	2-Chloro Toluene	91	9.597	9.596	(0.927)	623214	53.3012	53.301
	67	1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.932)	804824	54.8862	54.886
	68	1,2,3-Trichloropropane	110	9.651	9.651	(0.932)	58508	51.3003	51.300
	69	Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.937)	52977	56.0543	56.054
	70	4-Chloro Toluene	91	9.749	9.749	(0.942)	640654	52.0315	52.032
	71	T-Butyl Benzene	119	9.931	9.931	(0.959)	836517	61.9022	61.902(R)
	72	1,2,4-Trimethylbenzene	105	9.998	9.998	(0.966)	790116	54.9050	54.905
	73	S-Butyl Benzene	105	10.095	10.095	(0.975)	1071419	54.8786	54.879
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	929020	55.5416	55.542
	75	1,3-Dichlorobenzene	146	10.284	10.284	(0.994)	457947	51.9289	51.929
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.357	(1.000)	433593	50.0000	
	77	1,4-Dichlorobenzene	146	10.369	10.369	(1.002)	454164	50.6637	50.664
	78	N-Butyl Benzene	91	10.625	10.625	(1.026)	815055	56.8801	56.880
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.752	(1.038)	401358	49.4049	49.405(R)
	80	1,2-Dichlorobenzene	146	10.758	10.758	(1.039)	419308	50.1697	50.170
	81	1,2-Dibromo 3-Chloropropane	75	11.525	11.525	(1.113)	32671	50.0296	50.030
	82	Hexachloro 1,3-Butadiene	225	12.158	12.158	(1.175)	174430	56.2290	56.229
	83	1,2,4-Trichlorobenzene	180	12.176	12.176	(1.176)	290109	55.1013	55.101
	84	Naphthalene	128	12.492	12.492	(1.207)	608919	55.4661	55.466
	85	1,2,3-Trichlorobenzene	180	12.675	12.675	(1.225)	264155	55.3291	55.329

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508201912.D
Lab Smp Id: SHH0255-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

Calibration Date: 20-AUG-2019
Calibration Time: 15:21
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	437388	-4.49
35 1,4-Difluorobenze	852165	426083	1704330	819748	-3.80
52 d5-Chlorobenzene	803678	401839	1607356	768837	-4.34
76 d4-1,4-Dichlorobe	439766	219883	879532	433593	-1.40

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.11
35 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	0.00
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHH0255-SCV1
Level: Operator: PB
Data Type: MS DATA SampleType: LCS
SpikeList File: icv3.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190820.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	77.029	154.06*	
2	Chloromethane	50.000	65.951	131.90*	
3	Vinyl Chloride	50.000	67.941	135.88*	
4	Bromomethane	50.000	62.139	124.28*	
5	Chloroethane	50.000	59.391	118.78	
6	Trichlorofluoromet	50.000	65.863	131.73*	
7	1,1-Dichloroethene	50.000	51.939	103.88	
8	Carbon Disulfide	50.000	52.353	104.71	
9	112Trichloro122Tri	100.00	125.64	125.64*	
10	Iodomethane	50.000	48.836	97.67	
11	Bromoethane	100.00	118.69	118.69	
12	Acrolein	250.00	324.87	129.95*	
13	Methylene Chloride	50.000	46.277	92.55	
14	Acetone	250.00	243.51	97.40	
15	Trans-1,2-Dichloro	50.000	51.293	102.59	
16	Methyl tert butyl	50.000	55.301	110.60	
17	1,1-Dichloroethane	50.000	53.320	106.64	
18	Acrylonitrile	50.000	54.438	108.88	
19	Vinyl Acetate	50.000	40.403	80.81	
20	Cis-1,2-Dichloroet	50.000	49.383	98.77	
22	2,2-Dichloropropan	50.000	52.359	104.72	
23	Bromochloromethane	50.000	47.148	94.30	
24	Chloroform	50.000	49.581	99.16	
25	Carbon Tetrachlori	50.000	50.503	101.01	
26	1,1,1-Trichloroeth	50.000	52.406	104.81	
28	1,1-Dichloropropen	50.000	55.195	110.39	
29	2-Butanone	250.00	263.38	105.35	
30	Benzene	50.000	50.113	100.23	
33	1,2-Dichloroethane	50.000	46.850	93.70	
34	Trichloroethene	50.000	54.106	108.21	
37	Dibromomethane	50.000	47.701	95.40	
38	1,2-Dichloropropan	50.000	48.037	96.07	
39	Bromodichlorometha	50.000	48.285	96.57	
172	2-Pentanone	100.00	113.85	113.85	
40	2-Chloroethyl Viny	50.000	53.928	107.86	
41	Cis 1,3-dichloropr	50.000	50.374	100.75	
43	Toluene	50.000	51.518	103.04	
44	Tetrachloroethene	50.000	56.828	113.66	
45	4-Methyl-2-Pentano	250.00	261.60	104.64	
46	Trans 1,3-Dichloro	50.000	50.874	101.75	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
47 1,1,2-Trichloroeth	50.000	49.152	98.30	
48 Chlorodibromometha	50.000	49.611	99.22	
49 1,3-Dichloropropan	50.000	50.617	101.23	
50 1,2-Dibromoethane	50.000	49.217	98.43	
51 2-Hexanone	250.00	273.37	109.35	
53 Chlorobenzene	50.000	50.960	101.92	
54 Ethyl Benzene	50.000	55.984	111.97	
55 1,1,1,2-Tetrachlor	50.000	51.956	103.91	
56 m,p-xylene	100.00	112.64	112.64	
57 o-Xylene	50.000	53.139	106.28	
58 Styrene	50.000	55.212	110.42	
59 Bromoform	50.000	45.493	90.99	
60 Isopropyl Benzene	50.000	54.794	109.59	
63 Bromobenzene	50.000	50.490	100.98	
64 N-Propyl Benzene	50.000	53.510	107.02	
65 1,1,2,2-Tetrachlor	50.000	49.515	99.03	
66 2-Chloro Toluene	50.000	53.301	106.60	
68 1,2,3-Trichloropro	50.000	51.300	102.60	
67 1,3,5-Trimethyl Be	50.000	54.886	109.77	
69 Trans-1,4-Dichloro	50.000	56.054	112.11	
70 4-Chloro Toluene	50.000	52.032	104.06	
71 T-Butyl Benzene	50.000	61.902	123.80*	
72 1,2,4-Trimethylben	50.000	54.905	109.81	
73 S-Butyl Benzene	50.000	54.879	109.76	
74 4-Isopropyl Toluen	50.000	55.542	111.08	
75 1,3-Dichlorobenzen	50.000	51.929	103.86	
77 1,4-Dichlorobenzen	50.000	50.664	101.33	
78 N-Butyl Benzene	50.000	56.880	113.76	
80 1,2-Dichlorobenzen	50.000	50.170	100.34	
81 1,2-Dibromo 3-Chlo	50.000	50.030	100.06	
82 Hexachloro 1,3-But	50.000	56.229	112.46	
83 1,2,4-Trichloroben	50.000	55.101	110.20	
84 Naphthalene	50.000	55.466	110.93	
85 1,2,3-Trichloroben	50.000	55.329	110.66	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	49.053	98.11	
$ 32 d4-1,2-Dichloroeth	50.000	48.854	97.71	
$ 42 d8-Toluene	50.000	49.776	99.55	
$ 62 4-Bromofluorobenze	50.000	50.669	101.34	
$ 79 d4-1,2-Dichloroben	50.000	49.405	98.81	

REVIEW SUMMARY FOR FILE - NT508201912.D

Lab ID: SHH0255-SCV1
nt5.i, 20190820.b\VO122618S.m,   20-AUG-2019 17:22

RT	CO-ELUTION COMPOUNDS
9.646	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
1.167	0.000	1.1671	Cyclohexanone

RRT check based on Ccal File: NT508201911.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500

Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt5.i\20190821.b\NT508211903.D

Date : 21-AUG-2019 12:47

Client ID:

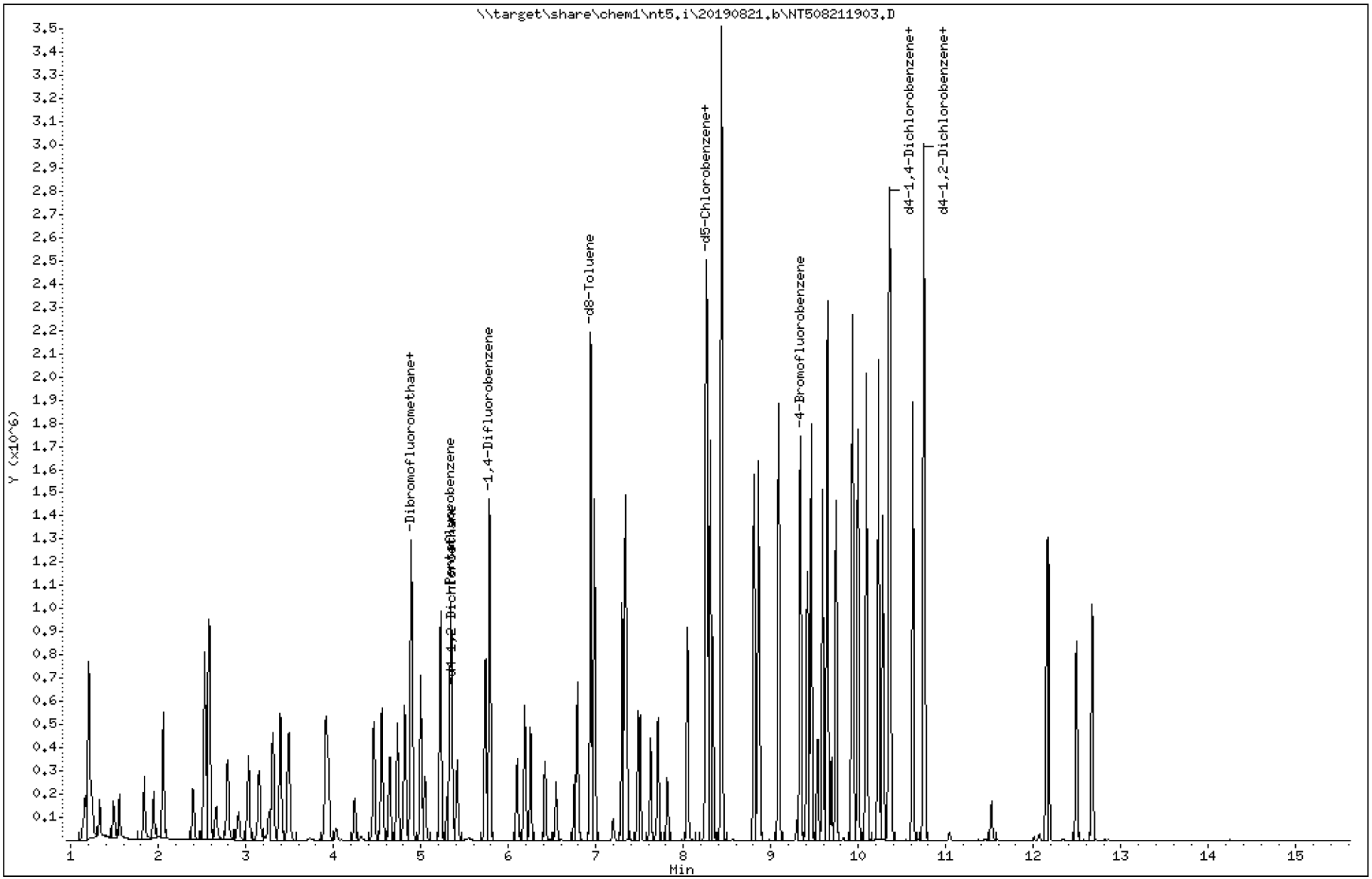
Instrument: nt5.i

Sample Info: SCV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190821.b\NT508211903.D
Lab Smp Id: SHH0255-SCV1
Inj Date : 21-AUG-2019 12:47
Operator : PB Inst ID: nt5.i
Smp Info : SCV1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190821.b\VO122618S.m
Meth Date : 21-Aug-2019 13:48 patrickb Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	146521	37.8826	37.883(R)
	2 Chloromethane	50	1.487	1.487	(0.279)	158533	45.5082	45.508
	3 Vinyl Chloride	62	1.554	1.554	(0.291)	169103	49.7881	49.788
	4 Bromomethane	94	1.840	1.840	(0.345)	147705	49.0475	49.047
	5 Chloroethane	64	1.943	1.950	(0.364)	154432	47.7712	47.771
	6 Trichlorofluoromethane	101	2.053	2.059	(0.385)	365500	52.9030	52.903
	7 1,1-Dichloroethene	96	2.527	2.534	(0.474)	165568	46.3240	46.324
	8 Carbon Disulfide	76	2.527	2.534	(0.474)	468101	43.8073	43.807
	9 112Trichloro122Trifluoroethane	101	2.576	2.588	(0.483)	396086	112.343	112.34
	10 Iodomethane	142	2.661	2.661	(0.499)	168338	43.9338	43.934
	11 Bromoethane	108	2.789	2.789	(0.523)	259172	107.640	107.64
	12 Acrolein	56	2.917	2.911	(0.546)	111947	277.632	277.63
	13 Methylene Chloride	84	3.148	3.148	(0.590)	153368	42.4770	42.477
	14 Acetone	43	3.264	3.258	(0.611)	162482	213.425	213.42
	15 Trans-1,2-Dichloroethene	96	3.306	3.312	(0.619)	184724	47.0137	47.014
	16 Methyl tert butyl ether	73	3.489	3.483	(0.654)	492887	54.3978	54.398
	173 n-Hexane	41	3.391	3.397	(0.635)	188937	52.9198	52.920
	17 1,1-Dichloroethane	63	3.939	3.939	(0.738)	304677	50.1962	50.196
	18 Acrylonitrile	53	4.030	4.030	(0.755)	39216	51.0485	51.048
	19 Vinyl Acetate	43	4.243	4.243	(0.795)	227040	36.1311	36.131(R)
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.836)	207909	46.9274	46.927
	22 2,2-Dichloropropane	77	4.553	4.553	(0.853)	333546	49.5760	49.576
	23 Bromochloromethane	128	4.645	4.645	(0.870)	98251	46.6694	46.669
	24 Chloroform	83	4.730	4.730	(0.886)	334759	47.5153	47.515
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	325130	46.3251	46.325
$	27 Dibromofluoromethane	111	4.894	4.894	(0.917)	321946	52.5183	52.518(R)
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.916)	356338	49.5882	49.588
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	272452	49.0184	49.018
	29 2-Butanone	72	5.046	5.046	(0.945)	77929	228.742	228.74
	30 Benzene	78	5.222	5.223	(0.903)	706369	45.1795	45.180
*	31 Pentafluorobenzene	168	5.338	5.338	(1.000)	499145	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.356	5.356	(1.003)	310625	51.7200	51.720(R)
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	238076	44.3646	44.365

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/Kg)	FINAL (ug/Kg)
	34	Trichloroethene	130	5.740	5.740	(0.993)	234261	48.9367	48.937
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	977670	50.0000	
	37	Dibromomethane	93	6.099	6.099	(1.055)	100861	44.7934	44.793
	38	1,2-Dichloropropane	63	6.190	6.184	(1.070)	161852	45.4457	45.446
	39	Bromodichloromethane	83	6.251	6.251	(1.081)	253768	45.8882	45.888
	172	2-Pentanone	86	6.543	6.543	(1.132)	44047	95.6836	95.684
	40	2-Chloroethyl Vinyl Ether	63	6.756	6.756	(1.168)	95491	49.2101	49.210
	41	Cis 1,3-dichloropropene	75	6.792	6.786	(1.175)	304424	47.5724	47.572
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1221930	50.6051	50.605(R)
	43	Toluene	92	6.981	6.981	(1.207)	515929	46.6462	46.646
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	251764	50.1479	50.148
	45	4-Methyl-2-Pentanone	58	7.333	7.334	(1.268)	251041	226.252	226.25
	46	Trans 1,3-Dichloropropene	75	7.352	7.346	(1.271)	280343	47.7335	47.734
	47	1,1,2-Trichloroethane	97	7.479	7.480	(1.294)	146226	46.0947	46.095
	48	Chlorodibromomethane	129	7.625	7.626	(0.923)	196836	45.4582	45.458
	49	1,3-Dichloropropane	76	7.711	7.711	(0.934)	248913	46.8344	46.834
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	148450	46.4725	46.473
	51	2-Hexanone	43	8.045	8.045	(0.974)	440360	231.321	231.32
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	937112	50.0000	
	53	Chlorobenzene	112	8.276	8.270	(1.002)	598411	46.9962	46.996
	54	Ethyl Benzene	91	8.307	8.307	(1.006)	1051448	50.4907	50.491
	55	1,1,1,2-Tetrachloroethane	131	8.337	8.337	(1.010)	222105	48.5310	48.531
	56	m,p-xylene	106	8.435	8.435	(1.021)	830225	100.962	100.96
	57	o-Xylene	106	8.806	8.806	(1.066)	373802	48.3382	48.338
	58	Styrene	104	8.854	8.854	(1.072)	636513	50.0406	50.041
	59	Bromoform	173	8.873	8.873	(0.857)	129645	42.1914	42.191
	60	Isopropyl Benzene	105	9.086	9.086	(0.878)	1060926	50.1727	50.173
	61	Cyclohexanone	55	Compound Not Detected.					
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	409302	50.3823	50.382(R)
	63	Bromobenzene	156	9.420	9.420	(0.910)	254369	47.0416	47.042
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	1195934	49.2863	49.286
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	176983	46.3015	46.302
	66	2-Chloro Toluene	91	9.590	9.591	(0.927)	694816	49.6306	49.631
	67	1,3,5-Trimethyl Benzene	105	9.645	9.645	(0.932)	897670	51.1281	51.128
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	64126	46.9590	46.959
	69	Trans-1,4-Dichloro 2-Butene	53	9.694	9.694	(0.937)	59361	52.4569	52.457
	70	4-Chloro Toluene	91	9.743	9.743	(0.941)	708388	48.0501	48.050
	71	T-Butyl Benzene	119	9.931	9.925	(0.959)	934761	57.7713	57.771
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	881035	51.1322	51.132
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	1175943	50.3048	50.305
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	1036202	51.7390	51.739
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	518424	49.0975	49.097
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	519161	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	512001	47.7019	47.702
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	896437	52.2484	52.248
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	491452	50.5242	50.524(R)
	80	1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	471354	47.1016	47.102
	81	1,2-Dibromo 3-Chloropropane	75	11.519	11.519	(1.113)	36063	46.1218	46.122
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	190403	51.2618	51.262
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	322863	51.2152	51.215
	84	Naphthalene	128	12.492	12.492	(1.207)	604938	46.0213	46.021
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	279878	48.9603	48.960

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT508211903.D
Lab Smp Id: SHH0255-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190821.b\VO122618S.m
Misc Info:

Calibration Date: 21-AUG-2019
Calibration Time: 13:26
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	499145	8.99
35 1,4-Difluorobenze	852165	426083	1704330	977670	14.73
52 d5-Chlorobenzene	803678	401839	1607356	937112	16.60
76 d4-1,4-Dichlorobe	439766	219883	879532	519161	18.05

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.00
35 1,4-Difluorobenze	5.78	5.28	6.28	5.78	-0.00
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.00
76 d4-1,4-Dichlorobe	10.35	9.85	10.85	10.35	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151013
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHH0255-SCV1
Level: Operator: PB
Data Type: MS DATA SampleType: LCS
SpikeList File: icv3.spk Quant Type: ISTD
Sublist File: voamdl.sub
Method File: \\target\share\chem1\nt5.i\20190821.b\VO122618S.m
Misc Info:

SPIKE	COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
1	Dichlorodifluorome	50.000	37.883	75.77*	
2	Chloromethane	50.000	45.508	91.02	
3	Vinyl Chloride	50.000	49.788	99.58	
4	Bromomethane	50.000	49.047	98.09	
5	Chloroethane	50.000	47.771	95.54	
6	Trichlorofluoromet	50.000	52.903	105.81	
7	1,1-Dichloroethene	50.000	46.324	92.65	
8	Carbon Disulfide	50.000	43.807	87.61	
9	112Trichloro122Tri	100.00	112.34	112.34	
10	Iodomethane	50.000	43.934	87.87	
11	Bromoethane	100.00	107.64	107.64	
12	Acrolein	250.00	277.63	111.05	
13	Methylene Chloride	50.000	42.477	84.95	
14	Acetone	250.00	213.42	85.37	
15	Trans-1,2-Dichloro	50.000	47.014	94.03	
16	Methyl tert butyl	50.000	54.398	108.80	
17	1,1-Dichloroethane	50.000	50.196	100.39	
18	Acrylonitrile	50.000	51.048	102.10	
19	Vinyl Acetate	50.000	36.131	72.26*	
20	Cis-1,2-Dichloroet	50.000	46.927	93.85	
22	2,2-Dichloropropan	50.000	49.576	99.15	
23	Bromochloromethane	50.000	46.669	93.34	
24	Chloroform	50.000	47.515	95.03	
25	Carbon Tetrachlori	50.000	46.325	92.65	
26	1,1,1-Trichloroeth	50.000	49.588	99.18	
28	1,1-Dichloropropen	50.000	49.018	98.04	
29	2-Butanone	250.00	228.74	91.50	
30	Benzene	50.000	45.180	90.36	
33	1,2-Dichloroethane	50.000	44.365	88.73	
34	Trichloroethene	50.000	48.937	97.87	
37	Dibromomethane	50.000	44.793	89.59	
38	1,2-Dichloropropan	50.000	45.446	90.89	
39	Bromodichlorometha	50.000	45.888	91.78	
172	2-Pentanone	100.00	95.684	95.68	
40	2-Chloroethyl Viny	50.000	49.210	98.42	
41	Cis 1,3-dichloropr	50.000	47.572	95.14	
43	Toluene	50.000	46.646	93.29	
44	Tetrachloroethene	50.000	50.148	100.30	
45	4-Methyl-2-Pentano	250.00	226.25	90.50	
46	Trans 1,3-Dichloro	50.000	47.734	95.47	

SPIKE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
47 1,1,2-Trichloroeth	50.000	46.095	92.19	
48 Chlorodibromometha	50.000	45.458	90.92	
49 1,3-Dichloropropan	50.000	46.834	93.67	
50 1,2-Dibromoethane	50.000	46.473	92.95	
51 2-Hexanone	250.00	231.32	92.53	
53 Chlorobenzene	50.000	46.996	93.99	
54 Ethyl Benzene	50.000	50.491	100.98	
55 1,1,1,2-Tetrachlor	50.000	48.531	97.06	
56 m,p-xylene	100.00	100.96	100.96	
57 o-Xylene	50.000	48.338	96.68	
58 Styrene	50.000	50.041	100.08	
59 Bromoform	50.000	42.191	84.38	
60 Isopropyl Benzene	50.000	50.173	100.35	
63 Bromobenzene	50.000	47.042	94.08	
64 N-Propyl Benzene	50.000	49.286	98.57	
65 1,1,2,2-Tetrachlor	50.000	46.302	92.60	
66 2-Chloro Toluene	50.000	49.631	99.26	
68 1,2,3-Trichloropro	50.000	46.959	93.92	
67 1,3,5-Trimethyl Be	50.000	51.128	102.26	
69 Trans-1,4-Dichloro	50.000	52.457	104.91	
70 4-Chloro Toluene	50.000	48.050	96.10	
71 T-Butyl Benzene	50.000	57.771	115.54	
72 1,2,4-Trimethylben	50.000	51.132	102.26	
73 S-Butyl Benzene	50.000	50.305	100.61	
74 4-Isopropyl Toluen	50.000	51.739	103.48	
75 1,3-Dichlorobenzen	50.000	49.097	98.19	
77 1,4-Dichlorobenzen	50.000	47.702	95.40	
78 N-Butyl Benzene	50.000	52.248	104.50	
80 1,2-Dichlorobenzen	50.000	47.102	94.20	
81 1,2-Dibromo 3-Chlo	50.000	46.122	92.24	
82 Hexachloro 1,3-But	50.000	51.262	102.52	
83 1,2,4-Trichloroben	50.000	51.215	102.43	
84 Naphthalene	50.000	46.021	92.04	
85 1,2,3-Trichloroben	50.000	48.960	97.92	

SURROGATE COMPOUND	AMOUNT ADDED ug/Kg	AMOUNT RECOVERED ug/Kg	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	50.000	52.518	105.04	
$ 32 d4-1,2-Dichloroeth	50.000	51.720	103.44	
$ 42 d8-Toluene	50.000	50.605	101.21	
$ 62 4-Bromofluorobenze	50.000	50.382	100.76	
$ 79 d4-1,2-Dichloroben	50.000	50.524	101.05	

REVIEW SUMMARY FOR FILE - NT508211903.D

Lab ID: SHH0255-SCV1
nt5.i, 20190821.b\VO122618S.m,   21-AUG-2019 12:47

RT	CO-ELUTION COMPOUNDS
9.646	1,2,3-Trichloropropane and 1,3,5-Trimethyl Benzene
9.646	1,3,5-Trimethyl Benzene and 1,2,3-Trichloropropane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

RRT check based on Ccal File: NT508211904.D

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00019	Instrument:	NT3
Calibration Date:	09/04/2019 9:42	Column (1):	RTX-VMS

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Benzene	0.2	1.902705	0.5	1.639752	1	1.635382	2	1.702232	10	1.972167	20	1.611721
Toluene	0.2	1.053729	0.5	1.112549	1	1.129734	2	1.13555	10	1.258477	20	1.073132
Ethylbenzene	0.2	0.7039322	0.5	0.6680384	1	0.6666076	2	0.6896656	10	0.8386689	20	0.6765117
m,p-Xylene	0.4	0.9106741	1	0.8064412	2	0.7733853	4	0.8522529	20	1.037912	40	0.8464978
o-Xylene	0.2	0.8985848	0.5	0.8048585	1	0.8050582	2	0.8320972	10	1.049733	20	0.8585802
Toluene-d8	5	1.221626	5	1.201492	5	1.214482	5	1.187176	5	1.205772	5	1.233091
4-Bromofluorobenzene	5	0.4728099	5	0.441998	5	0.4773504	5	0.4712061	5	0.4843001	5	0.4990093

INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00019	Instrument:	NT3
Calibration Date:	09/04/2019 9:42	Column (1):	RTX-VMS

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Benzene	40	1.674248	80	1.552492								
Toluene	40	1.117086	80	1.047039								
Ethylbenzene	40	0.7140404	80	0.6693308								
m,p-Xylene	80	0.8801498	160	0.8217176								
o-Xylene	40	0.902484	80	0.8435421								
Toluene-d8	5	1.199985	5	1.214364								
4-Bromofluorobenzene	5	0.4734584	5	0.4813109								

INITIAL CALIBRATION DATA

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00019	Instrument:	NT3
Calibration Date:	09/04/2019 9:42	Column (1):	RTX-VMS

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Benzene	1.711337	8.6			RSD (15)	
Toluene	1.115912	6.0			RSD (15)	
Ethylbenzene	0.7033495	8.2			RSD (15)	
m,p-Xylene	0.8661288	9.4			RSD (15)	
o-Xylene	0.8743672	9.1			RSD (15)	
Toluene-d8	1.209749	1.2			RSD (15)	
4-Bromofluorobenzene	0.4751804	3.4			RSD (15)	

Printed: 9/6/2019 10:30:35AM

ANALYSIS SEQUENCE

SHI0071

Instrument: NT3
Element Column ID: 1300725RTXV
Calibration ID: CI00019
Tune File: bfb.u
EM Voltage: 1953

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0071-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0071-CAL1	8260C 0.2	QC		2	H008621	H007838	
SHI0071-CAL2	8260C 0.5	QC		3	H008622	H007838	
SHI0071-CAL3	8260C 1	QC		4	H008623	H007838	
SHI0071-CAL4	8260C 2	QC		5	H008624	H007838	
SHI0071-CAL5	8260C 10	QC		6	H008625	H007838	
SHI0071-CAL6	8260C 20	QC		7	H008626	H007838	
SHI0071-CAL7	8260C 40	QC		8	H008627	H007838	
SHI0071-CAL8	8260C 80	QC		9	H008628	H007838	
SHI0071-ICB1	Initial Cal Blank	QC		10		H007838	
SHI0071-SCV1	8260C SCV	QC		11	H008419	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190904.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1451	V309041901.D	RINSE				1								
2	1517	V309041902.D	SHI0071-TUN1				1								
3	1555	V309041903.D	RLTEST	test			1	5.41	109878	5.79	160341	7.82	165580	9.50	103285
4	1700	V309041904.D	RINSE				1	5.41	89310	5.79	136251	7.81	129361	9.50	83816
5	1727	V309041905.D	SHI0071-CAL1				1	5.41	111182	5.79	160193	7.81	163368	9.50	105427
6	1754	V309041906.D	SHI0071-CAL2				1	5.41	111932	5.79	163049	7.81	170589	9.50	105523
7	1821	V309041907.D	SHI0071-CAL3				1	5.41	114344	5.79	166163	7.81	169230	9.50	105248
8	1848	V309041908.D	SHI0071-CAL4				1	5.41	112026	5.79	164722	7.81	165834	9.50	107436
9	1915	V309041909.D	SHI0071-CAL5				1	5.41	96897	5.79	140121	7.81	140128	9.50	90137
10	1941	V309041910.D	SHI0071-CAL6				1	5.41	116965	5.79	169050	7.81	171592	9.50	108898
11	2008	V309041911.D	SHI0071-CAL7				1	5.41	106623	5.79	160497	7.81	162481	9.50	104567
12	2035	V309041912.D	SHI0071-CAL8				1	5.41	120959	5.79	179582	7.81	182593	9.50	116974
13	2101	V309041913.D	SHI0071-ICB1				1	5.41	117622	5.79	167865	7.81	173269	9.50	107129
14	2128	V309041914.D	SHI0071-SCV1				1	5.41	116549	5.79	167677	7.81	173002	9.50	109816
15	2155	V309041915.D	RINSE				1	5.41	95635	5.79	136906	7.81	141908	9.50	86389
16	2221	V309041916.D	SHI0-CAL9				1	5.41	112901	5.79	163037	7.81	164073	9.50	106831
17	2247	V309041917.D	SHI0-CALA				1	5.41	99011	5.79	141975	7.81	144385	9.50	92608
18	2314	V309041918.D	SHI0-CALB				1	5.41	115714	5.79	174483	7.82	170438	9.50	105547
19	2340	V309041919.D	SHI0-CALC				1	5.41	116637	5.79	166209	7.81	170008	9.50	106056
20	0007	V309041920.D	SHI0-CALD				1	5.41	112151	5.79	174709	7.81	176081	9.50	109115
21	0033	V309041921.D	SHI0-CALE				1	5.41	92633	5.79	142928	7.81	141756	9.50	88014
22	0100	V309041922.D	RINSE				1	5.41	118075	5.79	173200	7.81	172867	9.50	108265

23 0127 V309041923.D SHI0-SCV1 1 | 5.41 117414|| 5.79 174229|| 7.82 171651|| 9.50 106541|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190904.b

Instrument: nt3.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1727	V309041905.D	SHI0071-CAL1	1	Chloromethane, Vinyl Chloride, Chloroethane, Iodomethane, Bromoethane, Vinyl Acetate, 1,1,1-Trichloroethane, 2-Butanone, Dibromomethane, 1,2-Dichloropropane, 2-Chloroethyl Vinyl Ether, Trans 1,3-Dichloropropene, 1,2-Dibromoethane, 1,2,3-Trichloropropane, 1,4-Dichlorobenzene, 1,
1754	V309041906.D	SHI0071-CAL2	1	Chloromethane, Vinyl Chloride, Acrylonitrile, Vinyl Acetate, Bromochloromethane, 2-Chloroethyl Vinyl Ether, Styrene, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo 3-Chloropropane, Hexachloro 1,3-Butadiene,
1821	V309041907.D	SHI0071-CAL3	1	Dichlorodifluoromethane, Iodomethane, Bromoethane, Acetone, Acrylonitrile, Vinyl Acetate, 1,2-Dibromo 3-Chloropropane,
1848	V309041908.D	SHI0071-CAL4	1	Chloromethane, Vinyl Acetate,
1915	V309041909.D	SHI0071-CAL5	1	Dichlorodifluoromethane, Chloromethane, Bromomethane, 1,2-Dibromoethane, Trans-1,4-Dichloro 2-Butene,
1941	V309041910.D	SHI0071-CAL6	1	Dichlorodifluoromethane,
2008	V309041911.D	SHI0071-CAL7	1	Dichlorodifluoromethane, Chloromethane, 1,2,3-Trichloropropane,
2035	V309041912.D	SHI0071-CAL8	1	Trans-1,4-Dichloro 2-Butene, Pentafluorobenzene,
2101	V309041913.D	SHI0071-ICB1	1	Dichlorodifluoromethane, Chloromethane, Acetone, 2-Butanone, Benzene, 1,2-Dibromoethane, Bromoform, 4-Isopropyl Toluene,
2128	V309041914.D	SHI0071-SCV1	1	Dichlorodifluoromethane, Vinyl Chloride,

Security Status Report

Date: 06-Sep-2019 10:28

V309041901.D	Data Locked	paul, 06-Sep-2019 10:28
V309041902.D	Data Locked	paul, 06-Sep-2019 10:28
V309041903.D	Data Locked	paul, 06-Sep-2019 10:28
V309041904.D	Data Locked	paul, 06-Sep-2019 10:28
V309041905.D	Data Locked	paul, 06-Sep-2019 10:28
V309041906.D	Data Locked	paul, 06-Sep-2019 10:28
V309041907.D	Data Locked	paul, 06-Sep-2019 10:28
V309041908.D	Data Locked	paul, 06-Sep-2019 10:28
V309041909.D	Data Locked	paul, 06-Sep-2019 10:28
V309041910.D	Data Locked	paul, 06-Sep-2019 10:28
V309041911.D	Data Locked	paul, 06-Sep-2019 10:28
V309041912.D	Data Locked	paul, 06-Sep-2019 10:28
V309041913.D	Data Locked	paul, 06-Sep-2019 10:28
V309041914.D	Data Locked	paul, 06-Sep-2019 10:28
V309041915.D	Data Locked	paul, 06-Sep-2019 10:28
V309041916.D	Data Locked	paul, 06-Sep-2019 10:28
V309041917.D	Data Locked	paul, 06-Sep-2019 10:28
V309041918.D	Data Locked	paul, 06-Sep-2019 10:28
V309041919.D	Data Locked	paul, 06-Sep-2019 10:28
V309041920.D	Data Locked	paul, 06-Sep-2019 10:28
V309041921.D	Data Locked	paul, 06-Sep-2019 10:28
V309041922.D	Data Locked	paul, 06-Sep-2019 10:28
V309041923.D	Data Locked	paul, 06-Sep-2019 10:28

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Calibration File Names:
Level 1: \\target\share\chem1\nt3.i\20190904.b\V309041905.D
Level 2: \\target\share\chem1\nt3.i\20190904.b\V309041906.D
Level 3: \\target\share\chem1\nt3.i\20190904.b\V309041907.D
Level 4: \\target\share\chem1\nt3.i\20190904.b\V309041908.D
Level 5: \\target\share\chem1\nt3.i\20190904.b\V309041909.D
Level 6: \\target\share\chem1\nt3.i\20190904.b\V309041910.D
Level 7: \\target\share\chem1\nt3.i\20190904.b\V309041911.D
Level 8: \\target\share\chem1\nt3.i\20190904.b\V309041912.D

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
1 Dichlorodifluoromethane	0.77351	0.89769	0.96358	0.96174	1.12779	0.92156					
	0.97037	0.85297					AVRG		0.93365		11.03598
2 Chloromethane	+++++	1.54505	1.49785	1.62324	1.80878	1.44166					
	1.59100	1.46154					AVRG		1.56702		7.99990
3 Vinyl Chloride	1.24660	1.35618	1.16937	1.27725	1.43289	1.15203					
	1.28024	1.18545					AVRG		1.26250		7.65668

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
4 Bromomethane	+++++	+++++	0.55202	0.58616	0.66286	0.52584					
	0.59140	0.53790					AVRG		0.57603		8.65500
5 Chloroethane	0.67502	0.72008	0.68399	0.69917	0.75214	0.60645					
	0.65464	0.59304					AVRG		0.67307		8.03005
6 Trichlorofluoromethane	0.99791	1.04974	1.02454	1.03815	1.21058	0.96739					
	1.02136	0.90681					AVRG		1.02706		8.49033
7 1,1-Dichloroethene	1.26684	1.21806	1.20758	1.25239	1.42229	1.14242					
	1.25609	1.16296					AVRG		1.24108		6.90079
8 Carbon Disulfide	1.85012	1.79448	1.66384	1.85167	2.09987	1.71294					
	1.89773	1.71168					AVRG		1.82279		7.60319
9 112Trichloro122Trifluoroethan	0.48029	0.54765	0.52919	0.61588	0.64495	0.53078					
	0.57673	0.52944					AVRG		0.55687		9.54679
10 Iodomethane	+++++	+++++	0.90674	0.95799	1.08154	0.88427					
	0.98053	0.89008					AVRG		0.95019		7.88691

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
11 Bromoethane	0.53336	0.40828	0.45057	0.40366	0.46896	0.39786					
	0.43499	0.39235					AVRG		0.43625		10.94268
12 Acrolein	+++++	+++++	0.12293	0.11695	0.12058	0.09868					
	0.10492	0.09852					AVRG		0.11043		10.01875
13 Methylene Chloride	+++++	+++++	10216	16156	68539	129849					
	263383	539542					LINR	0.000e+000	0.57201		0.99549
14 Acetone	+++++	+++++	0.16382	0.18091	0.16967	0.14719					
	0.15291	0.13934					AVRG		0.15897		9.66593
15 Trans-1,2-Dichloroethene	0.70470	0.60858	0.66912	0.70859	0.73044	0.59619					
	0.66257	0.60089					AVRG		0.66014		8.01951
16 n-hexane	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000
17 Methyl tert butyl ether	+++++	1.11854	1.18782	1.17343	1.23121	1.00694					
	1.12700	1.01770					AVRG		1.12324		7.54102

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
18 1,1-Dichloroethane	1.35274	1.29078	1.24475	1.34321	1.53143	1.24301					
	1.36019	1.24007					AVRG		1.32577		7.35140
19 Acrylonitrile	+++++	+++++	0.18191	0.16670	0.22540	0.17462					
	0.19168	0.17858					AVRG		0.18648		11.13831
21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000
20 Vinyl Acetate	1.63696	1.27899	1.27169	1.42025	1.53016	1.28043					
	1.43435	1.30162					AVRG		1.39431		9.75505
22 Cis-1,2-Dichloroethene	0.74428	0.68863	0.66912	0.62365	0.76057	0.62282					
	0.68798	0.63702					AVRG		0.67926		7.70357
23 2,2-Dichloropropane	0.66647	0.66808	0.60904	0.64048	0.68101	0.56228					
	0.58859	0.51669					AVRG		0.61658		9.42339
24 Bromochloromethane	0.25004	0.32305	0.27994	0.31475	0.33938	0.27650					
	0.30198	0.27394					AVRG		0.29495		10.11402

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	40.0000 Level 7	80.0000 Level 8									
25 Chloroform	1.04333	0.96505	0.99909	1.02293	1.17315	0.96195					
	1.04984	0.95971					AVRG		1.02188		6.95243
26 Carbon Tetrachloride	0.63111	0.55922	0.58581	0.57117	0.68994	0.56178					
	0.59667	0.57058					AVRG		0.59579		7.49231
28 1,1,1-Trichloroethane	1.00781	0.99400	0.91540	0.96634	1.06680	0.93218					
	1.05229	0.97665					AVRG		0.98893		5.37099
30 1,1-Dichloropropene	0.52468	0.62104	0.55193	0.56787	0.65319	0.54189					
	0.55927	0.53259					AVRG		0.56906		7.91697
29 2-Butanone	+++++	+++++	0.23230	0.26806	0.29209	0.25039					
	0.27267	0.24094					AVRG		0.25941		8.57806
31 Benzene	1.90270	1.63975	1.63538	1.70223	1.97217	1.61172					
	1.67425	1.55249					AVRG		1.71134		8.61523
35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

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	40.0000 Level 7	80.0000 Level 8									
34 1,2-Dichloroethane	0.62269	0.52303	0.55542	0.54553	0.63210	0.51400					
	0.53721	0.50116					AVRG		0.55389		8.77186
36 Trichloroethene	0.37174	0.47029	0.44234	0.46630	0.55870	0.43935					
	0.47486	0.43787					AVRG		0.45768		11.40790
38 Dibromomethane	0.19508	0.18387	0.19409	0.20529	0.23839	0.19031					
	0.19920	0.18528					AVRG		0.19894		8.75398
39 1,2-Dichloropropane	0.49940	0.48599	0.50601	0.55220	0.59932	0.48603					
	0.51888	0.47778					AVRG		0.51570		7.99378
40 Bromodichloromethane	0.49440	0.51126	0.50240	0.50576	0.60697	0.49326					
	0.51525	0.48769					AVRG		0.51462		7.47479
173 2-Pentanone	+++++	+++++	0.03167	0.03621	0.04400	0.03758					
	0.03850	0.03521					AVRG		0.03720		10.99793
42 Cis 1,3-dichloropropene	0.65764	0.58817	0.63696	0.63962	0.78315	0.64564					
	0.67161	0.63968					AVRG		0.65781		8.52105

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	40.0000 Level 7	80.0000 Level 8									
41 2-Chloroethyl Vinyl Ether	+++++	+++++	0.18674	0.21333	0.25703	0.20968					
	0.22637	0.21889					AVRG		0.21867		10.54730
44 Toluene	1.05373	1.11255	1.12973	1.13555	1.25848	1.07313					
	1.11709	1.04704					AVRG		1.11591		5.99750
45 4-Methyl-2-Pentanone	+++++	+++++	0.13133	0.15124	0.16583	0.14476					
	0.14831	0.13959					AVRG		0.14684		7.93987
46 Tetrachloroethene	0.56590	0.50238	0.49832	0.51660	0.59301	0.48930					
	0.51066	0.47657					AVRG		0.51909		7.68466
47 Trans 1,3-Dichloropropene	0.54434	0.47581	0.52822	0.54282	0.66813	0.55162					
	0.58597	0.54717					AVRG		0.55551		9.87822
48 1,1,2-Trichloroethane	0.29621	0.32089	0.28990	0.30931	0.34937	0.29182					
	0.30656	0.28377					AVRG		0.30598		6.94859
49 Chlorodibromomethane	0.37829	0.32663	0.33215	0.35753	0.44395	0.36836					
	0.39286	0.36912					AVRG		0.37111		9.93854

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	40.0000 Level 7	80.0000 Level 8									
50 1,3-Dichloropropane	0.50285	0.48186	0.53938	0.55571	0.65168	0.51498					
	0.54894	0.51290					AVRG		0.53854		9.64943
51 1,2-Dibromoethane	0.32118	0.28347	0.28755	0.30506	0.34912	0.28686					
	0.30350	0.28653					AVRG		0.30291		7.50075
52 2-Hexanone	+++++	+++++	0.22183	0.26245	0.31687	0.26612					
	0.28589	0.26116					AVRG		0.26905		11.65279
54 Chlorobenzene	1.29554	1.19726	1.25941	1.30347	1.50046	1.23847					
	1.30529	1.20597					AVRG		1.28823		7.42061
55 Ethyl Benzene	0.70393	0.66804	0.66661	0.68967	0.83867	0.67651					
	0.71404	0.66933					AVRG		0.70335		8.16525
56 1,1,1,2-Tetrachloroethane	0.45113	0.43942	0.44005	0.46471	0.54225	0.44947					
	0.47328	0.44538					AVRG		0.46321		7.34629
57 m,p-xylene	0.91067	0.80644	0.77339	0.85225	1.03791	0.84650					
	0.88015	0.82172					AVRG		0.86613		9.40045

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	40.0000 Level 7	80.0000 Level 8									
58 o-Xylene	0.89858	0.80486	0.80506	0.83210	1.04973	0.85858					
	0.90248	0.84354					AVRG		0.87437		9.14453
59 Styrene	1.26647	1.24709	1.19524	1.24712	1.63679	1.36711					
	1.47765	1.39066					AVRG		1.35352		10.90470
60 Bromoform	0.32961	0.33775	0.32229	0.30707	0.42231	0.36733					
	0.40135	0.38845					AVRG		0.35952		11.56289
61 Isopropyl Benzene	3.59206	3.39414	3.47893	3.47249	4.16108	3.44654					
	3.53197	3.34039					AVRG		3.55220		7.25931
63 Bromobenzene	0.97840	1.04489	0.86681	0.93572	1.11662	0.92909					
	0.95331	0.90539					AVRG		0.96628		8.29909
64 N-Propyl Benzene	3.85006	3.73321	3.98126	4.05483	4.91274	4.06238					
	4.10445	3.89381					AVRG		4.07409		8.86099
82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

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	40.0000 Level 7	80.0000 Level 8									
65 1,1,2,2-Tetrachloroethane	0.51884	0.58812	0.66073	0.62405	0.71527	0.58530					
	0.63302	0.59183					AVRG		0.61464		9.51415
66 2-Chloro Toluene	2.77633	2.88695	2.85412	2.77877	3.37366	2.84280					
	2.89457	2.76129					AVRG		2.89606		6.89412
67 1,3,5-Trimethyl Benzene	3.07037	2.85473	3.09298	3.06676	3.71468	3.05320					
	3.15127	3.01068					AVRG		3.12683		8.08214
68 1,2,3-Trichloropropane	+++++	0.21266	0.21540	0.20407	0.23155	0.18609					
	0.19478	0.18386					AVRG		0.20406		8.42932
69 Trans-1,4-Dichloro 2-Butene	+++++	+++++	0.19107	0.22530	0.25367	0.21138					
	0.22640	0.21700					AVRG		0.22080		9.32341
70 4-Chloro Toluene	2.59089	2.68605	2.39520	2.70975	3.17633	2.62229					
	2.70769	2.57461					AVRG		2.68285		8.35201
71 T-Butyl Benzene	2.57904	2.54257	2.53088	2.59527	3.10234	2.59687					
	2.59813	2.57692					AVRG		2.64025		7.13581

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	40.0000 Level 7	80.0000 Level 8									
72 1,2,4-Trimethylbenzene	3.17044	2.93093	3.02894	3.12567	3.70802	3.10189					
	3.22145	3.07223					AVRG		3.16995		7.40144
73 S-Butyl Benzene	3.55175	3.50710	3.54021	3.75996	4.35427	3.66689					
	3.56857	3.57913					AVRG		3.69099		7.58548
74 4-Isopropyl Toluene	3.18988	3.21617	3.14742	3.28200	3.91672	3.27498					
	3.24551	3.22506					AVRG		3.31222		7.49250
75 1,3-Dichlorobenzene	2.08723	2.02231	1.95833	2.01013	2.36237	1.91245					
	1.97780	1.90988					AVRG		2.03006		7.21821
77 1,4-Dichlorobenzene	2.21528	1.95351	1.96868	1.99933	2.29517	1.92560					
	1.97199	1.88954					AVRG		2.02739		7.19945
78 N-Butyl Benzene	2.86596	2.83294	2.71682	2.71734	3.33883	2.78341					
	2.64289	2.77998					AVRG		2.83477		7.60353
80 1,2-Dichlorobenzene	1.94637	2.02780	1.84488	1.81880	2.18294	1.75826					
	1.82527	1.74227					AVRG		1.89333		7.94441

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	40.0000 Level 7	80.0000 Level 8									
81 1,2-Dibromo 3-Chloropropane	+++++	851	1794	2574	12204	24598					
	46056	108650					LINR	0.000e+000	0.11516		0.99863
83 Hexachloro 1,3-Butadiene	+++++	0.45829	0.51098	0.55112	0.64152	0.54110					
	+++++	+++++					AVRG		0.54060		12.39105
84 1,2,4-Trichlorobenzene	+++++	1.30038	1.31936	1.30319	1.56666	1.28472					
	1.26071	1.28757					AVRG		1.33180		7.89575
85 Naphthalene	+++++	2.27969	2.13192	2.10404	2.55020	2.11368					
	2.22768	2.12447					AVRG		2.21881		7.22690
86 1,2,3-Trichlorobenzene	+++++	1.15539	1.04591	1.08925	1.23443	1.03044					
	1.02139	1.01321					AVRG		1.08429		7.62429
$ 27 Dibromofluoromethane	0.42372	0.43444	0.43427	0.43990	0.43023	0.42604					
	0.44356	0.42697					AVRG		0.43239		1.60811
$ 33 d4-1,2-Dichloroethane	0.46452	0.48435	0.49101	0.49951	0.47360	0.48808					
	0.47493	0.47793					AVRG		0.48174		2.31753

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	40.0000 Level 7	80.0000 Level 8									
$ 43 d8-Toluene	1.22163	1.20149	1.21448	1.18718	1.20577	1.23309					
	1.19999	1.21436					AVRG		1.20975		1.17671
$ 62 4-Bromofluorobenzene	0.47281	0.44200	0.47735	0.47121	0.48430	0.49901					
	0.47346	0.48131					AVRG		0.47518		3.39216
$ 79 d4-1,2-Dichlorobenzene	0.92386	0.92270	0.94675	0.92483	0.96480	0.94005					
	0.94749	0.94628					AVRG		0.93960		1.58097

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Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Linear	Amt = b + Rsp/m1	Response

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09
FILENAME:	V309041905	V309041906	V309041907	V309041908	V309041909	V309041910	V309041911	V309041912	V309041914
INJ.DATE:	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019
INJ.TIME:	17:27	17:54	18:21	18:48	19:15	19:41	20:08	20:35	21:28

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	1.710	1.720	1.720	1.720	1.716	1.716	1.720	1.715	1.721	1.716	1.607-1.824	1.717	0.004
2 Chloromethane	1.917	1.927	1.917	1.922	1.918	1.918	1.922	1.917	1.923	1.918	1.809-2.026	1.920	0.004
3 Vinyl Chloride	2.008	2.007	2.012	2.007	2.008	2.008	2.012	2.008	2.013	2.008	1.900-2.116	2.009	0.002
4 Bromomethane	2.300	2.305	2.305	2.299	2.295	2.306	2.299	2.295	2.306	2.295	2.187-2.403	2.301	0.004
5 Chloroethane	2.422	2.416	2.416	2.416	2.412	2.417	2.416	2.407	2.417	2.412	2.304-2.520	2.416	0.004
6 Trichlorofluoromethane	2.534	2.528	2.533	2.533	2.524	2.534	2.533	2.523	2.534	2.524	2.415-2.632	2.531	0.005
7 1,1-Dichloroethene	2.996	2.990	2.996	2.996	2.986	2.992	2.990	2.981	2.997	2.986	2.878-3.094	2.991	0.005
8 Carbon Disulfide	2.996	2.996	3.001	3.001	2.997	3.002	2.995	2.986	3.002	2.997	2.888-3.105	2.997	0.005
9 112Trichloro122Trifluo	3.060	3.065	3.059	3.060	3.060	3.061	3.059	3.050	3.066	3.060	2.952-3.169	3.060	0.005
10 Iodomethane	3.124	3.118	3.128	3.123	3.119	3.124	3.118	3.108	3.124	3.119	3.011-3.227	3.121	0.006
11 Bromoethane	3.241	3.251	3.251	3.251	3.241	3.247	3.245	3.236	3.246	3.241	3.133-3.349	3.245	0.005
12 Acrolein	3.336	3.347	3.346	3.341	3.337	3.348	3.346	3.337	3.347	3.337	3.228-3.445	3.343	0.005
13 Methylene Chloride	3.560	3.570	3.570	3.570	3.560	3.566	3.564	3.560	3.565	3.560	3.452-3.668	3.565	0.004
14 Acetone	3.645	3.644	3.644	3.655	3.640	3.651	3.649	3.640	3.656	3.640	3.532-3.748	3.647	0.006
15 Trans-1,2-Dichloroethe	3.714	3.719	3.713	3.713	3.709	3.714	3.713	3.703	3.714	3.709	3.601-3.817	3.713	0.004
16 n-hexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.788	3.680-3.896	+++++	+++++
17 Methyl tert butyl ethe	3.836	3.841	3.846	3.841	3.836	3.842	3.841	3.836	3.842	3.836	3.728-3.945	3.840	0.003

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 1,1-Dichloroethane	4.256	4.255	4.255	4.256	4.251	4.257	4.255	4.251	4.256	4.251	4.143-4.359	4.255	0.002
	19 Acrylonitrile	+++++	4.346	4.330	4.314	4.315	4.320	4.314	4.309	4.325	4.315	4.207-4.423	4.322	0.012
	21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.560	4.452-4.668	+++++	+++++
	20 Vinyl Acetate	4.495	4.500	4.500	4.495	4.485	4.490	4.489	4.485	4.490	4.485	4.377-4.593	4.492	0.006
	22 Cis-1,2-Dichloroethene	4.692	4.702	4.702	4.697	4.692	4.692	4.696	4.692	4.698	4.692	4.584-4.800	4.696	0.004
	23 2,2-Dichloropropane	4.772	4.776	4.776	4.771	4.772	4.777	4.776	4.772	4.777	4.772	4.664-4.880	4.774	0.003
	24 Bromochloromethane	4.846	4.851	4.851	4.851	4.846	4.847	4.851	4.846	4.852	4.846	4.738-4.954	4.849	0.002
	25 Chloroform	4.915	4.920	4.914	4.915	4.915	4.916	4.914	4.910	4.916	4.915	4.807-5.024	4.915	0.003
	26 Carbon Tetrachloride	5.005	5.000	5.010	5.000	5.001	5.001	5.005	5.000	5.006	5.001	4.885-5.116	5.003	0.004
$	27 Dibromofluoromethane	5.053	5.053	5.053	5.053	5.054	5.049	5.047	5.048	5.048	5.054	4.945-5.162	5.051	0.003
	28 1,1,1-Trichloroethane	5.064	5.058	5.058	5.058	5.054	5.059	5.058	5.054	5.059	5.054	4.945-5.162	5.058	0.003
	30 1,1-Dichloropropene	5.149	5.154	5.154	5.154	5.149	5.150	5.148	5.149	5.149	5.149	5.034-5.265	5.151	0.002
	29 2-Butanone	5.170	5.170	5.170	5.165	5.160	5.160	5.159	5.155	5.165	5.160	5.052-5.268	5.164	0.006
	31 Benzene	5.335	5.335	5.334	5.340	5.330	5.336	5.334	5.330	5.335	5.330	5.214-5.446	5.334	0.003
*	32 Pentafluorobenzene	5.409	5.409	5.409	5.409	5.410	5.410	5.409	5.410	5.410	5.410	5.302-5.518	5.409	0.001
$	33 d4-1,2-Dichloroethane	5.436	5.441	5.441	5.441	5.436	5.442	5.435	5.436	5.436	5.436	5.328-5.545	5.438	0.003
	35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.693	5.577-5.809	+++++	+++++
	34 1,2-Dichloroethane	5.495	5.489	5.489	5.489	5.484	5.490	5.488	5.484	5.490	5.484	5.368-5.600	5.489	0.003
	36 Trichloroethene	5.766	5.760	5.754	5.760	5.755	5.761	5.759	5.755	5.761	5.755	5.640-5.871	5.759	0.004
*	37 1,4-Difluorobenzene	5.787	5.786	5.786	5.786	5.787	5.787	5.786	5.787	5.787	5.787	5.671-5.903	5.787	0.001
	38 Dibromomethane	6.058	6.057	6.057	6.063	6.053	6.059	6.057	6.058	6.058	6.053	5.937-6.169	6.058	0.003
	39 1,2-Dichloropropane	6.127	6.127	6.126	6.127	6.127	6.128	6.126	6.127	6.127	6.127	6.012-6.243	6.127	0.001

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Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	40 Bromodichloromethane	6.175	6.174	6.174	6.180	6.175	6.175	6.174	6.175	6.181	6.175	6.059-6.291	6.176	0.002
	173 2-Pentanone	6.414	6.398	6.403	6.398	6.398	6.399	6.397	6.393	6.399	6.398	6.283-6.514	6.400	0.006
	42 Cis 1,3-dichloropropen	6.616	6.616	6.615	6.616	6.611	6.611	6.610	6.611	6.611	6.611	6.495-6.727	6.613	0.003
$	43 d8-Toluene	6.738	6.738	6.738	6.738	6.739	6.739	6.738	6.739	6.739	6.739	6.623-6.854	6.738	0.001
	41 2-Chloroethyl Vinyl Et	6.579	6.584	6.578	6.573	6.574	6.574	6.573	6.574	6.574	6.574	6.458-6.690	6.576	0.004
	44 Toluene	6.770	6.775	6.775	6.775	6.771	6.771	6.775	6.771	6.776	6.771	6.655-6.886	6.773	0.002
	45 4-Methyl-2-Pentanone	7.052	7.041	7.041	7.041	7.042	7.042	7.040	7.042	7.042	7.042	6.926-7.157	7.042	0.004
	46 Tetrachloroethene	7.041	7.046	7.041	7.041	7.036	7.037	7.040	7.036	7.042	7.036	6.880-7.192	7.040	0.003
	47 Trans 1,3-Dichloroprop	7.068	7.067	7.067	7.067	7.063	7.063	7.062	7.063	7.063	7.063	6.947-7.179	7.065	0.003
	48 1,1,2-Trichloroethane	7.185	7.174	7.174	7.174	7.175	7.175	7.173	7.174	7.175	7.175	7.059-7.290	7.175	0.004
	49 Chlorodibromomethane	7.296	7.296	7.301	7.301	7.297	7.297	7.296	7.297	7.297	7.297	7.141-7.453	7.298	0.002
	50 1,3-Dichloropropane	7.360	7.365	7.365	7.365	7.361	7.361	7.365	7.361	7.361	7.361	7.204-7.517	7.363	0.002
	51 1,2-Dibromoethane	7.461	7.471	7.461	7.466	7.462	7.462	7.460	7.462	7.462	7.462	7.346-7.577	7.463	0.004
	52 2-Hexanone	7.615	7.620	7.620	7.615	7.616	7.616	7.615	7.616	7.616	7.616	7.459-7.772	7.616	0.002
*	53 d5-Chlorobenzene	7.812	7.812	7.811	7.812	7.812	7.813	7.811	7.812	7.812	7.812	7.656-7.969	7.812	0.001
	54 Chlorobenzene	7.828	7.827	7.827	7.828	7.823	7.829	7.827	7.828	7.828	7.823	7.667-7.979	7.827	0.002
	55 Ethyl Benzene	7.844	7.843	7.843	7.844	7.839	7.839	7.843	7.844	7.844	7.839	7.683-7.995	7.843	0.002
	56 1,1,1,2-Tetrachloroeth	7.871	7.870	7.870	7.870	7.871	7.871	7.870	7.871	7.871	7.871	7.715-8.027	7.870	0.001
	57 m,p-xylene	7.945	7.944	7.944	7.945	7.945	7.946	7.944	7.945	7.945	7.945	7.789-8.101	7.945	0.001
	58 o-Xylene	8.248	8.253	8.247	8.247	8.248	8.248	8.247	8.248	8.248	8.248	8.092-8.404	8.248	0.002
	59 Styrene	8.285	8.290	8.290	8.285	8.285	8.286	8.284	8.285	8.286	8.285	8.129-8.442	8.286	0.002
	60 Bromoform	8.312	8.316	8.311	8.311	8.307	8.312	8.311	8.312	8.312	8.307	8.117-8.497	8.312	0.002
	61 Isopropyl Benzene	8.476	8.471	8.470	8.471	8.472	8.472	8.470	8.471	8.472	8.472	8.281-8.661	8.472	0.002
$	62 4-Bromofluorobenzene	8.678	8.678	8.683	8.678	8.679	8.679	8.683	8.679	8.679	8.679	8.523-8.835	8.680	0.002

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Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	63 Bromobenzene	8.758	8.752	8.758	8.758	8.759	8.759	8.757	8.758	8.759	8.759	8.569-8.948	8.758	0.002
	64 N-Propyl Benzene	8.769	8.774	8.768	8.768	8.769	8.769	8.768	8.769	8.769	8.769	8.579-8.959	8.769	0.002
	82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.074	8.917-9.231	+++++	+++++
	65 1,1,2,2-Tetrachloroeth	8.822	8.816	8.827	8.827	8.822	8.828	8.826	8.828	8.828	8.822	8.632-9.012	8.825	0.004
	66 2-Chloro Toluene	8.886	8.891	8.885	8.891	8.886	8.886	8.890	8.886	8.886	8.886	8.696-9.076	8.887	0.002
	67 1,3,5-Trimethyl Benzen	8.912	8.912	8.912	8.912	8.913	8.913	8.912	8.913	8.913	8.913	8.723-9.103	8.912	0.001
	68 1,2,3-Trichloropropane	8.923	8.928	8.928	8.928	8.923	8.929	8.927	8.929	8.929	8.923	8.733-9.113	8.927	0.002
	69 Trans-1,4-Dichloro 2-B	+++++	8.954	8.960	8.954	8.955	8.955	8.954	8.955	8.955	8.955	8.765-9.145	8.955	0.002
	70 4-Chloro Toluene	9.013	9.013	9.007	9.008	9.008	9.009	9.007	9.008	9.008	9.008	8.818-9.198	9.009	0.002
	71 T-Butyl Benzene	9.146	9.151	9.146	9.146	9.147	9.147	9.145	9.146	9.147	9.147	8.957-9.336	9.147	0.002
	72 1,2,4-Trimethylbenzene	9.199	9.199	9.199	9.199	9.200	9.200	9.199	9.200	9.200	9.200	9.010-9.390	9.199	0.001
	73 S-Butyl Benzene	9.279	9.279	9.278	9.279	9.274	9.280	9.278	9.279	9.280	9.274	9.084-9.464	9.278	0.002
	74 4-Isopropyl Toluene	9.380	9.385	9.385	9.385	9.380	9.381	9.385	9.386	9.381	9.380	9.190-9.570	9.383	0.002
	75 1,3-Dichlorobenzene	9.449	9.443	9.449	9.443	9.444	9.444	9.443	9.444	9.444	9.444	9.254-9.634	9.445	0.002
*	76 d4-1,4-Dichlorobenzene	9.497	9.502	9.496	9.497	9.497	9.498	9.502	9.503	9.497	9.497	9.307-9.687	9.499	0.003
	77 1,4-Dichlorobenzene	9.502	9.507	9.512	9.507	9.508	9.508	9.512	9.513	9.508	9.508	9.318-9.698	9.509	0.003
	78 N-Butyl Benzene	9.699	9.699	9.698	9.699	9.699	9.700	9.698	9.699	9.699	9.699	9.509-9.889	9.699	0.001
$	79 d4-1,2-Dichlorobenzene	9.821	9.821	9.821	9.821	9.822	9.822	9.820	9.822	9.816	9.822	9.632-10.012	9.821	0.002
	80 1,2-Dichlorobenzene	9.821	9.826	9.826	9.826	9.827	9.827	9.826	9.827	9.827	9.827	9.637-10.017	9.826	0.002
	81 1,2-Dibromo 3-Chloropr	10.433	10.437	10.432	10.437	10.438	10.438	10.437	10.438	10.438	10.438	10.248-10.628	10.437	0.003
	83 Hexachloro 1,3-Butadie	10.938	10.937	10.937	10.937	10.938	10.938	10.937	10.938	10.938	10.938	10.748-11.128	10.937	0.001
	84 1,2,4-Trichlorobenzene	10.969	10.964	10.963	10.964	10.959	10.959	10.963	10.959	10.959	10.959	10.769-11.149	10.962	0.003
	85 Naphthalene	11.225	11.219	11.219	11.219	11.220	11.220	11.218	11.220	11.220	11.220	11.030-11.410	11.220	0.002

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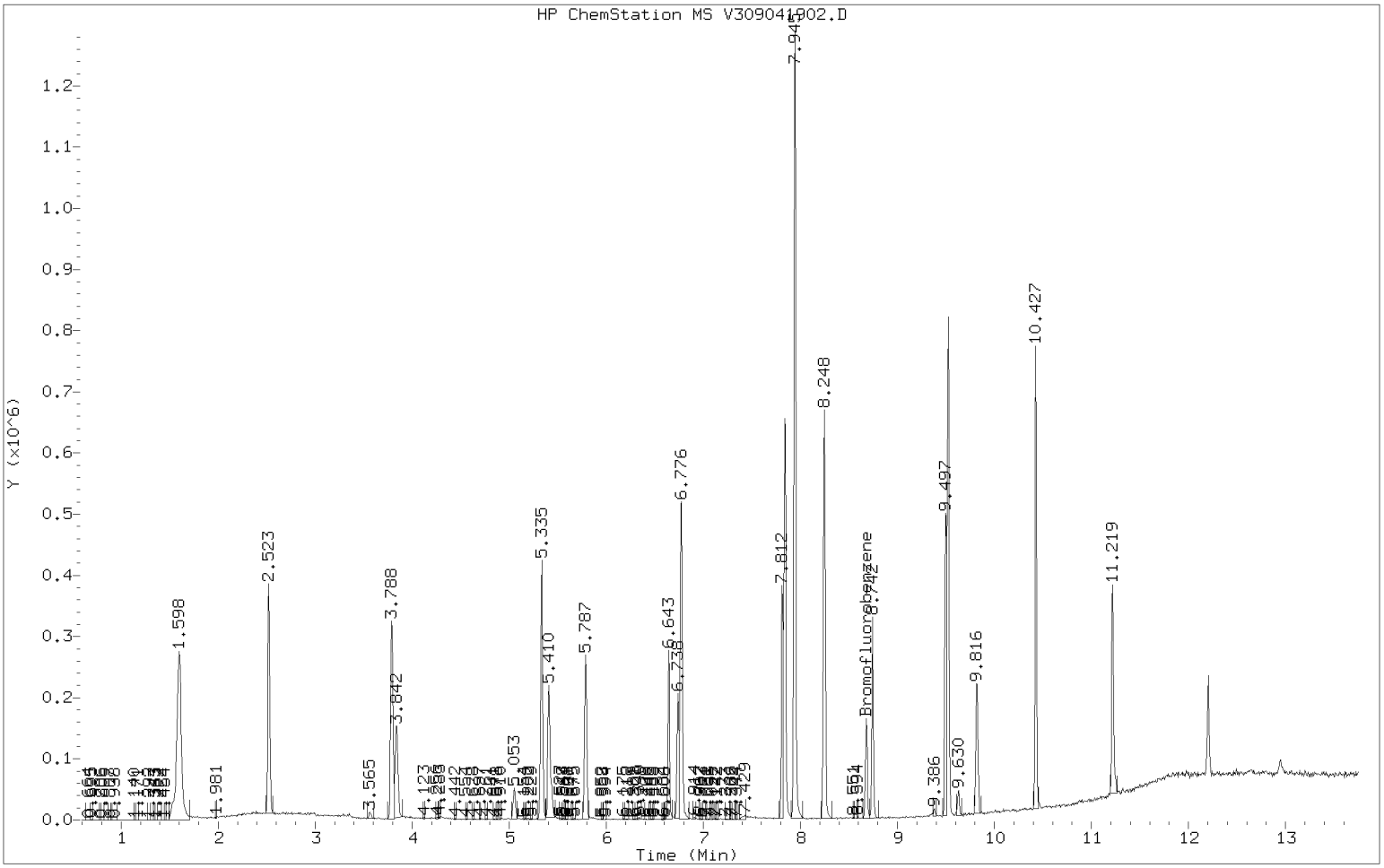
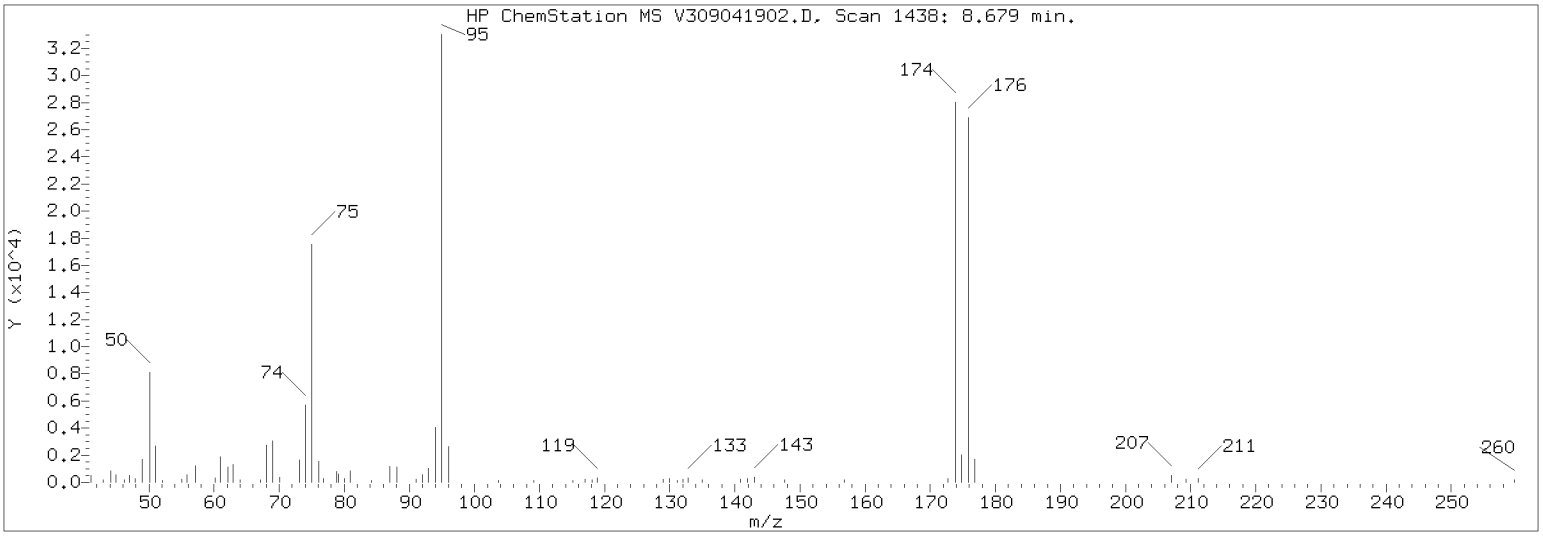
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
86 1,2,3-Trichlorobenzene	11.363	11.368	11.362	11.368	11.363	11.363	11.362	11.363	11.363	11.363	11.173-11.553	11.364	0.002

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190904.b/V309041902.D
Method Used: \20190904.b\bfb8260.m Inst: nt3
Injection Date: 04-SEP-2019 15:17 Operator: PKC
Sample Info: SHI0071-TUN1 SHI0071-TUN1
Report Date: 09/06/2019 09:20





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.97
75	30.00 - 60.00% of mass 95	50.38
96	5.00 - 9.00% of mass 95	5.82
173	Less than 2.00% of mass 174	0.31 (0.36)
174	50.00 - 100.00% of mass 95	85.79
175	5.00 - 9.00% of mass 174	6.80 (7.93)
176	95.00 - 101.00% of mass 174	82.91 (96.64)
177	5.00 - 9.00% of mass 176	5.79 (6.99)

Data File: V309041902.D
Spectrum: Avg. Scans 1437-1439 (8.68), Background Scan 1431
Location of Maximum: 95.00
Number of points: 81

m/z	Y	m/z	Y	m/z	Y	m/z	Y
41.00	179	69.00	2507	96.00	1698	147.00	139
44.00	385	70.00	311	98.00	108	155.00	54
45.00	559	72.00	166	104.00	104	157.00	115
46.00	128	73.00	1552	109.00	52	159.00	51
47.00	617	74.00	4500	115.00	51	161.00	60
48.00	263	75.00	14691	117.00	136	173.00	91
49.00	1616	76.00	1206	118.00	59	174.00	25016
50.00	7574	77.00	71	119.00	163	175.00	1983
51.00	2177	78.00	149	128.00	129	176.00	24176
52.00	51	79.00	937	129.00	143	177.00	1689
53.00	53	80.00	287	130.00	150	192.00	65
55.00	178	81.00	807	131.00	124	209.00	194
56.00	495	84.00	51	132.00	73	211.00	66
57.00	895	86.00	58	133.00	106	235.00	54
60.00	325	87.00	1135	135.00	124	241.00	59
61.00	1470	88.00	1137	137.00	104	242.00	51
62.00	1119	91.00	71	138.00	81	260.00	62
63.00	1019	92.00	746	141.00	305	265.00	51
64.00	69	93.00	897	142.00	96		
67.00	66	94.00	3615	143.00	415		
68.00	2781	95.00	29160	146.00	53		

Data File: \\target\share\chem1\nt3.i\20190904.b\V309041905.D

Date : 04-SEP-2019 17:27

Client ID:

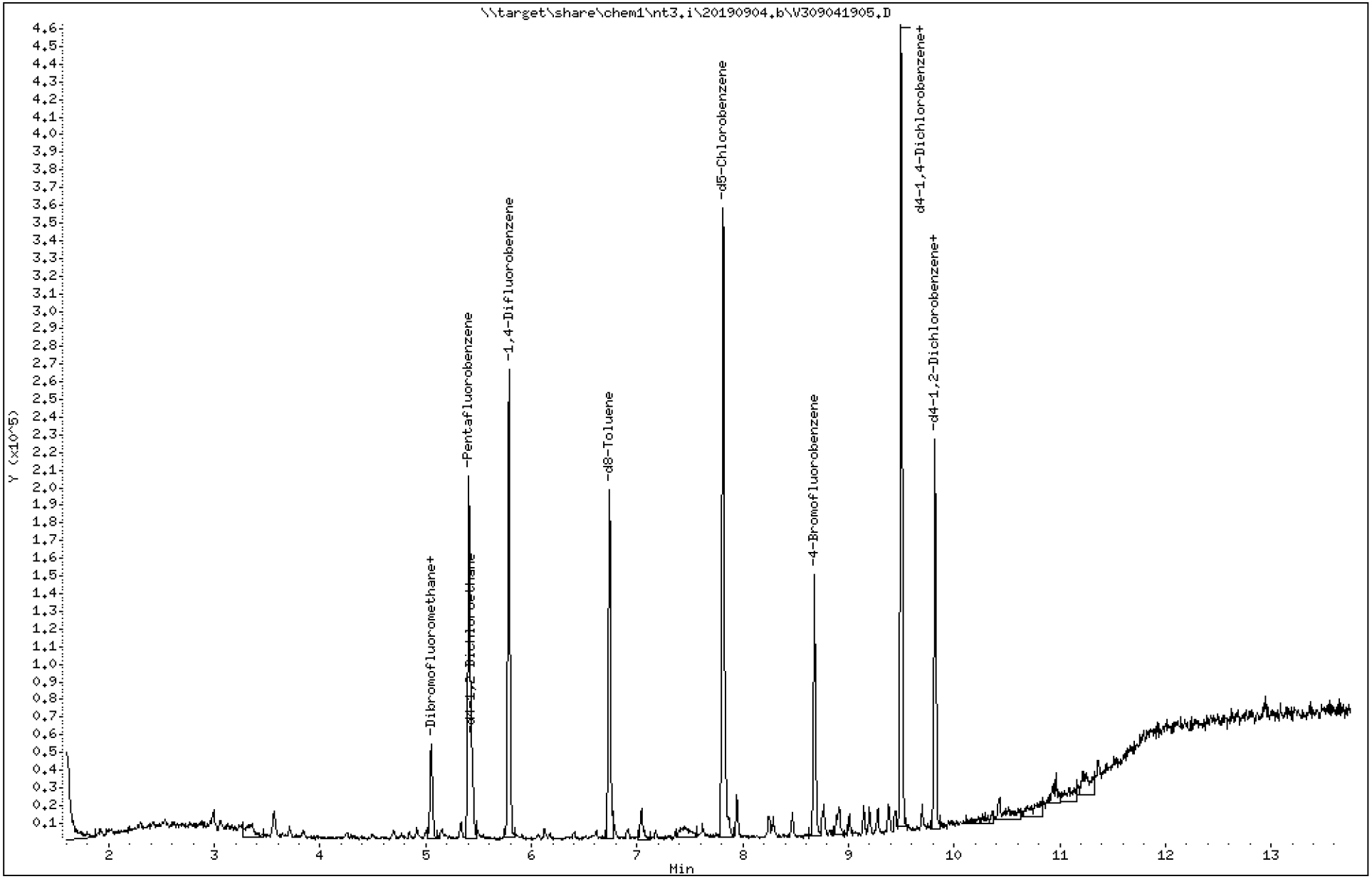
Instrument: nt3.i

Sample Info: SHI0071-CAL1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041905.D
Lab Smp Id: SHI0071-CAL1
Inj Date : 04-SEP-2019 17:27
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL1
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 17:27 Cal File: V309041905.D
Als bottle: 55 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.709	1.715	(0.316)	1720	0.20000	0.1657
	2 Chloromethane	50	1.917	1.917	(0.354)	3868	0.20000	0.2220(M)
	3 Vinyl Chloride	62	2.007	2.007	(0.371)	2772	0.20000	0.1975(M)
	4 Bromomethane	94	2.299	2.294	(0.425)	1559	0.20000	0.2434
	5 Chloroethane	64	2.422	2.411	(0.448)	1501	0.20000	0.2006(M)
	6 Trichlorofluoromethane	101	2.533	2.523	(0.468)	2219	0.20000	0.1943
	7 1,1-Dichloroethene	61	2.996	2.985	(0.554)	2817	0.20000	0.2042
	8 Carbon Disulfide	76	2.996	2.996	(0.554)	4114	0.20000	0.2030
	9 112Trichloro122Trifluoroethane	101	3.060	3.060	(0.566)	1068	0.20000	0.1725(T)
	10 Iodomethane	142	3.123	3.118	(0.577)	2300	0.20000	0.2177(M)
	11 Bromoethane	108	3.240	3.241	(0.599)	1186	0.20000	0.2445(M)
	12 Acrolein	56	3.336	3.336	(0.617)	2104	1.00000	1.714
	13 Methylene Chloride	84	3.559	3.560	(0.658)	4918	0.20000	0.7733
	14 Acetone	43	3.644	3.639	(0.674)	2894	1.00000	1.637
	15 Trans-1,2-Dichloroethene	96	3.713	3.708	(0.687)	1567	0.20000	0.2135
	17 Methyl tert butyl ether	73	3.836	3.836	(0.709)	2540	0.20000	0.2034
	18 1,1-Dichloroethane	63	4.256	4.251	(0.787)	3008	0.20000	0.2041
	19 Acrylonitrile	53	Compound Not Detected.					
	20 Vinyl Acetate	43	4.495	4.484	(0.831)	3640	0.20000	0.2348(TM)
	22 Cis-1,2-Dichloroethene	96	4.691	4.692	(0.867)	1655	0.20000	0.2191
	23 2,2-Dichloropropane	77	4.771	4.771	(0.882)	1482	0.20000	0.2162
	24 Bromochloromethane	128	4.846	4.846	(0.896)	556	0.20000	0.1695
	25 Chloroform	83	4.915	4.915	(0.909)	2320	0.20000	0.2042(T)
	26 Carbon Tetrachloride	117	5.005	5.000	(0.865)	2022	0.20000	0.2119
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	23555	5.00000	4.900
	28 1,1,1-Trichloroethane	97	5.063	5.053	(0.936)	2241	0.20000	0.2038(M)
	30 1,1-Dichloropropene	75	5.149	5.149	(0.890)	1681	0.20000	0.1844
	29 2-Butanone	43	5.170	5.159	(0.956)	3364	1.00000	1.166(TM)
	31 Benzene	78	5.335	5.330	(0.922)	6096	0.20000	0.2224
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	111182	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	25823	5.00000	4.821
	34 1,2-Dichloroethane	62	5.494	5.484	(0.949)	1995	0.20000	0.2248
	36 Trichloroethene	130	5.765	5.755	(0.996)	1191	0.20000	0.1624
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	160193	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
	38 Dibromomethane	93	6.057	6.052	(1.047)	625	0.20000	0.1961(M)
	39 1,2-Dichloropropane	63	6.127	6.127	(1.059)	1600	0.20000	0.1937(M)
	40 Bromodichloromethane	83	6.174	6.175	(1.067)	1584	0.20000	0.1921
	173 2-Pentanone	86	6.414	6.398	(1.108)	599	1.00000	1.005
	41 2-Chloroethyl Vinyl Ether	63	6.578	6.573	(1.137)	856	0.20000	0.2444(TM)
	42 Cis 1,3-dichloropropene	75	6.616	6.611	(1.143)	2107	0.20000	0.1999
$	43 d8-Toluene	98	6.738	6.738	(1.164)	97848	5.00000	5.049
	44 Toluene	92	6.770	6.770	(1.170)	3376	0.20000	0.1889
	46 Tetrachloroethene	166	7.041	7.036	(0.901)	1849	0.20000	0.2180
	45 4-Methyl-2-Pentanone	58	7.051	7.041	(1.219)	1899	1.00000	0.8073(T)
	47 Trans 1,3-Dichloropropene	75	7.067	7.062	(1.221)	1744	0.20000	0.1960(M)
	48 1,1,2-Trichloroethane	97	7.184	7.174	(1.242)	949	0.20000	0.1936
	49 Chlorodibromomethane	129	7.296	7.296	(0.934)	1236	0.20000	0.2039(T)
	50 1,3-Dichloropropane	76	7.360	7.360	(0.942)	1643	0.20000	0.1867
	51 1,2-Dibromoethane	107	7.461	7.461	(1.289)	1029	0.20000	0.2121(M)
	52 2-Hexanone	43	7.615	7.615	(0.975)	4344	1.00000	0.9883(T)
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	163368	10.0000	
	54 Chlorobenzene	112	7.828	7.823	(1.002)	4233	0.20000	0.2011
	55 Ethyl Benzene	106	7.843	7.838	(1.004)	2300	0.20000	0.2002
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	1474	0.20000	0.1948
	57 m,p-xylene	106	7.944	7.945	(1.017)	5951	0.40000	0.4206
	58 o-Xylene	106	8.247	8.248	(1.056)	2936	0.20000	0.2055
	59 Styrene	104	8.285	8.285	(1.061)	4138	0.20000	0.1871
	60 Bromoform	173	8.311	8.306	(0.875)	695	0.20000	0.1834(T)
	61 Isopropyl Benzene	105	8.476	8.471	(0.893)	7574	0.20000	0.2022
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	38621	5.00000	4.975
	63 Bromobenzene	156	8.758	8.758	(0.922)	2063	0.20000	0.2025
	64 N-Propyl Benzene	91	8.768	8.769	(0.923)	8118	0.20000	0.1890
	65 1,1,2,2-Tetrachloroethane	83	8.822	8.822	(0.929)	1094	0.20000	0.1688
	66 2-Chloro Toluene	91	8.885	8.886	(0.936)	5854	0.20000	0.1917
	67 1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	6474	0.20000	0.1964
	68 1,2,3-Trichloropropane	110	8.922	8.923	(0.940)	493	0.20000	0.2292(M)
	69 Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
	70 4-Chloro Toluene	91	9.013	9.008	(0.949)	5463	0.20000	0.1931
	71 T-Butyl Benzene	119	9.146	9.146	(0.963)	5438	0.20000	0.1954
	72 1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	6685	0.20000	0.2000
	73 S-Butyl Benzene	105	9.279	9.274	(0.977)	7489	0.20000	0.1925
	74 4-Isopropyl Toluene	119	9.380	9.380	(0.988)	6726	0.20000	0.1926
	75 1,3-Dichlorobenzene	146	9.449	9.444	(0.995)	4401	0.20000	0.2056
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	105427	10.0000	
	77 1,4-Dichlorobenzene	146	9.502	9.508	(1.001)	4671	0.20000	0.2185(M)
	78 N-Butyl Benzene	91	9.699	9.699	(1.021)	6043	0.20000	0.2022
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48700	5.00000	4.916
	80 1,2-Dichlorobenzene	146	9.821	9.826	(1.034)	4104	0.20000	0.2056(M)
	81 1,2-Dibromo 3-Chloropropane	75	10.432	10.438	(1.099)	328	0.20000	0.2702(T)
	83 Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.152)	1340	0.20000	0.2351
	84 1,2,4-Trichlorobenzene	180	10.969	10.959	(1.155)	2954	0.20000	0.2104
	85 Naphthalene	128	11.224	11.219	(1.182)	5588	0.20000	0.2389
	86 1,2,3-Trichlorobenzene	180	11.362	11.363	(1.196)	2435	0.20000	0.2130

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

Report Date: 06-Sep-2019 09:28

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041905.D
Lab Smp Id: SHI0071-CAL1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111182	14.74
37 1,4-Difluorobenze	140121	70061	280242	160193	14.32
53 d5-Chlorobenzene	140128	70064	280256	163368	16.58
76 d4-1,4-Dichlorobe	90137	45069	180274	105427	16.96

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041905.D

Lab ID: SHI0071-CAL1
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 17:27

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.316	1.000	-0.6839	Dichlorodifluoromethane
0.354	1.000	-0.6456	Chloromethane
0.371	1.000	-0.6289	Vinyl Chloride
0.425	1.000	-0.5749	Bromomethane
0.448	1.000	-0.5522	Chloroethane
0.468	1.000	-0.5316	Trichlorofluoromethane
0.554	1.000	-0.4461	1,1-Dichloroethene
0.554	1.000	-0.4461	Carbon Disulfide
0.566	1.000	-0.4343	112Trichloro122Trifluoroethane
0.577	1.000	-0.4225	Iodomethane
0.599	1.000	-0.4009	Bromoethane
0.617	1.000	-0.3832	Acrolein
0.658	1.000	-0.3420	Methylene Chloride
0.674	1.000	-0.3262	Acetone
0.687	1.000	-0.3135	Trans-1,2-Dichloroethene
0.709	1.000	-0.2909	Methyl tert butyl ether
0.787	1.000	-0.2132	1,1-Dichloroethane
0.831	1.000	-0.1690	Vinyl Acetate
0.867	1.000	-0.1327	Cis-1,2-Dichloroethene
0.882	1.000	-0.1179	2,2-Dichloropropane
0.896	1.000	-0.1042	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.936	1.000	-0.0639	1,1,1-Trichloroethane
0.956	1.000	-0.0442	2-Butanone
0.934	1.000	-0.0658	Dibromofluoromethane

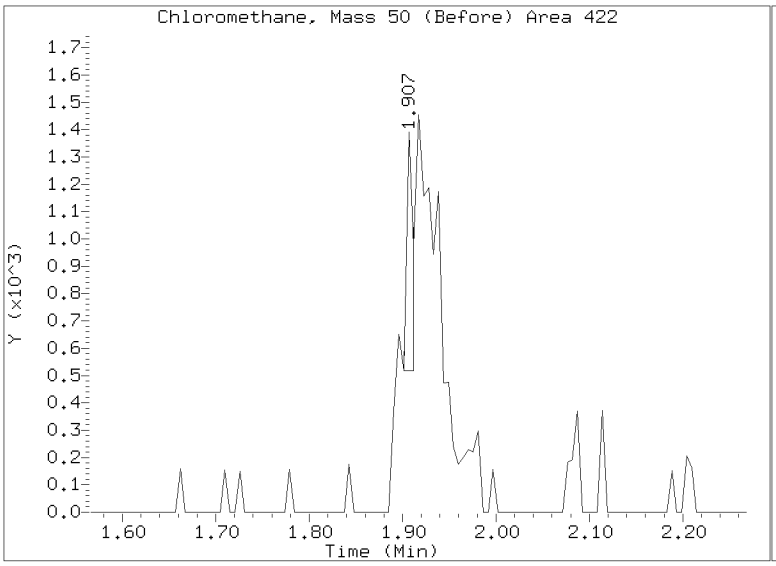
RRT check based on Ccal File: V309041912.D

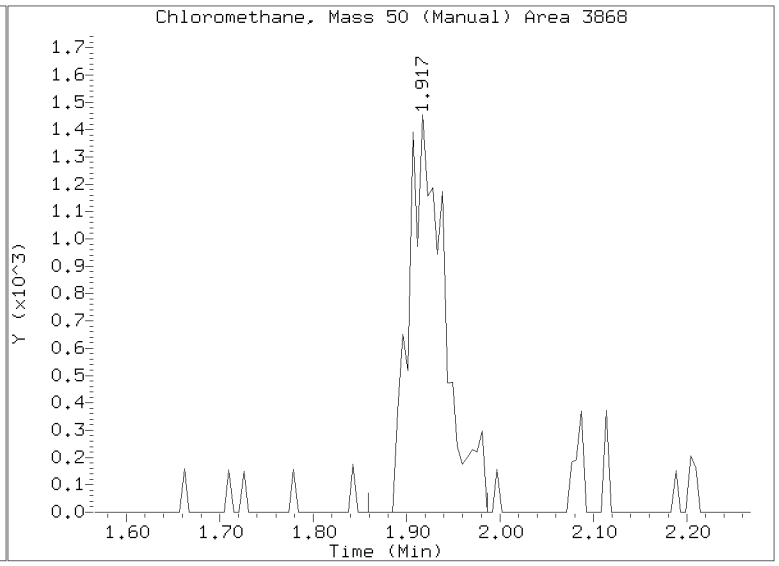
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

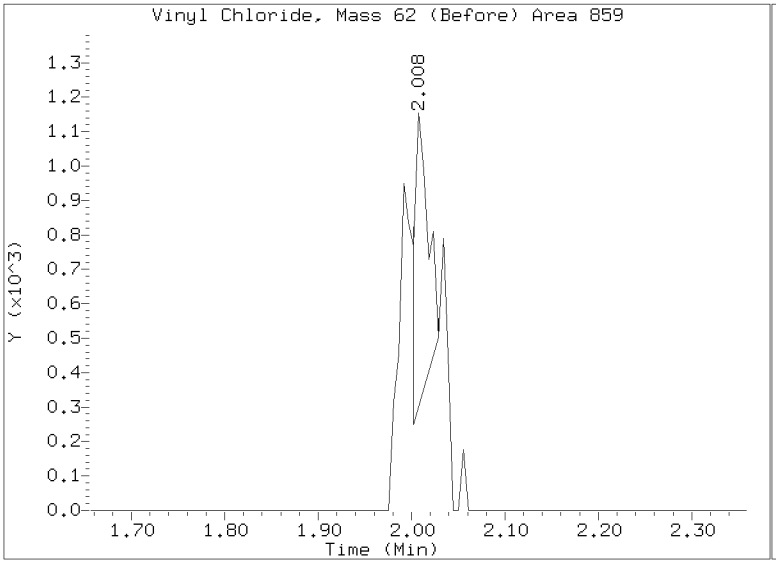
* Only compounds listed in the work order have been verified by the analyst *

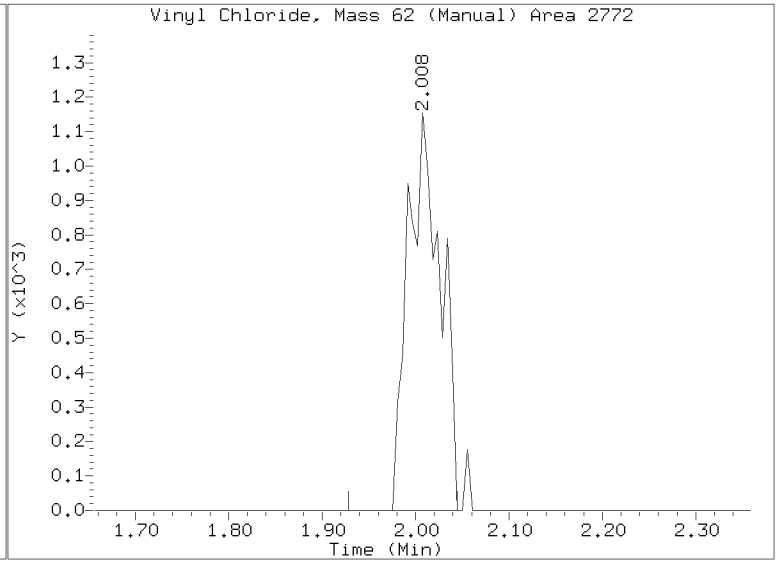
Quant Ion Manual Peak Adjustment Report

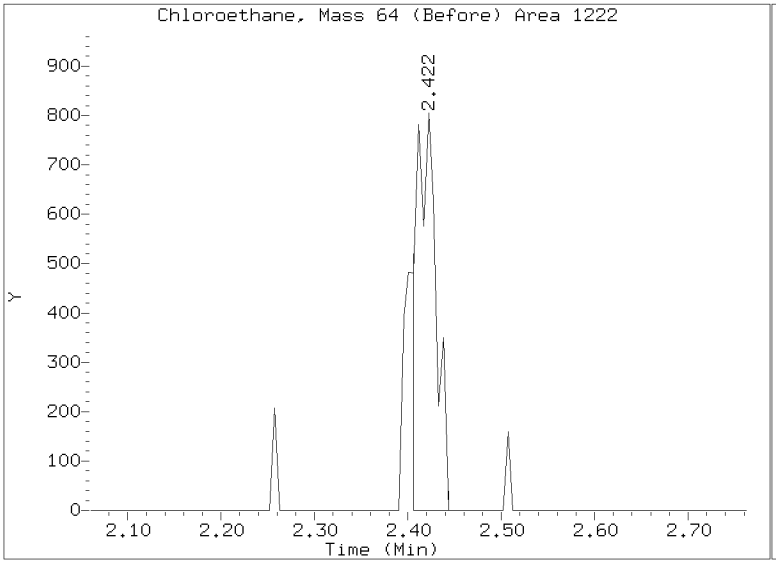
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041905.D
Injection Date: 04-SEP-2019 17:27
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28

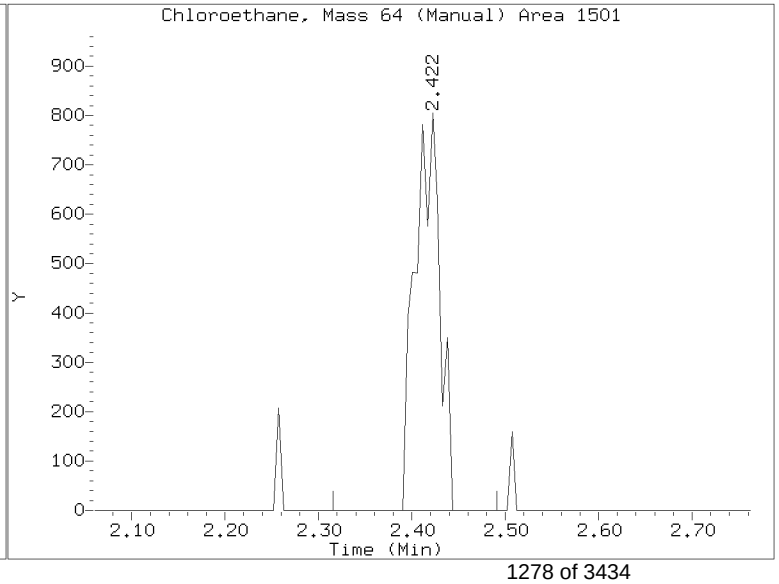












Quant Ion Manual Peak Adjustment Report

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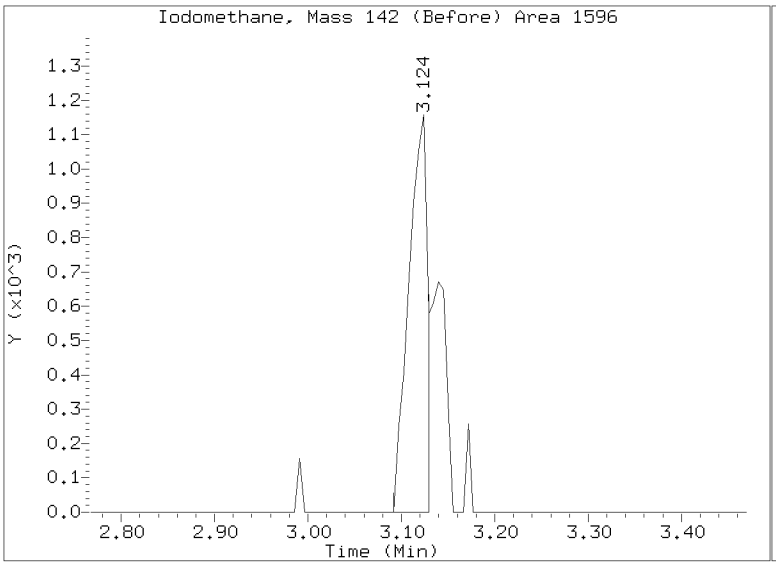
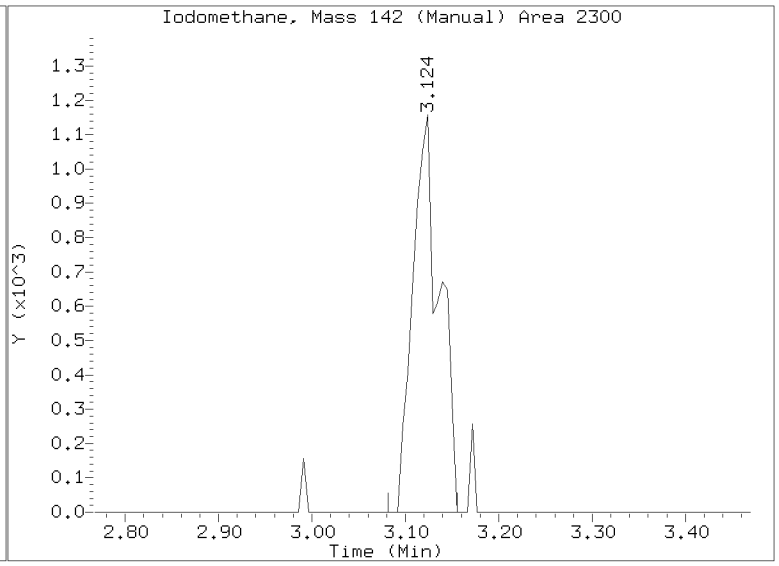
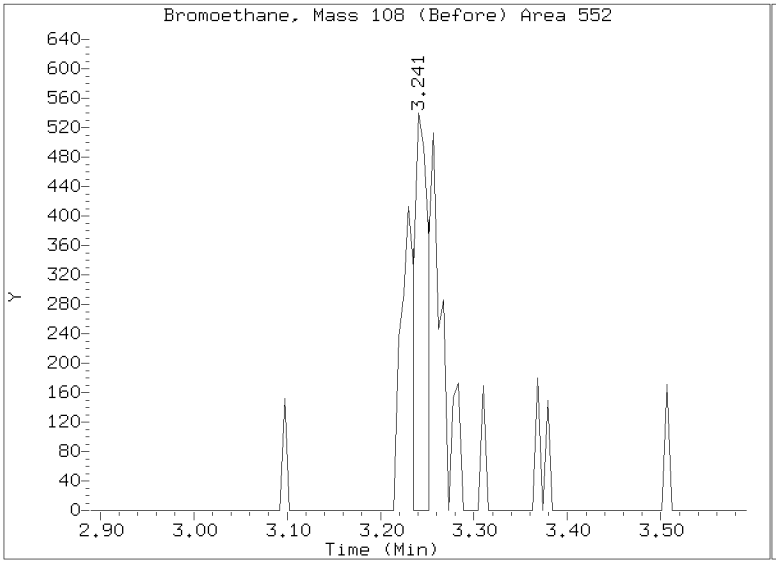
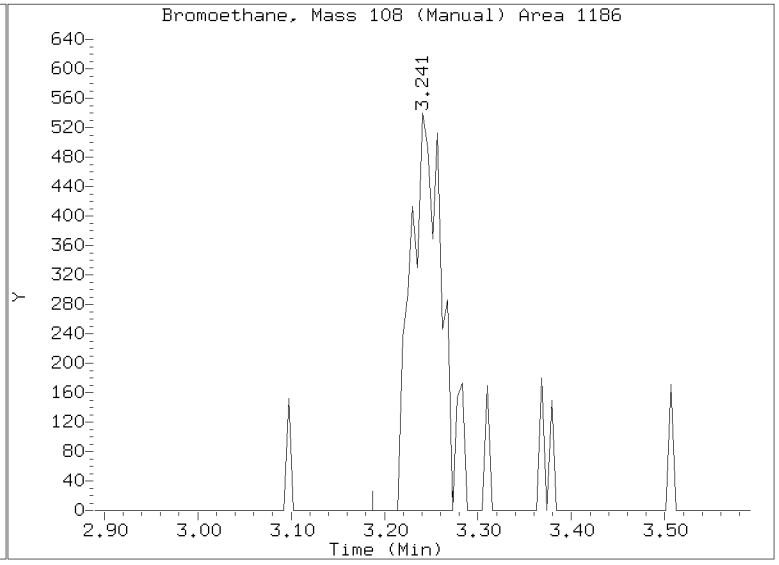
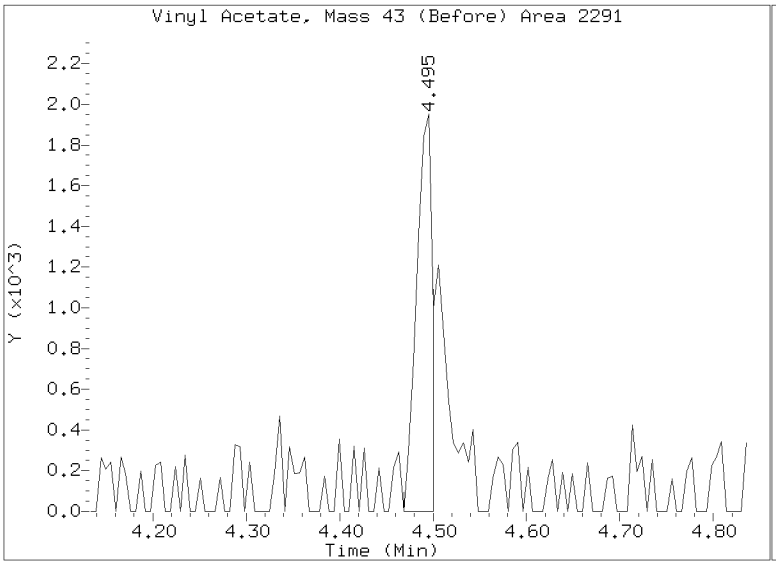
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28

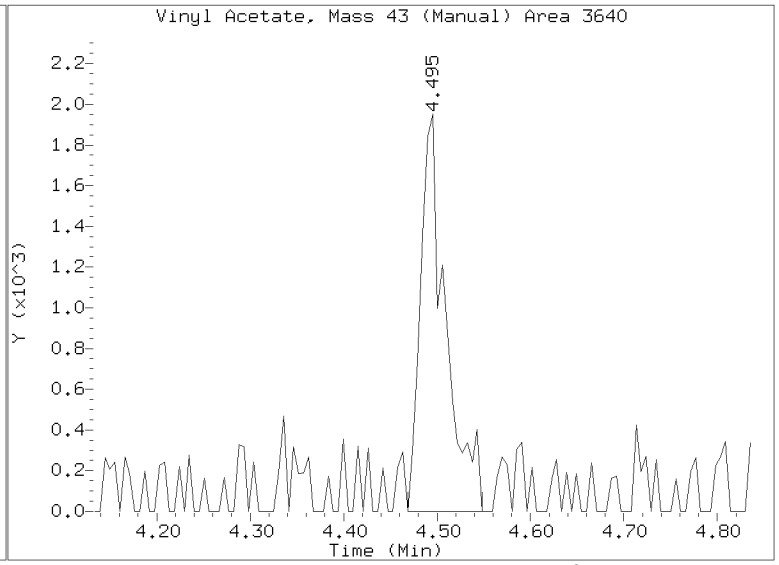












Quant Ion Manual Peak Adjustment Report

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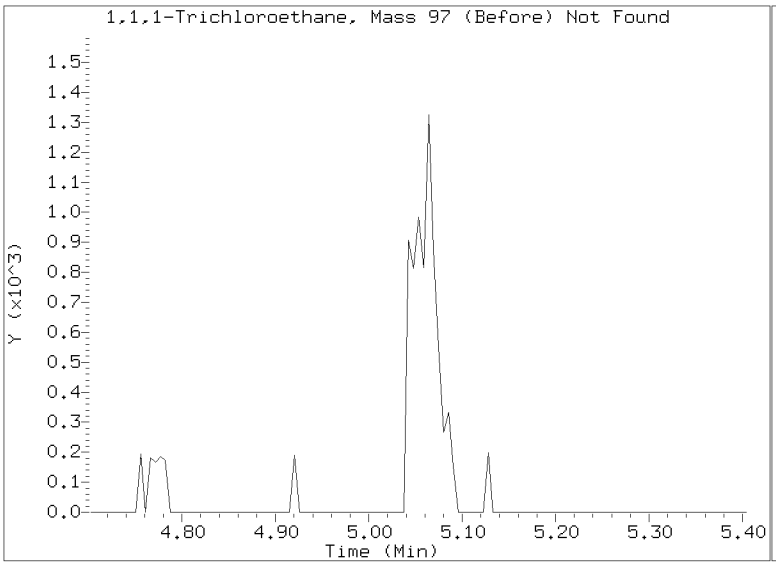
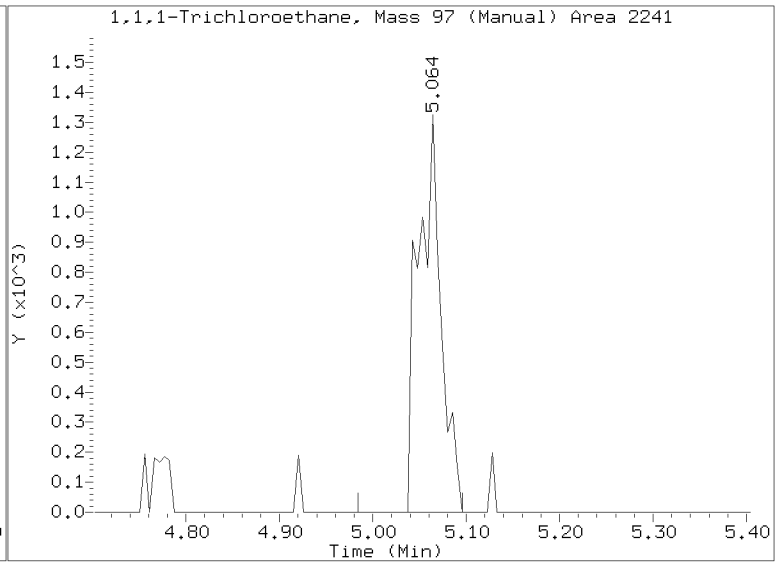
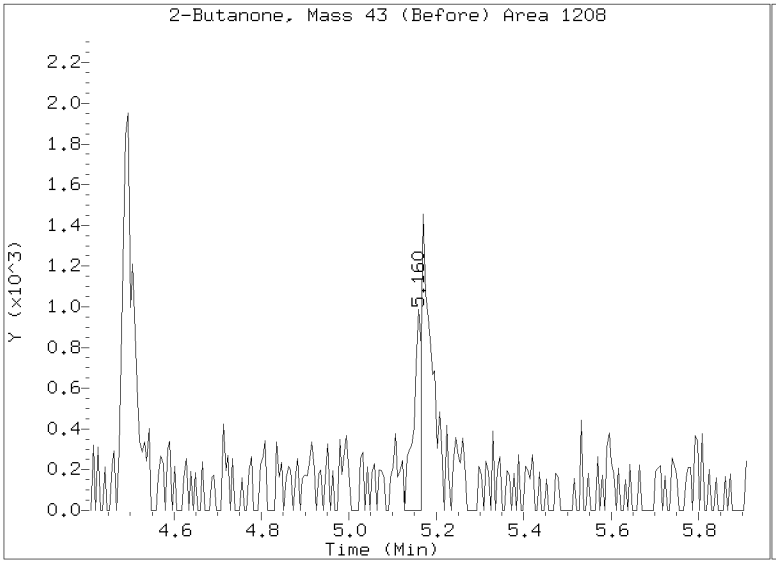
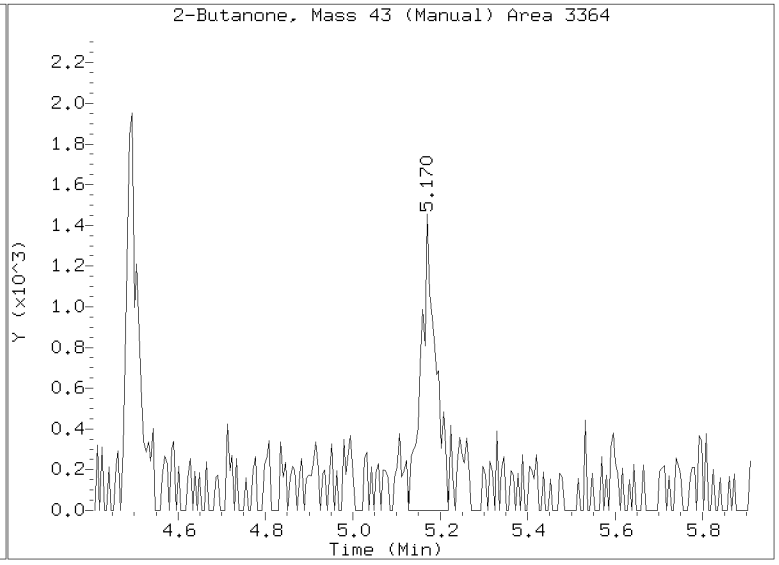
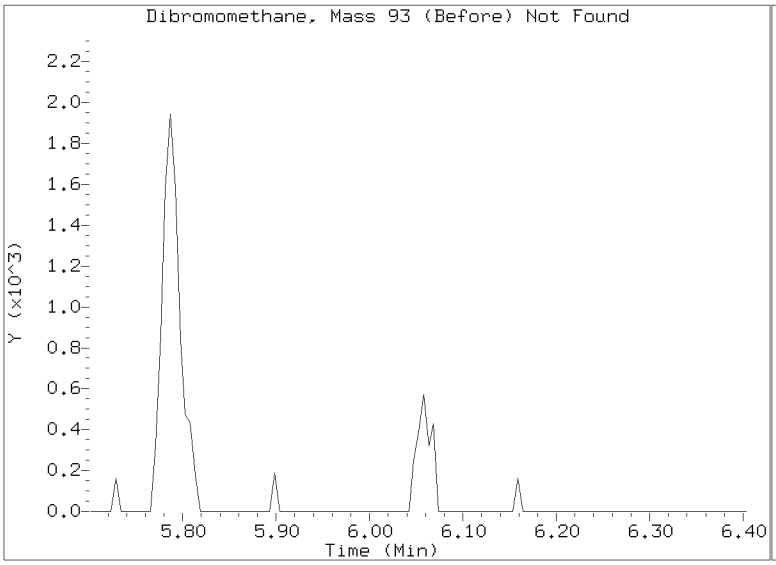
Injection Date: 04-SEP-2019 17:27
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28

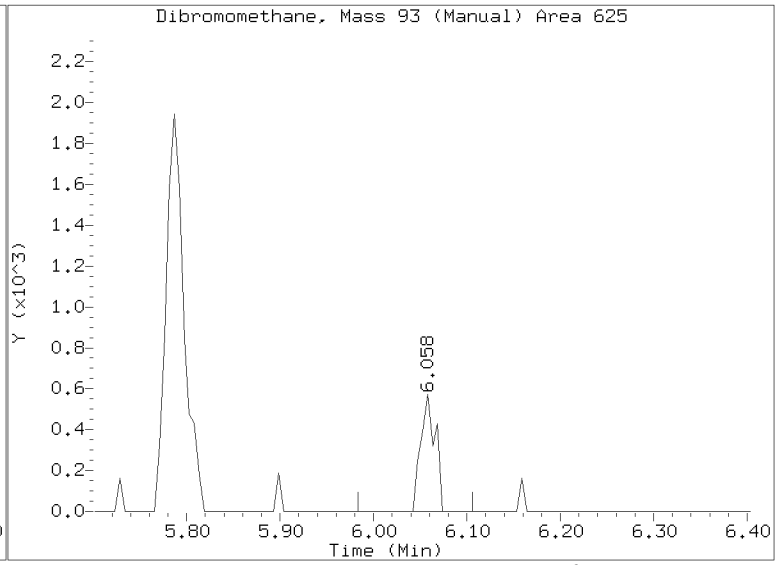






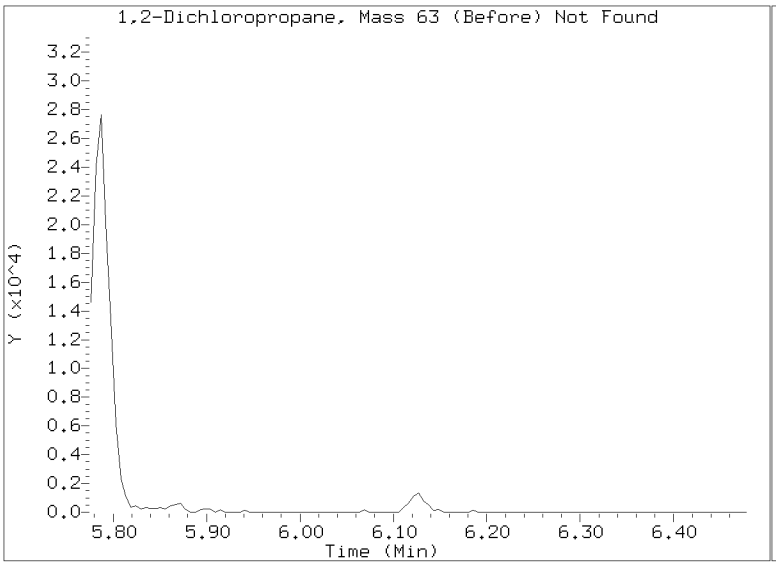


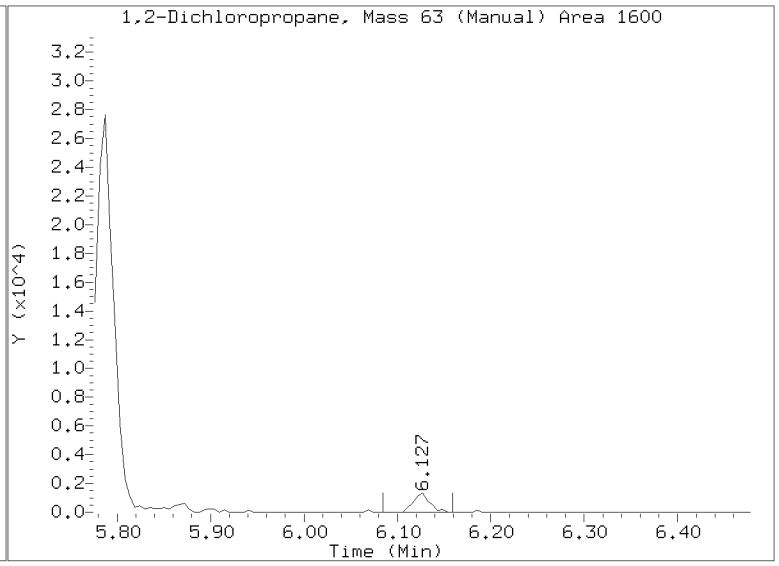


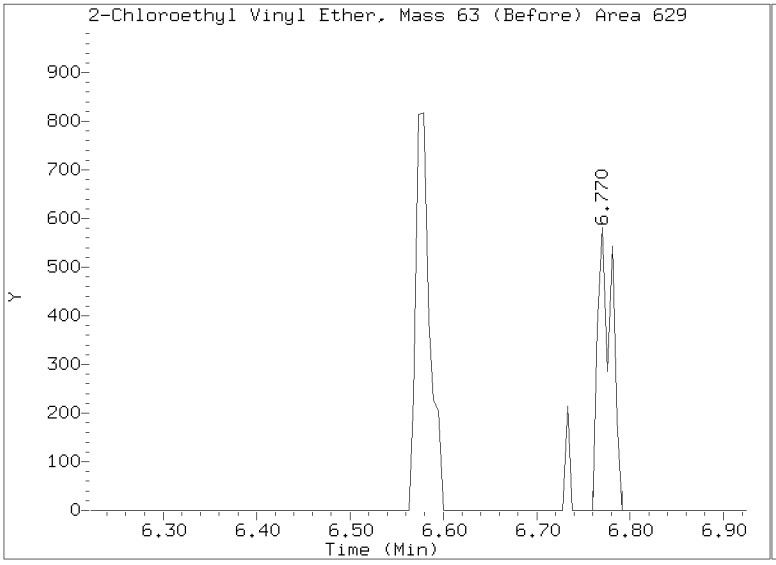


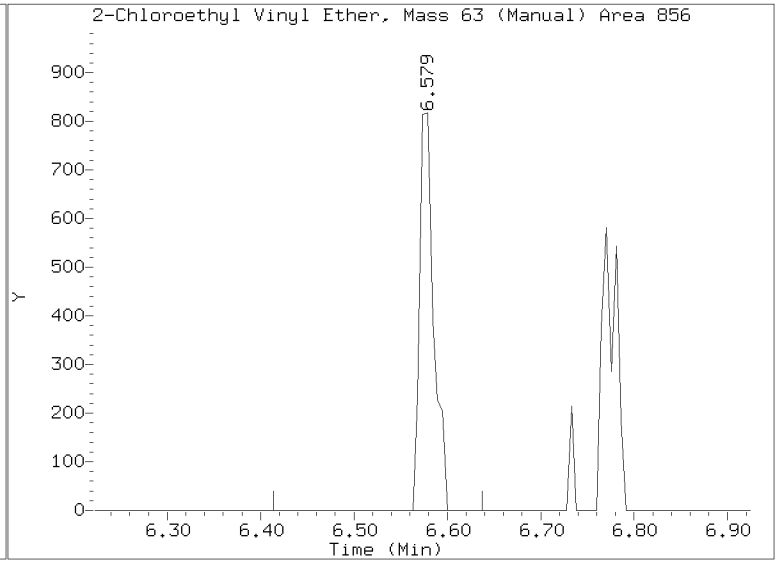
Quant Ion Manual Peak Adjustment Report

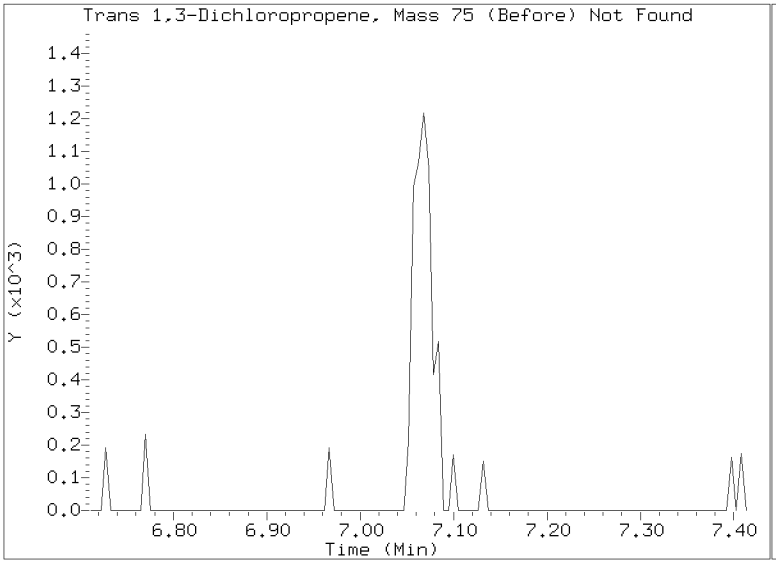
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041905.D
Injection Date: 04-SEP-2019 17:27
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28

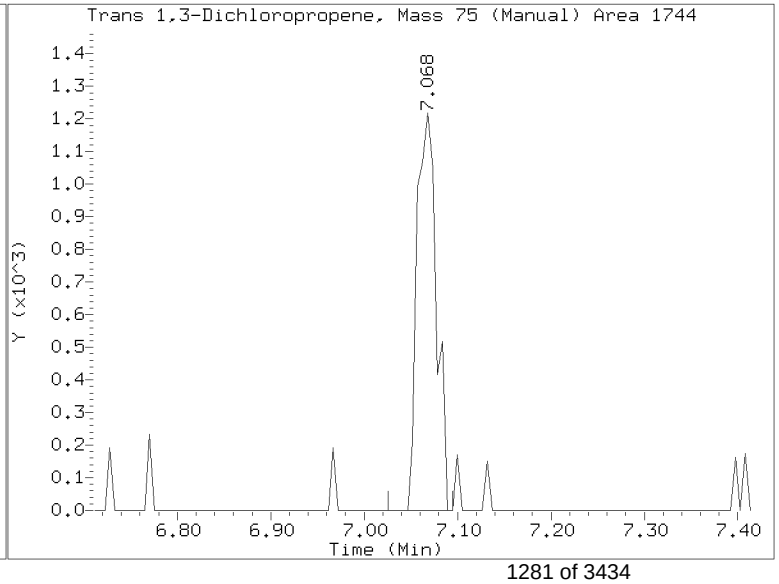






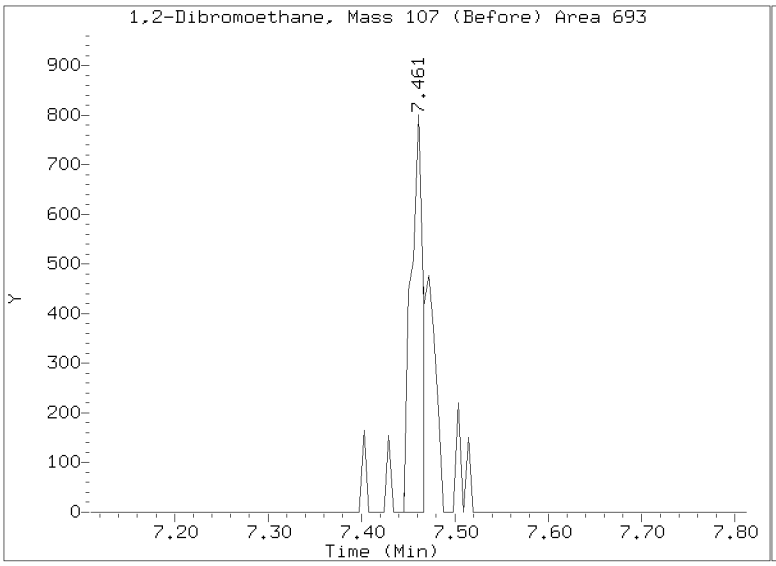


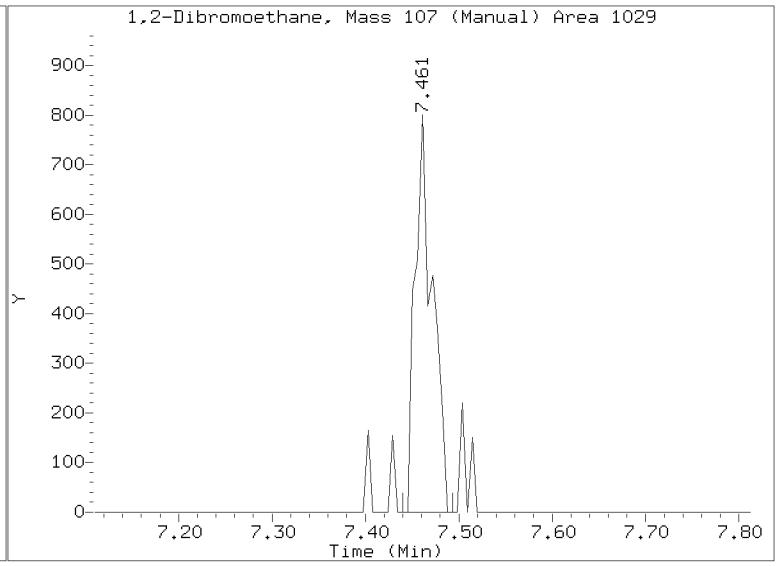


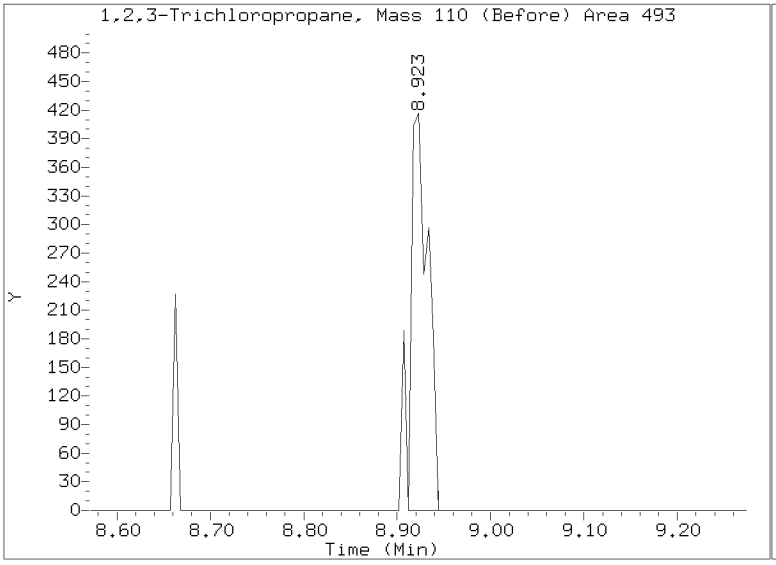


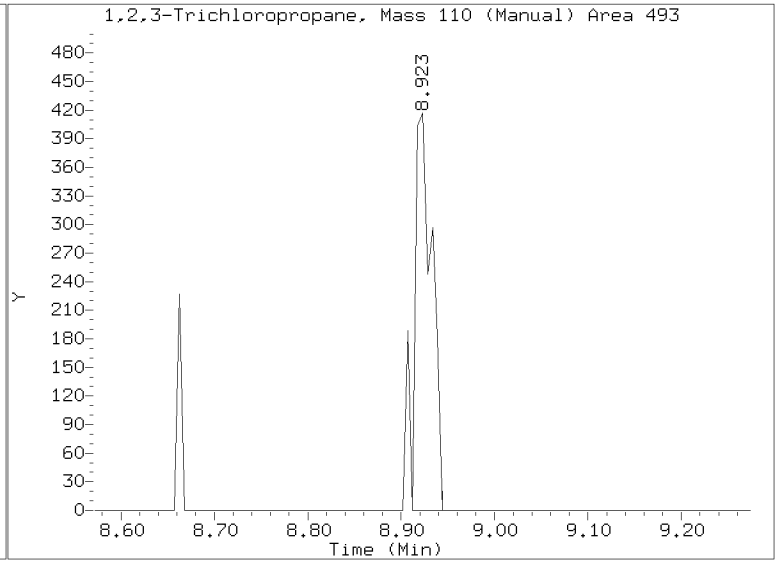
Quant Ion Manual Peak Adjustment Report

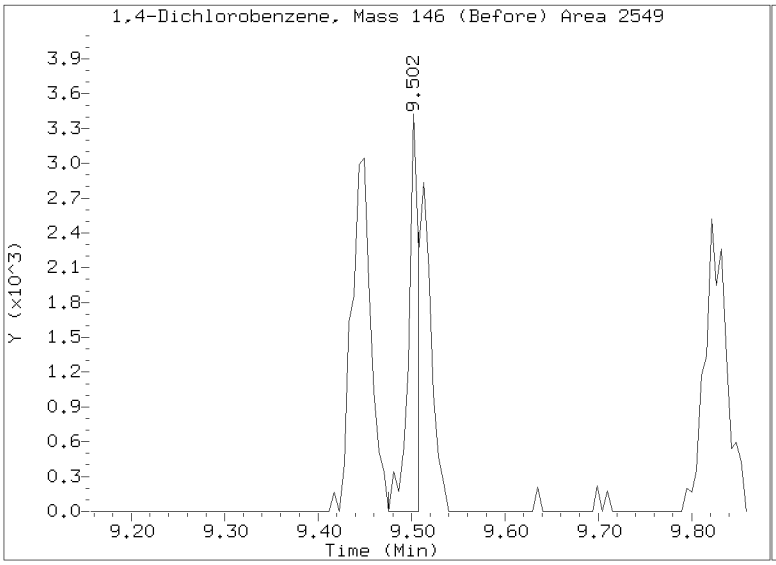
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041905.D
Injection Date: 04-SEP-2019 17:27
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28

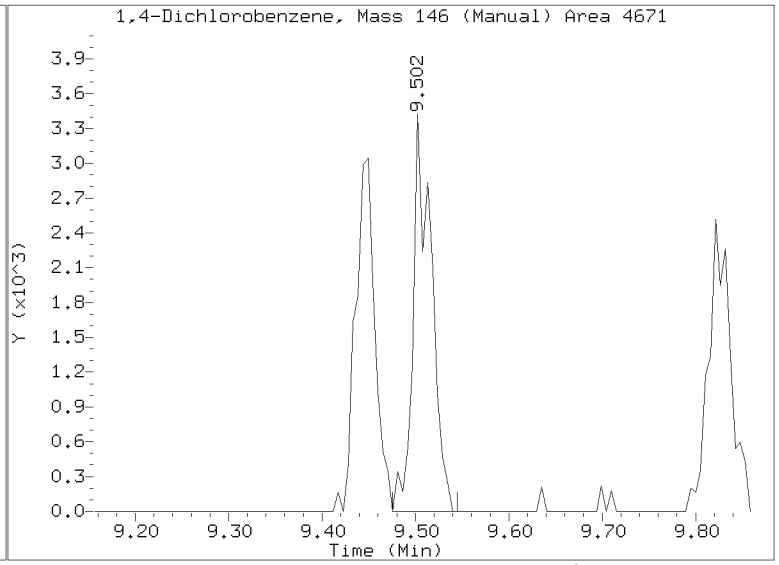












Quant Ion Manual Peak Adjustment Report

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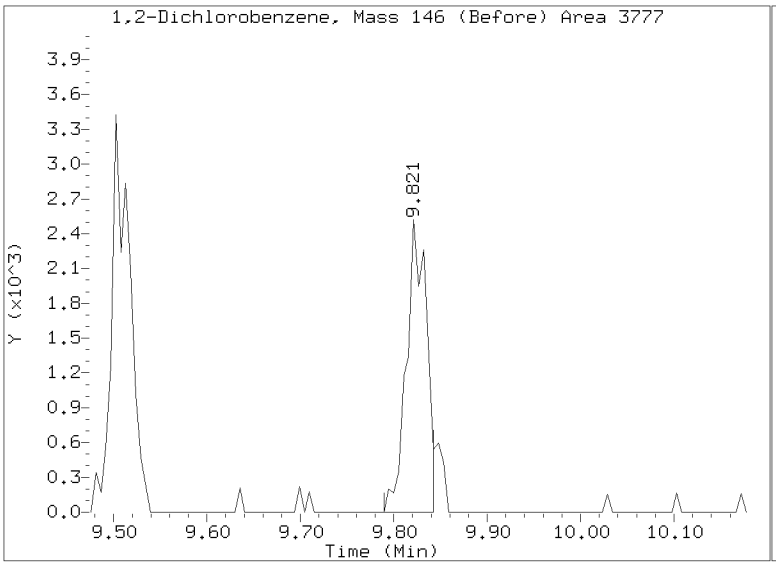
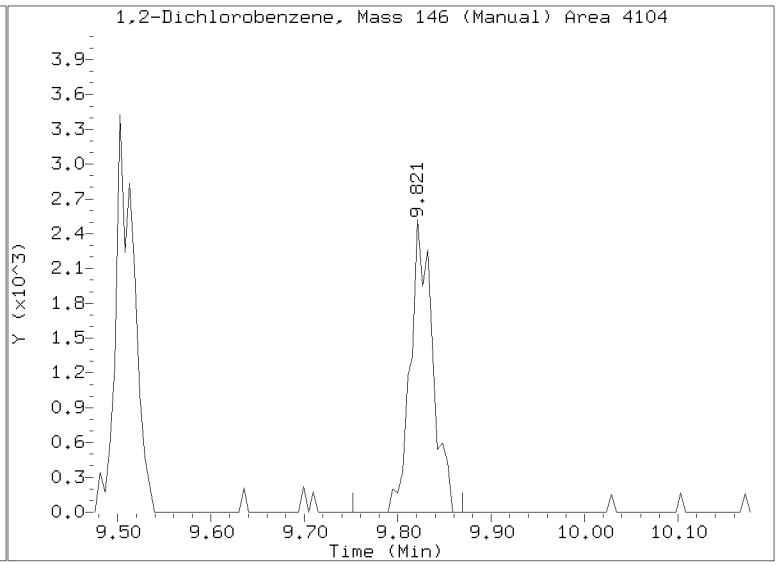
Injection Date: 04-SEP-2019 17:27
Lab ID:SHI0071-CAL1 Client ID:
Report Date: 09/06/2019 09:28





Data File: \\target\share\chem1\nt3.i\20190904.b\V309041906.D

Date : 04-SEP-2019 17:54

Client ID:

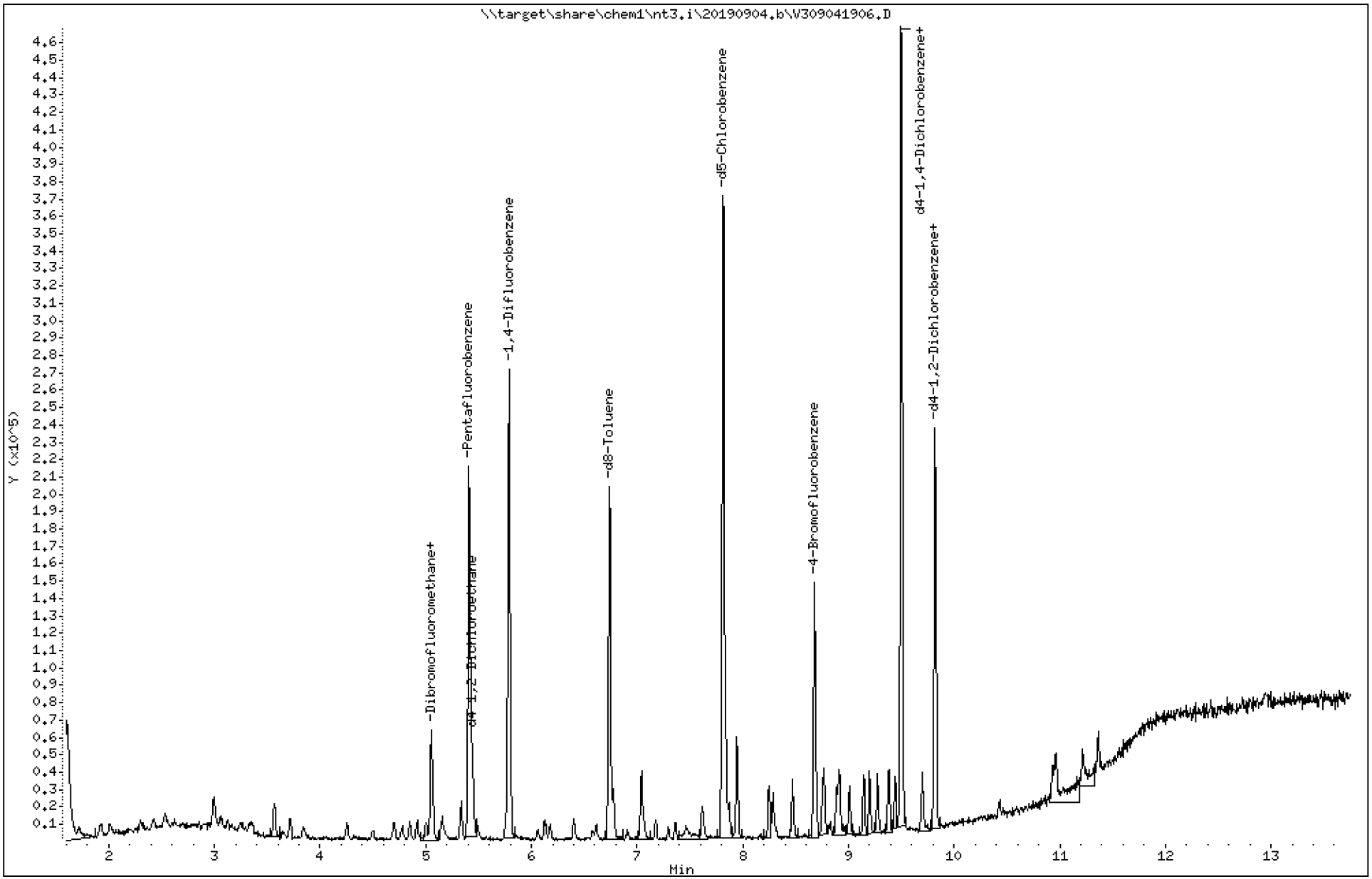
Instrument: nt3.i

Sample Info: SHI0071-CAL2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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8260C 10 ml purge

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Inj Date : 04-SEP-2019 17:54
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL2
Misc Info : 16-
Comment :
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Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 17:54 Cal File: V309041906.D
Als bottle: 56 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.720	1.715	(0.318)	5024	0.50000	0.4807
	2 Chloromethane	50	1.927	1.917	(0.356)	8647	0.50000	0.4930(M)
	3 Vinyl Chloride	62	2.007	2.007	(0.371)	7590	0.50000	0.5371(M)
	4 Bromomethane	94	2.304	2.294	(0.426)	3308	0.50000	0.5131
	5 Chloroethane	64	2.416	2.411	(0.447)	4030	0.50000	0.5349
	6 Trichlorofluoromethane	101	2.527	2.523	(0.467)	5875	0.50000	0.5110
	7 1,1-Dichloroethene	61	2.990	2.985	(0.553)	6817	0.50000	0.4907
	8 Carbon Disulfide	76	2.995	2.996	(0.554)	10043	0.50000	0.4922
	9 112Trichloro122Trifluoroethane	101	3.064	3.060	(0.567)	3065	0.50000	0.4917
	10 Iodomethane	142	3.117	3.118	(0.576)	5444	0.50000	0.5119
	11 Bromoethane	108	3.250	3.241	(0.601)	2285	0.50000	0.4679
	12 Acrolein	56	3.346	3.336	(0.619)	3963	2.50000	3.206
	13 Methylene Chloride	84	3.569	3.560	(0.660)	5942	0.50000	0.9281
	14 Acetone	43	3.644	3.639	(0.674)	5774	2.50000	3.245
	15 Trans-1,2-Dichloroethene	96	3.718	3.708	(0.687)	3406	0.50000	0.4610
	17 Methyl tert butyl ether	73	3.840	3.836	(0.710)	6260	0.50000	0.4979
	18 1,1-Dichloroethane	63	4.255	4.251	(0.787)	7224	0.50000	0.4868
	19 Acrylonitrile	53	4.345	4.314	(0.803)	970	0.50000	0.4647(TM)
	20 Vinyl Acetate	43	4.500	4.484	(0.832)	7158	0.50000	0.4586(M)
	22 Cis-1,2-Dichloroethene	96	4.701	4.692	(0.869)	3854	0.50000	0.5069
	23 2,2-Dichloropropane	77	4.776	4.771	(0.883)	3739	0.50000	0.5418
	24 Bromochloromethane	128	4.850	4.846	(0.897)	1808	0.50000	0.5476(M)
	25 Chloroform	83	4.919	4.915	(0.910)	5401	0.50000	0.4722
	26 Carbon Tetrachloride	117	4.999	5.000	(0.864)	4559	0.50000	0.4693
$	27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24314	5.00000	5.024
	28 1,1,1-Trichloroethane	97	5.058	5.053	(0.935)	5563	0.50000	0.5026
	30 1,1-Dichloropropene	75	5.153	5.149	(0.891)	5063	0.50000	0.5457
	29 2-Butanone	43	5.169	5.159	(0.956)	6486	2.50000	2.234(T)
	31 Benzene	78	5.334	5.330	(0.922)	13368	0.50000	0.4791
*	32 Pentafluorobenzene	168	5.408	5.409	(1.000)	111932	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	27107	5.00000	5.027
	34 1,2-Dichloroethane	62	5.488	5.484	(0.949)	4264	0.50000	0.4721
	36 Trichloroethene	130	5.759	5.755	(0.995)	3834	0.50000	0.5138
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	163049	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
	38 Dibromomethane	93	6.057	6.052	(1.047)	1499	0.50000	0.4621
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	3962	0.50000	0.4712
	40 Bromodichloromethane	83	6.174	6.175	(1.067)	4168	0.50000	0.4967
	173 2-Pentanone	86	6.397	6.398	(1.106)	1377	2.50000	2.271
	41 2-Chloroethyl Vinyl Ether	63	6.583	6.573	(1.138)	1475	0.50000	0.4137(M)
	42 Cis 1,3-dichloropropene	75	6.615	6.611	(1.143)	4795	0.50000	0.4471
$	43 d8-Toluene	98	6.737	6.738	(1.164)	97951	5.00000	4.966
	44 Toluene	92	6.775	6.770	(1.171)	9070	0.50000	0.4985
	46 Tetrachloroethene	166	7.046	7.036	(0.902)	4285	0.50000	0.4839
	45 4-Methyl-2-Pentanone	58	7.040	7.041	(1.217)	5248	2.50000	2.192(T)
	47 Trans 1,3-Dichloropropene	75	7.067	7.062	(1.221)	3879	0.50000	0.4283
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	2616	0.50000	0.5244
	49 Chlorodibromomethane	129	7.295	7.296	(0.934)	2786	0.50000	0.4401
	50 1,3-Dichloropropane	76	7.365	7.360	(0.943)	4110	0.50000	0.4474
	51 1,2-Dibromoethane	107	7.471	7.461	(1.291)	2311	0.50000	0.4679
	52 2-Hexanone	43	7.620	7.615	(0.976)	10544	2.50000	2.297
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	170589	10.0000	
	54 Chlorobenzene	112	7.827	7.823	(1.002)	10212	0.50000	0.4647
	55 Ethyl Benzene	106	7.843	7.838	(1.004)	5698	0.50000	0.4749
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	3748	0.50000	0.4743
	57 m,p-xylene	106	7.944	7.945	(1.017)	13757	1.00000	0.9311
	58 o-Xylene	106	8.252	8.248	(1.056)	6865	0.50000	0.4603
	59 Styrene	104	8.289	8.285	(1.061)	10637	0.50000	0.4607(M)
	60 Bromoform	173	8.316	8.306	(0.875)	1782	0.50000	0.4697
	61 Isopropyl Benzene	105	8.470	8.471	(0.891)	17908	0.50000	0.4778
$	62 4-Bromofluorobenzene	174	8.677	8.678	(1.111)	37700	5.00000	4.651
	63 Bromobenzene	156	8.752	8.758	(0.921)	5513	0.50000	0.5407
	64 N-Propyl Benzene	91	8.773	8.769	(0.923)	19697	0.50000	0.4582
	65 1,1,2,2-Tetrachloroethane	83	8.816	8.822	(0.928)	3103	0.50000	0.4784(M)
	66 2-Chloro Toluene	91	8.890	8.886	(0.936)	15232	0.50000	0.4984
	67 1,3,5-Trimethyl Benzene	105	8.911	8.912	(0.938)	15062	0.50000	0.4565
	68 1,2,3-Trichloropropane	110	8.927	8.923	(0.940)	1122	0.50000	0.5211
	69 Trans-1,4-Dichloro 2-Butene	53	8.954	8.955	(0.942)	1302	0.50000	0.5588
	70 4-Chloro Toluene	91	9.012	9.008	(0.949)	14172	0.50000	0.5006
	71 T-Butyl Benzene	119	9.151	9.146	(0.963)	13415	0.50000	0.4815
	72 1,2,4-Trimethylbenzene	105	9.198	9.199	(0.968)	15464	0.50000	0.4623
	73 S-Butyl Benzene	105	9.278	9.274	(0.977)	18504	0.50000	0.4751
	74 4-Isopropyl Toluene	119	9.384	9.380	(0.988)	16969	0.50000	0.4855
	75 1,3-Dichlorobenzene	146	9.443	9.444	(0.994)	10670	0.50000	0.4981
*	76 d4-1,4-Dichlorobenzene	152	9.501	9.497	(1.000)	105523	10.0000	
	77 1,4-Dichlorobenzene	146	9.507	9.508	(1.001)	10307	0.50000	0.4818
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	14947	0.50000	0.4997
$	79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	48683	5.00000	4.910
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.034)	10699	0.50000	0.5355
	81 1,2-Dibromo 3-Chloropropane	75	10.437	10.438	(1.098)	851	0.50000	0.7003(M)
	83 Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.151)	2418	0.50000	0.4239(M)
	84 1,2,4-Trichlorobenzene	180	10.963	10.959	(1.154)	6861	0.50000	0.4882
	85 Naphthalene	128	11.218	11.219	(1.181)	12028	0.50000	0.5137
	86 1,2,3-Trichlorobenzene	180	11.367	11.363	(1.196)	6096	0.50000	0.5328

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041906.D
Lab Smp Id: SHI0071-CAL2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111932	15.52
37 1,4-Difluorobenze	140121	70061	280242	163049	16.36
53 d5-Chlorobenzene	140128	70064	280256	170589	21.74
76 d4-1,4-Dichlorobe	90137	45069	180274	105523	17.07

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041906.D

Lab ID: SHI0071-CAL2
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 17:54

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.318	1.000	-0.6820	Dichlorodifluoromethane
0.356	1.000	-0.6437	Chloromethane
0.371	1.000	-0.6290	Vinyl Chloride
0.426	1.000	-0.5739	Bromomethane
0.447	1.000	-0.5533	Chloroethane
0.467	1.000	-0.5327	Trichlorofluoromethane
0.553	1.000	-0.4472	1,1-Dichloroethene
0.554	1.000	-0.4462	Carbon Disulfide
0.567	1.000	-0.4334	112Trichloro122Trifluoroethane
0.576	1.000	-0.4236	Iodomethane
0.601	1.000	-0.3990	Bromoethane
0.619	1.000	-0.3813	Acrolein
0.660	1.000	-0.3400	Methylene Chloride
0.674	1.000	-0.3263	Acetone
0.687	1.000	-0.3125	Trans-1,2-Dichloroethene
0.710	1.000	-0.2899	Methyl tert butyl ether
0.787	1.000	-0.2133	1,1-Dichloroethane
0.803	1.000	-0.1966	Acrylonitrile
0.832	1.000	-0.1681	Vinyl Acetate
0.869	1.000	-0.1307	Cis-1,2-Dichloroethene
0.883	1.000	-0.1170	2,2-Dichloropropane
0.897	1.000	-0.1032	Bromochloromethane
0.910	1.000	-0.0904	Chloroform
0.935	1.000	-0.0649	1,1,1-Trichloroethane
0.956	1.000	-0.0442	2-Butanone
0.934	1.000	-0.0658	Dibromofluoromethane
1.006	1.000	0.0059	d4-1,2-Dichloroethane

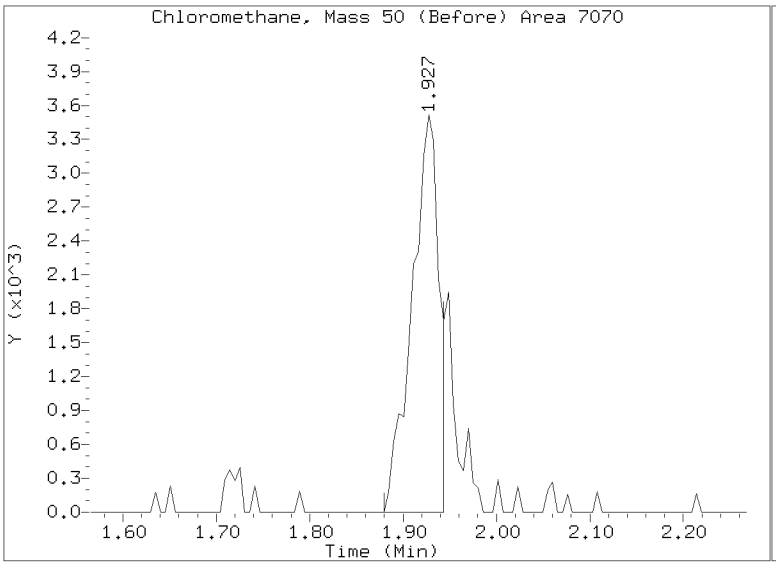
RRT check based on Ccal File: V309041912.D

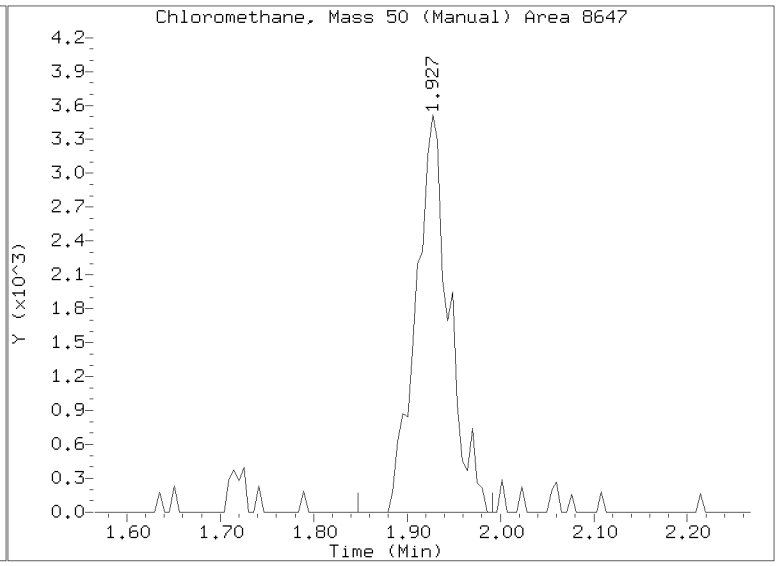
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

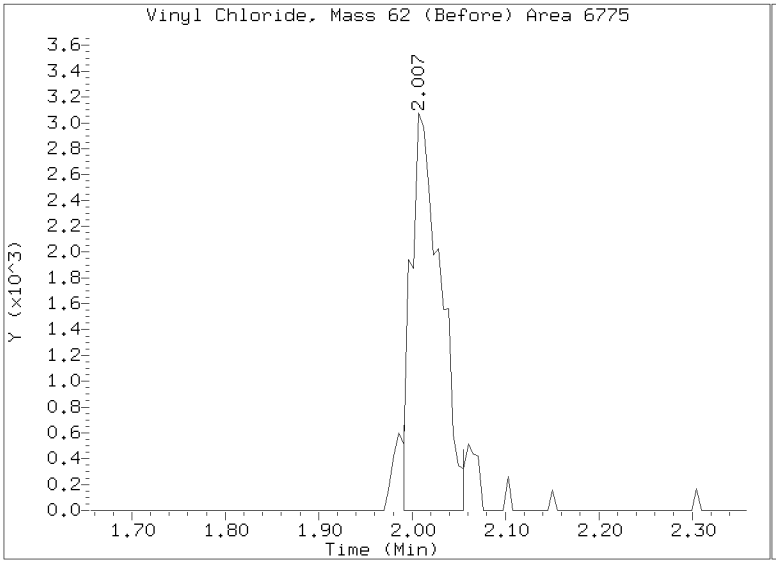
* Only compounds listed in the work order have been verified by the analyst *

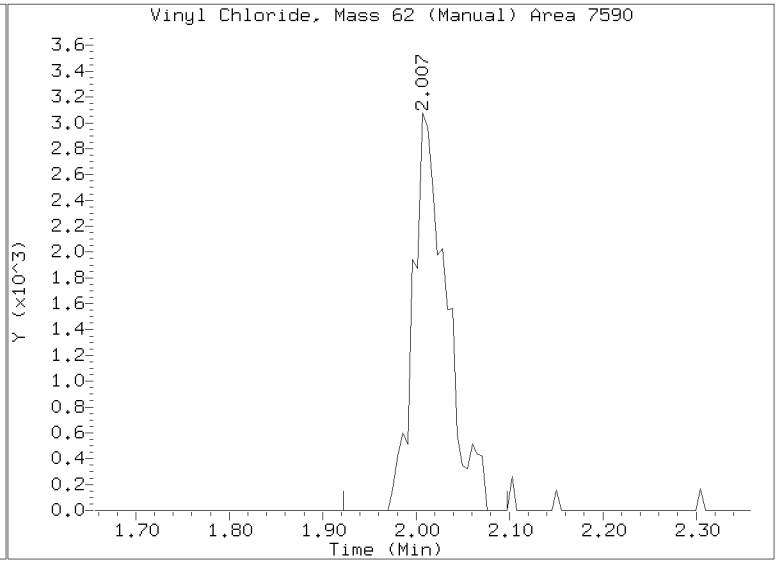
Quant Ion Manual Peak Adjustment Report

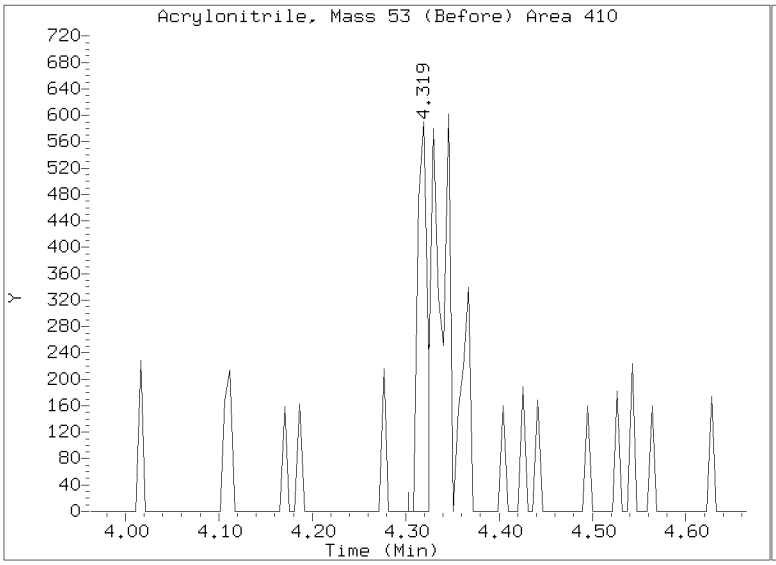
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041906.D
Injection Date: 04-SEP-2019 17:54
Lab ID:SHI0071-CAL2 Client ID:
Report Date: 09/06/2019 09:28

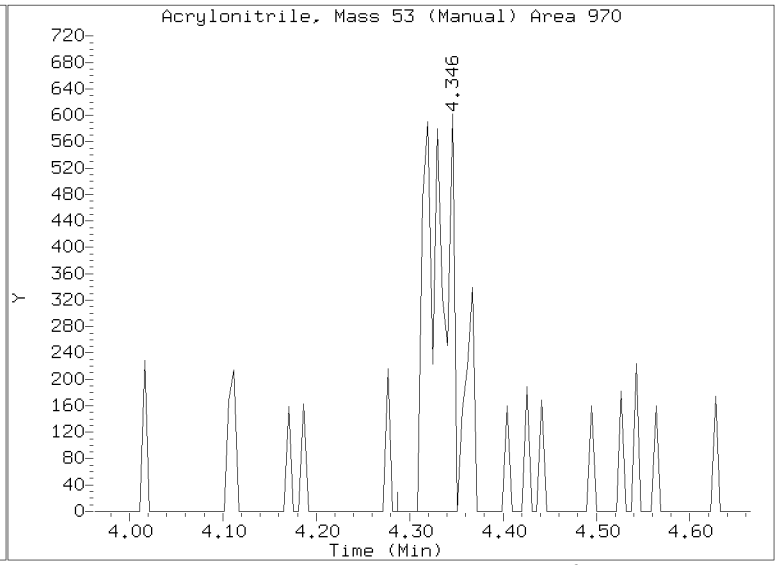












Quant Ion Manual Peak Adjustment Report

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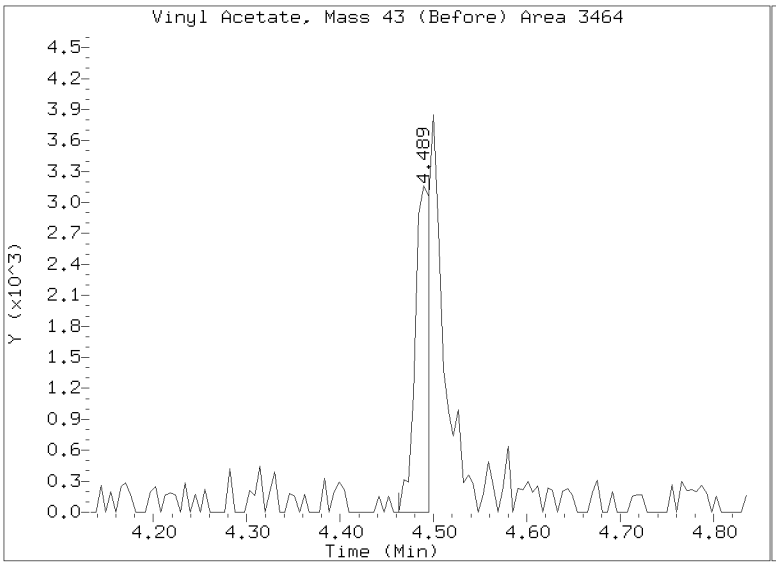
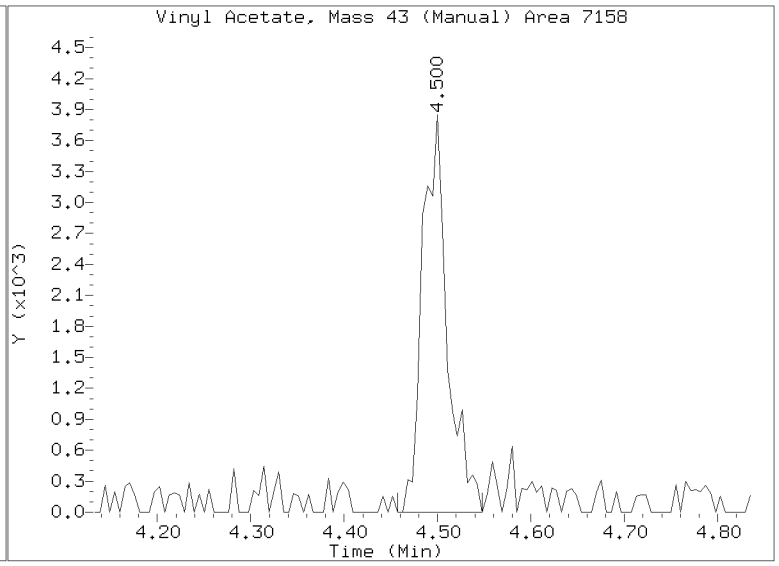
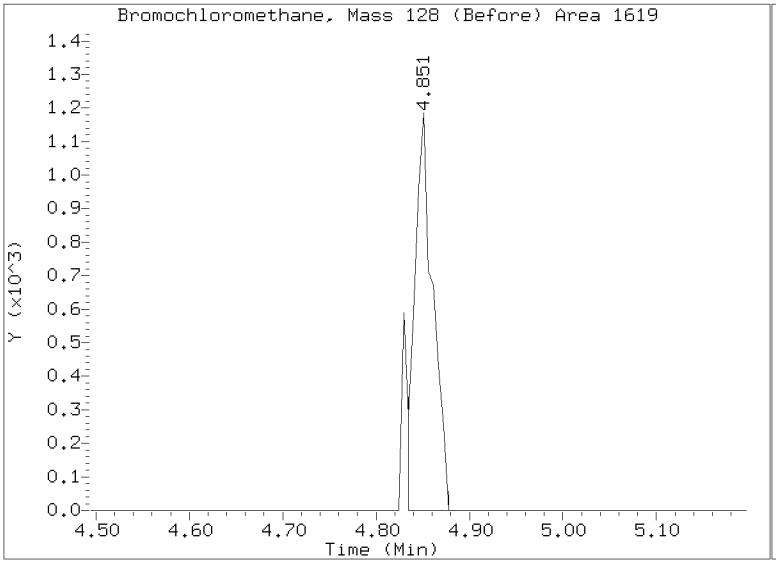
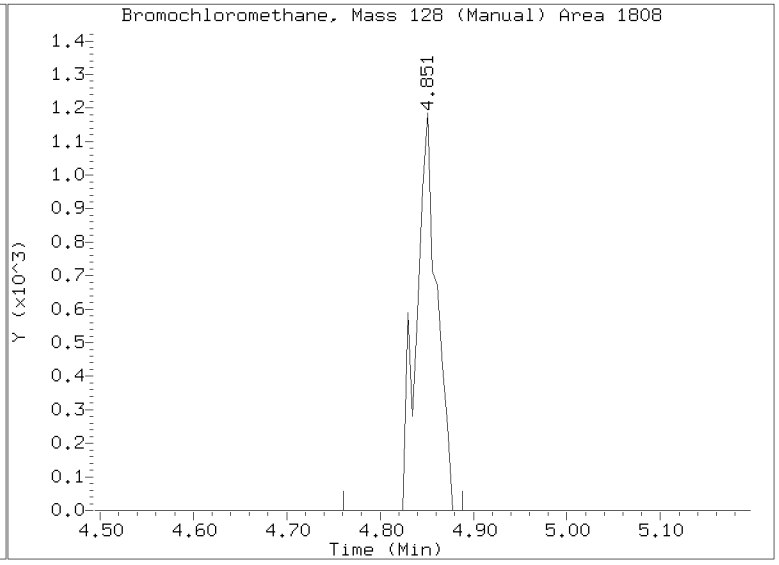
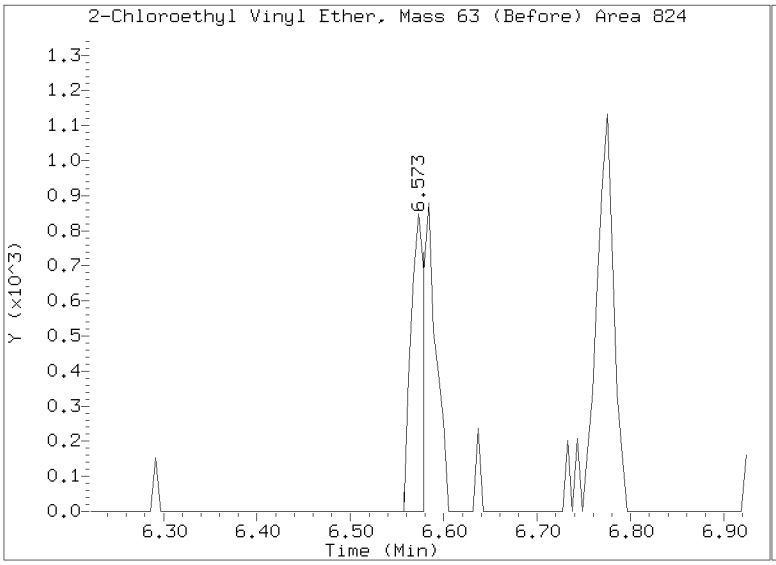
Injection Date: 04-SEP-2019 17:54
Lab ID:SHI0071-CAL2 Client ID:
Report Date: 09/06/2019 09:28

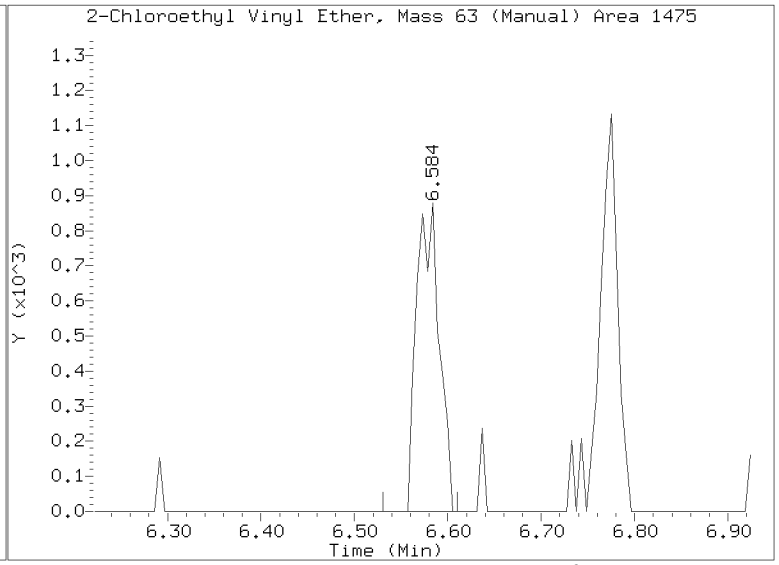






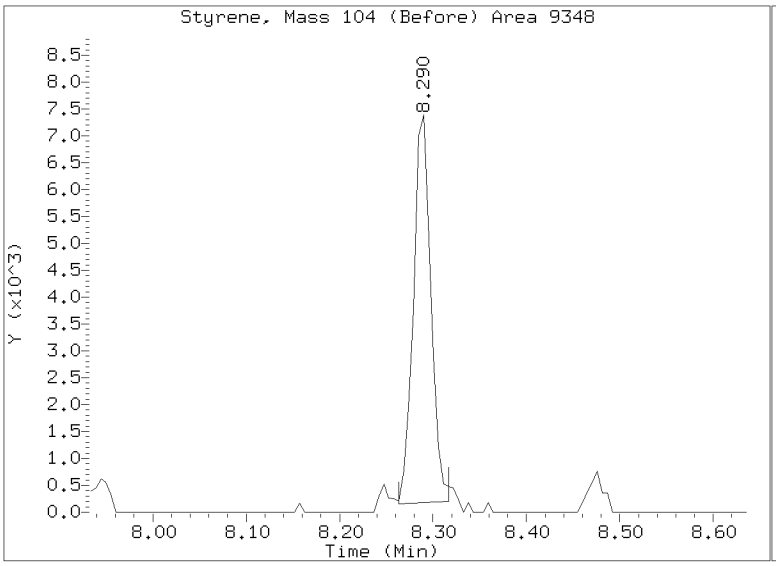


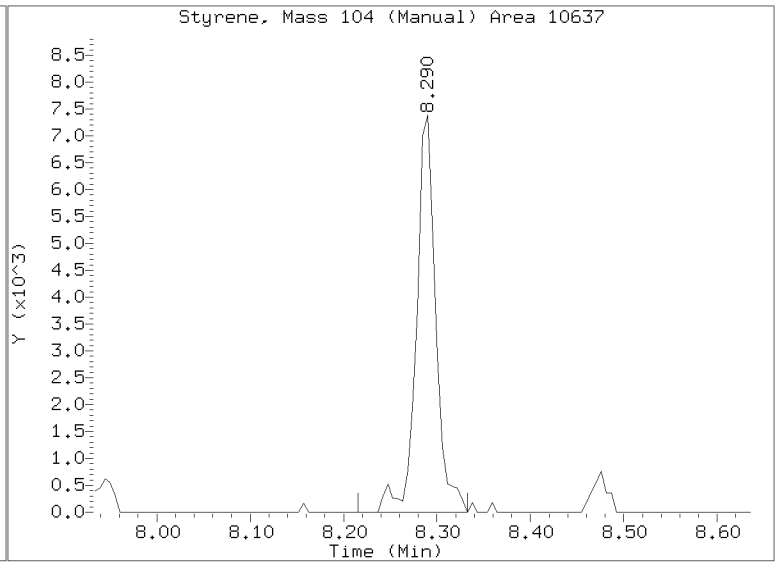


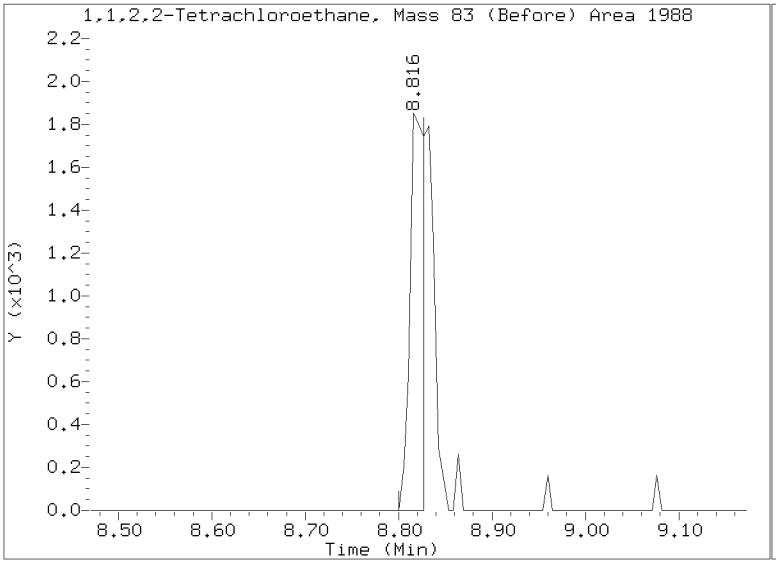


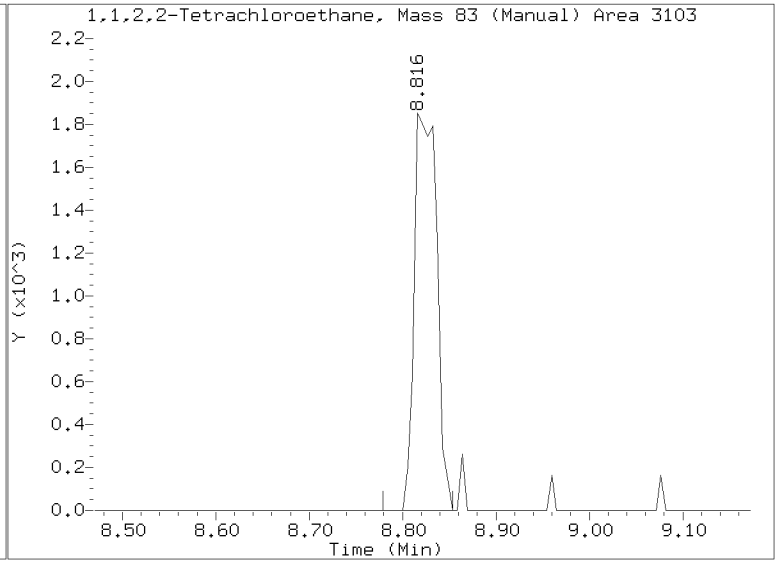
Quant Ion Manual Peak Adjustment Report

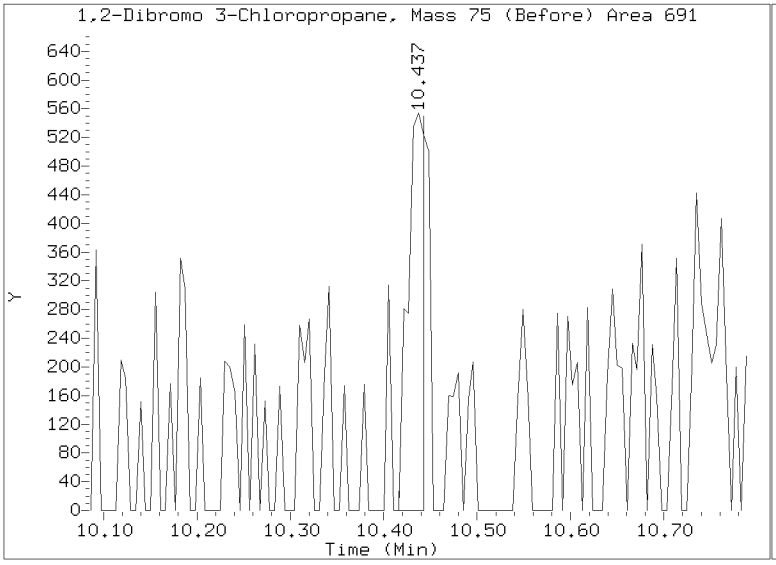
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041906.D
Injection Date: 04-SEP-2019 17:54
Lab ID:SHI0071-CAL2 Client ID:
Report Date: 09/06/2019 09:28

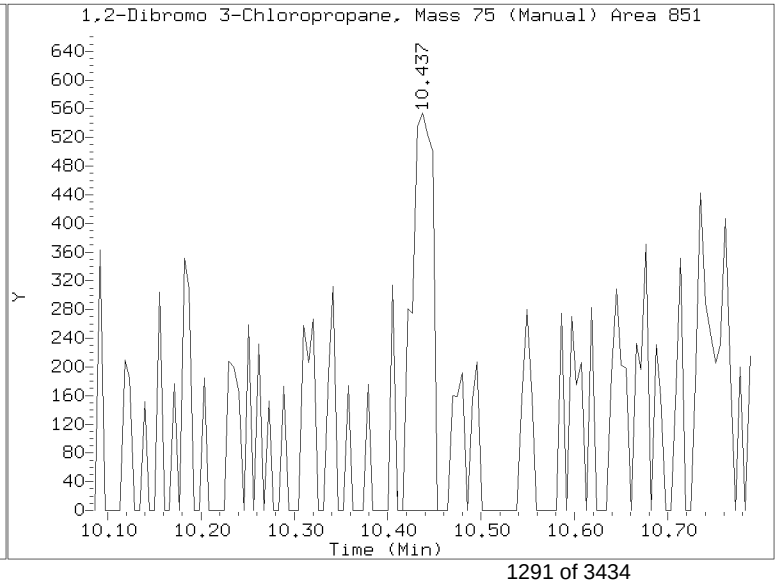












Quant Ion Manual Peak Adjustment Report

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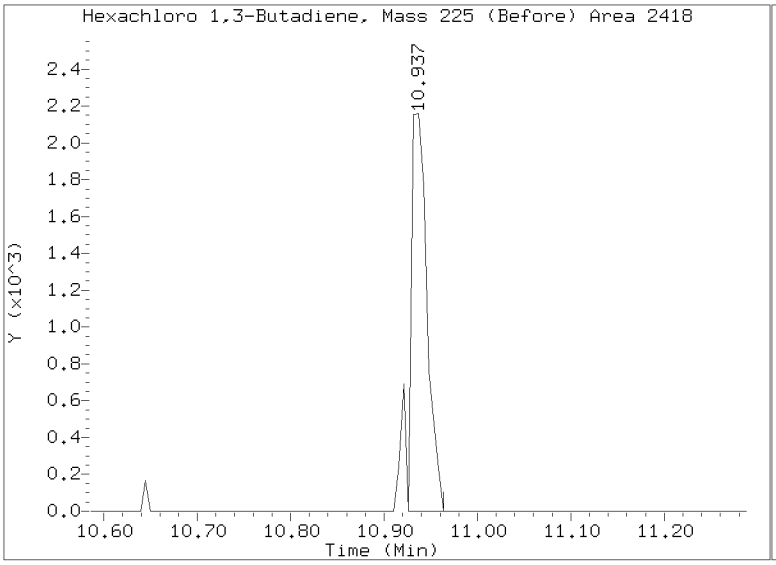
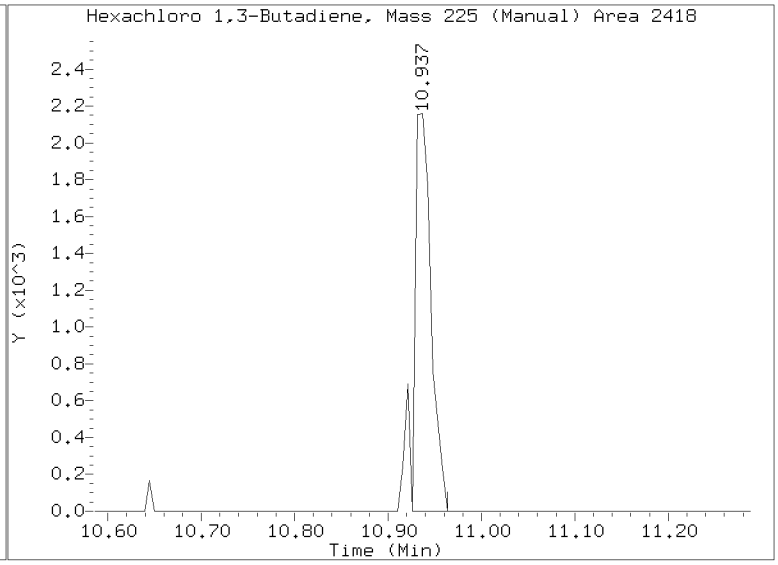
Injection Date: 04-SEP-2019 17:54
Lab ID:SHI0071-CAL2 Client ID:
Report Date: 09/06/2019 09:28





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041907.D
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Inj Date : 04-SEP-2019 18:21
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL3
Misc Info : 16-
Comment :
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Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 18:21 Cal File: V309041907.D
Als bottle: 57 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.719	1.715	(0.318)	11018	1.00000	1.032(M)
	2 Chloromethane	50	1.916	1.917	(0.354)	17127	1.00000	0.9559
	3 Vinyl Chloride	62	2.012	2.007	(0.372)	13371	1.00000	0.9262
	4 Bromomethane	94	2.304	2.294	(0.426)	6312	1.00000	0.9583
	5 Chloroethane	64	2.416	2.411	(0.447)	7821	1.00000	1.016
	6 Trichlorofluoromethane	101	2.533	2.523	(0.468)	11715	1.00000	0.9975
	7 1,1-Dichloroethene	61	2.995	2.985	(0.554)	13808	1.00000	0.9730
	8 Carbon Disulfide	76	3.000	2.996	(0.555)	19025	1.00000	0.9128
	9 112Trichloro122Trifluoroethane	101	3.059	3.060	(0.566)	6051	1.00000	0.9503
	10 Iodomethane	142	3.128	3.118	(0.578)	10368	1.00000	0.9543(M)
	11 Bromoethane	108	3.250	3.241	(0.601)	5152	1.00000	1.033(M)
	12 Acrolein	56	3.346	3.336	(0.619)	7028	5.00000	5.566
	13 Methylene Chloride	84	3.569	3.560	(0.660)	10216	1.00000	1.562
	14 Acetone	43	3.644	3.639	(0.674)	9366	5.00000	5.152(M)
	15 Trans-1,2-Dichloroethene	96	3.713	3.708	(0.687)	7651	1.00000	1.014
	17 Methyl tert butyl ether	73	3.846	3.836	(0.711)	13582	1.00000	1.057
	18 1,1-Dichloroethane	63	4.255	4.251	(0.787)	14233	1.00000	0.9389
	19 Acrylonitrile	53	4.329	4.314	(0.800)	2080	1.00000	0.9755(TM)
	20 Vinyl Acetate	43	4.499	4.484	(0.832)	14541	1.00000	0.9121(M)
	22 Cis-1,2-Dichloroethene	96	4.701	4.692	(0.869)	7651	1.00000	0.9851
	23 2,2-Dichloropropane	77	4.776	4.771	(0.883)	6964	1.00000	0.9878
	24 Bromochloromethane	128	4.850	4.846	(0.897)	3201	1.00000	0.9491
	25 Chloroform	83	4.914	4.915	(0.909)	11424	1.00000	0.9777
	26 Carbon Tetrachloride	117	5.010	5.000	(0.866)	9734	1.00000	0.9833
$	27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24828	5.00000	5.022
	28 1,1,1-Trichloroethane	97	5.057	5.053	(0.935)	10467	1.00000	0.9256
	30 1,1-Dichloropropene	75	5.153	5.149	(0.891)	9171	1.00000	0.9699
	29 2-Butanone	43	5.169	5.159	(0.956)	13281	5.00000	4.477(T)
	31 Benzene	78	5.334	5.330	(0.922)	27174	1.00000	0.9556
*	32 Pentafluorobenzene	168	5.408	5.409	(1.000)	114344	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	28072	5.00000	5.096
	34 1,2-Dichloroethane	62	5.488	5.484	(0.949)	9229	1.00000	1.003
	36 Trichloroethene	130	5.754	5.755	(0.994)	7350	1.00000	0.9665
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	166163	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
	38 Dibromomethane	93	6.057	6.052	(1.047)	3225	1.00000	0.9756
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	8408	1.00000	0.9812
	40 Bromodichloromethane	83	6.174	6.175	(1.067)	8348	1.00000	0.9762
	173 2-Pentanone	86	6.402	6.398	(1.107)	2631	5.00000	4.257
	41 2-Chloroethyl Vinyl Ether	63	6.578	6.573	(1.137)	3103	1.00000	0.8540
	42 Cis 1,3-dichloropropene	75	6.615	6.611	(1.143)	10584	1.00000	0.9683
$	43 d8-Toluene	98	6.737	6.738	(1.164)	100901	5.00000	5.020
	44 Toluene	92	6.774	6.770	(1.171)	18772	1.00000	1.012
	46 Tetrachloroethene	166	7.040	7.036	(0.901)	8433	1.00000	0.9600
	45 4-Methyl-2-Pentanone	58	7.040	7.041	(1.217)	10911	5.00000	4.472(T)
	47 Trans 1,3-Dichloropropene	75	7.067	7.062	(1.221)	8777	1.00000	0.9509
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	4817	1.00000	0.9474
	49 Chlorodibromomethane	129	7.301	7.296	(0.935)	5621	1.00000	0.8950
	50 1,3-Dichloropropane	76	7.364	7.360	(0.943)	9128	1.00000	1.002
	51 1,2-Dibromoethane	107	7.460	7.461	(1.289)	4778	1.00000	0.9493
	52 2-Hexanone	43	7.620	7.615	(0.976)	18770	5.00000	4.122
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	169230	10.0000	
	54 Chlorobenzene	112	7.827	7.823	(1.002)	21313	1.00000	0.9776
	55 Ethyl Benzene	106	7.843	7.838	(1.004)	11281	1.00000	0.9478
	56 1,1,1,2-Tetrachloroethane	131	7.869	7.870	(1.007)	7447	1.00000	0.9500
	57 m,p-xylene	106	7.944	7.945	(1.017)	26176	2.00000	1.786
	58 o-Xylene	106	8.247	8.248	(1.056)	13624	1.00000	0.9207
	59 Styrene	104	8.289	8.285	(1.061)	20227	1.00000	0.8831
	60 Bromoform	173	8.311	8.306	(0.875)	3392	1.00000	0.8964
	61 Isopropyl Benzene	105	8.470	8.471	(0.892)	36615	1.00000	0.9794
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	40391	5.00000	5.023
	63 Bromobenzene	156	8.757	8.758	(0.922)	9123	1.00000	0.8971
	64 N-Propyl Benzene	91	8.768	8.769	(0.923)	41902	1.00000	0.9772
	65 1,1,2,2-Tetrachloroethane	83	8.826	8.822	(0.929)	6954	1.00000	1.075
	66 2-Chloro Toluene	91	8.885	8.886	(0.936)	30039	1.00000	0.9855
	67 1,3,5-Trimethyl Benzene	105	8.911	8.912	(0.938)	32553	1.00000	0.9892
	68 1,2,3-Trichloropropane	110	8.927	8.923	(0.940)	2267	1.00000	1.056
	69 Trans-1,4-Dichloro 2-Butene	53	8.959	8.955	(0.943)	2011	1.00000	0.8654
	70 4-Chloro Toluene	91	9.007	9.008	(0.949)	25209	1.00000	0.8928
	71 T-Butyl Benzene	119	9.145	9.146	(0.963)	26637	1.00000	0.9586
	72 1,2,4-Trimethylbenzene	105	9.198	9.199	(0.969)	31879	1.00000	0.9555
	73 S-Butyl Benzene	105	9.278	9.274	(0.977)	37260	1.00000	0.9592
	74 4-Isopropyl Toluene	119	9.384	9.380	(0.988)	33126	1.00000	0.9502
	75 1,3-Dichlorobenzene	146	9.448	9.444	(0.995)	20611	1.00000	0.9647
*	76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	105248	10.0000	
	77 1,4-Dichlorobenzene	146	9.512	9.508	(1.002)	20720	1.00000	0.9710
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	28594	1.00000	0.9584
$	79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49822	5.00000	5.038
	80 1,2-Dichlorobenzene	146	9.825	9.826	(1.035)	19417	1.00000	0.9744
	81 1,2-Dibromo 3-Chloropropane	75	10.431	10.438	(1.099)	1794	1.00000	1.480(M)
	83 Hexachloro 1,3-Butadiene	225	10.936	10.938	(1.152)	5378	1.00000	0.9452
	84 1,2,4-Trichlorobenzene	180	10.963	10.959	(1.154)	13886	1.00000	0.9907
	85 Naphthalene	128	11.218	11.219	(1.181)	22438	1.00000	0.9608
	86 1,2,3-Trichlorobenzene	180	11.362	11.363	(1.196)	11008	1.00000	0.9646

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041907.D
Lab Smp Id: SHI0071-CAL3
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	114344	18.01
37 1,4-Difluorobenze	140121	70061	280242	166163	18.59
53 d5-Chlorobenzene	140128	70064	280256	169230	20.77
76 d4-1,4-Dichlorobe	90137	45069	180274	105248	16.76

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041907.D

Lab ID: SHI0071-CAL3
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 18:21

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.318	1.000	-0.6820	Dichlorodifluoromethane
0.354	1.000	-0.6457	Chloromethane
0.372	1.000	-0.6280	Vinyl Chloride
0.426	1.000	-0.5739	Bromomethane
0.447	1.000	-0.5533	Chloroethane
0.468	1.000	-0.5317	Trichlorofluoromethane
0.554	1.000	-0.4462	1,1-Dichloroethene
0.555	1.000	-0.4452	Carbon Disulfide
0.566	1.000	-0.4344	112Trichloro122Trifluoroethane
0.578	1.000	-0.4216	Iodomethane
0.601	1.000	-0.3990	Bromoethane
0.619	1.000	-0.3813	Acrolein
0.660	1.000	-0.3400	Methylene Chloride
0.674	1.000	-0.3263	Acetone
0.687	1.000	-0.3135	Trans-1,2-Dichloroethene
0.711	1.000	-0.2889	Methyl tert butyl ether
0.787	1.000	-0.2133	1,1-Dichloroethane
0.800	1.000	-0.1995	Acrylonitrile
0.832	1.000	-0.1681	Vinyl Acetate
0.869	1.000	-0.1307	Cis-1,2-Dichloroethene
0.883	1.000	-0.1170	2,2-Dichloropropane
0.897	1.000	-0.1032	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.935	1.000	-0.0649	1,1,1-Trichloroethane
0.956	1.000	-0.0442	2-Butanone
0.934	1.000	-0.0658	Dibromofluoromethane
1.006	1.000	0.0059	d4-1,2-Dichloroethane

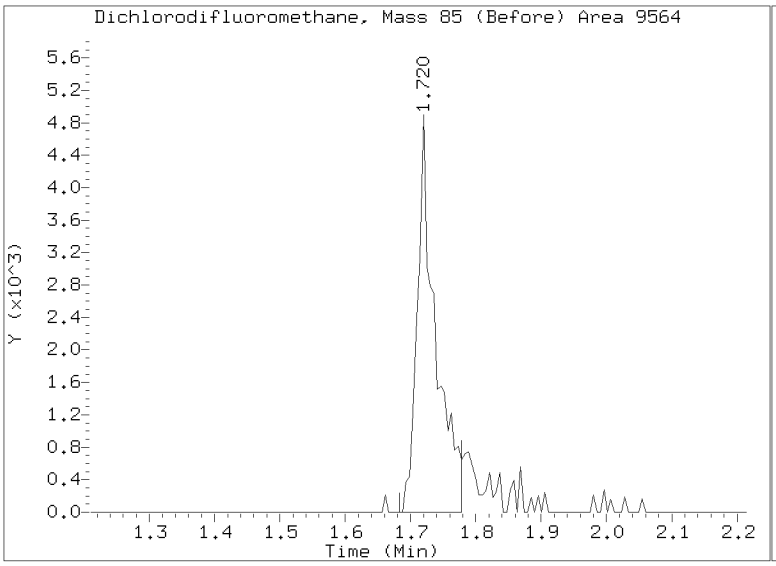
RRT check based on Ccal File: V309041912.D

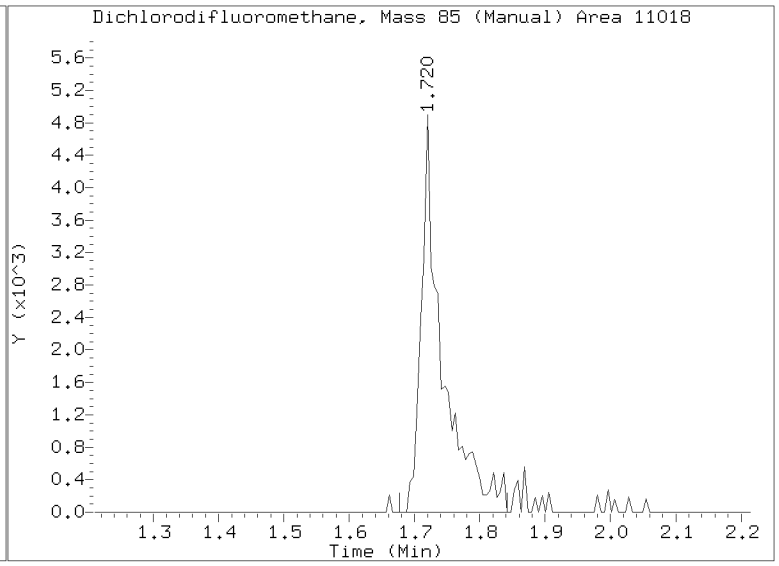
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

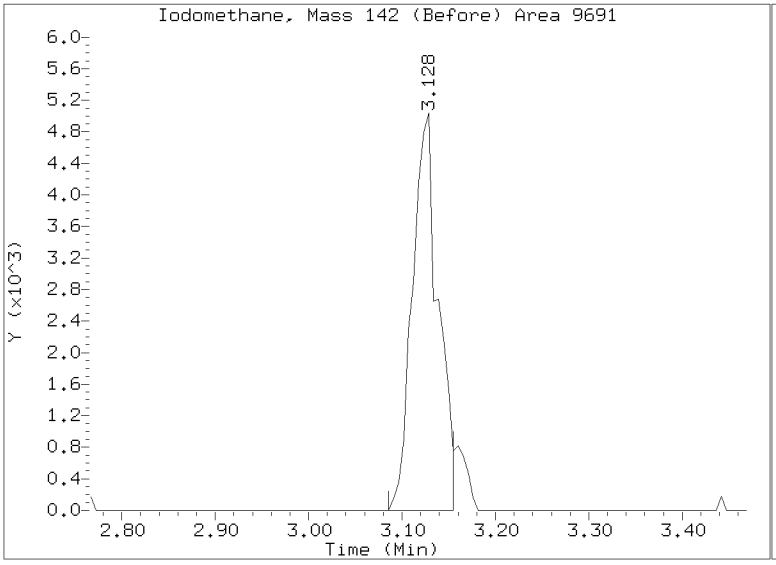
* Only compounds listed in the work order have been verified by the analyst *

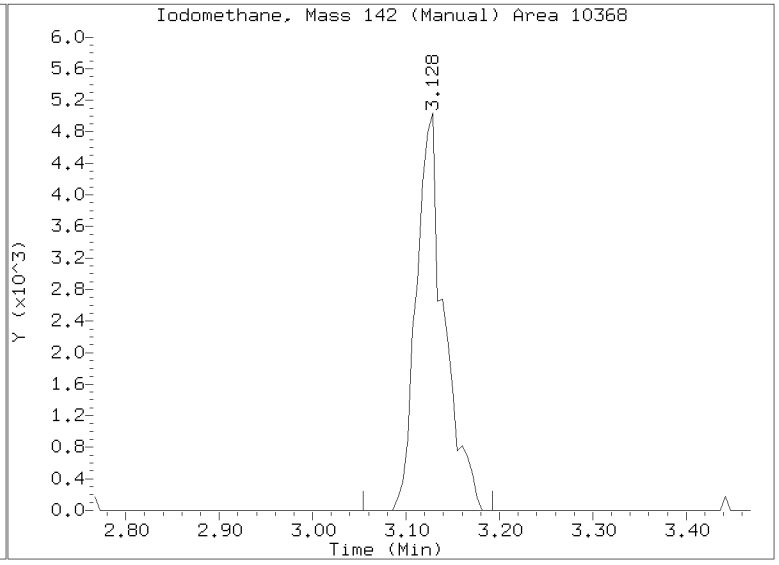
Quant Ion Manual Peak Adjustment Report

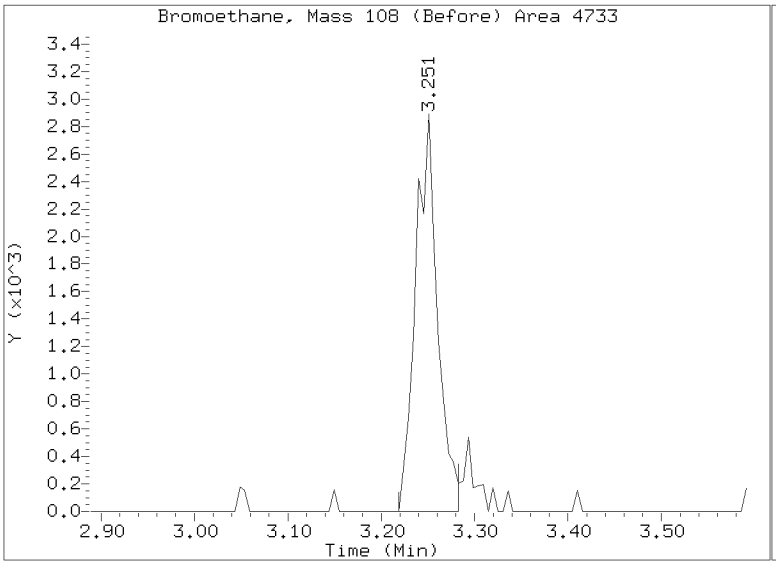
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041907.D
Injection Date: 04-SEP-2019 18:21
Lab ID:SHI0071-CAL3 Client ID:
Report Date: 09/06/2019 09:28

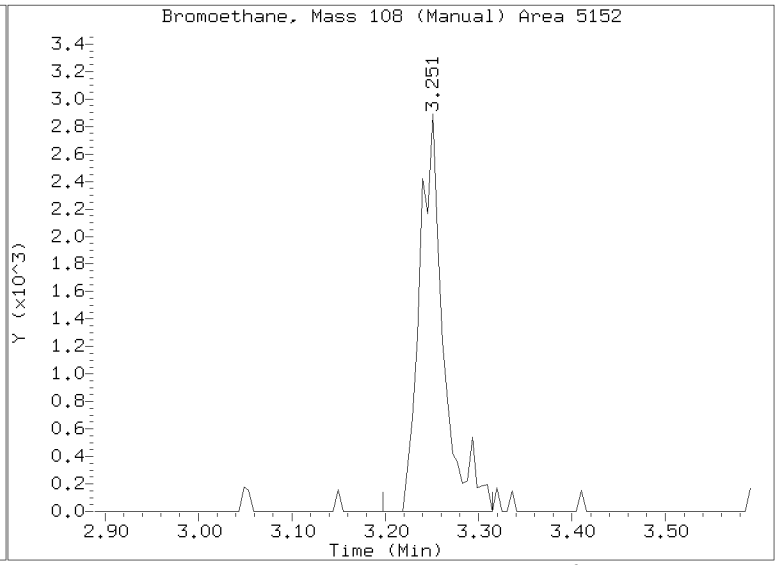












Quant Ion Manual Peak Adjustment Report

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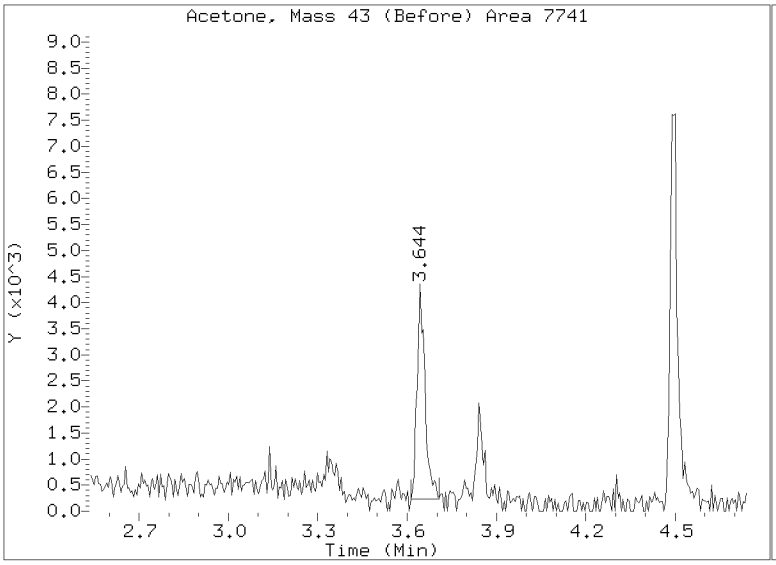
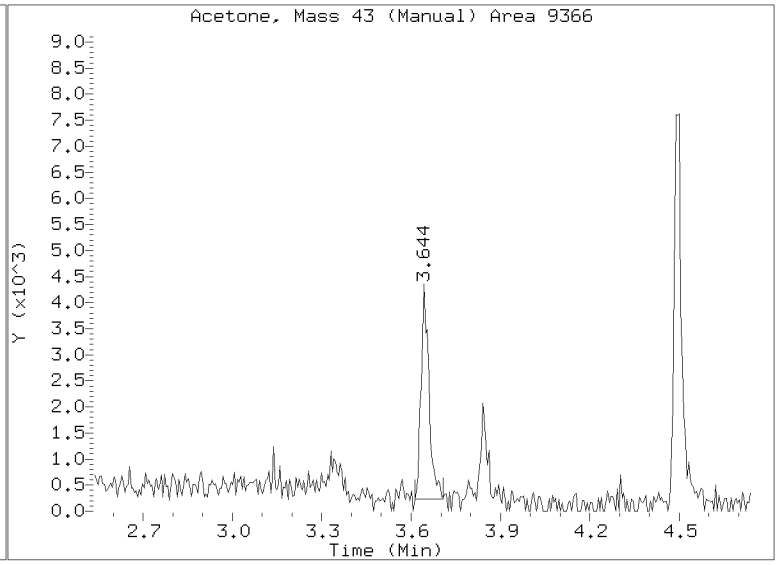
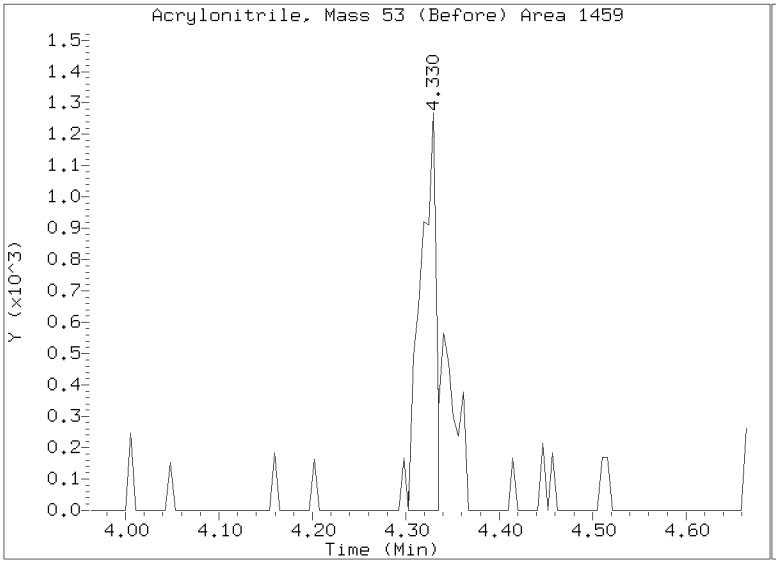
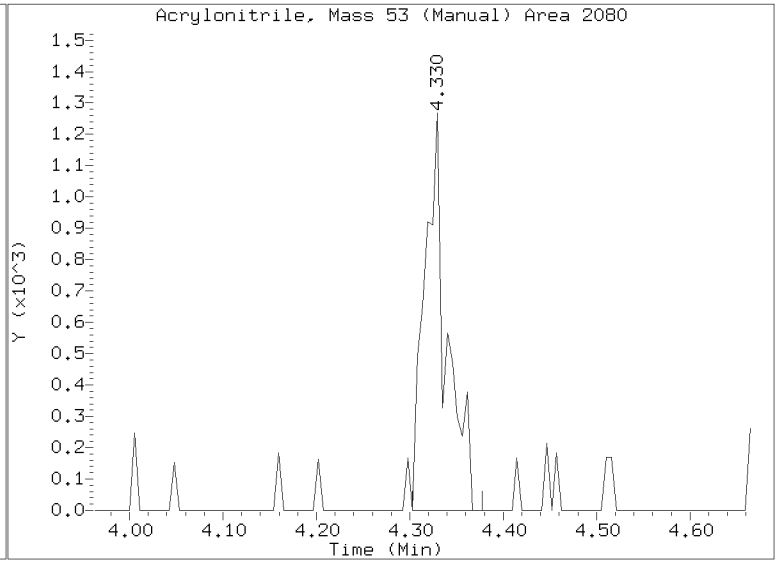
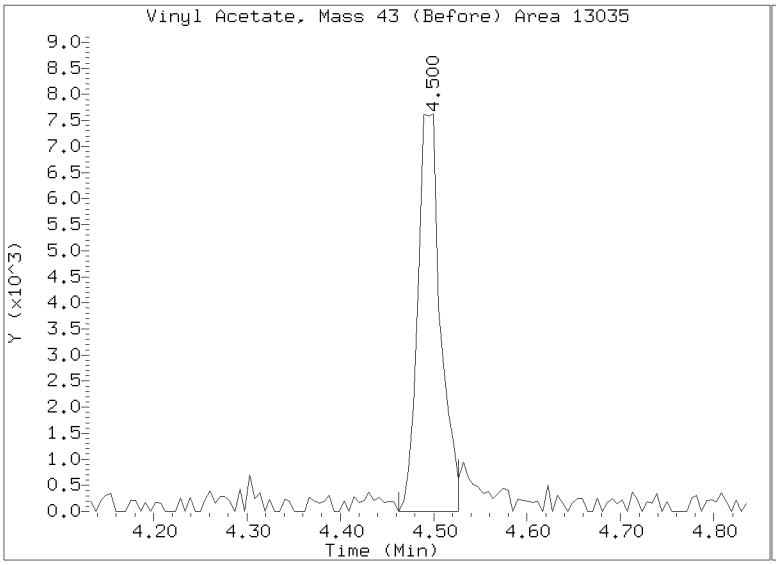
Lab ID:SHI0071-CAL3 Client ID:
Report Date: 09/06/2019 09:28

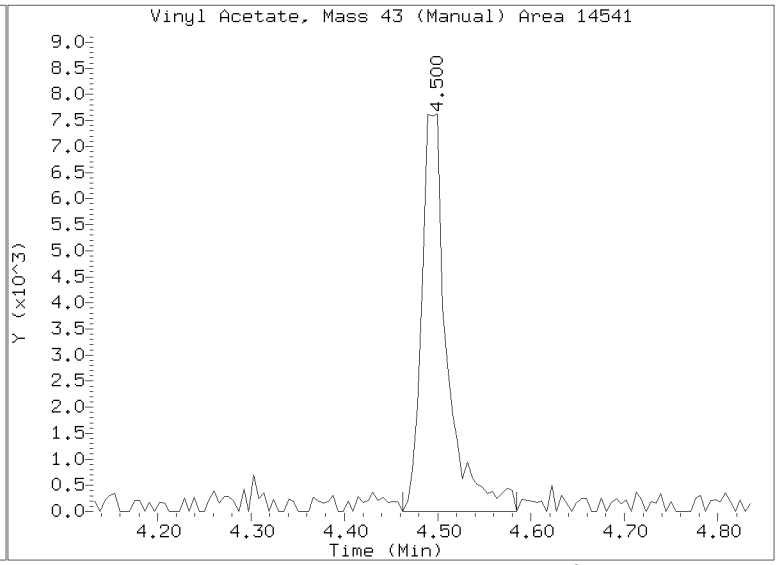






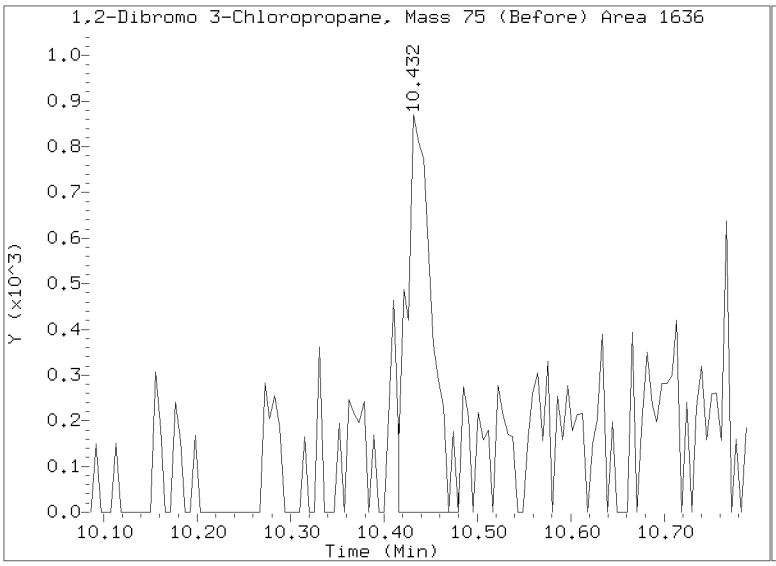


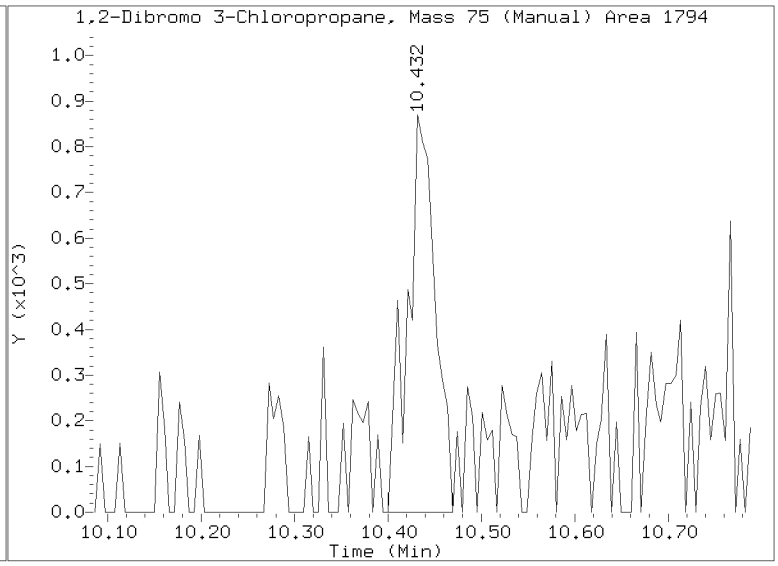




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041907.D
Injection Date: 04-SEP-2019 18:21
Lab ID:SHI0071-CAL3 Client ID:
Report Date: 09/06/2019 09:28





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Date : 04-SEP-2019 18:48

Client ID:

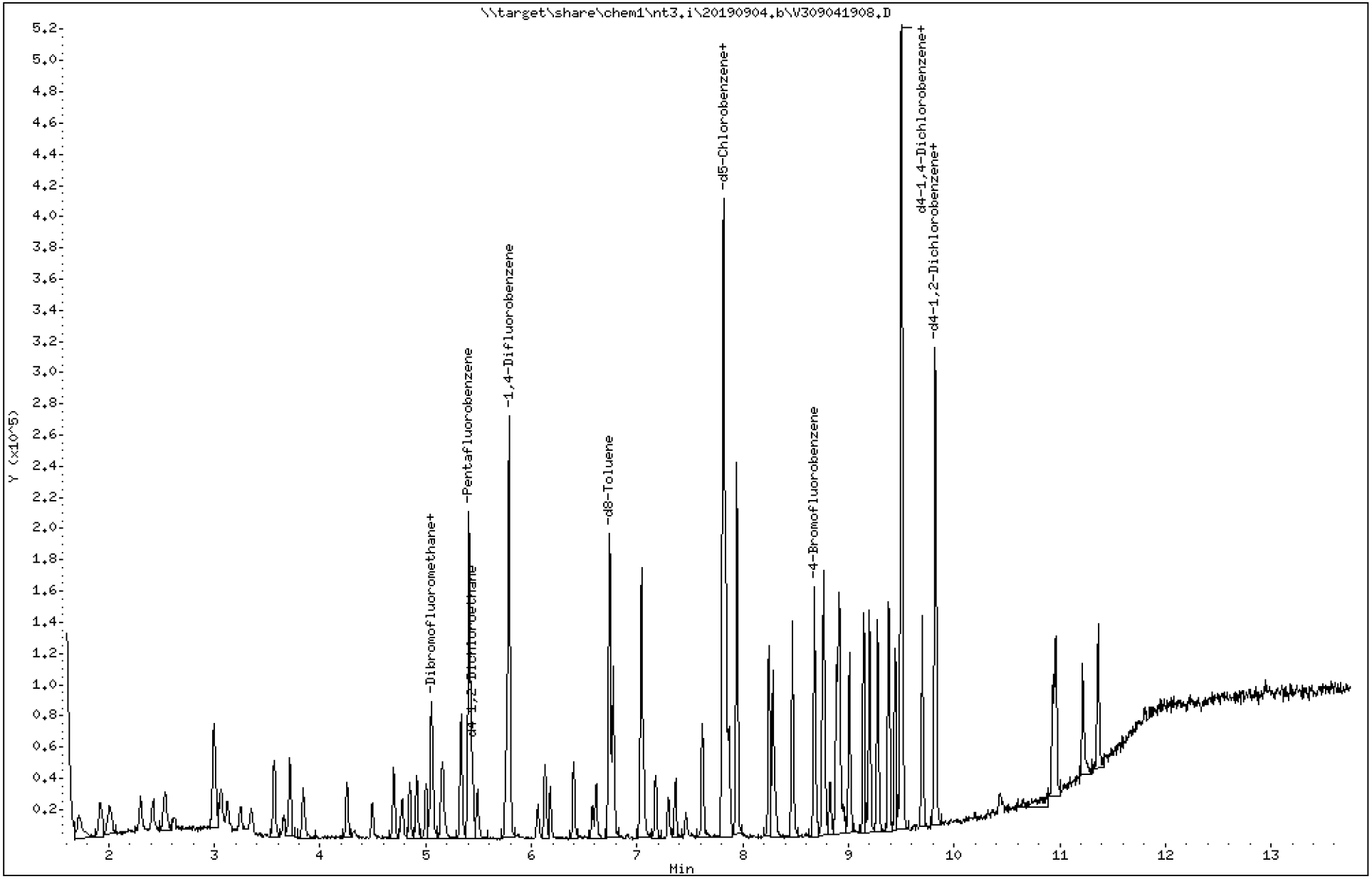
Sample Info: SHI0071-CAL4

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041908.D
Lab Smp Id: SHI0071-CAL4
Inj Date : 04-SEP-2019 18:48
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL4
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 18:48 Cal File: V309041908.D
Als bottle: 58 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.720	1.715	(0.318)	21548	2.00000	2.060
	2 Chloromethane	50	1.922	1.917	(0.355)	36369	2.00000	2.072(M)
	3 Vinyl Chloride	62	2.007	2.007	(0.371)	28617	2.00000	2.023
	4 Bromomethane	94	2.299	2.294	(0.425)	13133	2.00000	2.035
	5 Chloroethane	64	2.416	2.411	(0.447)	15665	2.00000	2.078
	6 Trichlorofluoromethane	101	2.533	2.523	(0.468)	23260	2.00000	2.022
	7 1,1-Dichloroethene	61	2.995	2.985	(0.554)	28060	2.00000	2.018
	8 Carbon Disulfide	76	3.001	2.996	(0.555)	41487	2.00000	2.032
	9 112Trichloro122Trifluoroethane	101	3.059	3.060	(0.566)	13799	2.00000	2.212
	10 Iodomethane	142	3.123	3.118	(0.577)	21464	2.00000	2.016
	11 Bromoethane	108	3.250	3.241	(0.601)	9044	2.00000	1.851
	12 Acrolein	56	3.341	3.336	(0.618)	13101	10.0000	10.590
	13 Methylene Chloride	84	3.569	3.560	(0.660)	16156	2.00000	2.521
	14 Acetone	43	3.654	3.639	(0.676)	20267	10.0000	11.380
	15 Trans-1,2-Dichloroethene	96	3.713	3.708	(0.687)	15876	2.00000	2.147
	17 Methyl tert butyl ether	73	3.840	3.836	(0.710)	26291	2.00000	2.089
	18 1,1-Dichloroethane	63	4.255	4.251	(0.787)	30095	2.00000	2.026
	19 Acrylonitrile	53	4.314	4.314	(0.798)	3735	2.00000	1.788(T)
	20 Vinyl Acetate	43	4.494	4.484	(0.831)	31821	2.00000	2.037(M)
	22 Cis-1,2-Dichloroethene	96	4.696	4.692	(0.868)	13973	2.00000	1.836
	23 2,2-Dichloropropane	77	4.771	4.771	(0.882)	14350	2.00000	2.078
	24 Bromochloromethane	128	4.850	4.846	(0.897)	7052	2.00000	2.134
	25 Chloroform	83	4.914	4.915	(0.909)	22919	2.00000	2.002
	26 Carbon Tetrachloride	117	4.999	5.000	(0.864)	18817	2.00000	1.917
$	27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24640	5.00000	5.087
	28 1,1,1-Trichloroethane	97	5.058	5.053	(0.935)	21651	2.00000	1.954
	30 1,1-Dichloropropene	75	5.153	5.149	(0.891)	18708	2.00000	1.996
	29 2-Butanone	43	5.164	5.159	(0.955)	30030	10.0000	10.334
	31 Benzene	78	5.339	5.330	(0.923)	56079	2.00000	1.989
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	112026	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	27979	5.00000	5.184
	34 1,2-Dichloroethane	62	5.488	5.484	(0.949)	17972	2.00000	1.970
	36 Trichloroethene	130	5.759	5.755	(0.995)	15362	2.00000	2.038
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	164722	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
	38 Dibromomethane	93	6.062	6.052	(1.048)	6763	2.00000	2.064
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	18192	2.00000	2.142
	40 Bromodichloromethane	83	6.179	6.175	(1.068)	16662	2.00000	1.966
	173 2-Pentanone	86	6.397	6.398	(1.106)	5965	10.0000	9.736
	41 2-Chloroethyl Vinyl Ether	63	6.573	6.573	(1.136)	7028	2.00000	1.951
	42 Cis 1,3-dichloropropene	75	6.615	6.611	(1.143)	21072	2.00000	1.945
$	43 d8-Toluene	98	6.737	6.738	(1.164)	97777	5.00000	4.907
	44 Toluene	92	6.775	6.770	(1.171)	37410	2.00000	2.035
	46 Tetrachloroethene	166	7.040	7.036	(0.901)	17134	2.00000	1.990
	45 4-Methyl-2-Pentanone	58	7.040	7.041	(1.217)	24912	10.0000	10.299
	47 Trans 1,3-Dichloropropene	75	7.067	7.062	(1.221)	17883	2.00000	1.954
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	10190	2.00000	2.022
	49 Chlorodibromomethane	129	7.301	7.296	(0.935)	11858	2.00000	1.927
	50 1,3-Dichloropropane	76	7.365	7.360	(0.943)	18431	2.00000	2.064
	51 1,2-Dibromoethane	107	7.466	7.461	(1.290)	10050	2.00000	2.014
	52 2-Hexanone	43	7.614	7.615	(0.975)	43523	10.0000	9.755
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	165834	10.0000	
	54 Chlorobenzene	112	7.827	7.823	(1.002)	43232	2.00000	2.024
	55 Ethyl Benzene	106	7.843	7.838	(1.004)	22874	2.00000	1.961
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	15413	2.00000	2.006
	57 m,p-xylene	106	7.944	7.945	(1.017)	56533	4.00000	3.936
	58 o-Xylene	106	8.247	8.248	(1.056)	27598	2.00000	1.903
	59 Styrene	104	8.284	8.285	(1.061)	41363	2.00000	1.843
	60 Bromoform	173	8.311	8.306	(0.875)	6598	2.00000	1.708
	61 Isopropyl Benzene	105	8.470	8.471	(0.892)	74614	2.00000	1.955
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	39071	5.00000	4.958
	63 Bromobenzene	156	8.757	8.758	(0.922)	20106	2.00000	1.937
	64 N-Propyl Benzene	91	8.768	8.769	(0.923)	87127	2.00000	1.991
	65 1,1,2,2-Tetrachloroethane	83	8.826	8.822	(0.929)	13409	2.00000	2.031
	66 2-Chloro Toluene	91	8.890	8.886	(0.936)	59708	2.00000	1.919
	67 1,3,5-Trimethyl Benzene	105	8.911	8.912	(0.938)	65896	2.00000	1.962
	68 1,2,3-Trichloropropane	110	8.927	8.923	(0.940)	4385	2.00000	2.000
	69 Trans-1,4-Dichloro 2-Butene	53	8.954	8.955	(0.943)	4841	2.00000	2.041
	70 4-Chloro Toluene	91	9.007	9.008	(0.949)	58225	2.00000	2.020
	71 T-Butyl Benzene	119	9.145	9.146	(0.963)	55765	2.00000	1.966
	72 1,2,4-Trimethylbenzene	105	9.198	9.199	(0.969)	67162	2.00000	1.972
	73 S-Butyl Benzene	105	9.278	9.274	(0.977)	80791	2.00000	2.037
	74 4-Isopropyl Toluene	119	9.385	9.380	(0.988)	70521	2.00000	1.982
	75 1,3-Dichlorobenzene	146	9.443	9.444	(0.994)	43192	2.00000	1.980
*	76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	107436	10.0000	
	77 1,4-Dichlorobenzene	146	9.507	9.508	(1.001)	42960	2.00000	1.972
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	58388	2.00000	1.917
$	79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49680	5.00000	4.921
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.035)	39081	2.00000	1.921
	81 1,2-Dibromo 3-Chloropropane	75	10.437	10.438	(1.099)	2574	2.00000	2.080
	83 Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.152)	11842	2.00000	2.039
	84 1,2,4-Trichlorobenzene	180	10.963	10.959	(1.154)	28002	2.00000	1.957
	85 Naphthalene	128	11.218	11.219	(1.181)	45210	2.00000	1.897
	86 1,2,3-Trichlorobenzene	180	11.367	11.363	(1.197)	23405	2.00000	2.009

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041908.D
Lab Smp Id: SHI0071-CAL4
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112026	15.61
37 1,4-Difluorobenze	140121	70061	280242	164722	17.56
53 d5-Chlorobenzene	140128	70064	280256	165834	18.34
76 d4-1,4-Dichlorobe	90137	45069	180274	107436	19.19

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041908.D

Lab ID: SHI0071-CAL4
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 18:48

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.318	1.000	-0.6820	Dichlorodifluoromethane
0.355	1.000	-0.6447	Chloromethane
0.371	1.000	-0.6289	Vinyl Chloride
0.425	1.000	-0.5749	Bromomethane
0.447	1.000	-0.5533	Chloroethane
0.468	1.000	-0.5316	Trichlorofluoromethane
0.554	1.000	-0.4462	1,1-Dichloroethene
0.555	1.000	-0.4452	Carbon Disulfide
0.566	1.000	-0.4344	112Trichloro122Trifluoroethane
0.577	1.000	-0.4226	Iodomethane
0.601	1.000	-0.3990	Bromoethane
0.618	1.000	-0.3823	Acrolein
0.660	1.000	-0.3400	Methylene Chloride
0.676	1.000	-0.3243	Acetone
0.687	1.000	-0.3135	Trans-1,2-Dichloroethene
0.710	1.000	-0.2899	Methyl tert butyl ether
0.787	1.000	-0.2133	1,1-Dichloroethane
0.798	1.000	-0.2025	Acrylonitrile
0.831	1.000	-0.1690	Vinyl Acetate
0.868	1.000	-0.1317	Cis-1,2-Dichloroethene
0.882	1.000	-0.1179	2,2-Dichloropropane
0.897	1.000	-0.1032	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.935	1.000	-0.0649	1,1,1-Trichloroethane
0.955	1.000	-0.0452	2-Butanone
0.934	1.000	-0.0658	Dibromofluoromethane
1.006	1.000	0.0059	d4-1,2-Dichloroethane

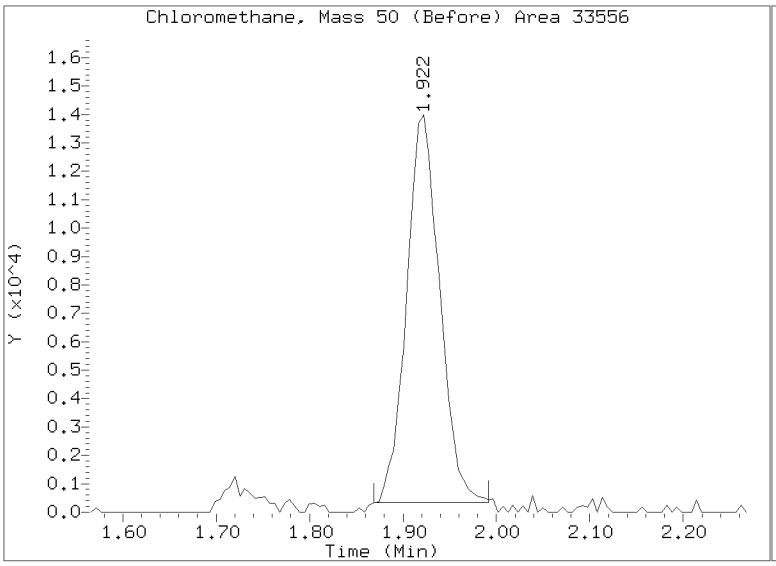
RRT check based on Ccal File: V309041912.D

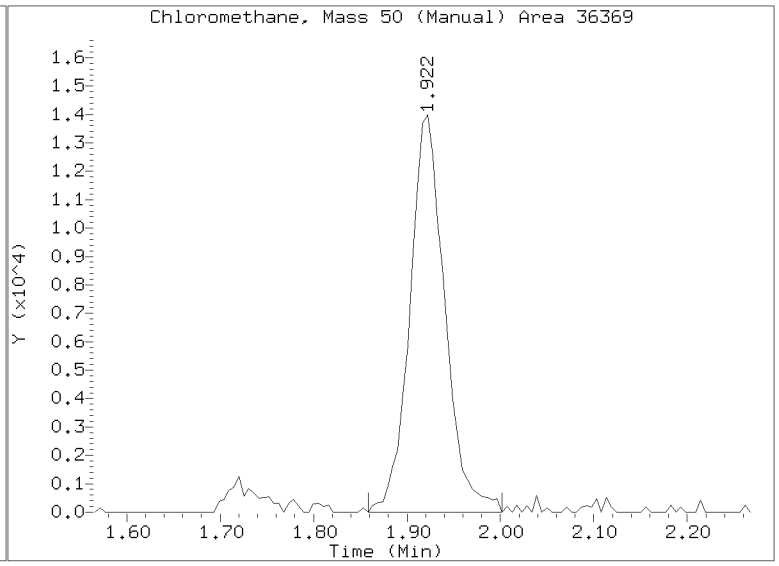
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

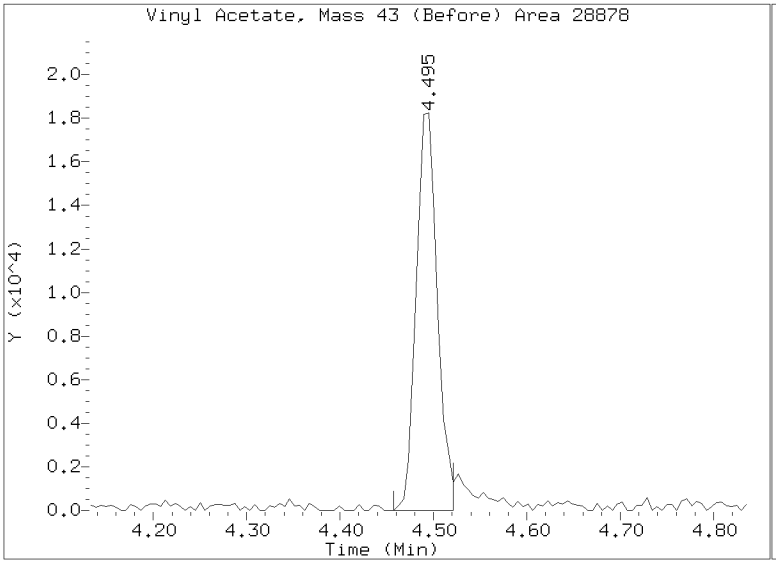
* Only compounds listed in the work order have been verified by the analyst *

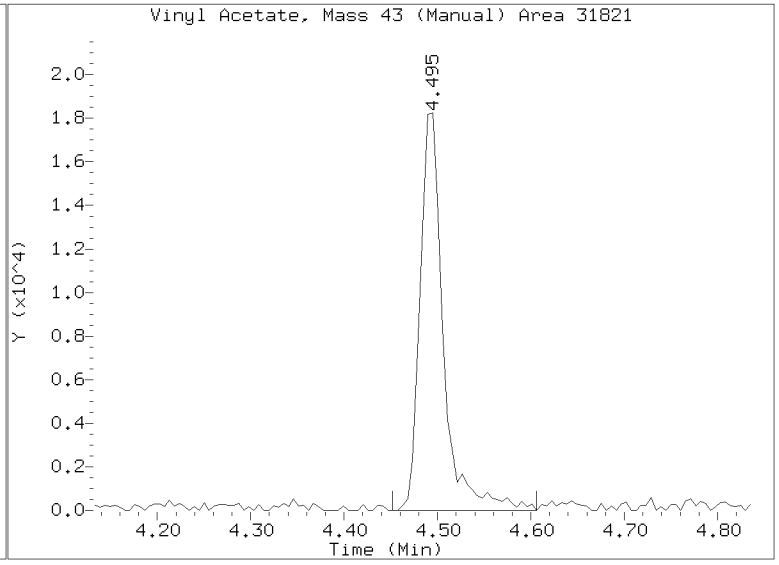
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041908.D
Injection Date: 04-SEP-2019 18:48
Lab ID:SHI0071-CAL4 Client ID:
Report Date: 09/06/2019 09:28









Data File: \\target\share\chem1\nt3.i\20190904.b\V309041909.D

Date : 04-SEP-2019 19:15

Client ID:

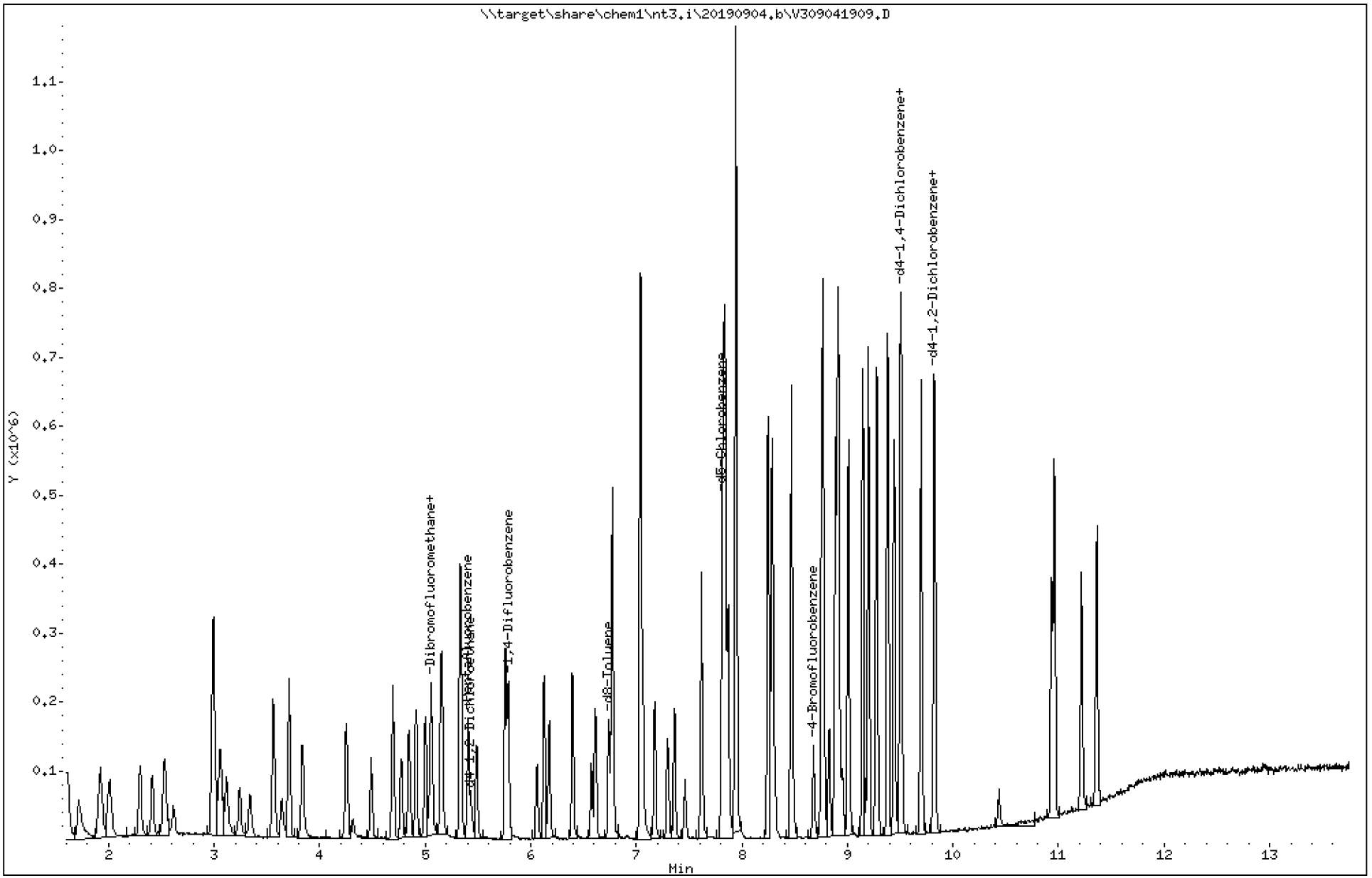
Instrument: nt3.i

Sample Info: SHI0071-CAL5

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041909.D
Lab Smp Id: SHI0071-CAL5
Inj Date : 04-SEP-2019 19:15
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL5
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 19:15 Cal File: V309041909.D
Als bottle: 59 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
1	Dichlorodifluoromethane	85	1.715	1.715	(0.317)	109279	10.0000	12.079(M)
2	Chloromethane	50	1.917	1.917	(0.354)	175265	10.0000	11.543(M)
3	Vinyl Chloride	62	2.007	2.007	(0.371)	138843	10.0000	11.350
4	Bromomethane	94	2.294	2.294	(0.424)	64229	10.0000	11.507(M)
5	Chloroethane	64	2.411	2.411	(0.446)	72880	10.0000	11.175
6	Trichlorofluoromethane	101	2.523	2.523	(0.466)	117302	10.0000	11.787
7	1,1-Dichloroethene	61	2.985	2.985	(0.552)	137816	10.0000	11.460
8	Carbon Disulfide	76	2.996	2.996	(0.554)	203471	10.0000	11.520
9	112Trichloro122Trifluoroethane	101	3.060	3.060	(0.566)	62494	10.0000	11.582
10	Iodomethane	142	3.118	3.118	(0.577)	104798	10.0000	11.382
11	Bromoethane	108	3.241	3.241	(0.599)	45441	10.0000	10.750
12	Acrolein	56	3.336	3.336	(0.617)	58418	50.0000	54.596
13	Methylene Chloride	84	3.560	3.560	(0.658)	68539	10.0000	12.366
14	Acetone	43	3.639	3.639	(0.673)	82204	50.0000	53.365
15	Trans-1,2-Dichloroethene	96	3.708	3.708	(0.686)	70777	10.0000	11.065
17	Methyl tert butyl ether	73	3.836	3.836	(0.709)	119301	10.0000	10.961
18	1,1-Dichloroethane	63	4.251	4.251	(0.786)	148391	10.0000	11.551
19	Acrylonitrile	53	4.314	4.314	(0.798)	21841	10.0000	12.087
20	Vinyl Acetate	43	4.484	4.484	(0.829)	148268	10.0000	10.974
22	Cis-1,2-Dichloroethene	96	4.692	4.692	(0.867)	73697	10.0000	11.197
23	2,2-Dichloropropane	77	4.771	4.771	(0.882)	65988	10.0000	11.045
24	Bromochloromethane	128	4.846	4.846	(0.896)	32885	10.0000	11.506
25	Chloroform	83	4.915	4.915	(0.909)	113675	10.0000	11.480
26	Carbon Tetrachloride	117	5.000	5.000	(0.864)	96675	10.0000	11.580
$ 27	Dibromofluoromethane	111	5.053	5.053	(0.934)	20844	5.00000	4.975
28	1,1,1-Trichloroethane	97	5.053	5.053	(0.934)	103370	10.0000	10.787
30	1,1-Dichloropropene	75	5.149	5.149	(0.890)	91525	10.0000	11.478
29	2-Butanone	43	5.159	5.159	(0.954)	141511	50.0000	56.298
31	Benzene	78	5.330	5.330	(0.921)	276342	10.0000	11.524

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	96897	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	22945	5.00000	4.915
	34 1,2-Dichloroethane	62	5.484	5.484	(0.948)	88571	10.0000	11.412
	36 Trichloroethene	130	5.755	5.755	(0.994)	78285	10.0000	12.207
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	140121	10.0000	
	38 Dibromomethane	93	6.052	6.052	(1.046)	33403	10.0000	11.983
	39 1,2-Dichloropropane	63	6.127	6.127	(1.059)	83978	10.0000	11.622
	40 Bromodichloromethane	83	6.175	6.175	(1.067)	85049	10.0000	11.794
	173 2-Pentanone	86	6.398	6.398	(1.106)	30829	50.0000	59.152
	41 2-Chloroethyl Vinyl Ether	63	6.573	6.573	(1.136)	36016	10.0000	11.754
	42 Cis 1,3-dichloropropene	75	6.611	6.611	(1.142)	109736	10.0000	11.905
$	43 d8-Toluene	98	6.738	6.738	(1.164)	84477	5.00000	4.984
	44 Toluene	92	6.770	6.770	(1.170)	176339	10.0000	11.278
	46 Tetrachloroethene	166	7.036	7.036	(0.901)	83097	10.0000	11.424
	45 4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	116182	50.0000	56.465
	47 Trans 1,3-Dichloropropene	75	7.062	7.062	(1.220)	93619	10.0000	12.027
	48 1,1,2-Trichloroethane	97	7.174	7.174	(1.240)	48954	10.0000	11.418
	49 Chlorodibromomethane	129	7.296	7.296	(0.934)	62210	10.0000	11.963
	50 1,3-Dichloropropane	76	7.360	7.360	(0.942)	91319	10.0000	12.101
	51 1,2-Dibromoethane	107	7.461	7.461	(1.289)	48919	10.0000	11.526(M)
	52 2-Hexanone	43	7.615	7.615	(0.975)	222013	50.0000	58.886
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	140128	10.0000	
	54 Chlorobenzene	112	7.823	7.823	(1.001)	210257	10.0000	11.647
	55 Ethyl Benzene	106	7.838	7.838	(1.003)	117521	10.0000	11.924
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	75984	10.0000	11.706
	57 m,p-xylene	106	7.945	7.945	(1.017)	290881	20.0000	23.967
	58 o-Xylene	106	8.248	8.248	(1.056)	147097	10.0000	12.006
	59 Styrene	104	8.285	8.285	(1.061)	229360	10.0000	12.093
	60 Bromoform	173	8.306	8.306	(0.875)	38066	10.0000	11.747
	61 Isopropyl Benzene	105	8.471	8.471	(0.892)	375067	10.0000	11.714
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	33932	5.00000	5.096
	63 Bromobenzene	156	8.758	8.758	(0.922)	100649	10.0000	11.556
	64 N-Propyl Benzene	91	8.769	8.769	(0.923)	442820	10.0000	12.058
	65 1,1,2,2-Tetrachloroethane	83	8.822	8.822	(0.929)	64472	10.0000	11.637
	66 2-Chloro Toluene	91	8.886	8.886	(0.936)	304092	10.0000	11.649
	67 1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	334830	10.0000	11.880
	68 1,2,3-Trichloropropane	110	8.923	8.923	(0.940)	20871	10.0000	11.347
	69 Trans-1,4-Dichloro 2-Butene	53	8.955	8.955	(0.943)	22865	10.0000	11.489(M)
	70 4-Chloro Toluene	91	9.008	9.008	(0.949)	286305	10.0000	11.839
	71 T-Butyl Benzene	119	9.146	9.146	(0.963)	279636	10.0000	11.750
	72 1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	334230	10.0000	11.697
	73 S-Butyl Benzene	105	9.274	9.274	(0.976)	392481	10.0000	11.797
	74 4-Isopropyl Toluene	119	9.380	9.380	(0.988)	353041	10.0000	11.825
	75 1,3-Dichlorobenzene	146	9.444	9.444	(0.994)	212937	10.0000	11.637
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	90137	10.0000	
	77 1,4-Dichlorobenzene	146	9.508	9.508	(1.001)	206880	10.0000	11.321
	78 N-Butyl Benzene	91	9.699	9.699	(1.021)	300952	10.0000	11.778
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	43482	5.00000	5.134
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.035)	196764	10.0000	11.530
	81 1,2-Dibromo 3-Chloropropane	75	10.438	10.438	(1.099)	12204	10.0000	11.757
	83 Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.152)	57825	10.0000	11.867
	84 1,2,4-Trichlorobenzene	180	10.959	10.959	(1.154)	141214	10.0000	11.763
	85 Naphthalene	128	11.219	11.219	(1.181)	229867	10.0000	11.494
	86 1,2,3-Trichlorobenzene	180	11.363	11.363	(1.196)	111268	10.0000	11.385

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041909.D
Lab Smp Id: SHI0071-CAL5
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	96897	0.00
37 1,4-Difluorobenze	140121	70061	280242	140121	0.00
53 d5-Chlorobenzene	140128	70064	280256	140128	0.00
76 d4-1,4-Dichlorobe	90137	45069	180274	90137	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041909.D

Lab ID: SHI0071-CAL5
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 19:15

RT	CO-ELUTION COMPOUNDS
5.054	Dibromofluoromethane and 1,1,1-Trichloroethane

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.317	1.000	-0.6829	Dichlorodifluoromethane
0.354	1.000	-0.6456	Chloromethane
0.371	1.000	-0.6289	Vinyl Chloride
0.424	1.000	-0.5758	Bromomethane
0.446	1.000	-0.5542	Chloroethane
0.466	1.000	-0.5335	Trichlorofluoromethane
0.552	1.000	-0.4480	1,1-Dichloroethene
0.554	1.000	-0.4461	Carbon Disulfide
0.566	1.000	-0.4343	112Trichloro122Trifluoroethane
0.577	1.000	-0.4235	Iodomethane
0.599	1.000	-0.4009	Bromoethane
0.617	1.000	-0.3832	Acrolein
0.658	1.000	-0.3419	Methylene Chloride
0.673	1.000	-0.3272	Acetone
0.686	1.000	-0.3144	Trans-1,2-Dichloroethene
0.709	1.000	-0.2909	Methyl tert butyl ether
0.786	1.000	-0.2142	1,1-Dichloroethane
0.798	1.000	-0.2024	Acrylonitrile
0.829	1.000	-0.1710	Vinyl Acetate
0.867	1.000	-0.1327	Cis-1,2-Dichloroethene
0.882	1.000	-0.1179	2,2-Dichloropropane
0.896	1.000	-0.1042	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.934	1.000	-0.0658	1,1,1-Trichloroethane
0.954	1.000	-0.0462	2-Butanone
0.934	1.000	-0.0658	Dibromofluoromethane

RRT check based on Ccal File: V309041912.D

On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041909.D
Injection Date: 04-SEP-2019 19:15
Lab ID:SHI0071-CAL5 Client ID:
Report Date: 09/06/2019 09:28

Data File: \\target\share\chem1\nt3.i\20190904.b\W309041910.D

Date : 04-SEP-2019 19:41

Client ID:

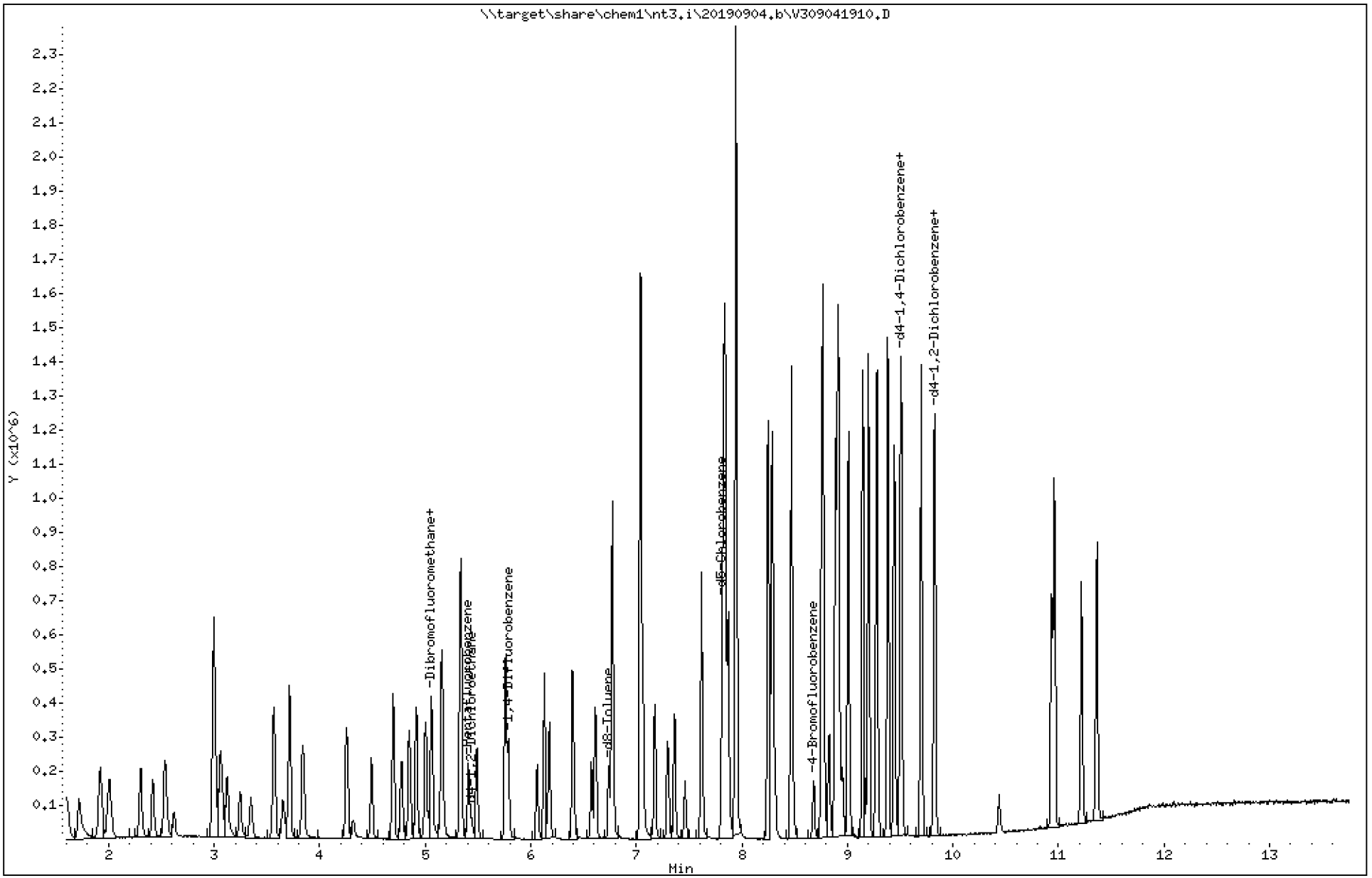
Instrument: nt3.i

Sample Info: SHI0071-CAL6

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041910.D
Lab Smp Id: SHI0071-CAL6
Inj Date : 04-SEP-2019 19:41
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL6
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 19:41 Cal File: V309041910.D
Als bottle: 60 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.715	1.715	(0.317)	215580	20.0000	19.741(M)
	2 Chloromethane	50	1.917	1.917	(0.354)	337247	20.0000	18.400
	3 Vinyl Chloride	62	2.008	2.007	(0.371)	269494	20.0000	18.250
	4 Bromomethane	94	2.305	2.294	(0.426)	123009	20.0000	18.257
	5 Chloroethane	64	2.417	2.411	(0.447)	141867	20.0000	18.021
	6 Trichlorofluoromethane	101	2.534	2.523	(0.468)	226301	20.0000	18.838
	7 1,1-Dichloroethene	61	2.991	2.985	(0.553)	267246	20.0000	18.410
	8 Carbon Disulfide	76	3.002	2.996	(0.555)	400707	20.0000	18.795
	9 112Trichloro122Trifluoroethane	101	3.060	3.060	(0.566)	124165	20.0000	19.063
	10 Iodomethane	142	3.124	3.118	(0.578)	206857	20.0000	18.612
	11 Bromoethane	108	3.246	3.241	(0.600)	93072	20.0000	18.240
	12 Acrolein	56	3.347	3.336	(0.619)	115418	100.000	89.360
	13 Methylene Chloride	84	3.565	3.560	(0.659)	129849	20.0000	19.408
	14 Acetone	43	3.650	3.639	(0.675)	172157	100.000	92.586
	15 Trans-1,2-Dichloroethene	96	3.714	3.708	(0.687)	139467	20.0000	18.063
	17 Methyl tert butyl ether	73	3.841	3.836	(0.710)	235554	20.0000	17.929
	18 1,1-Dichloroethane	63	4.256	4.251	(0.787)	290778	20.0000	18.751
	19 Acrylonitrile	53	4.320	4.314	(0.799)	40850	20.0000	18.728
	20 Vinyl Acetate	43	4.490	4.484	(0.830)	299532	20.0000	18.367
	22 Cis-1,2-Dichloroethene	96	4.692	4.692	(0.867)	145697	20.0000	18.338
	23 2,2-Dichloropropane	77	4.777	4.771	(0.883)	131534	20.0000	18.239
	24 Bromochloromethane	128	4.846	4.846	(0.896)	64682	20.0000	18.749
	25 Chloroform	83	4.915	4.915	(0.909)	225028	20.0000	18.827
	26 Carbon Tetrachloride	117	5.000	5.000	(0.864)	189938	20.0000	18.858
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	24916	5.00000	4.927
	28 1,1,1-Trichloroethane	97	5.059	5.053	(0.935)	218066	20.0000	18.852
	30 1,1-Dichloropropene	75	5.149	5.149	(0.890)	183214	20.0000	19.045
	29 2-Butanone	43	5.160	5.159	(0.954)	292872	100.000	96.524
	31 Benzene	78	5.335	5.330	(0.922)	544923	20.0000	18.836
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	116965	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.436	(1.006)	28544	5.00000	5.066
	34 1,2-Dichloroethane	62	5.489	5.484	(0.949)	173784	20.0000	18.560
	36 Trichloroethene	130	5.760	5.755	(0.995)	148544	20.0000	19.199
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	169050	10.0000	

		QUANT SIG					AMOUNTS CAL-AMT	AMOUNTS ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
38	Dibromomethane	93	6.058	6.052	(1.047)	64345	20.0000	19.133
39	1,2-Dichloropropane	63	6.127	6.127	(1.059)	164327	20.0000	18.849
40	Bromodichloromethane	83	6.175	6.175	(1.067)	166772	20.0000	19.170
173	2-Pentanone	86	6.398	6.398	(1.106)	63531	100.000	101.04
41	2-Chloroethyl Vinyl Ether	63	6.574	6.573	(1.136)	70893	20.0000	19.177
42	Cis 1,3-dichloropropene	75	6.611	6.611	(1.142)	218292	20.0000	19.630
$ 43	d8-Toluene	98	6.738	6.738	(1.164)	104227	5.00000	5.096
44	Toluene	92	6.770	6.770	(1.170)	362826	20.0000	19.233
46	Tetrachloroethene	166	7.036	7.036	(0.901)	167921	20.0000	18.852
45	4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	244722	100.000	98.583
47	Trans 1,3-Dichloropropene	75	7.063	7.062	(1.220)	186504	20.0000	19.860
48	1,1,2-Trichloroethane	97	7.174	7.174	(1.240)	98666	20.0000	19.075
49	Chlorodibromomethane	129	7.297	7.296	(0.934)	126414	20.0000	19.852
50	1,3-Dichloropropane	76	7.360	7.360	(0.942)	176734	20.0000	19.125
51	1,2-Dibromoethane	107	7.461	7.461	(1.289)	96989	20.0000	18.941
52	2-Hexanone	43	7.615	7.615	(0.975)	456646	100.000	98.911
* 53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	171592	10.0000	
54	Chlorobenzene	112	7.828	7.823	(1.002)	425022	20.0000	19.227
55	Ethyl Benzene	106	7.839	7.838	(1.003)	232168	20.0000	19.237
56	1,1,1,2-Tetrachloroethane	131	7.871	7.870	(1.007)	154250	20.0000	19.407
57	m,p-xylene	106	7.945	7.945	(1.017)	581009	40.0000	39.093
58	o-Xylene	106	8.248	8.248	(1.056)	294651	20.0000	19.639
59	Styrene	104	8.285	8.285	(1.061)	469169	20.0000	20.201
60	Bromoform	173	8.312	8.306	(0.875)	80003	20.0000	20.435
61	Isopropyl Benzene	105	8.471	8.471	(0.892)	750643	20.0000	19.405
$ 62	4-Bromofluorobenzene	174	8.679	8.678	(1.111)	42813	5.00000	5.251
63	Bromobenzene	156	8.758	8.758	(0.922)	202353	20.0000	19.230
64	N-Propyl Benzene	91	8.769	8.769	(0.923)	884771	20.0000	19.943
65	1,1,2,2-Tetrachloroethane	83	8.827	8.822	(0.929)	127476	20.0000	19.045
66	2-Chloro Toluene	91	8.886	8.886	(0.936)	619151	20.0000	19.632
67	1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	664974	20.0000	19.529
68	1,2,3-Trichloropropane	110	8.928	8.923	(0.940)	40529	20.0000	18.239
69	Trans-1,4-Dichloro 2-Butene	53	8.955	8.955	(0.943)	46037	20.0000	19.146
70	4-Chloro Toluene	91	9.008	9.008	(0.949)	571124	20.0000	19.549
71	T-Butyl Benzene	119	9.146	9.146	(0.963)	565588	20.0000	19.671
72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	675580	20.0000	19.571
73	S-Butyl Benzene	105	9.279	9.274	(0.977)	798635	20.0000	19.869
74	4-Isopropyl Toluene	119	9.380	9.380	(0.988)	713277	20.0000	19.775
75	1,3-Dichlorobenzene	146	9.444	9.444	(0.994)	416525	20.0000	18.841
* 76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	108898	10.0000	
77	1,4-Dichlorobenzene	146	9.508	9.508	(1.001)	419389	20.0000	18.996
78	N-Butyl Benzene	91	9.699	9.699	(1.021)	606216	20.0000	19.638
$ 79	d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	51185	5.00000	5.002
80	1,2-Dichlorobenzene	146	9.827	9.826	(1.035)	382942	20.0000	18.573
81	1,2-Dibromo 3-Chloropropane	75	10.438	10.438	(1.099)	24598	20.0000	19.615
83	Hexachloro 1,3-Butadiene	225	10.938	10.938	(1.152)	117850	20.0000	20.018
84	1,2,4-Trichlorobenzene	180	10.959	10.959	(1.154)	279806	20.0000	19.293
85	Naphthalene	128	11.219	11.219	(1.181)	460352	20.0000	19.052
86	1,2,3-Trichlorobenzene	180	11.363	11.363	(1.196)	224425	20.0000	19.007

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041910.D
Lab Smp Id: SHI0071-CAL6
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	116965	20.71
37 1,4-Difluorobenze	140121	70061	280242	169050	20.65
53 d5-Chlorobenzene	140128	70064	280256	171592	22.45
76 d4-1,4-Dichlorobe	90137	45069	180274	108898	20.81

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041910.D

Lab ID: SHI0071-CAL6
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 19:41

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.317	1.000	-0.6829	Dichlorodifluoromethane
0.354	1.000	-0.6455	Chloromethane
0.371	1.000	-0.6288	Vinyl Chloride
0.426	1.000	-0.5738	Bromomethane
0.447	1.000	-0.5532	Chloroethane
0.468	1.000	-0.5315	Trichlorofluoromethane
0.553	1.000	-0.4470	1,1-Dichloroethene
0.555	1.000	-0.4451	Carbon Disulfide
0.566	1.000	-0.4343	112Trichloro122Trifluoroethane
0.578	1.000	-0.4225	Iodomethane
0.600	1.000	-0.3999	Bromoethane
0.619	1.000	-0.3812	Acrolein
0.659	1.000	-0.3409	Methylene Chloride
0.675	1.000	-0.3252	Acetone
0.687	1.000	-0.3134	Trans-1,2-Dichloroethene
0.710	1.000	-0.2899	Methyl tert butyl ether
0.787	1.000	-0.2132	1,1-Dichloroethane
0.799	1.000	-0.2014	Acrylonitrile
0.830	1.000	-0.1700	Vinyl Acetate
0.867	1.000	-0.1327	Cis-1,2-Dichloroethene
0.883	1.000	-0.1169	2,2-Dichloropropane
0.896	1.000	-0.1041	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.935	1.000	-0.0648	1,1,1-Trichloroethane
0.954	1.000	-0.0462	2-Butanone
0.933	1.000	-0.0668	Dibromofluoromethane
1.006	1.000	0.0059	d4-1,2-Dichloroethane

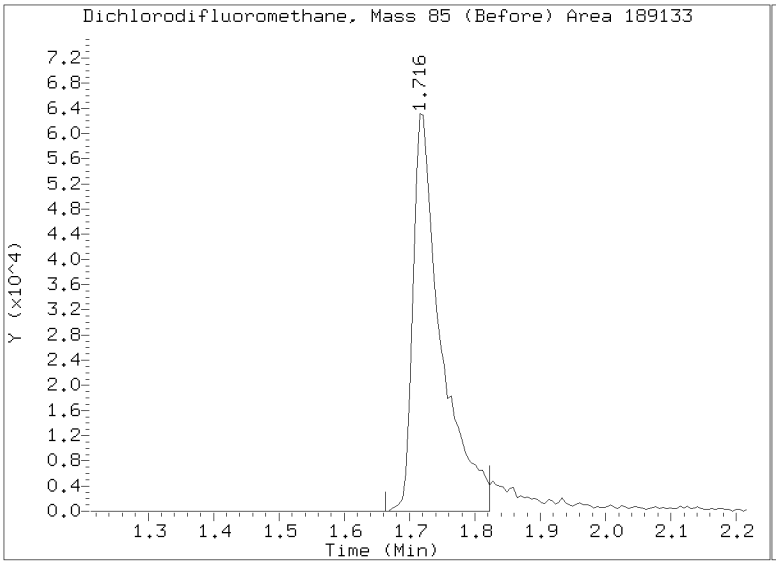
RRT check based on Ccal File: V309041912.D

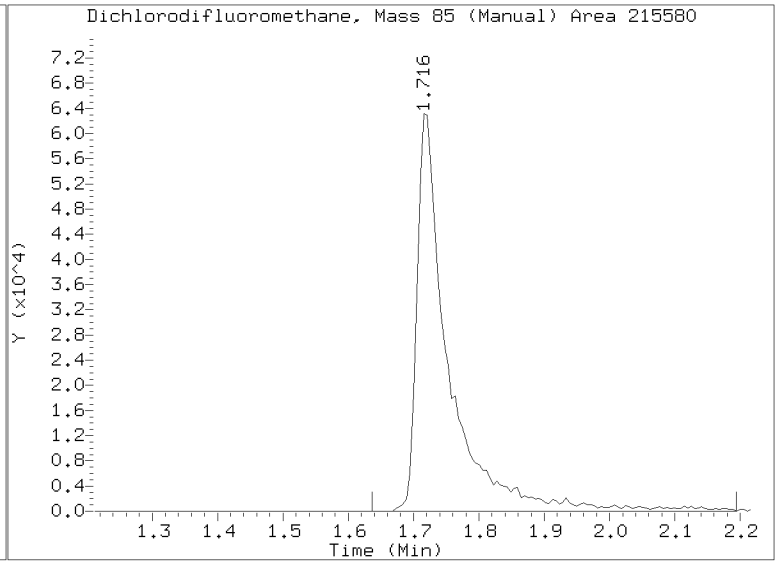
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041910.D
Injection Date: 04-SEP-2019 19:41
Lab ID:SHI0071-CAL6 Client ID:
Report Date: 09/06/2019 09:28





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Date : 04-SEP-2019 20:08

Client ID:

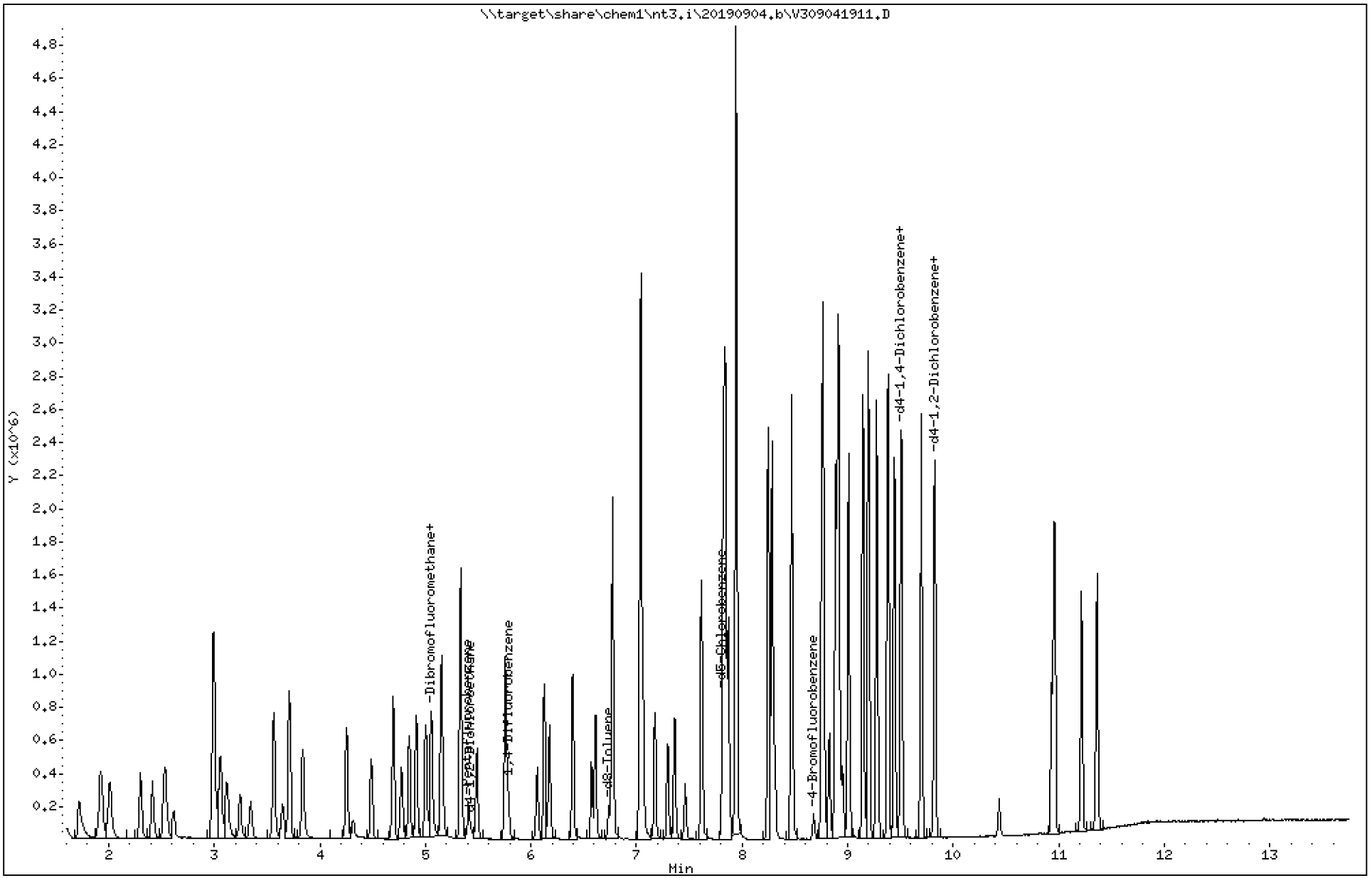
Instrument: nt3.i

Sample Info: SHI0071-CAL7

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

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Lab Smp Id: SHI0071-CAL7
Inj Date : 04-SEP-2019 20:08
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL7
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 20:08 Cal File: V309041911.D
Als bottle: 61 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.719	1.715	(0.318)	413855	40.0000	41.573(M)
	2 Chloromethane	50	1.921	1.917	(0.355)	678549	40.0000	40.612(M)
	3 Vinyl Chloride	62	2.012	2.007	(0.372)	546013	40.0000	40.562
	4 Bromomethane	94	2.299	2.294	(0.425)	252228	40.0000	41.067
	5 Chloroethane	64	2.416	2.411	(0.447)	279200	40.0000	38.905
	6 Trichlorofluoromethane	101	2.532	2.523	(0.468)	435601	40.0000	39.778
	7 1,1-Dichloroethene	61	2.990	2.985	(0.553)	535711	40.0000	40.484
	8 Carbon Disulfide	76	2.995	2.996	(0.554)	809367	40.0000	41.645
	9 112Trichloro122Trifluoroethane	101	3.059	3.060	(0.566)	245972	40.0000	41.427
	10 Iodomethane	142	3.117	3.118	(0.576)	418188	40.0000	41.277
	11 Bromoethane	108	3.245	3.241	(0.600)	185521	40.0000	39.884
	12 Acrolein	56	3.346	3.336	(0.619)	223728	200.000	190.02
	13 Methylene Chloride	84	3.564	3.560	(0.659)	263383	40.0000	43.185
	14 Acetone	43	3.649	3.639	(0.675)	326073	200.000	192.37
	15 Trans-1,2-Dichloroethene	96	3.713	3.708	(0.686)	282582	40.0000	40.148
	17 Methyl tert butyl ether	73	3.840	3.836	(0.710)	480656	40.0000	40.134
	18 1,1-Dichloroethane	63	4.255	4.251	(0.787)	580111	40.0000	41.038
	19 Acrylonitrile	53	4.313	4.314	(0.798)	81748	40.0000	41.114
	20 Vinyl Acetate	43	4.489	4.484	(0.830)	611740	40.0000	41.149
	22 Cis-1,2-Dichloroethene	96	4.696	4.692	(0.868)	293419	40.0000	40.514
	23 2,2-Dichloropropane	77	4.776	4.771	(0.883)	251031	40.0000	38.184
	24 Bromochloromethane	128	4.850	4.846	(0.897)	128792	40.0000	40.954
	25 Chloroform	83	4.914	4.915	(0.909)	447748	40.0000	41.094
	26 Carbon Tetrachloride	117	5.004	5.000	(0.865)	383055	40.0000	40.059
$	27 Dibromofluoromethane	111	5.047	5.053	(0.933)	23647	5.00000	5.129
	28 1,1,1-Trichloroethane	97	5.057	5.053	(0.935)	448792	40.0000	42.563
	30 1,1-Dichloropropene	75	5.148	5.149	(0.890)	359042	40.0000	39.312
	29 2-Butanone	43	5.158	5.159	(0.954)	581465	200.000	210.23
	31 Benzene	78	5.334	5.330	(0.922)	1074847	40.0000	39.133
*	32 Pentafluorobenzene	168	5.408	5.409	(1.000)	106623	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.435	5.436	(1.005)	25319	5.00000	4.929
	34 1,2-Dichloroethane	62	5.488	5.484	(0.949)	344881	40.0000	38.795
	36 Trichloroethene	130	5.759	5.755	(0.995)	304852	40.0000	41.501
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	160497	10.0000	

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
	38 Dibromomethane	93	6.057	6.052	(1.047)	127882	40.0000	40.052
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	333114	40.0000	40.246
	40 Bromodichloromethane	83	6.174	6.175	(1.067)	330784	40.0000	40.049
	173 2-Pentanone	86	6.397	6.398	(1.106)	123582	200.000	207.01
	41 2-Chloroethyl Vinyl Ether	63	6.572	6.573	(1.136)	145327	40.0000	41.408
	42 Cis 1,3-dichloropropene	75	6.609	6.611	(1.142)	431168	40.0000	40.839
$	43 d8-Toluene	98	6.737	6.738	(1.164)	96297	5.00000	4.960
	44 Toluene	92	6.774	6.770	(1.171)	717156	40.0000	40.042
	46 Tetrachloroethene	166	7.040	7.036	(0.901)	331887	40.0000	39.350
	45 4-Methyl-2-Pentanone	58	7.040	7.041	(1.217)	476080	200.000	202.00
	47 Trans 1,3-Dichloropropene	75	7.061	7.062	(1.220)	376184	40.0000	42.193
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	196809	40.0000	40.076
	49 Chlorodibromomethane	129	7.295	7.296	(0.934)	255329	40.0000	42.344
	50 1,3-Dichloropropane	76	7.364	7.360	(0.943)	356772	40.0000	40.773
	51 1,2-Dibromoethane	107	7.460	7.461	(1.289)	194843	40.0000	40.078
	52 2-Hexanone	43	7.614	7.615	(0.975)	929039	200.000	212.52
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	162481	10.0000	
	54 Chlorobenzene	112	7.827	7.823	(1.002)	848338	40.0000	40.530
	55 Ethyl Benzene	106	7.843	7.838	(1.004)	464072	40.0000	40.608
	56 1,1,1,2-Tetrachloroethane	131	7.869	7.870	(1.007)	307596	40.0000	40.870
	57 m,p-xylene	106	7.944	7.945	(1.017)	1144061	80.0000	81.295
	58 o-Xylene	106	8.247	8.248	(1.056)	586546	40.0000	41.286
	59 Styrene	104	8.284	8.285	(1.061)	960361	40.0000	43.669
	60 Bromoform	173	8.310	8.306	(0.875)	167873	40.0000	44.654
	61 Isopropyl Benzene	105	8.470	8.471	(0.891)	1477309	40.0000	39.772
$	62 4-Bromofluorobenzene	174	8.682	8.678	(1.112)	38464	5.00000	4.982
	63 Bromobenzene	156	8.757	8.758	(0.922)	398741	40.0000	39.463
	64 N-Propyl Benzene	91	8.768	8.769	(0.923)	1716759	40.0000	40.298
	65 1,1,2,2-Tetrachloroethane	83	8.826	8.822	(0.929)	264773	40.0000	41.196
	66 2-Chloro Toluene	91	8.890	8.886	(0.936)	1210707	40.0000	39.979
	67 1,3,5-Trimethyl Benzene	105	8.911	8.912	(0.938)	1318076	40.0000	40.313
	68 1,2,3-Trichloropropane	110	8.927	8.923	(0.940)	81471	40.0000	38.182(M)
	69 Trans-1,4-Dichloro 2-Butene	53	8.954	8.955	(0.942)	94697	40.0000	41.014
	70 4-Chloro Toluene	91	9.007	9.008	(0.948)	1132538	40.0000	40.370
	71 T-Butyl Benzene	119	9.145	9.146	(0.963)	1086715	40.0000	39.362
	72 1,2,4-Trimethylbenzene	105	9.198	9.199	(0.968)	1347428	40.0000	40.650
	73 S-Butyl Benzene	105	9.278	9.274	(0.977)	1492619	40.0000	38.673
	74 4-Isopropyl Toluene	119	9.384	9.380	(0.988)	1357495	40.0000	39.194
	75 1,3-Dichlorobenzene	146	9.443	9.444	(0.994)	827250	40.0000	38.970
*	76 d4-1,4-Dichlorobenzene	152	9.501	9.497	(1.000)	104567	10.0000	
	77 1,4-Dichlorobenzene	146	9.512	9.508	(1.001)	824821	40.0000	38.907
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	1105437	40.0000	37.292
$	79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49538	5.00000	5.042
	80 1,2-Dichlorobenzene	146	9.825	9.826	(1.034)	763451	40.0000	38.562
	81 1,2-Dibromo 3-Chloropropane	75	10.437	10.438	(1.098)	46056	40.0000	38.246
	83 Hexachloro 1,3-Butadiene	225	10.936	10.938	(1.151)	154885	40.0000	27.399
	84 1,2,4-Trichlorobenzene	180	10.963	10.959	(1.154)	527315	40.0000	37.865
	85 Naphthalene	128	11.218	11.219	(1.181)	931766	40.0000	40.160
	86 1,2,3-Trichlorobenzene	180	11.361	11.363	(1.196)	427213	40.0000	37.680

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041911.D
Lab Smp Id: SHI0071-CAL7
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	106623	10.04
37 1,4-Difluorobenze	140121	70061	280242	160497	14.54
53 d5-Chlorobenzene	140128	70064	280256	162481	15.95
76 d4-1,4-Dichlorobe	90137	45069	180274	104567	16.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.02
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041911.D

Lab ID: SHI0071-CAL7
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 20:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.318	1.000	-0.6821	Dichlorodifluoromethane
0.355	1.000	-0.6447	Chloromethane
0.372	1.000	-0.6280	Vinyl Chloride
0.425	1.000	-0.5749	Bromomethane
0.447	1.000	-0.5533	Chloroethane
0.468	1.000	-0.5317	Trichlorofluoromethane
0.553	1.000	-0.4472	1,1-Dichloroethene
0.554	1.000	-0.4462	Carbon Disulfide
0.566	1.000	-0.4344	112Trichloro122Trifluoroethane
0.576	1.000	-0.4236	Iodomethane
0.600	1.000	-0.4000	Bromoethane
0.619	1.000	-0.3813	Acrolein
0.659	1.000	-0.3410	Methylene Chloride
0.675	1.000	-0.3253	Acetone
0.686	1.000	-0.3135	Trans-1,2-Dichloroethene
0.710	1.000	-0.2899	Methyl tert butyl ether
0.787	1.000	-0.2133	1,1-Dichloroethane
0.798	1.000	-0.2025	Acrylonitrile
0.830	1.000	-0.1700	Vinyl Acetate
0.868	1.000	-0.1317	Cis-1,2-Dichloroethene
0.883	1.000	-0.1170	2,2-Dichloropropane
0.897	1.000	-0.1032	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.935	1.000	-0.0649	1,1,1-Trichloroethane
0.954	1.000	-0.0462	2-Butanone
0.933	1.000	-0.0668	Dibromofluoromethane

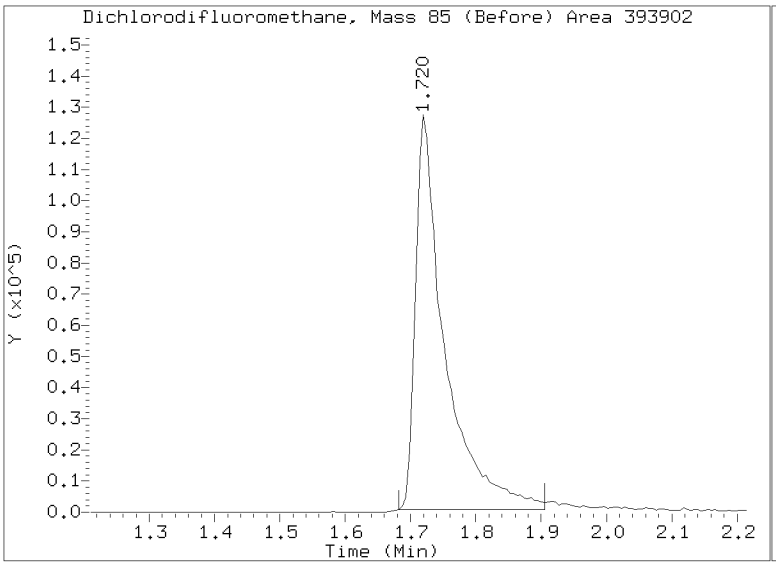
RRT check based on Ccal File: V309041912.D

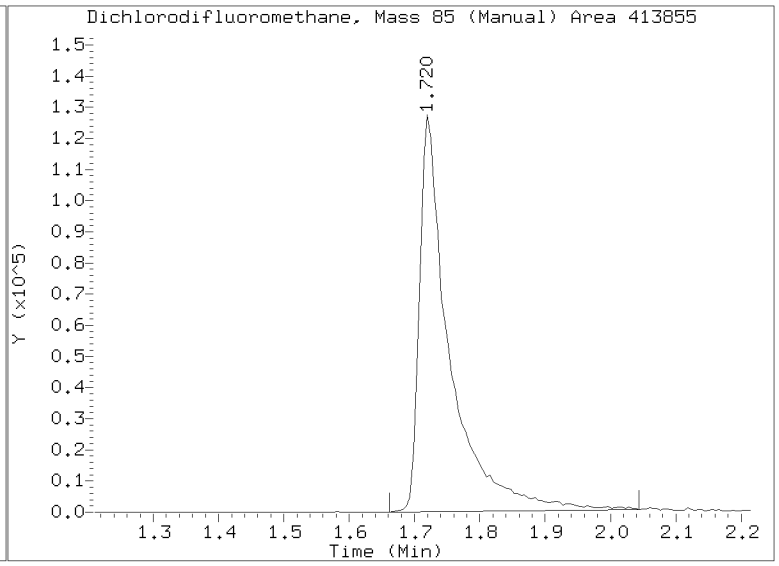
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

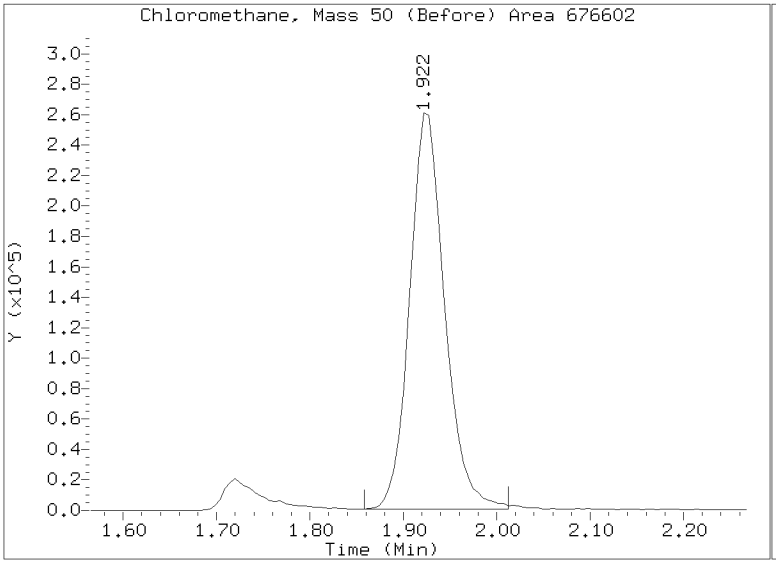
* Only compounds listed in the work order have been verified by the analyst *

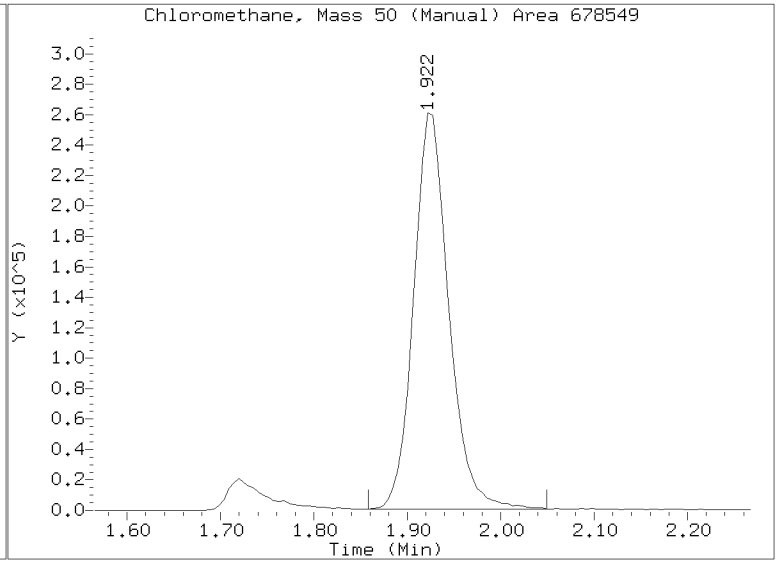
Quant Ion Manual Peak Adjustment Report

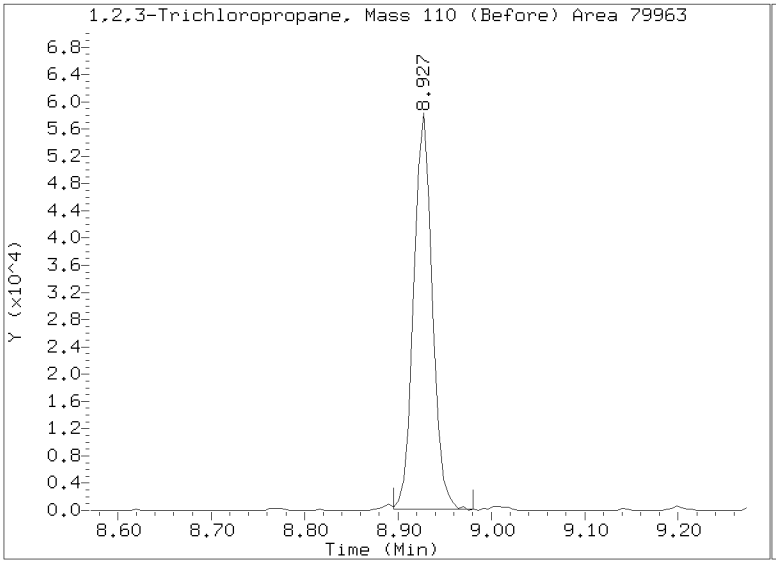
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041911.D
Injection Date: 04-SEP-2019 20:08
Lab ID:SHI0071-CAL7 Client ID:
Report Date: 09/06/2019 09:28

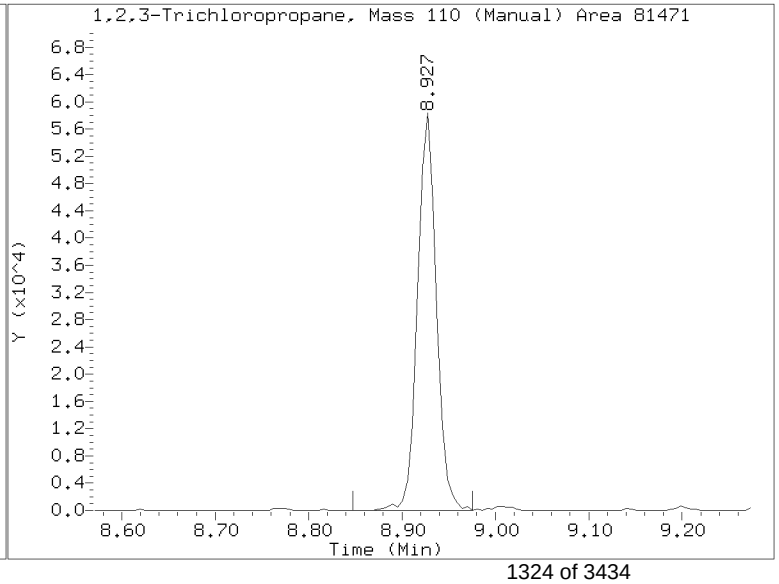












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041912.D

Date : 04-SEP-2019 20:35

Client ID:

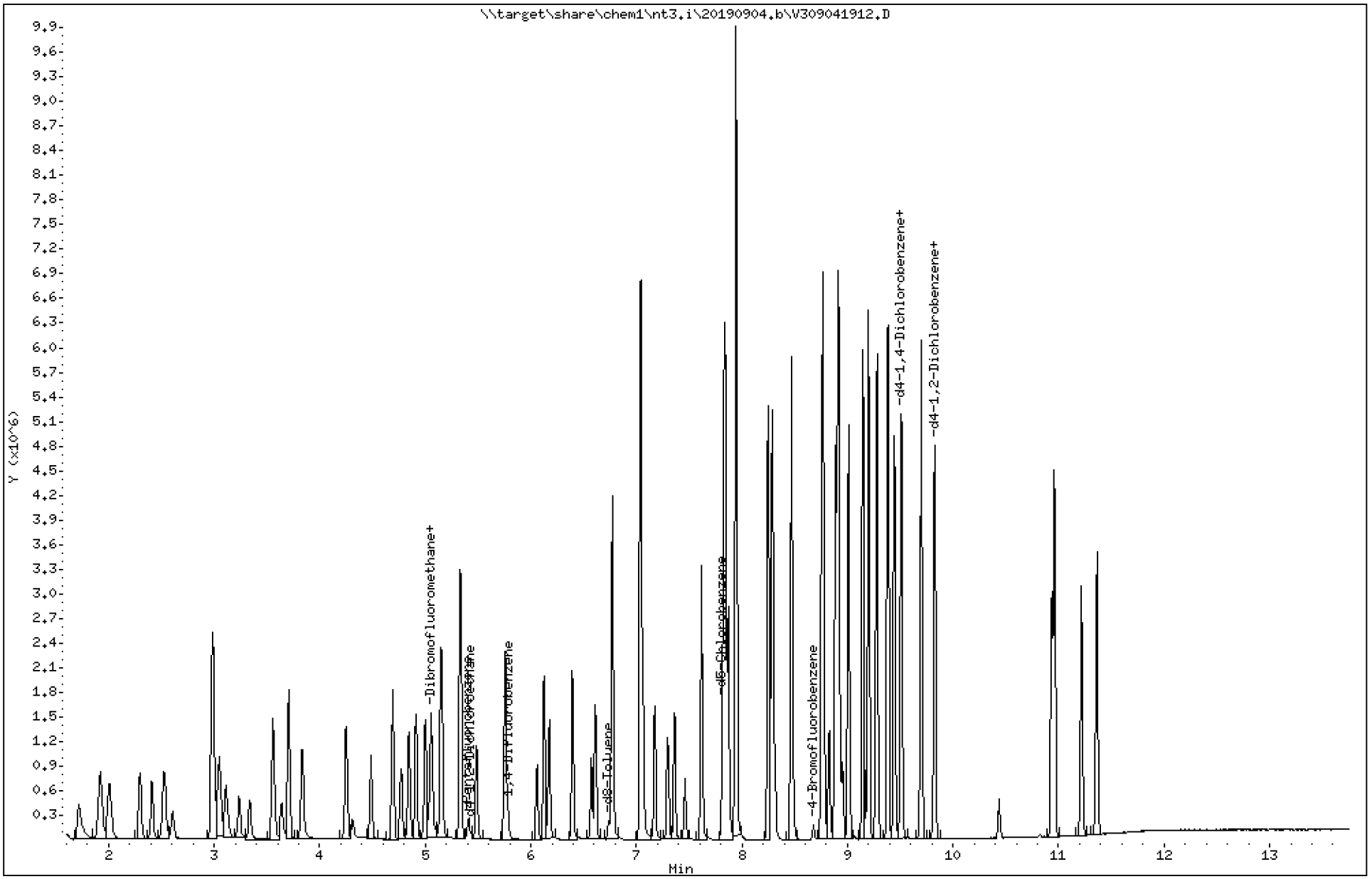
Instrument: nt3.i

Sample Info: SHI0071-CAL8

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041912.D
Lab Smp Id: SHI0071-CAL8
Inj Date : 04-SEP-2019 20:35
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-CAL8
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 62 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)	
	1 Dichlorodifluoromethane	85	1.715	1.715	(1.000)	825393	80.0000	73.087	
	2 Chloromethane	50	1.917	1.917	(1.000)	1414295	80.0000	74.615	
	3 Vinyl Chloride	62	2.007	2.007	(1.000)	1147124	80.0000	75.117	
	4 Bromomethane	94	2.294	2.294	(1.000)	520512	80.0000	74.705	
	5 Chloroethane	64	2.406	2.411	(1.000)	573871	80.0000	70.488	
	6 Trichlorofluoromethane	101	2.523	2.523	(1.000)	877495	80.0000	70.633	
	7 1,1-Dichloroethene	61	2.980	2.985	(1.000)	1125359	80.0000	74.964	
	8 Carbon Disulfide	76	2.985	2.996	(1.000)	1656341	80.0000	75.123	
	9 112Trichloro122Trifluoroethane	101	3.049	3.060	(1.000)	512322	80.0000	76.060	
	10 Iodomethane	142	3.108	3.118	(1.000)	861310	80.0000	74.939	
	11 Bromoethane	108	3.235	3.241	(1.000)	379665	80.0000	71.949	
	12 Acrolein	56	3.336	3.336	(1.000)	476675	400.000	356.87	
	13 Methylene Chloride	84	3.559	3.560	(1.000)	539542	80.0000	77.980	
	14 Acetone	43	3.639	3.639	(1.000)	674165	400.000	350.59	
	15 Trans-1,2-Dichloroethene	96	3.703	3.708	(1.000)	581468	80.0000	72.821	
	17 Methyl tert butyl ether	73	3.836	3.836	(1.000)	984802	80.0000	72.484	
	18 1,1-Dichloroethane	63	4.250	4.251	(1.000)	1199983	80.0000	74.829	
	19 Acrylonitrile	53	4.309	4.314	(1.000)	172804	80.0000	76.609	
	20 Vinyl Acetate	43	4.484	4.484	(1.000)	1259546	80.0000	74.682	
	22 Cis-1,2-Dichloroethene	96	4.692	4.692	(1.000)	616426	80.0000	75.025	
	23 2,2-Dichloropropane	77	4.771	4.771	(1.000)	499985	80.0000	67.039	
	24 Bromochloromethane	128	4.846	4.846	(1.000)	265080	80.0000	74.301	
	25 Chloroform	83	4.910	4.915	(1.000)	928688	80.0000	75.133	
	26 Carbon Tetrachloride	117	5.000	5.000	(0.864)	819725	80.0000	76.615	
$	27 Dibromofluoromethane	111	5.048	5.053	(1.000)	25823	5.00000	4.937	
	28 1,1,1-Trichloroethane	97	5.053	5.053	(1.000)	945077	80.0000	79.006	
	30 1,1-Dichloropropene	75	5.149	5.149	(0.890)	765146	80.0000	74.873	
	29 2-Butanone	43	5.154	5.159	(1.000)	1165768	400.000	371.53	
	31 Benzene	78	5.330	5.330	(0.921)	2230397	80.0000	72.574	
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	120959	10.0000		(M)
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.000)	28905	5.00000	4.960	
	34 1,2-Dichloroethane	62	5.484	5.484	(0.948)	719994	80.0000	72.384	
	36 Trichloroethene	130	5.755	5.755	(0.994)	629063	80.0000	76.537	
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	179582	10.0000		

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	38 Dibromomethane	93	6.058	6.052	(1.047)	266183	80.0000	74.508
	39 1,2-Dichloropropane	63	6.127	6.127	(1.059)	686412	80.0000	74.118
	40 Bromodichloromethane	83	6.175	6.175	(1.067)	700639	80.0000	75.813
	173 2-Pentanone	86	6.393	6.398	(1.105)	252909	400.000	378.63
	41 2-Chloroethyl Vinyl Ether	63	6.573	6.573	(1.136)	314465	80.0000	80.078
	42 Cis 1,3-dichloropropene	75	6.611	6.611	(1.142)	919007	80.0000	77.796
$	43 d8-Toluene	98	6.738	6.738	(1.164)	109039	5.00000	5.019
	44 Toluene	92	6.770	6.770	(1.170)	1504235	80.0000	75.062
	46 Tetrachloroethene	166	7.036	7.036	(0.901)	696143	80.0000	73.446
	45 4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	1002689	400.000	380.23
	47 Trans 1,3-Dichloropropene	75	7.062	7.062	(1.220)	786095	80.0000	78.799
	48 1,1,2-Trichloroethane	97	7.174	7.174	(1.240)	407676	80.0000	74.193
	49 Chlorodibromomethane	129	7.296	7.296	(0.934)	539185	80.0000	79.570
	50 1,3-Dichloropropane	76	7.360	7.360	(0.942)	749222	80.0000	76.192
	51 1,2-Dibromoethane	107	7.461	7.461	(1.289)	411641	80.0000	75.674
	52 2-Hexanone	43	7.615	7.615	(0.975)	1907440	400.000	388.26
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	182593	10.0000	
	54 Chlorobenzene	112	7.828	7.823	(1.002)	1761612	80.0000	74.891
	55 Ethyl Benzene	106	7.844	7.838	(1.004)	977721	80.0000	76.131
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	650581	80.0000	76.920
	57 m,p-xylene	106	7.945	7.945	(1.017)	2400638	160.000	151.80
	58 o-Xylene	106	8.248	8.248	(1.056)	1232199	80.0000	77.180
	59 Styrene	104	8.285	8.285	(1.061)	2031397	80.0000	82.195
	60 Bromoform	173	8.311	8.306	(0.875)	363505	80.0000	86.437
	61 Isopropyl Benzene	105	8.471	8.471	(0.891)	3125914	80.0000	75.230
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	43942	5.00000	5.065
	63 Bromobenzene	156	8.758	8.758	(0.922)	847259	80.0000	74.959
	64 N-Propyl Benzene	91	8.769	8.769	(0.923)	3643798	80.0000	76.460
	65 1,1,2,2-Tetrachloroethane	83	8.827	8.822	(0.929)	553827	80.0000	77.030
	66 2-Chloro Toluene	91	8.886	8.886	(0.935)	2583989	80.0000	76.277
	67 1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	2817374	80.0000	77.028
	68 1,2,3-Trichloropropane	110	8.928	8.923	(0.940)	172053	80.0000	72.081
	69 Trans-1,4-Dichloro 2-Butene	53	8.955	8.955	(0.942)	203065	80.0000	78.622(M)
	70 4-Chloro Toluene	91	9.008	9.008	(0.948)	2409296	80.0000	76.772
	71 T-Butyl Benzene	119	9.146	9.146	(0.963)	2411462	80.0000	78.081
	72 1,2,4-Trimethylbenzene	105	9.199	9.199	(0.968)	2874967	80.0000	77.534
	73 S-Butyl Benzene	105	9.279	9.274	(0.977)	3349319	80.0000	77.576
	74 4-Isopropyl Toluene	119	9.385	9.380	(0.988)	3017984	80.0000	77.895
	75 1,3-Dichlorobenzene	146	9.444	9.444	(0.994)	1787254	80.0000	75.264
*	76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	116974	10.0000	
	77 1,4-Dichlorobenzene	146	9.513	9.508	(1.001)	1768221	80.0000	74.561
	78 N-Butyl Benzene	91	9.699	9.699	(1.021)	2601484	80.0000	78.454
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	55345	5.00000	5.036
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.034)	1630403	80.0000	73.617
	81 1,2-Dibromo 3-Chloropropane	75	10.438	10.438	(1.098)	108650	80.0000	80.657
	83 Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.151)	496126	80.0000	78.456
	84 1,2,4-Trichlorobenzene	180	10.959	10.959	(1.153)	1204898	80.0000	77.343
	85 Naphthalene	128	11.219	11.219	(1.181)	1988061	80.0000	76.598
	86 1,2,3-Trichlorobenzene	180	11.363	11.363	(1.196)	948150	80.0000	74.756

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041912.D
Lab Smp Id: SHI0071-CAL8
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	120959	24.83
37 1,4-Difluorobenze	140121	70061	280242	179582	28.16
53 d5-Chlorobenzene	140128	70064	280256	182593	30.30
76 d4-1,4-Dichlorobe	90137	45069	180274	116974	29.77

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041912.D

Lab ID: SHI0071-CAL8
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 20:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND

NONE

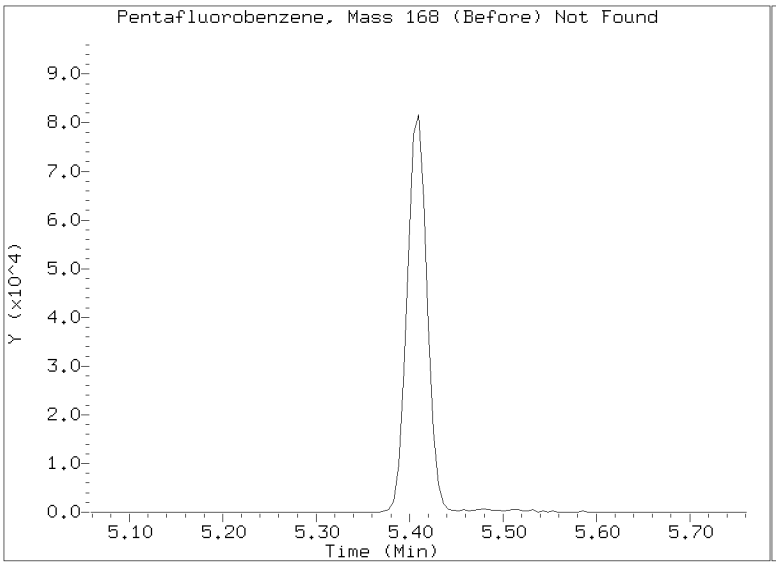
RRT check based on Ccal File: V309041912.D

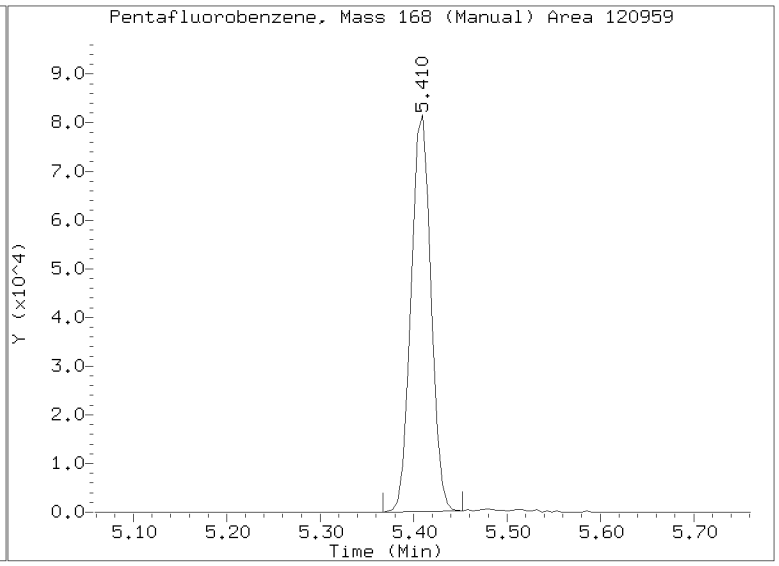
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

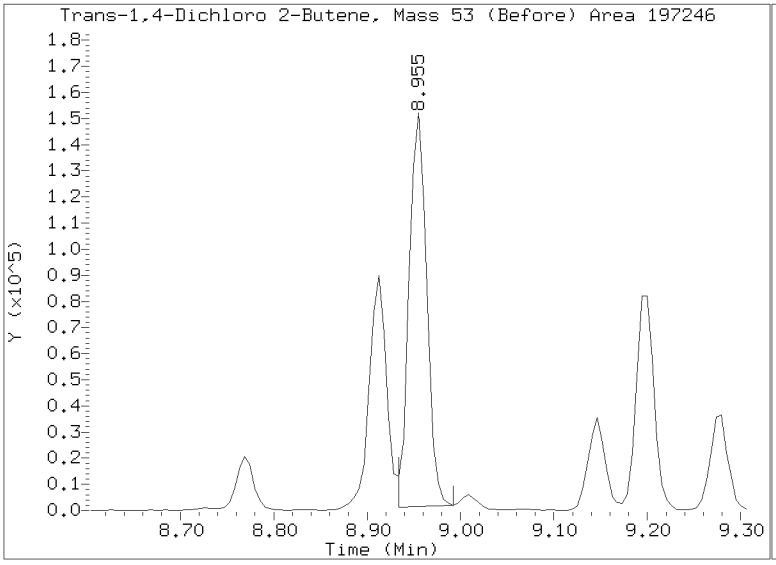
* Only compounds listed in the work order have been verified by the analyst *

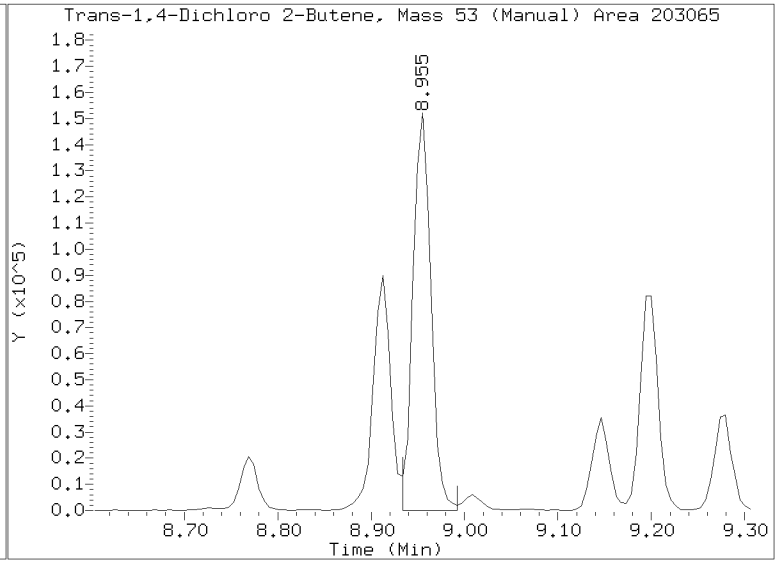
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041912.D
Injection Date: 04-SEP-2019 20:35
Lab ID:SHI0071-CAL8 Client ID:
Report Date: 09/06/2019 09:28









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Date : 04-SEP-2019 21:01

Client ID:

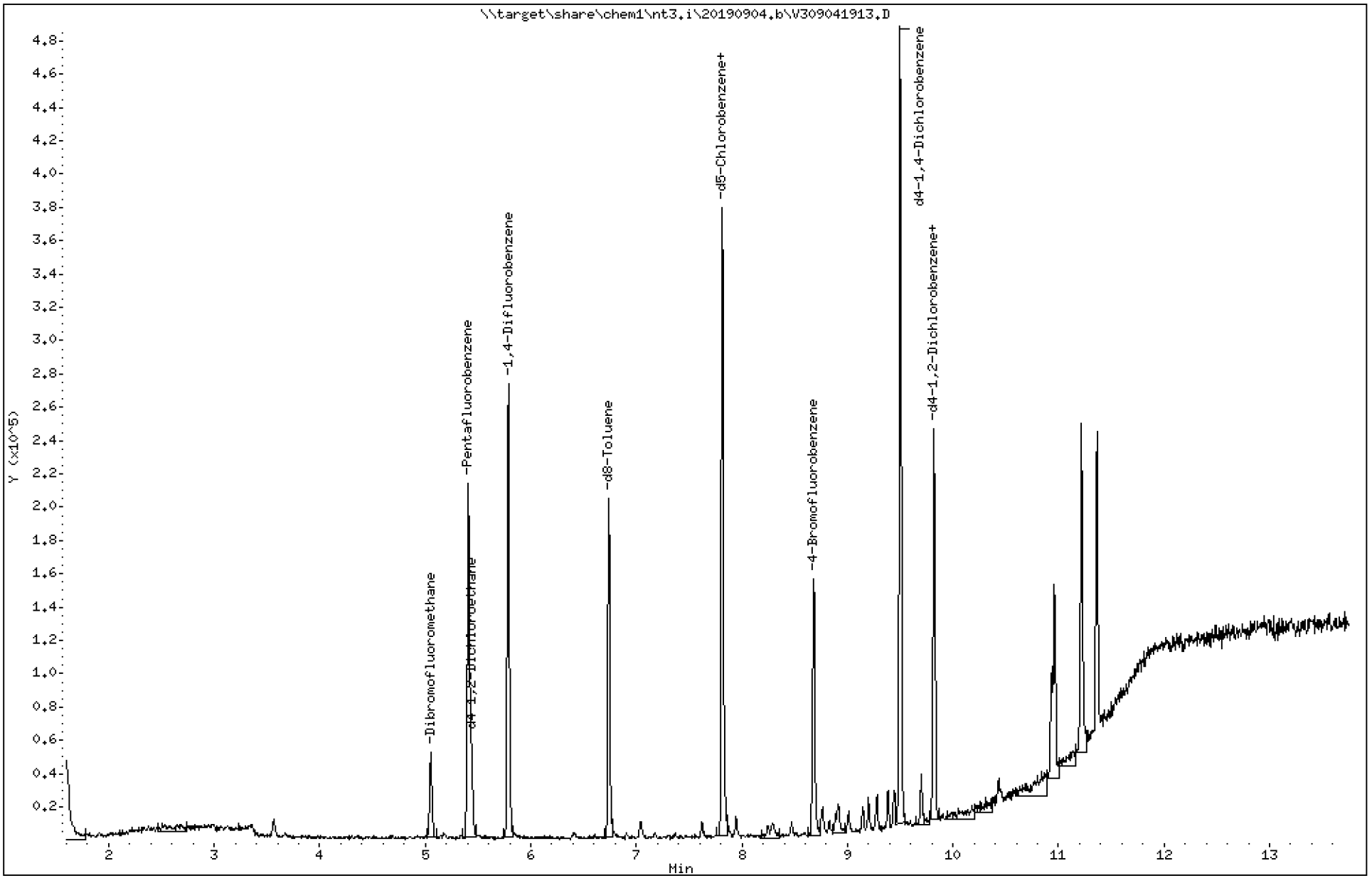
Instrument: nt3.i

Sample Info: SHI0071-ICB1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

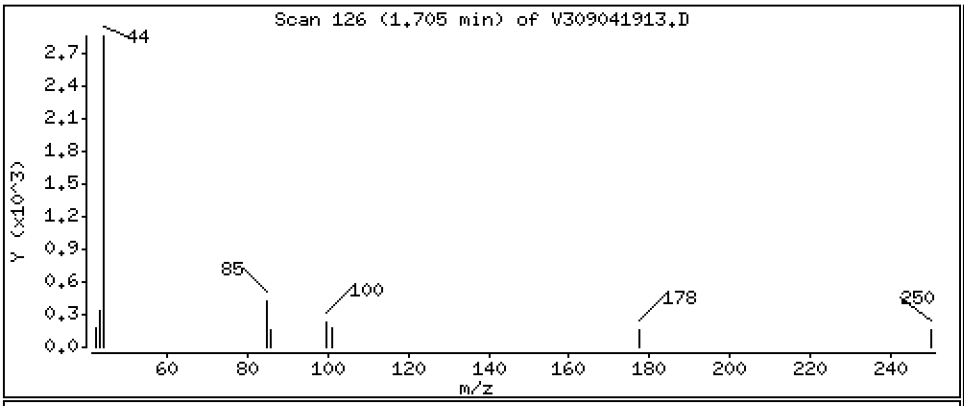
Operator: PKC

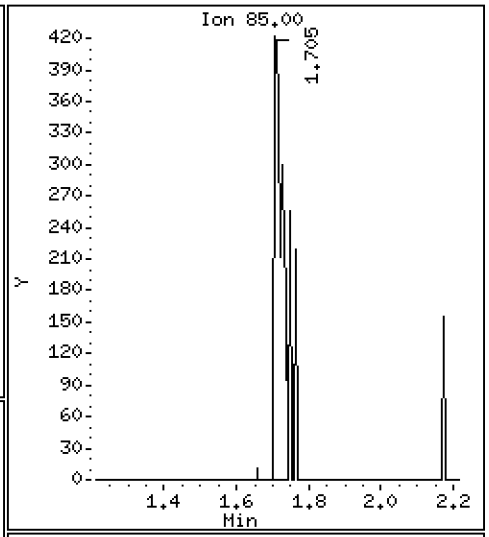
Column phase: RTXVMS

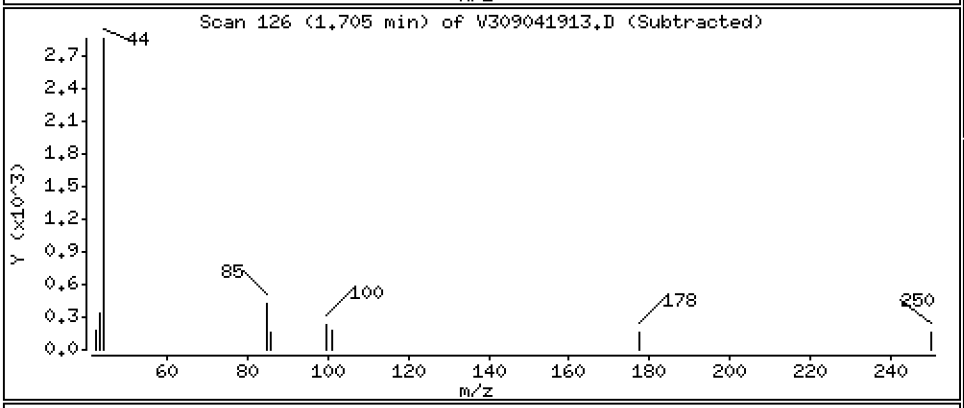
Column diameter: 0.18

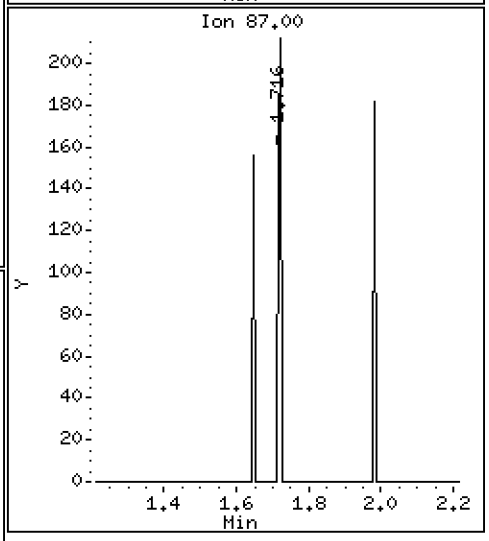
1 Dichlorodifluoromethane

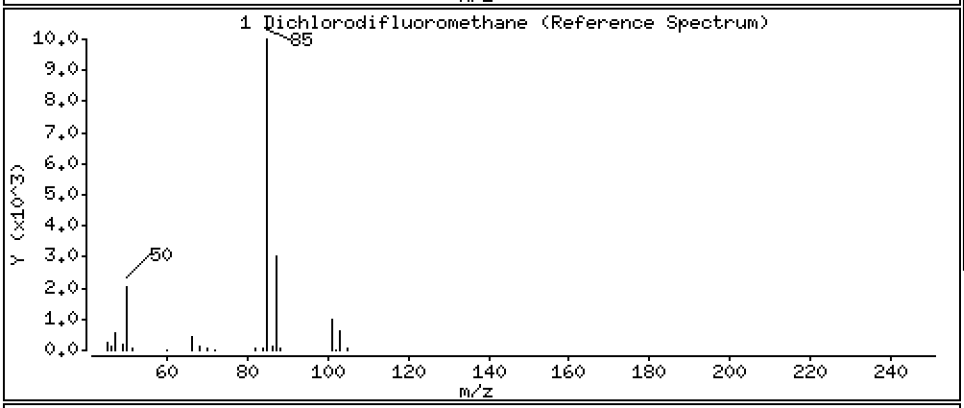
Concentration: 0.06119 ug/L

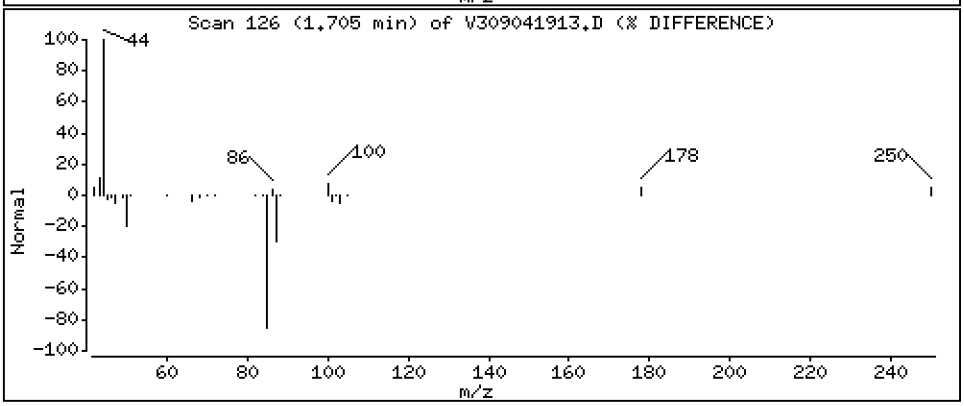












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

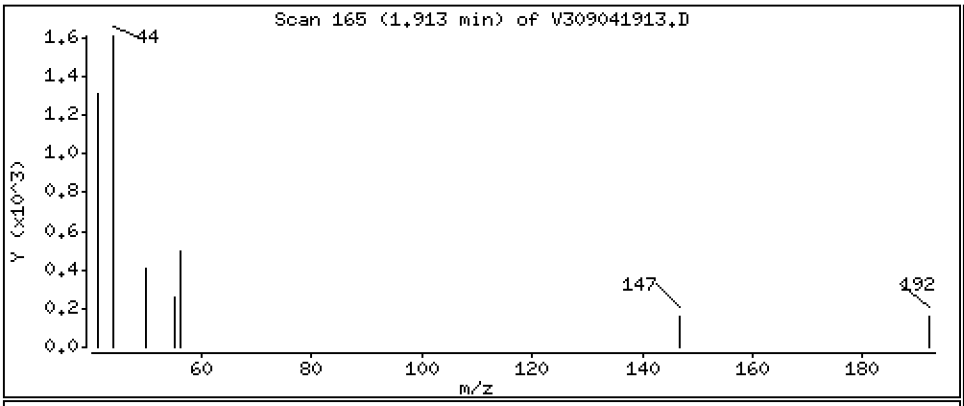
Operator: PKC

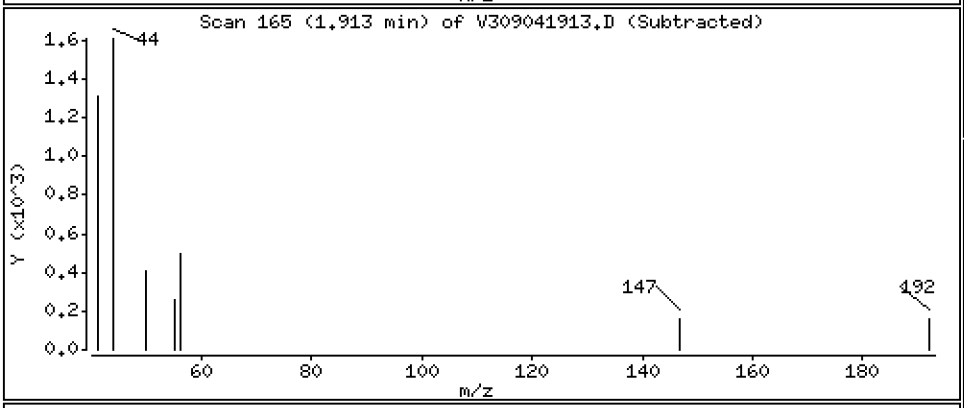
Column phase: RTXVMS

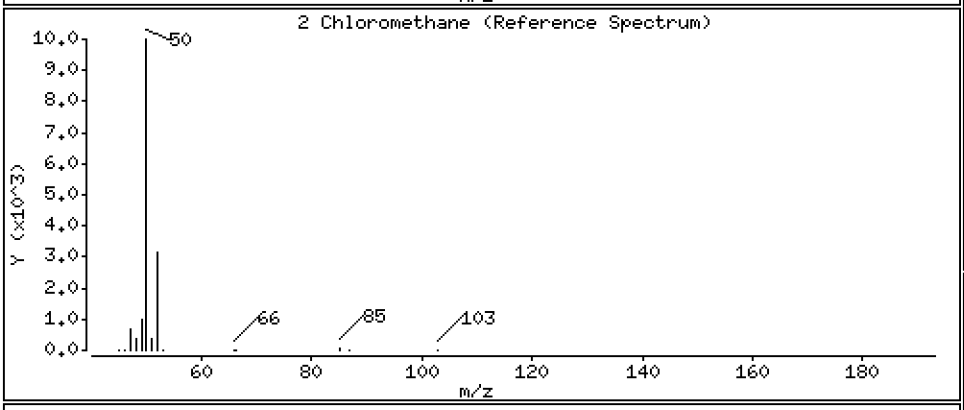
Column diameter: 0.18

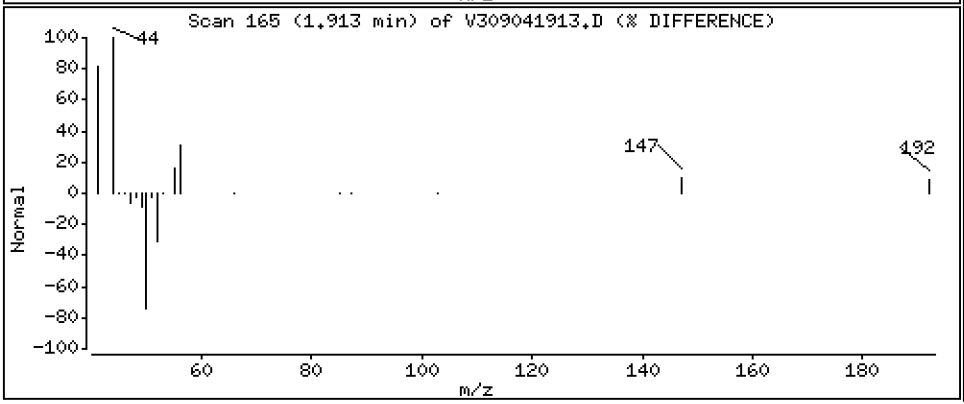
2 Chloromethane

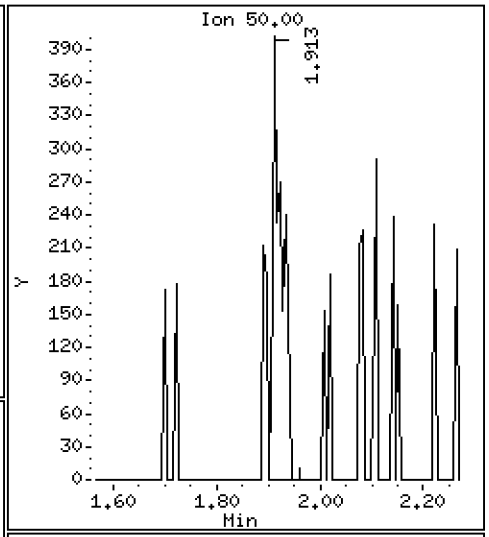
Concentration: 0.02810 ug/L

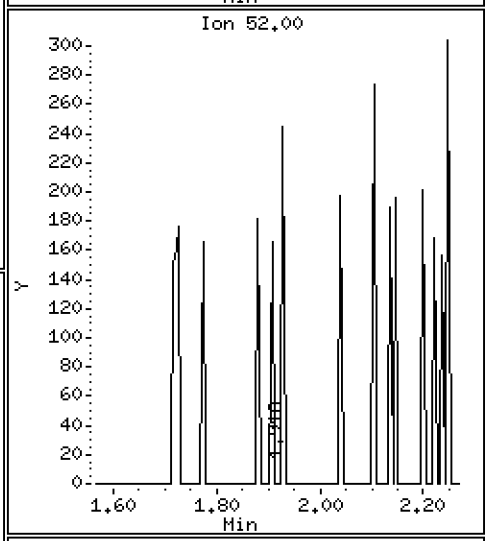


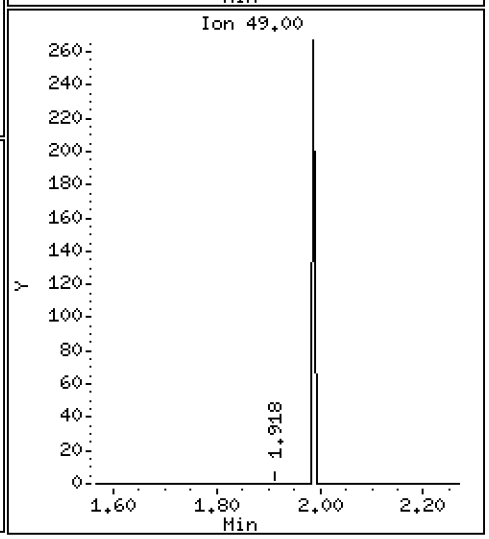












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

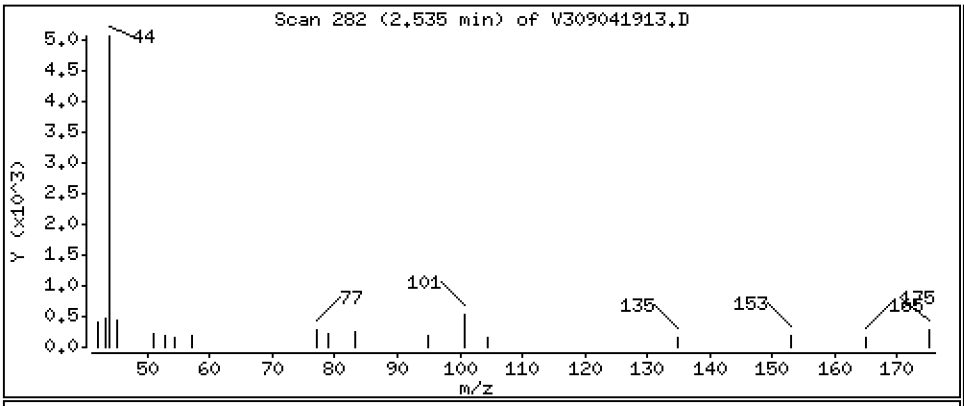
Operator: PKC

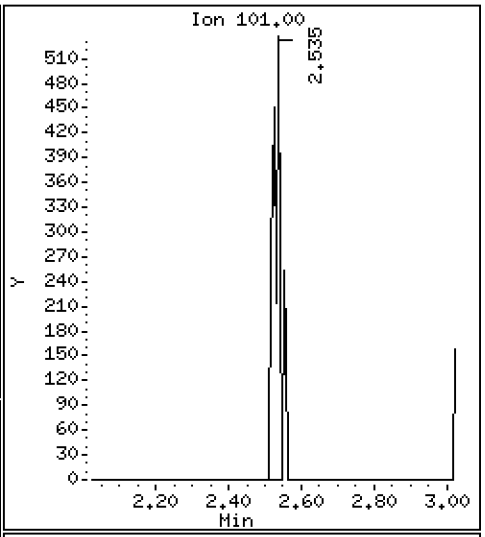
Column phase: RTXVMS

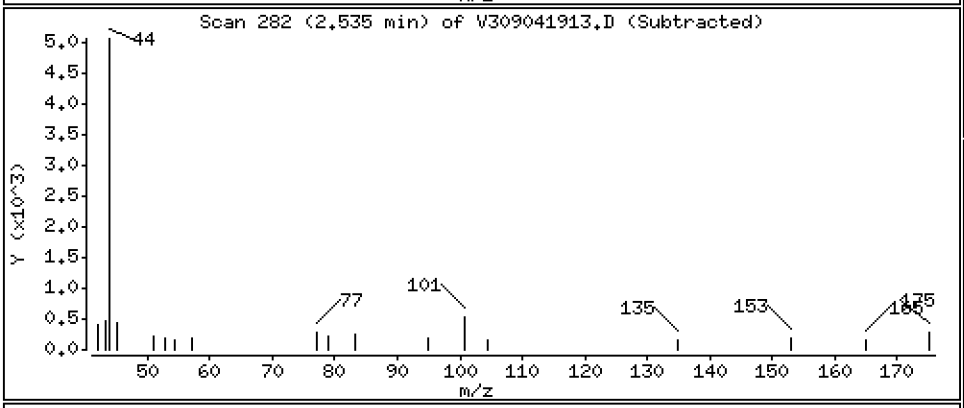
Column diameter: 0.18

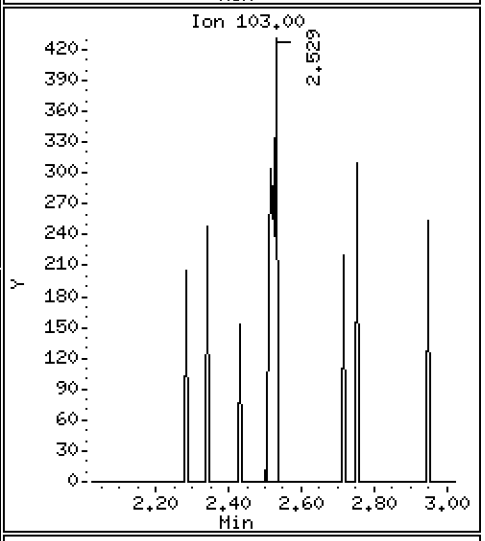
6 Trichlorofluoromethane

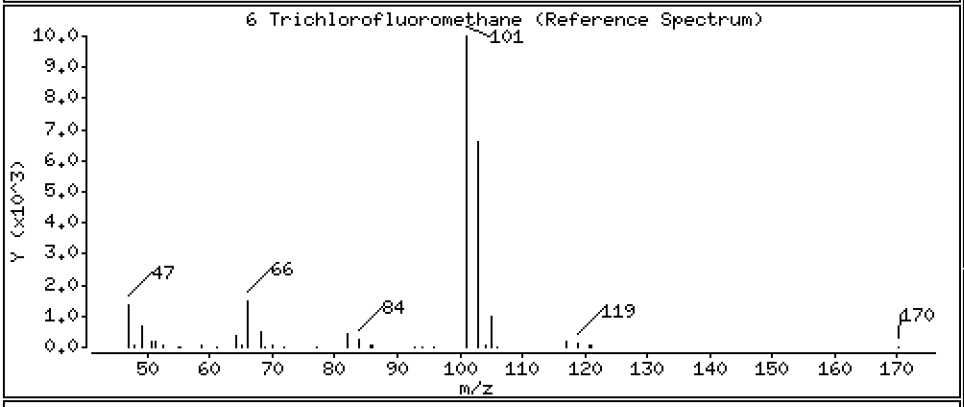
Concentration: 0.04561 ug/L

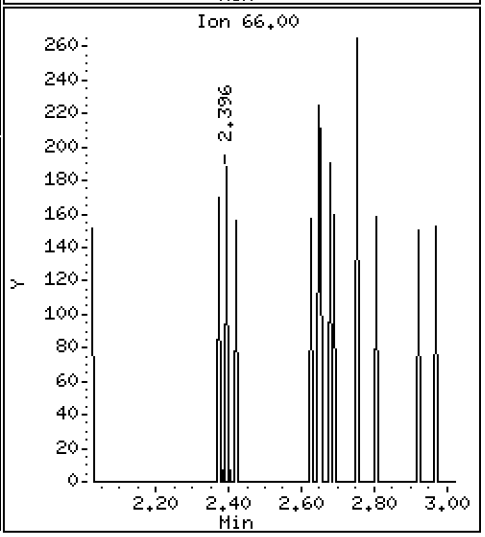


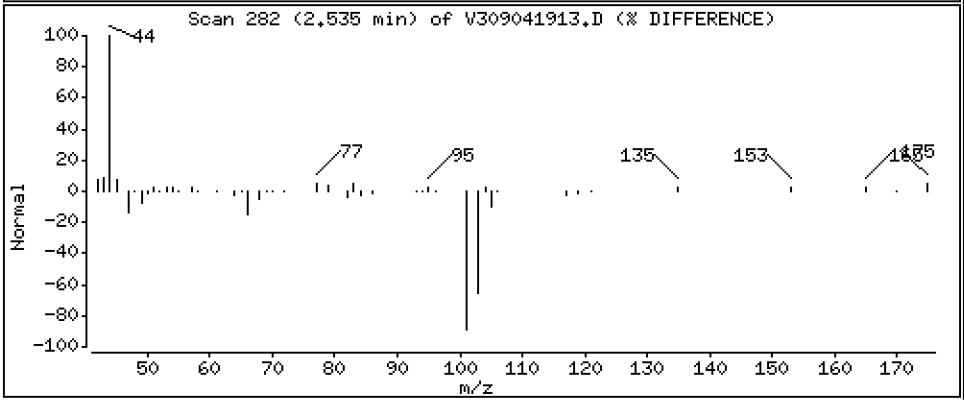












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

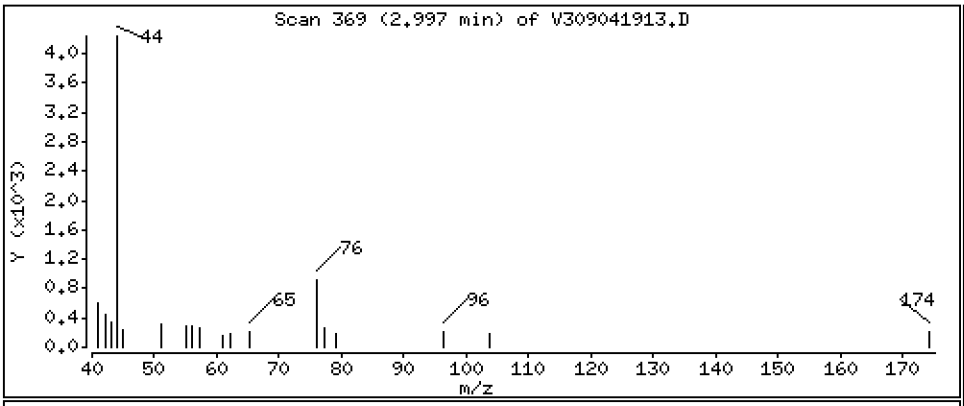
Operator: PKC

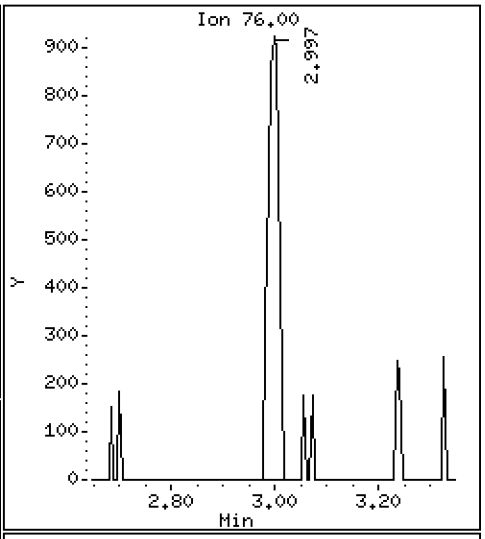
Column phase: RTXVMS

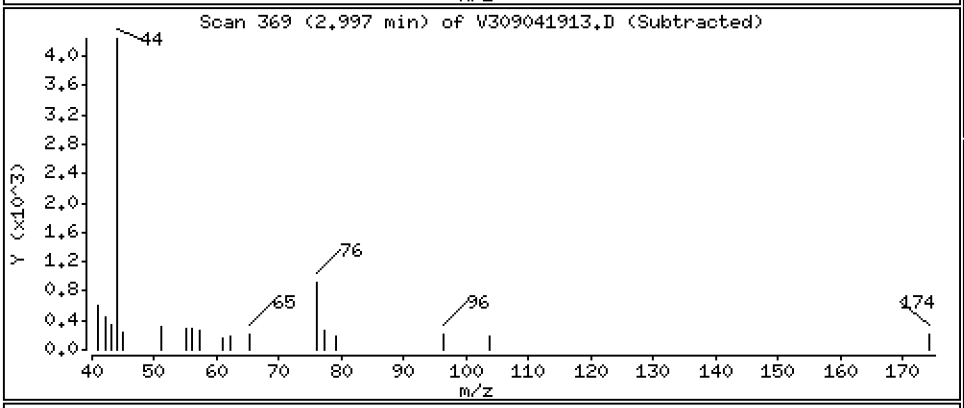
Column diameter: 0.18

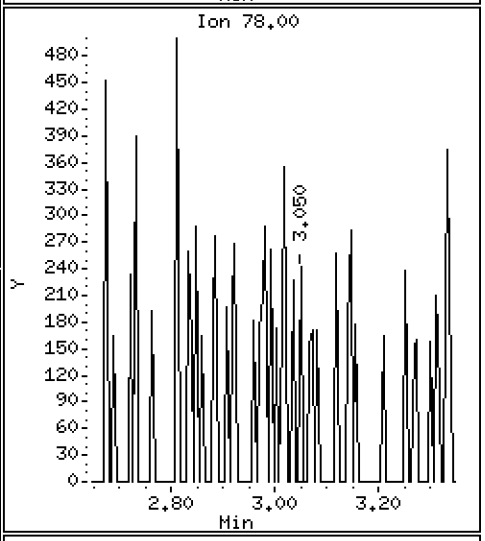
8 Carbon Disulfide

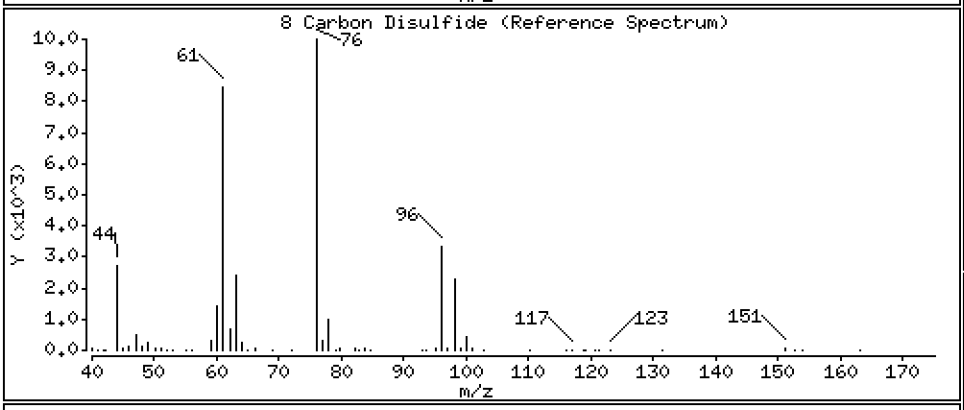
Concentration: 0.06660 ug/L

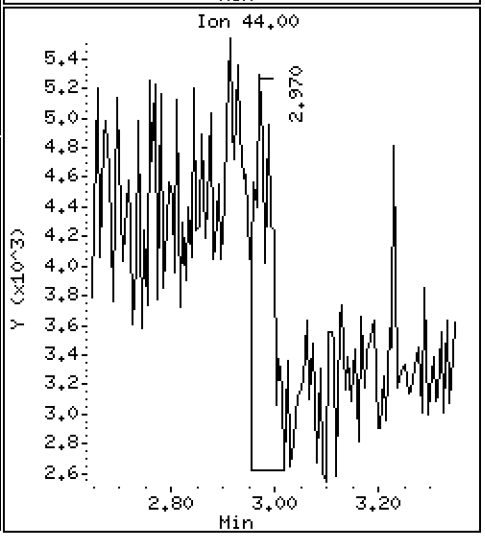


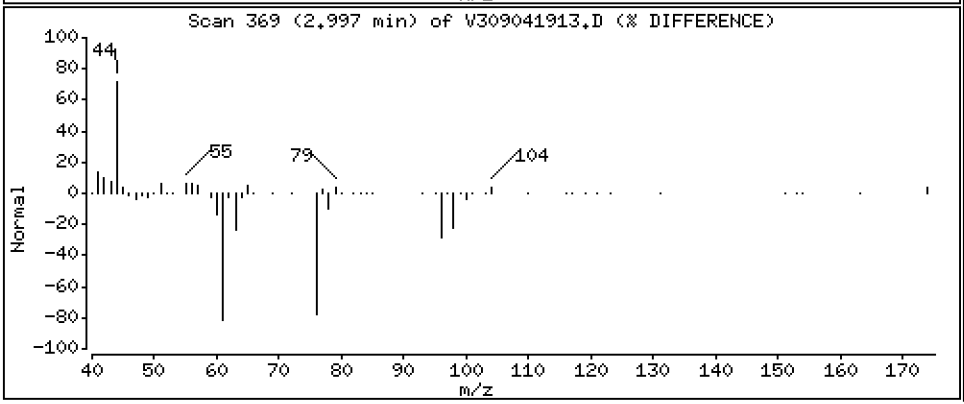












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

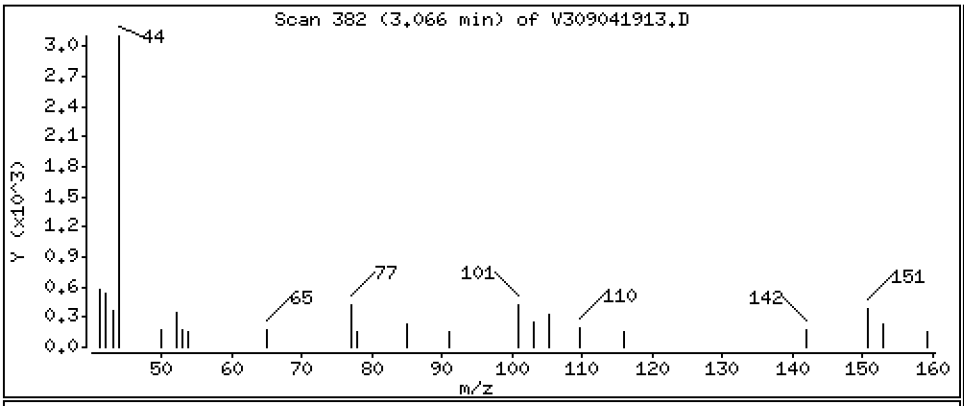
Operator: PKC

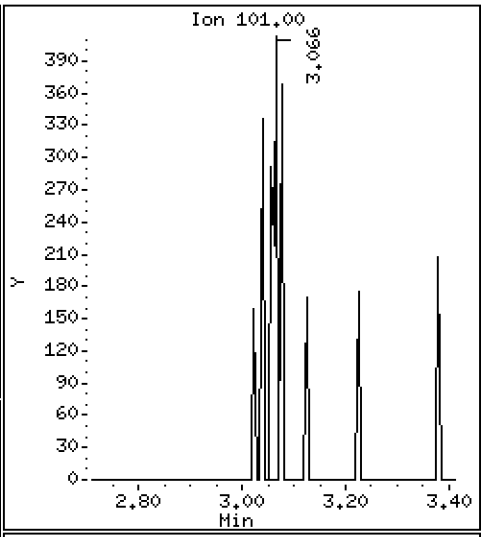
Column phase: RTXVMS

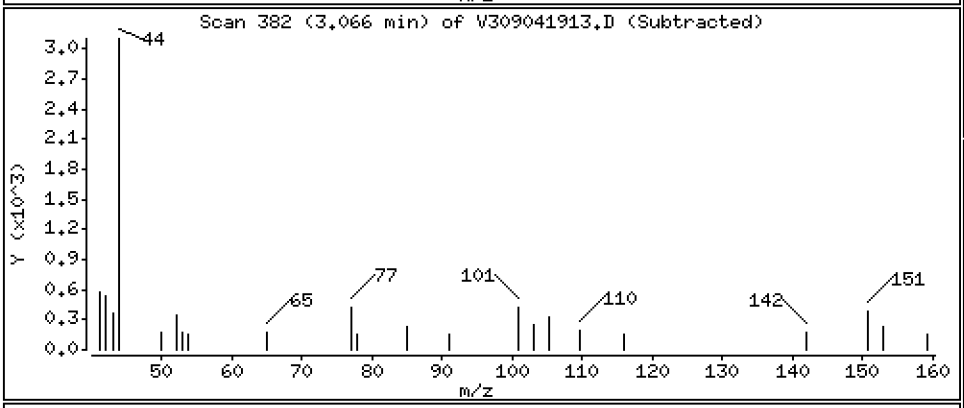
Column diameter: 0.18

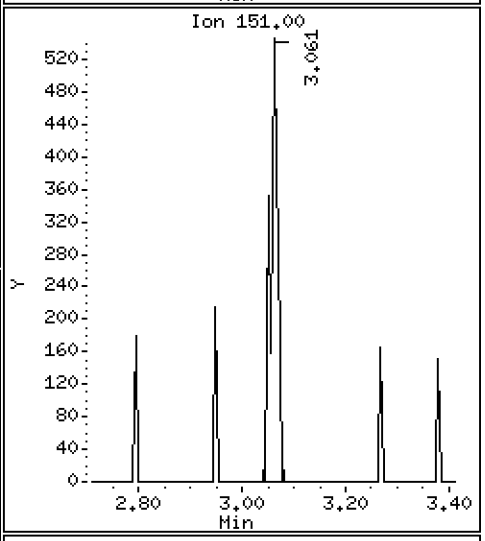
9 112Trichloro122Trifluoroethane

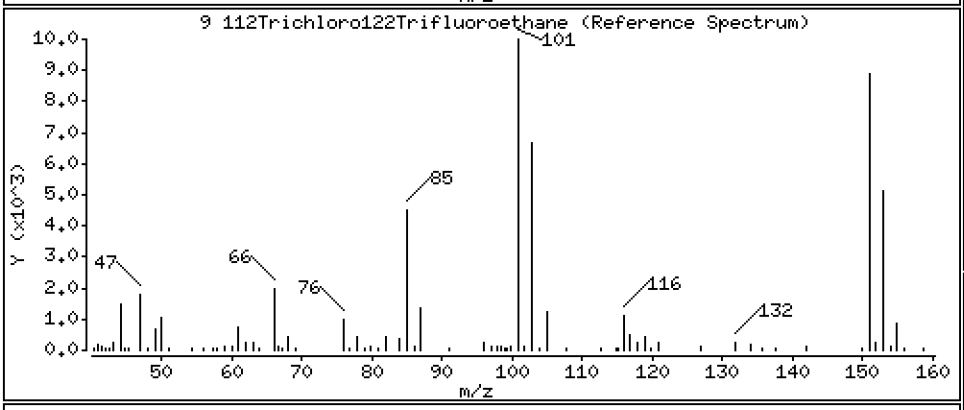
Concentration: 0.04489 ug/L

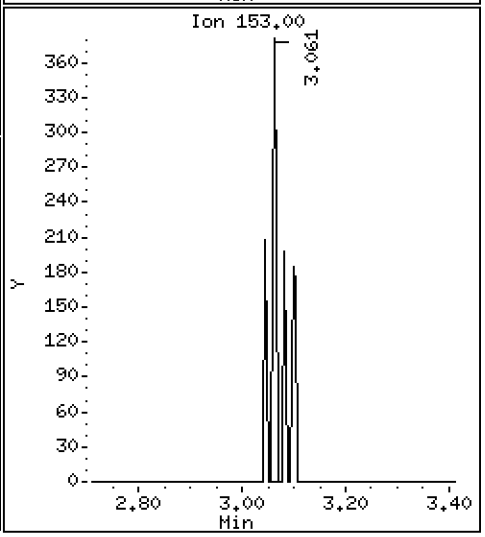


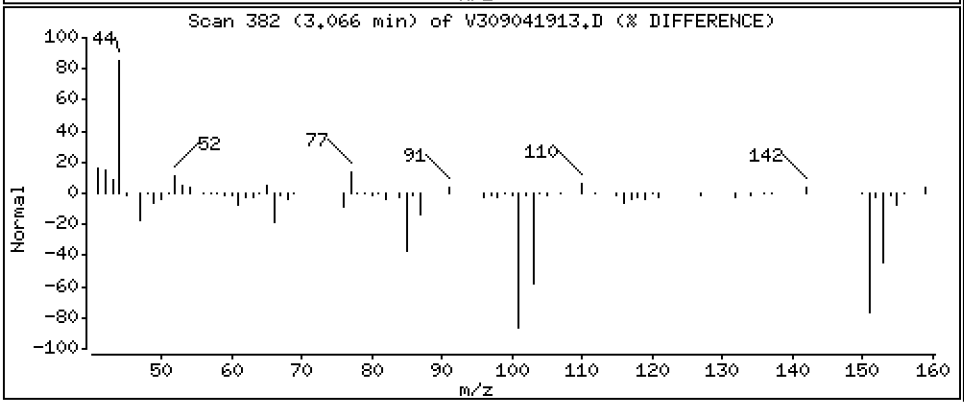












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

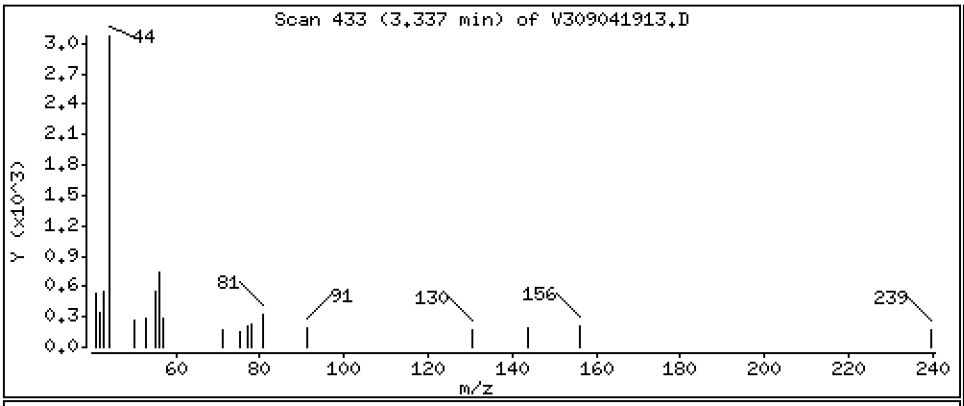
Operator: PKC

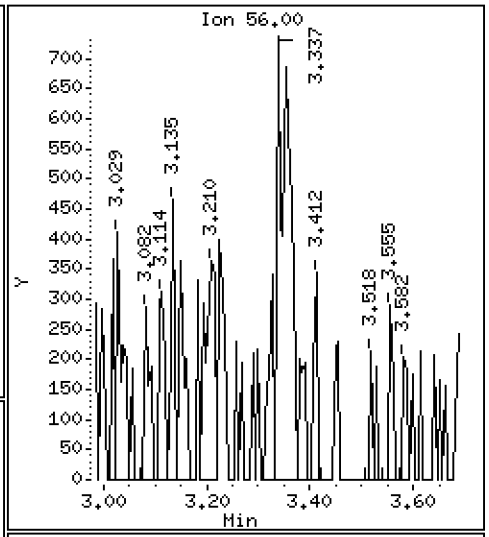
Column phase: RTXVMS

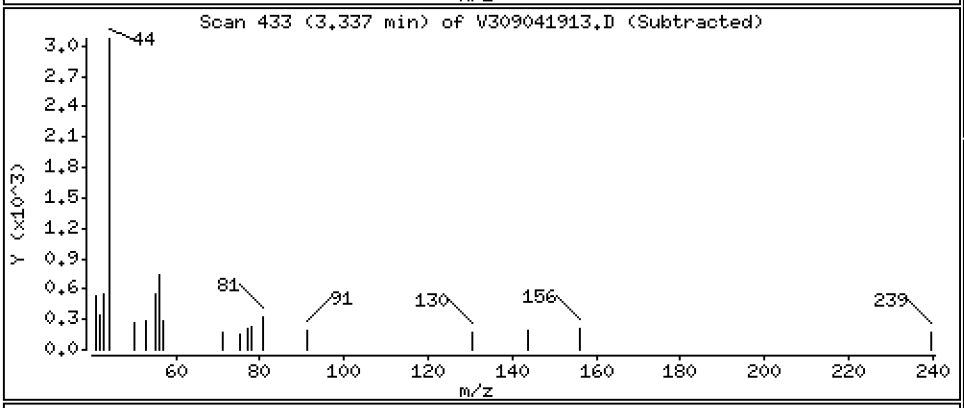
Column diameter: 0.18

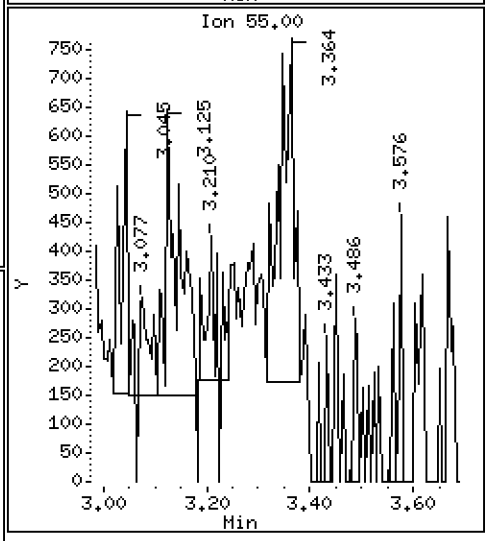
12 Acrolein

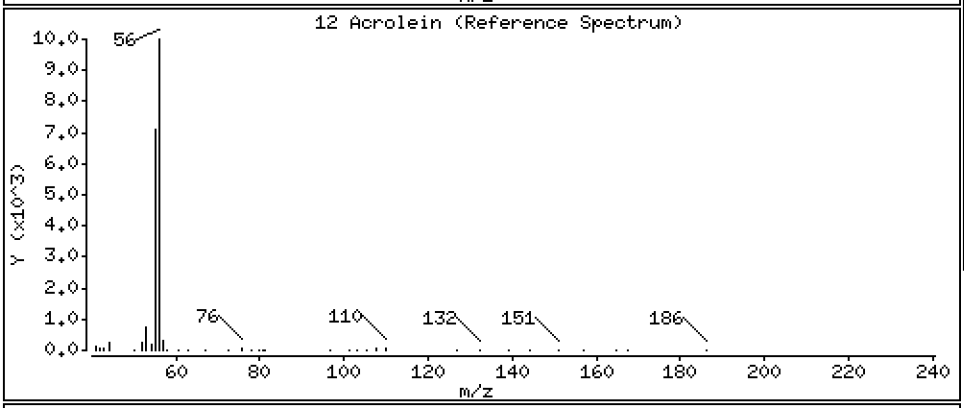
Concentration: 1.195 ug/L

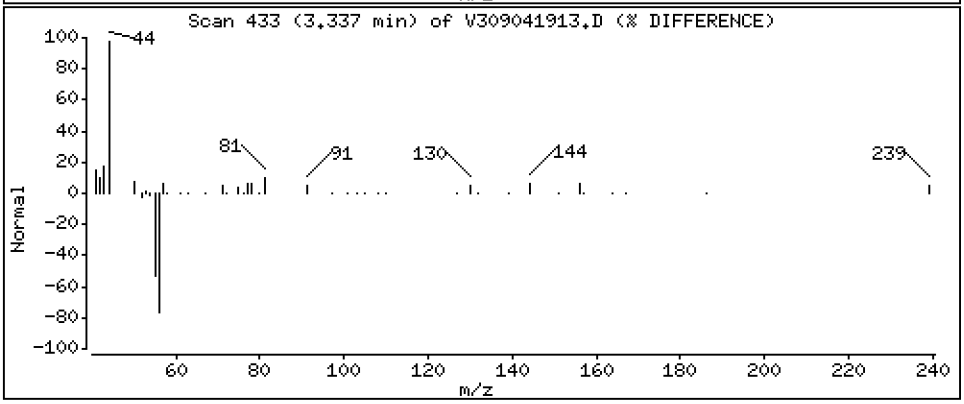












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

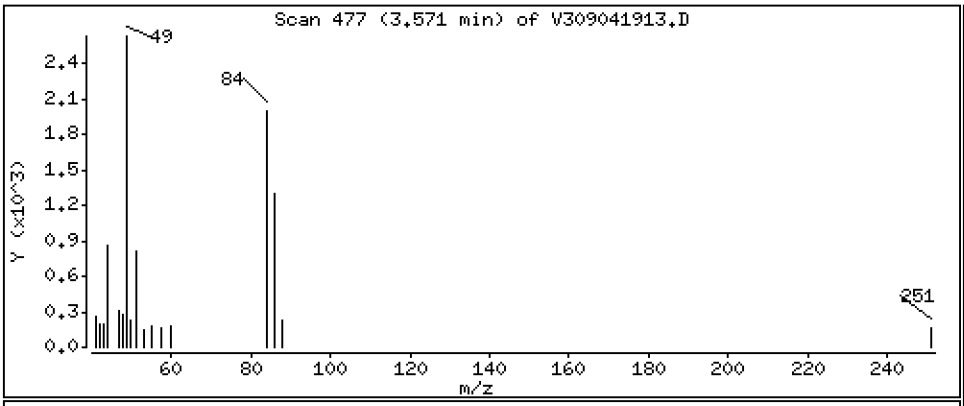
Operator: PKC

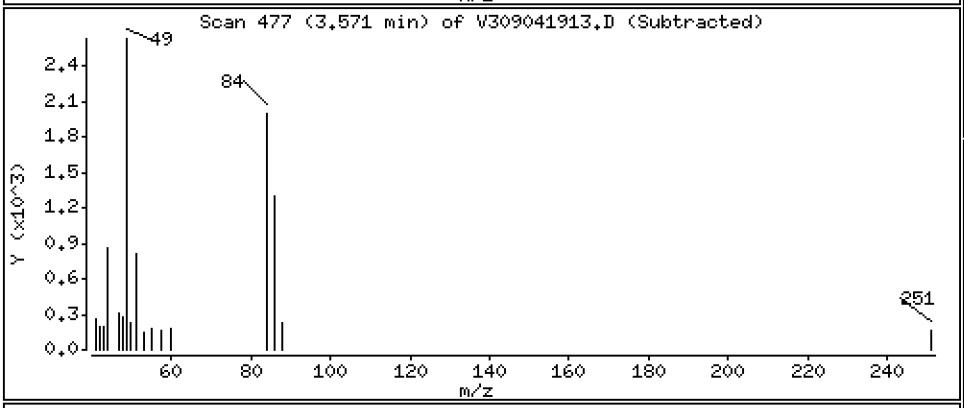
Column phase: RTXVMS

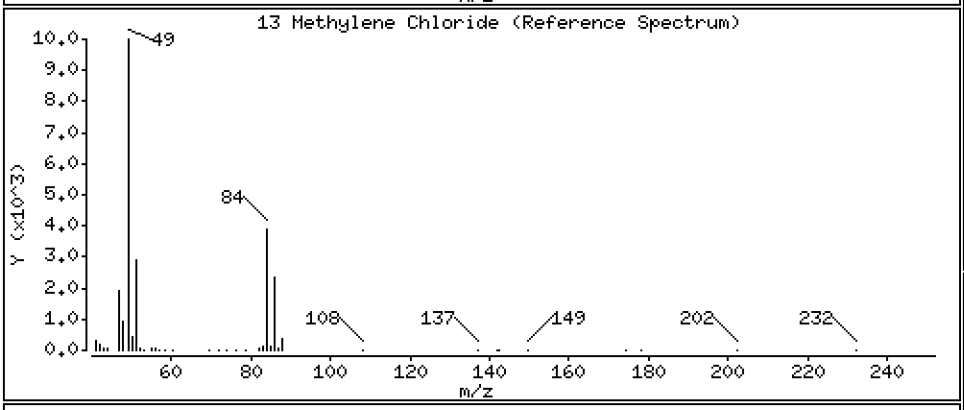
Column diameter: 0.18

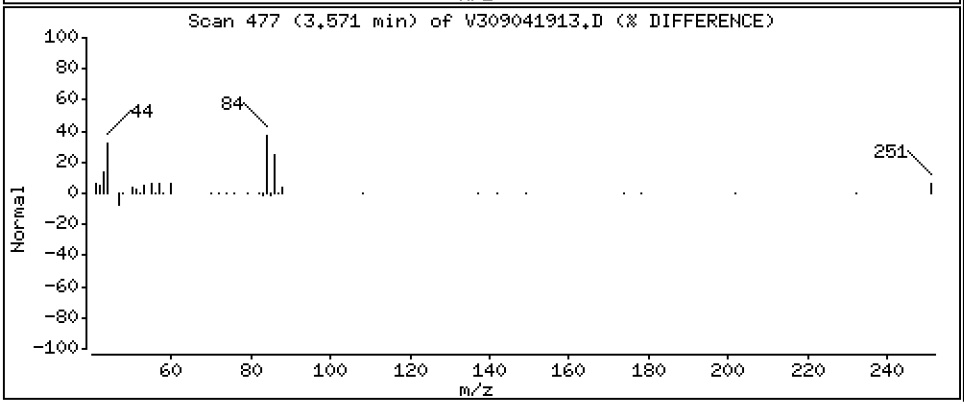
13 Methylene Chloride

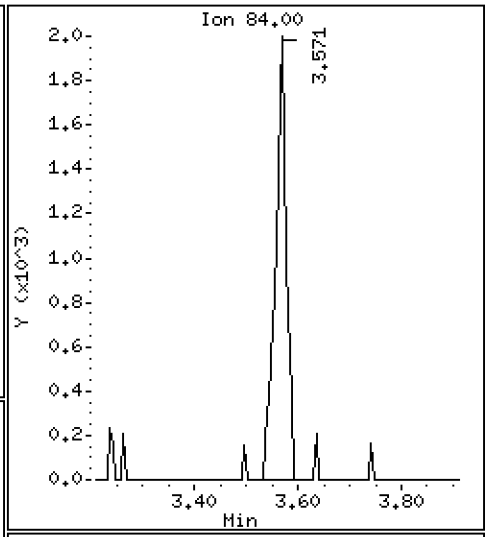
Concentration: 0.4471 ug/L

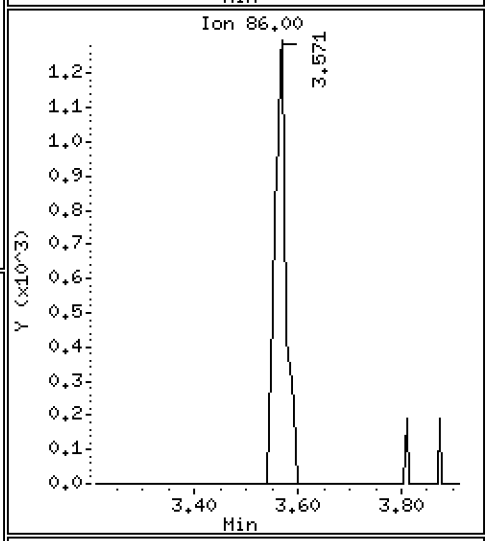


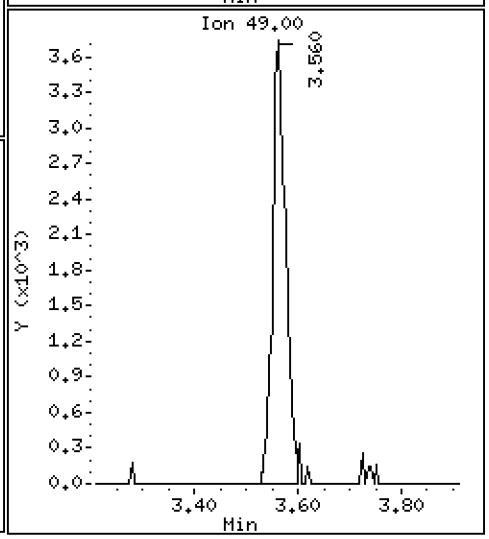












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

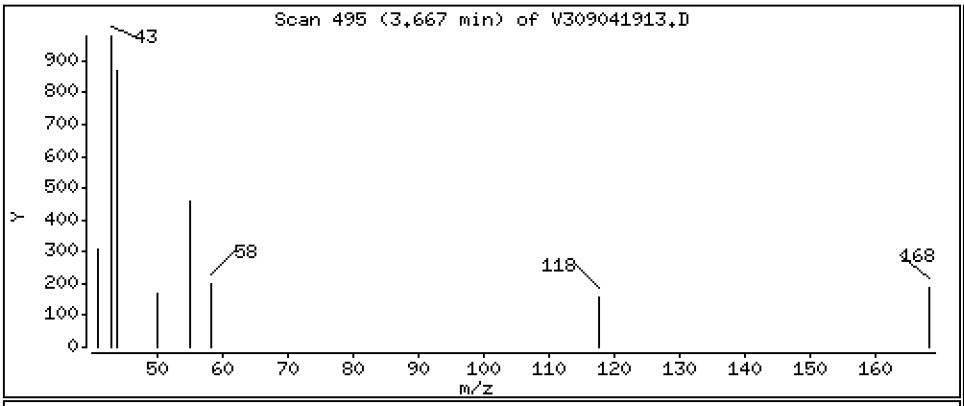
Operator: PKC

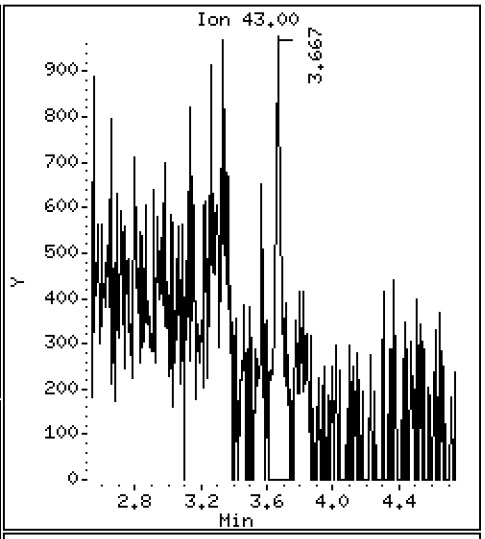
Column phase: RTXVMS

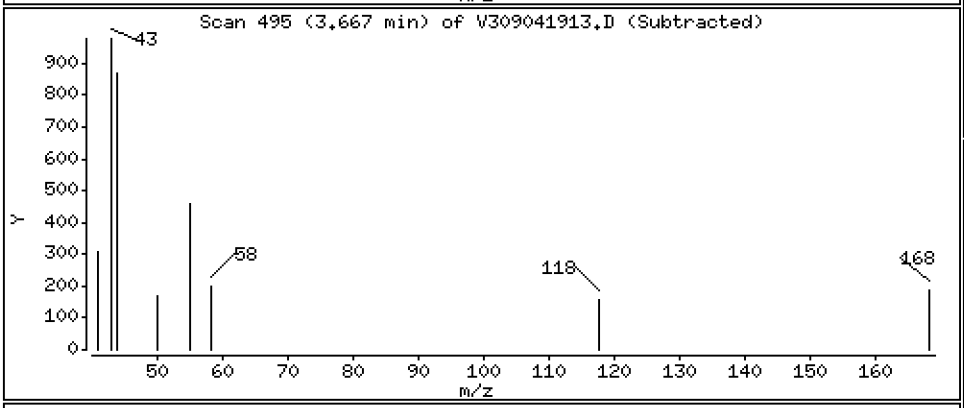
Column diameter: 0.18

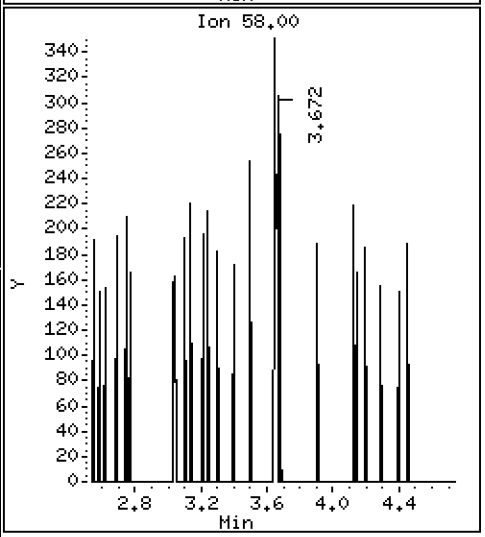
14 Acetone

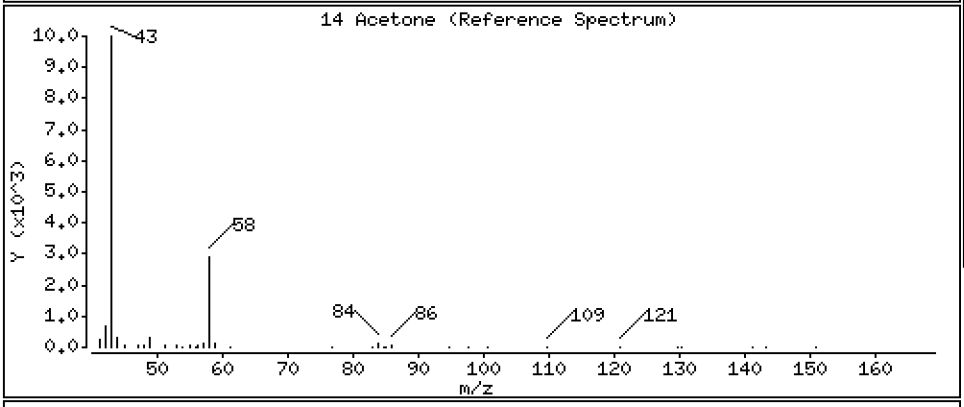
Concentration: 1.607 ug/L

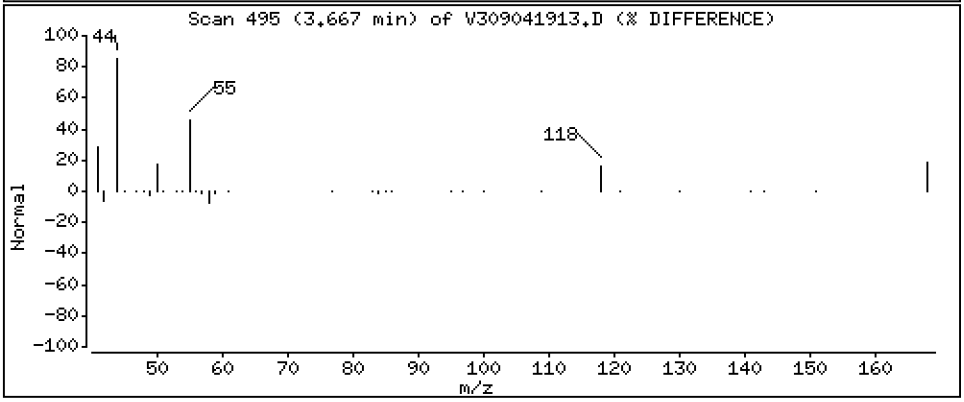












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

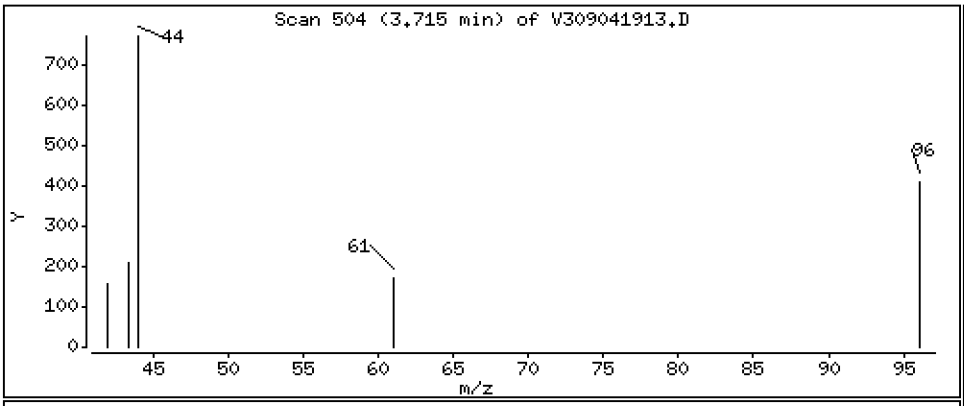
Operator: PKC

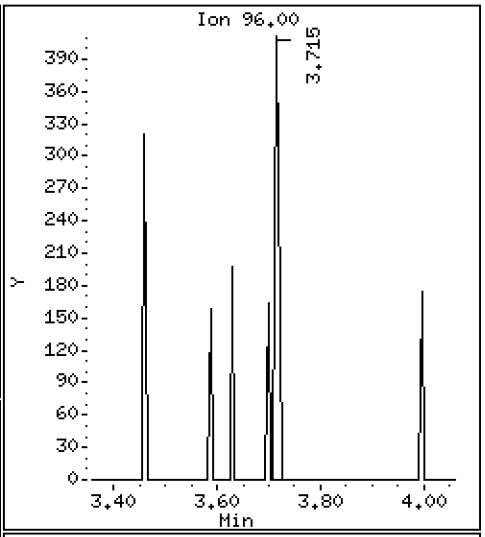
Column phase: RTXVMS

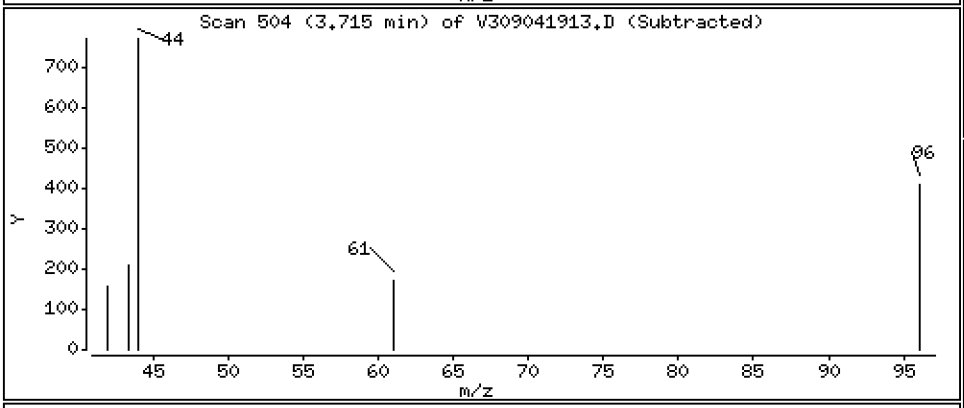
Column diameter: 0.18

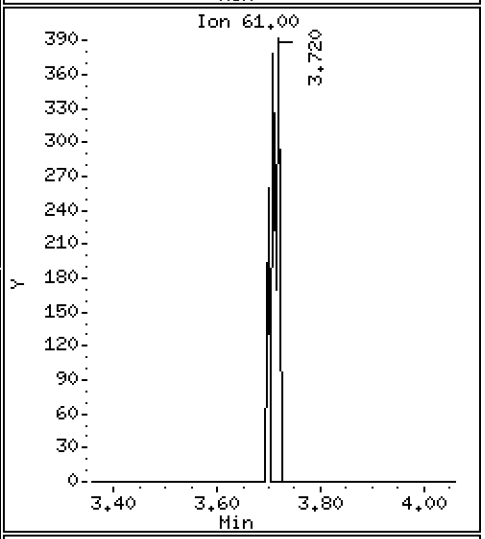
15 Trans-1,2-Dichloroethene

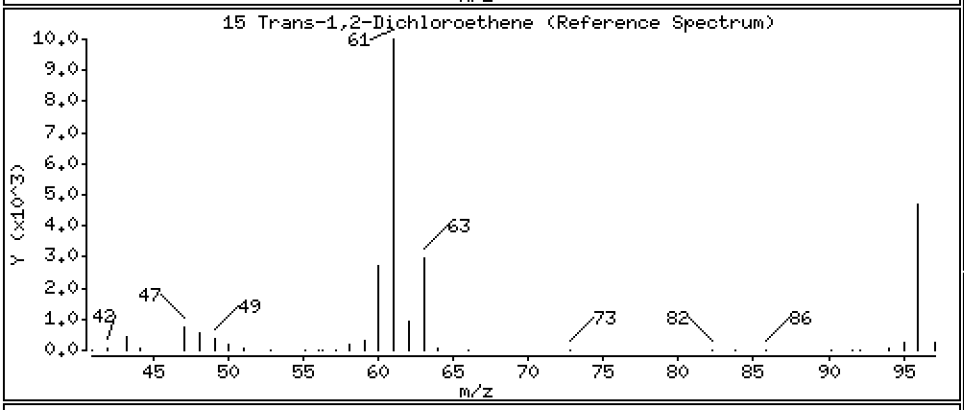
Concentration: 0.02872 ug/L

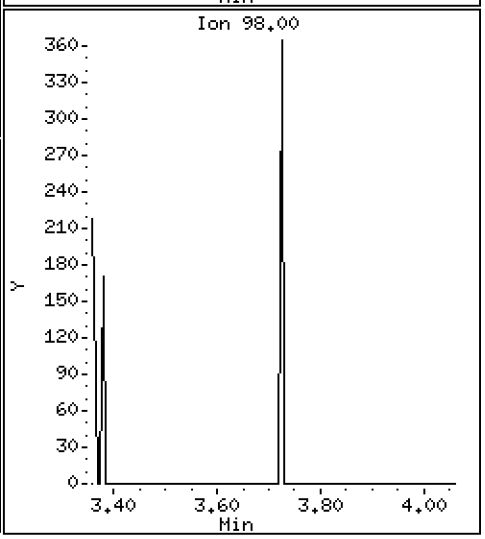


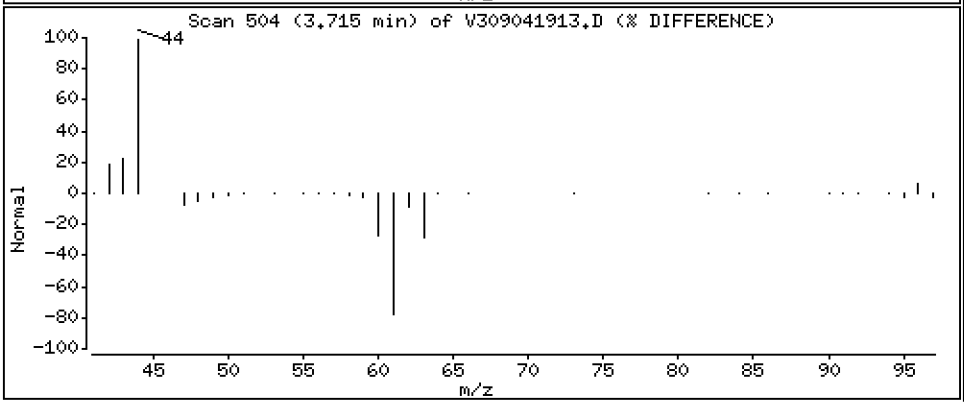












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

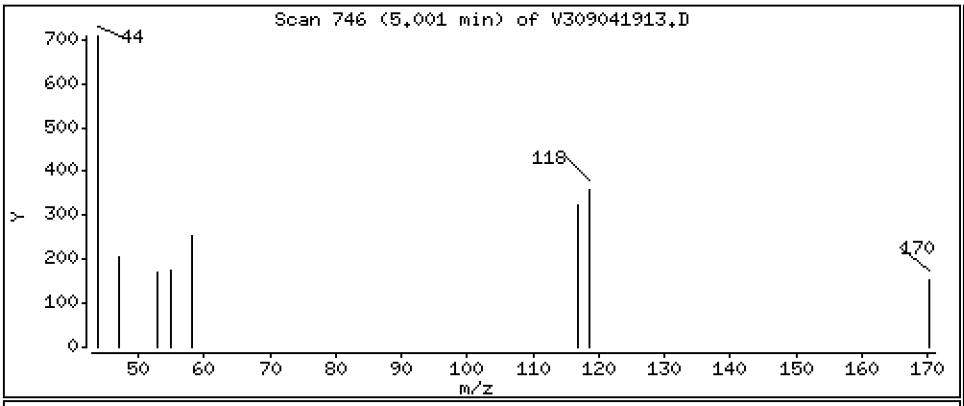
Operator: PKC

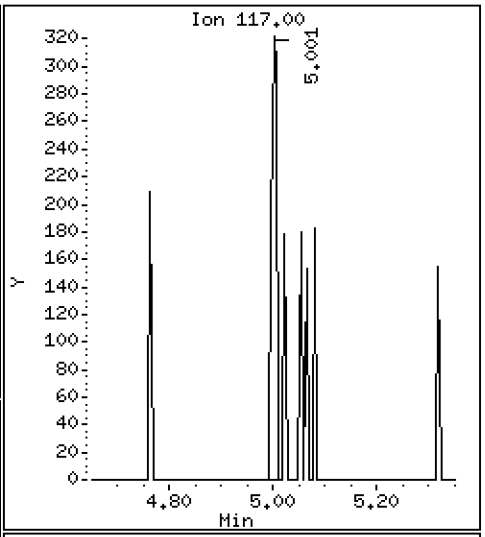
Column phase: RTXVMS

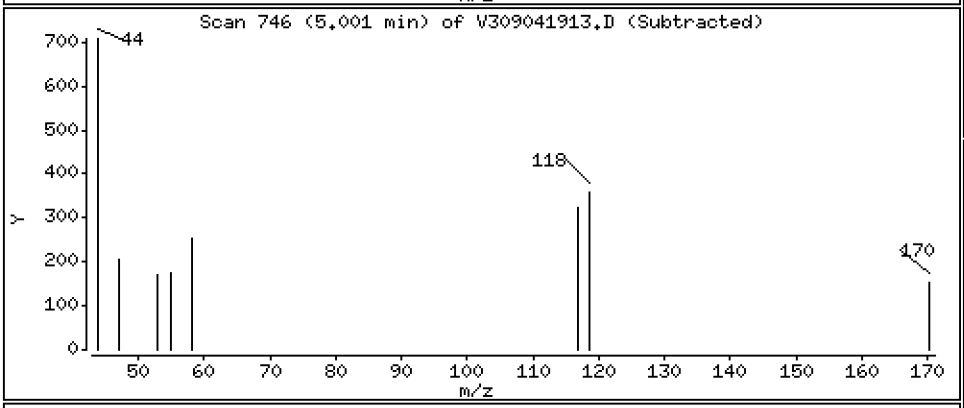
Column diameter: 0.18

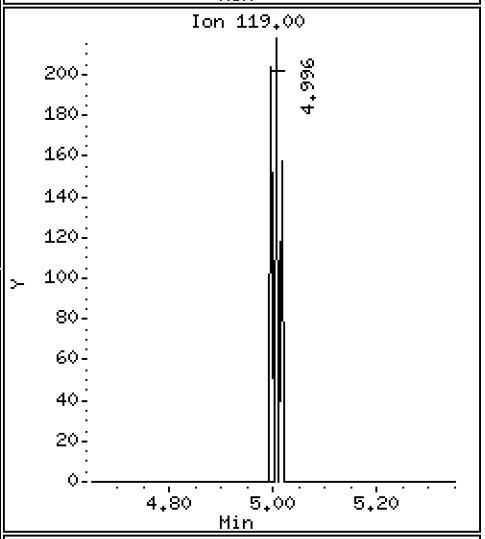
26 Carbon Tetrachloride

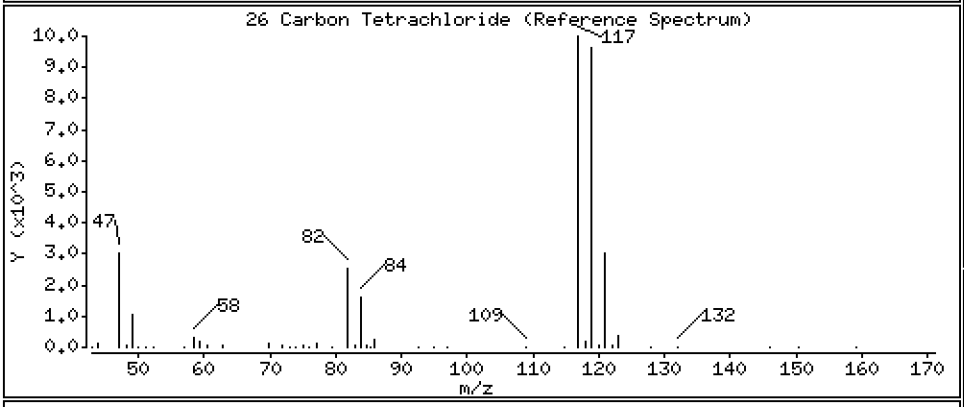
Concentration: 0.02570 ug/L

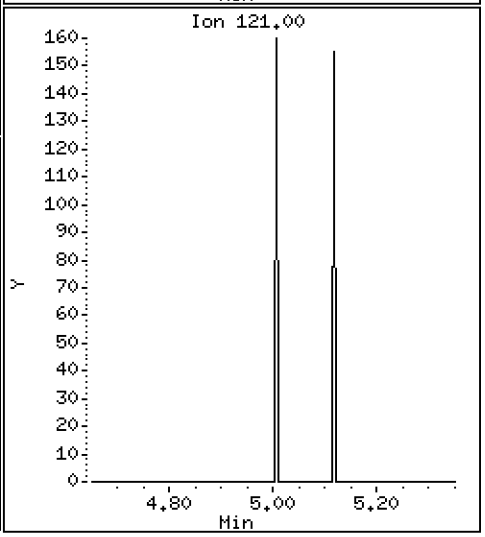


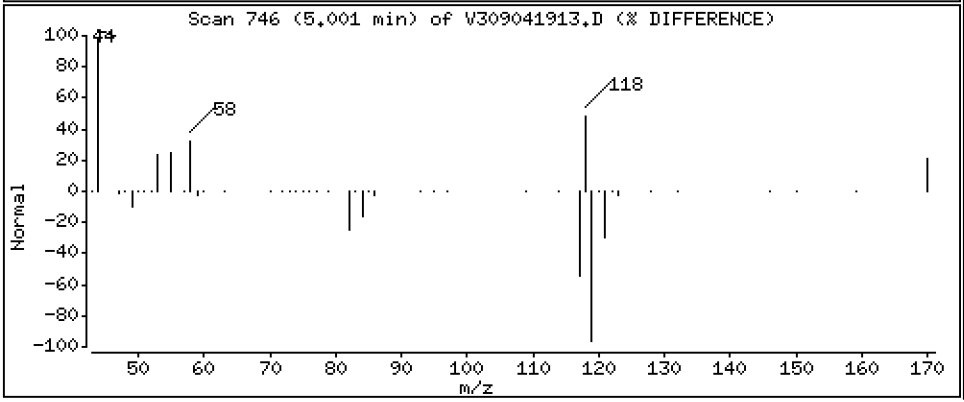












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

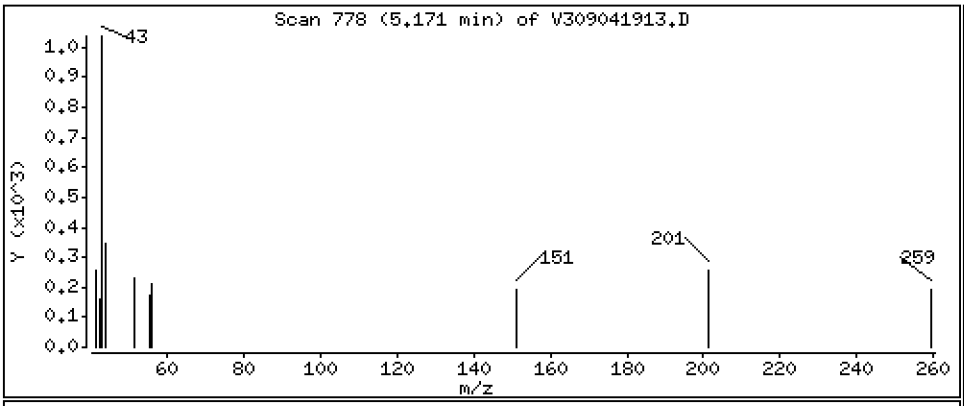
Operator: PKC

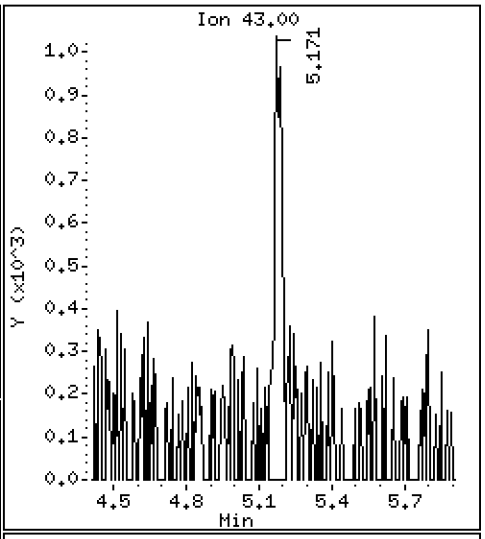
Column phase: RTXVMS

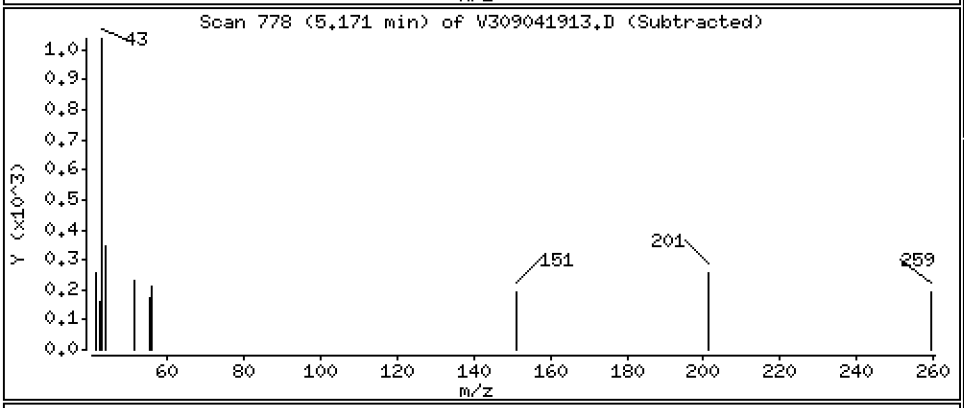
Column diameter: 0.18

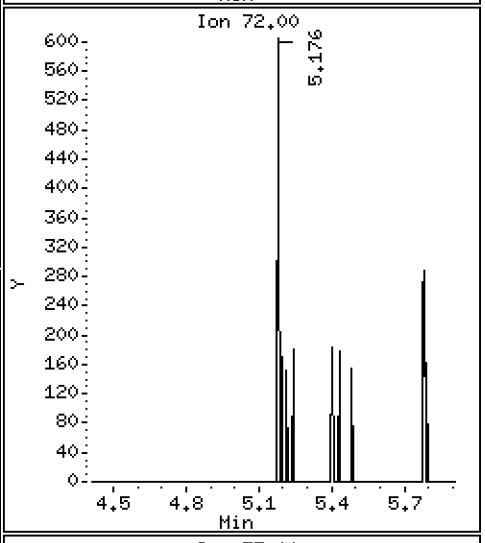
29 2-Butanone

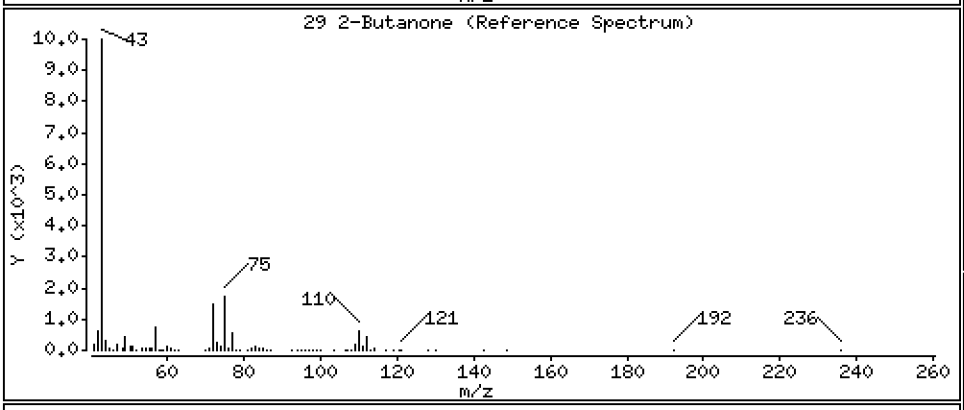
Concentration: 0.7440 ug/L

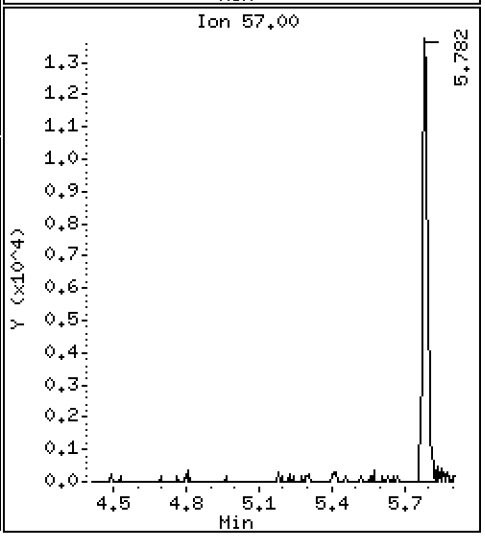


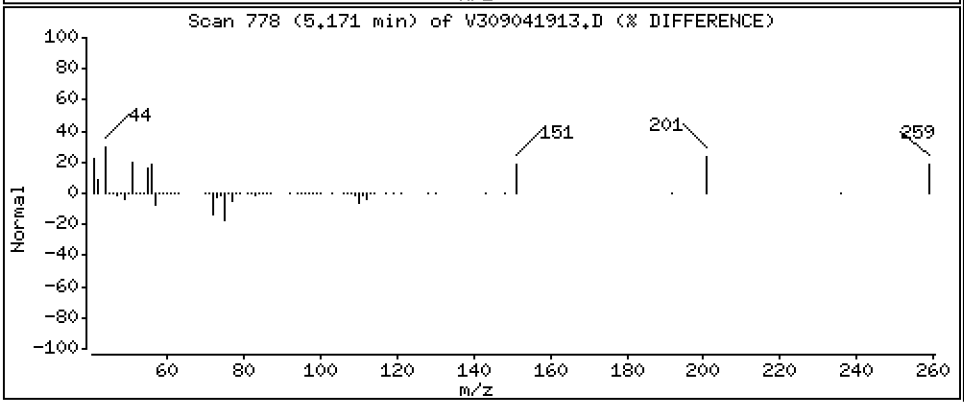












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

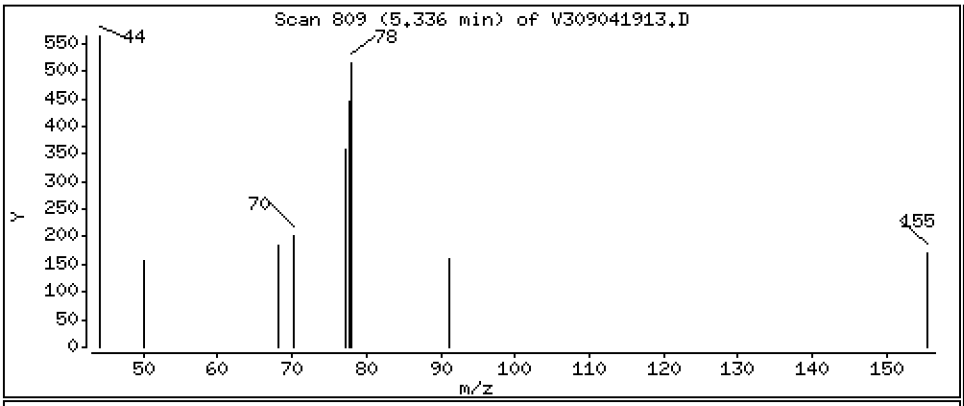
Operator: PKC

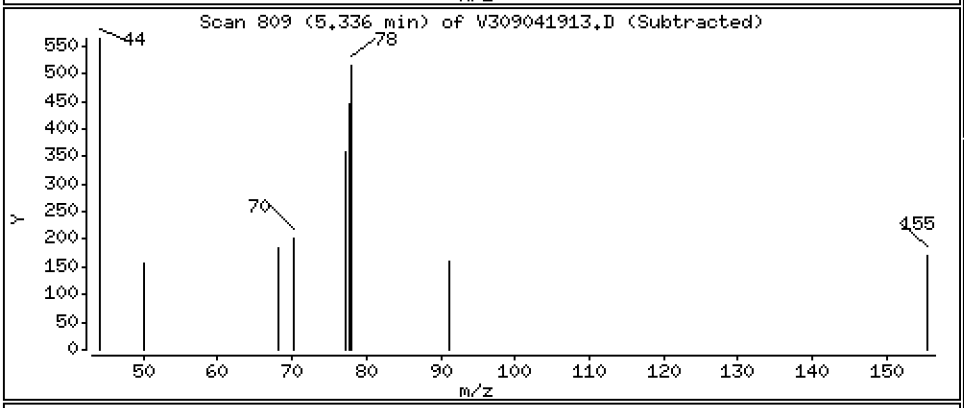
Column phase: RTXVMS

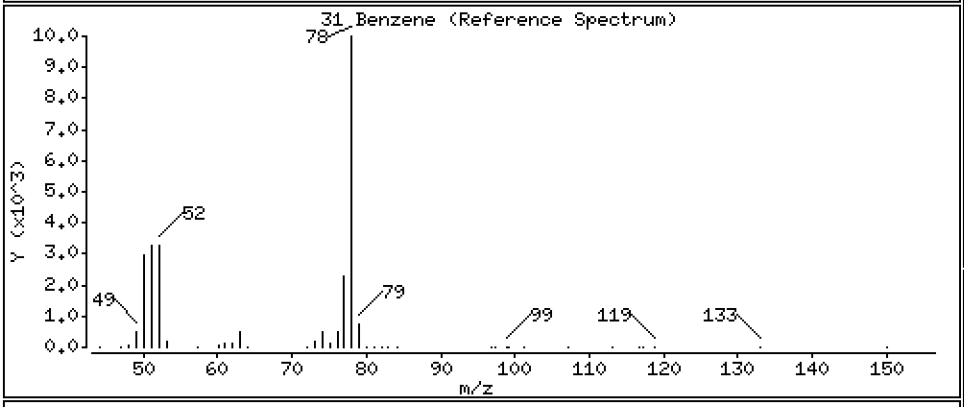
Column diameter: 0.18

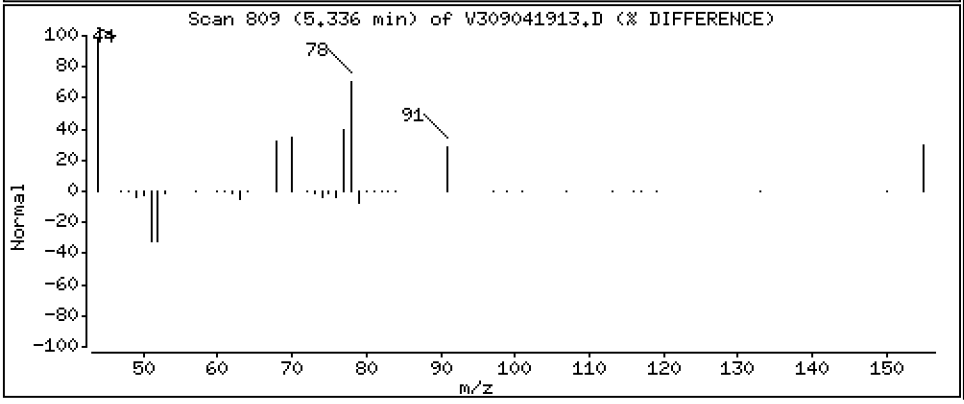
31 Benzene

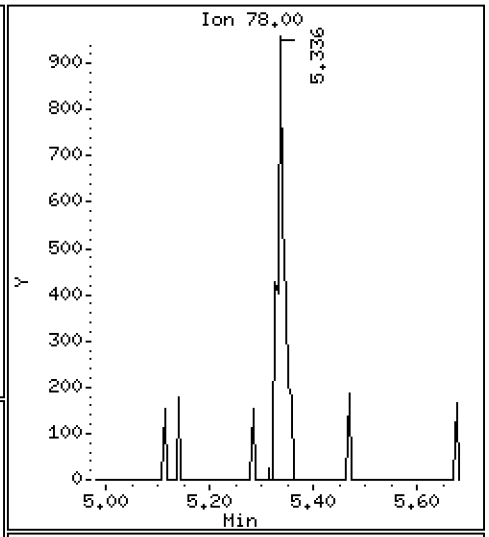
Concentration: 0.03464 ug/L

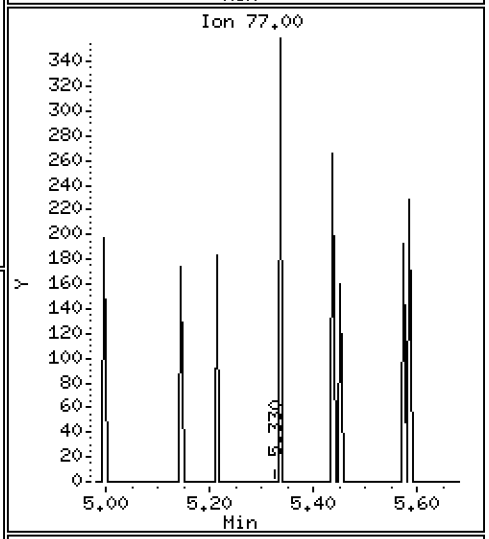


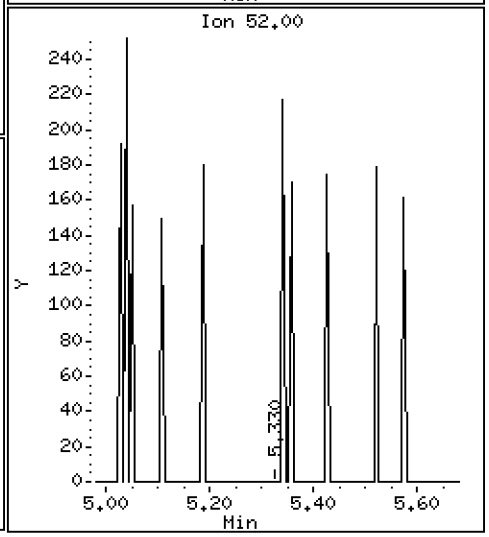












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

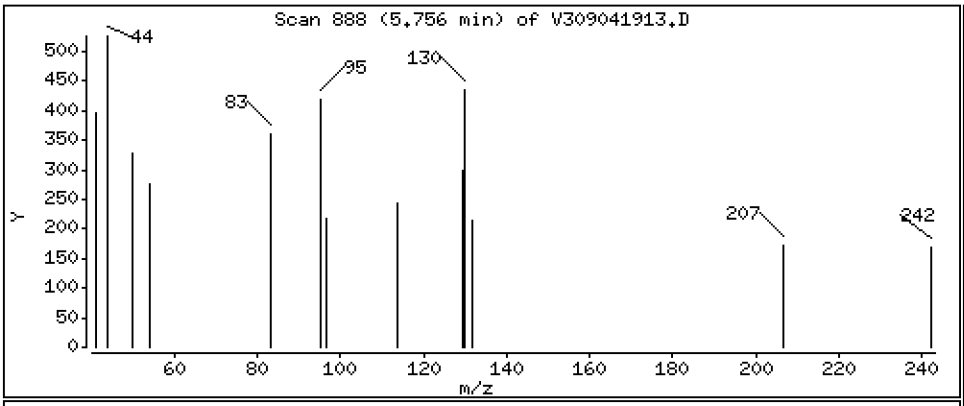
Operator: PKC

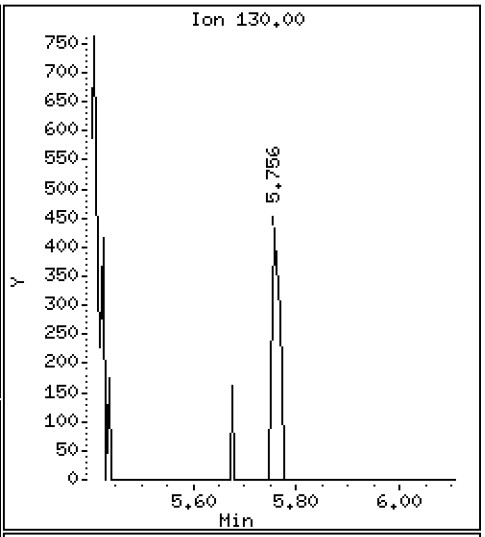
Column phase: RTXVMS

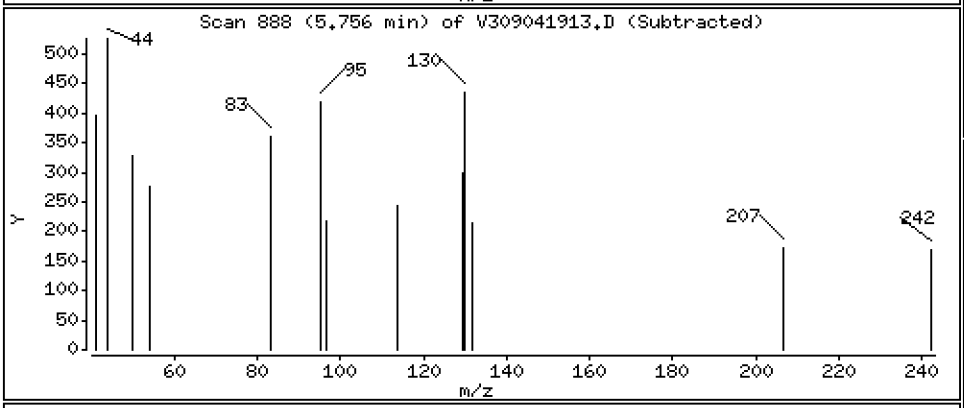
Column diameter: 0.18

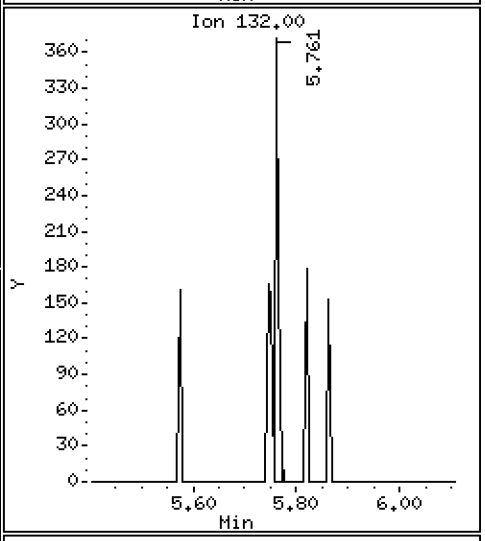
36 Trichloroethene

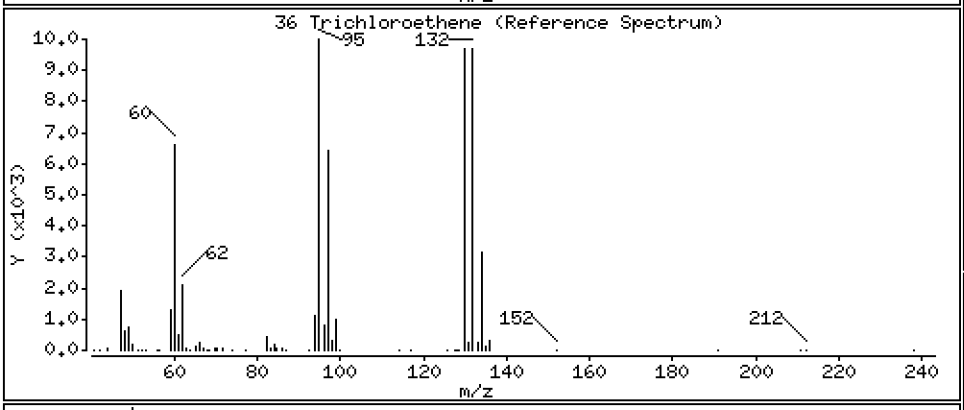
Concentration: 0.06235 ug/L

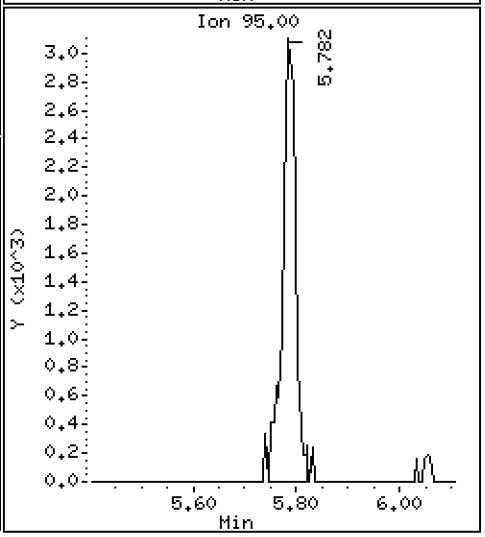


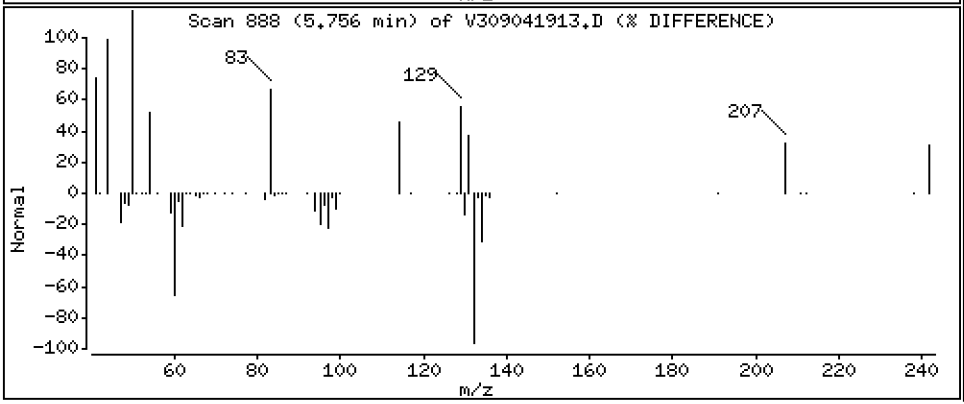












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

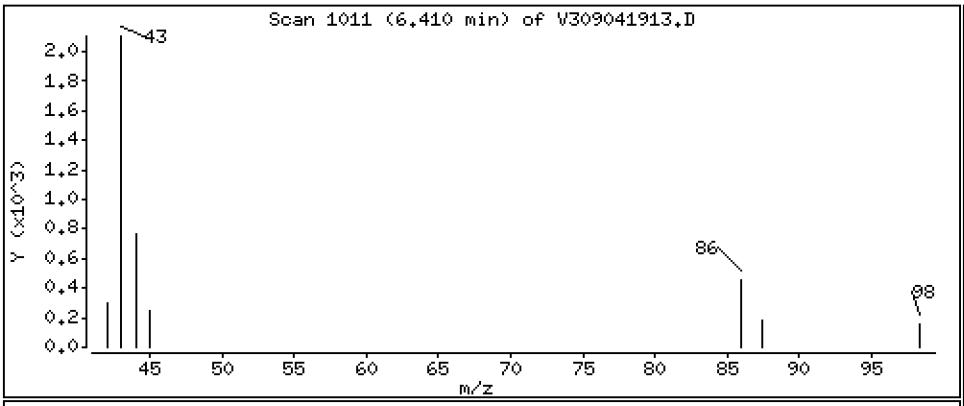
Operator: PKC

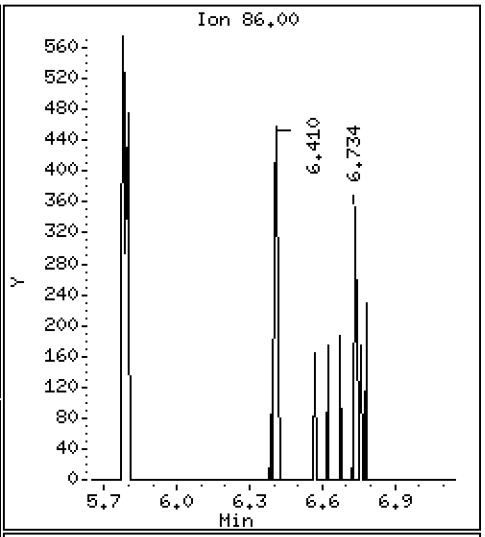
Column phase: RTXVMS

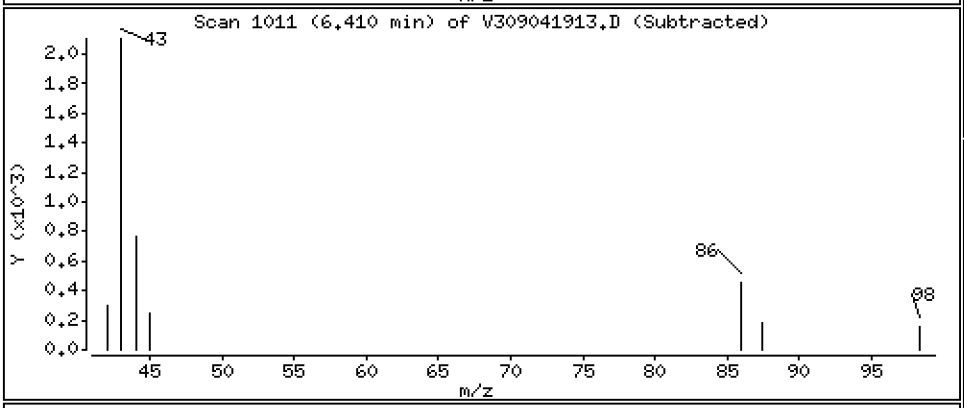
Column diameter: 0.18

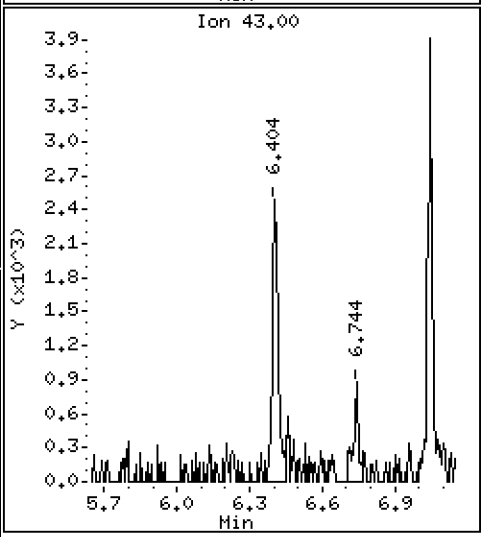
173 2-Pentanone

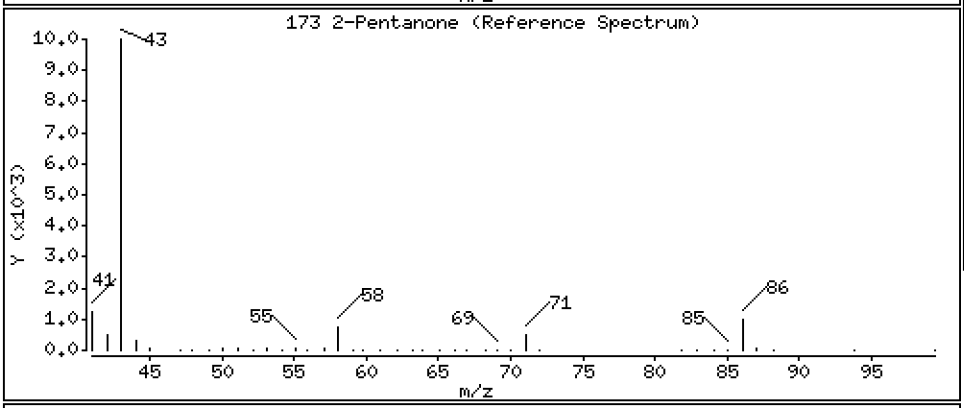
Concentration: 0.6791 ug/L

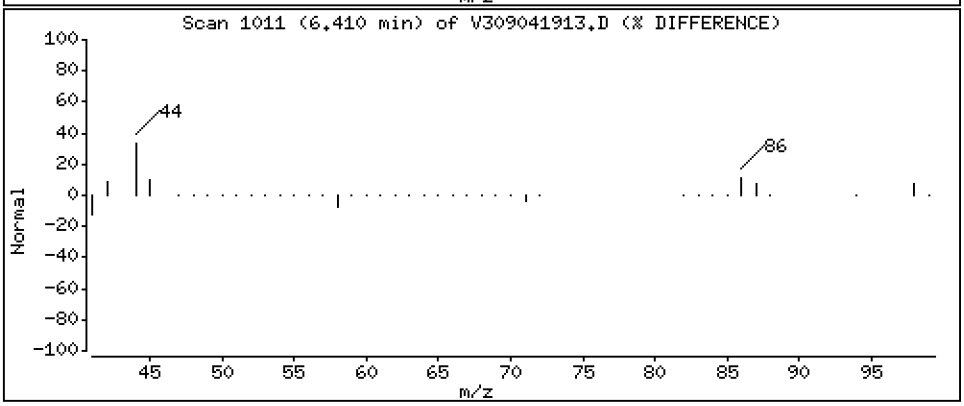












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

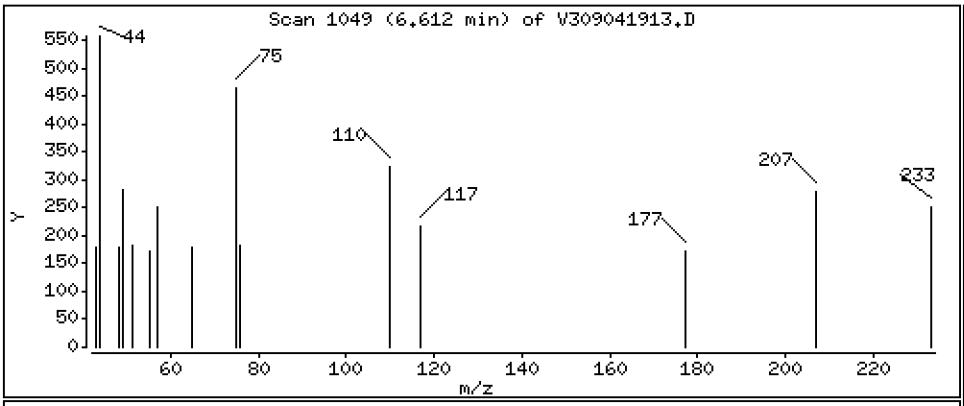
Operator: PKC

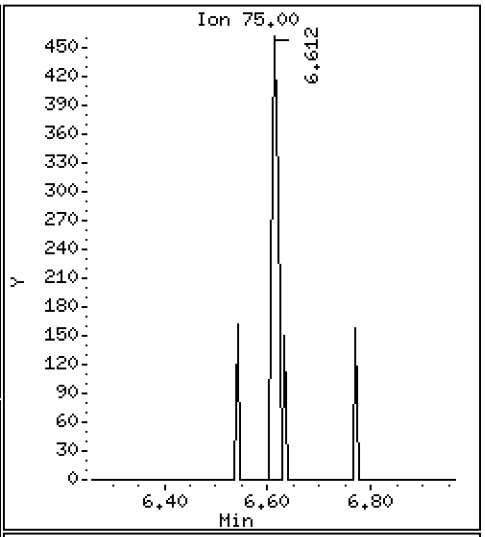
Column phase: RTXVMS

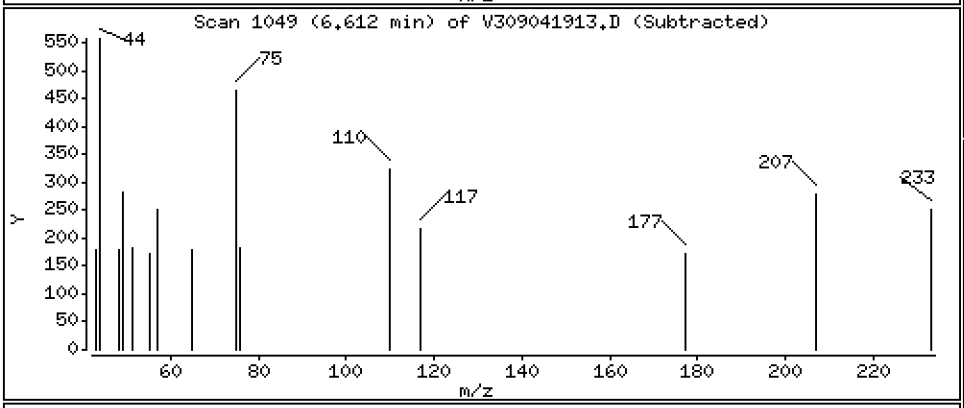
Column diameter: 0.18

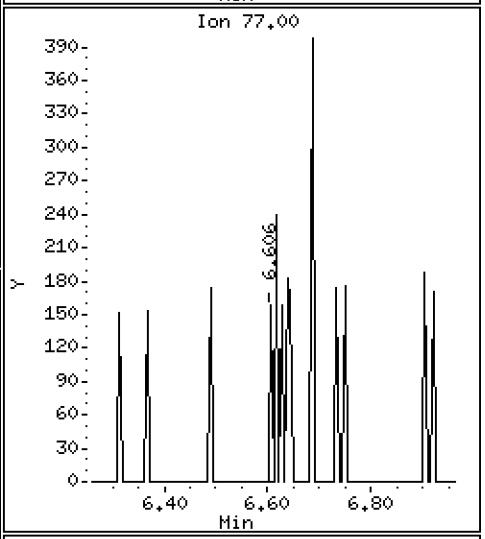
42 Cis 1,3-dichloropropene

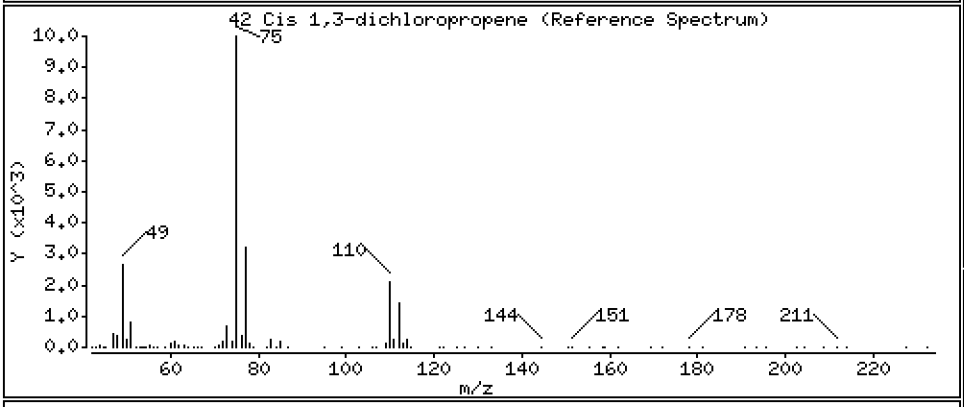
Concentration: 0.03885 ug/L

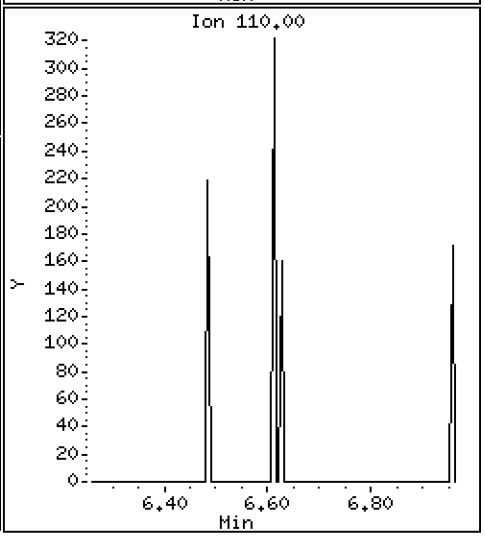


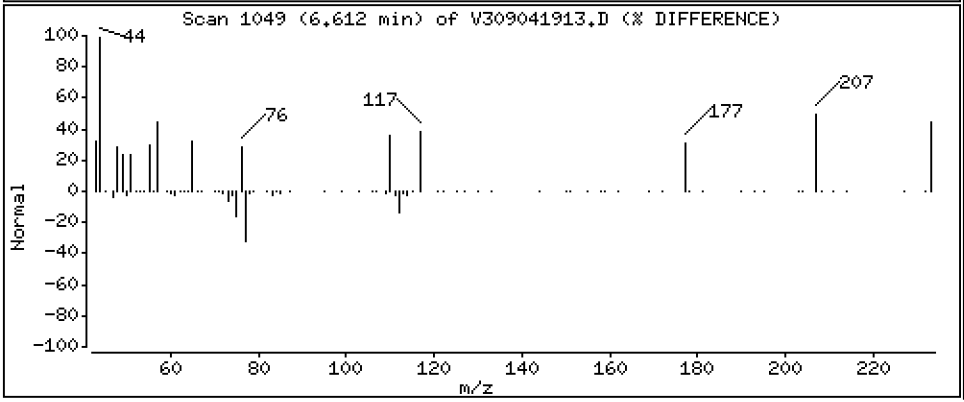












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

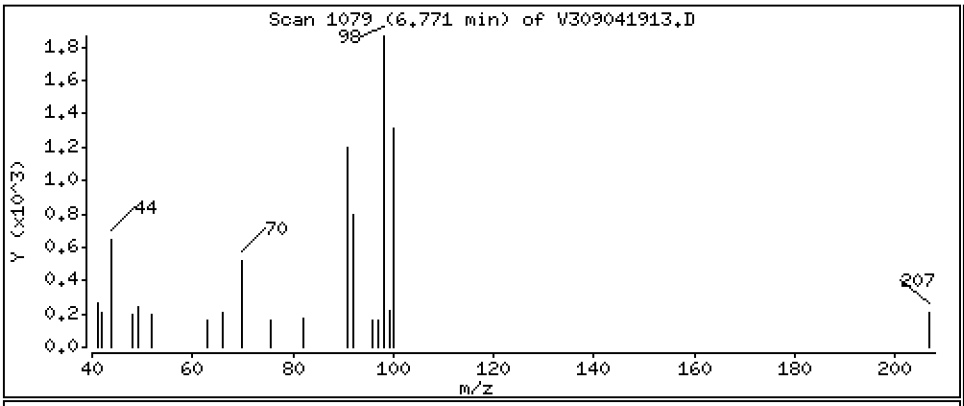
Operator: PKC

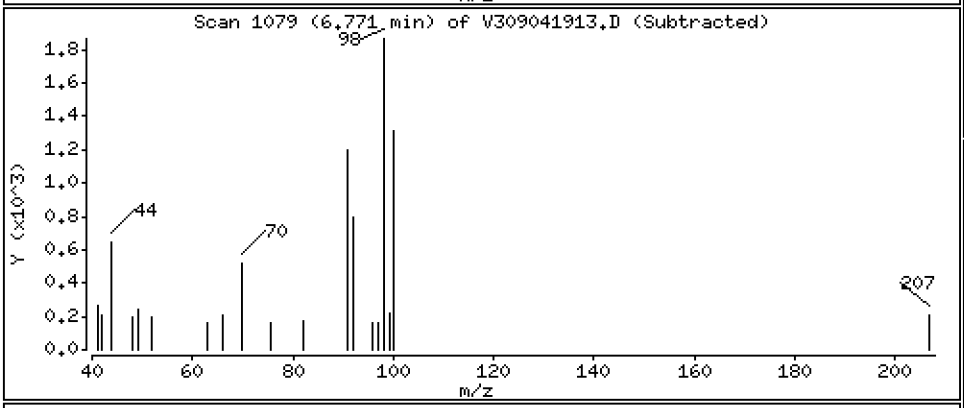
Column phase: RTXVMS

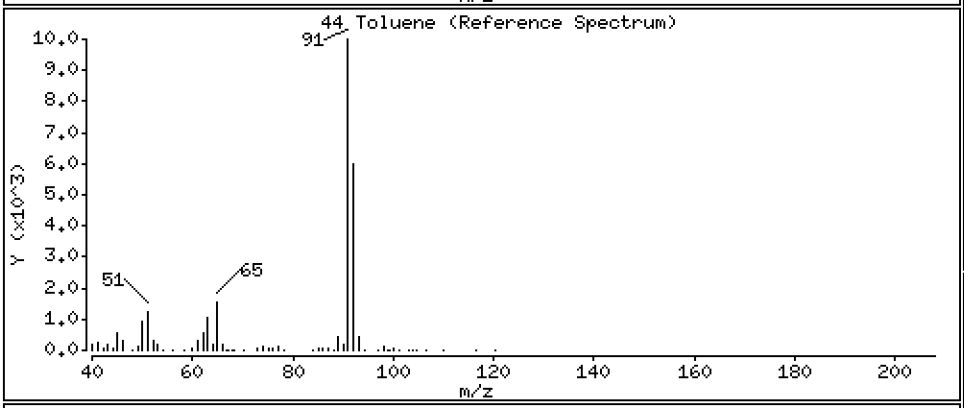
Column diameter: 0.18

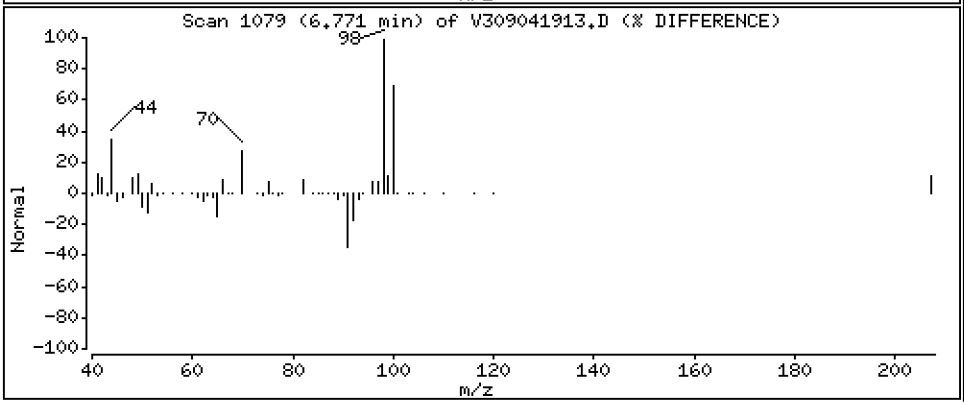
44 Toluene

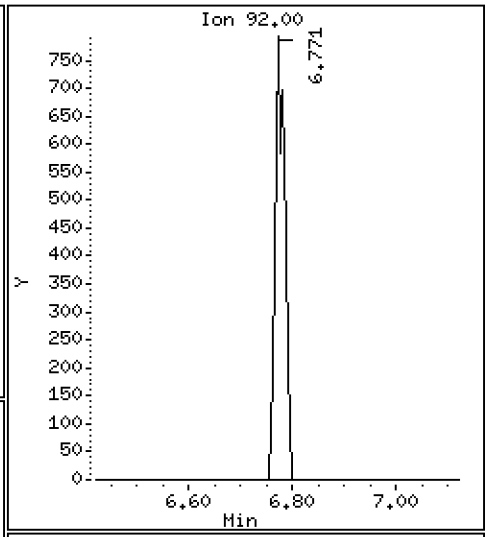
Concentration: 0.05600 ug/L

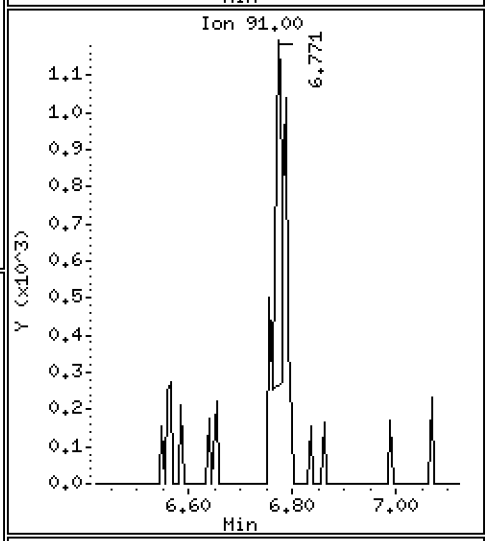


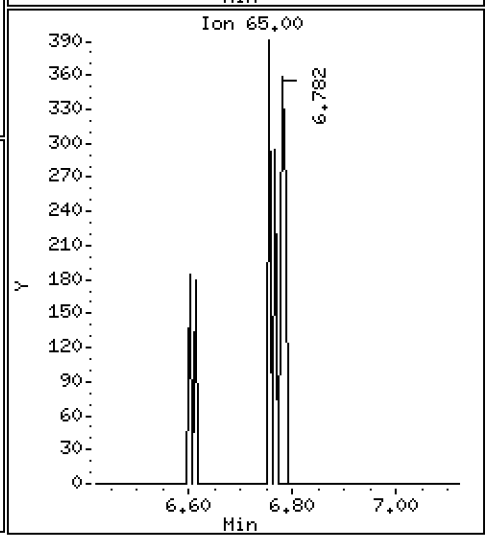












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

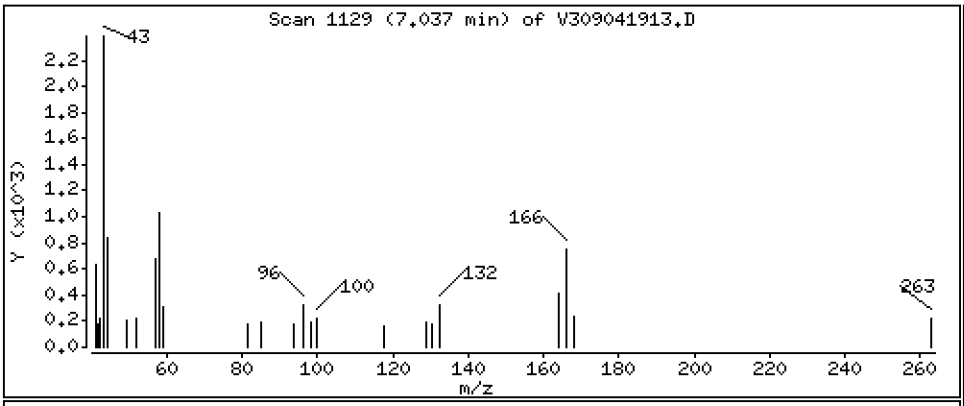
Operator: PKC

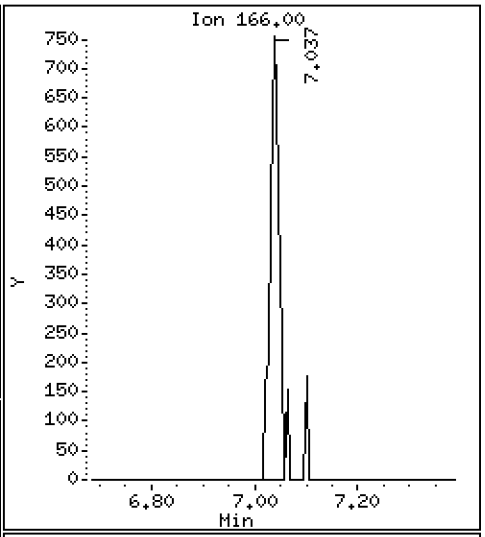
Column phase: RTXVMS

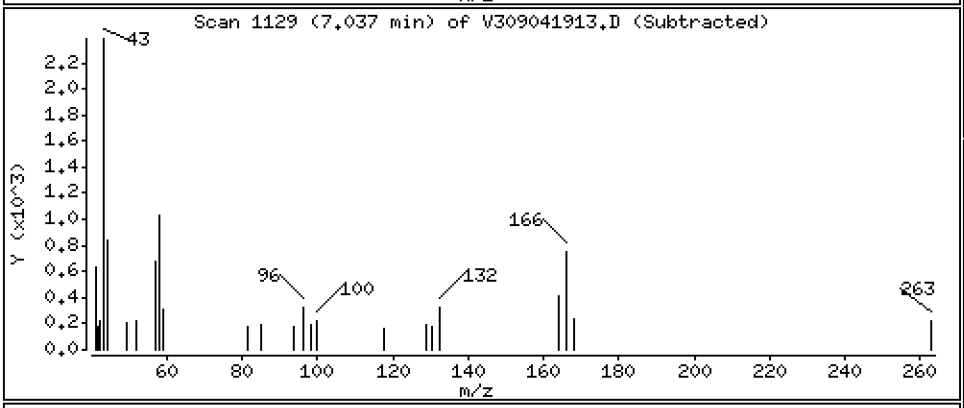
Column diameter: 0.18

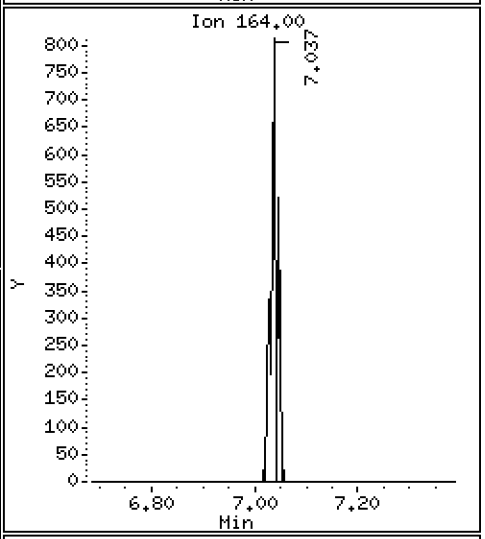
46 Tetrachloroethene

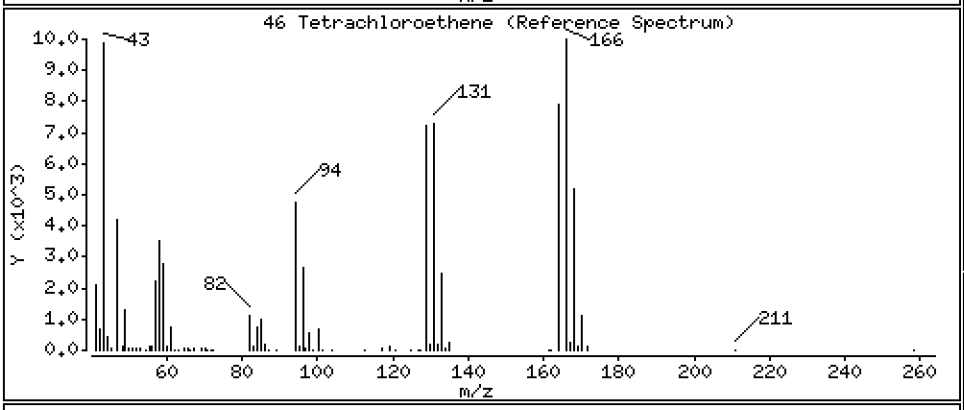
Concentration: 0.1048 ug/L

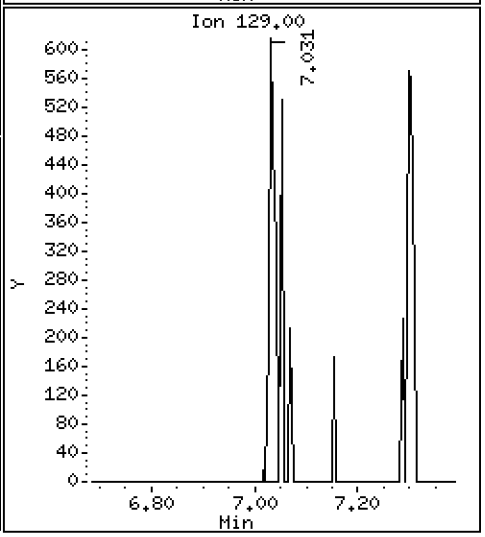


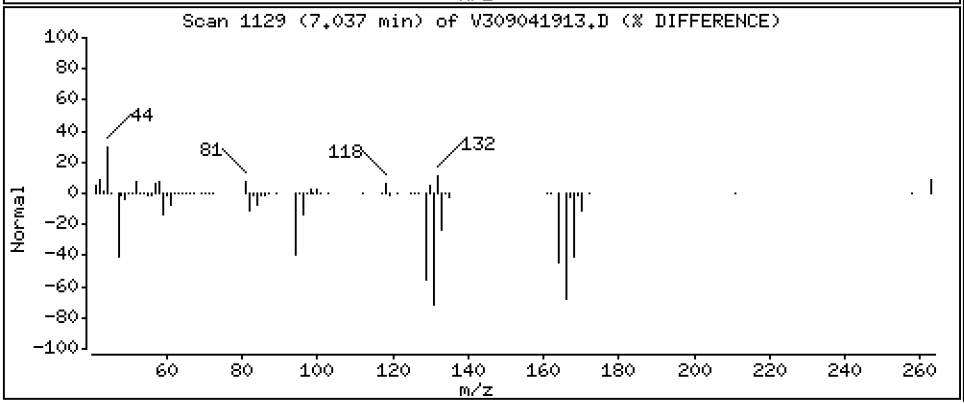












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

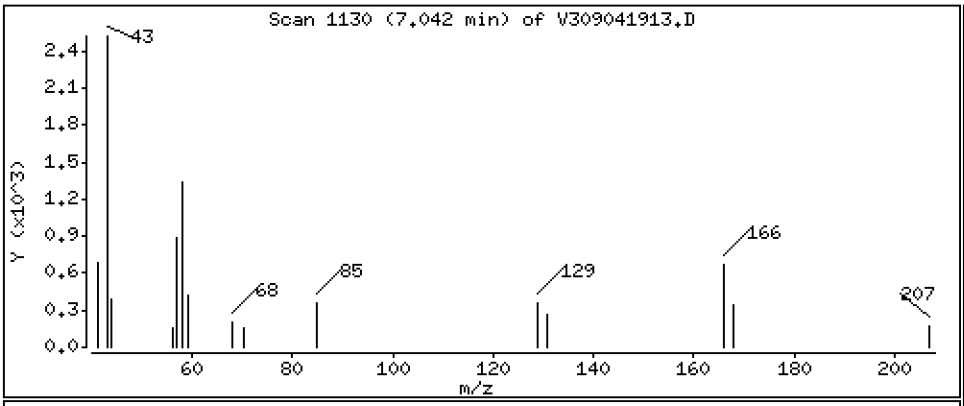
Operator: PKC

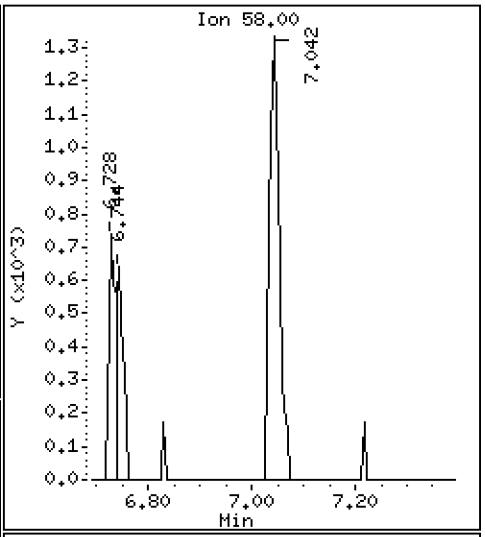
Column phase: RTXVMS

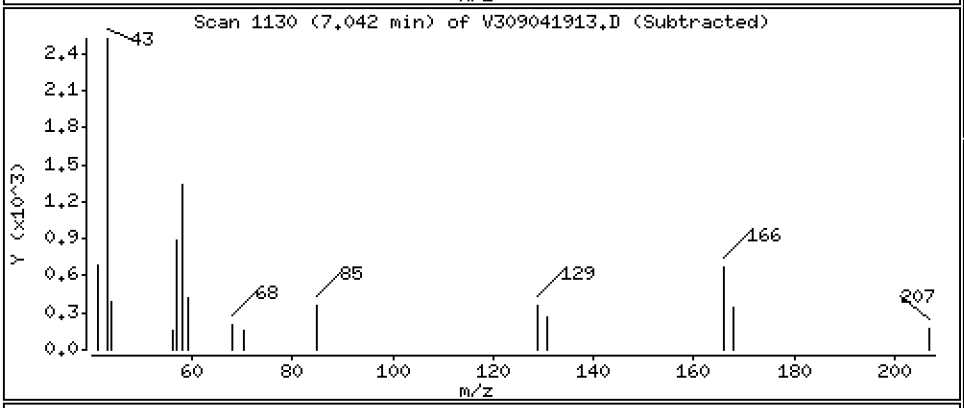
Column diameter: 0.18

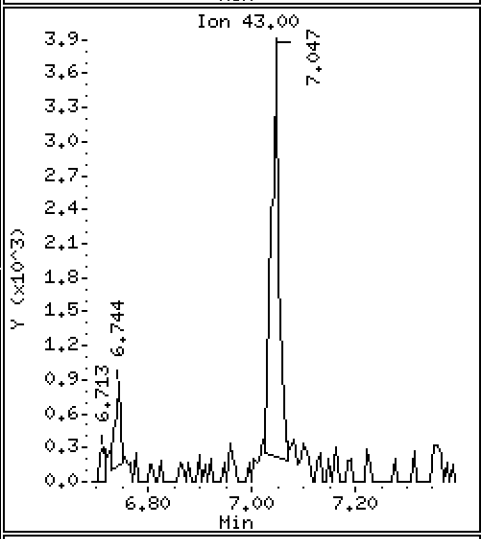
45 4-Methyl-2-Pentanone

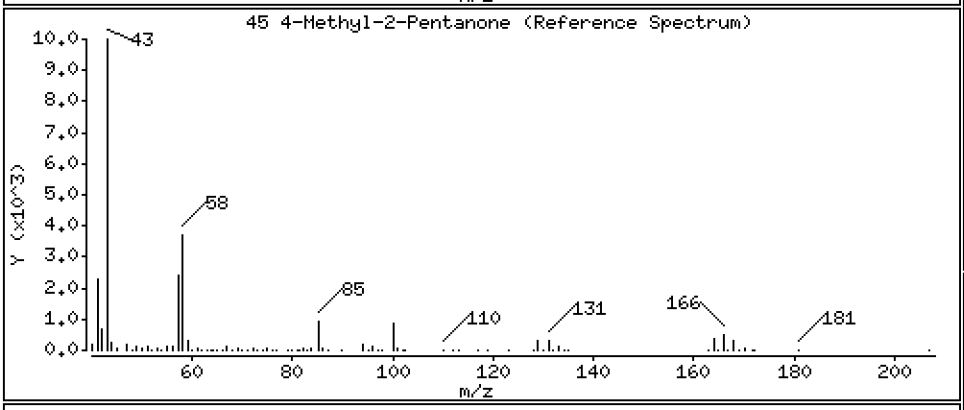
Concentration: 0.7497 ug/L

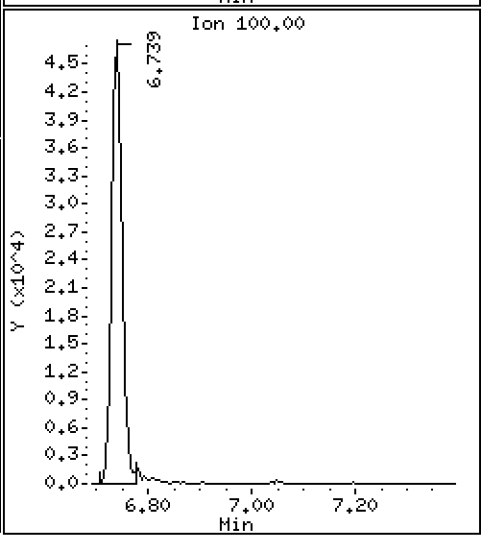


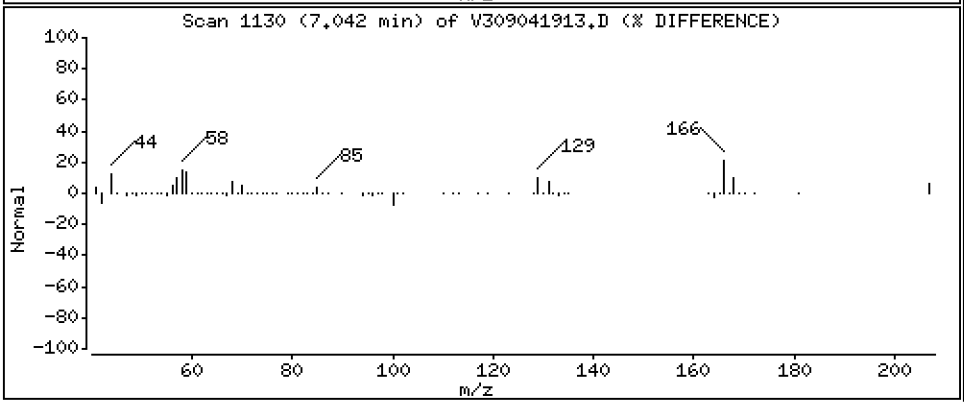












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

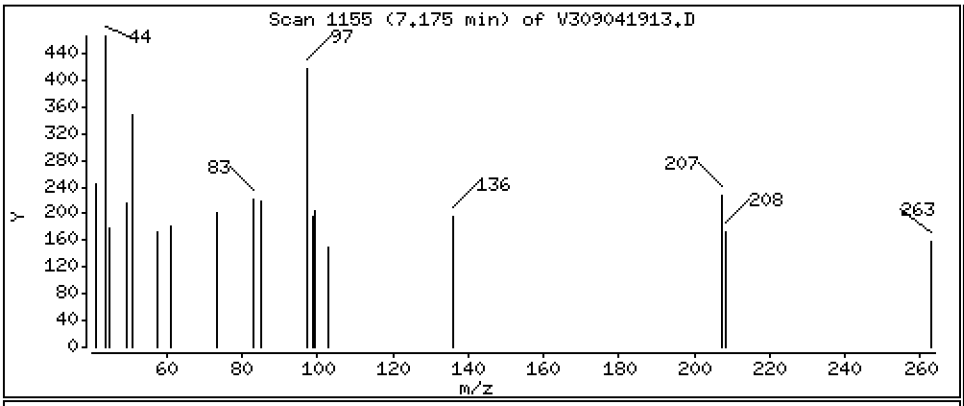
Operator: PKC

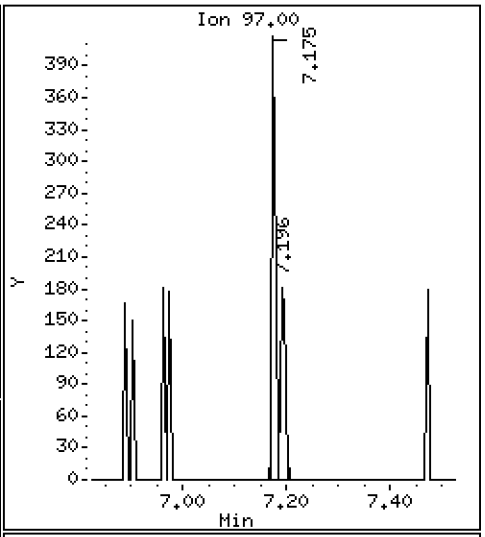
Column phase: RTXVMS

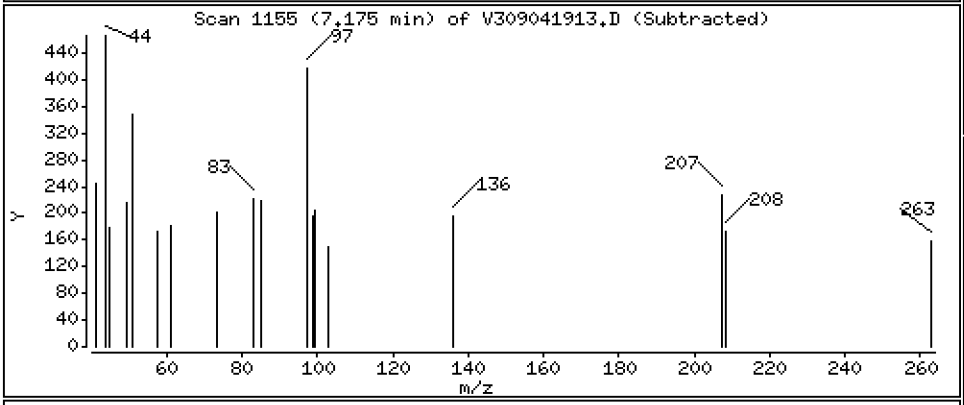
Column diameter: 0.18

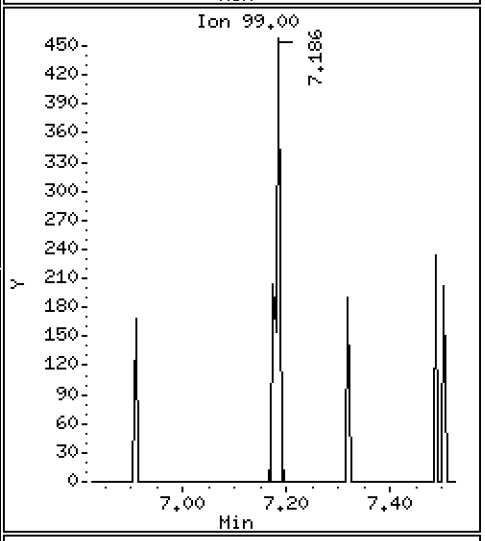
48 1,1,2-Trichloroethane

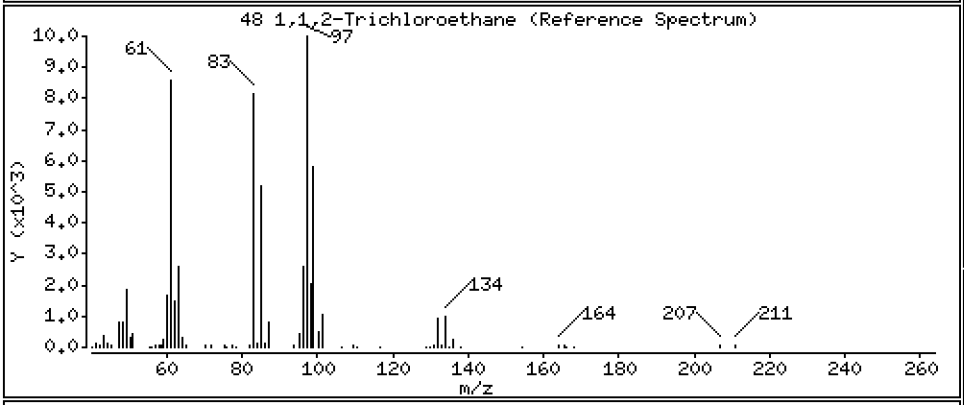
Concentration: 0.03777 ug/L

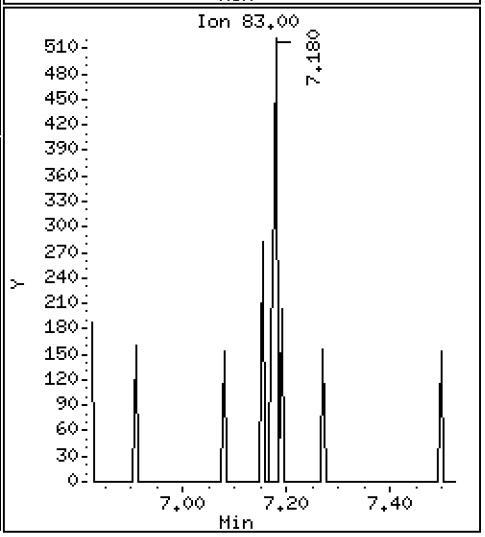


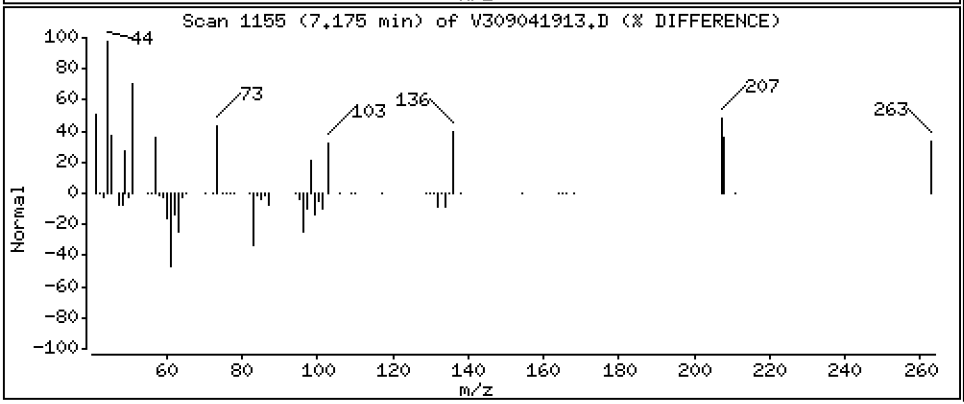












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

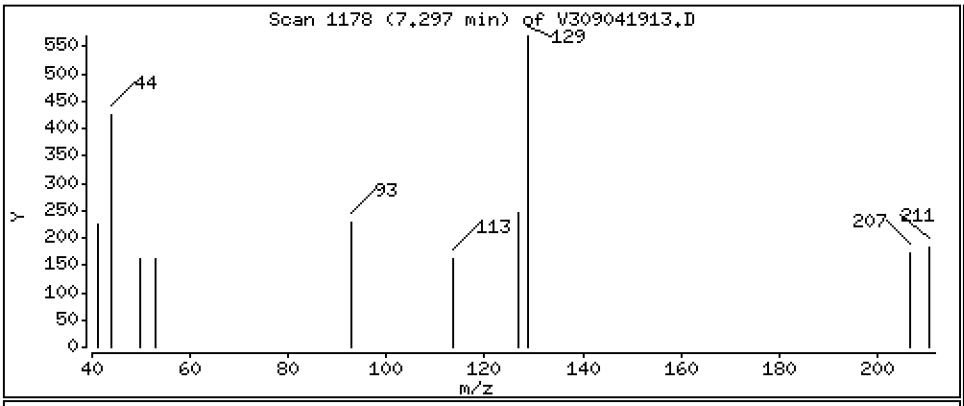
Operator: PKC

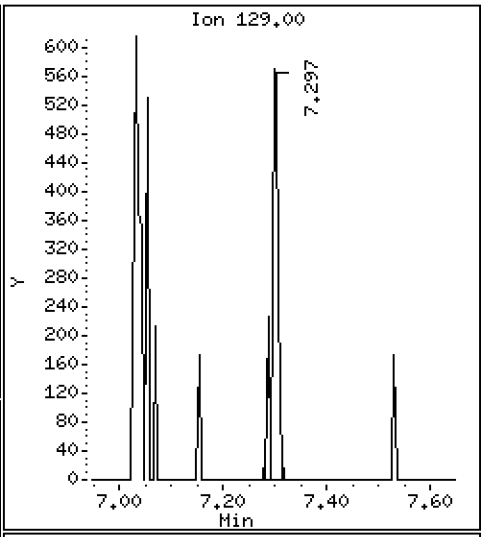
Column phase: RTXVMS

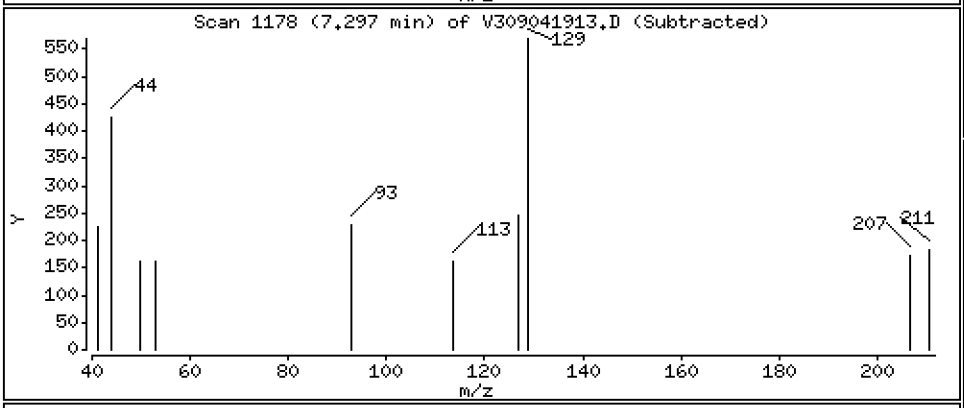
Column diameter: 0.18

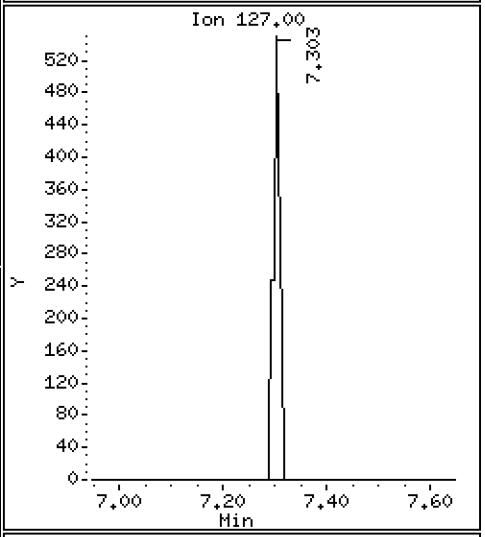
49 Chlorodibromomethane

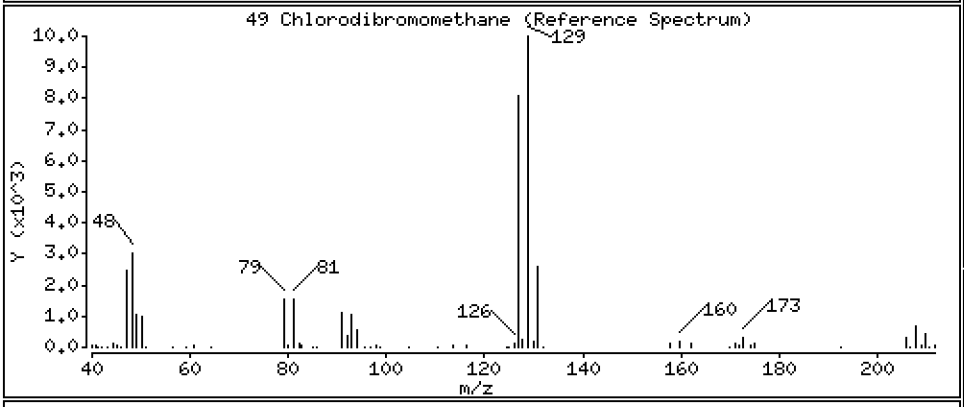
Concentration: 0.07947 ug/L

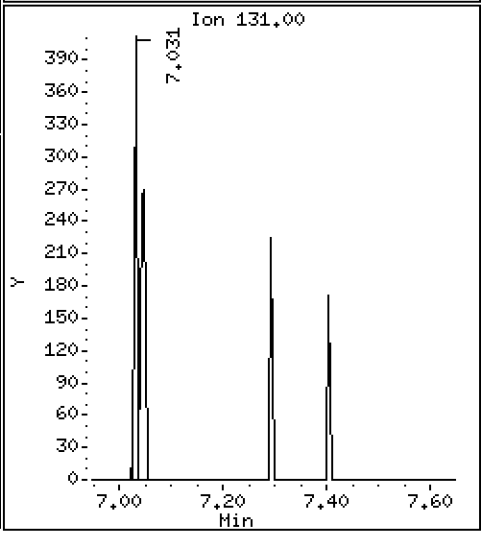


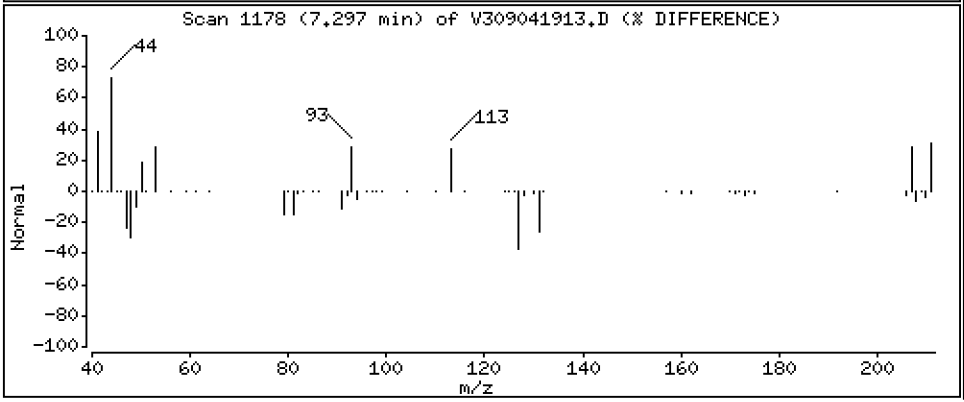












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

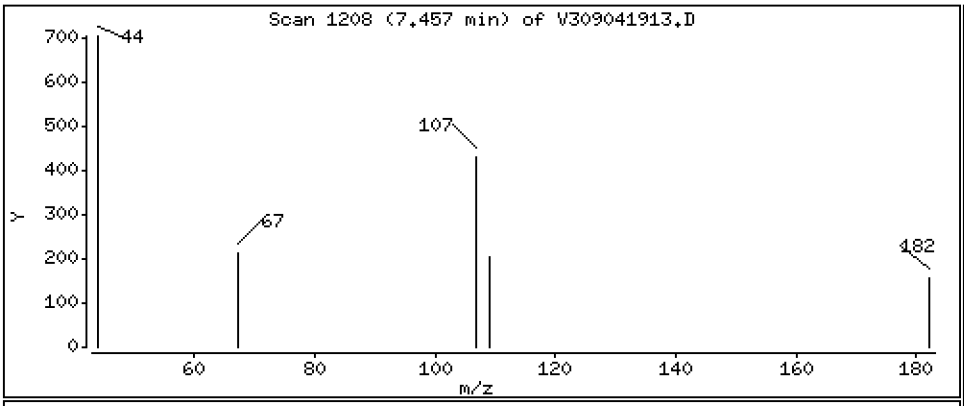
Operator: PKC

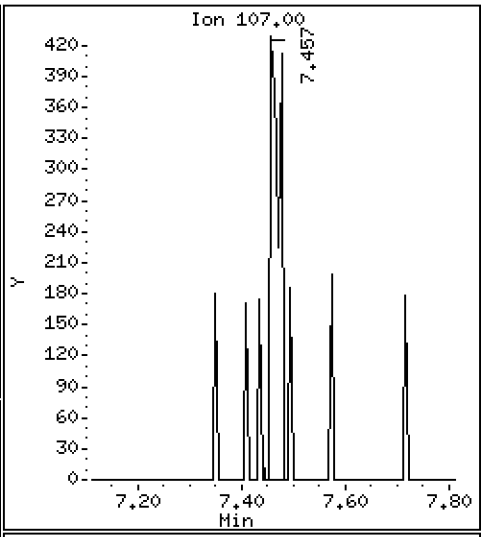
Column phase: RTXVMS

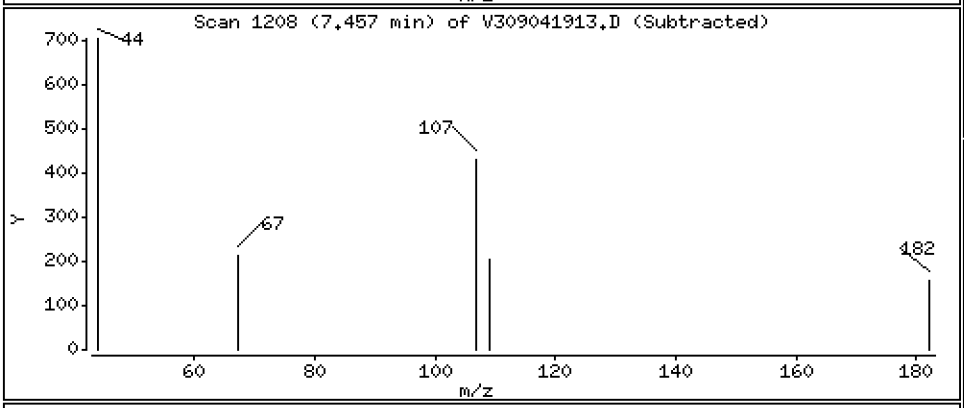
Column diameter: 0.18

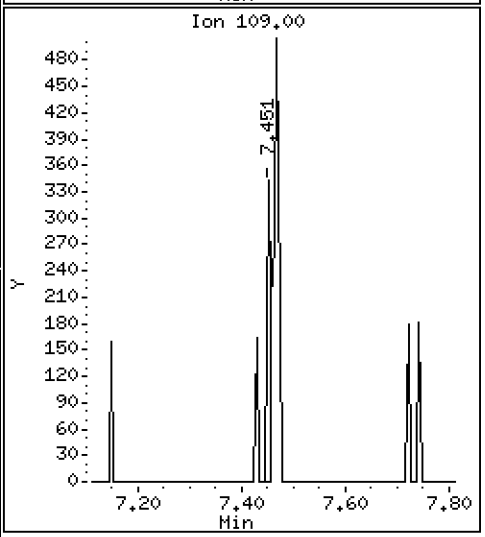
51 1,2-Dibromoethane

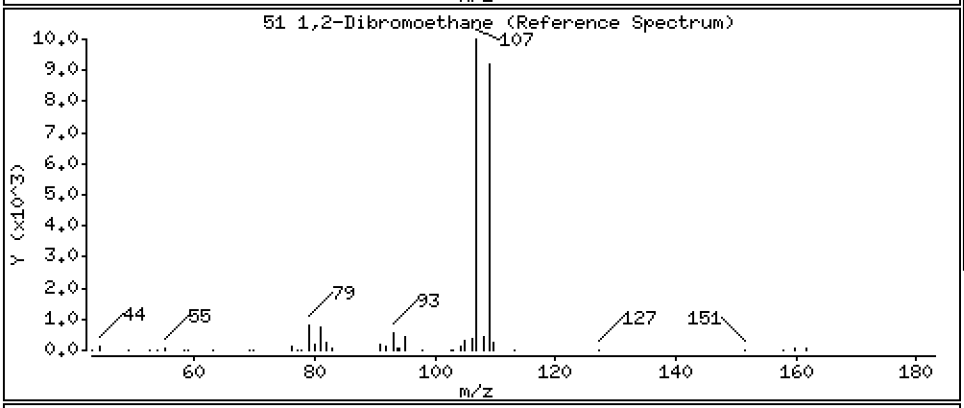
Concentration: 0.1107 ug/L

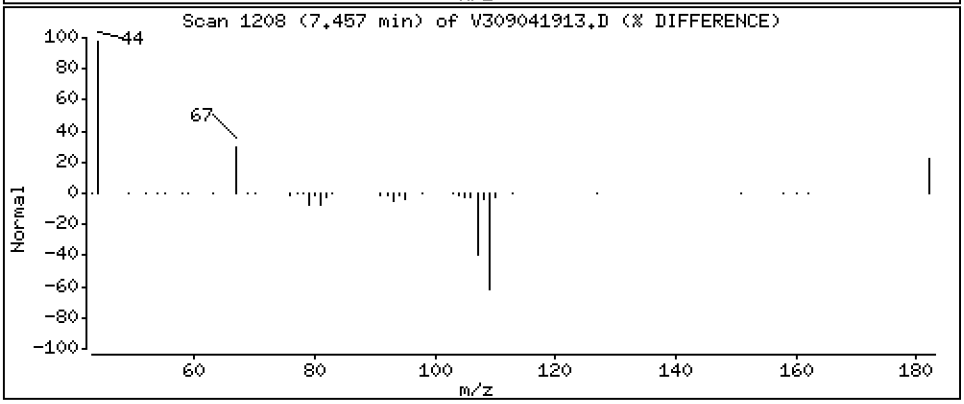












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

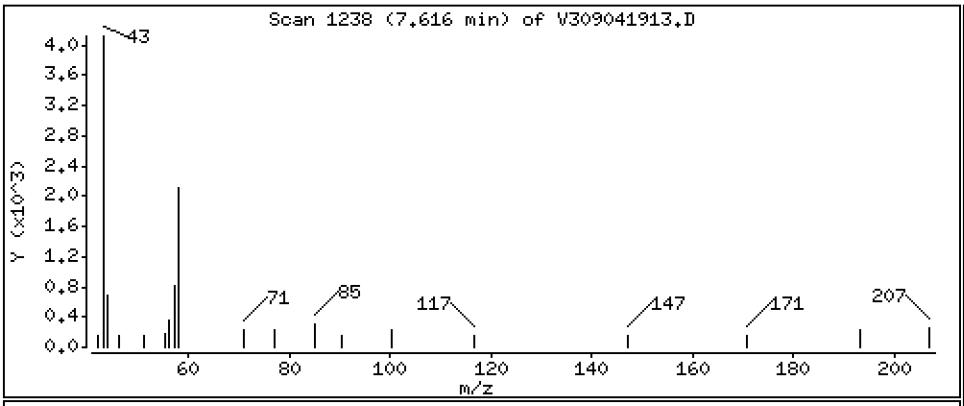
Operator: PKC

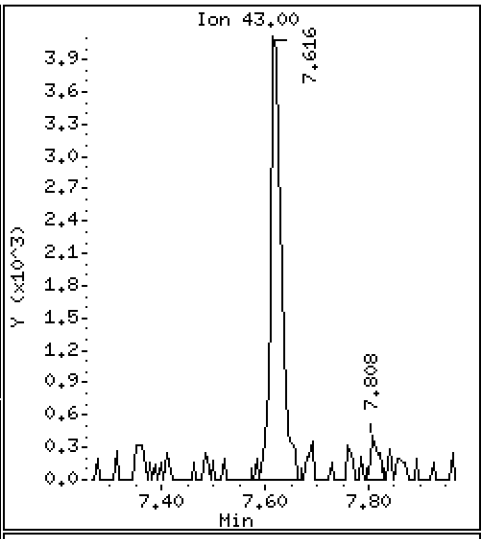
Column phase: RTXVMS

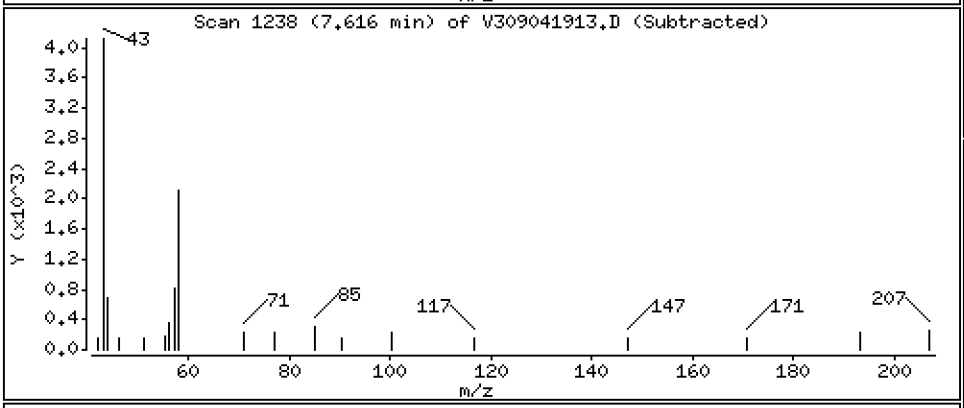
Column diameter: 0.18

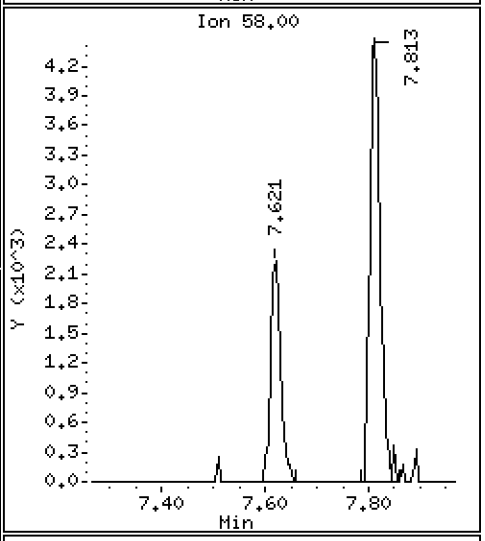
52 2-Hexanone

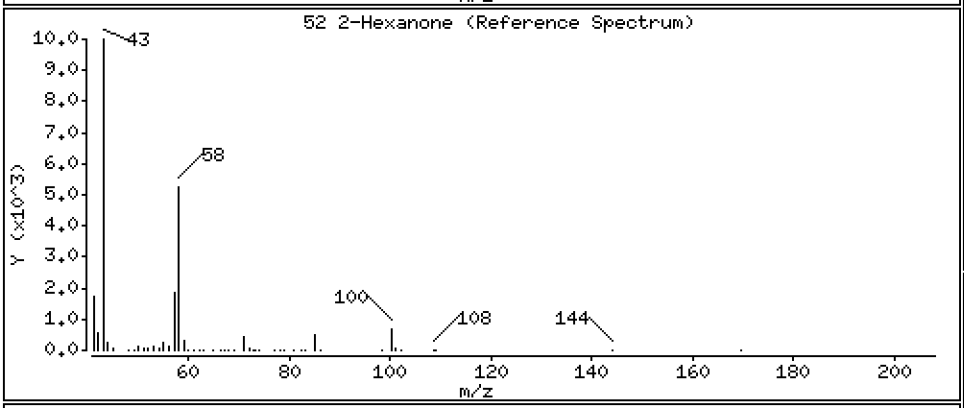
Concentration: 1.295 ug/L

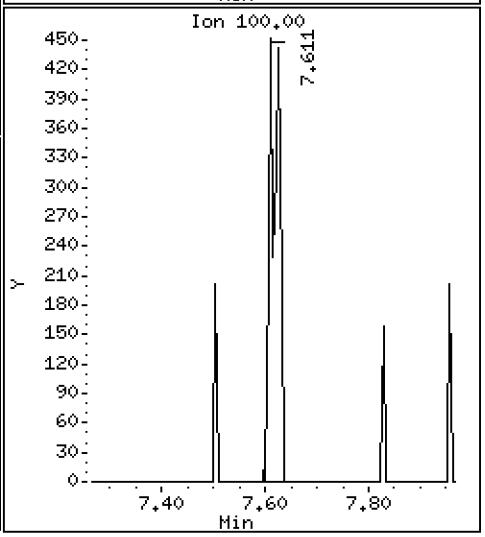


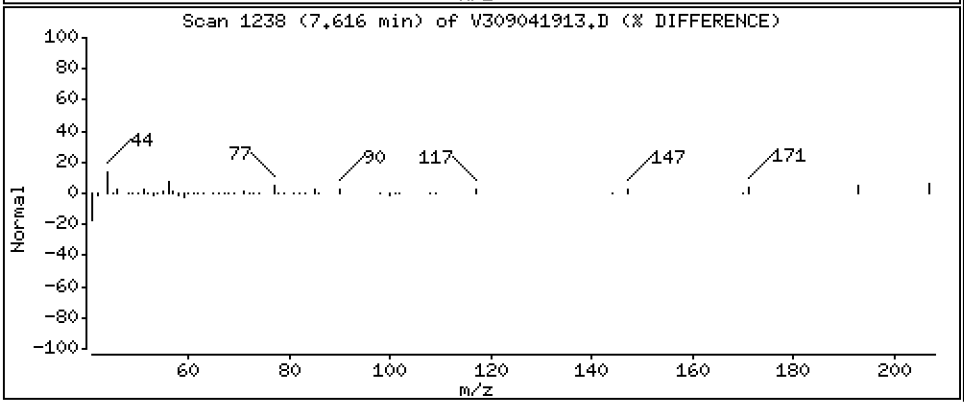












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

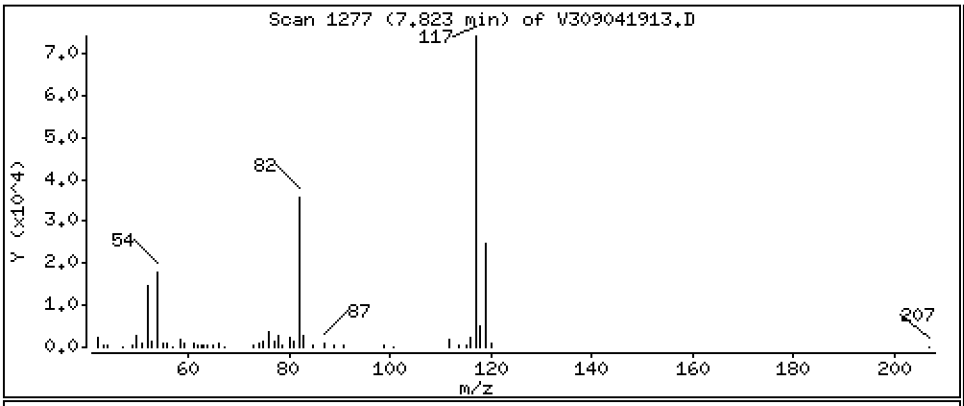
Operator: PKC

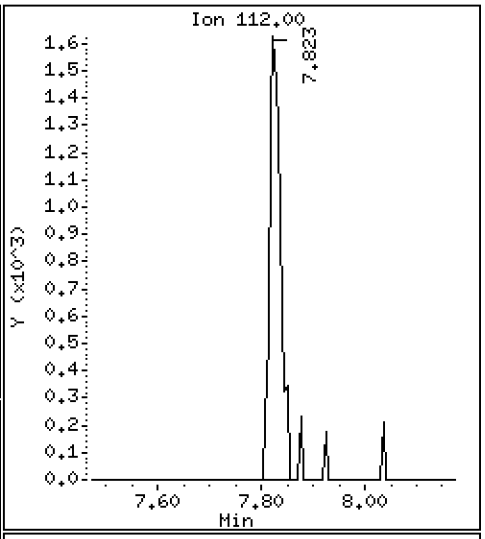
Column phase: RTXVMS

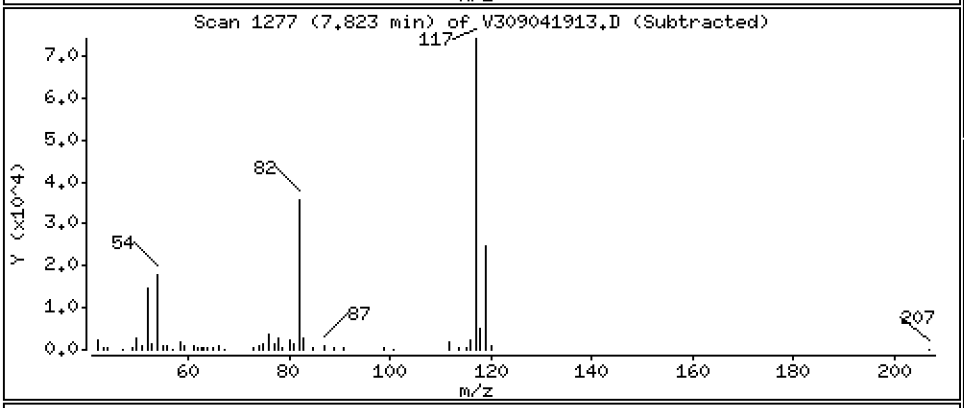
Column diameter: 0.18

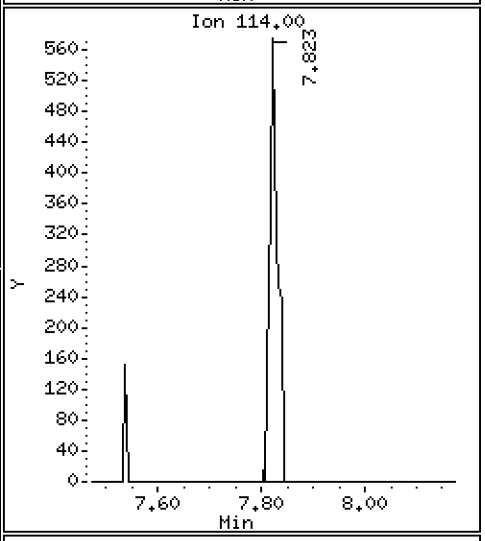
54 Chlorobenzene

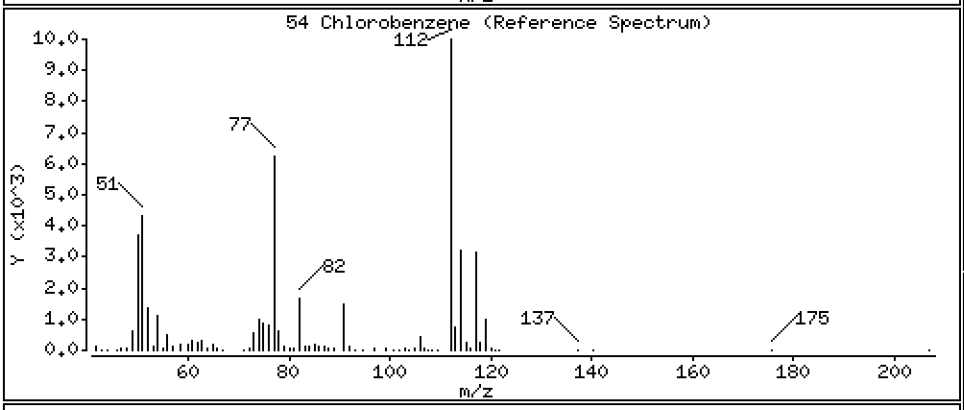
Concentration: 0.1104 ug/L

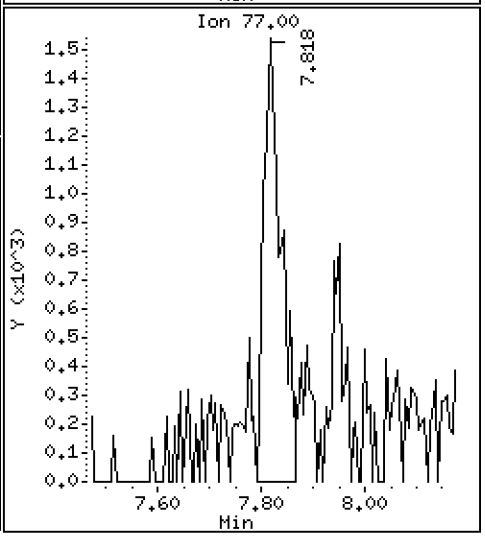


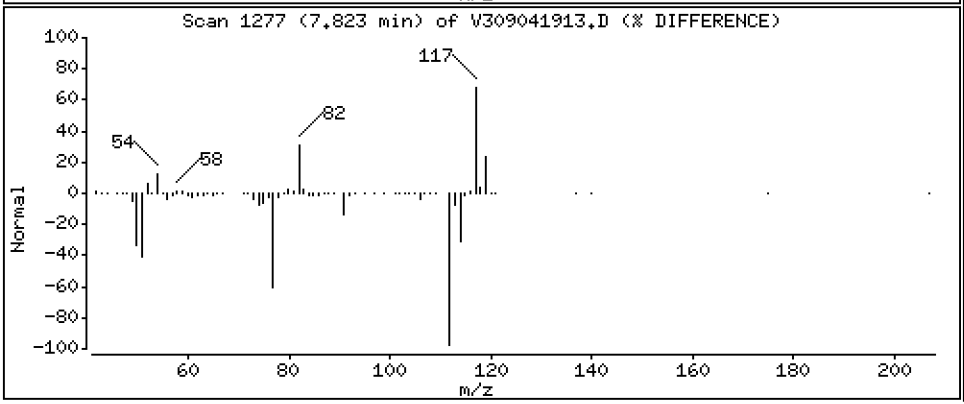












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

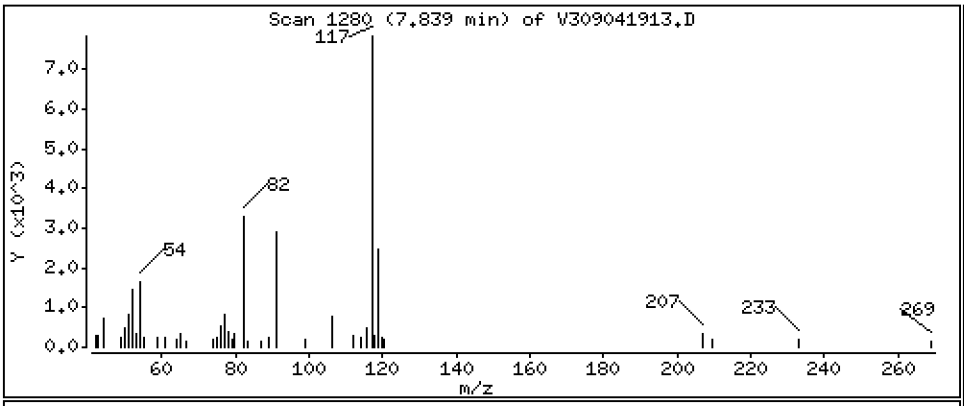
Operator: PKC

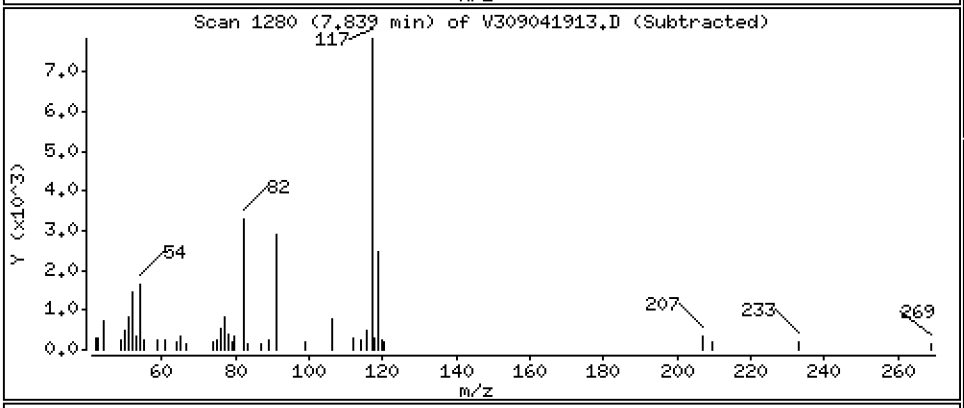
Column phase: RTXVMS

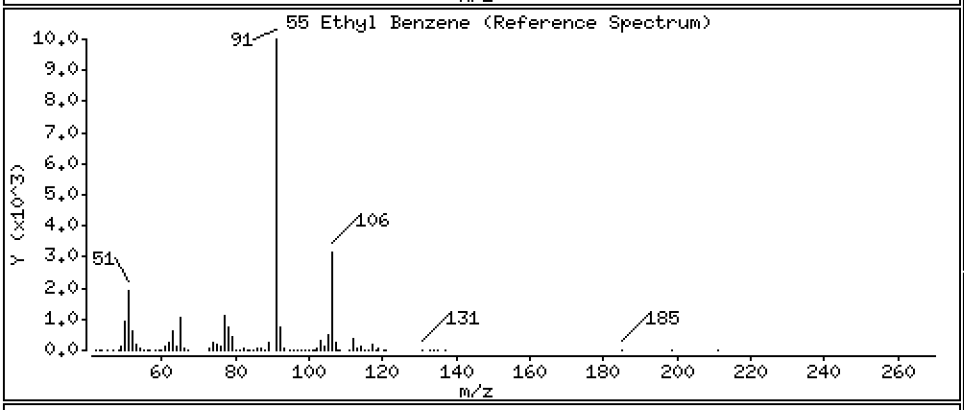
Column diameter: 0.18

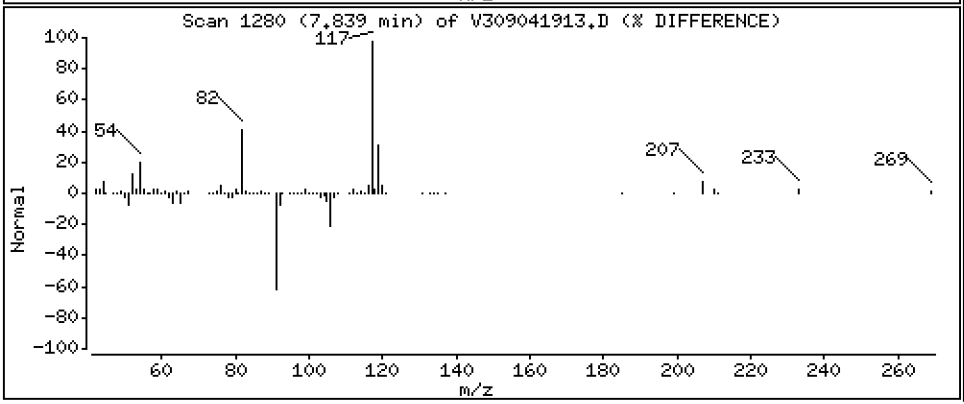
55 Ethyl Benzene

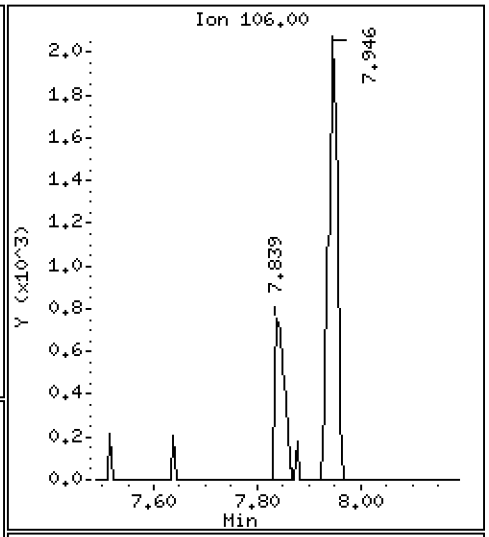
Concentration: 0.08009 ug/L

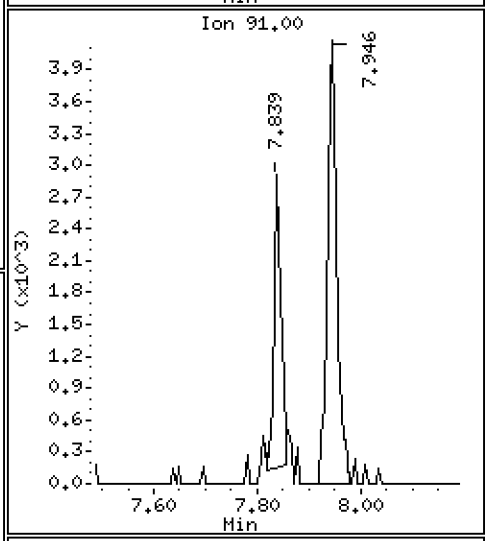


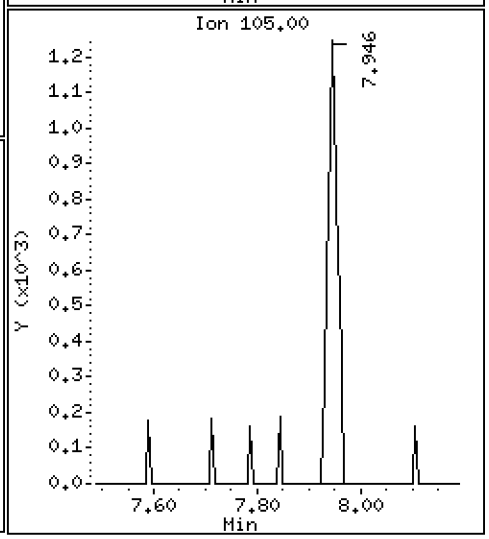












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

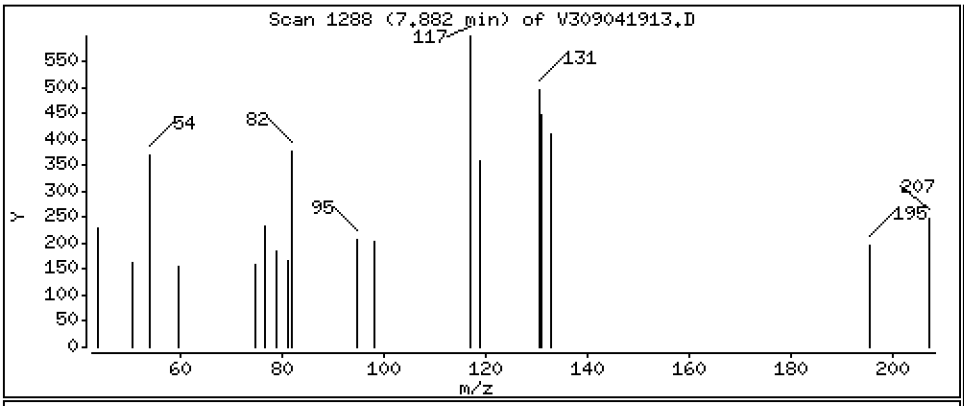
Operator: PKC

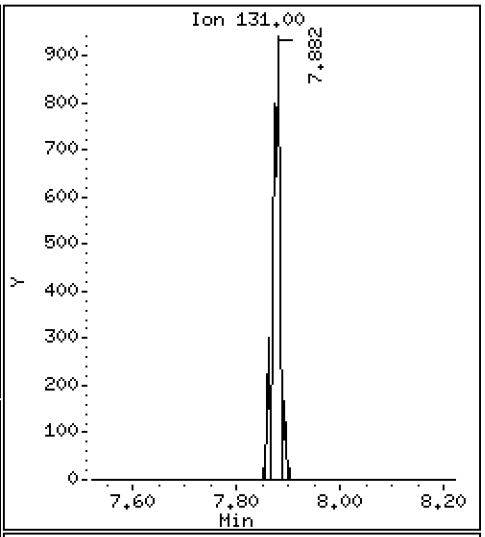
Column phase: RTXVMS

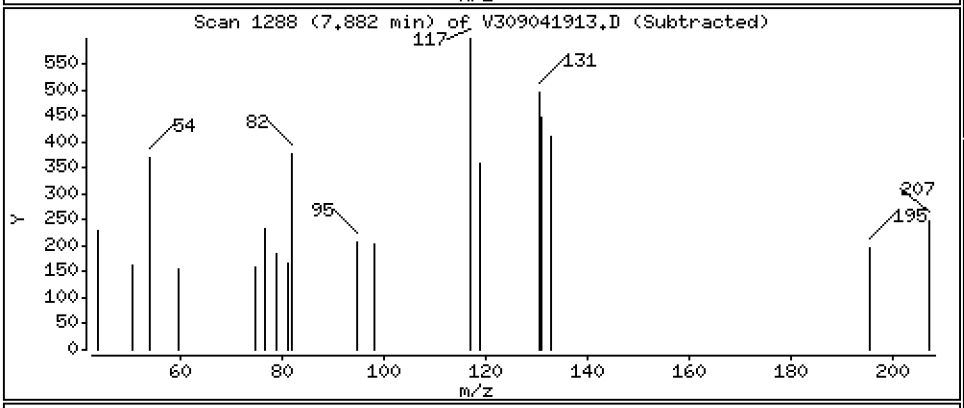
Column diameter: 0.18

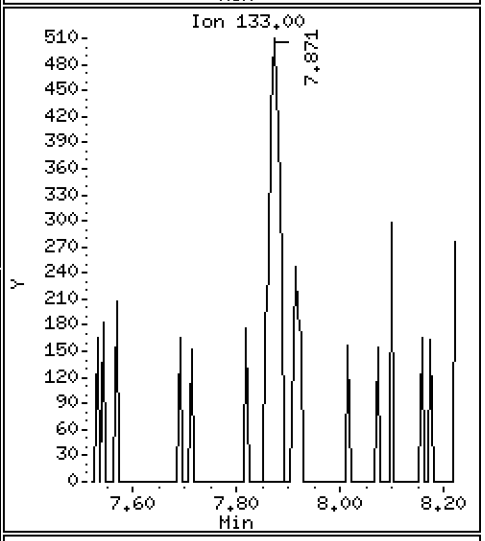
56 1,1,1,2-Tetrachloroethane

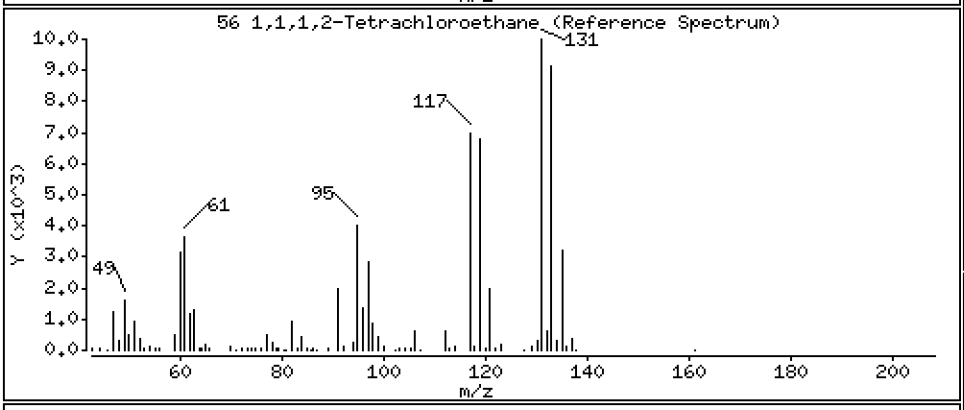
Concentration: 0.1133 ug/L

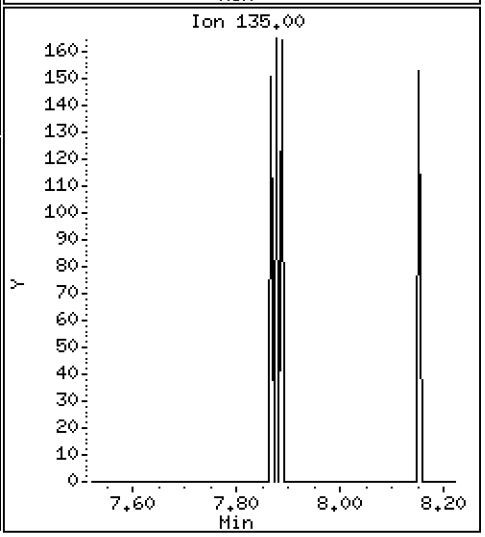


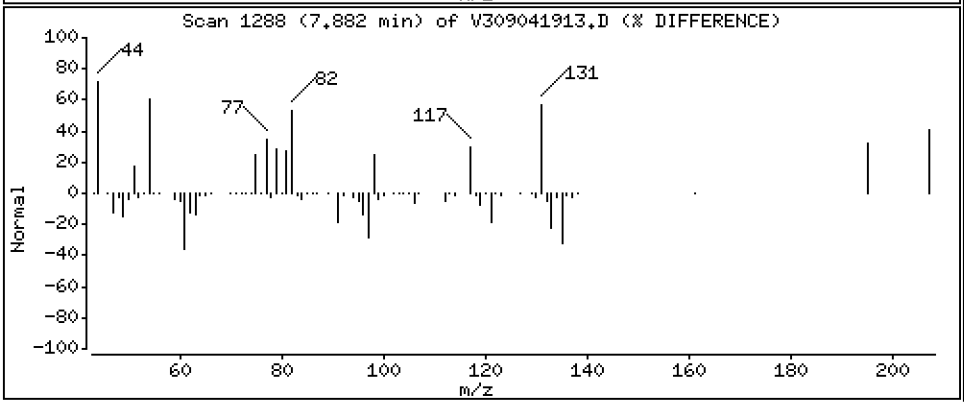












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

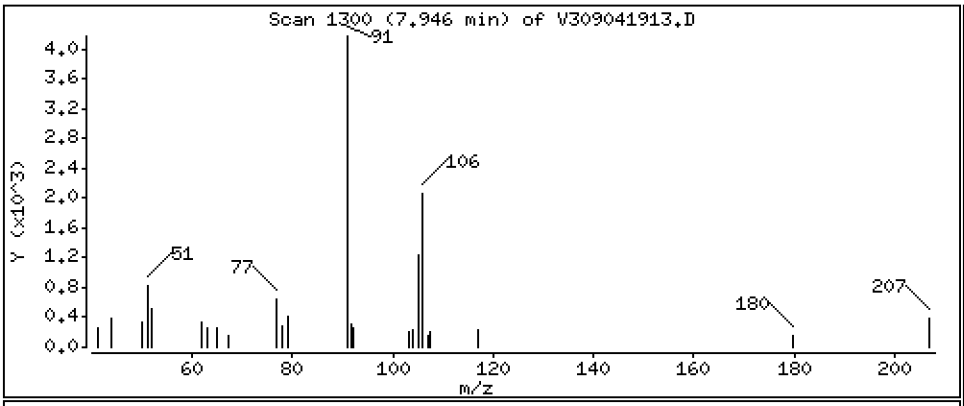
Operator: PKC

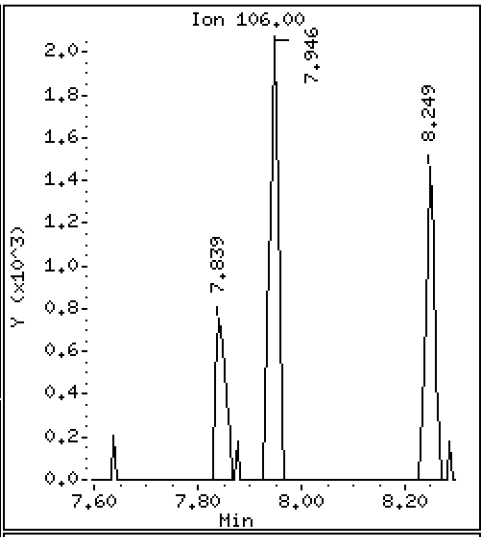
Column phase: RTXVMS

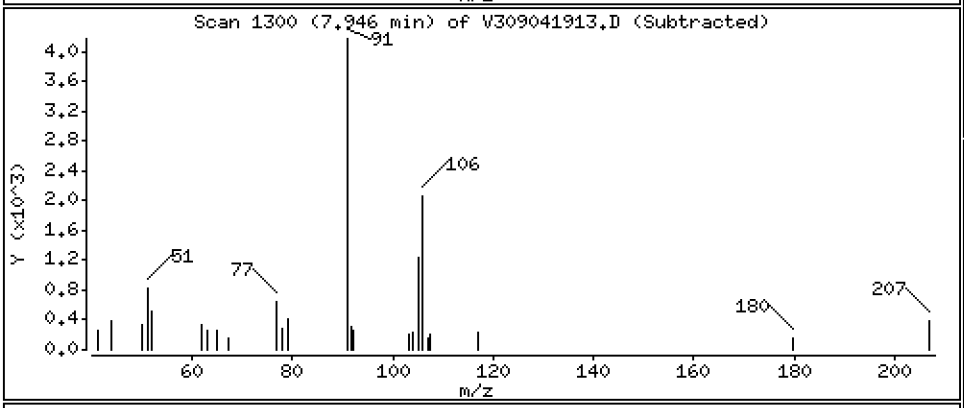
Column diameter: 0.18

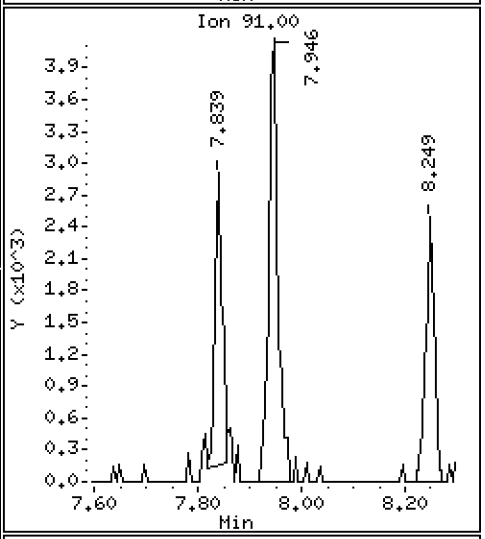
57 m,p-xylene

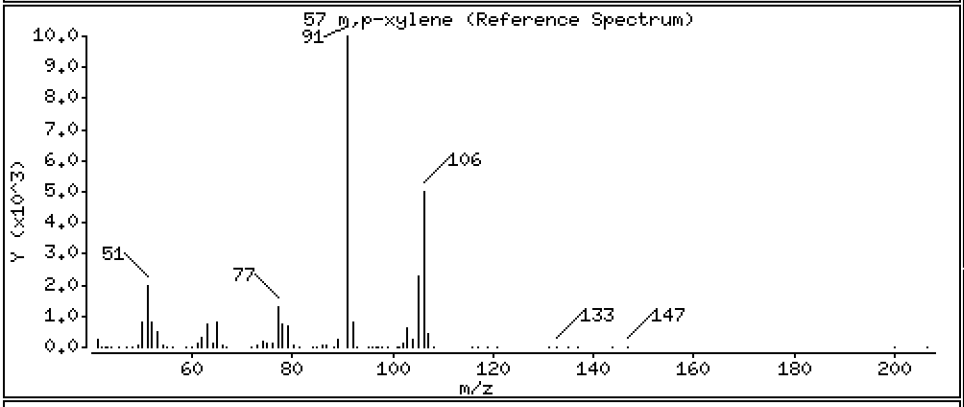
Concentration: 0.1687 ug/L

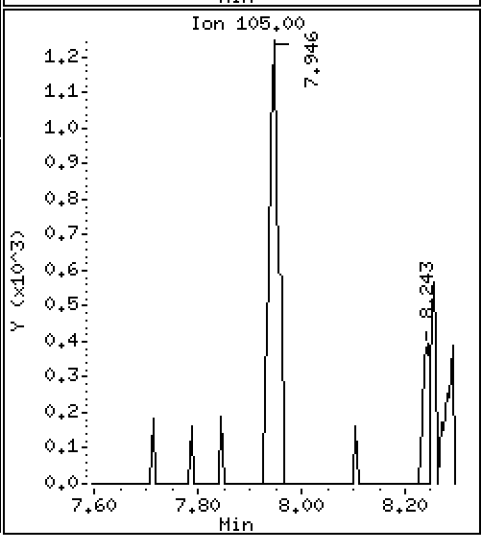


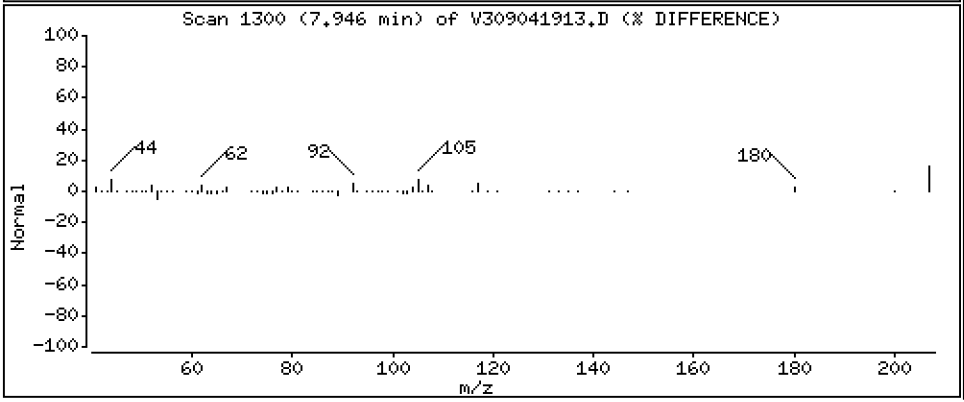












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

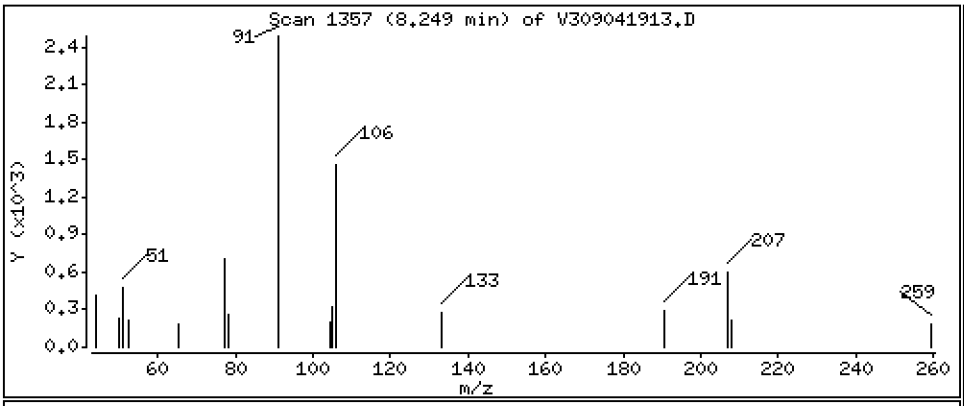
Operator: PKC

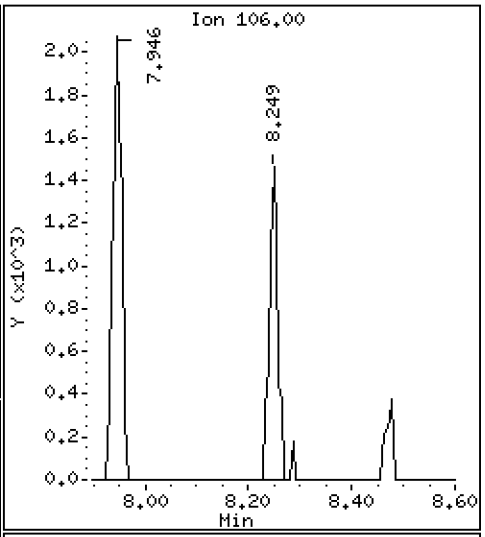
Column phase: RTXVMS

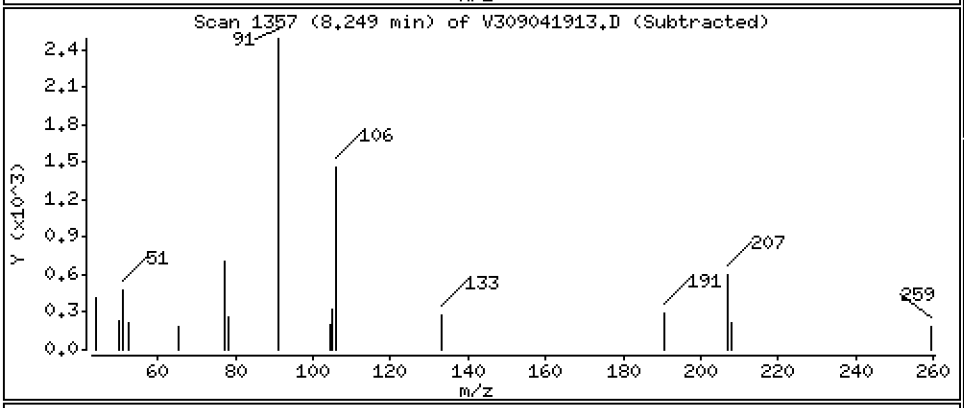
Column diameter: 0.18

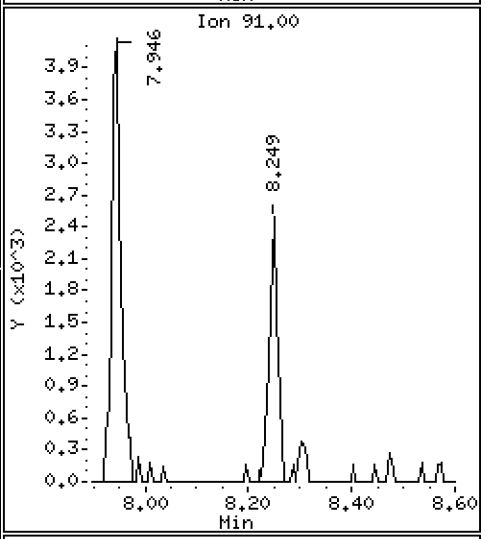
58 o-Xylene

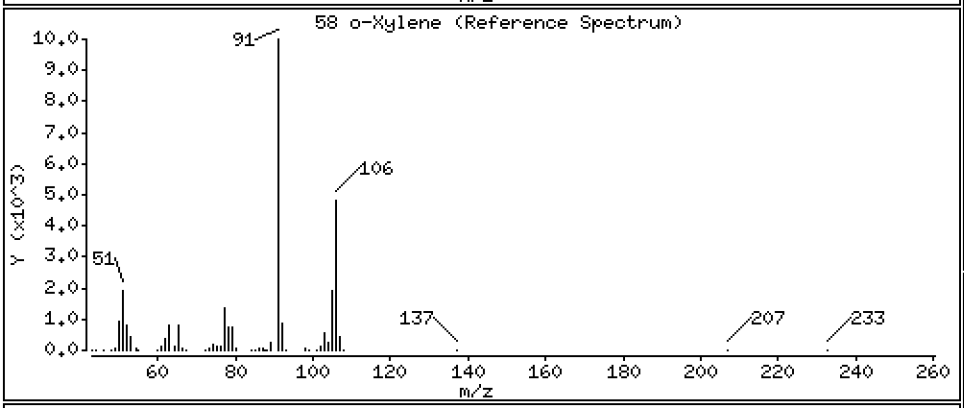
Concentration: 0.1125 ug/L

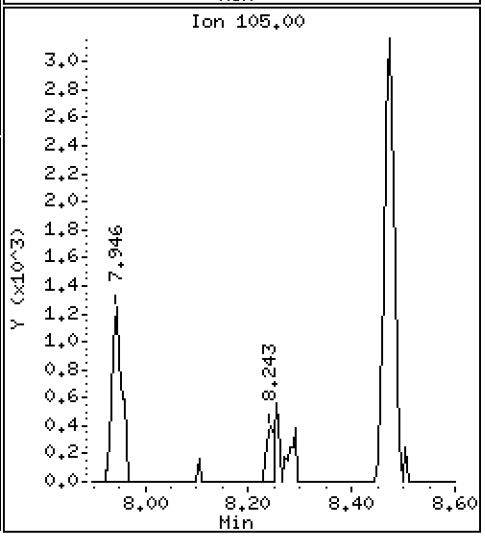


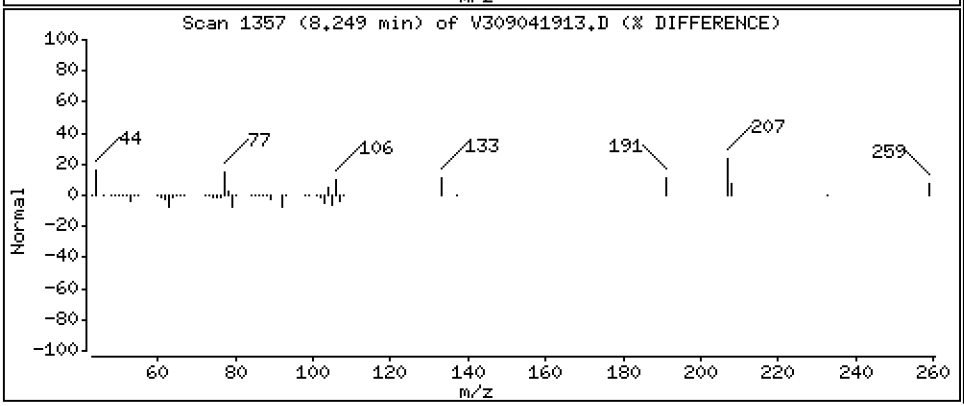












Date : 04-SEP-2019 21:01

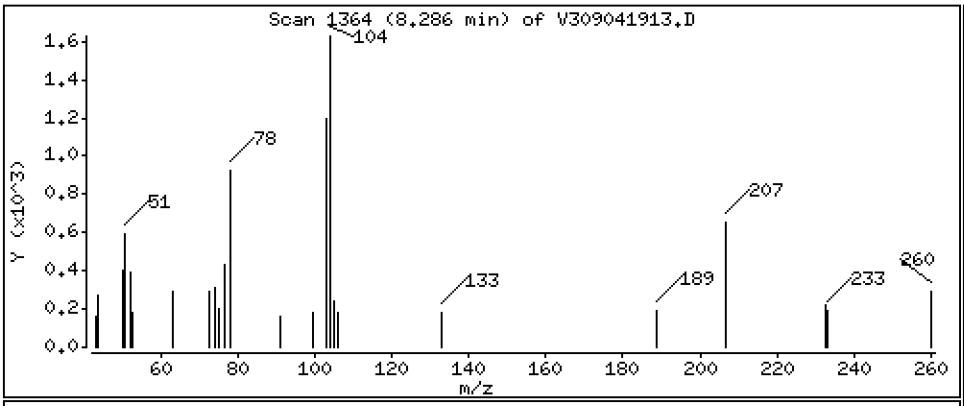
Client ID: Instrument: nt3.i

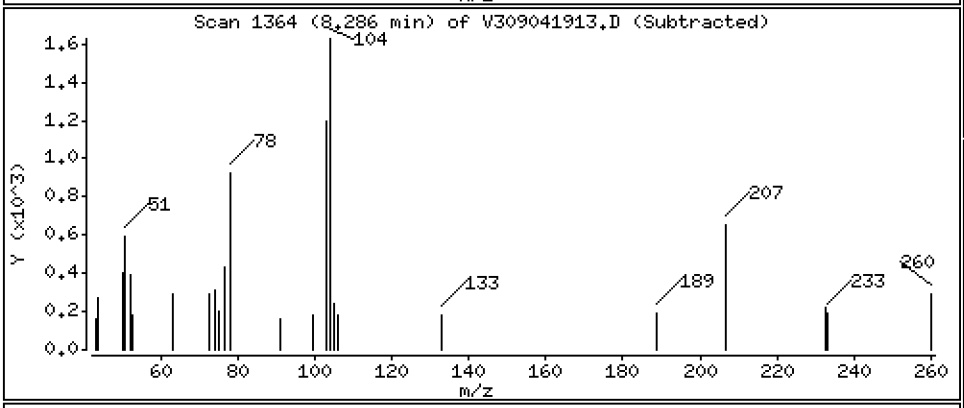
Sample Info: SHI0071-ICB1

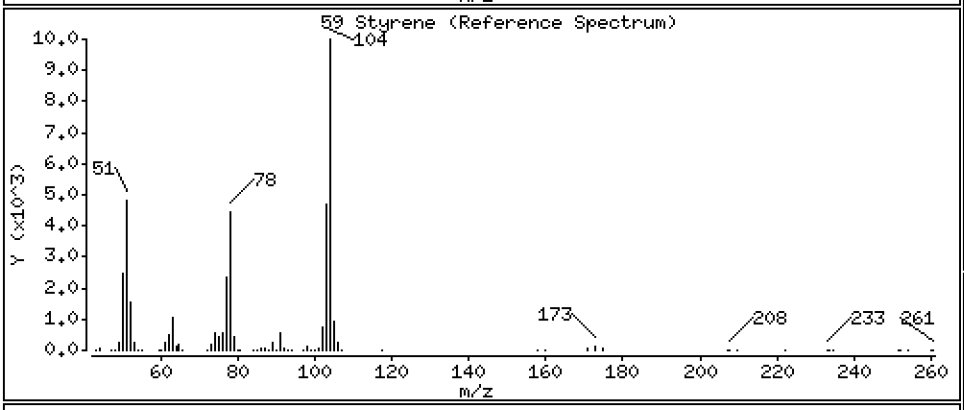
Operator: PKC

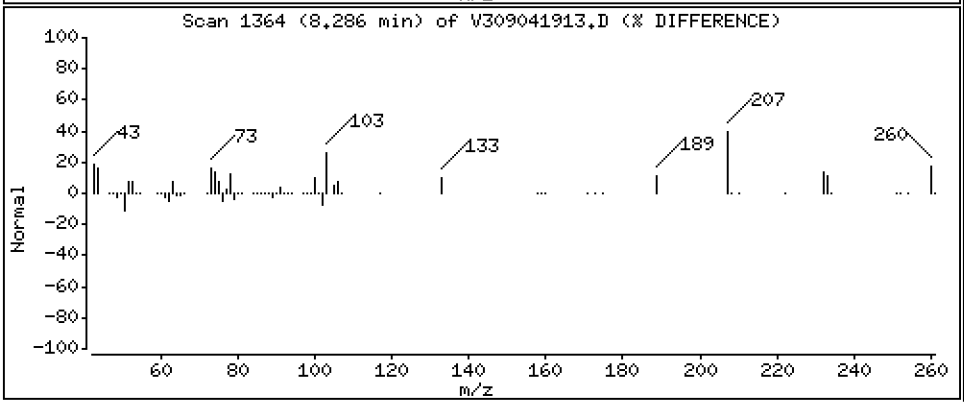
Column phase: RTXVMS Column diameter: 0.18

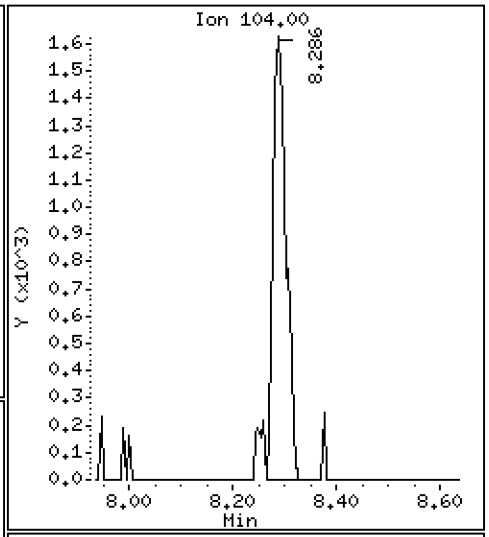
59 Styrene Concentration: 0.1251 ug/L

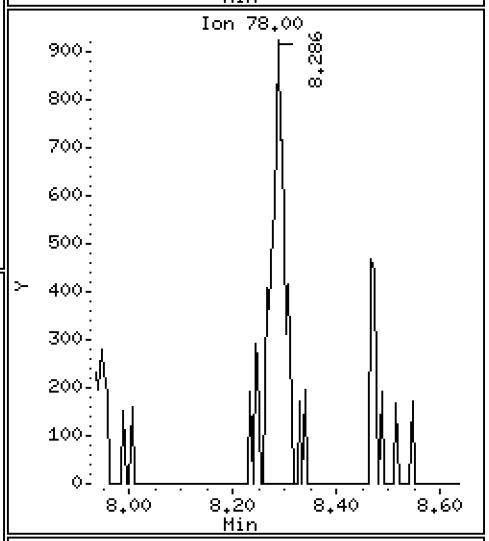


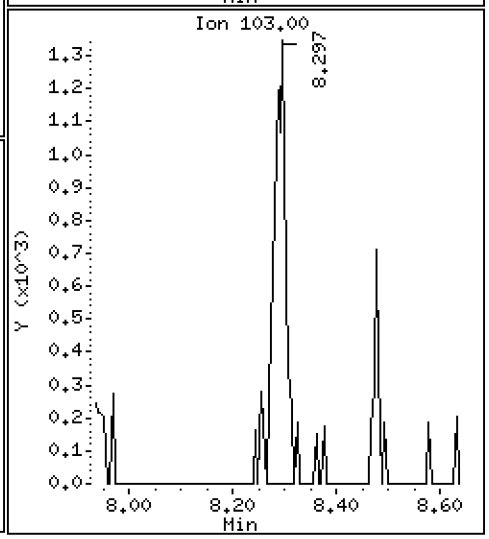












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

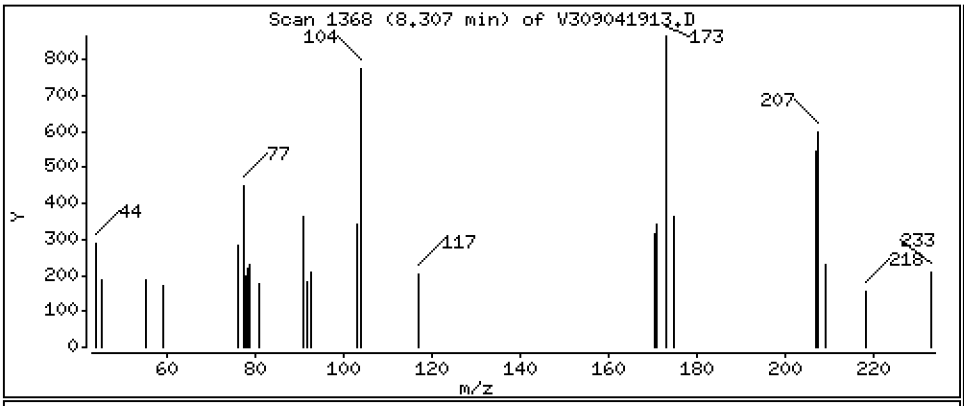
Operator: PKC

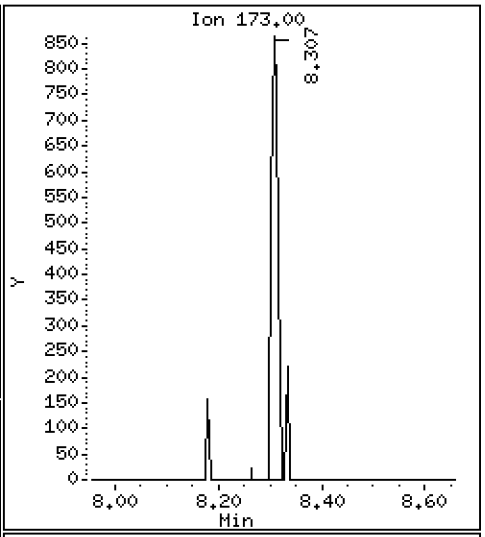
Column phase: RTXVMS

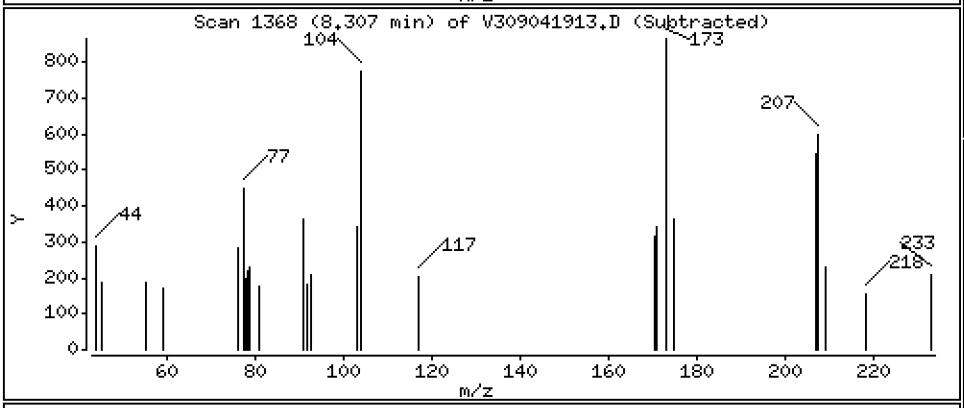
Column diameter: 0.18

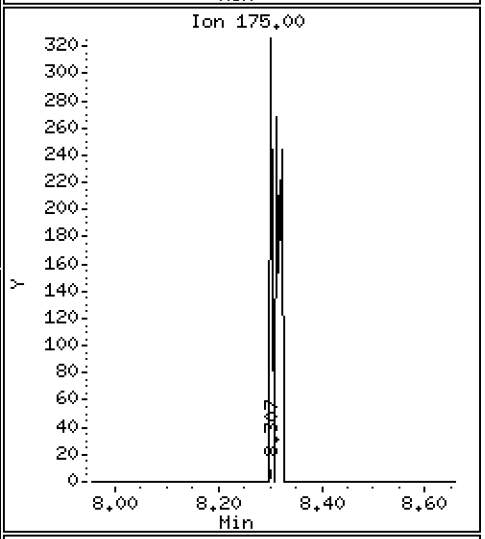
60 Bromoform

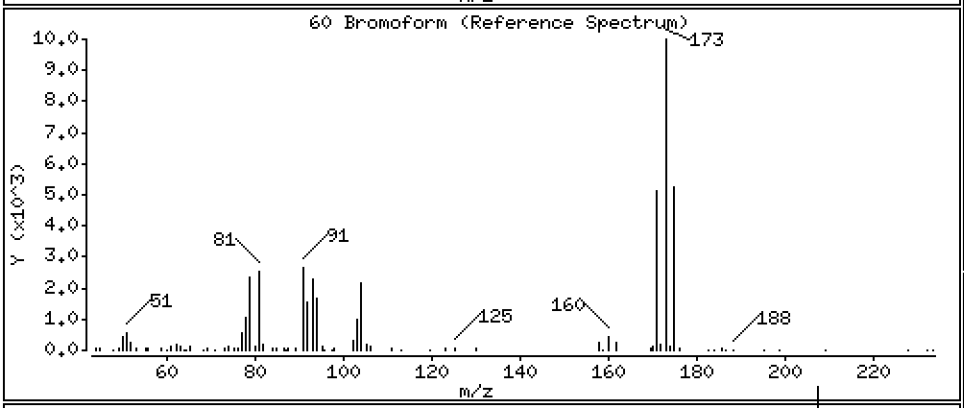
Concentration: 0.2152 ug/L

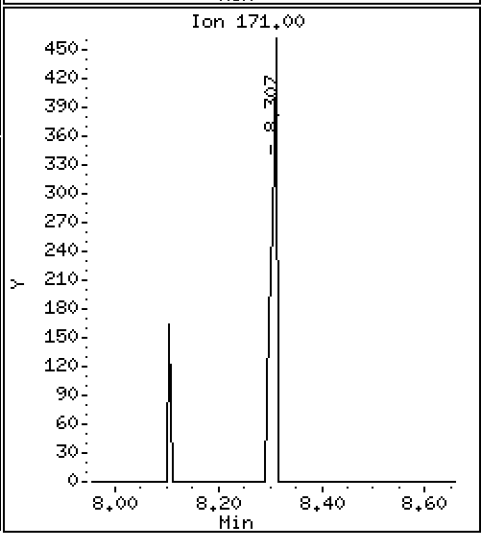


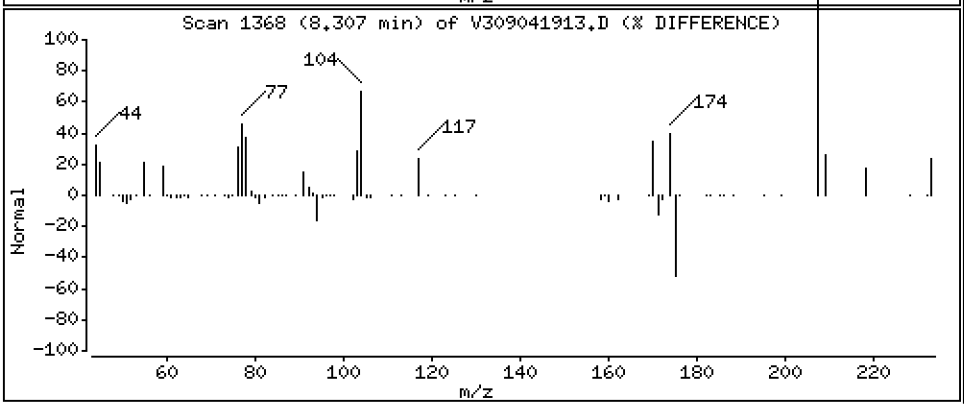












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

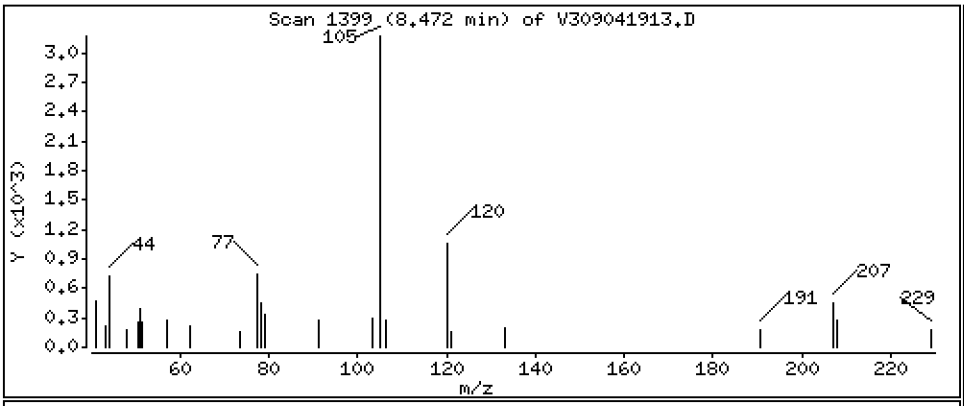
Operator: PKC

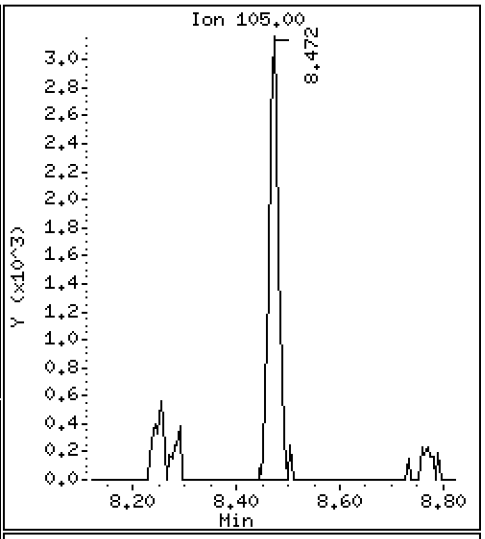
Column phase: RTXVMS

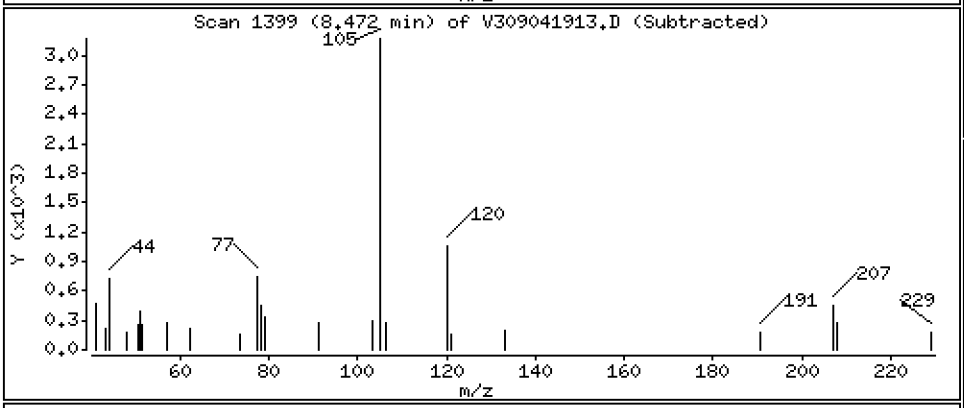
Column diameter: 0.18

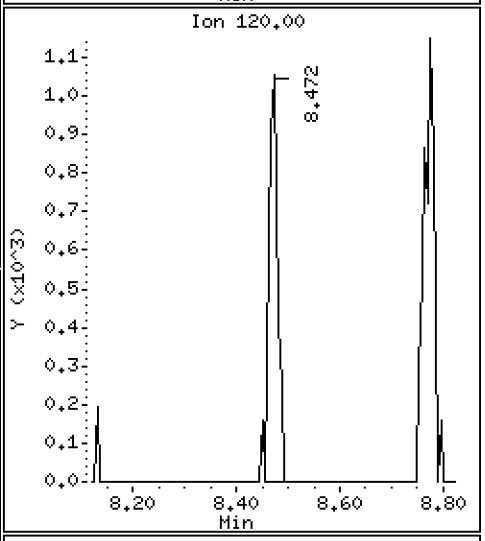
61 Isopropyl Benzene

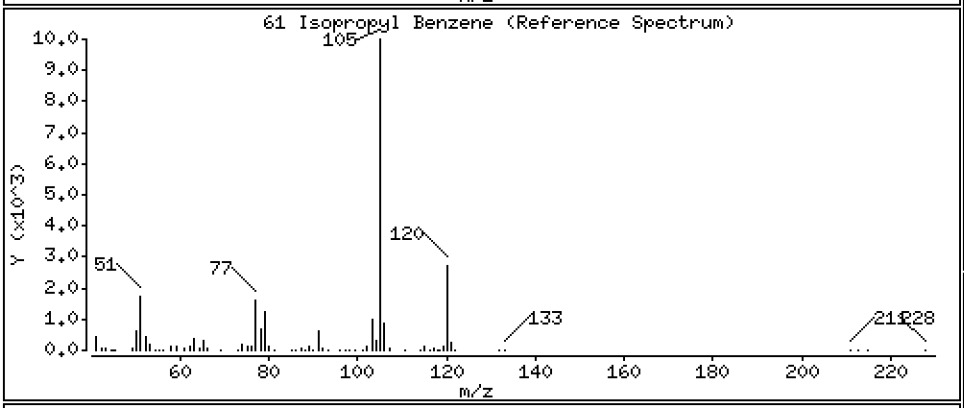
Concentration: 0.1104 ug/L

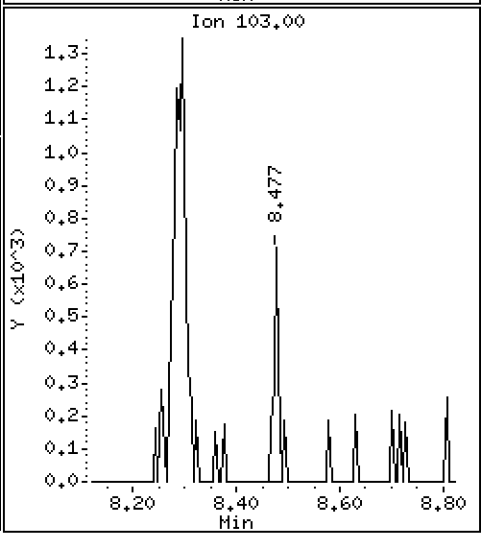


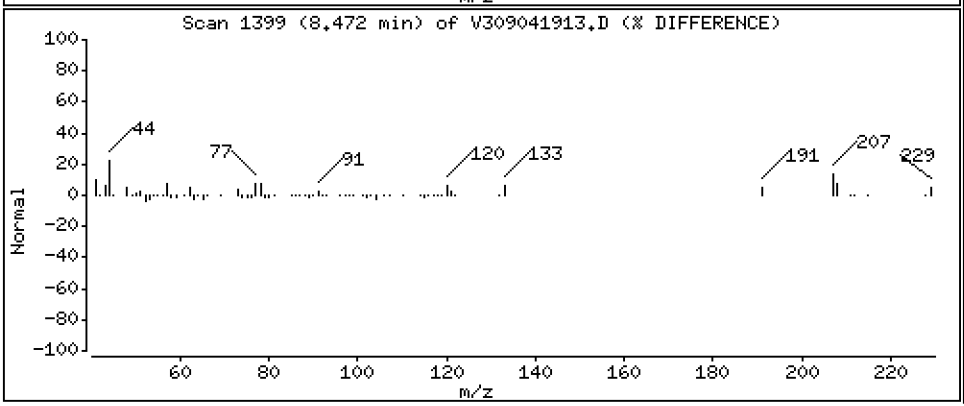












Date : 04-SEP-2019 21:01

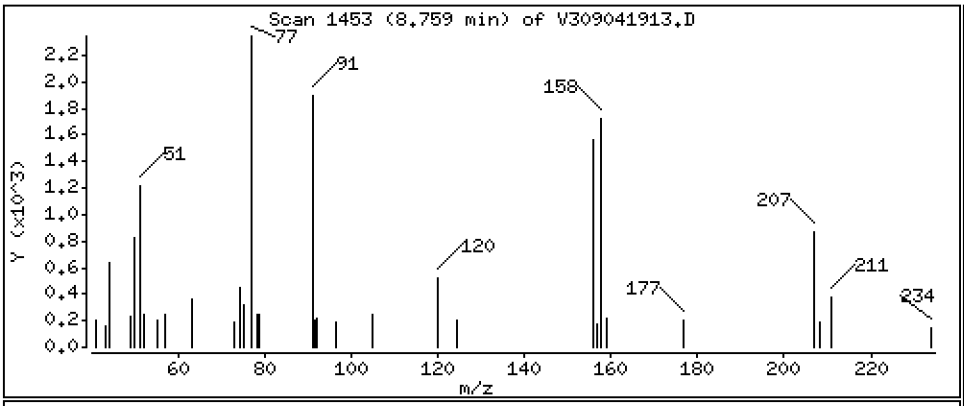
Client ID: Instrument: nt3.i

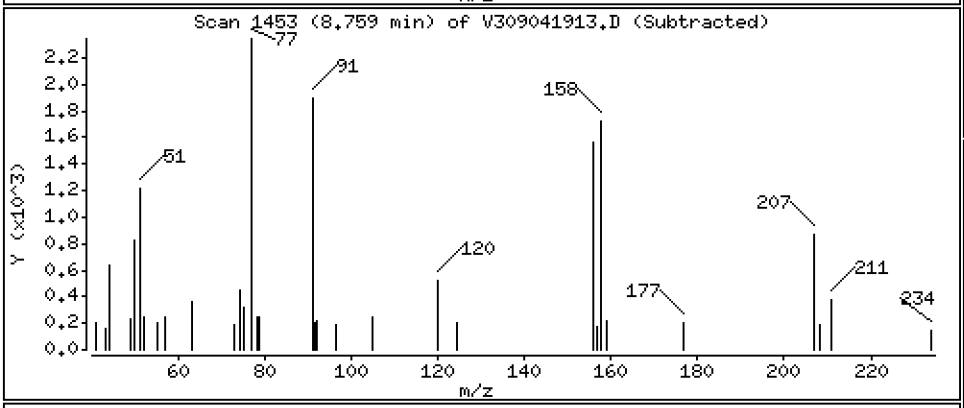
Sample Info: SHI0071-ICB1

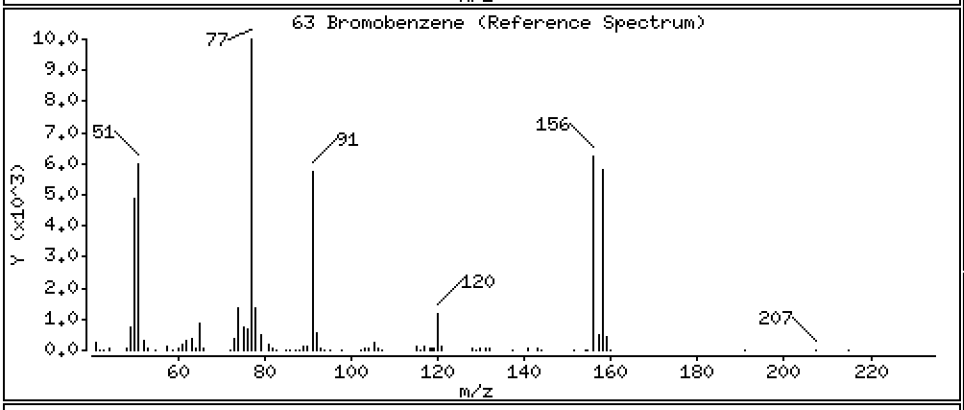
Operator: PKC

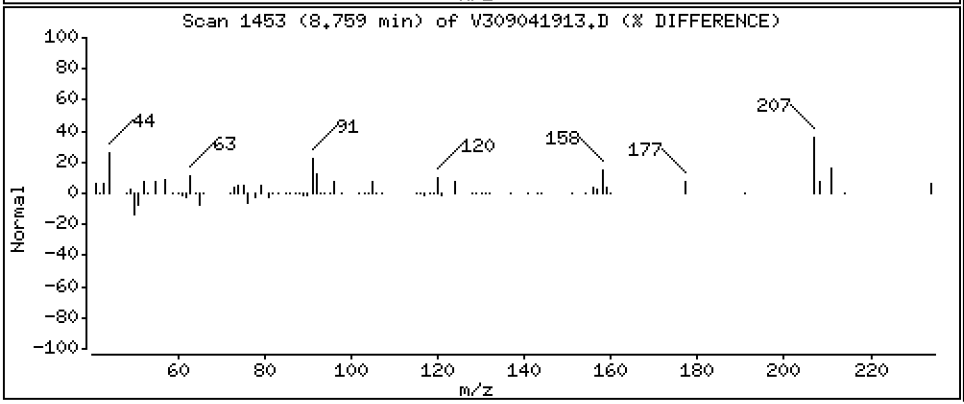
Column phase: RTXVMS Column diameter: 0.18

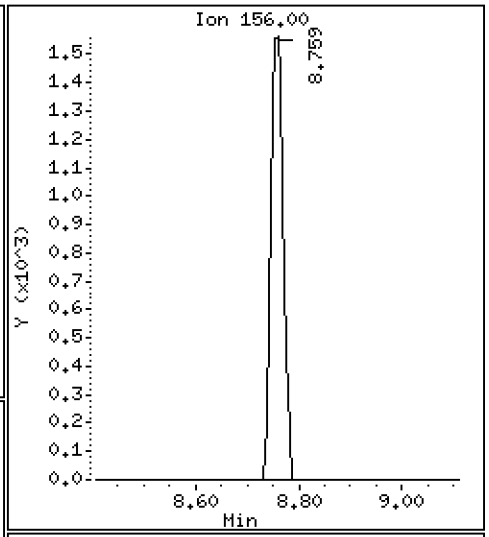
63 Bromobenzene Concentration: 0.2589 ug/L

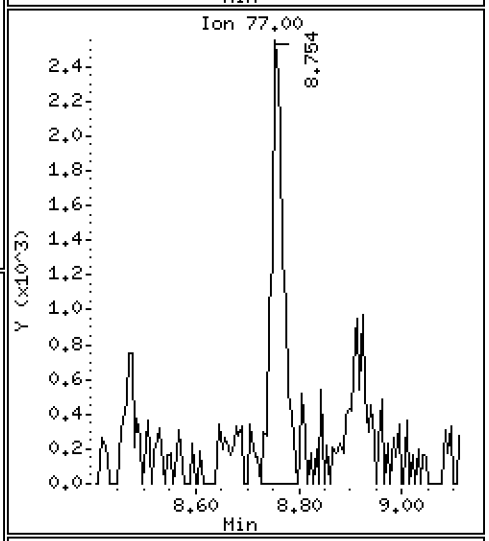


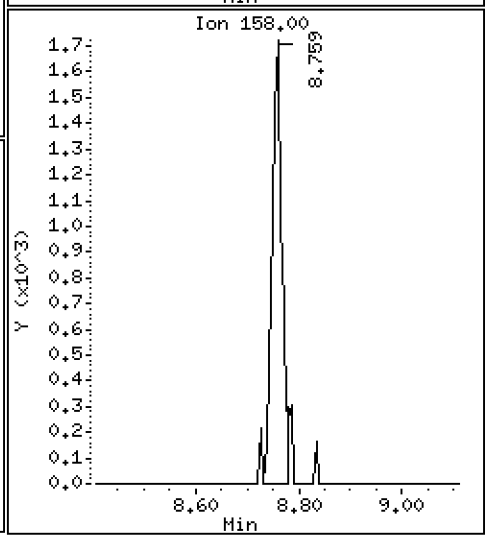












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

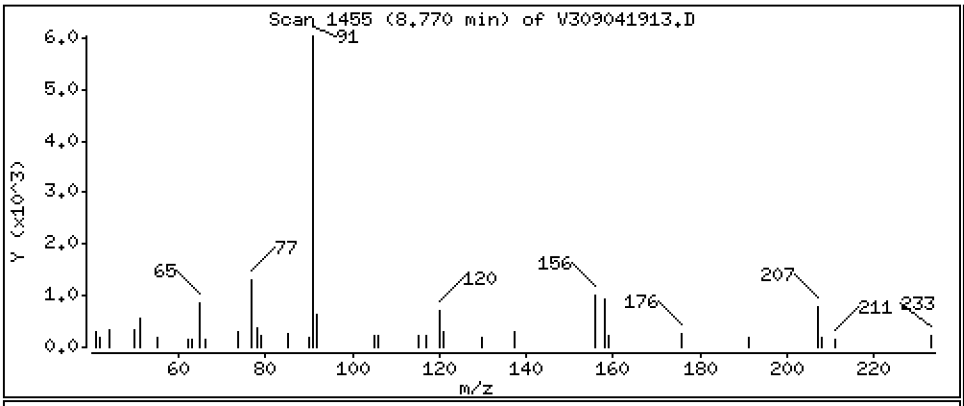
Operator: PKC

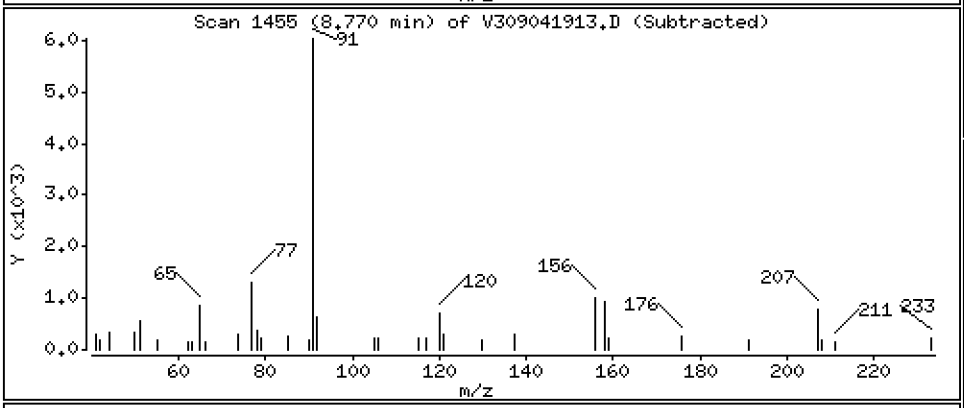
Column phase: RTXVMS

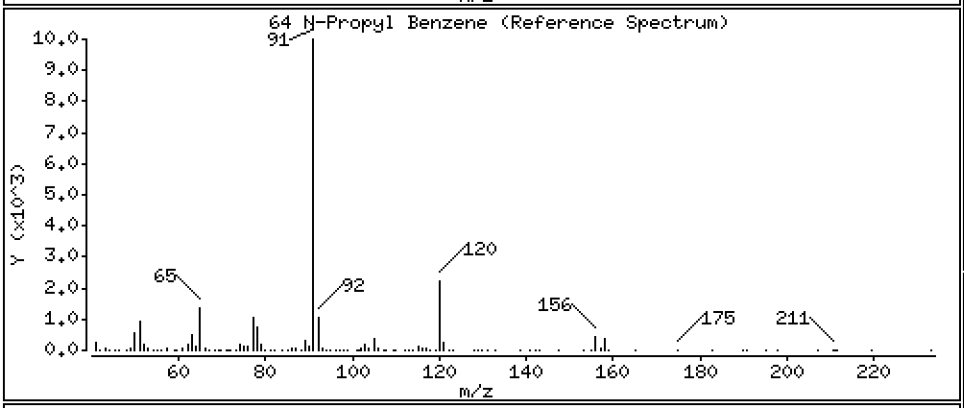
Column diameter: 0.18

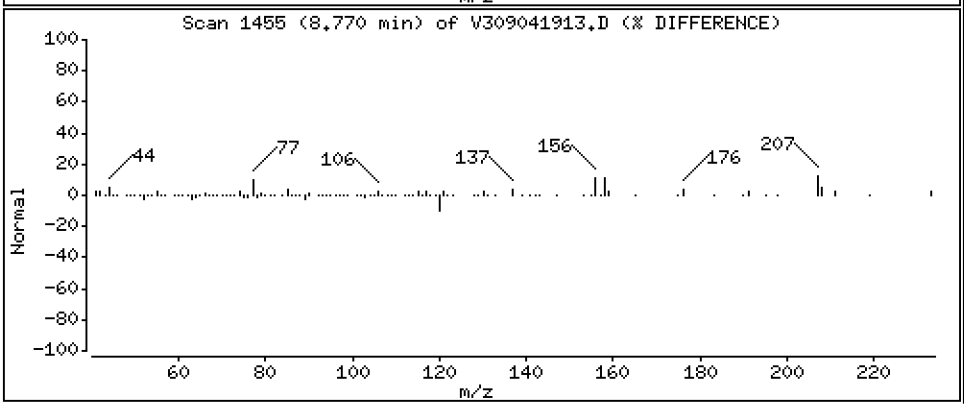
64 N-Propyl Benzene

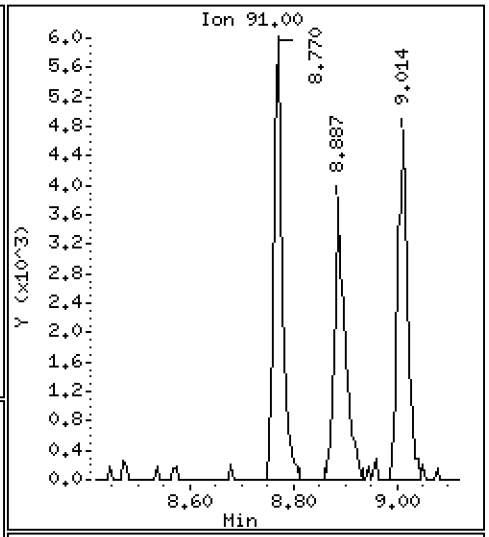
Concentration: 0.1622 ug/L

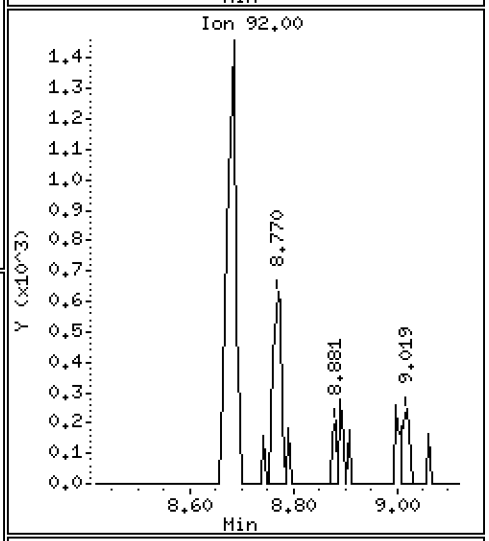


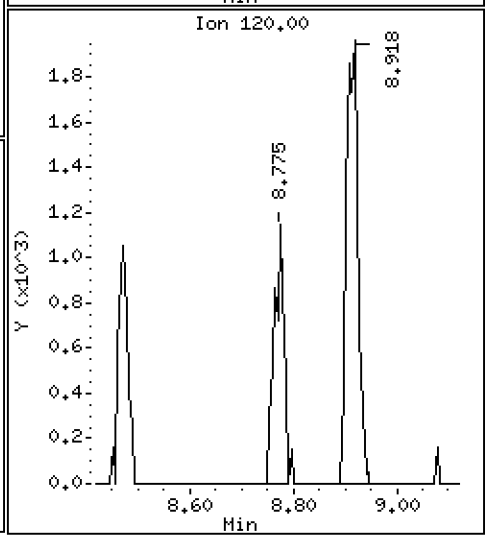












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

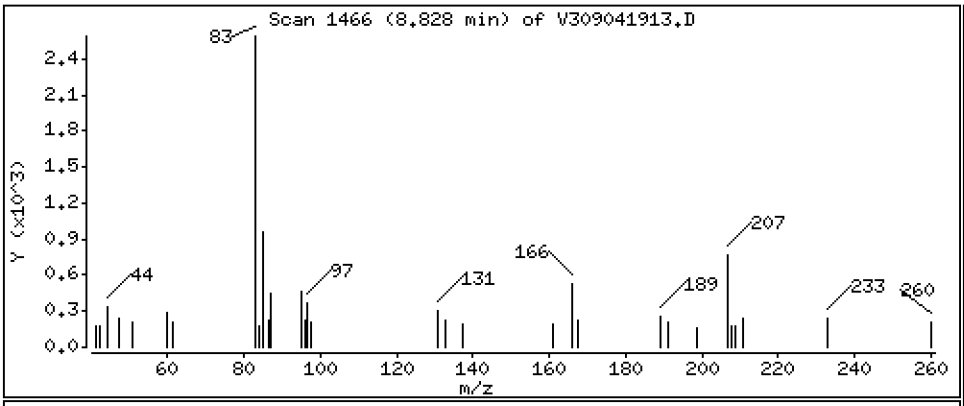
Operator: PKC

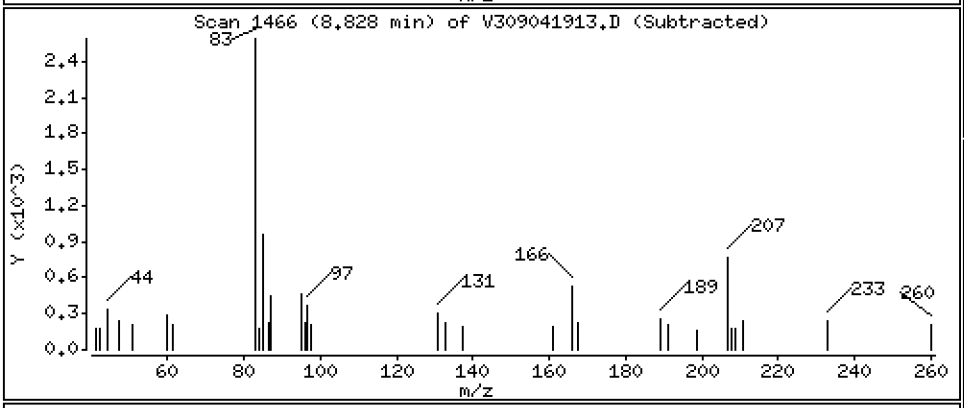
Column phase: RTXVMS

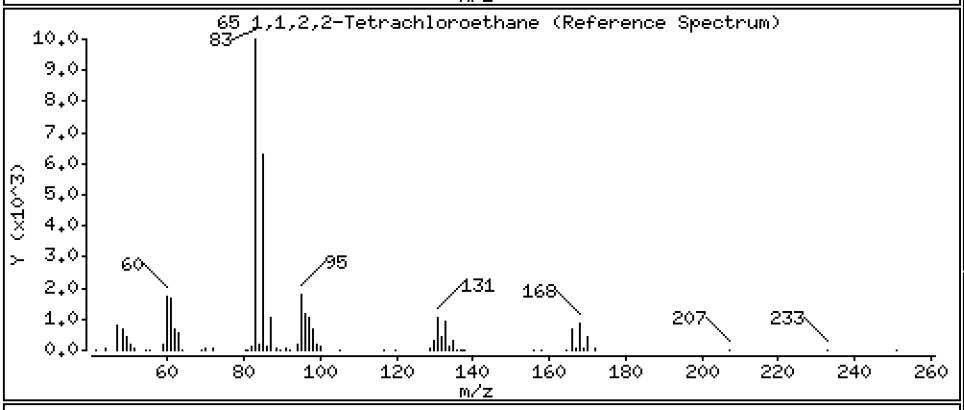
Column diameter: 0.18

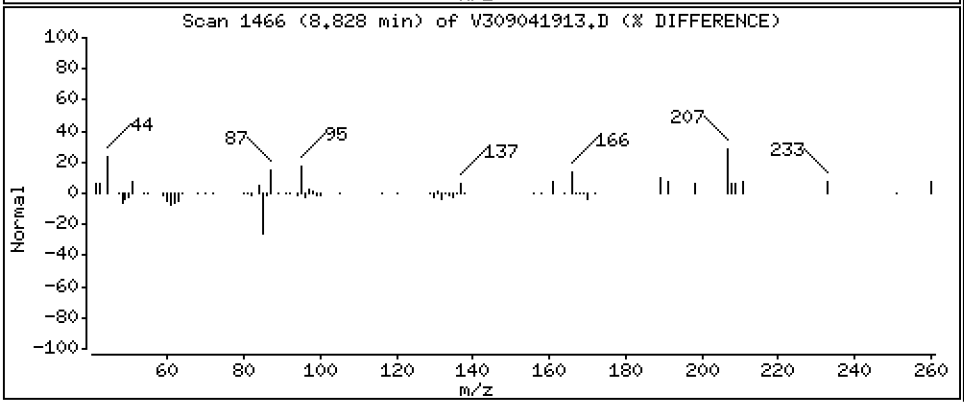
65 1,1,2,2-Tetrachloroethane

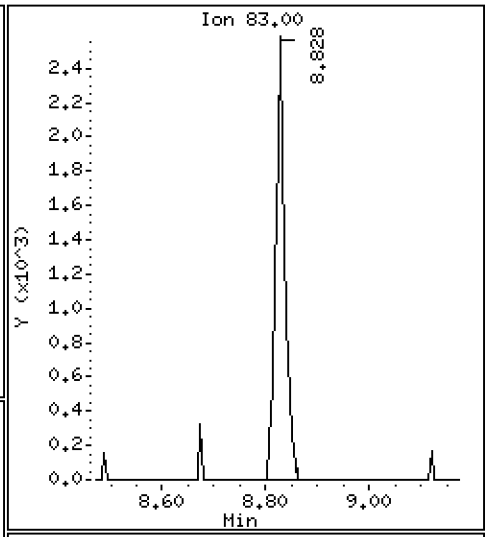
Concentration: 0.5027 ug/L

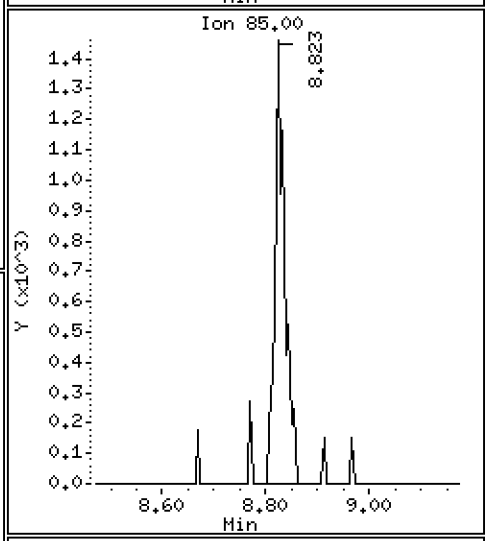


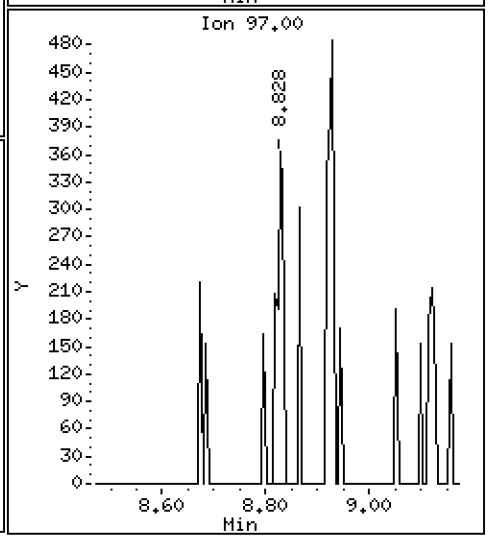












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

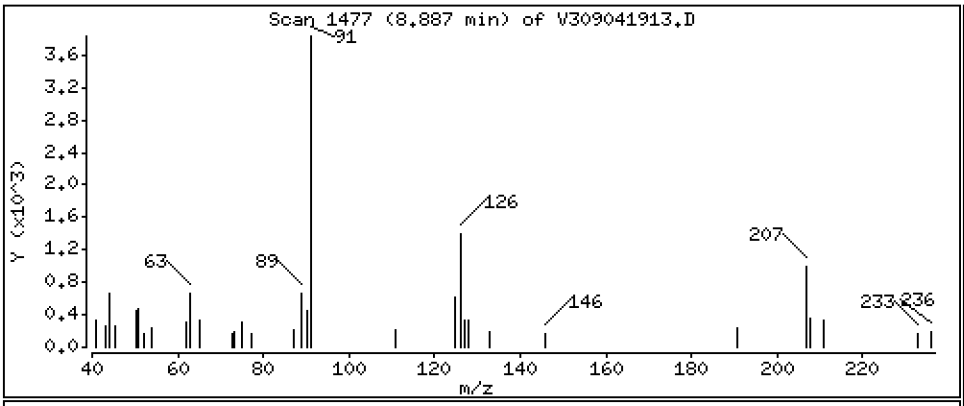
Operator: PKC

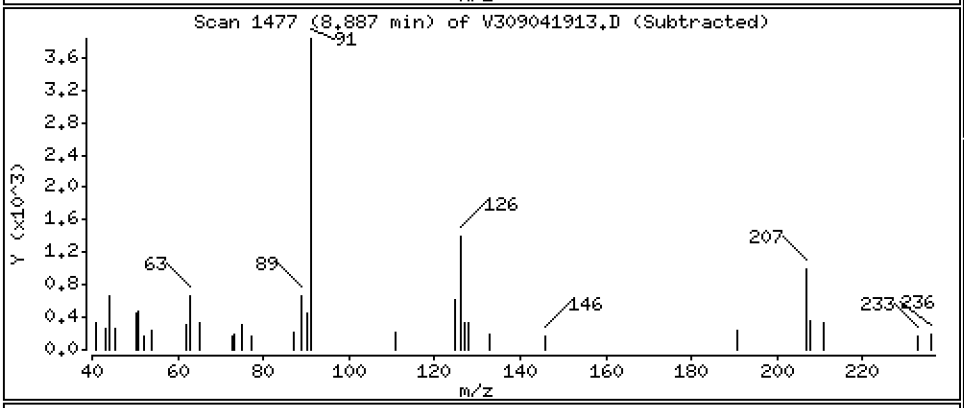
Column phase: RTXVMS

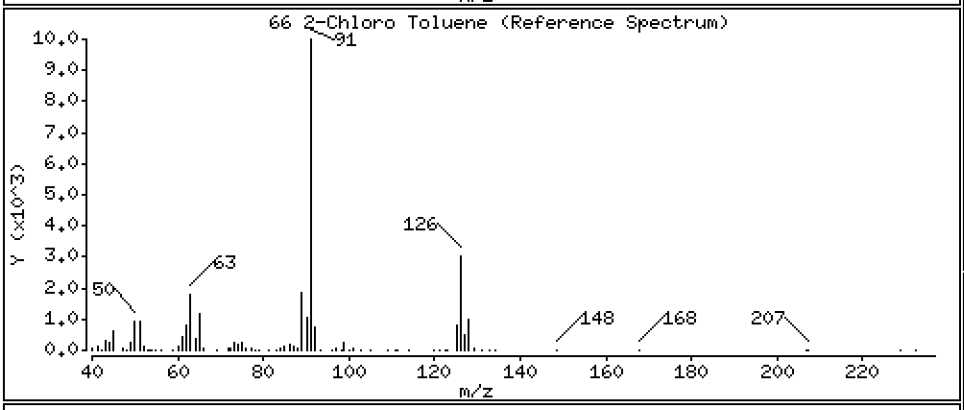
Column diameter: 0.18

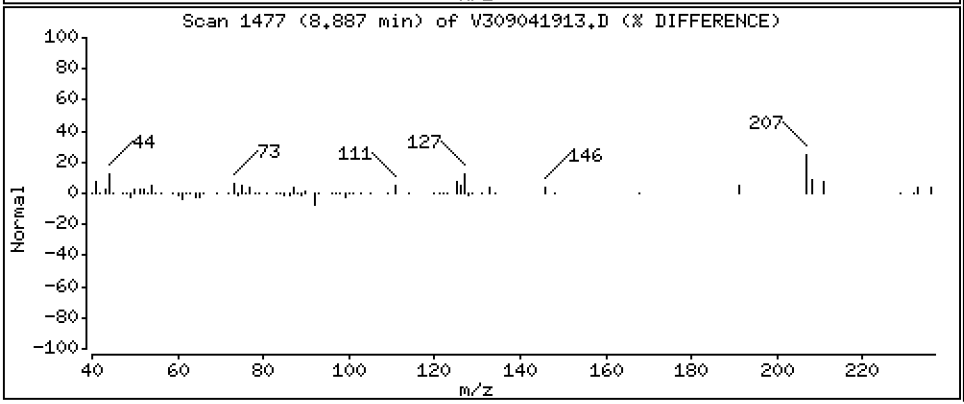
66 2-Chloro Toluene

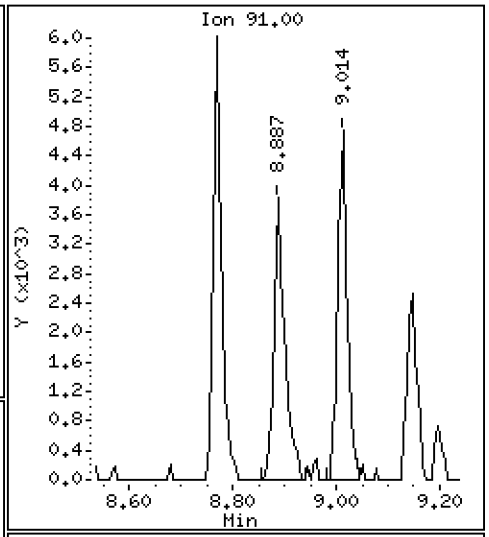
Concentration: 0.1812 ug/L

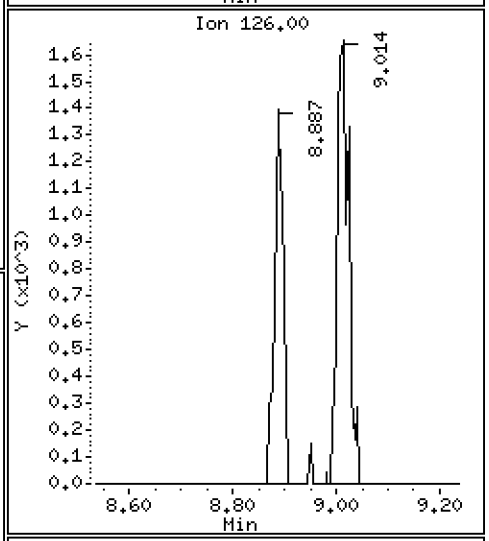


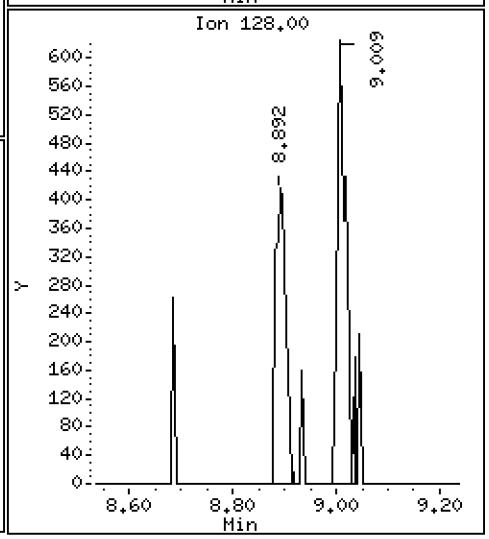












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

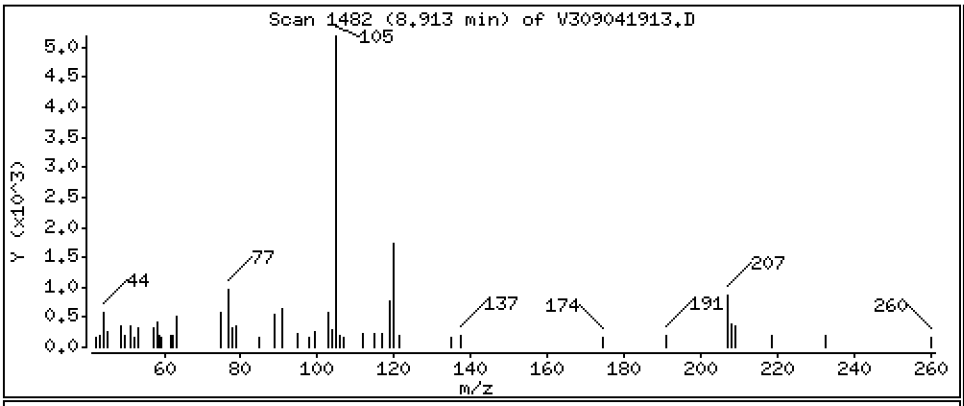
Operator: PKC

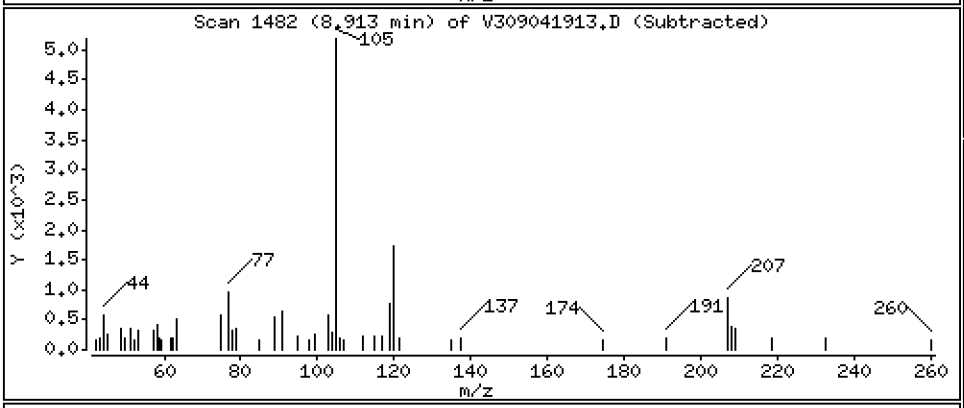
Column phase: RTXVMS

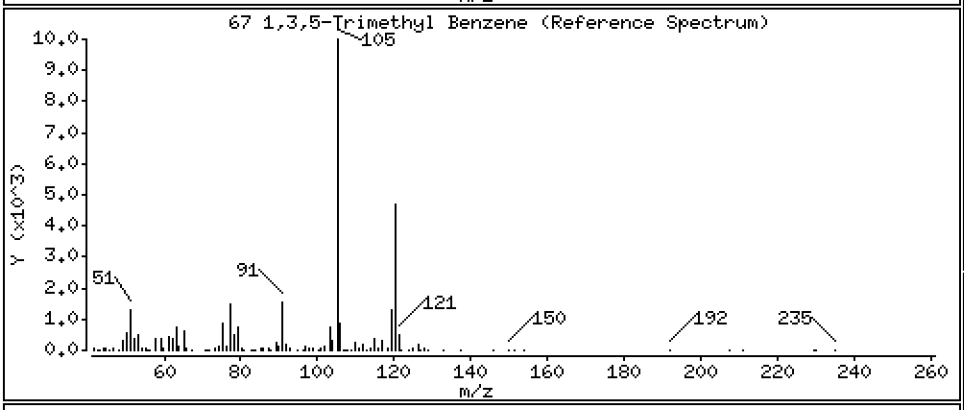
Column diameter: 0.18

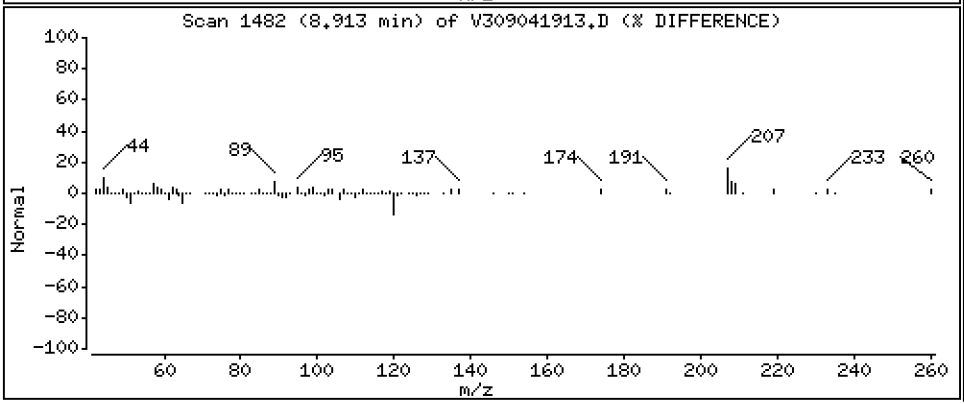
67 1,3,5-Trimethyl Benzene

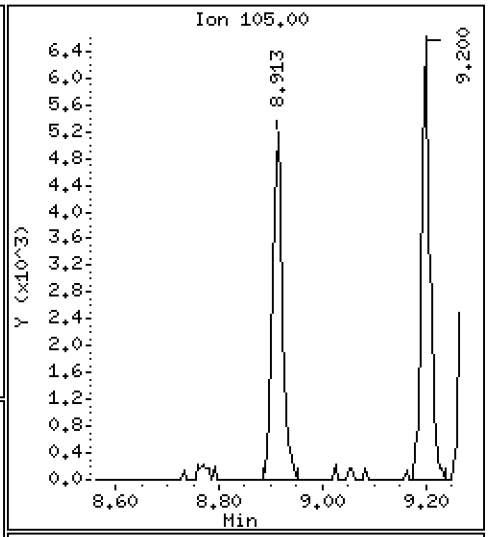
Concentration: 0.2120 ug/L

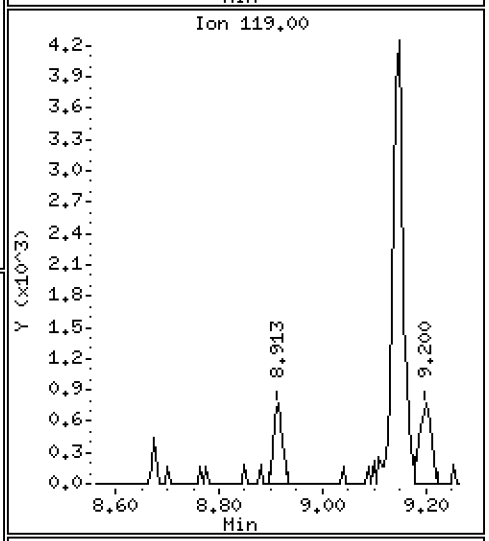


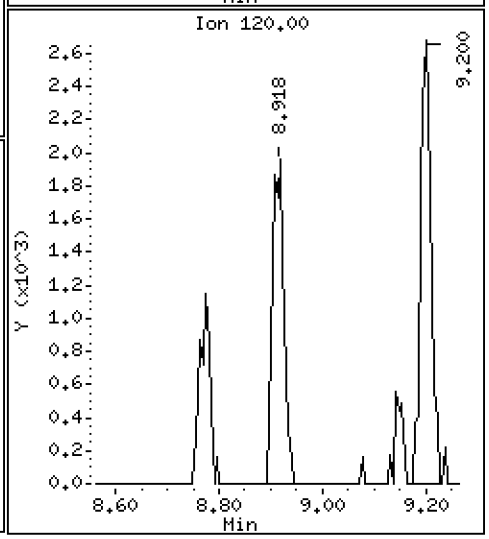












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

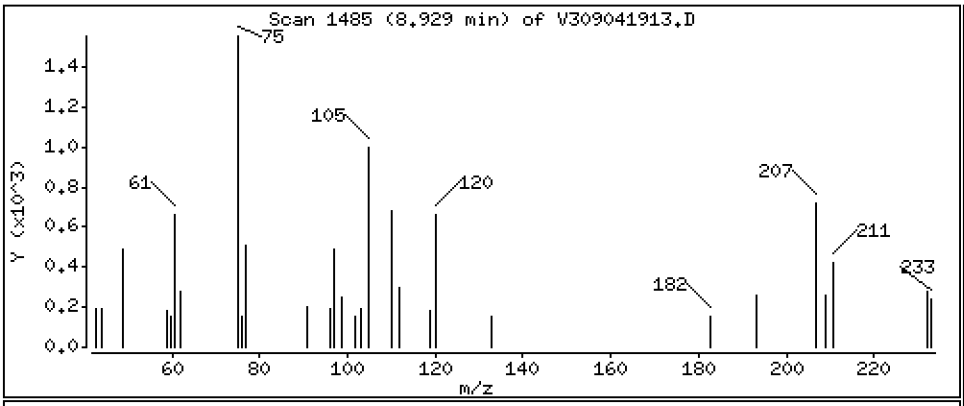
Operator: PKC

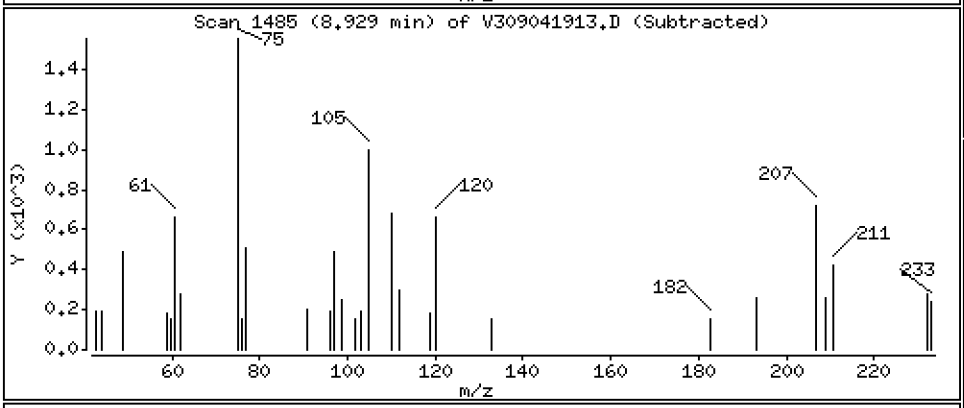
Column phase: RTXVMS

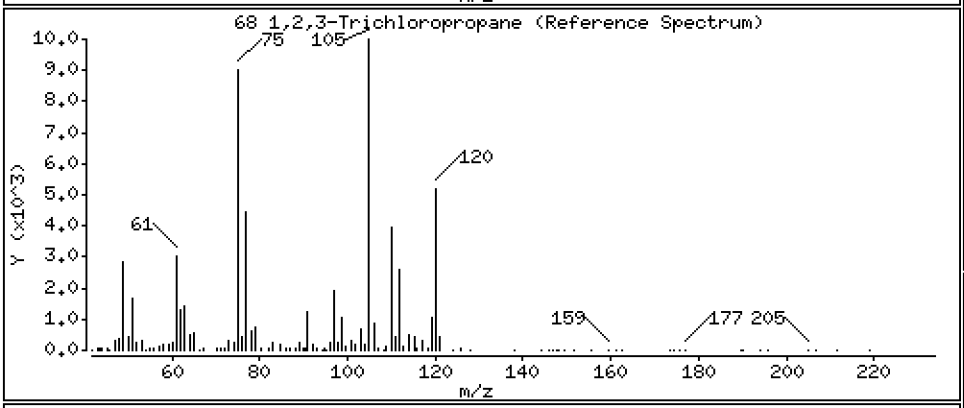
Column diameter: 0.18

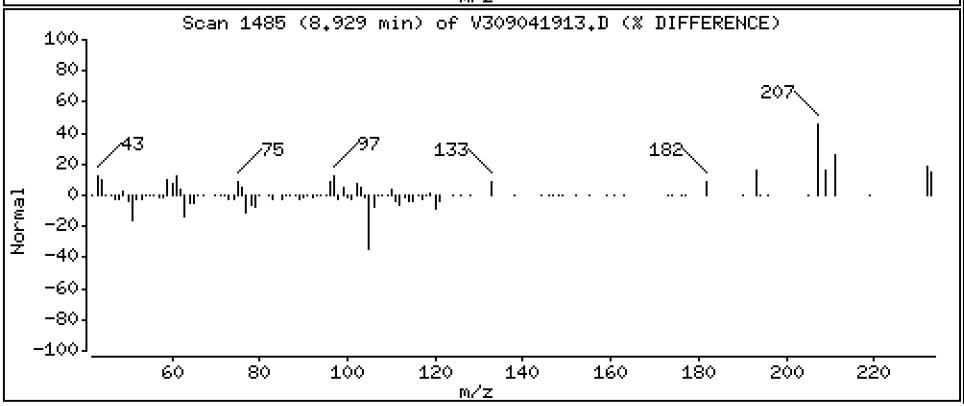
68 1,2,3-Trichloropropane

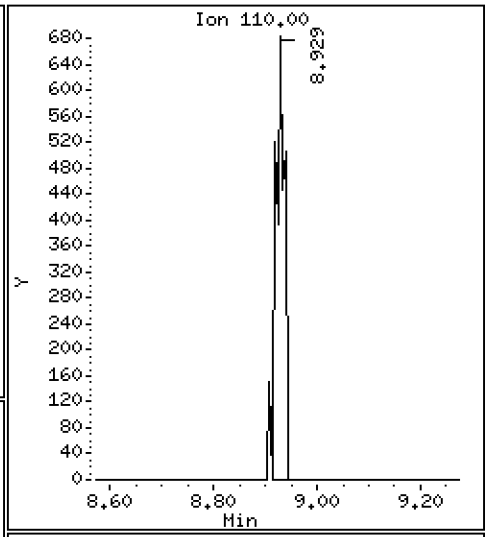
Concentration: 0.3719 ug/L

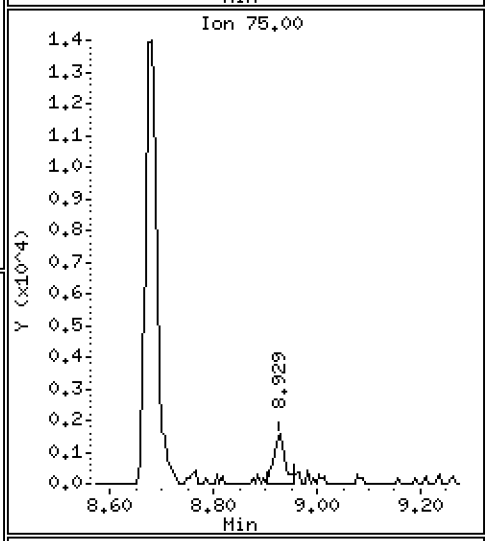


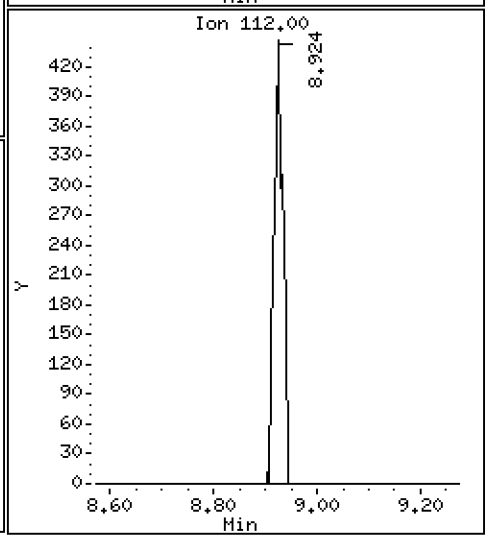












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

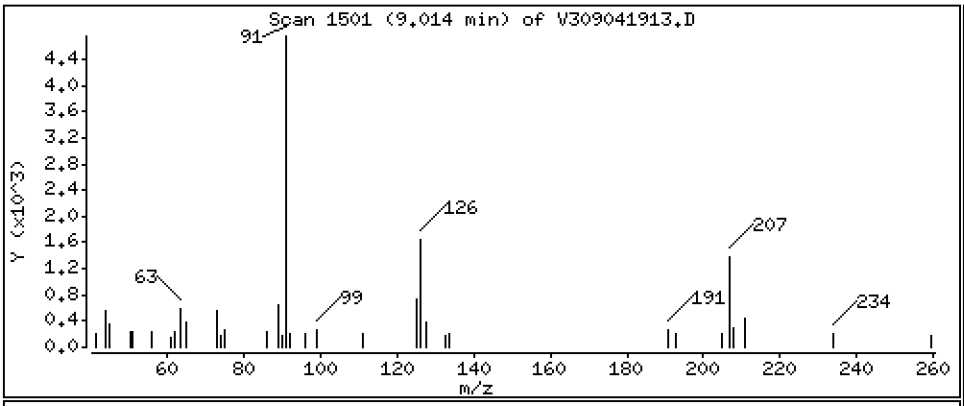
Operator: PKC

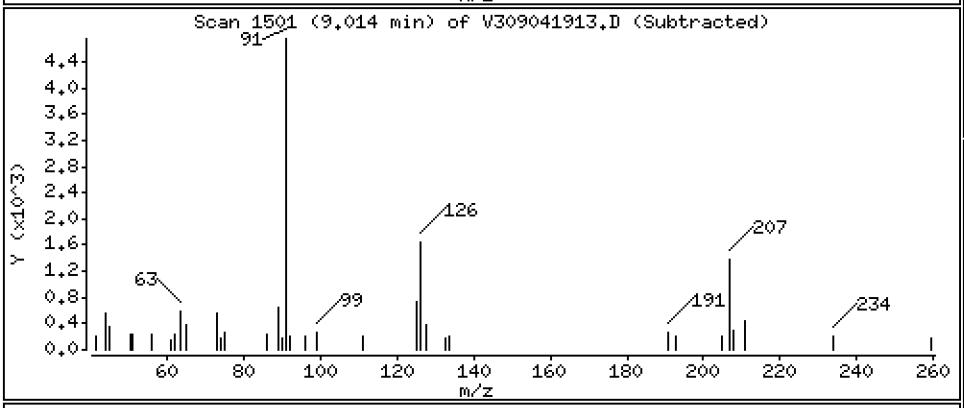
Column phase: RTXVMS

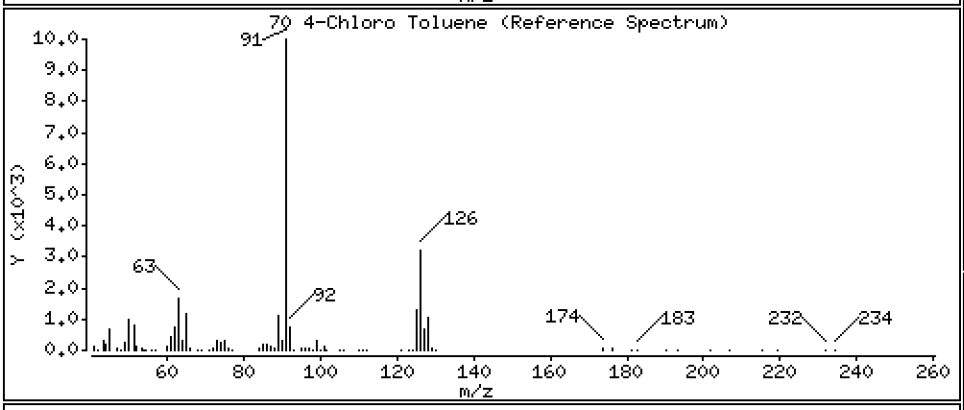
Column diameter: 0.18

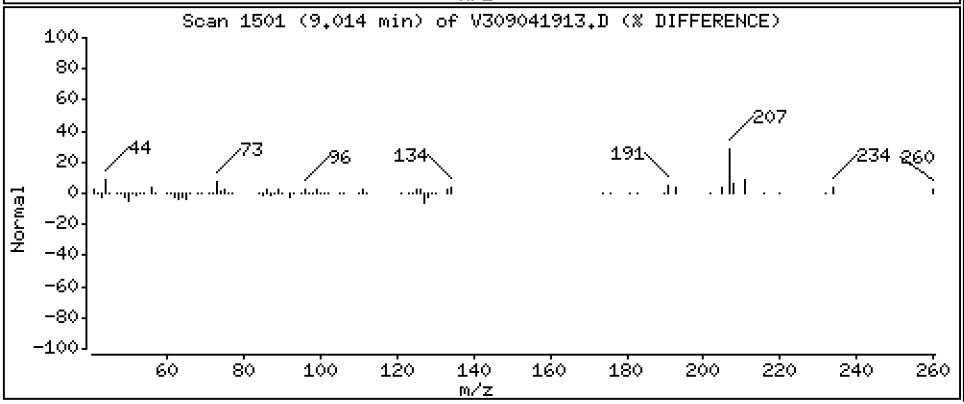
70 4-Chloro Toluene

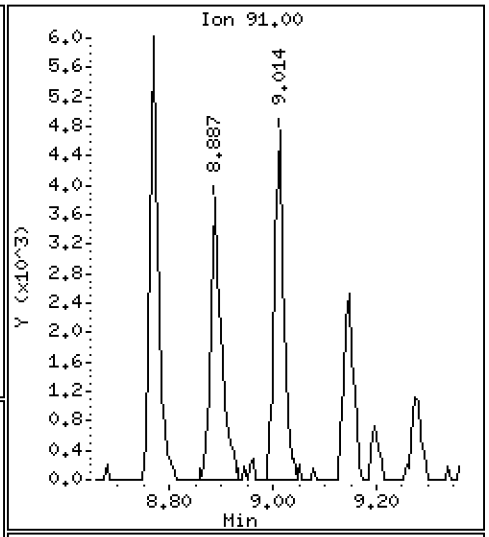
Concentration: 0.2152 ug/L

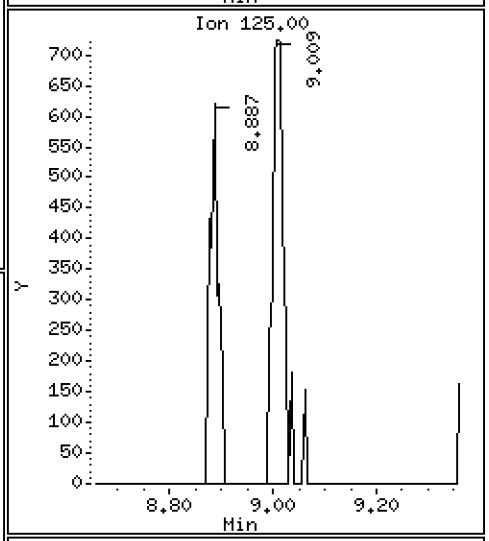


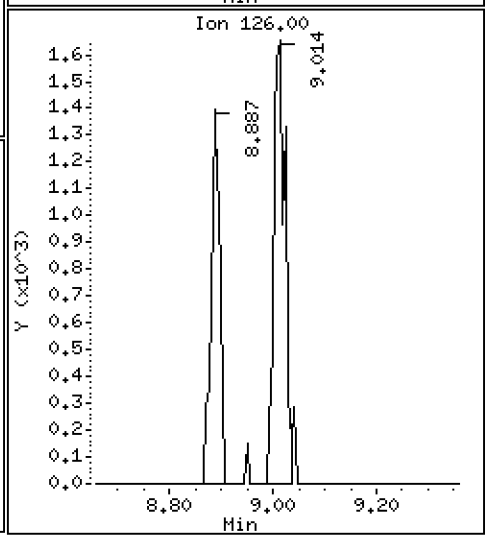












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

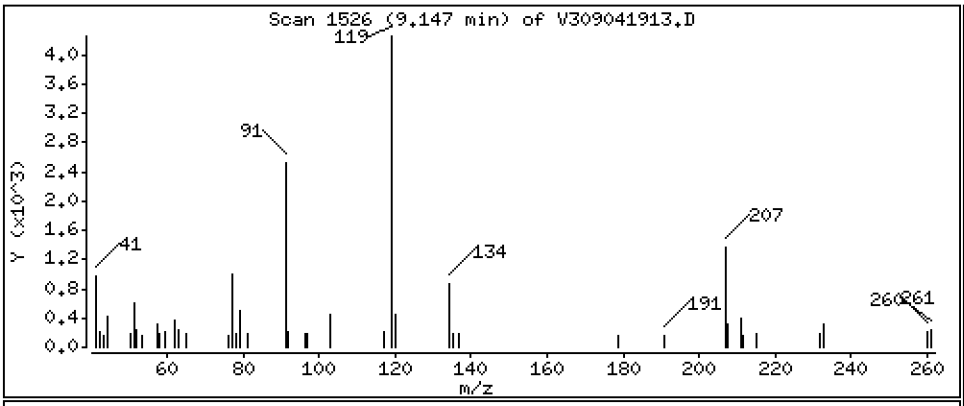
Operator: PKC

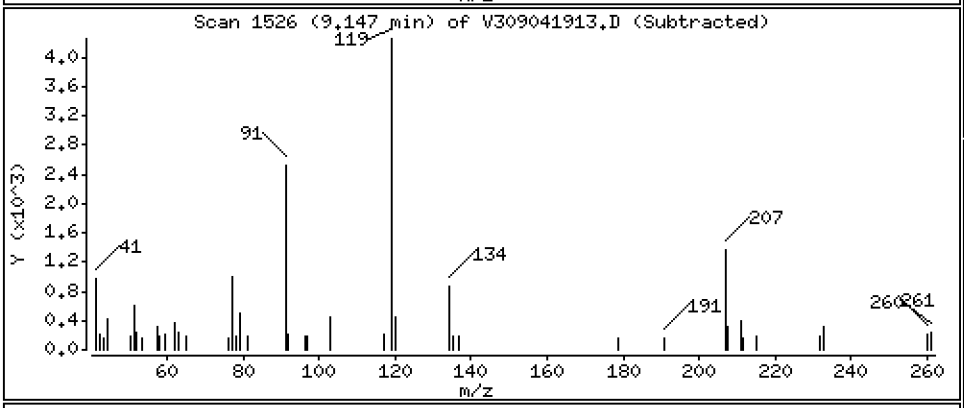
Column phase: RTXVMS

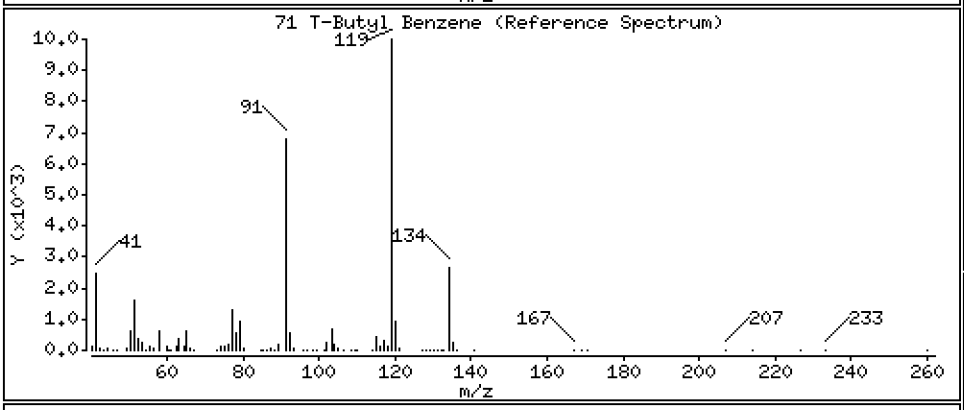
Column diameter: 0.18

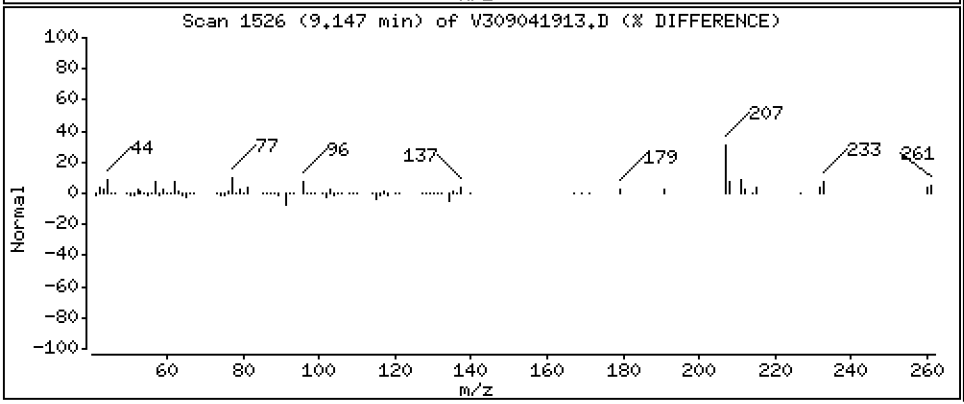
71 T-Butyl Benzene

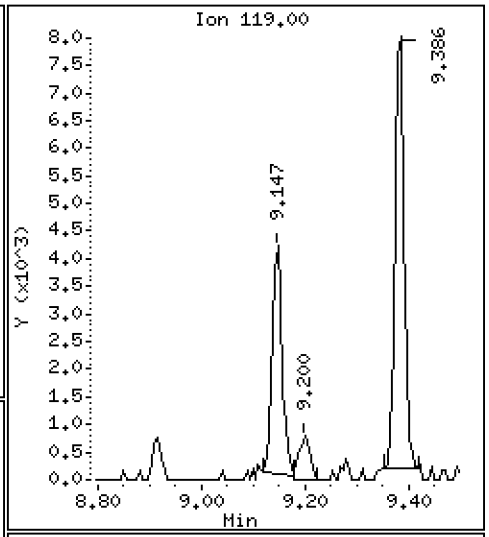
Concentration: 0.2007 ug/L

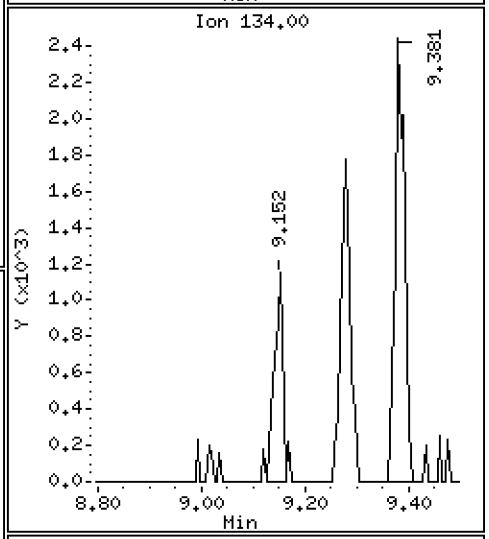


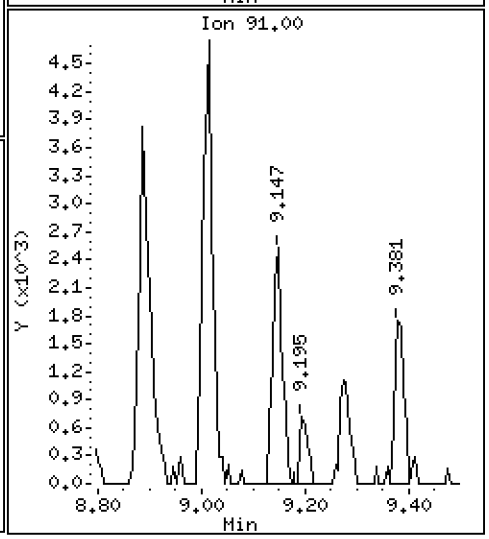












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

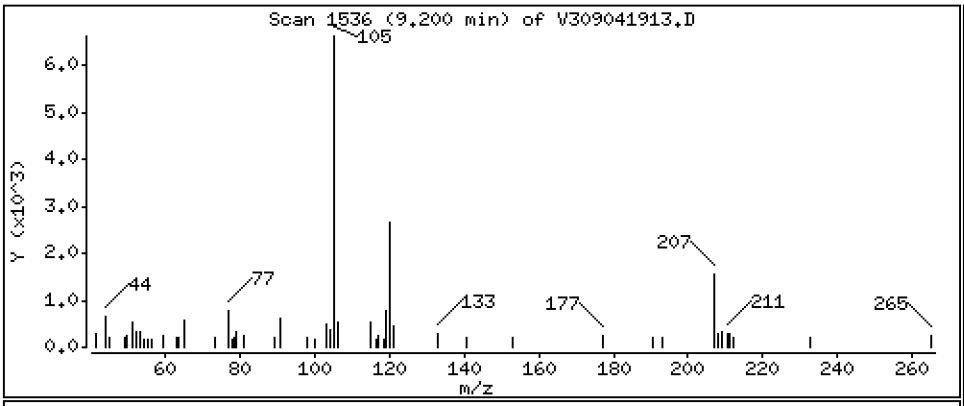
Operator: PKC

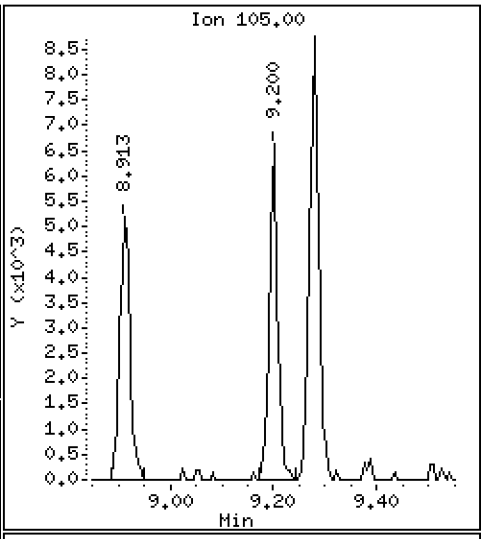
Column phase: RTXVMS

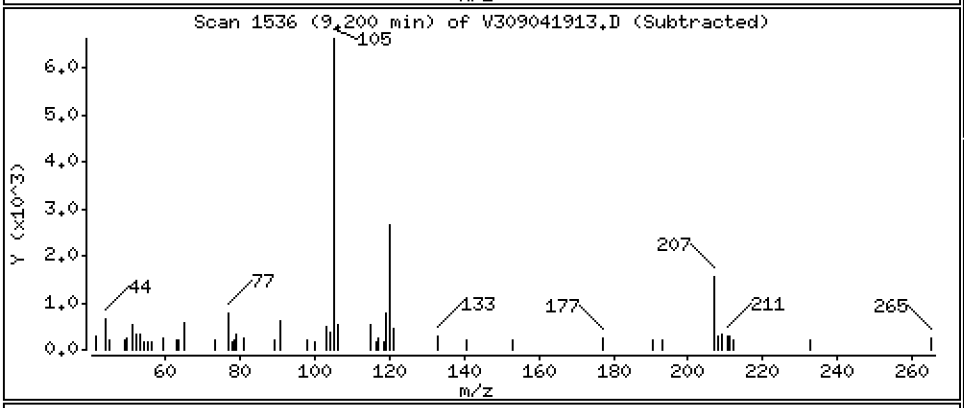
Column diameter: 0.18

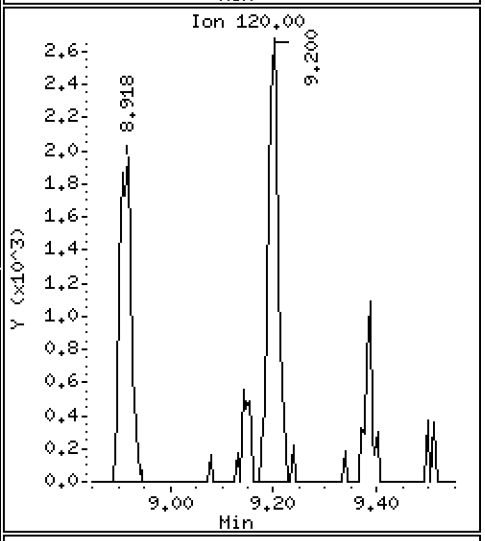
72 1,2,4-Trimethylbenzene

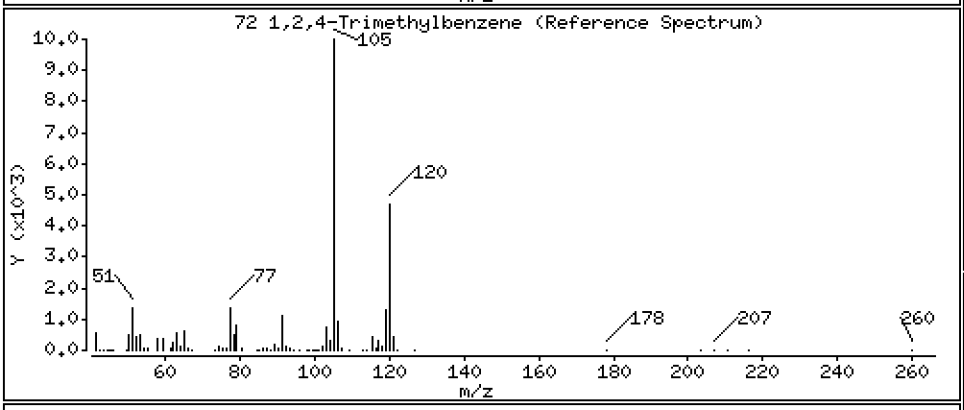
Concentration: 0.2189 ug/L

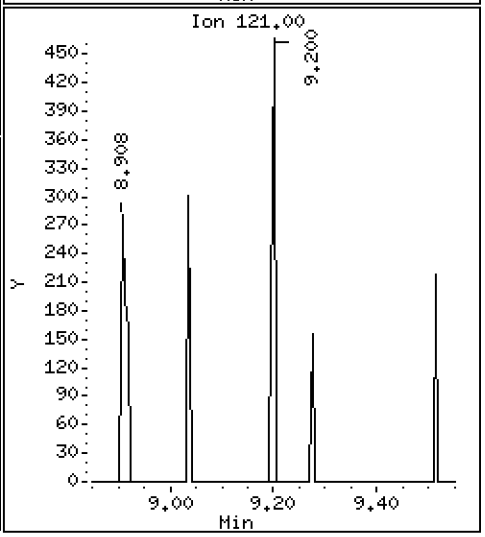


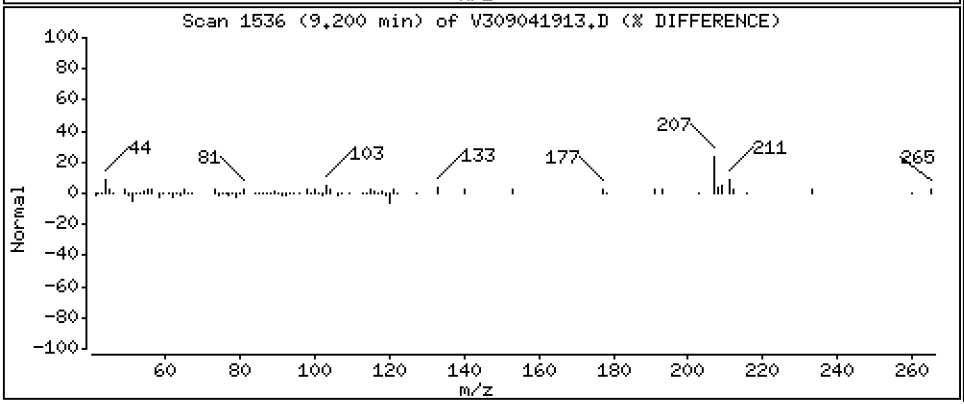












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

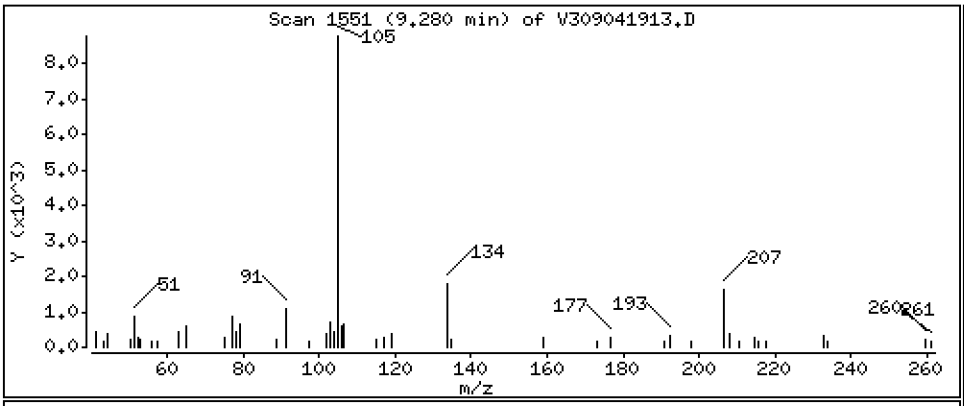
Operator: PKC

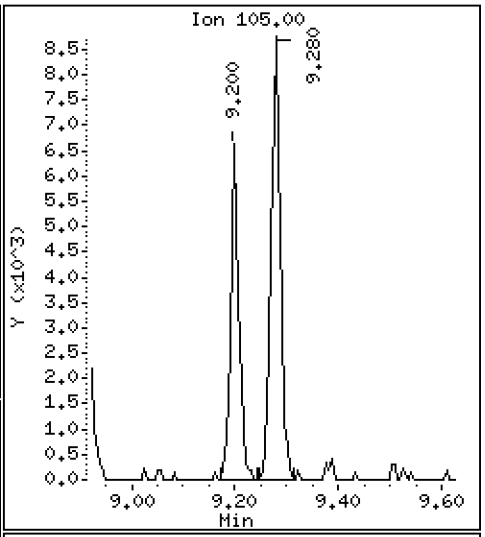
Column phase: RTXVMS

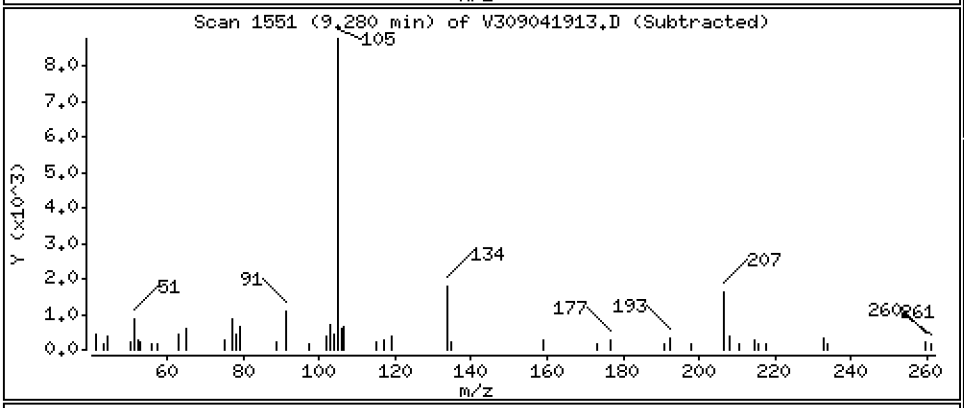
Column diameter: 0.18

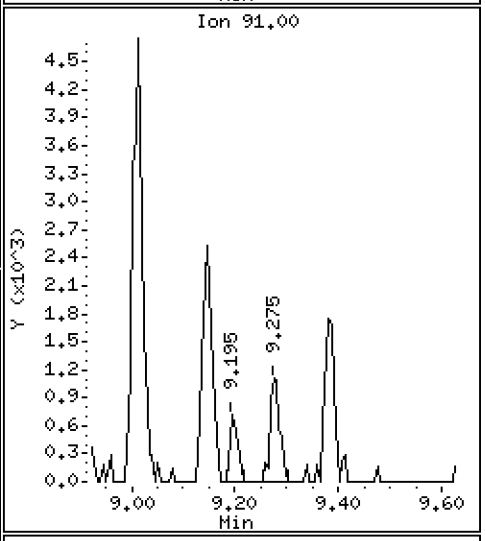
73 S-Butyl Benzene

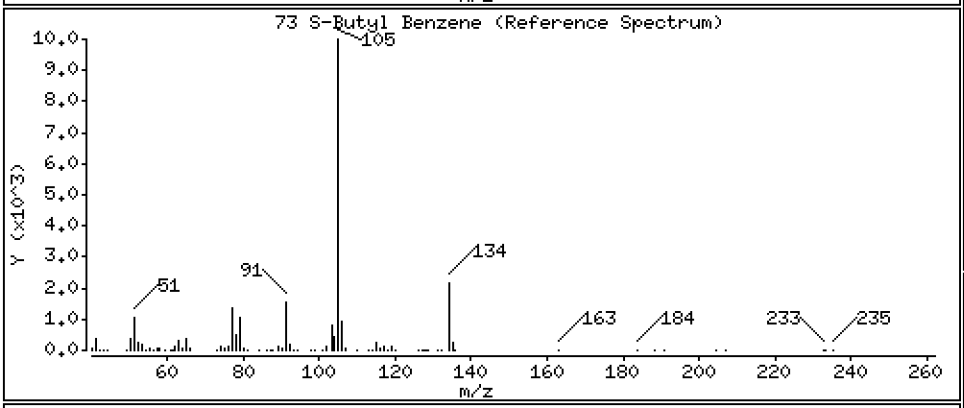
Concentration: 0.2886 ug/L

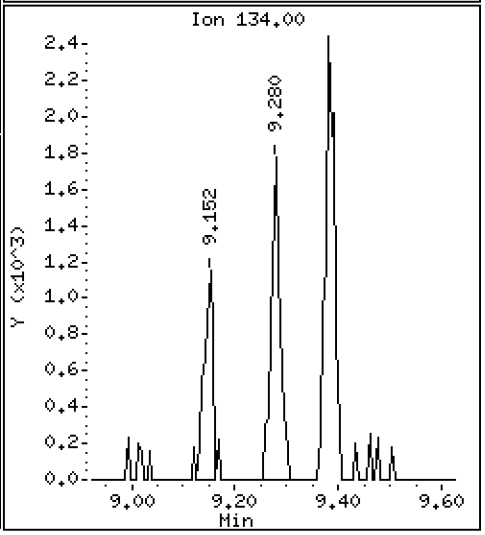


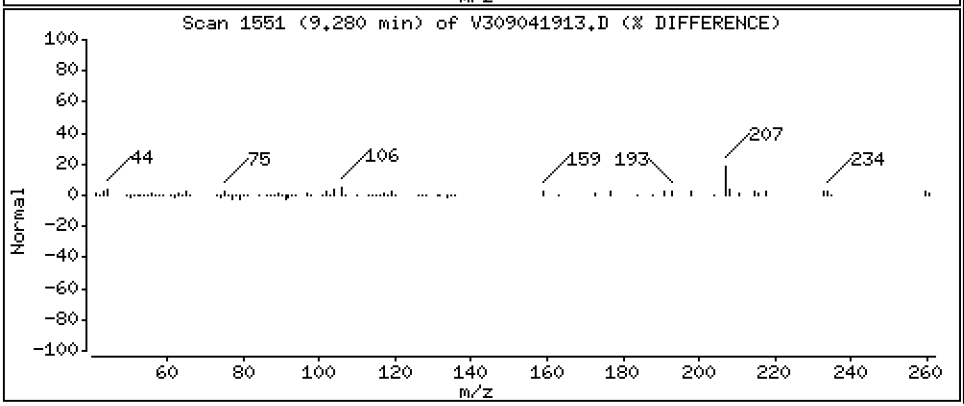












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

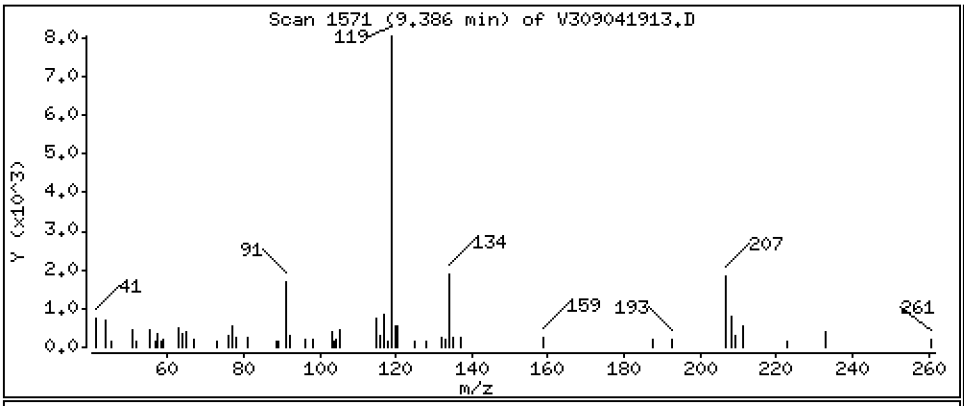
Operator: PKC

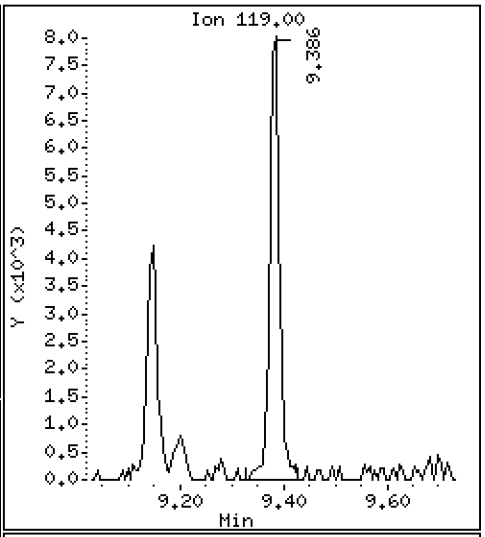
Column phase: RTXVMS

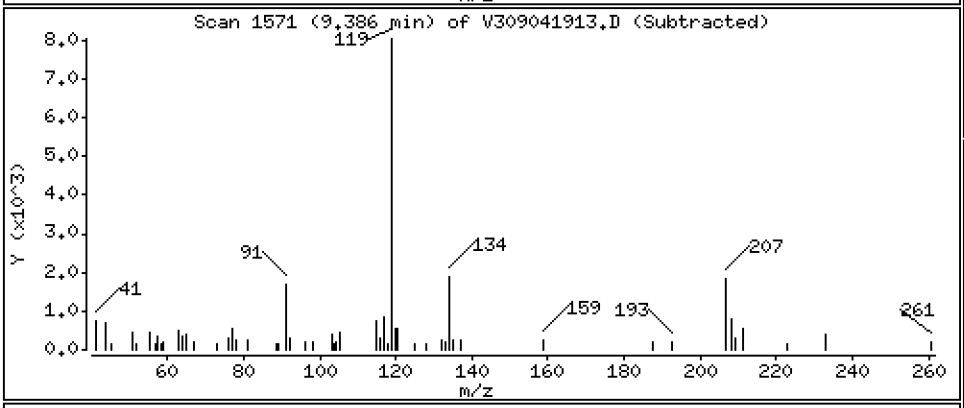
Column diameter: 0.18

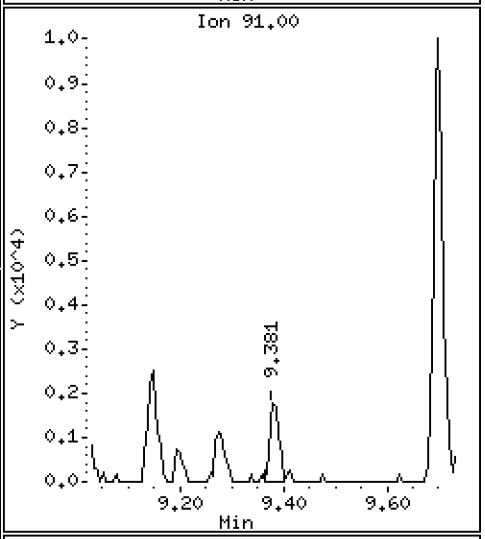
74 4-Isopropyl Toluene

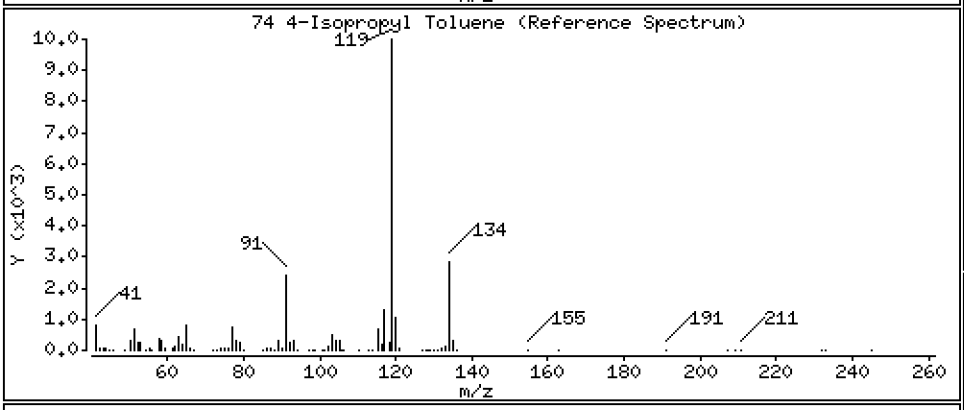
Concentration: 0.3060 ug/L

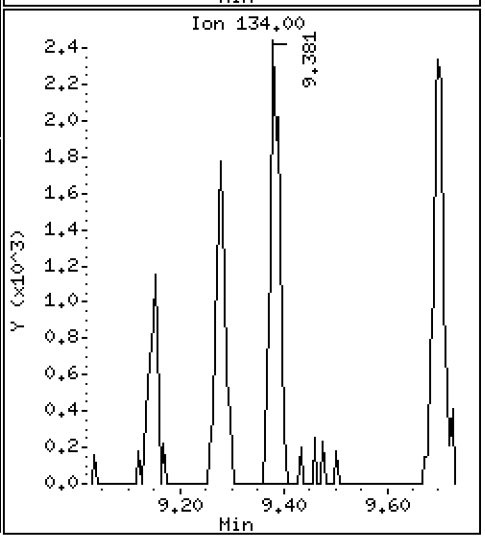


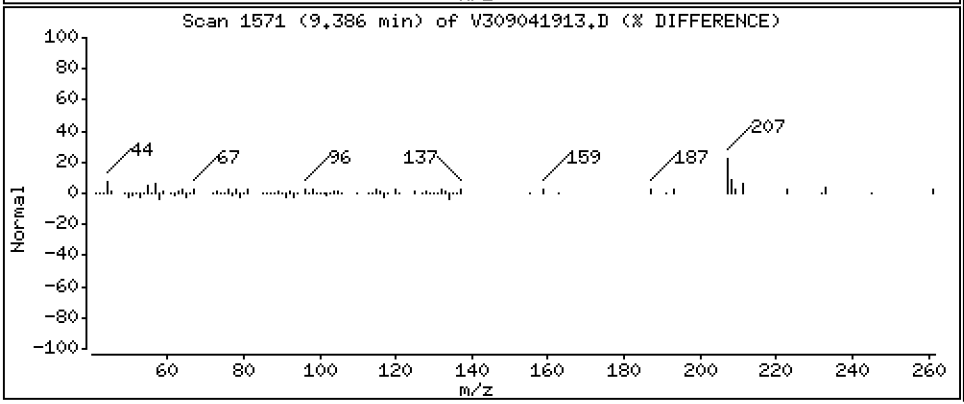












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

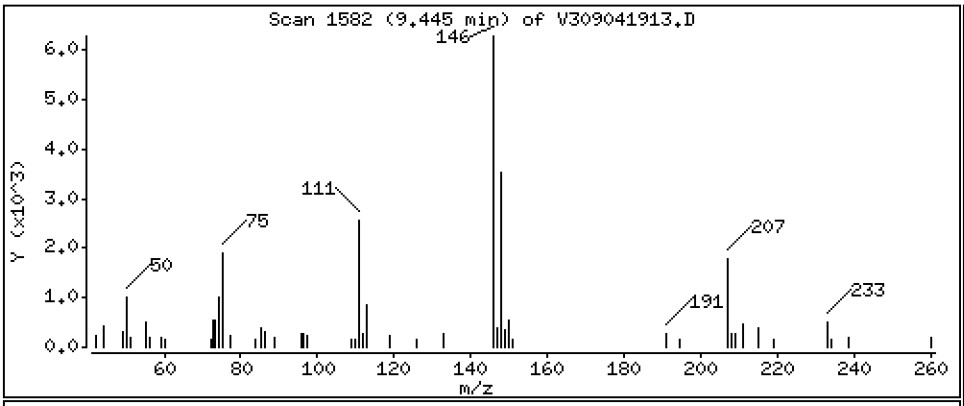
Operator: PKC

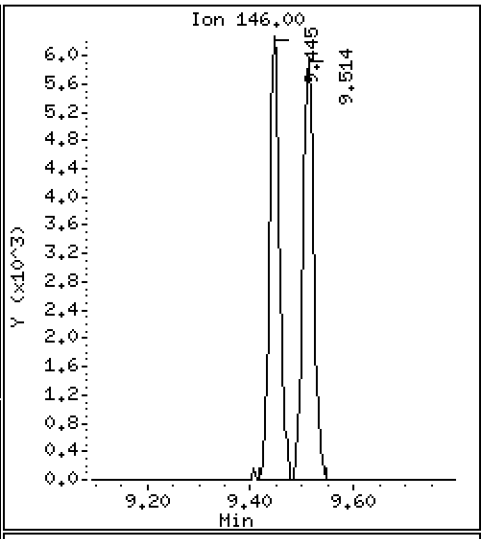
Column phase: RTXVMS

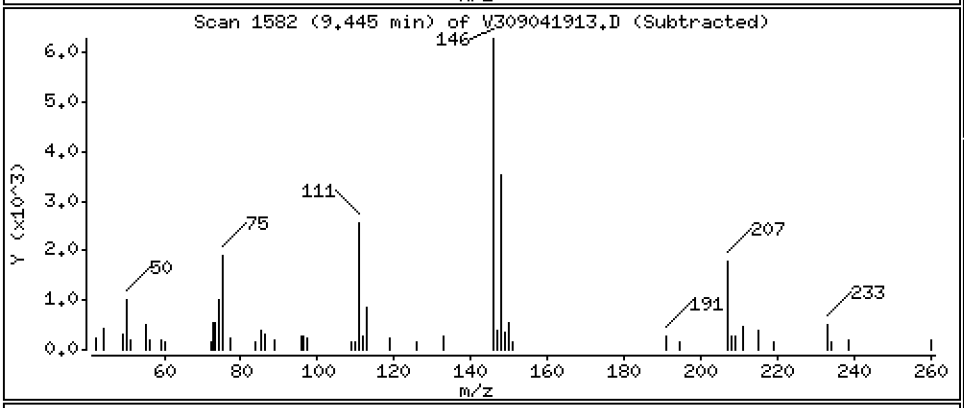
Column diameter: 0.18

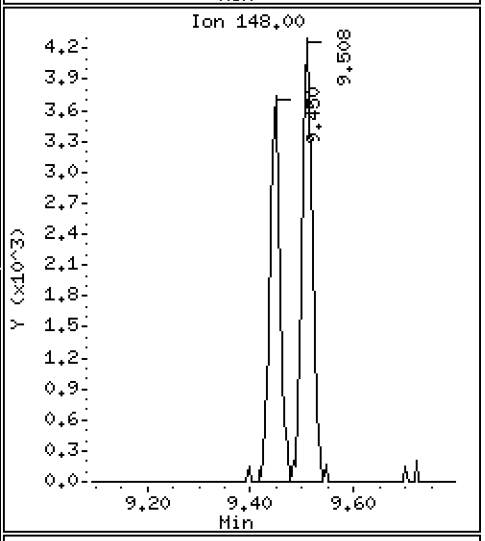
75 1,3-Dichlorobenzene

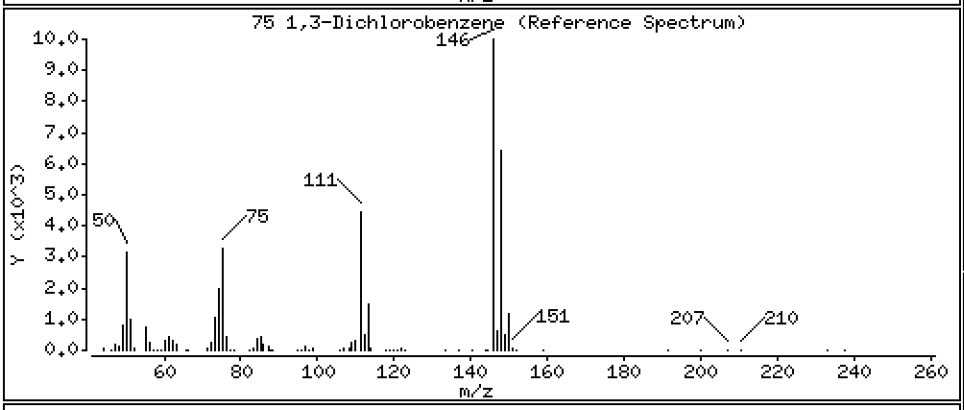
Concentration: 0.4036 ug/L

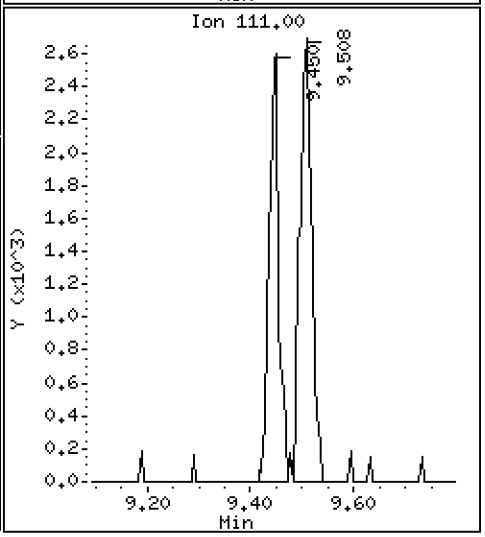


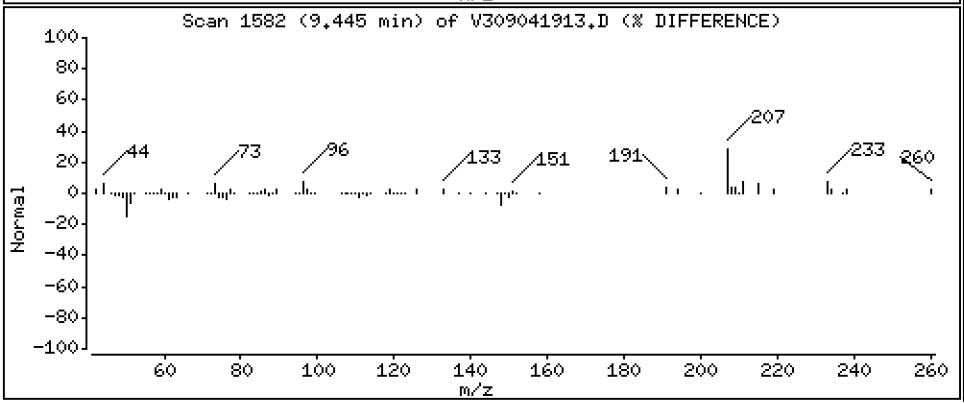












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

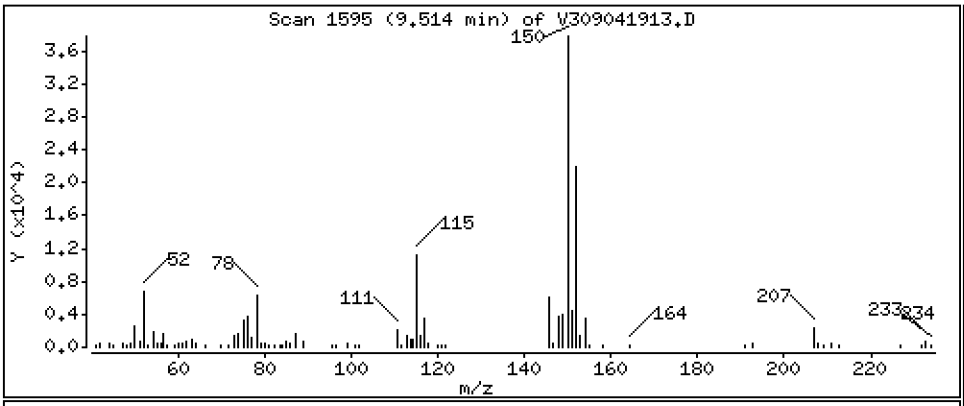
Operator: PKC

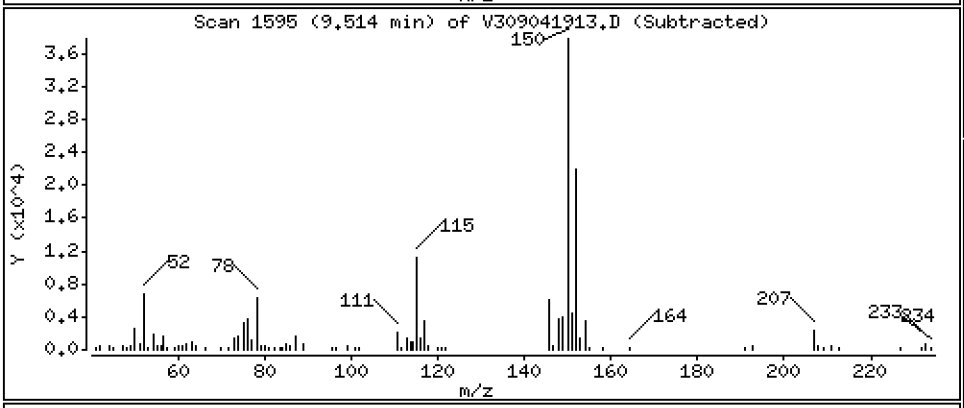
Column phase: RTXVMS

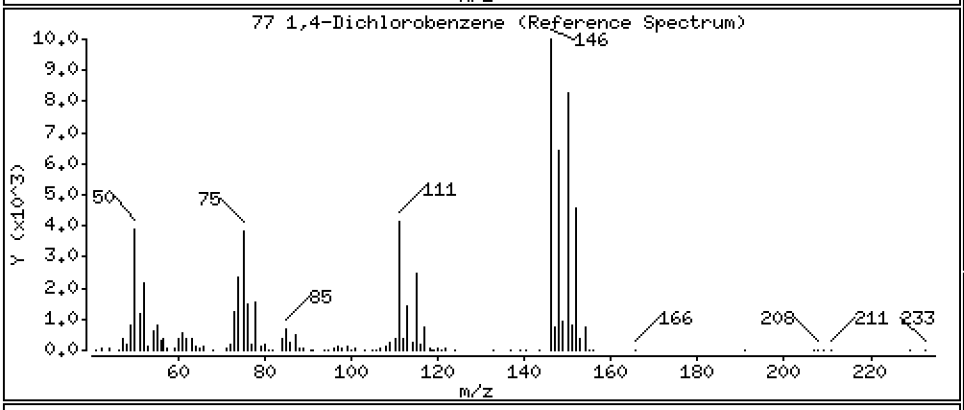
Column diameter: 0.18

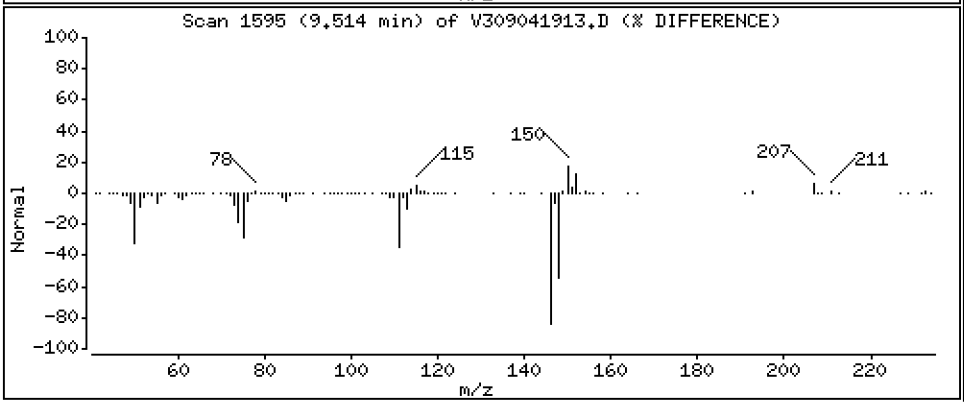
77 1,4-Dichlorobenzene

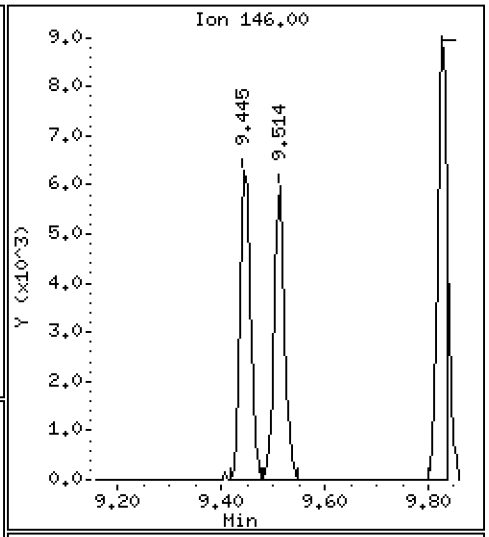
Concentration: 0.3985 ug/L

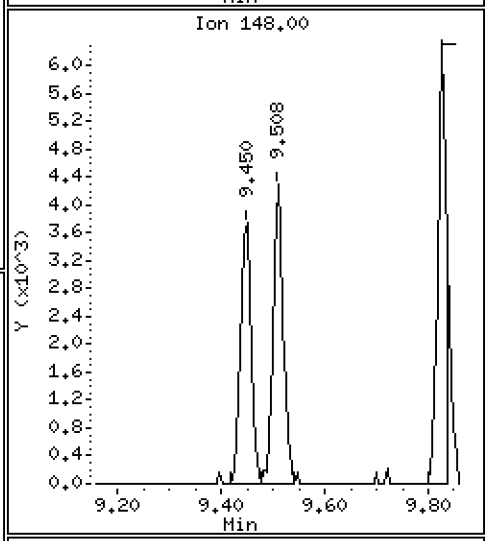


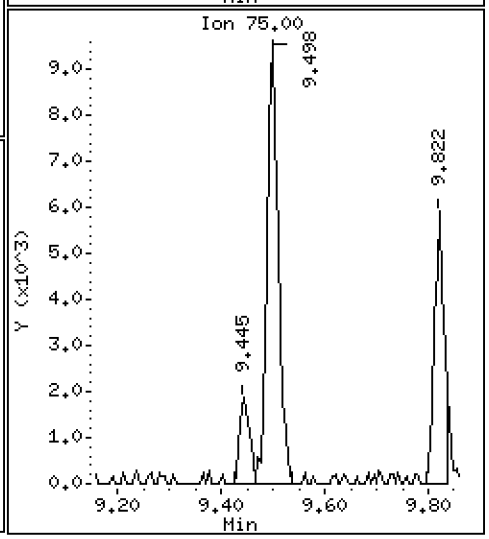












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

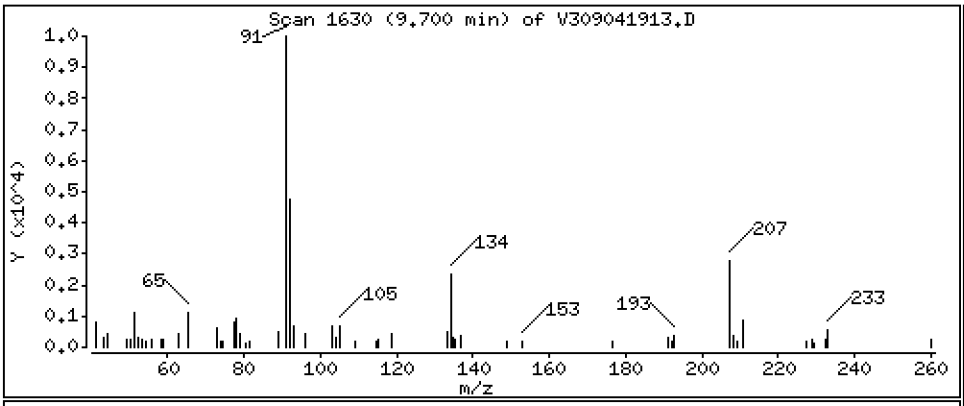
Operator: PKC

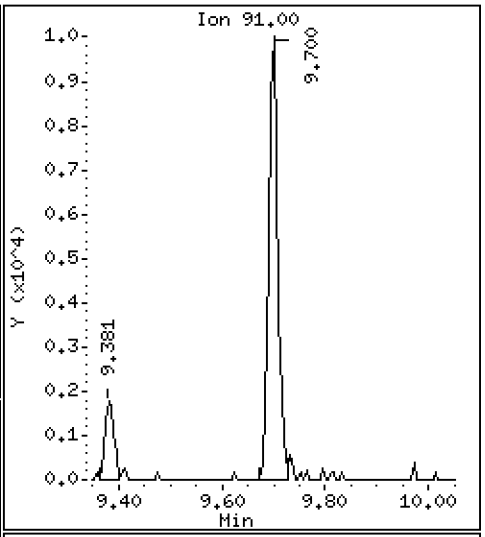
Column phase: RTXVMS

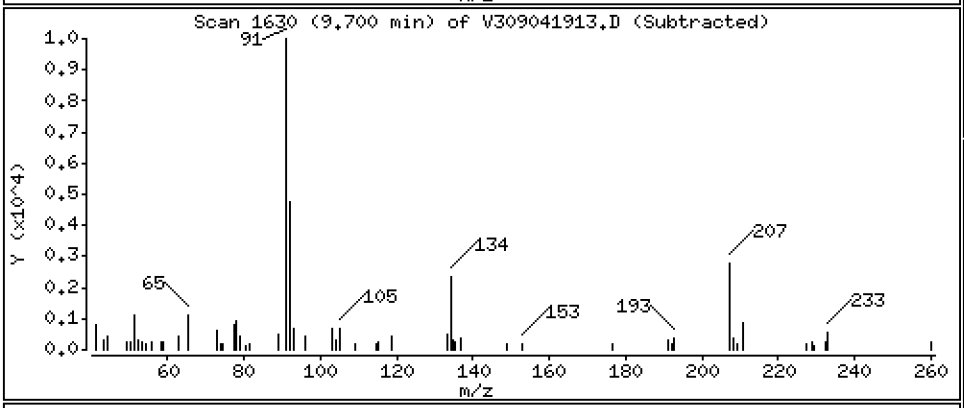
Column diameter: 0.18

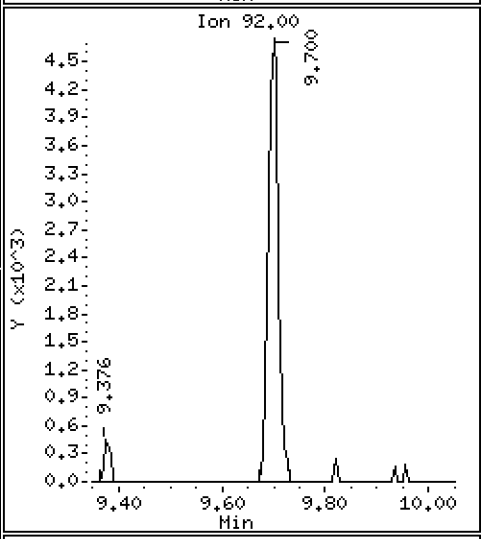
78 N-Butyl Benzene

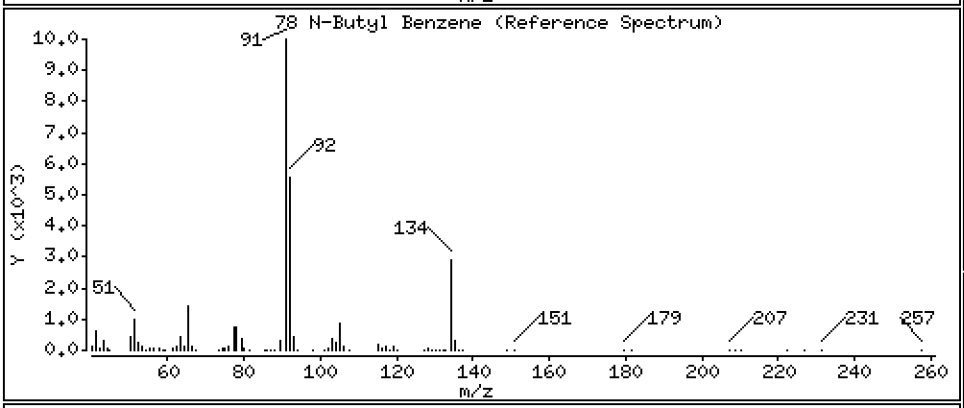
Concentration: 0.4155 ug/L

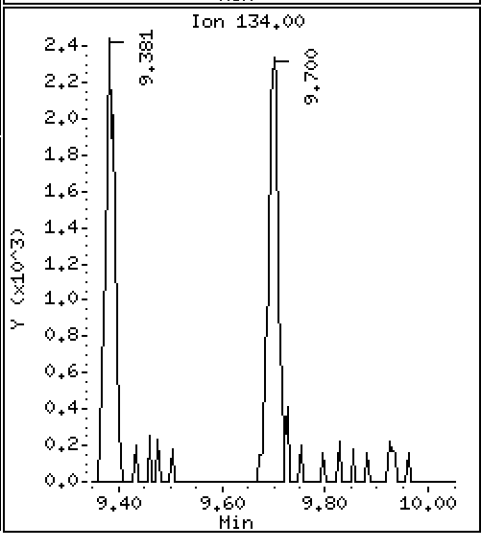


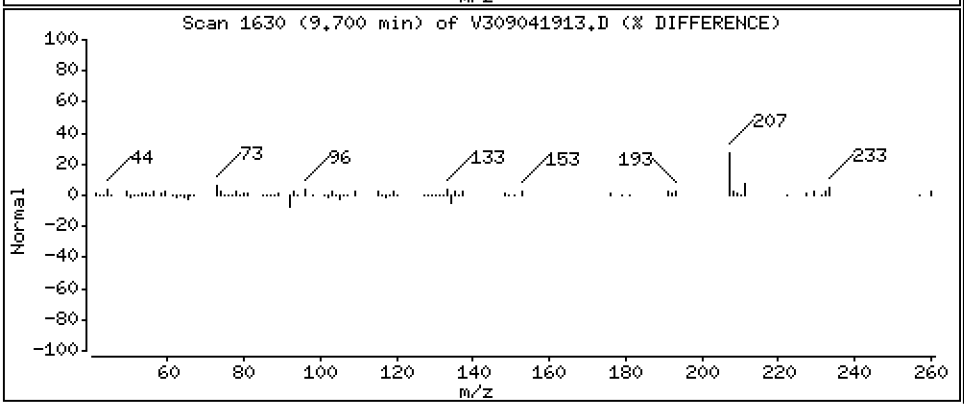












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

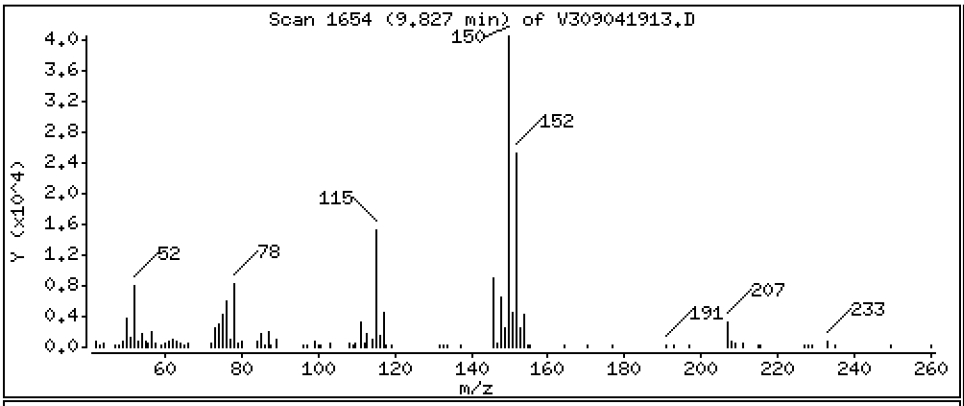
Operator: PKC

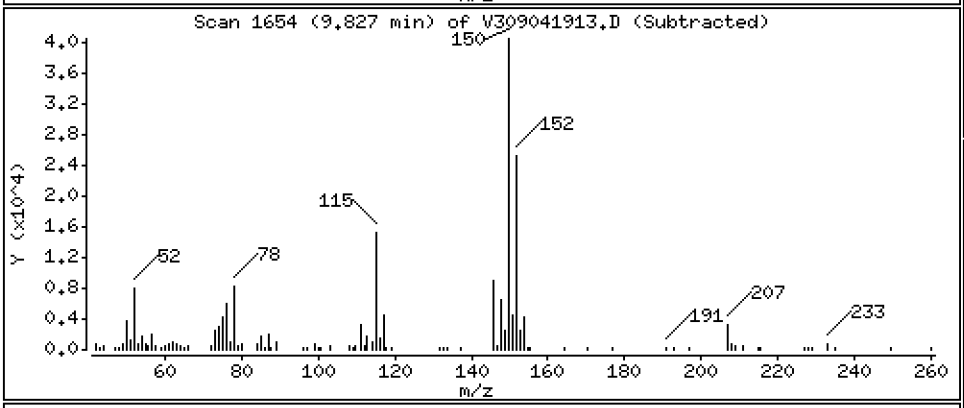
Column phase: RTXVMS

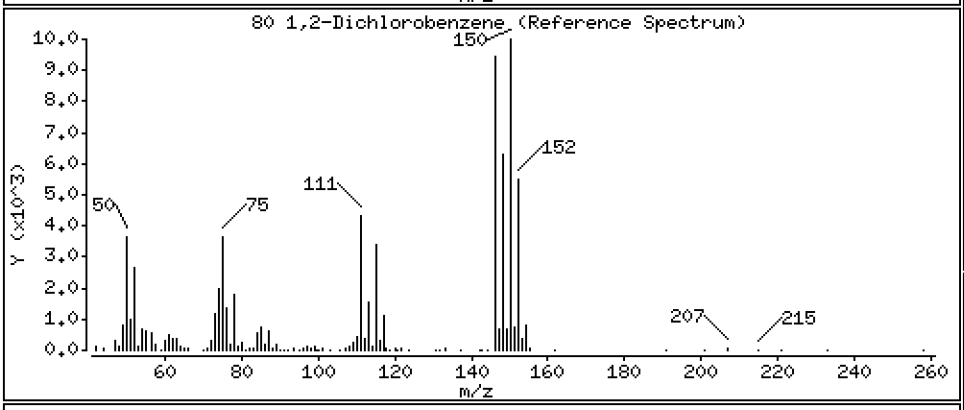
Column diameter: 0.18

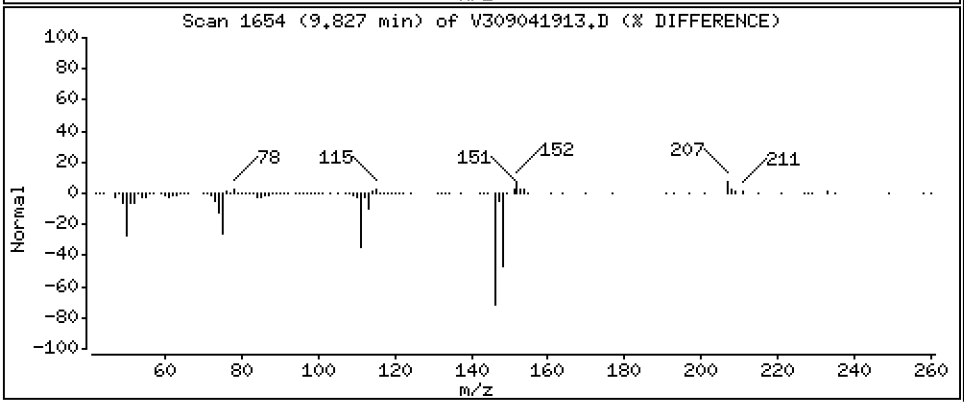
80 1,2-Dichlorobenzene

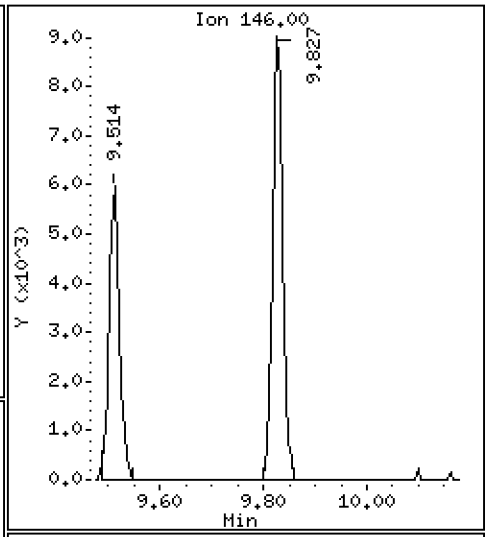
Concentration: 0.6138 ug/L

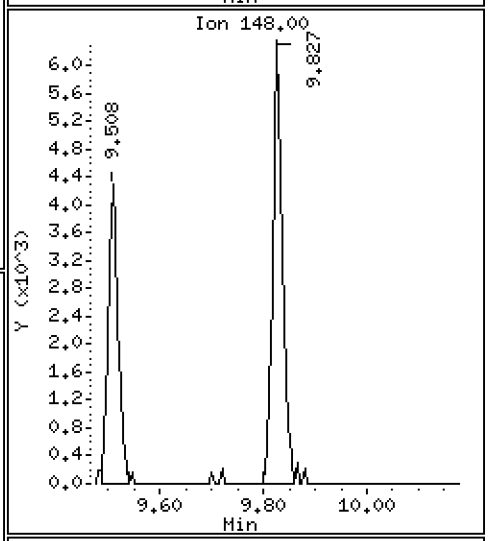


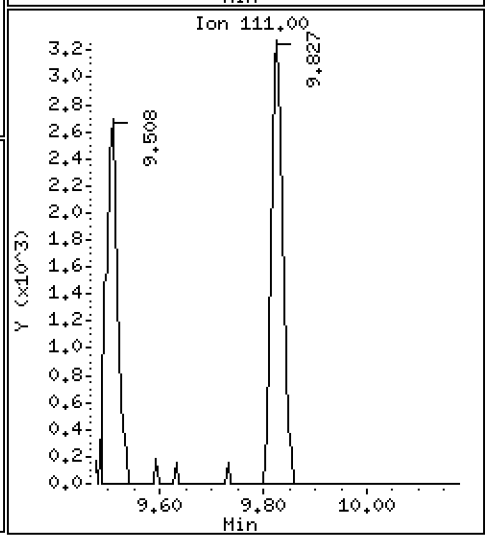












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

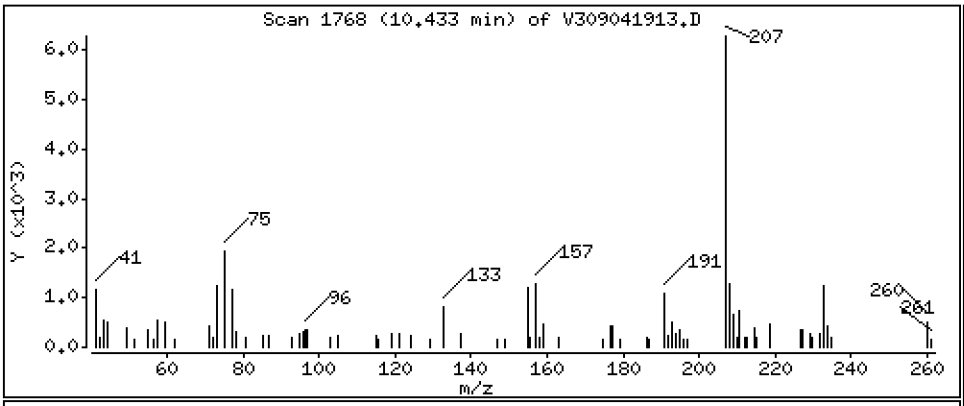
Operator: PKC

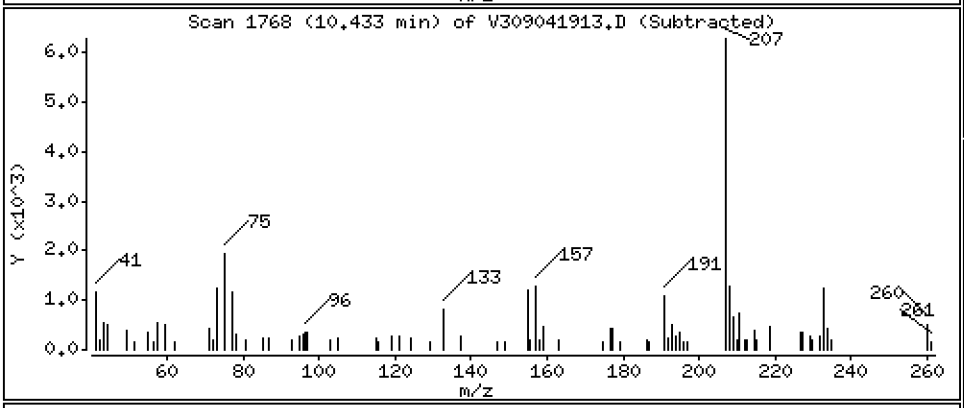
Column phase: RTXVMS

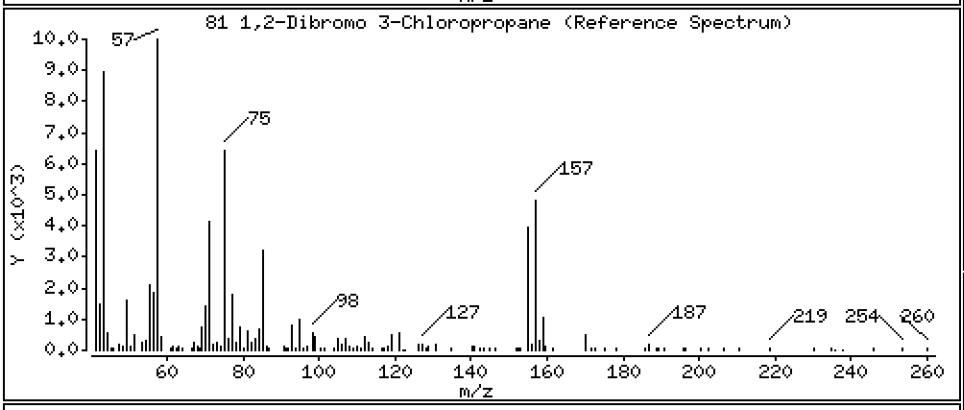
Column diameter: 0.18

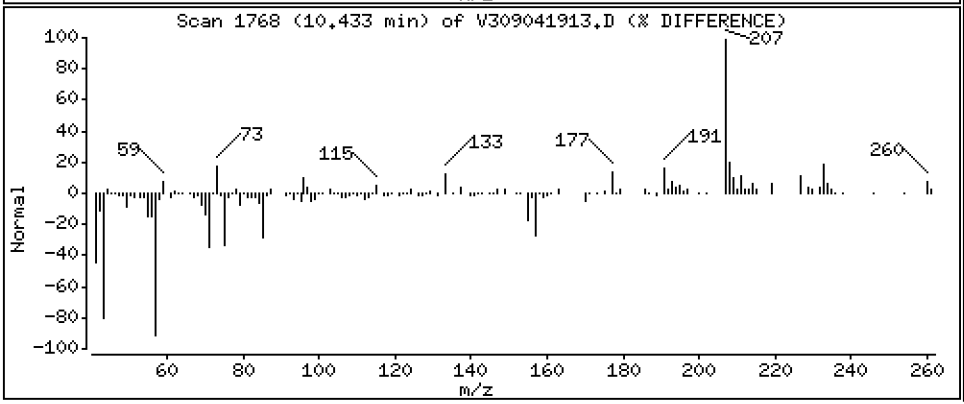
81 1,2-Dibromo 3-Chloropropane

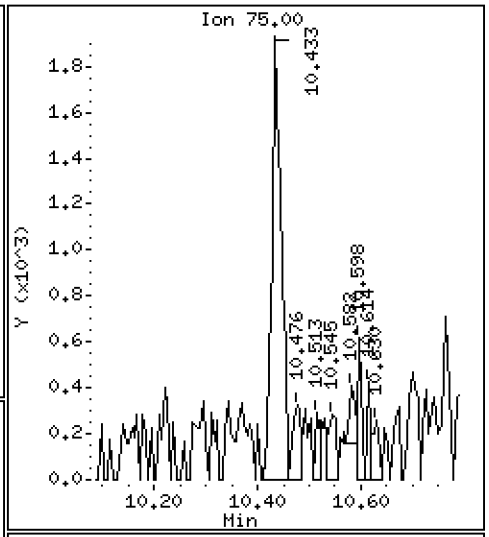
Concentration: 2.009 ug/L

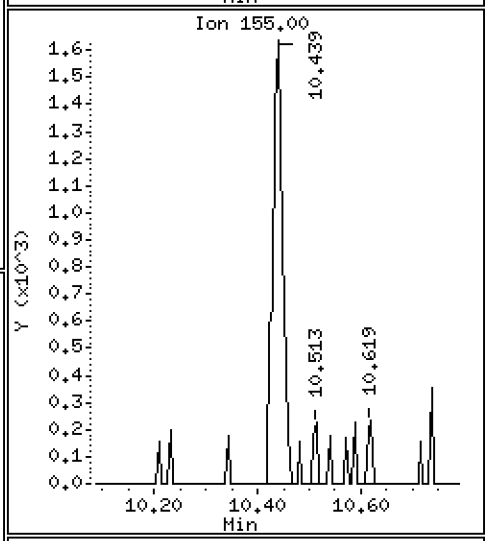


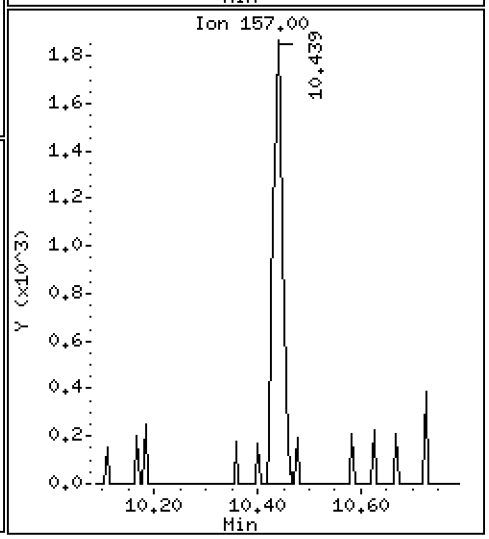












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

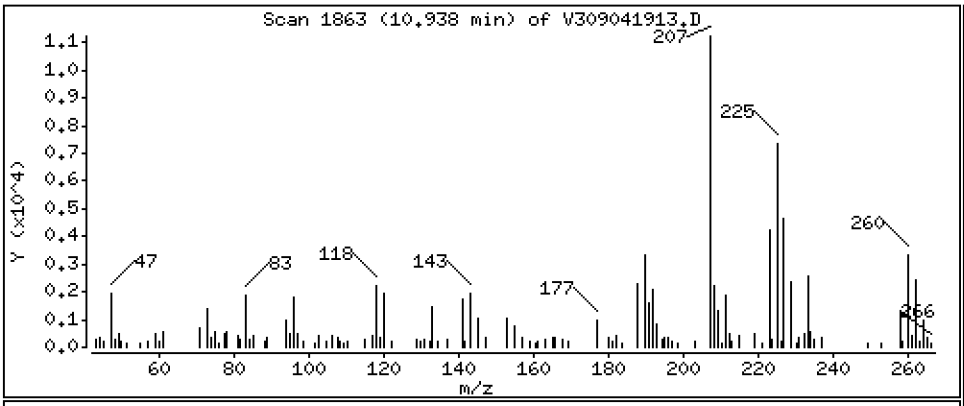
Operator: PKC

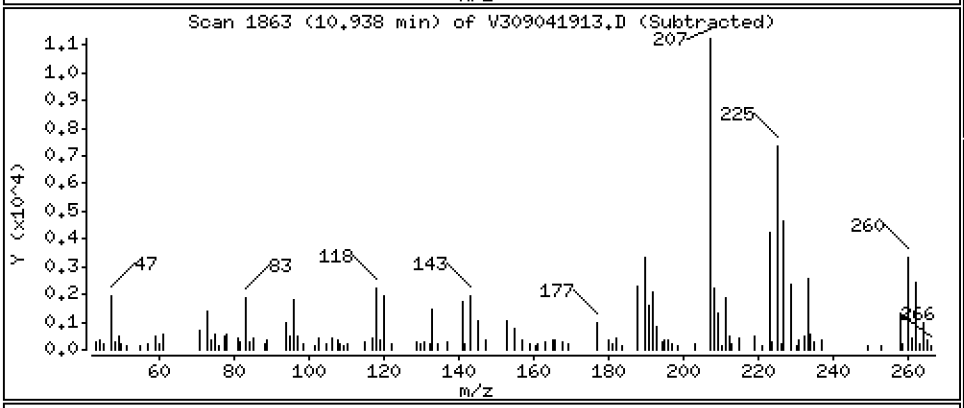
Column phase: RTXVMS

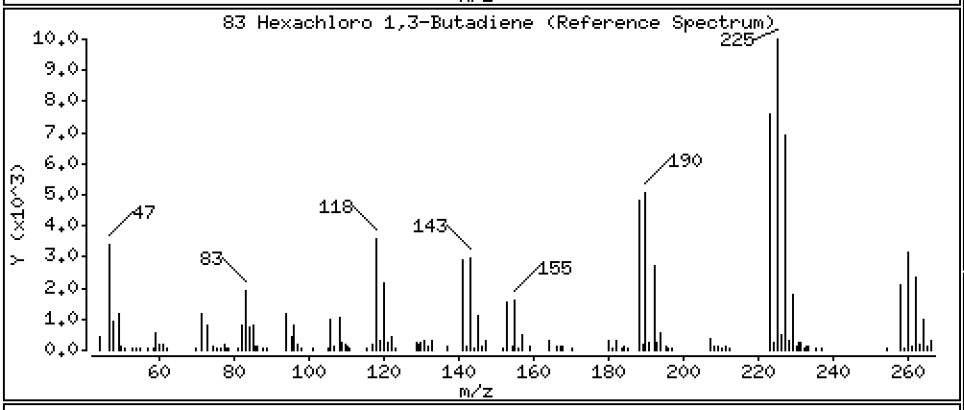
Column diameter: 0.18

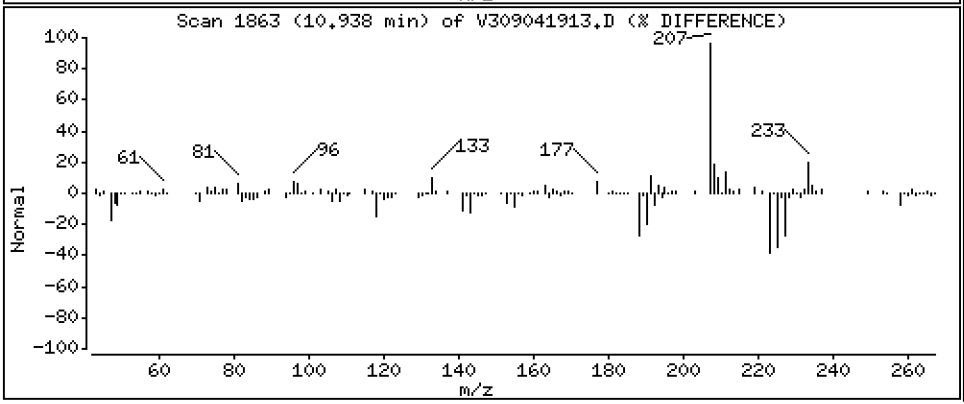
83 Hexachloro 1,3-Butadiene

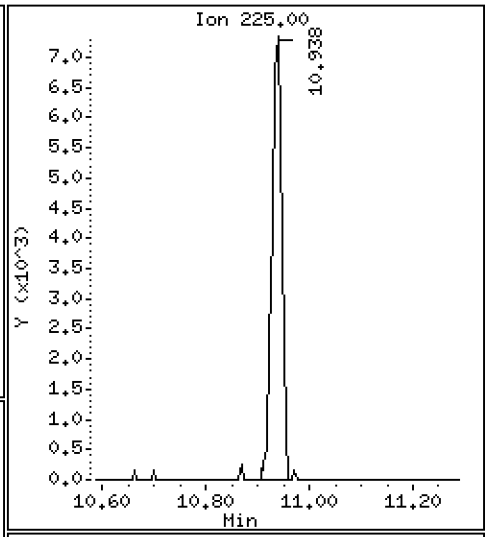
Concentration: 1.744 ug/L

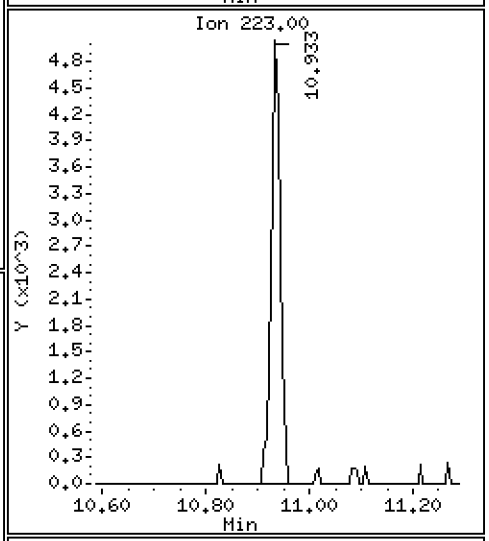


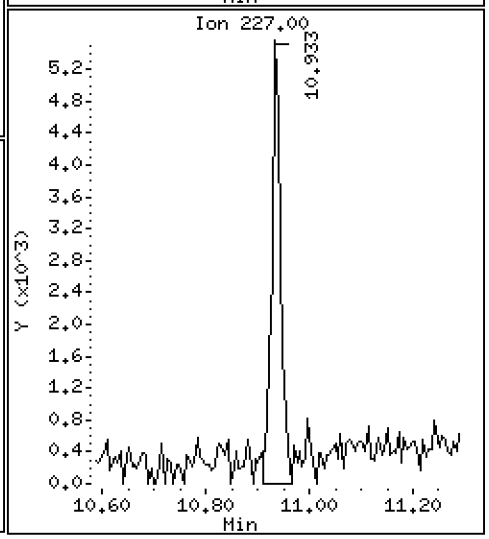












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Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

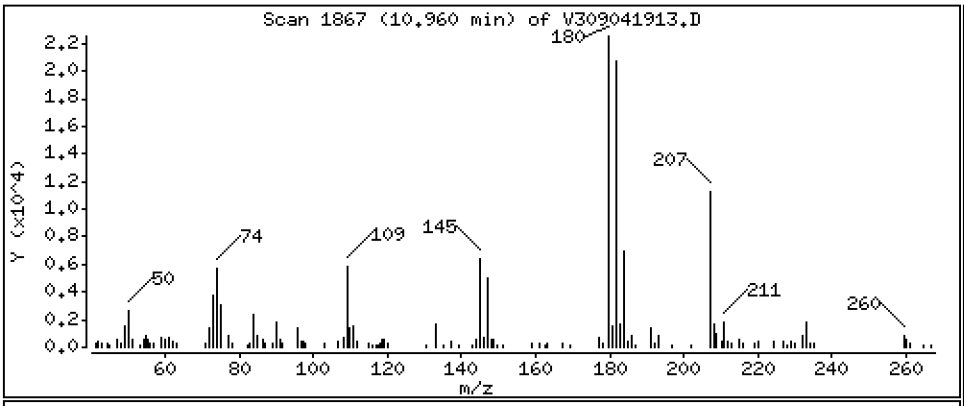
Operator: PKC

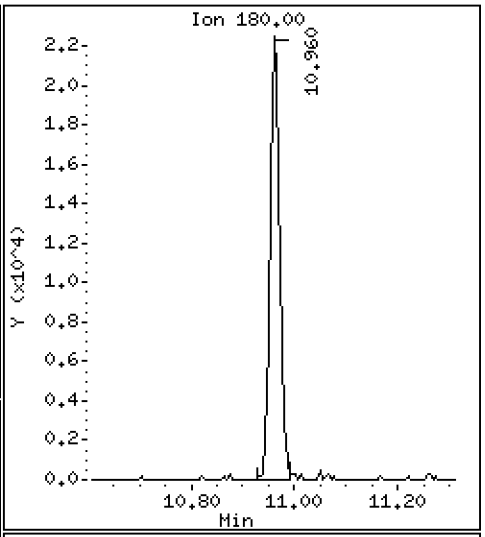
Column phase: RTXVMS

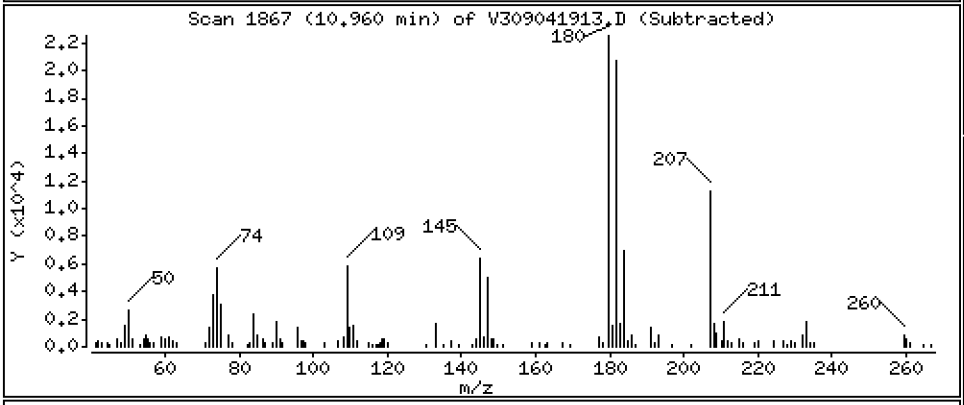
Column diameter: 0.18

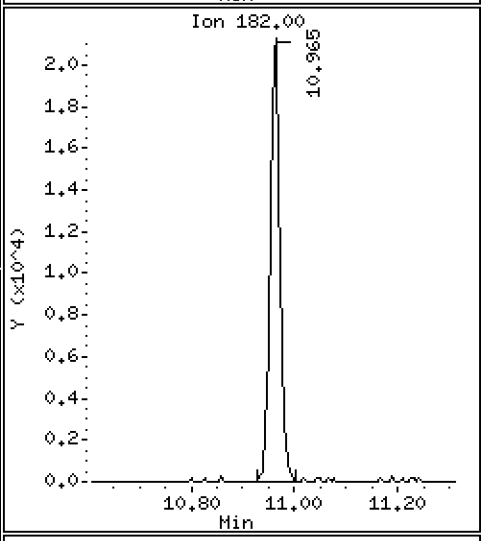
84 1,2,4-Trichlorobenzene

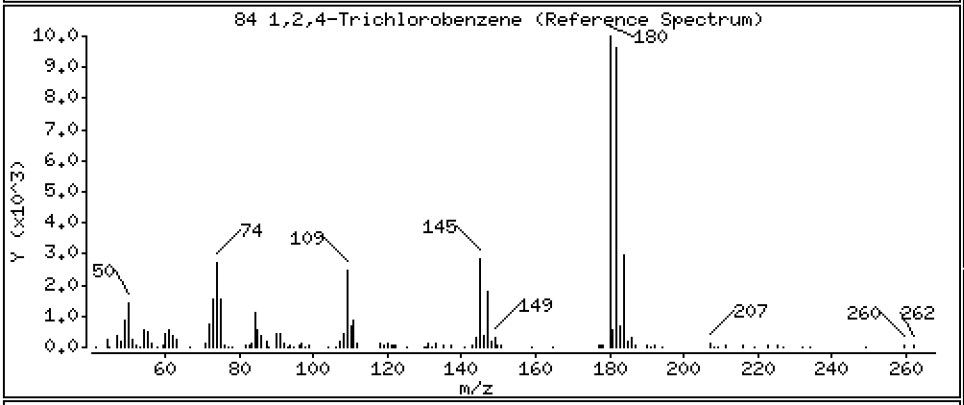
Concentration: 2.098 ug/L

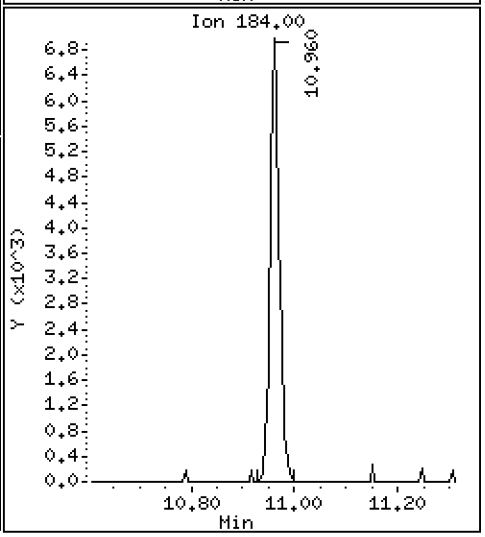


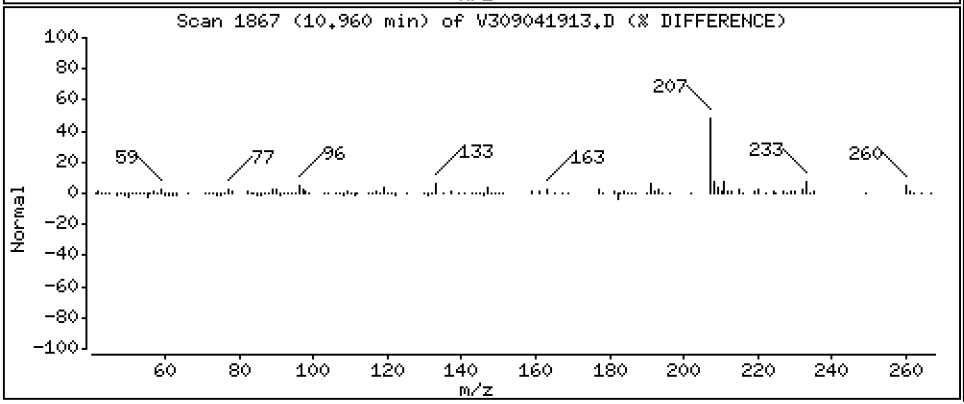












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

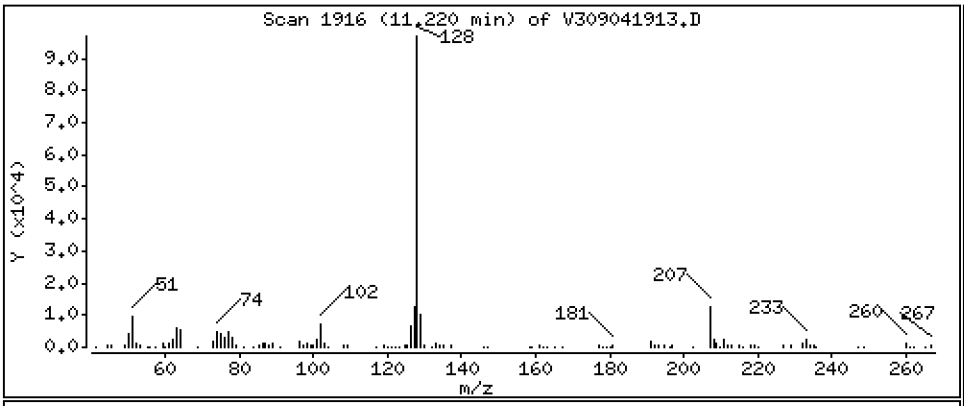
Operator: PKC

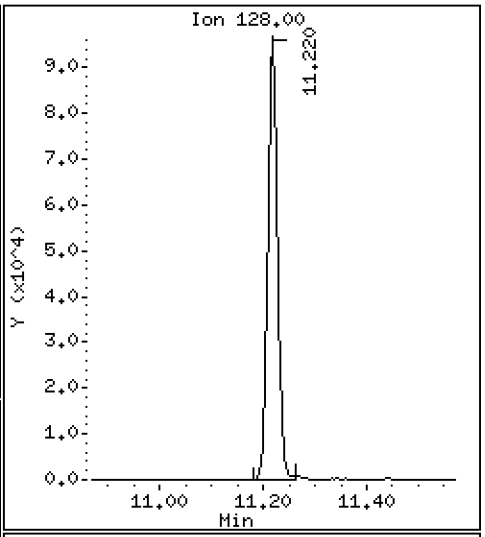
Column phase: RTXVMS

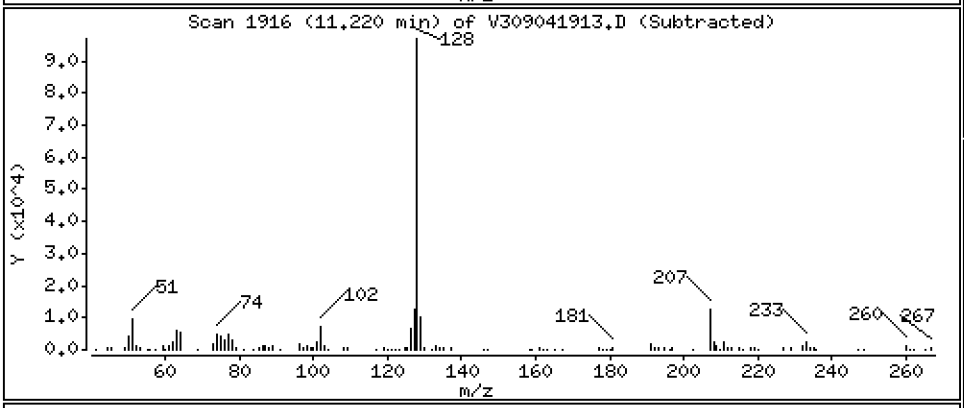
Column diameter: 0.18

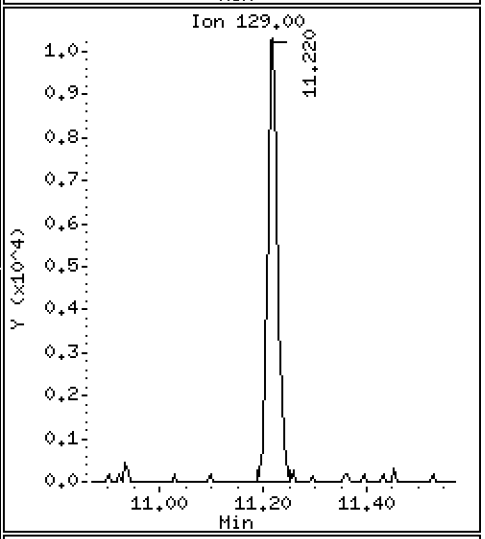
85 Naphthalene

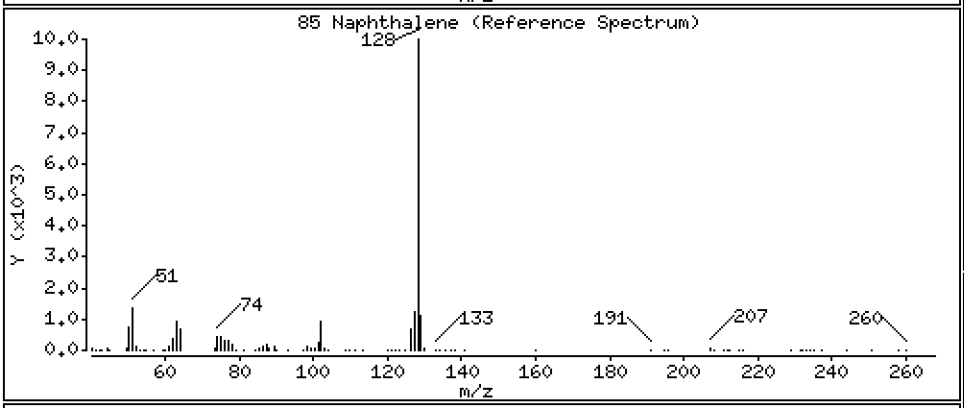
Concentration: 5.430 ug/L

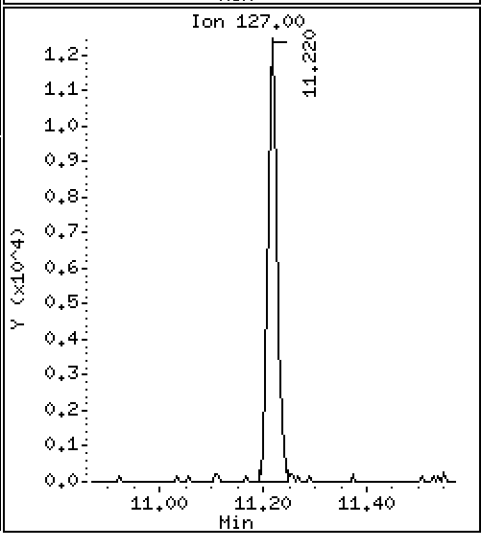


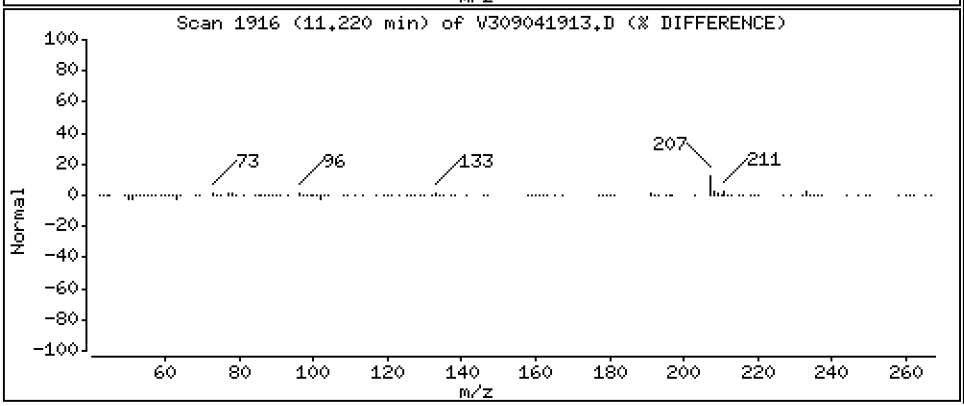












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041913.D

Date : 04-SEP-2019 21:01

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-ICB1

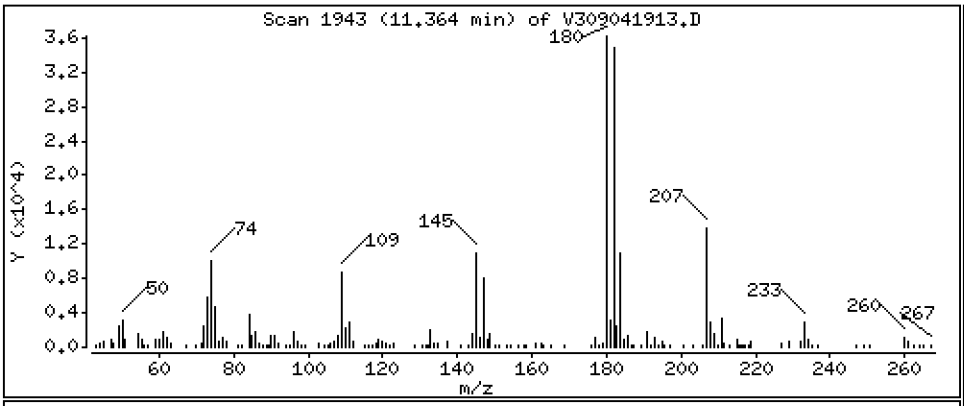
Operator: PKC

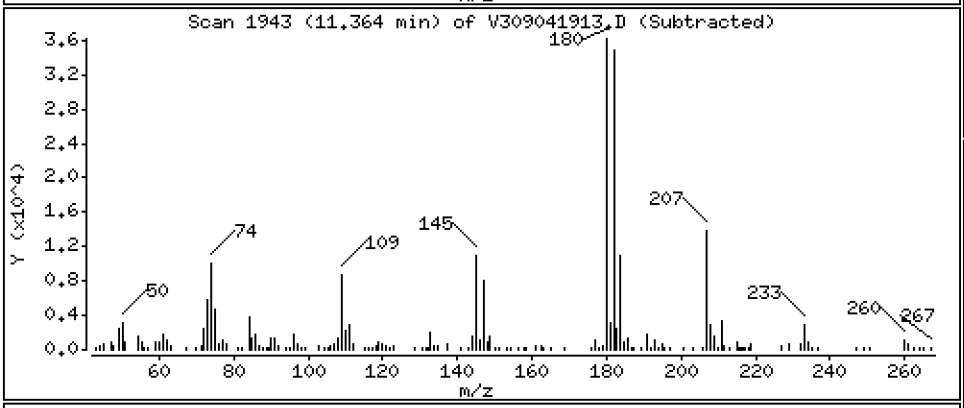
Column phase: RTXVMS

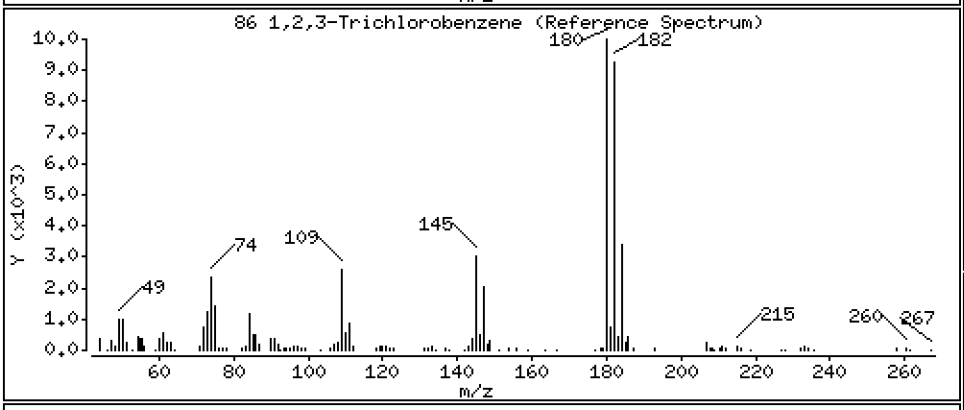
Column diameter: 0.18

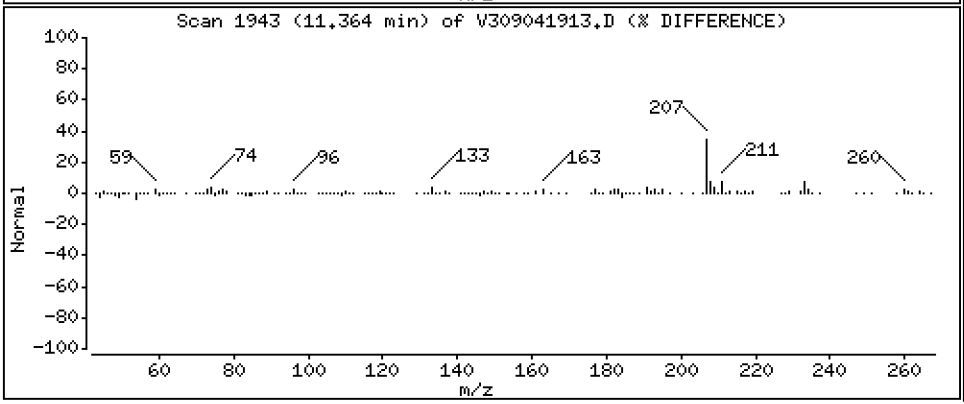
86 1,2,3-Trichlorobenzene

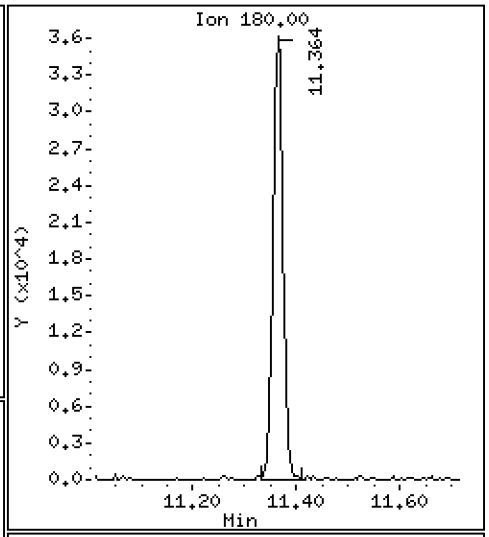
Concentration: 4.330 ug/L

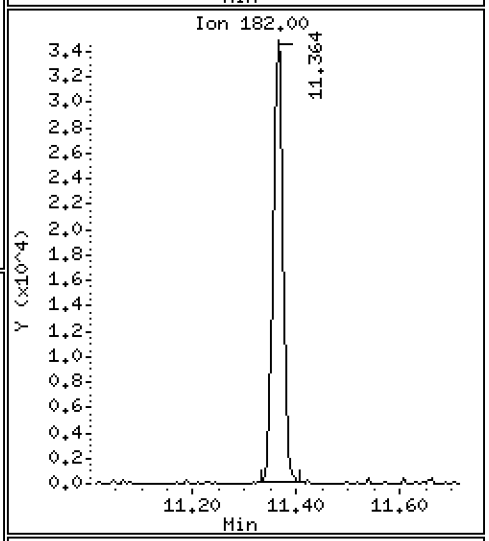


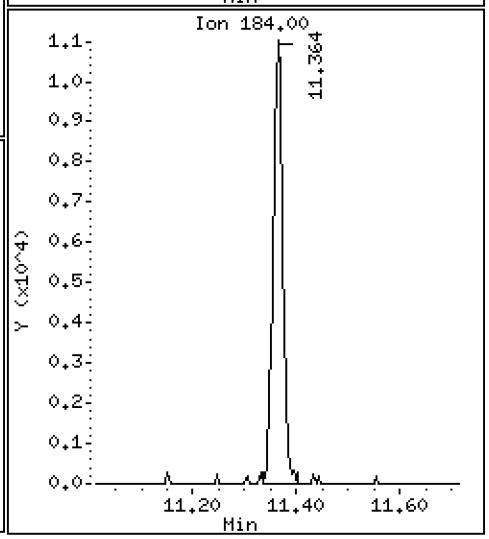












ARI Labs, Inc.

8260C 10 ml purge

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Inj Date : 04-SEP-2019 21:01
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-ICB1
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1	Dichlorodifluoromethane	85	1.705	1.715	(0.315)	672	0.06119	0.06119(M)
2	Chloromethane	50	1.912	1.917	(0.354)	518	0.02810	0.02810(M)
3	Vinyl Chloride	62	Compound Not Detected.					
4	Bromomethane	94	Compound Not Detected.					
5	Chloroethane	64	Compound Not Detected.					
6	Trichlorofluoromethane	101	2.534	2.523	(0.468)	551	0.04561	0.04561
7	1,1-Dichloroethene	61	Compound Not Detected.					
8	Carbon Disulfide	76	2.997	2.996	(0.554)	1428	0.06660	0.06660
9	112Trichloro122Trifluoroethane	101	3.066	3.060	(0.567)	294	0.04489	0.04489
10	Iodomethane	142	Compound Not Detected.					
11	Bromoethane	108	Compound Not Detected.					
12	Acrolein	56	3.337	3.336	(0.617)	1552	1.19489	1.195
13	Methylene Chloride	84	3.571	3.560	(0.660)	3008	0.44708	0.4471
14	Acetone	43	3.666	3.639	(0.678)	3005	1.60706	1.607(MH)
15	Trans-1,2-Dichloroethene	96	3.714	3.708	(0.687)	223	0.02872	0.02872
17	Methyl tert butyl ether	73	Compound Not Detected.					
18	1,1-Dichloroethane	63	Compound Not Detected.					
19	Acrylonitrile	53	Compound Not Detected.					
20	Vinyl Acetate	43	Compound Not Detected.					
22	Cis-1,2-Dichloroethene	96	Compound Not Detected.					
23	2,2-Dichloropropane	77	Compound Not Detected.					
24	Bromochloromethane	128	Compound Not Detected.					
25	Chloroform	83	Compound Not Detected.					
26	Carbon Tetrachloride	117	5.000	5.000	(0.864)	257	0.02570	0.02570
$ 27	Dibromofluoromethane	111	5.048	5.053	(0.933)	24746	4.86563	4.866(R)
28	1,1,1-Trichloroethane	97	Compound Not Detected.					
30	1,1-Dichloropropene	75	Compound Not Detected.					
29	2-Butanone	43	5.171	5.159	(0.956)	2270	0.74396	0.7440(M)
31	Benzene	78	5.335	5.330	(0.922)	995	0.03464	0.03464(M)
* 32	Pentafluorobenzene	168	5.410	5.409	(1.000)	117622	10.0000	
$ 33	d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	27397	4.83507	4.835(R)
34	1,2-Dichloroethane	62	Compound Not Detected.					
36	Trichloroethene	130	5.755	5.755	(0.994)	479	0.06235	0.06235
* 37	1,4-Difluorobenzene	114	5.787	5.787	(1.000)	167865	10.0000	
38	Dibromomethane	93	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
39	1,2-Dichloropropane	63	Compound Not Detected.					
40	Bromodichloromethane	83	Compound Not Detected.					
173	2-Pentanone	86	6.409	6.398	(1.107)	424	0.67907	0.6791
41	2-Chloroethyl Vinyl Ether	63	Compound Not Detected.					
42	Cis 1,3-dichloropropene	75	6.611	6.611	(1.142)	429	0.03885	0.03885
$ 43	d8-Toluene	98	6.739	6.738	(1.164)	100997	4.97340	4.973(R)
44	Toluene	92	6.771	6.770	(1.170)	1049	0.05600	0.05600
46	Tetrachloroethene	166	7.036	7.036	(0.901)	943	0.10484	0.1048
45	4-Methyl-2-Pentanone	58	7.042	7.041	(1.217)	1848	0.74970	0.7497
47	Trans 1,3-Dichloropropene	75	Compound Not Detected.					
48	1,1,2-Trichloroethane	97	7.174	7.174	(1.240)	194	0.03777	0.03777
49	Chlorodibromomethane	129	7.297	7.296	(0.934)	511	0.07947	0.07947
50	1,3-Dichloropropane	76	Compound Not Detected.					
51	1,2-Dibromoethane	107	7.456	7.461	(1.288)	563	0.11072	0.1107(M)
52	2-Hexanone	43	7.616	7.615	(0.975)	6036	1.29476	1.295
* 53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	173269	10.0000	
54	Chlorobenzene	112	7.823	7.823	(1.001)	2465	0.11043	0.1104
55	Ethyl Benzene	106	7.839	7.838	(1.003)	976	0.08009	0.08009
56	1,1,1,2-Tetrachloroethane	131	7.881	7.870	(1.009)	909	0.11326	0.1133
57	m,p-xylene	106	7.945	7.945	(1.017)	2531	0.16865	0.1687
58	o-Xylene	106	8.248	8.248	(1.056)	1705	0.11254	0.1125
59	Styrene	104	8.285	8.285	(1.061)	2935	0.12515	0.1251
60	Bromoform	173	8.307	8.306	(0.875)	829	0.21524	0.2152(M)
61	Isopropyl Benzene	105	8.471	8.471	(0.892)	4203	0.11045	0.1104
$ 62	4-Bromofluorobenzene	174	8.679	8.678	(1.111)	39388	4.78393	4.784(R)
63	Bromobenzene	156	8.759	8.758	(0.922)	2680	0.25890	0.2589
64	N-Propyl Benzene	91	8.769	8.769	(0.923)	7078	0.16217	0.1622
65	1,1,2,2-Tetrachloroethane	83	8.828	8.822	(0.929)	3310	0.50269	0.5027
66	2-Chloro Toluene	91	8.886	8.886	(0.936)	5623	0.18124	0.1812
67	1,3,5-Trimethyl Benzene	105	8.913	8.912	(0.938)	7101	0.21199	0.2120
68	1,2,3-Trichloropropane	110	8.929	8.923	(0.940)	813	0.37190	0.3719
69	Trans-1,4-Dichloro 2-Butene	53	Compound Not Detected.					
70	4-Chloro Toluene	91	9.014	9.008	(0.949)	6186	0.21523	0.2152
71	T-Butyl Benzene	119	9.147	9.146	(0.963)	5677	0.20071	0.2007
72	1,2,4-Trimethylbenzene	105	9.200	9.199	(0.969)	7432	0.21885	0.2189
73	S-Butyl Benzene	105	9.279	9.274	(0.977)	11413	0.28864	0.2886
74	4-Isopropyl Toluene	119	9.386	9.380	(0.988)	10858	0.30600	0.3060(M)
75	1,3-Dichlorobenzene	146	9.444	9.444	(0.994)	8778	0.40363	0.4036
* 76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	107129	10.0000	
77	1,4-Dichlorobenzene	146	9.513	9.508	(1.002)	8656	0.39854	0.3985
78	N-Butyl Benzene	91	9.699	9.699	(1.021)	12618	0.41549	0.4155
$ 79	d4-1,2-Dichlorobenzene	152	9.822	9.821	(1.034)	48846	4.85267	4.853(R)
80	1,2-Dichlorobenzene	146	9.827	9.826	(1.035)	12450	0.61381	0.6138
81	1,2-Dibromo 3-Chloropropane	75	10.433	10.438	(1.098)	2478	2.00860	2.009
83	Hexachloro 1,3-Butadiene	225	10.938	10.938	(1.152)	10099	1.74378	1.744
84	1,2,4-Trichlorobenzene	180	10.959	10.959	(1.154)	29931	2.09786	2.098
85	Naphthalene	128	11.220	11.219	(1.181)	129071	5.43002	5.430
86	1,2,3-Trichlorobenzene	180	11.363	11.363	(1.196)	50301	4.33037	4.330

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041913.D
Lab Smp Id: SHI0071-ICB1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	117622	21.39
37 1,4-Difluorobenze	140121	70061	280242	167865	19.80
53 d5-Chlorobenzene	140128	70064	280256	173269	23.65
76 d4-1,4-Dichlorobe	90137	45069	180274	107129	18.85

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 06-Sep-2019 09:28

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0071-ICB1
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.866	97.31	
$ 33 d4-1,2-Dichloroeth	5.000	4.835	96.70	
$ 43 d8-Toluene	5.000	4.973	99.47	
$ 62 4-Bromofluorobenze	5.000	4.784	95.68	
$ 79 d4-1,2-Dichloroben	5.000	4.853	97.05	

REVIEW SUMMARY FOR FILE - V309041913.D

Lab ID: SHI0071-ICB1
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 21:01

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.315	1.000	-0.6848	Dichlorodifluoromethane
0.354	1.000	-0.6465	Chloromethane
0.468	1.000	-0.5315	Trichlorofluoromethane
0.554	1.000	-0.4460	Carbon Disulfide
0.567	1.000	-0.4333	112Trichloro122Trifluoroethane
0.617	1.000	-0.3832	Acrolein
0.660	1.000	-0.3399	Methylene Chloride
0.678	1.000	-0.3223	Acetone
0.687	1.000	-0.3134	Trans-1,2-Dichloroethene
0.956	1.000	-0.0442	2-Butanone
0.933	1.000	-0.0668	Dibromofluoromethane

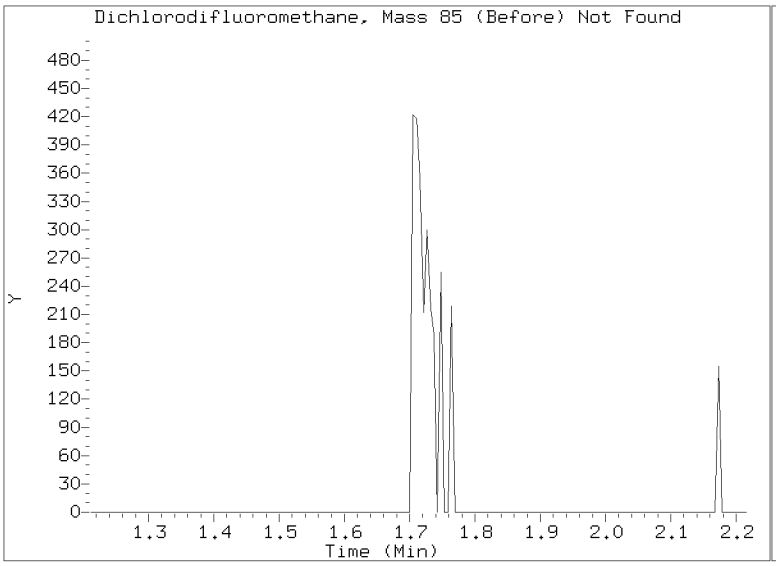
RRT check based on Ccal File: V309041912.D

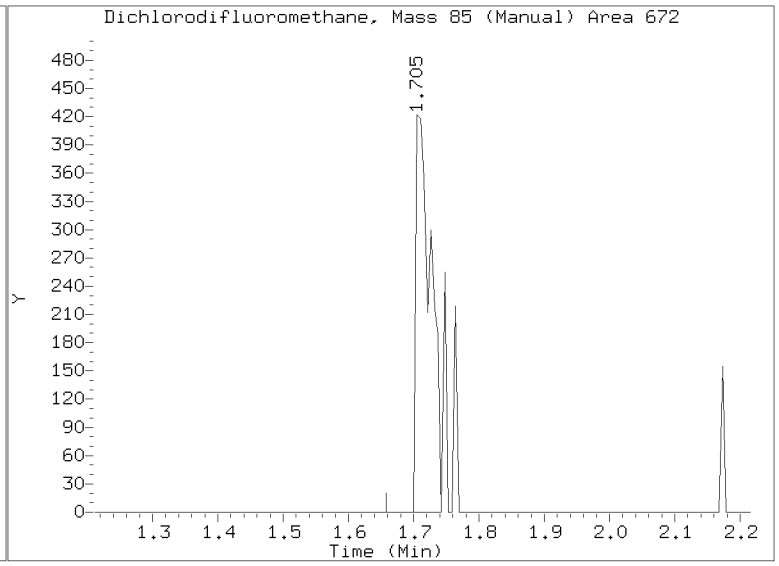
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

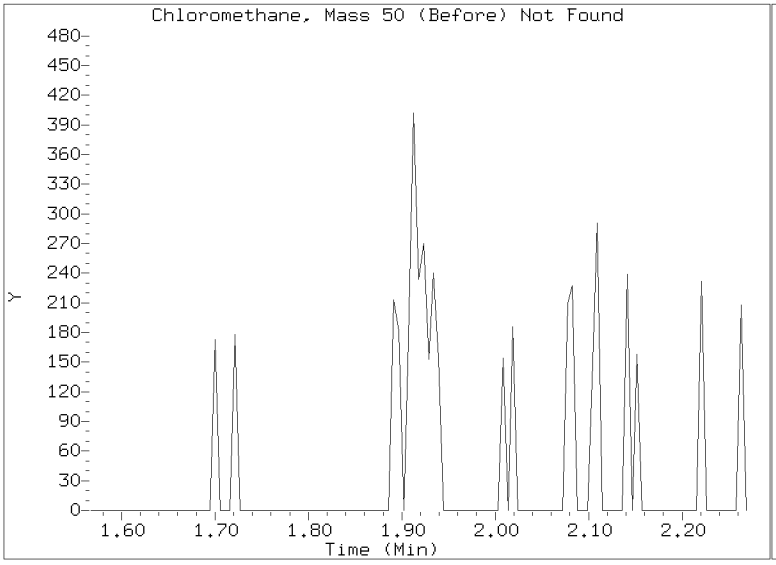
* Only compounds listed in the work order have been verified by the analyst *

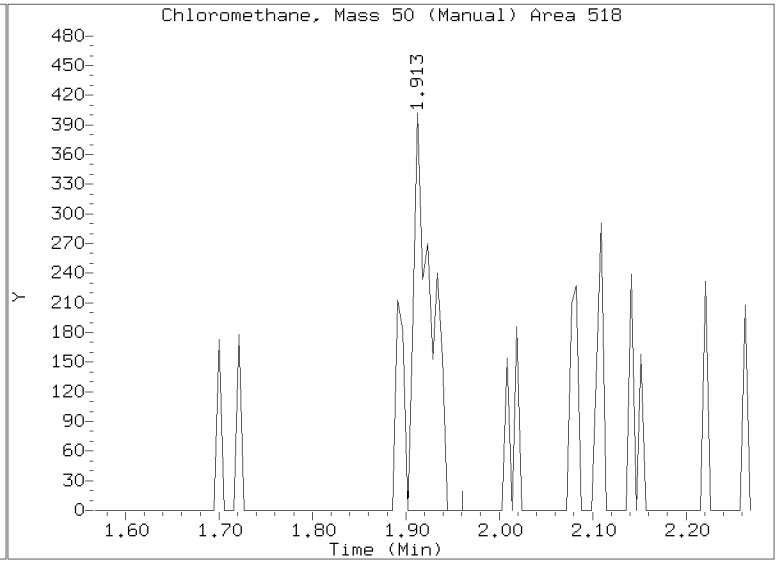
Quant Ion Manual Peak Adjustment Report

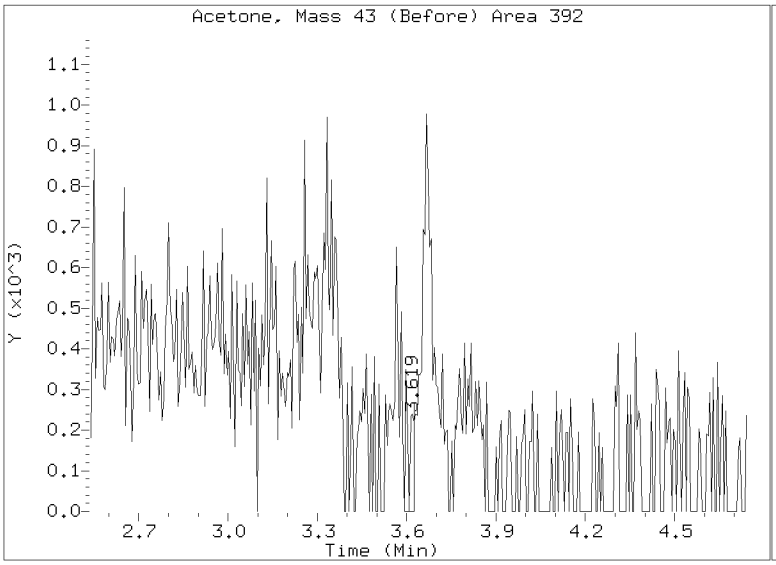
Datafile: //target/share/chem1/nt3.i/20190904.b/V309041913.D
Injection Date: 04-SEP-2019 21:01
Lab ID:SHI0071-ICB1 Client ID:
Report Date: 09/06/2019 09:28

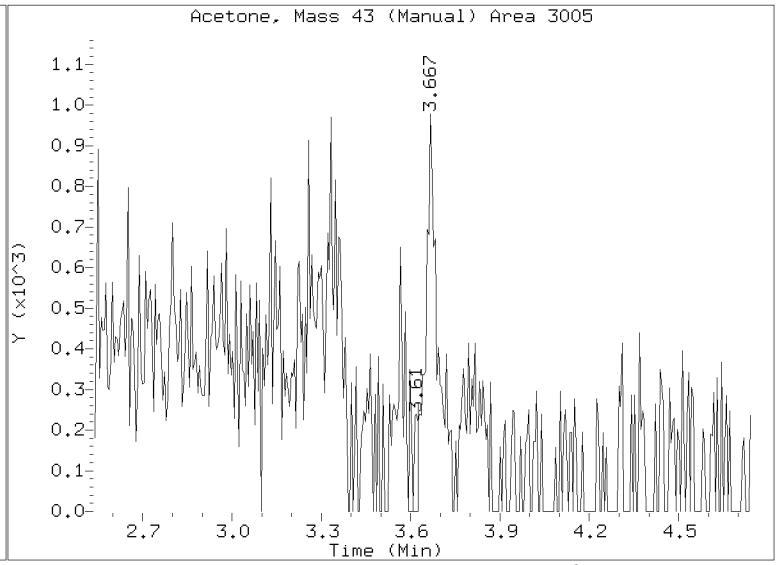












Quant Ion Manual Peak Adjustment Report

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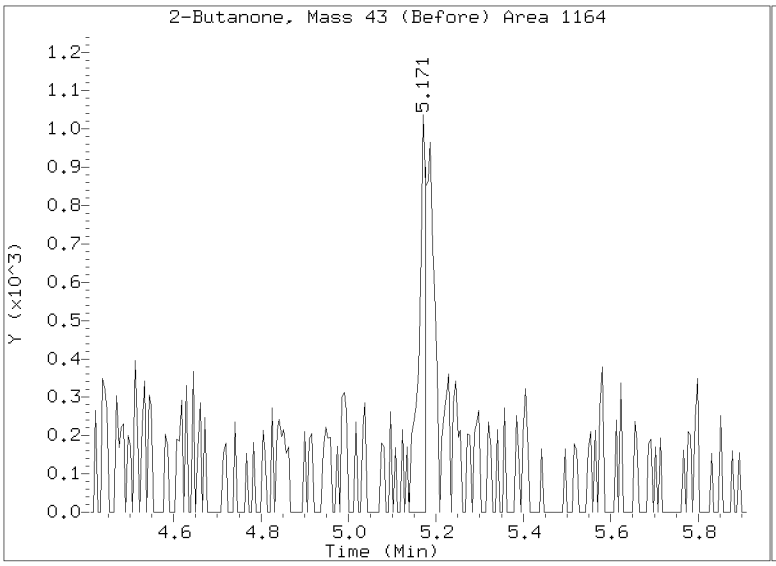
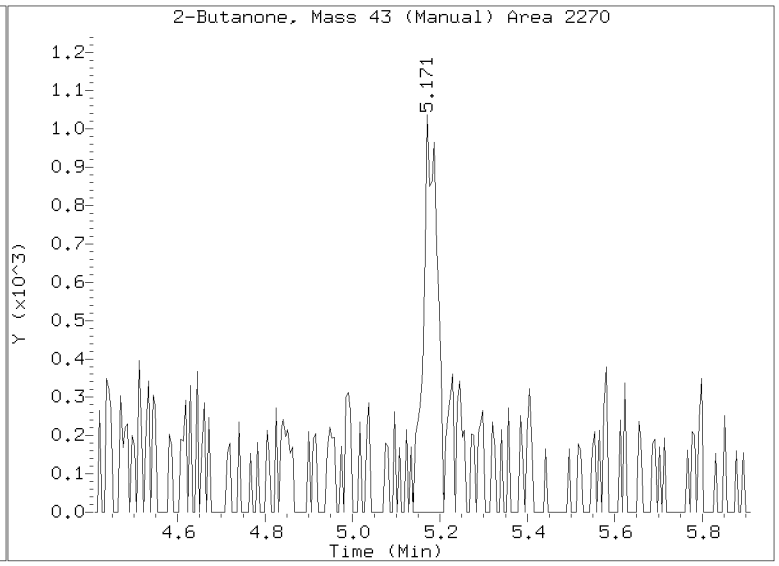
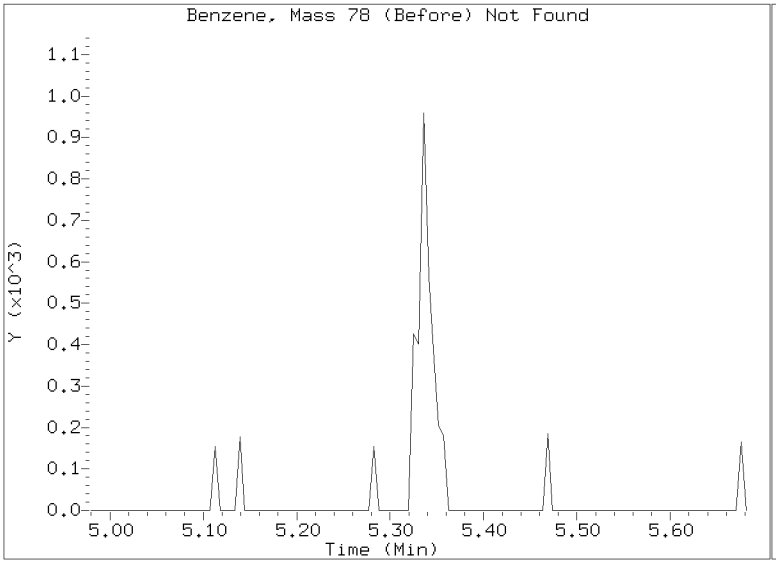
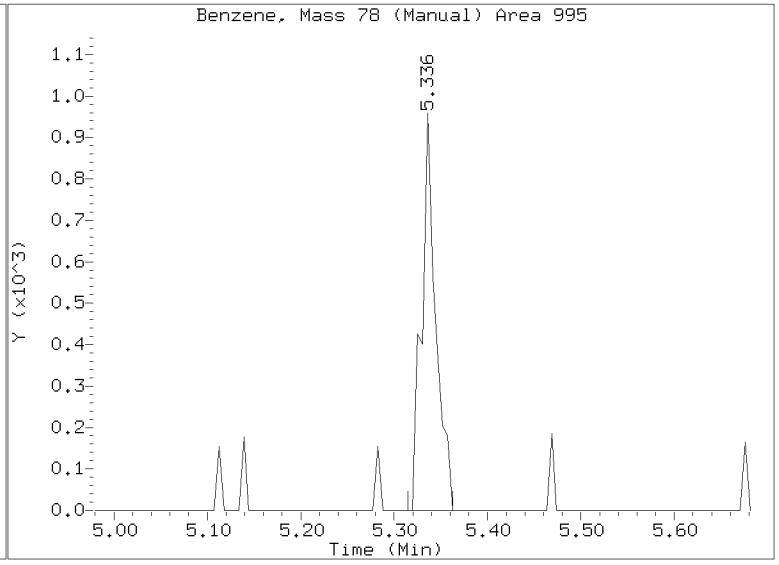
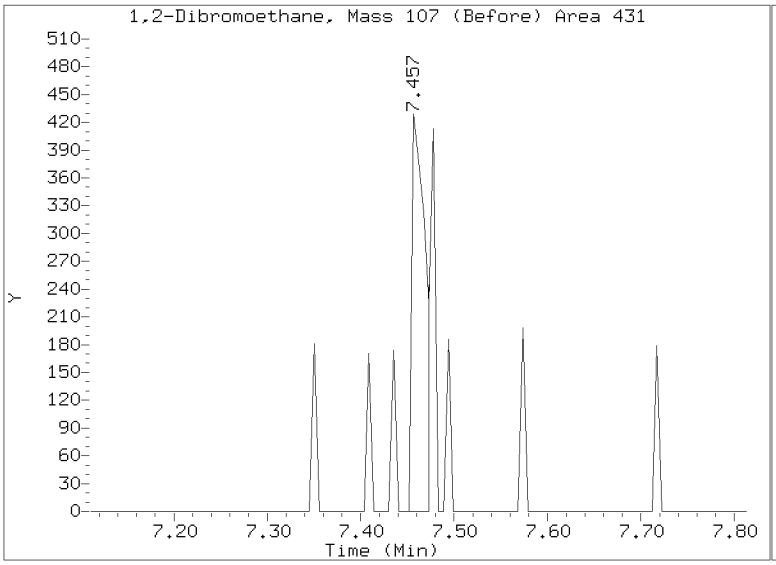
Lab ID:SHI0071-ICB1 Client ID:
Report Date: 09/06/2019 09:28

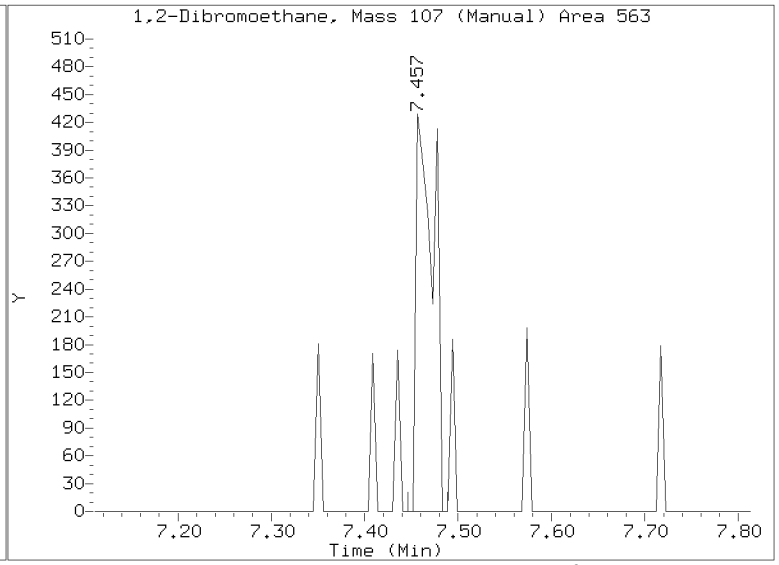






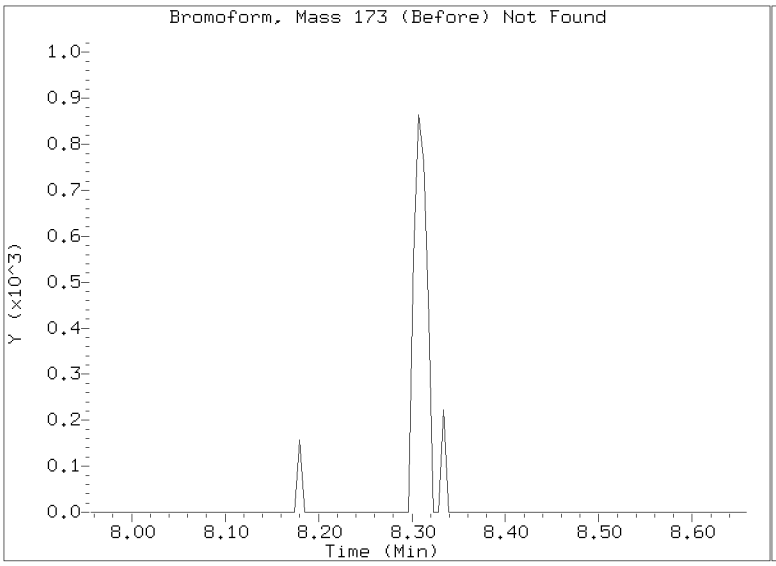


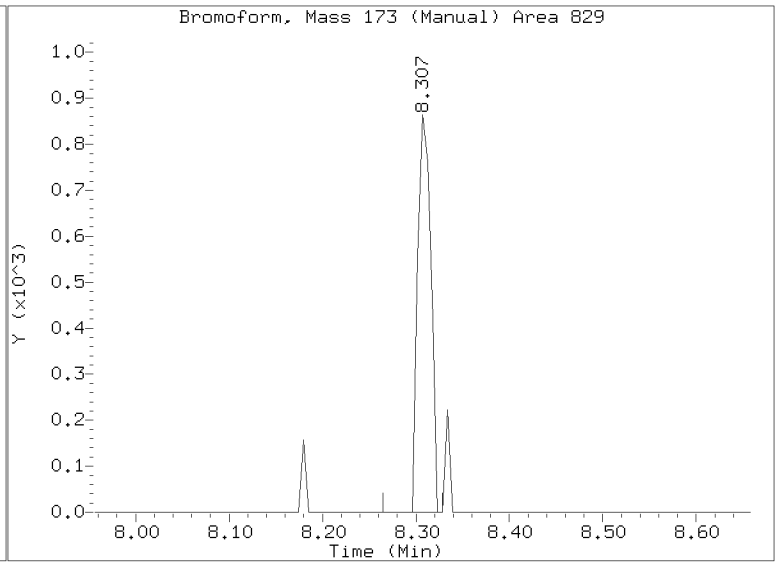


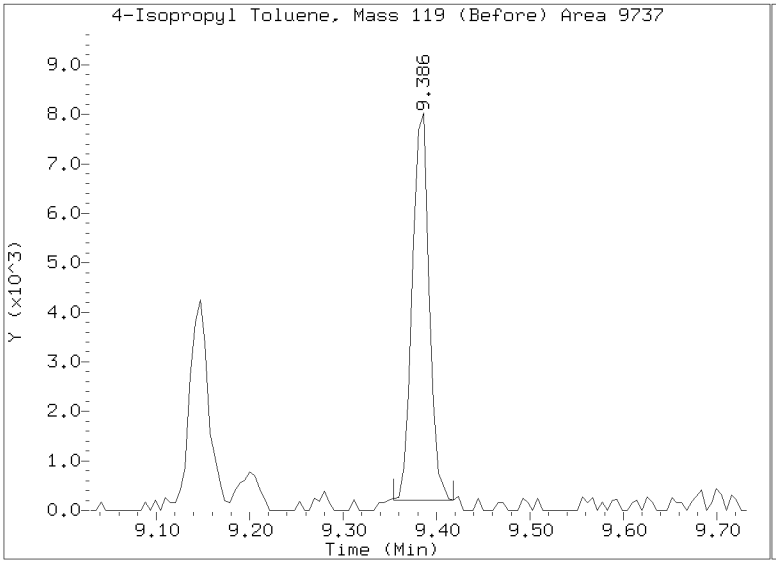


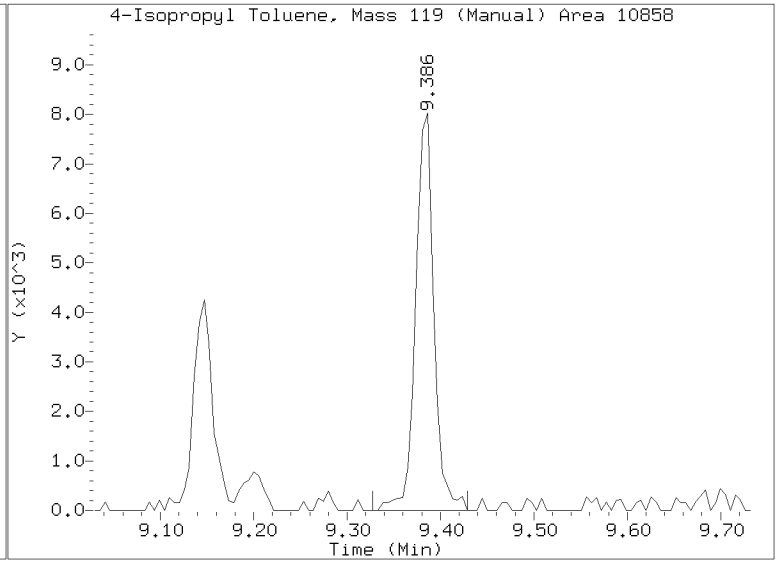
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041913.D
Injection Date: 04-SEP-2019 21:01
Lab ID:SHI0071-ICB1 Client ID:
Report Date: 09/06/2019 09:28









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Date : 04-SEP-2019 21:28

Client ID:

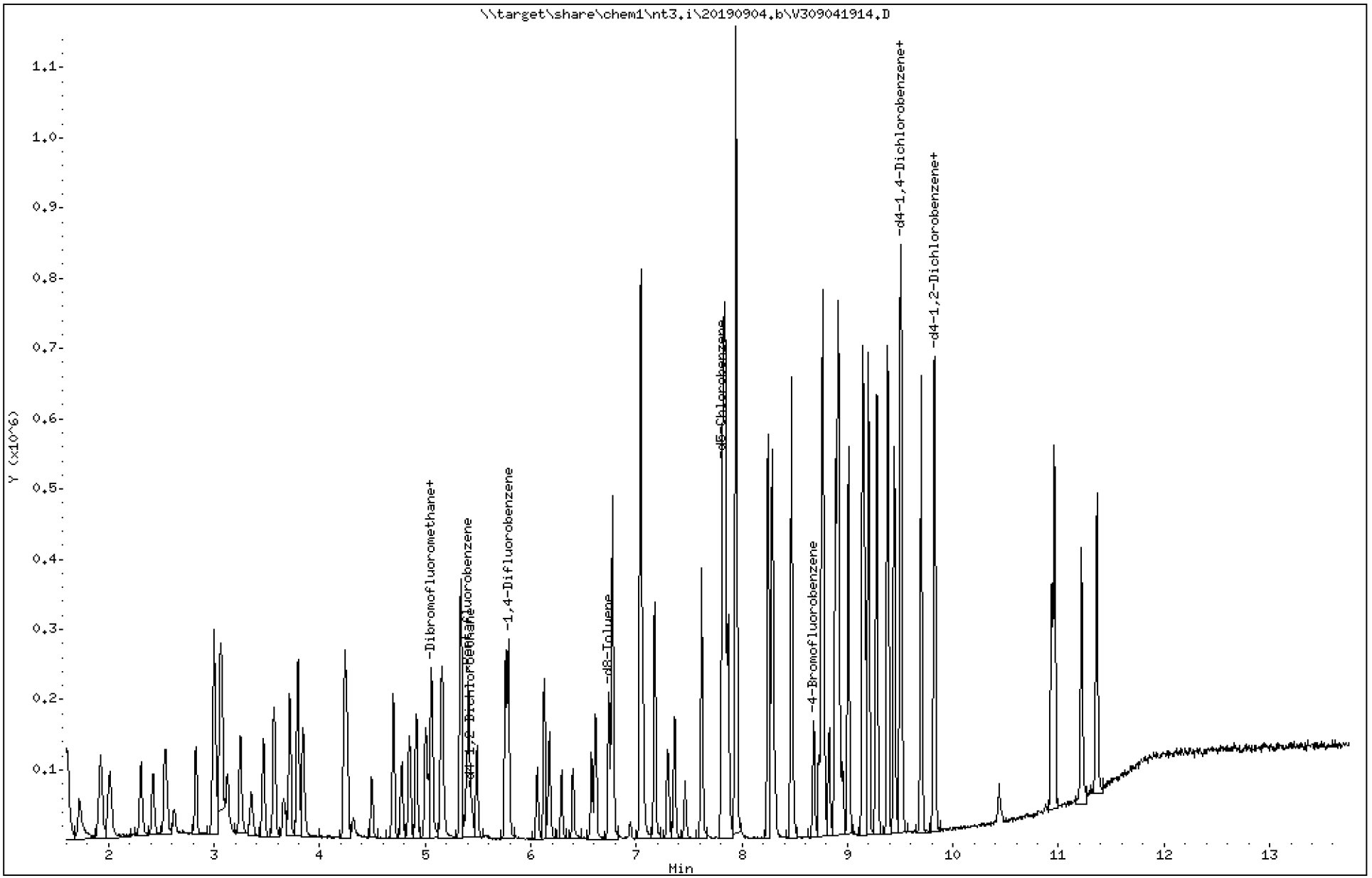
Sample Info: SHI0071-SCV1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

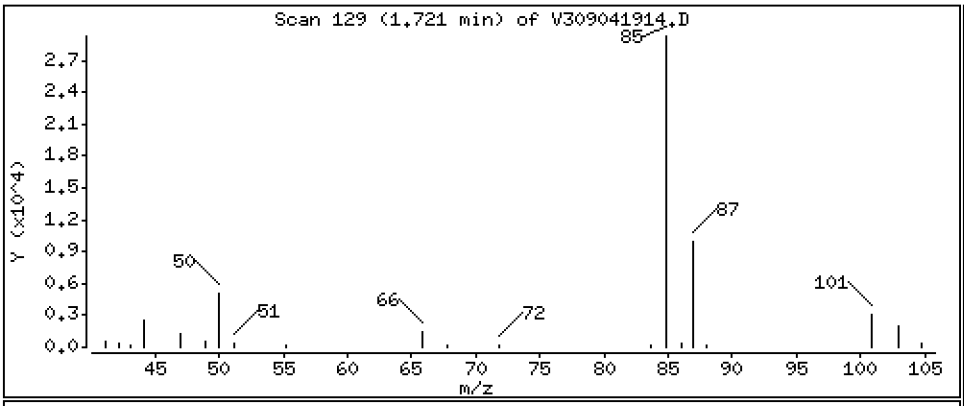
Operator: PKC

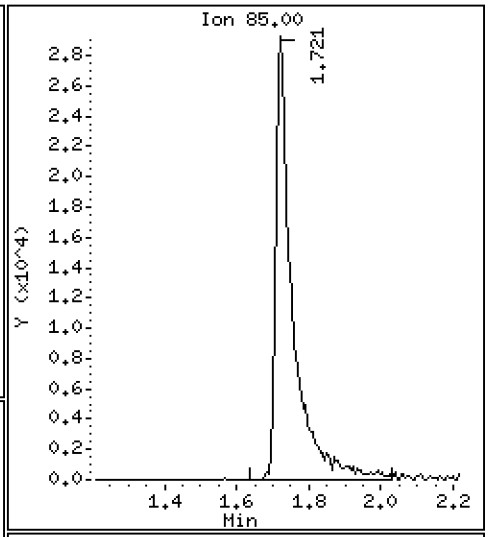
Column phase: RTXVMS

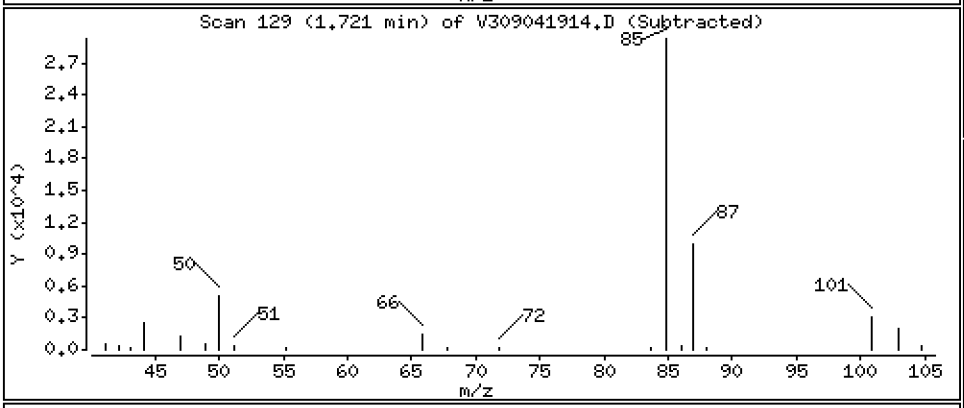
Column diameter: 0.18

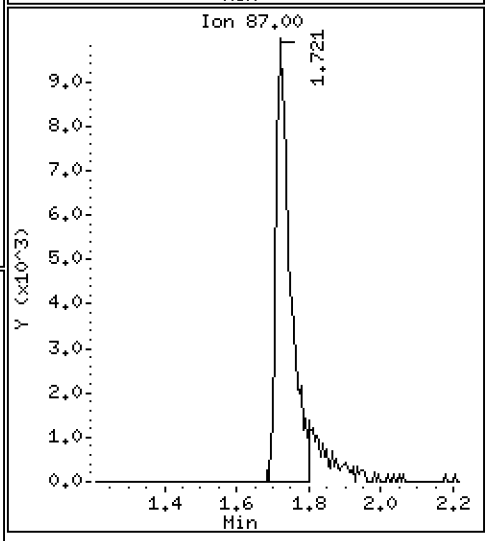
1 Dichlorodifluoromethane

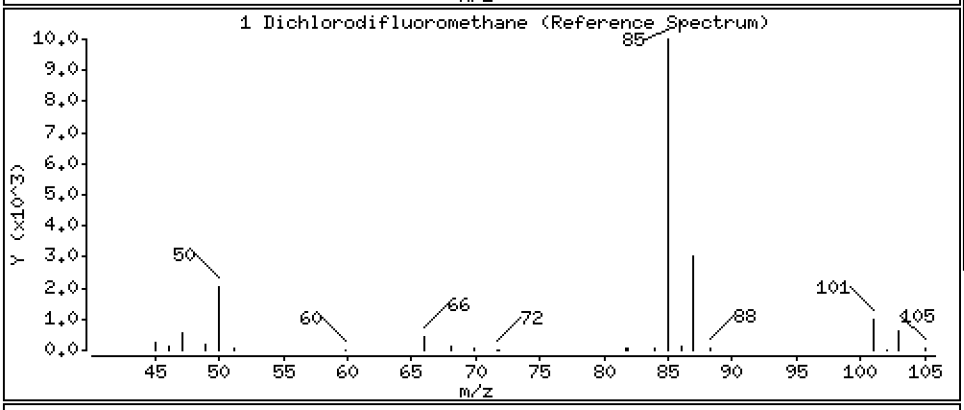
Concentration: 8.820 ug/L

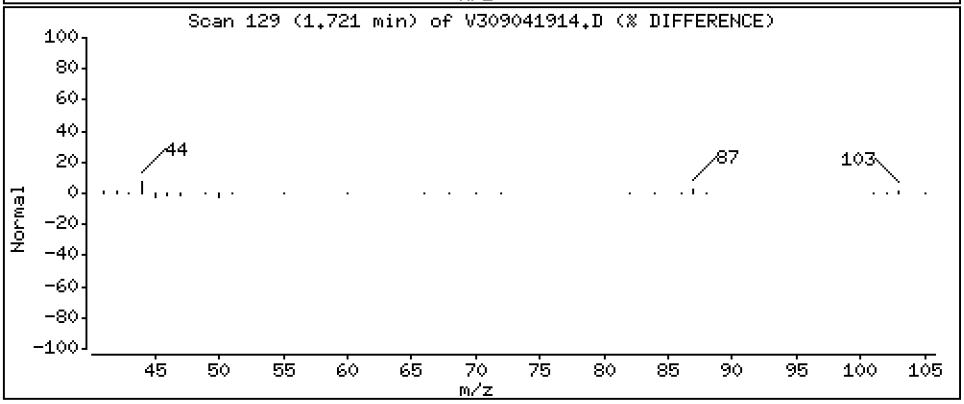












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

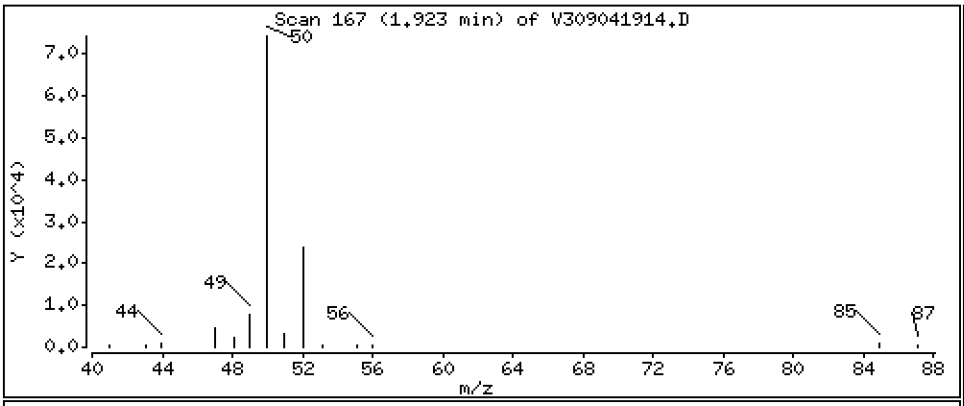
Operator: PKC

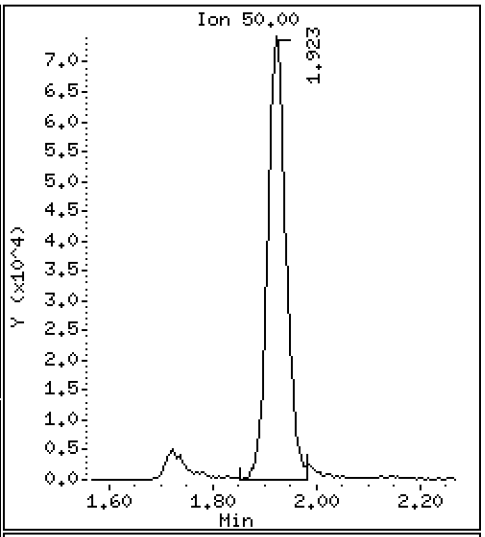
Column phase: RTXVMS

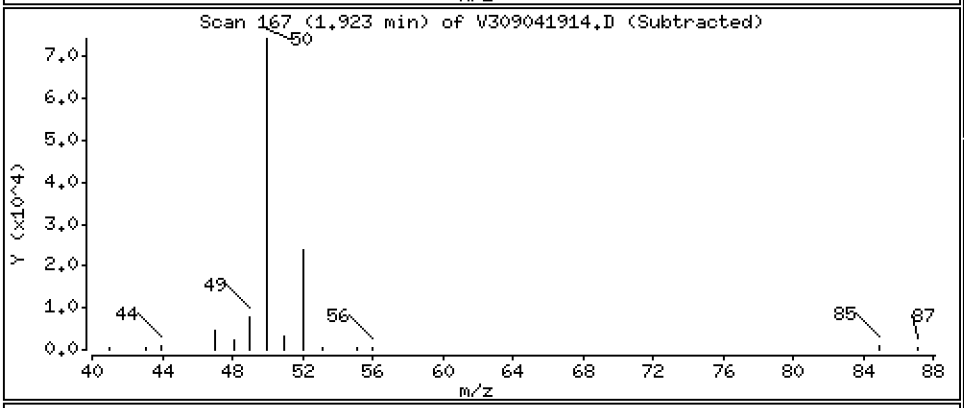
Column diameter: 0.18

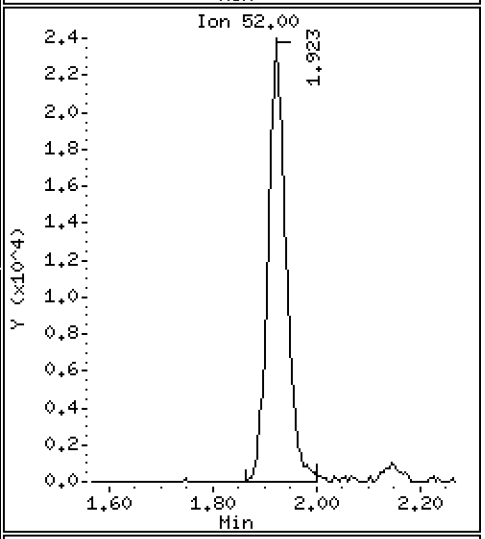
2 Chloromethane

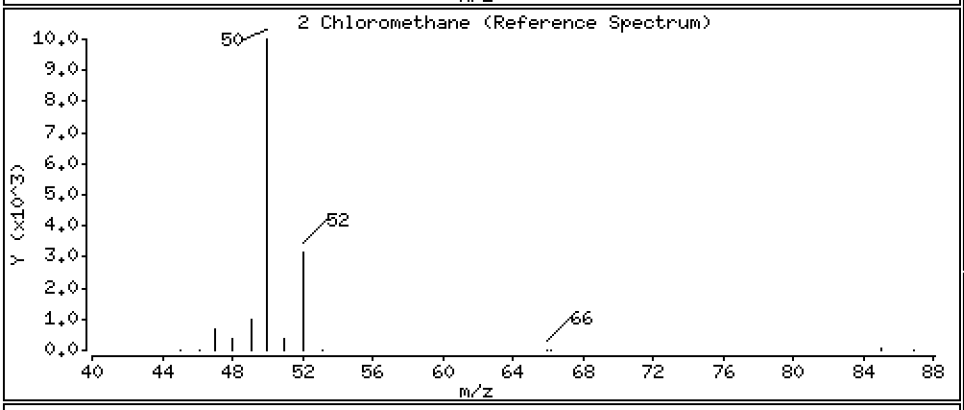
Concentration: 10.178 ug/L

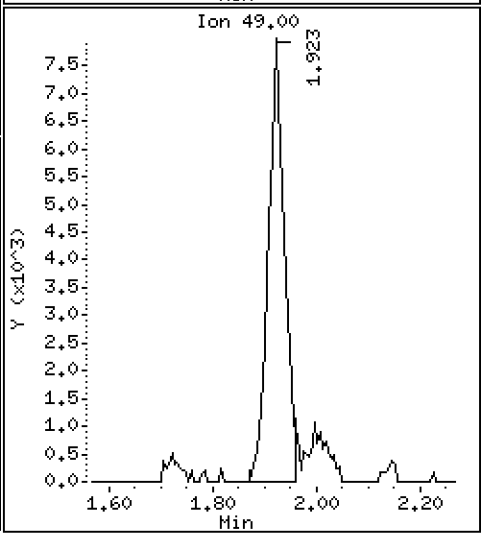


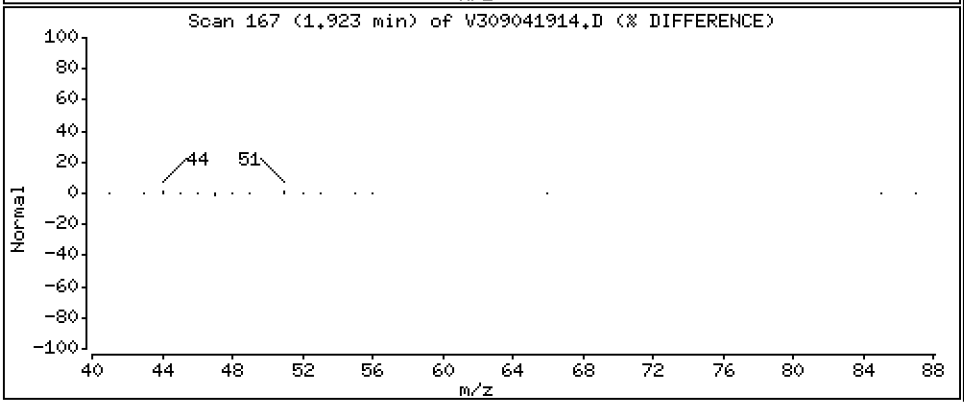












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

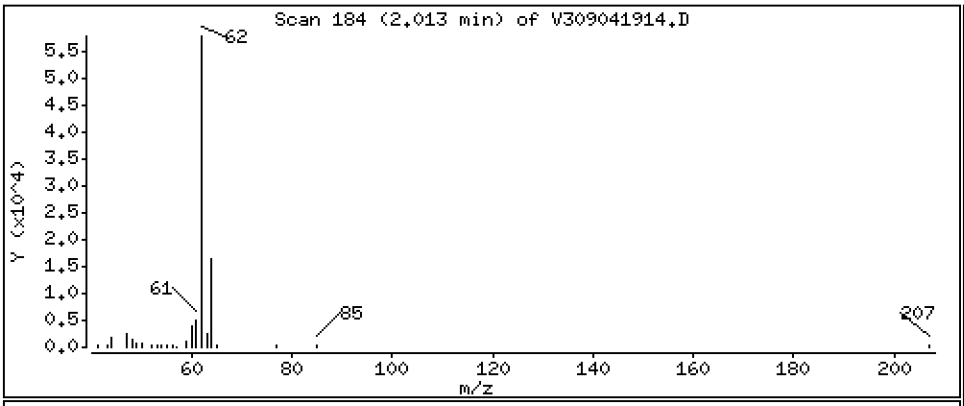
Operator: PKC

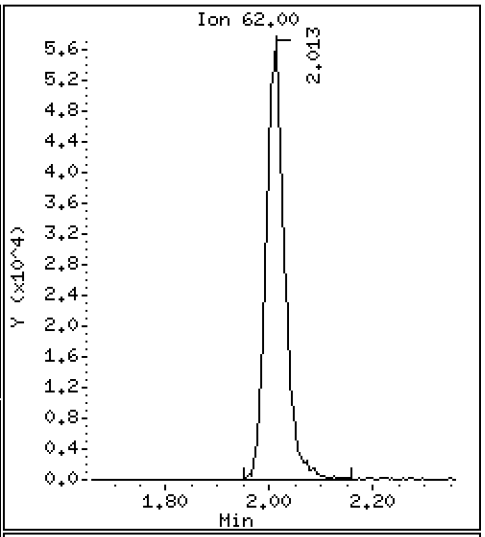
Column phase: RTXVMS

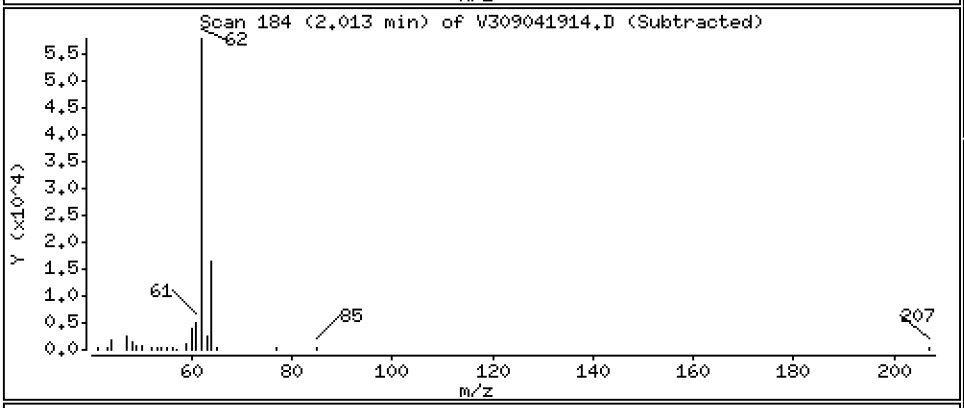
Column diameter: 0.18

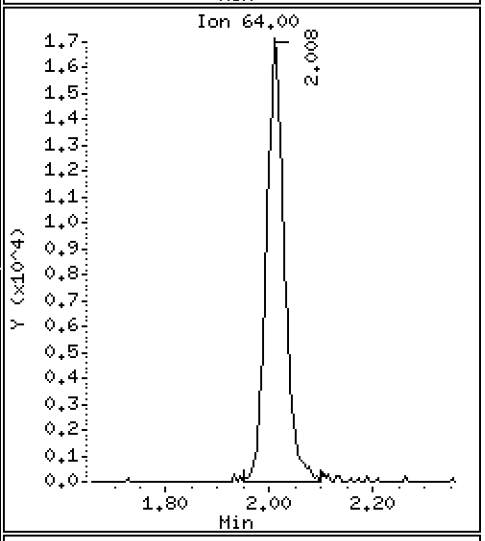
3 Vinyl Chloride

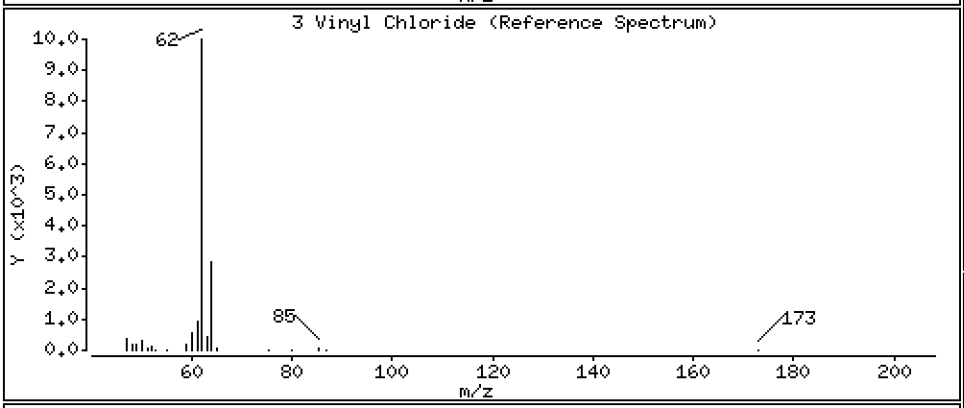
Concentration: 9.809 ug/L

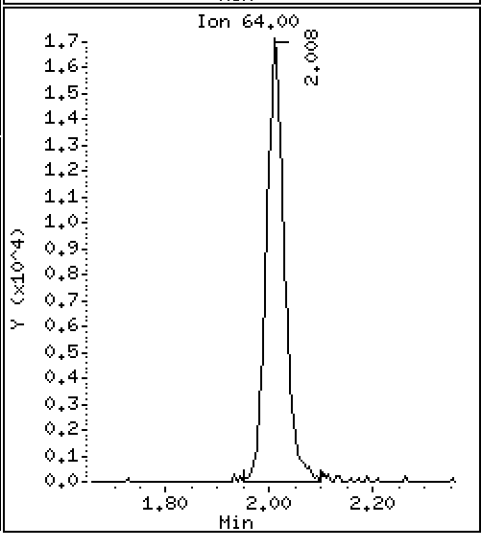


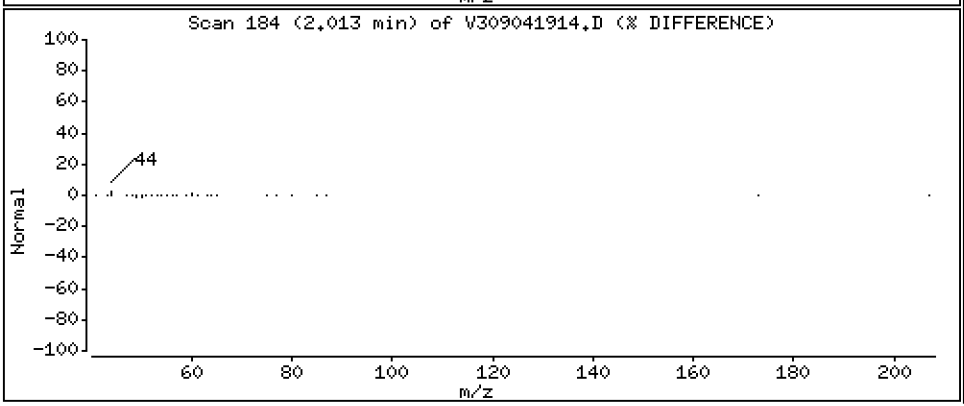












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

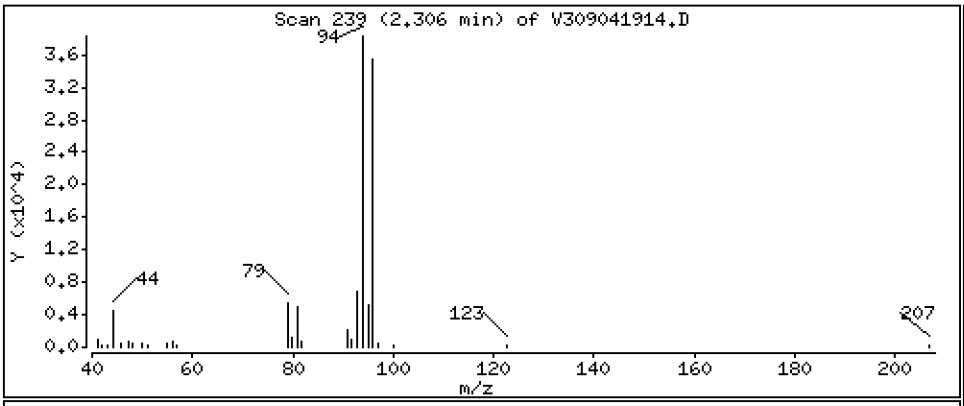
Operator: PKC

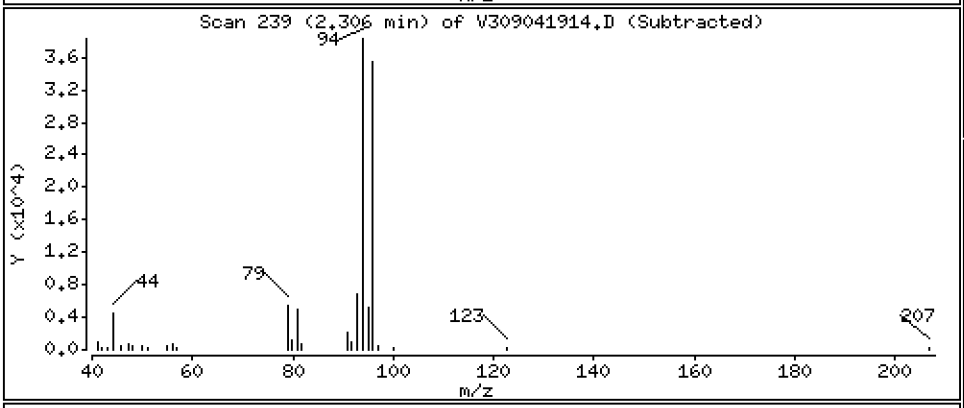
Column phase: RTXVMS

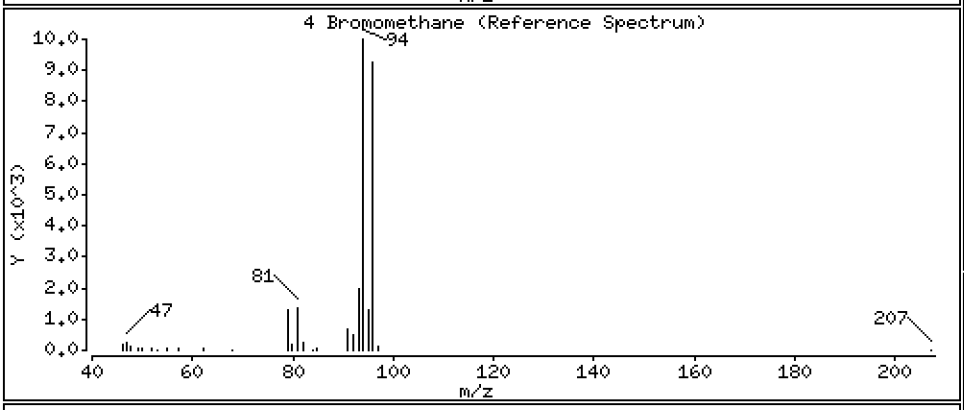
Column diameter: 0.18

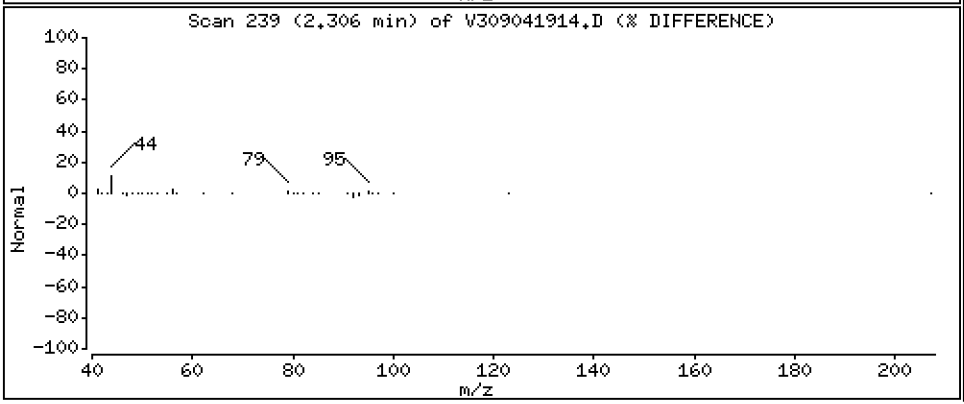
4 Bromomethane

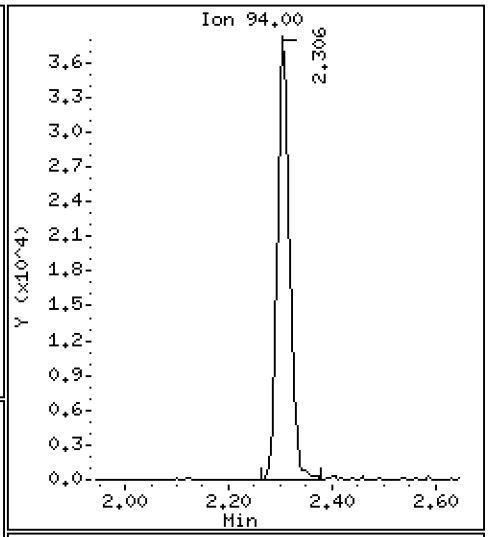
Concentration: 9.511 ug/L

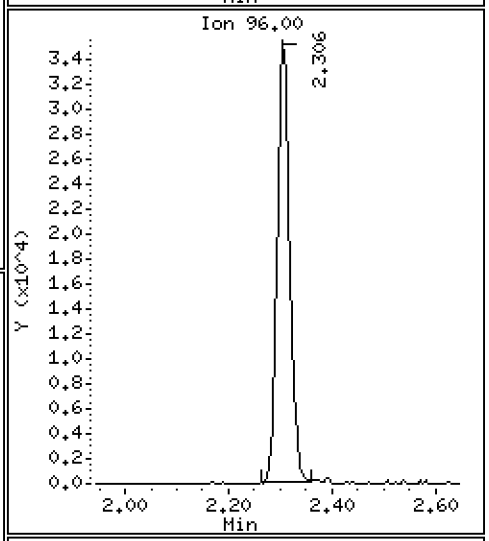


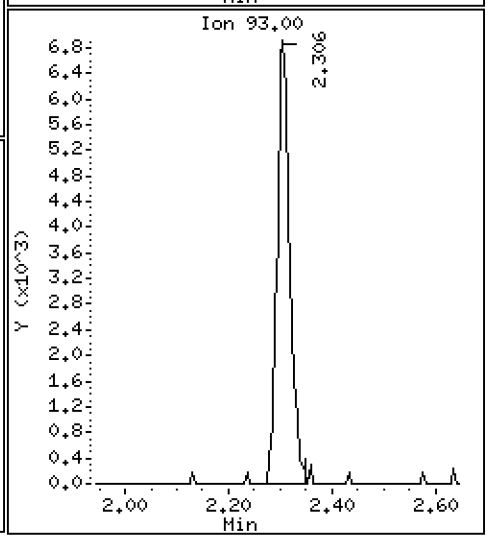












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

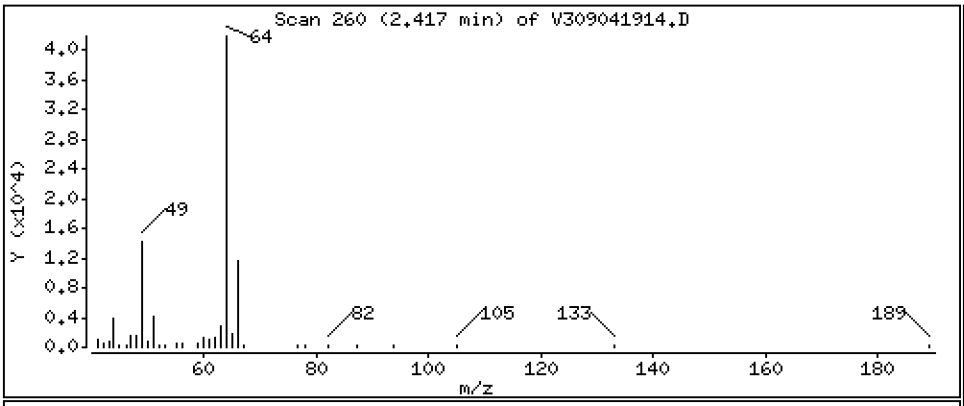
Operator: PKC

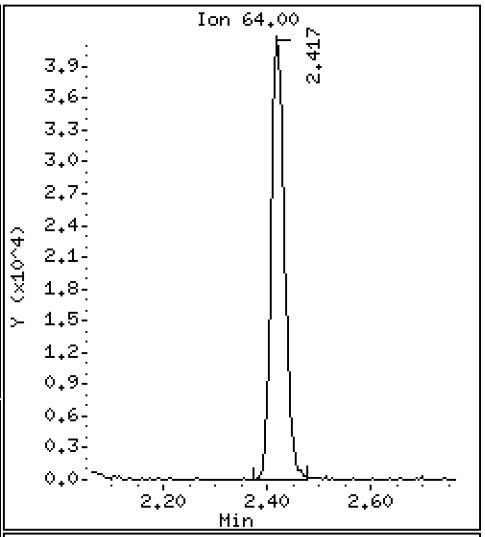
Column phase: RTXVMS

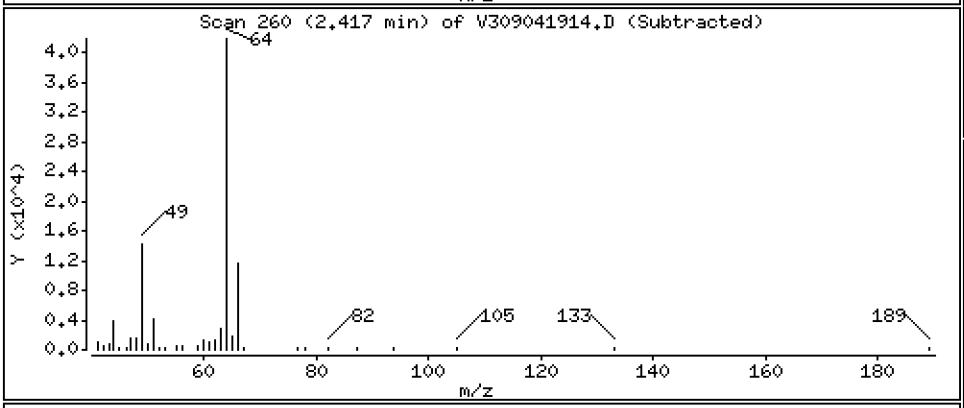
Column diameter: 0.18

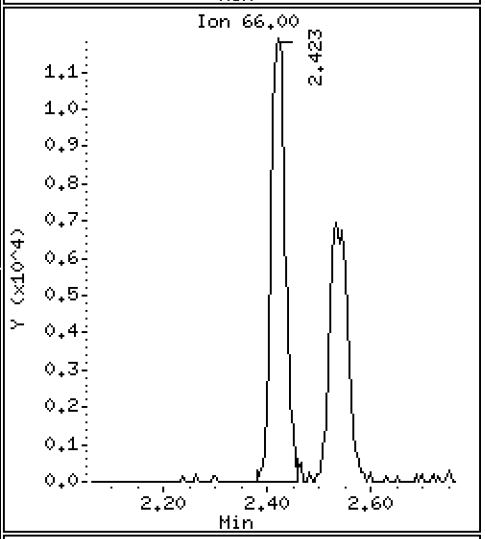
5 Chloroethane

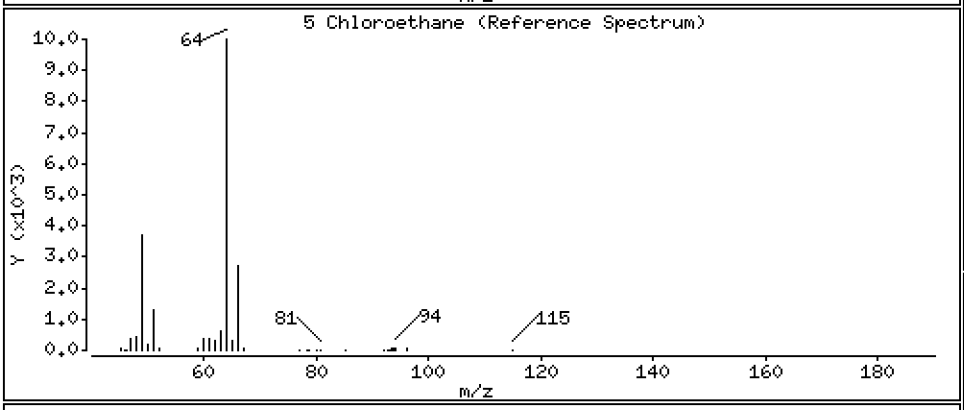
Concentration: 9.553 ug/L

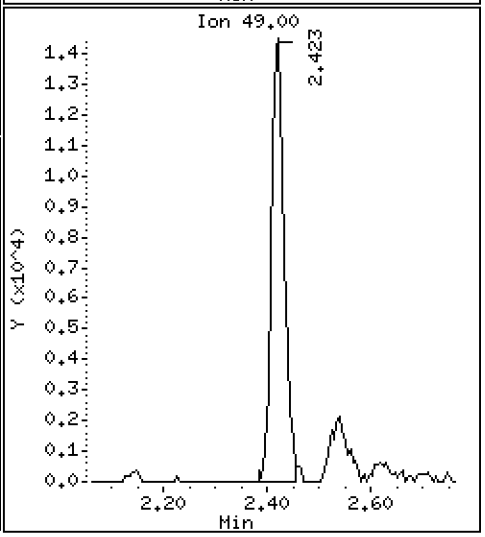


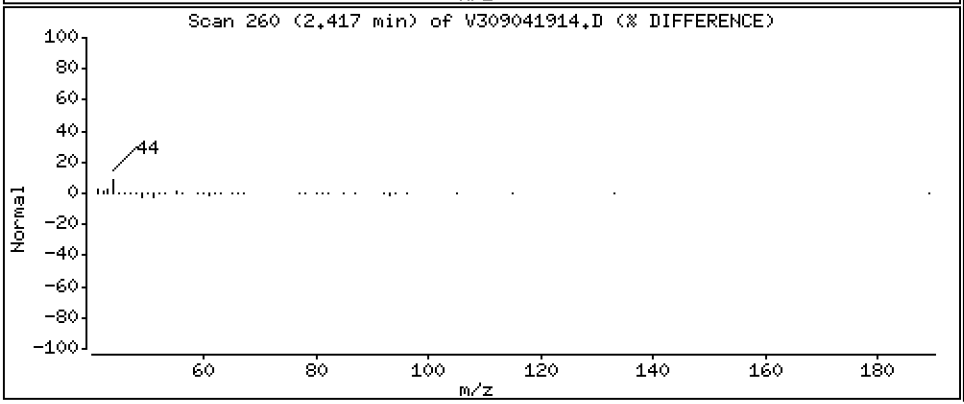












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

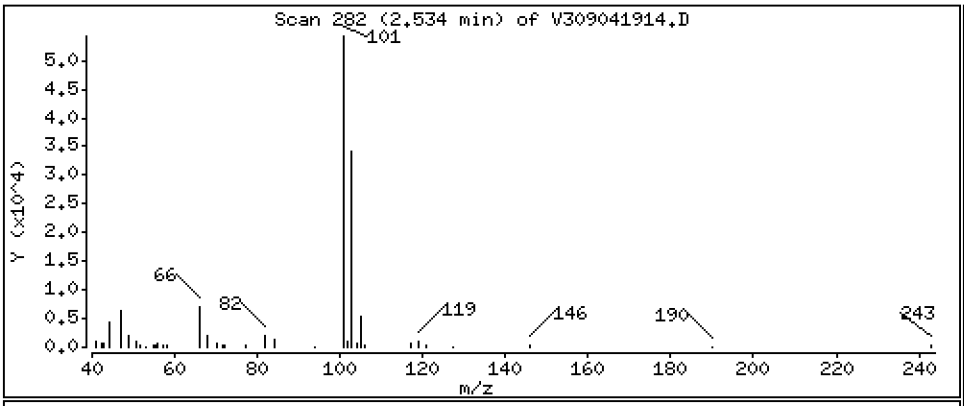
Operator: PKC

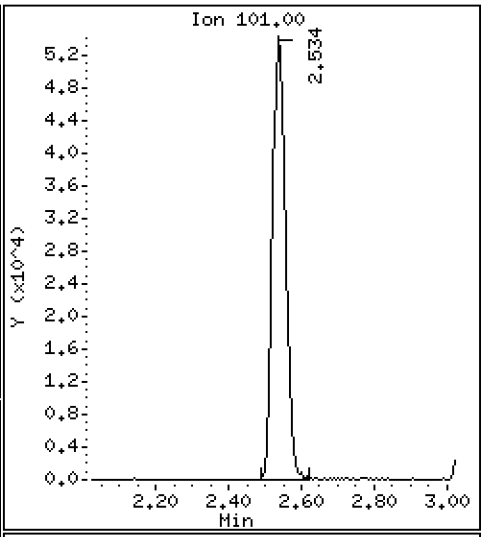
Column phase: RTXVMS

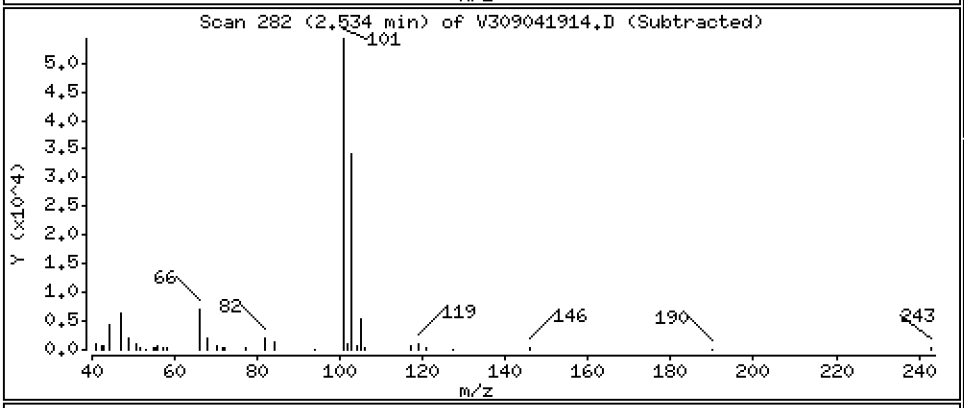
Column diameter: 0.18

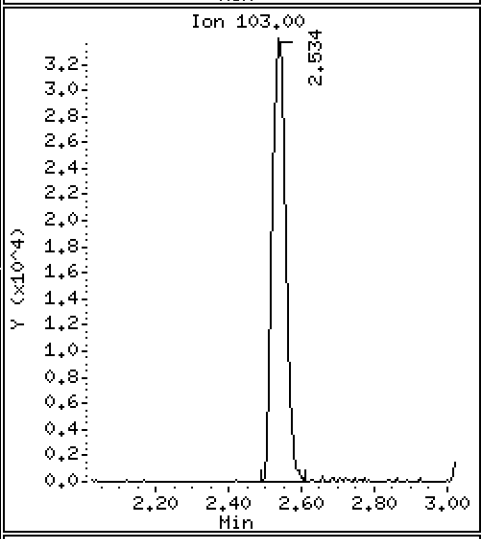
6 Trichlorofluoromethane

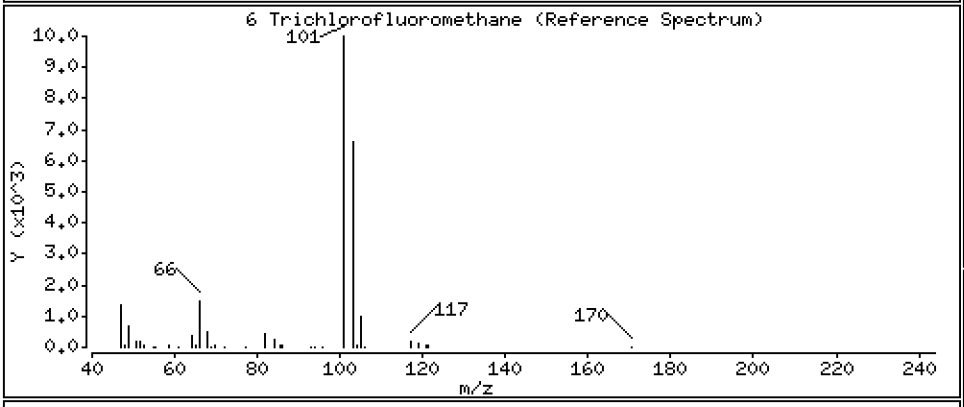
Concentration: 10.404 ug/L

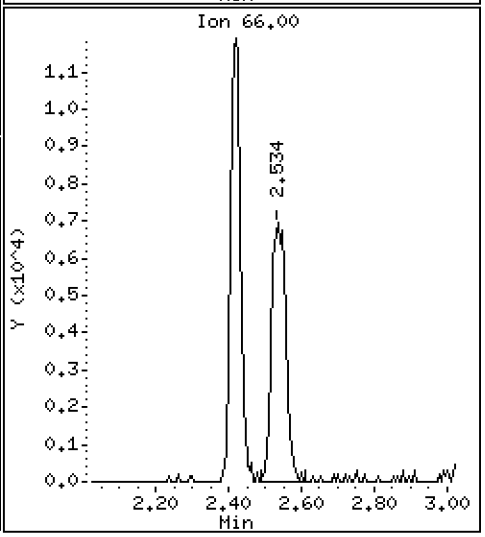


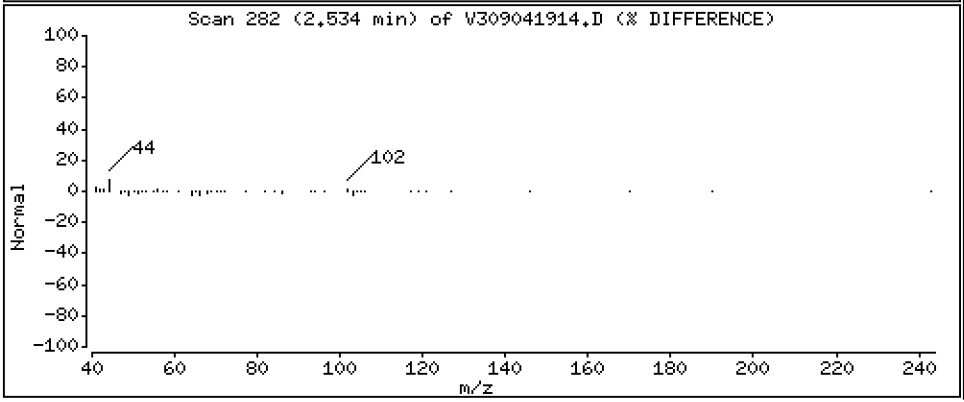












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

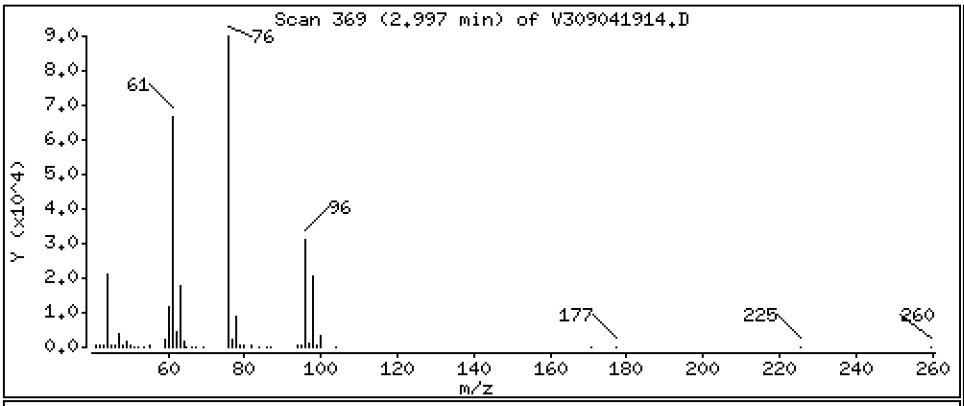
Operator: PKC

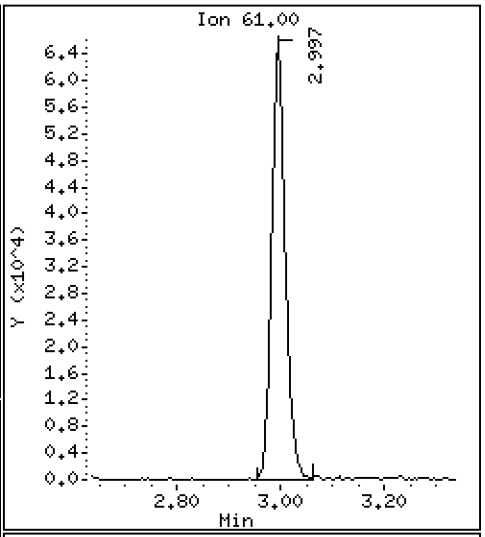
Column phase: RTXVMS

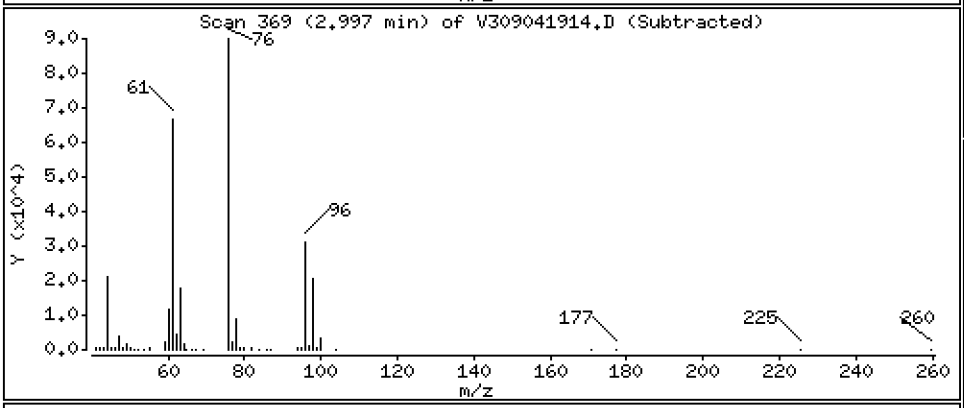
Column diameter: 0.18

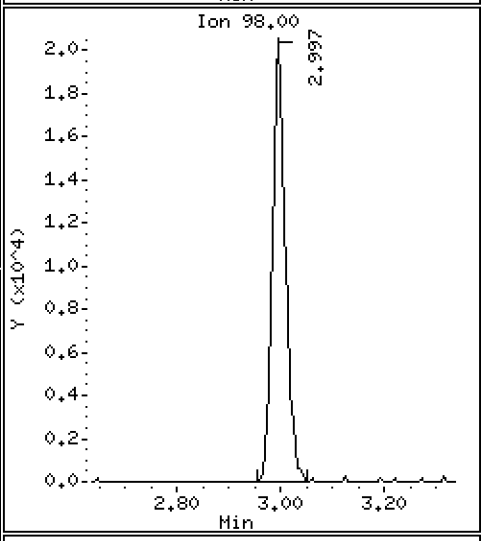
7 1,1-Dichloroethene

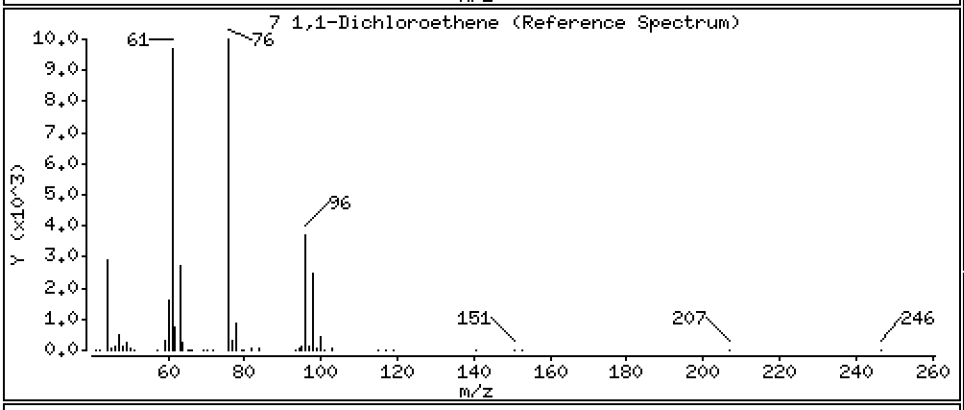
Concentration: 8.458 ug/L

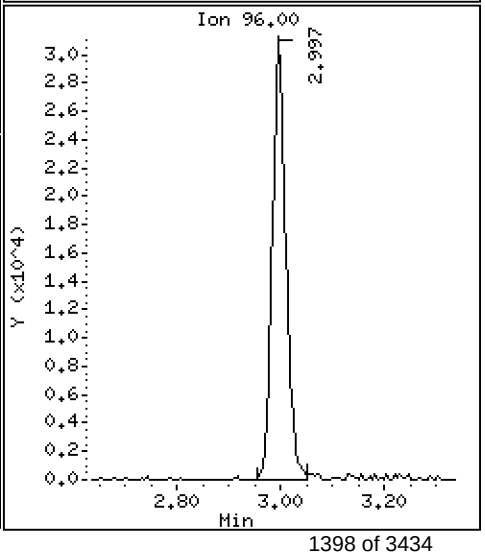


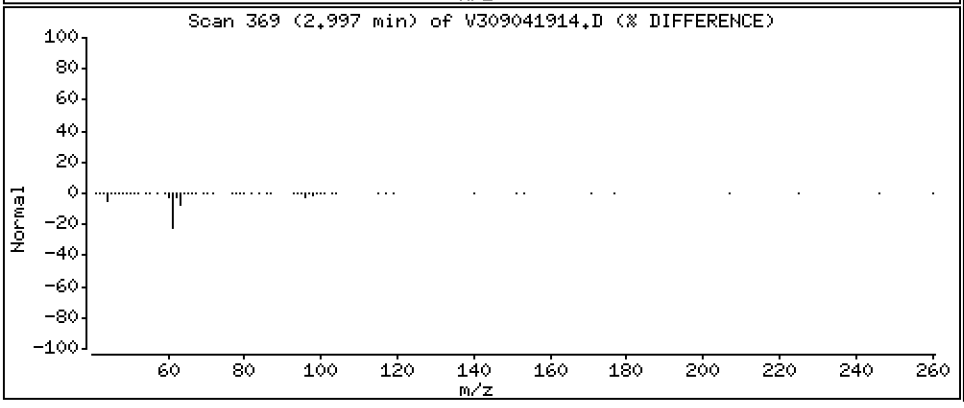












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

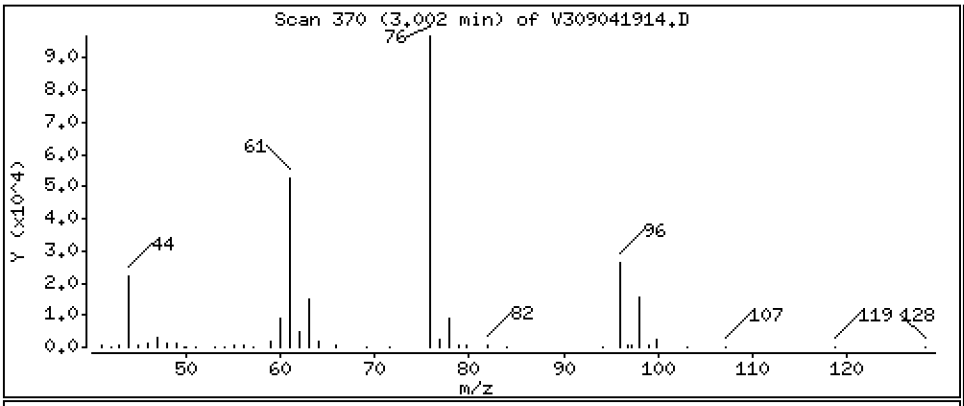
Operator: PKC

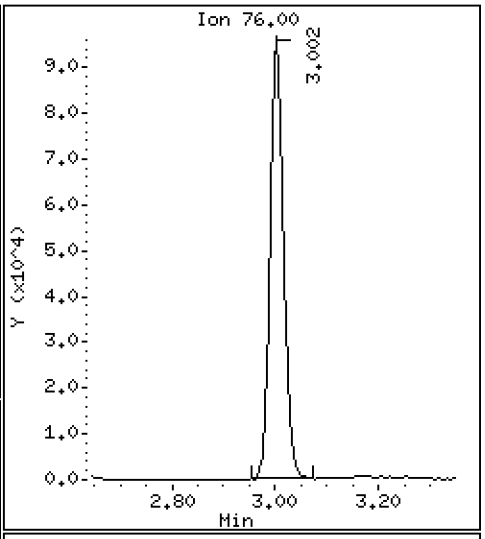
Column phase: RTXVMS

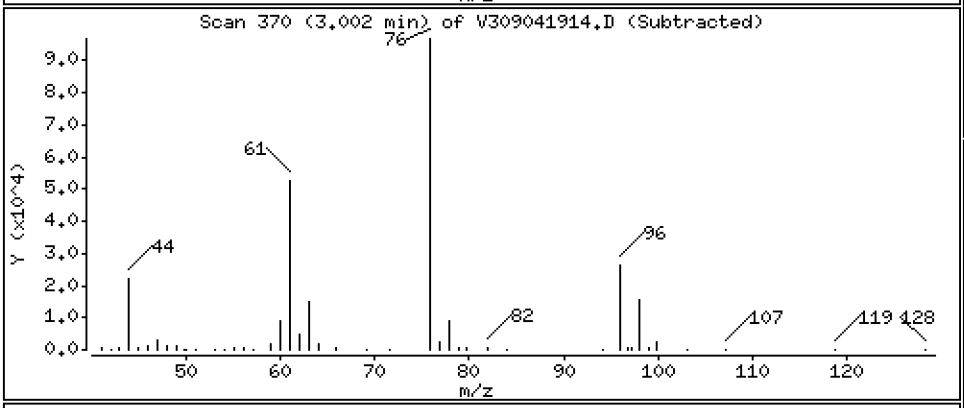
Column diameter: 0.18

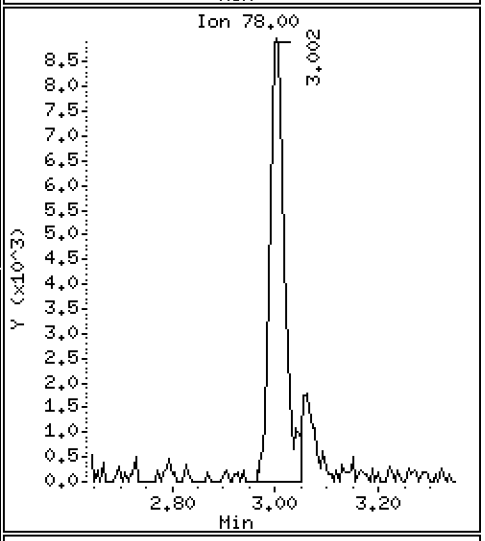
8 Carbon Disulfide

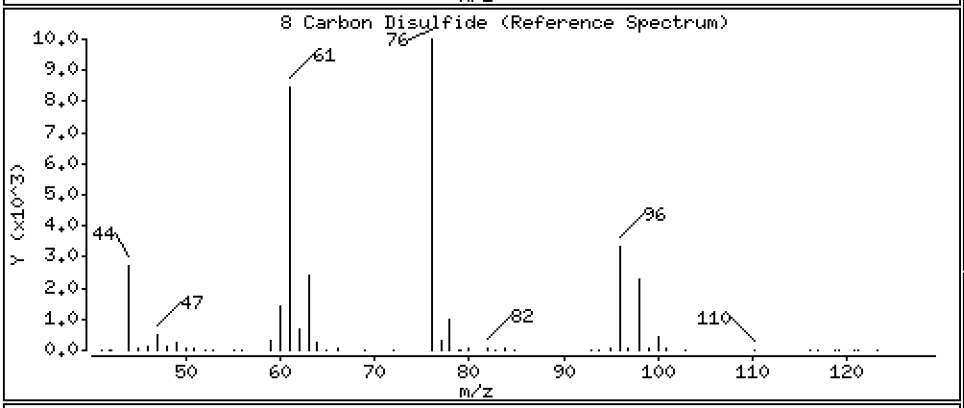
Concentration: 8.279 ug/L

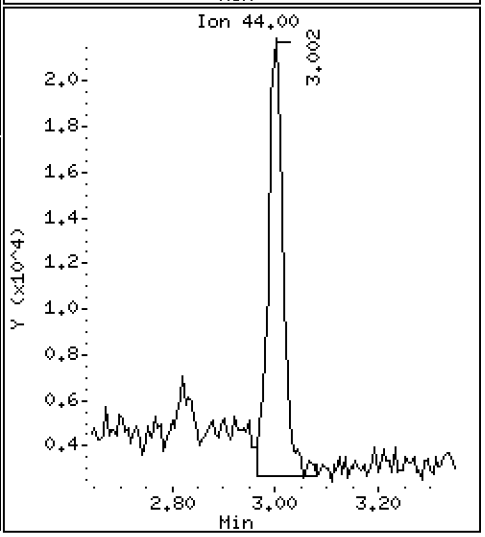


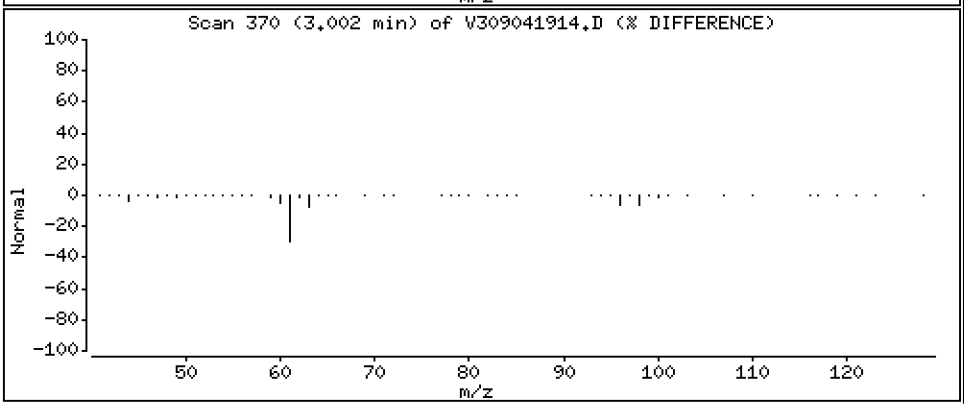












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

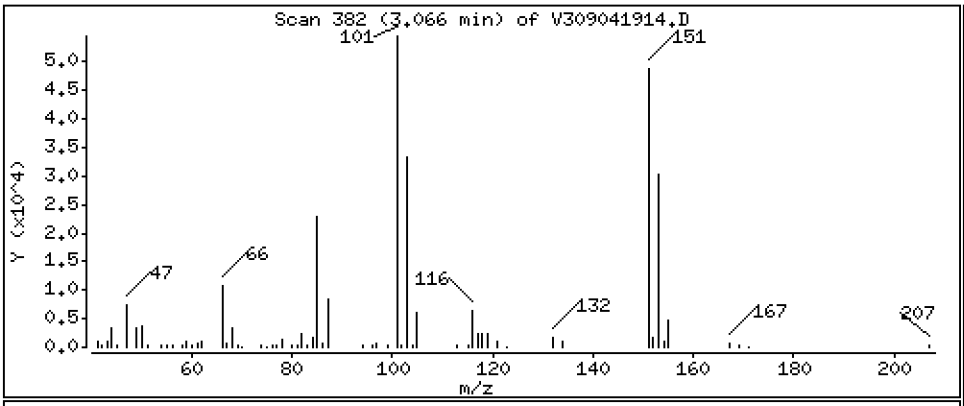
Operator: PKC

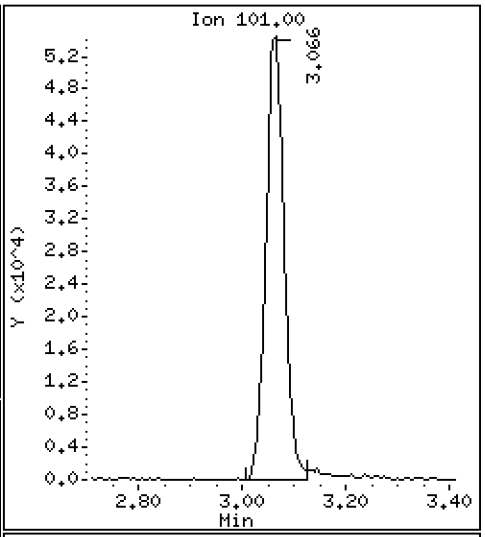
Column phase: RTXVMS

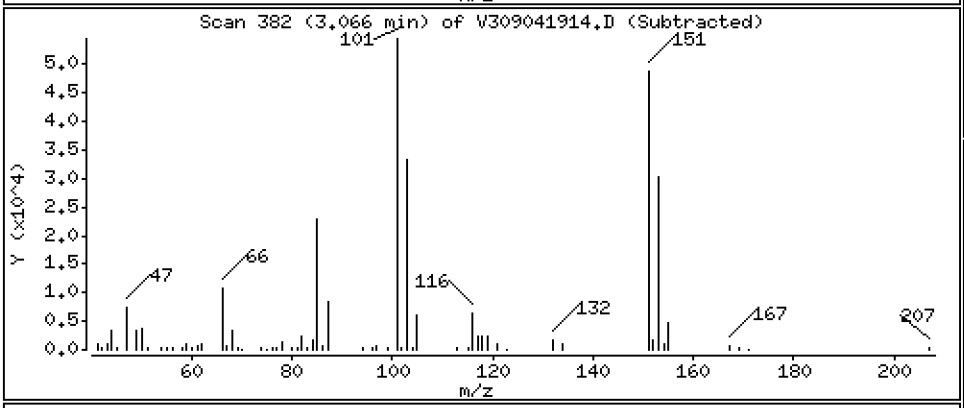
Column diameter: 0.18

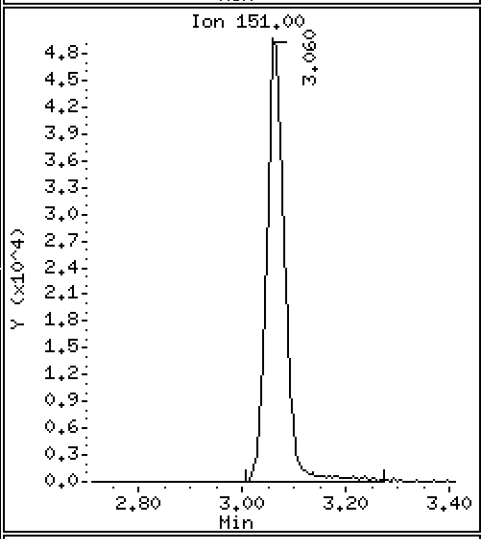
9 112Trichloro122Trifluoroethane

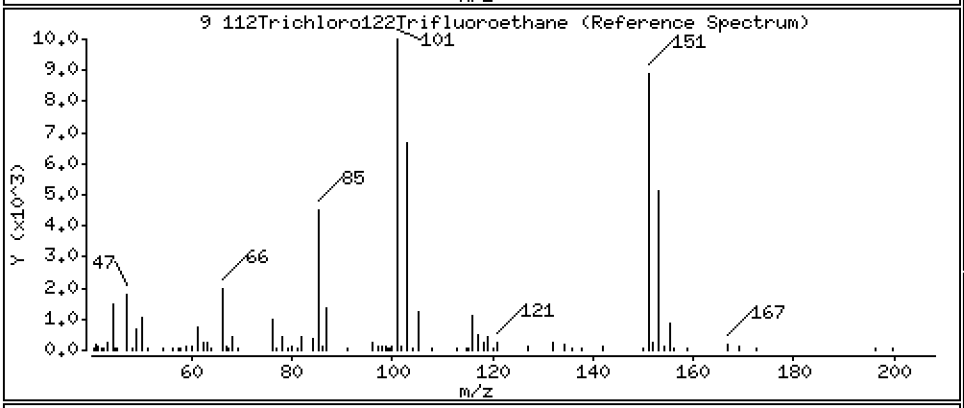
Concentration: 20.781 ug/L

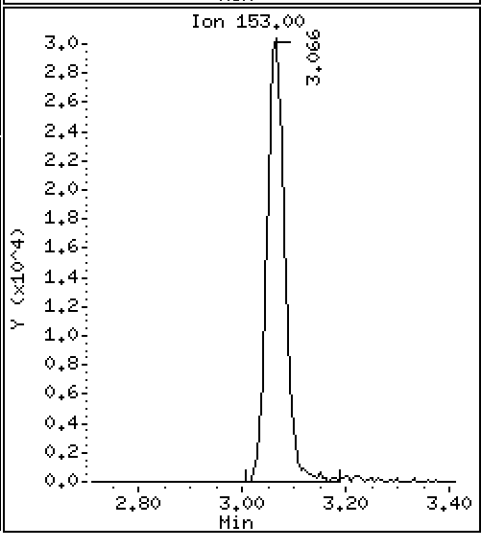


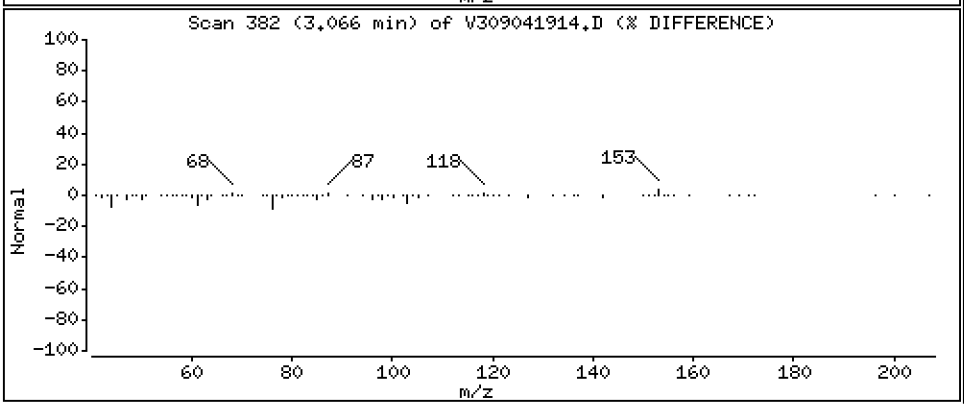












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

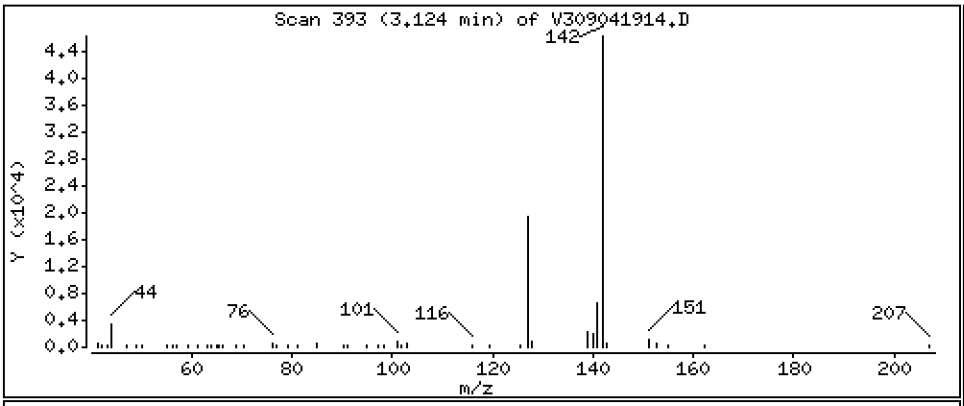
Operator: PKC

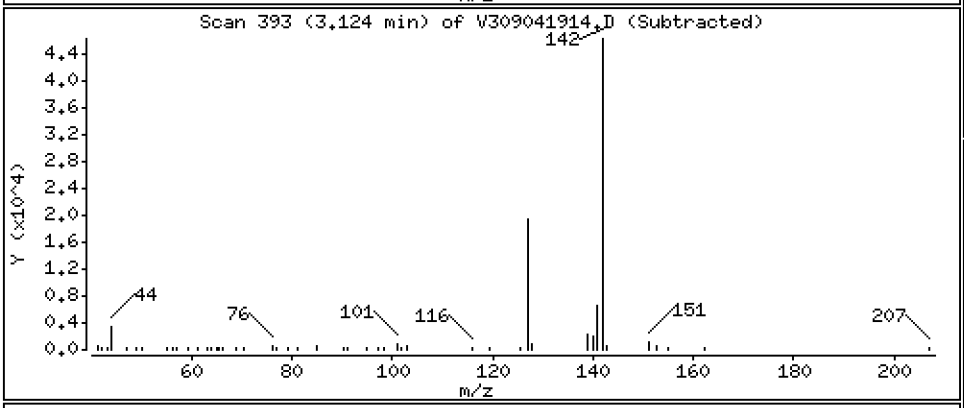
Column phase: RTXVMS

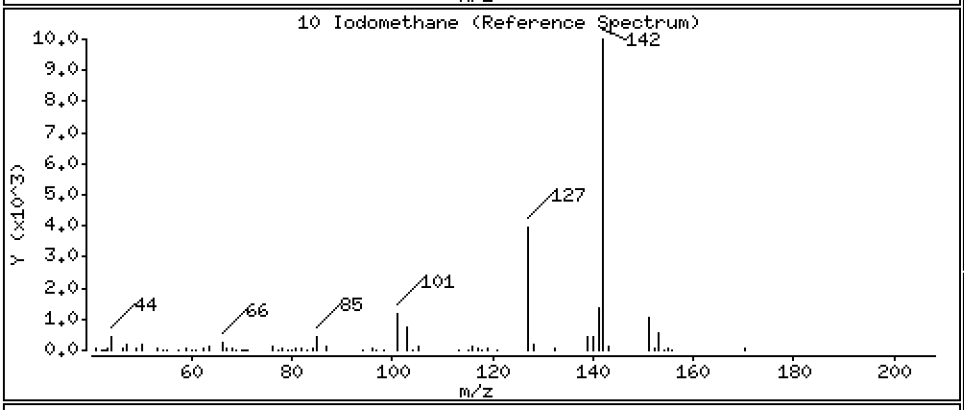
Column diameter: 0.18

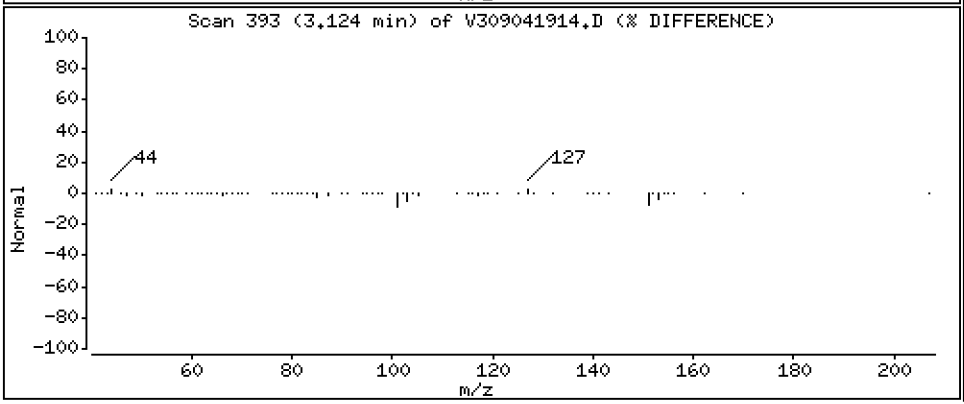
10 Iodomethane

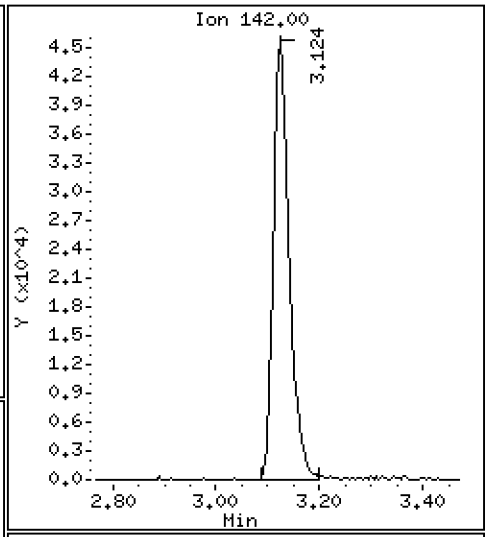
Concentration: 8.788 ug/L

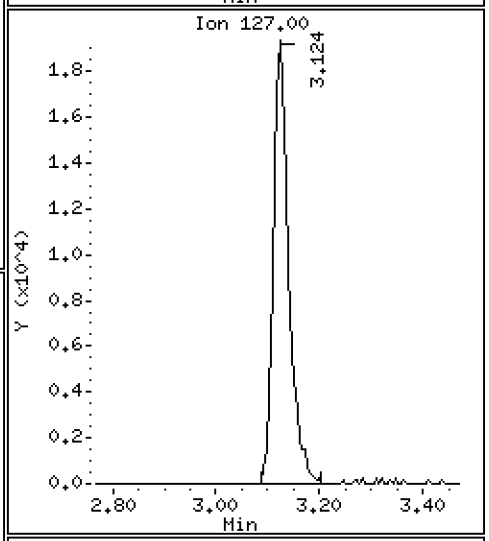


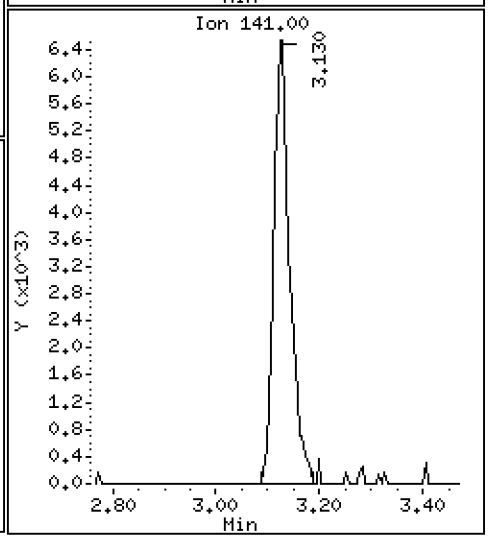












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

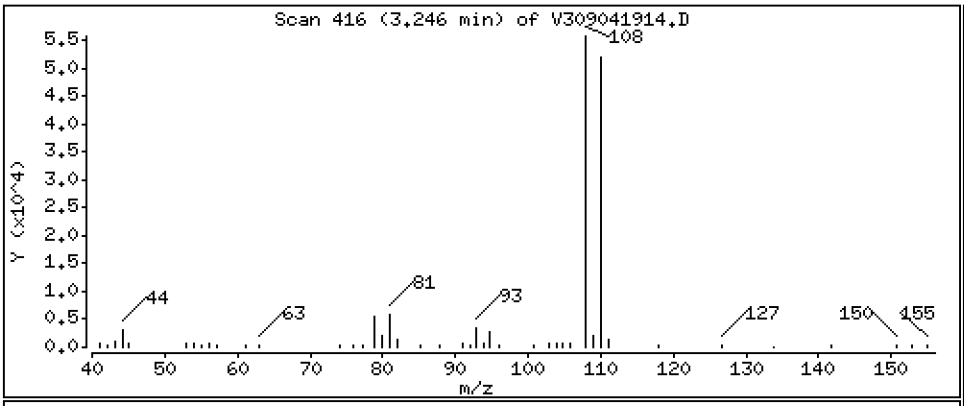
Operator: PKC

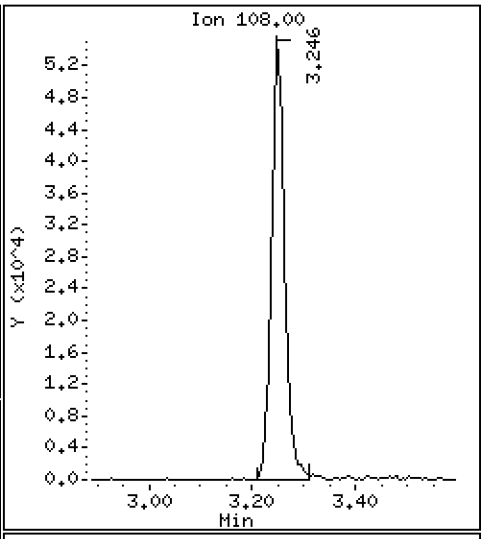
Column phase: RTXVMS

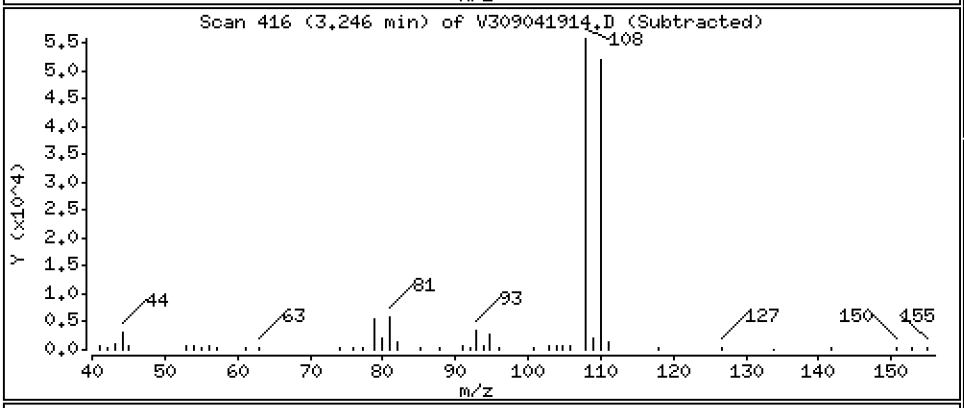
Column diameter: 0.18

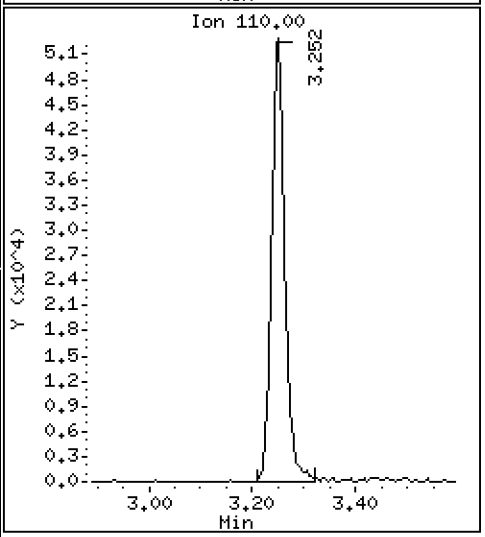
11 Bromoethane

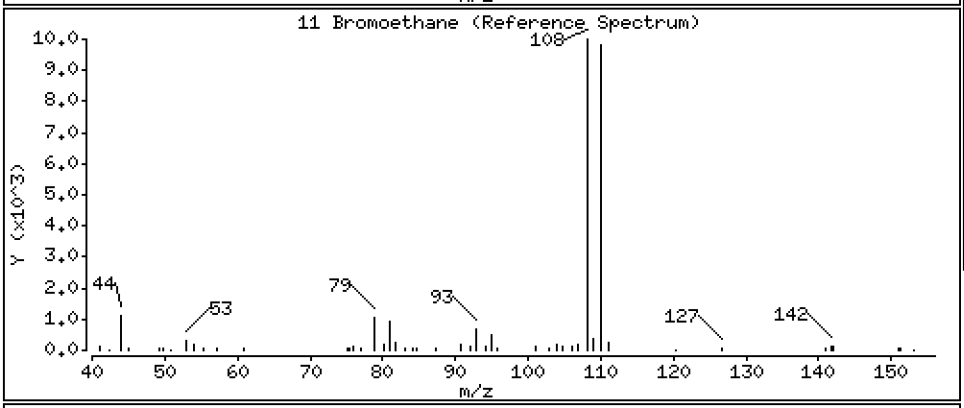
Concentration: 19.621 ug/L

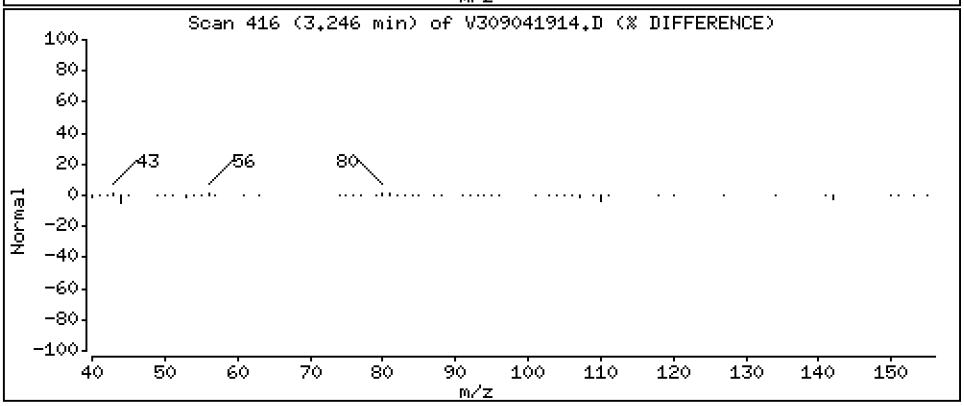












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

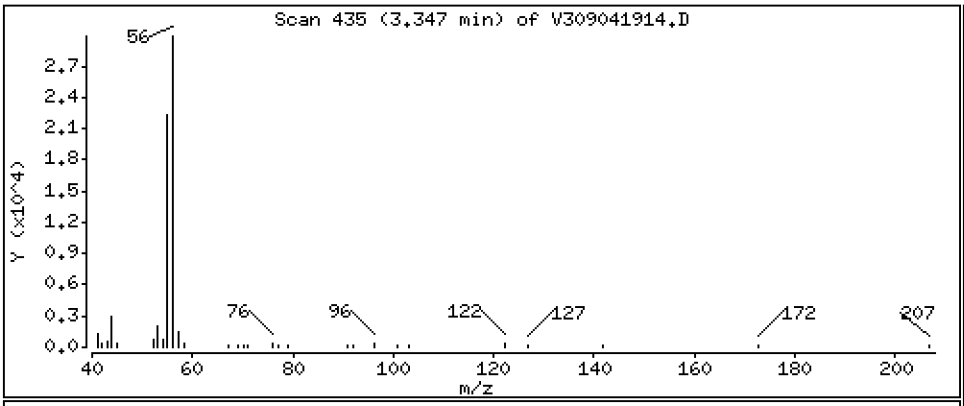
Operator: PKC

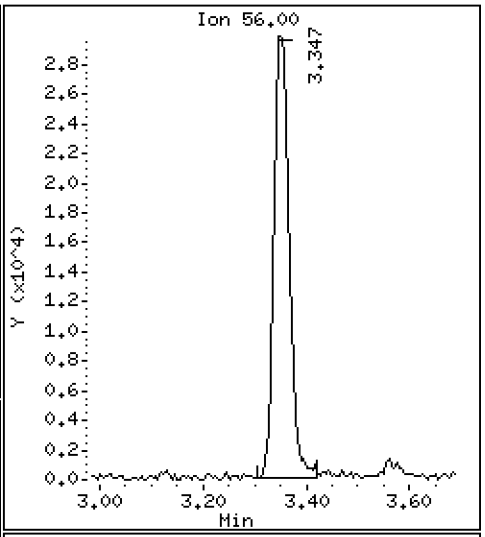
Column phase: RTXVMS

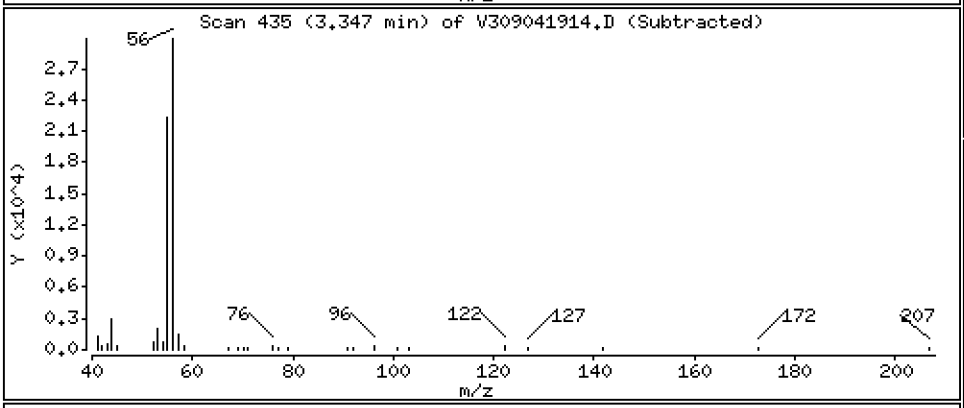
Column diameter: 0.18

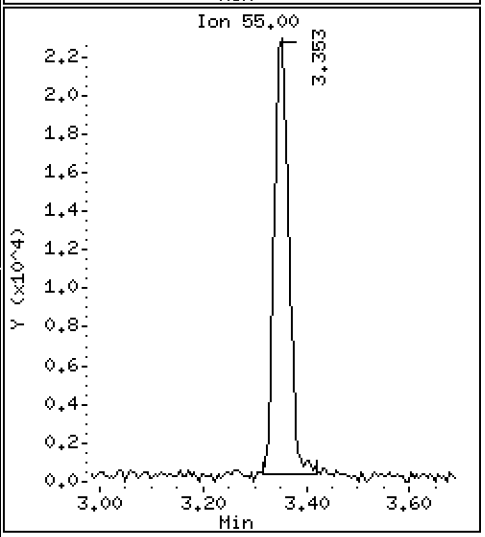
12 Acrolein

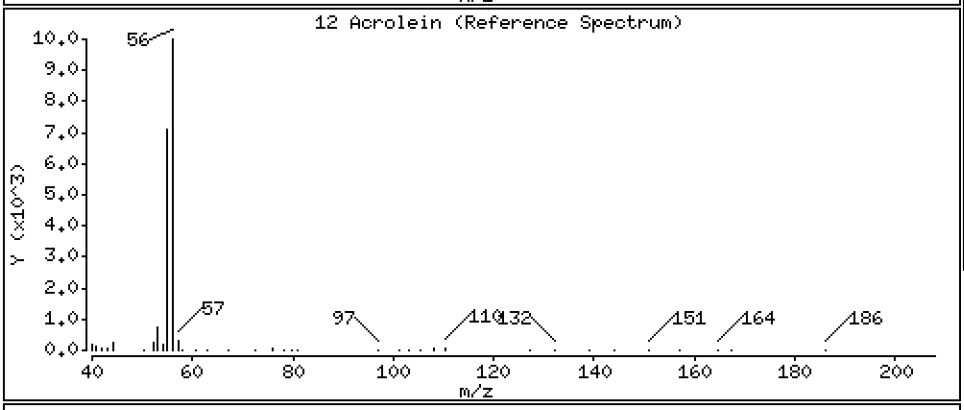
Concentration: 46.828 ug/L

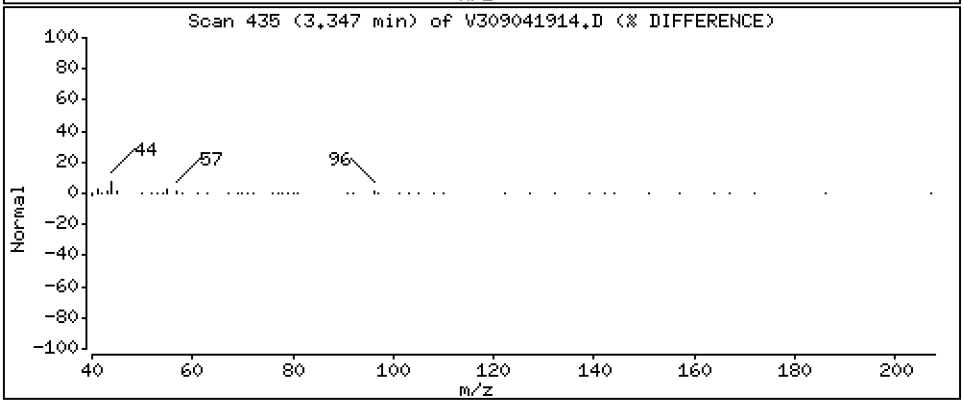












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

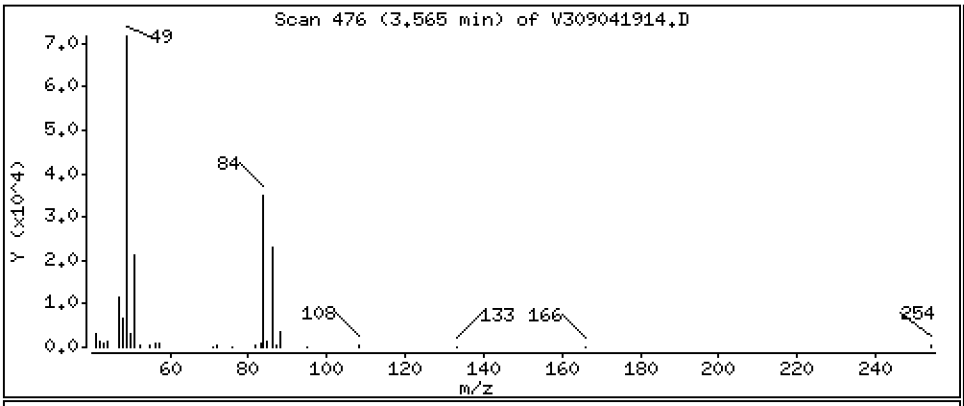
Operator: PKC

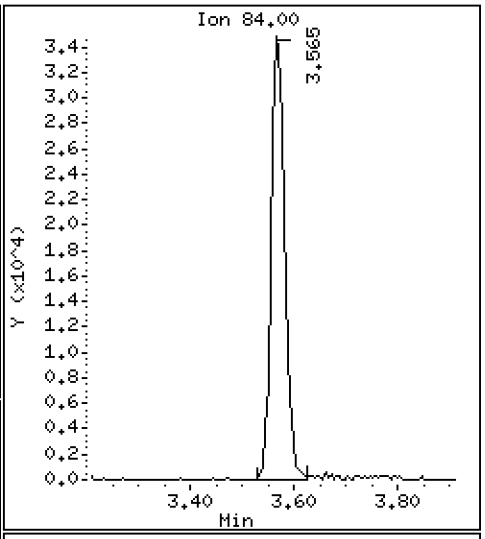
Column phase: RTXVMS

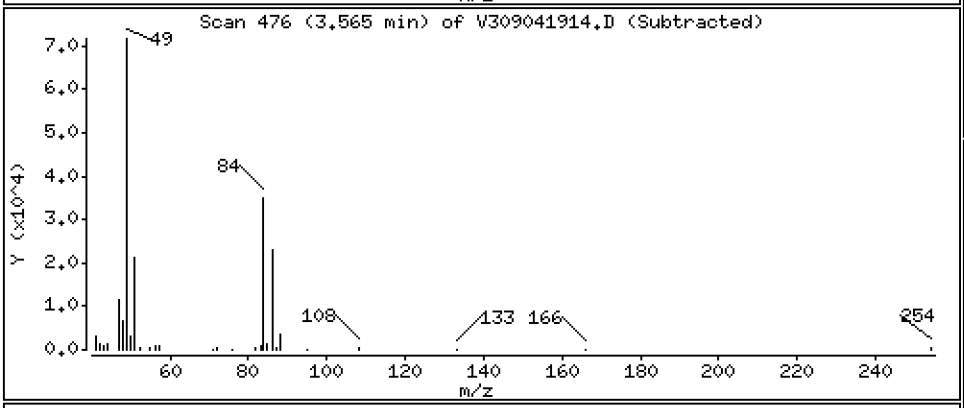
Column diameter: 0.18

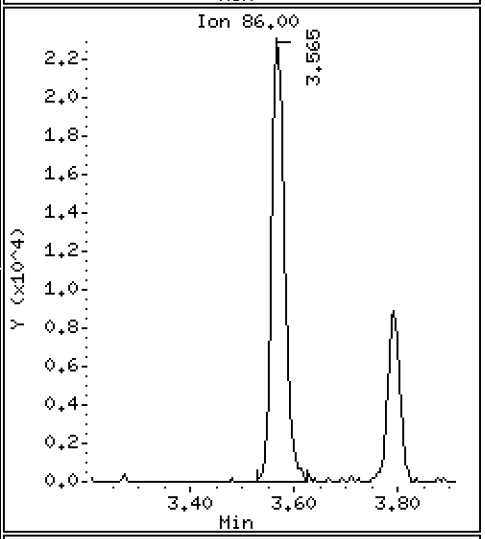
13 Methylene Chloride

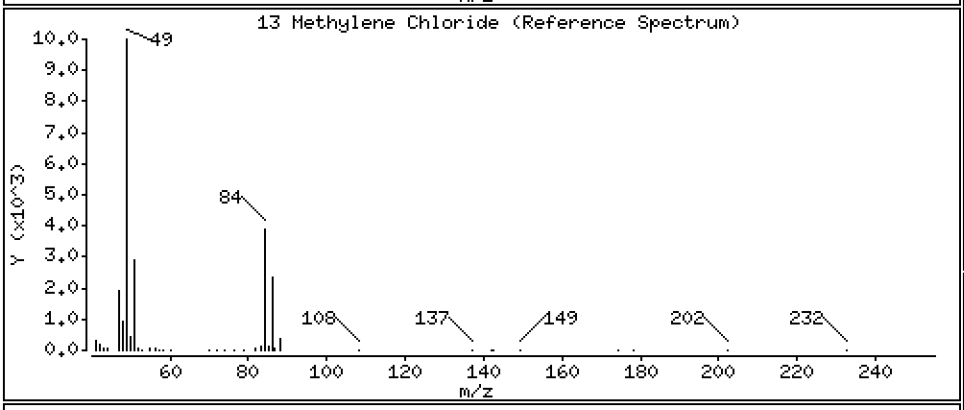
Concentration: 9.443 ug/L

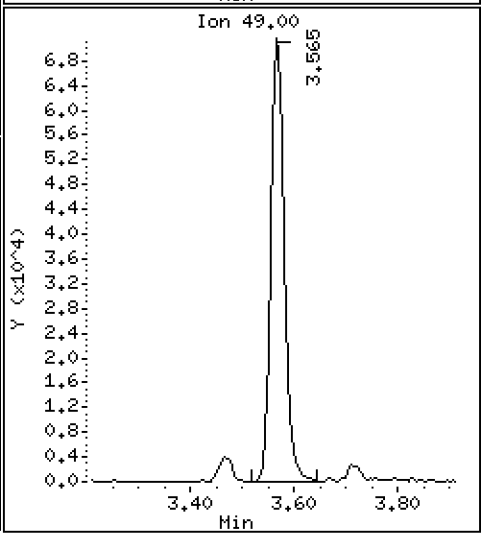


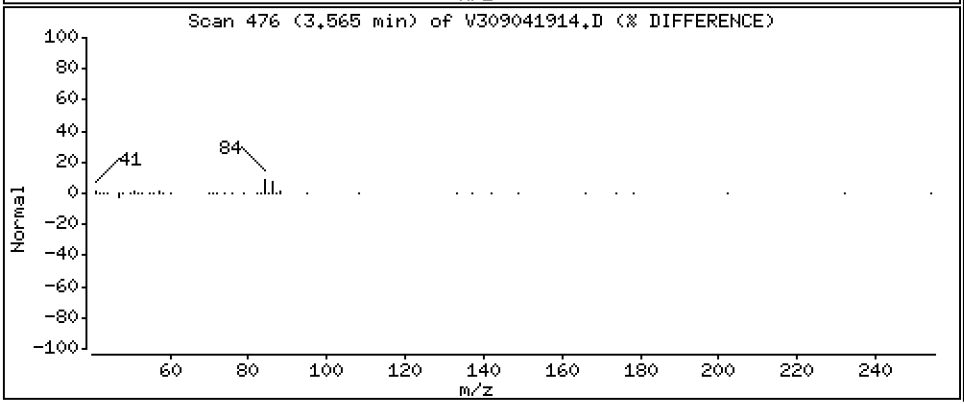












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

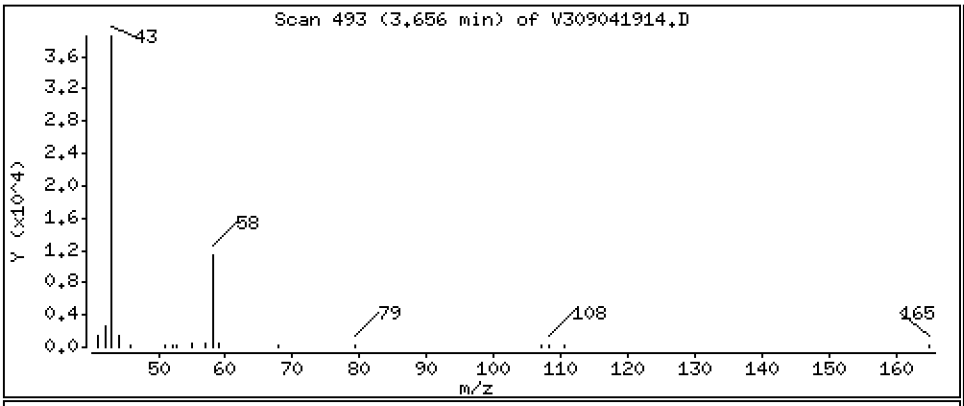
Operator: PKC

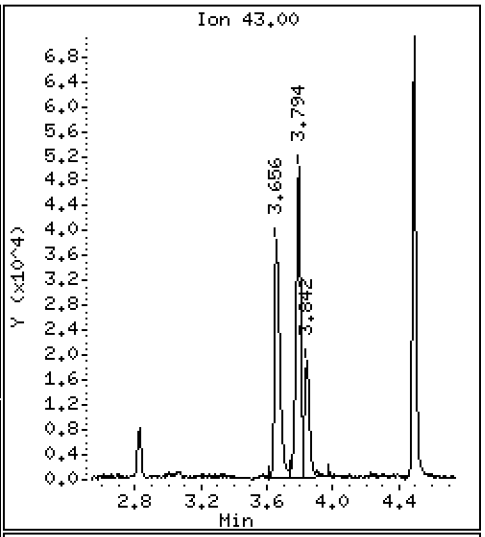
Column phase: RTXVMS

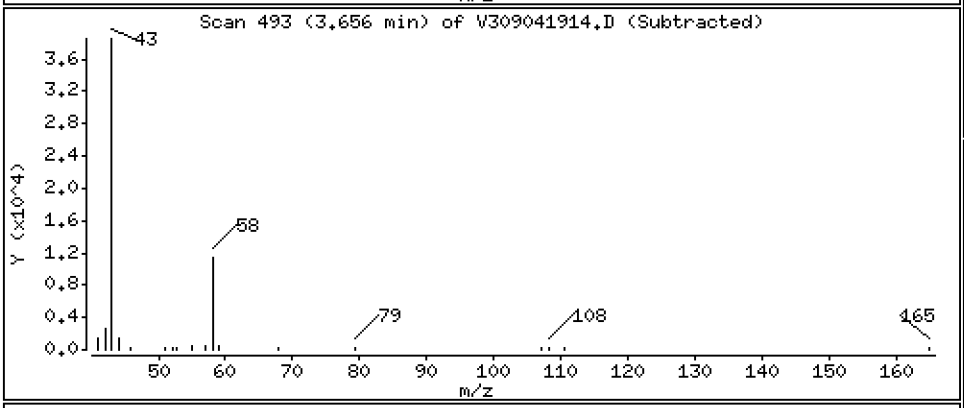
Column diameter: 0.18

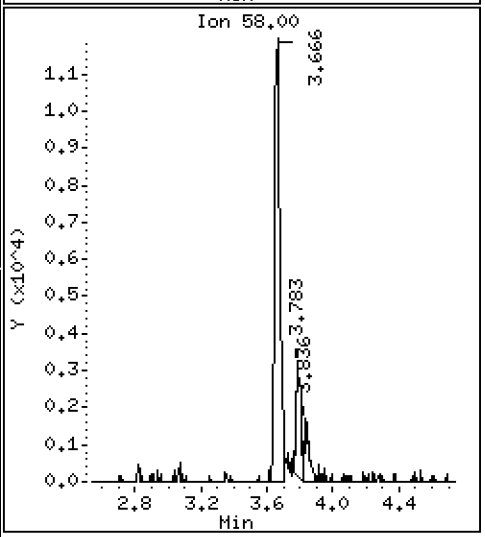
14 Acetone

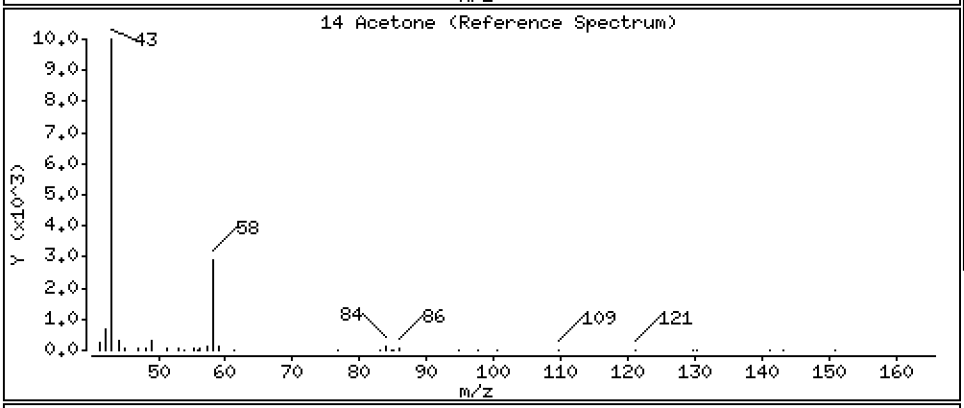
Concentration: 47.290 ug/L

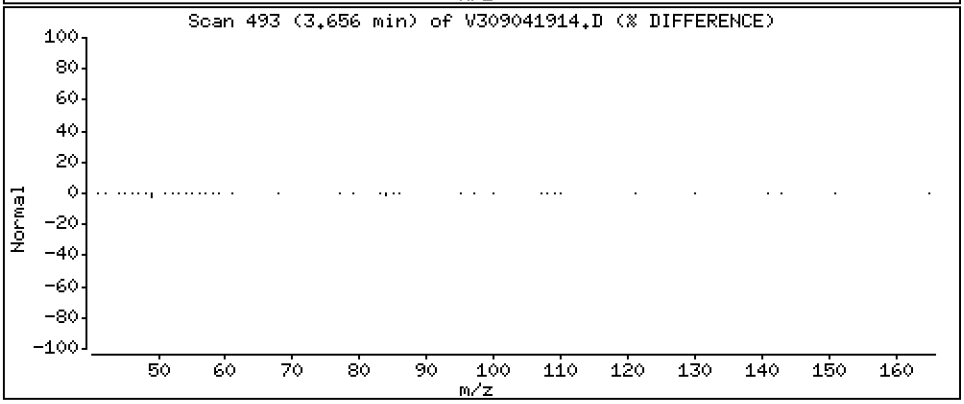












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

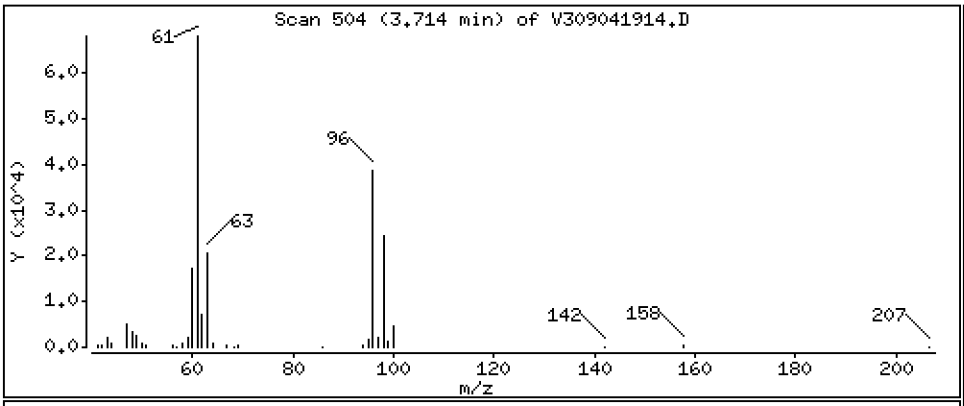
Operator: PKC

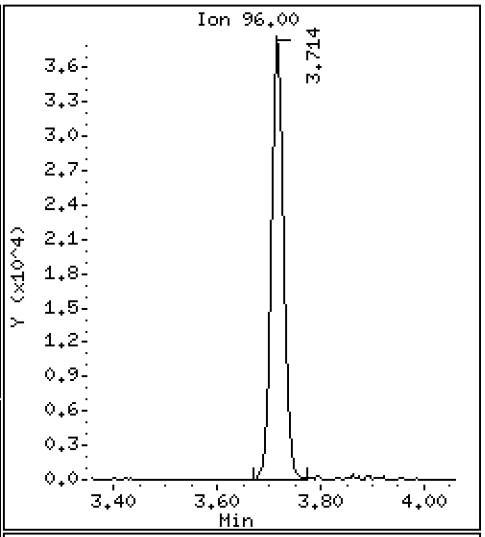
Column phase: RTXVMS

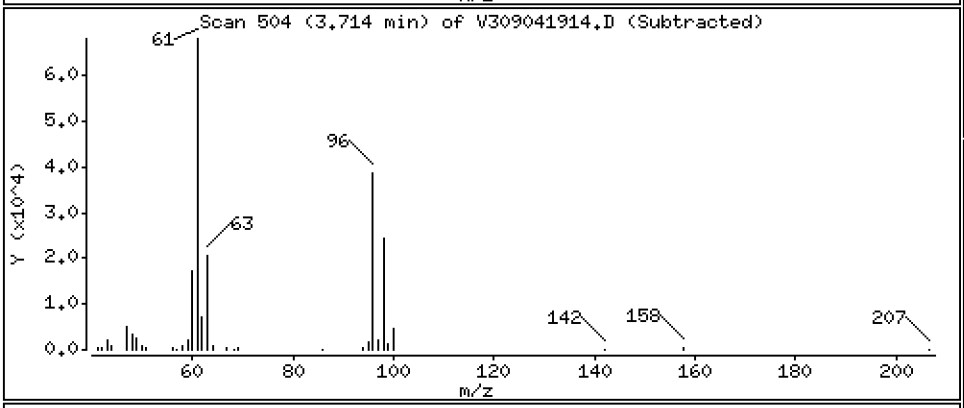
Column diameter: 0.18

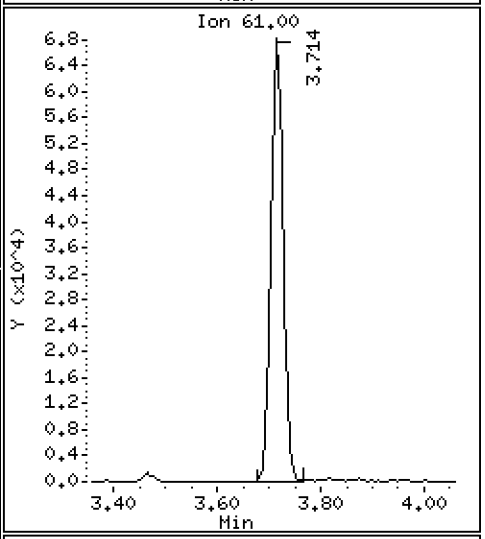
15 Trans-1,2-Dichloroethene

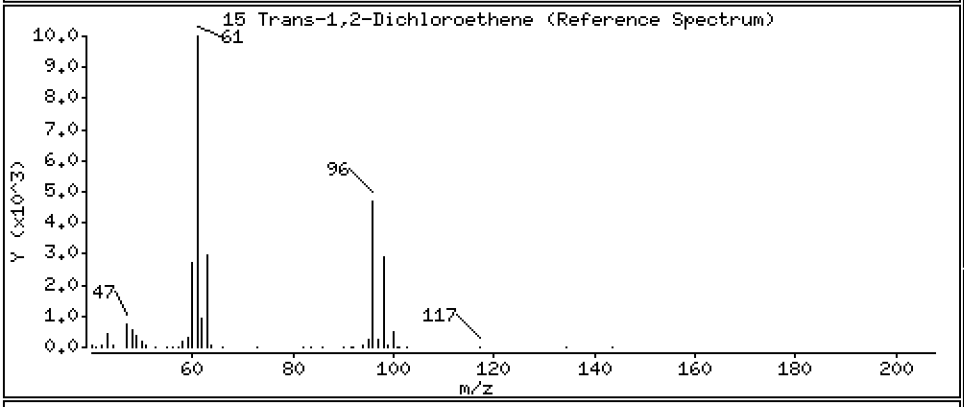
Concentration: 8.433 ug/L

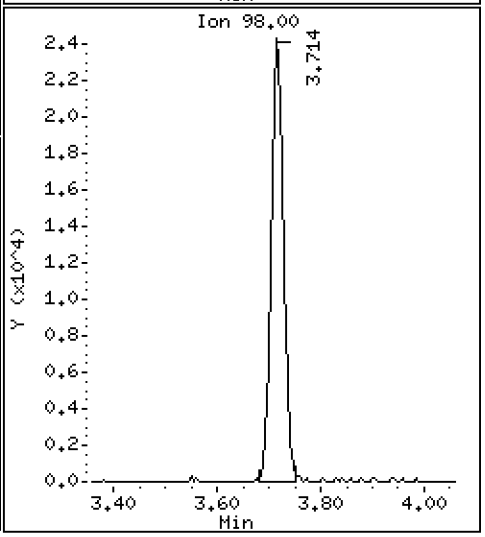


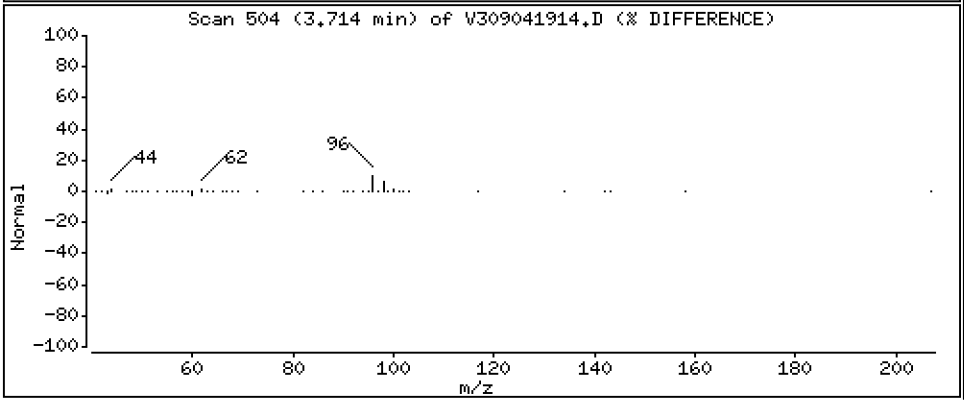












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

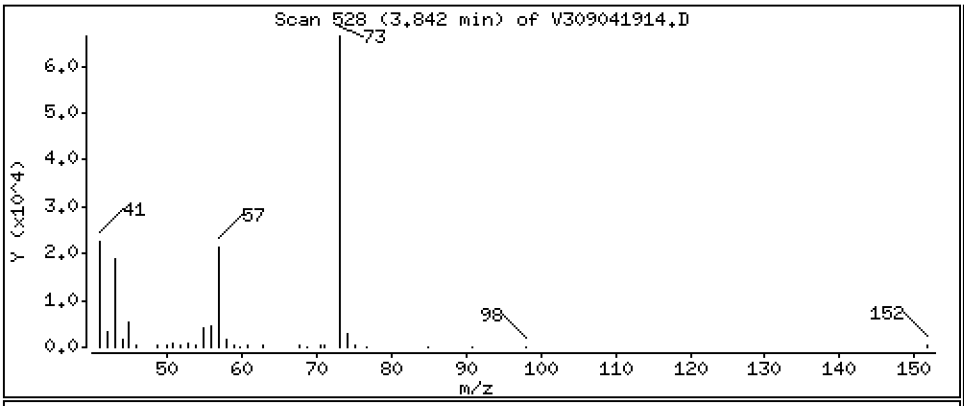
Operator: PKC

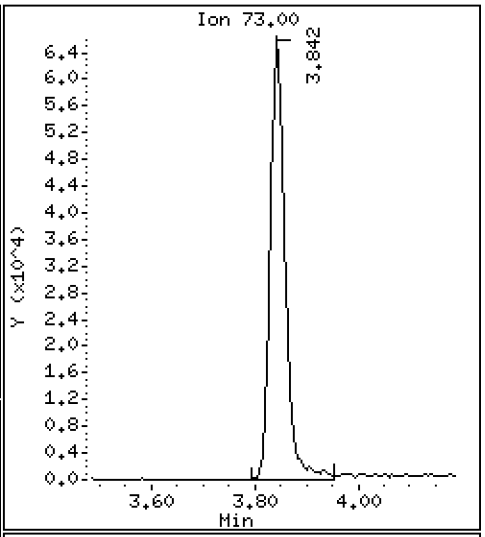
Column phase: RTXVMS

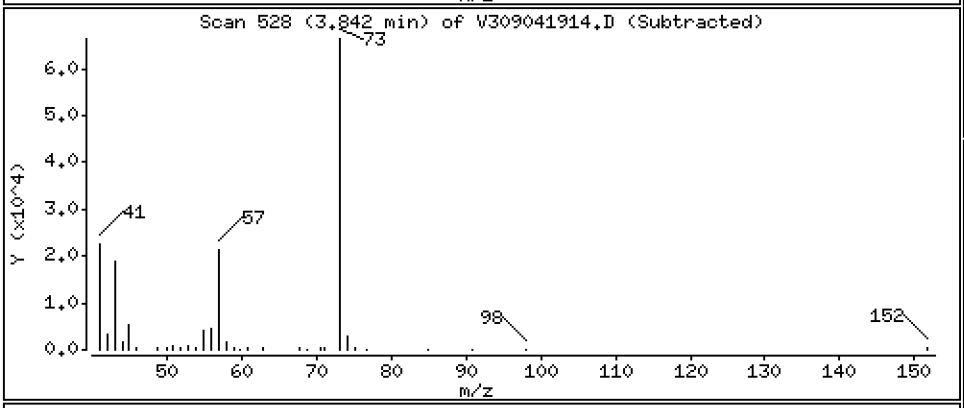
Column diameter: 0.18

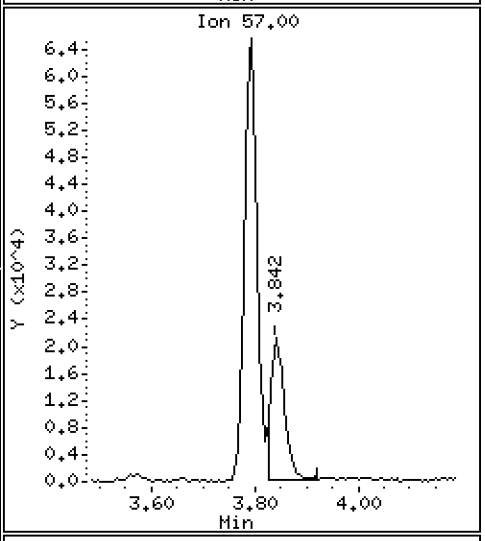
17 Methyl tert butyl ether

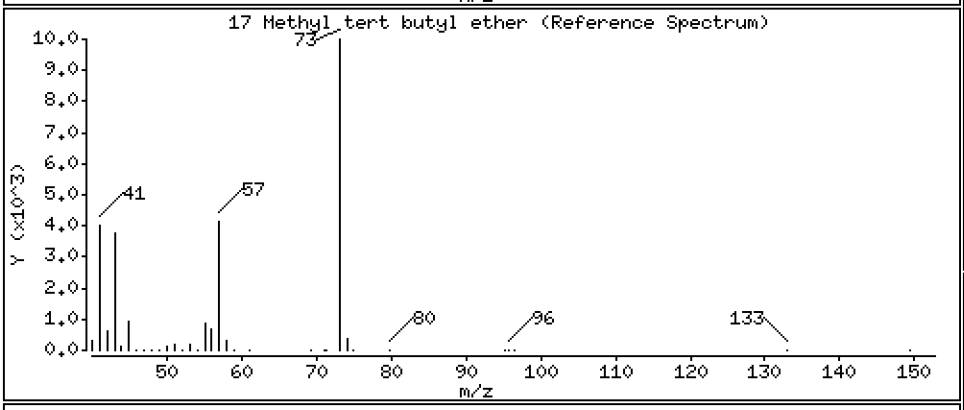
Concentration: 10.342 ug/L

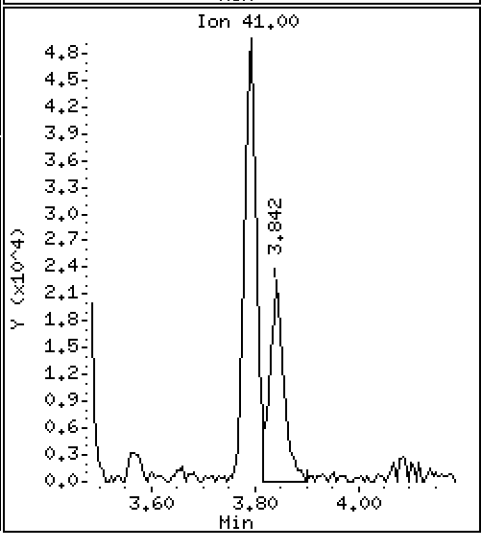


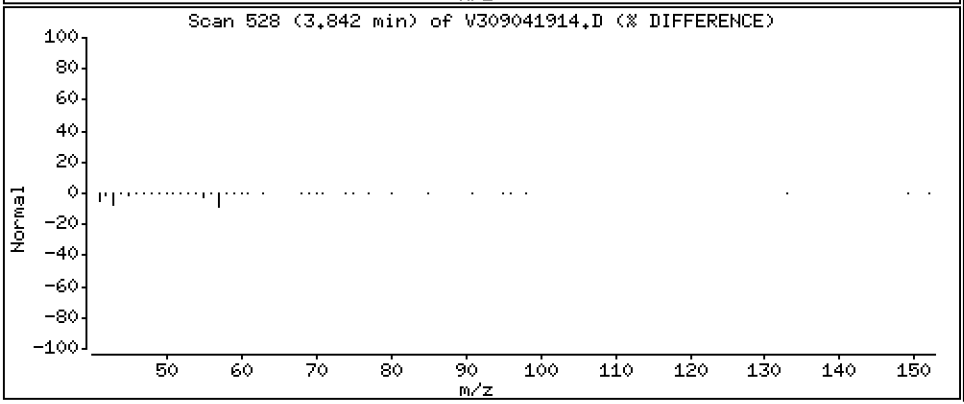












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

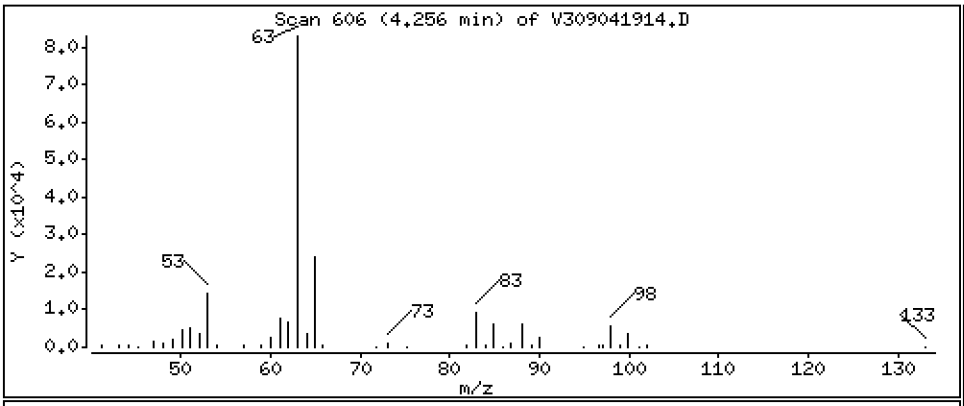
Operator: PKC

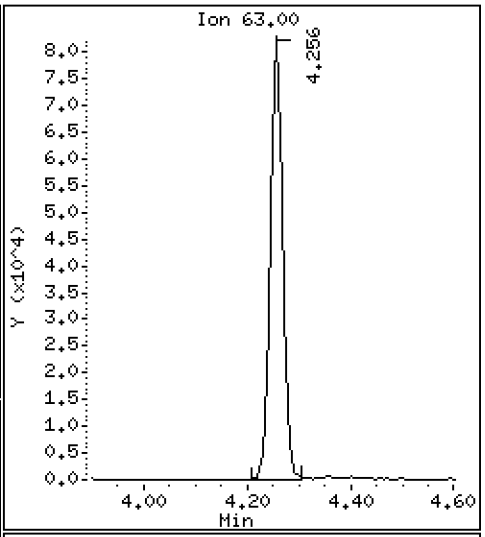
Column phase: RTXVMS

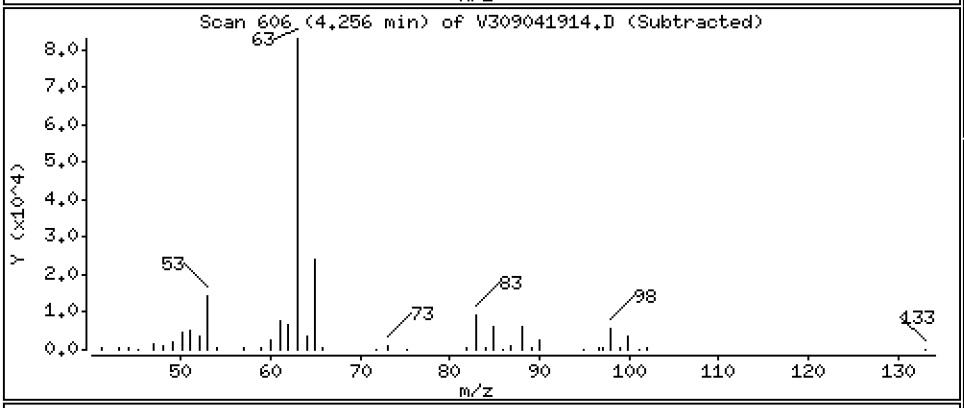
Column diameter: 0.18

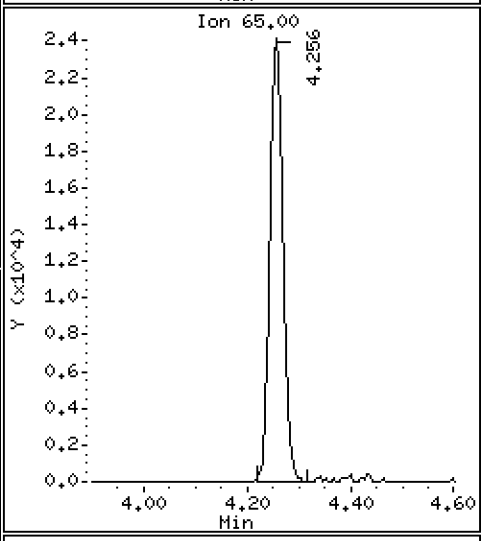
18 1,1-Dichloroethane

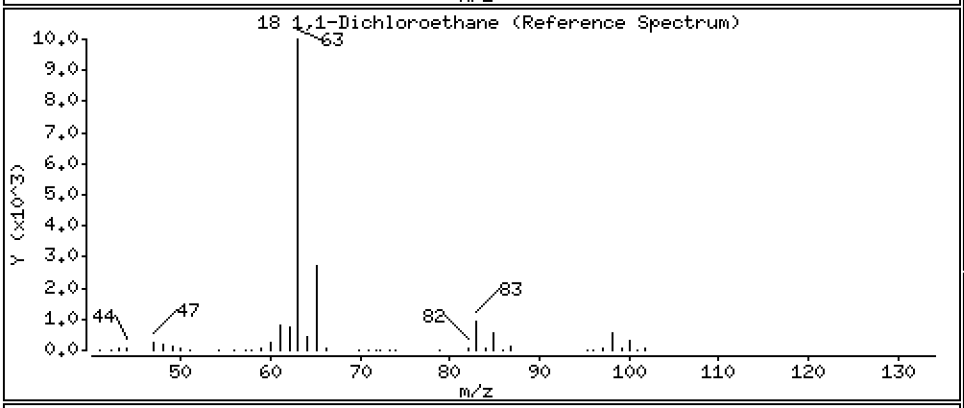
Concentration: 9.084 ug/L

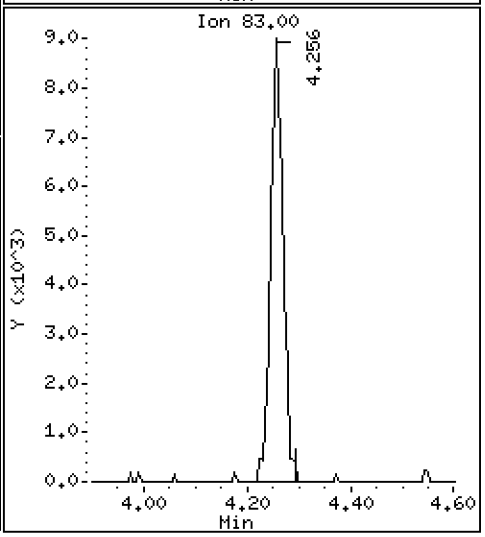


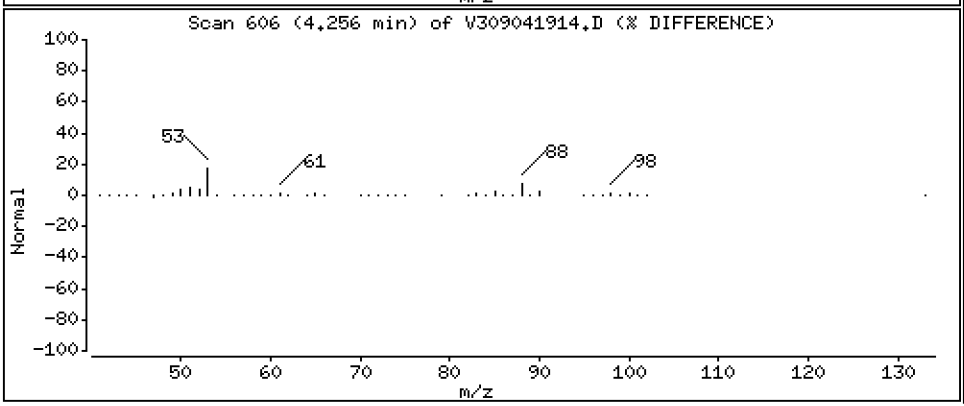












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

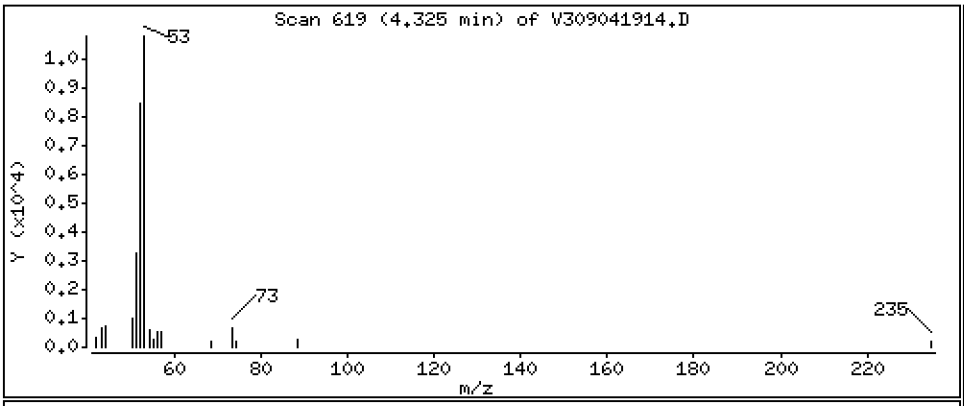
Operator: PKC

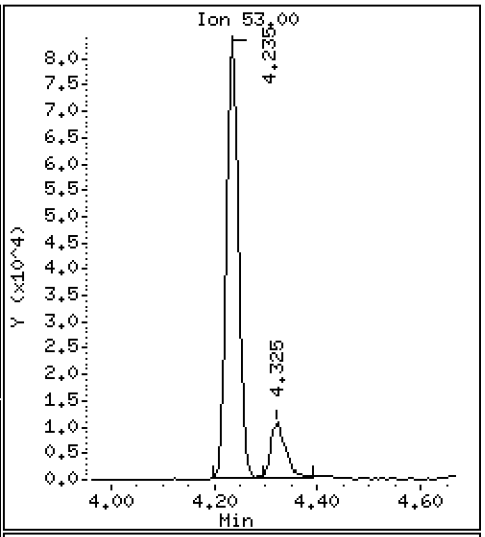
Column phase: RTXVMS

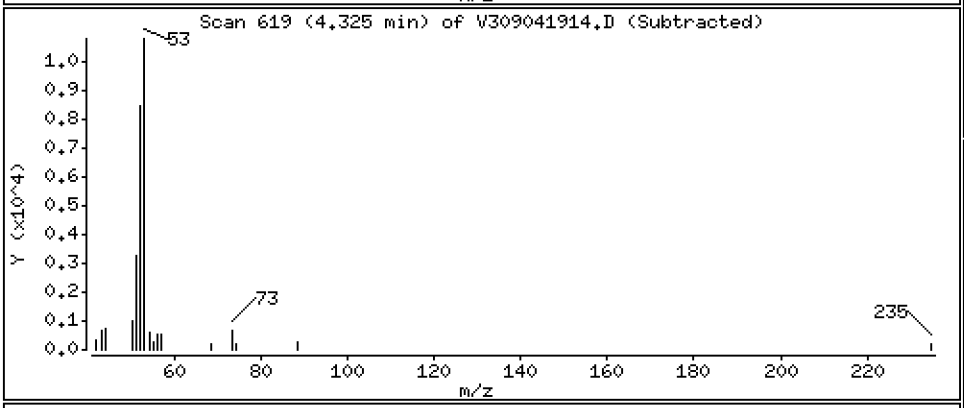
Column diameter: 0.18

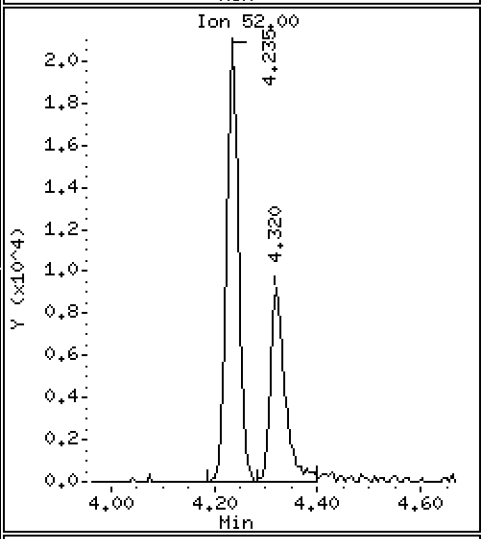
19 Acrylonitrile

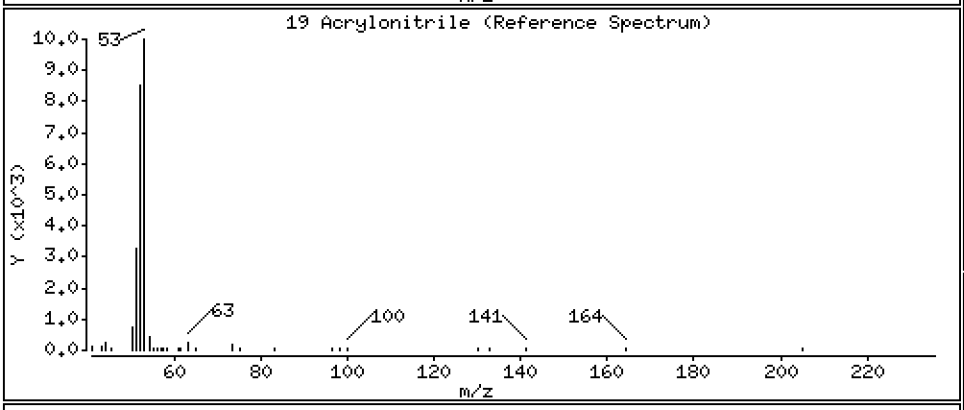
Concentration: 9.687 ug/L

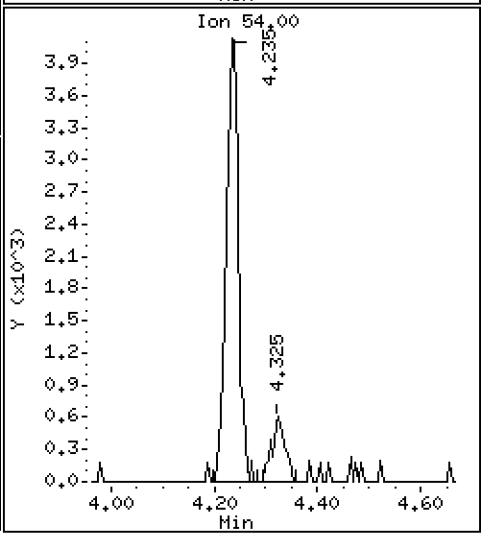


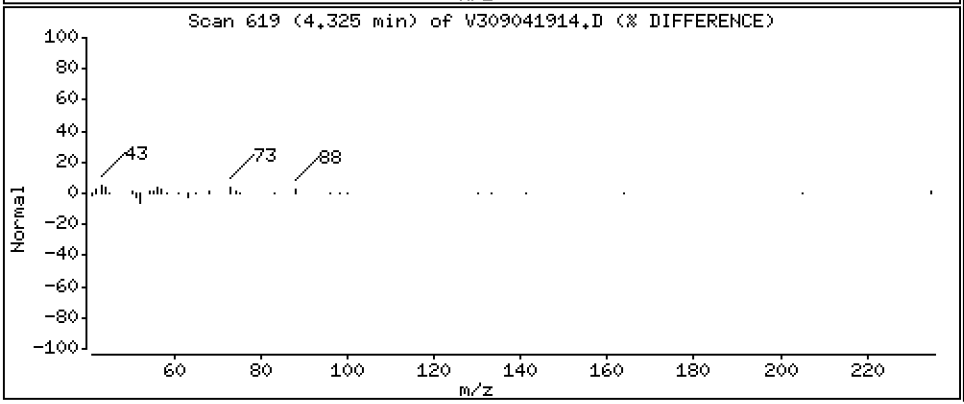












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

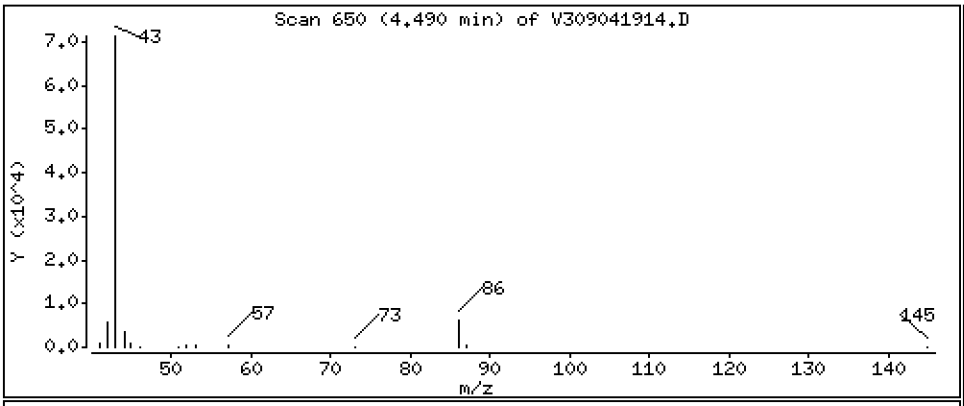
Operator: PKC

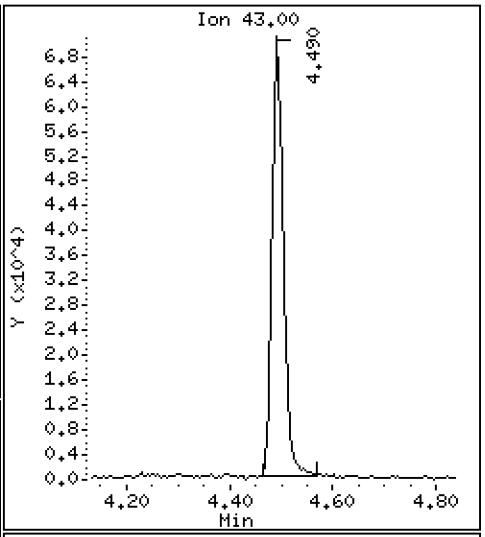
Column phase: RTXVMS

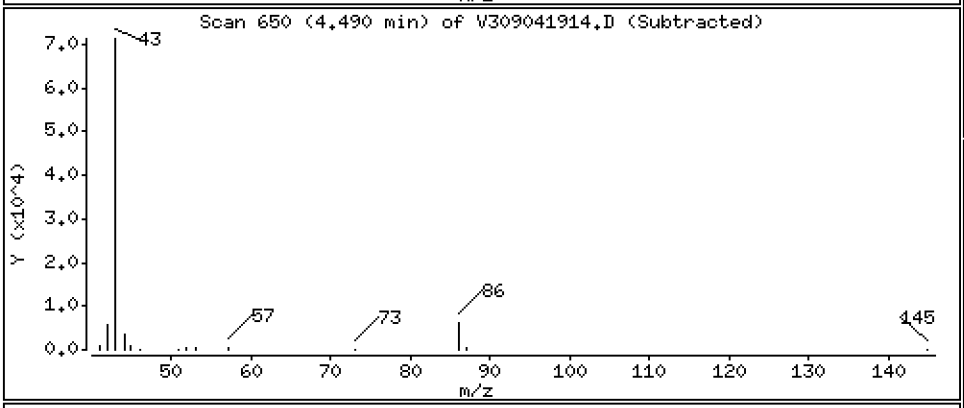
Column diameter: 0.18

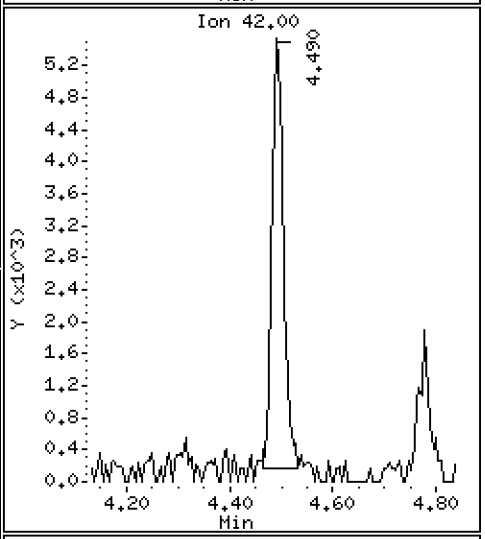
20 Vinyl Acetate

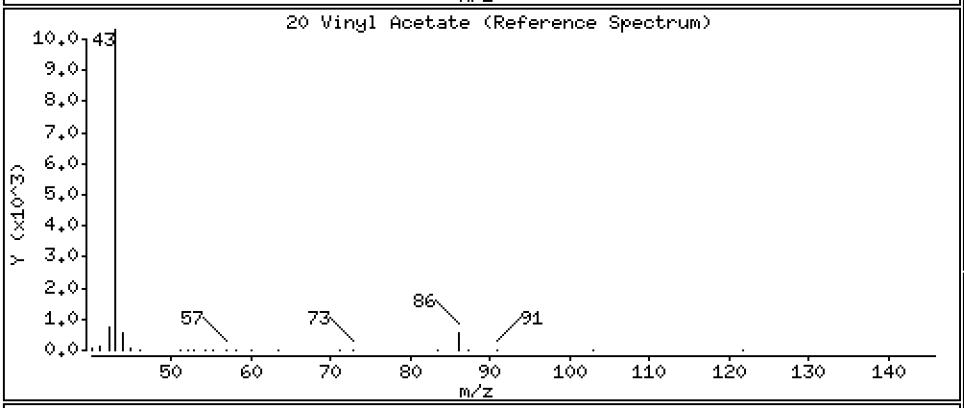
Concentration: 6.843 ug/L

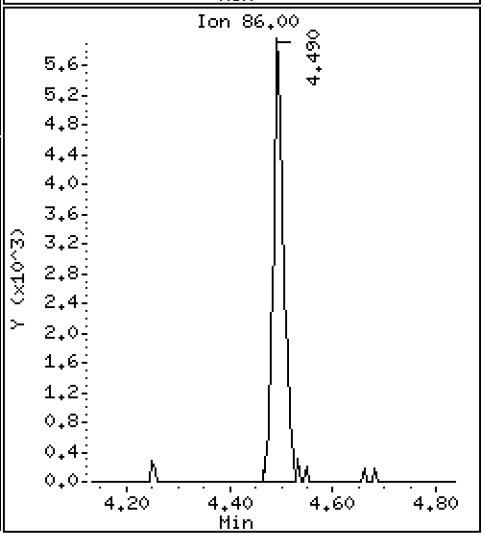


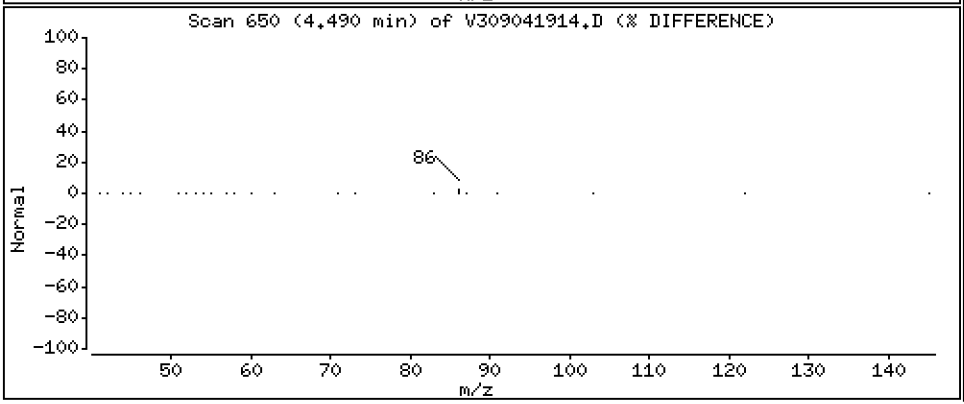












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

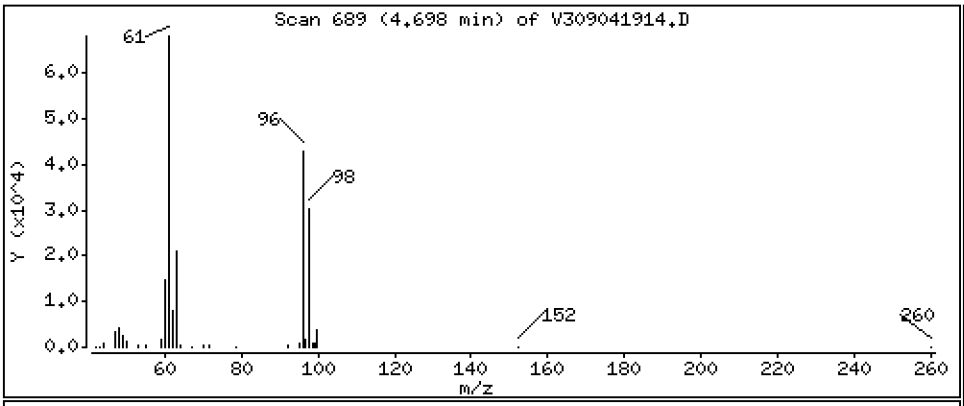
Operator: PKC

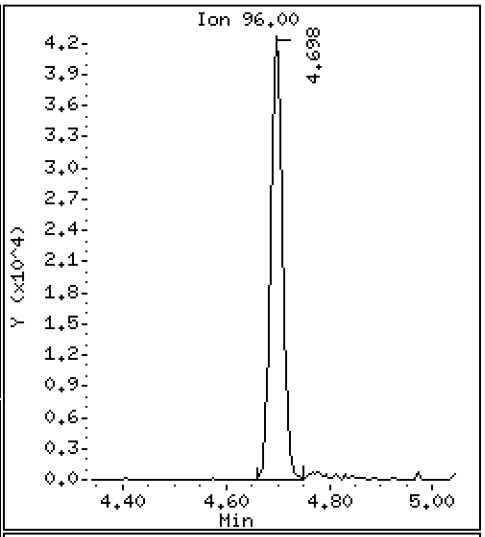
Column phase: RTXVMS

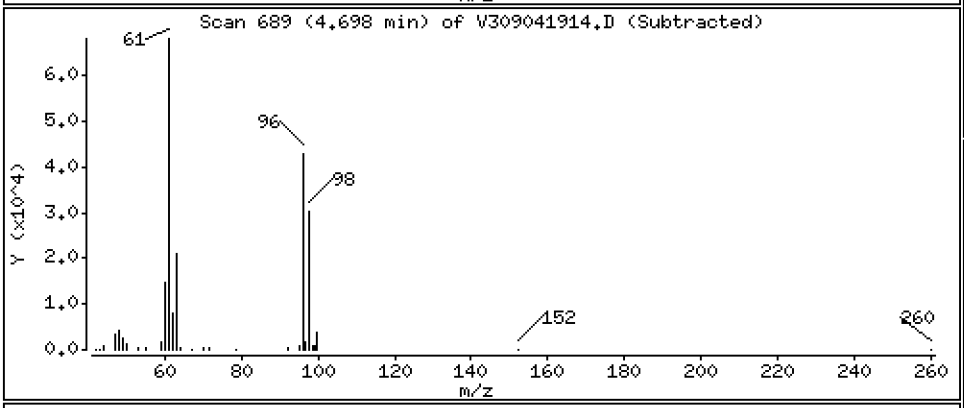
Column diameter: 0.18

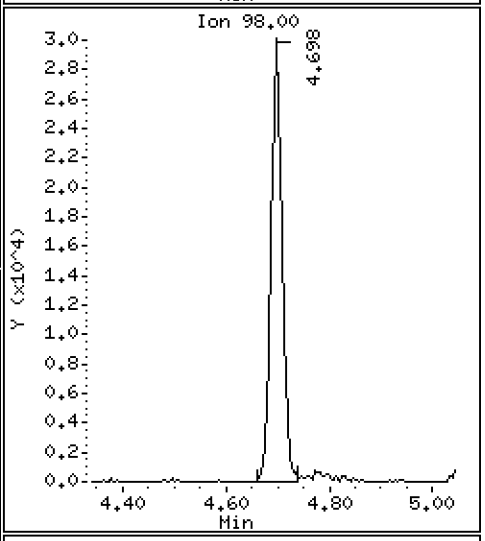
22 Cis-1,2-Dichloroethene

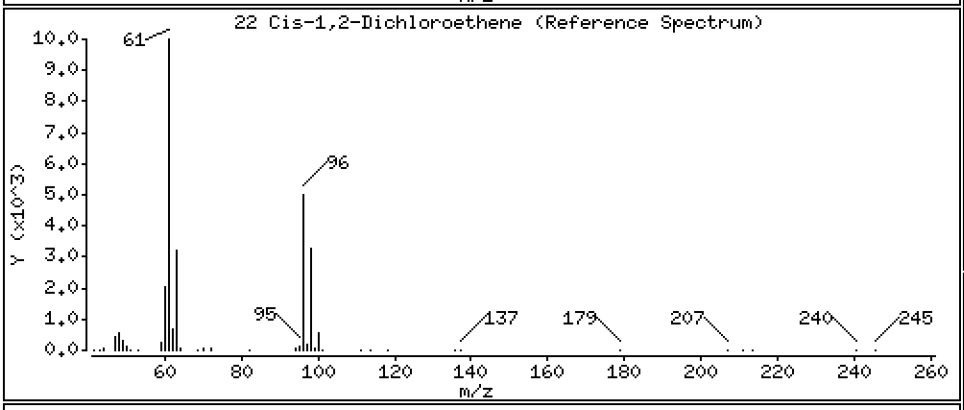
Concentration: 8.820 ug/L

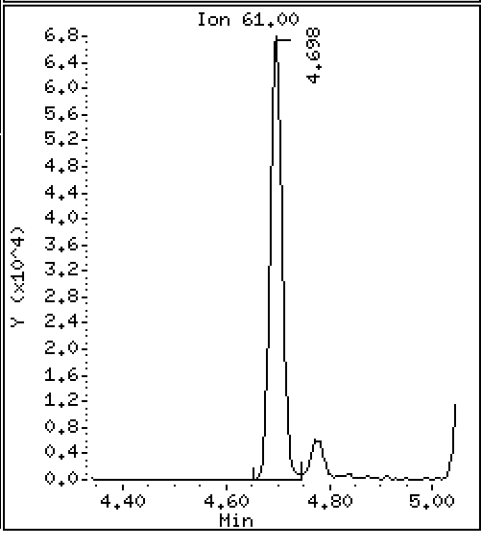


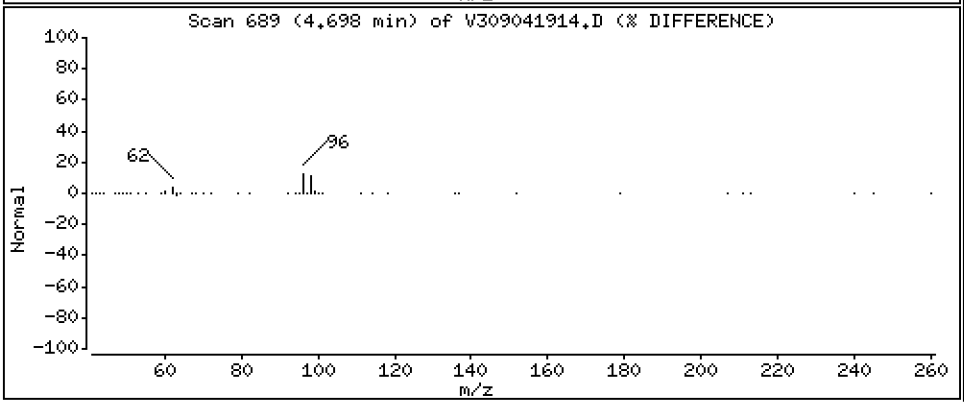












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

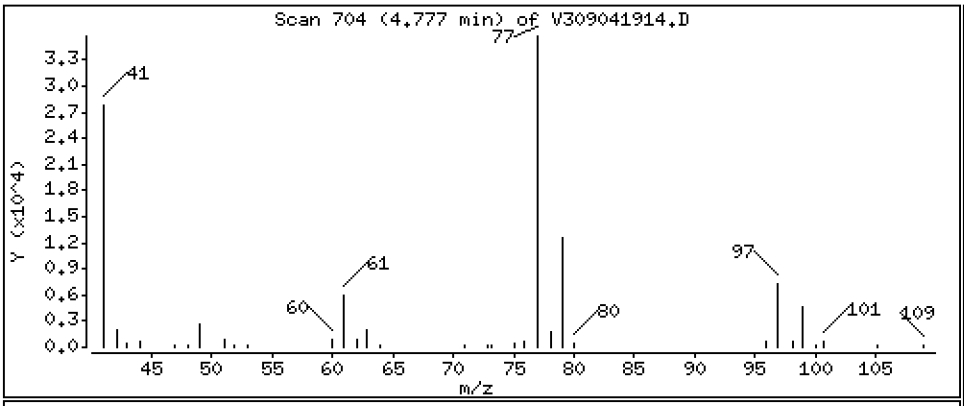
Operator: PKC

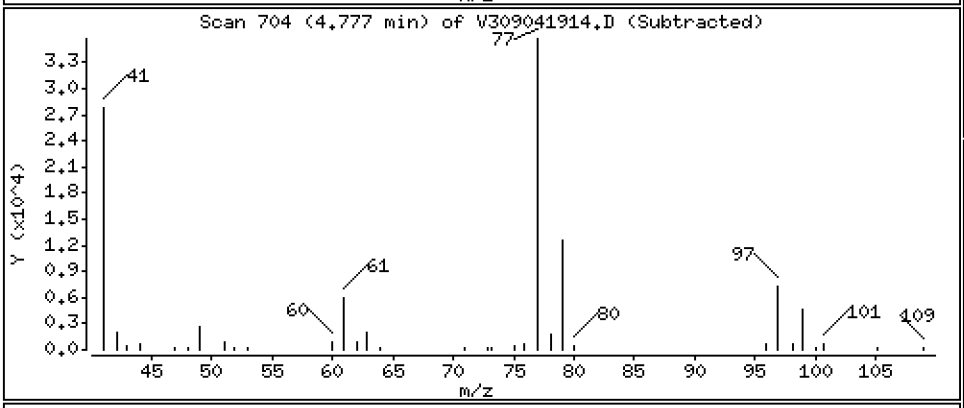
Column phase: RTXVMS

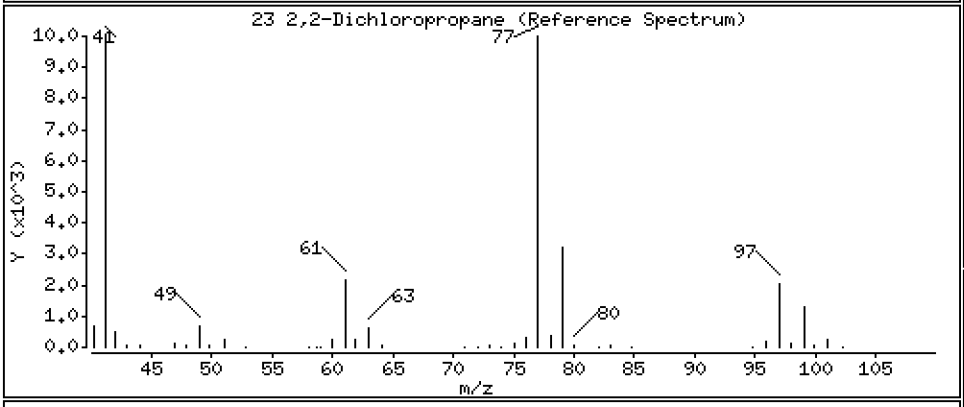
Column diameter: 0.18

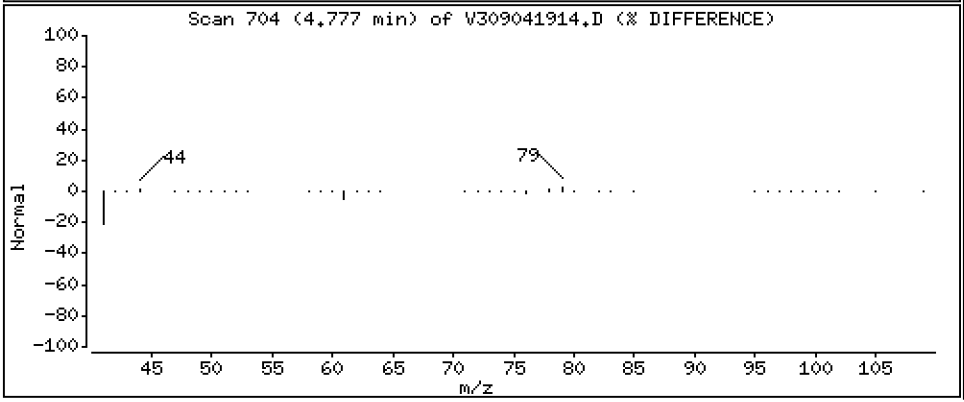
23 2,2-Dichloropropane

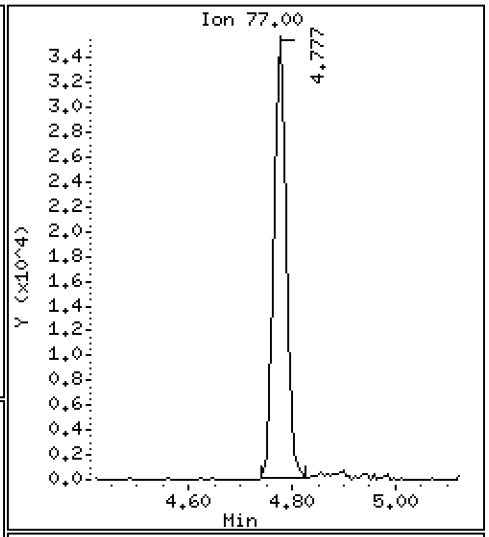
Concentration: 8.391 ug/L

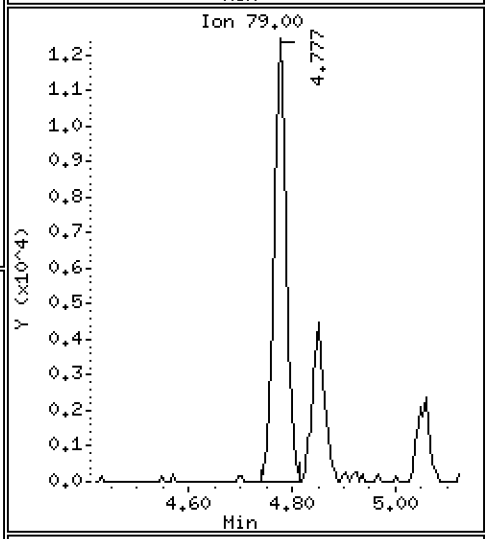


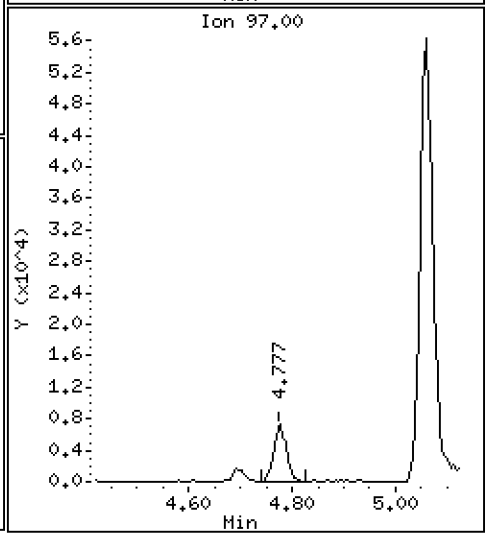












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

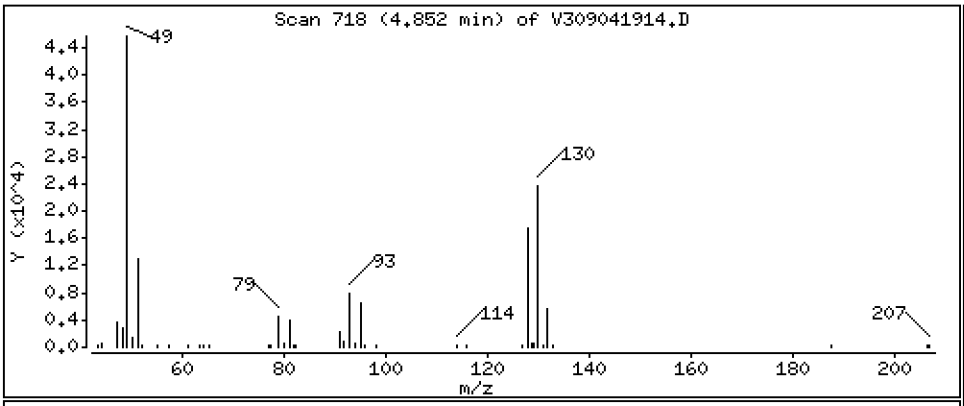
Operator: PKC

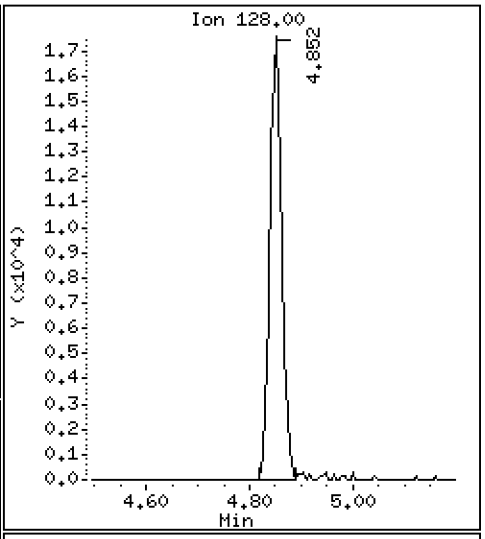
Column phase: RTXVMS

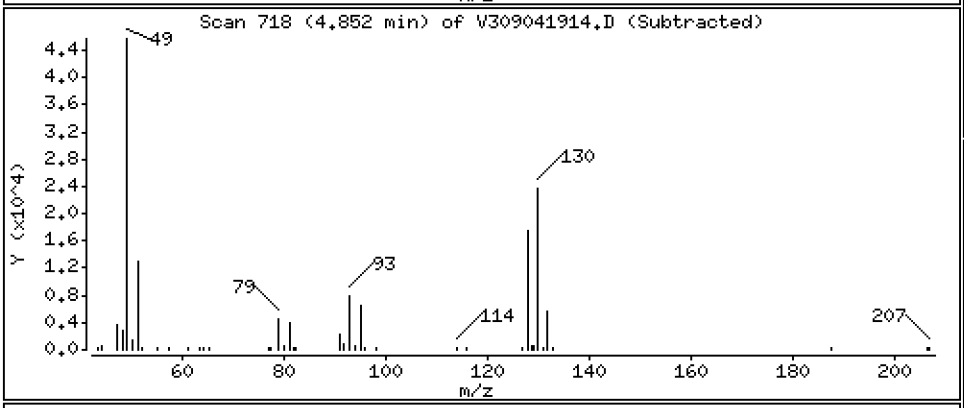
Column diameter: 0.18

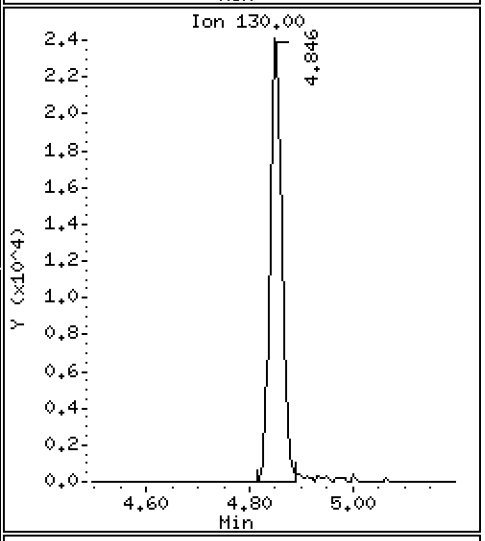
24 Bromochloromethane

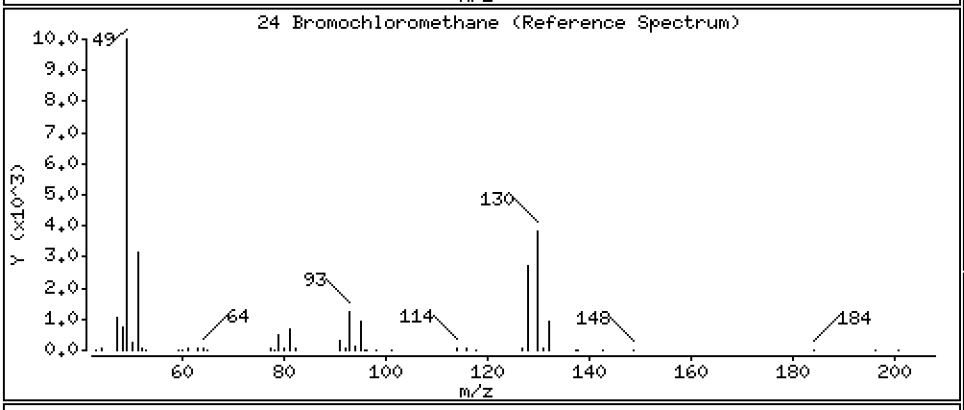
Concentration: 8.379 ug/L

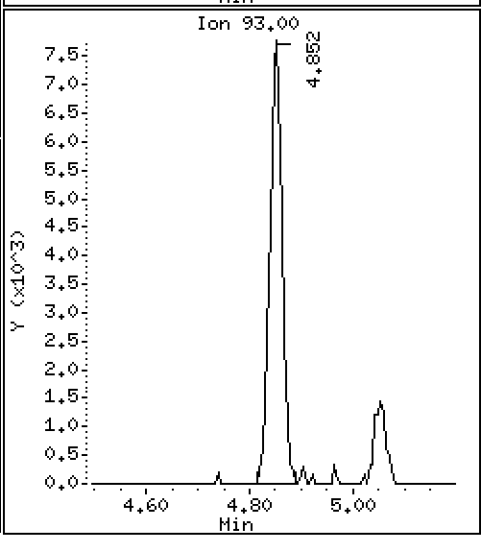


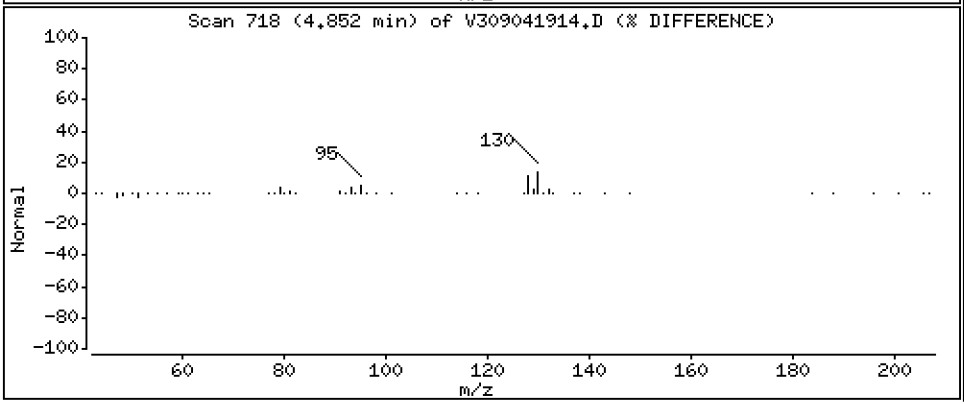












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

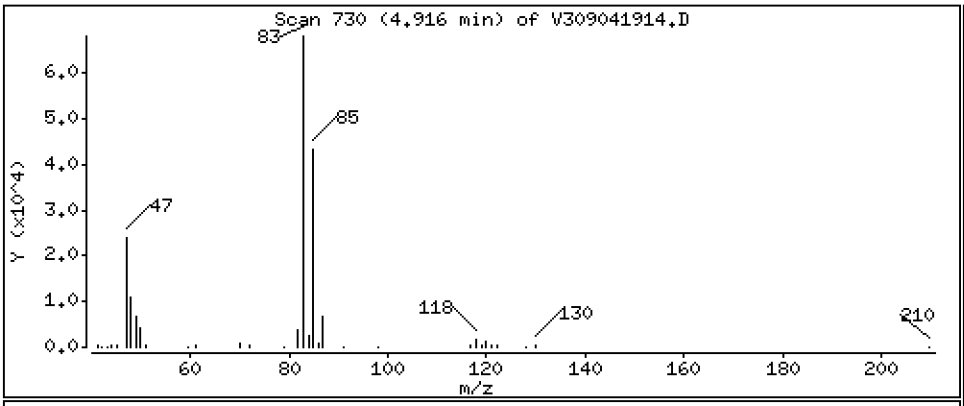
Operator: PKC

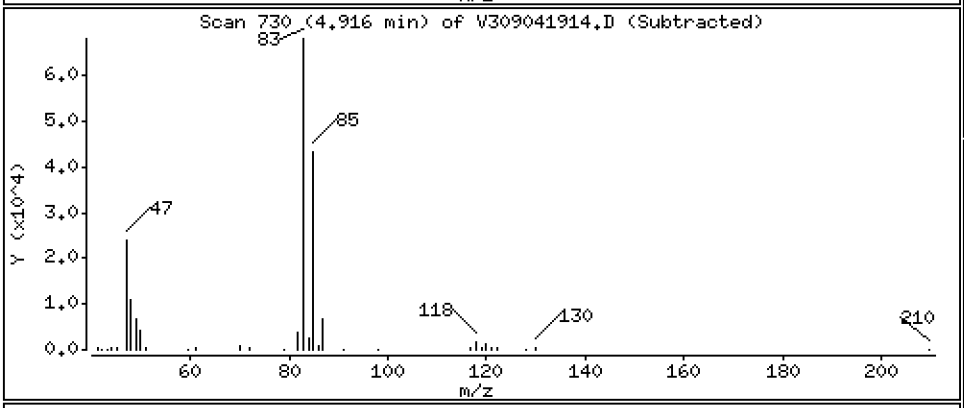
Column phase: RTXVMS

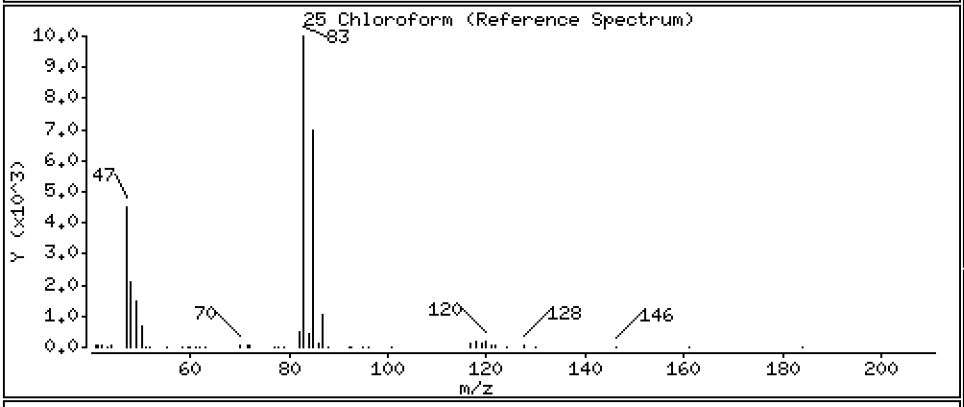
Column diameter: 0.18

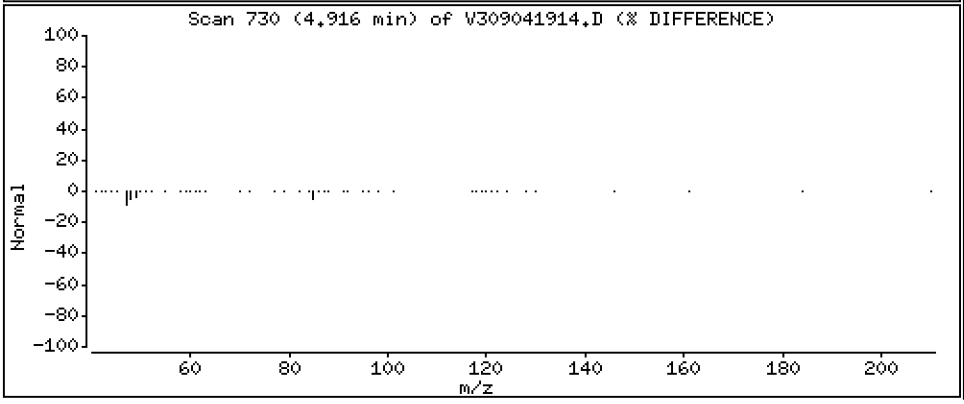
25 Chloroform

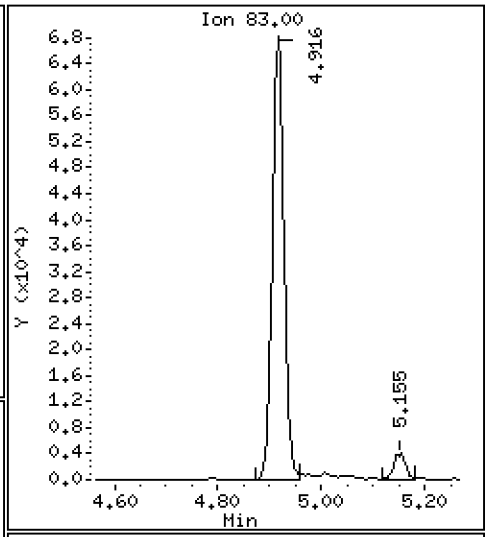
Concentration: 9.132 ug/L

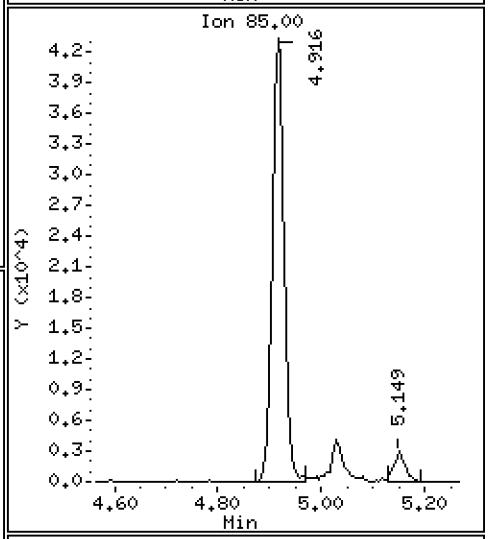


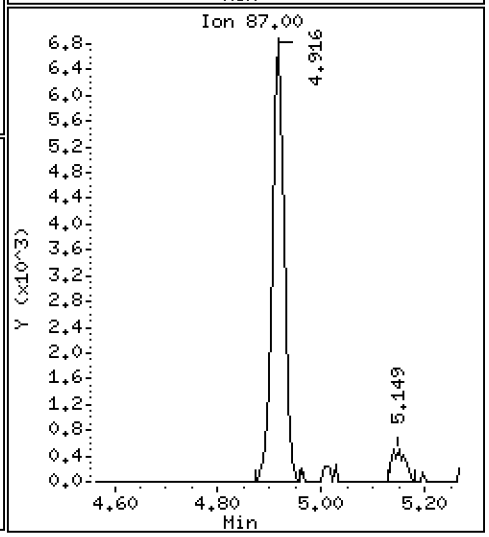












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

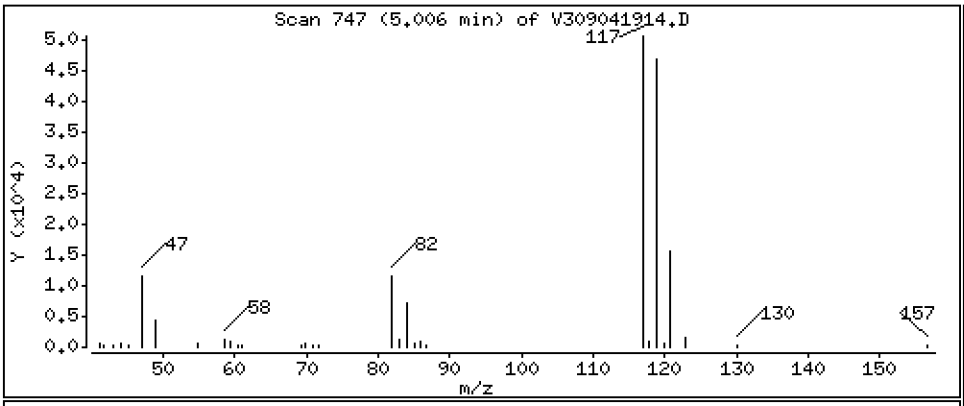
Operator: PKC

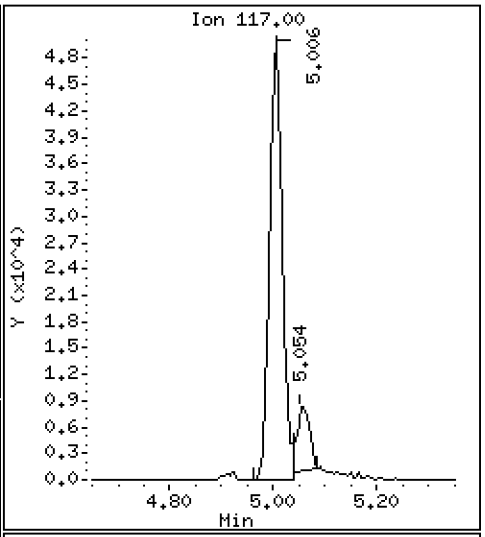
Column phase: RTXVMS

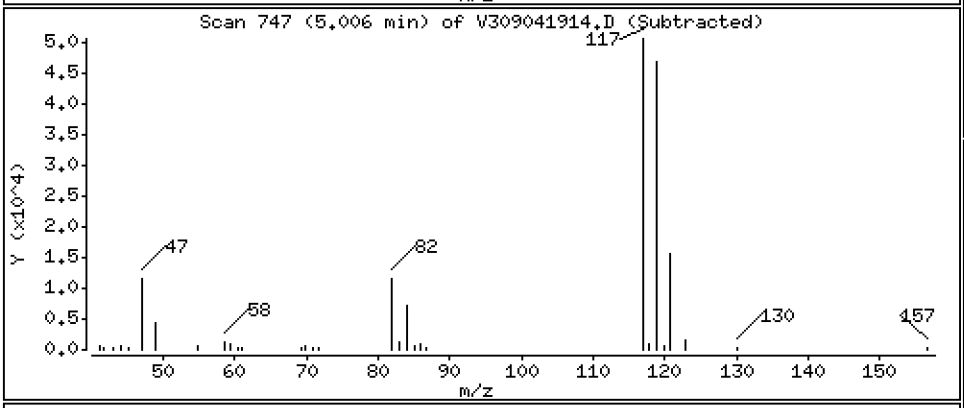
Column diameter: 0.18

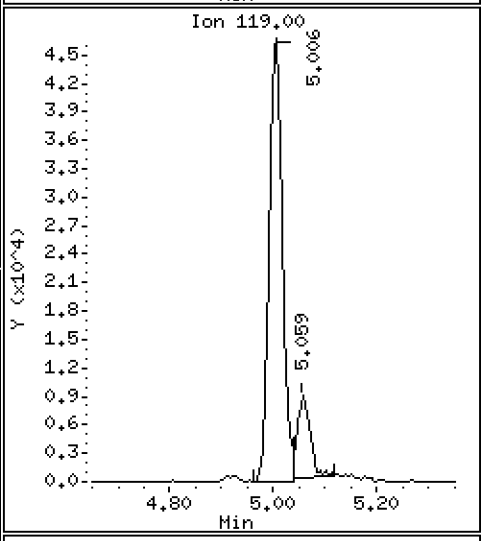
26 Carbon Tetrachloride

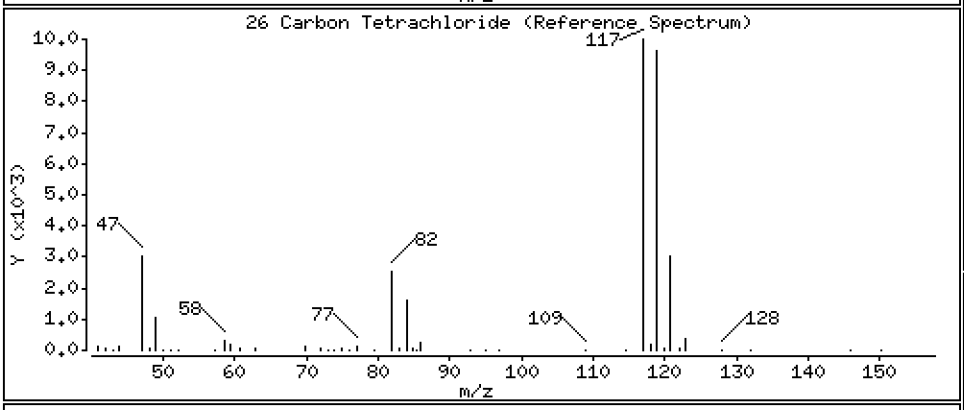
Concentration: 8.792 ug/L

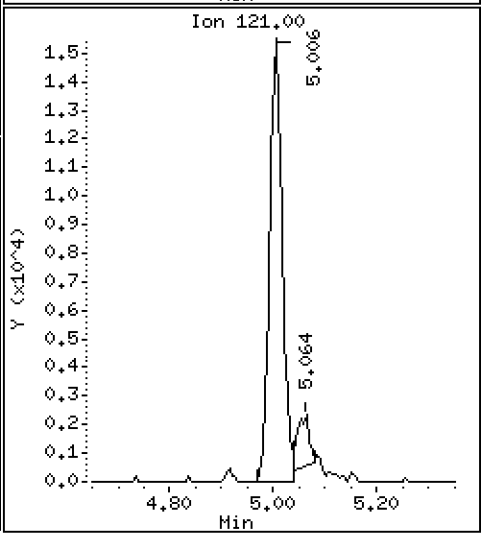


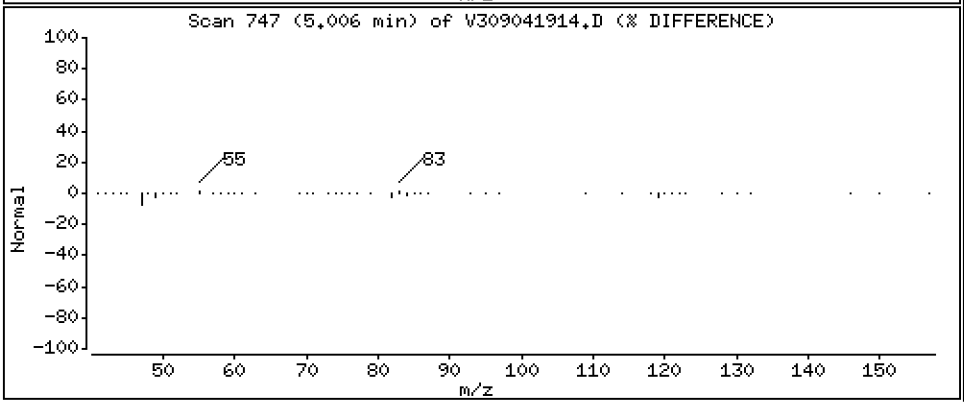












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

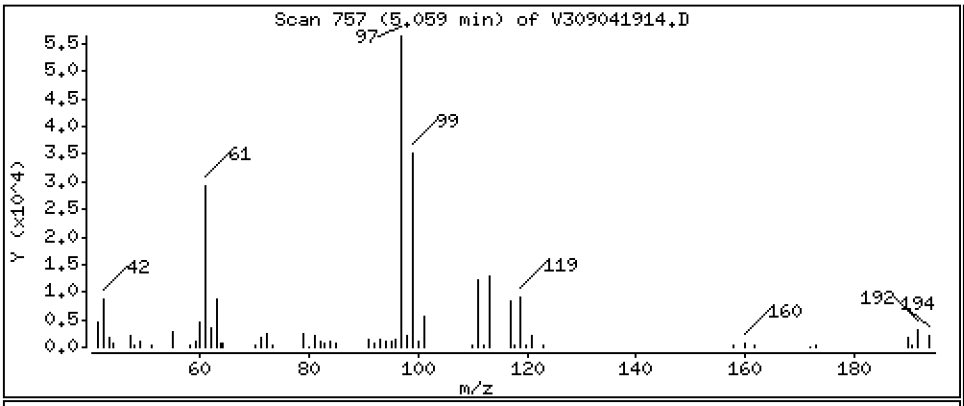
Operator: PKC

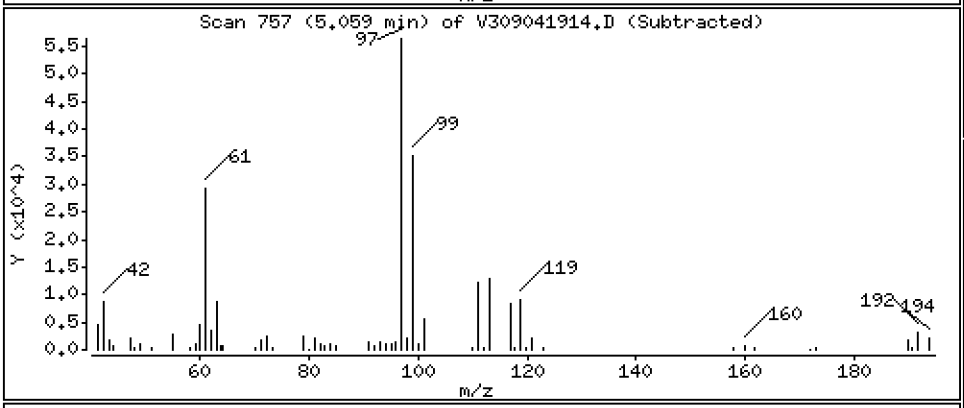
Column phase: RTXVMS

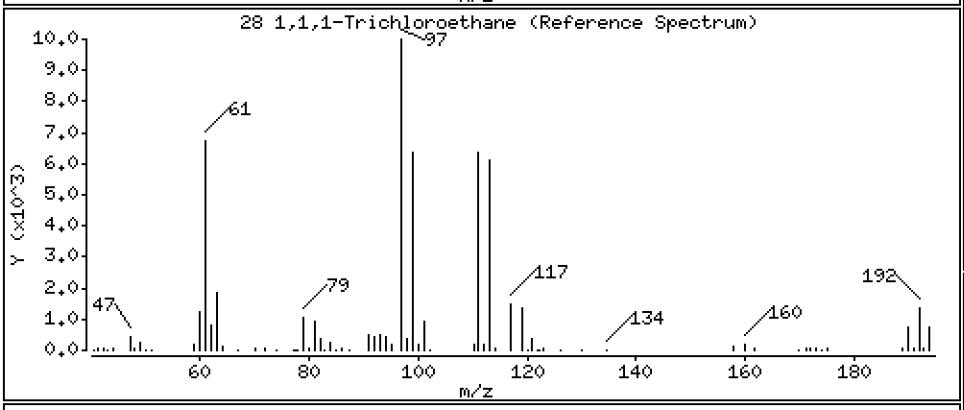
Column diameter: 0.18

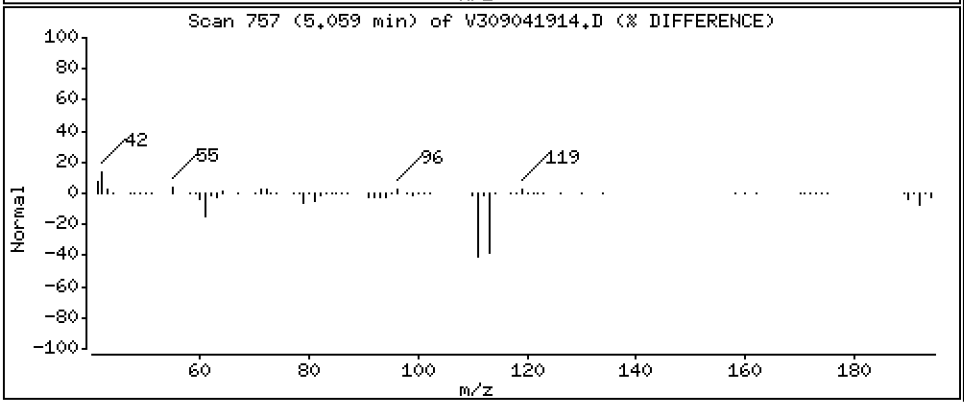
28 1,1,1-Trichloroethane

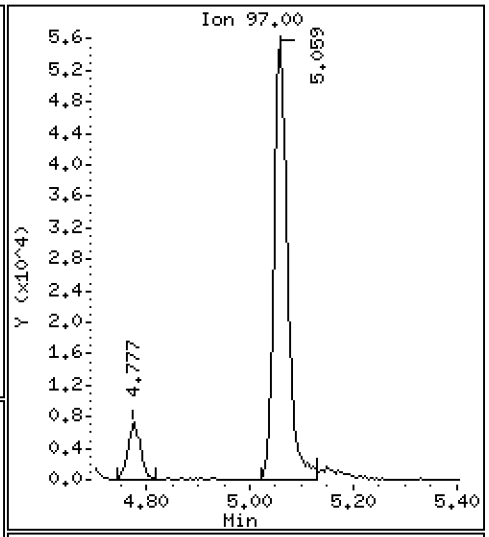
Concentration: 8.823 ug/L

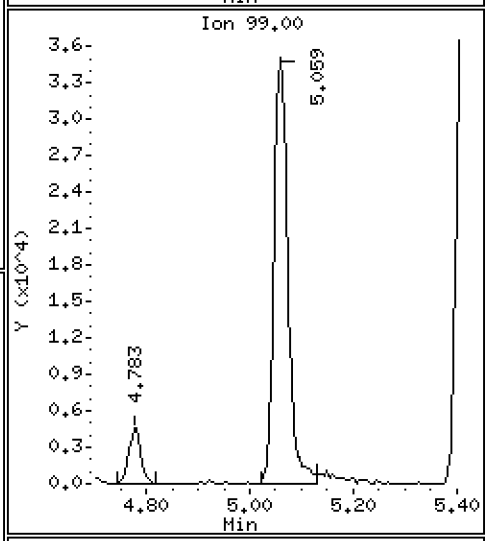


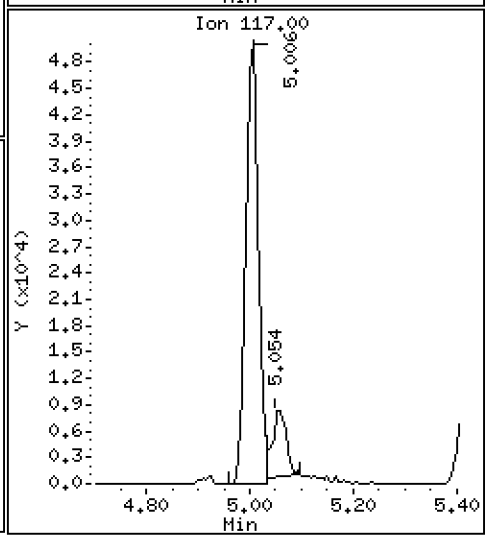












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

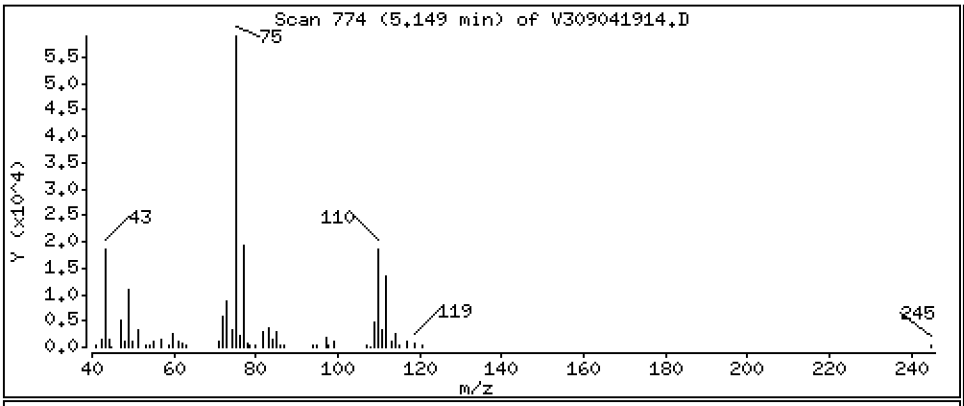
Operator: PKC

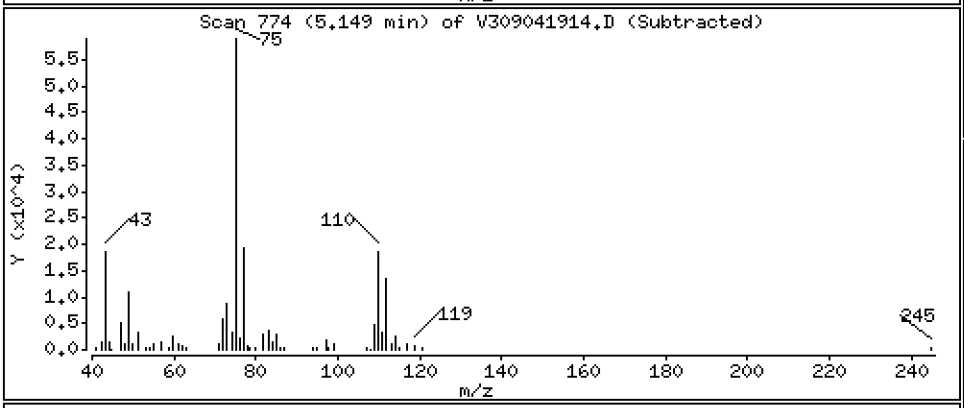
Column phase: RTXVMS

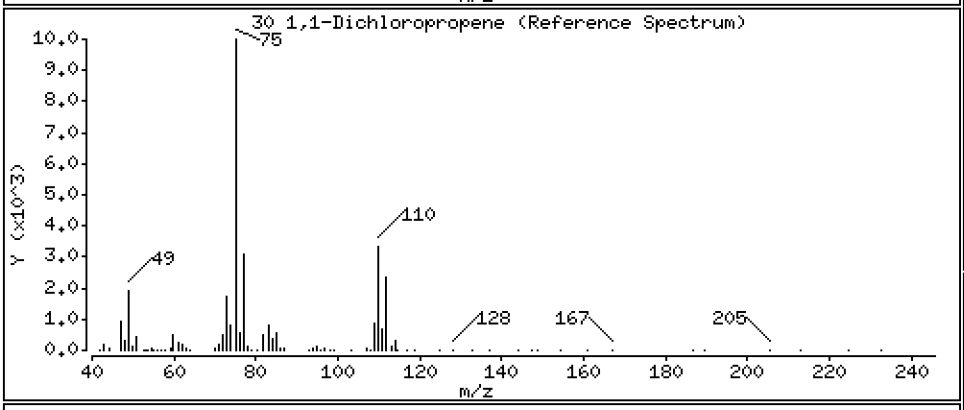
Column diameter: 0.18

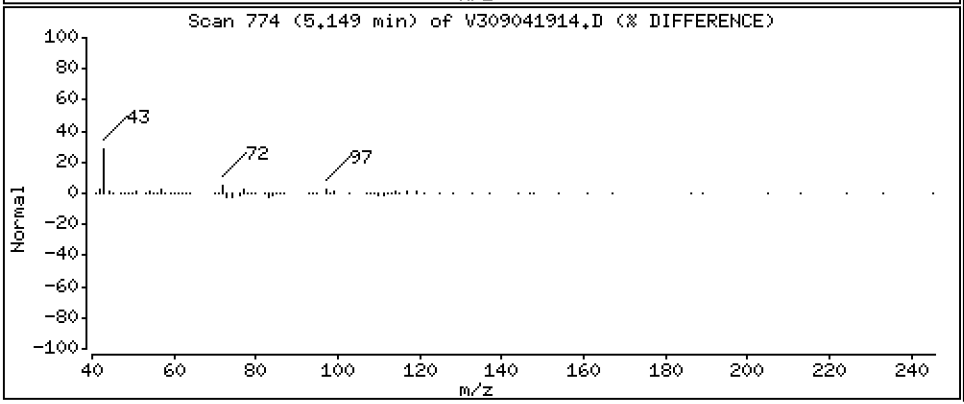
30 1,1-Dichloropropene

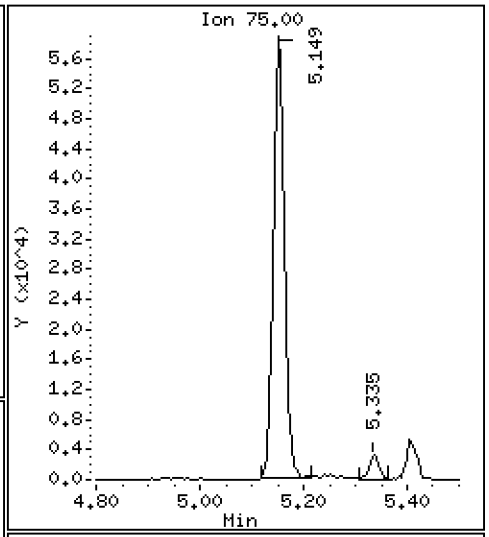
Concentration: 9.277 ug/L

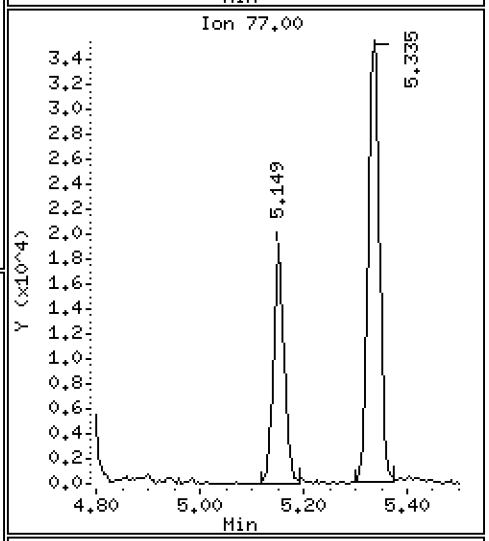


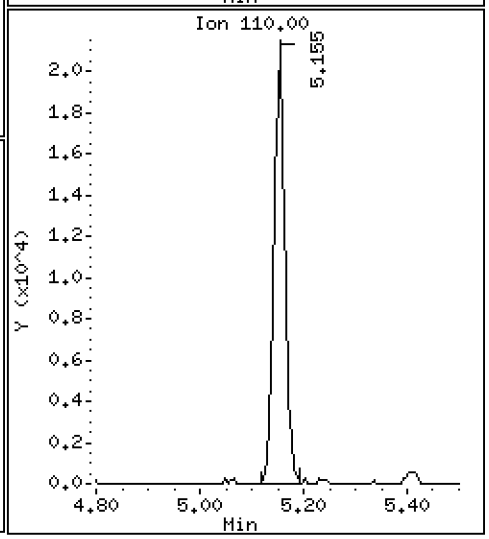












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

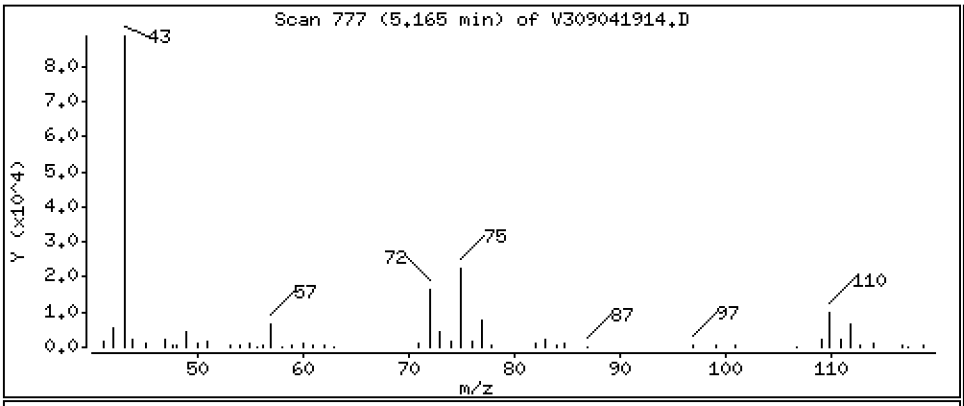
Operator: PKC

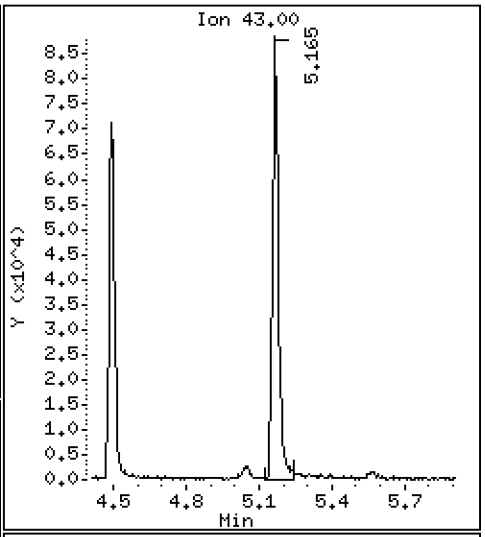
Column phase: RTXVMS

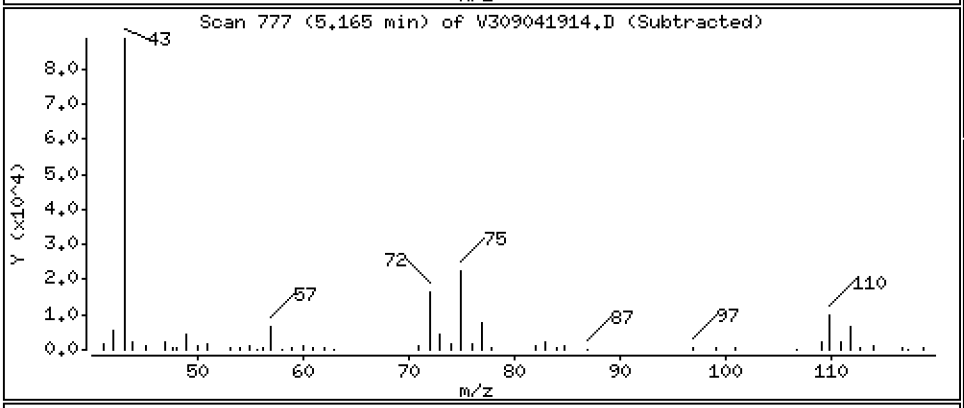
Column diameter: 0.18

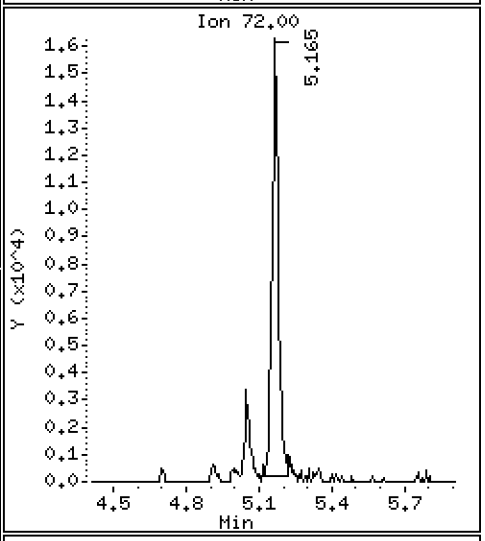
29 2-Butanone

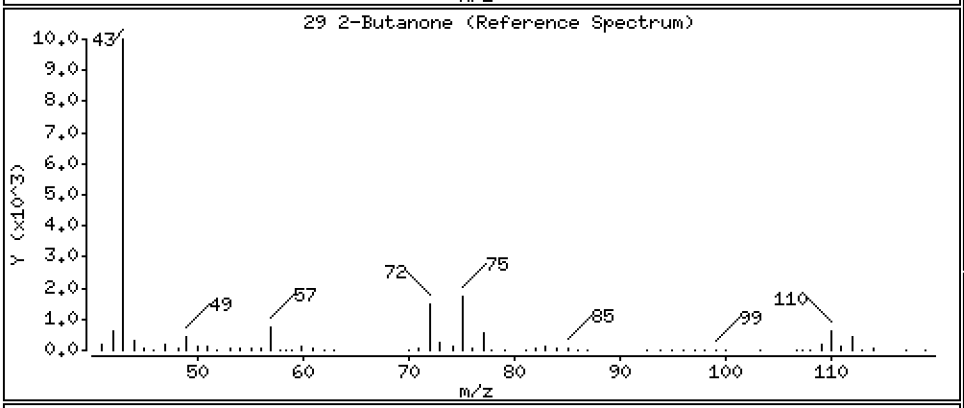
Concentration: 48.523 ug/L

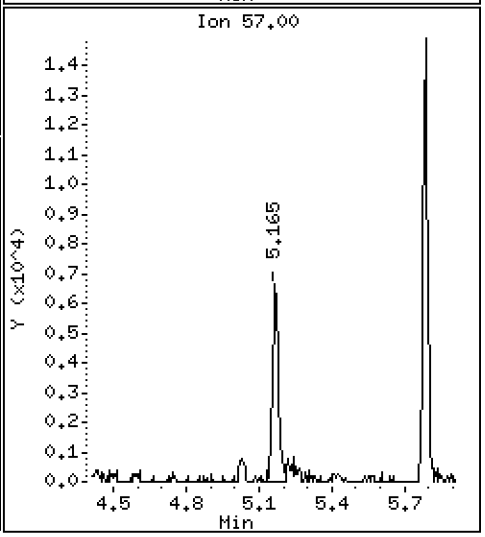


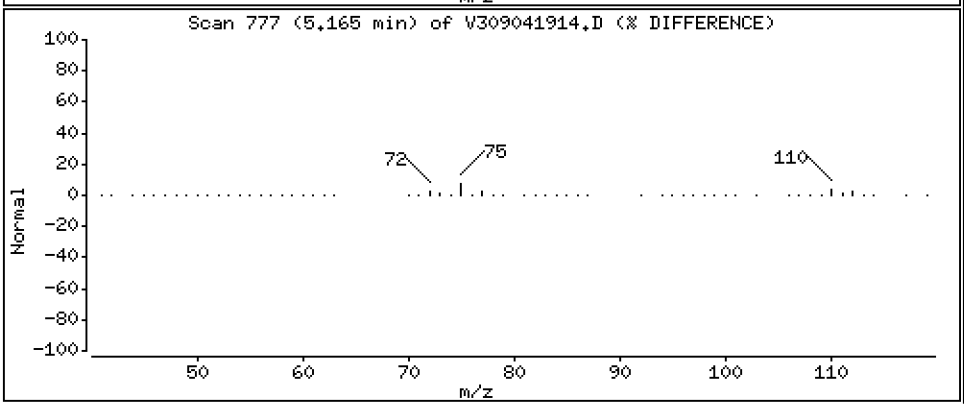












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

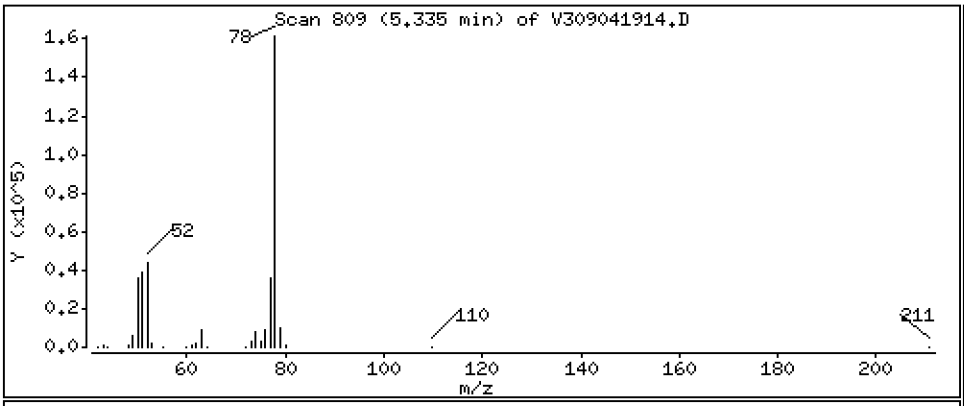
Operator: PKC

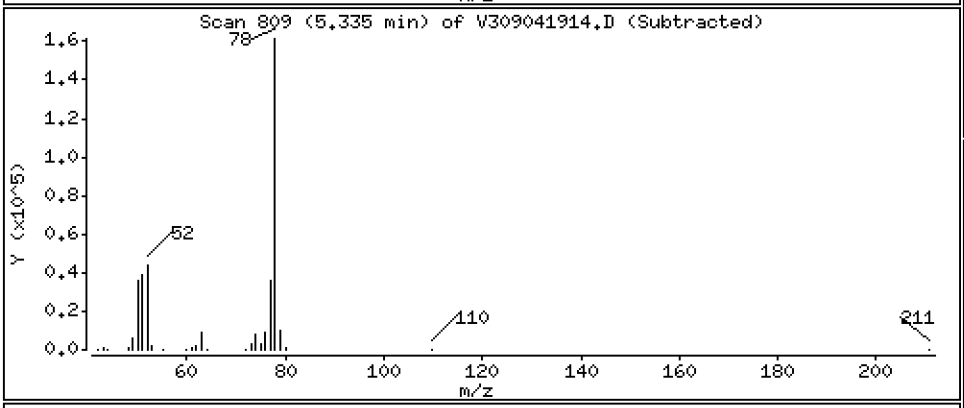
Column phase: RTXVMS

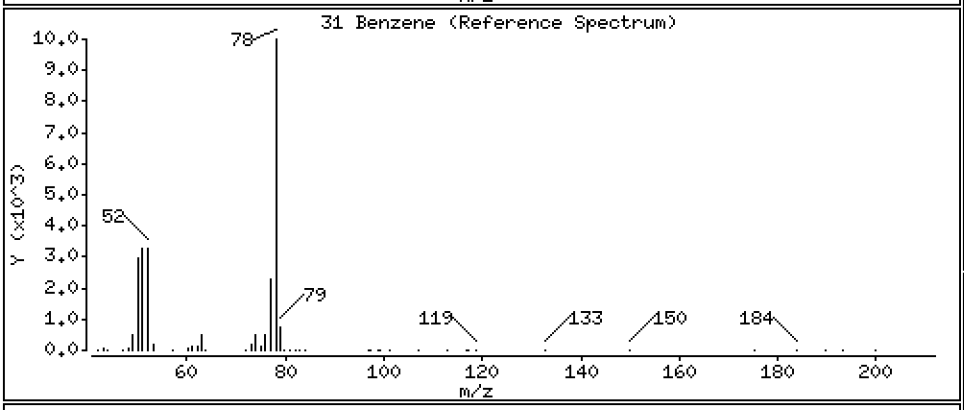
Column diameter: 0.18

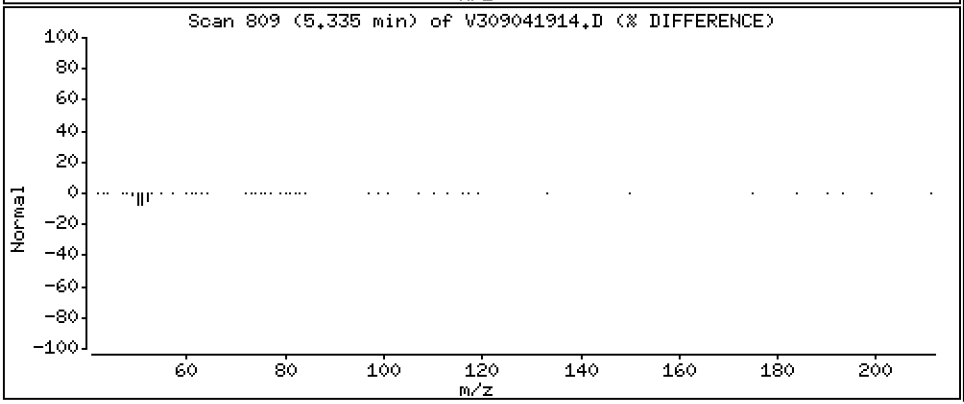
31 Benzene

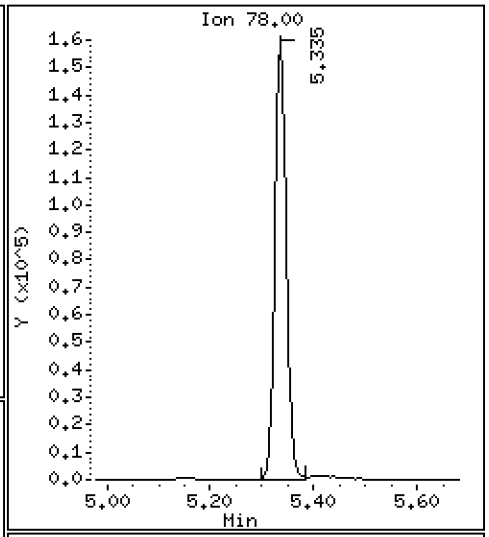
Concentration: 8.496 ug/L

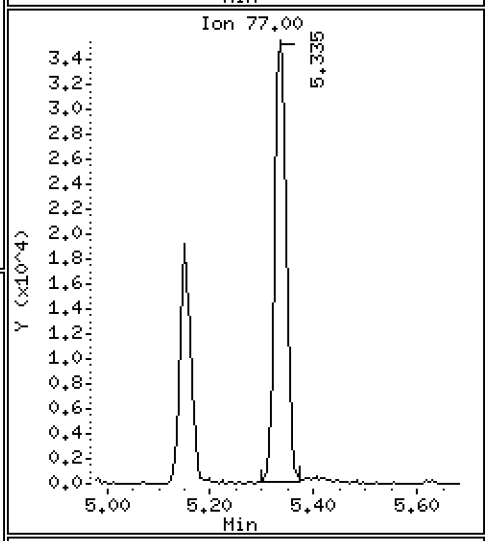


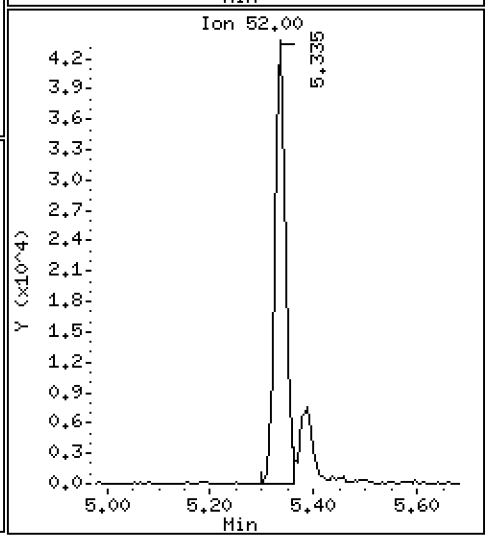












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

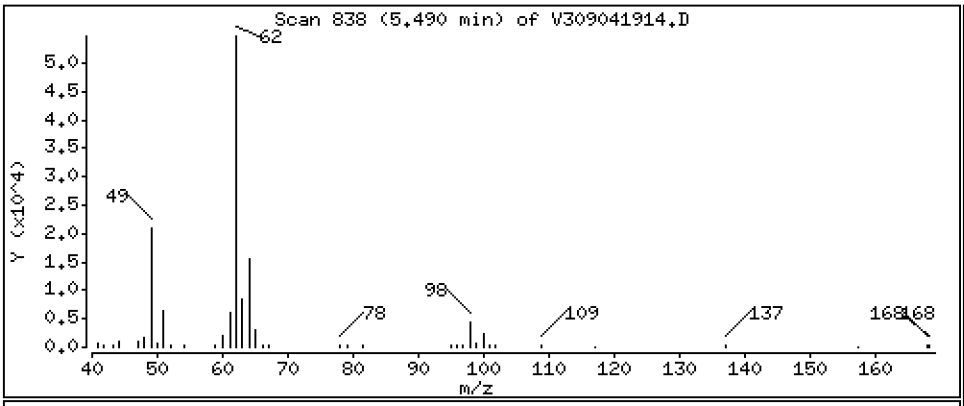
Operator: PKC

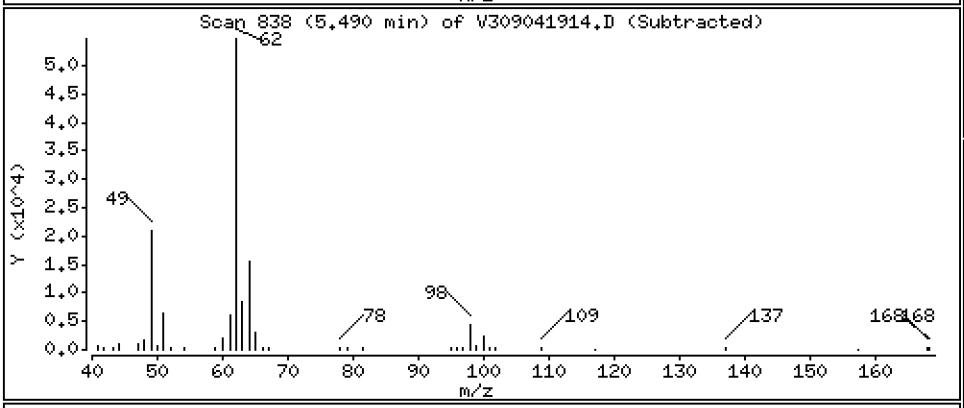
Column phase: RTXVMS

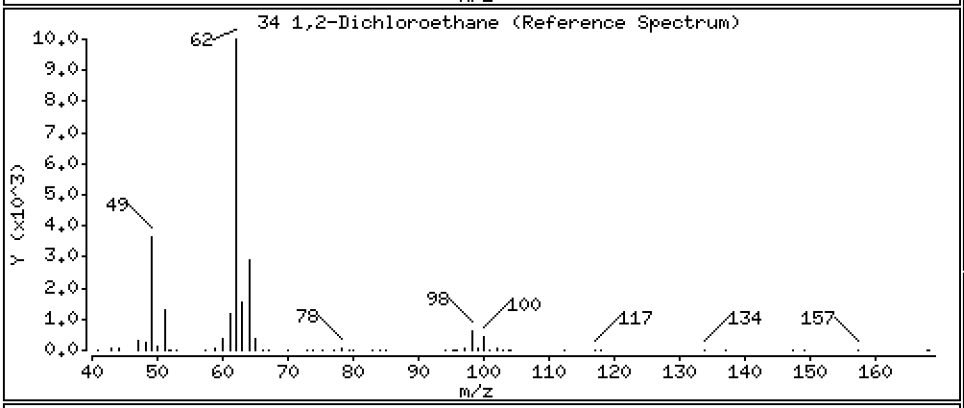
Column diameter: 0.18

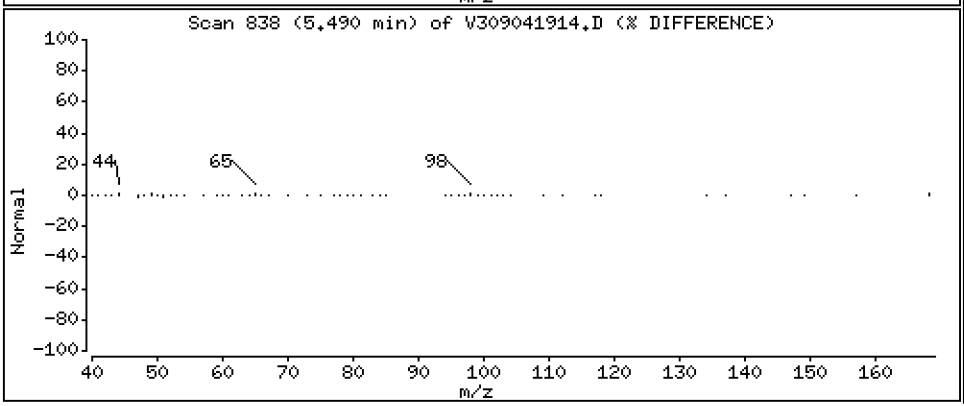
34 1,2-Dichloroethane

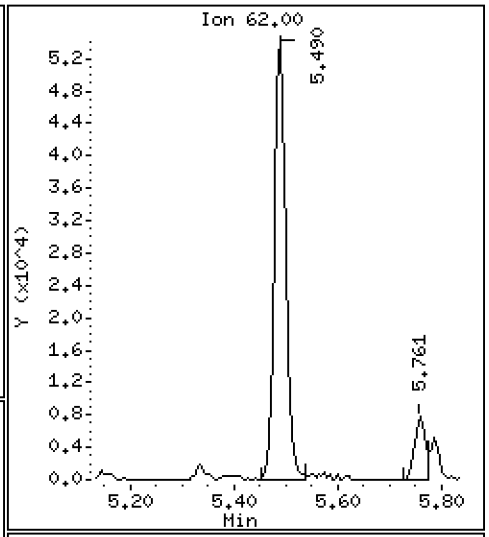
Concentration: 9.000 ug/L

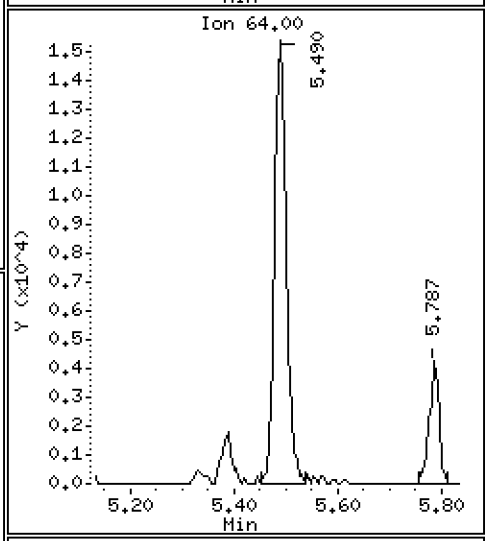


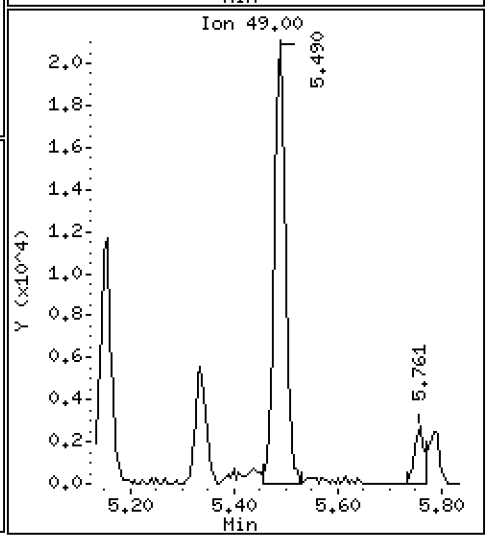












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

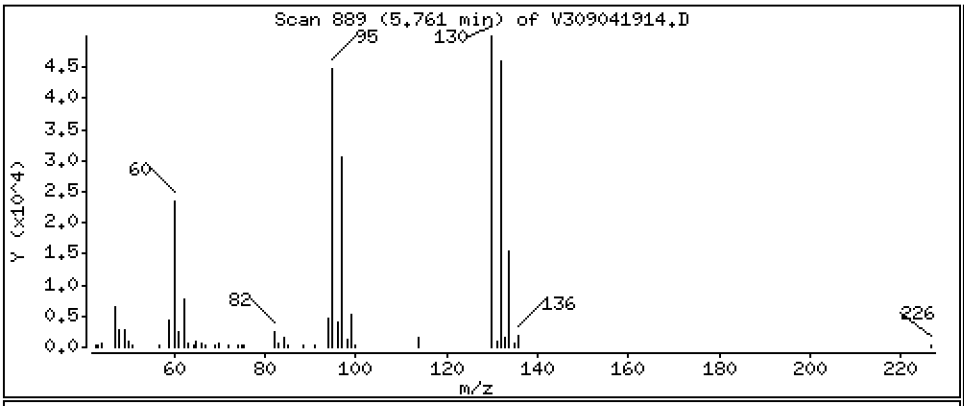
Operator: PKC

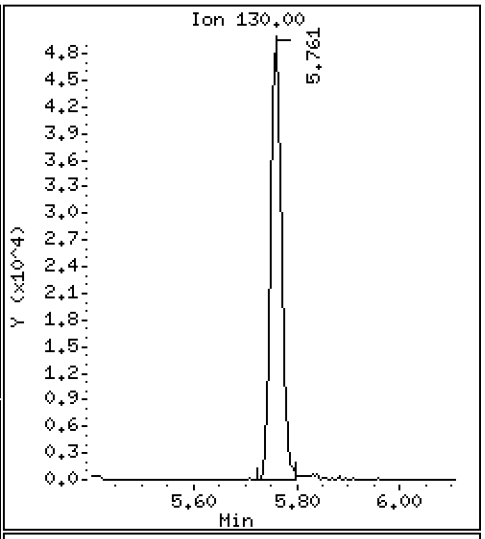
Column phase: RTXVMS

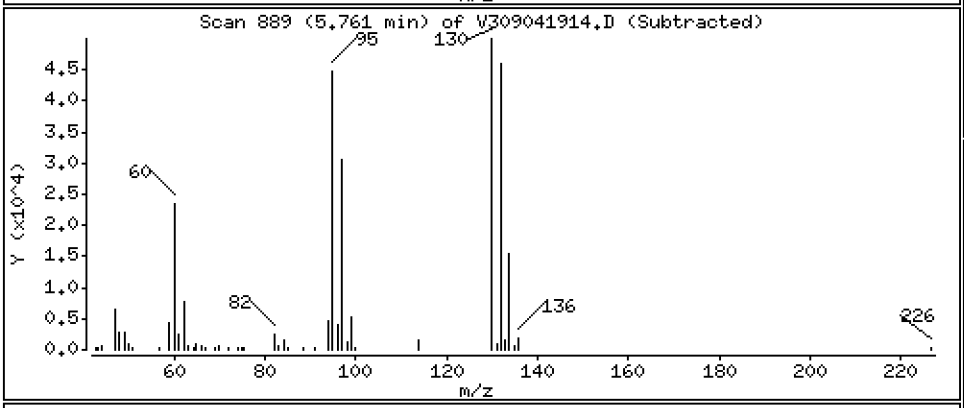
Column diameter: 0.18

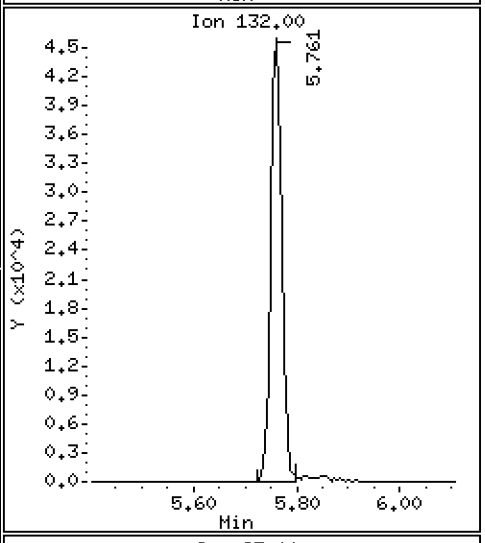
36 Trichloroethene

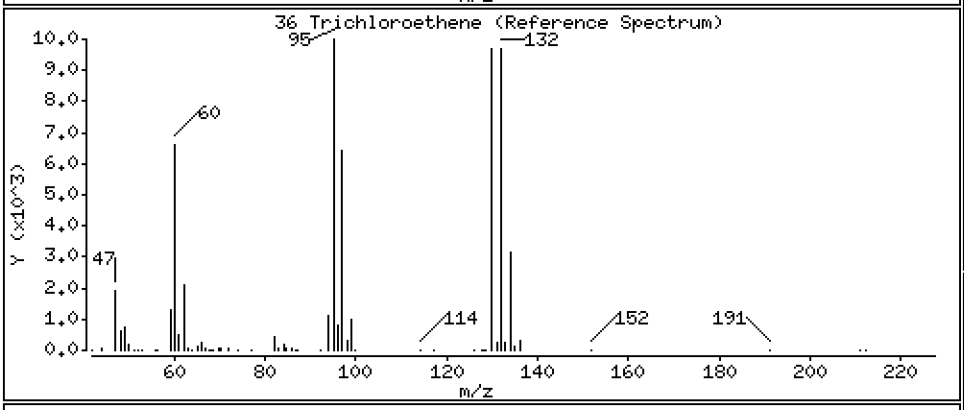
Concentration: 9.512 ug/L

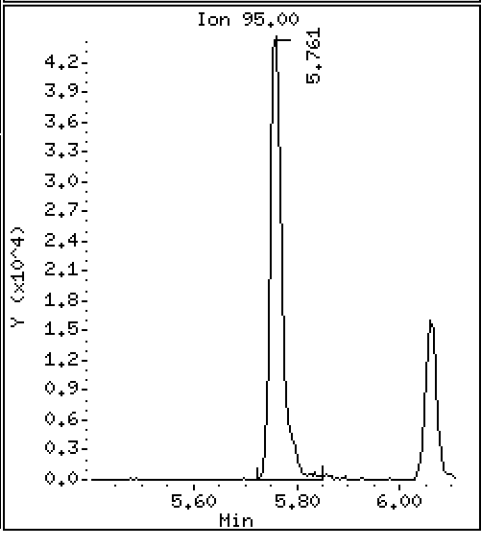


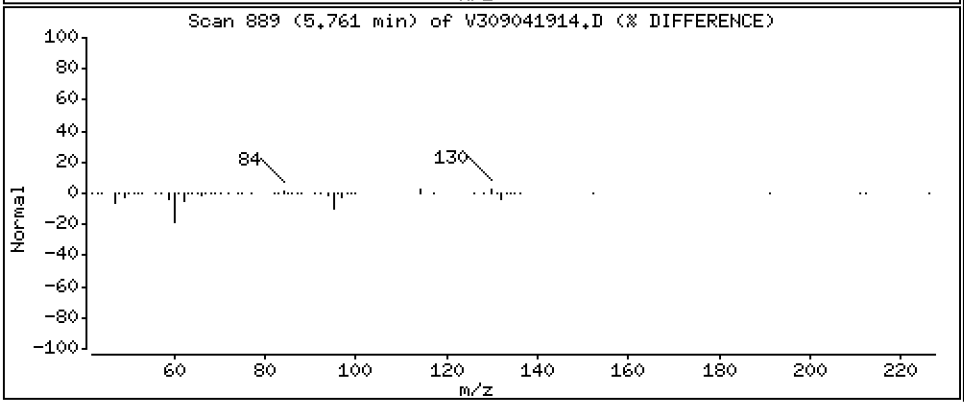












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

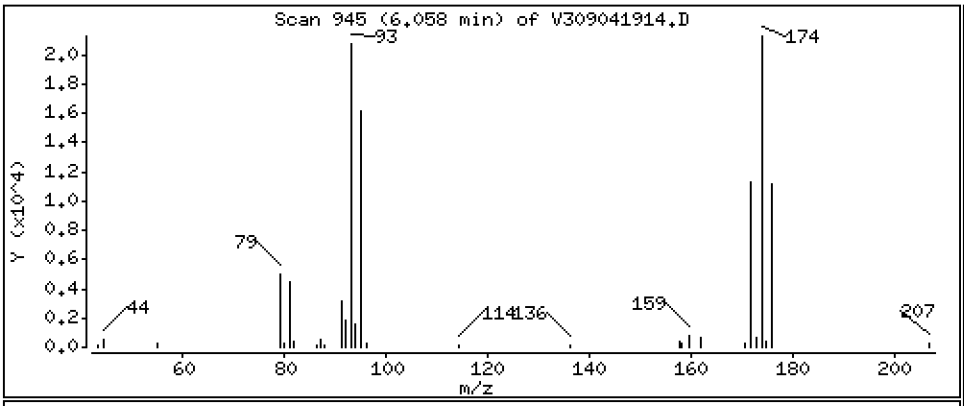
Operator: PKC

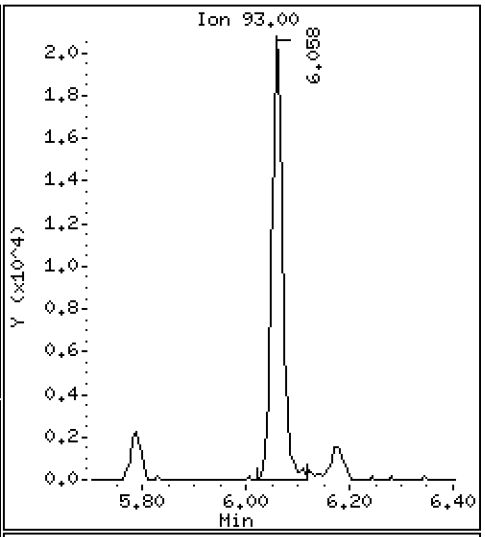
Column phase: RTXVMS

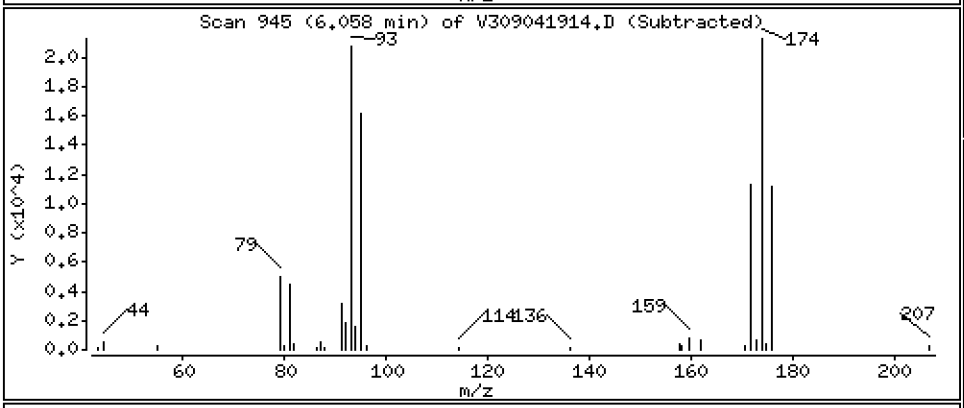
Column diameter: 0.18

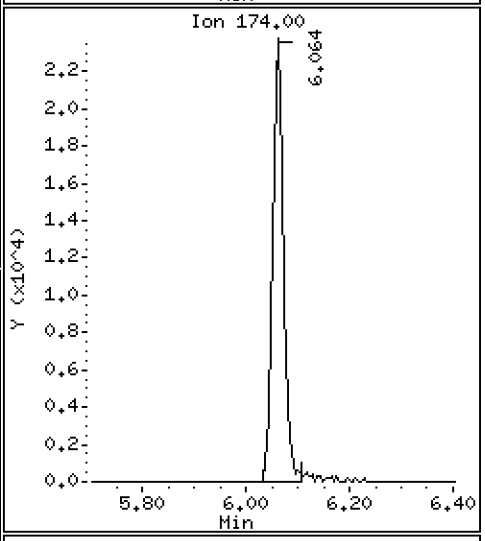
38 Dibromomethane

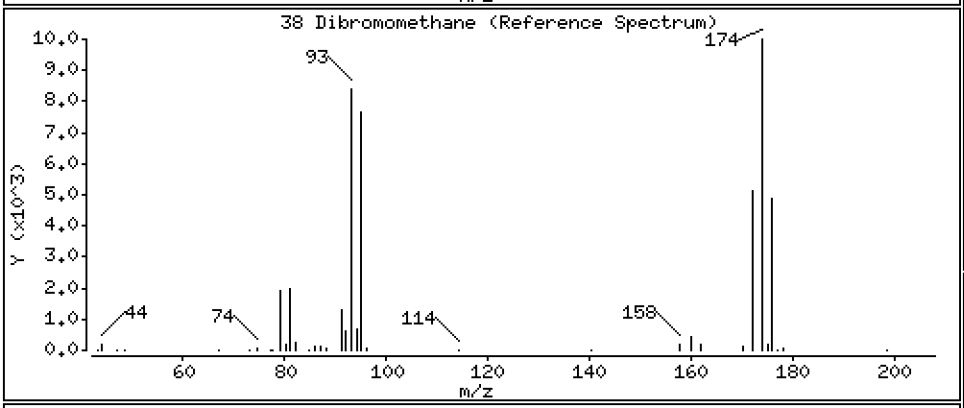
Concentration: 9.447 ug/L

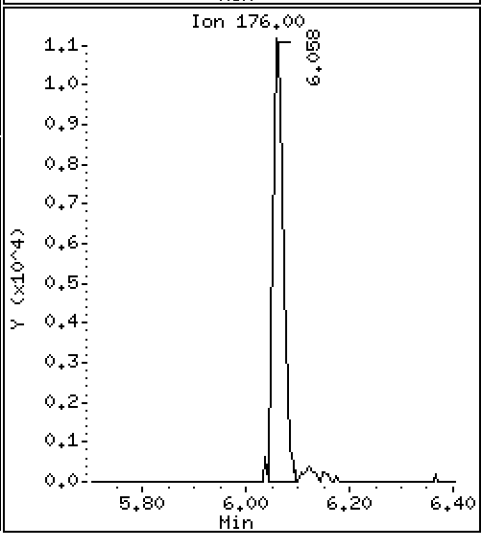


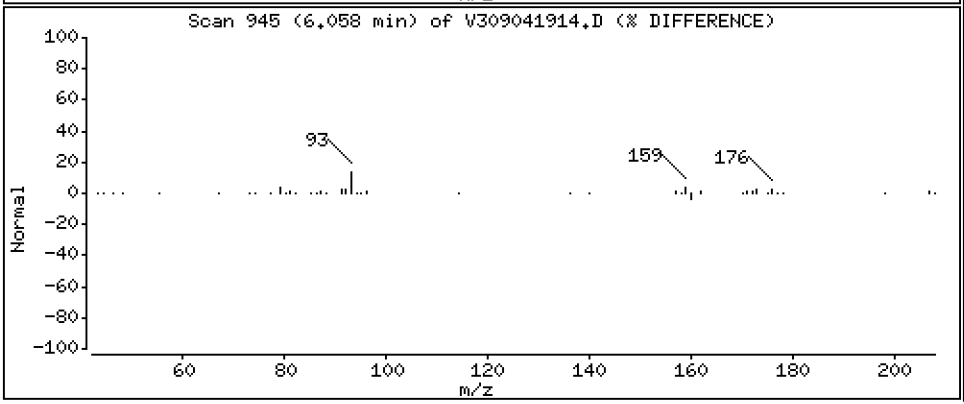












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

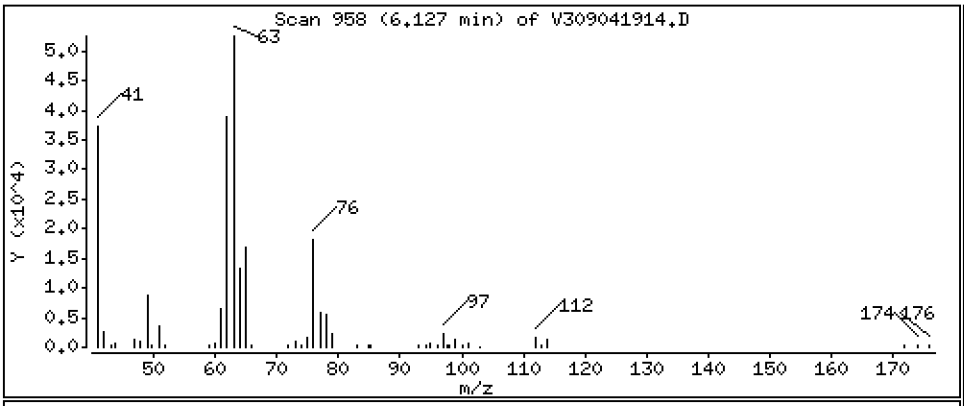
Operator: PKC

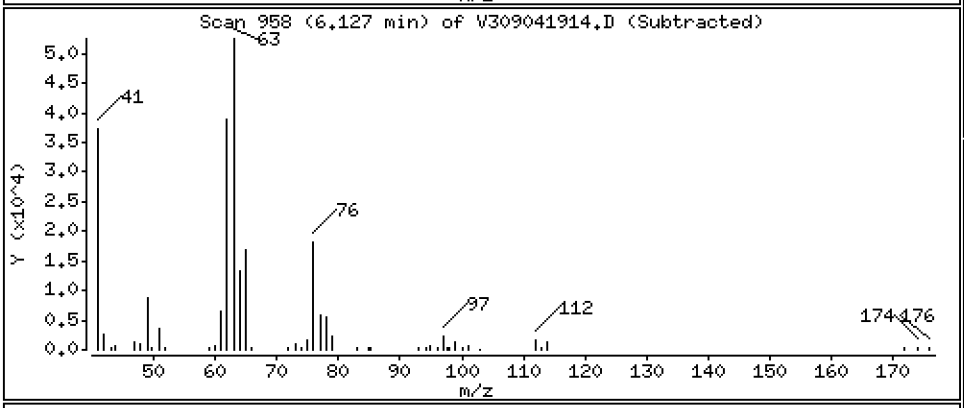
Column phase: RTXVMS

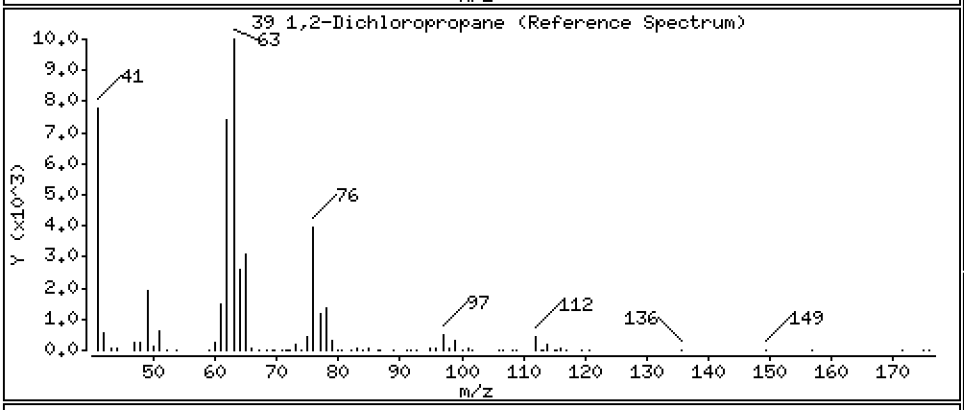
Column diameter: 0.18

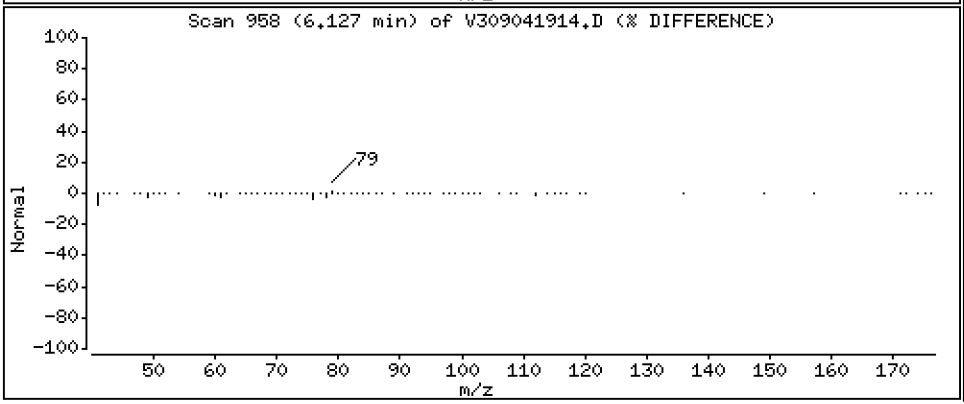
39 1,2-Dichloropropane

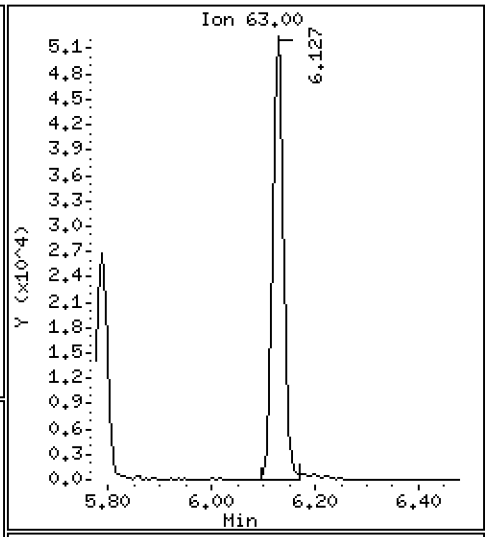
Concentration: 9.112 ug/L

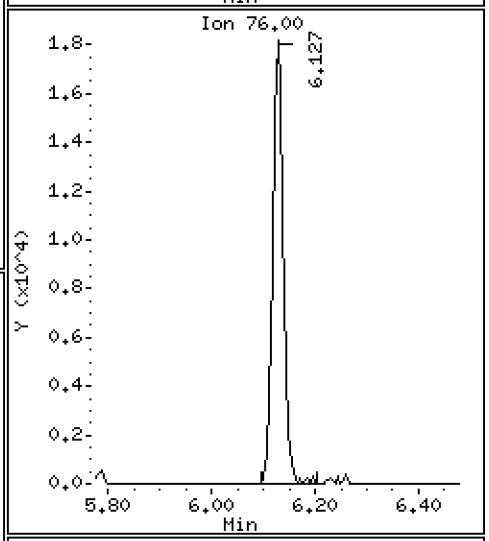


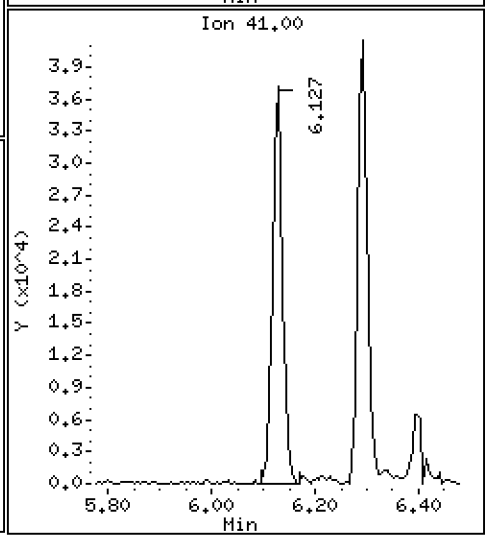












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

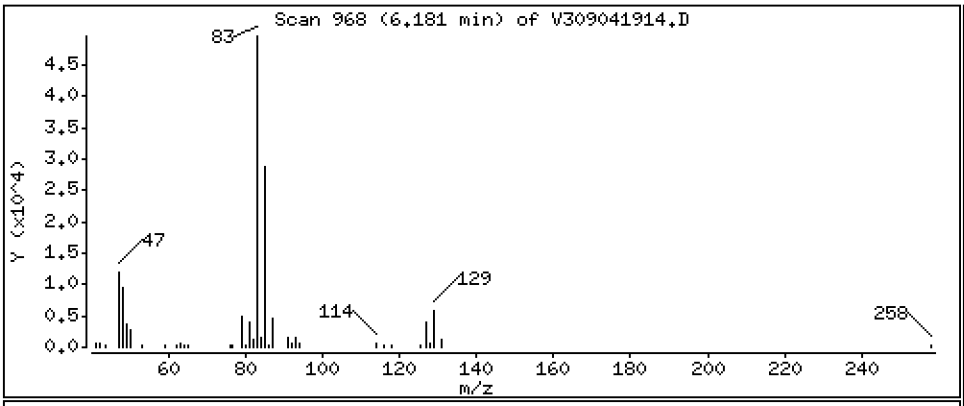
Operator: PKC

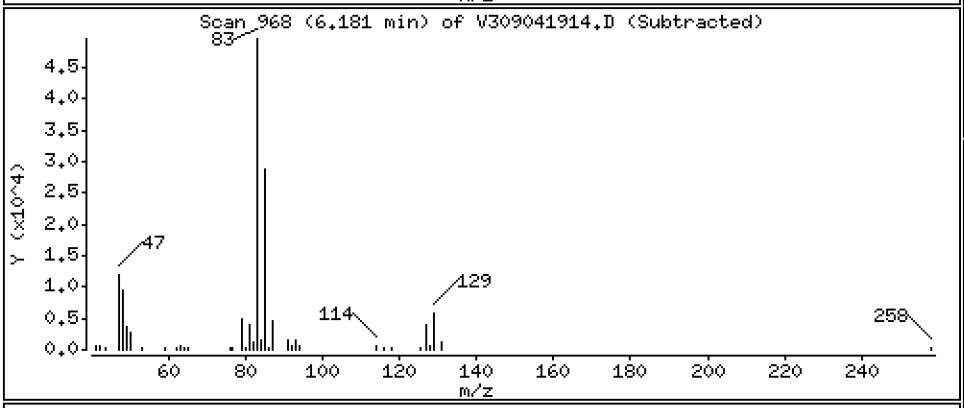
Column phase: RTXVMS

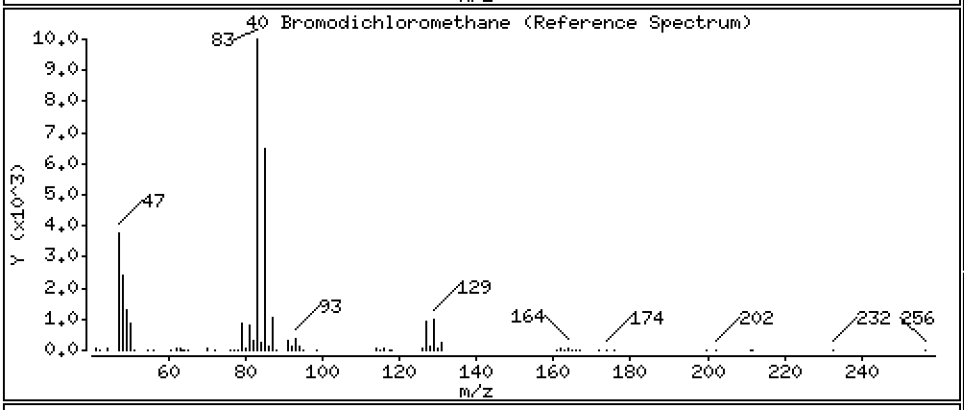
Column diameter: 0.18

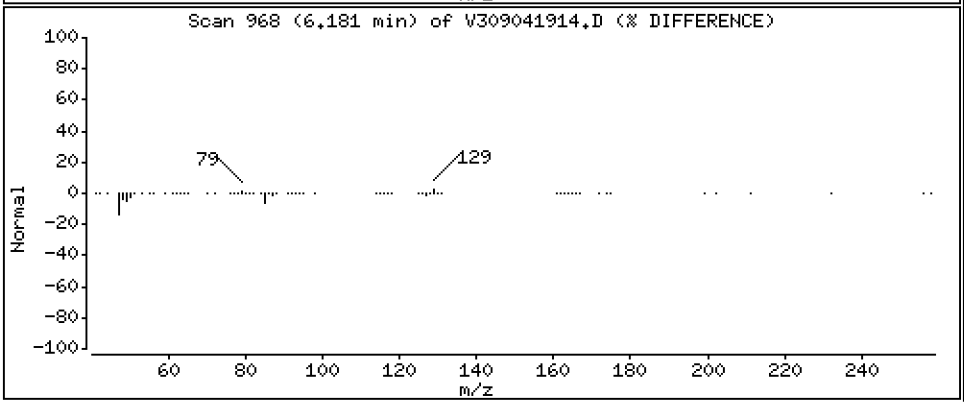
40 Bromodichloromethane

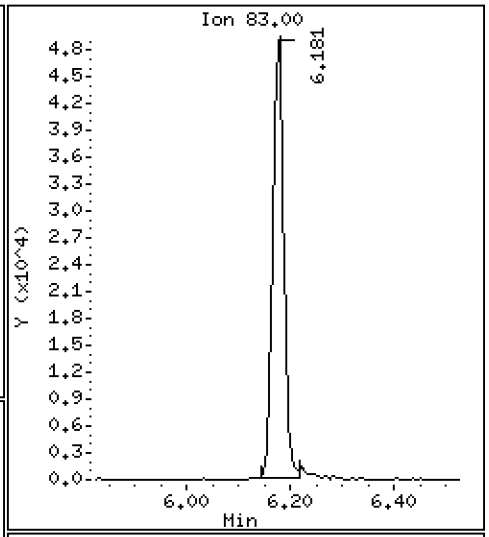
Concentration: 8.742 ug/L

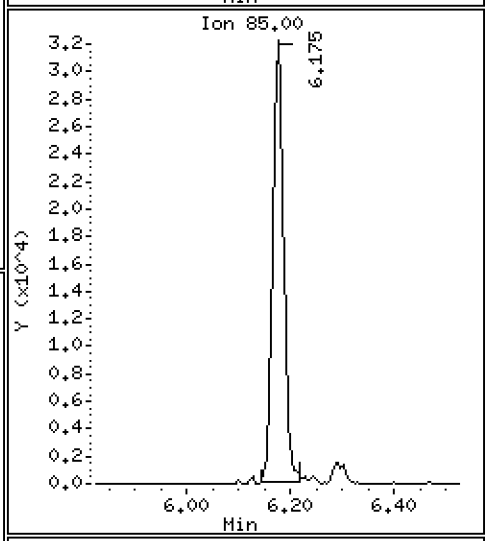


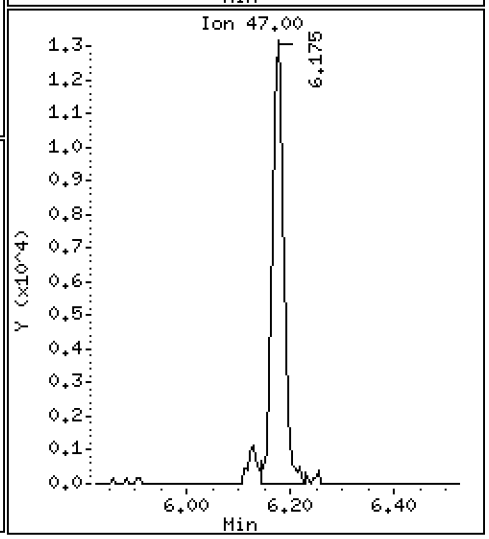












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

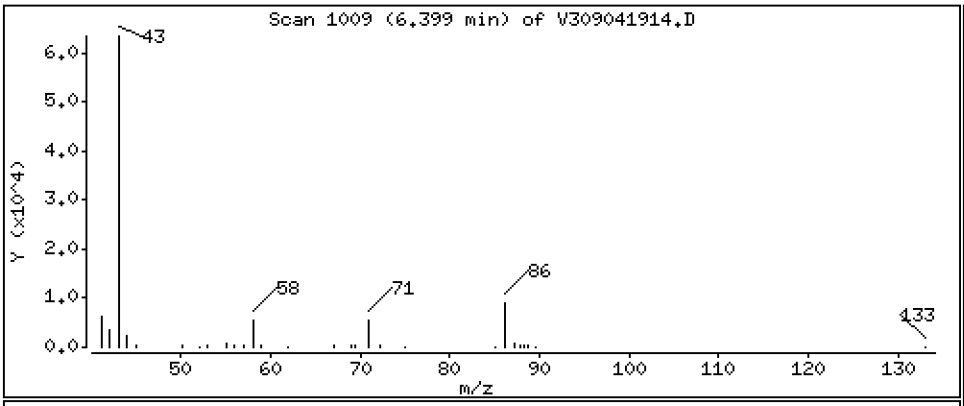
Operator: PKC

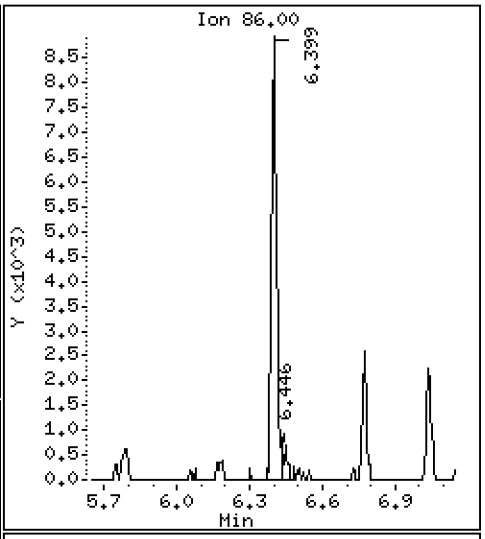
Column phase: RTXVMS

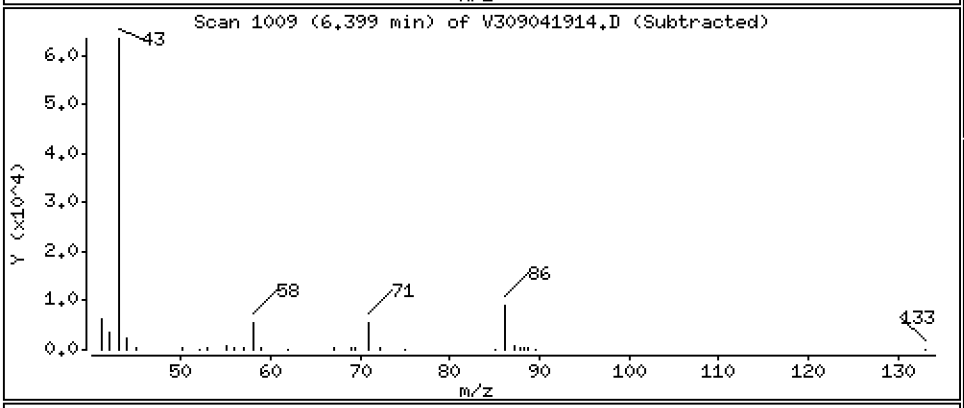
Column diameter: 0.18

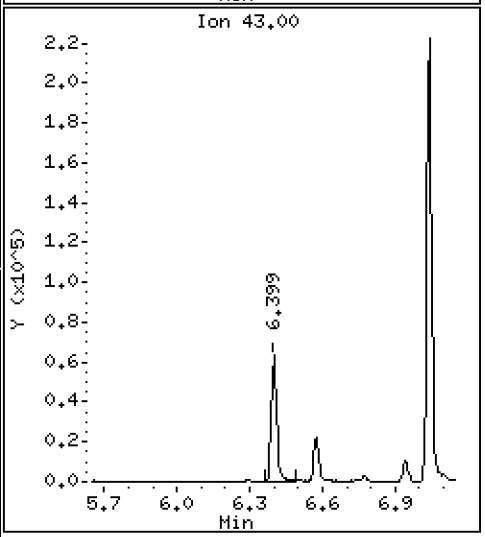
173 2-Pentanone

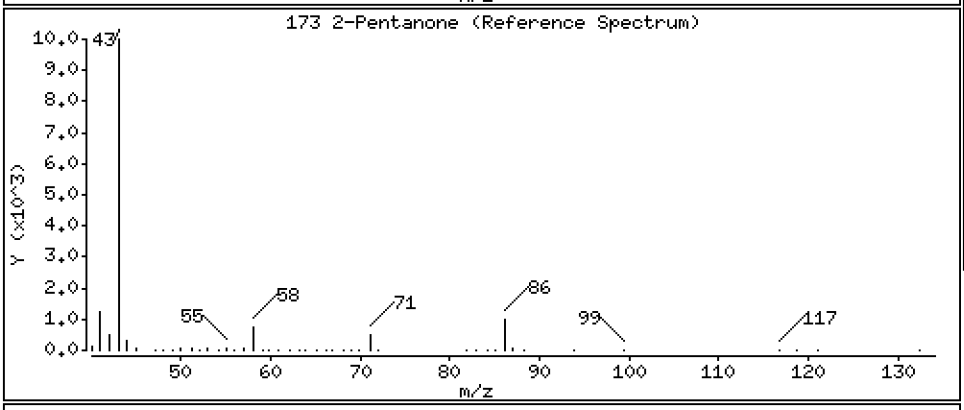
Concentration: 19.904 ug/L

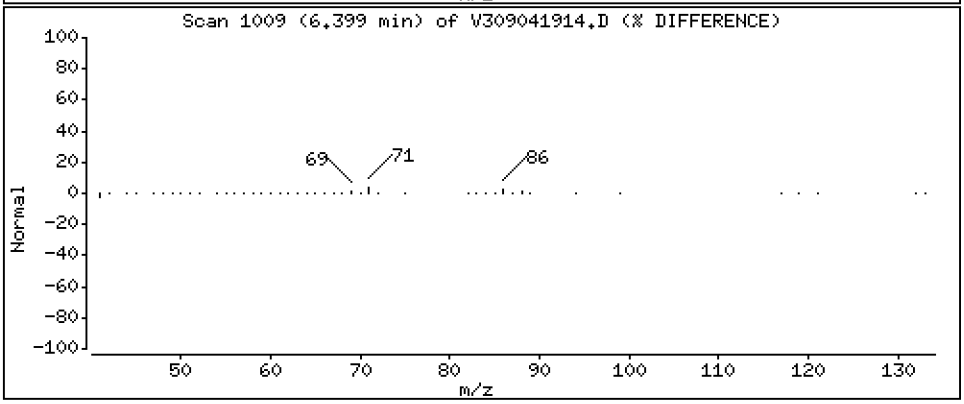












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

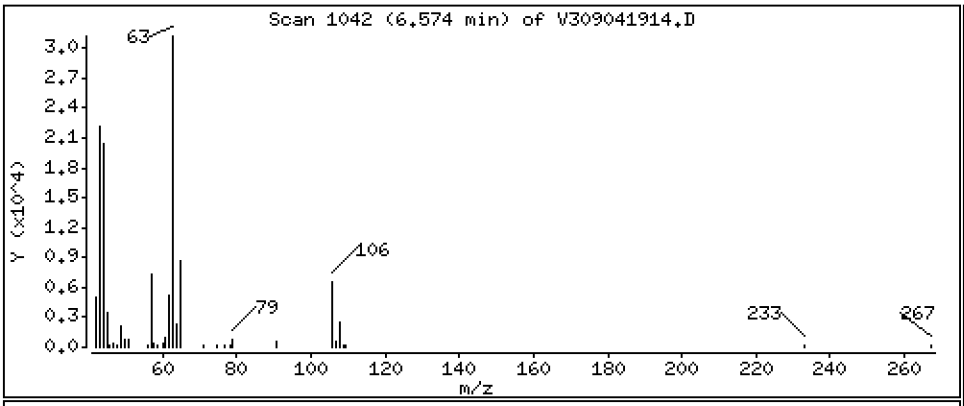
Operator: PKC

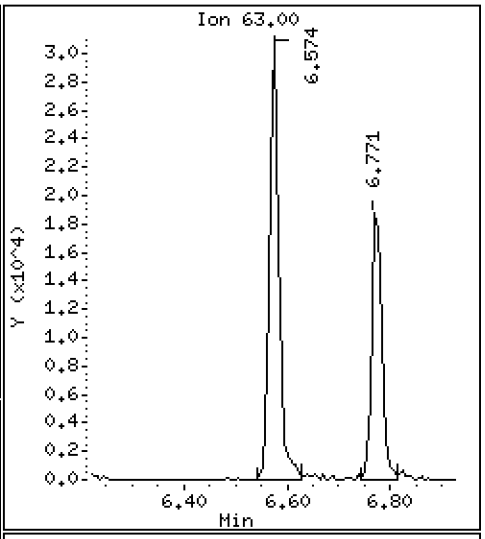
Column phase: RTXVMS

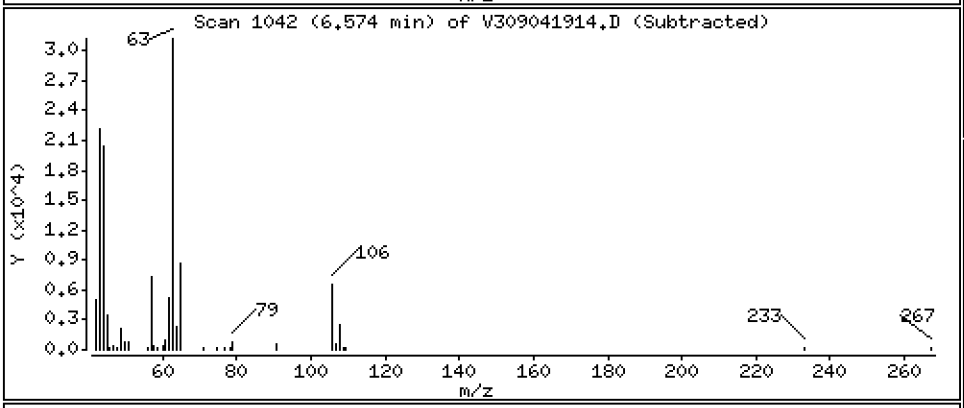
Column diameter: 0.18

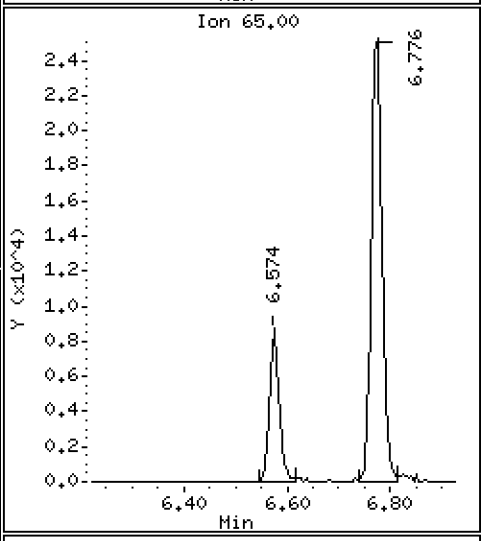
41 2-Chloroethyl Vinyl Ether

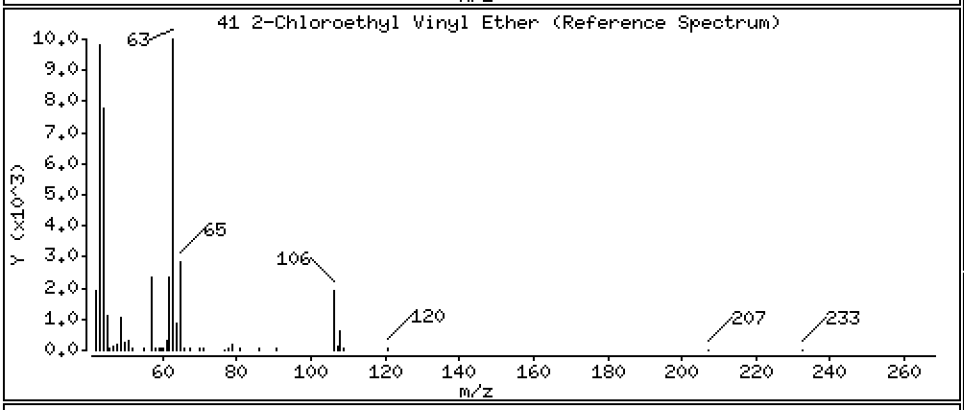
Concentration: 11.089 ug/L

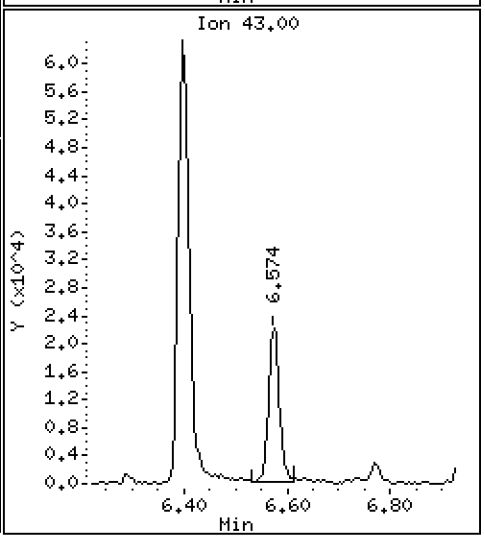


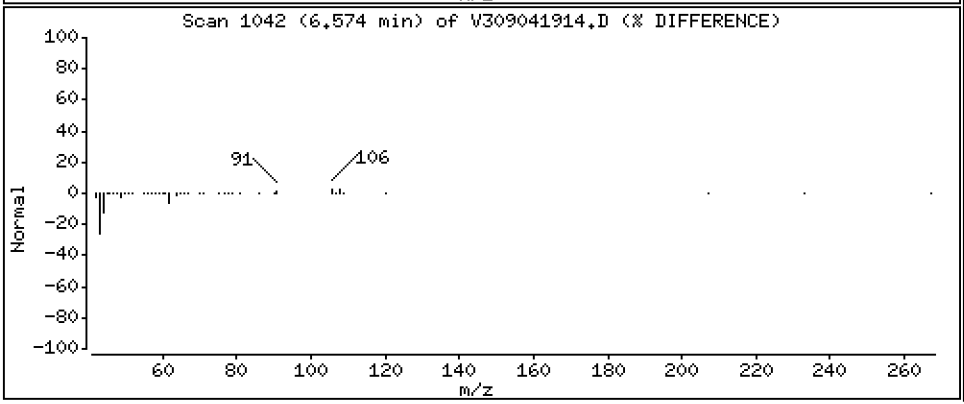












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

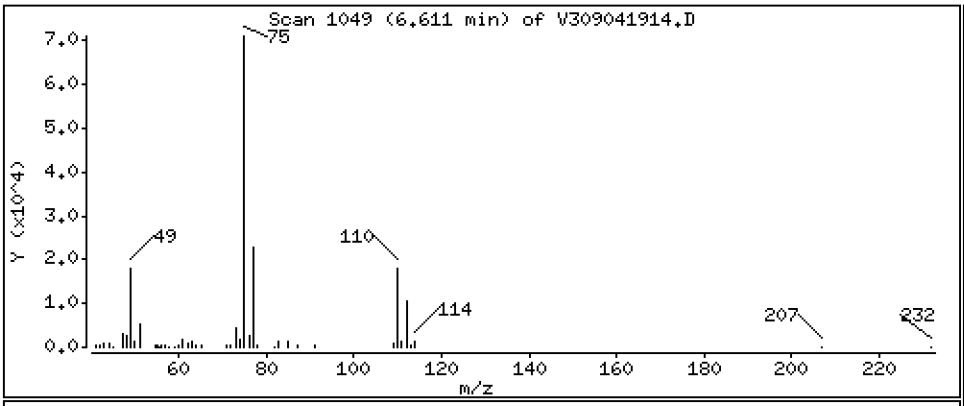
Operator: PKC

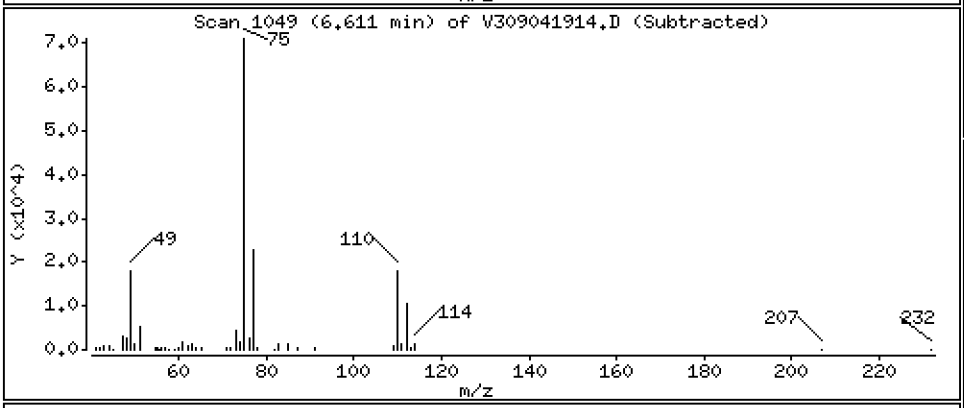
Column phase: RTXVMS

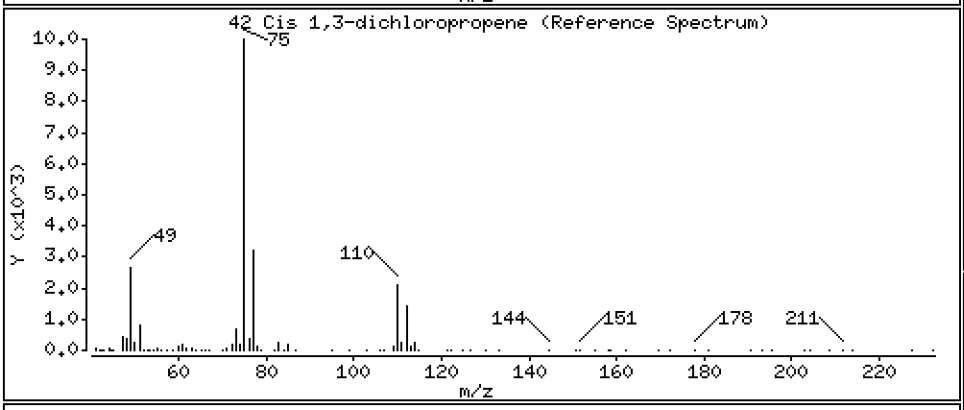
Column diameter: 0.18

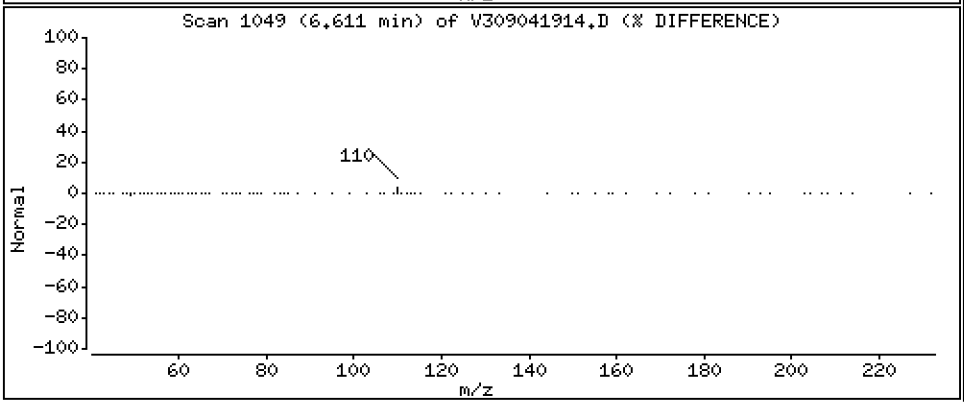
42 Cis 1,3-dichloropropene

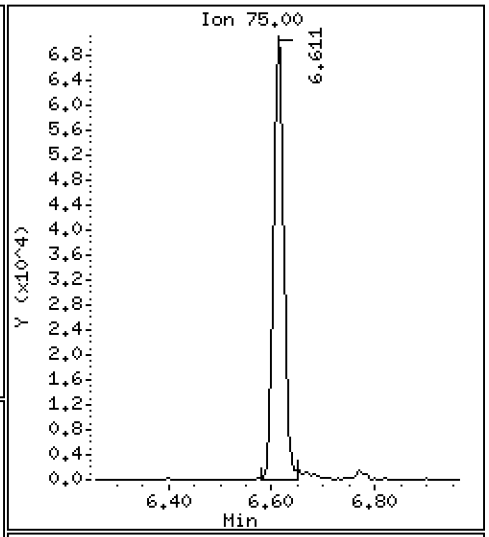
Concentration: 9.210 ug/L

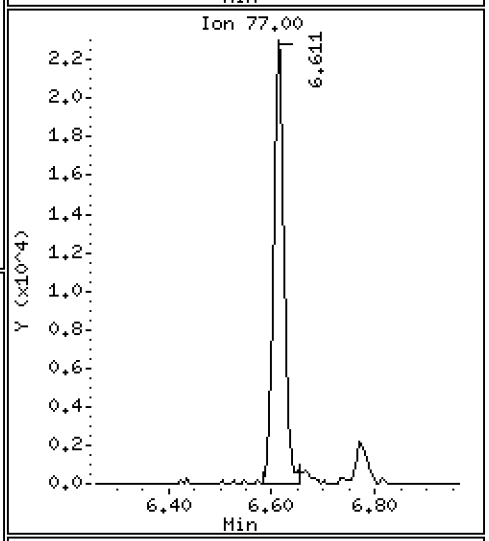


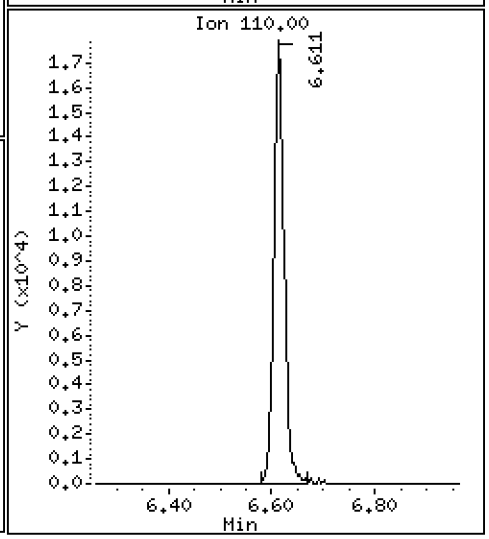












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

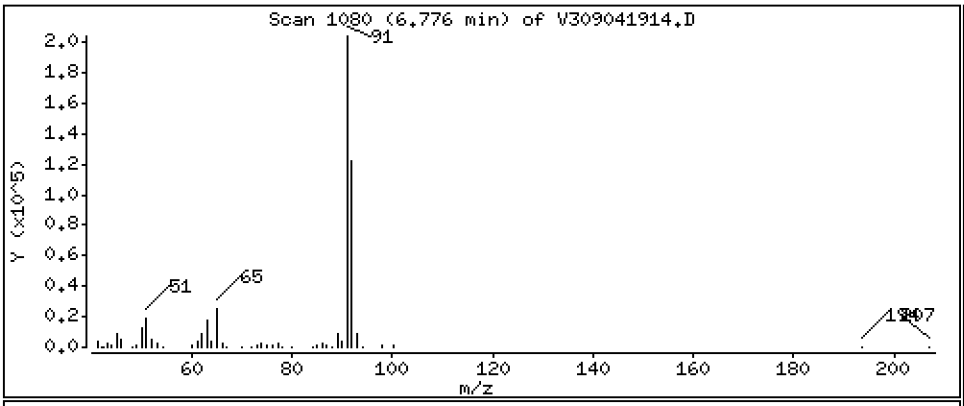
Operator: PKC

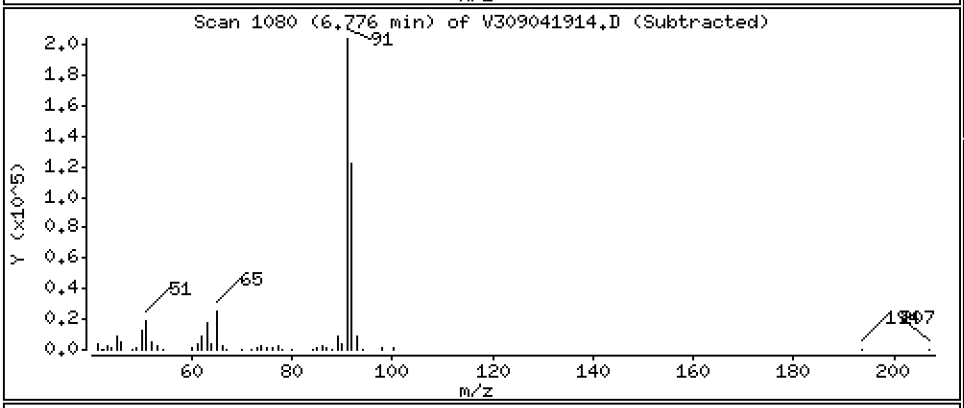
Column phase: RTXVMS

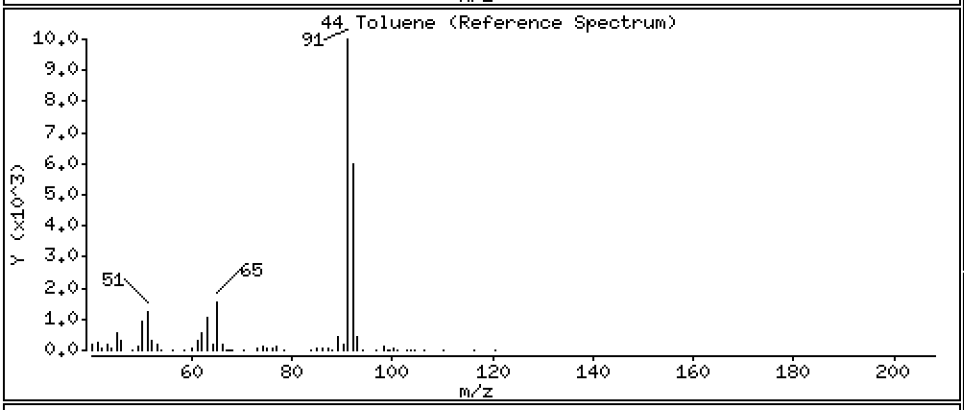
Column diameter: 0.18

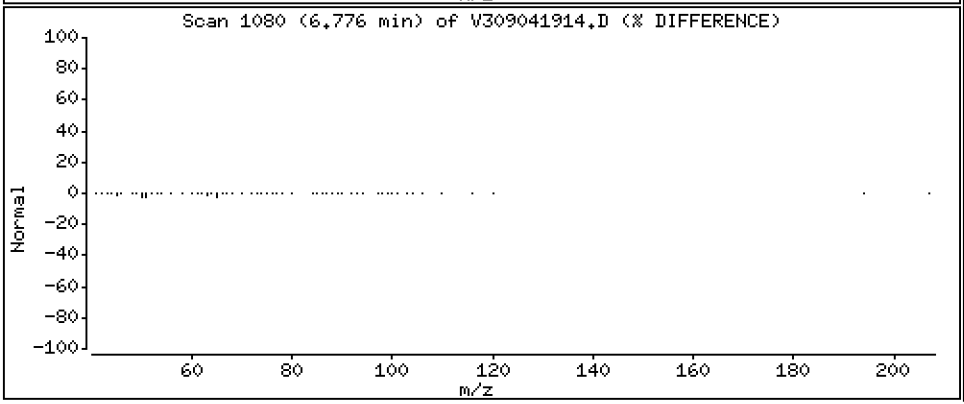
44 Toluene

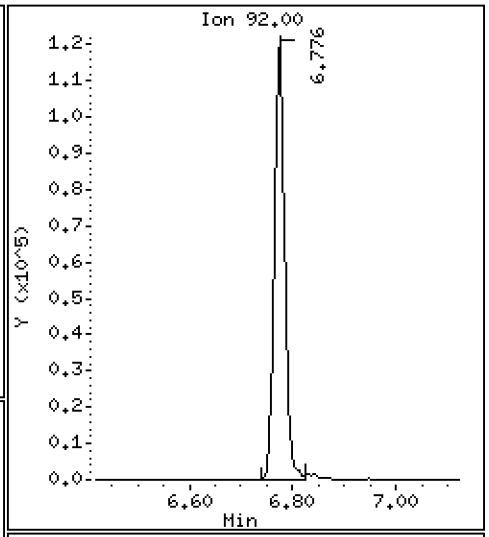
Concentration: 9.236 ug/L

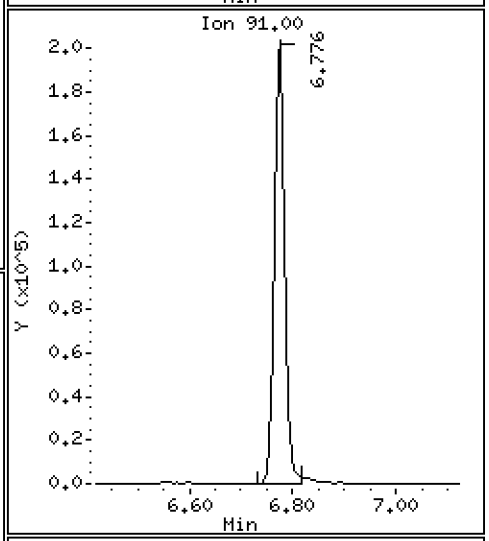


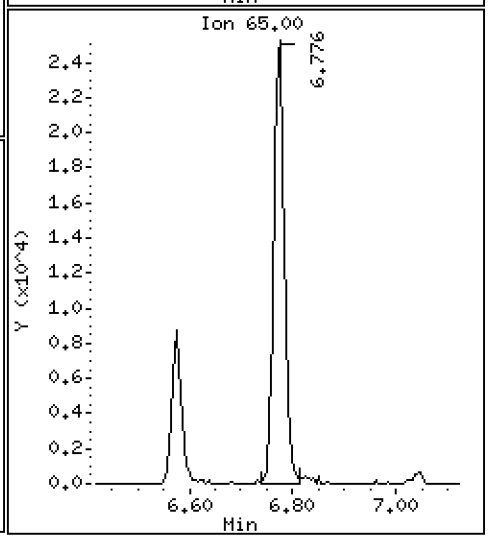












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

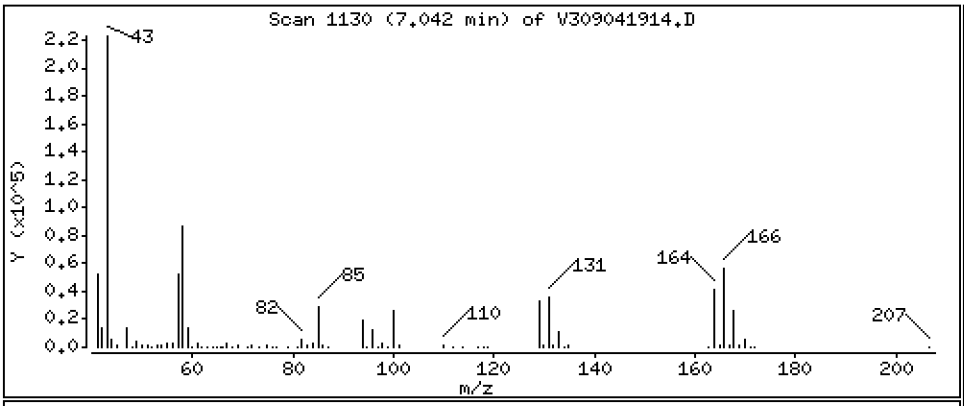
Operator: PKC

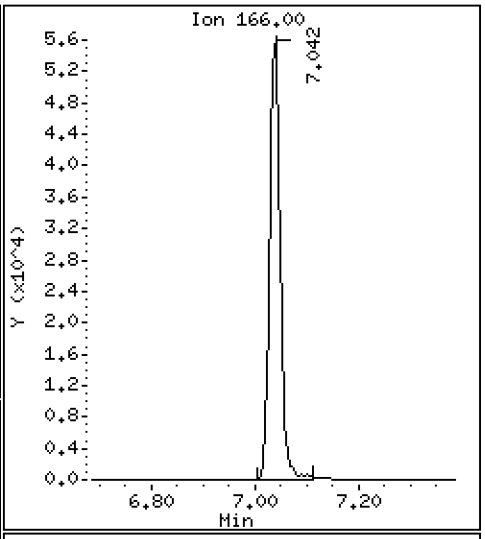
Column phase: RTXVMS

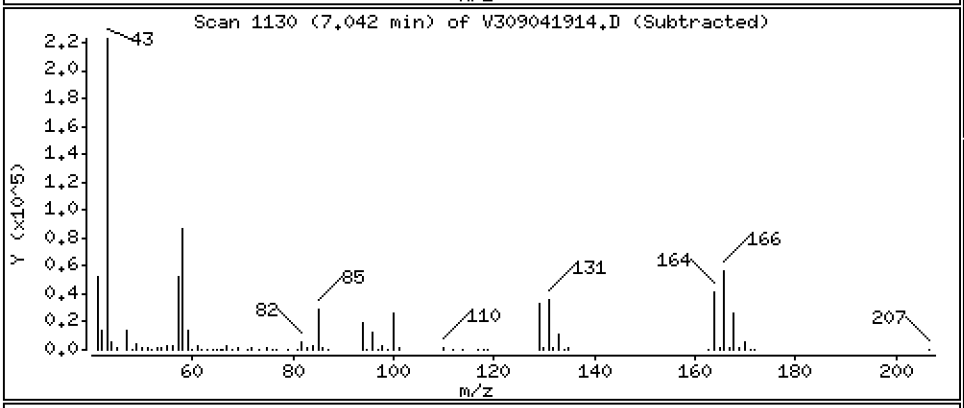
Column diameter: 0.18

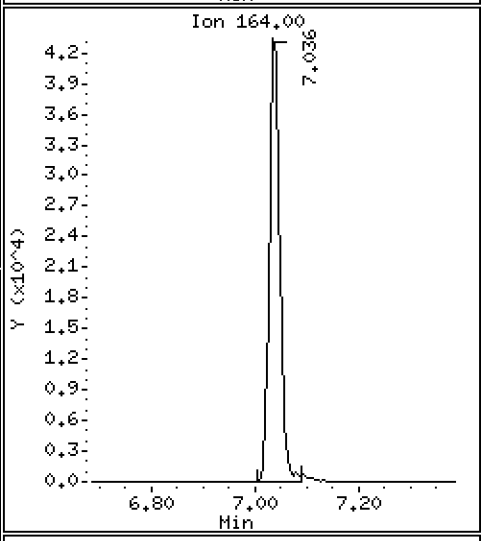
46 Tetrachloroethene

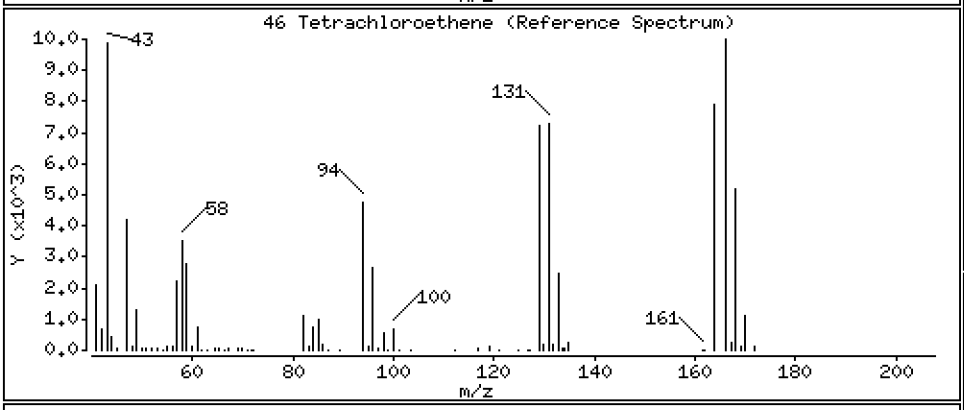
Concentration: 9.116 ug/L

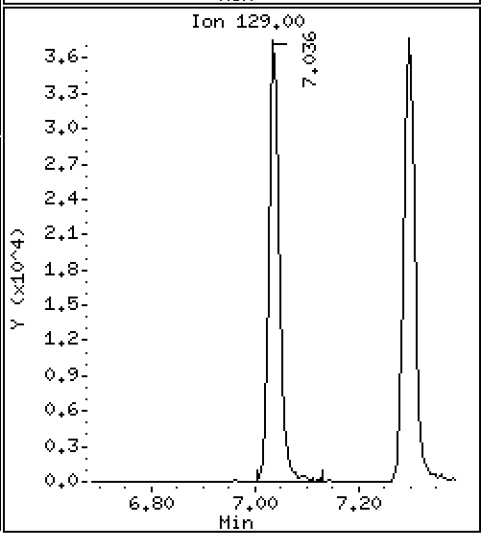


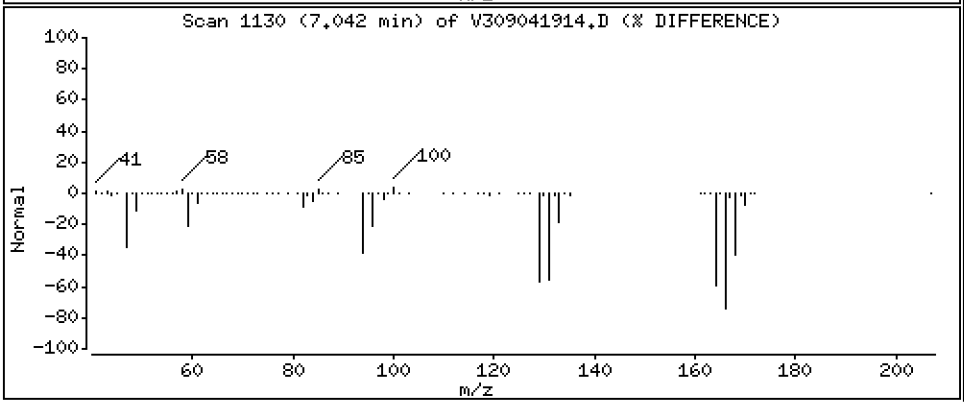












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

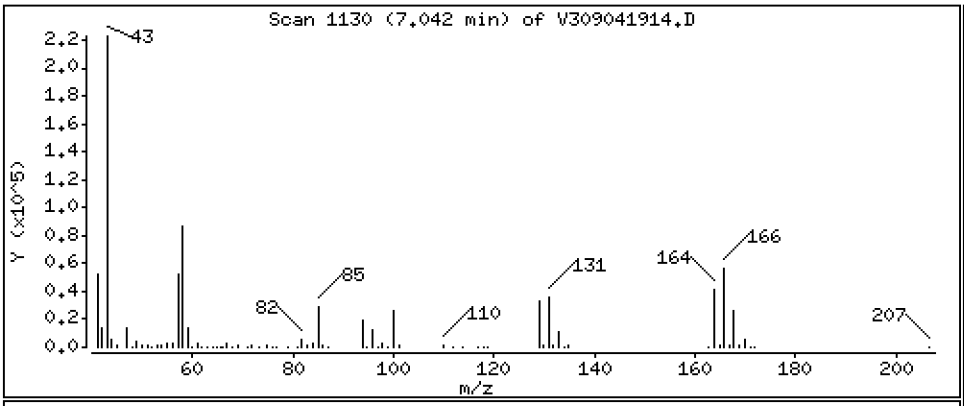
Operator: PKC

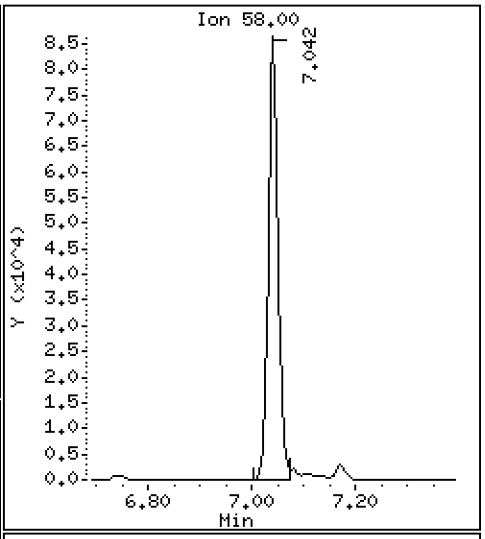
Column phase: RTXVMS

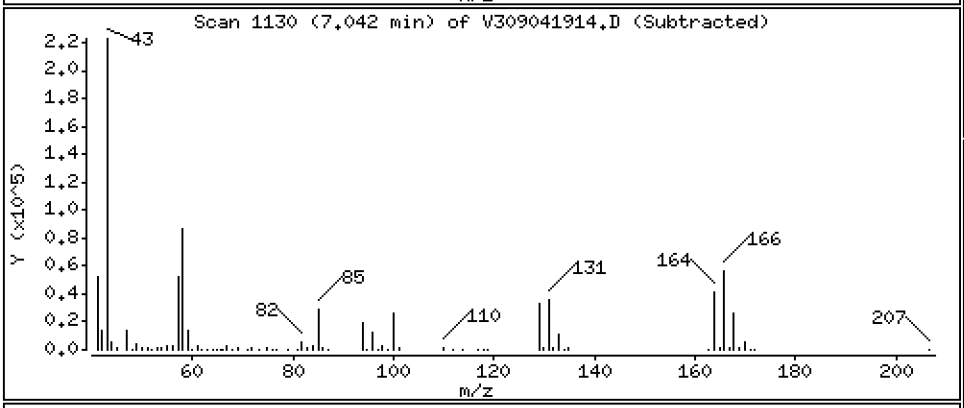
Column diameter: 0.18

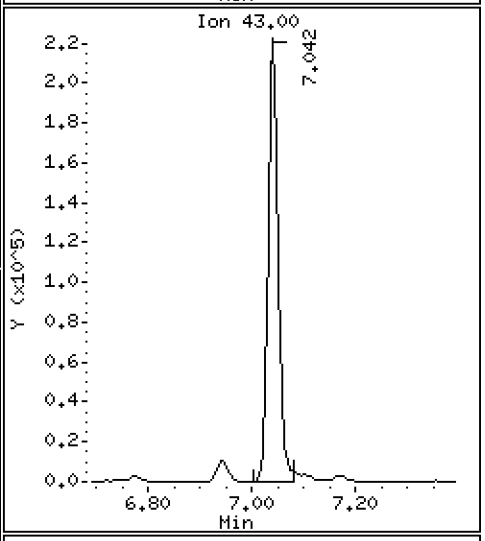
45 4-Methyl-2-Pentanone

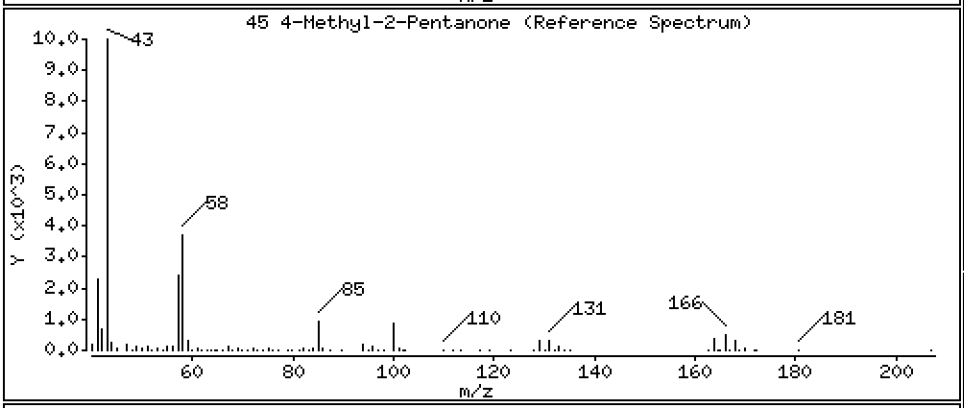
Concentration: 46.747 ug/L

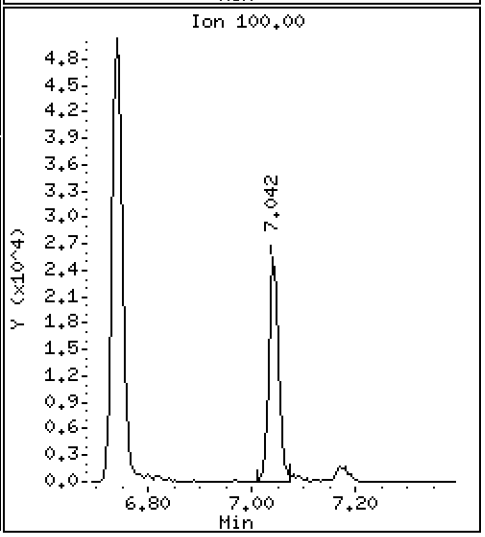


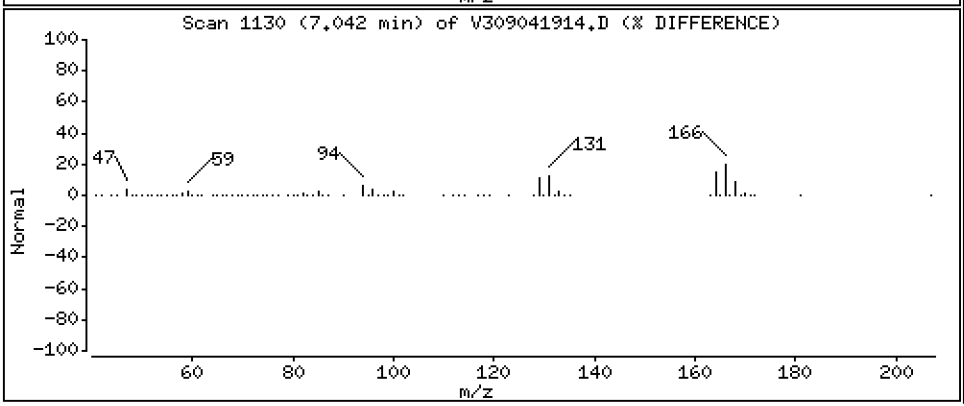












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

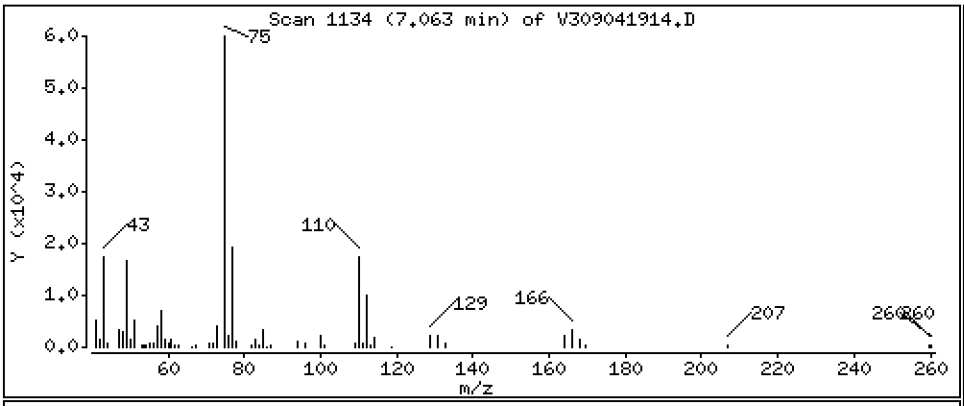
Operator: PKC

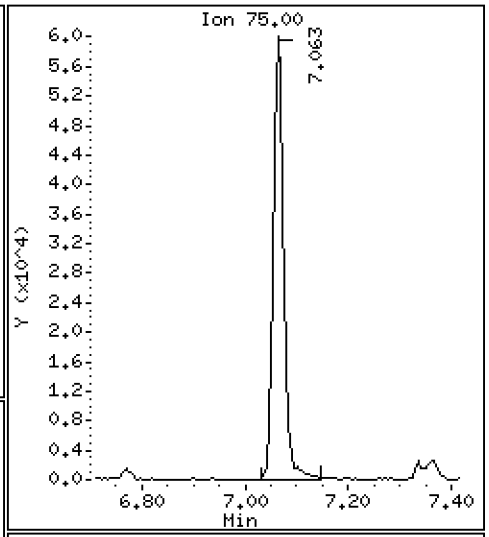
Column phase: RTXVMS

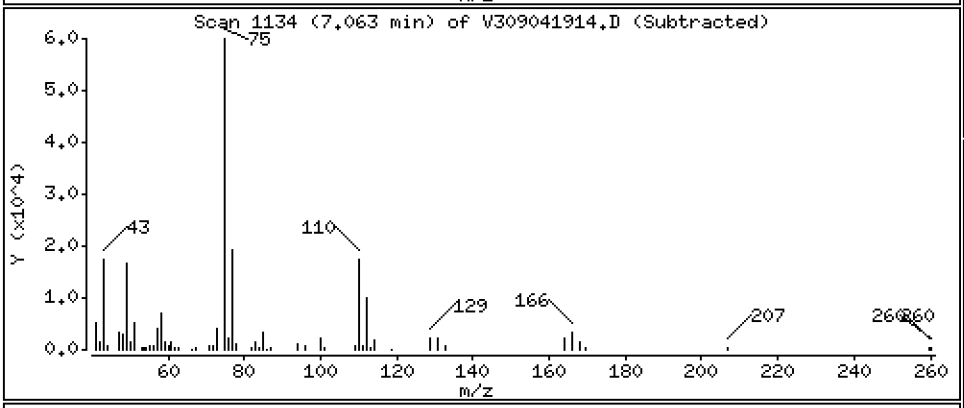
Column diameter: 0.18

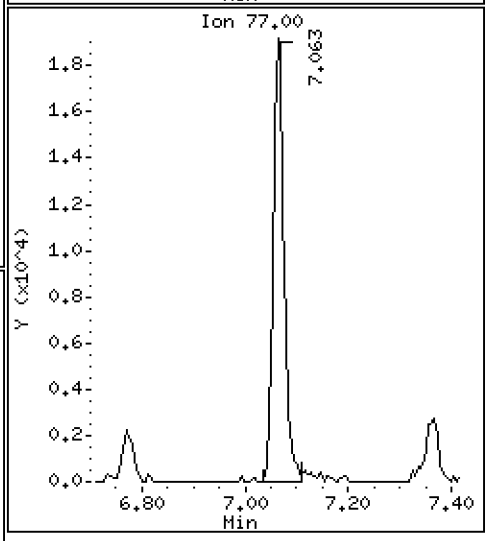
47 Trans 1,3-Dichloropropene

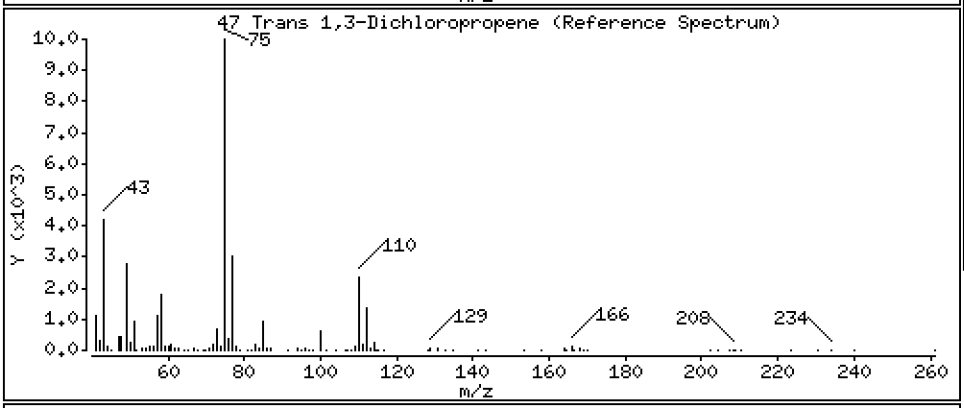
Concentration: 9.244 ug/L

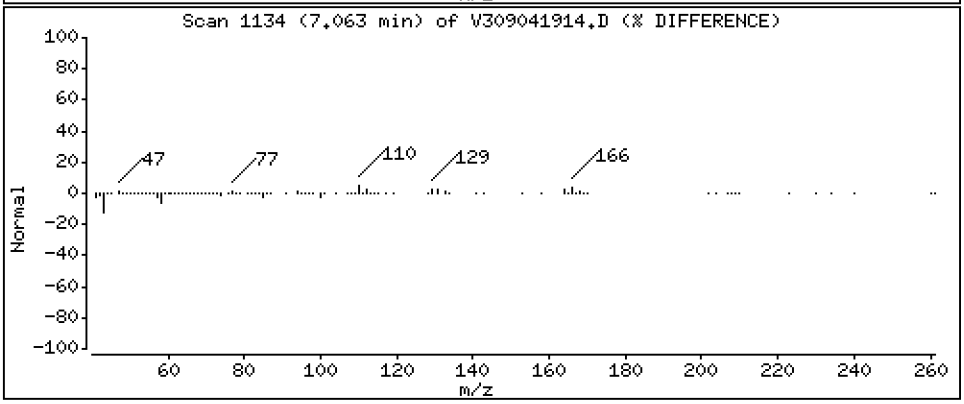












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

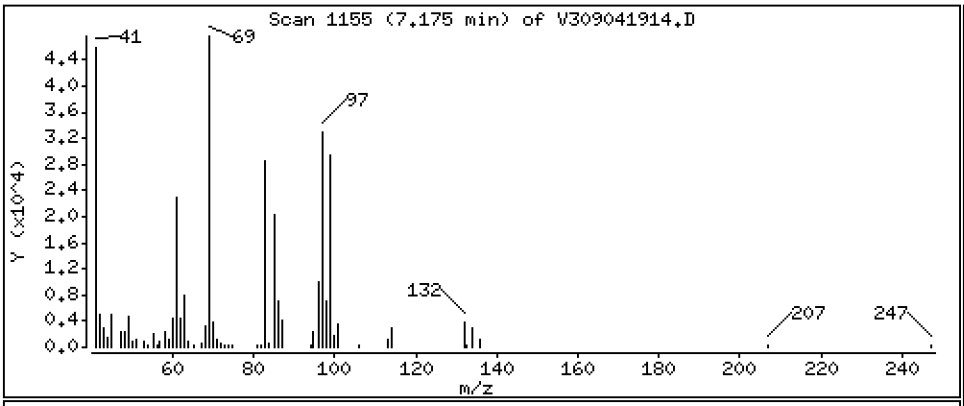
Operator: PKC

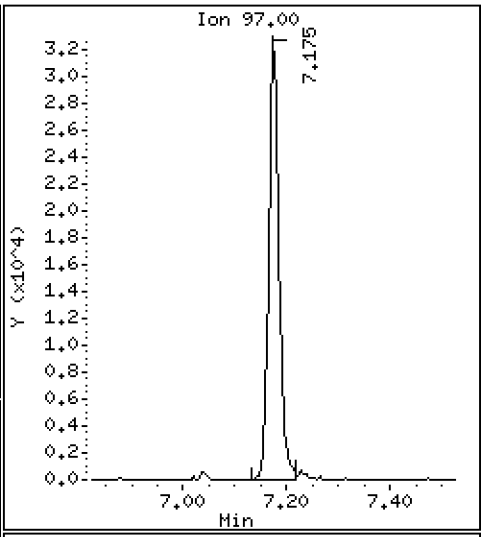
Column phase: RTXVMS

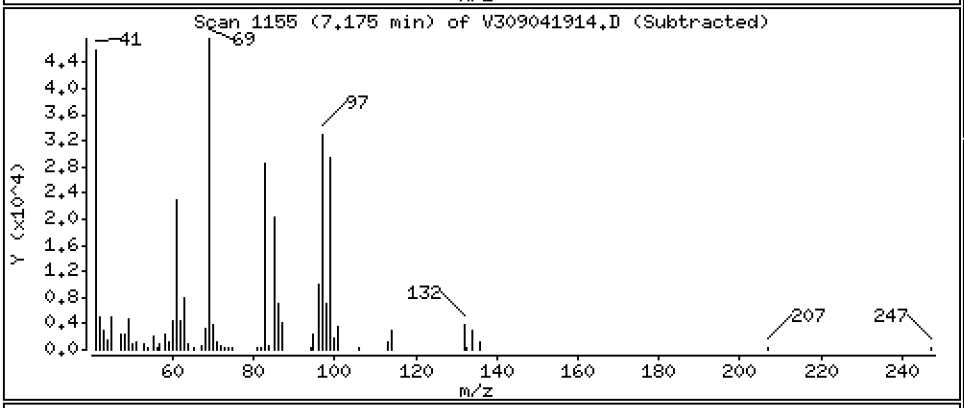
Column diameter: 0.18

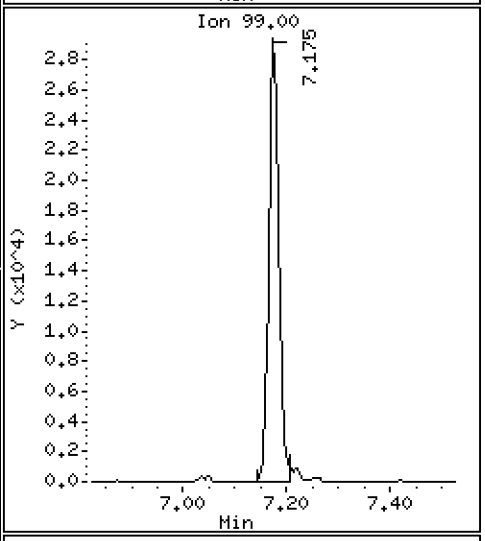
48 1,1,2-Trichloroethane

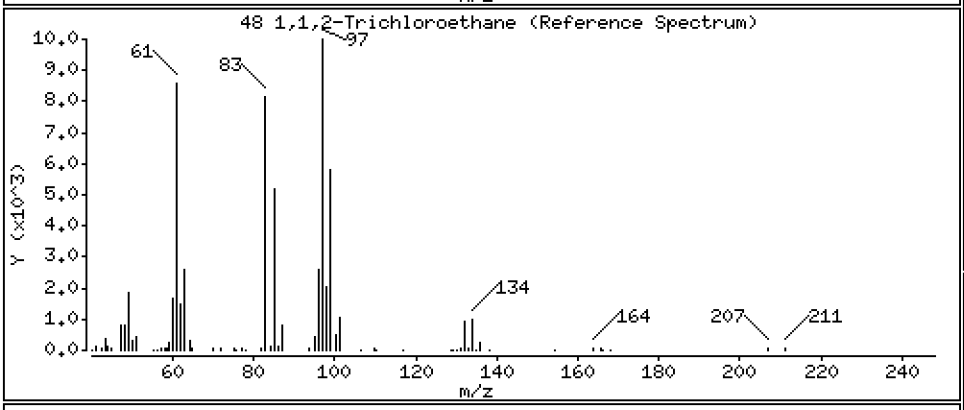
Concentration: 8.965 ug/L

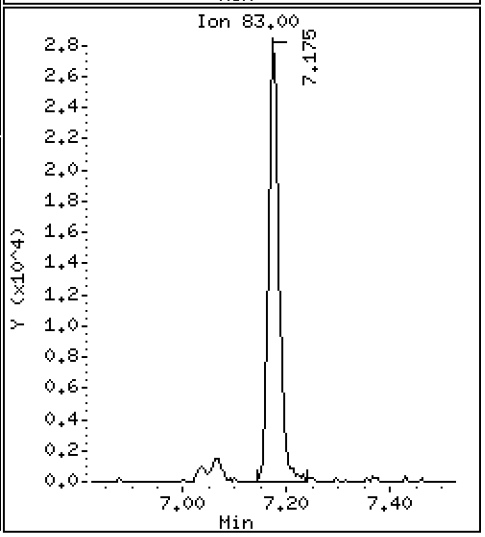


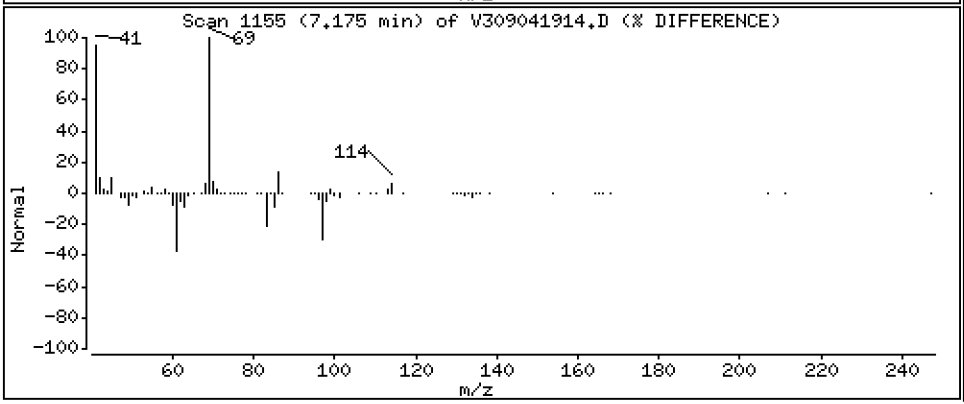












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

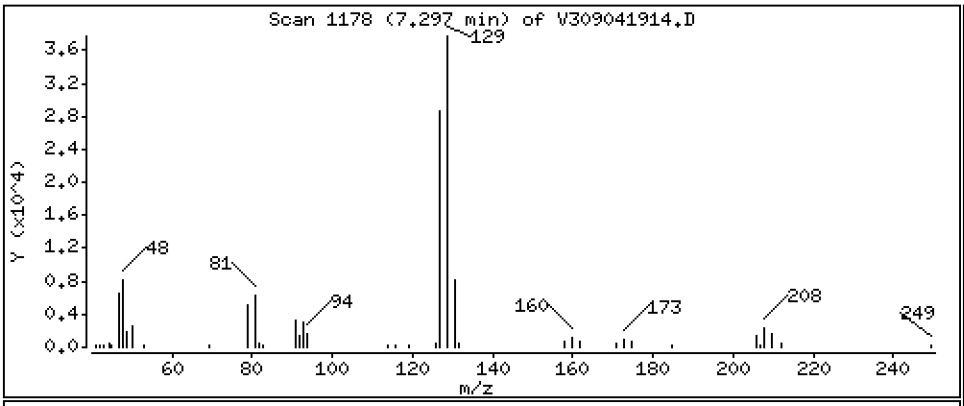
Operator: PKC

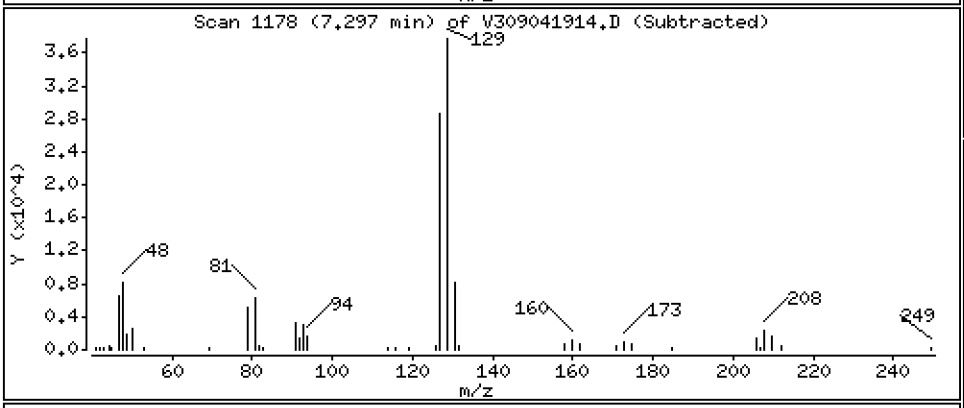
Column phase: RTXVMS

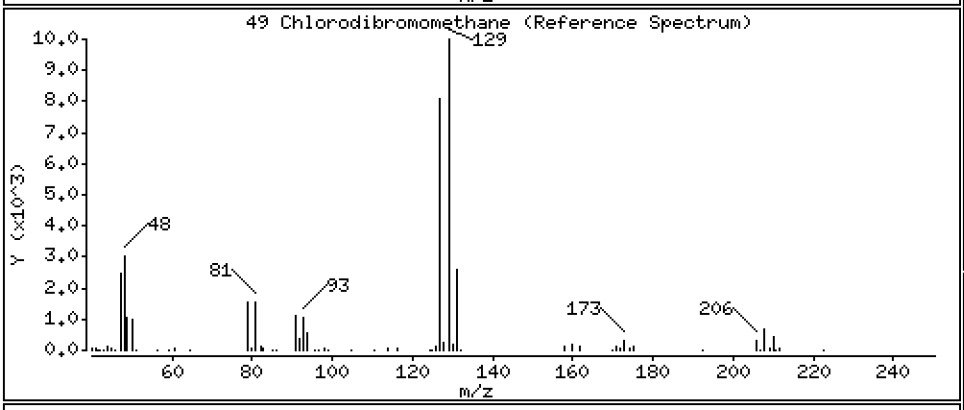
Column diameter: 0.18

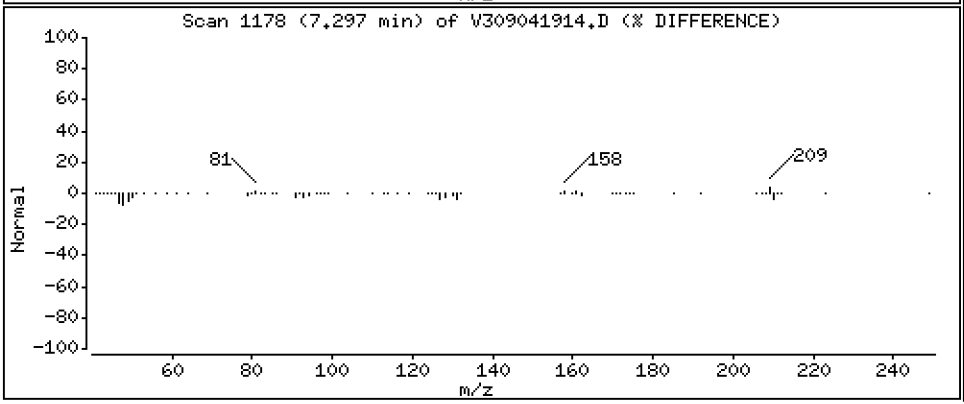
49 Chlorodibromomethane

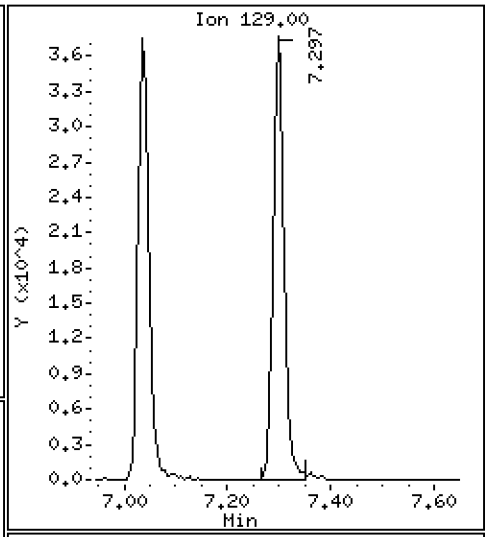
Concentration: 8.796 ug/L

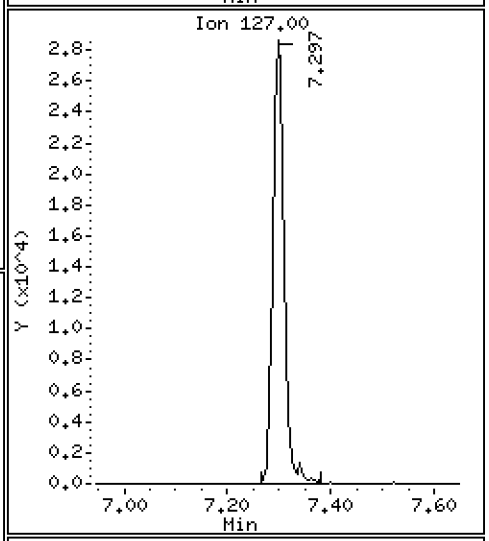


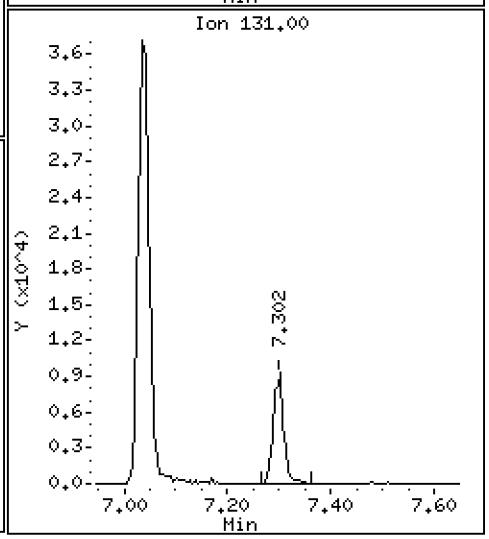












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

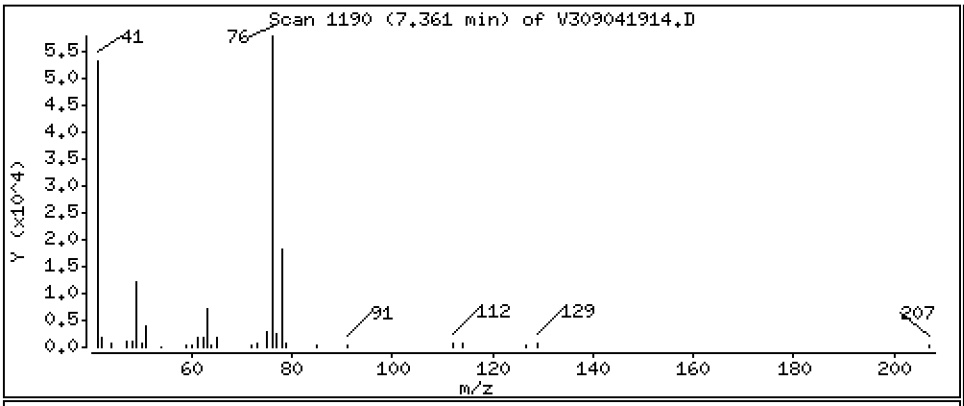
Operator: PKC

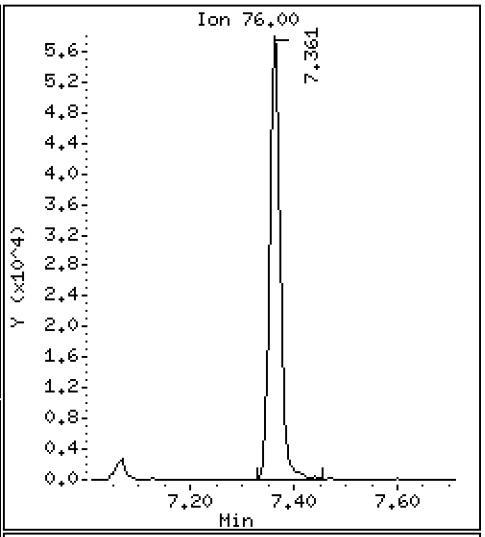
Column phase: RTXVMS

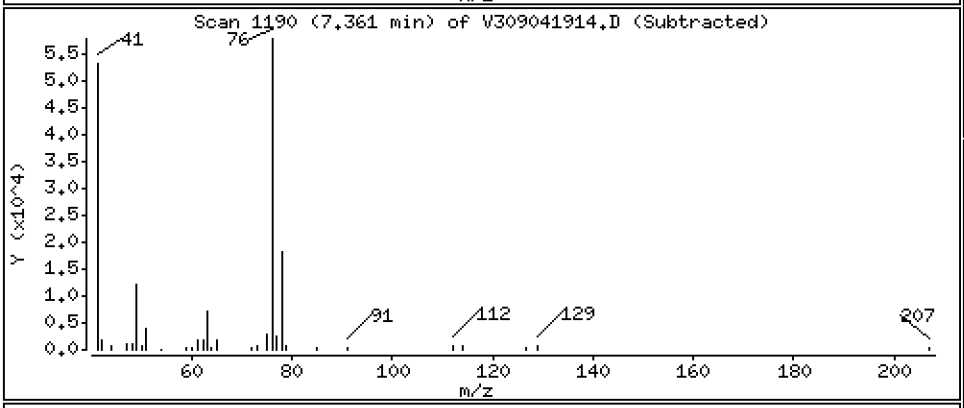
Column diameter: 0.18

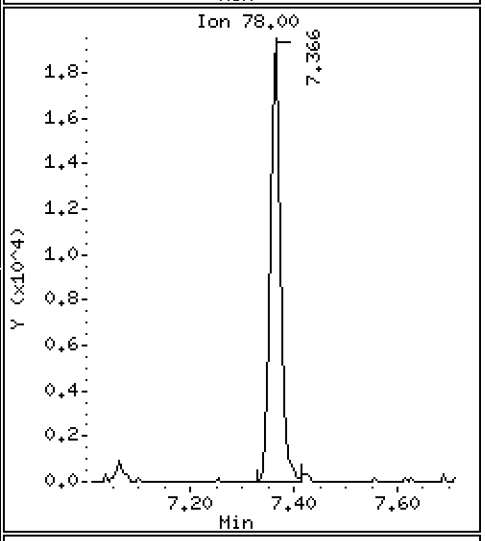
50 1,3-Dichloropropane

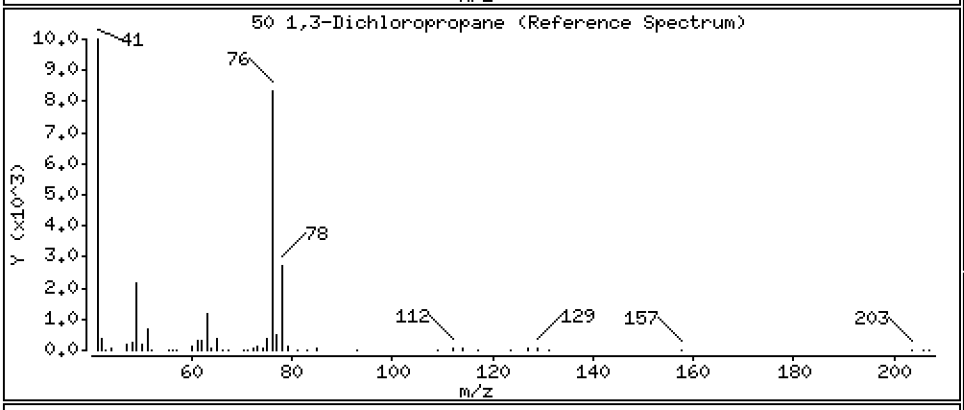
Concentration: 9.154 ug/L

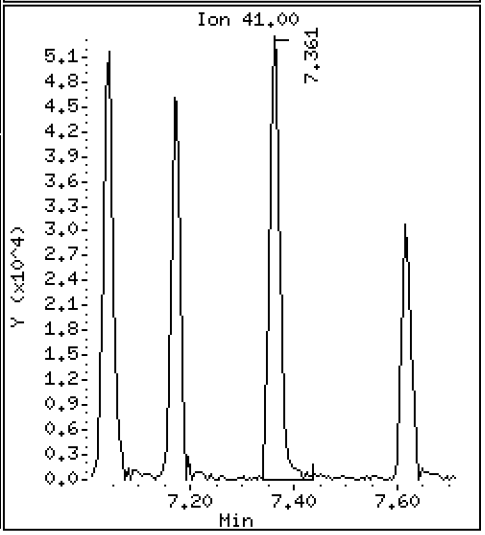


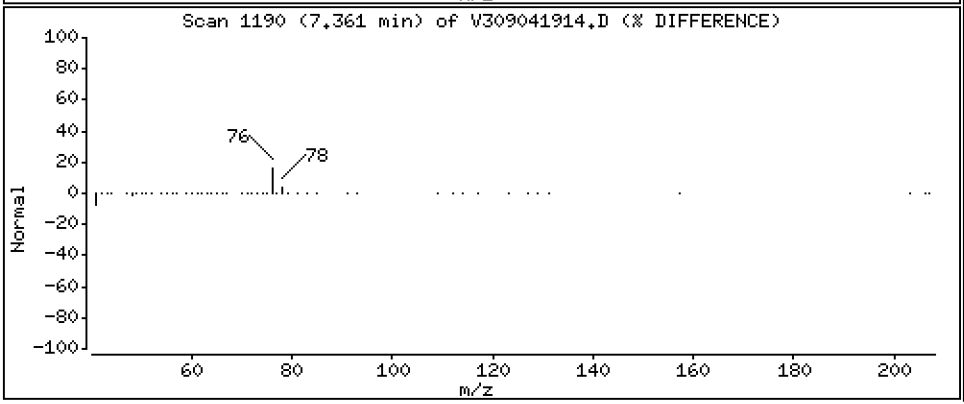












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

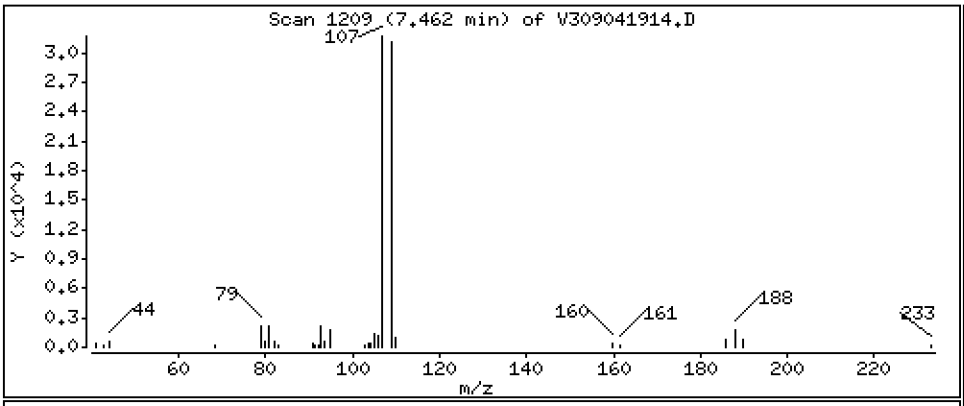
Operator: PKC

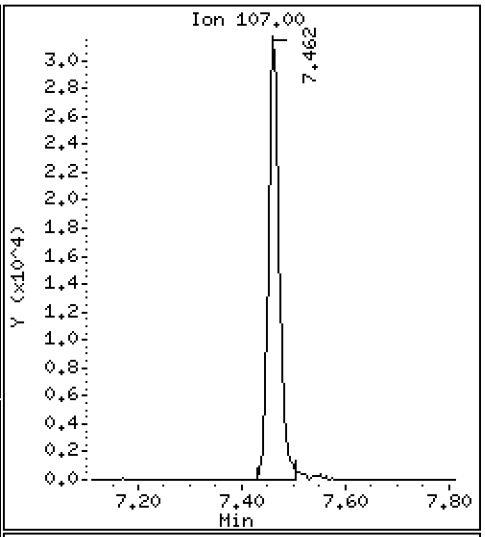
Column phase: RTXVMS

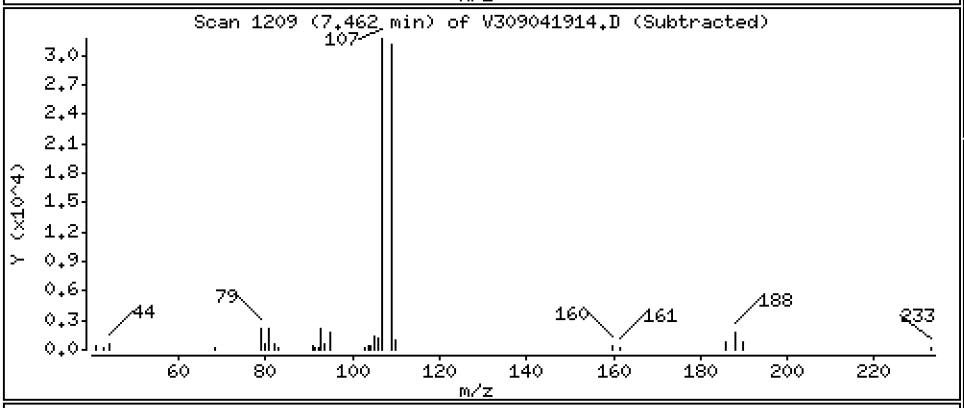
Column diameter: 0.18

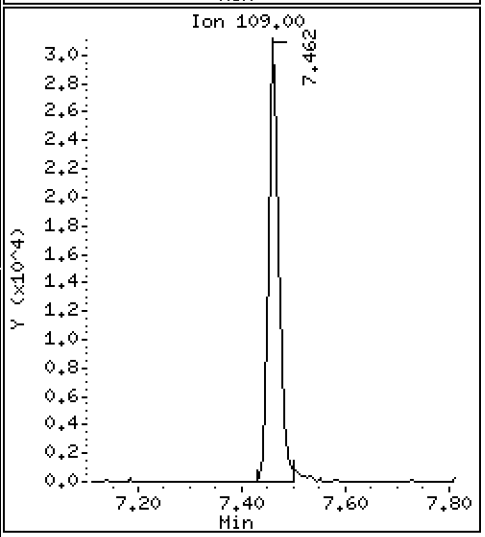
51 1,2-Dibromoethane

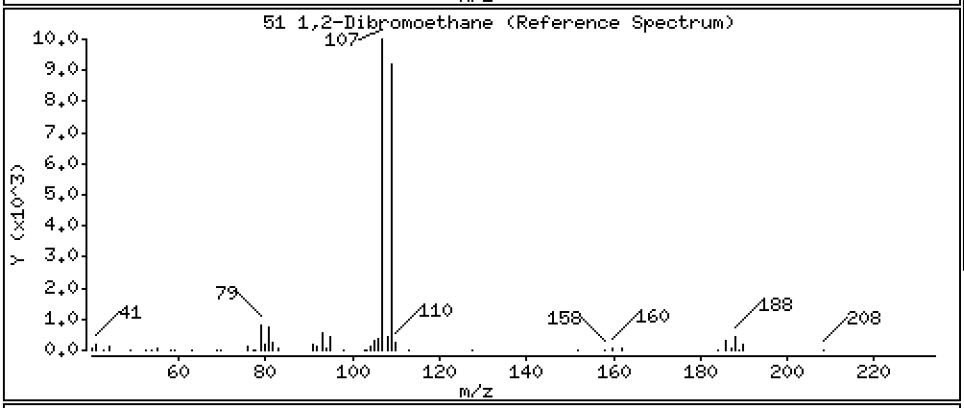
Concentration: 9.282 ug/L

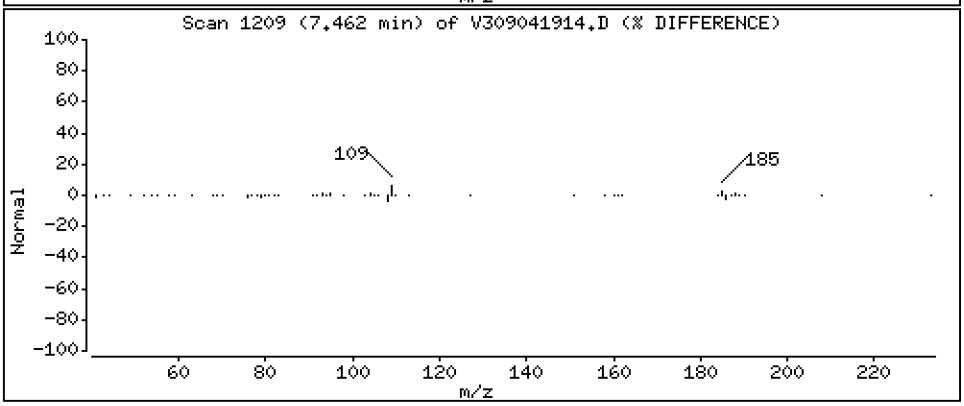












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

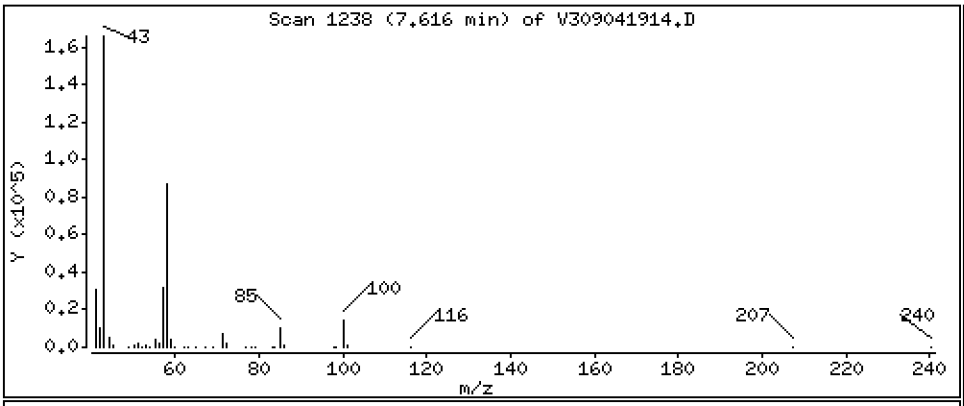
Operator: PKC

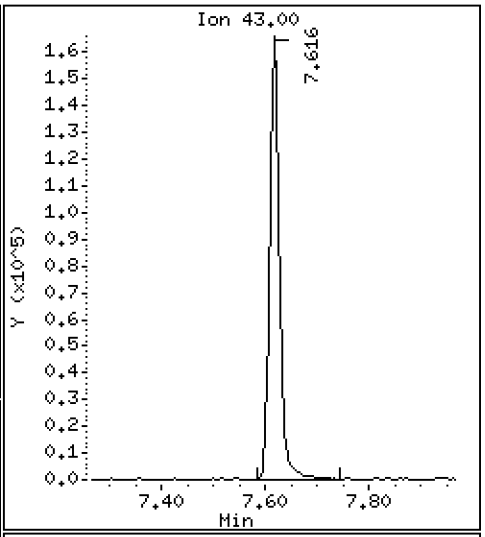
Column phase: RTXVMS

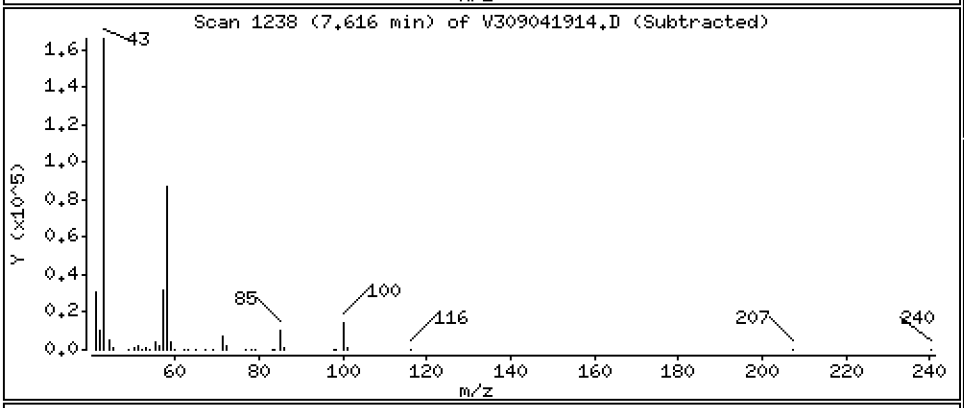
Column diameter: 0.18

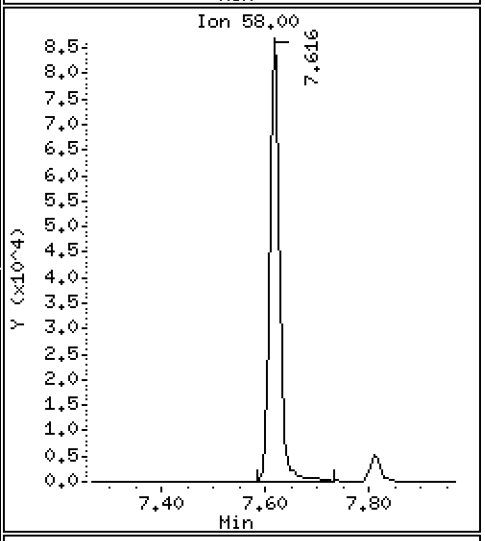
52 2-Hexanone

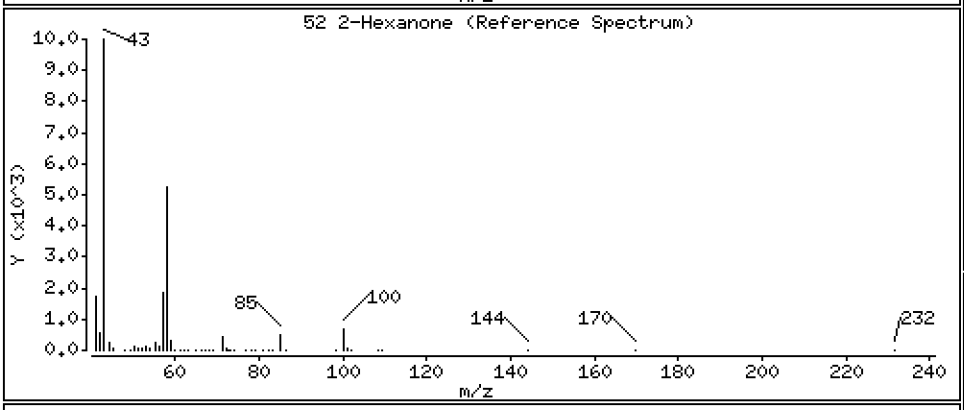
Concentration: 48.551 ug/L

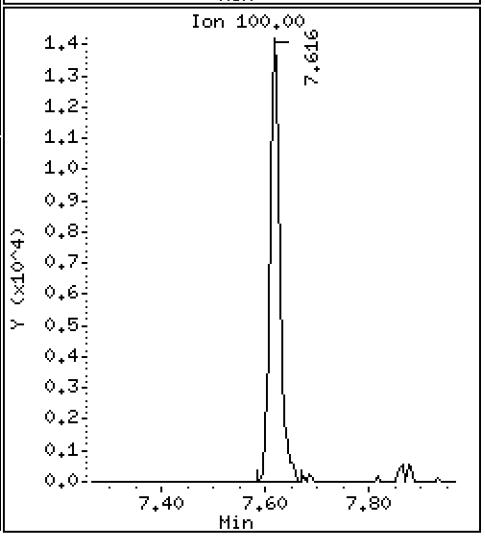


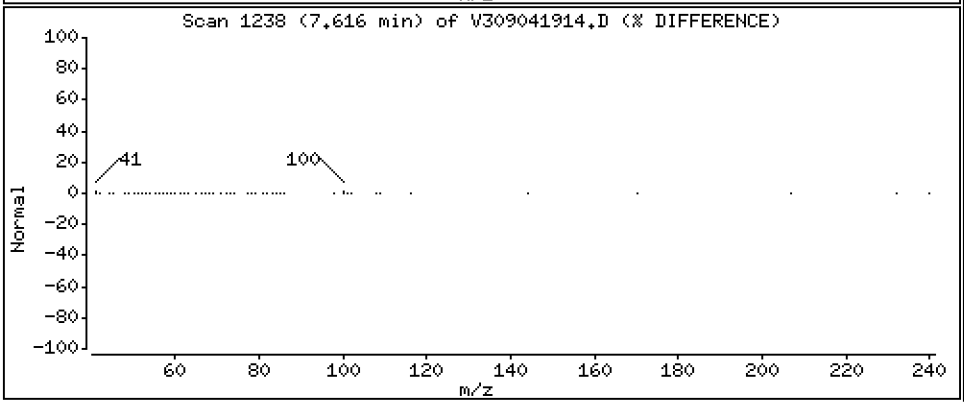












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

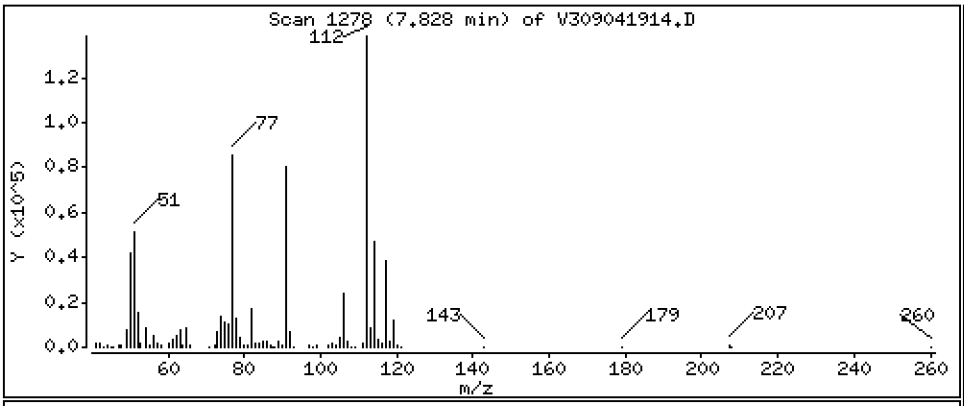
Operator: PKC

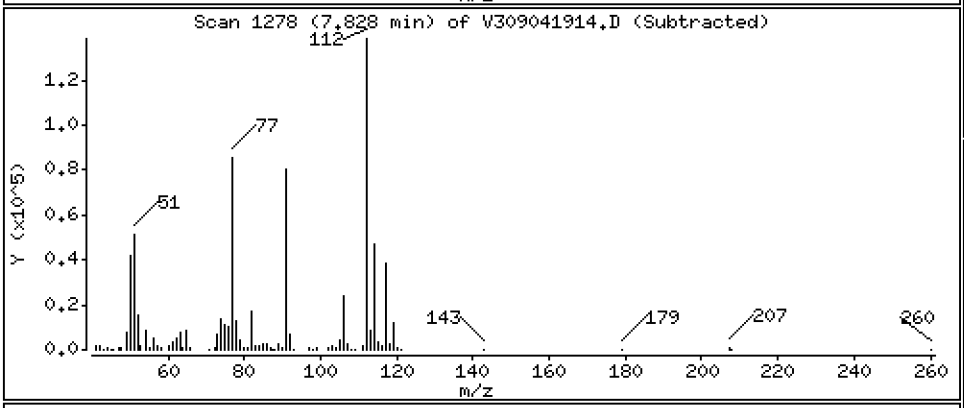
Column phase: RTXVMS

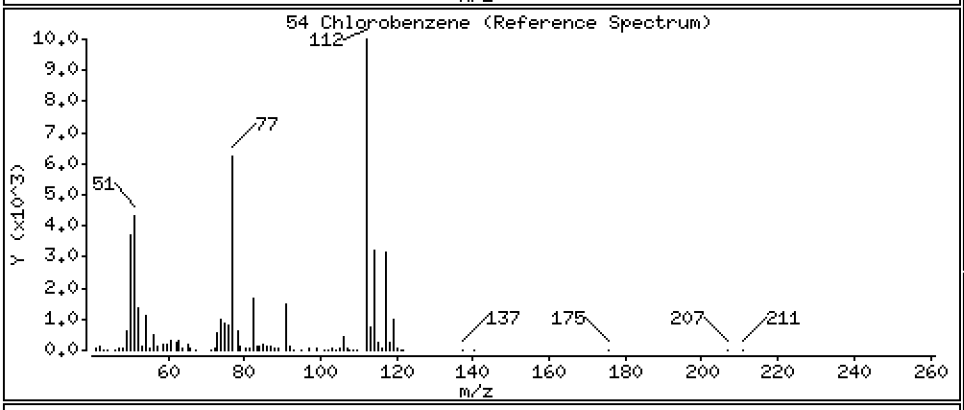
Column diameter: 0.18

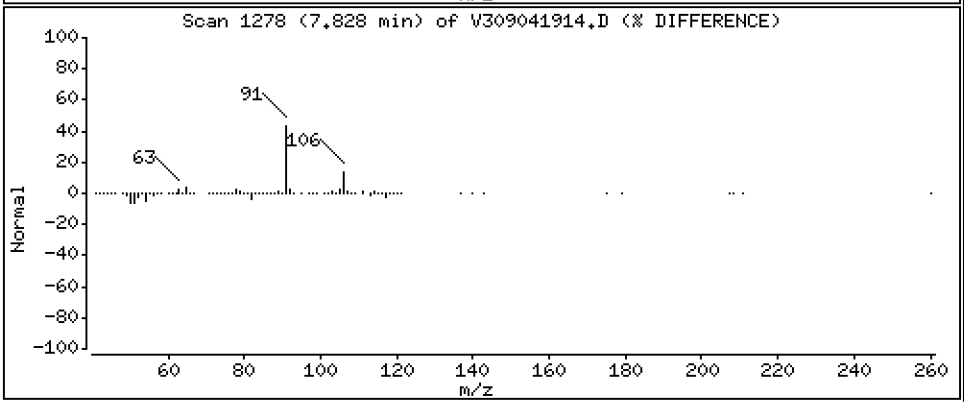
54 Chlorobenzene

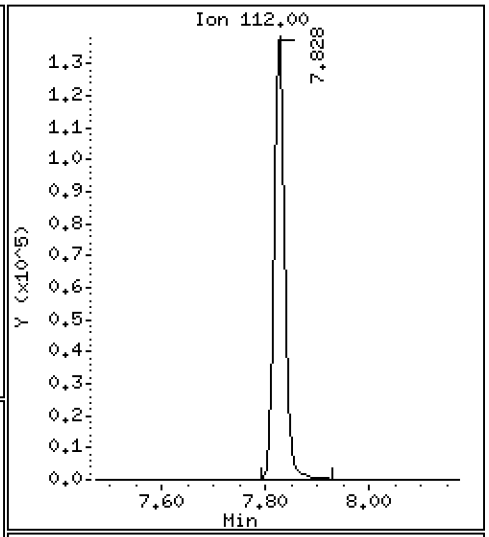
Concentration: 9.194 ug/L

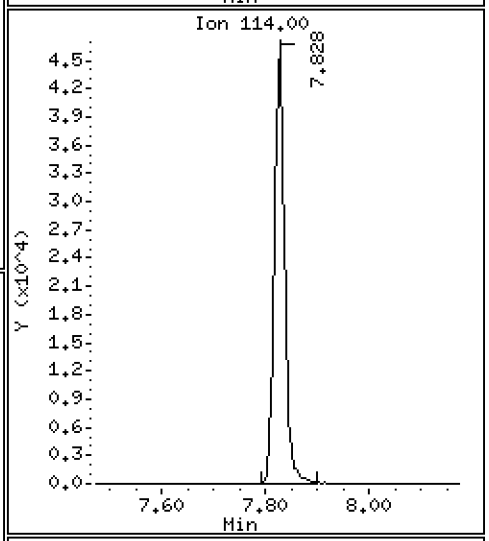


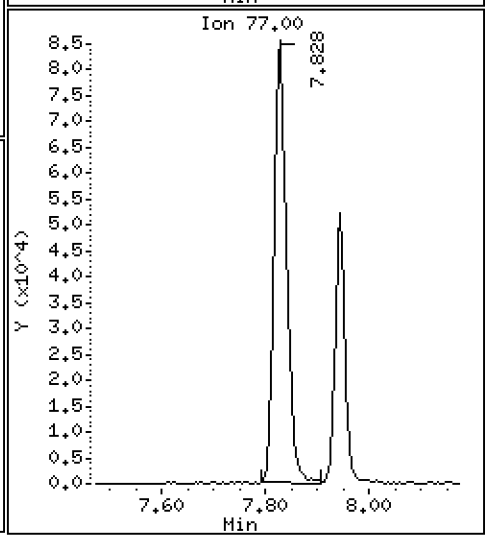












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

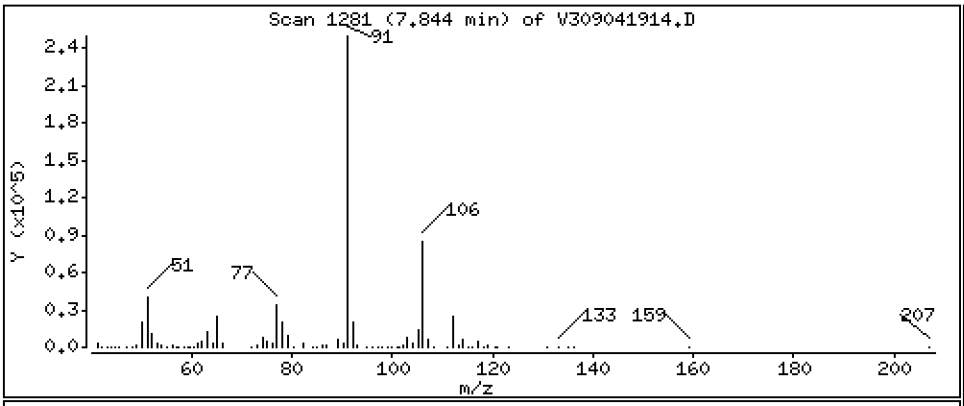
Operator: PKC

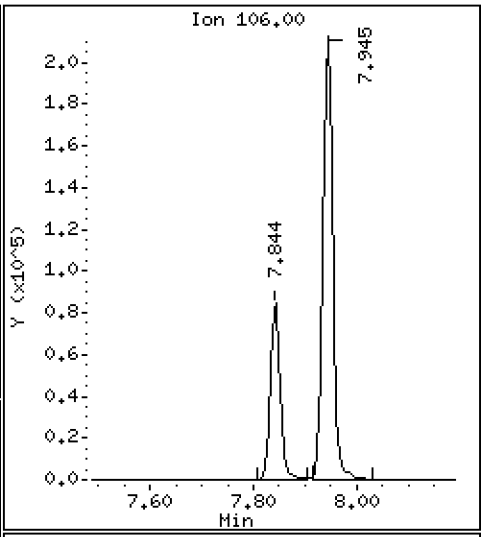
Column phase: RTXVMS

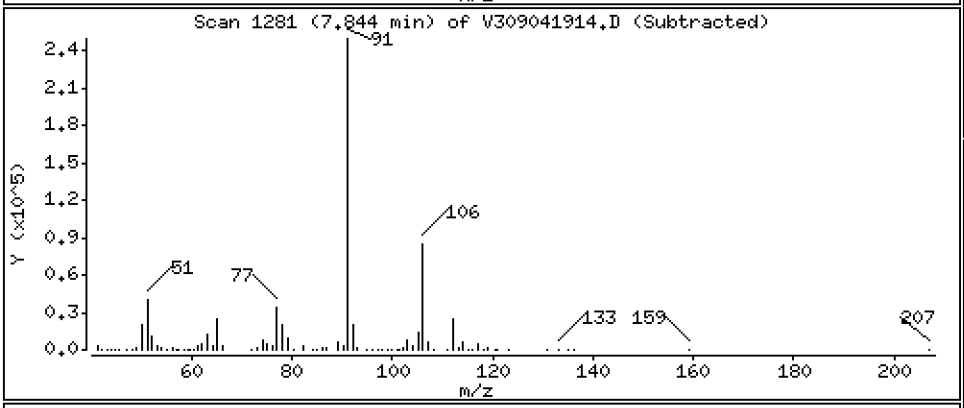
Column diameter: 0.18

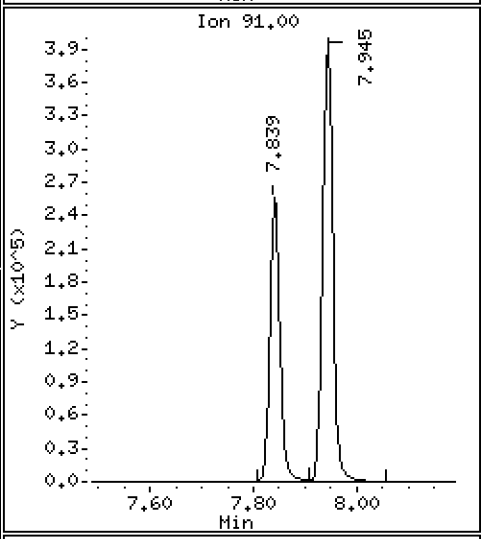
55 Ethyl Benzene

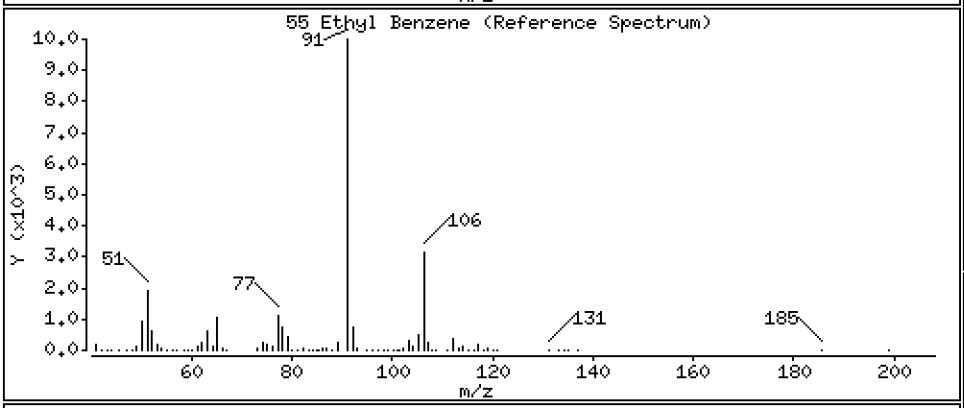
Concentration: 9.605 ug/L

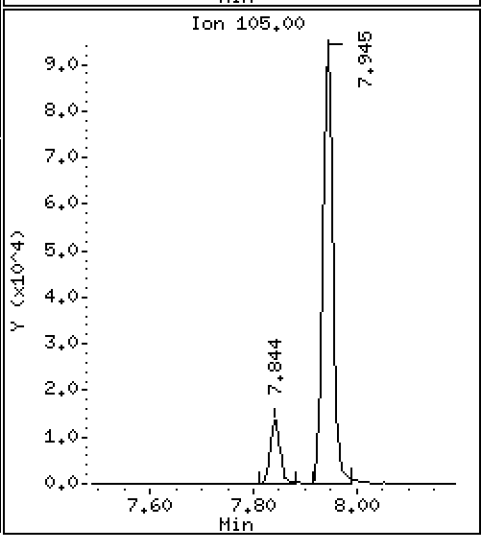


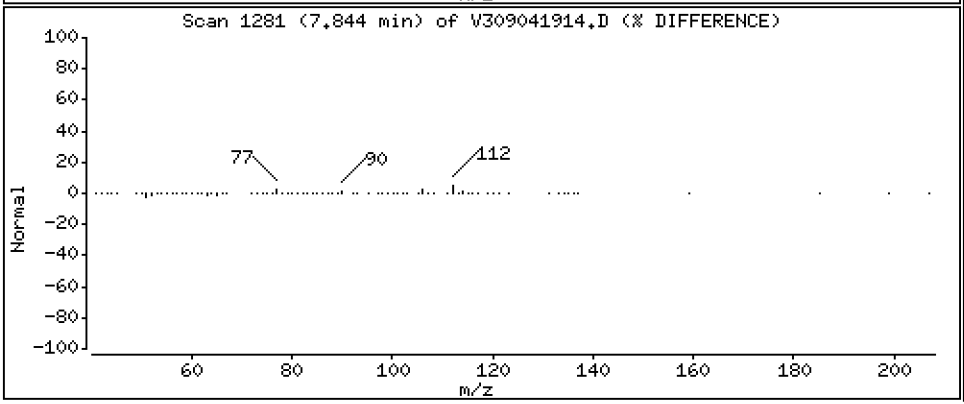












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

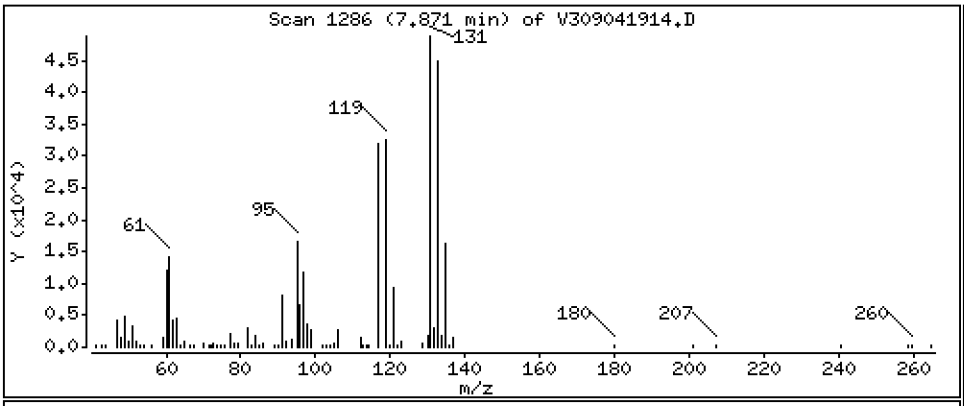
Operator: PKC

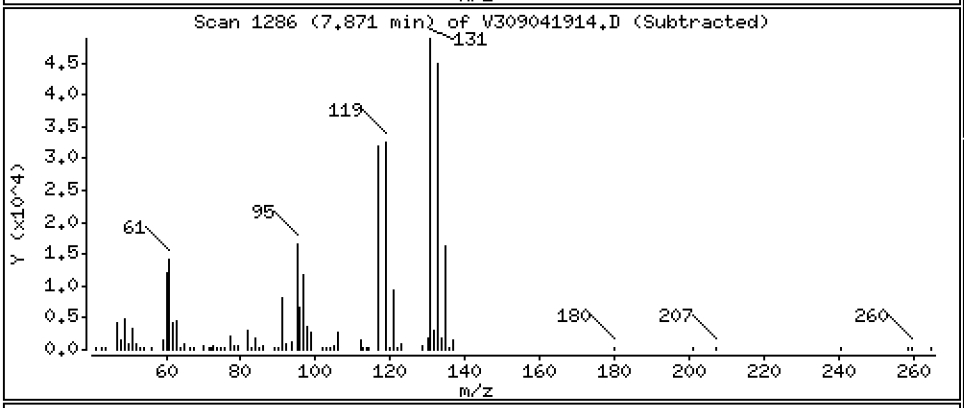
Column phase: RTXVMS

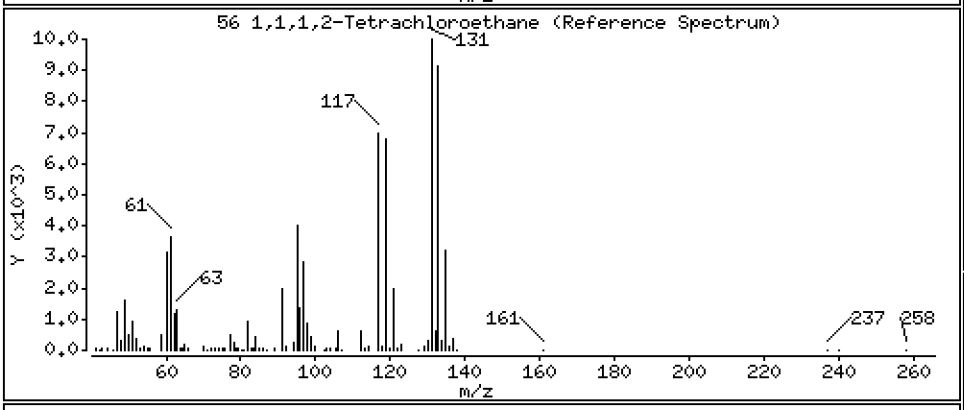
Column diameter: 0.18

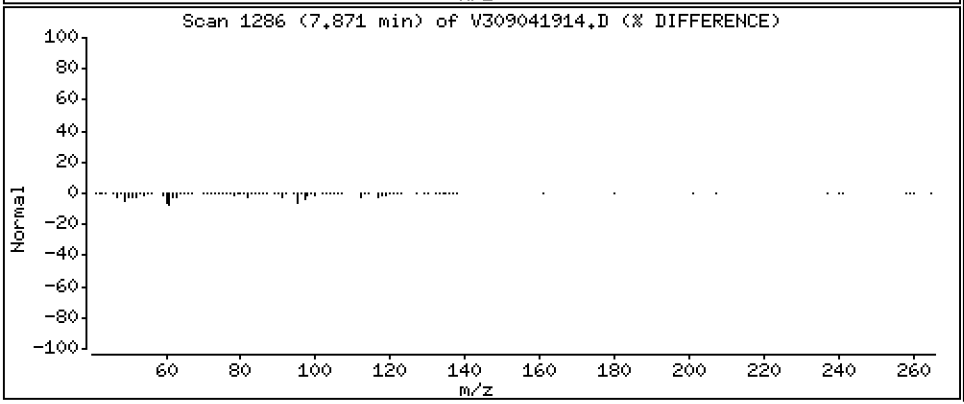
56 1,1,1,2-Tetrachloroethane

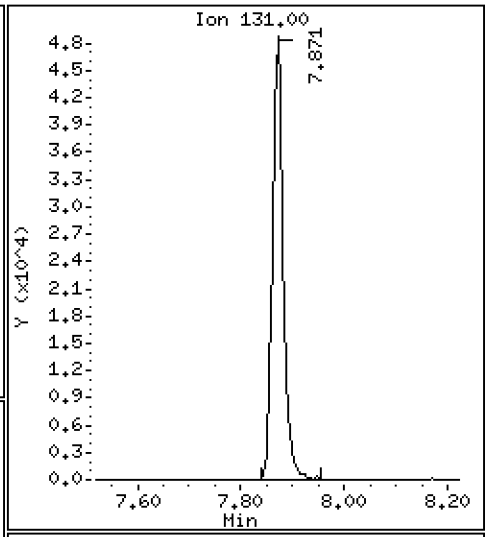
Concentration: 8.999 ug/L

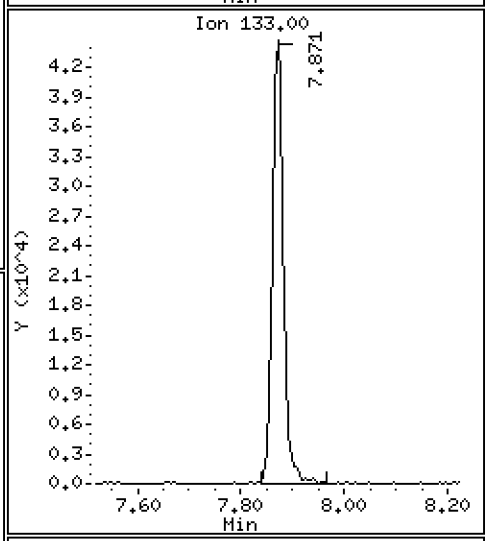


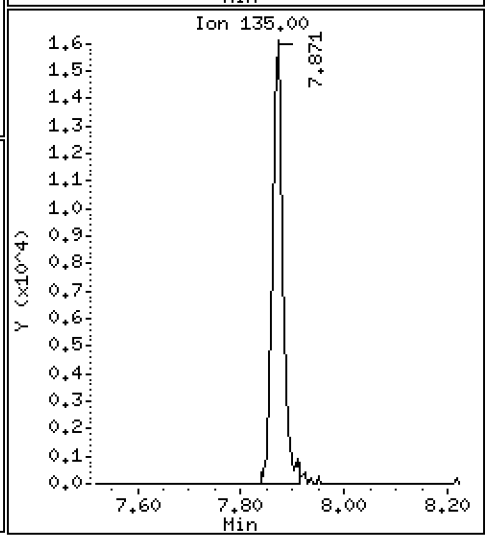












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

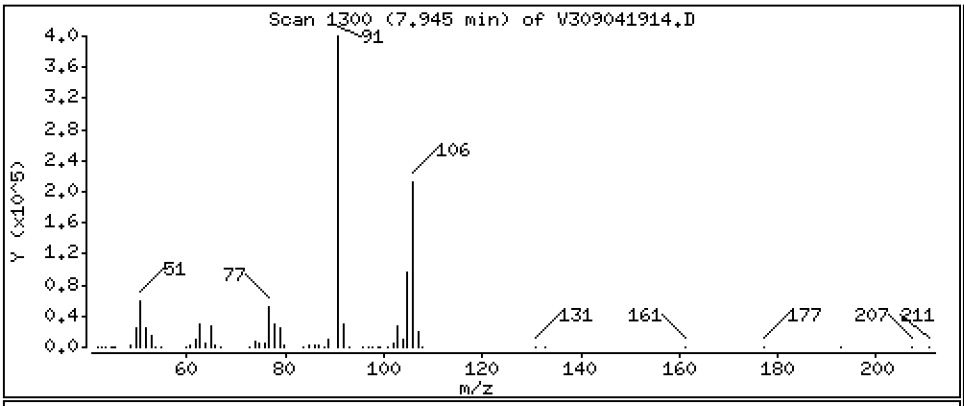
Operator: PKC

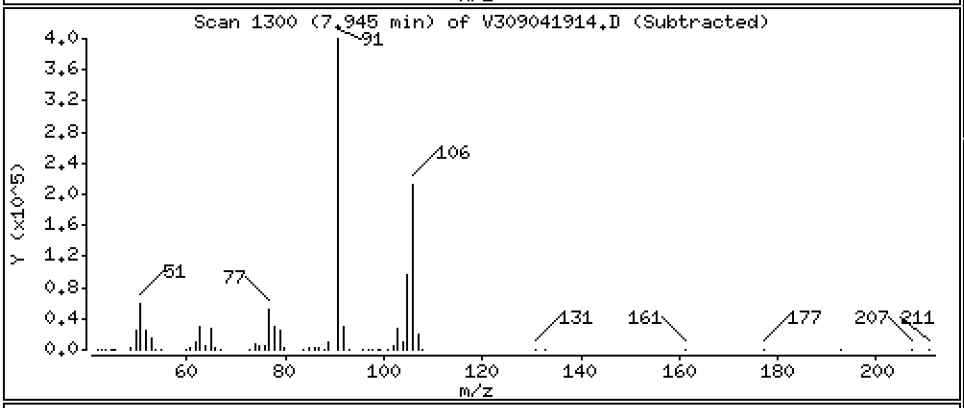
Column phase: RTXVMS

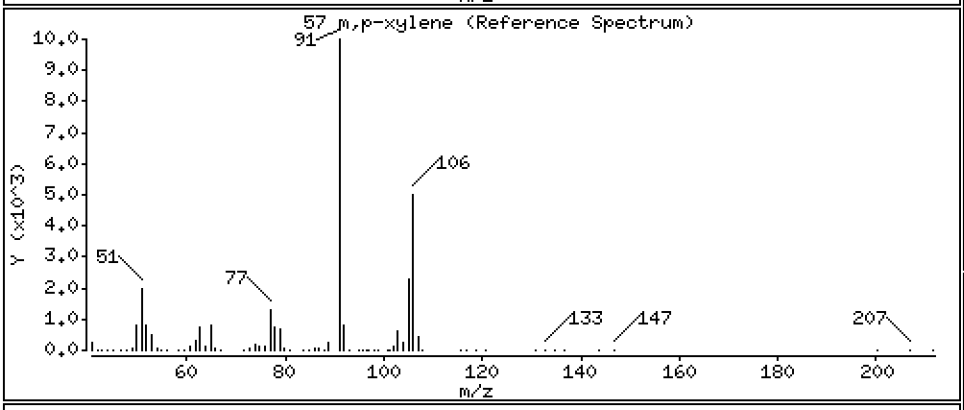
Column diameter: 0.18

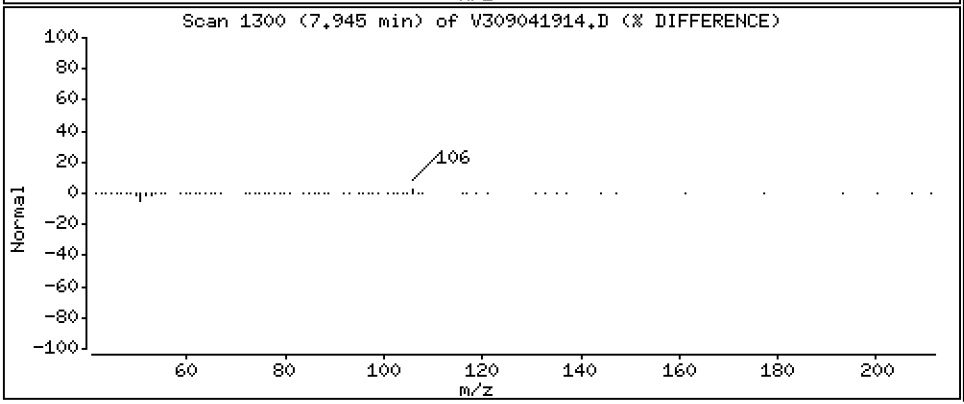
57 m,p-xylene

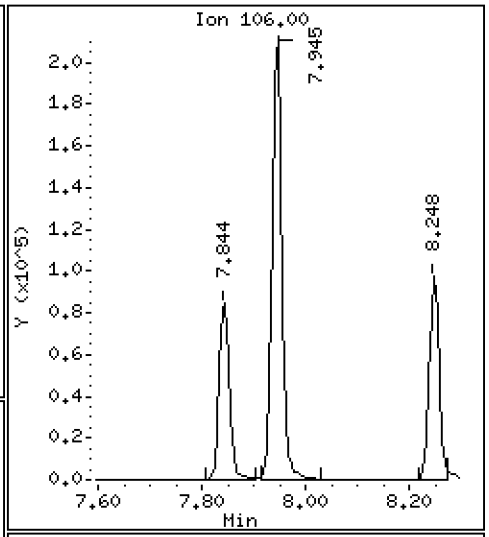
Concentration: 18.867 ug/L

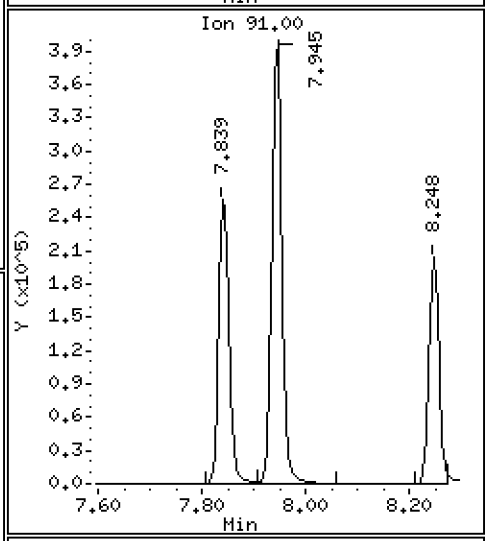


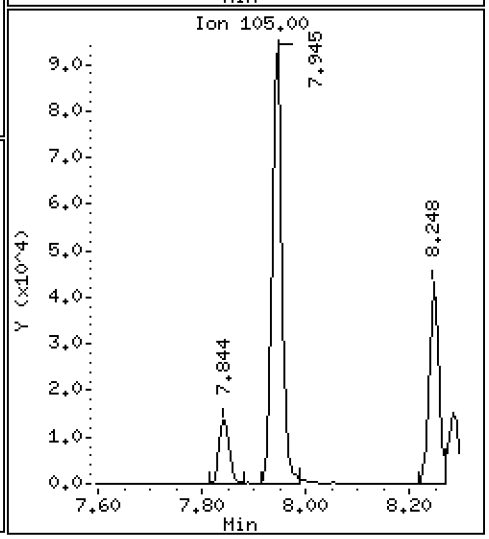












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

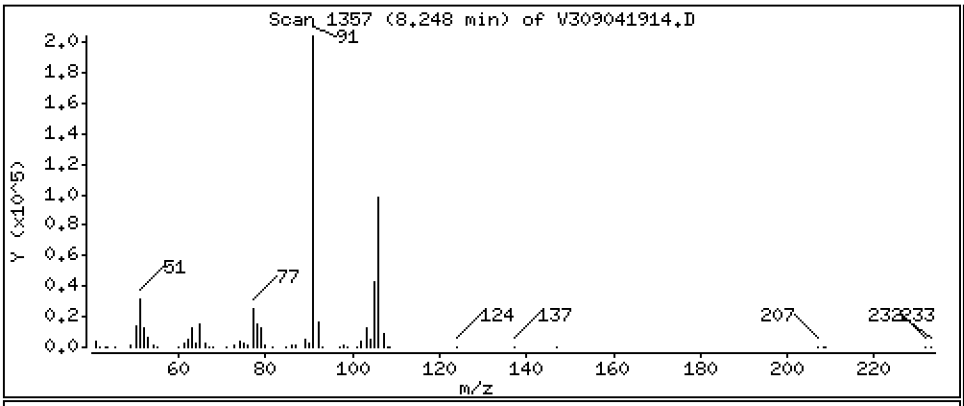
Operator: PKC

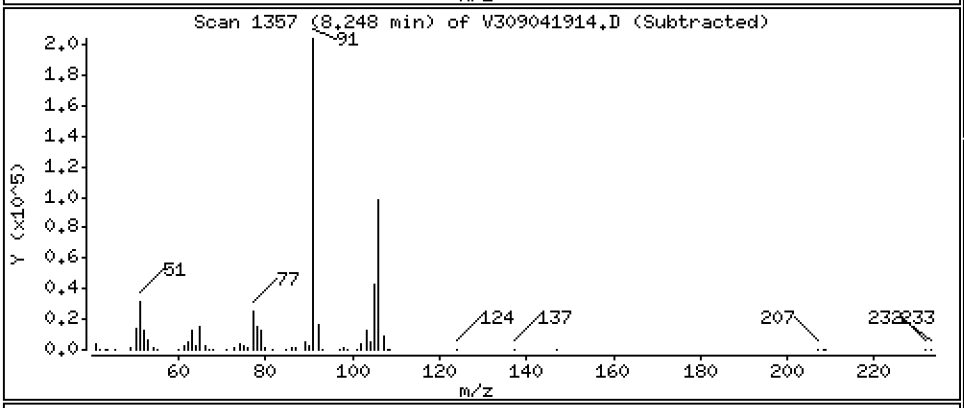
Column phase: RTXVMS

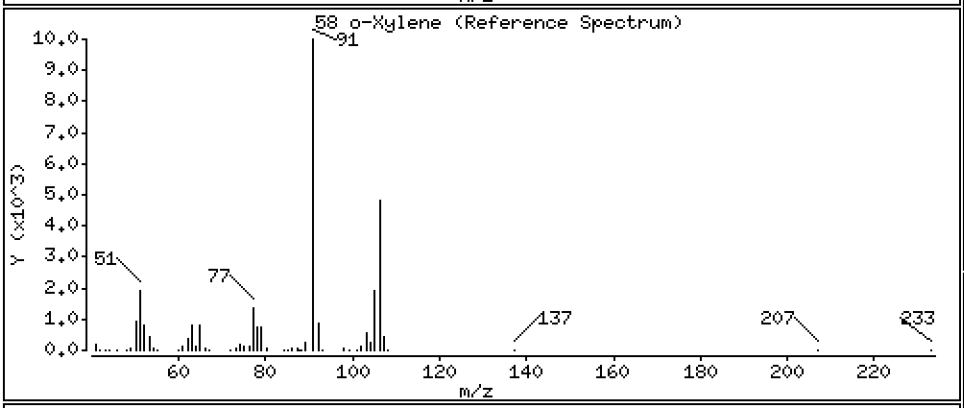
Column diameter: 0.18

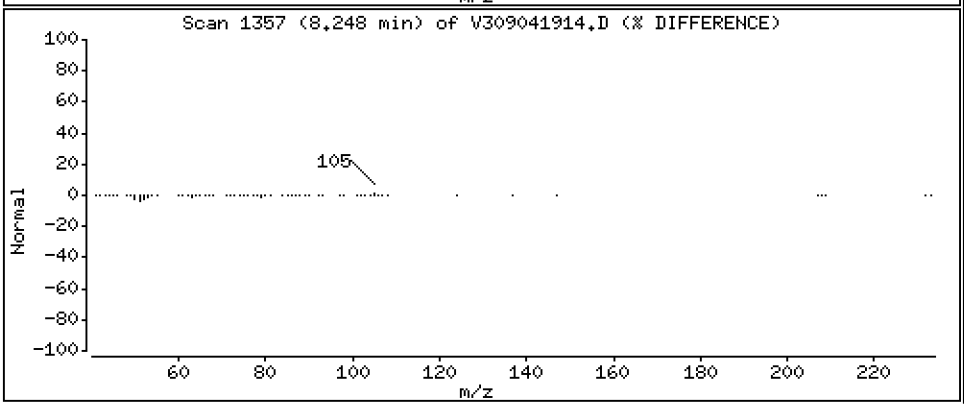
58 o-Xylene

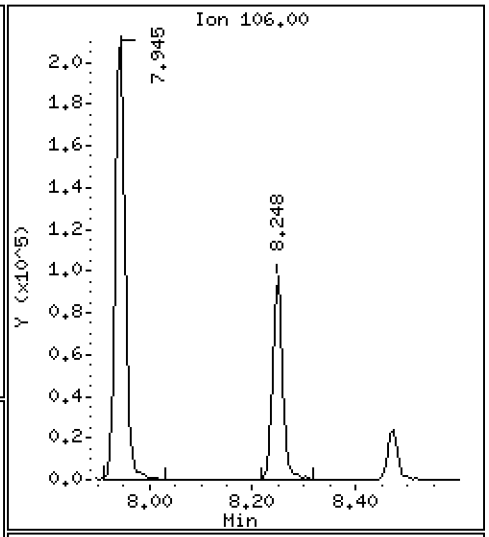
Concentration: 8.865 ug/L

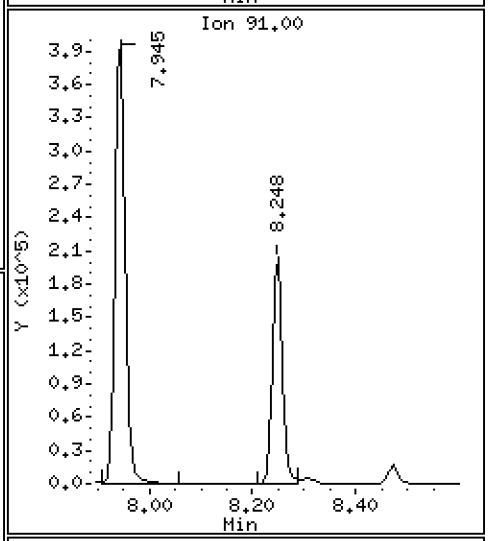


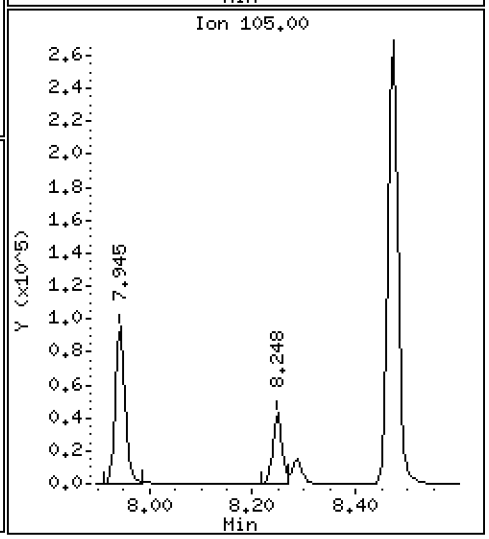












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

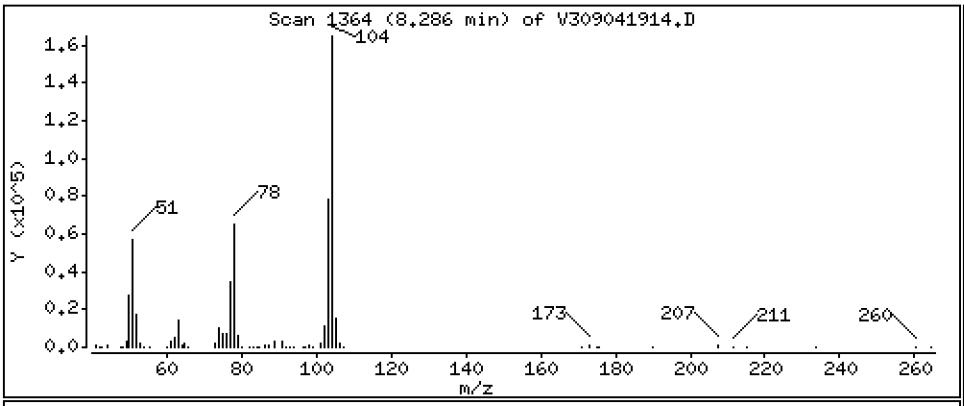
Operator: PKC

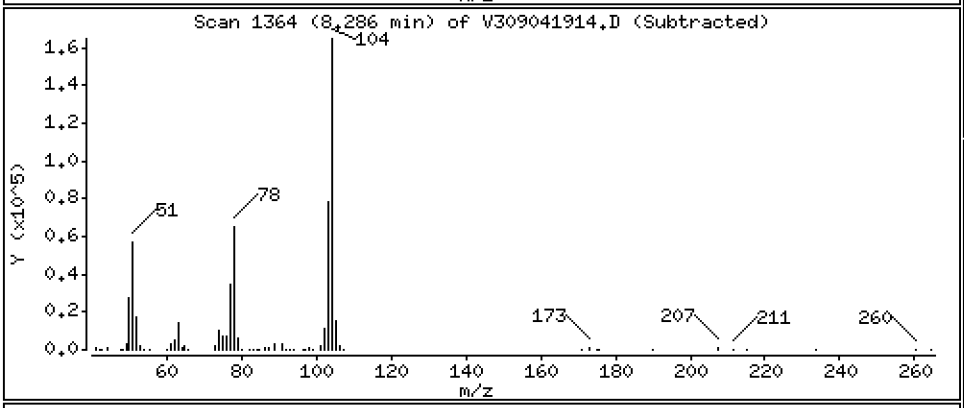
Column phase: RTXVMS

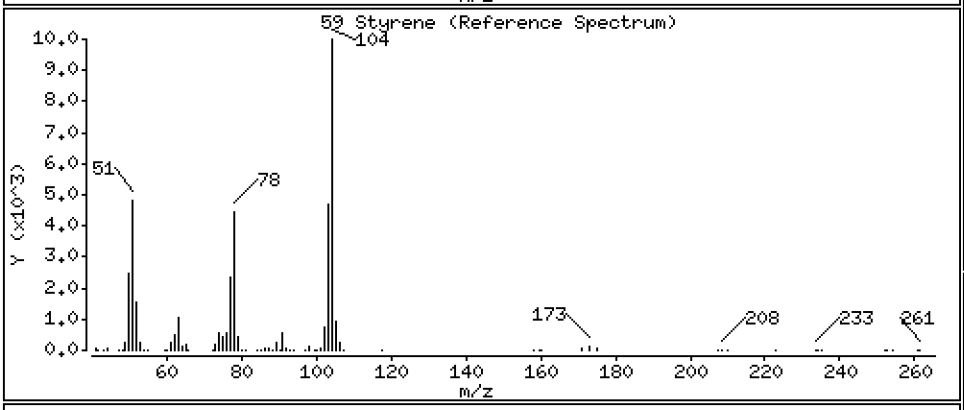
Column diameter: 0.18

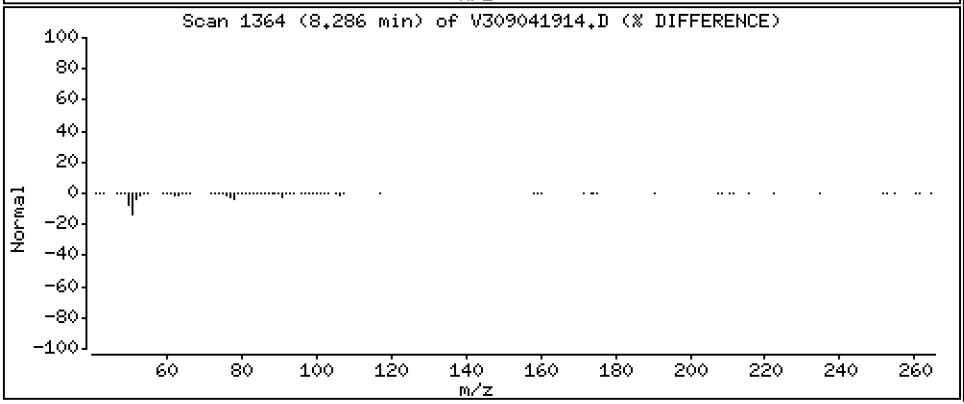
59 Styrene

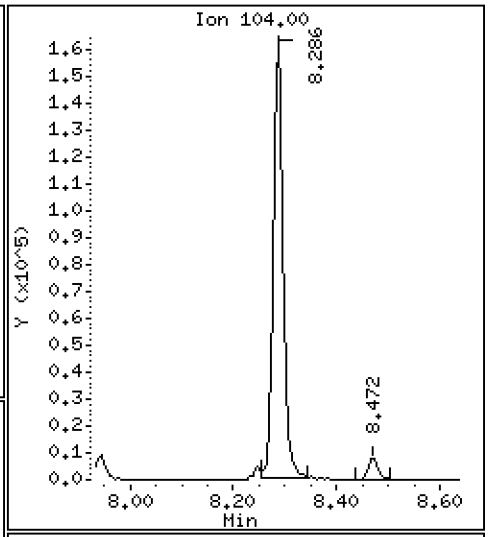
Concentration: 9.302 ug/L

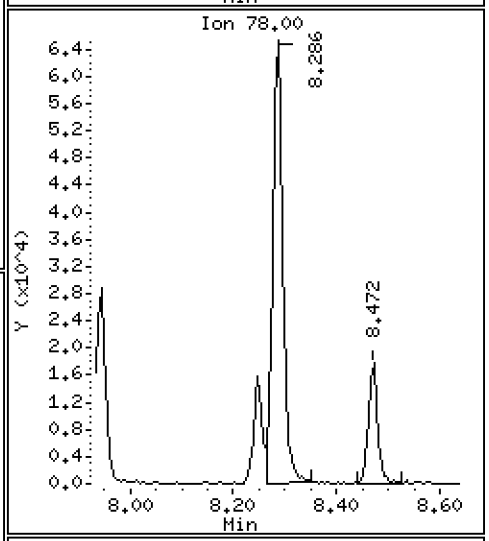


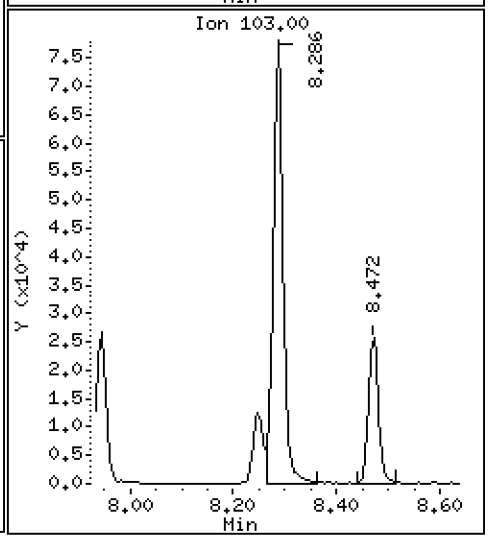












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

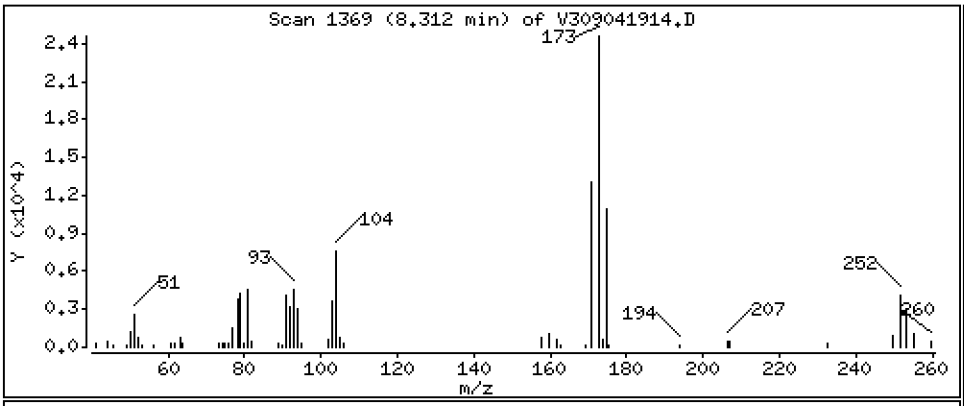
Operator: PKC

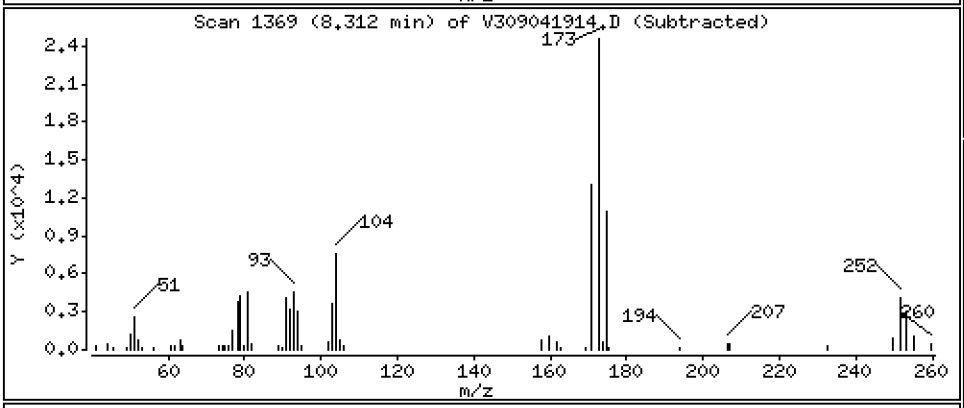
Column phase: RTXVMS

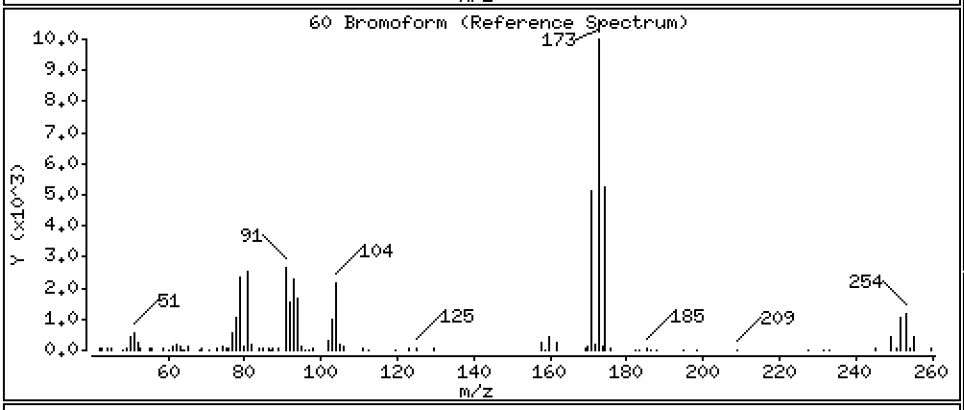
Column diameter: 0.18

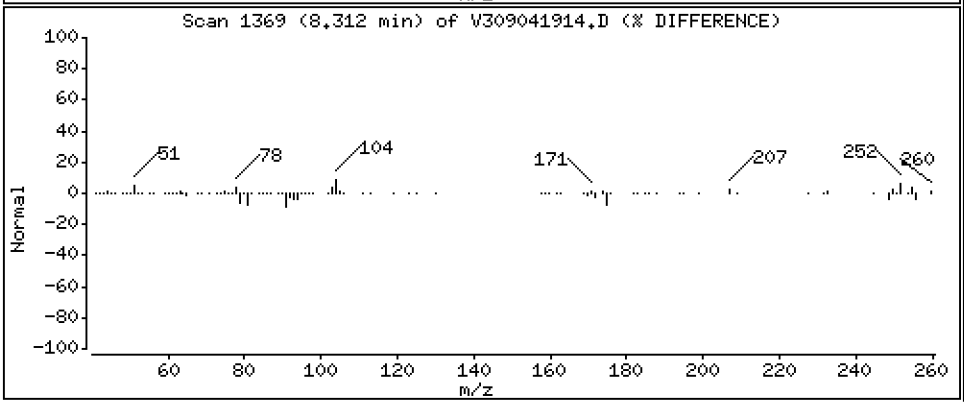
60 Bromoform

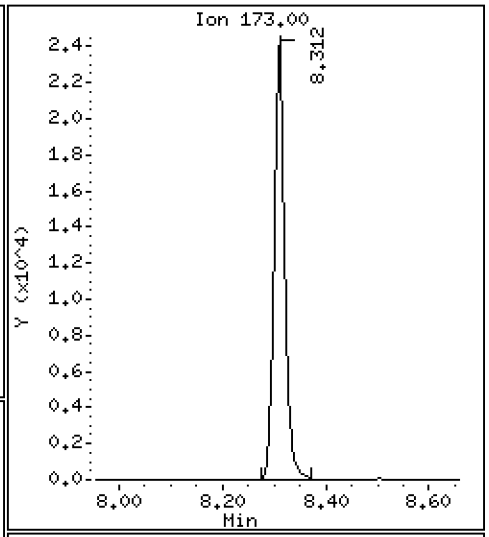
Concentration: 8.975 ug/L

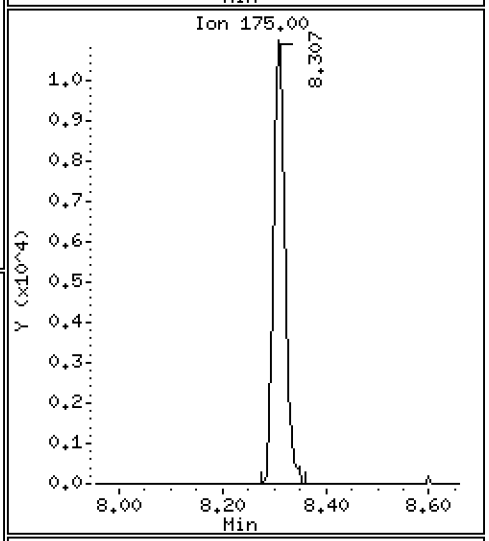


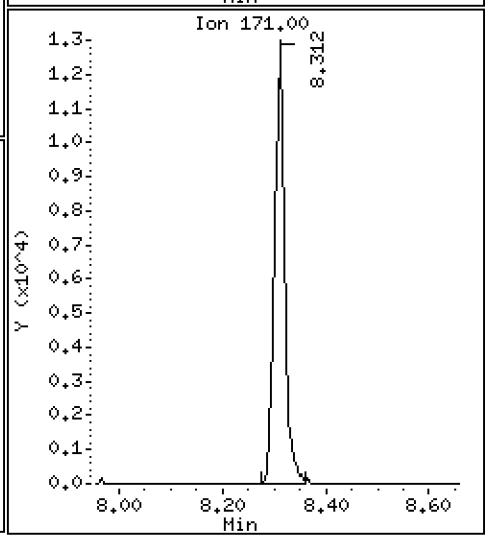












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

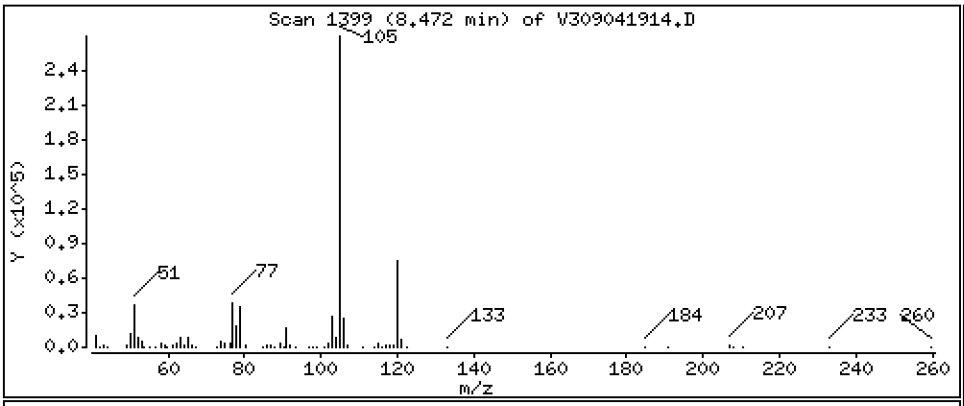
Operator: PKC

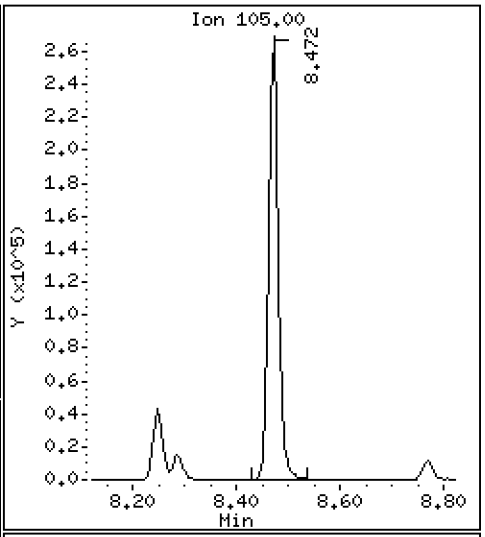
Column phase: RTXVMS

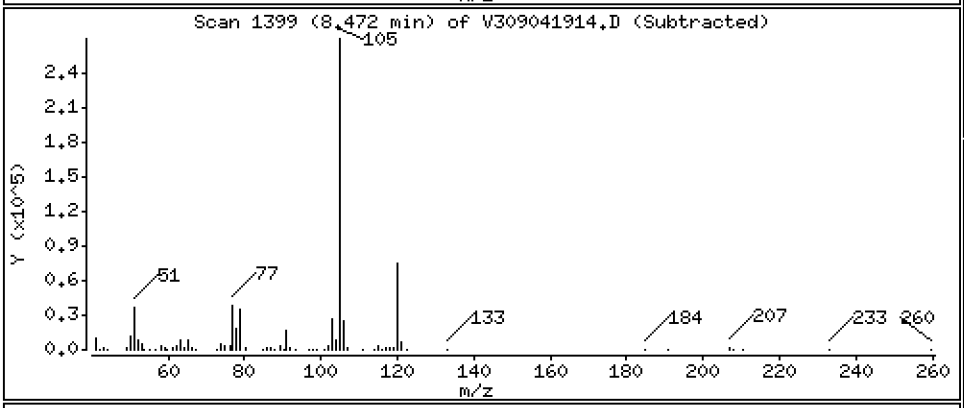
Column diameter: 0.18

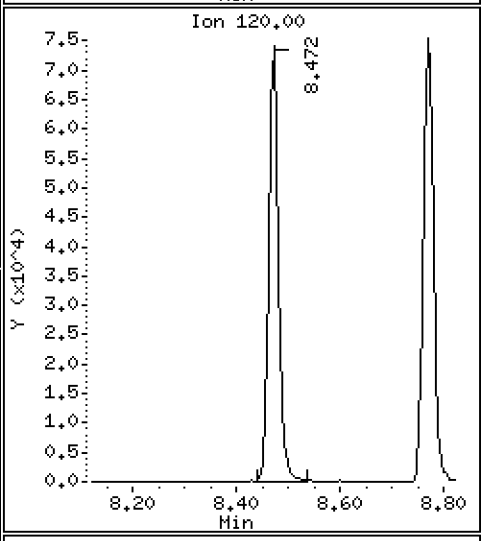
61 Isopropyl Benzene

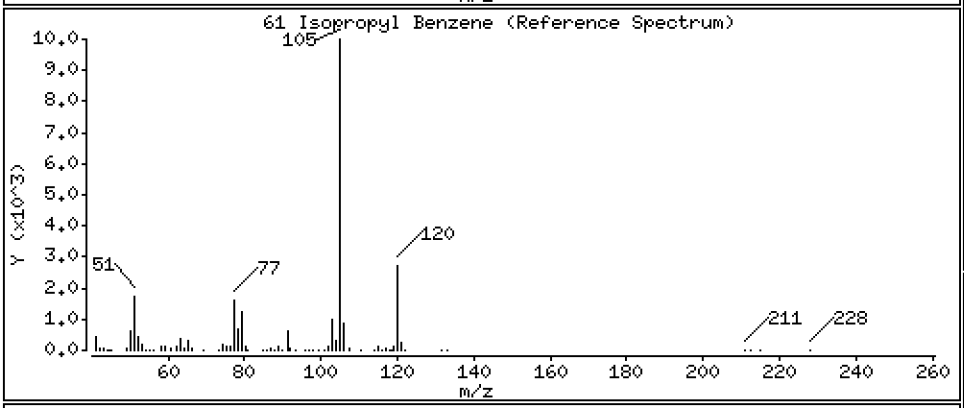
Concentration: 9.198 ug/L

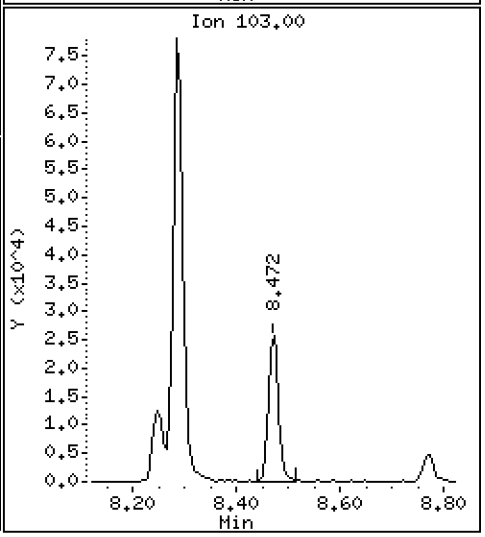


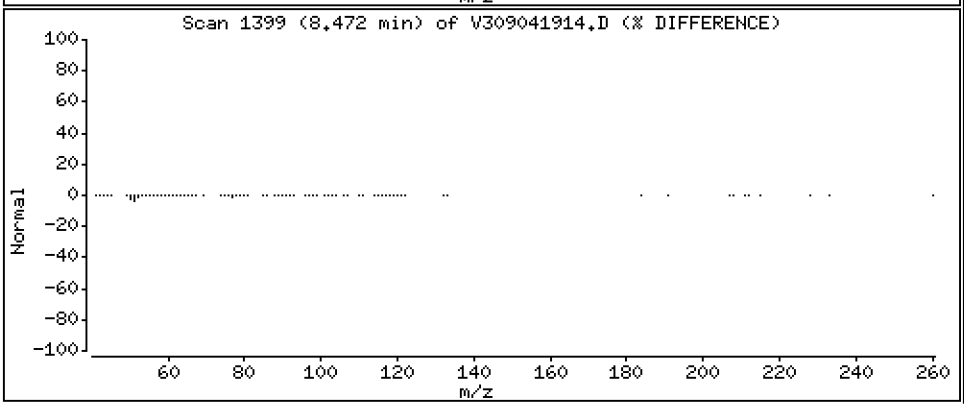












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

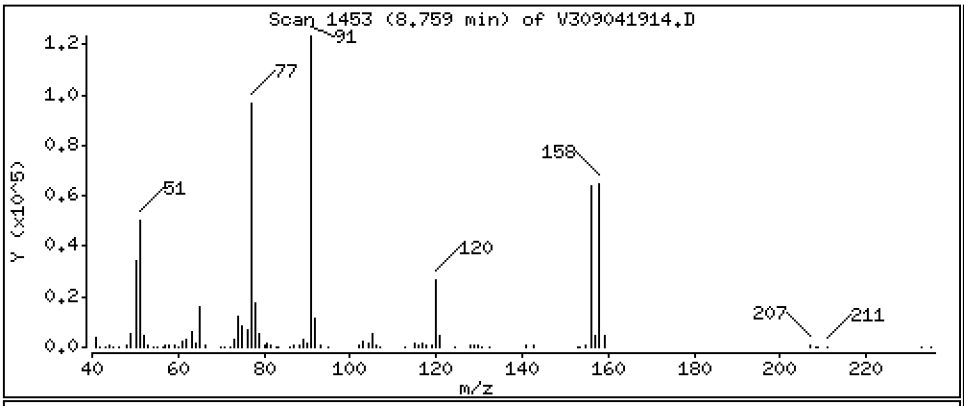
Operator: PKC

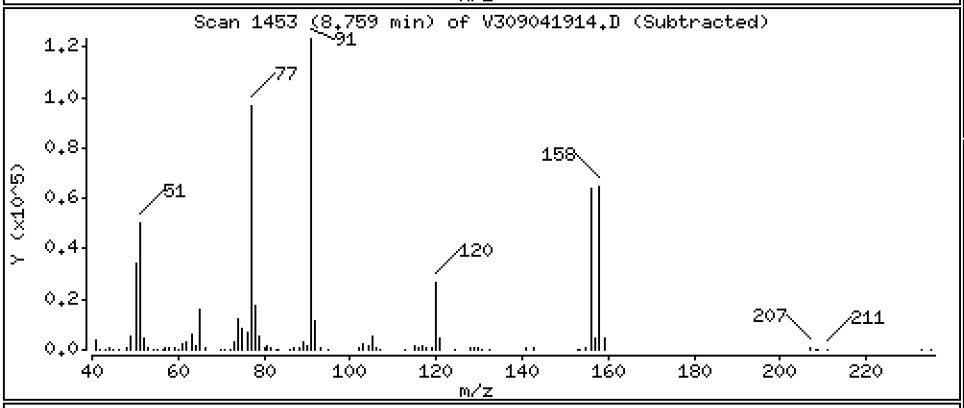
Column phase: RTXVMS

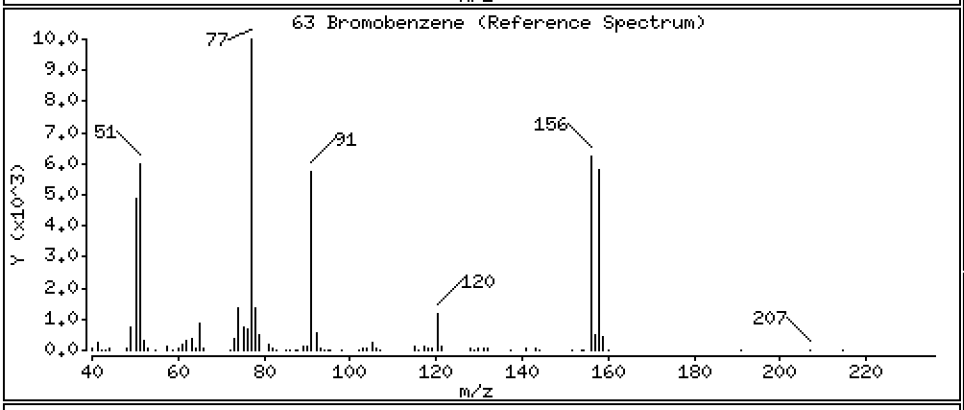
Column diameter: 0.18

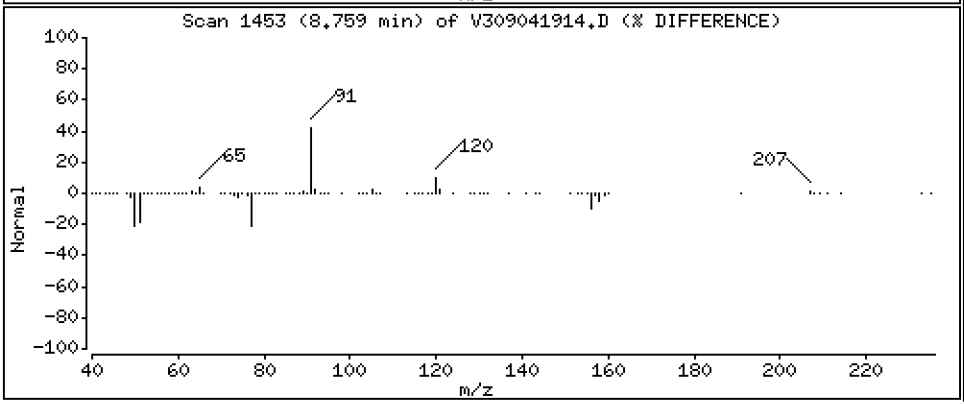
63 Bromobenzene

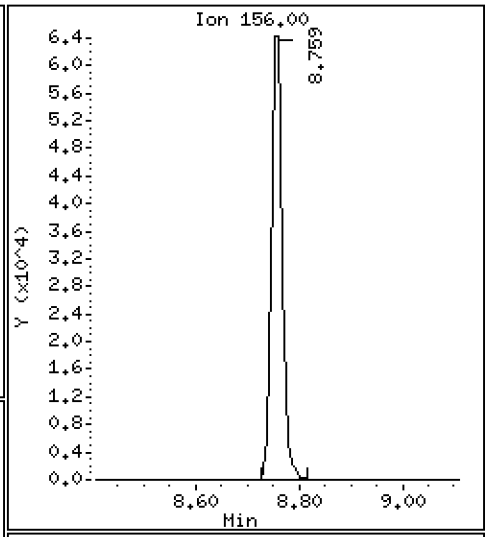
Concentration: 9.032 ug/L

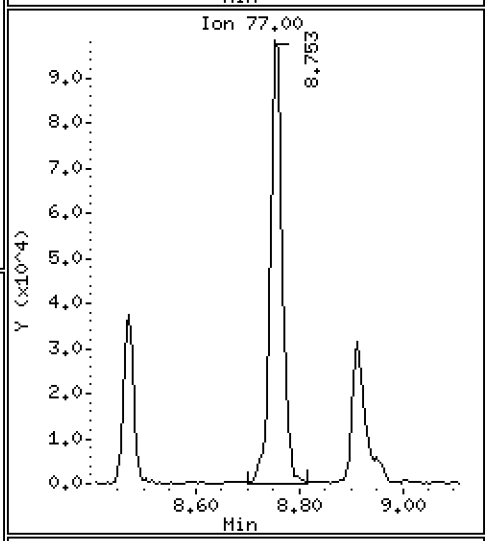


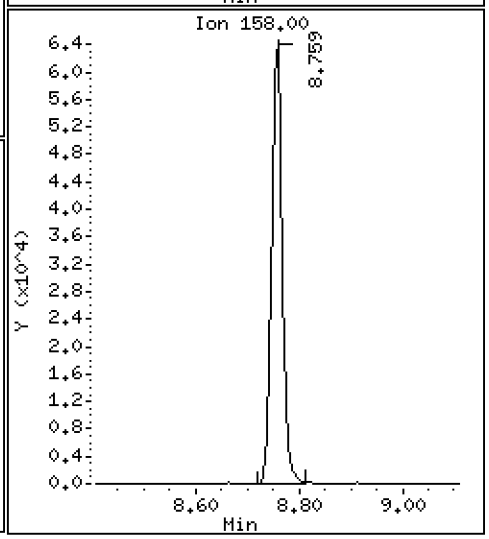












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

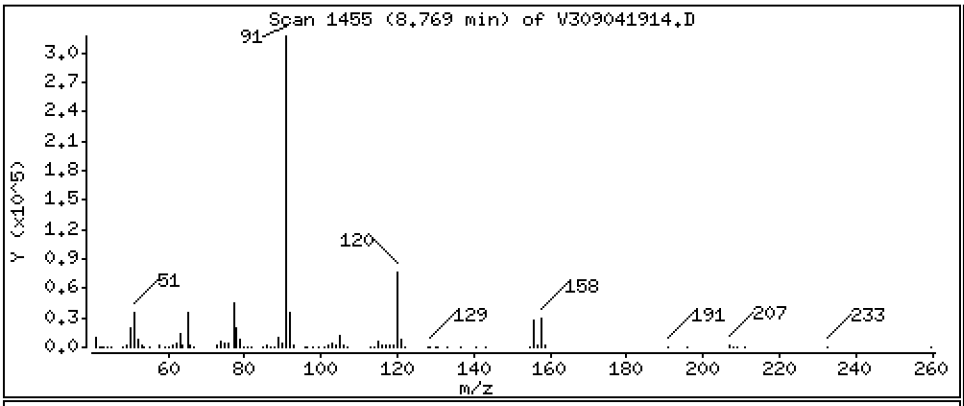
Operator: PKC

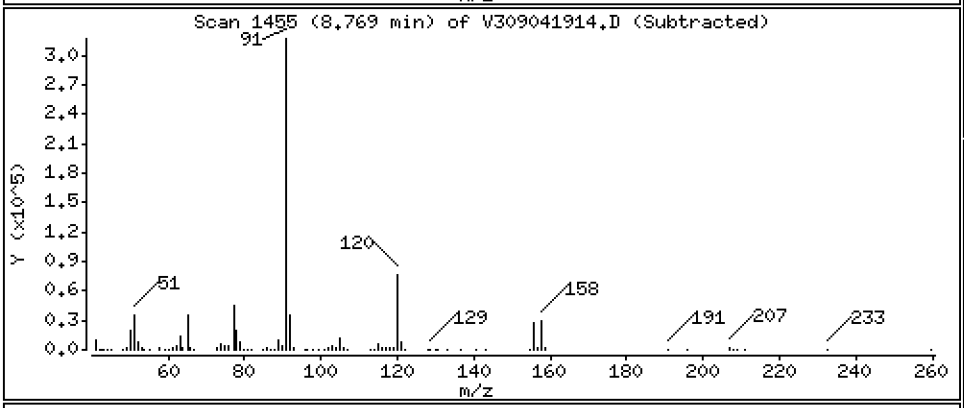
Column phase: RTXVMS

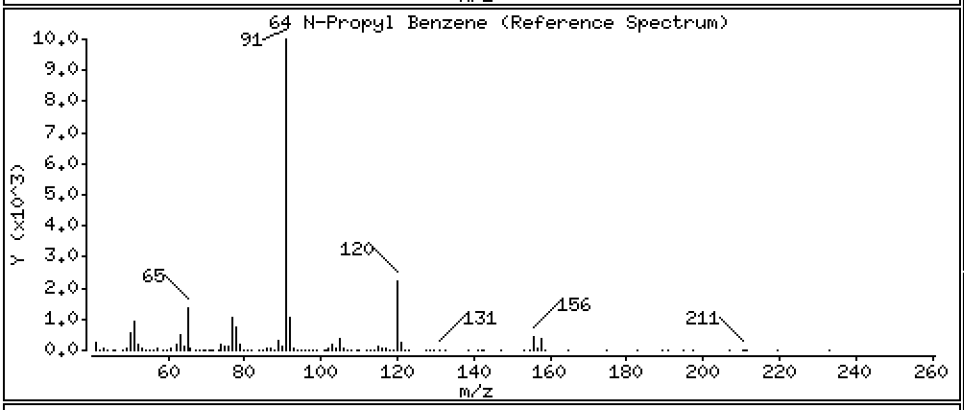
Column diameter: 0.18

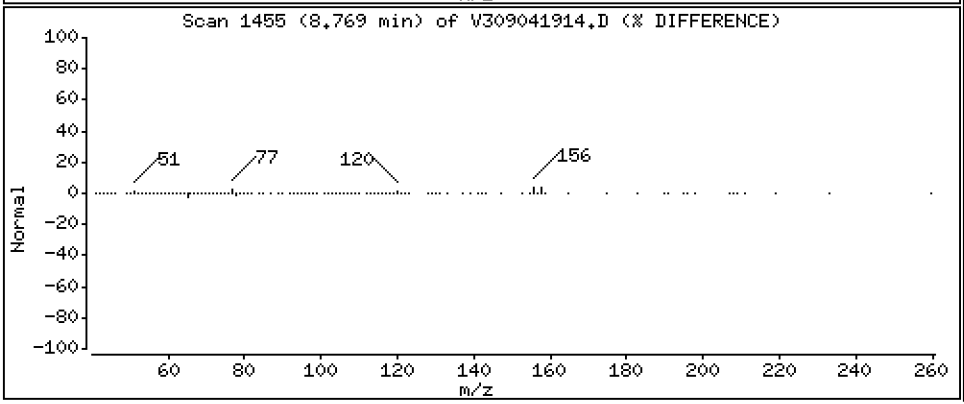
64 N-Propyl Benzene

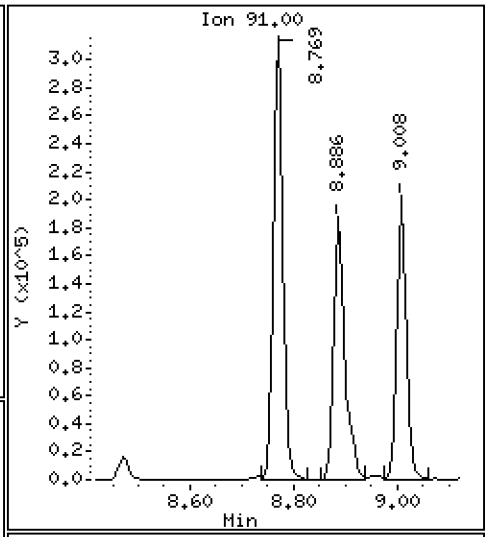
Concentration: 9.242 ug/L

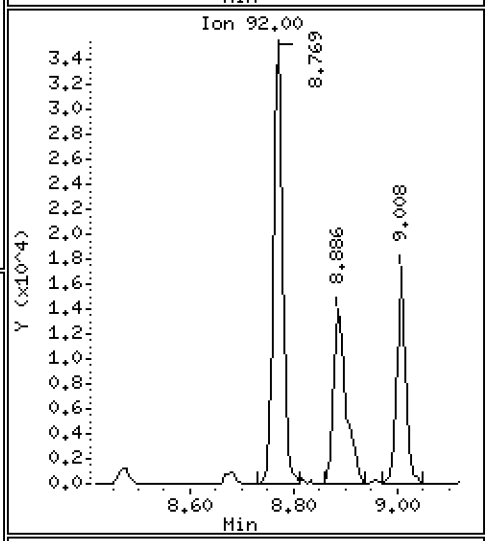


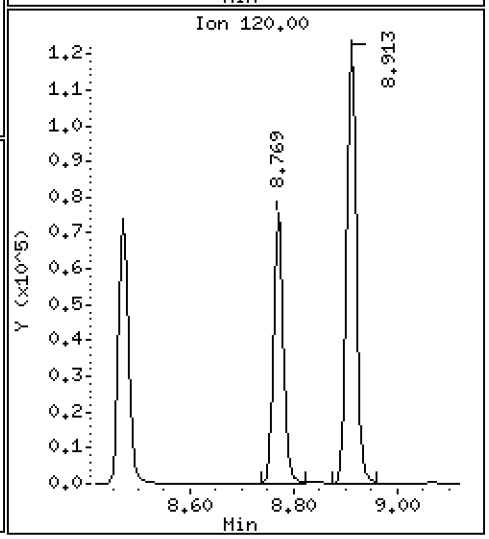












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

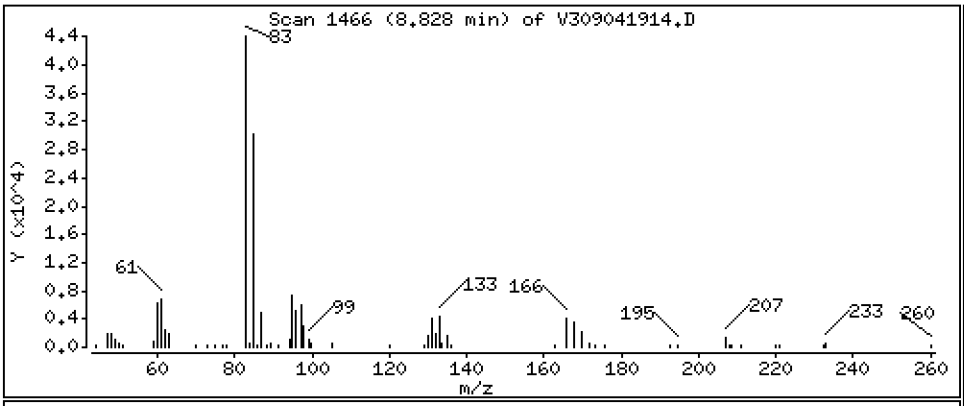
Operator: PKC

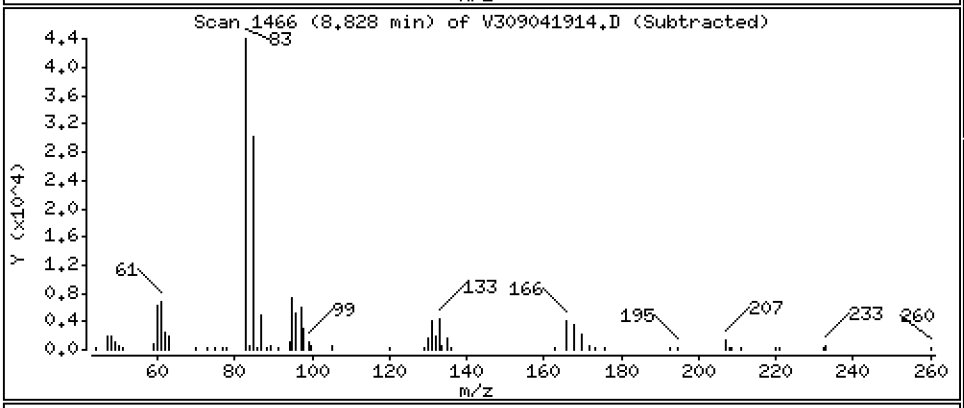
Column phase: RTXVMS

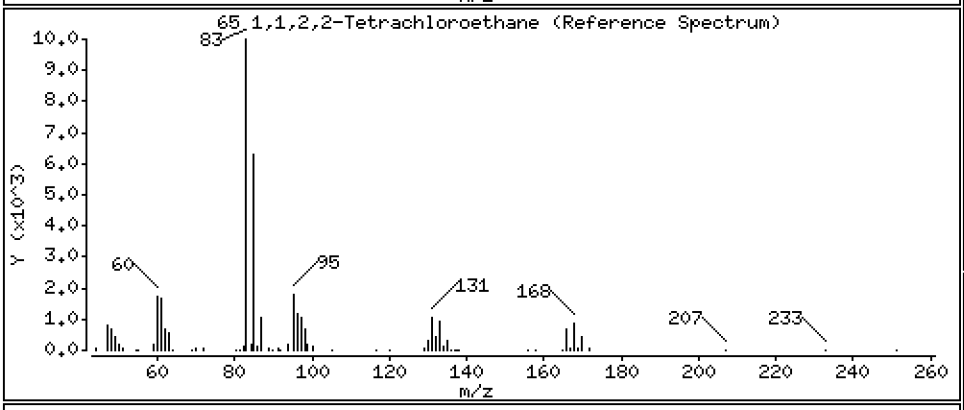
Column diameter: 0.18

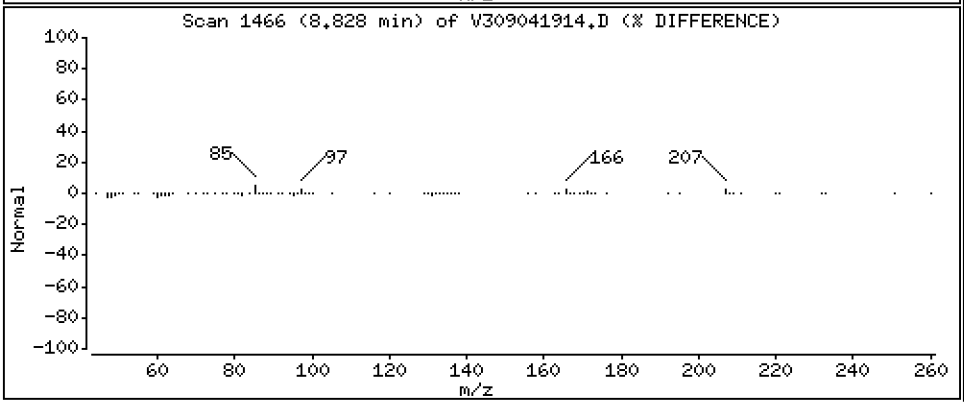
65 1,1,2,2-Tetrachloroethane

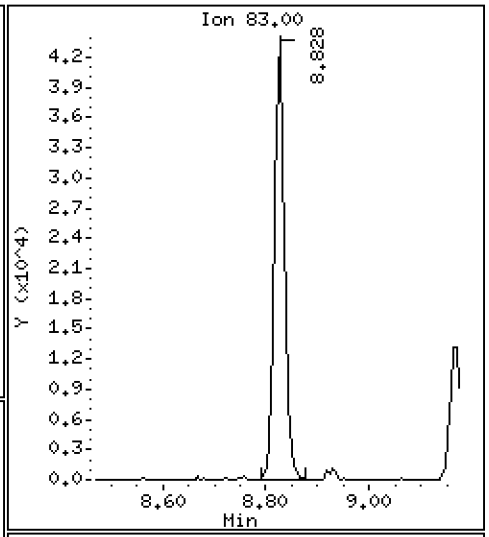
Concentration: 9.177 ug/L

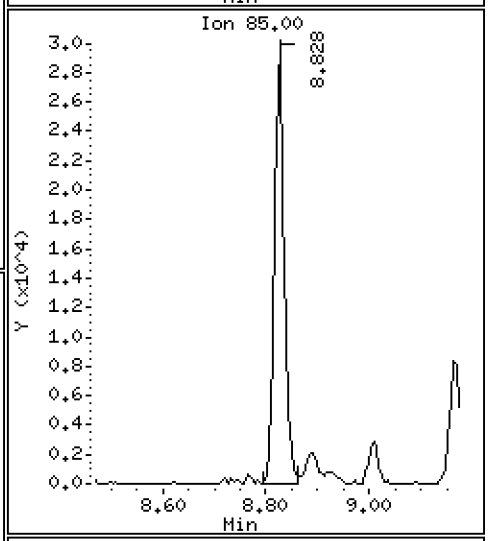


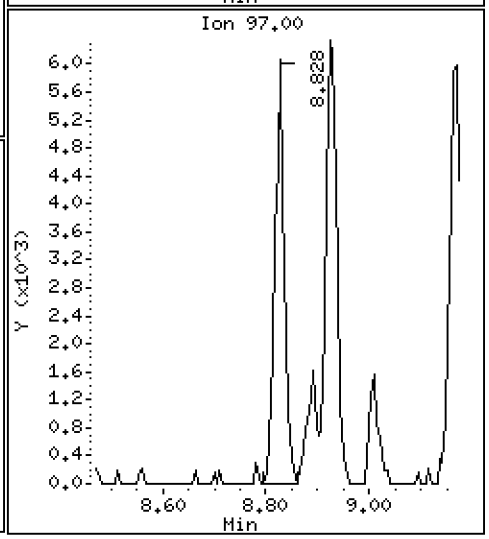












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

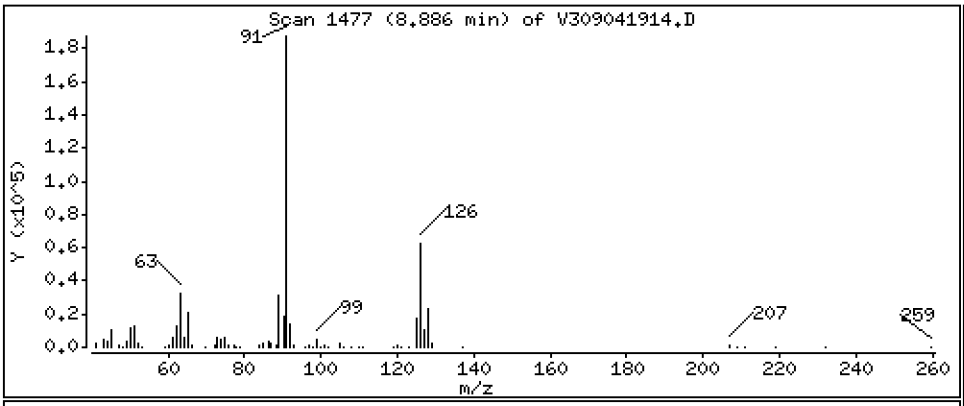
Operator: PKC

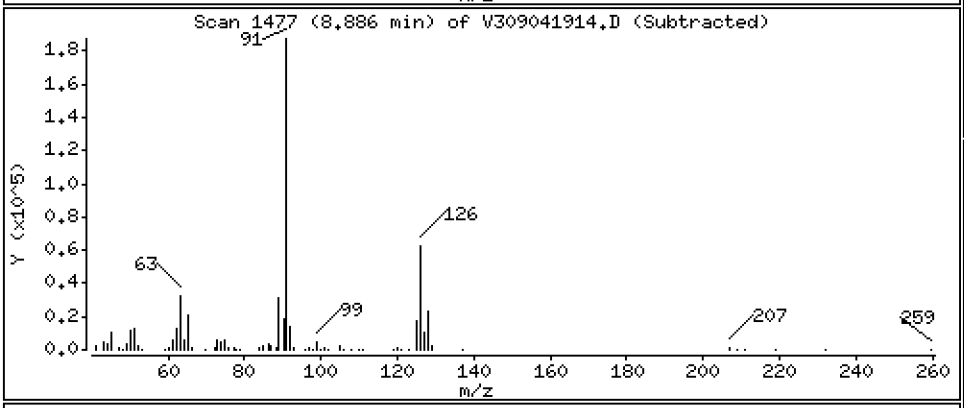
Column phase: RTXVMS

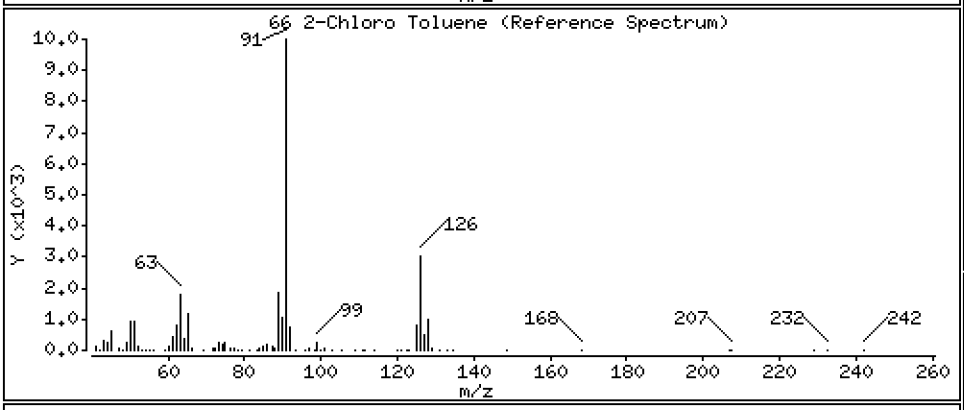
Column diameter: 0.18

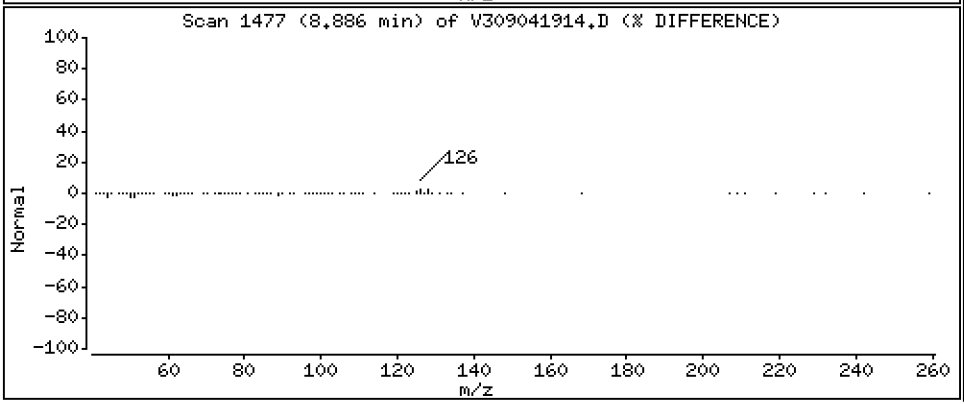
66 2-Chloro Toluene

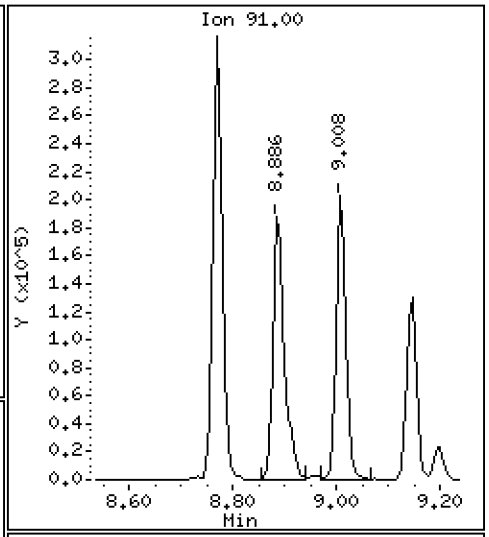
Concentration: 9.096 ug/L

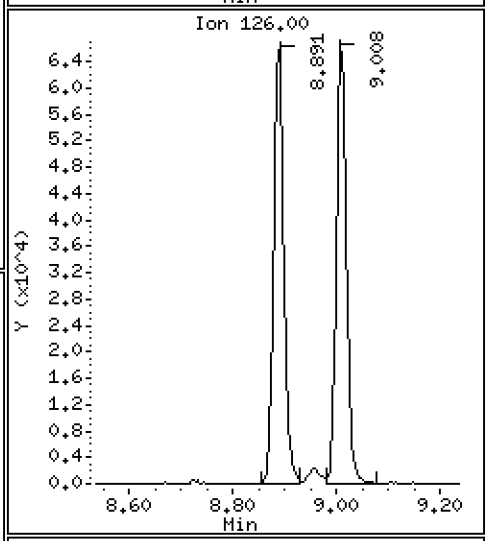


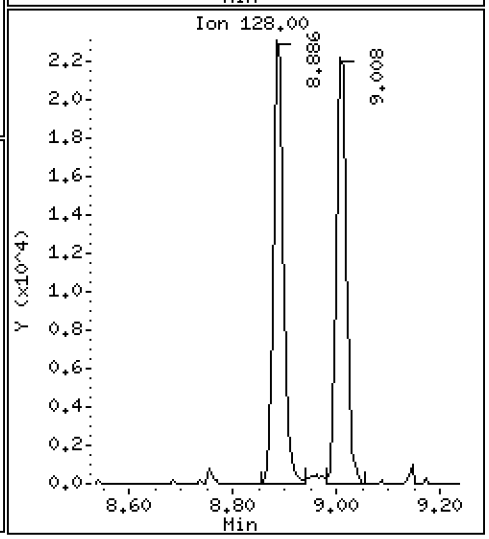












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

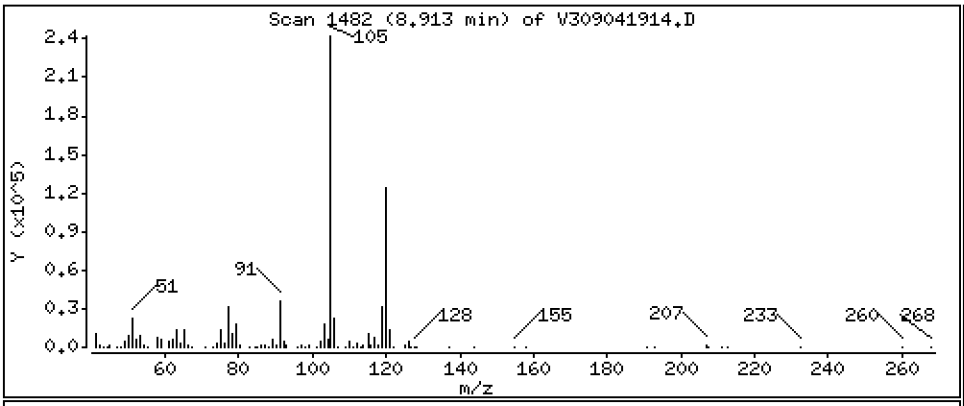
Operator: PKC

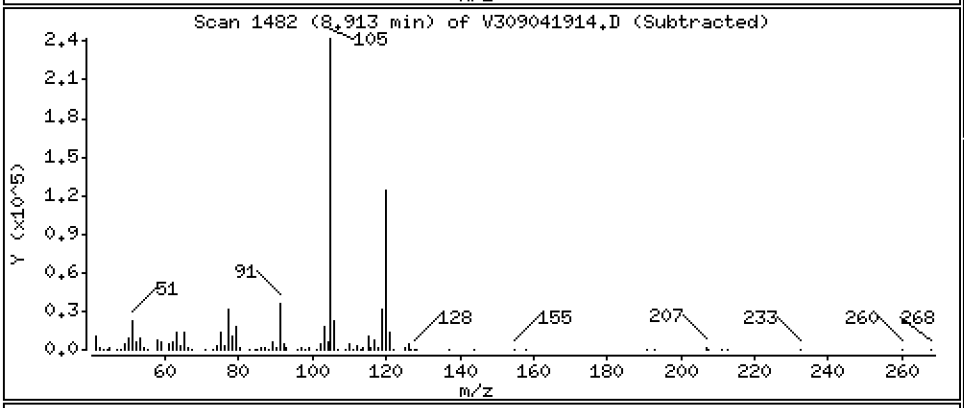
Column phase: RTXVMS

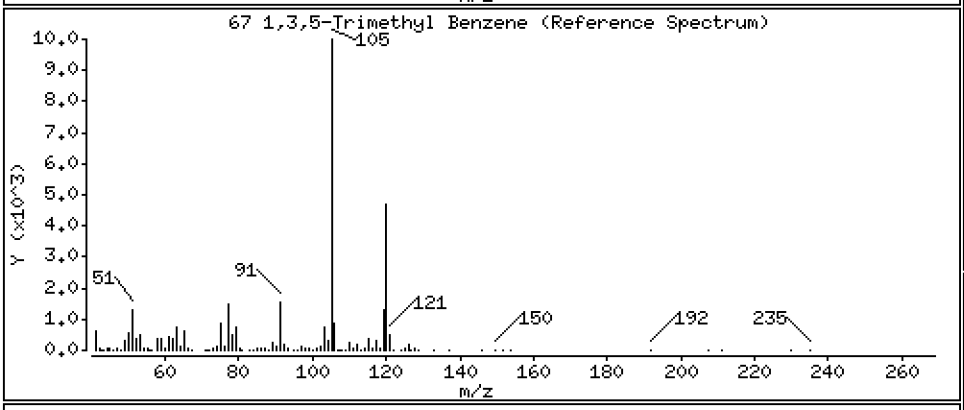
Column diameter: 0.18

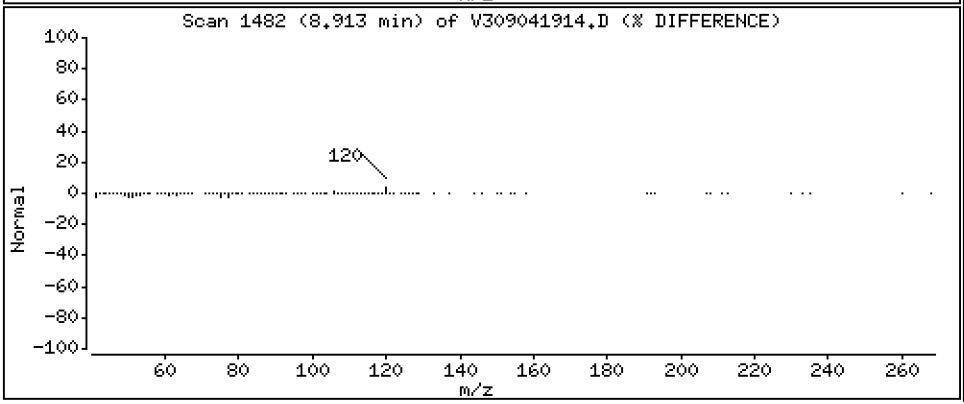
67 1,3,5-Trimethyl Benzene

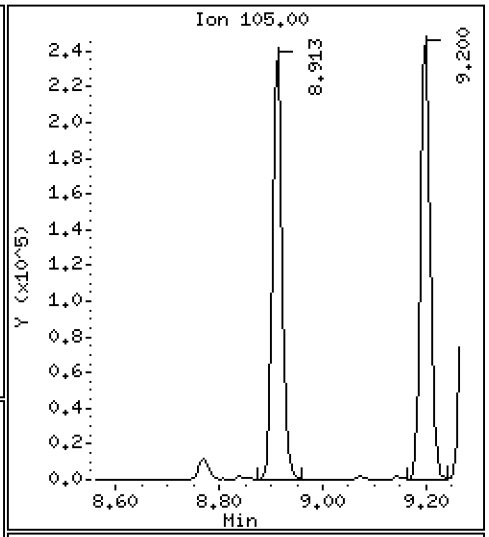
Concentration: 9.146 ug/L

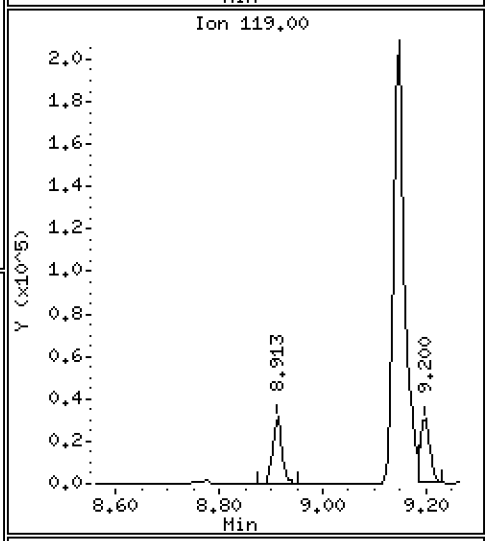


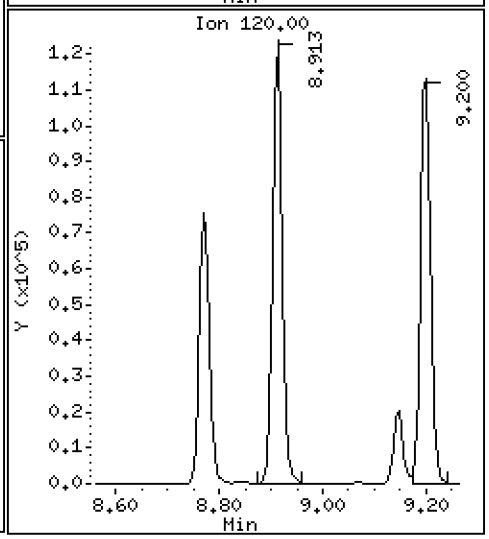












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

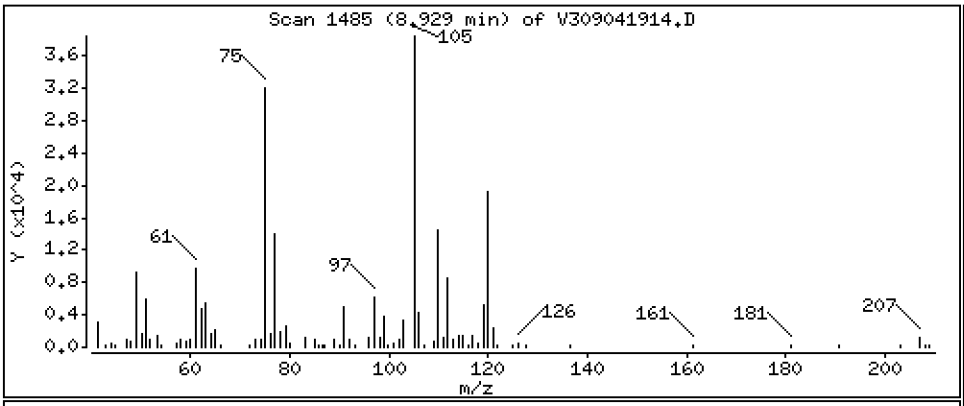
Operator: PKC

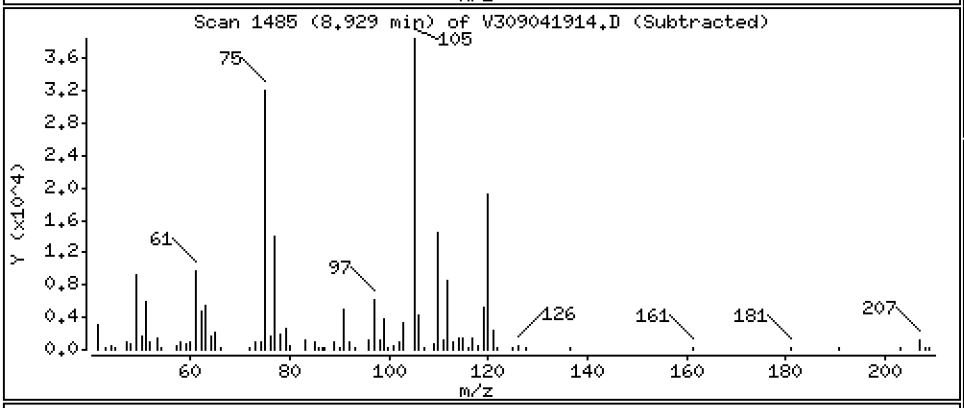
Column phase: RTXVMS

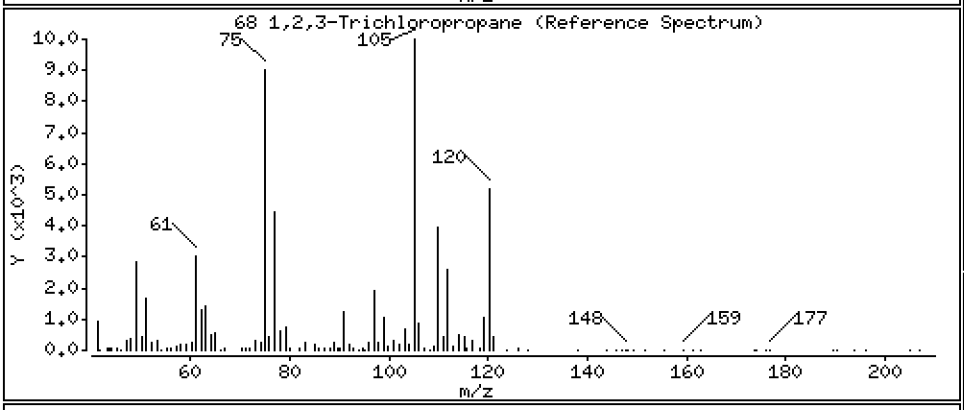
Column diameter: 0.18

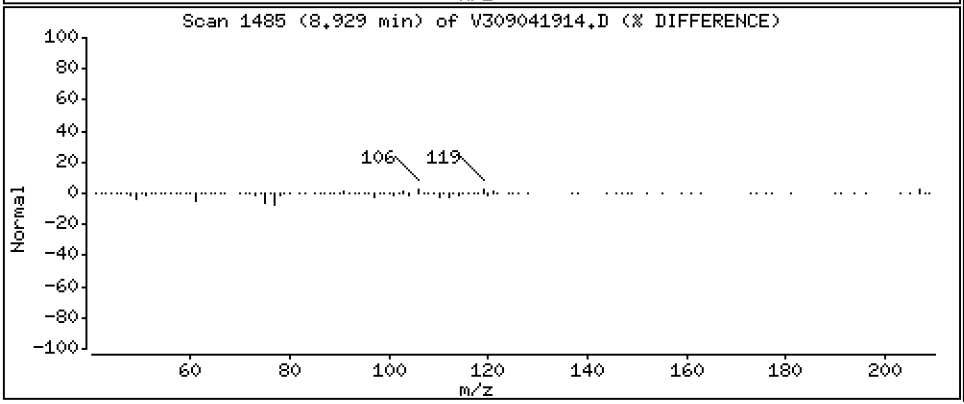
68 1,2,3-Trichloropropane

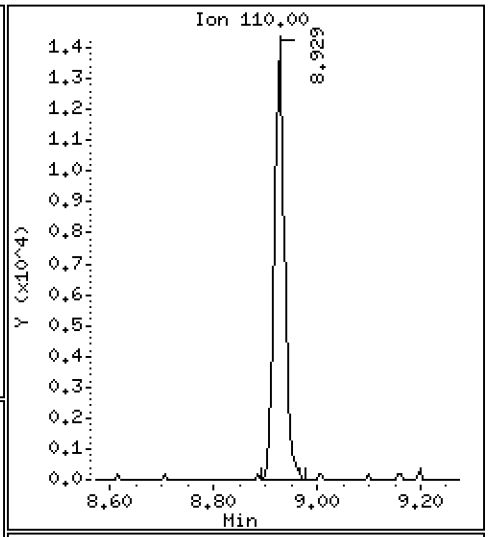
Concentration: 9.037 ug/L

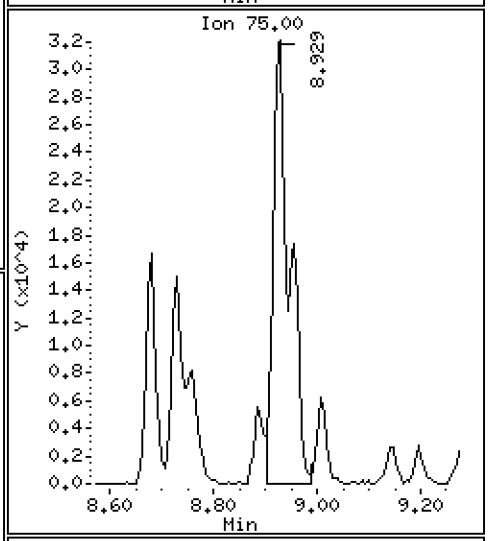


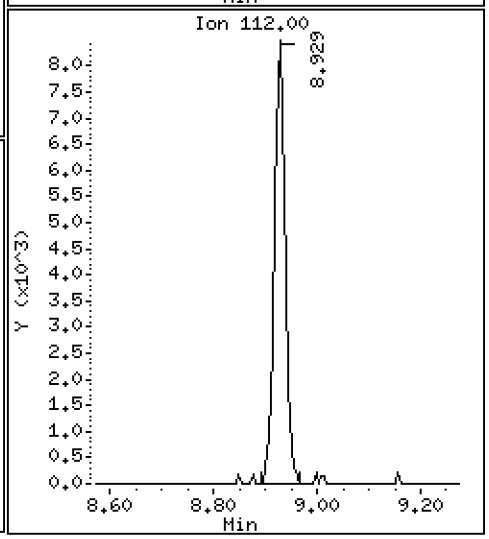












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

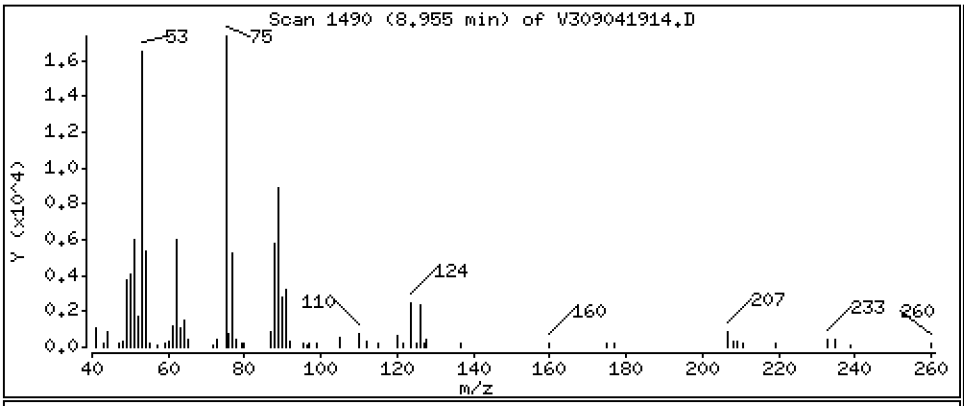
Operator: PKC

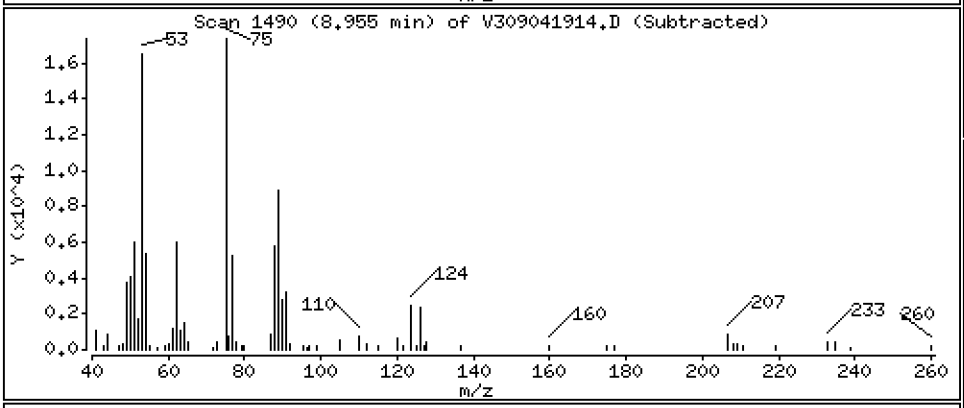
Column phase: RTXVMS

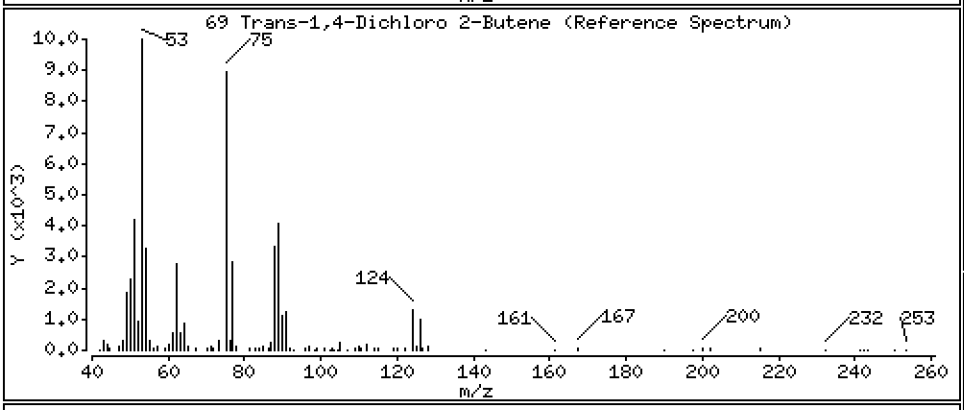
Column diameter: 0.18

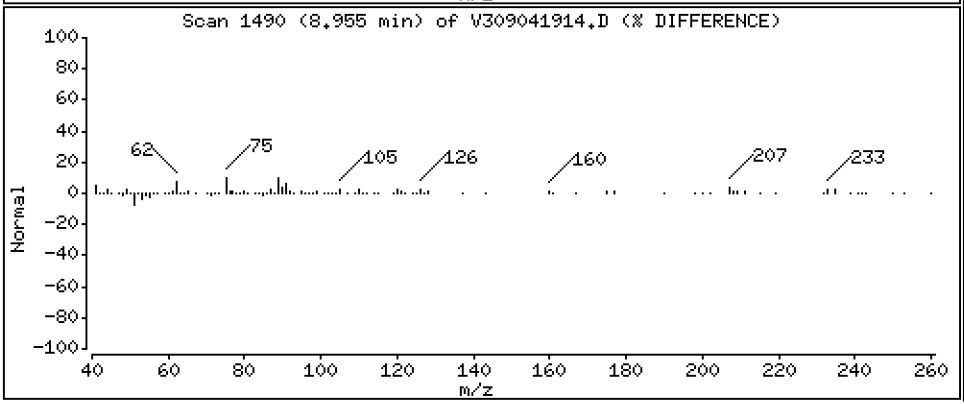
69 Trans-1,4-Dichloro 2-Butene

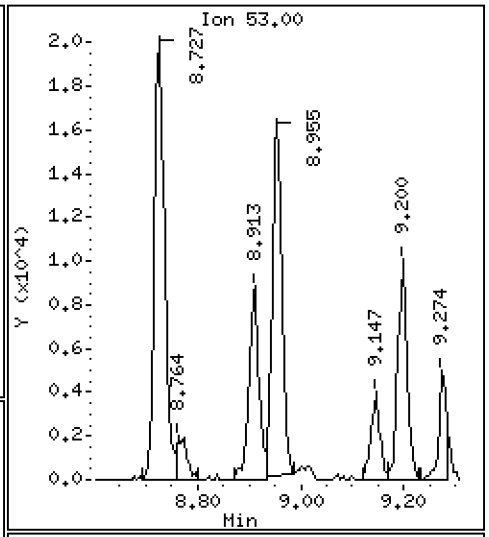
Concentration: 8.906 ug/L

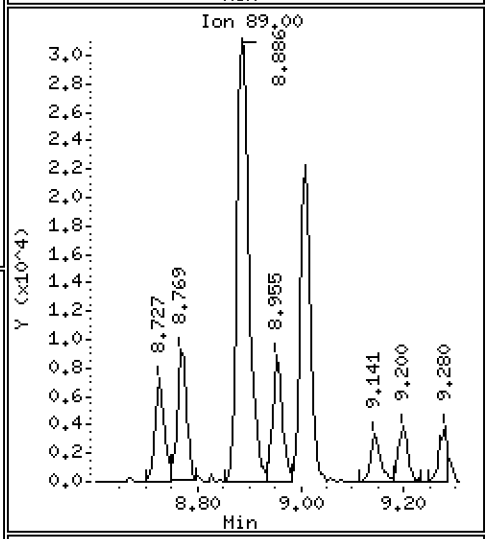


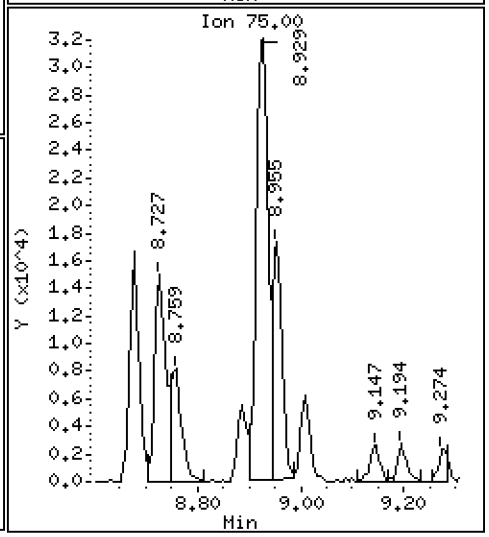












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

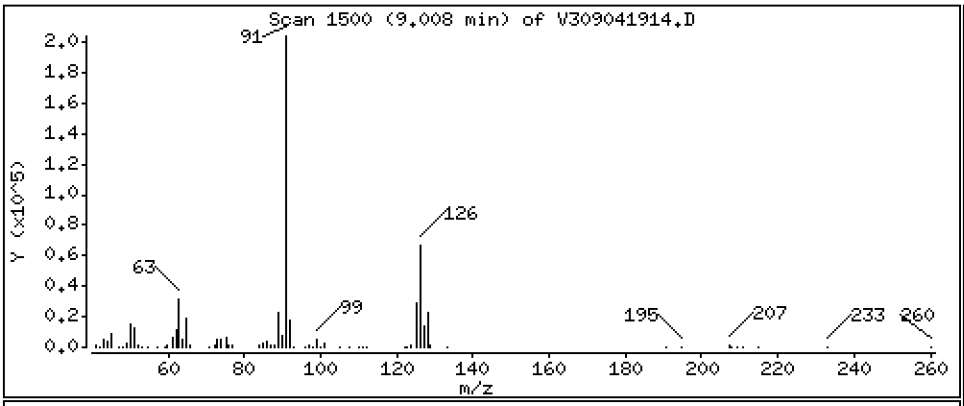
Operator: PKC

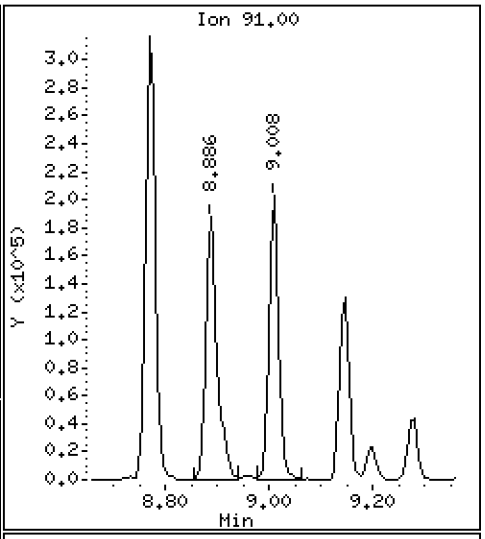
Column phase: RTXVMS

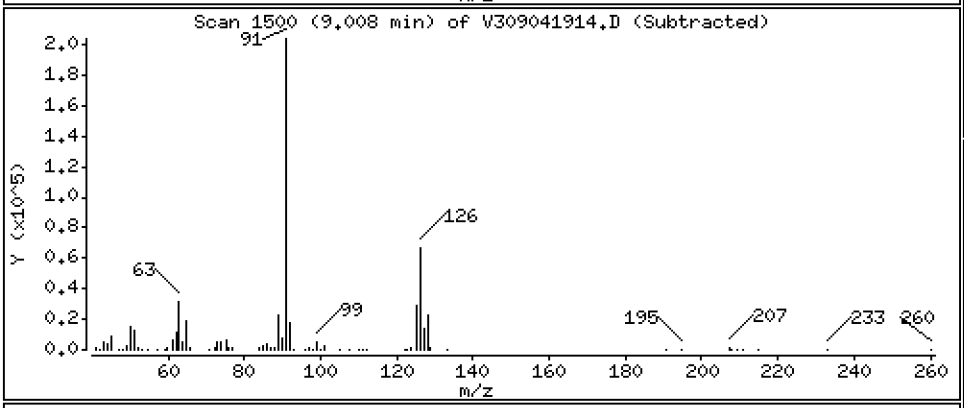
Column diameter: 0.18

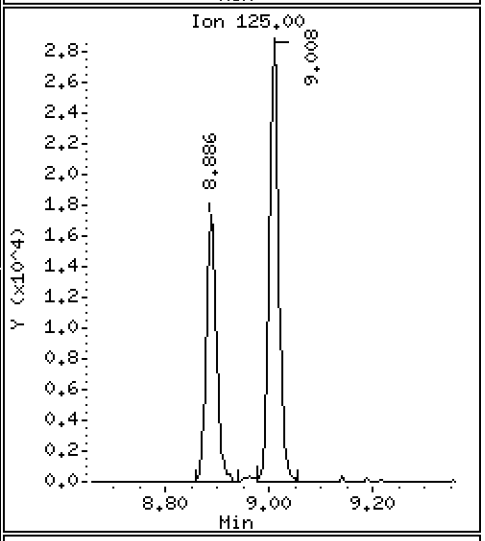
70 4-Chloro Toluene

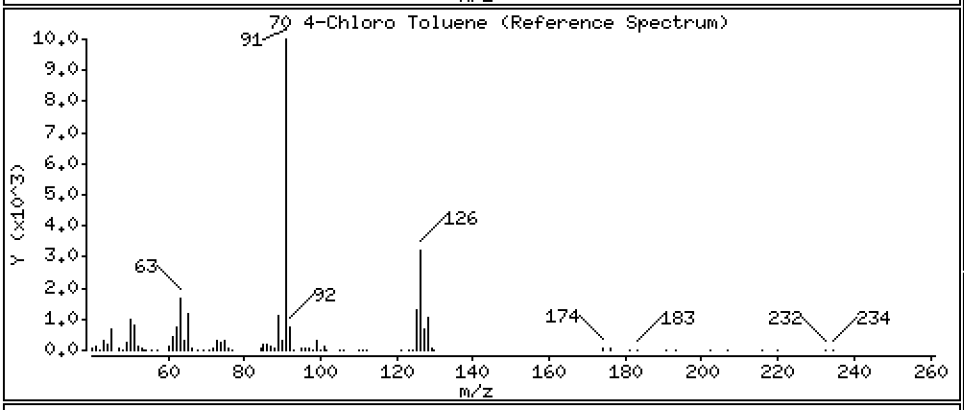
Concentration: 9.038 ug/L

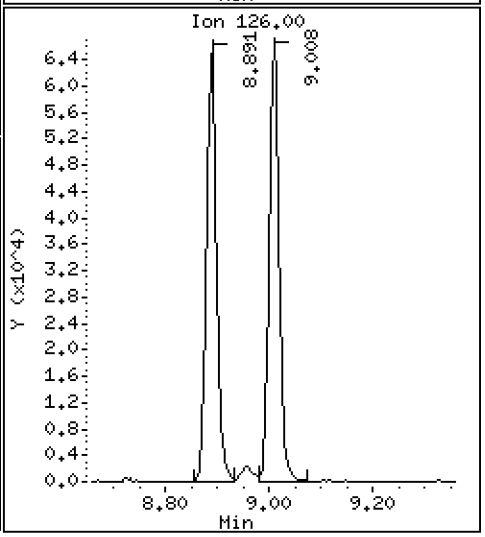


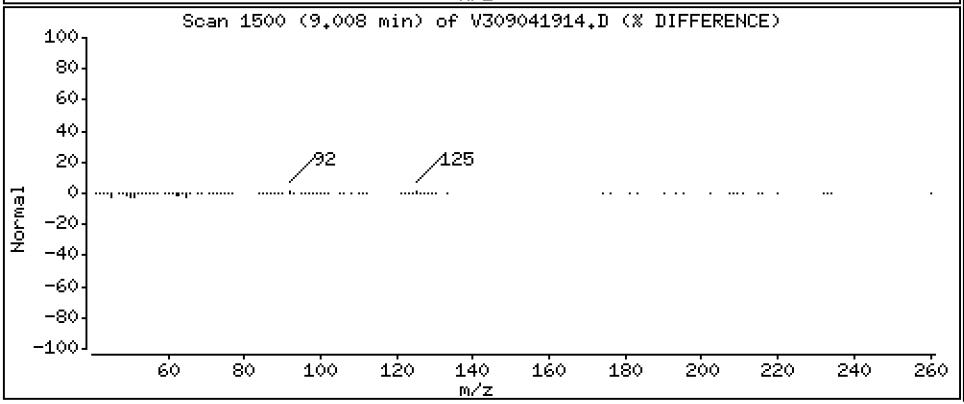












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

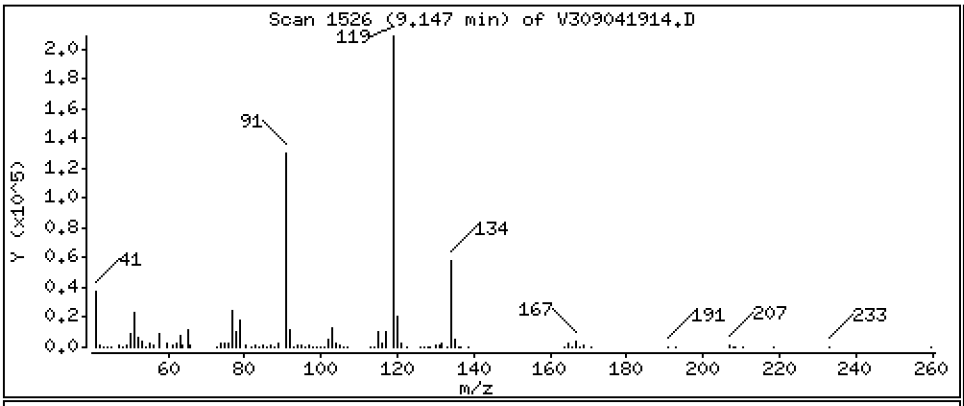
Operator: PKC

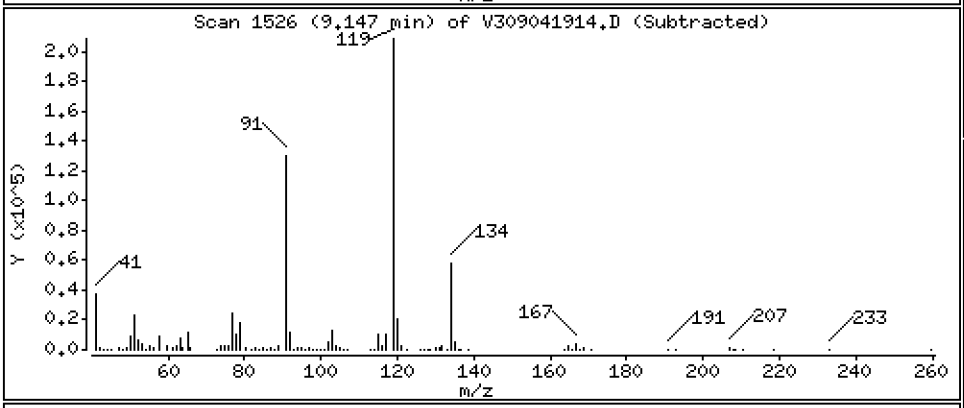
Column phase: RTXVMS

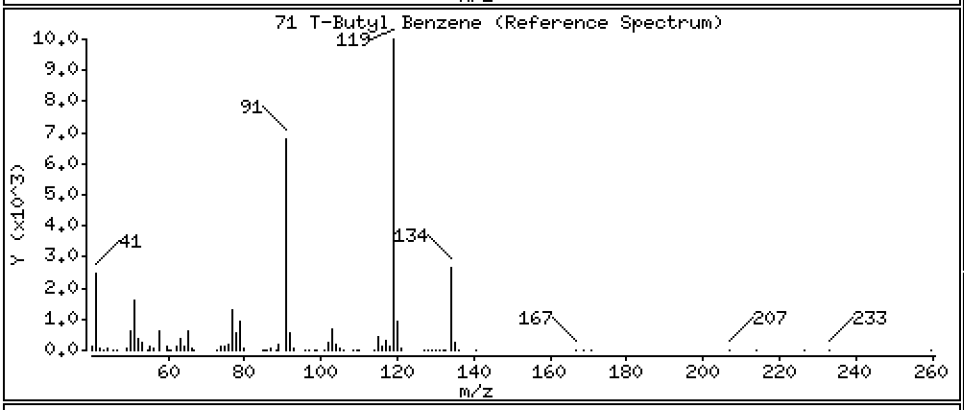
Column diameter: 0.18

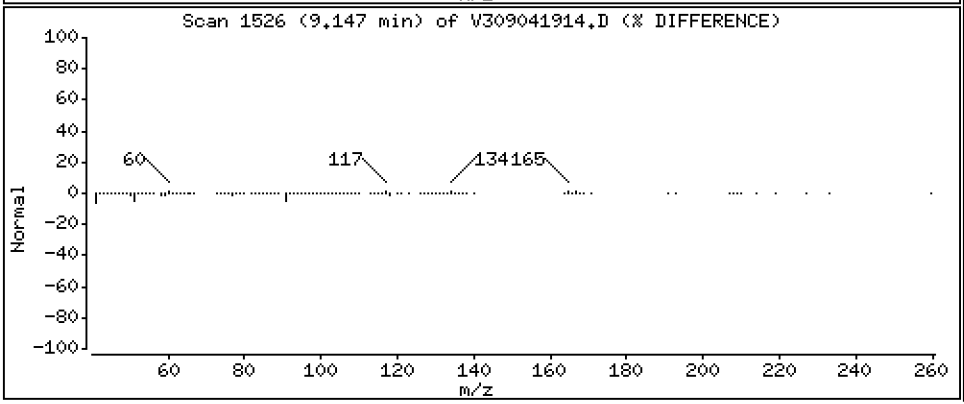
71 T-Butyl Benzene

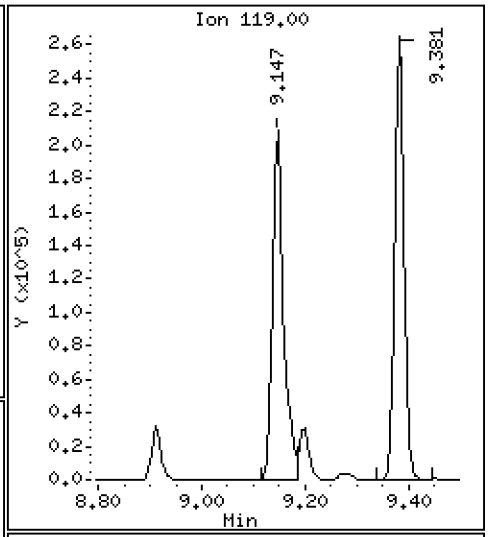
Concentration: 10.898 ug/L

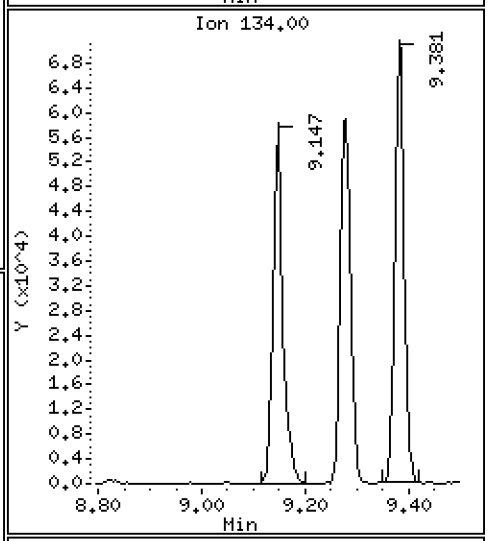


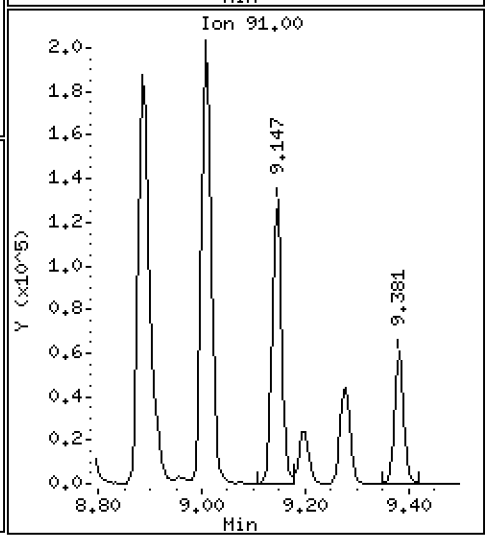












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

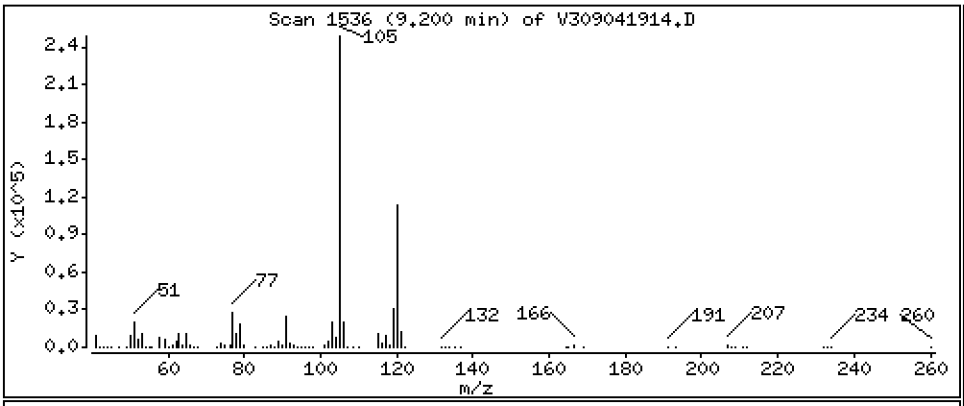
Operator: PKC

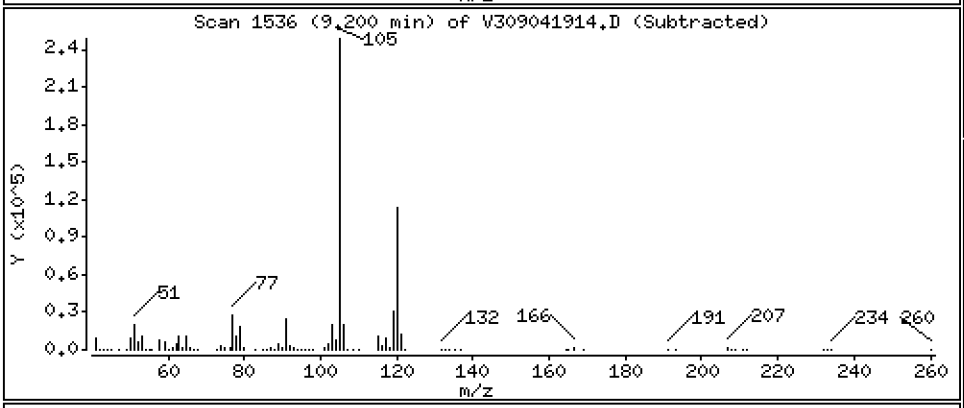
Column phase: RTXVMS

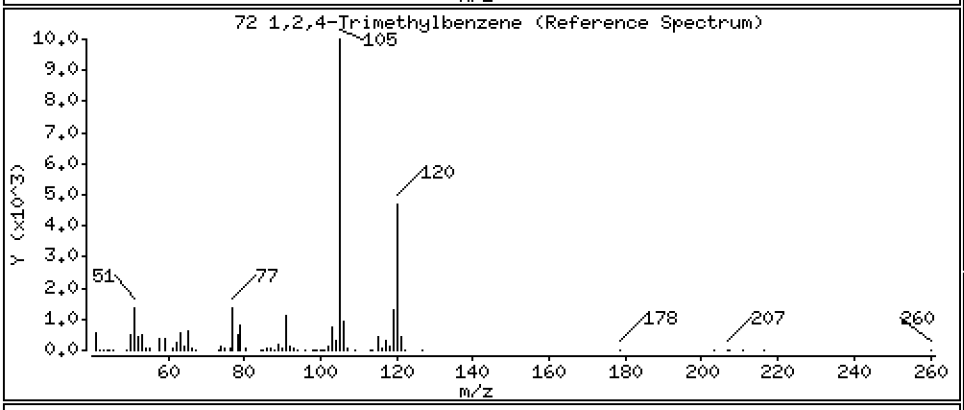
Column diameter: 0.18

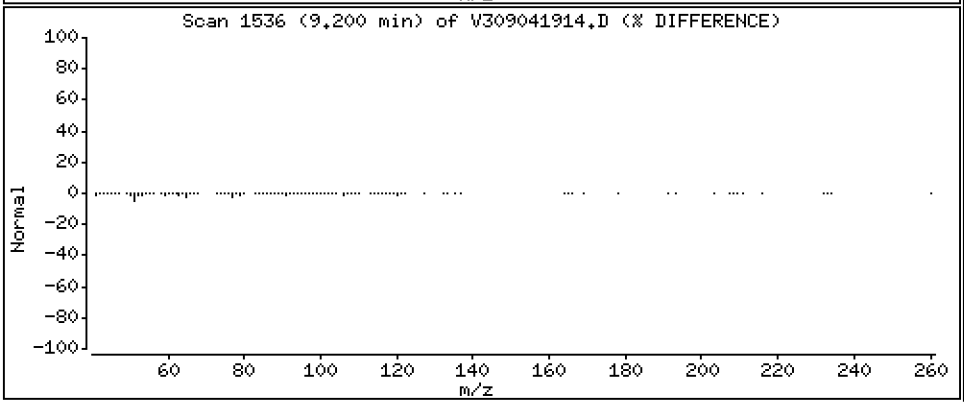
72 1,2,4-Trimethylbenzene

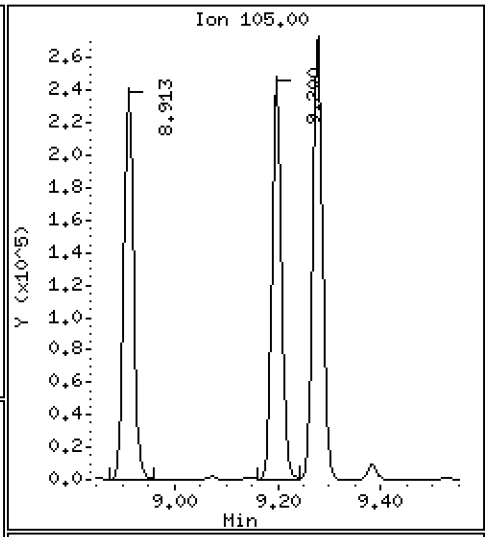
Concentration: 9.302 ug/L

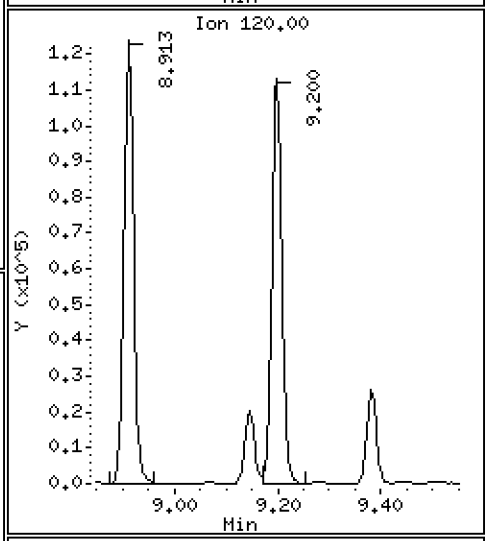


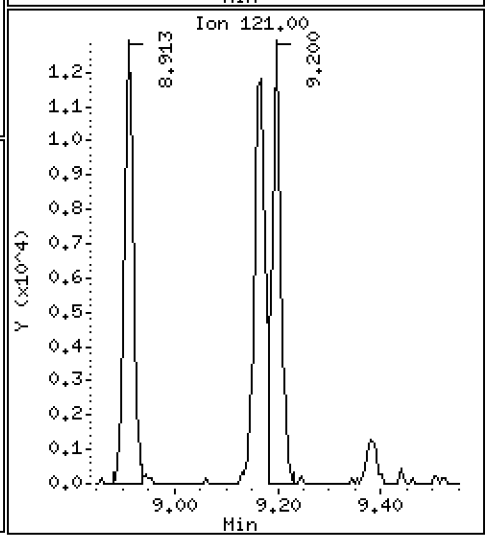












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

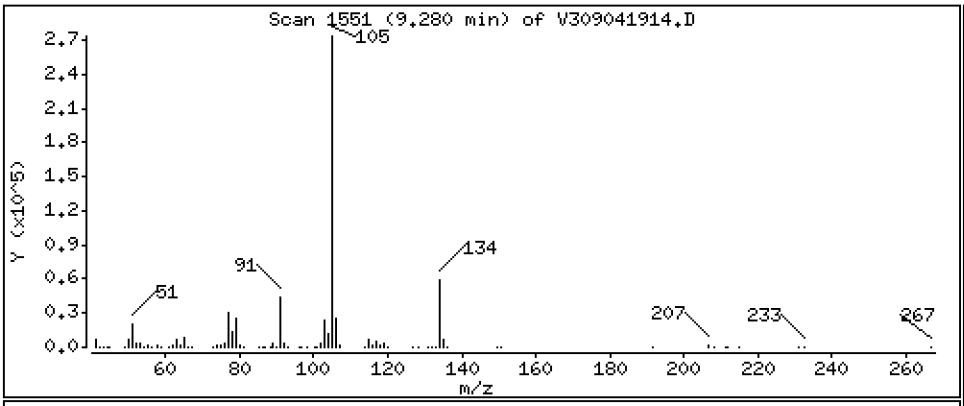
Operator: PKC

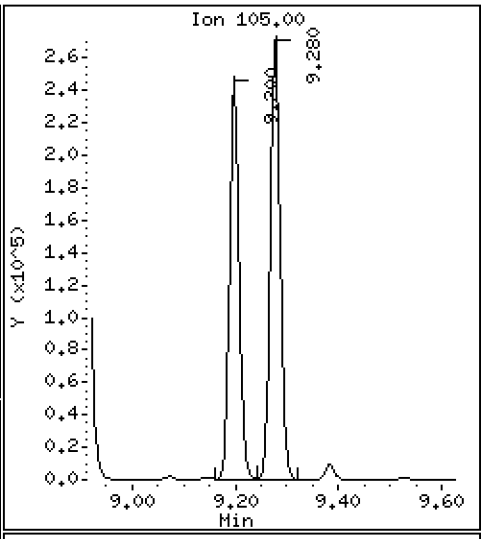
Column phase: RTXVMS

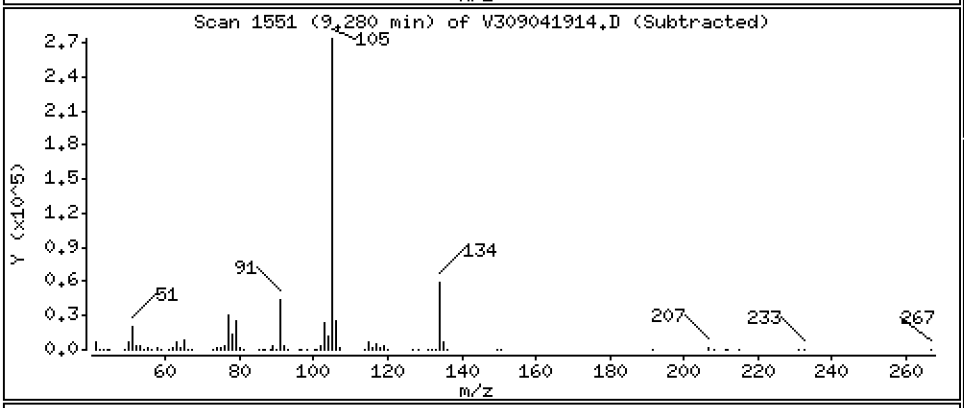
Column diameter: 0.18

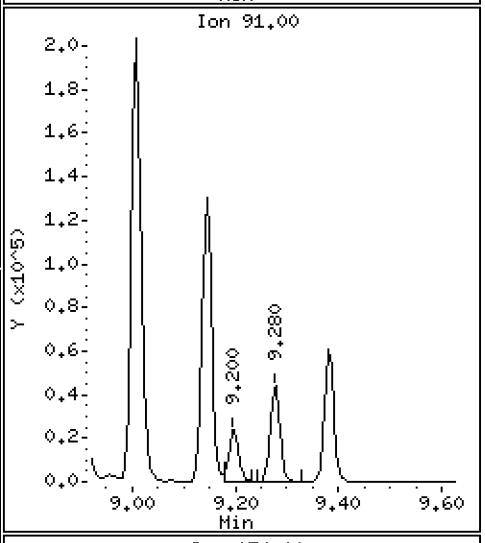
73 S-Butyl Benzene

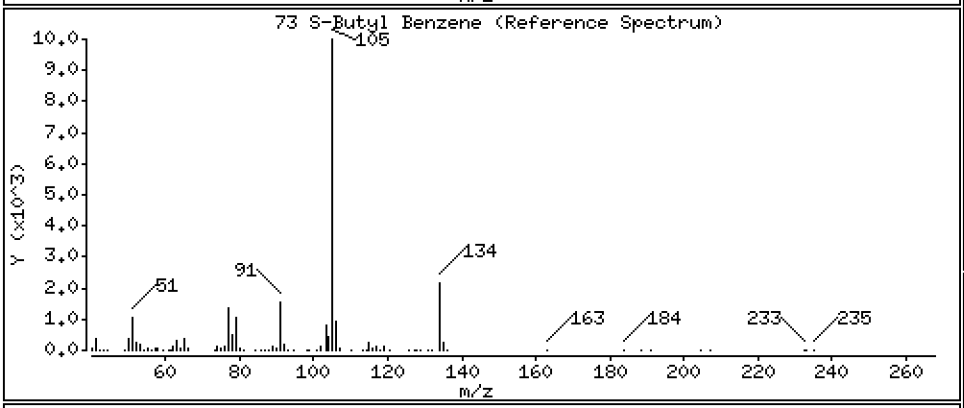
Concentration: 9.240 ug/L

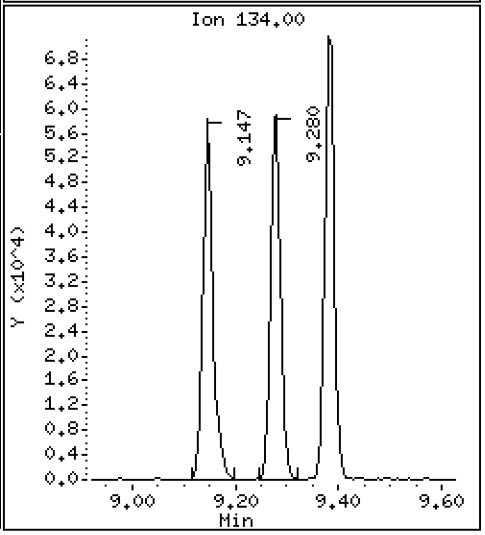


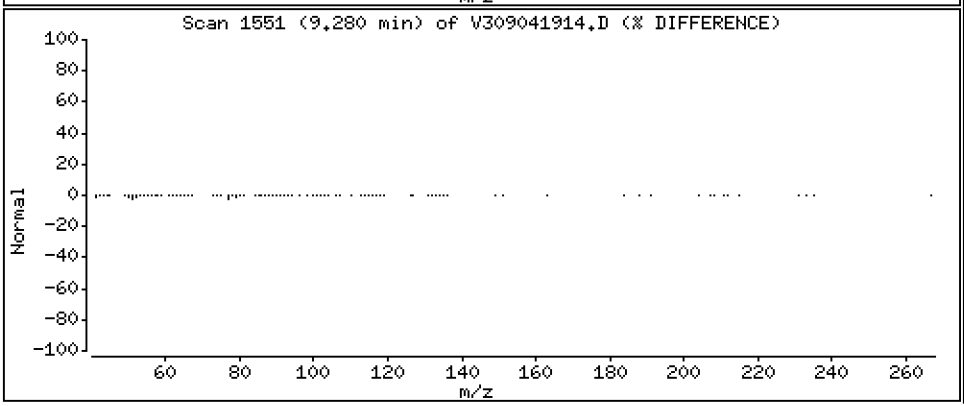












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

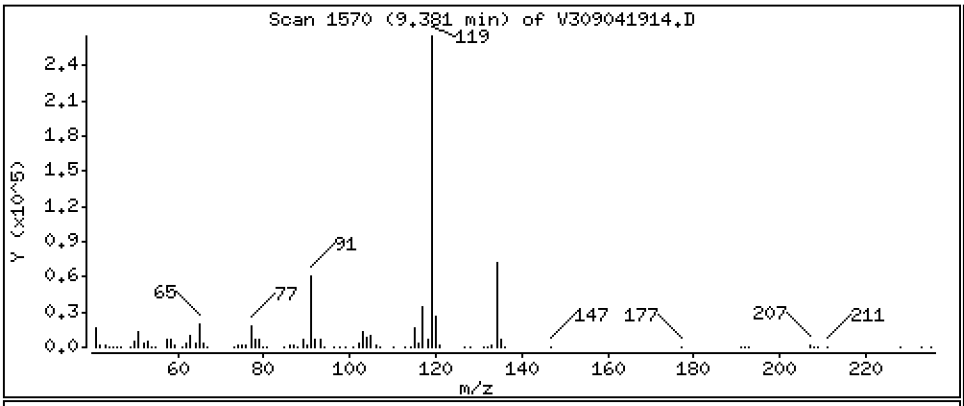
Operator: PKC

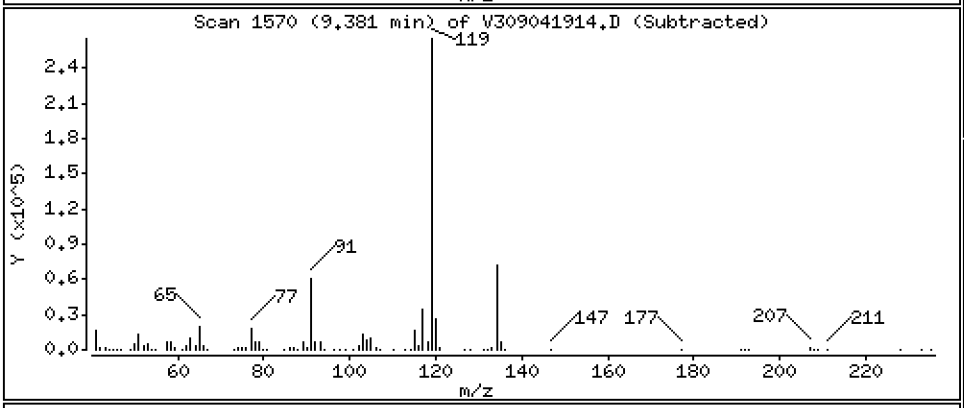
Column phase: RTXVMS

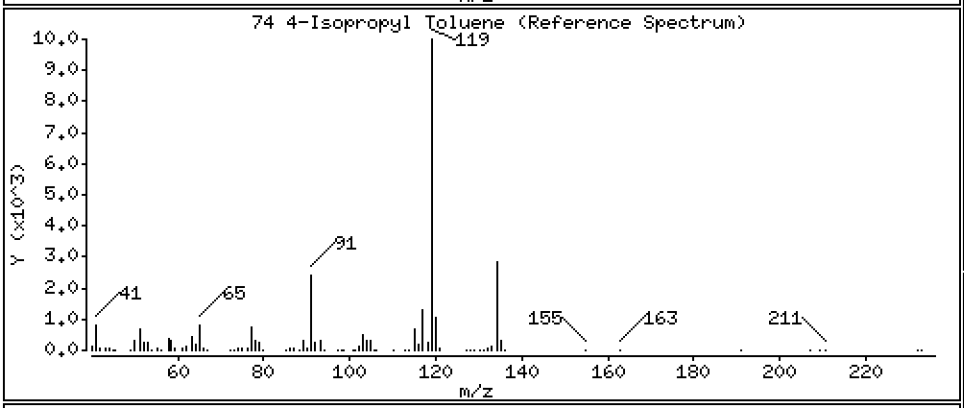
Column diameter: 0.18

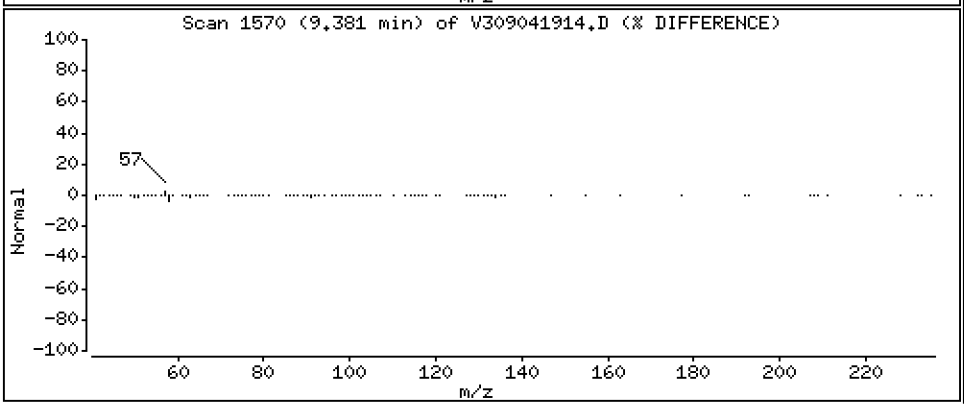
74 4-Isopropyl Toluene

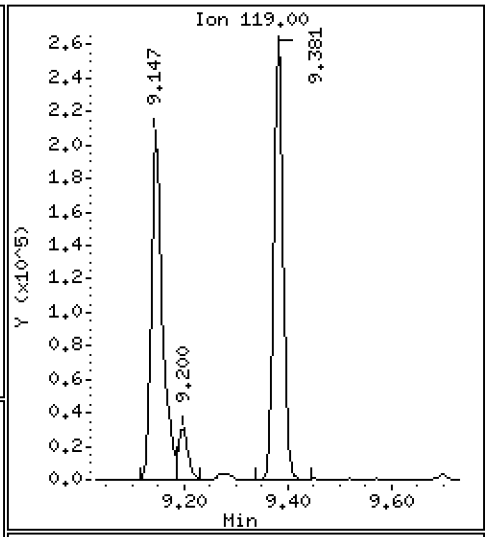
Concentration: 9.359 ug/L

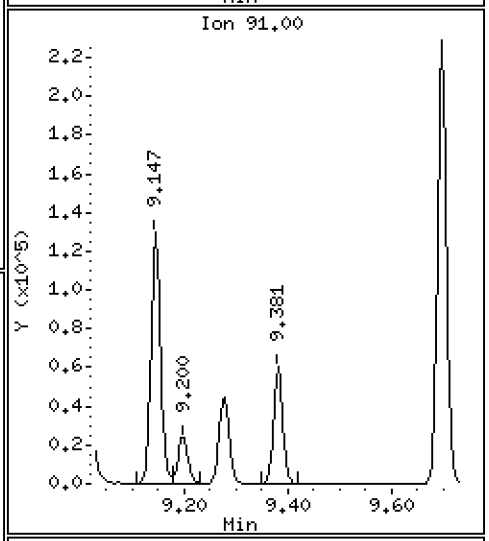


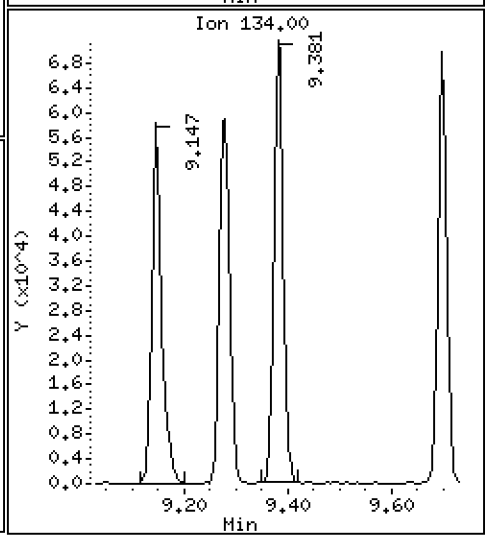












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

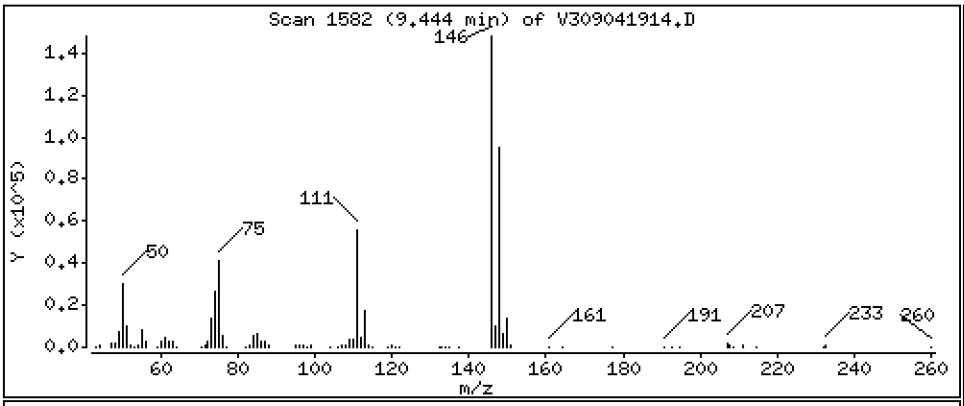
Operator: PKC

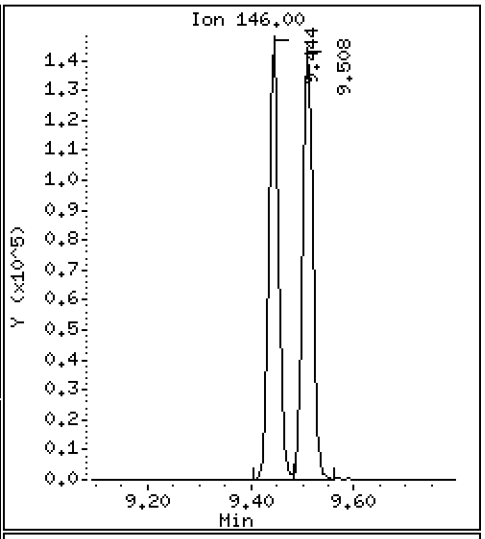
Column phase: RTXVMS

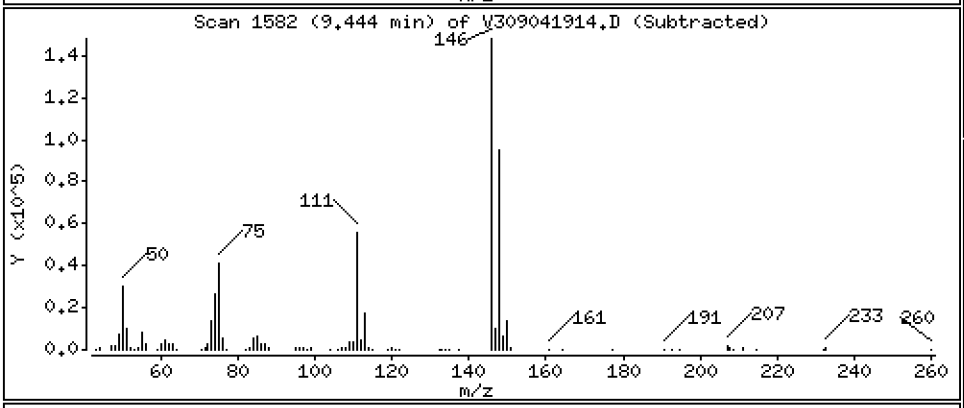
Column diameter: 0.18

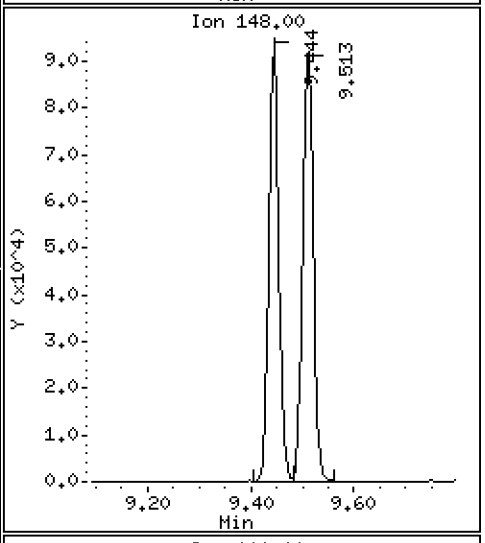
75 1,3-Dichlorobenzene

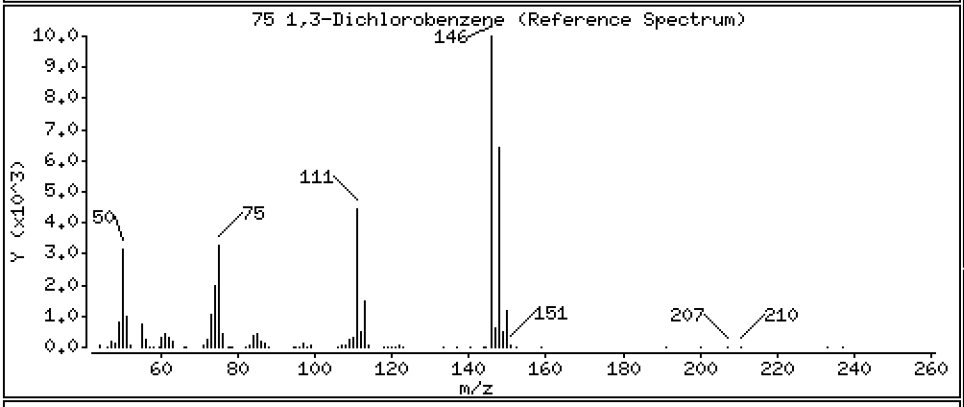
Concentration: 8.904 ug/L

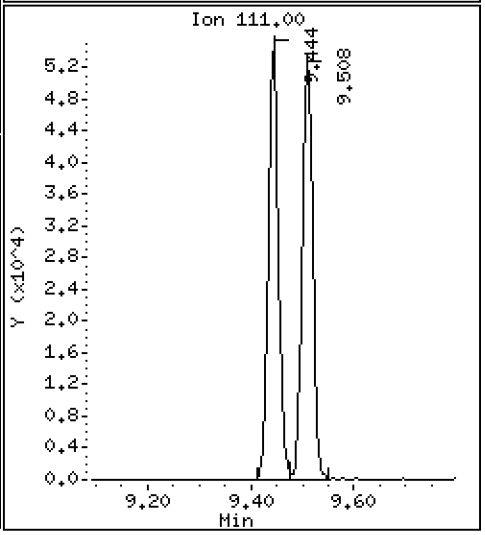


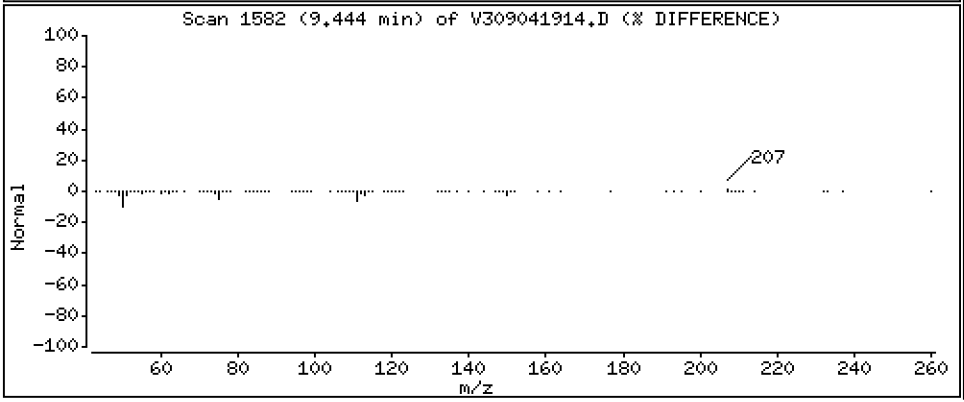












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

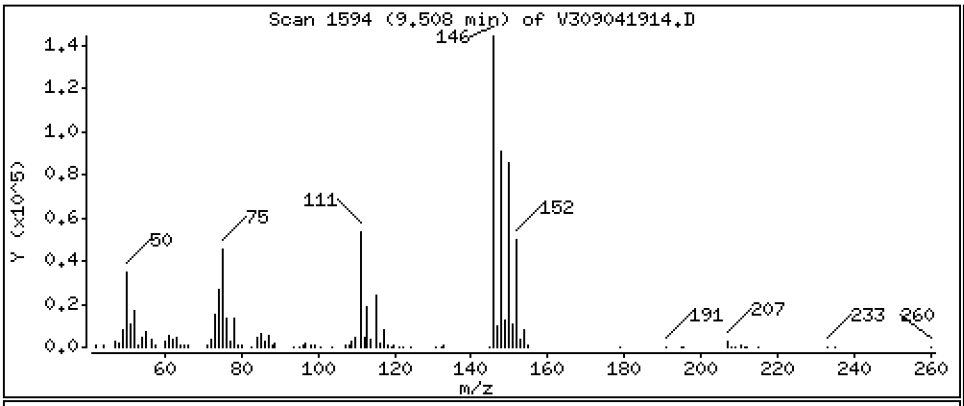
Operator: PKC

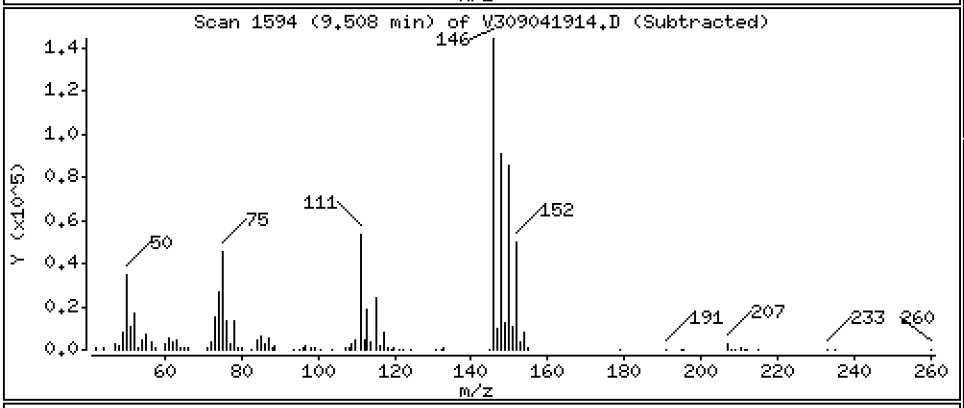
Column phase: RTXVMS

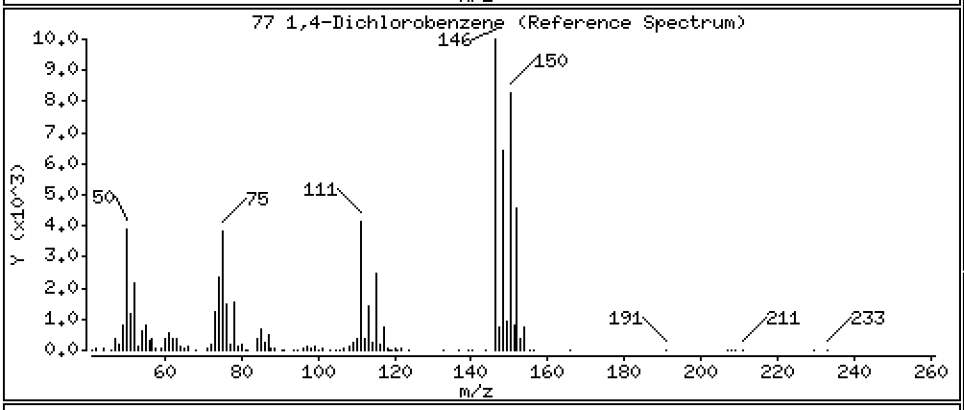
Column diameter: 0.18

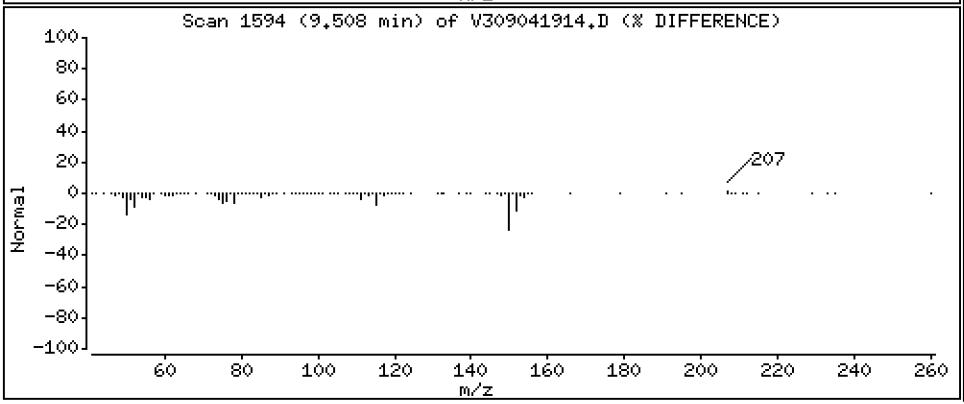
77 1,4-Dichlorobenzene

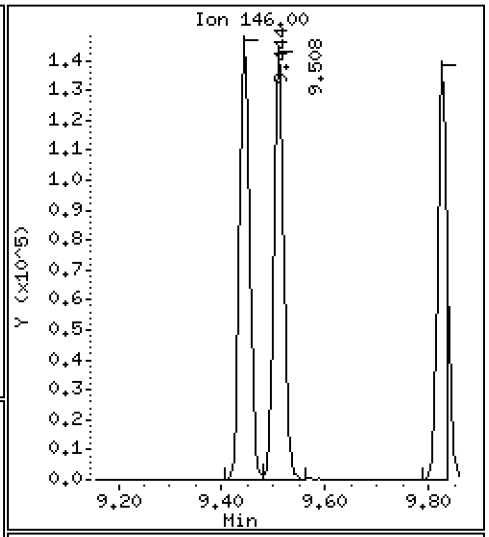
Concentration: 8.790 ug/L

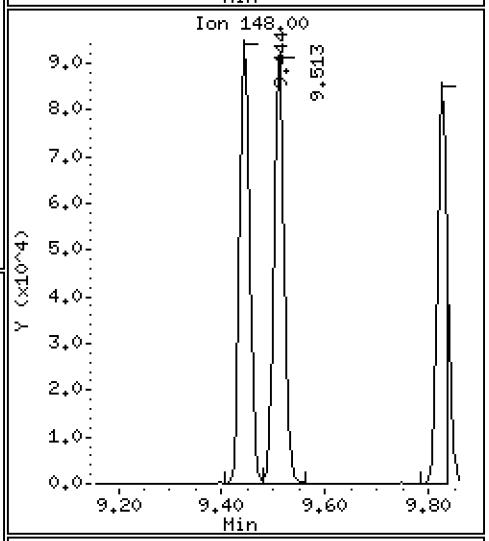


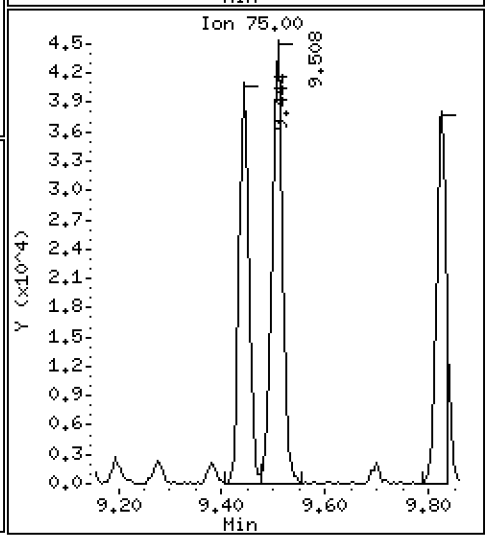












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

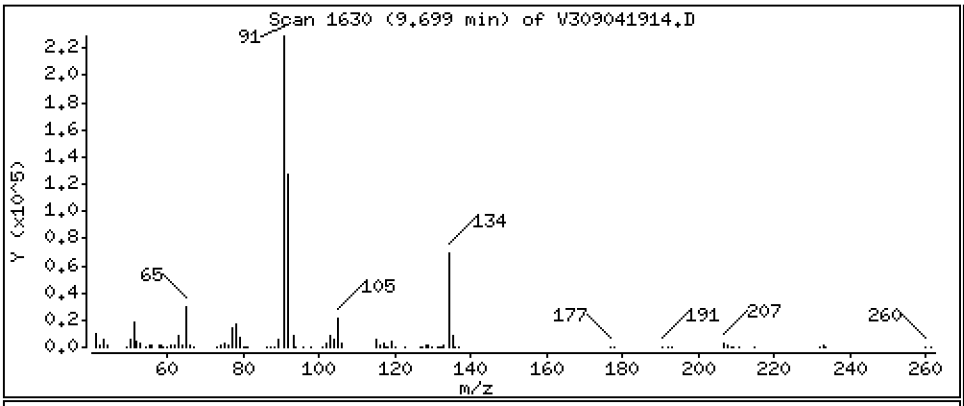
Operator: PKC

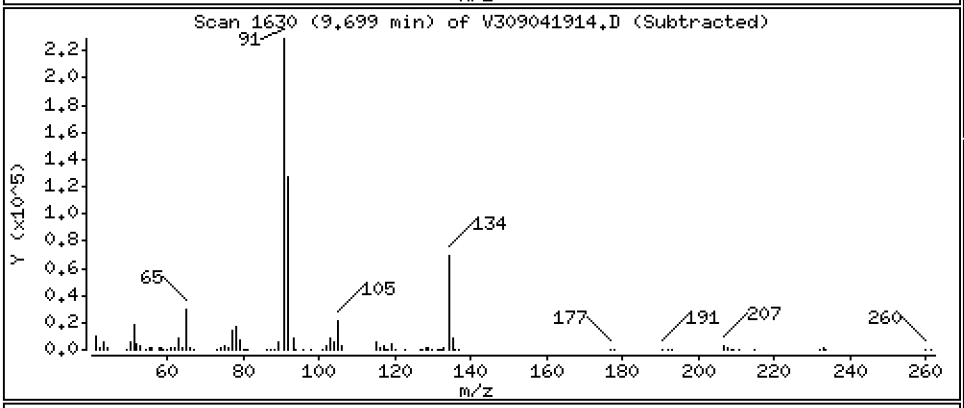
Column phase: RTXVMS

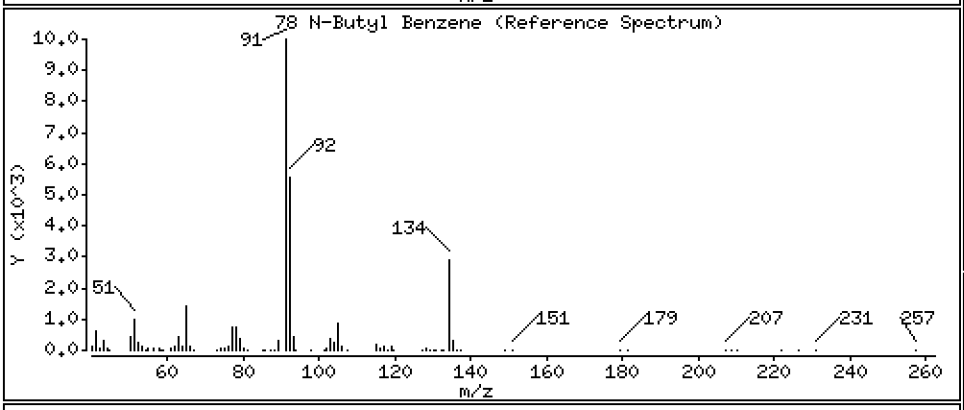
Column diameter: 0.18

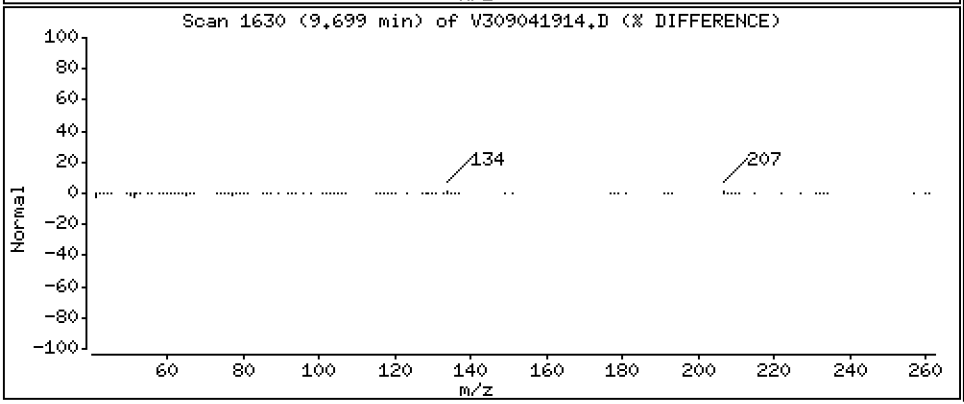
78 N-Butyl Benzene

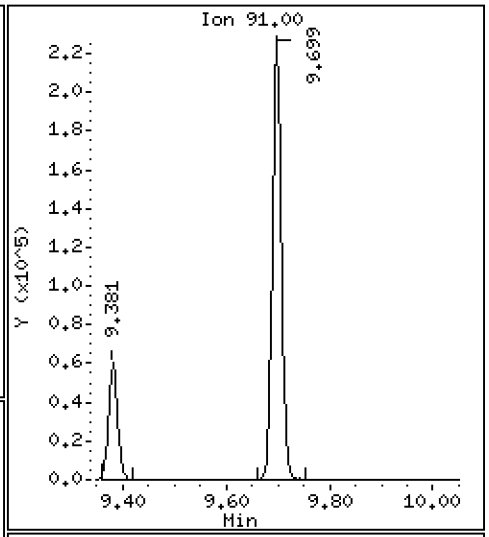
Concentration: 9.058 ug/L

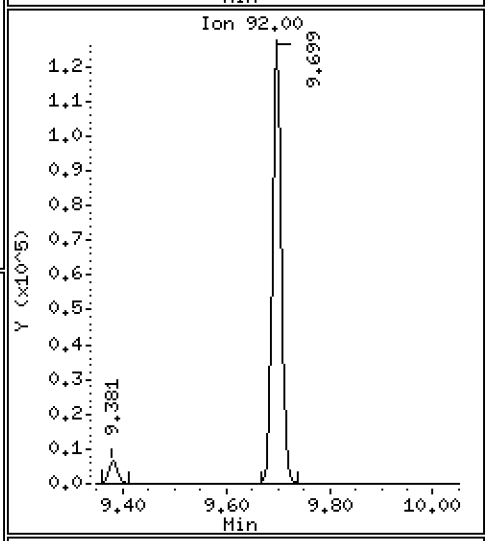


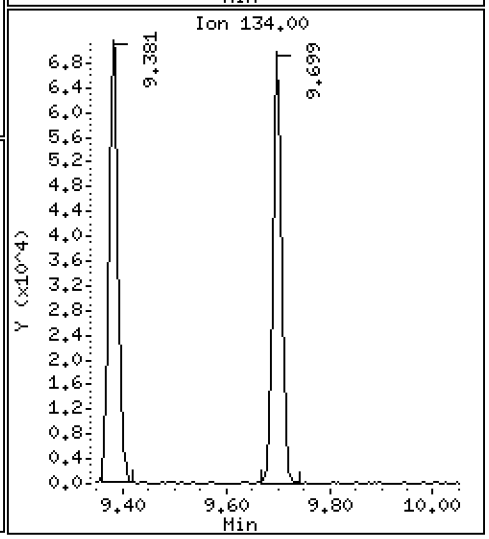












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

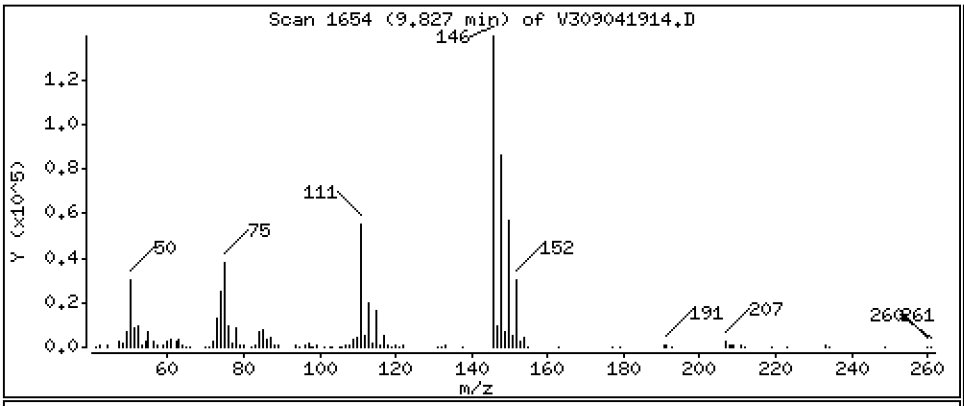
Operator: PKC

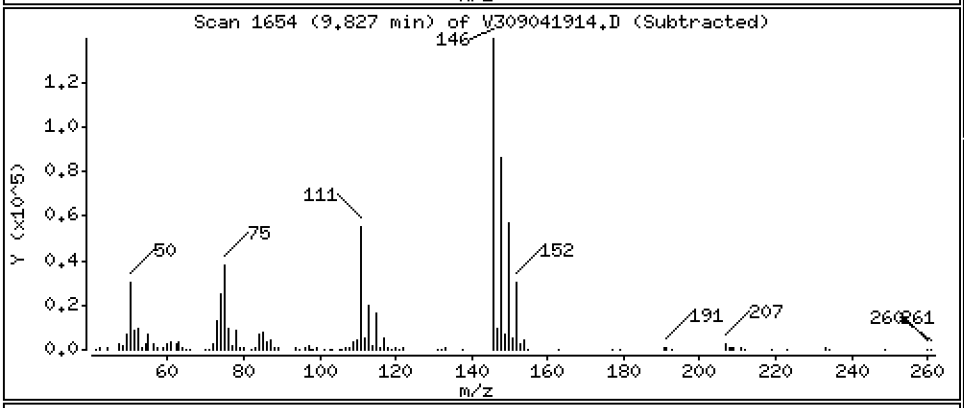
Column phase: RTXVMS

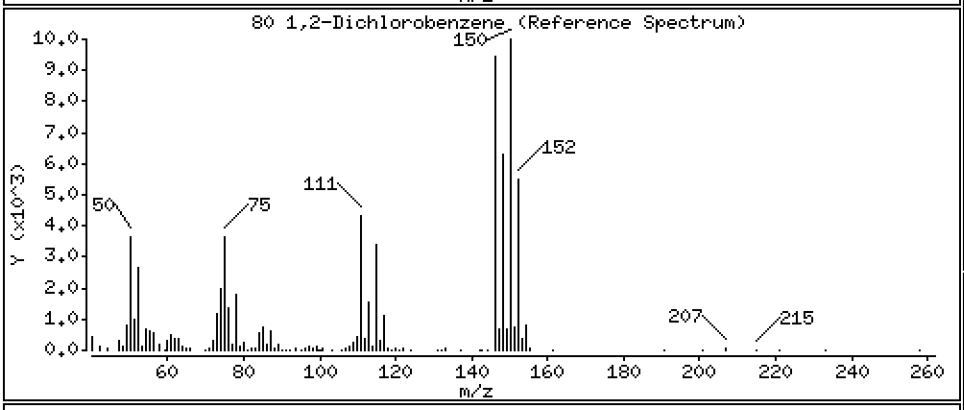
Column diameter: 0.18

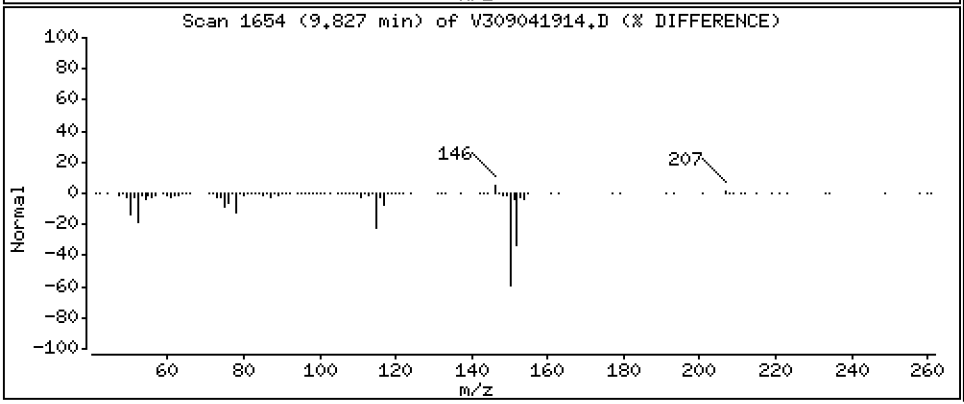
80 1,2-Dichlorobenzene

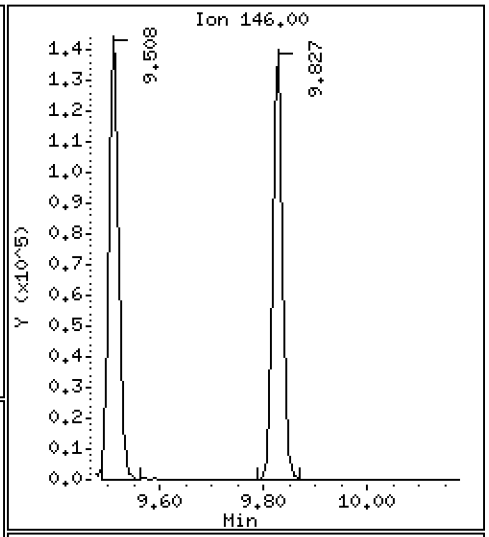
Concentration: 8.952 ug/L

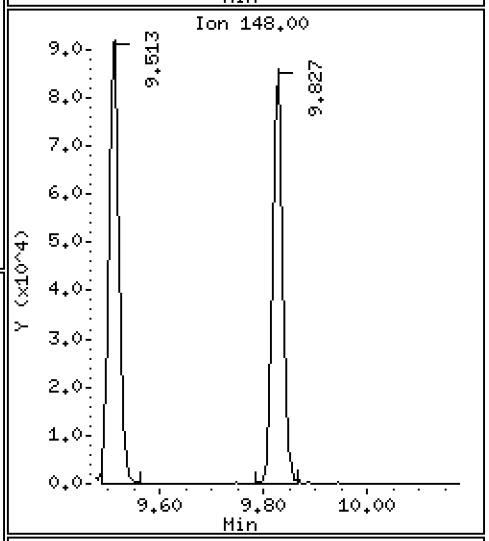


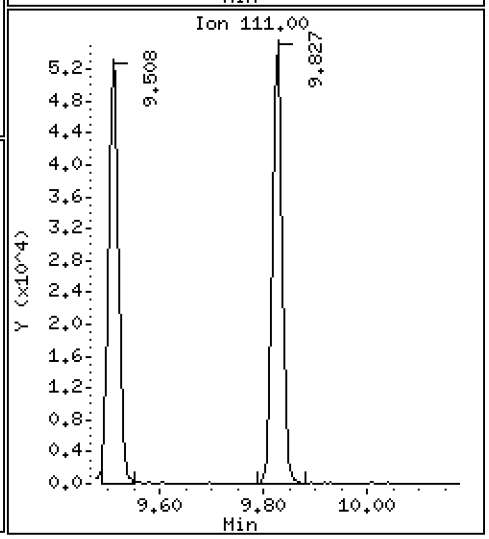












Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

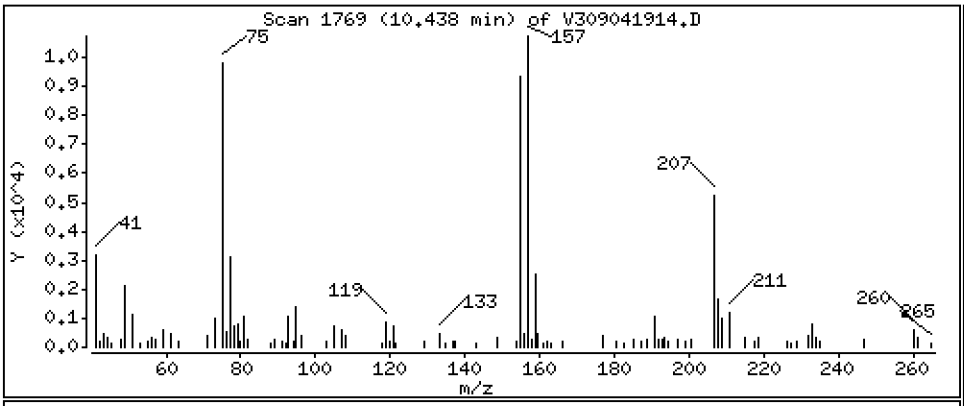
Operator: PKC

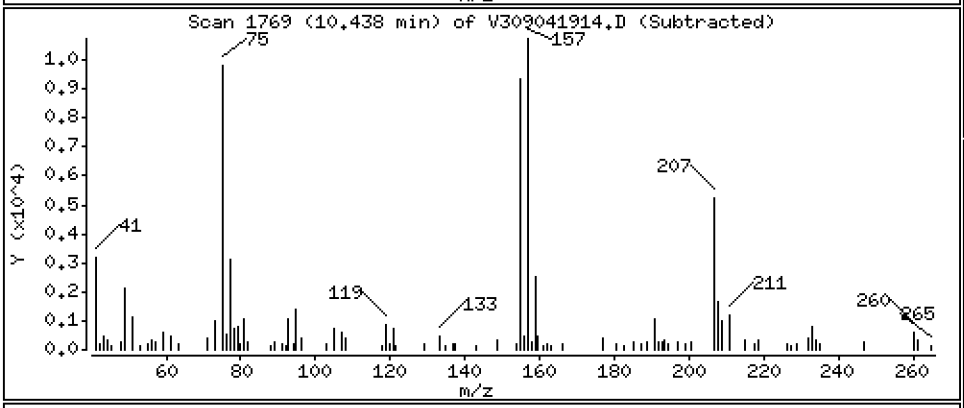
Column phase: RTXVMS

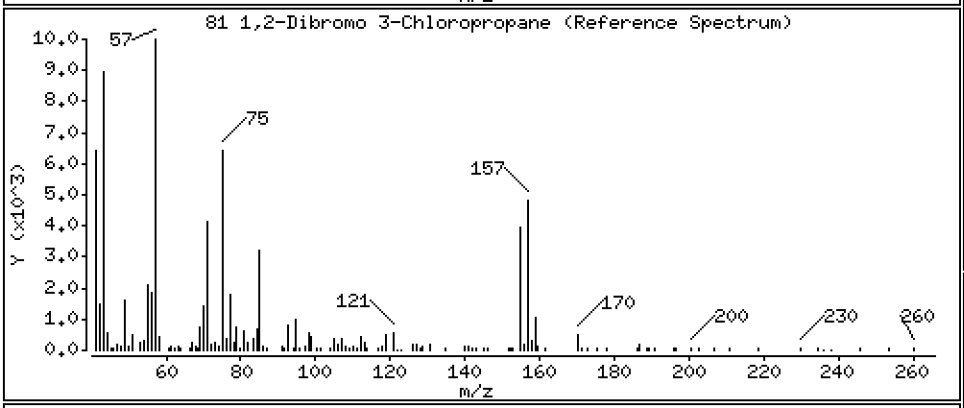
Column diameter: 0.18

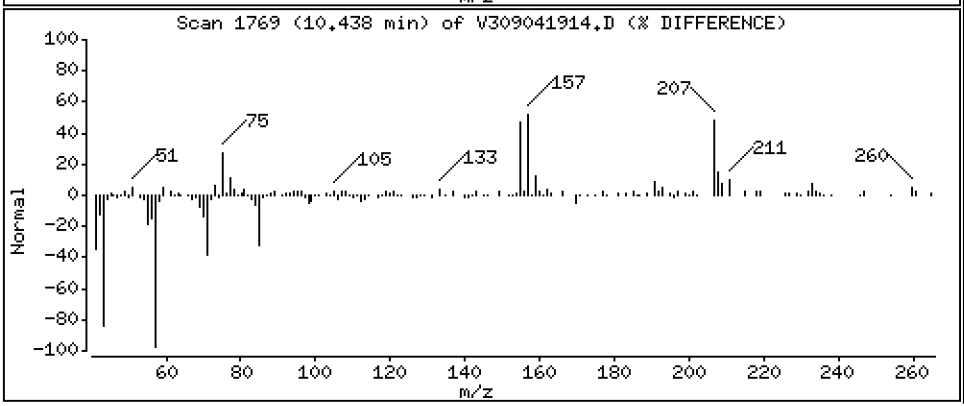
81 1,2-Dibromo 3-Chloropropane

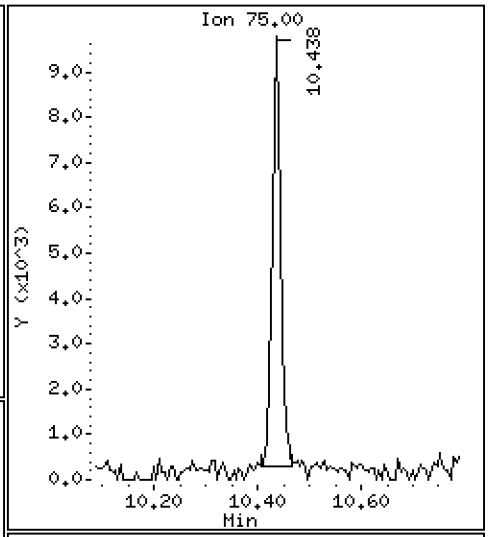
Concentration: 8.783 ug/L

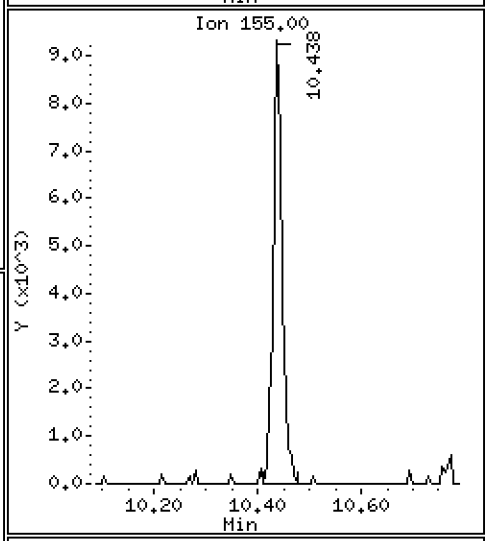


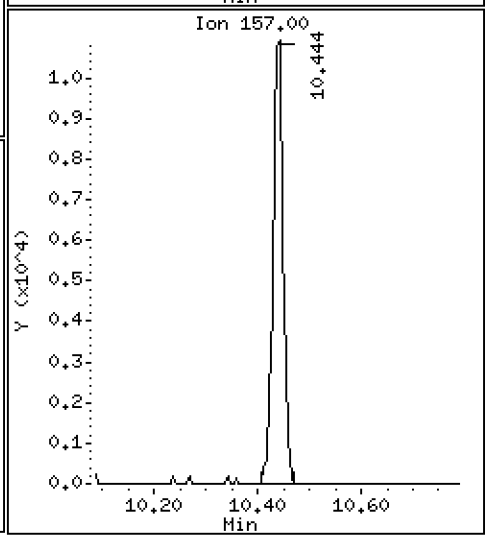












Date : 04-SEP-2019 21:28

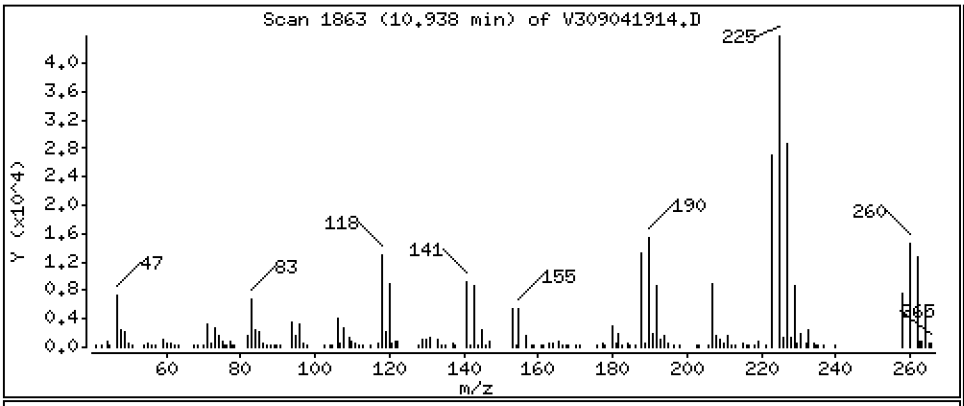
Client ID: Instrument: nt3.i

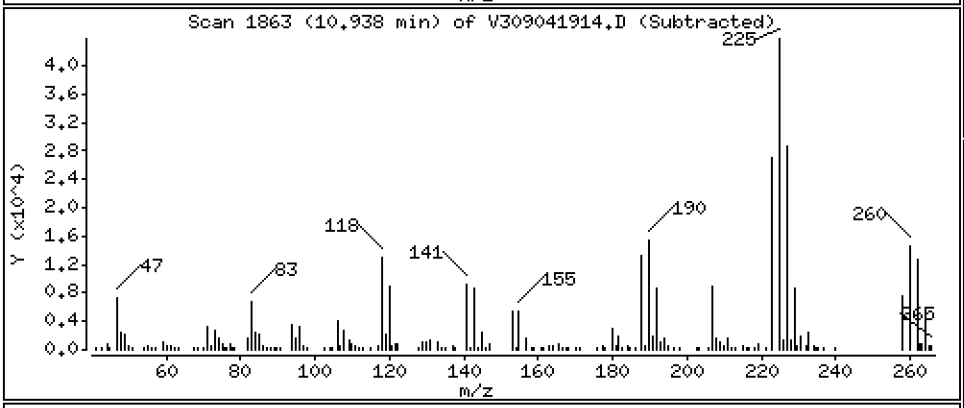
Sample Info: SHI0071-SCV1

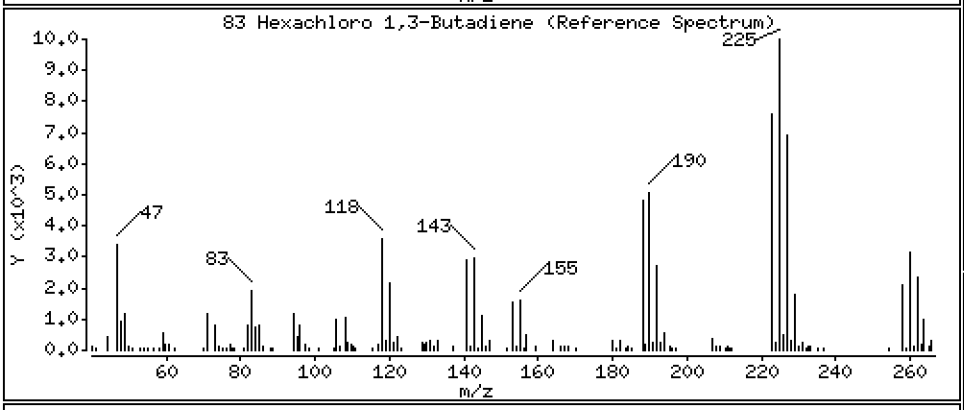
Operator: PKC

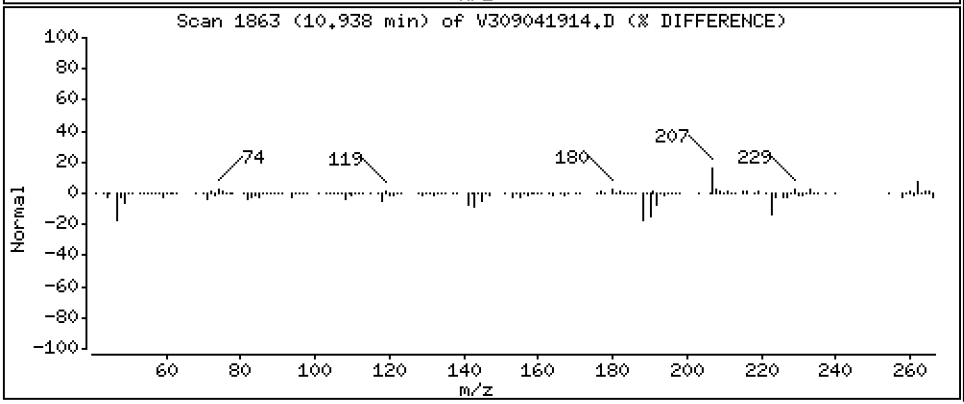
Column phase: RTXVMS Column diameter: 0.18

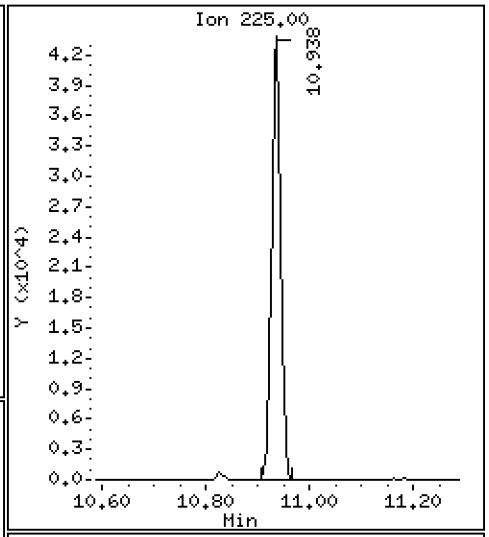
83 Hexachloro 1,3-Butadiene Concentration: 9.239 ug/L

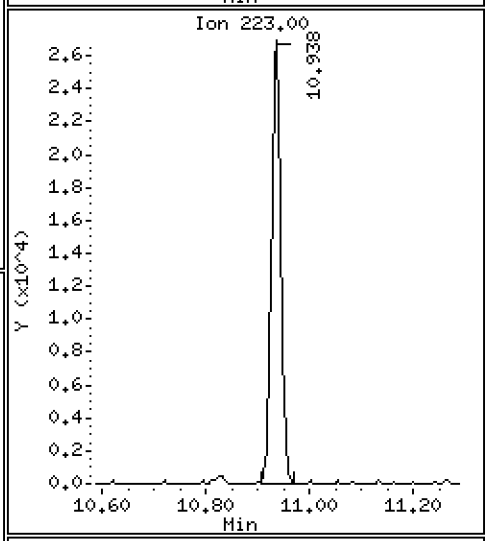


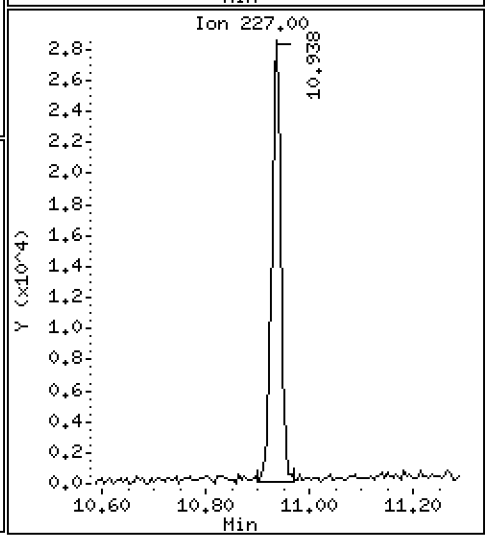












Date : 04-SEP-2019 21:28

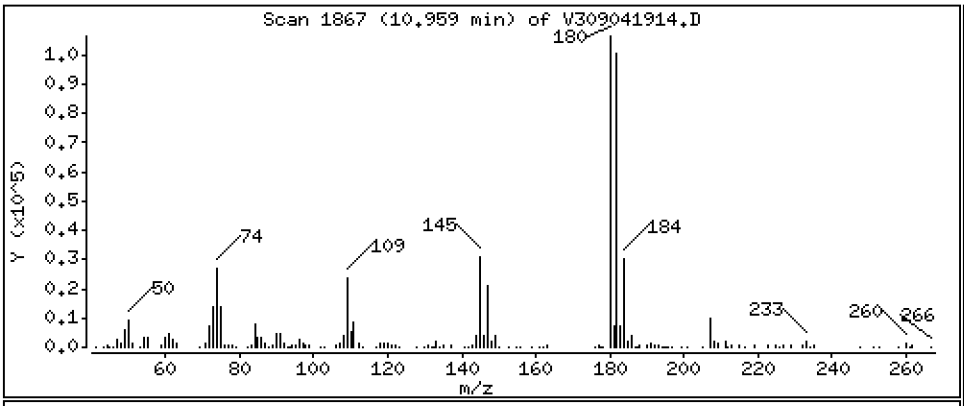
Client ID: Instrument: nt3.i

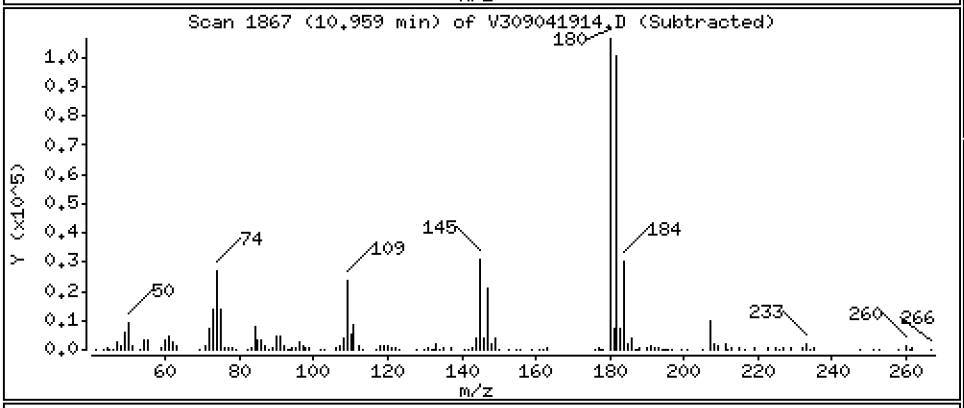
Sample Info: SHI0071-SCV1

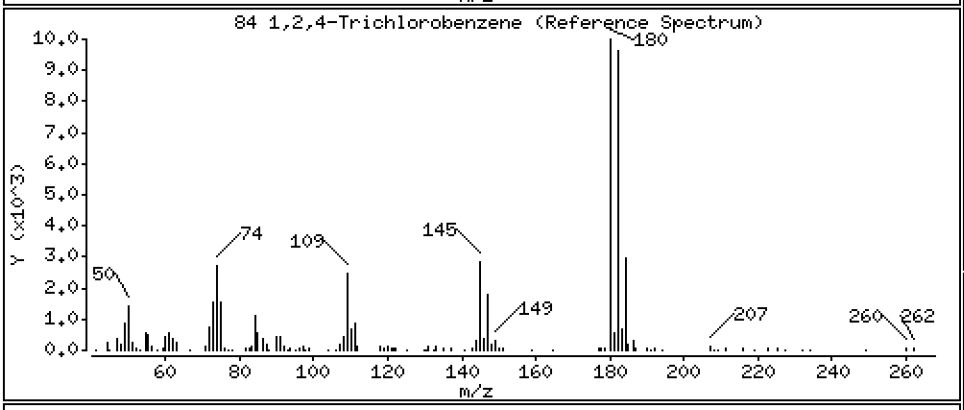
Operator: PKC

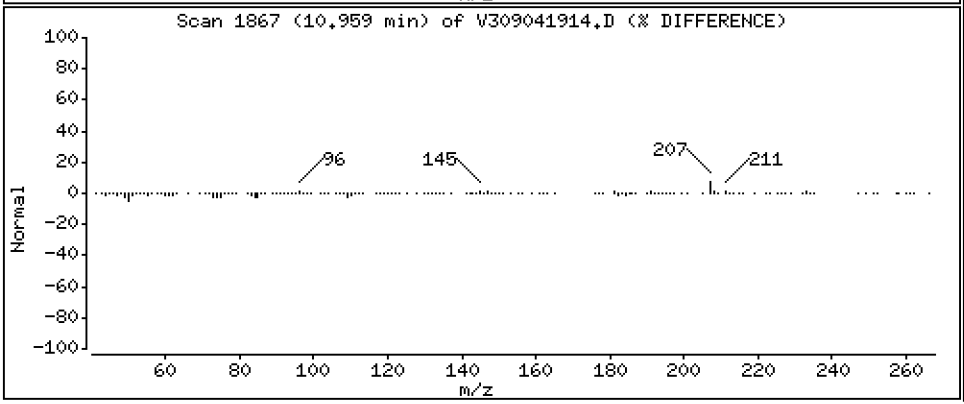
Column phase: RTXVMS Column diameter: 0.18

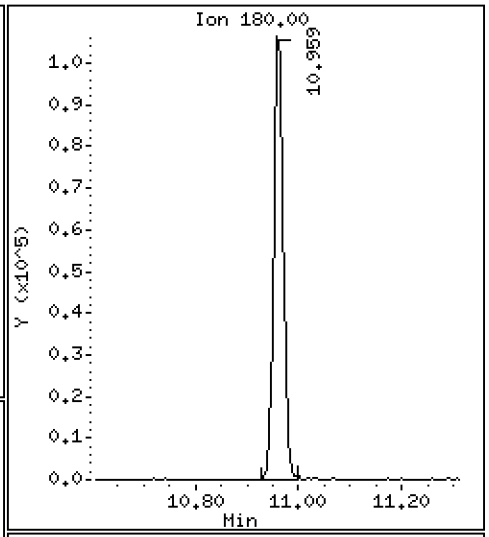
84 1,2,4-Trichlorobenzene Concentration: 9.495 ug/L

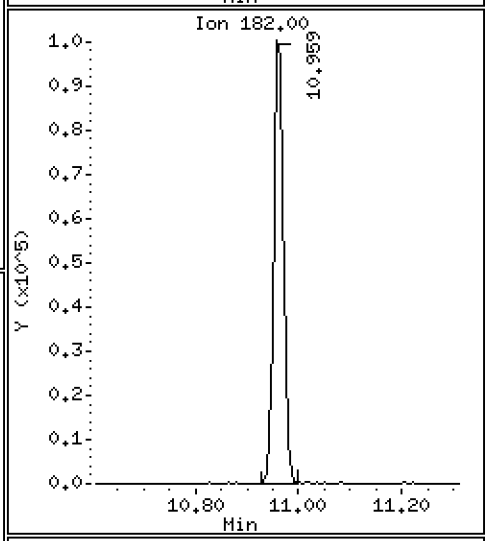


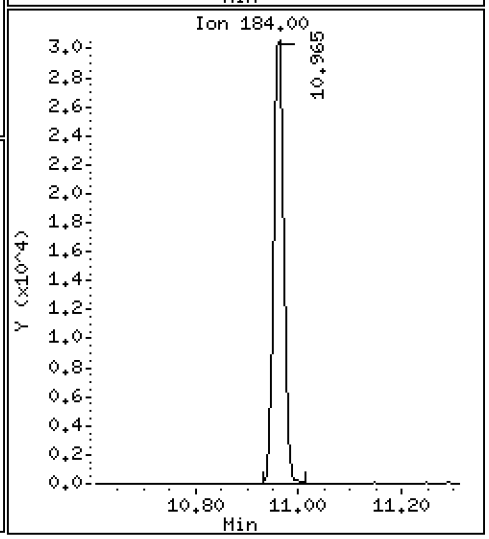












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Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

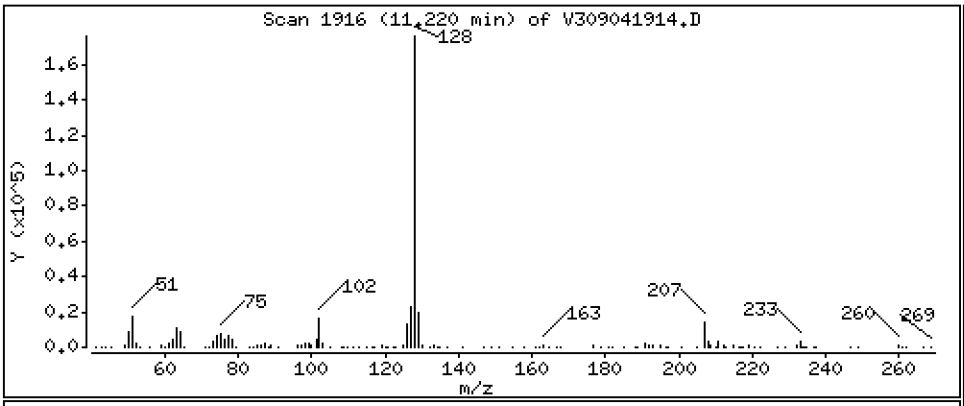
Operator: PKC

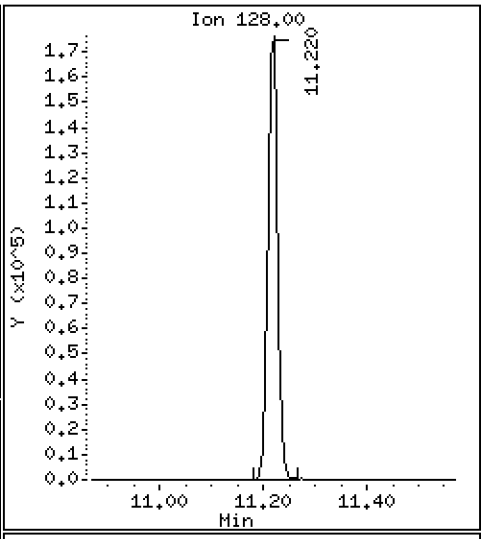
Column phase: RTXVMS

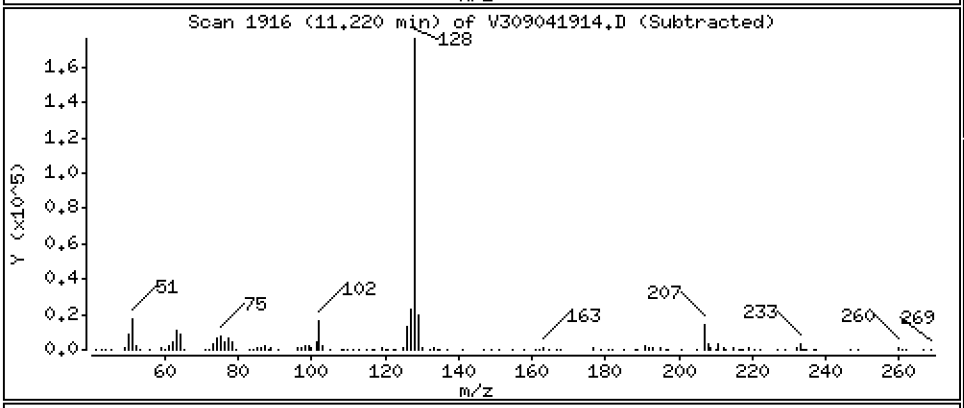
Column diameter: 0.18

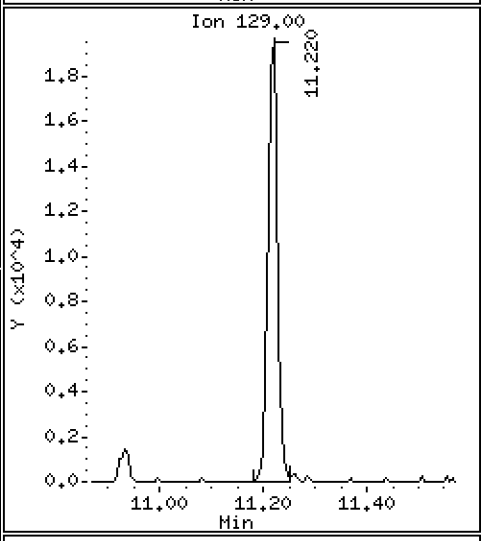
85 Naphthalene

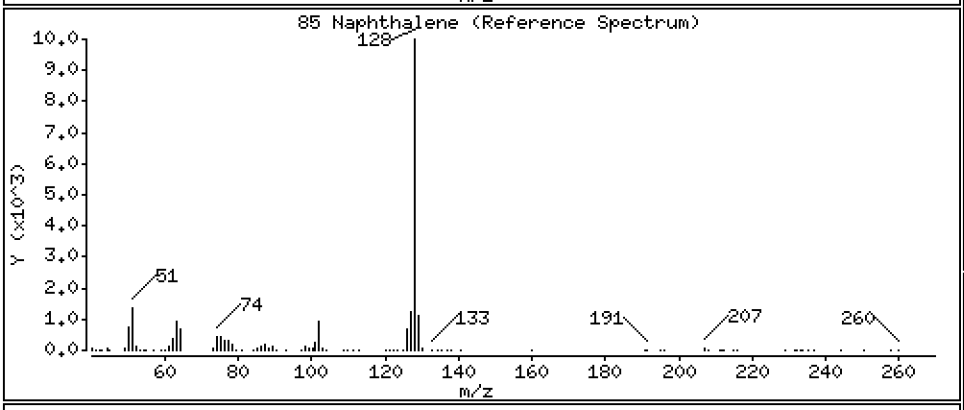
Concentration: 9.675 ug/L

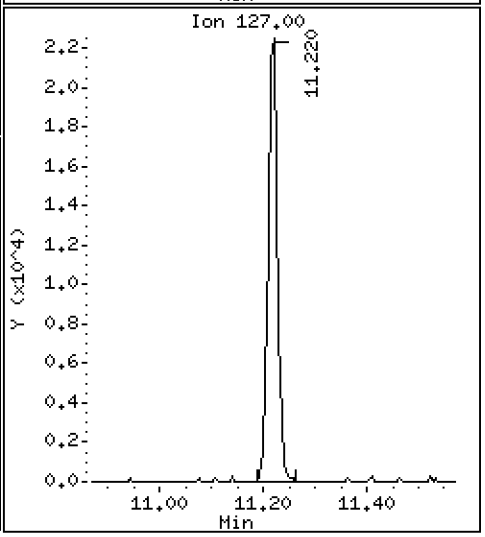


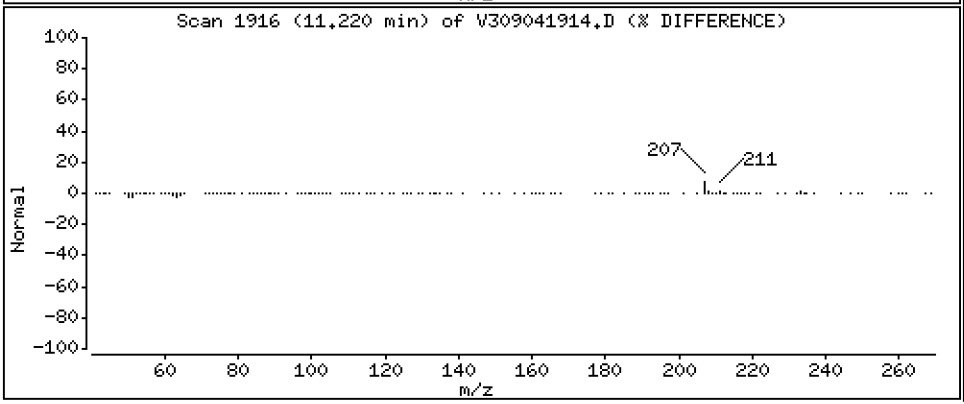












Data File: \\target\share\chem1\nt3.i\20190904.b\V309041914.D

Date : 04-SEP-2019 21:28

Client ID:

Instrument: nt3.i

Sample Info: SHI0071-SCV1

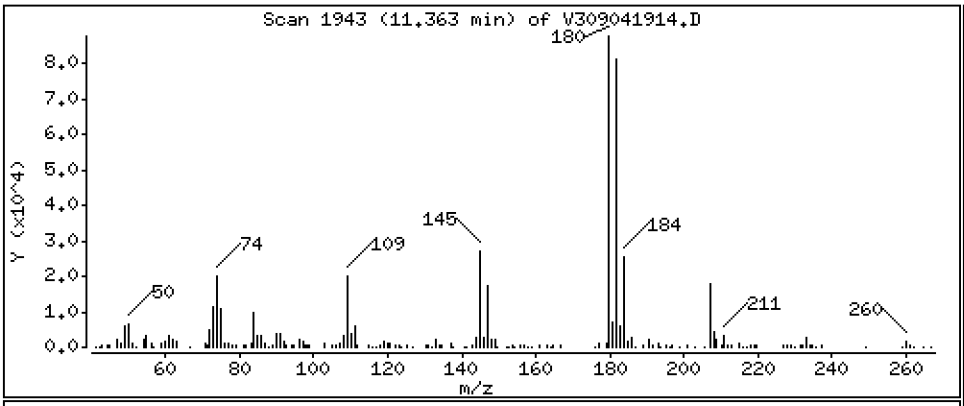
Operator: PKC

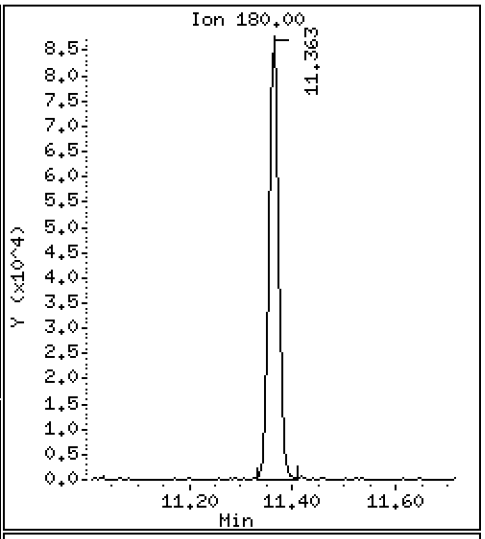
Column phase: RTXVMS

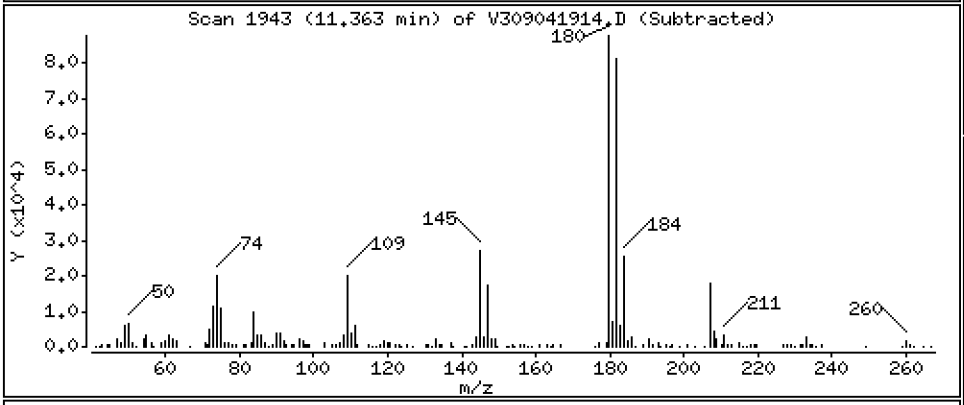
Column diameter: 0.18

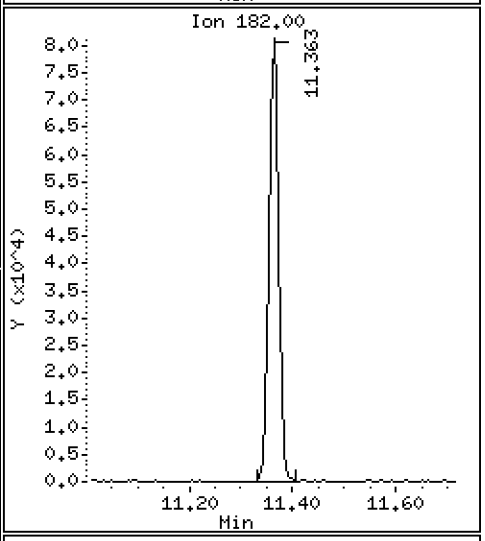
86 1,2,3-Trichlorobenzene

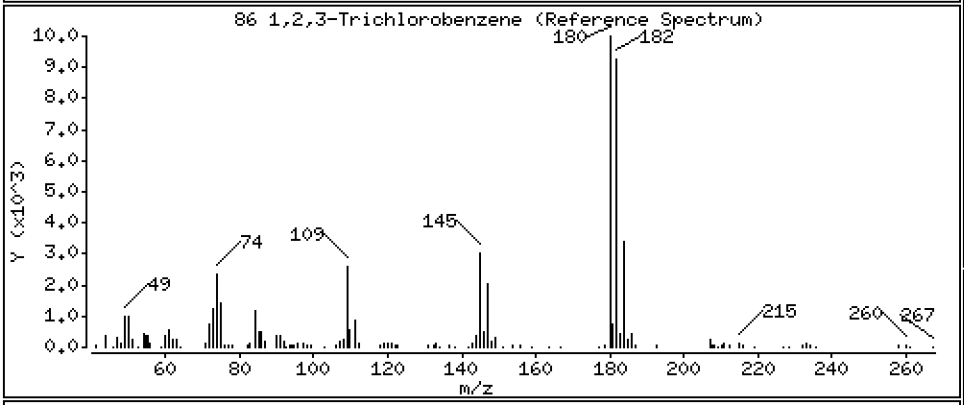
Concentration: 9.894 ug/L

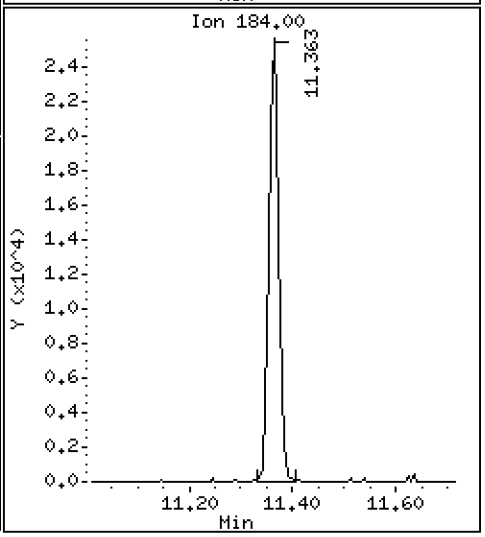


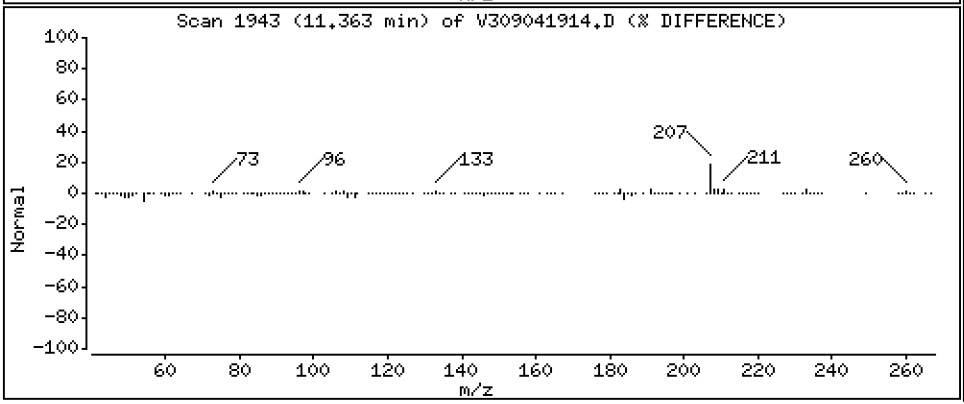












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904.b\V309041914.D
Lab Smp Id: SHI0071-SCV1
Inj Date : 04-SEP-2019 21:28
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0071-SCV1
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Meth Date : 05-Sep-2019 09:19 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	1.720	1.715	(0.318)	95976	8.82003	8.820(M)
	2 Chloromethane	50	1.922	1.917	(0.355)	185891	10.1783	10.178
	3 Vinyl Chloride	62	2.013	2.007	(0.372)	144339	9.80942	9.809(M)
	4 Bromomethane	94	2.305	2.294	(0.426)	63852	9.51090	9.511
	5 Chloroethane	64	2.417	2.411	(0.447)	74941	9.55329	9.553
	6 Trichlorofluoromethane	101	2.534	2.523	(0.468)	124541	10.4042	10.404
	7 1,1-Dichloroethene	61	2.996	2.985	(0.554)	122349	8.45848	8.458
	8 Carbon Disulfide	76	3.001	2.996	(0.555)	175887	8.27920	8.279
	9 112Trichloro122Trifluoroethane	101	3.065	3.060	(0.567)	134872	20.7808	20.781
	10 Iodomethane	142	3.124	3.118	(0.578)	97318	8.78766	8.788
	11 Bromoethane	108	3.246	3.241	(0.600)	99763	19.6210	19.621
	12 Acrolein	56	3.347	3.336	(0.619)	60269	46.8284	46.828
	13 Methylene Chloride	84	3.565	3.560	(0.659)	62951	9.44259	9.443
	14 Acetone	43	3.655	3.639	(0.676)	87620	47.2901	47.290
	15 Trans-1,2-Dichloroethene	96	3.714	3.708	(0.687)	64880	8.43275	8.433
	17 Methyl tert butyl ether	73	3.841	3.836	(0.710)	135387	10.3418	10.342
	18 1,1-Dichloroethane	63	4.256	4.251	(0.787)	140359	9.08369	9.084
	19 Acrylonitrile	53	4.325	4.314	(0.800)	21053	9.68654	9.687
	20 Vinyl Acetate	43	4.490	4.484	(0.830)	111205	6.84317	6.843(R)
	22 Cis-1,2-Dichloroethene	96	4.697	4.692	(0.868)	69825	8.81996	8.820
	23 2,2-Dichloropropane	77	4.777	4.771	(0.883)	60299	8.39095	8.391
	24 Bromochloromethane	128	4.851	4.846	(0.897)	28805	8.37941	8.379
	25 Chloroform	83	4.915	4.915	(0.909)	108763	9.13212	9.132
	26 Carbon Tetrachloride	117	5.005	5.000	(0.865)	87830	8.79183	8.792
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	24951	4.95110	4.951(R)
	28 1,1,1-Trichloroethane	97	5.059	5.053	(0.935)	101688	8.82256	8.823
	30 1,1-Dichloropropene	75	5.149	5.149	(0.890)	88522	9.27733	9.277
	29 2-Butanone	43	5.165	5.159	(0.955)	146703	48.5227	48.523
	31 Benzene	78	5.335	5.330	(0.922)	243800	8.49620	8.496
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	116549	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	26828	4.77824	4.778(R)
	34 1,2-Dichloroethane	62	5.489	5.484	(0.949)	83583	8.99952	9.000
	36 Trichloroethene	130	5.760	5.755	(0.995)	72997	9.51197	9.512
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	167677	10.0000	

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/L)	FINAL (ug/L)
	38	Dibromomethane	93	6.058	6.052	(1.047)	31513	9.44714	9.447
	39	1,2-Dichloropropane	63	6.127	6.127	(1.059)	78791	9.11180	9.112
	40	Bromodichloromethane	83	6.180	6.175	(1.068)	75439	8.74244	8.742
	173	2-Pentanone	86	6.398	6.398	(1.106)	12414	19.9044	19.904
	41	2-Chloroethyl Vinyl Ether	63	6.573	6.573	(1.136)	40658	11.0885	11.089
	42	Cis 1,3-dichloropropene	75	6.611	6.611	(1.142)	101589	9.21026	9.210
$	43	d8-Toluene	98	6.738	6.738	(1.164)	102900	5.07279	5.073(R)
	44	Toluene	92	6.775	6.770	(1.171)	172819	9.23609	9.236
	46	Tetrachloroethene	166	7.041	7.036	(0.901)	81861	9.11554	9.116
	45	4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	115102	46.7471	46.747
	47	Trans 1,3-Dichloropropene	75	7.062	7.062	(1.220)	86101	9.24363	9.244
	48	1,1,2-Trichloroethane	97	7.174	7.174	(1.240)	45996	8.96514	8.965
	49	Chlorodibromomethane	129	7.296	7.296	(0.934)	56474	8.79619	8.796
	50	1,3-Dichloropropane	76	7.360	7.360	(0.942)	85285	9.15385	9.154
	51	1,2-Dibromoethane	107	7.461	7.461	(1.289)	47142	9.28161	9.282
	52	2-Hexanone	43	7.615	7.615	(0.975)	225989	48.5508	48.551
*	53	d5-Chlorobenzene	117	7.812	7.812	(1.000)	173002	10.0000	
	54	Chlorobenzene	112	7.828	7.823	(1.002)	204897	9.19368	9.194
	55	Ethyl Benzene	106	7.844	7.838	(1.004)	116875	9.60504	9.605
	56	1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	72112	8.99867	8.999
	57	m,p-xylene	106	7.945	7.945	(1.017)	282707	18.8670	18.867
	58	o-Xylene	106	8.248	8.248	(1.056)	134106	8.86550	8.865
	59	Styrene	104	8.285	8.285	(1.061)	217820	9.30215	9.302
	60	Bromoform	173	8.312	8.306	(0.875)	35434	8.97496	8.975
	61	Isopropyl Benzene	105	8.471	8.471	(0.892)	358785	9.19753	9.198
$	62	4-Bromofluorobenzene	174	8.678	8.678	(1.111)	41922	5.09956	5.100(R)
	63	Bromobenzene	156	8.758	8.758	(0.922)	95837	9.03159	9.032
	64	N-Propyl Benzene	91	8.769	8.769	(0.923)	413473	9.24167	9.242
	65	1,1,2,2-Tetrachloroethane	83	8.827	8.822	(0.929)	61943	9.17705	9.177
	66	2-Chloro Toluene	91	8.886	8.886	(0.936)	289298	9.09645	9.096
	67	1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	314058	9.14617	9.146
	68	1,2,3-Trichloropropane	110	8.928	8.923	(0.940)	20250	9.03665	9.037
	69	Trans-1,4-Dichloro 2-Butene	53	8.955	8.955	(0.943)	21595	8.90601	8.906
	70	4-Chloro Toluene	91	9.008	9.008	(0.949)	266266	9.03761	9.038
	71	T-Butyl Benzene	119	9.146	9.146	(0.963)	315991	10.8984	10.898
	72	1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	323803	9.30172	9.302
	73	S-Butyl Benzene	105	9.279	9.274	(0.977)	374539	9.24036	9.240
	74	4-Isopropyl Toluene	119	9.380	9.380	(0.988)	340408	9.35869	9.359
	75	1,3-Dichlorobenzene	146	9.444	9.444	(0.994)	198508	8.90437	8.904
*	76	d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	109816	10.0000	
	77	1,4-Dichlorobenzene	146	9.508	9.508	(1.001)	195693	8.78967	8.790
	78	N-Butyl Benzene	91	9.699	9.699	(1.021)	281983	9.05814	9.058
$	79	d4-1,2-Dichlorobenzene	152	9.816	9.821	(1.034)	50922	4.93513	4.935(R)
	80	1,2-Dichlorobenzene	146	9.827	9.826	(1.035)	186136	8.95240	8.952
	81	1,2-Dibromo 3-Chloropropane	75	10.438	10.438	(1.099)	11107	8.78274	8.783
	83	Hexachloro 1,3-Butadiene	225	10.937	10.938	(1.152)	54851	9.23932	9.239
	84	1,2,4-Trichlorobenzene	180	10.959	10.959	(1.154)	138871	9.49527	9.495
	85	Naphthalene	128	11.219	11.219	(1.181)	235739	9.67488	9.675
	86	1,2,3-Trichlorobenzene	180	11.363	11.363	(1.196)	117809	9.89392	9.894

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041914.D
Lab Smp Id: SHI0071-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	116549	20.28
37 1,4-Difluorobenze	140121	70061	280242	167677	19.67
53 d5-Chlorobenzene	140128	70064	280256	173002	23.46
76 d4-1,4-Dichlorobe	90137	45069	180274	109816	21.83

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0071-SCV1
Level: Operator: PKC
Data Type: MS DATA SampleType: LCS
SpikeList File: o2siicv.spk Quant Type: ISTD
Sublist File: mdl.sub
Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Misc Info: 16-

SPIKE	COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
1	Dichlorodifluorome	10.000	8.820	88.20	
2	Chloromethane	10.000	10.178	101.78	
3	Vinyl Chloride	10.000	9.809	98.09	
4	Bromomethane	10.000	9.511	95.11	
5	Chloroethane	10.000	9.553	95.53	
6	Trichlorofluoromet	10.000	10.404	104.04	
7	1,1-Dichloroethene	10.000	8.458	84.58	
8	Carbon Disulfide	10.000	8.279	82.79	
9	112Trichloro122Tri	20.000	20.781	103.90	
10	Iodomethane	10.000	8.788	87.88	
11	Bromoethane	20.000	19.621	98.10	
12	Acrolein	50.000	46.828	93.66	
13	Methylene Chloride	10.000	9.443	94.43	
14	Acetone	50.000	47.290	94.58	
15	Trans-1,2-Dichloro	10.000	8.433	84.33	
16	n-hexane	10.000	0.0000	*	
17	Methyl tert butyl	10.000	10.342	103.42	
18	1,1-Dichloroethane	10.000	9.084	90.84	
19	Acrylonitrile	10.000	9.687	96.87	
20	Vinyl Acetate	10.000	6.843	68.43*	
22	Cis-1,2-Dichloroet	10.000	8.820	88.20	
23	2,2-Dichloropropan	10.000	8.391	83.91	
24	Bromochloromethane	10.000	8.379	83.79	
25	Chloroform	10.000	9.132	91.32	
26	Carbon Tetrachlori	10.000	8.792	87.92	
28	1,1,1-Trichloroeth	10.000	8.823	88.23	
30	1,1-Dichloropropen	10.000	9.277	92.77	
29	2-Butanone	50.000	48.523	97.05	
31	Benzene	10.000	8.496	84.96	
34	1,2-Dichloroethane	10.000	9.000	90.00	
36	Trichloroethene	10.000	9.512	95.12	
38	Dibromomethane	10.000	9.447	94.47	
39	1,2-Dichloropropan	10.000	9.112	91.12	
40	Bromodichlorometha	10.000	8.742	87.42	
173	2-Pentanone	20.000	19.904	99.52	
42	Cis 1,3-dichloropr	10.000	9.210	92.10	
41	2-Chloroethyl Viny	10.000	11.089	110.89	
44	Toluene	10.000	9.236	92.36	
45	4-Methyl-2-Pentano	50.000	46.747	93.49	
46	Tetrachloroethene	10.000	9.116	91.16	

SPIKE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
47 Trans 1,3-Dichloro	10.000	9.244	92.44	
48 1,1,2-Trichloroeth	10.000	8.965	89.65	
49 Chlorodibromometha	10.000	8.796	87.96	
50 1,3-Dichloropropan	10.000	9.154	91.54	
51 1,2-Dibromoethane	10.000	9.282	92.82	
52 2-Hexanone	50.000	48.551	97.10	
54 Chlorobenzene	10.000	9.194	91.94	
55 Ethyl Benzene	10.000	9.605	96.05	
56 1,1,1,2-Tetrachlor	10.000	8.999	89.99	
57 m,p-xylene	20.000	18.867	94.34	
58 o-Xylene	10.000	8.865	88.65	
59 Styrene	10.000	9.302	93.02	
60 Bromoform	10.000	8.975	89.75	
61 Isopropyl Benzene	10.000	9.198	91.98	
63 Bromobenzene	10.000	9.032	90.32	
64 N-Propyl Benzene	10.000	9.242	92.42	
65 1,1,2,2-Tetrachlor	10.000	9.177	91.77	
66 2-Chloro Toluene	10.000	9.096	90.96	
67 1,3,5-Trimethyl Be	10.000	9.146	91.46	
68 1,2,3-Trichloropro	10.000	9.037	90.37	
69 Trans-1,4-Dichloro	10.000	8.906	89.06	
70 4-Chloro Toluene	10.000	9.038	90.38	
71 T-Butyl Benzene	10.000	10.898	108.98	
72 1,2,4-Trimethylben	10.000	9.302	93.02	
73 S-Butyl Benzene	10.000	9.240	92.40	
74 4-Isopropyl Toluen	10.000	9.359	93.59	
75 1,3-Dichlorobenzen	10.000	8.904	89.04	
77 1,4-Dichlorobenzen	10.000	8.790	87.90	
78 N-Butyl Benzene	10.000	9.058	90.58	
80 1,2-Dichlorobenzen	10.000	8.952	89.52	
81 1,2-Dibromo 3-Chlo	10.000	8.783	87.83	
83 Hexachloro 1,3-But	10.000	9.239	92.39	
84 1,2,4-Trichloroben	10.000	9.495	94.95	
85 Naphthalene	10.000	9.675	96.75	
86 1,2,3-Trichloroben	10.000	9.894	98.94	

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.951	99.02	
$ 33 d4-1,2-Dichloroeth	5.000	4.778	95.56	
$ 43 d8-Toluene	5.000	5.073	101.46	
$ 62 4-Bromofluorobenze	5.000	5.100	101.99	
$ 79 d4-1,2-Dichloroben	5.000	4.935	98.70	

REVIEW SUMMARY FOR FILE - V309041914.D

Lab ID: SHI0071-SCV1
nt3.i, 20190904.b\8260C090219.m,   04-SEP-2019 21:28

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.318	1.000	-0.6819	Dichlorodifluoromethane
0.355	1.000	-0.6446	Chloromethane
0.372	1.000	-0.6279	Vinyl Chloride
0.426	1.000	-0.5738	Bromomethane
0.447	1.000	-0.5532	Chloroethane
0.468	1.000	-0.5316	Trichlorofluoromethane
0.554	1.000	-0.4461	1,1-Dichloroethene
0.555	1.000	-0.4451	Carbon Disulfide
0.567	1.000	-0.4333	112Trichloro122Trifluoroethane
0.578	1.000	-0.4225	Iodomethane
0.600	1.000	-0.3999	Bromoethane
0.619	1.000	-0.3812	Acrolein
0.659	1.000	-0.3409	Methylene Chloride
0.676	1.000	-0.3243	Acetone
0.687	1.000	-0.3135	Trans-1,2-Dichloroethene
0.710	1.000	-0.2899	Methyl tert butyl ether
0.787	1.000	-0.2132	1,1-Dichloroethane
0.800	1.000	-0.2005	Acrylonitrile
0.830	1.000	-0.1700	Vinyl Acetate
0.868	1.000	-0.1317	Cis-1,2-Dichloroethene
0.883	1.000	-0.1169	2,2-Dichloropropane
0.897	1.000	-0.1032	Bromochloromethane
0.909	1.000	-0.0914	Chloroform
0.935	1.000	-0.0649	1,1,1-Trichloroethane
0.955	1.000	-0.0452	2-Butanone
0.933	1.000	-0.0668	Dibromofluoromethane

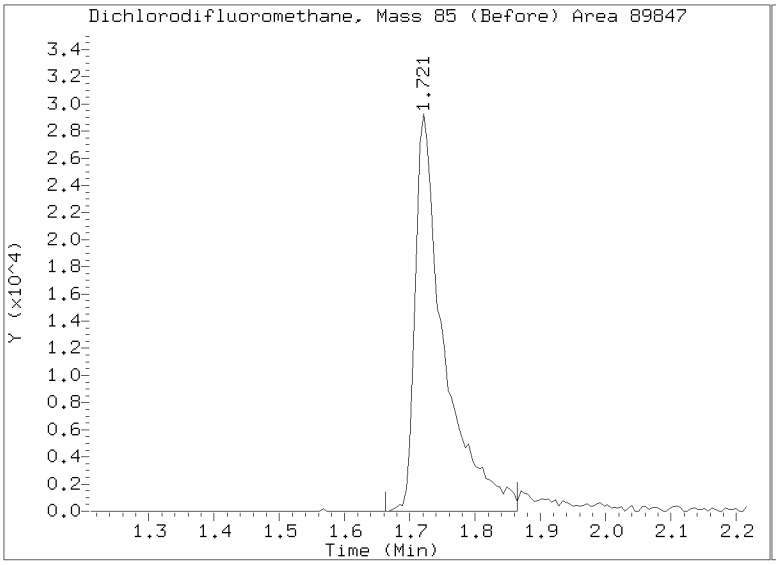
RRT check based on Ccal File: V309041912.D

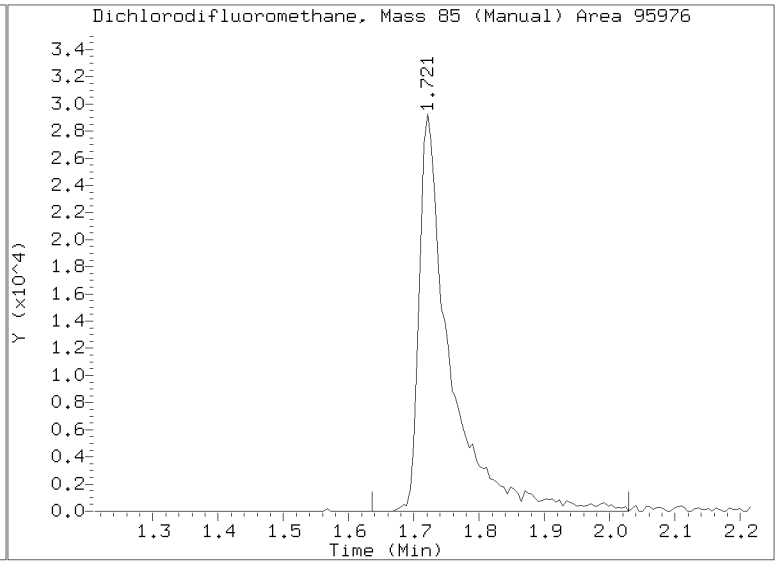
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

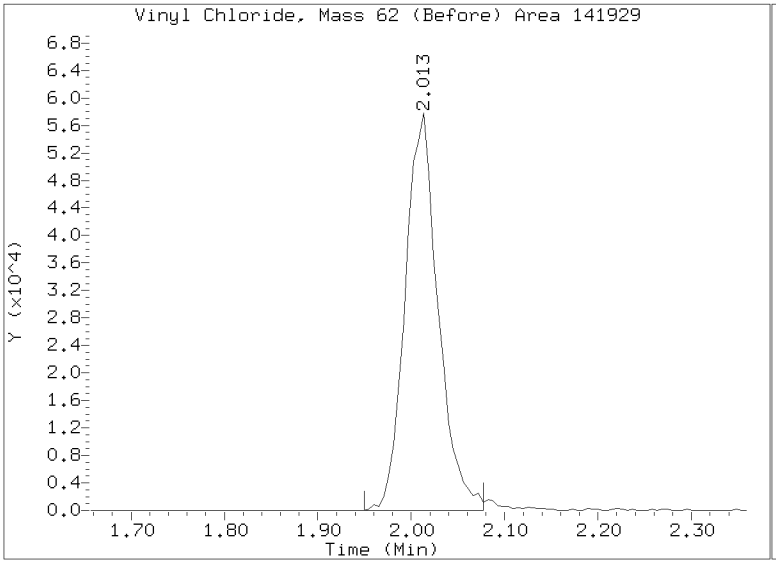
* Only compounds listed in the work order have been verified by the analyst *

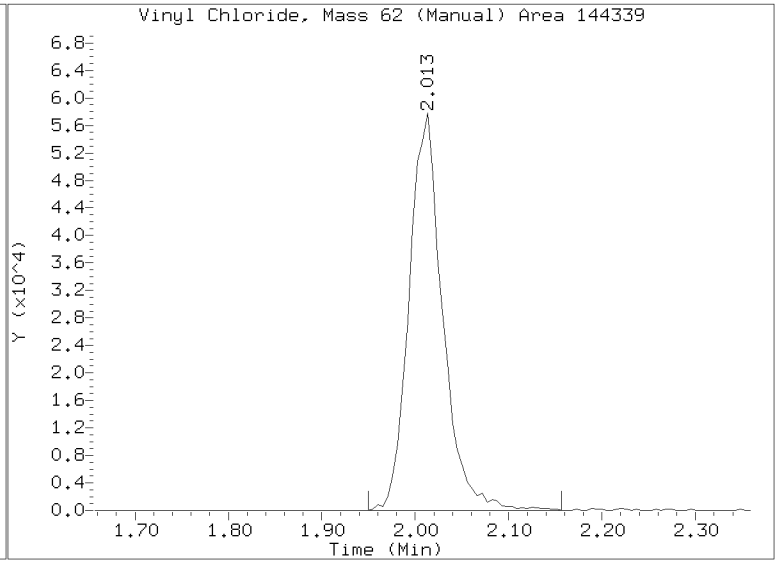
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041914.D
Injection Date: 04-SEP-2019 21:28
Lab ID:SHI0071-SCV1 Client ID:
Report Date: 09/06/2019 09:28









INITIAL CALIBRATION CHECK

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT5	Calibration:	CH00068
Lab File ID:	NT509031902.D	Calibration Date:	08/20/19 00:34
Sequence:	SHI0046	Injection Date:	09/03/19
Lab Sample ID:	SHI0046-ICV1	Injection Time:	12:38
Sequence Name:	VOA 10		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Benzene	A	50.000	49.7	0.7995904	0.7941064		-0.7	20
Toluene	A	50.000	47.7	0.5656542	0.5398373		-4.6	20
Ethylbenzene	A	50.000	45.5	1.1111050	1.0102550		-9.1	20
m,p-Xylene	A	100.00	92.6	0.4387496	0.4061242		-7.4	20
o-Xylene	A	50.000	46.7	0.4126007	0.3853020		-6.6	20
Toluene-d8	A	50.000	52.2	1.2348940	1.2883760		4.3	20
4-Bromofluorobenzene	A	50.000	51.4	0.4334557	0.4457272		2.8	20

* Values outside of QC limits

Data File: \\target\share\chem1\nt5.i\20190903.b\NT509031902.D

Date : 03-SEP-2019 12:38

Client ID:

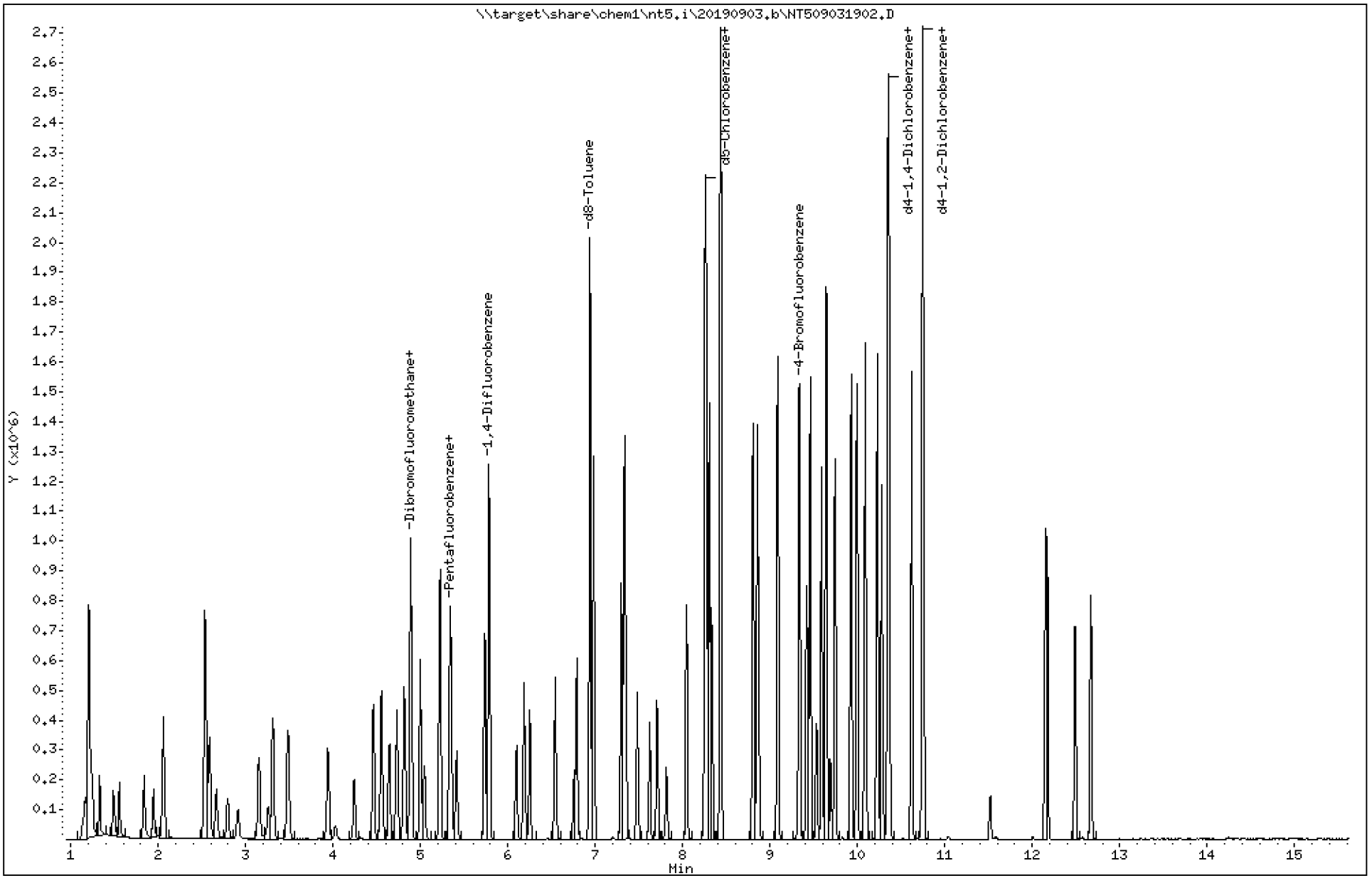
Instrument: nt5.i

Sample Info: ICV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190903.b\NT509031902.D
Lab Smp Id: shi0046-ICV1
Inj Date : 03-SEP-2019 12:38
Operator : PB Inst ID: nt5.i
Smp Info : ICV1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Meth Date : 04-Sep-2019 16:37 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 5 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	AMOUNTS ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	172708	50.0000	60.140
	2 Chloromethane	50	1.487	1.487	(0.279)	153602	50.0000	59.385
	3 Vinyl Chloride	62	1.554	1.554	(0.291)	149706	50.0000	59.364
	4 Bromomethane	94	1.840	1.840	(0.345)	117569	50.0000	52.581
	5 Chloroethane	64	1.944	1.944	(0.364)	123936	50.0000	58.593
	6 Trichlorofluoromethane	101	2.059	2.059	(0.386)	303390	50.0000	59.143
	7 1,1-Dichloroethene	96	2.534	2.534	(0.475)	154541	50.0000	58.235
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	442165	50.0000	55.732
	9 112Trichloro122Trifluoroethane	101	2.582	2.582	(0.484)	142309	50.0000	54.363
	10 Iodomethane	142	2.661	2.661	(0.499)	184004	50.0000	64.678
	11 Bromoethane	108	2.795	2.795	(0.524)	101852	50.0000	56.973
	12 Acrolein	56	2.911	2.911	(0.545)	89537	250.000	299.07
	13 Methylene Chloride	84	3.148	3.148	(0.590)	142612	50.0000	60.999
	14 Acetone	43	3.258	3.258	(0.610)	141392	250.000	279.44
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	166351	50.0000	57.021
	16 Methyl tert butyl ether	73	3.483	3.483	(0.652)	383774	50.0000	57.046
	173 n-Hexane	41	3.483	3.483	(0.652)	75107	50.0000	28.333
	17 1,1-Dichloroethane	63	3.939	3.939	(0.738)	262639	50.0000	58.278
	18 Acrylonitrile	53	4.024	4.024	(0.754)	32561	50.0000	57.086
	19 Vinyl Acetate	43	4.243	4.243	(0.795)	255524	50.0000	54.767
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.836)	183748	50.0000	55.858
	22 2,2-Dichloropropane	77	4.553	4.553	(0.853)	291372	50.0000	58.328
	23 Bromochloromethane	128	4.645	4.645	(0.870)	87480	50.0000	55.965
	24 Chloroform	83	4.730	4.730	(0.886)	289484	50.0000	55.340
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	290193	50.0000	48.605
$	27 Dibromofluoromethane	111	4.894	4.894	(0.917)	277396	50.0000	60.945
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.916)	307135	50.0000	57.565
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	236160	50.0000	49.947
	29 2-Butanone	72	5.046	5.046	(0.945)	70536	250.000	278.85
	30 Benzene	78	5.223	5.223	(0.903)	660444	50.0000	49.657
*	31 Pentafluorobenzene	168	5.338	5.338	(1.000)	370608	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.002)	255663	50.0000	57.333
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	207689	50.0000	45.496

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	34	Trichloroethene	130	5.734	5.734	(0.992)	203551	50.0000	49.985
*	35	1,4-Difluorobenzene	114	5.782	5.782	(1.000)	831682	50.0000	
	37	Dibromomethane	93	6.099	6.099	(1.055)	89917	50.0000	46.943
	38	1,2-Dichloropropane	63	6.184	6.184	(1.069)	142250	50.0000	46.953
	39	Bromodichloromethane	83	6.251	6.251	(1.081)	223125	50.0000	47.429
	172	2-Pentanone	86	6.543	6.543	(1.132)	96082	250.000	245.36
	40	2-Chloroethyl Vinyl Ether	63	6.756	6.756	(1.168)	75392	50.0000	45.672
	41	Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	262954	50.0000	48.305
$	42	d8-Toluene	98	6.938	6.938	(1.200)	1071519	50.0000	52.165
	43	Toluene	92	6.981	6.981	(1.207)	448973	50.0000	47.718
	44	Tetrachloroethene	166	7.297	7.297	(0.884)	210775	50.0000	46.132
	45	4-Methyl-2-Pentanone	58	7.334	7.334	(1.268)	223621	250.000	236.92
	46	Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	240267	50.0000	48.091
	47	1,1,2-Trichloroethane	97	7.480	7.480	(1.294)	125791	50.0000	46.613
	48	Chlorodibromomethane	129	7.620	7.620	(0.923)	174370	50.0000	44.249
	49	1,3-Dichloropropane	76	7.705	7.705	(0.933)	214587	50.0000	44.365
	50	1,2-Dibromoethane	107	7.814	7.814	(1.351)	128788	50.0000	47.394
	51	2-Hexanone	43	8.045	8.045	(0.974)	387036	250.000	223.40
*	52	d5-Chlorobenzene	117	8.258	8.258	(1.000)	852840	50.0000	
	53	Chlorobenzene	112	8.270	8.270	(1.001)	510328	50.0000	44.039
	54	Ethyl Benzene	91	8.301	8.301	(1.005)	861586	50.0000	45.462
	55	1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	192006	50.0000	46.100
	56	m,p-xylene	106	8.435	8.435	(1.021)	692718	100.000	92.564
	57	o-Xylene	106	8.806	8.806	(1.066)	328601	50.0000	46.692
	58	Styrene	104	8.854	8.854	(1.072)	536487	50.0000	46.345
	59	Bromoform	173	8.867	8.867	(0.857)	118290	50.0000	41.344
	60	Isopropyl Benzene	105	9.086	9.086	(0.878)	903376	50.0000	45.883
	61	Cyclohexanone	55	9.639	9.639	(1.167)	1491	400.000	
$	62	4-Bromofluorobenzene	174	9.335	9.335	(1.130)	380134	50.0000	51.416
	63	Bromobenzene	156	9.420	9.420	(0.910)	216407	50.0000	42.982
	64	N-Propyl Benzene	91	9.457	9.457	(0.914)	1004465	50.0000	44.458
	65	1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	155000	50.0000	43.551
	66	2-Chloro Toluene	91	9.591	9.591	(0.927)	584400	50.0000	44.832
	67	1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	745012	50.0000	45.573
	68	1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	55229	50.0000	43.436
	69	Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	45180	50.0000	42.879
	70	4-Chloro Toluene	91	9.743	9.743	(0.941)	606596	50.0000	44.190
	71	T-Butyl Benzene	119	9.925	9.925	(0.959)	680516	50.0000	45.170
	72	1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	724080	50.0000	45.132
	73	S-Butyl Benzene	105	10.089	10.089	(0.975)	986892	50.0000	45.341
	74	4-Isopropyl Toluene	119	10.229	10.229	(0.988)	851250	50.0000	45.649
	75	1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	433976	50.0000	44.141
*	76	d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	483396	50.0000	
	77	1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	426232	50.0000	42.649
	78	N-Butyl Benzene	91	10.619	10.619	(1.026)	711034	50.0000	44.508
$	79	d4-1,2-Dichlorobenzene	152	10.746	10.746	(1.038)	459379	50.0000	50.721
	80	1,2-Dichlorobenzene	146	10.753	10.753	(1.039)	391107	50.0000	41.974
	81	1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	31391	50.0000	43.117
	82	Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	152998	50.0000	44.239
	83	1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	251216	50.0000	42.798
	84	Naphthalene	128	12.486	12.486	(1.206)	525088	50.0000	42.902
	85	1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	221476	50.0000	41.610

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509031902.D
Lab Smp Id: shi0046-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190903.b\VO122618S.m
Misc Info:

Calibration Date: 29-AUG-2019
Calibration Time: 15:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	370608	-19.08
35 1,4-Difluorobenze	852165	426083	1704330	831682	-2.40
52 d5-Chlorobenzene	803678	401839	1607356	852840	6.12
76 d4-1,4-Dichlorobe	439766	219883	879532	483396	9.92

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.34	-0.11
35 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.07
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT509031902.D

Lab ID: shi0046-ICV1
nt5.i, 20190903.b\VO122618S.m,   03-SEP-2019 12:38

RT	CO-ELUTION COMPOUNDS
3.483	n-Hexane and Methyl tert butyl ether
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

No RRT check. Ccal file.

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500

Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500
Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190903.b

Instrument: nt5.i Date: 03-SEP-2019 Method: VO122618S.m

INITIAL CAL: 20-AUG-2019

Compound	%RSD or R^2
Cyclohexanone	ND

ICV CAL: NT509031902.D 03-SEP-2019 12:38

Compound	%D
Iodomethane	29.4
Methylene Chloride	22.0
n-Hexane	-43.3
Dibromofluoromethane	21.9

Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT5	Calibration:	CH00068
Lab File ID:	NT509041903.D	Calibration Date:	08/20/19 00:34
Sequence:	SHI0061	Injection Date:	09/04/19
Lab Sample ID:	SHI0061-ICV1	Injection Time:	14:02
Sequence Name:	VOA 10		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Benzene	A	50.000	47.6	0.7995904	0.7616372		-4.7	20
Toluene	A	50.000	45.6	0.5656542	0.5159548		-8.8	20
Ethylbenzene	A	50.000	45.3	1.1111050	1.0071110		-9.4	20
m,p-Xylene	A	100.00	91.7	0.4387496	0.4022137		-8.3	20
o-Xylene	A	50.000	46.0	0.4126007	0.3798918		-7.9	20
Toluene-d8	A	50.000	51.8	1.2348940	1.2791740		3.6	20
4-Bromofluorobenzene	A	50.000	50.3	0.4334557	0.4358786		0.6	20

* Values outside of QC limits

Data File: \\target\share\chem1\nt5.i\20190904.b\NT509041903.D

Date : 04-SEP-2019 14:02

Client ID:

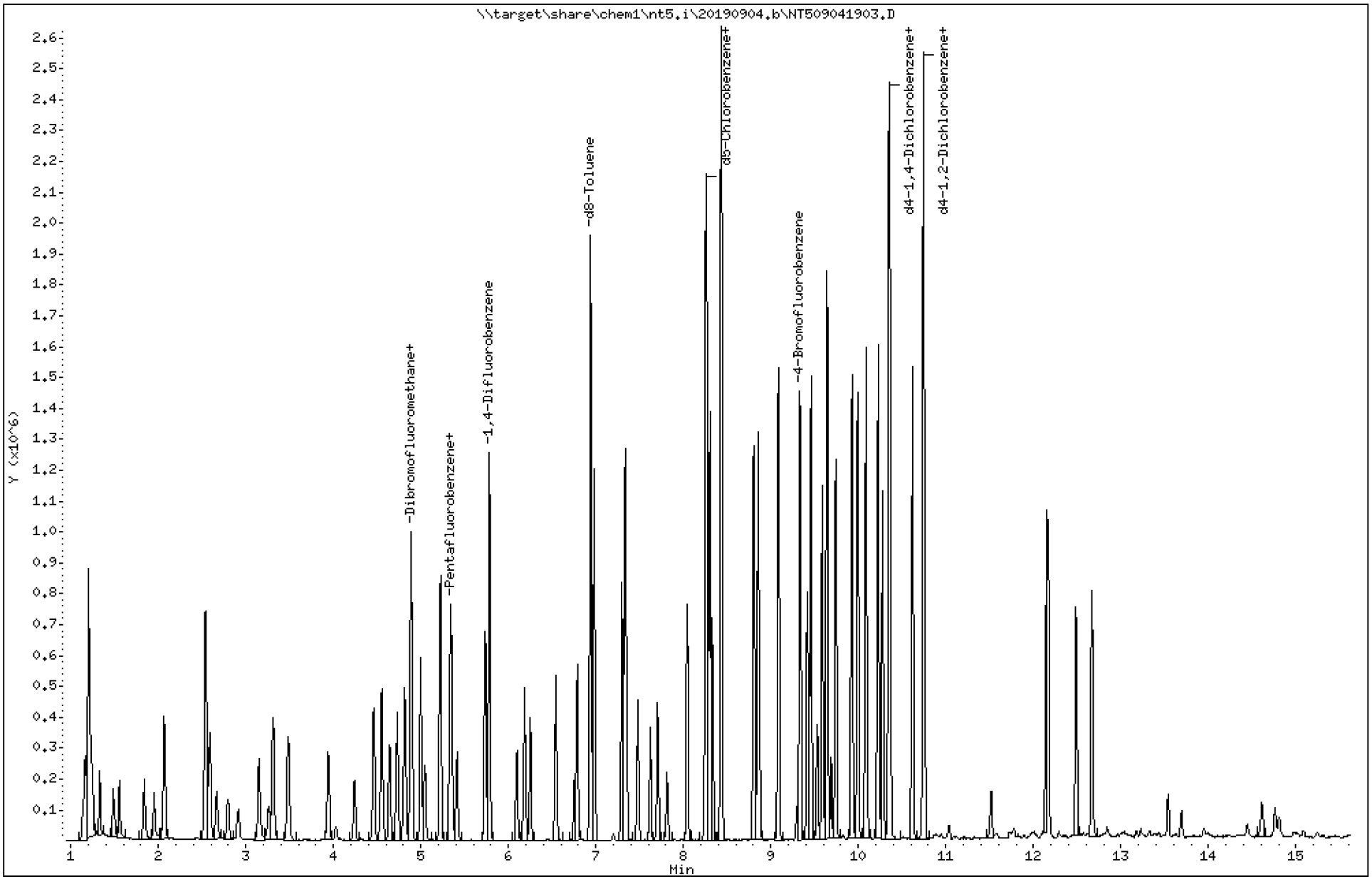
Instrument: nt5.i

Sample Info: ICV1

Operator: PB

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C

Data file : \\target\share\chem1\nt5.i\20190904.b\NT509041903.D
Lab Smp Id: shi0061-ICV1
Inj Date : 04-SEP-2019 14:02
Operator : PB Inst ID: nt5.i
Smp Info : ICV1
Misc Info :
Comment :
Method : \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Meth Date : 05-Sep-2019 13:06 nt5.i Quant Type: ISTD
Cal Date : 20-AUG-2019 16:29 Cal File: NT508201911.D
Als bottle: 6 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: voamdl.sub
Target Version: 4.14
Processing Host: ORGDATA21

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	1 Dichlorodifluoromethane	85	1.329	1.329	(0.249)	183493	50.0000	65.550
	2 Chloromethane	50	1.481	1.481	(0.278)	151428	50.0000	60.061
	3 Vinyl Chloride	62	1.554	1.554	(0.292)	165641	50.0000	67.384
	4 Bromomethane	94	1.840	1.840	(0.345)	116191	50.0000	53.310
	5 Chloroethane	64	1.949	1.949	(0.366)	126944	50.0000	61.569
	6 Trichlorofluoromethane	101	2.065	2.065	(0.387)	296586	50.0000	59.314
	7 1,1-Dichloroethene	96	2.533	2.533	(0.475)	150795	50.0000	58.295
	8 Carbon Disulfide	76	2.540	2.540	(0.476)	441258	50.0000	57.058
	9 112Trichloro122Trifluoroethane	101	2.588	2.588	(0.485)	148420	50.0000	58.165
	10 Iodomethane	142	2.661	2.661	(0.499)	175888	50.0000	63.426
	11 Bromoethane	108	2.795	2.795	(0.524)	100806	50.0000	57.848
	12 Acrolein	56	2.911	2.911	(0.546)	87928	250.000	301.30
	13 Methylene Chloride	84	3.148	3.148	(0.590)	137697	50.0000	60.422
	14 Acetone	43	3.257	3.257	(0.611)	149589	250.000	303.30
	15 Trans-1,2-Dichloroethene	96	3.312	3.312	(0.621)	163426	50.0000	57.469
	16 Methyl tert butyl ether	73	3.482	3.482	(0.653)	353018	50.0000	53.833
	173 n-Hexane	41	Compound Not Detected.					
	17 1,1-Dichloroethane	63	3.939	3.939	(0.739)	251472	50.0000	57.245
	18 Acrylonitrile	53	4.024	4.024	(0.755)	32162	50.0000	57.847
	19 Vinyl Acetate	43	4.243	4.243	(0.796)	249892	50.0000	54.947
	20 Cis-1,2-Dichloroethene	96	4.462	4.462	(0.837)	175711	50.0000	54.798
	22 2,2-Dichloropropane	77	4.553	4.553	(0.854)	288952	50.0000	59.341
	23 Bromochloromethane	128	4.644	4.644	(0.871)	83645	50.0000	54.897
	24 Chloroform	83	4.730	4.730	(0.887)	281553	50.0000	55.217
	25 Carbon Tetrachloride	117	4.815	4.815	(0.833)	284349	50.0000	48.273
$	27 Dibromofluoromethane	111	4.894	4.894	(0.918)	283745	50.0000	63.954
	26 1,1,1-Trichloroethane	97	4.888	4.888	(0.917)	291750	50.0000	56.097
	28 1,1-Dichloropropene	75	4.997	4.997	(0.864)	233320	50.0000	50.017
	29 2-Butanone	72	5.046	5.046	(0.946)	70292	250.000	285.08
	30 Benzene	78	5.222	5.222	(0.903)	624950	50.0000	47.627
*	31 Pentafluorobenzene	168	5.332	5.332	(1.000)	361253	50.0000	
$	32 d4-1,2-Dichloroethane	65	5.350	5.350	(1.003)	266022	50.0000	61.200
	33 1,2-Dichloroethane	62	5.411	5.411	(0.936)	194928	50.0000	43.280

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/Kg)	ON-COL (ug/Kg)
	34 Trichloroethene	130	5.733	5.733	(0.992)	195025	50.0000	48.542
*	35 1,4-Difluorobenzene	114	5.782	5.782	(1.000)	820535	50.0000	
	37 Dibromomethane	93	6.092	6.092	(1.054)	84480	50.0000	44.703
	38 1,2-Dichloropropane	63	6.184	6.184	(1.069)	136380	50.0000	45.627
	39 Bromodichloromethane	83	6.251	6.251	(1.081)	209243	50.0000	45.083
	172 2-Pentanone	86	6.543	6.543	(1.132)	92638	250.000	239.78
	40 2-Chloroethyl Vinyl Ether	63	6.755	6.755	(1.168)	71424	50.0000	43.856
	41 Cis 1,3-dichloropropene	75	6.786	6.786	(1.174)	243196	50.0000	45.282
$	42 d8-Toluene	98	6.938	6.938	(1.200)	1049607	50.0000	51.793
	43 Toluene	92	6.981	6.981	(1.207)	423359	50.0000	45.607
	44 Tetrachloroethene	166	7.297	7.297	(0.884)	211692	50.0000	48.424
	45 4-Methyl-2-Pentanone	58	7.327	7.327	(1.267)	214340	250.000	230.17
	46 Trans 1,3-Dichloropropene	75	7.346	7.346	(1.270)	222020	50.0000	45.042
	47 1,1,2-Trichloroethane	97	7.479	7.479	(1.294)	115654	50.0000	43.439
	48 Chlorodibromomethane	129	7.619	7.619	(0.923)	159908	50.0000	42.410
	49 1,3-Dichloropropane	76	7.704	7.704	(0.933)	200044	50.0000	43.225
	50 1,2-Dibromoethane	107	7.814	7.814	(1.351)	122995	50.0000	45.877
	51 2-Hexanone	43	8.045	8.045	(0.974)	387871	250.000	233.99
*	52 d5-Chlorobenzene	117	8.258	8.258	(1.000)	816014	50.0000	
	53 Chlorobenzene	112	8.270	8.270	(1.001)	479212	50.0000	43.220
	54 Ethyl Benzene	91	8.301	8.301	(1.005)	821817	50.0000	45.320
	55 1,1,1,2-Tetrachloroethane	131	8.331	8.331	(1.009)	175252	50.0000	43.976
	56 m,p-xylene	106	8.435	8.435	(1.021)	656424	100.000	91.673
	57 o-Xylene	106	8.806	8.806	(1.066)	309997	50.0000	46.036
	58 Styrene	104	8.854	8.854	(1.072)	501550	50.0000	45.282
	59 Bromoform	173	8.866	8.866	(0.857)	108799	50.0000	40.420
	60 Isopropyl Benzene	105	9.085	9.085	(0.878)	860823	50.0000	46.473
	61 Cyclohexanone	55	9.639	9.639	(1.167)	1360	400.000	
$	62 4-Bromofluorobenzene	174	9.335	9.335	(1.130)	355683	50.0000	50.279
	63 Bromobenzene	156	9.420	9.420	(0.910)	200906	50.0000	42.415
	64 N-Propyl Benzene	91	9.457	9.457	(0.914)	981168	50.0000	46.160
	65 1,1,2,2-Tetrachloroethane	83	9.530	9.530	(0.921)	140026	50.0000	41.819
	66 2-Chloro Toluene	91	9.590	9.590	(0.927)	555100	50.0000	45.264
	67 1,3,5-Trimethyl Benzene	105	9.639	9.639	(0.931)	717203	50.0000	46.633
	68 1,2,3-Trichloropropane	110	9.645	9.645	(0.932)	54101	50.0000	45.227
	69 Trans-1,4-Dichloro 2-Butene	53	9.688	9.688	(0.936)	41753	50.0000	42.121
	70 4-Chloro Toluene	91	9.742	9.742	(0.941)	585267	50.0000	45.319
	71 T-Butyl Benzene	119	9.925	9.925	(0.959)	647341	50.0000	45.672
	72 1,2,4-Trimethylbenzene	105	9.992	9.992	(0.965)	697533	50.0000	46.214
	73 S-Butyl Benzene	105	10.089	10.089	(0.975)	962039	50.0000	46.981
	74 4-Isopropyl Toluene	119	10.223	10.223	(0.988)	839535	50.0000	47.854
	75 1,3-Dichlorobenzene	146	10.278	10.278	(0.993)	412087	50.0000	44.552
*	76 d4-1,4-Dichlorobenzene	152	10.351	10.351	(1.000)	454776	50.0000	
	77 1,4-Dichlorobenzene	146	10.363	10.363	(1.001)	411053	50.0000	43.719
	78 N-Butyl Benzene	91	10.619	10.619	(1.026)	723917	50.0000	48.167
$	79 d4-1,2-Dichlorobenzene	152	10.740	10.740	(1.038)	434802	50.0000	51.029
	80 1,2-Dichlorobenzene	146	10.752	10.752	(1.039)	369377	50.0000	42.137
	81 1,2-Dibromo 3-Chloropropane	75	11.513	11.513	(1.112)	31159	50.0000	45.492
	82 Hexachloro 1,3-Butadiene	225	12.152	12.152	(1.174)	151463	50.0000	46.551
	83 1,2,4-Trichlorobenzene	180	12.170	12.170	(1.176)	254433	50.0000	46.074
	84 Naphthalene	128	12.486	12.486	(1.206)	533485	50.0000	46.331
	85 1,2,3-Trichlorobenzene	180	12.669	12.669	(1.224)	224568	50.0000	44.846

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt5.i
Lab File ID: NT509041903.D
Lab Smp Id: shi0061-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PB
Method File: \\target\share\chem1\nt5.i\20190904.b\VO122618S.m
Misc Info:

Calibration Date: 04-SEP-2019
Calibration Time: 13:24
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	457969	228985	915938	361253	-21.12
35 1,4-Difluorobenze	852165	426083	1704330	820535	-3.71
52 d5-Chlorobenzene	803678	401839	1607356	816014	1.53
76 d4-1,4-Dichlorobe	439766	219883	879532	454776	3.41

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
31 Pentafluorobenzen	5.34	4.84	5.84	5.33	-0.23
35 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.10
52 d5-Chlorobenzene	8.26	7.76	8.76	8.26	-0.07
76 d4-1,4-Dichlorobe	10.36	9.86	10.86	10.35	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - NT509041903.D

Lab ID: shi0061-ICV1
nt5.i, 20190904.b\VO122618S.m,   04-SEP-2019 14:02

RT	CO-ELUTION COMPOUNDS
9.640	Cyclohexanone and 1,3,5-Trimethyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
NONE			

No RRT check. Ccal file.

On Column LOD for nt5.i, VO122618S.m, voamdl.sub = 0.5000

Exception: Bromomethane 0.2500
Exception: Chloroethane 0.2500
Exception: Trichlorofluoromethane 0.2500
Exception: Acrolein 2.5000
Exception: 112Trichloro122Trifluoroethane 0.2500
Exception: Acetone 2.5000
Exception: 1,1-Dichloroethene 0.2500
Exception: Bromoethane 0.2500
Exception: Iodomethane 0.1000
Exception: Acrylonitrile 0.2500
Exception: Carbon Disulfide 0.2500
Exception: Trans-1,2-Dichloroethene 0.1000
Exception: Vinyl Acetate 0.2500
Exception: 1,1-Dichloroethane 0.2500
Exception: 2-Butanone 0.2500
Exception: 2,2-Dichloropropane 0.2500
Exception: Cis-1,2-Dichloroethene 0.2500
Exception: Chloroform 0.2500
Exception: Bromochloromethane 0.2500
Exception: 1,1,1-Trichloroethane 0.2500
Exception: 1,1-Dichloropropene 0.2500
Exception: Carbon Tetrachloride 0.2500
Exception: 1,2-Dichloroethane 0.2500
Exception: Benzene 0.2500
Exception: Trichloroethene 0.2500
Exception: 1,2-Dichloropropane 0.2500
Exception: Bromodichloromethane 0.2500
Exception: Dibromomethane 0.2500
Exception: 2-Chloroethyl Vinyl Ether 0.2500
Exception: 4-Methyl-2-Pentanone 0.2500

Exception: Cis 1,3-dichloropropene 0.2500
Exception: Toluene 0.2500
Exception: Trans 1,3-Dichloropropene 0.2500
Exception: 2-Hexanone 0.2500
Exception: 1,1,2-Trichloroethane 0.2500
Exception: 1,3-Dichloropropane 0.2500
Exception: Tetrachloroethene 0.2500
Exception: Chlorodibromomethane 0.2500
Exception: 1,2-Dibromoethane 0.2500
Exception: Chlorobenzene 0.2500
Exception: Ethyl Benzene 0.2500
Exception: 1,1,1,2-Tetrachloroethane 0.2500
Exception: m,p-xylene 0.2500
Exception: o-Xylene 0.2500
Exception: Styrene 0.2500
Exception: Bromoform 0.2500
Exception: 1,1,2,2-Tetrachloroethane 0.2500
Exception: 1,2,3-Trichloropropane 0.2500
Exception: Trans-1,4-Dichloro 2-Butene 0.2500
Exception: N-Propyl Benzene 0.2500
Exception: Bromobenzene 0.2500
Exception: Isopropyl Benzene 0.2500
Exception: 2-Chloro Toluene 0.2500
Exception: 4-Chloro Toluene 0.2500
Exception: T-Butyl Benzene 0.2500
Exception: 1,3,5-Trimethyl Benzene 0.2500
Exception: 1,2,4-Trimethylbenzene 0.2500
Exception: S-Butyl Benzene 0.2500
Exception: 4-Isopropyl Toluene 0.2500
Exception: 1,3-Dichlorobenzene 0.2500
Exception: 1,4-Dichlorobenzene 0.2500
Exception: N-Butyl Benzene 0.2500
Exception: 1,2-Dichlorobenzene 0.2500
Exception: 1,2-Dibromo 3-Chloropropane 0.2500
Exception: 1,2,4-Trichlorobenzene 0.2500
Exception: Hexachloro 1,3-Butadiene 0.2500
Exception: Naphthalene 0.2500
Exception: 1,2,3-Trichlorobenzene 0.2500
Exception: Dichlorodifluoromethane 0.2500
Exception: Methyl tert butyl ether 0.1000
Exception: 2-Pentanone 0.0000
Exception: n-Hexane 0.0000
Exception: Cyclohexanone 0.0000
Exception: d4-1,2-Dichloroethane (Surr) 0.2500
Exception: d8-Toluene (Surr) 0.2500
Exception: 4-Bromofluorobenzene (Surr) 0.2500
Exception: d4-1,2-Dichlorobenzene (Surr) 0.2500
Exception: Dibromofluoromethane (Surr) 0.2500

* Only compounds listed in the work order have been verified by the analyst *

Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190904.b

Instrument: nt5.i Date: 04-SEP-2019 Method: VO122618S.m

INITIAL CAL: 20-AUG-2019

Compound	%RSD or R^2
Cyclohexanone	ND

ICV CAL: NT509041903.D 04-SEP-2019 14:02

Compound	%D
Vinyl Chloride	34.8
Chloroethane	23.1
Acrolein	20.5
Acetone	21.3
Iodomethane	26.9
Methylene Chloride	20.8
Dichlorodifluoromethane	31.1
n-Hexane	ND
d4-1,2-Dichloroethane	22.4
Dibromofluoromethane	27.9

INITIAL CALIBRATION CHECK

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT3	Calibration:	CI00019
Lab File ID:	V309051904.D	Calibration Date:	09/04/19 09:42
Sequence:	SHI0085	Injection Date:	09/05/19
Lab Sample ID:	SHI0085-ICV1	Injection Time:	12:30
Sequence Name:	VOA 10		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Benzene	A	10.000	10.6	1.7113370	1.8123700	0.5	5.9	20
Toluene	A	10.000	10.6	1.1159120	1.1867040	0.4	6.3	20
Ethylbenzene	A	10.000	10.7	0.7033495	0.7508318	0.1	6.8	20
m,p-Xylene	A	20.000	21.6	0.8661288	0.9371188	0.1	8.2	20
o-Xylene	A	10.000	10.7	0.8743672	0.9356468	0.3	7.0	20
Toluene-d8	A	5.0000	5.19	1.2097490	1.2548140		3.7	20
4-Bromofluorobenzene	A	5.0000	5.12	0.4751804	0.4864965		2.4	20
Pentafluorobenzene	A	10.000	10.0	11136.6000	1.0000		0.0	
Chlorobenzene-d5	A	10.000	10.0	16572.6900	1.0000		0.0	
1,4-Difluorobenzene	A	10.000	10.0	16292.2100	1.0000		0.0	
1,4-Dichlorobenzene-d4	A	10.000	10.0	10552.6300	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem1\nt3.i\20190905.b\V309051904.D

Date : 05-SEP-2019 12:30

Client ID:

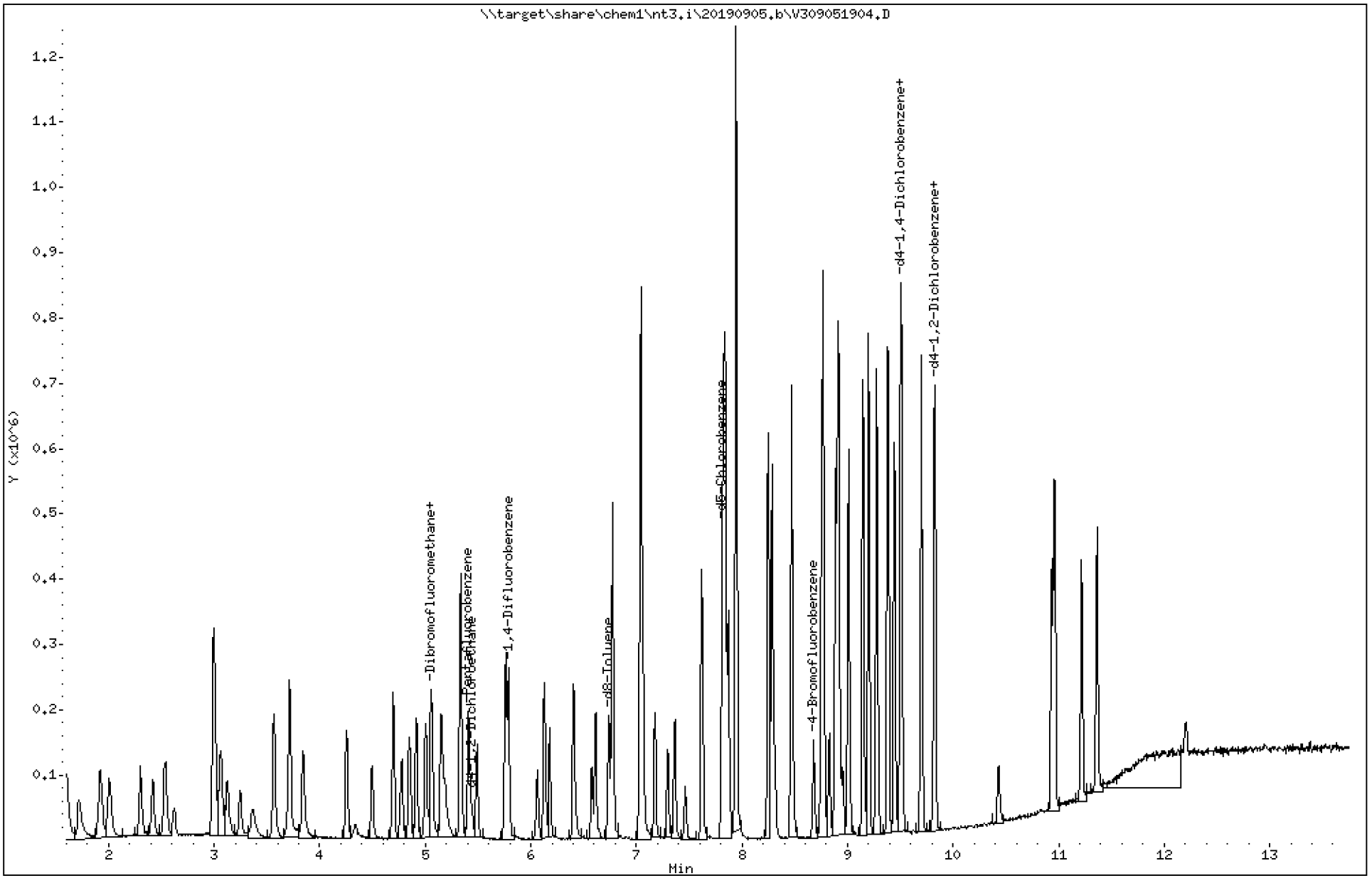
Sample Info: SHI0085-ICV1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905.b\V309051904.D
Lab Smp Id: SHI0085-ICV1
Inj Date : 05-SEP-2019 12:30
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0085-ICV1
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: mdl.sub
Target Version: 4.14

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
	1 Dichlorodifluoromethane	85	1.714	1.720	(0.317)	110990	10.0000	11.100(M)
	2 Chloromethane	50	1.922	1.922	(0.355)	169917	10.0000	10.125
	3 Vinyl Chloride	62	2.007	2.007	(0.371)	138697	10.0000	10.258
	4 Bromomethane	94	2.299	2.299	(0.425)	64067	10.0000	10.385
	5 Chloroethane	64	2.416	2.411	(0.446)	70668	10.0000	9.804
	6 Trichlorofluoromethane	101	2.538	2.533	(0.469)	117268	10.0000	10.661
	7 1,1-Dichloroethene	61	2.990	2.990	(0.552)	137419	10.0000	10.339
	8 Carbon Disulfide	76	3.001	2.996	(0.554)	206766	10.0000	10.592
	9 112Trichloro122Trifluoroethane	101	3.065	3.060	(0.566)	66306	10.0000	11.118
	10 Iodomethane	142	3.123	3.118	(0.577)	106597	10.0000	10.475
	11 Bromoethane	108	3.245	3.246	(0.599)	48120	10.0000	10.300
	12 Acrolein	56	3.368	3.347	(0.622)	68202	50.0000	57.671(M)
	13 Methylene Chloride	84	3.564	3.565	(0.658)	69591	10.0000	11.360
	14 Acetone	43	3.708	3.644	(0.685)	90163	50.0000	52.959
	15 Trans-1,2-Dichloroethene	96	3.713	3.713	(0.686)	71571	10.0000	10.124
	17 Methyl tert butyl ether	73	3.841	3.841	(0.709)	119683	10.0000	9.949
	18 1,1-Dichloroethane	63	4.255	4.256	(0.786)	147072	10.0000	10.358
	19 Acrylonitrile	53	4.340	4.319	(0.802)	22854	10.0000	11.444
	20 Vinyl Acetate	43	4.494	4.489	(0.830)	149289	10.0000	9.998
	22 Cis-1,2-Dichloroethene	96	4.696	4.691	(0.867)	75561	10.0000	10.387
	23 2,2-Dichloropropane	77	4.776	4.776	(0.882)	69108	10.0000	10.466
	24 Bromochloromethane	128	4.851	4.851	(0.896)	33007	10.0000	10.449
	25 Chloroform	83	4.914	4.915	(0.908)	111405	10.0000	10.180
	26 Carbon Tetrachloride	117	5.005	5.000	(0.865)	98651	10.0000	10.721
$	27 Dibromofluoromethane	111	5.053	5.053	(0.933)	23228	5.00000	5.016
	28 1,1,1-Trichloroethane	97	5.058	5.058	(0.934)	112280	10.0000	10.602
	30 1,1-Dichloropropene	75	5.148	5.149	(0.890)	91693	10.0000	10.433
	29 2-Butanone	43	5.185	5.164	(0.958)	169985	50.0000	61.187
	31 Benzene	78	5.334	5.335	(0.922)	279906	10.0000	10.590
*	32 Pentafluorobenzene	168	5.414	5.409	(1.000)	107094	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.005)	25505	5.00000	4.944
	34 1,2-Dichloroethane	62	5.488	5.489	(0.949)	91888	10.0000	10.742
	36 Trichloroethene	130	5.760	5.760	(0.995)	78746	10.0000	11.140
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	154442	10.0000	

							AMOUNTS	
		QUANT SIG					CAL-AMT	ON-COL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
	38 Dibromomethane	93	6.057	6.057	(1.047)	32088	10.0000	10.444
	39 1,2-Dichloropropane	63	6.126	6.127	(1.059)	82871	10.0000	10.405
	40 Bromodichloromethane	83	6.174	6.174	(1.067)	82206	10.0000	10.343
	173 2-Pentanone	86	6.408	6.398	(1.107)	35310	50.0000	61.467
	41 2-Chloroethyl Vinyl Ether	63	6.578	6.573	(1.137)	36466	10.0000	10.798
	42 Cis 1,3-dichloropropene	75	6.615	6.610	(1.143)	104987	10.0000	10.334
$	43 d8-Toluene	98	6.738	6.738	(1.164)	96898	5.00000	5.186
	44 Toluene	92	6.775	6.775	(1.171)	183277	10.0000	10.634
	46 Tetrachloroethene	166	7.041	7.036	(0.901)	87499	10.0000	10.765
	45 4-Methyl-2-Pentanone	58	7.041	7.041	(1.217)	130034	50.0000	57.337
	47 Trans 1,3-Dichloropropene	75	7.062	7.062	(1.220)	92973	10.0000	10.837
	48 1,1,2-Trichloroethane	97	7.173	7.174	(1.240)	50979	10.0000	10.788
	49 Chlorodibromomethane	129	7.296	7.296	(0.934)	61455	10.0000	10.575
	50 1,3-Dichloropropane	76	7.365	7.365	(0.943)	90262	10.0000	10.704
	51 1,2-Dibromoethane	107	7.460	7.461	(1.289)	46989	10.0000	10.044
	52 2-Hexanone	43	7.620	7.615	(0.976)	247996	50.0000	58.863
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	156589	10.0000	
	54 Chlorobenzene	112	7.827	7.828	(1.002)	216145	10.0000	10.715
	55 Ethyl Benzene	106	7.843	7.843	(1.004)	117572	10.0000	10.675
	56 1,1,1,2-Tetrachloroethane	131	7.870	7.870	(1.007)	77027	10.0000	10.619
	57 m,p-xylene	106	7.944	7.944	(1.017)	293485	20.0000	21.639
	58 o-Xylene	106	8.247	8.247	(1.056)	146512	10.0000	10.701
	59 Styrene	104	8.284	8.285	(1.061)	234081	10.0000	11.044
	60 Bromoform	173	8.311	8.311	(0.875)	39251	10.0000	10.797
	61 Isopropyl Benzene	105	8.470	8.471	(0.892)	381918	10.0000	10.632
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	38090	5.00000	5.119
	63 Bromobenzene	156	8.757	8.758	(0.922)	100836	10.0000	10.320
	64 N-Propyl Benzene	91	8.768	8.768	(0.923)	456034	10.0000	11.069
	65 1,1,2,2-Tetrachloroethane	83	8.827	8.827	(0.929)	63707	10.0000	10.250
	66 2-Chloro Toluene	91	8.885	8.885	(0.936)	309080	10.0000	10.554
	67 1,3,5-Trimethyl Benzene	105	8.912	8.912	(0.938)	338264	10.0000	10.698
	68 1,2,3-Trichloropropane	110	8.928	8.928	(0.940)	19227	10.0000	9.318
	69 Trans-1,4-Dichloro 2-Butene	53	8.954	8.954	(0.943)	23435	10.0000	10.496
	70 4-Chloro Toluene	91	9.007	9.008	(0.949)	295006	10.0000	10.874
	71 T-Butyl Benzene	119	9.145	9.146	(0.963)	285373	10.0000	10.689
	72 1,2,4-Trimethylbenzene	105	9.199	9.199	(0.969)	350405	10.0000	10.931
	73 S-Butyl Benzene	105	9.278	9.279	(0.977)	409469	10.0000	10.971
	74 4-Isopropyl Toluene	119	9.385	9.380	(0.988)	368777	10.0000	11.010
	75 1,3-Dichlorobenzene	146	9.443	9.443	(0.994)	215799	10.0000	10.512
*	76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	101121	10.0000	
	77 1,4-Dichlorobenzene	146	9.512	9.507	(1.002)	215054	10.0000	10.490
	78 N-Butyl Benzene	91	9.698	9.699	(1.021)	319238	10.0000	11.137
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	45786	5.00000	4.819
	80 1,2-Dichlorobenzene	146	9.826	9.826	(1.035)	196610	10.0000	10.269
	81 1,2-Dibromo 3-Chloropropane	75	10.437	10.437	(1.099)	12057	10.0000	10.354
	83 Hexachloro 1,3-Butadiene	225	10.937	10.932	(1.152)	63475	10.0000	11.611
	84 1,2,4-Trichlorobenzene	180	10.963	10.958	(1.154)	142364	10.0000	10.571
	85 Naphthalene	128	11.218	11.219	(1.181)	241590	10.0000	10.768
	86 1,2,3-Trichlorobenzene	180	11.362	11.362	(1.196)	110668	10.0000	10.093

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051904.D
Lab Smp Id: SHI0085-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	107094	10.52
37 1,4-Difluorobenze	140121	70061	280242	154442	10.22
53 d5-Chlorobenzene	140128	70064	280256	156589	11.75
76 d4-1,4-Dichlorobe	90137	45069	180274	101121	12.19

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.09
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309051904.D

Lab ID: SHI0085-ICV1
nt3.i, 20190905.b\8260C090219.m,   05-SEP-2019 12:30

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.685	0.674	0.0111	Acetone

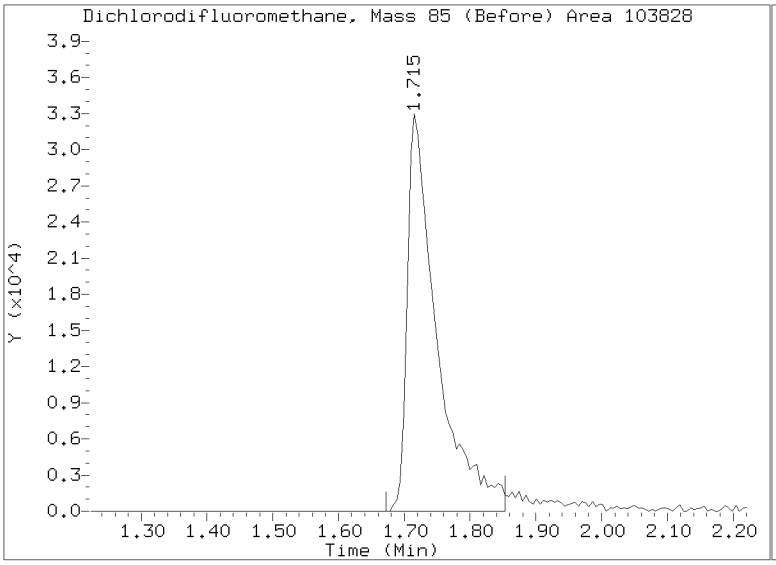
No RRT check. Ccal file.

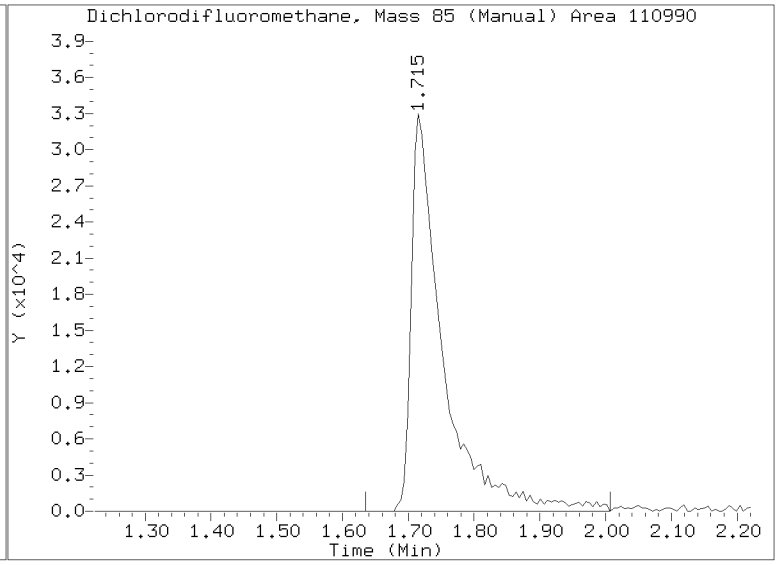
On Column LOD for nt3.i, 8260C090219.m, mdl.sub = 0.0200

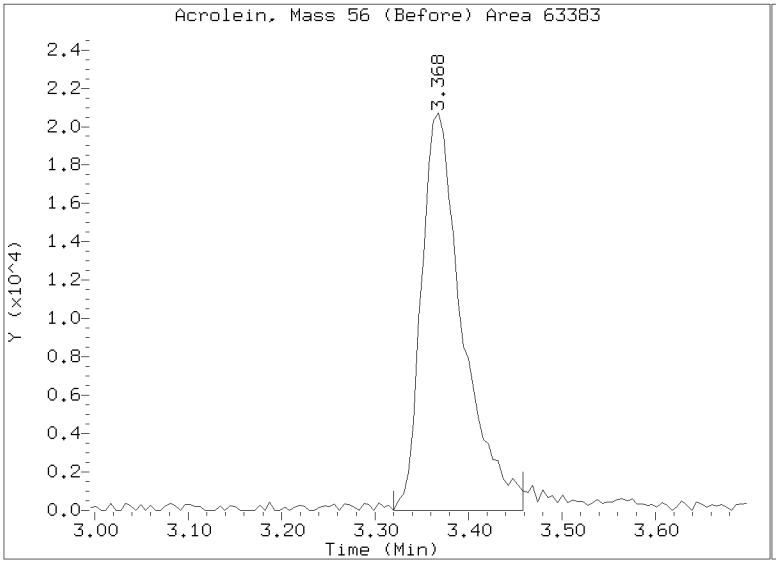
* Only compounds listed in the work order have been verified by the analyst *

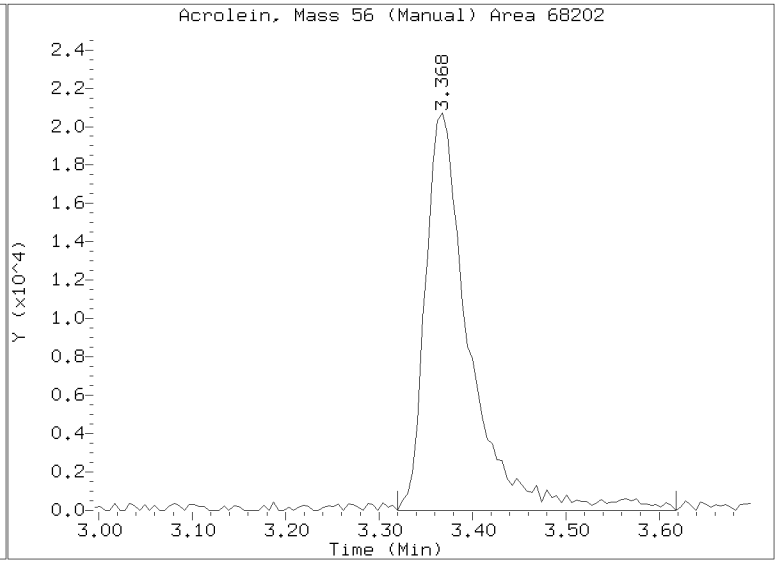
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190905.b/V309051904.D
Injection Date: 05-SEP-2019 12:30
Lab ID:SHI0085-ICV1 Client ID:
Report Date: 09/06/2019 14:39









Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905.b

Instrument: nt3.i Date: 05-SEP-2019 Method: 8260C090219.m

INITIAL CAL: 04-SEP-2019

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: V309051904.D 05-SEP-2019 12:30

Compound	%D
2-Butanone	22.4
2-Pentanone	22.9

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHH0255	Instrument:	NT5
		Calibration:	CH00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHH0255-TUN1	NT508201902.D	NA	08/20/19 11:37
1	SHH0255-CAL1	NT508201904.D	NA	08/20/19 13:53
2	SHH0255-CAL2	NT508201905.D	NA	08/20/19 14:15
5	SHH0255-CAL3	NT508201906.D	NA	08/20/19 14:37
10	SHH0255-CAL4	NT508201907.D	NA	08/20/19 14:59
50	SHH0255-CAL5	NT508201908.D	NA	08/20/19 15:21
100	SHH0255-CAL6	NT508201909.D	NA	08/20/19 15:44
150	SHH0255-CAL7	NT508201910.D	NA	08/20/19 16:06
200	SHH0255-CAL8	NT508201911.D	NA	08/20/19 16:29
8260C SCV	SHH0255-SCV1	NT508211903.D	NA	08/21/19 12:47

Printed: 8/22/2019 1:27:30PM

ANALYSIS SEQUENCE

SHH0255

Instrument: NT5 Element Column ID: RTXVMS
Calibration ID: CH00024 Tune File: bfb.u
EM Voltage: 2000

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0255-TUN1	MS Tune	QC		1	H005698	H006572	
SHH0255-CAL1	1	QC		2	H007494	H006572	
SHH0255-CAL2	2	QC		3	H007495	H006572	
SHH0255-CAL3	5	QC		4	H007496	H006572	
SHH0255-CAL4	10	QC		5	H007497	H006572	
SHH0255-CAL5	50	QC		6	H007498	H006572	
SHH0255-CAL6	100	QC		7	H007499	H006572	
SHH0255-CAL7	150	QC		8	H007500	H006572	
SHH0255-CAL8	200	QC		9	H007501	H006572	
SHH0255-SCV1	8260C SCV	QC		10	H007277	H006572	

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0046
Instrument: NT5
Calibration: CH00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0046-TUN1	NT509031901.D	NA	09/03/19 11:26
VOA 10	SHI0046-ICV1	NT509031902.D	NA	09/03/19 12:38
LCS	BHI0056-BS1	NT509031902A.D	Solid	09/03/19 12:38
ZZZZZ	BHI0057-BS1	NT509031902B.D	Solid	09/03/19 12:38
LCS Dup	BHI0056-BSD1	NT509031903.D	Solid	09/03/19 13:27
ZZZZZ	BHI0057-BSD1	NT509031903A.D	Solid	09/03/19 13:27
Blank	BHI0056-BLK1	NT509031904.D	Solid	09/03/19 13:48
ZZZZZ	BHI0057-BLK1	NT509031904A.D	Solid	09/03/19 13:48
ZZZZZ	19H0393-01	NT509031905.D	Solid	09/03/19 14:44
ZZZZZ	19H0393-01RE1	NT509031906.D	Solid	09/03/19 15:06
ZZZZZ	19H0394-01	NT509031907.D	Solid	09/03/19 15:27
ZZZZZ	19H0394-01RE1	NT509031908.D	Solid	09/03/19 15:50
ZZZZZ	19H0460-01	NT509031910.D	Solid	09/03/19 16:15
ZZZZZ	19H0460-01	NT509031910.D	Solid	09/03/19 16:37
ZZZZZ	19H0461-01	NT509031911.D	Solid	09/03/19 16:59
ZZZZZ	19H0461-02	NT509031912.D	Solid	09/03/19 17:21
ZZZZZ	19H0461-03	NT509031913.D	Solid	09/03/19 17:43
ZZZZZ	19H0461-04	NT509031914.D	Solid	09/03/19 18:05
ZZZZZ	19H0461-05	NT509031915.D	Solid	09/03/19 18:27
ZZZZZ	19H0462-01	NT509031916.D	Solid	09/03/19 18:49
ZZZZZ	19H0462-02	NT509031917.D	Solid	09/03/19 19:11
ZZZZZ	19H0420-01	NT509031918.D	Solid	09/03/19 19:33
P40-UST-01-4.5'-083019	19H0481-06	NT509031919.D	Solid	09/03/19 19:55
P40-UST-01-9'-083019	19H0481-08	NT509031920.D	Solid	09/03/19 20:17
P40-UST-02-4.5'-083019	19H0481-12	NT509031921.D	Solid	09/03/19 20:38
P40-UST-02-9'-083019	19H0481-14	NT509031922.D	Solid	09/03/19 21:00
P40-UST-03-4.5'-083019	19H0481-18	NT509031923.D	Solid	09/03/19 21:22
CCV	SHI0046-CCV1	NT509031925.D	NA	09/03/19 22:06

Work Order(s): 19H0481

Checklist for SEQUENCE SHI0046

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA		PAB	09/04/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES		PAB	09/04/2019
3	PH <=2 / 5035 Preserved for all Workorders	NO		PAB	09/04/2019
	Comments: *19H0393-01, 19H0394-01, 19H0460-01 unpreserved*				
4	BFB abundance and time criteria met (8260C only)	YES		PAB	09/04/2019
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	YES		PAB	09/04/2019
	Comments: *19H0460-01 - d4 1,4DCB out low (sample rerun med level)*				
6	Retention times within windows and coelution summary checked for all Workorders	YES		PAB	09/04/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES		PAB	09/04/2019
8	Narrate any Workorders where the Project specific requirements have not been met	NA		PAB	09/04/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	NA		PAB	09/04/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES		PAB	09/04/2019
	Comments: *19H0393-01, 19H0394-01 - samples run 50x med level and rerun 1000x for E flags* *19H0460-01 - rerun med level due to IS d4 1,4DCB out low in low level run*				
11	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	PAB	09/04/2019
12	AUTOCHECK: Check blank spike recovery	NO	*	PAB	09/04/2019
	Comments: *LCS Recovery for 1,2-Dibromo-3-Chloropropane (73.7%) was outside acceptance limits (75-120) in BHI0058-BSD1 for 8260C VOA Solid (MeOH)* *- Flagged value is not within established control limits.* *LCS Recovery for Bromoform (75.4%) was outside acceptance limits (80-120) in BHI0058-BSD1 for 8260C VOA Solid (MeOH)* *- Flagged value is not within established control limits.*				
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	PAB	09/04/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	PAB	09/04/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	PAB	09/04/2019
16	AUTOCHECK: Matrix spike recoveries within limits	NA	*	PAB	09/04/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	PAB	09/04/2019
18	AUTOCHECK: List of compounds listed as spiked are present	NA	*	PAB	09/04/2019
19	AUTOCHECK: Check Surrogate recoveries	YES	*	PAB	09/04/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	PAB	09/04/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES		MW	09/05/2019

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0046

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	MW	09/05/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	YES	MW	09/05/2019
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST) Comments: *19H0393-01, 19H0394-01, 19H0460-01 (BHI0058)*	YES	PAB	09/04/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST) Comments: *19H0393-01, 19H0394-01, 19H0460-01*	YES	PAB	09/04/2019
26	Additional Notes (ANALYST and REVIEWER) Comments: *EXCEPTION REPORT REQUIRED*	NO	MW	09/05/2019

Printed: 9/4/2019 4:39:54PM

ANALYSIS SEQUENCE

SHI0046

Instrument: NT5 Element Column ID: RTXVMS
Calibration ID: CH00068 Tune File: bfb.u
EM Voltage: 2000

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0046-TUN1	MS Tune	QC		1	H005698	H006572	
SHI0046-ICV1	VOA 10	QC		2	H008537	H006572	
BHI0056-BS1	LCS	QC		3		H006572	
BHI0056-BSD1	LCS Dup	QC		4		H006572	
BHI0056-BLK1	Blank	QC		5		H006572	
19H0481-06	P40-UST-01-4.5'-083019	8260C VOA	C	6		H006572	
19H0481-08	P40-UST-01-9'-083019	8260C VOA	C	7		H006572	
19H0481-12	P40-UST-02-4.5'-083019	8260C VOA	C	8		H006572	
19H0481-14	P40-UST-02-9'-083019	8260C VOA	C	9		H006572	
19H0481-18	P40-UST-03-4.5'-083019	8260C VOA	C	10		H006572	
BHI0057-BS1	LCS	QC		11		H006572	
BHI0057-BSD1	LCS Dup	QC		12		H006572	
BHI0057-BLK1	Blank	QC		13		H006572	
19H0460-01	EVT 45-06 WWTP	8260C VOA	B	14		H006572	
19H0461-01	T2-6	8260C VOA	A	15		H006572	
19H0461-02	T4-8	8260C VOA	A	16		H006572	
19H0461-03	T5-8	8260C VOA	A	17		H006572	
19H0461-04	T6-4	8260C VOA	A	18		H006572	
19H0461-05	T7-8	8260C VOA	A	19		H006572	
19H0462-01	C7.2-5	8260C VOA	A	20		H006572	
19H0462-02	C7.2-13.5	8260C VOA	A	21		H006572	
BHI0058-BS1	LCS	QC		22		H006572	

Lab Copy 3434

Printed: 9/4/2019 4:39:54PM

ANALYSIS SEQUENCE

SHI0046

Instrument: NT5 Element Column ID: RTXVMS
Calibration ID: CH00068 Tune File: bfb.u
EM Voltage: 2000

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
BHI0058-BSD1	LCS Dup	QC		23		H006572	
BHI0058-BLK1	Blank	QC		24		H006572	
19H0393-01	WWTP Sludge ID#R190057	8260C VOA Solid (MeOH)	B	25		H006572	Billed at 1/2 the analyis price For dilutions
19H0393-01RE1	WWTP Sludge ID#R190057	8260C VOA Solid (MeOH)	B	26		H006572	Billed at 1/2 the analyis price For dilutions
19H0394-01	WWTP Sludge ID#R190059	8260C VOA Solid (MeOH)	B	27		H006572	Billed at 1/2 the analyis price For dilutions
19H0394-01RE1	WWTP Sludge ID#R190059	8260C VOA Solid (MeOH)	B	28		H006572	Billed at 1/2 the analyis price For dilutions
19H0420-01	Lot DV597	8260C VOA Solid (MeOH)	A	29		H006572	
19H0460-01	EVT 45-06 WWTP	8260C VOA Solid (MeOH)	B	30		H006572	Dilution billed at 1/2 the price
SHI0046-CCV1	CCV	QC		31	H008537	H006572	

1503 of 3434

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190903.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF											
1	1126	NT509031901.D	shi0046-TUN1				1											
2	1238	NT509031902.D	shi0046-ICV1				1	5.34	370608	5.78	831682	8.26	852840	10.35	483396			
3	1238	NT509031902A.D	bhi0056-bs1				1	5.34	370608	5.78	831682	8.26	852840	10.35	483396			
4	1238	NT509031902B.D	bhi0057-bs1				1	5.34	370608	5.78	831682	8.26	852840	10.35	483396			
5	1238	NT509031902C.D	bhi0058-bs1				1	5.34	370608	5.78	831682	8.26	852840	10.35	483396			
6	1327	NT509031903.D	bhi0056-BSD1				1	5.34	362504	5.78	831179	8.26	856455	10.35	493696			
7	1327	NT509031903A.D	bhi0057-BSD1				1	5.34	362504	5.78	831179	8.26	856455	10.35	493696			
8	1327	NT509031903B.D	bhi0058-BSD1				1	5.34	362504	5.78	831179	8.26	856455	10.35	493696			
9	1348	NT509031904.D	bhi0056-BLK1				1	5.34	352116	5.79	808949	8.26	825112	10.35	468180			
10	1348	NT509031904A.D	bhi0057-BLK1				1	5.34	352116	5.79	808949	8.26	825112	10.35	468180			
11	1348	NT509031904B.D	bhi0058-BLK1				1	5.34	352116	5.79	808949	8.26	825112	10.35	468180			
12	1444	NT509031905.D	19H0393-01				1	5.33	367291	5.78	849125	8.26	907428	10.36	554955			
13	1506	NT509031906.D	19H0393-01RE1				1	5.34	365861	5.79	831675	8.26	847809	10.35	497986			
14	1527	NT509031907.D	19H0394-01				1	5.34	365537	5.78	855379	8.26	930645	10.36	571080			
15	1550	NT509031908.D	19H0394-01RE1				1	5.34	382367	5.79	862819	8.26	886164	10.35	524725			
16	1615	NT509031909.D	19H0460-01				1	5.34	329748	5.79	747647	8.26	635496	10.35	217902			
17	1637	NT509031910.D	19H0460-01				1	5.34	356559	5.79	819254	8.26	830303	10.35	466907			
18	1659	NT509031911.D	19H0461-01				1	5.34	351578	5.79	839544	8.26	879532	10.35	497092			
19	1721	NT509031912.D	19H0461-02				1	5.34	345459	5.79	812894	8.26	853924	10.35	479993			
20	1743	NT509031913.D	19H0461-03				1	5.34	348550	5.79	806244	8.26	834742	10.35	460978			

21	1805	NT509031914.D	19H0461-04	1	5.34	332925	5.79	794581	8.26	829570	10.35	455867
22	1827	NT509031915.D	19H0461-05	1	5.34	327525	5.79	791312	8.26	817760	10.35	447143
23	1849	NT509031916.D	19H0462-01	1	5.34	339901	5.79	800697	8.26	824436	10.35	447014
24	1911	NT509031917.D	19H0462-02	1	5.34	324589	5.79	781394	8.26	807154	10.35	435432
25	1933	NT509031918.D	19H0420-01	1	5.34	361073	5.79	849713	8.26	867960	10.35	474537
26	1955	NT509031919.D	19H0481-06	1	5.34	334142	5.79	803456	8.26	856200	10.35	486349
27	2017	NT509031920.D	19H0481-08	1	5.34	306139	5.79	713767	8.26	695027	10.35	372885
28	2038	NT509031921.D	19H0481-12	1	5.34	325146	5.79	780322	8.26	797316	10.35	426000
29	2100	NT509031922.D	19H0481-14	1	5.34	309773	5.79	766662	8.26	790859	10.35	429767
30	2122	NT509031923.D	19H0481-18	1	5.34	311956	5.79	764231	8.26	802874	10.35	437542
31	2206	NT509031925.D	shi0046-CCV1	1	5.34	401296	5.79	921949	8.26	922836	10.35	514070

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190903.b

ARI Job No.: shi0 Method: bfb8260.m Instrument: nt5.i Date: 03-SEP-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1126	NT509031901.D	shi0046-TUN1		1	NO MANUAL INTEGRATION
1238	NT509031902.D	shi0046-ICV1		1	NO MANUAL INTEGRATION
1238	NT509031902A.D	bhi0056-bs1		1	NO MANUAL INTEGRATION
1238	NT509031902B.D	bhi0057-bs1		1	NO MANUAL INTEGRATION
1238	NT509031902C.D	bhi0058-bs1		1	NO MANUAL INTEGRATION
1327	NT509031903.D	bhi0056-BSD1		1	NO MANUAL INTEGRATION
1327	NT509031903A.D	bhi0057-BSD1		1	NO MANUAL INTEGRATION
1327	NT509031903B.D	bhi0058-BSD1		1	NO MANUAL INTEGRATION
1348	NT509031904.D	bhi0056-BLK1		1	Methylene Chloride,
1348	NT509031904A.D	bhi0057-BLK1		1	Methylene Chloride,
1348	NT509031904B.D	bhi0058-BLK1		1	Methylene Chloride,
1444	NT509031905.D	19H0393-01		1	Ethyl Benzene,
1506	NT509031906.D	19H0393-01RE1		1	Ethyl Benzene,
1527	NT509031907.D	19H0394-01		1	Acetone, Ethyl Benzene,
1550	NT509031908.D	19H0394-01RE1		1	Acetone, Ethyl Benzene,
1615	NT509031909.D	19H0460-01		1	4-Methyl-2-Pentanone,
1637	NT509031910.D	19H0460-01		1	Acetone,

Security Status Report

Date: 04-Sep-2019 16:41

NT509031901.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031902.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031902A.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031902B.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031902C.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031903.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031903A.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031903B.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031904.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031904A.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031904B.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031905.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031906.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031907.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031908.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031909.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031910.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031911.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031912.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031913.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031914.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031915.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031916.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031917.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031918.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031919.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031920.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031921.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031922.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031923.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031924.D	Data Locked	patrickb, 04-Sep-2019 16:41
NT509031925.D	Data Locked	patrickb, 04-Sep-2019 16:41

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0061
Instrument: NT5
Calibration: CH00068

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0061-TUN1	NT509041901.D	NA	09/04/19 12:39
VOA 10	SHI0061-ICV1	NT509041903.D	NA	09/04/19 14:02
LCS	BHI0097-BS1	NT509041903A.D	Solid	09/04/19 14:02
LCS	BHI0098-BS1	NT509041903B.D	Solid	09/04/19 14:02
LCS Dup	BHI0097-BSD1	NT509041904.D	Solid	09/04/19 15:04
LCS Dup	BHI0098-BSD1	NT509041904A.D	Solid	09/04/19 15:04
Blank	BHI0097-BLK1	NT509041905.D	Solid	09/04/19 15:26
Blank	BHI0098-BLK1	NT509041905A.D	Solid	09/04/19 15:26
ZZZZZ	19I0001-01	NT509041906.D	Solid	09/04/19 16:14
ZZZZZ	19I0001-02	NT509041907.D	Solid	09/04/19 16:36
ZZZZZ	19I0001-03	NT509041908.D	Solid	09/04/19 16:58
P40-UST-04-4.5'-083019	19H0481-24	NT509041909.D	Solid	09/04/19 17:36
P40-UST-04-14.5'-083019	19H0481-26	NT509041910.D	Solid	09/04/19 17:58
P40-UST-05-4.5'-083019	19H0481-30	NT509041911.D	Solid	09/04/19 18:20
P40-UST-505-4.5'-083019	19H0481-32	NT509041912.D	Solid	09/04/19 18:42
P40-UST-05-11'-083019	19H0481-34	NT509041913.D	Solid	09/04/19 19:04
P40-UST-03-8'-083019	19H0481-20	NT509041914.D	Solid	09/04/19 19:26
CCV	SHI0061-CCV1	NT509041918.D	NA	09/04/19 20:55

Checklist for SEQUENCE SHI0061

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA		PAB	09/05/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES		PAB	09/05/2019
3	PH <=2 / 5035 Preserved for all Workorders	YES		PAB	09/05/2019
4	BFB abundance and time criteria met (8260C only)	YES		PAB	09/05/2019
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		PAB	09/05/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES		PAB	09/05/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES		PAB	09/05/2019
8	Narrate any Workorders where the Project specific requirements have not been met	NA		PAB	09/05/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	NA		PAB	09/05/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES		PAB	09/05/2019

Comments:
19H0481-20 run 50x med level due to unusable data in low level run due to high hydrocarbon background.

11	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	PAB	09/05/2019
12	AUTOCHECK: Check blank spike recovery	NO	*	PAB	09/05/2019

Comments:
LCS Recovery for Vinyl Chloride (135%) was outside acceptance limits (74-133) in BHI0098-BS1 for 8260C VOA Solid (MeOH)
- Flagged value is not within established control limits.
- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)

LCS Recovery for Chloroethane (134%) was outside acceptance limits (66-133) in BHI0098-BSD1 for 8260C VOA Solid (MeOH)
- Flagged value is not within established control limits.
- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)

13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	PAB	09/05/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	PAB	09/05/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	PAB	09/05/2019
16	AUTOCHECK: Matrix spike recoveries within limits	NO	*	PAB	09/05/2019

Comments:
Matrix Spike Recovery for 1,1,1,2-Tetrachloroethane (74.3%) was outside acceptance limits (80-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,2,3-Trichlorobenzene (54.1%) was outside acceptance limits (68-132) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,2,4-Trichlorobenzene (54.8%) was outside acceptance limits (66-140) in BHI0097-MS1 for

#	Checklist Item	Response	Analyst Initials	Date

8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,2,4-Trimethylbenzene (70.5%) was outside acceptance limits (75-121) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,2-Dichlorobenzene (62.5%) was outside acceptance limits (76-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,3,5-Trimethylbenzene (71.5%) was outside acceptance limits (74-122) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,3-Dichlorobenzene (65.7%) was outside acceptance limits (75-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,3-Dichloropropane (76.8%) was outside acceptance limits (78-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,4-Dichlorobenzene (63.3%) was outside acceptance limits (73-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 2-Chlorotoluene (70.6%) was outside acceptance limits (75-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 4-Chlorotoluene (67.7%) was outside acceptance limits (69-124) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 4-Isopropyl Toluene (69.8%) was outside acceptance limits (75-125) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Bromobenzene (67.5%) was outside acceptance limits (76-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Chlorobenzene (71.9%) was outside acceptance limits (78-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Ethylbenzene (74.9%) was outside acceptance limits (80-125) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Hexachloro-1,3-Butadiene (59.3%) was outside acceptance limits (67-133) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Isopropyl Benzene (72.8%) was outside acceptance limits (74-121) in BHI0097-MS1 for

#	Checklist Item	Response	Analyst Initials	Date

8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for m,p-Xylene (75.3%) was outside acceptance limits (76-121) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for n-Butylbenzene (67.7%) was outside acceptance limits (73-130) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for n-Propylbenzene (70.1%) was outside acceptance limits (72-124) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for s-Butylbenzene (68.6%) was outside acceptance limits (70-128) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Styrene (73.5%) was outside acceptance limits (80-120) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for t-Butylbenzene (69.4%) was outside acceptance limits (72-122) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for trans-1,3-Dichloropropene (79.7%) was outside acceptance limits (80-124) in BHI0097-MS1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,2-Dichlorobenzene (74.1%) was outside acceptance limits (76-120) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,3-Dichlorobenzene (74.9%) was outside acceptance limits (75-120) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for 1,4-Dichlorobenzene (72.8%) was outside acceptance limits (73-120) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Acetone (151%) was outside acceptance limits (48-137) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.
- Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)

Matrix Spike Recovery for Bromobenzene (75.7%) was outside acceptance limits (76-120) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Chlorobenzene (76.9%) was outside acceptance limits (78-120) in BHI0097-MSD1 for 8260C VOA
- Flagged value is not within established control limits.

Matrix Spike Recovery for Ethylbenzene (78.2%) was outside acceptance limits (80-125) in BHI0097-MSD1 for 8260C

Printed: 9/5/2019 1:10:05PM

ANALYSIS SEQUENCE

SHI0061

Instrument: NT5 Element Column ID: RTXVMS
Calibration ID: CH00068 Tune File: bfb.u
EM Voltage: 2024

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0061-TUN1	MS Tune	QC		1	H005698	H006572	
SHI0061-ICV1	VOA 10	QC		2	H008537	H006572	
BHI0097-BS1	LCS	QC		3		H006572	
BHI0097-BSD1	LCS Dup	QC		4		H006572	
BHI0097-BLK1	Blank	QC		5		H006572	
19I0001-01	B11-SW7-4.5	8260C VOA	C	6		H006572	
19I0001-02	B11-SW8-7.0	8260C VOA	C	7		H006572	
19I0001-03	B11-SW9	8260C VOA	E	8		H006572	
19H0481-24	P40-UST-04-4.5'-083019	8260C VOA	C	9		H006572	
19H0481-26	P40-UST-04-14.5'-083019	8260C VOA	C	10		H006572	
19H0481-30	P40-UST-05-4.5'-083019	8260C VOA	D	11		H006572	
19H0481-32	P40-UST-505-4.5'-083019	8260C VOA	C	12		H006572	
19H0481-34	P40-UST-05-11'-083019	8260C VOA	C	13		H006572	
BHI0098-BS1	LCS	QC		14		H006572	
BHI0098-BSD1	LCS Dup	QC		15		H006572	
BHI0098-BLK1	Blank	QC		16		H006572	
19H0481-20	P40-UST-03-8'-083019	8260C VOA Solid (MeOH)	E	17		H006572	
SHI0061-CCV1	CCV	QC		18	H008537	H006572	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190904.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF									
1	1239	NT509041901.D	shi0061-TUN1				1									
2	1324	NT509041902.D	ICV1				1	5.33	362177	5.78	837227	8.25	817897	10.35	449714	
3	1402	NT509041903.D	shi0061-ICV1				1	5.33	361253	5.78	820535	8.26	816014	10.35	454776	
4	1402	NT509041903A.D	bhi0097-bs1				1	5.33	361253	5.78	820535	8.26	816014	10.35	454776	
5	1402	NT509041903B.D	bhi0098-bs1				1	5.33	361253	5.78	820535	8.26	816014	10.35	454776	
6	1504	NT509041904.D	bhi0097-BSD1				1	5.33	342178	5.78	778402	8.26	765846	10.35	416635	
7	1504	NT509041904A.D	bhi0098-BSD1				1	5.33	342178	5.78	778402	8.26	765846	10.35	416635	
8	1526	NT509041905.D	bhi0097-BLK1				1	5.34	349668	5.79	820601	8.26	804428	10.35	442849	
9	1526	NT509041905A.D	bhi0098-BLK1				1	5.34	349668	5.79	820601	8.26	804428	10.35	442849	
10	1614	NT509041906.D	19I0001-01				1	5.34	361950	5.78	872513	8.26	894855	10.35	486639	
11	1636	NT509041907.D	19I0001-02				1	5.34	351923	5.79	851619	8.26	869217	10.35	477718	
12	1658	NT509041908.D	19I0001-03				1	5.34	341449	5.79	840657	8.26	869644	10.35	494400	
13	1736	NT509041909.D	19H0481-24				1	5.34	364005	5.79	887137	8.26	913775	10.35	510679	
14	1758	NT509041910.D	19H0481-26				1	5.34	363054	5.79	898910	8.26	1052067	10.38	517459	
15	1820	NT509041911.D	19H0481-30				1	5.34	422408	5.79	1002131	8.26	1011393	10.35	551362	
16	1842	NT509041912.D	19H0481-32				1	5.34	401711	5.79	953474	8.26	990884	10.35	557434	
17	1904	NT509041913.D	19H0481-34				1	5.34	357785	5.79	840187	8.26	797396	10.35	388296	
18	1926	NT509041914.D	19H0481-20				1	5.34	388442	5.79	919248	8.26	954708	10.36	518315	
19	1948	NT509041915.D	19H0461-20				1	5.33	404792	5.78	966092	8.26	986850	10.36	546806	
20	2010	NT509041916.D	BHI0097-MS1				1	5.34	409744	5.79	953211	8.26	988119	10.35	568565	

21	2032	NT509041917.D	BHI0097-MSD1	1 |	5.34	380538||	5.79	917489||	8.26	963140||	10.35	556330|		
22	2055	NT509041918.D	shi0061-CCV1	1 |	5.34	372417||	5.79	888196||	8.26	906317||	10.35	497440|		

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190904.b

ARI Job No.: shi0 Method: bfb8260.m Instrument: nt5.i Date: 04-SEP-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1239	NT509041901.D	shi0061-TUN1		1	NO MANUAL INTEGRATION
1402	NT509041903.D	shi0061-ICV1		1	NO MANUAL INTEGRATION
1402	NT509041903A.D	bhi0097-bs1		1	NO MANUAL INTEGRATION
1402	NT509041903B.D	bhi0098-bs1		1	NO MANUAL INTEGRATION
1504	NT509041904.D	bhi0097-BSD1		1	NO MANUAL INTEGRATION
1504	NT509041904A.D	bhi0098-BSD1		1	NO MANUAL INTEGRATION
1526	NT509041905.D	bhi0097-BLK1		1	NO MANUAL INTEGRATION
1526	NT509041905A.D	bhi0098-BLK1		1	NO MANUAL INTEGRATION
1614	NT509041906.D	19I0001-01		1	NO MANUAL INTEGRATION
1636	NT509041907.D	19I0001-02		1	NO MANUAL INTEGRATION
1658	NT509041908.D	19I0001-03		1	NO MANUAL INTEGRATION
1736	NT509041909.D	19H0481-24		1	Acetone, Methylene Chloride,
1758	NT509041910.D	19H0481-26		1	Methylene Chloride,
1820	NT509041911.D	19H0481-30		1	Acetone,
1842	NT509041912.D	19H0481-32		1	Acetone,
1904	NT509041913.D	19H0481-34		1	NO MANUAL INTEGRATION
1926	NT509041914.D	19H0481-20		1	o-Xylene,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt5.i\20190904.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2010	NT509041916.D	BHI0097-MS1		1	Chloroethane,
2032	NT509041917.D	BHI0097-MSD1		1	Chloroethane,
2055	NT509041918.D	shi0061-CCV1		1	Chloroethane,

Security Status Report

Date: 05-Sep-2019 13:08

NT509041901.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041902.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041903.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041903A.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041903B.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041904.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041904A.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041905.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041905A.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041906.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041907.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041908.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041909.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041910.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041911.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041912.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041913.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041914.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041915.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041916.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041917.D	Data Locked	patrickb, 05-Sep-2019 13:08
NT509041918.D	Data Locked	patrickb, 05-Sep-2019 13:08

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0071	Instrument:	NT3
		Calibration:	CI00019

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0071-TUN1	V309041902.D	NA	09/04/19 15:17
8260C 0.2	SHI0071-CAL1	V309041905.D	NA	09/04/19 17:27
8260C 0.5	SHI0071-CAL2	V309041906.D	NA	09/04/19 17:54
8260C 1	SHI0071-CAL3	V309041907.D	NA	09/04/19 18:21
8260C 2	SHI0071-CAL4	V309041908.D	NA	09/04/19 18:48
8260C 10	SHI0071-CAL5	V309041909.D	NA	09/04/19 19:15
8260C 20	SHI0071-CAL6	V309041910.D	NA	09/04/19 19:41
8260C 40	SHI0071-CAL7	V309041911.D	NA	09/04/19 20:08
8260C 80	SHI0071-CAL8	V309041912.D	NA	09/04/19 20:35
Initial Cal Blank	SHI0071-ICB1	V309041913.D	NA	09/04/19 21:01
8260C SCV	SHI0071-SCV1	V309041914.D	NA	09/04/19 21:28

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0085
Instrument: NT3
Calibration: CI00019

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0085-TUN1	V309051903.D	NA	09/05/19 11:49
VOA 10	SHI0085-ICV1	V309051904.D	NA	09/05/19 12:30
LCS	BHI0133-BS1	V309051904LCS.D	Water	09/05/19 12:30
LCS Dup	BHI0133-BSD1	V309051905.D	Water	09/05/19 12:57
Blank	BHI0133-BLK1	V309051908.D	Water	09/05/19 14:16
ZZZZZ	19H0426-08	V309051909.D	Water	09/05/19 14:43
P40-UST-TB-083019	19H0481-05	V309051910.D	Water	09/05/19 15:10
ZZZZZ	19H0429-04	V309051911.D	Water	09/05/19 15:37
ZZZZZ	19H0429-05	V309051912.D	Water	09/05/19 16:04
ZZZZZ	19H0429-06	V309051913.D	Water	09/05/19 16:31
ZZZZZ	19H0429-07	V309051914.D	Water	09/05/19 17:08
ZZZZZ	19H0426-04	V309051915.D	Water	09/05/19 17:35
ZZZZZ	19H0426-05	V309051916.D	Water	09/05/19 18:02
ZZZZZ	19H0426-07	V309051918.D	Water	09/05/19 18:55
P40-UST-01-083019	19H0481-01	V309051919.D	Water	09/05/19 19:21
P40-UST-101-083019	19H0481-03	V309051920.D	Water	09/05/19 19:48
P40-UST-02-083019	19H0481-10	V309051921.D	Water	09/05/19 20:15
P40-UST-03-083019	19H0481-16	V309051922.D	Water	09/05/19 20:41
P40-UST-04-083019	19H0481-22	V309051923.D	Water	09/05/19 21:08
P40-UST-05-083019	19H0481-28	V309051924.D	Water	09/05/19 21:35
CCV	SHI0085-CCV1	V309051928.D	NA	09/05/19 23:22

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0085

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA		PKC	09/06/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES		PKC	09/06/2019
3	PH <=2 / 5035 Preserved for all Workorders	YES		PKC	09/06/2019
4	BFB abundance and time criteria met (8260C only)	YES		PKC	09/06/2019
	Comments: *Used whole peak for tune evaluation. Scans 1433-1445, background scan 1428*				
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		PKC	09/06/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES		PKC	09/06/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES		PKC	09/06/2019
	Comments: *Manual integrations for partial integrations/split peaks and to detect compounds skipped or misidentified by automated integration.*				
8	Narrate any Workorders where the Project specific requirements have not been met	YES		PKC	09/06/2019
	Comments: *19H0481 requests batch matrix QC but did not provide matrix QC volume*				
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	YES		PKC	09/06/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES		PKC	09/06/2019
11	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	PKC	09/06/2019
12	AUTOCHECK: Check blank spike recovery	YES	*	PKC	09/06/2019
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	PKC	09/06/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	PKC	09/06/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	PKC	09/06/2019
16	AUTOCHECK: Matrix spike recoveries within limits	NA	*	PKC	09/06/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	PKC	09/06/2019
18	AUTOCHECK: List of compounds listed as spiked are present	NA	*	PKC	09/06/2019
19	AUTOCHECK: Check Surrogate recoveries	YES	*	PKC	09/06/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	PKC	09/06/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES		MW	09/06/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		MW	09/06/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO		MW	09/06/2019
	Comments: *EXCEPTION REPORT REQUIRED*				

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0085

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST) Comments: *19H0426-05 and -07 require dilution.*	YES	PKC	09/06/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	PKC	09/06/2019
26	Additional Notes (ANALYST and REVIEWER) Comments: *19H0426-06 removed from batch for carry over.* *19I0011-01 and 19I0032-01 removed from batch - overdiluted.*	YES	PKC	09/06/2019

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/6/2019 2:55:26PM

ANALYSIS SEQUENCE

SHI0085

Instrument: NT3 Element Column ID: 1300725RTXV
Calibration ID: CI00019 Tune File: bfb.u
EM Voltage: 1953

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0085-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0085-ICV1	VOA 10	QC		2	H008625	H007838	
BHI0133-BS1	LCS	QC		3		H007838	
BHI0133-BSD1	LCS Dup	QC		4		H007838	
BHI0133-BLK1	Blank	QC		5		H007838	
19H0426-08	Trip Blanks	8260C VOA	B	6		H007838	
19H0481-05	P40-UST-TB-083019	8260C VOA	B	7		H007838	
19H0429-04	92-10S	8260C VOA	A	8		H007838	
19H0429-05	02-1	8260C VOA	D	9		H007838	
19H0429-06	51-2	8260C VOA	C	10		H007838	
19H0429-07	50-1	8260C VOA	C	11		H007838	
19H0426-04	MW-12-190828	8260C VOA	D	12		H007838	
19H0426-05	MW-13-190828	8260C VOA	F	13		H007838	
19H0426-07	DUP1-190828	8260C VOA	C	14		H007838	
19H0481-01	P40-UST-01-083019	8260C VOA	D	15		H007838	
19H0481-03	P40-UST-101-083019	8260C VOA	E	16		H007838	
19H0481-10	P40-UST-02-083019	8260C VOA	D	17		H007838	
19H0481-16	P40-UST-03-083019	8260C VOA	E	18		H007838	
19H0481-22	P40-UST-04-083019	8260C VOA	D	19		H007838	
19H0481-28	P40-UST-05-083019	8260C VOA	D	20		H007838	
SHI0085-CCV1	CCV	QC		21	H008625	H007838	

L52201 34234

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1052	V309051901.D	RINSE				1								
2	1118	V309051902.D	SHI0-TUN1				1								
3	1149	V309051903.D	SHI0085-TUN1				1								
4	1230	V309051904.D	SHI0085-ICV1				1	5.41	107094	5.79	154442	7.81	156589	9.50	101121
5	1230	V309051904LCS.D	BHI0133-BS1				1	5.41	107094	5.79	154442	7.81	156589	9.50	101121
6	1257	V309051905.D	BHI0133-BSD1				1	5.41	114506	5.79	167481	7.82	173229	9.50	109692
7	1323	V309051906.D	SHI0-ICV1				1	5.41	97616	5.79	144146	7.81	142226	9.50	88323
8	1350	V309051907.D	BHI0-BSD1				1	5.41	117219	5.79	176326	7.81	178007	9.50	108907
9	1416	V309051908.D	BHI0133-BLK1				1	5.41	112398	5.79	163146	7.81	165550	9.50	104290
10	1443	V309051909.D	19H0426-08				1	5.41	113611	5.79	164395	7.82	168806	9.50	103760
11	1510	V309051910.D	19H0481-05				1	5.41	111035	5.79	159904	7.81	159851	9.50	98119
12	1537	V309051911.D	19H0429-04				1	5.41	94810	5.79	139610	7.82	134377	9.50	85083
13	1604	V309051912.D	19H0429-05				1	5.41	107610	5.79	163419	7.81	162279	9.50	102579
14	1631	V309051913.D	19H0429-06				1	5.41	102784	5.79	150605	7.81	155626	9.50	94403
15	1708	V309051914.D	19H0429-07				1	5.41	112686	5.79	158749	7.81	165682	9.50	101190
16	1735	V309051915.D	19H0426-04				1	5.41	101868	5.79	151767	7.81	152672	9.50	95456
17	1802	V309051916.D	19H0426-05				1	5.41	92252	5.79	137274	7.81	139981	9.50	83346
18	1829	V309051917.D	19H0426-06				1	5.41	110098	5.79	157645	7.81	157783	9.50	101182
19	1855	V309051918.D	19H0426-07				1	5.41	104369	5.79	150901	7.81	151522	9.50	93097
20	1921	V309051919.D	19H0481-01				1	5.41	107507	5.79	158390	7.81	158693	9.50	97373
21	1948	V309051920.D	19H0481-03				1	5.41	93529	5.79	138961	7.81	142218	9.50	89138
22	2015	V309051921.D	19H0481-10				1	5.41	100786	5.79	148454	7.81	152335	9.50	92991

23	2041	V309051922.D	19H0481-16		1	5.41	80541	5.79	118505	7.82	124703	9.50	75872
24	2108	V309051923.D	19H0481-22		1	5.41	101238	5.79	149291	7.81	145840	9.50	91792
25	2135	V309051924.D	19H0481-28		1	5.41	96727	5.79	139003	7.81	143504	9.50	88861
26	2201	V309051925.D	19I0011-01		1	5.41	105669	5.79	152965	7.81	156875	9.50	99198
27	2228	V309051926.D	19I0032-01		1	5.41	106204	5.79	152663	7.81	157545	9.50	99084
28	2255	V309051927.D	SHI0-CCV1	Gas	1	5.41	107921	5.79	157423	7.82	162540	9.50	101592
29	2322	V309051928.D	SHI0085-CCV1		1	5.41	90170	5.79	126850	7.81	128511	9.50	81440

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905.b

Instrument: nt3.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1230	V309051904.D	SHI0085-ICV1	1	Dichlorodifluoromethane, Acrolein,
1230	V309051904LCS.D	BHI0133-BS1	1	Dichlorodifluoromethane, Acrolein,
1257	V309051905.D	BHI0133-BSD1	1	Dichlorodifluoromethane, Chloromethane, 4-Methyl-2-Pentanone,
1416	V309051908.D	BHI0133-BLK1	1	Methylene Chloride,
1443	V309051909.D	19H0426-08	1	1,2,4-Trichlorobenzene,
1510	V309051910.D	19H0481-05	1	Naphthalene,
1537	V309051911.D	19H0429-04	1	Acetone,
1604	V309051912.D	19H0429-05	1	NO MANUAL INTEGRATION
1631	V309051913.D	19H0429-06	1	Acetone,
1708	V309051914.D	19H0429-07	1	1,3,5-Trimethyl Benzene,
1735	V309051915.D	19H0426-04	1	m,p-xylene,
1802	V309051916.D	19H0426-05	1	Methylene Chloride, Isopropyl Benzene,
1921	V309051919.D	19H0481-01	1	o-Xylene,
1948	V309051920.D	19H0481-03	1	NO MANUAL INTEGRATION
2015	V309051921.D	19H0481-10	1	m,p-xylene,
2041	V309051922.D	19H0481-16	1	Acetone,
2108	V309051923.D	19H0481-22	1	Ethyl Benzene, o-Xylene,

Instrument: nt3.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2135	V309051924.D	19H0481-28	1	Acetone,
2322	V309051928.D	SHI0085-CCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 06-Sep-2019 14:53

V309051901.D	Data Locked	paul, 06-Sep-2019 14:53
V309051902.D	Data Locked	paul, 06-Sep-2019 14:53
V309051903.D	Data Locked	paul, 06-Sep-2019 14:53
V309051904.D	Data Locked	paul, 06-Sep-2019 14:53
V309051904LCS.D	Data Locked	paul, 06-Sep-2019 14:53
V309051905.D	Data Locked	paul, 06-Sep-2019 14:53
V309051906.D	Data Locked	paul, 06-Sep-2019 14:53
V309051907.D	Data Locked	paul, 06-Sep-2019 14:53
V309051908.D	Data Locked	paul, 06-Sep-2019 14:53
V309051909.D	Data Locked	paul, 06-Sep-2019 14:53
V309051910.D	Data Locked	paul, 06-Sep-2019 14:53
V309051911.D	Data Locked	paul, 06-Sep-2019 14:53
V309051912.D	Data Locked	paul, 06-Sep-2019 14:53
V309051913.D	Data Locked	paul, 06-Sep-2019 14:53
V309051914.D	Data Locked	paul, 06-Sep-2019 14:53
V309051915.D	Data Locked	paul, 06-Sep-2019 14:53
V309051916.D	Data Locked	paul, 06-Sep-2019 14:53
V309051917.D	Data Locked	paul, 06-Sep-2019 14:53
V309051918.D	Data Locked	paul, 06-Sep-2019 14:53
V309051919.D	Data Locked	paul, 06-Sep-2019 14:53
V309051920.D	Data Locked	paul, 06-Sep-2019 14:53
V309051921.D	Data Locked	paul, 06-Sep-2019 14:53
V309051922.D	Data Locked	paul, 06-Sep-2019 14:53
V309051923.D	Data Locked	paul, 06-Sep-2019 14:53
V309051924.D	Data Locked	paul, 06-Sep-2019 14:53
V309051925.D	Data Locked	paul, 06-Sep-2019 14:53
V309051926.D	Data Locked	paul, 06-Sep-2019 14:53
V309051927.D	Data Locked	paul, 06-Sep-2019 14:53
V309051928.D	Data Locked	paul, 06-Sep-2019 14:53

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHH0255	Instrument:	NT5
Calibration:	CH00068	Calibration Date:	08/20/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
SHH0255-SCV1 (Solid)	Lab File ID: NT508211903.D		Analyzed: 08/21/19 12:47	
Toluene-d8	50.000	101	80 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0046	Instrument:	NT5
Calibration:	CH00068	Calibration Date:	08/20/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0056-BS1 (Solid)	Lab File ID: NT509031902A.D		Analyzed: 09/03/19 12:38	
Toluene-d8	50.000	104	77 - 120	
4-Bromofluorobenzene	50.000	103	80 - 120	
SHI0046-ICV1 (Solid)	Lab File ID: NT509031902.D		Analyzed: 09/03/19 12:38	
Toluene-d8	50.000	104	80 - 120	
4-Bromofluorobenzene	50.000	103	80 - 120	
BHI0056-BSD1 (Solid)	Lab File ID: NT509031903.D		Analyzed: 09/03/19 13:27	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	103	80 - 120	
BHI0056-BLK1 (Solid)	Lab File ID: NT509031904.D		Analyzed: 09/03/19 13:48	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	104	80 - 120	
19H0481-06 (Solid)	Lab File ID: NT509031919.D		Analyzed: 09/03/19 19:55	
Toluene-d8	50.000	106	77 - 120	
4-Bromofluorobenzene	50.000	104	80 - 120	
19H0481-08 (Solid)	Lab File ID: NT509031920.D		Analyzed: 09/03/19 20:17	
Toluene-d8	50.000	104	77 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
19H0481-12 (Solid)	Lab File ID: NT509031921.D		Analyzed: 09/03/19 20:38	
Toluene-d8	50.000	106	77 - 120	
4-Bromofluorobenzene	50.000	102	80 - 120	
19H0481-14 (Solid)	Lab File ID: NT509031922.D		Analyzed: 09/03/19 21:00	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
19H0481-18 (Solid)	Lab File ID: NT509031923.D		Analyzed: 09/03/19 21:22	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	102	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0061
Instrument: NT5
Calibration: CH00068
Calibration Date: 08/20/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0097-BS1 (Solid)	Lab File ID: NT509041903A.D		Analyzed: 09/04/19 14:02	
Toluene-d8	50.000	104	77 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
BHI0098-BS1 (Solid)	Lab File ID: NT509041903B.D		Analyzed: 09/04/19 14:02	
Toluene-d8	50.000	104	80 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
SHI0061-ICV1 (Solid)	Lab File ID: NT509041903.D		Analyzed: 09/04/19 14:02	
Toluene-d8	50.000	104	80 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
BHI0097-BSD1 (Solid)	Lab File ID: NT509041904.D		Analyzed: 09/04/19 15:04	
Toluene-d8	50.000	102	77 - 120	
4-Bromofluorobenzene	50.000	98.9	80 - 120	
BHI0098-BSD1 (Solid)	Lab File ID: NT509041904A.D		Analyzed: 09/04/19 15:04	
Toluene-d8	50.000	102	80 - 120	
4-Bromofluorobenzene	50.000	98.9	80 - 120	
BHI0097-BLK1 (Solid)	Lab File ID: NT509041905.D		Analyzed: 09/04/19 15:26	
Toluene-d8	50.000	102	77 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
BHI0098-BLK1 (Solid)	Lab File ID: NT509041905A.D		Analyzed: 09/04/19 15:26	
Toluene-d8	50.000	102	80 - 120	
4-Bromofluorobenzene	50.000	101	80 - 120	
19H0481-24 (Solid)	Lab File ID: NT509041909.D		Analyzed: 09/04/19 17:36	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	104	80 - 120	
19H0481-26 (Solid)	Lab File ID: NT509041910.D		Analyzed: 09/04/19 17:58	
Toluene-d8	50.000	110	77 - 120	
4-Bromofluorobenzene	50.000	98.4	80 - 120	
19H0481-30 (Solid)	Lab File ID: NT509041911.D		Analyzed: 09/04/19 18:20	
Toluene-d8	50.000	101	77 - 120	
4-Bromofluorobenzene	50.000	102	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0061	Instrument:	NT5
Calibration:	CH00068	Calibration Date:	08/20/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
19H0481-32 (Solid)	Lab File ID: NT509041912.D		Analyzed: 09/04/19 18:42	
Toluene-d8	50.000	105	77 - 120	
4-Bromofluorobenzene	50.000	104	80 - 120	
19H0481-34 (Solid)	Lab File ID: NT509041913.D		Analyzed: 09/04/19 19:04	
Toluene-d8	50.000	102	77 - 120	
4-Bromofluorobenzene	50.000	96.9	80 - 120	
19H0481-20 (Solid)	Lab File ID: NT509041914.D		Analyzed: 09/04/19 19:26	
Toluene-d8	50.000	106	80 - 120	
4-Bromofluorobenzene	50.000	102	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0071	Instrument:	NT3
Calibration:	CI00019	Calibration Date:	09/04/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
SHI0071-ICB1 (Water)	Lab File ID: V309041913.D		Analyzed: 09/04/19 21:01	
Toluene-d8			80 - 120	
4-Bromofluorobenzene			80 - 120	
SHI0071-SCV1 (Water)	Lab File ID: V309041914.D		Analyzed: 09/04/19 21:28	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	102	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0085
Instrument: NT3
Calibration: CI00019
Calibration Date: 09/04/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0133-BS1 (Water)	Lab File ID: V309051904LCS.D		Analyzed: 09/05/19 12:30	
Toluene-d8	5.0000	104	80 - 120	
4-Bromofluorobenzene	5.0000	102	80 - 120	
SHI0085-ICV1 (Water)	Lab File ID: V309051904.D		Analyzed: 09/05/19 12:30	
Toluene-d8	5.0000	104	80 - 120	
4-Bromofluorobenzene	5.0000	102	80 - 120	
BHI0133-BSD1 (Water)	Lab File ID: V309051905.D		Analyzed: 09/05/19 12:57	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	100	80 - 120	
BHI0133-BLK1 (Water)	Lab File ID: V309051908.D		Analyzed: 09/05/19 14:16	
Toluene-d8	5.0000	99.7	80 - 120	
4-Bromofluorobenzene	5.0000	97.6	80 - 120	
19H0481-05 (Water)	Lab File ID: V309051910.D		Analyzed: 09/05/19 15:10	
Toluene-d8	5.0000	97.7	80 - 120	
4-Bromofluorobenzene	5.0000	97.7	80 - 120	
19H0481-01 (Water)	Lab File ID: V309051919.D		Analyzed: 09/05/19 19:21	
Toluene-d8	5.0000	99.0	80 - 120	
4-Bromofluorobenzene	5.0000	94.9	80 - 120	
19H0481-03 (Water)	Lab File ID: V309051920.D		Analyzed: 09/05/19 19:48	
Toluene-d8	5.0000	99.4	80 - 120	
4-Bromofluorobenzene	5.0000	97.2	80 - 120	
19H0481-10 (Water)	Lab File ID: V309051921.D		Analyzed: 09/05/19 20:15	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	92.3	80 - 120	
19H0481-16 (Water)	Lab File ID: V309051922.D		Analyzed: 09/05/19 20:41	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	95.8	80 - 120	
19H0481-22 (Water)	Lab File ID: V309051923.D		Analyzed: 09/05/19 21:08	
Toluene-d8	5.0000	98.6	80 - 120	
4-Bromofluorobenzene	5.0000	98.1	80 - 120	

SURROGATE RECOVERY SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0085	Instrument:	NT3
Calibration:	CI00019	Calibration Date:	09/04/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
19H0481-28 (Water)	Lab File ID: V309051924.D		Analyzed: 09/05/19 21:35	
Toluene-d8	5.0000	99.5	80 - 120	
4-Bromofluorobenzene	5.0000	99.9	80 - 120	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHH0255	Instrument:	NT5
		Calibration:	CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SHH0255-SCV1)		(Solid)		Lab File ID: NT508211903.D				Analyzed: 08/21/19 12:47	
Pentafluorobenzene	499145	5.338	457969	5.344	109	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	937112	8.258	803678	8.264	117	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	977670	5.782	852165	5.788	115	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	519161	10.351	439766	10.357	118	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0046
Instrument: NT5
Calibration: CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0056-BS1)		(Solid)	Lab File ID: NT509031902A.D				Analyzed: 09/03/19 12:38		
Pentafluorobenzene	370608	5.338	457969	5.344	81	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	852840	8.258	803678	8.264	106	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	831682	5.782	852165	5.788	98	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	483396	10.351	439766	10.357	110	50 - 200	-0.006	+/-0.50	
Initial Cal Check (SHI0046-ICV1)		(Solid)	Lab File ID: NT509031902.D				Analyzed: 09/03/19 12:38		
Pentafluorobenzene	370608	5.338	457969	5.344	81	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	852840	8.258	803678	8.264	106	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	831682	5.782	852165	5.788	98	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	483396	10.351	439766	10.357	110	50 - 200	-0.006	+/-0.50	
LCS Dup (BHI0056-BSD1)		(Solid)	Lab File ID: NT509031903.D				Analyzed: 09/03/19 13:27		
Pentafluorobenzene	362504	5.338	457969	5.344	79	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	856455	8.258	803678	8.264	107	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	831179	5.782	852165	5.788	98	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	493696	10.351	439766	10.357	112	50 - 200	-0.006	+/-0.50	
Blank (BHI0056-BLK1)		(Solid)	Lab File ID: NT509031904.D				Analyzed: 09/03/19 13:48		
Pentafluorobenzene	352116	5.344	457969	5.344	77	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	825112	8.258	803678	8.264	103	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	808949	5.788	852165	5.788	95	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	468180	10.351	439766	10.357	106	50 - 200	-0.006	+/-0.50	
P40-UST-01-4.5'-083019 (19H0481-06)		(Solid)	Lab File ID: NT509031919.D				Analyzed: 09/03/19 19:55		
Pentafluorobenzene	334142	5.344	457969	5.344	73	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	856200	8.258	803678	8.264	107	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	803456	5.788	852165	5.788	94	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	486349	10.351	439766	10.357	111	50 - 200	-0.006	+/-0.50	
P40-UST-01-9'-083019 (19H0481-08)		(Solid)	Lab File ID: NT509031920.D				Analyzed: 09/03/19 20:17		
Pentafluorobenzene	306139	5.344	457969	5.344	67	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	695027	8.258	803678	8.264	86	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	713767	5.788	852165	5.788	84	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	372885	10.351	439766	10.357	85	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0046
Instrument: NT5
Calibration: CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
P40-UST-02-4.5'-083019 (19H0481-12)		(Solid)		Lab File ID: NT509031921.D				Analyzed: 09/03/19 20:38	
Pentafluorobenzene	325146	5.344	457969	5.344	71	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	797316	8.258	803678	8.264	99	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	780322	5.788	852165	5.788	92	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	426000	10.351	439766	10.357	97	50 - 200	-0.006	+/-0.50	
P40-UST-02-9'-083019 (19H0481-14)		(Solid)		Lab File ID: NT509031922.D				Analyzed: 09/03/19 21:00	
Pentafluorobenzene	309773	5.344	457969	5.344	68	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	790859	8.258	803678	8.264	98	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	766662	5.788	852165	5.788	90	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	429767	10.351	439766	10.357	98	50 - 200	-0.006	+/-0.50	
P40-UST-03-4.5'-083019 (19H0481-18)		(Solid)		Lab File ID: NT509031923.D				Analyzed: 09/03/19 21:22	
Pentafluorobenzene	311956	5.338	457969	5.344	68	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	802874	8.258	803678	8.264	100	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	764231	5.788	852165	5.788	90	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	437542	10.351	439766	10.357	99	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0061
Instrument: NT5
Calibration: CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0097-BS1)		(Solid)	Lab File ID: NT509041903A.D				Analyzed: 09/04/19 14:02		
Pentafluorobenzene	361253	5.332	457969	5.344	79	50 - 200	-0.012	+/-0.50	
Chlorobenzene-d5	816014	8.258	803678	8.264	102	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	820535	5.782	852165	5.788	96	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	454776	10.351	439766	10.357	103	50 - 200	-0.006	+/-0.50	
LCS (BHI0098-BS1)		(Solid)	Lab File ID: NT509041903B.D				Analyzed: 09/04/19 14:02		
Pentafluorobenzene	361253	5.332	457969	5.344	79	50 - 200	-0.012	+/-0.50	
Chlorobenzene-d5	816014	8.258	803678	8.264	102	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	820535	5.782	852165	5.788	96	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	454776	10.351	439766	10.357	103	50 - 200	-0.006	+/-0.50	
Initial Cal Check (SHI0061-ICV1)		(Solid)	Lab File ID: NT509041903.D				Analyzed: 09/04/19 14:02		
Pentafluorobenzene	361253	5.332	457969	5.344	79	50 - 200	-0.012	+/-0.50	
Chlorobenzene-d5	816014	8.258	803678	8.264	102	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	820535	5.782	852165	5.788	96	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	454776	10.351	439766	10.357	103	50 - 200	-0.006	+/-0.50	
LCS Dup (BHI0097-BSD1)		(Solid)	Lab File ID: NT509041904.D				Analyzed: 09/04/19 15:04		
Pentafluorobenzene	342178	5.332	457969	5.344	75	50 - 200	-0.012	+/-0.50	
Chlorobenzene-d5	765846	8.258	803678	8.264	95	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	778402	5.782	852165	5.788	91	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	416635	10.351	439766	10.357	95	50 - 200	-0.006	+/-0.50	
LCS Dup (BHI0098-BSD1)		(Solid)	Lab File ID: NT509041904A.D				Analyzed: 09/04/19 15:04		
Pentafluorobenzene	342178	5.332	457969	5.344	75	50 - 200	-0.012	+/-0.50	
Chlorobenzene-d5	765846	8.258	803678	8.264	95	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	778402	5.782	852165	5.788	91	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	416635	10.351	439766	10.357	95	50 - 200	-0.006	+/-0.50	
Blank (BHI0097-BLK1)		(Solid)	Lab File ID: NT509041905.D				Analyzed: 09/04/19 15:26		
Pentafluorobenzene	349668	5.338	457969	5.344	76	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	804428	8.258	803678	8.264	100	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	820601	5.788	852165	5.788	96	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	442849	10.351	439766	10.357	101	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0061
Instrument: NT5
Calibration: CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (BHI0098-BLK1)		(Solid)	Lab File ID: NT509041905A.D				Analyzed: 09/04/19 15:26		
Pentafluorobenzene	349668	5.338	457969	5.344	76	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	804428	8.258	803678	8.264	100	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	820601	5.788	852165	5.788	96	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	442849	10.351	439766	10.357	101	50 - 200	-0.006	+/-0.50	
P40-UST-04-4.5'-083019 (19H0481-24)		(Solid)	Lab File ID: NT509041909.D				Analyzed: 09/04/19 17:36		
Pentafluorobenzene	364005	5.344	457969	5.344	79	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	913775	8.264	803678	8.264	114	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	887137	5.794	852165	5.788	104	50 - 200	0.006	+/-0.50	
1,4-Dichlorobenzene-d4	510679	10.351	439766	10.357	116	50 - 200	-0.006	+/-0.50	
P40-UST-04-14.5'-083019 (19H0481-26)		(Solid)	Lab File ID: NT509041910.D				Analyzed: 09/04/19 17:58		
Pentafluorobenzene	363054	5.338	457969	5.344	79	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	1052067	8.264	803678	8.264	131	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	898910	5.788	852165	5.788	105	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	517459	10.381	439766	10.357	118	50 - 200	0.024	+/-0.50	
P40-UST-05-4.5'-083019 (19H0481-30)		(Solid)	Lab File ID: NT509041911.D				Analyzed: 09/04/19 18:20		
Pentafluorobenzene	422408	5.344	457969	5.344	92	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	1011393	8.258	803678	8.264	126	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	1002131	5.788	852165	5.788	118	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	551362	10.351	439766	10.357	125	50 - 200	-0.006	+/-0.50	
P40-UST-505-4.5'-083019 (19H0481-32)		(Solid)	Lab File ID: NT509041912.D				Analyzed: 09/04/19 18:42		
Pentafluorobenzene	401711	5.344	457969	5.344	88	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	990884	8.258	803678	8.264	123	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	953474	5.788	852165	5.788	112	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	557434	10.351	439766	10.357	127	50 - 200	-0.006	+/-0.50	
P40-UST-05-11'-083019 (19H0481-34)		(Solid)	Lab File ID: NT509041913.D				Analyzed: 09/04/19 19:04		
Pentafluorobenzene	357785	5.338	457969	5.344	78	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	797396	8.258	803678	8.264	99	50 - 200	-0.006	+/-0.50	
1,4-Difluorobenzene	840187	5.788	852165	5.788	99	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	388296	10.351	439766	10.357	88	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0061	Instrument:	NT5
		Calibration:	CH00068

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
P40-UST-03-8'-083019 (19H0481-20)		(Solid)		Lab File ID: NT509041914.D				Analyzed: 09/04/19 19:26	
Pentafluorobenzene	388442	5.338	457969	5.344	85	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	954708	8.264	803678	8.264	119	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	919248	5.788	852165	5.788	108	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	518315	10.357	439766	10.357	118	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0071
Instrument: NT3
Calibration: CI00019

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Blank (SHI0071-ICB1)		(Water)		Lab File ID: V309041913.D				Analyzed: 09/04/19 21:01	
Pentafluorobenzene	117622	5.41	96897	5.409	121	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	173269	7.812	140128	7.812	124	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	167865	5.787	140121	5.787	120	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	107129	9.497	90137	9.497	119	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SHI0071-SCV1)		(Water)		Lab File ID: V309041914.D				Analyzed: 09/04/19 21:28	
Pentafluorobenzene	116549	5.409	96897	5.409	120	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	173002	7.812	140128	7.812	123	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	167677	5.787	140121	5.787	120	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	109816	9.497	90137	9.497	122	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0085
Instrument: NT3
Calibration: CI00019

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0133-BS1)		(Water)	Lab File ID: V309051904LCS.D				Analyzed: 09/05/19 12:30		
Pentafluorobenzene	107094	5.414	96897	5.409	111	50 - 200	0.005	+/-0.50	
Chlorobenzene-d5	156589	7.811	140128	7.812	112	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	154442	5.786	140121	5.787	110	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	101121	9.496	90137	9.497	112	50 - 200	-0.001	+/-0.50	
Initial Cal Check (SHI0085-ICV1)		(Water)	Lab File ID: V309051904.D				Analyzed: 09/05/19 12:30		
Pentafluorobenzene	107094	5.414	96897	5.409	111	50 - 200	0.005	+/-0.50	
Chlorobenzene-d5	156589	7.811	140128	7.812	112	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	154442	5.786	140121	5.787	110	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	101121	9.496	90137	9.497	112	50 - 200	-0.001	+/-0.50	
LCS Dup (BHI0133-BSD1)		(Water)	Lab File ID: V309051905.D				Analyzed: 09/05/19 12:57		
Pentafluorobenzene	114506	5.408	96897	5.409	118	50 - 200	-0.001	+/-0.50	
Chlorobenzene-d5	173229	7.816	140128	7.812	124	50 - 200	0.004	+/-0.50	
1,4-Difluorobenzene	167481	5.785	140121	5.787	120	50 - 200	-0.002	+/-0.50	
1,4-Dichlorobenzene-d4	109692	9.501	90137	9.497	122	50 - 200	0.004	+/-0.50	
Blank (BHI0133-BLK1)		(Water)	Lab File ID: V309051908.D				Analyzed: 09/05/19 14:16		
Pentafluorobenzene	112398	5.409	96897	5.409	116	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	165550	7.811	140128	7.812	118	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	163146	5.786	140121	5.787	116	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	104290	9.502	90137	9.497	116	50 - 200	0.005	+/-0.50	
P40-UST-TB-083019 (19H0481-05)		(Water)	Lab File ID: V309051910.D				Analyzed: 09/05/19 15:10		
Pentafluorobenzene	111035	5.409	96897	5.409	115	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	159851	7.811	140128	7.812	114	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	159904	5.786	140121	5.787	114	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	98119	9.502	90137	9.497	109	50 - 200	0.005	+/-0.50	
P40-UST-01-083019 (19H0481-01)		(Water)	Lab File ID: V309051919.D				Analyzed: 09/05/19 19:21		
Pentafluorobenzene	107507	5.409	96897	5.409	111	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	158693	7.811	140128	7.812	113	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	158390	5.786	140121	5.787	113	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	97373	9.502	90137	9.497	108	50 - 200	0.005	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0085
Instrument: NT3
Calibration: CI00019

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
P40-UST-101-083019 (19H0481-03)		(Water)		Lab File ID: V309051920.D				Analyzed: 09/05/19 19:48	
Pentafluorobenzene	93529	5.409	96897	5.409	97	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	142218	7.812	140128	7.812	101	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	138961	5.787	140121	5.787	99	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	89138	9.497	90137	9.497	99	50 - 200	0.000	+/-0.50	
P40-UST-02-083019 (19H0481-10)		(Water)		Lab File ID: V309051921.D				Analyzed: 09/05/19 20:15	
Pentafluorobenzene	100786	5.409	96897	5.409	104	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	152335	7.812	140128	7.812	109	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	148454	5.787	140121	5.787	106	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	92991	9.497	90137	9.497	103	50 - 200	0.000	+/-0.50	
P40-UST-03-083019 (19H0481-16)		(Water)		Lab File ID: V309051922.D				Analyzed: 09/05/19 20:41	
Pentafluorobenzene	80541	5.408	96897	5.409	83	50 - 200	-0.001	+/-0.50	
Chlorobenzene-d5	124703	7.816	140128	7.812	89	50 - 200	0.004	+/-0.50	
1,4-Difluorobenzene	118505	5.786	140121	5.787	85	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	75872	9.496	90137	9.497	84	50 - 200	-0.001	+/-0.50	
P40-UST-04-083019 (19H0481-22)		(Water)		Lab File ID: V309051923.D				Analyzed: 09/05/19 21:08	
Pentafluorobenzene	101238	5.409	96897	5.409	104	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	145840	7.812	140128	7.812	104	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	149291	5.787	140121	5.787	107	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	91792	9.497	90137	9.497	102	50 - 200	0.000	+/-0.50	
P40-UST-05-083019 (19H0481-28)		(Water)		Lab File ID: V309051924.D				Analyzed: 09/05/19 21:35	
Pentafluorobenzene	96727	5.41	96897	5.409	100	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	143504	7.812	140128	7.812	102	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	139003	5.787	140121	5.787	99	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	88861	9.497	90137	9.497	99	50 - 200	0.000	+/-0.50	
Calibration Check (SHI0085-CCV1)		(Water)		Lab File ID: V309051928.D				Analyzed: 09/05/19 23:22	
Pentafluorobenzene	90170	5.409	96897	5.409	93	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	128511	7.812	140128	7.812	92	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	126850	5.786	140121	5.787	91	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	81440	9.497	90137	9.497	90	50 - 200	0.000	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8260C

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
P40-UST-01-083019 19H0481-01	08/30/19 09:20	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 19:21	6	14	
P40-UST-101-083019 19H0481-03	08/30/19 09:25	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 19:48	6	14	
P40-UST-TB-083019 19H0481-05	08/30/19 08:40	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 15:10	6	14	
P40-UST-01-4.5'-083019 19H0481-06	08/30/19 08:40	08/30/19 16:25	09/03/19 15:33	4	14	09/03/19 19:55	4	14	
P40-UST-01-9'-083019 19H0481-08	08/30/19 08:50	08/30/19 16:25	09/03/19 15:33	4	14	09/03/19 20:17	4	14	
P40-UST-02-083019 19H0481-10	08/30/19 10:00	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 20:15	6	14	
P40-UST-02-4.5'-083019 19H0481-12	08/30/19 10:40	08/30/19 16:25	09/03/19 15:33	4	14	09/03/19 20:38	4	14	
P40-UST-02-9'-083019 19H0481-14	08/30/19 10:50	08/30/19 16:25	09/03/19 15:33	4	14	09/03/19 21:00	4	14	
P40-UST-03-083019 19H0481-16	08/30/19 12:10	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 20:41	6	14	
P40-UST-03-4.5'-083019 19H0481-18	08/30/19 11:10	08/30/19 16:25	09/03/19 15:33	4	14	09/03/19 21:22	4	14	
P40-UST-03-8'-083019 19H0481-20	08/30/19 11:15	08/30/19 16:25	09/04/19 07:00	4	14	09/04/19 19:26	5	14	
P40-UST-04-083019 19H0481-22	08/30/19 12:25	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 21:08	6	14	
P40-UST-04-4.5'-083019 19H0481-24	08/30/19 11:30	08/30/19 16:25	09/04/19 15:53	5	14	09/04/19 17:36	5	14	
P40-UST-04-14.5'-083019 19H0481-26	08/30/19 11:40	08/30/19 16:25	09/04/19 15:53	5	14	09/04/19 17:58	5	14	
P40-UST-05-083019 19H0481-28	08/30/19 14:10	08/30/19 16:25	09/05/19 13:58	5	14	09/05/19 21:35	6	14	
P40-UST-05-4.5'-083019 19H0481-30	08/30/19 13:00	08/30/19 16:25	09/04/19 15:53	5	14	09/04/19 18:20	5	14	
P40-UST-505-4.5'-083019 19H0481-32	08/30/19 13:05	08/30/19 16:25	09/04/19 15:53	5	14	09/04/19 18:42	5	14	
P40-UST-05-11'-083019 19H0481-34	08/30/19 13:10	08/30/19 16:25	09/04/19 15:53	5	14	09/04/19 19:04	5	14	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Solid
Instrument: NT5

Analyte	MDL	RL	Units
Benzene	8.20	50.0	ug/kg
Benzene	0.30	1.00	ug/kg
Toluene	8.60	50.0	ug/kg
Toluene	0.15	1.00	ug/kg
Ethylbenzene	13.6	50.0	ug/kg
Ethylbenzene	0.20	1.00	ug/kg
m,p-Xylene	27.9	100	ug/kg
m,p-Xylene	0.39	2.00	ug/kg
o-Xylene	11.4	50.0	ug/kg
o-Xylene	0.22	1.00	ug/kg

METHOD DETECTION AND REPORTING LIMITS

EPA 8260C

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Water
Instrument: NT3

Analyte	MDL	RL	Units
Benzene	0.03	0.20	ug/L
Toluene	0.04	0.20	ug/L
Ethylbenzene	0.04	0.20	ug/L
m,p-Xylene	0.05	0.40	ug/L
o-Xylene	0.03	0.20	ug/L

P40-UST-01-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-01 D	SDG:	19H0481
Sampled:	08/30/19 09:20	Prepared:	09/05/19 13:58	File ID:	V309051919G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 19:21
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.95	99.0	80 - 120	
4-Bromofluorobenzene	5.0000	4.75	94.9	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519l9G.D

Date : 05-SEP-2019 19:21

Client ID:

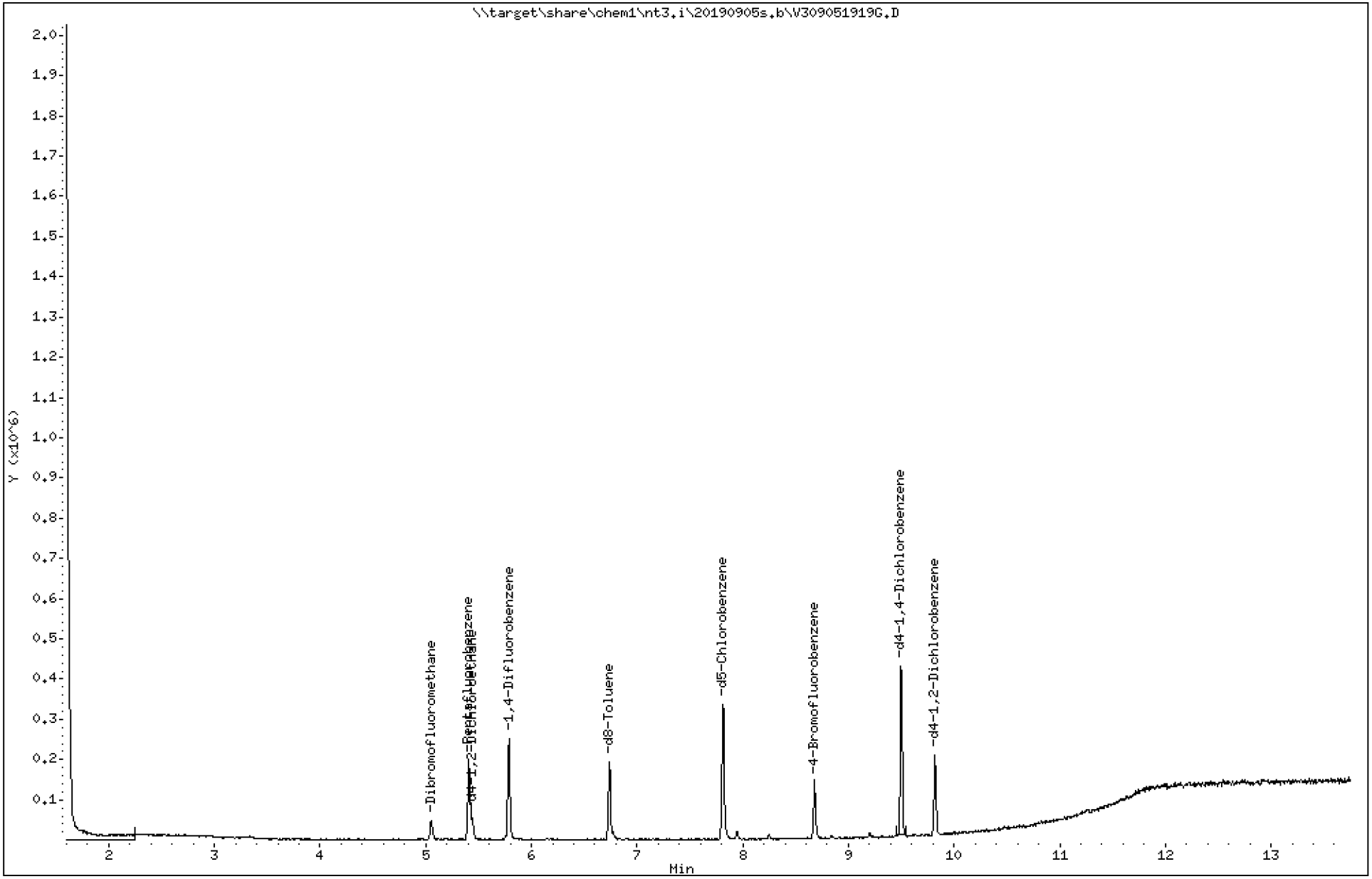
Sample Info: 19H0481-01

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051919G.D
Lab Smp Id: 19H0481-01
Inj Date : 05-SEP-2019 19:21
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-01
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	23436	5.04161	5.042
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	107507	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	26417	5.10076	5.101
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	158390	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	94872	4.95125	4.951
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	158693	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	35789	4.74606	4.746
*	76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	97373	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	46154	5.04464	5.045

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051919G.D
Lab Smp Id: 19H0481-01
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	107507	10.95
37 1,4-Difluorobenze	140121	70061	280242	158390	13.04
53 d5-Chlorobenzene	140128	70064	280256	158693	13.25
76 d4-1,4-Dichlorobe	90137	45069	180274	97373	8.03

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-01
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.042	100.83	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.101	102.02	80-128
$ 43 d8-Toluene	5.000	4.951	99.03	80-120
$ 62 4-Bromofluorobenze	5.000	4.746	94.92	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.045	100.89	80-120

REVIEW SUMMARY FOR FILE - V309051919G.D

Lab ID: 19H0481-01
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 19:21

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V3090519l9G.D

Date : 05-SEP-2019 19:21

Client ID:

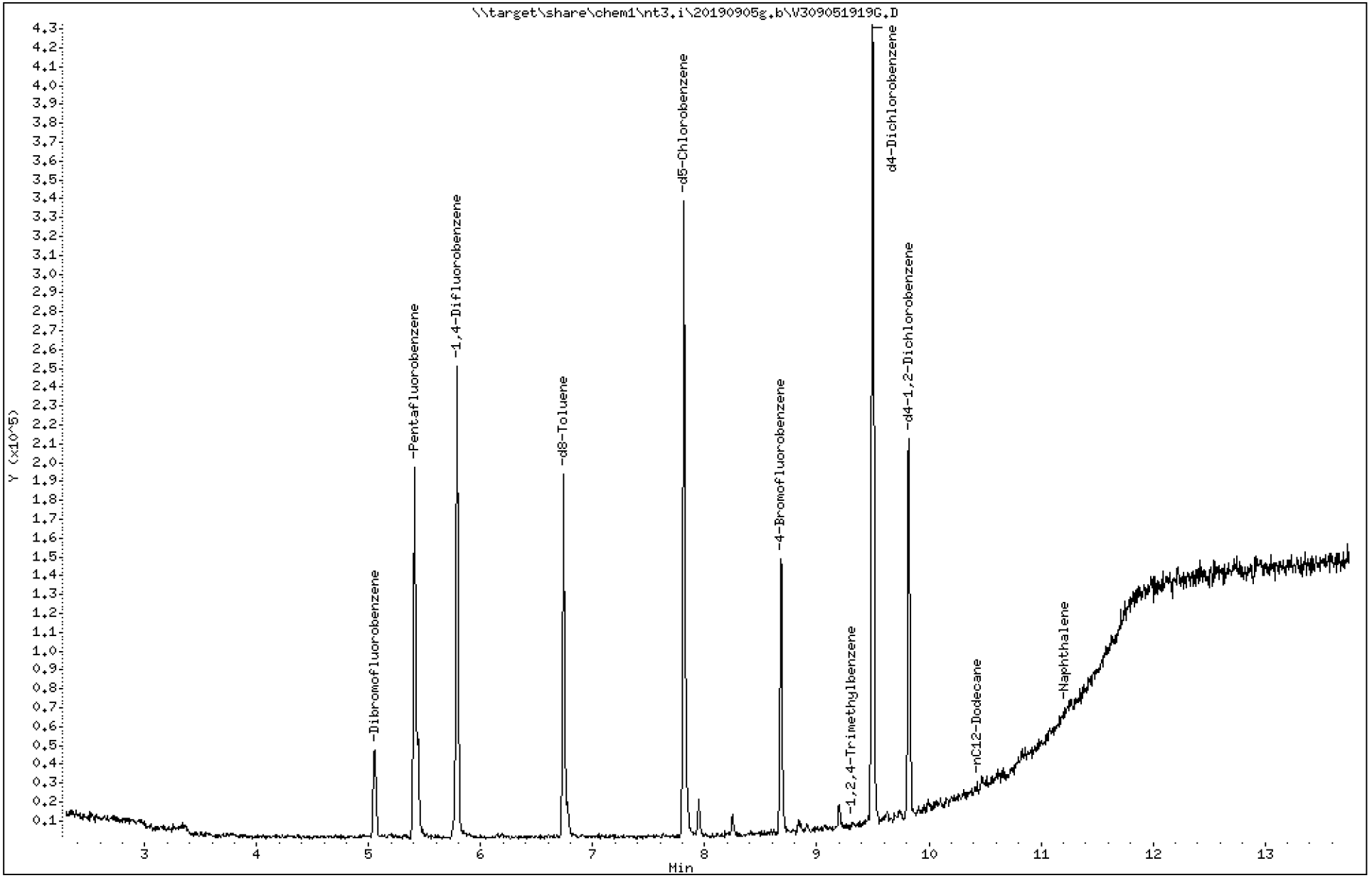
Sample Info: 19H0481-01

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051919G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 19:21

ARI ID: 19H0481-01
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	214330	0.013
8015C 2MP-TMB	(2.94 to 9.46)	32687243	145957	0.004
AK101 nC6-nC10	(3.69 to 8.64)	19977596	71374	0.004
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	442500	0.026
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	219654	0.010

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	523278	d5-Chlorobenzene
6.738	283267	d8-Toluene
9.497	625353	d4-Dichlorobenzene
8.678	213137	4-Bromofluorobenzene
9.821	298516	d4-1,2-Dichlorobenzene

P40-UST-101-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-03 E	SDG:	19H0481
Sampled:	08/30/19 09:25	Prepared:	09/05/19 13:58	File ID:	V309051920G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 19:48
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.97	99.4	80 - 120	
4-Bromofluorobenzene	5.0000	4.86	97.2	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V309051920G.D

Date : 05-SEP-2019 19:48

Client ID:

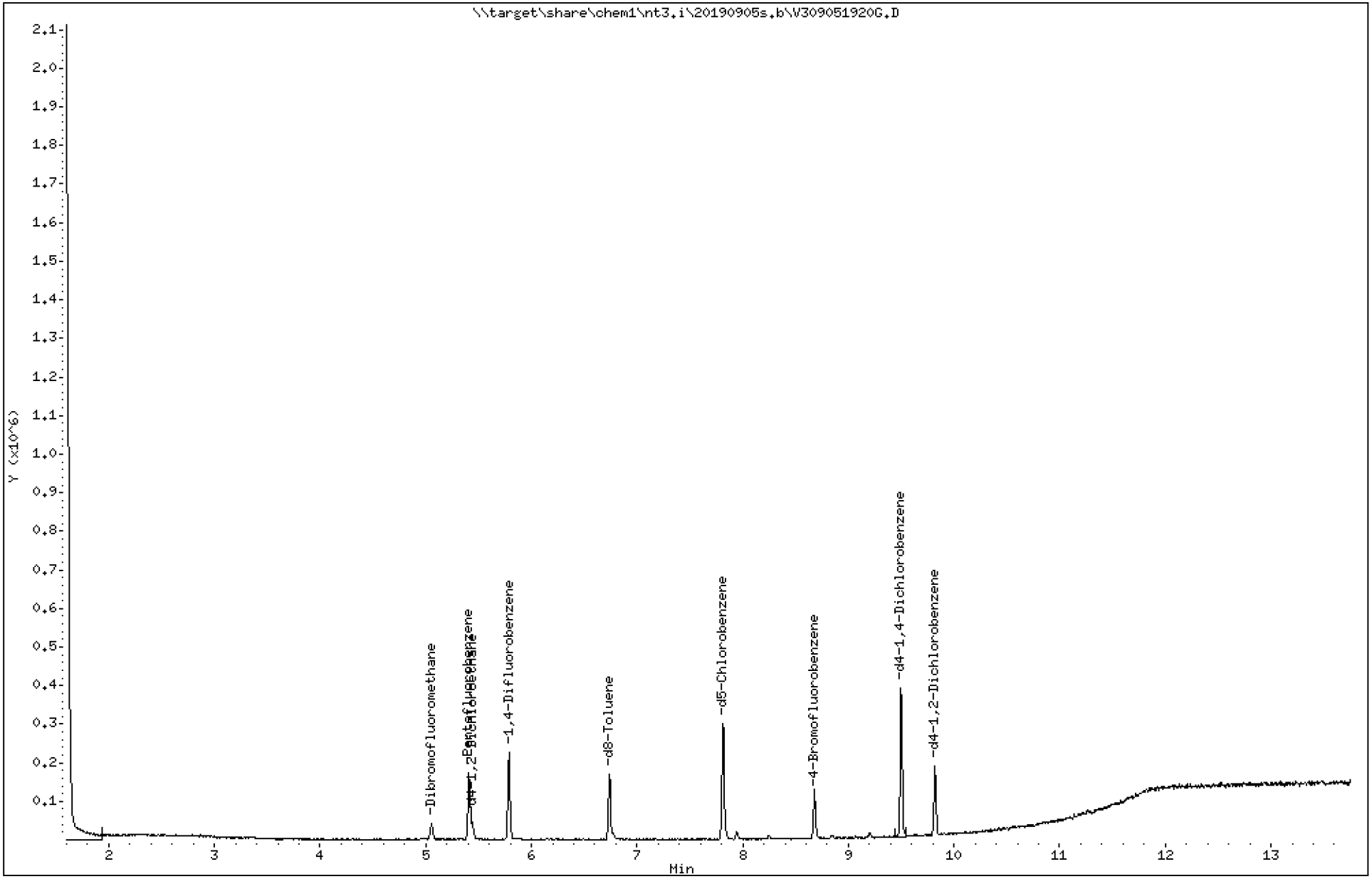
Sample Info: 19H0481-03

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051920G.D
Lab Smp Id: 19H0481-03
Inj Date : 05-SEP-2019 19:48
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-03
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.058	5.053	(0.935)	20663	5.10940	5.109
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	93529	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	21939	4.86921	4.869
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	138961	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	83584	4.97205	4.972
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	142218	10.0000	
$	62 4-Bromofluorobenzene	174	8.684	8.678	(1.112)	32859	4.86229	4.862
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	89138	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	42599	5.08623	5.086

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051920G.D
Lab Smp Id: 19H0481-03
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	93529	-3.48
37 1,4-Difluorobenze	140121	70061	280242	138961	-0.83
53 d5-Chlorobenzene	140128	70064	280256	142218	1.49
76 d4-1,4-Dichlorobe	90137	45069	180274	89138	-1.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-03
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.109	102.19	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.869	97.38	80-128
$ 43 d8-Toluene	5.000	4.972	99.44	80-120
$ 62 4-Bromofluorobenze	5.000	4.862	97.25	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.086	101.72	80-120

REVIEW SUMMARY FOR FILE - V309051920G.D

Lab ID: 19H0481-03
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 19:48

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V309051920G.D

Date : 05-SEP-2019 19:48

Client ID:

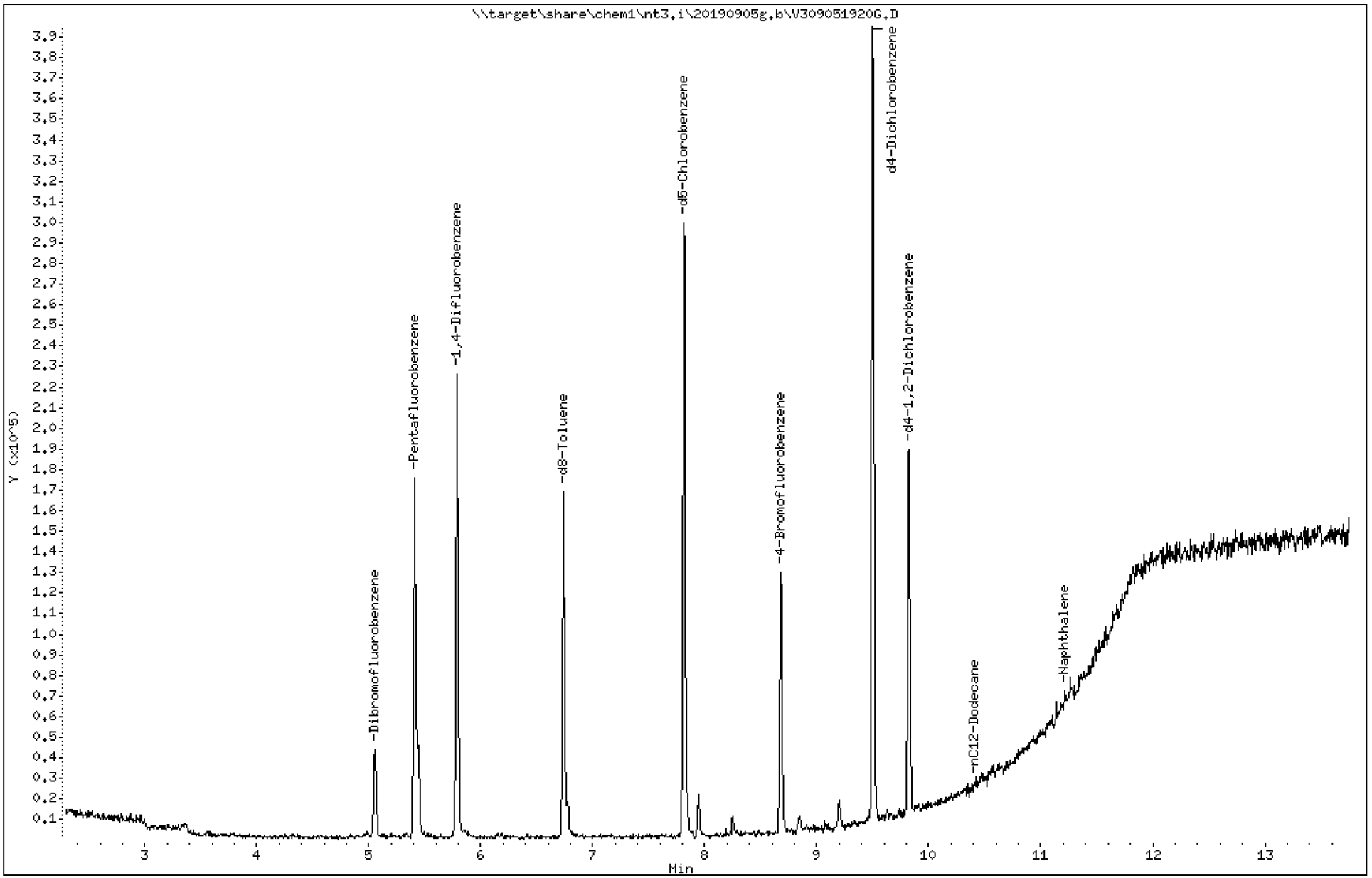
Sample Info: 19H0481-03

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051920G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 19:48

ARI ID: 19H0481-03
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	198663	0.013
8015C 2MP-TMB	(2.94 to 9.46)	32687243	162830	0.005
AK101 nC6-nC10	(3.69 to 8.64)	19977596	71718	0.004
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	301489	0.017
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	208864	0.009

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	450154	d5-Chlorobenzene
6.739	255984	d8-Toluene
9.497	563549	d4-Dichlorobenzene
8.679	188762	4-Bromofluorobenzene
9.822	269176	d4-1,2-Dichlorobenzene

P40-UST-TB-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-05 B	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/05/19 13:58	File ID:	V309051910G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 15:10
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.89	97.7	80 - 120	
4-Bromofluorobenzene	5.0000	4.88	97.7	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\W309051910G.D

Date : 05-SEP-2019 15:10

Client ID:

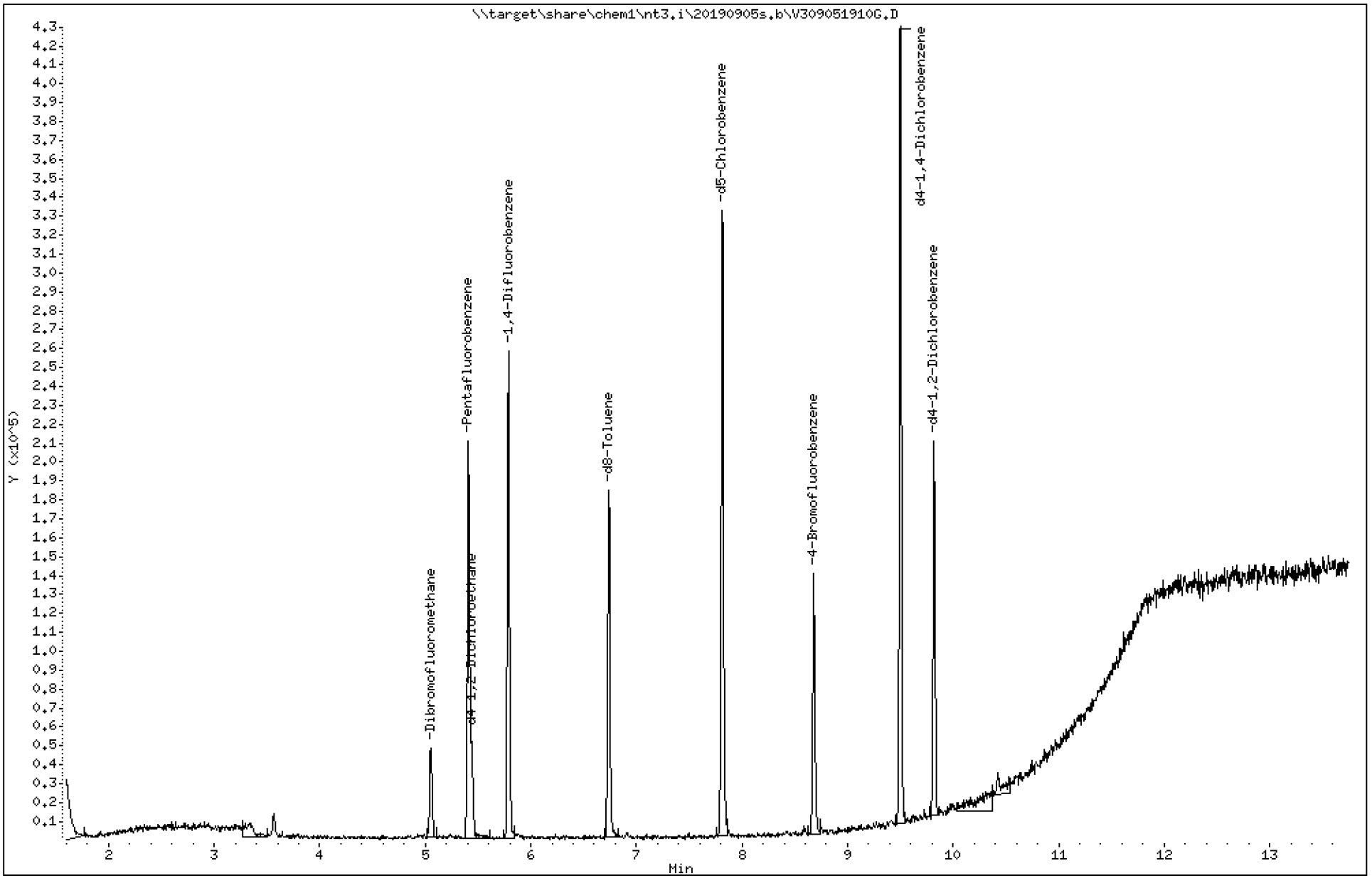
Sample Info: 19H0481-05

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051910G.D
Lab Smp Id: 19H0481-05
Inj Date : 05-SEP-2019 15:10
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-05
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.047	5.053	(0.933)	23041	4.79915	4.799
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	111035	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	26620	4.97664	4.977
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	159904	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	94535	4.88695	4.887
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	159851	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	37091	4.88309	4.883
*	76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	98119	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	44334	4.80887	4.809

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051910G.D
Lab Smp Id: 19H0481-05
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111035	14.59
37 1,4-Difluorobenze	140121	70061	280242	159904	14.12
53 d5-Chlorobenzene	140128	70064	280256	159851	14.07
76 d4-1,4-Dichlorobe	90137	45069	180274	98119	8.86

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-05
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.799	95.98	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.977	99.53	80-128
$ 43 d8-Toluene	5.000	4.887	97.74	80-120
$ 62 4-Bromofluorobenze	5.000	4.883	97.66	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.809	96.18	80-120

REVIEW SUMMARY FOR FILE - V309051910G.D

Lab ID: 19H0481-05
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 15:10

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V309051910G.D

Date : 05-SEP-2019 15:10

Client ID:

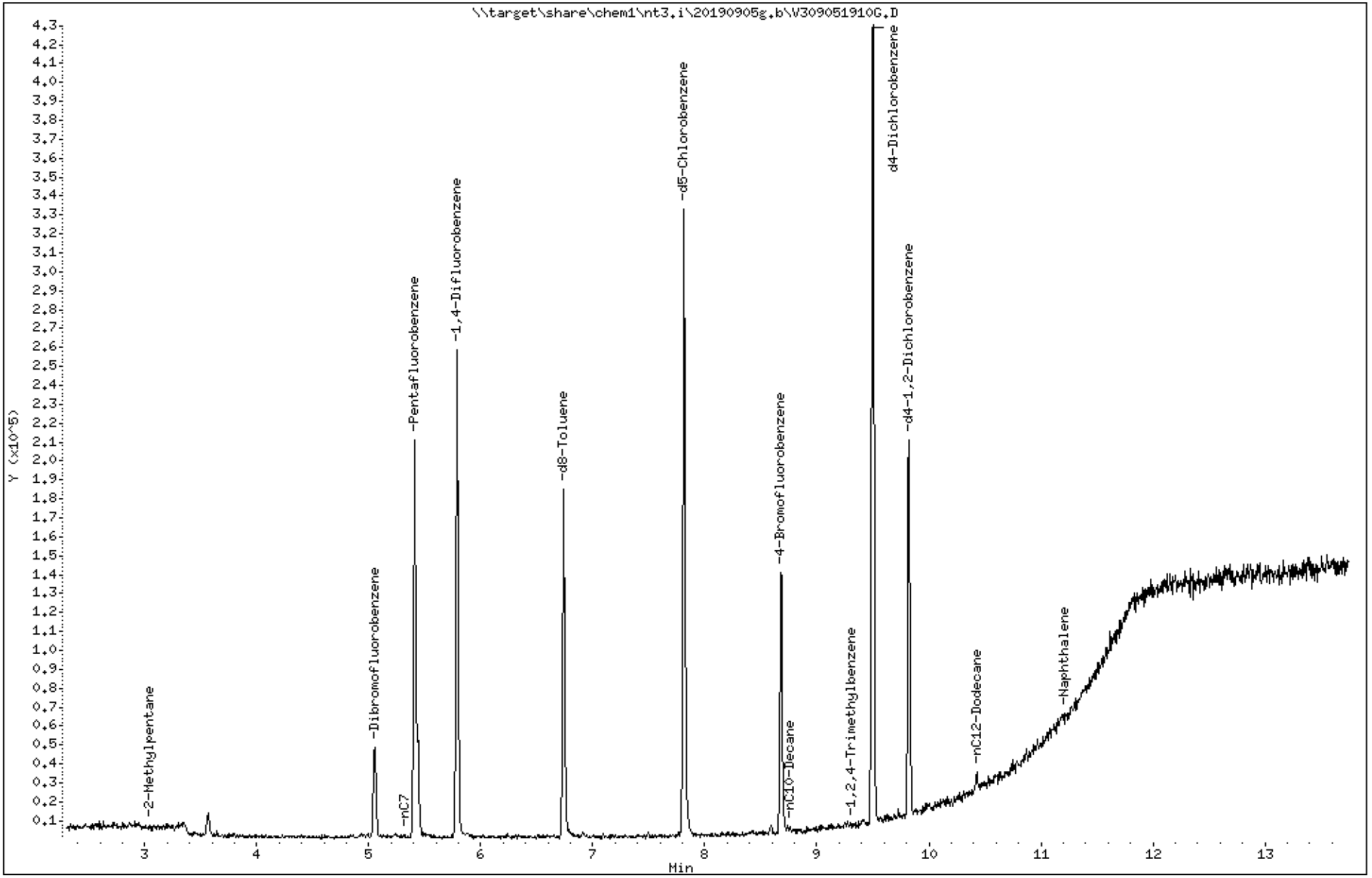
Sample Info: 19H0481-05

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051910G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 15:10

ARI ID: 19H0481-05
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	143348	0.009
8015C 2MP-TMB	(2.94 to 9.46)	32687243	149661	0.005
AK101 nC6-nC10	(3.69 to 8.64)	19977596	36398	0.002
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	252451	0.015
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	151169	0.007

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	508644	d5-Chlorobenzene
6.738	283783	d8-Toluene
9.502	622135	d4-Dichlorobenzene
8.678	213353	4-Bromofluorobenzene
9.821	288933	d4-1,2-Dichlorobenzene

P40-UST-01-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-06 B	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/11/19 11:52	File ID:	V209111922G.D
% Solids:	96.64	Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/11/19 14:33
Batch:	BHI0303	Sequence:	SHI0164	Initial/Final:	5.19 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5160	U	2580	5160

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.03	101	80 - 120	
4-Bromofluorobenzene	5.0000	4.93	98.7	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111922G.D

Date : 11-SEP-2019 14:33

Client ID:

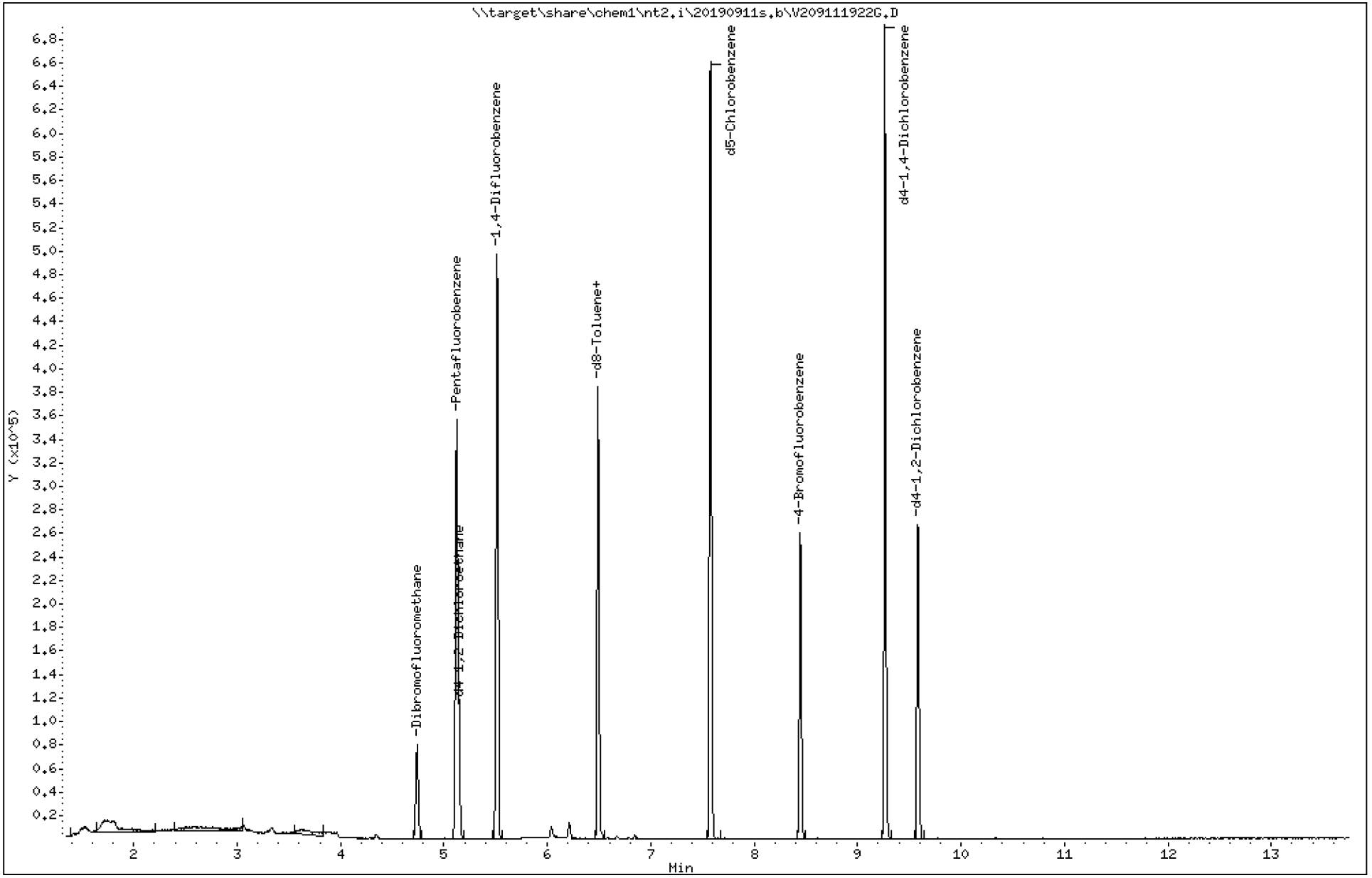
Sample Info: 19H0481-06

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111922G.D
Lab Smp Id: 19H0481-06
Inj Date : 11-SEP-2019 14:33
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-06
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 54
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.739	4.742	(0.925)	40211	4.70506	4.705
* 32 Pentafluorobenzene	168	5.122	5.126	(1.000)	172629	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.005)	52619	5.33937	5.339
* 37 1,4-Difluorobenzene	114	5.511	5.521	(1.000)	302048	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.178)	184828	5.02861	5.029
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	288176	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	52383	4.93447	4.934
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	139116	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.585	(1.035)	59597	4.63826	4.638

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111922G.D
Lab Smp Id: 19H0481-06
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	172629	3.92
37 1,4-Difluorobenze	280906	140453	561812	302048	7.53
53 d5-Chlorobenzene	262007	131004	524014	288176	9.99
76 d4-1,4-Dichlorobe	136773	68387	273546	139116	1.71

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.17
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-06
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.705	94.10	
$ 33 d4-1,2-Dichloroeth	5.000	5.339	106.79	
$ 43 d8-Toluene	5.000	5.029	100.57	
$ 62 4-Bromofluorobenze	5.000	4.934	98.69	
$ 79 d4-1,2-Dichloroben	5.000	4.638	92.77	

REVIEW SUMMARY FOR FILE - V209111922G.D

Lab ID: 19H0481-06
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 14:33

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111922G.D

Date : 11-SEP-2019 14:33

Client ID:

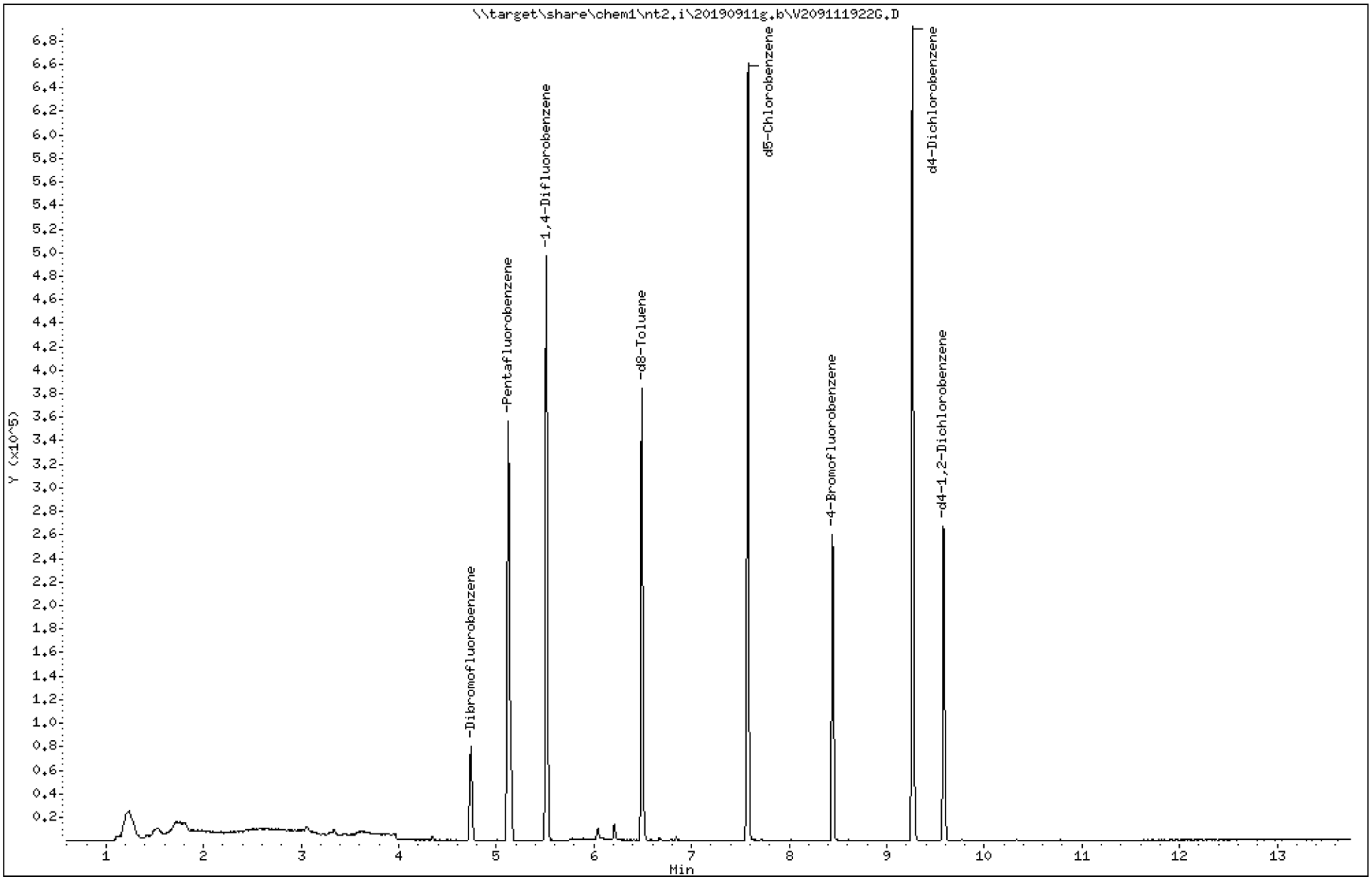
Sample Info: 19H0481-06

Instrument: nt2.i

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111922G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 14:33

ARI ID: 19H0481-06
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	30957	0.001
AK101 nC6-nC10	(3.24 to 8.42)	32820925	30957	0.001
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	30958	0.001

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.580	876165	d5-Chlorobenzene
8.444	326577	4-Bromofluorobenzene
6.491	489984	d8-Toluene
9.265	875001	d4-Dichlorobenzene
9.582	368633	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-01-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-08 B	SDG:	19H0481
Sampled:	08/30/19 08:50	Prepared:	09/11/19 11:52	File ID:	V209111923G.D
% Solids:	72.30	Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/11/19 14:54
Batch:	BHI0303	Sequence:	SHI0164	Initial/Final:	5.01 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	8820	U	4410	8820

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.04	101	80 - 120	
4-Bromofluorobenzene	5.0000	4.95	99.0	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111923G.D

Date : 11-SEP-2019 14:54

Client ID:

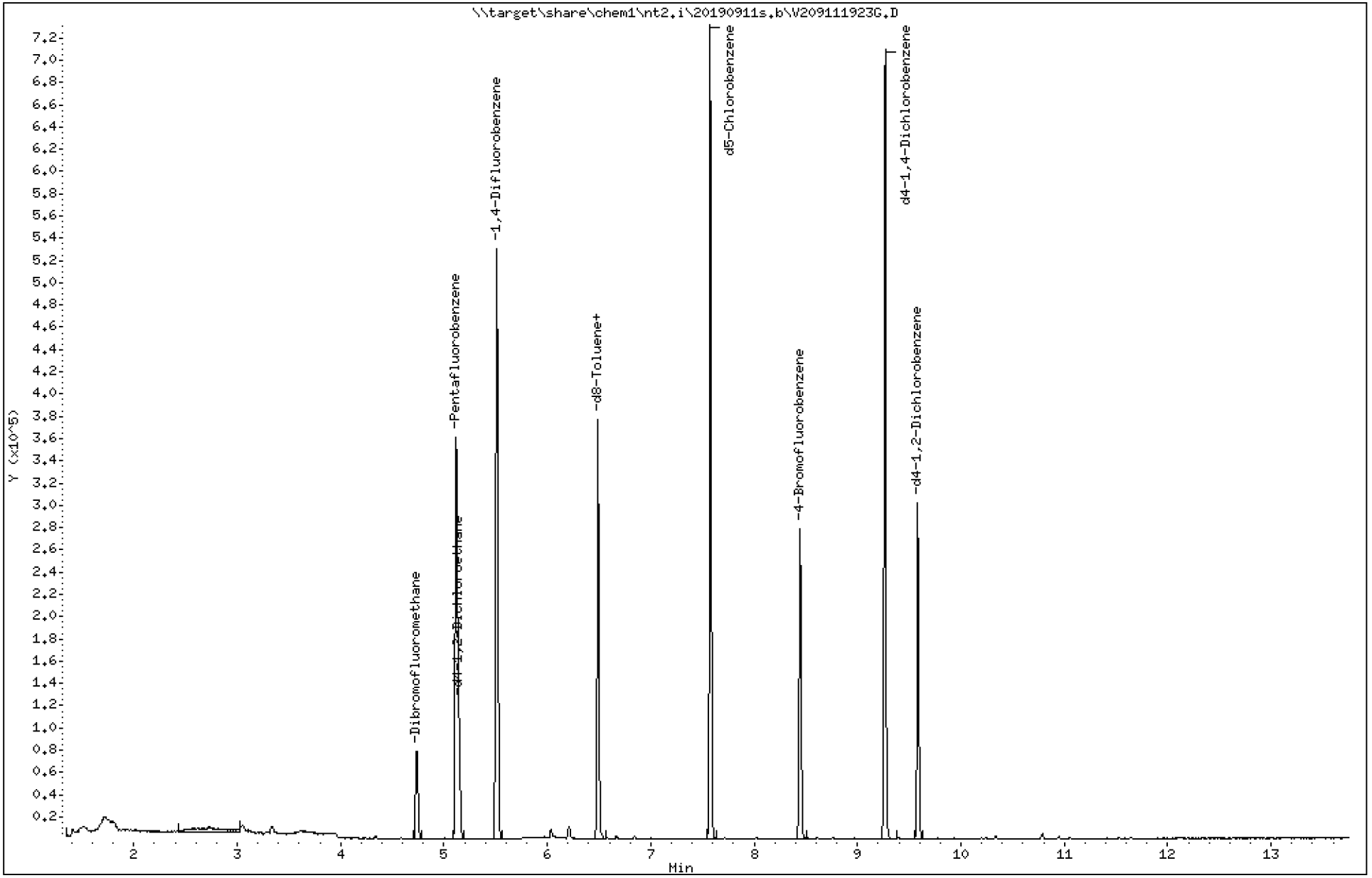
Sample Info: 19H0481-08

Instrument: nt2.i

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111923G.D
Lab Smp Id: 19H0481-08
Inj Date : 11-SEP-2019 14:54
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-08
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.735	4.742	(0.925)	41062	4.68410	4.684
* 32 Pentafluorobenzene	168	5.118	5.126	(1.000)	177071	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.143	5.150	(1.005)	53611	5.30356	5.304
* 37 1,4-Difluorobenzene	114	5.514	5.521	(1.000)	313652	10.0000	
$ 43 d8-Toluene	98	6.493	6.494	(1.178)	192368	5.04012	5.040
* 53 d5-Chlorobenzene	117	7.576	7.577	(1.000)	300287	10.0000	
$ 62 4-Bromofluorobenzene	174	8.446	8.447	(1.115)	54757	4.95007	4.950
* 76 d4-1,4-Dichlorobenzene	152	9.267	9.262	(1.000)	147527	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.585	(1.034)	63411	4.65372	4.654

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111923G.D
Lab Smp Id: 19H0481-08
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	177071	6.59
37 1,4-Difluorobenze	280906	140453	561812	313652	11.66
53 d5-Chlorobenzene	262007	131004	524014	300287	14.61
76 d4-1,4-Dichlorobe	136773	68387	273546	147527	7.86

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.14
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.13
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-08
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.684	93.68	
$ 33 d4-1,2-Dichloroeth	5.000	5.304	106.07	
$ 43 d8-Toluene	5.000	5.040	100.80	
$ 62 4-Bromofluorobenze	5.000	4.950	99.00	
$ 79 d4-1,2-Dichloroben	5.000	4.654	93.07	

REVIEW SUMMARY FOR FILE - V209111923G.D

Lab ID: 19H0481-08
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 14:54

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111923G.D

Date : 11-SEP-2019 14:54

Client ID:

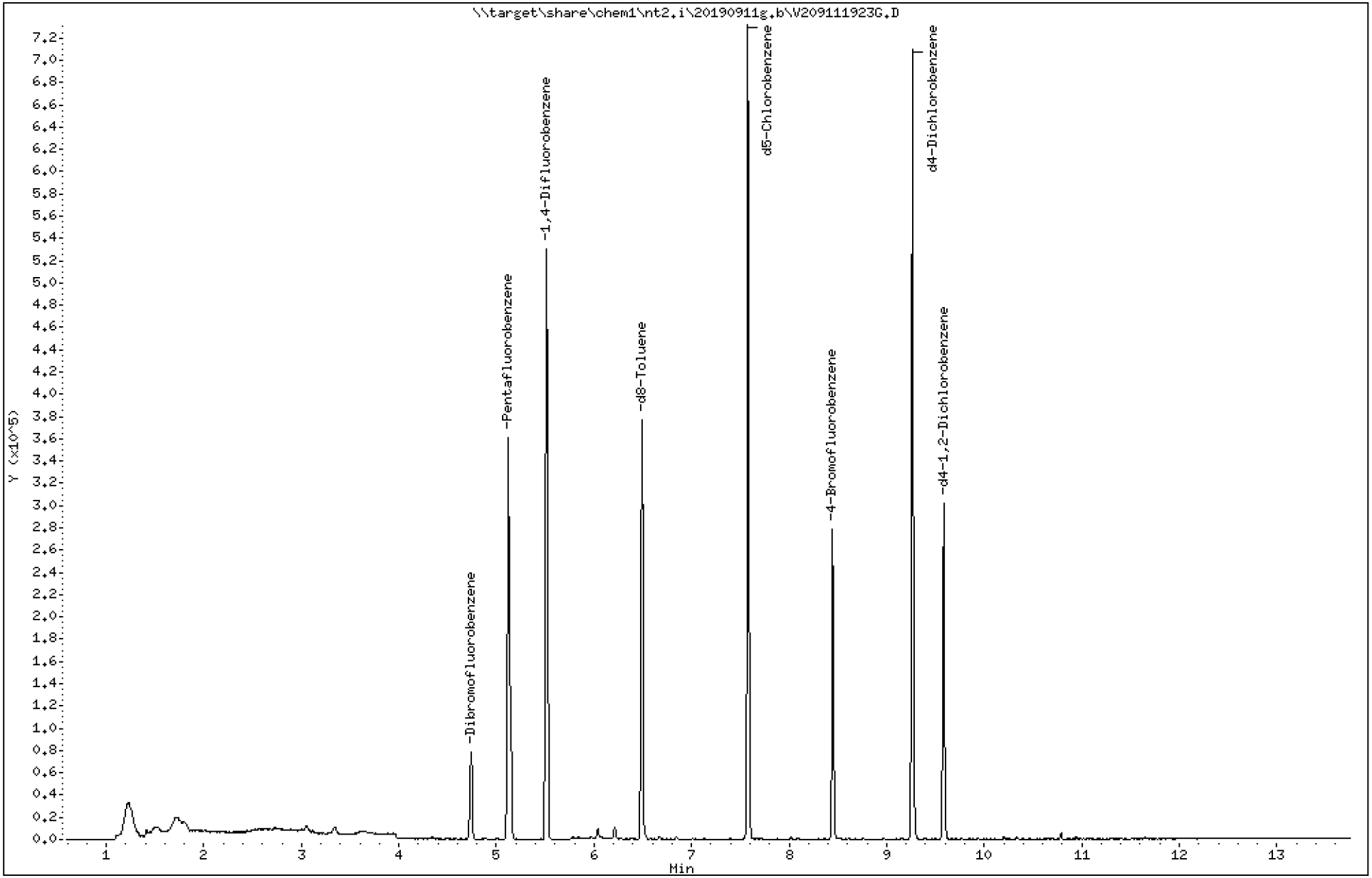
Sample Info: 19H0481-08

Instrument: nt2.i

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111923G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 14:54

ARI ID: 19H0481-08
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	25441	0.001
AK101 nC6-nC10	(3.24 to 8.42)	32820925	25441	0.001
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	25441	0.001

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.577	916983	d5-Chlorobenzene
8.447	340382	4-Bromofluorobenzene
6.494	507289	d8-Toluene
9.268	928235	d4-Dichlorobenzene
9.584	391772	d4-1,2-Dichlorobenzene

P40-UST-02-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-10 D	SDG:	19H0481
Sampled:	08/30/19 10:00	Prepared:	09/05/19 13:58	File ID:	V309051921G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 20:15
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.09	102	80 - 120	
4-Bromofluorobenzene	5.0000	4.62	92.3	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519216.D

Date : 05-SEP-2019 20:15

Client ID:

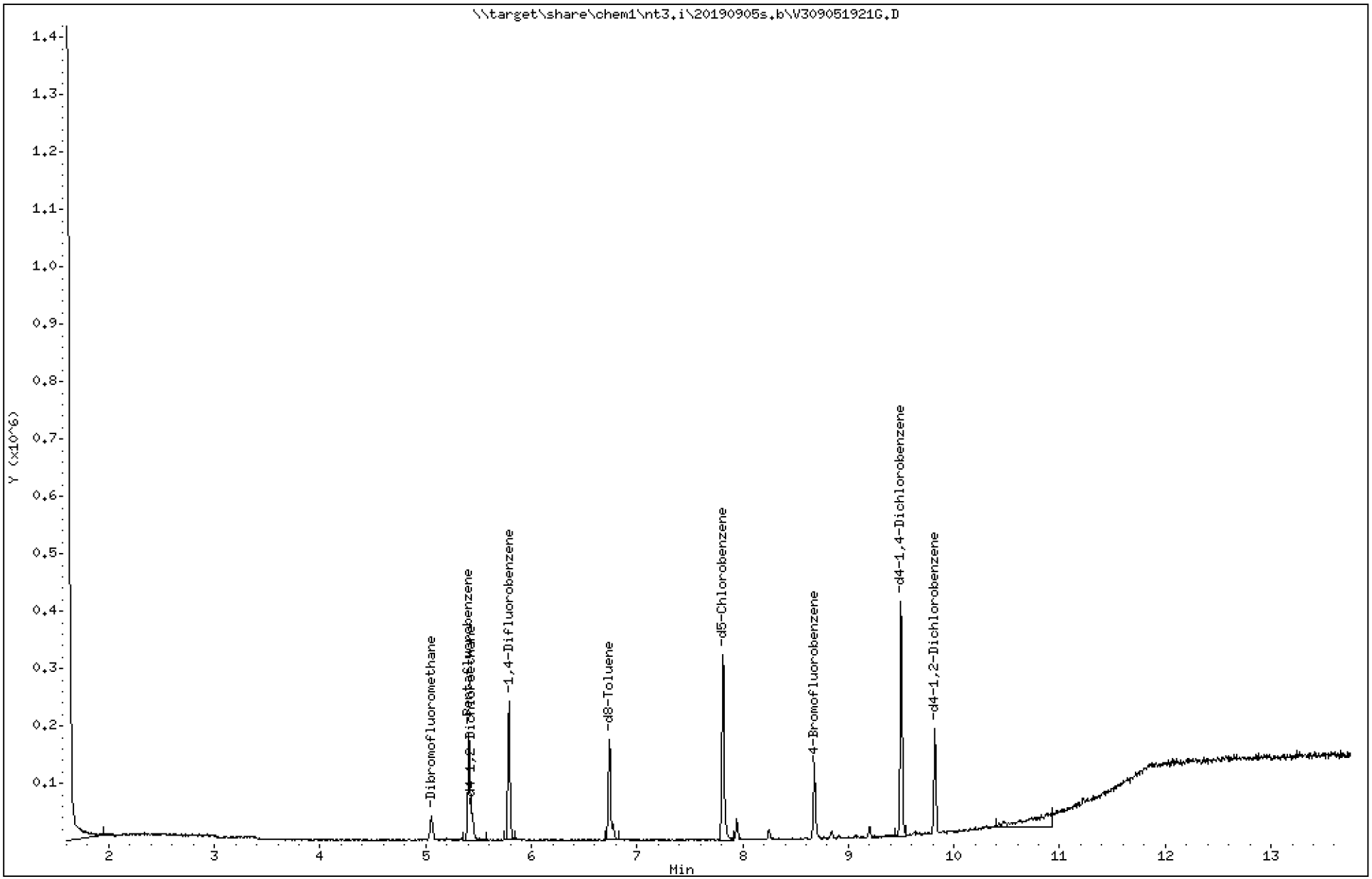
Sample Info: 19H0481-10

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051921G.D
Lab Smp Id: 19H0481-10
Inj Date : 05-SEP-2019 20:15
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-10
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	21513	4.93655	4.937
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	100786	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.441	(1.005)	24460	5.03784	5.038
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	148454	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	91337	5.08581	5.086
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	152335	10.0000	
$	62 4-Bromofluorobenzene	174	8.684	8.678	(1.112)	33409	4.61536	4.615
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	92991	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	43572	4.98684	4.987

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051921G.D
Lab Smp Id: 19H0481-10
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	100786	4.01
37 1,4-Difluorobenze	140121	70061	280242	148454	5.95
53 d5-Chlorobenzene	140128	70064	280256	152335	8.71
76 d4-1,4-Dichlorobe	90137	45069	180274	92991	3.17

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-10
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.937	98.73	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.038	100.76	80-128
$ 43 d8-Toluene	5.000	5.086	101.72	80-120
$ 62 4-Bromofluorobenze	5.000	4.615	92.31	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.987	99.74	80-120

REVIEW SUMMARY FOR FILE - V309051921G.D

Lab ID: 19H0481-10
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 20:15

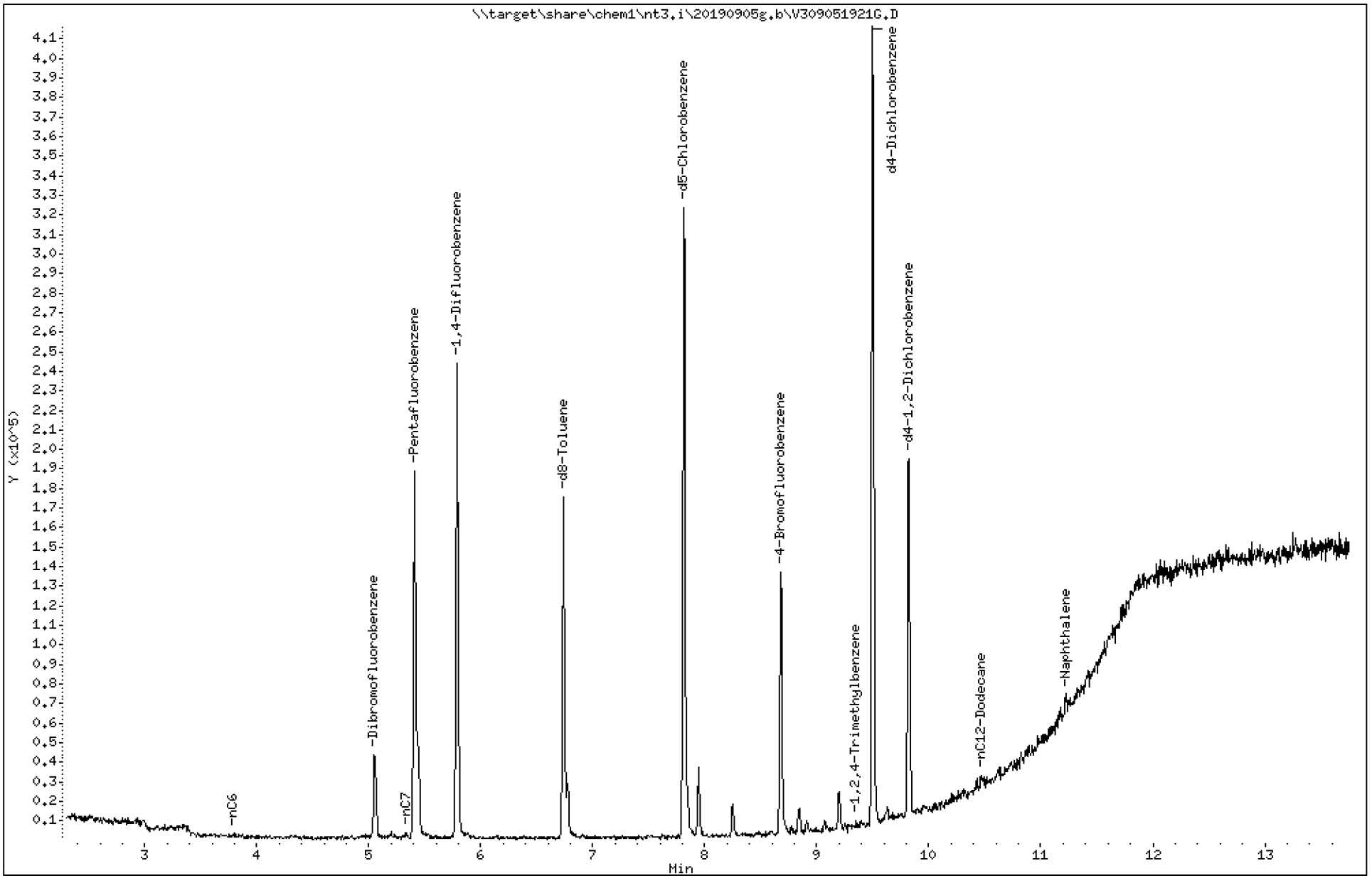
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V3090519216.D
Date : 05-SEP-2019 20:15
Client ID:
Sample Info: 19H0481-10

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051921G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 20:15

ARI ID: 19H0481-10
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	250308	0.016
8015C 2MP-TMB	(2.94 to 9.46)	32687243	206813	0.006
AK101 nC6-nC10	(3.69 to 8.64)	19977596	109614	0.005
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	350728	0.020
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	254945	0.011

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	498496	d5-Chlorobenzene
6.739	277002	d8-Toluene
9.497	590604	d4-Dichlorobenzene
8.679	204446	4-Bromofluorobenzene
9.822	277723	d4-1,2-Dichlorobenzene

P40-UST-02-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-12 B	SDG:	19H0481
Sampled:	08/30/19 10:40	Prepared:	09/11/19 11:52	File ID:	V209111924G.D
% Solids:	92.32	Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/11/19 15:14
Batch:	BHI0303	Sequence:	SHI0164	Initial/Final:	5.2 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5620	U	2810	5620

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.06	101	80 - 120	
4-Bromofluorobenzene	5.0000	5.03	101	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111924G.D

Date : 11-SEP-2019 15:14

Client ID:

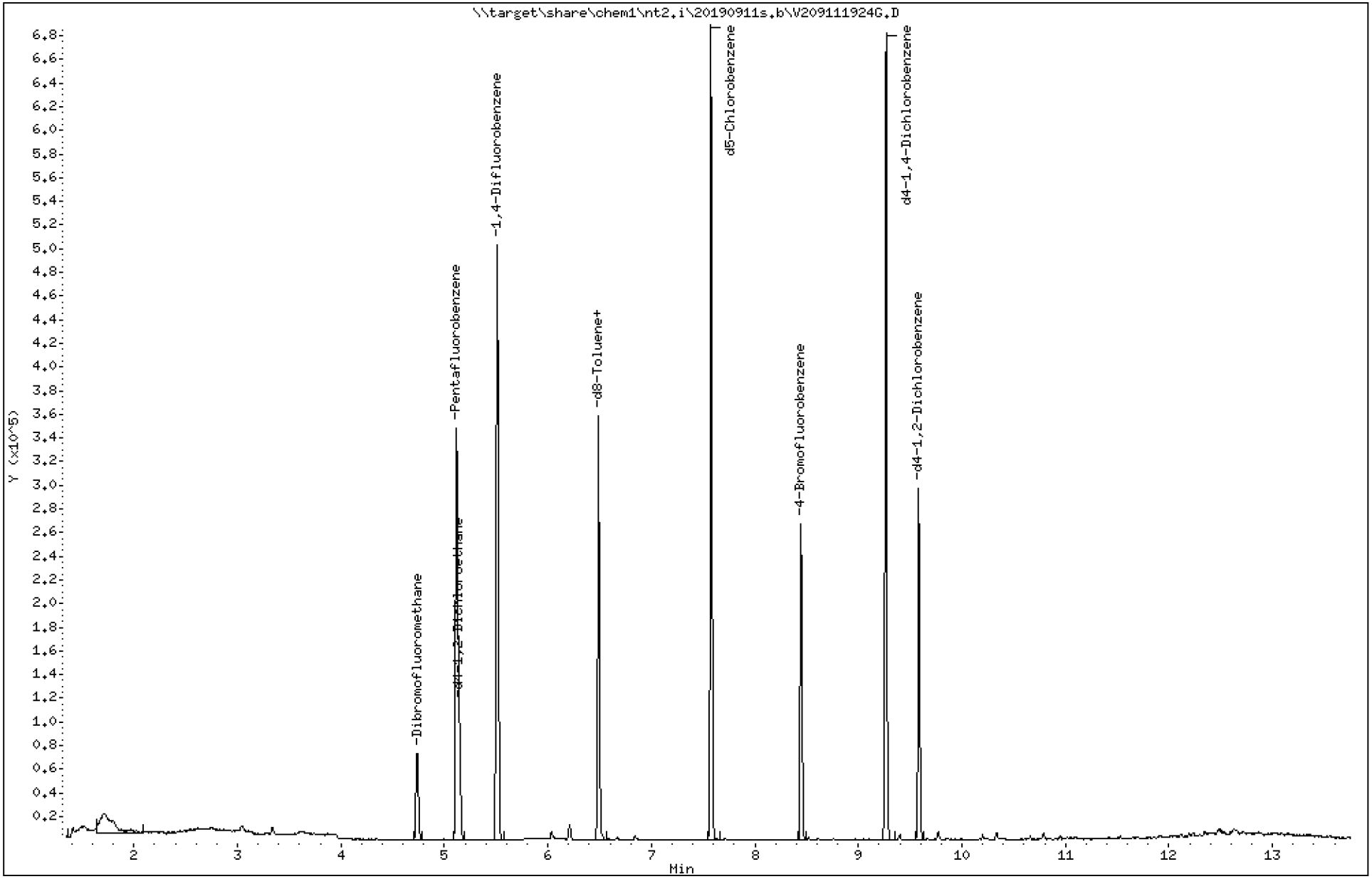
Sample Info: 19H0481-12

Instrument: nt2.i

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111924G.D
Lab Smp Id: 19H0481-12
Inj Date : 11-SEP-2019 15:14
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-12
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.735	4.742	(0.925)	38064	4.50932	4.509
* 32 Pentafluorobenzene	168	5.119	5.126	(1.000)	170505	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.143	5.150	(1.005)	50804	5.21941	5.219
* 37 1,4-Difluorobenzene	114	5.514	5.521	(1.000)	295791	10.0000	
$ 43 d8-Toluene	98	6.487	6.494	(1.177)	182053	5.05788	5.058
* 53 d5-Chlorobenzene	117	7.576	7.577	(1.000)	288082	10.0000	
$ 62 4-Bromofluorobenzene	174	8.446	8.447	(1.115)	53380	5.03003	5.030
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.262	(1.000)	142212	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.585	(1.034)	61339	4.66991	4.670

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111924G.D
Lab Smp Id: 19H0481-12
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	170505	2.64
37 1,4-Difluorobenze	280906	140453	561812	295791	5.30
53 d5-Chlorobenzene	262007	131004	524014	288082	9.95
76 d4-1,4-Dichlorobe	136773	68387	273546	142212	3.98

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.13
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.12
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-12
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.509	90.19	
$ 33 d4-1,2-Dichloroeth	5.000	5.219	104.39	
$ 43 d8-Toluene	5.000	5.058	101.16	
$ 62 4-Bromofluorobenze	5.000	5.030	100.60	
$ 79 d4-1,2-Dichloroben	5.000	4.670	93.40	

REVIEW SUMMARY FOR FILE - V209111924G.D

Lab ID: 19H0481-12
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 15:14

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111924G.D

Date : 11-SEP-2019 15:14

Client ID:

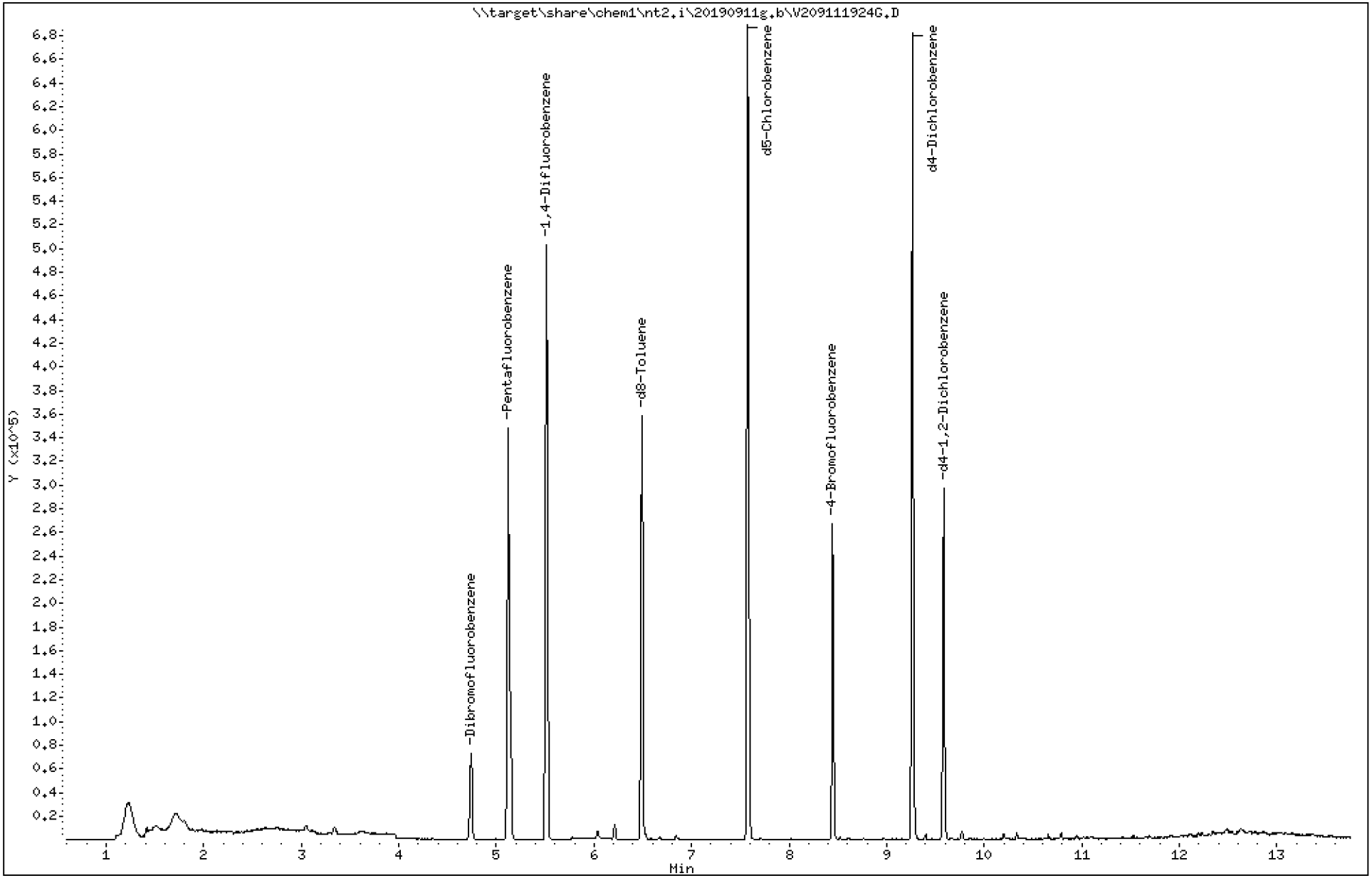
Sample Info: 19H0481-12

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111924G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 15:14

ARI ID: 19H0481-12
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	3	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	15511	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	15510	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	3	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	15512	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.577	875782	d5-Chlorobenzene
8.447	327029	4-Bromofluorobenzene
6.488	479944	d8-Toluene
9.268	889983	d4-Dichlorobenzene
9.584	378333	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-02-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-14 E	SDG:	19H0481
Sampled:	08/30/19 10:50	Prepared:	09/10/19 13:10	File ID:	V209101916G.D
% Solids:	73.22	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/10/19 16:18
Batch:	BHI0255	Sequence:	SHI0138	Initial/Final:	3.802 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	10800	U	5400	10800

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.04	101	80 - 120	
4-Bromofluorobenzene	5.0000	5.11	102	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101916G.D

Date : 10-SEP-2019 16:18

Client ID:

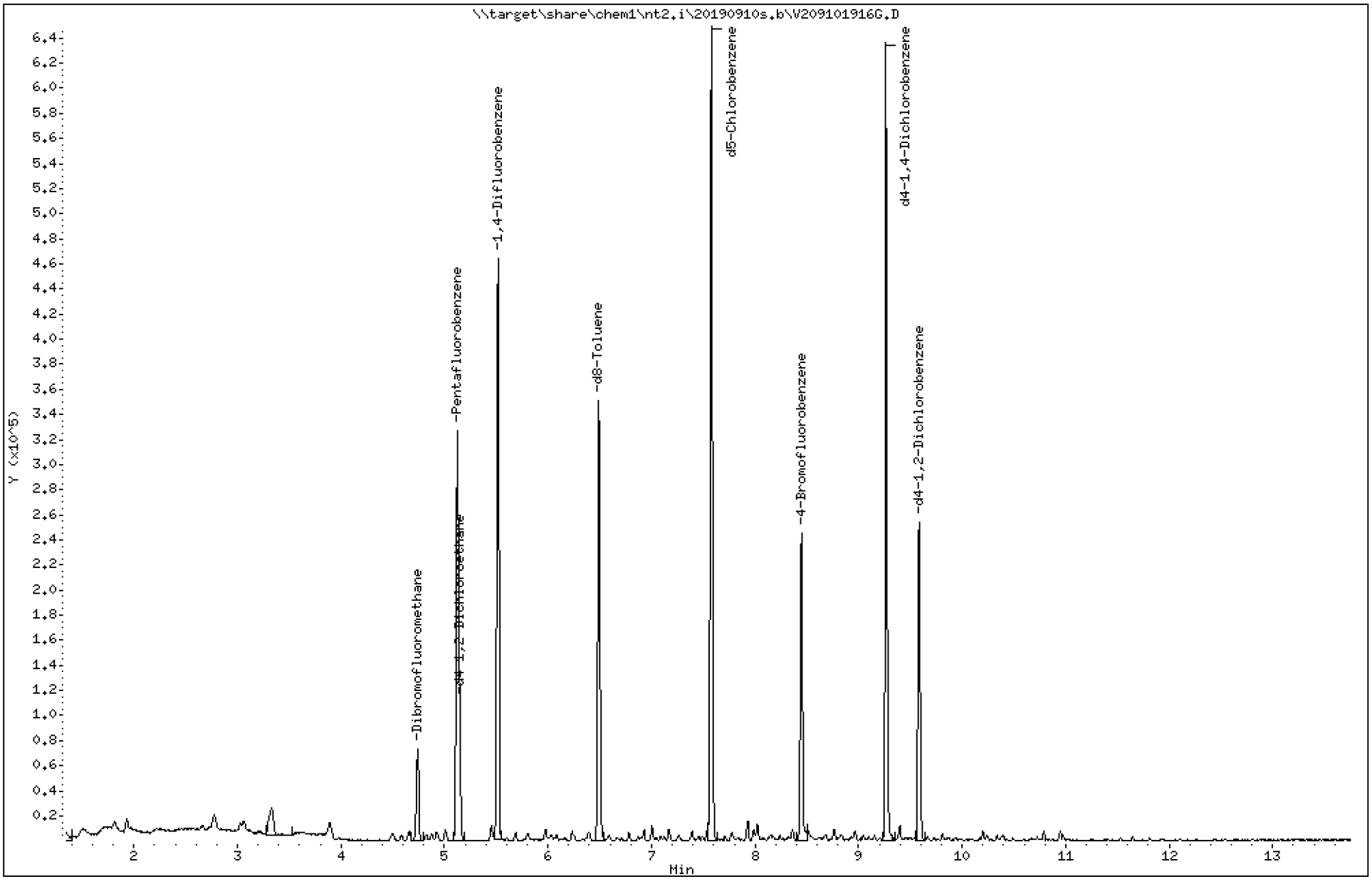
Sample Info: 19H0481-14

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101916G.D
Lab Smp Id: 19H0481-14
Inj Date : 10-SEP-2019 16:18
Operator : PKC   Inst ID: nt2.i
Smp Info : 19H0481-14
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.743	(0.925)	37573	4.71268	4.713
* 32 Pentafluorobenzene	168	5.121	5.132	(1.000)	161043	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.151	(1.005)	48021	5.22336	5.223
* 37 1,4-Difluorobenzene	114	5.517	5.522	(1.000)	280634	10.0000	
$ 43 d8-Toluene	98	6.490	6.495	(1.176)	172261	5.04432	5.044
* 53 d5-Chlorobenzene	117	7.579	7.578	(1.000)	267780	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.448	(1.115)	50434	5.11274	5.113
* 76 d4-1,4-Dichlorobenzene	152	9.264	9.263	(1.000)	129272	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.586	9.586	(1.035)	55976	4.68819	4.688

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101916G.D
Lab Smp Id: 19H0481-14
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	161043	-3.06
37 1,4-Difluorobenze	280906	140453	561812	280634	-0.10
53 d5-Chlorobenzene	262007	131004	524014	267780	2.20
76 d4-1,4-Dichlorobe	136773	68387	273546	129272	-5.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.22
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.09
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-14
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.713	94.25	
$ 33 d4-1,2-Dichloroeth	5.000	5.223	104.47	
$ 43 d8-Toluene	5.000	5.044	100.89	
$ 62 4-Bromofluorobenze	5.000	5.113	102.25	
$ 79 d4-1,2-Dichloroben	5.000	4.688	93.76	

REVIEW SUMMARY FOR FILE - V209101916G.D

Lab ID: 19H0481-14
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 16:18

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\W209101916G.D

Date : 10-SEP-2019 16:18

Client ID:

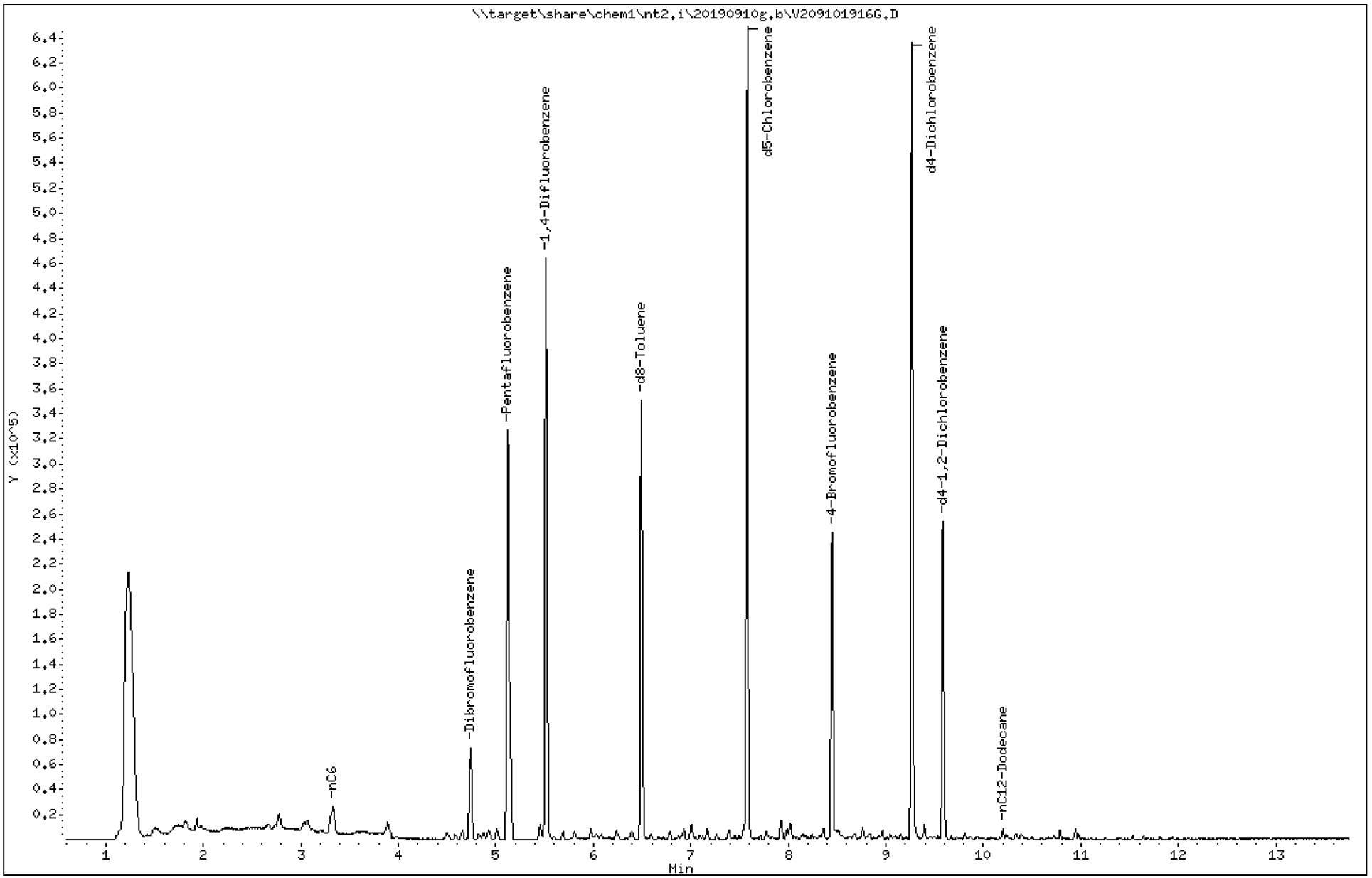
Sample Info: 19H0481-14

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101916G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 16:18

ARI ID: 19H0481-14
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	96825	0.004
8015C 2MP-TMB	(2.99 to 9.25)	42964079	167838	0.004
AK101 nC6-nC10	(3.24 to 8.42)	32820925	167837	0.005
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	96825	0.004
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	116062	0.003

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.579	835737	d5-Chlorobenzene
8.449	319376	4-Bromofluorobenzene
6.490	466966	d8-Toluene
9.265	811476	d4-Dichlorobenzene
9.587	346201	d4-1,2-Dichlorobenzene

P40-UST-03-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-16 E	SDG:	19H0481
Sampled:	08/30/19 12:10	Prepared:	09/05/19 13:58	File ID:	V309051922G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 20:41
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	777		13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.13	103	80 - 120	
4-Bromofluorobenzene	5.0000	4.79	95.8	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519226.D

Date : 05-SEP-2019 20:41

Client ID:

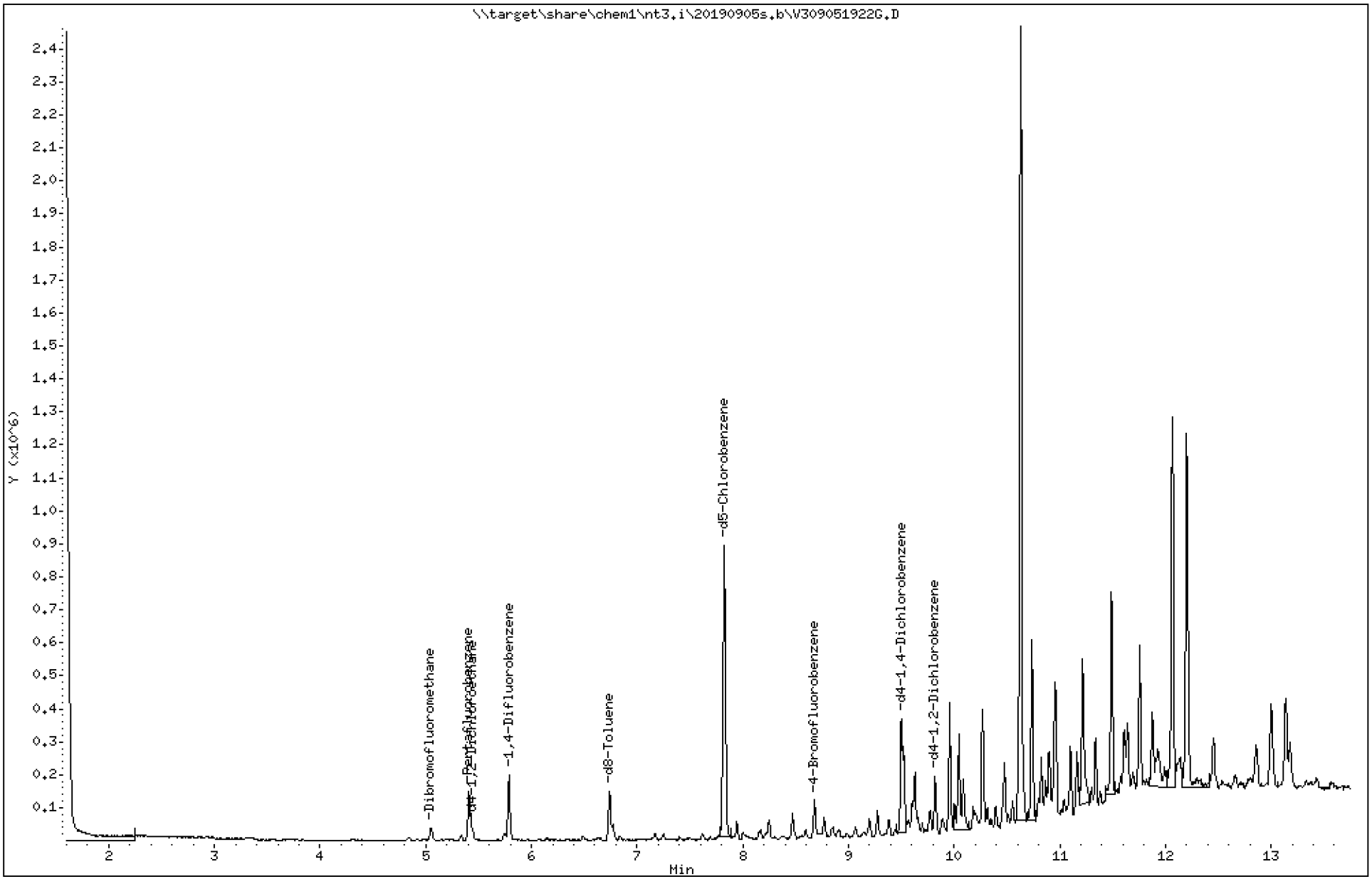
Sample Info: 19H0481-16

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051922G.D
Lab Smp Id: 19H0481-16
Inj Date : 05-SEP-2019 20:41
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-16
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.047	5.053	(0.933)	17343	4.98000	4.980
*	32 Pentafluorobenzene	168	5.408	5.409	(1.000)	80541	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.440	5.441	(1.006)	20138	5.19024	5.190
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	118505	10.0000	
$	43 d8-Toluene	98	6.737	6.738	(1.164)	73485	5.12586	5.126
*	53 d5-Chlorobenzene	117	7.816	7.812	(1.000)	124703	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.111)	28369	4.78750	4.787
*	76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	75872	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	36871	5.17205	5.172

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051922G.D
Lab Smp Id: 19H0481-16
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	80541	-16.88
37 1,4-Difluorobenze	140121	70061	280242	118505	-15.43
53 d5-Chlorobenzene	140128	70064	280256	124703	-11.01
76 d4-1,4-Dichlorobe	90137	45069	180274	75872	-15.83

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.82	0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-16
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.980	99.60	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.190	103.80	80-128
$ 43 d8-Toluene	5.000	5.126	102.52	80-120
$ 62 4-Bromofluorobenze	5.000	4.787	95.75	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.172	103.44	80-120

REVIEW SUMMARY FOR FILE - V309051922G.D

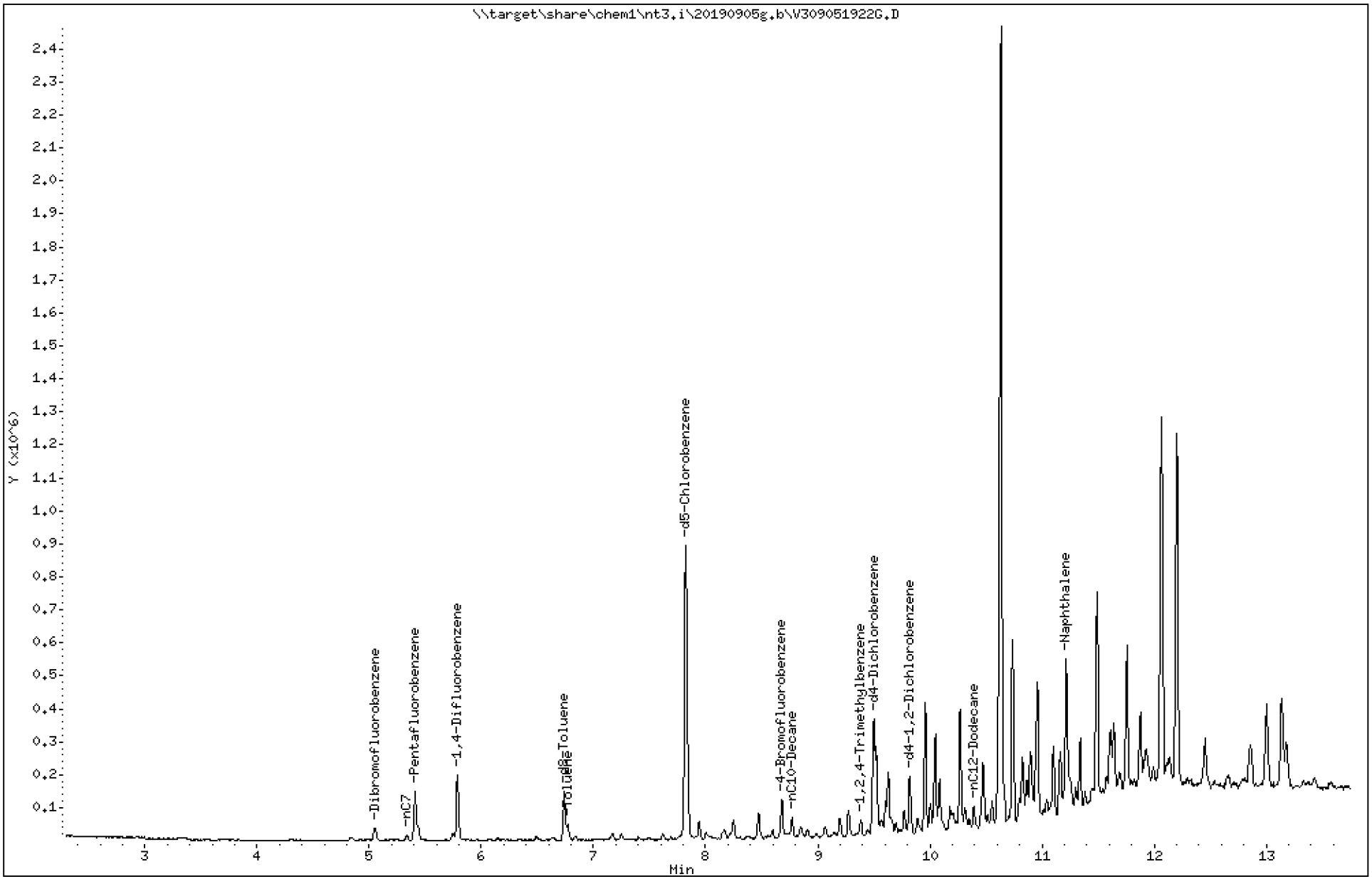
Lab ID: 19H0481-16
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 20:41

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V3090519226.D
Date : 05-SEP-2019 20:41
Client ID:
Sample Info: 19H0481-16

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051922G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 20:41

ARI ID: 19H0481-16
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.68 to 10.53)	15876360	5373798	0.338	M
8015C 2MP-TMB	(2.94 to 9.46)	32687243	1758017	0.054	M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	1031025	0.052	M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	13408139	0.777	M
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	5508814	0.240	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

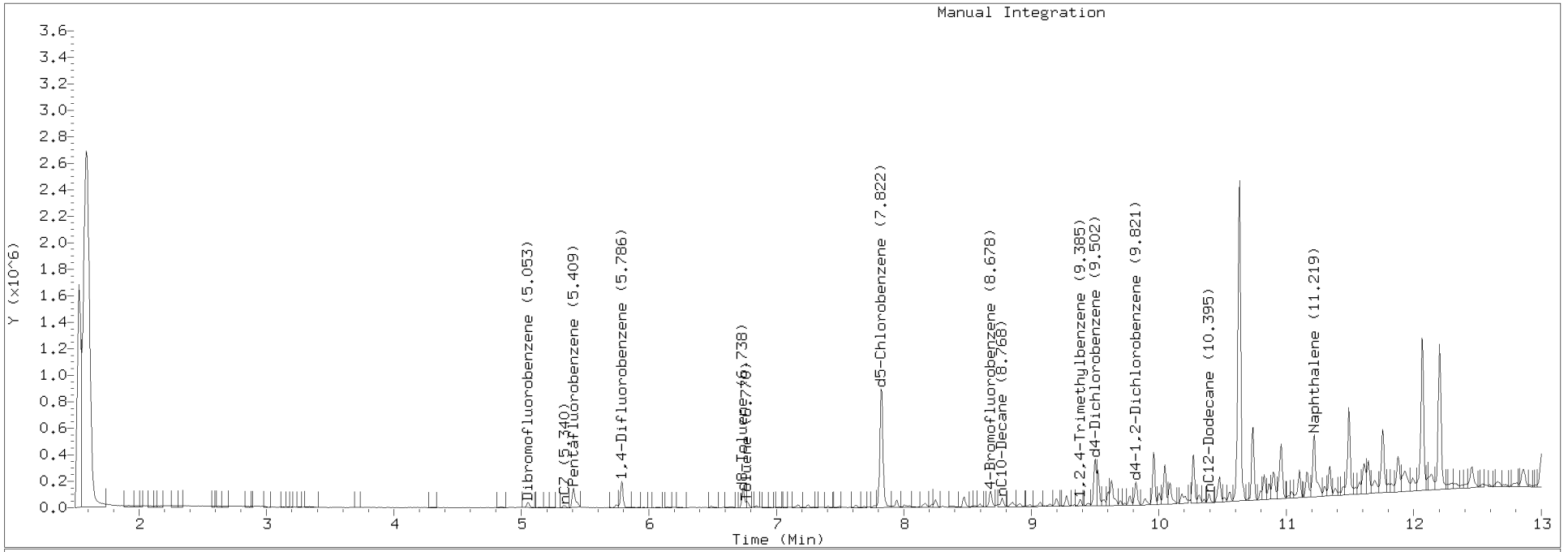
NW Gas Range Subtracted Peaks

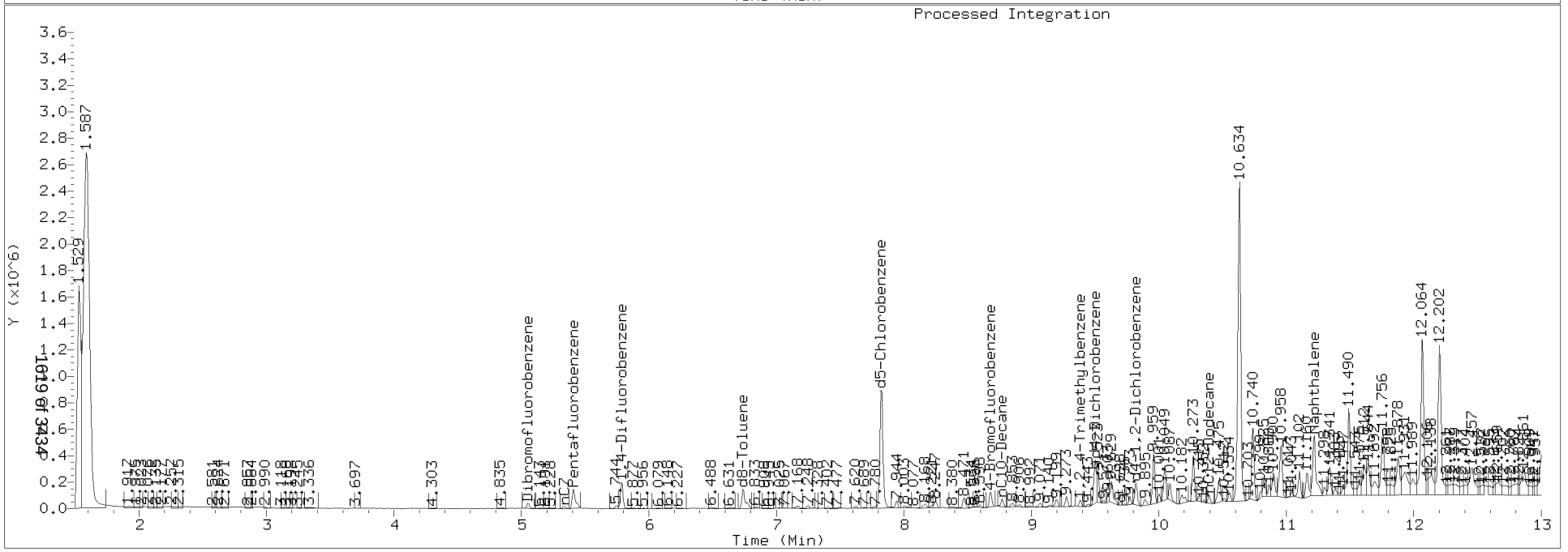
7.822	1575265	d5-Chlorobenzene
6.738	227223	d8-Toluene
9.502	522920	d4-Dichlorobenzene
8.678	188030	4-Bromofluorobenzene
9.821	261783	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190905g.b/V309051922G.D Injection: 05-SEP-2019 20:41

Lab ID:19H0481-16





P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-18 E	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/10/19 13:10	File ID:	V209101917G.D
% Solids:	94.62	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/10/19 16:39
Batch:	BHI0255	Sequence:	SHI0138	Initial/Final:	3.592 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	10300		3820	7640

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.07	101	80 - 120	
4-Bromofluorobenzene	5.0000	5.04	101	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101917G.D

Date : 10-SEP-2019 16:39

Client ID:

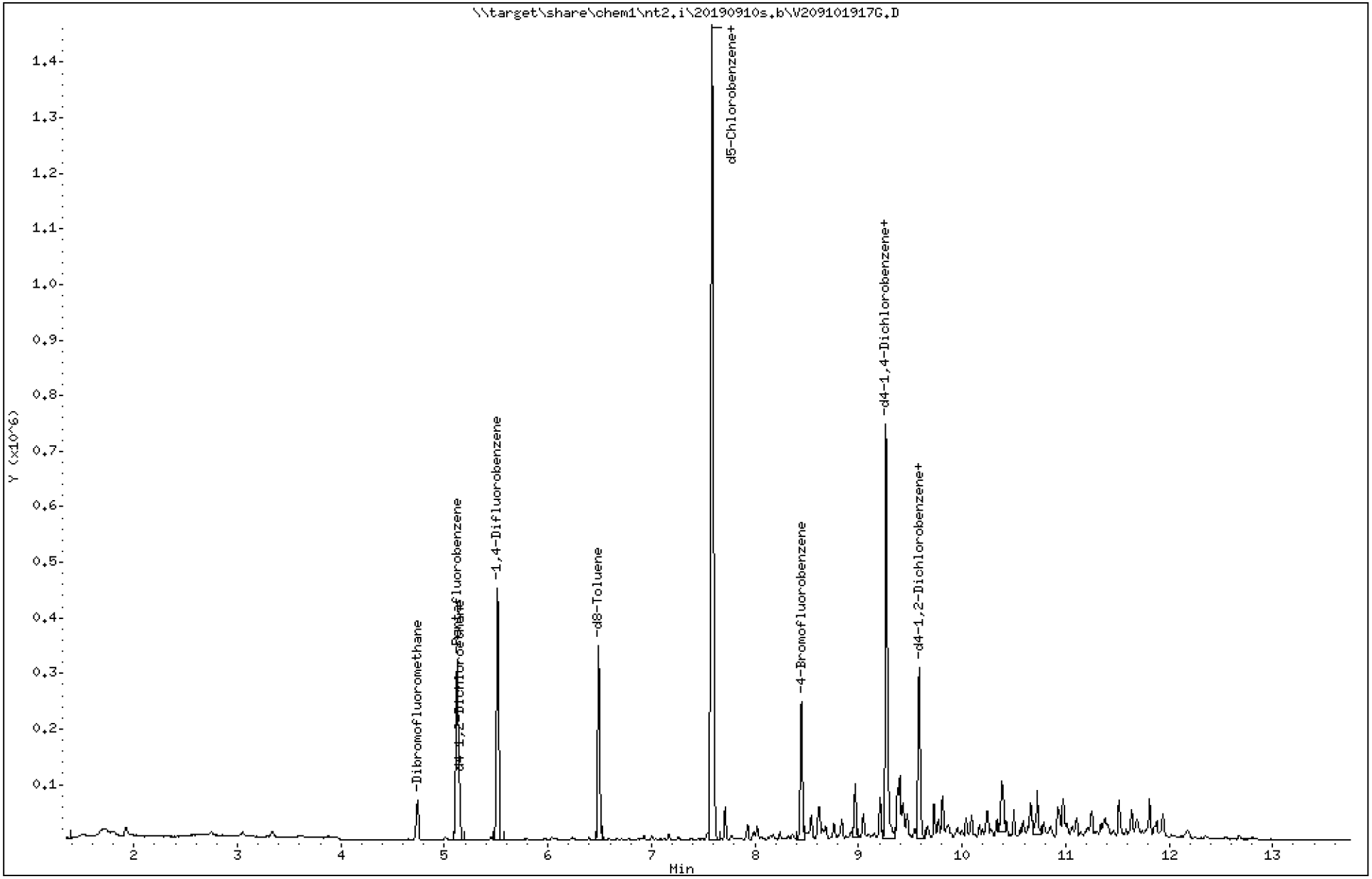
Sample Info: 19H0481-18

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101917G.D
Lab Smp Id: 19H0481-18
Inj Date : 10-SEP-2019 16:39
Operator : PKC   Inst ID: nt2.i
Smp Info : 19H0481-18
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.743	(0.925)	36108	4.61370	4.614
* 32 Pentafluorobenzene	168	5.122	5.132	(1.000)	158084	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.151	(1.005)	46277	5.12788	5.128
* 37 1,4-Difluorobenzene	114	5.511	5.522	(1.000)	273470	10.0000	
$ 43 d8-Toluene	98	6.490	6.495	(1.178)	168637	5.06756	5.068
* 53 d5-Chlorobenzene	117	7.579	7.578	(1.000)	275055	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.448	(1.115)	51101	5.04334	5.043
* 76 d4-1,4-Dichlorobenzene	152	9.264	9.263	(1.000)	134386	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.586	(1.035)	59788	4.81690	4.817

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101917G.D
Lab Smp Id: 19H0481-18
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	158084	-4.84
37 1,4-Difluorobenze	280906	140453	561812	273470	-2.65
53 d5-Chlorobenzene	262007	131004	524014	275055	4.98
76 d4-1,4-Dichlorobe	136773	68387	273546	134386	-1.75

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.21
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.20
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.02
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-18
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.614	92.27	
$ 33 d4-1,2-Dichloroeth	5.000	5.128	102.56	
$ 43 d8-Toluene	5.000	5.068	101.35	
$ 62 4-Bromofluorobenze	5.000	5.043	100.87	
$ 79 d4-1,2-Dichloroben	5.000	4.817	96.34	

REVIEW SUMMARY FOR FILE - V209101917G.D

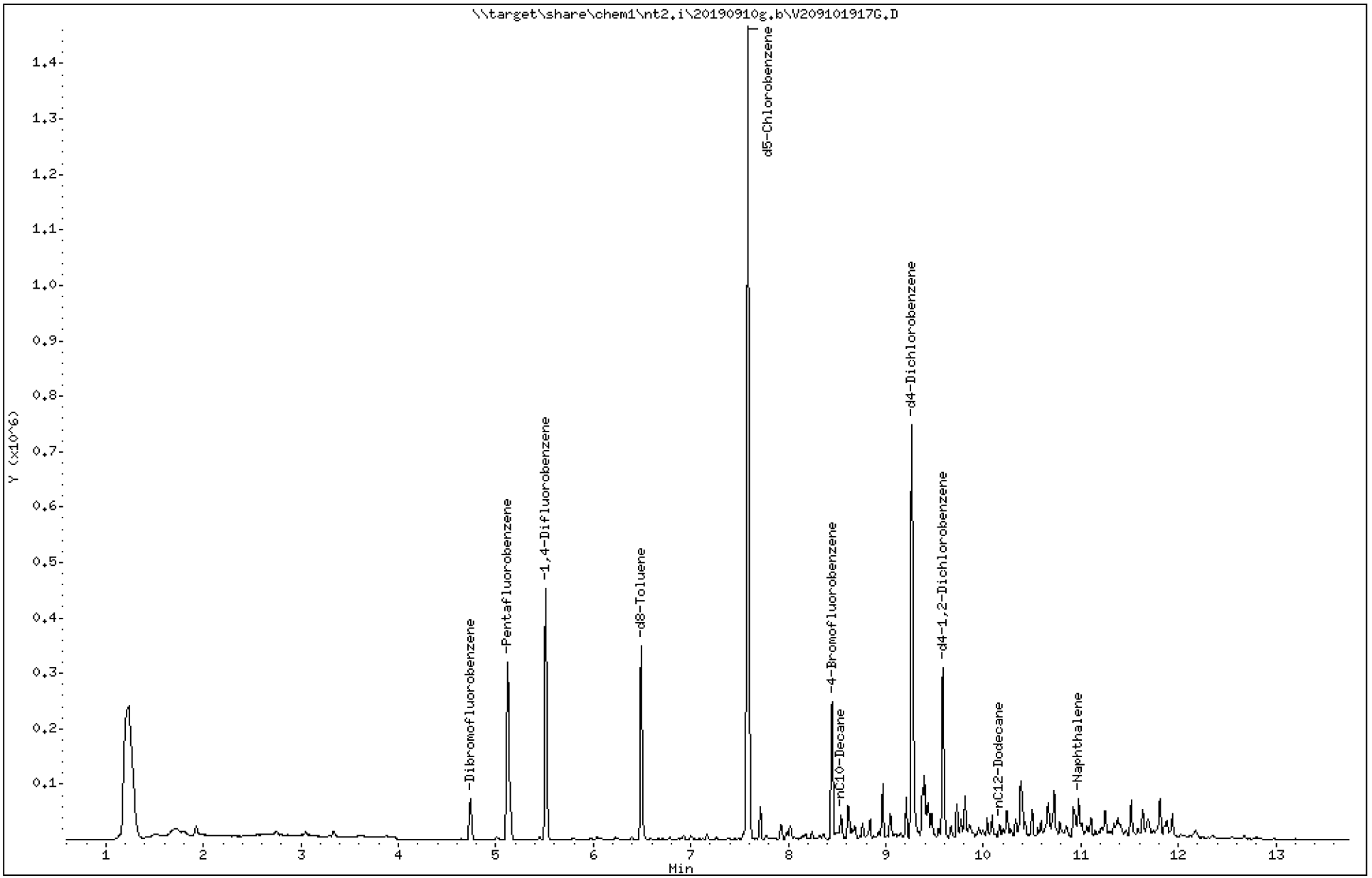
Lab ID: 19H0481-18
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 16:39

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101917G.D
Date : 10-SEP-2019 16:39
Client ID:
Sample Info: 19H0481-18

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101917G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 16:39

ARI ID: 19H0481-18
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	2293747	0.092	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	969626	0.023	M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	244496	0.007	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	3504499	0.134	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	2293749	0.065	M

* Surrogate areas are subtracted from Total Area

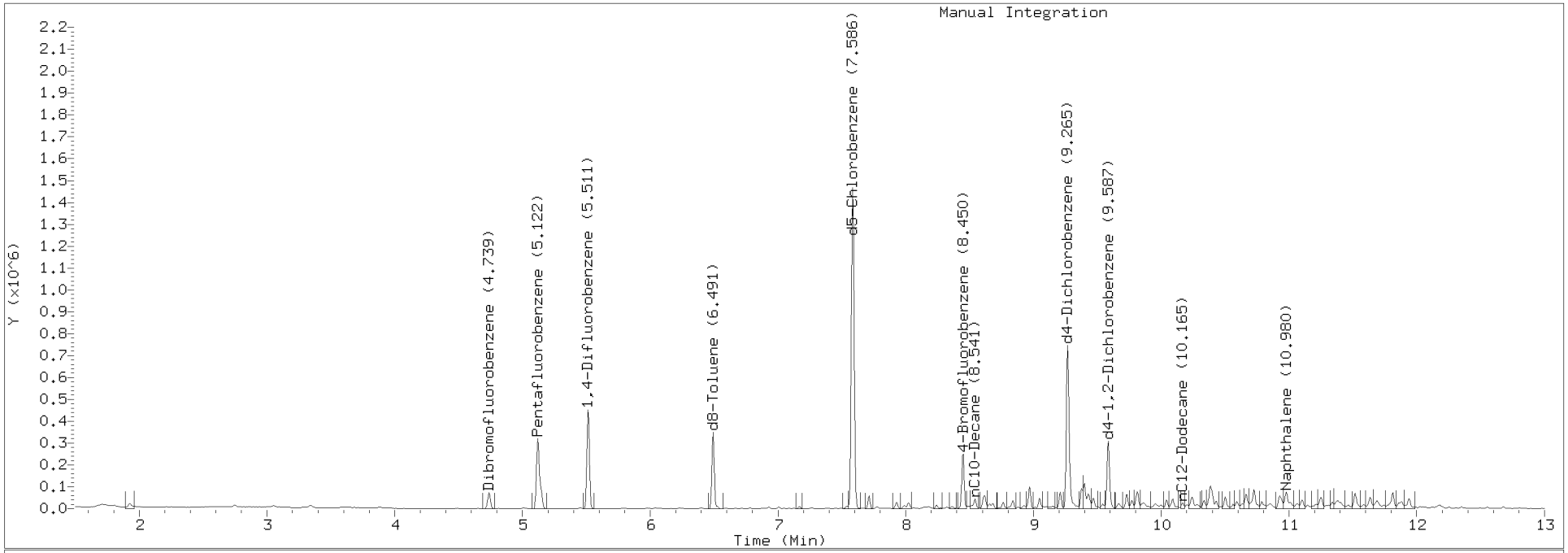
NW Gas Range Subtracted Peaks

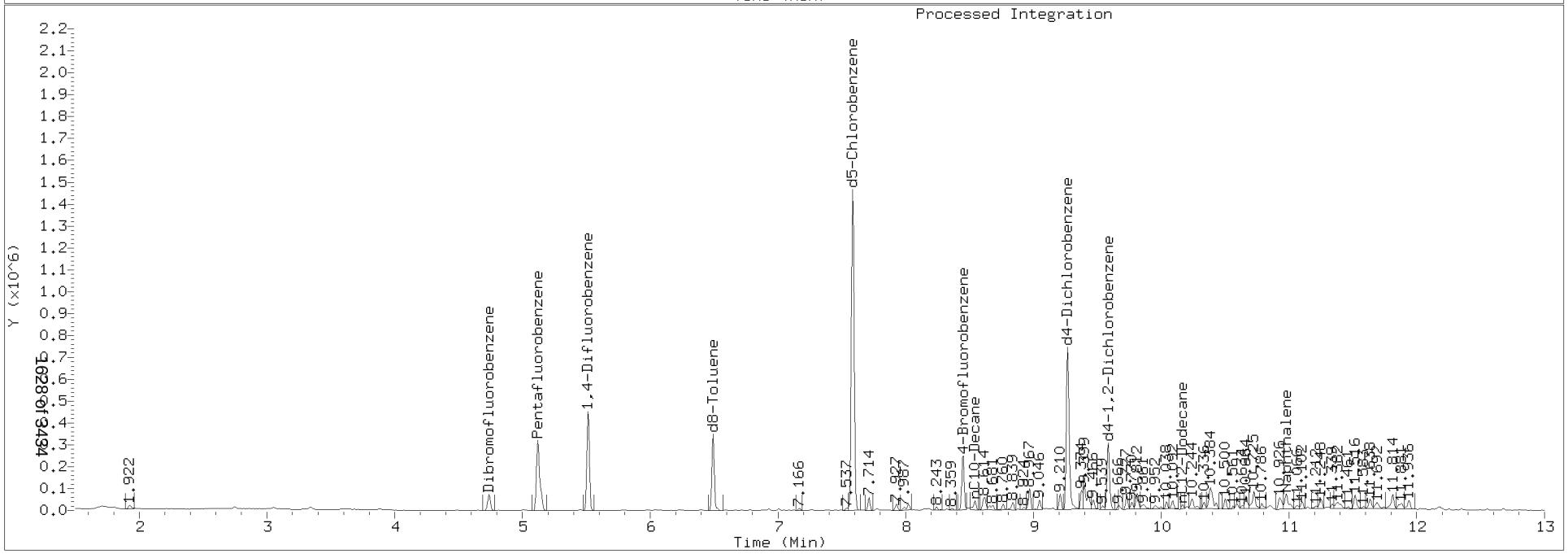
7.586	2327999	d5-Chlorobenzene
8.450	336184	4-Bromofluorobenzene
6.491	460841	d8-Toluene
9.265	1191497	d4-Dichlorobenzene
9.587	458216	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101917G.D Injection: 10-SEP-2019 16:39

Lab ID:19H0481-18





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-8'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPHg
Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-20 F	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/12/19 07:26	File ID:	V209121915G.D
% Solids:	68.73	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/12/19 11:35
Batch:	BHI0335	Sequence:	SHI0187	Initial/Final:	3.908 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	10000	21800000	D	1160000	2320000

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.02	100	80 - 120	
4-Bromofluorobenzene	5.0000	5.03	101	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121915G.D

Date : 12-SEP-2019 11:35

Client ID:

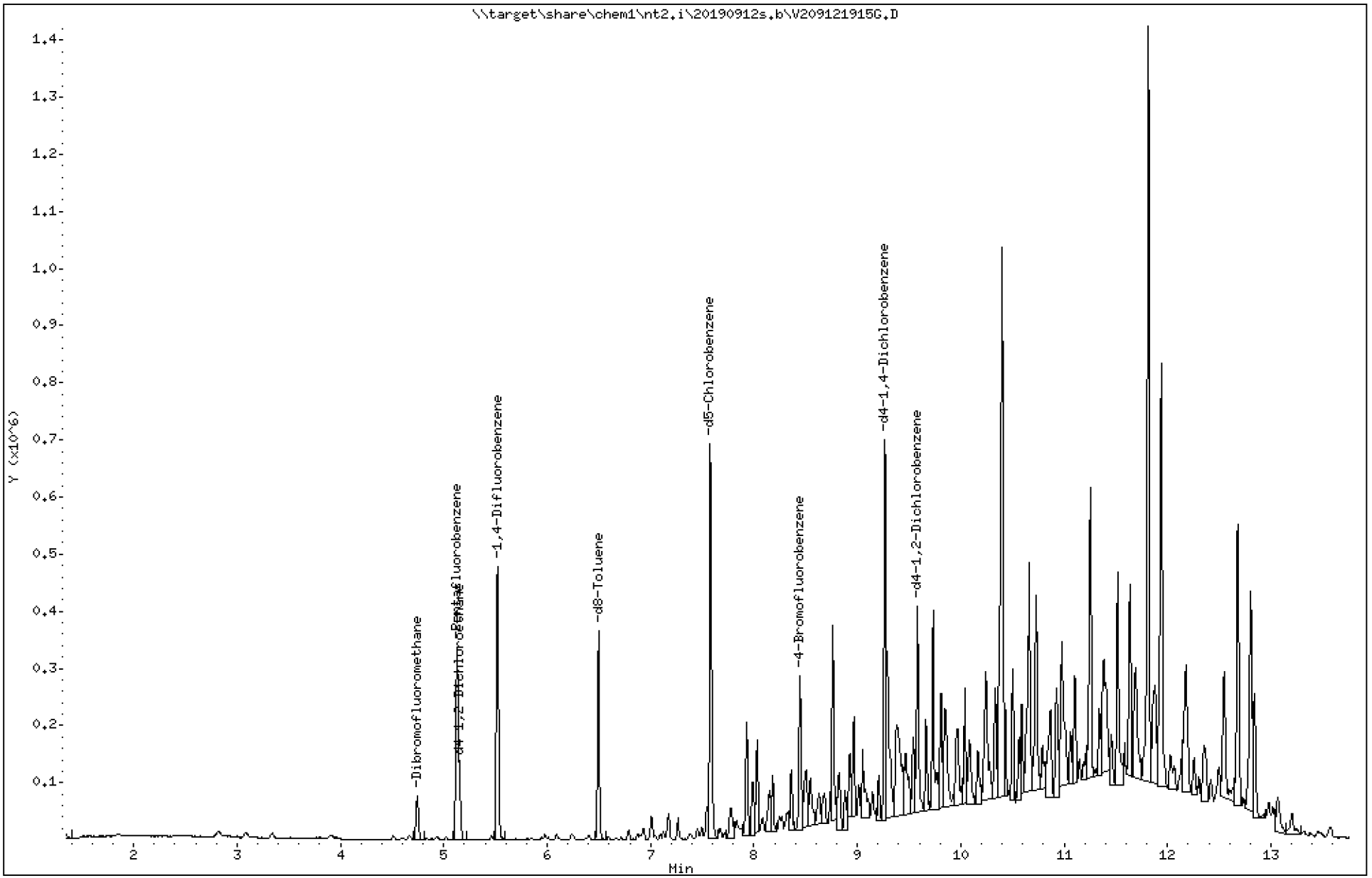
Sample Info: 19H0481-20, 4.5uL

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121915G.D
Lab Smp Id: 19H0481-20
Inj Date : 12-SEP-2019 11:35
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-20, 4.5uL
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 47
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.742	(0.924)	39269	4.65103	4.651
* 32 Pentafluorobenzene	168	5.131	5.132	(1.000)	170543	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.150	(1.004)	49875	5.12283	5.123
* 37 1,4-Difluorobenzene	114	5.521	5.521	(1.000)	293300	10.0000	
$ 43 d8-Toluene	98	6.494	6.494	(1.176)	179236	5.02191	5.022
* 53 d5-Chlorobenzene	117	7.577	7.577	(1.000)	269517	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.447	(1.115)	49989	5.03496	5.035
* 76 d4-1,4-Dichlorobenzene	152	9.262	9.262	(1.000)	137794	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.585	(1.035)	63489	4.98857	4.989

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121915G.D
Lab Smp Id: 19H0481-20
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	170543	2.66
37 1,4-Difluorobenze	280906	140453	561812	293300	4.41
53 d5-Chlorobenzene	262007	131004	524014	269517	2.87
76 d4-1,4-Dichlorobe	136773	68387	273546	137794	0.75

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.00
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.00
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.00
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-20
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.651	93.02	
$ 33 d4-1,2-Dichloroeth	5.000	5.123	102.46	
$ 43 d8-Toluene	5.000	5.022	100.44	
$ 62 4-Bromofluorobenze	5.000	5.035	100.70	
$ 79 d4-1,2-Dichloroben	5.000	4.989	99.77	

REVIEW SUMMARY FOR FILE - V209121915G.D

Lab ID: 19H0481-20
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 11:35

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121915G.D

Date : 12-SEP-2019 11:35

Client ID:

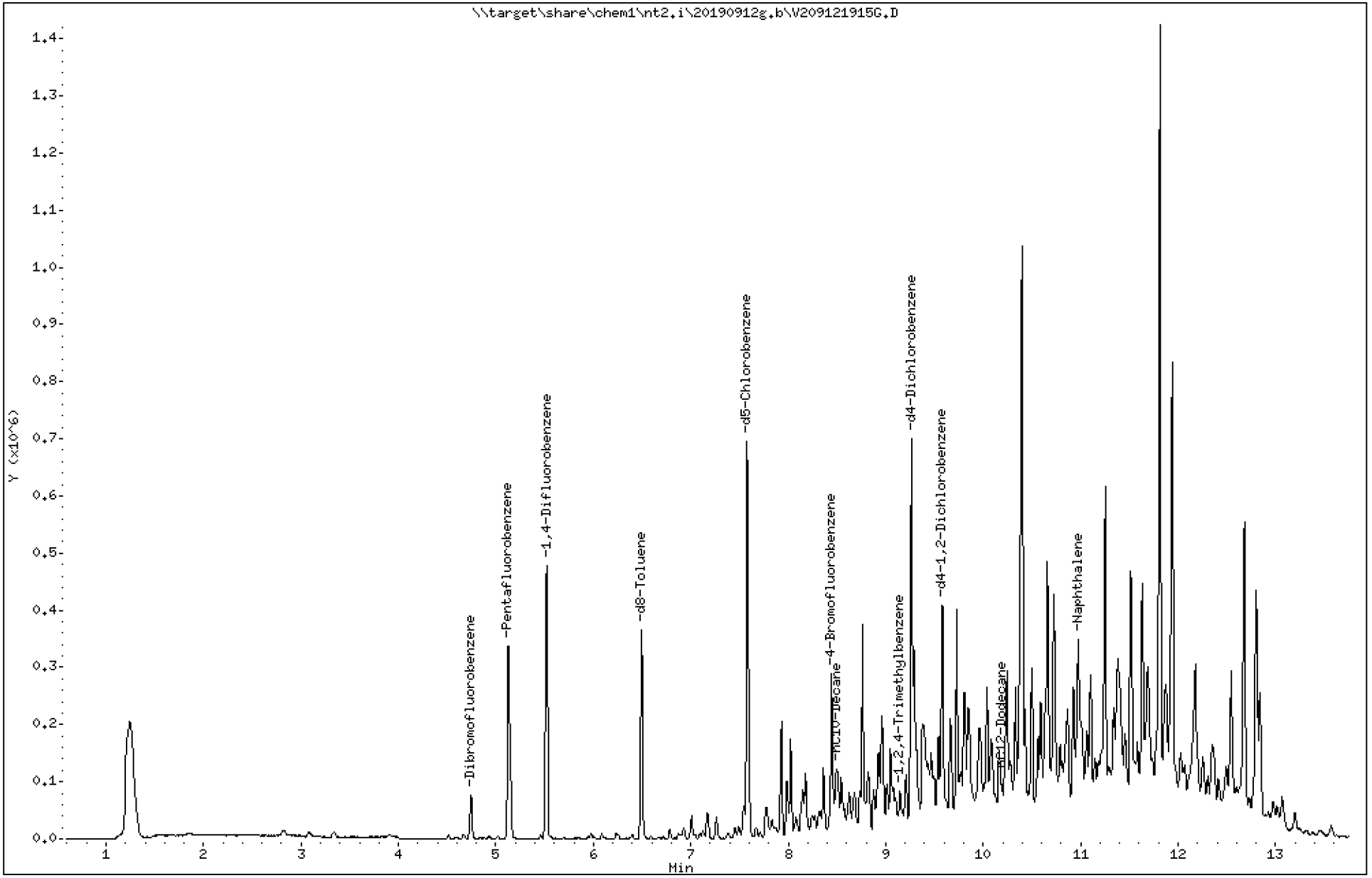
Sample Info: 19H0481-20, 4.5uL

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121915G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 11:35

ARI ID: 19H0481-20
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	14631490	0.586 M
8015C 2MP-TMB	(2.98 to 9.26)	42964079	6443114	0.150 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2451324	0.075 M
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	24539789	0.940 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	14665023	0.416 M

* Surrogate areas are subtracted from Total Area

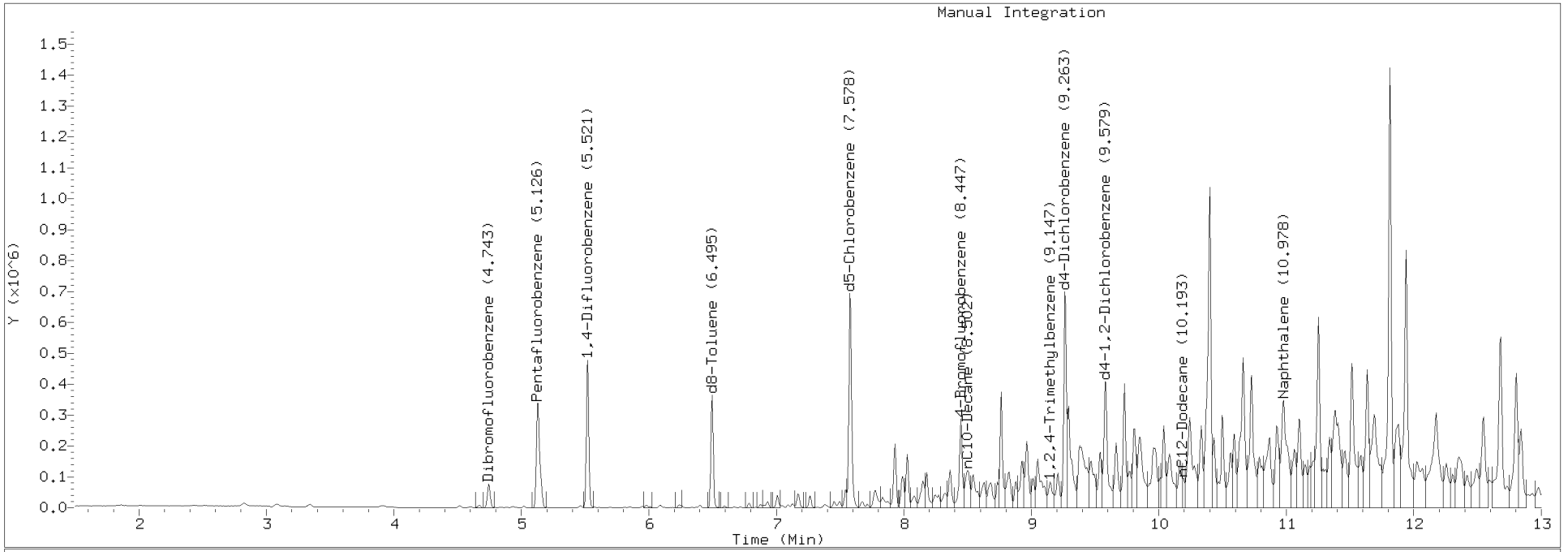
NW Gas Range Subtracted Peaks

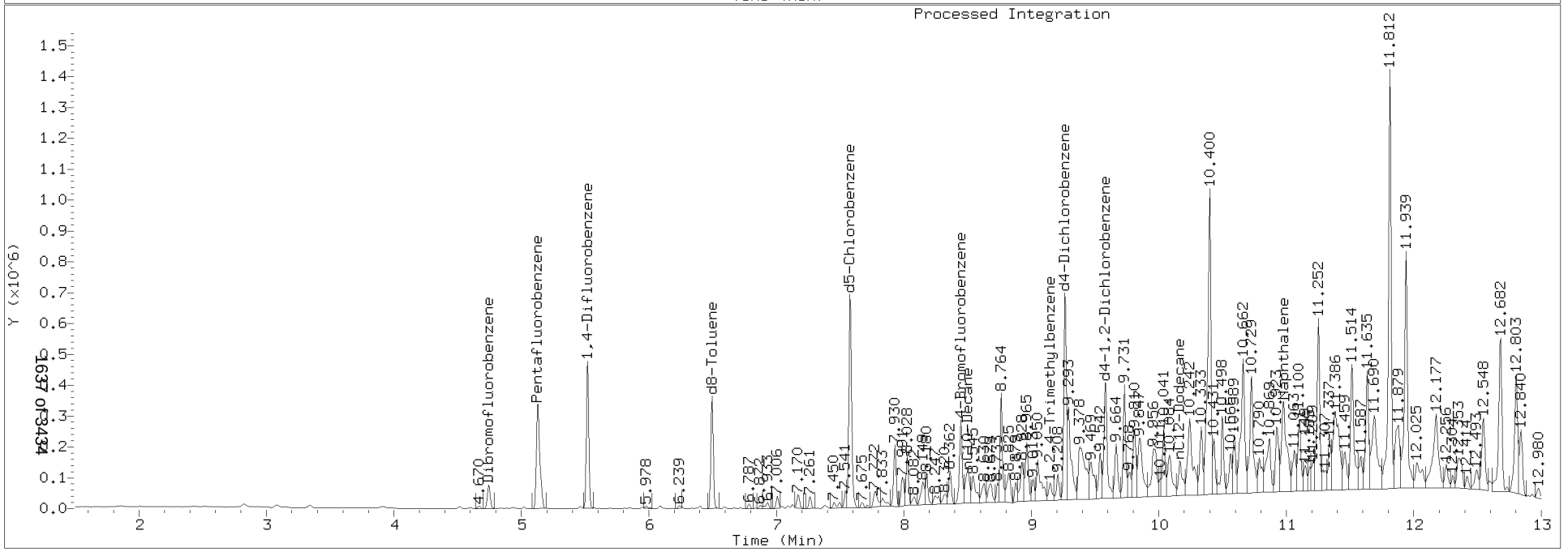
7.578	1053221	d5-Chlorobenzene
8.447	492320	4-Bromofluorobenzene
6.495	484146	d8-Toluene
9.263	1039927	d4-Dichlorobenzene
9.579	874056	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190912g.b/V209121915G.D Injection: 12-SEP-2019 11:35

Lab ID:19H0481-20





P40-UST-04-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-22 D	SDG:	19H0481
Sampled:	08/30/19 12:25	Prepared:	09/05/19 13:58	File ID:	V309051923G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 21:08
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	153		13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.93	98.6	80 - 120	
4-Bromofluorobenzene	5.0000	4.90	98.1	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519236.D

Date : 05-SEP-2019 21:08

Client ID:

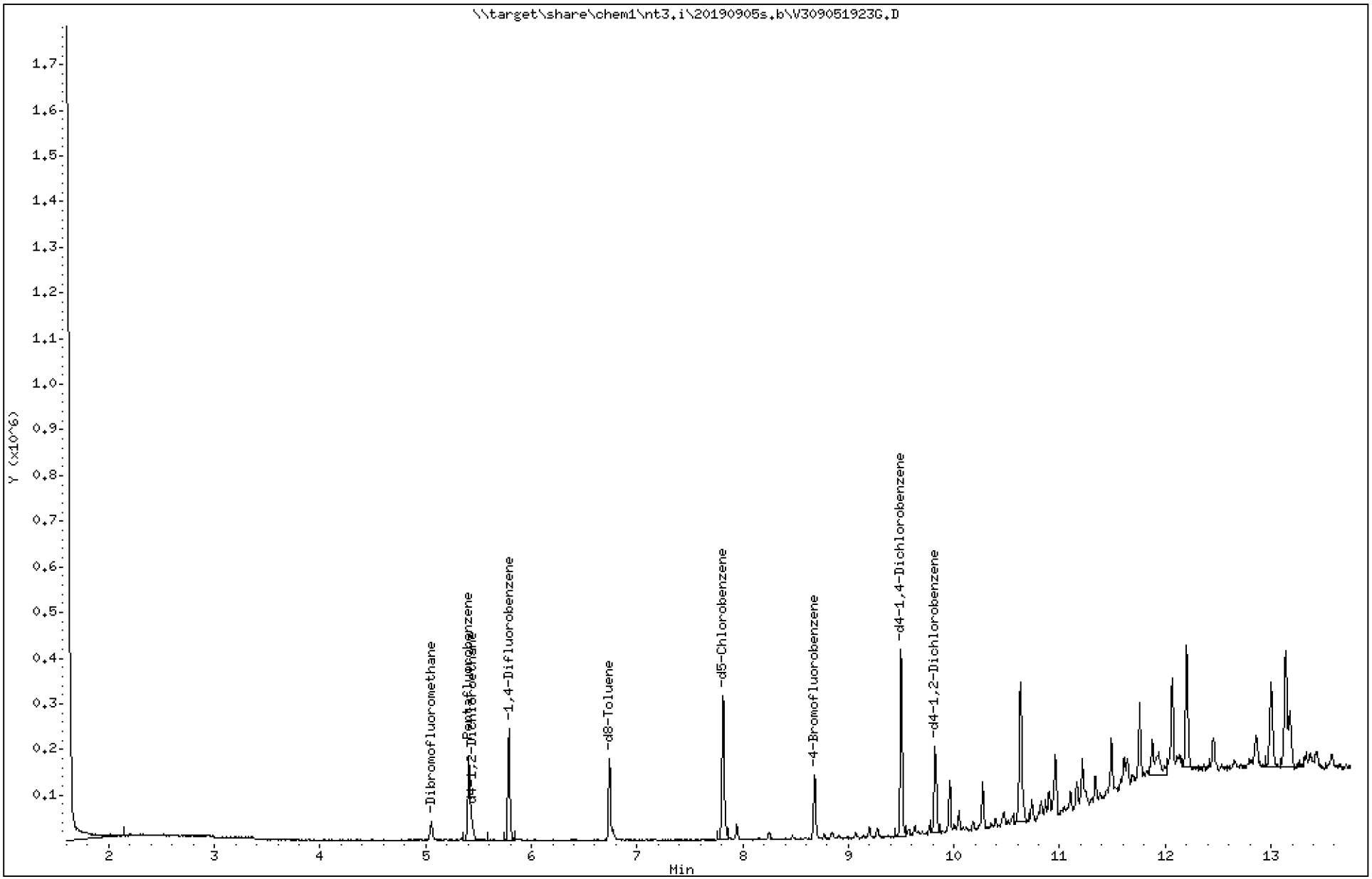
Instrument: nt3.i

Sample Info: 19H0481-22

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051923G.D
Lab Smp Id: 19H0481-22
Inj Date : 05-SEP-2019 21:08
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-22
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	21287	4.86288	4.863
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	101238	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.441	(1.005)	23597	4.83839	4.838
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	149291	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	89004	4.92811	4.928
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	145840	10.0000	
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	33985	4.90402	4.904
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	91792	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.816	9.821	(1.034)	45673	5.29558	5.296

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051923G.D
Lab Smp Id: 19H0481-22
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	101238	4.48
37 1,4-Difluorobenze	140121	70061	280242	149291	6.54
53 d5-Chlorobenzene	140128	70064	280256	145840	4.08
76 d4-1,4-Dichlorobe	90137	45069	180274	91792	1.84

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-22
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.863	97.26	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.838	96.77	80-128
$ 43 d8-Toluene	5.000	4.928	98.56	80-120
$ 62 4-Bromofluorobenze	5.000	4.904	98.08	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.296	105.91	80-120

REVIEW SUMMARY FOR FILE - V309051923G.D

Lab ID: 19H0481-22
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 21:08

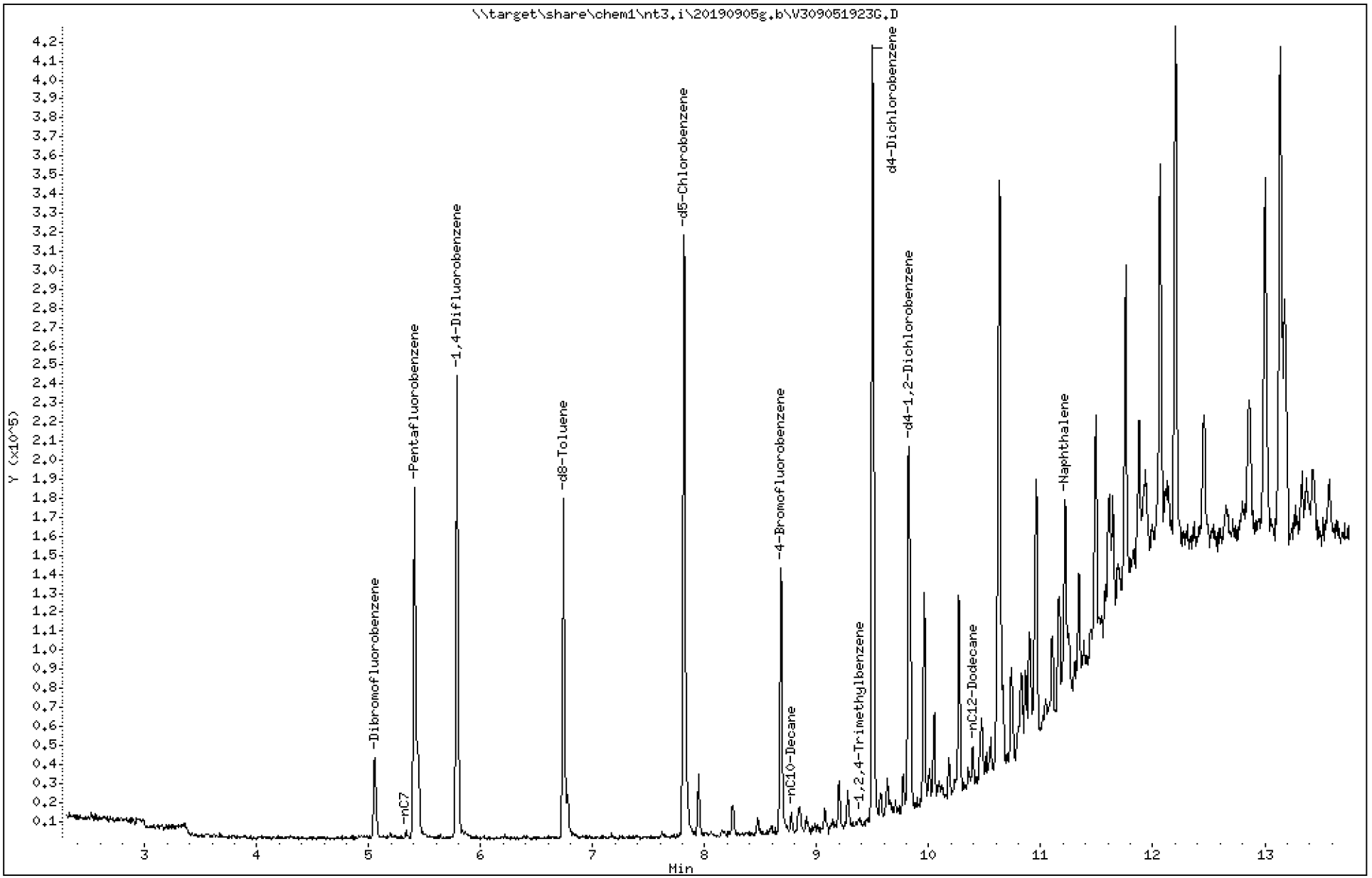
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\W309051923G.D
Date : 05-SEP-2019 21:08
Client ID:
Sample Info: 19H0481-22

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051923G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 21:08

ARI ID: 19H0481-22
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	983552	0.062
8015C 2MP-TMB	(2.94 to 9.46)	32687243	356864	0.011
AK101 nC6-nC10	(3.69 to 8.64)	19977596	123116	0.006
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	2638504	0.153
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	990944	0.043

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.813	503474	d5-Chlorobenzene
6.739	267884	d8-Toluene
9.498	578915	d4-Dichlorobenzene
8.679	209017	4-Bromofluorobenzene
9.822	345667	d4-1,2-Dichlorobenzene

P40-UST-04-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-24 E	SDG:	19H0481
Sampled:	08/30/19 11:30	Prepared:	09/10/19 13:10	File ID:	V209101919G.D
% Solids:	94.94	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/10/19 17:19
Batch:	BHI0255	Sequence:	SHI0138	Initial/Final:	3.684 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	7410	U	3710	7410

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.03	101	80 - 120	
4-Bromofluorobenzene	5.0000	5.21	104	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101919G.D

Date : 10-SEP-2019 17:19

Client ID:

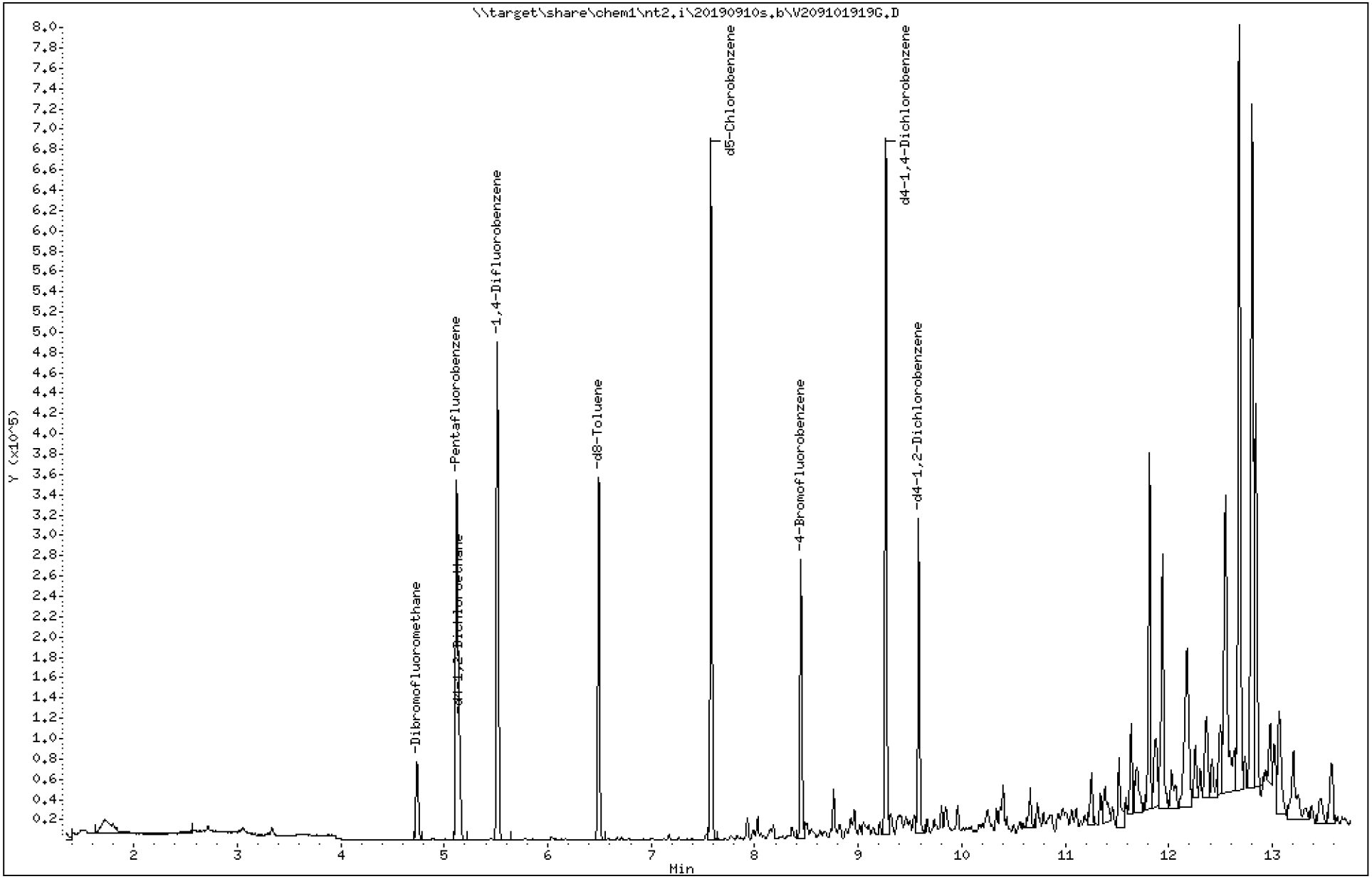
Sample Info: 19H0481-24

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101919G.D
Lab Smp Id: 19H0481-24
Inj Date : 10-SEP-2019 17:19
Operator : PKC   Inst ID: nt2.i
Smp Info : 19H0481-24
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.736	4.743	(0.925)	39225	4.54389	4.544
* 32 Pentafluorobenzene	168	5.119	5.132	(1.000)	174369	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.143	5.151	(1.005)	51066	5.13007	5.130
* 37 1,4-Difluorobenzene	114	5.515	5.522	(1.000)	300407	10.0000	
$ 43 d8-Toluene	98	6.488	6.495	(1.176)	183988	5.03310	5.033
* 53 d5-Chlorobenzene	117	7.577	7.578	(1.000)	285211	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.448	(1.115)	54751	5.21115	5.211
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.263	(1.000)	142150	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.586	(1.034)	62558	4.76479	4.765

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101919G.D
Lab Smp Id: 19H0481-24
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	174369	4.97
37 1,4-Difluorobenze	280906	140453	561812	300407	6.94
53 d5-Chlorobenzene	262007	131004	524014	285211	8.86
76 d4-1,4-Dichlorobe	136773	68387	273546	142150	3.93

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.26
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.13
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.02
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-24
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.544	90.88	
$ 33 d4-1,2-Dichloroeth	5.000	5.130	102.60	
$ 43 d8-Toluene	5.000	5.033	100.66	
$ 62 4-Bromofluorobenze	5.000	5.211	104.22	
$ 79 d4-1,2-Dichloroben	5.000	4.765	95.30	

REVIEW SUMMARY FOR FILE - V209101919G.D

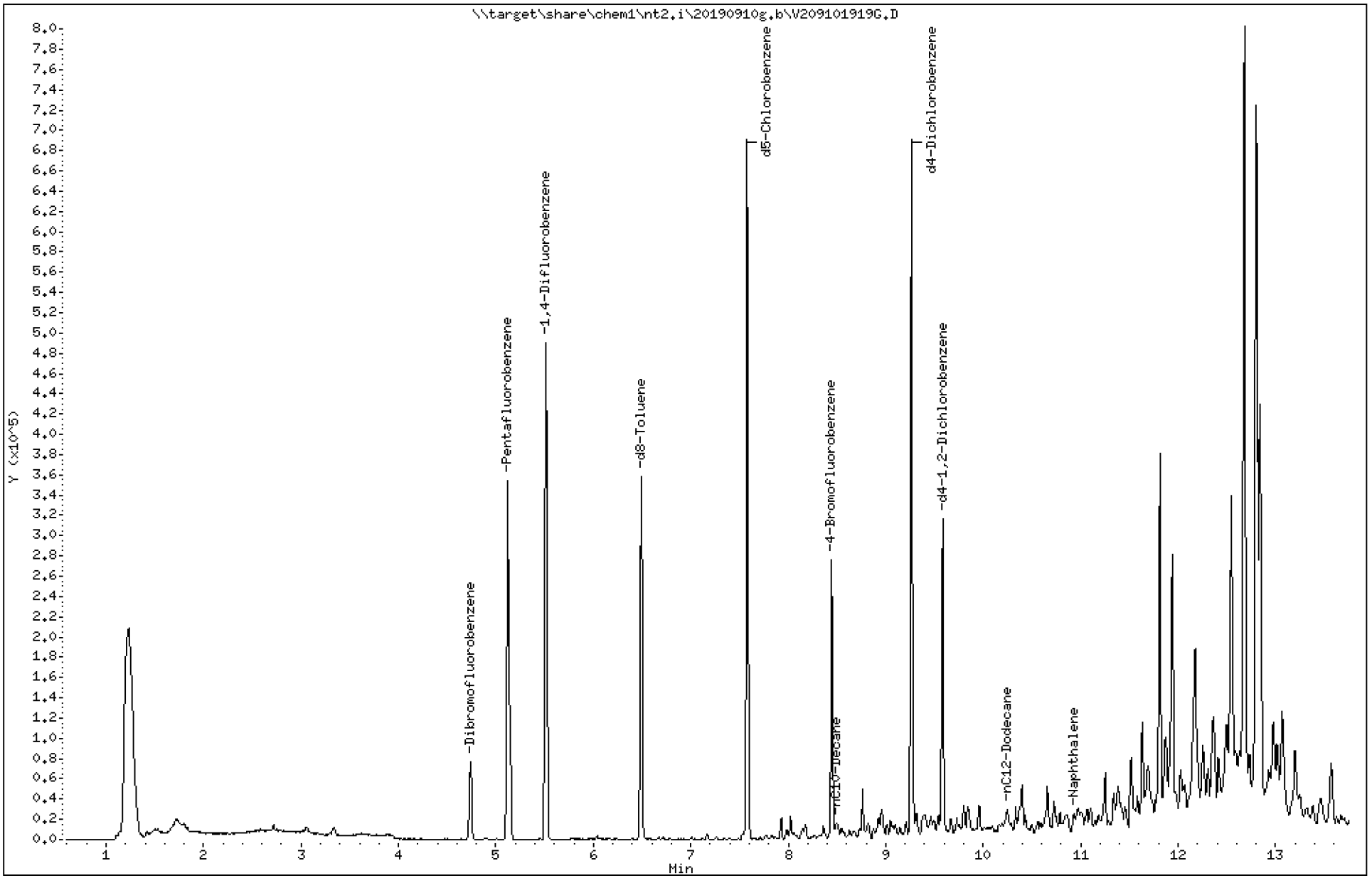
Lab ID: 19H0481-24
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 17:19

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101919G.D
Date : 10-SEP-2019 17:19
Client ID:
Sample Info: 19H0481-24

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101919G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 17:19

ARI ID: 19H0481-24
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	972013	0.039 M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	387905	0.009 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	107325	0.003
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	1628381	0.062 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	972014	0.028 M

* Surrogate areas are subtracted from Total Area

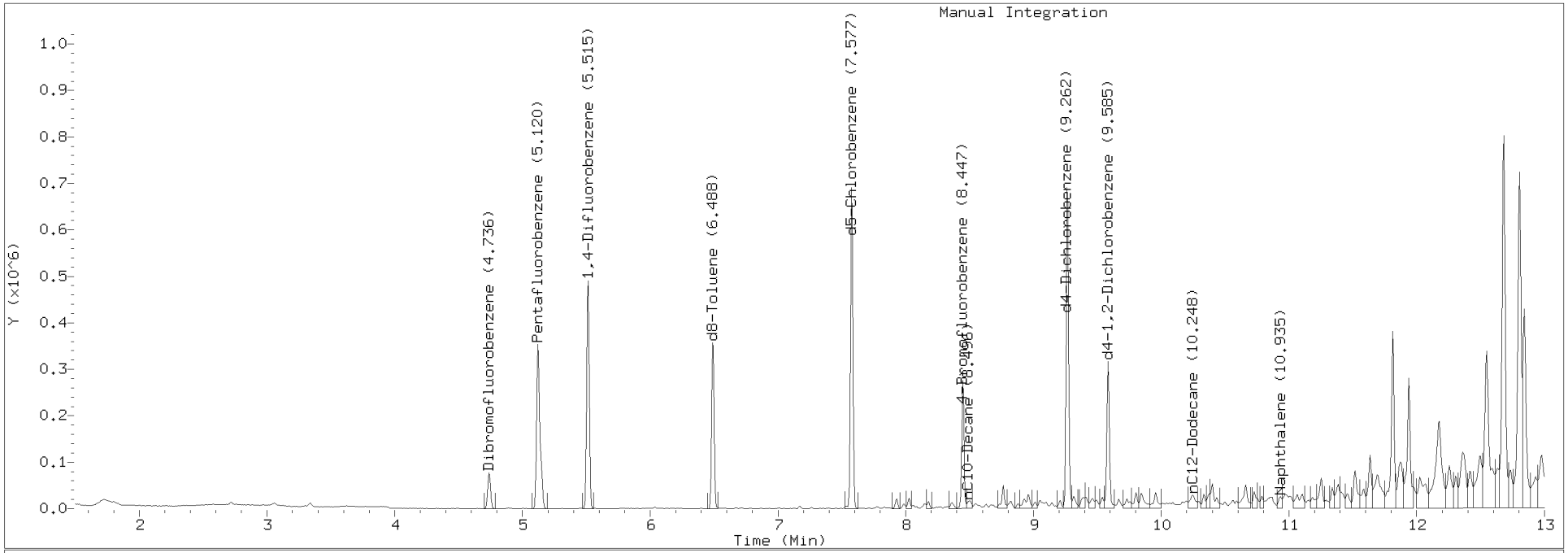
NW Gas Range Subtracted Peaks

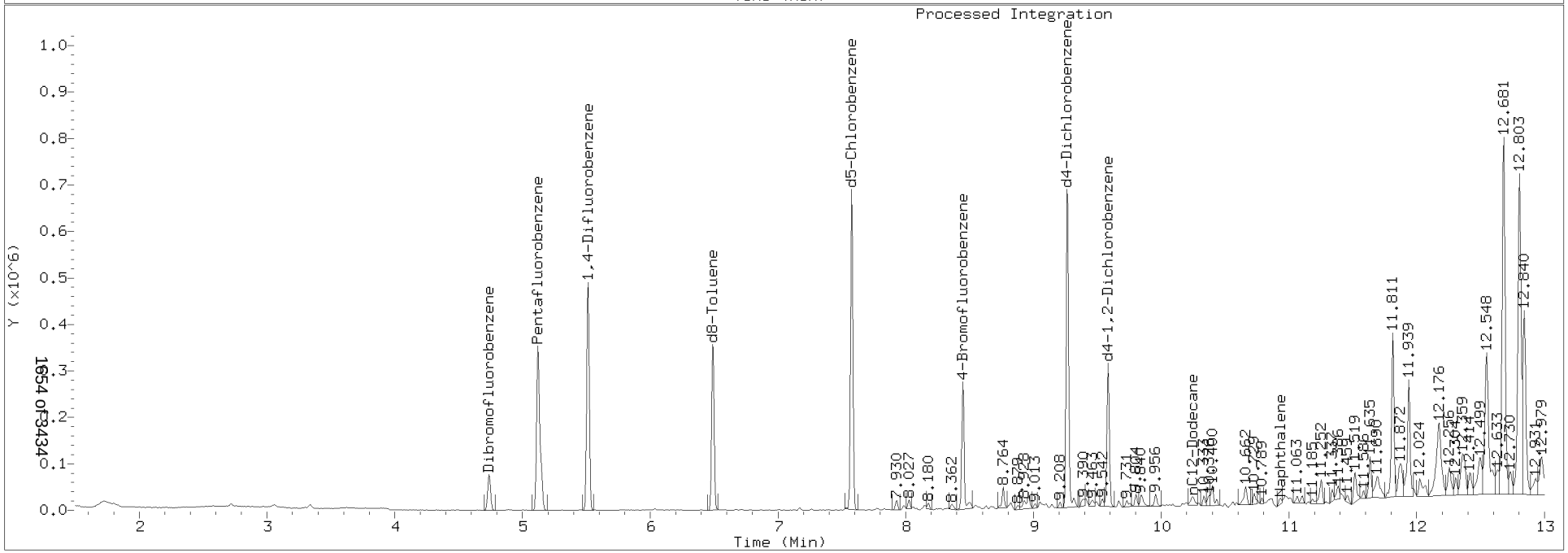
7.577	890309	d5-Chlorobenzene
8.447	359919	4-Bromofluorobenzene
6.488	486384	d8-Toluene
9.262	928769	d4-Dichlorobenzene
9.585	446518	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101919G.D Injection: 10-SEP-2019 17:19

Lab ID:19H0481-24





P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-26 E	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/12/19 07:26	File ID:	V209121916G.D
% Solids:	74.69	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/12/19 11:55
Batch:	BHI0335	Sequence:	SHI0187	Initial/Final:	4.407 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	500	841000	D	46400	92900

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.00	100	80 - 120	
4-Bromofluorobenzene	5.0000	4.94	98.9	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121916G.D

Date : 12-SEP-2019 11:55

Client ID:

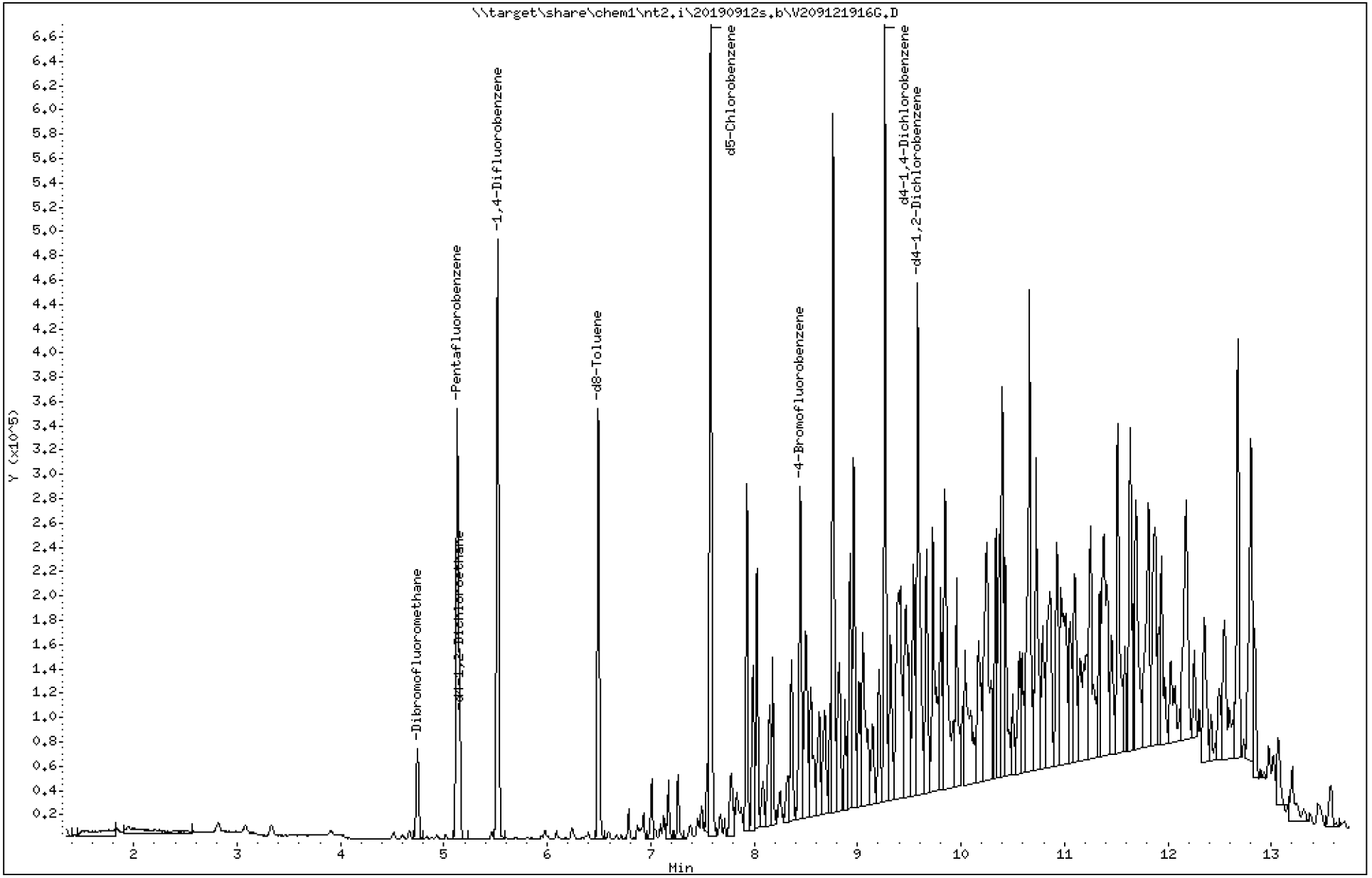
Instrument: nt2.i

Sample Info: 19H0481-26, 90uL

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121916G.D
Lab Smp Id: 19H0481-26
Inj Date : 12-SEP-2019 11:55
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-26, 90uL
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 48
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.739	4.742	(0.924)	38833	4.62083	4.621
* 32 Pentafluorobenzene	168	5.129	5.132	(1.000)	169752	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.150	(1.005)	51086	5.27167	5.272
* 37 1,4-Difluorobenzene	114	5.518	5.521	(1.000)	293580	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	178724	5.00279	5.003
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	272660	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	49644	4.94258	4.943
* 76 d4-1,4-Dichlorobenzene	152	9.266	9.262	(1.000)	133593	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.582	9.585	(1.034)	62500	5.06529	5.065

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121916G.D
Lab Smp Id: 19H0481-26
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	169752	2.19
37 1,4-Difluorobenze	280906	140453	561812	293580	4.51
53 d5-Chlorobenzene	262007	131004	524014	272660	4.07
76 d4-1,4-Dichlorobe	136773	68387	273546	133593	-2.33

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-26
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.621	92.42	
$ 33 d4-1,2-Dichloroeth	5.000	5.272	105.43	
$ 43 d8-Toluene	5.000	5.003	100.06	
$ 62 4-Bromofluorobenze	5.000	4.943	98.85	
$ 79 d4-1,2-Dichloroben	5.000	5.065	101.31	

REVIEW SUMMARY FOR FILE - V209121916G.D

Lab ID: 19H0481-26
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 11:55

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121916G.D

Date : 12-SEP-2019 11:55

Client ID:

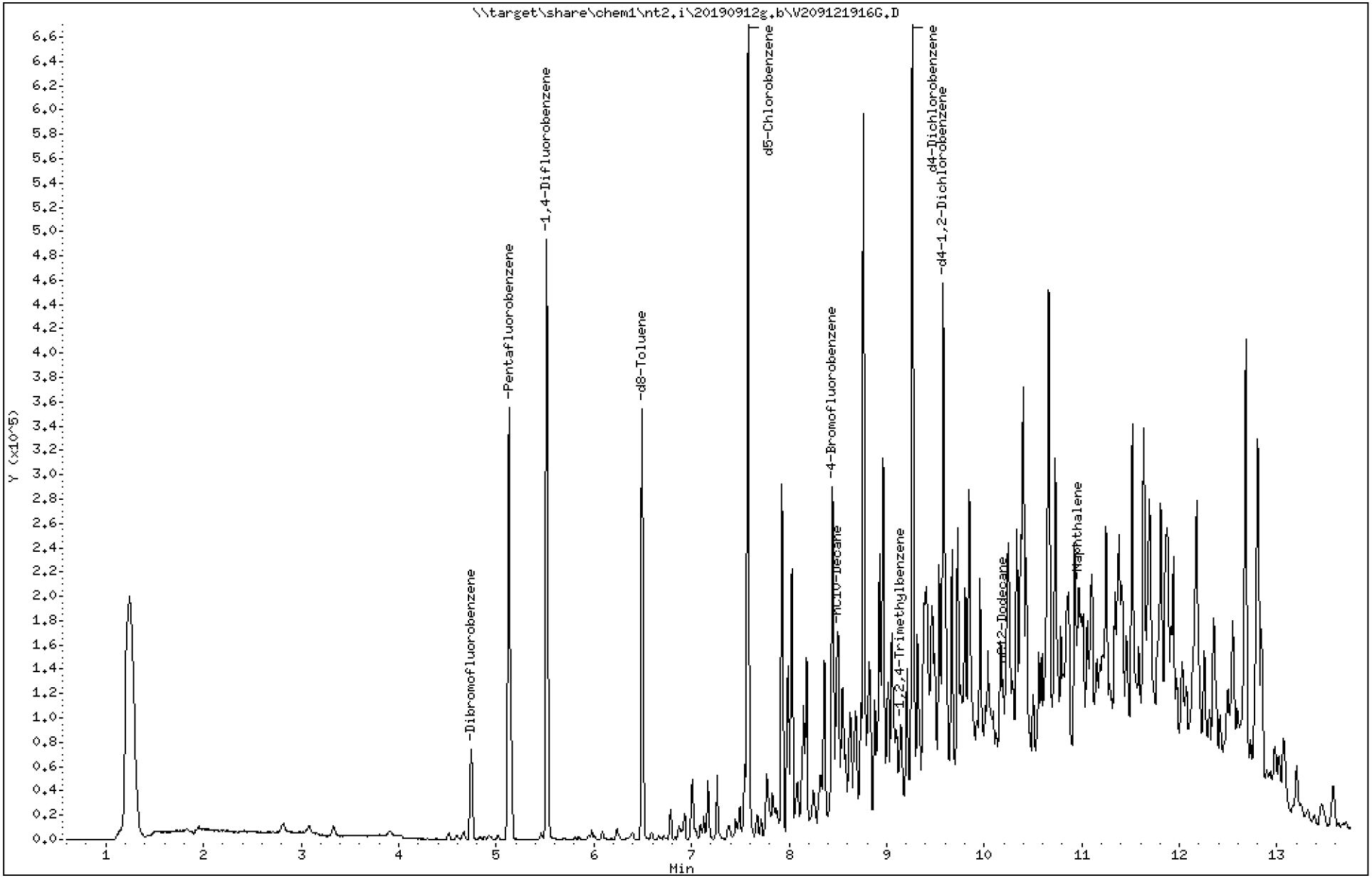
Sample Info: 19H0481-26, 90uL

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121916G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 11:55

ARI ID: 19H0481-26
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	15594829	0.624 M
8015C 2MP-TMB	(2.98 to 9.26)	42964079	8019538	0.187 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2773710	0.085 M
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	23642425	0.905 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	15610216	0.443 M

* Surrogate areas are subtracted from Total Area

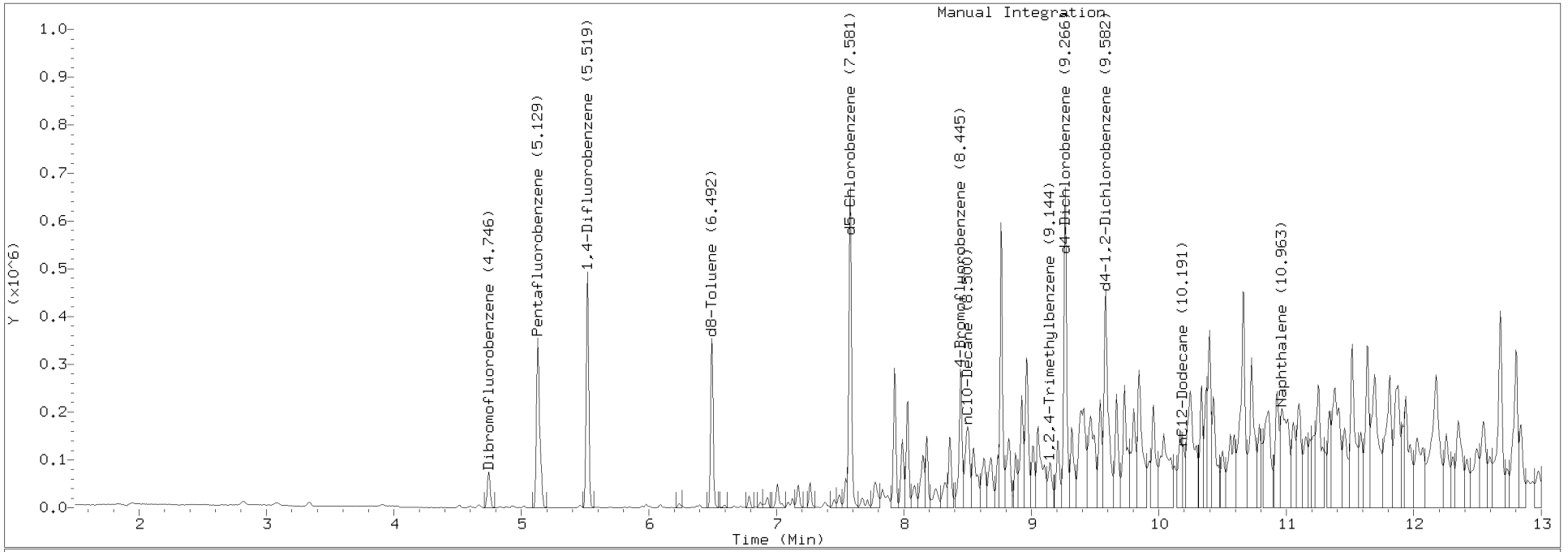
NW Gas Range Subtracted Peaks

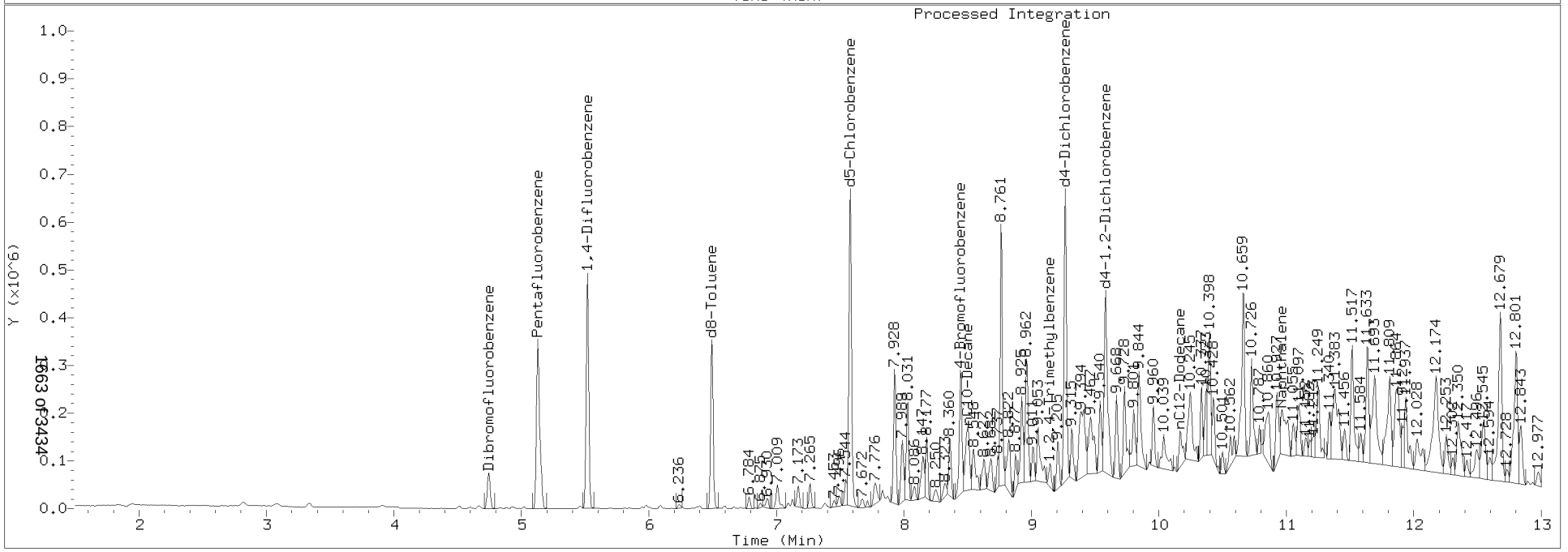
7.581	963686	d5-Chlorobenzene
8.445	501793	4-Bromofluorobenzene
6.492	481836	d8-Toluene
9.266	1070320	d4-Dichlorobenzene
9.582	1111164	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190912g.b/V209121916G.D Injection: 12-SEP-2019 11:55

Lab ID:19H0481-26





P40-UST-05-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-28 D	SDG:	19H0481
Sampled:	08/30/19 14:10	Prepared:	09/05/19 13:58	File ID:	V309051924G.D
% Solids:		Preparation:	EPA 5030 (Purge and Trap)	Analyzed:	09/05/19 21:35
Batch:	BHI0133	Sequence:	SHI0097	Initial/Final:	10 mL / 10 ml
Instrument:	NT3	Column:	RTX-VMS	Calibration:	CI00022

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.97	99.5	80 - 120	
4-Bromofluorobenzene	5.0000	4.99	99.9	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519246.D

Date : 05-SEP-2019 21:35

Client ID:

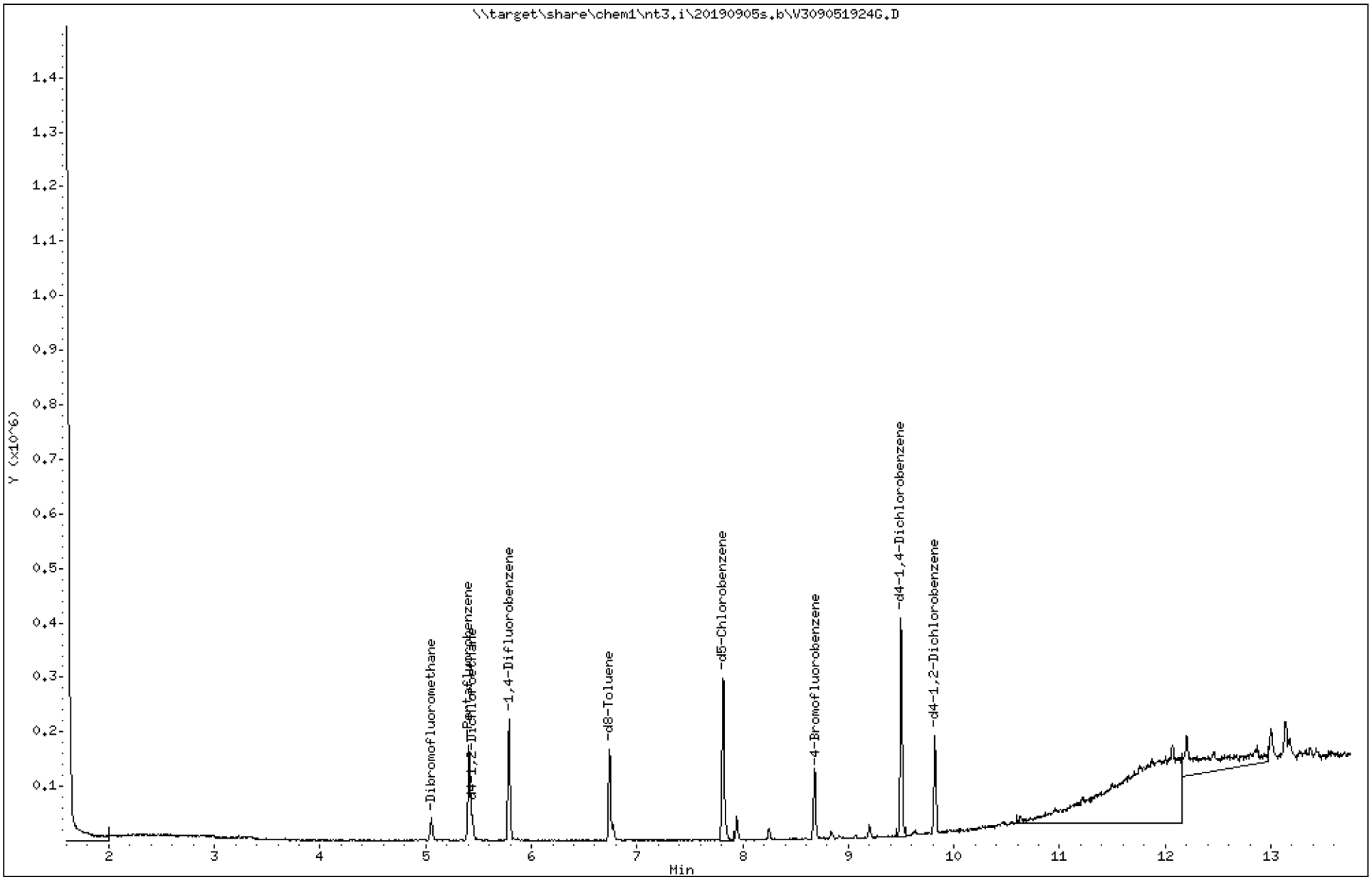
Instrument: nt3.i

Sample Info: 19H0481-28

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051924G.D
Lab Smp Id: 19H0481-28
Inj Date : 05-SEP-2019 21:35
Operator : PKC   Inst ID: nt3.i
Smp Info : 19H0481-28
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	20683	4.94525	4.945
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	96727	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	22909	4.91639	4.916
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	139003	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	83655	4.97477	4.975
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	143504	10.0000	
$	62 4-Bromofluorobenzene	174	8.684	8.678	(1.112)	34052	4.99367	4.994
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	88861	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	41228	4.93788	4.938

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051924G.D
Lab Smp Id: 19H0481-28
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	96727	-0.18
37 1,4-Difluorobenze	140121	70061	280242	139003	-0.80
53 d5-Chlorobenzene	140128	70064	280256	143504	2.41
76 d4-1,4-Dichlorobe	90137	45069	180274	88861	-1.42

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19H0481-28
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.945	98.91	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.916	98.33	80-128
$ 43 d8-Toluene	5.000	4.975	99.50	80-120
$ 62 4-Bromofluorobenze	5.000	4.994	99.87	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.938	98.76	80-120

REVIEW SUMMARY FOR FILE - V309051924G.D

Lab ID: 19H0481-28
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 21:35

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V309051924G.D

Date : 05-SEP-2019 21:35

Client ID:

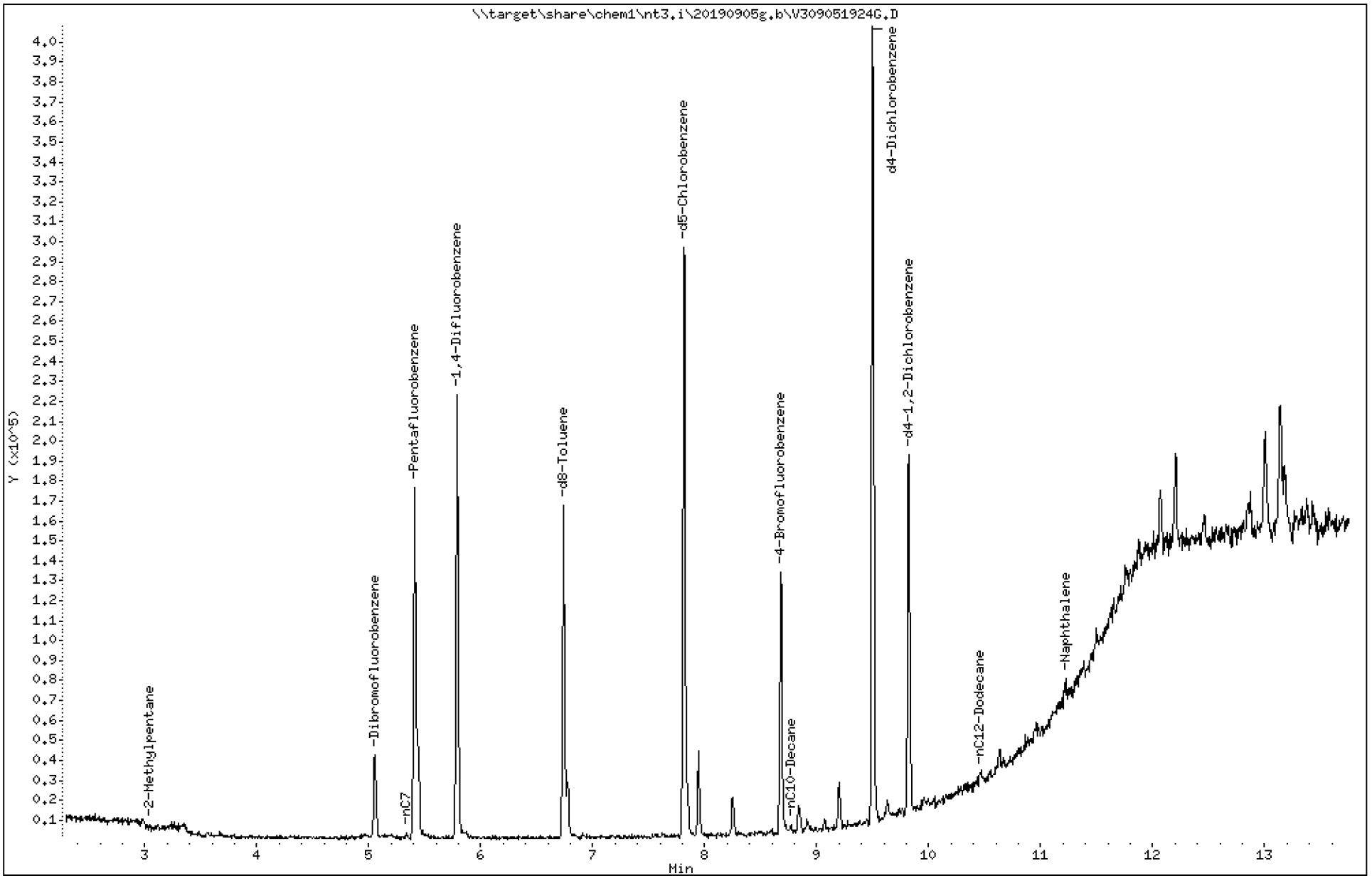
Sample Info: 19H0481-28

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051924G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 21:35

ARI ID: 19H0481-28
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	287498	0.018
8015C 2MP-TMB	(2.94 to 9.46)	32687243	253368	0.008
AK101 nC6-nC10	(3.69 to 8.64)	19977596	98975	0.005
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	440757	0.026
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	291073	0.013

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.813	471130	d5-Chlorobenzene
6.739	266727	d8-Toluene
9.498	575355	d4-Dichlorobenzene
8.679	198582	4-Bromofluorobenzene
9.822	270213	d4-1,2-Dichlorobenzene

P40-UST-05-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-30 E	SDG:	19H0481
Sampled:	08/30/19 13:00	Prepared:	09/11/19 10:34	File ID:	V209111912G.D
% Solids:	94.96	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/11/19 11:00
Batch:	BHI0298	Sequence:	SHI0164	Initial/Final:	3.694 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	7390	U	3700	7390

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.02	100	80 - 120	
4-Bromofluorobenzene	5.0000	4.98	99.6	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111912G.D

Date : 11-SEP-2019 11:00

Client ID:

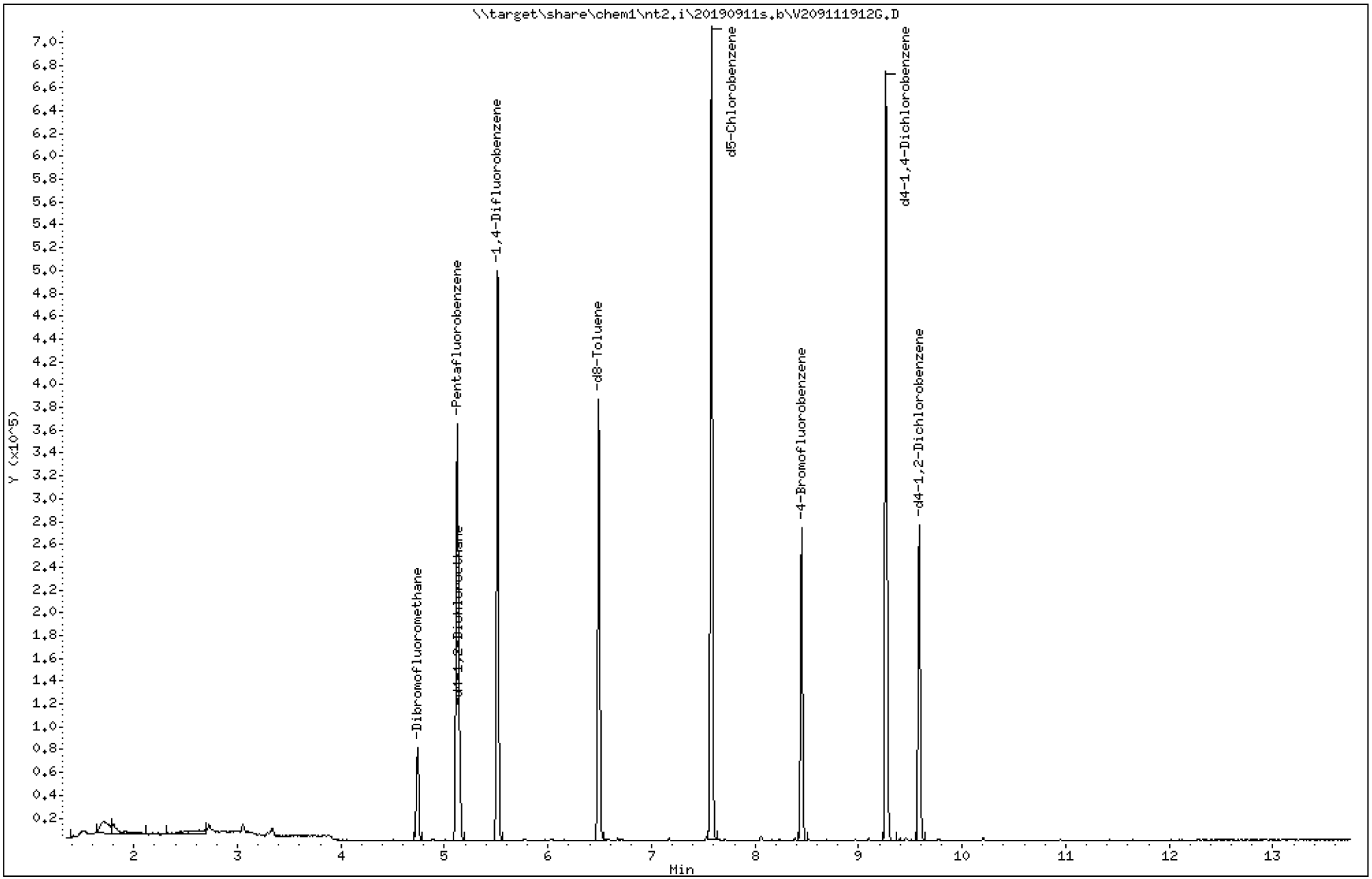
Sample Info: 19H0481-30

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111912G.D
Lab Smp Id: 19H0481-30
Inj Date : 11-SEP-2019 11:00
Operator : LH   Inst ID: nt2.i
Smp Info : 19H0481-30
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 44
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.737	4.742	(0.925)	41074	4.68603	4.686
* 32 Pentafluorobenzene	168	5.120	5.126	(1.000)	177050	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.145	5.150	(1.005)	51849	5.12986	5.130
* 37 1,4-Difluorobenzene	114	5.516	5.521	(1.000)	311358	10.0000	
$ 43 d8-Toluene	98	6.489	6.494	(1.176)	190101	5.01742	5.017
* 53 d5-Chlorobenzene	117	7.578	7.577	(1.000)	298615	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.447	(1.115)	54782	4.98006	4.980
* 76 d4-1,4-Dichlorobenzene	152	9.263	9.262	(1.000)	141689	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.586	9.585	(1.035)	60930	4.65589	4.656

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111912G.D
Lab Smp Id: 19H0481-30
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	177050	6.58
37 1,4-Difluorobenze	280906	140453	561812	311358	10.84
53 d5-Chlorobenzene	262007	131004	524014	298615	13.97
76 d4-1,4-Dichlorobe	136773	68387	273546	141689	3.59

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.10
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.09
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-30
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.686	93.72	
$ 33 d4-1,2-Dichloroeth	5.000	5.130	102.60	
$ 43 d8-Toluene	5.000	5.017	100.35	
$ 62 4-Bromofluorobenze	5.000	4.980	99.60	
$ 79 d4-1,2-Dichloroben	5.000	4.656	93.12	

REVIEW SUMMARY FOR FILE - V209111912G.D

Lab ID: 19H0481-30
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 11:00

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111912G.D

Date : 11-SEP-2019 11:00

Client ID:

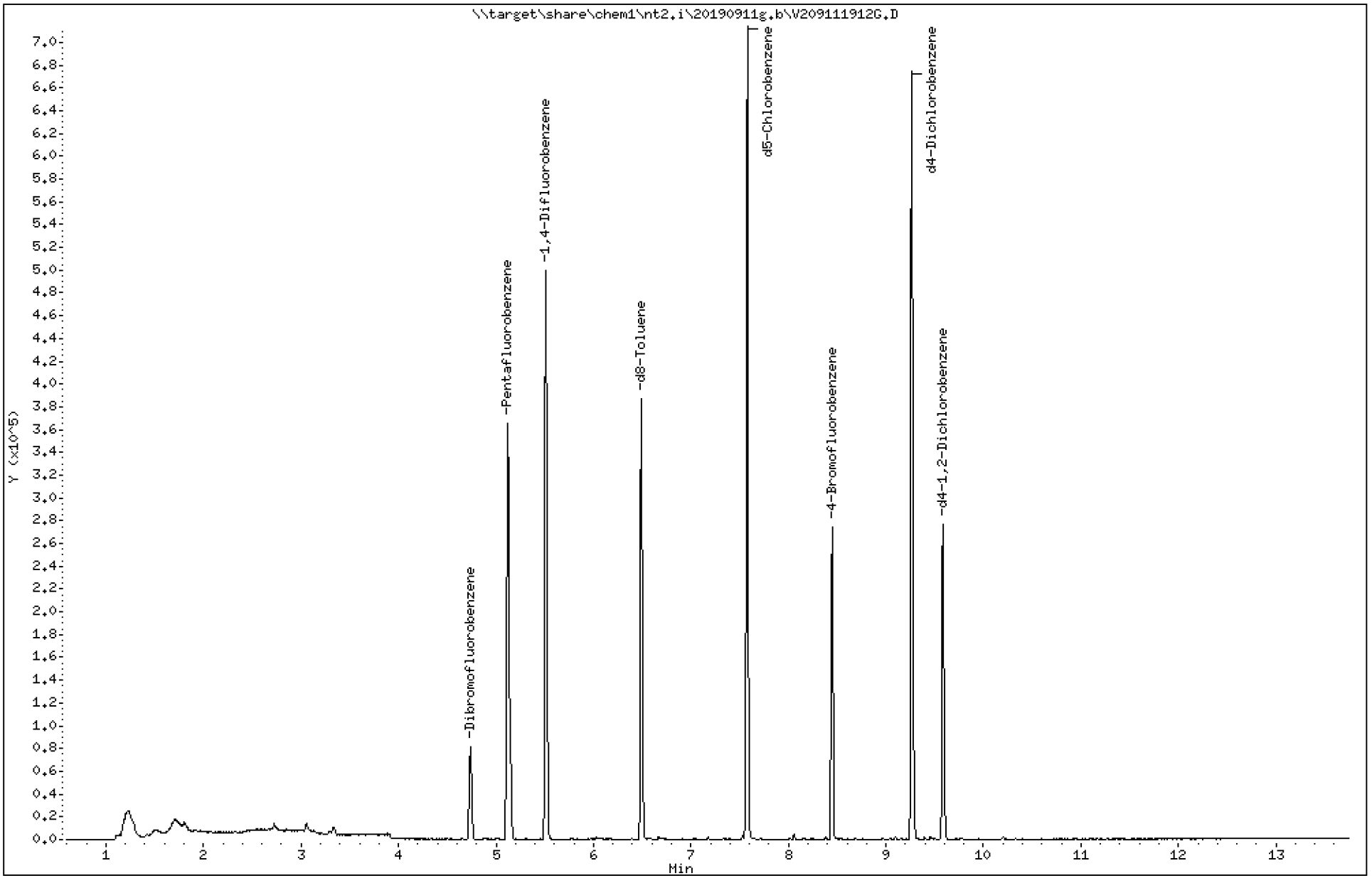
Sample Info: 19H0481-30

Instrument: nt2.i

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111912G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 11:00

ARI ID: 19H0481-30
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	3	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	4	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	3	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	3	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	4	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.579	905986	d5-Chlorobenzene
8.448	338027	4-Bromofluorobenzene
6.490	497119	d8-Toluene
9.264	886461	d4-Dichlorobenzene
9.586	373094	d4-1,2-Dichlorobenzene

P40-UST-505-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-32 E	SDG:	19H0481
Sampled:	08/30/19 13:05	Prepared:	09/10/19 13:10	File ID:	V209101922G.D
% Solids:	95.05	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/10/19 18:20
Batch:	BHI0255	Sequence:	SHI0138	Initial/Final:	3.348 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	8120	U	4060	8120

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.05	101	80 - 120	
4-Bromofluorobenzene	5.0000	5.27	105	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101922G.D

Date : 10-SEP-2019 18:20

Client ID:

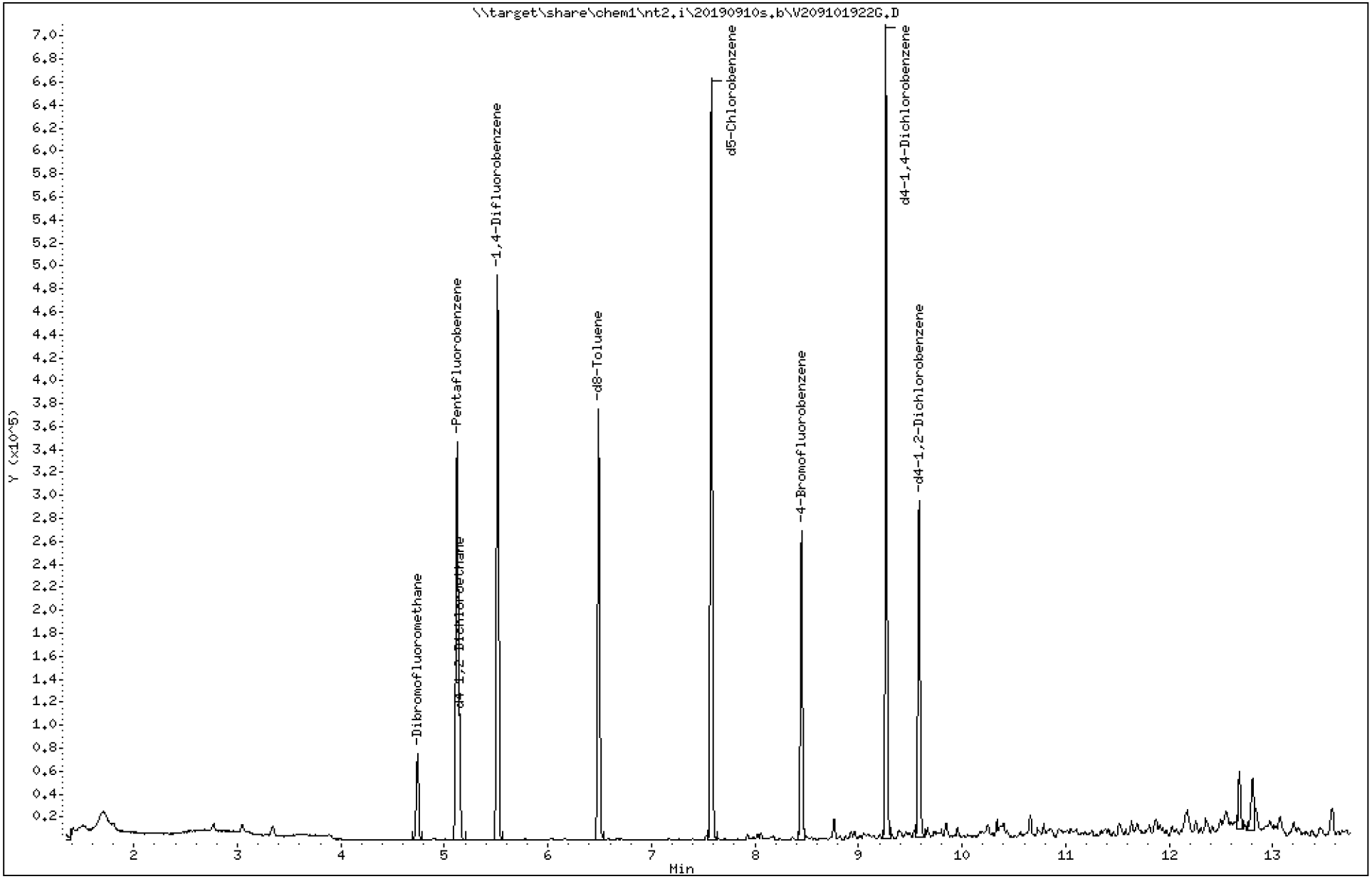
Sample Info: 19H0481-32

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101922G.D
Lab Smp Id: 19H0481-32
Inj Date : 10-SEP-2019 18:20
Operator : PKC   Inst ID: nt2.i
Smp Info : 19H0481-32
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.743	(0.925)	36774	4.29876	4.299
* 32 Pentafluorobenzene	168	5.121	5.132	(1.000)	172795	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.151	(1.005)	49995	5.06823	5.068
* 37 1,4-Difluorobenzene	114	5.511	5.522	(1.000)	295125	10.0000	
$ 43 d8-Toluene	98	6.490	6.495	(1.178)	181422	5.05173	5.052
* 53 d5-Chlorobenzene	117	7.579	7.578	(1.000)	282281	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.448	(1.115)	54749	5.26505	5.265
* 76 d4-1,4-Dichlorobenzene	152	9.264	9.263	(1.000)	142572	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.586	(1.035)	63190	4.79868	4.799

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101922G.D
Lab Smp Id: 19H0481-32
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	172795	4.02
37 1,4-Difluorobenze	280906	140453	561812	295125	5.06
53 d5-Chlorobenzene	262007	131004	524014	282281	7.74
76 d4-1,4-Dichlorobe	136773	68387	273546	142572	4.24

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.21
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.20
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.02
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-32
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.299	85.98	
$ 33 d4-1,2-Dichloroeth	5.000	5.068	101.36	
$ 43 d8-Toluene	5.000	5.052	101.03	
$ 62 4-Bromofluorobenze	5.000	5.265	105.30	
$ 79 d4-1,2-Dichloroben	5.000	4.799	95.97	

REVIEW SUMMARY FOR FILE - V209101922G.D

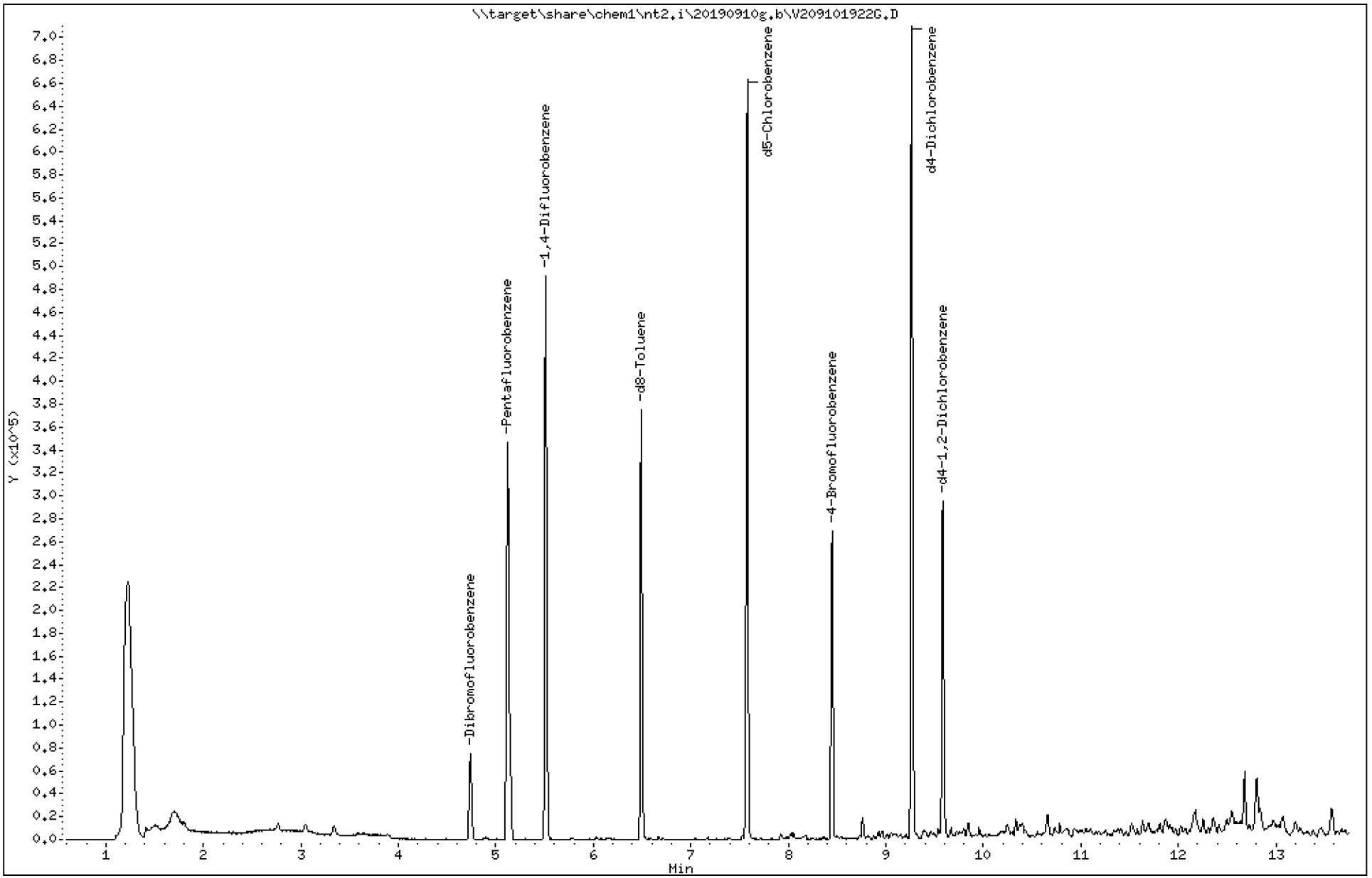
Lab ID: 19H0481-32
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 18:20

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\W209101922G.D
Date : 10-SEP-2019 18:20
Client ID:
Sample Info: 19H0481-32

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101922G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 18:20

ARI ID: 19H0481-32
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	39092	0.002
8015C 2MP-TMB	(2.99 to 9.25)	42964079	21330	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	79327	0.003
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	39093	0.001

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.580	857839	d5-Chlorobenzene
8.450	339577	4-Bromofluorobenzene
6.491	475322	d8-Toluene
9.265	899987	d4-Dichlorobenzene
9.587	401165	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-05-11'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPHg

Gasoline Range Organics (GC/MS)

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-34 E	SDG:	19H0481
Sampled:	08/30/19 13:10	Prepared:	09/10/19 13:10	File ID:	V209101923G.D
% Solids:	72.37	Preparation:	EPA 5035 (Methanol Extraction)	Analyzed:	09/10/19 18:40
Batch:	BHI0255	Sequence:	SHI0138	Initial/Final:	3.283 g Wet / 5 mL
Instrument:	NT2	Column:	RTX-VMS	Calibration:	CI00026

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg dry)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	12400	U	6220	12400

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.00	100	80 - 120	
4-Bromofluorobenzene	5.0000	5.24	105	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101923G.D

Date : 10-SEP-2019 18:40

Client ID:

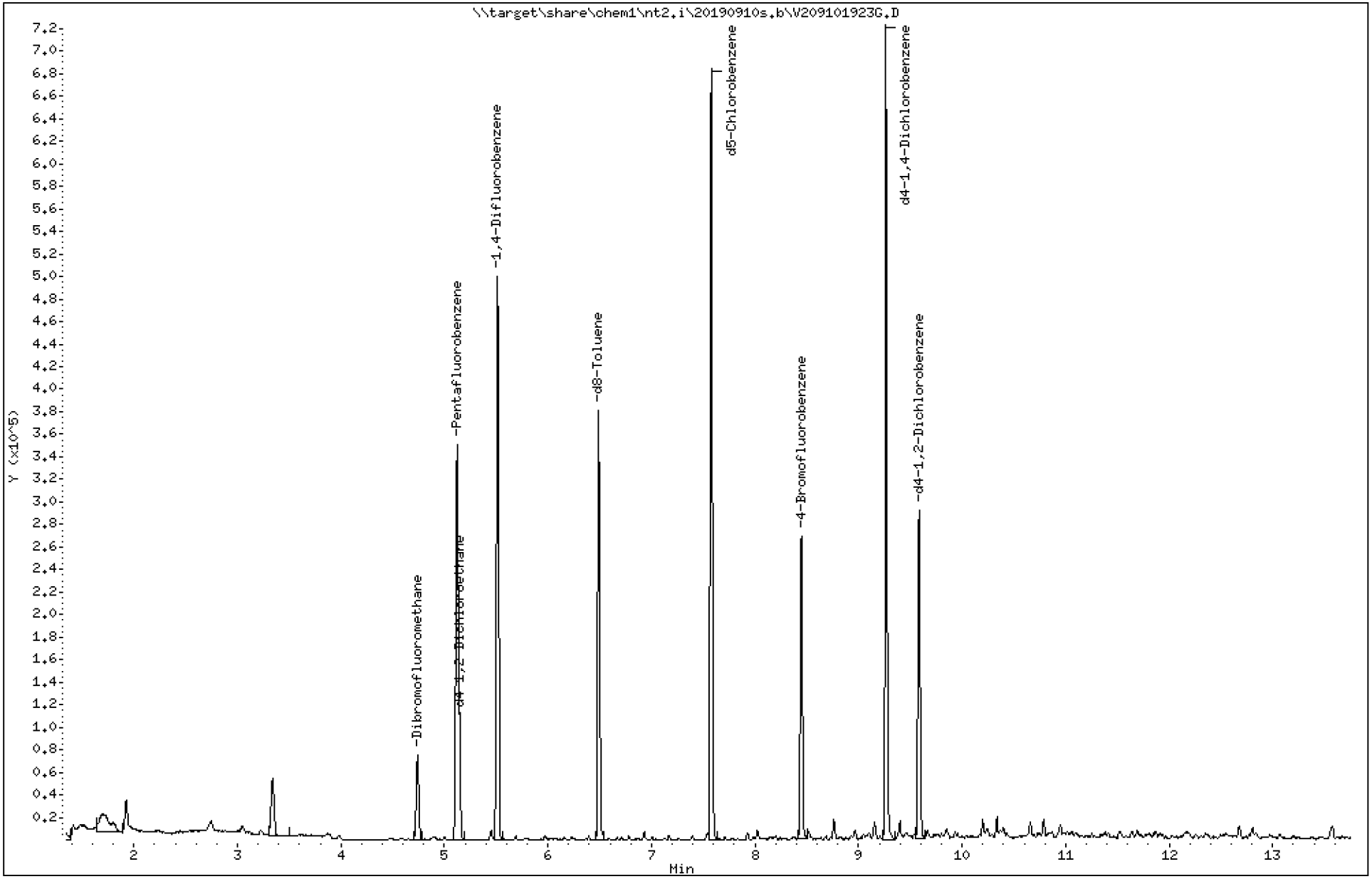
Sample Info: 19H0481-34

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101923G.D
Lab Smp Id: 19H0481-34
Inj Date : 10-SEP-2019 18:40
Operator : PKC   Inst ID: nt2.i
Smp Info : 19H0481-34
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.743	(0.925)	37451	4.33383	4.334
* 32 Pentafluorobenzene	168	5.122	5.132	(1.000)	174552	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.151	(1.005)	50739	5.09188	5.092
* 37 1,4-Difluorobenzene	114	5.511	5.522	(1.000)	305795	10.0000	
$ 43 d8-Toluene	98	6.490	6.495	(1.178)	186036	4.99945	4.999
* 53 d5-Chlorobenzene	117	7.579	7.578	(1.000)	291873	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.448	(1.115)	56337	5.23972	5.240
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.263	(1.000)	143865	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.586	(1.035)	63089	4.74795	4.748

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101923G.D
Lab Smp Id: 19H0481-34
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	174552	5.08
37 1,4-Difluorobenze	280906	140453	561812	305795	8.86
53 d5-Chlorobenzene	262007	131004	524014	291873	11.40
76 d4-1,4-Dichlorobe	136773	68387	273546	143865	5.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.21
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.20
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.02
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19H0481-34
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.334	86.68	
$ 33 d4-1,2-Dichloroeth	5.000	5.092	101.84	
$ 43 d8-Toluene	5.000	4.999	99.99	
$ 62 4-Bromofluorobenze	5.000	5.240	104.79	
$ 79 d4-1,2-Dichloroben	5.000	4.748	94.96	

REVIEW SUMMARY FOR FILE - V209101923G.D

Lab ID: 19H0481-34
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 18:40

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101923G.D

Date : 10-SEP-2019 18:40

Client ID:

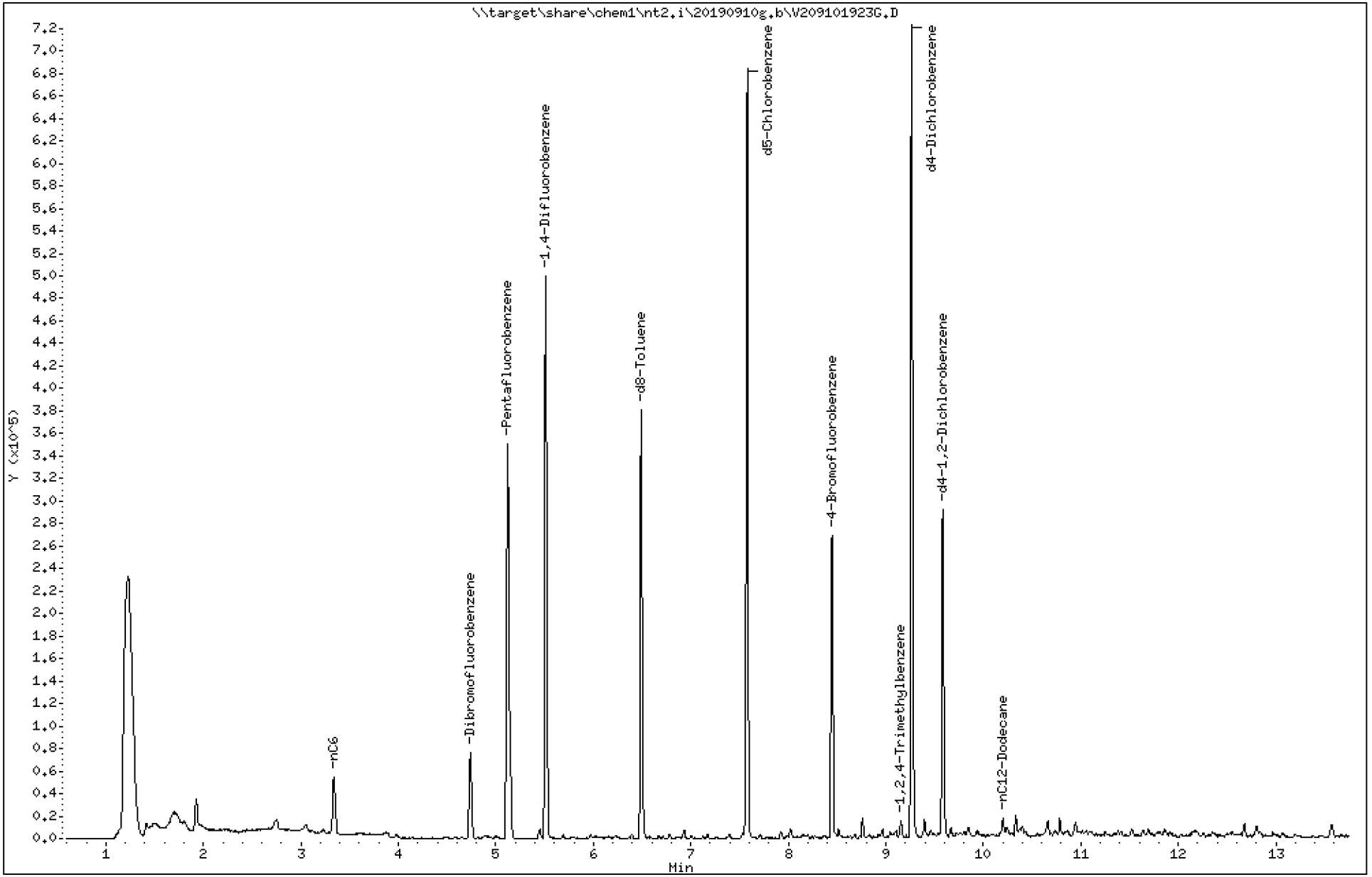
Sample Info: 19H0481-34

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101923G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 18:40

ARI ID: 19H0481-34
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	90051	0.004
8015C 2MP-TMB	(2.99 to 9.25)	42964079	135670	0.003
AK101 nC6-nC10	(3.24 to 8.42)	32820925	94874	0.003
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	146025	0.006
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	90052	0.003

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.580	892983	d5-Chlorobenzene
8.450	351309	4-Bromofluorobenzene
6.491	498165	d8-Toluene
9.265	919207	d4-Dichlorobenzene
9.587	399431	d4-1,2-Dichlorobenzene

PREPARATION BATCH SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0133 Batch Matrix: Water Preparation: EPA 5030 (Purge and Trap)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-083019	19H0481-01	V309051919G.D	09/05/19 13:58	
P40-UST-101-083019	19H0481-03	V309051920G.D	09/05/19 13:58	
P40-UST-TB-083019	19H0481-05	V309051910G.D	09/05/19 13:58	
P40-UST-02-083019	19H0481-10	V309051921G.D	09/05/19 13:58	
P40-UST-03-083019	19H0481-16	V309051922G.D	09/05/19 13:58	
P40-UST-04-083019	19H0481-22	V309051923G.D	09/05/19 13:58	
P40-UST-05-083019	19H0481-28	V309051924G.D	09/05/19 13:58	
Blank	BHI0133-BLK2	V309051908G.D	09/05/19 07:58	
LCS	BHI0133-BS2	V309051906GLCS.D	09/05/19 07:58	
LCS Dup	BHI0133-BSD2	V309051907G.D	09/05/19 07:58	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BENCH SHEET

BHI0133

Printed: 9/6/2019 1:09:06PM

Matrix: Water **Prepared using: Volatiles - EPA 5030 (Purge and Trap)** **Surrogate used: H007835**

Lab Number	Analysis	Prepared	Initial (mL)	Final (ml)	Spike ID	Source ID	ul Spike	ul Surrogate	pH	Extraction Comments
19H0426-04 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-05 F	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-07 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0426-08 B	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-04 A	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-04 A	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-05 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-05 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-06 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0429-06 C	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-07 C	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0429-07 C	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-01 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-01 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-03 E	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-03 E	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-05 B	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-05 B	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-10 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-10 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-16 E	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-16 E	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	

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Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BENCH SHEET

BHI0133

Printed: 9/6/2019 1:09:06PM

Matrix: Water **Prepared using: Volatiles - EPA 5030 (Purge and Trap)** **Surrogate used: H007835**

Lab Number	Analysis	Prepared	Initial (mL)	Final (ml)	Spike ID	Source ID	ul Spike	ul Surrogate	pH	Extraction Comments
19H0481-22 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-22 D	8260C VOA	09/05/19@13:58	10	10				1	2	
19H0481-28 D	8260C Gas (NWTPH)	09/05/19@13:58	10	10				1	2	
19H0481-28 D	8260C VOA	09/05/19@13:58	10	10				1	2	
BHI0133-BLK1	QC	09/05/19@07:58	10	10				1		
BHI0133-BLK2	QC	09/05/19@07:58	10	10				1		
BHI0133-BS1	QC	09/05/19@07:58	10	10	H008567		5	1		
BHI0133-BS2	QC	09/05/19@07:58	10	10	H008262		2	1		
BHI0133-BSD1	QC	09/05/19@07:58	10	10	H008567		5	1		
BHI0133-BSD2	QC	09/05/19@07:58	10	10	H008262		2	1		

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BATCH SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0255 Batch Matrix: Solid Preparation: EPA 5035 (Methanol Extraction)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-02-9'-083019	19H0481-14	V209101916G.D	09/10/19 13:10	
P40-UST-03-4.5'-083019	19H0481-18	V209101917G.D	09/10/19 13:10	
P40-UST-04-4.5'-083019	19H0481-24	V209101919G.D	09/10/19 13:10	
P40-UST-505-4.5'-083019	19H0481-32	V209101922G.D	09/10/19 13:10	
P40-UST-05-11'-083019	19H0481-34	V209101923G.D	09/10/19 13:10	
Blank	BHI0255-BLK1	V209101908G.D	09/10/19 13:16	
LCS	BHI0255-BS1	V209101903LCSG.D	09/10/19 11:32	
LCS Dup	BHI0255-BSD1	V209101904G.D	09/10/19 11:52	
P40-UST-02-9'-083019	BHI0255-MS1	V209101929G.D	09/10/19 13:10	
P40-UST-02-9'-083019	BHI0255-MSD1	V209101930G.D	09/10/19 13:10	

PREPARATION BENCH SHEET

BHI0255

Printed: 9/11/2019 1:23:06PM

Matrix: Solid **epared using: Volatiles - EPA 5035 (Methanol Extractio** **Surrogate used: H007837**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-14 E	8260C Gas (NWTPH)	09/10/19@13:10	3.802	5				100	73.22	
19H0481-18 E	8260C Gas (NWTPH)	09/10/19@13:10	3.592	5				100	94.62	
19H0481-24 E	8260C Gas (NWTPH)	09/10/19@13:10	3.684	5				100	94.94	
19H0481-32 E	8260C Gas (NWTPH)	09/10/19@13:10	3.348	5				100	95.05	
19H0481-34 E	8260C Gas (NWTPH)	09/10/19@13:10	3.283	5				100	72.37	
BHI0255-BLK1	QC	09/10/19@13:16	5	5				100		
BHI0255-BS1	QC	09/10/19@11:32	5	5	H008262		50	100		
BHI0255-BSD1	QC	09/10/19@11:52	5	5	H008262		50	100		
BHI0255-MS1	QC	09/10/19@13:10	3.802	5	H008262	19H0481-14	50	100		
BHI0255-MSD1	QC	09/10/19@13:10	3.802	5	H008262	19H0481-14	50	100		

Reagents:

Reagent ID	Reagent

1700 of 3434

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s): 19H0481 | Element Batch(es): BHI0255 / BHI0298 | Prep/Extraction Date: 9/10/2019 | Analyst: PL

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	~~19H0481-06~~	E		DT961							
2	-08	E									
3	-12	E									
4	19H0481-14	E		DU187	32.37	28.568	3.802	5 mL	900	45mL	50x
5	-18	E			32.24	28.648	3.592		900		↓
6	-20	F			32.12	28.212	3.908		45, 4.5µL.		1000x, 10,000x
7	-24	E			31.78	28.066	3.684		900		50x
8	-26	E			32.93	28.523	4.407		90µL		50x, 500x
9	-30	E			32.33	28.656	3.674				50x
10	-32	E			31.94	28.592	3.348				
11	-34	E			31.28	27.997	3.283	↓		↓	↓
12											
13											
14											
15											

Balance ID: SLF302

20 initial weights

1701 of 3434

PREPARATION BATCH SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0298 Batch Matrix: Solid
Preparation: EPA 5035 (Methanol Extraction)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-05-4.5'-083019	19H0481-30	V209111912G.D	09/11/19 10:34	From BHI0255 by LH on 11-Sep-2019
Blank	BHI0298-BLK1	V209111910G.D	09/11/19 10:19	
LCS	BHI0298-BS1	V209111903LCSG.D	09/11/19 07:56	
LCS Dup	BHI0298-BSD1	V209111905G.D	09/11/19 08:37	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s): 19H0481 | Element Batch(es): BHI0255 / BHI0298 | Prep/Extraction Date: 9/10/2019 | Analyst: PL

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	~~19H0481-06~~	E		DT961							
2	-08	E									
3	-12	E									
4	19H0481-14	E		DU187	32.37	28.568	3.802	5 mL	900	45mL	50x
5	-18	E			32.24	28.648	3.592		900		↓
6	-20	E			32.12	28.212	3.908		45, 4.5µL		1000x, 10,000x
7	-24	E			31.78	28.066	3.684		900		50x
8	-26	E			32.93	28.523	4.407		90µL		50x, 500x
9	-30	E			32.35	28.656	3.694				50x
10	-32	E			31.94	28.592	3.348				
11	-34	E			31.28	27.997	3.283	↓		↓	↓
12											
13											
14											
15											

No initial weights

Balance ID: SLF302

1703 of 3434

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s): 19H0481, 19I0137

Element Batch(es): BHI0298 BHI0303 BHI0335

Prep/Extraction Date: 9/11/19

Analyst:

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	19H0481-06	B	–	H000343	–	–	5.19	5mL	900µl	45mL	50X
2	-08	B	–	↓	–	–	5.01	↓	↓	↓	↓
3	-12	B	–	↓	–	–	5.20	↓	↓	↓	↓
4	19I0137-15	C	–	DV597	36.91	27.669	9.241	↓	↓	↓	↓
5	-16	C	–	↓	34.82	27.677	7.143	↓	↓	↓	↓
6	-17	C	–	↓	36.22	27.716	8.504	↓	9µl	↓	5000X
7	-17MS/MSD	D	–	↓	37.28	28.344	8.936	↓	↓	↓	↓
8	-18	C	–	↓	36.81	28.124	8.686	↓	↓	↓	↓
9											
10											
11											
12											
13											
14											
15											

Balance ID: SLF302

PREPARATION BENCH SHEET

BHI0298

Printed: 9/13/2019 8:43:45AM

Matrix: Solid **epared using: Volatiles - EPA 5035 (Methanol Extractio** **Surrogate used: H007837**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-30 E	8260C Gas (NWTPH)	09/11/19@10:34	3.694	5				100	94.96	From BHI0255 by LH on 11-Sep-2019
19I0137-15 C	8260C Gas (NWTPH)	09/11/19@10:34	9.241	5				100	91.71	
19I0137-16 C	8260C Gas (NWTPH)	09/11/19@10:34	7.143	5				100	90.36	
BHI0298-BLK1	QC	09/11/19@10:19	5	5				100		
BHI0298-BS1	QC	09/11/19@07:56	5	5	H008262		50	100		
BHI0298-BSD1	QC	09/11/19@08:37	5	5	H008262		50	100		

From BHI0255 on 11-Sep-2019 by LH

Reagents:

Reagent ID	Reagent

1705 of 3434

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

PREPARATION BATCH SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0303 Batch Matrix: Solid
Preparation: EPA 5030 (Purge and Trap)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-4.5'-083019	19H0481-06	V209111922G.D	09/11/19 11:52	
P40-UST-01-9'-083019	19H0481-08	V209111923G.D	09/11/19 11:52	
P40-UST-02-4.5'-083019	19H0481-12	V209111924G.D	09/11/19 11:52	
Blank	BHI0303-BLK1	V209111910MB2G.D	09/11/19 10:19	
LCS	BHI0303-BS1	V209111903LCS2G.D	09/11/19 07:56	
LCS Dup	BHI0303-BSD1	V209111905LCSD2G.D	09/11/19 08:37	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

PREPARATION BENCH SHEET

BHI0303

Printed: 9/12/2019 7:41:03AM

Matrix: Solid **Prepared using: Volatiles - EPA 5030 (Purge and Trap)** **Surrogate used: H007837**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-06 B	8260C Gas (NWTPH)	09/11/19@11:52	5.19	5				100	96.64	
19H0481-08 B	8260C Gas (NWTPH)	09/11/19@11:52	5.01	5				100	72.3	
19H0481-12 B	8260C Gas (NWTPH)	09/11/19@11:52	5.2	5				100	92.32	
BHI0303-BLK1	QC	09/11/19@10:19	5	5				100		
BHI0303-BS1	QC	09/11/19@07:56	5	5	H008262		50	100		
BHI0303-BSD1	QC	09/11/19@08:37	5	5	H008262		50	100		

Reagents:

Reagent ID	Reagent
H000343	Methanol

1707 of 3434

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s): 19H0481, 19I0137

Element Batch(es): BHI0298 BHI0303 BHI0335

Prep/Extraction Date: 9/11/19

Analyst:

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	19H0481-06	B	–	H000343	–	–	5.19	5mL	900µl	45mL	50X
2	-08	B	–	↓	–	–	5.01	↓	↓	↓	↓
3	-12	B	–	↓	–	–	5.20	↓	↓	↓	↓
4	19I0137-15	C	–	DV597	36.91	27.669	9.241	↓	↓	↓	↓
5	-16	C	–	↓	34.82	27.677	7.143	↓	↓	↓	↓
6	-17	C	–	↓	36.22	27.716	8.504	↓	9µl	↓	5000X
7	-17MS/MSD	D	–	↓	37.28	28.344	8.936	↓	↓	↓	↓
8	-18	C	–	↓	36.81	28.124	8.686	↓	↓	↓	↓
9											
10											
11											
12											
13											
14											
15											

Balance ID: SLF302

PREPARATION BATCH SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0335 Batch Matrix: Solid
Preparation: EPA 5035 (Methanol Extraction)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-03-8'-083019	19H0481-20	V209121915G.D	09/12/19 07:26	From BHI0298 by LH on 12-Sep-2019
P40-UST-04-14.5'-083019	19H0481-26	V209121916G.D	09/12/19 07:26	From BHI0298 by LH on 12-Sep-2019
Blank	BHI0335-BLK1	V209121910G.D	09/12/19 07:26	
LCS	BHI0335-BS1	V209121903GLCS.D	09/12/19 07:26	
LCS Dup	BHI0335-BSD1	V209121905G.D	09/12/19 07:26	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s)	Element Batch(es)	Prep/Extraction Date	Analyst
19H0481	BHI0255 / BHI0298 / BHI0335	9/10/2019	PL

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	~~19H0481-05~~	E		DT961							
2	-08	E									
3	-12	E									
4	19H0481-14	E		DU187	32.37	28.568	3.802	5mL	900	45mL	50x
5	-18	E			32.24	28.648	3.592		900		↓
6	-20	E			32.12	28.212	3.908		45, 4.5µL		1000x, 10,000x
7	-24	E			31.78	28.066	3.684		900		50x
8	-26	E			32.93	28.523	4.407		90µL		50x, 500x
9	-30	E			32.33	28.656	3.674				50x
10	-32	E			31.94	28.592	3.348				↓
11	-34	E			31.28	27.997	3.283	↓		↓	↓
12											
13											
14											
15											

no initial weights

Balance ID: SLF302

1710 of 3434

Analytical Resources, Incorporated
Analytical Chemists and Consultants

VOA Method 5035 Extraction Bench Sheet

(8260C, 8260C-SIM, NWTPH-Gx, AK-101, TPH-G, VPH, TCLP-ZHE)

Work Order(s): 19H0481, 19I0137

Element Batch(es): BHI0298 BHI0303 BHI0335

Prep/Extraction Date: 9/11/19

Analyst: JGM

	Lab ID	Vial No.	Method 5035 Sample Weight						Extract Split Basis		
			$NaHSO_3$ Lot#	CH_3OH Lot#	Vial Weight (g)	Tare (from vial) (g)	Initial Weight (g)	Final Volume (mL)	MeOH Spilt Volume (µL)	Diluent Volume (mL)	Dilution
1	19H0481-06	B	–	H000343	–	–	5.19	5mL	900µl	45mL	50X
2	-08	B	–	↓	–	–	5.01	↓	↓	↓	↓
3	-12	B	–	↓	–	–	5.20	↓	↓	↓	↓
4	19I0137-15	C	–	DV597	36.91	27.669	9.241	↓	↓	↓	↓
5	-16	C	–	↓	34.82	27.677	7.143	↓	↓	↓	↓
6	-17	C	–	↓	36.22	27.716	8.504	↓	9µl	↓	5000X
7	-17MS/MSD	D	–	↓	37.28	28.344	8.936	↓	↓	↓	↓
8	-18	C	–	↓	36.81	28.124	8.686	↓	↓	↓	↓
9											
10											
11											
12											
13											
14											
15											

Balance ID: SLF302

PREPARATION BENCH SHEET

BHI0335

Printed: 9/13/2019 10:30:15AM

Matrix: Solid **epared using: Volatiles - EPA 5035 (Methanol Extractio** **Surrogate used: H007837**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	% Solids	Extraction Comments
19H0481-20 F	8260C Gas (NWTPH)	09/12/19@07:26	3.908	5				100	68.73	From BHI0298 by LH on 12-Sep-2019
19H0481-26 E	8260C Gas (NWTPH)	09/12/19@07:26	4.407	5				100	74.69	From BHI0298 by LH on 12-Sep-2019
19I0137-17 C	8260C Gas (NWTPH)	09/12/19@07:26	8.504	5				100	82.44	From BHI0298 by LH on 12-Sep-2019
19I0137-18 C	8260C Gas (NWTPH)	09/12/19@07:26	8.686	5				100	83.98	From BHI0298 by LH on 12-Sep-2019
BHI0335-BLK1	QC	09/12/19@07:26	5	5				100		
BHI0335-BS1	QC	09/12/19@07:26	5	5	H008262		50	100		
BHI0335-BSD1	QC	09/12/19@07:26	5	5	H008262		50	100		
BHI0335-MS1	QC	09/12/19@07:26	8.936	5	H008262	19I0137-17	6570	100		
BHI0335-MSD1	QC	09/12/19@07:26	8.936	5	H008262	19I0137-17	6570	100		

From BHI0298 on 12-Sep-2019 by LH

Reagents:

Reagent ID	Reagent

Spiking Witnessed By Date

Preparation Reviewed By Date

Extracts Received By Date

Form I

METHOD BLANK DATA SHEET

NWTPHg

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Water	Laboratory ID:	BHI0133-BLK2	File ID:	V309051908G.D
Sampled:	N/A	Prepared:	09/05/19 07:58	Analyzed:	09/05/19 14:16
Solids:		Preparation:	EPA 5030 (Purge and Trap)	Initial/Final:	10 mL / 10 ml
Batch:	BHI0133	Sequence:	SHI0097	Calibration:	CI00022
Instrument:	NT3	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	1	100	U	13.6	100

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.98	99.7	80 - 120	
4-Bromofluorobenzene	5.0000	4.88	97.6	80 - 120	

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519080.D

Date : 05-SEP-2019 14:16

Client ID:

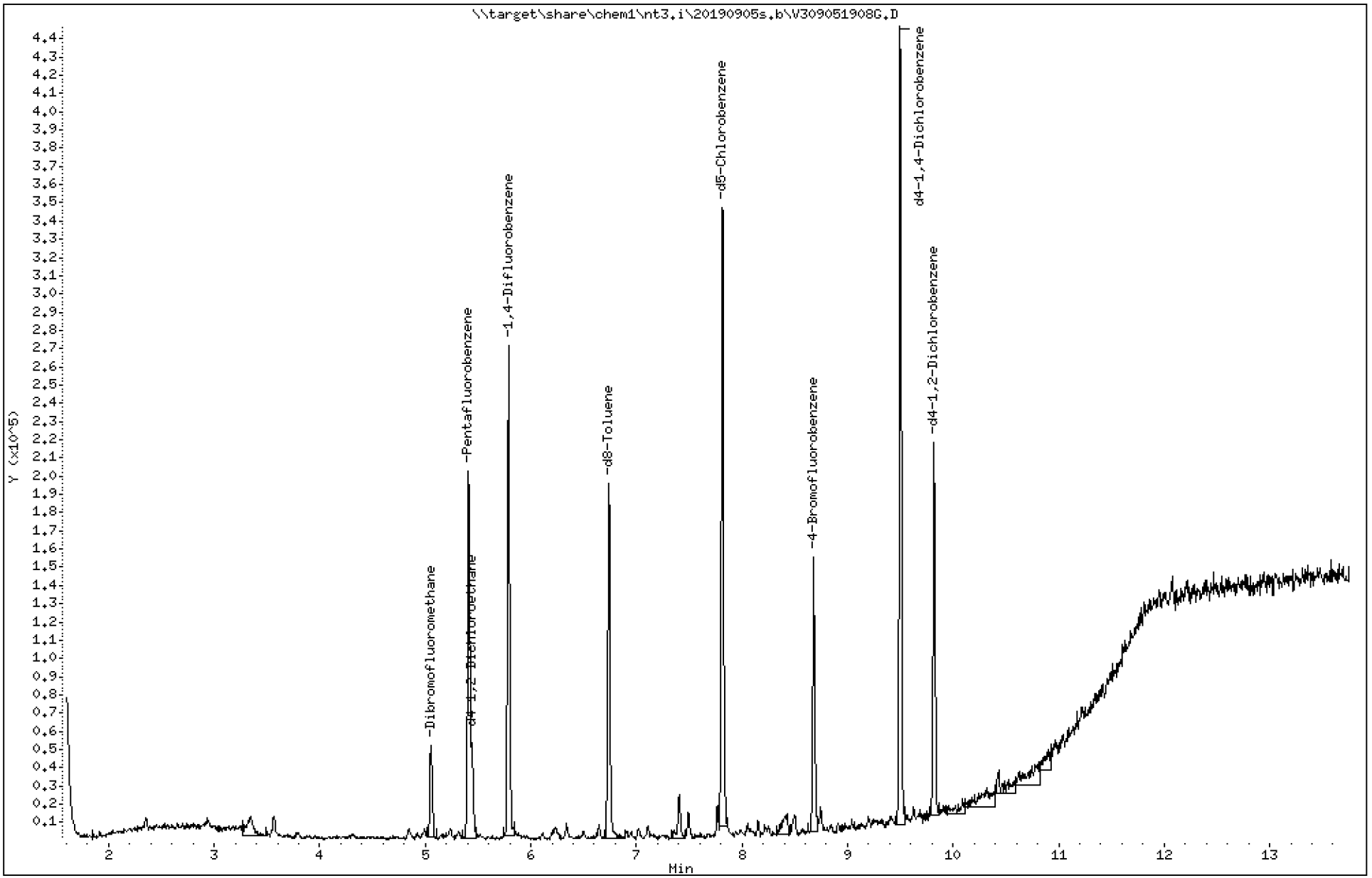
Instrument: nt3.i

Sample Info: BHI0133-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051908G.D
Lab Smp Id: BHI0133-BLK2
Inj Date : 05-SEP-2019 14:16
Operator : PKC   Inst ID: nt3.i
Smp Info : BHI0133-BLK2
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	24733	5.08910	5.089
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	112398	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	27001	4.98665	4.987
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	163146	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	98367	4.98400	4.984
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	165550	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	38377	4.87847	4.878
*	76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	104290	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48024	4.90089	4.901

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051908G.D
Lab Smp Id: BHI0133-BLK2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112398	16.00
37 1,4-Difluorobenze	140121	70061	280242	163146	16.43
53 d5-Chlorobenzene	140128	70064	280256	165550	18.14
76 d4-1,4-Dichlorobe	90137	45069	180274	104290	15.70

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: BHI0133-BLK2
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.089	101.78	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.987	99.73	80-128
$ 43 d8-Toluene	5.000	4.984	99.68	80-120
$ 62 4-Bromofluorobenze	5.000	4.878	97.57	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.901	98.02	80-120

REVIEW SUMMARY FOR FILE - V309051908G.D

Lab ID: BHI0133-BLK2
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 14:16

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V309051908G.D

Date : 05-SEP-2019 14:16

Client ID:

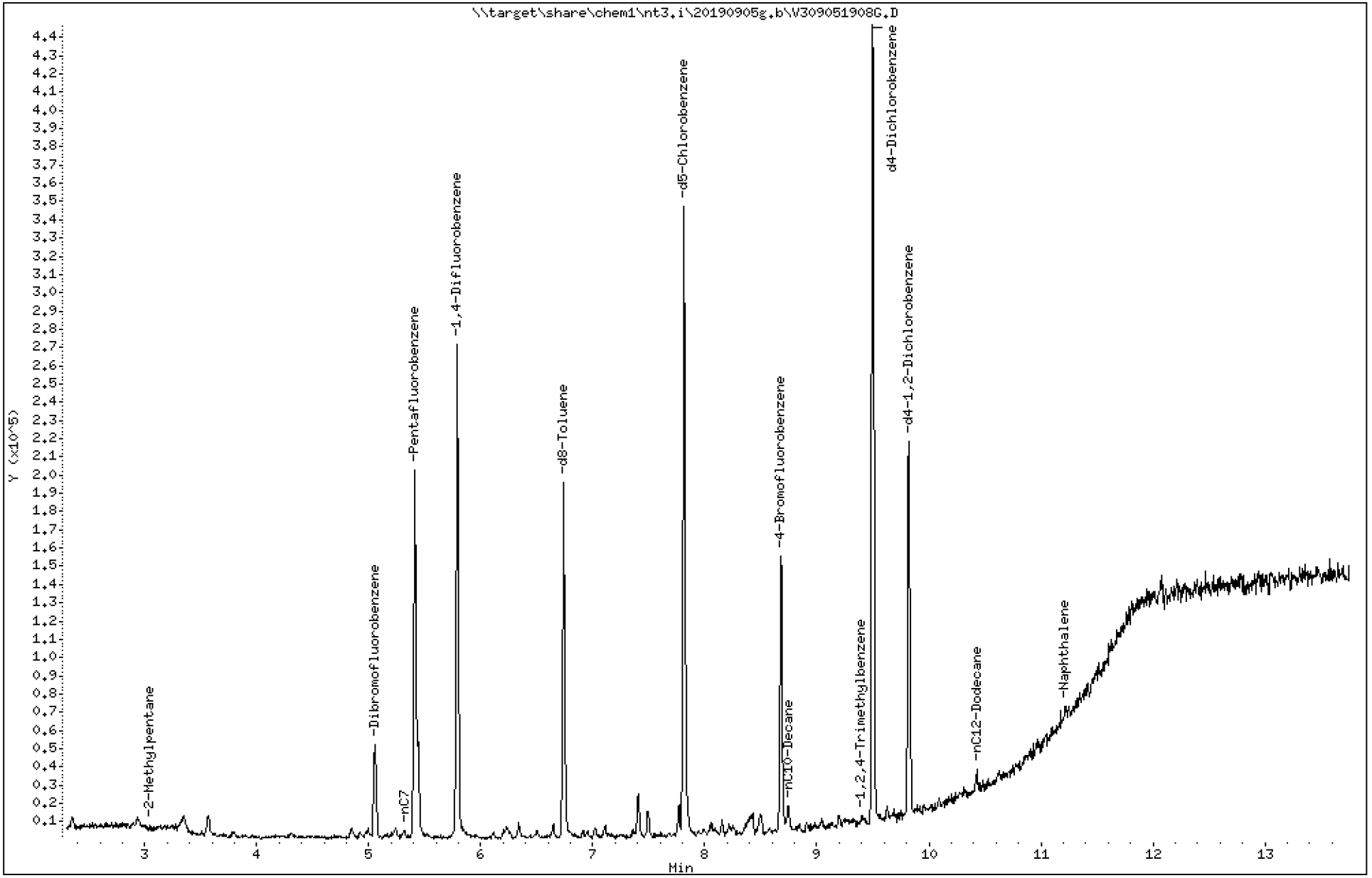
Sample Info: BHI0133-BLK2

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051908G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 14:16

ARI ID: BHI0133-BLK2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	406584	0.026
8015C 2MP-TMB	(2.94 to 9.46)	32687243	474349	0.015
AK101 nC6-nC10	(3.69 to 8.64)	19977596	297538	0.015
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	502655	0.029
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	488645	0.021

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	532301	d5-Chlorobenzene
6.738	295165	d8-Toluene
9.497	650703	d4-Dichlorobenzene
8.678	223303	4-Bromofluorobenzene
9.821	308869	d4-1,2-Dichlorobenzene

Form I

METHOD BLANK DATA SHEET

NWTPHg

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0255-BLK1	File ID:	V209101908G.D
Sampled:	N/A	Prepared:	09/10/19 13:16	Analyzed:	09/10/19 13:16
Solids:		Preparation:	EPA 5035 (Methanol Extract	Initial/Final:	5 g / 5 mL
Batch:	BHI0255	Sequence:	SHI0138	Calibration:	CI00026
Instrument:	NT2	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5000	U	2500	5000

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	4.95	98.9	80 - 120	
4-Bromofluorobenzene	5.0000	4.83	96.6	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101908G.D

Date : 10-SEP-2019 13:16

Client ID:

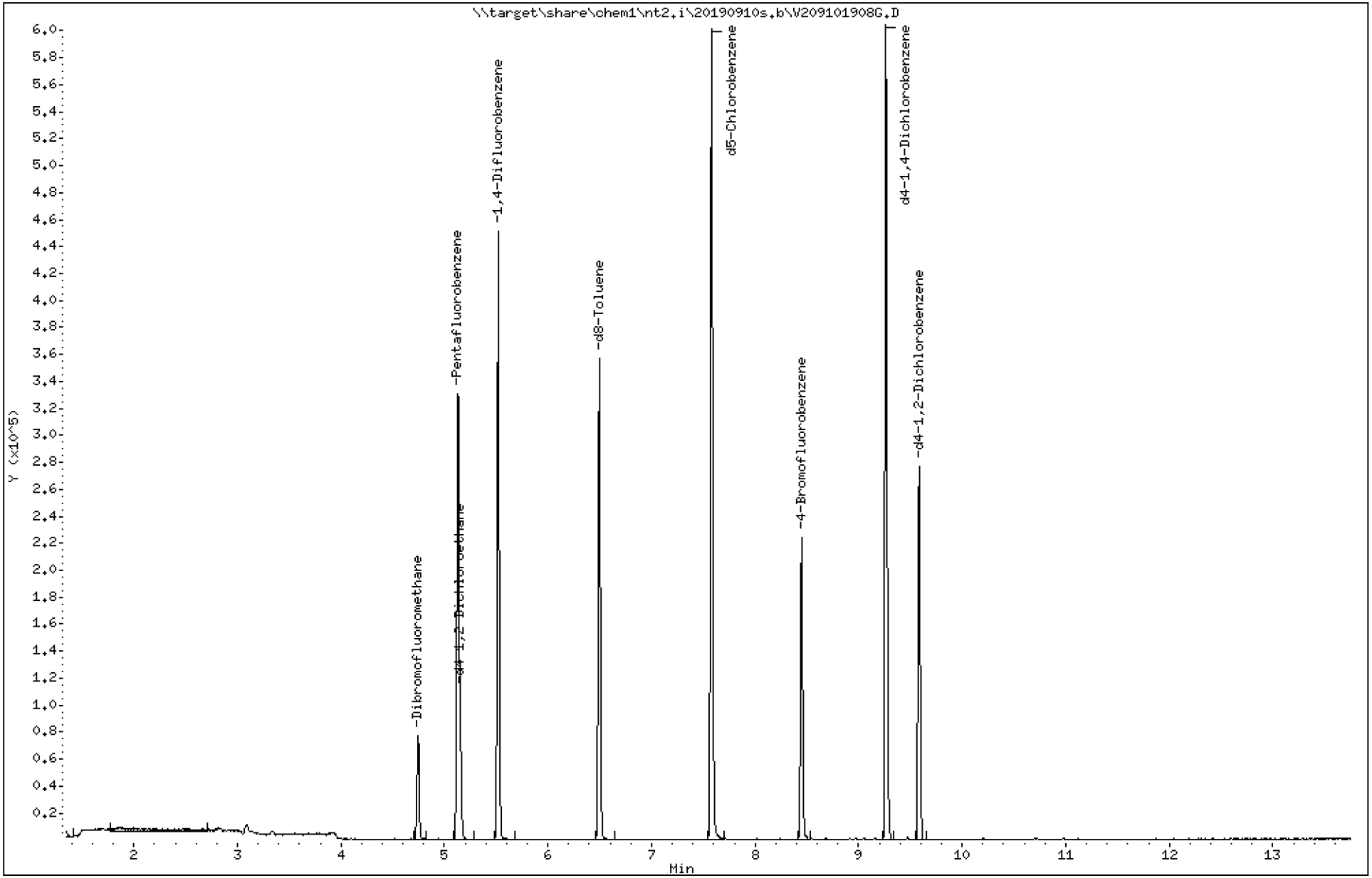
Instrument: nt2.i

Sample Info: BHI0255-BLK1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101908G.D
Lab Smp Id: BHI0255-BLK1
Inj Date : 10-SEP-2019 13:16
Operator : PKC   Inst ID: nt2.i
Smp Info : BHI0255-BLK1
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.743	(0.924)	39616	4.79409	4.794
* 32 Pentafluorobenzene	168	5.133	5.132	(1.000)	166916	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.151	5.151	(1.004)	48503	5.09016	5.090
* 37 1,4-Difluorobenzene	114	5.522	5.522	(1.000)	287162	10.0000	
$ 43 d8-Toluene	98	6.495	6.495	(1.176)	172876	4.94725	4.947
* 53 d5-Chlorobenzene	117	7.578	7.578	(1.000)	262877	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.448	(1.115)	46775	4.83025	4.830
* 76 d4-1,4-Dichlorobenzene	152	9.263	9.263	(1.000)	128328	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.586	9.586	(1.035)	59650	5.03265	5.033

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101908G.D
Lab Smp Id: BHI0255-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	166916	0.48
37 1,4-Difluorobenze	280906	140453	561812	287162	2.23
53 d5-Chlorobenzene	262007	131004	524014	262877	0.33
76 d4-1,4-Dichlorobe	136773	68387	273546	128328	-6.17

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.00
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.00
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.00
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0255-BLK1
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.794	95.88	
$ 33 d4-1,2-Dichloroeth	5.000	5.090	101.80	
$ 43 d8-Toluene	5.000	4.947	98.94	
$ 62 4-Bromofluorobenze	5.000	4.830	96.60	
$ 79 d4-1,2-Dichloroben	5.000	5.033	100.65	

REVIEW SUMMARY FOR FILE - V209101908G.D

Lab ID: BHI0255-BLK1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 13:16

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101908G.D

Date : 10-SEP-2019 13:16

Client ID:

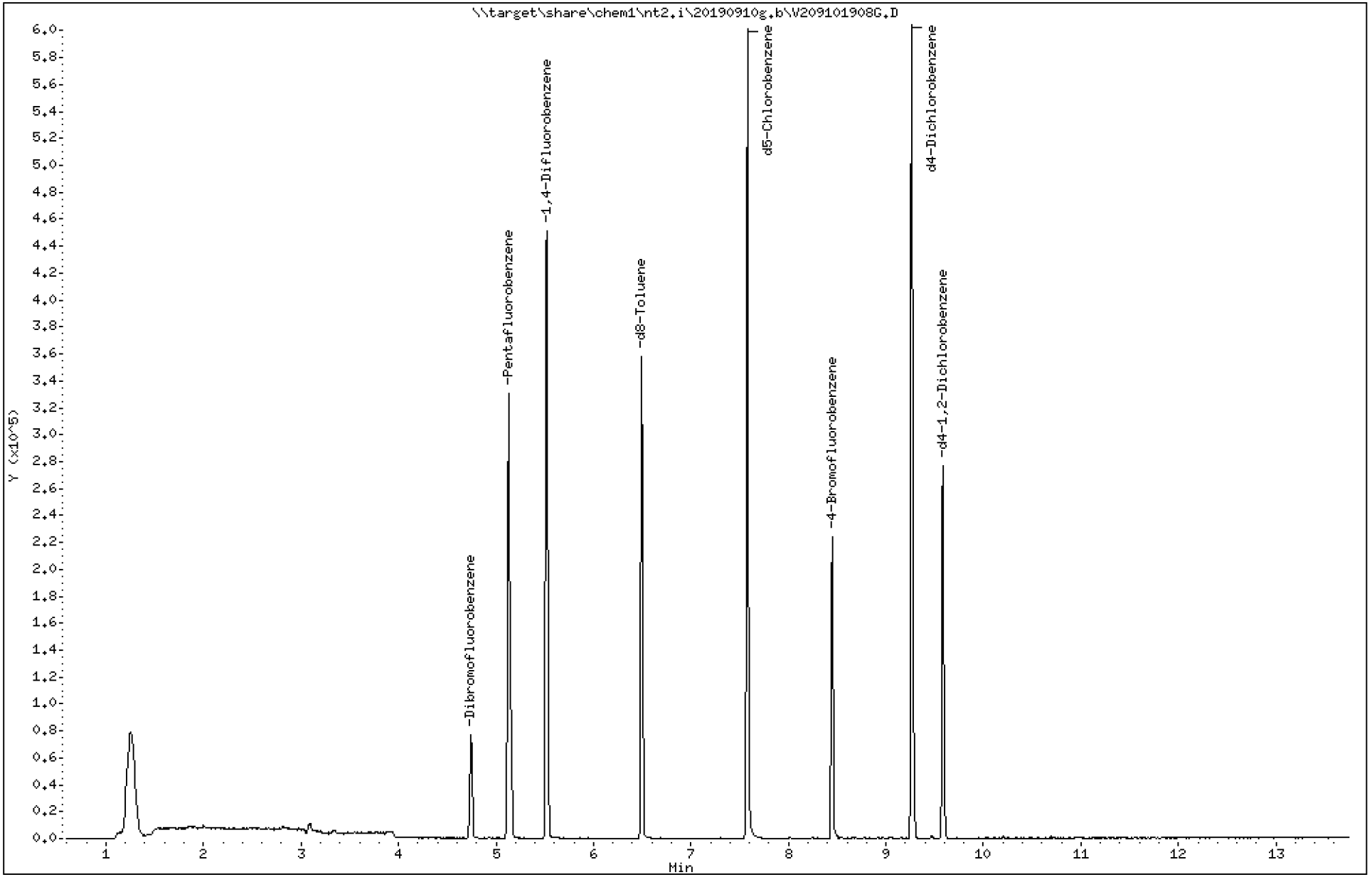
Sample Info: BHI0255-BLK1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101908G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 13:16

ARI ID: BHI0255-BLK1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	4	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	3	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	4	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.579	782100	d5-Chlorobenzene
8.449	284437	4-Bromofluorobenzene
6.496	448310	d8-Toluene
9.264	795753	d4-Dichlorobenzene
9.586	363417	d4-1,2-Dichlorobenzene

Form I

METHOD BLANK DATA SHEET

NWTPHg

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0298-BLK1	File ID:	V209111910G.D
Sampled:	N/A	Prepared:	09/11/19 10:19	Analyzed:	09/11/19 10:19
Solids:		Preparation:	EPA 5035 (Methanol Extract	Initial/Final:	5 g / 5 mL
Batch:	BHI0298	Sequence:	SHI0164	Calibration:	CI00026
Instrument:	NT2	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5000	U	2500	5000

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.01	100	80 - 120	
4-Bromofluorobenzene	5.0000	4.71	94.3	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111910G.D

Date : 11-SEP-2019 10:19

Client ID:

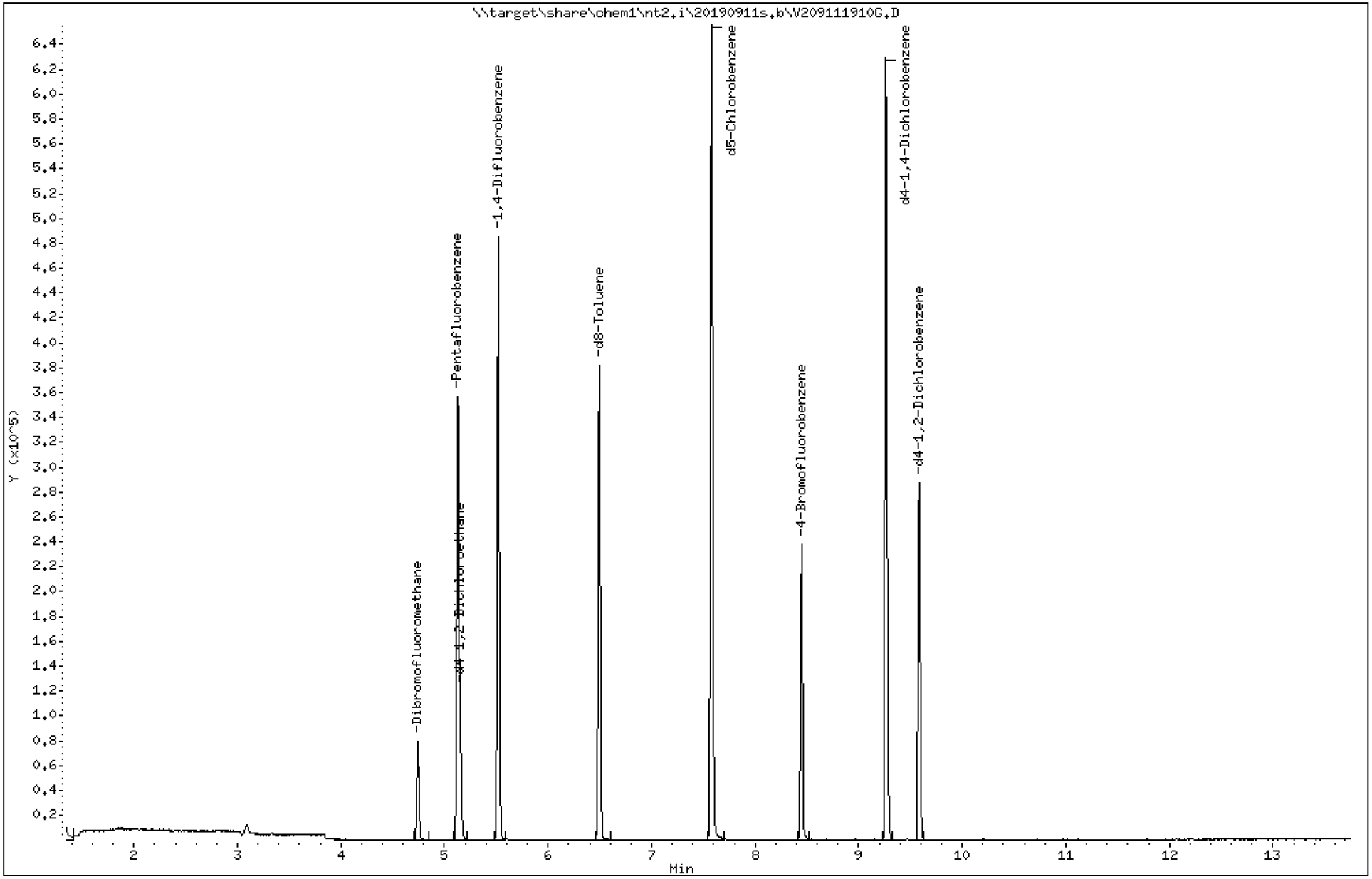
Sample Info: BHI0298-BLK1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111910G.D
Lab Smp Id: BHI0298-BLK1
Inj Date : 11-SEP-2019 10:19
Operator : LH   Inst ID: nt2.i
Smp Info : BHI0298-BLK1
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.742	(0.925)	41876	4.80797	4.808
* 32 Pentafluorobenzene	168	5.126	5.126	(1.000)	175929	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.150	(1.005)	52248	5.20227	5.202
* 37 1,4-Difluorobenzene	114	5.521	5.521	(1.000)	309654	10.0000	
$ 43 d8-Toluene	98	6.495	6.494	(1.176)	188811	5.01079	5.011
* 53 d5-Chlorobenzene	117	7.578	7.577	(1.000)	284141	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.447	(1.115)	49342	4.71401	4.714
* 76 d4-1,4-Dichlorobenzene	152	9.263	9.262	(1.000)	134527	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.585	(1.035)	61664	4.96284	4.963

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111910G.D
Lab Smp Id: BHI0298-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	175929	5.90
37 1,4-Difluorobenze	280906	140453	561812	309654	10.23
53 d5-Chlorobenzene	262007	131004	524014	284141	8.45
76 d4-1,4-Dichlorobe	136773	68387	273546	134527	-1.64

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.01
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.01
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0298-BLK1
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.808	96.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.202	104.05	
$ 43 d8-Toluene	5.000	5.011	100.22	
$ 62 4-Bromofluorobenze	5.000	4.714	94.28	
$ 79 d4-1,2-Dichloroben	5.000	4.963	99.26	

REVIEW SUMMARY FOR FILE - V209111910G.D

Lab ID: BHI0298-BLK1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 10:19

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\W209111910G.D

Date : 11-SEP-2019 10:19

Client ID:

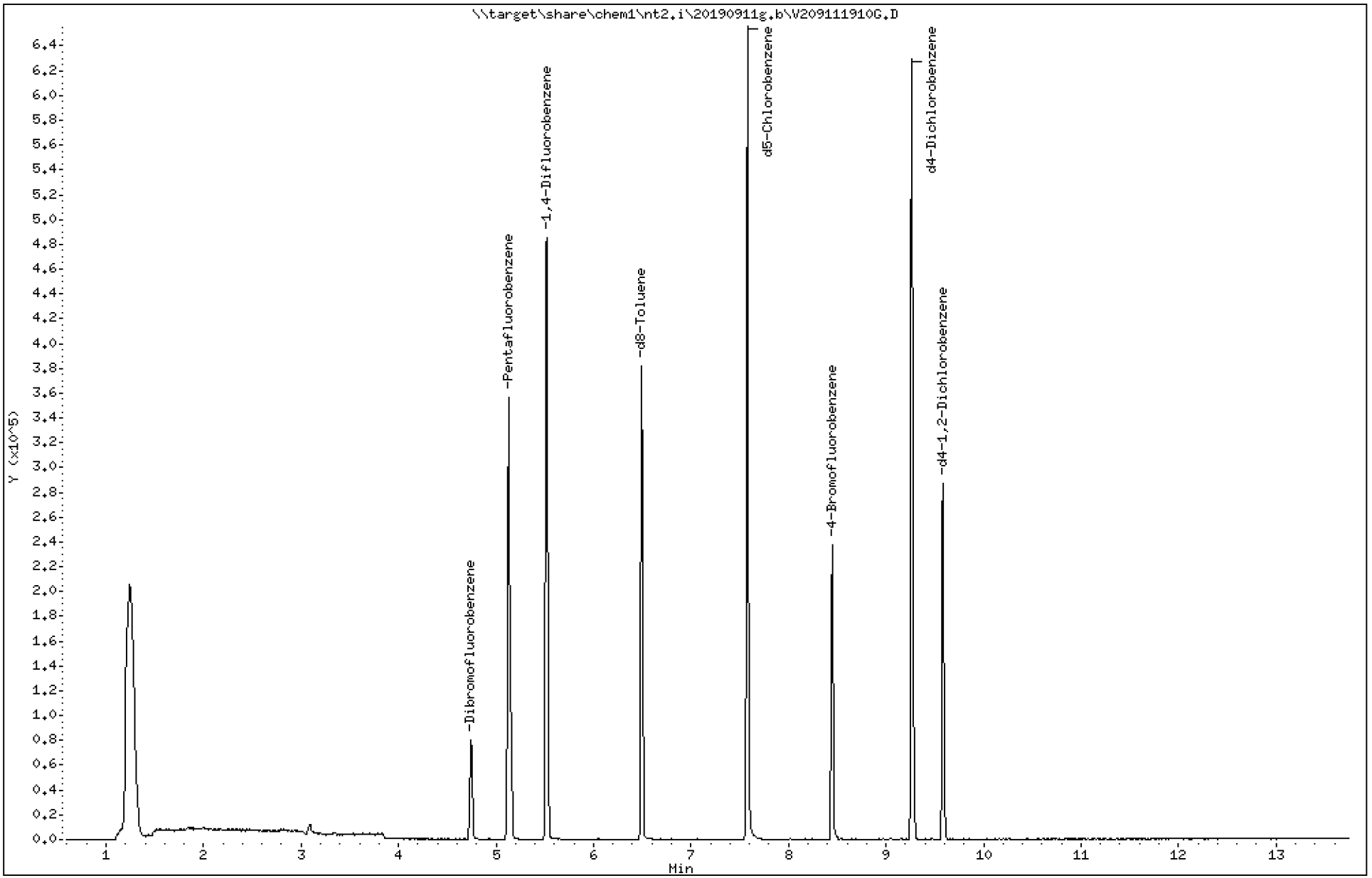
Sample Info: BHI0298-BLK1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111910G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 10:19

ARI ID: BHI0298-BLK1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	3	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	3	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.578	849844	d5-Chlorobenzene
8.448	304777	4-Bromofluorobenzene
6.495	486563	d8-Toluene
9.263	842403	d4-Dichlorobenzene
9.586	383032	d4-1,2-Dichlorobenzene

Form I

METHOD BLANK DATA SHEET

NWTPHg

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0303-BLK1	File ID:	V209111910MB2G.D
Sampled:	N/A	Prepared:	09/11/19 10:19	Analyzed:	09/11/19 10:19
Solids:		Preparation:	EPA 5030 (Purge and Trap)	Initial/Final:	5 g / 5 mL
Batch:	BHI0303	Sequence:	SHI0164	Calibration:	CI00026
Instrument:	NT2	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5000	U	2500	5000

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.01	100	80 - 120	
4-Bromofluorobenzene	5.0000	4.71	94.3	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111910MB2G.D

Date : 11-SEP-2019 10:19

Client ID:

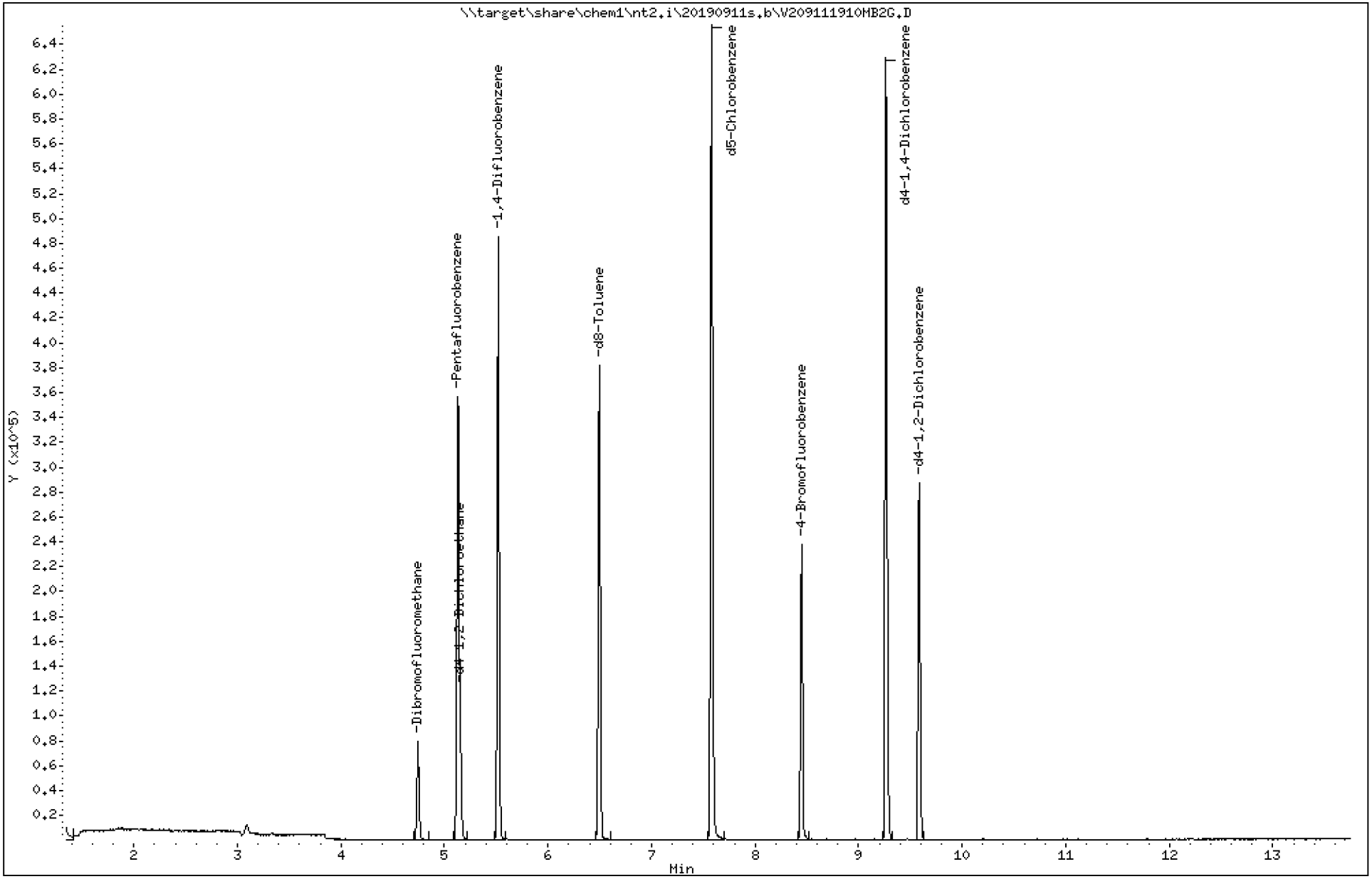
Instrument: nt2.i

Sample Info: BHI0303-BLK1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111910MB2G.D
Lab Smp Id: BHI0303-BLK1
Inj Date : 11-SEP-2019 10:19
Operator : LH Inst ID: nt2.i
Smp Info : BHI0303-BLK1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.742	(0.925)	41876	4.80797	4.808
* 32 Pentafluorobenzene	168	5.126	5.126	(1.000)	175929	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.150	(1.005)	52248	5.20227	5.202
* 37 1,4-Difluorobenzene	114	5.521	5.521	(1.000)	309654	10.0000	
$ 43 d8-Toluene	98	6.495	6.494	(1.176)	188811	5.01079	5.011
* 53 d5-Chlorobenzene	117	7.578	7.577	(1.000)	284141	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.447	(1.115)	49342	4.71401	4.714
* 76 d4-1,4-Dichlorobenzene	152	9.263	9.262	(1.000)	134527	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.585	(1.035)	61664	4.96284	4.963

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111910MB2G.D
Lab Smp Id: BHI0303-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	175929	5.90
37 1,4-Difluorobenze	280906	140453	561812	309654	10.23
53 d5-Chlorobenzene	262007	131004	524014	284141	8.45
76 d4-1,4-Dichlorobe	136773	68387	273546	134527	-1.64

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.01
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.01
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0303-BLK1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.808	96.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.202	104.05	
$ 43 d8-Toluene	5.000	5.011	100.22	
$ 62 4-Bromofluorobenze	5.000	4.714	94.28	
$ 79 d4-1,2-Dichloroben	5.000	4.963	99.26	

REVIEW SUMMARY FOR FILE - V209111910MB2G.D

Lab ID: BHI0303-BLK1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 10:19

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111910MB2G.D

Date : 11-SEP-2019 10:19

Client ID:

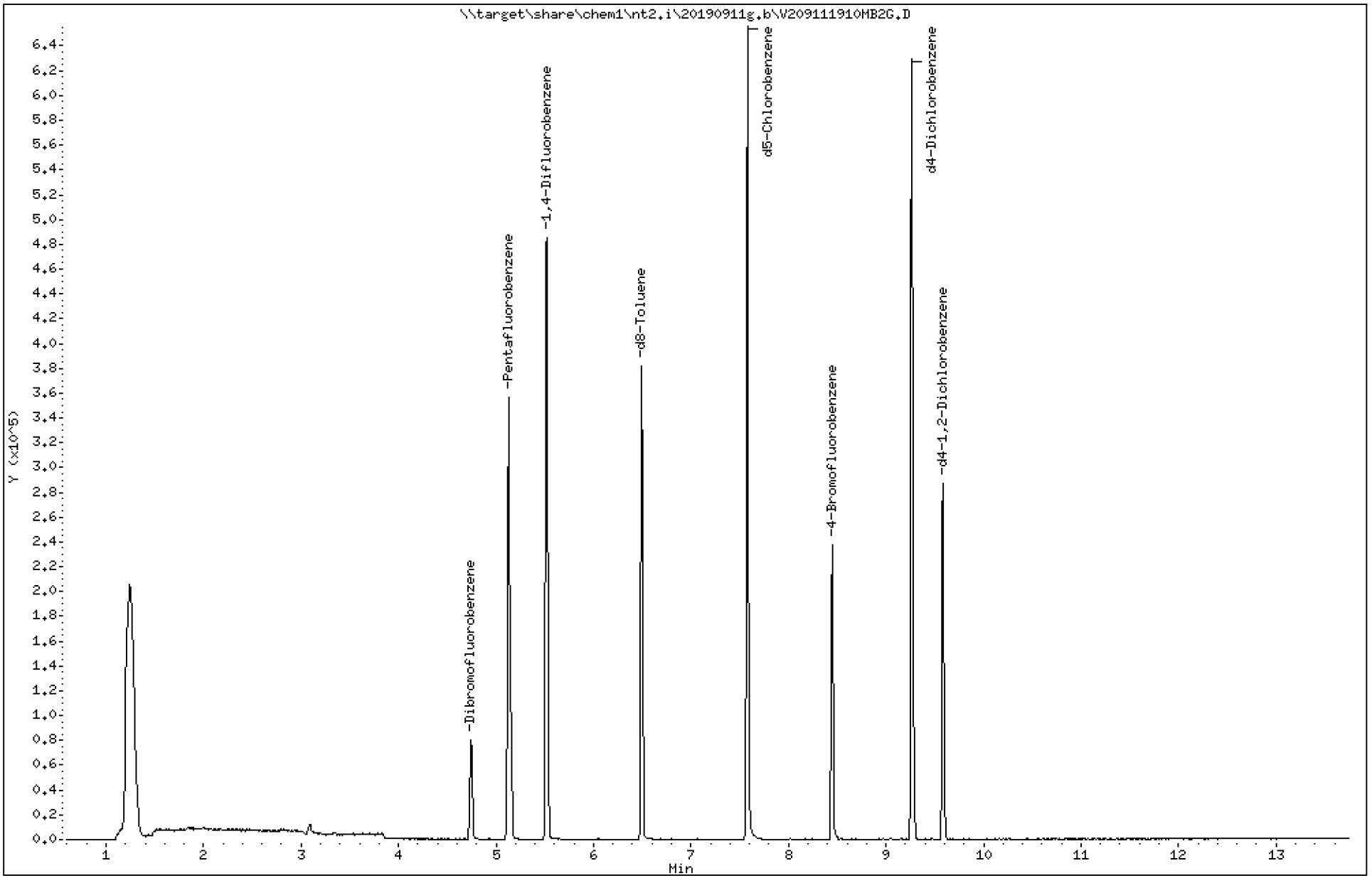
Instrument: nt2.i

Sample Info: BHI0303-BLK1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111910MB2G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 10:19

ARI ID: BHI0303-BLK1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.99 to 9.25)	42964079	3	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2	0.000
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	3	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.578	849844	d5-Chlorobenzene
8.448	304777	4-Bromofluorobenzene
6.495	486563	d8-Toluene
9.263	842403	d4-Dichlorobenzene
9.586	383032	d4-1,2-Dichlorobenzene

Form I

METHOD BLANK DATA SHEET

NWTPHg

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0335-BLK1	File ID:	V209121910G.D
Sampled:	N/A	Prepared:	09/12/19 07:26	Analyzed:	09/12/19 09:53
Solids:		Preparation:	EPA 5035 (Methanol Extract	Initial/Final:	5 g / 5 mL
Batch:	BHI0335	Sequence:	SHI0187	Calibration:	CI00026
Instrument:	NT2	Column:	RTX-VMS		

CAS NO.	COMPOUND	DILUTION	CONC. (ug/kg wet)	Q	DL	RL
GRO	Gasoline Range Organics (Tol-Nap)	50	5000	U	2500	5000

SURROGATES	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Toluene-d8	5.0000	5.00	100	80 - 120	
4-Bromofluorobenzene	5.0000	4.84	96.8	78 - 123	

Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121910G.D

Date : 12-SEP-2019 09:53

Client ID:

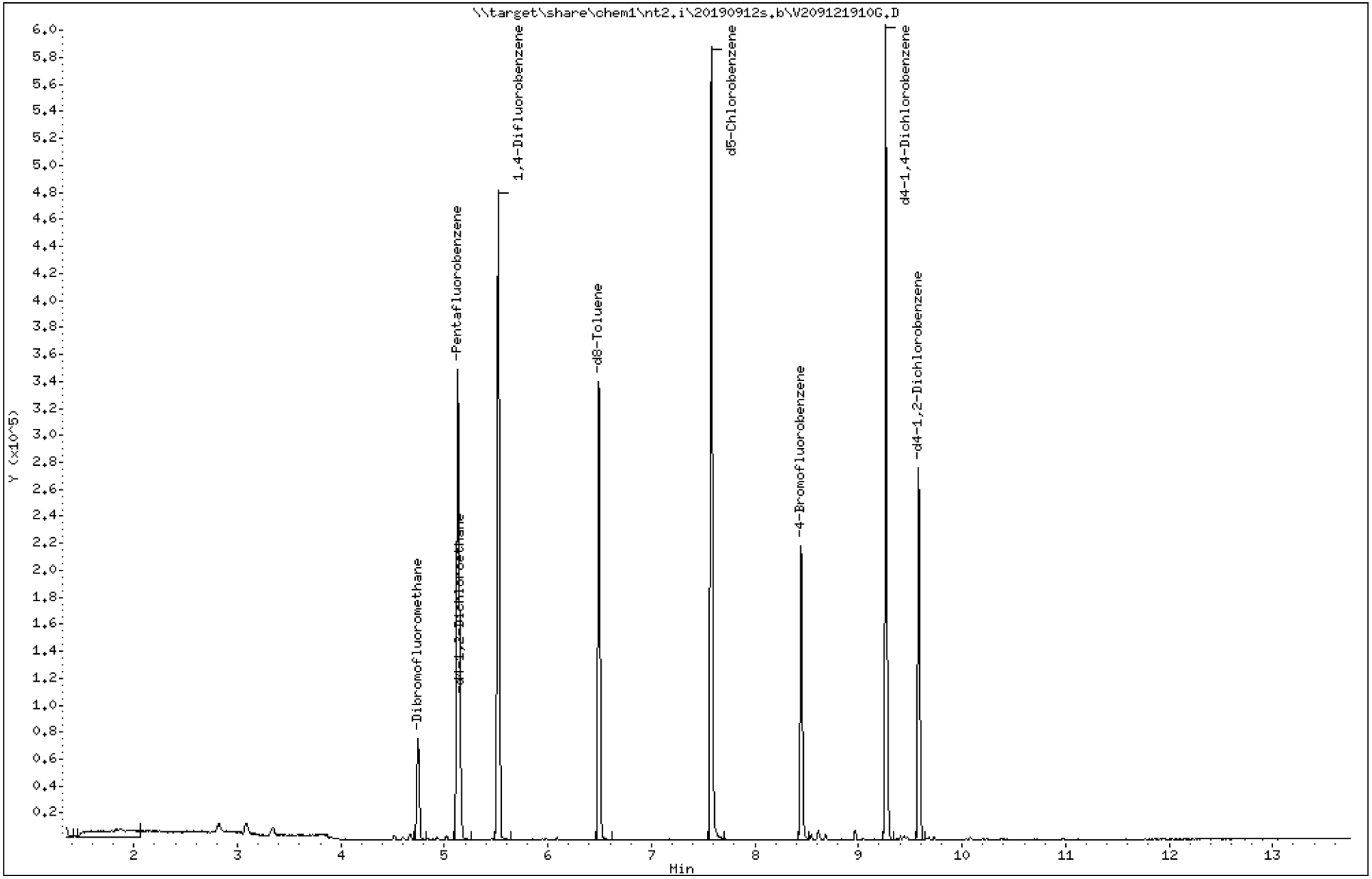
Sample Info: BHI0335-BLK1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121910G.D
Lab Smp Id: BHI0335-BLK1
Inj Date : 12-SEP-2019 09:53
Operator : LH   Inst ID: nt2.i
Smp Info : BHI0335-BLK1
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.742	(0.925)	39391	4.71173	4.712
* 32 Pentafluorobenzene	168	5.129	5.132	(1.000)	168869	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.150	(1.005)	50339	5.22174	5.222
* 37 1,4-Difluorobenzene	114	5.518	5.521	(1.000)	292625	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	178064	5.00058	5.001
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	264398	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	47157	4.84168	4.842
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	127821	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.582	9.585	(1.034)	58951	4.99340	4.993

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121910G.D
Lab Smp Id: BHI0335-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 1

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	168869	1.65
37 1,4-Difluorobenze	280906	140453	561812	292625	4.17
53 d5-Chlorobenzene	262007	131004	524014	264398	0.91
76 d4-1,4-Dichlorobe	136773	68387	273546	127821	-6.55

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0335-BLK1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.712	94.23	
$ 33 d4-1,2-Dichloroeth	5.000	5.222	104.43	
$ 43 d8-Toluene	5.000	5.001	100.01	
$ 62 4-Bromofluorobenze	5.000	4.842	96.83	
$ 79 d4-1,2-Dichloroben	5.000	4.993	99.87	

REVIEW SUMMARY FOR FILE - V209121910G.D

Lab ID: BHI0335-BLK1
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 09:53

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121910G.D

Date : 12-SEP-2019 09:53

Client ID:

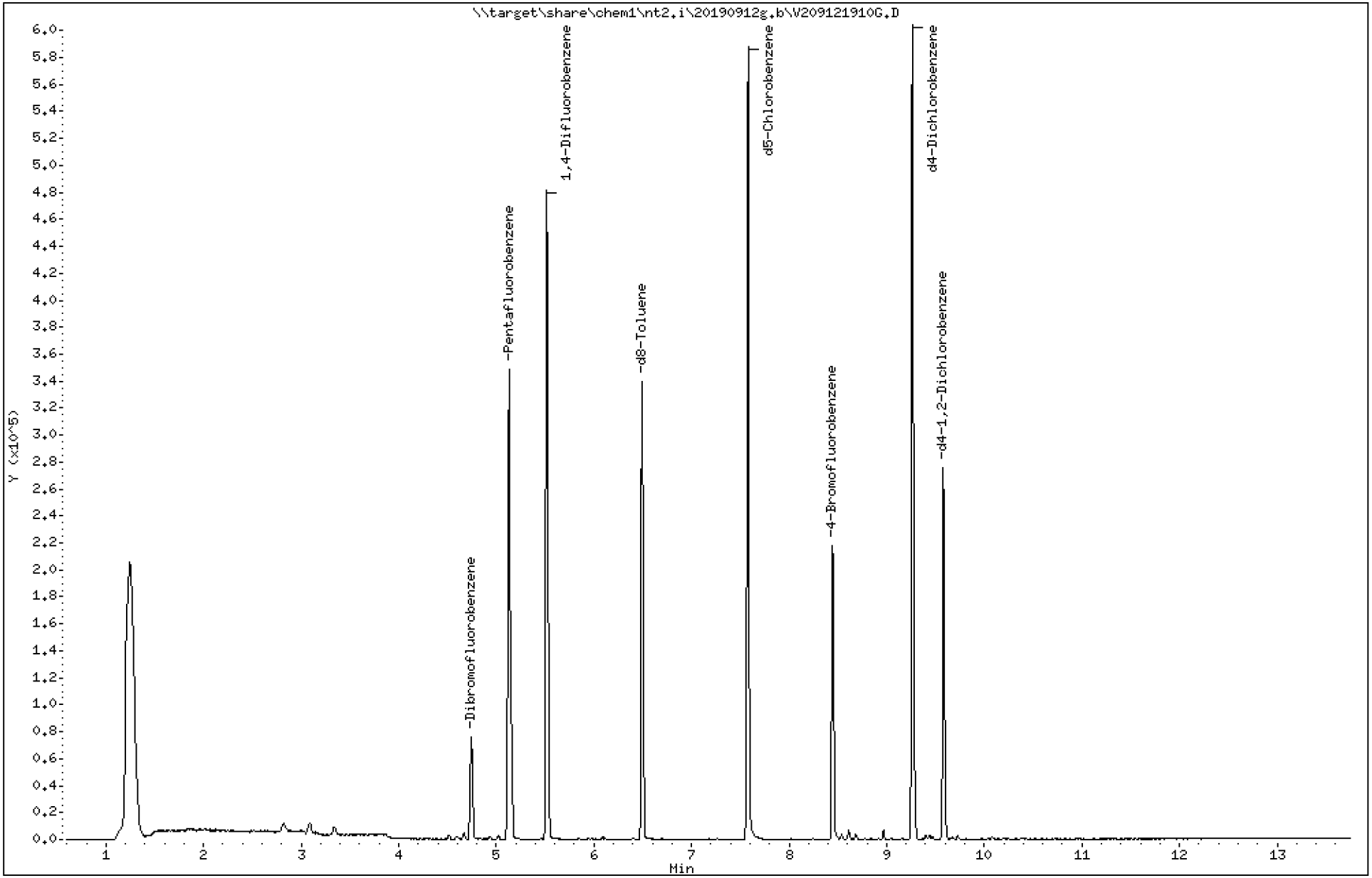
Sample Info: BHI0335-BLK1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121910G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 09:53

ARI ID: BHI0335-BLK1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2	0.000
8015C 2MP-TMB	(2.98 to 9.26)	42964079	3	0.000
AK101 nC6-nC10	(3.24 to 8.42)	32820925	2	0.000
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	2	0.000
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	2	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.581	790751	d5-Chlorobenzene
8.444	290196	4-Bromofluorobenzene
6.492	461089	d8-Toluene
9.266	798016	d4-Dichlorobenzene
9.582	363469	d4-1,2-Dichlorobenzene

LCS / LCS DUPLICATE RECOVERY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Water	Analyzed:	09/05/19 13:23
Batch:	BHI0133	Laboratory ID:	BHI0133-BS2
Preparation:	EPA 5030 (Purge and Trap)	Sequence Name:	LCS
Initial/Final:	10 mL / 10 ml		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	1000	1030		103	72 - 128

* Indicates values outside of QC limits

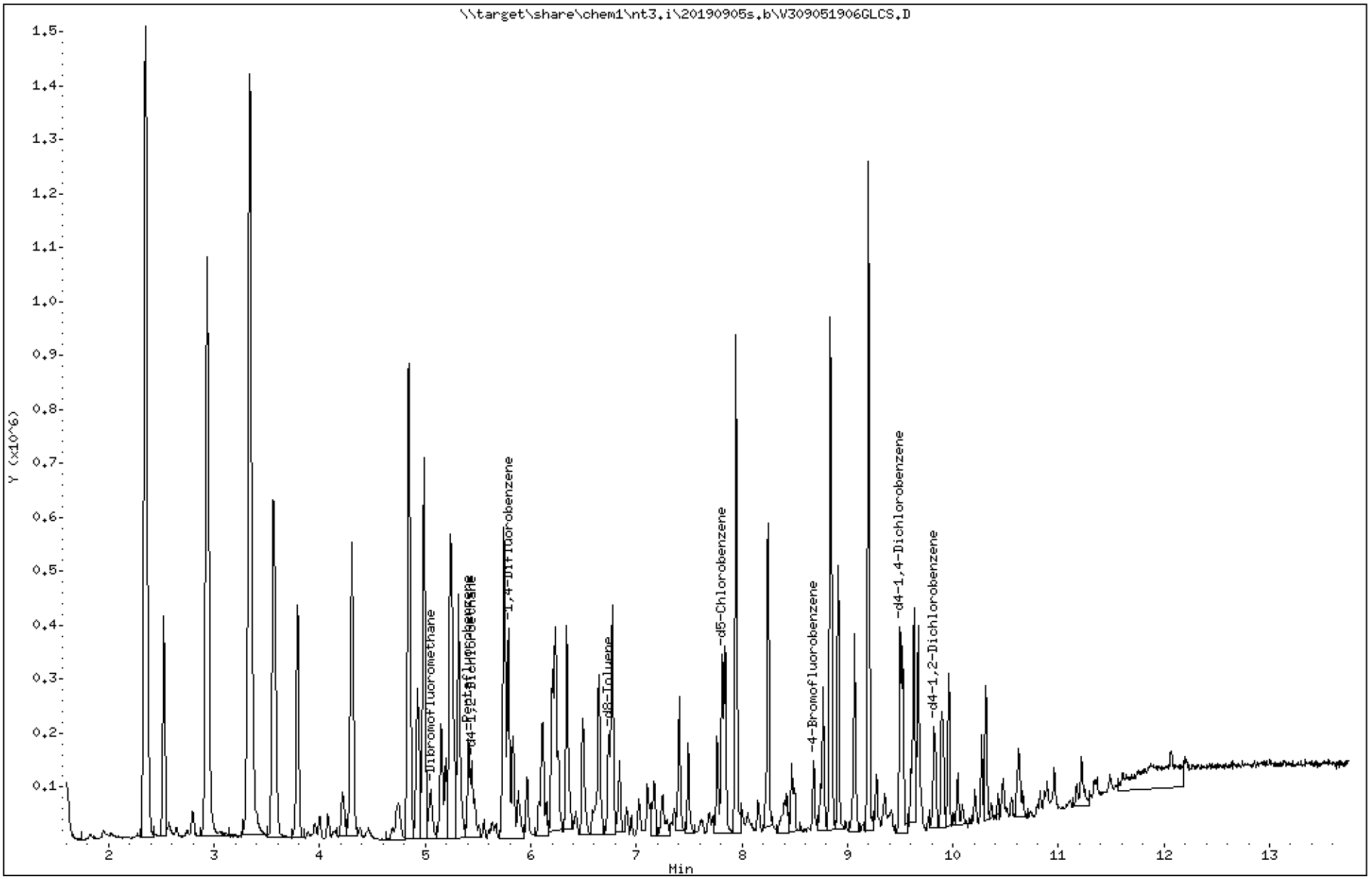
COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	1000	1060		106	2.22	30	72 - 128

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt3.i\20190905s.b\V309051906GLCS.D
Date : 05-SEP-2019 13:23
Client ID:
Sample Info: BHI0133-BS2

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051906GLCS.D
Lab Smp Id: BHI0133-BS2
Inj Date : 05-SEP-2019 13:23
Operator : PKC Inst ID: nt3.i
Smp Info : BHI0133-BS2
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.053	5.053	(0.934)	20586	4.87723	4.877
* 32 Pentafluorobenzene	168	5.410	5.409	(1.000)	97616	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	25059	5.32882	5.329
* 37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	144146	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	85241	4.88822	4.888
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	142226	10.0000	
$ 62 4-Bromofluorobenzene	174	8.679	8.678	(1.111)	32592	4.82251	4.823
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	88323	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	41333	4.98061	4.981

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051906GLCS.D
Lab Smp Id: BHI0133-BS2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	97616	0.74
37 1,4-Difluorobenze	140121	70061	280242	144146	2.87
53 d5-Chlorobenzene	140128	70064	280256	142226	1.50
76 d4-1,4-Dichlorobe	90137	45069	180274	88323	-2.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHI0133-BS2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.877	97.54	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.329	106.58	80-128
$ 43 d8-Toluene	5.000	4.888	97.76	80-120
$ 62 4-Bromofluorobenze	5.000	4.823	96.45	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.981	99.61	80-120

REVIEW SUMMARY FOR FILE - V309051906GLCS.D

Lab ID: BHI0133-BS2
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 13:23

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V309051906GLCS.D

Date : 05-SEP-2019 13:23

Client ID:

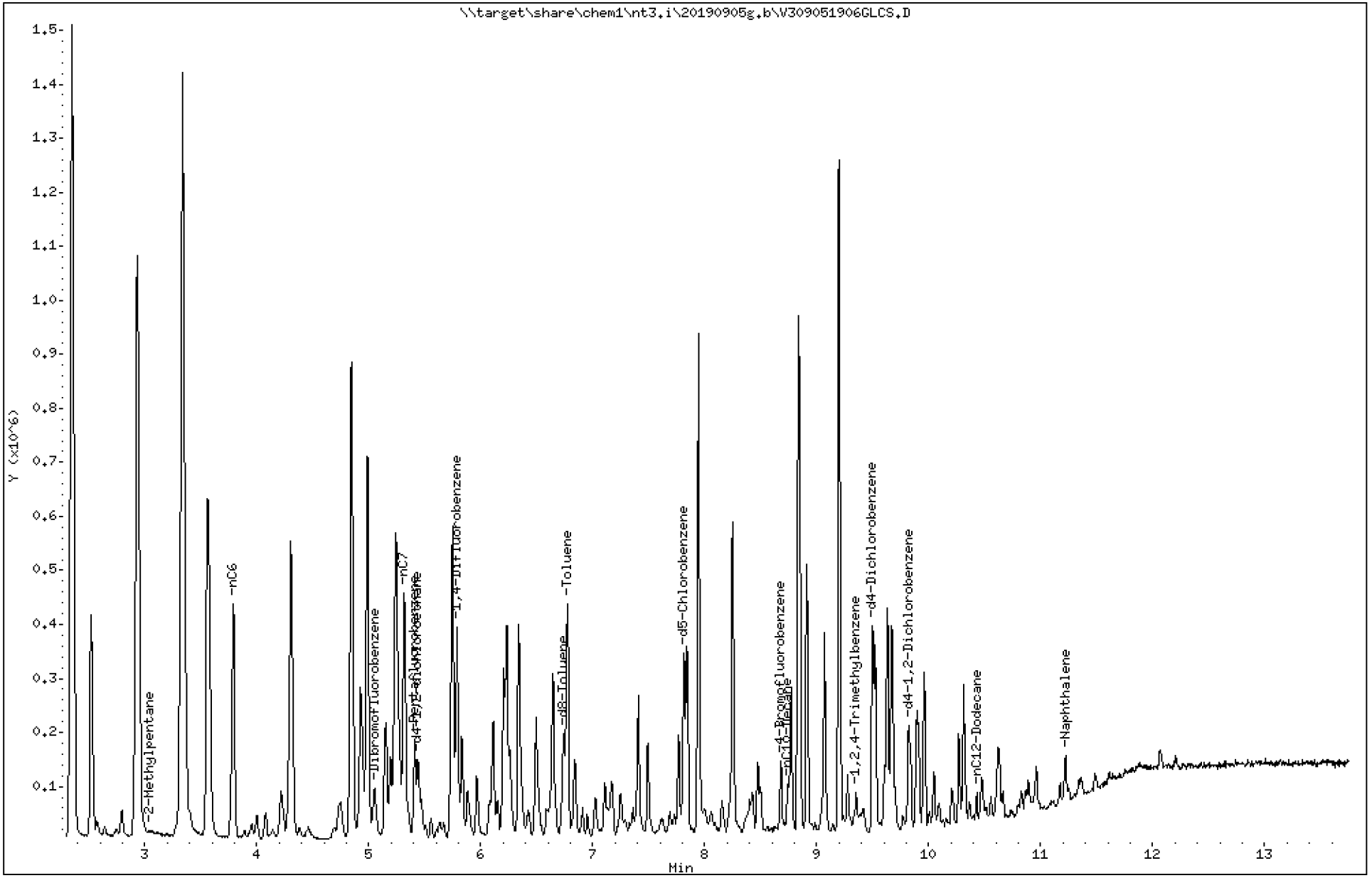
Instrument: nt3.i

Sample Info: BHI0133-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051906GLCS.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 13:23

ARI ID: BHI0133-BS2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.68 to 10.53)	15876360	16674198	1.050	
8015C 2MP-TMB	(2.94 to 9.46)	32687243	32815104	1.004	M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	22155362	1.109	M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	17832072	1.033	M
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	24980349	1.087	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

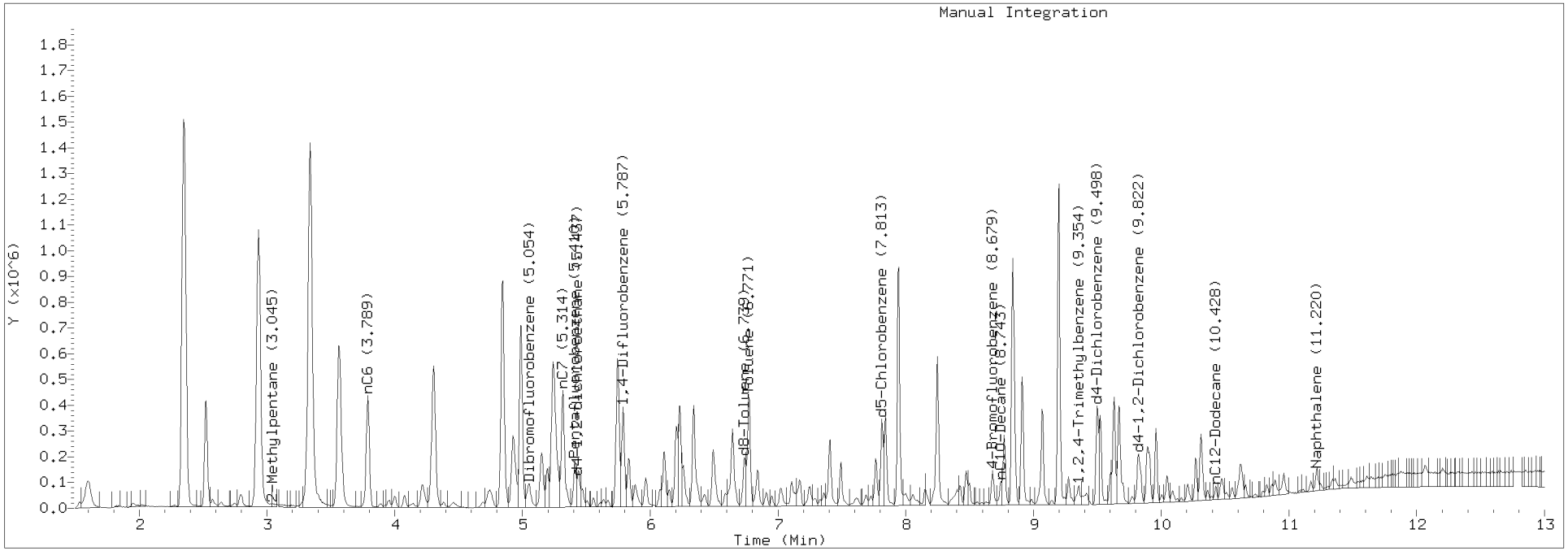
NW Gas Range Subtracted Peaks

7.813	525215	d5-Chlorobenzene
6.739	314444	d8-Toluene
9.498	588567	d4-Dichlorobenzene
8.679	196471	4-Bromofluorobenzene
9.822	402897	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190905g.b/V309051906GLCS.D Injection: 05-SEP-2019 13:23

Lab ID:BHI0133-BS2



Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519076.D

Date : 05-SEP-2019 13:50

Client ID:

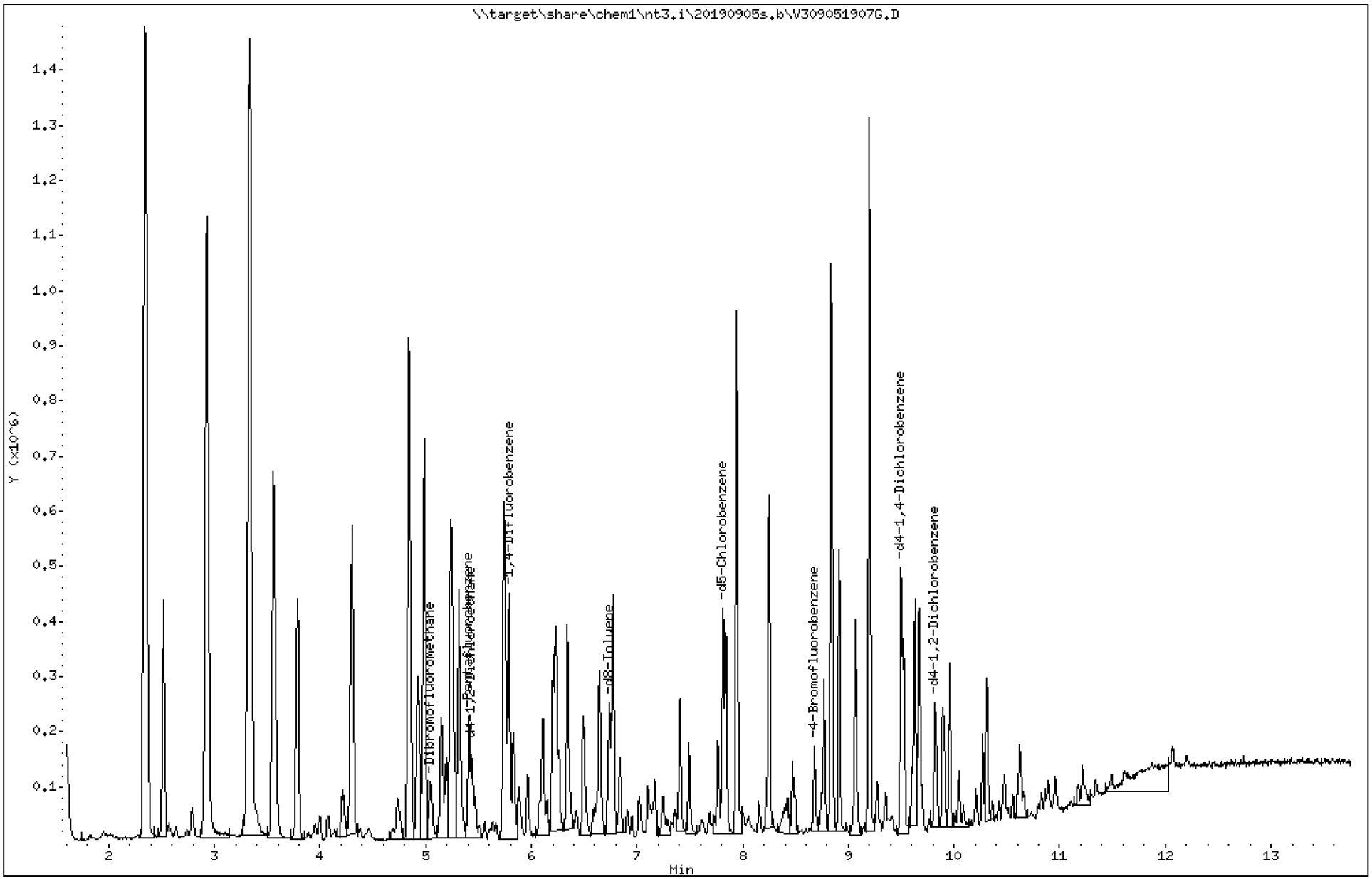
Sample Info: BHI0133-BSD2

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051907G.D
Lab Smp Id: BHI0133-BSD2
Inj Date : 05-SEP-2019 13:50
Operator : PKC   Inst ID: nt3.i
Smp Info : BHI0133-BSD2
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	25059	4.94411	4.944
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	117219	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.441	(1.005)	30956	5.48195	5.482
*	37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	176326	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	107087	5.02025	5.020
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	178007	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	40603	4.80024	4.800
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	108907	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	52779	5.15780	5.158

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051907G.D
Lab Smp Id: BHI0133-BSD2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	117219	20.97
37 1,4-Difluorobenze	140121	70061	280242	176326	25.84
53 d5-Chlorobenzene	140128	70064	280256	178007	27.03
76 d4-1,4-Dichlorobe	90137	45069	180274	108907	20.82

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: BHI0133-BSD2
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.944	98.88	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.482	109.64	80-128
$ 43 d8-Toluene	5.000	5.020	100.40	80-120
$ 62 4-Bromofluorobenze	5.000	4.800	96.00	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.158	103.16	80-120

REVIEW SUMMARY FOR FILE - V309051907G.D

Lab ID: BHI0133-BSD2
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 13:50

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V3090519O7G.D

Date : 05-SEP-2019 13:50

Client ID:

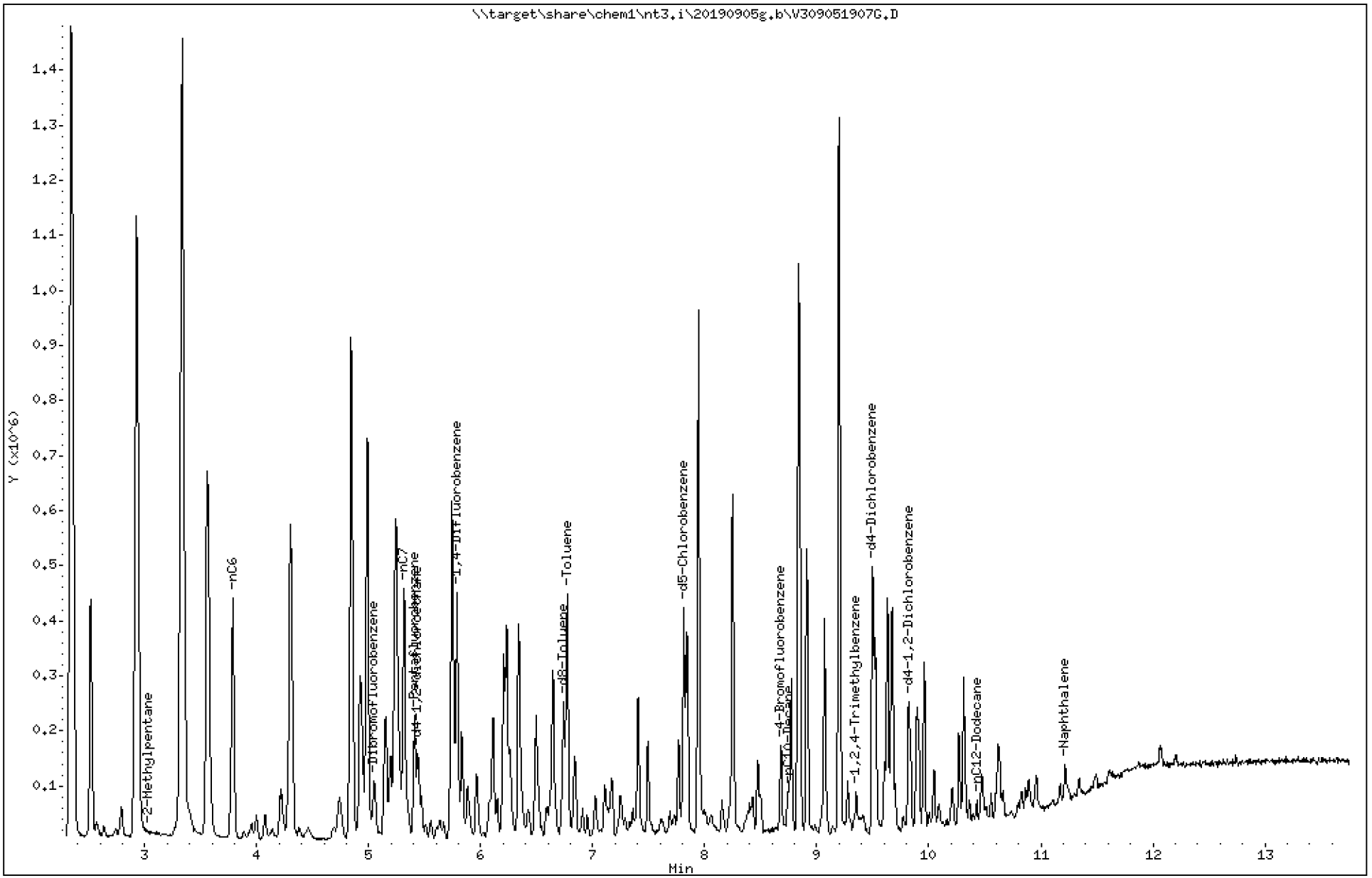
Instrument: nt3.i

Sample Info: BHI0133-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051907G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 13:50

ARI ID: BHI0133-BSD2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.68 to 10.53)	15876360	17012368	1.072	M
8015C 2MP-TMB	(2.94 to 9.46)	32687243	33921437	1.038	M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	22887673	1.146	
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	18233071	1.056	M
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	25595097	1.114	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

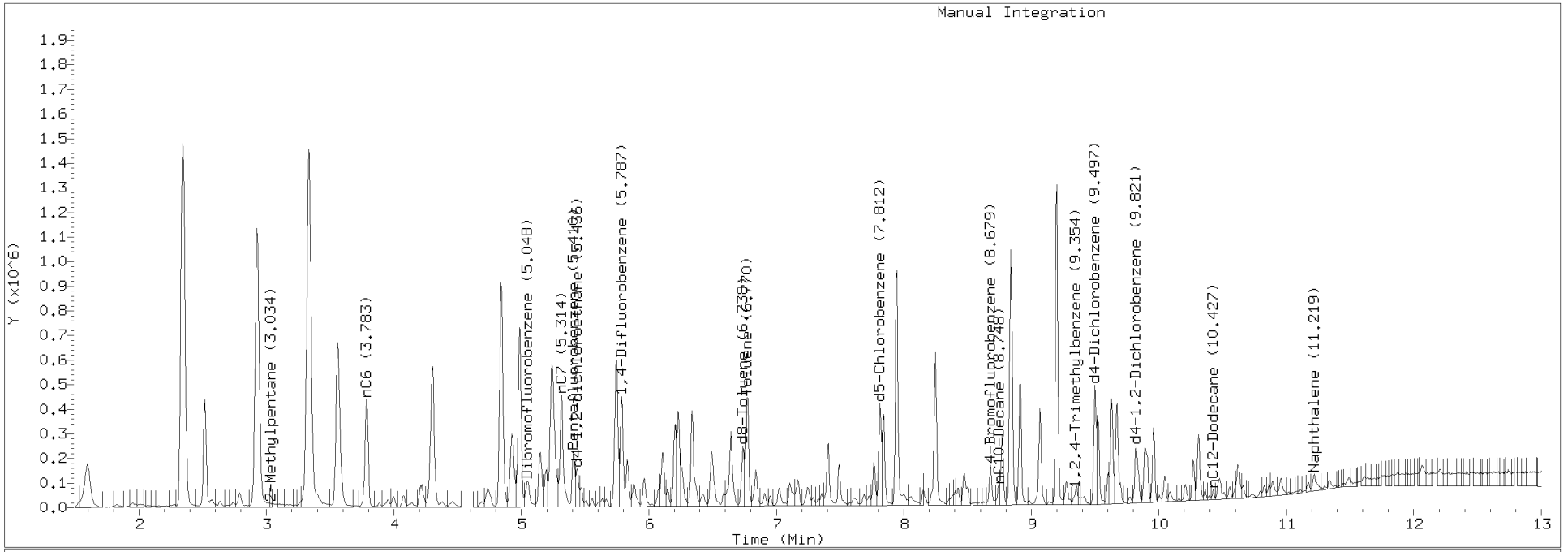
NW Gas Range Subtracted Peaks

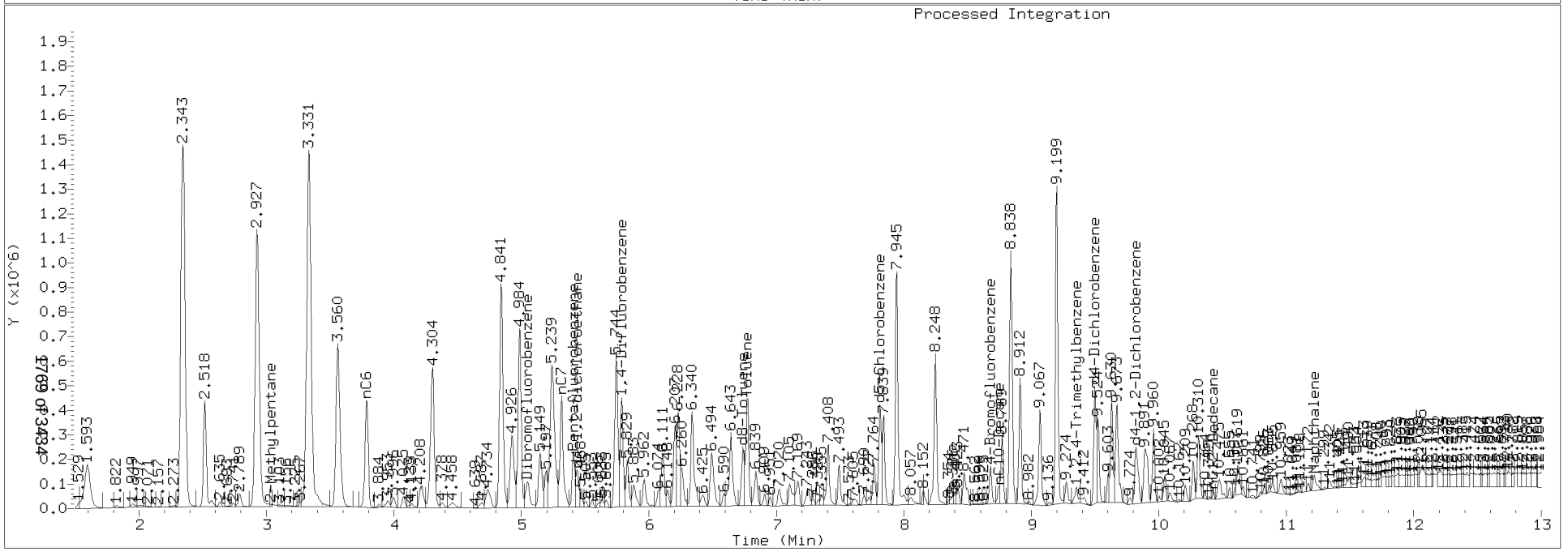
7.812	628911	d5-Chlorobenzene
6.738	367060	d8-Toluene
9.497	713552	d4-Dichlorobenzene
8.679	259458	4-Bromofluorobenzene
9.821	456752	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190905g.b/V309051907G.D Injection: 05-SEP-2019 13:50

Lab ID:BHI0133-BSD2





LCS / LCS DUPLICATE RECOVERY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/10/19 11:32
Batch:	BHI0255	Laboratory ID:	BHI0255-BS1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	51800		104	70 - 121

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	49200		98.5	5.04	30	70 - 121

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101903LCSG.D

Date : 10-SEP-2019 11:32

Client ID: Gas

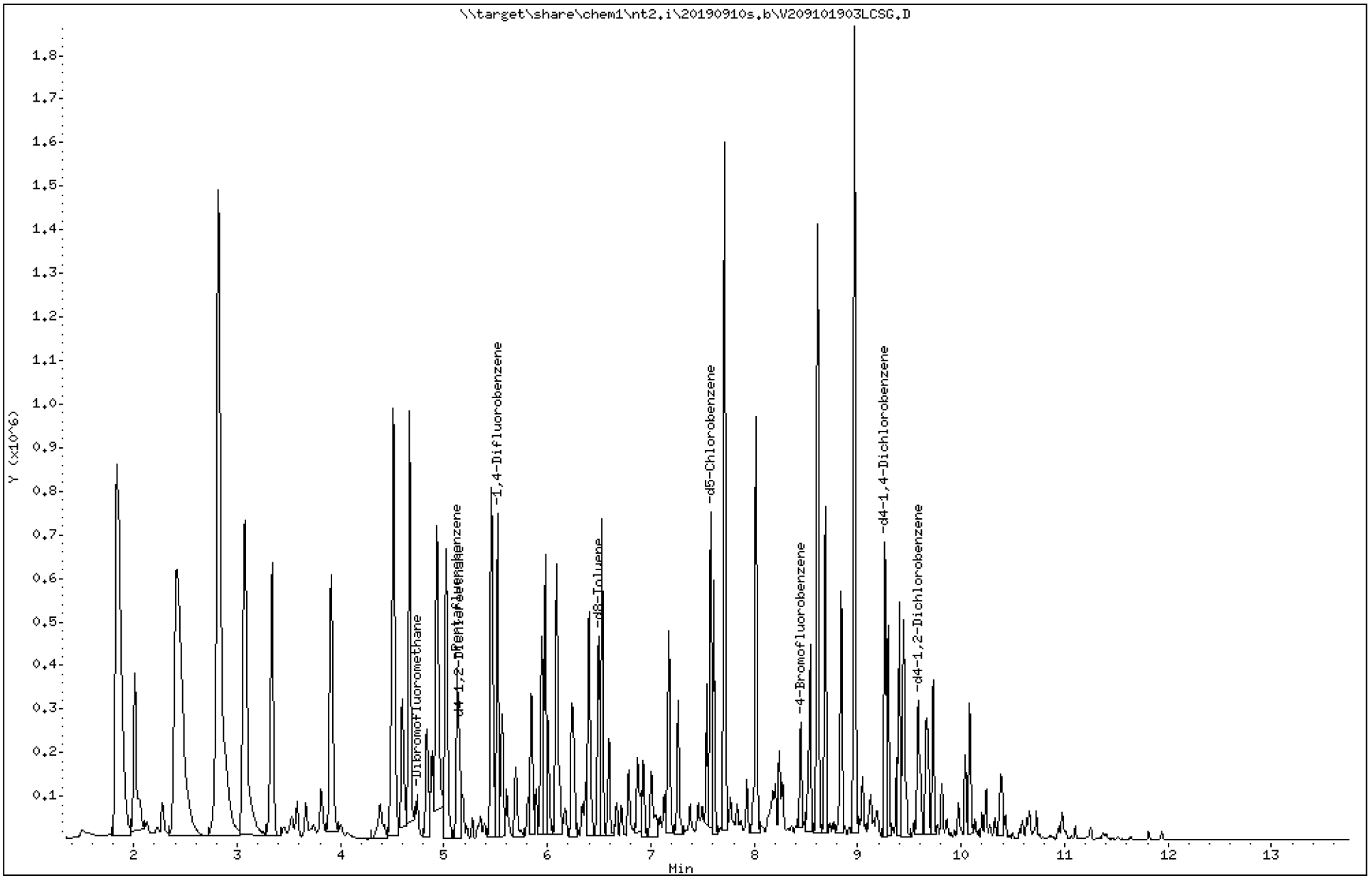
Instrument: nt2.i

Sample Info: BHI0255-BS1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101903LCSG.D
Lab Smp Id: BHI0255-BS1 Client Smp ID: Gas
Inj Date : 10-SEP-2019 11:32
Operator : PKC Inst ID: nt2.i
Smp Info : BHI0255-BS1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.743	(0.925)	43497	4.66365	4.664
* 32 Pentafluorobenzene	168	5.125	5.132	(1.000)	188394	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.151	(1.005)	54723	5.08819	5.088
* 37 1,4-Difluorobenzene	114	5.515	5.522	(1.000)	322661	10.0000	
$ 43 d8-Toluene	98	6.494	6.495	(1.178)	200571	5.10831	5.108
* 53 d5-Chlorobenzene	117	7.577	7.578	(1.000)	291545	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.448	(1.115)	54447	5.06963	5.070
* 76 d4-1,4-Dichlorobenzene	152	9.262	9.263	(1.000)	144111	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.586	(1.035)	66668	5.00873	5.009

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101903LCSG.D
Lab Smp Id: BHI0255-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Client Smp ID: Gas
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	188394	13.41
37 1,4-Difluorobenze	280906	140453	561812	322661	14.86
53 d5-Chlorobenzene	262007	131004	524014	291545	11.27
76 d4-1,4-Dichlorobe	136773	68387	273546	144111	5.37

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.14
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.13
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0255-BS1 Client Smp ID: Gas
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.664	93.27	
$ 33 d4-1,2-Dichloroeth	5.000	5.088	101.76	
$ 43 d8-Toluene	5.000	5.108	102.17	
$ 62 4-Bromofluorobenze	5.000	5.070	101.39	
$ 79 d4-1,2-Dichloroben	5.000	5.009	100.17	

REVIEW SUMMARY FOR FILE - V209101903LCSG.D

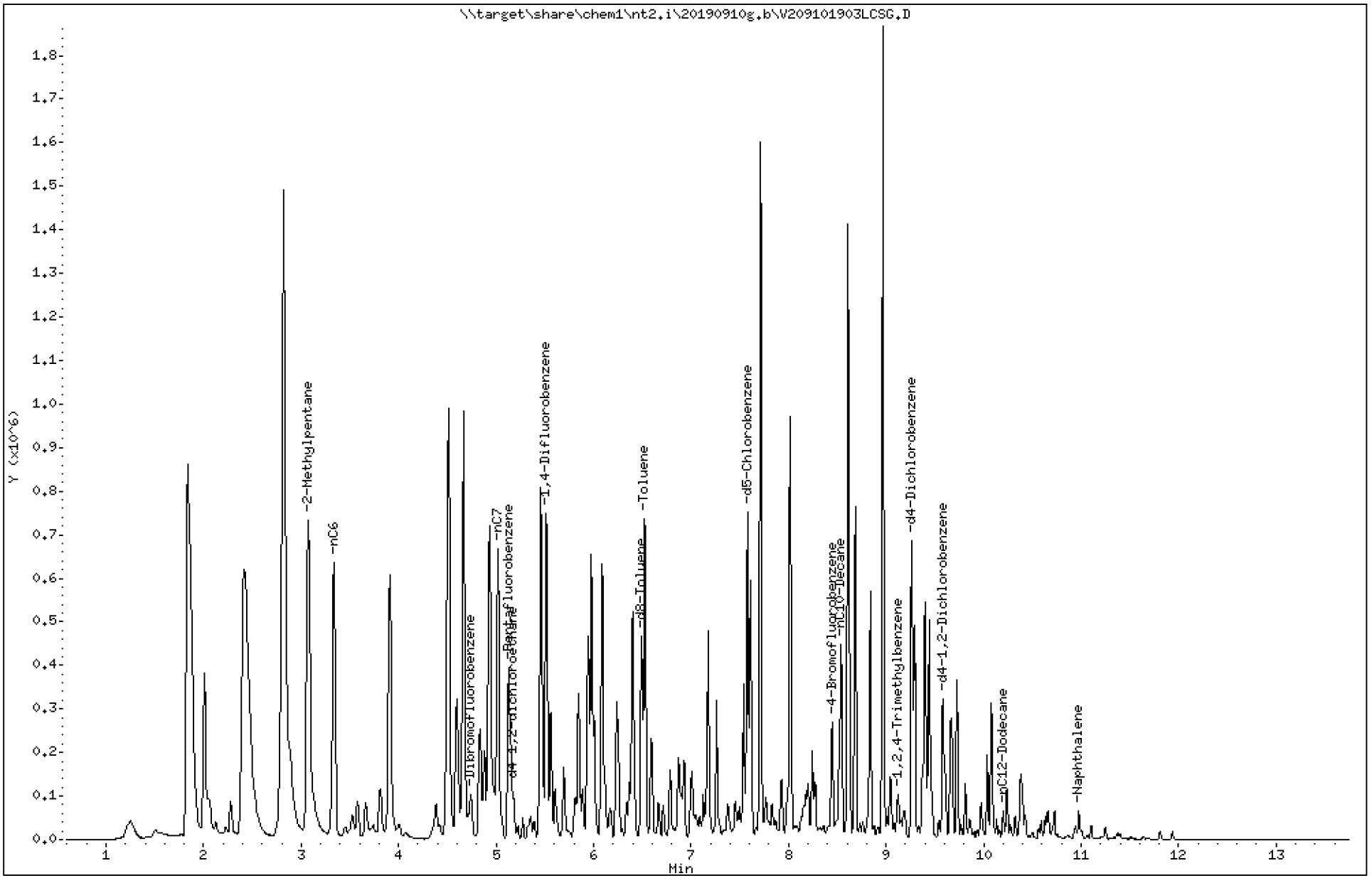
Lab ID: BHI0255-BS1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 11:32

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101903LCSG.D
Date : 10-SEP-2019 11:32
Client ID:
Sample Info: BHI0255-BS1

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101903LCSG.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 11:32

ARI ID: BHI0255-BS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	25937231	1.038 M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	44594811	1.038 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34191222	1.042 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27043500	1.035 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36486812	1.034 M

* Surrogate areas are subtracted from Total Area

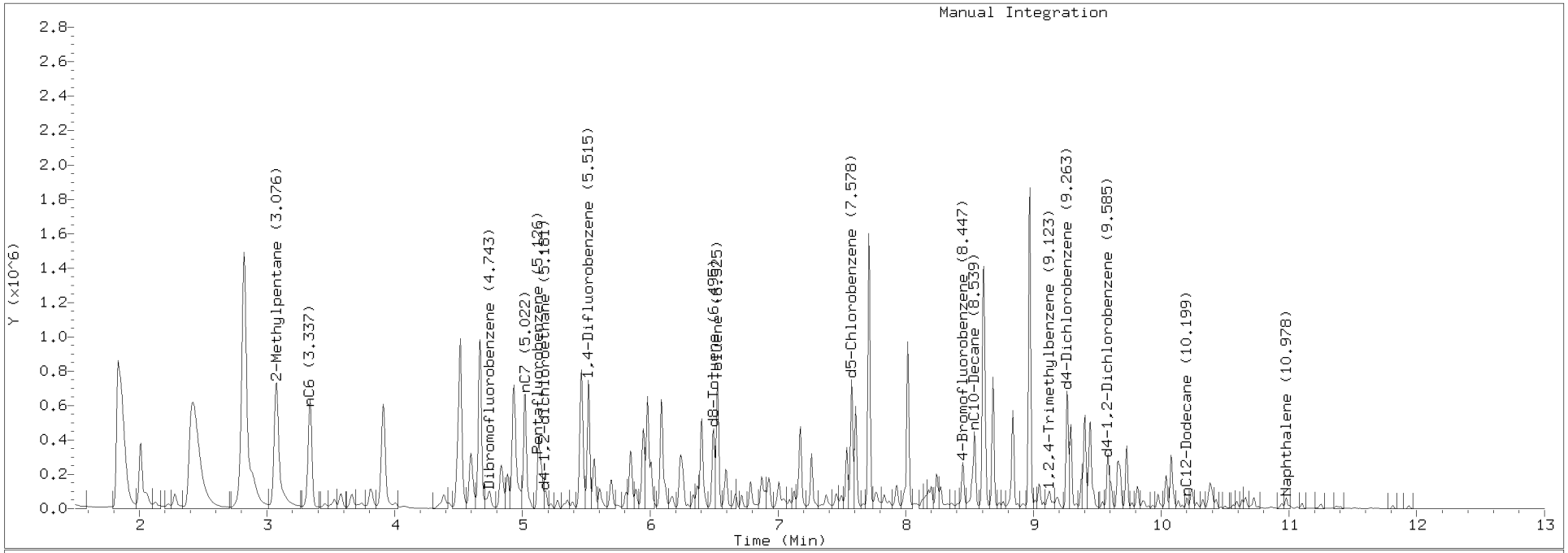
NW Gas Range Subtracted Peaks

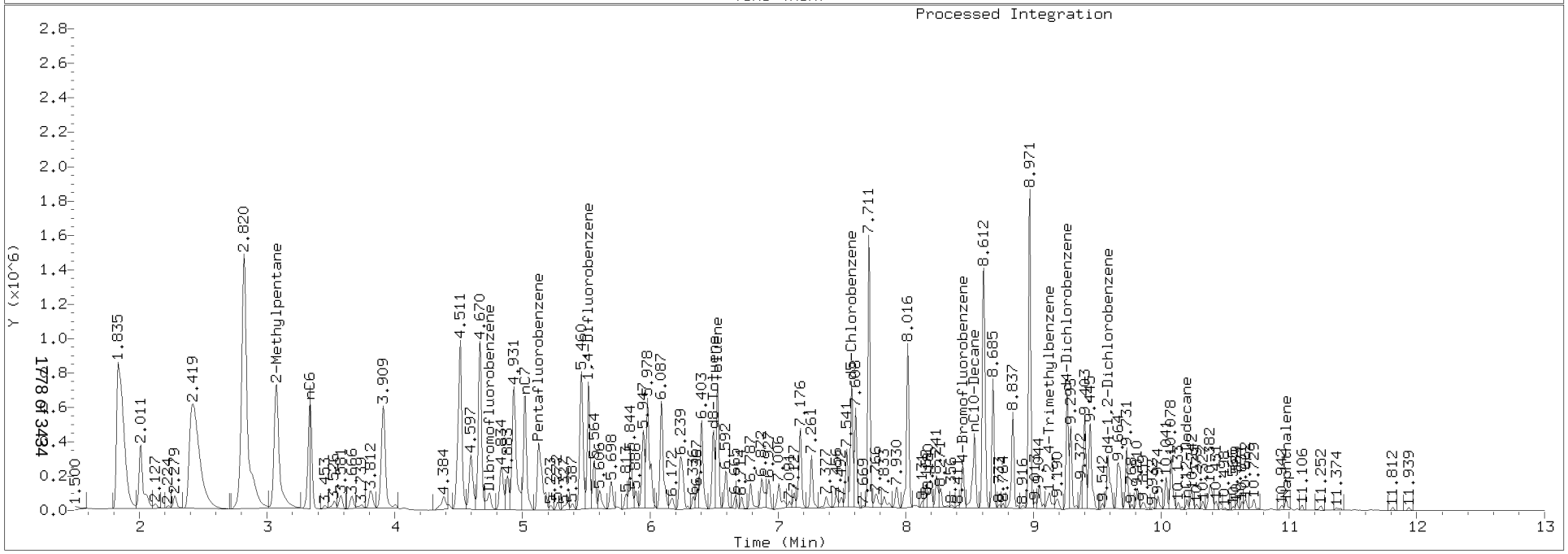
7.578	1094948	d5-Chlorobenzene
8.447	404573	4-Bromofluorobenzene
6.495	727414	d8-Toluene
9.263	981510	d4-Dichlorobenzene
9.585	465297	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101903LCSG.D Injection: 10-SEP-2019 11:32

Lab ID:BHI0255-BS1





Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101904G.D

Date : 10-SEP-2019 11:52

Client ID: Gas

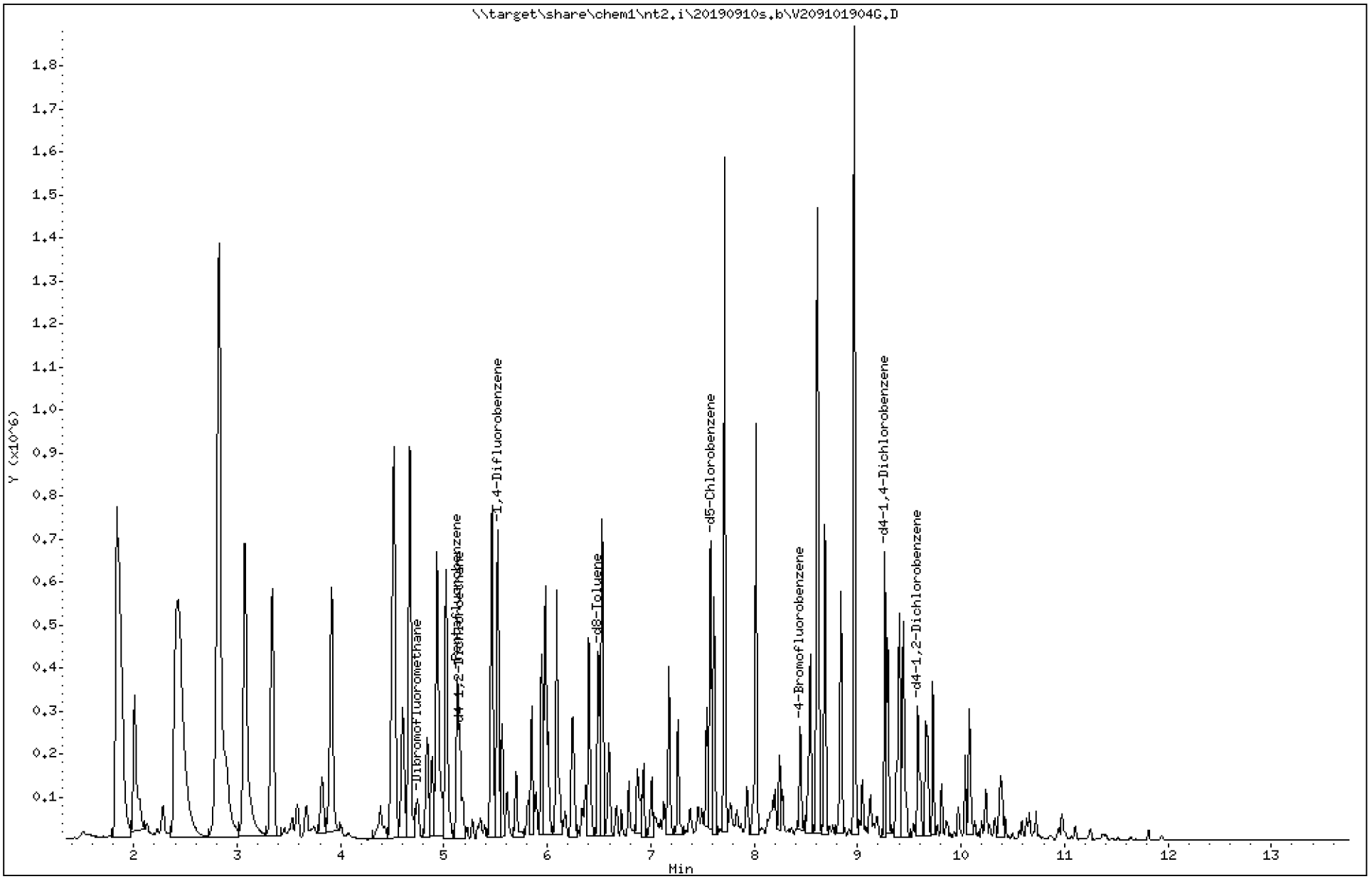
Instrument: nt2.i

Sample Info: BHI0255-BSD1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101904G.D
Lab Smp Id: BHI0255-BSD1 Client Smp ID: Gas
Inj Date : 10-SEP-2019 11:52
Operator : PKC Inst ID: nt2.i
Smp Info : BHI0255-BSD1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.746	4.743	(0.925)	40394	4.58424	4.584
* 32 Pentafluorobenzene	168	5.129	5.132	(1.000)	177985	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.151	(1.005)	54161	5.33045	5.330
* 37 1,4-Difluorobenzene	114	5.518	5.522	(1.000)	309340	10.0000	
$ 43 d8-Toluene	98	6.492	6.495	(1.176)	189531	5.03501	5.035
* 53 d5-Chlorobenzene	117	7.580	7.578	(1.000)	280857	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.448	(1.115)	52047	5.03059	5.031
* 76 d4-1,4-Dichlorobenzene	152	9.266	9.263	(1.000)	139736	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.582	9.586	(1.034)	65051	5.04026	5.040

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101904G.D
Lab Smp Id: BHI0255-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Client Smp ID: Gas
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	177985	7.14
37 1,4-Difluorobenze	280906	140453	561812	309340	10.12
53 d5-Chlorobenzene	262007	131004	524014	280857	7.19
76 d4-1,4-Dichlorobe	136773	68387	273546	139736	2.17

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0255-BSD1
Client Smp ID: Gas
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.584	91.68	
$ 33 d4-1,2-Dichloroeth	5.000	5.330	106.61	
$ 43 d8-Toluene	5.000	5.035	100.70	
$ 62 4-Bromofluorobenze	5.000	5.031	100.61	
$ 79 d4-1,2-Dichloroben	5.000	5.040	100.81	

REVIEW SUMMARY FOR FILE - V209101904G.D

Lab ID: BHI0255-BSD1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 11:52

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101904G.D

Date : 10-SEP-2019 11:52

Client ID:

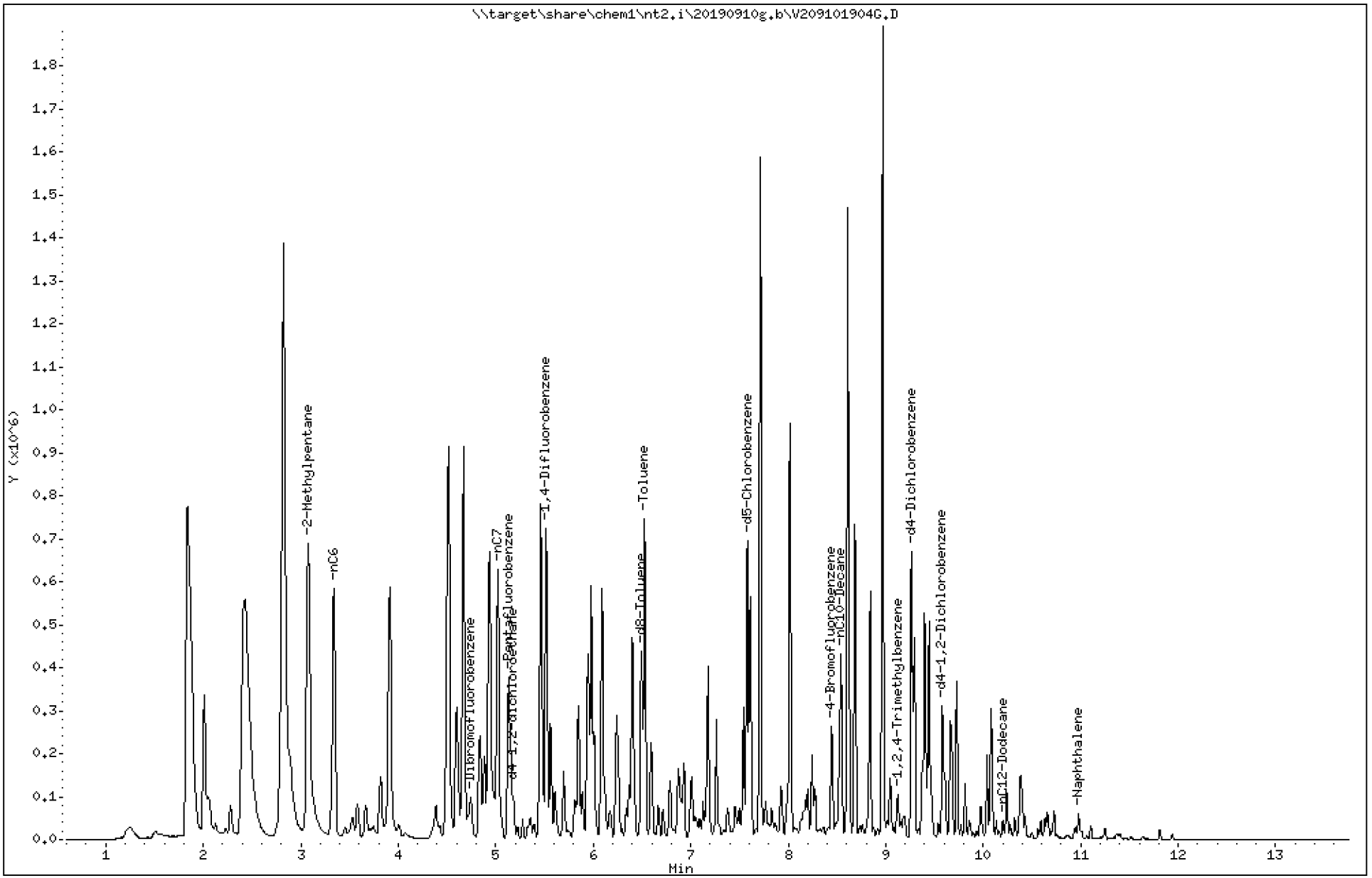
Sample Info: BHI0255-BSD1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101904G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 11:52

ARI ID: BHI0255-BSD1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	24607696	0.985 M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	41994882	0.977 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	32113451	0.978 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	25713486	0.985 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36027691	1.021 M

* Surrogate areas are subtracted from Total Area

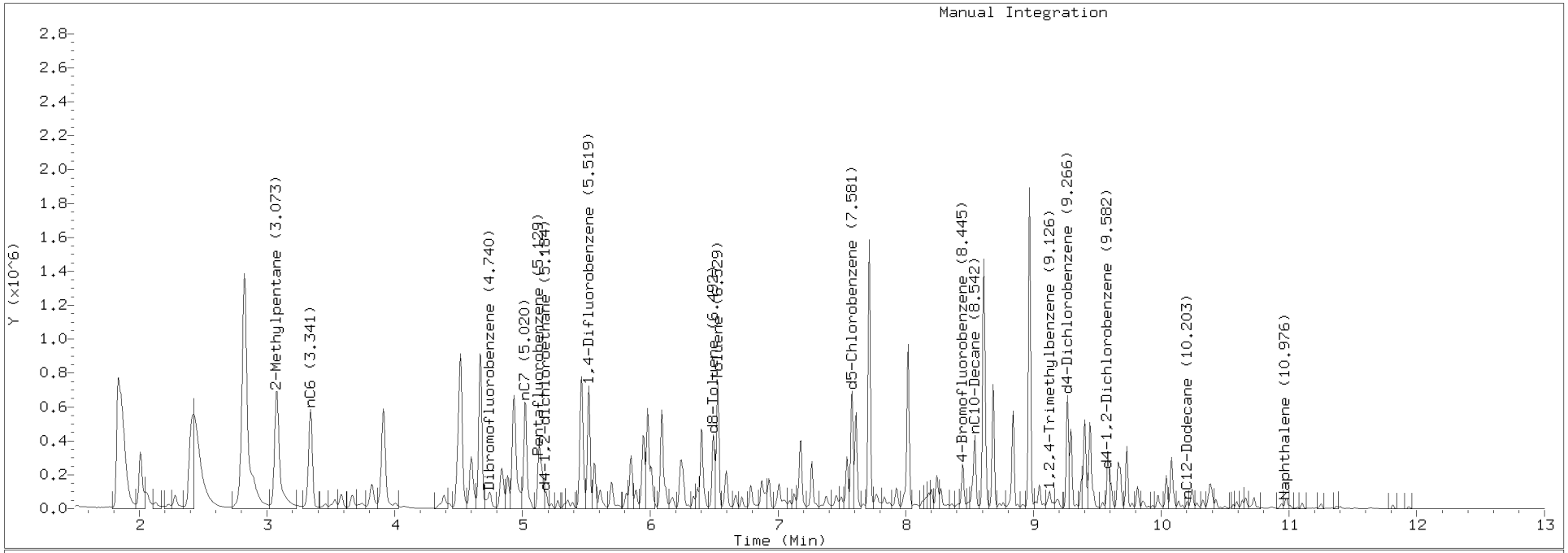
NW Gas Range Subtracted Peaks

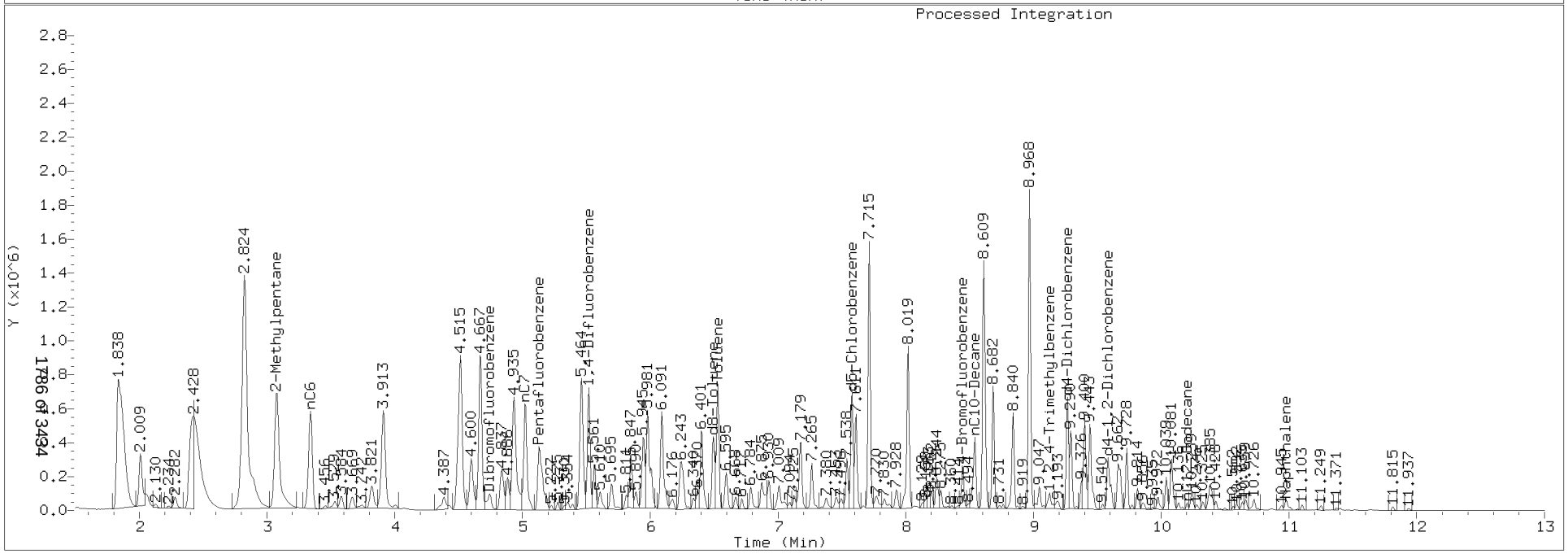
7.581	973415	d5-Chlorobenzene
8.445	382070	4-Bromofluorobenzene
6.492	720562	d8-Toluene
9.266	886577	d4-Dichlorobenzene
9.582	464953	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101904G.D Injection: 10-SEP-2019 11:52

Lab ID:BHI0255-BSD1





LCS / LCS DUPLICATE RECOVERY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/11/19 07:56
Batch:	BHI0298	Laboratory ID:	BHI0298-BS1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	52300		105	70 - 121

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	51700		103	1.10	30	70 - 121

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111903LCSG.D

Date : 11-SEP-2019 07:56

Client ID: GAS

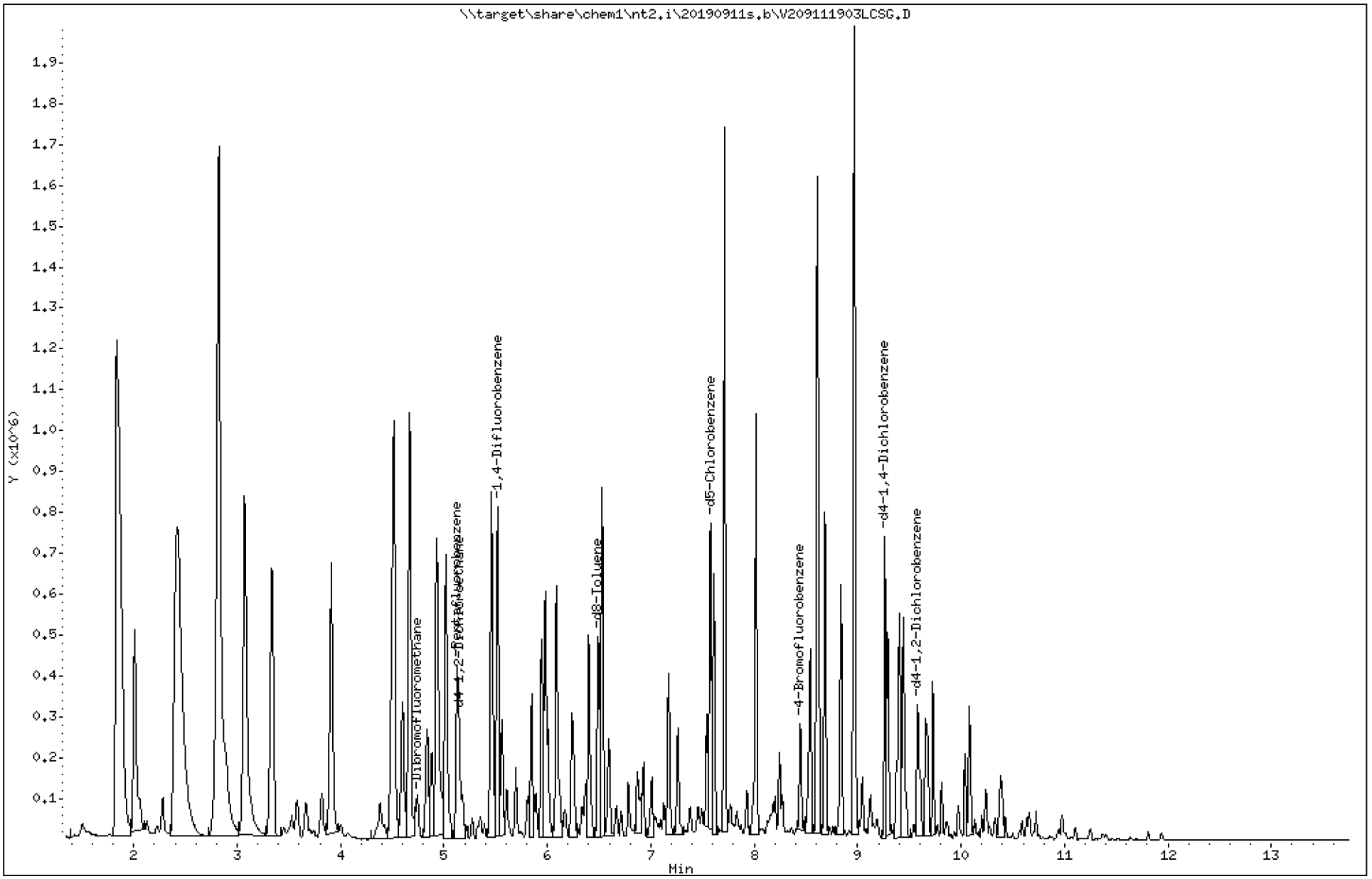
Instrument: nt2.i

Sample Info: BHI0298-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111903LCSG.D
Lab Smp Id: BHI0298-BS1 Client Smp ID: GAS
Inj Date : 11-SEP-2019 07:56
Operator : LH Inst ID: nt2.i
Smp Info : BHI0298-BS1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.742	(0.925)	46480	4.66989	4.670
* 32 Pentafluorobenzene	168	5.128	5.126	(1.000)	201045	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.004)	59854	5.21508	5.215
* 37 1,4-Difluorobenzene	114	5.517	5.521	(1.000)	351074	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	217134	5.08259	5.083
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	315774	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	58014	4.98729	4.987
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	151147	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.581	9.585	(1.034)	69574	4.98374	4.984

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111903LCSG.D
Lab Smp Id: BHI0298-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	201045	21.02
37 1,4-Difluorobenze	280906	140453	561812	351074	24.98
53 d5-Chlorobenzene	262007	131004	524014	315774	20.52
76 d4-1,4-Dichlorobe	136773	68387	273546	151147	10.51

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0298-BS1 Client Smp ID: GAS
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.670	93.40	
$ 33 d4-1,2-Dichloroeth	5.000	5.215	104.30	
$ 43 d8-Toluene	5.000	5.083	101.65	
$ 62 4-Bromofluorobenze	5.000	4.987	99.75	
$ 79 d4-1,2-Dichloroben	5.000	4.984	99.67	

REVIEW SUMMARY FOR FILE - V209111903LCSG.D

Lab ID: BHI0298-BS1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 07:56

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111903LCSG.D

Date : 11-SEP-2019 07:56

Client ID:

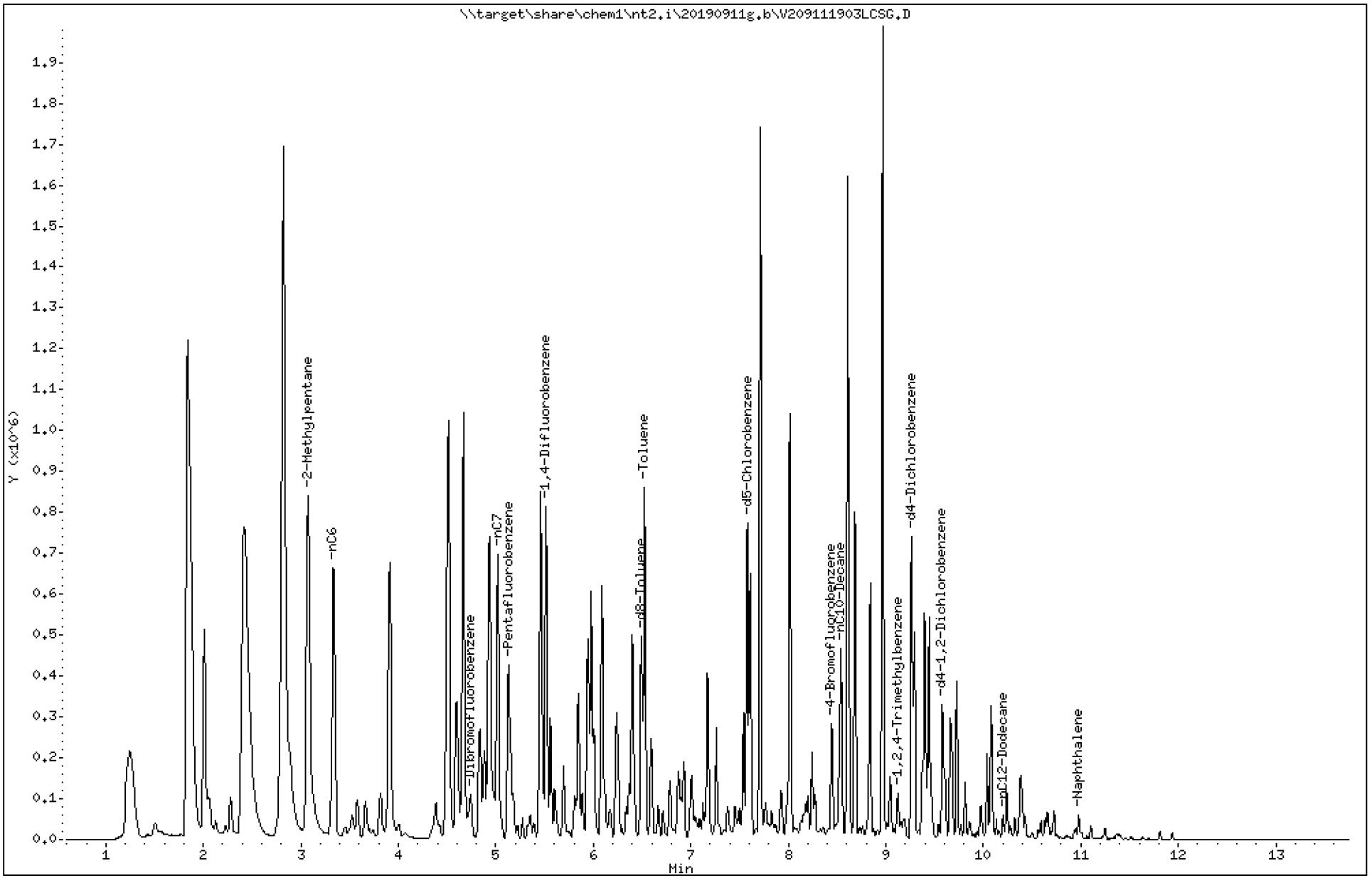
Instrument: nt2.i

Sample Info: BHI0298-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111903LCSG.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 07:56

ARI ID: BHI0298-BS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	26208116	1.049	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	45747198	1.065	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34876338	1.063	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27314198	1.046	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36906746	1.046	M

* Surrogate areas are subtracted from Total Area

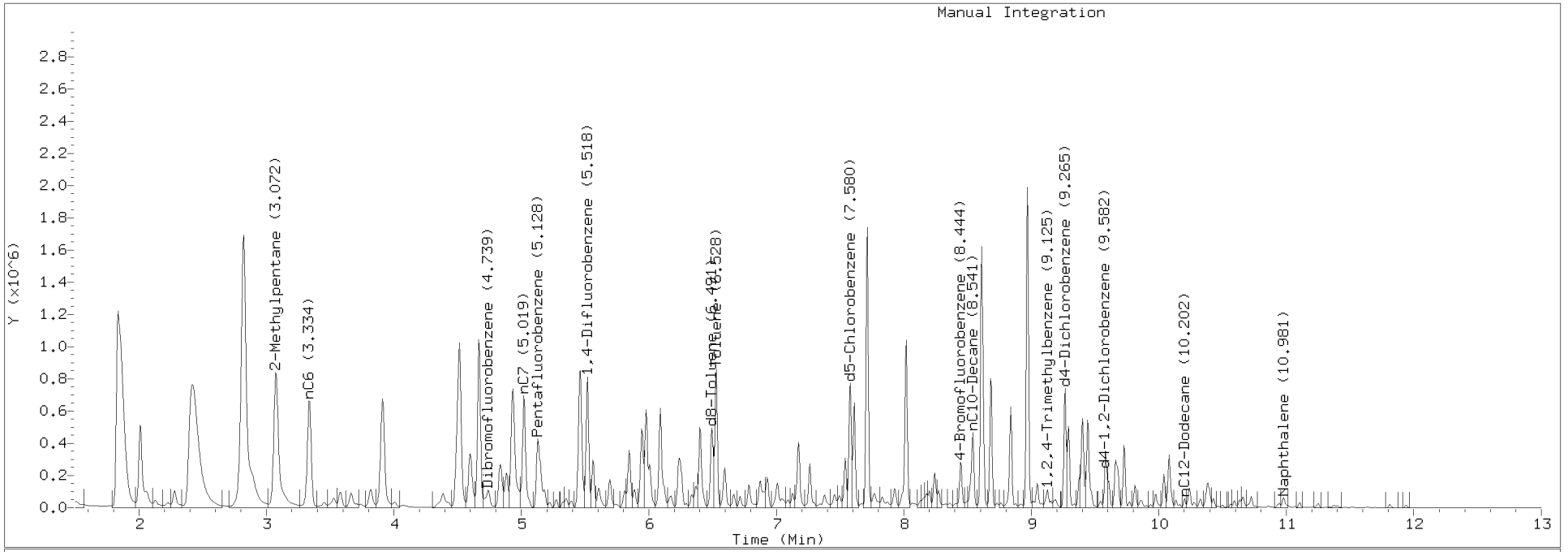
NW Gas Range Subtracted Peaks

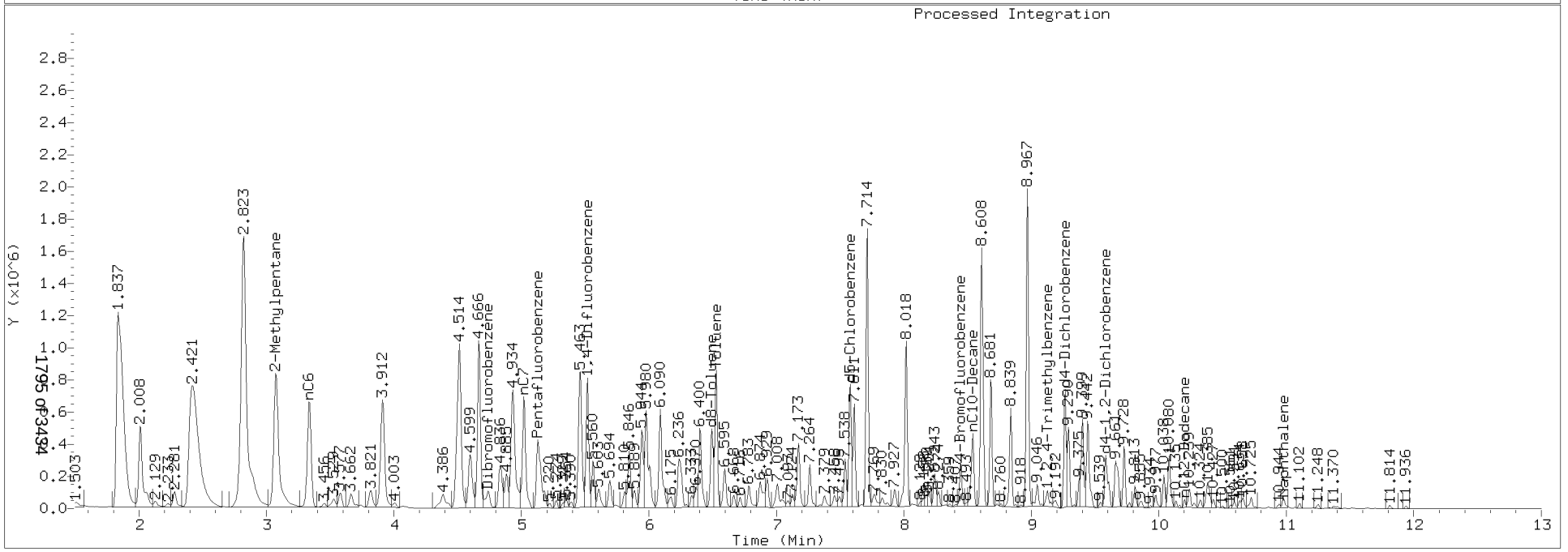
7.580	1091194	d5-Chlorobenzene
8.444	416728	4-Bromofluorobenzene
6.491	826476	d8-Toluene
9.265	957616	d4-Dichlorobenzene
9.582	498611	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190911g.b/V209111903LCSG.D Injection: 11-SEP-2019 07:56

Lab ID:BHI0298-BS1





Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111905G.D

Date : 11-SEP-2019 08:37

Client ID: GAS

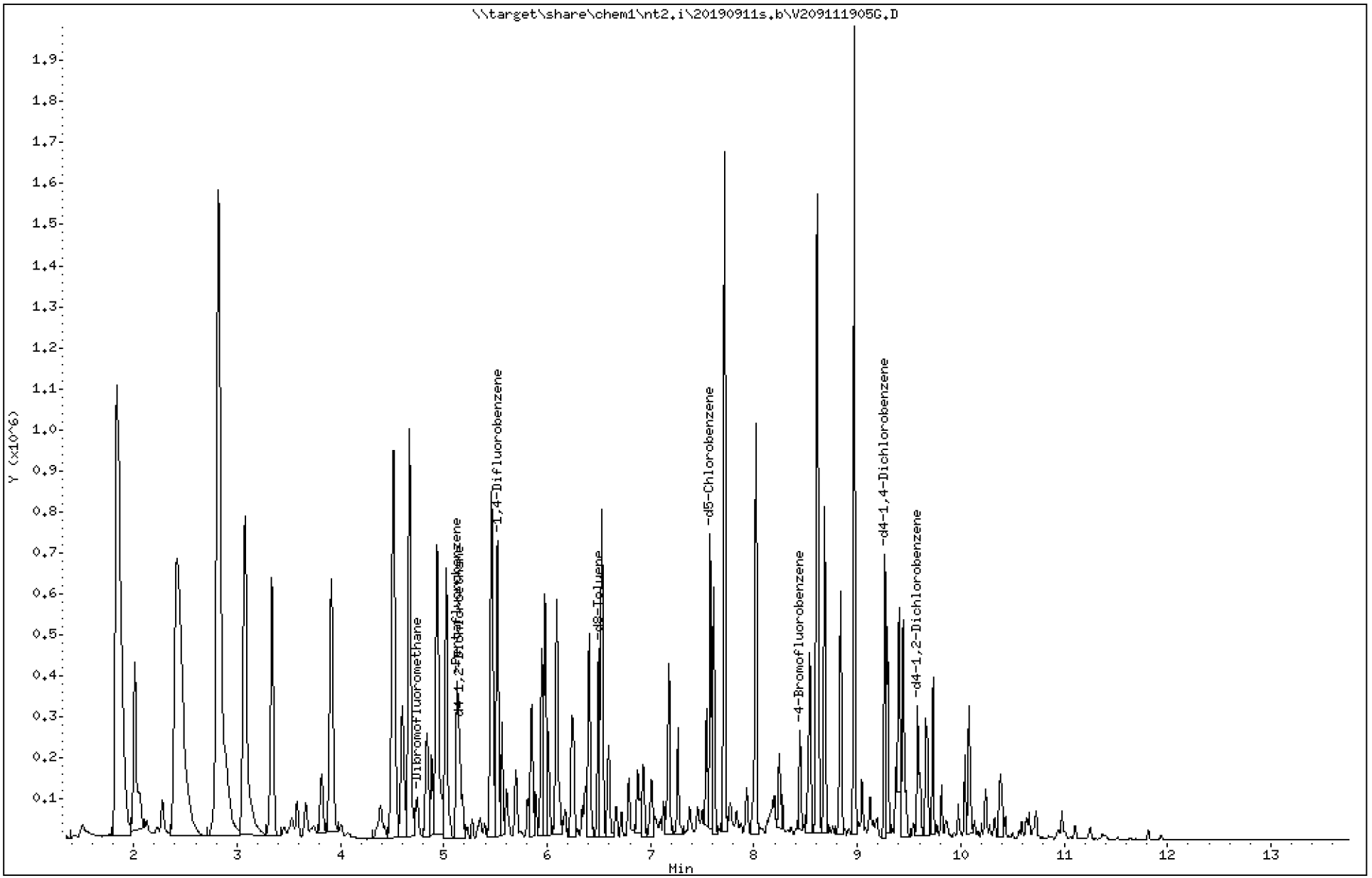
Instrument: nt2.i

Sample Info: BHI0298-BSD1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111905G.D
Lab Smp Id: BHI0298-BSD1 Client Smp ID: GAS
Inj Date : 11-SEP-2019 08:37
Operator : LH Inst ID: nt2.i
Smp Info : BHI0298-BSD1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.742	(0.924)	42962	4.76215	4.762
* 32 Pentafluorobenzene	168	5.131	5.126	(1.000)	182228	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.150	(1.004)	56265	5.40859	5.409
* 37 1,4-Difluorobenzene	114	5.521	5.521	(1.000)	317874	10.0000	
$ 43 d8-Toluene	98	6.494	6.494	(1.176)	198983	5.14419	5.144
* 53 d5-Chlorobenzene	117	7.577	7.577	(1.000)	289114	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.447	(1.115)	53429	5.01668	5.017
* 76 d4-1,4-Dichlorobenzene	152	9.262	9.262	(1.000)	142984	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.585	(1.035)	66551	5.03935	5.039

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111905G.D
Lab Smp Id: BHI0298-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	182228	9.70
37 1,4-Difluorobenze	280906	140453	561812	317874	13.16
53 d5-Chlorobenzene	262007	131004	524014	289114	10.35
76 d4-1,4-Dichlorobe	136773	68387	273546	142984	4.54

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.11
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.01
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.00
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0298-BSD1
Client Smp ID: GAS
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.762	95.24	
$ 33 d4-1,2-Dichloroeth	5.000	5.409	108.17	
$ 43 d8-Toluene	5.000	5.144	102.88	
$ 62 4-Bromofluorobenze	5.000	5.017	100.33	
$ 79 d4-1,2-Dichloroben	5.000	5.039	100.79	

REVIEW SUMMARY FOR FILE - V209111905G.D

Lab ID: BHI0298-BSD1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 08:37

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111905G.D

Date : 11-SEP-2019 08:37

Client ID:

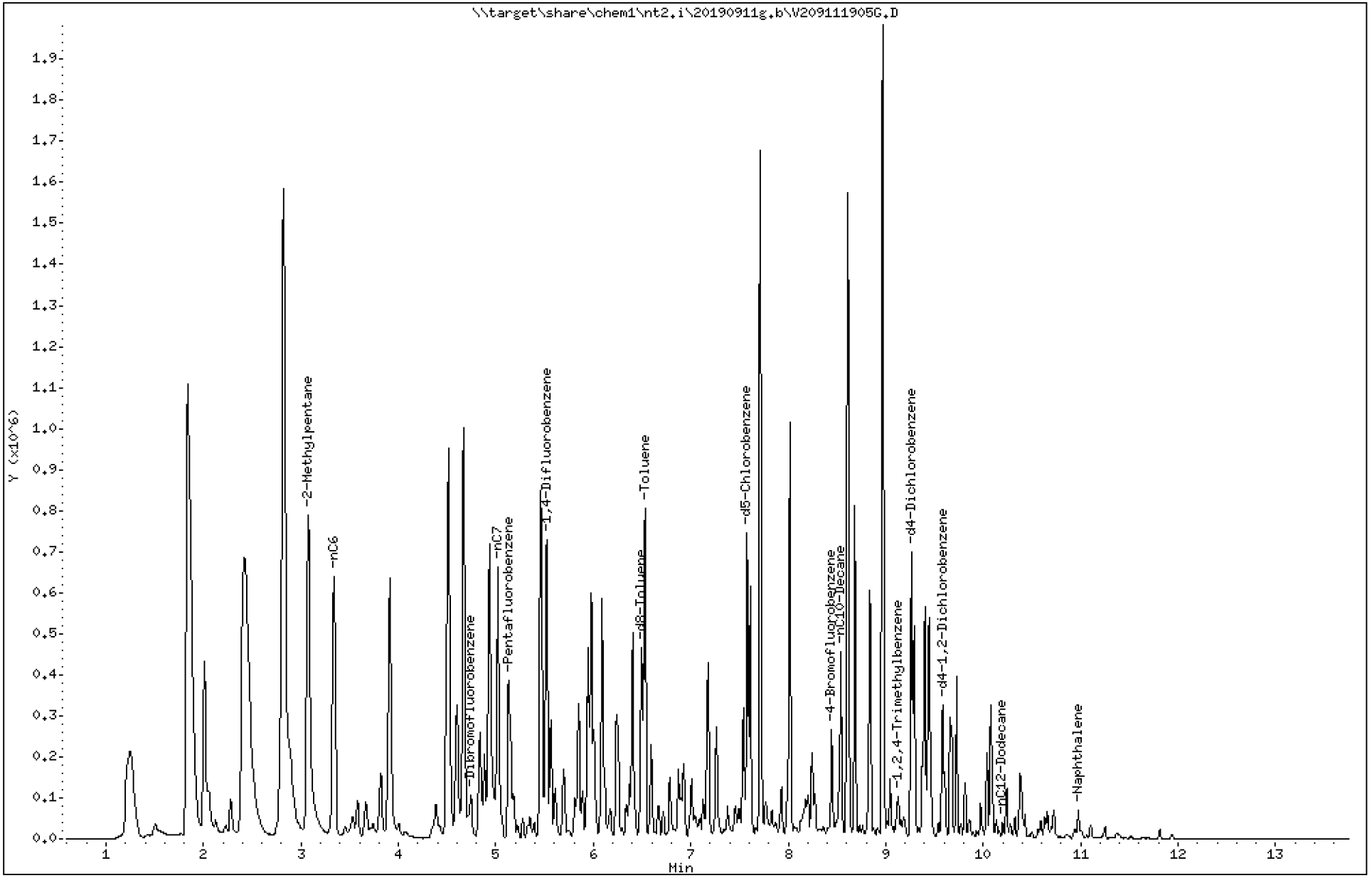
Sample Info: BHI0298-BSD1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111905G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 08:37

ARI ID: BHI0298-BSD1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	25852595	1.035 M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	44634414	1.039
AK101 nC6-nC10	(3.24 to 8.42)	32820925	33964469	1.035
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27015155	1.034 M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36306835	1.029 M

* Surrogate areas are subtracted from Total Area

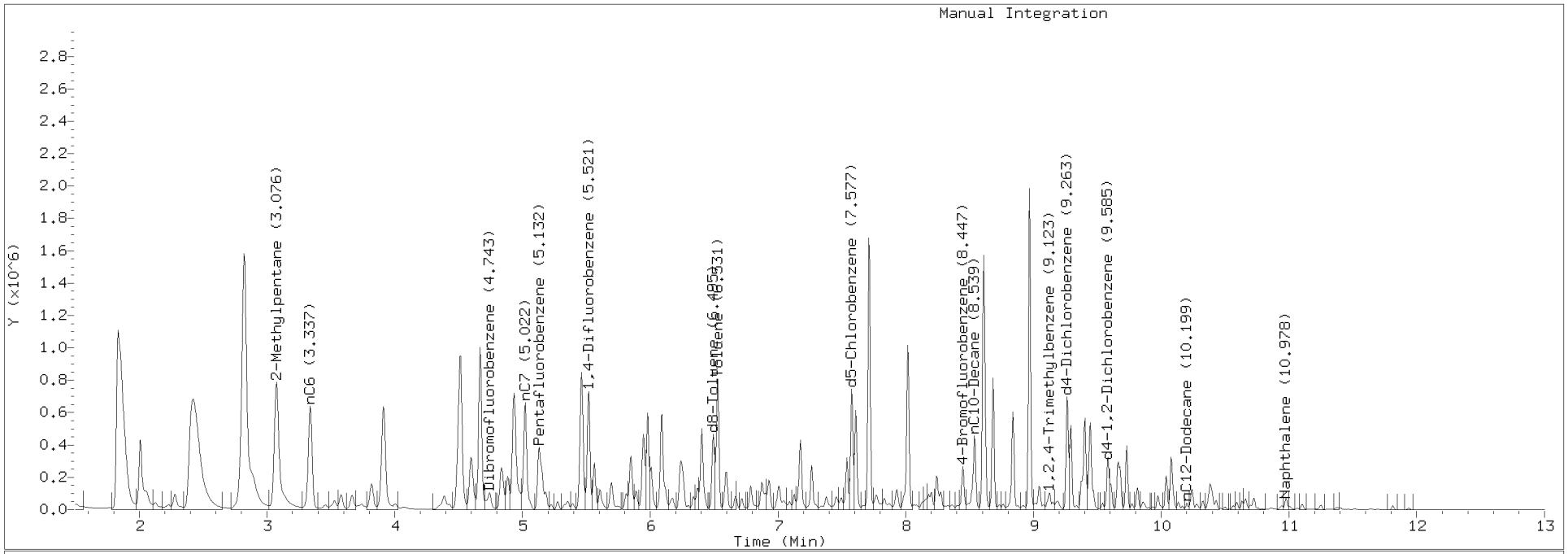
NW Gas Range Subtracted Peaks

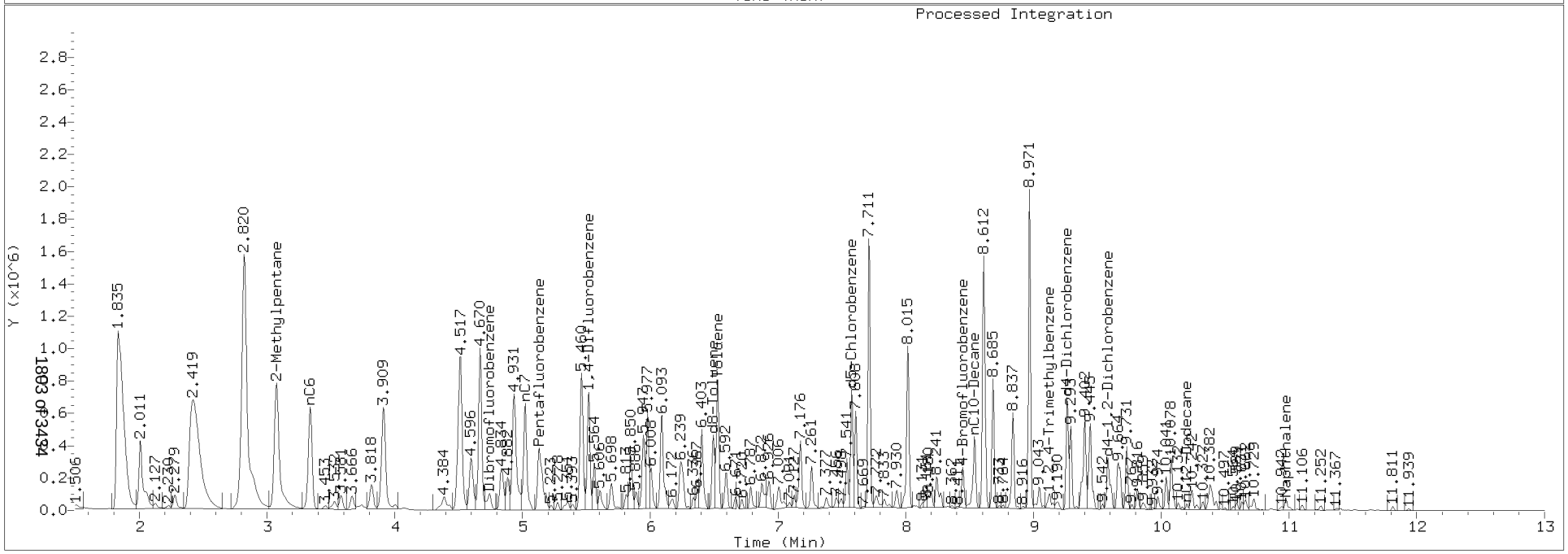
7.577	1046672	d5-Chlorobenzene
8.447	391831	4-Bromofluorobenzene
6.495	704266	d8-Toluene
9.263	986258	d4-Dichlorobenzene
9.585	464996	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190911g.b/V209111905G.D Injection: 11-SEP-2019 08:37

Lab ID:BHI0298-BSD1





LCS / LCS DUPLICATE RECOVERY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/11/19 07:56
Batch:	BHI0303	Laboratory ID:	BHI0303-BS1
Preparation:	EPA 5030 (Purge and Trap)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	52300		105	70 - 121

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	51700		103	1.10	30	70 - 121

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111903LCS2G.D

Date : 11-SEP-2019 07:56

Client ID: GAS

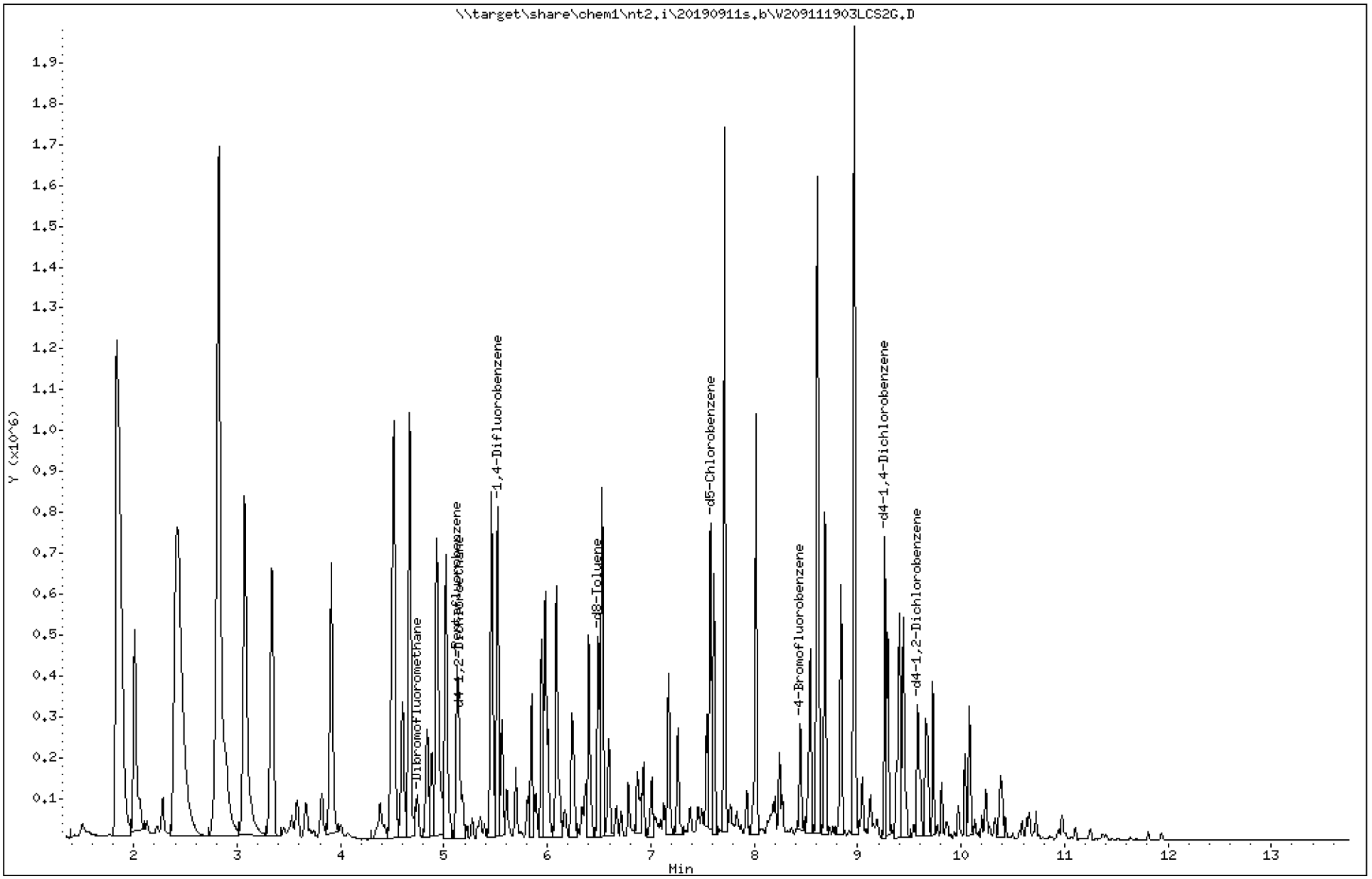
Instrument: nt2.i

Sample Info: BHI0303-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111903LCS2G.D
Lab Smp Id: BHI0303-BS1 Client Smp ID: GAS
Inj Date : 11-SEP-2019 07:56
Operator : LH Inst ID: nt2.i
Smp Info : BHI0303-BS1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.742	(0.925)	46480	4.66989	4.670
* 32 Pentafluorobenzene	168	5.128	5.126	(1.000)	201045	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.004)	59854	5.21508	5.215
* 37 1,4-Difluorobenzene	114	5.517	5.521	(1.000)	351074	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	217134	5.08259	5.083
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	315774	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	58014	4.98729	4.987
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	151147	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.581	9.585	(1.034)	69574	4.98374	4.984

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111903LCS2G.D
Lab Smp Id: BHI0303-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	201045	21.02
37 1,4-Difluorobenze	280906	140453	561812	351074	24.98
53 d5-Chlorobenzene	262007	131004	524014	315774	20.52
76 d4-1,4-Dichlorobe	136773	68387	273546	151147	10.51

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0303-BS1 Client Smp ID: GAS
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.670	93.40	
$ 33 d4-1,2-Dichloroeth	5.000	5.215	104.30	
$ 43 d8-Toluene	5.000	5.083	101.65	
$ 62 4-Bromofluorobenze	5.000	4.987	99.75	
$ 79 d4-1,2-Dichloroben	5.000	4.984	99.67	

REVIEW SUMMARY FOR FILE - V209111903LCS2G.D

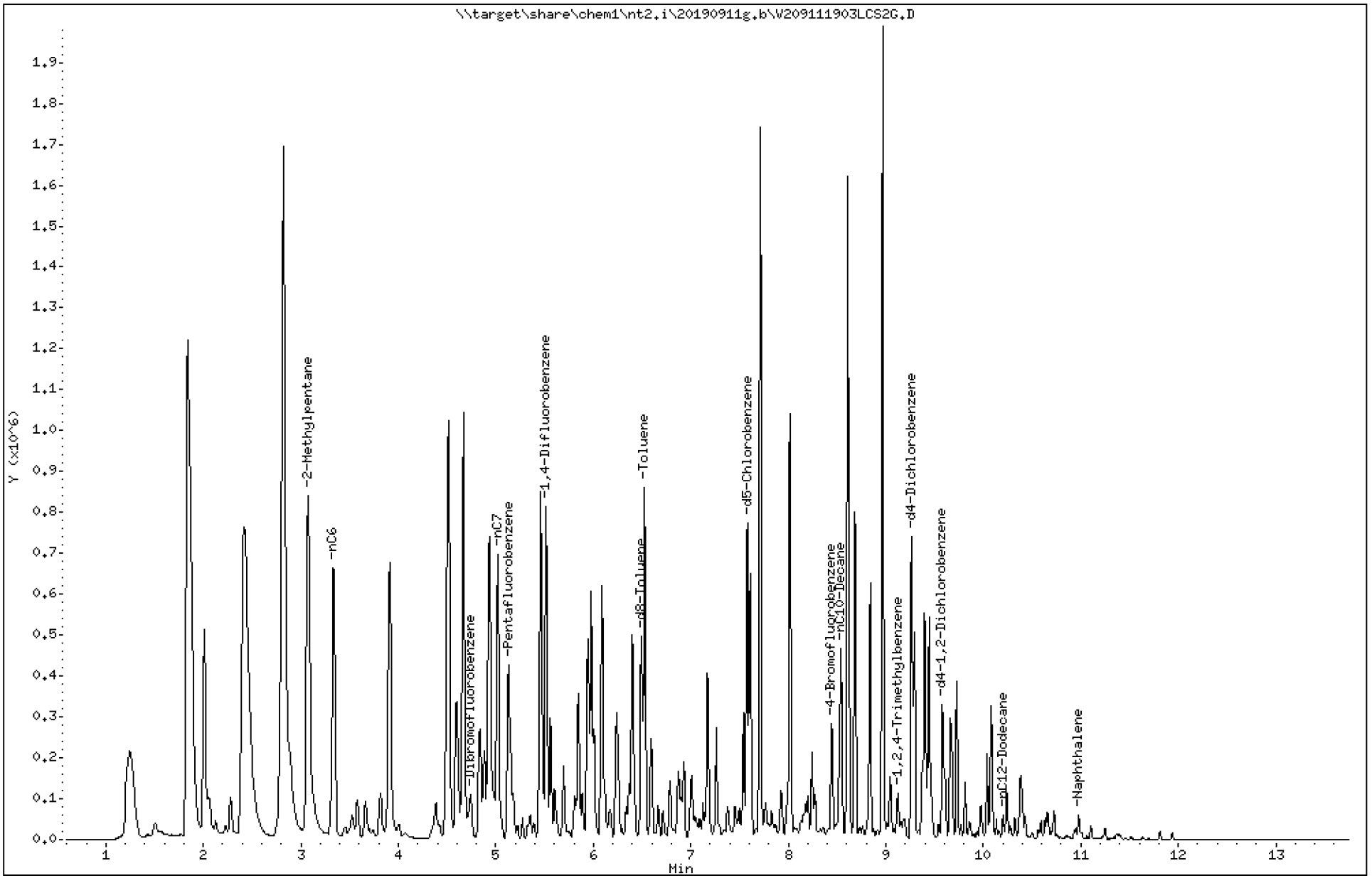
Lab ID: BHI0303-BS1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 07:56

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111903LCS2G.D
Date : 11-SEP-2019 07:56
Client ID:
Sample Info: BHI0303-BS1

Instrument: nt2.i
Operator: LH
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111903LCS2G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 07:56

ARI ID: BHI0303-BS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	26208116	1.049	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	45747198	1.065	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34876338	1.063	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27314198	1.046	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36906746	1.046	M

* Surrogate areas are subtracted from Total Area

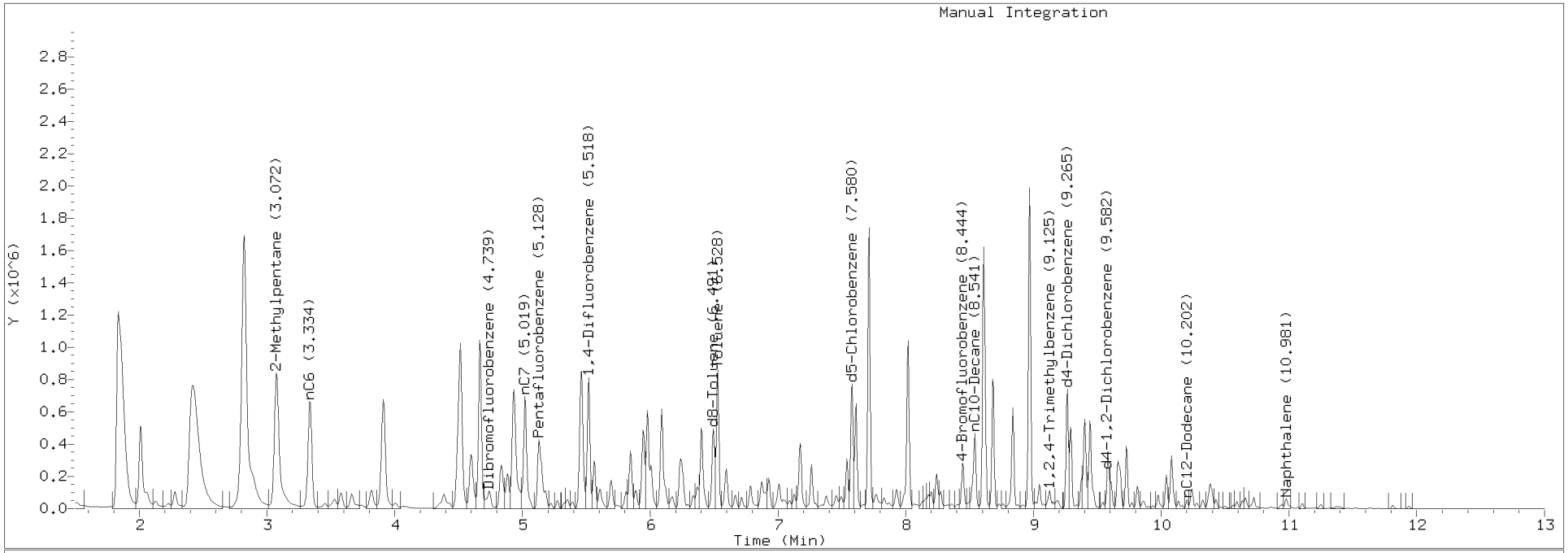
NW Gas Range Subtracted Peaks

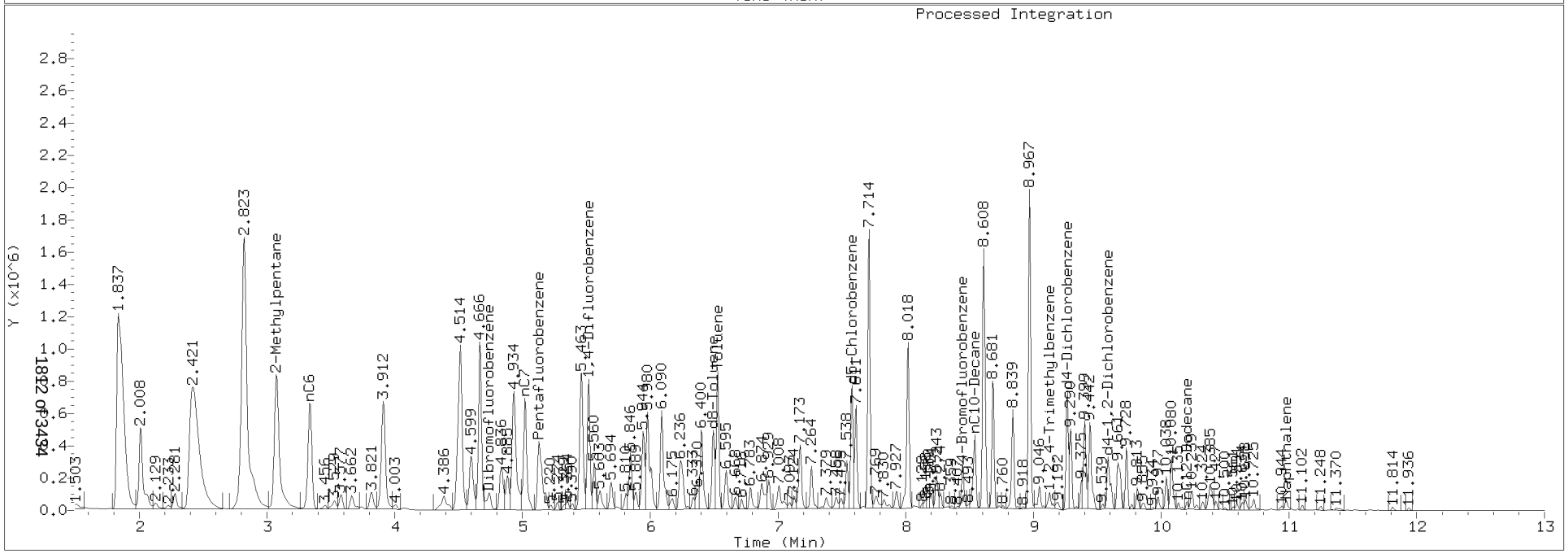
7.580	1091194	d5-Chlorobenzene
8.444	416728	4-Bromofluorobenzene
6.491	826476	d8-Toluene
9.265	957616	d4-Dichlorobenzene
9.582	498611	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190911g.b/V209111903LCS2G.D Injection: 11-SEP-2019 07:56

Lab ID:BHI0303-BS1





Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111905LCSD2G.d

Date : 11-SEP-2019 08:37

Client ID: GAS

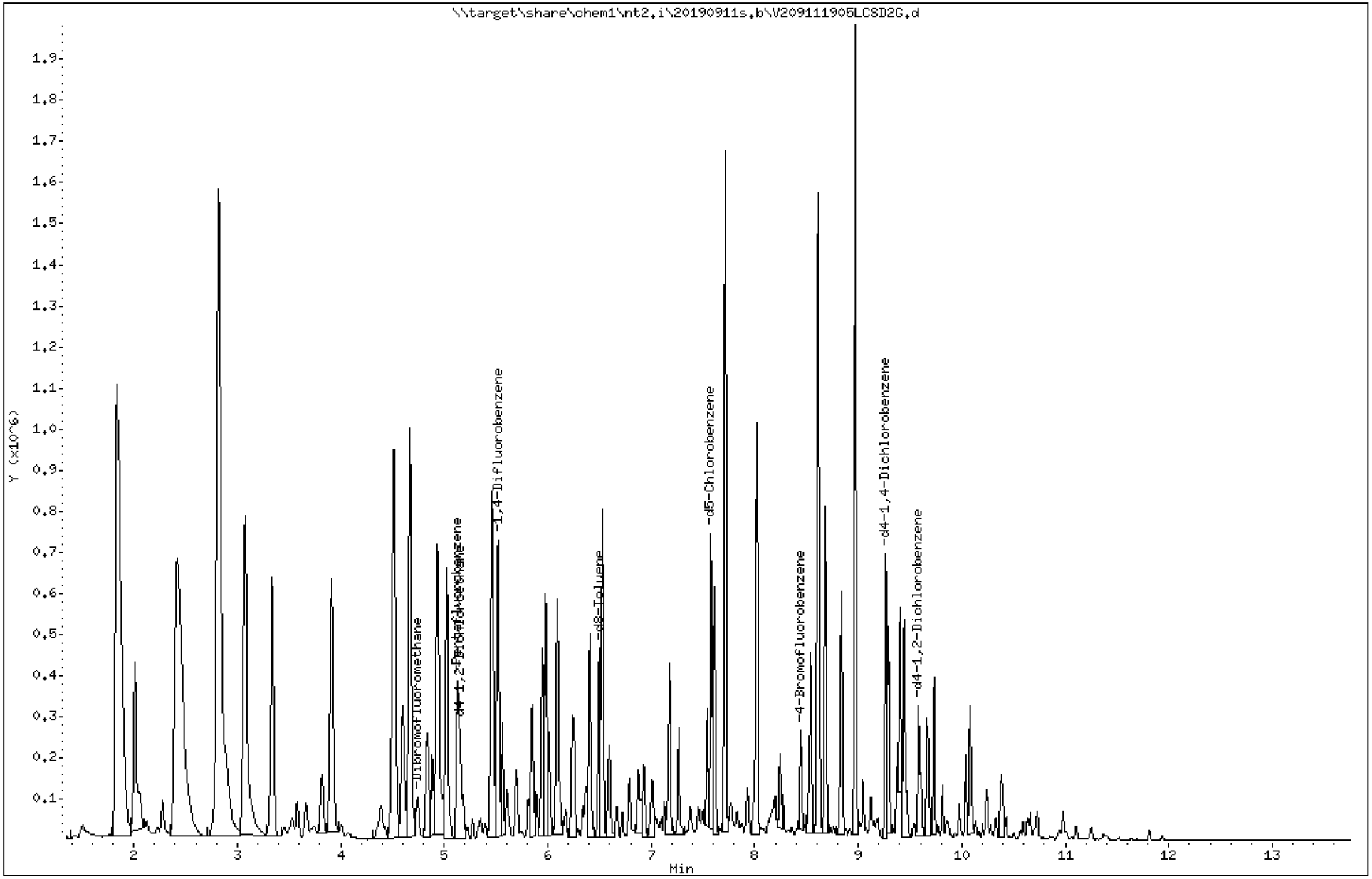
Instrument: nt2.i

Sample Info: BHI0303-BSD1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111905LCSD2G.d
Lab Smp Id: BHI0303-BSD1 Client Smp ID: GAS
Inj Date : 11-SEP-2019 08:37
Operator : LH Inst ID: nt2.i
Smp Info : BHI0303-BSD1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.742	(0.924)	42962	4.76215	4.762
* 32 Pentafluorobenzene	168	5.131	5.126	(1.000)	182228	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.150	(1.004)	56265	5.40859	5.409
* 37 1,4-Difluorobenzene	114	5.521	5.521	(1.000)	317874	10.0000	
$ 43 d8-Toluene	98	6.494	6.494	(1.176)	198983	5.14419	5.144
* 53 d5-Chlorobenzene	117	7.577	7.577	(1.000)	289114	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.447	(1.115)	53429	5.01668	5.017
* 76 d4-1,4-Dichlorobenzene	152	9.262	9.262	(1.000)	142984	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.585	(1.035)	66551	5.03935	5.039

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111905LCSD2G.d
Lab Smp Id: BHI0303-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	182228	9.70
37 1,4-Difluorobenze	280906	140453	561812	317874	13.16
53 d5-Chlorobenzene	262007	131004	524014	289114	10.35
76 d4-1,4-Dichlorobe	136773	68387	273546	142984	4.54

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.11
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.01
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.00
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0303-BSD1 Client Smp ID: GAS
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.762	95.24	
$ 33 d4-1,2-Dichloroeth	5.000	5.409	108.17	
$ 43 d8-Toluene	5.000	5.144	102.88	
$ 62 4-Bromofluorobenze	5.000	5.017	100.33	
$ 79 d4-1,2-Dichloroben	5.000	5.039	100.79	

REVIEW SUMMARY FOR FILE - V209111905LCSD2G.d

Lab ID: BHI0303-BSD1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 08:37

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111905LCSD2G.d

Date : 11-SEP-2019 08:37

Client ID:

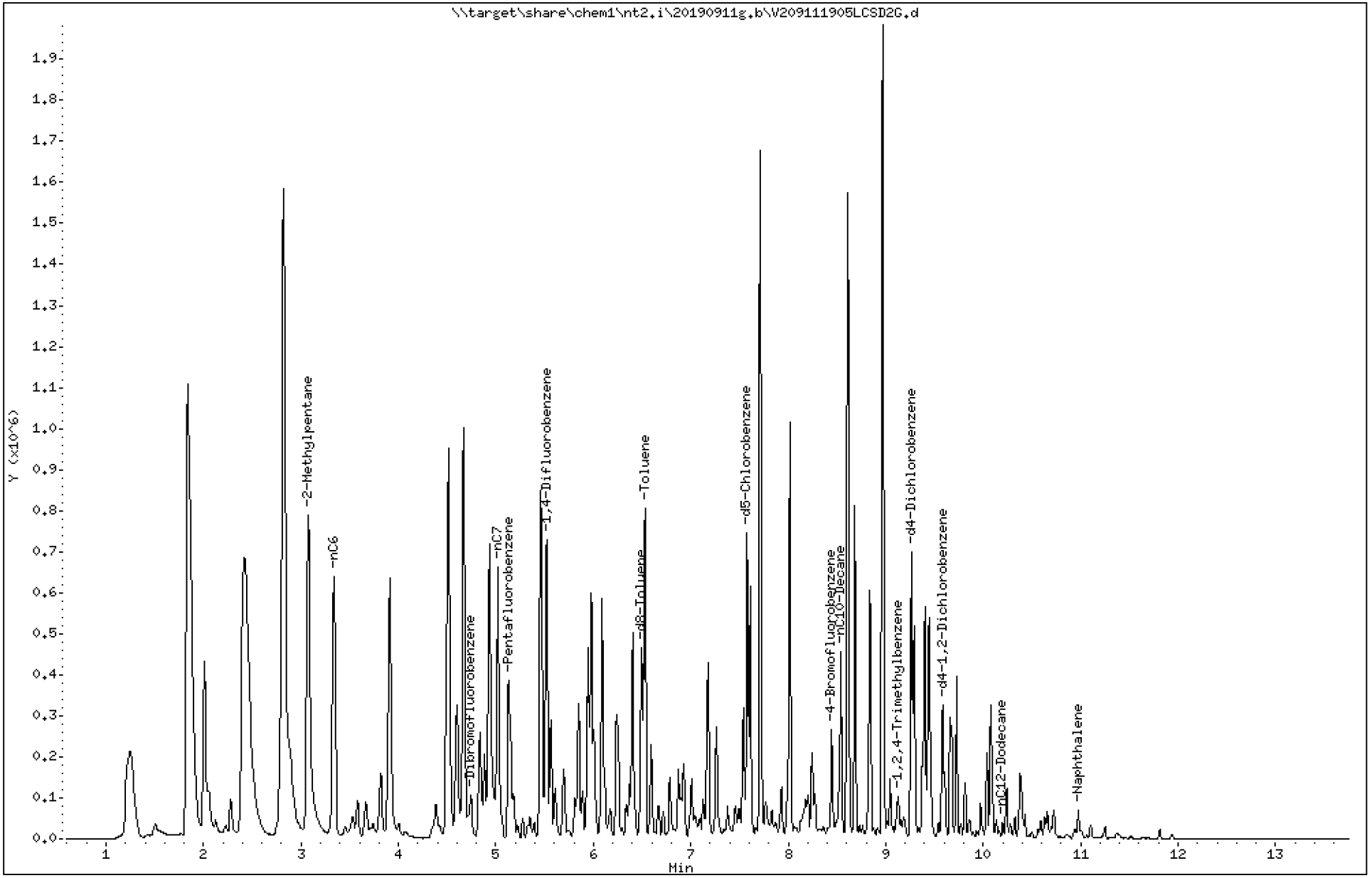
Instrument: nt2.i

Sample Info: BHI0303-BSD1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111905LCSD2G.d ARI ID: BHI0303-BSD1
Method: \20190911g.b\GA090219.m Client ID:
Instrument: nt2.i Matrix: NONE
Gas Ical Date: 09/02/19 Dilution Factor: 1.000
Injection Date: 11-SEP-2019 08:37 Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	25852595	1.035	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	44634414	1.039	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	33964469	1.035	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27015155	1.034	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36306835	1.029	M

* Surrogate areas are subtracted from Total Area

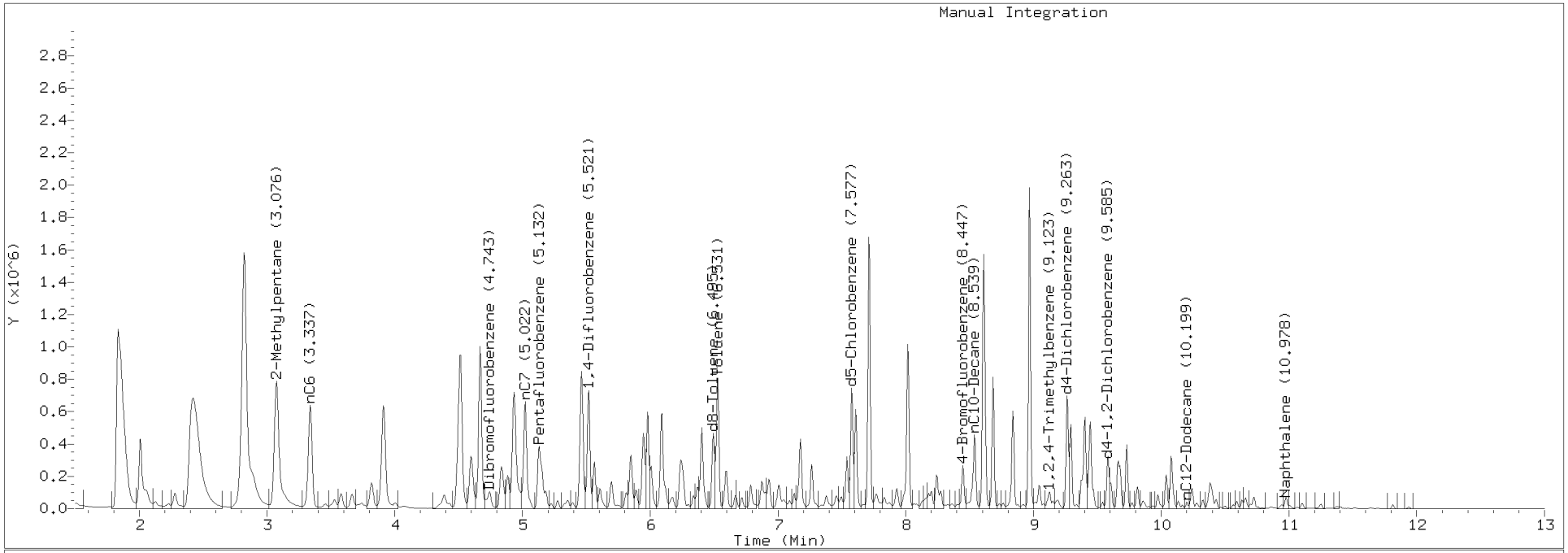
NW Gas Range Subtracted Peaks

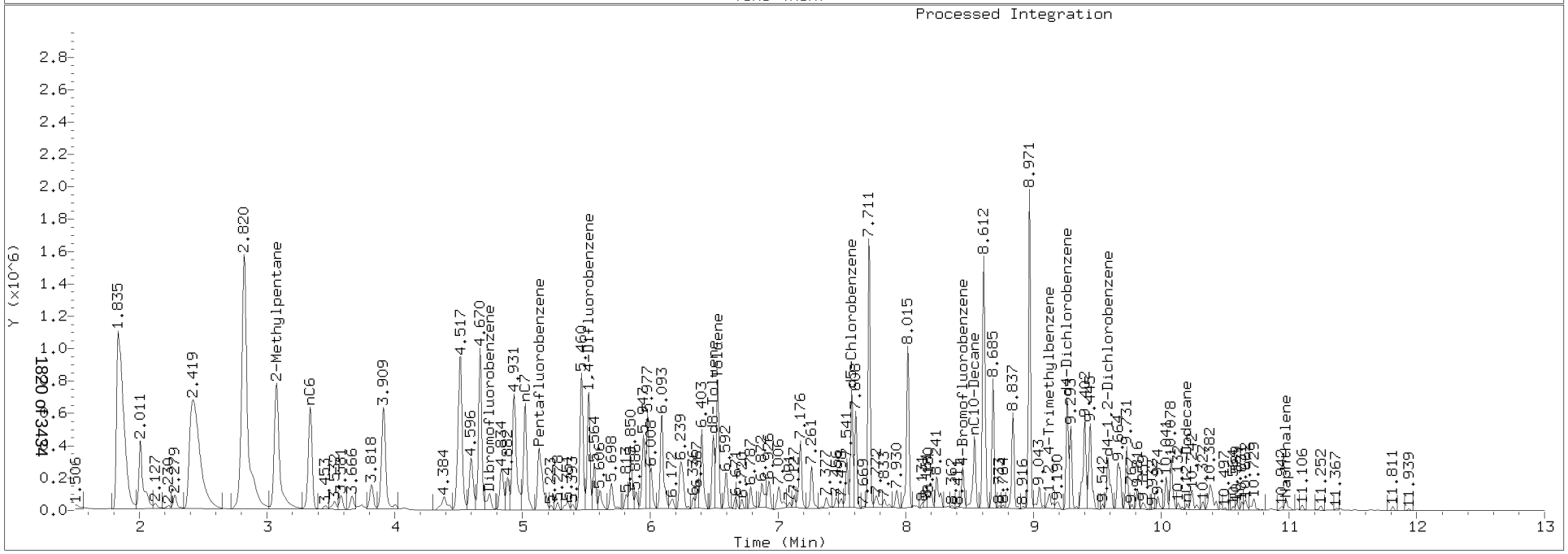
7.577	1046672	d5-Chlorobenzene
8.447	391831	4-Bromofluorobenzene
6.495	704266	d8-Toluene
9.263	986258	d4-Dichlorobenzene
9.585	464996	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190911g.b/V209111905LCSD2G.d Injection: 11-SEP-2019 08:37

Lab ID:BHI0303-BSD1





LCS / LCS DUPLICATE RECOVERY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/12/19 07:31
Batch:	BHI0335	Laboratory ID:	BHI0335-BS1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	LCS
Initial/Final:	5 g / 5 mL		

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	Q	LCS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	53100		106	70 - 121

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	50000	45500		91.0	15.5	30	70 - 121

* Indicates values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121903GLCS.D

Date : 12-SEP-2019 07:31

Client ID:

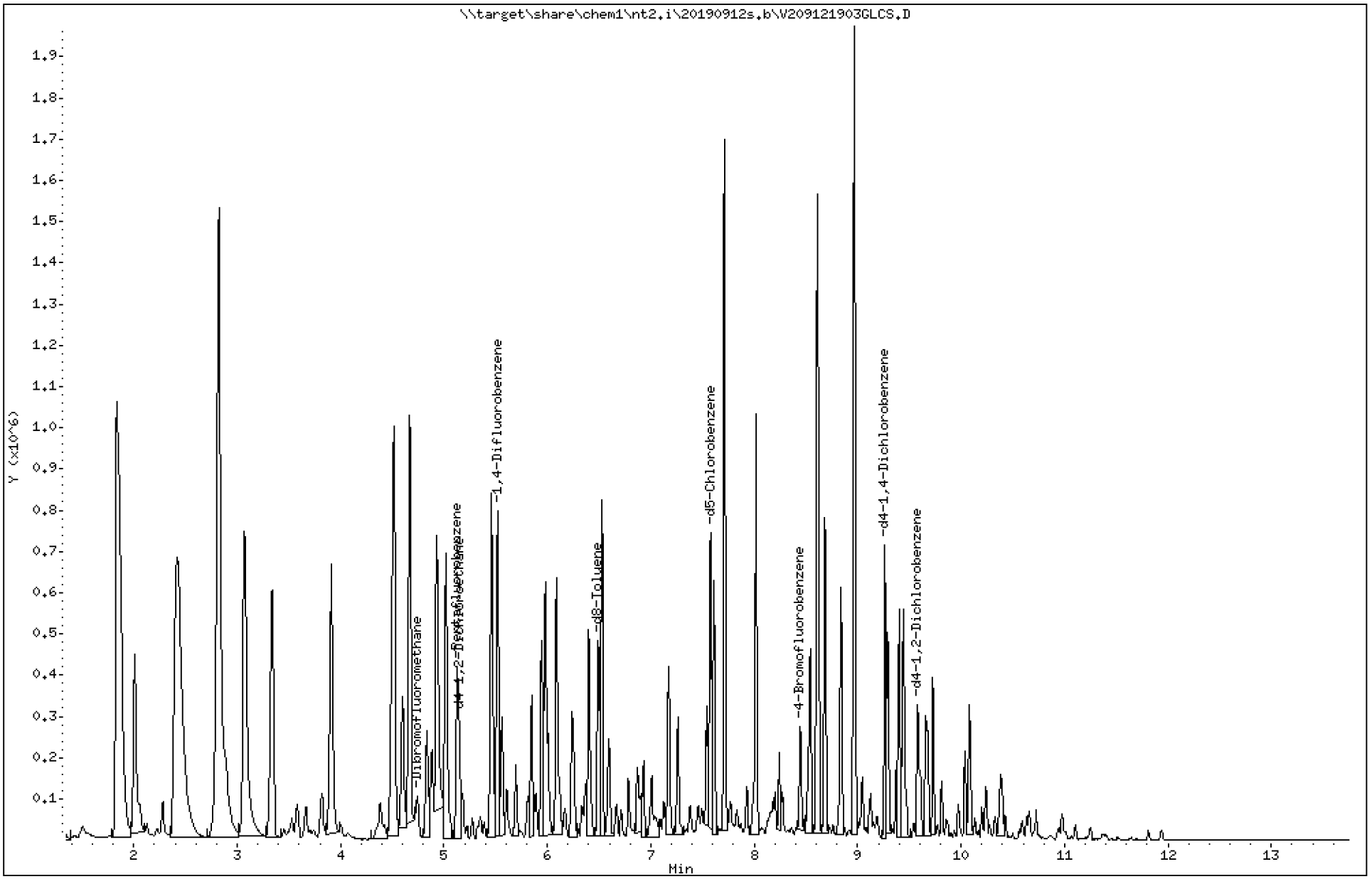
Instrument: nt2.i

Sample Info: BHI0335-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121903GLCS.D
Lab Smp Id: BHI0335-BS1
Inj Date : 12-SEP-2019 07:31
Operator : LH Inst ID: nt2.i
Smp Info : BHI0335-BS1
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.742	(0.924)	44358	4.65203	4.652
* 32 Pentafluorobenzene	168	5.128	5.132	(1.000)	192603	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.004)	59017	5.36754	5.368
* 37 1,4-Difluorobenzene	114	5.517	5.521	(1.000)	336414	10.0000	
$ 43 d8-Toluene	98	6.490	6.494	(1.176)	207871	5.07780	5.078
* 53 d5-Chlorobenzene	117	7.579	7.577	(1.000)	300763	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.447	(1.115)	56116	5.06489	5.065
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	145741	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.581	9.585	(1.034)	66538	4.94306	4.943

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121903GLCS.D
Lab Smp Id: BHI0335-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	192603	15.94
37 1,4-Difluorobenze	280906	140453	561812	336414	19.76
53 d5-Chlorobenzene	262007	131004	524014	300763	14.79
76 d4-1,4-Dichlorobe	136773	68387	273546	145741	6.56

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0335-BS1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.652	93.04	
$ 33 d4-1,2-Dichloroeth	5.000	5.368	107.35	
$ 43 d8-Toluene	5.000	5.078	101.56	
$ 62 4-Bromofluorobenze	5.000	5.065	101.30	
$ 79 d4-1,2-Dichloroben	5.000	4.943	98.86	

REVIEW SUMMARY FOR FILE - V209121903GLCS.D

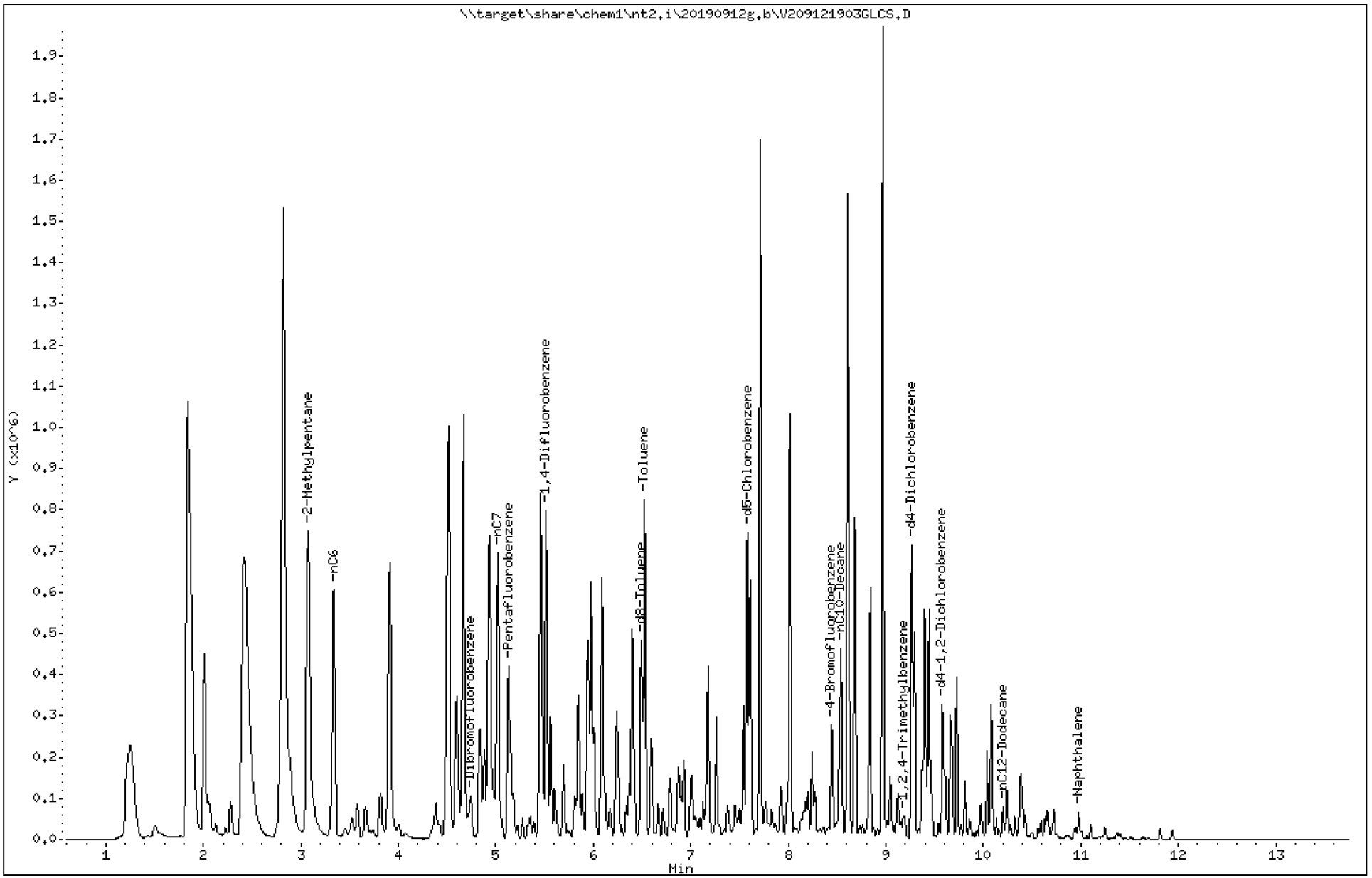
Lab ID: BHI0335-BS1
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 07:31

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121903GLCS.D
Date : 12-SEP-2019 07:31
Client ID:
Sample Info: BHI0335-BS1

Instrument: nt2.i
Operator: LH
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121903GLCS.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 07:31

ARI ID: BHI0335-BS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	26572980	1.064	M
8015C 2MP-TMB	(2.98 to 9.26)	42964079	45363554	1.056	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34749534	1.059	
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	27748962	1.063	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	37322106	1.058	M

* Surrogate areas are subtracted from Total Area

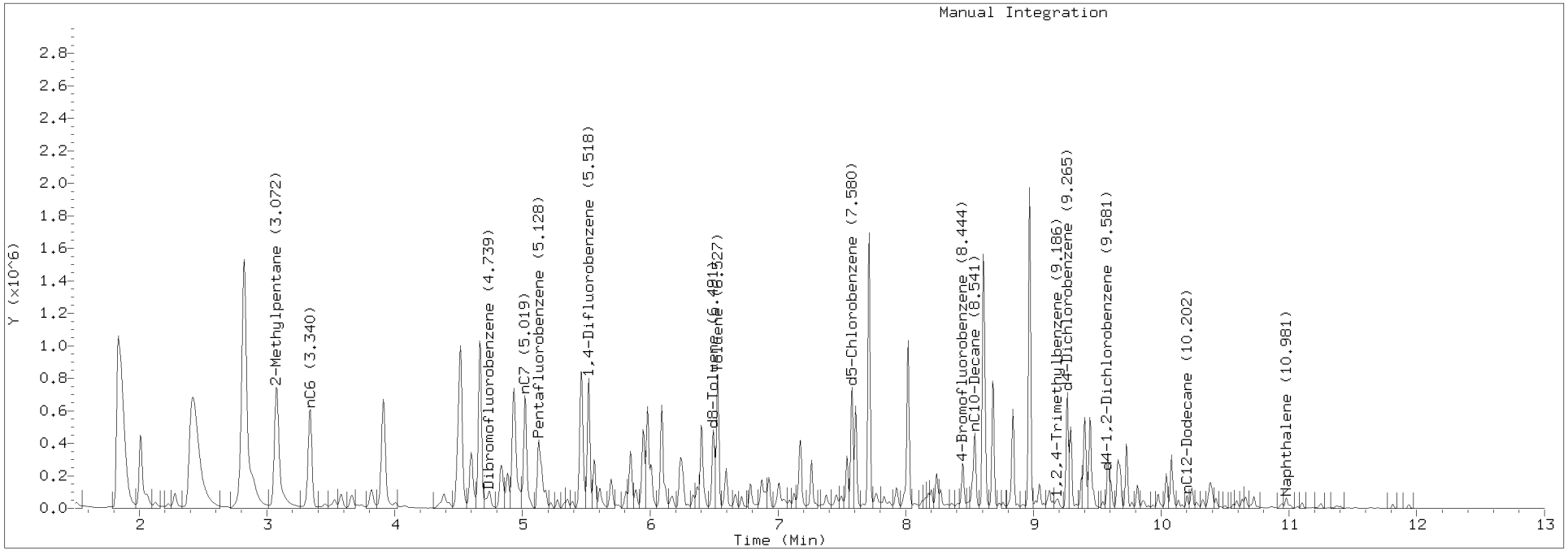
NW Gas Range Subtracted Peaks

7.580	1050923	d5-Chlorobenzene
8.444	410636	4-Bromofluorobenzene
6.491	806969	d8-Toluene
9.265	925426	d4-Dichlorobenzene
9.581	487338	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190912g.b/V209121903GLCS.D Injection: 12-SEP-2019 07:31

Lab ID:BHI0335-BS1



Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121905G.D

Date : 12-SEP-2019 08:12

Client ID:

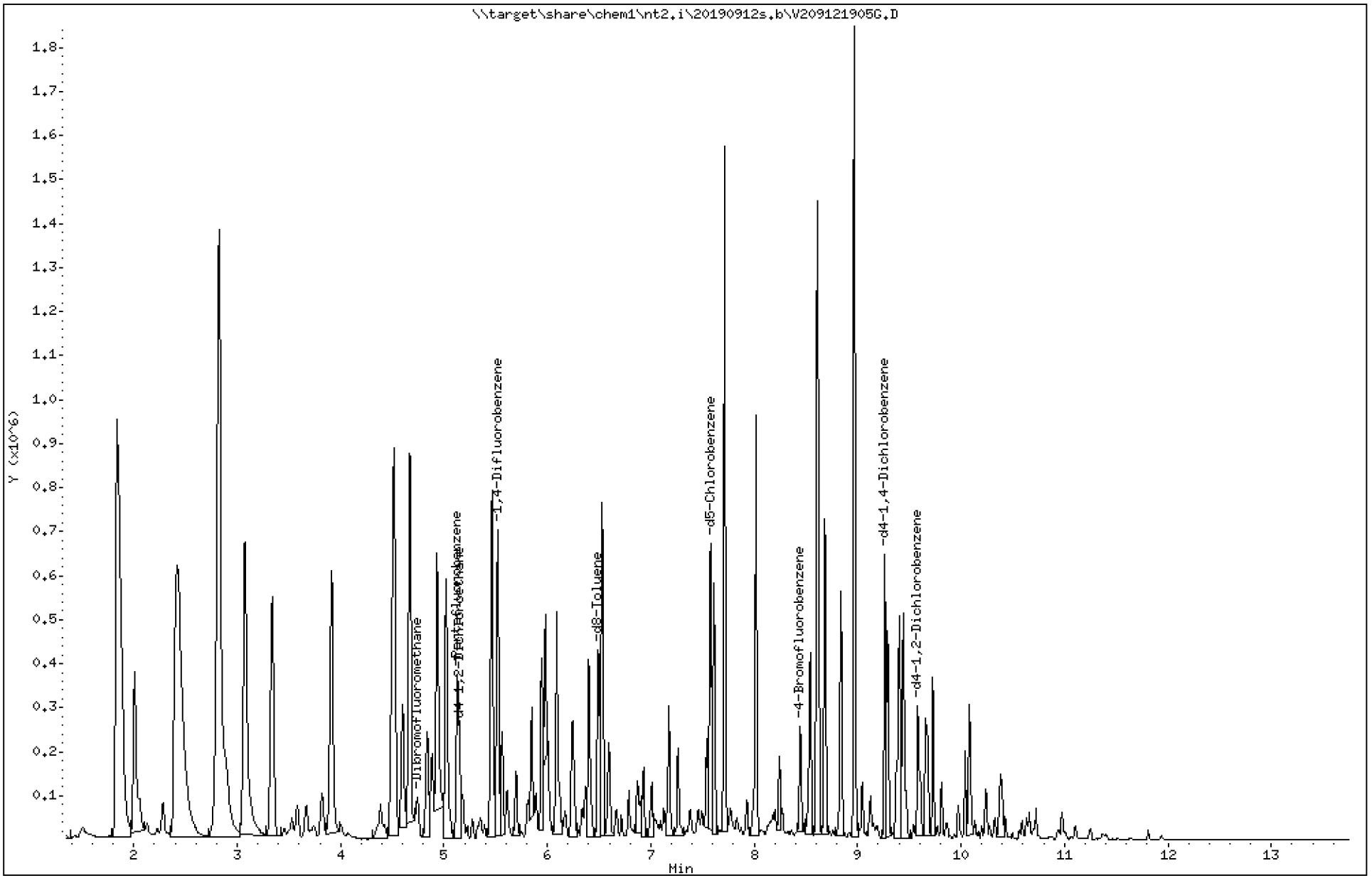
Sample Info: BHI0335-BSD1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121905G.D
Lab Smp Id: BHI0335-BSD1
Inj Date : 12-SEP-2019 08:12
Operator : LH   Inst ID: nt2.i
Smp Info : BHI0335-BSD1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.742	(0.925)	40628	4.71818	4.718
* 32 Pentafluorobenzene	168	5.129	5.132	(1.000)	173934	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.150	(1.005)	54885	5.52752	5.528
* 37 1,4-Difluorobenzene	114	5.518	5.521	(1.000)	304159	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	190955	5.15925	5.159
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	277390	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	50498	4.94187	4.942
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	136116	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.582	9.585	(1.034)	62723	4.98913	4.989

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121905G.D
Lab Smp Id: BHI0335-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	173934	4.70
37 1,4-Difluorobenze	280906	140453	561812	304159	8.28
53 d5-Chlorobenzene	262007	131004	524014	277390	5.87
76 d4-1,4-Dichlorobe	136773	68387	273546	136116	-0.48

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0335-BSD1
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.718	94.36	
$ 33 d4-1,2-Dichloroeth	5.000	5.528	110.55	
$ 43 d8-Toluene	5.000	5.159	103.18	
$ 62 4-Bromofluorobenze	5.000	4.942	98.84	
$ 79 d4-1,2-Dichloroben	5.000	4.989	99.78	

REVIEW SUMMARY FOR FILE - V209121905G.D

Lab ID: BHI0335-BSD1
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 08:12

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121905G.D

Date : 12-SEP-2019 08:12

Client ID:

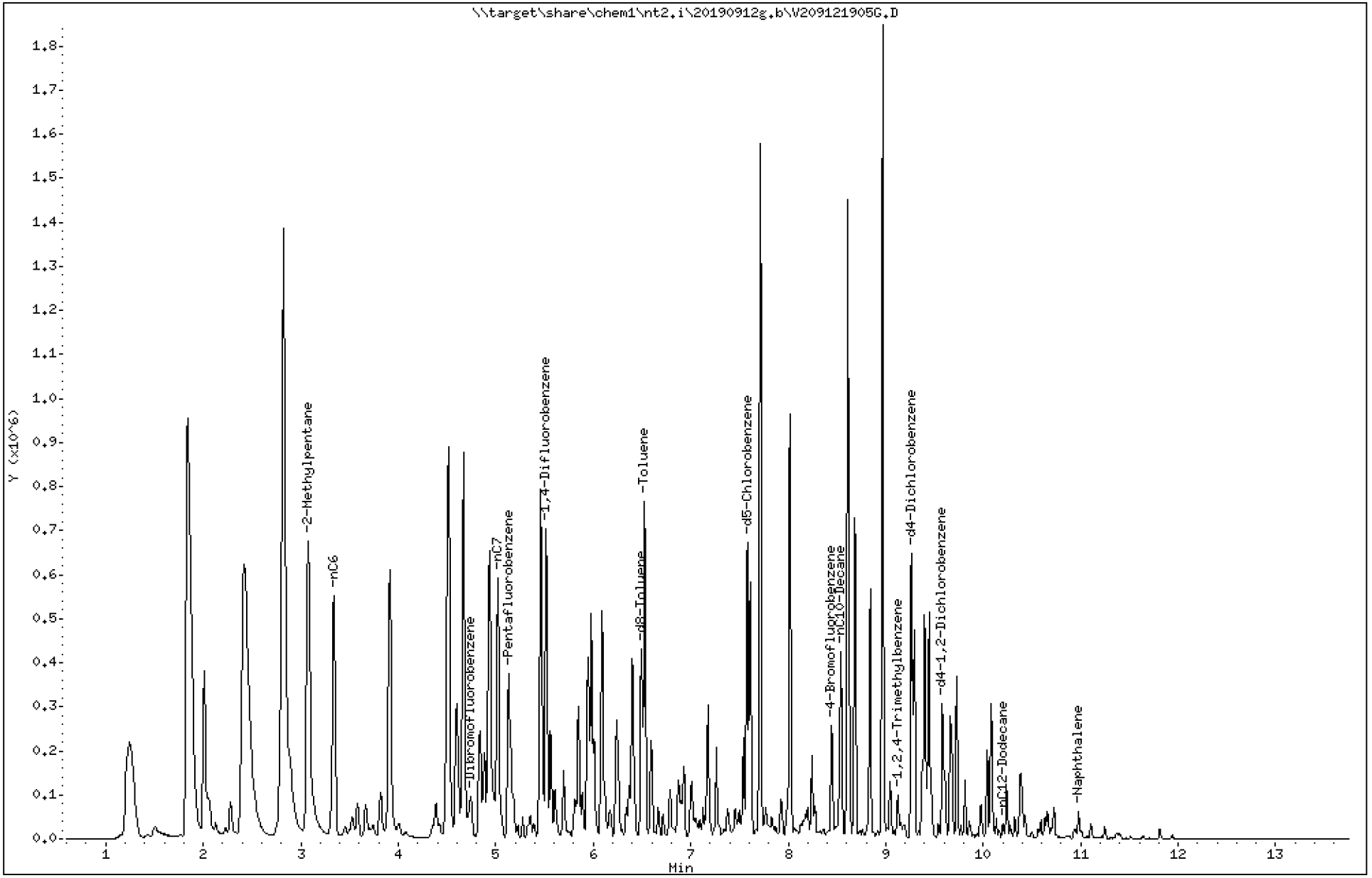
Sample Info: BHI0335-BSD1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121905G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 08:12

ARI ID: BHI0335-BSD1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	22710044	0.909	M
8015C 2MP-TMB	(2.98 to 9.26)	42964079	39563455	0.921	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	30147095	0.919	
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	23766536	0.910	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	33546139	0.951	M

* Surrogate areas are subtracted from Total Area

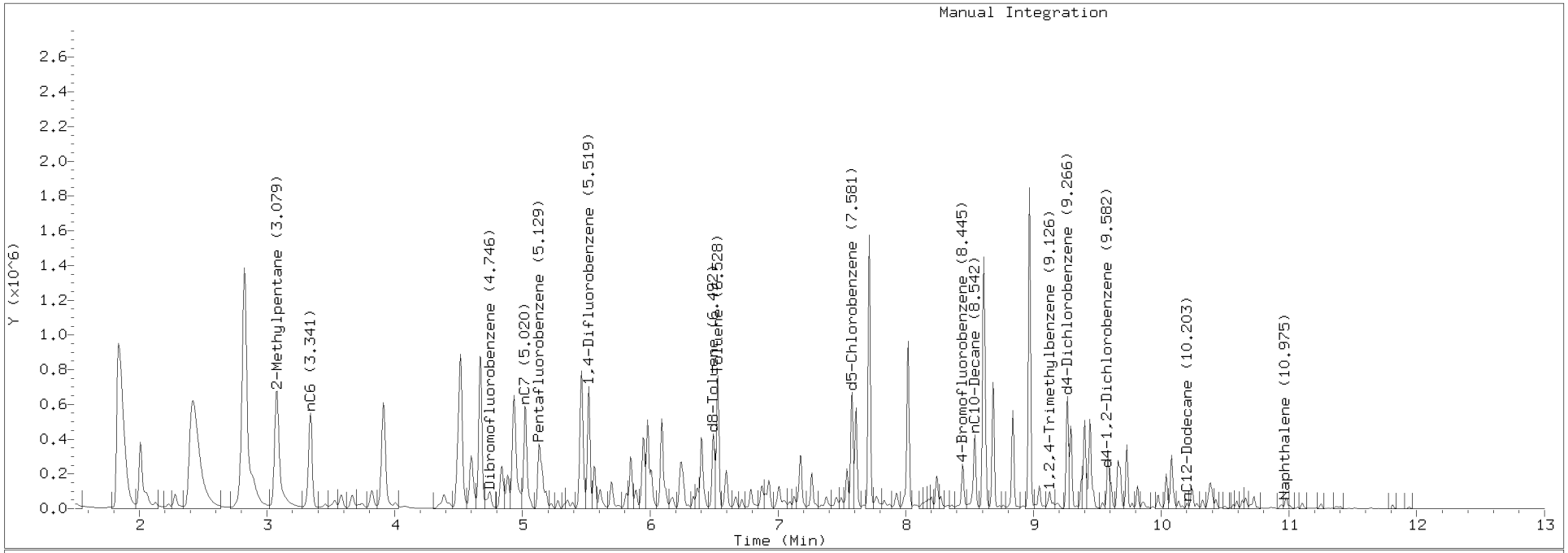
NW Gas Range Subtracted Peaks

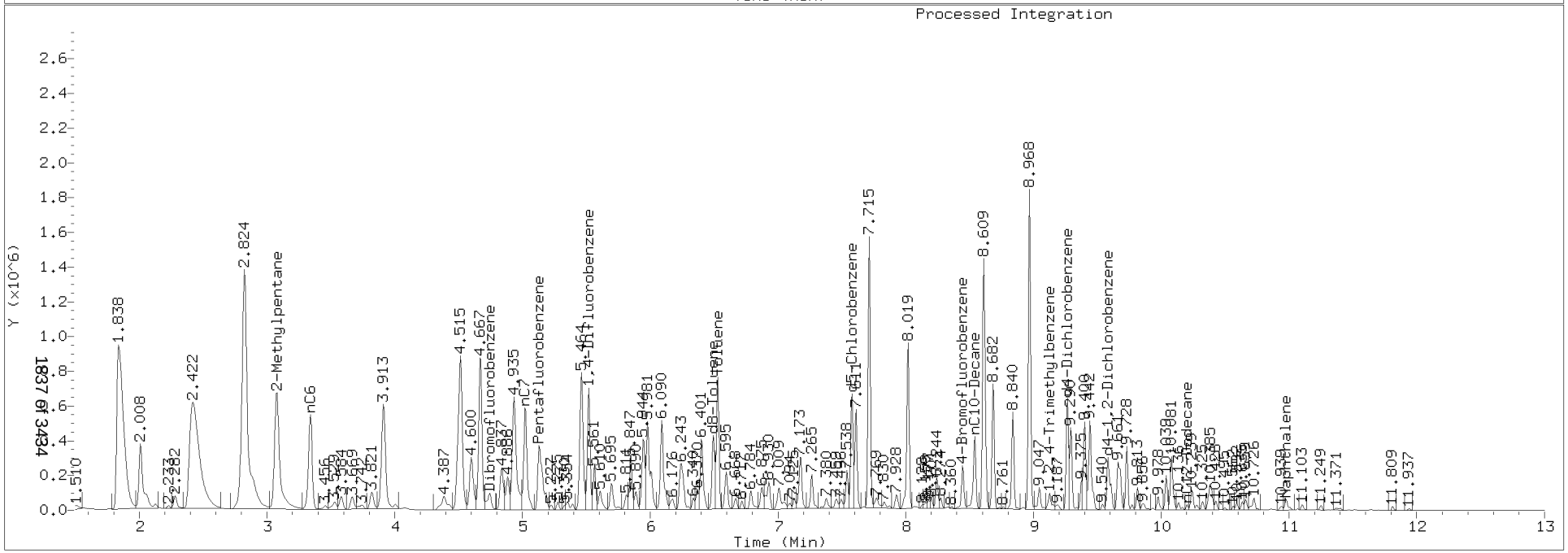
7.581	945629	d5-Chlorobenzene
8.445	392299	4-Bromofluorobenzene
6.492	714679	d8-Toluene
9.266	870293	d4-Dichlorobenzene
9.582	456003	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190912g.b/V209121905G.D Injection: 12-SEP-2019 08:12

Lab ID:BHI0335-BSD1





P40-UST-02-9'-083019

MS / MS DUPLICATE RECOVERY
NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/10/19 20:42
Batch:	BHI0255	Laboratory ID:	BHI0255-MS1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	Matrix Spike
Initial/Final:	3.802 g / 5 mL	Source Sample:	P40-UST-02-9'-083019

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	Q	MS CONCENTRATION (ug/L)	Q	MS % REC. #	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	41500	ND	U	45500		109	28 - 162

* Values outside of QC limits

P40-UST-02-9'-083019

MS / MS DUPLICATE RECOVERY
NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/10/19 21:02
Batch:	BHI0255	Laboratory ID:	BHI0255-MSD1
Preparation:	EPA 5035 (Methanol Extraction)	Sequence Name:	Matrix Spike Dup
Initial/Final:	3.802 g / 5 mL	Source Sample:	P40-UST-02-9'-083019

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline Range Organics (Tol-Nap)	41500	46400		111	1.96	30	28 - 162

* Values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101929G.D

Date : 10-SEP-2019 20:42

Client ID: 19H0481-14MS

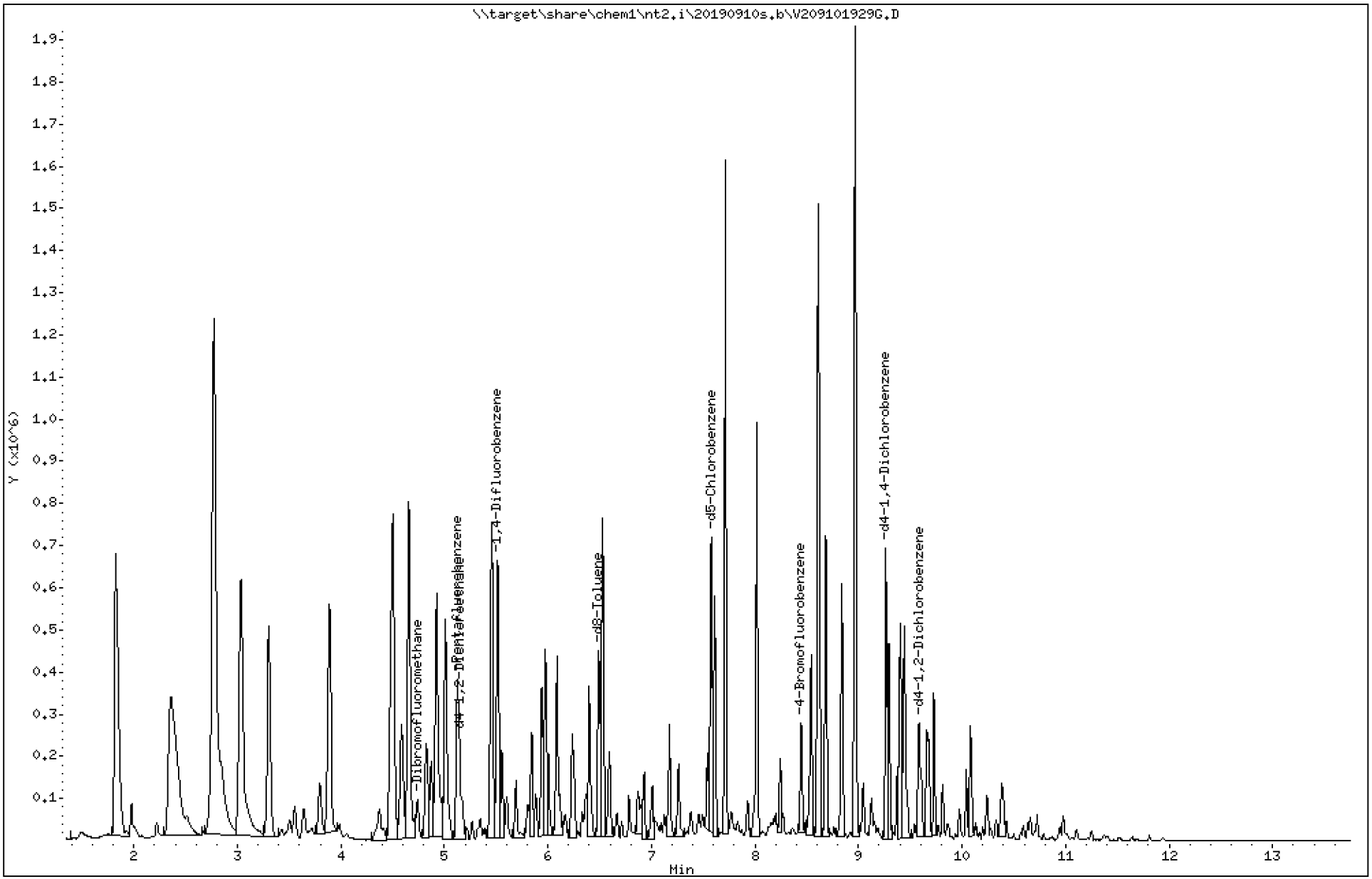
Instrument: nt2.i

Sample Info: BHI0255-MS1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101929G.D
Lab Smp Id: BHI0255-MS1 Client Smp ID: 19H0481-14MS
Inj Date : 10-SEP-2019 20:42
Operator : PKC Inst ID: nt2.i
Smp Info : BHI0255-MS1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.739	4.743	(0.925)	39640	4.55777	4.558
* 32 Pentafluorobenzene	168	5.122	5.132	(1.000)	175677	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.147	5.151	(1.005)	53489	5.33348	5.333
* 37 1,4-Difluorobenzene	114	5.518	5.522	(1.000)	308331	10.0000	
$ 43 d8-Toluene	98	6.491	6.495	(1.176)	191673	5.10857	5.109
* 53 d5-Chlorobenzene	117	7.580	7.578	(1.000)	287097	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.448	(1.115)	55383	5.23668	5.237
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.263	(1.000)	140591	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.586	(1.035)	60797	4.68201	4.682

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101929G.D
Lab Smp Id: BHI0255-MS1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Client Smp ID: 19H0481-14MS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	175677	5.75
37 1,4-Difluorobenze	280906	140453	561812	308331	9.76
53 d5-Chlorobenzene	262007	131004	524014	287097	9.58
76 d4-1,4-Dichlorobe	136773	68387	273546	140591	2.79

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.20
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.08
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.02
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0255-MS1
Client Smp ID: 19H0481-14MS
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.558	91.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.333	106.67	
$ 43 d8-Toluene	5.000	5.109	102.17	
$ 62 4-Bromofluorobenze	5.000	5.237	104.73	
$ 79 d4-1,2-Dichloroben	5.000	4.682	93.64	

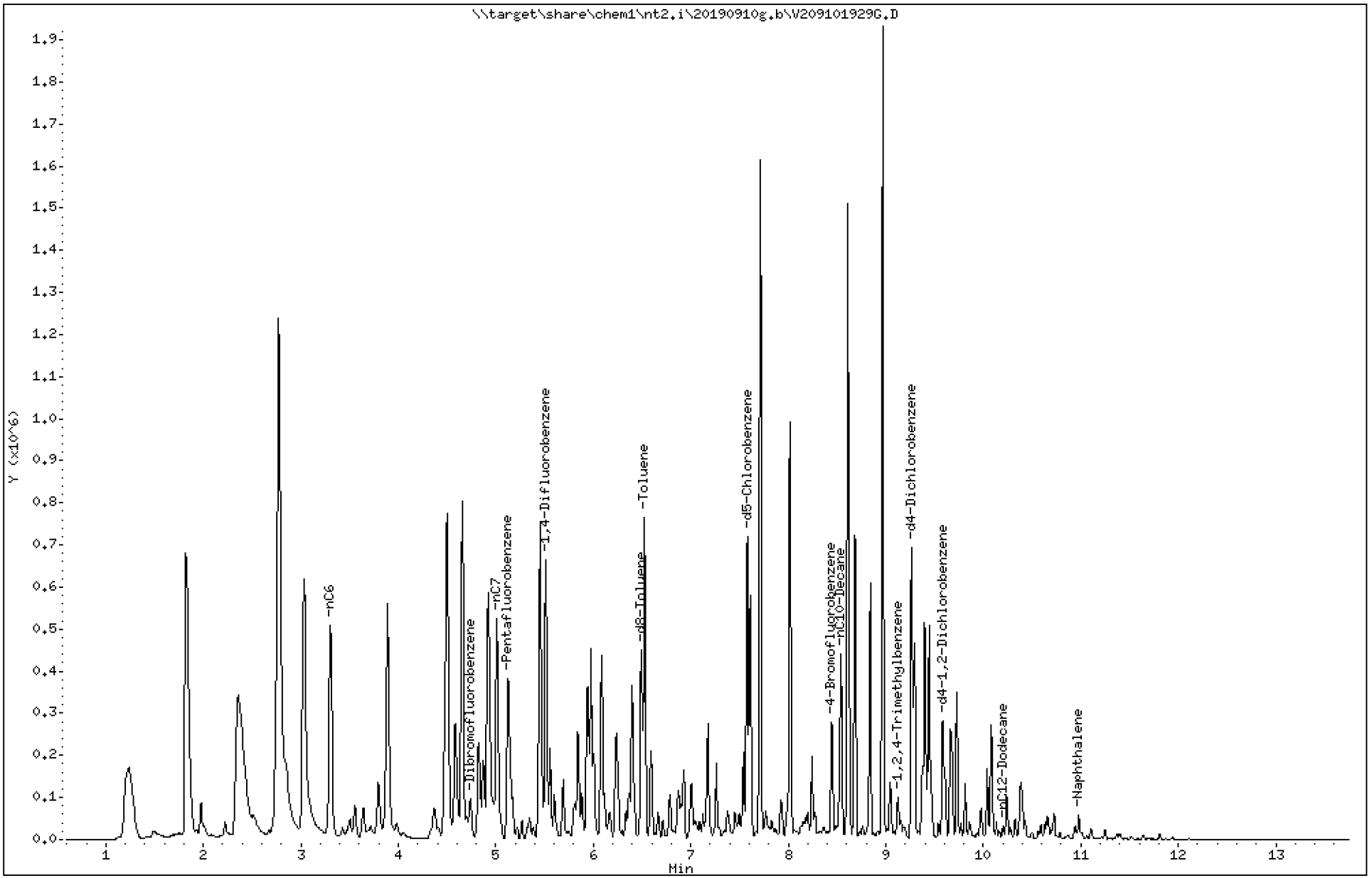
REVIEW SUMMARY FOR FILE - V209101929G.D

Lab ID: BHI0255-MS1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 20:42

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101929G.D
Date : 10-SEP-2019 20:42
Client ID:
Sample Info: BHI0255-MS1

Instrument: nt2.i
Operator: PKC
Column phase: RTXVMS
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101929G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 20:42

ARI ID: BHI0255-MS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	22774771	0.912	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	38219219	0.890	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	28670185	0.874	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	23782825	0.911	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	31446082	0.892	M

* Surrogate areas are subtracted from Total Area

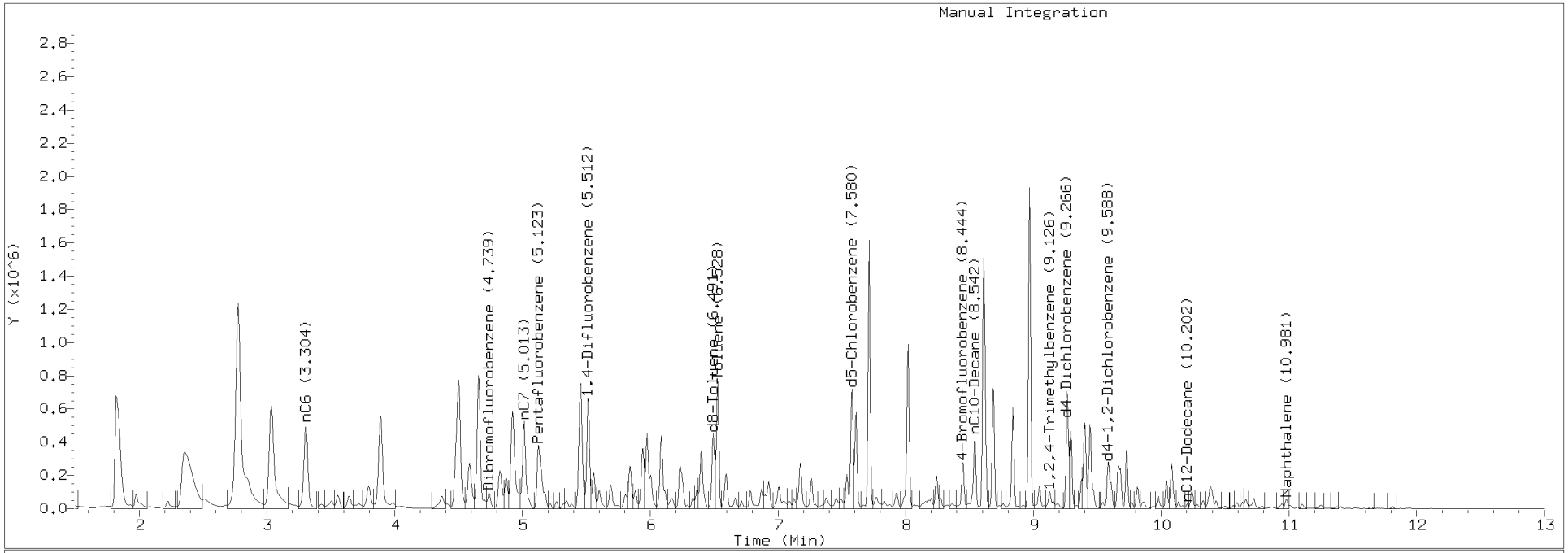
NW Gas Range Subtracted Peaks

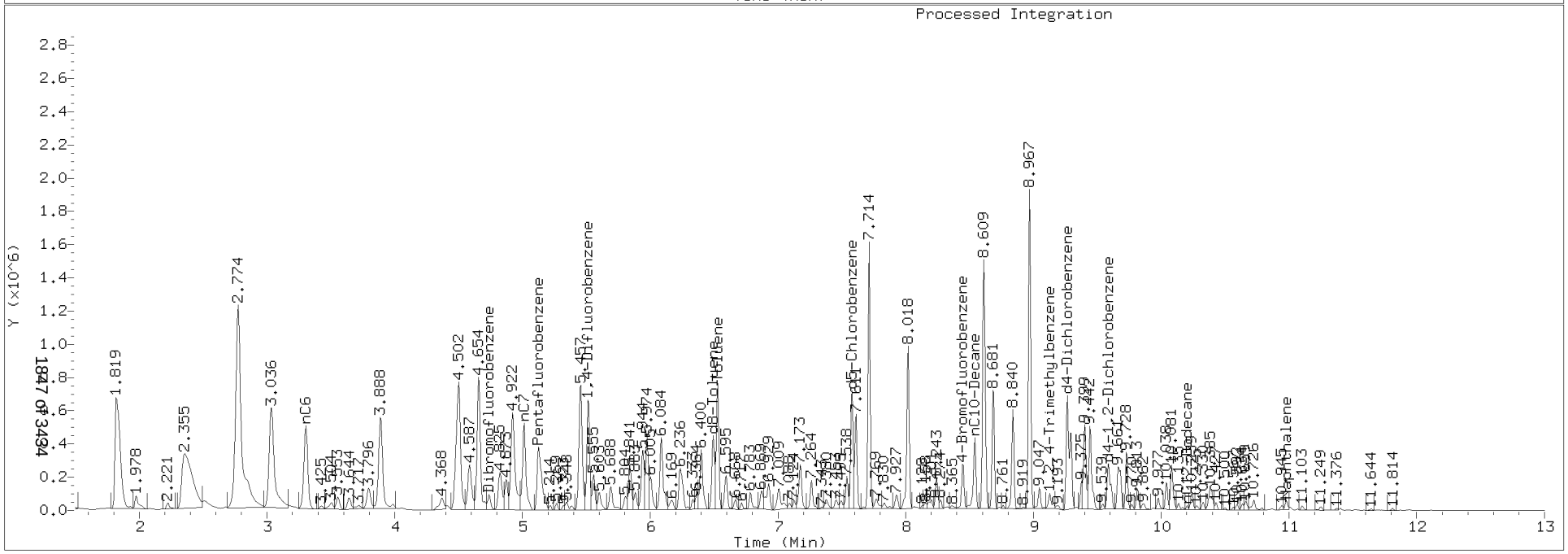
7.580	1001707	d5-Chlorobenzene
8.444	428442	4-Bromofluorobenzene
6.491	751740	d8-Toluene
9.266	991405	d4-Dichlorobenzene
9.588	431860	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101929G.D Injection: 10-SEP-2019 20:42

Lab ID:BHI0255-MS1





Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101930G.D

Date : 10-SEP-2019 21:02

Client ID: 19H0481-14MSD

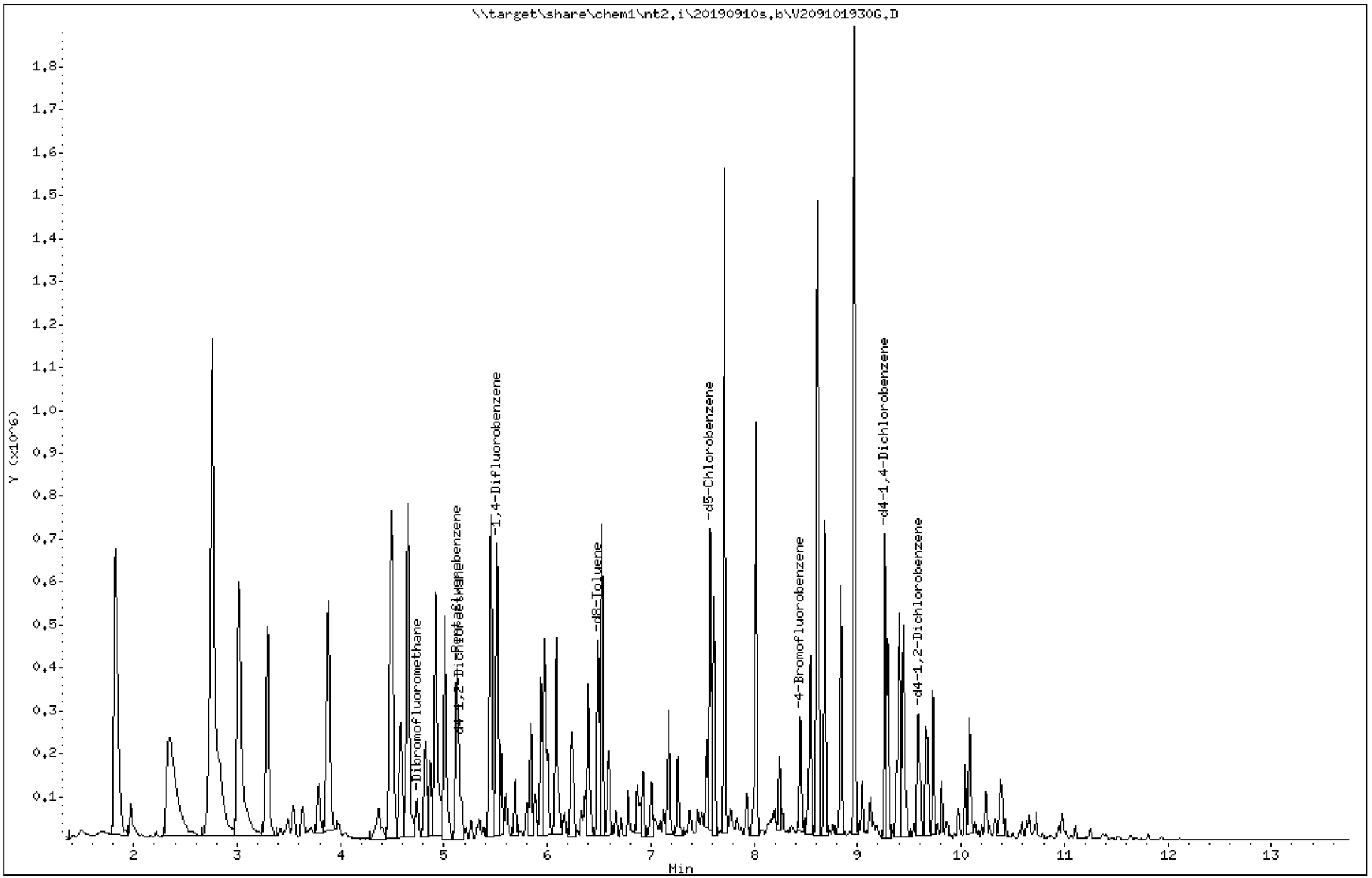
Sample Info: BHI0255-MSD1

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101930G.D
Lab Smp Id: BHI0255-MSD1 Client Smp ID: 19H0481-14MSD
Inj Date : 10-SEP-2019 21:02
Operator : PKC Inst ID: nt2.i
Smp Info : BHI0255-MSD1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.739	4.743	(0.925)	39321	4.51793	4.518
* 32 Pentafluorobenzene	168	5.123	5.132	(1.000)	175800	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.147	5.151	(1.005)	54554	5.43586	5.436
* 37 1,4-Difluorobenzene	114	5.512	5.522	(1.000)	312716	10.0000	
$ 43 d8-Toluene	98	6.491	6.495	(1.178)	193685	5.08981	5.090
* 53 d5-Chlorobenzene	117	7.580	7.578	(1.000)	294332	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.448	(1.115)	55431	5.11238	5.112
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.263	(1.000)	144715	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.588	9.586	(1.035)	62496	4.67570	4.676

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101930G.D
Lab Smp Id: BHI0255-MSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Client Smp ID: 19H0481-14MSD
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	175800	5.83
37 1,4-Difluorobenze	280906	140453	561812	312716	11.32
53 d5-Chlorobenzene	262007	131004	524014	294332	12.34
76 d4-1,4-Dichlorobe	136773	68387	273546	144715	5.81

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.12	-0.19
37 1,4-Difluorobenze	5.52	5.02	6.02	5.51	-0.18
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHI0255-MSD1
Client Smp ID: 19H0481-14MSD
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.518	90.36	
$ 33 d4-1,2-Dichloroeth	5.000	5.436	108.72	
$ 43 d8-Toluene	5.000	5.090	101.80	
$ 62 4-Bromofluorobenze	5.000	5.112	102.25	
$ 79 d4-1,2-Dichloroben	5.000	4.676	93.51	

REVIEW SUMMARY FOR FILE - V209101930G.D

Lab ID: BHI0255-MSD1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 21:02

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101930G.D

Date : 10-SEP-2019 21:02

Client ID:

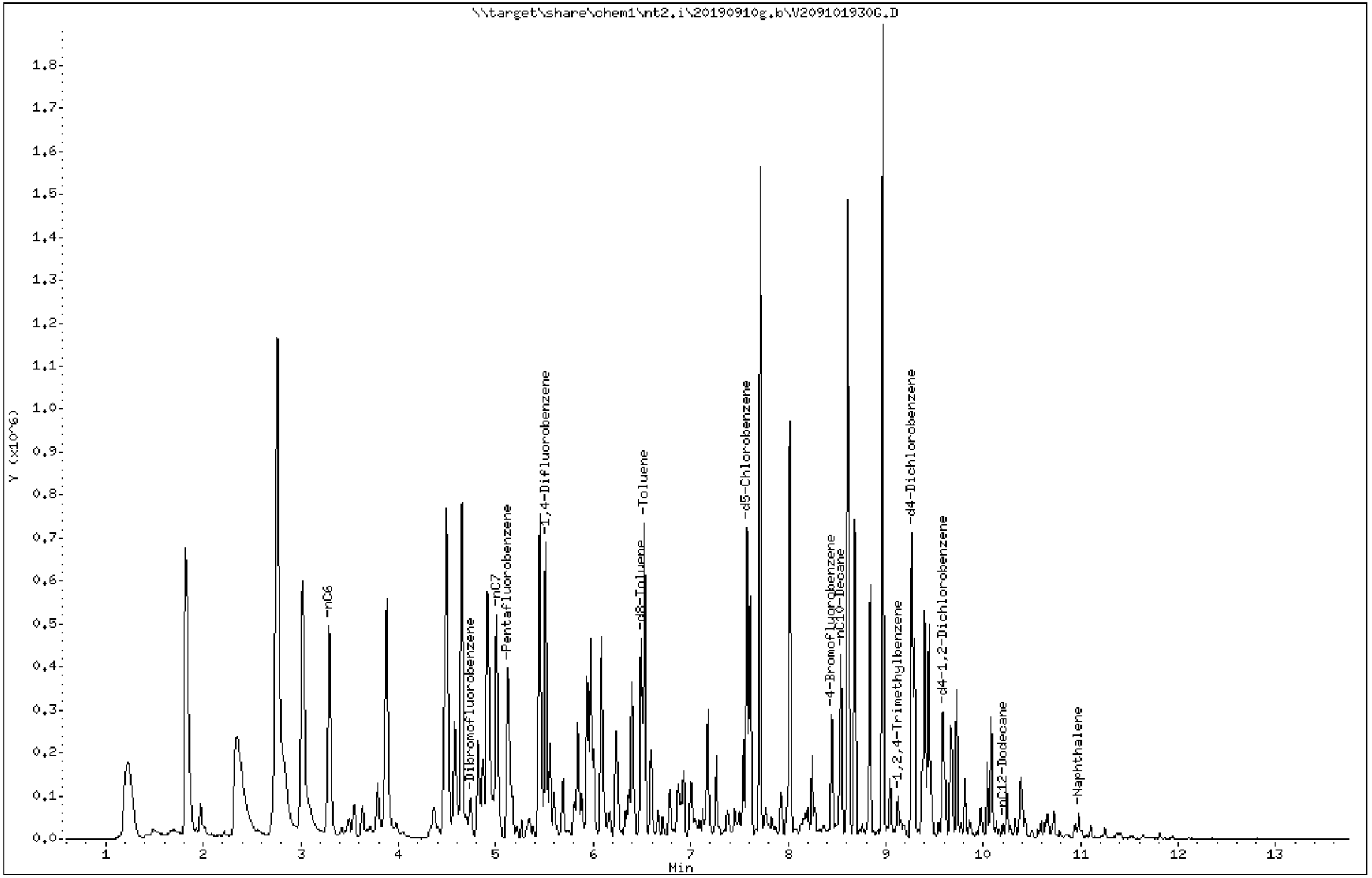
Sample Info: BHI0255-MSD1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101930G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 21:02

ARI ID: BHI0255-MSD1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	23169003	0.927	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	38196799	0.889	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	28589584	0.871	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	24252642	0.929	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	31775360	0.901	M

* Surrogate areas are subtracted from Total Area

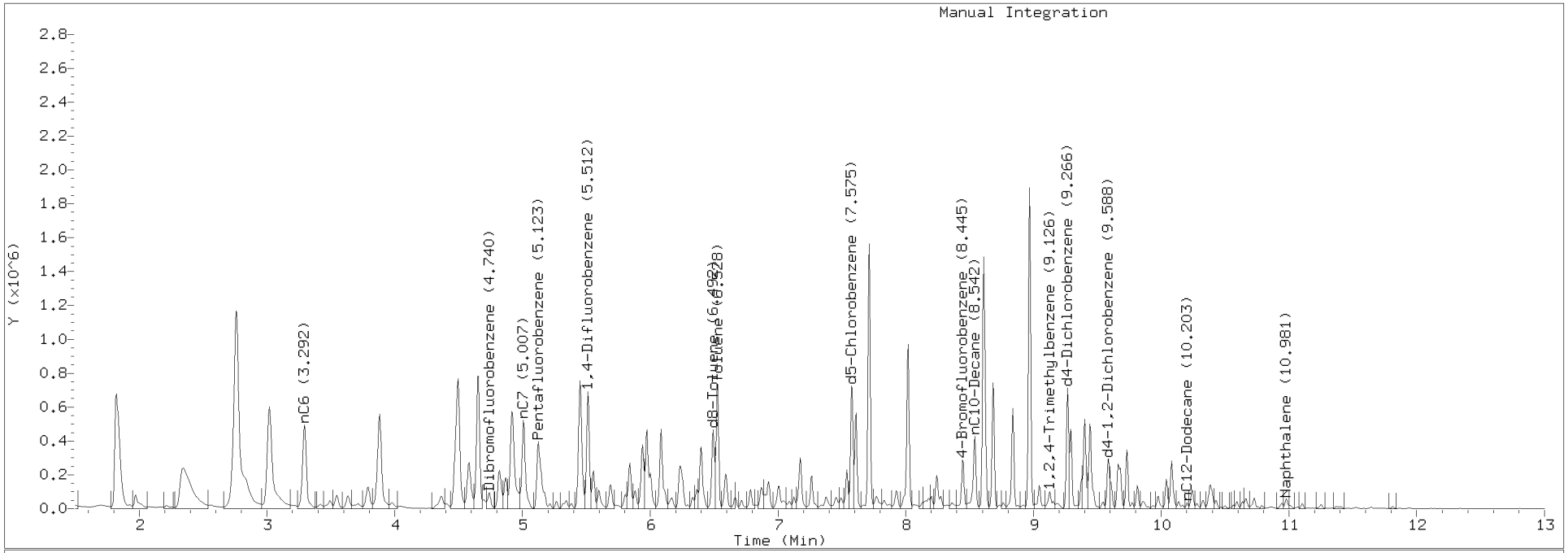
NW Gas Range Subtracted Peaks

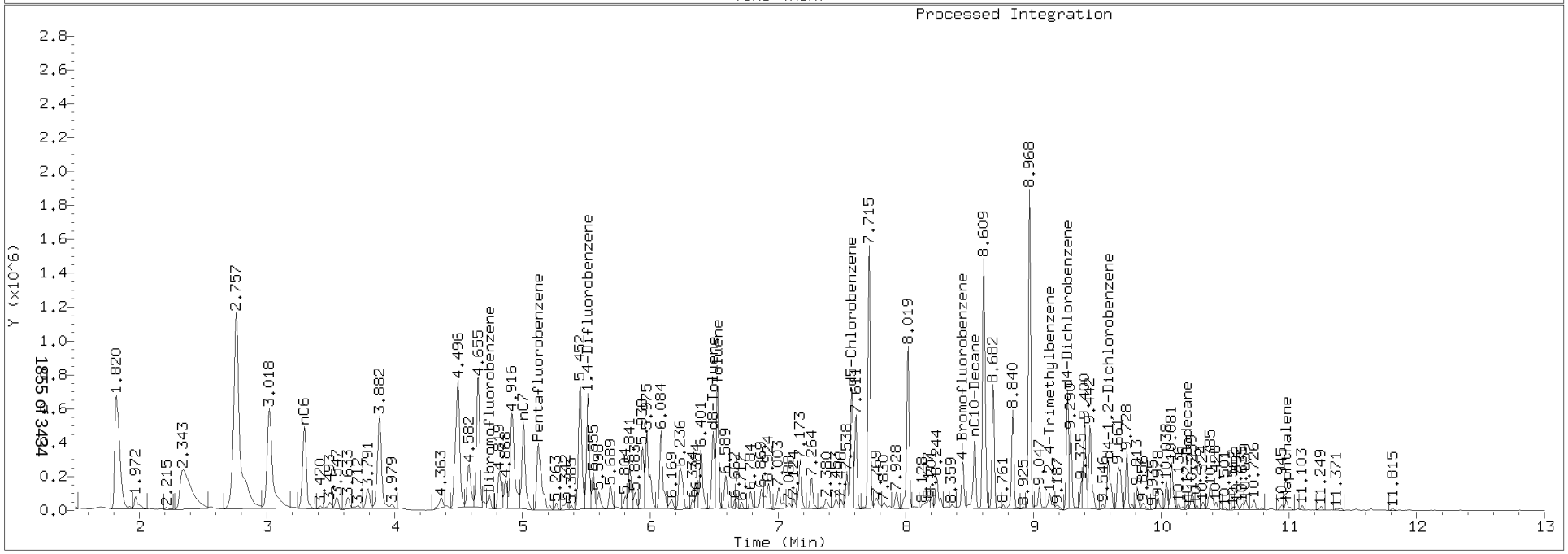
7.575	1029890	d5-Chlorobenzene
8.445	440172	4-Bromofluorobenzene
6.492	787366	d8-Toluene
9.266	911589	d4-Dichlorobenzene
9.588	450908	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101930G.D Injection: 10-SEP-2019 21:02

Lab ID:BHI0255-MSD1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

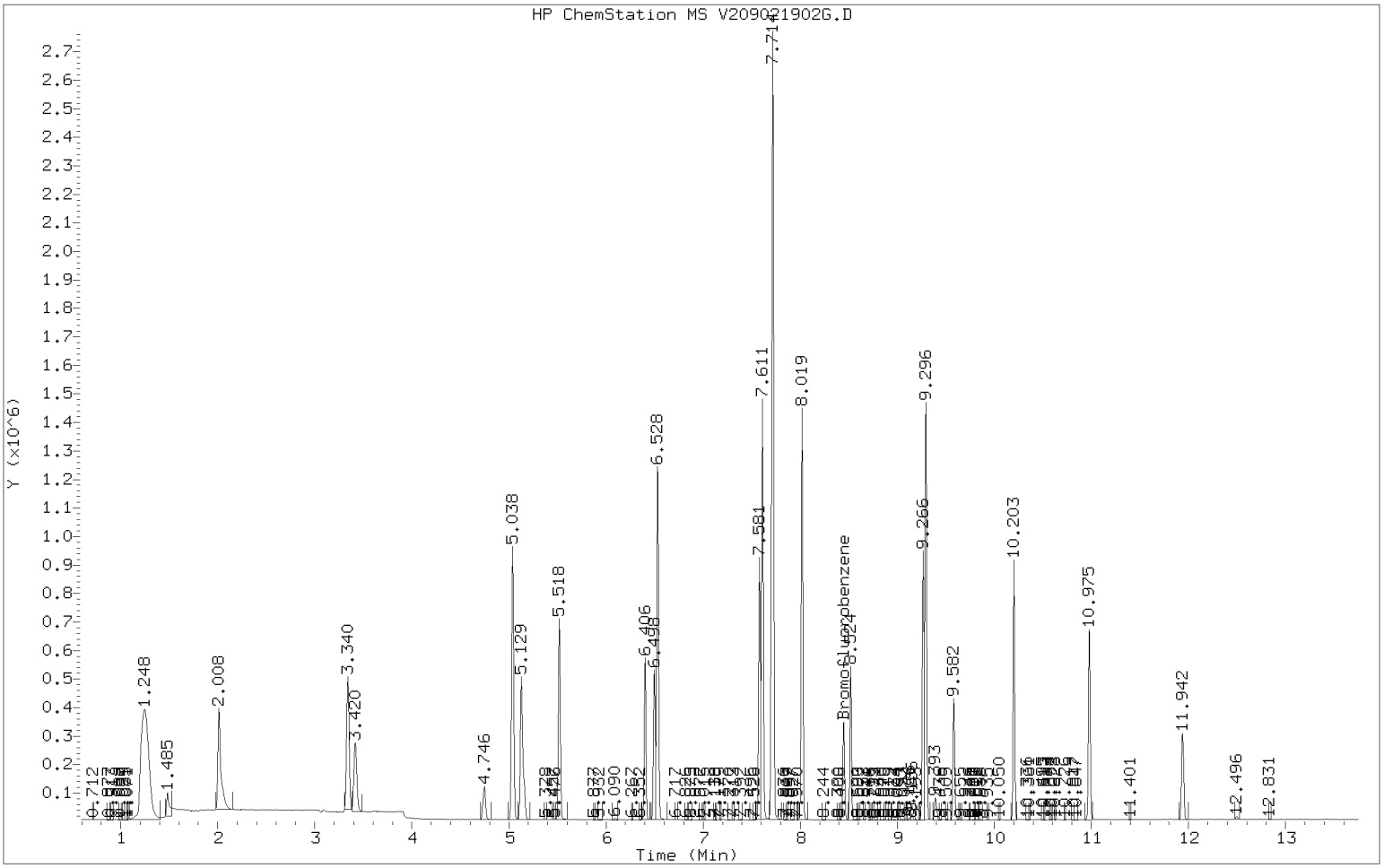
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V209021902G.D	Injection Date:	09/02/19
Instrument ID:	NT2	Injection Time:	11:29
Sequence:	SHI0010	Lab Sample ID:	SHI0010-TUN1

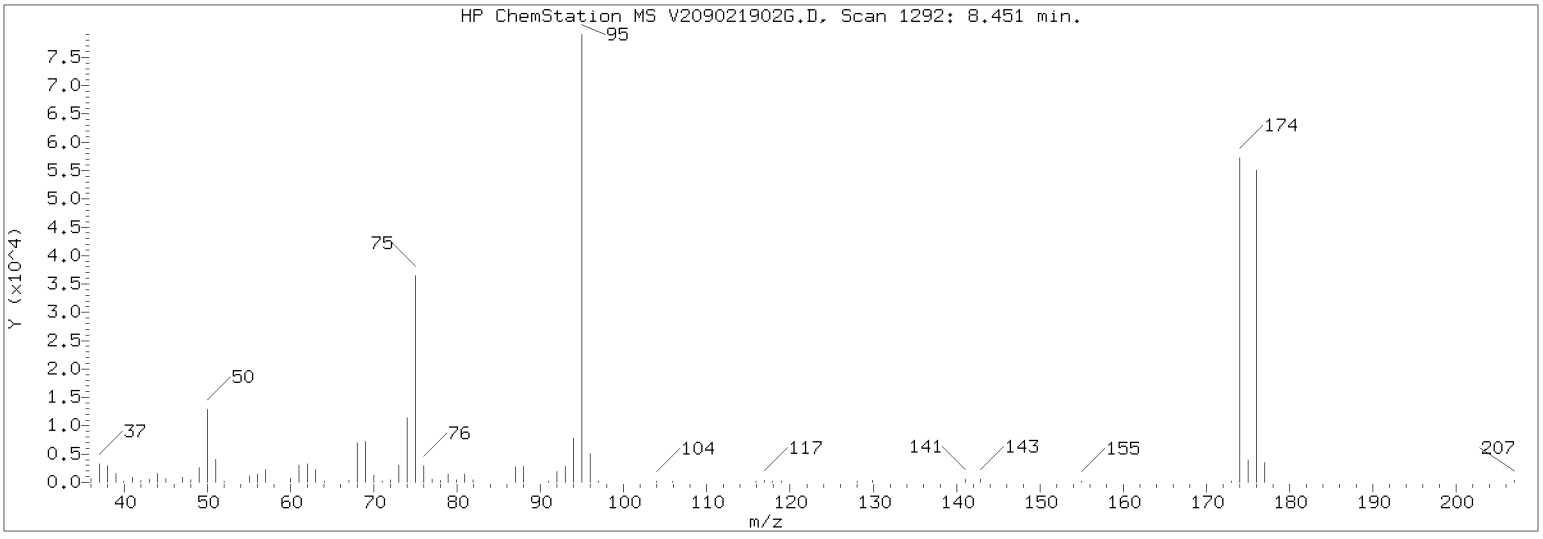
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	16.9	PASS
75	30 - 80% of 95	45.9	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.76	PASS
173	Less than 2% of 174	0.521	PASS
174	50 - 120% of 95	70.9	PASS
175	5 - 9% of 174	7	PASS
176	95 - 101% of 174	98.5	PASS
177	5 - 9% of 176	6.36	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
Cal Standard	SHI0010-CAL9	V209021915G.D	09/02/2019	16:13
Cal Standard	SHI0010-CALA	V209021916G.D	09/02/2019	16:33
Cal Standard	SHI0010-CALB	V209021917G.D	09/02/2019	16:54
Cal Standard	SHI0010-CALC	V209021918G.D	09/02/2019	17:14
Cal Standard	SHI0010-CALD	V209021919G.D	09/02/2019	17:34
Cal Standard	SHI0010-CALE	V209021920G.D	09/02/2019	17:54
Initial Cal Blank	SHI0010-ICB1	V209021921G.D	09/02/2019	18:15
Secondary Cal Check	SHI0010-SCV1	V209021922G.D	09/02/2019	18:35

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190902s.b/V209021902G.D
Method Used: \20190902s.b\bfb8260.m Inst: nt2
Injection Date: 02-SEP-2019 11:29 Operator: PKC
Sample Info: SHI0010-TUN1 SHI0010-TUN1
Report Date: 09/03/2019 10:14





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.85
75	30.00 - 60.00% of mass 95	45.91
96	5.00 - 9.00% of mass 95	6.76
173	Less than 2.00% of mass 174	0.37 (0.52)
174	50.00 - 100.00% of mass 95	70.85
175	5.00 - 9.00% of mass 174	4.96 (7.00)
176	95.00 - 101.00% of mass 174	69.78 (98.49)
177	5.00 - 9.00% of mass 176	4.44 (6.36)

Data File: V209021902G.D
Spectrum: Avg. Scans 1291-1293 (8.45), Background Scan 1285
Location of Maximum: 95.00
Number of points: 67

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	542	56.00	937	77.00	466	112.00	63
37.00	3059	57.00	1400	78.00	305	116.00	143
38.00	2578	60.00	636	79.00	1281	117.00	309
39.00	1127	61.00	2616	80.00	361	118.00	139
40.00	4	62.00	2778	81.00	1102	119.00	301
41.00	28	63.00	2085	82.00	354	128.00	154
42.00	58	64.00	173	87.00	2326	130.00	179
43.00	28	67.00	304	88.00	2493	141.00	491
44.00	339	68.00	6005	91.00	189	143.00	420
45.00	694	69.00	5860	92.00	1742	148.00	78
47.00	838	70.00	556	93.00	2506	155.00	128
48.00	402	71.00	133	94.00	7053	173.00	251
49.00	2516	72.00	367	95.00	67952	174.00	48144
50.00	11453	73.00	2658	96.00	4591	175.00	3372
51.00	3770	74.00	9993	97.00	64	176.00	47416
52.00	150	75.00	31200	104.00	184	177.00	3015
55.00	182	76.00	2645	106.00	248		

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021902G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 11:29

ARI ID: SHI0010-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	12541568	0.502
8015C 2MP-TMB	(3.04 to 9.26)	42964079	13201721	0.307
AK101 nC6-nC10	(3.24 to 8.42)	32820925	12569562	0.383
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	13441466	0.515
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	14710987	0.417

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.581	1108694	d5-Chlorobenzene
8.451	463342	4-Bromofluorobenzene
6.498	680352	d8-Toluene
9.266	1147138	d4-Dichlorobenzene
9.582	563694	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

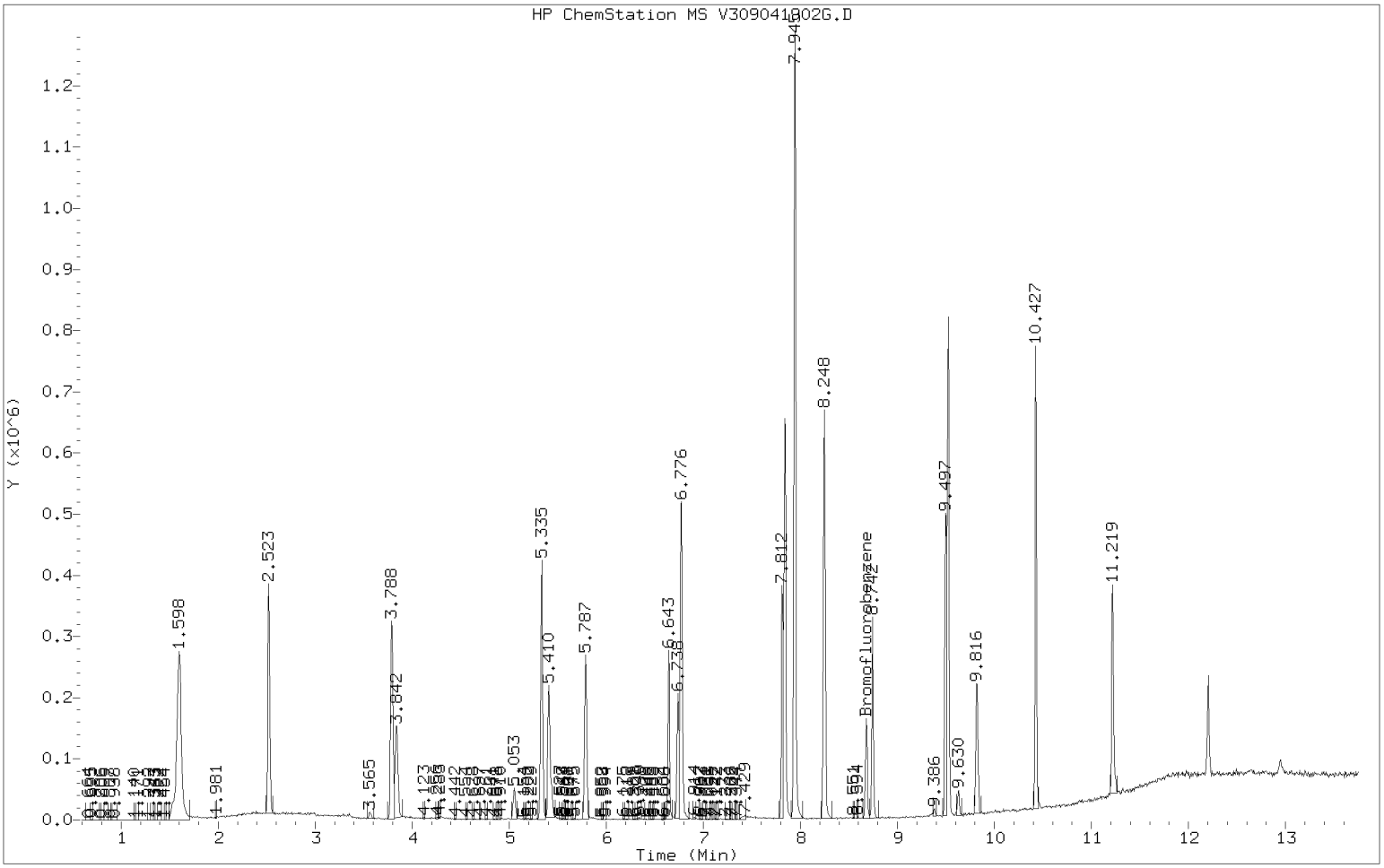
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V309041902G.D	Injection Date:	09/04/19
Instrument ID:	NT3	Injection Time:	15:17
Sequence:	SHI0075	Lab Sample ID:	SHI0075-TUN1

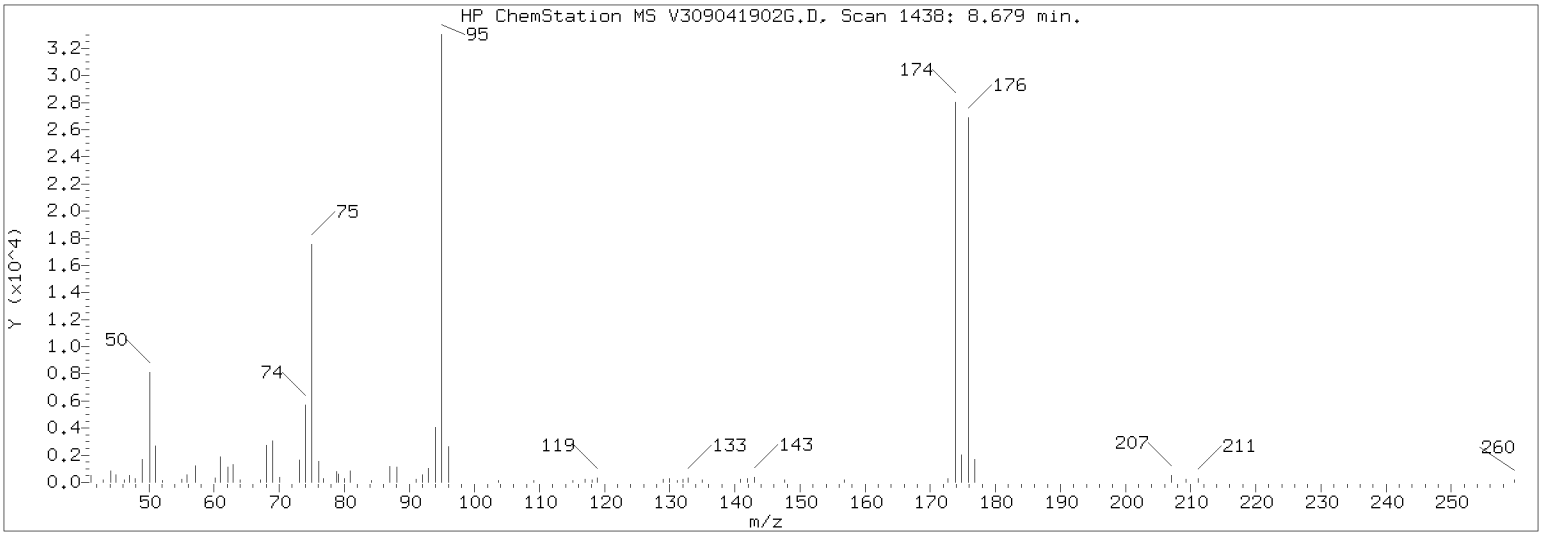
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	26	PASS
75	30 - 80% of 95	50.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.82	PASS
173	Less than 2% of 174	0.364	PASS
174	50 - 120% of 95	85.8	PASS
175	5 - 9% of 174	7.93	PASS
176	95 - 101% of 174	96.6	PASS
177	5 - 9% of 176	6.99	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0075-TUN1	V309041902G.D	09/04/2019	15:17
Cal Standard	SHI0075-CAL9	V309041916G.D	09/04/2019	22:21
Cal Standard	SHI0075-CALA	V309041917G.D	09/04/2019	22:47
Cal Standard	SHI0075-CALB	V309041918G.D	09/04/2019	23:14
Cal Standard	SHI0075-CALC	V309041919G.D	09/04/2019	23:40
Cal Standard	SHI0075-CALD	V309041920G.D	09/05/2019	0:07
Cal Standard	SHI0075-CALE	V309041921G.D	09/05/2019	0:33
Initial Cal Blank	SHI0075-ICB1	V309041922G.D	09/05/2019	1:00
Secondary Cal Check	SHI0075-SCV1	V309041923G.D	09/05/2019	1:27

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190904s.b/V309041902G.D
Method Used: \20190904s.b\bfb8260.m Inst: nt3
Injection Date: 04-SEP-2019 15:17 Operator: PKC
Sample Info: SHI0075-TUN1 SHI0075-TUN1
Report Date: 09/06/2019 10:51





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.97
75	30.00 - 60.00% of mass 95	50.38
96	5.00 - 9.00% of mass 95	5.82
173	Less than 2.00% of mass 174	0.31 (0.36)
174	50.00 - 100.00% of mass 95	85.79
175	5.00 - 9.00% of mass 174	6.80 (7.93)
176	95.00 - 101.00% of mass 174	82.91 (96.64)
177	5.00 - 9.00% of mass 176	5.79 (6.99)

Data File: \\target\share\chem1\nt3.i\20190904g.b\V309041902G.D

Date : 04-SEP-2019 15:17

Client ID:

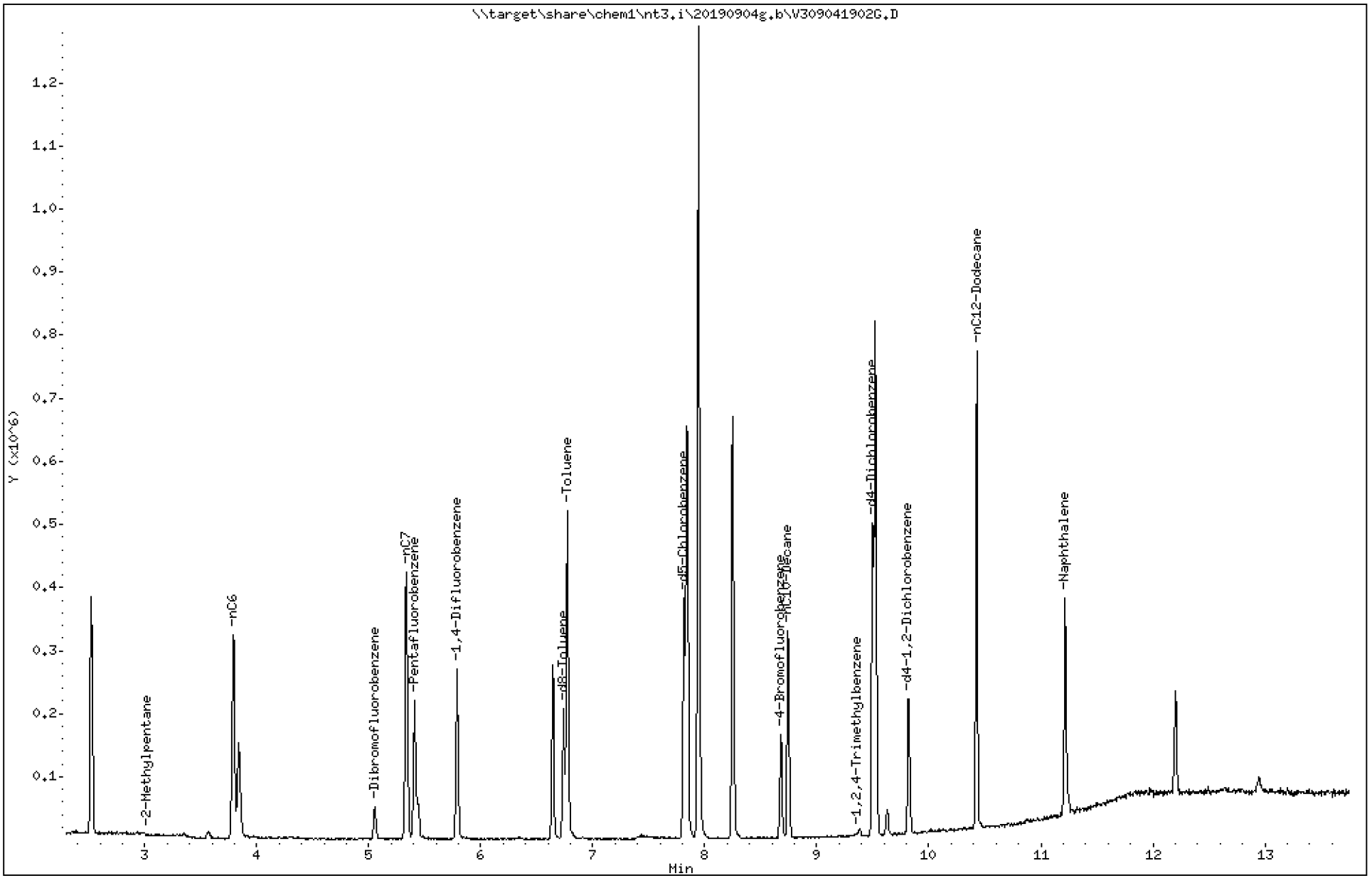
Sample Info: SHI0075-TUN1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041902G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 15:17

ARI ID: SHI0075-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	7132024	0.449
8015C 2MP-TMB	(2.92 to 9.46)	32687243	7042563	0.215
AK101 nC6-nC10	(3.69 to 8.64)	19977596	6474072	0.324
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	7718064	0.447
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	8176380	0.356

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	455237	d5-Chlorobenzene
6.738	292648	d8-Toluene
9.497	606080	d4-Dichlorobenzene
8.679	233858	4-Bromofluorobenzene
9.816	327313	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

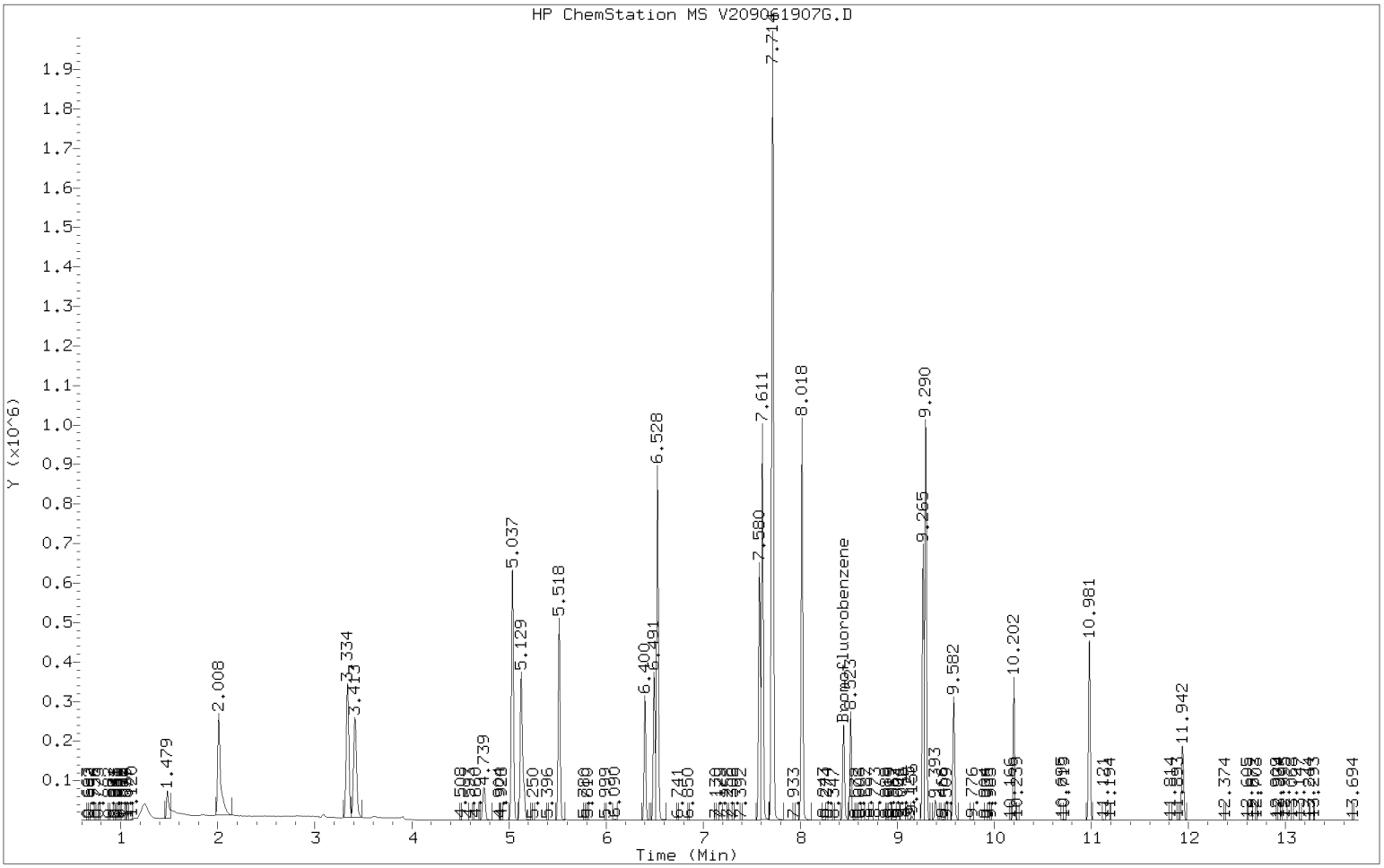
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V209061907G.D	Injection Date:	09/06/19
Instrument ID:	NT2	Injection Time:	08:57
Sequence:	SHI0083	Lab Sample ID:	SHI0083-TUN1

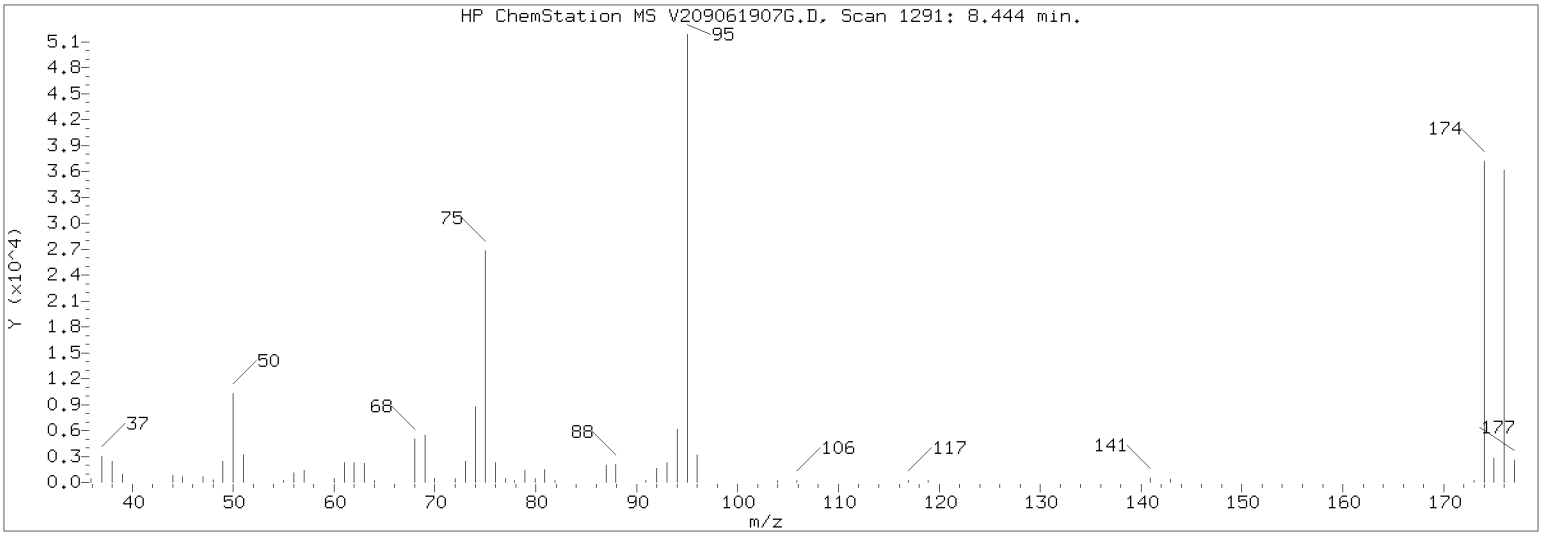
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	20.3	PASS
75	30 - 80% of 95	51.5	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	6.72	PASS
173	Less than 2% of 174	0.497	PASS
174	50 - 120% of 95	72.6	PASS
175	5 - 9% of 174	7.2	PASS
176	95 - 101% of 174	96.6	PASS
177	5 - 9% of 176	6.93	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0083-TUN1	V209061907G.D	09/06/2019	8:57

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190906s.b/V209061907G.D
Method Used: \20190906s.b\bfb8260.m Inst: nt2
Injection Date: 06-SEP-2019 08:57 Operator: LH
Sample Info: SHI0083-TUN1 SHI0083-TUN1
Report Date: 09/06/2019 12:40





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.29
75	30.00 - 60.00% of mass 95	51.50
96	5.00 - 9.00% of mass 95	6.72
173	Less than 2.00% of mass 174	0.36 (0.50)
174	50.00 - 100.00% of mass 95	72.58
175	5.00 - 9.00% of mass 174	5.23 (7.20)
176	95.00 - 101.00% of mass 174	70.15 (96.65)
177	5.00 - 9.00% of mass 176	4.86 (6.93)

Data File: V209061907G.D
Spectrum: Avg. Scans 1290-1292 (8.44), Background Scan 1285
Location of Maximum: 95.00
Number of points: 55

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	399	57.00	1285	76.00	2050	96.00	2981
37.00	2503	60.00	418	77.00	286	104.00	148
38.00	2166	61.00	2119	78.00	142	106.00	81
39.00	883	62.00	2095	79.00	1231	117.00	250
41.00	60	63.00	1721	80.00	327	118.00	61
44.00	268	64.00	68	81.00	1281	119.00	137
45.00	469	67.00	69	82.00	255	141.00	411
47.00	533	68.00	4437	87.00	1553	143.00	341
48.00	288	69.00	4683	88.00	1657	173.00	160
49.00	1982	70.00	466	91.00	66	174.00	32192
50.00	9001	72.00	237	92.00	1333	175.00	2319
51.00	2750	73.00	2142	93.00	1840	176.00	31112
55.00	159	74.00	7747	94.00	5152	177.00	2157
56.00	830	75.00	22840	95.00	44352		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

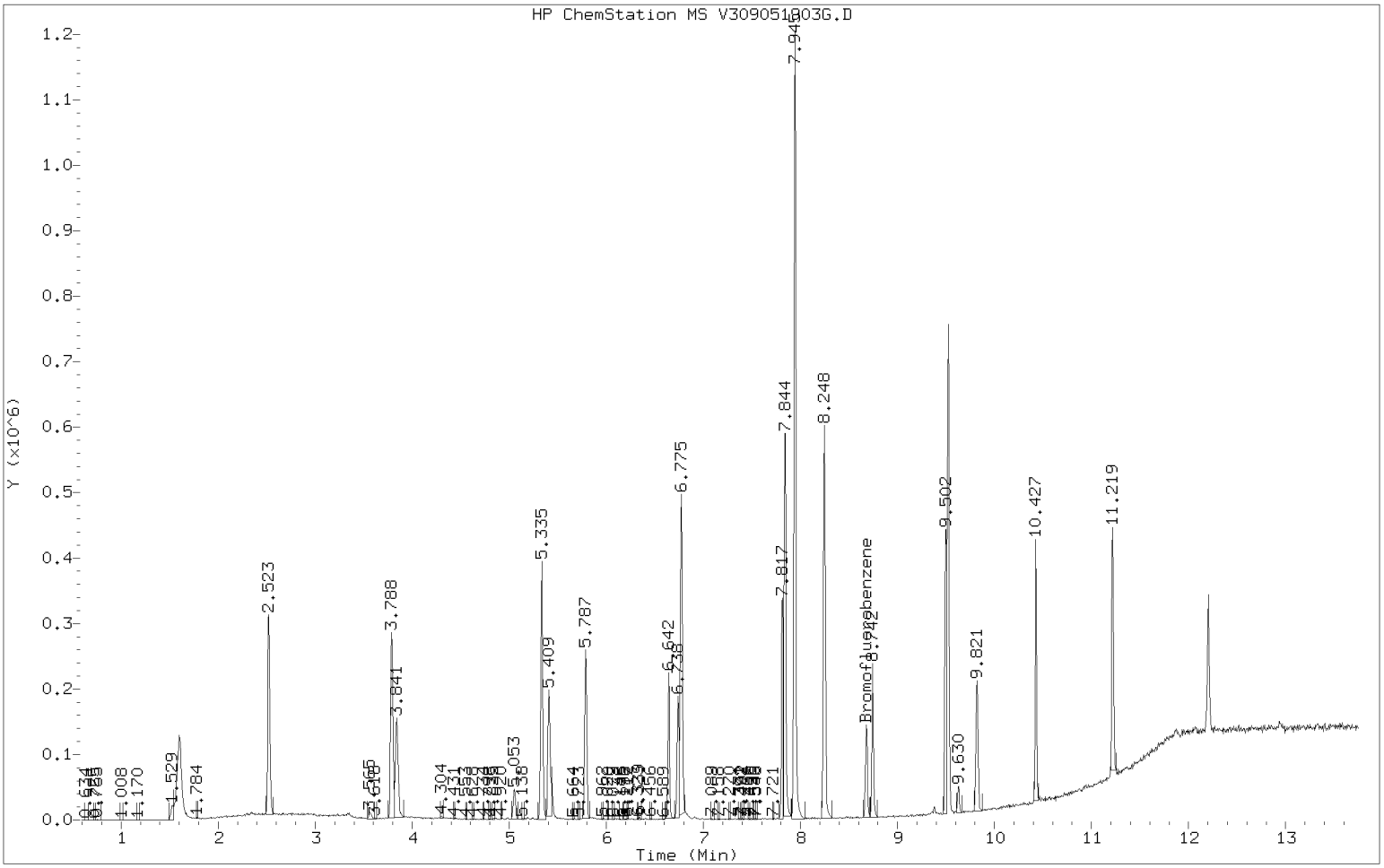
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V309051903G.D	Injection Date:	09/05/19
Instrument ID:	NT3	Injection Time:	11:49
Sequence:	SHI0097	Lab Sample ID:	SHI0097-TUN1

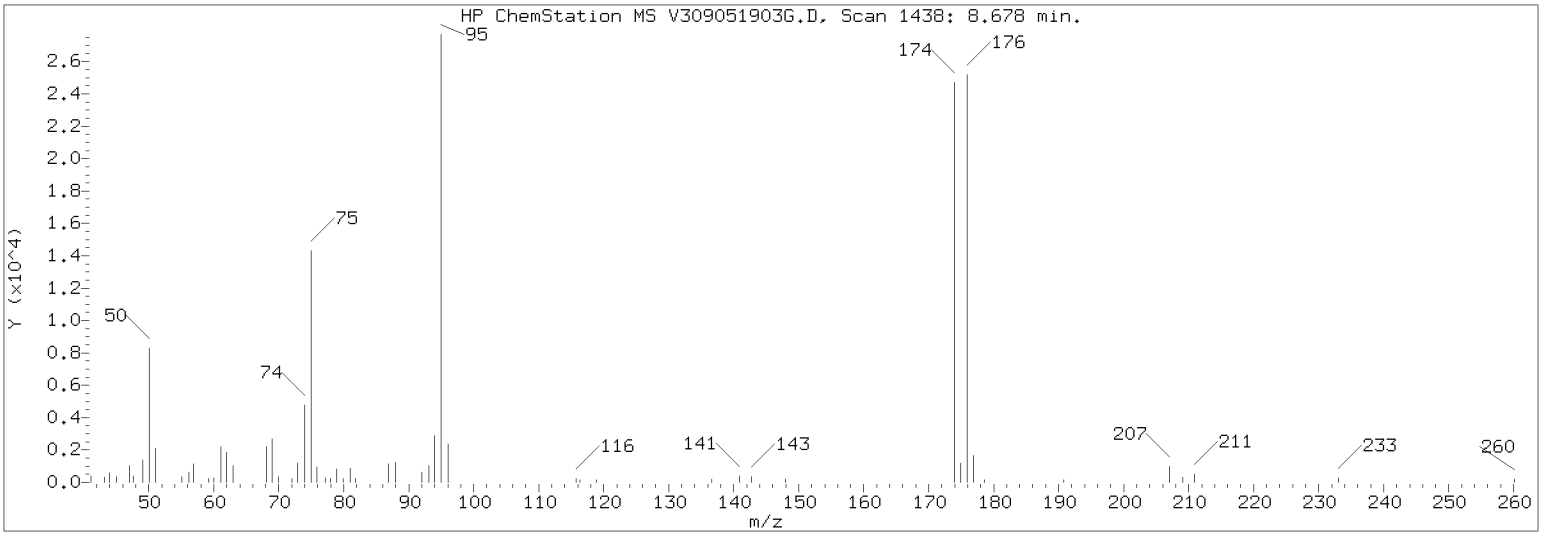
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	24.9	PASS
75	30 - 80% of 95	47.6	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	5.25	PASS
173	Less than 2% of 174	0.25	PASS
174	50 - 120% of 95	90.9	PASS
175	5 - 9% of 174	6.64	PASS
176	95 - 101% of 174	97	PASS
177	5 - 9% of 176	7.37	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0097-TUN1	V309051903G.D	09/05/2019	11:49
Initial Cal Check	SHI0097-ICV1	V309051906G.D	09/05/2019	13:23
LCS	BHI0133-BS2	V309051906GLCS.D	09/05/2019	13:23
LCS Dup	BHI0133-BSD2	V309051907G.D	09/05/2019	13:50
Blank	BHI0133-BLK2	V309051908G.D	09/05/2019	14:16
P40-UST-TB-083019	19H0481-05	V309051910G.D	09/05/2019	15:10
P40-UST-01-083019	19H0481-01	V309051919G.D	09/05/2019	19:21
P40-UST-101-083019	19H0481-03	V309051920G.D	09/05/2019	19:48
P40-UST-02-083019	19H0481-10	V309051921G.D	09/05/2019	20:15
P40-UST-03-083019	19H0481-16	V309051922G.D	09/05/2019	20:41
P40-UST-04-083019	19H0481-22	V309051923G.D	09/05/2019	21:08
P40-UST-05-083019	19H0481-28	V309051924G.D	09/05/2019	21:35
Calibration Check	SHI0097-CCV1	V309051927G.D	09/05/2019	22:55

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190905s.b/V309051903G.D
Method Used: \20190905s.b\bfb8260.m Inst: nt3
Injection Date: 05-SEP-2019 11:49 Operator: PKC
Sample Info: SHI0097-TUN1 SHI0097-TUN1
Report Date: 09/09/2019 10:21





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	24.90
75	30.00 - 60.00% of mass 95	47.59
96	5.00 - 9.00% of mass 95	5.25
173	Less than 2.00% of mass 174	0.23 (0.25)
174	50.00 - 100.00% of mass 95	90.89
175	5.00 - 9.00% of mass 174	6.04 (6.64)
176	95.00 - 101.00% of mass 174	88.18 (97.02)
177	5.00 - 9.00% of mass 176	6.50 (7.37)

Data File: V309051903.D
Spectrum: Average Spectrum: 8.652 to 8.715 min. (SUB)
Location of Maximum: 95.00
Number of points: 97

m/z	Y	m/z	Y	m/z	Y	m/z	Y
41.00	90	75.00	4604	119.00	79	178.00	11
42.00	12	76.00	372	127.00	12	181.00	25
45.00	170	77.00	207	129.00	30	191.00	114
47.00	245	79.00	21	133.00	89	192.00	13
48.00	92	80.00	33	134.00	12	193.00	47
49.00	583	81.00	345	136.00	14	195.00	11
50.00	2409	82.00	87	137.00	36	196.00	12
51.00	719	84.00	20	139.00	12	207.00	128
52.00	24	87.00	453	140.00	16	208.00	135
54.00	12	88.00	398	141.00	121	209.00	104
55.00	102	89.00	42	142.00	21	211.00	252
56.00	183	90.00	12	143.00	135	212.00	14
57.00	348	91.00	42	146.00	14	215.00	28
59.00	72	92.00	367	147.00	11	217.00	11
60.00	89	93.00	380	148.00	32	229.00	13
61.00	458	94.00	1092	149.00	14	231.00	16
62.00	592	95.00	9674	152.00	12	232.00	44
63.00	391	96.00	508	158.00	15	233.00	133
64.00	14	103.00	12	165.00	12	246.00	11
68.00	866	104.00	30	172.00	24	256.00	13
69.00	819	105.00	17	173.00	22	260.00	77
70.00	70	106.00	13	174.00	8793	265.00	12
72.00	91	116.00	42	175.00	584		
73.00	390	117.00	50	176.00	8531		
74.00	1507	118.00	26	177.00	629		

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051903G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 11:49

ARI ID: SHI0097-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	6175710	0.389
8015C 2MP-TMB	(2.94 to 9.46)	32687243	6267311	0.192
AK101 nC6-nC10	(3.69 to 8.64)	19977596	5877088	0.294
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	6791431	0.393
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	7074053	0.308

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.817	396963	d5-Chlorobenzene
6.738	254272	d8-Toluene
9.502	518248	d4-Dichlorobenzene
8.678	209665	4-Bromofluorobenzene
9.821	299984	d4-1,2-Dichlorobenzene

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

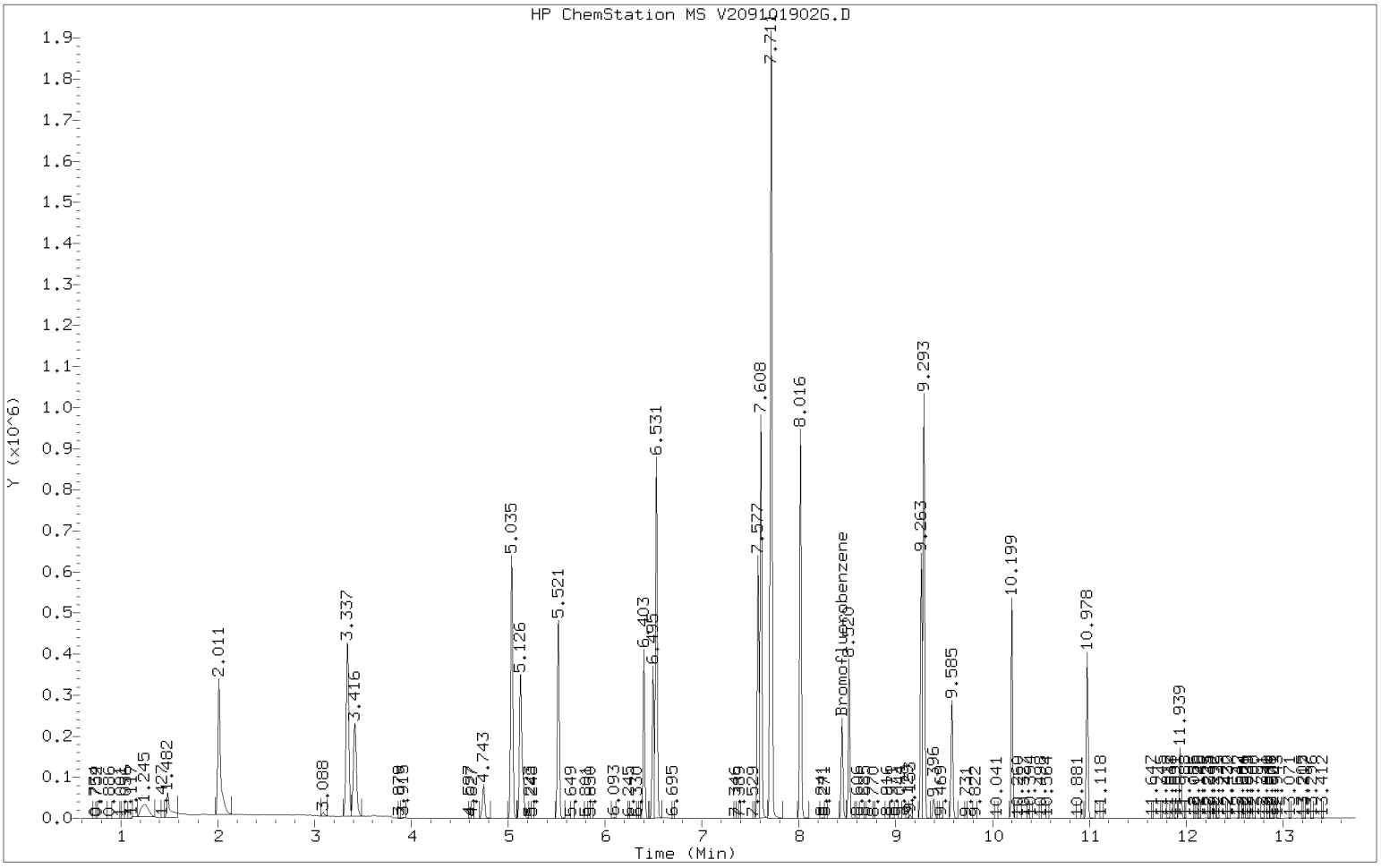
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V209101902G.D	Injection Date:	09/10/19
Instrument ID:	NT2	Injection Time:	10:53
Sequence:	SHI0138	Lab Sample ID:	SHI0138-TUN1

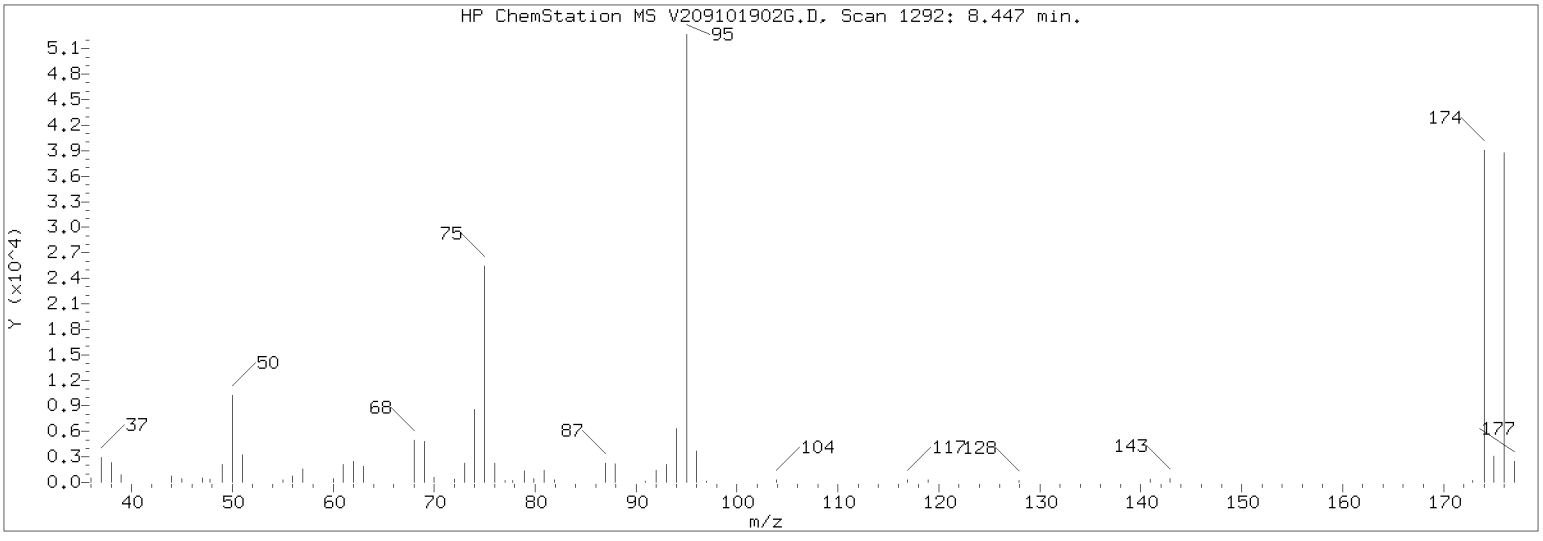
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.6	PASS
75	30 - 80% of 95	49.4	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.09	PASS
173	Less than 2% of 174	0.416	PASS
174	50 - 120% of 95	74.3	PASS
175	5 - 9% of 174	7.34	PASS
176	95 - 101% of 174	98.5	PASS
177	5 - 9% of 176	6.71	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0138-TUN1	V209101902G.D	09/10/2019	10:53
Initial Cal Check	SHI0138-ICV1	V209101903G.D	09/10/2019	11:32
LCS	BHI0255-BS1	V209101903LCSG.D	09/10/2019	11:32
LCS Dup	BHI0255-BSD1	V209101904G.D	09/10/2019	11:52
Blank	BHI0255-BLK1	V209101908G.D	09/10/2019	13:16
P40-UST-02-9'-083019	19H0481-14	V209101916G.D	09/10/2019	16:18
P40-UST-03-4.5'-083019	19H0481-18	V209101917G.D	09/10/2019	16:39
P40-UST-04-4.5'-083019	19H0481-24	V209101919G.D	09/10/2019	17:19
P40-UST-505-4.5'-083019	19H0481-32	V209101922G.D	09/10/2019	18:20
P40-UST-05-11'-083019	19H0481-34	V209101923G.D	09/10/2019	18:40
Matrix Spike	BHI0255-MS1	V209101929G.D	09/10/2019	20:42
Matrix Spike Dup	BHI0255-MSD1	V209101930G.D	09/10/2019	21:02
Calibration Check	SHI0138-CCV1	V209101931G.D	09/10/2019	21:22

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190910s.b/V209101902G.D
Method Used: \20190910s.b\bfb8260.m Inst: nt2
Injection Date: 10-SEP-2019 10:53 Operator: PKC
Sample Info: SHI0138-TUN1 SHI0138-TUN1
Report Date: 09/11/2019 13:06





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.57
75	30.00 - 60.00% of mass 95	49.35
96	5.00 - 9.00% of mass 95	7.09
173	Less than 2.00% of mass 174	0.31 (0.42)
174	50.00 - 100.00% of mass 95	74.34
175	5.00 - 9.00% of mass 174	5.45 (7.34)
176	95.00 - 101.00% of mass 174	73.26 (98.54)
177	5.00 - 9.00% of mass 176	4.92 (6.71)

Data File: V209101902G.D
Spectrum: Avg. Scans 1291-1293 (8.45), Background Scan 1286
Location of Maximum: 95.00
Number of points: 53

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	476	60.00	408	79.00	1121	106.00	64
37.00	2436	61.00	2007	80.00	401	117.00	265
38.00	2074	62.00	2197	81.00	1208	119.00	244
39.00	788	63.00	1625	82.00	288	128.00	68
44.00	267	68.00	4371	87.00	1845	141.00	339
45.00	431	69.00	4398	88.00	1688	143.00	392
47.00	503	70.00	437	91.00	145	173.00	137
48.00	227	72.00	284	92.00	1177	174.00	32960
49.00	1774	73.00	2060	93.00	1735	175.00	2418
50.00	8675	74.00	7416	94.00	5236	176.00	32480
51.00	2780	75.00	21880	95.00	44336	177.00	2180
55.00	181	76.00	1934	96.00	3144		
56.00	736	77.00	267	97.00	61		
57.00	1266	78.00	68	104.00	175		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

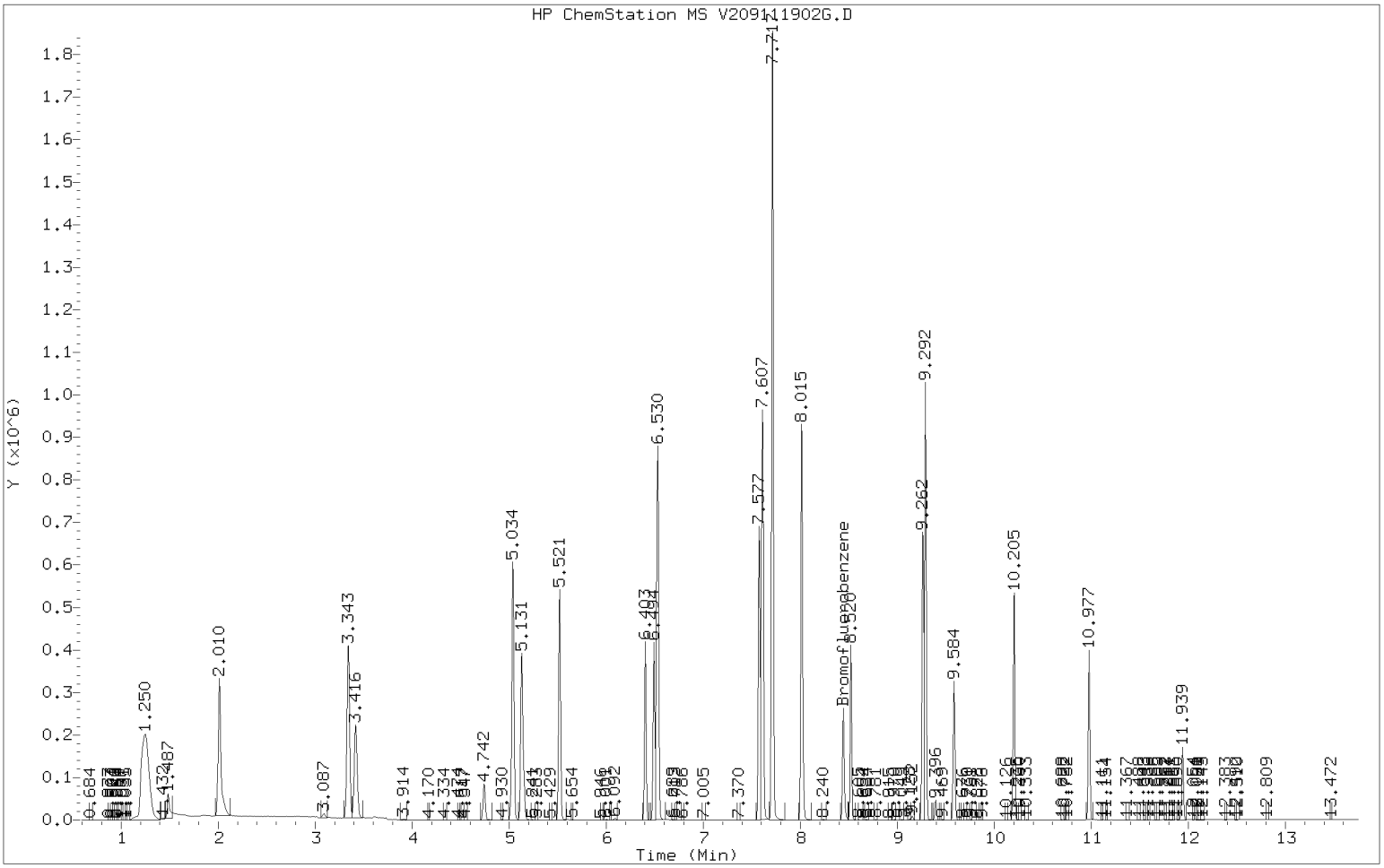
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V209111902G.D	Injection Date:	09/11/19
Instrument ID:	NT2	Injection Time:	07:04
Sequence:	SHI0164	Lab Sample ID:	SHI0164-TUN1

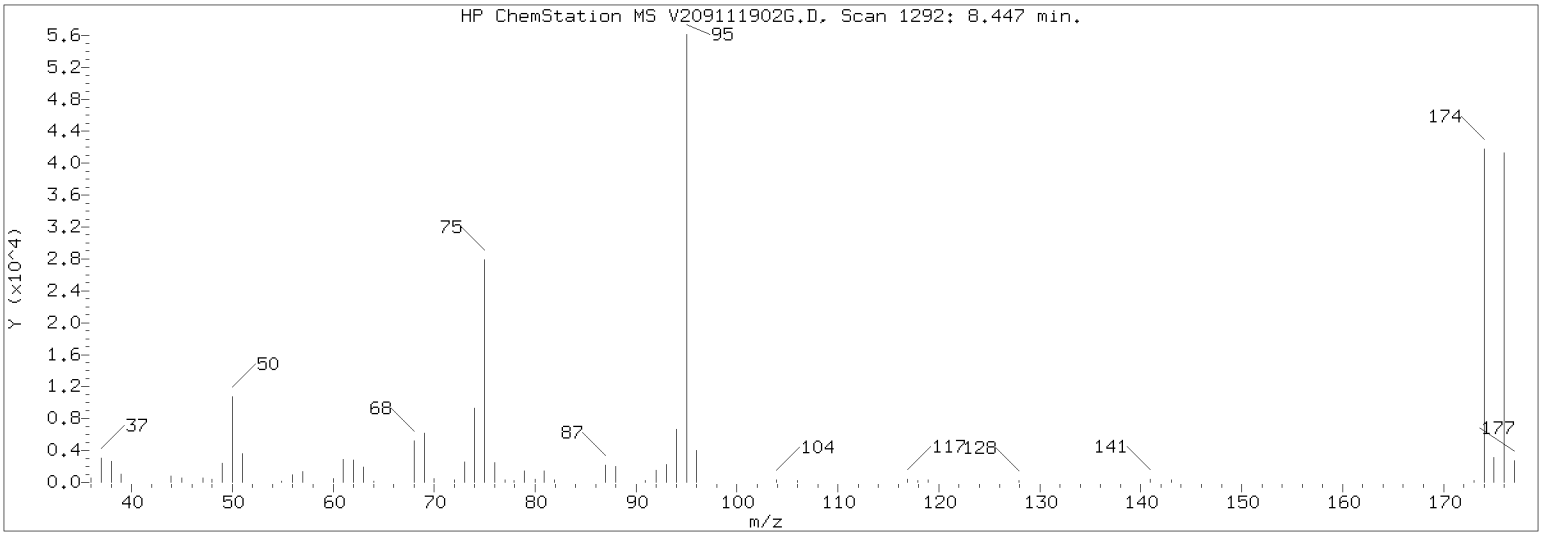
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	19.4	PASS
75	30 - 80% of 95	50	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.15	PASS
173	Less than 2% of 174	0.615	PASS
174	50 - 120% of 95	74.3	PASS
175	5 - 9% of 174	7.37	PASS
176	95 - 101% of 174	98	PASS
177	5 - 9% of 176	6.78	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0164-TUN1	V209111902G.D	09/11/2019	7:04
Initial Cal Check	SHI0164-ICV1	V209111903G.D	09/11/2019	7:56
LCS	BHI0303-BS1	V209111903LCS2G.D	09/11/2019	7:56
LCS	BHI0298-BS1	V209111903LCSG.D	09/11/2019	7:56
LCS Dup	BHI0303-BSD1	V209111905LCSD2G.D	09/11/2019	8:37
LCS Dup	BHI0298-BSD1	V209111905G.D	09/11/2019	8:37
Blank	BHI0303-BLK1	V209111910MB2G.D	09/11/2019	10:19
Blank	BHI0298-BLK1	V209111910G.D	09/11/2019	10:19
P40-UST-05-4.5'-083019	19H0481-30	V209111912G.D	09/11/2019	11:00
P40-UST-01-4.5'-083019	19H0481-06	V209111922G.D	09/11/2019	14:33
P40-UST-01-9'-083019	19H0481-08	V209111923G.D	09/11/2019	14:54
P40-UST-02-4.5'-083019	19H0481-12	V209111924G.D	09/11/2019	15:14
ZZZZZ	19I0137-15	V209111925G.D	09/11/2019	15:34
ZZZZZ	19I0137-16	V209111926G.D	09/11/2019	15:54
Calibration Check	SHI0164-CCV1	V209111931G.D	09/11/2019	17:35

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190911s.b/V209111902G.D
Method Used: \20190911s.b\bfb8260.m Inst: nt2
Injection Date: 11-SEP-2019 07:04 Operator: LH
Sample Info: SHI0164-TUN1 SHI0164-TUN1
Report Date: 09/12/2019 13:15





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.36
75	30.00 - 60.00% of mass 95	49.97
96	5.00 - 9.00% of mass 95	7.15
173	Less than 2.00% of mass 174	0.46 (0.62)
174	50.00 - 100.00% of mass 95	74.30
175	5.00 - 9.00% of mass 174	5.48 (7.37)
176	95.00 - 101.00% of mass 174	72.81 (97.99)
177	5.00 - 9.00% of mass 176	4.94 (6.78)

Data File: V209111902G.D
Spectrum: Avg. Scans 1291-1293 (8.45), Background Scan 1286
Location of Maximum: 95.00
Number of points: 56

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	510	61.00	2336	80.00	294	118.00	79
37.00	2567	62.00	2277	81.00	1257	119.00	102
38.00	2381	63.00	1672	82.00	187	128.00	162
39.00	847	64.00	65	87.00	1883	130.00	66
44.00	418	68.00	4599	88.00	1791	141.00	367
45.00	456	69.00	5015	91.00	142	143.00	356
47.00	490	70.00	411	92.00	1317	173.00	218
48.00	322	72.00	205	93.00	1907	174.00	35432
49.00	2039	73.00	2123	94.00	5559	175.00	2612
50.00	9231	74.00	8069	95.00	47688	176.00	34720
51.00	2959	75.00	23832	96.00	3408	177.00	2354
55.00	220	76.00	2102	104.00	239		
56.00	804	77.00	267	106.00	141		
57.00	1257	78.00	91	116.00	62		
60.00	476	79.00	1256	117.00	278		

Analytical Resources, Incorporated
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
NWTPHg

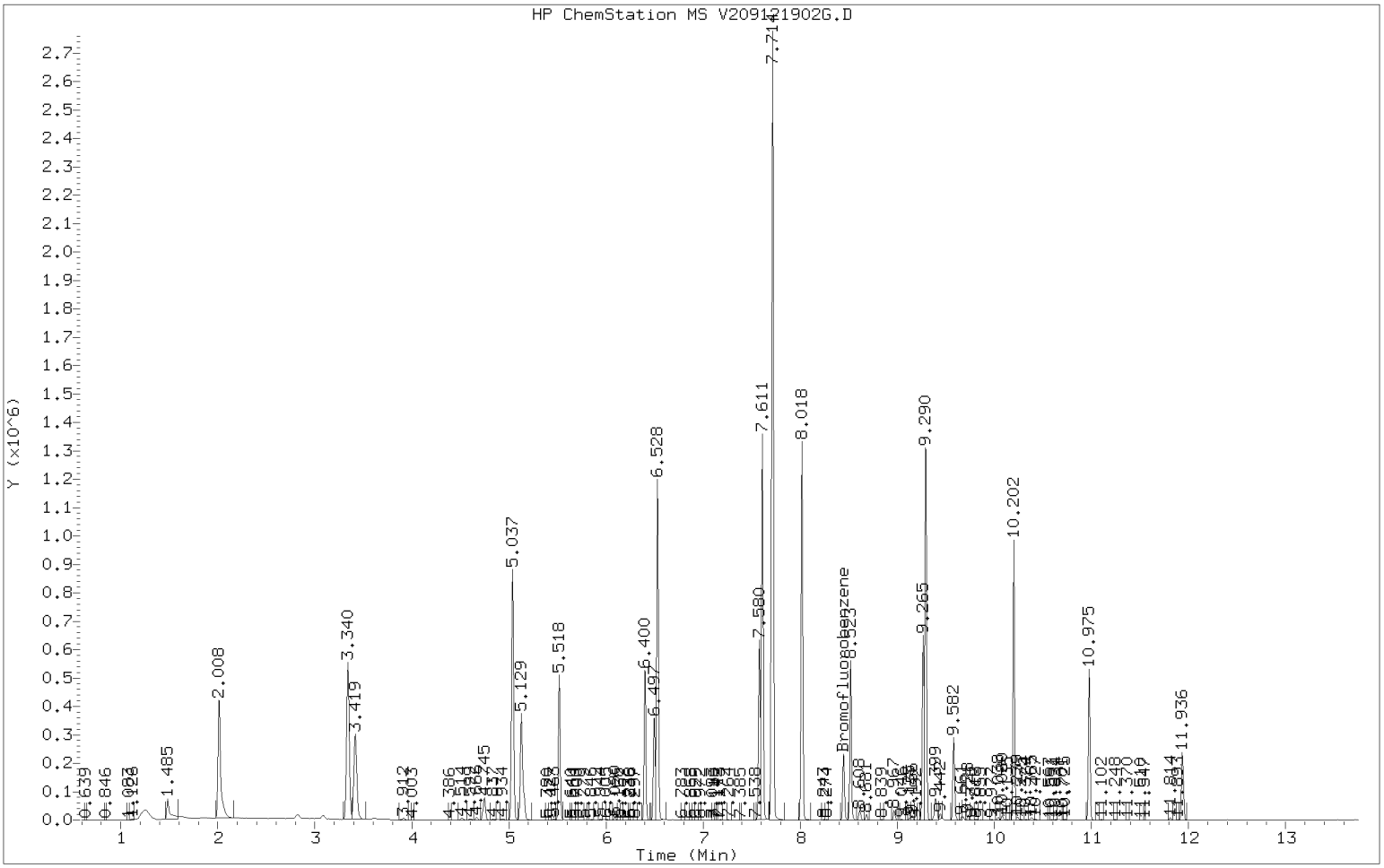
Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Lab File ID:	V209121902G.D	Injection Date:	09/12/19
Instrument ID:	NT2	Injection Time:	06:53
Sequence:	SHI0187	Lab Sample ID:	SHI0187-TUN1

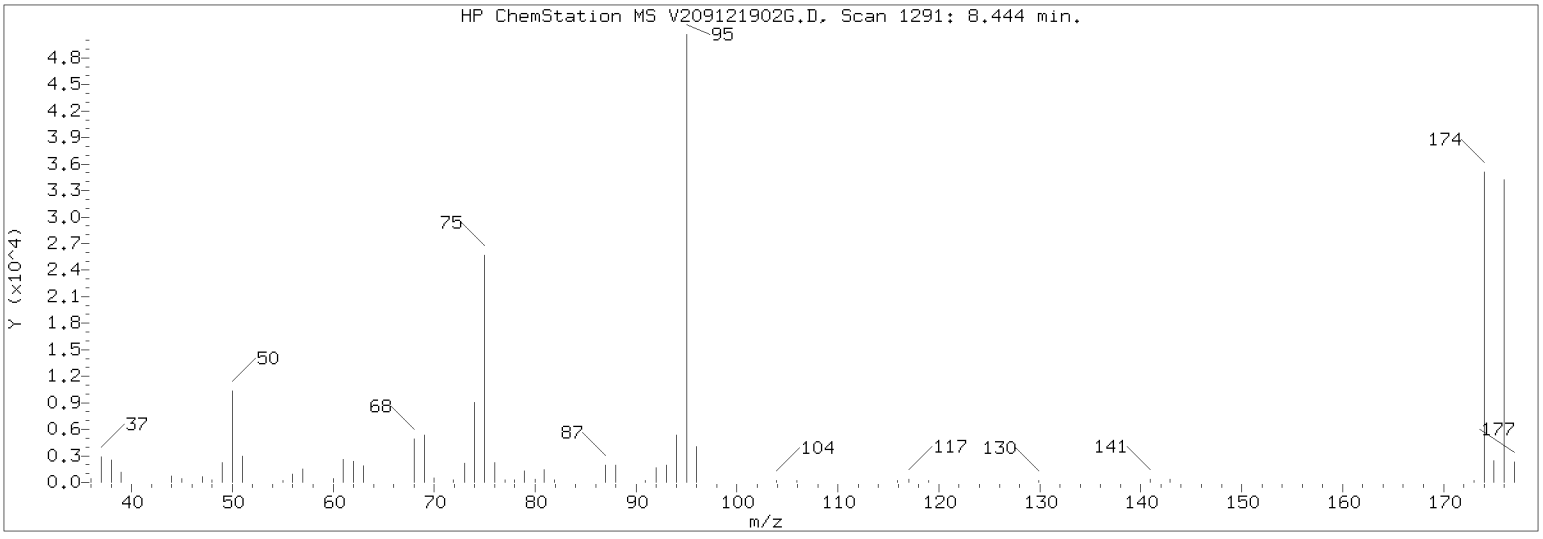
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15 - 40% of 95	20	PASS
75	30 - 80% of 95	50.1	PASS
95	Base peak, 100% relative abundance	100	PASS
96	5 - 9% of 95	7.44	PASS
173	Less than 2% of 174	0.214	PASS
174	50 - 120% of 95	69	PASS
175	5 - 9% of 174	7.51	PASS
176	95 - 101% of 174	96.8	PASS
177	5 - 9% of 176	6.73	PASS

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SHI0187-TUN1	V209121902G.D	09/12/2019	6:53
Initial Cal Check	SHI0187-ICV1	V209121903G.D	09/12/2019	7:31
LCS	BHI0335-BS1	V209121903GLCS.D	09/12/2019	7:31
LCS Dup	BHI0335-BSD1	V209121905G.D	09/12/2019	8:12
Blank	BHI0335-BLK1	V209121910G.D	09/12/2019	9:53
ZZZZZ	19I0137-18	V209121911G.D	09/12/2019	10:14
ZZZZZ	19I0137-17	V209121912G.D	09/12/2019	10:34
P40-UST-03-8'-083019	19H0481-20	V209121915G.D	09/12/2019	11:35
P40-UST-04-14.5'-083019	19H0481-26	V209121916G.D	09/12/2019	11:55
Calibration Check	SHI0187-CCV1	V209121917G.D	09/12/2019	12:16

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190912s.b/V209121902G.D
Method Used: \20190912s.b\bfb8260.m Inst: nt2
Injection Date: 12-SEP-2019 06:53 Operator: LH
Sample Info: SHI0187-TUN1 SHI0187-TUN1
Report Date: 09/13/2019 10:05





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.97
75	30.00 - 60.00% of mass 95	50.07
96	5.00 - 9.00% of mass 95	7.44
173	Less than 2.00% of mass 174	0.15 (0.21)
174	50.00 - 100.00% of mass 95	69.01
175	5.00 - 9.00% of mass 174	5.18 (7.51)
176	95.00 - 101.00% of mass 174	66.78 (96.77)
177	5.00 - 9.00% of mass 176	4.49 (6.73)

Data File: V209121902G.D
Spectrum: Avg. Scans 1290-1292 (8.44), Background Scan 1285
Location of Maximum: 95.00
Number of points: 53

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	421	60.00	406	79.00	1061	116.00	66
37.00	2449	61.00	2214	80.00	309	117.00	225
38.00	2143	62.00	2057	81.00	1249	119.00	163
39.00	880	63.00	1619	82.00	205	130.00	75
44.00	308	68.00	4301	87.00	1712	141.00	342
45.00	399	69.00	4552	88.00	1591	143.00	306
47.00	501	70.00	422	91.00	67	173.00	65
48.00	343	72.00	229	92.00	1272	174.00	30432
49.00	1922	73.00	1856	93.00	1722	175.00	2286
50.00	8808	74.00	7601	94.00	4854	176.00	29448
51.00	2597	75.00	22080	95.00	44096	177.00	1981
55.00	143	76.00	1942	96.00	3279		
56.00	720	77.00	279	104.00	139		
57.00	1285	78.00	85	106.00	140		

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121902G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 06:53

ARI ID: SHI0187-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	11919572	0.477
8015C 2MP-TMB	(2.98 to 9.26)	42964079	12772769	0.297
AK101 nC6-nC10	(3.24 to 8.42)	32820925	11957901	0.364
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	12590646	0.482
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	13932659	0.395

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

8.444	309935	4-Bromofluorobenzene
6.497	486296	d8-Toluene
7.580	799031	d5-Chlorobenzene
9.265	820064	d4-Dichlorobenzene
9.582	388005	d4-1,2-Dichlorobenzene

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00004	Instrument:	NT2
Calibration Date:	09/02/2019 10:36	Column (1):	RTX-VMS

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Toluene-d8	5	1.255507	5	1.249824	5	1.247472	5	1.256093	5	1.242627	5	1.248849
4-Bromofluorobenzene	5	0.3709525	5	0.3721279	5	0.3704555	5	0.3802112	5	0.3735165	5	0.3812652

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00004	Instrument:	NT2
Calibration Date:	09/02/2019 10:36	Column (1):	RTX-VMS

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)					100	23760.1	250	27294.98	500	22672	1000	27646.9
Toluene-d8	5	1.256825	5	1.259397								
4-Bromofluorobenzene	5	0.3788993	5	0.3634854								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00004	Instrument:	NT2
Calibration Date:	09/02/2019 10:36	Column (1):	RTX-VMS

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)	2500	27056.15	5000	28268.34								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00004	Instrument:	NT2
Calibration Date:	09/02/2019 10:36	Column (1):	RTX-VMS

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Gasoline Range Organics (Tol-Nap)	26116.41	8.8			RSD (15)	
Toluene-d8	1.252074	0.5			RSD (15)	
4-Bromofluorobenzene	0.3738642	1.6			RSD (15)	

Printed: 9/3/2019 10:57:59AM

ANALYSIS SEQUENCE

SHI0010

Instrument: NT2 Element Column ID: 1306512RTXV No 8015 RT markers
Calibration ID: CI00004 Tune File: bfb.u
EM Voltage: 1647

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0010-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0010-CAL1	8260C 0.2	QC		2	H008411	H007838	
SHI0010-CAL2	8260C 0.5	QC		3	H008412	H007838	
SHI0010-CAL3	8260C 1.0	QC		4	H008413	H007838	
SHI0010-CAL4	8260C 2.0	QC		5	H008414	H007838	
SHI0010-CAL5	8260C 10	QC		6	H008415	H007838	
SHI0010-CAL6	8260C 20	QC		7	H008416	H007838	
SHI0010-CAL7	8260C 40	QC		8	H008417	H007838	
SHI0010-CAL8	8260C 80	QC		9	H008418	H007838	
SHI0010-CAL9	Gas 0.1	QC		10	H008422	H007838	
SHI0010-CALA	Gas 0.25	QC		11	H008423	H007838	
SHI0010-CALB	Gas 0.5	QC		12	H008424	H007838	
SHI0010-CALC	Gas 1	QC		13	H008425	H007838	
SHI0010-CALD	Gas 2.5	QC		14	H008426	H007838	
SHI0010-CALE	Gas 5	QC		15	H008427	H007838	
SHI0010-ICB1	Initial Cal Blank	QC		16		H007838	
SHI0010-SCV1	Gas SCV 1.0	QC		17	H008428	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190902.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1108	V209021901.D	RINSE				1								
2	1129	V209021902.D	SHI0008-TUN1				1								
3	1210	V209021903.D	RINSE				1	5.13	263615	5.52	471244	7.58	430919	9.27	202829
4	1230	V209021904.D	SHI0008-CAL1				1	5.13	235566	5.52	418094	7.58	379186	9.27	181132
5	1251	V209021905.D	SHI0080-CAL2				1	5.13	230220	5.52	408443	7.58	372114	9.27	180039
6	1311	V209021906.D	SHI0008-CAL3				1	5.13	237091	5.52	419485	7.58	385601	9.26	189034
7	1331	V209021907.D	SHI0008-CAL4				1	5.13	240462	5.52	422265	7.58	386238	9.27	189248
8	1351	V209021908.D	SHI0008-CAL5				1	5.13	233289	5.52	412164	7.58	378243	9.27	186173
9	1412	V209021909.D	SHI0008-CAL6				1	5.13	234601	5.52	407537	7.58	377564	9.27	187362
10	1432	V209021910.D	SHI0008-CAL7				1	5.13	232119	5.52	407371	7.58	387058	9.27	189305
11	1452	V209021911.D	SHI0008-CAL8				1	5.13	233192	5.52	407692	7.58	390332	9.27	182597
12	1513	V209021912.D	SHI0008-ICB1				1	5.13	233607	5.52	408588	7.58	375075	9.27	179030
13	1533	V209021913.D	SHI0008-SCV1				1	5.13	223677	5.52	389189	7.58	362062	9.27	174678
14	1553	V209021914.D	RINSE				1	5.13	222787	5.52	386154	7.58	359736	9.27	174342
15	1613	V209021915.D	SHI0-CAL9				1	5.13	224088	5.52	390543	7.58	356221	9.27	176420
16	1633	V209021916.D	SHI0-CALA				1	5.13	234626	5.52	404891	7.58	370844	9.27	179934
17	1654	V209021917.D	SHI0-CALB				1	5.13	227230	5.52	400726	7.58	363216	9.27	177077
18	1714	V209021918.D	SHI0-CALC				1	5.13	222196	5.52	393169	7.58	359214	9.27	176402
19	1734	V209021919.D	SHI0-CALD				1	5.13	207217	5.52	366785	7.58	333149	9.27	166296
20	1754	V209021920.D	SHI0-CALE				1	5.13	220932	5.52	400016	7.58	359565	9.27	179913
21	1815	V209021921.D	RINSE				1	5.13	220207	5.52	381526	7.58	344355	9.27	167921
22	1835	V209021922.D	SHI0-SCV1				1	5.13	223089	5.52	387877	7.58	355441	9.27	177454

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190902g.b

Instrument: nt2.i Date: 02-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1129	V209021902G.D	SHI0010-TUN1	1	NO MANUAL INTEGRATION
1613	V209021915G.D	SHI0010-CAL9	1	1,2,4-Trimethylbenzene, Naphthalene, 1,4-Difluorobenzene,
1633	V209021916G.D	SHI0010-CALA	1	nC12-Dodecane, 1,2,4-Trimethylbenzene,
1654	V209021917G.D	SHI0010-CALB	1	Pentafluorobenzene, d4-1,2-dichloroethane, d4-Dichlorobenzene,
1714	V209021918G.D	SHI0010-CALC	1	Pentafluorobenzene, d4-1,2-dichloroethane, d4-1,2-Dichlorobenzene,
1734	V209021919G.D	SHI0010-CALD	1	d4-1,2-dichloroethane,
1754	V209021920G.D	SHI0010-CALE	1	Naphthalene,
1815	V209021921G.D	SHI0010-ICB1	1	NO MANUAL INTEGRATION
1835	V209021922G.D	SHI0010-SCV1	1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190902s.b

Instrument: nt2.i Date: 02-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1129	V209021902G.D	SHI0010-TUN1	1	NO MANUAL INTEGRATION
1230	V209021904G.D	SHI0010-CAL1	1	NO MANUAL INTEGRATION
1251	V209021905G.D	SHI0010-CAL2	1	NO MANUAL INTEGRATION
1311	V209021906G.D	SHI0010-CAL3	1	NO MANUAL INTEGRATION
1331	V209021907G.D	SHI0010-CAL4	1	NO MANUAL INTEGRATION
1351	V209021908G.D	SHI0010-CAL5	1	NO MANUAL INTEGRATION
1412	V209021909G.D	SHI0010-CAL6	1	NO MANUAL INTEGRATION
1432	V209021910G.D	SHI0010-CAL7	1	NO MANUAL INTEGRATION
1452	V209021911G.D	SHI0010-CAL8	1	Pentafluorobenzene,
1613	V209021915G.D	SHI0010-CAL9	1	NO MANUAL INTEGRATION
1633	V209021916G.D	SHI0010-CALA	1	NO MANUAL INTEGRATION
1654	V209021917G.D	SHI0010-CALB	1	NO MANUAL INTEGRATION
1714	V209021918G.D	SHI0010-CALC	1	NO MANUAL INTEGRATION
1734	V209021919G.D	SHI0010-CALD	1	NO MANUAL INTEGRATION
1754	V209021920G.D	SHI0010-CALE	1	NO MANUAL INTEGRATION
1815	V209021921G.D	SHI0010-ICB1	1	NO MANUAL INTEGRATION
1835	V209021922G.D	SHI0010-SCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 03-Sep-2019 10:55

V209021902G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021915G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021916G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021917G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021918G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021919G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021920G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021921G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021922G.D	Data Locked	paul, 03-Sep-2019 10:55

Security Status Report

Date: 03-Sep-2019 10:56

V209021902G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021904G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021905G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021906G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021907G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021908G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021909G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021910G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021911G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021915G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021916G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021917G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021918G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021919G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021920G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021921G.D	Data Locked	paul, 03-Sep-2019 10:56
V209021922G.D	Data Locked	paul, 03-Sep-2019 10:56

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902.b\826090219.m
Batch File: \\target\share\chem1\nt2.i\20190902.b
Inst ID: nt2.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09
FILENAME:	V209021904	V209021905	V209021906	V209021907	V209021908	V209021909	V209021910	V209021911	V209021913
INJ.DATE:	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019
INJ.TIME:	12:30	12:51	13:11	13:31	13:51	14:12	14:32	14:52	15:33

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	1.355	1.348	1.361	1.351	1.351	1.354	1.350	1.348	1.349	1.351	1.248-1.454	1.352	0.004
2 Chloromethane	1.476	1.476	1.471	1.478	1.485	1.488	1.496	1.500	1.489	1.485	1.382-1.587	1.484	0.010
3 Vinyl Chloride	1.549	1.555	1.556	1.563	1.570	1.573	1.569	1.573	1.568	1.570	1.467-1.673	1.564	0.009
4 Bromomethane	1.817	1.817	1.811	1.819	1.813	1.816	1.812	1.810	1.817	1.813	1.711-1.916	1.815	0.003
5 Chloroethane	1.939	1.932	1.939	1.928	1.929	1.932	1.952	1.908	1.933	1.929	1.826-2.031	1.932	0.012
6 Trichlorofluoromethane	2.012	2.017	2.006	2.014	2.014	2.005	2.001	1.987	2.006	2.014	1.912-2.117	2.007	0.009
7 1,1-Dichloroethene	2.480	2.474	2.468	2.476	2.476	2.473	2.469	2.461	2.468	2.476	2.374-2.579	2.472	0.006
8 Carbon Disulfide	2.511	2.504	2.511	2.513	2.507	2.510	2.506	2.504	2.511	2.507	2.404-2.609	2.508	0.003
9 112Trichloro122Trifluo	2.541	2.547	2.529	2.531	2.531	2.528	2.530	2.516	2.535	2.531	2.429-2.634	2.532	0.009
10 Iodomethane	2.596	2.601	2.602	2.604	2.604	2.601	2.597	2.595	2.602	2.604	2.502-2.707	2.600	0.003
11 Bromoethane	2.736	2.729	2.730	2.732	2.732	2.729	2.725	2.723	2.730	2.732	2.629-2.834	2.729	0.004
12 Acrolein	2.845	2.851	2.839	2.847	2.848	2.844	2.846	2.844	2.845	2.848	2.745-2.950	2.846	0.003
13 Methylene Chloride	3.089	3.088	3.089	3.090	3.091	3.088	3.084	3.082	3.089	3.091	2.988-3.193	3.088	0.003
14 Acetone	3.192	3.185	3.192	3.194	3.194	3.191	3.193	3.191	3.192	3.194	3.092-3.297	3.192	0.003
15 Trans-1,2-Dichloroethe	3.253	3.252	3.253	3.255	3.255	3.258	3.254	3.252	3.253	3.255	3.153-3.358	3.254	0.002
16 n-hexane	3.344	3.337	3.338	3.340	3.340	3.337	3.339	3.331	3.338	3.340	3.238-3.443	3.338	0.003
17 Methyl tert butyl ethe	3.423	3.423	3.423	3.419	3.419	3.416	3.418	3.416	3.417	3.419	3.317-3.522	3.419	0.003

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902.b\826090219.m
Batch File: \\target\share\chem1\nt2.i\20190902.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 1,1-Dichloroethane	3.867	3.873	3.868	3.869	3.870	3.866	3.868	3.866	3.867	3.870	3.767-3.972	3.868	0.002
	19 Acrylonitrile	3.952	3.952	3.953	3.948	3.955	3.952	3.954	3.952	3.952	3.955	3.852-4.057	3.952	0.002
	21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.560	4.455-4.665	+++++	+++++
	20 Vinyl Acetate	4.147	4.147	4.147	4.149	4.149	4.146	4.148	4.146	4.147	4.149	4.047-4.252	4.147	0.001
	22 Cis-1,2-Dichloroethene	4.354	4.360	4.360	4.356	4.356	4.359	4.355	4.353	4.354	4.356	4.254-4.459	4.356	0.003
	23 2,2-Dichloropropane	4.445	4.439	4.439	4.441	4.441	4.438	4.440	4.438	4.439	4.441	4.339-4.544	4.440	0.002
	24 Bromochloromethane	4.524	4.524	4.518	4.526	4.521	4.523	4.519	4.517	4.524	4.521	4.418-4.623	4.522	0.003
	25 Chloroform	4.597	4.597	4.598	4.599	4.600	4.596	4.598	4.596	4.597	4.600	4.497-4.702	4.598	0.001
	26 Carbon Tetrachloride	4.676	4.676	4.677	4.678	4.679	4.676	4.678	4.676	4.676	4.679	4.568-4.789	4.677	0.001
$	27 Dibromofluoromethane	4.743	4.743	4.744	4.745	4.746	4.742	4.744	4.742	4.743	4.746	4.643-4.848	4.744	0.001
	28 1,1,1-Trichloroethane	4.737	4.743	4.737	4.739	4.740	4.742	4.738	4.736	4.737	4.740	4.637-4.842	4.739	0.002
	30 1,1-Dichloropropene	4.841	4.840	4.841	4.842	4.843	4.840	4.842	4.840	4.841	4.843	4.732-4.953	4.841	0.001
	29 2-Butanone	4.877	4.877	4.877	4.873	4.873	4.876	4.872	4.876	4.871	4.873	4.771-4.976	4.875	0.002
	31 Benzene	5.035	5.041	5.036	5.037	5.038	5.041	5.036	5.034	5.035	5.038	4.927-5.148	5.037	0.002
*	32 Pentafluorobenzene	5.133	5.132	5.127	5.128	5.129	5.132	5.128	5.132	5.133	5.129	5.026-5.231	5.130	0.002
$	33 d4-1,2-Dichloroethane	5.151	5.156	5.151	5.153	5.153	5.150	5.152	5.150	5.151	5.153	5.051-5.256	5.152	0.002
	35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.693	5.580-5.806	+++++	+++++
	34 1,2-Dichloroethane	5.206	5.205	5.206	5.207	5.202	5.205	5.207	5.205	5.206	5.202	5.091-5.312	5.205	0.002
	36 Trichloroethene	5.485	5.485	5.486	5.481	5.482	5.485	5.481	5.485	5.485	5.482	5.371-5.592	5.484	0.002
*	37 1,4-Difluorobenzene	5.522	5.521	5.522	5.524	5.518	5.521	5.523	5.521	5.522	5.518	5.408-5.629	5.522	0.002
	38 Dibromomethane	5.790	5.795	5.796	5.798	5.798	5.795	5.797	5.795	5.796	5.798	5.688-5.908	5.795	0.002
	39 1,2-Dichloropropane	5.869	5.868	5.869	5.871	5.871	5.868	5.870	5.868	5.869	5.871	5.761-5.981	5.869	0.001

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902.b\826090219.m
Batch File: \\target\share\chem1\nt2.i\20190902.b
Inst ID: nt2.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
40 Bromodichloromethane	5.923	5.923	5.924	5.919	5.920	5.923	5.919	5.923	5.923	5.920	5.809-6.030	5.922	0.002
173 2-Pentanone	6.161	6.160	6.161	6.163	6.157	6.160	6.162	6.160	6.161	6.157	6.047-6.267	6.160	0.002
42 Cis 1,3-dichloropropen	6.374	6.367	6.368	6.369	6.370	6.373	6.369	6.373	6.368	6.370	6.259-6.480	6.370	0.003
$ 43 d8-Toluene	6.495	6.495	6.496	6.497	6.498	6.494	6.496	6.494	6.495	6.498	6.387-6.608	6.496	0.001
41 2-Chloroethyl Vinyl Et	6.337	6.337	6.337	6.339	6.339	6.336	6.338	6.342	6.337	6.339	6.229-6.450	6.338	0.002
44 Toluene	6.532	6.531	6.532	6.534	6.534	6.531	6.533	6.531	6.532	6.534	6.424-6.644	6.532	0.001
45 4-Methyl-2-Pentanone	6.812	6.811	6.812	6.814	6.814	6.811	6.813	6.817	6.812	6.814	6.704-6.924	6.813	0.002
46 Tetrachloroethene	6.793	6.793	6.794	6.795	6.796	6.799	6.795	6.799	6.793	6.796	6.644-6.947	6.795	0.002
47 Trans 1,3-Dichloroprop	6.830	6.829	6.830	6.832	6.832	6.829	6.831	6.835	6.830	6.832	6.722-6.943	6.831	0.002
48 1,1,2-Trichloroethane	6.939	6.945	6.940	6.941	6.942	6.945	6.941	6.945	6.939	6.942	6.831-7.052	6.942	0.002
49 Chlorodibromomethane	7.067	7.061	7.061	7.063	7.063	7.060	7.062	7.066	7.061	7.063	6.912-7.215	7.063	0.002
50 1,3-Dichloropropane	7.134	7.127	7.128	7.130	7.130	7.127	7.129	7.133	7.128	7.130	6.979-7.282	7.130	0.002
51 1,2-Dibromoethane	7.225	7.225	7.226	7.227	7.222	7.224	7.226	7.224	7.225	7.222	7.111-7.332	7.225	0.002
52 2-Hexanone	7.396	7.395	7.396	7.398	7.392	7.395	7.397	7.395	7.396	7.392	7.240-7.543	7.395	0.002
* 53 d5-Chlorobenzene	7.578	7.578	7.578	7.580	7.580	7.583	7.579	7.583	7.578	7.580	7.429-7.732	7.580	0.002
54 Chlorobenzene	7.596	7.590	7.591	7.592	7.593	7.596	7.592	7.596	7.590	7.593	7.441-7.744	7.593	0.003
55 Ethyl Benzene	7.615	7.614	7.615	7.610	7.611	7.614	7.616	7.614	7.615	7.611	7.459-7.762	7.614	0.002
56 1,1,1,2-Tetrachloroeth	7.639	7.638	7.639	7.641	7.641	7.638	7.640	7.644	7.639	7.641	7.490-7.793	7.640	0.002
57 m,p-xylene	7.718	7.718	7.712	7.714	7.714	7.717	7.719	7.723	7.718	7.714	7.563-7.866	7.717	0.003
58 o-Xylene	8.016	8.022	8.023	8.018	8.018	8.021	8.023	8.021	8.022	8.018	7.867-8.170	8.021	0.002
59 Styrene	8.059	8.058	8.059	8.061	8.061	8.058	8.060	8.064	8.059	8.061	7.909-8.213	8.060	0.002
60 Bromoform	8.077	8.077	8.077	8.079	8.079	8.082	8.084	8.082	8.083	8.079	7.894-8.265	8.080	0.003
61 Isopropyl Benzene	8.241	8.241	8.242	8.243	8.244	8.247	8.242	8.247	8.241	8.244	8.058-8.429	8.243	0.002
$ 62 4-Bromofluorobenzene	8.448	8.448	8.448	8.450	8.450	8.447	8.449	8.453	8.448	8.450	8.299-8.602	8.449	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902.b\826090219.m
Batch File: \\target\share\chem1\nt2.i\20190902.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	63 Bromobenzene	8.521	8.521	8.521	8.523	8.523	8.526	8.522	8.526	8.521	8.523	8.338-8.709	8.523	0.002
	64 N-Propyl Benzene	8.539	8.545	8.540	8.541	8.542	8.545	8.541	8.545	8.545	8.542	8.356-8.727	8.542	0.002
	82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.074	8.920-9.228	+++++	+++++
	65 1,1,2,2-Tetrachloroeth	8.600	8.600	8.601	8.602	8.603	8.599	8.601	8.605	8.600	8.603	8.417-8.788	8.601	0.002
	66 2-Chloro Toluene	8.655	8.654	8.655	8.657	8.657	8.654	8.656	8.660	8.655	8.657	8.472-8.842	8.656	0.002
	67 1,3,5-Trimethyl Benzen	8.685	8.685	8.686	8.687	8.688	8.685	8.687	8.691	8.685	8.688	8.502-8.873	8.686	0.002
	68 1,2,3-Trichloropropane	8.697	8.697	8.698	8.699	8.700	8.697	8.699	8.703	8.698	8.700	8.514-8.885	8.699	0.002
	69 Trans-1,4-Dichloro 2-B	8.728	8.727	8.728	8.730	8.730	8.727	8.729	8.733	8.728	8.730	8.545-8.915	8.729	0.002
	70 4-Chloro Toluene	8.777	8.776	8.777	8.778	8.779	8.776	8.778	8.782	8.777	8.779	8.594-8.964	8.778	0.002
	71 T-Butyl Benzene	8.917	8.916	8.917	8.918	8.919	8.916	8.918	8.922	8.917	8.919	8.733-9.104	8.918	0.002
	72 1,2,4-Trimethylbenzene	8.971	8.971	8.972	8.973	8.968	8.970	8.972	8.977	8.971	8.968	8.782-9.153	8.972	0.002
	73 S-Butyl Benzene	9.050	9.050	9.051	9.052	9.047	9.050	9.052	9.050	9.050	9.047	8.861-9.232	9.050	0.002
	74 4-Isopropyl Toluene	9.154	9.153	9.154	9.156	9.156	9.159	9.155	9.159	9.154	9.156	8.971-9.341	9.156	0.002
	75 1,3-Dichlorobenzene	9.209	9.214	9.209	9.210	9.211	9.214	9.216	9.214	9.215	9.211	9.025-9.396	9.212	0.003
*	76 d4-1,4-Dichlorobenzene	9.269	9.269	9.264	9.265	9.266	9.269	9.271	9.269	9.269	9.266	9.080-9.451	9.268	0.002
	77 1,4-Dichlorobenzene	9.275	9.275	9.276	9.277	9.278	9.281	9.277	9.281	9.275	9.278	9.092-9.463	9.277	0.002
	78 N-Butyl Benzene	9.470	9.470	9.470	9.472	9.472	9.469	9.471	9.475	9.470	9.472	9.287-9.658	9.471	0.002
$	79 d4-1,2-Dichlorobenzene	9.586	9.585	9.586	9.588	9.588	9.585	9.587	9.591	9.586	9.588	9.403-9.773	9.587	0.002
	80 1,2-Dichlorobenzene	9.592	9.591	9.592	9.594	9.594	9.591	9.593	9.597	9.592	9.594	9.409-9.779	9.593	0.002
	81 1,2-Dibromo 3-Chloropr	10.200	10.200	10.200	10.202	10.202	10.205	10.201	10.205	10.206	10.202	10.017-10.388	10.203	0.003
	83 Hexachloro 1,3-Butadie	10.699	10.698	10.699	10.701	10.701	10.698	10.700	10.698	10.699	10.701	10.516-10.886	10.699	0.001
	84 1,2,4-Trichlorobenzene	10.723	10.723	10.724	10.725	10.726	10.723	10.724	10.722	10.723	10.726	10.540-10.911	10.724	0.001
	85 Naphthalene	10.979	10.978	10.979	10.981	10.981	10.978	10.980	10.978	10.979	10.981	10.796-11.166	10.979	0.001

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902.b\826090219.m
Batch File: \\target\share\chem1\nt2.i\20190902.b
Inst ID: nt2.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
86 1,2,3-Trichlorobenzene	11.125	11.124	11.125	11.127	11.121	11.124	11.126	11.124	11.125	11.121	10.936-11.306	11.125	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902g.b\GA090219.m
Batch File: \\target\share\chem1\nt2.i\20190902g.b
Inst ID: nt2.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	V209021915G	V209021916G	V209021917G	V209021918G	V209021919G	V209021920G	V209021922G
INJ.DATE:	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019
INJ.TIME:	16:13	16:33	16:54	17:14	17:34	17:54	18:35

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
5 2-Methylpentane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.136	3.086-3.186	+++++	+++++
7 nC6	3.337	3.341	3.338	3.337	3.338	3.340	3.343	3.340	3.290-3.390	3.339	0.002
$ 10 Dibromofluorobenzene	4.743	4.746	4.743	4.743	4.743	+++++	4.742	4.746	4.696-4.796	4.743	0.001
47 nC7	5.022	5.020	5.023	5.022	5.023	5.026	5.028	5.038	4.968-5.108	5.023	0.003
37 Benzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.037	4.987-5.087	+++++	+++++
$ 29 Pentafluorobenzene	5.132	5.129	5.133	5.132	5.132	+++++	5.131	5.129	5.079-5.179	5.132	0.001
$ 30 d4-1,2-dichloroethane	+++++	+++++	5.181	5.181	5.151	5.153	+++++	5.147	5.097-5.197	5.166	0.017
$ 31 1,4-Difluorobenzene	5.521	5.519	5.522	5.521	5.522	5.518	5.521	5.518	5.468-5.568	5.521	0.001
3 AK101	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.286	0.000-4.026	+++++	+++++
4 8015GAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.387	0.047-6.727	+++++	+++++
46 8015mod	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.930-1.070	+++++	+++++
38 n-Octane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	6.406	6.356-6.456	+++++	+++++
45 n-Heptane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.157	5.087-5.227	+++++	+++++
$ 32 d8-Toluene	6.495	6.498	6.495	6.495	6.495	6.498	6.494	6.498	6.448-6.548	6.496	0.002
12 Toluene	6.531	6.529	6.532	6.531	6.532	6.528	6.530	6.528	6.478-6.578	6.530	0.001
39 n-Nonane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.544	7.494-7.594	+++++	+++++
$ 33 d5-Chlorobenzene	7.577	7.581	7.578	7.577	7.578	7.581	7.583	7.581	7.531-7.631	7.579	0.002

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902g.b\GA090219.m
Batch File: \\target\share\chem1\nt2.i\20190902g.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	40 Ethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.610	7.560-7.660	+++++	+++++
	41 m,p-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.714	7.664-7.764	+++++	+++++
	42 o-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.018	7.968-8.068	+++++	+++++
	2 WAGAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.491	6.401-10.581	+++++	+++++
$	34 4-Bromofluorobenzene	8.447	8.451	8.448	8.447	8.448	8.451	8.447	8.451	8.401-8.501	8.448	0.002
	17 nC10-Decane	8.545	8.542	8.539	8.539	8.539	8.542	8.544	8.524	8.474-8.574	8.541	0.002
	1 NWTPHG	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.673	9.143-14.203	+++++	+++++
	20 1,2,4-Trimethylbenzene	9.153	9.126	9.130	9.129	9.129	9.156	9.128	9.156	9.106-9.206	9.136	0.013
$	35 d4-Dichlorobenzene	9.269	9.266	9.269	9.269	9.269	9.266	9.268	9.266	9.216-9.316	9.268	0.001
	43 n-Undecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.399	9.349-9.449	+++++	+++++
$	36 d4-1,2-Dichlorobenzene	9.585	9.588	9.586	9.585	9.585	9.588	9.584	9.582	9.532-9.632	9.586	0.002
	22 nC12-Dodecane	10.236	10.239	10.243	10.205	10.206	10.203	10.241	10.203	10.153-10.253	10.225	0.019
	44 n-Tridecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	10.950	10.900-11.000	+++++	+++++
	24 Naphthalene	10.978	10.982	10.979	10.978	10.979	10.981	10.977	10.975	10.925-11.025	10.979	0.002

ARI Labs, Inc.

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Integrator : HP RTE
Method file : \\target\share\chem1\nt2.i\20190902.b\826090219.m
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Calibration File Names:
Level 1: \\target\share\chem1\nt2.i\20190902.b\V209021904.D
Level 2: \\target\share\chem1\nt2.i\20190902.b\V209021905.D
Level 3: \\target\share\chem1\nt2.i\20190902.b\V209021906.D
Level 4: \\target\share\chem1\nt2.i\20190902.b\V209021907.D
Level 5: \\target\share\chem1\nt2.i\20190902.b\V209021908.D
Level 6: \\target\share\chem1\nt2.i\20190902.b\V209021909.D
Level 7: \\target\share\chem1\nt2.i\20190902.b\V209021910.D
Level 8: \\target\share\chem1\nt2.i\20190902.b\V209021911.D

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
1 Dichlorodifluoromethane	0.35935	0.46469	0.49116	0.54528	0.53359	0.53133					
	0.51166	0.51653					AVRG		0.49420		12.19101
2 Chloromethane	+++++	0.59830	0.52558	0.54483	0.51572	0.56805					
	0.64493	0.67234					AVRG		0.58139		10.30512
3 Vinyl Chloride	0.90314	0.86656	0.83356	0.87242	0.83414	0.83110					
	0.81878	0.76410					AVRG		0.84048		4.94857

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
4 Bromomethane	+++++	+++++	0.50529	0.50241	0.46312	0.46795					
	0.46414	0.43067					AVRG		0.47226		5.91181
5 Chloroethane	0.53446	0.53167	0.47572	0.50193	0.49316	0.46393					
	+++++	+++++					AVRG		0.50015		5.74665
6 Trichlorofluoromethane	0.21459	0.24976	0.25391	0.28672	0.29062	0.29712					
	0.29653	0.24449					AVRG		0.26672		11.37851
7 1,1-Dichloroethene	1.11837	1.14986	1.08195	1.11034	1.06824	1.05544					
	1.03578	0.97710					AVRG		1.07463		5.01501
8 Carbon Disulfide	2.19386	2.17192	2.05191	2.14988	2.00718	1.99601					
	1.96690	1.82155					AVRG		2.04490		6.10725
9 112Trichloro122Trifluoroethan	0.48054	0.56051	0.54671	0.56069	0.54227	0.53854					
	0.53050	0.50765					AVRG		0.53343		5.12277
10 Iodomethane	+++++	+++++	0.92969	0.95857	0.92500	0.92073					
	0.91486	0.87414					AVRG		0.92050		2.96925

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
11 Bromoethane	0.52936	0.56833	0.50740	0.52129	0.48135	0.47826					
	0.47435	0.45276					AVRG		0.50164		7.43129
12 Acrolein	+++++	+++++	0.09534	0.08919	0.08734	0.08487					
	0.08865	0.08225					AVRG		0.08794		5.05974
13 Methylene Chloride	+++++	+++++	25121	41783	170573	335372					
	651390	1259237					LINR	0.000e+000	0.68299		0.99913
14 Acetone	+++++	+++++	0.12920	0.12266	0.11690	0.11678					
	0.11312	0.10722					AVRG		0.11765		6.46239
15 Trans-1,2-Dichloroethene	0.79447	0.89150	0.73681	0.75717	0.72048	0.69935					
	0.69361	0.65851					AVRG		0.74399		9.76167
16 n-hexane	3322	7891	14590	27840	124733	239387					
	448578	843536					LINR	0.000e+000	0.46251		0.99757
17 Methyl tert butyl ether	+++++	1.26653	1.13876	1.09466	1.03185	1.00527					
	0.97547	0.89915					AVRG		1.05881		11.36325

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
18 1,1-Dichloroethane	1.36968	1.32578	1.28541	1.32946	1.23203	1.19831					
	1.15836	1.06380					AVRG		1.24535		8.22944
19 Acrylonitrile	+++++	+++++	0.20283	0.19604	0.16498	0.16406					
	0.16747	0.16355					AVRG		0.17649		10.17461
21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000
20 Vinyl Acetate	1.45182	1.32760	1.26070	1.32647	1.26668	1.22000					
	1.19433	1.11357					AVRG		1.27015		8.00463
22 Cis-1,2-Dichloroethene	0.78131	0.74876	0.72812	0.74702	0.70116	0.68461					
	0.68094	0.65019					AVRG		0.71526		6.07331
23 2,2-Dichloropropane	0.75414	0.70020	0.64988	0.66260	0.61576	0.59658					
	0.57587	0.53866					AVRG		0.63671		10.95044
24 Bromochloromethane	0.30395	0.32560	0.30828	0.31377	0.30985	0.30235					
	0.30324	0.29578					AVRG		0.30785		2.92266

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
25 Chloroform	1.24848	1.17296	1.09743	1.11440	1.05454	1.02593					
	0.99821	0.92922					AVRG		1.08015		9.35753
26 Carbon Tetrachloride	0.42658	0.42434	0.40736	0.42943	0.41349	0.42078					
	0.41225	0.39532					AVRG		0.41620		2.73531
28 1,1,1-Trichloroethane	0.91949	0.88802	0.87249	0.90307	0.85162	0.84200					
	0.82806	0.77749					AVRG		0.86028		5.30078
30 1,1-Dichloropropene	0.55538	0.53364	0.50688	0.52720	0.49302	0.48983					
	0.47101	0.44632					AVRG		0.50291		7.04715
29 2-Butanone	+++++	+++++	0.22077	0.22253	0.21468	0.21154					
	0.20473	0.18808					AVRG		0.21039		6.02912
31 Benzene	1.67319	1.63852	1.56282	1.61800	1.49295	1.44783					
	1.34550	1.15465					AVRG		1.49168		11.67785
35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

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	40.0000 Level 7	80.0000 Level 8									
34 1,2-Dichloroethane	0.48554	0.48051	0.46331	0.47759	0.43967	0.43543					
	0.42575	0.40098					AVRG		0.45110		6.71965
36 Trichloroethene	0.39608	0.39531	0.37808	0.39655	0.37142	0.37052					
	0.36013	0.34194					AVRG		0.37625		5.18582
38 Dibromomethane	0.17807	0.19293	0.18928	0.20080	0.18924	0.19156					
	0.18835	0.18406					AVRG		0.18929		3.48723
39 1,2-Dichloropropane	0.39166	0.41592	0.39408	0.40683	0.37979	0.37481					
	0.36819	0.34851					AVRG		0.38497		5.64418
40 Bromodichloromethane	0.49152	0.47400	0.45229	0.46043	0.43827	0.44534					
	0.43925	0.41902					AVRG		0.45251		5.00997
173 2-Pentanone	+++++	+++++	0.04055	0.04309	0.04148	0.04186					
	0.04150	0.04049					AVRG		0.04149		2.30662
42 Cis 1,3-dichloropropene	0.60848	0.59930	0.59652	0.62309	0.59711	0.60164					
	0.58814	0.54623					AVRG		0.59506		3.73932

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
41 2-Chloroethyl Vinyl Ether	+++++	+++++	0.20270	0.21517	0.20816	0.21069					
	0.20857	0.20119					AVRG		0.20775		2.48384
44 Toluene	1.08361	1.03045	0.98876	1.01275	0.93722	0.93110					
	0.88710	0.79402					AVRG		0.95813		9.50392
45 4-Methyl-2-Pentanone	+++++	+++++	0.11462	0.12105	0.11430	0.11271					
	0.10846	0.09935					AVRG		0.11175		6.53635
46 Tetrachloroethene	0.43251	0.40907	0.38677	0.39749	0.37193	0.37124					
	0.35271	0.33050					AVRG		0.38153		8.44783
47 Trans 1,3-Dichloropropene	0.46700	0.50093	0.50314	0.52645	0.51018	0.52006					
	0.51160	0.48407					AVRG		0.50293		3.85047
48 1,1,2-Trichloroethane	0.29120	0.29963	0.28792	0.30733	0.28841	0.29116					
	0.28658	0.27245					AVRG		0.29058		3.48941
49 Chlorodibromomethane	0.30381	0.30335	0.29873	0.32758	0.32993	0.33943					
	0.33340	0.32066					AVRG		0.31961		4.88226

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Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
50 1,3-Dichloropropane	0.62001	0.62352	0.60472	0.62575	0.58840	0.58090					
	0.54908	0.50476					AVRG		0.58714		7.19118
51 1,2-Dibromoethane	0.27135	0.28063	0.28249	0.28722	0.27735	0.27936					
	0.27745	0.26487					AVRG		0.27759		2.47310
52 2-Hexanone	+++++	+++++	0.20429	0.21881	0.20713	0.20362					
	0.18473	0.15798					AVRG		0.19609		11.03962
54 Chlorobenzene	1.21906	1.21925	1.14136	1.17804	1.09045	1.05784					
	0.98147	0.84548					AVRG		1.09162		11.80952
55 Ethyl Benzene	0.62423	0.65324	0.62386	0.65761	0.61165	0.60669					
	0.57863	0.53814					AVRG		0.61176		6.38135
56 1,1,1,2-Tetrachloroethane	0.36499	0.35355	0.35355	0.36814	0.35337	0.35646					
	0.34432	0.32560					AVRG		0.35250		3.73003
57 m,p-xylene	0.81517	0.80293	0.76993	0.79584	0.74279	0.71980					
	0.64855	0.51644					AVRG		0.72643		13.85514

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	40.0000 Level 7	80.0000 Level 8									
58 o-Xylene	0.78273	0.78067	0.74842	0.79489	0.73900	0.73185					
	0.69799	0.63628					AVRG		0.73898		7.07701
59 Styrene	1.21972	1.22032	1.16532	1.24946	1.20026	1.21469					
	1.11000	0.94461					AVRG		1.16555		8.48683
60 Bromoform	0.33567	0.33304	0.31756	0.34254	0.36069	0.37471					
	0.38265	0.38258					AVRG		0.35368		7.04440
61 Isopropyl Benzene	4.13787	4.00680	3.90036	4.02617	3.65782	3.49990					
	3.11327	+++++					AVRG		3.76317		9.64552
63 Bromobenzene	0.89686	0.93569	0.89502	0.93906	0.87087	0.86944					
	0.84283	0.80993					AVRG		0.88246		4.98328
64 N-Propyl Benzene	4.75730	4.68143	4.44587	4.62795	4.19802	3.98385					
	3.48485	+++++					AVRG		4.31132		10.61804
82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

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	40.0000 Level 7	80.0000 Level 8									
65 1,1,2,2-Tetrachloroethane	0.91646	0.84837	0.77087	0.80788	0.73900	0.72478					
	0.68401	0.65184					AVRG		0.76790		11.36909
66 2-Chloro Toluene	3.33707	3.16387	3.03607	3.15557	2.88542	2.80454					
	2.60434	2.34785					AVRG		2.91684		11.17570
67 1,3,5-Trimethyl Benzene	3.34093	3.27629	3.12806	3.29533	3.02434	2.93398					
	2.64448	2.21538					AVRG		2.98235		12.92851
68 1,2,3-Trichloropropane	+++++	0.24539	0.24482	0.24957	0.23422	0.23739					
	0.22987	0.22225					AVRG		0.23764		4.07598
69 Trans-1,4-Dichloro 2-Butene	+++++	+++++	0.20018	0.19691	0.18005	0.17719					
	0.17939	0.17744					AVRG		0.18519		5.64264
70 4-Chloro Toluene	3.10133	2.99324	2.72369	2.88069	2.63385	2.57304					
	2.37008	2.05774					AVRG		2.66671		12.78157
71 T-Butyl Benzene	2.86421	2.78351	2.68888	2.76389	2.54581	2.47001					
	2.27555	1.98986					AVRG		2.54772		11.62230

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	40.0000 Level 7	80.0000 Level 8									
72 1,2,4-Trimethylbenzene	3.35722	3.31906	3.14092	3.31560	3.02310	2.94609					
	2.65007	2.22052					AVRG		2.99657		13.12169
73 S-Butyl Benzene	4.03628	3.93226	3.83725	3.96770	3.62037	3.47744					
	3.06794	2.52614					AVRG		3.55817		14.75692
74 4-Isopropyl Toluene	3.35446	3.25752	3.21810	3.38152	3.11291	3.00540					
	2.67352	2.22132					AVRG		3.02809		13.11771
75 1,3-Dichlorobenzene	1.80145	1.78428	1.68679	1.74369	1.62970	1.60191					
	1.49186	1.34590					AVRG		1.63570		9.51815
77 1,4-Dichlorobenzene	1.80034	1.77306	1.67943	1.72633	1.61745	1.58504					
	1.47998	1.32210					AVRG		1.62297		9.88874
78 N-Butyl Benzene	2.93874	2.85438	2.76606	2.89181	2.67008	2.58324					
	2.28501	1.95556					AVRG		2.61811		12.98704
80 1,2-Dichlorobenzene	1.60822	1.60054	1.54290	1.60580	1.50717	1.46820					
	1.37723	1.26122					AVRG		1.49641		8.29679

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	40.0000 Level 7	80.0000 Level 8									
81 1,2-Dibromo 3-Chloropropane	+++++	0.11453	0.10628	0.11572	0.11662	0.11955					
	0.12046	0.11928					AVRG		0.11606		4.16684
83 Hexachloro 1,3-Butadiene	+++++	0.24006	0.24990	0.25329	0.24225	0.23252					
	0.20289	0.20975					AVRG		0.23295		8.36856
84 1,2,4-Trichlorobenzene	+++++	0.81160	0.77610	0.84770	0.82540	0.82721					
	0.79050	0.76058					AVRG		0.80559		3.85698
85 Naphthalene	+++++	1.91214	1.80296	1.97632	2.02721	2.03143					
	1.93065	1.74013					AVRG		1.91726		5.76316
86 1,2,3-Trichlorobenzene	+++++	0.68930	0.64237	0.70891	0.69600	0.69333					
	0.66199	0.63969					AVRG		0.67594		4.09902
$ 27 Dibromofluoromethane	0.50552	0.50306	0.50536	0.50286	0.50557	0.49889					
	0.51882	0.51691					AVRG		0.50712		1.38087
$ 33 d4-1,2-Dichloroethane	0.58126	0.59097	0.59127	0.59282	0.59612	0.58094					
	0.58517	0.59912					AVRG		0.58971		1.13259

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 02-SEP-2019 12:30
End Cal Date : 02-SEP-2019 14:52
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt2.i\20190902.b\826090219.m
Last Edit : 03-Sep-2019 07:24 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
$ 43 d8-Toluene	1.25551	1.24982	1.24747	1.25609	1.24263	1.24885					
	1.25682	1.25940					AVRG		1.25207		0.45783
$ 62 4-Bromofluorobenzene	0.37095	0.37213	0.37046	0.38021	0.37352	0.38127					
	0.37890	0.36349					AVRG		0.37386		1.60283
$ 79 d4-1,2-Dichlorobenzene	0.93821	0.92792	0.91909	0.92642	0.93352	0.93959					
	0.93218	0.93310					AVRG		0.93126		0.71418

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 02-SEP-2019 12:30
End Cal Date : 02-SEP-2019 14:52
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt2.i\20190902.b\826090219.m
Last Edit : 03-Sep-2019 07:24 paul

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Linear	Amt = b + Rsp/m1	Response

6a
8260 GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: 20150930

Instrument: NT2.I Project:

Calibration Date: 02-SEP-2019 SDG No.: 20150930

Gas Range	RF1 0.1	RF2 0.25	RF3 0.5	RF4 1.0	RF5 2.5	RF6 5	Ave RF	%RSD
WA Gas	22656988	26390862	21883529	26446902	25706337	26805884	24981750	8.6
AK Gas	32199511	36695438	28249130	34638444	32606520	32596506	32830925	8.6
NW Gas	23760102	27294982	22671991	27646895	27056152	28268333	26116409	8.8
8015Gas	42526938	46129435	37817564	45202766	43001318	43106454	42964079	6.7
8015mod	33481749	38019065	30301354	37327592	35752782	36740665	35270534	8.2

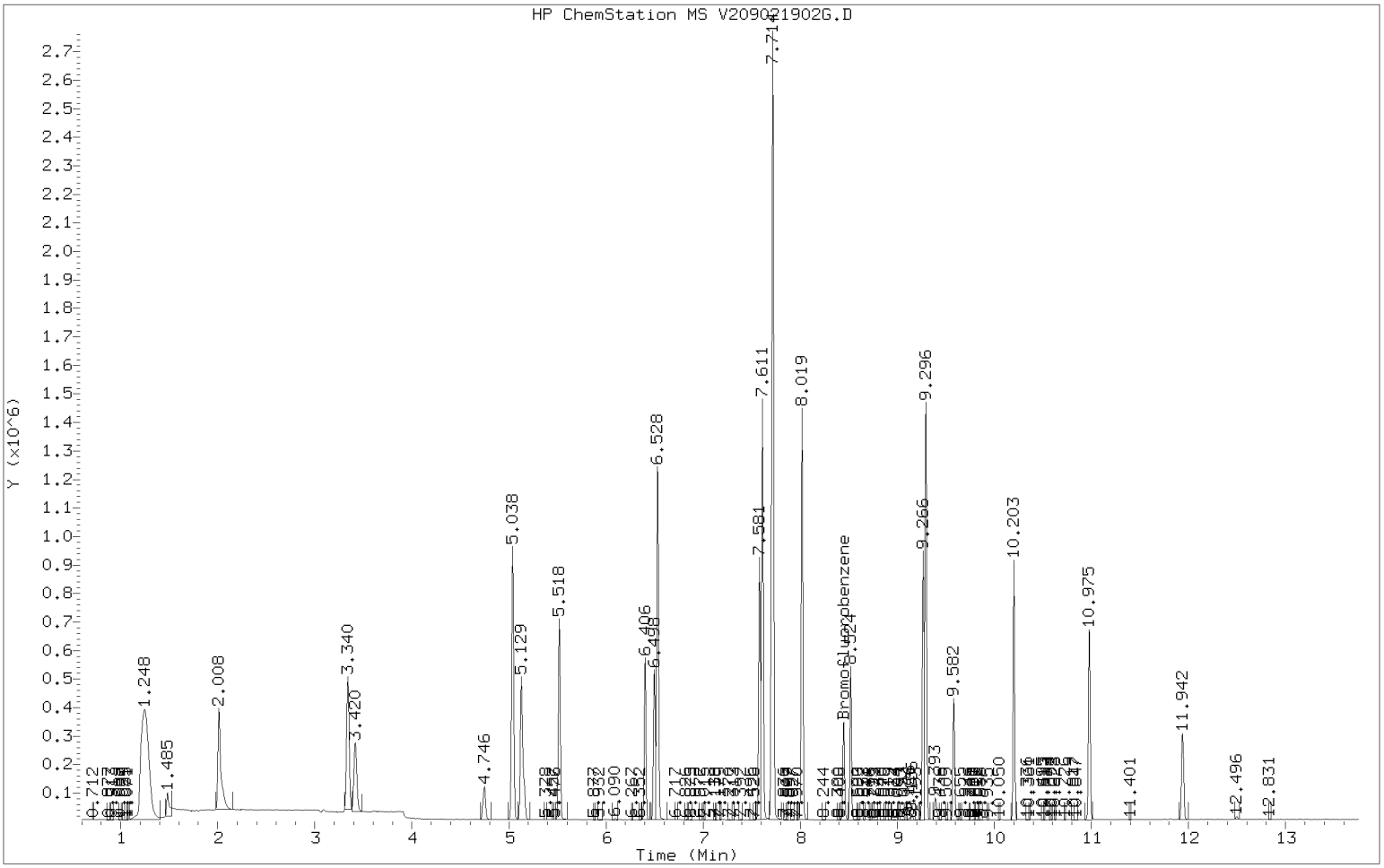
<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation.
Surrogate calibration is from BETX curve files.

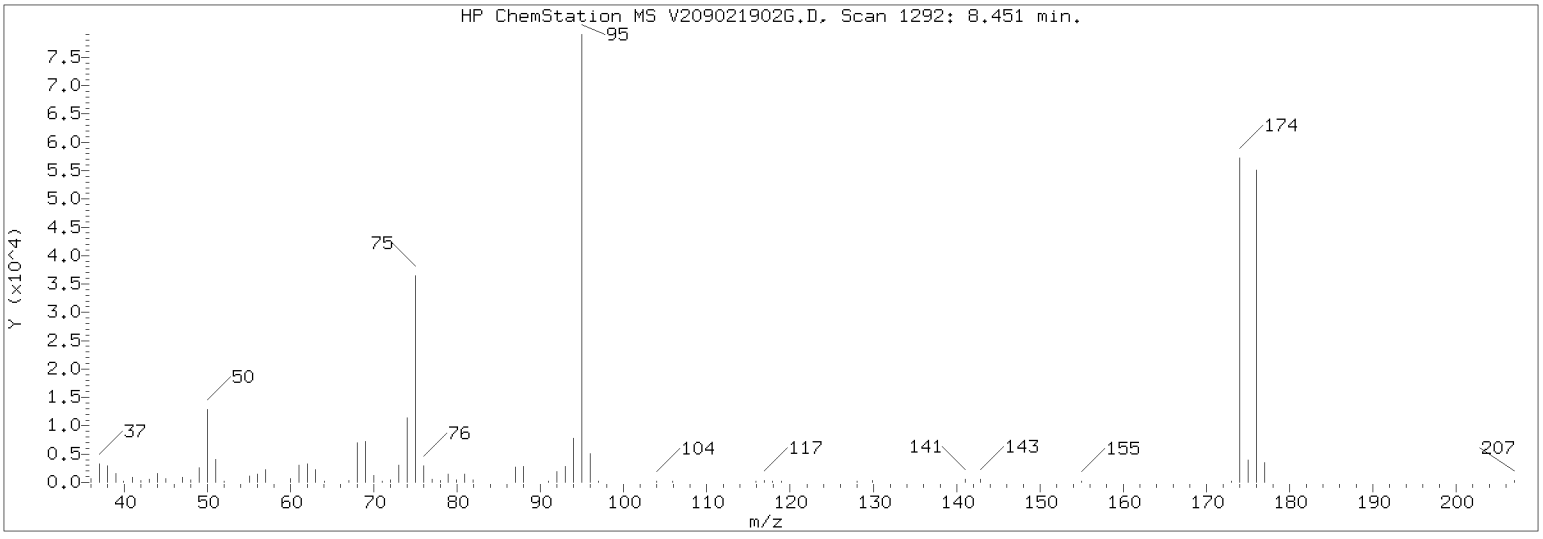
Quant Ranges :
WA Gas Toluene - nC12
AK Gas nC6 - nC10
NW Gas Toluene - Naphthalene
8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene
8015 mod nC7 - nC12

Gas Cal. Files	Analysis Time
V209021915.D	02-SEP-2019 16:13
V209021916.D	02-SEP-2019 16:33
V209021917.D	02-SEP-2019 16:54
V209021918.D	02-SEP-2019 17:14
V209021919.D	02-SEP-2019 17:34
V209021920.D	02-SEP-2019 17:54

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190902s.b/V209021902G.D
Method Used: \20190902s.b\bfb8260.m Inst: nt2
Injection Date: 02-SEP-2019 11:29 Operator: PKC
Sample Info: SHI0010-TUN1 SHI0010-TUN1
Report Date: 09/03/2019 10:14





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.85
75	30.00 - 60.00% of mass 95	45.91
96	5.00 - 9.00% of mass 95	6.76
173	Less than 2.00% of mass 174	0.37 (0.52)
174	50.00 - 100.00% of mass 95	70.85
175	5.00 - 9.00% of mass 174	4.96 (7.00)
176	95.00 - 101.00% of mass 174	69.78 (98.49)
177	5.00 - 9.00% of mass 176	4.44 (6.36)

Data File: V209021902G.D
Spectrum: Avg. Scans 1291-1293 (8.45), Background Scan 1285
Location of Maximum: 95.00
Number of points: 67

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	542	56.00	937	77.00	466	112.00	63
37.00	3059	57.00	1400	78.00	305	116.00	143
38.00	2578	60.00	636	79.00	1281	117.00	309
39.00	1127	61.00	2616	80.00	361	118.00	139
40.00	4	62.00	2778	81.00	1102	119.00	301
41.00	28	63.00	2085	82.00	354	128.00	154
42.00	58	64.00	173	87.00	2326	130.00	179
43.00	28	67.00	304	88.00	2493	141.00	491
44.00	339	68.00	6005	91.00	189	143.00	420
45.00	694	69.00	5860	92.00	1742	148.00	78
47.00	838	70.00	556	93.00	2506	155.00	128
48.00	402	71.00	133	94.00	7053	173.00	251
49.00	2516	72.00	367	95.00	67952	174.00	48144
50.00	11453	73.00	2658	96.00	4591	175.00	3372
51.00	3770	74.00	9993	97.00	64	176.00	47416
52.00	150	75.00	31200	104.00	184	177.00	3015
55.00	182	76.00	2645	106.00	248		

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021902G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 11:29

ARI ID: SHI0010-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	12541568	0.502
8015C 2MP-TMB	(3.04 to 9.26)	42964079	13201721	0.307
AK101 nC6-nC10	(3.24 to 8.42)	32820925	12569562	0.383
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	13441466	0.515
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	14710987	0.417

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.581	1108694	d5-Chlorobenzene
8.451	463342	4-Bromofluorobenzene
6.498	680352	d8-Toluene
9.266	1147138	d4-Dichlorobenzene
9.582	563694	d4-1,2-Dichlorobenzene

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021904G.D

Date : 02-SEP-2019 12:30

Client ID:

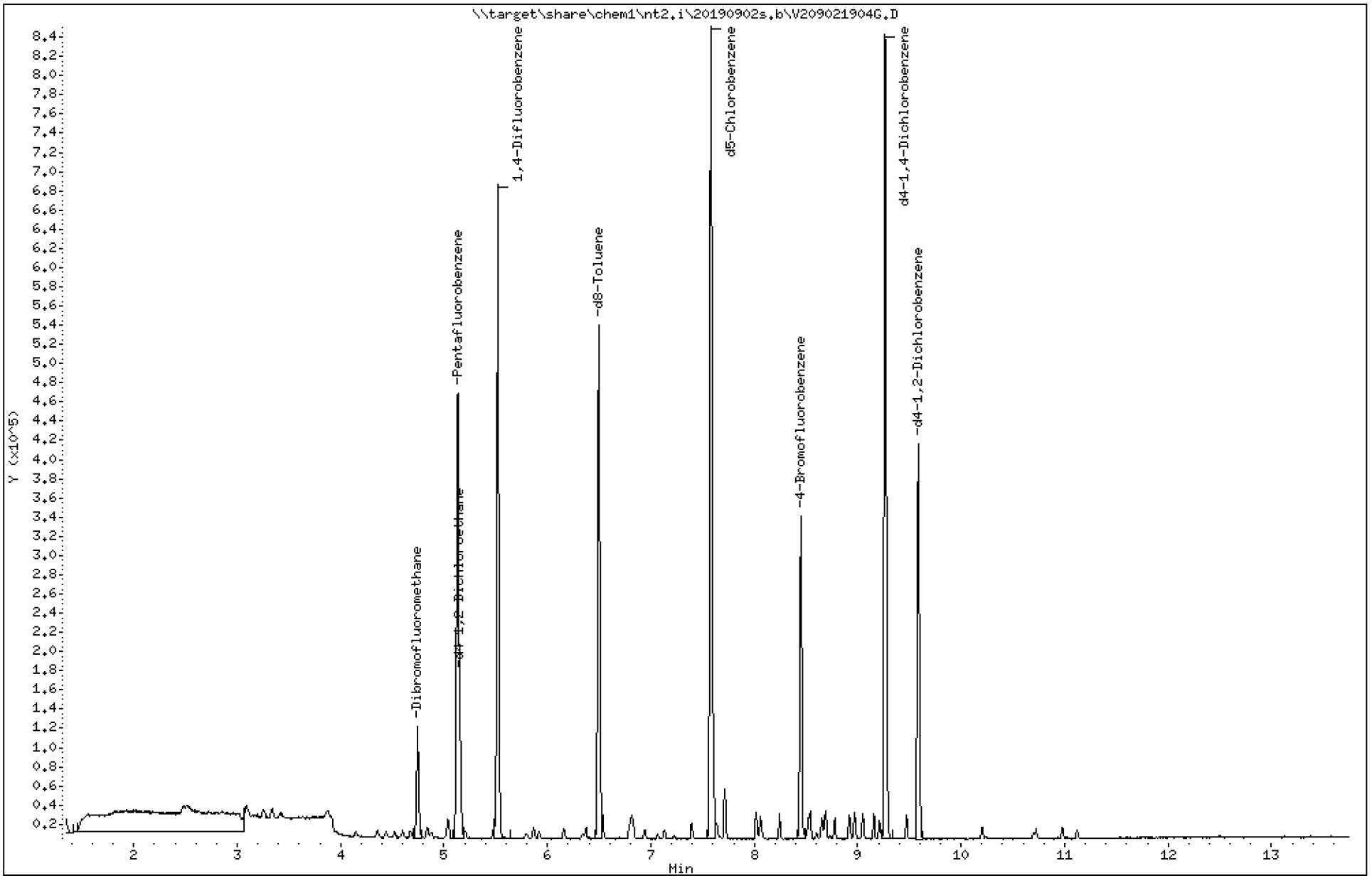
Sample Info: SHI0010-CAL1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021904G.D
Lab Smp Id: SHI0010-CAL1
Inj Date : 02-SEP-2019 12:30
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL1
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.745	(0.924)	59542	4.98422	4.984
* 32 Pentafluorobenzene	168	5.132	5.128	(1.000)	235566	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	68462	4.92834	4.928
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	418094	10.0000	
$ 43 d8-Toluene	98	6.495	6.497	(1.176)	262460	5.01371	5.014
* 53 d5-Chlorobenzene	117	7.578	7.580	(1.000)	379186	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.450	(1.115)	70330	4.96106	4.961
* 76 d4-1,4-Dichlorobenzene	152	9.269	9.265	(1.000)	181132	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.034)	84970	5.03734	5.037

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021904G.D
Lab Smp Id: SHI0010-CAL1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	235566	0.98
37 1,4-Difluorobenze	412164	206082	824328	418094	1.44
53 d5-Chlorobenzene	378243	189122	756486	379186	0.25
76 d4-1,4-Dichlorobe	186173	93087	372346	181132	-2.71

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CAL1
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.984	99.68	
$ 33 d4-1,2-Dichloroeth	5.000	4.928	98.57	
$ 43 d8-Toluene	5.000	5.014	100.27	
$ 62 4-Bromofluorobenze	5.000	4.961	99.22	
$ 79 d4-1,2-Dichloroben	5.000	5.037	100.75	

REVIEW SUMMARY FOR FILE - V209021904G.D

Lab ID: SHI0010-CAL1
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 12:30

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021905G.D

Date : 02-SEP-2019 12:51

Client ID:

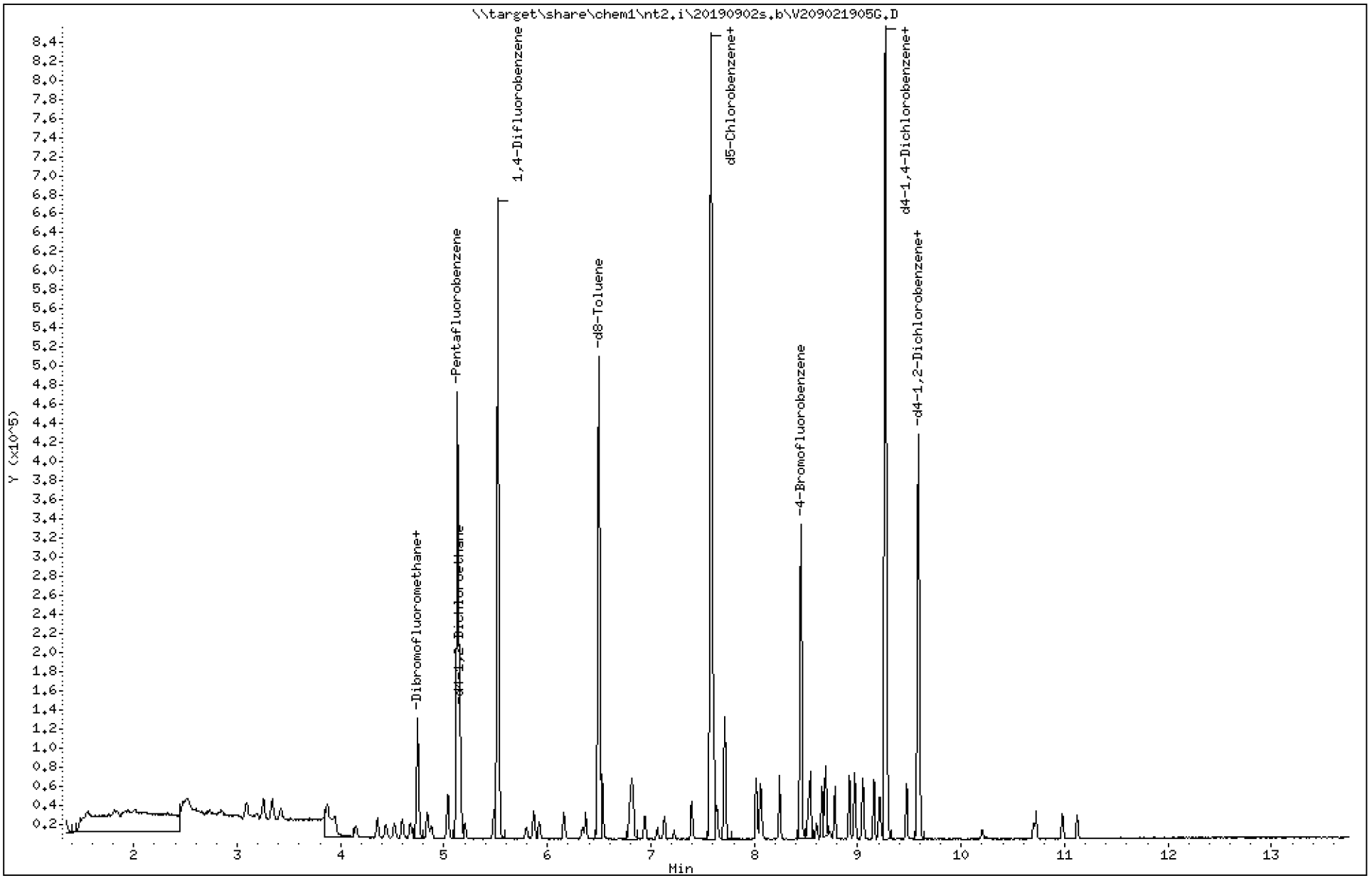
Sample Info: SHI0010-CAL2

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021905G.D
Lab Smp Id: SHI0010-CAL2
Inj Date : 02-SEP-2019 12:51
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL2
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 34
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	57907	4.95991	4.960
* 32 Pentafluorobenzene	168	5.132	5.128	(1.000)	230220	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.156	5.153	(1.005)	68026	5.01067	5.011
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	408443	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	255241	4.99102	4.991
* 53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	372114	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.115)	69237	4.97678	4.977
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	180039	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.034)	83531	4.98210	4.982

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021905G.D
Lab Smp Id: SHI0010-CAL2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	230220	-1.32
37 1,4-Difluorobenze	412164	206082	824328	408443	-0.90
53 d5-Chlorobenzene	378243	189122	756486	372114	-1.62
76 d4-1,4-Dichlorobe	186173	93087	372346	180039	-3.29

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.06
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CAL2
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.960	99.20	
$ 33 d4-1,2-Dichloroeth	5.000	5.011	100.21	
$ 43 d8-Toluene	5.000	4.991	99.82	
$ 62 4-Bromofluorobenze	5.000	4.977	99.54	
$ 79 d4-1,2-Dichloroben	5.000	4.982	99.64	

REVIEW SUMMARY FOR FILE - V209021905G.D

Lab ID: SHI0010-CAL2
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 12:51

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021906G.D

Date : 02-SEP-2019 13:11

Client ID:

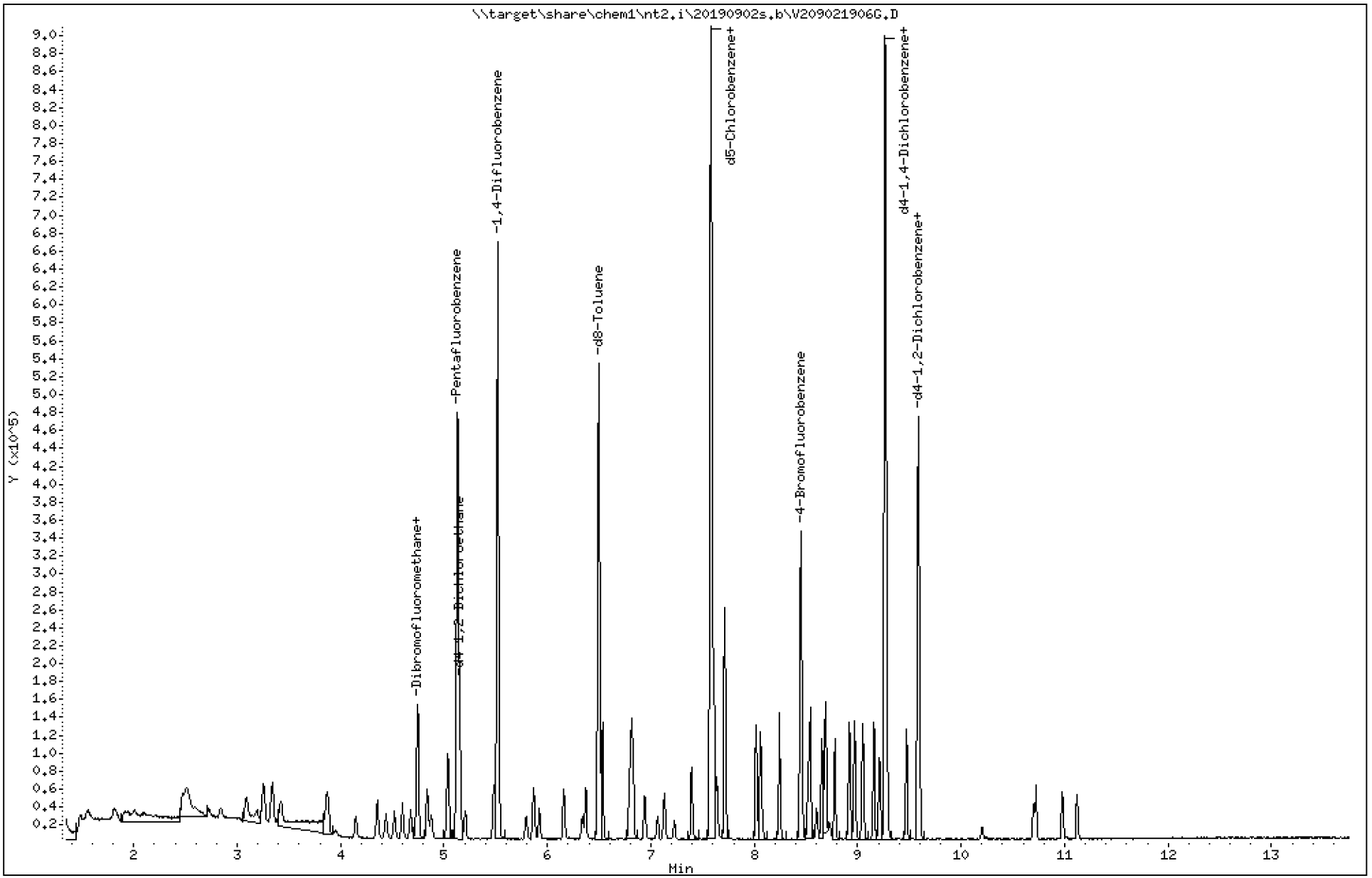
Instrument: nt2.i

Sample Info: SHI0010-CAL3

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021906G.D
Lab Smp Id: SHI0010-CAL3
Inj Date : 02-SEP-2019 13:11
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL3
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.745	(0.925)	59908	4.98260	4.983
* 32 Pentafluorobenzene	168	5.126	5.128	(1.000)	237091	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.151	5.153	(1.005)	70092	5.01323	5.013
* 37 1,4-Difluorobenzene	114	5.522	5.518	(1.000)	419485	10.0000	
$ 43 d8-Toluene	98	6.495	6.497	(1.176)	261648	4.98162	4.982
* 53 d5-Chlorobenzene	117	7.578	7.580	(1.000)	385601	10.0000	
$ 62 4-Bromofluorobenzene	174	8.448	8.450	(1.115)	71424	4.95441	4.954
* 76 d4-1,4-Dichlorobenzene	152	9.263	9.265	(1.000)	189034	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.586	9.588	(1.035)	86870	4.93470	4.935

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021906G.D
Lab Smp Id: SHI0010-CAL3
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	237091	1.63
37 1,4-Difluorobenze	412164	206082	824328	419485	1.78
53 d5-Chlorobenzene	378243	189122	756486	385601	1.95
76 d4-1,4-Dichlorobe	186173	93087	372346	189034	1.54

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.04
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.26	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-CAL3
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.983	99.65	
$ 33 d4-1,2-Dichloroeth	5.000	5.013	100.26	
$ 43 d8-Toluene	5.000	4.982	99.63	
$ 62 4-Bromofluorobenze	5.000	4.954	99.09	
$ 79 d4-1,2-Dichloroben	5.000	4.935	98.69	

REVIEW SUMMARY FOR FILE - V209021906G.D

Lab ID: SHI0010-CAL3
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 13:11

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021907G.D

Date : 02-SEP-2019 13:31

Client ID:

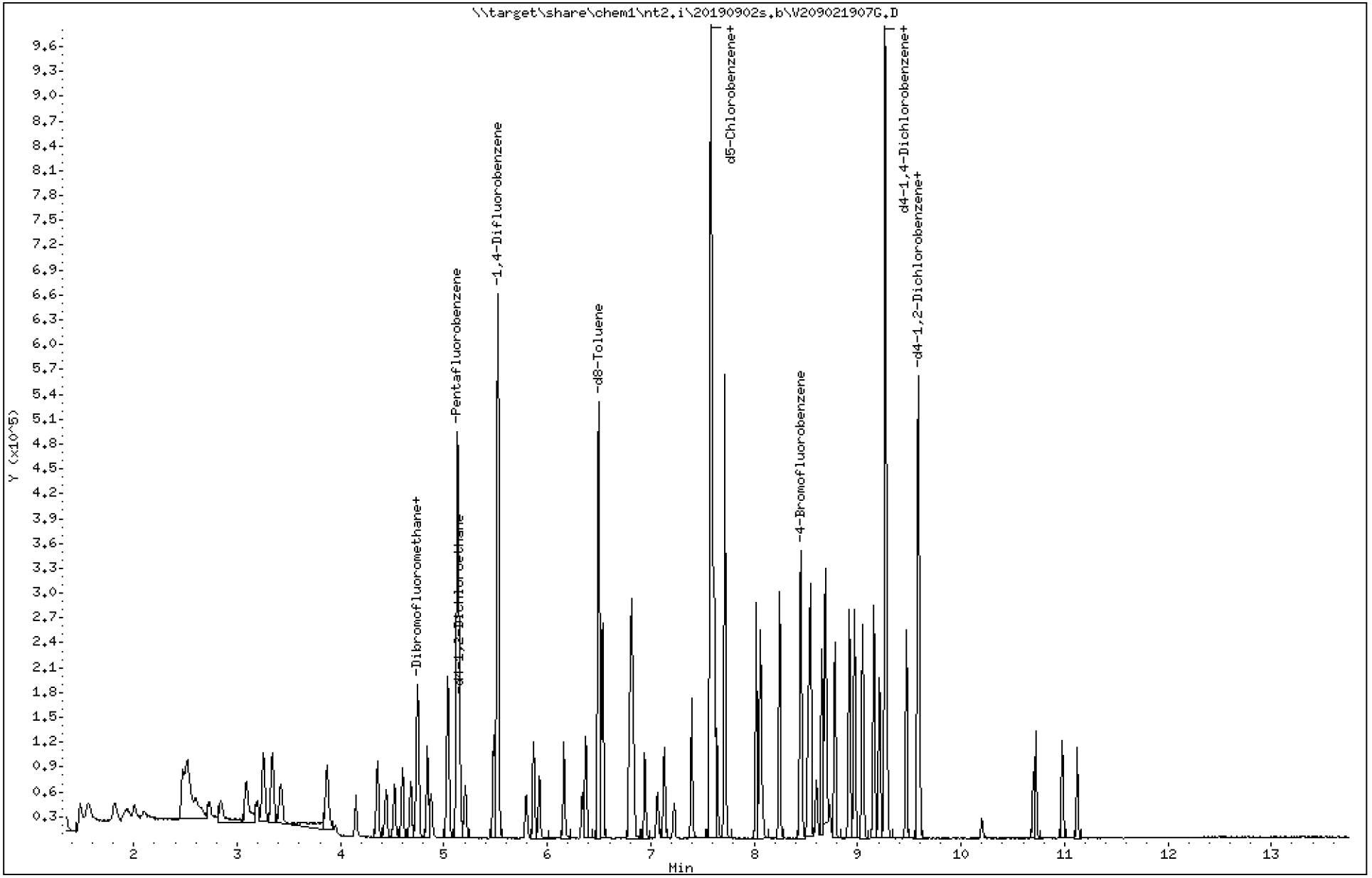
Instrument: nt2.i

Sample Info: SHI0010-CAL4

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021907G.D
Lab Smp Id: SHI0010-CAL4
Inj Date : 02-SEP-2019 13:31
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL4
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 36
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.745	(0.925)	60459	4.95793	4.958
* 32 Pentafluorobenzene	168	5.128	5.128	(1.000)	240462	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.152	5.153	(1.005)	71275	5.02637	5.026
* 37 1,4-Difluorobenzene	114	5.523	5.518	(1.000)	422265	10.0000	
$ 43 d8-Toluene	98	6.497	6.497	(1.176)	265202	5.01605	5.016
* 53 d5-Chlorobenzene	117	7.580	7.580	(1.000)	386238	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.450	(1.115)	73426	5.08488	5.085
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.265	(1.000)	189248	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.587	9.588	(1.035)	87662	4.97406	4.974

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021907G.D
Lab Smp Id: SHI0010-CAL4
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	240462	3.07
37 1,4-Difluorobenze	412164	206082	824328	422265	2.45
53 d5-Chlorobenzene	378243	189122	756486	386238	2.11
76 d4-1,4-Dichlorobe	186173	93087	372346	189248	1.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.01
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.10
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.01
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CAL4
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.958	99.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.026	100.53	
$ 43 d8-Toluene	5.000	5.016	100.32	
$ 62 4-Bromofluorobenze	5.000	5.085	101.70	
$ 79 d4-1,2-Dichloroben	5.000	4.974	99.48	

REVIEW SUMMARY FOR FILE - V209021907G.D

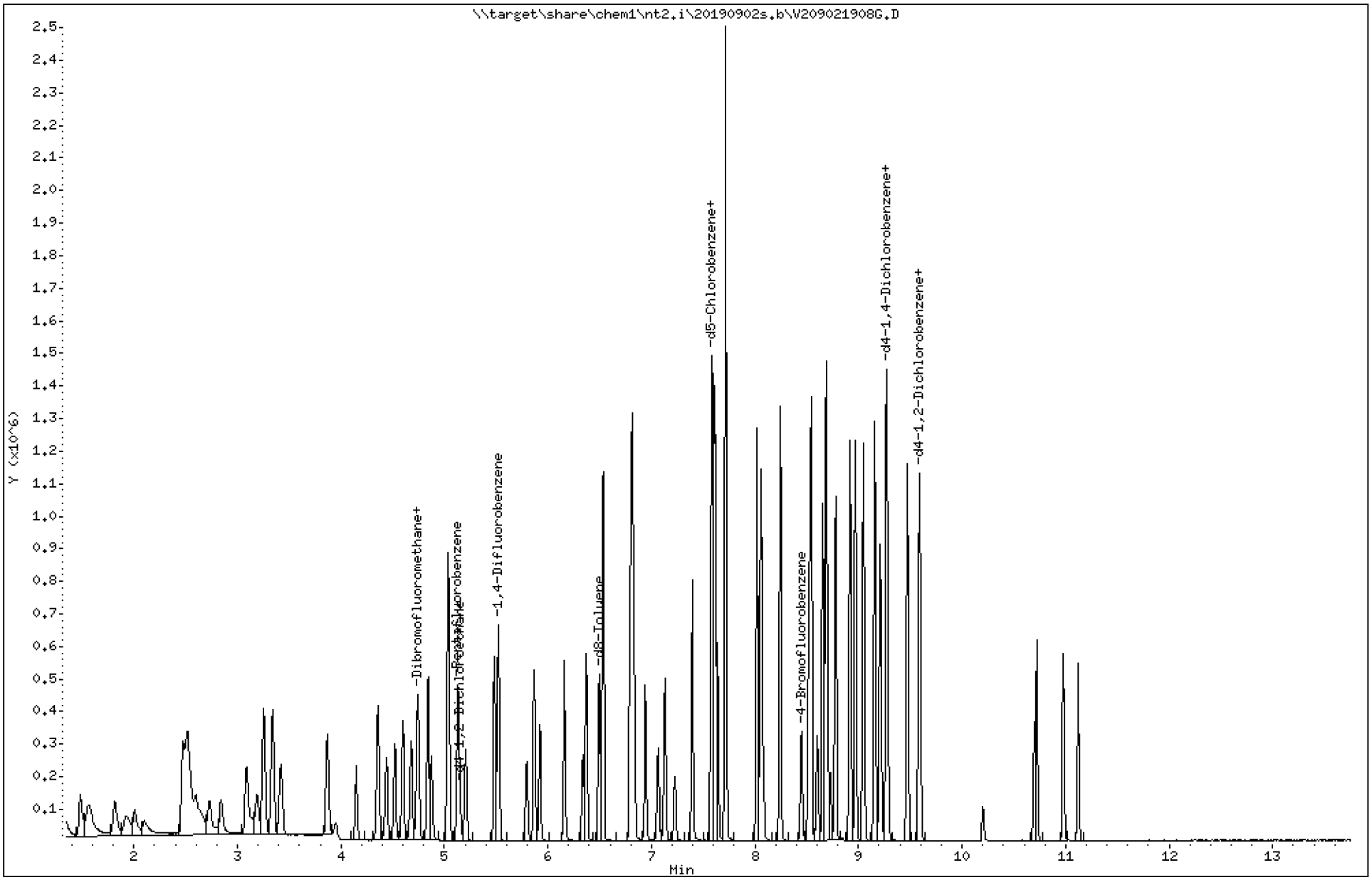
Lab ID: SHI0010-CAL4
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 13:31

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021908G.D
Date : 02-SEP-2019 13:51
Client ID:
Sample Info: SHI0010-CAL5

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021908G.D
Lab Smp Id: SHI0010-CAL5
Inj Date : 02-SEP-2019 13:51
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL5
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.745	(0.925)	58972	4.98468	4.985
* 32 Pentafluorobenzene	168	5.128	5.128	(1.000)	233289	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.153	(1.005)	69534	5.05437	5.054
* 37 1,4-Difluorobenzene	114	5.518	5.518	(1.000)	412164	10.0000	
$ 43 d8-Toluene	98	6.497	6.497	(1.177)	256083	4.96227	4.962
* 53 d5-Chlorobenzene	117	7.580	7.580	(1.000)	378243	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.450	(1.115)	70640	4.99535	4.995
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.265	(1.000)	186173	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.588	9.588	(1.035)	86898	5.01215	5.012

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021908G.D
Lab Smp Id: SHI0010-CAL5
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	233289	0.00
37 1,4-Difluorobenze	412164	206082	824328	412164	0.00
53 d5-Chlorobenzene	378243	189122	756486	378243	0.00
76 d4-1,4-Dichlorobe	186173	93087	372346	186173	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.00
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.00
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.00
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-CAL5
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.985	99.69	
$ 33 d4-1,2-Dichloroeth	5.000	5.054	101.09	
$ 43 d8-Toluene	5.000	4.962	99.25	
$ 62 4-Bromofluorobenze	5.000	4.995	99.91	
$ 79 d4-1,2-Dichloroben	5.000	5.012	100.24	

REVIEW SUMMARY FOR FILE - V209021908G.D

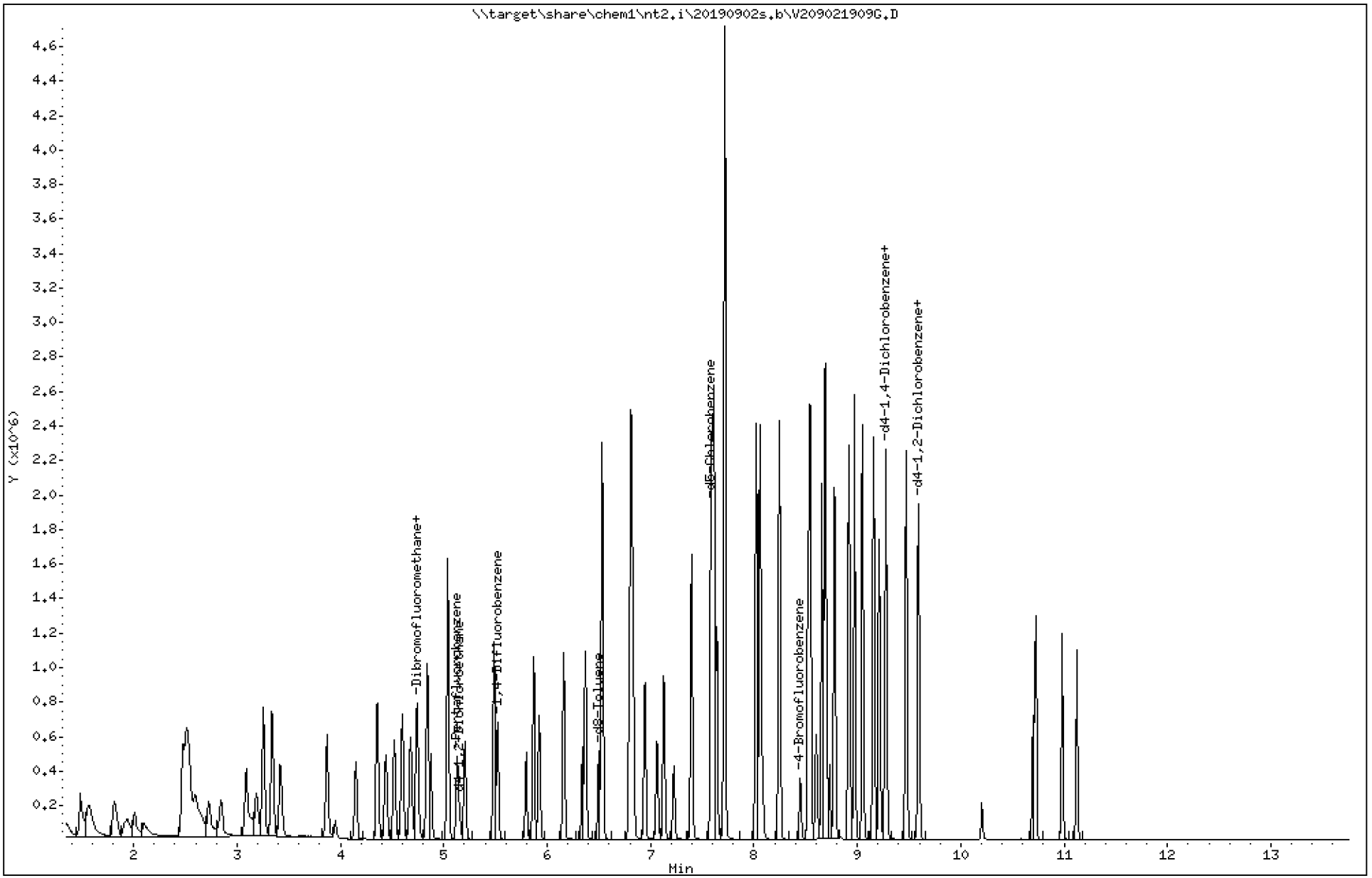
Lab ID: SHI0010-CAL5
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 13:51

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021909G.D
Date : 02-SEP-2019 14:12
Client ID:
Sample Info: SHI0010-CAL6

Instrument: nt2.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021909G.D
Lab Smp Id: SHI0010-CAL6
Inj Date : 02-SEP-2019 14:12
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL6
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 38
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	58520	4.91882	4.919
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	234601	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	68145	4.92570	4.926
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	407537	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	254476	4.98712	4.987
* 53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	377564	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.114)	71976	5.09898	5.099
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	187362	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	88022	5.04476	5.045

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021909G.D
Lab Smp Id: SHI0010-CAL6
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	234601	0.56
37 1,4-Difluorobenze	412164	206082	824328	407537	-1.12
53 d5-Chlorobenzene	378243	189122	756486	377564	-0.18
76 d4-1,4-Dichlorobe	186173	93087	372346	187362	0.64

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CAL6
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.919	98.38	
$ 33 d4-1,2-Dichloroeth	5.000	4.926	98.51	
$ 43 d8-Toluene	5.000	4.987	99.74	
$ 62 4-Bromofluorobenze	5.000	5.099	101.98	
$ 79 d4-1,2-Dichloroben	5.000	5.045	100.90	

REVIEW SUMMARY FOR FILE - V209021909G.D

Lab ID: SHI0010-CAL6
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 14:12

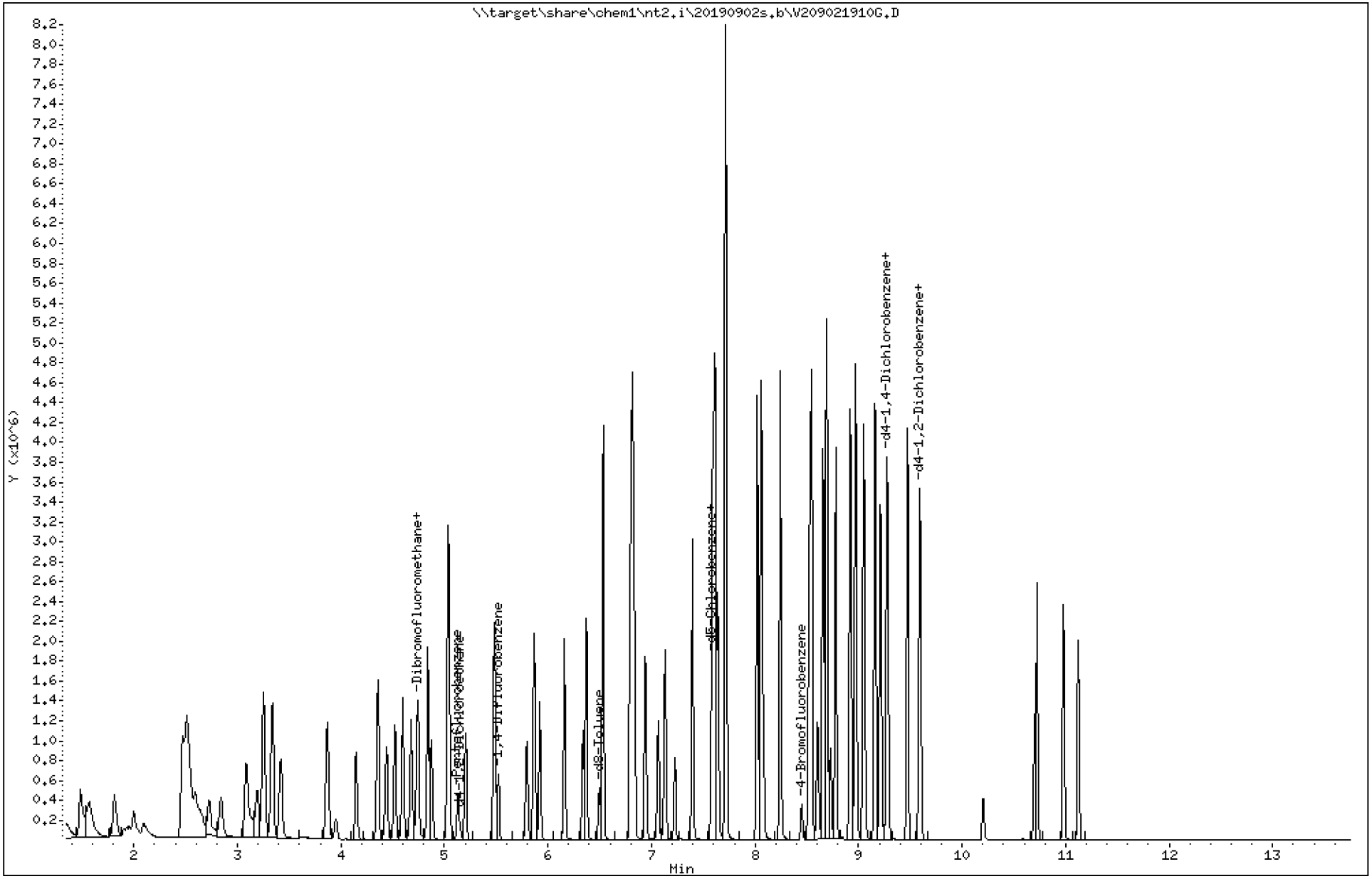
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021910G.D
Date : 02-SEP-2019 14:32
Client ID:
Sample Info: SHI0010-CAL7

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021910G.D
Lab Smp Id: SHI0010-CAL7
Inj Date : 02-SEP-2019 14:32
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL7
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 39
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.744	4.745	(0.925)	60214	5.11532	5.115
* 32 Pentafluorobenzene	168	5.127	5.128	(1.000)	232119	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.152	5.153	(1.005)	67914	4.96150	4.961
* 37 1,4-Difluorobenzene	114	5.523	5.518	(1.000)	407371	10.0000	
$ 43 d8-Toluene	98	6.496	6.497	(1.176)	255997	5.01897	5.019
* 53 d5-Chlorobenzene	117	7.579	7.580	(1.000)	387058	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.450	(1.115)	73328	5.06734	5.067
* 76 d4-1,4-Dichlorobenzene	152	9.270	9.265	(1.000)	189305	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.586	9.588	(1.034)	88233	5.00495	5.005

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021910G.D
Lab Smp Id: SHI0010-CAL7
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	232119	-0.50
37 1,4-Difluorobenze	412164	206082	824328	407371	-1.16
53 d5-Chlorobenzene	378243	189122	756486	387058	2.33
76 d4-1,4-Dichlorobe	186173	93087	372346	189305	1.68

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.02
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.09
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.02
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CAL7
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.115	102.31	
$ 33 d4-1,2-Dichloroeth	5.000	4.961	99.23	
$ 43 d8-Toluene	5.000	5.019	100.38	
$ 62 4-Bromofluorobenze	5.000	5.067	101.35	
$ 79 d4-1,2-Dichloroben	5.000	5.005	100.10	

REVIEW SUMMARY FOR FILE - V209021910G.D

Lab ID: SHI0010-CAL7
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 14:32

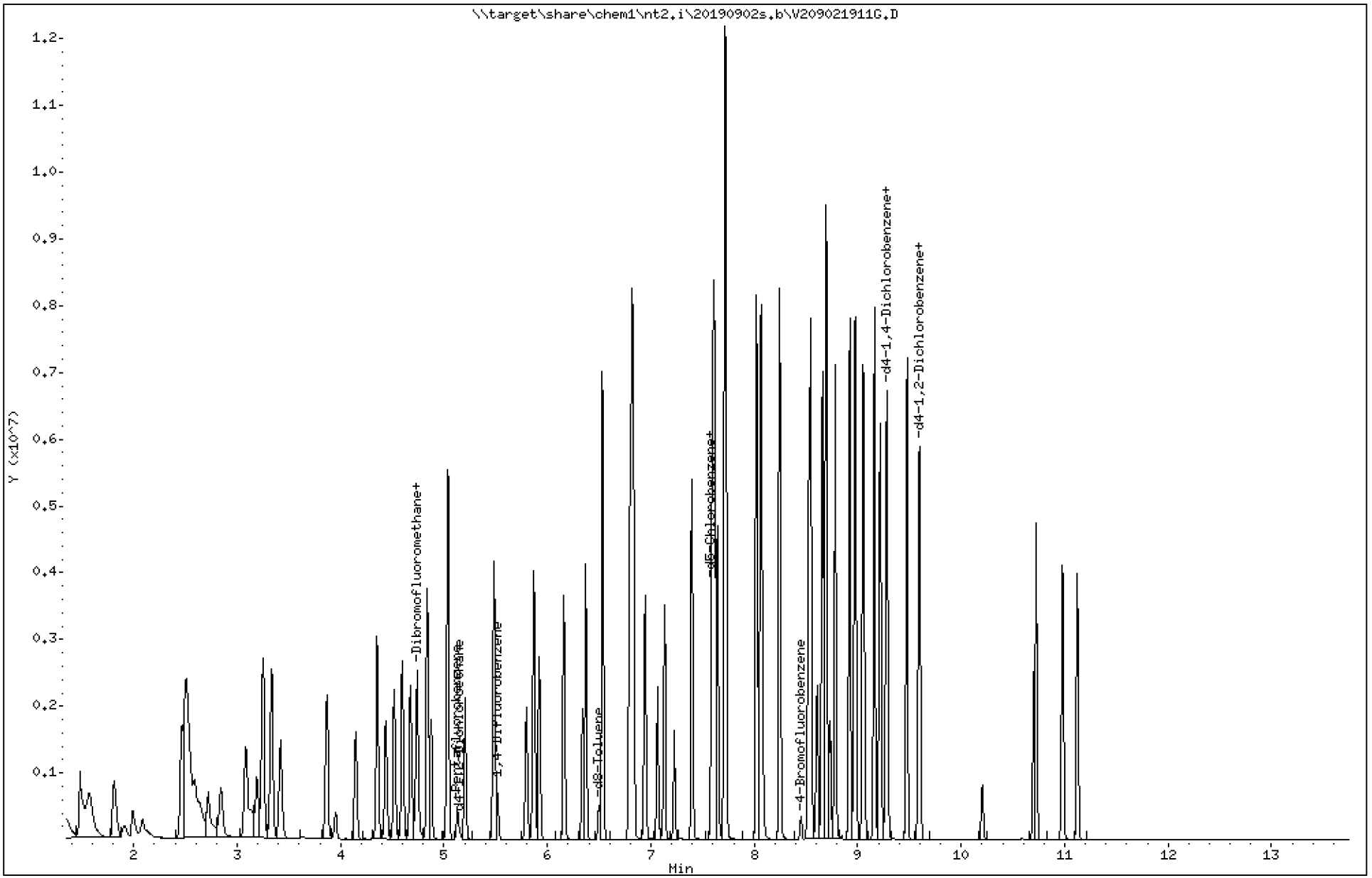
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021911G.D
Date : 02-SEP-2019 14:52
Client ID:
Sample Info: SHI0010-CAL8

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021911G.D
Lab Smp Id: SHI0010-CAL8
Inj Date : 02-SEP-2019 14:52
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL8
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 40
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)	
$ 27 Dibromofluoromethane	111	4.742	4.745	(1.000)	60270	5.09652	5.097	
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	233192	10.0000		(M)
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.000)	69855	5.07981	5.080	
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	407692	10.0000		
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	256723	5.02924	5.029	
* 53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	390332	10.0000		
$ 62 4-Bromofluorobenzene	174	8.453	8.450	(1.115)	70940	4.86120	4.861	
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	182597	10.0000		
$ 79 d4-1,2-Dichlorobenzene	152	9.590	9.588	(1.035)	85191	5.00992	5.010	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021911G.D
Lab Smp Id: SHI0010-CAL8
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	233192	-0.04
37 1,4-Difluorobenze	412164	206082	824328	407692	-1.09
53 d5-Chlorobenzene	378243	189122	756486	390332	3.20
76 d4-1,4-Dichlorobe	186173	93087	372346	182597	-1.92

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-CAL8
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.097	101.93	
$ 33 d4-1,2-Dichloroeth	5.000	5.080	101.60	
$ 43 d8-Toluene	5.000	5.029	100.58	
$ 62 4-Bromofluorobenze	5.000	4.861	97.22	
$ 79 d4-1,2-Dichloroben	5.000	5.010	100.20	

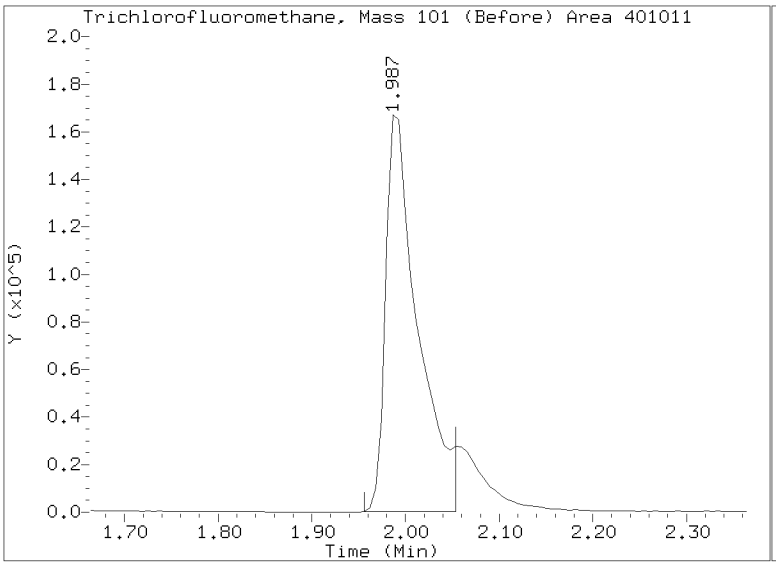
REVIEW SUMMARY FOR FILE - V209021911G.D

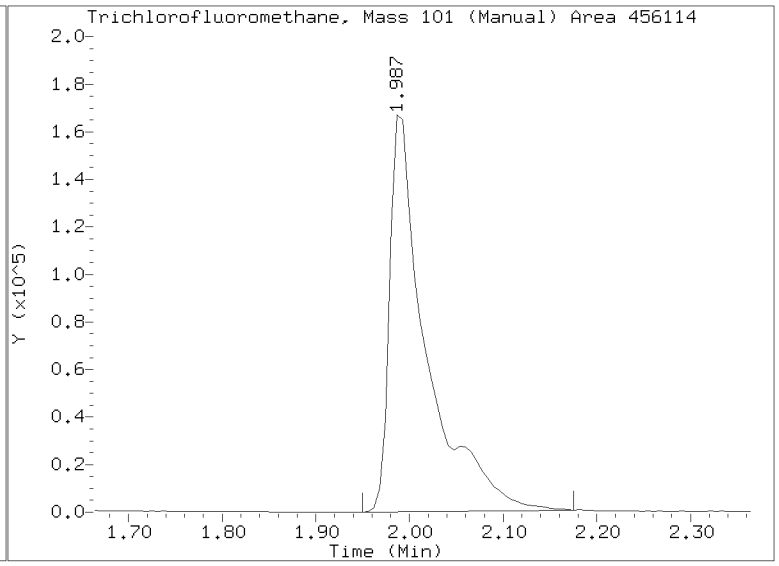
Lab ID: SHI0010-CAL8
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 14:52

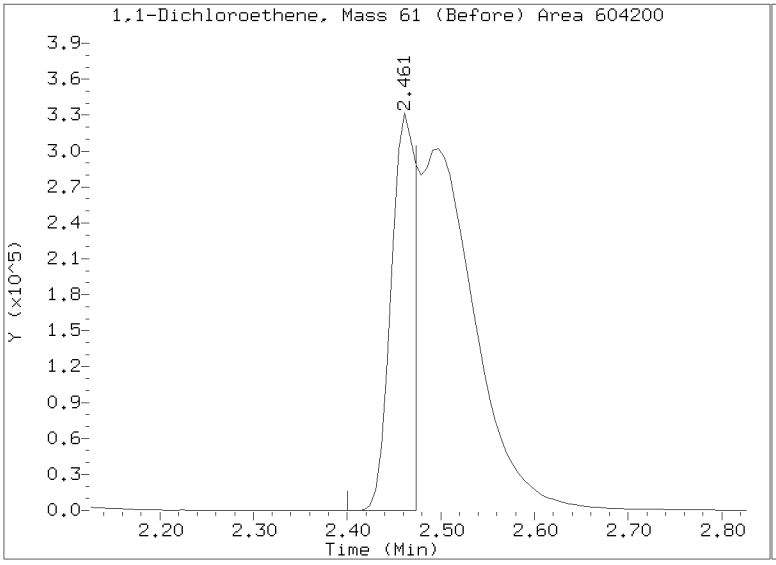
RT	CO-ELUTION COMPOUNDS

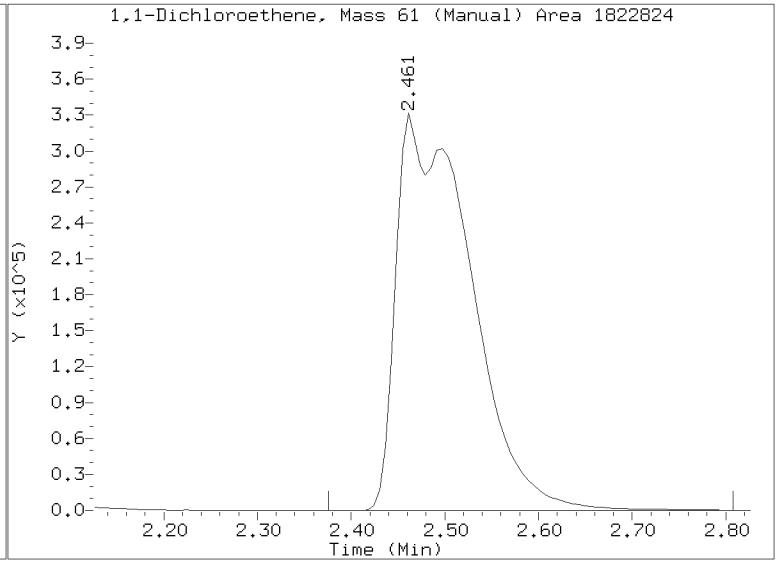
Quant Ion Manual Peak Adjustment Report

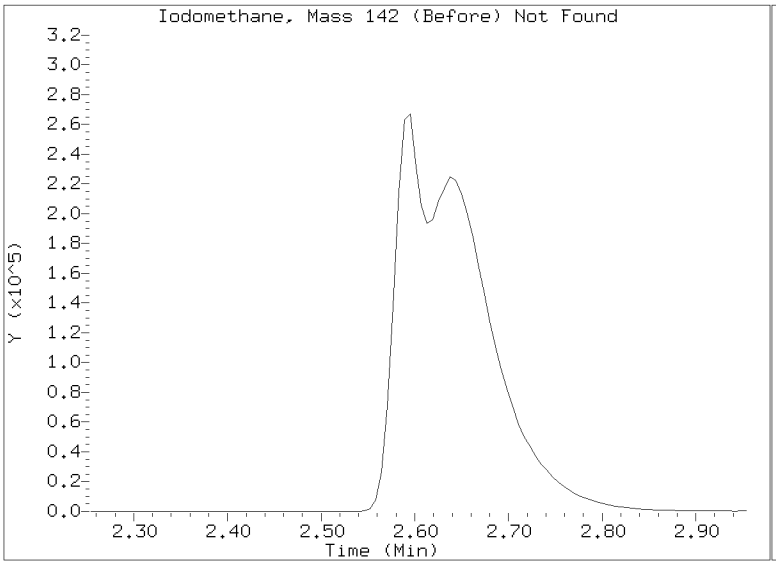
Datafile: //target/share/chem1/nt2.i/20190902.b/V209021911.D
Injection Date: 02-SEP-2019 14:52
Lab ID:SHI0008-CAL8 Client ID:
Report Date: 09/03/2019 08:31

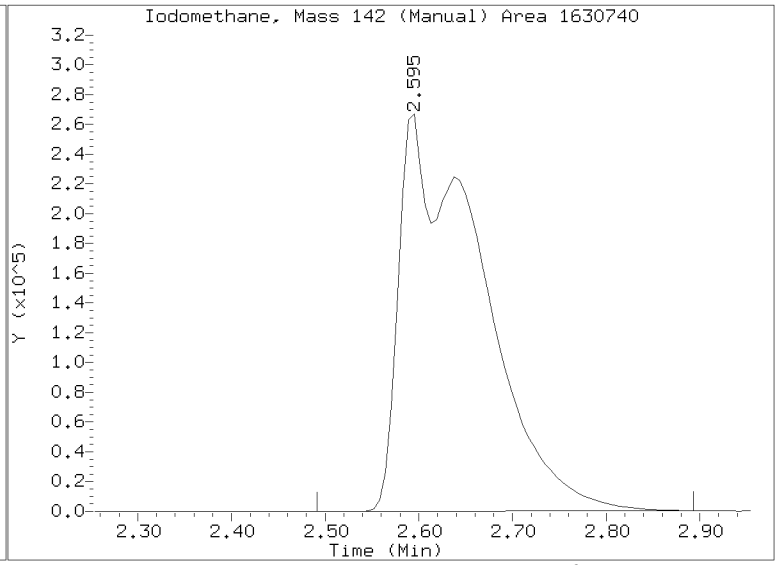






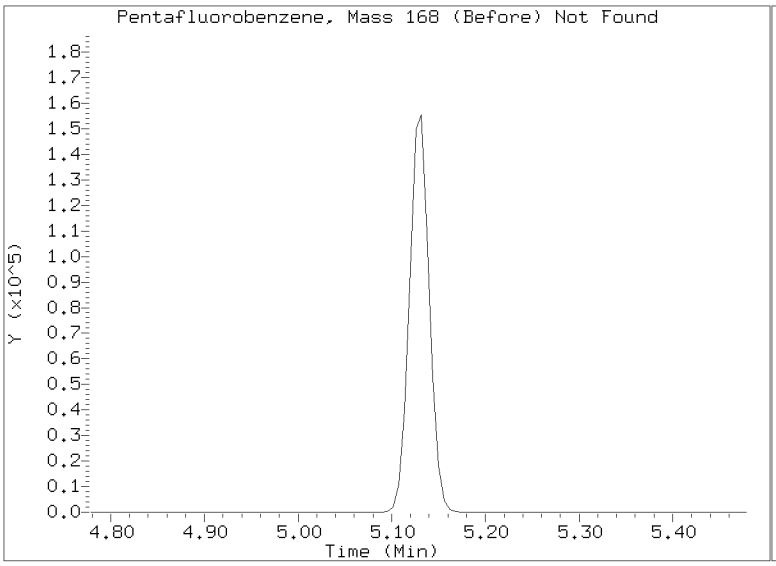


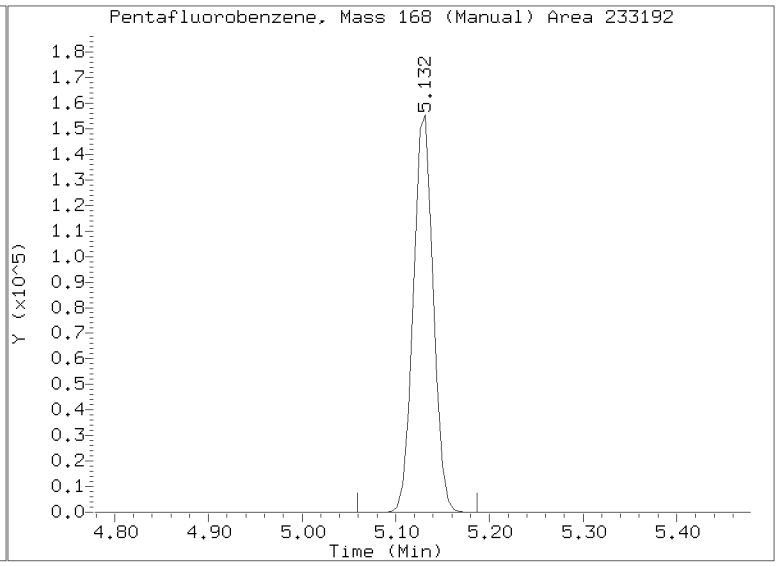




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt2.i/20190902.b/V209021911.D
Injection Date: 02-SEP-2019 14:52
Lab ID:SHI0008-CAL8 Client ID:
Report Date: 09/03/2019 08:31



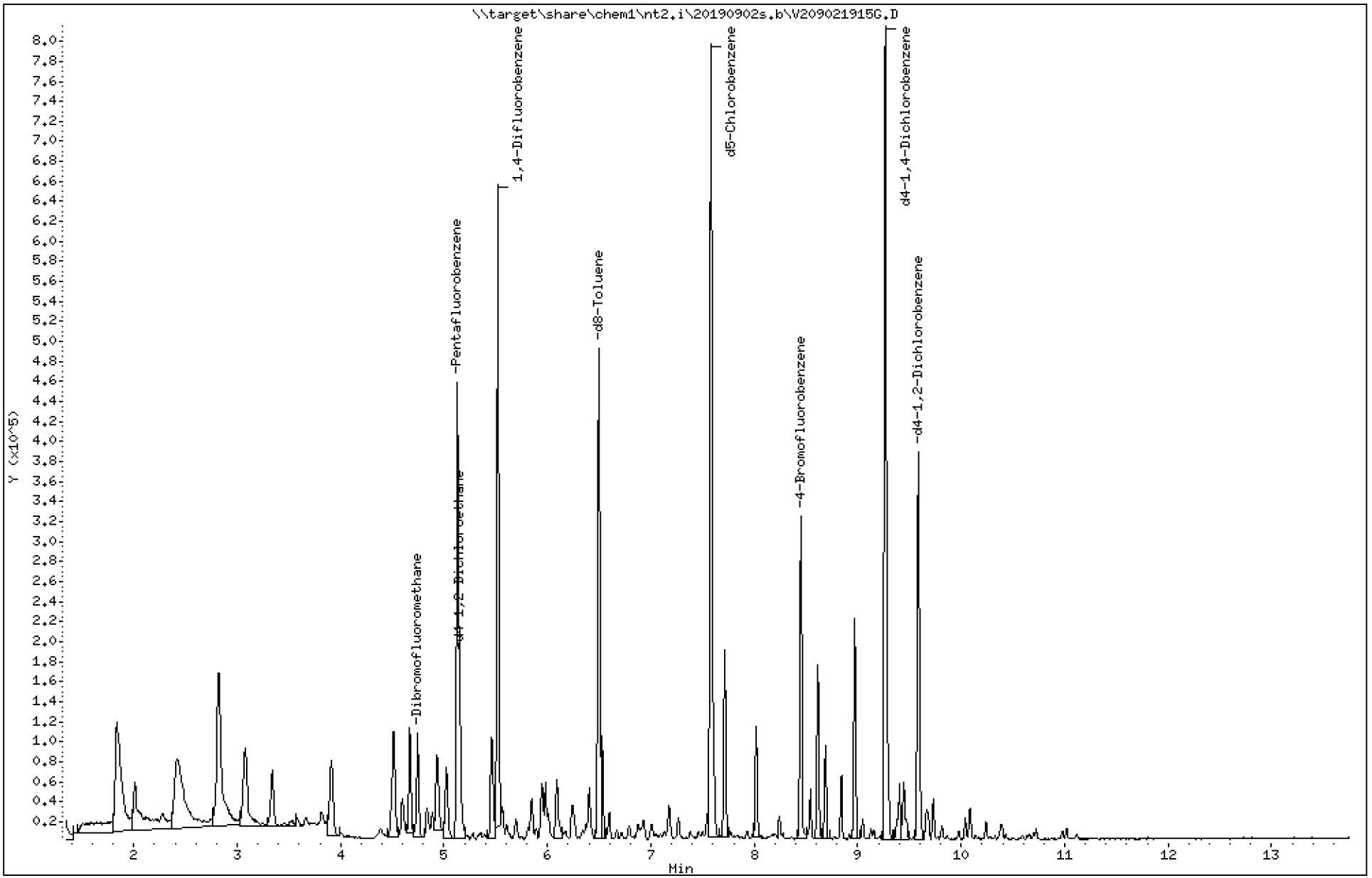


Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021915G.D
Date : 02-SEP-2019 16:13
Client ID:
Sample Info: SHI0010-CAL9

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021915G.D
Lab Smp Id: SHI0010-CAL9
Inj Date : 02-SEP-2019 16:13
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CAL9
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	55486	4.88260	4.883
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	224088	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	66191	5.00892	5.009
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	390543	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	242018	4.94936	4.949
* 53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	356221	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.115)	67052	5.03476	5.035
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	176420	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	81849	4.98192	4.982

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021915G.D
Lab Smp Id: SHI0010-CAL9
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	224088	-3.94
37 1,4-Difluorobenze	412164	206082	824328	390543	-5.25
53 d5-Chlorobenzene	378243	189122	756486	356221	-5.82
76 d4-1,4-Dichlorobe	186173	93087	372346	176420	-5.24

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-CAL9
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.883	97.65	
$ 33 d4-1,2-Dichloroeth	5.000	5.009	100.18	
$ 43 d8-Toluene	5.000	4.949	98.99	
$ 62 4-Bromofluorobenze	5.000	5.035	100.70	
$ 79 d4-1,2-Dichloroben	5.000	4.982	99.64	

REVIEW SUMMARY FOR FILE - V209021915G.D

Lab ID: SHI0010-CAL9
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 16:13

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021915G.D

Date : 02-SEP-2019 16:13

Client ID:

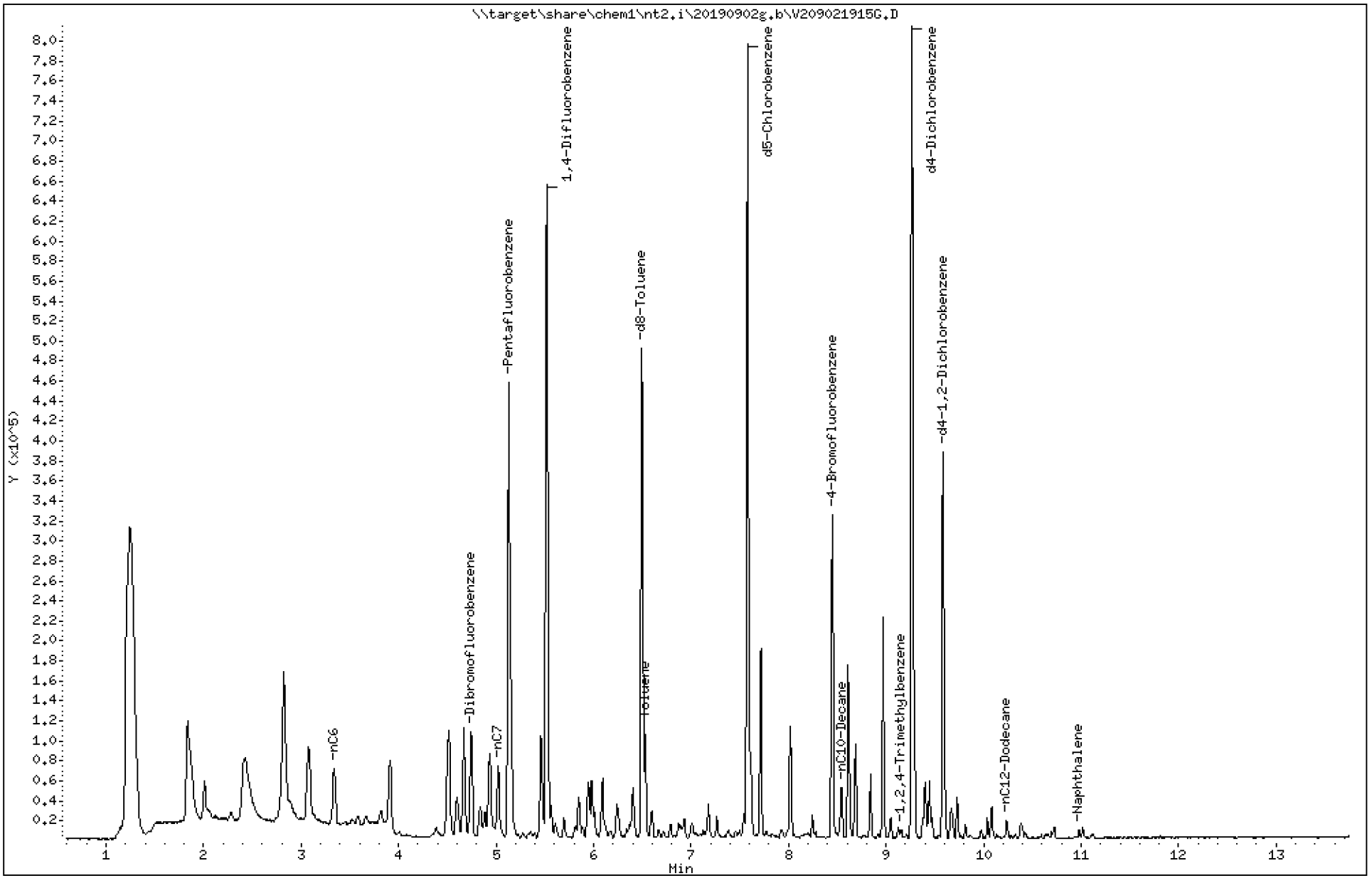
Sample Info: SHI0010-CAL9

Instrument: nt2.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021915G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 16:13

ARI ID: SHI0010-CAL9
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2265699	0.091 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	4252694	0.099 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	3219951	0.098 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2376010	0.091 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	3348175	0.095 M

* Surrogate areas are subtracted from Total Area

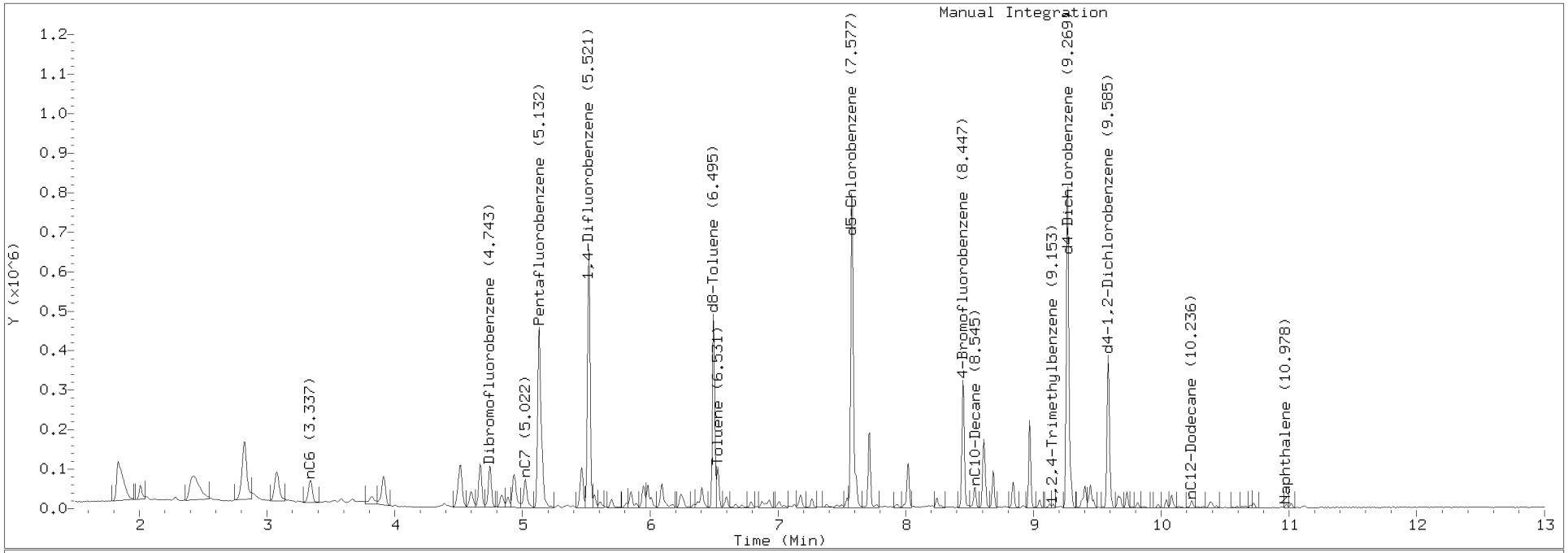
NW Gas Range Subtracted Peaks

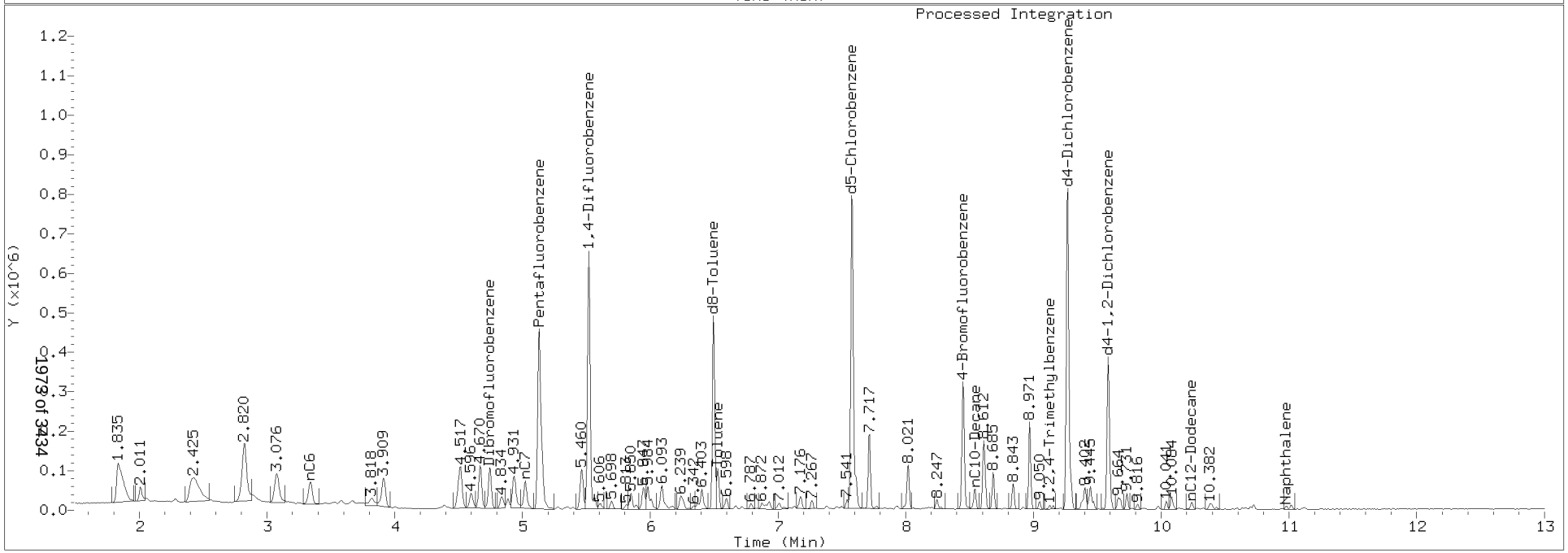
7.577	1188655	d5-Chlorobenzene
8.447	432519	4-Bromofluorobenzene
6.495	678112	d8-Toluene
9.269	1176765	d4-Dichlorobenzene
9.585	530533	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021915G.D Injection: 02-SEP-2019 16:13

Lab ID:SHI0010-CAL9





Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021916G.D

Date : 02-SEP-2019 16:33

Client ID:

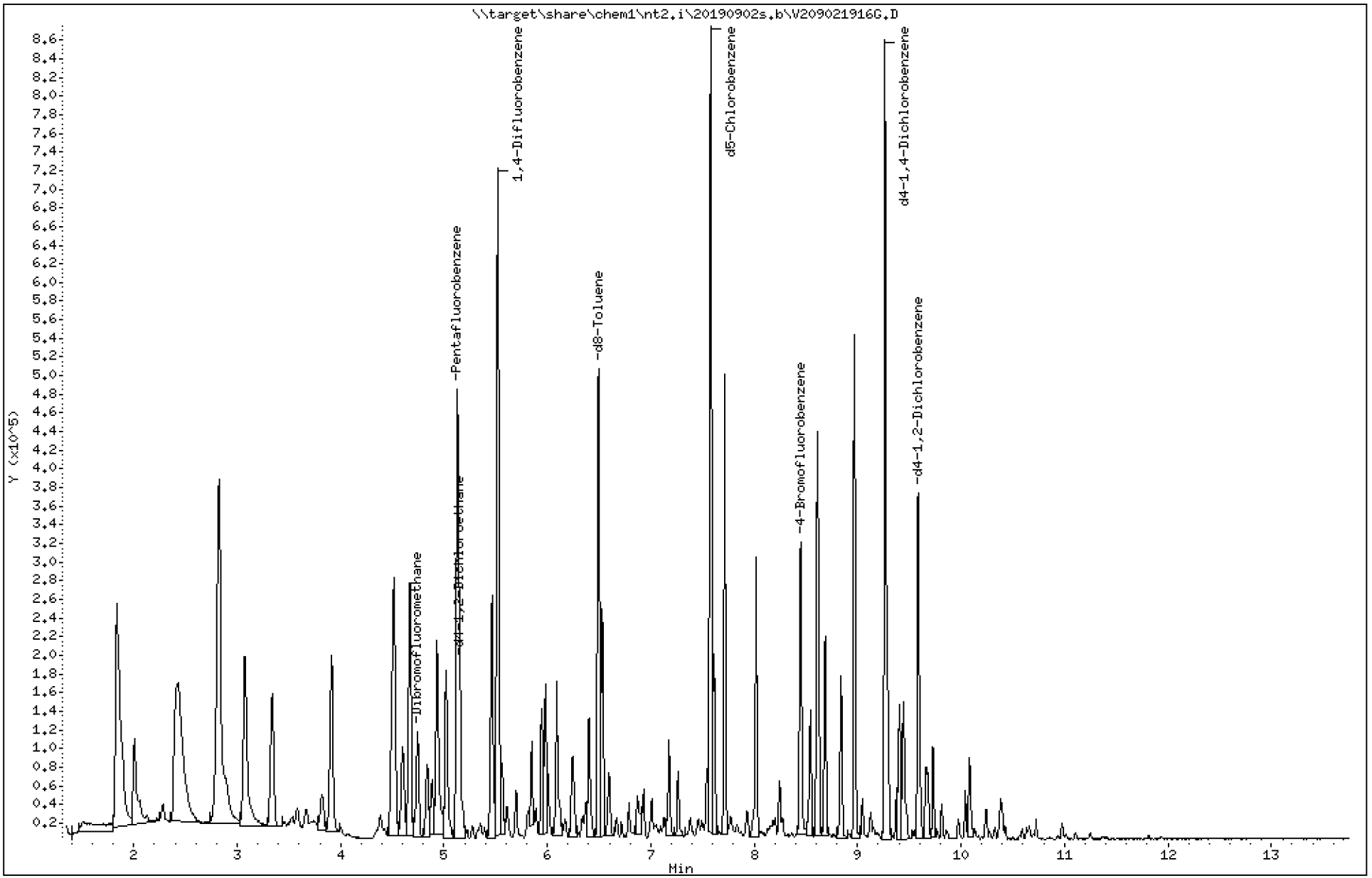
Instrument: nt2.i

Sample Info: SHI0010-CALA

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021916G.D
Lab Smp Id: SHI0010-CALA
Inj Date : 02-SEP-2019 16:33
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CALA
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.746	4.745	(0.925)	56597	4.75667	4.757
* 32 Pentafluorobenzene	168	5.129	5.128	(1.000)	234626	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.153	(1.005)	69901	5.05209	5.052
* 37 1,4-Difluorobenzene	114	5.518	5.518	(1.000)	404891	10.0000	
$ 43 d8-Toluene	98	6.498	6.497	(1.177)	250551	4.94229	4.942
* 53 d5-Chlorobenzene	117	7.580	7.580	(1.000)	370844	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.450	(1.115)	68882	4.96822	4.968
* 76 d4-1,4-Dichlorobenzene	152	9.266	9.265	(1.000)	179934	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.588	9.588	(1.035)	82427	4.91912	4.919

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021916G.D
Lab Smp Id: SHI0010-CALA
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	234626	0.57
37 1,4-Difluorobenze	412164	206082	824328	404891	-1.76
53 d5-Chlorobenzene	378243	189122	756486	370844	-1.96
76 d4-1,4-Dichlorobe	186173	93087	372346	179934	-3.35

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.01
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.01
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.01
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CALA
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.757	95.13	
$ 33 d4-1,2-Dichloroeth	5.000	5.052	101.04	
$ 43 d8-Toluene	5.000	4.942	98.85	
$ 62 4-Bromofluorobenze	5.000	4.968	99.36	
$ 79 d4-1,2-Dichloroben	5.000	4.919	98.38	

REVIEW SUMMARY FOR FILE - V209021916G.D

Lab ID: SHI0010-CALA
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 16:33

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021916G.D

Date : 02-SEP-2019 16:33

Client ID:

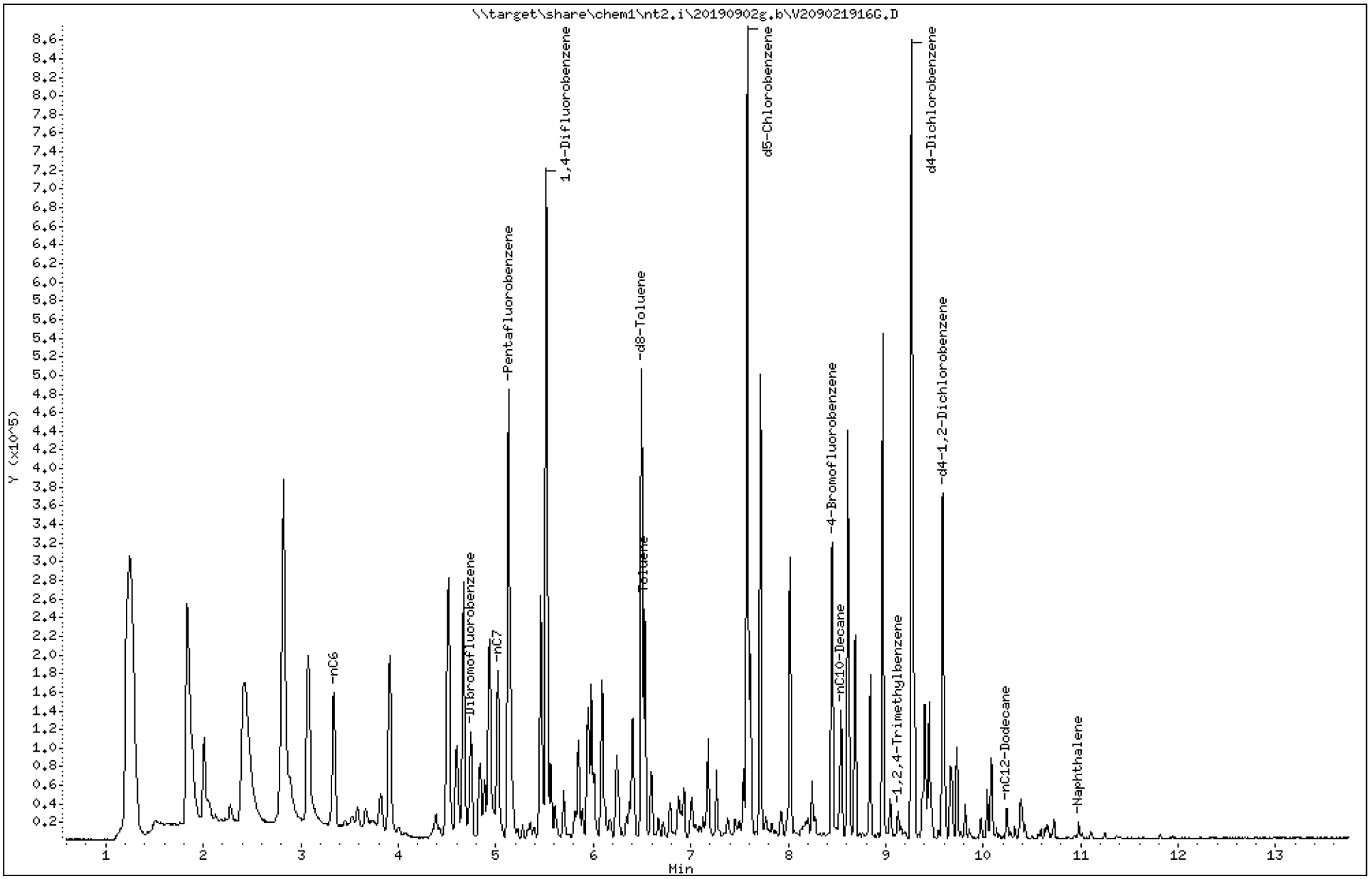
Instrument: nt2.i

Sample Info: SHI0010-CALA

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021916G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 16:33

ARI ID: SHI0010-CALA
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	6597716	0.264 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	11532359	0.268 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	9173859	0.280 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	6823745	0.261 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	9504766	0.269 M

* Surrogate areas are subtracted from Total Area

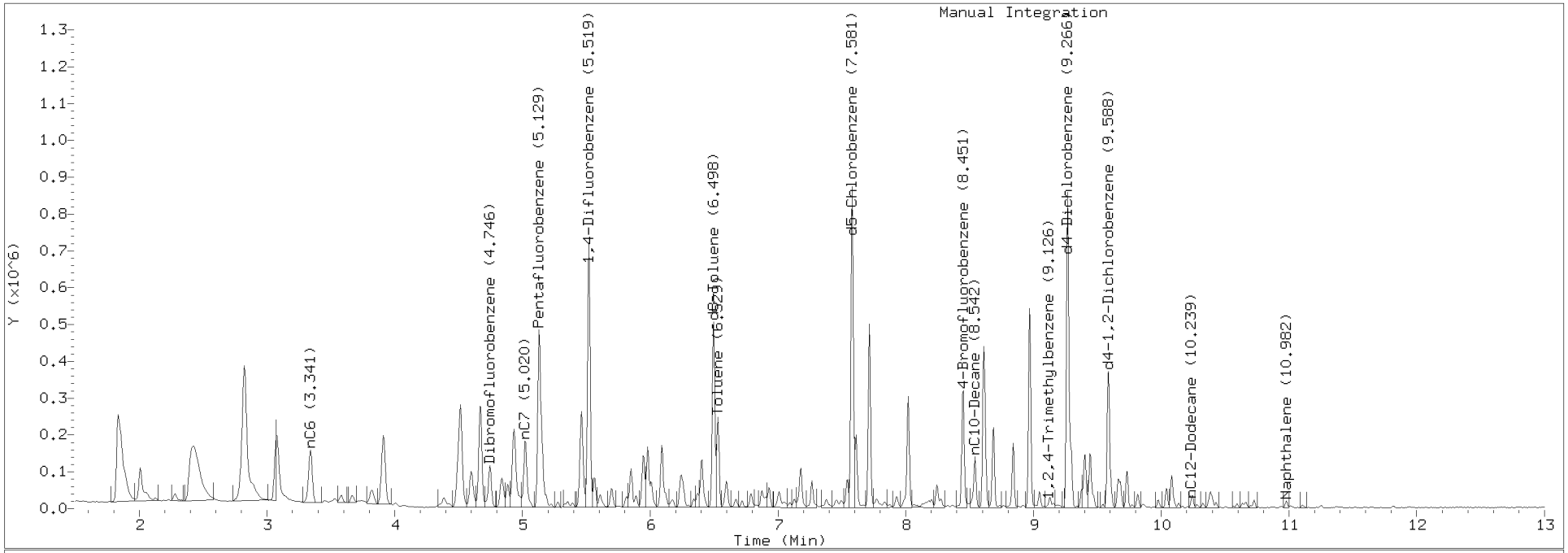
NW Gas Range Subtracted Peaks

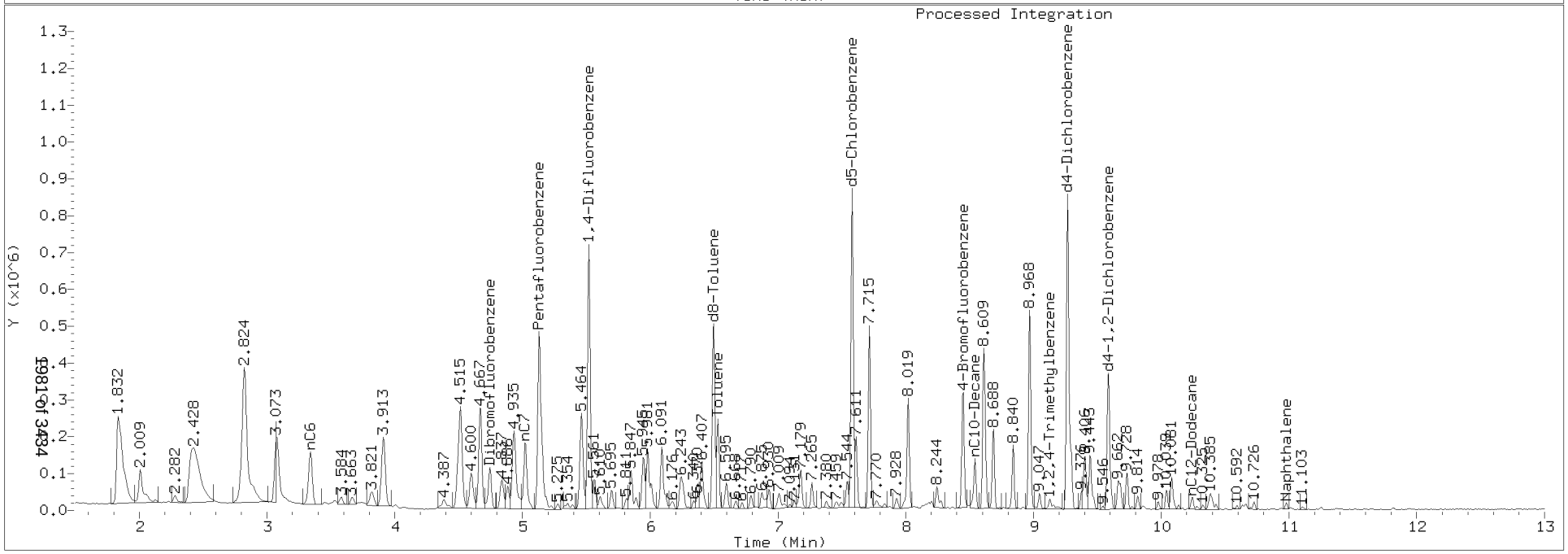
7.581	1159242	d5-Chlorobenzene
8.451	449490	4-Bromofluorobenzene
6.498	754013	d8-Toluene
9.266	1300897	d4-Dichlorobenzene
9.588	564283	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021916G.D Injection: 02-SEP-2019 16:33

Lab ID:SHI0010-CALA





Data File: \\target\share\chem1\nt2.i\20190902s.b\V2090217917G.D

Date : 02-SEP-2019 16:54

Client ID:

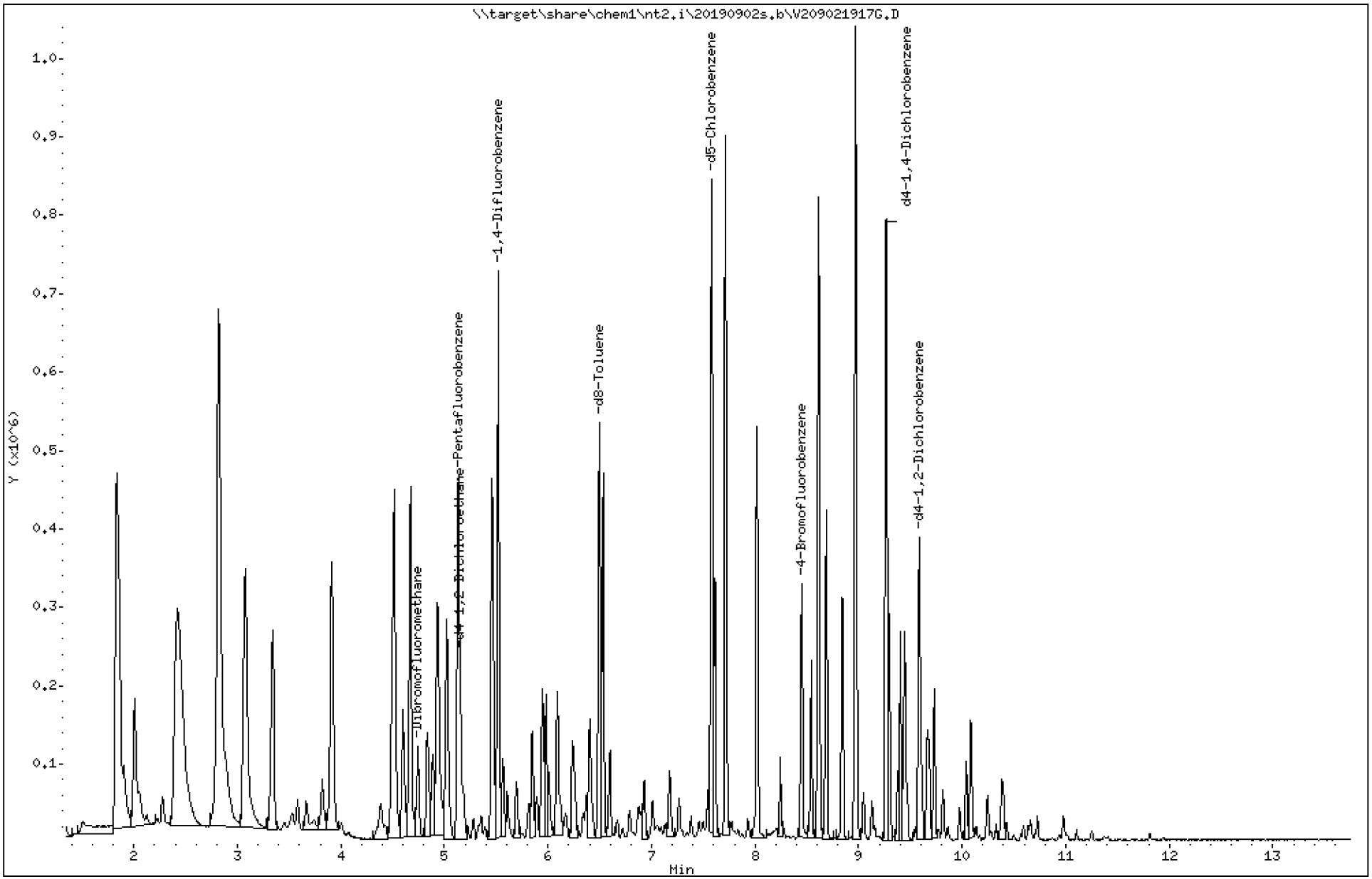
Sample Info: SHI0010-CALB

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021917G.D

Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

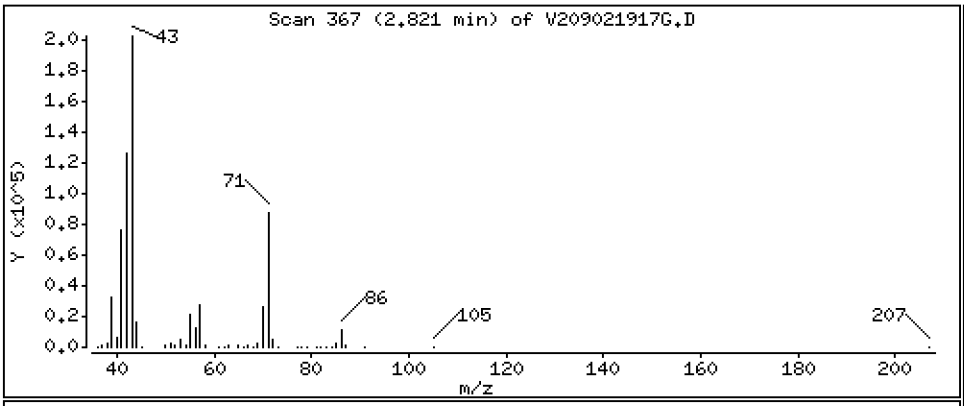
Operator: PKC

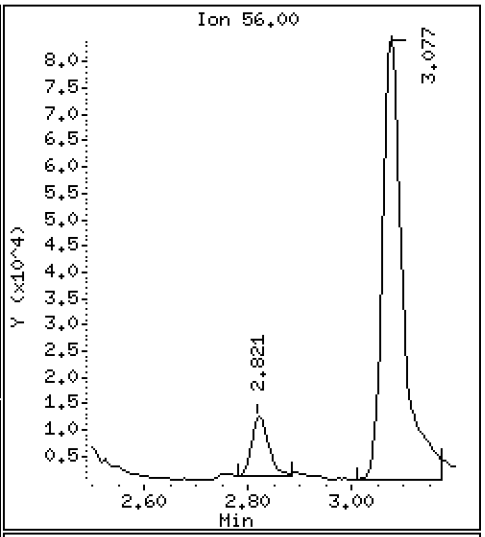
Column phase: RTXVMS

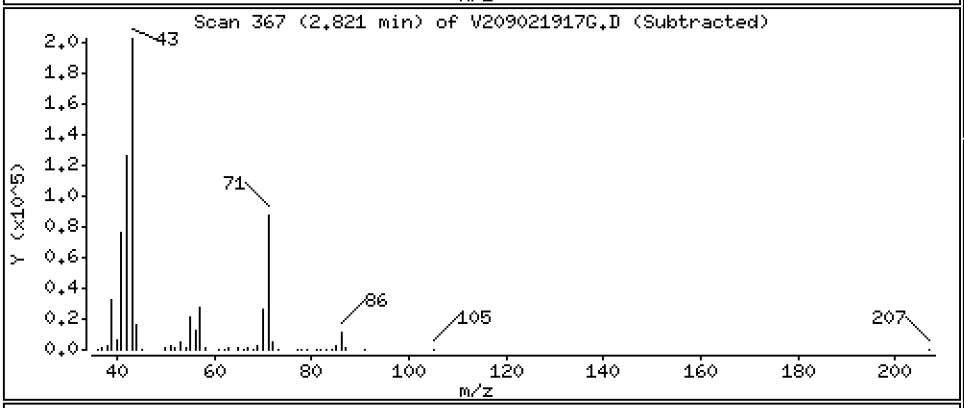
Column diameter: 0.18

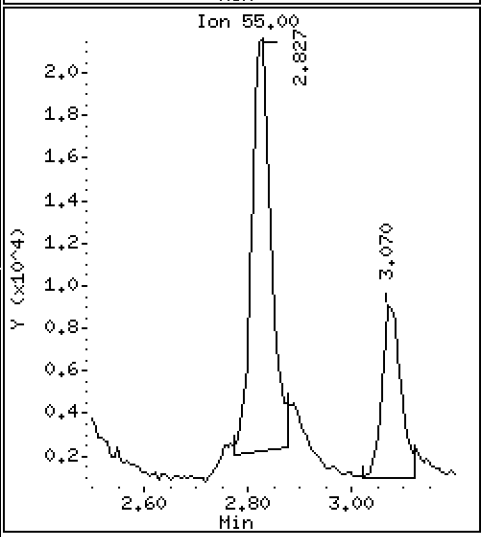
12 Acrolein

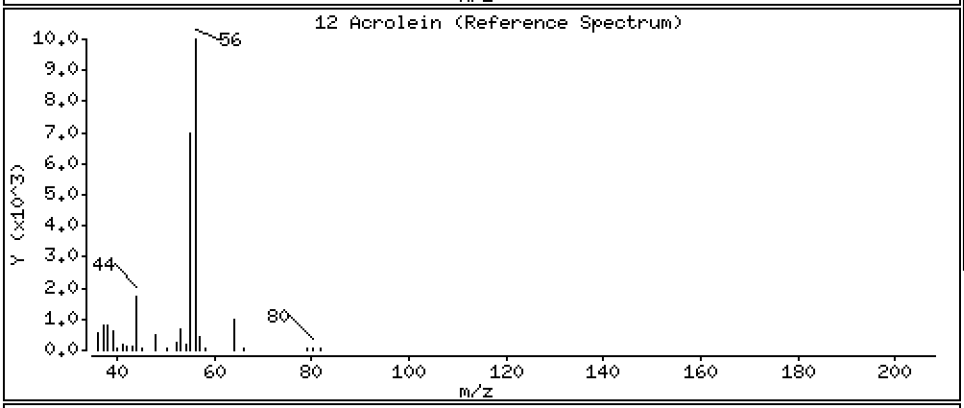
Concentration: 12.972 ug/L

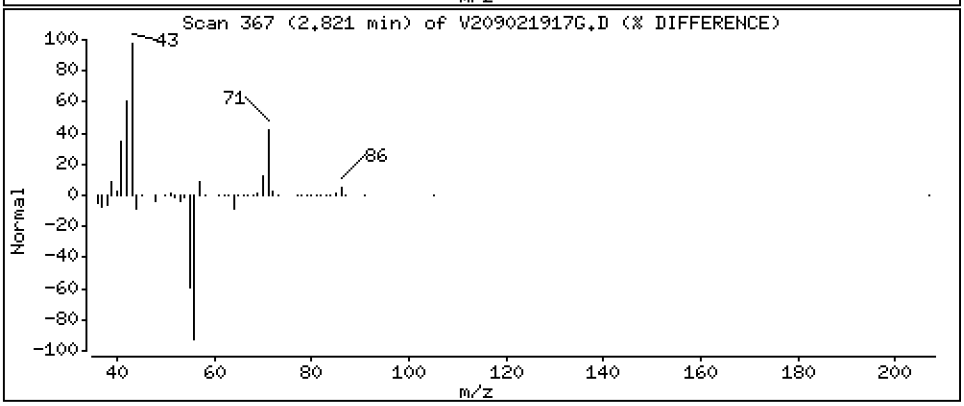












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

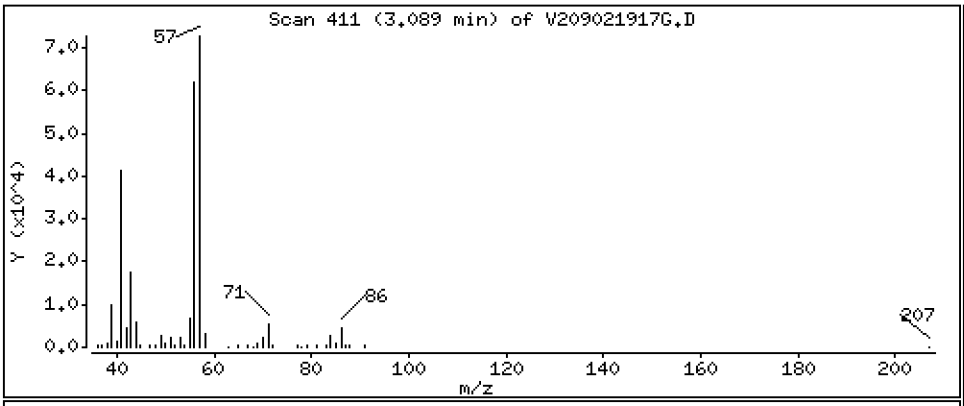
Operator: PKC

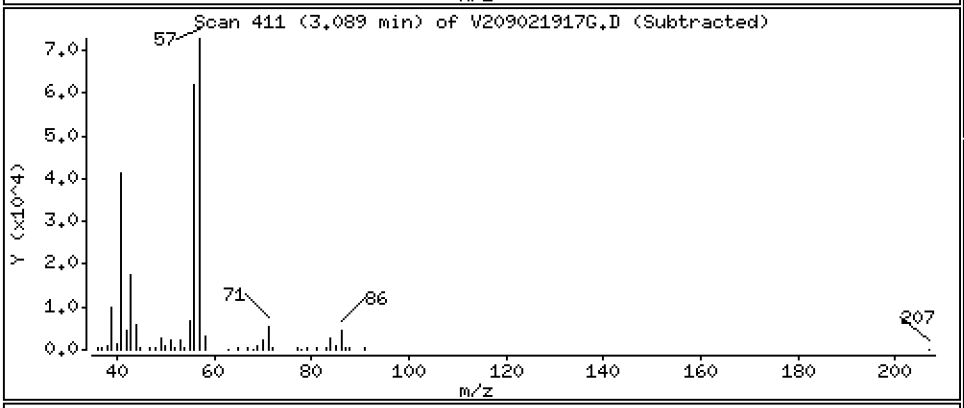
Column phase: RTXVMS

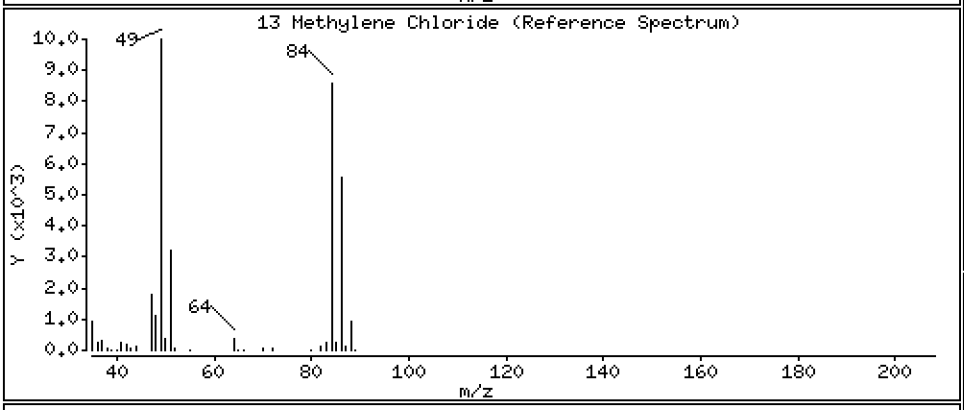
Column diameter: 0.18

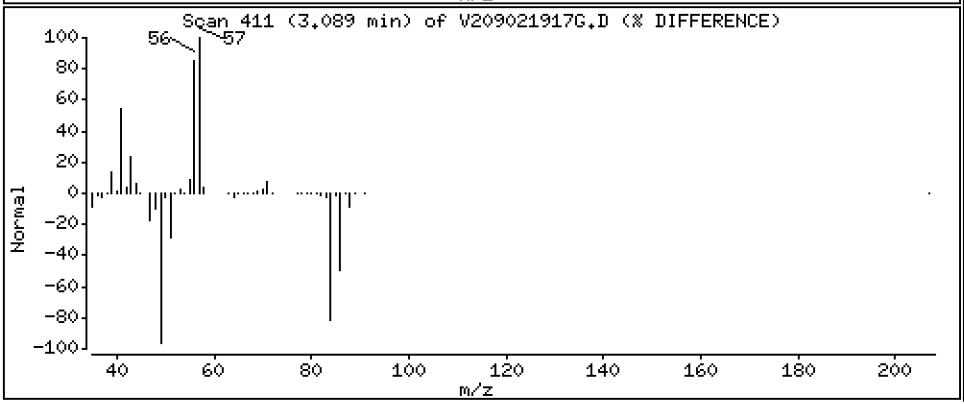
13 Methylene Chloride

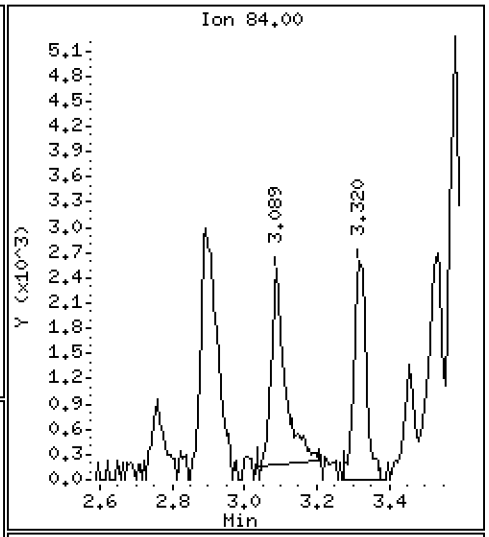
Concentration: 0.3958 ug/L

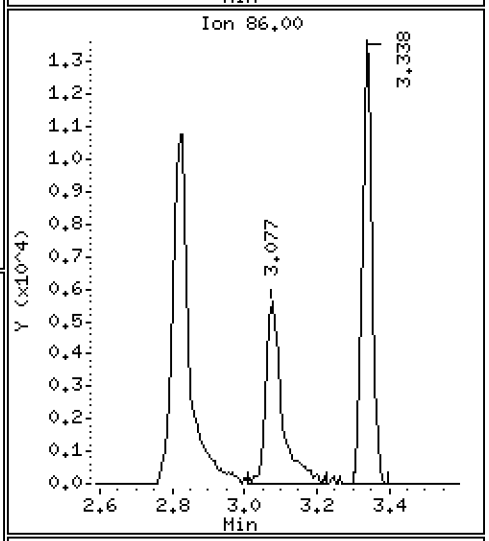


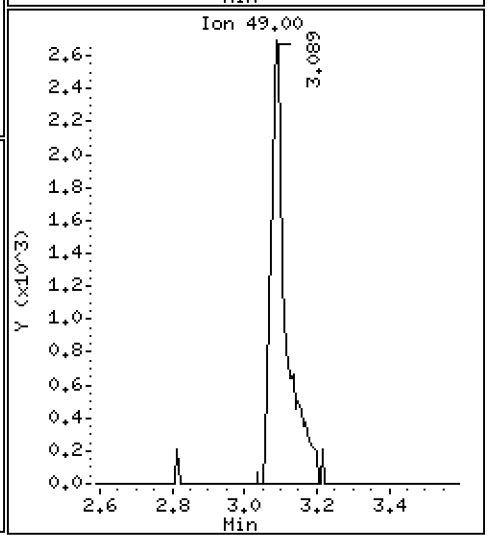












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

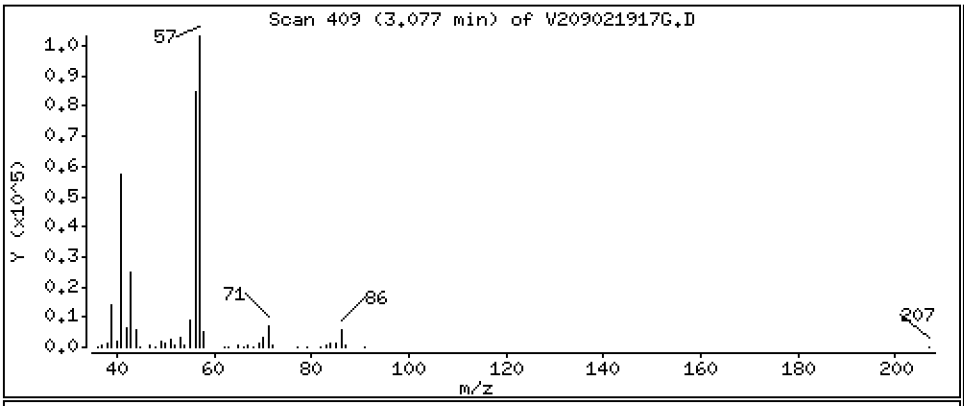
Operator: PKC

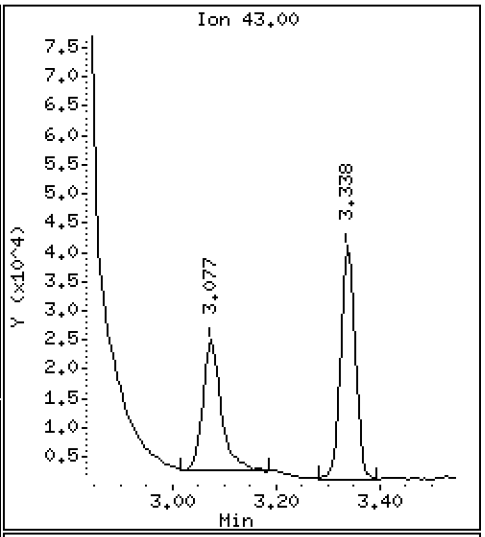
Column phase: RTXVMS

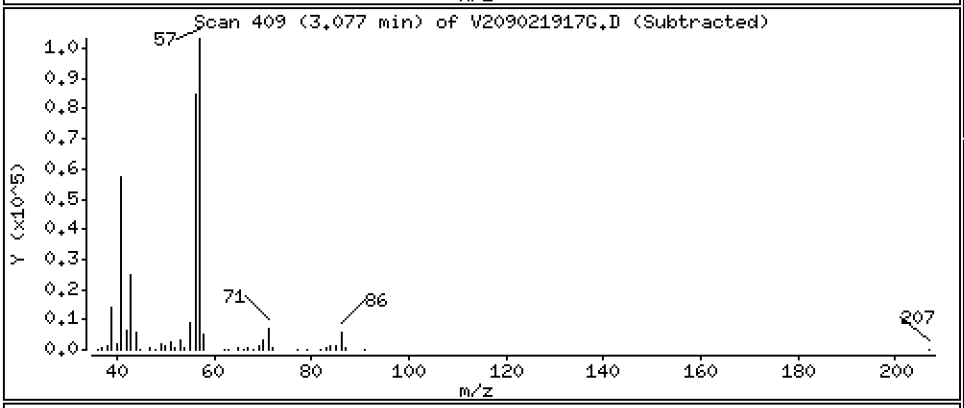
Column diameter: 0.18

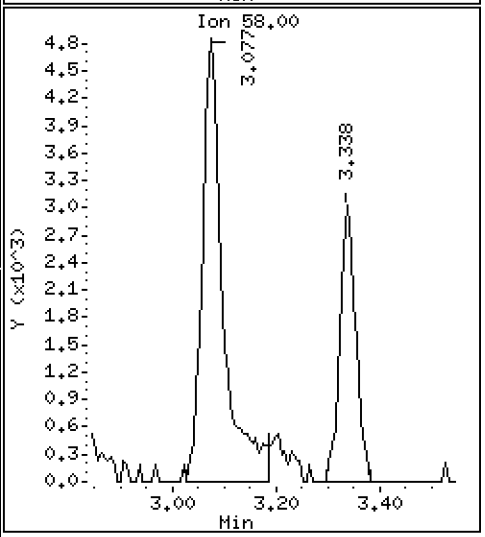
14 Acetone

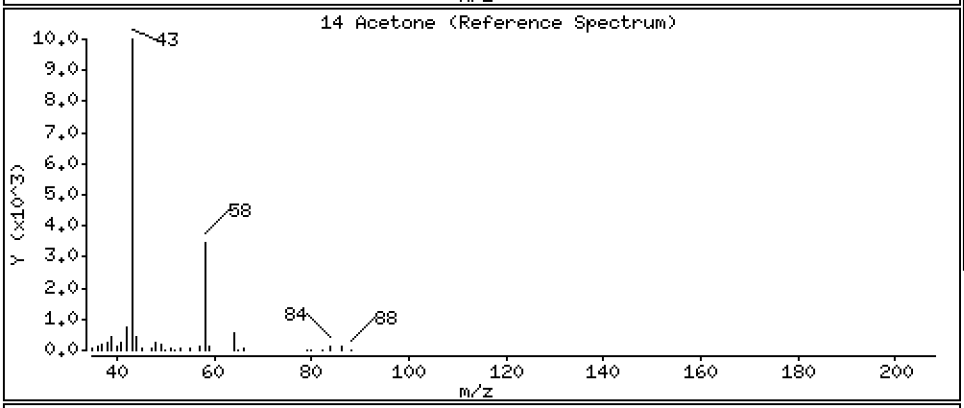
Concentration: 21.246 ug/L

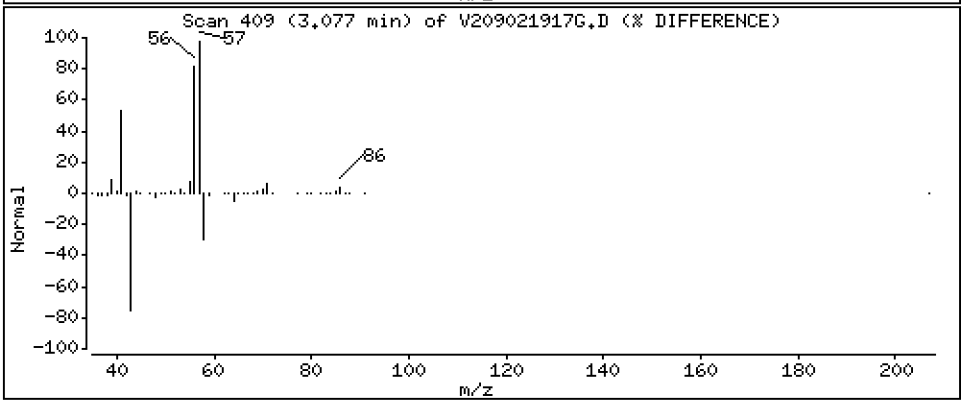












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

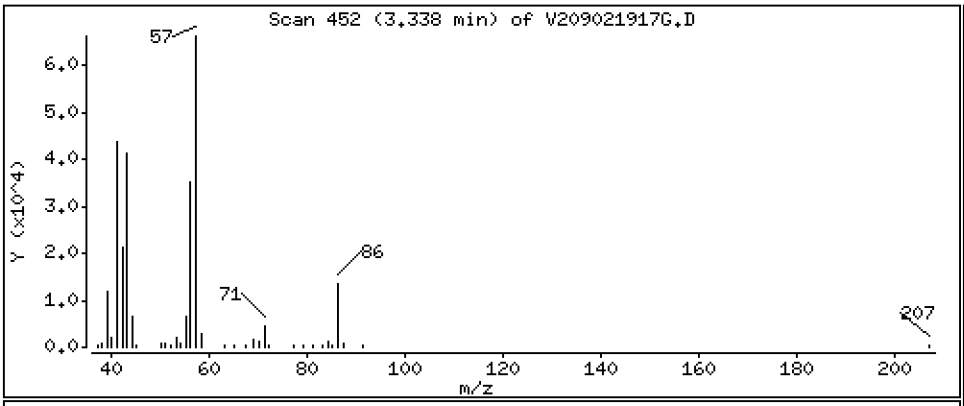
Operator: PKC

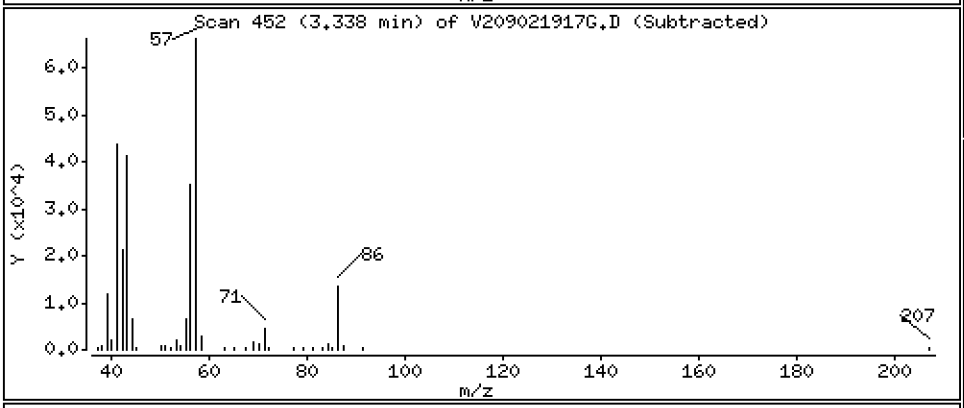
Column phase: RTXVMS

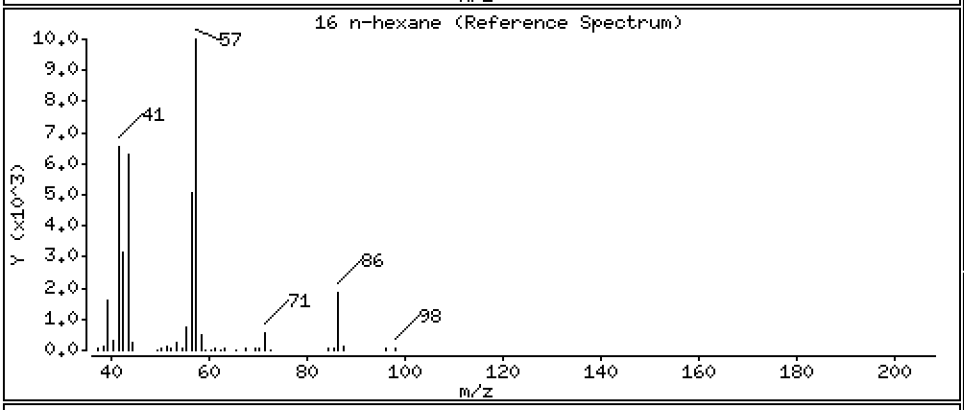
Column diameter: 0.18

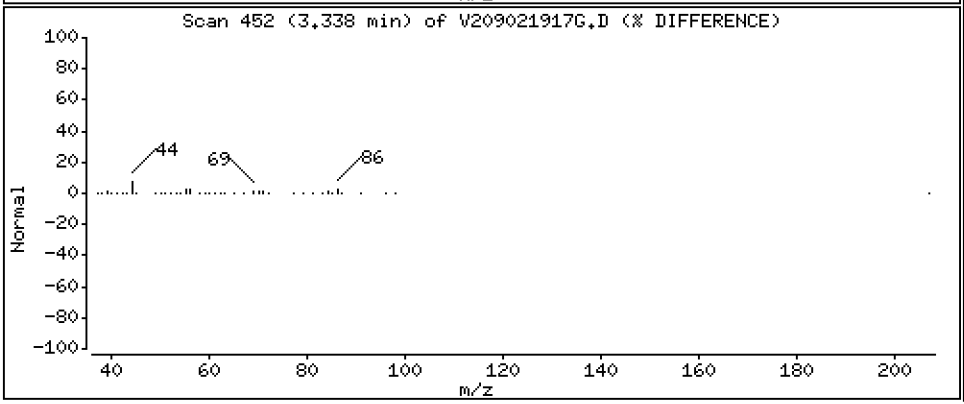
16 n-hexane

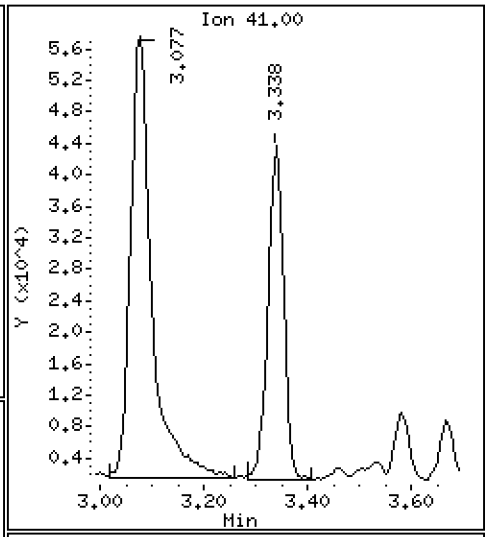
Concentration: 8.433 ug/L

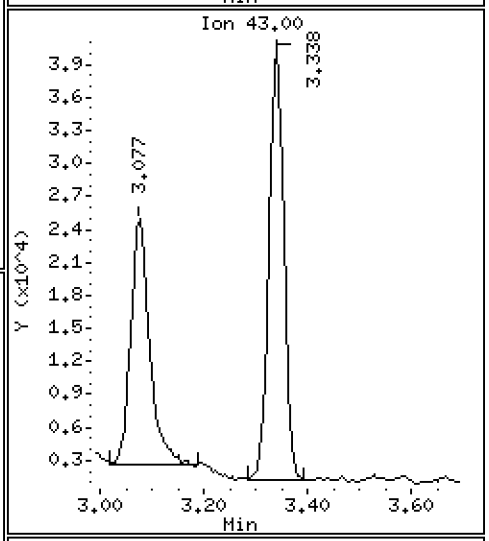


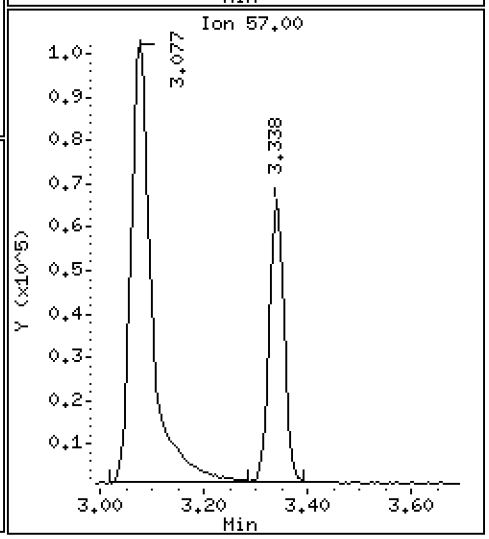












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

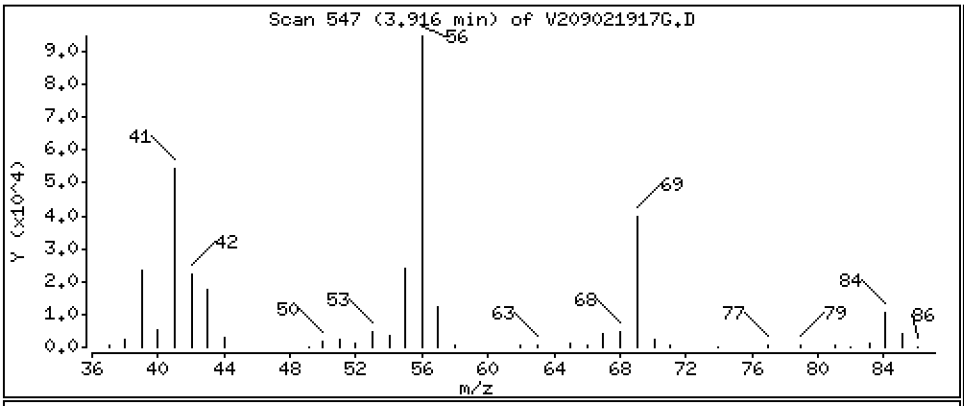
Operator: PKC

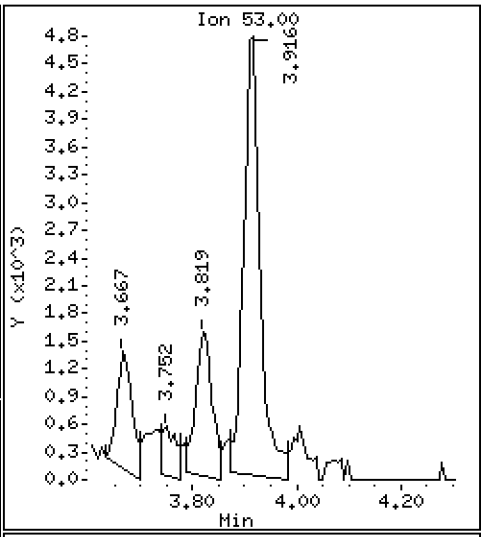
Column phase: RTXVMS

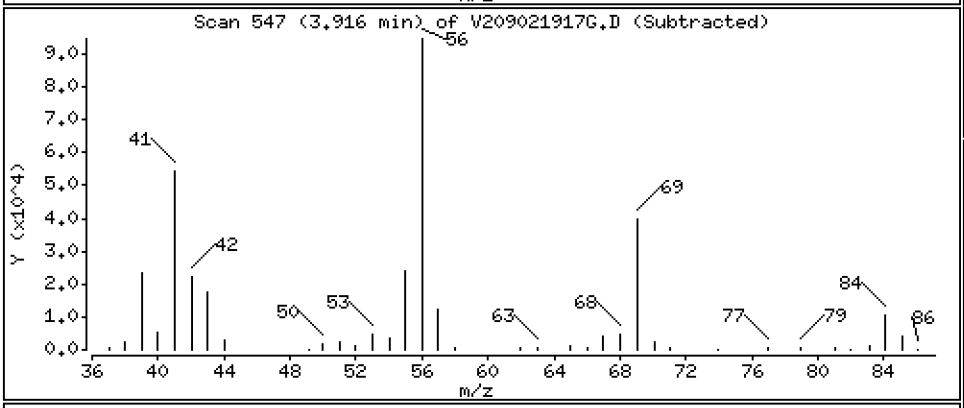
Column diameter: 0.18

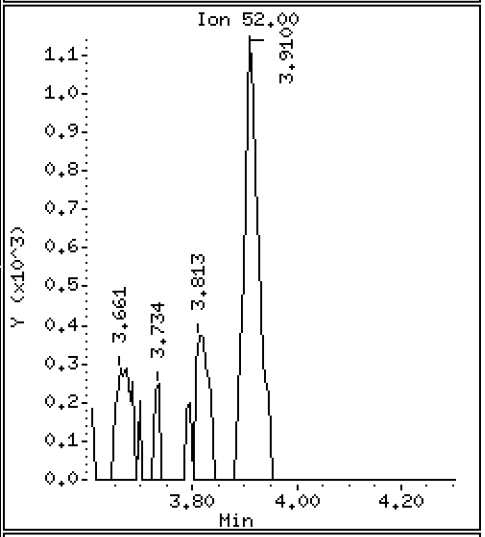
19 Acrylonitrile

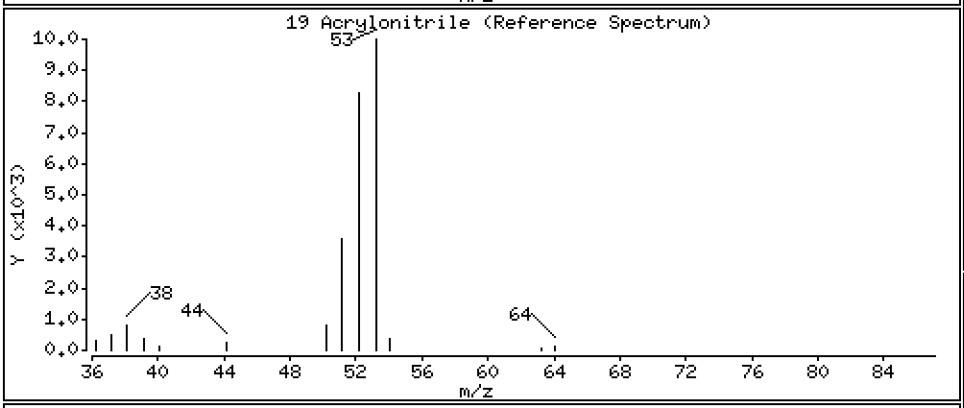
Concentration: 2.718 ug/L

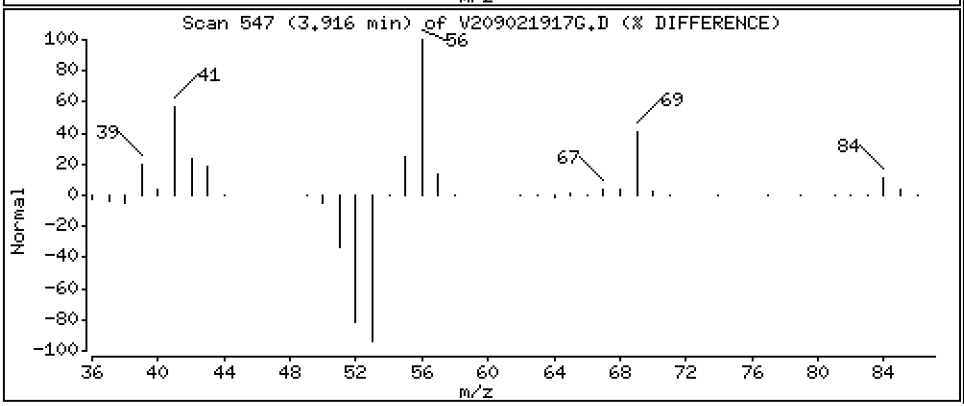


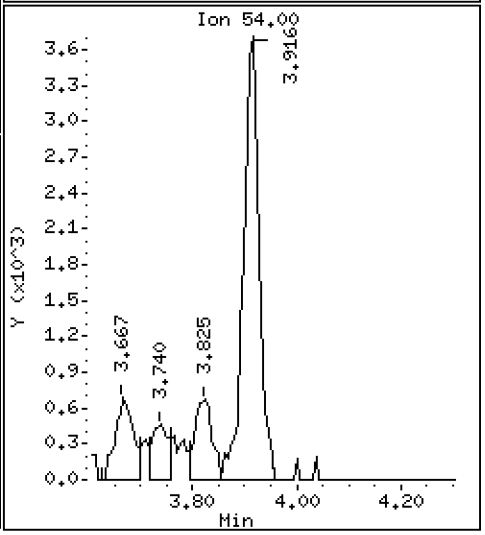












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

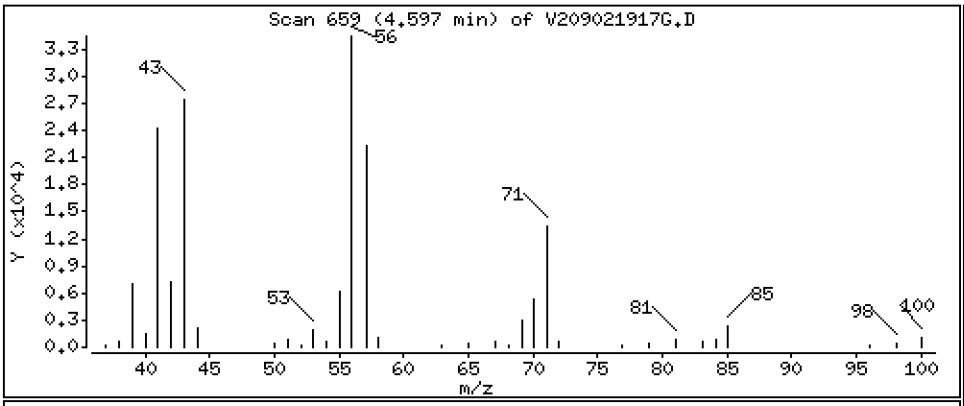
Sample Info: SHI0010-CALB

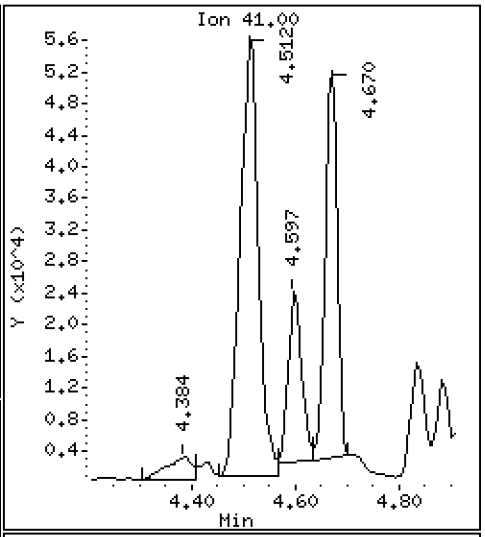
Operator: PKC

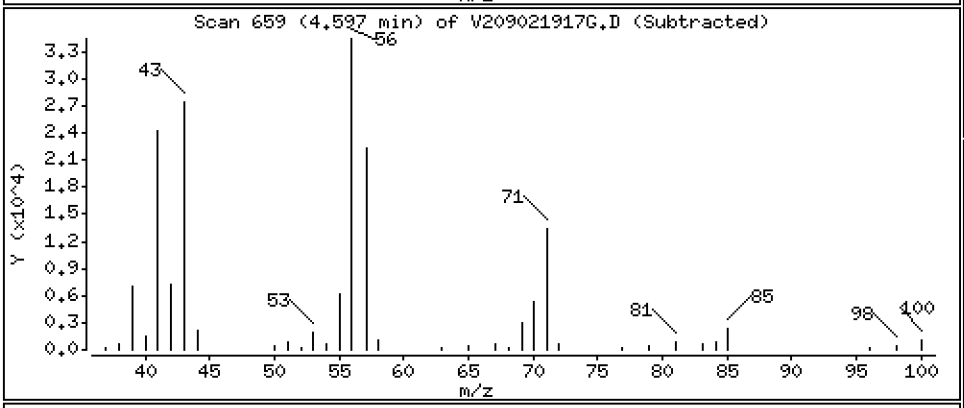
Column phase: RTXVMS

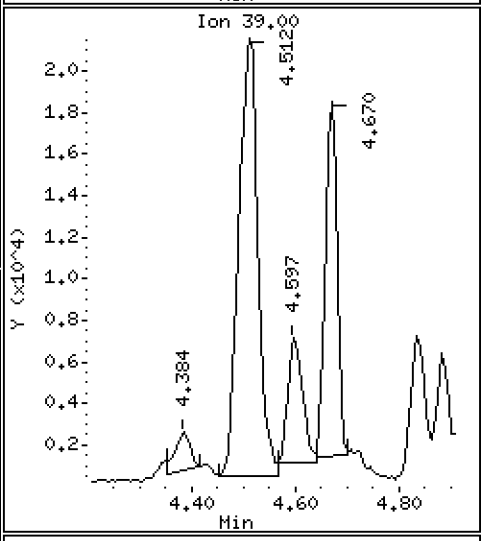
Column diameter: 0.18

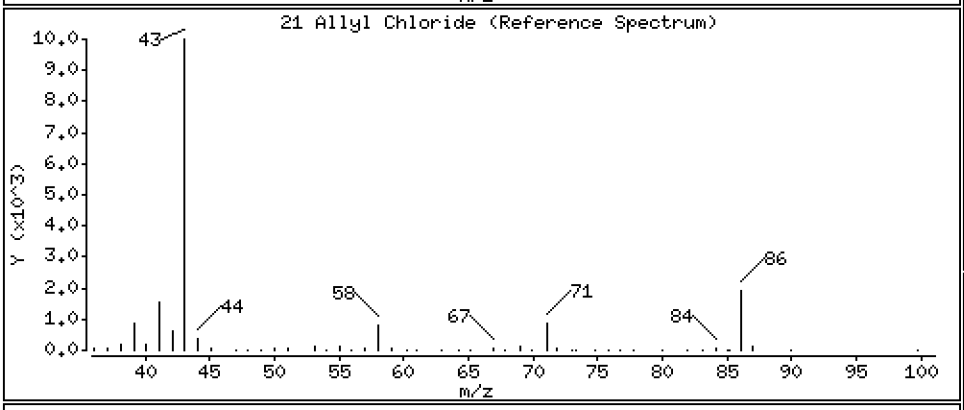
21 Allyl Chloride

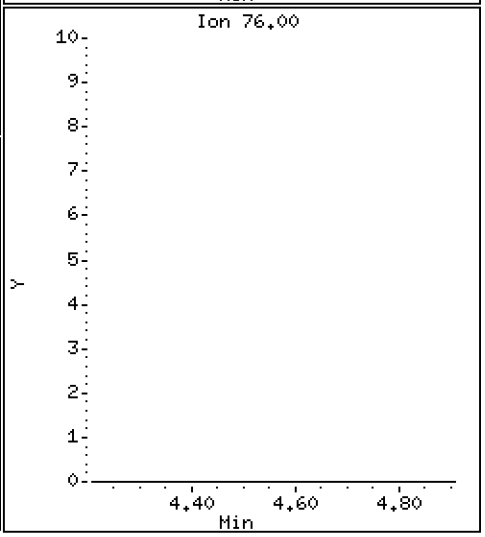


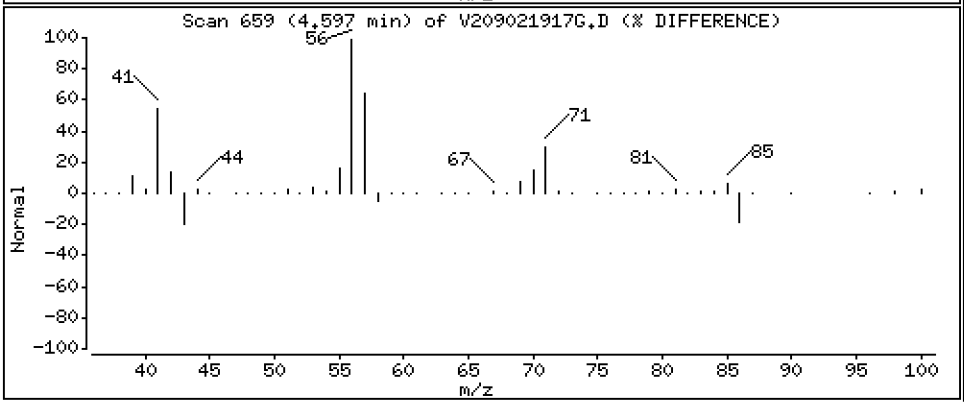












Data File: \\target\share\chem1\nt2.i\20190902s.b\V2090219l7G.D

Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

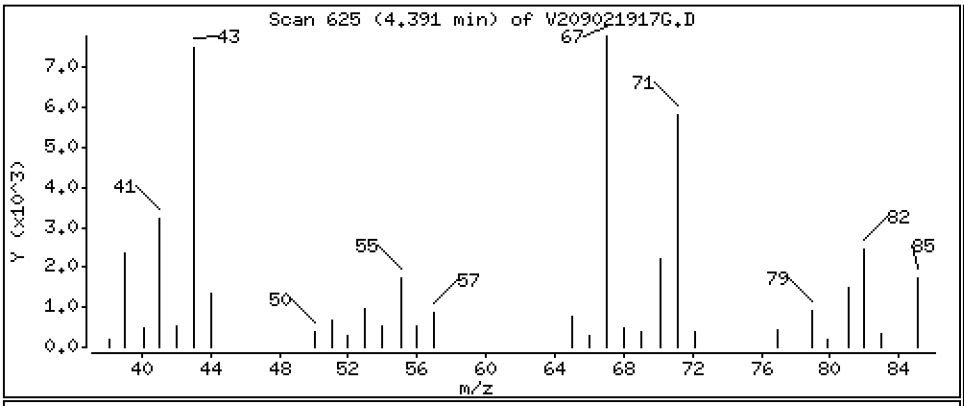
Operator: PKC

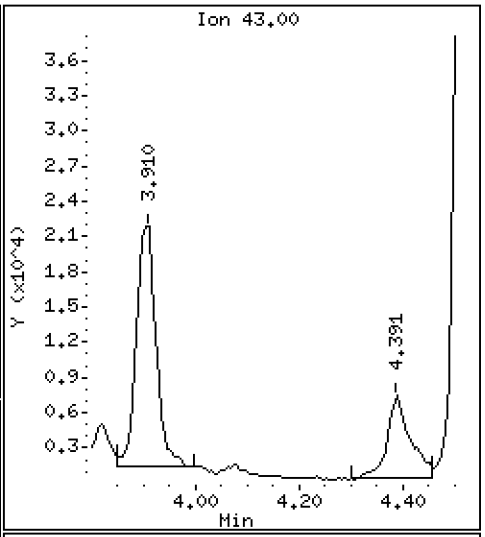
Column phase: RTXVMS

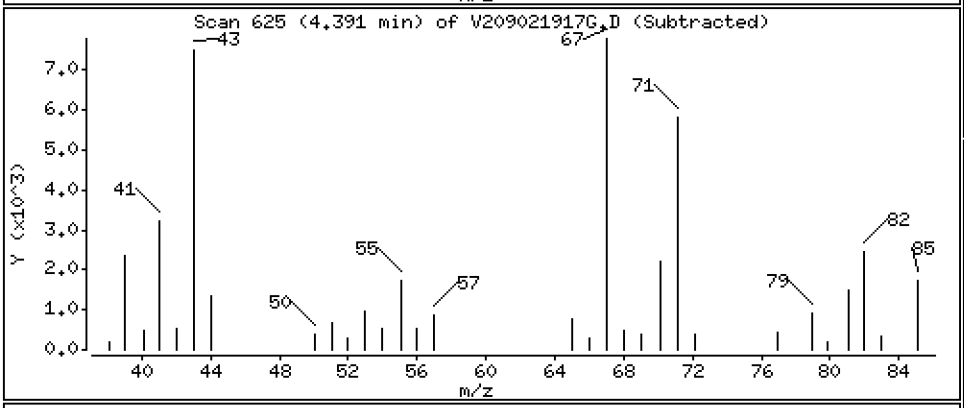
Column diameter: 0.18

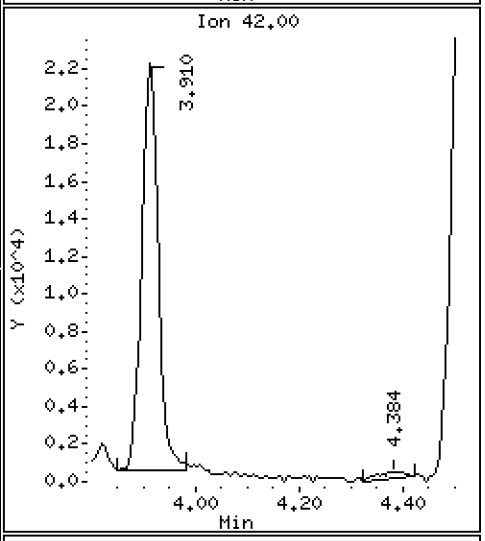
20 Vinyl Acetate

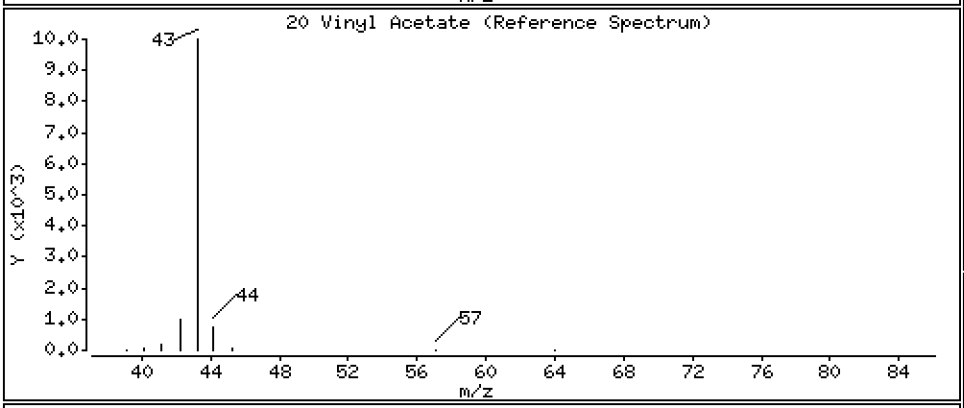
Concentration: 0.7814 ug/L

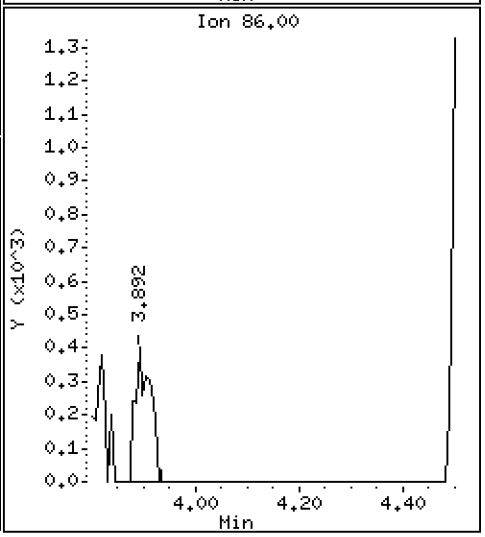


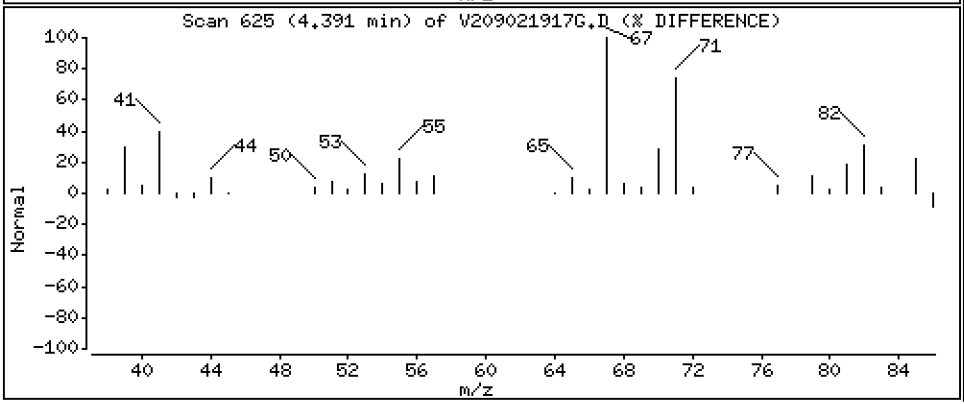












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

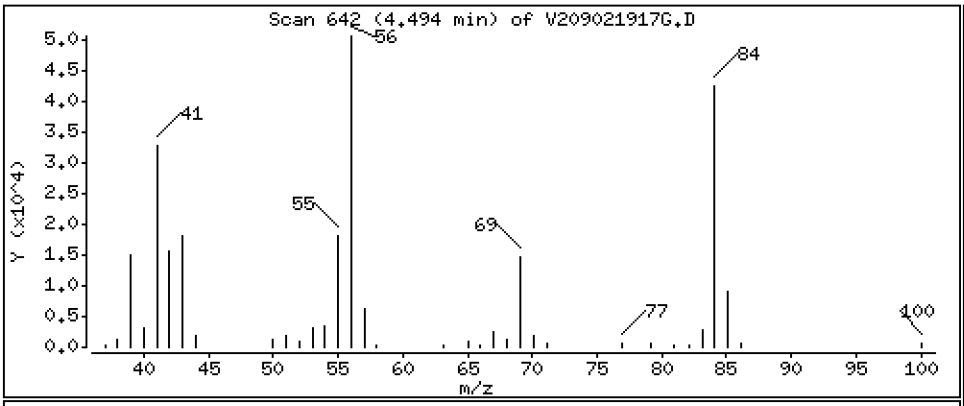
Operator: PKC

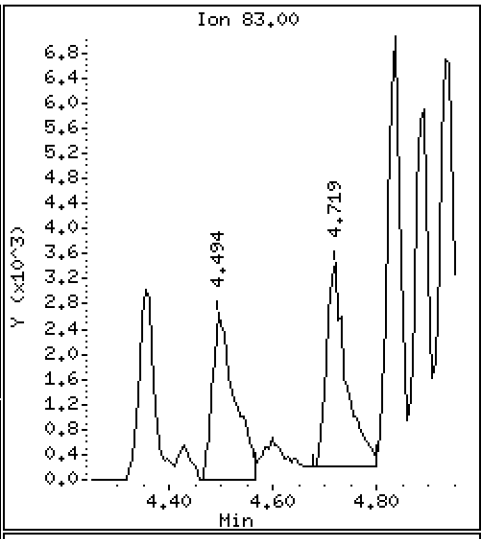
Column phase: RTXVMS

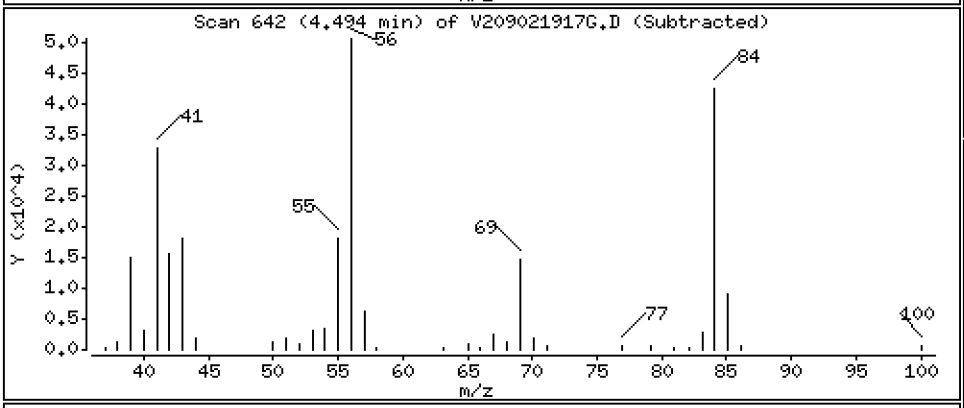
Column diameter: 0.18

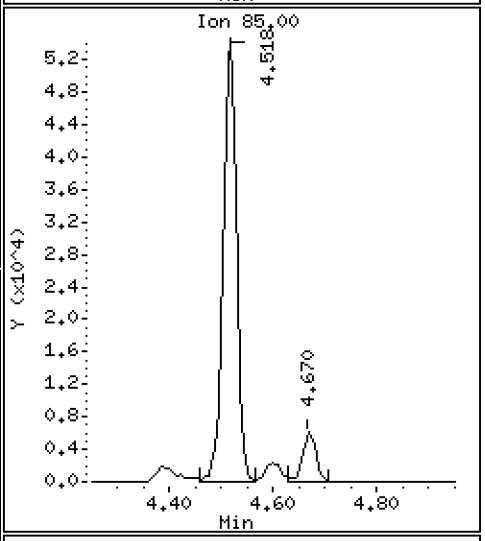
25 Chloroform

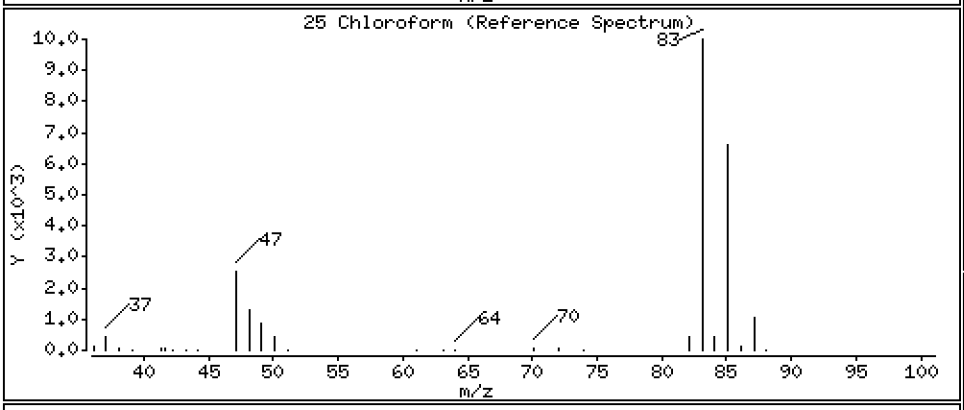
Concentration: 0.3218 ug/L

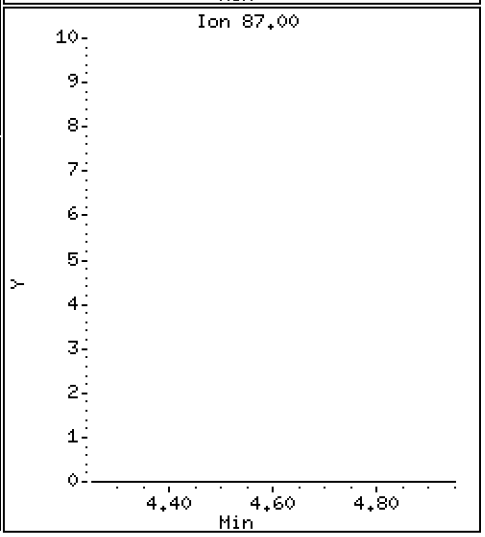


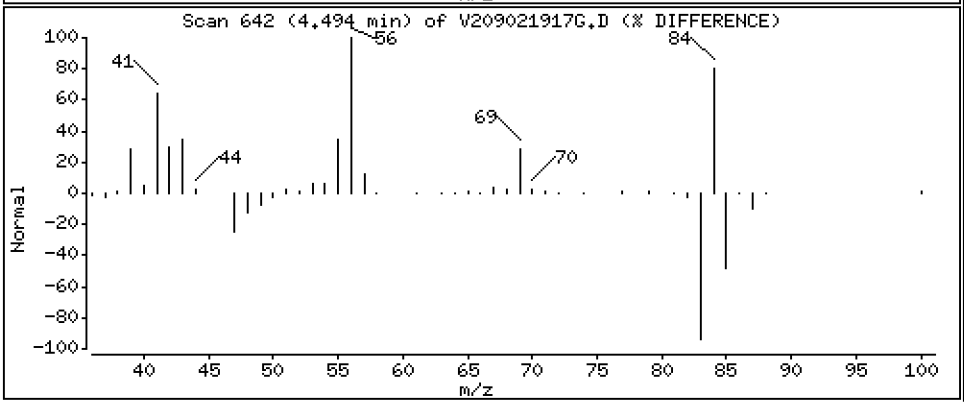












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

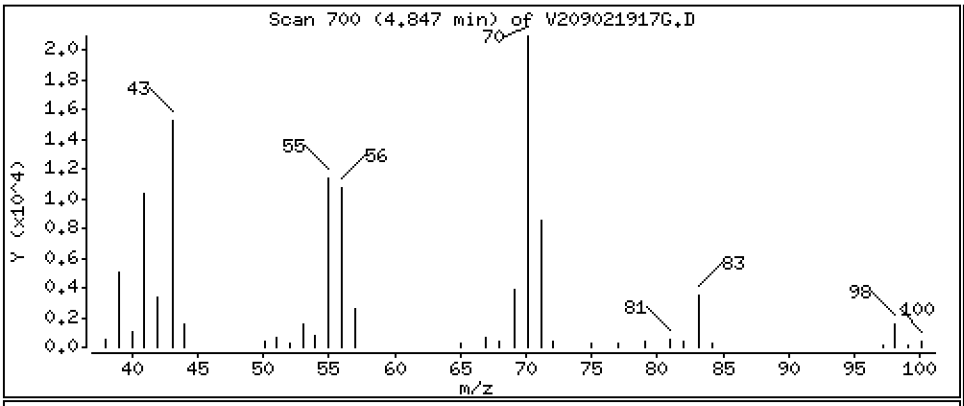
Operator: PKC

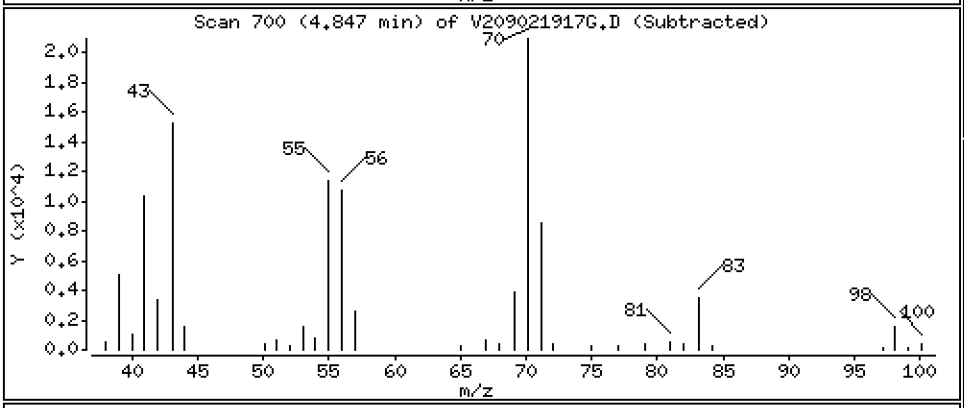
Column phase: RTXVMS

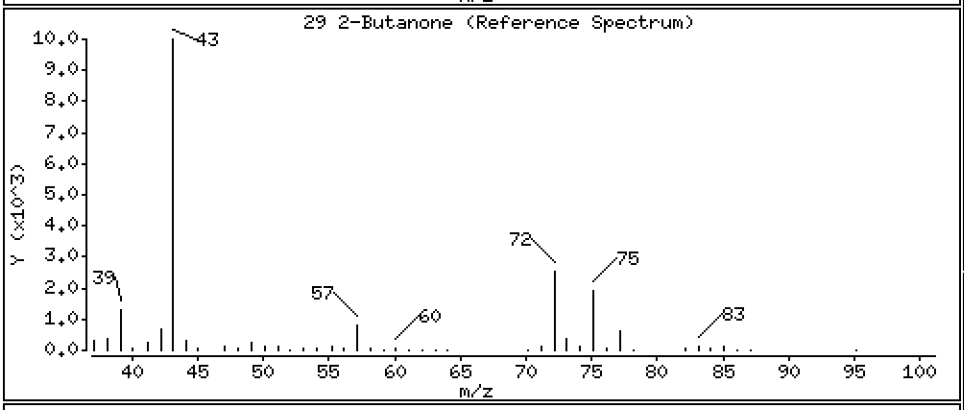
Column diameter: 0.18

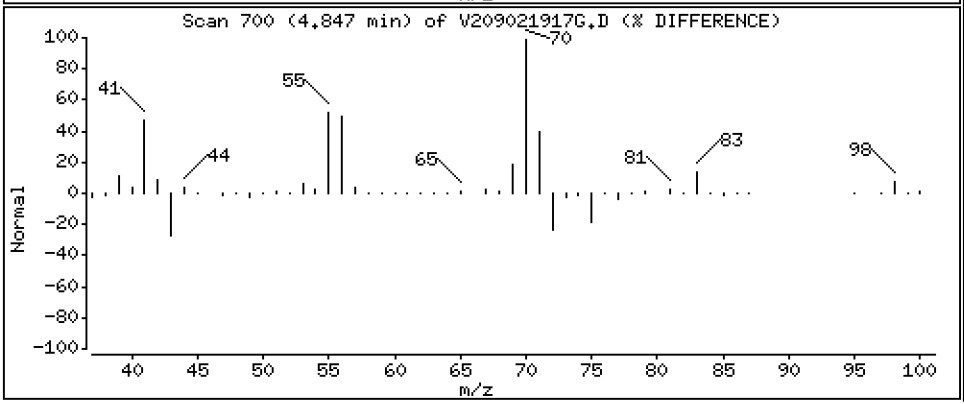
29 2-Butanone

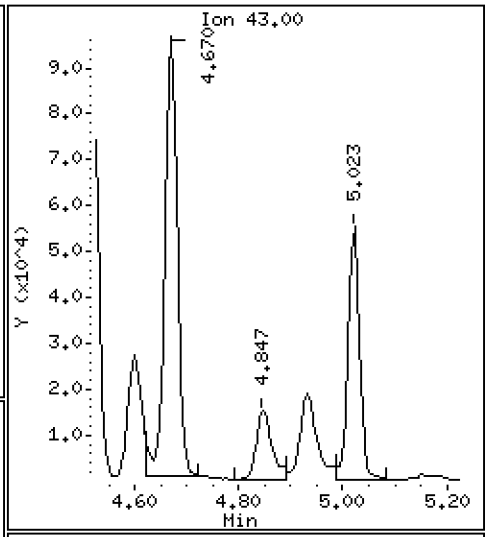
Concentration: 6.482 ug/L

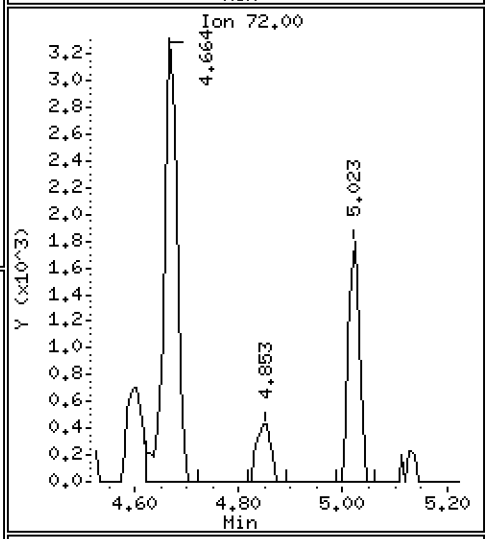


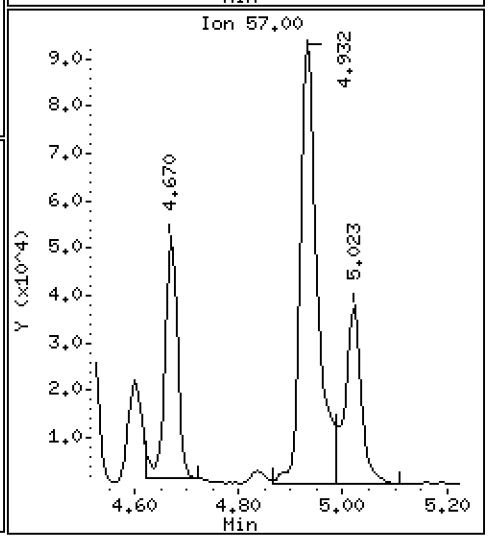












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

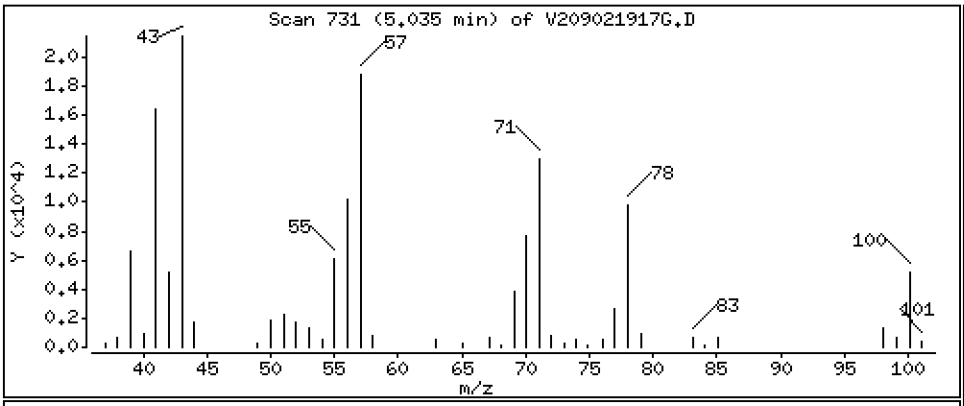
Operator: PKC

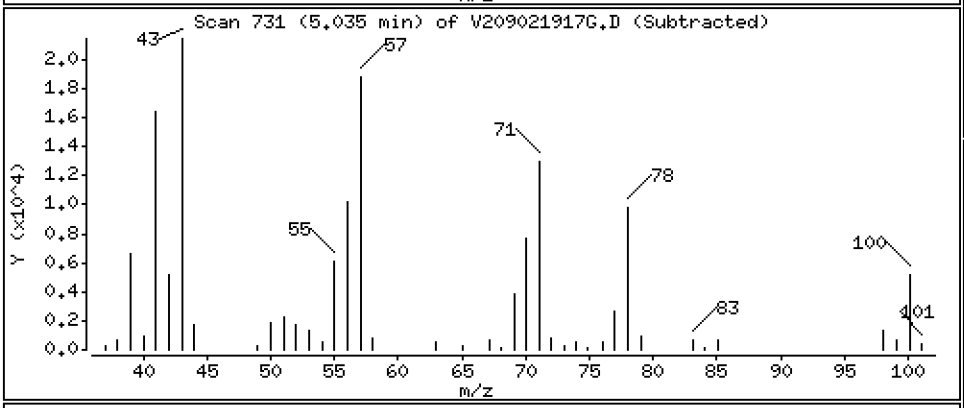
Column phase: RTXVMS

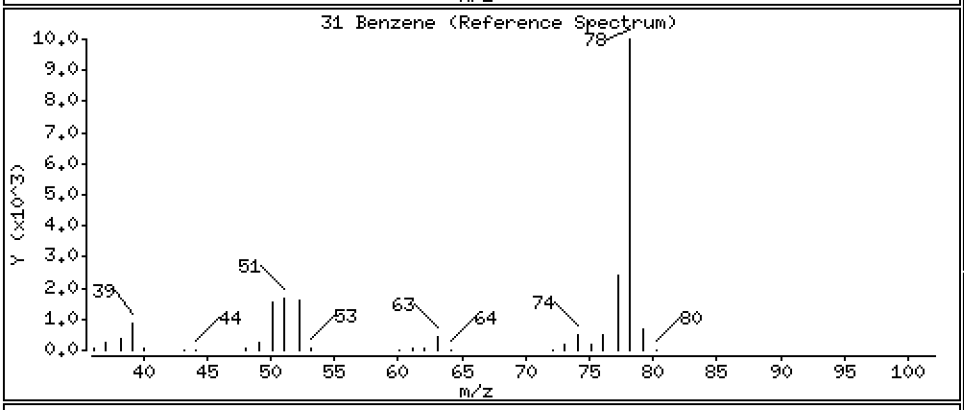
Column diameter: 0.18

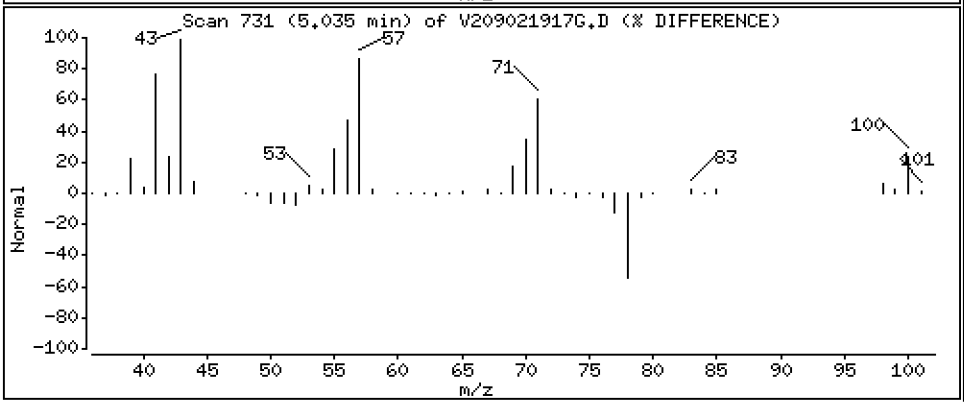
31 Benzene

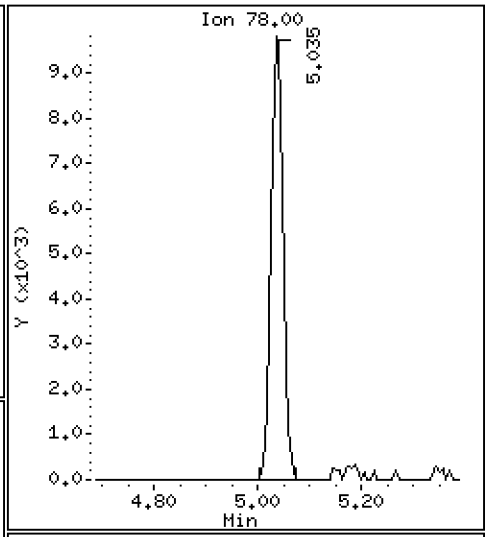
Concentration: 0.2615 ug/L

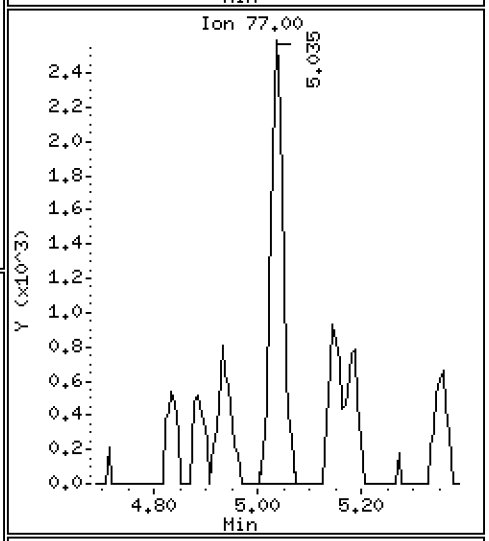


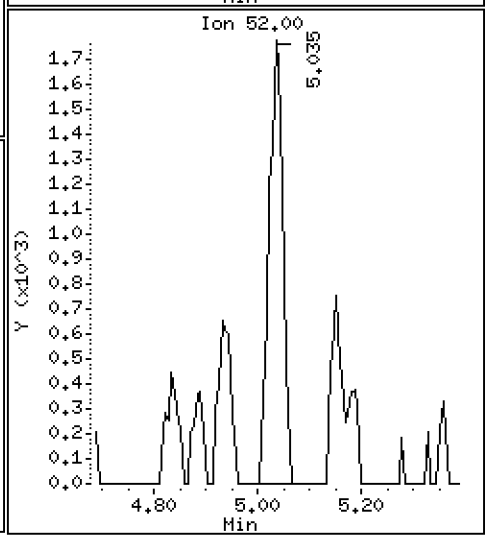












Date : 02-SEP-2019 16:54

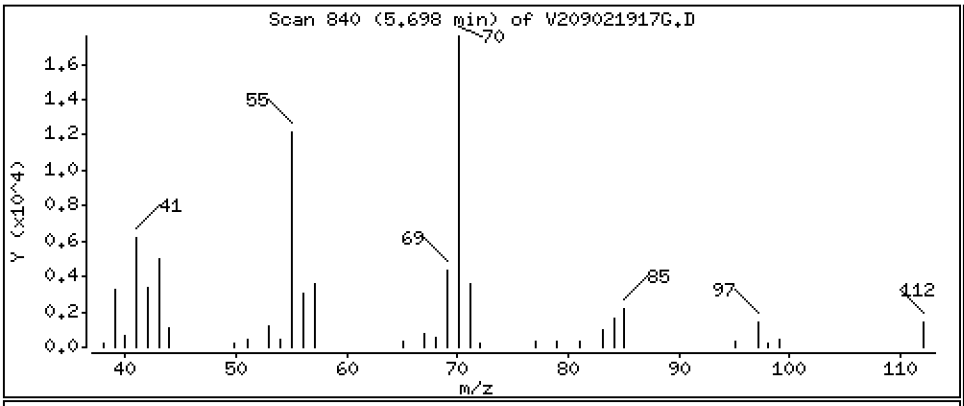
Client ID: Instrument: nt2.i

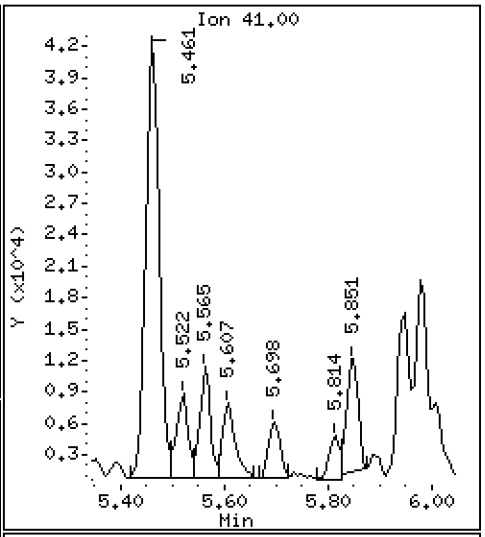
Sample Info: SHI0010-CALB

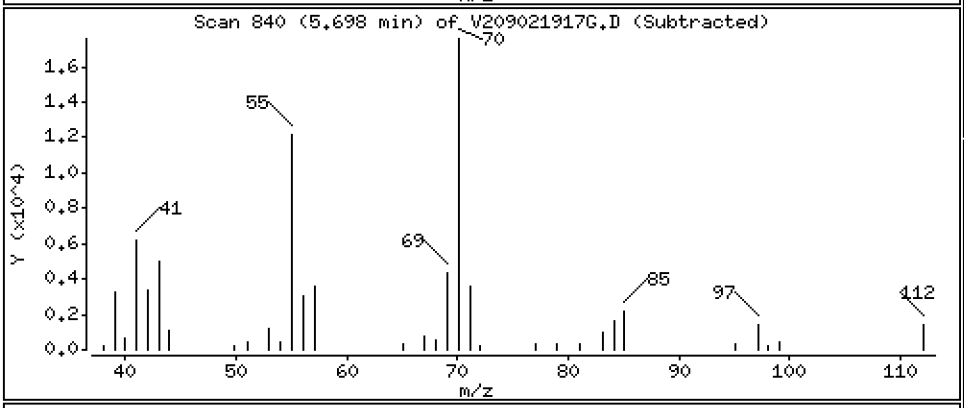
Operator: PKC

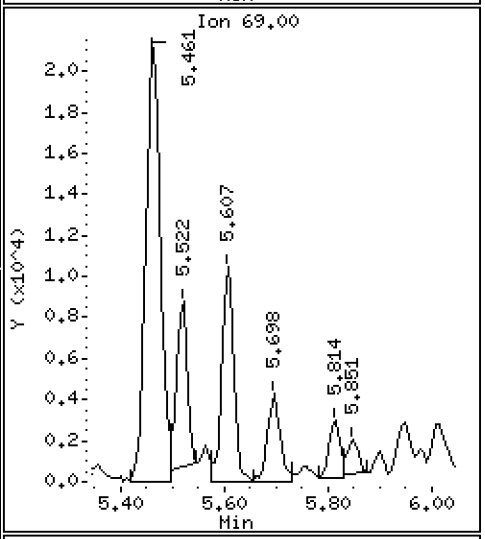
Column phase: RTXVMS Column diameter: 0.18

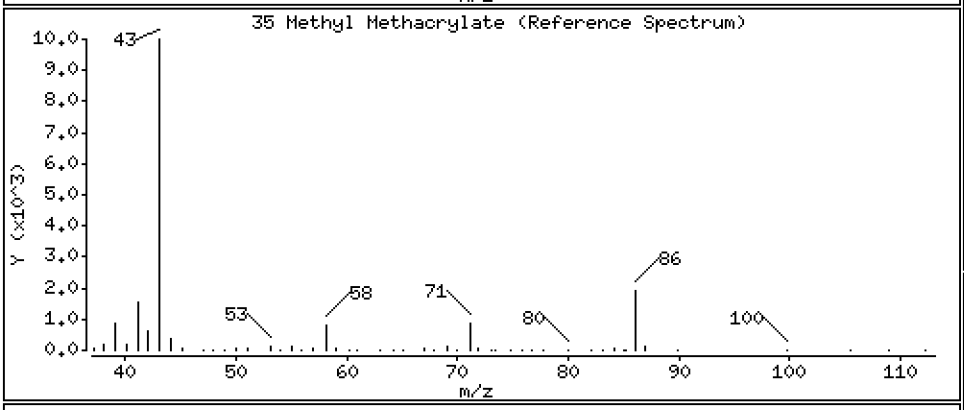
35 Methyl Methacrylate

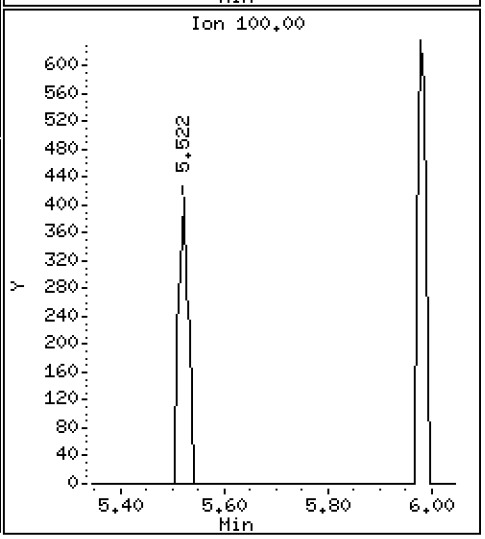


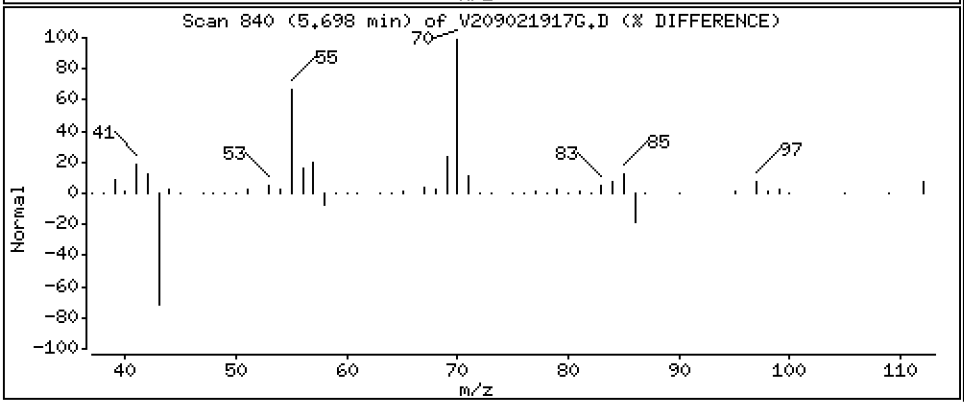












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

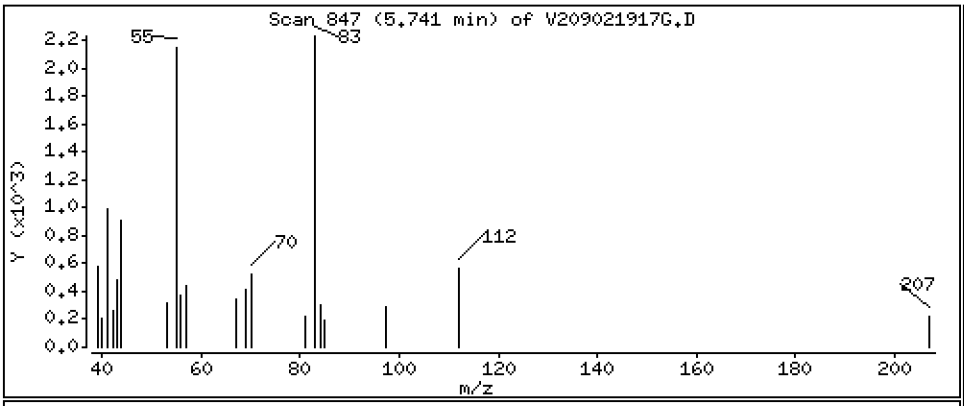
Operator: PKC

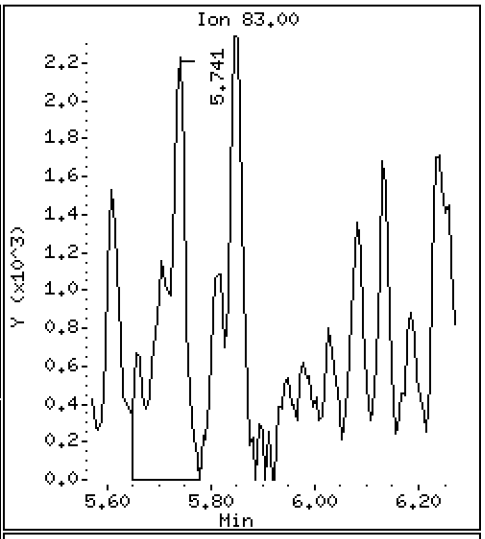
Column phase: RTXVMS

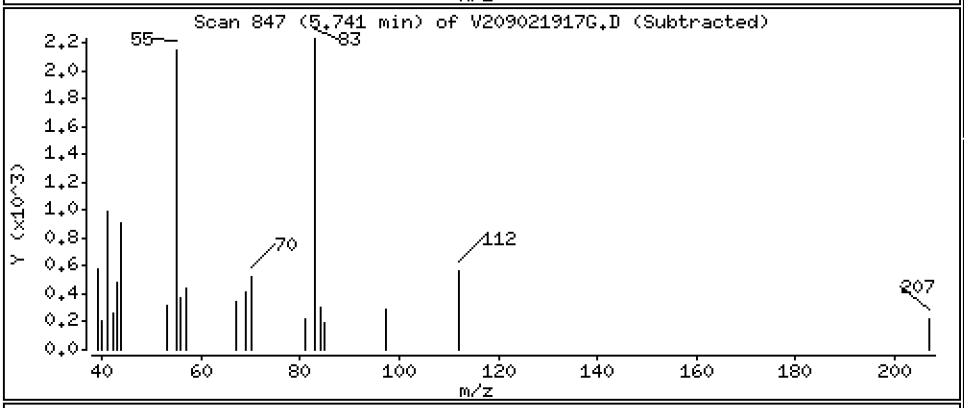
Column diameter: 0.18

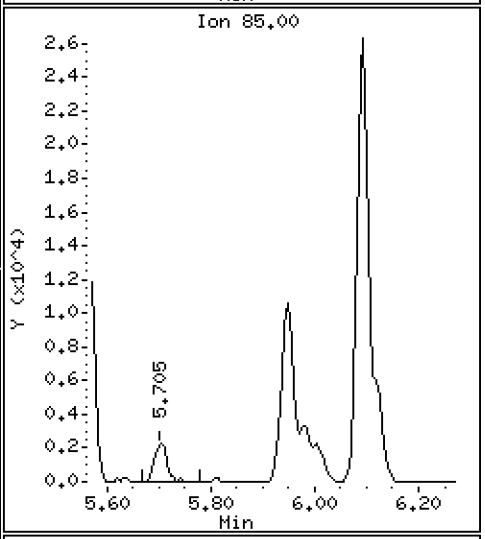
40 Bromodichloromethane

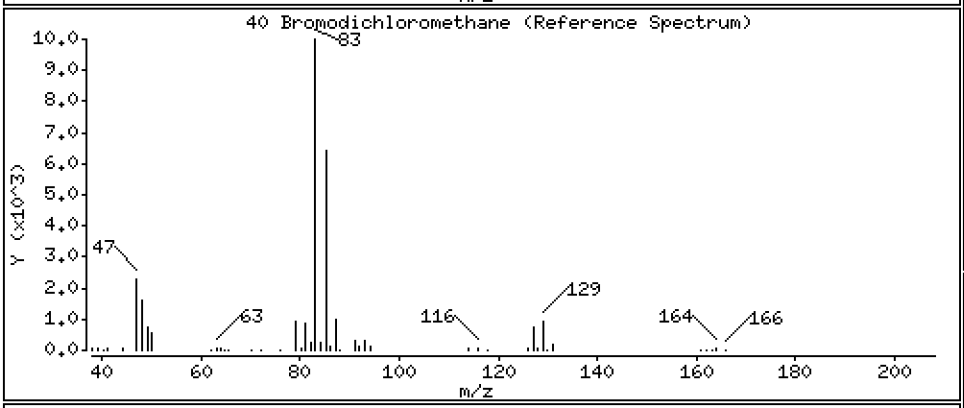
Concentration: 0.3744 ug/L

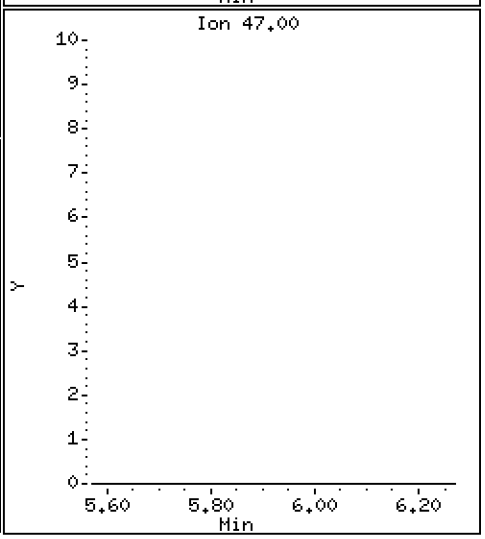


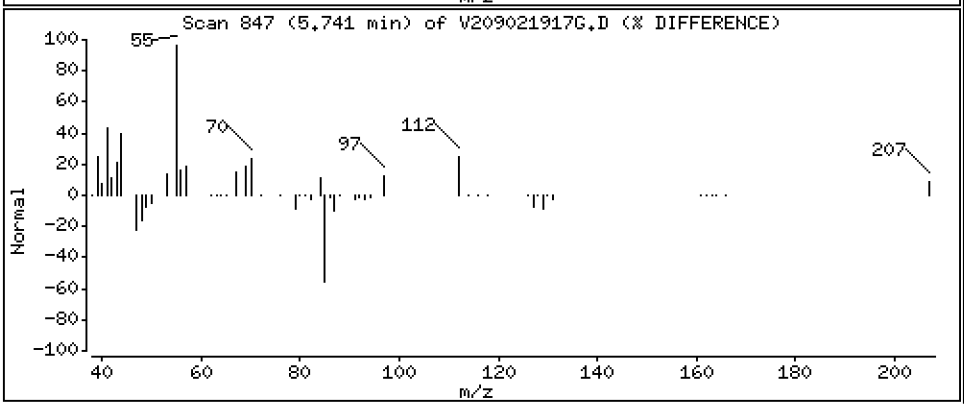












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

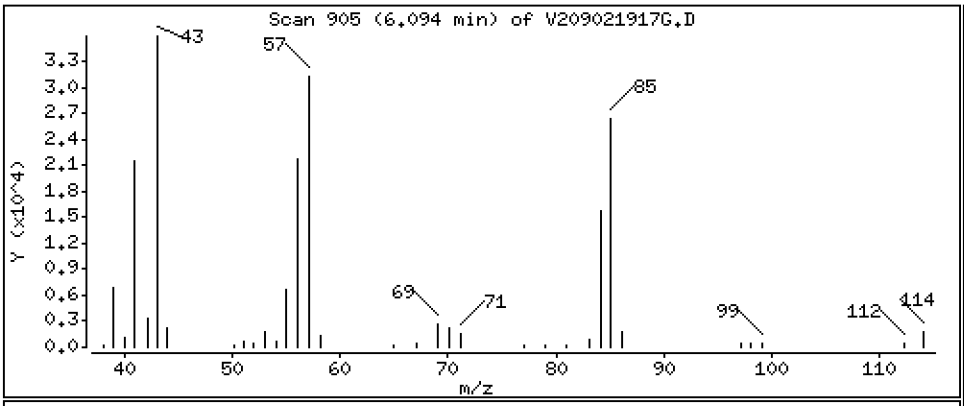
Operator: PKC

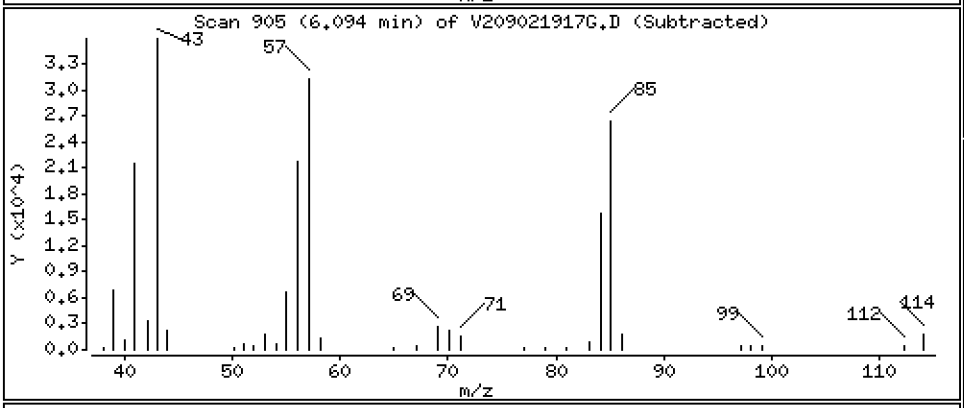
Column phase: RTXVMS

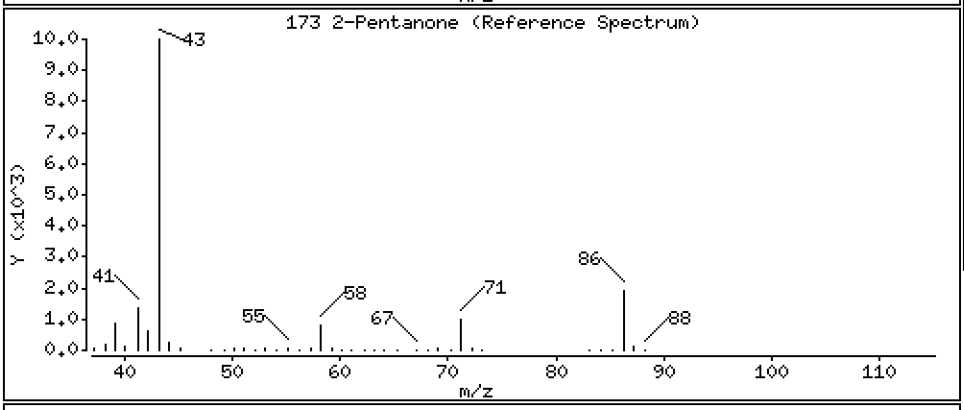
Column diameter: 0.18

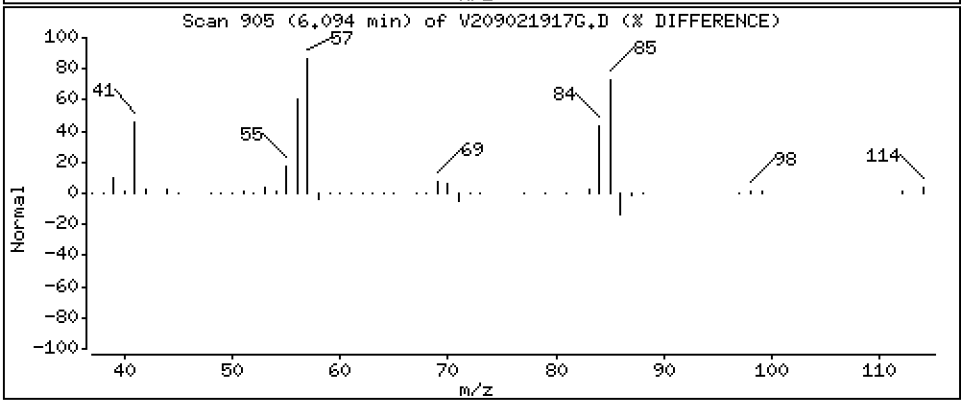
173 2-Pentanone

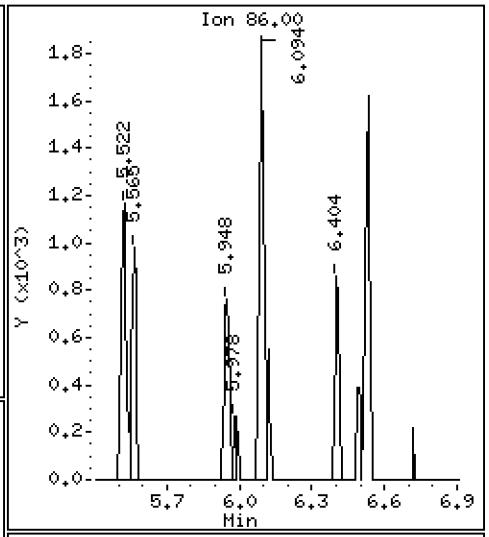
Concentration: 1.578 ug/L

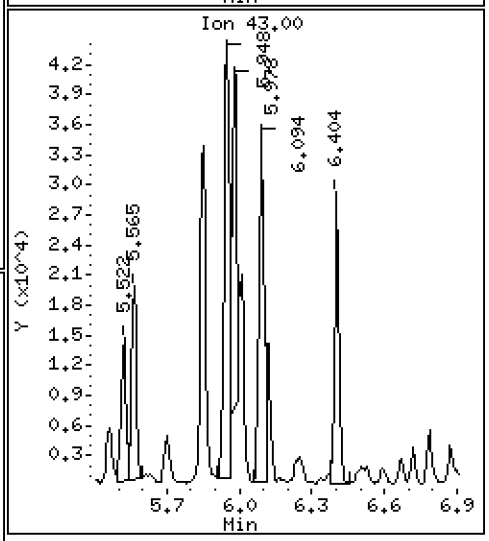












Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

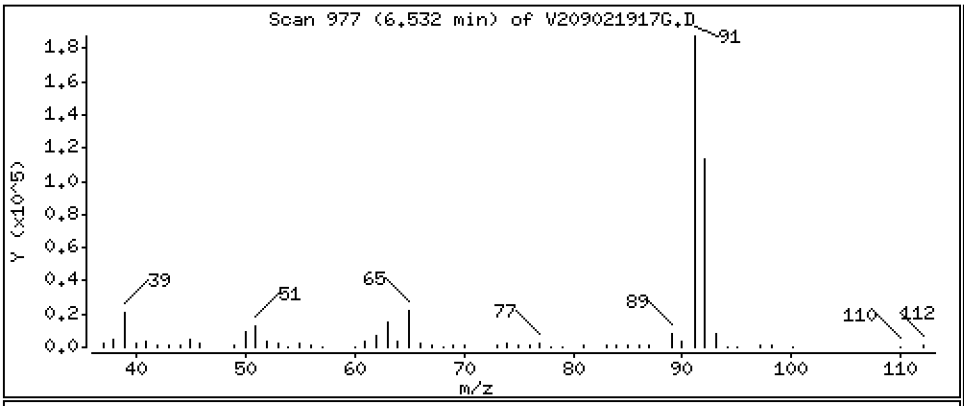
Operator: PKC

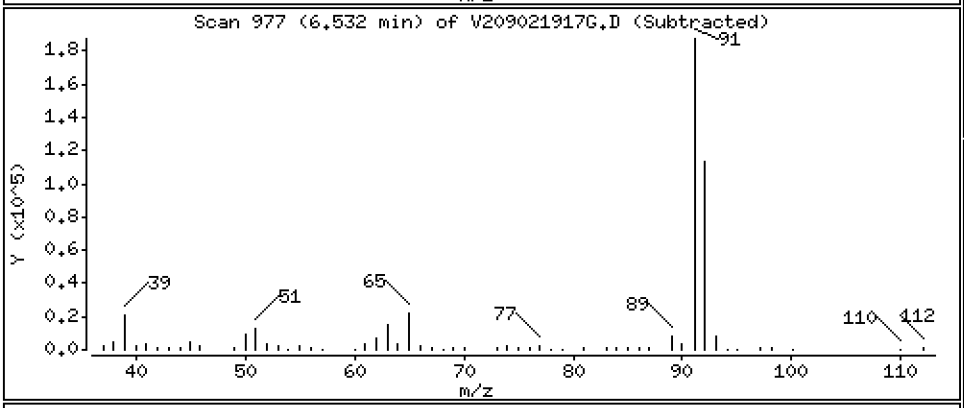
Column phase: RTXVMS

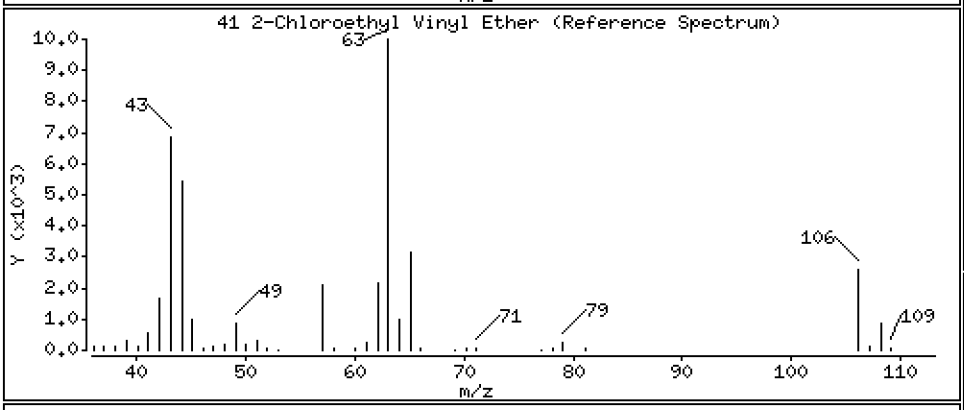
Column diameter: 0.18

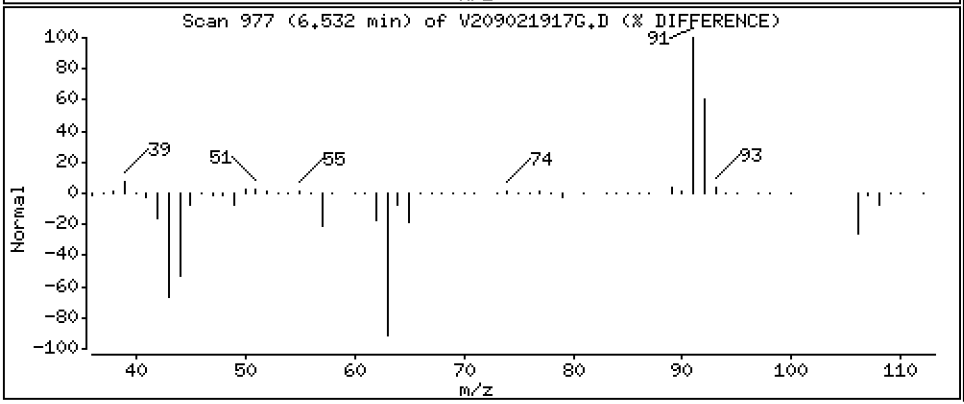
41 2-Chloroethyl Vinyl Ether

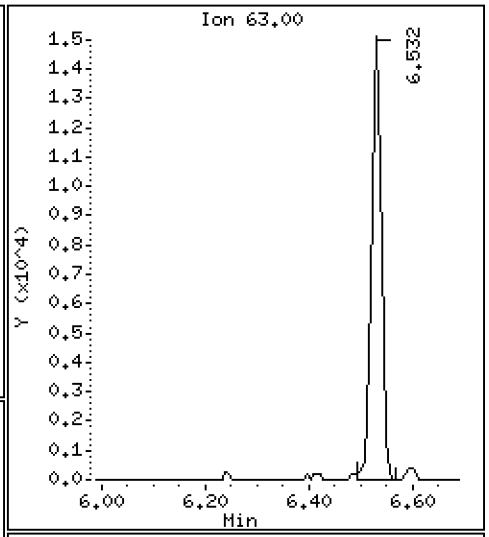
Concentration: 2.392 ug/L

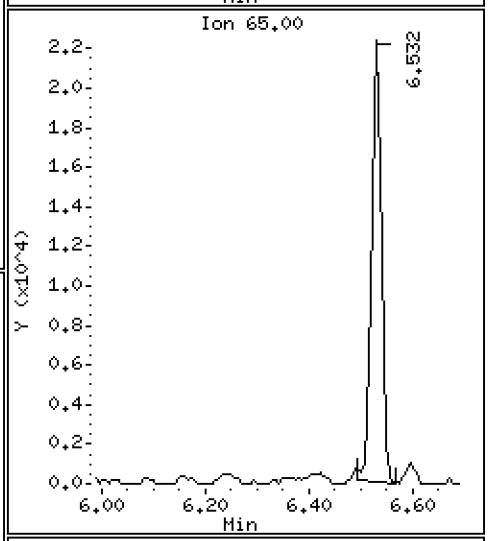


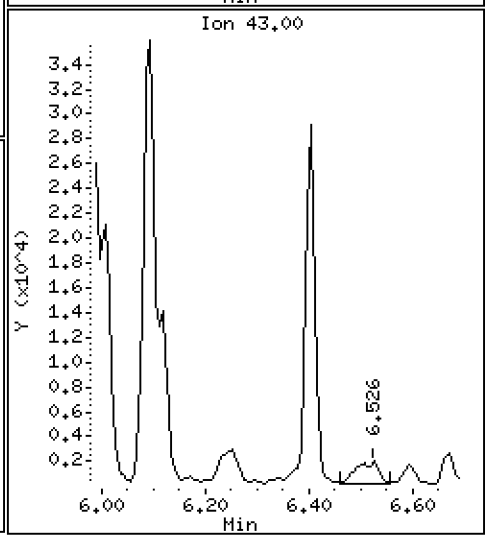












Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

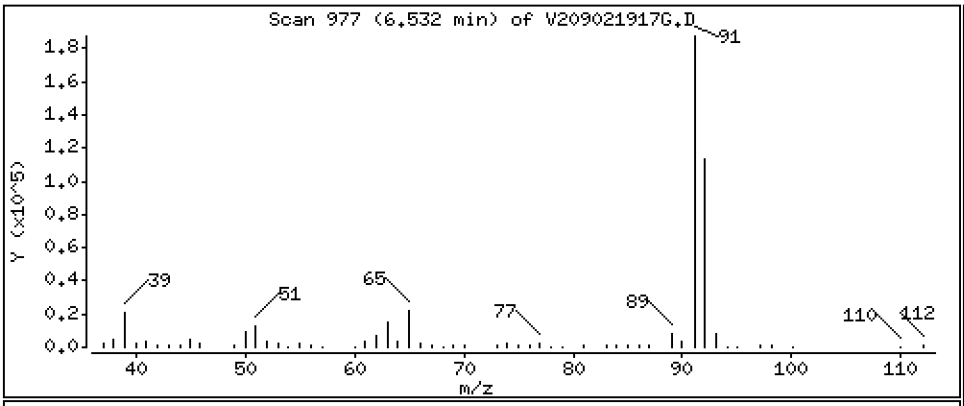
Operator: PKC

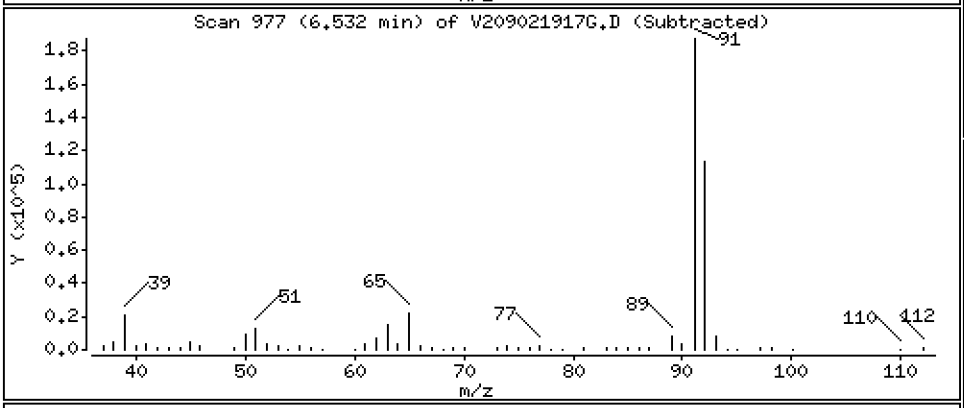
Column phase: RTXVMS

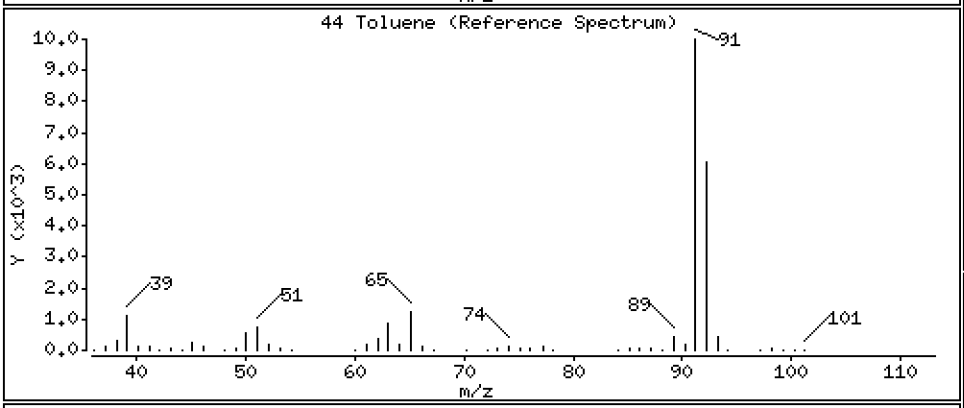
Column diameter: 0.18

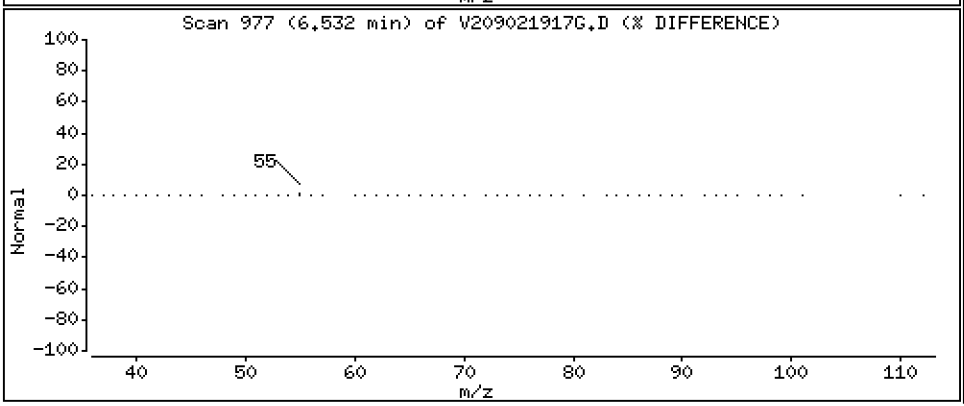
44 Toluene

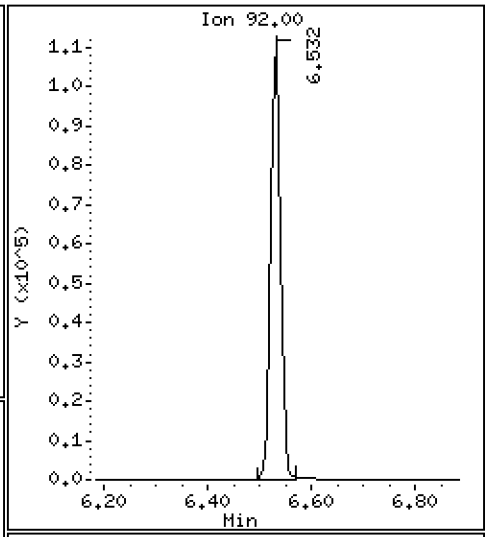
Concentration: 3.801 ug/L

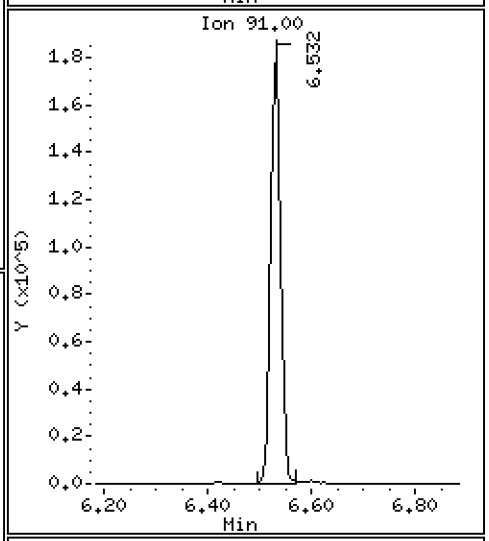


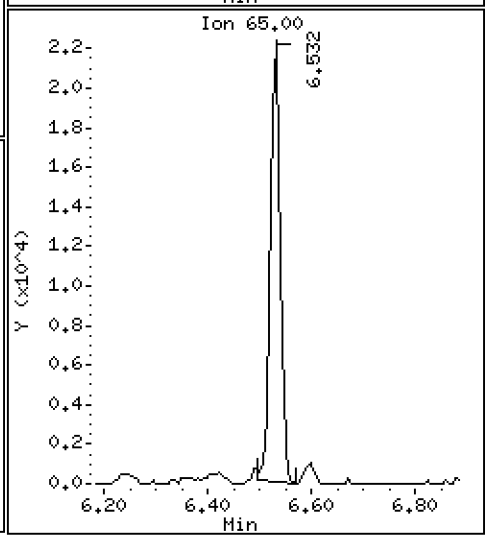












Data File: \\target\share\chem1\nt2.i\20190902s.b\V2090219l7G.D

Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

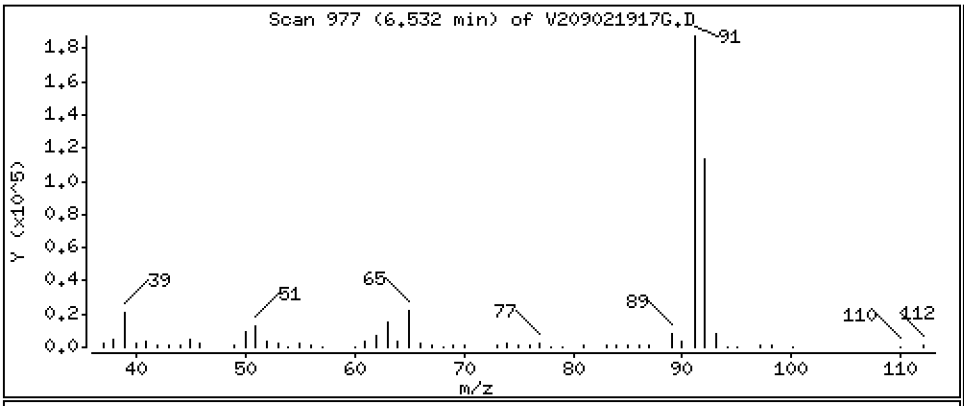
Operator: PKC

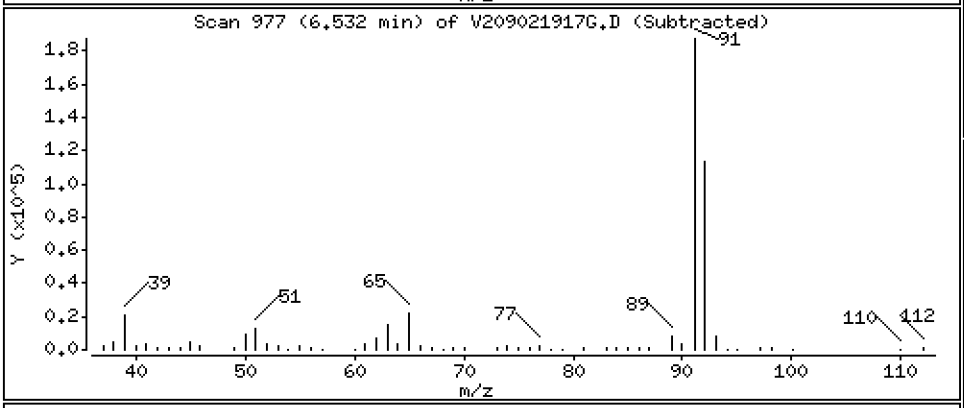
Column phase: RTXVMS

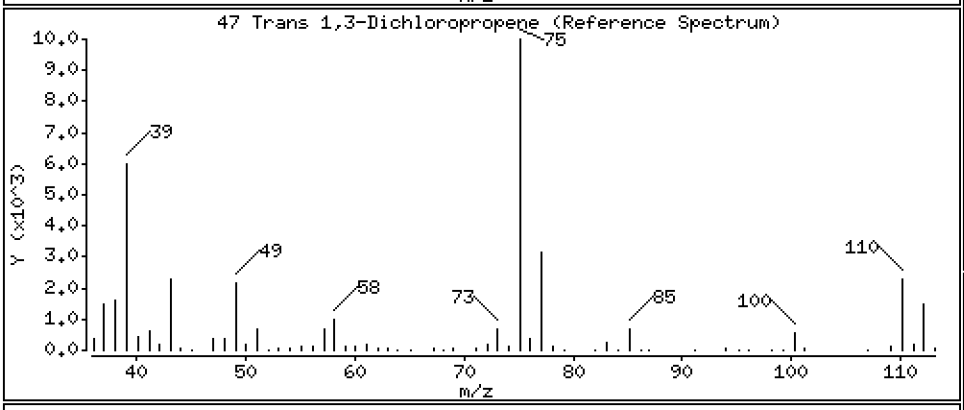
Column diameter: 0.18

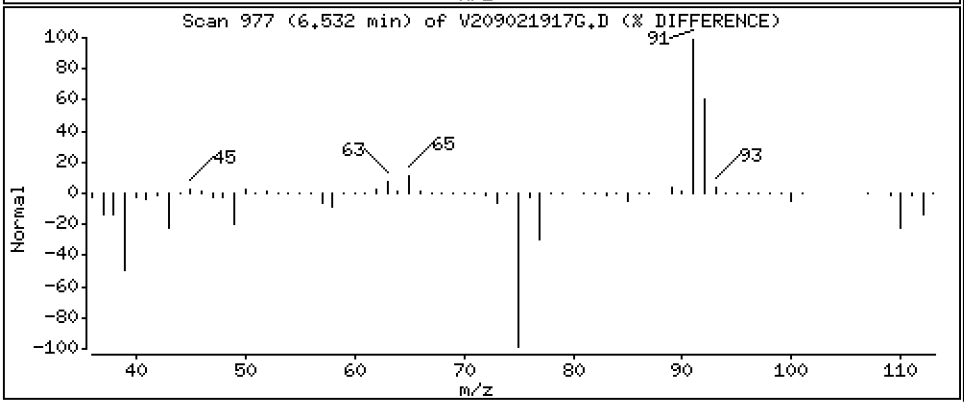
47 Trans 1,3-Dichloropropene

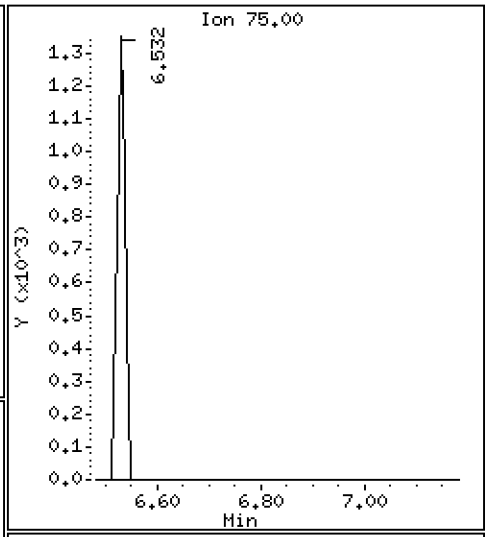
Concentration: 0.07706 ug/L

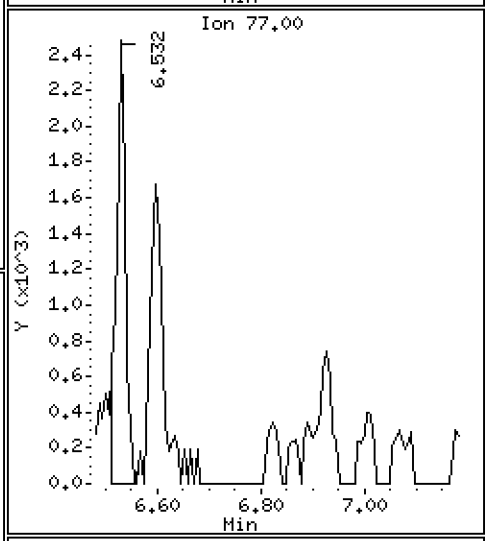


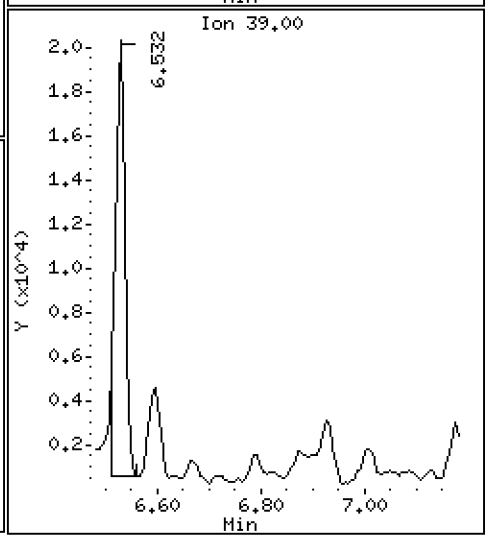












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

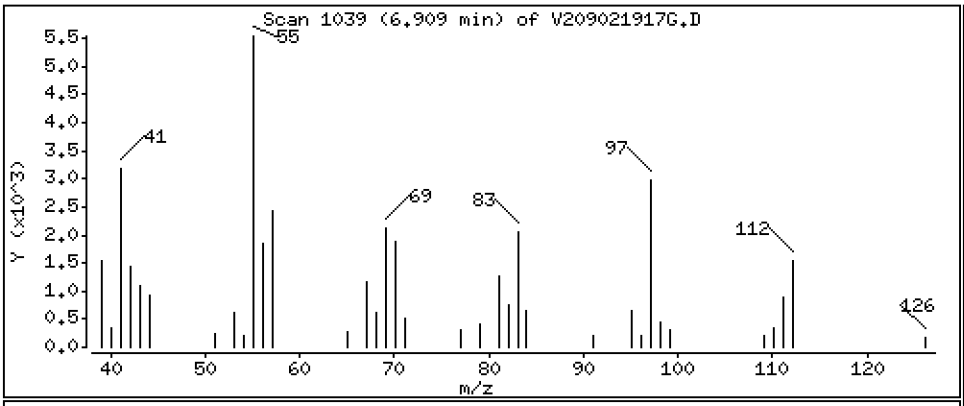
Operator: PKC

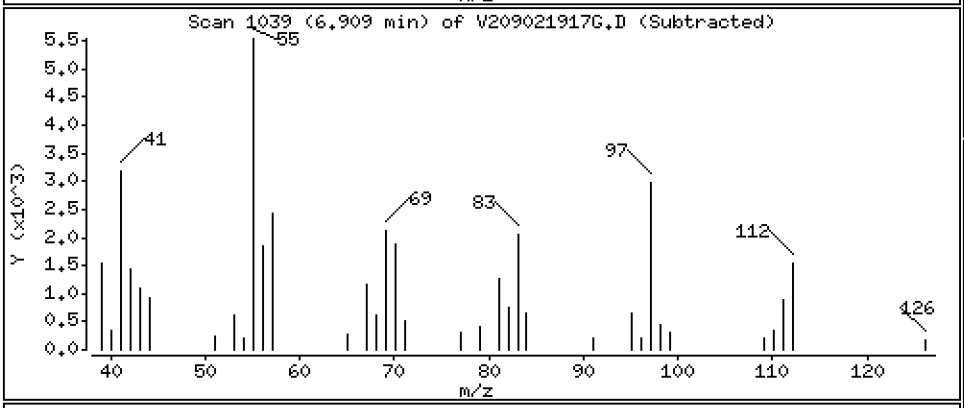
Column phase: RTXVMS

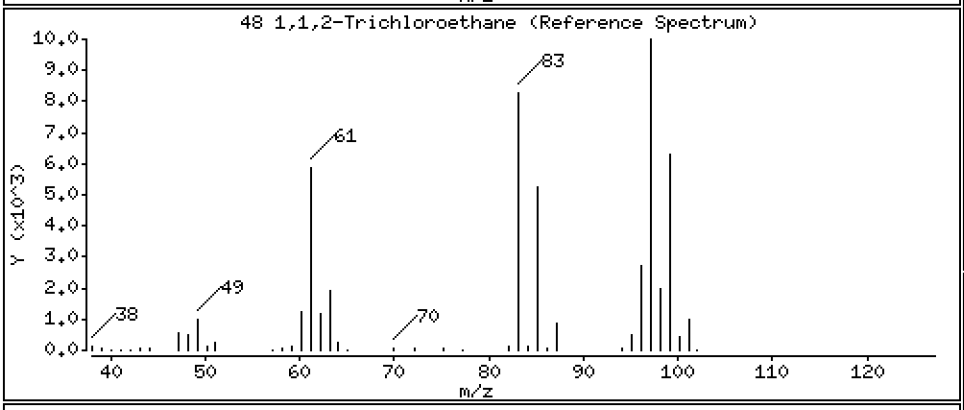
Column diameter: 0.18

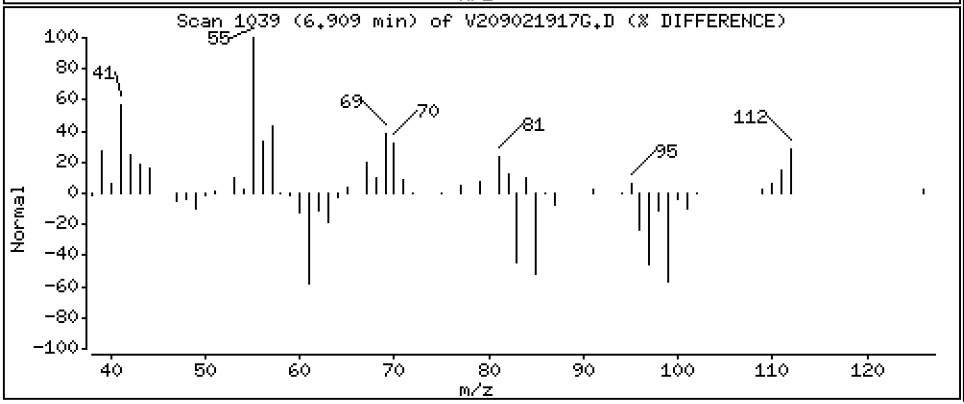
48 1,1,2-Trichloroethane

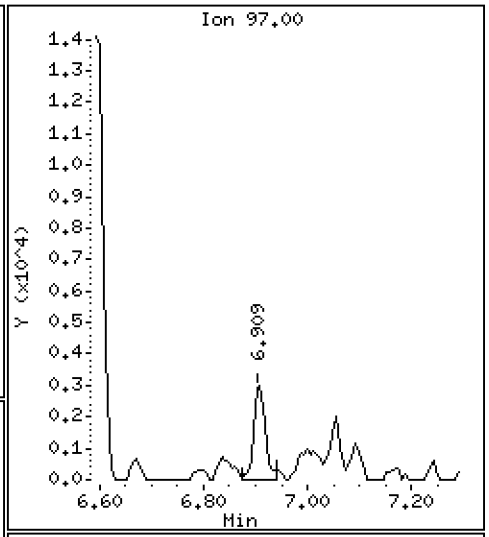
Concentration: 0.4074 ug/L

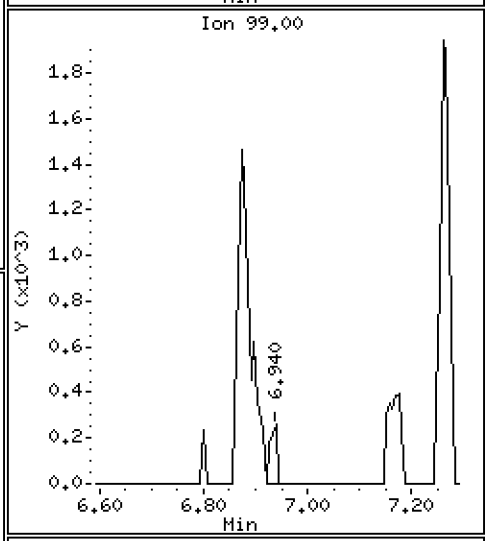


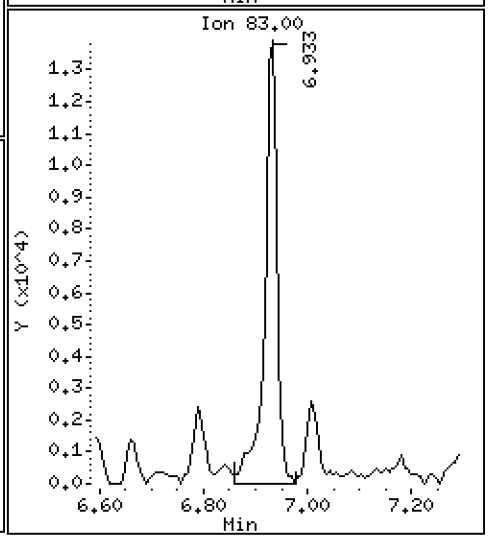












Date : 02-SEP-2019 16:54

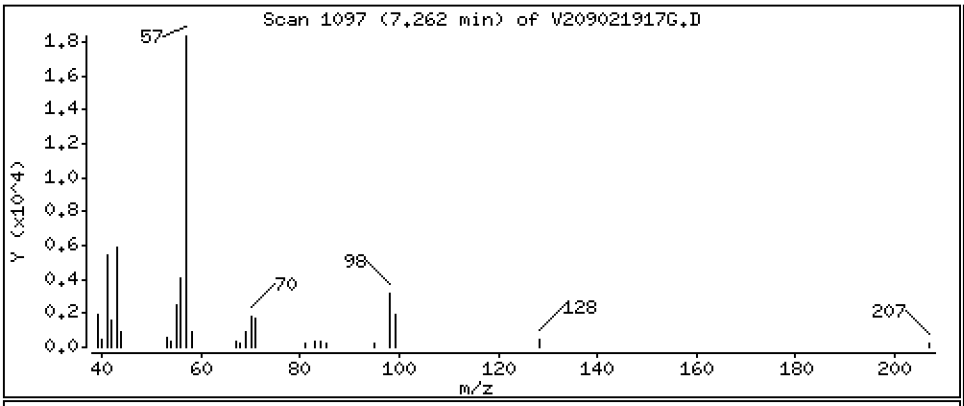
Client ID: Instrument: nt2.i

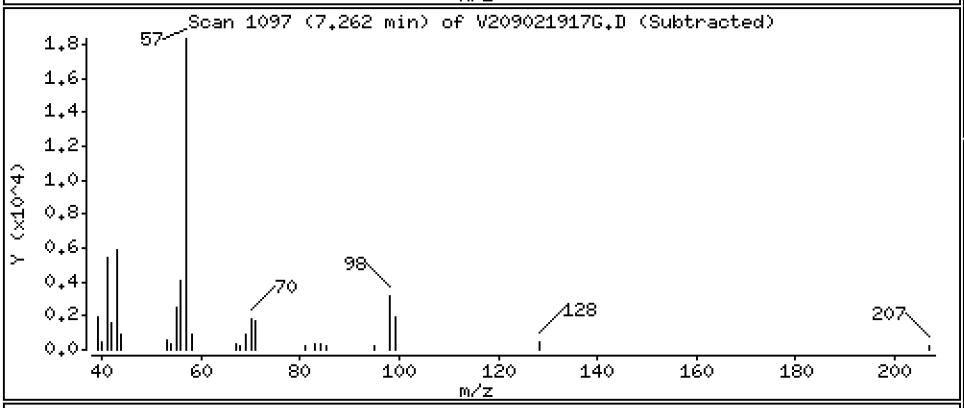
Sample Info: SHI0010-CALB

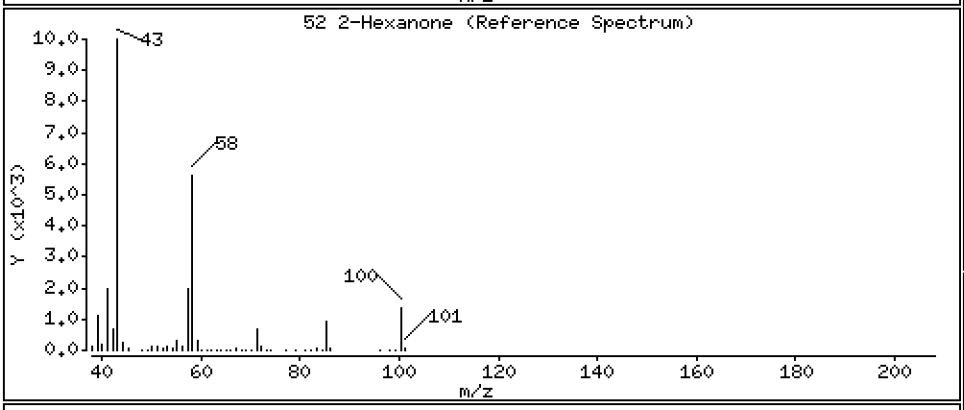
Operator: PKC

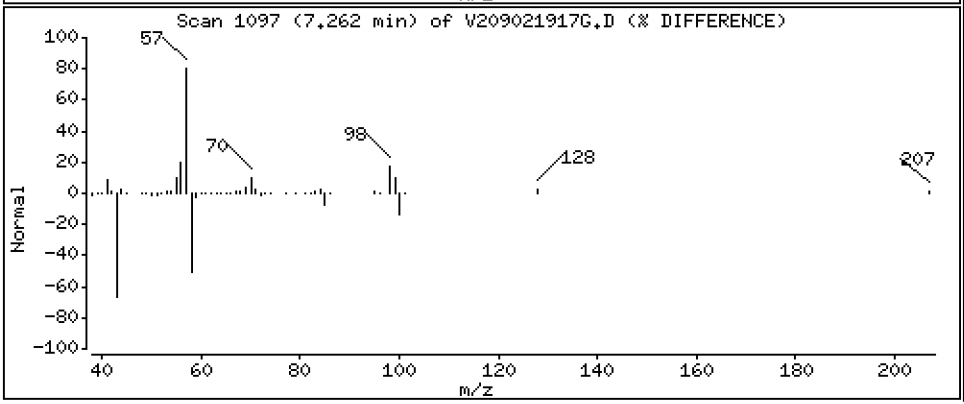
Column phase: RTXVMS Column diameter: 0.18

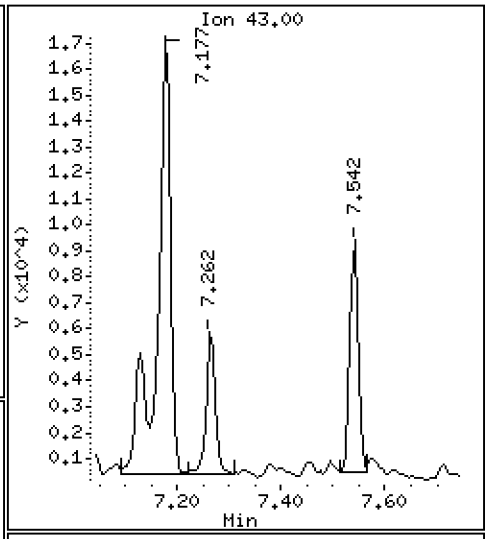
52 2-Hexanone Concentration: 0.9818 ug/L

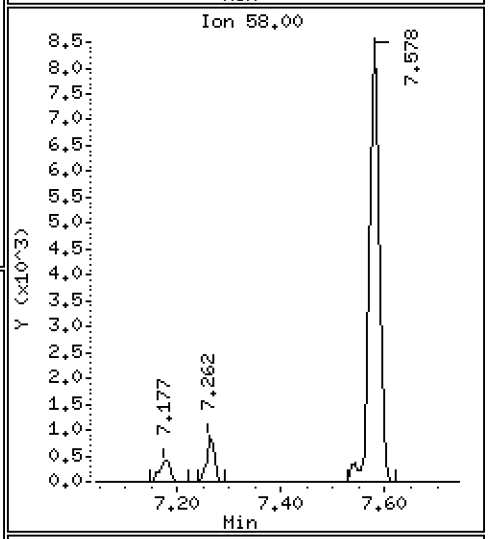


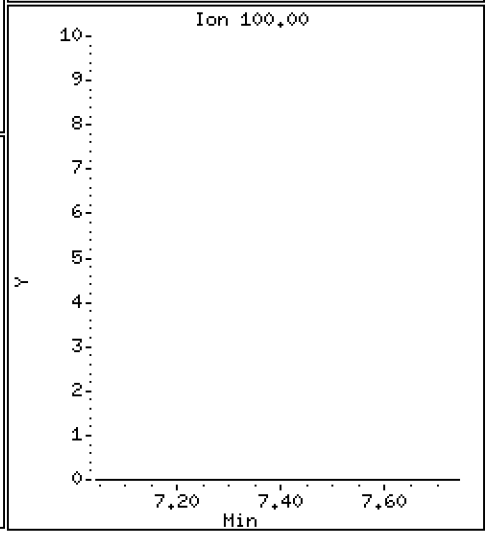












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

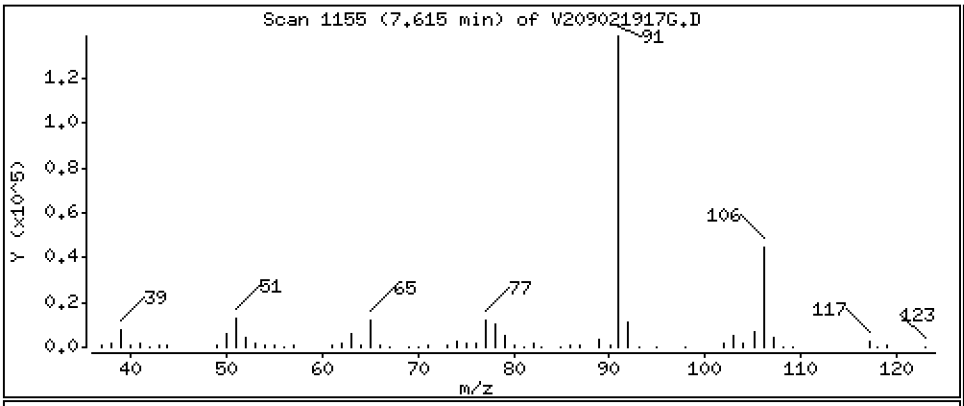
Operator: PKC

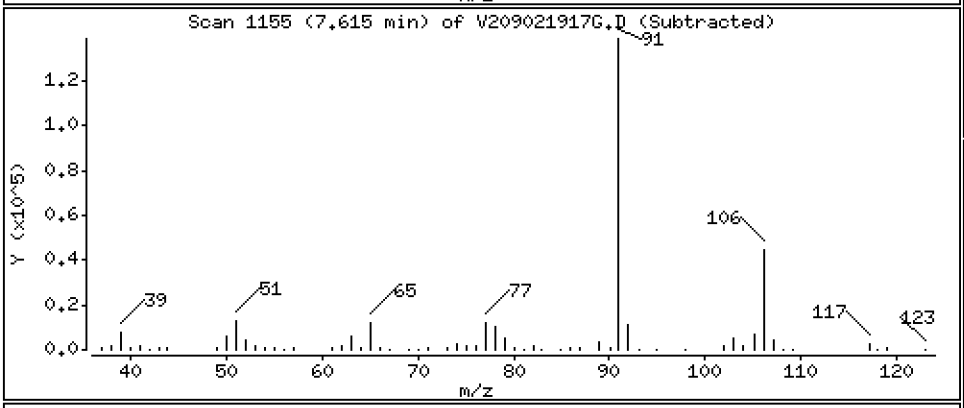
Column phase: RTXVMS

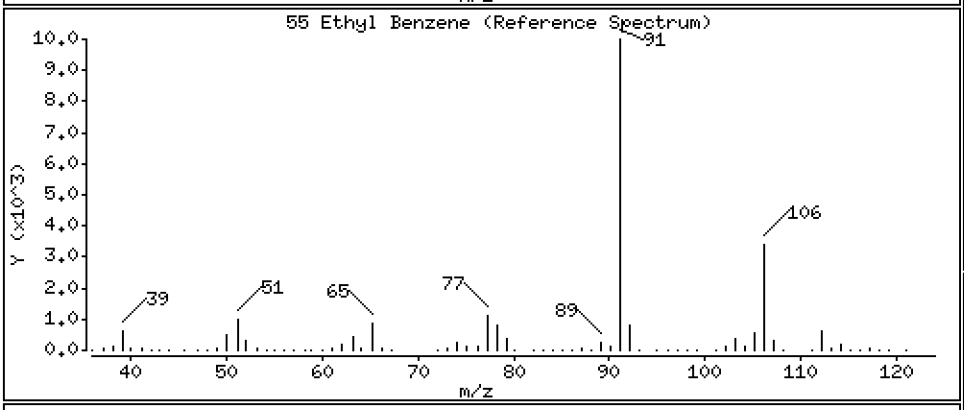
Column diameter: 0.18

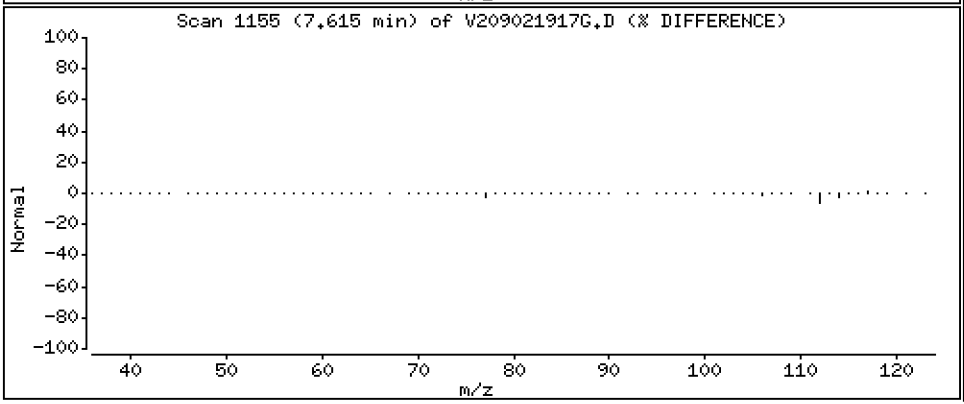
55 Ethyl Benzene

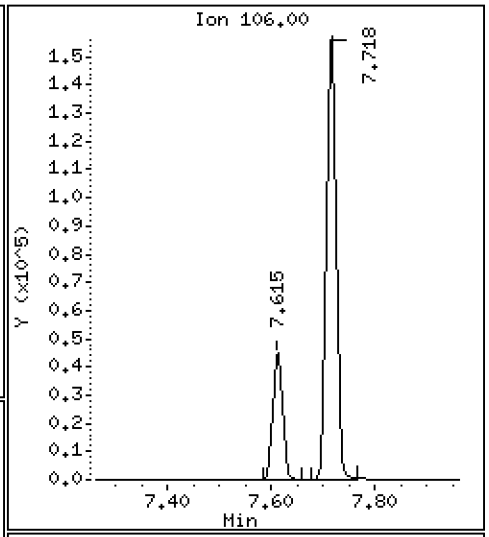
Concentration: 2.648 ug/L

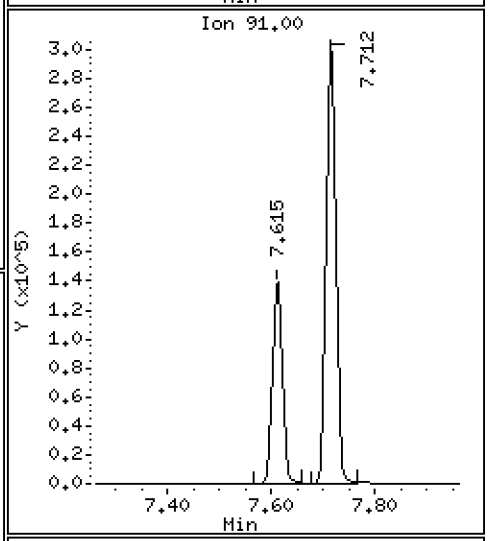


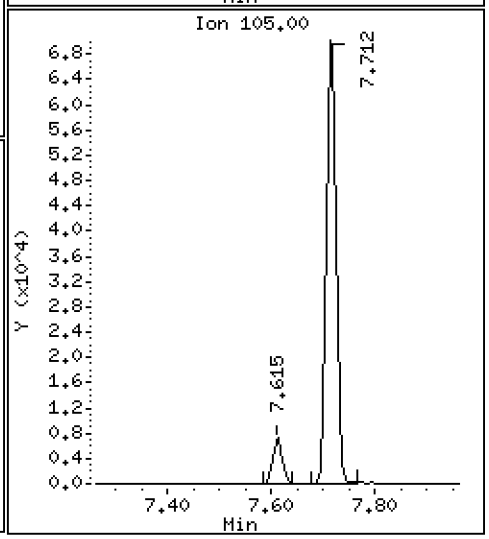












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

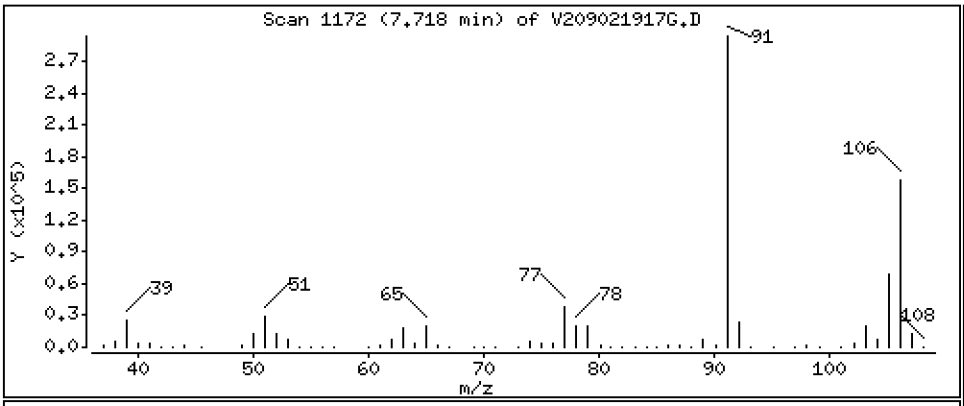
Operator: PKC

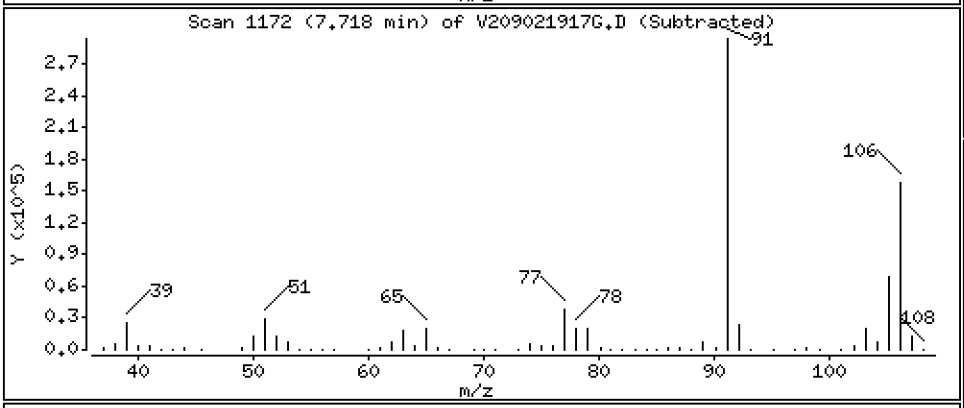
Column phase: RTXVMS

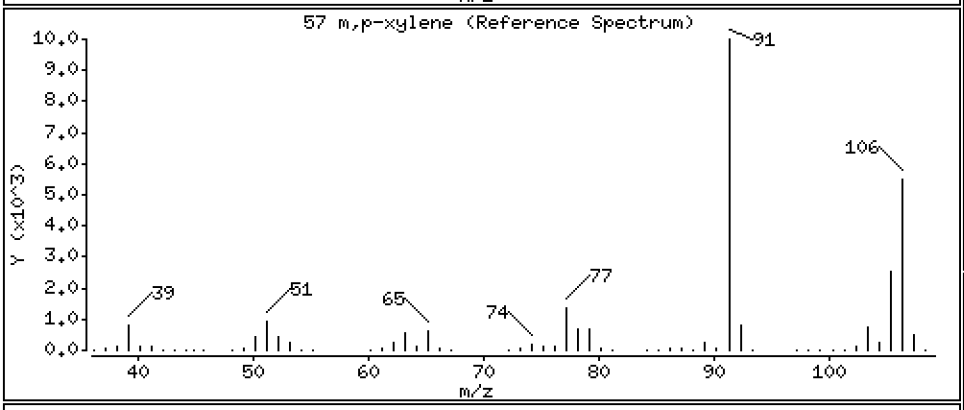
Column diameter: 0.18

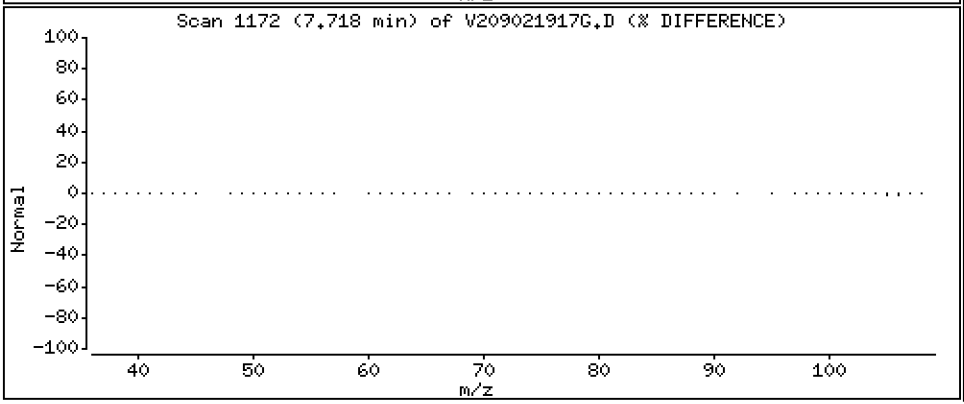
57 m,p-xylene

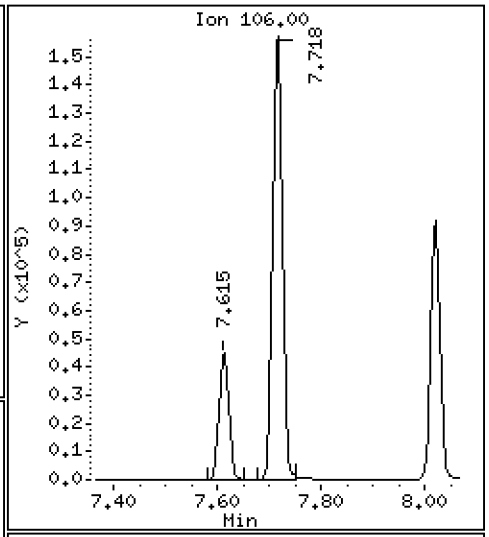
Concentration: 7.798 ug/L

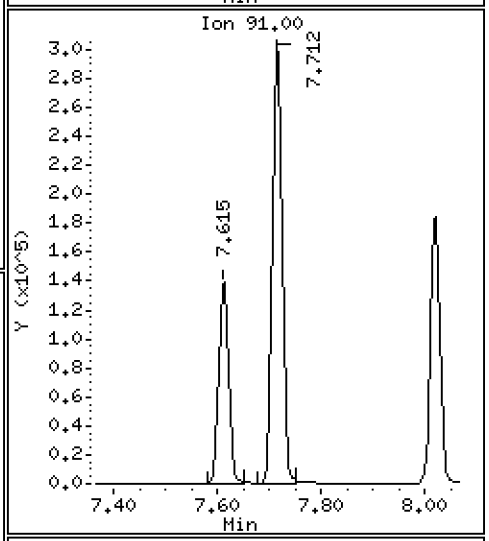


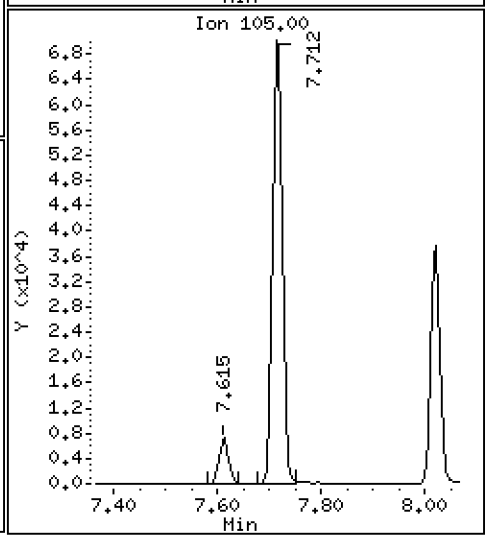












Date : 02-SEP-2019 16:54

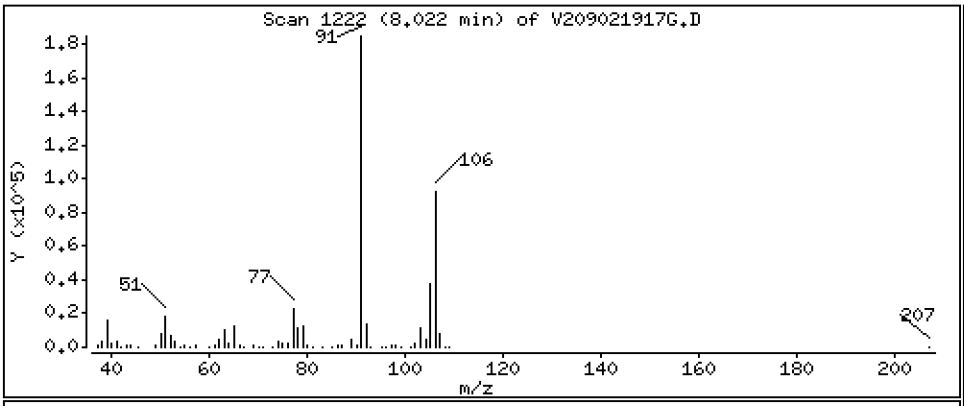
Client ID: Instrument: nt2.i

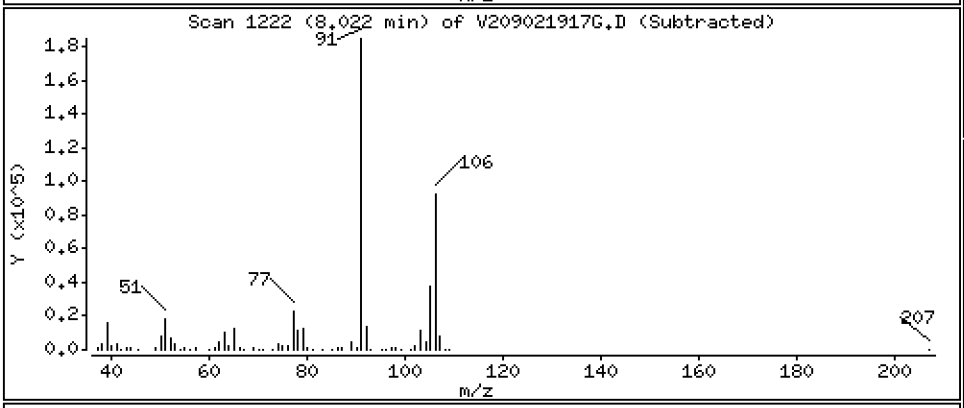
Sample Info: SHI0010-CALB

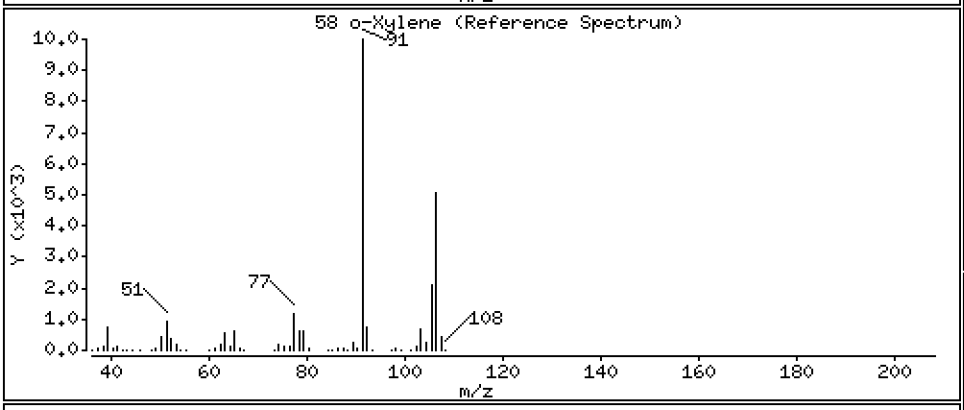
Operator: PKC

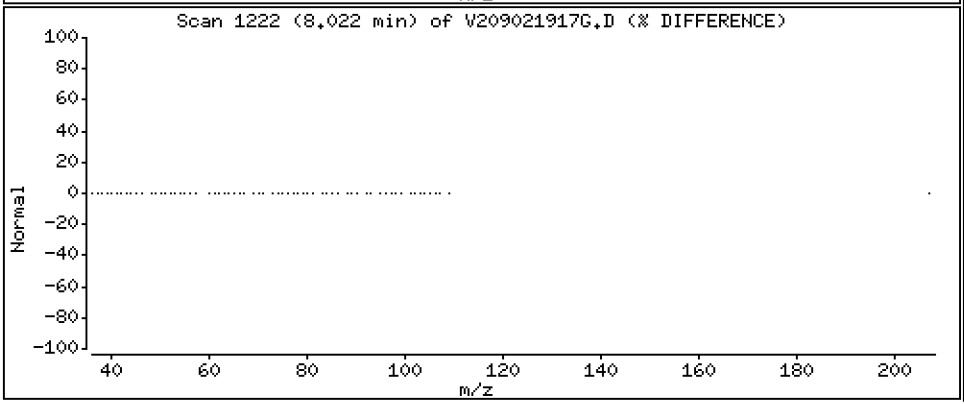
Column phase: RTXVMS Column diameter: 0.18

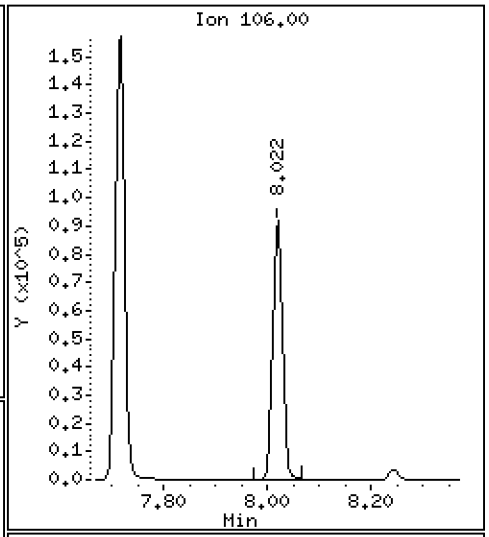
58 o-Xylene Concentration: 4.479 ug/L

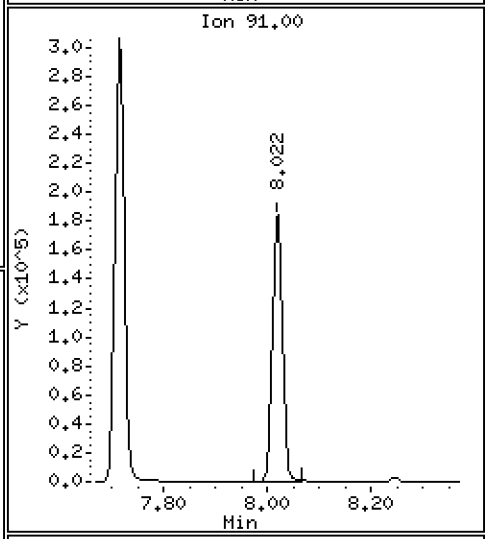


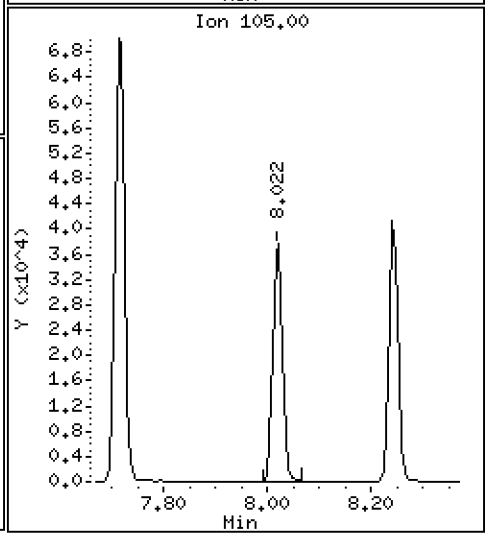












Date : 02-SEP-2019 16:54

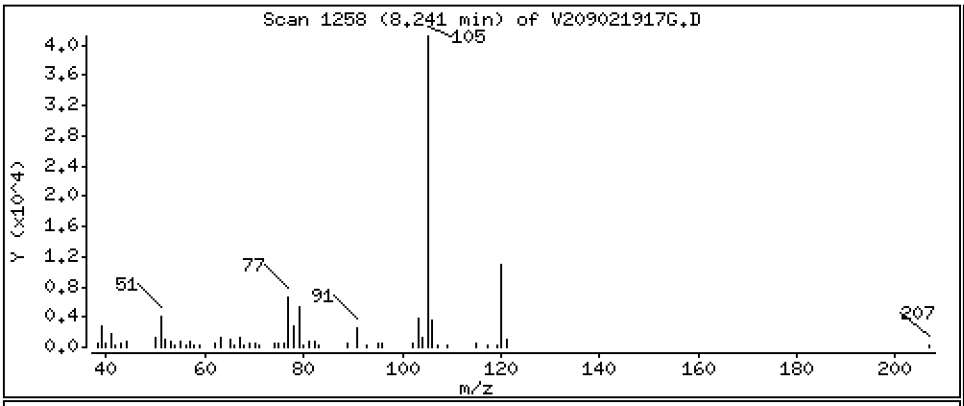
Client ID: Instrument: nt2.i

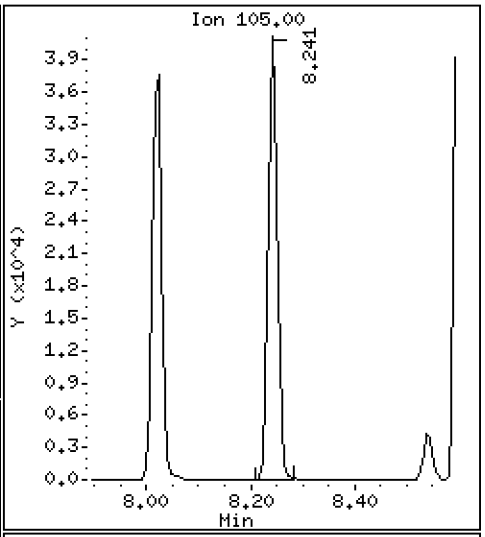
Sample Info: SHI0010-CALB

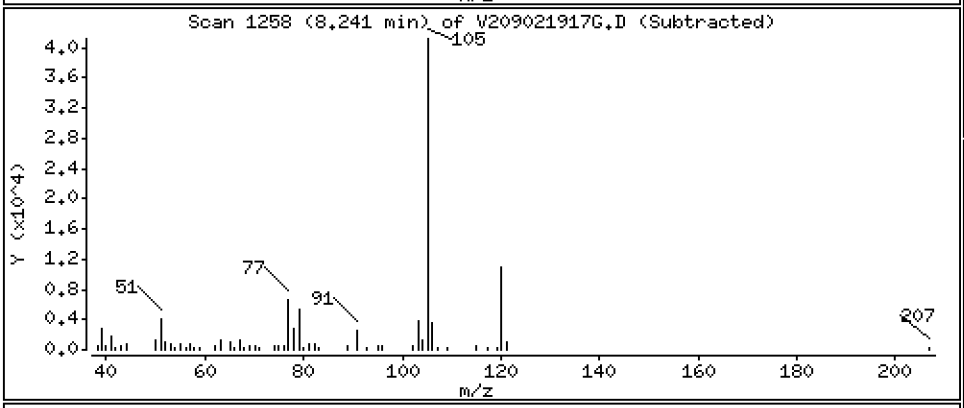
Operator: PKC

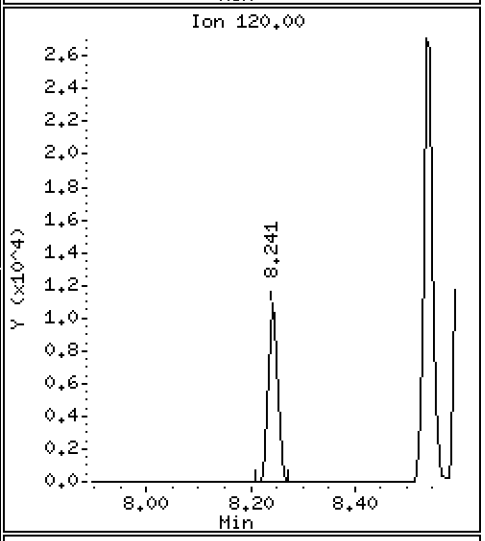
Column phase: RTXVMS Column diameter: 0.18

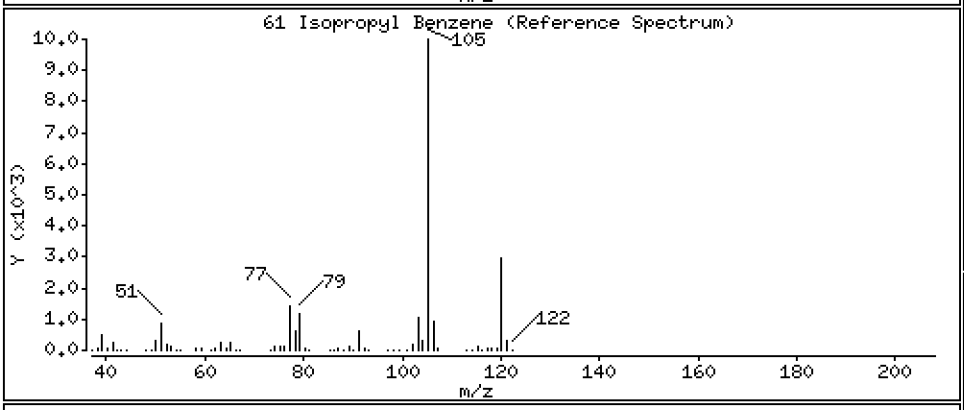
61 Isopropyl Benzene Concentration: 0.7572 ug/L

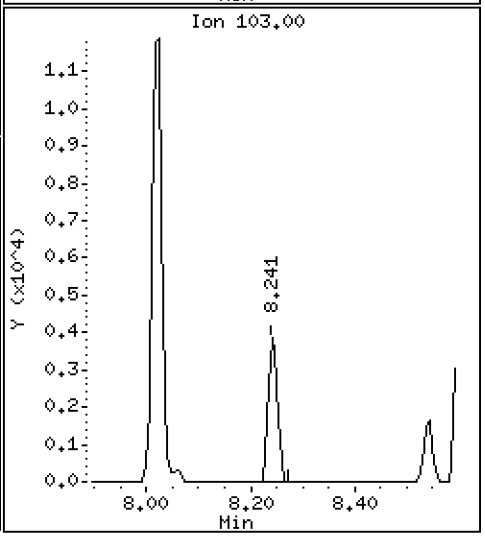


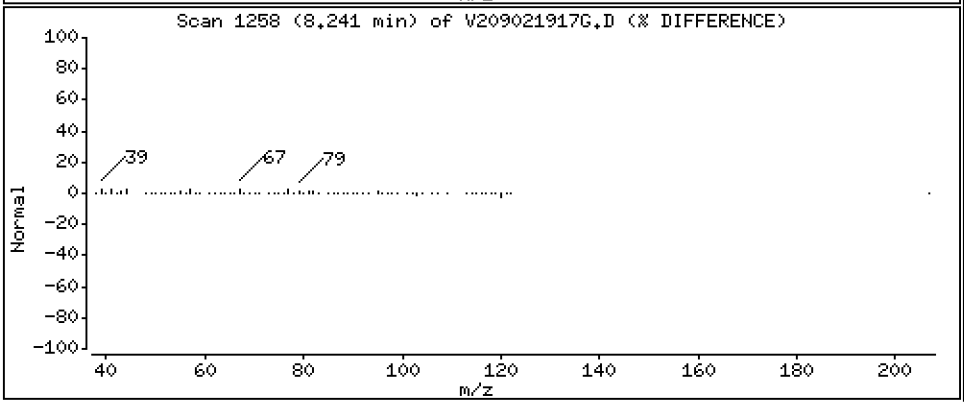












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

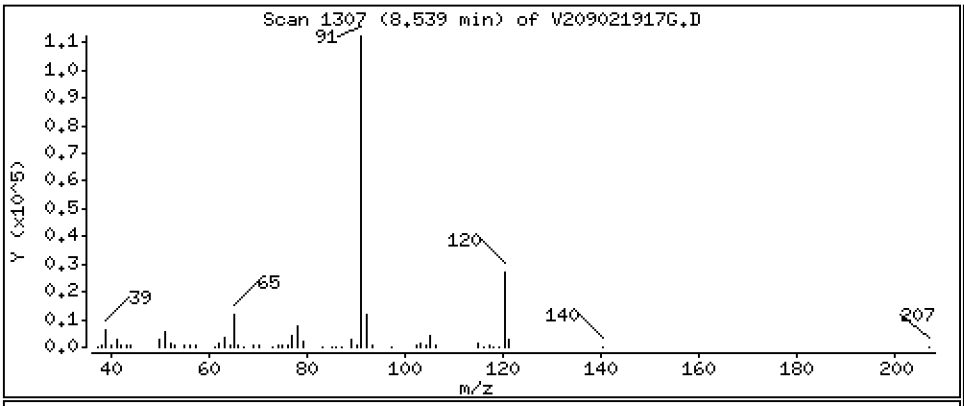
Operator: PKC

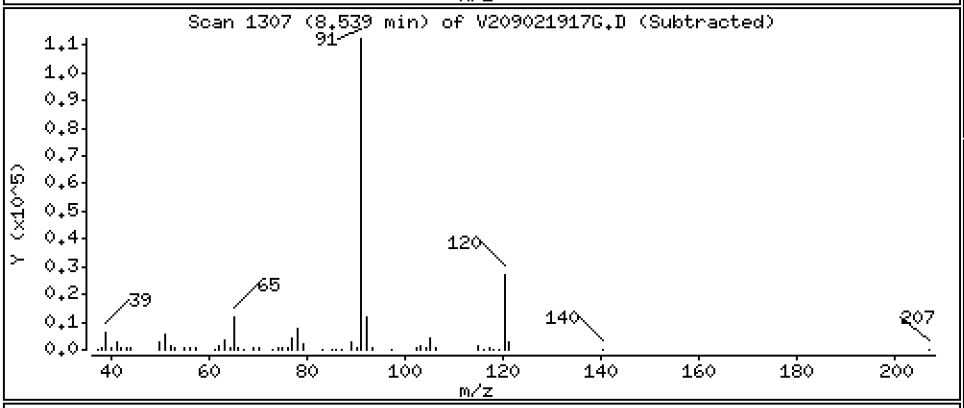
Column phase: RTXVMS

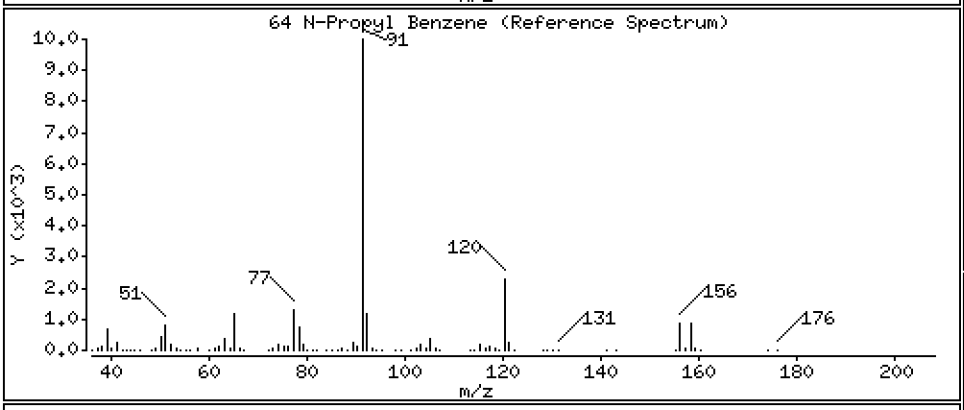
Column diameter: 0.18

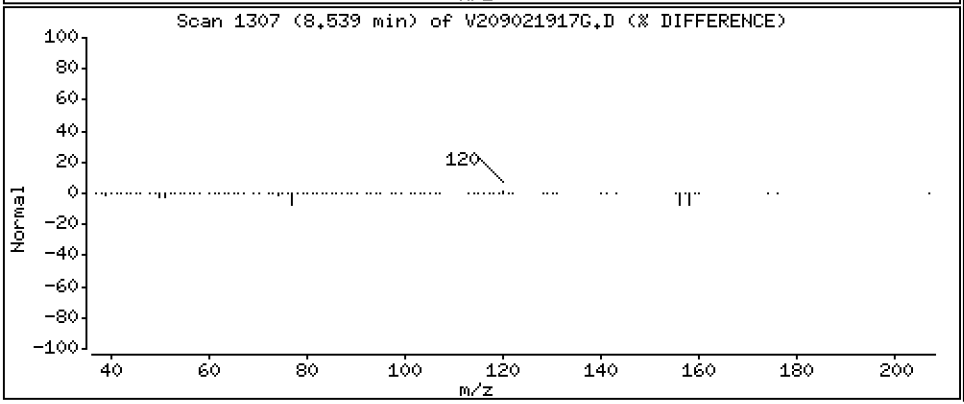
64 N-Propyl Benzene

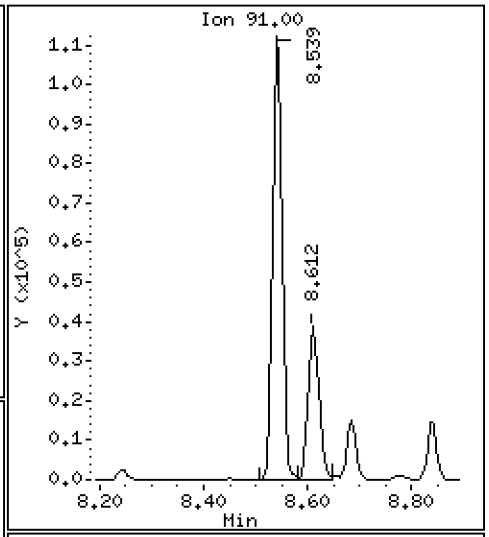
Concentration: 1.860 ug/L

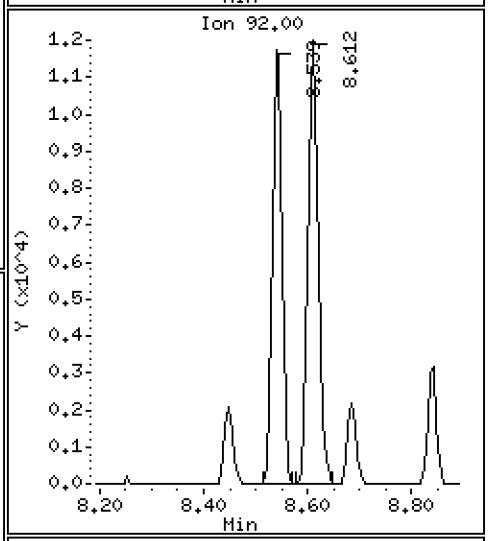


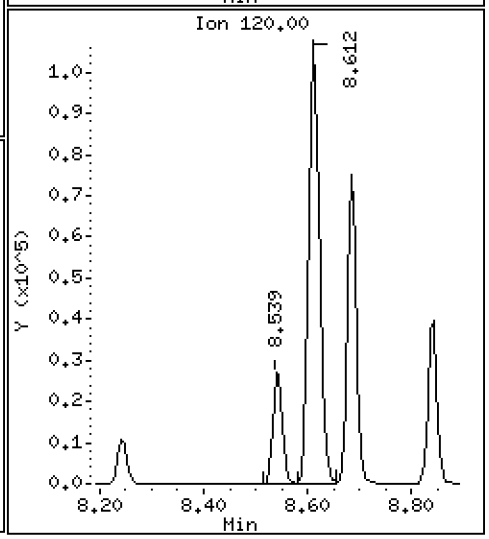












Date : 02-SEP-2019 16:54

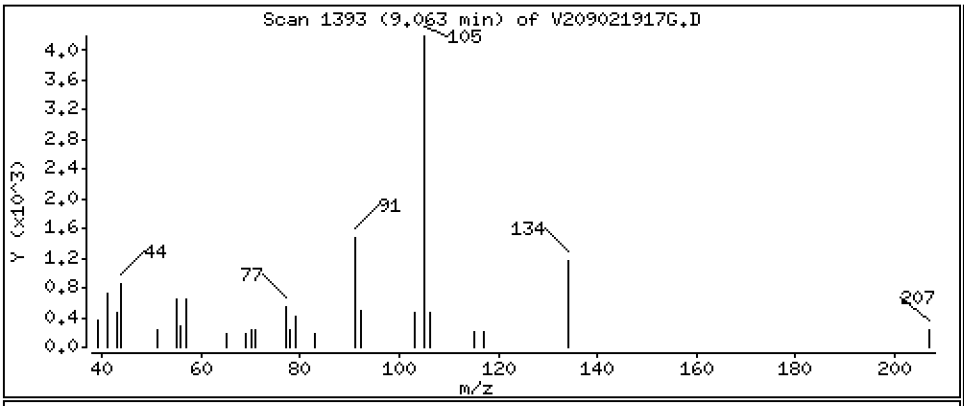
Client ID: Instrument: nt2.i

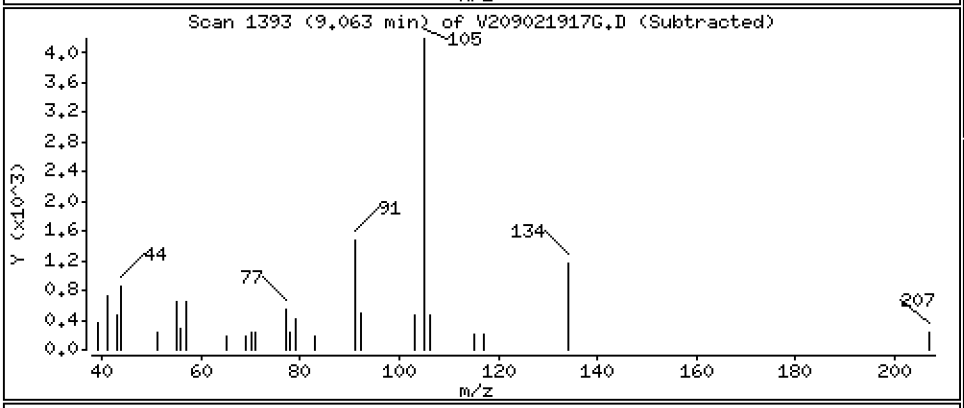
Sample Info: SHI0010-CALB

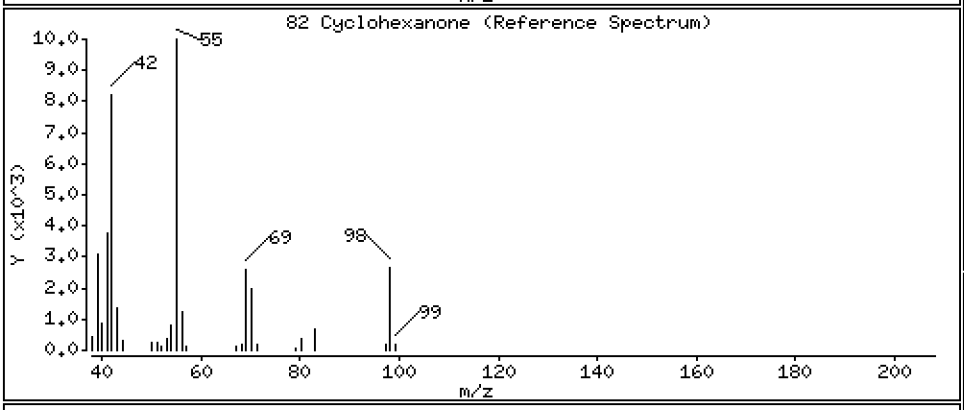
Operator: PKC

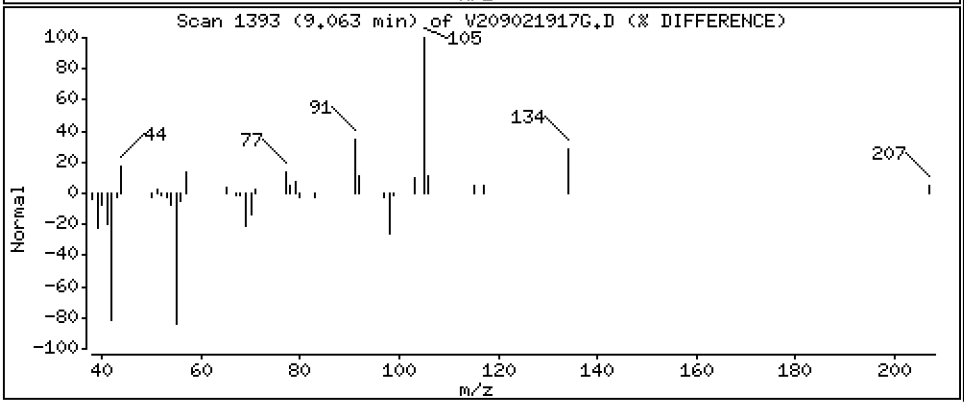
Column phase: RTXVMS Column diameter: 0.18

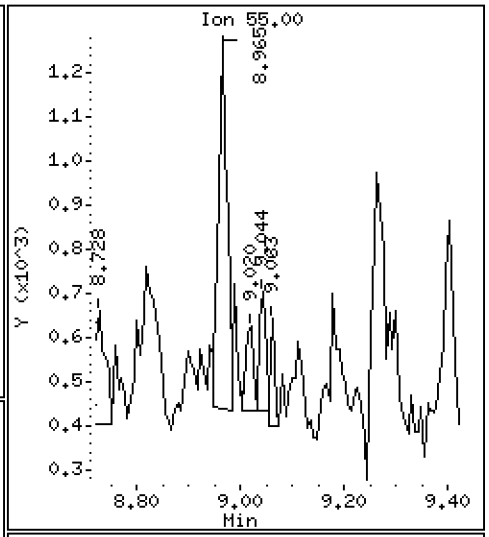
82 Cyclohexanone

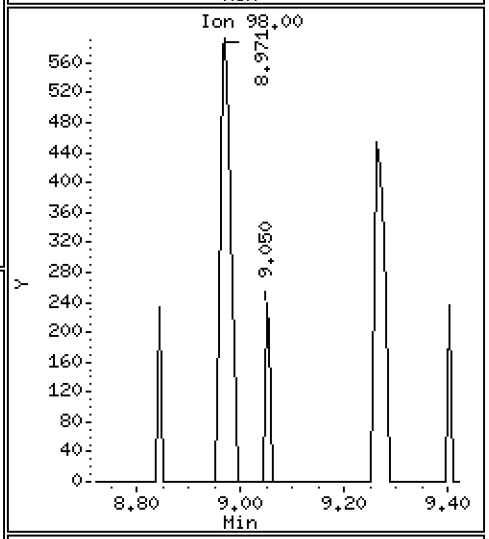


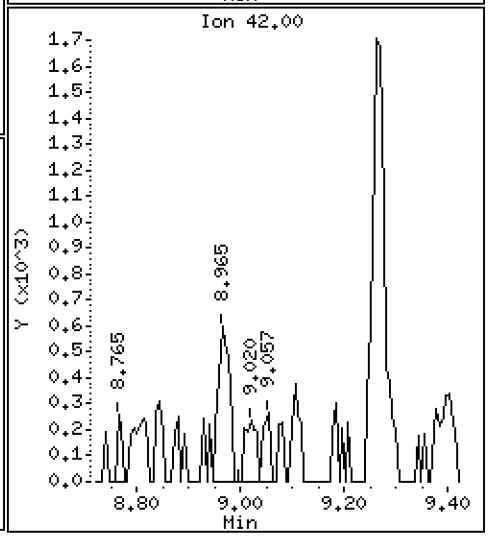












Date : 02-SEP-2019 16:54

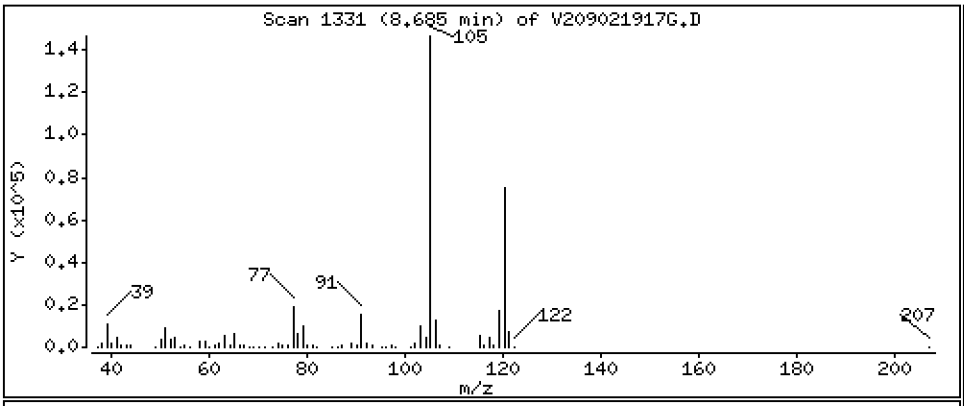
Client ID: Instrument: nt2.i

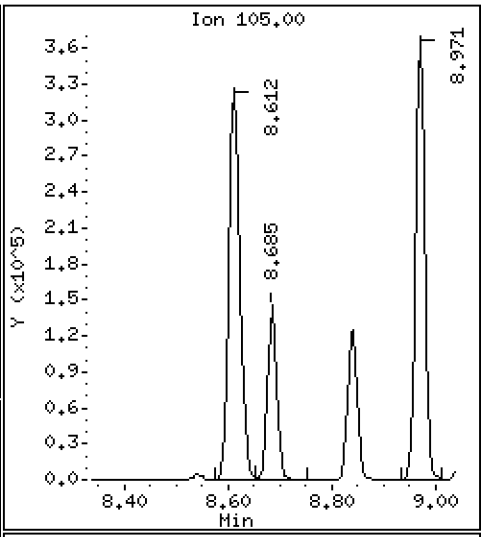
Sample Info: SHI0010-CALB

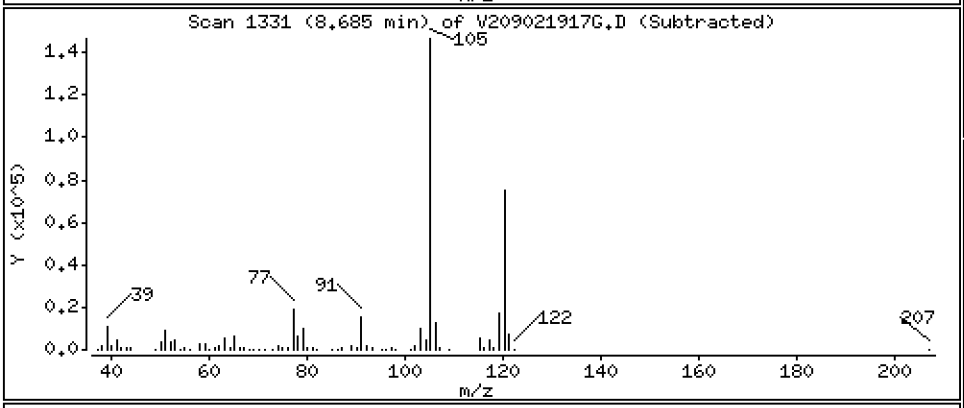
Operator: PKC

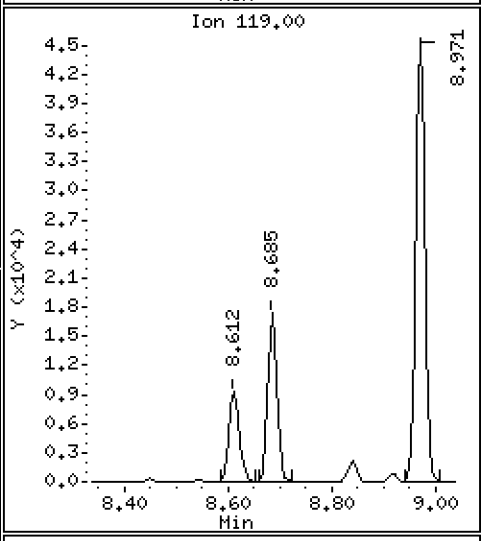
Column phase: RTXVMS Column diameter: 0.18

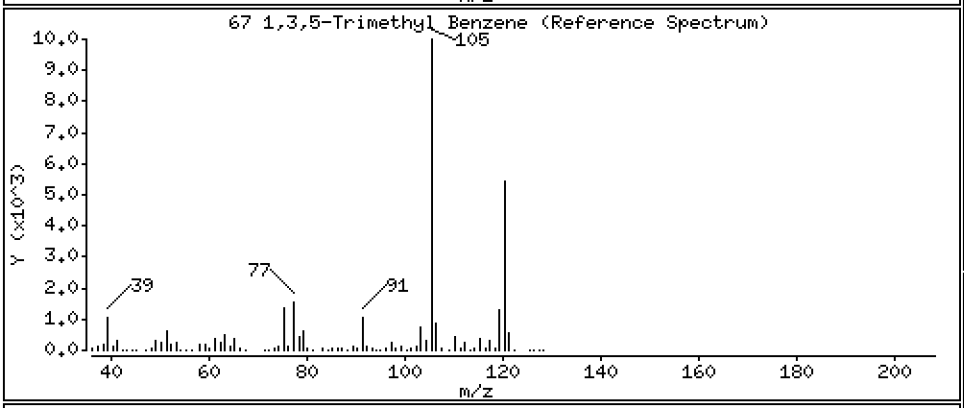
67 1,3,5-Trimethyl Benzene Concentration: 3.370 ug/L

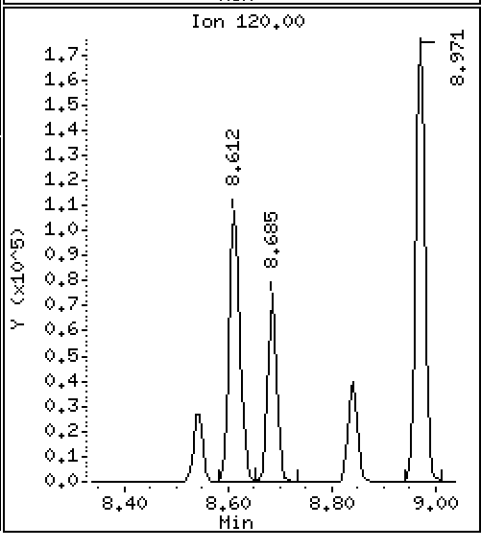


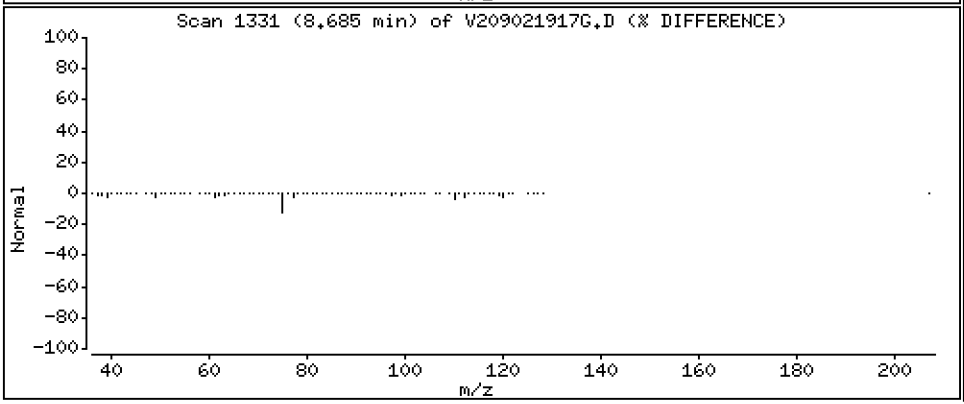












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

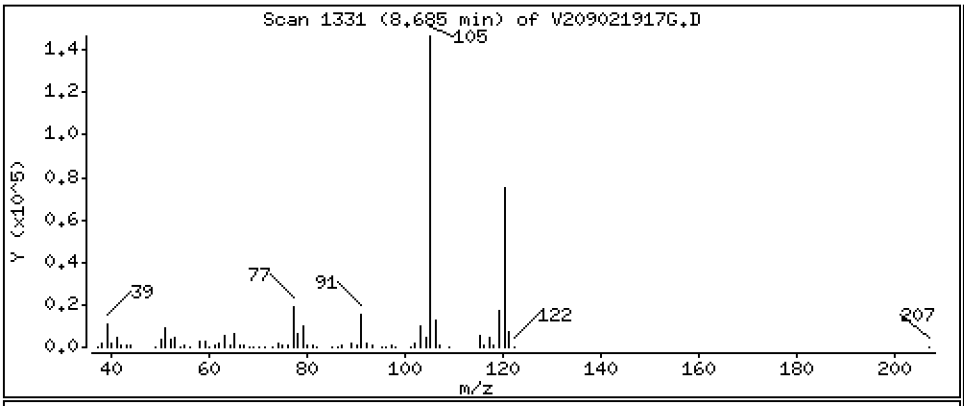
Operator: PKC

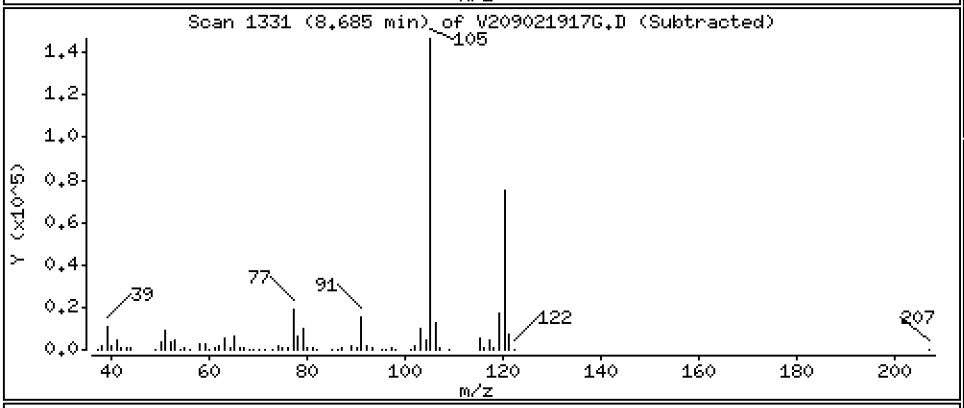
Column phase: RTXVMS

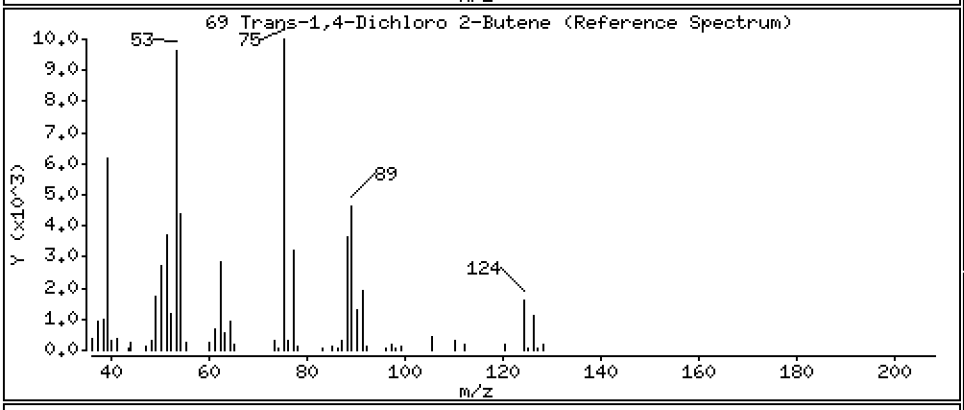
Column diameter: 0.18

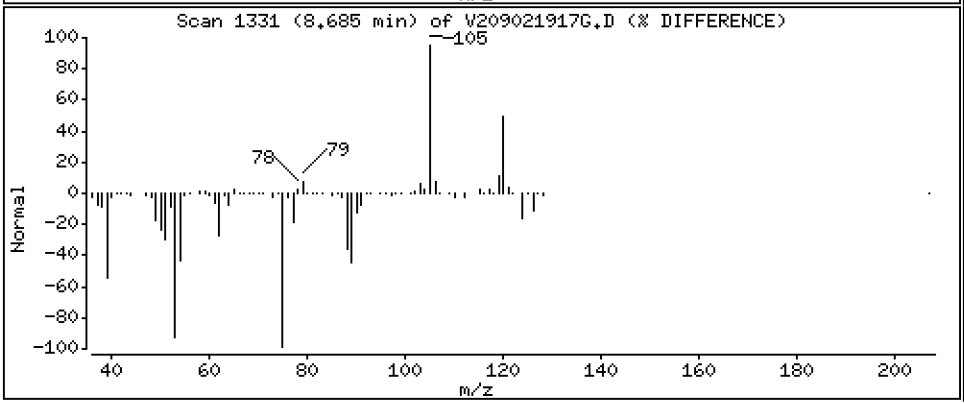
69 Trans-1,4-Dichloro 2-Butene

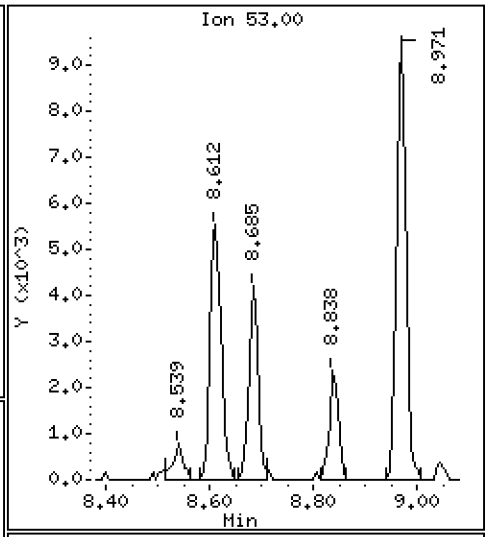
Concentration: 1.682 ug/L

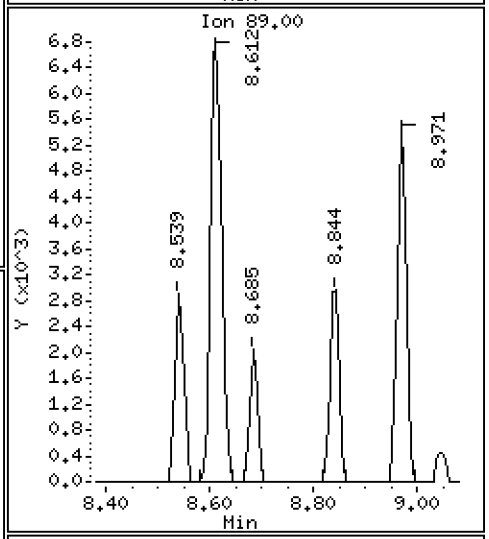


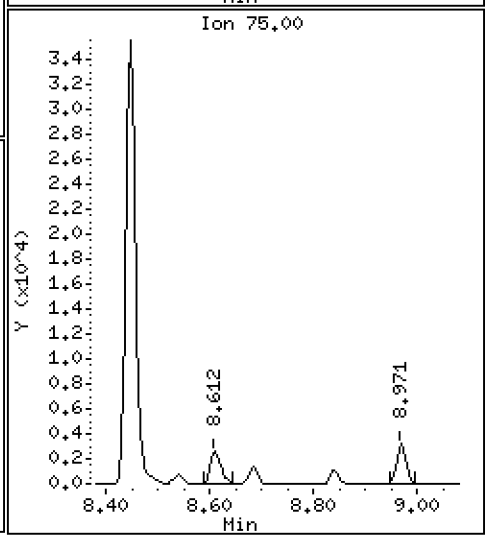












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

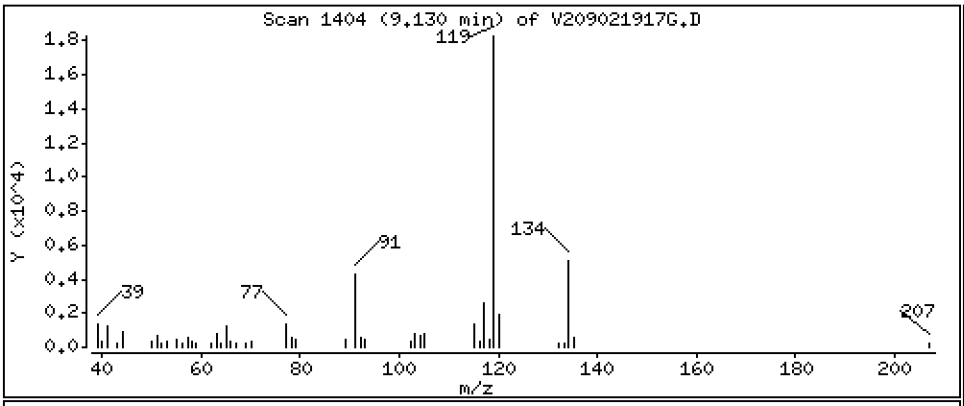
Operator: PKC

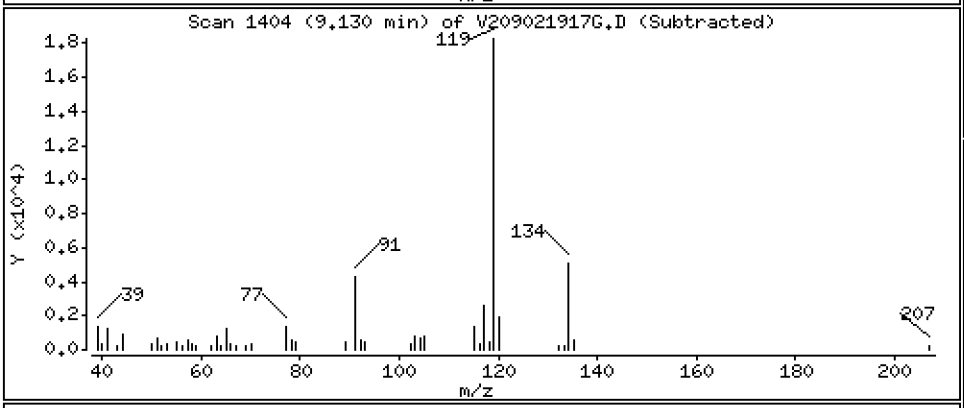
Column phase: RTXVMS

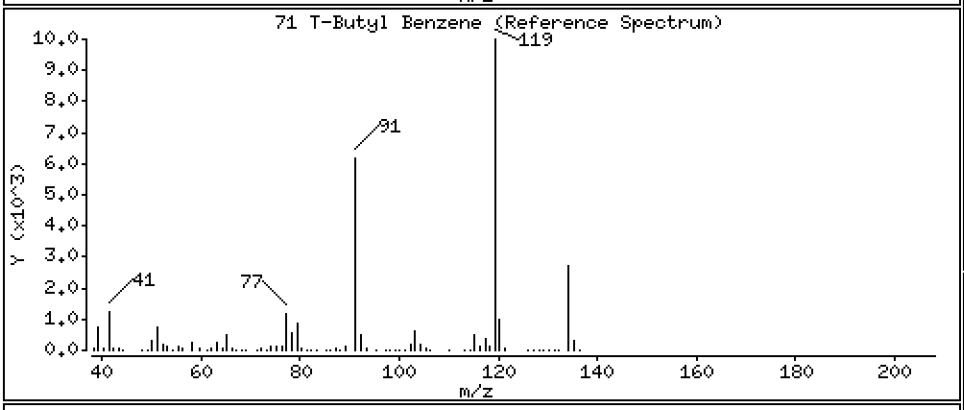
Column diameter: 0.18

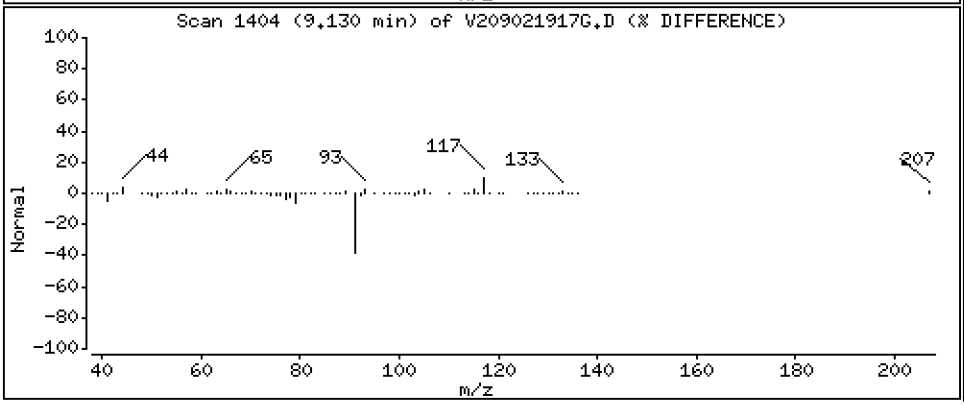
71 T-Butyl Benzene

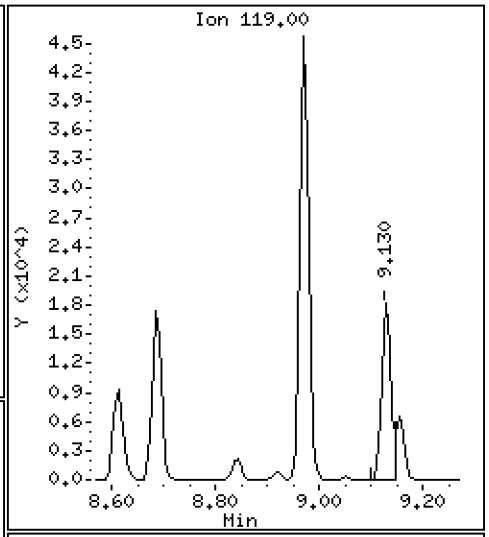
Concentration: 0.5360 ug/L

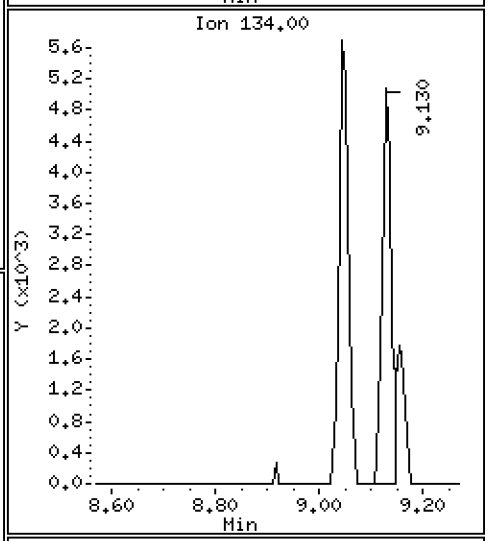


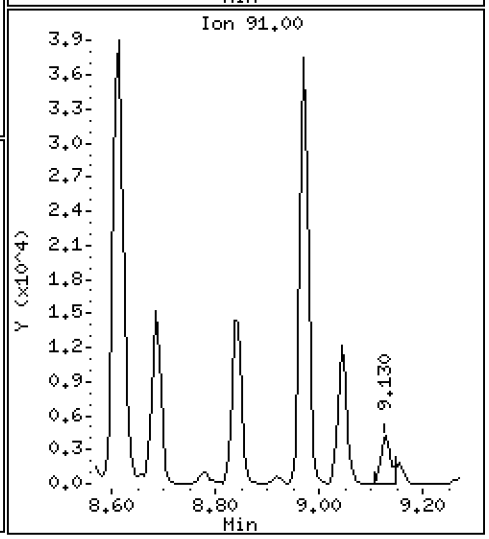












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

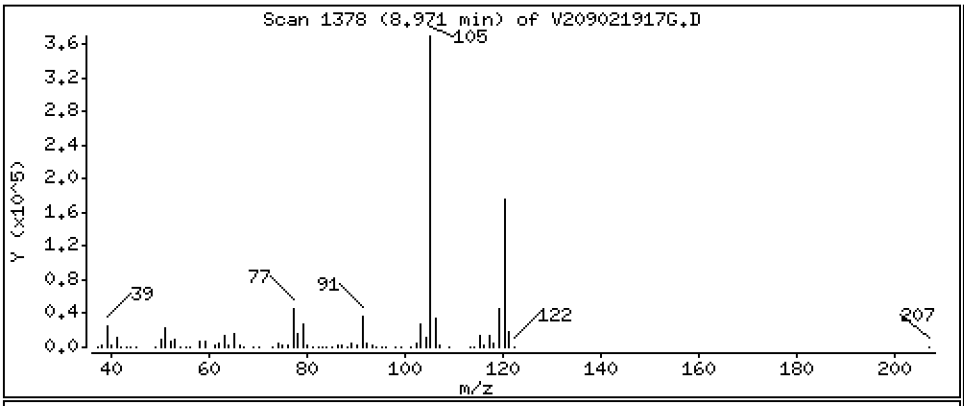
Operator: PKC

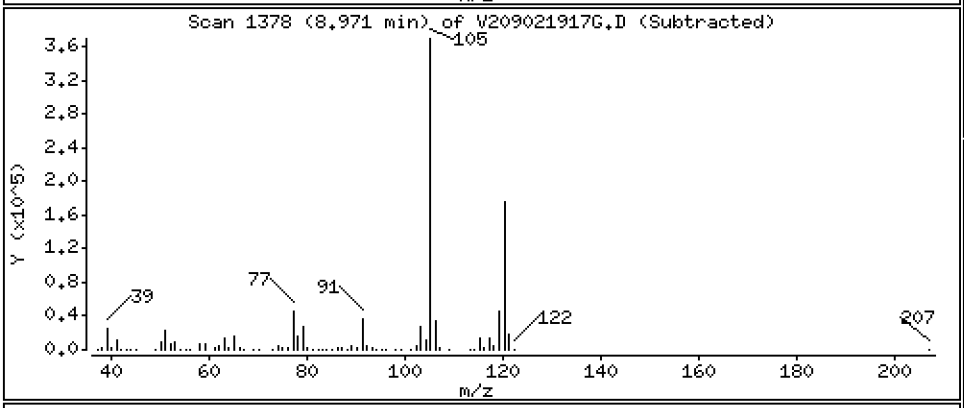
Column phase: RTXVMS

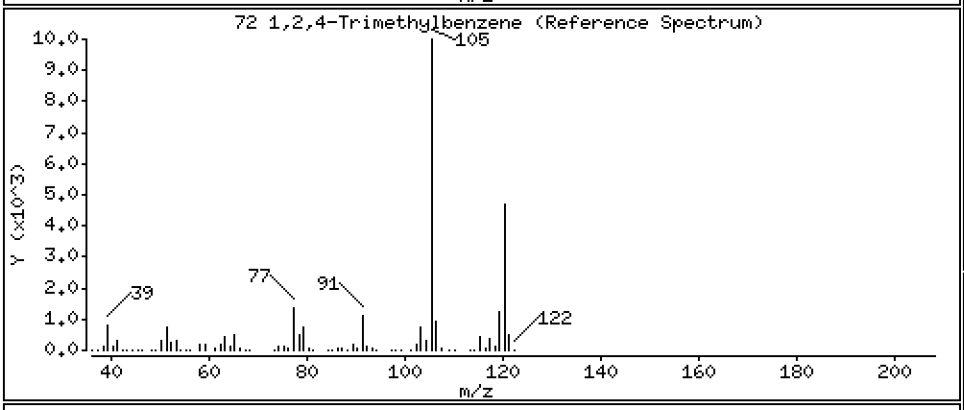
Column diameter: 0.18

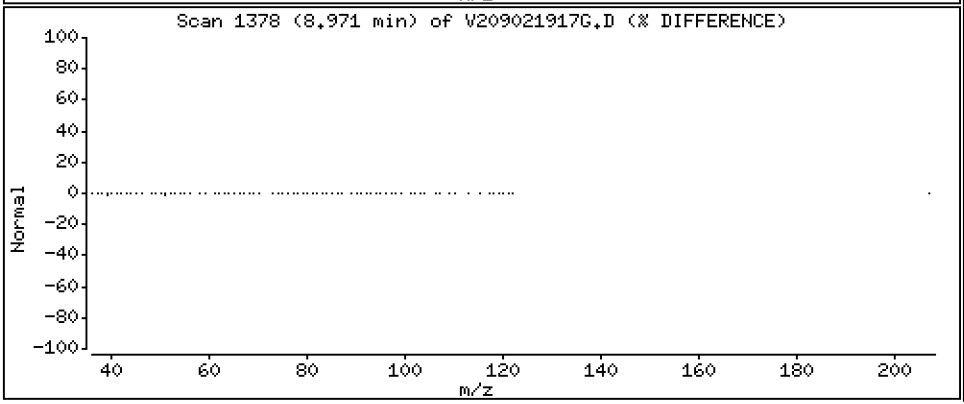
72 1,2,4-Trimethylbenzene

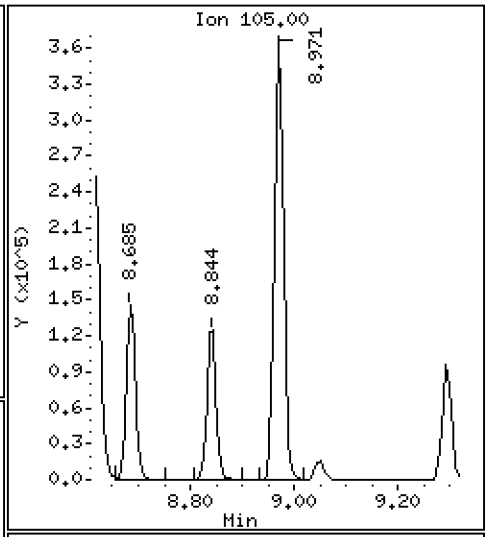
Concentration: 8.490 ug/L

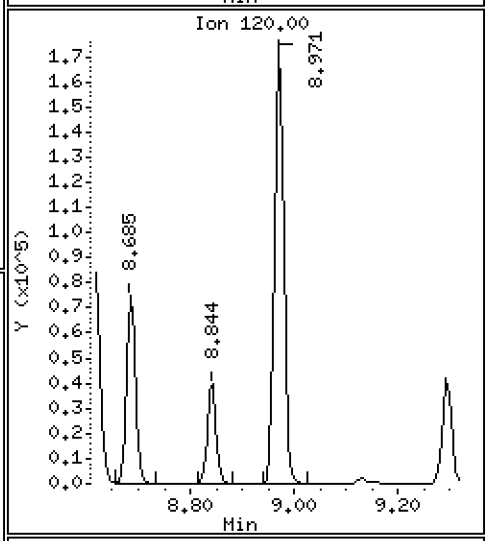


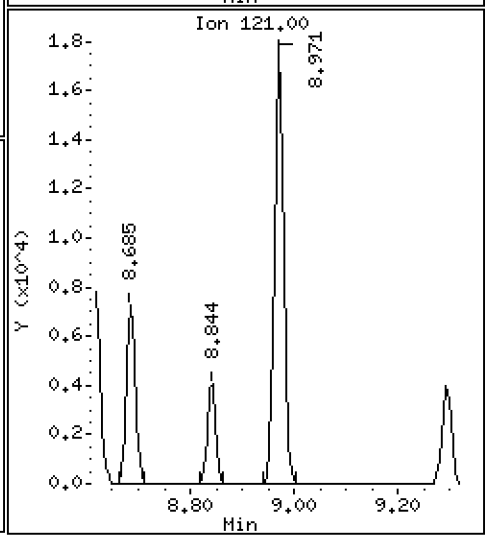












Date : 02-SEP-2019 16:54

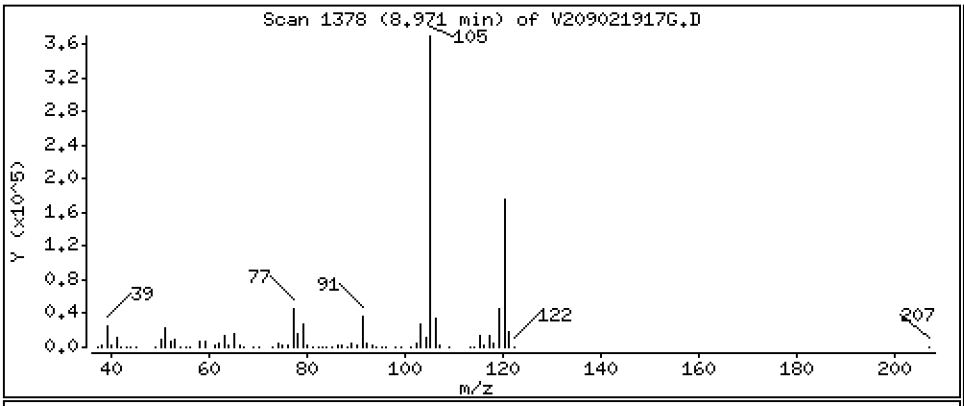
Client ID: Instrument: nt2.i

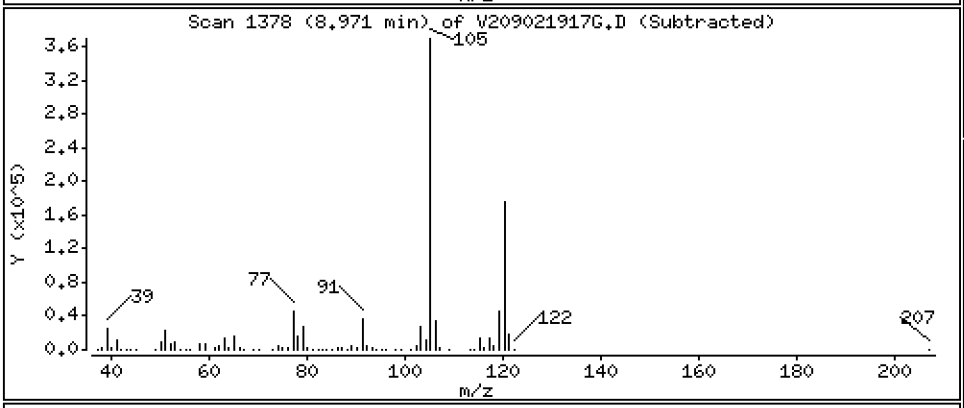
Sample Info: SHI0010-CALB

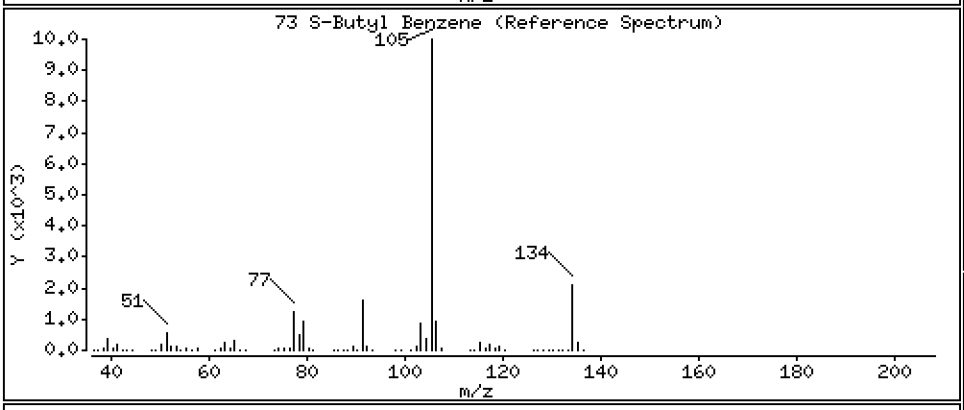
Operator: PKC

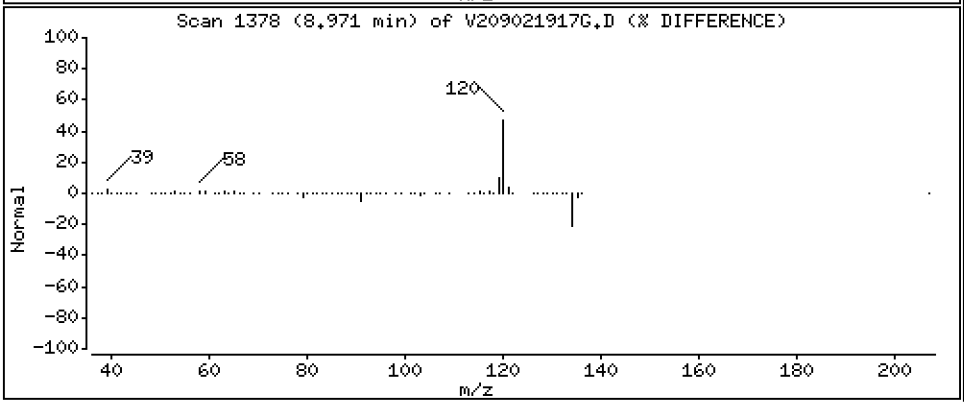
Column phase: RTXVMS Column diameter: 0.18

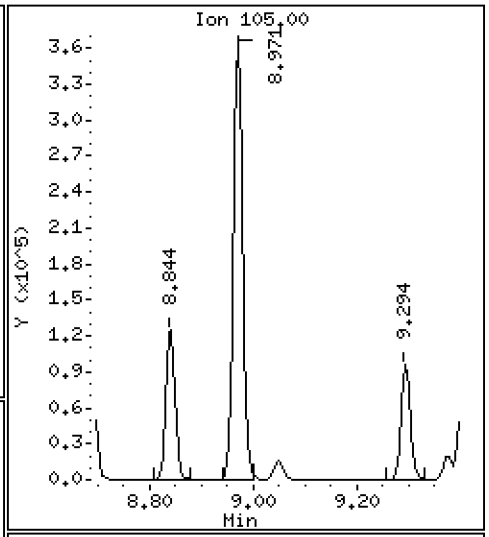
73 S-Butyl Benzene Concentration: 7.120 ug/L

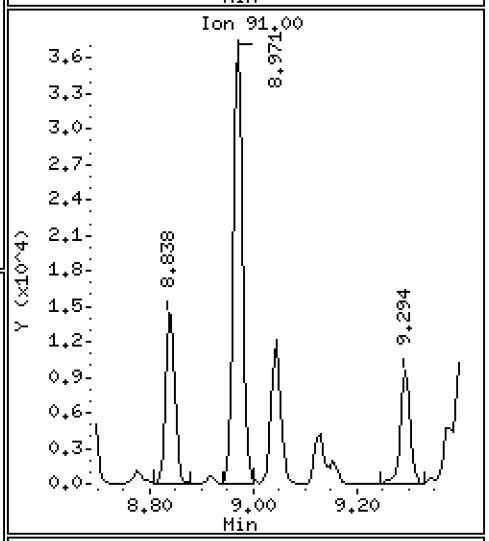


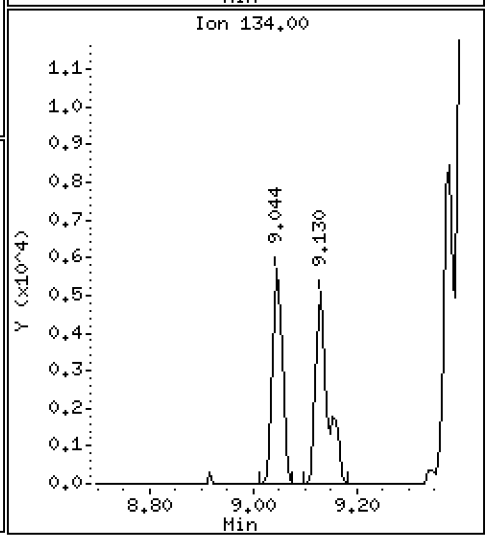












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Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

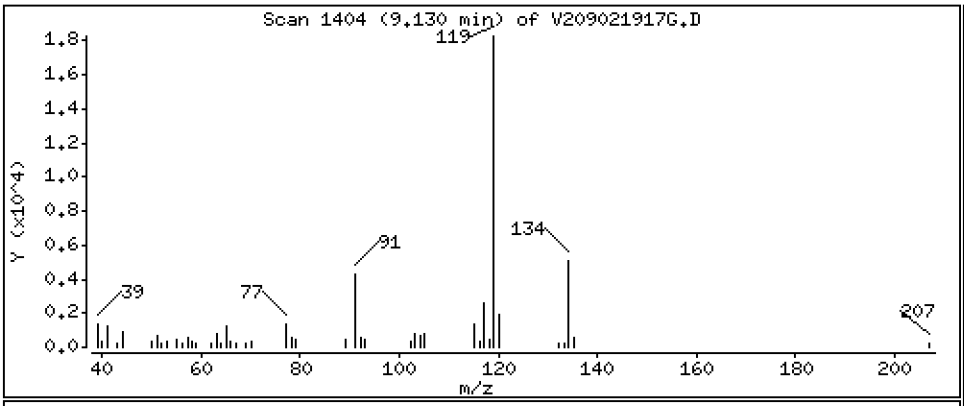
Operator: PKC

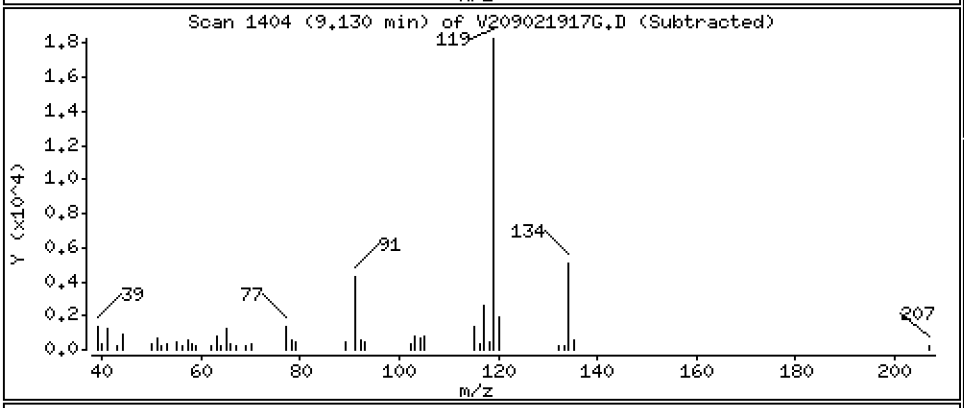
Column phase: RTXVMS

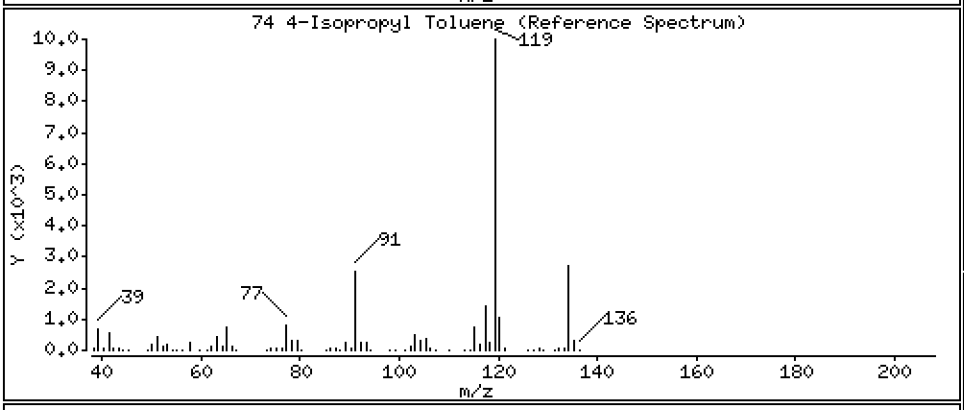
Column diameter: 0.18

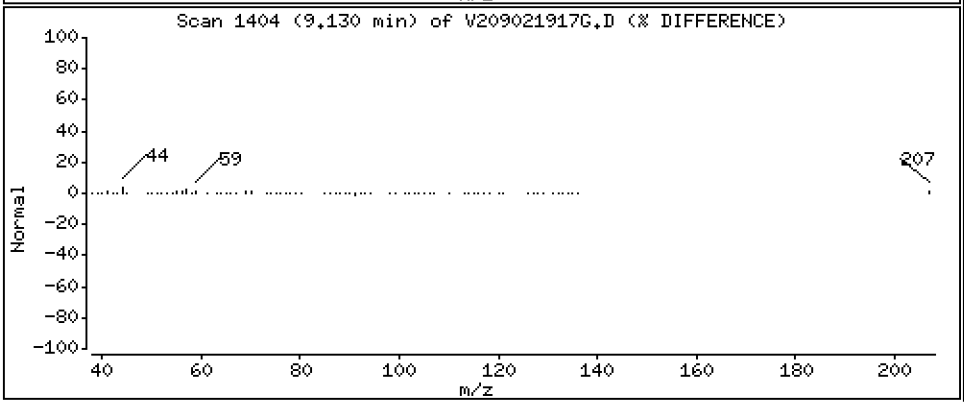
74 4-Isopropyl Toluene

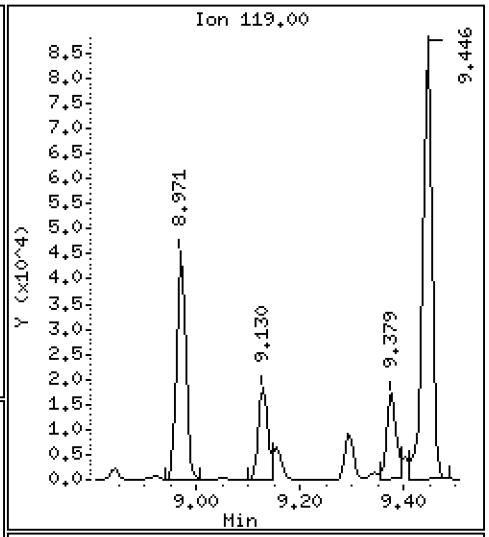
Concentration: 0.4510 ug/L

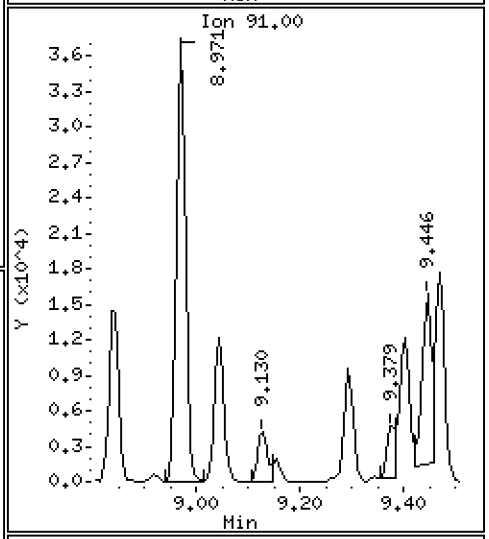


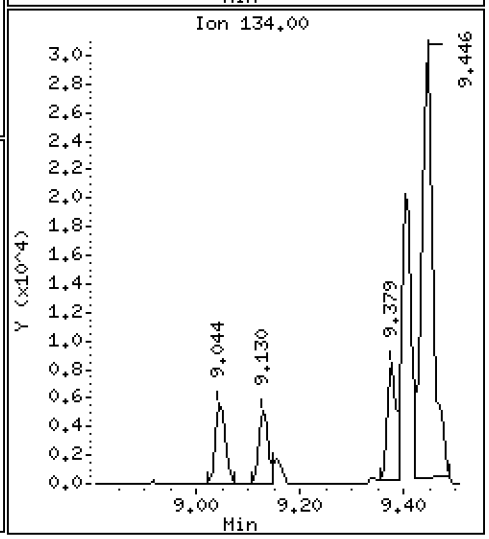












Date : 02-SEP-2019 16:54

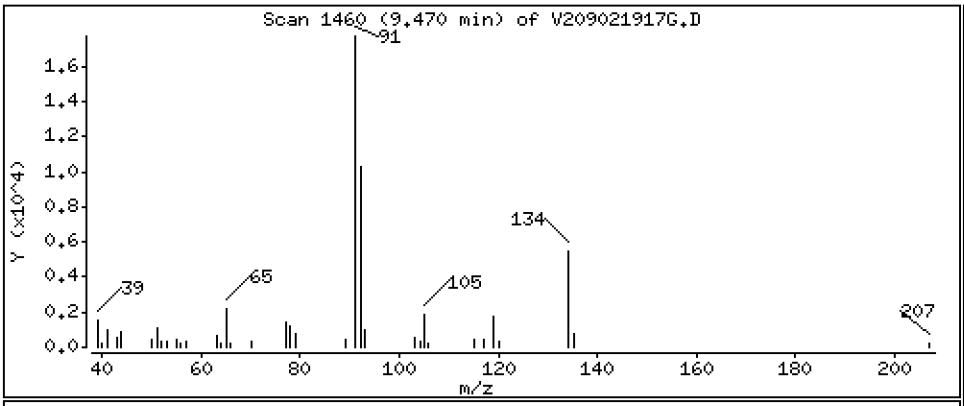
Client ID: Instrument: nt2.i

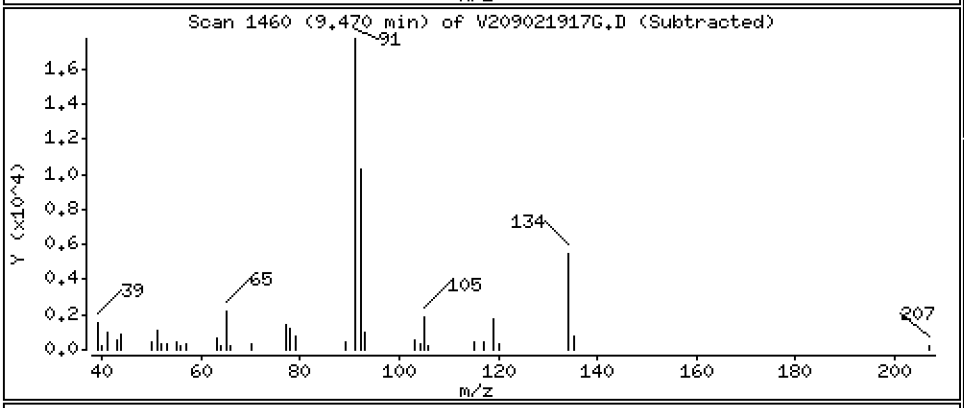
Sample Info: SHI0010-CALB

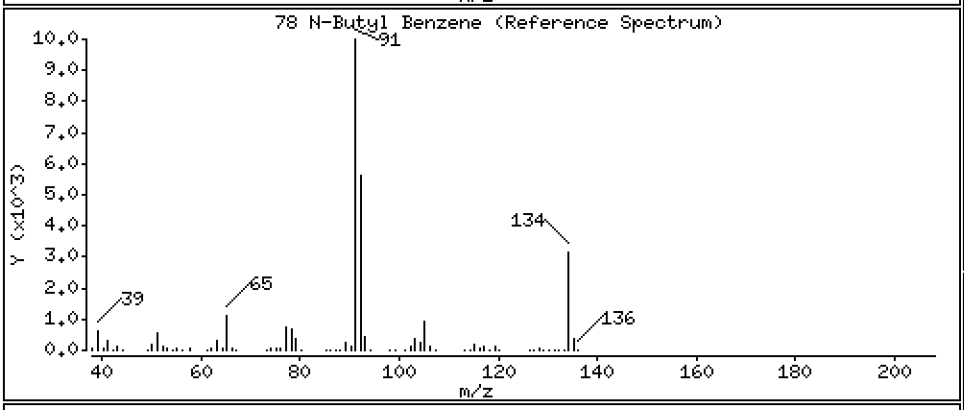
Operator: PKC

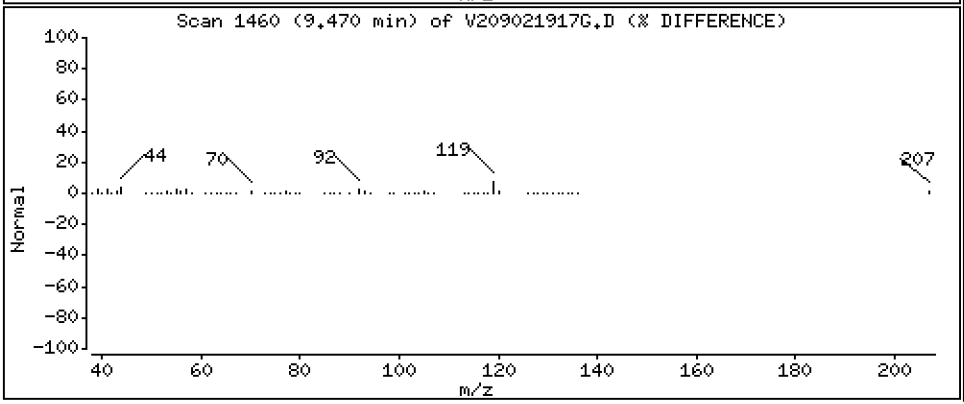
Column phase: RTXVMS Column diameter: 0.18

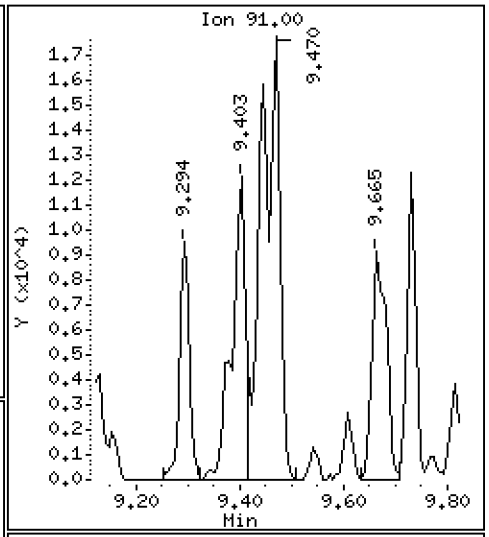
78 N-Butyl Benzene Concentration: 0.9636 ug/L

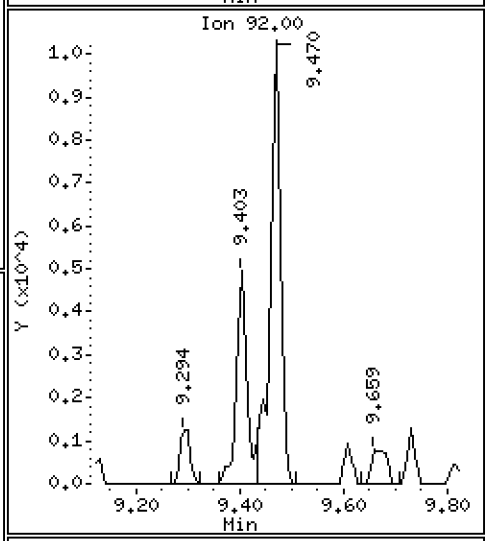


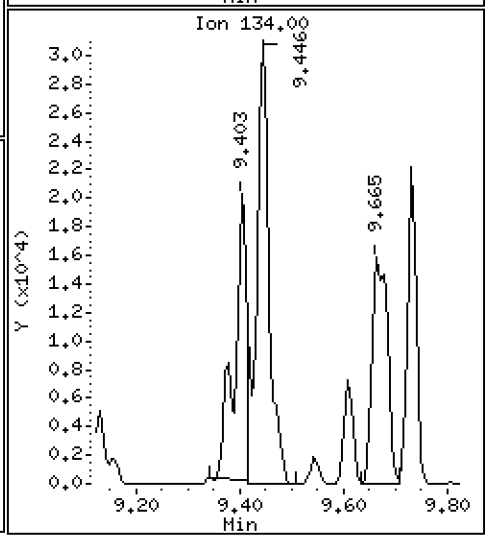












Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021917G.D

Date : 02-SEP-2019 16:54

Client ID:

Instrument: nt2.i

Sample Info: SHI0010-CALB

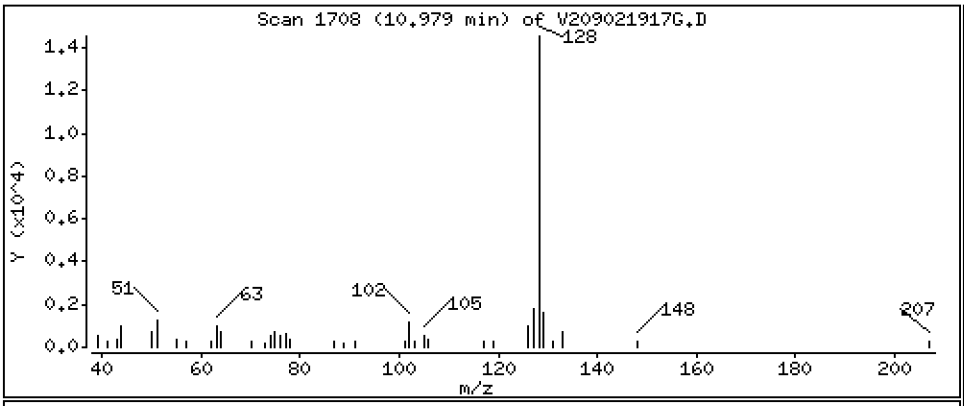
Operator: PKC

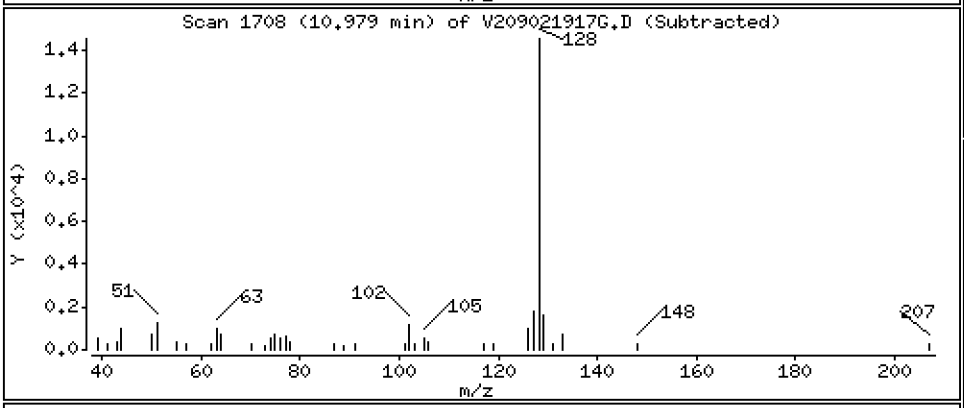
Column phase: RTXVMS

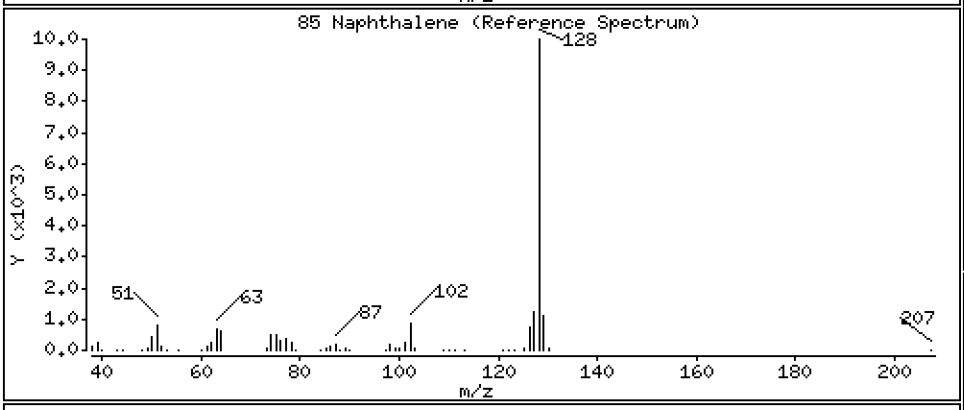
Column diameter: 0.18

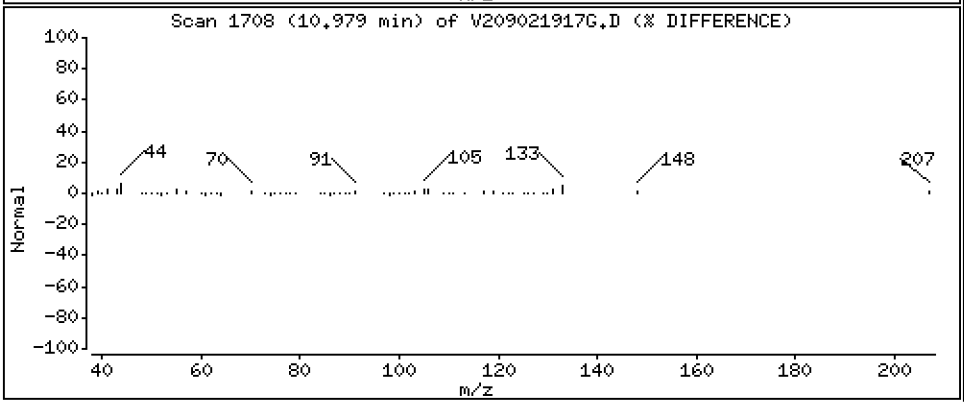
85 Naphthalene

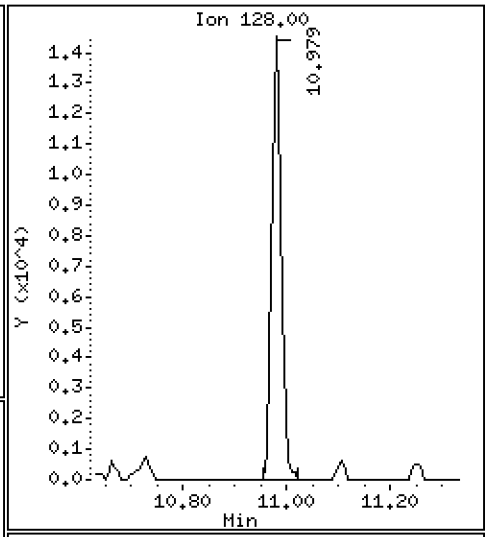
Concentration: 0.5428 ug/L

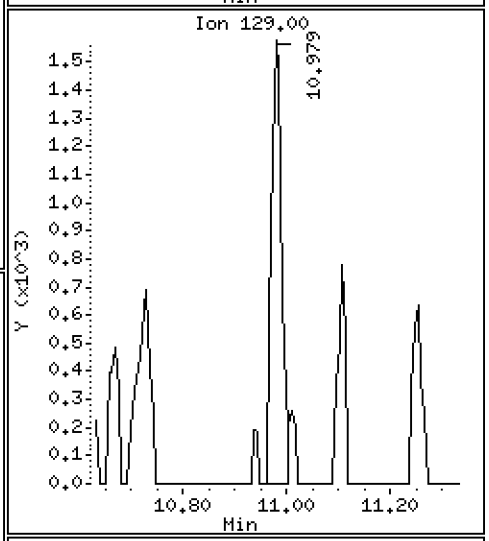


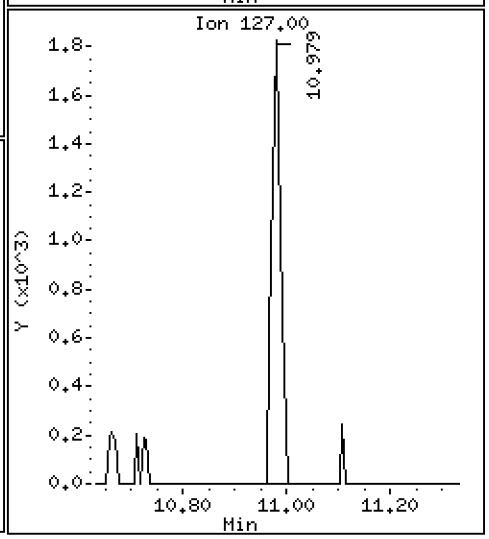












ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021917G.D
Lab Smp Id: SHI0010-CALB
Inj Date : 02-SEP-2019 16:54
Operator : PKC Inst ID: nt2.i
Smp Info : SHI0010-CALB
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52 Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: all.sub
Target Version: 4.14
Processing Host: ORGDATA11

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
	1 Dichlorodifluoromethane	85	Compound Not Detected.					
	2 Chloromethane	50	Compound Not Detected.					
	3 Vinyl Chloride	62	Compound Not Detected.					
	4 Bromomethane	94	Compound Not Detected.					
	5 Chloroethane	64	Compound Not Detected.					
	6 Trichlorofluoromethane	101	Compound Not Detected.					
	7 1,1-Dichloroethene	61	Compound Not Detected.					
	8 Carbon Disulfide	76	Compound Not Detected.					
	9 112Trichloro122Trifluoroethane	101	Compound Not Detected.					
	10 Iodomethane	142	Compound Not Detected.					
	11 Bromoethane	108	Compound Not Detected.					
	12 Acrolein	56	2.821	2.847	(0.550)	25922	12.9723	12.972
	13 Methylene Chloride	84	3.088	3.091	(0.602)	6142	0.39576	0.3958
	14 Acetone	43	3.076	3.194	(0.599)	56797	21.2462	21.246
	15 Trans-1,2-Dichloroethene	96	Compound Not Detected.					
	16 n-hexane	41	3.338	3.340	(0.650)	88625	8.43269	8.433
	17 Methyl tert butyl ether	73	Compound Not Detected.					
	18 1,1-Dichloroethane	63	Compound Not Detected.					
	19 Acrylonitrile	53	3.916	3.954	(0.763)	10902	2.71849	2.718
	21 Allyl Chloride	41	4.597	4.560	(0.896)	40156		
	20 Vinyl Acetate	43	4.390	4.149	(0.855)	22553	0.78142	0.7814
	22 Cis-1,2-Dichloroethene	96	Compound Not Detected.					
	23 2,2-Dichloropropane	77	Compound Not Detected.					
	24 Bromochloromethane	128	Compound Not Detected.					
	25 Chloroform	83	4.493	4.599	(0.876)	7898	0.32179	0.3218
	26 Carbon Tetrachloride	117	Compound Not Detected.					
$	27 Dibromofluoromethane	111	4.743	4.745	(0.924)	56249	4.88130	4.881
	28 1,1,1-Trichloroethane	97	Compound Not Detected.					
	30 1,1-Dichloropropene	75	Compound Not Detected.					
	29 2-Butanone	43	4.846	4.873	(0.944)	30989	6.48217	6.482
	31 Benzene	78	5.035	5.037	(0.912)	15632	0.26151	0.2615
*	32 Pentafluorobenzene	168	5.132	5.128	(1.000)	227230	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	69249	5.16787	5.168

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
	35 Methyl Methacrylate	41	5.698	5.693	(1.032)	8218		
	34 1,2-Dichloroethane	62	Compound Not Detected.					
	36 Trichloroethene	130	Compound Not Detected.					
*	37 1,4-Difluorobenzene	114	5.522	5.518	(1.000)	400726	10.0000	
	38 Dibromomethane	93	Compound Not Detected.					
	39 1,2-Dichloropropane	63	Compound Not Detected.					
	40 Bromodichloromethane	83	5.741	5.919	(1.040)	6790	0.37445	0.3744
	173 2-Pentanone	86	6.093	6.156	(1.104)	2624	1.57808	1.578
	42 Cis 1,3-dichloropropene	75	Compound Not Detected.					
$	43 d8-Toluene	98	6.495	6.497	(1.176)	248459	4.95196	4.952
	41 2-Chloroethyl Vinyl Ether	63	6.531	6.339	(1.183)	19911	2.39171	2.392
	44 Toluene	92	6.531	6.534	(1.183)	145921	3.80056	3.801
	45 4-Methyl-2-Pentanone	58	Compound Not Detected.					
	46 Tetrachloroethene	166	Compound Not Detected.					
	47 Trans 1,3-Dichloropropene	75	6.531	6.832	(1.183)	1553	0.07706	0.07706
	48 1,1,2-Trichloroethane	97	6.909	6.941	(1.251)	4744	0.40740	0.4074
	49 Chlorodibromomethane	129	Compound Not Detected.					
	50 1,3-Dichloropropane	76	Compound Not Detected.					
	51 1,2-Dibromoethane	107	Compound Not Detected.					
	52 2-Hexanone	43	7.261	7.391	(0.958)	6993	0.98182	0.9818
*	53 d5-Chlorobenzene	117	7.578	7.580	(1.000)	363216	10.0000	
	54 Chlorobenzene	112	Compound Not Detected.					
	55 Ethyl Benzene	106	7.614	7.610	(1.005)	58848	2.64843	2.648
	56 1,1,1,2-Tetrachloroethane	131	Compound Not Detected.					
	57 m,p-xylene	106	7.718	7.714	(1.018)	205761	7.79837	7.798
	58 o-Xylene	106	8.022	8.018	(1.059)	120207	4.47851	4.479
	59 Styrene	104	Compound Not Detected.					
	60 Bromoform	173	Compound Not Detected.					
	61 Isopropyl Benzene	105	8.241	8.244	(0.889)	50457	0.75719	0.7572
$	62 4-Bromofluorobenzene	174	8.448	8.450	(1.115)	68473	5.04244	5.042
	63 Bromobenzene	156	Compound Not Detected.					
	64 N-Propyl Benzene	91	8.539	8.542	(0.921)	142025	1.86034	1.860
	82 Cyclohexanone	55	9.062	9.074	(1.196)	129		
	65 1,1,2,2-Tetrachloroethane	83	Compound Not Detected.					
	66 2-Chloro Toluene	91	Compound Not Detected.					
	67 1,3,5-Trimethyl Benzene	105	8.685	8.687	(0.937)	177967	3.36991	3.370
	68 1,2,3-Trichloropropane	110	Compound Not Detected.					
	69 Trans-1,4-Dichloro 2-Butene	53	8.685	8.730	(0.937)	5515	1.68173	1.682
	70 4-Chloro Toluene	91	Compound Not Detected.					
	71 T-Butyl Benzene	119	9.129	8.918	(0.985)	24183	0.53604	0.5360
	72 1,2,4-Trimethylbenzene	105	8.971	8.967	(0.968)	450484	8.48970	8.490
	73 S-Butyl Benzene	105	8.971	9.046	(0.968)	448632	7.12035	7.120
	74 4-Isopropyl Toluene	119	9.129	9.156	(0.985)	24183	0.45100	0.4510
	75 1,3-Dichlorobenzene	146	Compound Not Detected.					
*	76 d4-1,4-Dichlorobenzene	152	9.269	9.265	(1.000)	177077	10.0000	
	77 1,4-Dichlorobenzene	146	Compound Not Detected.					
	78 N-Butyl Benzene	91	9.470	9.472	(1.022)	44675	0.96364	0.9636
$	79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.034)	81175	4.92256	4.923
	80 1,2-Dichlorobenzene	146	Compound Not Detected.					
	81 1,2-Dibromo 3-Chloropropane	75	Compound Not Detected.					
	83 Hexachloro 1,3-Butadiene	225	Compound Not Detected.					
	84 1,2,4-Trichlorobenzene	180	Compound Not Detected.					
	85 Naphthalene	128	10.978	10.981	(1.184)	18428	0.54279	0.5428
	86 1,2,3-Trichlorobenzene	180	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021917G.D
Lab Smp Id: SHI0010-CALB
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	227230	-2.60
37 1,4-Difluorobenze	412164	206082	824328	400726	-2.78
53 d5-Chlorobenzene	378243	189122	756486	363216	-3.97
76 d4-1,4-Dichlorobe	186173	93087	372346	177077	-4.89

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.08
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CALB
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: all.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	100.00	4.881	4.88	
$ 33 d4-1,2-Dichloroeth	100.00	5.168	5.17	
$ 43 d8-Toluene	100.00	4.952	4.95	
$ 62 4-Bromofluorobenze	100.00	5.042	5.04	
$ 79 d4-1,2-Dichloroben	100.00	4.923	4.92	

REVIEW SUMMARY FOR FILE - V209021917G.D

Lab ID: SHI0010-CALB
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 16:54

RT	CO-ELUTION COMPOUNDS
6.532	Toluene and 2-Chloroethyl Vinyl Ether
6.532	Trans 1,3-Dichloropropene and 2-Chloroethyl Vinyl Ether
8.685	Trans-1,4-Dichloro 2-Butene and 1,3,5-Trimethyl Benzene
8.971	1,2,4-Trimethylbenzene and S-Butyl Benzene
9.130	4-Isopropyl Toluene and T-Butyl Benzene

Quant Method: ICAL

RRT CHECK

RRT	CCV RRT	DELTA	COMPOUND
0.550	0.387	0.1625	Trichlorofluoromethane
0.599	1.000	-0.4006	Carbon Disulfide
0.602	1.000	-0.3982	Acrolein
0.763	1.000	-0.2370	Methylene Chloride
0.855	1.000	-0.1446	n-hexane
0.944	1.000	-0.0557	1,1-Dichloroethane
0.876	1.000	-0.1244	Cis-1,2-Dichloroethene
0.912	1.000	-0.0881	1,1,1-Trichloroethane
1.040	0.912	0.1278	Benzene
1.183	1.157	0.0260	1,2,4-Trichlorobenzene
1.183	1.000	0.1829	1,4-Difluorobenzene
1.183	1.050	0.1333	Dibromomethane
0.958	1.063	-0.1045	1,2-Dichloropropane
1.251	1.073	0.1785	Bromodichloromethane
1.005	0.896	0.1083	Tetrachloroethene
1.018	1.238	-0.2195	Trans 1,3-Dichloropropene
1.059	1.258	-0.1992	1,1,2-Trichloroethane
0.937	1.000	-0.0630	d5-Chlorobenzene
0.921	1.002	-0.0804	Chlorobenzene
0.889	1.008	-0.1189	1,1,1,2-Tetrachloroethane
0.985	1.063	-0.0785	Styrene
0.937	0.872	0.0650	Bromoform
0.968	0.890	0.0781	Isopropyl Benzene
0.968	1.101	-0.1332	1,2-Dibromo 3-Chloropropane
0.985	0.920	0.0650	Bromobenzene
1.022	0.934	0.0873	2-Chloro Toluene
1.184	0.963	0.2218	T-Butyl Benzene
0.650	0.994	-0.3437	1,3-Dichlorobenzene
1.104	1.000	0.1036	d4-1,4-Dichlorobenzene
0.896	1.001	-0.1056	1,4-Dichlorobenzene

1.000	1.022	-0.0223	N-Butyl Benzene
1.000	1.200	-0.2002	1,2,3-Trichlorobenzene
1.196	1.176	0.0196	d8-Toluene
1.004	1.115	-0.1112	4-Bromofluorobenzene
1.176	1.035	0.1415	d4-1,2-Dichlorobenzene

RRT check based on Ccal File: V209021911.D

On Column LOD for nt2.i, 826090219.m, all.sub = 0.2500

Exception: Trans 1,3-Dichloropropene 0.0000
Exception: n-hexane 0.0000
Exception: 2-Pentanone 0.0000
Exception: Allyl Chloride 0.0000
Exception: Methyl Methacrylate 0.0000
Exception: Cyclohexanone 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem1\nt2.i\20190902g.b\V2090217917G.D

Date : 02-SEP-2019 16:54

Client ID:

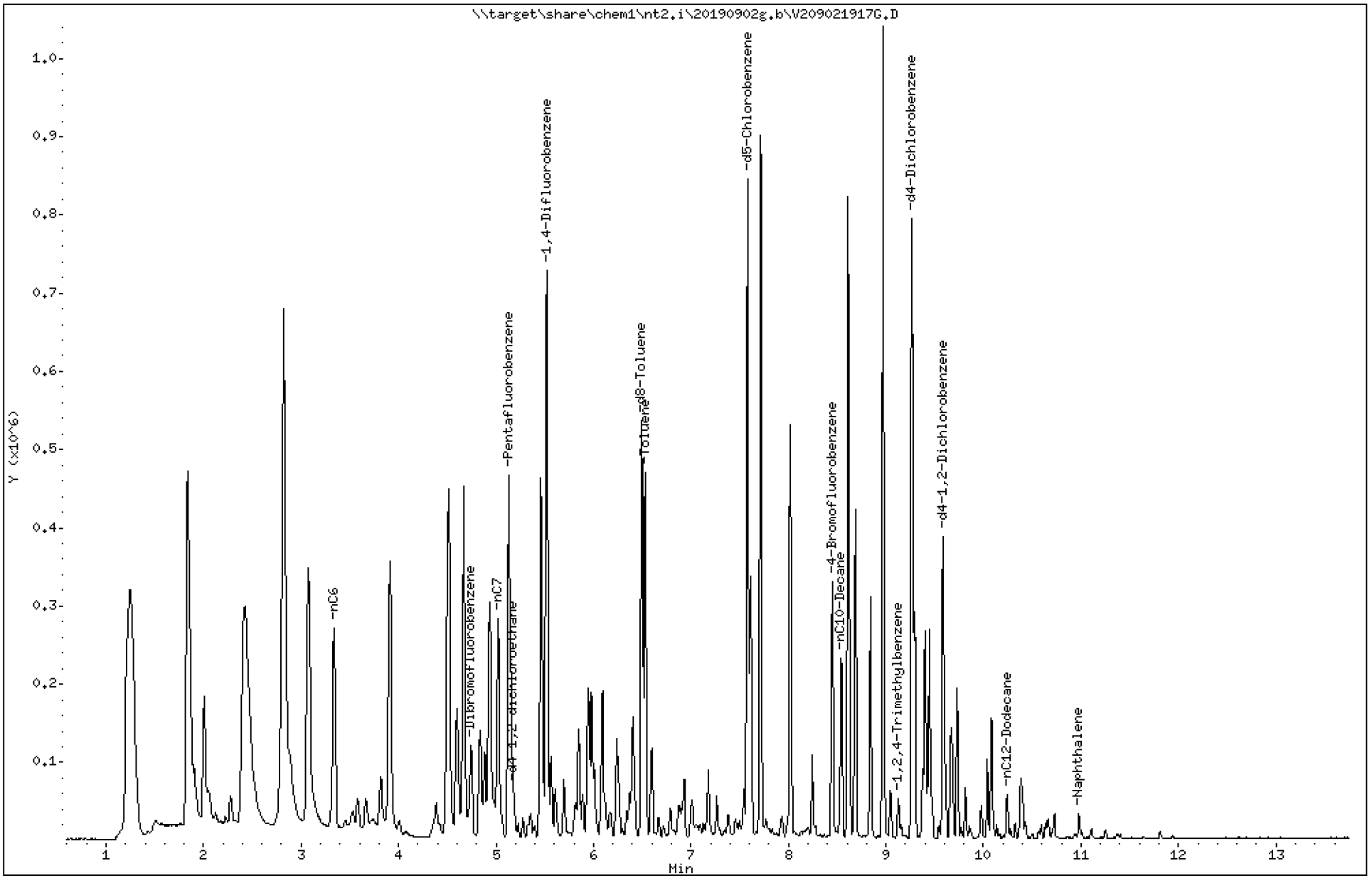
Sample Info: SHI0010-CALB

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021917G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 16:54

ARI ID: SHI0010-CALB
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	10941765	0.438 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	18908782	0.440 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	14124565	0.430 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	11335996	0.434 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	15150677	0.430 M

* Surrogate areas are subtracted from Total Area

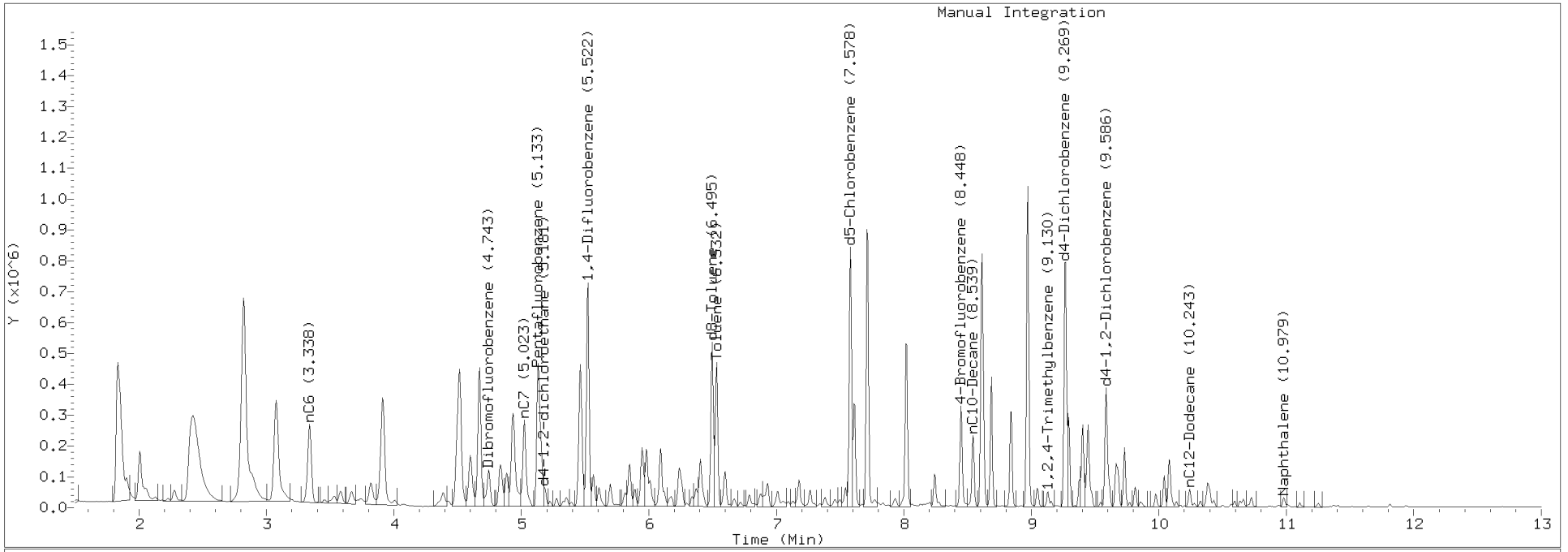
NW Gas Range Subtracted Peaks

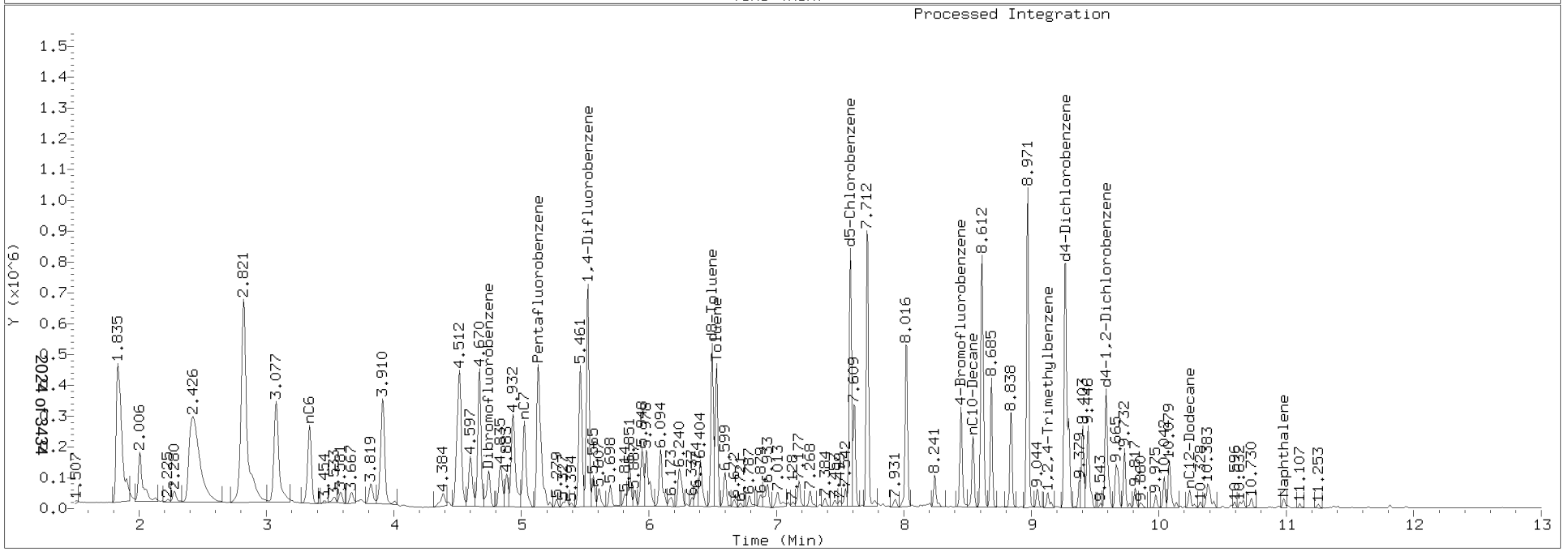
7.578	1142335	d5-Chlorobenzene
8.448	443891	4-Bromofluorobenzene
6.495	771155	d8-Toluene
9.269	1190298	d4-Dichlorobenzene
9.586	593891	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021917G.D Injection: 02-SEP-2019 16:54

Lab ID:SHI0010-CALB





Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021918G.D

Date : 02-SEP-2019 17:14

Client ID:

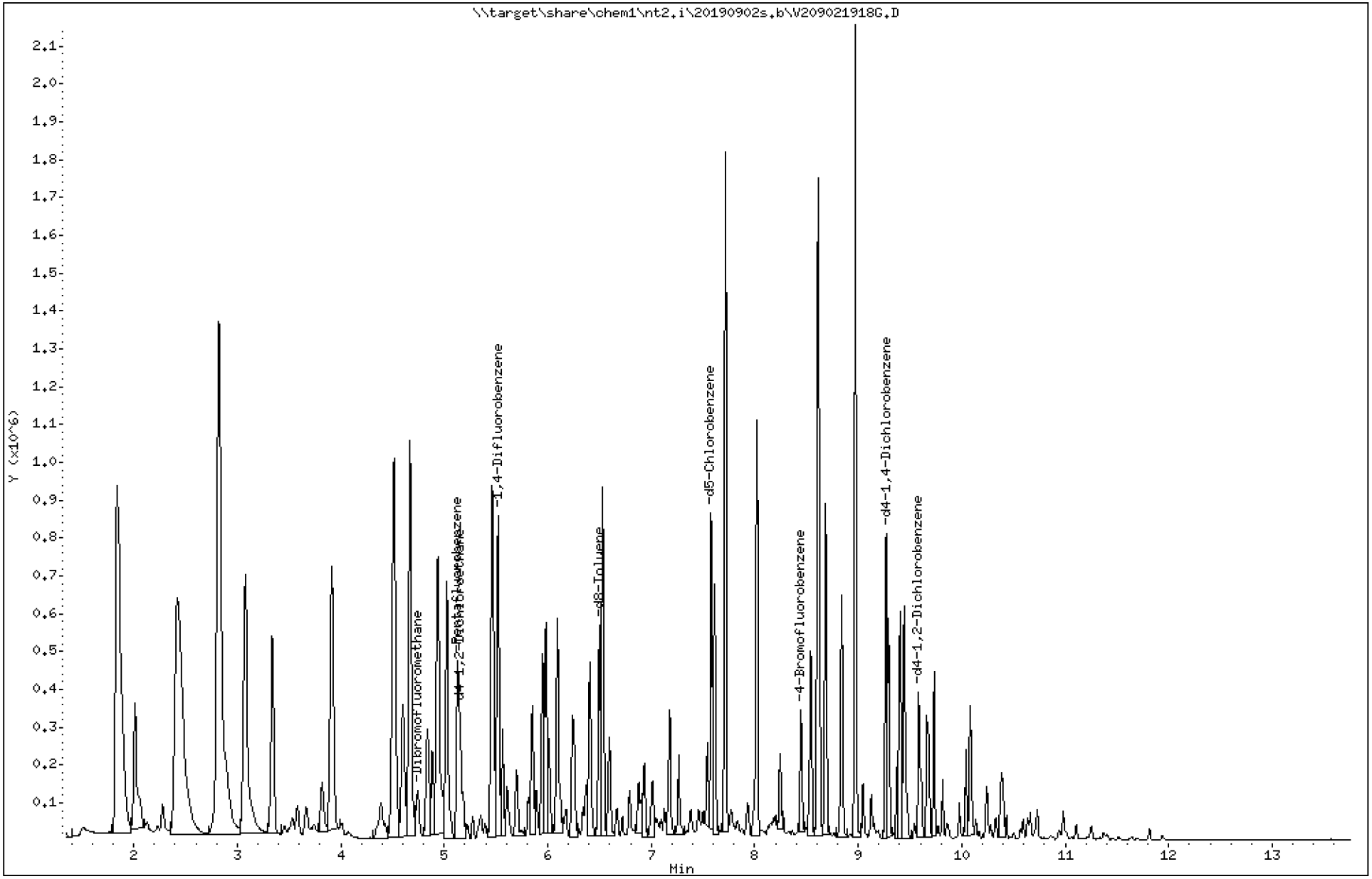
Instrument: nt2.i

Sample Info: SHI0010-CALC

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021918G.D
Lab Smp Id: SHI0010-CALC
Inj Date : 02-SEP-2019 17:14
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CALC
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	55004	4.88140	4.881
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	222196	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	70781	5.40187	5.402
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	393169	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	244740	4.97159	4.972
* 53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	359214	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.114)	67980	5.06191	5.062
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	176402	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	83103	5.05876	5.059

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021918G.D
Lab Smp Id: SHI0010-CALC
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	222196	-4.76
37 1,4-Difluorobenze	412164	206082	824328	393169	-4.61
53 d5-Chlorobenzene	378243	189122	756486	359214	-5.03
76 d4-1,4-Dichlorobe	186173	93087	372346	176402	-5.25

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CALC
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.881	97.63	
$ 33 d4-1,2-Dichloroeth	5.000	5.402	108.04	
$ 43 d8-Toluene	5.000	4.972	99.43	
$ 62 4-Bromofluorobenze	5.000	5.062	101.24	
$ 79 d4-1,2-Dichloroben	5.000	5.059	101.18	

REVIEW SUMMARY FOR FILE - V209021918G.D

Lab ID: SHI0010-CALC
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 17:14

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021918G.D

Date : 02-SEP-2019 17:14

Client ID:

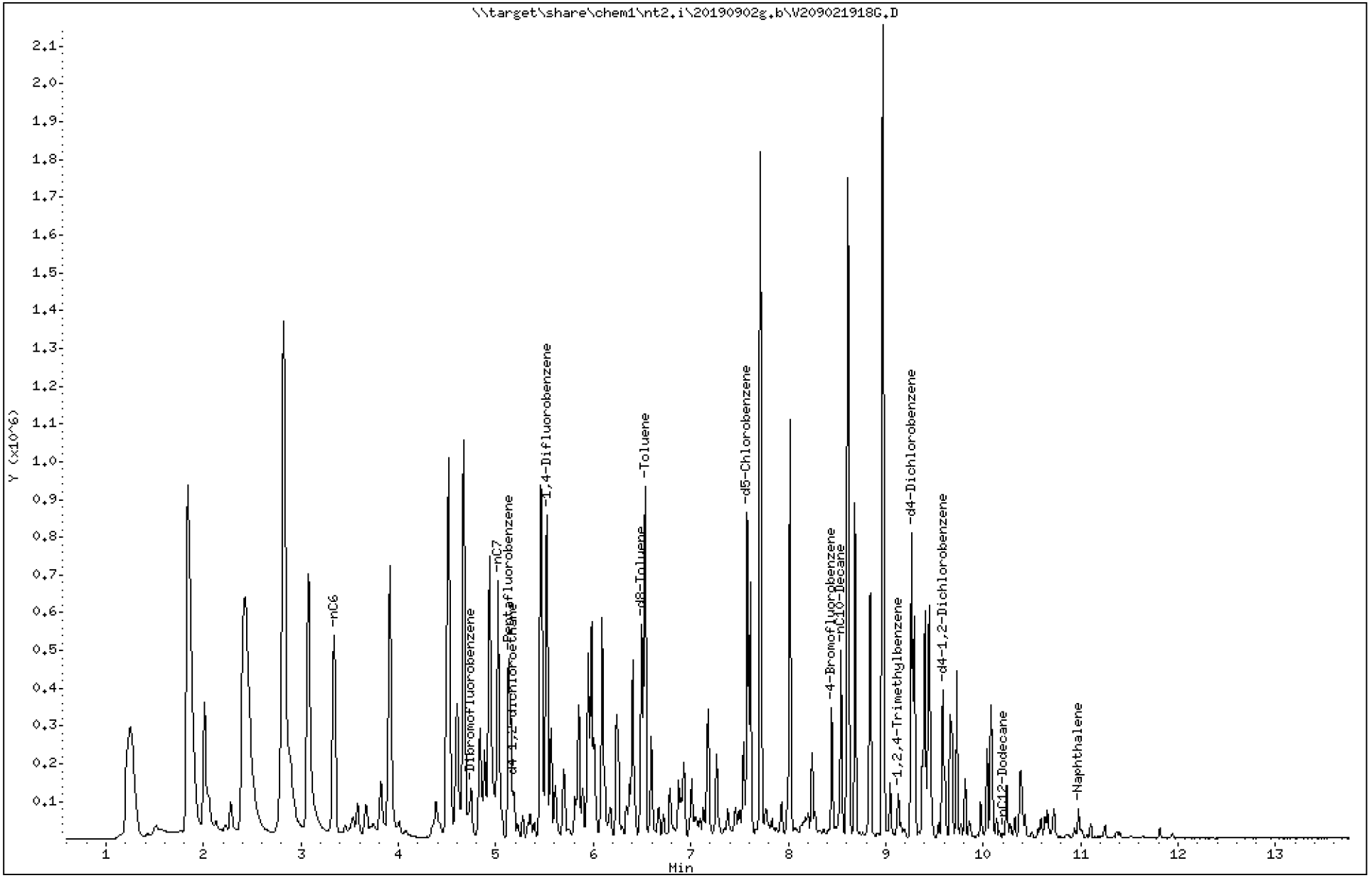
Instrument: nt2.i

Sample Info: SHI0010-CALC

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021918G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:14

ARI ID: SHI0010-CALC
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	26446902	1.059 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	45202766	1.052 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34638444	1.055 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27646895	1.059 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	37327592	1.058 M

* Surrogate areas are subtracted from Total Area

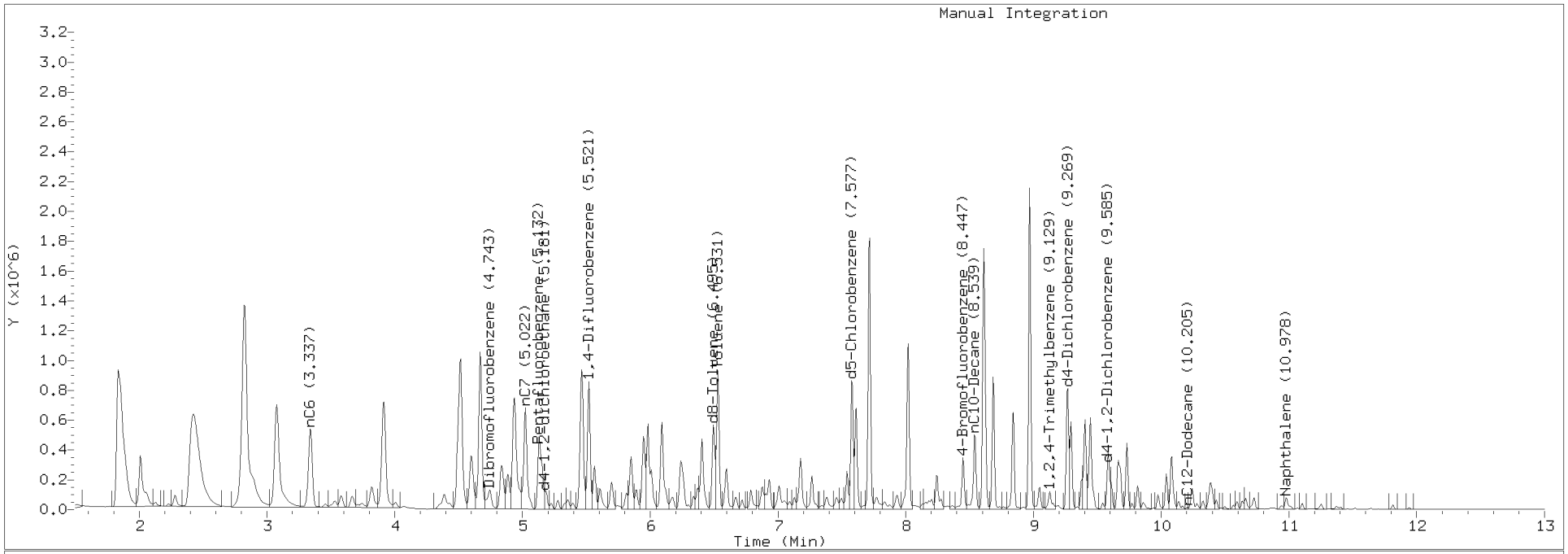
NW Gas Range Subtracted Peaks

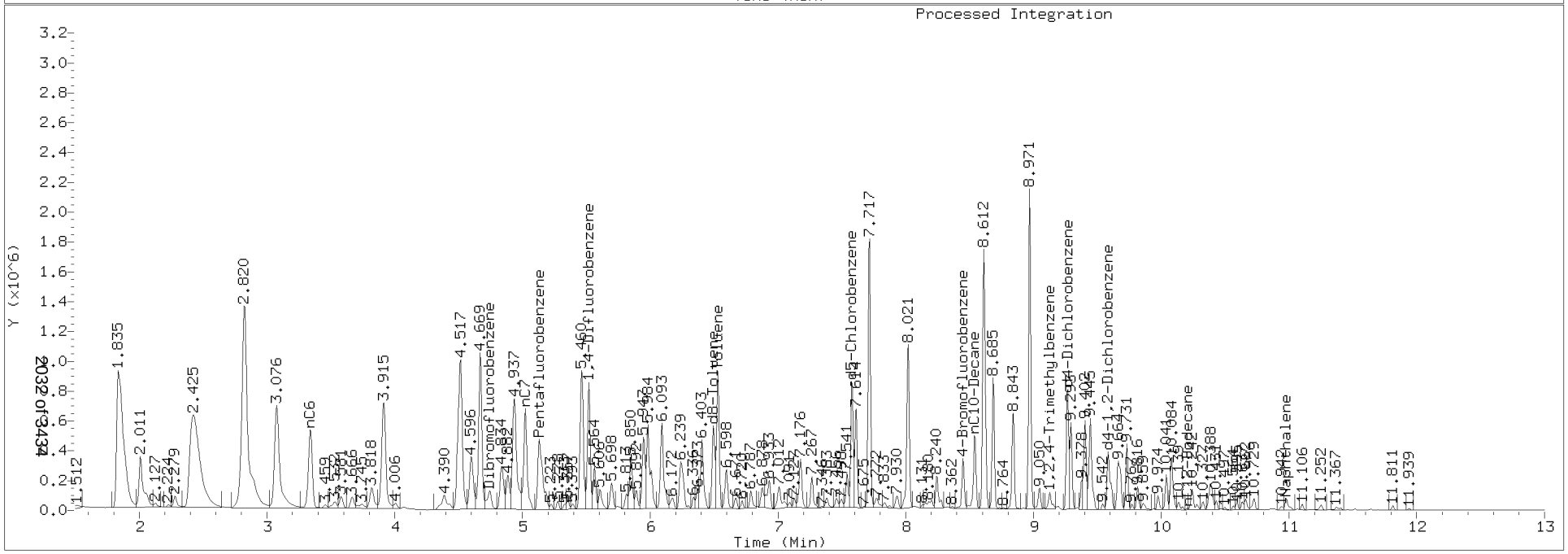
7.577	1221729	d5-Chlorobenzene
8.447	503614	4-Bromofluorobenzene
6.495	928457	d8-Toluene
9.269	1146267	d4-Dichlorobenzene
9.585	580768	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021918G.D Injection: 02-SEP-2019 17:14

Lab ID:SHI0010-CALC





Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021919G.D

Date : 02-SEP-2019 17:34

Client ID:

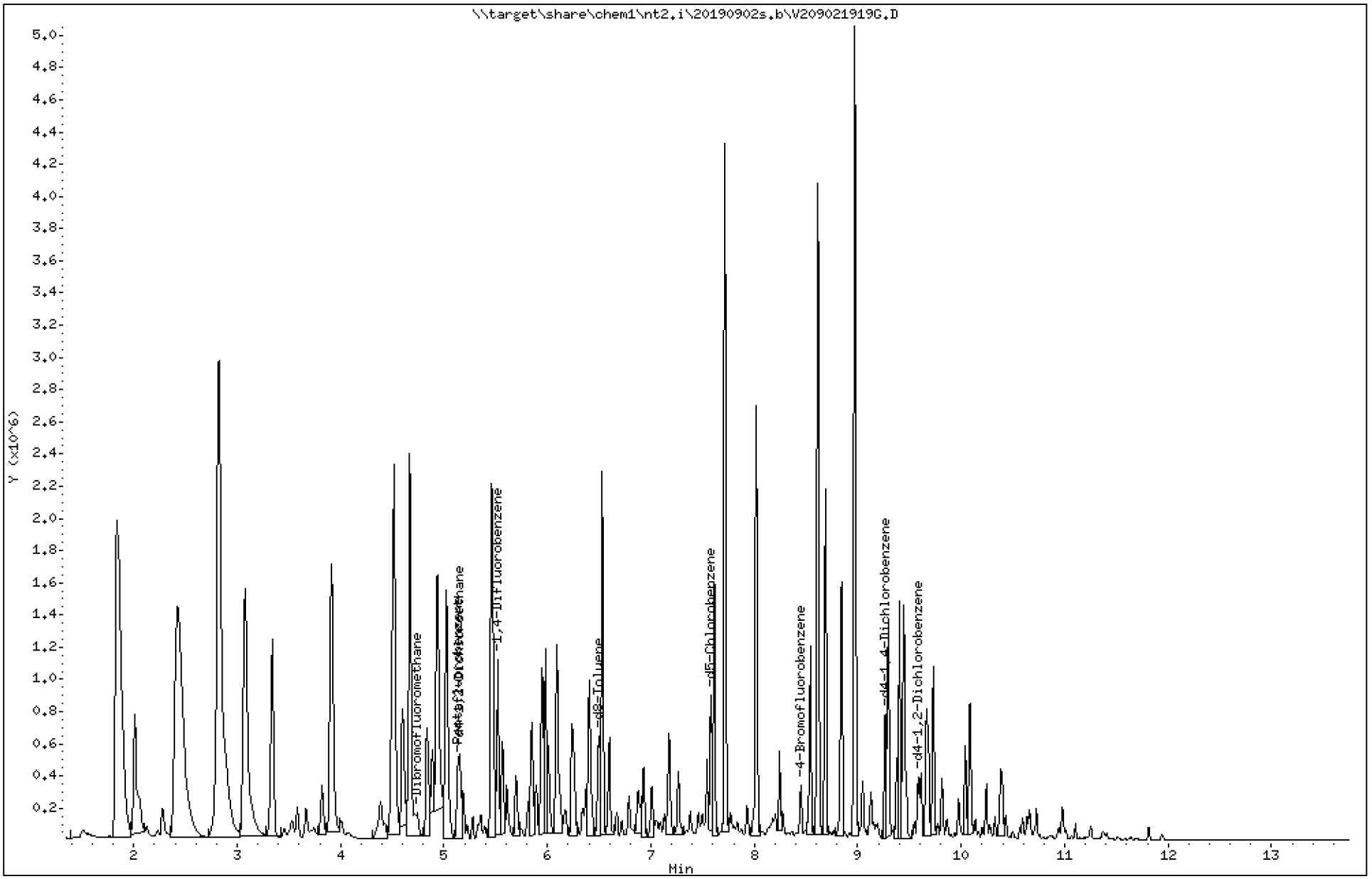
Instrument: nt2.i

Sample Info: SHI0010-CALD

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021919G.D
Lab Smp Id: SHI0010-CALD
Inj Date : 02-SEP-2019 17:34
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CALD
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.745	(0.924)	50372	4.79347	4.793
* 32 Pentafluorobenzene	168	5.132	5.128	(1.000)	207217	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	70588	5.77656	5.777
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	366785	10.0000	
$ 43 d8-Toluene	98	6.495	6.497	(1.176)	234275	5.10134	5.101
* 53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	333149	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.115)	64010	5.13920	5.139
* 76 d4-1,4-Dichlorobenzene	152	9.269	9.265	(1.000)	166296	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.034)	77388	4.99716	4.997

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021919G.D
Lab Smp Id: SHI0010-CALD
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	207217	-11.18
37 1,4-Difluorobenze	412164	206082	824328	366785	-11.01
53 d5-Chlorobenzene	378243	189122	756486	333149	-11.92
76 d4-1,4-Dichlorobe	186173	93087	372346	166296	-10.68

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.06
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-CALD
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.793	95.87	
$ 33 d4-1,2-Dichloroeth	5.000	5.777	115.53	
$ 43 d8-Toluene	5.000	5.101	102.03	
$ 62 4-Bromofluorobenze	5.000	5.139	102.78	
$ 79 d4-1,2-Dichloroben	5.000	4.997	99.94	

REVIEW SUMMARY FOR FILE - V209021919G.D

Lab ID: SHI0010-CALD
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 17:34

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021919G.D

Date : 02-SEP-2019 17:34

Client ID:

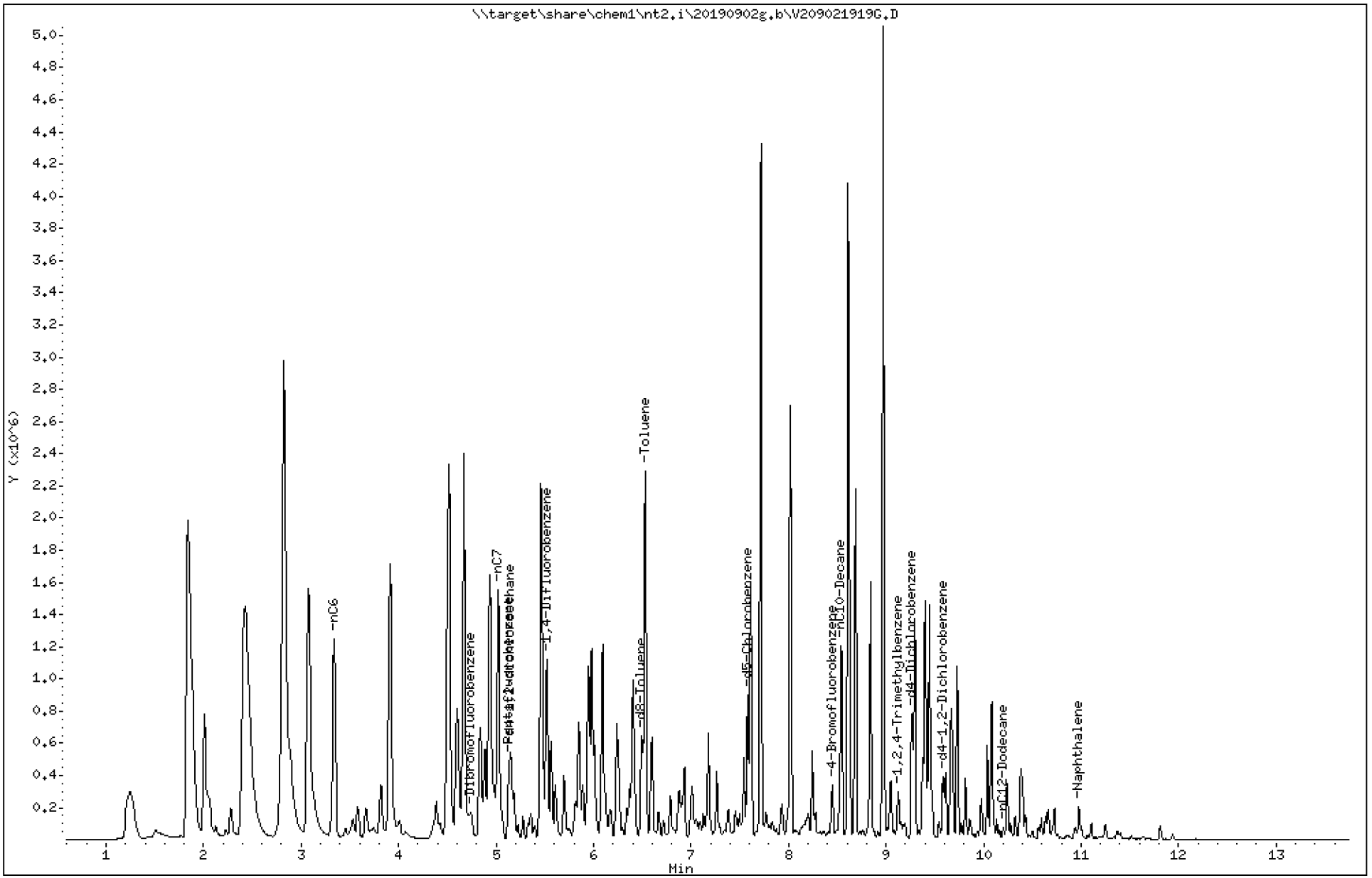
Instrument: nt2.i

Sample Info: SHI0010-CALD

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021919G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:34

ARI ID: SHI0010-CALD
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	64265843	2.573	
8015C 2MP-TMB	(3.04 to 9.26)	42964079	107503294	2.502	M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	81516301	2.484	M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	67640379	2.590	
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	89381954	2.534	M

* Surrogate areas are subtracted from Total Area

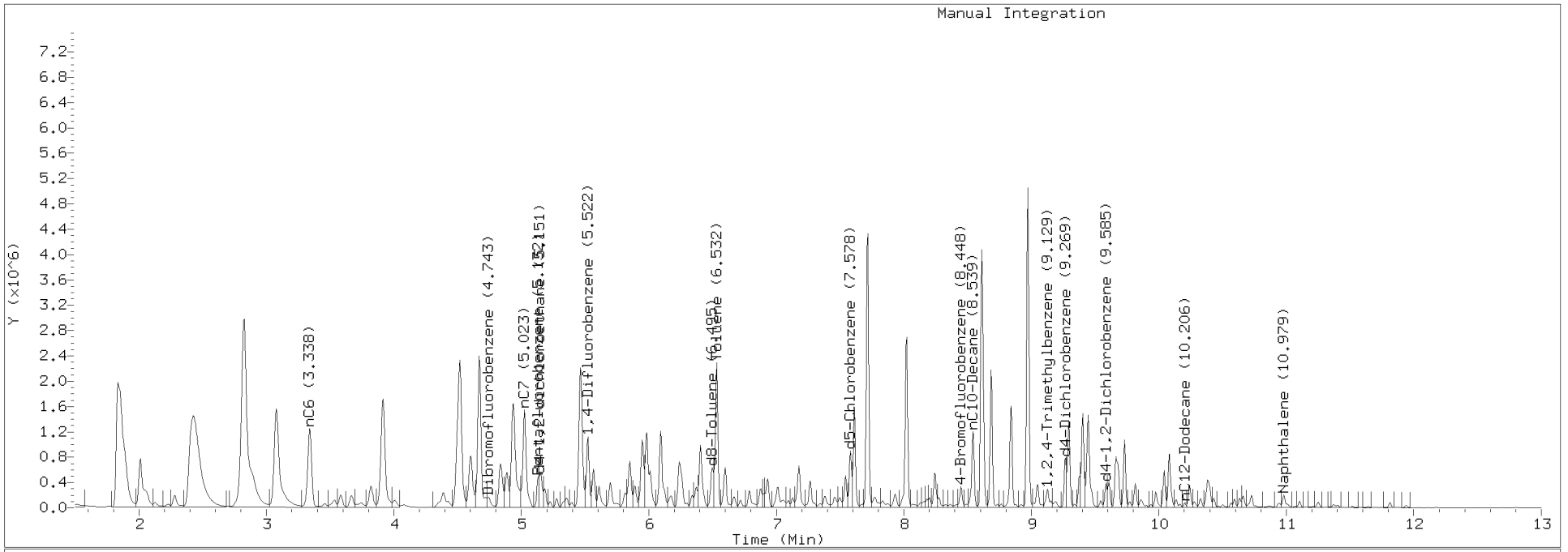
NW Gas Range Subtracted Peaks

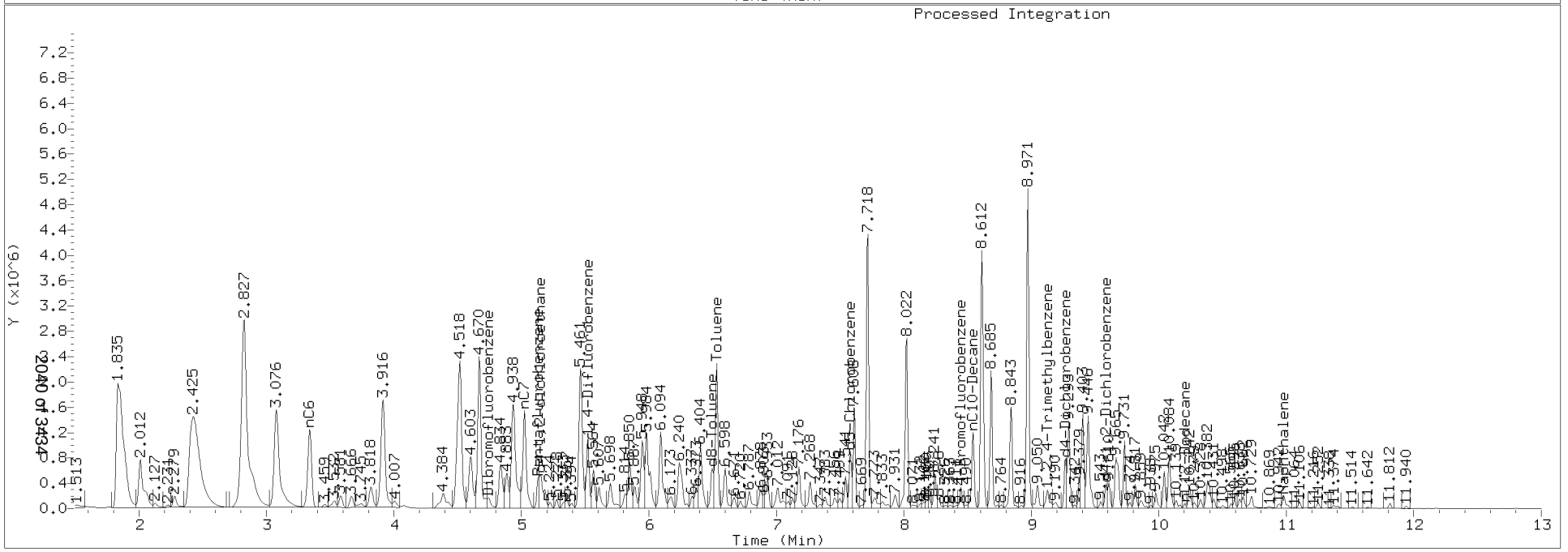
7.578	1368812	d5-Chlorobenzene
8.448	480307	4-Bromofluorobenzene
6.495	1060589	d8-Toluene
9.269	997390	d4-Dichlorobenzene
9.585	562756	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021919G.D Injection: 02-SEP-2019 17:34

Lab ID:SHI0010-CALD





Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021920G.D

Date : 02-SEP-2019 17:54

Client ID:

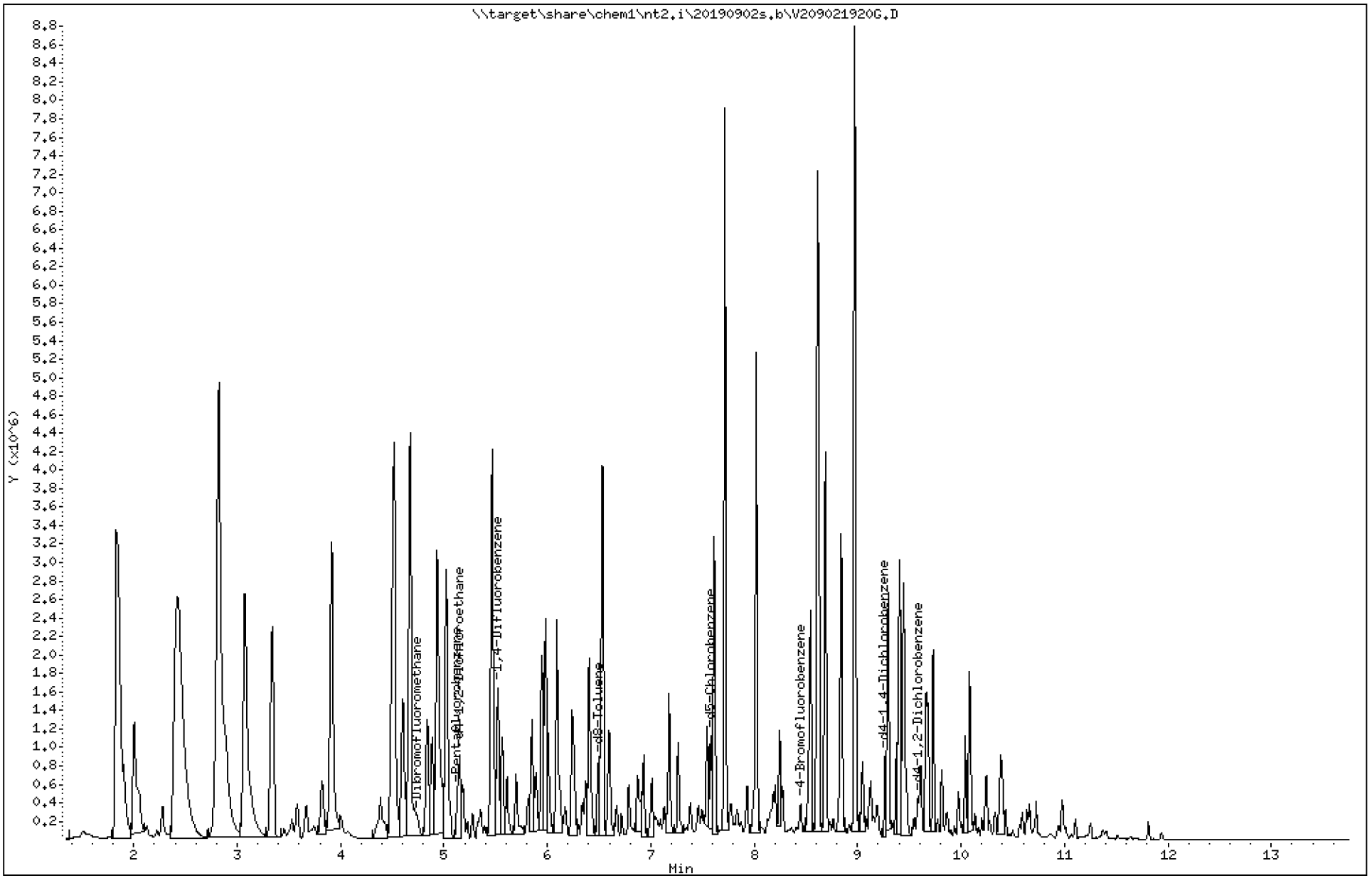
Instrument: nt2.i

Sample Info: SHI0010-CALE

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021920G.D
Lab Smp Id: SHI0010-CALE
Inj Date : 02-SEP-2019 17:54
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-CALE
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.745	(0.925)	54161	4.83408	4.834
* 32 Pentafluorobenzene	168	5.128	5.128	(1.000)	220932	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.153	5.153	(1.005)	85508	6.56315	6.563
* 37 1,4-Difluorobenzene	114	5.518	5.518	(1.000)	400016	10.0000	
$ 43 d8-Toluene	98	6.497	6.497	(1.177)	257446	5.14018	5.140
* 53 d5-Chlorobenzene	117	7.580	7.580	(1.000)	359565	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.450	(1.115)	68665	5.10792	5.108
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.265	(1.000)	179913	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.588	9.588	(1.035)	84003	5.01376	5.014

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021920G.D
Lab Smp Id: SHI0010-CALE
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	220932	-5.30
37 1,4-Difluorobenze	412164	206082	824328	400016	-2.95
53 d5-Chlorobenzene	378243	189122	756486	359565	-4.94
76 d4-1,4-Dichlorobe	186173	93087	372346	179913	-3.36

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.00
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.00
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.00
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-CALE
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.834	96.68	
$ 33 d4-1,2-Dichloroeth	5.000	6.563	131.26	
$ 43 d8-Toluene	5.000	5.140	102.80	
$ 62 4-Bromofluorobenze	5.000	5.108	102.16	
$ 79 d4-1,2-Dichloroben	5.000	5.014	100.28	

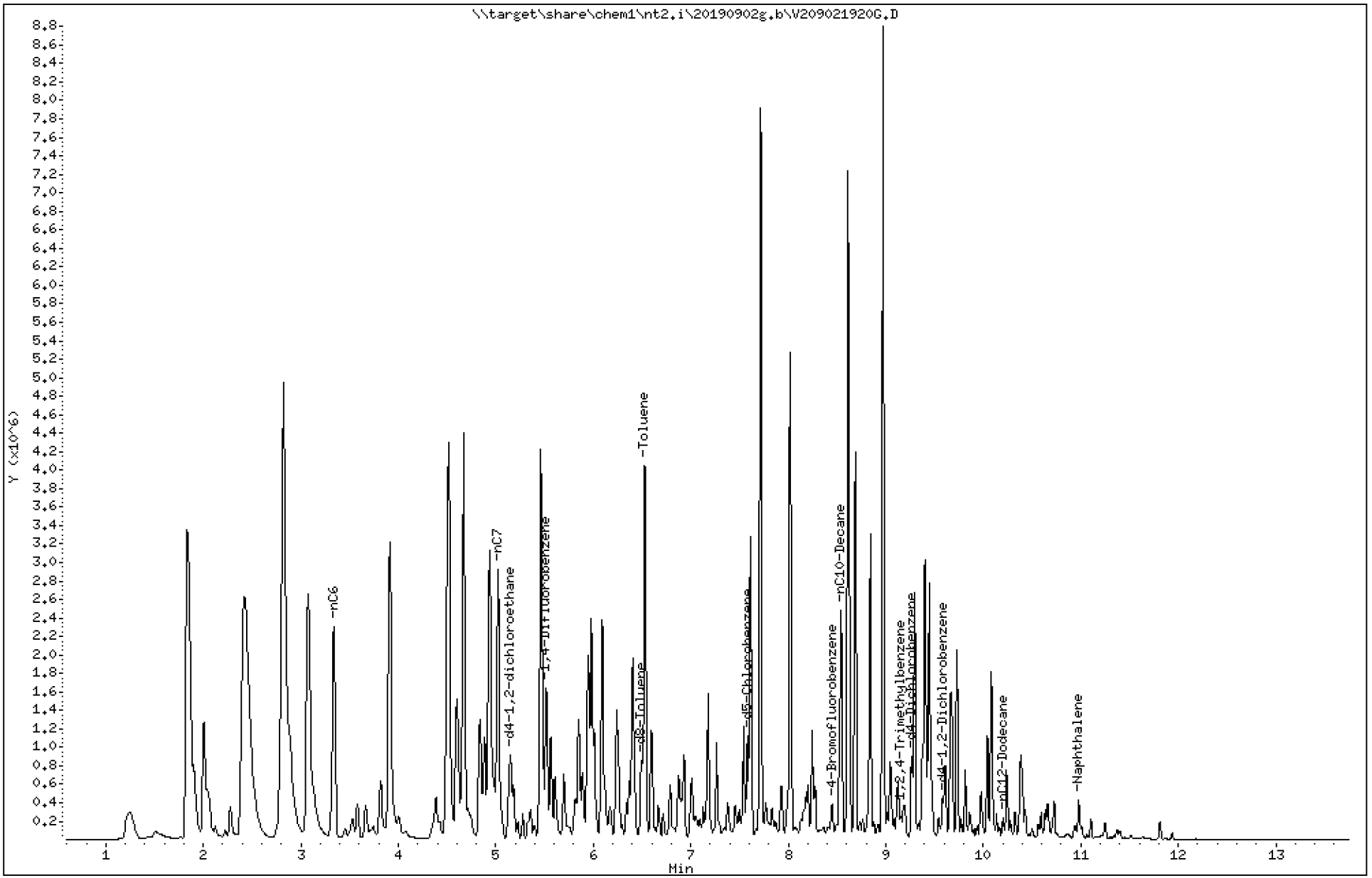
REVIEW SUMMARY FOR FILE - V209021920G.D

Lab ID: SHI0010-CALE
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 17:54

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021920G.D
Date : 02-SEP-2019 17:54
Client ID:
Sample Info: SHI0010-CALE

Instrument: nt2.i
Operator: PKC
Column phase: RTXVMS
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021920G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:54

ARI ID: SHI0010-CALE
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	134029418	5.365	
8015C 2MP-TMB	(3.04 to 9.26)	42964079	215532269	5.017	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	162982530	4.966	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	141341665	5.412	M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	183703326	5.208	

* Surrogate areas are subtracted from Total Area

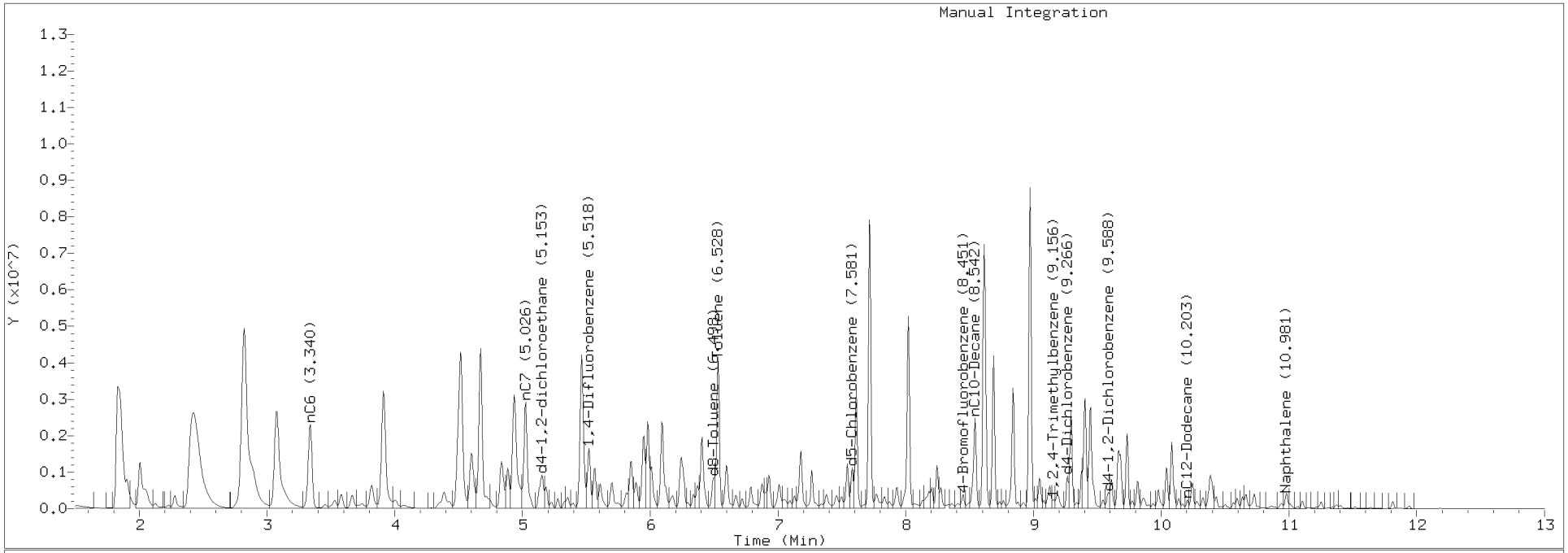
NW Gas Range Subtracted Peaks

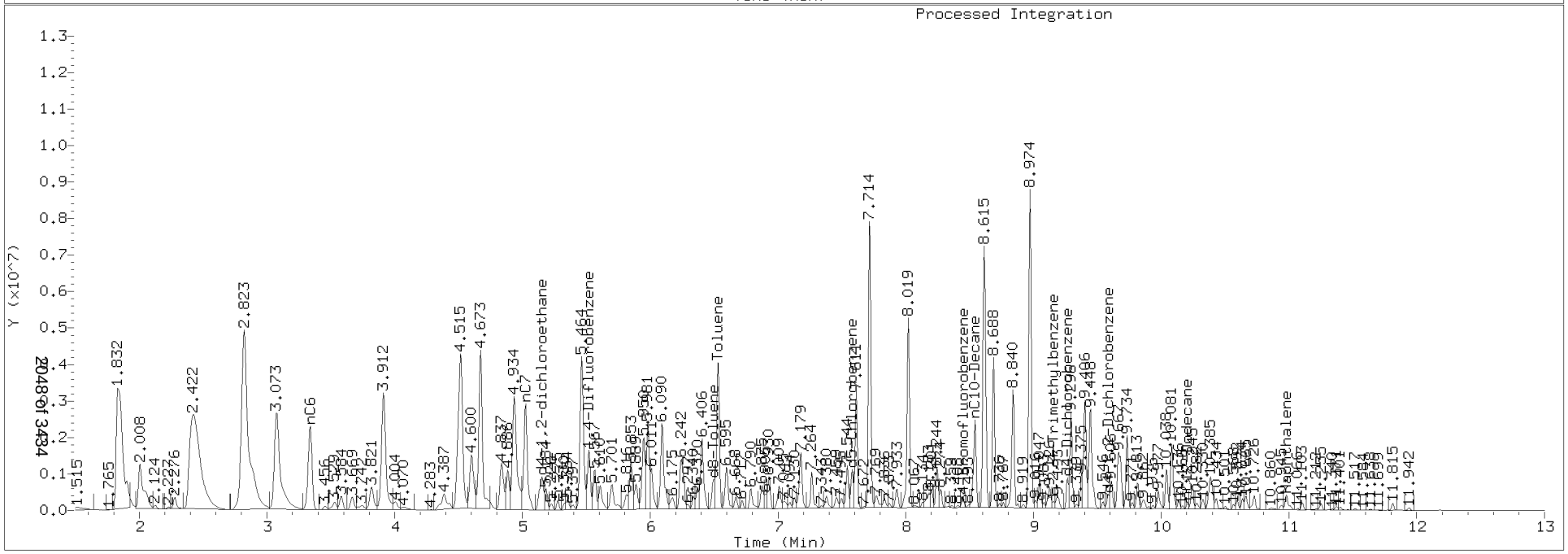
7.581	1605341	d5-Chlorobenzene
8.451	612209	4-Bromofluorobenzene
6.498	1380481	d8-Toluene
9.266	1272807	d4-Dichlorobenzene
9.588	715798	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021920G.D Injection: 02-SEP-2019 17:54

Lab ID:SHI0010-CALE





Data File: \\target\share\chem1\nt2.i\20190902s.b\V2090219216.D

Date : 02-SEP-2019 18:15

Client ID:

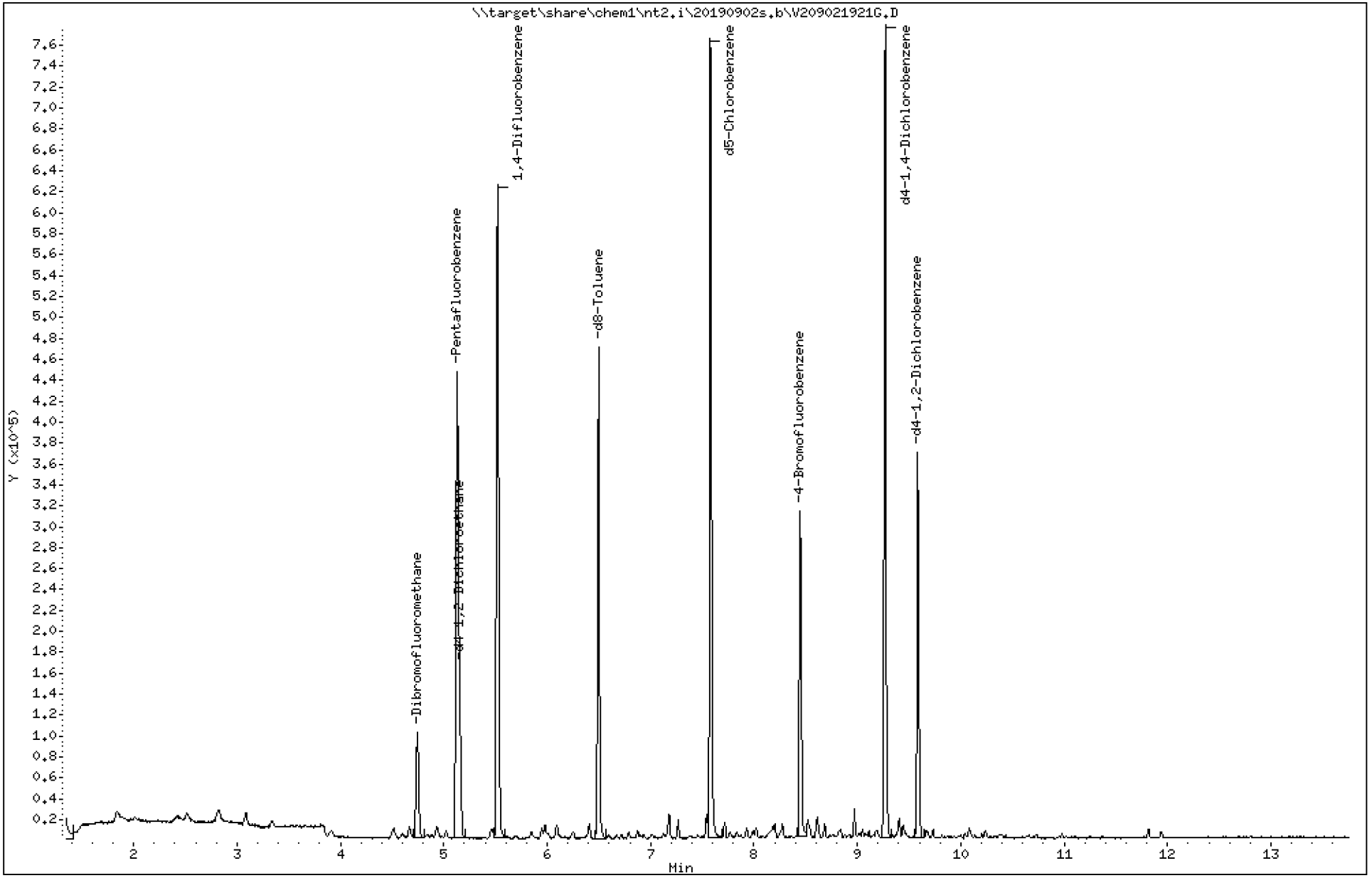
Instrument: nt2.i

Sample Info: SHI0010-ICB1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021921G.D
Lab Smp Id: SHI0010-ICB1
Inj Date : 02-SEP-2019 18:15
Operator : PKC Inst ID: nt2.i
Smp Info : SHI0010-ICB1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52 Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	54068	4.84167	4.842
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	220207	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.149	5.153	(1.004)	65005	5.00587	5.006
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	381526	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	232199	4.86078	4.861
* 53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	344355	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.450	(1.114)	65189	5.06354	5.064
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	167921	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	78337	5.00948	5.009

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021921G.D
Lab Smp Id: SHI0010-ICB1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	220207	-5.61
37 1,4-Difluorobenze	412164	206082	824328	381526	-7.43
53 d5-Chlorobenzene	378243	189122	756486	344355	-8.96
76 d4-1,4-Dichlorobe	186173	93087	372346	167921	-9.80

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.05
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-ICB1
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.842	96.83	
$ 33 d4-1,2-Dichloroeth	5.000	5.006	100.12	
$ 43 d8-Toluene	5.000	4.861	97.22	
$ 62 4-Bromofluorobenze	5.000	5.064	101.27	
$ 79 d4-1,2-Dichloroben	5.000	5.009	100.19	

REVIEW SUMMARY FOR FILE - V209021921G.D

Lab ID: SHI0010-ICB1
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 18:15

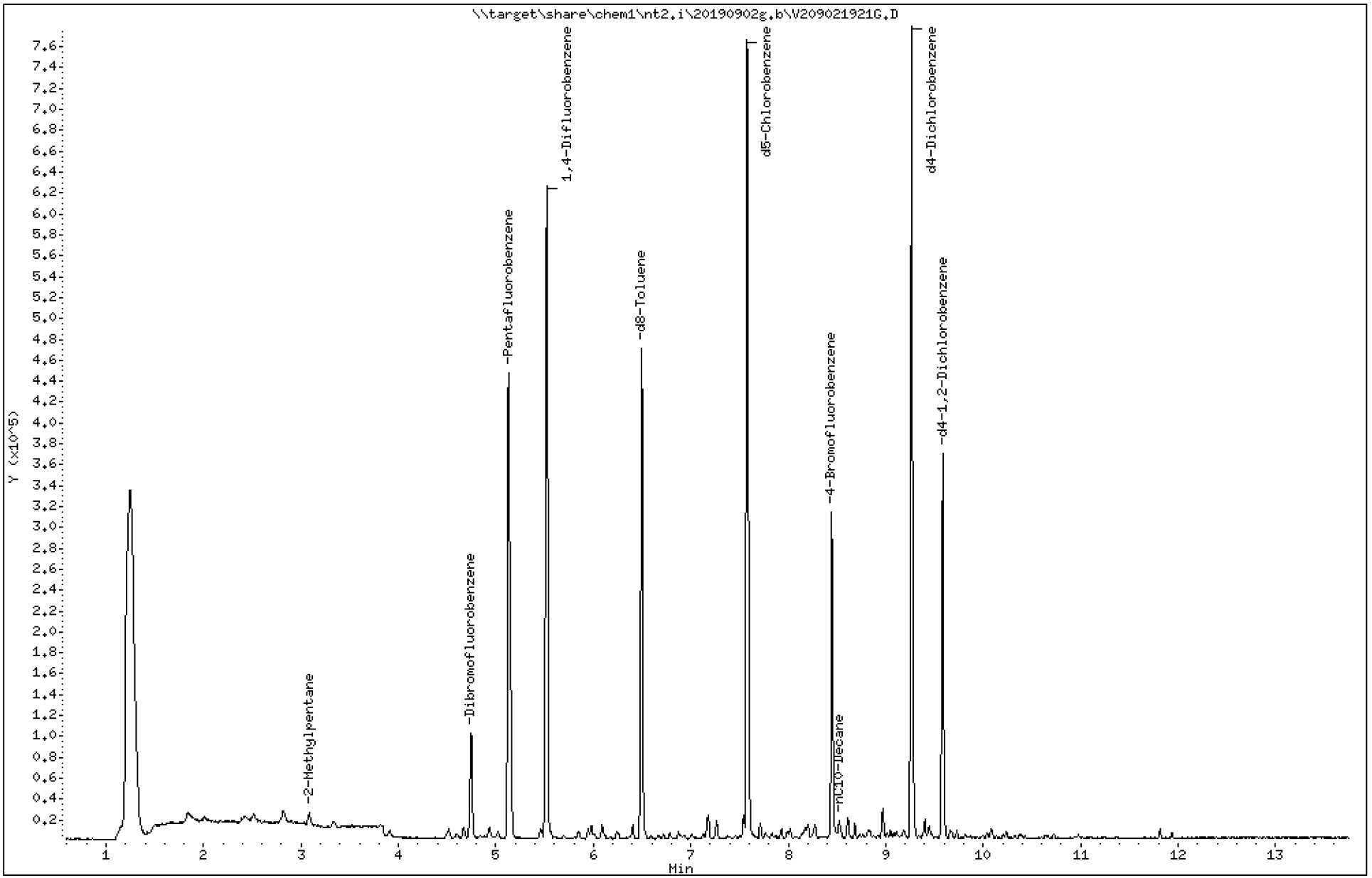
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V2090219216.D
Date : 02-SEP-2019 18:15
Client ID:
Sample Info: SHI0010-ICB1

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021921G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 18:15

ARI ID: SHI0010-ICB1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	245591	0.010
8015C 2MP-TMB	(3.04 to 9.26)	42964079	317919	0.007
AK101 nC6-nC10	(3.24 to 8.42)	32820925	183561	0.006
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	245591	0.009
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	299028	0.008

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.577	1055556	d5-Chlorobenzene
8.447	405550	4-Bromofluorobenzene
6.494	617943	d8-Toluene
9.268	1062881	d4-Dichlorobenzene
9.585	489825	d4-1,2-Dichlorobenzene

Data File: \\target\share\chem1\nt2.i\20190902s.b\V2090219226.D

Date : 02-SEP-2019 18:35

Client ID:

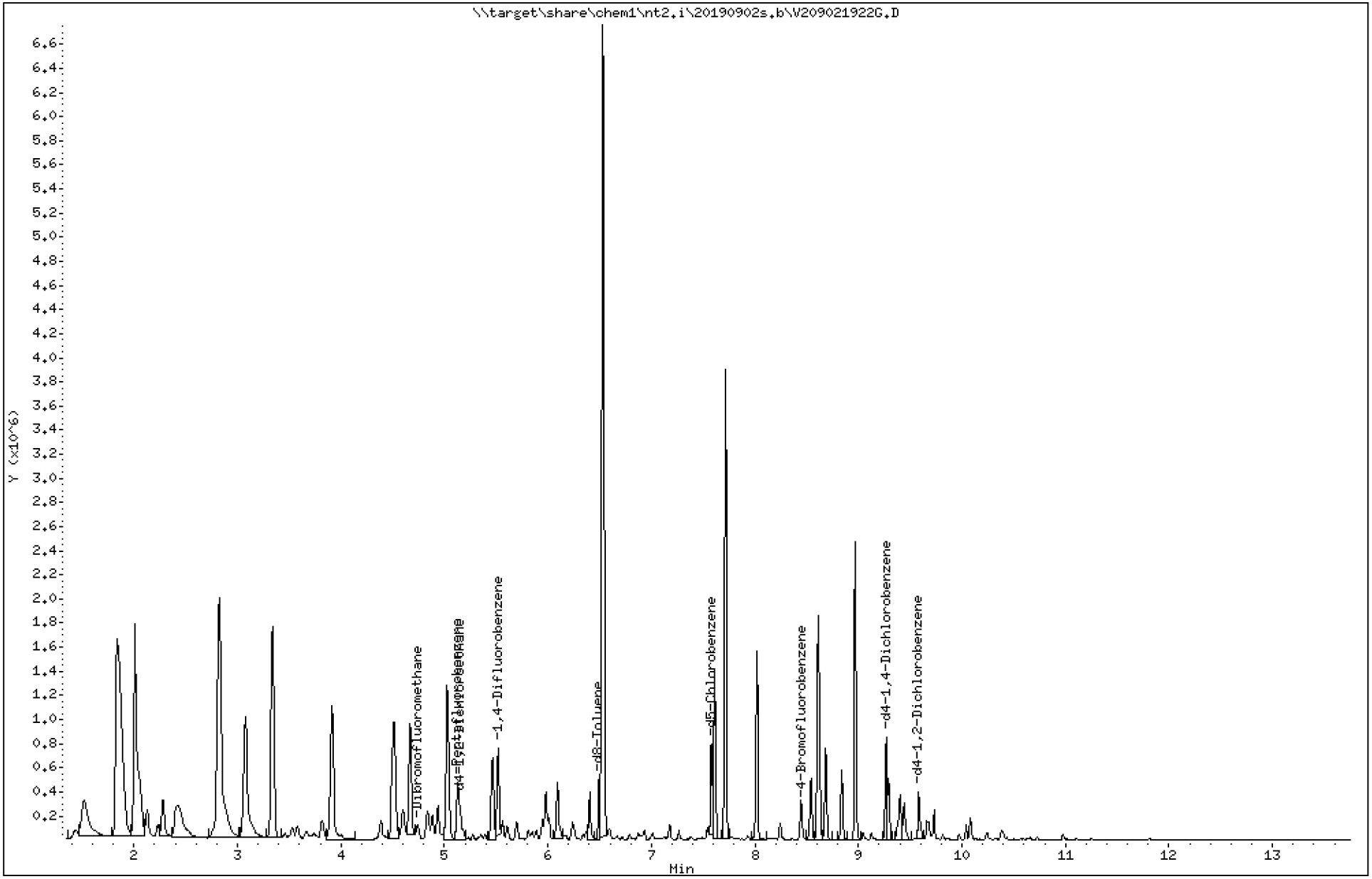
Sample Info: SHI0010-SCV1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021922G.D
Lab Smp Id: SHI0010-SCV1
Inj Date : 02-SEP-2019 18:35
Operator : PKC   Inst ID: nt2.i
Smp Info : SHI0010-SCV1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul   Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52   Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.747	4.745	(0.925)	54355	4.80449	4.804
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	223089	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.149	5.153	(1.004)	69014	5.24594	5.246
* 37 1,4-Difluorobenzene	114	5.520	5.518	(1.000)	387877	10.0000	
$ 43 d8-Toluene	98	6.493	6.497	(1.176)	244605	5.03664	5.037
* 53 d5-Chlorobenzene	117	7.582	7.580	(1.000)	355441	10.0000	
$ 62 4-Bromofluorobenzene	174	8.452	8.450	(1.115)	68814	5.17840	5.178
* 76 d4-1,4-Dichlorobenzene	152	9.267	9.265	(1.000)	177454	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	82213	4.97492	4.975

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021922G.D
Lab Smp Id: SHI0010-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	223089	-4.37
37 1,4-Difluorobenze	412164	206082	824328	387877	-5.89
53 d5-Chlorobenzene	378243	189122	756486	355441	-6.03
76 d4-1,4-Dichlorobe	186173	93087	372346	177454	-4.68

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.04
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0010-SCV1
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.804	96.09	
$ 33 d4-1,2-Dichloroeth	5.000	5.246	104.92	
$ 43 d8-Toluene	5.000	5.037	100.73	
$ 62 4-Bromofluorobenze	5.000	5.178	103.57	
$ 79 d4-1,2-Dichloroben	5.000	4.975	99.50	

REVIEW SUMMARY FOR FILE - V209021922G.D

Lab ID: SHI0010-SCV1
nt2.i, 20190902s.b\826090219.m,   02-SEP-2019 18:35

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V2090219220.D

Date : 02-SEP-2019 18:35

Client ID:

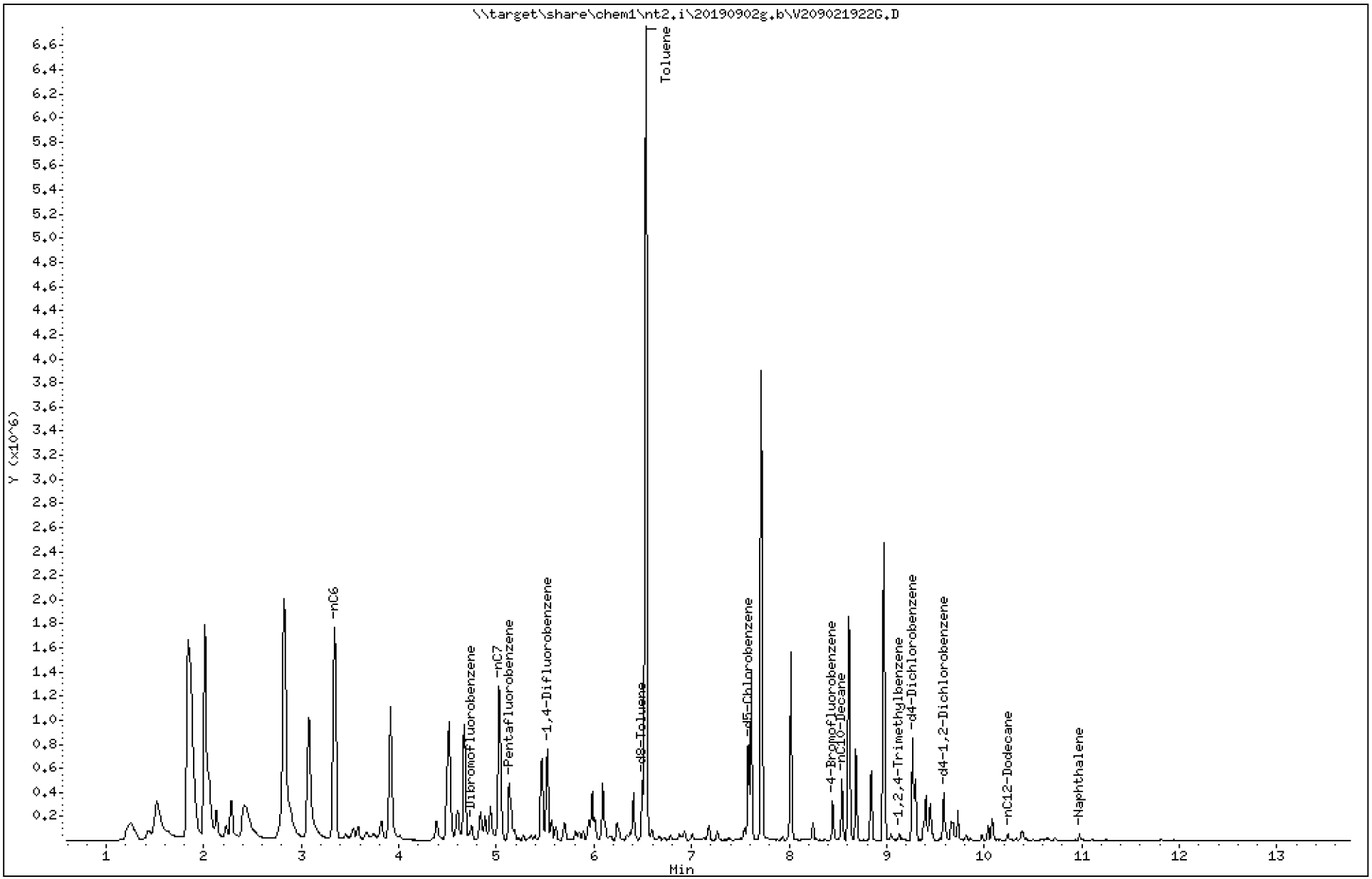
Sample Info: SHI0010-SCV1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021922G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 18:35

ARI ID: SHI0010-SCV1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	30871659	1.236
8015C 2MP-TMB	(3.04 to 9.26)	42964079	52400117	1.220
AK101 nC6-nC10	(3.24 to 8.42)	32820925	41227217	1.256
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	31213044	1.195
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	38805836	1.100

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.583	1066893	d5-Chlorobenzene
8.447	425104	4-Bromofluorobenzene
6.494	619751	d8-Toluene
9.268	1049160	d4-Dichlorobenzene
9.584	576871	d4-1,2-Dichlorobenzene

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00022	Instrument:	NT3
Calibration Date:	09/04/2019 11:15	Column (1):	RTX-VMS

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Toluene-d8	5	1.221626	5	1.201492	5	1.214482	5	1.187176	5	1.205772	5	1.233091
4-Bromofluorobenzene	5	0.4728099	5	0.441998	5	0.4773504	5	0.4712061	5	0.4843001	5	0.4990093

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00022	Instrument:	NT3
Calibration Date:	09/04/2019 11:15	Column (1):	RTX-VMS

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)					100	18003.67	250	16661.26	500	15973.47	1000	16566.88
Toluene-d8	5	1.199985	5	1.214364								
4-Bromofluorobenzene	5	0.4734584	5	0.4813109								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00022	Instrument:	NT3
Calibration Date:	09/04/2019 11:15	Column (1):	RTX-VMS

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)	2500	18131.78	5000	18219.46								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00022	Instrument:	NT3
Calibration Date:	09/04/2019 11:15	Column (1):	RTX-VMS

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Gasoline Range Organics (Tol-Nap)	17259.42	5.6			RSD (15)	
Toluene-d8	1.209749	1.2			RSD (15)	
4-Bromofluorobenzene	0.4751804	3.4			RSD (15)	

Printed: 9/6/2019 11:34:19AM

ANALYSIS SEQUENCE

SHI0075

Instrument: NT3 Element Column ID: 1300725RTXV
Calibration ID: CI00022 Tune File: bfb.u
EM Voltage: 1953

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0075-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0075-CAL1	8260C 0.2	QC		2	H008621	H007838	
SHI0075-CAL2	8260C 0.5	QC		3	H008622	H007838	
SHI0075-CAL3	8260C 1.0	QC		4	H008223	H007838	
SHI0075-CAL4	8260C 2.0	QC		5	H008624	H007838	
SHI0075-CAL5	8260C 10	QC		6	H008625	H007838	
SHI0075-CAL6	8260C 20	QC		7	H008626	H007838	
SHI0075-CAL7	8260C 40	QC		8	H008627	H007838	
SHI0075-CAL8	8260C 80	QC		9	H008628	H007838	
SHI0075-CAL9	Gas 0.1	QC		10	H008422	H007838	
SHI0075-CALA	Gas 0.25	QC		11	H008423	H007838	
SHI0075-CALB	Gas 0.5	QC		12	H008424	H007838	
SHI0075-CALC	Gas 1	QC		13	H008425	H007838	
SHI0075-CALD	Gas 2.5	QC		14	H008426	H007838	
SHI0075-CALE	Gas 5	QC		15	H008427	H007838	
SHI0075-ICB1	Initial Cal Blank	QC		16		H007838	
SHI0075-SCV1	Gas SCV 1	QC		17	H008428	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190904.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1451	V309041901.D	RINSE				1								
2	1517	V309041902.D	SHI0071-TUN1				1								
3	1555	V309041903.D	RLTEST	test			1	5.41	109878	5.79	160341	7.82	165580	9.50	103285
4	1700	V309041904.D	RINSE				1	5.41	89310	5.79	136251	7.81	129361	9.50	83816
5	1727	V309041905.D	SHI0071-CAL1				1	5.41	111182	5.79	160193	7.81	163368	9.50	105427
6	1754	V309041906.D	SHI0071-CAL2				1	5.41	111932	5.79	163049	7.81	170589	9.50	105523
7	1821	V309041907.D	SHI0071-CAL3				1	5.41	114344	5.79	166163	7.81	169230	9.50	105248
8	1848	V309041908.D	SHI0071-CAL4				1	5.41	112026	5.79	164722	7.81	165834	9.50	107436
9	1915	V309041909.D	SHI0071-CAL5				1	5.41	96897	5.79	140121	7.81	140128	9.50	90137
10	1941	V309041910.D	SHI0071-CAL6				1	5.41	116965	5.79	169050	7.81	171592	9.50	108898
11	2008	V309041911.D	SHI0071-CAL7				1	5.41	106623	5.79	160497	7.81	162481	9.50	104567
12	2035	V309041912.D	SHI0071-CAL8				1	5.41	120959	5.79	179582	7.81	182593	9.50	116974
13	2101	V309041913.D	SHI0071-ICB1				1	5.41	117622	5.79	167865	7.81	173269	9.50	107129
14	2128	V309041914.D	SHI0071-SCV1				1	5.41	116549	5.79	167677	7.81	173002	9.50	109816
15	2155	V309041915.D	RINSE				1	5.41	95635	5.79	136906	7.81	141908	9.50	86389
16	2221	V309041916.D	SHI0-CAL9				1	5.41	112901	5.79	163037	7.81	164073	9.50	106831
17	2247	V309041917.D	SHI0-CALA				1	5.41	99011	5.79	141975	7.81	144385	9.50	92608
18	2314	V309041918.D	SHI0-CALB				1	5.41	115714	5.79	174483	7.82	170438	9.50	105547
19	2340	V309041919.D	SHI0-CALC				1	5.41	116637	5.79	166209	7.81	170008	9.50	106056
20	2007	V309041920.D	SHI0-CALD				1	5.41	112151	5.79	174709	7.81	176081	9.50	109115
21	2033	V309041921.D	SHI0-CALE				1	5.41	92633	5.79	142928	7.81	141756	9.50	88014
22	0100	V309041922.D	RINSE				1	5.41	118075	5.79	173200	7.81	172867	9.50	108265

23 0127 V309041923.D SHI0-SCV1 1 | 5.41 117414|| 5.79 174229|| 7.82 171651|| 9.50 106541|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190904g.b

Instrument: nt3.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1517	V309041902G.D	SHI0075-TUN1	1	NO MANUAL INTEGRATION
2221	V309041916G.D	SHI0075-CAL9	1	Toluene, Naphthalene, d8-Toluene, Pentafluorobenzene, d4-1,2-dichloroethane, 1,4-Difluorobenzene,
2247	V309041917G.D	SHI0075-CALA	1	nC6, Naphthalene, d5-Chlorobenzene, Pentafluorobenzene, d4-1,2-dichloroethane,
2314	V309041918G.D	SHI0075-CALB	1	Pentafluorobenzene, d4-1,2-dichloroethane,
2340	V309041919G.D	SHI0075-CALC	1	Naphthalene, d4-1,2-dichloroethane,
0007	V309041920G.D	SHI0075-CALD	1	Naphthalene,
0033	V309041921G.D	SHI0075-CALE	1	Naphthalene, d4-Dichlorobenzene,
0100	V309041922G.D	SHI0075-ICB1	1	NO MANUAL INTEGRATION
0127	V309041923G.D	SHI0075-SCV1	1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190904s.b

Instrument: nt3.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1517	V309041902G.D	SHI0075-TUN1	1	NO MANUAL INTEGRATION
1727	V309041905G.D	SHI0075-CAL1	1	NO MANUAL INTEGRATION
1754	V309041906G.D	SHI0075-CAL2	1	NO MANUAL INTEGRATION
1821	V309041907G.D	SHI0075-CAL3	1	NO MANUAL INTEGRATION
1848	V309041908G.D	SHI0075-CAL4	1	NO MANUAL INTEGRATION
1915	V309041909G.D	SHI0075-CAL5	1	NO MANUAL INTEGRATION
1941	V309041910G.D	SHI0075-CAL6	1	NO MANUAL INTEGRATION
2008	V309041911G.D	SHI0075-CAL7	1	NO MANUAL INTEGRATION
2035	V309041912G.D	SHI0075-CAL8	1	Pentafluorobenzene,
2221	V309041916G.D	SHI0075-CAL9	1	NO MANUAL INTEGRATION
2247	V309041917G.D	SHI0075-CALA	1	NO MANUAL INTEGRATION
2314	V309041918G.D	SHI0075-CALB	1	NO MANUAL INTEGRATION
2340	V309041919G.D	SHI0075-CALC	1	NO MANUAL INTEGRATION
0007	V309041920G.D	SHI0075-CALD	1	NO MANUAL INTEGRATION
0033	V309041921G.D	SHI0075-CALE	1	NO MANUAL INTEGRATION
0100	V309041922G.D	SHI0075-ICB1	1	NO MANUAL INTEGRATION
0127	V309041923G.D	SHI0075-SCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 06-Sep-2019 11:29

V309041902G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041916G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041917G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041918G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041919G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041920G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041921G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041922G.D	Data Locked	paul, 06-Sep-2019 11:28
V309041923G.D	Data Locked	paul, 06-Sep-2019 11:28

Security Status Report

Date: 06-Sep-2019 11:29

V309041902G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041905G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041906G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041907G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041908G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041909G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041910G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041911G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041912G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041916G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041917G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041918G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041919G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041920G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041921G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041922G.D	Data Locked	paul, 06-Sep-2019 11:29
V309041923G.D	Data Locked	paul, 06-Sep-2019 11:29

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09
FILENAME:	V309041905	V309041906	V309041907	V309041908	V309041909	V309041910	V309041911	V309041912	V309041914
INJ.DATE:	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019
INJ.TIME:	17:27	17:54	18:21	18:48	19:15	19:41	20:08	20:35	21:28

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	1.710	1.720	1.720	1.720	1.716	1.716	1.720	1.715	1.721	1.716	1.607-1.824	1.717	0.004
2 Chloromethane	1.917	1.927	1.917	1.922	1.918	1.918	1.922	1.917	1.923	1.918	1.809-2.026	1.920	0.004
3 Vinyl Chloride	2.008	2.007	2.012	2.007	2.008	2.008	2.012	2.008	2.013	2.008	1.900-2.116	2.009	0.002
4 Bromomethane	2.300	2.305	2.305	2.299	2.295	2.306	2.299	2.295	2.306	2.295	2.187-2.403	2.301	0.004
5 Chloroethane	2.422	2.416	2.416	2.416	2.412	2.417	2.416	2.407	2.417	2.412	2.304-2.520	2.416	0.004
6 Trichlorofluoromethane	2.534	2.528	2.533	2.533	2.524	2.534	2.533	2.523	2.534	2.524	2.415-2.632	2.531	0.005
7 1,1-Dichloroethene	2.996	2.990	2.996	2.996	2.986	2.992	2.990	2.981	2.997	2.986	2.878-3.094	2.991	0.005
8 Carbon Disulfide	2.996	2.996	3.001	3.001	2.997	3.002	2.995	2.986	3.002	2.997	2.888-3.105	2.997	0.005
9 112Trichloro122Trifluo	3.060	3.065	3.059	3.060	3.060	3.061	3.059	3.050	3.066	3.060	2.952-3.169	3.060	0.005
10 Iodomethane	3.124	3.118	3.128	3.123	3.119	3.124	3.118	3.108	3.124	3.119	3.011-3.227	3.121	0.006
11 Bromoethane	3.241	3.251	3.251	3.251	3.241	3.247	3.245	3.236	3.246	3.241	3.133-3.349	3.245	0.005
12 Acrolein	3.336	3.347	3.346	3.341	3.337	3.348	3.346	3.337	3.347	3.337	3.228-3.445	3.343	0.005
13 Methylene Chloride	3.560	3.570	3.570	3.570	3.560	3.566	3.564	3.560	3.565	3.560	3.452-3.668	3.565	0.004
14 Acetone	3.645	3.644	3.644	3.655	3.640	3.651	3.649	3.640	3.656	3.640	3.532-3.748	3.647	0.006
15 Trans-1,2-Dichloroethe	3.714	3.719	3.713	3.713	3.709	3.714	3.713	3.703	3.714	3.709	3.601-3.817	3.713	0.004
16 n-hexane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.788	3.680-3.896	+++++	+++++
17 Methyl tert butyl ethe	3.836	3.841	3.846	3.841	3.836	3.842	3.841	3.836	3.842	3.836	3.728-3.945	3.840	0.003

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 1,1-Dichloroethane	4.256	4.255	4.255	4.256	4.251	4.257	4.255	4.251	4.256	4.251	4.143-4.359	4.255	0.002
	19 Acrylonitrile	+++++	4.346	4.330	4.314	4.315	4.320	4.314	4.309	4.325	4.315	4.207-4.423	4.322	0.012
	21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.560	4.452-4.668	+++++	+++++
	20 Vinyl Acetate	4.495	4.500	4.500	4.495	4.485	4.490	4.489	4.485	4.490	4.485	4.377-4.593	4.492	0.006
	22 Cis-1,2-Dichloroethene	4.692	4.702	4.702	4.697	4.692	4.692	4.696	4.692	4.698	4.692	4.584-4.800	4.696	0.004
	23 2,2-Dichloropropane	4.772	4.776	4.776	4.771	4.772	4.777	4.776	4.772	4.777	4.772	4.664-4.880	4.774	0.003
	24 Bromochloromethane	4.846	4.851	4.851	4.851	4.846	4.847	4.851	4.846	4.852	4.846	4.738-4.954	4.849	0.002
	25 Chloroform	4.915	4.920	4.914	4.915	4.915	4.916	4.914	4.910	4.916	4.915	4.807-5.024	4.915	0.003
	26 Carbon Tetrachloride	5.005	5.000	5.010	5.000	5.001	5.001	5.005	5.000	5.006	5.001	4.885-5.116	5.003	0.004
$	27 Dibromofluoromethane	5.053	5.053	5.053	5.053	5.054	5.049	5.047	5.048	5.048	5.054	4.945-5.162	5.051	0.003
	28 1,1,1-Trichloroethane	5.064	5.058	5.058	5.058	5.054	5.059	5.058	5.054	5.059	5.054	4.945-5.162	5.058	0.003
	30 1,1-Dichloropropene	5.149	5.154	5.154	5.154	5.149	5.150	5.148	5.149	5.149	5.149	5.034-5.265	5.151	0.002
	29 2-Butanone	5.170	5.170	5.170	5.165	5.160	5.160	5.159	5.155	5.165	5.160	5.052-5.268	5.164	0.006
	31 Benzene	5.335	5.335	5.334	5.340	5.330	5.336	5.334	5.330	5.335	5.330	5.214-5.446	5.334	0.003
*	32 Pentafluorobenzene	5.409	5.409	5.409	5.409	5.410	5.410	5.409	5.410	5.410	5.410	5.302-5.518	5.409	0.001
$	33 d4-1,2-Dichloroethane	5.436	5.441	5.441	5.441	5.436	5.442	5.435	5.436	5.436	5.436	5.328-5.545	5.438	0.003
	35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.693	5.577-5.809	+++++	+++++
	34 1,2-Dichloroethane	5.495	5.489	5.489	5.489	5.484	5.490	5.488	5.484	5.490	5.484	5.368-5.600	5.489	0.003
	36 Trichloroethene	5.766	5.760	5.754	5.760	5.755	5.761	5.759	5.755	5.761	5.755	5.640-5.871	5.759	0.004
*	37 1,4-Difluorobenzene	5.787	5.786	5.786	5.786	5.787	5.787	5.786	5.787	5.787	5.787	5.671-5.903	5.787	0.001
	38 Dibromomethane	6.058	6.057	6.057	6.063	6.053	6.059	6.057	6.058	6.058	6.053	5.937-6.169	6.058	0.003
	39 1,2-Dichloropropane	6.127	6.127	6.126	6.127	6.127	6.128	6.126	6.127	6.127	6.127	6.012-6.243	6.127	0.001

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	40 Bromodichloromethane	6.175	6.174	6.174	6.180	6.175	6.175	6.174	6.175	6.181	6.175	6.059-6.291	6.176	0.002
	173 2-Pentanone	6.414	6.398	6.403	6.398	6.398	6.399	6.397	6.393	6.399	6.398	6.283-6.514	6.400	0.006
	42 Cis 1,3-dichloropropen	6.616	6.616	6.615	6.616	6.611	6.611	6.610	6.611	6.611	6.611	6.495-6.727	6.613	0.003
$	43 d8-Toluene	6.738	6.738	6.738	6.738	6.739	6.739	6.738	6.739	6.739	6.739	6.623-6.854	6.738	0.001
	41 2-Chloroethyl Vinyl Et	6.579	6.584	6.578	6.573	6.574	6.574	6.573	6.574	6.574	6.574	6.458-6.690	6.576	0.004
	44 Toluene	6.770	6.775	6.775	6.775	6.771	6.771	6.775	6.771	6.776	6.771	6.655-6.886	6.773	0.002
	45 4-Methyl-2-Pentanone	7.052	7.041	7.041	7.041	7.042	7.042	7.040	7.042	7.042	7.042	6.926-7.157	7.042	0.004
	46 Tetrachloroethene	7.041	7.046	7.041	7.041	7.036	7.037	7.040	7.036	7.042	7.036	6.880-7.192	7.040	0.003
	47 Trans 1,3-Dichloroprop	7.068	7.067	7.067	7.067	7.063	7.063	7.062	7.063	7.063	7.063	6.947-7.179	7.065	0.003
	48 1,1,2-Trichloroethane	7.185	7.174	7.174	7.174	7.175	7.175	7.173	7.174	7.175	7.175	7.059-7.290	7.175	0.004
	49 Chlorodibromomethane	7.296	7.296	7.301	7.301	7.297	7.297	7.296	7.297	7.297	7.297	7.141-7.453	7.298	0.002
	50 1,3-Dichloropropane	7.360	7.365	7.365	7.365	7.361	7.361	7.365	7.361	7.361	7.361	7.204-7.517	7.363	0.002
	51 1,2-Dibromoethane	7.461	7.471	7.461	7.466	7.462	7.462	7.460	7.462	7.462	7.462	7.346-7.577	7.463	0.004
	52 2-Hexanone	7.615	7.620	7.620	7.615	7.616	7.616	7.615	7.616	7.616	7.616	7.459-7.772	7.616	0.002
*	53 d5-Chlorobenzene	7.812	7.812	7.811	7.812	7.812	7.813	7.811	7.812	7.812	7.812	7.656-7.969	7.812	0.001
	54 Chlorobenzene	7.828	7.827	7.827	7.828	7.823	7.829	7.827	7.828	7.828	7.823	7.667-7.979	7.827	0.002
	55 Ethyl Benzene	7.844	7.843	7.843	7.844	7.839	7.839	7.843	7.844	7.844	7.839	7.683-7.995	7.843	0.002
	56 1,1,1,2-Tetrachloroeth	7.871	7.870	7.870	7.870	7.871	7.871	7.870	7.871	7.871	7.871	7.715-8.027	7.870	0.001
	57 m,p-xylene	7.945	7.944	7.944	7.945	7.945	7.946	7.944	7.945	7.945	7.945	7.789-8.101	7.945	0.001
	58 o-Xylene	8.248	8.253	8.247	8.247	8.248	8.248	8.247	8.248	8.248	8.248	8.092-8.404	8.248	0.002
	59 Styrene	8.285	8.290	8.290	8.285	8.285	8.286	8.284	8.285	8.286	8.285	8.129-8.442	8.286	0.002
	60 Bromoform	8.312	8.316	8.311	8.311	8.307	8.312	8.311	8.312	8.312	8.307	8.117-8.497	8.312	0.002
	61 Isopropyl Benzene	8.476	8.471	8.470	8.471	8.472	8.472	8.470	8.471	8.472	8.472	8.281-8.661	8.472	0.002
$	62 4-Bromofluorobenzene	8.678	8.678	8.683	8.678	8.679	8.679	8.683	8.679	8.679	8.679	8.523-8.835	8.680	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	63 Bromobenzene	8.758	8.752	8.758	8.758	8.759	8.759	8.757	8.758	8.759	8.759	8.569-8.948	8.758	0.002
	64 N-Propyl Benzene	8.769	8.774	8.768	8.768	8.769	8.769	8.768	8.769	8.769	8.769	8.579-8.959	8.769	0.002
	82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.074	8.917-9.231	+++++	+++++
	65 1,1,2,2-Tetrachloroeth	8.822	8.816	8.827	8.827	8.822	8.828	8.826	8.828	8.828	8.822	8.632-9.012	8.825	0.004
	66 2-Chloro Toluene	8.886	8.891	8.885	8.891	8.886	8.886	8.890	8.886	8.886	8.886	8.696-9.076	8.887	0.002
	67 1,3,5-Trimethyl Benzen	8.912	8.912	8.912	8.912	8.913	8.913	8.912	8.913	8.913	8.913	8.723-9.103	8.912	0.001
	68 1,2,3-Trichloropropane	8.923	8.928	8.928	8.928	8.923	8.929	8.927	8.929	8.929	8.923	8.733-9.113	8.927	0.002
	69 Trans-1,4-Dichloro 2-B	+++++	8.954	8.960	8.954	8.955	8.955	8.954	8.955	8.955	8.955	8.765-9.145	8.955	0.002
	70 4-Chloro Toluene	9.013	9.013	9.007	9.008	9.008	9.009	9.007	9.008	9.008	9.008	8.818-9.198	9.009	0.002
	71 T-Butyl Benzene	9.146	9.151	9.146	9.146	9.147	9.147	9.145	9.146	9.147	9.147	8.957-9.336	9.147	0.002
	72 1,2,4-Trimethylbenzene	9.199	9.199	9.199	9.199	9.200	9.200	9.199	9.200	9.200	9.200	9.010-9.390	9.199	0.001
	73 S-Butyl Benzene	9.279	9.279	9.278	9.279	9.274	9.280	9.278	9.279	9.280	9.274	9.084-9.464	9.278	0.002
	74 4-Isopropyl Toluene	9.380	9.385	9.385	9.385	9.380	9.381	9.385	9.386	9.381	9.380	9.190-9.570	9.383	0.002
	75 1,3-Dichlorobenzene	9.449	9.443	9.449	9.443	9.444	9.444	9.443	9.444	9.444	9.444	9.254-9.634	9.445	0.002
*	76 d4-1,4-Dichlorobenzene	9.497	9.502	9.496	9.497	9.497	9.498	9.502	9.503	9.497	9.497	9.307-9.687	9.499	0.003
	77 1,4-Dichlorobenzene	9.502	9.507	9.512	9.507	9.508	9.508	9.512	9.513	9.508	9.508	9.318-9.698	9.509	0.003
	78 N-Butyl Benzene	9.699	9.699	9.698	9.699	9.699	9.700	9.698	9.699	9.699	9.699	9.509-9.889	9.699	0.001
$	79 d4-1,2-Dichlorobenzene	9.821	9.821	9.821	9.821	9.822	9.822	9.820	9.822	9.816	9.822	9.632-10.012	9.821	0.002
	80 1,2-Dichlorobenzene	9.821	9.826	9.826	9.826	9.827	9.827	9.826	9.827	9.827	9.827	9.637-10.017	9.826	0.002
	81 1,2-Dibromo 3-Chloropr	10.433	10.437	10.432	10.437	10.438	10.438	10.437	10.438	10.438	10.438	10.248-10.628	10.437	0.003
	83 Hexachloro 1,3-Butadie	10.938	10.937	10.937	10.937	10.938	10.938	10.937	10.938	10.938	10.938	10.748-11.128	10.937	0.001
	84 1,2,4-Trichlorobenzene	10.969	10.964	10.963	10.964	10.959	10.959	10.963	10.959	10.959	10.959	10.769-11.149	10.962	0.003
	85 Naphthalene	11.225	11.219	11.219	11.219	11.220	11.220	11.218	11.220	11.220	11.220	11.030-11.410	11.220	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Batch File: \\target\share\chem1\nt3.i\20190904.b
Inst ID: nt3.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
86 1,2,3-Trichlorobenzene	11.363	11.368	11.362	11.368	11.363	11.363	11.362	11.363	11.363	11.363	11.173-11.553	11.364	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904g.b\NWTPHG090419.m
Batch File: \\target\share\chem1\nt3.i\20190904g.b
Inst ID: nt3.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09
FILENAME:	V309041902G	V309041916G	V309041917G	V309041918G	V309041919G	V309041920G	V309041921G	V309041922G	V309041923G
INJ.DATE:	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	04-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019
INJ.TIME:	15:17	22:21	22:47	23:14	23:40	00:07	00:33	01:00	01:27

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	5 2-Methylpentane	3.023	3.034	3.028	+++++	3.055	3.056	3.065	3.002	3.054	3.023	2.973-3.073	3.040	0.021
	3 AK101	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.480	0.740-6.220	+++++	+++++
	7 nC6	3.788	3.789	3.789	3.787	3.788	3.789	3.788	3.794	3.793	3.788	3.738-3.838	3.789	0.002
$	10 Dibromofluorobenzene	5.053	5.054	5.054	5.047	5.048	5.049	5.042	5.054	5.053	5.053	5.003-5.103	5.050	0.004
	46 nC7	5.335	5.314	5.314	5.313	5.314	5.315	5.313	5.314	5.324	5.335	5.265-5.405	5.317	0.007
	37 Benzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.323	5.273-5.373	+++++	+++++
$	29 Pentafluorobenzene	5.410	5.410	5.410	5.409	5.409	5.410	5.409	5.410	5.409	5.410	5.360-5.460	5.410	0.001
$	30 d4-1,2-dichloroethane	+++++	5.431	5.436	5.435	5.436	5.437	5.436	+++++	5.441	5.424	5.374-5.474	5.436	0.003
$	31 1,4-Difluorobenzene	5.787	5.787	5.787	5.786	5.787	5.788	5.787	5.787	5.792	5.787	5.737-5.837	5.787	0.002
	4 8015GAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.154	1.814-8.494	+++++	+++++
	45 8015mod	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.012	0.942-1.082	+++++	+++++
	38 n-Octane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	6.635	6.585-6.685	+++++	+++++
$	32 d8-Toluene	6.738	6.739	6.739	6.737	6.738	6.739	6.733	6.739	6.738	6.738	6.688-6.788	6.738	0.002
	12 Toluene	6.776	6.771	6.771	6.775	6.775	6.771	6.775	+++++	6.775	6.776	6.726-6.826	6.774	0.002
	39 n-Nonane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.767	7.717-7.817	+++++	+++++
$	33 d5-Chlorobenzene	7.812	7.812	7.812	7.816	7.812	7.813	7.812	7.813	7.817	7.812	7.762-7.862	7.813	0.002
	40 Ethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.841	7.791-7.891	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt3.i\20190904g.b\NWTPHG090419.m
Batch File: \\target\share\chem1\nt3.i\20190904g.b
Inst ID: nt3.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	EXPEC RT	RT WINDOW	AVG RT	STD DEV
41 m,p-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.942	7.892-7.992	+++++	+++++
42 o-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.245	8.195-8.295	+++++	+++++
2 WAGAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	10.130	8.040-12.220	+++++	+++++
$ 34 4-Bromofluorobenzene	8.679	8.679	8.679	8.678	8.678	8.679	8.678	8.679	8.678	8.679	8.629-8.729	8.679	0.001
17 nC10-Decane	8.742	8.743	8.743	8.747	8.742	8.743	8.747	8.743	8.768	8.742	8.692-8.792	8.746	0.008
20 1,2,4-Trimethylbenzene	9.359	9.354	9.354	9.353	9.353	9.354	9.353	9.333	9.359	9.359	9.309-9.409	9.352	0.008
$ 35 d4-Dichlorobenzene	9.497	9.497	9.497	9.496	9.497	9.498	9.507	9.498	9.497	9.497	9.447-9.547	9.498	0.003
1 NWTPHG	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.625	7.095-12.155	+++++	+++++
43 n-Undecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.817	9.767-9.867	+++++	+++++
$ 36 d4-1,2-Dichlorobenzene	9.816	9.822	9.822	9.820	9.821	9.822	9.837	9.822	9.821	9.816	9.766-9.866	9.823	0.006
22 nC12-Dodecane	10.427	10.428	10.428	10.416	10.427	10.428	10.427	10.412	10.400	10.427	10.377-10.477	10.421	0.010
44 n-Tridecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.178	11.128-11.228	+++++	+++++
24 Naphthalene	11.219	11.220	11.220	11.218	11.219	11.220	11.219	11.215	11.224	11.219	11.169-11.269	11.219	0.002

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Calibration File Names:
Level 1: \\target\share\chem1\nt3.i\20190904.b\V309041905.D
Level 2: \\target\share\chem1\nt3.i\20190904.b\V309041906.D
Level 3: \\target\share\chem1\nt3.i\20190904.b\V309041907.D
Level 4: \\target\share\chem1\nt3.i\20190904.b\V309041908.D
Level 5: \\target\share\chem1\nt3.i\20190904.b\V309041909.D
Level 6: \\target\share\chem1\nt3.i\20190904.b\V309041910.D
Level 7: \\target\share\chem1\nt3.i\20190904.b\V309041911.D
Level 8: \\target\share\chem1\nt3.i\20190904.b\V309041912.D

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
1 Dichlorodifluoromethane	0.77351	0.89769	0.96358	0.96174	1.12779	0.92156					
	0.97037	0.85297					AVRG		0.93365		11.03598
2 Chloromethane	+++++	1.54505	1.49785	1.62324	1.80878	1.44166					
	1.59100	1.46154					AVRG		1.56702		7.99990
3 Vinyl Chloride	1.24660	1.35618	1.16937	1.27725	1.43289	1.15203					
	1.28024	1.18545					AVRG		1.26250		7.65668

ARI Labs, Inc.

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Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
4 Bromomethane	+++++	+++++	0.55202	0.58616	0.66286	0.52584					
	0.59140	0.53790					AVRG		0.57603		8.65500
5 Chloroethane	0.67502	0.72008	0.68399	0.69917	0.75214	0.60645					
	0.65464	0.59304					AVRG		0.67307		8.03005
6 Trichlorofluoromethane	0.99791	1.04974	1.02454	1.03815	1.21058	0.96739					
	1.02136	0.90681					AVRG		1.02706		8.49033
7 1,1-Dichloroethene	1.26684	1.21806	1.20758	1.25239	1.42229	1.14242					
	1.25609	1.16296					AVRG		1.24108		6.90079
8 Carbon Disulfide	1.85012	1.79448	1.66384	1.85167	2.09987	1.71294					
	1.89773	1.71168					AVRG		1.82279		7.60319
9 112Trichloro122Trifluoroethan	0.48029	0.54765	0.52919	0.61588	0.64495	0.53078					
	0.57673	0.52944					AVRG		0.55687		9.54679
10 Iodomethane	+++++	+++++	0.90674	0.95799	1.08154	0.88427					
	0.98053	0.89008					AVRG		0.95019		7.88691

ARI Labs, Inc.

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Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
11 Bromoethane	0.53336	0.40828	0.45057	0.40366	0.46896	0.39786					
	0.43499	0.39235					AVRG		0.43625		10.94268
12 Acrolein	+++++	+++++	0.12293	0.11695	0.12058	0.09868					
	0.10492	0.09852					AVRG		0.11043		10.01875
13 Methylene Chloride	+++++	+++++	10216	16156	68539	129849					
	263383	539542					LINR	0.000e+000	0.57201		0.99549
14 Acetone	+++++	+++++	0.16382	0.18091	0.16967	0.14719					
	0.15291	0.13934					AVRG		0.15897		9.66593
15 Trans-1,2-Dichloroethene	0.70470	0.60858	0.66912	0.70859	0.73044	0.59619					
	0.66257	0.60089					AVRG		0.66014		8.01951
16 n-hexane	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000
17 Methyl tert butyl ether	+++++	1.11854	1.18782	1.17343	1.23121	1.00694					
	1.12700	1.01770					AVRG		1.12324		7.54102

ARI Labs, Inc.

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Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
18 1,1-Dichloroethane	1.35274	1.29078	1.24475	1.34321	1.53143	1.24301					
	1.36019	1.24007					AVRG		1.32577		7.35140
19 Acrylonitrile	+++++	+++++	0.18191	0.16670	0.22540	0.17462					
	0.19168	0.17858					AVRG		0.18648		11.13831
21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000
20 Vinyl Acetate	1.63696	1.27899	1.27169	1.42025	1.53016	1.28043					
	1.43435	1.30162					AVRG		1.39431		9.75505
22 Cis-1,2-Dichloroethene	0.74428	0.68863	0.66912	0.62365	0.76057	0.62282					
	0.68798	0.63702					AVRG		0.67926		7.70357
23 2,2-Dichloropropane	0.66647	0.66808	0.60904	0.64048	0.68101	0.56228					
	0.58859	0.51669					AVRG		0.61658		9.42339
24 Bromochloromethane	0.25004	0.32305	0.27994	0.31475	0.33938	0.27650					
	0.30198	0.27394					AVRG		0.29495		10.11402

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
25 Chloroform	1.04333	0.96505	0.99909	1.02293	1.17315	0.96195					
	1.04984	0.95971					AVRG		1.02188		6.95243
26 Carbon Tetrachloride	0.63111	0.55922	0.58581	0.57117	0.68994	0.56178					
	0.59667	0.57058					AVRG		0.59579		7.49231
28 1,1,1-Trichloroethane	1.00781	0.99400	0.91540	0.96634	1.06680	0.93218					
	1.05229	0.97665					AVRG		0.98893		5.37099
30 1,1-Dichloropropene	0.52468	0.62104	0.55193	0.56787	0.65319	0.54189					
	0.55927	0.53259					AVRG		0.56906		7.91697
29 2-Butanone	+++++	+++++	0.23230	0.26806	0.29209	0.25039					
	0.27267	0.24094					AVRG		0.25941		8.57806
31 Benzene	1.90270	1.63975	1.63538	1.70223	1.97217	1.61172					
	1.67425	1.55249					AVRG		1.71134		8.61523
35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
34 1,2-Dichloroethane	0.62269	0.52303	0.55542	0.54553	0.63210	0.51400					
	0.53721	0.50116					AVRG		0.55389		8.77186
36 Trichloroethene	0.37174	0.47029	0.44234	0.46630	0.55870	0.43935					
	0.47486	0.43787					AVRG		0.45768		11.40790
38 Dibromomethane	0.19508	0.18387	0.19409	0.20529	0.23839	0.19031					
	0.19920	0.18528					AVRG		0.19894		8.75398
39 1,2-Dichloropropane	0.49940	0.48599	0.50601	0.55220	0.59932	0.48603					
	0.51888	0.47778					AVRG		0.51570		7.99378
40 Bromodichloromethane	0.49440	0.51126	0.50240	0.50576	0.60697	0.49326					
	0.51525	0.48769					AVRG		0.51462		7.47479
173 2-Pentanone	+++++	+++++	0.03167	0.03621	0.04400	0.03758					
	0.03850	0.03521					AVRG		0.03720		10.99793
42 Cis 1,3-dichloropropene	0.65764	0.58817	0.63696	0.63962	0.78315	0.64564					
	0.67161	0.63968					AVRG		0.65781		8.52105

ARI Labs, Inc.

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Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
41 2-Chloroethyl Vinyl Ether	+++++	+++++	0.18674	0.21333	0.25703	0.20968					
	0.22637	0.21889					AVRG		0.21867		10.54730
44 Toluene	1.05373	1.11255	1.12973	1.13555	1.25848	1.07313					
	1.11709	1.04704					AVRG		1.11591		5.99750
45 4-Methyl-2-Pentanone	+++++	+++++	0.13133	0.15124	0.16583	0.14476					
	0.14831	0.13959					AVRG		0.14684		7.93987
46 Tetrachloroethene	0.56590	0.50238	0.49832	0.51660	0.59301	0.48930					
	0.51066	0.47657					AVRG		0.51909		7.68466
47 Trans 1,3-Dichloropropene	0.54434	0.47581	0.52822	0.54282	0.66813	0.55162					
	0.58597	0.54717					AVRG		0.55551		9.87822
48 1,1,2-Trichloroethane	0.29621	0.32089	0.28990	0.30931	0.34937	0.29182					
	0.30656	0.28377					AVRG		0.30598		6.94859
49 Chlorodibromomethane	0.37829	0.32663	0.33215	0.35753	0.44395	0.36836					
	0.39286	0.36912					AVRG		0.37111		9.93854

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
50 1,3-Dichloropropane	0.50285	0.48186	0.53938	0.55571	0.65168	0.51498					
	0.54894	0.51290					AVRG		0.53854		9.64943
51 1,2-Dibromoethane	0.32118	0.28347	0.28755	0.30506	0.34912	0.28686					
	0.30350	0.28653					AVRG		0.30291		7.50075
52 2-Hexanone	+++++	+++++	0.22183	0.26245	0.31687	0.26612					
	0.28589	0.26116					AVRG		0.26905		11.65279
54 Chlorobenzene	1.29554	1.19726	1.25941	1.30347	1.50046	1.23847					
	1.30529	1.20597					AVRG		1.28823		7.42061
55 Ethyl Benzene	0.70393	0.66804	0.66661	0.68967	0.83867	0.67651					
	0.71404	0.66933					AVRG		0.70335		8.16525
56 1,1,1,2-Tetrachloroethane	0.45113	0.43942	0.44005	0.46471	0.54225	0.44947					
	0.47328	0.44538					AVRG		0.46321		7.34629
57 m,p-xylene	0.91067	0.80644	0.77339	0.85225	1.03791	0.84650					
	0.88015	0.82172					AVRG		0.86613		9.40045

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
58 o-Xylene	0.89858	0.80486	0.80506	0.83210	1.04973	0.85858					
	0.90248	0.84354					AVRG		0.87437		9.14453
59 Styrene	1.26647	1.24709	1.19524	1.24712	1.63679	1.36711					
	1.47765	1.39066					AVRG		1.35352		10.90470
60 Bromoform	0.32961	0.33775	0.32229	0.30707	0.42231	0.36733					
	0.40135	0.38845					AVRG		0.35952		11.56289
61 Isopropyl Benzene	3.59206	3.39414	3.47893	3.47249	4.16108	3.44654					
	3.53197	3.34039					AVRG		3.55220		7.25931
63 Bromobenzene	0.97840	1.04489	0.86681	0.93572	1.11662	0.92909					
	0.95331	0.90539					AVRG		0.96628		8.29909
64 N-Propyl Benzene	3.85006	3.73321	3.98126	4.05483	4.91274	4.06238					
	4.10445	3.89381					AVRG		4.07409		8.86099
82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++					
	+++++	+++++					AVRG		0.000e+000		0.000e+000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
65 1,1,2,2-Tetrachloroethane	0.51884	0.58812	0.66073	0.62405	0.71527	0.58530					
	0.63302	0.59183					AVRG		0.61464		9.51415
66 2-Chloro Toluene	2.77633	2.88695	2.85412	2.77877	3.37366	2.84280					
	2.89457	2.76129					AVRG		2.89606		6.89412
67 1,3,5-Trimethyl Benzene	3.07037	2.85473	3.09298	3.06676	3.71468	3.05320					
	3.15127	3.01068					AVRG		3.12683		8.08214
68 1,2,3-Trichloropropane	+++++	0.21266	0.21540	0.20407	0.23155	0.18609					
	0.19478	0.18386					AVRG		0.20406		8.42932
69 Trans-1,4-Dichloro 2-Butene	+++++	+++++	0.19107	0.22530	0.25367	0.21138					
	0.22640	0.21700					AVRG		0.22080		9.32341
70 4-Chloro Toluene	2.59089	2.68605	2.39520	2.70975	3.17633	2.62229					
	2.70769	2.57461					AVRG		2.68285		8.35201
71 T-Butyl Benzene	2.57904	2.54257	2.53088	2.59527	3.10234	2.59687					
	2.59813	2.57692					AVRG		2.64025		7.13581

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
72 1,2,4-Trimethylbenzene	3.17044	2.93093	3.02894	3.12567	3.70802	3.10189					
	3.22145	3.07223					AVRG		3.16995		7.40144
73 S-Butyl Benzene	3.55175	3.50710	3.54021	3.75996	4.35427	3.66689					
	3.56857	3.57913					AVRG		3.69099		7.58548
74 4-Isopropyl Toluene	3.18988	3.21617	3.14742	3.28200	3.91672	3.27498					
	3.24551	3.22506					AVRG		3.31222		7.49250
75 1,3-Dichlorobenzene	2.08723	2.02231	1.95833	2.01013	2.36237	1.91245					
	1.97780	1.90988					AVRG		2.03006		7.21821
77 1,4-Dichlorobenzene	2.21528	1.95351	1.96868	1.99933	2.29517	1.92560					
	1.97199	1.88954					AVRG		2.02739		7.19945
78 N-Butyl Benzene	2.86596	2.83294	2.71682	2.71734	3.33883	2.78341					
	2.64289	2.77998					AVRG		2.83477		7.60353
80 1,2-Dichlorobenzene	1.94637	2.02780	1.84488	1.81880	2.18294	1.75826					
	1.82527	1.74227					AVRG		1.89333		7.94441

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
81 1,2-Dibromo 3-Chloropropane	+++++	851	1794	2574	12204	24598					
	46056	108650					LINR	0.000e+000	0.11516		0.99863
83 Hexachloro 1,3-Butadiene	+++++	0.45829	0.51098	0.55112	0.64152	0.54110					
	+++++	+++++					AVRG		0.54060		12.39105
84 1,2,4-Trichlorobenzene	+++++	1.30038	1.31936	1.30319	1.56666	1.28472					
	1.26071	1.28757					AVRG		1.33180		7.89575
85 Naphthalene	+++++	2.27969	2.13192	2.10404	2.55020	2.11368					
	2.22768	2.12447					AVRG		2.21881		7.22690
86 1,2,3-Trichlorobenzene	+++++	1.15539	1.04591	1.08925	1.23443	1.03044					
	1.02139	1.01321					AVRG		1.08429		7.62429
$ 27 Dibromofluoromethane	0.42372	0.43444	0.43427	0.43990	0.43023	0.42604					
	0.44356	0.42697					AVRG		0.43239		1.60811
$ 33 d4-1,2-Dichloroethane	0.46452	0.48435	0.49101	0.49951	0.47360	0.48808					
	0.47493	0.47793					AVRG		0.48174		2.31753

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
$ 43 d8-Toluene	1.22163	1.20149	1.21448	1.18718	1.20577	1.23309					
	1.19999	1.21436					AVRG		1.20975		1.17671
$ 62 4-Bromofluorobenzene	0.47281	0.44200	0.47735	0.47121	0.48430	0.49901					
	0.47346	0.48131					AVRG		0.47518		3.39216
$ 79 d4-1,2-Dichlorobenzene	0.92386	0.92270	0.94675	0.92483	0.96480	0.94005					
	0.94749	0.94628					AVRG		0.93960		1.58097

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 04-SEP-2019 17:27
End Cal Date : 04-SEP-2019 20:35
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt3.i\20190904.b\8260C090219.m
Last Edit : 05-Sep-2019 09:19 paul

Curve	Formula	Units
Averaged	Amt = Rsp/m1	Response
Linear	Amt = b + Rsp/m1	Response

6a
8260 GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: 20151005

Instrument: NT3.I Project:

Calibration Date: 04-SEP-2019 SDG No.: 20151005

Gas Range	RF1 0.1	RF2 0.25	RF3 0.5	RF4 1.0	RF5 2.5	RF6 5	Ave RF	%RSD
WA Gas	15438345	15200023	14803008	15472991	17122868	17220925	15876360	6.5
AK Gas	19229667	19319302	19517412	19795887	21217664	20785642	19977596	4.1
NW Gas	18003666	16661264	15973469	16566880	18131780	18219466	17259421	5.6
8015Gas	32708527	31336210	31507313	32409663	34268907	33892836	32687243	3.7
8015mod	21457035	22286171	21993661	22722526	24801831	24634520	22982624	6.1

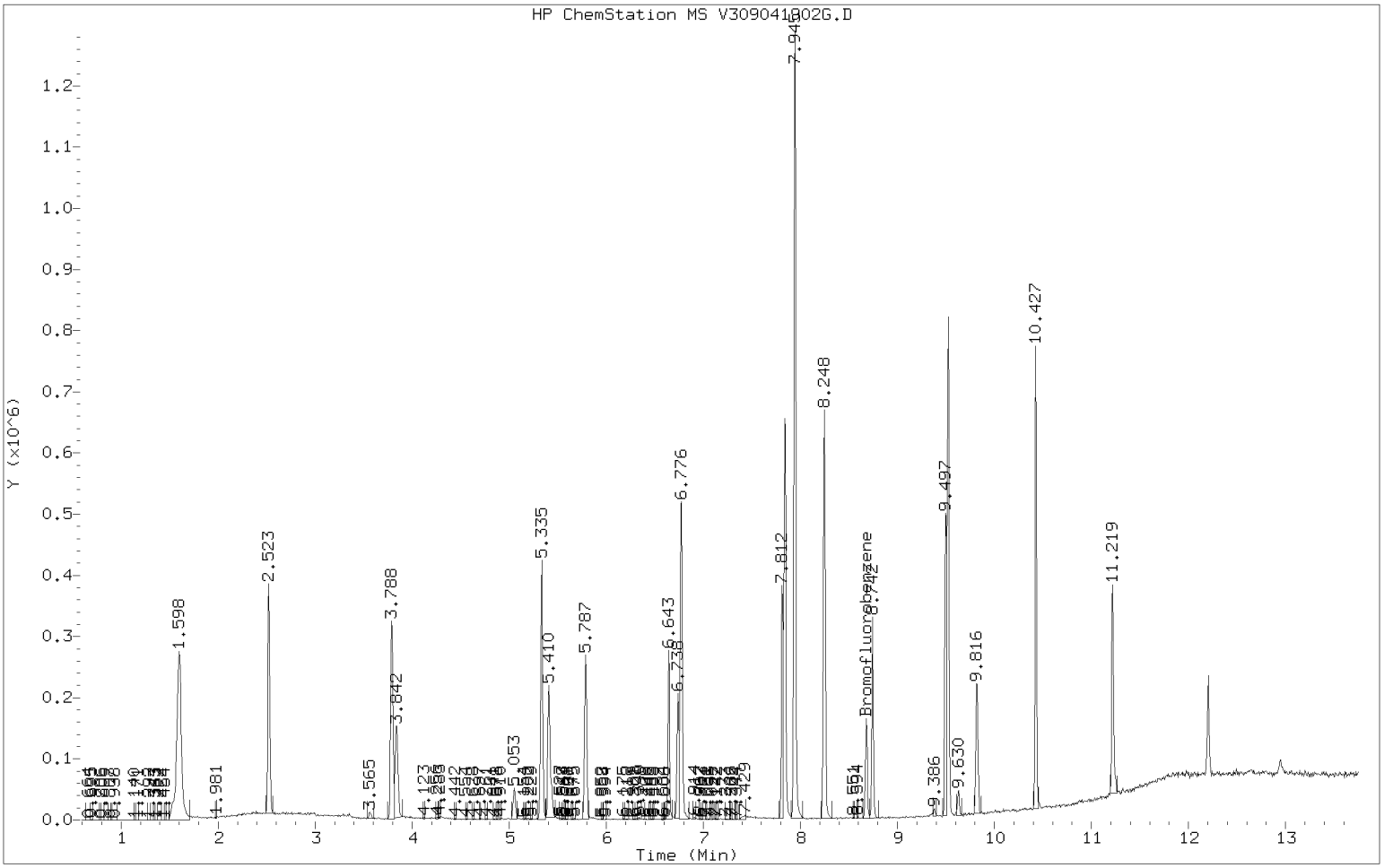
<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation.
Surrogate calibration is from BETX curve files.

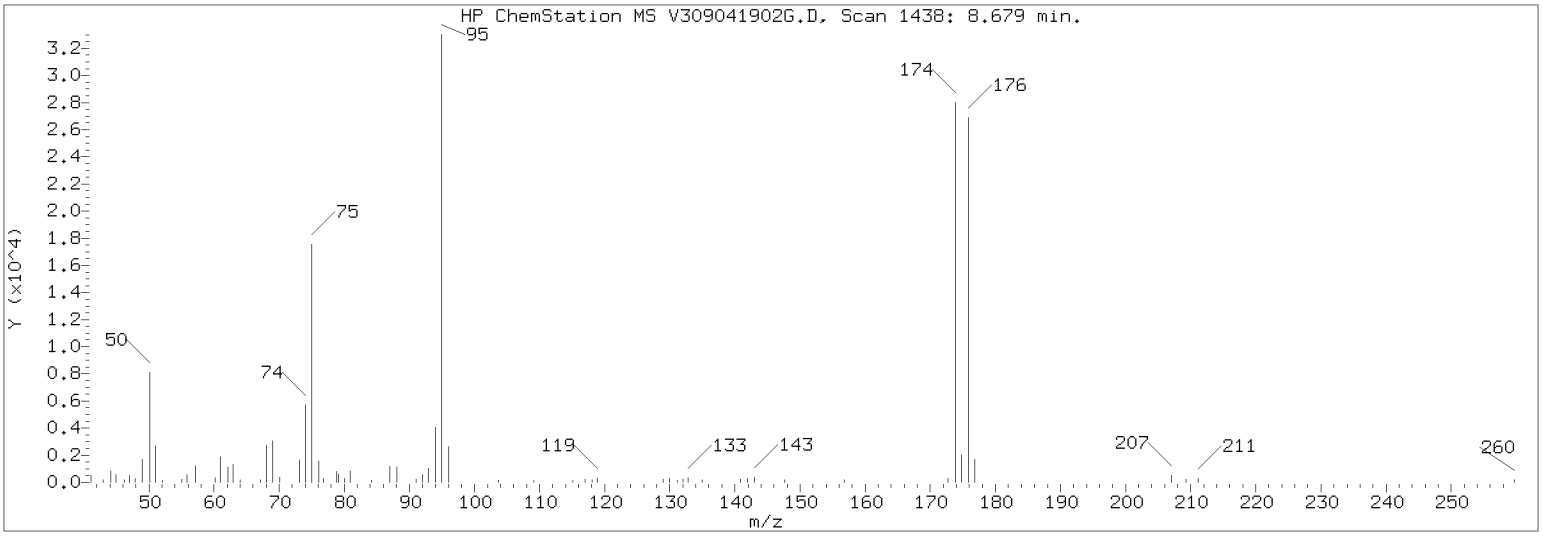
Quant Ranges :
WA Gas Toluene - nC12
AK Gas nC6 - nC10
NW Gas Toluene - Naphthalene
8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene
8015 mod nC7 - nC12

Gas Cal. Files	Analysis Time
V309041916G.D	04-SEP-2019 22:21
V309041917G.D	04-SEP-2019 22:47
V309041918G.D	04-SEP-2019 23:14
V309041919G.D	04-SEP-2019 23:40
V309041920G.D	05-SEP-2019 00:07
V309041921G.D	05-SEP-2019 00:33

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190904s.b/V309041902G.D
Method Used: \20190904s.b\bfb8260.m Inst: nt3
Injection Date: 04-SEP-2019 15:17 Operator: PKC
Sample Info: SHI0075-TUN1 SHI0075-TUN1
Report Date: 09/06/2019 10:51





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.97
75	30.00 - 60.00% of mass 95	50.38
96	5.00 - 9.00% of mass 95	5.82
173	Less than 2.00% of mass 174	0.31 (0.36)
174	50.00 - 100.00% of mass 95	85.79
175	5.00 - 9.00% of mass 174	6.80 (7.93)
176	95.00 - 101.00% of mass 174	82.91 (96.64)
177	5.00 - 9.00% of mass 176	5.79 (6.99)

Data File: \\target\share\chem1\nt3.i\20190904g.b\W309041902G.D

Date : 04-SEP-2019 15:17

Client ID:

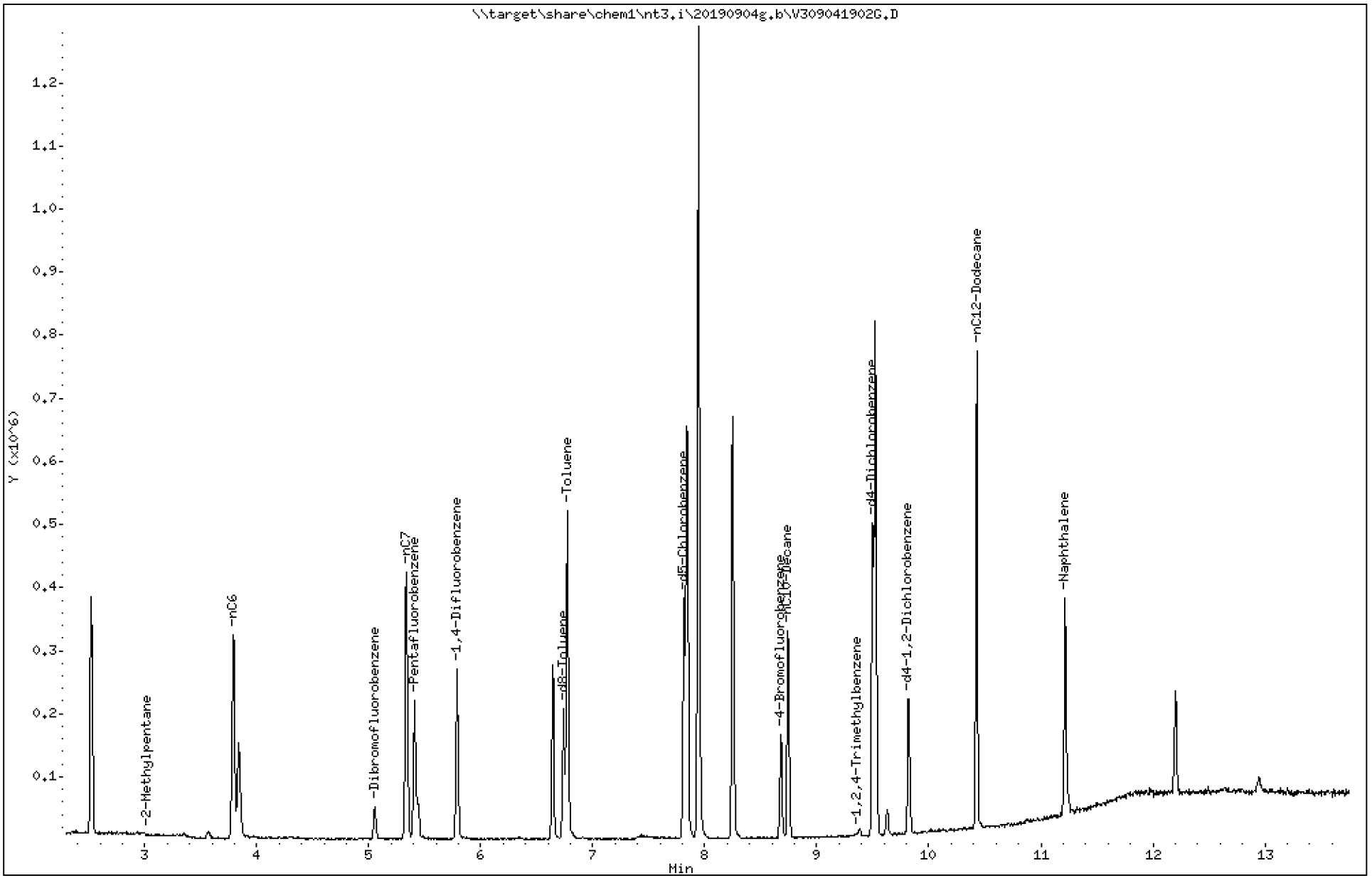
Sample Info: SHI0075-TUN1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041902G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 15:17

ARI ID: SHI0075-TUN1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	7132024	0.449
8015C 2MP-TMB	(2.92 to 9.46)	32687243	7042563	0.215
AK101 nC6-nC10	(3.69 to 8.64)	19977596	6474072	0.324
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	7718064	0.447
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	8176380	0.356

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	455237	d5-Chlorobenzene
6.738	292648	d8-Toluene
9.497	606080	d4-Dichlorobenzene
8.679	233858	4-Bromofluorobenzene
9.816	327313	d4-1,2-Dichlorobenzene

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041905G.D

Date : 04-SEP-2019 17:27

Client ID:

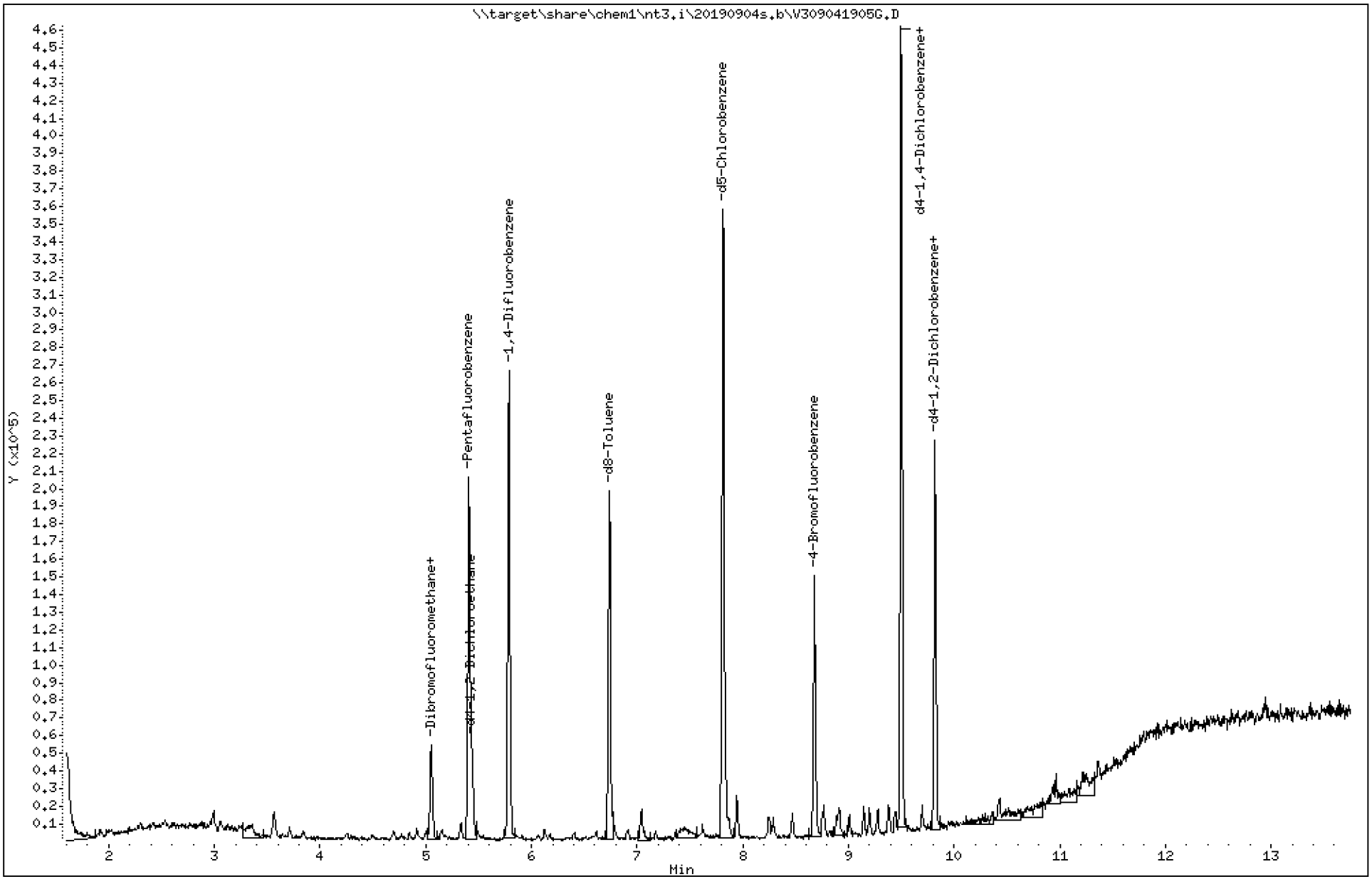
Instrument: nt3.i

Sample Info: SHI0075-CAL1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041905G.D
Lab Smp Id: SHI0075-CAL1
Inj Date : 04-SEP-2019 17:27
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL1
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55   Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.053	5.053	(0.934)	23555	5.00000	4.900
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	111182	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	25823	5.00000	4.821
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	160193	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	97848	5.00000	5.049
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	163368	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	38621	5.00000	4.975
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	105427	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48700	5.00000	4.916

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041905G.D
Lab Smp Id: SHI0075-CAL1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111182	14.74
37 1,4-Difluorobenze	140121	70061	280242	160193	14.32
53 d5-Chlorobenzene	140128	70064	280256	163368	16.58
76 d4-1,4-Dichlorobe	90137	45069	180274	105427	16.96

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041905G.D

Lab ID: SHI0075-CAL1
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 17:27

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041906G.D

Date : 04-SEP-2019 17:54

Client ID:

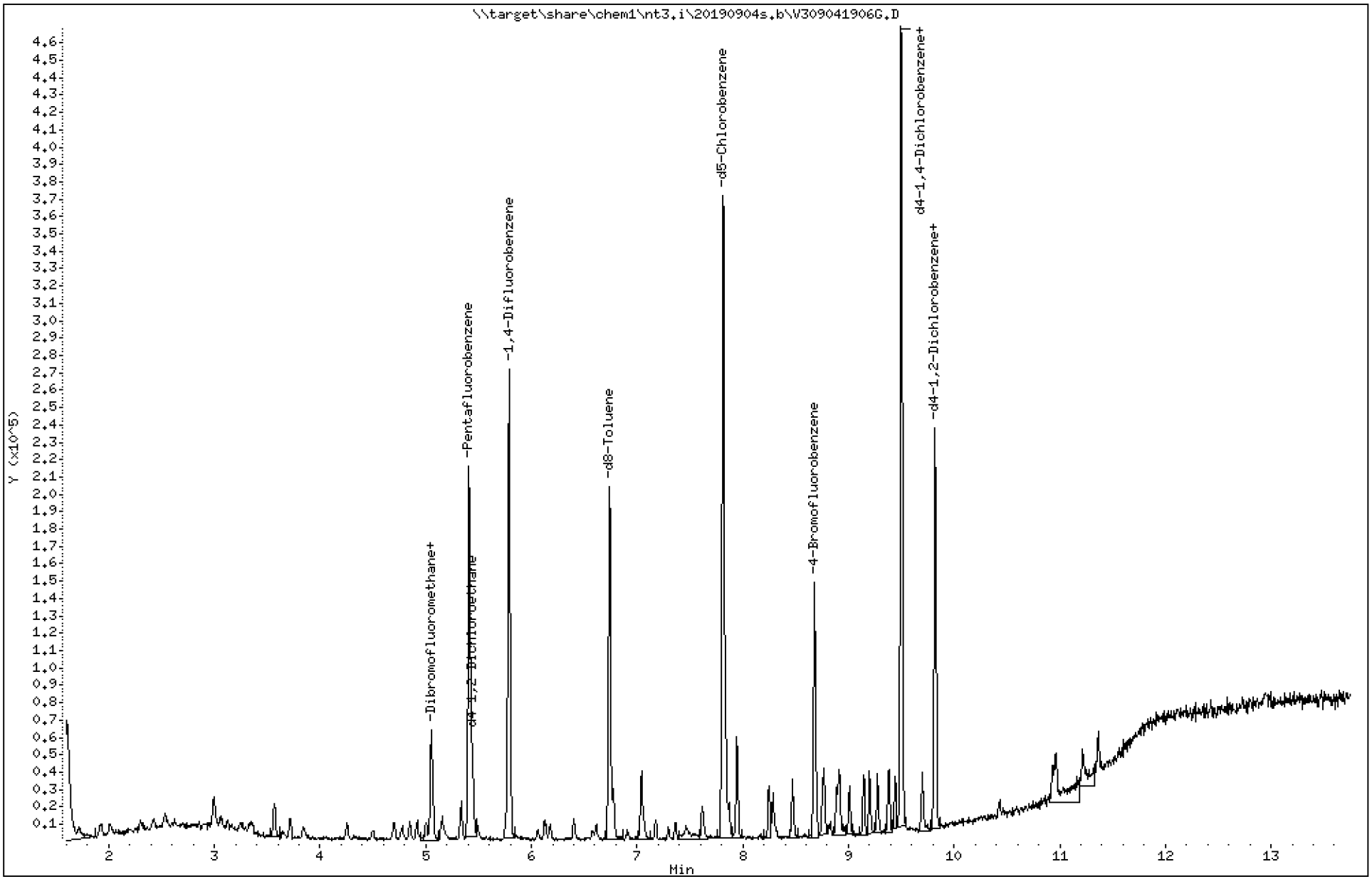
Instrument: nt3.i

Sample Info: SHI0075-CAL2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041906G.D
Lab Smp Id: SHI0075-CAL2
Inj Date : 04-SEP-2019 17:54
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 56   Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24314	5.00000	5.024
* 32 Pentafluorobenzene	168	5.408	5.409	(1.000)	111932	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	27107	5.00000	5.027
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	163049	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.164)	97951	5.00000	4.966
* 53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	170589	10.0000	
$ 62 4-Bromofluorobenzene	174	8.677	8.678	(1.111)	37700	5.00000	4.651
* 76 d4-1,4-Dichlorobenzene	152	9.501	9.497	(1.000)	105523	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	48683	5.00000	4.910

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041906G.D
Lab Smp Id: SHI0075-CAL2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	111932	15.52
37 1,4-Difluorobenze	140121	70061	280242	163049	16.36
53 d5-Chlorobenzene	140128	70064	280256	170589	21.74
76 d4-1,4-Dichlorobe	90137	45069	180274	105523	17.07

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041906G.D

Lab ID: SHI0075-CAL2
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 17:54

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419O7G.D

Date : 04-SEP-2019 18:21

Client ID:

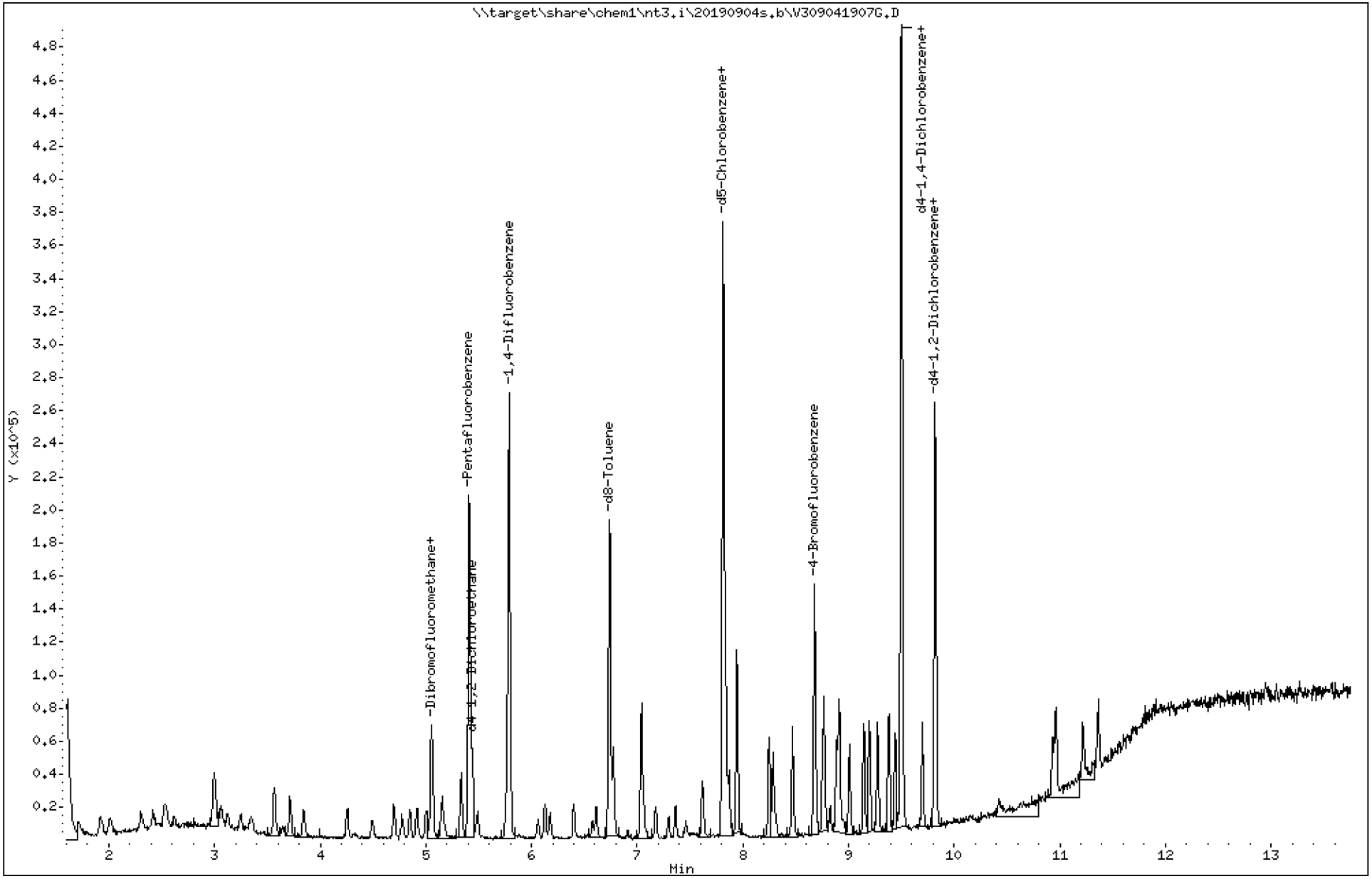
Instrument: nt3.i

Sample Info: SHI0075-CAL3

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041907G.D
Lab Smp Id: SHI0075-CAL3
Inj Date : 04-SEP-2019 18:21
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL3
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 57   Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24828	5.00000	5.022
* 32 Pentafluorobenzene	168	5.408	5.409	(1.000)	114344	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	28072	5.00000	5.096
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	166163	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.164)	100901	5.00000	5.020
* 53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	169230	10.0000	
$ 62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	40391	5.00000	5.023
* 76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	105248	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49822	5.00000	5.038

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041907G.D
Lab Smp Id: SHI0075-CAL3
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	114344	18.01
37 1,4-Difluorobenze	140121	70061	280242	166163	18.59
53 d5-Chlorobenzene	140128	70064	280256	169230	20.77
76 d4-1,4-Dichlorobe	90137	45069	180274	105248	16.76

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041907G.D

Lab ID: SHI0075-CAL3
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 18:21

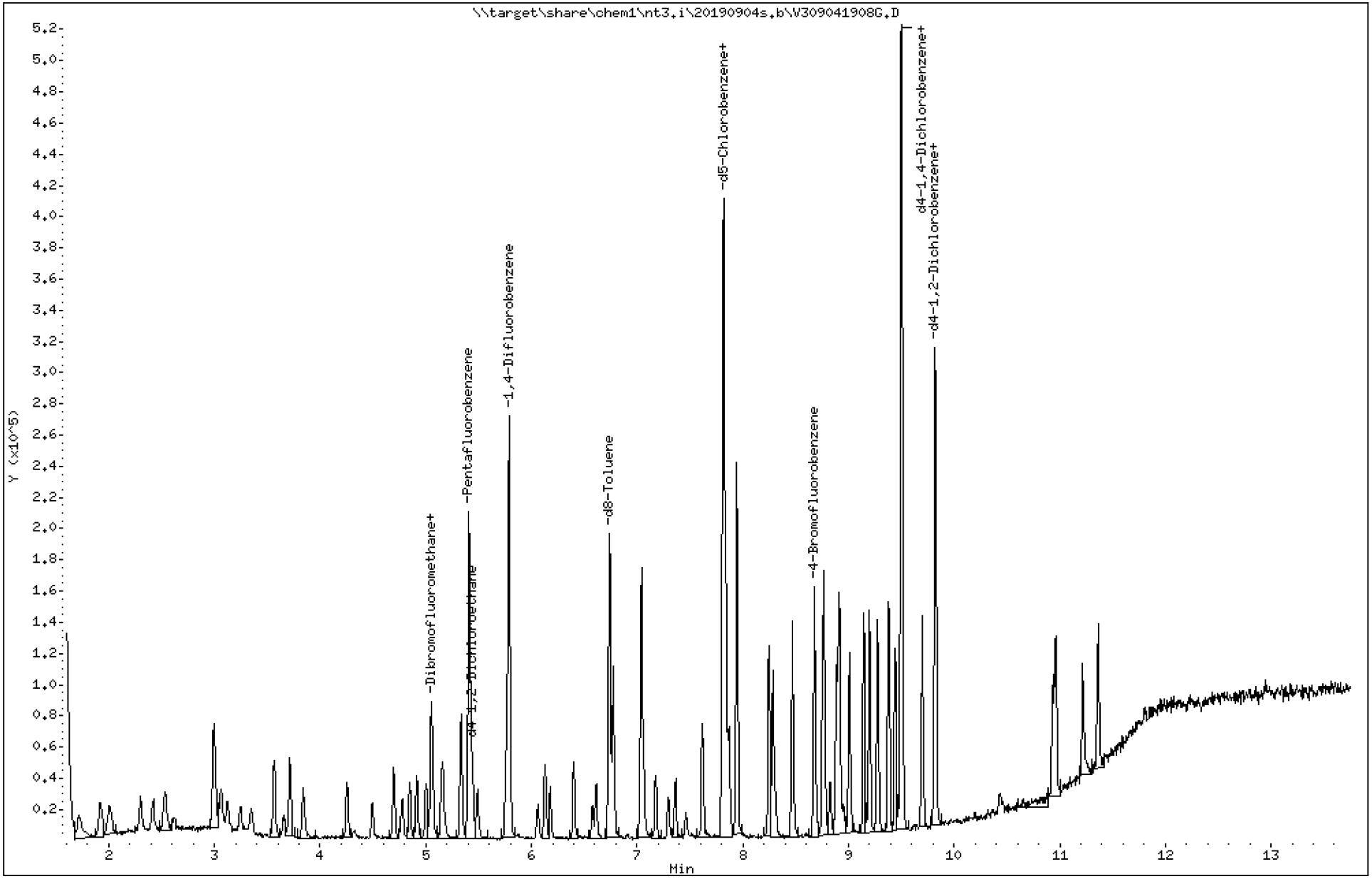
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041908G.D
Date : 04-SEP-2019 18:48
Client ID:
Sample Info: SHI0075-CAL4

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041908G.D
Lab Smp Id: SHI0075-CAL4
Inj Date : 04-SEP-2019 18:48
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL4
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 58   Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24640	5.00000	5.087
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	112026	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	27979	5.00000	5.184
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	164722	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.164)	97777	5.00000	4.907
* 53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	165834	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	39071	5.00000	4.958
* 76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	107436	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49680	5.00000	4.921

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041908G.D
Lab Smp Id: SHI0075-CAL4
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112026	15.61
37 1,4-Difluorobenze	140121	70061	280242	164722	17.56
53 d5-Chlorobenzene	140128	70064	280256	165834	18.34
76 d4-1,4-Dichlorobe	90137	45069	180274	107436	19.19

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041908G.D

Lab ID: SHI0075-CAL4
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 18:48

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041909G.D

Date : 04-SEP-2019 19:15

Client ID:

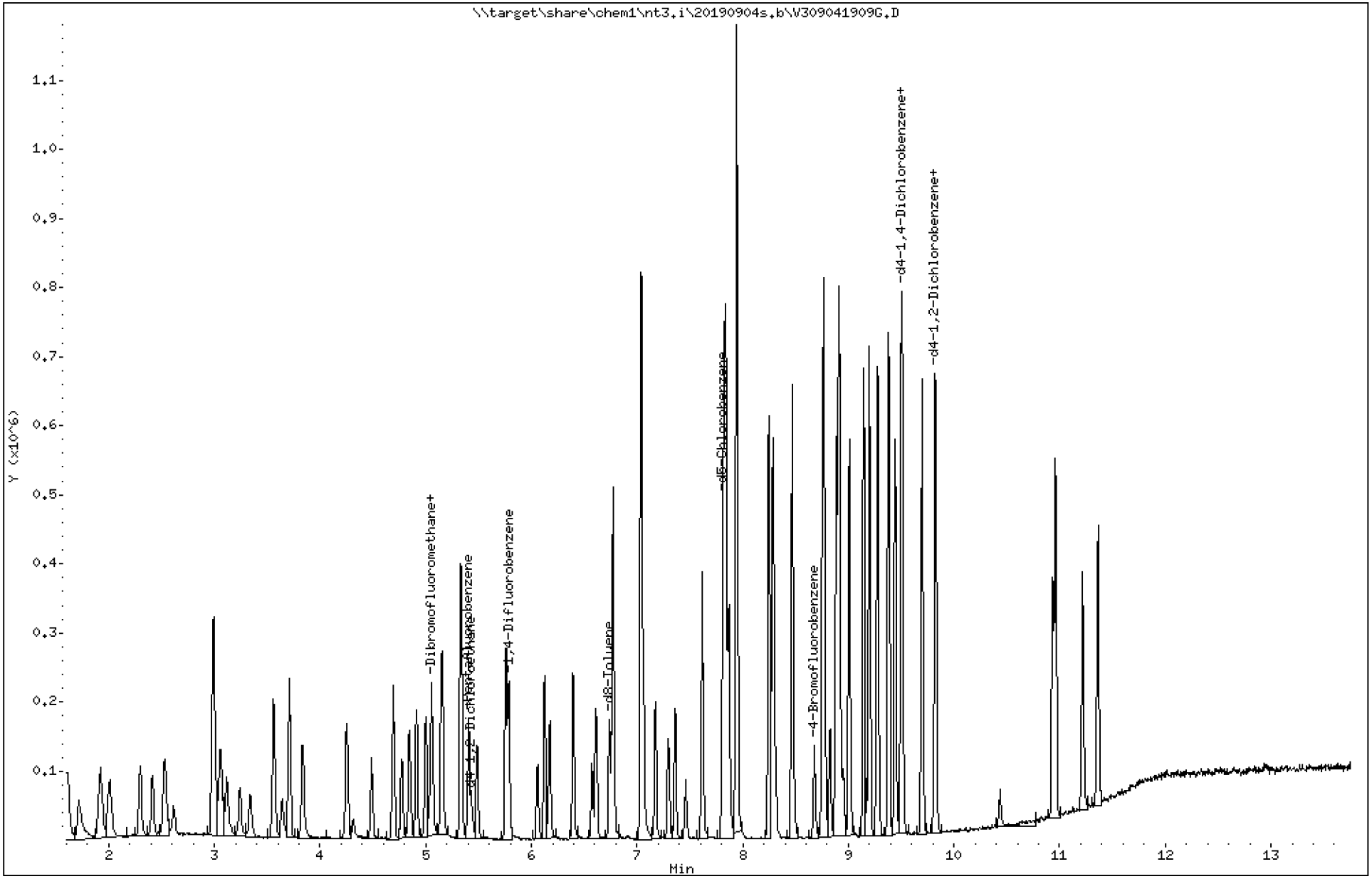
Instrument: nt3.i

Sample Info: SHI0075-CAL5

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041909G.D
Lab Smp Id: SHI0075-CAL5
Inj Date : 04-SEP-2019 19:15
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL5
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 59   Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable   Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.053	5.053	(0.934)	20844	5.00000	4.975
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	96897	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	22945	5.00000	4.915
* 37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	140121	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	84477	5.00000	4.984
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	140128	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	33932	5.00000	5.096
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	90137	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	43482	5.00000	5.134

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041909G.D
Lab Smp Id: SHI0075-CAL5
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: SOIL

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	96897	0.00
37 1,4-Difluorobenze	140121	70061	280242	140121	0.00
53 d5-Chlorobenzene	140128	70064	280256	140128	0.00
76 d4-1,4-Dichlorobe	90137	45069	180274	90137	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041909G.D

Lab ID: SHI0075-CAL5
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 19:15

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041910G.D

Date : 04-SEP-2019 19:41

Client ID:

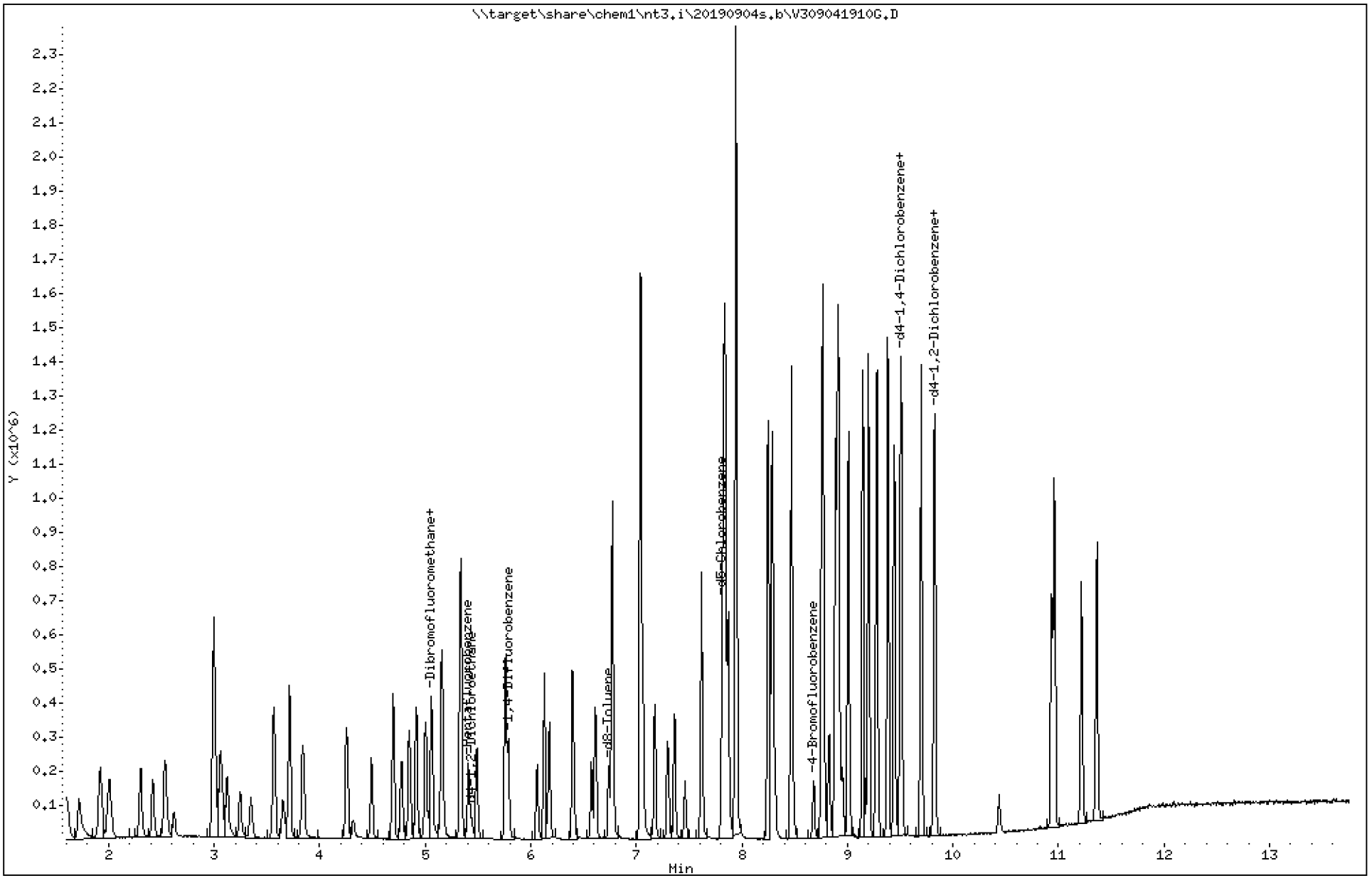
Instrument: nt3.i

Sample Info: SHI0075-CAL6

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041910G.D
Lab Smp Id: SHI0075-CAL6
Inj Date : 04-SEP-2019 19:41
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL6
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 60   Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.048	5.053	(0.933)	24916	5.00000	4.927
* 32 Pentafluorobenzene	168	5.410	5.409	(1.000)	116965	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.441	5.436	(1.006)	28544	5.00000	5.066
* 37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	169050	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	104227	5.00000	5.096
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	171592	10.0000	
$ 62 4-Bromofluorobenzene	174	8.679	8.678	(1.111)	42813	5.00000	5.251
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	108898	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	51185	5.00000	5.002

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041910G.D
Lab Smp Id: SHI0075-CAL6
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	116965	20.71
37 1,4-Difluorobenze	140121	70061	280242	169050	20.65
53 d5-Chlorobenzene	140128	70064	280256	171592	22.45
76 d4-1,4-Dichlorobe	90137	45069	180274	108898	20.81

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041910G.D

Lab ID: SHI0075-CAL6
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 19:41

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041911G.D

Date : 04-SEP-2019 20:08

Client ID:

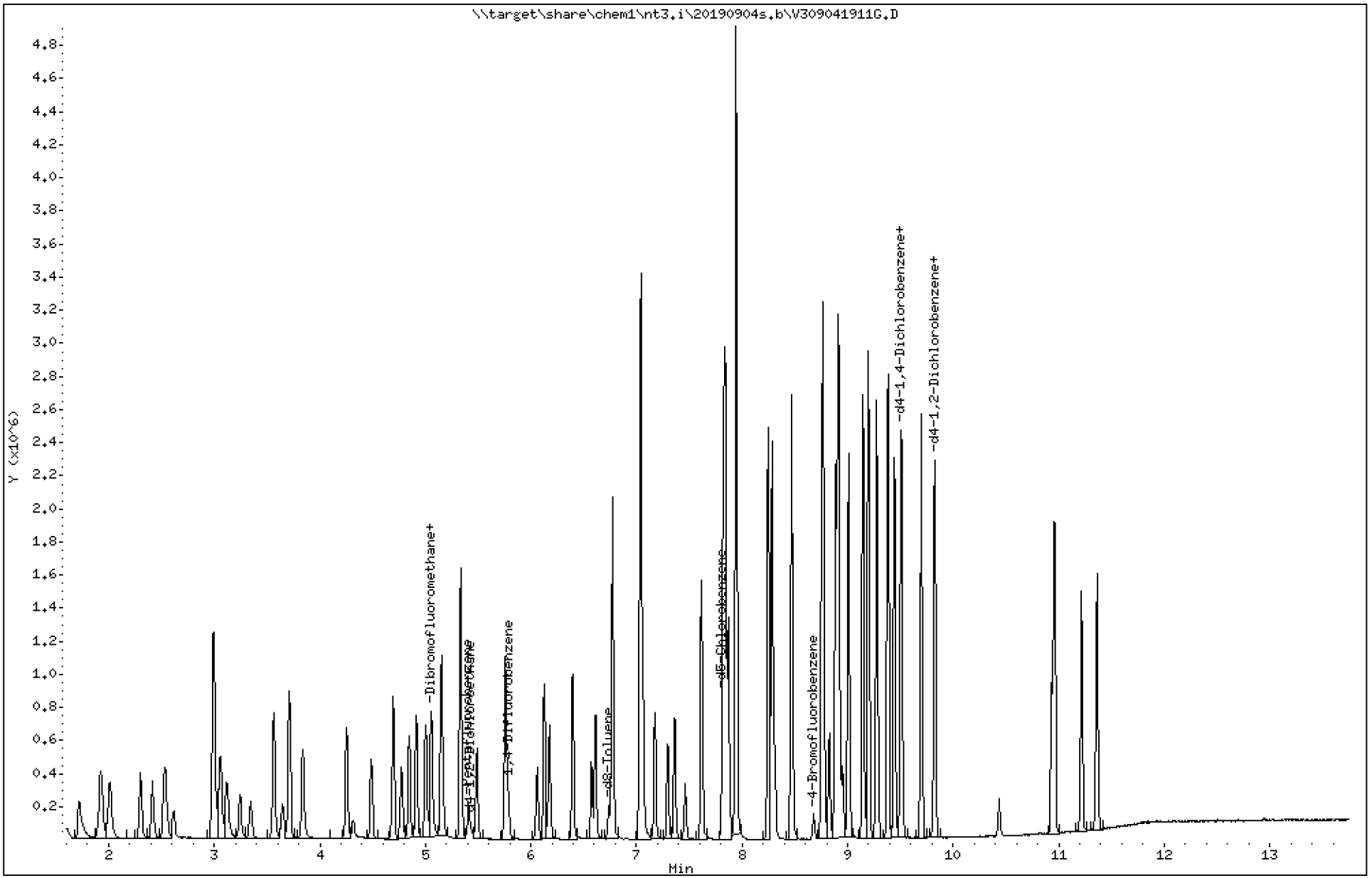
Sample Info: SHI0075-CAL7

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041911G.D
Lab Smp Id: SHI0075-CAL7
Inj Date : 04-SEP-2019 20:08
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL7
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 61   Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
$ 27 Dibromofluoromethane	111	5.047	5.053	(0.933)	23647	5.00000	5.129
* 32 Pentafluorobenzene	168	5.408	5.409	(1.000)	106623	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.435	5.436	(1.005)	25319	5.00000	4.929
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	160497	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.164)	96297	5.00000	4.960
* 53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	162481	10.0000	
$ 62 4-Bromofluorobenzene	174	8.682	8.678	(1.112)	38464	5.00000	4.982
* 76 d4-1,4-Dichlorobenzene	152	9.501	9.497	(1.000)	104567	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49538	5.00000	5.042

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041911G.D
Lab Smp Id: SHI0075-CAL7
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	106623	10.04
37 1,4-Difluorobenze	140121	70061	280242	160497	14.54
53 d5-Chlorobenzene	140128	70064	280256	162481	15.95
76 d4-1,4-Dichlorobe	90137	45069	180274	104567	16.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.02
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - V309041911G.D

Lab ID: SHI0075-CAL7
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 20:08

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419l2G.D

Date : 04-SEP-2019 20:35

Client ID:

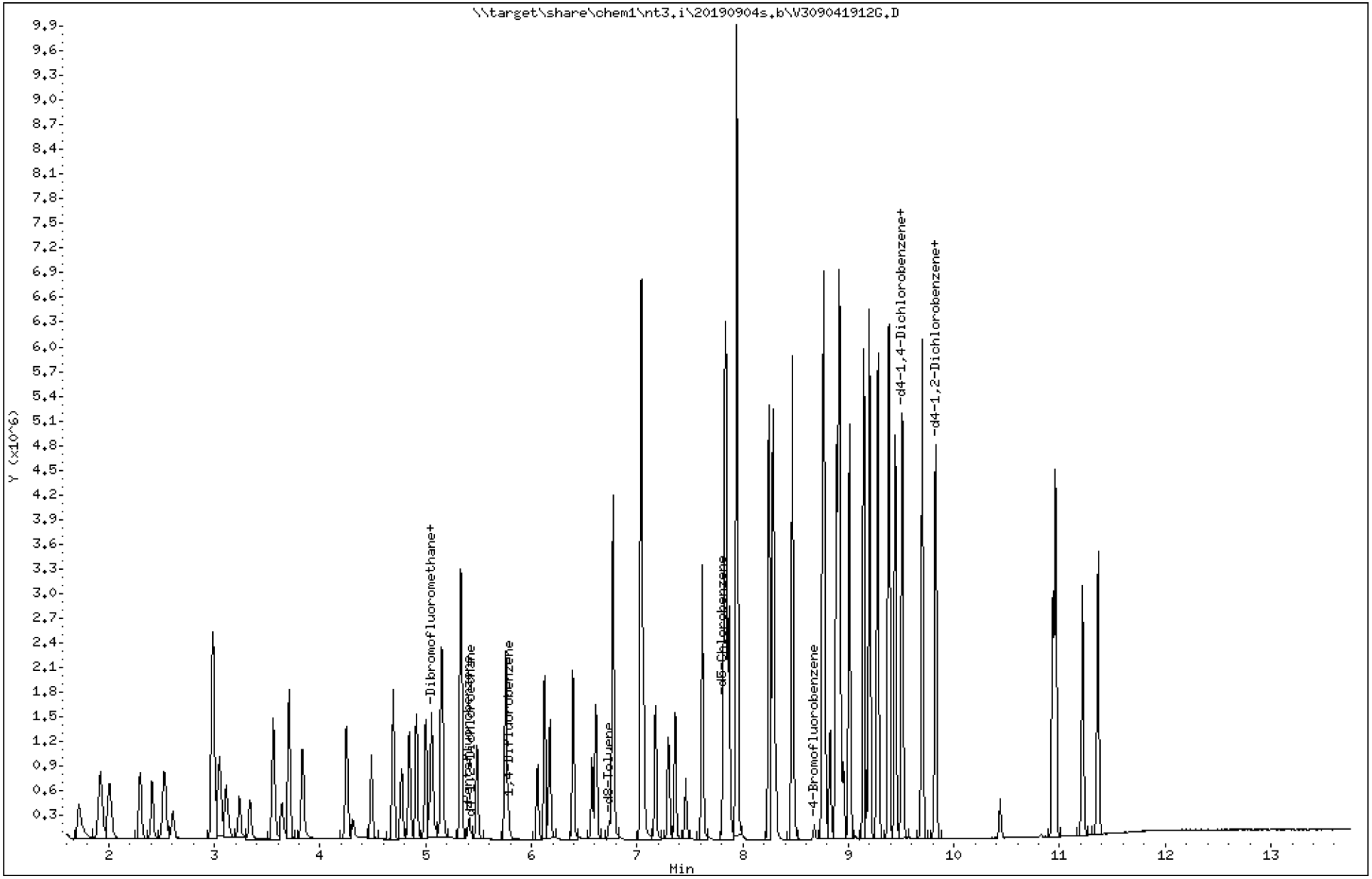
Instrument: nt3.i

Sample Info: SHI0075-CAL8

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041912G.D
Lab Smp Id: SHI0075-CAL8
Inj Date : 04-SEP-2019 20:35
Operator : PKC Inst ID: nt3.i
Smp Info : SHI0075-CAL8
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 62 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)	
$ 27 Dibromofluoromethane	111	5.048	5.053	(1.000)	25823	5.00000	4.937	
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	120959	10.0000		(M)
$ 33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.000)	28905	5.00000	4.960	
* 37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	179582	10.0000		
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	109039	5.00000	5.019	
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	182593	10.0000		
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	43942	5.00000	5.065	
* 76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	116974	10.0000		
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	55345	5.00000	5.036	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041912G.D
Lab Smp Id: SHI0075-CAL8
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	120959	24.83
37 1,4-Difluorobenze	140121	70061	280242	179582	28.16
53 d5-Chlorobenzene	140128	70064	280256	182593	30.30
76 d4-1,4-Dichlorobe	90137	45069	180274	116974	29.77

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

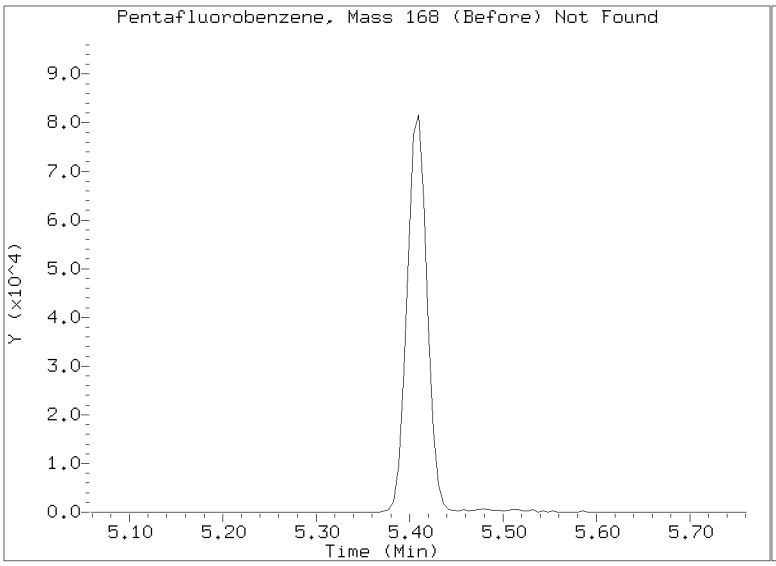
REVIEW SUMMARY FOR FILE - V309041912G.D

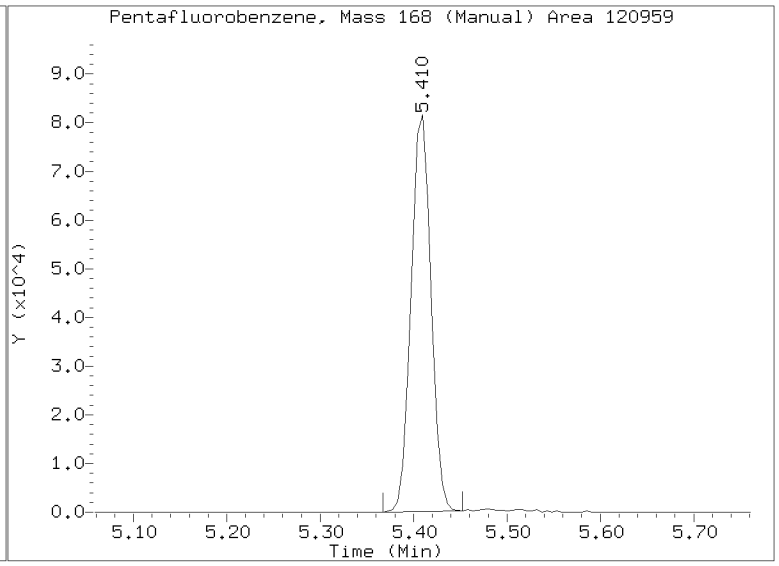
Lab ID: SHI0075-CAL8
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 20:35

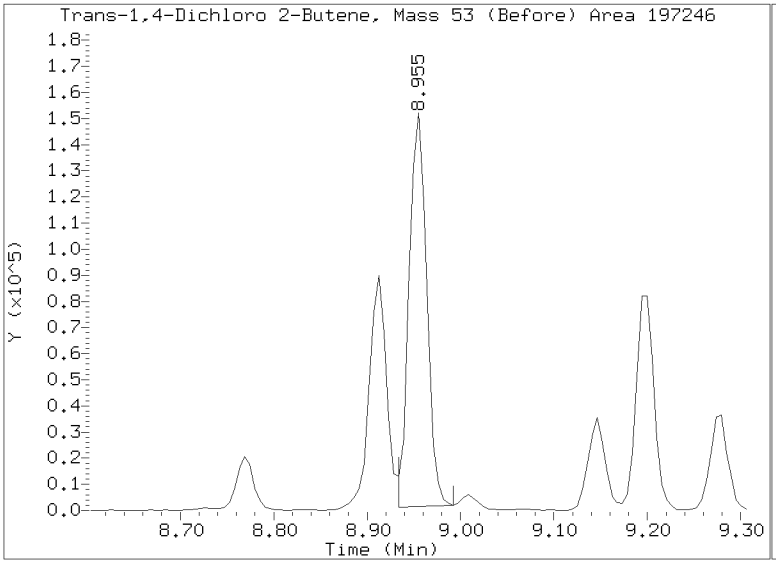
RT	CO-ELUTION COMPOUNDS

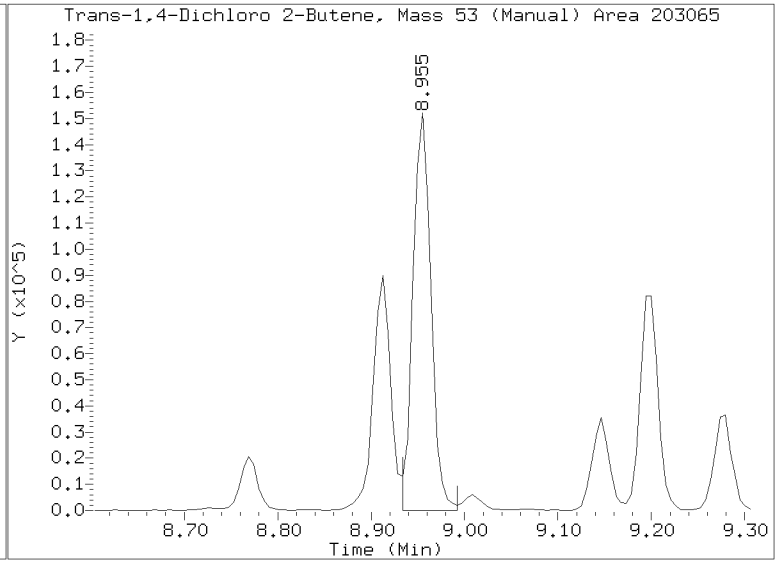
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20190904.b/V309041912.D
Injection Date: 04-SEP-2019 20:35
Lab ID:SHI0071-CAL8 Client ID:
Report Date: 09/06/2019 09:28









Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419l6G.D

Date : 04-SEP-2019 22:21

Client ID:

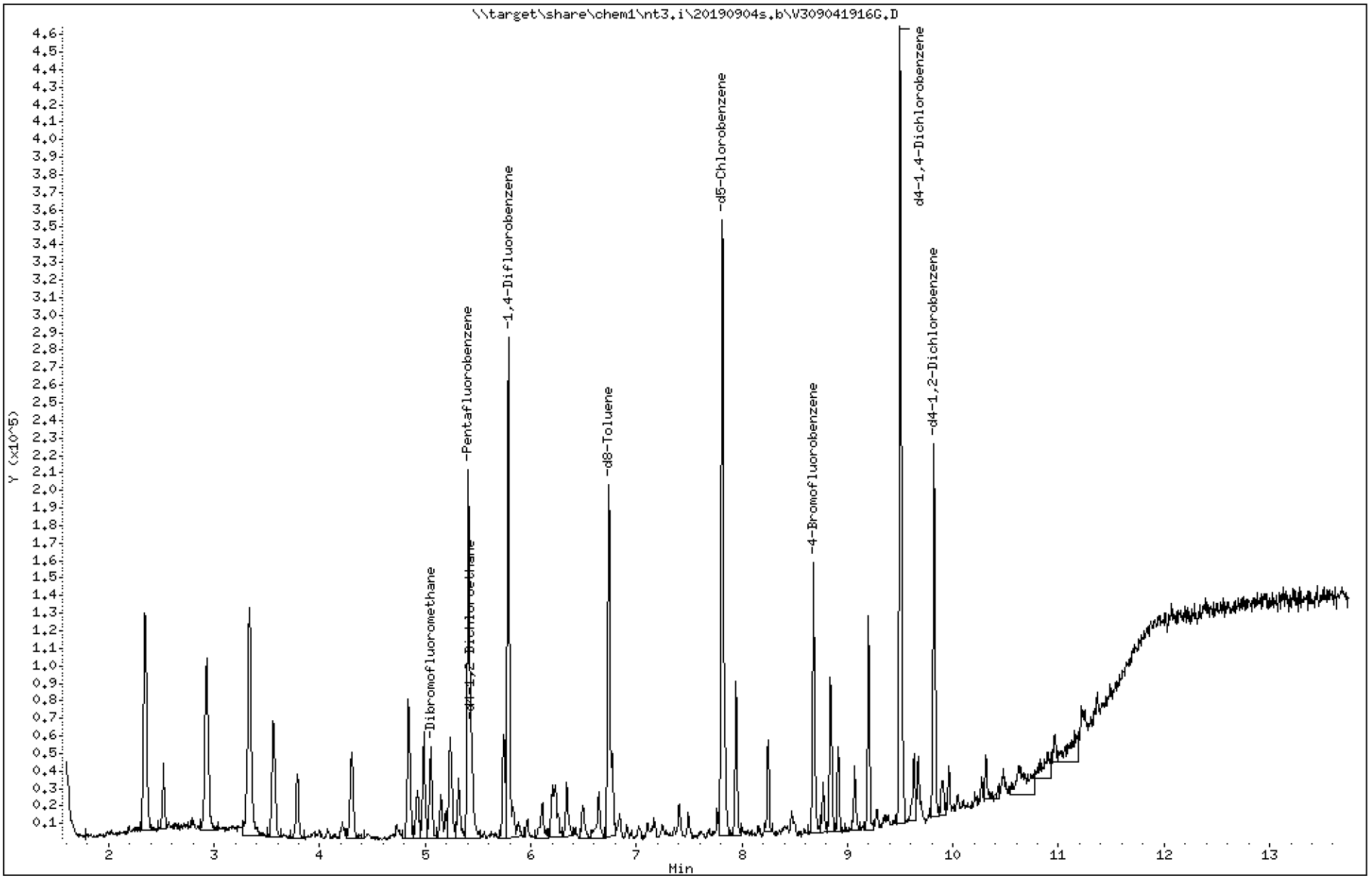
Sample Info: SHI0075-CAL9

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041916G.D
Lab Smp Id: SHI0075-CAL9
Inj Date : 04-SEP-2019 22:21
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CAL9
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.048	5.053	(0.933)	23974	4.91095	4.911
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	112901	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	27594	5.07347	5.073
* 37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	163037	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	100726	5.10693	5.107
* 53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	164073	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	37761	4.84337	4.843
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	106831	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48014	4.78332	4.783

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041916G.D
Lab Smp Id: SHI0075-CAL9
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112901	16.52
37 1,4-Difluorobenze	140121	70061	280242	163037	16.35
53 d5-Chlorobenzene	140128	70064	280256	164073	17.09
76 d4-1,4-Dichlorobe	90137	45069	180274	106831	18.52

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: SHI0075-CAL9
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.911	98.22	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.073	101.47	80-128
$ 43 d8-Toluene	5.000	5.107	102.14	80-120
$ 62 4-Bromofluorobenze	5.000	4.843	96.87	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.783	95.67	80-120

REVIEW SUMMARY FOR FILE - V309041916G.D

Lab ID: SHI0075-CAL9
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 22:21

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V309041916G.D

Date : 04-SEP-2019 22:21

Client ID:

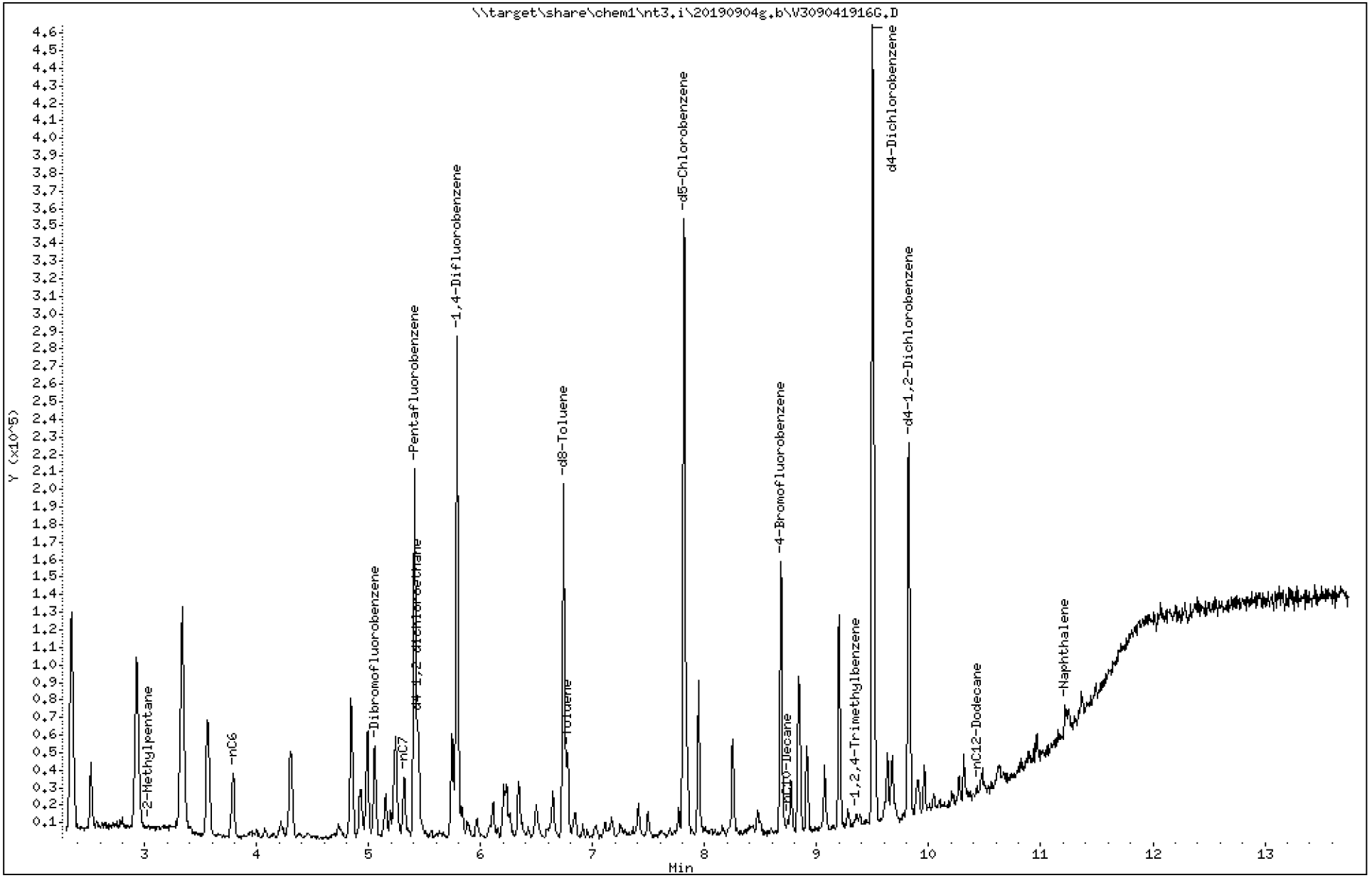
Instrument: nt3.i

Sample Info: SHI0075-CAL9

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V3090419l6G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 22:21

ARI ID: SHI0075-CAL9
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	1543835	0.097 M
8015C 2MP-TMB	(2.92 to 9.46)	32687243	3270853	0.100 M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	1922967	0.096 M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	1800367	0.104 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	2145704	0.093 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

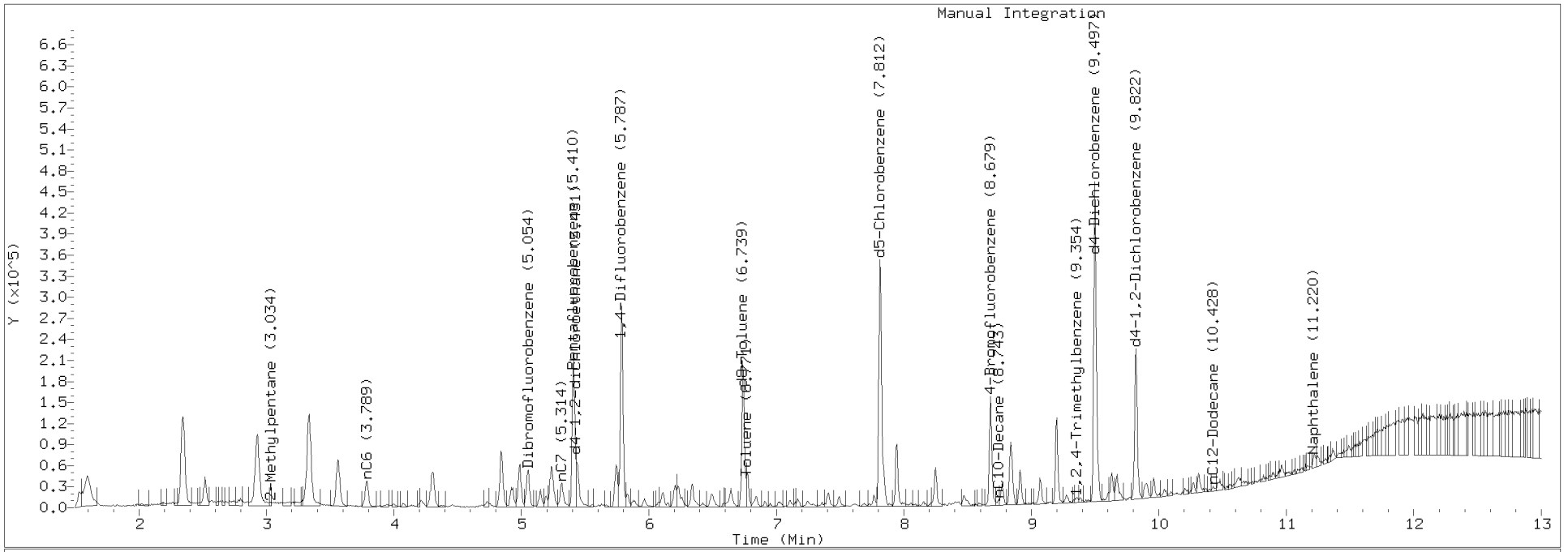
NW Gas Range Subtracted Peaks

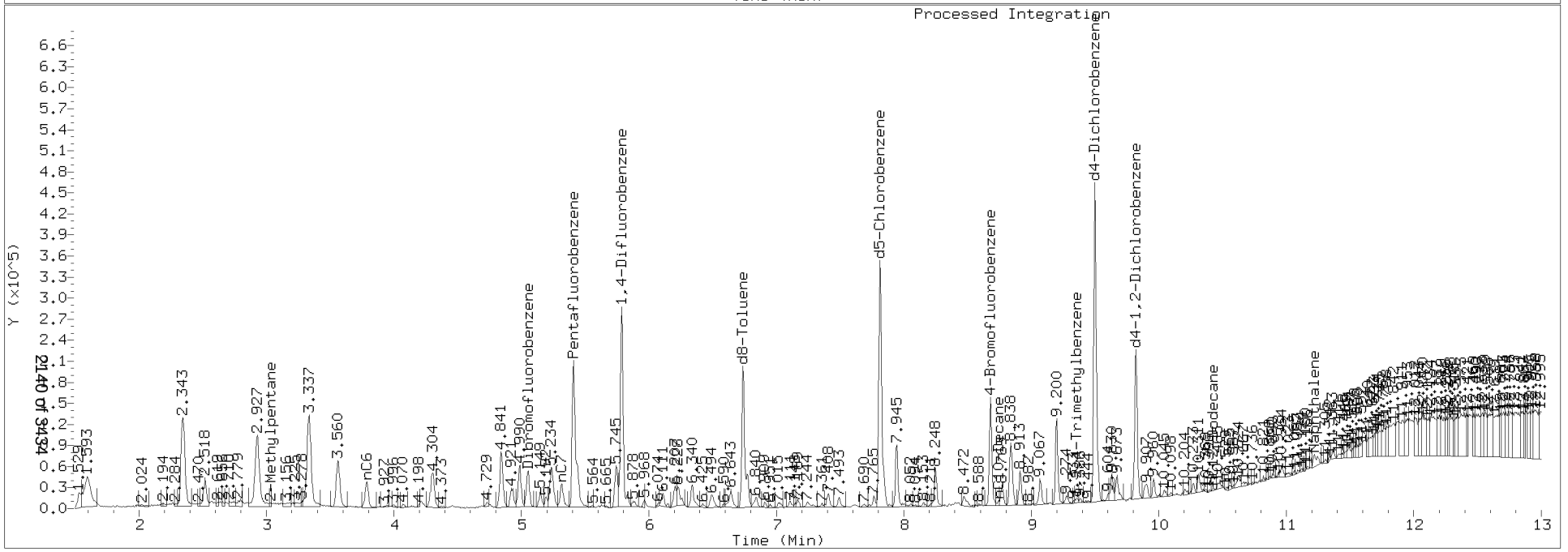
7.812	574087	d5-Chlorobenzene
6.739	307052	d8-Toluene
9.497	677166	d4-Dichlorobenzene
8.679	225433	4-Bromofluorobenzene
9.822	320007	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041916G.D Injection: 04-SEP-2019 22:21

Lab ID:SHI0075-CAL9





Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419l7G.D

Date : 04-SEP-2019 22:47

Client ID:

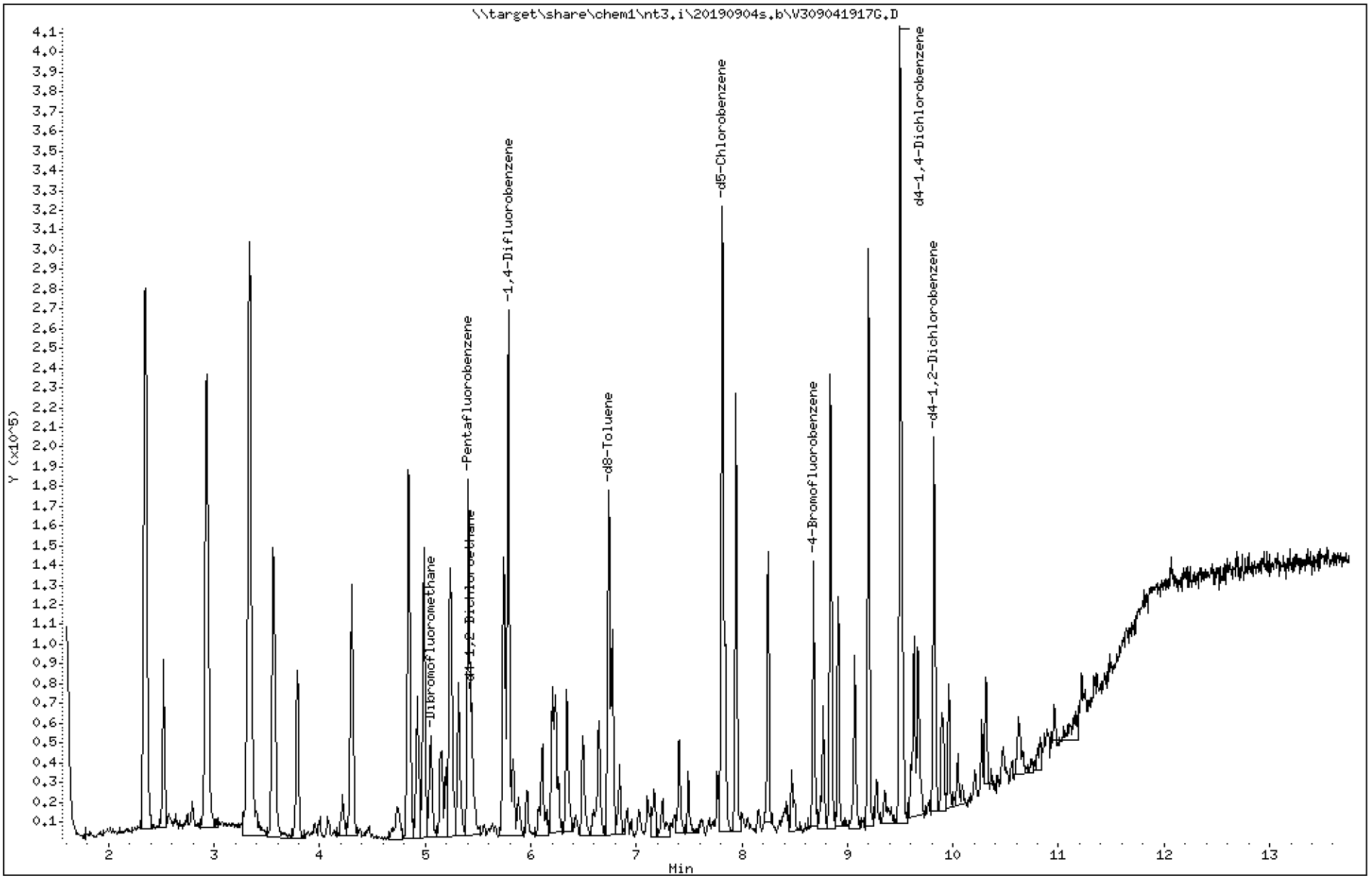
Instrument: nt3.i

Sample Info: SHI0075-CALA

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041917G.D
Lab Smp Id: SHI0075-CALA
Inj Date : 04-SEP-2019 22:47
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CALA
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	21106	4.92998	4.930
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	99011	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	23612	4.95037	4.950
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	141975	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	86884	5.05863	5.059
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	144385	10.0000	
$	62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	32229	4.69749	4.697
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	92608	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	42297	4.86094	4.861

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041917G.D
Lab Smp Id: SHI0075-CALA
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	99011	2.18
37 1,4-Difluorobenze	140121	70061	280242	141975	1.32
53 d5-Chlorobenzene	140128	70064	280256	144385	3.04
76 d4-1,4-Dichlorobe	90137	45069	180274	92608	2.74

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: SHI0075-CALA
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.930	98.60	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.950	99.01	80-128
$ 43 d8-Toluene	5.000	5.059	101.17	80-120
$ 62 4-Bromofluorobenze	5.000	4.697	93.95	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.861	97.22	80-120

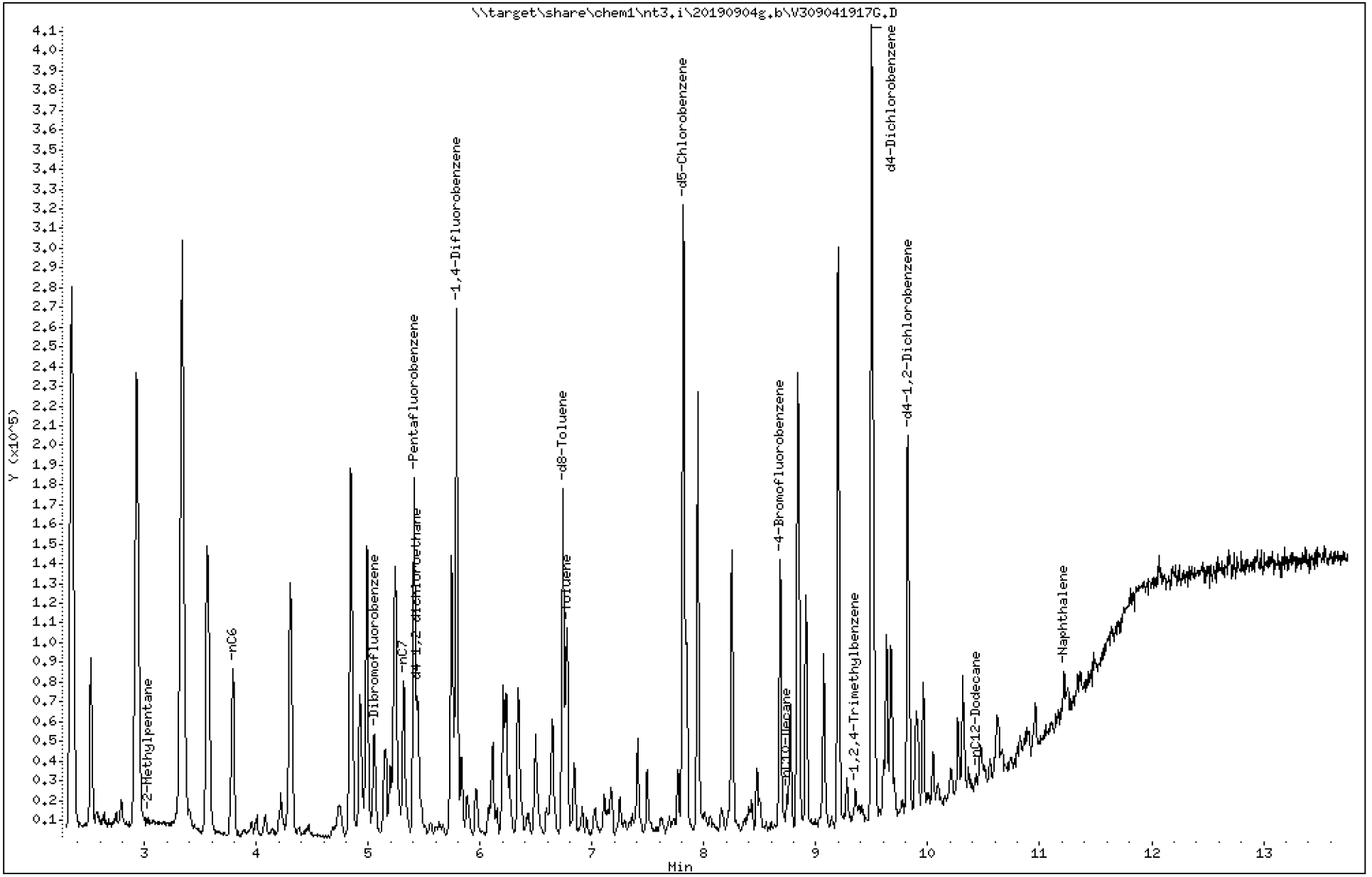
REVIEW SUMMARY FOR FILE - V309041917G.D

Lab ID: SHI0075-CALA
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 22:47

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V3090419l7G.D
Date : 04-SEP-2019 22:47
Client ID:
Sample Info: SHI0075-CALA

Instrument: nt3.i
Operator: PKC
Column phase: RTXVMS
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041917G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 22:47

ARI ID: SHI0075-CALA
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	3800006	0.239 M
8015C 2MP-TMB	(2.92 to 9.46)	32687243	7834052	0.240 M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	4829825	0.242 M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	4165316	0.241 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	5571543	0.242 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

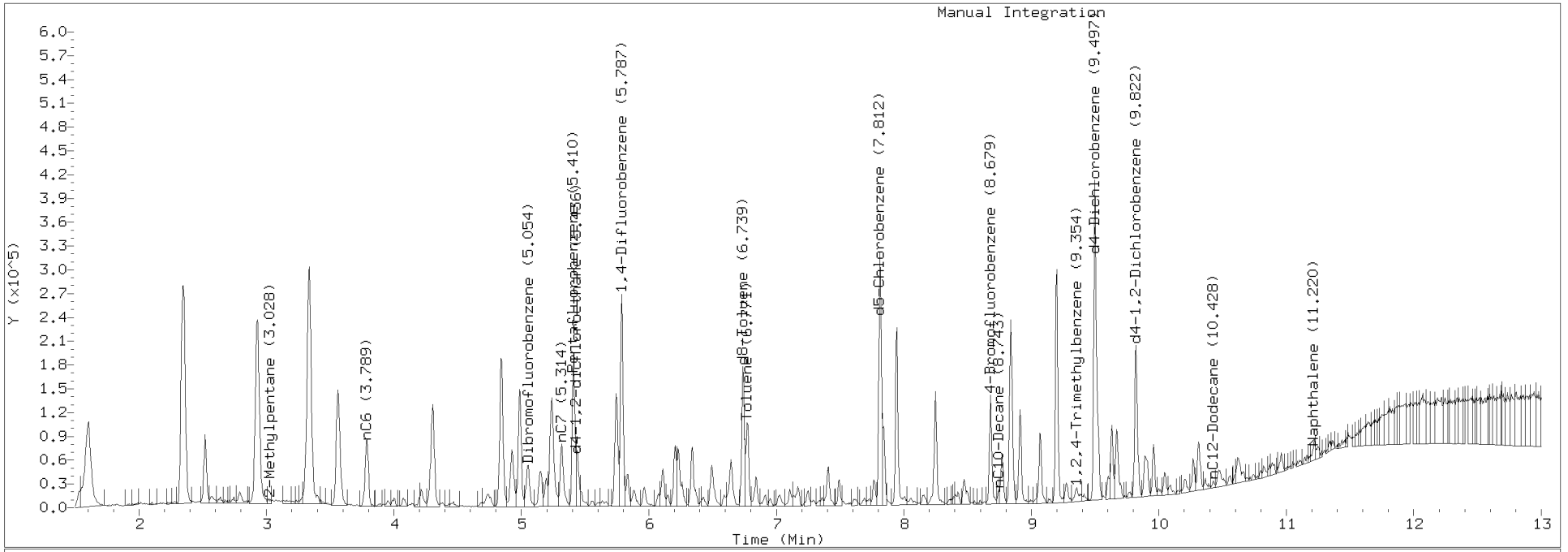
NW Gas Range Subtracted Peaks

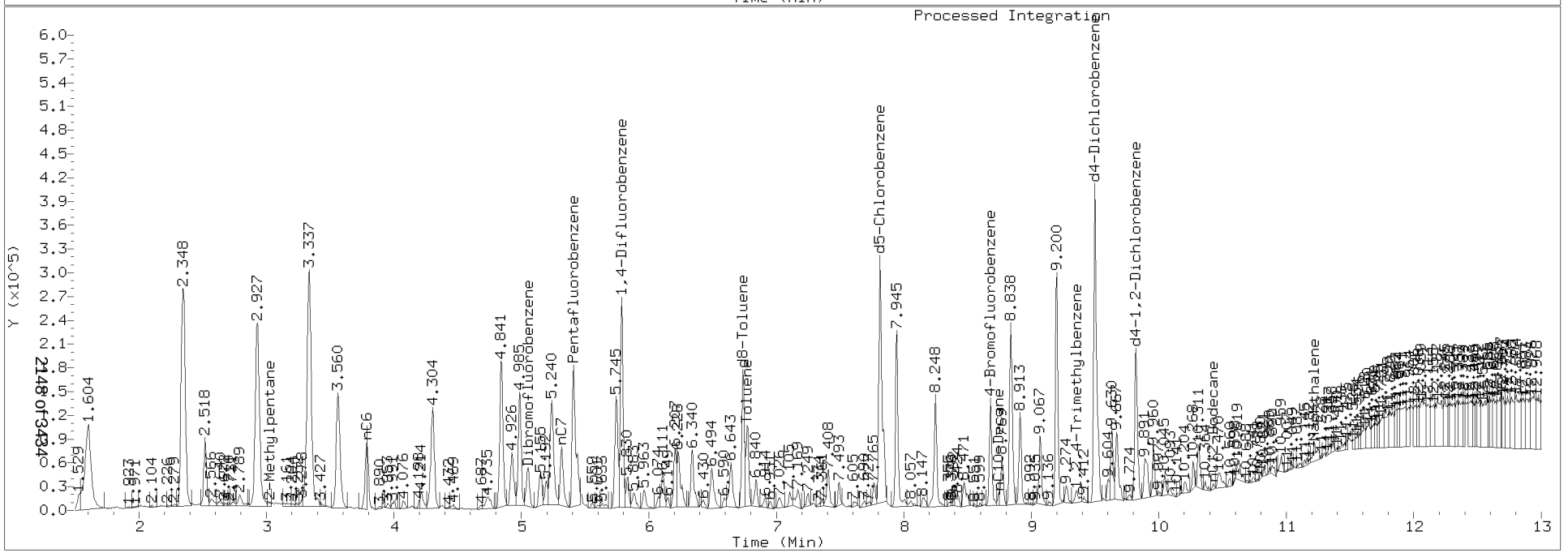
7.812	466029	d5-Chlorobenzene
6.739	259994	d8-Toluene
9.497	663146	d4-Dichlorobenzene
8.679	194200	4-Bromofluorobenzene
9.822	297648	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041917G.D Injection: 04-SEP-2019 22:47

Lab ID:SHI0075-CALA





Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419l8G.D

Date : 04-SEP-2019 23:14

Client ID:

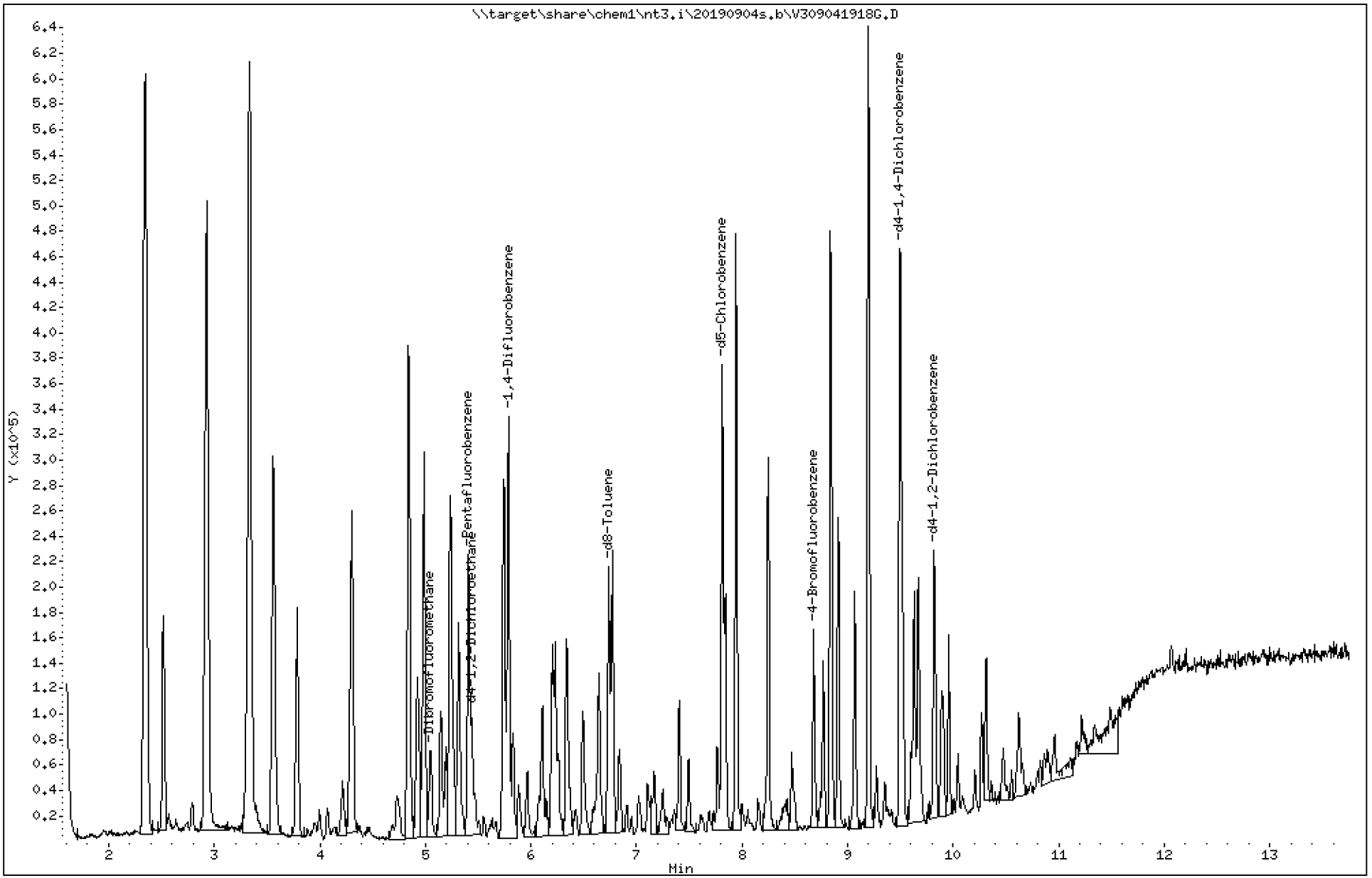
Sample Info: SHI0075-CALB

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041918G.D
Lab Smp Id: SHI0075-CALB
Inj Date : 04-SEP-2019 23:14
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CALB
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.052	5.053	(0.934)	24684	4.93347	4.933
* 32 Pentafluorobenzene	168	5.408	5.409	(1.000)	115714	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.440	5.436	(1.006)	28055	5.03283	5.033
* 37 1,4-Difluorobenzene	114	5.785	5.787	(1.000)	174483	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.164)	102649	4.86302	4.863
* 53 d5-Chlorobenzene	117	7.816	7.812	(1.000)	170438	10.0000	
$ 62 4-Bromofluorobenzene	174	8.682	8.678	(1.111)	38978	4.81276	4.813
* 76 d4-1,4-Dichlorobenzene	152	9.501	9.497	(1.000)	105547	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	49166	4.95767	4.958

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041918G.D
Lab Smp Id: SHI0075-CALB
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	115714	19.42
37 1,4-Difluorobenze	140121	70061	280242	174483	24.52
53 d5-Chlorobenzene	140128	70064	280256	170438	21.63
76 d4-1,4-Dichlorobe	90137	45069	180274	105547	17.10

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.81	7.31	8.31	7.82	0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: SHI0075-CALB
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.933	98.67	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.033	100.66	80-128
$ 43 d8-Toluene	5.000	4.863	97.26	80-120
$ 62 4-Bromofluorobenze	5.000	4.813	96.26	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.958	99.15	80-120

REVIEW SUMMARY FOR FILE - V309041918G.D

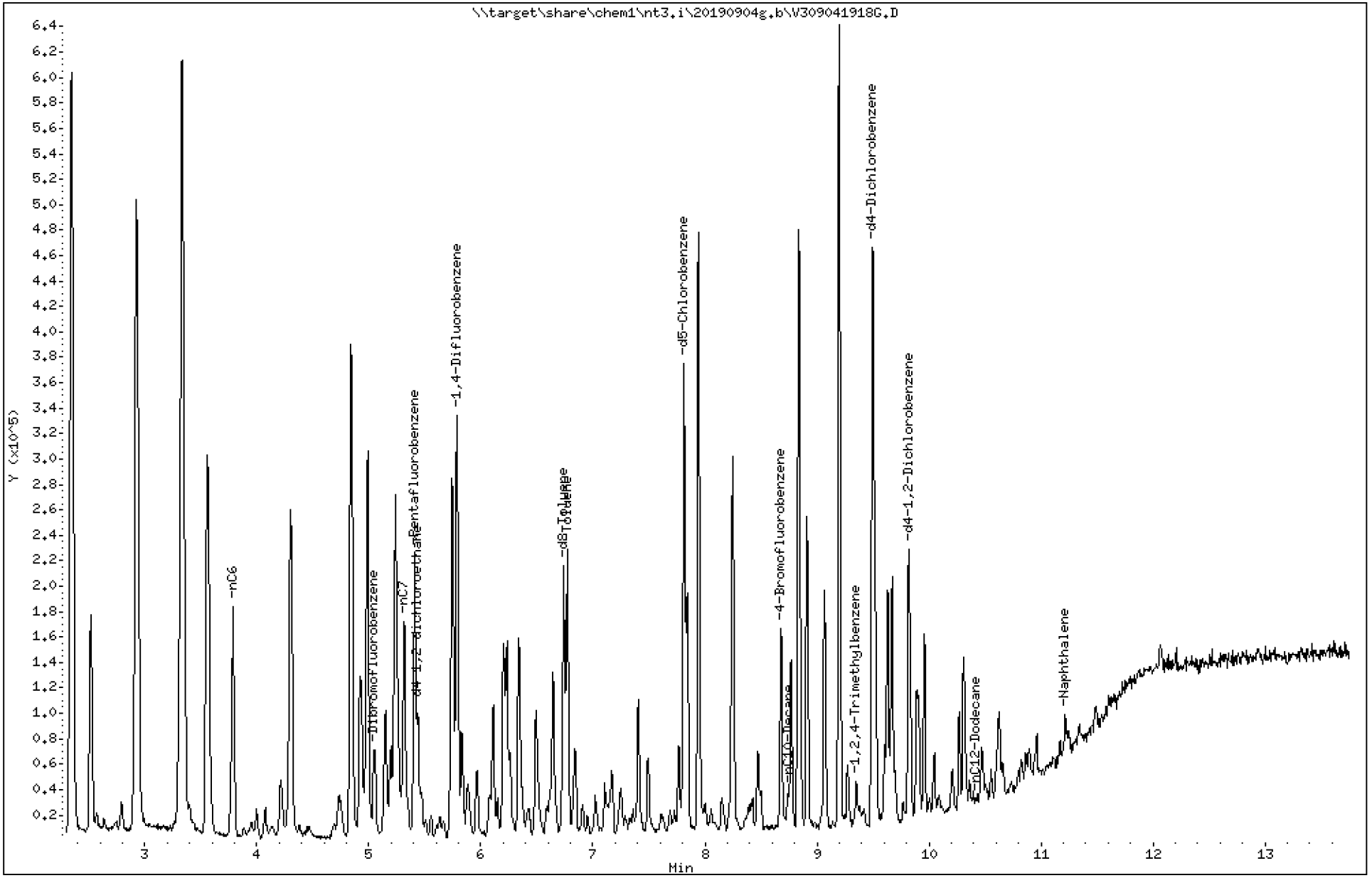
Lab ID: SHI0075-CALB
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 23:14

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V3090419l8G.D
Date : 04-SEP-2019 23:14
Client ID:
Sample Info: SHI0075-CALB

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041918G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 23:14

ARI ID: SHI0075-CALB
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	7401504	0.466
8015C 2MP-TMB	(2.92 to 9.46)	32687243	15753657	0.482 M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	9758706	0.488 M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	7986734	0.463
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	10996831	0.478 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

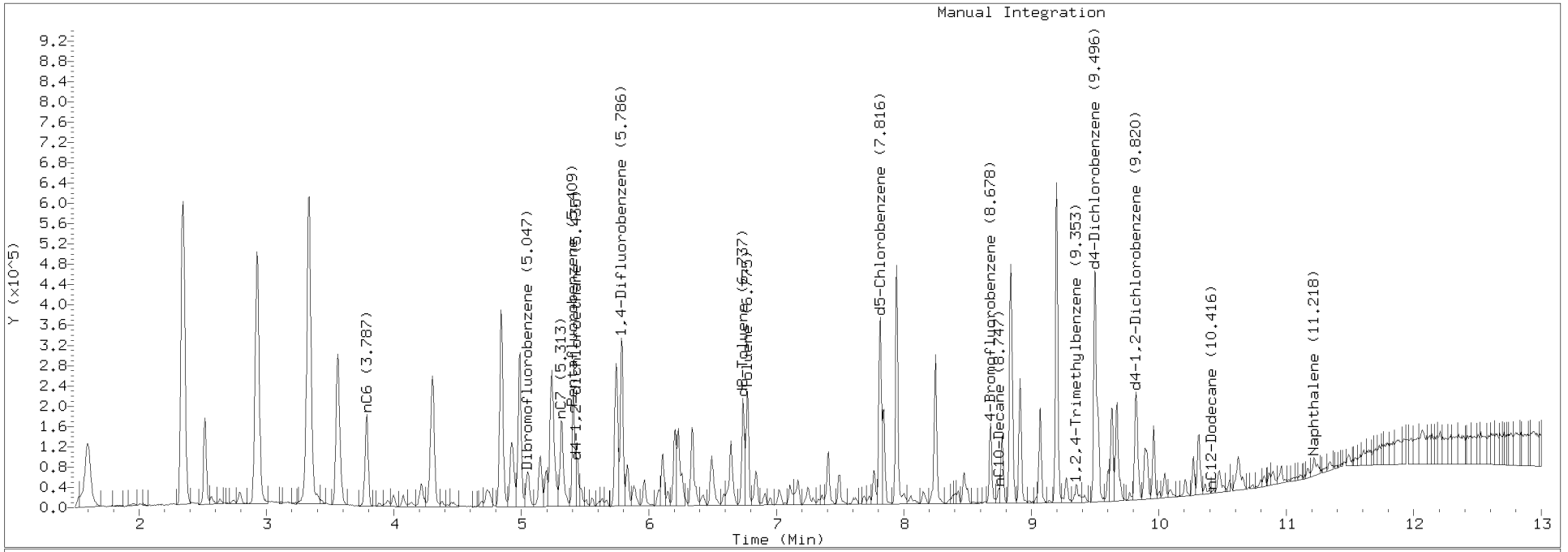
NW Gas Range Subtracted Peaks

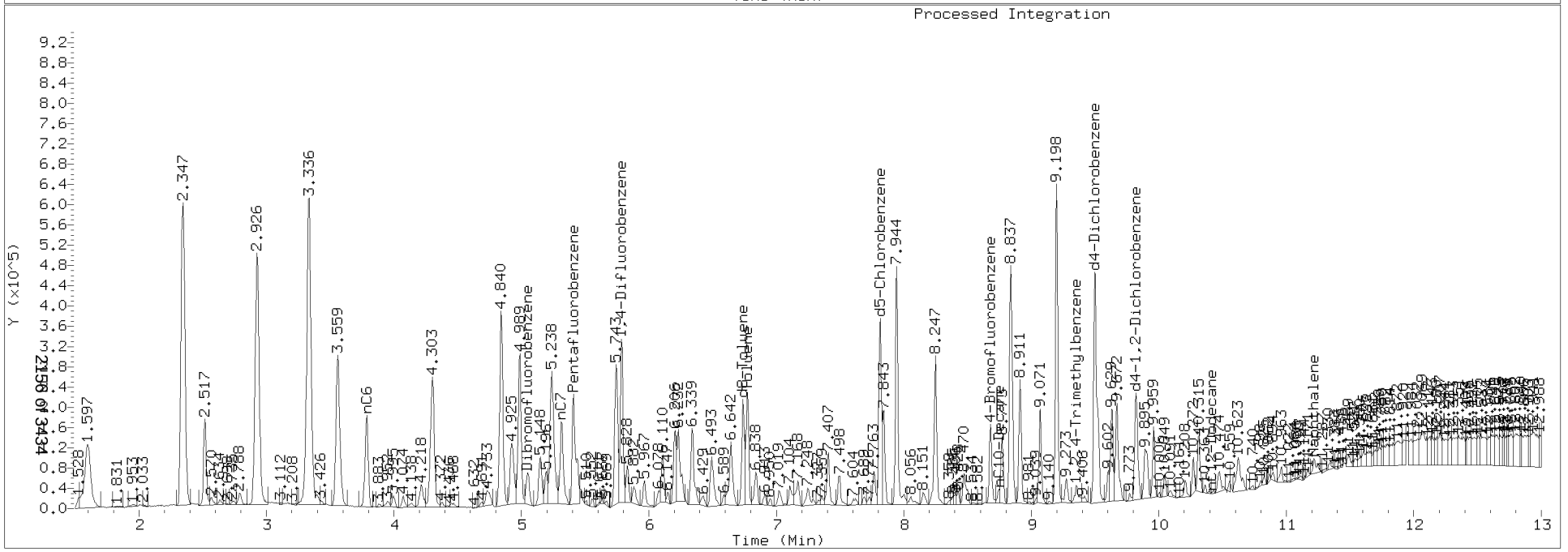
7.816	567938	d5-Chlorobenzene
6.737	321310	d8-Toluene
9.496	866729	d4-Dichlorobenzene
8.678	226215	4-Bromofluorobenzene
9.820	369802	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041918G.D Injection: 04-SEP-2019 23:14

Lab ID:SHI0075-CALB





Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419l9G.D

Date : 04-SEP-2019 23:40

Client ID:

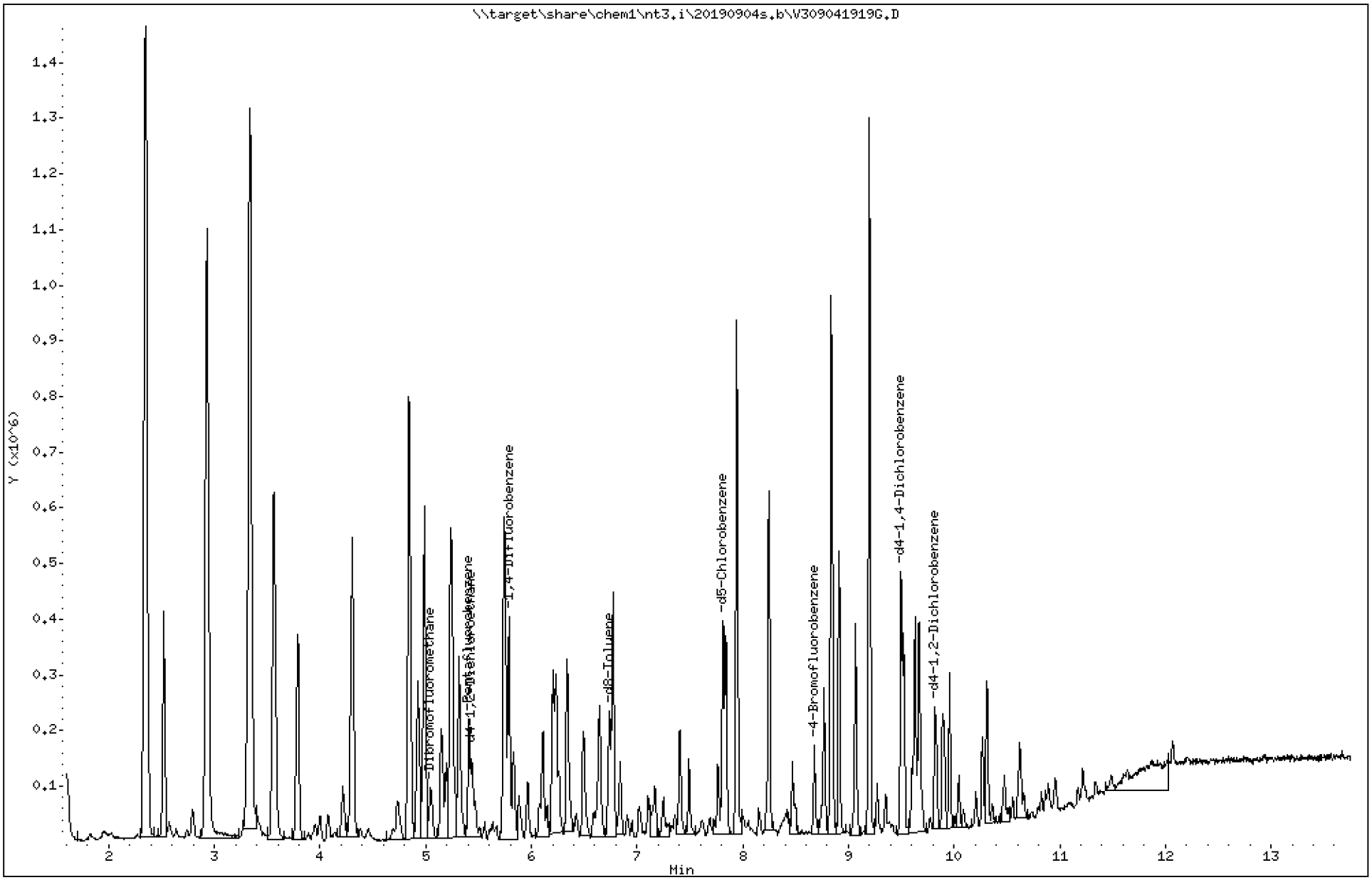
Sample Info: SHI0075-CALC

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041919G.D
Lab Smp Id: SHI0075-CALC
Inj Date : 04-SEP-2019 23:40
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CALC
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	25233	5.00328	5.003
*	32 Pentafluorobenzene	168	5.409	5.409	(1.000)	116637	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.435	5.436	(1.005)	28676	5.10353	5.104
*	37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	166209	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	100970	5.02161	5.022
*	53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	170008	10.0000	
$	62 4-Bromofluorobenzene	174	8.683	8.678	(1.112)	37572	4.65089	4.651
*	76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	106056	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	48758	4.89294	4.893

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041919G.D
Lab Smp Id: SHI0075-CALC
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	116637	20.37
37 1,4-Difluorobenze	140121	70061	280242	166209	18.62
53 d5-Chlorobenzene	140128	70064	280256	170008	21.32
76 d4-1,4-Dichlorobe	90137	45069	180274	106056	17.66

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: SHI0075-CALC
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.003	100.07	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.104	102.07	80-128
$ 43 d8-Toluene	5.000	5.022	100.43	80-120
$ 62 4-Bromofluorobenze	5.000	4.651	93.02	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.893	97.86	80-120

REVIEW SUMMARY FOR FILE - V309041919G.D

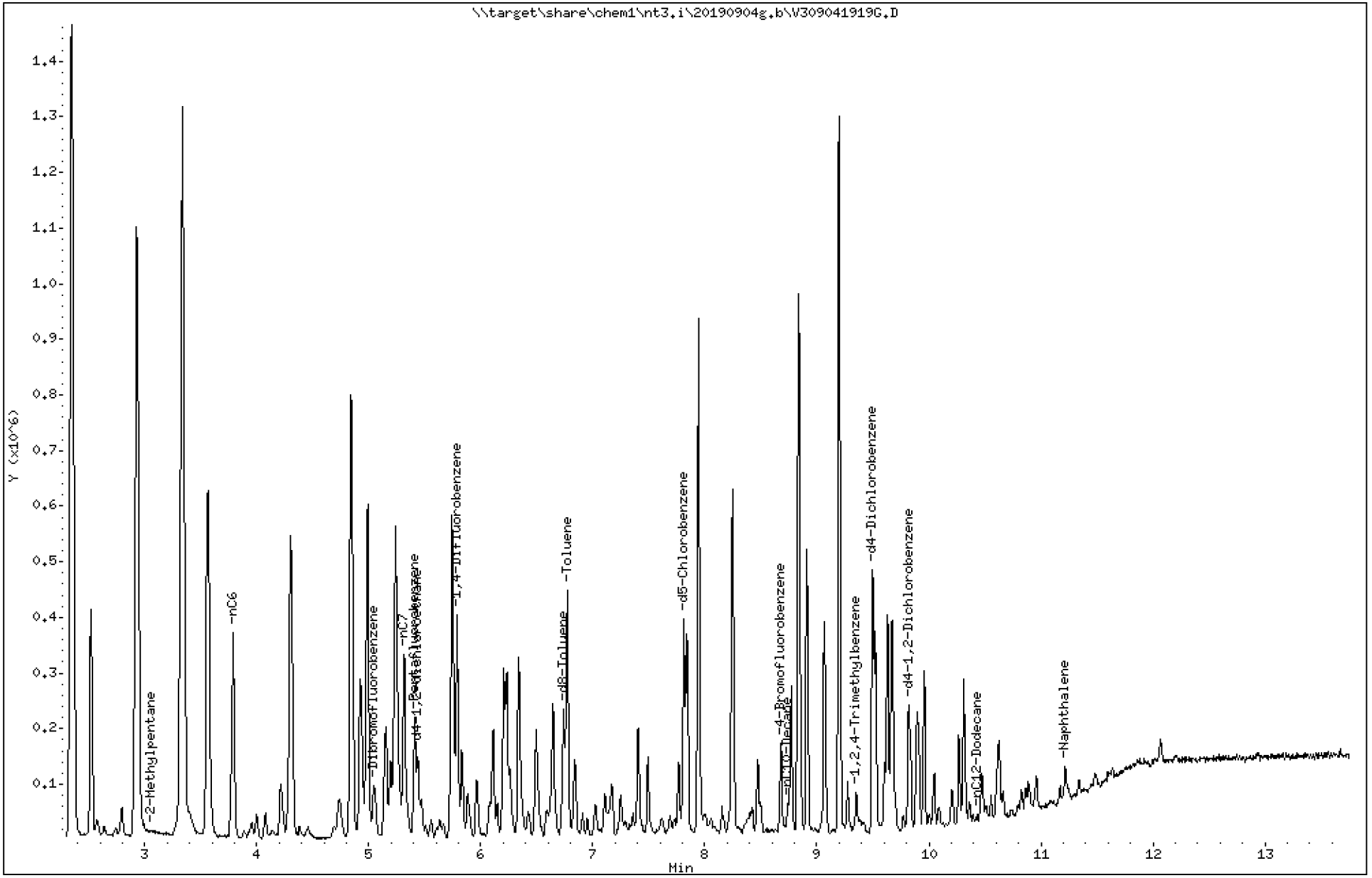
Lab ID: SHI0075-CALC
nt3.i, 20190904s.b\8260C090219.m,   04-SEP-2019 23:40

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V309041919G.D
Date : 04-SEP-2019 23:40
Client ID:
Sample Info: SHI0075-CALC

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041919G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 04-SEP-2019 23:40

ARI ID: SHI0075-CALC
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	15472991	0.975
8015C 2MP-TMB	(2.92 to 9.46)	32687243	32409663	0.992 M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	19795887	0.991 M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	16566880	0.960 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	22722526	0.989 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

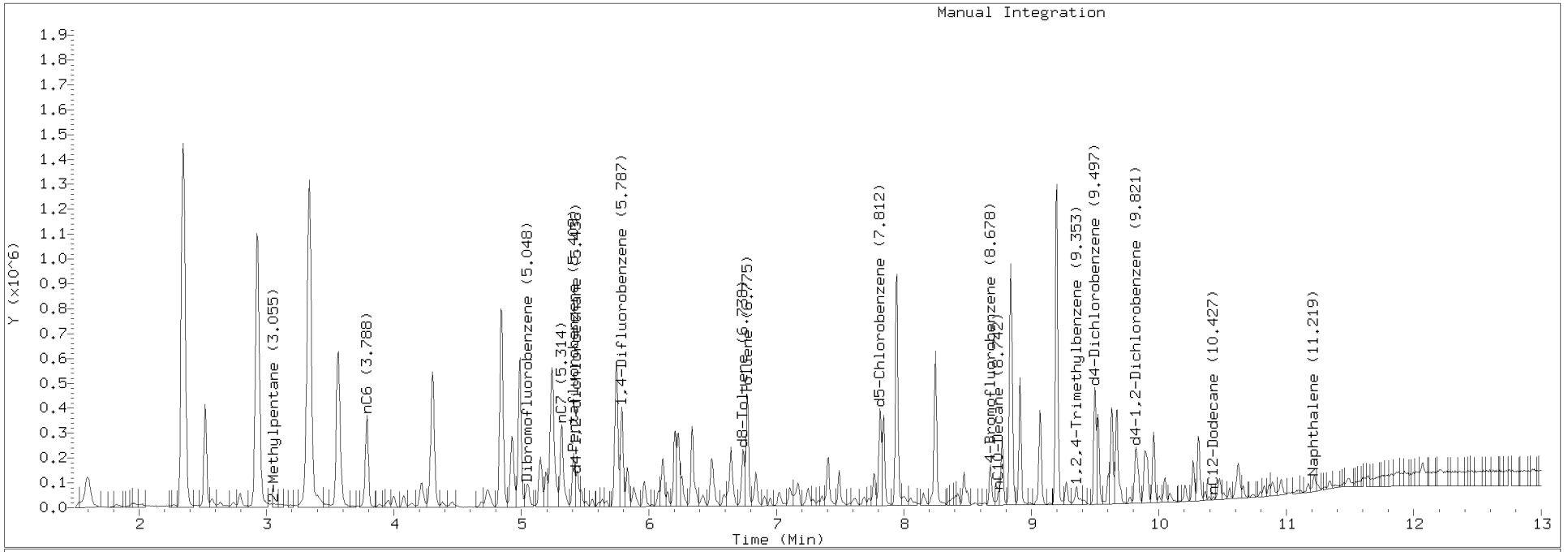
NW Gas Range Subtracted Peaks

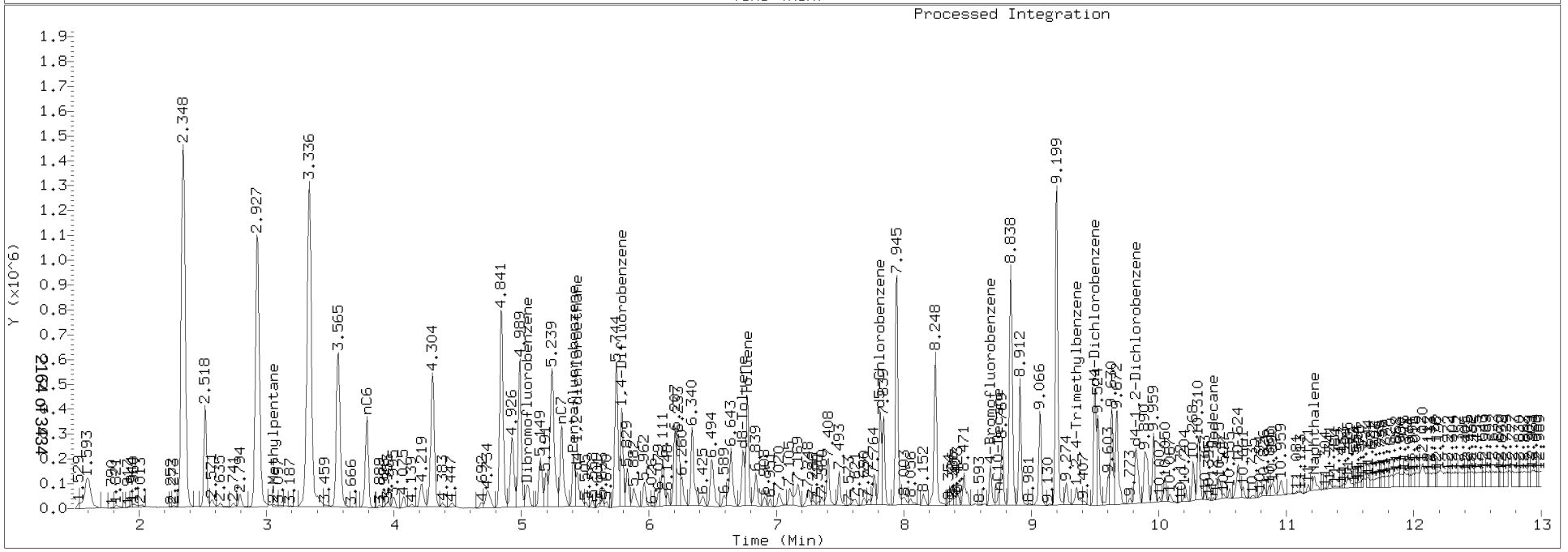
7.812	593292	d5-Chlorobenzene
6.738	390949	d8-Toluene
9.497	682937	d4-Dichlorobenzene
8.678	232104	4-Bromofluorobenzene
9.821	437861	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041919G.D Injection: 04-SEP-2019 23:40

Lab ID:SHI0075-CALC





Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041920G.D

Date : 05-SEP-2019 00:07

Client ID:

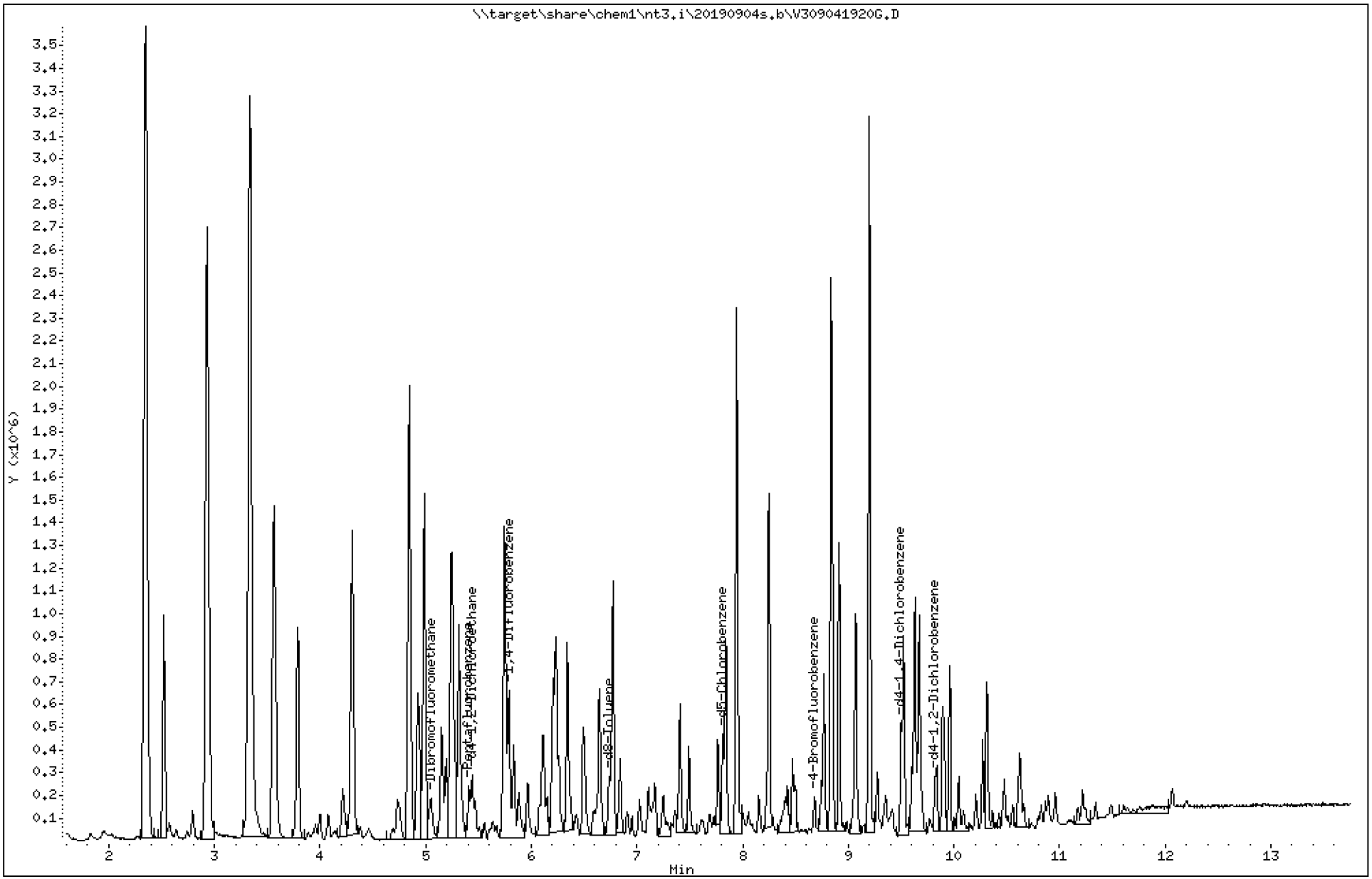
Sample Info: SHI0075-CALD

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041920G.D
Lab Smp Id: SHI0075-CALD
Inj Date : 05-SEP-2019 00:07
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CALD
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.054	5.053	(0.934)	24134	4.97678	4.977
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	112151	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	34076	6.30715	6.307
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	174709	10.0000	
$	43 d8-Toluene	98	6.739	6.738	(1.164)	108253	5.12188	5.122
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	176081	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.678	(1.111)	40757	4.87115	4.871
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	109115	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.822	9.821	(1.034)	52362	5.10729	5.107

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041920G.D
Lab Smp Id: SHI0075-CALD
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	112151	15.74
37 1,4-Difluorobenze	140121	70061	280242	174709	24.68
53 d5-Chlorobenzene	140128	70064	280256	176081	25.66
76 d4-1,4-Dichlorobe	90137	45069	180274	109115	21.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: SHI0075-CALD
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.977	99.54	80-120
$ 33 d4-1,2-Dichloroeth	5.000	6.307	126.14	80-128
$ 43 d8-Toluene	5.000	5.122	102.44	80-120
$ 62 4-Bromofluorobenze	5.000	4.871	97.42	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.107	102.15	80-120

REVIEW SUMMARY FOR FILE - V309041920G.D

Lab ID: SHI0075-CALD
nt3.i, 20190904s.b\8260C090219.m,   05-SEP-2019 00:07

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V309041920G.D

Date : 05-SEP-2019 00:07

Client ID:

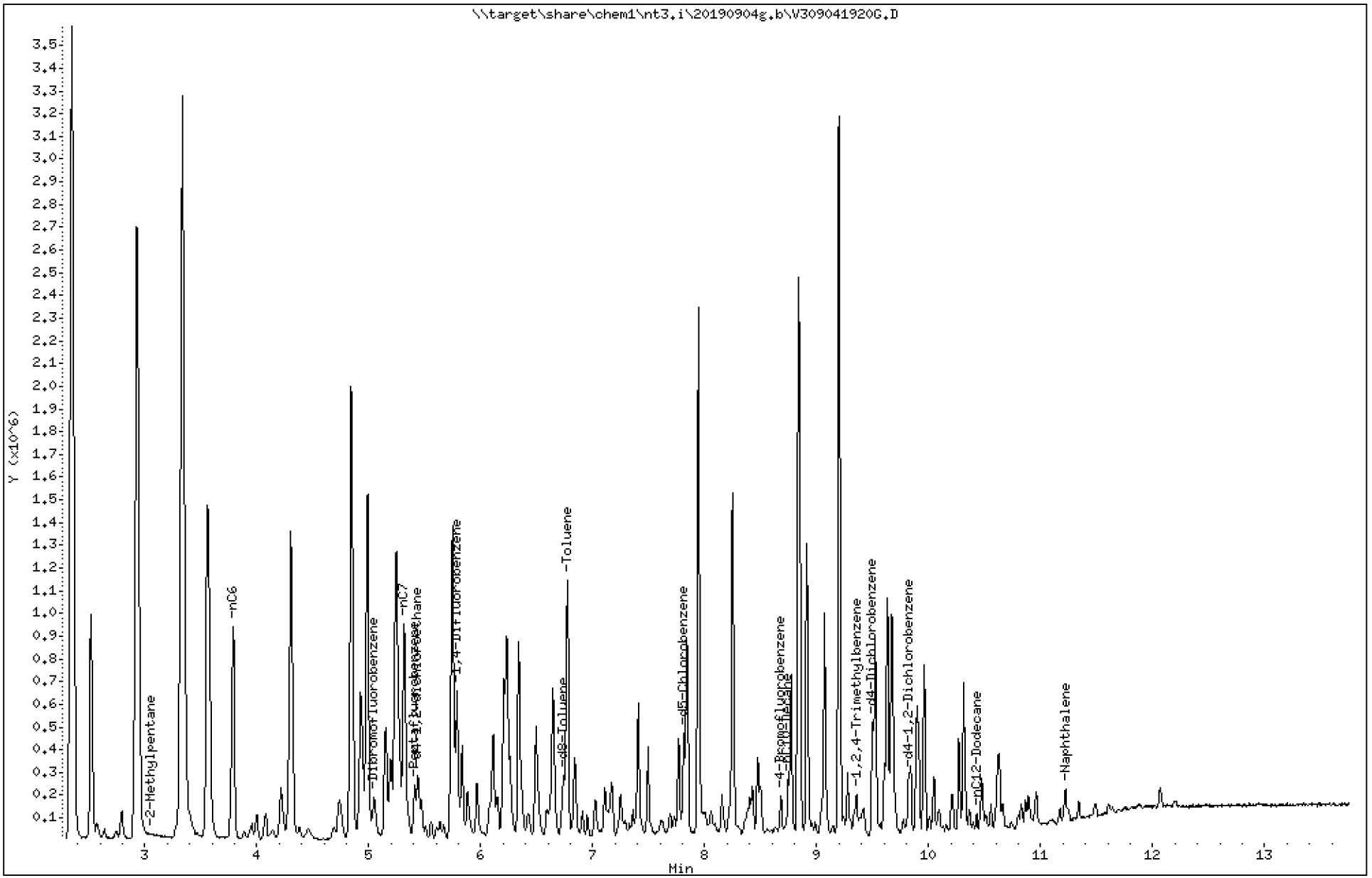
Sample Info: SHI0075-CALD

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041920G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 00:07
ARI ID: SHI0075-CALD
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	42807171	2.696
8015C 2MP-TMB	(2.92 to 9.46)	32687243	85672267	2.621
AK101 nC6-nC10	(3.69 to 8.64)	19977596	53044161	2.655
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	45329449	2.626 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	62004578	2.698

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

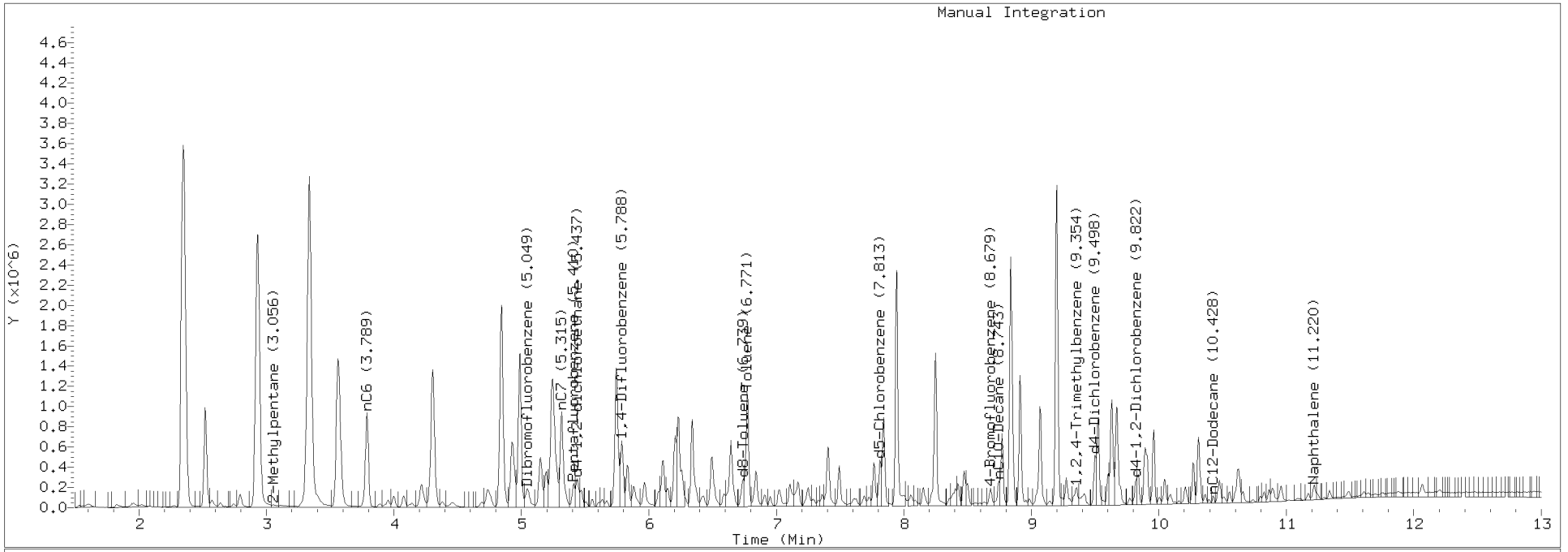
NW Gas Range Subtracted Peaks

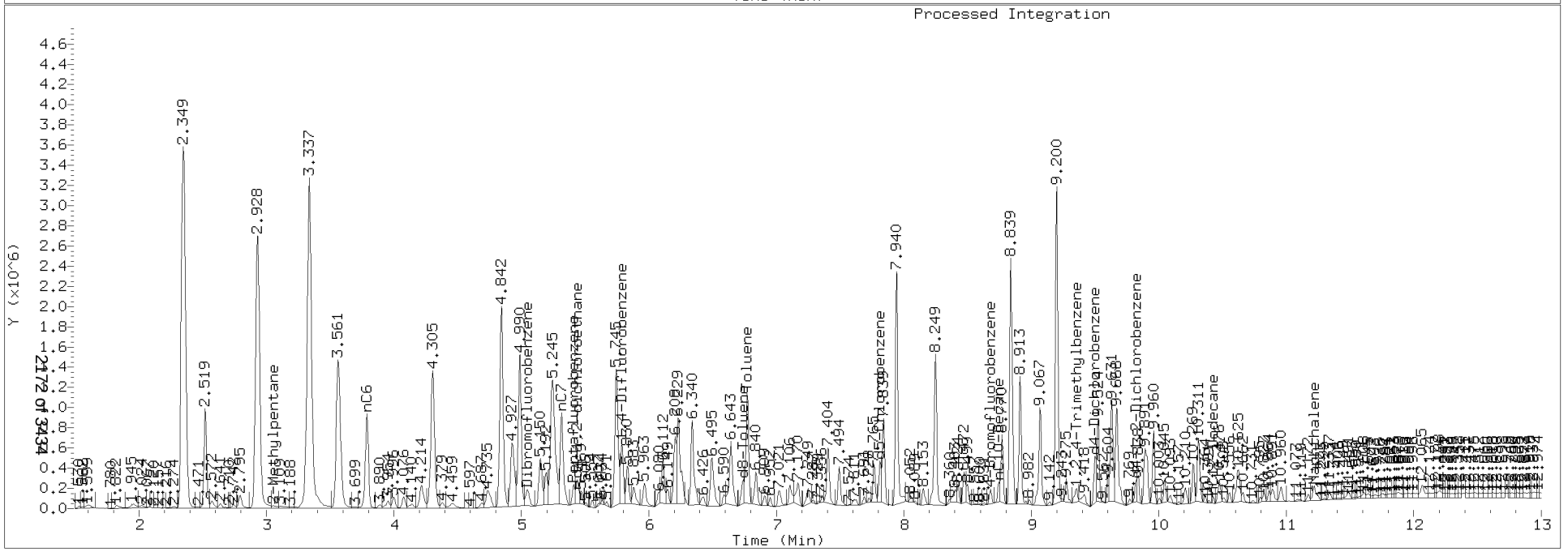
7.813	654878	d5-Chlorobenzene
6.739	418642	d8-Toluene
9.498	673644	d4-Dichlorobenzene
8.679	273659	4-Bromofluorobenzene
9.822	331360	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041920G.D Injection: 05-SEP-2019 00:07

Lab ID:SHI0075-CALD





Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419216.D

Date : 05-SEP-2019 00:33

Client ID:

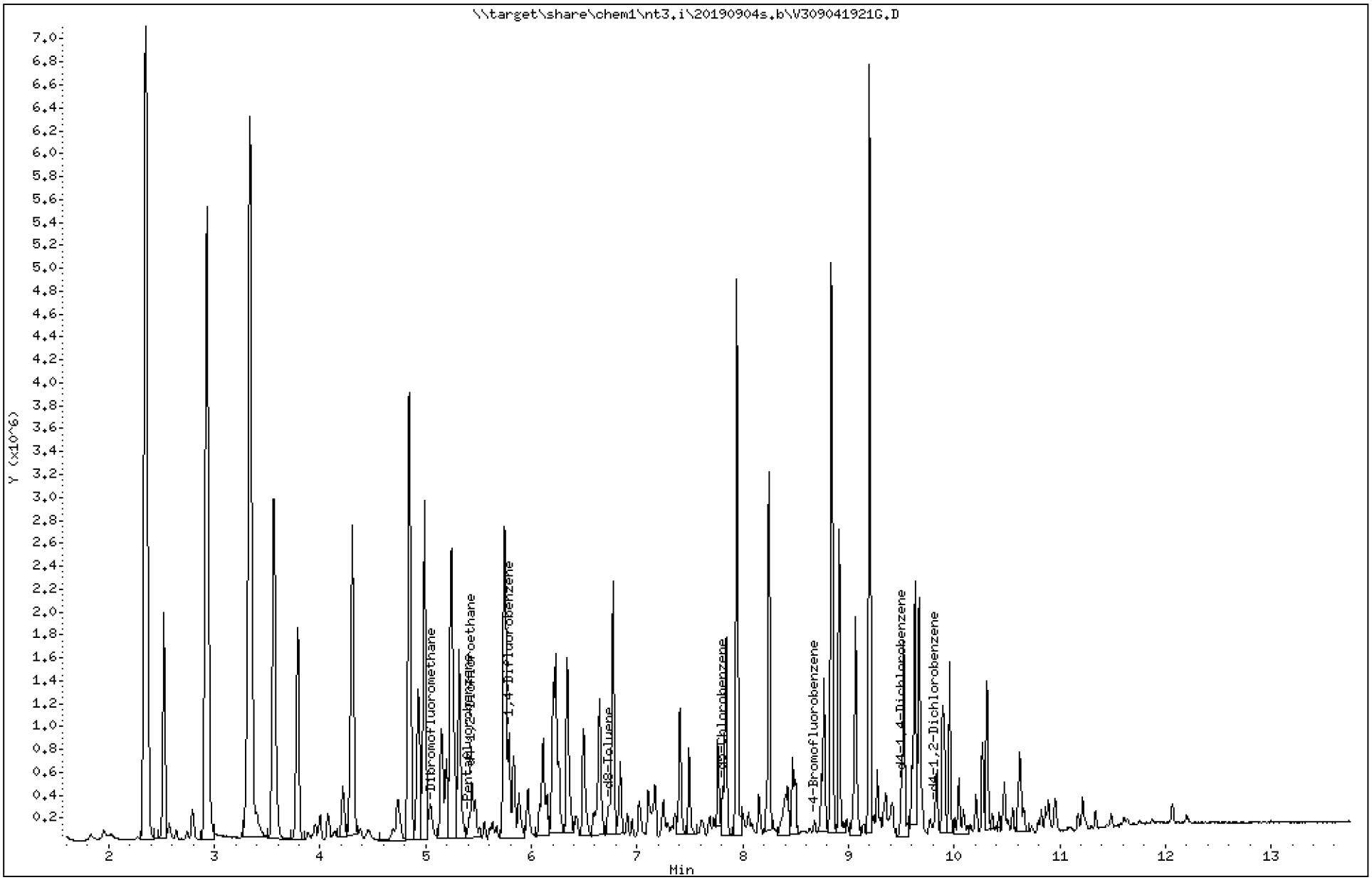
Sample Info: SHI0075-CALE

Instrument: nt3.i

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041921G.D
Lab Smp Id: SHI0075-CALE
Inj Date : 05-SEP-2019 00:33
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-CALE
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.053	5.053	(0.934)	19439	4.85323	4.853
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	92633	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.441	5.436	(1.006)	32201	7.21592	7.216(R)
* 37 1,4-Difluorobenzene	114	5.786	5.787	(1.000)	142928	10.0000	
$ 43 d8-Toluene	98	6.738	6.738	(1.164)	92282	5.33709	5.337
* 53 d5-Chlorobenzene	117	7.811	7.812	(1.000)	141756	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.678	(1.111)	33827	5.02185	5.022
* 76 d4-1,4-Dichlorobenzene	152	9.502	9.497	(1.000)	88014	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	42529	5.14272	5.143

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041921G.D
Lab Smp Id: SHI0075-CALE
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	92633	-4.40
37 1,4-Difluorobenze	140121	70061	280242	142928	2.00
53 d5-Chlorobenzene	140128	70064	280256	141756	1.16
76 d4-1,4-Dichlorobe	90137	45069	180274	88014	-2.36

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: SHI0075-CALE
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.853	97.06	80-120
$ 33 d4-1,2-Dichloroeth	5.000	7.216	144.32*	80-128
$ 43 d8-Toluene	5.000	5.337	106.74	80-120
$ 62 4-Bromofluorobenze	5.000	5.022	100.44	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.143	102.85	80-120

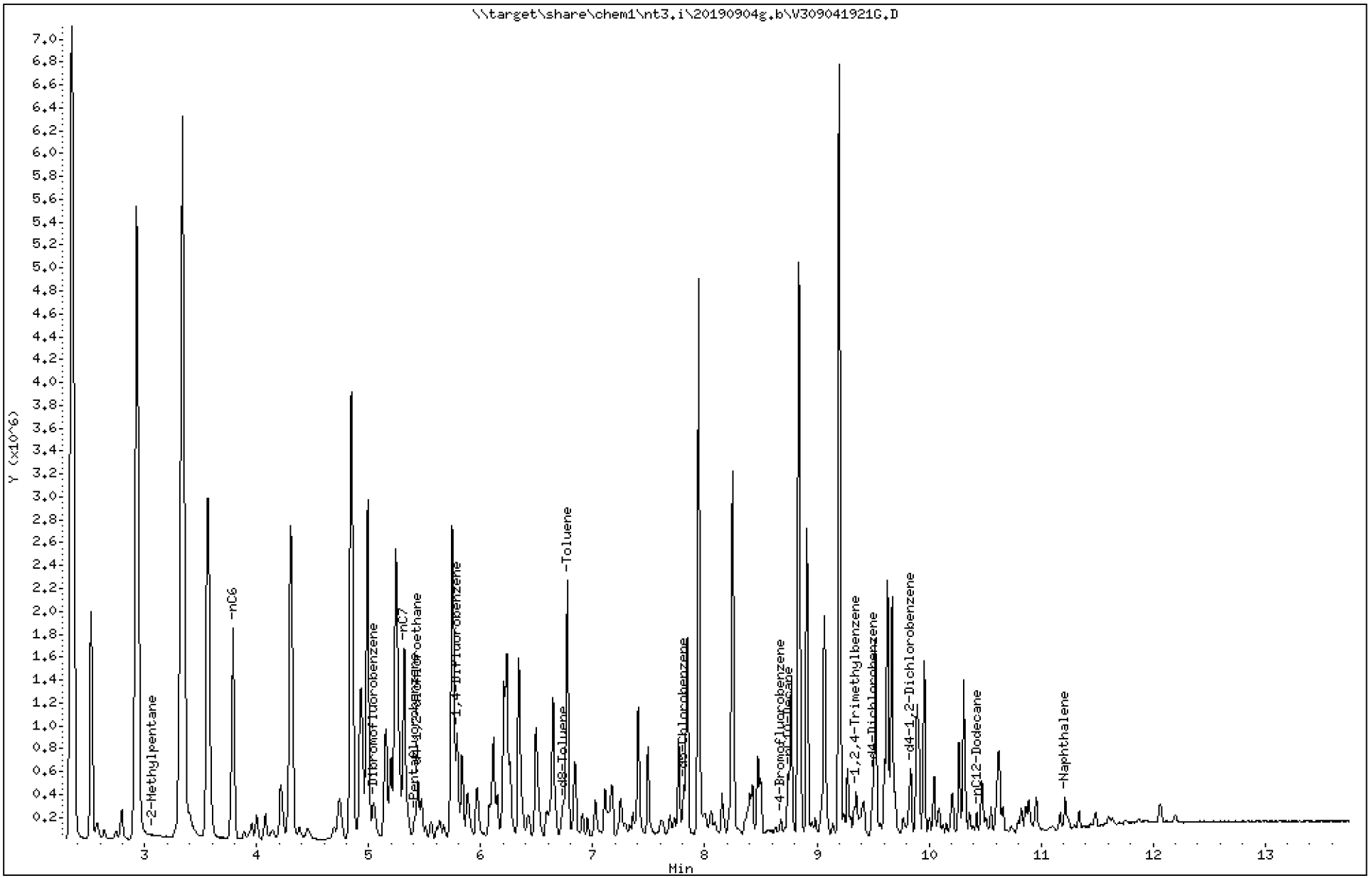
REVIEW SUMMARY FOR FILE - V309041921G.D

Lab ID: SHI0075-CALE
nt3.i, 20190904s.b\8260C090219.m,   05-SEP-2019 00:33

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V3090419216.D
Date : 05-SEP-2019 00:33
Client ID:
Sample Info: SHI0075-CALE

Instrument: nt3.i
Operator: PKC
Column phase: RTXVMS
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041921G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 00:33
ARI ID: SHI0075-CALE
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.68 to 10.53)	15876360	86104625	5.423	M
8015C 2MP-TMB	(2.92 to 9.46)	32687243	169464182	5.184	
AK101 nC6-nC10	(3.69 to 8.64)	19977596	103928211	5.202	
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	91097328	5.278	M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	123172599	5.359	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

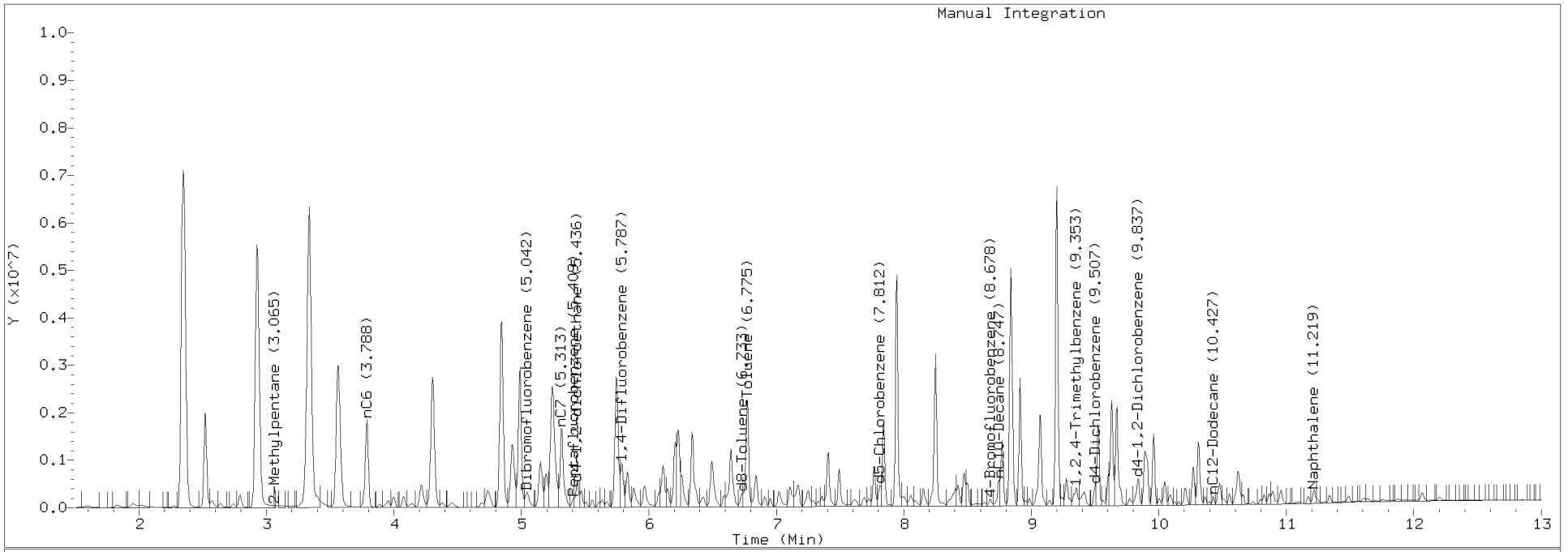
NW Gas Range Subtracted Peaks

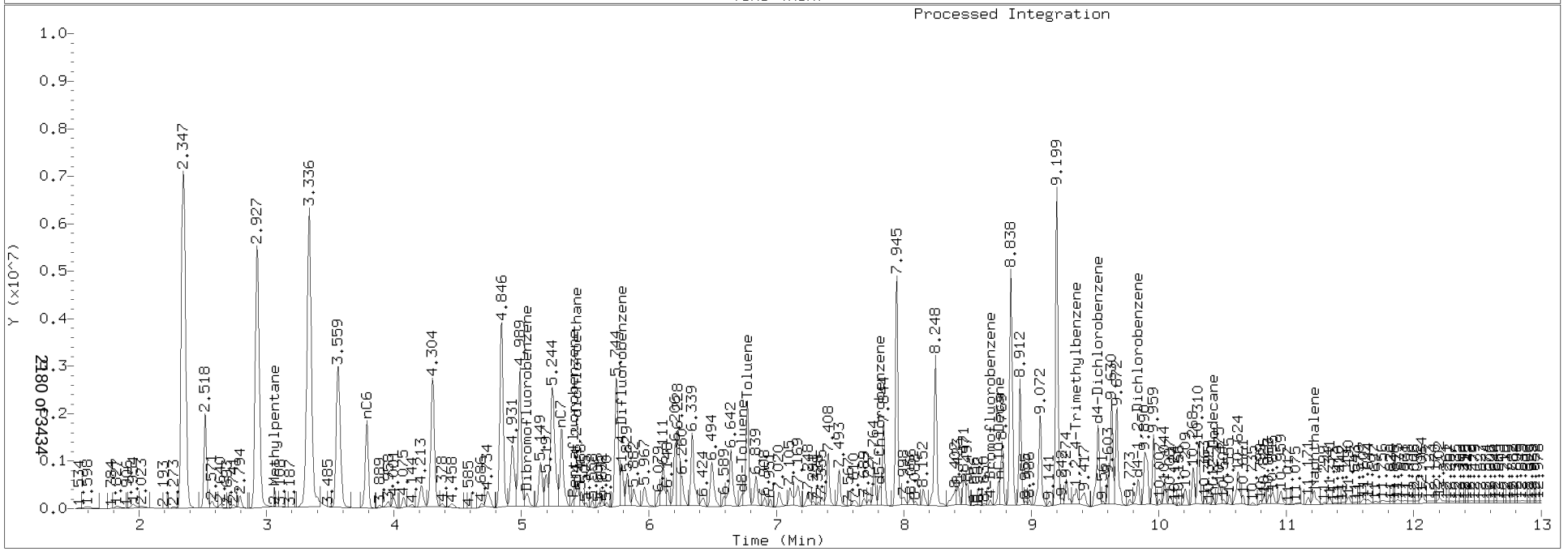
7.812	712242	d5-Chlorobenzene
6.733	436046	d8-Toluene
9.507	600390	d4-Dichlorobenzene
8.678	242812	4-Bromofluorobenzene
9.837	1032130	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190904g.b/V309041921G.D Injection: 05-SEP-2019 00:33

Lab ID:SHI0075-CALE





23 of 34

Data File: \\target\share\chem1\nt3.i\20190904s.b\V3090419226.D

Date : 05-SEP-2019 01:00

Client ID:

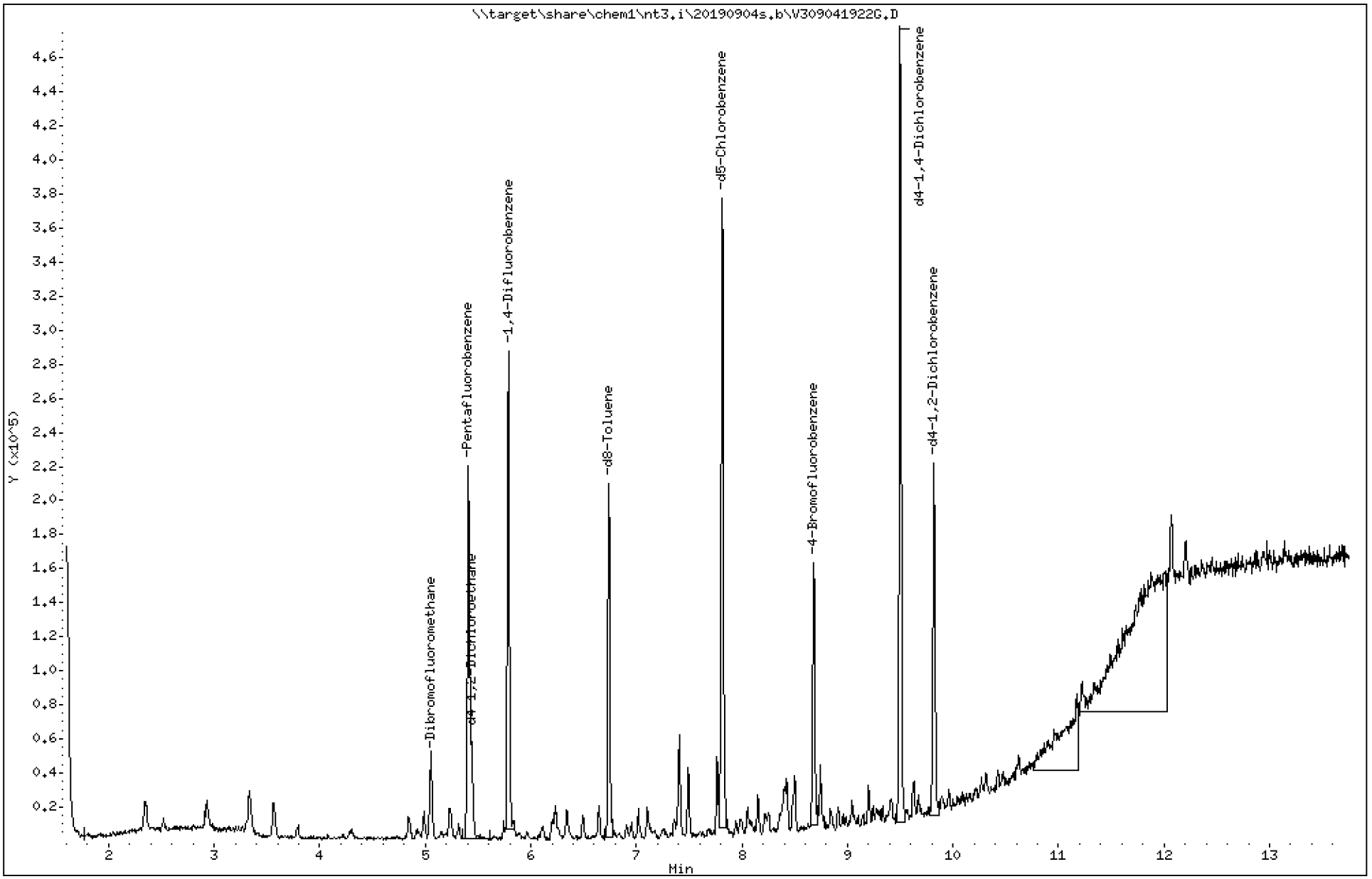
Sample Info: SHI0075-ICB1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041922G.D
Lab Smp Id: SHI0075-ICB1
Inj Date : 05-SEP-2019 01:00
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-ICB1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.053	(0.933)	24000	4.70084	4.701
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	118075	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.436	(1.005)	27891	4.90336	4.903
*	37 1,4-Difluorobenzene	114	5.787	5.787	(1.000)	173200	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	101417	4.84025	4.840
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	172867	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.678	(1.111)	39884	4.85543	4.855
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	108265	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	50637	4.97782	4.978

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041922G.D
Lab Smp Id: SHI0075-ICB1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	118075	21.86
37 1,4-Difluorobenze	140121	70061	280242	173200	23.61
53 d5-Chlorobenzene	140128	70064	280256	172867	23.36
76 d4-1,4-Dichlorobe	90137	45069	180274	108265	20.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.00
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: SHI0075-ICB1
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.701	94.02	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.903	98.07	80-128
$ 43 d8-Toluene	5.000	4.840	96.80	80-120
$ 62 4-Bromofluorobenze	5.000	4.855	97.11	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.978	99.56	80-120

REVIEW SUMMARY FOR FILE - V309041922G.D

Lab ID: SHI0075-ICB1
nt3.i, 20190904s.b\8260C090219.m,   05-SEP-2019 01:00

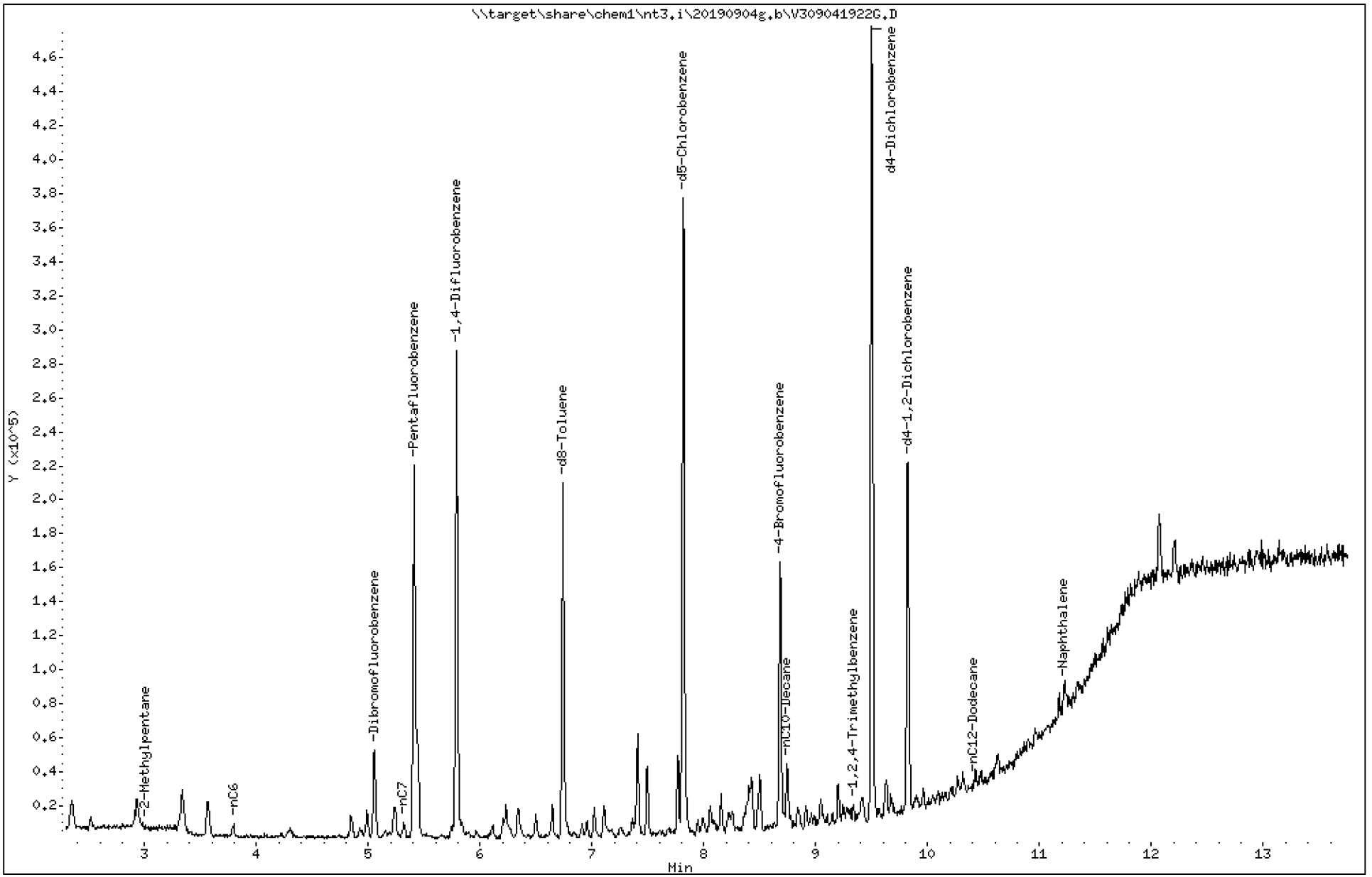
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V3090419226.D
Date : 05-SEP-2019 01:00
Client ID:
Sample Info: SHI0075-ICB1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041922G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 01:00
ARI ID: SHI0075-ICB1
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	1091549	0.069
8015C 2MP-TMB	(2.92 to 9.46)	32687243	1385372	0.042
AK101 nC6-nC10	(3.69 to 8.64)	19977596	941008	0.047
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	1259409	0.073
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	1257517	0.055

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

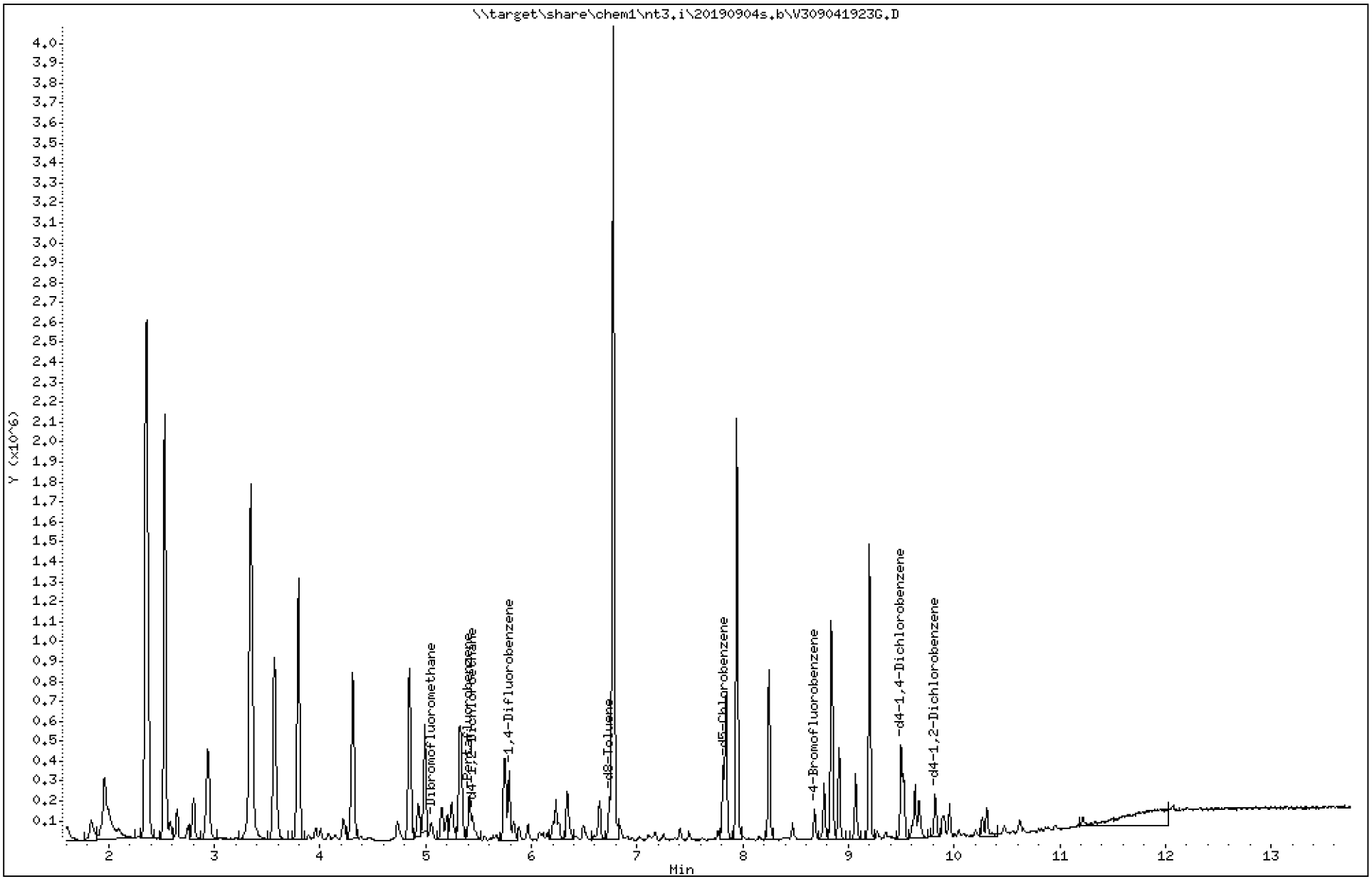
7.813	540941	d5-Chlorobenzene
6.739	308579	d8-Toluene
9.498	674848	d4-Dichlorobenzene
8.679	229185	4-Bromofluorobenzene
9.822	316744	d4-1,2-Dichlorobenzene

Data File: \\target\share\chem1\nt3.i\20190904s.b\V309041923G.D
Date : 05-SEP-2019 01:27
Client ID:
Sample Info: SHI0075-SCV1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190904s.b\V309041923G.D
Lab Smp Id: SHI0075-SCV1
Inj Date : 05-SEP-2019 01:27
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0075-SCV1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Meth Date : 06-Sep-2019 09:30 paul   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.052	5.053	(0.934)	25094	4.94279	4.943
* 32 Pentafluorobenzene	168	5.409	5.409	(1.000)	117414	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.441	5.436	(1.006)	28501	5.03881	5.039
* 37 1,4-Difluorobenzene	114	5.791	5.787	(1.000)	174229	10.0000	
$ 43 d8-Toluene	98	6.737	6.738	(1.163)	104393	4.95286	4.953
* 53 d5-Chlorobenzene	117	7.817	7.812	(1.000)	171651	10.0000	
$ 62 4-Bromofluorobenzene	174	8.683	8.678	(1.111)	40561	4.97283	4.973
* 76 d4-1,4-Dichlorobenzene	152	9.496	9.497	(1.000)	106541	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.821	(1.034)	51471	5.14168	5.142

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309041923G.D
Lab Smp Id: SHI0075-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 04-SEP-2019
Calibration Time: 19:15
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	117414	21.17
37 1,4-Difluorobenze	140121	70061	280242	174229	24.34
53 d5-Chlorobenzene	140128	70064	280256	171651	22.50
76 d4-1,4-Dichlorobe	90137	45069	180274	106541	18.20

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.08
53 d5-Chlorobenzene	7.81	7.31	8.31	7.82	0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: SHI0075-SCV1
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190904s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.943	98.86	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.039	100.78	80-128
$ 43 d8-Toluene	5.000	4.953	99.06	80-120
$ 62 4-Bromofluorobenze	5.000	4.973	99.46	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.142	102.83	80-120

REVIEW SUMMARY FOR FILE - V309041923G.D

Lab ID: SHI0075-SCV1
nt3.i, 20190904s.b\8260C090219.m,   05-SEP-2019 01:27

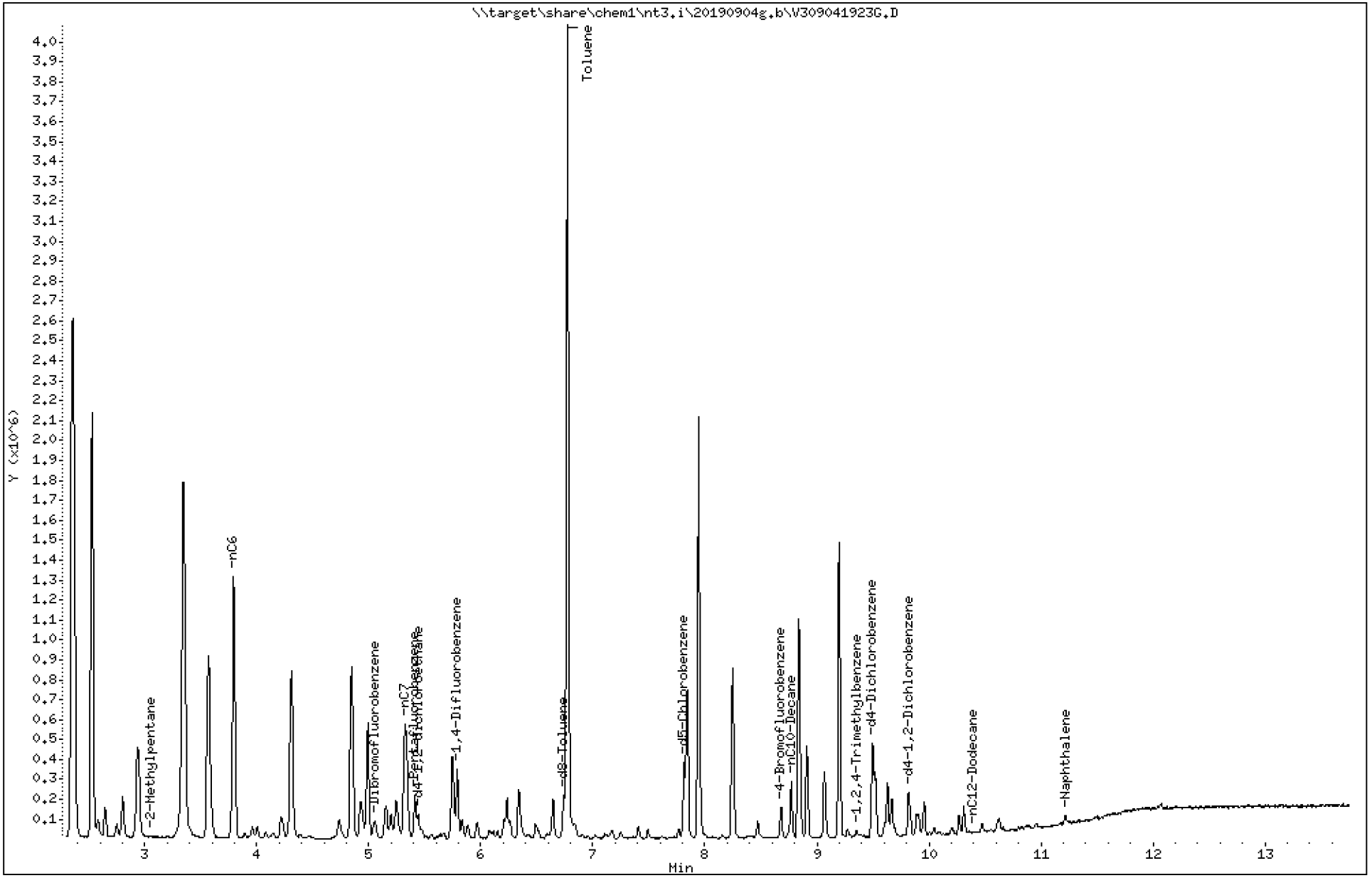
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190904g.b\V309041923G.D
Date : 05-SEP-2019 01:27
Client ID:
Sample Info: SHI0075-SCV1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190904g.b/V309041923G.D
Method: \20190904g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 01:27

ARI ID: SHI0075-SCV1
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	20113622	1.267
8015C 2MP-TMB	(2.92 to 9.46)	32687243	39075486	1.195
AK101 nC6-nC10	(3.69 to 8.64)	19977596	25894021	1.296
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	20551547	1.191
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	25211542	1.097

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.817	442147	d5-Chlorobenzene
6.738	290000	d8-Toluene
9.497	660520	d4-Dichlorobenzene
8.678	233684	4-Bromofluorobenzene
9.821	371229	d4-1,2-Dichlorobenzene

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00026	Instrument:	NT2
Calibration Date:	09/06/2019 13:45	Column (1):	RTX-VMS

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Toluene-d8	5	1.204389	5	1.194576	5	1.205475	5	1.20907	5	1.215289	5	1.248554
4-Bromofluorobenzene	5	0.3602038	5	0.3801943	5	0.3736481	5	0.3812488	5	0.380654	5	0.3729607

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00026	Instrument:	NT2
Calibration Date:	09/06/2019 13:45	Column (1):	RTX-VMS

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)					100	23760.1	250	27294.98	500	22672	1000	27646.9
Toluene-d8	5	1.221264	5	1.236343								
4-Bromofluorobenzene	5	0.3620616	5	0.3360407								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00026	Instrument:	NT2
Calibration Date:	09/06/2019 13:45	Column (1):	RTX-VMS

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Gasoline Range Organics (Tol-Nap)	2500	27056.15	5000	28268.34								

INITIAL CALIBRATION DATA

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00026	Instrument:	NT2
Calibration Date:	09/06/2019 13:45	Column (1):	RTX-VMS

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Gasoline Range Organics (Tol-Nap)	26116.41	8.8			RSD (15)	
Toluene-d8	1.21687	1.5			RSD (15)	
4-Bromofluorobenzene	0.3683765	4.2			RSD (15)	

Printed: 9/6/2019 2:09:17PM

ANALYSIS SEQUENCE

SHI0010

Instrument: NT2 Element Column ID: 1306512RTXV No 8015 RT markers
Calibration ID: CI00004 Tune File: bfb.u
EM Voltage: 1647

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0010-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0010-CAL1	8260C 0.2	QC		2	H008411	H007838	
SHI0010-CAL2	8260C 0.5	QC		3	H008412	H007838	
SHI0010-CAL3	8260C 1.0	QC		4	H008413	H007838	
SHI0010-CAL4	8260C 2.0	QC		5	H008414	H007838	
SHI0010-CAL5	8260C 10	QC		6	H008415	H007838	
SHI0010-CAL6	8260C 20	QC		7	H008416	H007838	
SHI0010-CAL7	8260C 40	QC		8	H008417	H007838	
SHI0010-CAL8	8260C 80	QC		9	H008418	H007838	
SHI0010-CAL9	Gas 0.1	QC		10	H008422	H007838	
SHI0010-CALA	Gas 0.25	QC		11	H008423	H007838	
SHI0010-CALB	Gas 0.5	QC		12	H008424	H007838	
SHI0010-CALC	Gas 1	QC		13	H008425	H007838	
SHI0010-CALD	Gas 2.5	QC		14	H008426	H007838	
SHI0010-CALE	Gas 5	QC		15	H008427	H007838	
SHI0010-ICB1	Initial Cal Blank	QC		16		H007838	
SHI0010-SCV1	Gas SCV 1.0	QC		17	H008428	H007838	

Printed: 9/6/2019 2:07:05PM

ANALYSIS SEQUENCE

SHI0083

Instrument: NT2
Element Column ID: 1306512 RTXV
Calibration ID: CI00026
Tune File: bfb.u
EM Voltage: 1647

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0083-TUN1	MS Tune	QC		1	H005698	H007838	
SHI0083-CAL1	8260C 0.2	QC		2	H008644	H007838	
SHI0083-CAL2	8260C 0.5	QC		3	H008645	H007838	
SHI0083-CAL3	8260C 1	QC		4	H008646	H007838	
SHI0083-CAL4	8260C 2	QC		5	H008647	H007838	
SHI0083-CAL5	8260C 10	QC		6	H008648	H007838	
SHI0083-CAL6	8260C 20	QC		7	H008649	H007838	
SHI0083-CAL7	8260C 40	QC		8	H008650	H007838	
SHI0083-CAL8	8260C 80	QC		9	H008651	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190902.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1108	V209021901.D	RINSE				1								
2	1129	V209021902.D	SHI0008-TUN1				1								
3	1210	V209021903.D	RINSE				1	5.13	263615	5.52	471244	7.58	430919	9.27	202829
4	1230	V209021904.D	SHI0008-CAL1				1	5.13	235566	5.52	418094	7.58	379186	9.27	181132
5	1251	V209021905.D	SHI0080-CAL2				1	5.13	230220	5.52	408443	7.58	372114	9.27	180039
6	1311	V209021906.D	SHI0008-CAL3				1	5.13	237091	5.52	419485	7.58	385601	9.26	189034
7	1331	V209021907.D	SHI0008-CAL4				1	5.13	240462	5.52	422265	7.58	386238	9.27	189248
8	1351	V209021908.D	SHI0008-CAL5				1	5.13	233289	5.52	412164	7.58	378243	9.27	186173
9	1412	V209021909.D	SHI0008-CAL6				1	5.13	234601	5.52	407537	7.58	377564	9.27	187362
10	1432	V209021910.D	SHI0008-CAL7				1	5.13	232119	5.52	407371	7.58	387058	9.27	189305
11	1452	V209021911.D	SHI0008-CAL8				1	5.13	233192	5.52	407692	7.58	390332	9.27	182597
12	1513	V209021912.D	SHI0008-ICB1				1	5.13	233607	5.52	408588	7.58	375075	9.27	179030
13	1533	V209021913.D	SHI0008-SCV1				1	5.13	223677	5.52	389189	7.58	362062	9.27	174678
14	1553	V209021914.D	RINSE				1	5.13	222787	5.52	386154	7.58	359736	9.27	174342
15	1613	V209021915.D	SHI0-CAL9				1	5.13	224088	5.52	390543	7.58	356221	9.27	176420
16	1633	V209021916.D	SHI0-CALA				1	5.13	234626	5.52	404891	7.58	370844	9.27	179934
17	1654	V209021917.D	SHI0-CALB				1	5.13	227230	5.52	400726	7.58	363216	9.27	177077
18	1714	V209021918.D	SHI0-CALC				1	5.13	222196	5.52	393169	7.58	359214	9.27	176402
19	1734	V209021919.D	SHI0-CALD				1	5.13	207217	5.52	366785	7.58	333149	9.27	166296
20	1754	V209021920.D	SHI0-CALE				1	5.13	220932	5.52	400016	7.58	359565	9.27	179913

21	1815	V209021921.D	RINSE	1	5.13	220207	5.52	381526	7.58	344355	9.27	167921
22	1835	V209021922.D	SHI0-SCV1	1	5.13	223089	5.52	387877	7.58	355441	9.27	177454

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190906.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF							
1	0630	V209061901.D	RINSE				1							
2	0651	V209061902.D	SHI0-TUN1				1							
3	0723	V209061903.D	SHI0-ICV1	GAS			1							
4	0743	V209061904.D	SHI0-ICV1	VOA			1							
5	0803	V209061905.D	BHI0-BSD1				1							
6	0823	V209061906.D	BHI0-BSD2				1							
7	0857	V209061907.D	SHI0082-TUN1				1							
8	0930	V209061908.D	SHI0082-CAL1				1	5.13	183345	5.52	311793	7.58	284550	9.26	139029
9	0950	V209061909.D	SHI0082-CAL2				1	5.13	168822	5.52	284506	7.58	257421	9.26	130827
10	1010	V209061910.D	SHI0082-CAL3				1	5.13	166606	5.52	281728	7.58	256862	9.26	128310
11	1030	V209061911.D	SHI0082-CAL4				1	5.13	170372	5.52	290860	7.58	265050	9.26	133921
12	1050	V209061912.D	SHI0082-CAL5				1	5.13	166121	5.52	280906	7.58	262007	9.27	136773
13	1111	V209061913.D	SHI0082-CAL6				1	5.13	169056	5.52	288473	7.58	279697	9.27	142389
14	1131	V209061914.D	SHI0082-CAL7				1	5.13	168127	5.52	286924	7.58	281361	9.27	143196
15	1151	V209061915.D	SHI0082-CAL8				1	5.13	171395	5.52	288881	7.58	301029	9.27	152533
16	1212	V209061916.D	SHI0082-ICB1				1	5.13	171801	5.52	289703	7.58	268189	9.26	132892
17	1232	V209061917.D	SHI0082-SCV1				1	5.13	170052	5.52	287601	7.58	269194	9.27	138197

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190902g.b

Instrument: nt2.i Date: 02-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1129	V209021902G.D	SHI0010-TUN1	1	NO MANUAL INTEGRATION
1613	V209021915G.D	SHI0010-CAL9	1	1,2,4-Trimethylbenzene, Naphthalene, 1,4-Difluorobenzene,
1633	V209021916G.D	SHI0010-CALA	1	nC12-Dodecane, 1,2,4-Trimethylbenzene,
1654	V209021917G.D	SHI0010-CALB	1	Pentafluorobenzene, d4-1,2-dichloroethane, d4-Dichlorobenzene,
1714	V209021918G.D	SHI0010-CALC	1	Pentafluorobenzene, d4-1,2-dichloroethane, d4-1,2-Dichlorobenzene,
1734	V209021919G.D	SHI0010-CALD	1	d4-1,2-dichloroethane,
1754	V209021920G.D	SHI0010-CALE	1	Naphthalene,
1815	V209021921G.D	SHI0010-ICB1	1	NO MANUAL INTEGRATION
1835	V209021922G.D	SHI0010-SCV1	1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190906s.b

Instrument: nt2.i Date: 06-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0857	V209061907G.D	SHI0083-TUN1	1	NO MANUAL INTEGRATION
0930	V209061908G.D	SHI0083-CAL1	1	NO MANUAL INTEGRATION
0950	V209061909G.D	SHI0083-CAL2	1	NO MANUAL INTEGRATION
1010	V209061910G.D	SHI0083-CAL3	1	NO MANUAL INTEGRATION
1030	V209061911G.D	SHI0083-CAL4	1	NO MANUAL INTEGRATION
1050	V209061912G.D	SHI0083-CAL5	1	NO MANUAL INTEGRATION
1111	V209061913G.D	SHI0083-CAL6	1	NO MANUAL INTEGRATION
1131	V209061914G.D	SHI0083-CAL7	1	NO MANUAL INTEGRATION
1151	V209061915G.D	SHI0083-CAL8	1	Pentafluorobenzene,

Security Status Report

Date: 03-Sep-2019 10:55

V209021902G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021915G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021916G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021917G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021918G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021919G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021920G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021921G.D	Data Locked	paul, 03-Sep-2019 10:55
V209021922G.D	Data Locked	paul, 03-Sep-2019 10:55

Security Status Report

Date: 06-Sep-2019 14:06

V209061907G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061908G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061909G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061910G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061911G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061912G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061913G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061914G.D	Data Locked	lanih, 06-Sep-2019 14:06
V209061915G.D	Data Locked	lanih, 06-Sep-2019 14:06

6a
8260 GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: 20150930

Instrument: NT2.I Project:

Calibration Date: 02-SEP-2019 SDG No.: 20150930

Gas Range	RF1 0.1	RF2 0.25	RF3 0.5	RF4 1.0	RF5 2.5	RF6 5	Ave RF	%RSD
WA Gas	22656988	26390862	21883529	26446902	25706337	26805884	24981750	8.6
AK Gas	32199511	36695438	28249130	34638444	32606520	32596506	32830925	8.6
NW Gas	23760102	27294982	22671991	27646895	27056152	28268333	26116409	8.8
8015Gas	42526938	46129435	37817564	45202766	43001318	43106454	42964079	6.7
8015mod	33481749	38019065	30301354	37327592	35752782	36740665	35270534	8.2

<- Indicates %RSD outside limits
Surrogate areas are not included in RF calculation.
Surrogate calibration is from BETX curve files.

Quant Ranges :
WA Gas Toluene - nC12
AK Gas nC6 - nC10
NW Gas Toluene - Naphthalene
8015 Gas 2-Methylpentane - 1,2,4-Trimethylbenzene
8015 mod nC7 - nC12

Gas Cal. Files	Analysis Time
V209021915.D	02-SEP-2019 16:13
V209021916.D	02-SEP-2019 16:33
V209021917.D	02-SEP-2019 16:54
V209021918.D	02-SEP-2019 17:14
V209021919.D	02-SEP-2019 17:34
V209021920.D	02-SEP-2019 17:54

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 06-SEP-2019 09:30
End Cal Date : 06-SEP-2019 11:51
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt2.i\20190906.b\826090619.m
Last Edit : 06-Sep-2019 12:14 lanih

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
81 1,2-Dibromo 3-Chloropropane	+++++	283	855	1781	12362	26600					
	61779	130112					LINR	0.000e+000	0.10614		0.99819
83 Hexachloro 1,3-Butadiene	+++++	0.24704	0.20801	0.23219	0.22446	0.21348					
	0.17289	0.20840					AVRG		0.21521		10.86369
84 1,2,4-Trichlorobenzene	+++++	0.72432	0.65560	0.69922	0.77127	0.76685					
	0.80028	0.80835					AVRG		0.74656		7.48524
85 Naphthalene	+++++	1.37846	1.37807	1.38395	1.81423	1.81849					
	1.89730	1.76454					AVRG		1.63358		14.70468
86 1,2,3-Trichlorobenzene	+++++	0.59774	0.58795	0.58729	0.65930	0.64598					
	0.65521	0.65473					AVRG		0.62689		5.42012
$ 27 Dibromofluoromethane	0.46958	0.46976	0.47333	0.48691	0.49216	0.51004					
	0.52358	0.53518					AVRG		0.49507		5.11224
$ 33 d4-1,2-Dichloroethane	0.56954	0.56690	0.56920	0.57626	0.57125	0.57185					
	0.57317	0.56881					AVRG		0.57087		0.51255

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 06-SEP-2019 09:30
End Cal Date : 06-SEP-2019 11:51
Quant Method : ISTD
Origin : Force
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem1\nt2.i\20190906.b\826090619.m
Last Edit : 06-Sep-2019 12:14 lanih

Compound	0.2000000 Level 1	0.5000000 Level 2	1.0000 Level 3	2.0000 Level 4	10.0000 Level 5	20.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2
	40.0000 Level 7	80.0000 Level 8									
$ 43 d8-Toluene	1.20439	1.19458	1.20547	1.20907	1.21529	1.24855					
	1.22126	1.23634					AVRG		1.21687		1.47279
$ 62 4-Bromofluorobenzene	0.36020	0.38019	0.37365	0.38125	0.38065	0.37296					
	0.36206	0.33604					AVRG		0.36838		4.17679
$ 79 d4-1,2-Dichlorobenzene	0.91738	0.91418	0.93912	0.92426	0.92574	0.91603					
	0.93455	0.91769					AVRG		0.92362		0.99009

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902g.b\GA090219.m
Batch File: \\target\share\chem1\nt2.i\20190902g.b
Inst ID: nt2.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	V209021915G	V209021916G	V209021917G	V209021918G	V209021919G	V209021920G	V209021922G
INJ.DATE:	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019	02-SEP-2019
INJ.TIME:	16:13	16:33	16:54	17:14	17:34	17:54	18:35

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
5 2-Methylpentane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.136	3.086-3.186	+++++	+++++
7 nC6	3.337	3.341	3.338	3.337	3.338	3.340	3.343	3.340	3.290-3.390	3.339	0.002
$ 10 Dibromofluorobenzene	4.743	4.746	4.743	4.743	4.743	+++++	4.742	4.746	4.696-4.796	4.743	0.001
47 nC7	5.022	5.020	5.023	5.022	5.023	5.026	5.028	5.038	4.968-5.108	5.023	0.003
37 Benzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.037	4.987-5.087	+++++	+++++
$ 29 Pentafluorobenzene	5.132	5.129	5.133	5.132	5.132	+++++	5.131	5.129	5.079-5.179	5.132	0.001
$ 30 d4-1,2-dichloroethane	+++++	+++++	5.181	5.181	5.151	5.153	+++++	5.147	5.097-5.197	5.166	0.017
$ 31 1,4-Difluorobenzene	5.521	5.519	5.522	5.521	5.522	5.518	5.521	5.518	5.468-5.568	5.521	0.001
3 AK101	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.286	0.000-4.026	+++++	+++++
4 8015GAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.387	0.047-6.727	+++++	+++++
46 8015mod	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.930-1.070	+++++	+++++
38 n-Octane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	6.406	6.356-6.456	+++++	+++++
45 n-Heptane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.157	5.087-5.227	+++++	+++++
$ 32 d8-Toluene	6.495	6.498	6.495	6.495	6.495	6.498	6.494	6.498	6.448-6.548	6.496	0.002
12 Toluene	6.531	6.529	6.532	6.531	6.532	6.528	6.530	6.528	6.478-6.578	6.530	0.001
39 n-Nonane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.544	7.494-7.594	+++++	+++++
$ 33 d5-Chlorobenzene	7.577	7.581	7.578	7.577	7.578	7.581	7.583	7.581	7.531-7.631	7.579	0.002

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190902g.b\GA090219.m
Batch File: \\target\share\chem1\nt2.i\20190902g.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	40 Ethylbenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.610	7.560-7.660	+++++	+++++
	41 m,p-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	7.714	7.664-7.764	+++++	+++++
	42 o-xylene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.018	7.968-8.068	+++++	+++++
	2 WAGAS	+++++	+++++	+++++	+++++	+++++	+++++	+++++	8.491	6.401-10.581	+++++	+++++
$	34 4-Bromofluorobenzene	8.447	8.451	8.448	8.447	8.448	8.451	8.447	8.451	8.401-8.501	8.448	0.002
	17 nC10-Decane	8.545	8.542	8.539	8.539	8.539	8.542	8.544	8.524	8.474-8.574	8.541	0.002
	1 NWTPHG	+++++	+++++	+++++	+++++	+++++	+++++	+++++	11.673	9.143-14.203	+++++	+++++
	20 1,2,4-Trimethylbenzene	9.153	9.126	9.130	9.129	9.129	9.156	9.128	9.156	9.106-9.206	9.136	0.013
$	35 d4-Dichlorobenzene	9.269	9.266	9.269	9.269	9.269	9.266	9.268	9.266	9.216-9.316	9.268	0.001
	43 n-Undecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.399	9.349-9.449	+++++	+++++
$	36 d4-1,2-Dichlorobenzene	9.585	9.588	9.586	9.585	9.585	9.588	9.584	9.582	9.532-9.632	9.586	0.002
	22 nC12-Dodecane	10.236	10.239	10.243	10.205	10.206	10.203	10.241	10.203	10.153-10.253	10.225	0.019
	44 n-Tridecane	+++++	+++++	+++++	+++++	+++++	+++++	+++++	10.950	10.900-11.000	+++++	+++++
	24 Naphthalene	10.978	10.982	10.979	10.978	10.979	10.981	10.977	10.975	10.925-11.025	10.979	0.002

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Batch File: \\target\share\chem1\nt2.i\20190906s.b
Inst ID: nt2.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08
FILENAME:	V209061908G	V209061909G	V209061910G	V209061911G	V209061912G	V209061913G	V209061914G	V209061915G
INJ.DATE:	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019
INJ.TIME:	09:30	09:50	10:10	10:30	10:50	11:11	11:31	11:51

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 Dichlorodifluoromethan	+++++	1.348	1.360	1.349	1.357	1.349	1.348	1.348	1.357	1.254-1.459	1.351	0.005
2 Chloromethane	+++++	1.476	1.476	1.477	1.490	1.495	1.500	1.506	1.490	1.388-1.593	1.488	0.013
3 Vinyl Chloride	+++++	1.555	1.561	1.562	1.570	1.574	1.573	1.573	1.570	1.467-1.672	1.567	0.007
4 Bromomethane	+++++	1.823	1.810	1.818	1.819	1.817	1.810	1.811	1.819	1.716-1.921	1.815	0.005
5 Chloroethane	+++++	1.932	1.944	1.933	1.935	1.933	1.950	1.908	1.935	1.832-2.037	1.933	0.013
6 Trichlorofluoromethane	+++++	2.011	2.011	2.006	2.008	2.006	1.999	1.993	2.008	1.905-2.110	2.005	0.007
7 1,1-Dichloroethene	+++++	2.474	2.479	2.468	2.476	2.474	2.467	2.498	2.476	2.373-2.578	2.477	0.010
8 Carbon Disulfide	+++++	2.504	2.516	2.511	2.512	2.510	2.510	2.504	2.512	2.410-2.615	2.510	0.004
9 112Trichloro122Trifluo	+++++	2.541	2.528	2.529	2.531	2.529	2.528	2.522	2.531	2.428-2.633	2.530	0.006
10 Iodomethane	+++++	2.608	2.607	2.596	2.604	2.602	2.595	2.595	2.604	2.501-2.706	2.601	0.006
11 Bromoethane	+++++	2.729	2.729	2.724	2.731	2.729	2.729	2.723	2.731	2.629-2.834	2.728	0.003
12 Acrolein	2.845	2.845	2.844	2.846	2.847	2.845	2.844	2.845	2.847	2.744-2.950	2.845	0.001
13 Methylene Chloride	3.088	3.088	3.094	3.089	3.090	3.088	3.088	3.082	3.090	2.988-3.193	3.088	0.003
14 Acetone	3.192	3.192	3.191	3.192	3.194	3.192	3.191	3.191	3.194	3.091-3.296	3.192	0.001
15 Trans-1,2-Dichloroethe	+++++	3.259	3.252	3.253	3.255	3.253	3.252	3.246	3.255	3.152-3.357	3.253	0.004
16 n-hexane	3.332	3.344	3.337	3.338	3.340	3.338	3.337	3.331	3.340	3.237-3.442	3.337	0.004
17 Methyl tert butyl ethe	+++++	3.423	3.422	3.417	3.419	3.417	3.416	3.417	3.419	3.316-3.521	3.419	0.003

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Batch File: \\target\share\chem1\nt2.i\20190906s.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 1,1-Dichloroethane	+++++	3.867	3.872	3.868	3.869	3.867	3.866	3.867	3.869	3.766-3.972	3.868	0.002
	19 Acrylonitrile	+++++	3.958	3.945	3.947	3.948	3.946	3.945	3.952	3.948	3.846-4.051	3.949	0.005
	21 Allyl Chloride	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.560	4.457-4.663	+++++	+++++
	20 Vinyl Acetate	+++++	4.147	4.146	4.147	4.149	4.147	4.146	4.147	4.149	4.046-4.251	4.147	0.001
	22 Cis-1,2-Dichloroethene	+++++	4.354	4.353	4.354	4.356	4.354	4.353	4.353	4.356	4.253-4.458	4.354	0.001
	23 2,2-Dichloropropane	+++++	4.439	4.438	4.439	4.441	4.439	4.438	4.439	4.441	4.338-4.543	4.439	0.001
	24 Bromochloromethane	+++++	4.518	4.523	4.519	4.520	4.524	4.523	4.518	4.520	4.417-4.623	4.521	0.003
	25 Chloroform	+++++	4.597	4.596	4.598	4.599	4.597	4.596	4.597	4.599	4.496-4.702	4.597	0.001
	26 Carbon Tetrachloride	+++++	4.676	4.682	4.677	4.678	4.676	4.675	4.676	4.678	4.568-4.788	4.677	0.002
$	27 Dibromofluoromethane	4.743	4.743	4.742	4.744	4.745	4.743	4.742	4.743	4.745	4.643-4.848	4.743	0.001
	28 1,1,1-Trichloroethane	+++++	4.743	4.742	4.738	4.739	4.743	4.736	4.737	4.739	4.636-4.841	4.740	0.003
	30 1,1-Dichloropropene	+++++	4.840	4.840	4.841	4.842	4.840	4.840	4.840	4.842	4.732-4.953	4.840	0.001
	29 2-Butanone	4.877	4.877	4.876	4.878	4.873	4.871	4.870	4.870	4.873	4.770-4.975	4.874	0.003
	31 Benzene	+++++	5.035	5.034	5.036	5.037	5.035	5.034	5.035	5.037	4.927-5.147	5.035	0.001
*	32 Pentafluorobenzene	5.126	5.132	5.132	5.133	5.128	5.132	5.132	5.132	5.128	5.025-5.231	5.131	0.002
$	33 d4-1,2-Dichloroethane	5.151	5.150	5.150	5.151	5.153	5.151	5.150	5.150	5.153	5.050-5.255	5.151	0.001
	35 Methyl Methacrylate	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.693	5.583-5.803	+++++	+++++
	34 1,2-Dichloroethane	+++++	5.205	5.205	5.206	5.201	5.205	5.205	5.205	5.201	5.091-5.312	5.205	0.002
	36 Trichloroethene	+++++	5.485	5.485	5.480	5.481	5.485	5.484	5.485	5.481	5.371-5.591	5.484	0.002
*	37 1,4-Difluorobenzene	5.522	5.522	5.521	5.522	5.518	5.522	5.521	5.521	5.518	5.408-5.628	5.521	0.001
	38 Dibromomethane	+++++	5.795	5.795	5.796	5.791	5.796	5.795	5.795	5.791	5.681-5.902	5.795	0.002
	39 1,2-Dichloropropane	+++++	5.868	5.868	5.869	5.871	5.869	5.868	5.868	5.871	5.760-5.981	5.869	0.001

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Batch File: \\target\share\chem1\nt2.i\20190906s.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	40 Bromodichloromethane	+++++	5.917	5.923	5.918	5.919	5.923	5.922	5.923	5.919	5.809-6.030	5.921	0.003
	173 2-Pentanone	6.160	6.166	6.160	6.161	6.156	6.161	6.160	6.160	6.156	6.046-6.267	6.161	0.003
	42 Cis 1,3-dichloropropen	+++++	6.367	6.367	6.368	6.369	6.367	6.367	6.373	6.369	6.259-6.480	6.368	0.002
$	43 d8-Toluene	6.495	6.495	6.494	6.496	6.497	6.495	6.494	6.495	6.497	6.387-6.608	6.495	0.001
	41 2-Chloroethyl Vinyl Et	+++++	6.337	6.336	6.338	6.339	6.337	6.336	6.337	6.339	6.229-6.450	6.337	0.001
	44 Toluene	+++++	6.531	6.531	6.532	6.534	6.532	6.531	6.531	6.534	6.424-6.644	6.532	0.001
	45 4-Methyl-2-Pentanone	6.811	6.811	6.817	6.812	6.813	6.811	6.817	6.817	6.813	6.703-6.924	6.814	0.003
	46 Tetrachloroethene	+++++	6.793	6.792	6.794	6.795	6.793	6.792	6.793	6.795	6.644-6.947	6.793	0.001
	47 Trans 1,3-Dichloroprop	6.830	6.829	6.829	6.830	6.832	6.830	6.829	6.835	6.832	6.722-6.942	6.831	0.002
	48 1,1,2-Trichloroethane	+++++	6.939	6.938	6.940	6.941	6.939	6.944	6.945	6.941	6.831-7.052	6.941	0.003
	49 Chlorodibromomethane	+++++	7.061	7.060	7.061	7.063	7.061	7.060	7.061	7.063	6.911-7.214	7.061	0.001
	50 1,3-Dichloropropane	+++++	7.128	7.127	7.128	7.130	7.128	7.127	7.134	7.130	6.978-7.281	7.129	0.002
	51 1,2-Dibromoethane	+++++	7.225	7.224	7.226	7.221	7.225	7.224	7.225	7.221	7.111-7.332	7.224	0.002
	52 2-Hexanone	7.395	7.395	7.395	7.396	7.391	7.395	7.395	7.395	7.391	7.240-7.543	7.395	0.001
*	53 d5-Chlorobenzene	7.578	7.578	7.577	7.579	7.580	7.578	7.583	7.584	7.580	7.428-7.732	7.580	0.003
	54 Chlorobenzene	+++++	7.590	7.589	7.591	7.592	7.590	7.595	7.596	7.592	7.441-7.744	7.592	0.003
	55 Ethyl Benzene	7.712	7.608	7.608	7.609	7.610	7.614	7.614	7.614	7.610	7.459-7.762	7.624	0.036
	56 1,1,1,2-Tetrachloroeth	+++++	7.639	7.638	7.639	7.641	7.639	7.638	7.645	7.641	7.489-7.792	7.640	0.002
	57 m,p-xylene	7.712	7.718	7.717	7.712	7.714	7.718	7.717	7.718	7.714	7.562-7.865	7.716	0.003
	58 o-Xylene	+++++	8.016	8.021	8.017	8.018	8.022	8.021	8.022	8.018	7.866-8.170	8.020	0.003
	59 Styrene	+++++	8.058	8.058	8.059	8.061	8.059	8.058	8.064	8.061	7.909-8.212	8.060	0.002
	60 Bromoform	+++++	+++++	8.076	8.077	8.079	8.077	8.082	8.083	8.079	7.893-8.264	8.079	0.003
	61 Isopropyl Benzene	+++++	8.241	8.240	8.242	8.243	8.241	8.240	8.247	8.243	8.058-8.428	8.242	0.002
$	62 4-Bromofluorobenzene	8.448	8.448	8.447	8.449	8.450	8.448	8.447	8.448	8.450	8.298-8.602	8.448	0.001

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Batch File: \\target\share\chem1\nt2.i\20190906s.b
Inst ID: nt2.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	63 Bromobenzene	+++++	8.521	8.526	8.521	8.523	8.521	8.526	8.527	8.523	8.338-8.708	8.524	0.003
	64 N-Propyl Benzene	+++++	8.539	8.538	8.540	8.541	8.539	8.544	8.545	8.541	8.356-8.726	8.541	0.003
	82 Cyclohexanone	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	9.074	8.922-9.226	+++++	+++++
	65 1,1,2,2-Tetrachloroeth	+++++	8.600	8.599	8.601	8.602	8.600	8.599	8.606	8.602	8.417-8.787	8.601	0.002
	66 2-Chloro Toluene	+++++	8.655	8.654	8.655	8.657	8.655	8.654	8.661	8.657	8.471-8.842	8.656	0.002
	67 1,3,5-Trimethyl Benzen	+++++	8.685	8.684	8.686	8.687	8.685	8.684	8.691	8.687	8.502-8.872	8.686	0.002
	68 1,2,3-Trichloropropane	+++++	8.697	8.697	8.698	8.699	8.697	8.697	8.697	8.699	8.514-8.885	8.697	0.001
	69 Trans-1,4-Dichloro 2-B	+++++	8.728	8.733	8.728	8.730	8.728	8.727	8.734	8.730	8.544-8.915	8.730	0.003
	70 4-Chloro Toluene	+++++	8.776	8.776	8.777	8.778	8.776	8.776	8.782	8.778	8.593-8.964	8.777	0.002
	71 T-Butyl Benzene	+++++	8.916	8.916	8.917	8.918	8.916	8.915	8.922	8.918	8.733-9.104	8.917	0.002
	72 1,2,4-Trimethylbenzene	+++++	8.971	8.970	8.972	8.973	8.971	8.970	8.971	8.973	8.788-9.158	8.971	0.001
	73 S-Butyl Benzene	+++++	9.050	9.049	9.051	9.046	9.050	9.049	9.050	9.046	8.861-9.231	9.049	0.002
	74 4-Isopropyl Toluene	+++++	9.153	9.153	9.154	9.156	9.154	9.159	9.159	9.156	8.970-9.341	9.155	0.003
	75 1,3-Dichlorobenzene	+++++	9.208	9.208	9.209	9.210	9.208	9.214	9.214	9.210	9.025-9.396	9.210	0.003
*	76 d4-1,4-Dichlorobenzene	9.263	9.263	9.262	9.264	9.265	9.269	9.268	9.269	9.265	9.080-9.450	9.265	0.003
	77 1,4-Dichlorobenzene	+++++	9.275	9.275	9.276	9.277	9.275	9.281	9.281	9.277	9.092-9.462	9.277	0.003
	78 N-Butyl Benzene	+++++	9.470	9.469	9.471	9.472	9.470	9.469	9.476	9.472	9.286-9.657	9.471	0.002
$	79 d4-1,2-Dichlorobenzene	9.585	9.585	9.585	9.586	9.588	9.586	9.585	9.591	9.588	9.402-9.773	9.586	0.002
	80 1,2-Dichlorobenzene	+++++	9.591	9.591	9.592	9.594	9.592	9.591	9.597	9.594	9.408-9.779	9.593	0.002
	81 1,2-Dibromo 3-Chloropr	+++++	+++++	10.205	10.207	10.202	10.200	10.199	10.206	10.202	10.016-10.387	10.203	0.003
	83 Hexachloro 1,3-Butadie	10.699	10.699	10.698	10.699	10.701	10.699	10.698	10.698	10.701	10.515-10.886	10.699	0.001
	84 1,2,4-Trichlorobenzene	+++++	10.723	10.722	10.724	10.725	10.723	10.722	10.723	10.725	10.540-10.910	10.723	0.001
	85 Naphthalene	+++++	10.978	10.978	10.979	10.981	10.979	10.978	10.978	10.981	10.795-11.166	10.979	0.001

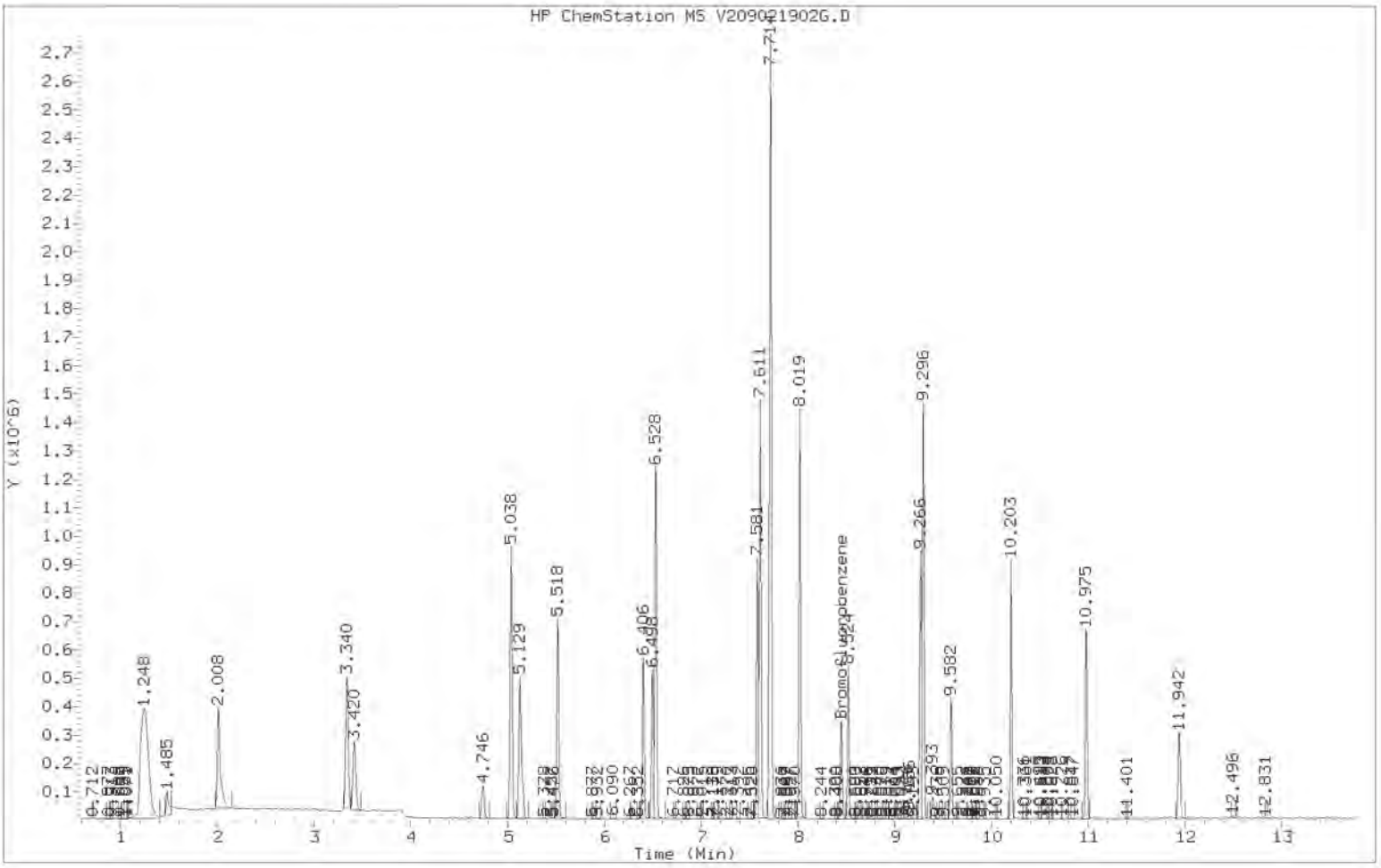
ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

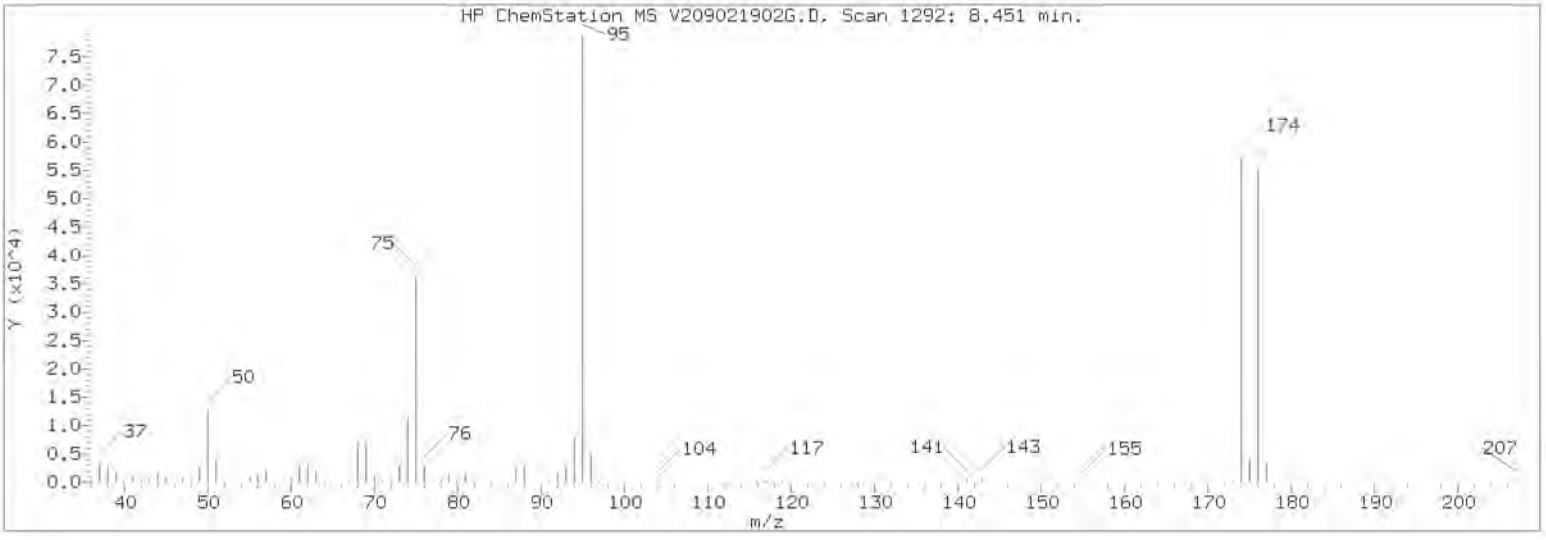
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Batch File: \\target\share\chem1\nt2.i\20190906s.b
Inst ID: nt2.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	EXPEC RT	RT WINDOW	AVG RT	STD DEV
86 1,2,3-Trichlorobenzene	+++++	11.124	11.124	11.119	11.121	11.125	11.124	11.124	11.121	10.935-11.306	11.123	0.002

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190902s.b/V209021902G.D
Method Used: \20190902s.b\bfb8260.m Inst: nt2
Injection Date: 02-SEP-2019 11:29 Operator: PKC
Sample Info: SHI0010-TUN1 SHI0010-TUN1
Report Date: 09/06/2019 14:08





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.85
75	30.00 - 60.00% of mass 95	45.91
96	5.00 - 9.00% of mass 95	6.76
173	Less than 2.00% of mass 174	0.37 (0.52)
174	50.00 - 100.00% of mass 95	70.85
175	5.00 - 9.00% of mass 174	4.96 (7.00)
176	95.00 - 101.00% of mass 174	69.78 (98.49)
177	5.00 - 9.00% of mass 176	4.44 (6.36)

Data File: V209021902G.D
Spectrum: Avg. Scans 1291-1293 (8.45), Background Scan 1285
Location of Maximum: 95.00
Number of points: 67

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	542	56.00	937	77.00	466	112.00	63
37.00	3059	57.00	1400	78.00	305	116.00	143
38.00	2578	60.00	636	79.00	1281	117.00	309
39.00	1127	61.00	2616	80.00	361	118.00	139
40.00	4	62.00	2778	81.00	1102	119.00	301
41.00	28	63.00	2085	82.00	354	128.00	154
42.00	58	64.00	173	87.00	2326	130.00	179
43.00	28	67.00	304	88.00	2493	141.00	491
44.00	339	68.00	6005	91.00	189	143.00	420
45.00	694	69.00	5860	92.00	1742	148.00	78
47.00	838	70.00	556	93.00	2506	155.00	128
48.00	402	71.00	133	94.00	7053	173.00	251
49.00	2516	72.00	367	95.00	67952	174.00	48144
50.00	11453	73.00	2658	96.00	4591	175.00	3372
51.00	3770	74.00	9993	97.00	64	176.00	47416
52.00	150	75.00	31200	104.00	184	177.00	3015
55.00	182	76.00	2645	106.00	248		

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021915G.D

Date : 02-SEP-2019 16:13

Client ID:

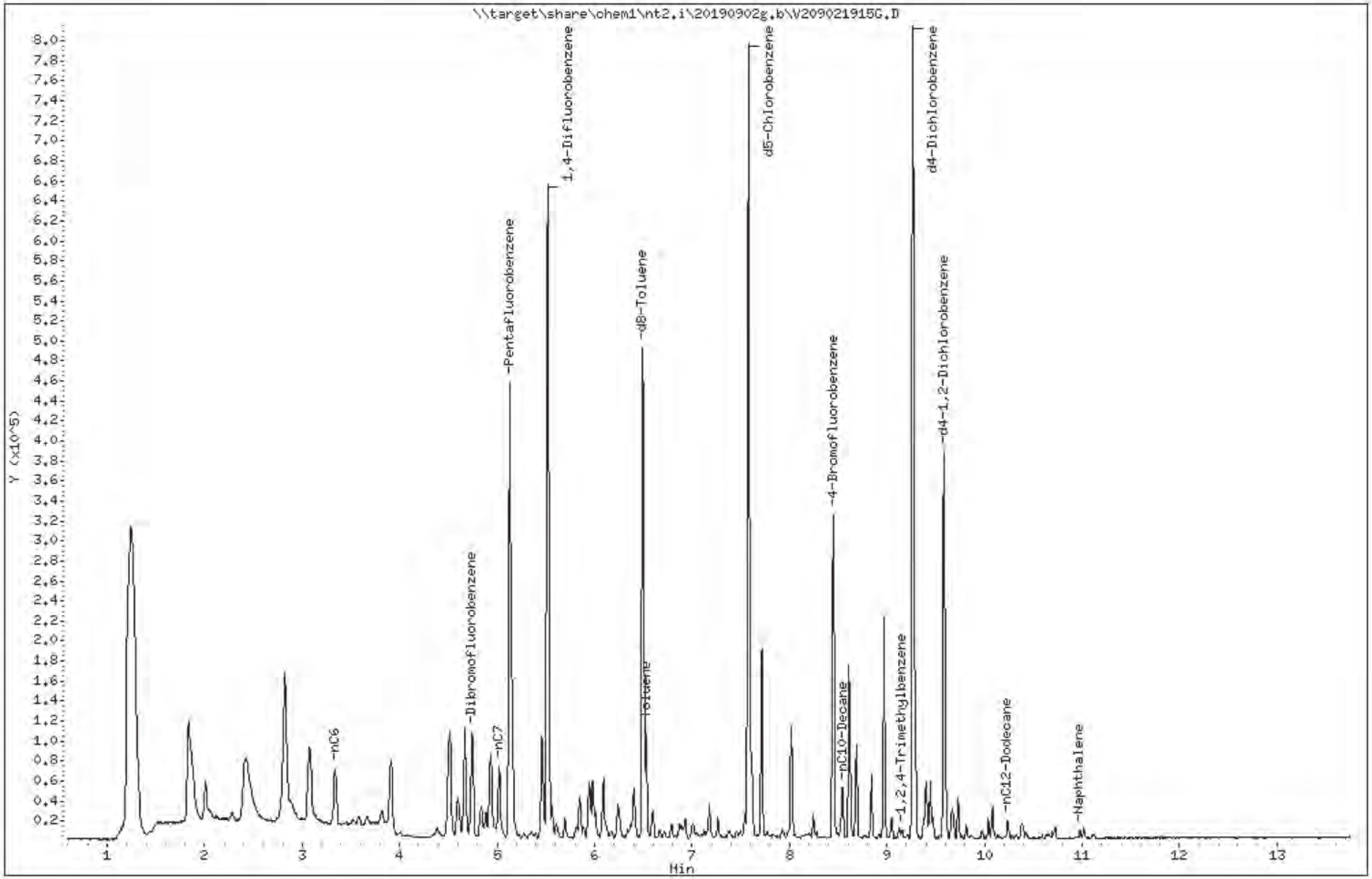
Sample Info: SHI0010-CAL9

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V2090219l5G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 16:13

ARI ID: SHI0010-CAL9
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	2265699	0.091 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	4252694	0.099 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	3219951	0.098 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	2376010	0.091 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	3348175	0.095 M

* Surrogate areas are subtracted from Total Area

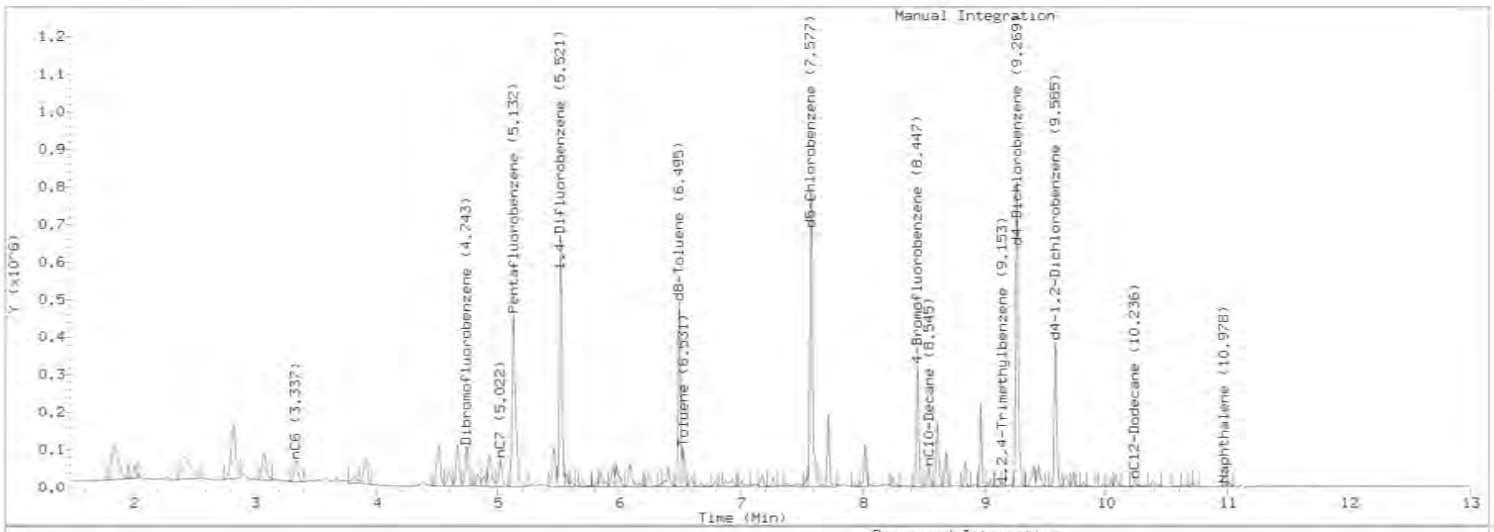
NW Gas Range Subtracted Peaks

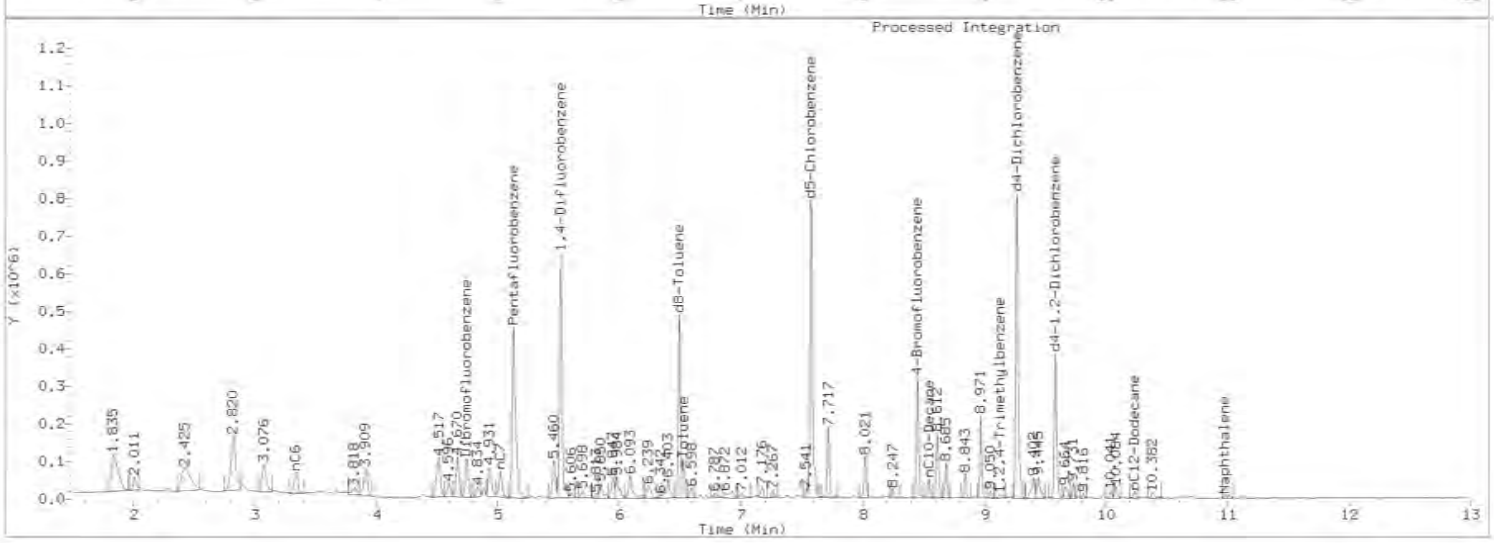
7.577	1188655	d5-Chlorobenzene
8.447	432519	4-Bromofluorobenzene
6.495	678112	d8-Toluene
9.269	1176765	d4-Dichlorobenzene
9.585	530533	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021915G.D Injection: 02-SEP-2019 16:13

Lab ID:SHI0010-CAL9





Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021917G.D

Page 1

Date : 02-SEP-2019 16:54

Client ID:

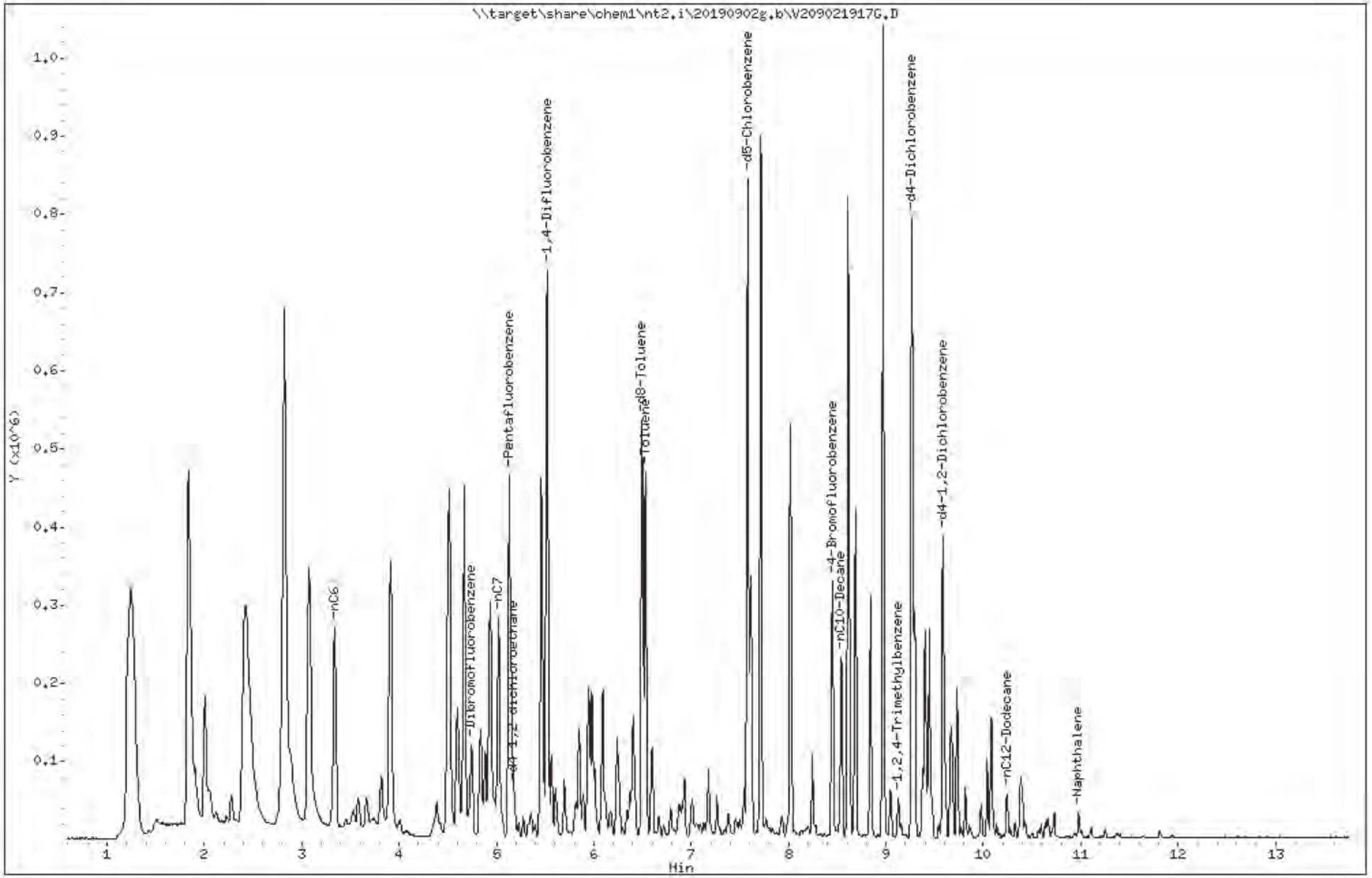
Instrument: nt2.i

Sample Info: SHI0010-CALB

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V2090219l7G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 16:54

ARI ID: SHI0010-CALB
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	10941765	0.438 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	18908782	0.440 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	14124565	0.430 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	11335996	0.434 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	15150677	0.430 M

* Surrogate areas are subtracted from Total Area

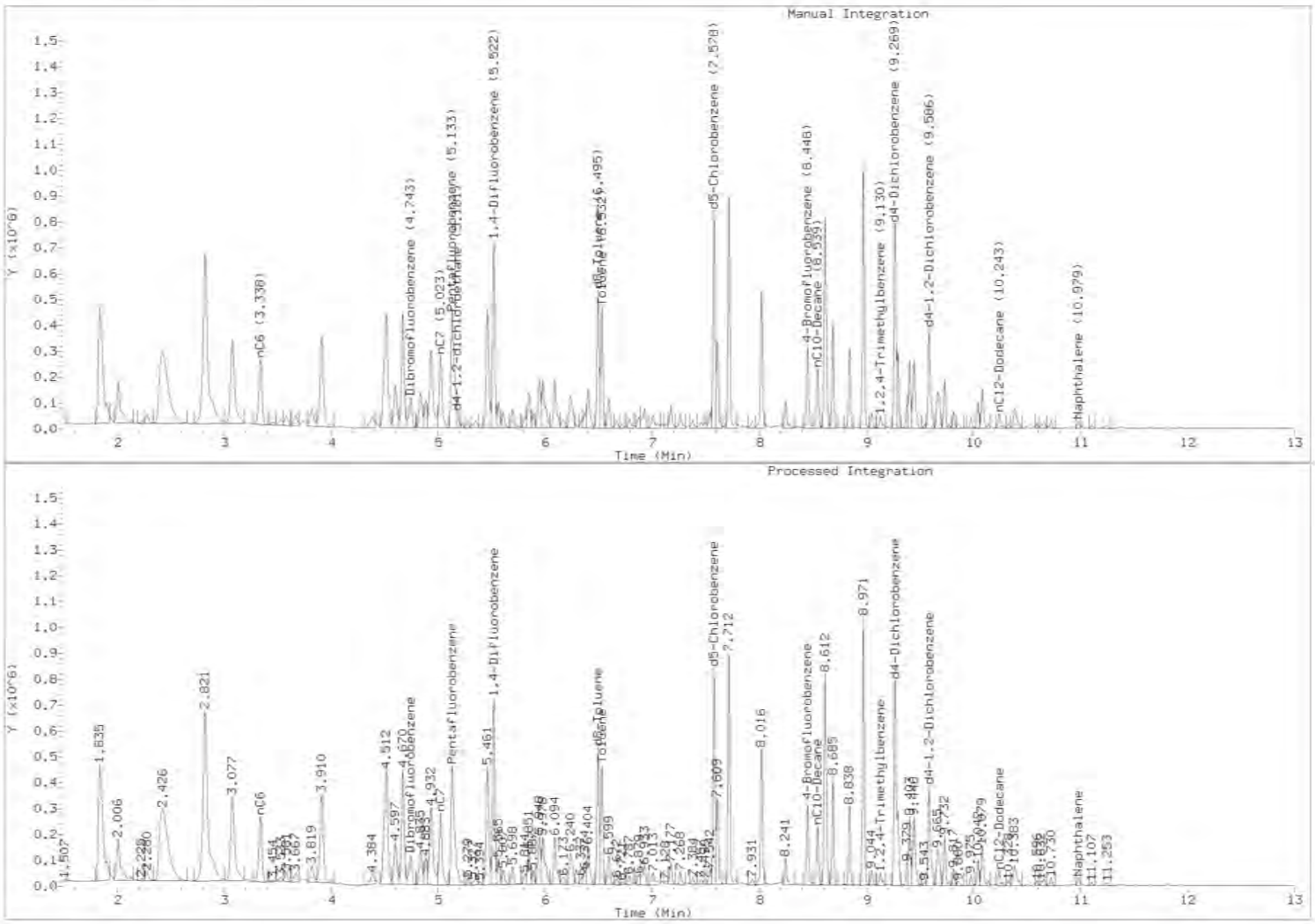
NW Gas Range Subtracted Peaks

7.578	1142335	d5-Chlorobenzene
8.448	443891	4-Bromofluorobenzene
6.495	771155	d8-Toluene
9.269	1190298	d4-Dichlorobenzene
9.586	593891	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021917G.D Injection: 02-SEP-2019 16:54

Lab ID:SHI0010-CALB

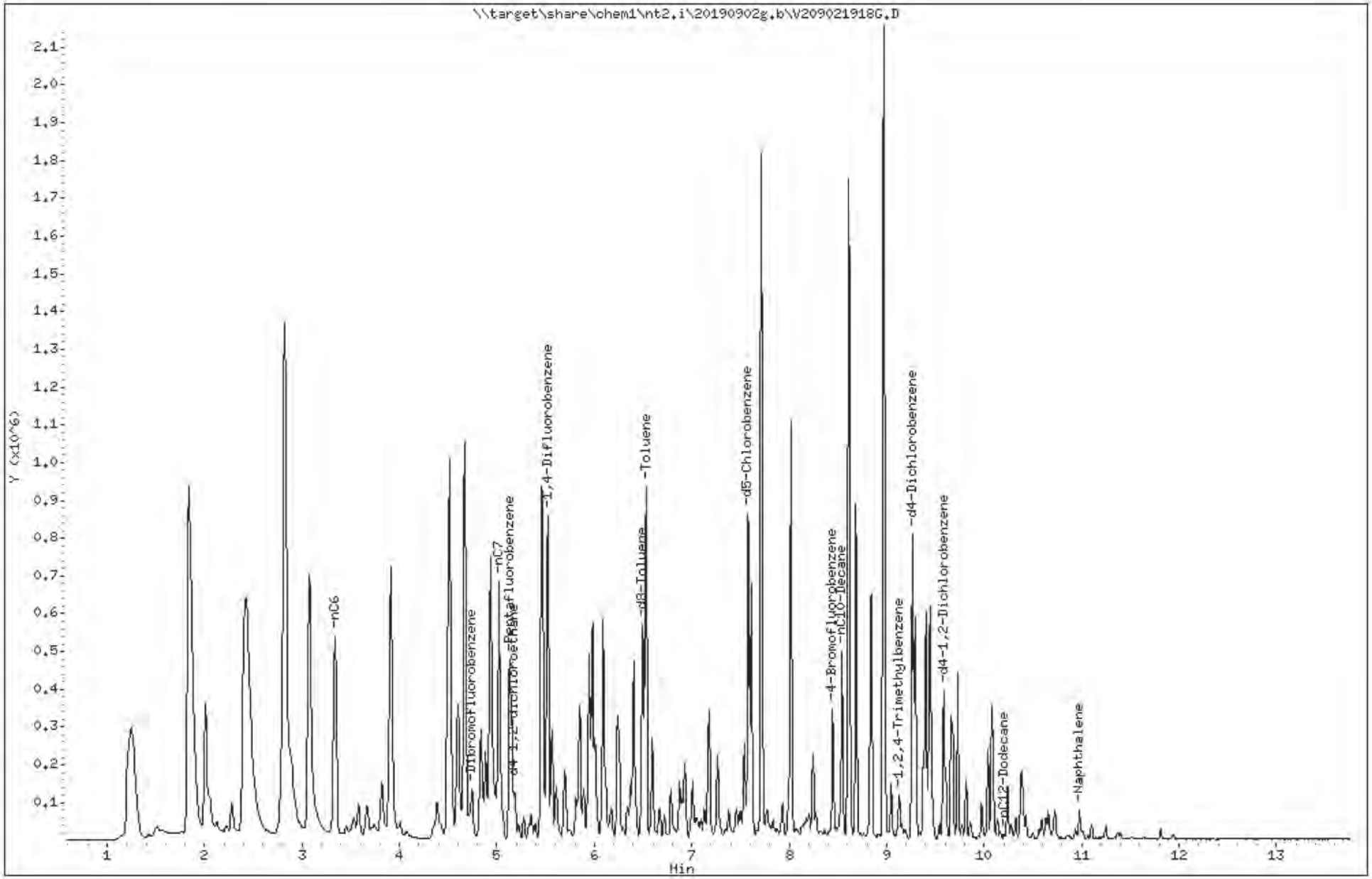


Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021918G.D
Date : 02-SEP-2019 17:14
Client ID:
Sample Info: SHI0010-CALC

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V2090219l8G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:14

ARI ID: SHI0010-CALC
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	26446902	1.059 M
8015C 2MP-TMB	(3.04 to 9.26)	42964079	45202766	1.052 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34638444	1.055 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27646895	1.059 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	37327592	1.058 M

* Surrogate areas are subtracted from Total Area

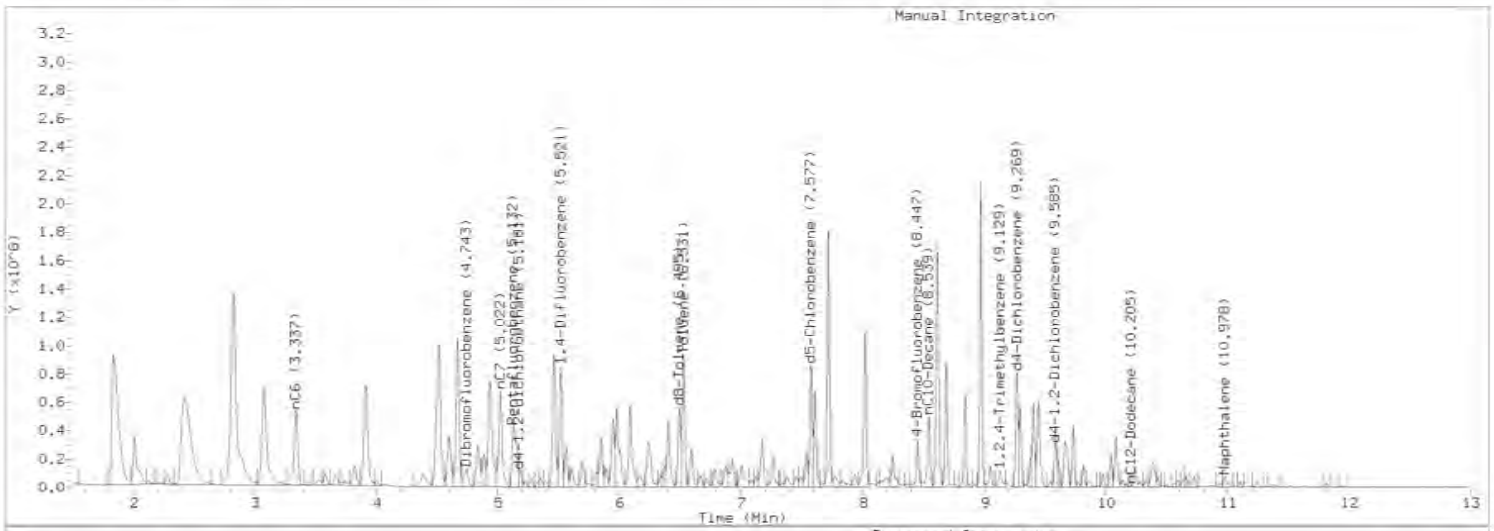
NW Gas Range Subtracted Peaks

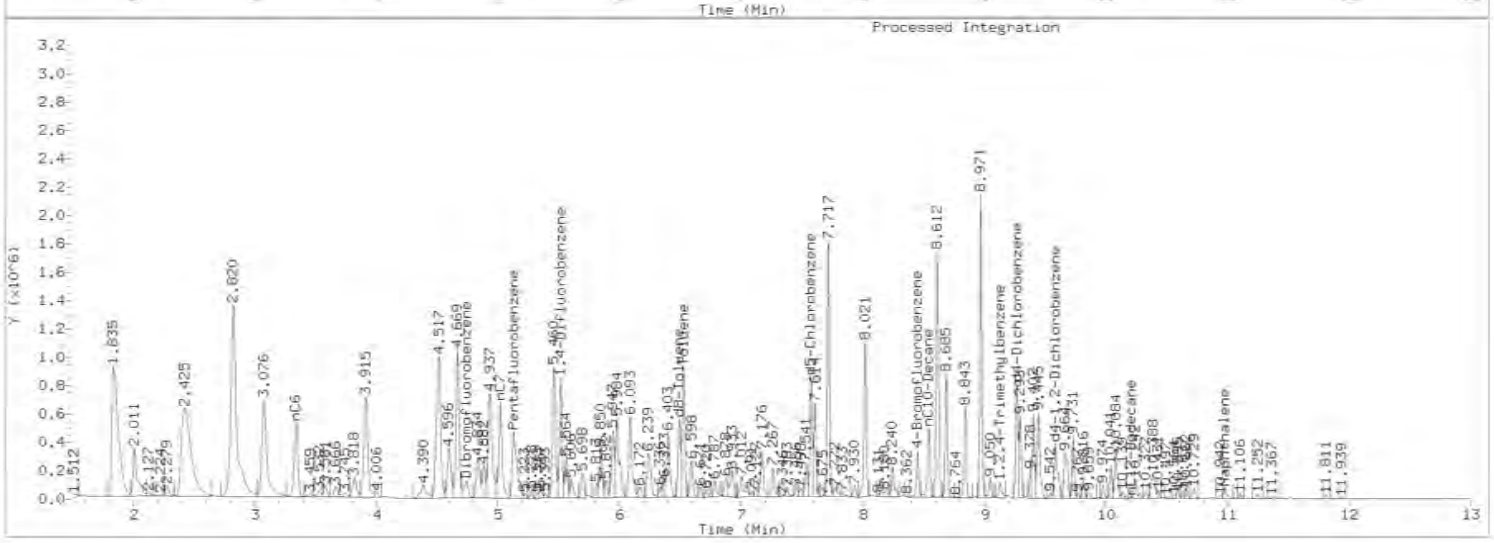
7.577	1221729	d5-Chlorobenzene
8.447	503614	4-Bromofluorobenzene
6.495	928457	d8-Toluene
9.269	1146267	d4-Dichlorobenzene
9.585	580768	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021918G.D Injection: 02-SEP-2019 17:14

Lab ID:SHI0010-CALC





Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021919G.D

Date : 02-SEP-2019 17:34

Client ID:

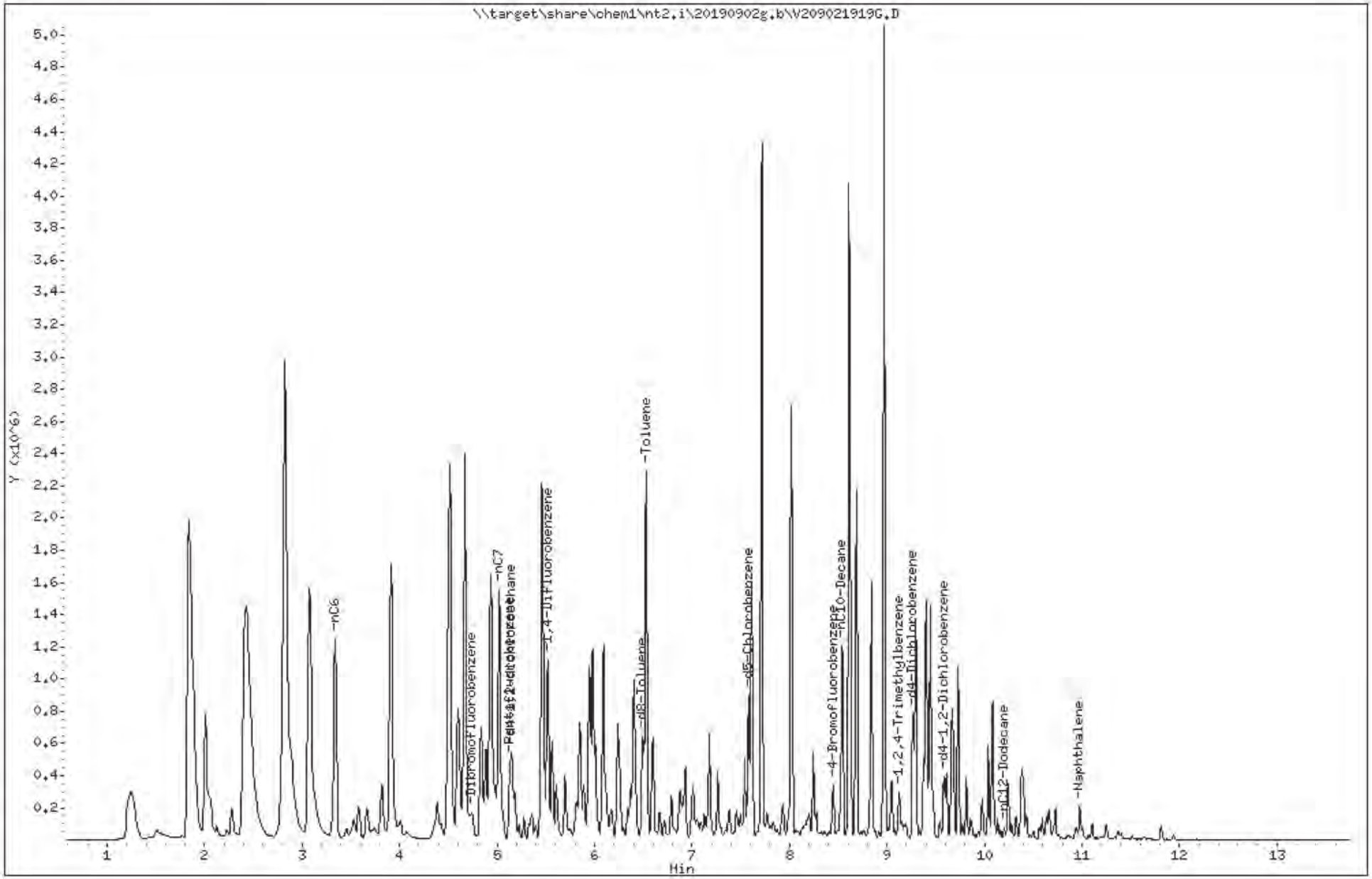
Sample Info: SHI0010-CALD

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V2090219l9G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:34

ARI ID: SHI0010-CALD
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	64265843	2.573
8015C 2MP-TMB	(3.04 to 9.26)	42964079	107503294	2.502 M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	81516301	2.484 M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	67640379	2.590
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	89381954	2.534 M

* Surrogate areas are subtracted from Total Area

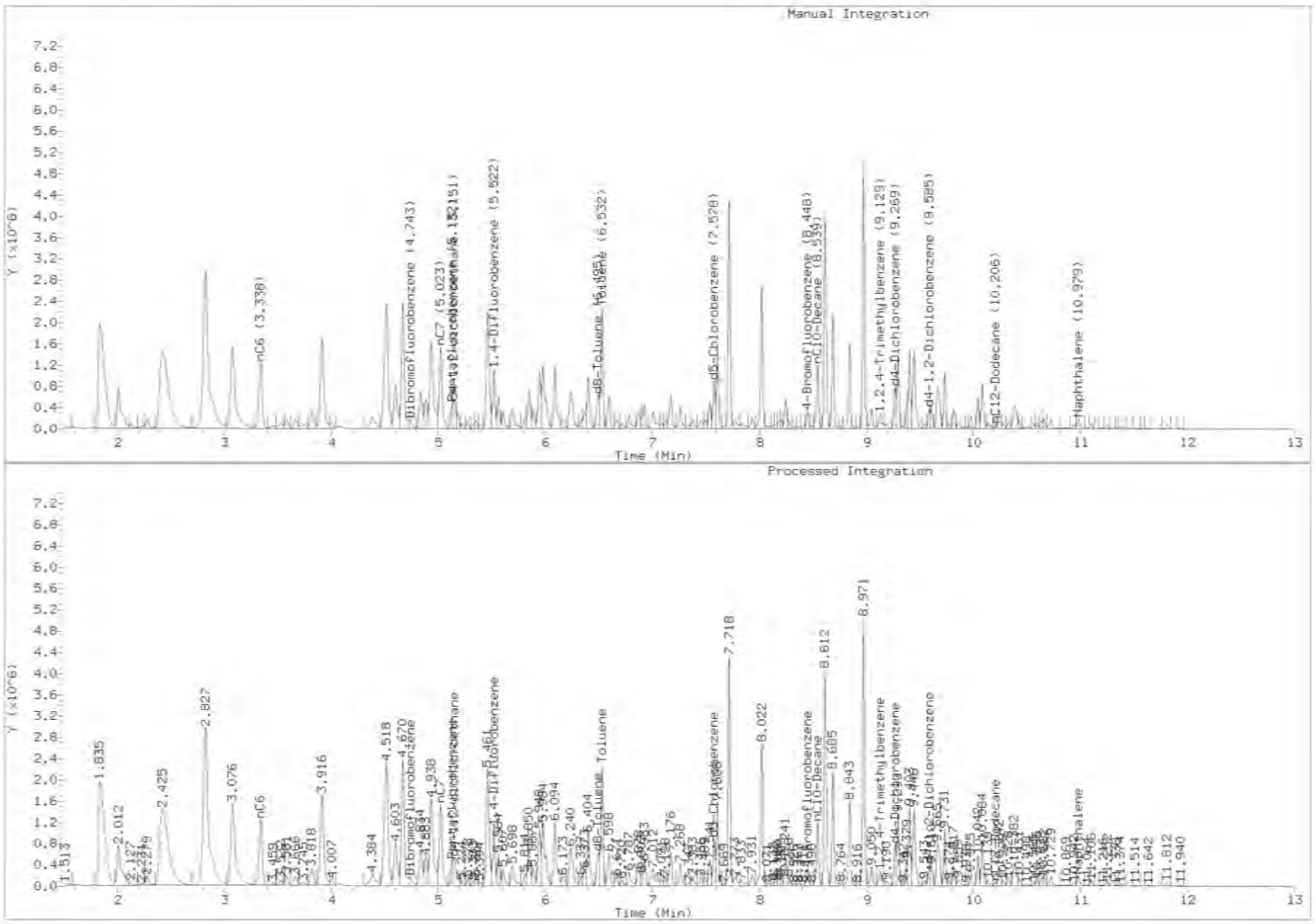
NW Gas Range Subtracted Peaks

7.578	1368812	d5-Chlorobenzene
8.448	480307	4-Bromofluorobenzene
6.495	1060589	d8-Toluene
9.269	997390	d4-Dichlorobenzene
9.585	562756	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021919G.D Injection: 02-SEP-2019 17:34

Lab ID:SHI0010-CALD

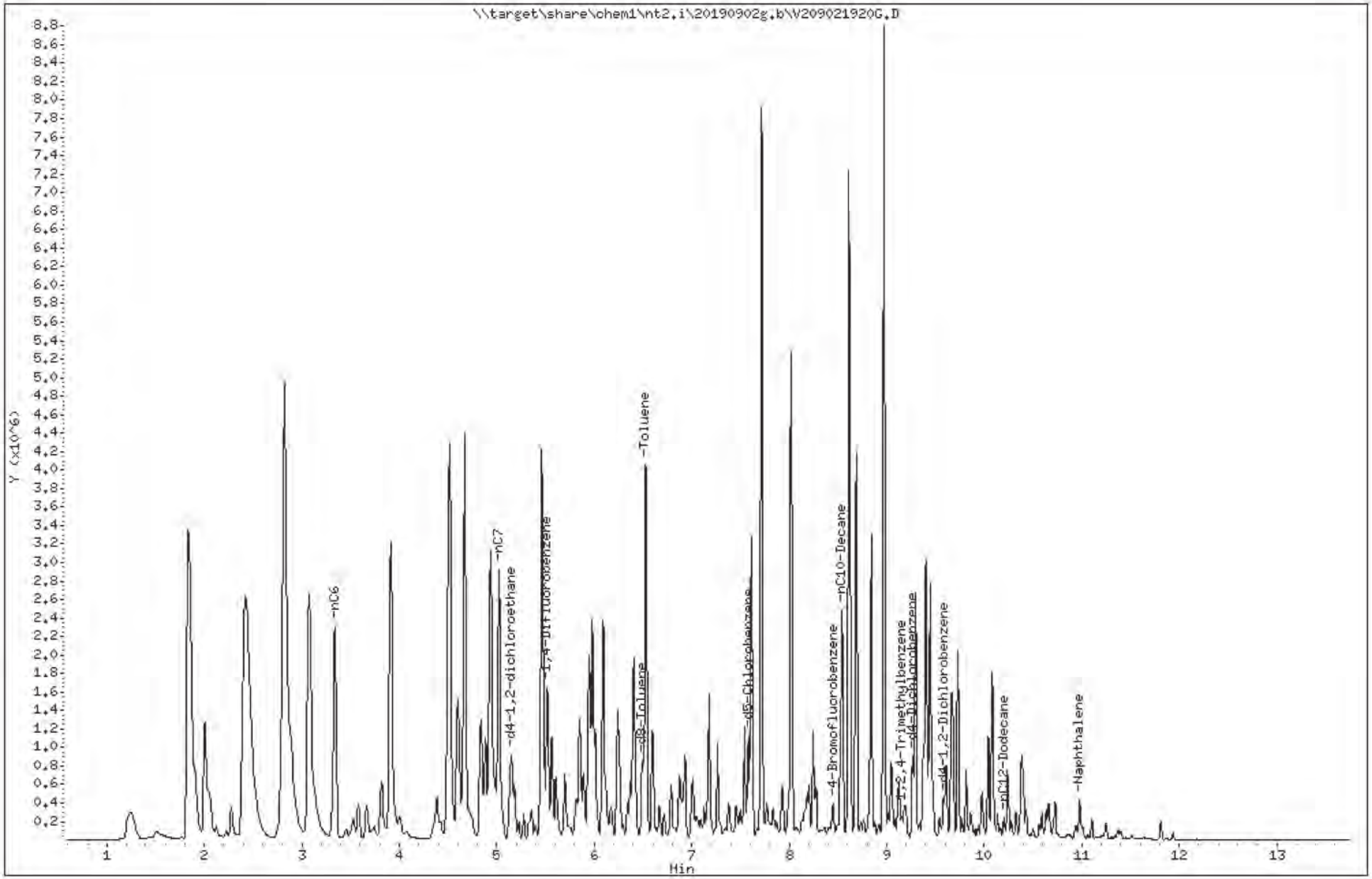


Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021920G.D
Date : 02-SEP-2019 17:54
Client ID:
Sample Info: SHI0010-CALE

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021920G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 17:54

ARI ID: SHI0010-CALE
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	134029418	5.365
8015C 2MP-TMB	(3.04 to 9.26)	42964079	215532269	5.017
AK101 nC6-nC10	(3.24 to 8.42)	32820925	162982530	4.966
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	141341665	5.412 M
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	183703326	5.208

* Surrogate areas are subtracted from Total Area

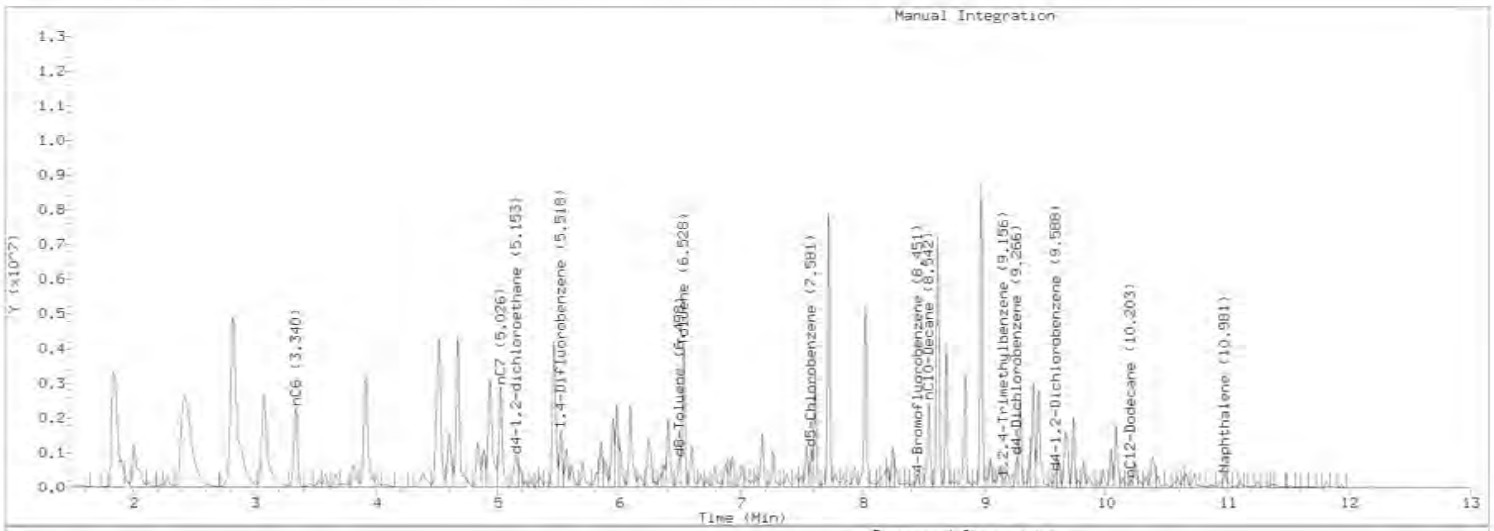
NW Gas Range Subtracted Peaks

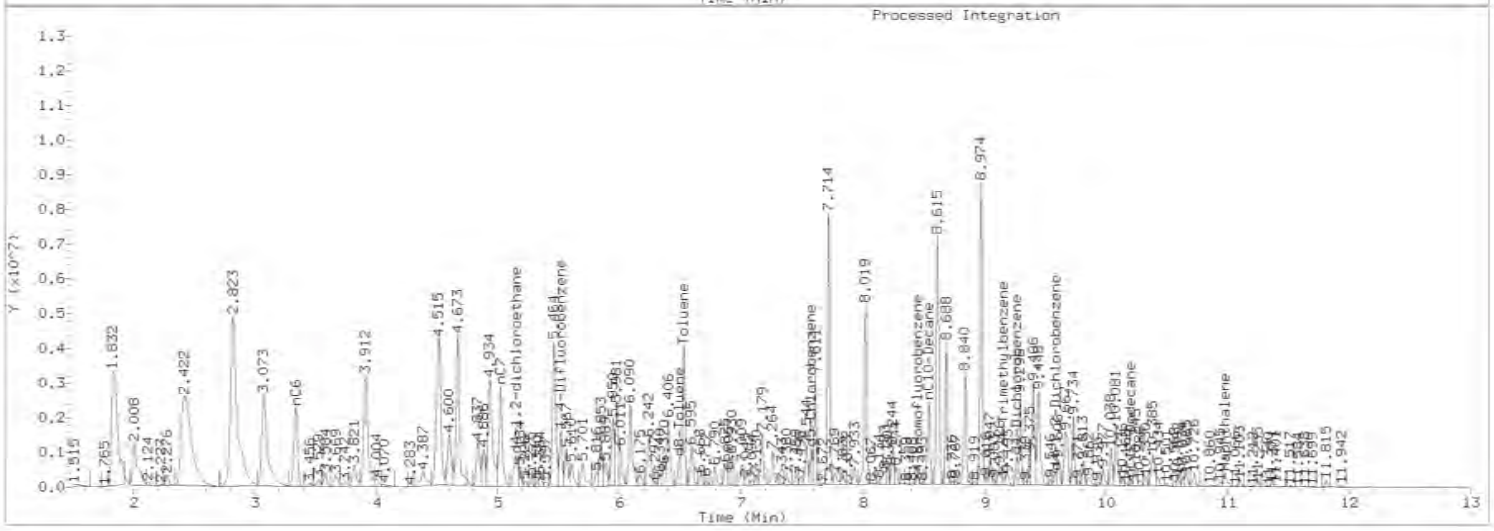
7.581	1605341	d5-Chlorobenzene
8.451	612209	4-Bromofluorobenzene
6.498	1380481	d8-Toluene
9.266	1272807	d4-Dichlorobenzene
9.588	715798	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190902g.b/V209021920G.D Injection: 02-SEP-2019 17:54

Lab ID:SHI0010-CALE



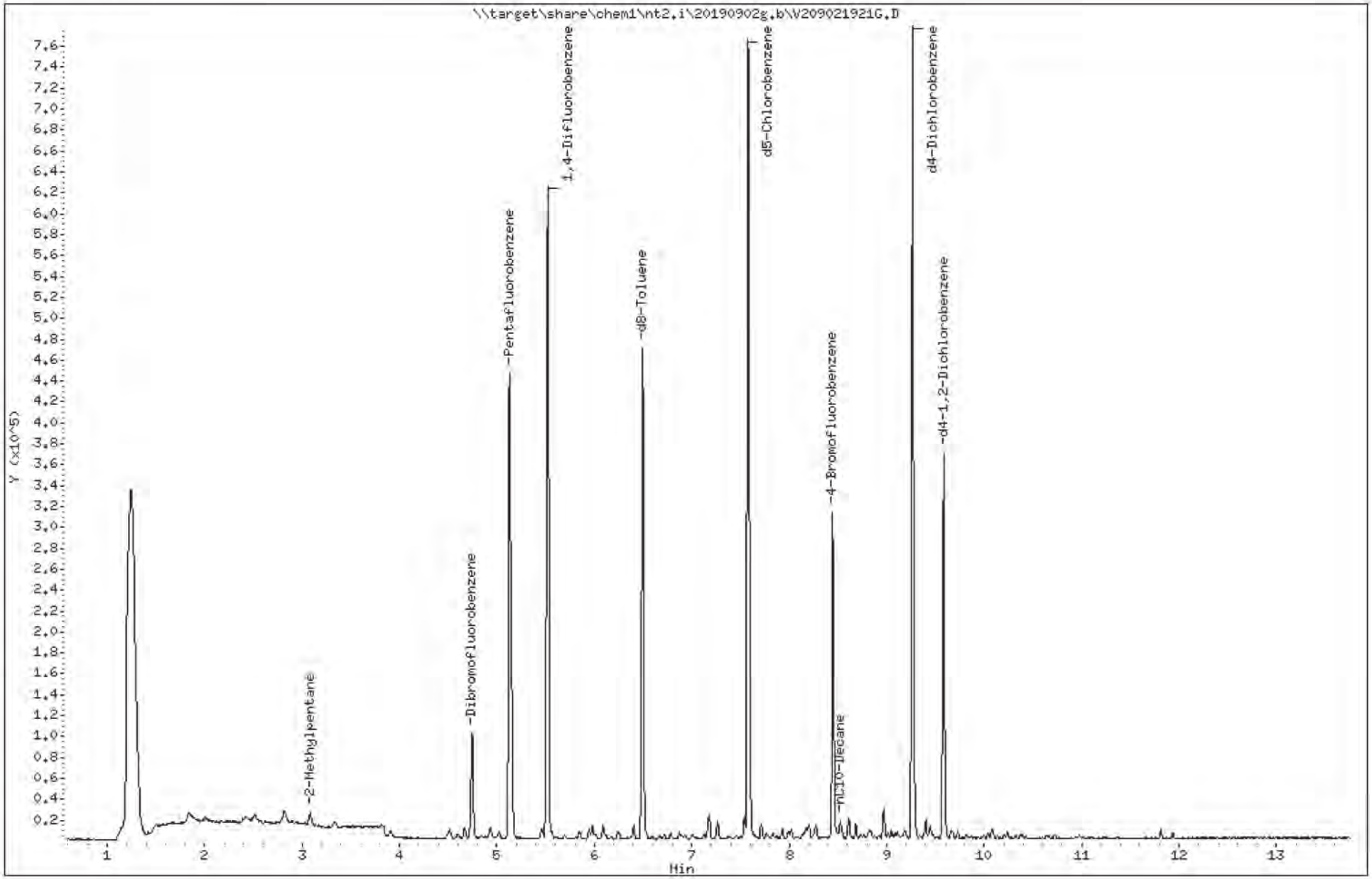


Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021921G.D
Date : 02-SEP-2019 18:15
Client ID:
Sample Info: SHI0010-ICB1

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021921G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 18:15

ARI ID: SHI0010-ICB1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	245591	0.010
8015C 2MP-TMB	(3.04 to 9.26)	42964079	317919	0.007
AK101 nC6-nC10	(3.24 to 8.42)	32820925	183561	0.006
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	245591	0.009
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	299028	0.008

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

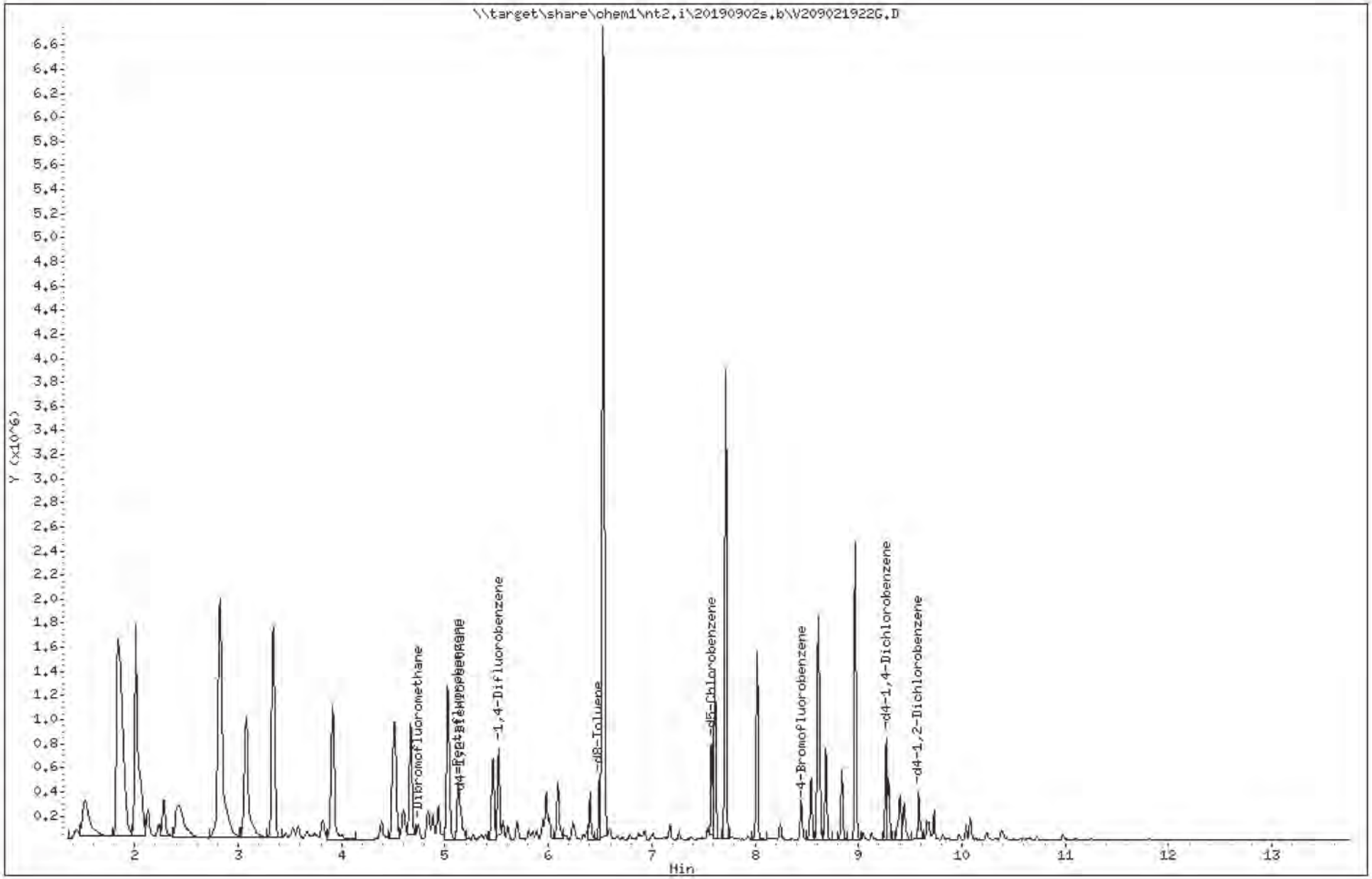
7.577	1055556	d5-Chlorobenzene
8.447	405550	4-Bromofluorobenzene
6.494	617943	d8-Toluene
9.268	1062881	d4-Dichlorobenzene
9.585	489825	d4-1,2-Dichlorobenzene

Data File: \\target\share\chem1\nt2.i\20190902s.b\V209021922G.D
Date : 02-SEP-2019 18:35
Client ID:
Sample Info: SHI0010-SCV1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190902s.b\V209021922G.D
Lab Smp Id: SHI0010-SCV1
Inj Date : 02-SEP-2019 18:35
Operator : PKC Inst ID: nt2.i
Smp Info : SHI0010-SCV1
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Meth Date : 03-Sep-2019 08:55 paul Quant Type: ISTD
Cal Date : 02-SEP-2019 14:52 Cal File: V209021911.D
Als bottle: 33
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.747	4.745	(0.925)	54355	4.80449	4.804
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	223089	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.149	5.153	(1.004)	69014	5.24594	5.246
* 37 1,4-Difluorobenzene	114	5.520	5.518	(1.000)	387877	10.0000	
$ 43 d8-Toluene	98	6.493	6.497	(1.176)	244605	5.03664	5.037
* 53 d5-Chlorobenzene	117	7.582	7.580	(1.000)	355441	10.0000	
$ 62 4-Bromofluorobenzene	174	8.452	8.450	(1.115)	68814	5.17840	5.178
* 76 d4-1,4-Dichlorobenzene	152	9.267	9.265	(1.000)	177454	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	82213	4.97492	4.975

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209021922G.D
Lab Smp Id: SHI0010-SCV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

Calibration Date: 02-SEP-2019
Calibration Time: 13:51
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	233289	116645	466578	223089	-4.37
37 1,4-Difluorobenze	412164	206082	824328	387877	-5.89
53 d5-Chlorobenzene	378243	189122	756486	355441	-6.03
76 d4-1,4-Dichlorobe	186173	93087	372346	177454	-4.68

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.04
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0010-SCV1
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190902s.b\826090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.804	96.09	
$ 33 d4-1,2-Dichloroeth	5.000	5.246	104.92	
$ 43 d8-Toluene	5.000	5.037	100.73	
$ 62 4-Bromofluorobenze	5.000	5.178	103.57	
$ 79 d4-1,2-Dichloroben	5.000	4.975	99.50	

REVIEW SUMMARY FOR FILE - V209021922G.D

Lab ID: SHI0010-SCV1
nt2.i, 20190902s.b\826090219.m, 02-SEP-2019 18:35

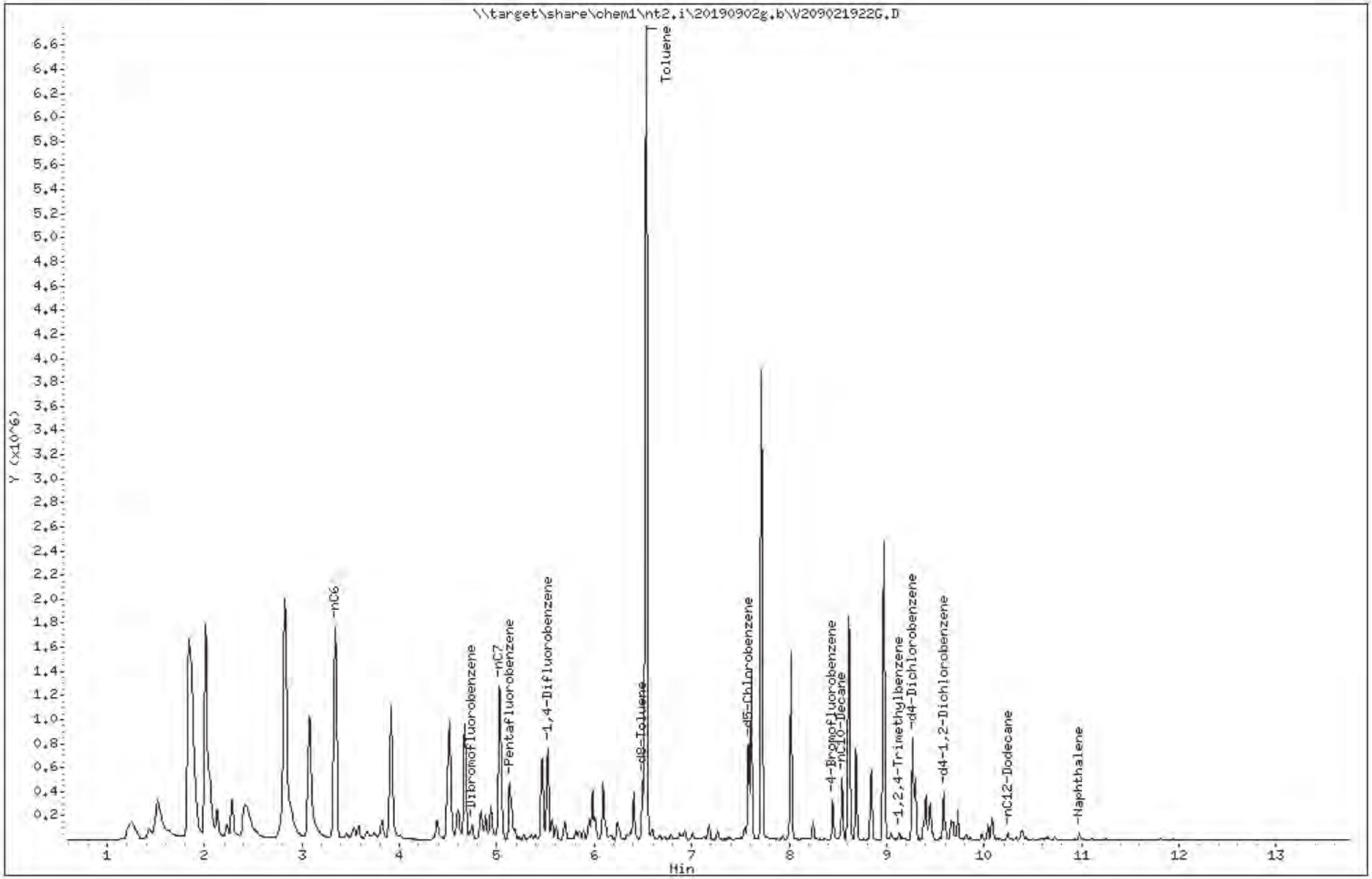
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190902g.b\V209021922G.D
Date : 02-SEP-2019 18:35
Client ID:
Sample Info: SHI0010-SCV1

Column phase: RTXVMS

Instrument: nt2.i

Operator: PKC
Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190902g.b/V209021922G.D
Method: \20190902g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 02-SEP-2019 18:35

ARI ID: SHI0010-SCV1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.43 to 10.30)	24981750	30871659	1.236
8015C 2MP-TMB	(3.04 to 9.26)	42964079	52400117	1.220
AK101 nC6-nC10	(3.24 to 8.42)	32820925	41227217	1.256
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	31213044	1.195
mod8015 nC7-nC12	(4.94 to 10.30)	35270534	38805836	1.100

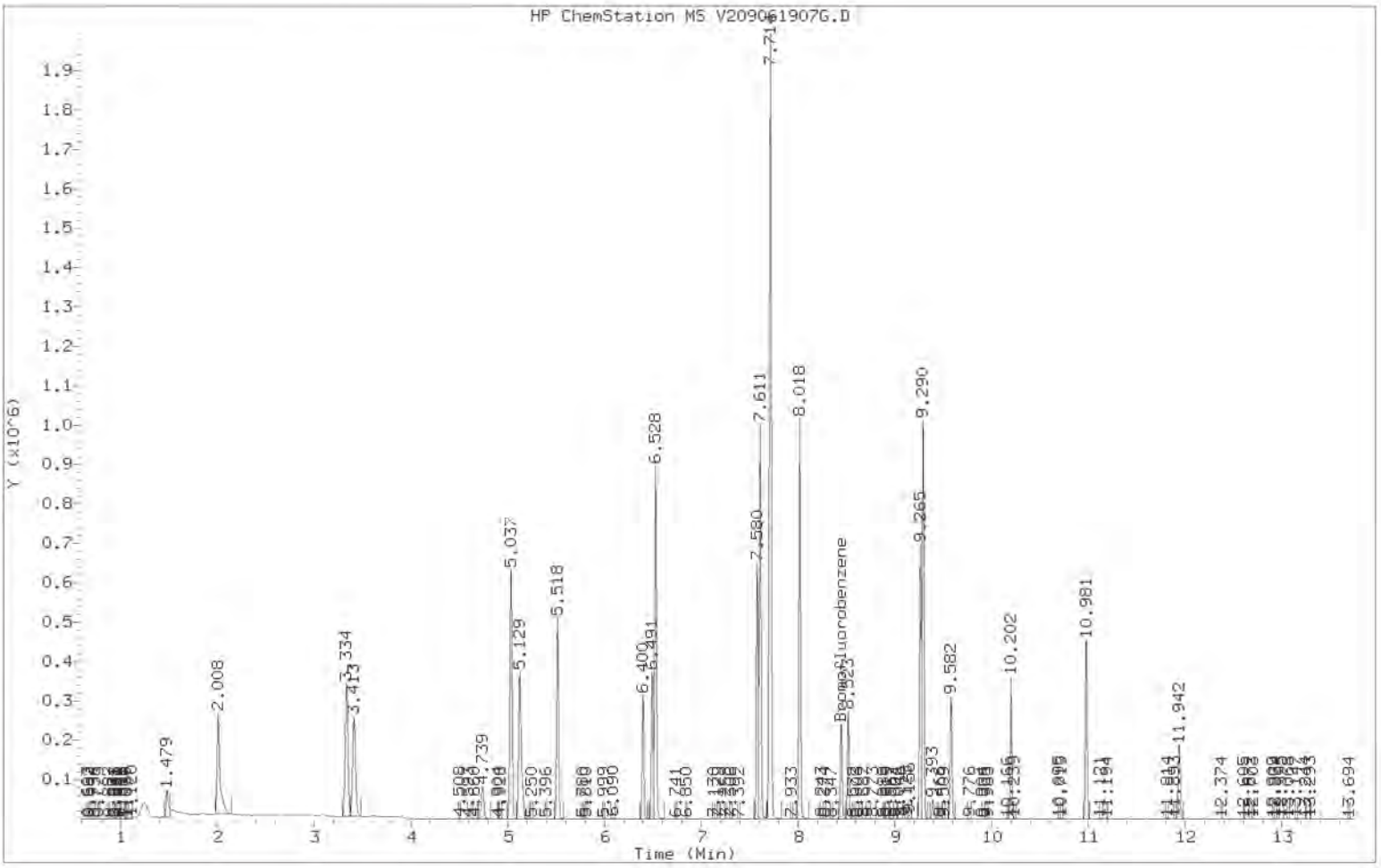
* Surrogate areas are subtracted from Total Area

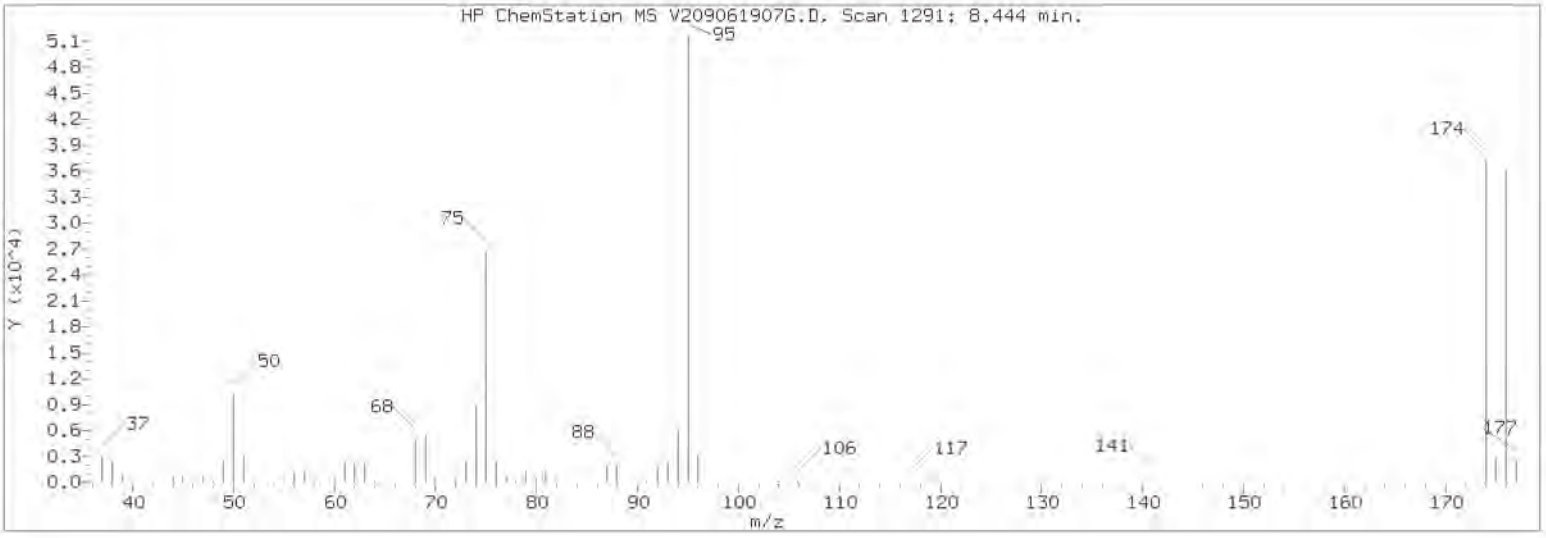
NW Gas Range Subtracted Peaks

7.583	1066893	d5-Chlorobenzene
8.447	425104	4-Bromofluorobenzene
6.494	619751	d8-Toluene
9.268	1049160	d4-Dichlorobenzene
9.584	576871	d4-1,2-Dichlorobenzene

BFB TUNE GRAPHIC REPORT

Datafile Analyzed: /20190906s.b/V209061907G.D
Method Used: \20190906s.b\bfb8260.m Inst: nt2
Injection Date: 06-SEP-2019 08:57 Operator: LH
Sample Info: SHI0083-TUN1 SHI0083-TUN1
Report Date: 09/06/2019 12:40





m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.29
75	30.00 - 60.00% of mass 95	51.50
96	5.00 - 9.00% of mass 95	6.72
173	Less than 2.00% of mass 174	0.36 (0.50)
174	50.00 - 100.00% of mass 95	72.58
175	5.00 - 9.00% of mass 174	5.23 (7.20)
176	95.00 - 101.00% of mass 174	70.15 (96.65)
177	5.00 - 9.00% of mass 176	4.86 (6.93)

Data File: V209061907G.D
Spectrum: Avg. Scans 1290-1292 (8.44), Background Scan 1285
Location of Maximum: 95.00
Number of points: 55

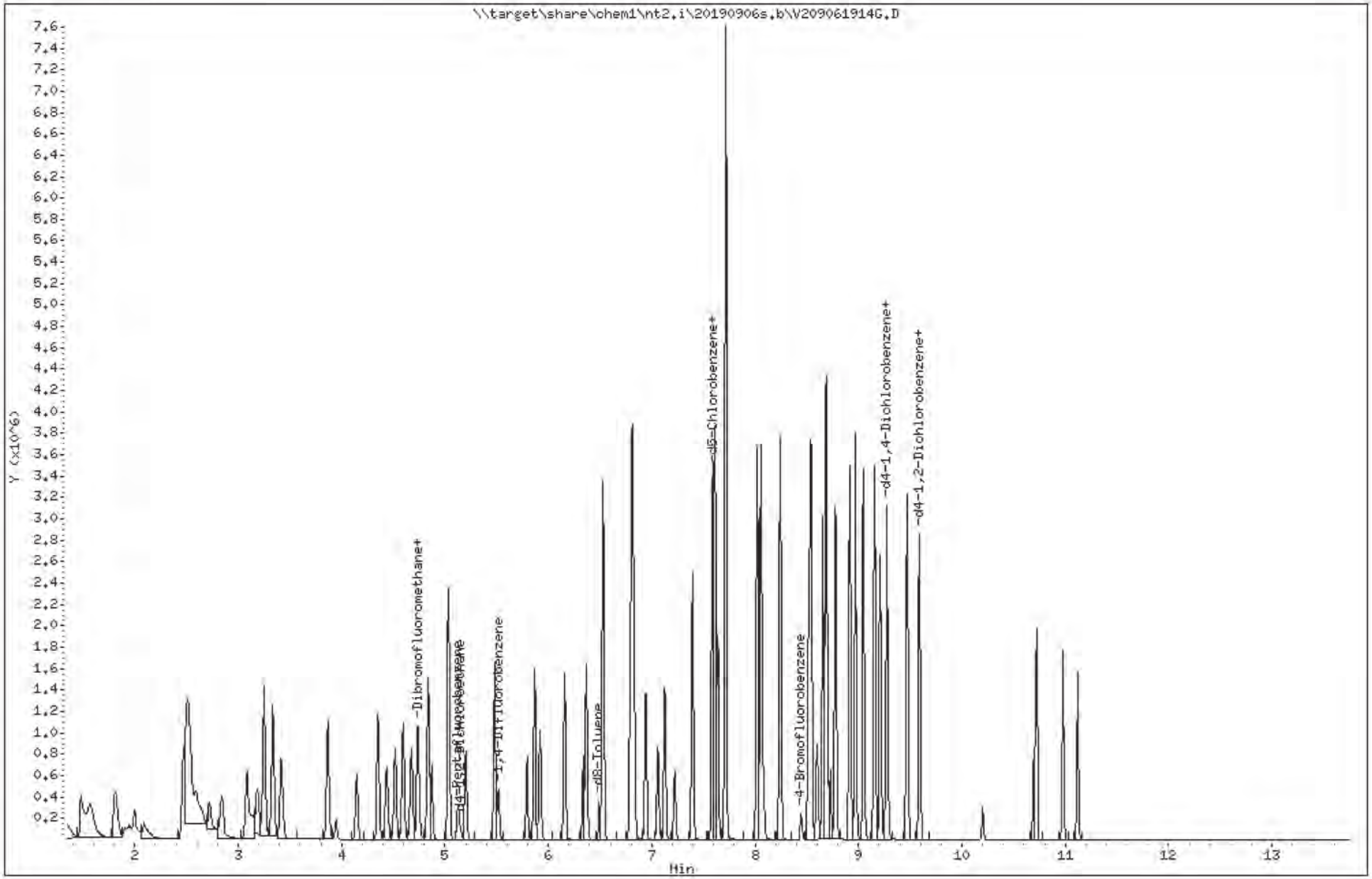
m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	399	57.00	1285	76.00	2050	96.00	2981
37.00	2503	60.00	418	77.00	286	104.00	148
38.00	2166	61.00	2119	78.00	142	106.00	81
39.00	883	62.00	2095	79.00	1231	117.00	250
41.00	60	63.00	1721	80.00	327	118.00	61
44.00	268	64.00	68	81.00	1281	119.00	137
45.00	469	67.00	69	82.00	255	141.00	411
47.00	533	68.00	4437	87.00	1553	143.00	341
48.00	288	69.00	4683	88.00	1657	173.00	160
49.00	1982	70.00	466	91.00	66	174.00	32192
50.00	9001	72.00	237	92.00	1333	175.00	2319
51.00	2750	73.00	2142	93.00	1840	176.00	31112
55.00	159	74.00	7747	94.00	5152	177.00	2157
56.00	830	75.00	22840	95.00	44352		

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061914G.D
Date : 06-SEP-2019 11:31
Client ID:
Sample Info: SHI0083-CAL7

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061914G.D
Lab Smp Id: SHI0083-CAL7
Inj Date : 06-SEP-2019 11:31
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL7
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 41
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.745	(0.924)	44014	5.28795	5.288
* 32 Pentafluorobenzene	168	5.131	5.128	(1.000)	168127	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.149	5.153	(1.004)	48183	5.02016	5.020
* 37 1,4-Difluorobenzene	114	5.520	5.518	(1.000)	286924	10.0000	
$ 43 d8-Toluene	98	6.494	6.497	(1.176)	175205	5.01806	5.018
* 53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	281361	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.449	(1.114)	50935	4.91429	4.914
* 76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	143196	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.034)	66912	5.05919	5.059

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061914G.D
Lab Smp Id: SHI0083-CAL7
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	168127	1.21
37 1,4-Difluorobenze	280906	140453	561812	286924	2.14
53 d5-Chlorobenzene	262007	131004	524014	281361	7.39
76 d4-1,4-Dichlorobe	136773	68387	273546	143196	4.70

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.06
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL7
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.288	105.76	
$ 33 d4-1,2-Dichloroeth	5.000	5.020	100.40	
$ 43 d8-Toluene	5.000	5.018	100.36	
$ 62 4-Bromofluorobenze	5.000	4.914	98.29	
$ 79 d4-1,2-Dichloroben	5.000	5.059	101.18	

REVIEW SUMMARY FOR FILE - V209061914G.D

Lab ID: SHI0083-CAL7
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 11:31

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061915G.D

Page 1

Date : 06-SEP-2019 11:51

Client ID:

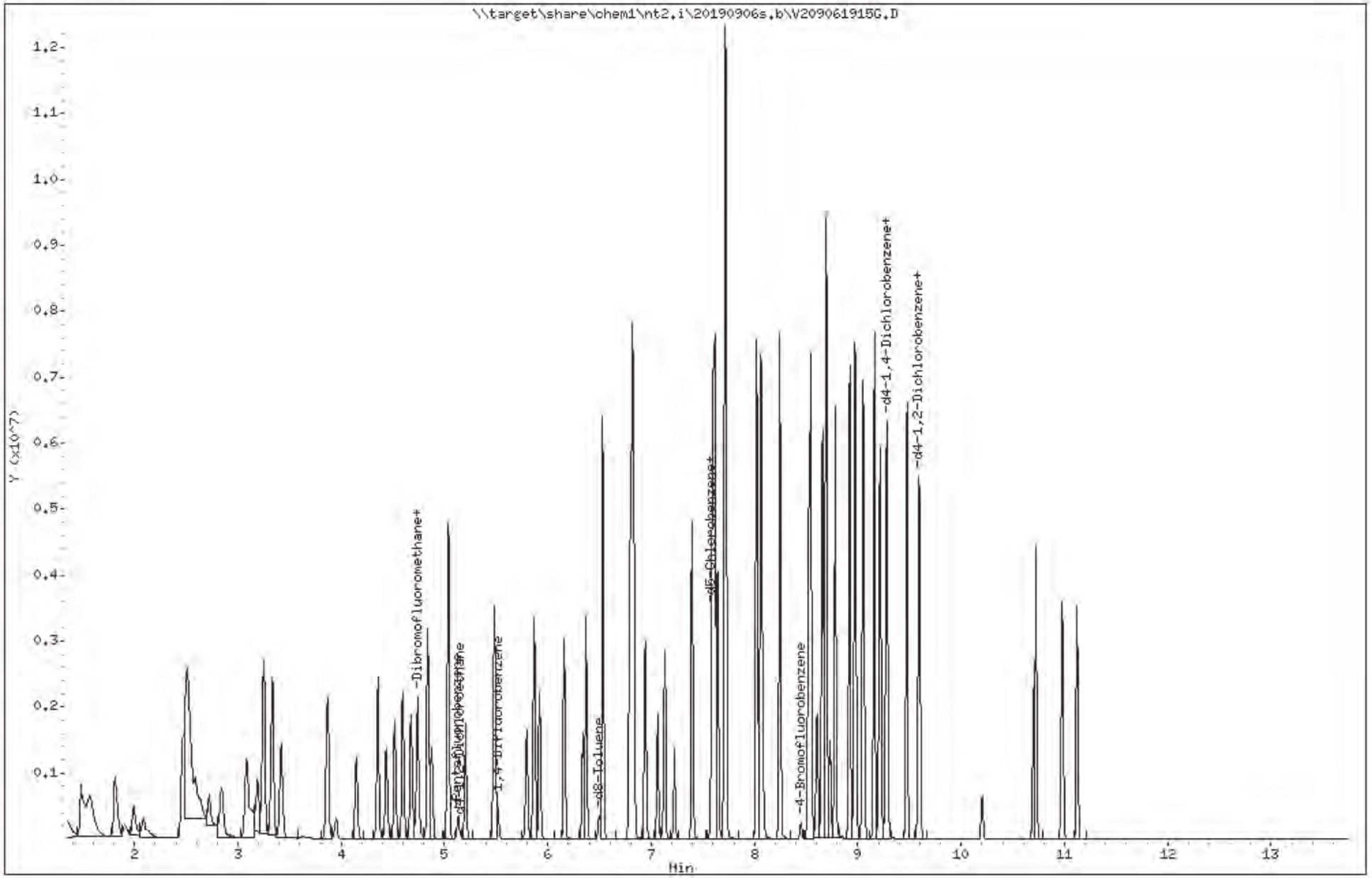
Instrument: nt2.i

Sample Info: SHI0083-CAL8

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061915G.D
Lab Smp Id: SHI0083-CAL8
Inj Date : 06-SEP-2019 11:51
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL8
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)	
$	27 Dibromofluoromethane	111	4.742	4.745	(1.000)	45864	5.40515	5.405	
*	32 Pentafluorobenzene	168	5.132	5.128	(1.000)	171395	10.0000		(M)
$	33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.000)	48746	4.98198	4.982	
*	37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	288881	10.0000		
$	43 d8-Toluene	98	6.494	6.497	(1.176)	178578	5.08001	5.080	
*	53 d5-Chlorobenzene	117	7.583	7.580	(1.000)	301029	10.0000		
$	62 4-Bromofluorobenzene	174	8.447	8.449	(1.114)	50579	4.56110	4.561	
*	76 d4-1,4-Dichlorobenzene	152	9.268	9.265	(1.000)	152533	10.0000		
$	79 d4-1,2-Dichlorobenzene	152	9.591	9.588	(1.035)	69989	4.96791	4.968	

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061915G.D
Lab Smp Id: SHI0083-CAL8
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	171395	3.17
37 1,4-Difluorobenze	280906	140453	561812	288881	2.84
53 d5-Chlorobenzene	262007	131004	524014	301029	14.89
76 d4-1,4-Dichlorobe	136773	68387	273546	152533	11.52

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.05
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL8
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.405	108.10	
$ 33 d4-1,2-Dichloroeth	5.000	4.982	99.64	
$ 43 d8-Toluene	5.000	5.080	101.60	
$ 62 4-Bromofluorobenze	5.000	4.561	91.22	
$ 79 d4-1,2-Dichloroben	5.000	4.968	99.36	

REVIEW SUMMARY FOR FILE - V209061915G.D

Lab ID: SHI0083-CAL8
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 11:51

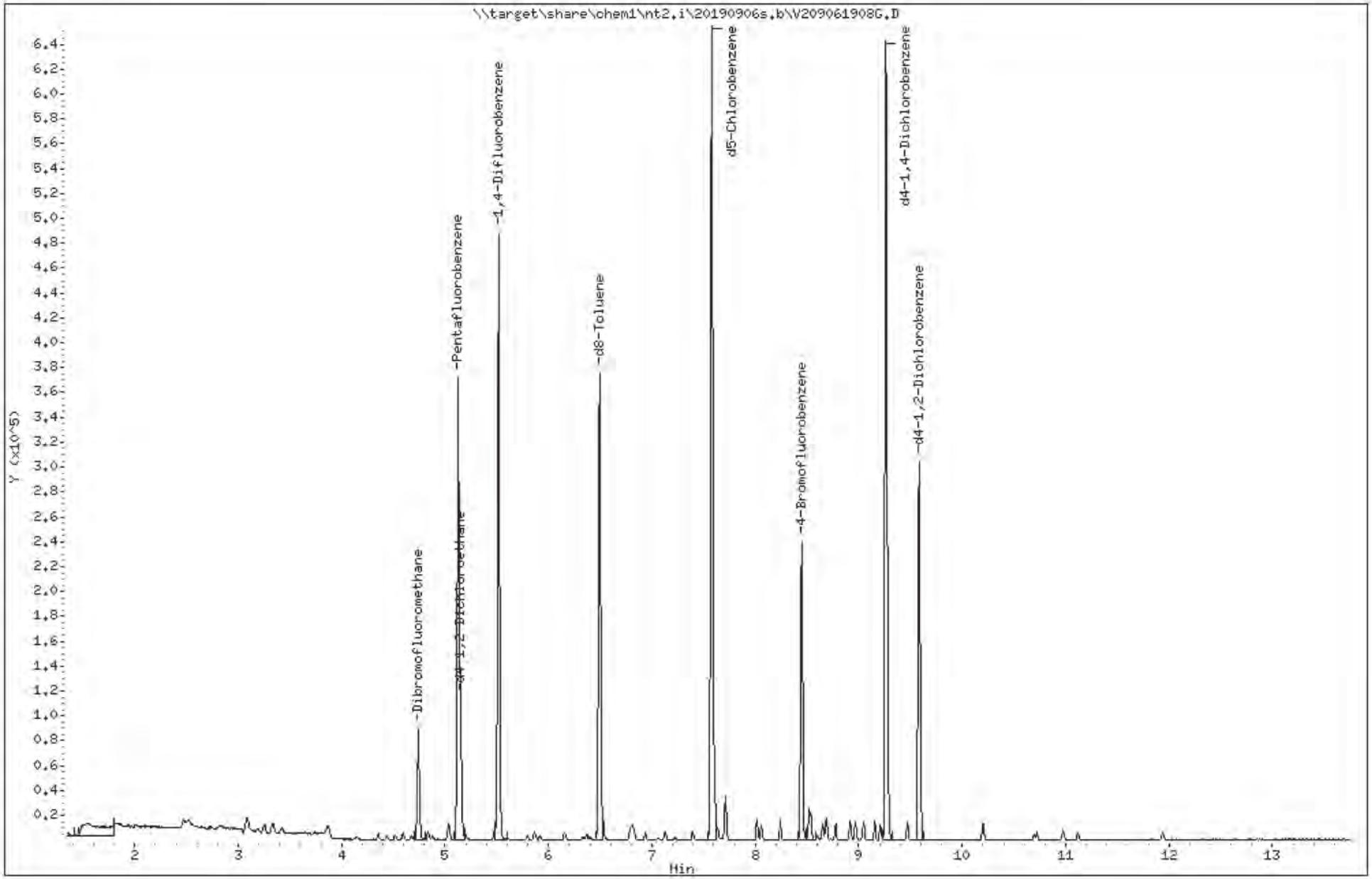
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061908G.D
Date : 06-SEP-2019 09:30
Client ID:
Sample Info: SHI0083-CAL1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061908G.D
Lab Smp Id: SHI0083-CAL1
Inj Date : 06-SEP-2019 09:30
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	4.742	4.745	(0.925)	43048	4.74261	4.743
*	32 Pentafluorobenzene	168	5.126	5.128	(1.000)	183345	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.005)	52211	4.98831	4.988
*	37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	311793	10.0000	
$	43 d8-Toluene	98	6.495	6.497	(1.176)	187760	4.94872	4.949
*	53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	284550	10.0000	
$	62 4-Bromofluorobenzene	174	8.447	8.449	(1.115)	51248	4.88907	4.889
*	76 d4-1,4-Dichlorobenzene	152	9.263	9.265	(1.000)	139029	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.035)	63771	4.96621	4.966

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061908G.D
Lab Smp Id: SHI0083-CAL1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	183345	10.37
37 1,4-Difluorobenze	280906	140453	561812	311793	11.00
53 d5-Chlorobenzene	262007	131004	524014	284550	8.60
76 d4-1,4-Dichlorobe	136773	68387	273546	139029	1.65

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.04
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.26	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.743	94.85	
$ 33 d4-1,2-Dichloroeth	5.000	4.988	99.77	
$ 43 d8-Toluene	5.000	4.949	98.97	
$ 62 4-Bromofluorobenze	5.000	4.889	97.78	
$ 79 d4-1,2-Dichloroben	5.000	4.966	99.32	

REVIEW SUMMARY FOR FILE - V209061908G.D

Lab ID: SHI0083-CAL1
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 09:30

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061909G.D

Page 1

Date : 06-SEP-2019 09:50

Client ID:

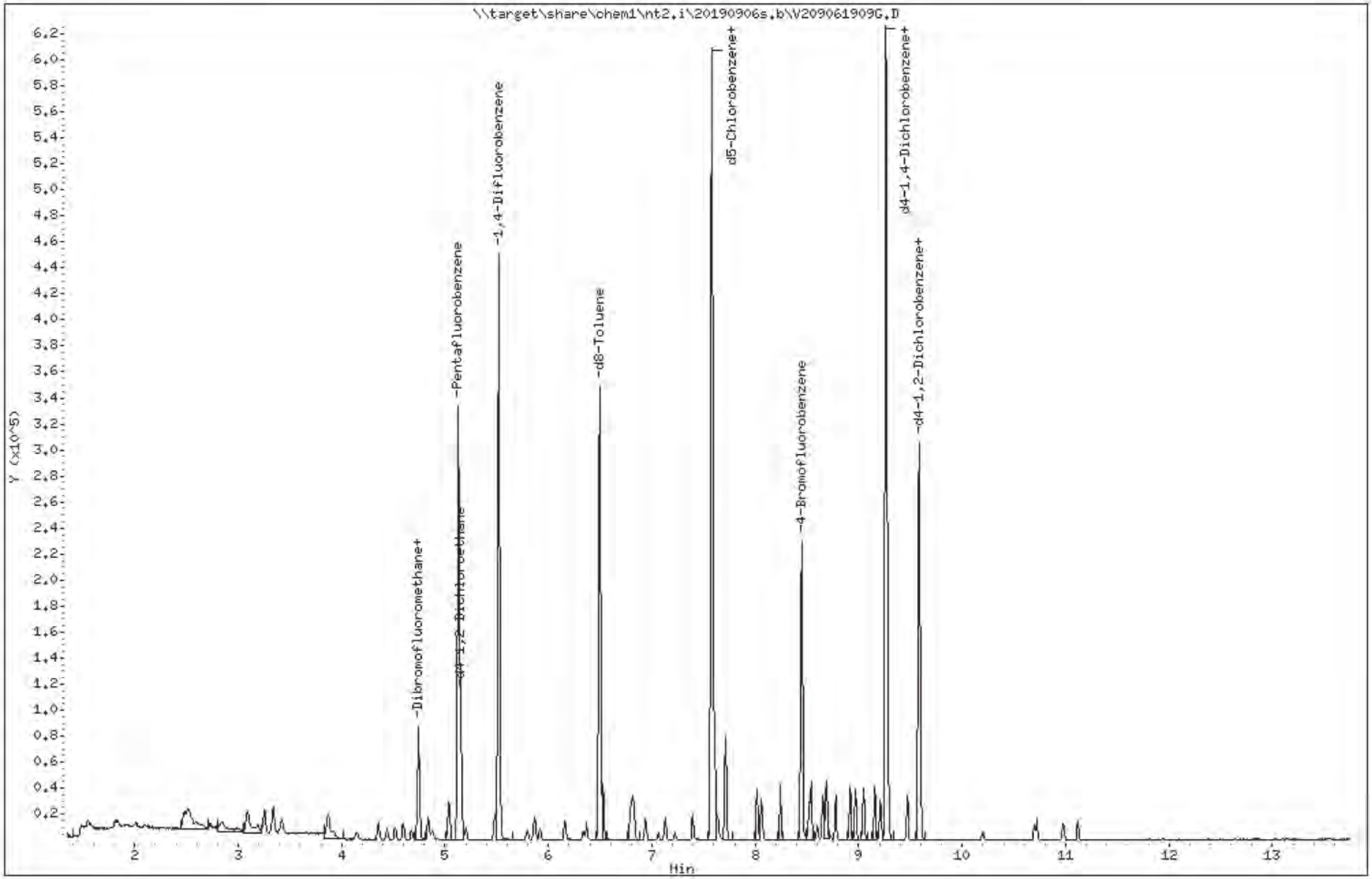
Instrument: nt2.i

Sample Info: SHI0083-CAL2

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061909G.D
Lab Smp Id: SHI0083-CAL2
Inj Date : 06-SEP-2019 09:50
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL2
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 36
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	4.742	4.745	(0.924)	39653	4.74439	4.744
*	32 Pentafluorobenzene	168	5.132	5.128	(1.000)	168822	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	47853	4.96525	4.965
*	37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	284506	10.0000	
$	43 d8-Toluene	98	6.494	6.497	(1.176)	169932	4.90840	4.908
*	53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	257421	10.0000	
$	62 4-Bromofluorobenzene	174	8.447	8.449	(1.115)	48935	5.16040	5.160
*	76 d4-1,4-Dichlorobenzene	152	9.262	9.265	(1.000)	130827	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.035)	59800	4.94893	4.949

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061909G.D
Lab Smp Id: SHI0083-CAL2
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	168822	1.63
37 1,4-Difluorobenze	280906	140453	561812	284506	1.28
53 d5-Chlorobenzene	262007	131004	524014	257421	-1.75
76 d4-1,4-Dichlorobe	136773	68387	273546	130827	-4.35

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.08
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.26	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL2
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.744	94.89	
$ 33 d4-1,2-Dichloroeth	5.000	4.965	99.30	
$ 43 d8-Toluene	5.000	4.908	98.17	
$ 62 4-Bromofluorobenze	5.000	5.160	103.21	
$ 79 d4-1,2-Dichloroben	5.000	4.949	98.98	

REVIEW SUMMARY FOR FILE - V209061909G.D

Lab ID: SHI0083-CAL2
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 09:50

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061910G.D

Page 1

Date : 06-SEP-2019 10:10

Client ID:

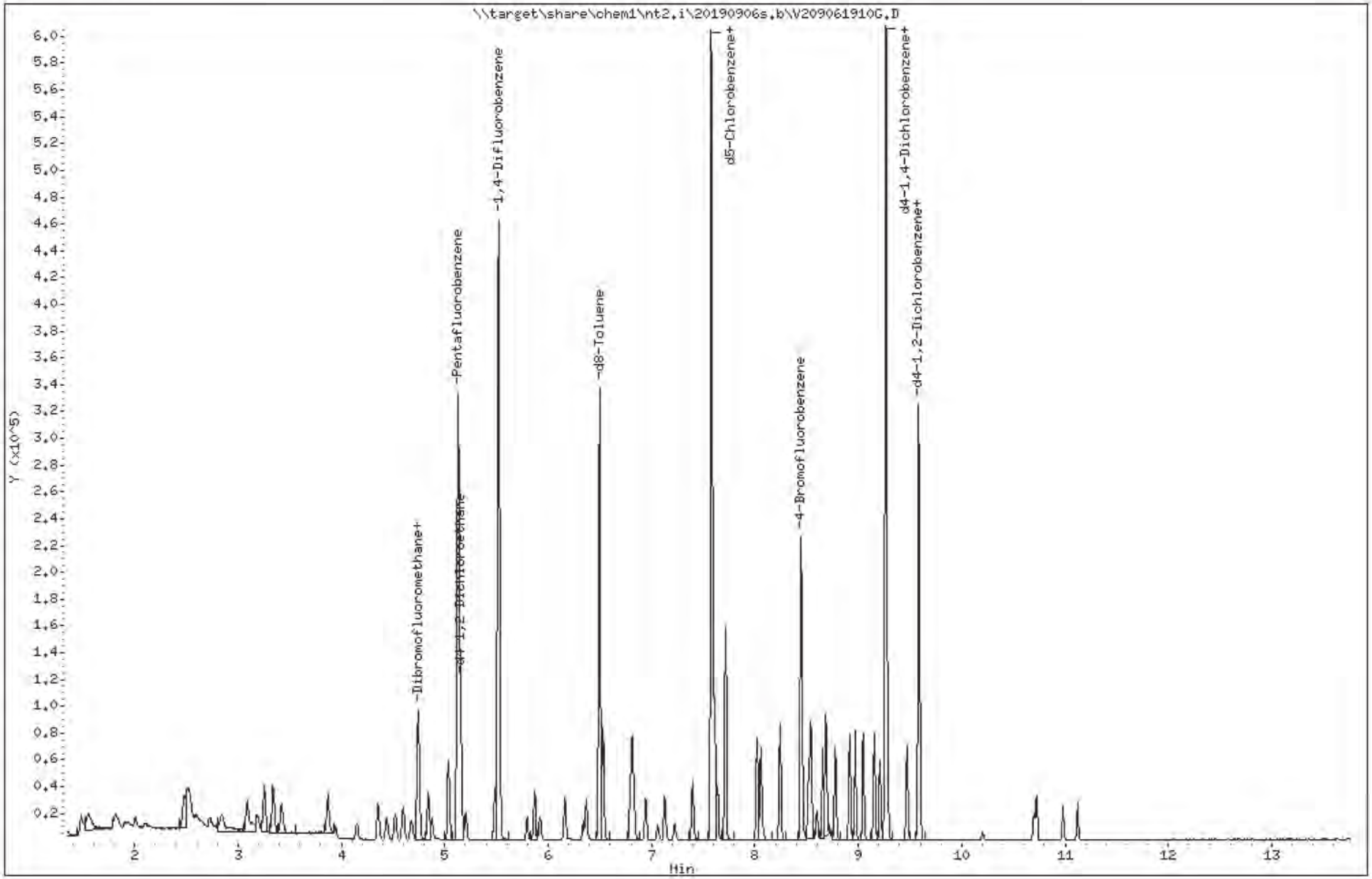
Instrument: nt2.i

Sample Info: SHI0083-CAL3

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061910G.D
Lab Smp Id: SHI0083-CAL3
Inj Date : 06-SEP-2019 10:10
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL3
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

		QUANT SIG					CONCENTRATIONS ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
$	27 Dibromofluoromethane	111	4.742	4.745	(0.924)	39430	4.78046	4.780
*	32 Pentafluorobenzene	168	5.131	5.128	(1.000)	166606	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.149	5.153	(1.004)	47416	4.98534	4.985
*	37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	281728	10.0000	
$	43 d8-Toluene	98	6.494	6.497	(1.176)	169808	4.95318	4.953
*	53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	256862	10.0000	
$	62 4-Bromofluorobenzene	174	8.447	8.449	(1.115)	47988	5.07155	5.072
*	76 d4-1,4-Dichlorobenzene	152	9.262	9.265	(1.000)	126310	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.584	9.588	(1.035)	60249	5.08390	5.084

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061910G.D
Lab Smp Id: SHI0083-CAL3
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	166606	0.29
37 1,4-Difluorobenze	280906	140453	561812	281728	0.29
53 d5-Chlorobenzene	262007	131004	524014	256862	-1.96
76 d4-1,4-Dichlorobe	136773	68387	273546	128310	-6.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.06
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.06
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.04
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.26	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL3
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.780	95.61	
$ 33 d4-1,2-Dichloroeth	5.000	4.985	99.71	
$ 43 d8-Toluene	5.000	4.953	99.06	
$ 62 4-Bromofluorobenze	5.000	5.072	101.43	
$ 79 d4-1,2-Dichloroben	5.000	5.084	101.68	

REVIEW SUMMARY FOR FILE - V209061910G.D

Lab ID: SHI0083-CAL3
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 10:10

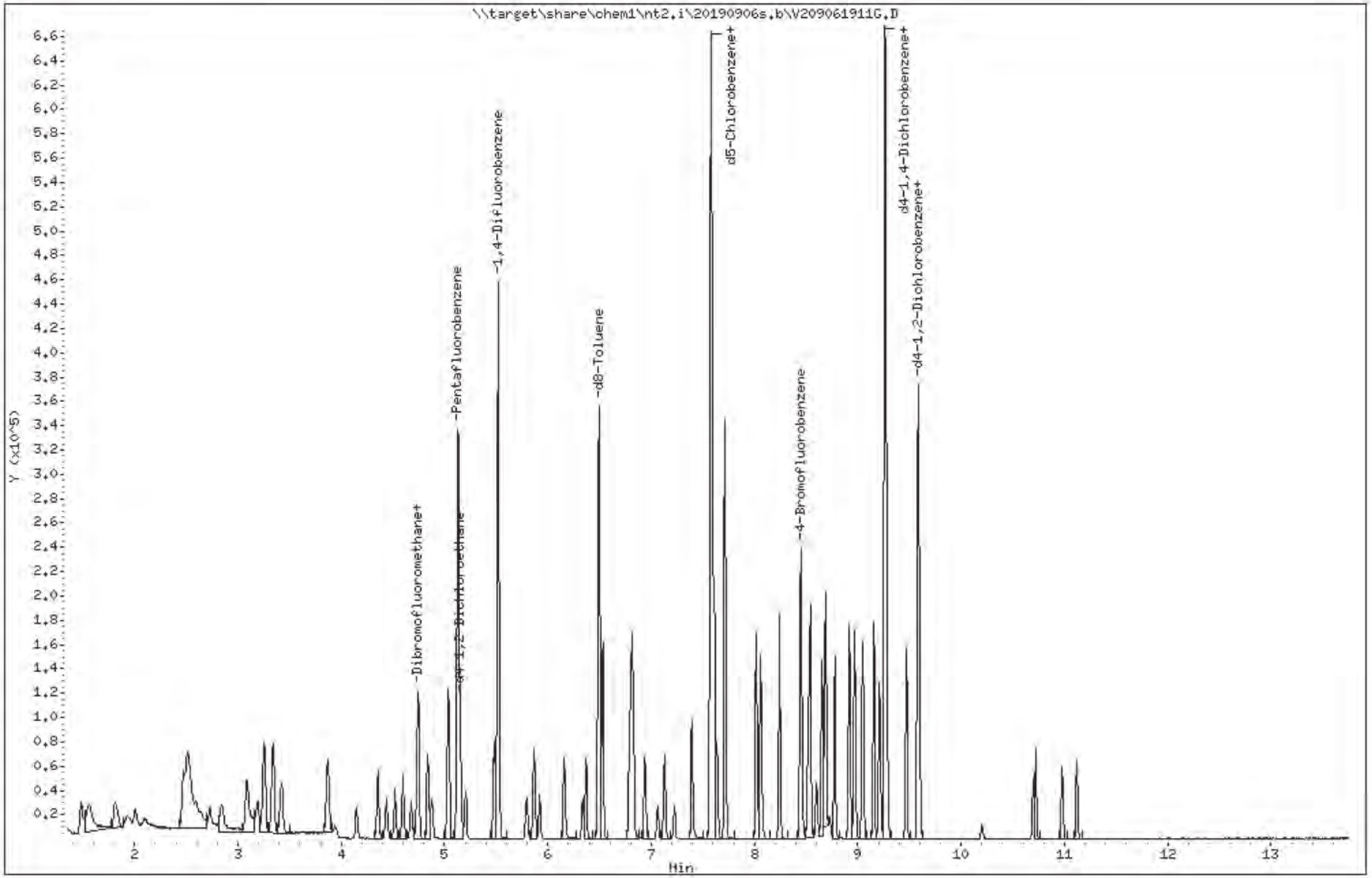
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061911G.D
Date : 06-SEP-2019 10:30
Client ID:
Sample Info: SHI0083-CAL4

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061911G.D
Lab Smp Id: SHI0083-CAL4
Inj Date : 06-SEP-2019 10:30
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL4
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 38
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	4.743	4.745	(0.924)	41478	4.91760	4.918
*	32 Pentafluorobenzene	168	5.133	5.128	(1.000)	170372	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.151	5.153	(1.004)	49089	5.04716	5.047
*	37 1,4-Difluorobenzene	114	5.522	5.518	(1.000)	290860	10.0000	
$	43 d8-Toluene	98	6.495	6.497	(1.176)	175835	4.96795	4.968
*	53 d5-Chlorobenzene	117	7.578	7.580	(1.000)	265050	10.0000	
$	62 4-Bromofluorobenzene	174	8.448	8.449	(1.115)	50525	5.17472	5.175
*	76 d4-1,4-Dichlorobenzene	152	9.263	9.265	(1.000)	133921	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.586	9.588	(1.035)	61889	5.00348	5.003

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061911G.D
Lab Smp Id: SHI0083-CAL4
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	170372	2.56
37 1,4-Difluorobenze	280906	140453	561812	290860	3.54
53 d5-Chlorobenzene	262007	131004	524014	265050	1.16
76 d4-1,4-Dichlorobe	136773	68387	273546	133921	-2.09

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.09
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.08
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.02
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.26	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL4
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.918	98.35	
$ 33 d4-1,2-Dichloroeth	5.000	5.047	100.94	
$ 43 d8-Toluene	5.000	4.968	99.36	
$ 62 4-Bromofluorobenze	5.000	5.175	103.49	
$ 79 d4-1,2-Dichloroben	5.000	5.003	100.07	

REVIEW SUMMARY FOR FILE - V209061911G.D

Lab ID: SHI0083-CAL4
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 10:30

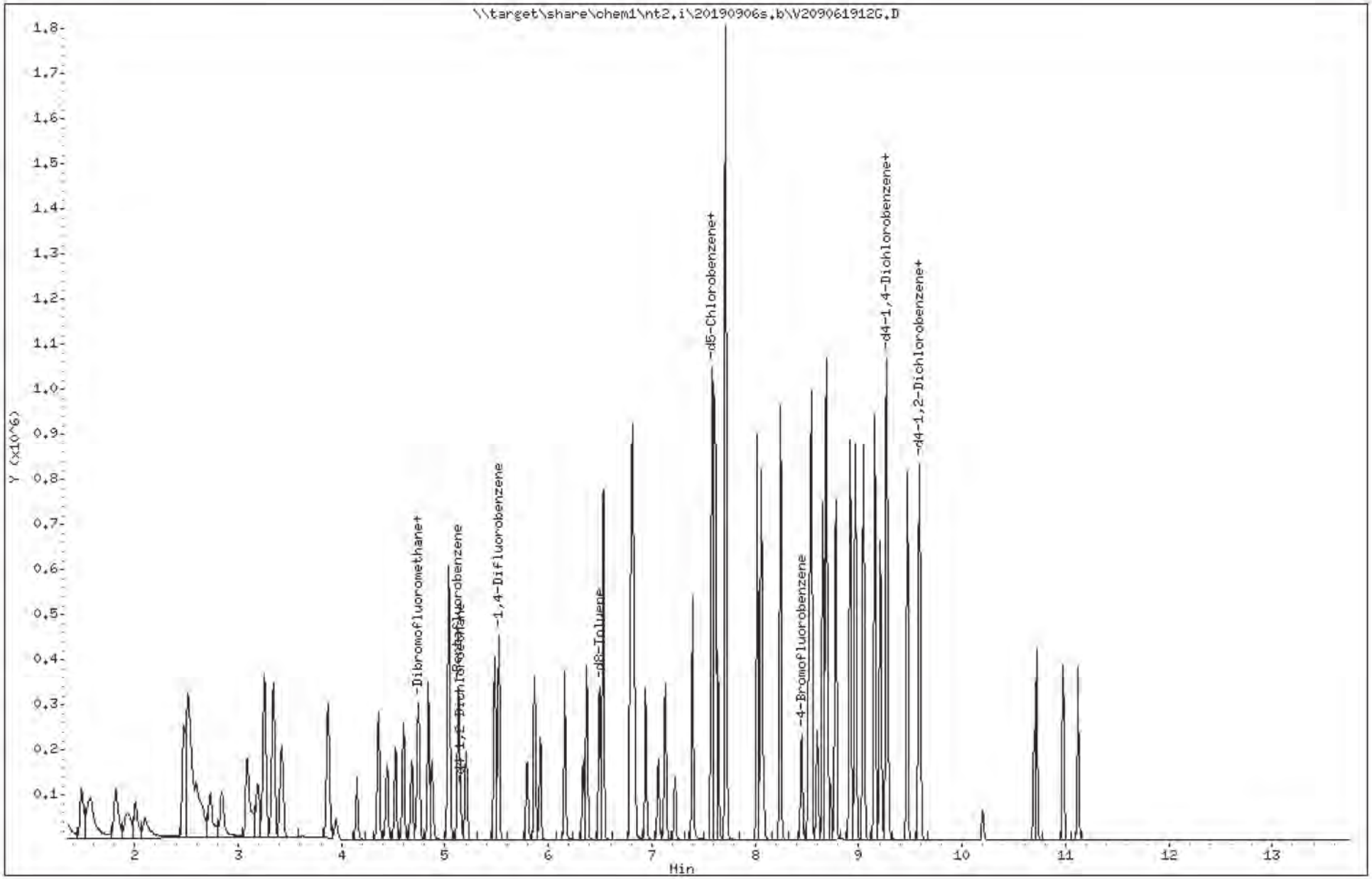
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061912G.D
Date : 06-SEP-2019 10:50
Client ID:
Sample Info: SHI0083-CAL5

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061912G.D
Lab Smp Id: SHI0083-CAL5
Inj Date : 06-SEP-2019 10:50
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL5
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 39
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

		QUANT SIG					CONCENTRATIONS ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/L)	(ug/L)
$	27 Dibromofluoromethane	111	4.745	4.745	(0.925)	40879	4.97061	4.971
*	32 Pentafluorobenzene	168	5.128	5.128	(1.000)	166121	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.152	5.153	(1.005)	47448	5.00327	5.003
*	37 1,4-Difluorobenzene	114	5.517	5.518	(1.000)	280906	10.0000	
$	43 d8-Toluene	98	6.497	6.497	(1.178)	170691	4.99350	4.994
*	53 d5-Chlorobenzene	117	7.579	7.580	(1.000)	262007	10.0000	
$	62 4-Bromofluorobenzene	174	8.449	8.449	(1.115)	49867	5.16664	5.167
*	76 d4-1,4-Dichlorobenzene	152	9.265	9.265	(1.000)	136773	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.587	9.588	(1.035)	63308	5.01148	5.011

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061912G.D
Lab Smp Id: SHI0083-CAL5
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	166121	0.00
37 1,4-Difluorobenze	280906	140453	561812	280906	0.00
53 d5-Chlorobenzene	262007	131004	524014	262007	0.00
76 d4-1,4-Dichlorobe	136773	68387	273546	136773	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.00
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.00
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.00
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL5
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.971	99.41	
$ 33 d4-1,2-Dichloroeth	5.000	5.003	100.07	
$ 43 d8-Toluene	5.000	4.994	99.87	
$ 62 4-Bromofluorobenze	5.000	5.167	103.33	
$ 79 d4-1,2-Dichloroben	5.000	5.011	100.23	

REVIEW SUMMARY FOR FILE - V209061912G.D

Lab ID: SHI0083-CAL5
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 10:50

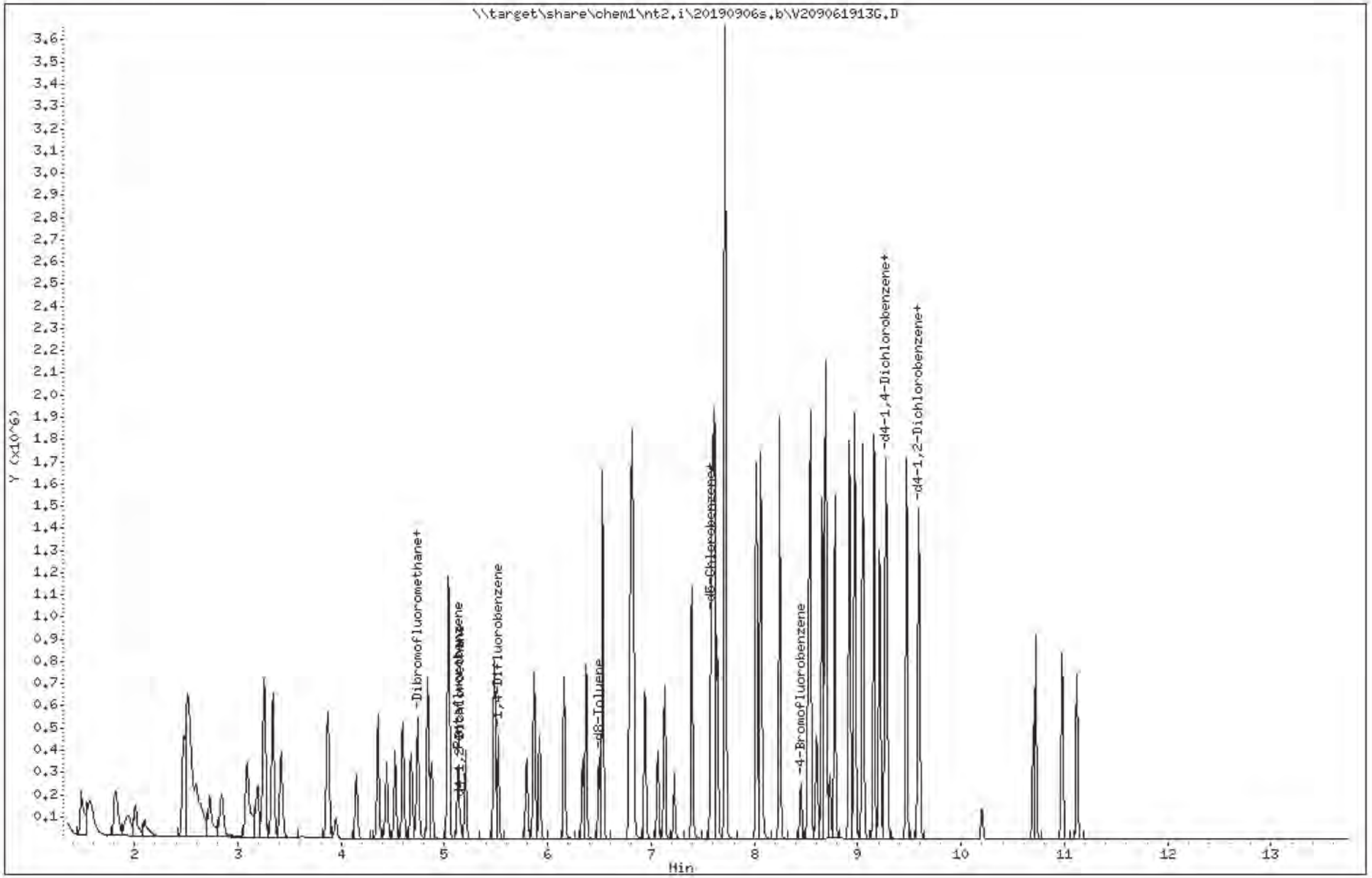
RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190906s.b\V209061913G.D
Date : 06-SEP-2019 11:11
Client ID:
Sample Info: SHI0083-CAL6

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190906s.b\V209061913G.D
Lab Smp Id: SHI0083-CAL6
Inj Date : 06-SEP-2019 11:11
Operator : LH Inst ID: nt2.i
Smp Info : SHI0083-CAL6
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Meth Date : 06-Sep-2019 12:27 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 40
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.743	4.745	(0.924)	43113	5.15123	5.151
* 32 Pentafluorobenzene	168	5.132	5.128	(1.000)	169056	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.153	(1.004)	48337	5.00853	5.009
* 37 1,4-Difluorobenzene	114	5.521	5.518	(1.000)	286473	10.0000	
$ 43 d8-Toluene	98	6.495	6.497	(1.176)	180087	5.13019	5.130
* 53 d5-Chlorobenzene	117	7.577	7.580	(1.000)	279697	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.449	(1.115)	52158	5.06222	5.062
* 76 d4-1,4-Dichlorobenzene	152	9.269	9.265	(1.000)	142389	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.588	(1.034)	65216	4.95890	4.959

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209061913G.D
Lab Smp Id: SHI0083-CAL6
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

Calibration Date: 06-SEP-2019
Calibration Time: 10:50
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	169056	1.77
37 1,4-Difluorobenze	280906	140453	561812	288473	2.69
53 d5-Chlorobenzene	262007	131004	524014	279697	6.75
76 d4-1,4-Dichlorobe	136773	68387	273546	142389	4.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.08
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.03
76 d4-1,4-Dichlorobe	9.27	8.77	9.77	9.27	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: SHI0083-CAL6
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190906s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.151	103.02	
$ 33 d4-1,2-Dichloroeth	5.000	5.009	100.17	
$ 43 d8-Toluene	5.000	5.130	102.60	
$ 62 4-Bromofluorobenze	5.000	5.062	101.24	
$ 79 d4-1,2-Dichloroben	5.000	4.959	99.18	

REVIEW SUMMARY FOR FILE - V209061913G.D

Lab ID: SHI0083-CAL6
nt2.i, 20190906s.b\826090619.m, 06-SEP-2019 11:11

RT	CO-ELUTION COMPOUNDS

INITIAL CALIBRATION CHECK

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT3	Calibration:	CI00022
Lab File ID:	V309051906G.D	Calibration Date:	09/04/19 11:15
Sequence:	SHI0097	Injection Date:	09/05/19
Lab Sample ID:	SHI0097-ICV1	Injection Time:	13:23
Sequence Name:	ICV		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Gasoline Range Organics (Tol-Nap)	A	1000.0	1030	17259.4200	17832.0700		3.3	20
Toluene-d8	A	5.0000	4.89	1.2097490	1.1827040		-2.2	
4-Bromofluorobenzene	A	5.0000	4.82	0.4751804	0.4583128		-3.5	
Pentafluorobenzene	A	10.000	10.0	11136.6000	1.0000		0.0	
Chlorobenzene-d5	A	10.000	10.0	16572.6900	1.0000		0.0	
1,4-Difluorobenzene	A	10.000	10.0	16292.2100	1.0000		0.0	
1,4-Dichlorobenzene-d4	A	10.000	10.0	10552.6300	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem1\nt3.i\20190905s.b\V3090519O6G.D

Date : 05-SEP-2019 13:23

Client ID:

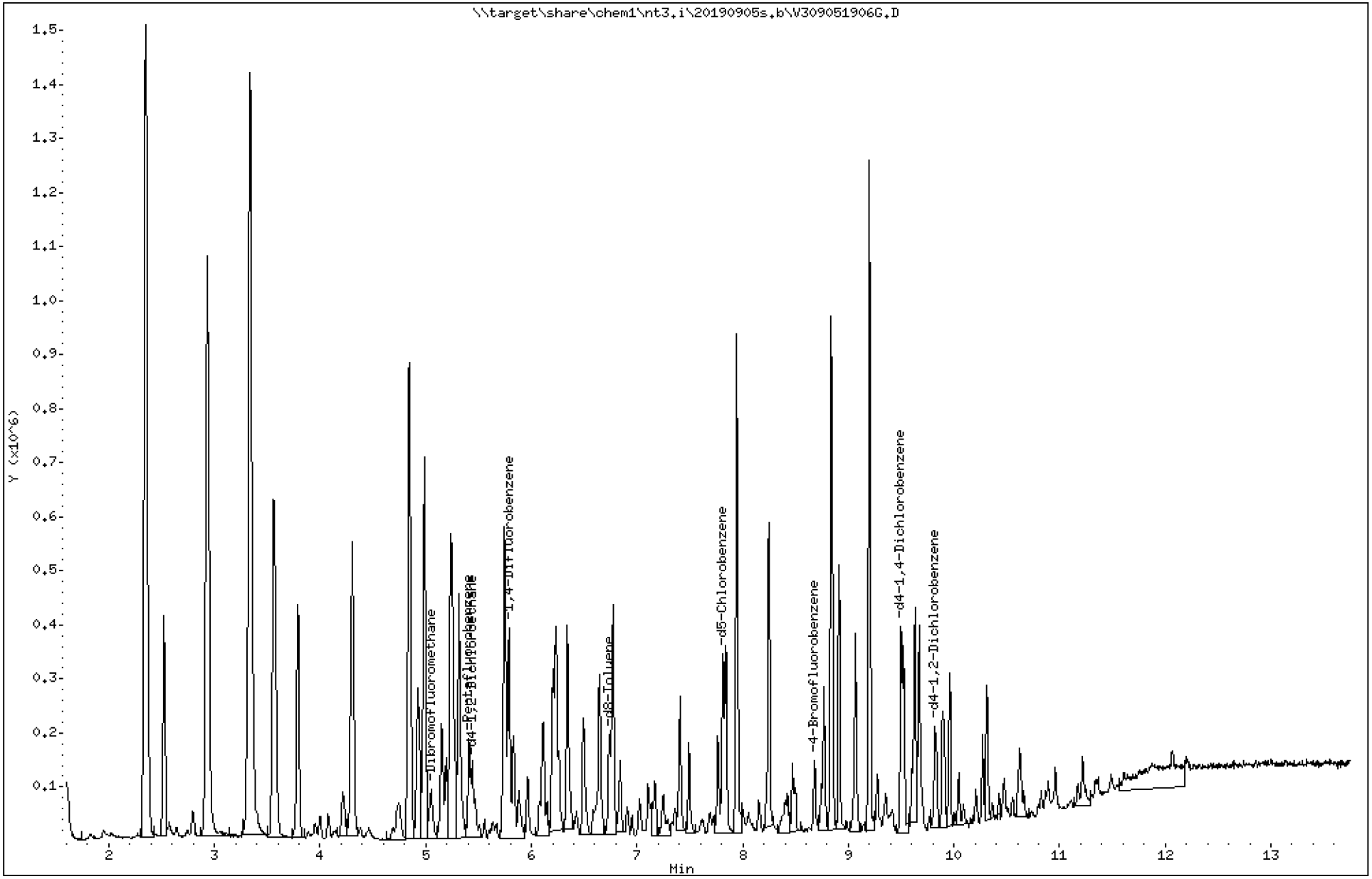
Instrument: nt3.i

Sample Info: SHI0097-ICV1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190905s.b\V309051906G.D
Lab Smp Id: SHI0097-ICV1
Inj Date : 05-SEP-2019 13:23
Operator : PKC   Inst ID: nt3.i
Smp Info : SHI0097-ICV1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Meth Date : 06-Sep-2019 14:37 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.053	5.053	(0.934)	20586	4.87723	4.877
*	32 Pentafluorobenzene	168	5.410	5.409	(1.000)	97616	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.441	5.441	(1.006)	25059	5.32882	5.329
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	144146	10.0000	
$	43 d8-Toluene	98	6.738	6.738	(1.164)	85241	4.88822	4.888
*	53 d5-Chlorobenzene	117	7.812	7.812	(1.000)	142226	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.678	(1.111)	32592	4.82251	4.823
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.497	(1.000)	88323	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.821	(1.034)	41333	4.98061	4.981

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309051906G.D
Lab Smp Id: SHI0097-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 05-SEP-2019
Calibration Time: 23:22
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	97616	0.74
37 1,4-Difluorobenze	140121	70061	280242	144146	2.87
53 d5-Chlorobenzene	140128	70064	280256	142226	1.50
76 d4-1,4-Dichlorobe	90137	45069	180274	88323	-2.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.81	7.31	8.31	7.81	0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: SHI0097-ICV1
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190905s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.877	97.54	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.329	106.58	80-128
$ 43 d8-Toluene	5.000	4.888	97.76	80-120
$ 62 4-Bromofluorobenze	5.000	4.823	96.45	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.981	99.61	80-120

REVIEW SUMMARY FOR FILE - V309051906G.D

Lab ID: SHI0097-ICV1
nt3.i, 20190905s.b\8260C090219.m,   05-SEP-2019 13:23

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190905g.b\V3090S1906G.D

Date : 05-SEP-2019 13:23

Client ID:

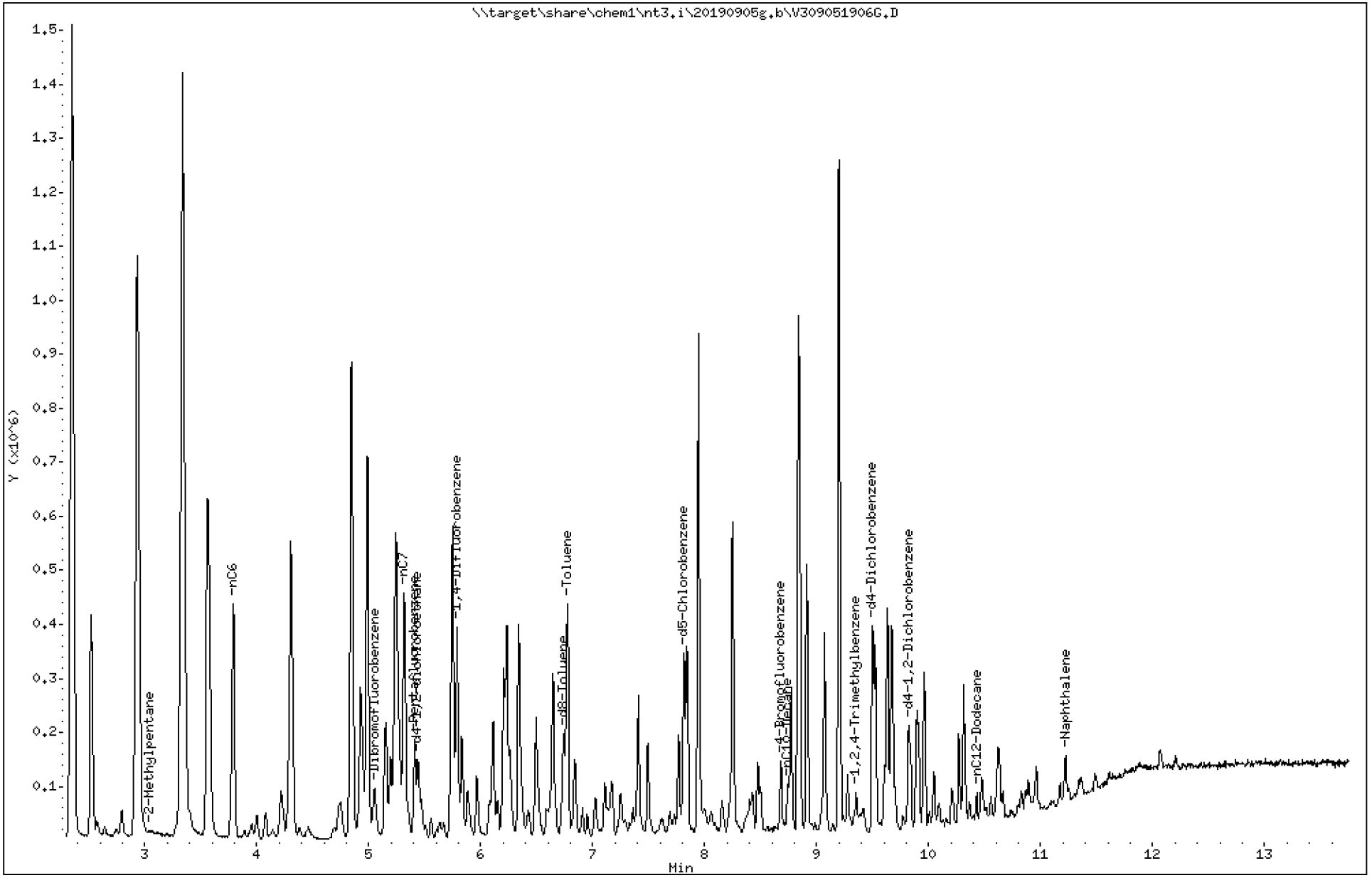
Sample Info: SHI0097-ICV1

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190905g.b/V309051906G.D
Method: \20190905g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 05-SEP-2019 13:23
ARI ID: SHI0097-ICV1
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.68 to 10.53)	15876360	16674198	1.050
8015C 2MP-TMB	(2.94 to 9.46)	32687243	32815104	1.004 M
AK101 nC6-nC10	(3.69 to 8.64)	19977596	22155362	1.109 M
NWTPHG Tol-Nap	(6.68 to 11.32)	17259421	17832072	1.033 M
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	24980349	1.087 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

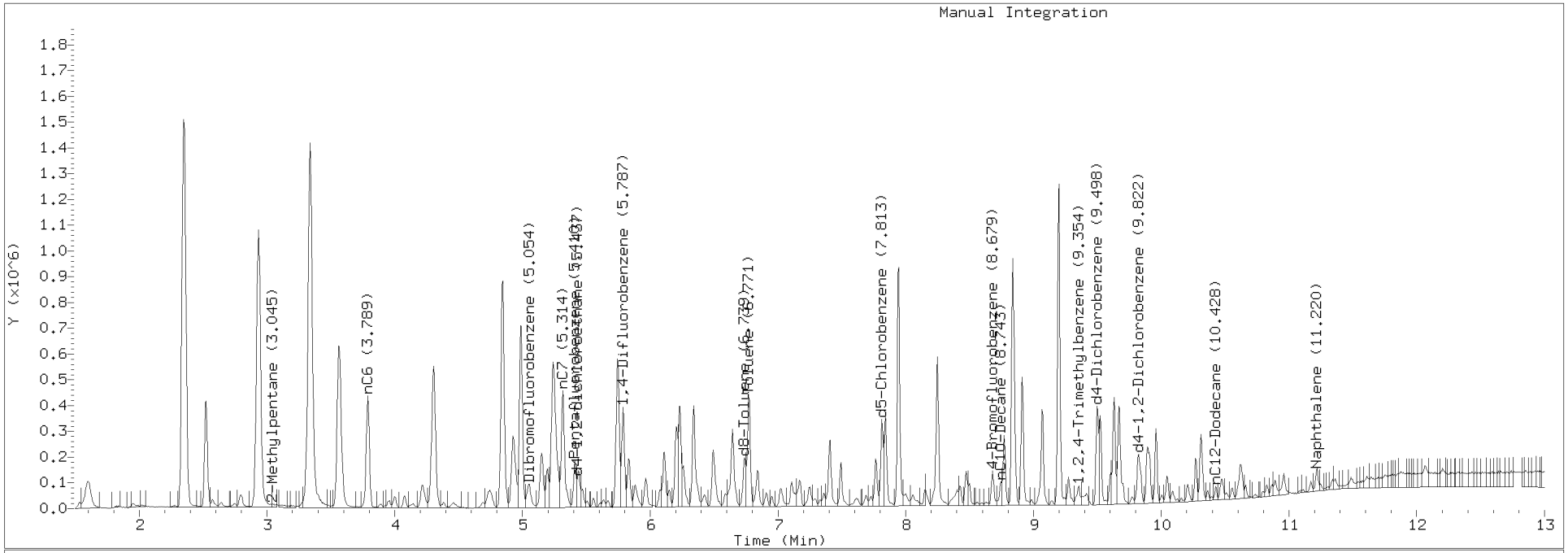
NW Gas Range Subtracted Peaks

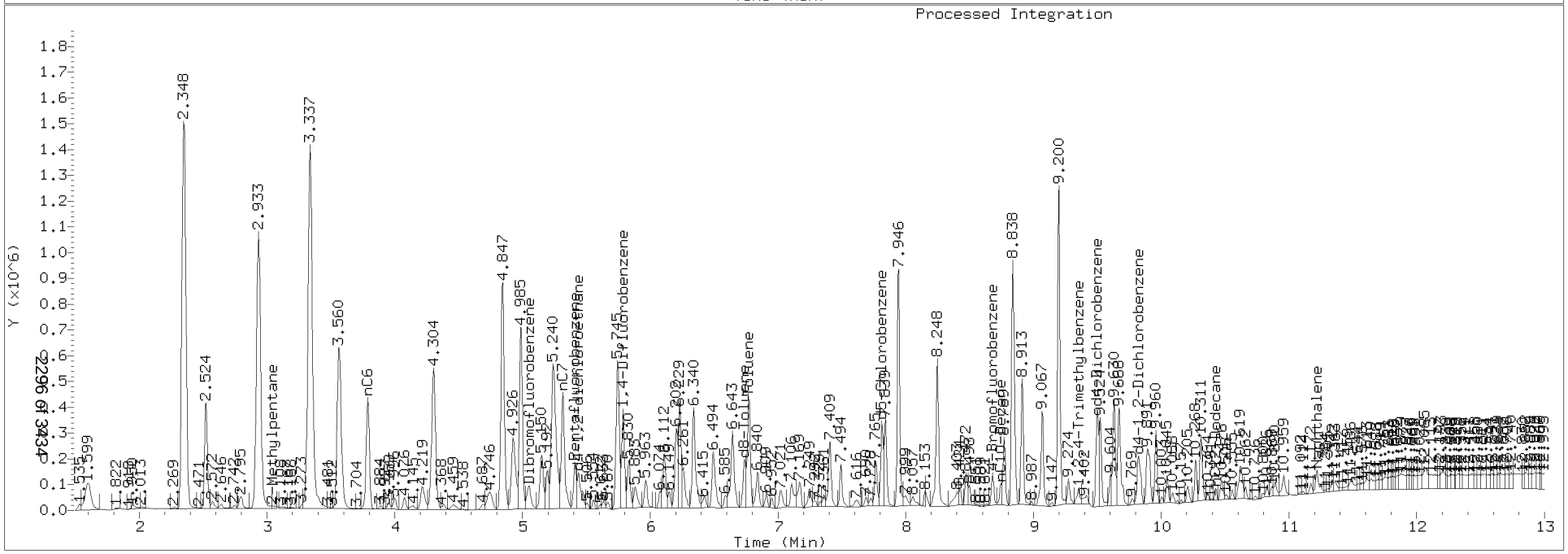
7.813	525215	d5-Chlorobenzene
6.739	314444	d8-Toluene
9.498	588567	d4-Dichlorobenzene
8.679	196471	4-Bromofluorobenzene
9.822	402897	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190905g.b/V309051906G.D Injection: 05-SEP-2019 13:23

Lab ID:SHI0097-ICV1





INITIAL CALIBRATION CHECK

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT2	Calibration:	CI00026
Lab File ID:	V209101903G.D	Calibration Date:	09/06/19 13:45
Sequence:	SHI0138	Injection Date:	09/10/19
Lab Sample ID:	SHI0138-ICV1	Injection Time:	11:32
Sequence Name:	ICV		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Gasoline Range Organics (Tol-Nap)	A	1000.0	1040	26116.4100	27043.5000		3.6	20
Toluene-d8	A	5.0000	5.11	1.2168700	1.2432310		2.2	
4-Bromofluorobenzene	A	5.0000	5.07	0.3683765	0.3735067		1.4	

* Values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190910s.b\V209101903G.D

Date : 10-SEP-2019 11:32

Client ID: Gas

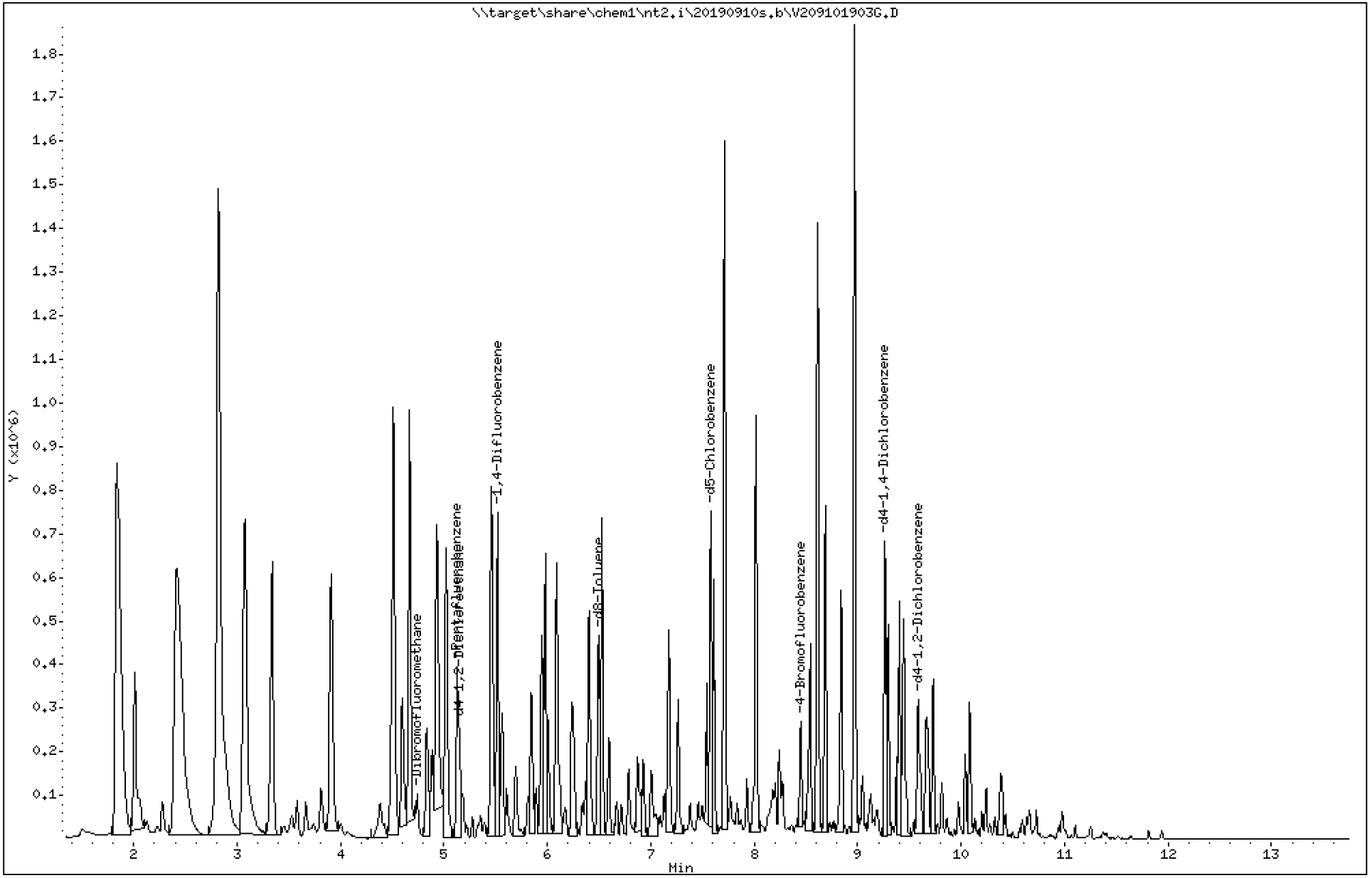
Instrument: nt2.i

Sample Info: SHI0138-ICV1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190910s.b\V209101903G.D
Lab Smp Id: SHI0138-ICV1 Client Smp ID: Gas
Inj Date : 10-SEP-2019 11:32
Operator : PKC Inst ID: nt2.i
Smp Info : SHI0138-ICV1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Meth Date : 11-Sep-2019 11:06 nt2.i Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.742	4.743	(0.925)	43497	4.66365	4.664
* 32 Pentafluorobenzene	168	5.125	5.132	(1.000)	188394	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.150	5.151	(1.005)	54723	5.08819	5.088
* 37 1,4-Difluorobenzene	114	5.515	5.522	(1.000)	322661	10.0000	
$ 43 d8-Toluene	98	6.494	6.495	(1.178)	200571	5.10831	5.108
* 53 d5-Chlorobenzene	117	7.577	7.578	(1.000)	291545	10.0000	
$ 62 4-Bromofluorobenzene	174	8.447	8.448	(1.115)	54447	5.06963	5.070
* 76 d4-1,4-Dichlorobenzene	152	9.262	9.263	(1.000)	144111	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.585	9.586	(1.035)	66668	5.00873	5.009

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209101903G.D
Lab Smp Id: SHI0138-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

Calibration Date: 10-SEP-2019
Calibration Time: 12:12
Client Smp ID: Gas
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	188394	13.41
37 1,4-Difluorobenze	280906	140453	561812	322661	14.86
53 d5-Chlorobenzene	262007	131004	524014	291545	11.27
76 d4-1,4-Dichlorobe	136773	68387	273546	144111	5.37

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.14
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.13
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	-0.01
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.26	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0138-ICV1
Client Smp ID: Gas
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190910s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.664	93.27	
$ 33 d4-1,2-Dichloroeth	5.000	5.088	101.76	
$ 43 d8-Toluene	5.000	5.108	102.17	
$ 62 4-Bromofluorobenze	5.000	5.070	101.39	
$ 79 d4-1,2-Dichloroben	5.000	5.009	100.17	

REVIEW SUMMARY FOR FILE - V209101903G.D

Lab ID: SHI0138-ICV1
nt2.i, 20190910s.b\826090619.m,   10-SEP-2019 11:32

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190910g.b\V209101903G.D

Date : 10-SEP-2019 11:32

Client ID:

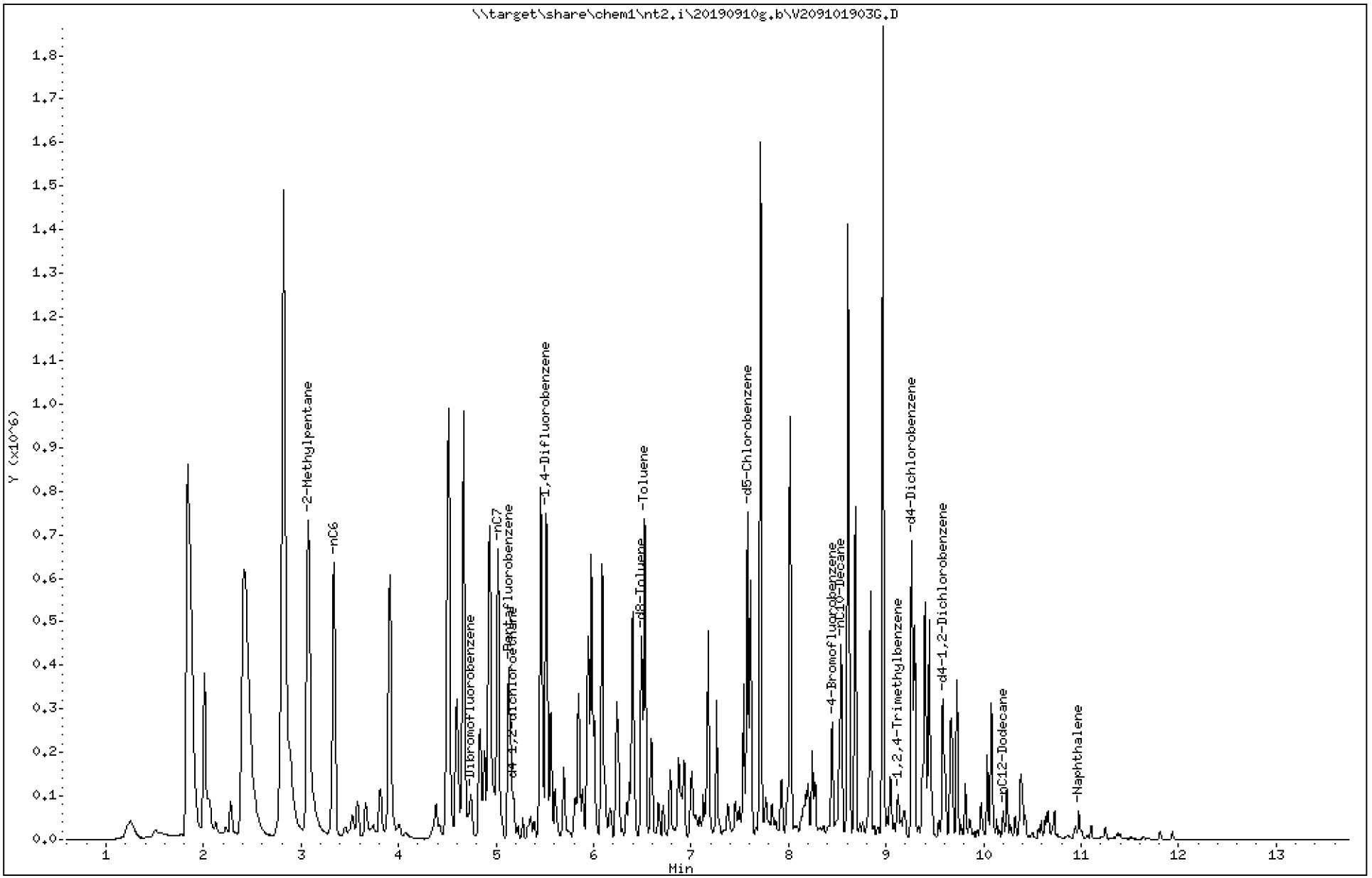
Instrument: nt2.i

Sample Info: SHI0138-ICV1

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190910g.b/V209101903G.D
Method: \20190910g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 10-SEP-2019 11:32

ARI ID: SHI0138-ICV1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	25937231	1.038	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	44594811	1.038	M
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34191222	1.042	M
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27043500	1.035	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36486812	1.034	M

* Surrogate areas are subtracted from Total Area

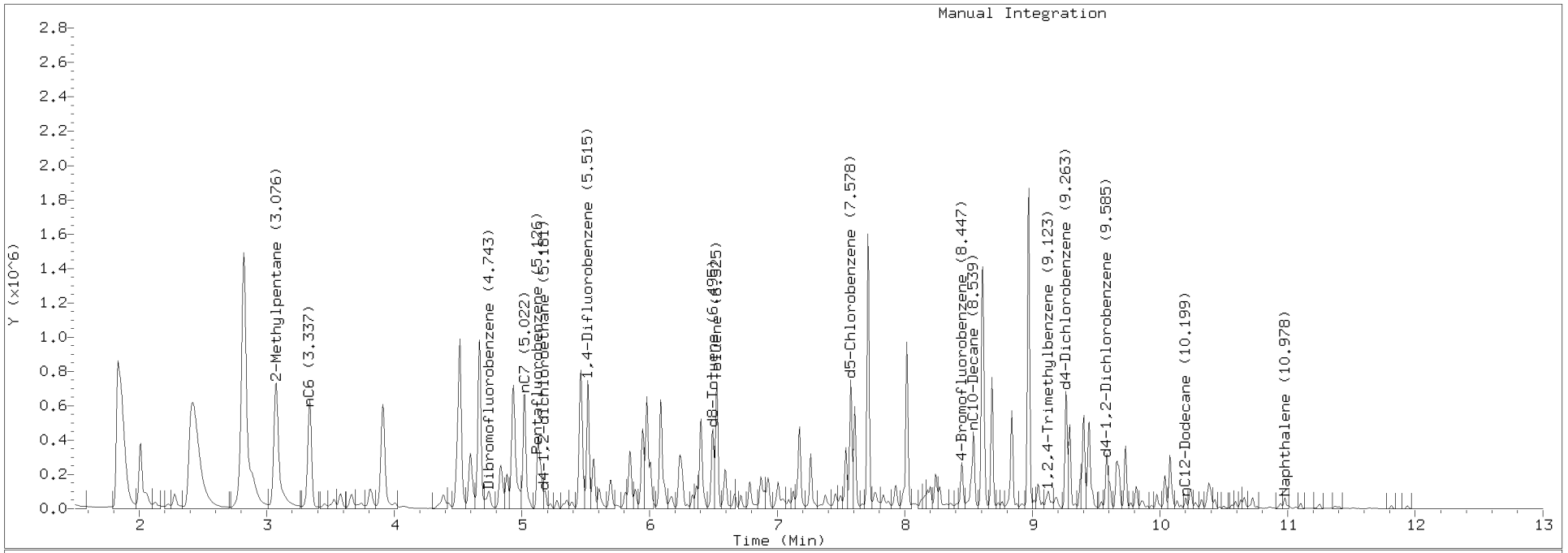
NW Gas Range Subtracted Peaks

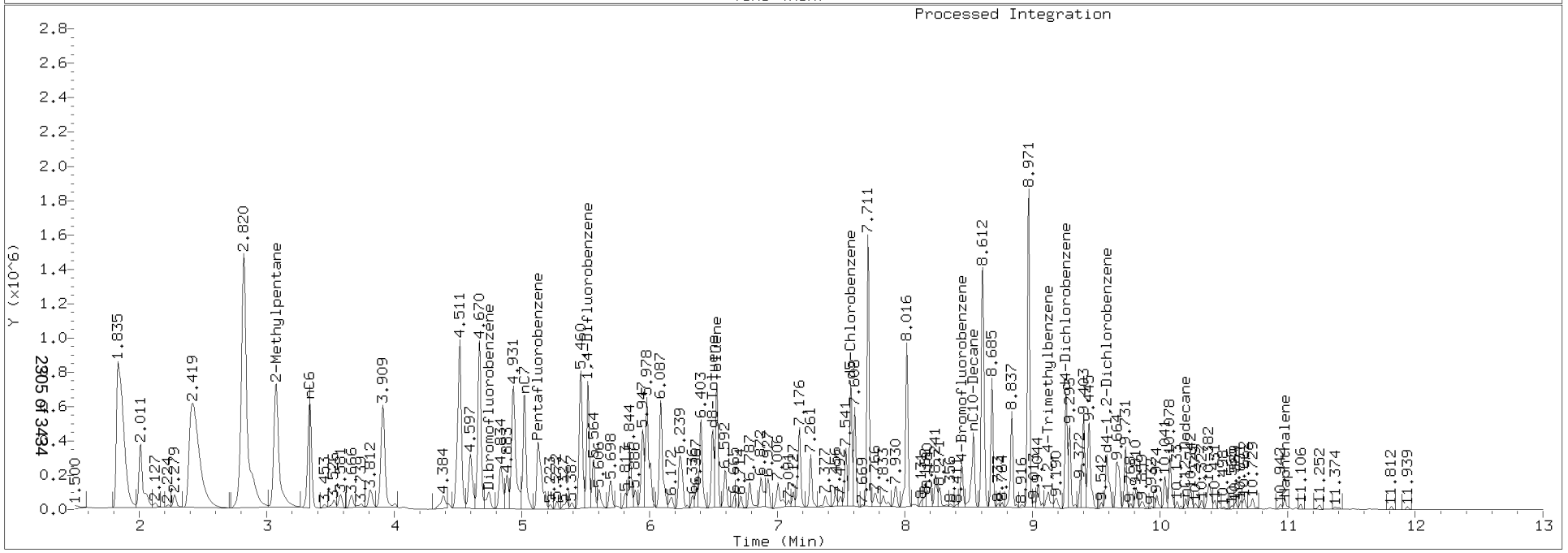
7.578	1094948	d5-Chlorobenzene
8.447	404573	4-Bromofluorobenzene
6.495	727414	d8-Toluene
9.263	981510	d4-Dichlorobenzene
9.585	465297	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190910g.b/V209101903G.D Injection: 10-SEP-2019 11:32

Lab ID:SHI0138-ICV1





INITIAL CALIBRATION CHECK

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT2	Calibration:	CI00026
Lab File ID:	V209111903G.D	Calibration Date:	09/06/19 13:45
Sequence:	SHI0164	Injection Date:	09/11/19
Lab Sample ID:	SHI0164-ICV1	Injection Time:	07:56
Sequence Name:	ICV		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Gasoline Range Organics (Tol-Nap)	A	1000.0	1050	26116.4100	27314.2000		4.6	20
Toluene-d8	A	5.0000	5.08	1.2168700	1.2369700		1.7	
4-Bromofluorobenzene	A	5.0000	4.99	0.3683765	0.3674400		-0.3	

* Values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190911s.b\V209111903G.D

Date : 11-SEP-2019 07:56

Client ID: GAS

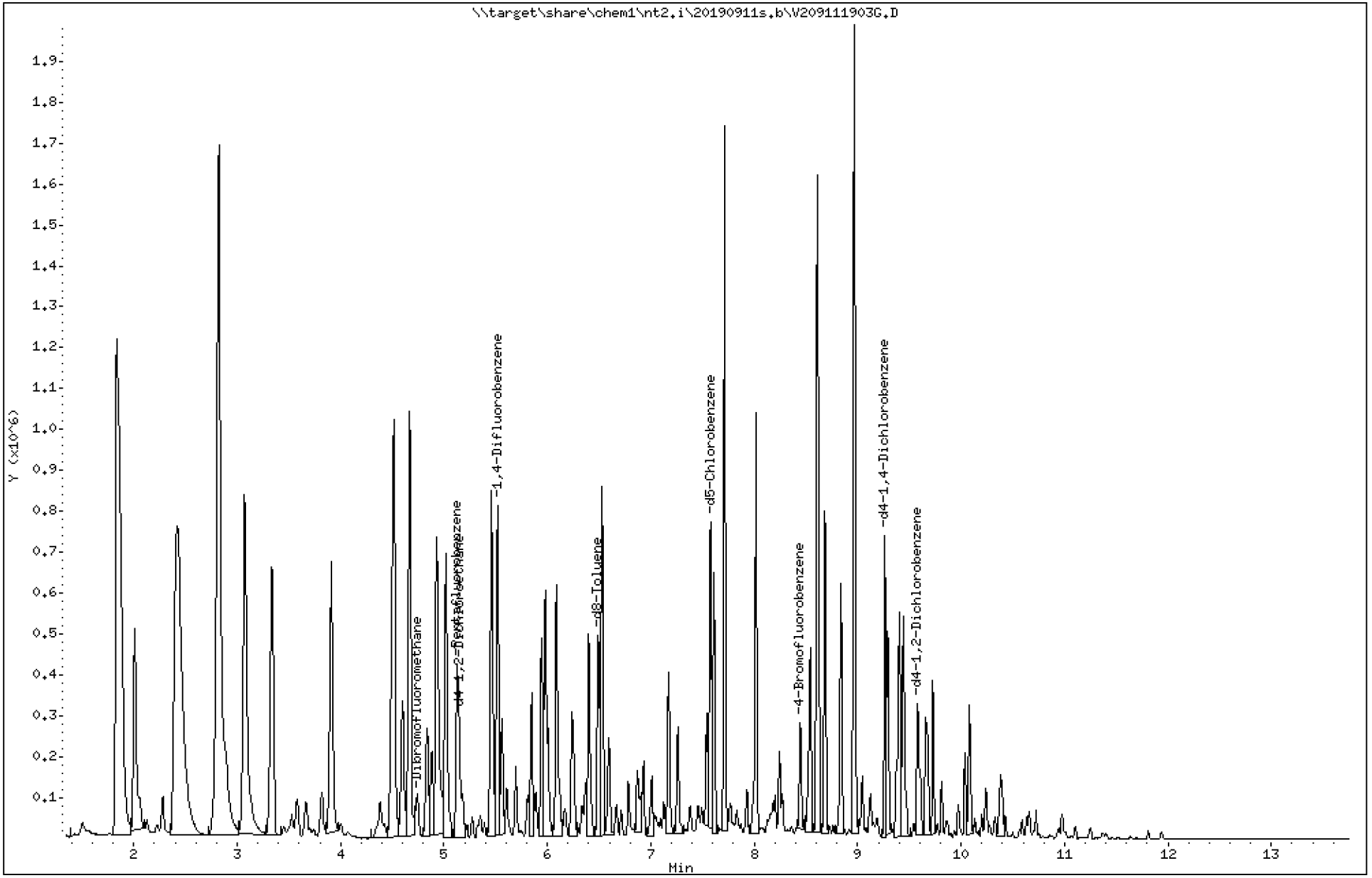
Instrument: nt2.i

Sample Info: SHI0164-ICV1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190911s.b\V209111903G.D
Lab Smp Id: SHI0164-ICV1 Client Smp ID: GAS
Inj Date : 11-SEP-2019 07:56
Operator : LH Inst ID: nt2.i
Smp Info : SHI0164-ICV1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Meth Date : 11-Sep-2019 08:50 lanih Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51 Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.745	4.742	(0.925)	46480	4.66989	4.670
* 32 Pentafluorobenzene	168	5.128	5.126	(1.000)	201045	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.004)	59854	5.21508	5.215
* 37 1,4-Difluorobenzene	114	5.517	5.521	(1.000)	351074	10.0000	
$ 43 d8-Toluene	98	6.491	6.494	(1.176)	217134	5.08259	5.083
* 53 d5-Chlorobenzene	117	7.580	7.577	(1.000)	315774	10.0000	
$ 62 4-Bromofluorobenzene	174	8.450	8.447	(1.115)	58014	4.98729	4.987
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	151147	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.581	9.585	(1.034)	69574	4.98374	4.984

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209111903G.D
Lab Smp Id: SHI0164-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

Calibration Date: 11-SEP-2019
Calibration Time: 08:16
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	201045	21.02
37 1,4-Difluorobenze	280906	140453	561812	351074	24.98
53 d5-Chlorobenzene	262007	131004	524014	315774	20.52
76 d4-1,4-Dichlorobe	136773	68387	273546	151147	10.51

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	0.05
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151001
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0164-ICV1
Client Smp ID: GAS
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190911s.b\826090619.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.670	93.40	
$ 33 d4-1,2-Dichloroeth	5.000	5.215	104.30	
$ 43 d8-Toluene	5.000	5.083	101.65	
$ 62 4-Bromofluorobenze	5.000	4.987	99.75	
$ 79 d4-1,2-Dichloroben	5.000	4.984	99.67	

REVIEW SUMMARY FOR FILE - V209111903G.D

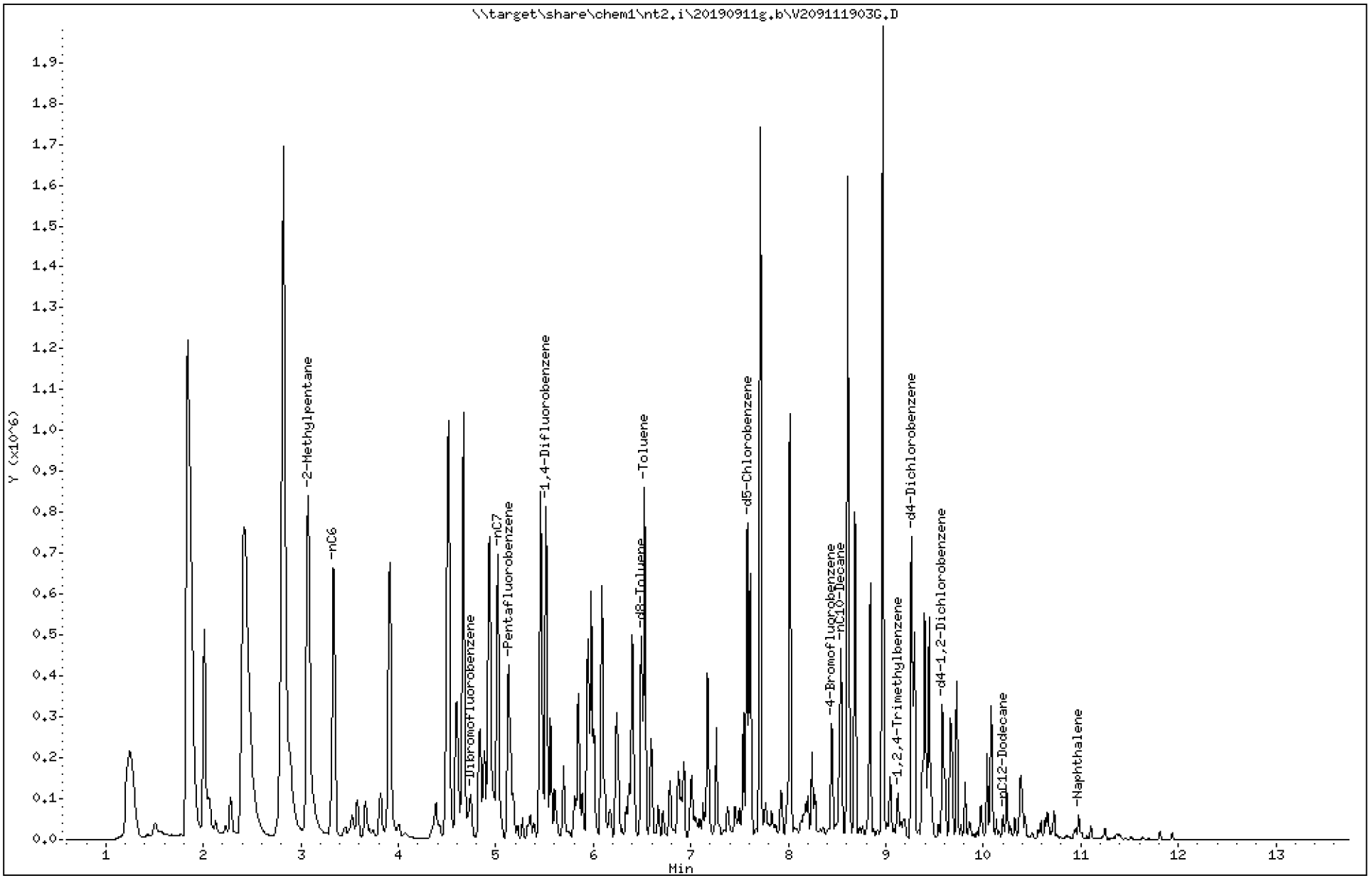
Lab ID: SHI0164-ICV1
nt2.i, 20190911s.b\826090619.m,   11-SEP-2019 07:56

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190911g.b\V209111903G.D
Date : 11-SEP-2019 07:56
Client ID:
Sample Info: SHI0164-ICV1

Instrument: nt2.i
Operator: LH
Column diameter: 0.18

Column phase: RTXVMS



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V209111903G.D
Method: \20190911g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 11-SEP-2019 07:56

ARI ID: SHI0164-ICV1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	26208116	1.049	M
8015C 2MP-TMB	(2.99 to 9.25)	42964079	45747198	1.065	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34876338	1.063	
NWTPHG Tol-Nap	(6.43 to 11.08)	26116409	27314198	1.046	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	36906746	1.046	M

* Surrogate areas are subtracted from Total Area

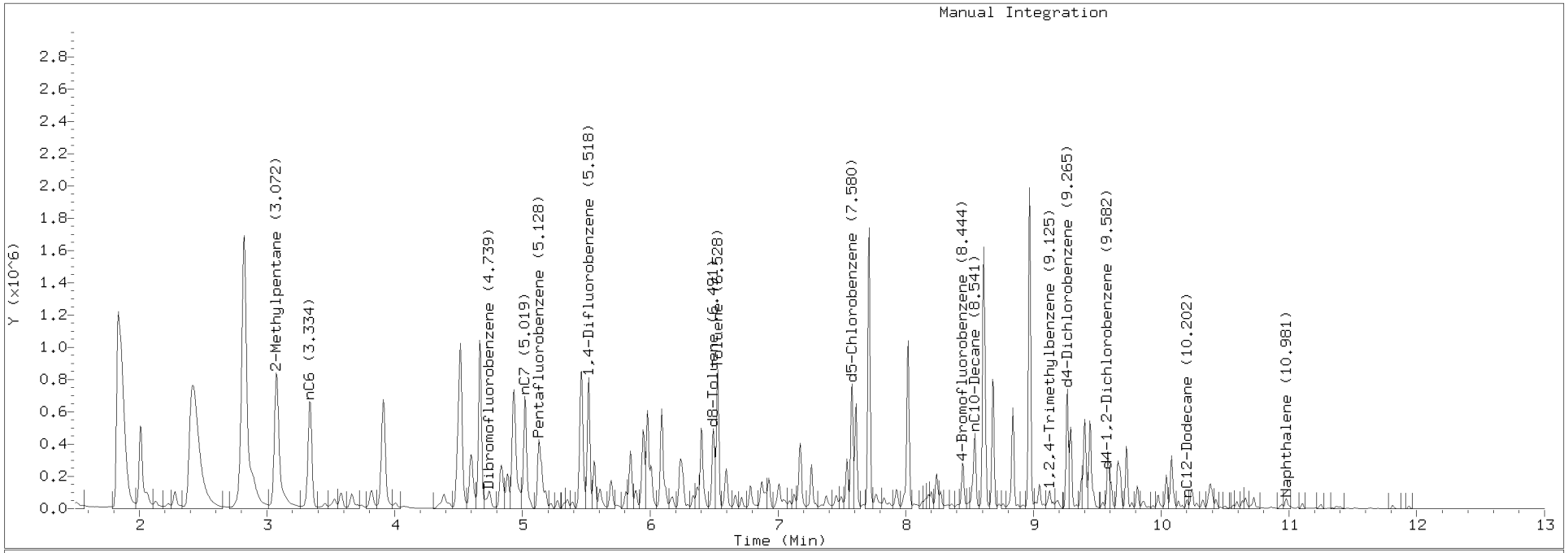
NW Gas Range Subtracted Peaks

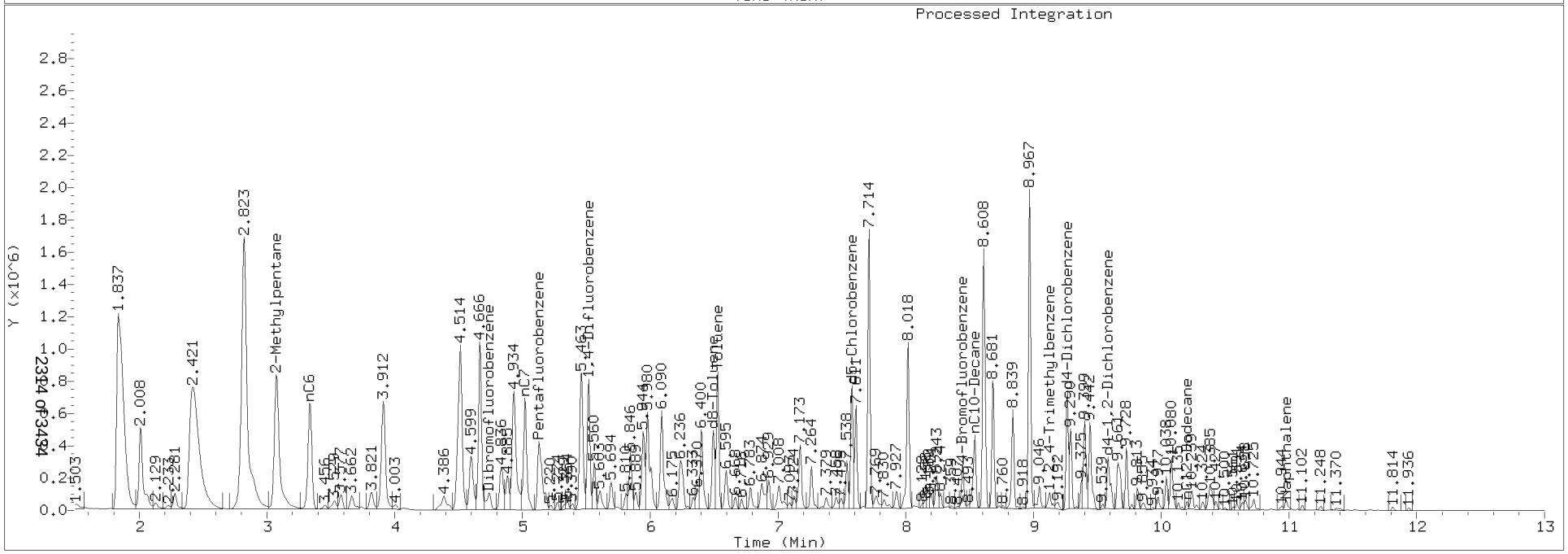
7.580	1091194	d5-Chlorobenzene
8.444	416728	4-Bromofluorobenzene
6.491	826476	d8-Toluene
9.265	957616	d4-Dichlorobenzene
9.582	498611	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190911g.b/V209111903G.D Injection: 11-SEP-2019 07:56

Lab ID:SHI0164-ICV1





INITIAL CALIBRATION CHECK

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	NT2	Calibration:	CI00026
Lab File ID:	V209121903G.D	Calibration Date:	09/06/19 13:45
Sequence:	SHI0187	Injection Date:	09/12/19
Lab Sample ID:	SHI0187-ICV1	Injection Time:	07:31
Sequence Name:	ICV		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Gasoline Range Organics (Tol-Nap)	A	1000.0	1060	26116.4100	27748.9600		6.3	20
Toluene-d8	A	5.0000	5.08	1.2168700	1.2358050		1.6	
4-Bromofluorobenzene	A	5.0000	5.06	0.3683765	0.3731576		1.3	

* Values outside of QC limits

Data File: \\target\share\chem1\nt2.i\20190912s.b\V209121903G.D

Date : 12-SEP-2019 07:31

Client ID:

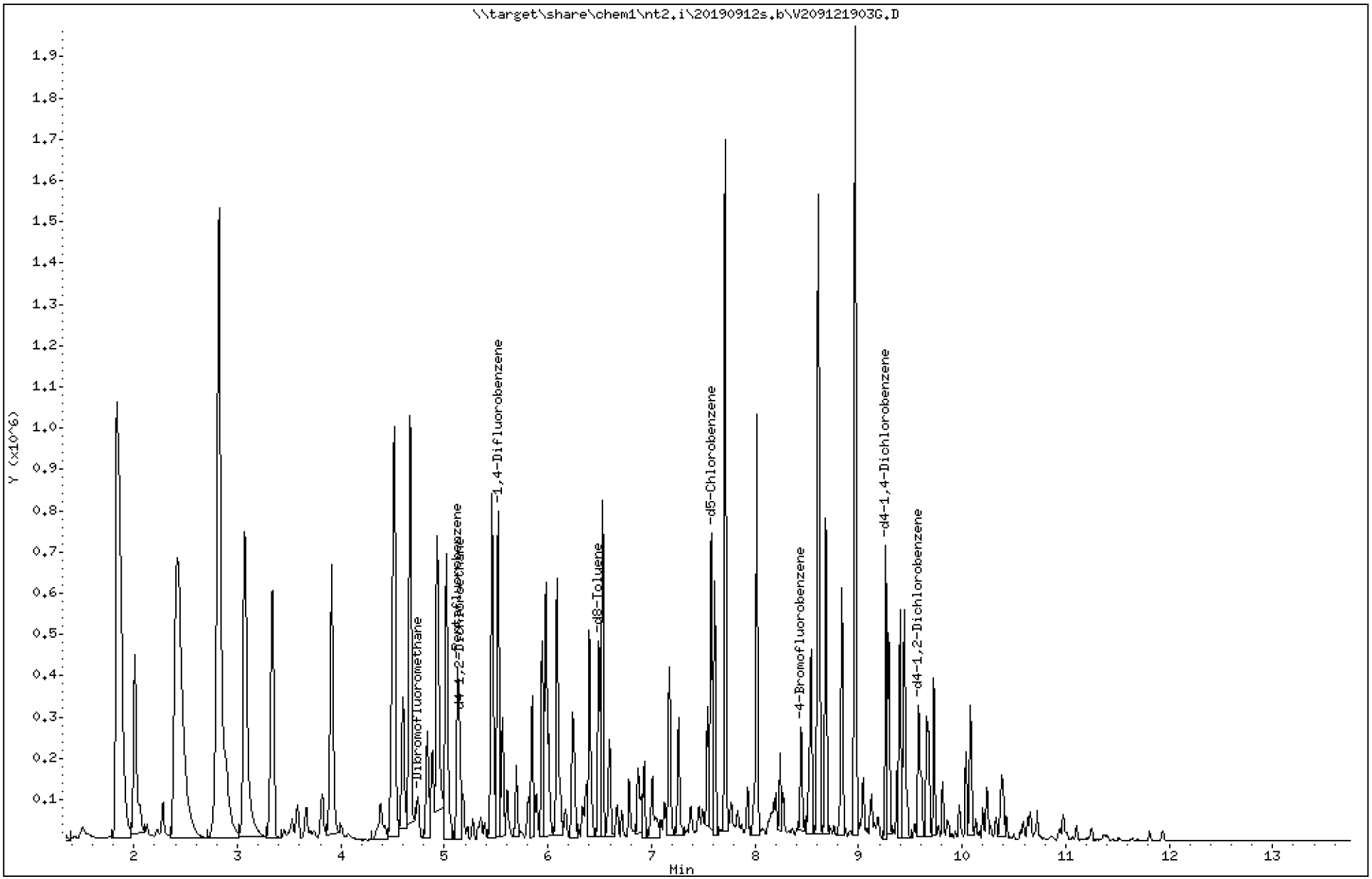
Sample Info: SHI0187-ICV1

Column phase: RTXVMS

Instrument: nt2.i

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190912s.b\V209121903G.D
Lab Smp Id: SHI0187-ICV1
Inj Date : 12-SEP-2019 07:31
Operator : LH   Inst ID: nt2.i
Smp Info : SHI0187-ICV1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Meth Date : 12-Sep-2019 08:10 lanih   Quant Type: ISTD
Cal Date : 06-SEP-2019 11:51   Cal File: V209061915.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.738	4.742	(0.924)	44358	4.65203	4.652
* 32 Pentafluorobenzene	168	5.128	5.132	(1.000)	192603	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.146	5.150	(1.004)	59017	5.36754	5.368
* 37 1,4-Difluorobenzene	114	5.517	5.521	(1.000)	336414	10.0000	
$ 43 d8-Toluene	98	6.490	6.494	(1.176)	207871	5.07780	5.078
* 53 d5-Chlorobenzene	117	7.579	7.577	(1.000)	300763	10.0000	
$ 62 4-Bromofluorobenzene	174	8.449	8.447	(1.115)	56116	5.06489	5.065
* 76 d4-1,4-Dichlorobenzene	152	9.265	9.262	(1.000)	145741	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.581	9.585	(1.034)	66538	4.94306	4.943

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V209121903G.D
Lab Smp Id: SHI0187-ICV1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

Calibration Date: 12-SEP-2019
Calibration Time: 07:52
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166121	83061	332242	192603	15.94
37 1,4-Difluorobenze	280906	140453	561812	336414	19.76
53 d5-Chlorobenzene	262007	131004	524014	300763	14.79
76 d4-1,4-Dichlorobe	136773	68387	273546	145741	6.56

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.13	4.63	5.63	5.13	-0.07
37 1,4-Difluorobenze	5.52	5.02	6.02	5.52	-0.07
53 d5-Chlorobenzene	7.58	7.08	8.08	7.58	0.03
76 d4-1,4-Dichlorobe	9.26	8.76	9.76	9.27	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: SHI0187-ICV1
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190912s.b\826090619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.652	93.04	
$ 33 d4-1,2-Dichloroeth	5.000	5.368	107.35	
$ 43 d8-Toluene	5.000	5.078	101.56	
$ 62 4-Bromofluorobenze	5.000	5.065	101.30	
$ 79 d4-1,2-Dichloroben	5.000	4.943	98.86	

REVIEW SUMMARY FOR FILE - V209121903G.D

Lab ID: SHI0187-ICV1
nt2.i, 20190912s.b\826090619.m,   12-SEP-2019 07:31

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190912g.b\V209121903G.D

Date : 12-SEP-2019 07:31

Client ID:

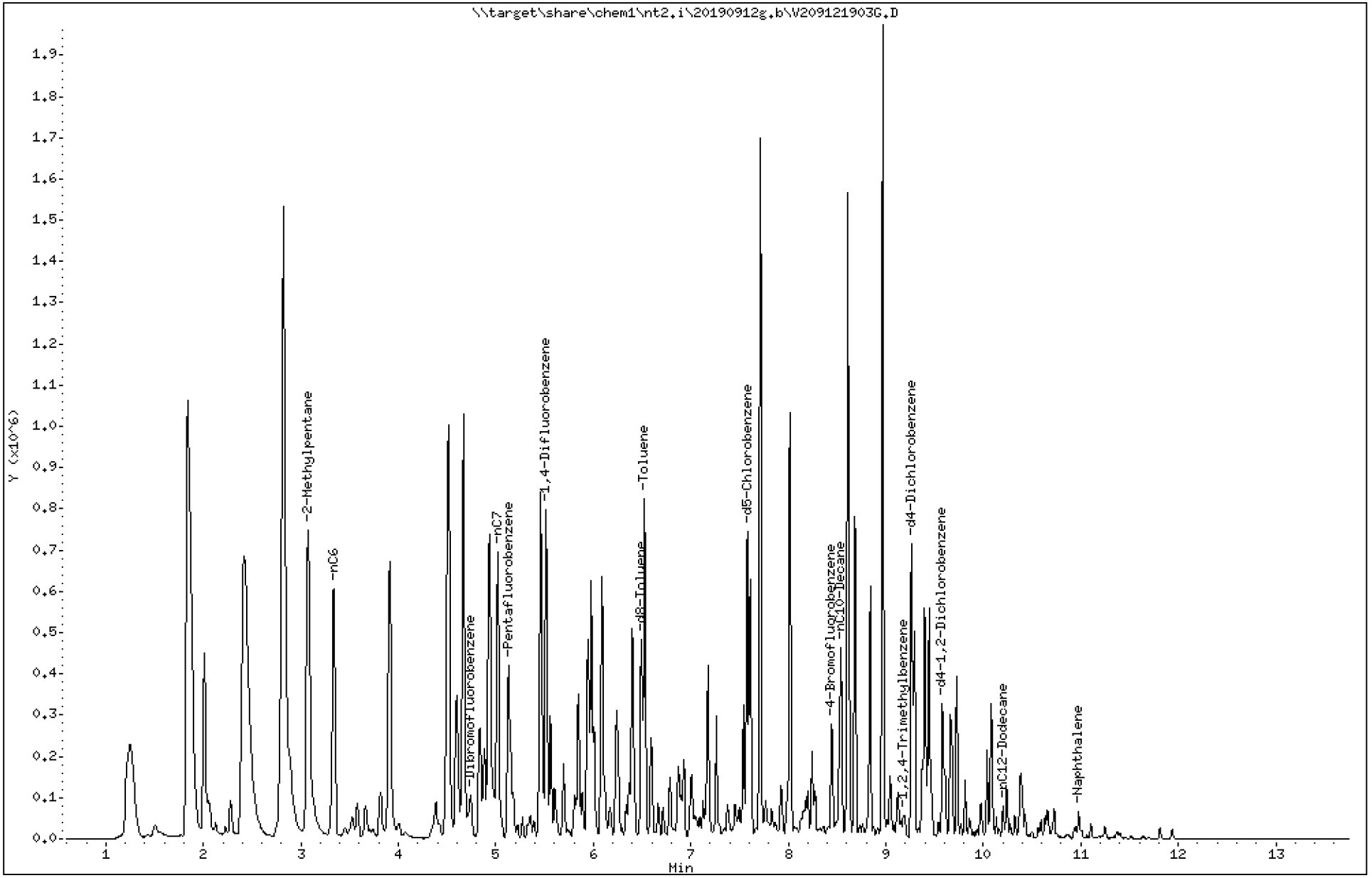
Instrument: nt2.i

Sample Info: SHI0187-ICV1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190912g.b/V209121903G.D
Method: \20190912g.b\GA090219.m
Instrument: nt2.i
Gas Ical Date: 09/02/19
Injection Date: 12-SEP-2019 07:31

ARI ID: SHI0187-ICV1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.43 to 10.30)	24981750	26572980	1.064	M
8015C 2MP-TMB	(2.98 to 9.26)	42964079	45363554	1.056	
AK101 nC6-nC10	(3.24 to 8.42)	32820925	34749534	1.059	
NWTPHG Tol-Nap	(6.43 to 11.07)	26116409	27748962	1.063	M
mod8015 nC7-nC12	(4.93 to 10.30)	35270534	37322106	1.058	M

* Surrogate areas are subtracted from Total Area

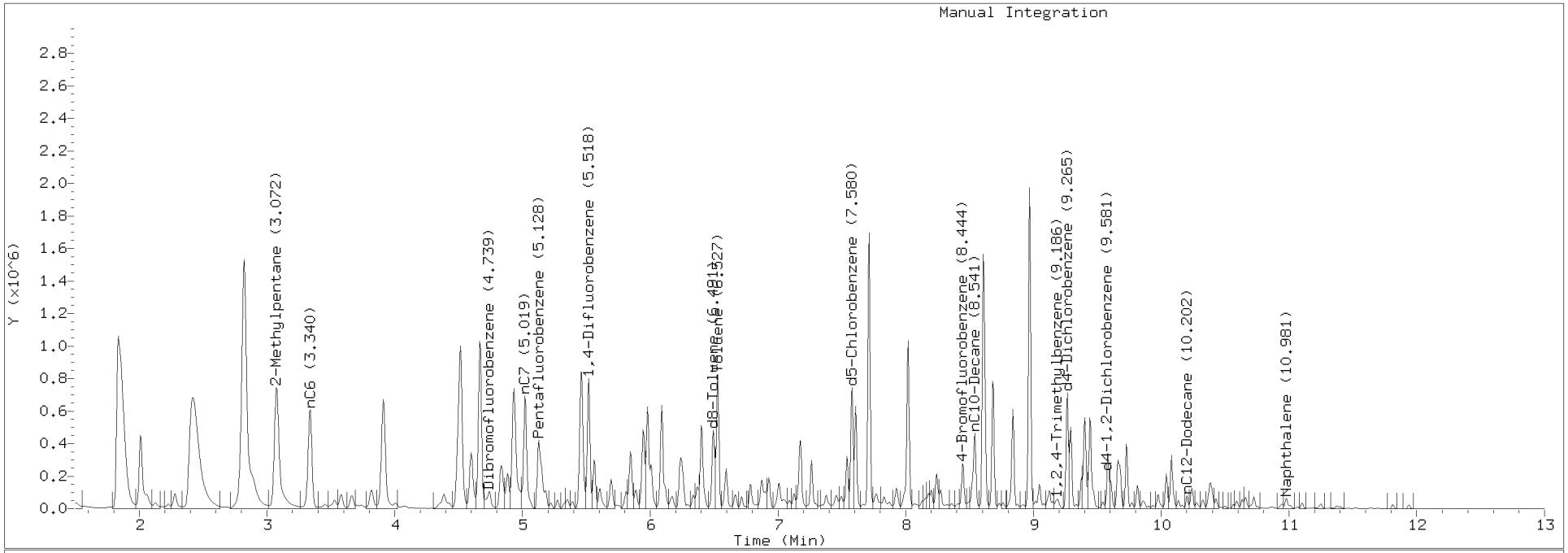
NW Gas Range Subtracted Peaks

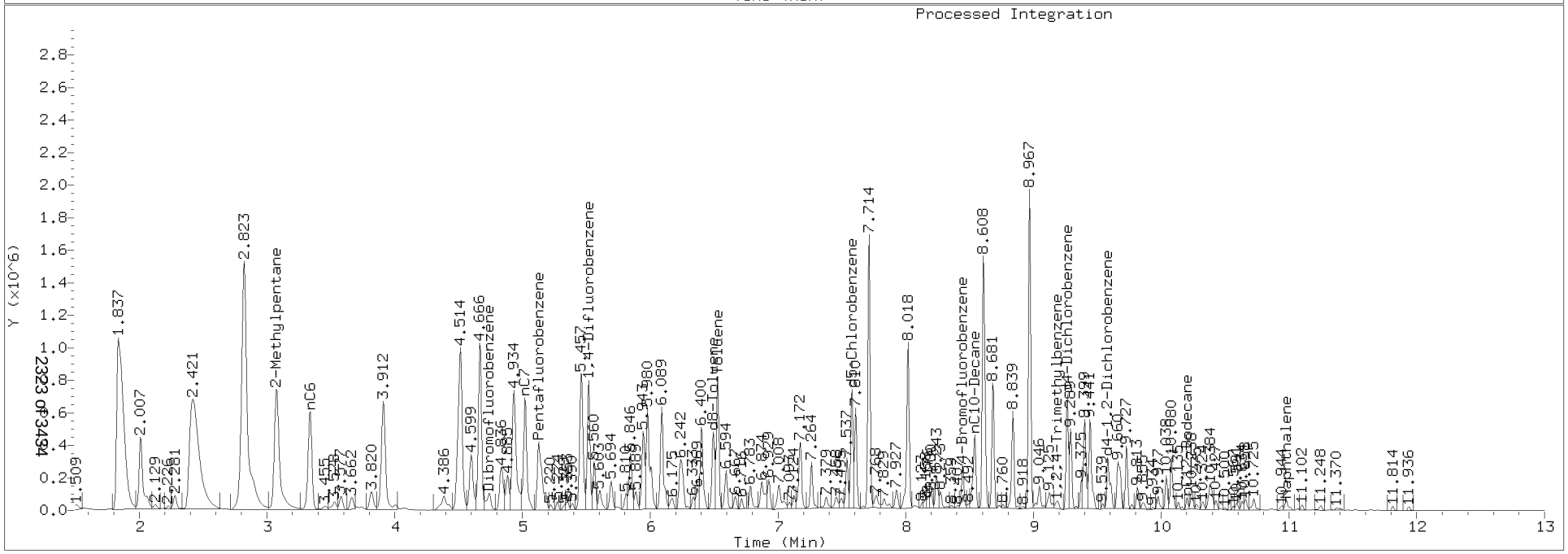
7.580	1050923	d5-Chlorobenzene
8.444	410636	4-Bromofluorobenzene
6.491	806969	d8-Toluene
9.265	925426	d4-Dichlorobenzene
9.581	487338	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190912g.b/V209121903G.D Injection: 12-SEP-2019 07:31

Lab ID:SHI0187-ICV1





ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Sequence: SHI0010

SDG: 19H0481
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument: NT2
Calibration: CI00004

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Gas 0.1	SHI0010-CAL9	V209021915G.D	NA	09/02/19 16:13
Gas 0.25	SHI0010-CALA	V209021916G.D	NA	09/02/19 16:33
Gas 0.5	SHI0010-CALB	V209021917G.D	NA	09/02/19 16:54
Gas 1	SHI0010-CALC	V209021918G.D	NA	09/02/19 17:14
Gas 2.5	SHI0010-CALD	V209021919G.D	NA	09/02/19 17:34
Gas 5	SHI0010-CALE	V209021920G.D	NA	09/02/19 17:54
Initial Cal Blank	SHI0010-ICB1	V209021921G.D	NA	09/02/19 18:15
Gas SCV 1.0	SHI0010-SCV1	V209021922G.D	NA	09/02/19 18:35

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0075
Instrument: NT3
Calibration: CI00022

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0075-TUN1	V309041902G.D	NA	09/04/19 15:17
Gas 0.1	SHI0075-CAL9	V309041916G.D	NA	09/04/19 22:21
Gas 0.25	SHI0075-CALA	V309041917G.D	NA	09/04/19 22:47
Gas 0.5	SHI0075-CALB	V309041918G.D	NA	09/04/19 23:14
Gas 1	SHI0075-CALC	V309041919G.D	NA	09/04/19 23:40
Gas 2.5	SHI0075-CALD	V309041920G.D	NA	09/05/19 00:07
Gas 5	SHI0075-CALE	V309041921G.D	NA	09/05/19 00:33
Initial Cal Blank	SHI0075-ICB1	V309041922G.D	NA	09/05/19 01:00
Gas SCV 1	SHI0075-SCV1	V309041923G.D	NA	09/05/19 01:27

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0083	Instrument:	NT2
		Calibration:	CI00026

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SHI0083-TUN1	V209061907G.D	NA	09/06/19 08:57

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0097	Instrument:	NT3
		Calibration:	CI00022

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
BFB	SHI0097-TUN1	V309051903G.D	NA	09/05/19 11:49
ICV	SHI0097-ICV1	V309051906G.D	NA	09/05/19 13:23
LCS	BHI0133-BS2	V309051906GLCS.D	Water	09/05/19 13:23
LCS Dup	BHI0133-BSD2	V309051907G.D	Water	09/05/19 13:50
Blank	BHI0133-BLK2	V309051908G.D	Water	09/05/19 14:16
P40-UST-TB-083019	19H0481-05	V309051910G.D	Water	09/05/19 15:10
P40-UST-01-083019	19H0481-01	V309051919G.D	Water	09/05/19 19:21
P40-UST-101-083019	19H0481-03	V309051920G.D	Water	09/05/19 19:48
P40-UST-02-083019	19H0481-10	V309051921G.D	Water	09/05/19 20:15
P40-UST-03-083019	19H0481-16	V309051922G.D	Water	09/05/19 20:41
P40-UST-04-083019	19H0481-22	V309051923G.D	Water	09/05/19 21:08
P40-UST-05-083019	19H0481-28	V309051924G.D	Water	09/05/19 21:35
CCV	SHI0097-CCV1	V309051927G.D	NA	09/05/19 22:55

Work Order(s): 19H0481

Analysis	Matrix	Method
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA		PKC	09/09/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES		PKC	09/09/2019
3	PH <=2 / 5035 Preserved for all Workorders	YES		PKC	09/09/2019
4	BFB abundance and time criteria met (8260C only)	YES		PKC	09/09/2019
	Comments: *Used whole peak for tune evaluation. Scabs 1433-1445, background scan 1428*				
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		PKC	09/09/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES		PKC	09/09/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES		PKC	09/09/2019
	Comments: *Manual integrations for partial integrations/split peaks and to detect compounds skipped or misidentified by automated integration.*				
8	Narrate any Workorders where the Project specific requirements have not been met	NA		PKC	09/09/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	YES		PKC	09/09/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES		PKC	09/09/2019
11	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	PKC	09/09/2019
12	AUTOCHECK: Check blank spike recovery	YES	*	PKC	09/09/2019
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	PKC	09/09/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	PKC	09/09/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	PKC	09/09/2019
16	AUTOCHECK: Matrix spike recoveries within limits	NA	*	PKC	09/09/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	PKC	09/09/2019
18	AUTOCHECK: List of compounds listed as spiked are present	NA	*	PKC	09/09/2019
19	AUTOCHECK: Check Surrogate recoveries	YES	*	PKC	09/09/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	PKC	09/09/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES		BB	09/09/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		BB	09/09/2019

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481	
Analysis	**Matrix**	**Method**
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NA	BB	09/09/2019
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	PKC	09/09/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	PKC	09/09/2019
26	Additional Notes (ANALYST and REVIEWER)	YES	PKC	09/09/2019

Comments:
Additional volume for matrix QC was not provided.

Printed: 9/11/2019 3:29:49PM

ANALYSIS SEQUENCE

SHI0097

Instrument: NT3 Element Column ID: 1300725RTXV
Calibration ID: CI00022 Tune File: bfb.u
EM Voltage: 1953

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0097-TUN1	BFB	QC		1	H005698		
SHI0097-ICV1	ICV	QC		2	H007877	H007838	
BHI0133-BS2	LCS	QC		3		H007838	
BHI0133-BSD2	LCS Dup	QC		4		H007838	
BHI0133-BLK2	Blank	QC		5		H007838	
19H0481-05	P40-UST-TB-083019	8260C Gas (NWTPH)	B	6		H007838	
19H0429-04	92-10S	8260C Gas (NWTPH)	A	7		H007838	
19H0429-05	02-1	8260C Gas (NWTPH)	D	8		H007838	
19H0429-06	51-2	8260C Gas (NWTPH)	C	9		H007838	
19H0429-07	50-1	8260C Gas (NWTPH)	C	10		H007838	
19H0481-01	P40-UST-01-083019	8260C Gas (NWTPH)	D	11		H007838	
19H0481-03	P40-UST-101-083019	8260C Gas (NWTPH)	E	12		H007838	
19H0481-10	P40-UST-02-083019	8260C Gas (NWTPH)	D	13		H007838	
19H0481-16	P40-UST-03-083019	8260C Gas (NWTPH)	E	14		H007838	
19H0481-22	P40-UST-04-083019	8260C Gas (NWTPH)	D	15		H007838	
19H0481-28	P40-UST-05-083019	8260C Gas (NWTPH)	D	16		H007838	
SHI0097-CCV1	CCV	QC		17	H007877	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1052	V309051901.D	RINSE				1								
2	1118	V309051902.D	SHI0-TUN1				1								
3	1149	V309051903.D	SHI0085-TUN1				1								
4	1230	V309051904.D	SHI0085-ICV1				1	5.41	107094	5.79	154442	7.81	156589	9.50	101121
5	1230	V309051904LCS.D	BHI0133-BS1				1	5.41	107094	5.79	154442	7.81	156589	9.50	101121
6	1257	V309051905.D	BHI0133-BSD1				1	5.41	114506	5.79	167481	7.82	173229	9.50	109692
7	1323	V309051906.D	SHI0-ICV1				1	5.41	97616	5.79	144146	7.81	142226	9.50	88323
8	1350	V309051907.D	BHI0-BSD1				1	5.41	117219	5.79	176326	7.81	178007	9.50	108907
9	1416	V309051908.D	BHI0133-BLK1				1	5.41	112398	5.79	163146	7.81	165550	9.50	104290
10	1443	V309051909.D	19H0426-08				1	5.41	113611	5.79	164395	7.82	168806	9.50	103760
11	1510	V309051910.D	19H0481-05				1	5.41	111035	5.79	159904	7.81	159851	9.50	98119
12	1537	V309051911.D	19H0429-04				1	5.41	94810	5.79	139610	7.82	134377	9.50	85083
13	1604	V309051912.D	19H0429-05				1	5.41	107610	5.79	163419	7.81	162279	9.50	102579
14	1631	V309051913.D	19H0429-06				1	5.41	102784	5.79	150605	7.81	155626	9.50	94403
15	1708	V309051914.D	19H0429-07				1	5.41	112686	5.79	158749	7.81	165682	9.50	101190
16	1735	V309051915.D	19H0426-04				1	5.41	101868	5.79	151767	7.81	152672	9.50	95456
17	1802	V309051916.D	19H0426-05				1	5.41	92252	5.79	137274	7.81	139981	9.50	83346
18	1829	V309051917.D	19H0426-06				1	5.41	110098	5.79	157645	7.81	157783	9.50	101182
19	1855	V309051918.D	19H0426-07				1	5.41	104369	5.79	150901	7.81	151522	9.50	93097
20	1921	V309051919.D	19H0481-01				1	5.41	107507	5.79	158390	7.81	158693	9.50	97373
21	1948	V309051920.D	19H0481-03				1	5.41	93529	5.79	138961	7.81	142218	9.50	89138
22	2015	V309051921.D	19H0481-10				1	5.41	100786	5.79	148454	7.81	152335	9.50	92991

23	2041	V309051922.D	19H0481-16		1	5.41	80541	5.79	118505	7.82	124703	9.50	75872
24	2108	V309051923.D	19H0481-22		1	5.41	101238	5.79	149291	7.81	145840	9.50	91792
25	2135	V309051924.D	19H0481-28		1	5.41	96727	5.79	139003	7.81	143504	9.50	88861
26	2201	V309051925.D	19I0011-01		1	5.41	105669	5.79	152965	7.81	156875	9.50	99198
27	2228	V309051926.D	19I0032-01		1	5.41	106204	5.79	152663	7.81	157545	9.50	99084
28	2255	V309051927.D	SHI0-CCV1	Gas	1	5.41	107921	5.79	157423	7.82	162540	9.50	101592
29	2322	V309051928.D	SHI0085-CCV1		1	5.41	90170	5.79	126850	7.81	128511	9.50	81440

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905g.b

Instrument: nt3.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1149	V309051903G.D	SHI0097-TUN1	1	NO MANUAL INTEGRATION
1323	V309051906G.D	SHI0097-ICV1	1	Naphthalene, d4-1,2-dichloroethane,
1323	V309051906GLCS.D	BHI0133-BS2	1	Naphthalene, d4-1,2-dichloroethane,
1350	V309051907G.D	BHI0133-BSD2	1	1,2,4-Trimethylbenzene,
1416	V309051908G.D	BHI0133-BLK2	1	NO MANUAL INTEGRATION
1510	V309051910G.D	19H0481-05	1	NO MANUAL INTEGRATION
1537	V309051911G.D	19H0429-04	1	NO MANUAL INTEGRATION
1604	V309051912G.D	19H0429-05	1	NO MANUAL INTEGRATION
1631	V309051913G.D	19H0429-06	1	NO MANUAL INTEGRATION
1708	V309051914G.D	19H0429-07	1	NO MANUAL INTEGRATION
1921	V309051919G.D	19H0481-01	1	NO MANUAL INTEGRATION
1948	V309051920G.D	19H0481-03	1	NO MANUAL INTEGRATION
2015	V309051921G.D	19H0481-10	1	NO MANUAL INTEGRATION
2041	V309051922G.D	19H0481-16	1	Toluene, d8-Toluene,
2108	V309051923G.D	19H0481-22	1	NO MANUAL INTEGRATION
2135	V309051924G.D	19H0481-28	1	NO MANUAL INTEGRATION
2255	V309051927G.D	SHI0097-CCV1	1	d4-1,2-dichloroethane,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt3.i\20190905s.b

Instrument: nt3.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1149	V309051903G.D	SHI0097-TUN1	1	NO MANUAL INTEGRATION
1323	V309051906G.D	SHI0097-ICV1	1	NO MANUAL INTEGRATION
1323	V309051906GLCS.D	BHI0133-BS2	1	NO MANUAL INTEGRATION
1350	V309051907G.D	BHI0133-BSD2	1	NO MANUAL INTEGRATION
1416	V309051908G.D	BHI0133-BLK2	1	NO MANUAL INTEGRATION
1510	V309051910G.D	19H0481-05	1	NO MANUAL INTEGRATION
1537	V309051911G.D	19H0429-04	1	NO MANUAL INTEGRATION
1604	V309051912G.D	19H0429-05	1	NO MANUAL INTEGRATION
1631	V309051913G.D	19H0429-06	1	NO MANUAL INTEGRATION
1708	V309051914G.D	19H0429-07	1	NO MANUAL INTEGRATION
1921	V309051919G.D	19H0481-01	1	NO MANUAL INTEGRATION
1948	V309051920G.D	19H0481-03	1	NO MANUAL INTEGRATION
2015	V309051921G.D	19H0481-10	1	NO MANUAL INTEGRATION
2041	V309051922G.D	19H0481-16	1	NO MANUAL INTEGRATION
2108	V309051923G.D	19H0481-22	1	NO MANUAL INTEGRATION
2135	V309051924G.D	19H0481-28	1	NO MANUAL INTEGRATION
2255	V309051927G.D	SHI0097-CCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 11-Sep-2019 15:30

V309051903G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051906G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051906GLCS.D	Data Locked	paul, 11-Sep-2019 15:27
V309051907G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051908G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051910G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051911G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051912G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051913G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051914G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051919G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051920G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051921G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051922G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051923G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051924G.D	Data Locked	paul, 11-Sep-2019 15:27
V309051927G.D	Data Locked	paul, 11-Sep-2019 15:27

Security Status Report

Date: 11-Sep-2019 15:28

V309051903G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051906G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051906GLCS.D	Data Locked	paul, 11-Sep-2019 15:28
V309051907G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051908G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051910G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051911G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051912G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051913G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051914G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051919G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051920G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051921G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051922G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051923G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051924G.D	Data Locked	paul, 11-Sep-2019 15:28
V309051927G.D	Data Locked	paul, 11-Sep-2019 15:28

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Sequence: SHI0138

SDG: 19H0481
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument: NT2
Calibration: CI00026

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
BFB	SHI0138-TUN1	V209101902G.D	NA	09/10/19 10:53
ICV	SHI0138-ICV1	V209101903G.D	NA	09/10/19 11:32
LCS	BHI0255-BS1	V209101903LCSG.D	Solid	09/10/19 11:32
LCS Dup	BHI0255-BSD1	V209101904G.D	Solid	09/10/19 11:52
Blank	BHI0255-BLK1	V209101908G.D	Solid	09/10/19 13:16
P40-UST-02-9'-083019	19H0481-14	V209101916G.D	Solid	09/10/19 16:18
P40-UST-03-4.5'-083019	19H0481-18	V209101917G.D	Solid	09/10/19 16:39
P40-UST-04-4.5'-083019	19H0481-24	V209101919G.D	Solid	09/10/19 17:19
P40-UST-505-4.5'-083019	19H0481-32	V209101922G.D	Solid	09/10/19 18:20
P40-UST-05-11'-083019	19H0481-34	V209101923G.D	Solid	09/10/19 18:40
P40-UST-02-9'-083019	BHI0255-MS1	V209101929G.D	Solid	09/10/19 20:42
P40-UST-02-9'-083019	BHI0255-MSD1	V209101930G.D	Solid	09/10/19 21:02
CCV	SHI0138-CCV1	V209101931G.D	NA	09/10/19 21:22

Work Order(s): 19H0481

Analysis	Matrix	Method
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA	LH	09/11/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES	LH	09/11/2019
3	PH <=2 / 5035 Preserved for all Workorders	YES	LH	09/11/2019
4	BFB abundance and time criteria met (8260C only)	YES	LH	09/11/2019
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	LH	09/11/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES	LH	09/11/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES	LH	09/11/2019
	Comments: *Manual integrations were performed to correct baseline irregularity.*			
8	Narrate any Workorders where the Project specific requirements have not been met	NA	LH	09/11/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	YES	LH	09/11/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES	LH	09/11/2019
11	AUTOCHECK: Blank checked for exceedence of criteria	YES *	LH	09/11/2019
12	AUTOCHECK: Check blank spike recovery	YES *	LH	09/11/2019
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES *	LH	09/11/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES *	LH	09/11/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	LH	09/11/2019
16	AUTOCHECK: Matrix spike recoveries within limits	YES *	LH	09/11/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	YES *	LH	09/11/2019
18	AUTOCHECK: List of compounds listed as spiked are present	YES *	LH	09/11/2019
19	AUTOCHECK: Check Surrogate recoveries	YES *	LH	09/11/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	LH	09/11/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES	BB	09/11/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	BB	09/11/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	YES	BB	09/11/2019

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481	
Analysis	**Matrix**	**Method**
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	LH	09/11/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	LH	09/11/2019
26	Additional Notes (ANALYST and REVIEWER)	NA	BB	09/11/2019

Printed: 9/11/2019 1:18:31PM

ANALYSIS SEQUENCE

SHI0138

Instrument: NT2
Element Column ID: 1306512 RTXV
Calibration ID: CI00026
Tune File: bfb.u
EM Voltage: 1647

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0138-TUN1	BFB	QC		1	H005698	H007838	
SHI0138-ICV1	ICV	QC		2	H008425	H007838	
BHI0255-BS1	LCS	QC		3		H007838	
BHI0255-BSD1	LCS Dup	QC		4		H007838	
BHI0255-BLK1	Blank	QC		5		H007838	
19H0481-14	P40-UST-02-9'-083019	8260C Gas (NWTPH)	E	6		H007838	
19H0481-18	P40-UST-03-4.5'-083019	8260C Gas (NWTPH)	E	7		H007838	
19H0481-24	P40-UST-04-4.5'-083019	8260C Gas (NWTPH)	E	8		H007838	
19H0481-32	P40-UST-505-4.5'-083019	8260C Gas (NWTPH)	E	9		H007838	
19H0481-34	P40-UST-05-11'-083019	8260C Gas (NWTPH)	E	10		H007838	
BHI0255-MS1	Matrix Spike	QC		11		H007838	
BHI0255-MSD1	Matrix Spike Dup	QC		12		H007838	
SHI0138-CCV1	CCV	QC		13	H008425	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190910.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF								
1	1032	V209101901.D	RINSE				1								
2	1053	V209101902.D	SHI0139-TUN1				1								
3	1132	V209101903.D	SHI0138-ICV1	Gas			1	5.13	188394	5.52	322661	7.58	291545	9.26	144111
4	1152	V209101904.D	BHI0255-BSD1	Gas			1	5.13	177985	5.52	309340	7.58	280857	9.27	139736
5	1212	V209101905.D	SHI0139-ICV1	VOA			1	5.13	172611	5.52	295431	7.58	273404	9.26	138789
6	1233	V209101906.D	BHI0253-BSD1	TCLP			1	5.13	175197	5.52	298934	7.58	279257	9.27	140719
7	1255	V209101907.D	SHI0139-LCV1				1	5.13	180889	5.52	305926	7.58	285785	9.26	138635
8	1316	V209101908.D	BHI0253-BLK1				1	5.13	166916	5.52	287162	7.58	262877	9.26	128328
9	1339	V209101909.D	H008736				1	5.13	166080	5.52	289388	7.58	269578	9.26	134729
10	1402	V209101910.D	19I0071-01				1	5.13	157078	5.52	274890	7.58	257432	9.27	125497
11	1425	V209101911.D	19I0071-02				1	5.13	153123	5.52	269420	7.58	250097	9.26	123714
12	1449	V209101912.D	19I0071-03				1	5.13	160098	5.52	281610	7.58	261855	9.27	126281
13	1512	V209101913.D	19I0071-04				1	5.13	160262	5.52	282078	7.58	258772	9.26	126383
14	1535	V209101914.D	19I0071-05				1	5.13	155387	5.52	270583	7.58	252991	9.27	124844
15	1558	V209101915.D	19I0071-06				1	5.13	159592	5.52	281520	7.58	263176	9.27	127539
16	1618	V209101916.D	19H0481-14				1	5.12	161043	5.52	280634	7.58	267780	9.26	129272
17	1639	V209101917.D	19H0481-18				1	5.12	158084	5.51	273470	7.58	275055	9.26	134386
18	1659	V209101918.D	19H0481-20	Needs 4.5uL			1	5.13	168324	5.52	296410	7.58	292333	9.27	145114
19	1719	V209101919.D	19H0481-24				1	5.12	174369	5.52	300407	7.58	285211	9.27	142150
20	1739	V209101920.D	19H0481-26	Needs 90uL			1	5.12	170693	5.51	298306	7.58	295320	9.27	148572

21	1800	V209101921.D	19H0481-30	CO	1	5.12	173225	5.52	299436	7.58	288287	9.27	144531
22	1820	V209101922.D	19H0481-32		1	5.12	172795	5.51	295125	7.58	282281	9.26	142572
23	1840	V209101923.D	19H0481-34		1	5.12	174552	5.51	305795	7.58	291873	9.27	143865
24	1901	V209101924.D	19I0134-01		1	5.13	181638	5.52	311961	7.58	294867	9.26	139023
25	1921	V209101925.D	19I0134-02		1	5.13	178671	5.52	305874	7.58	283027	9.26	138478
26	1941	V209101926.D	19I0134-03		1	5.13	170795	5.52	293232	7.58	267928	9.27	129596
27	2002	V209101927.D	19I0134-04		1	5.13	175131	5.52	301992	7.58	272945	9.26	132907
28	2022	V209101928.D	BHI0253-MS1	19I0071-02MS	1	5.13	167445	5.52	287073	7.58	267756	9.26	137154
29	2042	V209101929.D	BHI0255-MS1	19H0481-14MS	1	5.12	175677	5.52	308331	7.58	287097	9.27	140591
30	2102	V209101930.D	BHI0255-MSD1	19H0481-14MSD	1	5.12	175800	5.51	312716	7.58	294332	9.27	144715
31	2122	V209101931.D	SHI0138-CCV1	GAS	1	5.13	182229	5.52	318311	7.58	293931	9.27	141675
32	2143	V209101932.D	SHI0139-CCV1	VOA	1	5.13	183318	5.52	313781	7.58	290388	9.26	144919

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190910g.b

Instrument: nt2.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1053	V209101902G.D	SHI0-TUN1	1	NO MANUAL INTEGRATION
1132	V209101903G.D	SHI0138-ICV1	1	nC6, Pentafluorobenzene, d4-1,2-dichloroethane, d4-1,2-Dichlorobenzene,
1132	V209101903LCSG.D	BHI0255-BS1	1	nC6, Pentafluorobenzene, d4-1,2-dichloroethane, d4-1,2-Dichlorobenzene,
1152	V209101904G.D	BHI0255-BSD1	1	Naphthalene, Pentafluorobenzene, d4-1,2-dichloroethane, d4-1,2-Dichlorobenzene,
1316	V209101908G.D	BHI0255-BLK1	1	NO MANUAL INTEGRATION
1618	V209101916G.D	19H0481-14	1	NO MANUAL INTEGRATION
1639	V209101917G.D	19H0481-18	1	nC12-Dodecane, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1659	V209101918G.D	19H0481-20	1	nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-
1719	V209101919G.D	19H0481-24	1	nC12-Dodecane, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1739	V209101920G.D	19H0481-26	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Di d4-1,2-Dichlorobenzene,
1800	V209101921G.D	19H0481-30	1	nC12-Dodecane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1820	V209101922G.D	19H0481-32	1	NO MANUAL INTEGRATION
1843	V209101923G.D	19H0481-34	1	NO MANUAL INTEGRATION
2043	V209101929G.D	BHI0255-MS1	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
2102	V209101930G.D	BHI0255-MSD1	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene,

				nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluoroberzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,	
2122	V209101931G.D	SHI0138-CCV1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190910s.b

Instrument: nt2.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1053	V209101902G.D	SHI0138-TUN1	1	NO MANUAL INTEGRATION
1132	V209101903G.D	SHI0138-ICV1	1	NO MANUAL INTEGRATION
1132	V209101903LCSG.D	BHI0255-BS1	1	NO MANUAL INTEGRATION
1152	V209101904G.D	BHI0255-BSD1	1	NO MANUAL INTEGRATION
1316	V209101908G.D	BHI0255-BLK1	1	NO MANUAL INTEGRATION
1618	V209101916G.D	19H0481-14	1	NO MANUAL INTEGRATION
1639	V209101917G.D	19H0481-18	1	NO MANUAL INTEGRATION
1659	V209101918G.D	19H0481-20	1	NO MANUAL INTEGRATION
1719	V209101919G.D	19H0481-24	1	NO MANUAL INTEGRATION
1739	V209101920G.D	19H0481-26	1	NO MANUAL INTEGRATION
1800	V209101921G.D	19H0481-30	1	NO MANUAL INTEGRATION
1820	V209101922G.D	19H0481-32	1	NO MANUAL INTEGRATION
1840	V209101923G.D	19H0481-34	1	NO MANUAL INTEGRATION
2042	V209101929G.D	BHI0255-MS1	1	NO MANUAL INTEGRATION
2102	V209101930G.D	BHI0255-MSD1	1	NO MANUAL INTEGRATION
2123	V209101931G.D	SHI0138-CCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 11-Sep-2019 13:16

V209101902G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101903G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101903LCSG.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101904G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101908G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101916G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101917G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101918G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101919G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101920G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101921G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101922G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101923G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101929G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101930G.D	Data Locked	lanih, 11-Sep-2019 13:16
V209101931G.D	Data Locked	lanih, 11-Sep-2019 13:16

Security Status Report

Date: 11-Sep-2019 13:17

V209101902G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101903G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101903LCSG.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101904G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101908G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101916G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101917G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101918G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101919G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101920G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101921G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101922G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101923G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101929G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101930G.D	Data Locked	lanih, 11-Sep-2019 13:17
V209101931G.D	Data Locked	lanih, 11-Sep-2019 13:17

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0164
Instrument: NT2
Calibration: CI00026

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
BFB	SHI0164-TUN1	V209111902G.D	NA	09/11/19 07:04
ICV	SHI0164-ICV1	V209111903G.D	NA	09/11/19 07:56
LCS	BHI0298-BS1	V209111903LCSG.D	Solid	09/11/19 07:56
LCS	BHI0303-BS1	V209111903LCS2G.D	Solid	09/11/19 07:56
LCS Dup	BHI0298-BSD1	V209111905G.D	Solid	09/11/19 08:37
LCS Dup	BHI0303-BSD1	V209111905LCSD2G.D	Solid	09/11/19 08:37
Blank	BHI0298-BLK1	V209111910G.D	Solid	09/11/19 10:19
Blank	BHI0303-BLK1	V209111910MB2G.D	Solid	09/11/19 10:19
P40-UST-05-4.5'-083019	19H0481-30	V209111912G.D	Solid	09/11/19 11:00
P40-UST-01-4.5'-083019	19H0481-06	V209111922G.D	Solid	09/11/19 14:33
P40-UST-01-9'-083019	19H0481-08	V209111923G.D	Solid	09/11/19 14:54
P40-UST-02-4.5'-083019	19H0481-12	V209111924G.D	Solid	09/11/19 15:14
ZZZZZ	19I0137-15	V209111925G.D	Solid	09/11/19 15:34
ZZZZZ	19I0137-16	V209111926G.D	Solid	09/11/19 15:54
CCV	SHI0164-CCV1	V209111931G.D	NA	09/11/19 17:35

Work Order(s): 19H0481

Analysis	Matrix	Method
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA		LH	09/12/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	YES		LH	09/12/2019
3	PH <=2 / 5035 Preserved for all Workorders	NO		LH	09/12/2019
	Comments: *EXCEPTION REPORT REQUIRED* *19H0481-06, -08, -12: sample was taken from the TS jars.*				
4	BFB abundance and time criteria met (8260C only)	YES		LH	09/12/2019
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA		LH	09/12/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES		LH	09/12/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES		LH	09/12/2019
	Comments: *Manual integrations were performed to correct baseline irregularity.*				
8	Narrate any Workorders where the Project specific requirements have not been met	NA		LH	09/12/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	NA		LH	09/12/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES		PKC	09/13/2019
	Comments: *Waiting on TS for 19I0137-15 and -16 - Updated 9/13/2019 PKC*				
11	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	LH	09/12/2019
12	AUTOCHECK: Check blank spike recovery	YES	*	LH	09/12/2019
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	LH	09/12/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES	*	LH	09/12/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	LH	09/12/2019
16	AUTOCHECK: Matrix spike recoveries within limits	NA	*	LH	09/12/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	LH	09/12/2019
18	AUTOCHECK: List of compounds listed as spiked are present	NA	*	LH	09/12/2019
19	AUTOCHECK: Check Surrogate recoveries	YES	*	LH	09/12/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	LH	09/12/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES		MW	09/12/2019

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481	
Analysis	**Matrix**	**Method**
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	MW	09/12/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO	MW	09/12/2019
	Comments: *EXCEPTION REPORT REQUIRED*			
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	LH	09/12/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	LH	09/12/2019
26	Additional Notes (ANALYST and REVIEWER)	YES	LH	09/12/2019
	Comments: *CCV1 was high due to carryover. Samples reported were non-detect.*			

Printed: 9/12/2019 1:46:02PM

ANALYSIS SEQUENCE

SHI0164

Instrument: NT2 Element Column ID: 1306512 RTXV
Calibration ID: CI00026 Tune File: bfb.u
EM Voltage: 1659

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0164-TUN1	BFB	QC		1	H005698	H007838	
SHI0164-ICV1	ICV	QC		2	H008425	H007838	
BHI0298-BS1	LCS	QC		3		H007838	
BHI0303-BS1	LCS	QC		4		H007838	
BHI0298-BSD1	LCS Dup	QC		5		H007838	
BHI0303-BSD1	LCS Dup	QC		6		H007838	
BHI0298-BLK1	Blank	QC		7		H007838	
BHI0303-BLK1	Blank	QC		8		H007838	
19H0481-30	P40-UST-05-4.5'-083019	8260C Gas (NWTPH)	E	9		H007838	
19H0481-06	P40-UST-01-4.5'-083019	8260C Gas (NWTPH)	B	10		H007838	
19H0481-08	P40-UST-01-9'-083019	8260C Gas (NWTPH)	B	11		H007838	
19H0481-12	P40-UST-02-4.5'-083019	8260C Gas (NWTPH)	B	12		H007838	
19I0137-15	B-18-06-S	8260C Gas (NWTPH)	C	13		H007838	
19I0137-16	B-18-12-S	8260C Gas (NWTPH)	C	14		H007838	
SHI0164-CCV1	CCV	QC		15	H008425	H007838	

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190911.b

	Time	Filename	LabID	ClientID	Vial#	pH	DF							
1	0644	V209111901.D	RINSE			1	5.13	200284	5.52	344842	7.58	309950	9.27	147449
2	0704	V209111902.D	SHI0-TUN1			1								
3	0756	V209111903.D	SHI0164-ICV1	GAS		1	5.13	201045	5.52	351074	7.58	315774	9.27	151147
4	0816	V209111904.D	SHI0-ICV1	VOA		1	5.13	188165	5.52	323941	7.58	303264	9.26	149924
5	0837	V209111905.D	BHI0298-BSD1	GAS		1	5.13	182228	5.52	317874	7.58	289114	9.26	142984
6	0857	V209111906.D	BHI0-BSD2	VOA		1	5.13	187752	5.52	323114	7.58	302055	9.26	150279
7	0918	V209111907.D	SHI0-LCV1			1	5.13	180605	5.52	313401	7.58	287564	9.26	137452
8	0938	V209111908.D	SHI0-LCV2			1	5.13	177666	5.52	310386	7.58	280573	9.27	138900
9	0959	V209111909.D	SHI0-LCV3			1	5.13	185232	5.52	322070	7.58	294306	9.27	144722
10	1019	V209111910.D	BHI0298-BLK1			1	5.13	175929	5.52	309654	7.58	284141	9.26	134527
11	1039	V209111911.D	19I0069-09			1	5.13	174865	5.52	307062	7.58	279699	9.27	133171
12	1100	V209111912.D	19H0481-30			1	5.12	177050	5.52	311358	7.58	298615	9.26	141689
13	1121	V209111913.D	19H0481-20	4.5uL		1	5.13	172858	5.52	303670	7.58	288972	9.27	142954
14	1141	V209111914.D	19H0481-26	90uL		1	5.13	177807	5.52	310226	7.58	289820	9.27	143681
15	1204	V209111915.D	19I0069-01	5x		1	5.13	177208	5.52	313022	7.58	286363	9.27	141358
16	1225	V209111916.D	19I0069-02			1	5.13	177996	5.52	312273	7.58	286979	9.27	142757
17	1245	V209111917.D	19I0069-03			1	5.13	181221	5.52	319869	7.58	294888	9.26	143981
18	1309	V209111918.D	19I0069-05	5x		1	5.13	172423	5.52	301619	7.58	275987	9.26	135601
19	1329	V209111919.D	19I0069-06			1	5.13	172777	5.52	306537	7.58	283919	9.26	136298
20	1350	V209111920.D	19I0069-07			1	5.13	169550	5.52	302018	7.58	278599	9.27	135641

21	1413	V209111921.D	19I0069-08	10x	1 | 5.13	170248||	5.52	295777||	7.58	272114||	9.26	130279|
22	1433	V209111922.D	19H0481-06		1 | 5.12	172629||	5.51	302048||	7.58	288176||	9.27	139116|
23	1454	V209111923.D	19H0481-08		1 | 5.12	177071||	5.51	313652||	7.58	300287||	9.27	147527|
24	1514	V209111924.D	19H0481-12		1 | 5.12	170505||	5.51	295791||	7.58	288082||	9.27	142212|
25	1534	V209111925.D	19I0137-15		1 | 5.12	179910||	5.51	313066||	7.58	307612||	9.27	154023|
26	1554	V209111926.D	19I0137-16		1 | 5.12	170711||	5.52	302337||	7.58	291920||	9.26	140280|
27	1615	V209111927.D	19I0137-17		1 | 5.52	786711||	7.58	397760||	9.28	182413|		
28	1635	V209111928.D	19I0137-18		1 | 5.12	206461||	5.51	360059||	7.58	340699||	9.26	167030|
29	1655	V209111929.D	MS1	19I0137-17MS	1 | 5.52	742829||	7.59	386292||	9.28	171435|		
30	1715	V209111930.D	MSD1	19I0137-17MSD	1 | 5.13	195041||	5.52	664137||	7.58	368327||	9.28	161824|
31	1735	V209111931.D	CCV1	GAS	1 | 5.13	196267||	5.52	342134||	7.58	314874||	9.27	150322|
32	1755	V209111932.D	CCV1	VOA	1 | 5.13	189007||	5.52	326436||	7.58	302434||	9.27	152432|
33	1815	V209111933.D	RINSE		1 | 5.13	181626||	5.52	314637||	7.58	283992||	9.27	139444|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190911g.b

Instrument: nt2.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0704	V209111902G.D	SHI0-TUN1	1	NO MANUAL INTEGRATION
0756	V209111903G.D	SHI0164-ICV1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
0756	V209111903LCS2G.D	BHI0303-BS1	1	2-Methylpentane, rC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
0756	V209111903LCSG.D	BHI0298-BS1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
0837	V209111905G.D	BHI0298-BSD1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
0837	V209111905LCSD2G.d	BHI0303-BSD1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1019	V209111910G.D	BHI0298-BLK1	1	NO MANUAL INTEGRATION
1019	V209111910MB2G.D	BHI0303-BLK1	1	NO MANUAL INTEGRATION
1039	V209111911G.D	19I0069-09	1	NO MANUAL INTEGRATION
1100	V209111912G.D	19H0481-30	1	NO MANUAL INTEGRATION
1123	V209111913G.D	19H0481-20	1	nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-
1144	V209111914G.D	19H0481-26	1	nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Naphthalene, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-
1433	V209111922G.D	19H0481-06	1	NO MANUAL INTEGRATION

1454	V209111923G.D	19H0481-08	1	NO MANUAL INTEGRATION
1514	V209111924G.D	19H0481-12	1	NO MANUAL INTEGRATION
1534	V209111925G.D	19I0137-15	1	NO MANUAL INTEGRATION
1554	V209111926G.D	19I0137-16	1	NO MANUAL INTEGRATION

Instrument: nt2.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1615	V209111927G.D	19I0137-17	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, d4-1,2-dichloroethane, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1635	V209111928G.D	19I0137-18	1	nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Di d4-1,2-Dichlorobenzene,
1655	V209111929G.D	MS1	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, d4-1,2-dichloroethane, d8-Toluene, d4-Dichlorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1715	V209111930G.D	MSD1	1	nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d4-1,2-dichloroethane, d8-Toluene, d4-Dichlorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1735	V209111931G.D	SHI0164-CCV1	1	2-Methylpentane, nC6, nC12-Dodecane, 1,2,4-Trimethylbenzene, nC10-Decane, Toluene, Naphthalene, nC7, d5-Chlorobenzene, 4-Bromofluorobenzene, Pentafluorobenzene, d8-Toluene, d4-Dichlorobenzene, Dibromofluorobenzene, 1,4-Difluorobenzene, d4-1,2-Dichlorobenzene,
1755	V209111932G.D	CCV1	1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem1\nt2.i\20190911s.b

Instrument: nt2.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0704	V209111902G.D	SHI0164-TUN1	1	NO MANUAL INTEGRATION
0756	V209111903G.D	SHI0164-ICV1	1	NO MANUAL INTEGRATION
0756	V209111903LCS2G.D	BHI0303-BS1	1	NO MANUAL INTEGRATION
0756	V209111903LCSG.D	BHI0298-BS1	1	NO MANUAL INTEGRATION
0837	V209111905G.D	BHI0298-BSD1	1	NO MANUAL INTEGRATION
0837	V209111905LCSD2G.d	BHI0303-BSD1	1	NO MANUAL INTEGRATION
1019	V209111910G.D	BHI0298-BLK1	1	NO MANUAL INTEGRATION
1019	V209111910MB2G.D	BHI0303-BLK1	1	NO MANUAL INTEGRATION
1100	V209111912G.D	19H0481-30	1	NO MANUAL INTEGRATION
1121	V209111913G.D	19H0481-20	1	NO MANUAL INTEGRATION
1141	V209111914G.D	19H0481-26	1	NO MANUAL INTEGRATION
1433	V209111922G.D	19H0481-06	1	NO MANUAL INTEGRATION
1454	V209111923G.D	19H0481-08	1	NO MANUAL INTEGRATION
1514	V209111924G.D	19H0481-12	1	NO MANUAL INTEGRATION
1534	V209111925G.D	19I0137-15	1	NO MANUAL INTEGRATION
1553	V209111926G.D	19I0137-16	1	NO MANUAL INTEGRATION
1731	V209111931G.D	SHI0164-CCV1	1	NO MANUAL INTEGRATION

Security Status Report

Date: 12-Sep-2019 13:45

V209111902G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903LCS2G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903LCSG.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111905G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111905LCSD2G.d	Data Locked	lanih, 12-Sep-2019 13:45
V209111910G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111910MB2G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111911G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111912G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111913G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111914G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111922G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111923G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111924G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111925G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111926G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111927G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111928G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111929G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111930G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111931G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111932G.D	Data Locked	lanih, 12-Sep-2019 13:45

Security Status Report

Date: 12-Sep-2019 13:45

V209111902G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903LCS2G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111903LCSG.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111905G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111905LCSD2G.d	Data Locked	lanih, 12-Sep-2019 13:45
V209111910G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111910MB2G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111912G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111913G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111914G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111922G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111923G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111924G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111925G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111926G.D	Data Locked	lanih, 12-Sep-2019 13:45
V209111931G.D	Data Locked	lanih, 12-Sep-2019 13:45

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Sequence: SHI0187

SDG: 19H0481
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument: NT2
Calibration: CI00026

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
BFB	SHI0187-TUN1	V209121902G.D	NA	09/12/19 06:53
ICV	SHI0187-ICV1	V209121903G.D	NA	09/12/19 07:31
LCS	BHI0335-BS1	V209121903GLCS.D	Solid	09/12/19 07:31
LCS Dup	BHI0335-BSD1	V209121905G.D	Solid	09/12/19 08:12
Blank	BHI0335-BLK1	V209121910G.D	Solid	09/12/19 09:53
ZZZZZ	19I0137-18	V209121911G.D	Solid	09/12/19 10:14
ZZZZZ	19I0137-17	V209121912G.D	Solid	09/12/19 10:34
P40-UST-03-8'-083019	19H0481-20	V209121915G.D	Solid	09/12/19 11:35
P40-UST-04-14.5'-083019	19H0481-26	V209121916G.D	Solid	09/12/19 11:55
CCV	SHI0187-CCV1	V209121917G.D	NA	09/12/19 12:16

Work Order(s): 19H0481

Analysis	Matrix	Method
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
1	Instrument maintenance is recorded in Element	NA	PKC	09/13/2019
2	Samples have no Bubbles/Headspace of note for all Workorders	NA	PKC	09/13/2019
3	PH <=2 / 5035 Preserved for all Workorders	YES	PKC	09/13/2019
4	BFB abundance and time criteria met (8260C only)	YES	PKC	09/13/2019
5	Narrate all Internal Standard areas not within 50-200% for all affected Workorders	NA	PKC	09/13/2019
6	Retention times within windows and coelution summary checked for all Workorders	YES	PKC	09/13/2019
7	Rationale provided for all manual Integrations not done for baseline corrections per SOP 1021s	YES	PKC	09/13/2019
	Comments: *Manual integrations to resolve IS/SS from GRO and to resolve range marker compounds.*			
8	Narrate any Workorders where the Project specific requirements have not been met	NA	PKC	09/13/2019
9	Trip Blank, Field Blank and (or) Holding Blank are below MRL for all Analytes	NA	PKC	09/13/2019
10	Extraction basis, sample prep, dilution factor, and total solids are correctly entered.	YES	PKC	09/13/2019
11	AUTOCHECK: Blank checked for exceedence of criteria	YES *	PKC	09/13/2019
12	AUTOCHECK: Check blank spike recovery	YES *	PKC	09/13/2019
13	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES *	PKC	09/13/2019
14	AUTOCHECK: Compounds in method designated as blank spike compounds are present	YES *	PKC	09/13/2019
15	AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	PKC	09/13/2019
16	AUTOCHECK: Matrix spike recoveries within limits	YES *	PKC	09/13/2019
17	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	YES *	PKC	09/13/2019
18	AUTOCHECK: List of compounds listed as spiked are present	YES *	PKC	09/13/2019
19	AUTOCHECK: Check Surrogate recoveries	YES *	PKC	09/13/2019
20	AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	PKC	09/13/2019
21	Data locked, checklist completed and status is Analyzed (REVIEWER)	YES	MW	09/13/2019
22	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES	MW	09/13/2019
23	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO	MW	09/13/2019
	Comments:			

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481	
Analysis	**Matrix**	**Method**
8260C Gas (NWTPH)	Solid	NWTPHg
8260C Gas (NWTPH)	Water	NWTPHg

Checklist: Analyst Checklist-VOA(rev4)

#	Checklist Item	Response	Analyst Initials	Date
	EXCEPTION REPORT REQUIRED			
24	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	PKC	09/13/2019
25	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA	PKC	09/13/2019
26	Additional Notes (ANALYST and REVIEWER)	YES	PKC	09/13/2019

Comments:
19I0137-17 pattern appears to be weathered gas,
19H0481-20 and 19H0481-26 pattern appears to be a heavier fuel than gasoline.

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0075	Instrument:	NT3
Calibration:	CI00022	Calibration Date:	09/05/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
SHI0075-ICB1 (Solid)	Lab File ID: V309041922G.D		Analyzed: 09/05/19 01:00	
Toluene-d8			80 - 120	
4-Bromofluorobenzene			78 - 123	
SHI0075-SCV1 (Solid)	Lab File ID: V309041923G.D		Analyzed: 09/05/19 01:27	
Toluene-d8	5.0000	99.1	0 - 200	
4-Bromofluorobenzene	5.0000	99.5	0 - 200	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0097
Instrument: NT3
Calibration: CI00022
Calibration Date: 09/05/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0133-BS2 (Water)	Lab File ID: V309051906GLCS.D		Analyzed: 09/05/19 13:23	
Toluene-d8	5.0000	97.8	80 - 120	
4-Bromofluorobenzene	5.0000	96.5	80 - 120	
SHI0097-ICV1 (Water)	Lab File ID: V309051906G.D		Analyzed: 09/05/19 13:23	
Toluene-d8	5.0000	97.8	0 - 200	
4-Bromofluorobenzene	5.0000	96.5	0 - 200	
BHI0133-BSD2 (Water)	Lab File ID: V309051907G.D		Analyzed: 09/05/19 13:50	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	96.0	80 - 120	
BHI0133-BLK2 (Water)	Lab File ID: V309051908G.D		Analyzed: 09/05/19 14:16	
Toluene-d8	5.0000	99.7	80 - 120	
4-Bromofluorobenzene	5.0000	97.6	80 - 120	
19H0481-05 (Water)	Lab File ID: V309051910G.D		Analyzed: 09/05/19 15:10	
Toluene-d8	5.0000	97.7	80 - 120	
4-Bromofluorobenzene	5.0000	97.7	80 - 120	
19H0481-01 (Water)	Lab File ID: V309051919G.D		Analyzed: 09/05/19 19:21	
Toluene-d8	5.0000	99.0	80 - 120	
4-Bromofluorobenzene	5.0000	94.9	80 - 120	
19H0481-03 (Water)	Lab File ID: V309051920G.D		Analyzed: 09/05/19 19:48	
Toluene-d8	5.0000	99.4	80 - 120	
4-Bromofluorobenzene	5.0000	97.2	80 - 120	
19H0481-10 (Water)	Lab File ID: V309051921G.D		Analyzed: 09/05/19 20:15	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	92.3	80 - 120	
19H0481-16 (Water)	Lab File ID: V309051922G.D		Analyzed: 09/05/19 20:41	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	95.8	80 - 120	
19H0481-22 (Water)	Lab File ID: V309051923G.D		Analyzed: 09/05/19 21:08	
Toluene-d8	5.0000	98.6	80 - 120	
4-Bromofluorobenzene	5.0000	98.1	80 - 120	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0097	Instrument:	NT3
Calibration:	CI00022	Calibration Date:	09/05/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
19H0481-28 (Water)	Lab File ID: V309051924G.D		Analyzed: 09/05/19 21:35	
Toluene-d8	5.0000	99.5	80 - 120	
4-Bromofluorobenzene	5.0000	99.9	80 - 120	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0138
Instrument: NT2
Calibration: CI00026
Calibration Date: 09/06/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0255-BS1 (Solid)	Lab File ID: V209101903LCSG.D		Analyzed: 09/10/19 11:32	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	
SHI0138-ICV1 (Water)	Lab File ID: V209101903G.D		Analyzed: 09/10/19 11:32	
Toluene-d8	5.0000	102	0 - 200	
4-Bromofluorobenzene	5.0000	101	0 - 200	
BHI0255-BSD1 (Solid)	Lab File ID: V209101904G.D		Analyzed: 09/10/19 11:52	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	
BHI0255-BLK1 (Solid)	Lab File ID: V209101908G.D		Analyzed: 09/10/19 13:16	
Toluene-d8	5.0000	98.9	80 - 120	
4-Bromofluorobenzene	5.0000	96.6	78 - 123	
19H0481-14 (Solid)	Lab File ID: V209101916G.D		Analyzed: 09/10/19 16:18	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	102	78 - 123	
19H0481-18 (Solid)	Lab File ID: V209101917G.D		Analyzed: 09/10/19 16:39	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	
19H0481-24 (Solid)	Lab File ID: V209101919G.D		Analyzed: 09/10/19 17:19	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	104	78 - 123	
19H0481-32 (Solid)	Lab File ID: V209101922G.D		Analyzed: 09/10/19 18:20	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	105	78 - 123	
19H0481-34 (Solid)	Lab File ID: V209101923G.D		Analyzed: 09/10/19 18:40	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	105	78 - 123	
BHI0255-MS1 (Solid)	Lab File ID: V209101929G.D		Analyzed: 09/10/19 20:42	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	105	78 - 123	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0138	Instrument:	NT2
Calibration:	CI00026	Calibration Date:	09/06/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0255-MSD1 (Solid)	Lab File ID: V209101930G.D		Analyzed: 09/10/19 21:02	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	102	78 - 123	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0164
Instrument: NT2
Calibration: CI00026
Calibration Date: 09/06/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0298-BS1 (Solid)	Lab File ID: V209111903LCSG.D		Analyzed: 09/11/19 07:56	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	99.7	78 - 123	
BHI0303-BS1 (Solid)	Lab File ID: V209111903LCS2G.D		Analyzed: 09/11/19 07:56	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	99.7	78 - 123	
SHI0164-ICV1 (Water)	Lab File ID: V209111903G.D		Analyzed: 09/11/19 07:56	
Toluene-d8	5.0000	102	0 - 200	
4-Bromofluorobenzene	5.0000	99.7	0 - 200	
BHI0298-BSD1 (Solid)	Lab File ID: V209111905G.D		Analyzed: 09/11/19 08:37	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	100	78 - 123	
BHI0303-BSD1 (Solid)	Lab File ID: V209111905LCSD2G.D		Analyzed: 09/11/19 08:37	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	100	78 - 123	
BHI0298-BLK1 (Solid)	Lab File ID: V209111910G.D		Analyzed: 09/11/19 10:19	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	94.3	78 - 123	
BHI0303-BLK1 (Solid)	Lab File ID: V209111910MB2G.D		Analyzed: 09/11/19 10:19	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	94.3	78 - 123	
19H0481-30 (Solid)	Lab File ID: V209111912G.D		Analyzed: 09/11/19 11:00	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	99.6	78 - 123	
19H0481-06 (Solid)	Lab File ID: V209111922G.D		Analyzed: 09/11/19 14:33	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	98.7	78 - 123	
19H0481-08 (Solid)	Lab File ID: V209111923G.D		Analyzed: 09/11/19 14:54	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	99.0	78 - 123	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0164
Instrument: NT2
Calibration: CI00026
Calibration Date: 09/06/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
19H0481-12 (Solid)	Lab File ID: V209111924G.D		Analyzed: 09/11/19 15:14	
Toluene-d8	5.0000	101	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	

SURROGATE RECOVERY SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG/WO: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence: SHI0187
Instrument: NT2
Calibration: CI00026
Calibration Date: 09/06/2019

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	Q
BHI0335-BS1 (Solid)	Lab File ID: V209121903GLCS.D		Analyzed: 09/12/19 07:31	
Toluene-d8	5.0000	102	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	
SHI0187-ICV1 (Solid)	Lab File ID: V209121903G.D		Analyzed: 09/12/19 07:31	
Toluene-d8	5.0000	102	0 - 200	
4-Bromofluorobenzene	5.0000	101	0 - 200	
BHI0335-BSD1 (Solid)	Lab File ID: V209121905G.D		Analyzed: 09/12/19 08:12	
Toluene-d8	5.0000	103	80 - 120	
4-Bromofluorobenzene	5.0000	98.8	78 - 123	
BHI0335-BLK1 (Solid)	Lab File ID: V209121910G.D		Analyzed: 09/12/19 09:53	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	96.8	78 - 123	
19H0481-20 (Solid)	Lab File ID: V209121915G.D		Analyzed: 09/12/19 11:35	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	101	78 - 123	
19H0481-26 (Solid)	Lab File ID: V209121916G.D		Analyzed: 09/12/19 11:55	
Toluene-d8	5.0000	100	80 - 120	
4-Bromofluorobenzene	5.0000	98.9	78 - 123	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0075
Instrument: NT3
Calibration: CI00022

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Blank (SHI0075-ICB1)		(Solid)		Lab File ID: V309041922G.D				Analyzed: 09/05/19 01:00	
Pentafluorobenzene	118075	5.41	96897	5.409	122	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	172867	7.812	140128	7.812	123	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	173200	5.787	140121	5.787	124	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	108265	9.497	90137	9.497	120	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SHI0075-SCV1)		(Solid)		Lab File ID: V309041923G.D				Analyzed: 09/05/19 01:27	
Pentafluorobenzene	117414	5.409	96897	5.409	121	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	171651	7.817	140128	7.812	122	50 - 200	0.005	+/-0.50	
1,4-Difluorobenzene	174229	5.791	140121	5.787	124	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	106541	9.496	90137	9.497	118	50 - 200	-0.001	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0097
Instrument: NT3
Calibration: CI00022

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0133-BS2)		(Water)	Lab File ID: V309051906GLCS.D				Analyzed: 09/05/19 13:23		
Pentafluorobenzene	97616	5.41	96897	5.409	101	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	142226	7.812	140128	7.812	101	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	144146	5.787	140121	5.787	103	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	88323	9.497	90137	9.497	98	50 - 200	0.000	+/-0.50	
Initial Cal Check (SHI0097-ICV1)		(Water)	Lab File ID: V309051906G.D				Analyzed: 09/05/19 13:23		
Pentafluorobenzene	97616	5.41	96897	5.409	101	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	142226	7.812	140128	7.812	101	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	144146	5.787	140121	5.787	103	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	88323	9.497	90137	9.497	98	50 - 200	0.000	+/-0.50	
LCS Dup (BHI0133-BSD2)		(Water)	Lab File ID: V309051907G.D				Analyzed: 09/05/19 13:50		
Pentafluorobenzene	117219	5.409	96897	5.409	121	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	178007	7.812	140128	7.812	127	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	176326	5.786	140121	5.787	126	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	108907	9.497	90137	9.497	121	50 - 200	0.000	+/-0.50	
Blank (BHI0133-BLK2)		(Water)	Lab File ID: V309051908G.D				Analyzed: 09/05/19 14:16		
Pentafluorobenzene	112398	5.409	96897	5.409	116	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	165550	7.811	140128	7.812	118	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	163146	5.786	140121	5.787	116	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	104290	9.502	90137	9.497	116	50 - 200	0.005	+/-0.50	
P40-UST-TB-083019 (19H0481-05)		(Water)	Lab File ID: V309051910G.D				Analyzed: 09/05/19 15:10		
Pentafluorobenzene	111035	5.409	96897	5.409	115	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	159851	7.811	140128	7.812	114	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	159904	5.786	140121	5.787	114	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	98119	9.502	90137	9.497	109	50 - 200	0.005	+/-0.50	
P40-UST-01-083019 (19H0481-01)		(Water)	Lab File ID: V309051919G.D				Analyzed: 09/05/19 19:21		
Pentafluorobenzene	107507	5.409	96897	5.409	111	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	158693	7.811	140128	7.812	113	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	158390	5.786	140121	5.787	113	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	97373	9.502	90137	9.497	108	50 - 200	0.005	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0097
Instrument: NT3
Calibration: CI00022

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
P40-UST-101-083019 (19H0481-03)		(Water)		Lab File ID: V309051920G.D				Analyzed: 09/05/19 19:48	
Pentafluorobenzene	93529	5.409	96897	5.409	97	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	142218	7.812	140128	7.812	101	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	138961	5.787	140121	5.787	99	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	89138	9.497	90137	9.497	99	50 - 200	0.000	+/-0.50	
P40-UST-02-083019 (19H0481-10)		(Water)		Lab File ID: V309051921G.D				Analyzed: 09/05/19 20:15	
Pentafluorobenzene	100786	5.409	96897	5.409	104	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	152335	7.812	140128	7.812	109	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	148454	5.787	140121	5.787	106	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	92991	9.497	90137	9.497	103	50 - 200	0.000	+/-0.50	
P40-UST-03-083019 (19H0481-16)		(Water)		Lab File ID: V309051922G.D				Analyzed: 09/05/19 20:41	
Pentafluorobenzene	80541	5.408	96897	5.409	83	50 - 200	-0.001	+/-0.50	
Chlorobenzene-d5	124703	7.816	140128	7.812	89	50 - 200	0.004	+/-0.50	
1,4-Difluorobenzene	118505	5.786	140121	5.787	85	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	75872	9.496	90137	9.497	84	50 - 200	-0.001	+/-0.50	
P40-UST-04-083019 (19H0481-22)		(Water)		Lab File ID: V309051923G.D				Analyzed: 09/05/19 21:08	
Pentafluorobenzene	101238	5.409	96897	5.409	104	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	145840	7.812	140128	7.812	104	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	149291	5.787	140121	5.787	107	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	91792	9.497	90137	9.497	102	50 - 200	0.000	+/-0.50	
P40-UST-05-083019 (19H0481-28)		(Water)		Lab File ID: V309051924G.D				Analyzed: 09/05/19 21:35	
Pentafluorobenzene	96727	5.41	96897	5.409	100	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	143504	7.812	140128	7.812	102	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	139003	5.787	140121	5.787	99	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	88861	9.497	90137	9.497	99	50 - 200	0.000	+/-0.50	
Calibration Check (SHI0097-CCV1)		(Solid)		Lab File ID: V309051927G.D				Analyzed: 09/05/19 22:55	
Pentafluorobenzene	107921	5.408	96897	5.409	111	50 - 200	-0.001	+/-0.50	
Chlorobenzene-d5	162540	7.816	140128	7.812	116	50 - 200	0.004	+/-0.50	
1,4-Difluorobenzene	157423	5.786	140121	5.787	112	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	101592	9.496	90137	9.497	113	50 - 200	-0.001	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0138
Instrument: NT2
Calibration: CI00026

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0255-BS1)		(Solid)	Lab File ID: V209101903LCSG.D				Analyzed: 09/10/19 11:32		
Pentafluorobenzene	188394	5.125	166121	5.128	113	50 - 200	-0.003	+/-0.50	
Chlorobenzene-d5	291545	7.577	262007	7.579	111	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	322661	5.515	280906	5.517	115	50 - 200	-0.002	+/-0.50	
1,4-Dichlorobenzene-d4	144111	9.262	136773	9.265	105	50 - 200	-0.003	+/-0.50	
Initial Cal Check (SHI0138-ICV1)		(Water)	Lab File ID: V209101903G.D				Analyzed: 09/10/19 11:32		
Pentafluorobenzene	188394	5.125	166121	5.128	113	50 - 200	-0.003	+/-0.50	
Chlorobenzene-d5	291545	7.577	262007	7.579	111	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	322661	5.515	280906	5.517	115	50 - 200	-0.002	+/-0.50	
1,4-Dichlorobenzene-d4	144111	9.262	136773	9.265	105	50 - 200	-0.003	+/-0.50	
LCS Dup (BHI0255-BSD1)		(Solid)	Lab File ID: V209101904G.D				Analyzed: 09/10/19 11:52		
Pentafluorobenzene	177985	5.129	166121	5.128	107	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	280857	7.58	262007	7.579	107	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	309340	5.518	280906	5.517	110	50 - 200	0.001	+/-0.50	
1,4-Dichlorobenzene-d4	139736	9.266	136773	9.265	102	50 - 200	0.001	+/-0.50	
Blank (BHI0255-BLK1)		(Solid)	Lab File ID: V209101908G.D				Analyzed: 09/10/19 13:16		
Pentafluorobenzene	166916	5.133	166121	5.128	100	50 - 200	0.005	+/-0.50	
Chlorobenzene-d5	262877	7.578	262007	7.579	100	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	287162	5.522	280906	5.517	102	50 - 200	0.005	+/-0.50	
1,4-Dichlorobenzene-d4	128328	9.263	136773	9.265	94	50 - 200	-0.002	+/-0.50	
P40-UST-02-9'-083019 (19H0481-14)		(Solid)	Lab File ID: V209101916G.D				Analyzed: 09/10/19 16:18		
Pentafluorobenzene	161043	5.121	166121	5.128	97	50 - 200	-0.007	+/-0.50	
Chlorobenzene-d5	267780	7.579	262007	7.579	102	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	280634	5.517	280906	5.517	100	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	129272	9.264	136773	9.265	95	50 - 200	-0.001	+/-0.50	
P40-UST-03-4.5'-083019 (19H0481-18)		(Solid)	Lab File ID: V209101917G.D				Analyzed: 09/10/19 16:39		
Pentafluorobenzene	158084	5.122	166121	5.128	95	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	275055	7.579	262007	7.579	105	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	273470	5.511	280906	5.517	97	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	134386	9.264	136773	9.265	98	50 - 200	-0.001	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0138
Instrument: NT2
Calibration: CI00026

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
P40-UST-04-4.5'-083019 (19H0481-24)		(Solid)		Lab File ID: V209101919G.D				Analyzed: 09/10/19 17:19	
Pentafluorobenzene	174369	5.119	166121	5.128	105	50 - 200	-0.009	+/-0.50	
Chlorobenzene-d5	285211	7.577	262007	7.579	109	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	300407	5.515	280906	5.517	107	50 - 200	-0.002	+/-0.50	
1,4-Dichlorobenzene-d4	142150	9.268	136773	9.265	104	50 - 200	0.003	+/-0.50	
P40-UST-505-4.5'-083019 (19H0481-32)		(Solid)		Lab File ID: V209101922G.D				Analyzed: 09/10/19 18:20	
Pentafluorobenzene	172795	5.121	166121	5.128	104	50 - 200	-0.007	+/-0.50	
Chlorobenzene-d5	282281	7.579	262007	7.579	108	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	295125	5.511	280906	5.517	105	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	142572	9.264	136773	9.265	104	50 - 200	-0.001	+/-0.50	
P40-UST-05-11'-083019 (19H0481-34)		(Solid)		Lab File ID: V209101923G.D				Analyzed: 09/10/19 18:40	
Pentafluorobenzene	174552	5.122	166121	5.128	105	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	291873	7.579	262007	7.579	111	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	305795	5.511	280906	5.517	109	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	143865	9.265	136773	9.265	105	50 - 200	0.000	+/-0.50	
Matrix Spike (BHI0255-MS1)		(Solid)		Lab File ID: V209101929G.D				Analyzed: 09/10/19 20:42	
Pentafluorobenzene	175677	5.122	166121	5.128	106	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	287097	7.58	262007	7.579	110	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	308331	5.518	280906	5.517	110	50 - 200	0.001	+/-0.50	
1,4-Dichlorobenzene-d4	140591	9.265	136773	9.265	103	50 - 200	0.000	+/-0.50	
Matrix Spike Dup (BHI0255-MSD1)		(Solid)		Lab File ID: V209101930G.D				Analyzed: 09/10/19 21:02	
Pentafluorobenzene	175800	5.123	166121	5.128	106	50 - 200	-0.005	+/-0.50	
Chlorobenzene-d5	294332	7.58	262007	7.579	112	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	312716	5.512	280906	5.517	111	50 - 200	-0.005	+/-0.50	
1,4-Dichlorobenzene-d4	144715	9.265	136773	9.265	106	50 - 200	0.000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0164
Instrument: NT2
Calibration: CI00026

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0298-BS1)		(Solid)	Lab File ID: V209111903LCSG.D				Analyzed: 09/11/19 07:56		
Pentafluorobenzene	201045	5.128	166121	5.128	121	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	315774	7.58	262007	7.579	121	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	351074	5.517	280906	5.517	125	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	151147	9.265	136773	9.265	111	50 - 200	0.000	+/-0.50	
LCS (BHI0303-BS1)		(Solid)	Lab File ID: V209111903LCS2G.D				Analyzed: 09/11/19 07:56		
Pentafluorobenzene	201045	5.128	166121	5.128	121	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	315774	7.58	262007	7.579	121	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	351074	5.517	280906	5.517	125	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	151147	9.265	136773	9.265	111	50 - 200	0.000	+/-0.50	
Initial Cal Check (SHI0164-ICV1)		(Water)	Lab File ID: V209111903G.D				Analyzed: 09/11/19 07:56		
Pentafluorobenzene	201045	5.128	166121	5.128	121	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	315774	7.58	262007	7.579	121	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	351074	5.517	280906	5.517	125	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	151147	9.265	136773	9.265	111	50 - 200	0.000	+/-0.50	
LCS Dup (BHI0298-BSD1)		(Solid)	Lab File ID: V209111905G.D				Analyzed: 09/11/19 08:37		
Pentafluorobenzene	182228	5.131	166121	5.128	110	50 - 200	0.003	+/-0.50	
Chlorobenzene-d5	289114	7.577	262007	7.579	110	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	317874	5.521	280906	5.517	113	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	142984	9.262	136773	9.265	105	50 - 200	-0.003	+/-0.50	
LCS Dup (BHI0303-BSD1)		(Solid)	Lab File ID: V209111905LCSD2G.D				Analyzed: 09/11/19 08:37		
Pentafluorobenzene	182228	5.131	166121	5.128	110	50 - 200	0.003	+/-0.50	
Chlorobenzene-d5	289114	7.577	262007	7.579	110	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	317874	5.521	280906	5.517	113	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	142984	9.262	136773	9.265	105	50 - 200	-0.003	+/-0.50	
Blank (BHI0298-BLK1)		(Solid)	Lab File ID: V209111910G.D				Analyzed: 09/11/19 10:19		
Pentafluorobenzene	175929	5.126	166121	5.128	106	50 - 200	-0.002	+/-0.50	
Chlorobenzene-d5	284141	7.578	262007	7.579	108	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	309654	5.521	280906	5.517	110	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	134527	9.263	136773	9.265	98	50 - 200	-0.002	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0164
Instrument: NT2
Calibration: CI00026

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (BHI0303-BLK1)		(Solid)	Lab File ID: V209111910MB2G.D				Analyzed: 09/11/19 10:19		
Pentafluorobenzene	175929	5.126	166121	5.128	106	50 - 200	-0.002	+/-0.50	
Chlorobenzene-d5	284141	7.578	262007	7.579	108	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	309654	5.521	280906	5.517	110	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	134527	9.263	136773	9.265	98	50 - 200	-0.002	+/-0.50	
P40-UST-05-4.5'-083019 (19H0481-30)		(Solid)	Lab File ID: V209111912G.D				Analyzed: 09/11/19 11:00		
Pentafluorobenzene	177050	5.12	166121	5.128	107	50 - 200	-0.008	+/-0.50	
Chlorobenzene-d5	298615	7.578	262007	7.579	114	50 - 200	-0.001	+/-0.50	
1,4-Difluorobenzene	311358	5.516	280906	5.517	111	50 - 200	-0.001	+/-0.50	
1,4-Dichlorobenzene-d4	141689	9.263	136773	9.265	104	50 - 200	-0.002	+/-0.50	
P40-UST-01-4.5'-083019 (19H0481-06)		(Solid)	Lab File ID: V209111922G.D				Analyzed: 09/11/19 14:33		
Pentafluorobenzene	172629	5.122	166121	5.128	104	50 - 200	-0.006	+/-0.50	
Chlorobenzene-d5	288176	7.58	262007	7.579	110	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	302048	5.511	280906	5.517	108	50 - 200	-0.006	+/-0.50	
1,4-Dichlorobenzene-d4	139116	9.265	136773	9.265	102	50 - 200	0.000	+/-0.50	
P40-UST-01-9'-083019 (19H0481-08)		(Solid)	Lab File ID: V209111923G.D				Analyzed: 09/11/19 14:54		
Pentafluorobenzene	177071	5.118	166121	5.128	107	50 - 200	-0.010	+/-0.50	
Chlorobenzene-d5	300287	7.576	262007	7.579	115	50 - 200	-0.003	+/-0.50	
1,4-Difluorobenzene	313652	5.514	280906	5.517	112	50 - 200	-0.003	+/-0.50	
1,4-Dichlorobenzene-d4	147527	9.267	136773	9.265	108	50 - 200	0.002	+/-0.50	
P40-UST-02-4.5'-083019 (19H0481-12)		(Solid)	Lab File ID: V209111924G.D				Analyzed: 09/11/19 15:14		
Pentafluorobenzene	170505	5.119	166121	5.128	103	50 - 200	-0.009	+/-0.50	
Chlorobenzene-d5	288082	7.576	262007	7.579	110	50 - 200	-0.003	+/-0.50	
1,4-Difluorobenzene	295791	5.514	280906	5.517	105	50 - 200	-0.003	+/-0.50	
1,4-Dichlorobenzene-d4	142212	9.268	136773	9.265	104	50 - 200	0.003	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0187
Instrument: NT2
Calibration: CI00026

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (BHI0335-BS1)		(Solid)	Lab File ID: V209121903GLCS.D				Analyzed: 09/12/19 07:31		
Pentafluorobenzene	192603	5.128	166121	5.128	116	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	300763	7.579	262007	7.579	115	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	336414	5.517	280906	5.517	120	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	145741	9.265	136773	9.265	107	50 - 200	0.000	+/-0.50	
Initial Cal Check (SHI0187-ICV1)		(Solid)	Lab File ID: V209121903G.D				Analyzed: 09/12/19 07:31		
Pentafluorobenzene	192603	5.128	166121	5.128	116	50 - 200	0.000	+/-0.50	
Chlorobenzene-d5	300763	7.579	262007	7.579	115	50 - 200	0.000	+/-0.50	
1,4-Difluorobenzene	336414	5.517	280906	5.517	120	50 - 200	0.000	+/-0.50	
1,4-Dichlorobenzene-d4	145741	9.265	136773	9.265	107	50 - 200	0.000	+/-0.50	
LCS Dup (BHI0335-BSD1)		(Solid)	Lab File ID: V209121905G.D				Analyzed: 09/12/19 08:12		
Pentafluorobenzene	173934	5.129	166121	5.128	105	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	277390	7.58	262007	7.579	106	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	304159	5.518	280906	5.517	108	50 - 200	0.001	+/-0.50	
1,4-Dichlorobenzene-d4	136116	9.265	136773	9.265	100	50 - 200	0.000	+/-0.50	
Blank (BHI0335-BLK1)		(Solid)	Lab File ID: V209121910G.D				Analyzed: 09/12/19 09:53		
Pentafluorobenzene	168869	5.129	166121	5.128	102	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	264398	7.58	262007	7.579	101	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	292625	5.518	280906	5.517	104	50 - 200	0.001	+/-0.50	
1,4-Dichlorobenzene-d4	127821	9.265	136773	9.265	93	50 - 200	0.000	+/-0.50	
P40-UST-03-8'-083019 (19H0481-20)		(Solid)	Lab File ID: V209121915G.D				Analyzed: 09/12/19 11:35		
Pentafluorobenzene	170543	5.131	166121	5.128	103	50 - 200	0.003	+/-0.50	
Chlorobenzene-d5	269517	7.577	262007	7.579	103	50 - 200	-0.002	+/-0.50	
1,4-Difluorobenzene	293300	5.521	280906	5.517	104	50 - 200	0.004	+/-0.50	
1,4-Dichlorobenzene-d4	137794	9.262	136773	9.265	101	50 - 200	-0.003	+/-0.50	
P40-UST-04-14.5'-083019 (19H0481-26)		(Solid)	Lab File ID: V209121916G.D				Analyzed: 09/12/19 11:55		
Pentafluorobenzene	169752	5.129	166121	5.128	102	50 - 200	0.001	+/-0.50	
Chlorobenzene-d5	272660	7.58	262007	7.579	104	50 - 200	0.001	+/-0.50	
1,4-Difluorobenzene	293580	5.518	280906	5.517	105	50 - 200	0.001	+/-0.50	
1,4-Dichlorobenzene-d4	133593	9.266	136773	9.265	98	50 - 200	0.001	+/-0.50	

HOLDING TIME SUMMARY

Analysis: NWTPHg

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
P40-UST-01-083019 19H0481-01	08/30/19 09:20	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 19:21	6	14	
P40-UST-101-083019 19H0481-03	08/30/19 09:25	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 19:48	6	14	
P40-UST-TB-083019 19H0481-05	08/30/19 08:40	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 15:10	6	14	
P40-UST-01-4.5'-083019 19H0481-06	08/30/19 08:40	08/30/19 16:25	09/11/19 11:52	12	14	09/11/19 14:33	12	14	
P40-UST-01-9'-083019 19H0481-08	08/30/19 08:50	08/30/19 16:25	09/11/19 11:52	12	14	09/11/19 14:54	12	14	
P40-UST-02-083019 19H0481-10	08/30/19 10:00	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 20:15	6	14	
P40-UST-02-4.5'-083019 19H0481-12	08/30/19 10:40	08/30/19 16:25	09/11/19 11:52	12	14	09/11/19 15:14	12	14	
P40-UST-02-9'-083019 19H0481-14	08/30/19 10:50	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 16:18	11	14	
P40-UST-03-083019 19H0481-16	08/30/19 12:10	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 20:41	6	14	
P40-UST-03-4.5'-083019 19H0481-18	08/30/19 11:10	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 16:39	11	14	
P40-UST-03-8'-083019 19H0481-20	08/30/19 11:15	08/30/19 16:25	09/12/19 07:26	12	14	09/12/19 11:35	13	14	
P40-UST-04-083019 19H0481-22	08/30/19 12:25	08/30/19 16:25	09/05/19 13:58	6	14	09/05/19 21:08	6	14	
P40-UST-04-4.5'-083019 19H0481-24	08/30/19 11:30	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 17:19	11	14	
P40-UST-04-14.5'-083019 19H0481-26	08/30/19 11:40	08/30/19 16:25	09/12/19 07:26	12	14	09/12/19 11:55	13	14	
P40-UST-05-083019 19H0481-28	08/30/19 14:10	08/30/19 16:25	09/05/19 13:58	5	14	09/05/19 21:35	6	14	
P40-UST-05-4.5'-083019 19H0481-30	08/30/19 13:00	08/30/19 16:25	09/11/19 10:34	11	14	09/11/19 11:00	12	14	
P40-UST-505-4.5'-083019 19H0481-32	08/30/19 13:05	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 18:20	11	14	
P40-UST-05-11'-083019 19H0481-34	08/30/19 13:10	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 18:40	11	14	
Matrix Spike BHI0255-MS1	08/30/19 10:50	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 20:42	11	14	
Matrix Spike Dup BHI0255-MSD1	08/30/19 10:50	08/30/19 16:25	09/10/19 13:10	11	14	09/10/19 21:02	11	14	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Solid
Instrument: NT2

Analyte	MDL	RL	Units
Gasoline Range Organics (Tol-Nap)	2500	5000	ug/kg

METHOD DETECTION AND REPORTING LIMITS

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Solid
Instrument: NT3

Analyte	MDL	RL	Units
Gasoline Range Organics (Tol-Nap)	2500	5000	ug/kg

METHOD DETECTION AND REPORTING LIMITS

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Water
Instrument: NT2

Analyte	MDL	RL	Units
Gasoline Range Organics (Tol-Nap)	13.6	100	ug/L

METHOD DETECTION AND REPORTING LIMITS

NWTPHg

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Water
Instrument: NT3

Analyte	MDL	RL	Units
Gasoline Range Organics (Tol-Nap)	13.6	100	ug/L

P40-UST-01-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Water	Laboratory ID:	19H0481-01 A	SDG:	19H0481
Sampled:	08/30/19 09:20	Prepared:	09/03/19 08:43	File ID:	419I0322.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 16:54
Batch:	BHI0023	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.200	89.1	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0322.D

Date : 03-SEP-2019 16:54

Client ID:

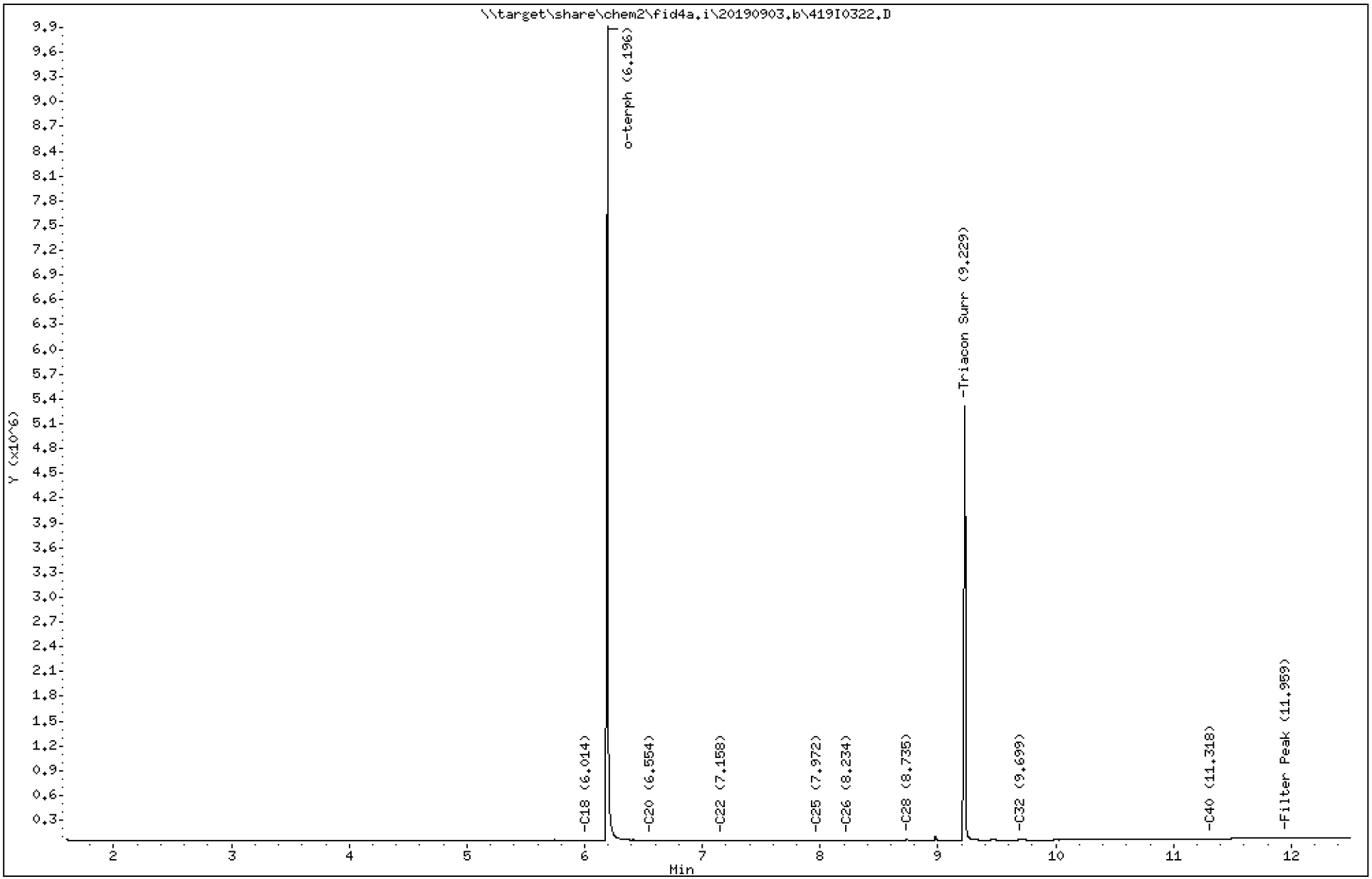
Sample Info: 19H0481-01

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0322.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-01
Client ID:
Injection: 03-SEP-2019 16:54
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	123744	1.6
C10	----				WATPHM	(C24-C38)	142114	3.9
C12	----				AK102	(C10-C25)	124878	1.4
C14	----				AK103	(C25-C36)	142114	4.0
C16	----				OR.DIES	(C10-C28)	156431	1.7
C18	6.014	-0.000	4514	4661				
C20	6.554	-0.026	4734	4673				
C22	7.158	0.017	5307	6886				
C24	----							
C25	7.972	0.010	2012	1162				
C26	8.234	0.007	1780	1630				
C28	8.735	-0.002	22554	22260				
C32	9.699	0.022	14602	42566				
C34	----							
Filter Peak	11.959	0.013	26973	32216	BUNKERC	(C10-C38)	266992	4.0
C36	----							
C38	----							
C40	11.318	0.006	23386	9312				
o-terph	6.196	-0.001	9863277	8601520				
Triacon Surr	9.229	-0.003	5262343	5066720	NAS DIES	(C10-C24)	124878	1.4

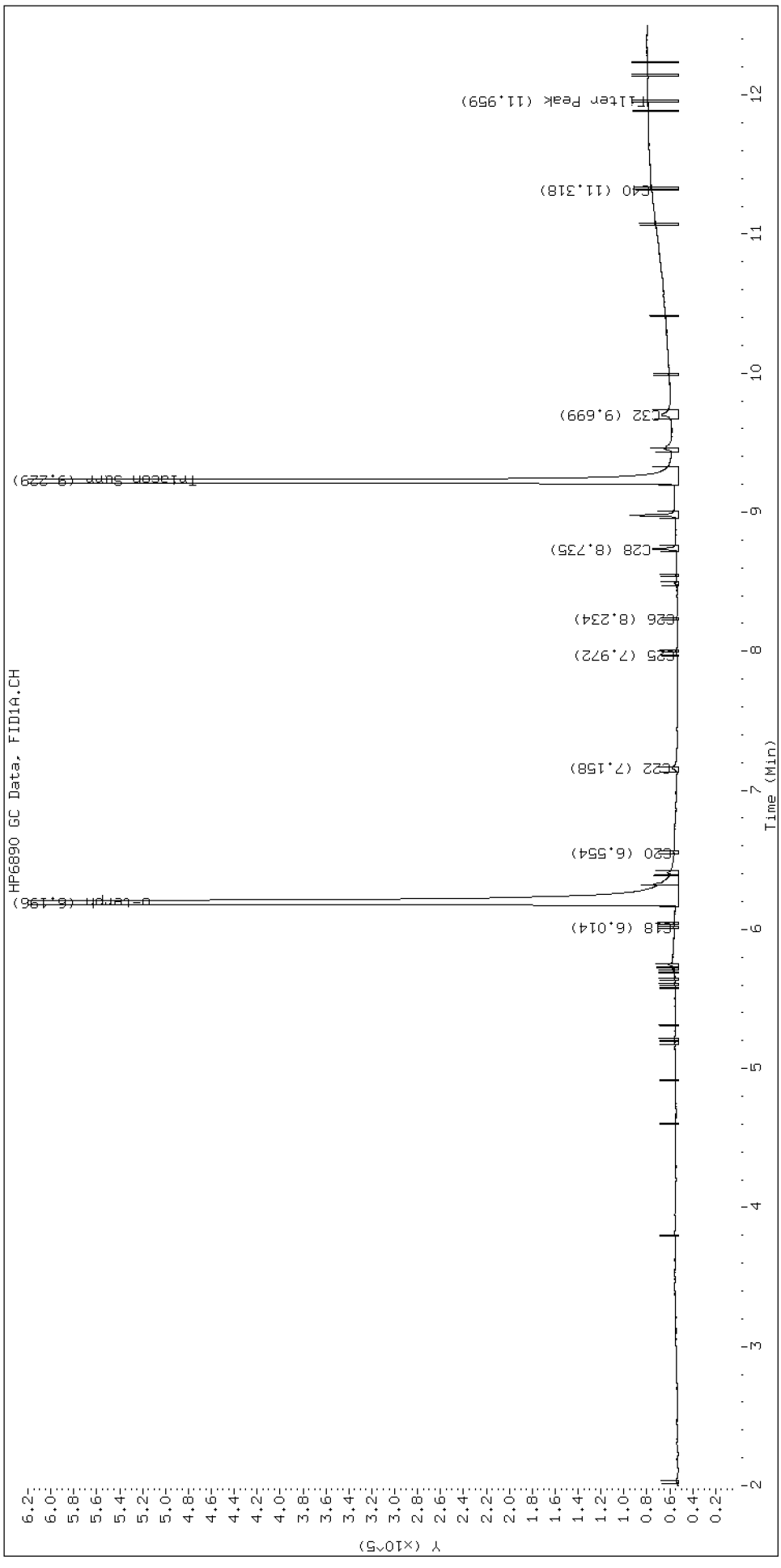
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	8601520	100.2
Triacontane	5066720	96.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190903.b/419I0322.D 19H0481-01



P40-UST-01-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-02 A	SDG:	19H0481
Sampled:	08/30/19 09:20	Prepared:	09/02/19 13:10	File ID:	419I0335.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 21:32
Batch:	BHI0019	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

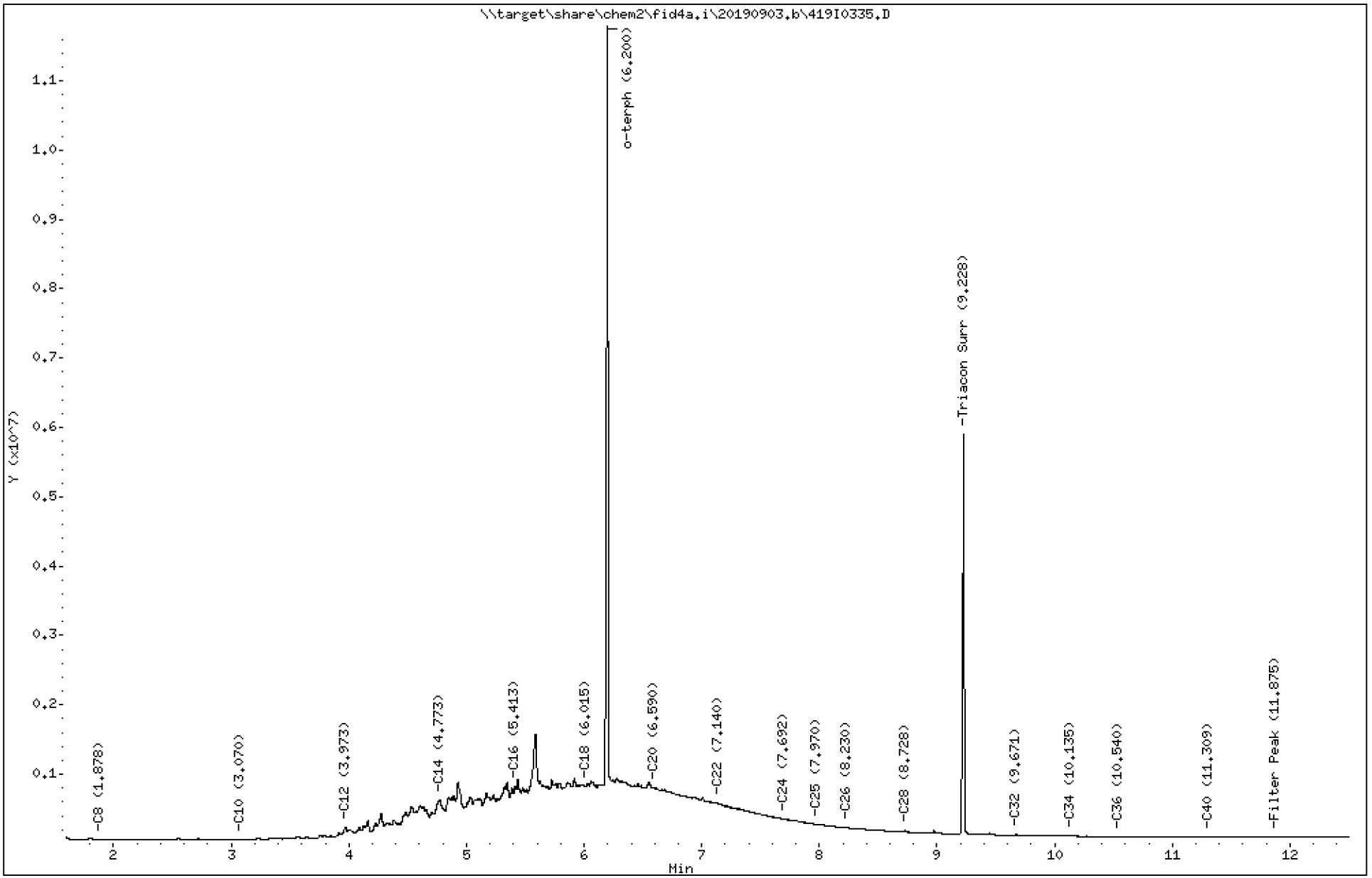
CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	3.32		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.643		0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.218	96.7	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0335.D
Date : 03-SEP-2019 21:32
Client ID:
Sample Info: 19H0481-02

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0335.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-02
Client ID:
Injection: 03-SEP-2019 21:32
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

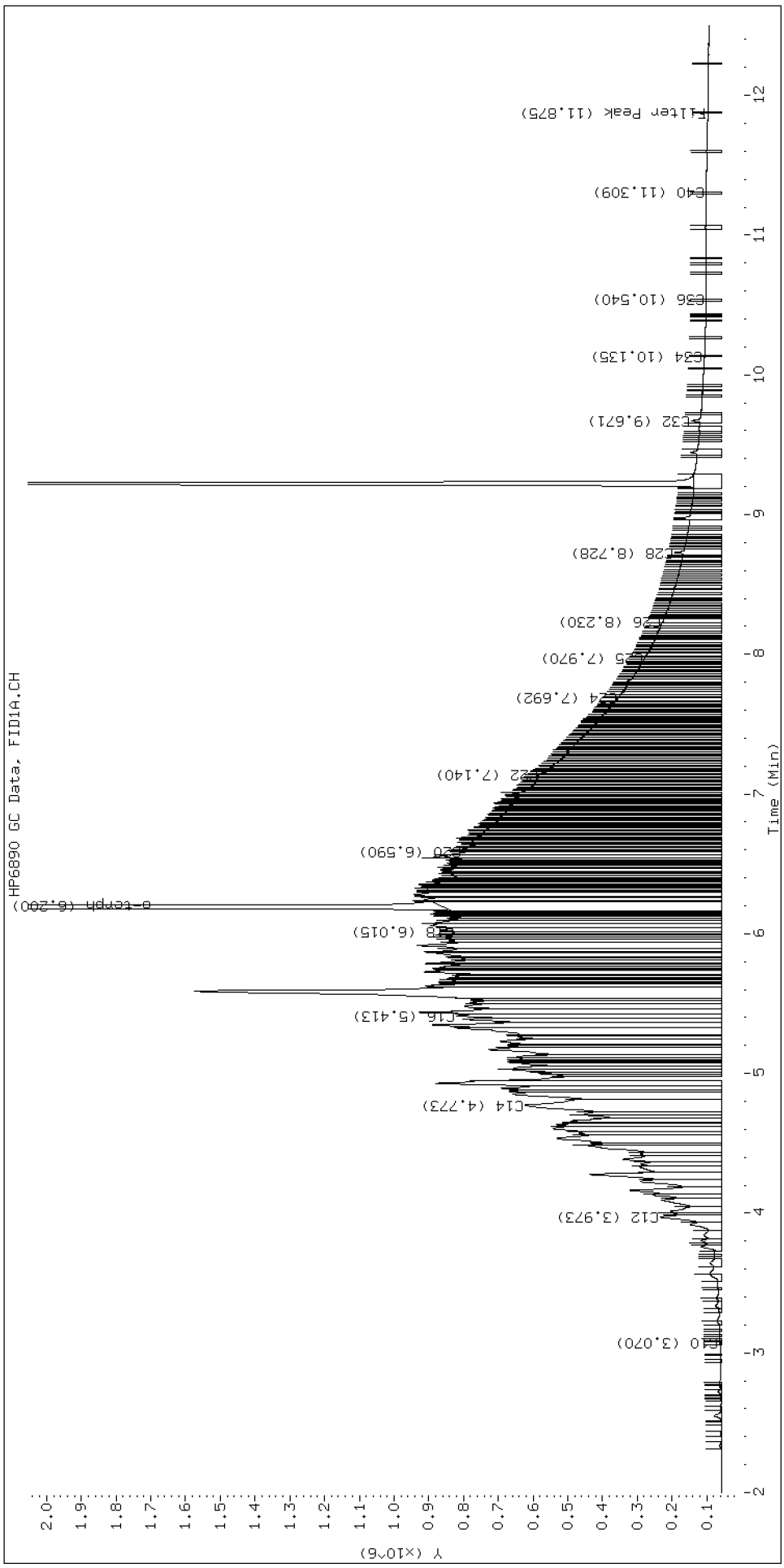
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.878	0.033	3257	2052	WATPHD	(C12-C24)	124538288	1659.0
C10	3.070	0.023	5464	7047	WATPHM	(C24-C38)	11680316	321.5
C12	3.973	-0.013	178501	406254	AK102	(C10-C25)	128811328	1414.0
C14	4.773	0.022	567897	2575530	AK103	(C25-C36)	9105774	258.7
C16	5.413	-0.004	763614	1124503	OR.DIES	(C10-C28)	134965444	1479.5
C18	6.015	0.001	766986	114875				
C20	6.590	0.010	745339	296958				
C22	7.140	-0.001	524720	389308				
C24	7.692	0.001	297942	148578				
C25	7.970	0.008	223217	199308				
C26	8.230	0.004	171902	295828				
C28	8.728	-0.009	137073	282460				
C32	9.671	-0.007	86235	250473				
C34	10.135	0.023	50500	30134				
Filter Peak	11.875	-0.072	41044	24574	BUNKERC	(C10-C38)	138021745	2051.5
C36	10.540	0.018	47121	34940				
C38	----							
C40	11.309	-0.003	46991	39648				
o-terph	6.200	0.003	10923810	9342237				
Triacon Surr	9.228	-0.005	5772880	5221010	NAS DIES	(C10-C24)	126341429	1387.8

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9342237	108.8	M
Triacontane	5221010	99.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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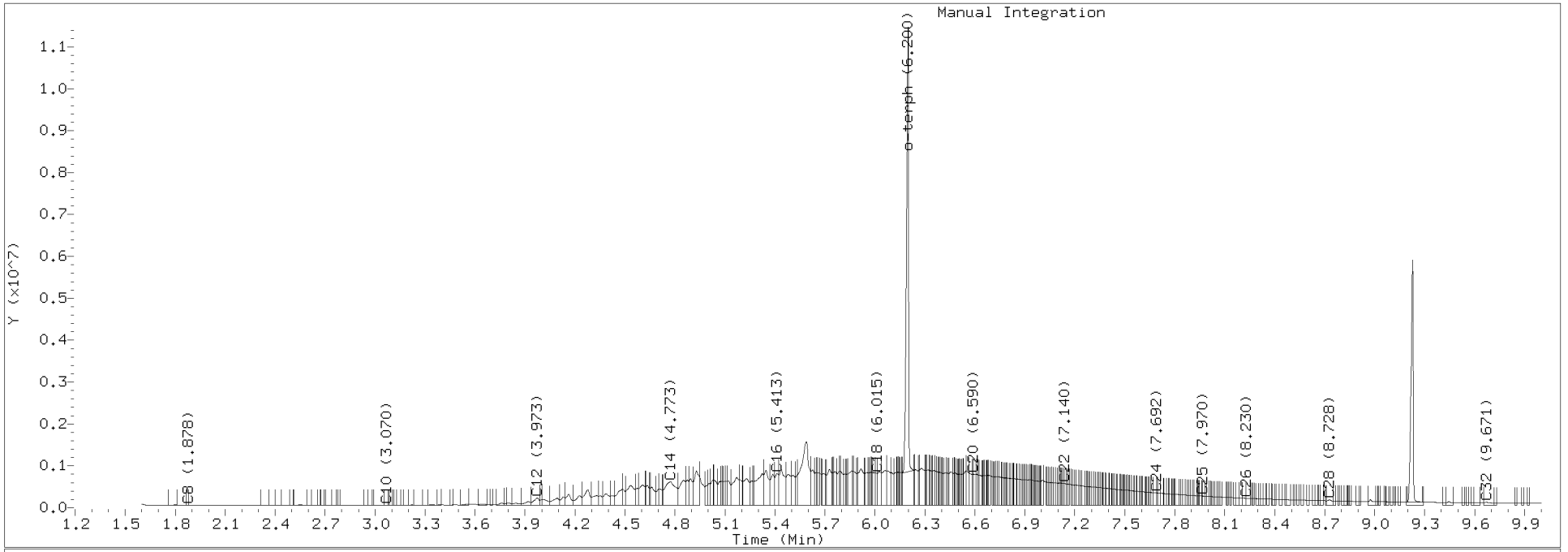
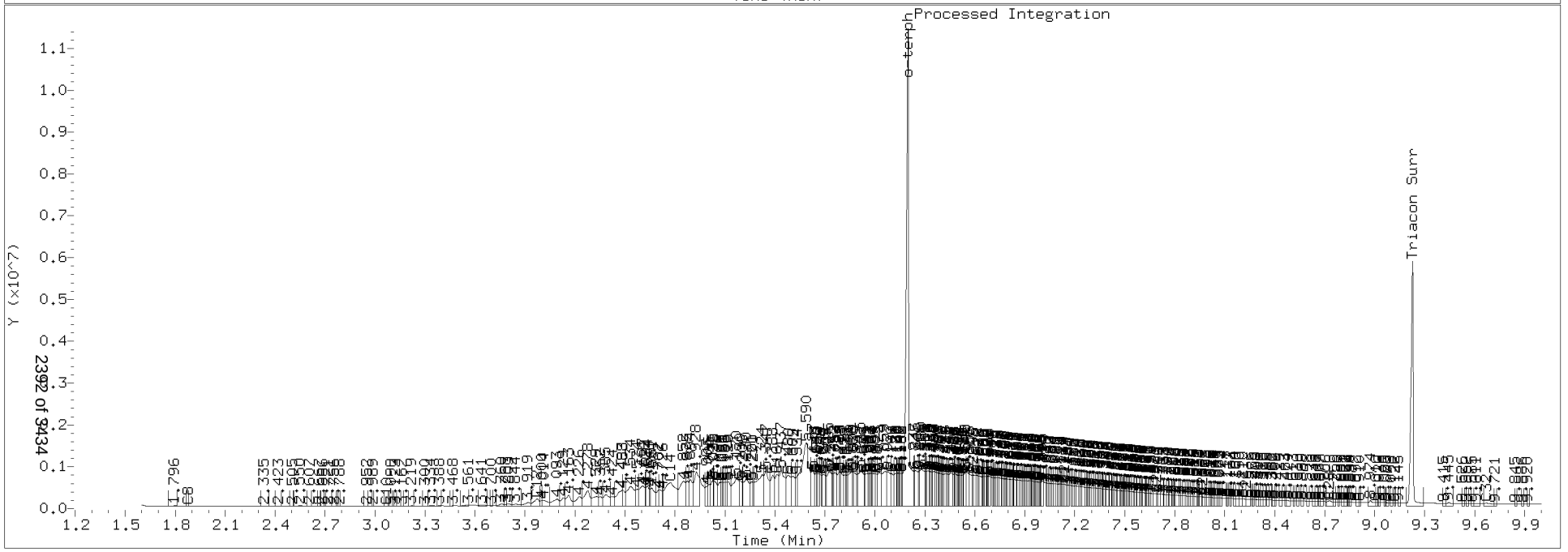
Y (x10^6)
Time (Min)
C10 (3.070)
C12 (3.973)
C14 (4.773)
C16 (5.413)
C18 (6.015)
o-terph (6.200)
C20 (6.590)
C22 (7.140)
C24 (7.692)
C25 (7.970)
C26 (8.230)
C28 (8.728)
C32 (9.671)
C34 (10.135)
C36 (10.540)
C40 (11.309)
Filter Peak (11.875)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0335.D   Injection: 03-SEP-2019 21:32

Lab ID:19H0481-02





P40-UST-101-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Water	Laboratory ID:	19H0481-03 A	SDG:	19H0481
Sampled:	08/30/19 09:25	Prepared:	09/03/19 08:43	File ID:	419I0323.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 17:15
Batch:	BHI0023	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

Cleanups: Silica Gel, Sulfuric Acid

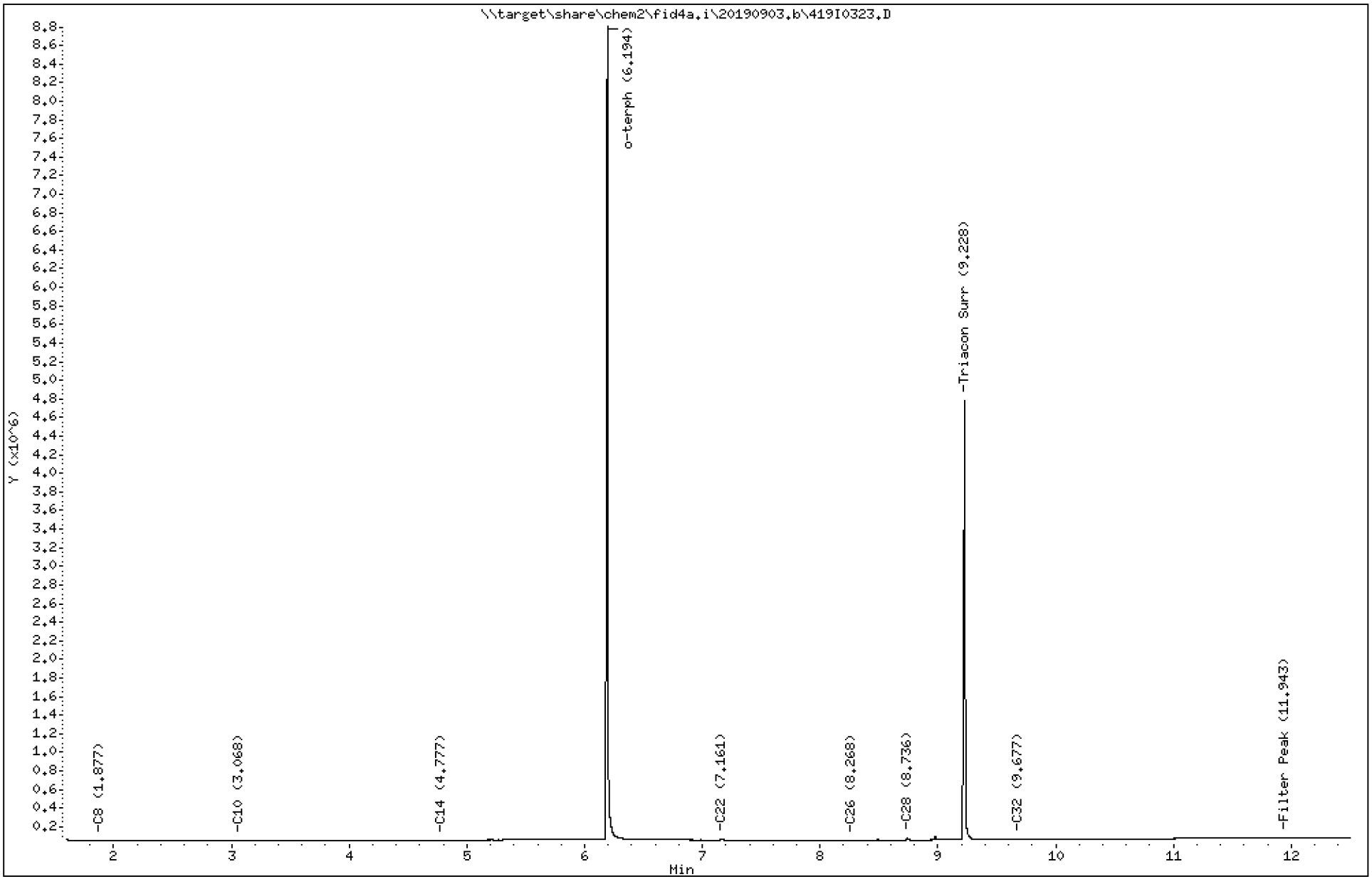
CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.175	77.8	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0323.D
Date : 03-SEP-2019 17:15
Client ID:
Sample Info: 19H0481-03

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0323.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-03
Client ID:
Injection: 03-SEP-2019 17:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.877	0.031	2428	1831	WATPHD	(C12-C24)	236474	3.2
C10	3.068	0.021	1321	1153	WATPHM	(C24-C38)	175267	4.8
C12	----				AK102	(C10-C25)	237628	2.6
C14	4.777	0.026	4274	2233	AK103	(C25-C36)	162759	4.6
C16	----				OR.DIES	(C10-C28)	280821	3.1
C18	----							
C20	----							
C22	7.161	0.021	8483	14563				
C24	----							
C25	----							
C26	8.268	0.041	6498	1801				
C28	8.736	-0.001	24030	31368				
C32	9.677	-0.001	12131	8196				
C34	----							
Filter Peak	11.943	-0.004	26711	10641	BUNKERC	(C10-C38)	412895	6.1
C36	----							
C38	----							
C40	----							
o-terph	6.194	-0.003	8755886	7513750				
Triacon Surr	9.228	-0.005	4736814	4572089	NAS DIES	(C10-C24)	237628	2.6

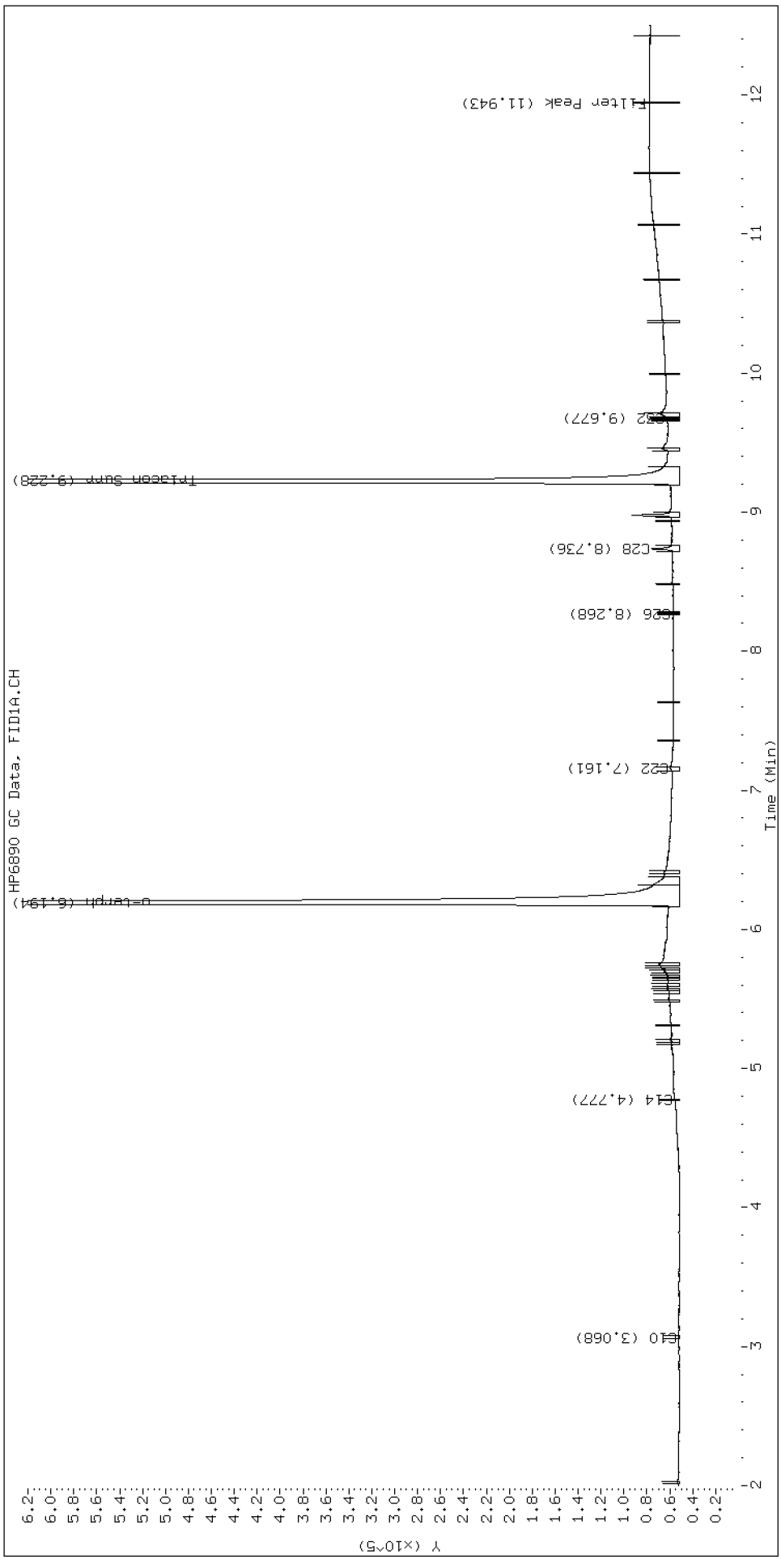
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	7513750	87.5
Triacontane	4572089	87.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190903.b/419I0323.D 19H0481-03



P40-UST-101-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-04 A	SDG:	19H0481
Sampled:	08/30/19 09:25	Prepared:	09/02/19 13:10	File ID:	419I0336.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 21:53
Batch:	BHI0019	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	3.49		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.755		0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.234	104	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0336.D

Date : 03-SEP-2019 21:53

Client ID:

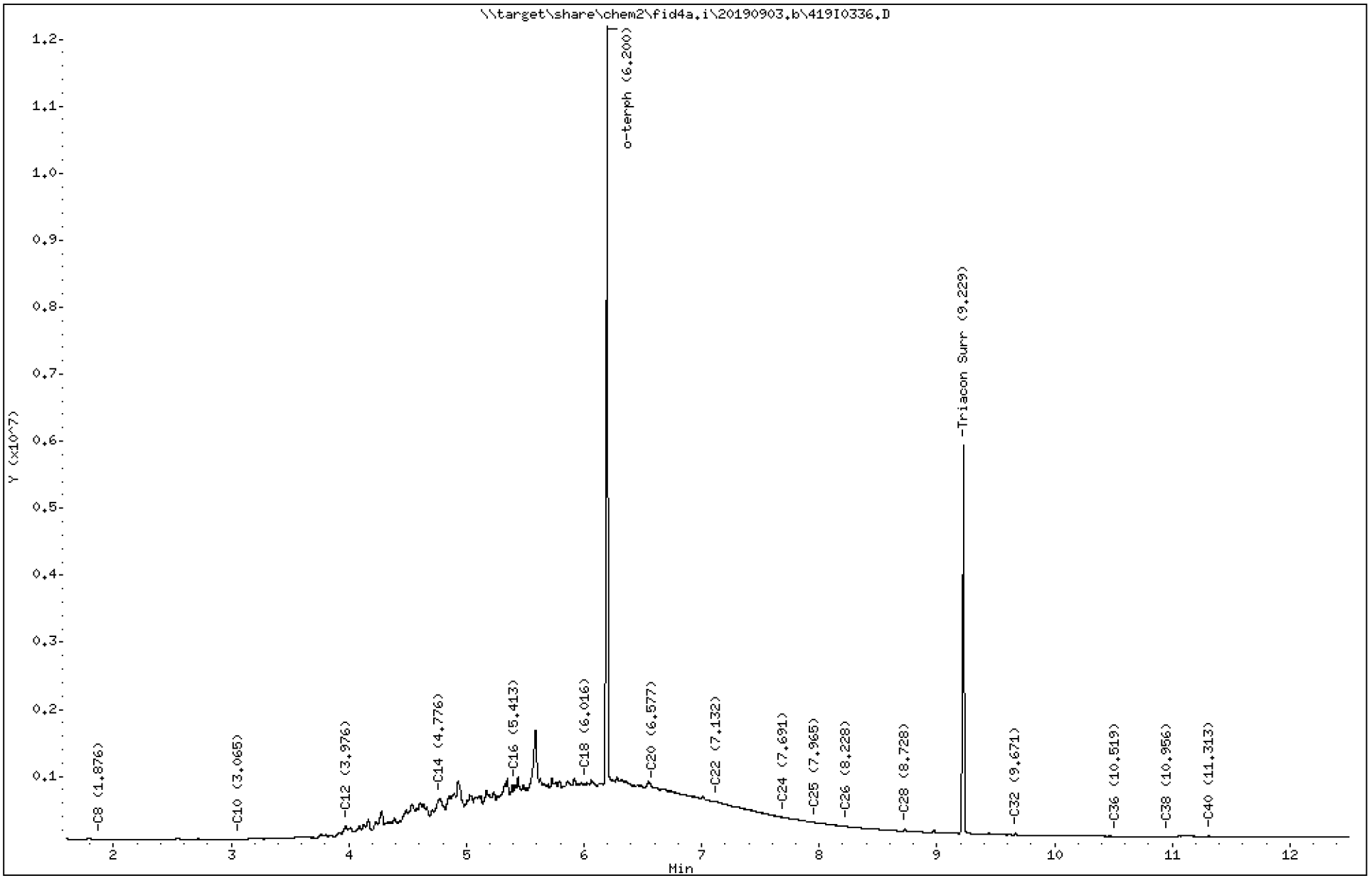
Sample Info: 19H0481-04

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0336.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-04
Client ID:
Injection: 03-SEP-2019 21:53
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

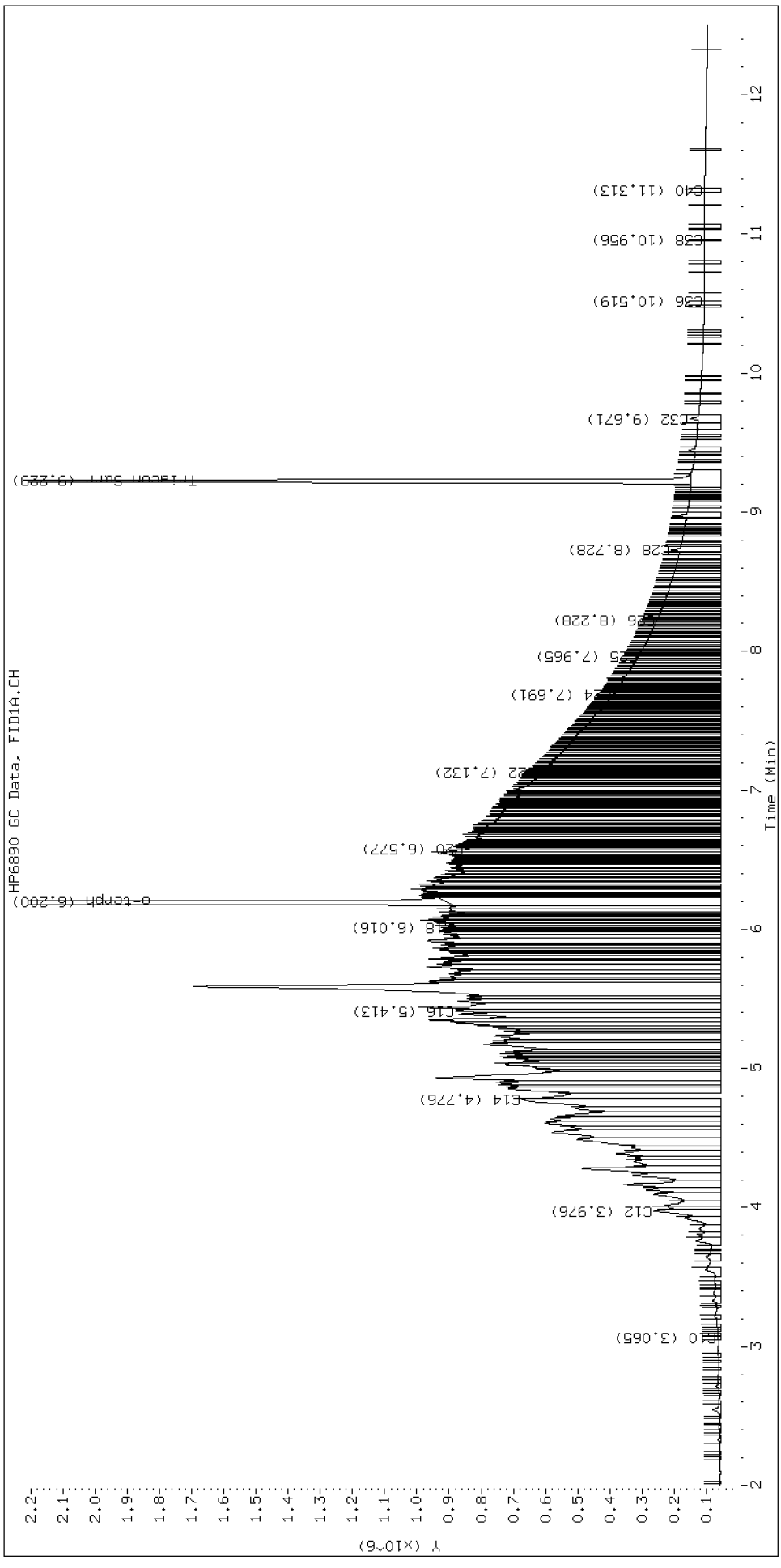
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.876	0.030	2904	3305	WATPHD	(C12-C24)	131047899	1745.7
C10	3.065	0.018	8512	10887	WATPHM	(C24-C38)	13711324	377.5
C12	3.976	-0.010	208213	475084	AK102	(C10-C25)	135772904	1490.4
C14	4.776	0.025	617621	1814855	AK103	(C25-C36)	11177499	317.6
C16	5.413	-0.004	822195	1143499	OR.DIES	(C10-C28)	143953470	1578.1
C18	6.016	0.002	825814	450953				
C20	6.577	-0.003	794413	665294				
C22	7.132	-0.008	567220	480229				
C24	7.691	-0.000	334220	280921				
C25	7.965	0.003	254224	164526				
C26	8.228	0.002	197233	59038				
C28	8.728	-0.009	153651	276941				
C32	9.671	-0.007	94502	220272				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	147069436	2186.0 M
C36	10.519	-0.003	50310	20071				
C38	10.956	0.040	49924	19924				
C40	11.313	0.001	51053	80718				
o-terph	6.200	0.003	11285420	10047408				
Triacon Surr	9.229	-0.004	5804455	5351544	NAS DIES	(C10-C24)	133358112	1464.9

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	10047408	117.1	M
Triacontane	5351544	102.1	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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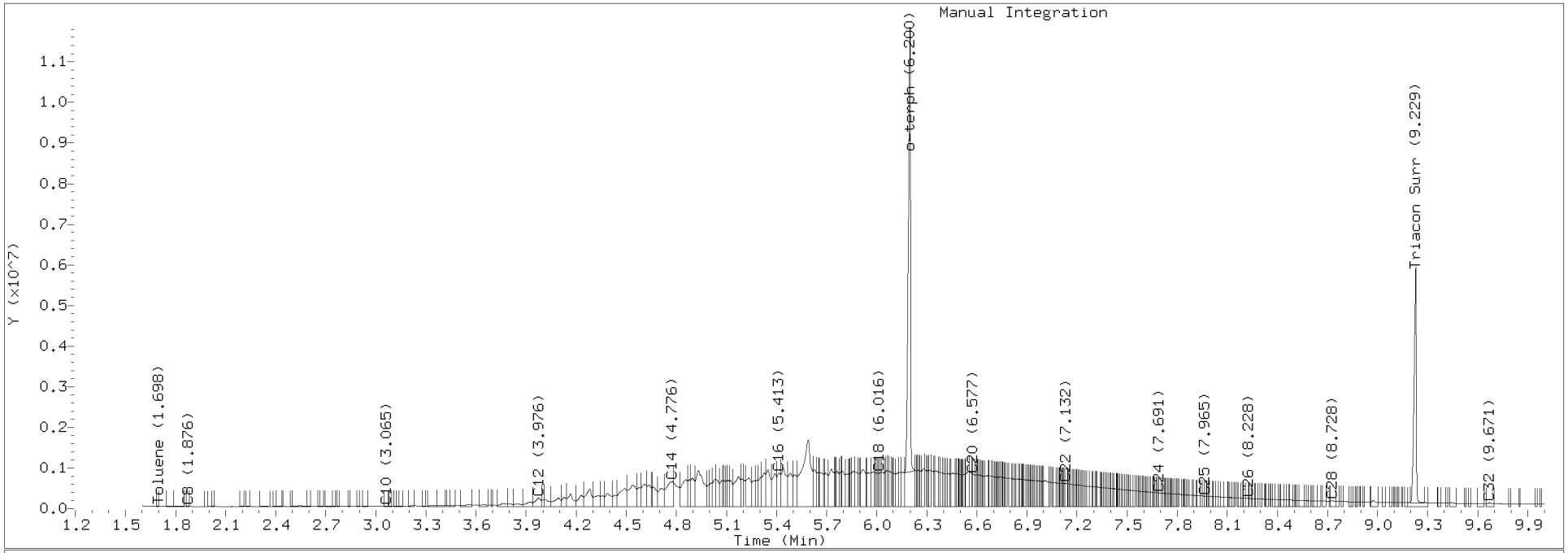
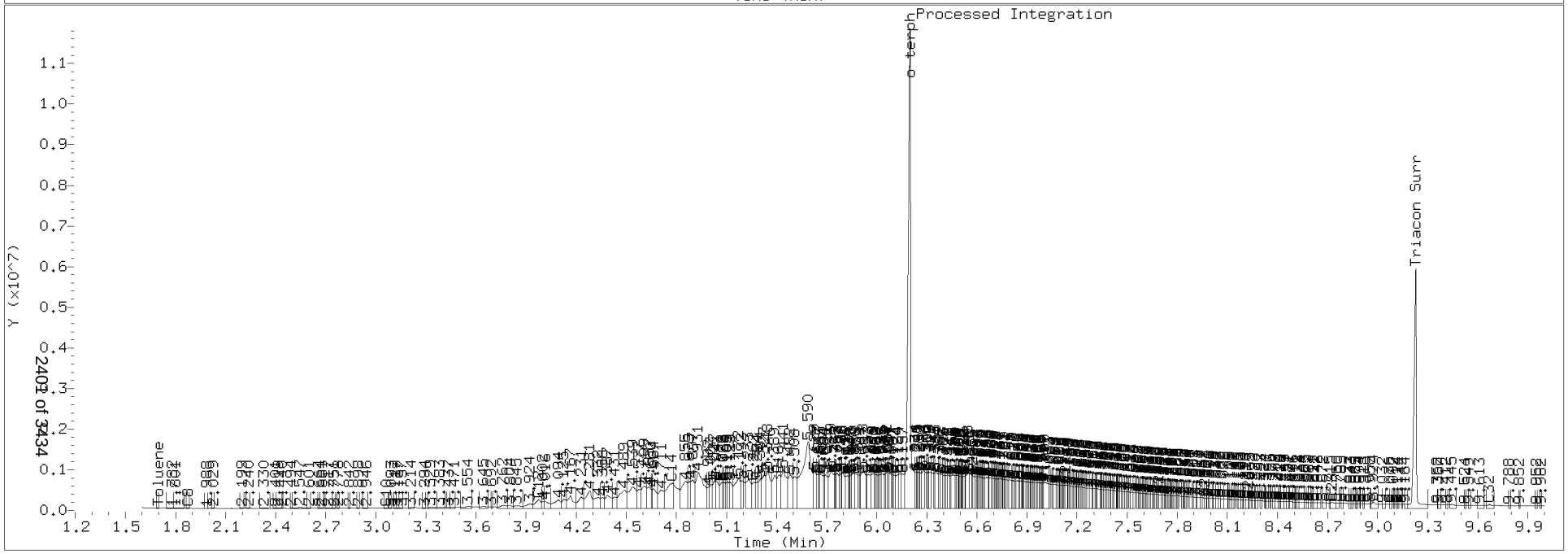
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.065)
C12 (3.976)
C14 (4.776)
C16 (5.413)
C18 (6.016)
n-terph (6.200)
C20 (6.577)
C22 (7.132)
C24 (7.691)
C25 (7.965)
C26 (8.228)
C28 (8.728)
Triacon Surr (9.229)
C32 (9.671)
C36 (10.519)
C38 (10.956)
C40 (11.313)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0336.D Injection: 03-SEP-2019 21:53

Lab ID:19H0481-04





P40-UST-01-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-06 A	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/04/19 09:25	File ID:	319I1054.D
% Solids:	96.64	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 04:53
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

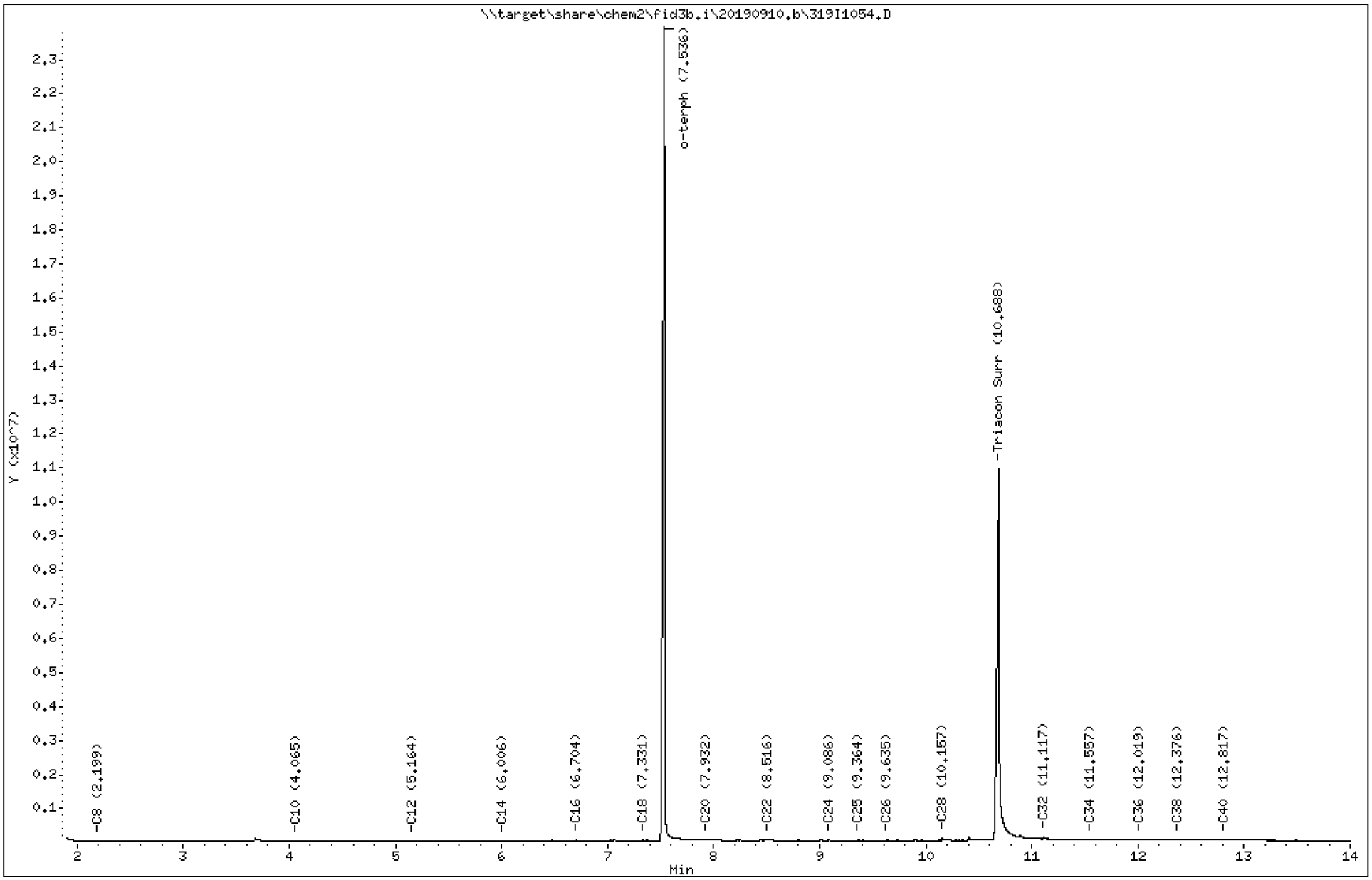
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.17	U	2.42	5.17
RRO	Motor Oil Range Organics (C24-C38)	1	10.3	U	3.09	10.3

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.630	13.5	116	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1054.D
Date : 11-SEP-2019 04:53
Client ID:
Sample Info: 19H0481-06

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1054.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-06
Client ID:
Injection: 11-SEP-2019 04:53
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	807487	4.5
C8	2.199	0.024	5152	7513	WATPHD	(C12-C24)	2977911	17.1
C10	4.065	-0.005	5850	7949	WATPHM	(C24-C38)	4577999	36.2
C12	5.164	-0.002	14752	20912	AK102	(C10-C25)	3210327	15.7
C14	6.006	0.014	16690	39909	AK103	(C25-C36)	4279002	42.1
C16	6.704	0.002	20409	38021	OR.DIES	(C10-C28)	4123903	20.0
C18	7.331	-0.007	24063	37335				
C20	7.932	-0.004	30109	75431				
C22	8.516	-0.007	39070	100469				
C24	9.086	-0.009	35899	62799				
C25	9.364	-0.010	43491	71649				
C26	9.635	-0.011	48625	76404				
C28	10.157	-0.012	87697	131546	IT.DIES	(C10-C24)	3126994	15.4
C32	11.117	-0.013	103882	162773				
C34	11.557	-0.016	32784	115165				
Filter Peak	----							
C36	12.019	0.021	32176	83799				
o-terph	7.536	0.003	23932624	29095353				
Triacon Surr	10.688	-0.002	10940801	19178996				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	29095353	130.8
Triacontane	19178996	112.8

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

P40-UST-01-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-07 A	SDG:	19H0481
Sampled:	08/30/19 08:40	Prepared:	09/03/19 15:50	File ID:	419I0446.D
% Solids:	96.64	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 00:47
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10.03 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.16	U	2.41	5.16
RRO	Motor Oil Range Organics (C24-C38)	1	10.3	U	3.08	10.3

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.606	10.4	90.0	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0446.D

Date : 05-SEP-2019 00:47

Client ID:

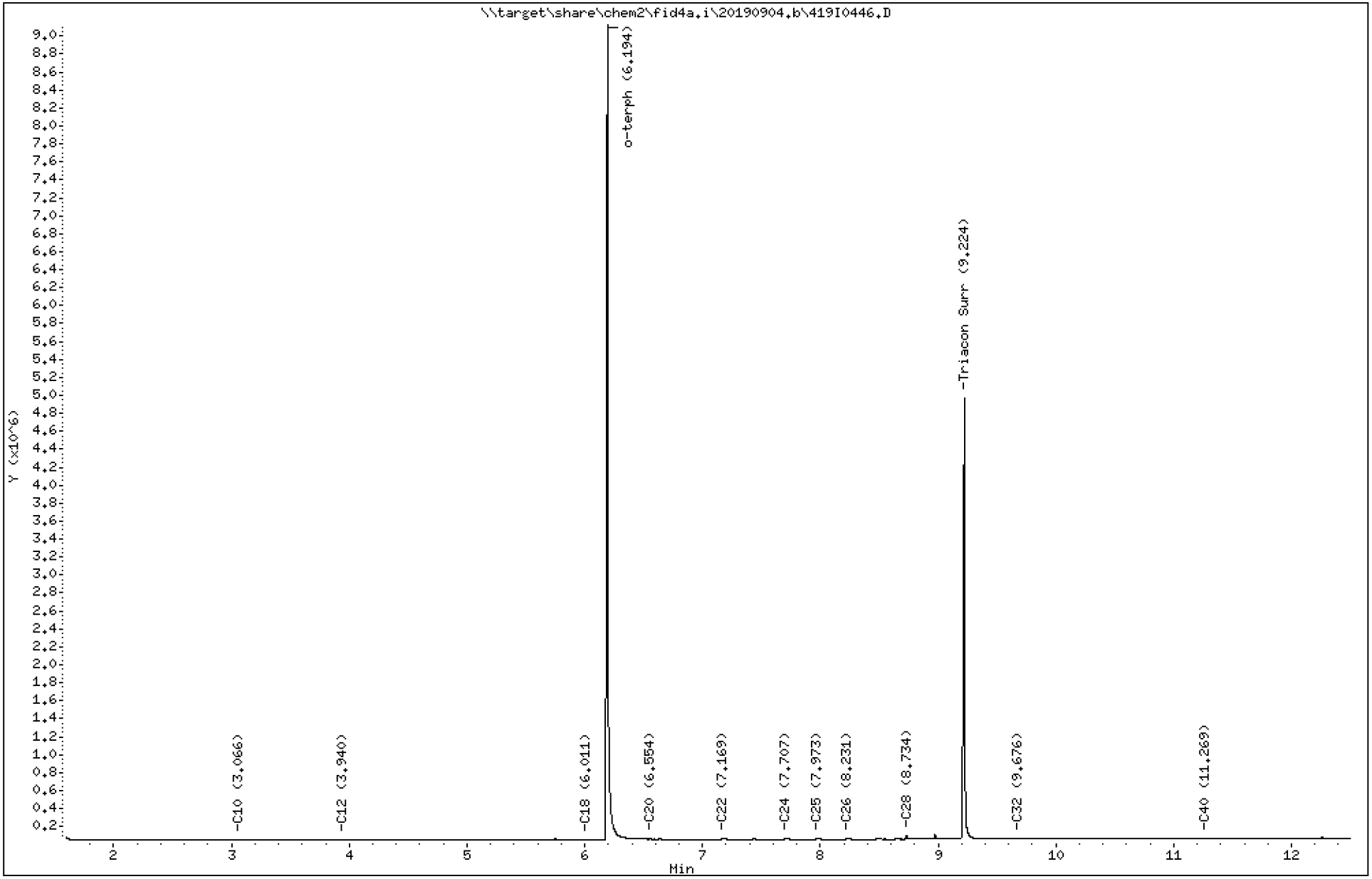
Sample Info: 19H0481-07

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0446.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-07
Client ID:
Injection: 05-SEP-2019 00:47
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

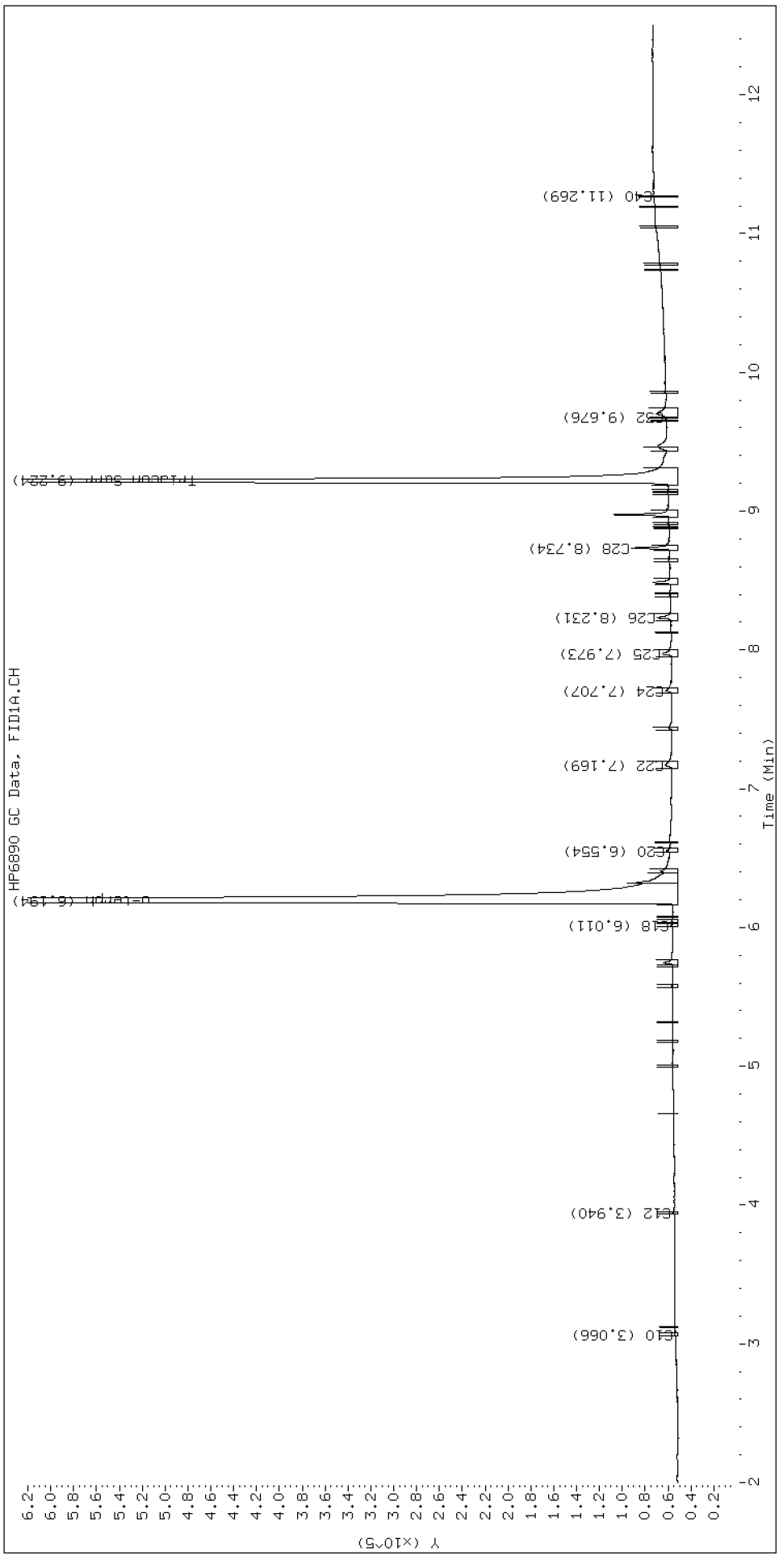
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	252575	3.4
C10	3.066	0.025	3443	3404	WATPHM	(C24-C38)	391333	10.8
C12	3.940	-0.045	4371	3722	AK102	(C10-C25)	260922	2.9
C14	----				AK103	(C25-C36)	376134	10.7
C16	----				OR.DIES	(C10-C28)	427712	4.7
C18	6.011	0.001	6400	8711				
C20	6.554	-0.025	10243	15459				
C22	7.169	0.032	10869	25635				
C24	7.707	0.019	10809	19468				
C25	7.973	0.015	14275	28590				
C26	8.231	0.008	18149	31992				
C28	8.734	0.000	40719	47142				
C32	9.676	0.002	11417	6132				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	652255	9.7
C36	----							
C38	----							
C40	11.269	-0.045	21537	9585				
o-terph	6.194	-0.001	9075061	8684148				
Triacon Surr	9.224	-0.005	4917856	4711432	NAS DIES	(C10-C24)	260922	2.9

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	8684148	101.2
Triacontane	4711432	89.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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HP6890 GC Data, FID1A.CH
n-Heptane (6.184)
Triacon Surr (9.224)
FE10 (3.066)
FE12 (3.940)
FE18 (6.011)
FE20 (6.554)
FE22 (7.169)
FE24 (7.707)
FE25 (7.973)
FE26 (8.231)
FE28 (8.734)
FE32 (9.676)
FE40 (11.269)
Time (Min)
Y (X10^5)

P40-UST-01-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Soil	Laboratory ID:	19H0481-08 A	SDG:	19H0481
Sampled:	08/30/19 08:50	Prepared:	09/04/19 09:25	File ID:	319I1055.D
% Solids:	72.30	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 05:15
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.03 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036

Cleanups: Silica Gel, Sulfuric Acid

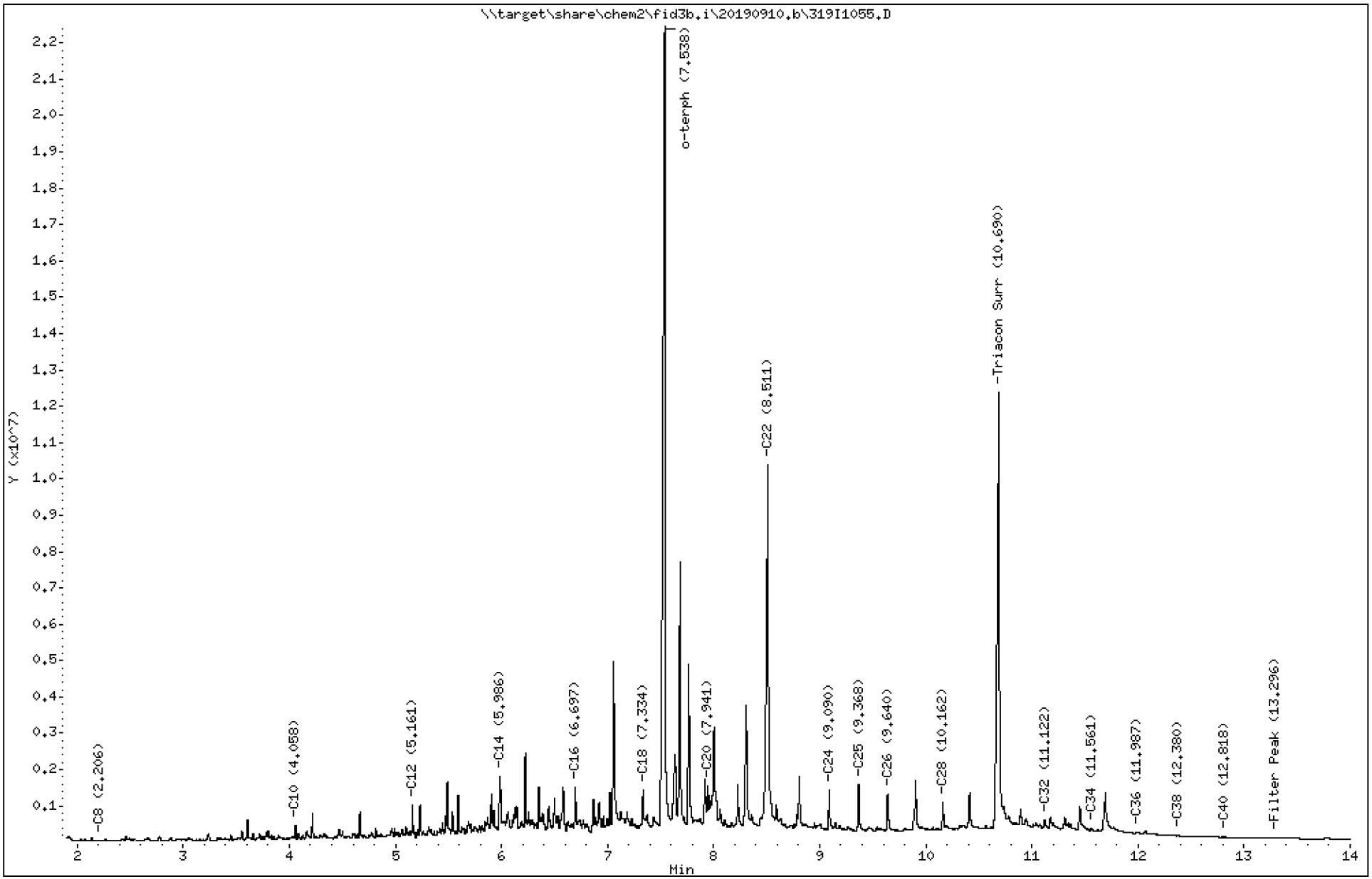
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	124		3.23	6.89
RRO	Motor Oil Range Organics (C24-C38)	1	80.0		4.12	13.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.514	18.5	119	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1055.D
Date : 11-SEP-2019 05:15
Client ID:
Sample Info: 19H0481-08

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1055.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-08
Client ID:
Injection: 11-SEP-2019 05:15
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	16205431	90.3	
C8	2.206	0.030	18293	18354	WATPHD	(C12-C24)	156857819	899.1	
C10	4.058	-0.011	397893	293712	WATPHM	(C24-C38)	73464754	580.2	
C12	5.161	-0.005	962197	680404	AK102	(C10-C25)	172239316	844.9	M
C14	5.986	-0.006	1776093	2198190	AK103	(C25-C36)	64960778	638.5	M
C16	6.697	-0.006	1451169	1582146	OR.DIES	(C10-C28)	192955720	934.9	M
C18	7.334	-0.005	1380454	1816060					
C20	7.941	0.004	1498192	1217736					
C22	8.511	-0.012	10343150	18156097					
C24	9.090	-0.006	1380281	1812628					
C25	9.368	-0.006	1554884	2746986					
C26	9.640	-0.006	1293676	2197762					
C28	10.162	-0.006	1053724	1348206	IT.DIES	(C10-C24)	167928628	825.4	
C32	11.122	-0.009	578035	1452811					
C34	11.561	-0.012	329189	737661					
Filter Peak	13.296	-0.023	67397	253389					
C36	11.987	-0.011	214031	354950					
o-terph	7.538	0.005	21898860	29873935					
Triacon Surr	10.690	0.001	11670062	17017308					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

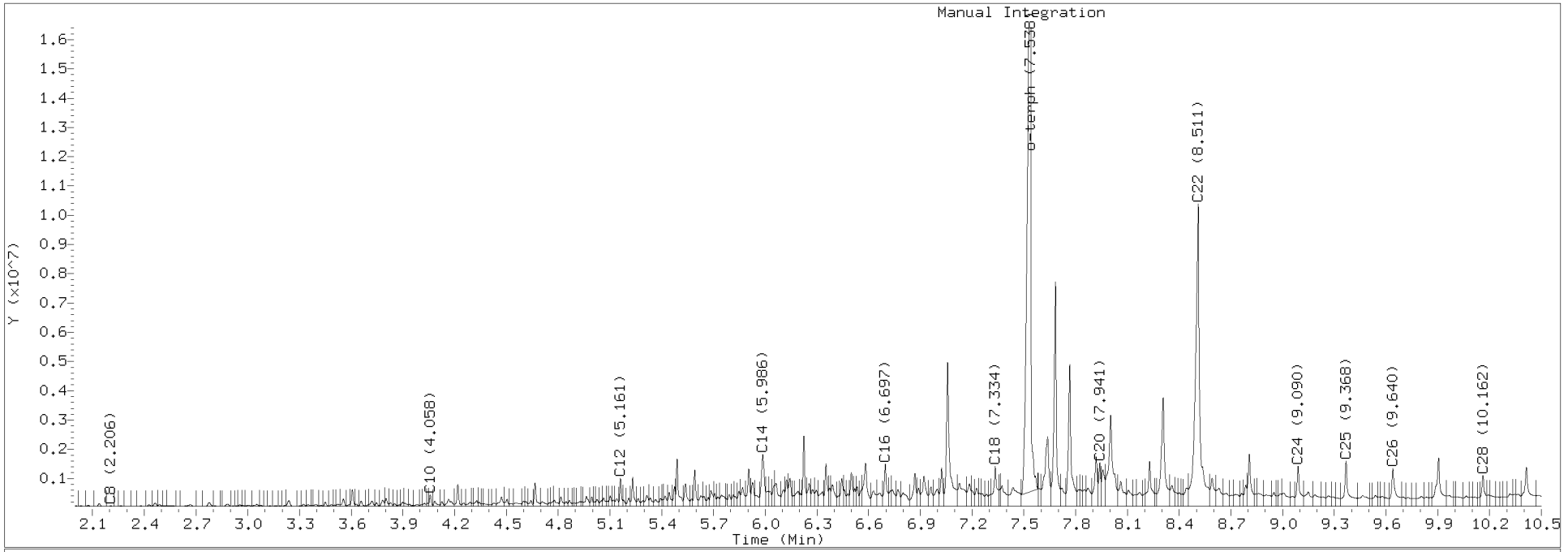
Surrogate	Area	Amount
o-Terphenyl	29873935	134.3
Triacontane	17017308	100.1

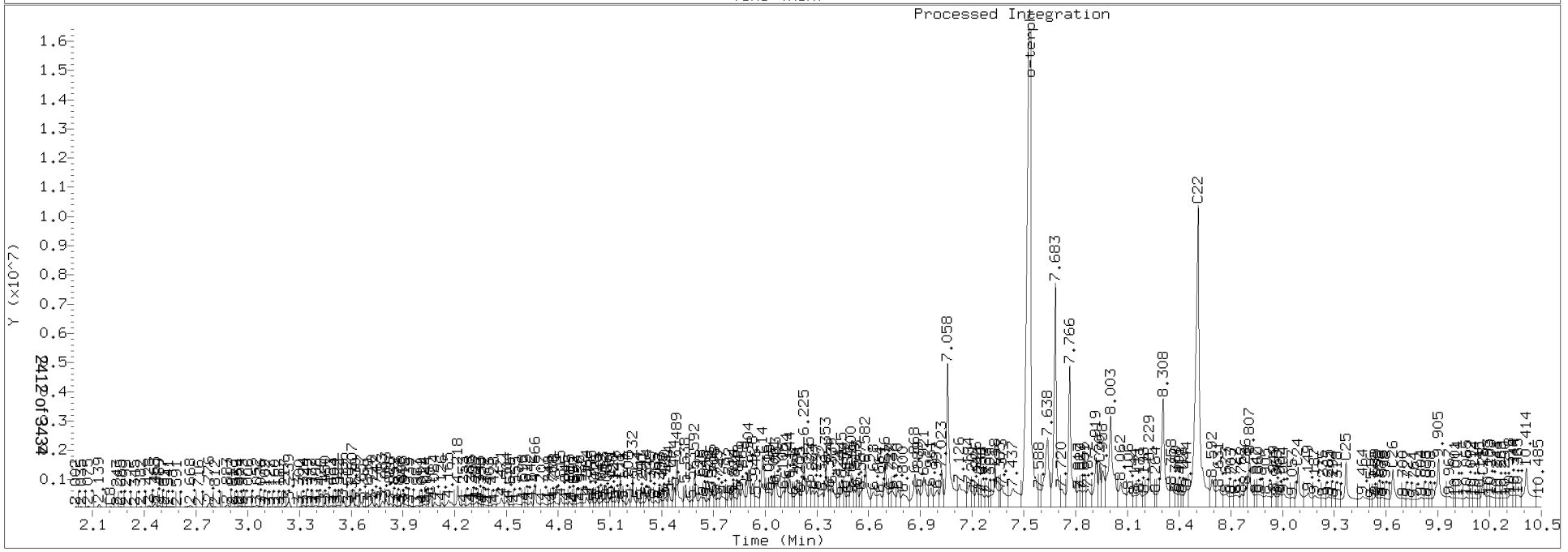
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1055.D Injection: 11-SEP-2019 05:15

Lab ID:19H0481-08





P40-UST-01-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-09 A	SDG:	19H0481
Sampled:	08/30/19 08:50	Prepared:	09/03/19 15:50	File ID:	419I0447.D
% Solids:	72.30	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 01:08
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	71.4		3.23	6.90
RRO	Motor Oil Range Organics (C24-C38)	1	67.7		4.13	13.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.529	13.5	86.8	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0447.D

Date : 05-SEP-2019 01:08

Client ID:

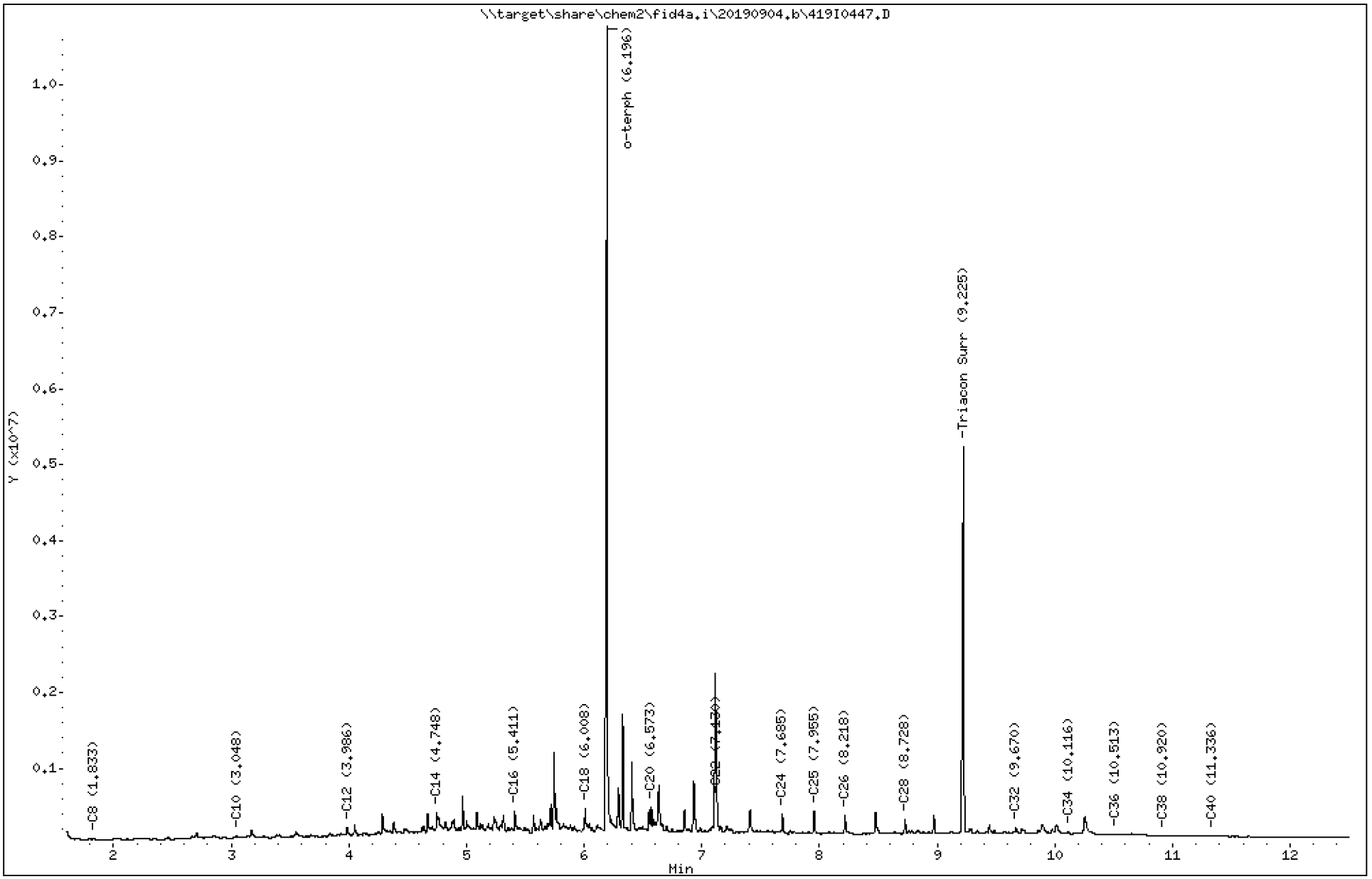
Sample Info: 19H0481-09

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0447.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-09
Client ID:
Injection: 05-SEP-2019 01:08
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

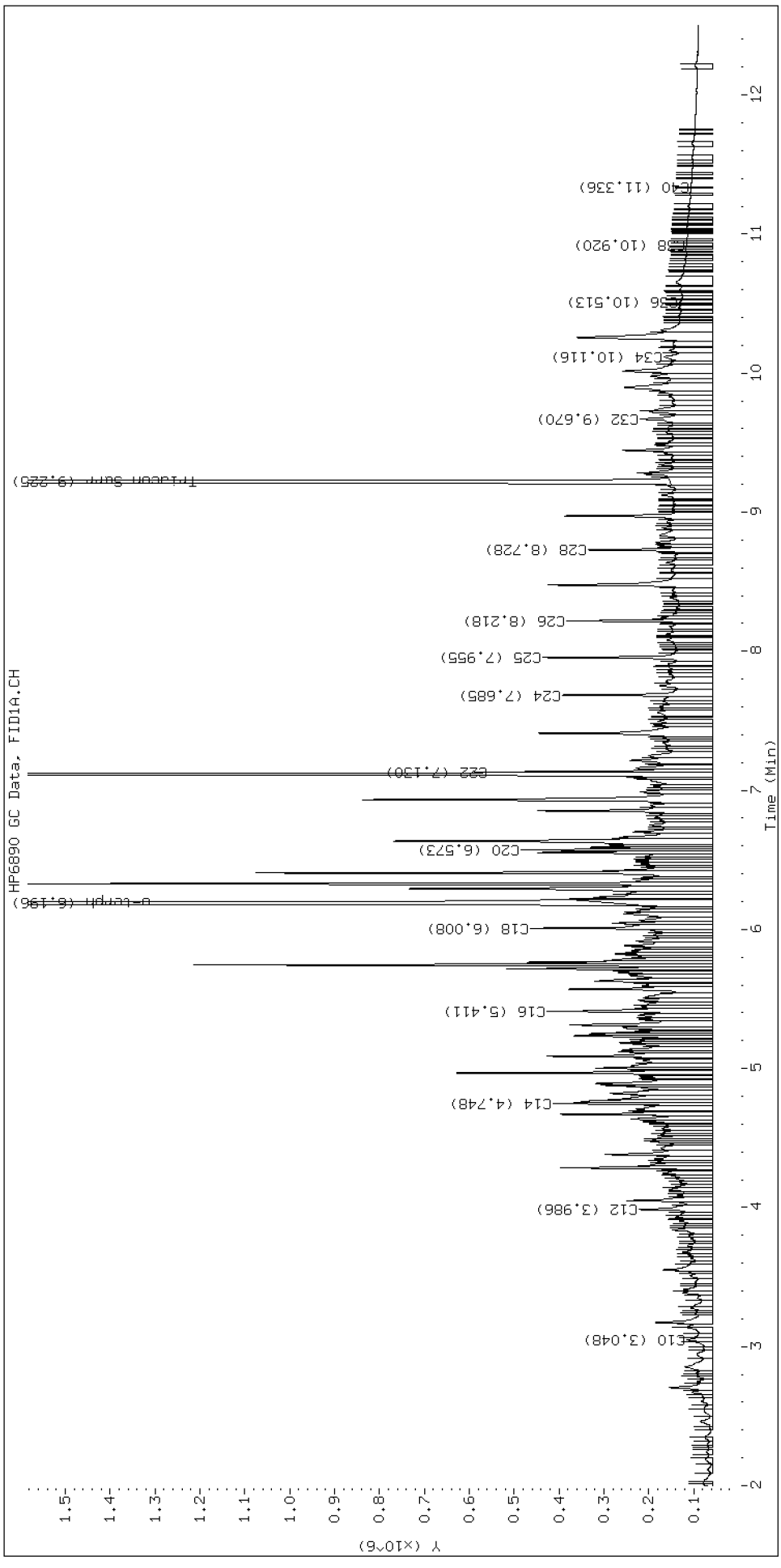
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.833	0.007	15365	28900	WATPHD	(C12-C24)	38826031	517.2
C10	3.048	0.007	56865	72013	WATPHM	(C24-C38)	17815431	490.4
C12	3.986	0.000	165112	299118	AK102	(C10-C25)	42961843	471.6
C14	4.748	-0.003	354971	326936	AK103	(C25-C36)	15694065	445.9
C16	5.411	-0.005	370641	438335	OR.DIES	(C10-C28)	48167574	528.0
C18	6.008	-0.002	406686	491640				
C20	6.573	-0.006	427771	337724				
C22	7.130	-0.007	498659	375920				
C24	7.685	-0.003	334369	477583				
C25	7.955	-0.003	378434	540820				
C26	8.218	-0.005	326290	316729				
C28	8.728	-0.005	278173	328856				
C32	9.670	-0.004	161272	401073				
C34	10.116	0.009	108304	297424				
Filter Peak	----				BUNKERC	(C10-C38)	59710230	887.5 M
C36	10.513	-0.006	73686	93470				
C38	10.920	0.004	59109	67283				
C40	11.336	0.022	48392	9664				
o-terph	6.196	0.001	10474895	8373433				
Triacon Surr	9.225	-0.004	5077978	4505206	NAS DIES	(C10-C24)	41894799	460.2

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	8373433	97.6	M
Triacontane	4505206	86.0	M

M Indicates the peak was manually integrated

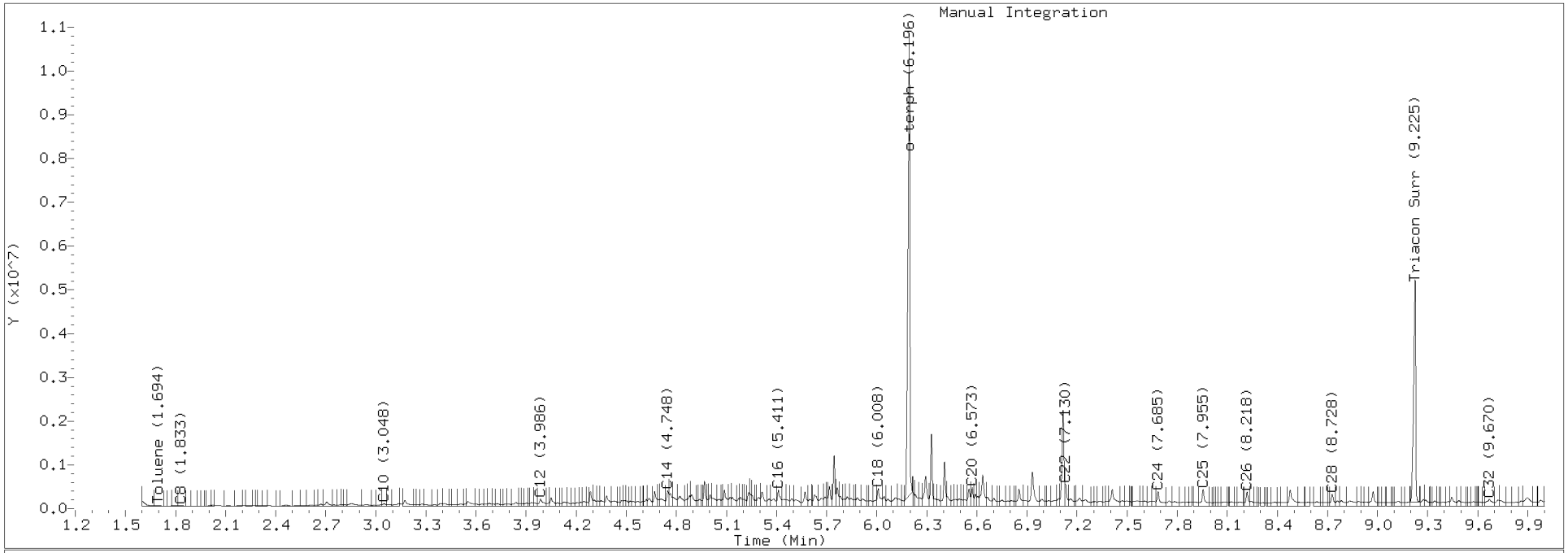
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

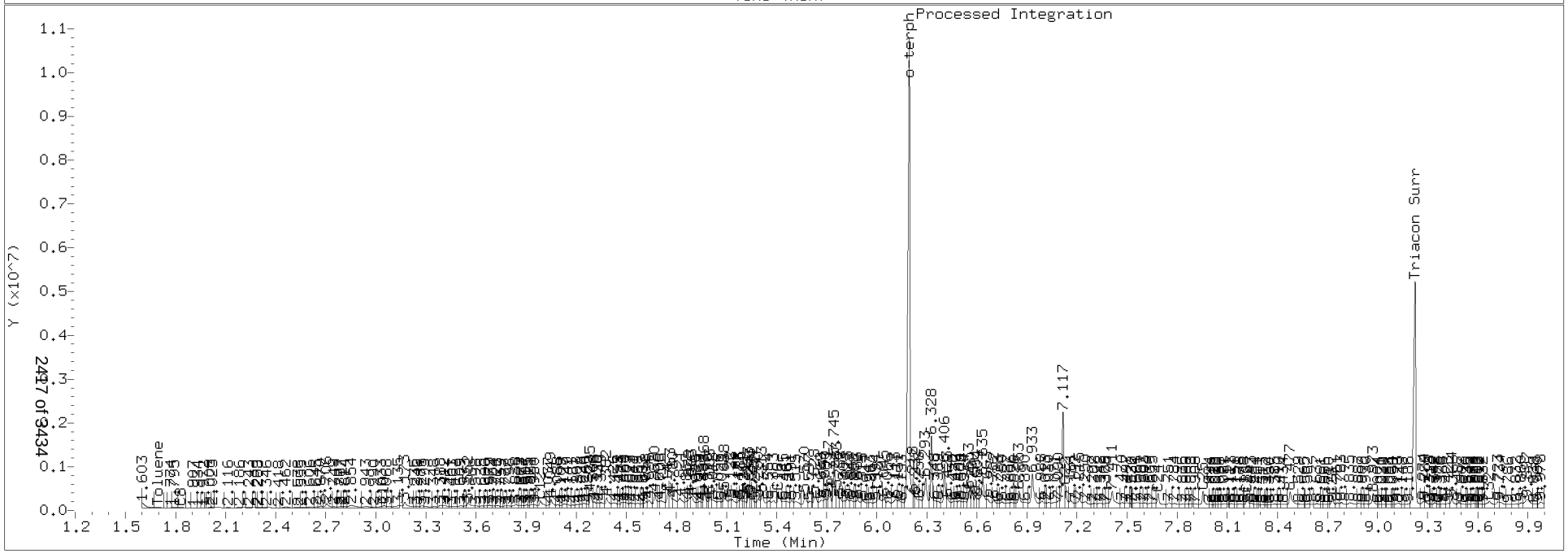

Datafile: FID4A, 20190904.b/419I0447.D 19H0481-09
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.048)
C12 (3.986)
C14 (4.748)
C16 (5.411)
C18 (6.008)
n-Heptane (6.196)
C20 (6.573)
C22 (7.130)
C24 (7.685)
C25 (7.955)
C26 (8.218)
C28 (8.728)
Triacont Surr (9.225)
C32 (9.670)
C34 (10.116)
C36 (10.513)
C38 (10.920)
C40 (11.336)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0447.D Injection: 05-SEP-2019 01:08

Lab ID:19H0481-09





P40-UST-02-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Water	Laboratory ID:	19H0481-10 A	SDG:	19H0481
Sampled:	08/30/19 10:00	Prepared:	09/03/19 08:43	File ID:	419I0324.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 17:38
Batch:	BHI0023	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.144	63.9	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0324.D

Date : 03-SEP-2019 17:38

Client ID:

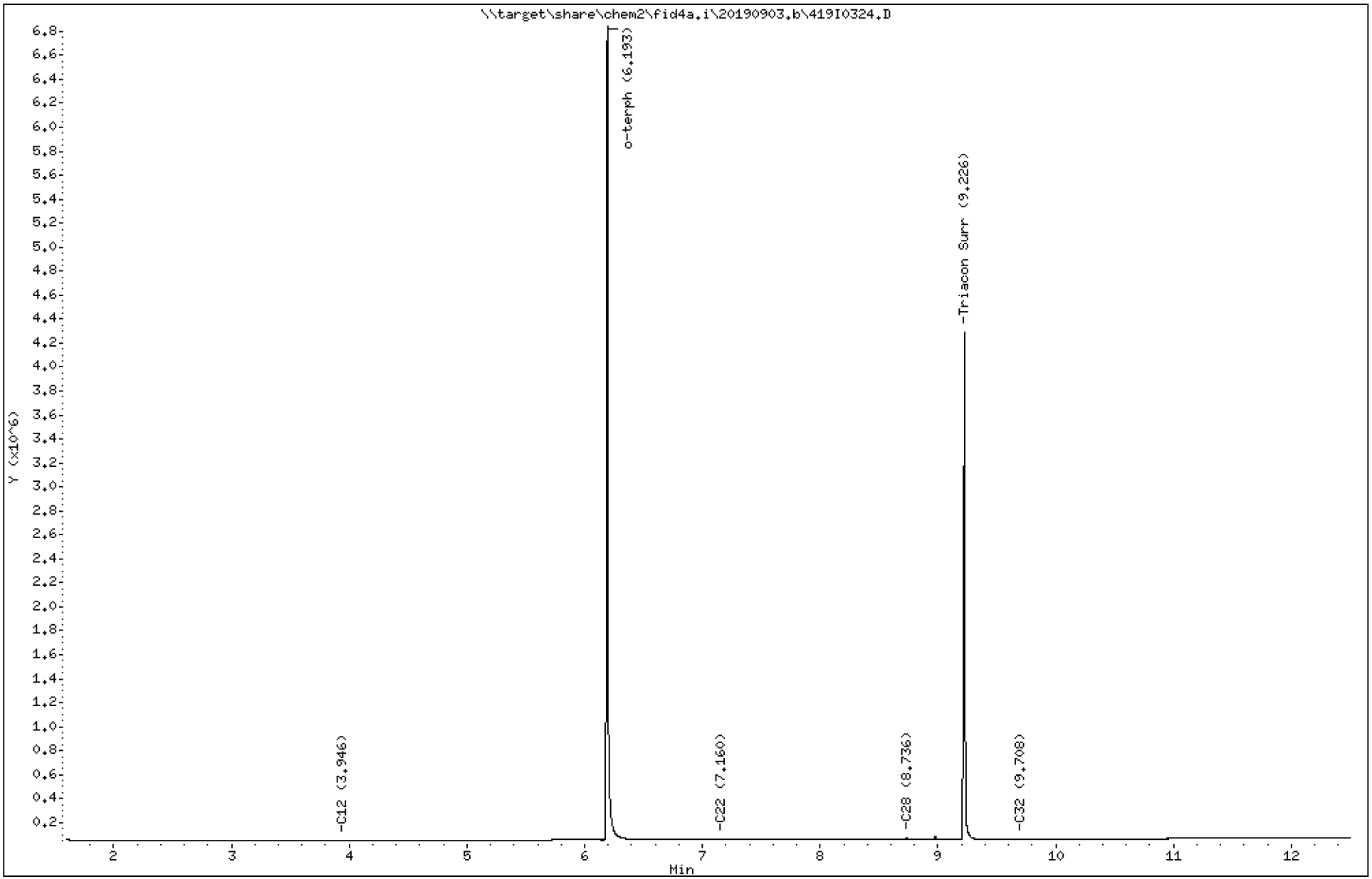
Sample Info: 19H0481-10

Instrument: fid4a.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0324.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-10
Client ID:
Injection: 03-SEP-2019 17:38
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

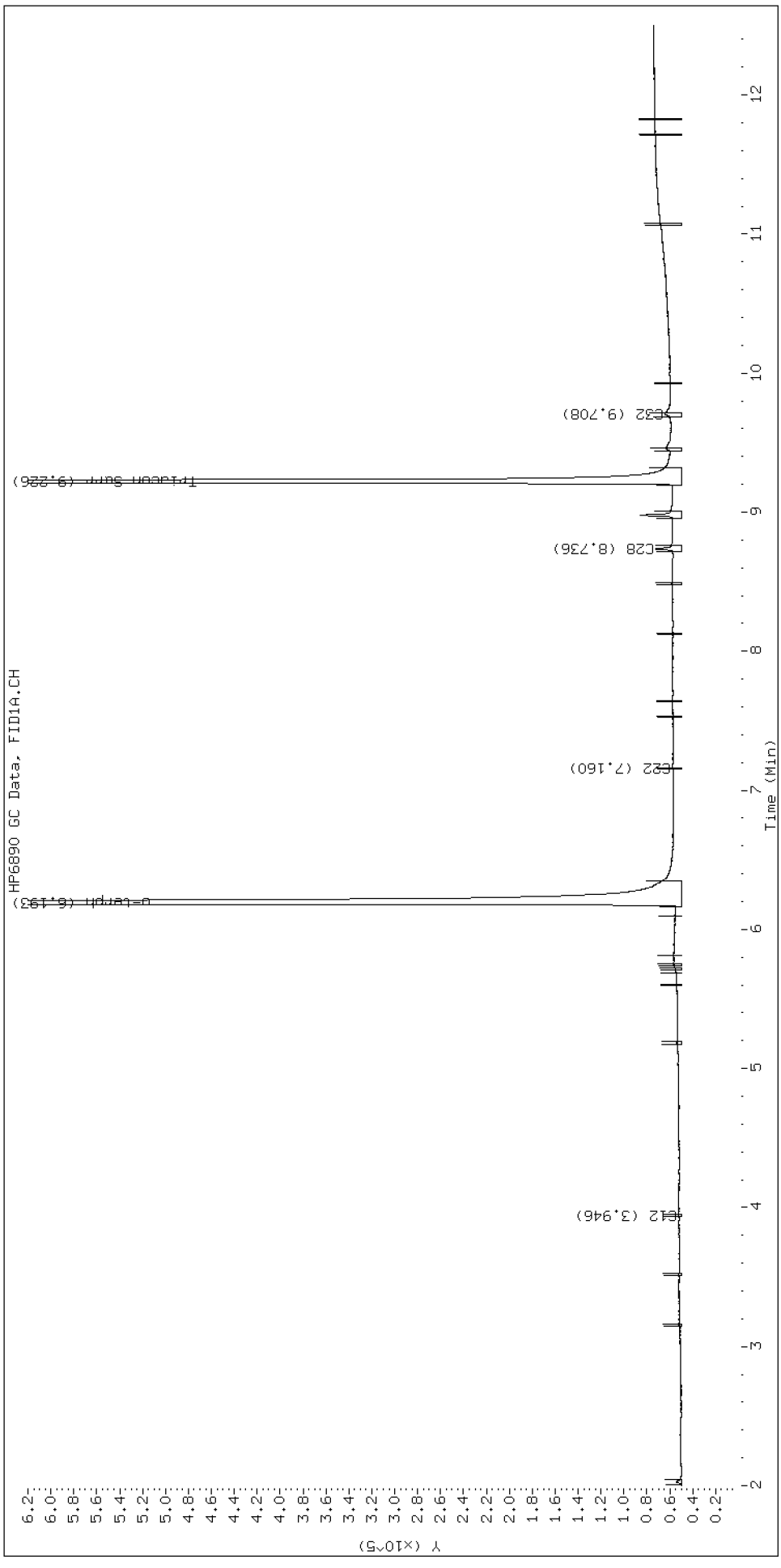
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	35120	0.5
C10	----				WATPHM	(C24-C38)	134425	3.7
C12	3.946	-0.041	2806	1819	AK102	(C10-C25)	40435	0.4
C14	----				AK103	(C25-C36)	134425	3.8
C16	----				OR.DIES	(C10-C28)	84429	0.9
C18	----							
C20	----							
C22	7.160	0.019	7779	4157				
C24	----							
C25	----							
C26	----							
C28	8.736	-0.001	22303	33651				
C32	9.708	0.030	14827	23733				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	174860	2.6
C36	----							
C38	----							
C40	----							
o-terph	6.193	-0.004	6794328	6172013				
Triacon Surr	9.226	-0.006	4243670	3903873	NAS DIES	(C10-C24)	40435	0.4

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	6172013	71.9
Triacontane	3903873	74.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190903.b/419I0324.D 19H0481-10
HP6890 GC Data, FID1A.CH
n-Decane (6.193)
C22 (7.160)
C28 (8.736)
Tridecane Surr (9.226)
C32 (9.708)
C42 (3.946)
Time (Min)
Y (X10^5)

P40-UST-02-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-11 A	SDG:	19H0481
Sampled:	08/30/19 10:00	Prepared:	09/02/19 13:10	File ID:	419I0337.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 22:14
Batch:	BHI0019	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

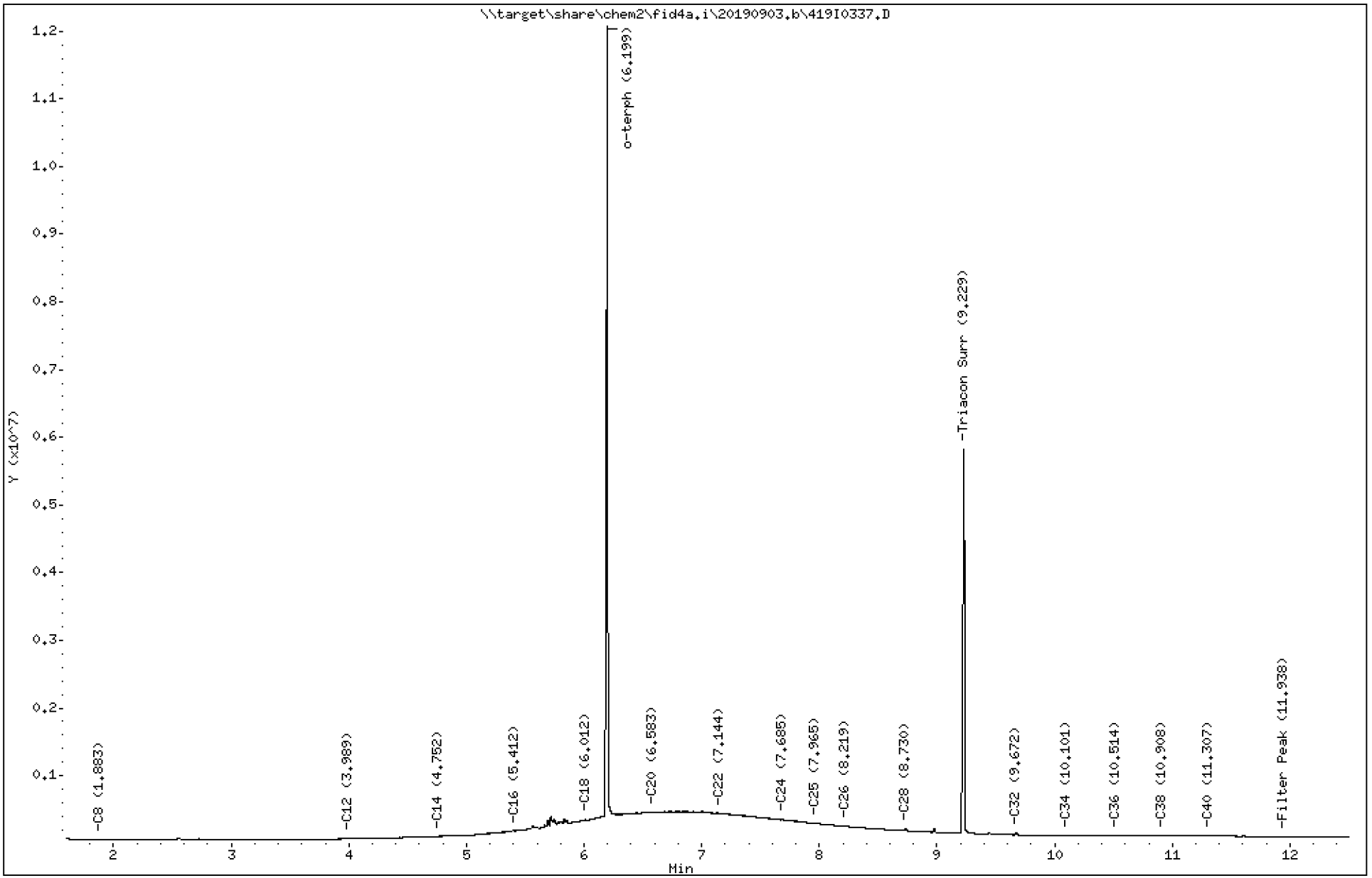
CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	1.31		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.870		0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.230	102	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0337.D
Date : 03-SEP-2019 22:14
Client ID:
Sample Info: 19H0481-11

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0337.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-11
Client ID:
Injection: 03-SEP-2019 22:14
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.883	0.037	2535	1804	WATPHD	(C12-C24)	49048457	653.4
C10	----				WATPHM	(C24-C38)	15803728	435.1
C12	3.989	0.003	12134	8765	AK102	(C10-C25)	51812114	568.7
C14	4.752	0.001	46293	34291	AK103	(C25-C36)	12817625	364.2
C16	5.412	-0.005	126562	50392	OR.DIES	(C10-C28)	60152900	659.4
C18	6.012	-0.002	295316	392120				
C20	6.583	0.003	407356	223284				
C22	7.144	0.003	386763	96397				
C24	7.685	-0.006	298726	263492				
C25	7.965	0.003	241034	355518				
C26	8.219	-0.007	205912	348894				
C28	8.730	-0.007	166144	325348				
C32	9.672	-0.006	98893	286799				
C34	10.101	-0.010	57255	56944				
Filter Peak	11.938	-0.008	46326	32277	BUNKERC	(C10-C38)	64895446	964.6
C36	10.514	-0.008	50979	27861				
C38	10.908	-0.008	51322	40865				
C40	11.307	-0.005	52967	31609				
o-terph	6.199	0.002	11669831	9875760				
Triacon Surr	9.229	-0.003	5681785	5374138	NAS DIES	(C10-C24)	49091718	539.2

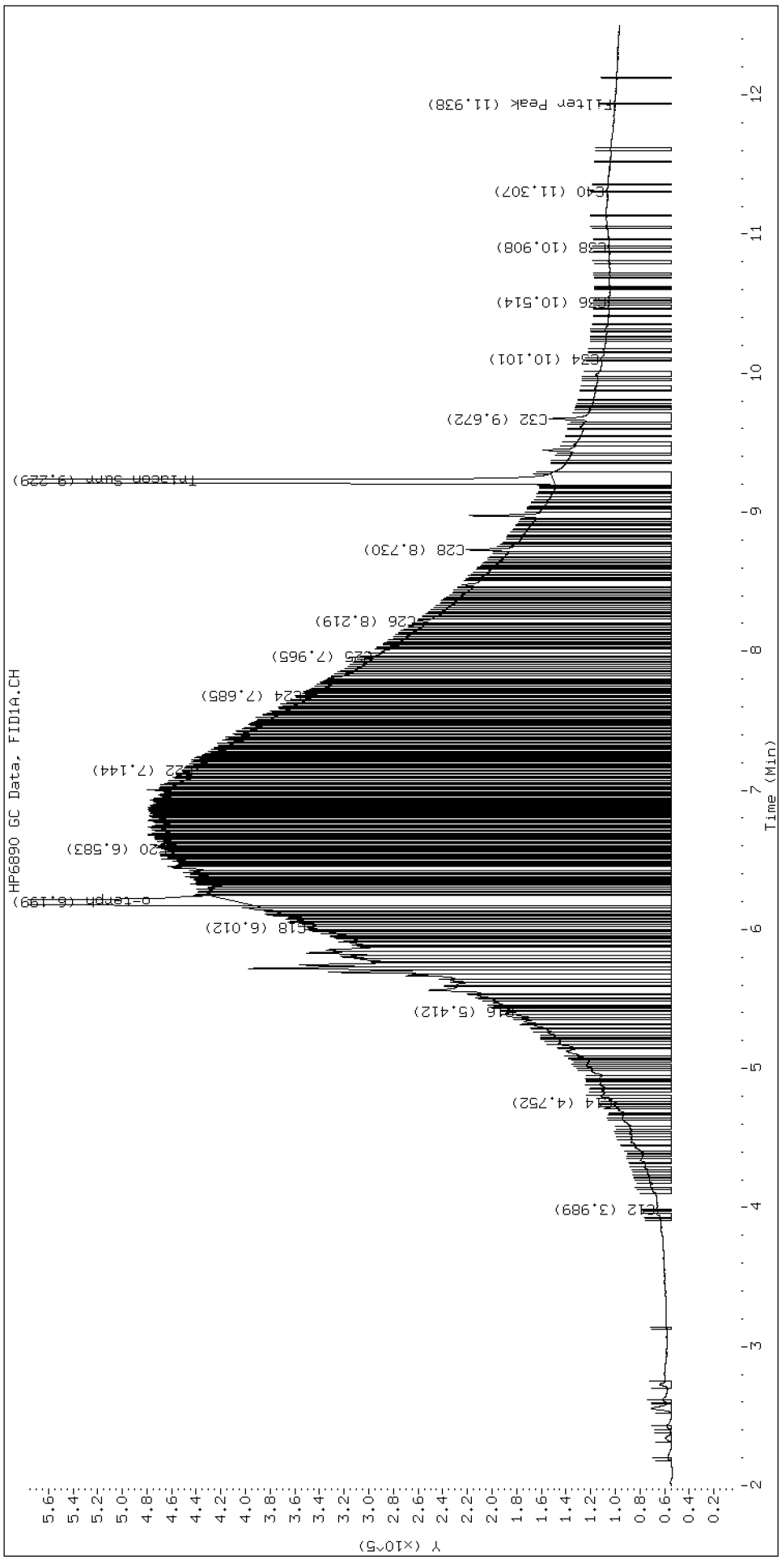
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9875760	115.1	M
Triacontane	5374138	102.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

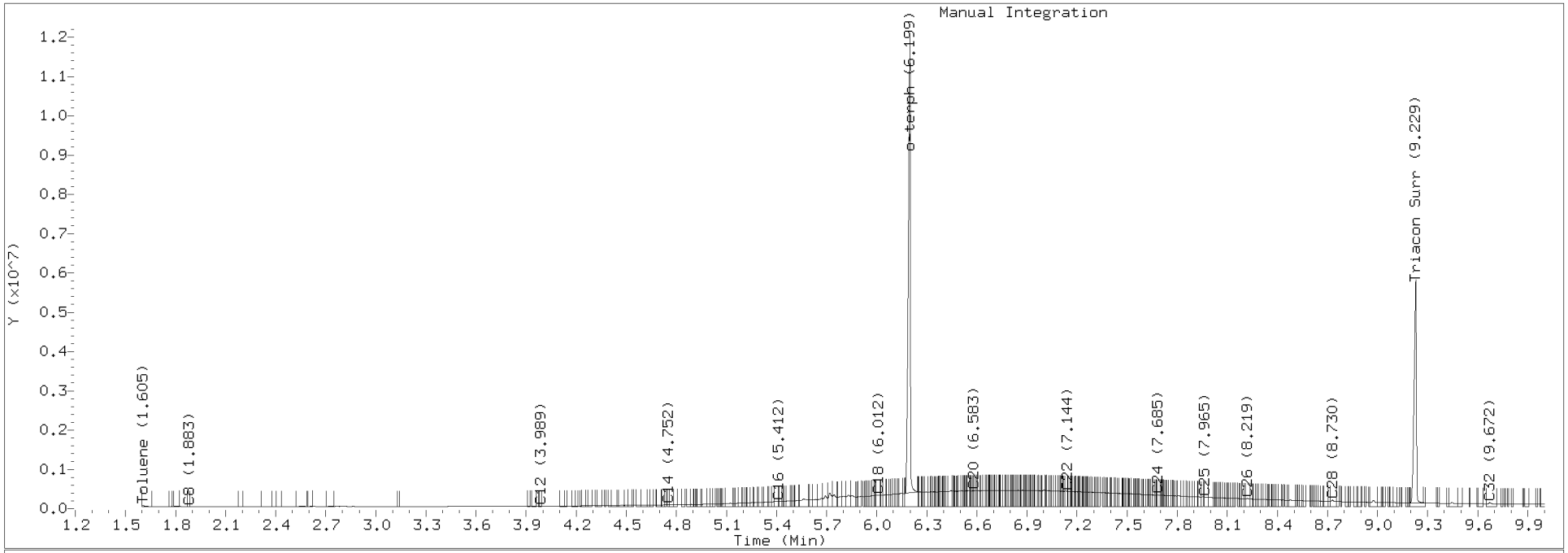
Datafile: FID4A, 20190903.b/419I0337.D 19H0481-11

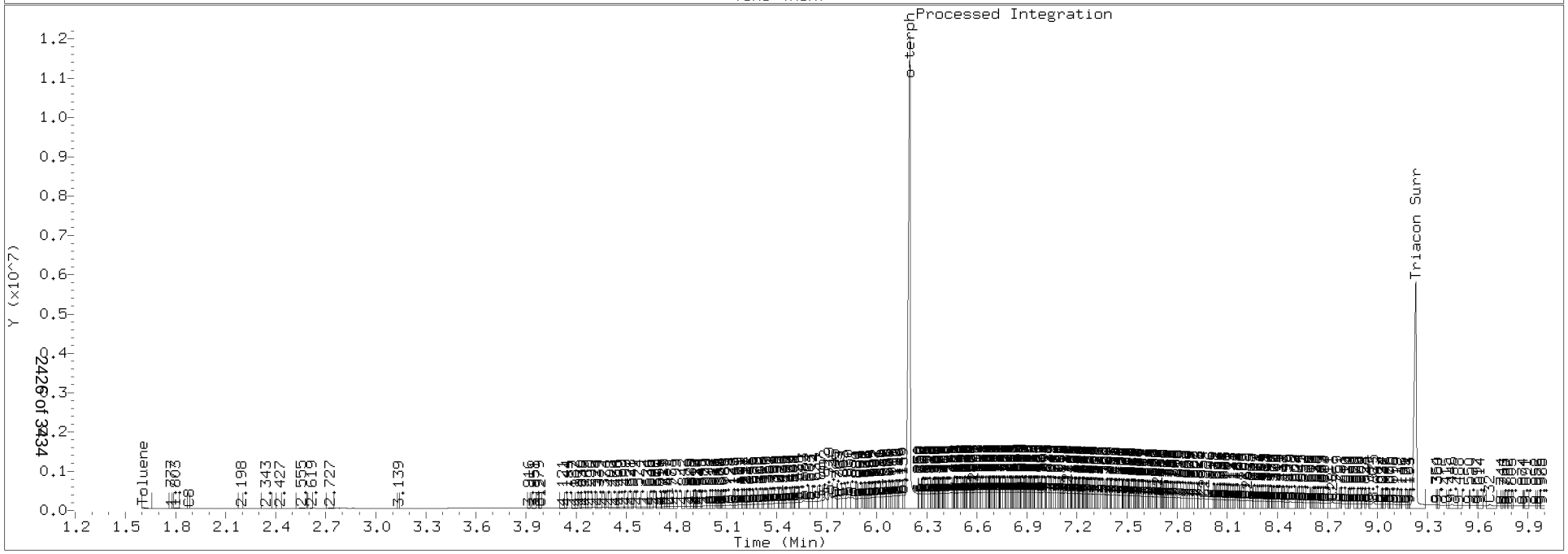


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0337.D Injection: 03-SEP-2019 22:14

Lab ID:19H0481-11





P40-UST-02-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-12 A	SDG:	19H0481
Sampled:	08/30/19 10:40	Prepared:	09/04/19 09:25	File ID:	319I1056.D
% Solids:	92.32	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 05:37
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	90.4		2.53	5.41
RRO	Motor Oil Range Organics (C24-C38)	1	131		3.23	10.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	12.162	11.6	95.1	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1056.D

Date : 11-SEP-2019 05:37

Client ID:

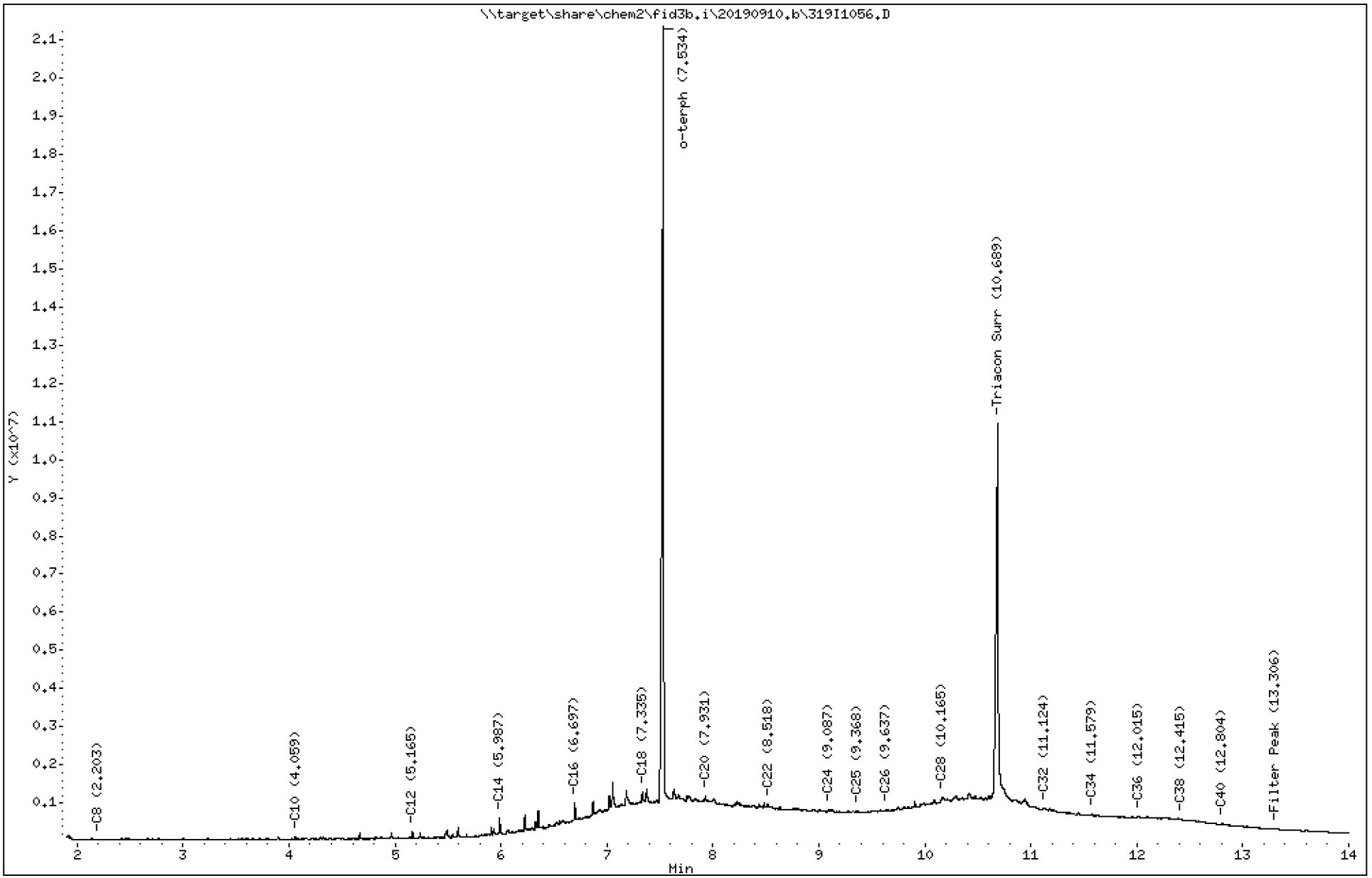
Sample Info: 19H0481-12

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1056.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-12
Client ID:
Injection: 11-SEP-2019 05:37
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	3416295	19.0	
C8	2.203	0.027	4176	6026	WATPHD	(C12-C24)	145970010	836.7	
C10	4.059	-0.010	81409	57591	WATPHM	(C24-C38)	153993458	1216.2	
C12	5.165	-0.001	205783	141495	AK102	(C10-C25)	156170868	766.1	M
C14	5.987	-0.005	587824	759526	AK103	(C25-C36)	132437145	1301.8	M
C16	6.697	-0.005	963966	1411148	OR.DIES	(C10-C28)	200854673	973.2	M
C18	7.335	-0.004	1256442	2393745					
C20	7.931	-0.005	1152918	1438059					
C22	8.518	-0.005	915773	2478098					
C24	9.087	-0.009	779832	968070					
C25	9.368	-0.006	766884	2134305					
C26	9.637	-0.009	784877	1413359					
C28	10.165	-0.003	1096094	3326035	IT.DIES	(C10-C24)	148146462	728.2	
C32	11.124	-0.006	827825	1763431					
C34	11.579	0.006	663213	1773868					
Filter Peak	13.306	-0.012	300070	1244448					
C36	12.015	0.017	608554	1619813					
o-terph	7.534	0.000	20259709	23804702					
Triacon Surr	10.689	-0.001	9803715	14867945					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

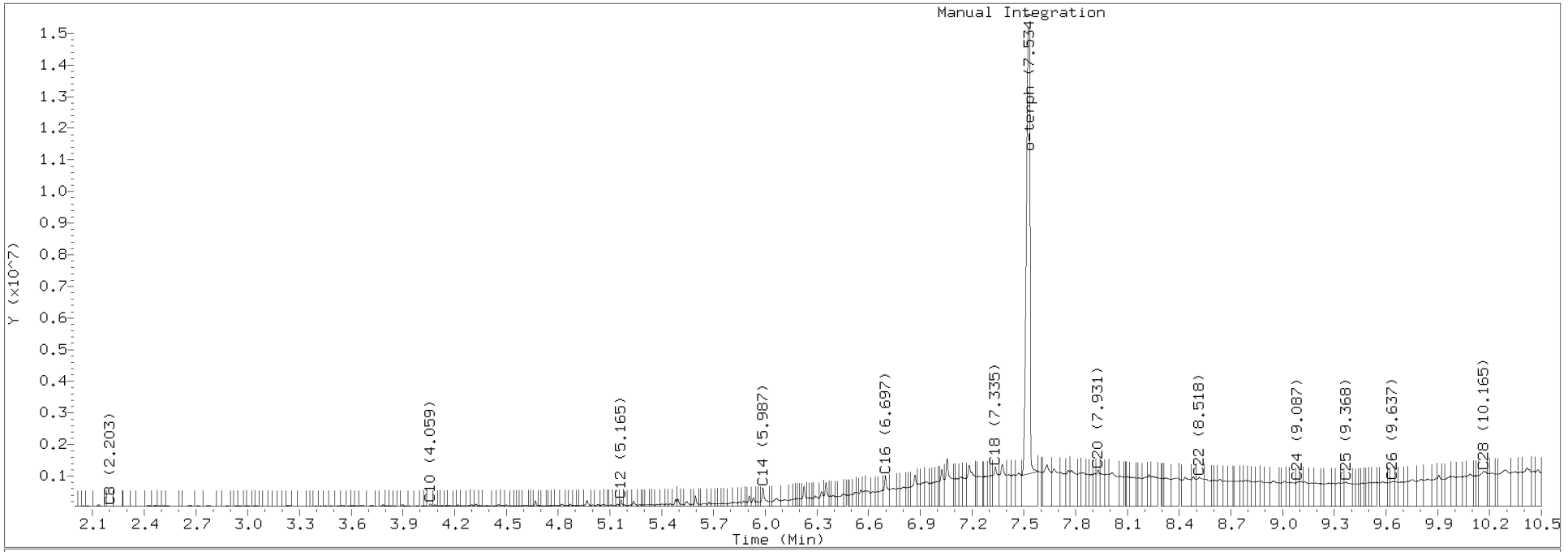
Surrogate	Area	Amount
o-Terphenyl	23804702	107.0
Triacontane	14867945	87.5

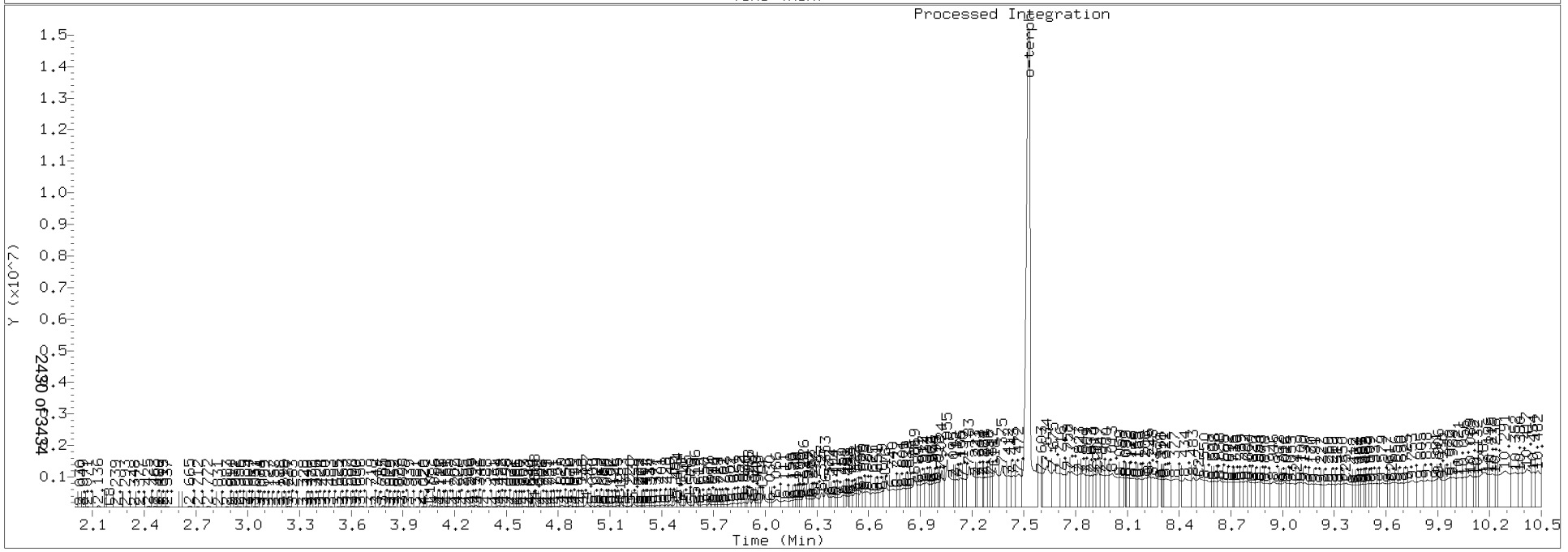
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1056.D Injection: 11-SEP-2019 05:37

Lab ID:19H0481-12





P40-UST-02-4.5'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPH-Dx
TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-13 A	SDG:	19H0481
Sampled:	08/30/19 10:40	Prepared:	09/03/19 15:50	File ID:	419I0448.D
% Solids:	92.32	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 01:28
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	83.9		2.53	5.41
RRO	Motor Oil Range Organics (C24-C38)	1	173		3.24	10.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	12.174	10.7	87.8	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0448.D

Date : 05-SEP-2019 01:28

Client ID:

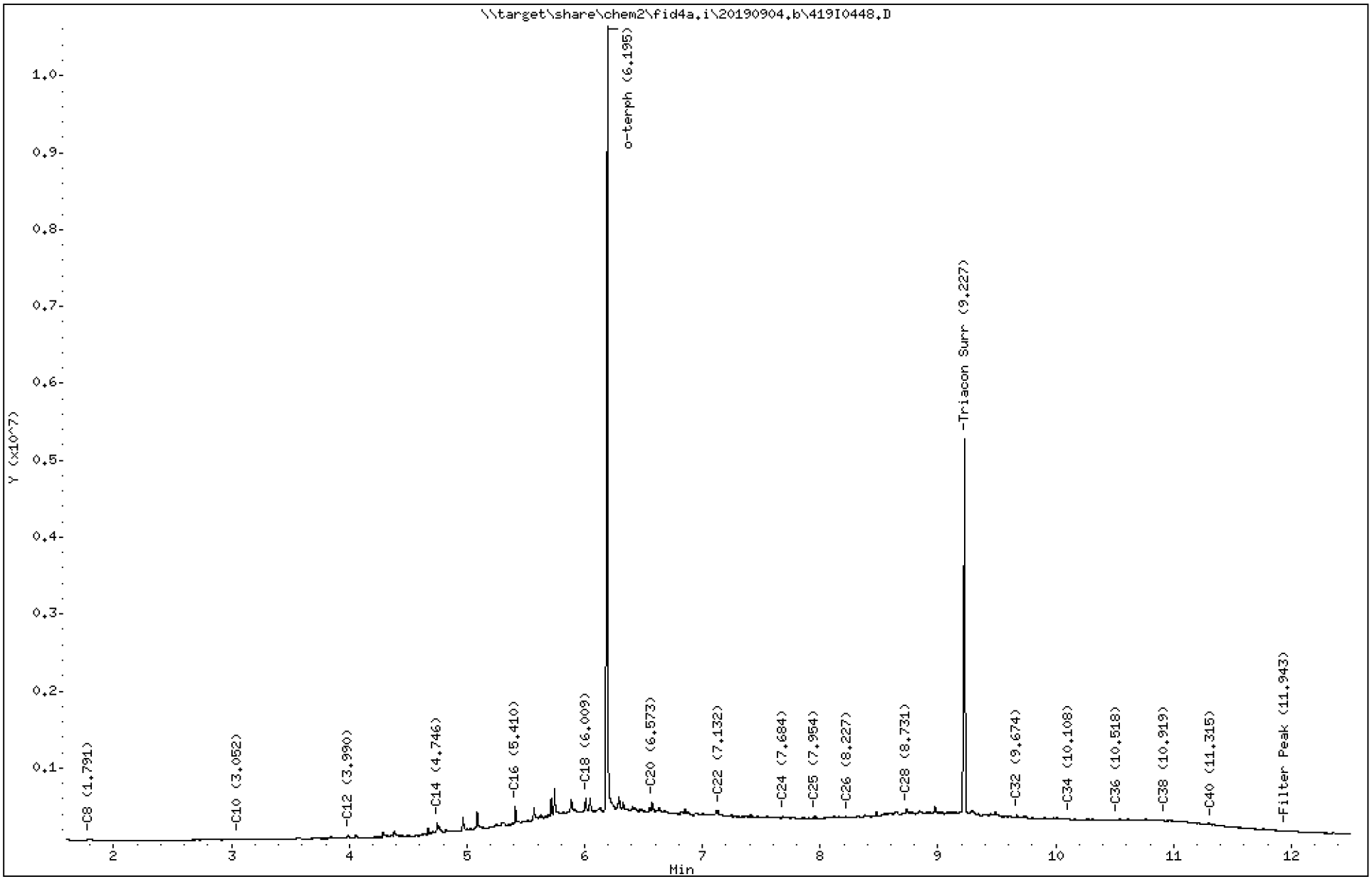
Sample Info: 19H0481-13

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0448.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-13
Client ID:
Injection: 05-SEP-2019 01:28
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.791	-0.035	20246	52456	WATPHD	(C12-C24)	58186824	775.1
C10	3.052	0.010	18328	47480	WATPHM	(C24-C38)	58058199	1598.3
C12	3.990	0.005	65162	158548	AK102	(C10-C25)	62209296	682.9
C14	4.746	-0.005	224215	260515	AK103	(C25-C36)	49119290	1395.7
C16	5.410	-0.005	440158	589490	OR.DIES	(C10-C28)	78680682	862.5
C18	6.009	-0.002	557354	900833				
C20	6.573	-0.005	489010	588942				
C22	7.132	-0.005	386801	535506				
C24	7.684	-0.004	322015	460334				
C25	7.954	-0.004	319461	396069				
C26	8.227	0.004	308041	153332				
C28	8.731	-0.002	403537	310317				
C32	9.674	-0.000	330028	487440				
C34	10.108	0.001	286673	183238				
Filter Peak	11.943	-0.002	126866	113211	BUNKERC	(C10-C38)	117452411	1745.8
C36	10.518	-0.001	273045	122036				
C38	10.919	0.003	263302	156127				
C40	11.315	0.001	207708	144896				
o-terph	6.195	0.000	10159806	8476719				
Triacon Surr	9.227	-0.002	4859318	4131103	NAS DIES	(C10-C24)	59394212	652.4

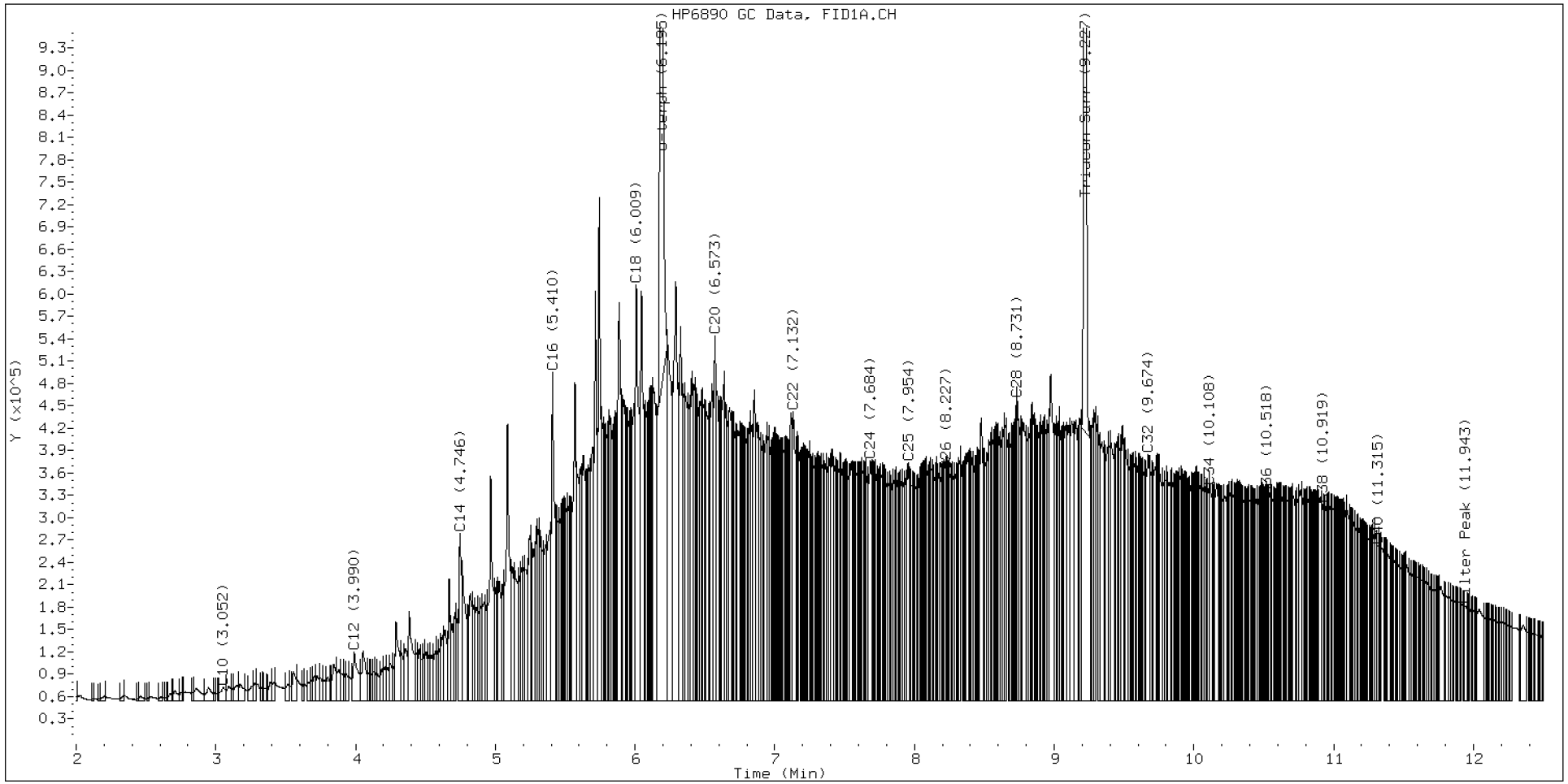
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	8476719	98.8	M
Triacontane	4131103	78.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

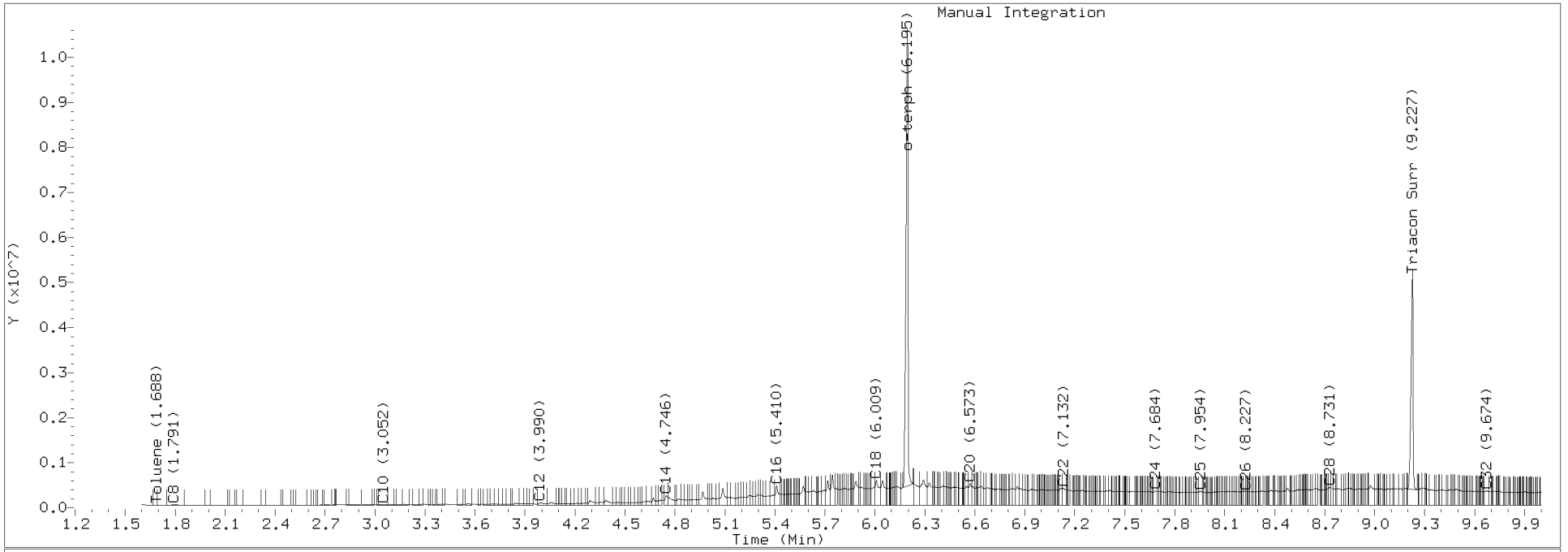
Datafile: FID4A, 20190904.b/419I0448.D 19H0481-13

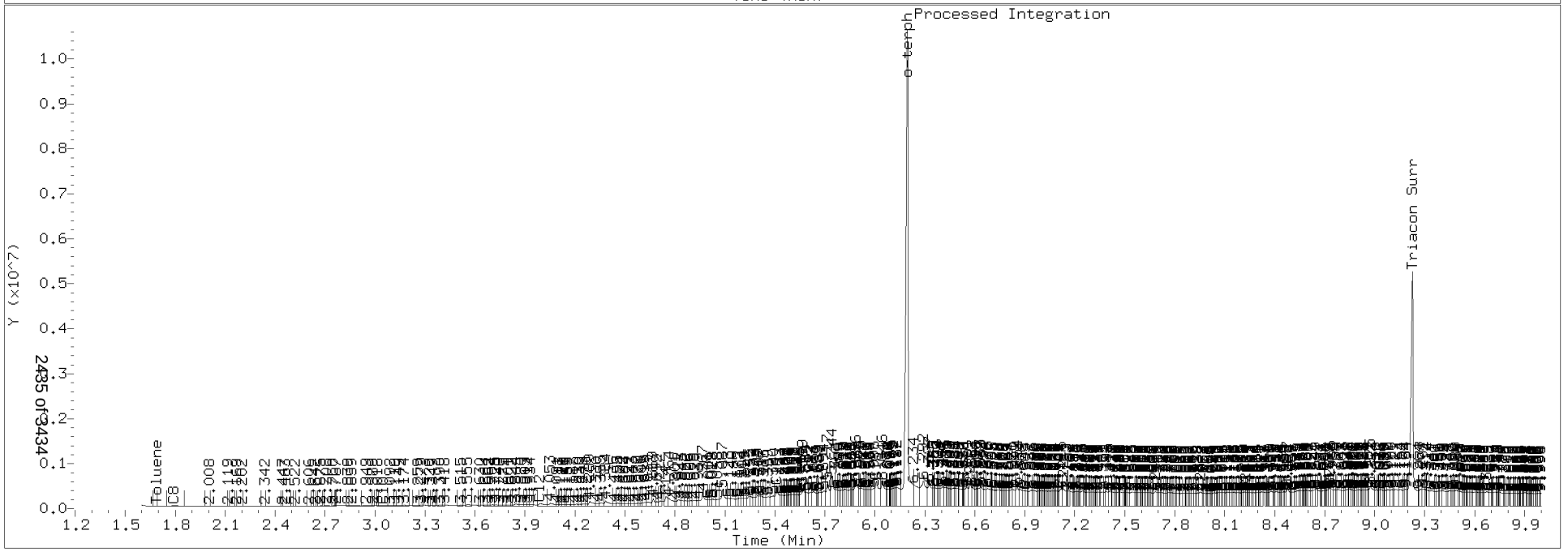


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0448.D Injection: 05-SEP-2019 01:28

Lab ID:19H0481-13





P40-UST-02-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Soil	Laboratory ID:	19H0481-14 A	SDG:	19H0481
Sampled:	08/30/19 10:50	Prepared:	09/04/19 09:25	File ID:	319I1057.D
% Solids:	73.22	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 05:59
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	71.1		3.19	6.82
RRO	Motor Oil Range Organics (C24-C38)	1	50.7		4.08	13.6

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.349	17.8	116	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1057.D

Date : 11-SEP-2019 05:59

Client ID:

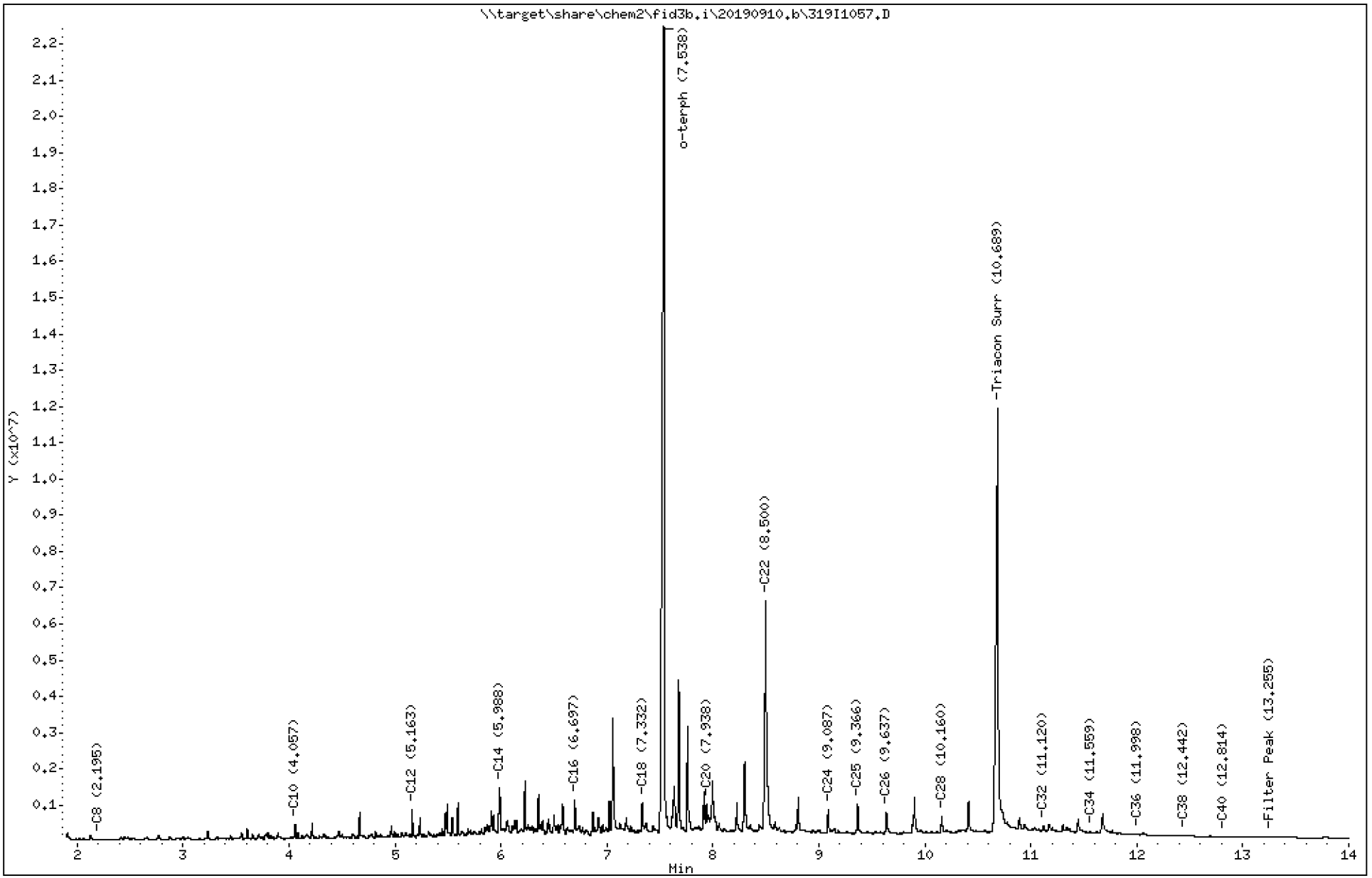
Sample Info: 19H0481-14

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1057.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-14
Client ID:
Injection: 11-SEP-2019 05:59
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	11758341	65.5	
C8	2.195	0.019	15612	15887	WATPHD	(C12-C24)	90898113	521.0	
C10	4.057	-0.012	431634	290628	WATPHM	(C24-C38)	47082900	371.9	
C12	5.163	-0.003	820904	538085	AK102	(C10-C25)	100281528	491.9	M
C14	5.988	-0.004	1431717	1612197	AK103	(C25-C36)	42573263	418.5	M
C16	6.697	-0.005	1099425	1072358	OR.DIES	(C10-C28)	113107394	548.0	M
C18	7.332	-0.006	1006042	1017095					
C20	7.938	0.002	988743	792658					
C22	8.500	-0.023	6577903	8510211					
C24	9.087	-0.008	842252	979590					
C25	9.366	-0.008	995297	1737709					
C26	9.637	-0.008	742969	1320741					
C28	10.160	-0.008	625323	842612	IT.DIES	(C10-C24)	98427369	483.8	
C32	11.120	-0.011	389866	948257					
C34	11.559	-0.014	222695	500561					
Filter Peak	13.255	-0.063	81970	515589					
C36	11.998	-0.001	149024	135302					
o-terph	7.538	0.005	22158516	29045977					
Triacon Surr	10.689	-0.001	11383801	16402779					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

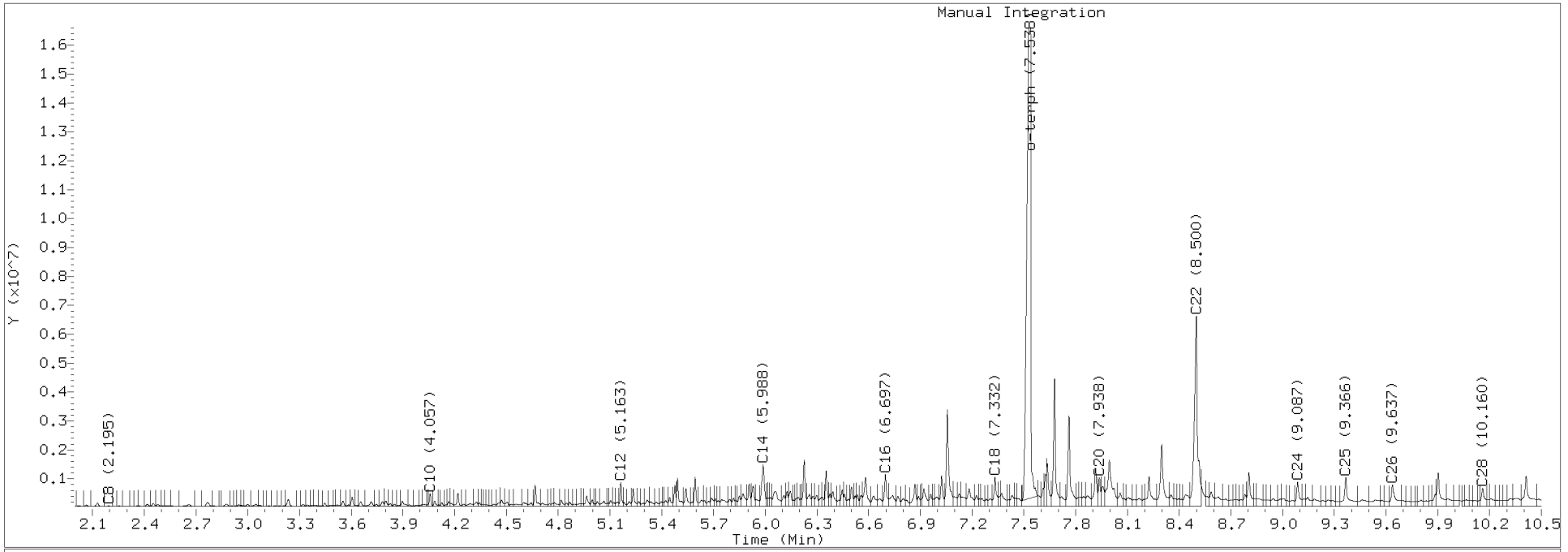
Surrogate	Area	Amount
o-Terphenyl	29045977	130.6
Triacontane	16402779	96.5

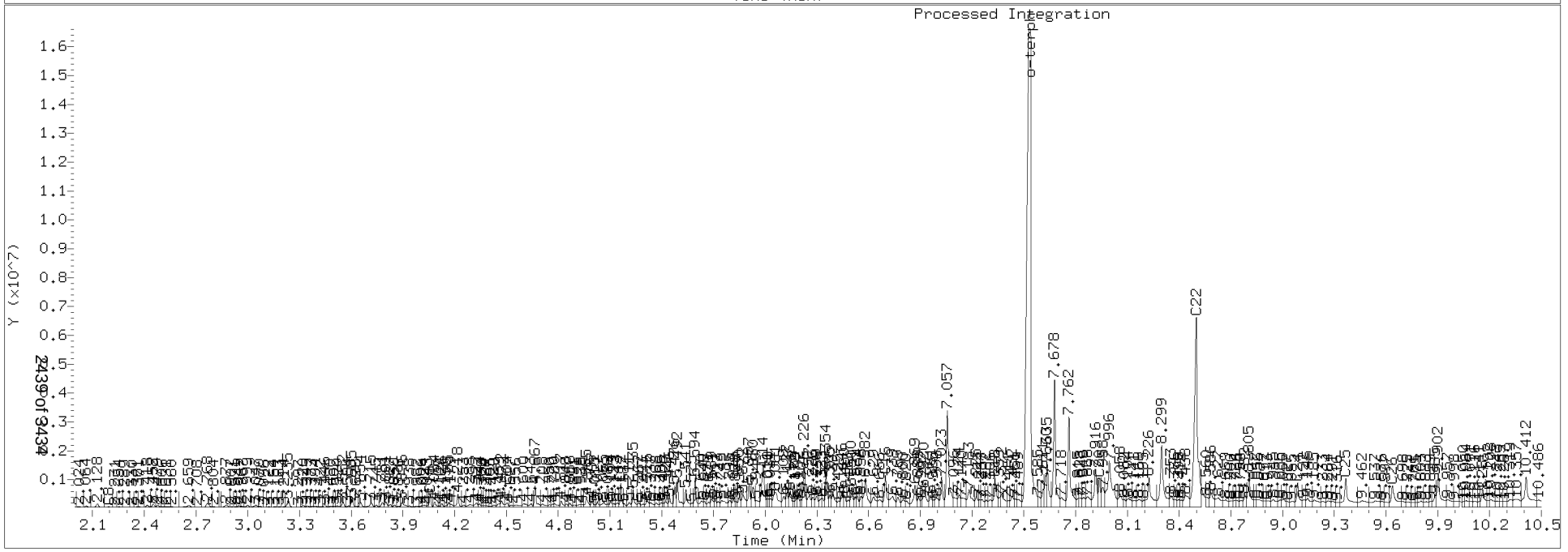
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1057.D Injection: 11-SEP-2019 05:59

Lab ID:19H0481-14





P40-UST-02-9'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-15 A	SDG:	19H0481
Sampled:	08/30/19 10:50	Prepared:	09/03/19 15:50	File ID:	419I0449.D
% Solids:	73.22	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 01:49
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

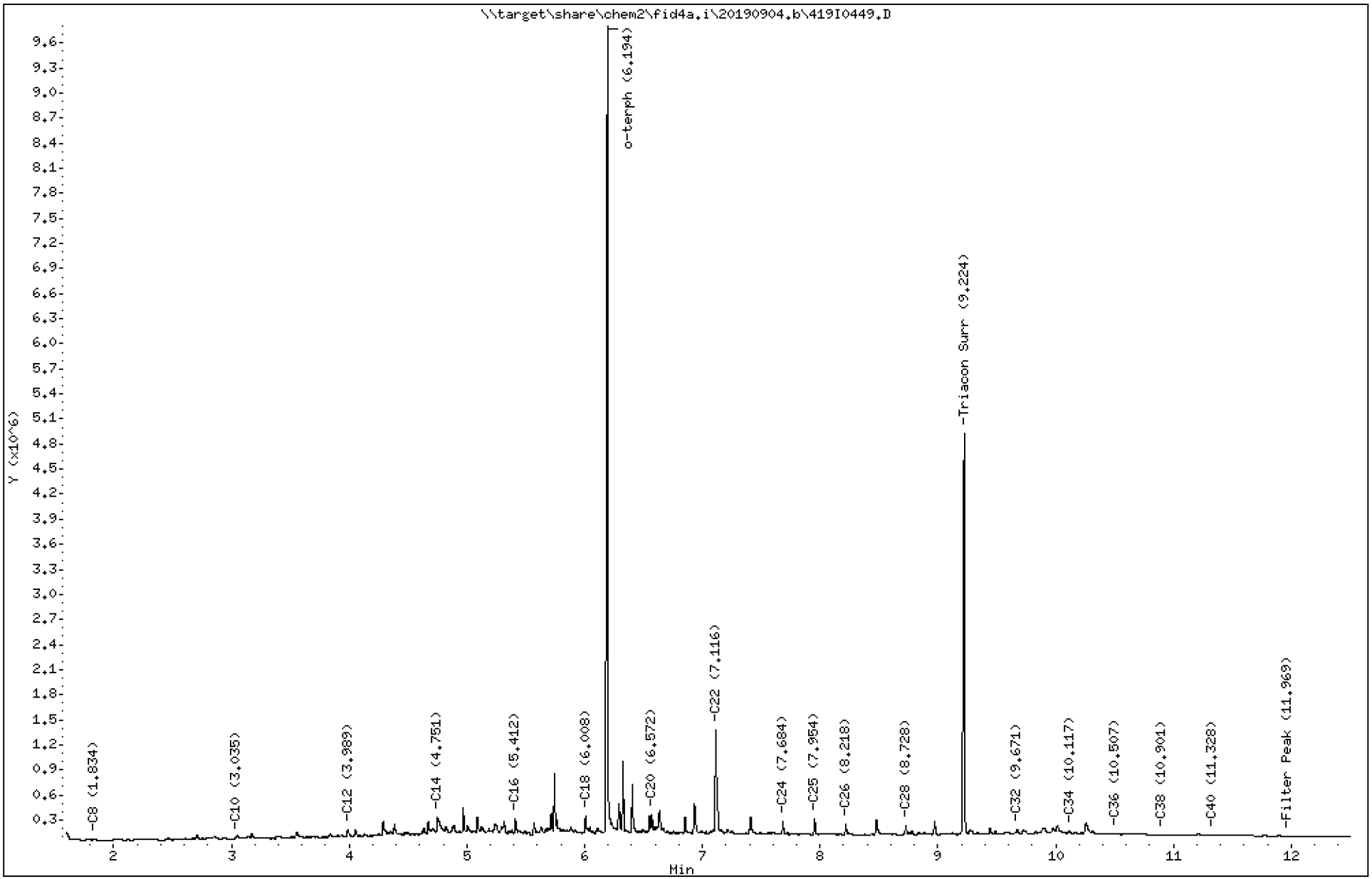
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	51.1		3.20	6.83
RRO	Motor Oil Range Organics (C24-C38)	1	57.9		4.08	13.7

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.365	12.2	79.5	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0449.D
Date : 05-SEP-2019 01:49
Client ID:
Sample Info: 19H0481-15

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0449.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-15
Client ID:
Injection: 05-SEP-2019 01:49
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

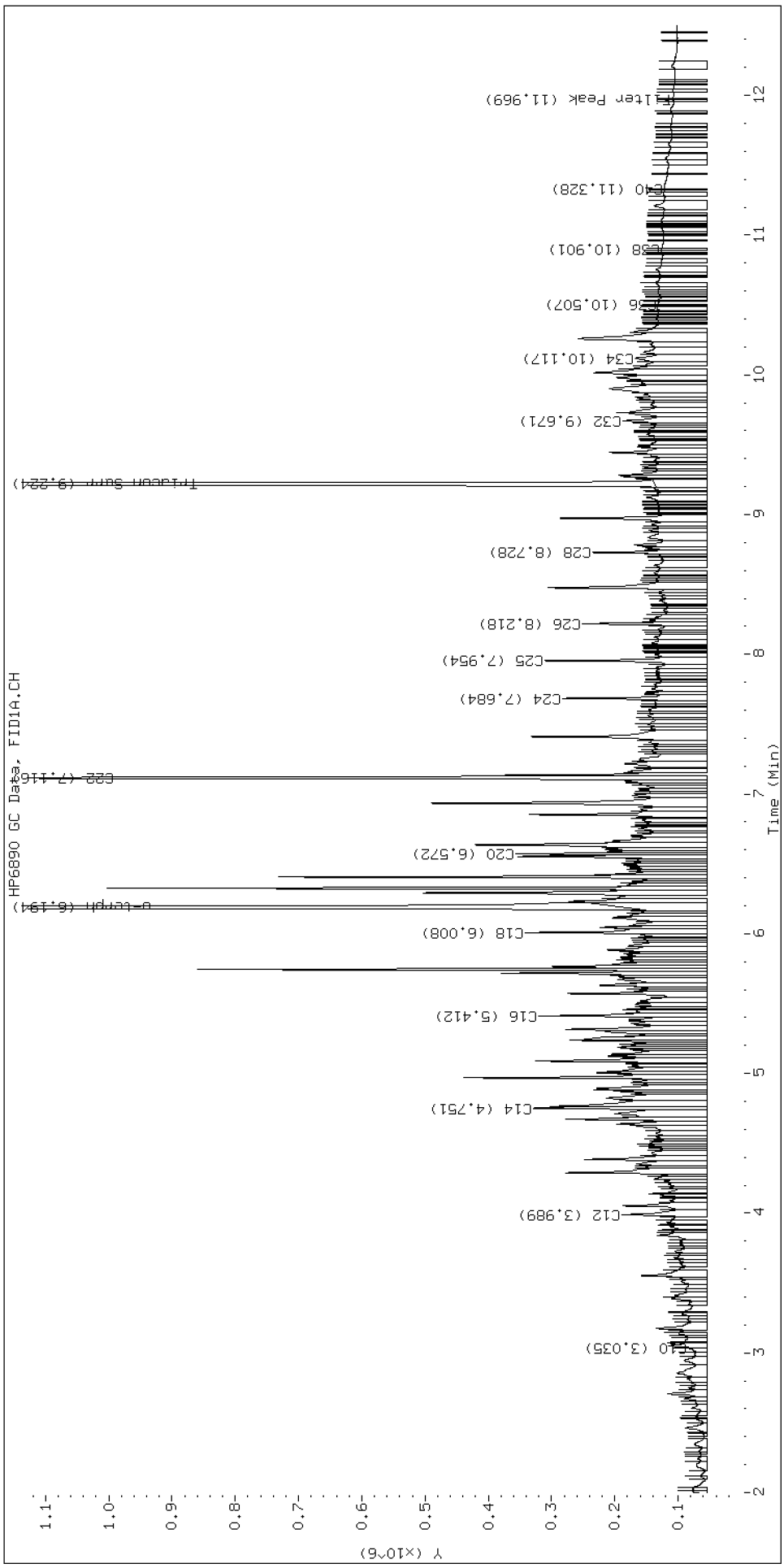
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.834	0.009	20629	36066	WATPHD	(C12-C24)	28065416	373.9
C10	3.035	-0.006	30009	45667	WATPHM	(C24-C38)	15402319	424.0
C12	3.989	0.004	136023	237290	AK102	(C10-C25)	31417971	344.9
C14	4.751	0.000	275738	272728	AK103	(C25-C36)	13370904	379.9
C16	5.412	-0.004	267079	329257	OR.DIES	(C10-C28)	35563691	389.9
C18	6.008	-0.002	288921	360751				
C20	6.572	-0.006	303847	248168				
C22	7.116	-0.021	1317856	1324284				
C24	7.684	-0.004	228410	287960				
C25	7.954	-0.004	257467	380200				
C26	8.218	-0.005	198273	227471				
C28	8.728	-0.005	181352	229193				
C32	9.671	-0.003	133524	257646				
C34	10.117	0.011	114323	312152				
Filter Peak	11.969	0.024	54246	43014	BUNKERC	(C10-C38)	45941221	682.9
C36	10.507	-0.012	77944	50349				
C38	10.901	-0.016	72974	68919				
C40	11.328	0.014	68125	33987				
o-terph	6.194	-0.001	9605523	7674384				
Triacon Surr	9.224	-0.005	4792498	4141208	NAS DIES	(C10-C24)	30538902	335.5

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7674384	89.4	M
Triacontane	4141208	79.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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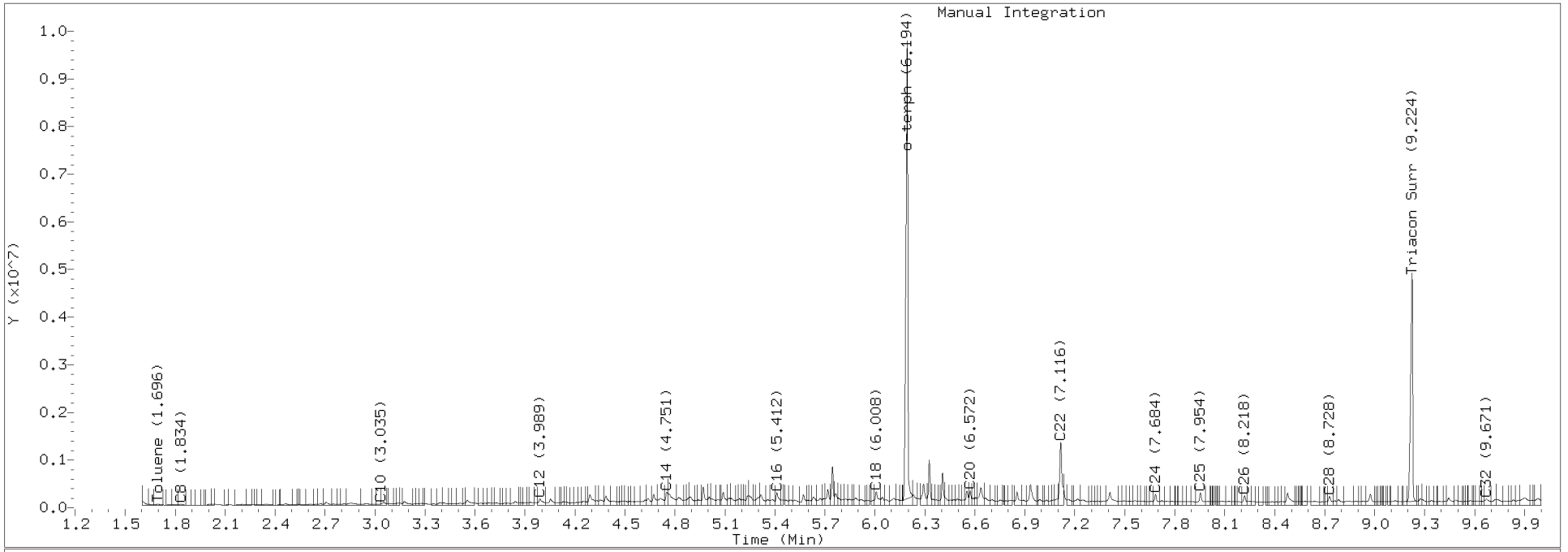
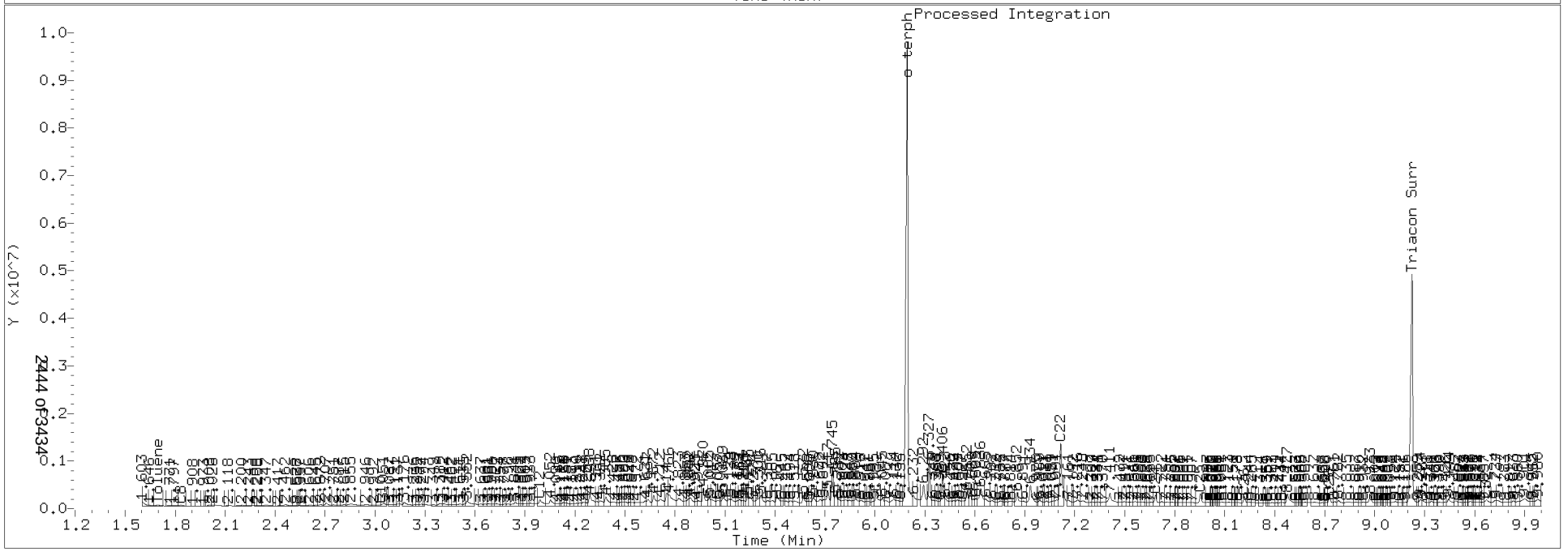
Y (x10^6)
Time (Min)
C10 (3.035)
C12 (3.989)
C14 (4.751)
C16 (5.412)
C18 (6.008)
n-bumph (6.194)
C20 (6.572)
C22 (7.116)
C24 (7.684)
C25 (7.954)
C26 (8.218)
C28 (8.728)
Triacon Surr (9.224)
C32 (9.671)
C34 (10.117)
C36 (10.507)
C38 (10.901)
C40 (11.328)
Filter Peak (11.969)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0449.D Injection: 05-SEP-2019 01:49

Lab ID:19H0481-15





P40-UST-03-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Water	Laboratory ID:	19H0481-16 A	SDG:	19H0481
Sampled:	08/30/19 12:10	Prepared:	09/03/19 08:43	File ID:	419I0411.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/04/19 12:26
Batch:	BHI0023	Sequence:	SHI0031	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	2.63		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.219	97.2	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0411.D

Date : 04-SEP-2019 12:26

Client ID:

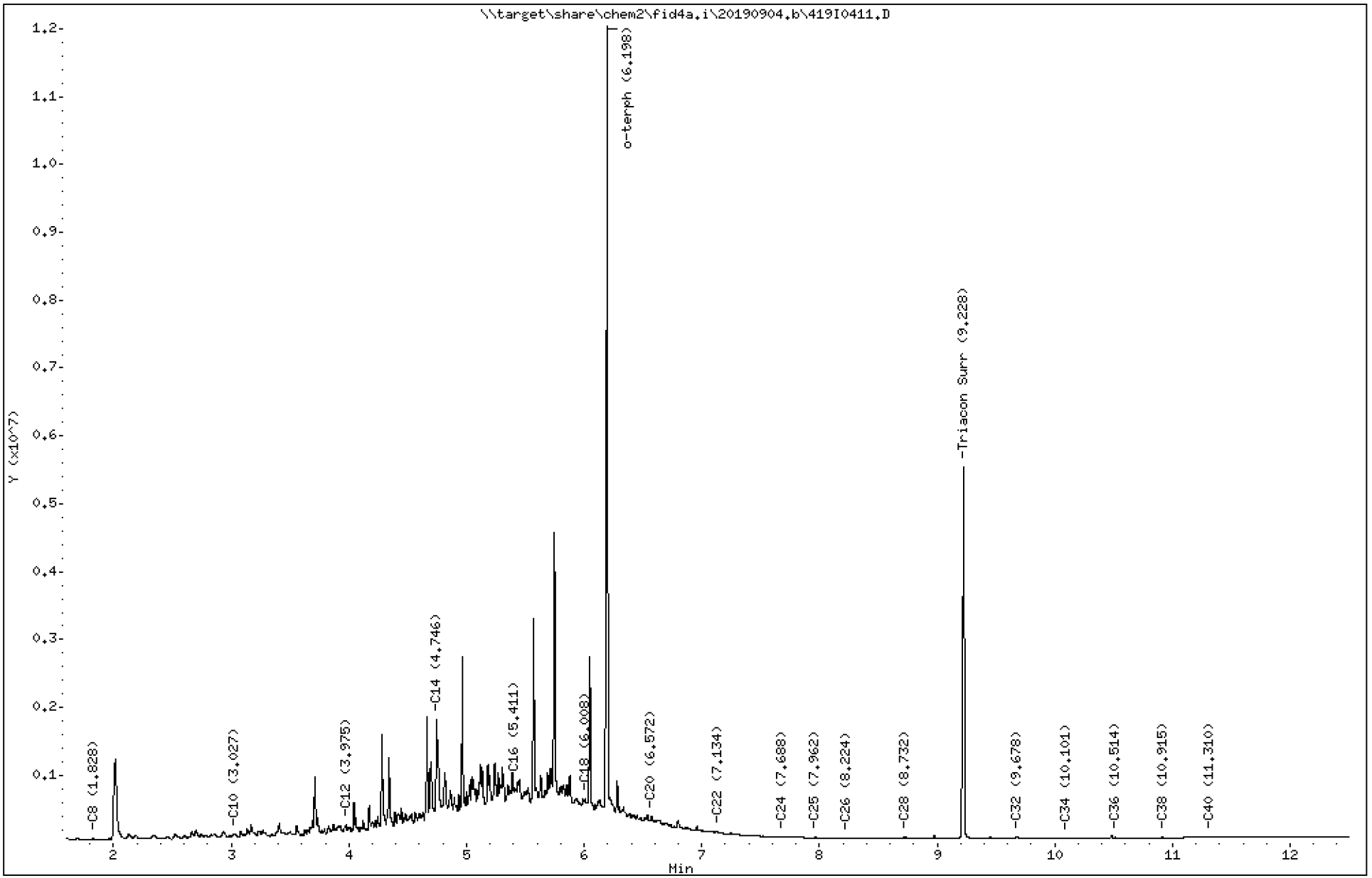
Sample Info: 19H0481-16

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0411.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-16
Client ID:
Injection: 04-SEP-2019 12:26
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.828	0.002	11039	16962	WATPHD	(C12-C24)	98612509	1313.6
C10	3.027	-0.015	88980	154342	WATPHM	(C24-C38)	1812237	49.9
C12	3.975	-0.010	212436	186897	AK102	(C10-C25)	106597158	1170.1
C14	4.746	-0.005	1773319	1446878	AK103	(C25-C36)	1454189	41.3
C16	5.411	-0.005	761159	554364	OR.DIES	(C10-C28)	107128745	1174.4
C18	6.008	-0.002	612075	433479				
C20	6.572	-0.006	344933	466707				
C22	7.134	-0.003	112818	163770				
C24	7.688	-0.000	39712	59481				
C25	7.962	0.004	32089	70893				
C26	8.224	0.001	24703	35128				
C28	8.732	-0.001	45226	73283				
C32	9.678	0.005	39253	105179				
C34	10.101	-0.005	27864	69291				
Filter Peak	----				BUNKERC	(C10-C38)	108223860	1608.6 M
C36	10.514	-0.005	31261	61671				
C38	10.915	-0.001	31633	80301				
C40	11.310	-0.004	36510	99118				
o-terph	6.198	0.004	11436601	9382280				
Triacon Surr	9.228	-0.000	5472976	5209709	NAS DIES	(C10-C24)	106411623	1168.9

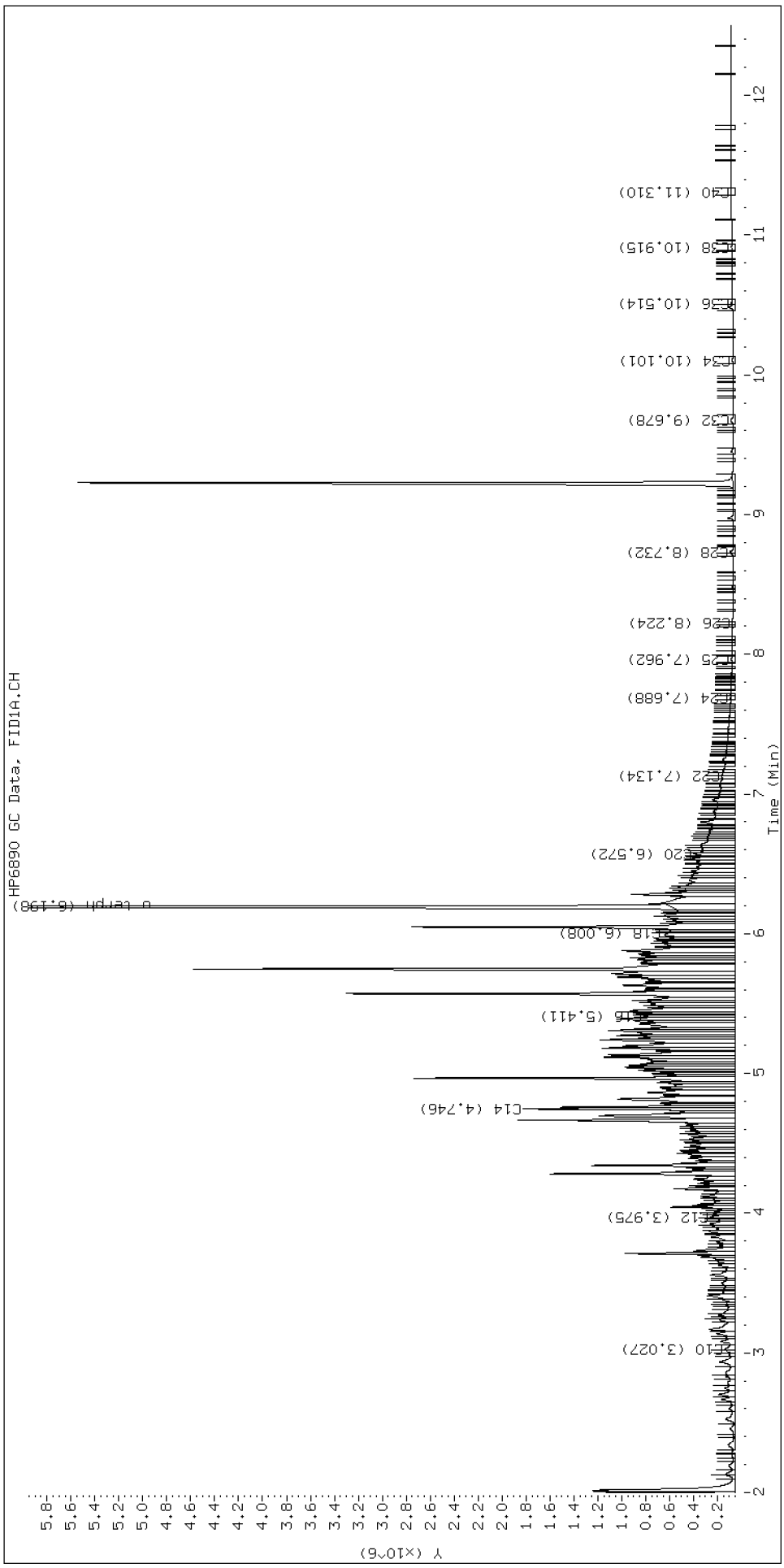
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	9382280	109.3	M
Triacontane	5209709	99.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

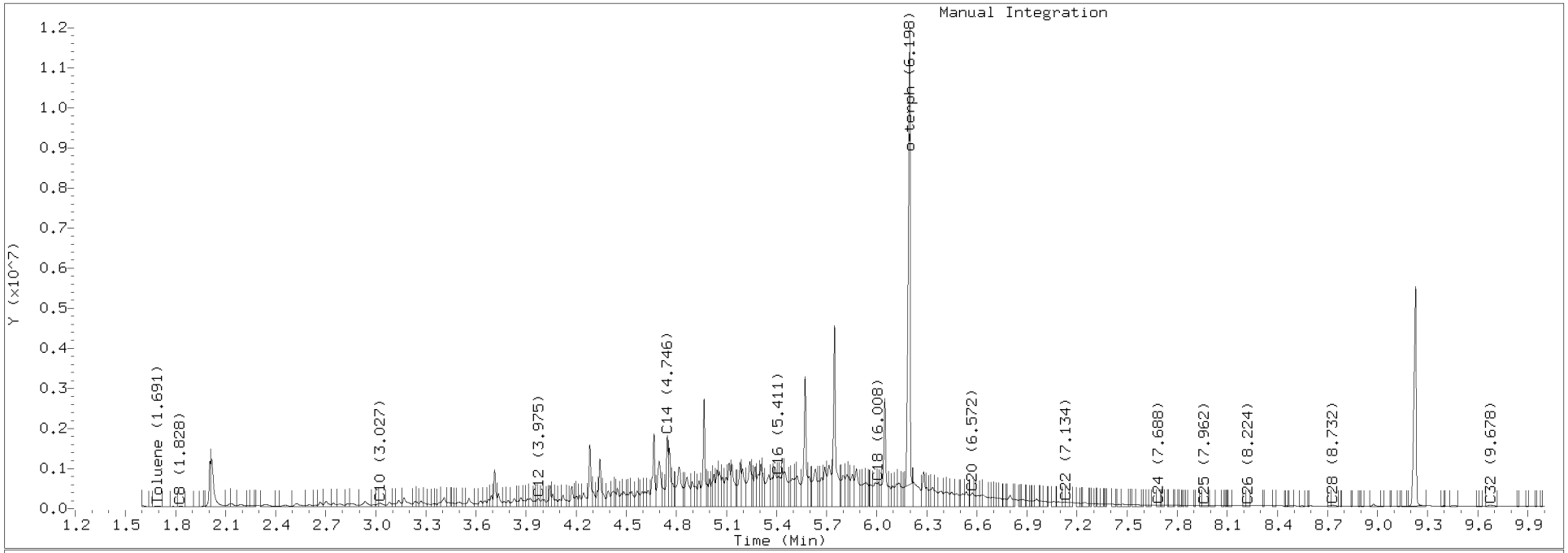
Datafile: FID4A, 20190904.b/419I0411.D 19H0481-16

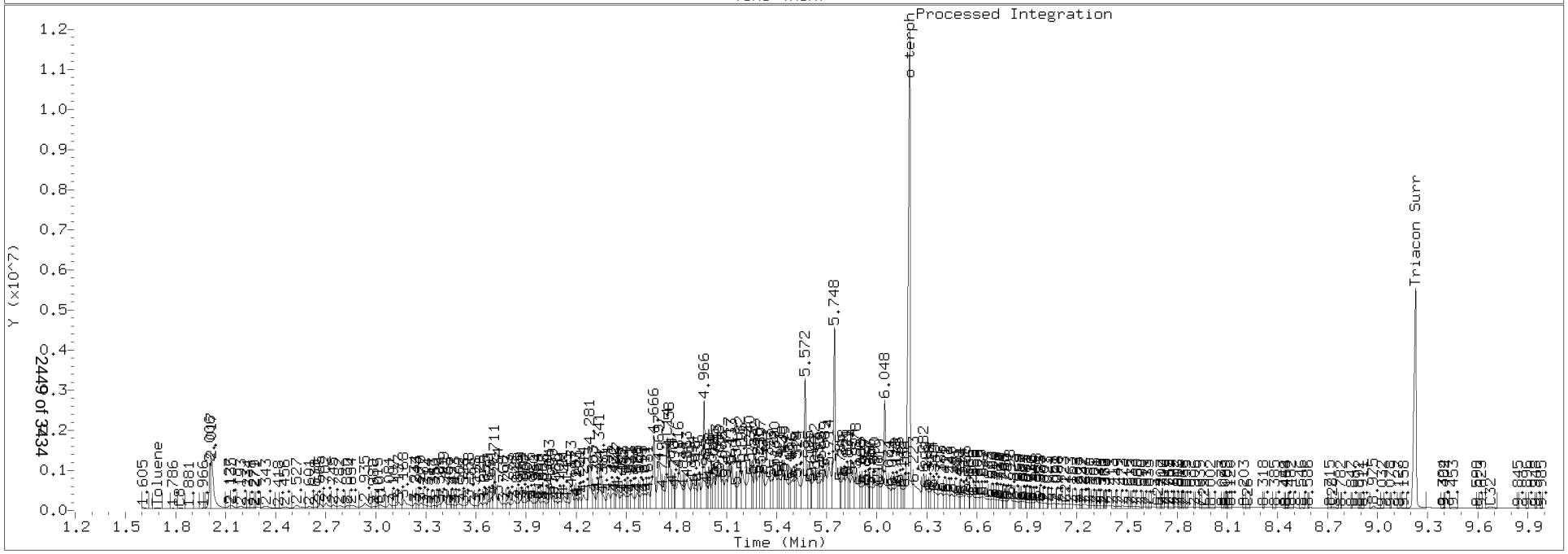


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0411.D Injection: 04-SEP-2019 12:26

Lab ID:19H0481-16





P40-UST-03-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-17 A	SDG:	19H0481
Sampled:	08/30/19 12:10	Prepared:	09/02/19 13:10	File ID:	419I0338.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 22:36
Batch:	BHI0019	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	7.46	E	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	3.37		0.056	0.200

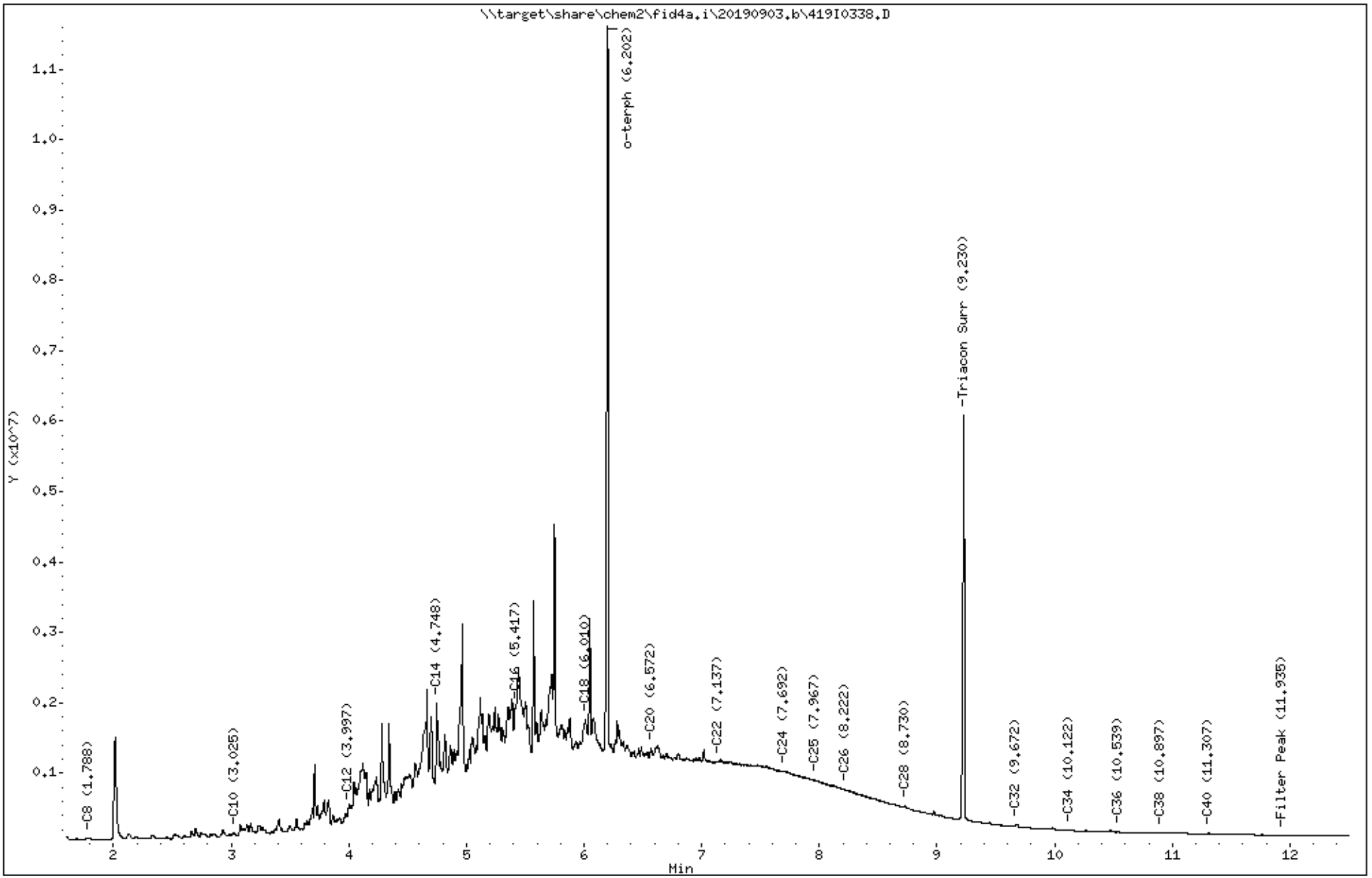
SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.208	92.3	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0338.D
Date : 03-SEP-2019 22:36
Client ID:
Sample Info: 19H0481-17

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0338.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-17
Client ID:
Injection: 03-SEP-2019 22:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

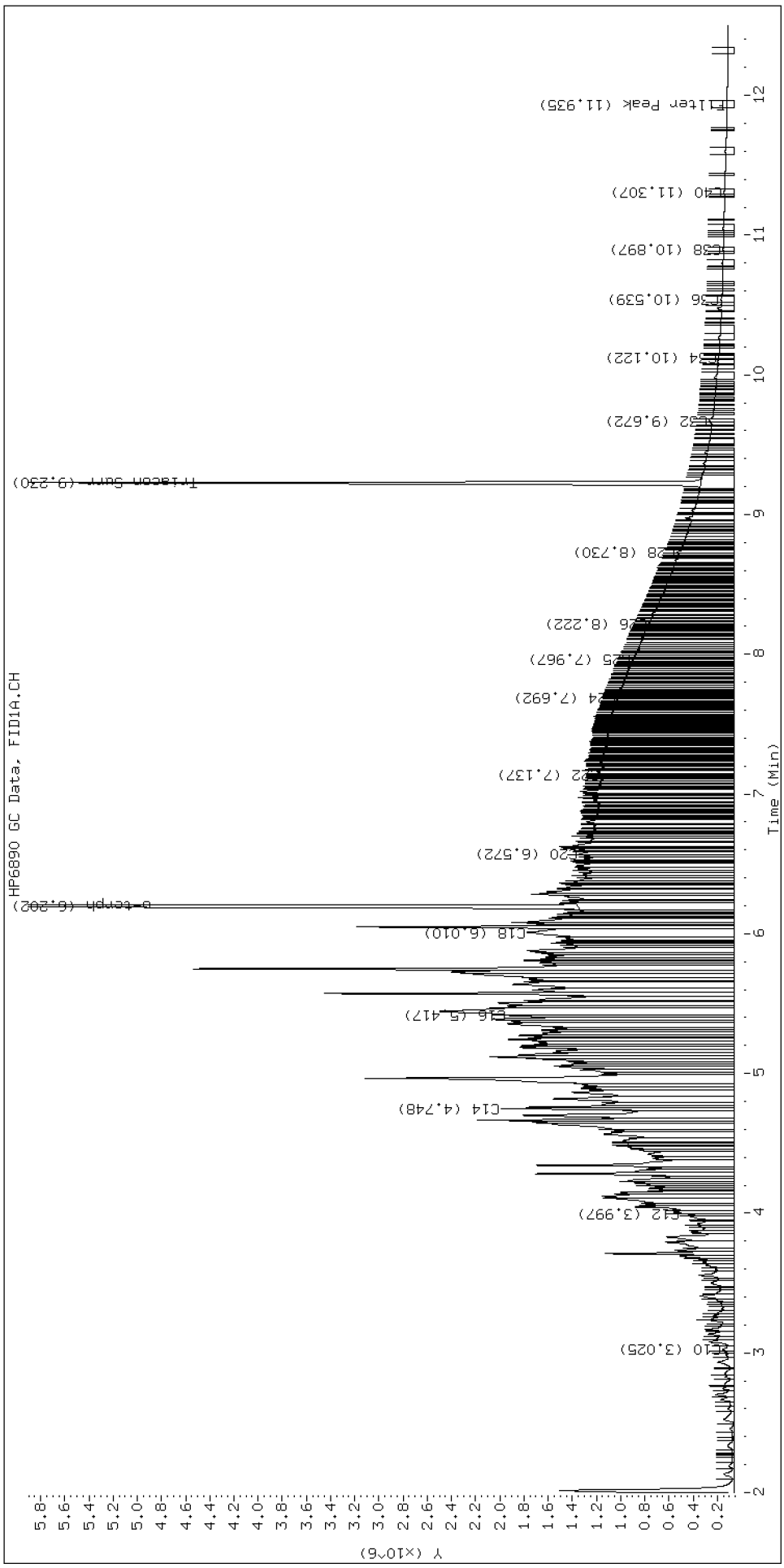
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.788	-0.057	19214	30955	WATPHD	(C12-C24)	280162967	3732.0
C10	3.025	-0.022	100003	169177	WATPHM	(C24-C38)	61146453	1683.3
C12	3.997	0.011	440514	397094	AK102	(C10-C25)	302957056	3325.6
C14	4.748	-0.003	1932831	1878513	AK103	(C25-C36)	51273020	1456.9
C16	5.417	0.001	1878259	1748477	OR.DIES	(C10-C28)	335837592	3681.6
C18	6.010	-0.004	1714260	5081388				
C20	6.572	-0.007	1290306	1565353				
C22	7.137	-0.003	1104543	606224				
C24	7.692	0.001	966464	144922				
C25	7.967	0.005	844817	669778				
C26	8.222	-0.004	708422	596462				
C28	8.730	-0.007	481263	602198				
C32	9.672	-0.005	214508	241244				
C34	10.122	0.011	131913	175265				
Filter Peak	11.935	-0.011	67556	196123	BUNKERC	(C10-C38)	355009221	5276.7
C36	10.539	0.017	117890	256038				
C38	10.897	-0.019	95798	172727				
C40	11.307	-0.005	89737	187152				
o-terph	6.202	0.005	10255121	8913105				
Triacon Surr	9.230	-0.003	5746863	5299382	NAS DIES	(C10-C24)	293862768	3227.9

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	8913105	103.8	M
Triacontane	5299382	101.1	M

M Indicates the peak was manually integrated

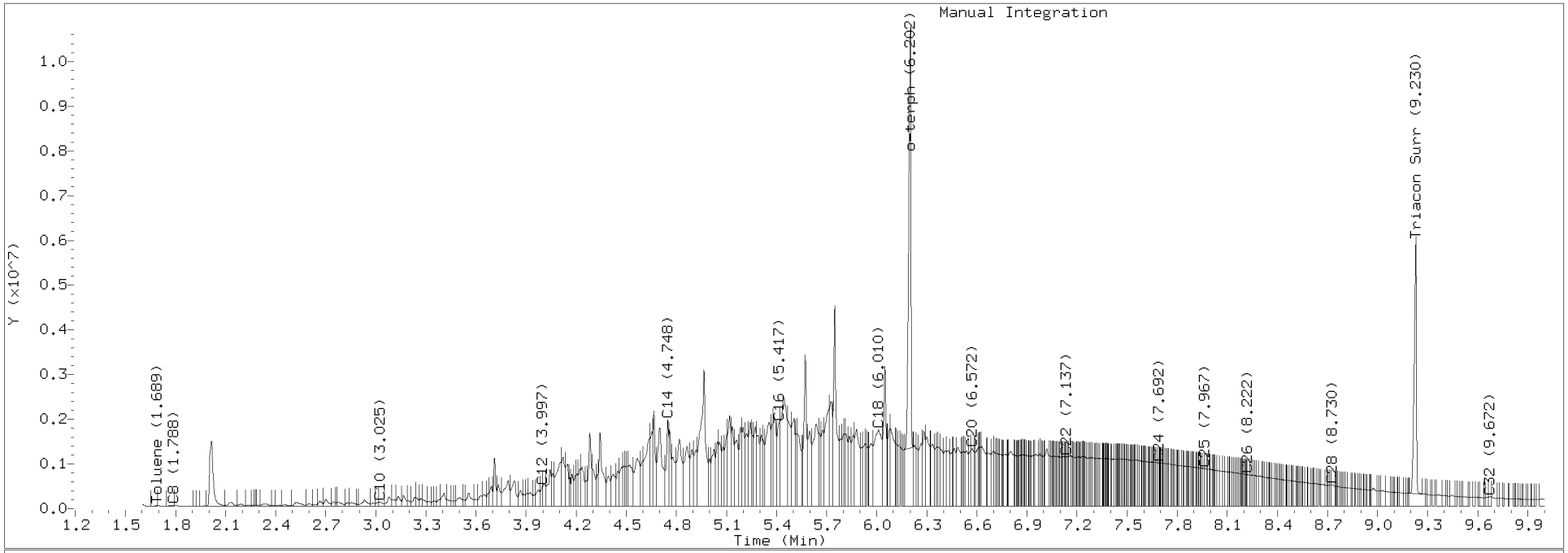
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

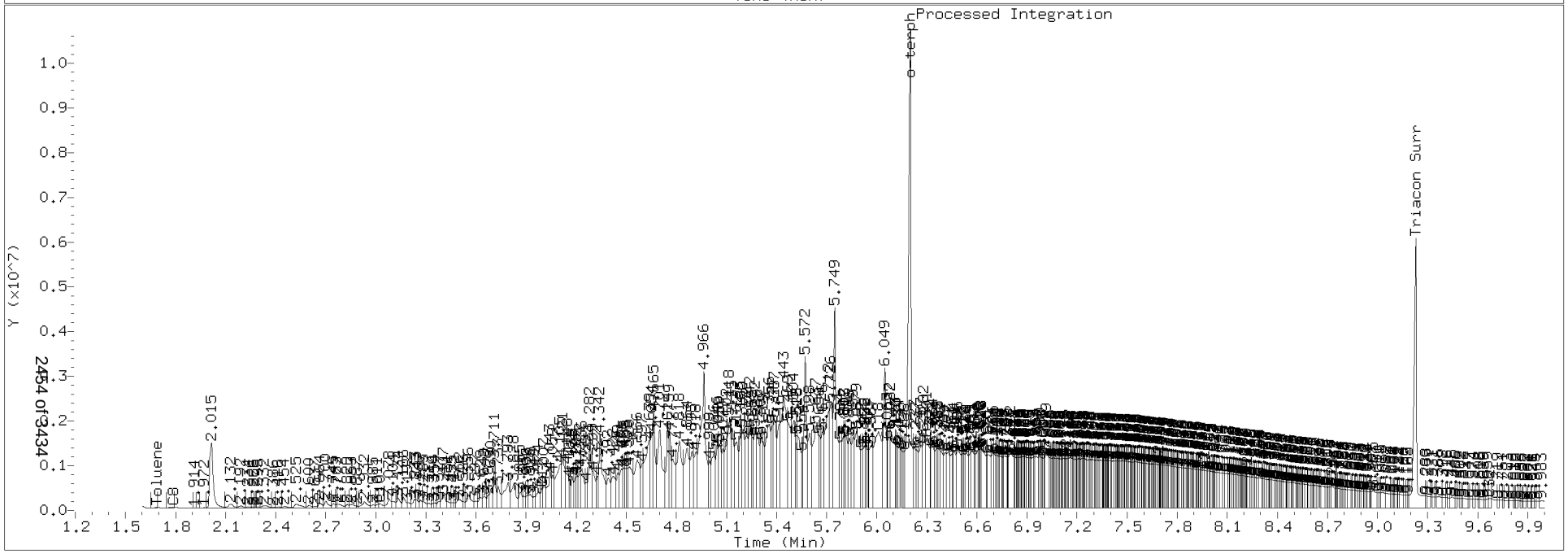

Datafile: FID4A, 20190903.b/419I0338.D 19H0481-17
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.025)
C12 (3.997)
C14 (4.748)
C16 (5.417)
C18 (6.010)
D-terph (6.202)
C20 (6.572)
C22 (7.137)
C24 (7.692)
C25 (7.967)
C26 (8.222)
C28 (8.730)
TriAcon Surr (9.230)
C32 (9.672)
C34 (10.122)
C36 (10.539)
C38 (10.897)
C40 (11.307)
Filter Peak (11.935)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0338.D Injection: 03-SEP-2019 22:36

Lab ID:19H0481-17





P40-UST-03-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-17RE1 A	SDG:	19H0481
Sampled:	08/30/19 12:10	Prepared:	09/02/19 13:10	File ID:	419I0413.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/04/19 13:10
Batch:	BHI0019	Sequence:	SHI0031	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	3	8.05	D	0.099	0.300
RRO	Motor Oil Range Organics (C24-C38)	3	2.47	D	0.168	0.600

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.241	107	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0413.D

Date : 04-SEP-2019 13:10

Client ID:

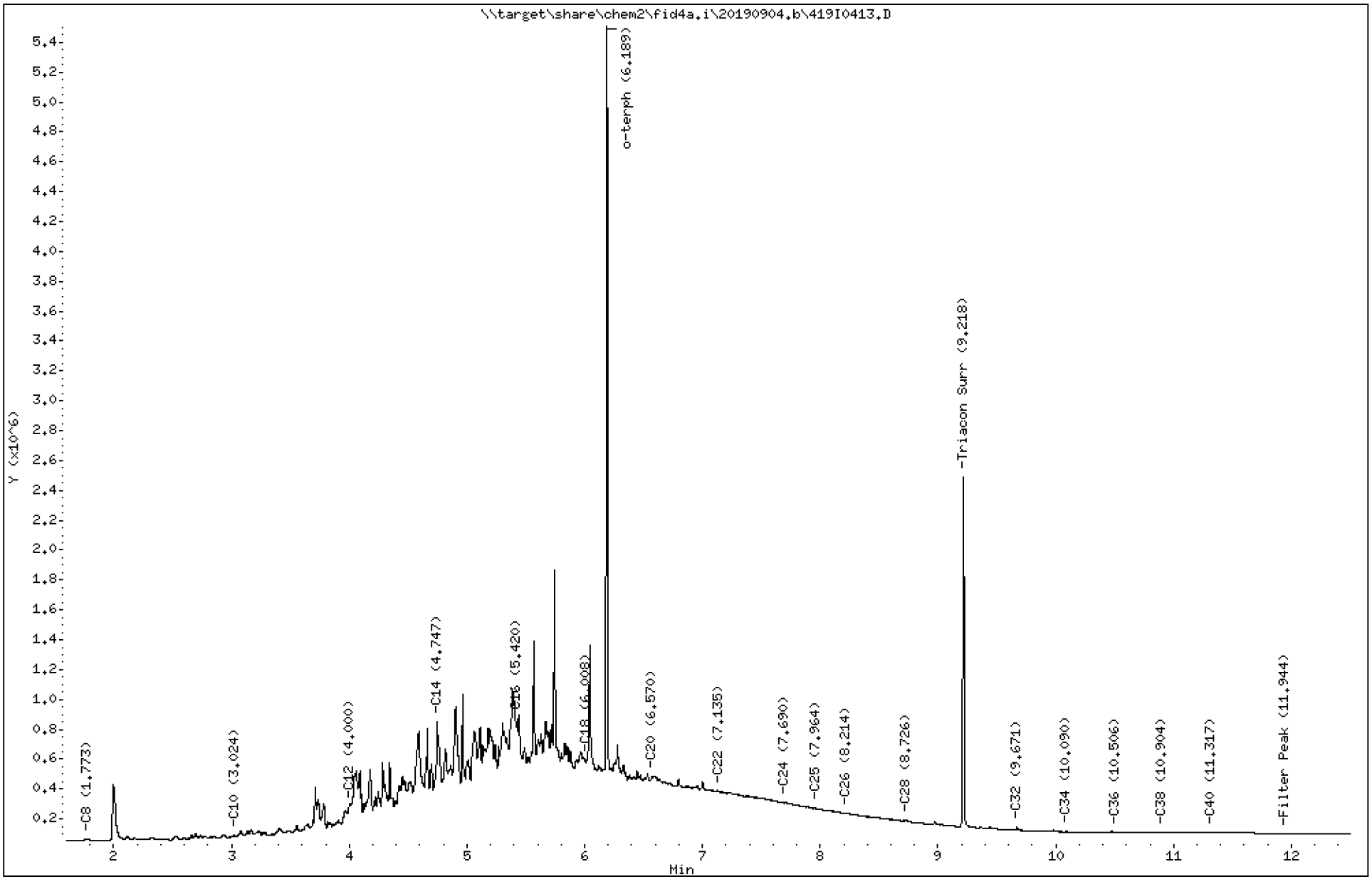
Sample Info: 19H0481-17RE1,3

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0413.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-17RE1
Client ID:
Injection: 04-SEP-2019 13:10
Dilution Factor: 3
RT Std: 419H1603.D

FID:4A RESULTS

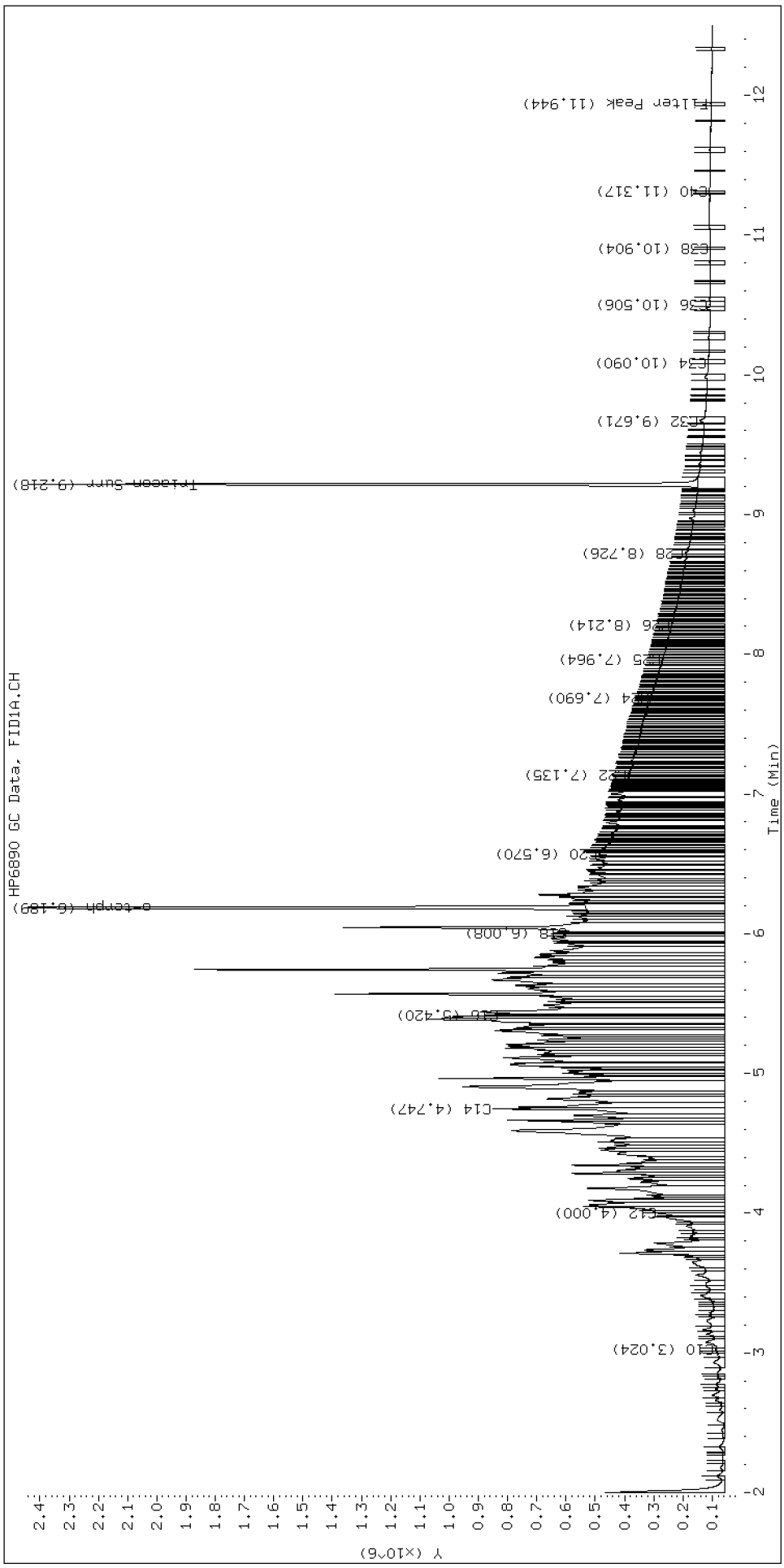
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.773	-0.053	7474	20615	WATPHD	(C12-C24)	100661924	1340.9
C10	3.024	-0.017	33934	46334	WATPHM	(C24-C38)	14932951	411.1
C12	4.000	0.015	228048	225999	AK102	(C10-C25)	108322156	1189.1
C14	4.747	-0.004	795624	1196816	AK103	(C25-C36)	12414653	352.8
C16	5.420	0.005	768373	492807	OR.DIES	(C10-C28)	116174101	1273.5
C18	6.008	-0.003	536790	318106				
C20	6.570	-0.008	433334	488617				
C22	7.135	-0.002	333352	83183				
C24	7.690	0.002	253745	75903				
C25	7.964	0.005	215278	149600				
C26	8.214	-0.010	184004	155827				
C28	8.726	-0.007	137773	256875				
C32	9.671	-0.003	87768	192718				
C34	10.090	-0.016	59866	105882				
Filter Peak	11.944	-0.001	49531	65961	BUNKERC	(C10-C38)	120956805	1797.9
C36	10.506	-0.013	53275	96723				
C38	10.904	-0.013	52182	56943				
C40	11.317	0.003	56181	57958				
o-terph	6.189	-0.005	4976039	3440368				
Triacon Surr	9.218	-0.011	2337503	1832997	NAS DIES	(C10-C24)	106023854	1164.6

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	3440368	40.1	M
Triacontane	1832997	35.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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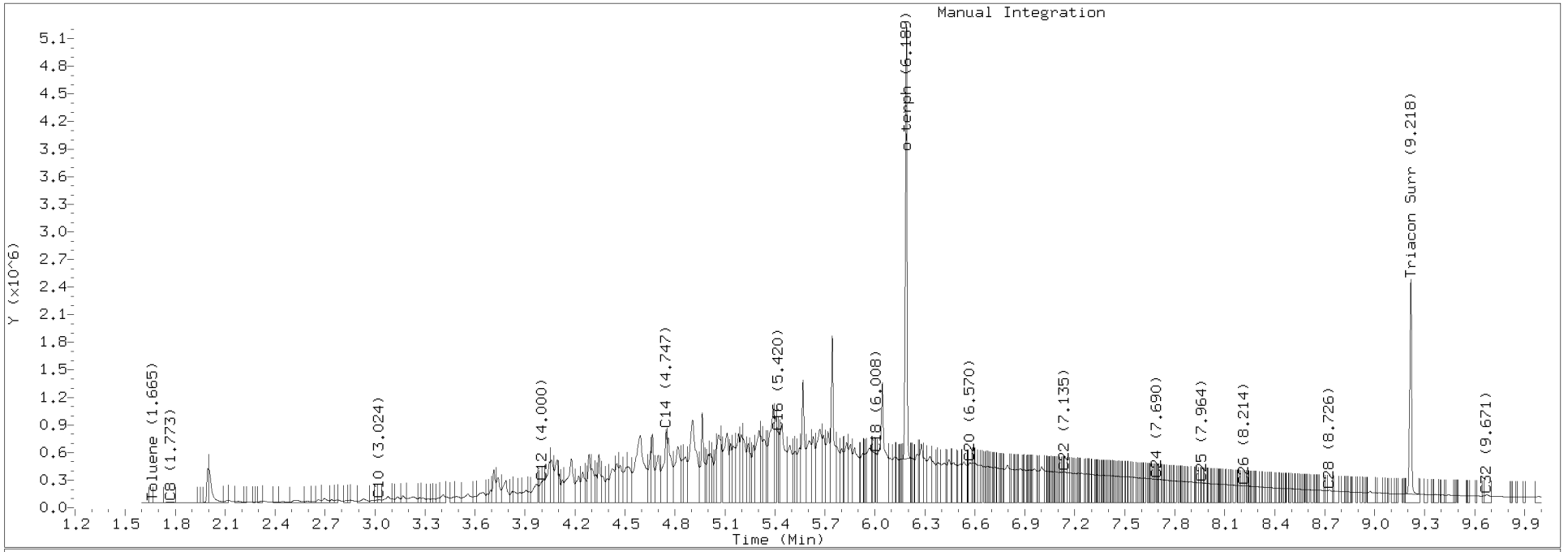
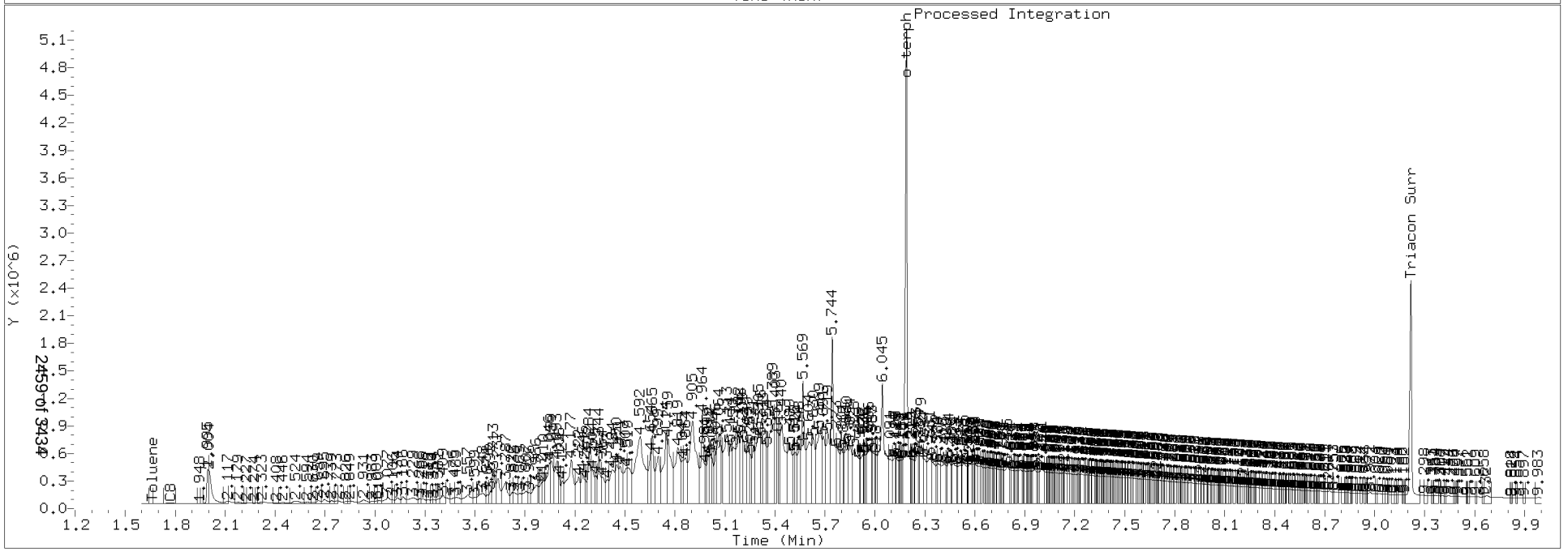
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.024)
C12 (4.000)
C14 (4.747)
C16 (5.420)
C18 (6.008)
o-terph (6.189)
C20 (6.570)
C22 (7.135)
C24 (7.690)
C25 (7.964)
C26 (8.214)
C28 (8.726)
Tridecn-Surr (9.218)
C32 (9.671)
C34 (10.090)
C36 (10.506)
C38 (10.904)
C40 (11.317)
Filter Peak (11.944)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0413.D Injection: 04-SEP-2019 13:10

Lab ID:19H0481-17RE1





P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Soil	Laboratory ID:	19H0481-18 A	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/04/19 09:25	File ID:	319I1058.D
% Solids:	94.62	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 06:21
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	825	E	2.47	5.28
RRO	Motor Oil Range Organics (C24-C38)	1	26.7		3.16	10.6

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.878	14.6	123	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1058.D

Date : 11-SEP-2019 06:21

Client ID:

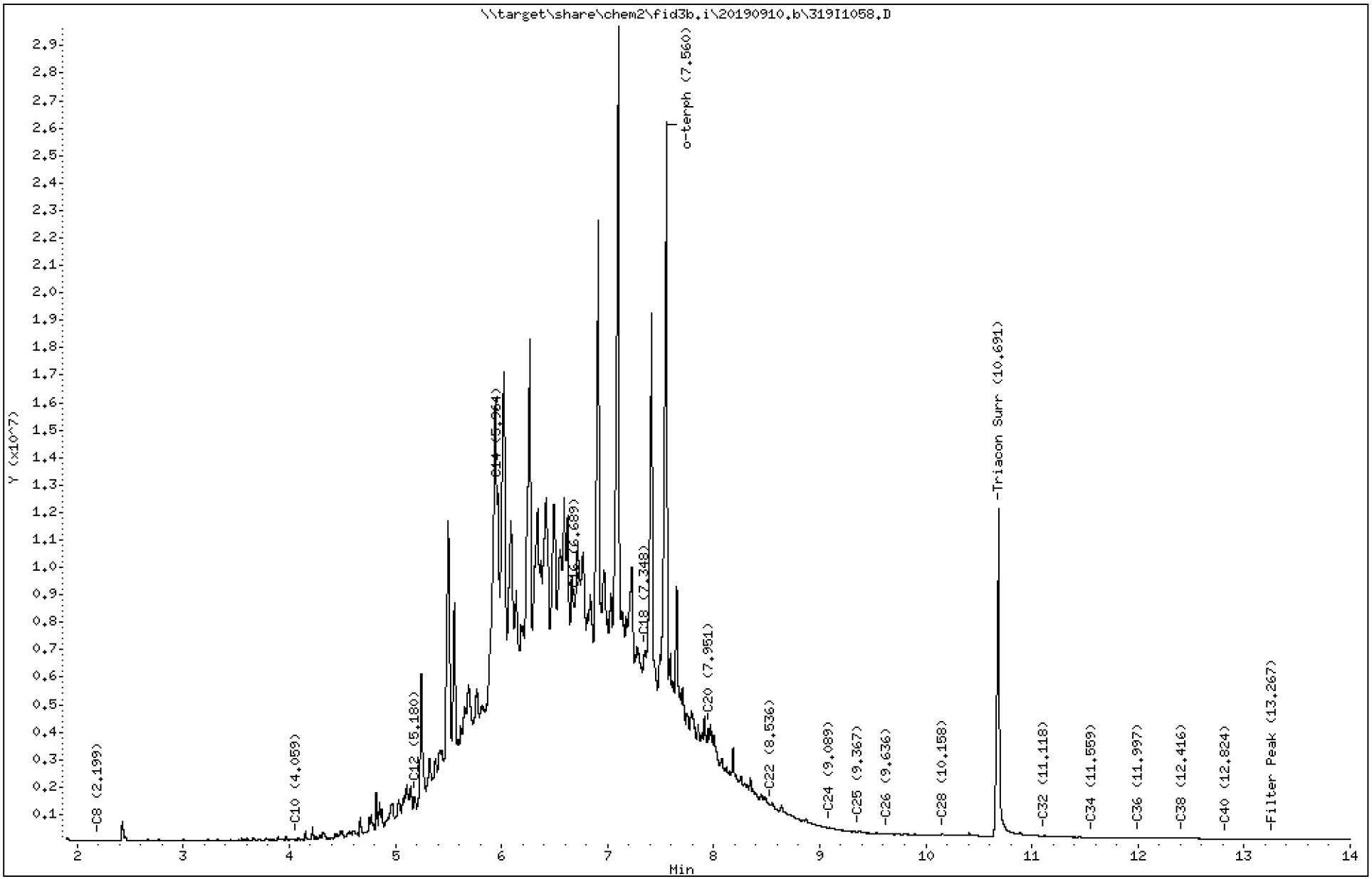
Sample Info: 19H0481-18

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1058.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-18
Client ID:
Injection: 11-SEP-2019 06:21
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	41135405	229.2	
C8	2.199	0.024	3326	3593	WATPHD	(C12-C24)	1363442915	7815.2	
C10	4.059	-0.010	59846	50358	WATPHM	(C24-C38)	32042274	253.1	
C12	5.180	0.014	1603951	3044433	AK102	(C10-C25)	1404954194	6891.9	M
C14	5.964	-0.028	12656367	17999171	AK103	(C25-C36)	27324974	268.6	M
C16	6.689	-0.013	8591418	2222019	OR.DIES	(C10-C28)	1417659833	6869.0	M
C18	7.348	0.010	6906560	11636488					
C20	7.951	0.015	4074537	5216560					
C22	8.536	0.013	1308034	780637					
C24	9.089	-0.007	484113	940874					
C25	9.367	-0.007	348581	1341401					
C26	9.636	-0.010	267451	657034					
C28	10.158	-0.010	269238	916641	IT.DIES	(C10-C24)	1401904023	6890.6	
C32	11.118	-0.013	214993	355197					
C34	11.559	-0.013	118769	333877					
Filter Peak	13.267	-0.052	69542	518995					
C36	11.997	-0.001	93258	37103					
o-terph	7.560	0.027	20201264	30748037					
Triacon Surr	10.691	0.002	11912822	20127594					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	30748037	138.2
Triacontane	20127594	118.4

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-18RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/04/19 09:25	File ID:	319I1067.D
% Solids:	94.62	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 09:42
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	5	796	D	12.4	26.4
RRO	Motor Oil Range Organics (C24-C38)	5	52.8	U	15.8	52.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.878	14.5	122	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1067.D

Date : 11-SEP-2019 09:42

Client ID:

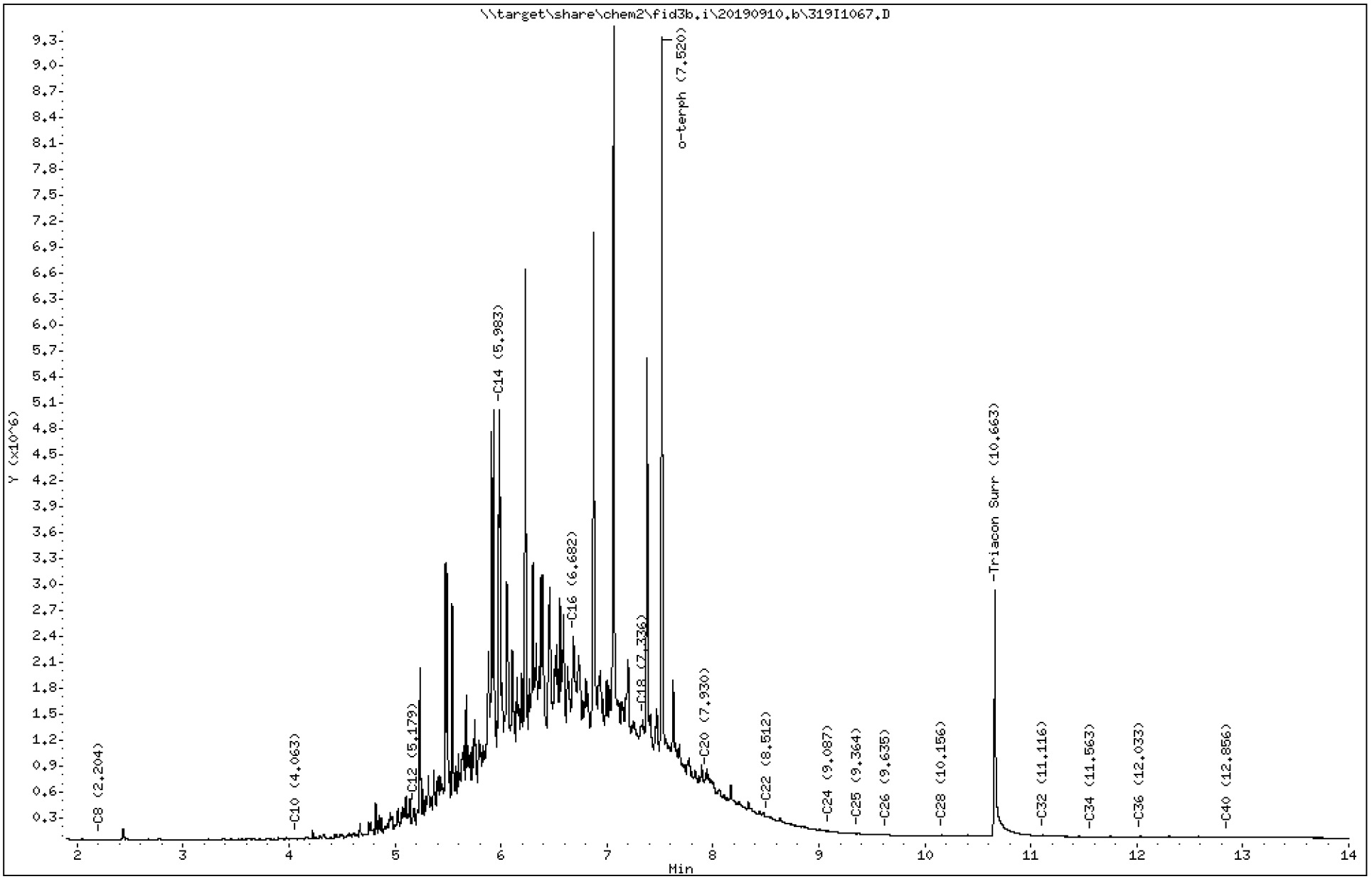
Sample Info: 19H0481-18RE1,5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1067.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-18RE1
Client ID:
Injection: 11-SEP-2019 09:42
Dilution Factor: 5
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	8680839	48.4	
C8	2.204	0.028	1019	1232	WATPHD	(C12-C24)	263210719	1508.7	
C10	4.063	-0.006	15701	14546	WATPHM	(C24-C38)	5898300	46.6	
C12	5.179	0.013	367970	654937	AK102	(C10-C25)	271611644	1332.4	M
C14	5.983	-0.009	4985805	7876364	AK103	(C25-C36)	5312500	52.2	M
C16	6.682	-0.020	2348653	6677552	OR.DIES	(C10-C28)	273936655	1327.3	M
C18	7.336	-0.002	1397152	2211651					
C20	7.930	-0.006	767639	755535					
C22	8.512	-0.011	266310	404571					
C24	9.087	-0.009	104602	207104					
C25	9.364	-0.010	76350	489197					
C26	9.635	-0.011	59827	141249					
C28	10.156	-0.013	57042	207147	IT.DIES	(C10-C24)	271155909	1332.8	
C32	11.116	-0.014	55408	107002					
C34	11.563	-0.009	35557	133666					
Filter Peak	----								
C36	12.033	0.035	43847	119974					
o-terph	7.520	-0.013	8235699	6094517					
Triacon Surr	10.663	-0.027	2841251	3540370					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

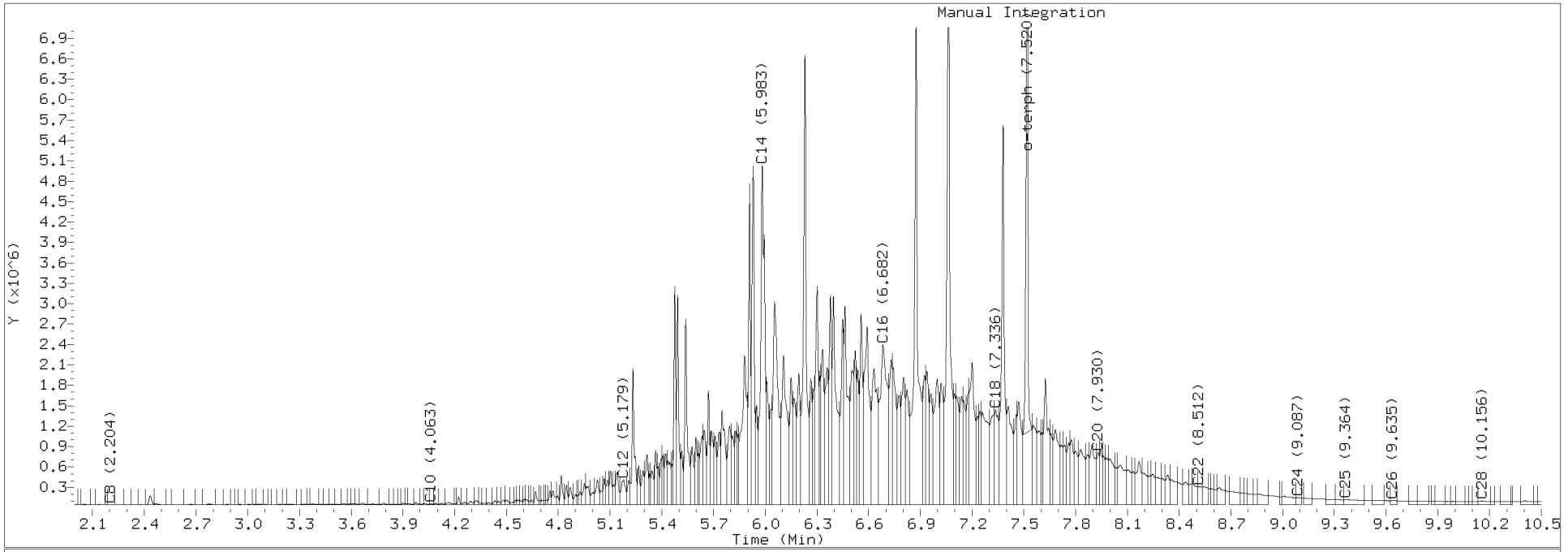
Surrogate	Area	Amount
o-Terphenyl	6094517	27.4
Triacontane	3540370	20.8

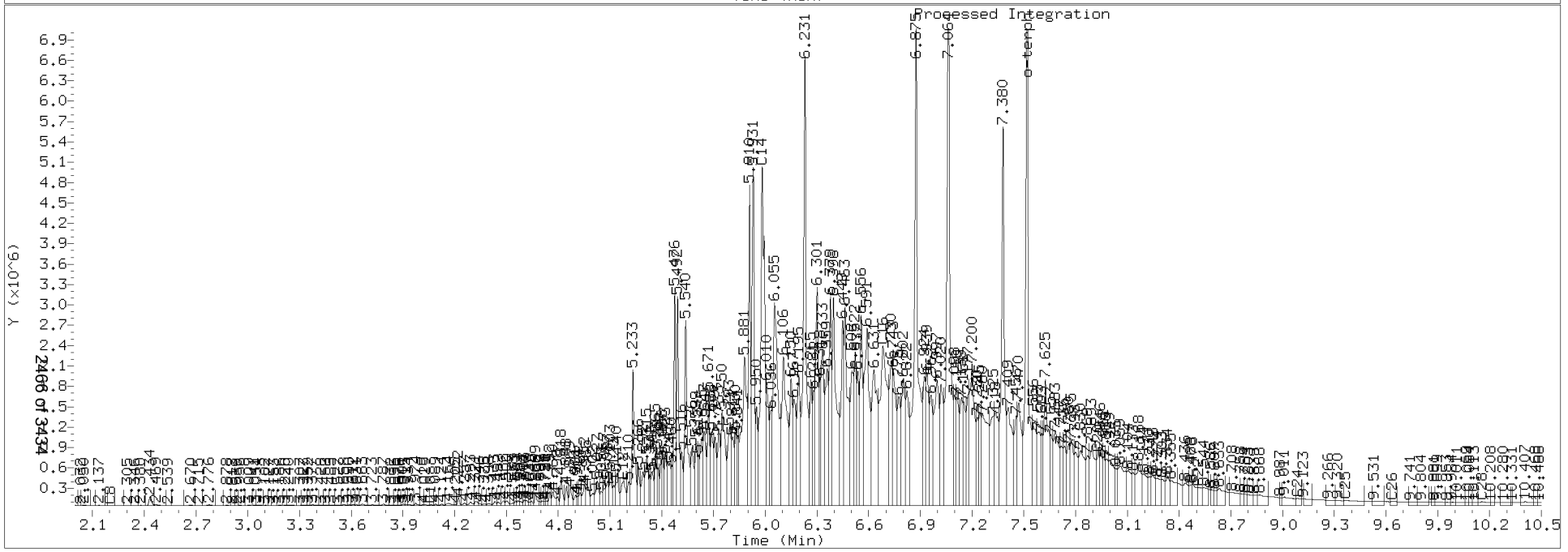
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1067.D Injection: 11-SEP-2019 09:42

Lab ID:19H0481-18RE1





P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-19 A	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/03/19 15:50	File ID:	419I0450.D
% Solids:	94.62	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 02:10
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	1080	E	2.47	5.28
RRO	Motor Oil Range Organics (C24-C38)	1	29.9		3.16	10.6

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.890	9.31	78.3	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0450.D

Date : 05-SEP-2019 02:10

Client ID:

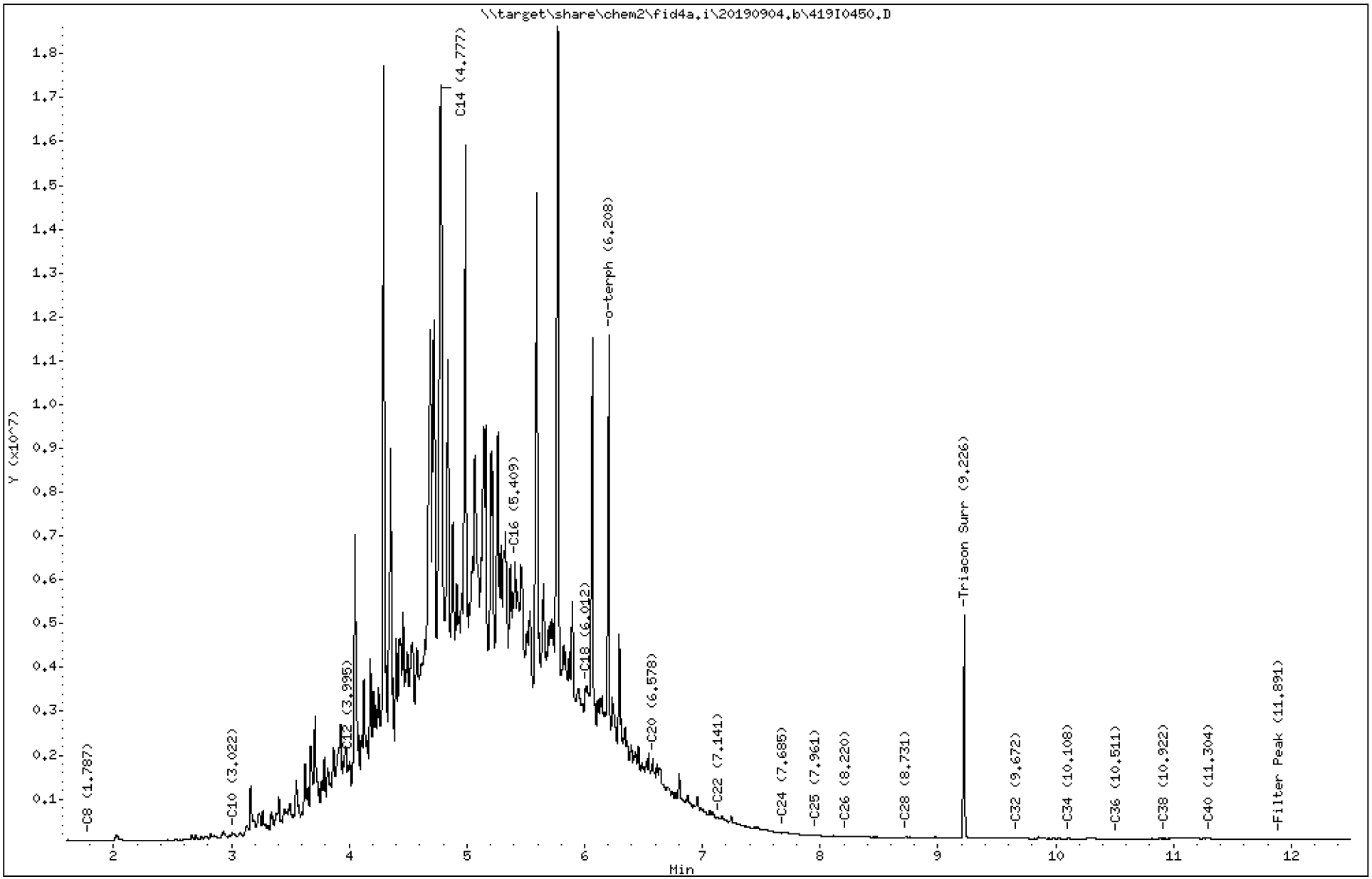
Sample Info: 19H0481-19

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0450.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-19
Client ID:
Injection: 05-SEP-2019 02:10
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.787	-0.038	3832	3478	WATPHD	(C12-C24)	769411128	10249.2
C10	3.022	-0.019	162344	274430	WATPHM	(C24-C38)	10281118	283.0
C12	3.995	0.009	1717639	1646773	AK102	(C10-C25)	827812008	9086.9
C14	4.777	0.027	17230670	39246453	AK103	(C25-C36)	8458050	240.3
C16	5.409	-0.007	6356919	8137838	OR.DIES	(C10-C28)	831743388	9117.9
C18	6.012	0.002	3493684	1554305				
C20	6.578	0.000	1862057	2055264				
C22	7.141	0.003	506988	349353				
C24	7.685	-0.003	183449	265787				
C25	7.961	0.003	134008	242849				
C26	8.220	-0.003	95843	98321				
C28	8.731	-0.002	97178	164989				
C32	9.672	-0.002	67542	155460				
C34	10.108	0.002	48380	166663				
Filter Peak	11.891	-0.053	44254	82325	BUNKERC	(C10-C38)	836790539	12437.7
C36	10.511	-0.007	44079	17586				
C38	10.922	0.006	46824	30349				
C40	11.304	-0.010	48402	76128				
o-terph	6.208	0.013	8900060	7565330				
Triacon Surr	9.226	-0.002	5067277	4473430	NAS DIES	(C10-C24)	826509420	9078.8

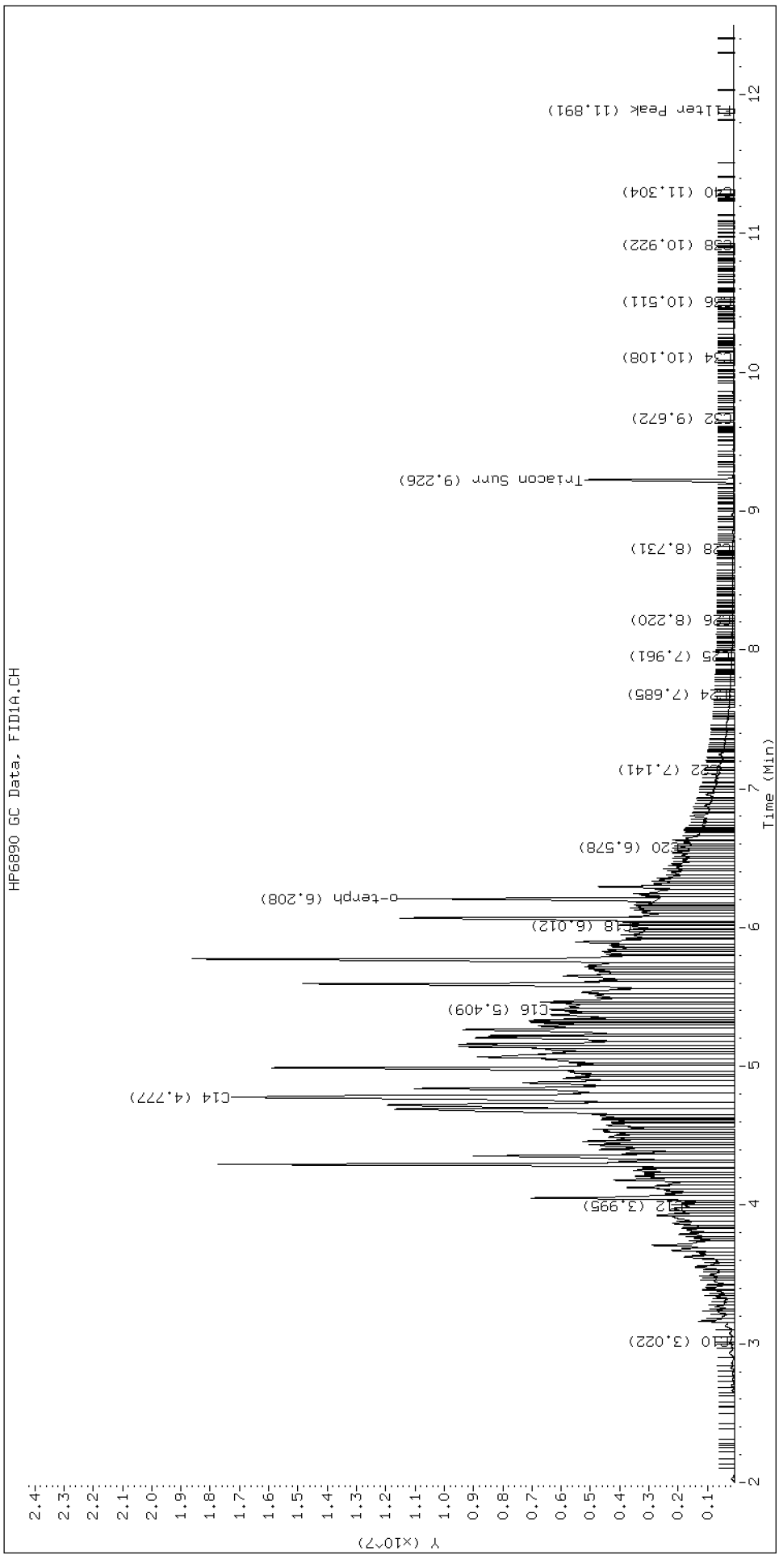
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7565330	88.1	M
Triacontane	4473430	85.3	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

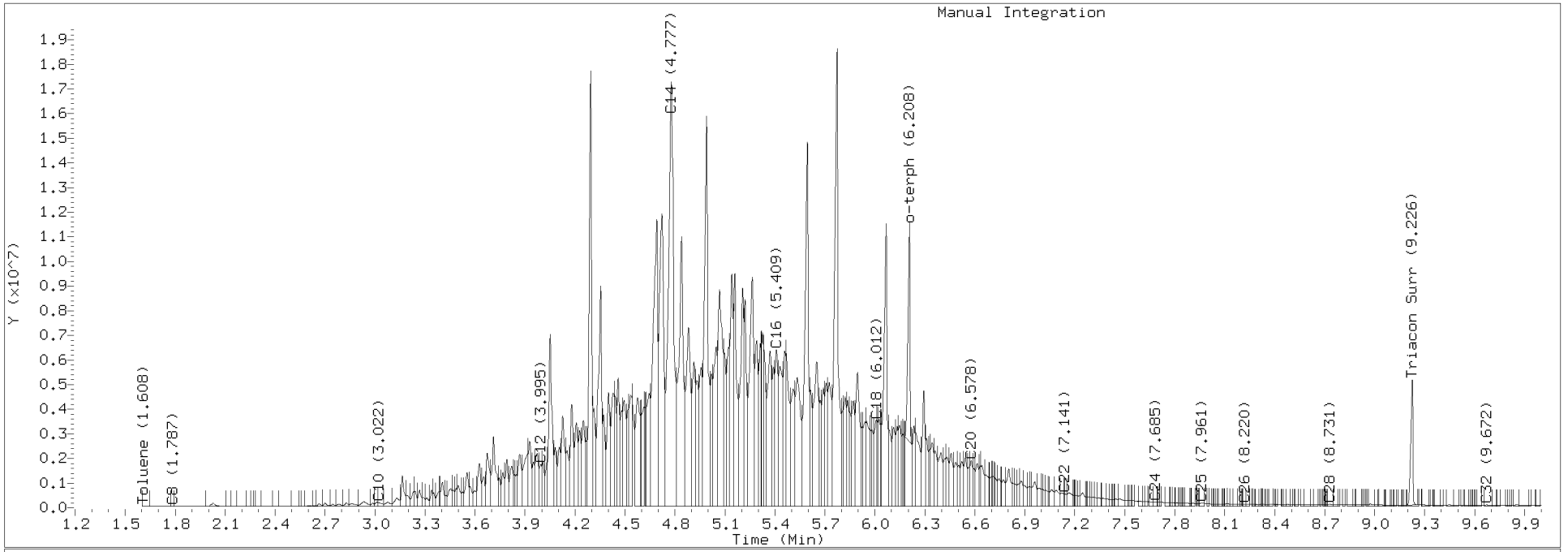
Datafile: FID4A, 20190904.b/419I0450.D 19H0481-19

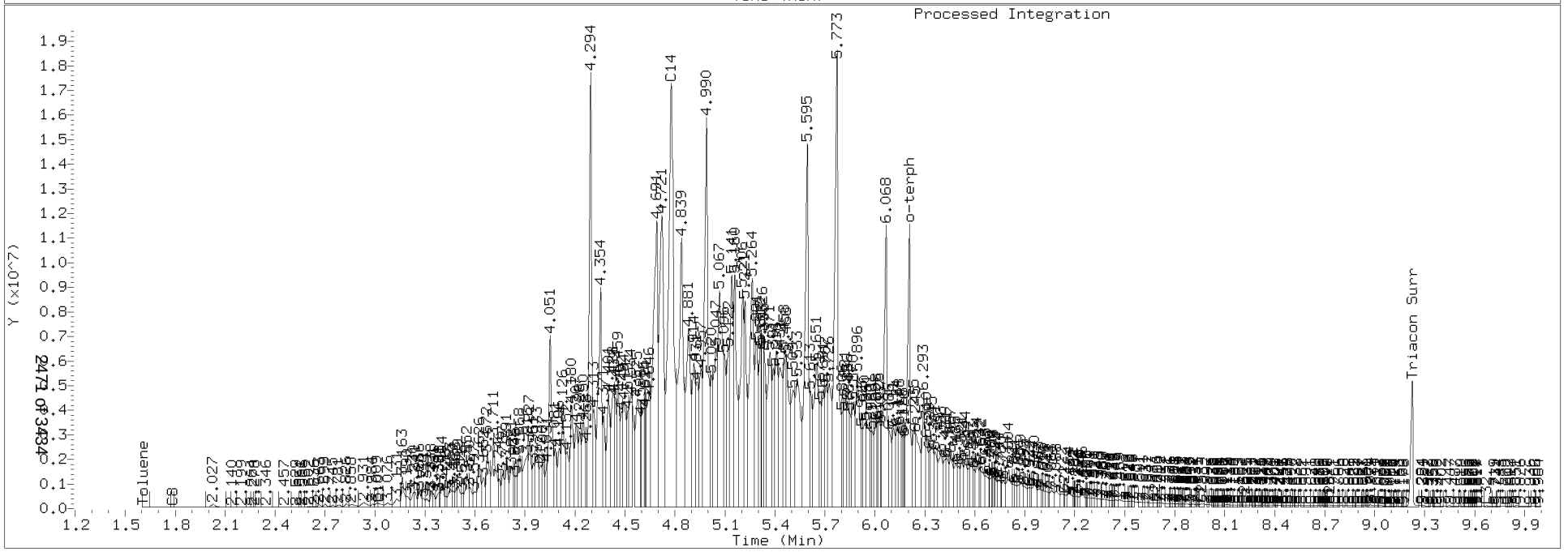


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0450.D Injection: 05-SEP-2019 02:10

Lab ID:19H0481-19





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-19RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:10	Prepared:	09/03/19 15:50	File ID:	419I0558.D
% Solids:	94.62	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/06/19 05:50
Batch:	BHI0051	Sequence:	SHI0053	Initial/Final:	10 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00021

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	10	1420	D	24.7	52.8
RRO	Motor Oil Range Organics (C24-C38)	10	106	U	31.6	106

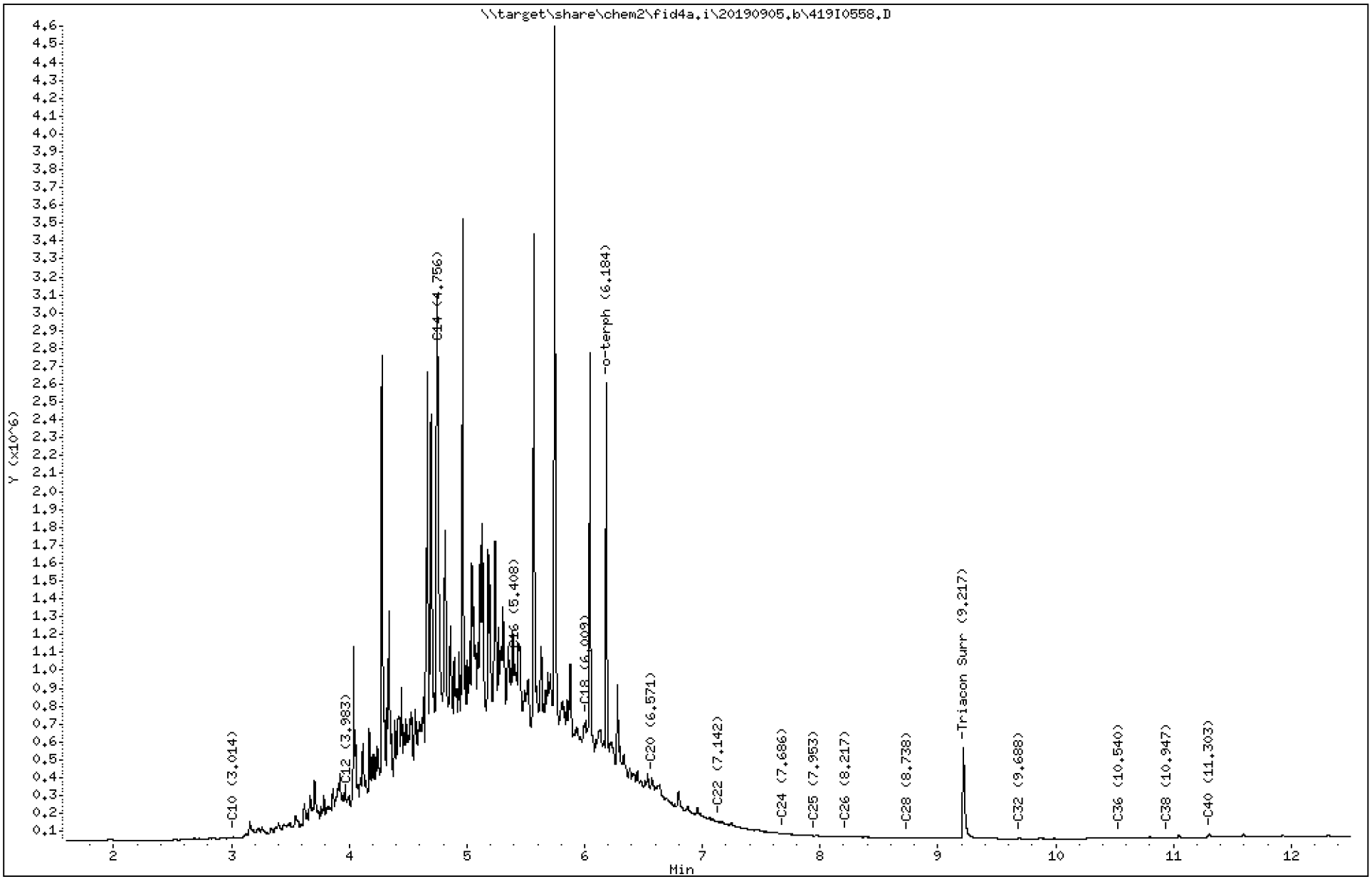
SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.890	11.8	99.6	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0558.D
Date : 06-SEP-2019 05:50
Client ID:
Sample Info: 19H0481-19RE1,10

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0558.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: 19H0481-19RE1
Client ID:
Injection: 06-SEP-2019 05:50
Dilution Factor: 10
RT Std: 419H1603.D

FID:4A RESULTS

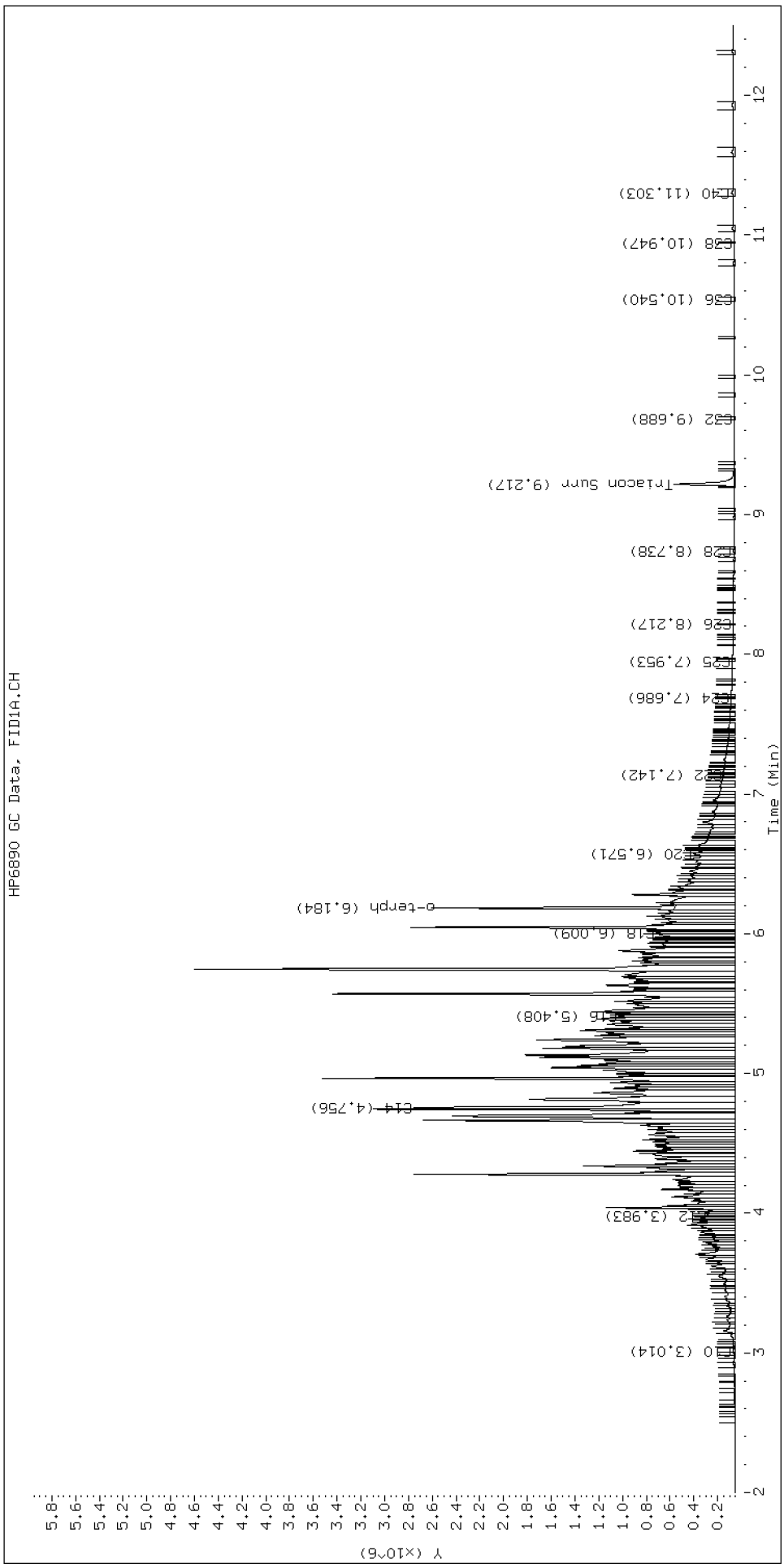
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	129151953	1341.5
C10	3.014	-0.005	18942	27762	WATPHM	(C24-C38)	616185	13.9
C12	3.983	-0.000	229066	100269	AK102	(C10-C25)	136657624	1223.1
C14	4.756	0.005	2706785	3443504	AK103	(C25-C36)	518807	12.9
C16	5.408	-0.005	981752	810195	OR.DIES	(C10-C28)	136895543	1223.2
C18	6.009	-0.001	670229	576800				
C20	6.571	-0.005	350560	512613				
C22	7.142	0.005	102922	30760				
C24	7.686	-0.002	37318	27864				
C25	7.953	-0.005	25683	6401				
C26	8.217	-0.006	20213	9000				
C28	8.738	0.005	18272	34189				
C32	9.688	0.013	11946	17362				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	137225207	2039.7 M
C36	10.540	0.023	14347	23929				
C38	10.947	0.041	15112	5253				
C40	11.303	0.005	34164	77733				
o-terph	6.184	-0.014	2046880	1364646				
Triacon Surr	9.217	-0.016	500629	638869	NAS DIES	(C10-C24)	136609021	1223.8

Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	1364646	11.2	M
Triacontane	638869	10.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019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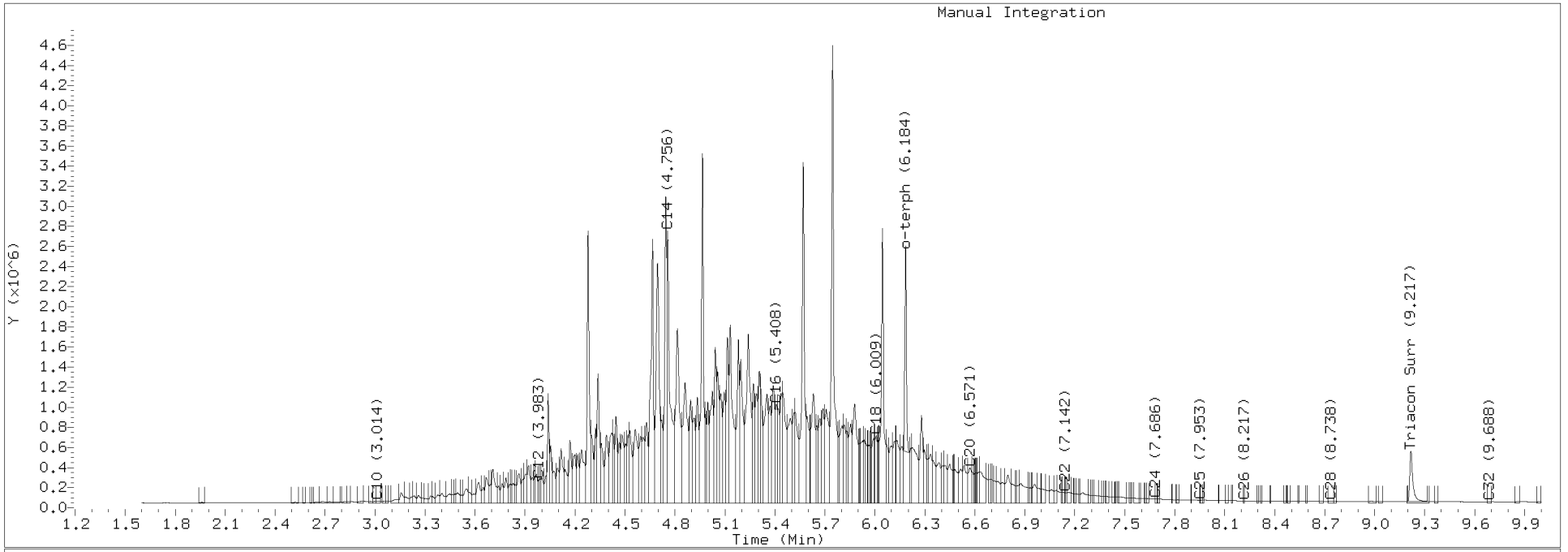
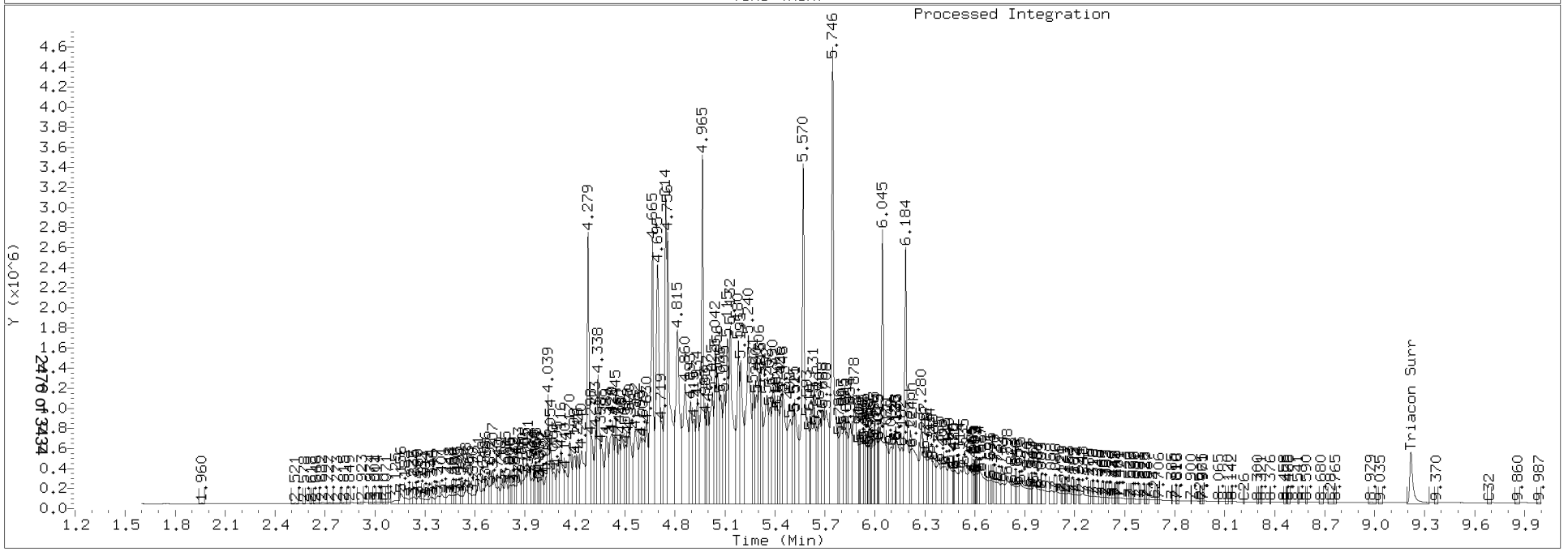
Y (X10^6)
Time (Min)
Triacon Surr (9.217)
o-terph (6.184)

TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0558.D Injection: 06-SEP-2019 05:50

Lab ID:19H0481-19RE1





P40-UST-03-8'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-20 A	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/04/19 09:25	File ID:	319I1059.D
% Solids:	68.73	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 06:43
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	1870	E	3.40	7.26
RRO	Motor Oil Range Organics (C24-C38)	1	94.0		4.34	14.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	16.336	20.7	127	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1059.D

Date : 11-SEP-2019 06:43

Client ID:

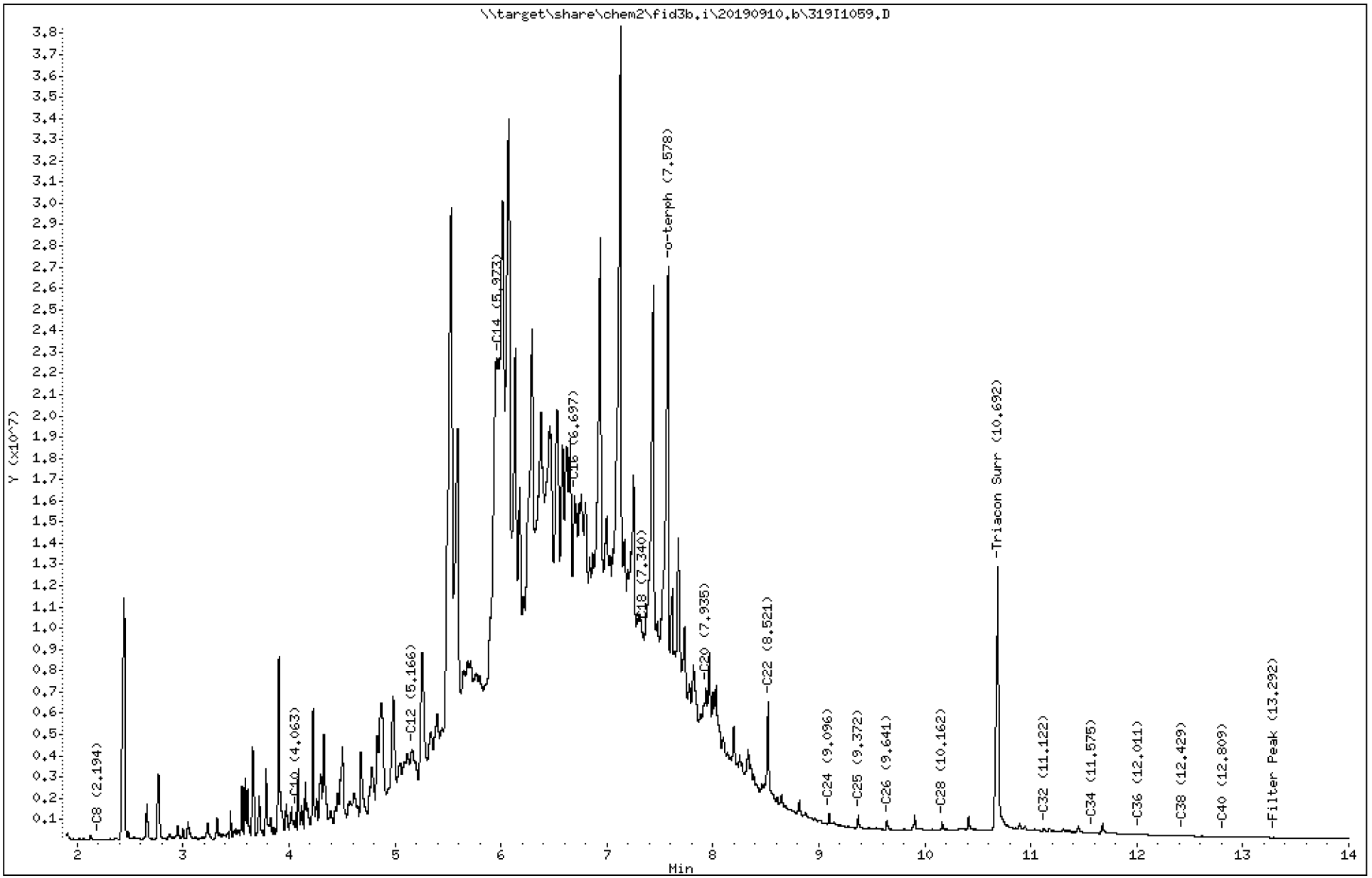
Sample Info: 19H0481-20

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1059.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-20
Client ID:
Injection: 11-SEP-2019 06:43
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	254310418	1417.2	
C8	2.194	0.018	23417	22841	WATPHD	(C12-C24)	2250973049	12902.5	
C10	4.063	-0.006	1264436	1128599	WATPHM	(C24-C38)	81947578	647.2	
C12	5.166	-0.000	4212193	18589592	AK102	(C10-C25)	2438989606	11964.4	M
C14	5.973	-0.019	22615916	8524935	AK103	(C25-C36)	72452789	712.2	M
C16	6.697	-0.005	16174573	28454098	OR.DIES	(C10-C28)	2466280725	11949.9	M
C18	7.340	0.002	9640699	8008686					
C20	7.935	-0.001	7120095	10288965					
C22	8.521	-0.002	6521088	13092918					
C24	9.096	0.000	1252619	1847452					
C25	9.372	-0.002	1155709	3898402					
C26	9.641	-0.005	901386	2457500					
C28	10.162	-0.006	813641	1804703	IT.DIES	(C10-C24)	2433812124	11962.6	
C32	11.122	-0.008	535270	1576899					
C34	11.575	0.003	333154	695545					
Filter Peak	13.292	-0.026	96627	372105					
C36	12.011	0.012	264877	636707					
o-terph	7.578	0.045	18058230	31763031					
Triacon Surr	10.692	0.003	12297619	19477513					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

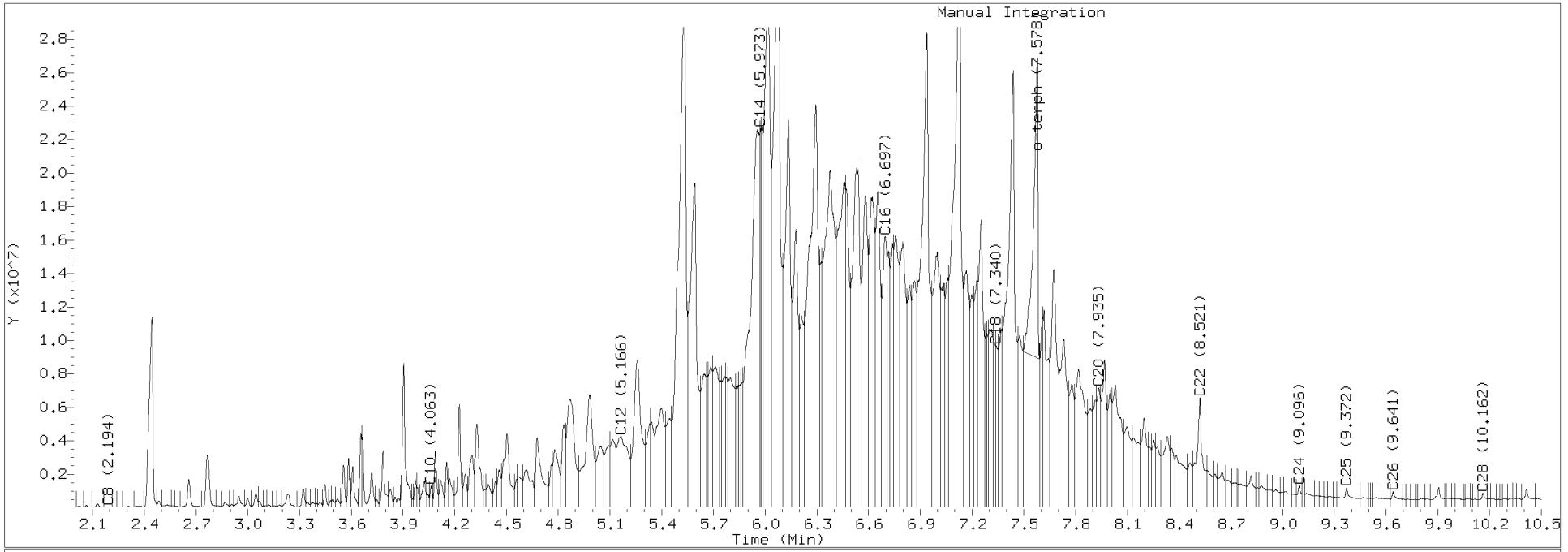
Surrogate	Area	Amount
o-Terphenyl	31763031	142.8
Triacontane	19477513	114.6

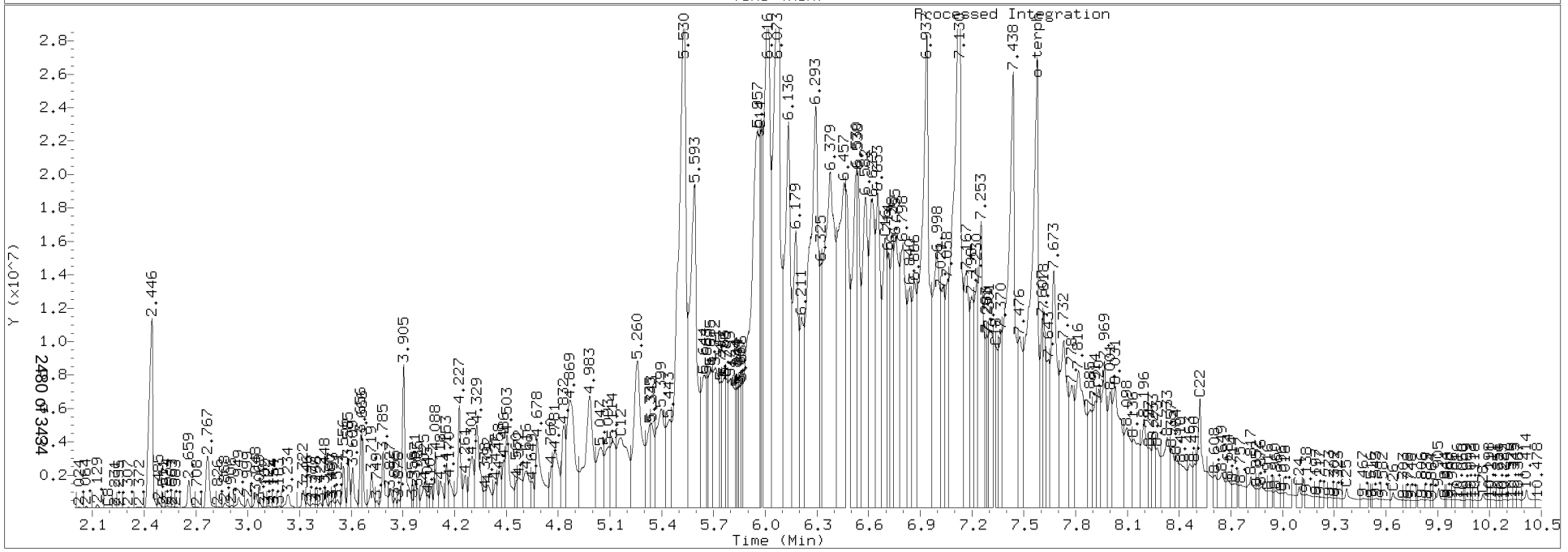
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1059.D Injection: 11-SEP-2019 06:43

Lab ID:19H0481-20





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-8'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-20RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/04/19 09:25	File ID:	319I1068.D
% Solids:	68.73	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 10:04
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	5	1710	D	17.0	36.3
RRO	Motor Oil Range Organics (C24-C38)	5	86.3	D	21.7	72.6

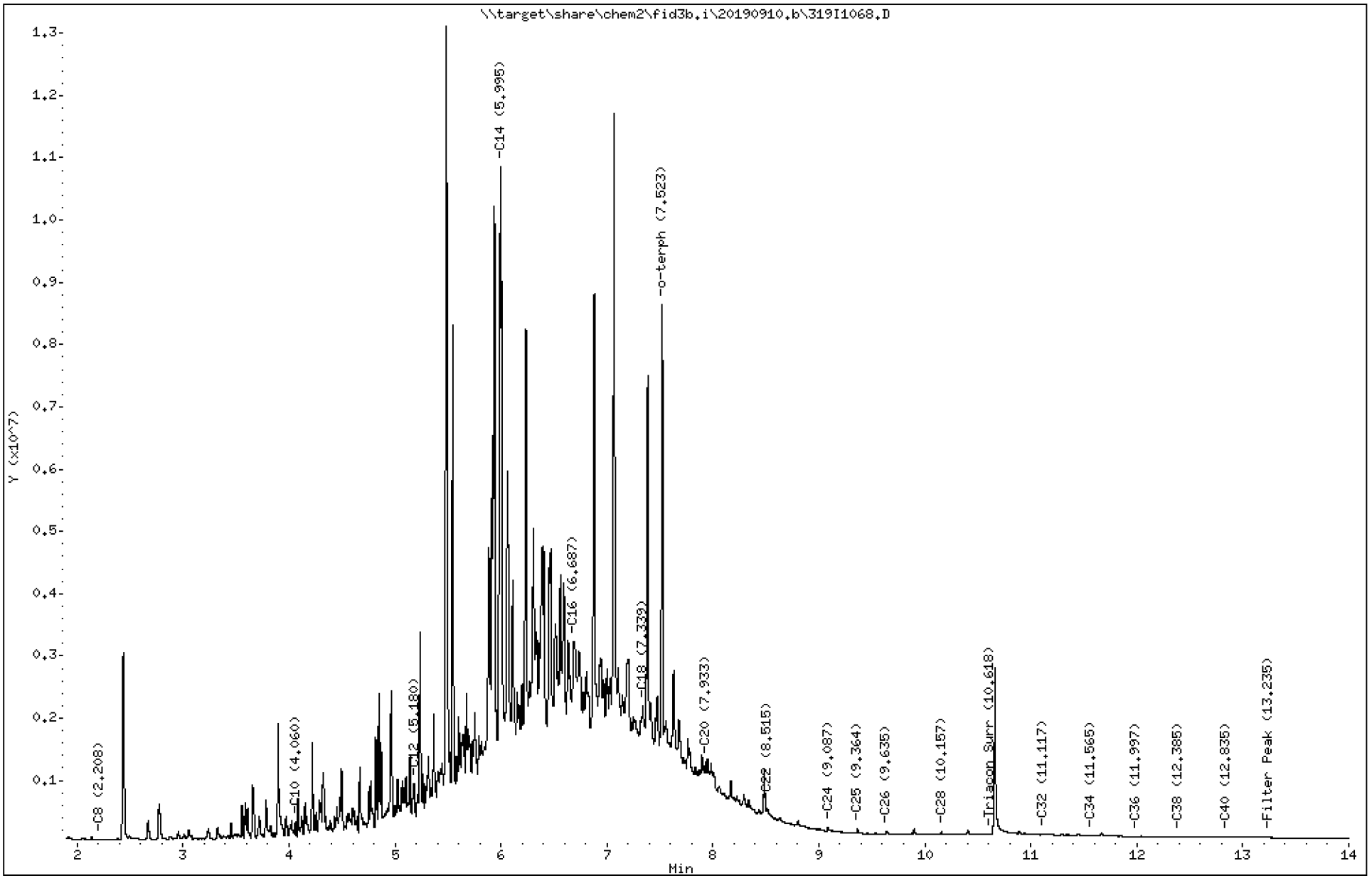
SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	16.336	17.2	105	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1068.D
Date : 11-SEP-2019 10:04
Client ID:
Sample Info: 19H0481-20RE1,5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1068.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-20RE1
Client ID:
Injection: 11-SEP-2019 10:04
Dilution Factor: 5
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	48399057	269.7	
C8	2.208	0.032	4660	4895	WATPHD	(C12-C24)	409943481	2349.8	
C10	4.060	-0.009	291457	218913	WATPHM	(C24-C38)	15053046	118.9	
C12	5.180	0.014	905057	1570495	AK102	(C10-C25)	445798960	2186.8	M
C14	5.995	0.003	10797835	12995592	AK103	(C25-C36)	13285070	130.6	M
C16	6.687	-0.016	3183308	7488398	OR.DIES	(C10-C28)	450724881	2183.9	M
C18	7.339	0.001	2150412	6366251					
C20	7.933	-0.003	1252991	1273031					
C22	8.515	-0.008	504452	1604539					
C24	9.087	-0.009	204009	392511					
C25	9.364	-0.010	180354	675552					
C26	9.635	-0.011	140974	555035					
C28	10.157	-0.012	126420	228315	IT.DIES	(C10-C24)	444804552	2186.3	
C32	11.117	-0.014	95395	235124					
C34	11.565	-0.008	66228	205944					
Filter Peak	13.235	-0.083	34909	112179					
C36	11.997	-0.001	51321	113958					
o-terph	7.523	-0.010	6963999	5266193					
Triacon Surr	10.664	-0.026	2673857	2712608					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

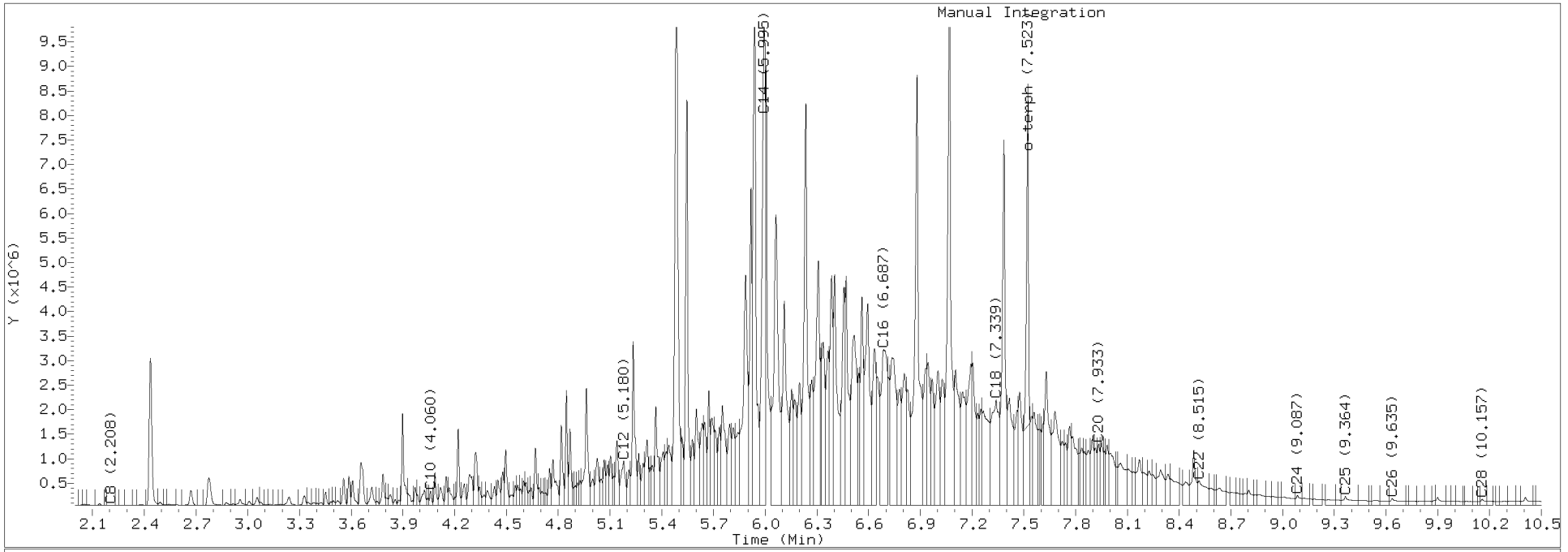
Surrogate	Area	Amount
o-Terphenyl	5266193	23.7
Triacontane	2712608	16.0

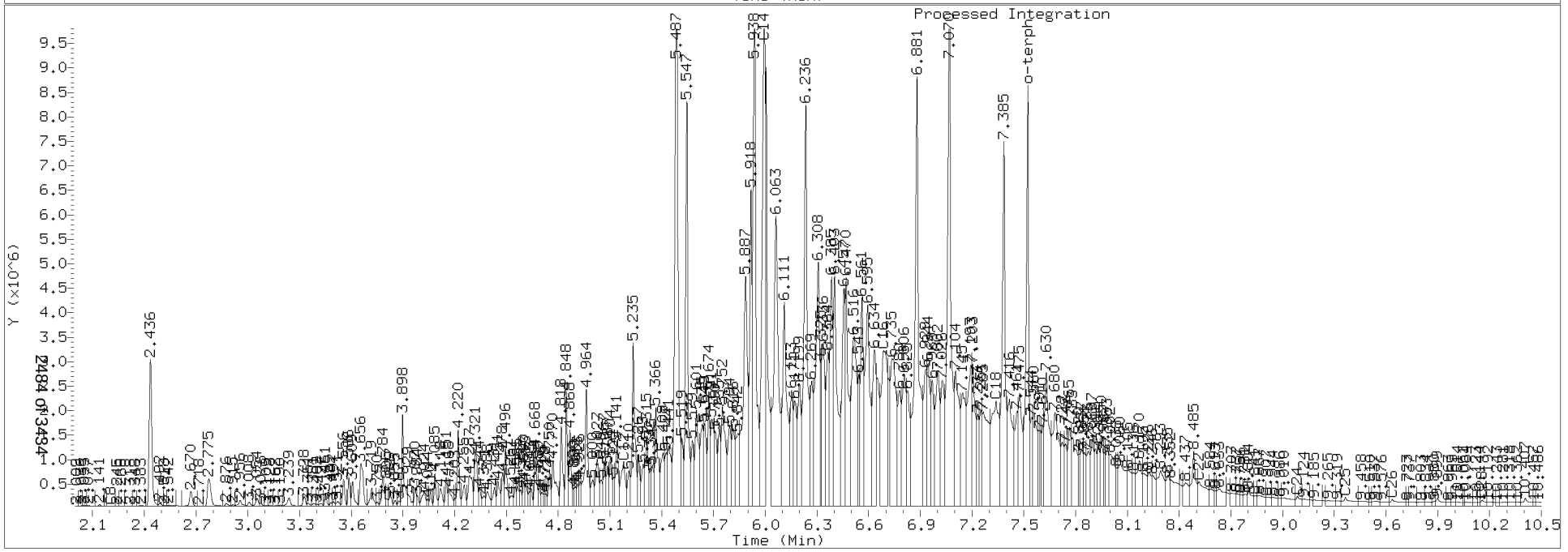
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1068.D Injection: 11-SEP-2019 10:04

Lab ID:19H0481-20RE1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-8'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPH-Dx
TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-21 A	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/03/19 15:50	File ID:	419I0451.D
% Solids:	68.73	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 02:30
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	1190	E	3.40	7.27
RRO	Motor Oil Range Organics (C24-C38)	1	78.9		4.35	14.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	16.352	12.5	76.3	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0451.D

Date : 05-SEP-2019 02:30

Client ID:

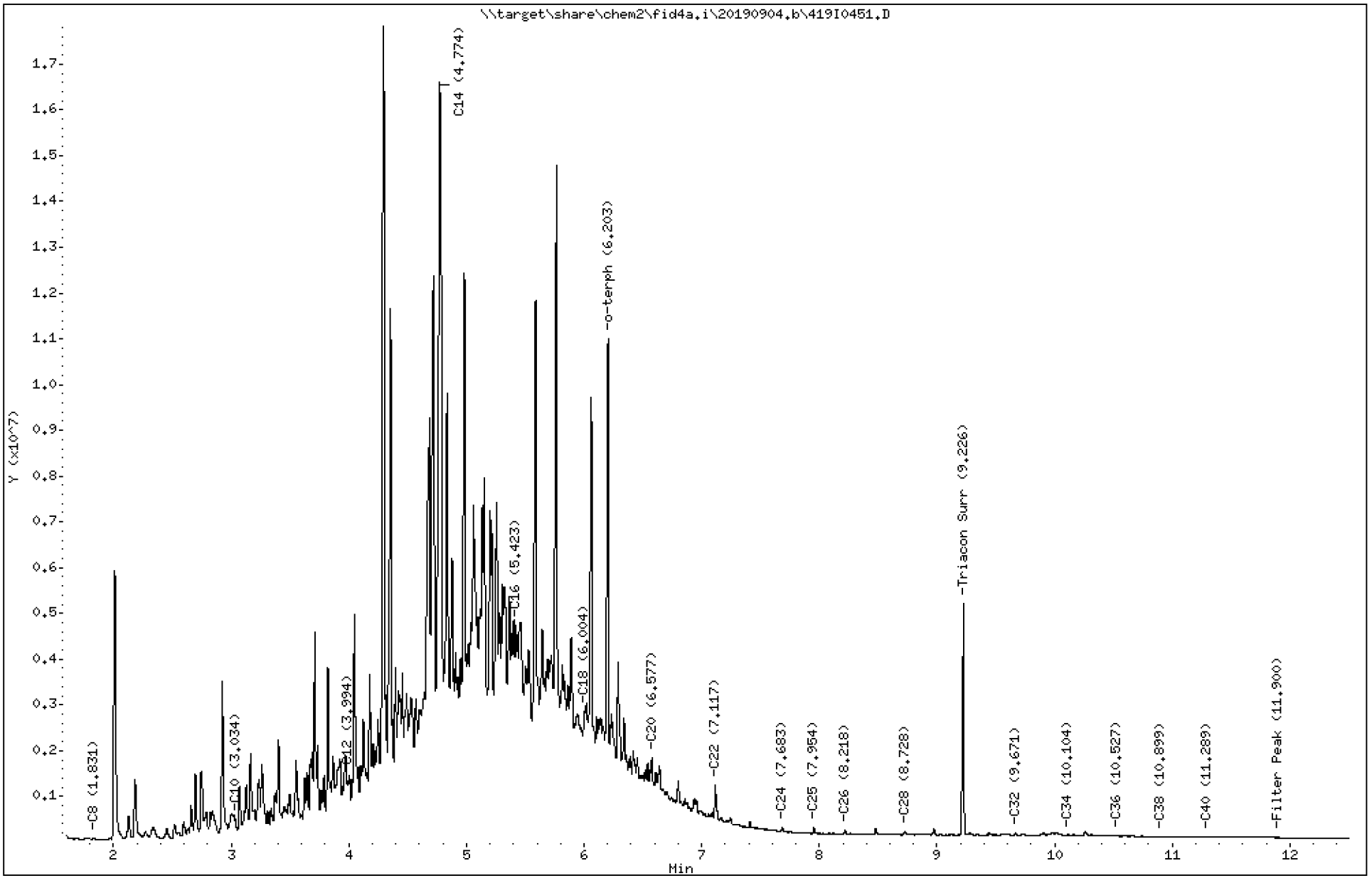
Sample Info: 19H0481-21

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0451.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-21
Client ID:
Injection: 05-SEP-2019 02:30
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.831	0.005	31574	49815	WATPHD	(C12-C24)	616432515	8211.4
C10	3.034	-0.007	436013	453149	WATPHM	(C24-C38)	19709478	542.6
C12	3.994	0.009	1290631	873943	AK102	(C10-C25)	680777692	7472.9
C14	4.774	0.024	16559185	24675353	AK103	(C25-C36)	16896836	480.1
C16	5.423	0.007	4667733	6665024	OR.DIES	(C10-C28)	686861538	7529.6
C18	6.004	-0.006	2812700	3630643				
C20	6.577	-0.001	1790656	1983364				
C22	7.117	-0.020	1206258	1957358				
C24	7.683	-0.005	276089	454523				
C25	7.954	-0.004	260274	522935				
C26	8.218	-0.005	204308	265707				
C28	8.728	-0.005	192807	287278				
C32	9.671	-0.003	139660	286005				
C34	10.104	-0.002	103312	93858				
Filter Peak	11.900	-0.045	44951	15680	BUNKERC	(C10-C38)	698802077	10386.7
C36	10.527	0.008	76820	49662				
C38	10.899	-0.017	71445	87926				
C40	11.289	-0.025	62933	110365				
o-terph	6.203	0.009	8787792	7361649				
Triacon Surr	9.226	-0.003	5065862	4448762	NAS DIES	(C10-C24)	679092599	7459.5

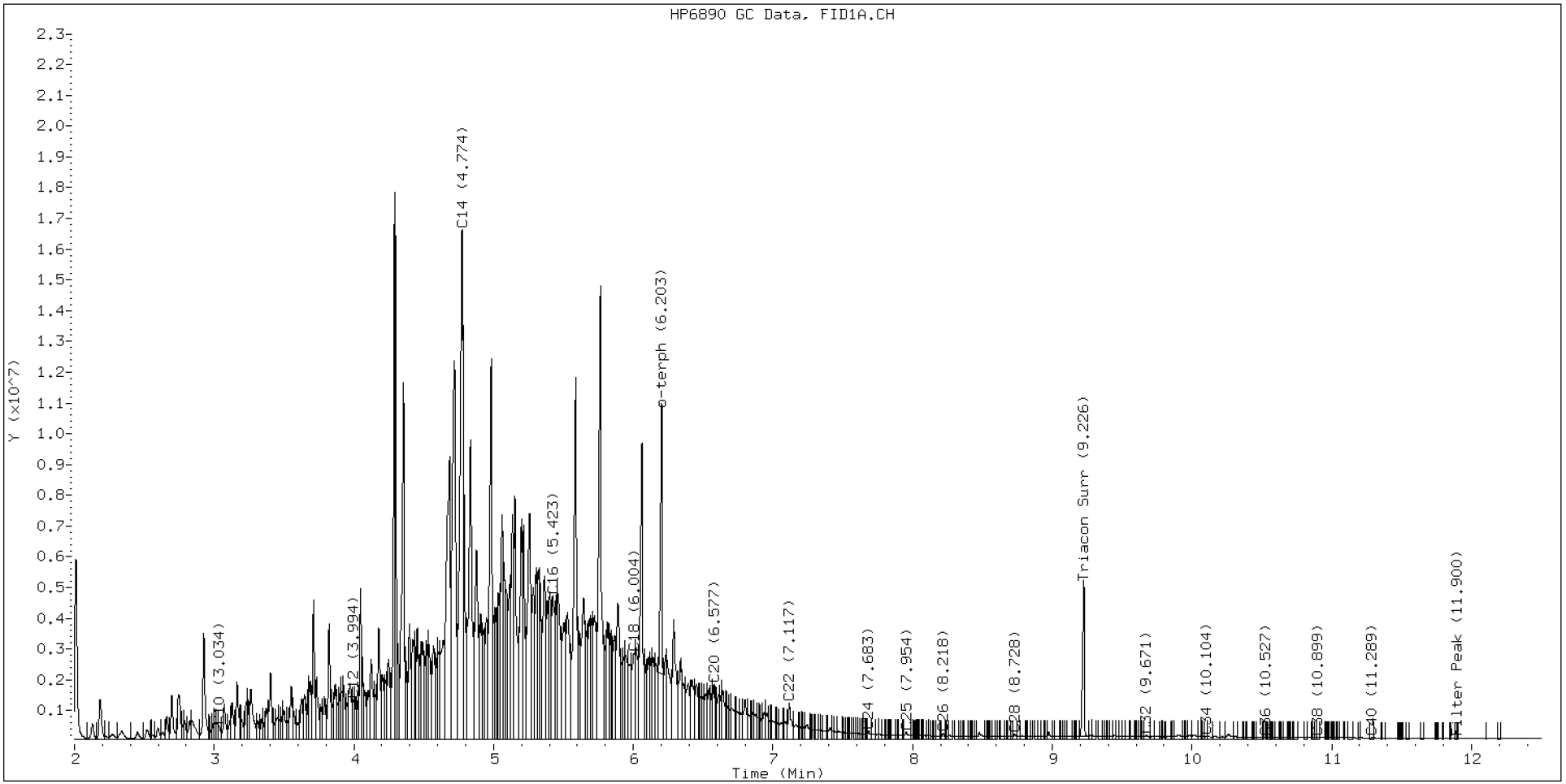
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7361649	85.8	M
Triacontane	4448762	84.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

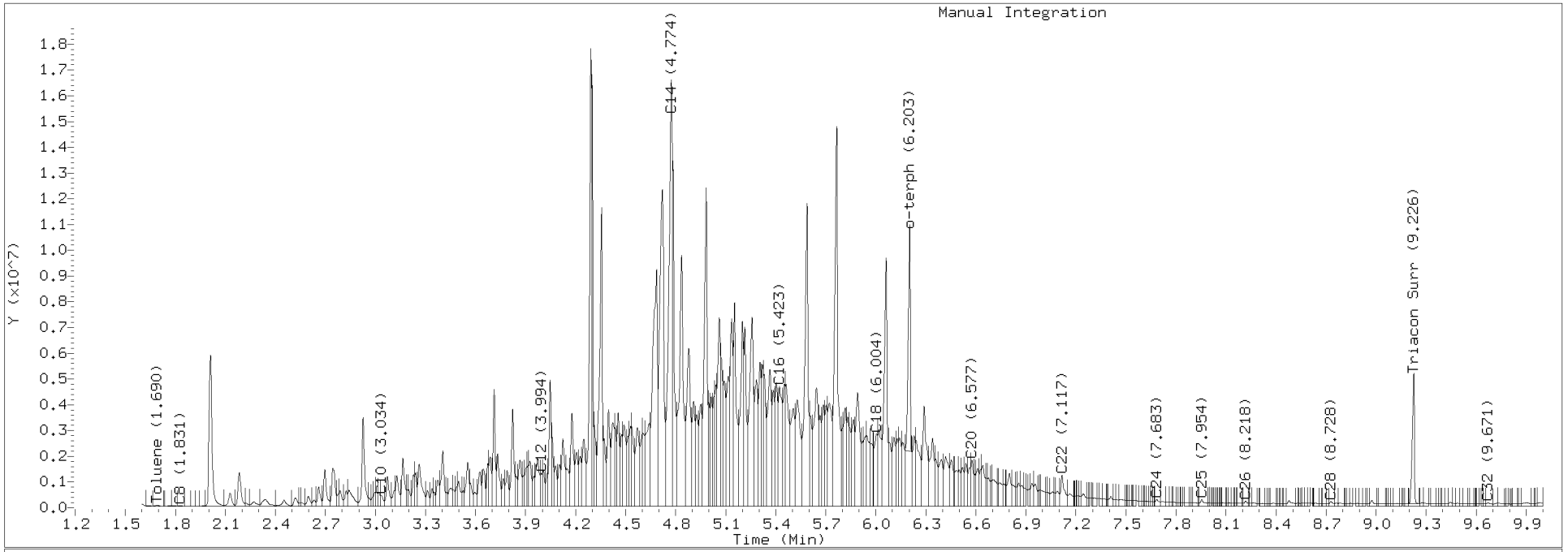
Datafile: FID4A, 20190904.b/419I0451.D 19H0481-21

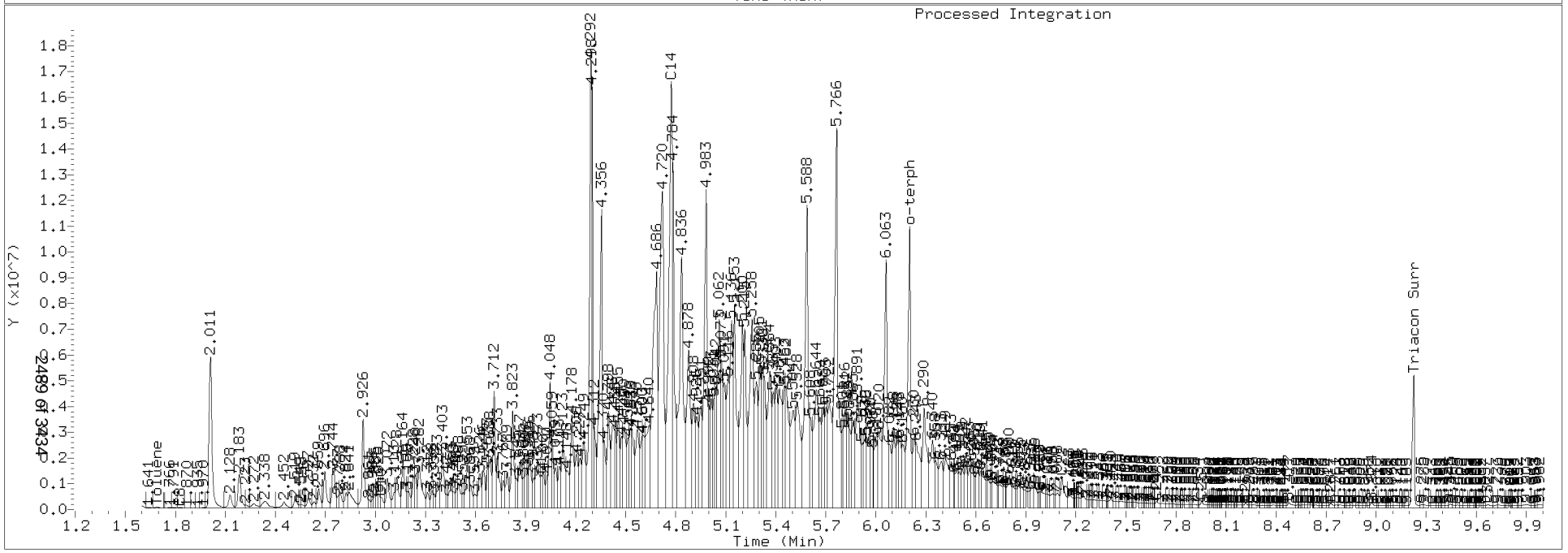


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0451.D Injection: 05-SEP-2019 02:30

Lab ID:19H0481-21





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-03-8'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPH-Dx
TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-21RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:15	Prepared:	09/03/19 15:50	File ID:	419I0559.D
% Solids:	68.73	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/06/19 06:11
Batch:	BHI0051	Sequence:	SHI0053	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00021

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	10	1380	D	34.0	72.7
RRO	Motor Oil Range Organics (C24-C38)	10	145	U	43.5	145

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	16.352	13.8	84.4	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0559.D

Date : 06-SEP-2019 06:11

Client ID:

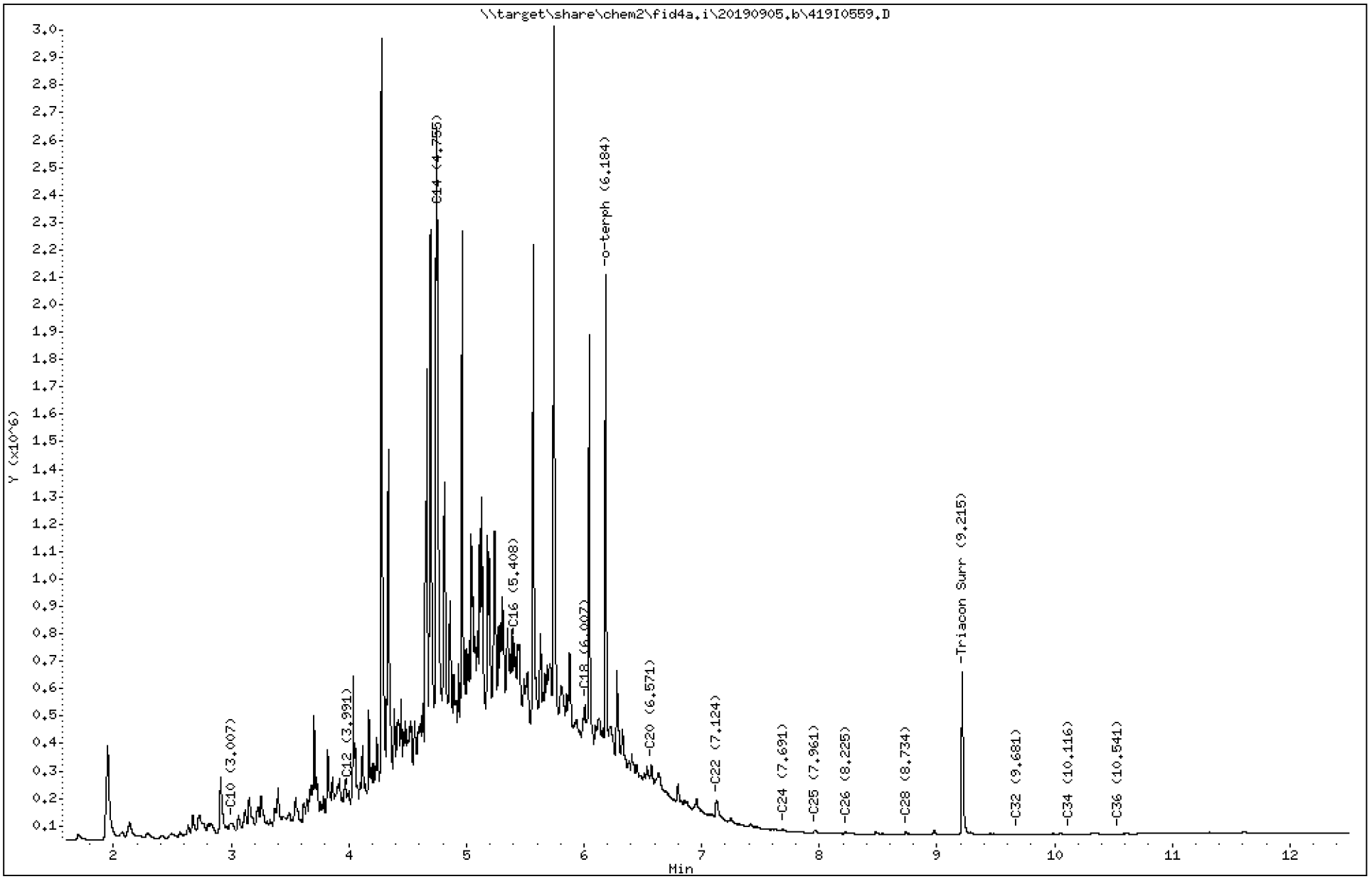
Sample Info: 19H0481-21RE1,10

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0559.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: 19H0481-21RE1
Client ID:
Injection: 06-SEP-2019 06:11
Dilution Factor: 10
RT Std: 419H1603.D

FID:4A RESULTS

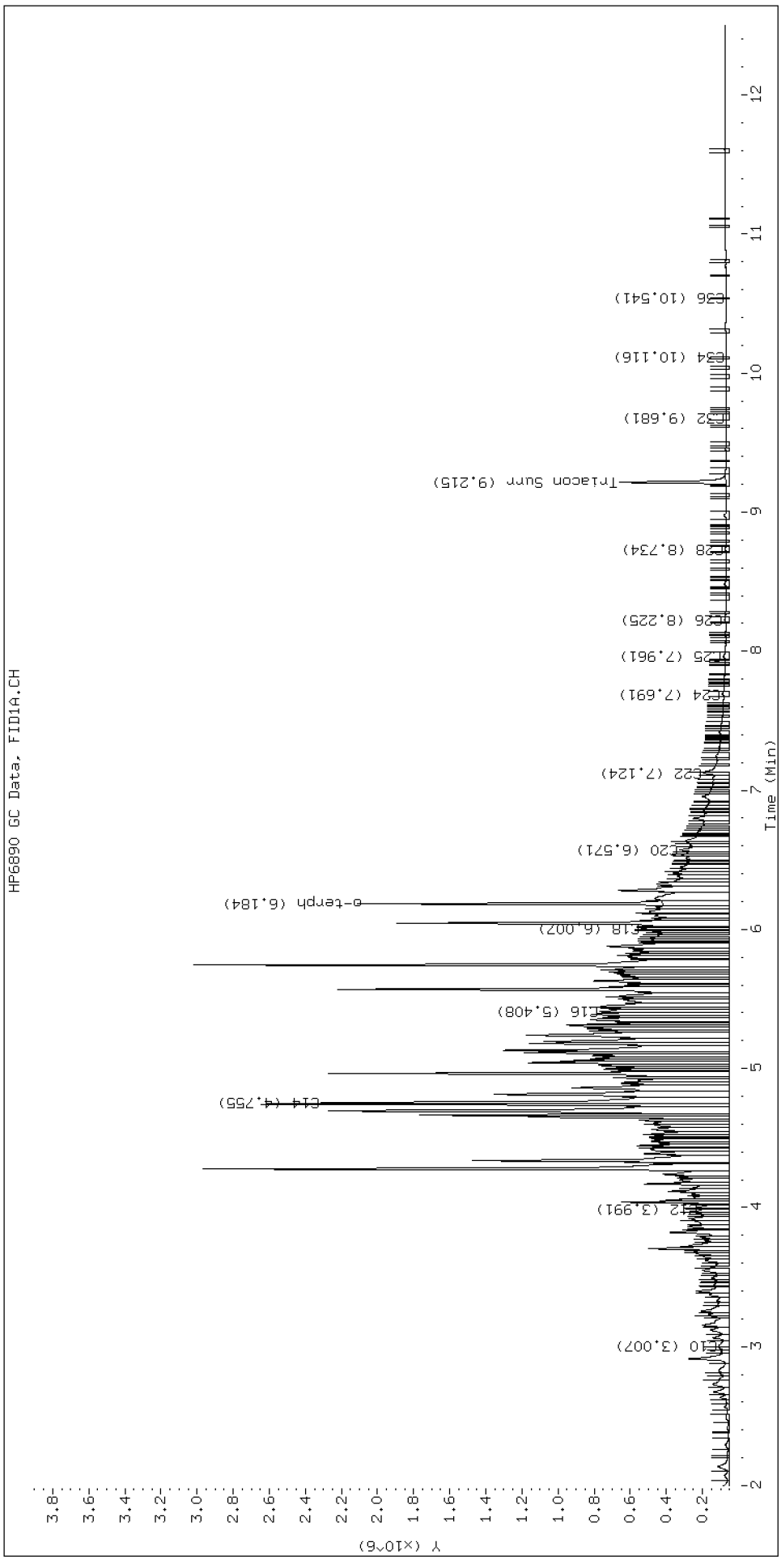
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.701	-0.010	20377	41353	WATPHD	(C12-C24)	91471900	950.1
C10	3.007	-0.012	60259	116895	WATPHM	(C24-C38)	1373191	30.9
C12	3.991	0.008	170276	98625	AK102	(C10-C25)	98904703	885.2
C14	4.755	0.004	2260793	2710081	AK103	(C25-C36)	1242961	31.0
C16	5.408	-0.005	717288	1075013	OR.DIES	(C10-C28)	99431406	888.4
C18	6.007	-0.003	491152	415080				
C20	6.571	-0.005	275745	510937				
C22	7.124	-0.013	144321	193865				
C24	7.691	0.002	41687	85296				
C25	7.961	0.003	36434	91194				
C26	8.225	0.002	29808	65261				
C28	8.734	0.001	27832	49795				
C32	9.681	0.006	21384	55695				
C34	10.116	0.010	21078	16669				
Filter Peak	----				BUNKERC	(C10-C38)	100186086	1489.1 M
C36	10.541	0.024	21798	12842				
C38	----							
C40	----							
o-terph	6.184	-0.014	1689899	1159227				
Triacon Surr	9.215	-0.018	591841	601744	NAS DIES	(C10-C24)	98812895	885.2

Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	1159227	9.5	M
Triacontane	601744	9.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019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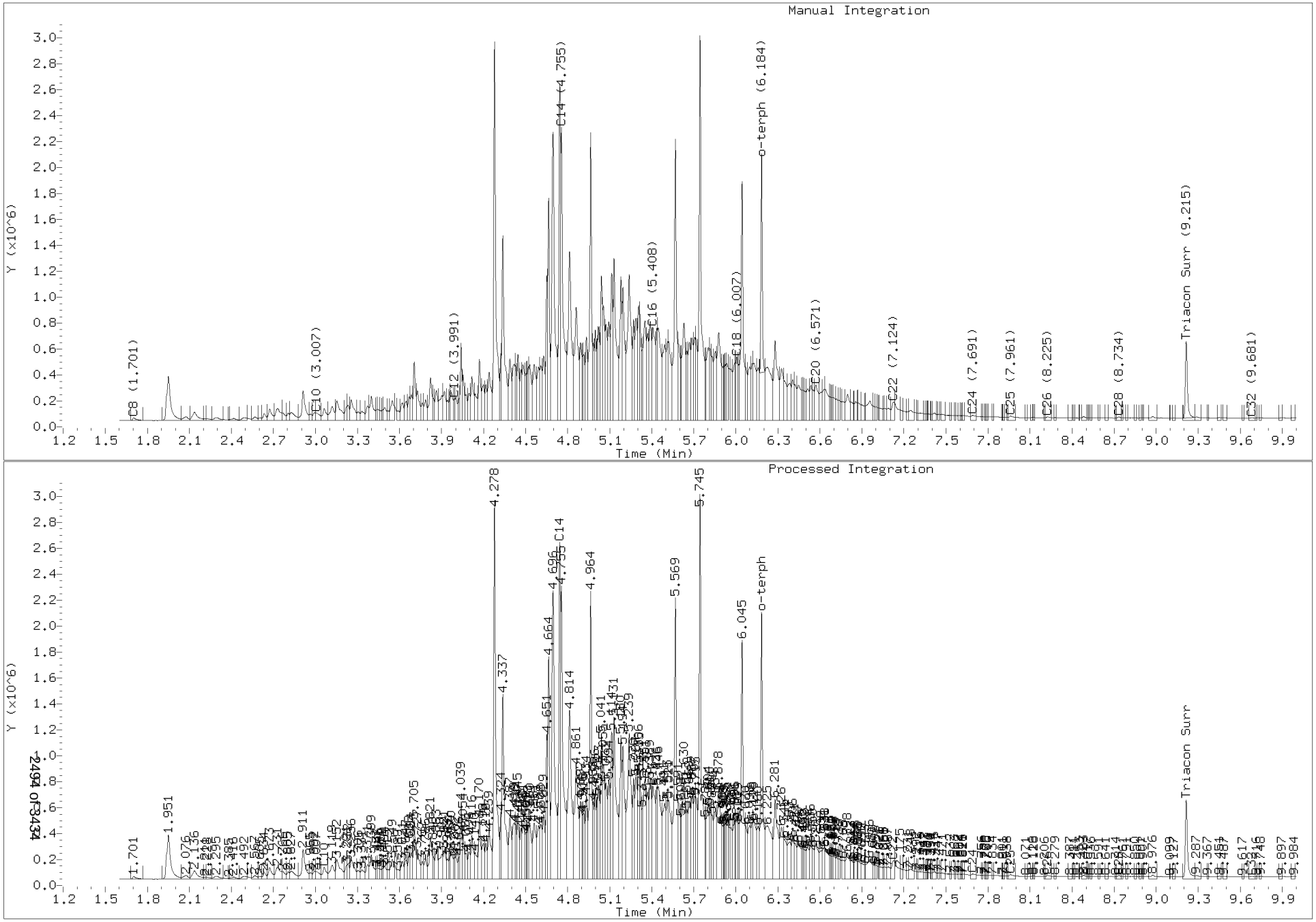
Y (x10^6)
Time (Min)
C10 (3.007)
C12 (3.991)
C14 (4.755)
C16 (5.408)
C18 (6.007)
o-terph (6.184)
C20 (6.571)
C22 (7.124)
C24 (7.691)
C25 (7.961)
C26 (8.225)
C28 (8.734)
Triacon Surr (9.215)
C32 (9.681)
C34 (10.116)
C36 (10.541)

TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0559.D Injection: 06-SEP-2019 06:11

Lab ID:19H0481-21RE1



P40-UST-04-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-22 A	SDG:	19H0481
Sampled:	08/30/19 12:25	Prepared:	09/03/19 08:43	File ID:	419I0412.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/04/19 12:47
Batch:	BHI0023	Sequence:	SHI0031	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.234	104	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0412.D

Date : 04-SEP-2019 12:47

Client ID:

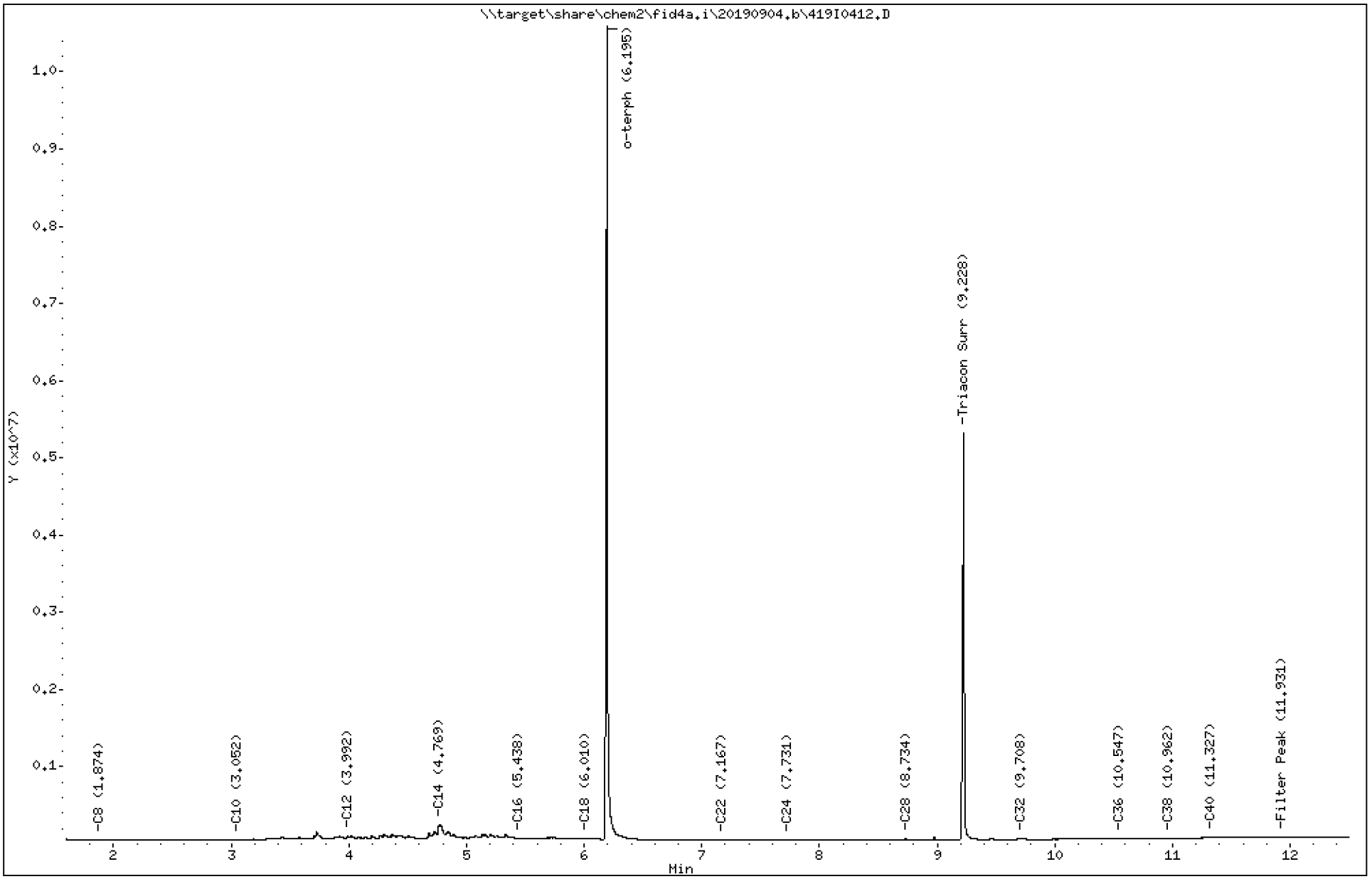
Sample Info: 19H0481-22

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0412.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-22
Client ID:
Injection: 04-SEP-2019 12:47
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

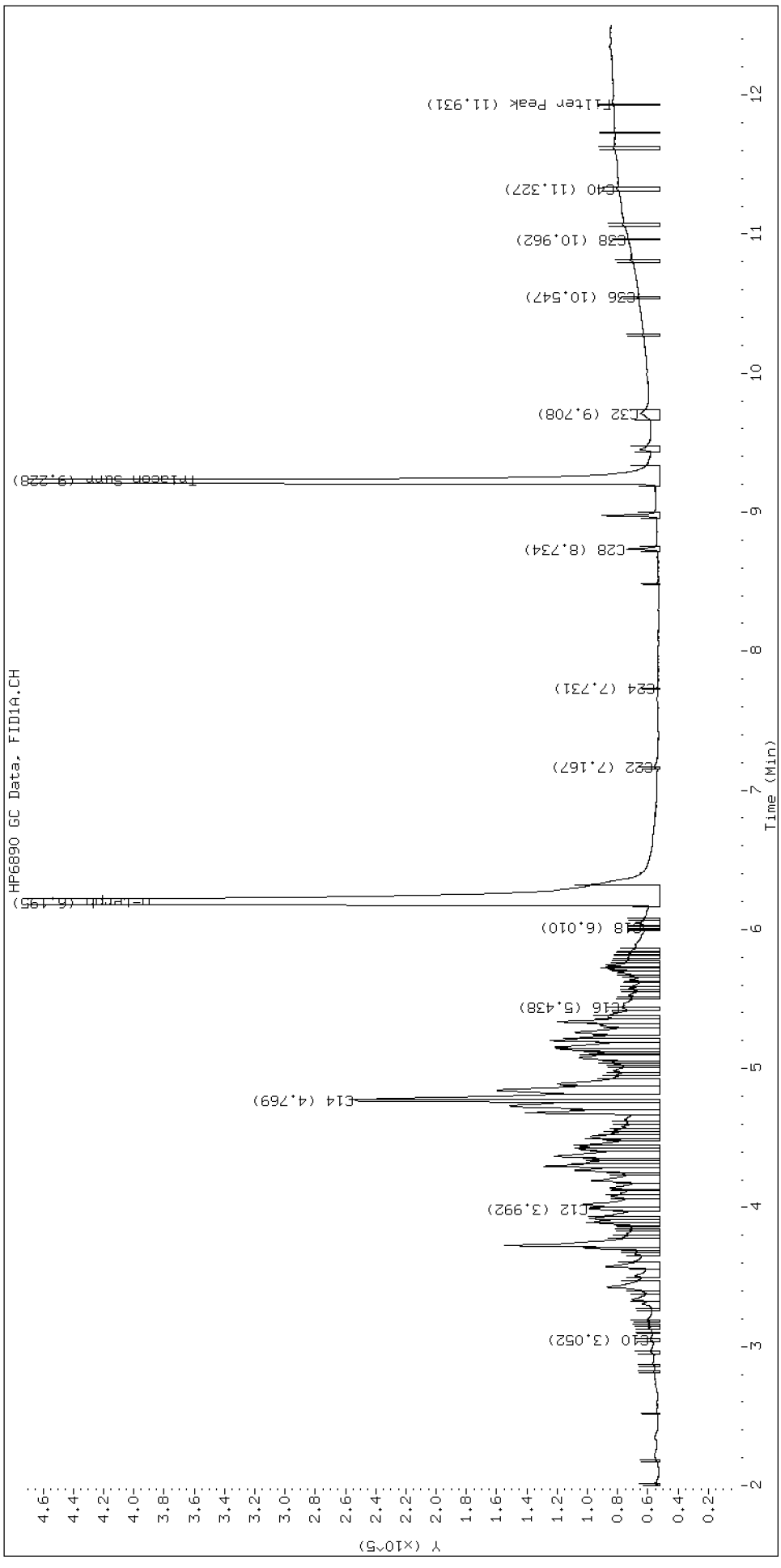
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.874	0.049	2612	2084	WATPHD	(C12-C24)	3752298	50.0
C10	3.052	0.010	6817	6409	WATPHM	(C24-C38)	180114	5.0
C12	3.992	0.006	46913	72501	AK102	(C10-C25)	4833192	53.1
C14	4.769	0.019	201846	264965	AK103	(C25-C36)	153561	4.4
C16	5.438	0.023	25353	33120	OR.DIES	(C10-C28)	4855099	53.2
C18	6.010	-0.000	11486	10111				
C20	----							
C22	7.167	0.030	3827	2962				
C24	7.731	0.043	2132	1011				
C25	----							
C26	----							
C28	8.734	0.001	22005	20837				
C32	9.708	0.035	13102	46614				
C34	----							
Filter Peak	11.931	-0.014	31016	7725	BUNKERC	(C10-C38)	5013306	74.5
C36	10.547	0.028	15422	13310				
C38	10.962	0.045	21304	7436				
C40	11.327	0.013	29213	48538				
o-terph	6.195	0.000	10540132	10043268				
Triacon Surr	9.228	-0.001	5278222	5117778	NAS DIES	(C10-C24)	4833192	53.1

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	10043268	117.0
Triacontane	5117778	97.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190904.b/419I0412.D 19H0481-22
HP6890 GC Data, FID1A.CH
n-Tetradecane (6.195)
C28 (8.734)
C32 (9.708)
C36 (10.547)
C38 (10.962)
C40 (11.327)
Filter Peak (11.931)
Time (Min)
Y (x10^5)

P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-26RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/04/19 09:25	File ID:	319I1069.D
% Solids:	74.69	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 10:27
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

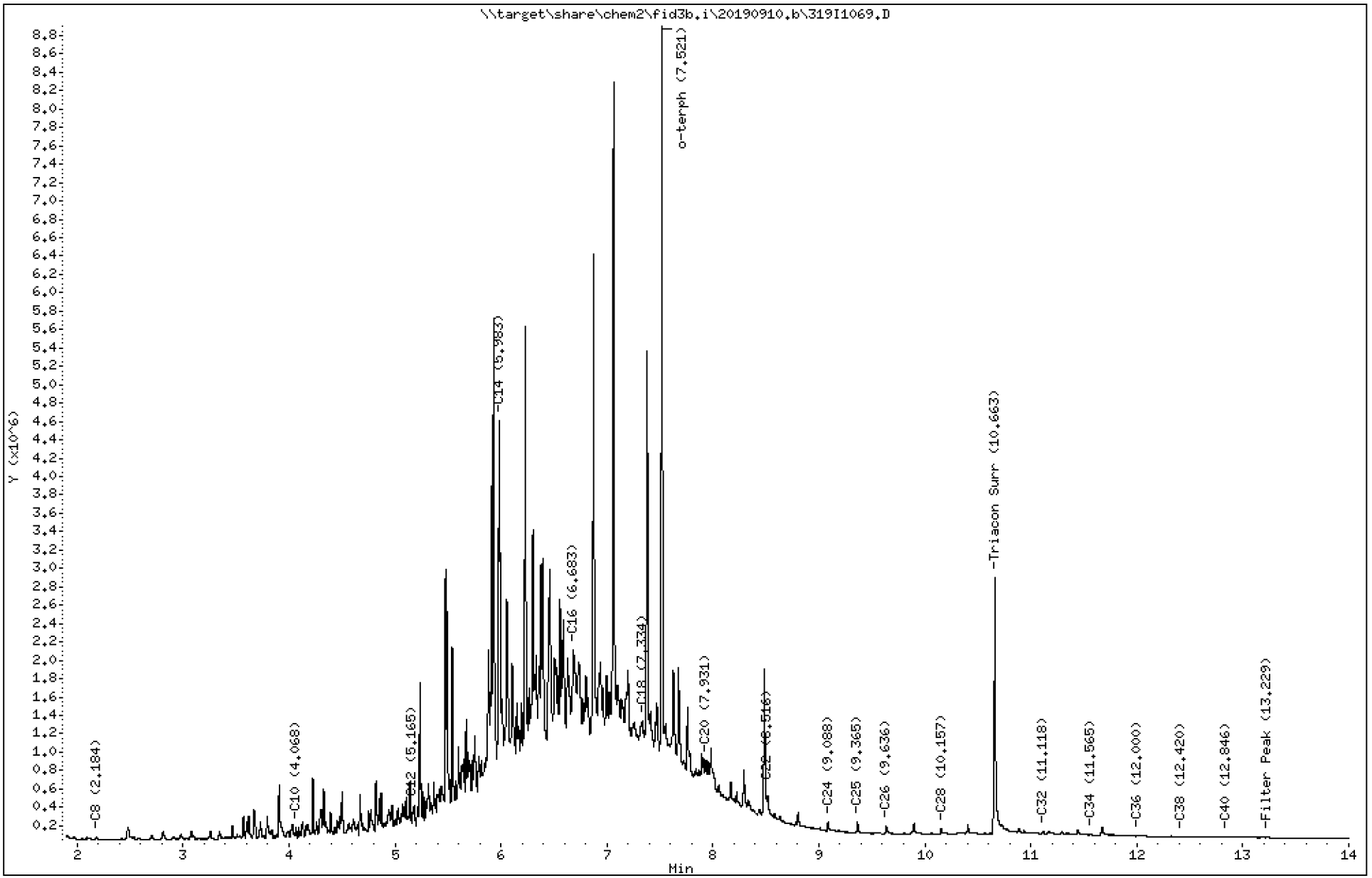
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	5	919	D	15.6	33.4
RRO	Motor Oil Range Organics (C24-C38)	5	66.9	U	20.0	66.9

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.047	17.0	113	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1069.D
Date : 11-SEP-2019 10:27
Client ID:
Sample Info: 19H0481-26RE1,5

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1069.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-26RE1
Client ID:
Injection: 11-SEP-2019 10:27
Dilution Factor: 5
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	18422051	102.7	
C8	2.184	0.008	23215	24577	WATPHD	(C12-C24)	239760712	1374.3	
C10	4.068	-0.002	126995	99185	WATPHM	(C24-C38)	12638162	99.8	
C12	5.165	-0.001	293486	279400	AK102	(C10-C25)	254716025	1249.5	M
C14	5.983	-0.009	4555290	6576367	AK103	(C25-C36)	11369641	111.8	M
C16	6.683	-0.019	2069595	5925283	OR.DIES	(C10-C28)	258820907	1254.1	M
C18	7.334	-0.004	1287630	1666386					
C20	7.931	-0.005	865661	854355					
C22	8.516	-0.007	481156	1269392					
C24	9.088	-0.008	194382	337476					
C25	9.365	-0.009	193122	555455					
C26	9.636	-0.010	148429	367137					
C28	10.157	-0.011	123110	192902	IT.DIES	(C10-C24)	253842667	1247.7	
C32	11.118	-0.013	85804	204249					
C34	11.565	-0.007	55240	174263					
Filter Peak	13.229	-0.090	23648	81403					
C36	12.000	0.001	39810	92916					
o-terph	7.521	-0.012	7775547	5661662					
Triacon Surr	10.663	-0.027	2765796	2658862					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

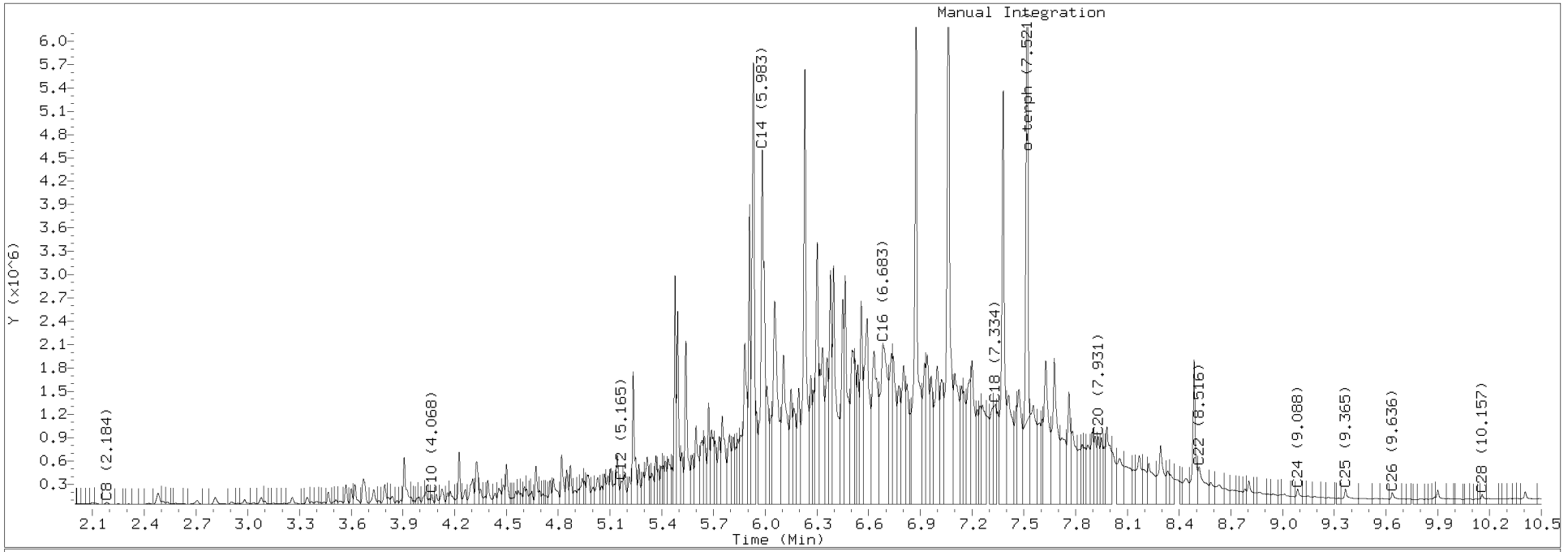
Surrogate	Area	Amount
o-Terphenyl	5661662	25.4
Triacontane	2658862	15.6

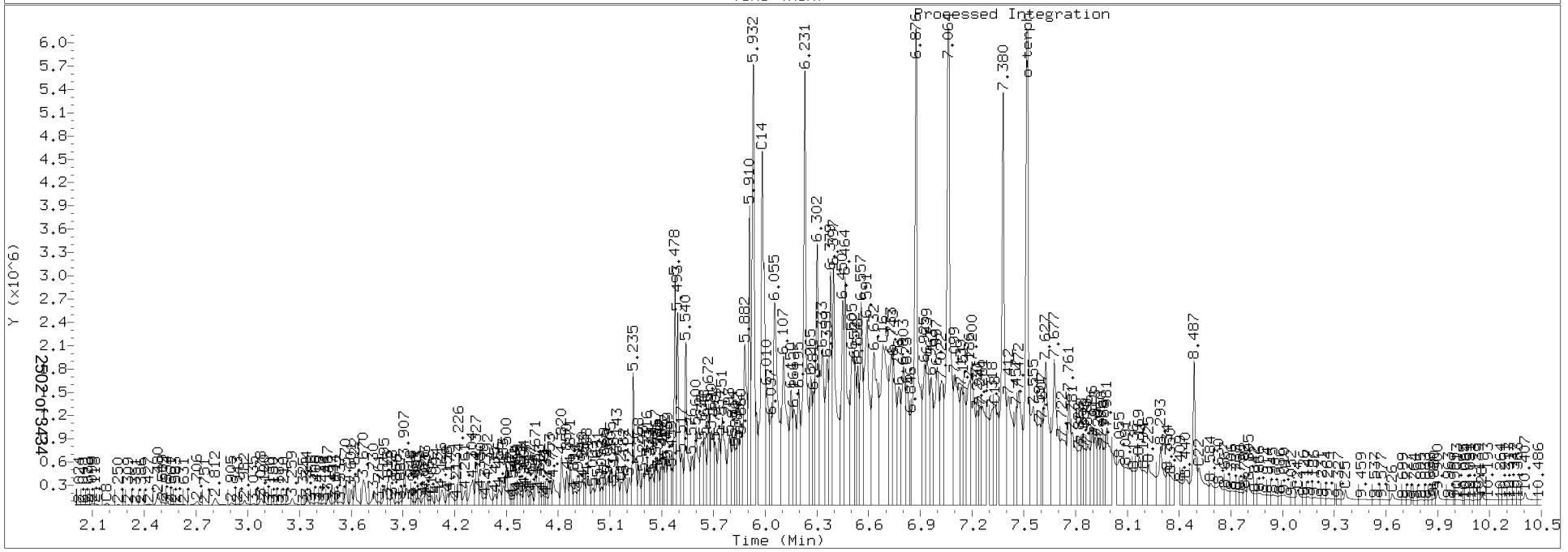
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1069.D Injection: 11-SEP-2019 10:27

Lab ID:19H0481-26RE1





P40-UST-04-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-24 A	SDG:	19H0481
Sampled:	08/30/19 11:30	Prepared:	09/04/19 09:25	File ID:	319I1060.D
% Solids:	94.94	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 07:05
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.26	U	2.46	5.26
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.14	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.826	14.3	121	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1060.D

Date : 11-SEP-2019 07:05

Client ID:

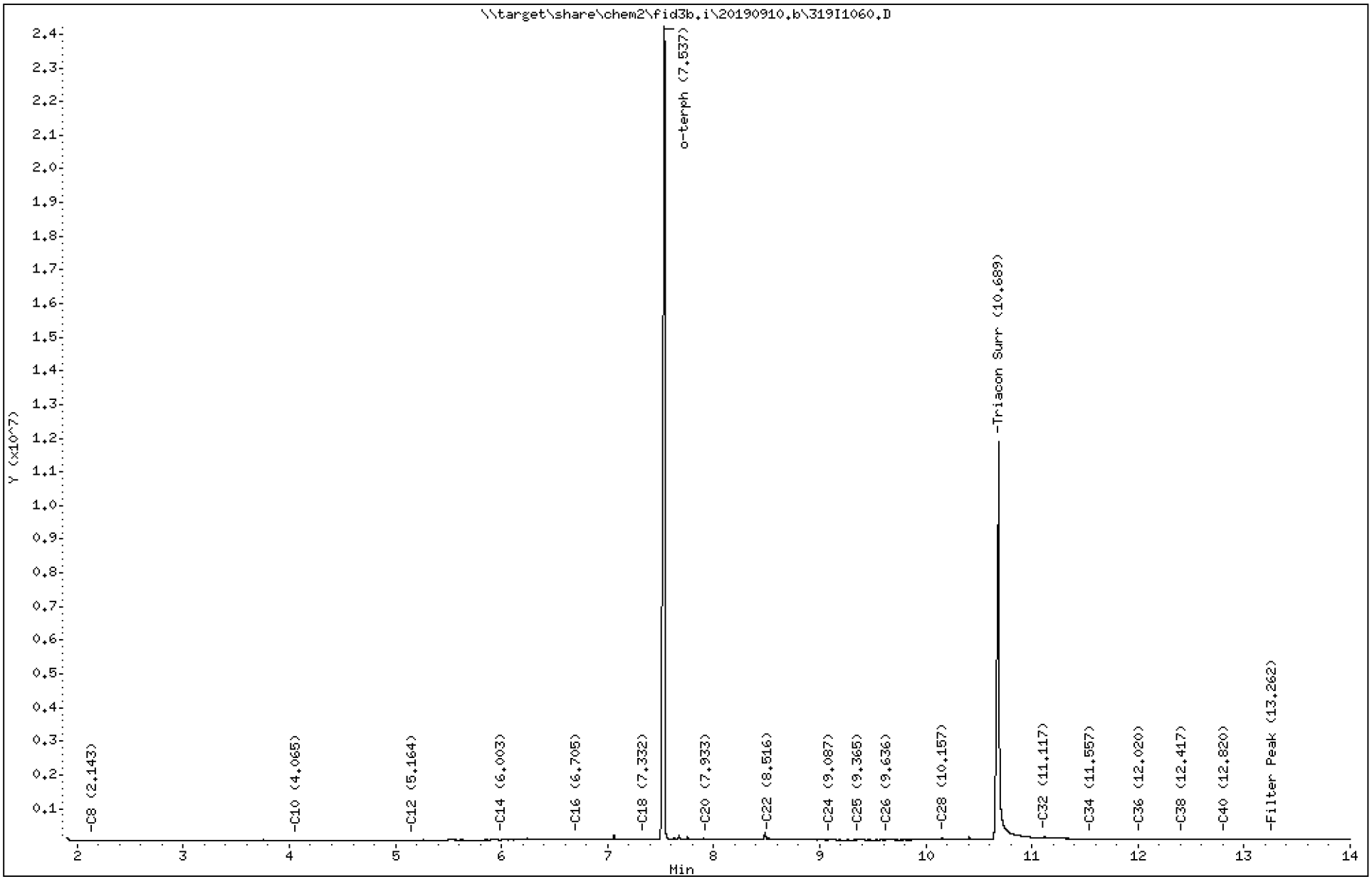
Sample Info: 19H0481-24

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1060.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-24
Client ID:
Injection: 11-SEP-2019 07:05
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	1373517	7.7	
C8	2.143	-0.032	3559	5250	WATPHD	(C12-C24)	6550886	37.5	
C10	4.065	-0.005	16619	23229	WATPHM	(C24-C38)	6680214	52.8	
C12	5.164	-0.002	15645	17249	AK102	(C10-C25)	7390928	36.3	M
C14	6.003	0.011	57007	134008	AK103	(C25-C36)	6115924	60.1	M
C16	6.705	0.002	56774	78384	OR.DIES	(C10-C28)	8440897	40.9	M
C18	7.332	-0.007	55867	110576					
C20	7.933	-0.004	52562	108936					
C22	8.516	-0.007	81395	185118					
C24	9.087	-0.009	41664	95720					
C25	9.365	-0.009	43830	137515					
C26	9.636	-0.010	38417	134861					
C28	10.157	-0.012	75605	113696	IT.DIES	(C10-C24)	7268416	35.7	
C32	11.117	-0.013	125878	311350					
C34	11.557	-0.016	49959	162825					
Filter Peak	13.262	-0.056	39436	377410					
C36	12.020	0.022	43187	161512					
o-terph	7.537	0.004	24159513	30271866					
Triacon Surr	10.689	-0.001	11800797	18852312					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

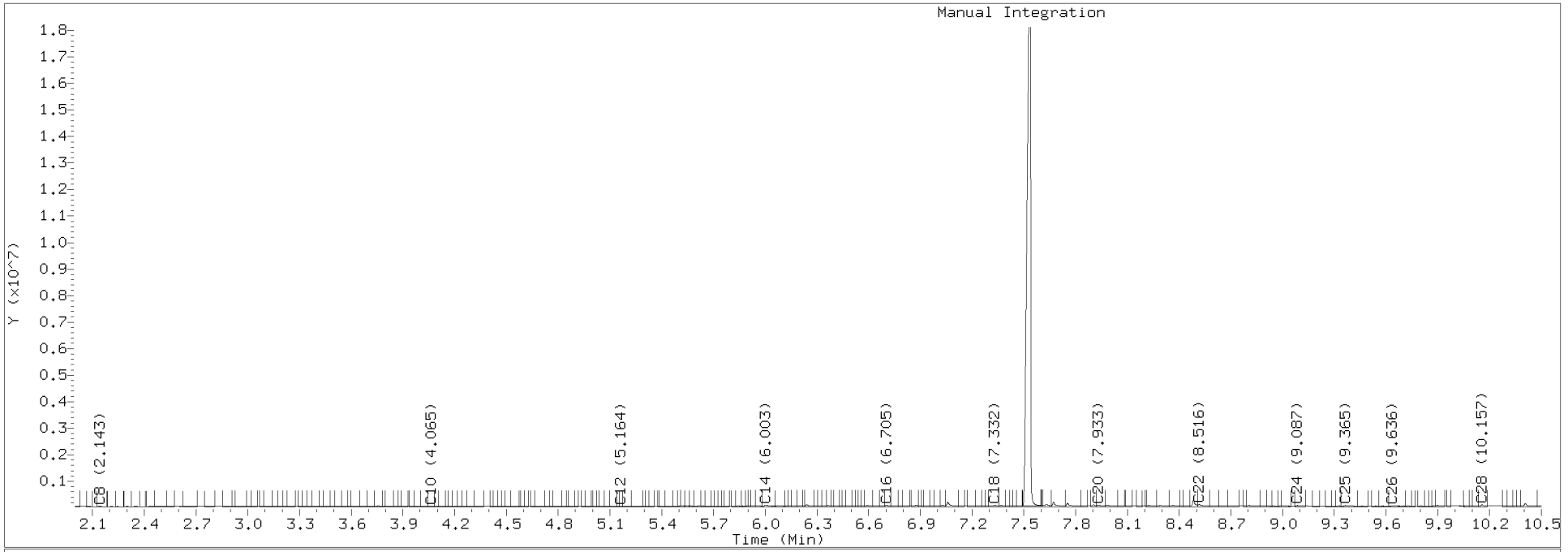
Surrogate	Area	Amount
o-Terphenyl	30271866	136.1
Triacontane	18852312	110.9

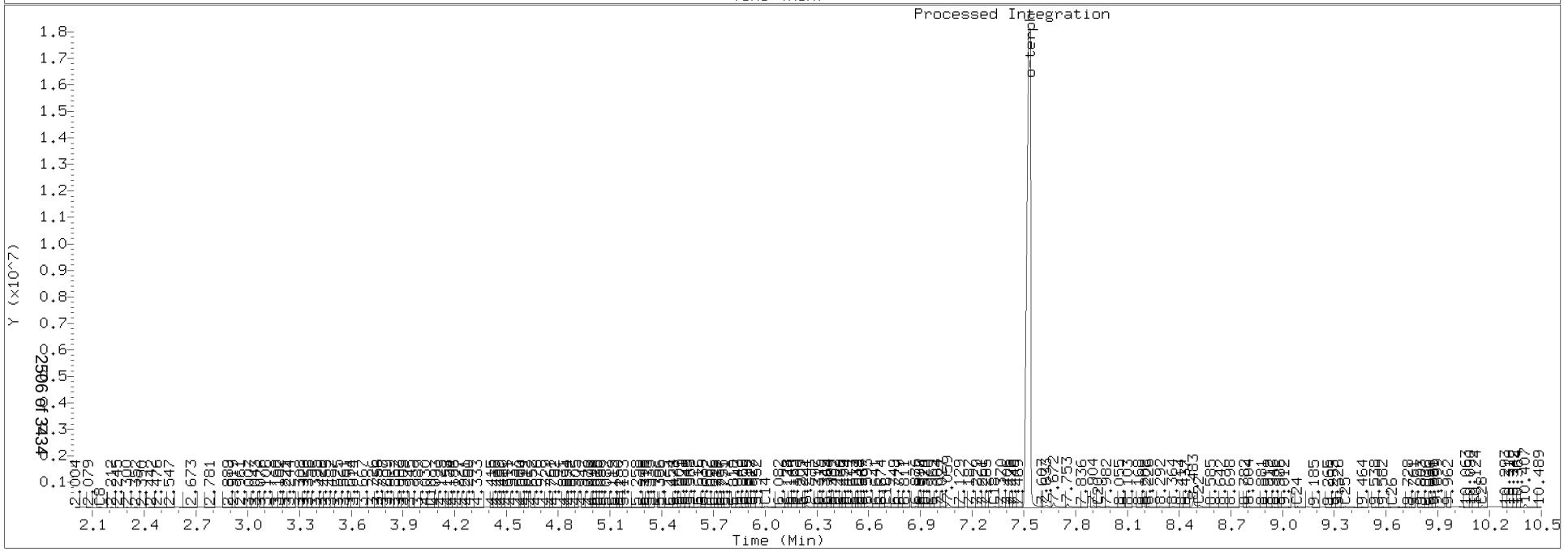
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1060.D Injection: 11-SEP-2019 07:05

Lab ID:19H0481-24





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-4.5'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPH-Dx
TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-25 A	SDG:	19H0481
Sampled:	08/30/19 11:30	Prepared:	09/03/19 15:50	File ID:	419I0452.D
% Solids:	94.94	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/05/19 02:52
Batch:	BHI0051	Sequence:	SHI0031	Initial/Final:	10 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.27	U	2.46	5.27
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.15	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.850	8.81	74.3	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0452.D

Date : 05-SEP-2019 02:52

Client ID:

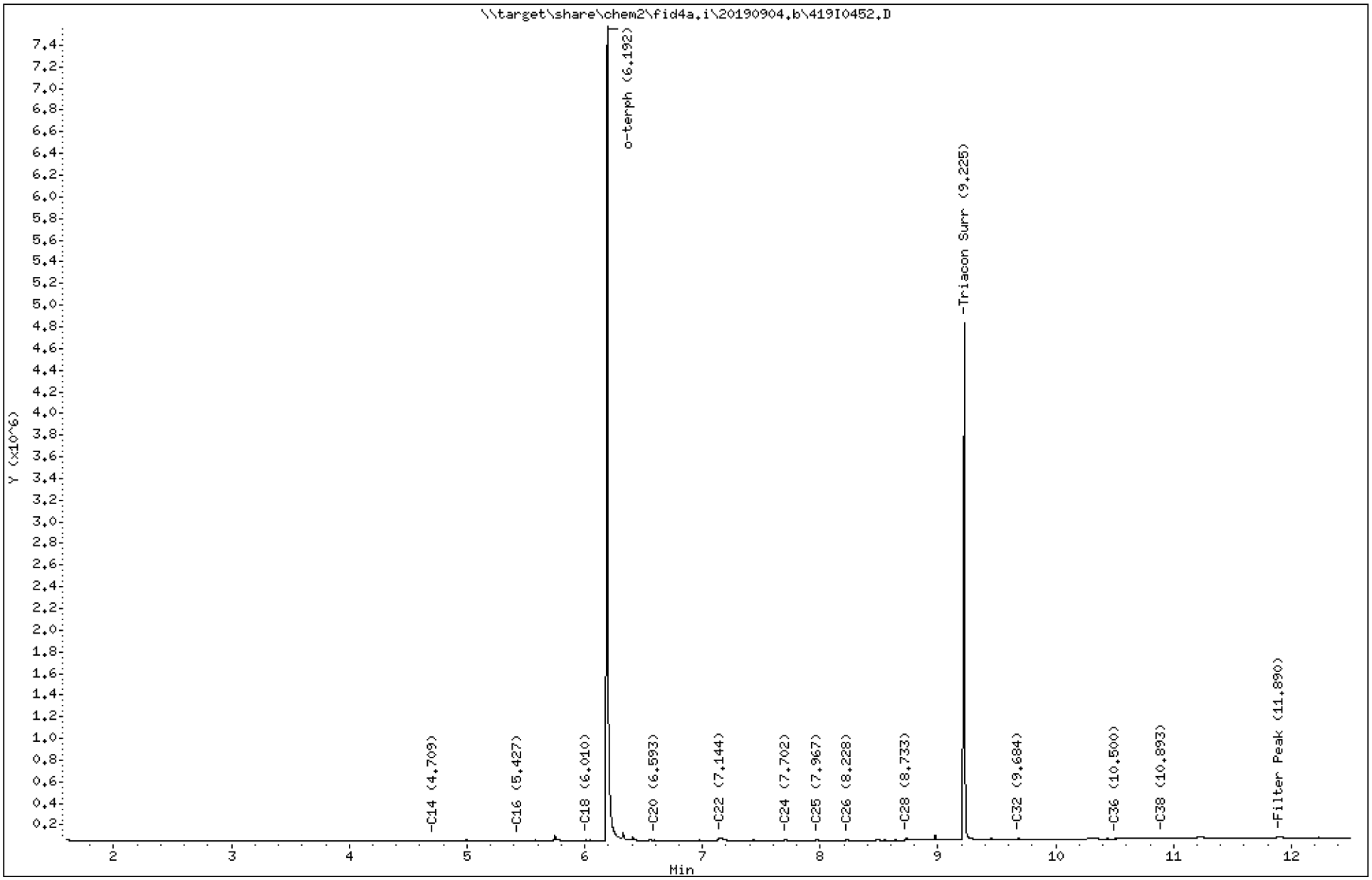
Sample Info: 19H0481-25

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0452.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-25
Client ID:
Injection: 05-SEP-2019 02:52
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	460250	6.1
C10	----				WATPHM	(C24-C38)	598566	16.5
C12	----				AK102	(C10-C25)	460250	5.1
C14	4.709	-0.042	2711	2474	AK103	(C25-C36)	529106	15.0
C16	5.427	0.012	2095	1097	OR.DIES	(C10-C28)	557420	6.1
C18	6.010	-0.000	5704	5269				
C20	6.593	0.015	5219	4133				
C22	7.144	0.007	30299	74942				
C24	7.702	0.014	7765	12661				
C25	7.967	0.009	8772	13464				
C26	8.228	0.005	8681	12600				
C28	8.733	-0.000	28018	31365				
C32	9.684	0.010	22953	47803				
C34	----							
Filter Peak	11.890	-0.054	31753	11054	BUNKERC	(C10-C38)	1058816	15.7
C36	10.500	-0.018	17728	8812				
C38	10.893	-0.023	23326	17398				
C40	----							
o-terph	6.192	-0.003	7520296	7178946				
Triacon Surr	9.225	-0.003	4787215	4281600	NAS DIES	(C10-C24)	460250	5.1

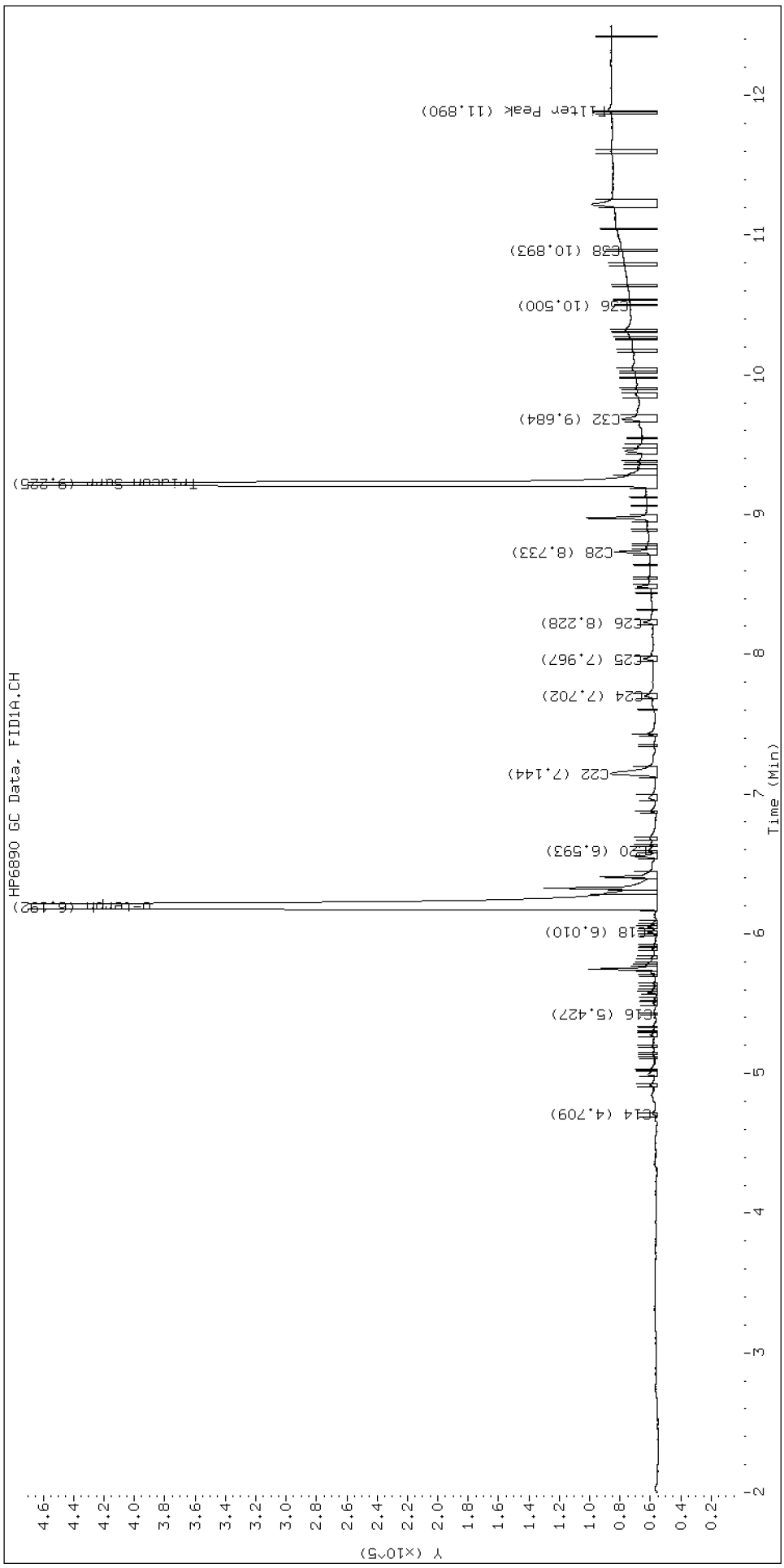
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	7178946	83.6
Triacontane	4281600	81.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190904.b/419I0452.D 19H0481-25



Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-26 A	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/04/19 09:25	File ID:	319I1061.D
% Solids:	74.69	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 07:28
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

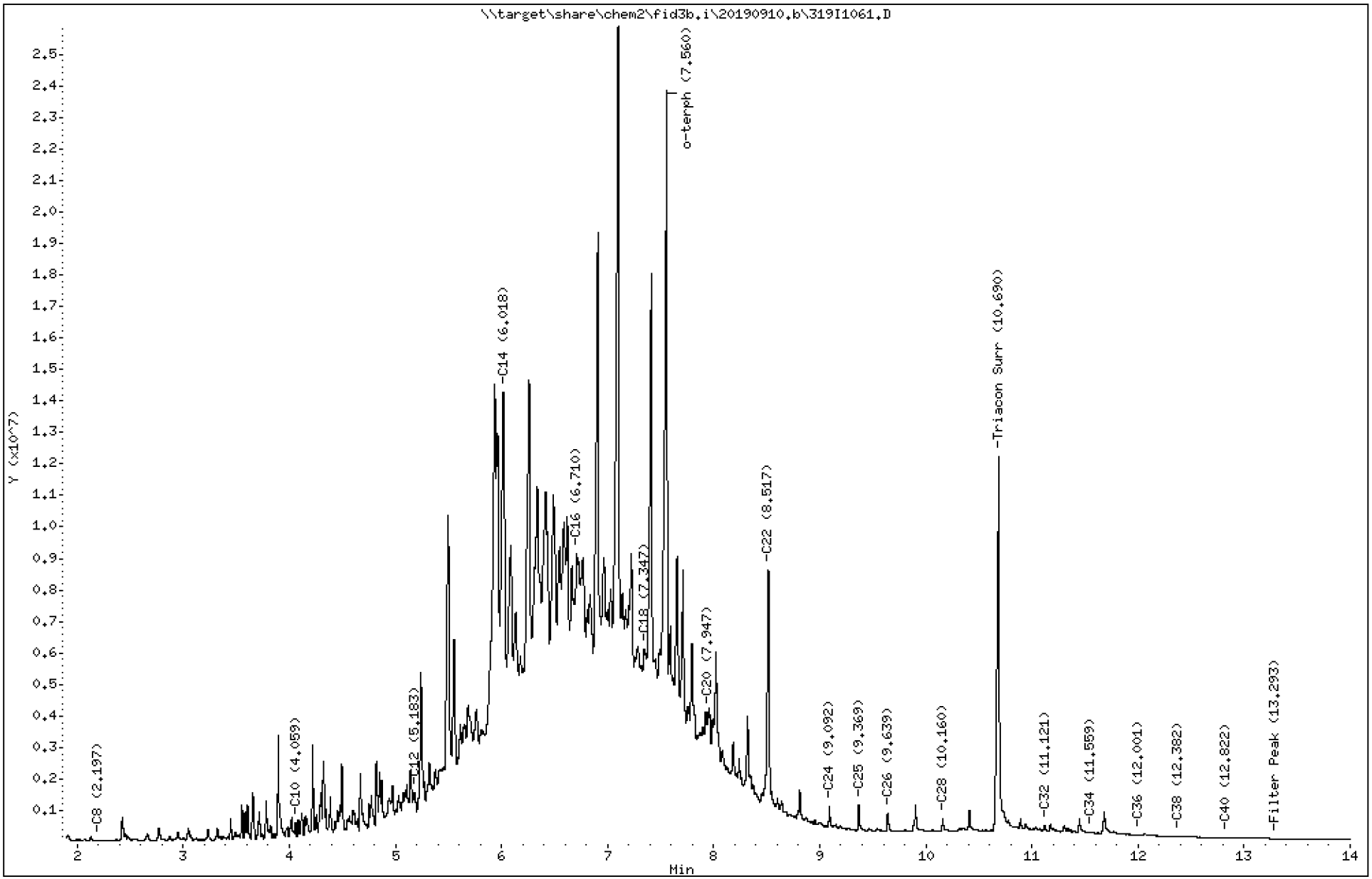
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	904	E	3.13	6.69
RRO	Motor Oil Range Organics (C24-C38)	1	69.8		4.00	13.4

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.047	16.0	107	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1061.D
Date : 11-SEP-2019 07:28
Client ID:
Sample Info: 19H0481-26

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1061.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-26
Client ID:
Injection: 11-SEP-2019 07:28
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	85560659	476.8	
C8	2.197	0.022	18601	18484	WATPHD	(C12-C24)	1178876833	6757.3	
C10	4.059	-0.010	557833	455594	WATPHM	(C24-C38)	66073066	521.8	
C12	5.183	0.017	1536467	3143327	AK102	(C10-C25)	1249582405	6129.8	M
C14	6.018	0.026	14218925	38612989	AK103	(C25-C36)	57595417	566.1	M
C16	6.710	0.008	9121412	24403193	OR.DIES	(C10-C28)	1268675589	6147.1	M
C18	7.347	0.009	6083426	13673485					
C20	7.947	0.010	4064682	4493661					
C22	8.517	-0.006	8586215	14888930					
C24	9.092	-0.004	1096479	1826832					
C25	9.369	-0.005	1145080	2590541					
C26	9.639	-0.007	850903	1787507					
C28	10.160	-0.008	710470	1057556	IT.DIES	(C10-C24)	1244479775	6116.8	
C32	11.121	-0.010	456486	1222360					
C34	11.559	-0.014	274184	648082					
Filter Peak	13.293	-0.025	64318	182618					
C36	12.001	0.003	189925	427286					
o-terph	7.560	0.027	18433511	26677326					
Triacon Surr	10.690	-0.000	11511953	16774203					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

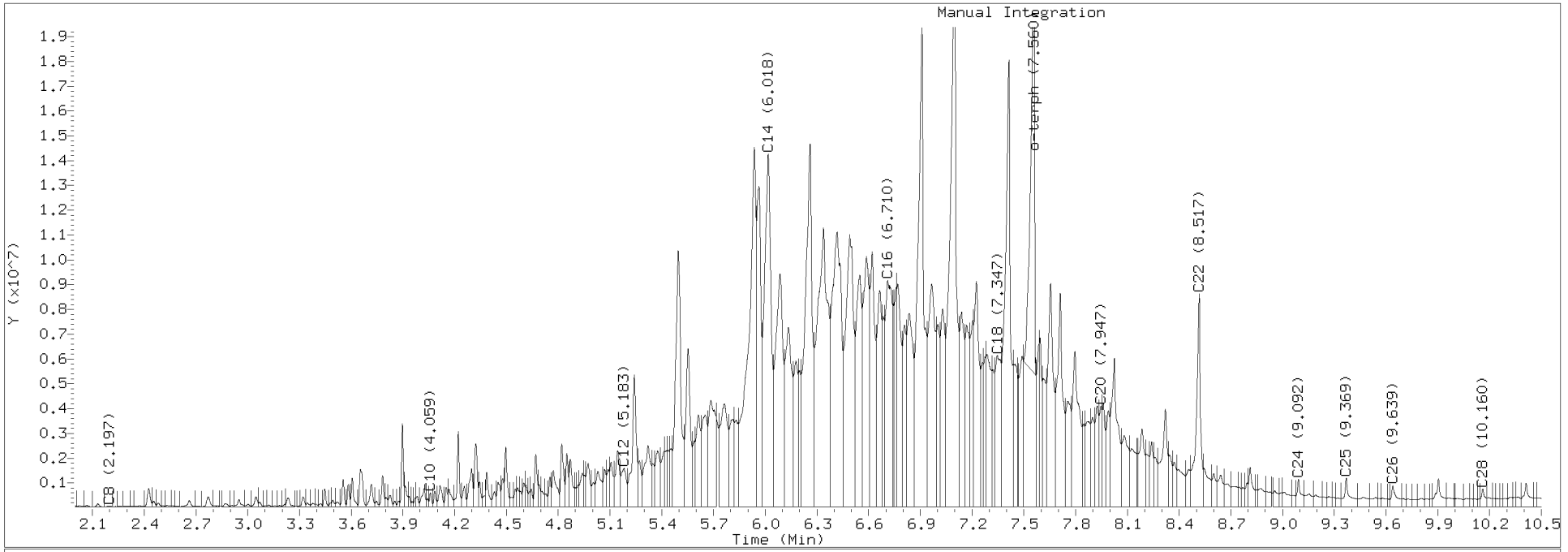
Surrogate	Area	Amount
o-Terphenyl	26677326	119.9
Triacontane	16774203	98.7

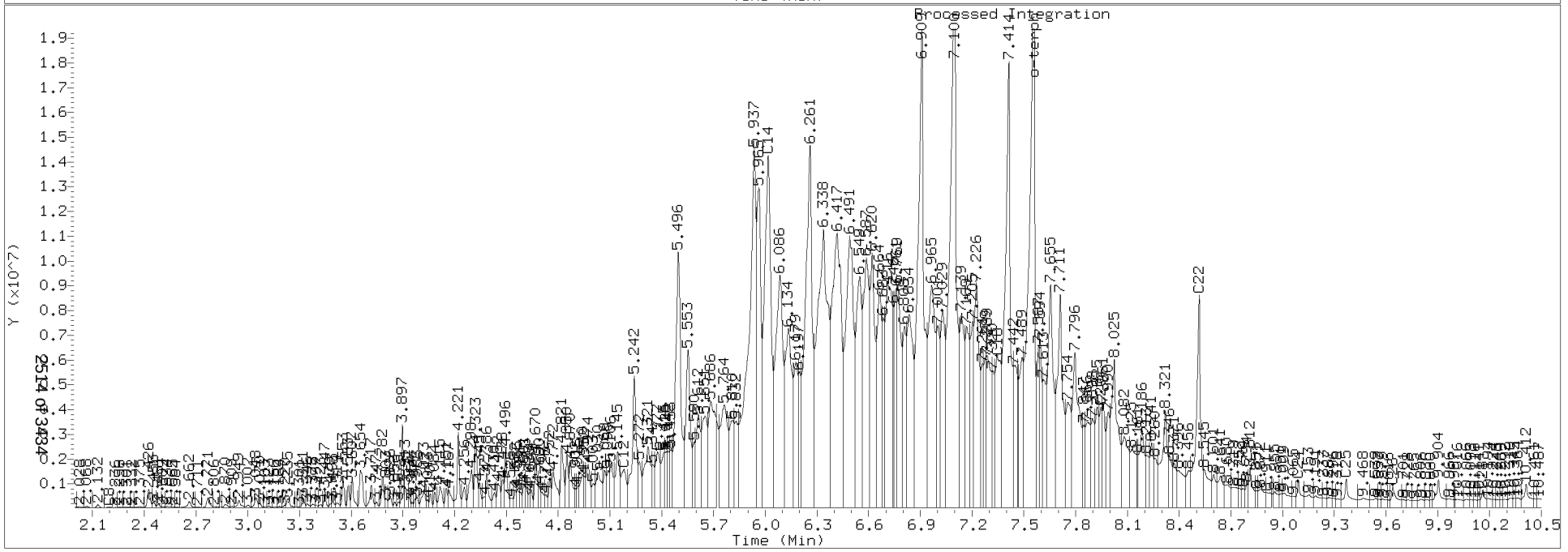
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1061.D Injection: 11-SEP-2019 07:28

Lab ID:19H0481-26





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-26RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/04/19 09:25	File ID:	319I1069.D
% Solids:	74.69	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 10:27
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

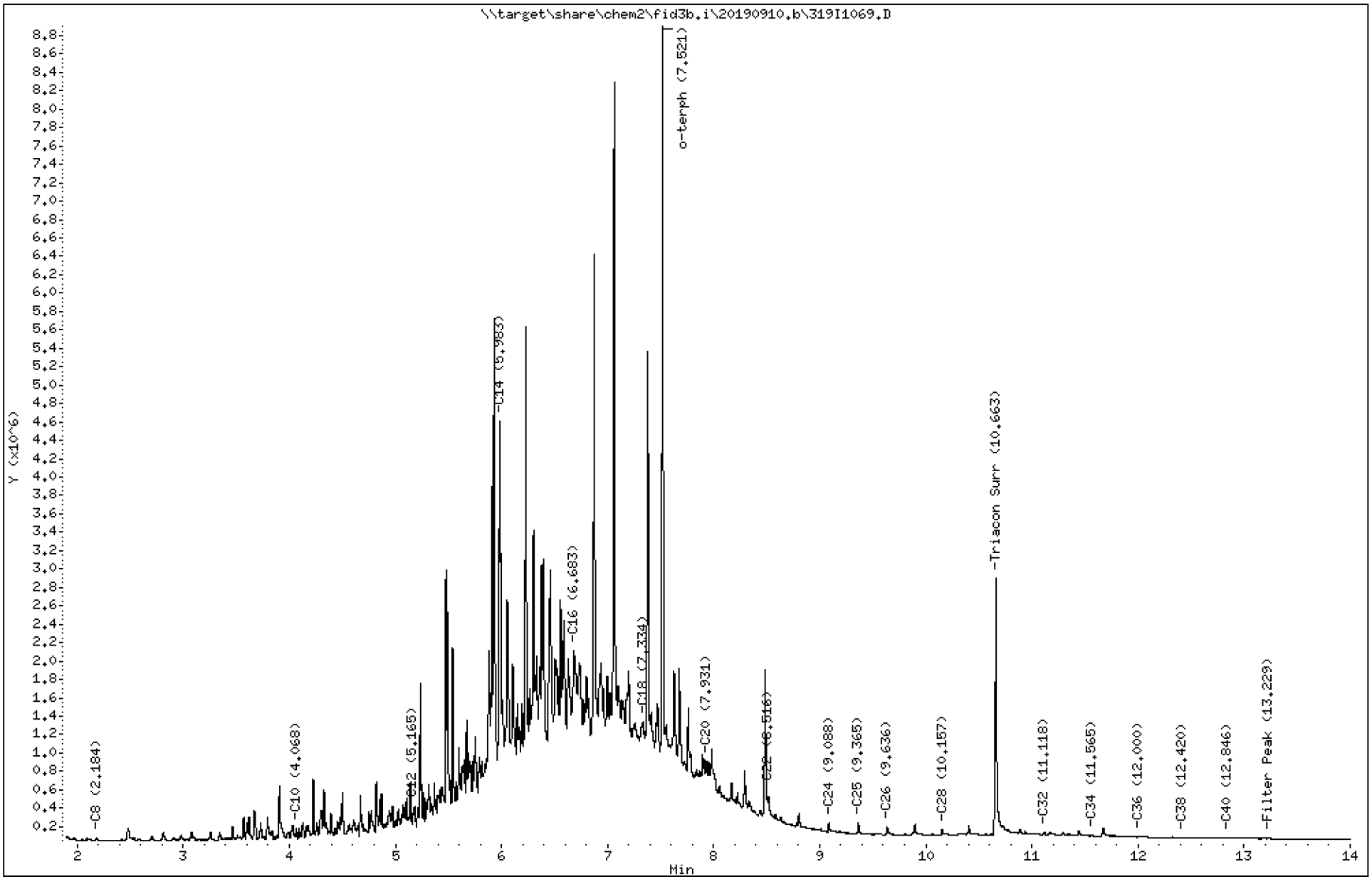
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	5	919	D	15.6	33.4
RRO	Motor Oil Range Organics (C24-C38)	5	66.9	U	20.0	66.9

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.047	17.0	113	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1069.D
Date : 11-SEP-2019 10:27
Client ID:
Sample Info: 19H0481-26RE1,5

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1069.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-26RE1
Client ID:
Injection: 11-SEP-2019 10:27
Dilution Factor: 5
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	18422051	102.7	
C8	2.184	0.008	23215	24577	WATPHD	(C12-C24)	239760712	1374.3	
C10	4.068	-0.002	126995	99185	WATPHM	(C24-C38)	12638162	99.8	
C12	5.165	-0.001	293486	279400	AK102	(C10-C25)	254716025	1249.5	M
C14	5.983	-0.009	4555290	6576367	AK103	(C25-C36)	11369641	111.8	M
C16	6.683	-0.019	2069595	5925283	OR.DIES	(C10-C28)	258820907	1254.1	M
C18	7.334	-0.004	1287630	1666386					
C20	7.931	-0.005	865661	854355					
C22	8.516	-0.007	481156	1269392					
C24	9.088	-0.008	194382	337476					
C25	9.365	-0.009	193122	555455					
C26	9.636	-0.010	148429	367137					
C28	10.157	-0.011	123110	192902	IT.DIES	(C10-C24)	253842667	1247.7	
C32	11.118	-0.013	85804	204249					
C34	11.565	-0.007	55240	174263					
Filter Peak	13.229	-0.090	23648	81403					
C36	12.000	0.001	39810	92916					
o-terph	7.521	-0.012	7775547	5661662					
Triacon Surr	10.663	-0.027	2765796	2658862					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

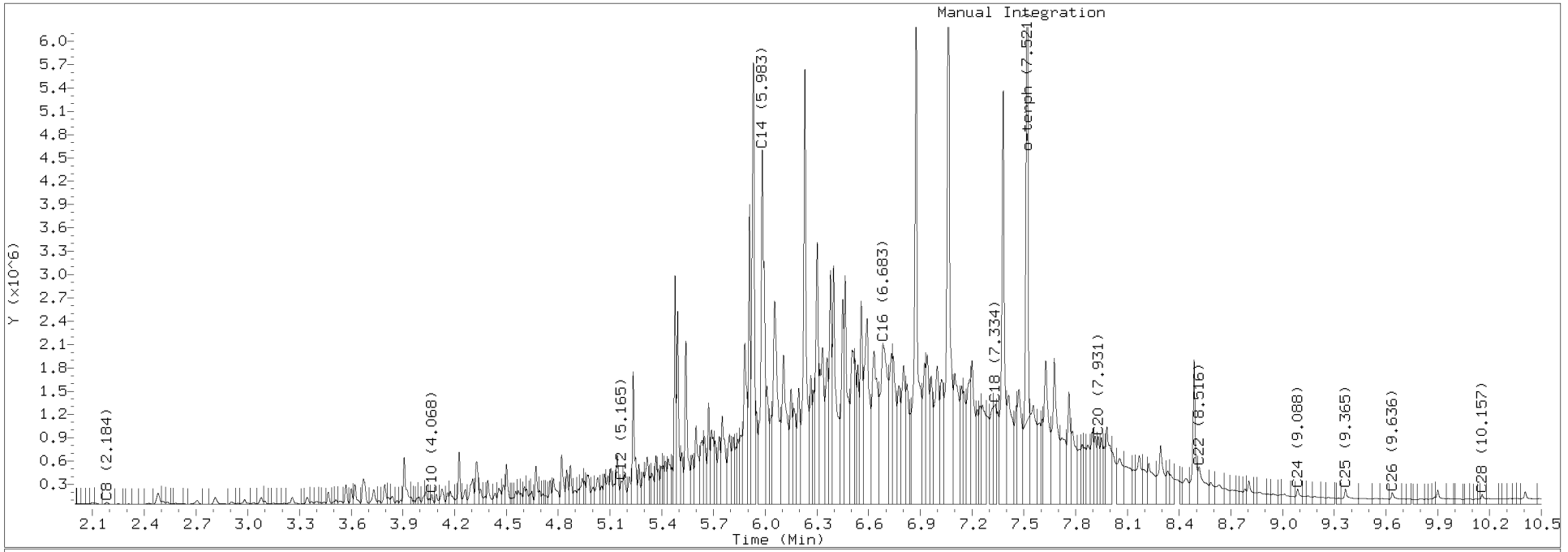
Surrogate	Area	Amount
o-Terphenyl	5661662	25.4
Triacontane	2658862	15.6

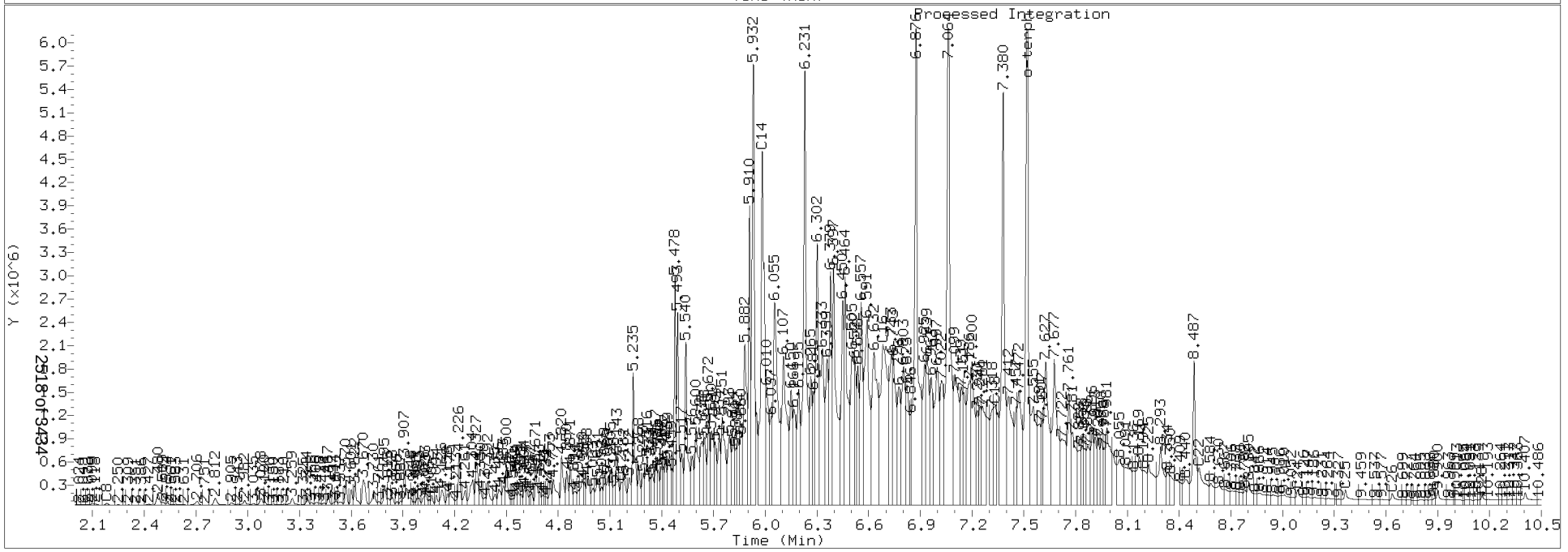
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1069.D Injection: 11-SEP-2019 10:27

Lab ID:19H0481-26RE1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-14.5'-083019

Form I
ORGANIC ANALYSIS DATA SHEET
NWTPH-Dx
TPH (Extractables) low level

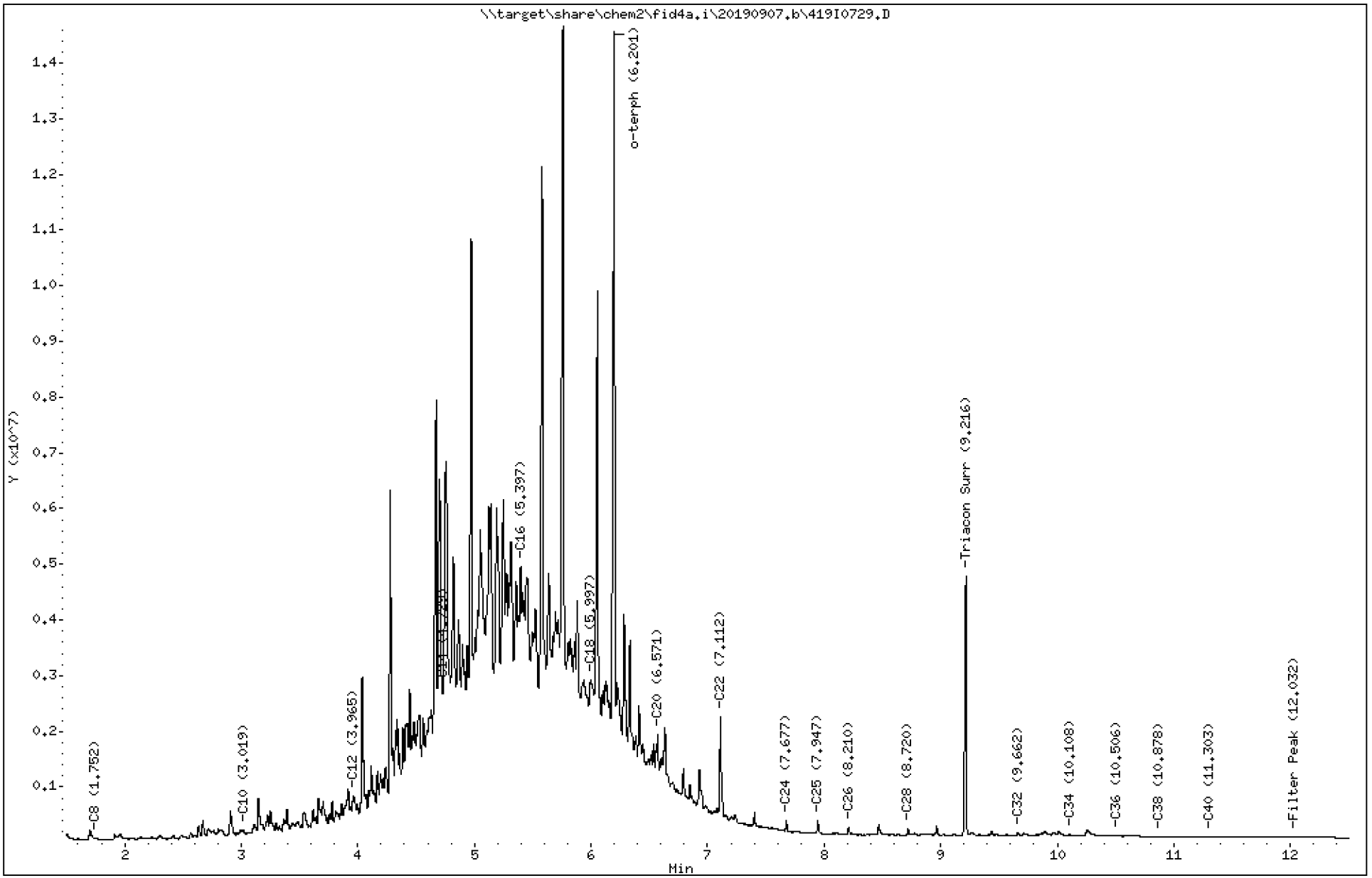
Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-27 A	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/03/19 15:50	File ID:	419I0729.D
% Solids:	74.69	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/07/19 18:37
Batch:	BHI0051	Sequence:	SHI0185	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00039

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	568	E	3.13	6.69
RRO	Motor Oil Range Organics (C24-C38)	1	58.3		4.00	13.4

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.047	10.0	66.6	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0729.D
Date : 07-SEP-2019 18:37
Client ID:
Sample Info: 19H0481-27

Instrument: fid4a.i
Operator: VTS
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0729.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: 19H0481-27
Client ID:
Injection: 07-SEP-2019 18:37
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

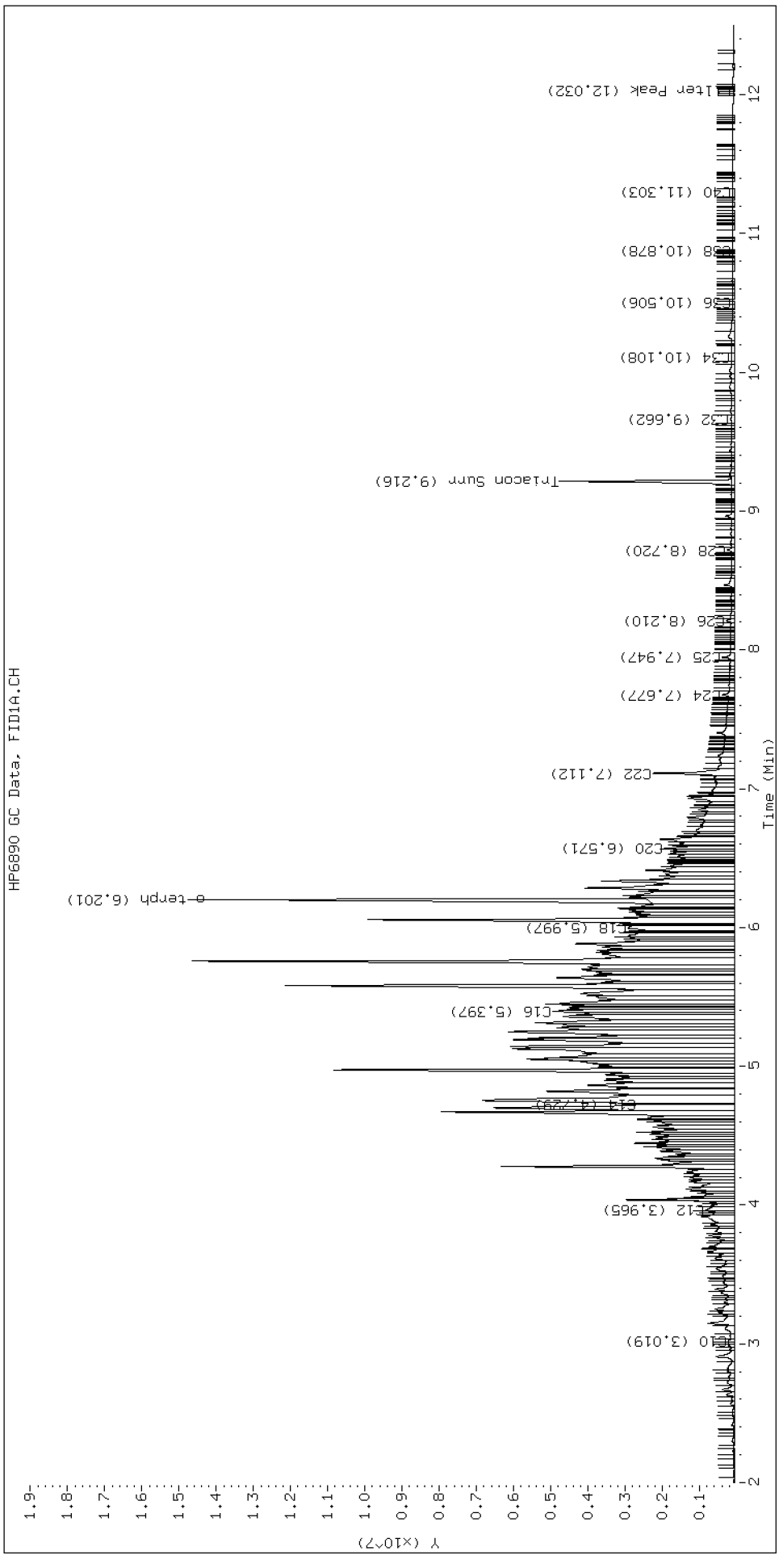
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.752	-0.009	26064	44651	WATPHD	(C12-C24)	508122201	4246.3
C10	3.019	-0.003	174568	200697	WATPHM	(C24-C38)	16338155	435.6
C12	3.965	-0.011	780554	1344151	AK102	(C10-C25)	532292130	3854.4
C14	4.729	-0.012	2625767	655707	AK103	(C25-C36)	14231629	586.4
C16	5.397	-0.008	4896306	5998589	OR.DIES	(C10-C28)	537497440	3886.6
C18	5.997	-0.004	2869493	5422009				
C20	6.571	0.003	1886481	2206598				
C22	7.112	-0.016	2203678	3016054				
C24	7.677	-0.000	331378	543658				
C25	7.947	-0.000	338488	522925				
C26	8.210	-0.001	227673	295823				
C28	8.720	-0.000	188419	268822				
C32	9.662	-0.000	119223	311252				
C34	10.108	0.012	92999	280843				
Filter Peak	12.032	-0.004	40782	36153	BUNKERC	(C10-C38)	547414631	8136.6
C36	10.506	-0.001	66292	94457				
C38	10.878	-0.027	60109	38590				
C40	11.303	-0.001	57539	192117				
o-terph	6.201	0.010	12145950	11694916				
Triacon Surr	9.216	-0.001	4633083	4045173	NAS DIES	(C10-C24)	531076476	3849.2

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	11694916	74.9	M
Triacontane	4045173	98.5	M

M Indicates the peak was manually integrated

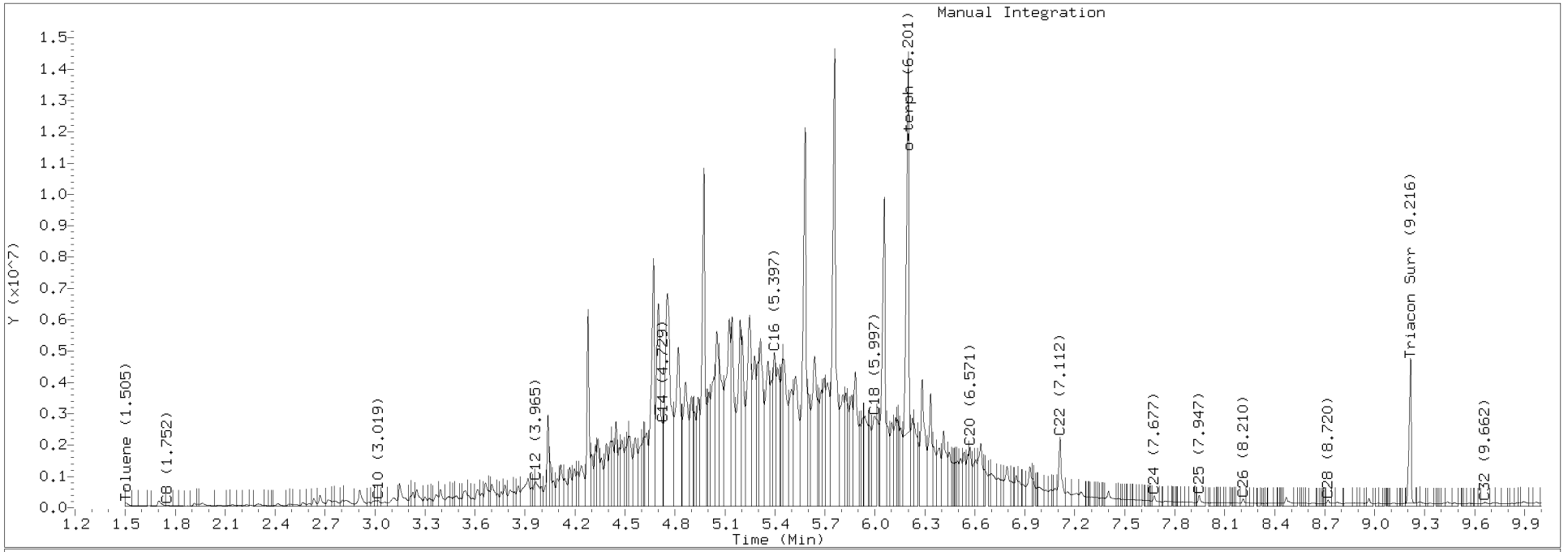
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

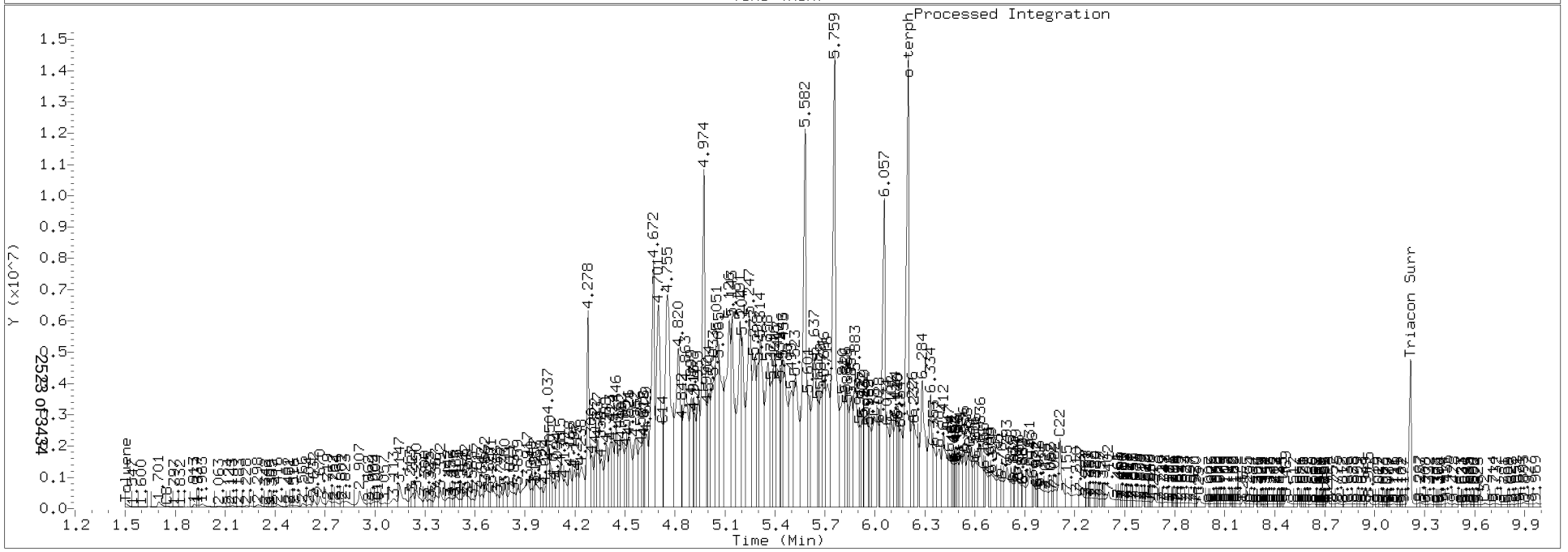

Datafile: FID4A, 20190907.b/419I0729.D 19H0481-27
HP6890 GC Data, FID1A.CH
Y (x10^7)
Time (Min)
C10 (3.019)
C12 (3.965)
C14 (4.729)
C16 (5.397)
C18 (5.997)
a-terph (6.201)
C20 (6.571)
C22 (7.112)
C24 (7.677)
C25 (7.947)
C26 (8.210)
C28 (8.720)
Triacon Surr (9.216)
C32 (9.662)
C34 (10.108)
C36 (10.506)
C38 (10.878)
C40 (11.303)
Iter Peak (12.032)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0729.D Injection: 07-SEP-2019 18:37

Lab ID:19H0481-27





Analytical Resources, Incorporated
Analytical Chemists and Consultants

P40-UST-04-14.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-27RE1 A	SDG:	19H0481
Sampled:	08/30/19 11:40	Prepared:	09/03/19 15:50	File ID:	319I1066.D
% Solids:	74.69	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 09:19
Batch:	BHI0051	Sequence:	SHI0095	Initial/Final:	10.01 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	5	738	D	15.6	33.4
RRO	Motor Oil Range Organics (C24-C38)	5	70.4	D	20.0	66.9

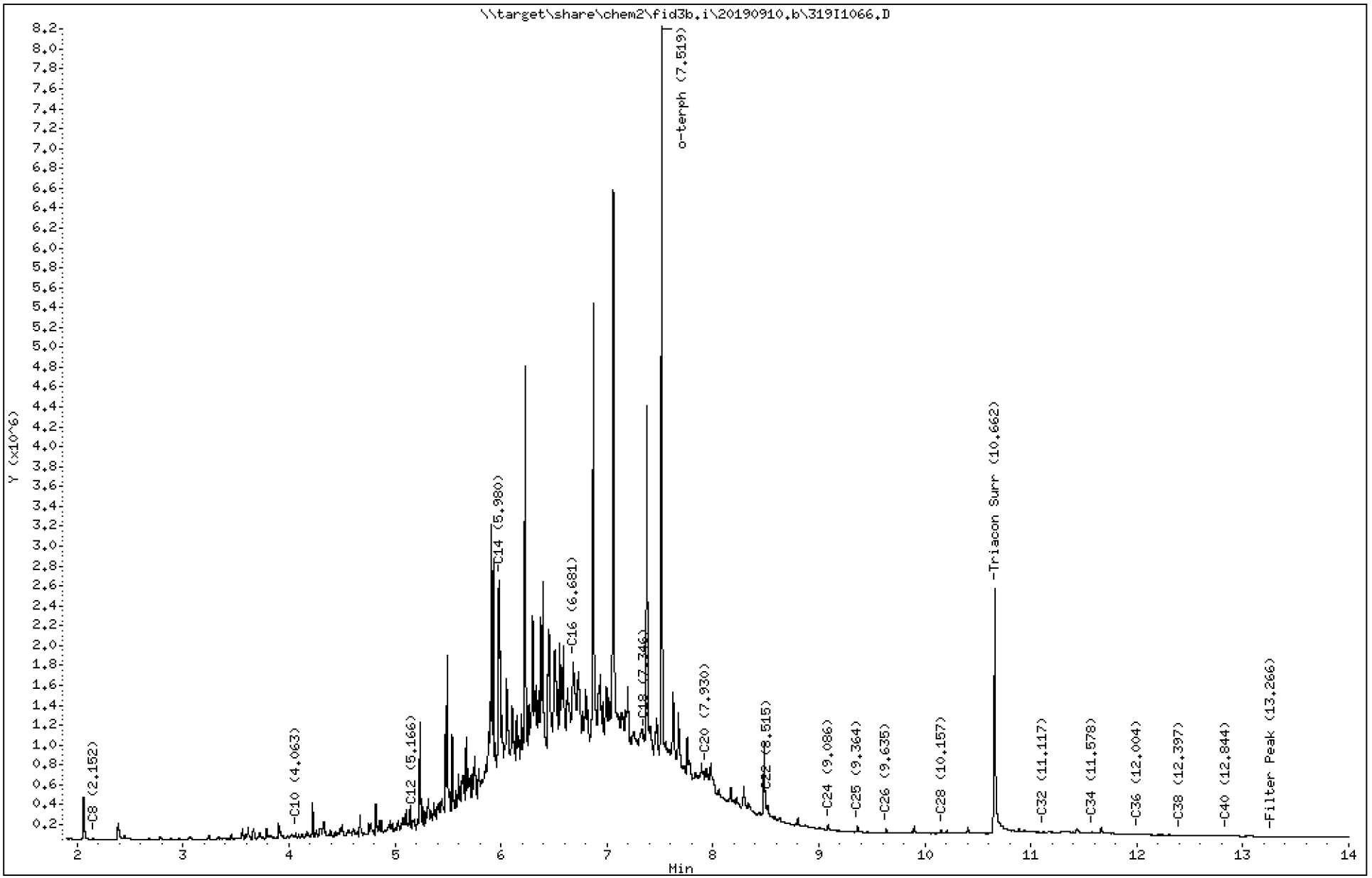
SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.047	15.5	103	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1066.D
Date : 11-SEP-2019 09:19
Client ID:
Sample Info: 19H0481-27RE1,5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1066.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-27RE1
Client ID:
Injection: 11-SEP-2019 09:19
Dilution Factor: 5
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	9278236	51.7	
C8	2.152	-0.023	12619	16225	WATPHD	(C12-C24)	192466239	1103.2	
C10	4.063	-0.006	65244	50375	WATPHM	(C24-C38)	13317993	105.2	
C12	5.166	0.000	187464	185411	AK102	(C10-C25)	200332841	982.7	M
C14	5.980	-0.012	2610377	3673052	AK103	(C25-C36)	11450059	112.5	M
C16	6.681	-0.022	1780335	5027425	OR.DIES	(C10-C28)	203799937	987.5	M
C18	7.346	0.008	1062467	844357					
C20	7.930	-0.006	710887	729032					
C22	8.515	-0.008	344686	1015556					
C24	9.086	-0.009	149706	414489					
C25	9.364	-0.010	141807	410644					
C26	9.635	-0.011	111056	234489					
C28	10.157	-0.012	98293	210187	IT.DIES	(C10-C24)	199525677	980.7	
C32	11.117	-0.014	88035	225474					
C34	11.578	0.005	76776	135083					
Filter Peak	13.266	-0.052	32400	74962					
C36	12.004	0.006	54290	75231					
o-terph	7.519	-0.015	7293582	5158852					
Triacon Surr	10.662	-0.028	2423736	2138598					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

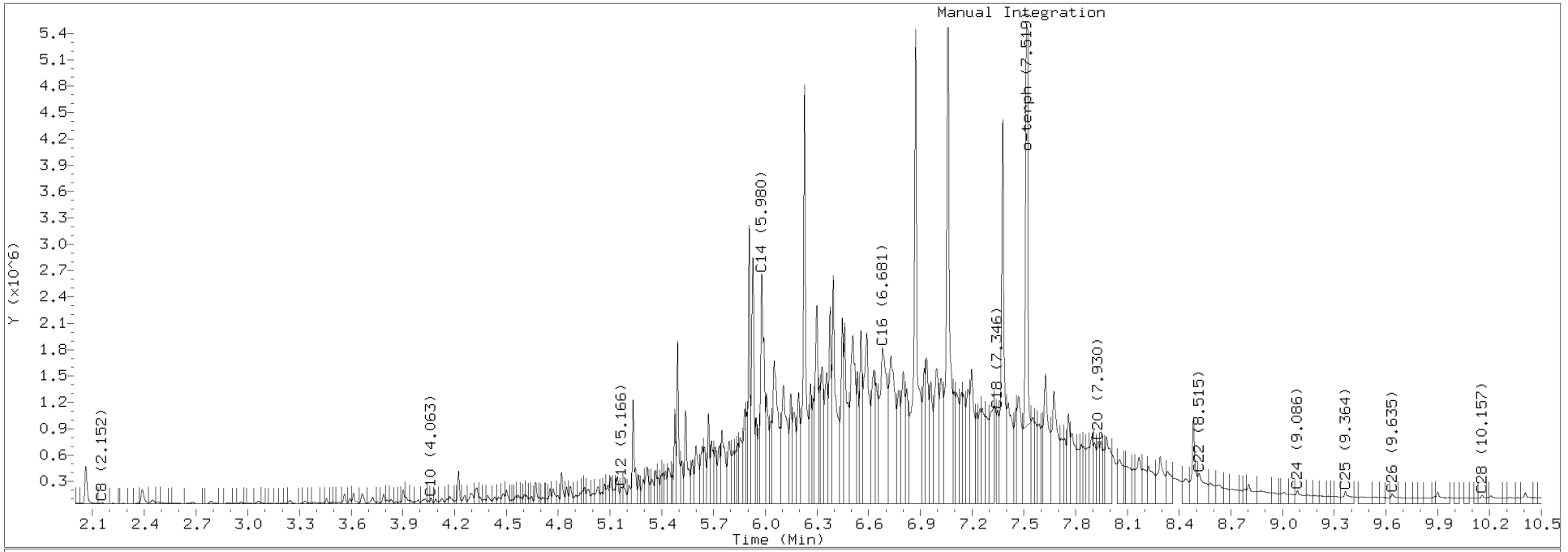
Surrogate	Area	Amount
o-Terphenyl	5158852	23.2
Triacontane	2138598	12.6

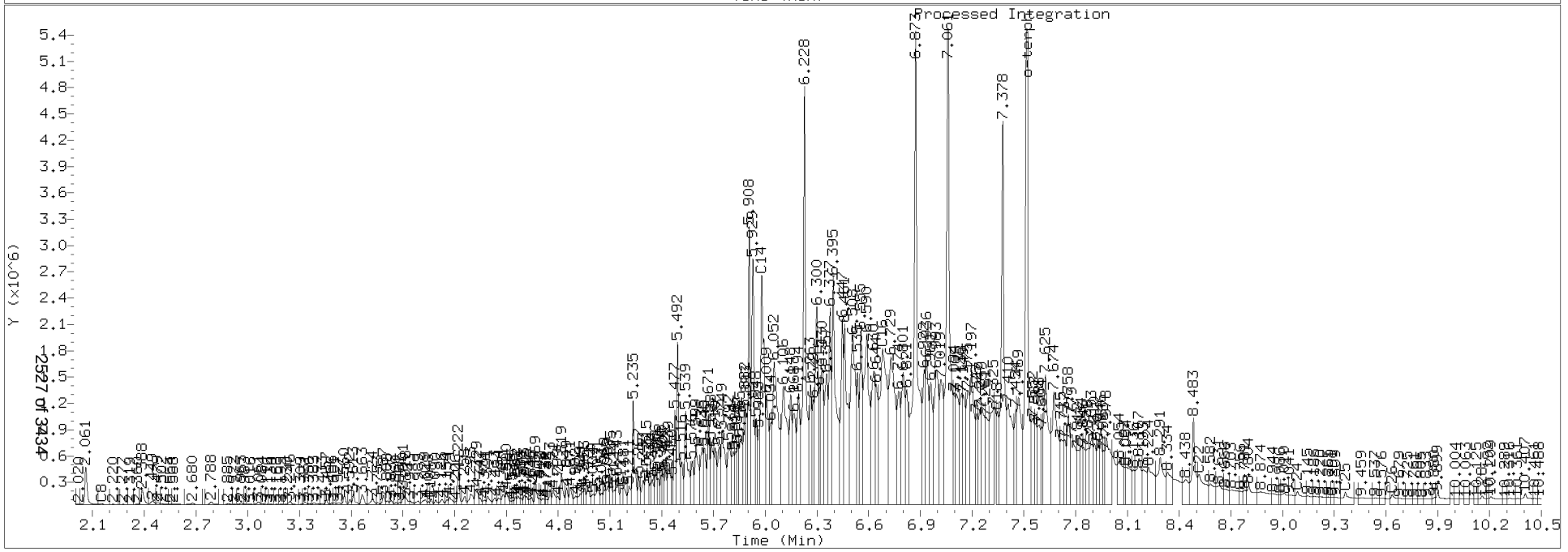
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1066.D Injection: 11-SEP-2019 09:19

Lab ID:19H0481-27RE1





P40-UST-05-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory: Analytical Resources, Inc.

Client: Anchor QEA, LLC

Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Matrix:	Water	Laboratory ID:	19H0481-28 A	SDG:	19H0481
Sampled:	08/30/19 14:10	Prepared:	09/03/19 08:43	File ID:	419I0330.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 19:46
Batch:	BHI0023	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

Cleanups: Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.237	106	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0330.D

Date : 03-SEP-2019 19:46

Client ID:

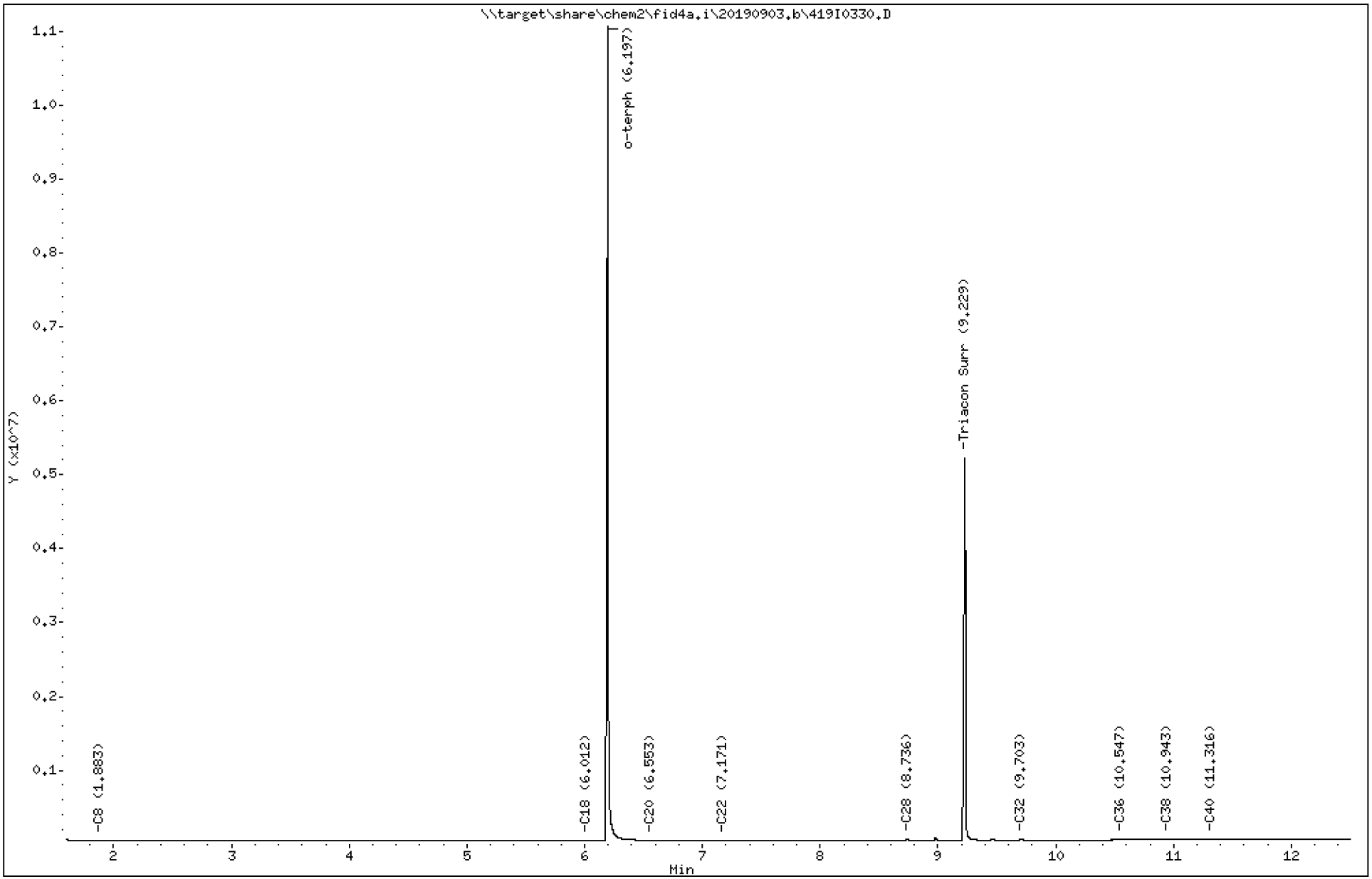
Sample Info: 19H0481-28

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0330.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-28
Client ID:
Injection: 03-SEP-2019 19:46
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

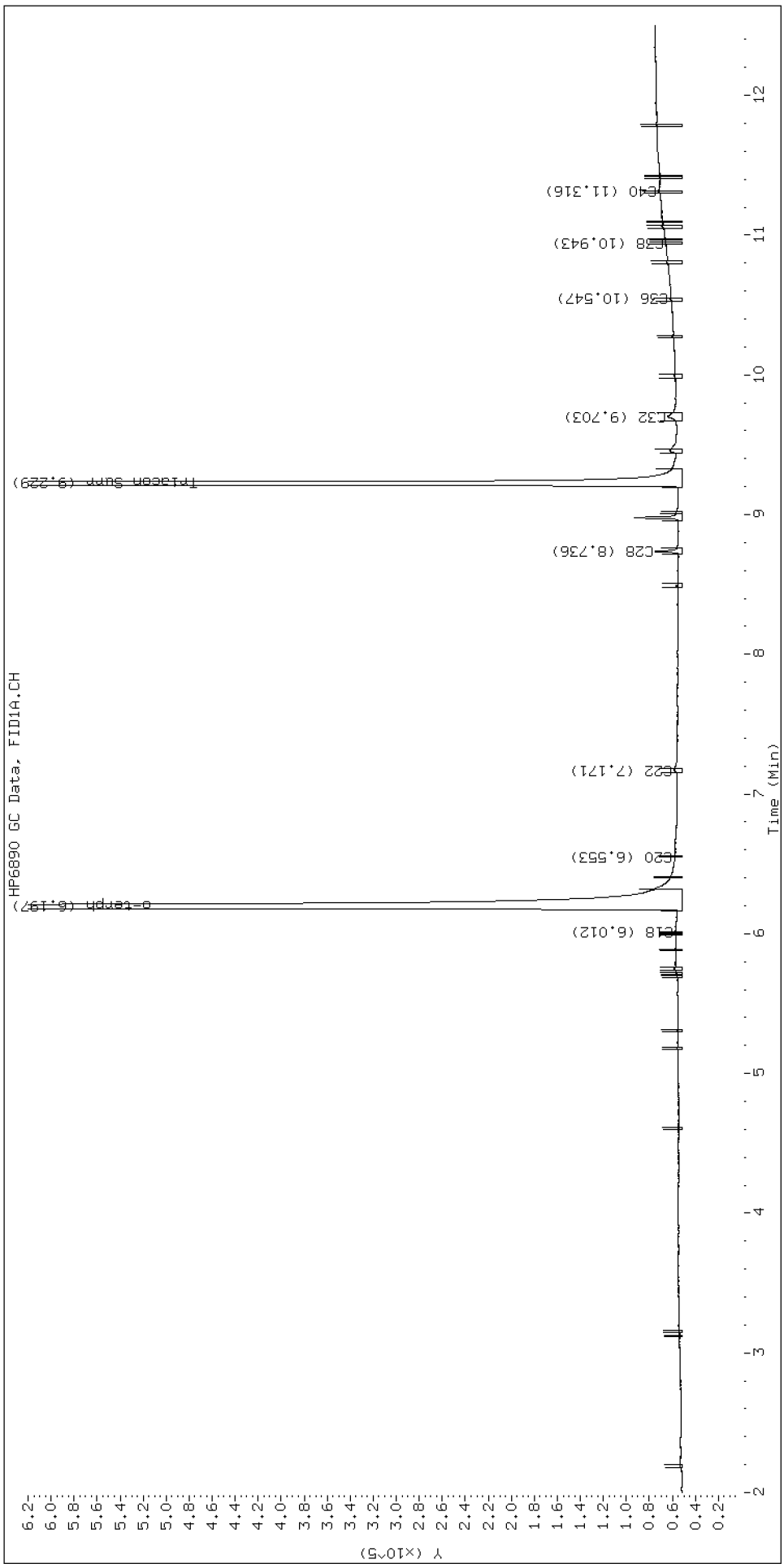
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.883	0.037	1837	1462	WATPHD	(C12-C24)	61452	0.8
C10	----				WATPHM	(C24-C38)	192682	5.3
C12	----				AK102	(C10-C25)	64302	0.7
C14	----				AK103	(C25-C36)	165601	4.7
C16	----				OR.DIES	(C10-C28)	98548	1.1
C18	6.012	-0.002	6726	4214				
C20	6.553	-0.026	7168	3835				
C22	7.171	0.031	7233	11185				
C24	----							
C25	----							
C26	----							
C28	8.736	-0.001	24098	25885				
C32	9.703	0.025	13002	35025				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	256984	3.8
C36	10.547	0.025	11052	13279				
C38	10.943	0.026	14651	10912				
C40	11.316	0.004	20933	18459				
o-terph	6.197	-0.000	11017248	10191682				
Triacon Surr	9.229	-0.004	5173630	5043468	NAS DIES	(C10-C24)	64302	0.7

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	10191682	118.7
Triacontane	5043468	96.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190903.b/419I0330.D 19H0481-28
HP6890 GC Data, FID1A.CH
n-tetradecane (6.197)
C18 (6.012)
C20 (6.553)
C22 (7.171)
C28 (8.736)
Tridecane Surr (9.229)
C32 (9.703)
C36 (10.547)
C38 (10.943)
C40 (11.316)
Time (Min)
Y (X10^5)

P40-UST-05-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Water	Laboratory ID:	19H0481-29 A	SDG:	19H0481
Sampled:	08/30/19 14:10	Prepared:	09/02/19 13:10	File ID:	419I0340.D
% Solids:		Preparation:	EPA 3510C SepF	Analyzed:	09/03/19 23:18
Batch:	BHI0019	Sequence:	SHI0028	Initial/Final:	500 mL / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CH00097

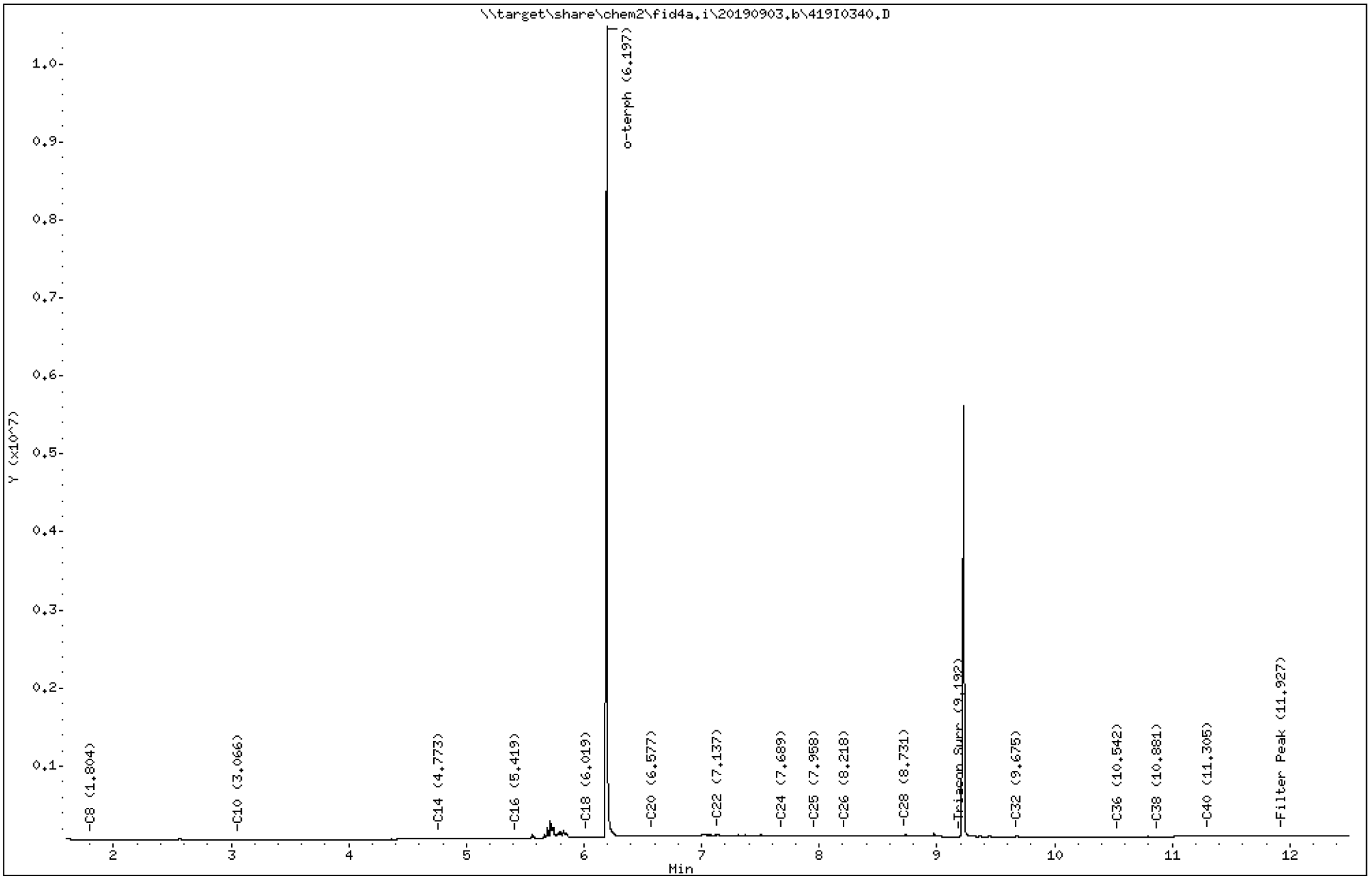
CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.156		0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.205		0.056	0.200

SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.208	92.4	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0340.D
Date : 03-SEP-2019 23:18
Client ID:
Sample Info: 19H0481-29

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0340.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: 19H0481-29
Client ID:
Injection: 03-SEP-2019 23:18
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.804	-0.041	6595	5982	WATPHD	(C12-C24)	5856213	78.0
C10	3.066	0.019	3579	2439	WATPHM	(C24-C38)	3718997	102.4
C12	----				AK102	(C10-C25)	6208620	68.2
C14	4.773	0.022	10676	7342	AK103	(C25-C36)	3242319	92.1
C16	5.419	0.002	18226	13503	OR.DIES	(C10-C28)	7842873	86.0
C18	6.019	0.005	31228	18583				
C20	6.577	-0.002	51299	27954				
C22	7.137	-0.004	65803	75997				
C24	7.689	-0.002	59160	29423				
C25	7.958	-0.004	56681	25410				
C26	8.218	-0.008	54052	26865				
C28	8.731	-0.006	70435	112635				
C32	9.675	-0.003	56521	150561				
C34	----							
Filter Peak	11.927	-0.019	48696	67245	BUNKERC	(C10-C38)	9590737	142.6
C36	10.542	0.020	39481	70355				
C38	10.881	-0.035	40276	18065				
C40	11.305	-0.007	50735	97730				
o-terph	6.197	-0.000	10388254	8914984				
Triacon Surr	9.229	-0.004	5529612	4994899	NAS DIES	(C10-C24)	5871739	64.5

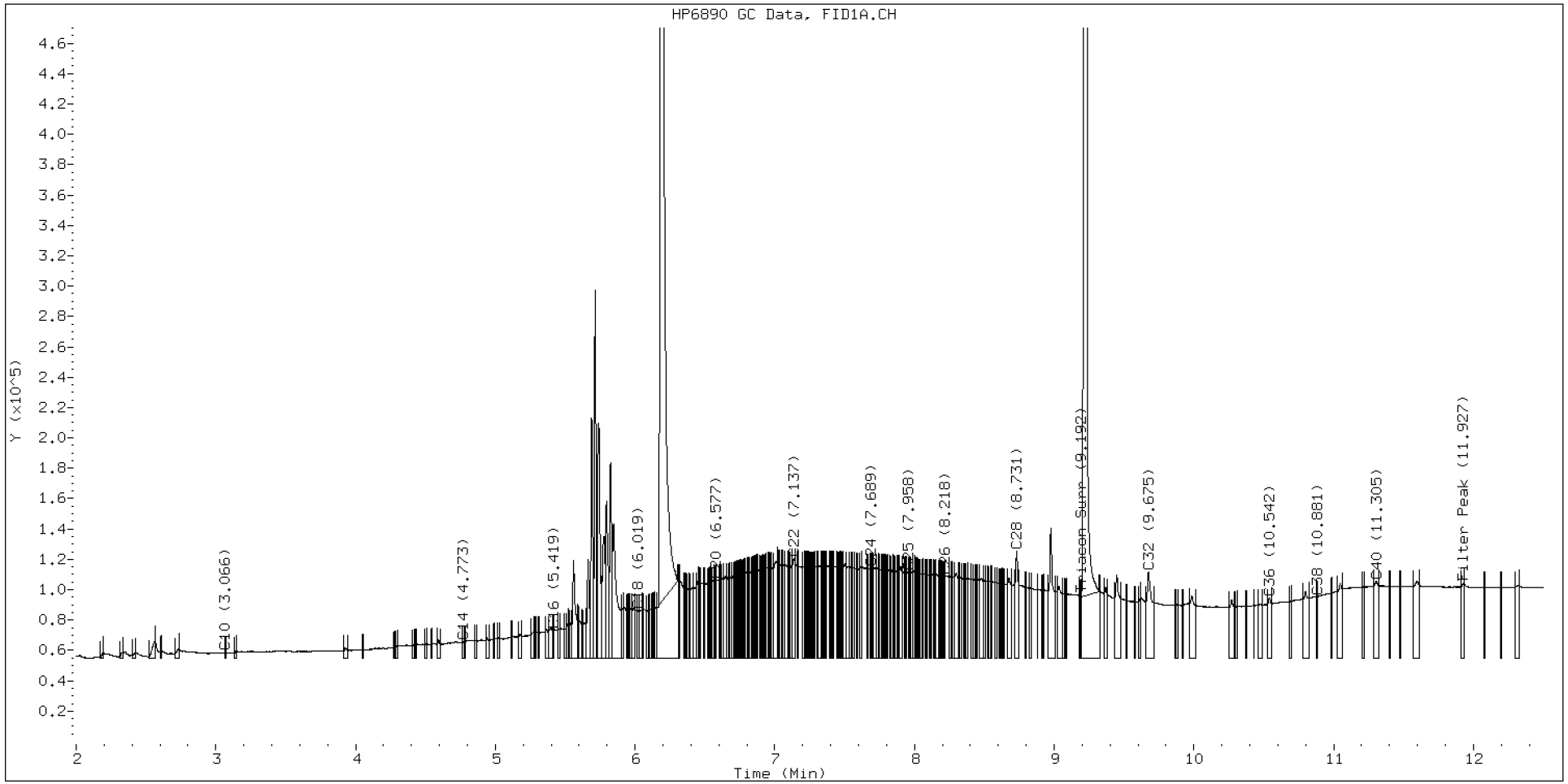
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	8914984	103.9	M
Triacontane	4994899	95.3	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

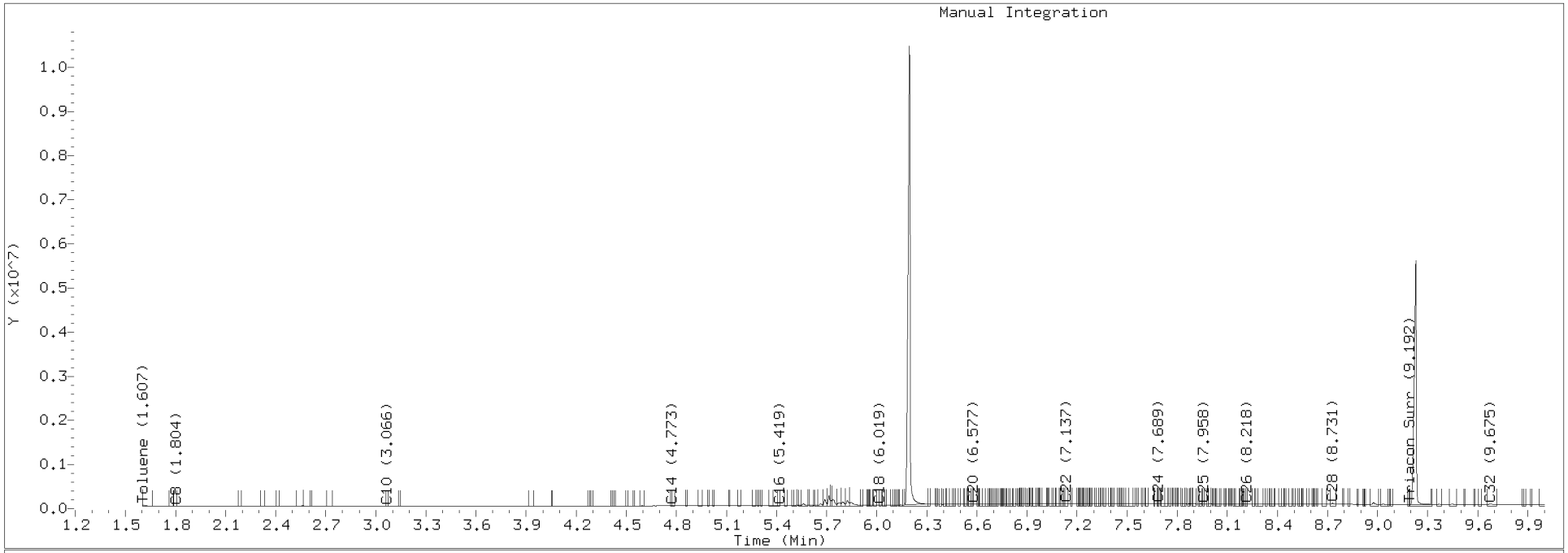
Datafile: FID4A, 20190903.b/419I0340.D 19H0481-29

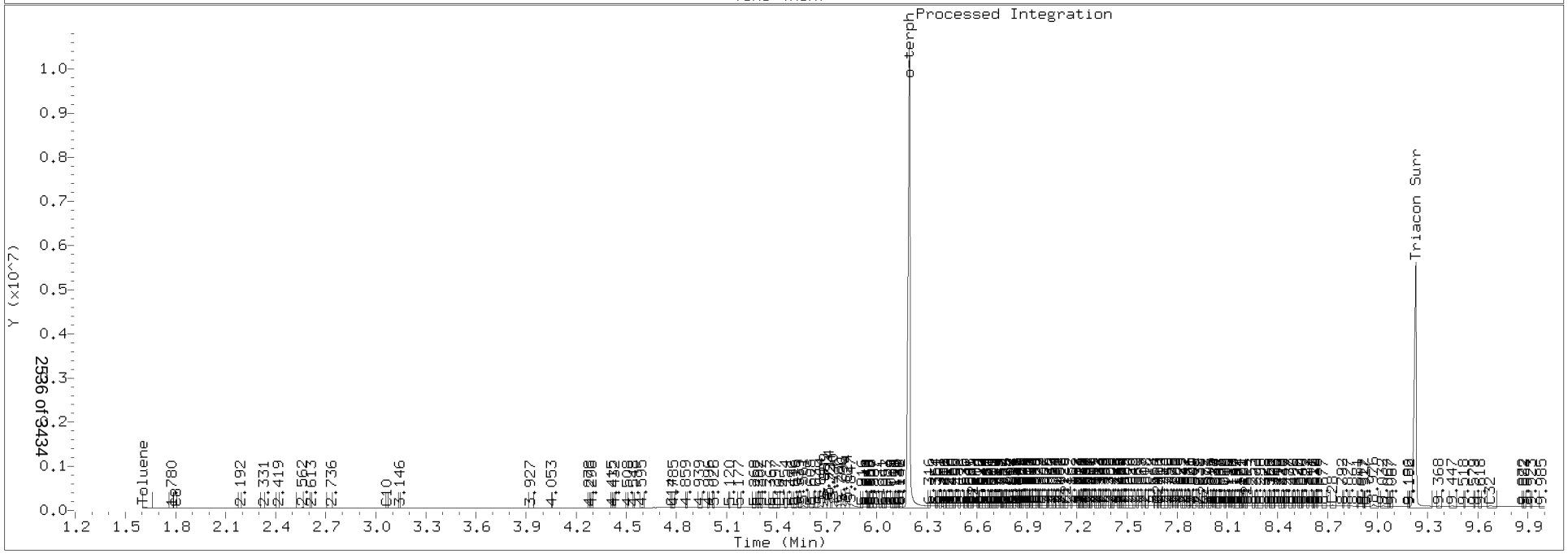


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0340.D   Injection: 03-SEP-2019 23:18

Lab ID:19H0481-29





P40-UST-05-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-30 A	SDG:	19H0481
Sampled:	08/30/19 13:00	Prepared:	09/04/19 09:25	File ID:	319I1062.D
% Solids:	94.96	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 07:50
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.27	U	2.46	5.27
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.15	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.847	13.3	112	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1062.D

Date : 11-SEP-2019 07:50

Client ID:

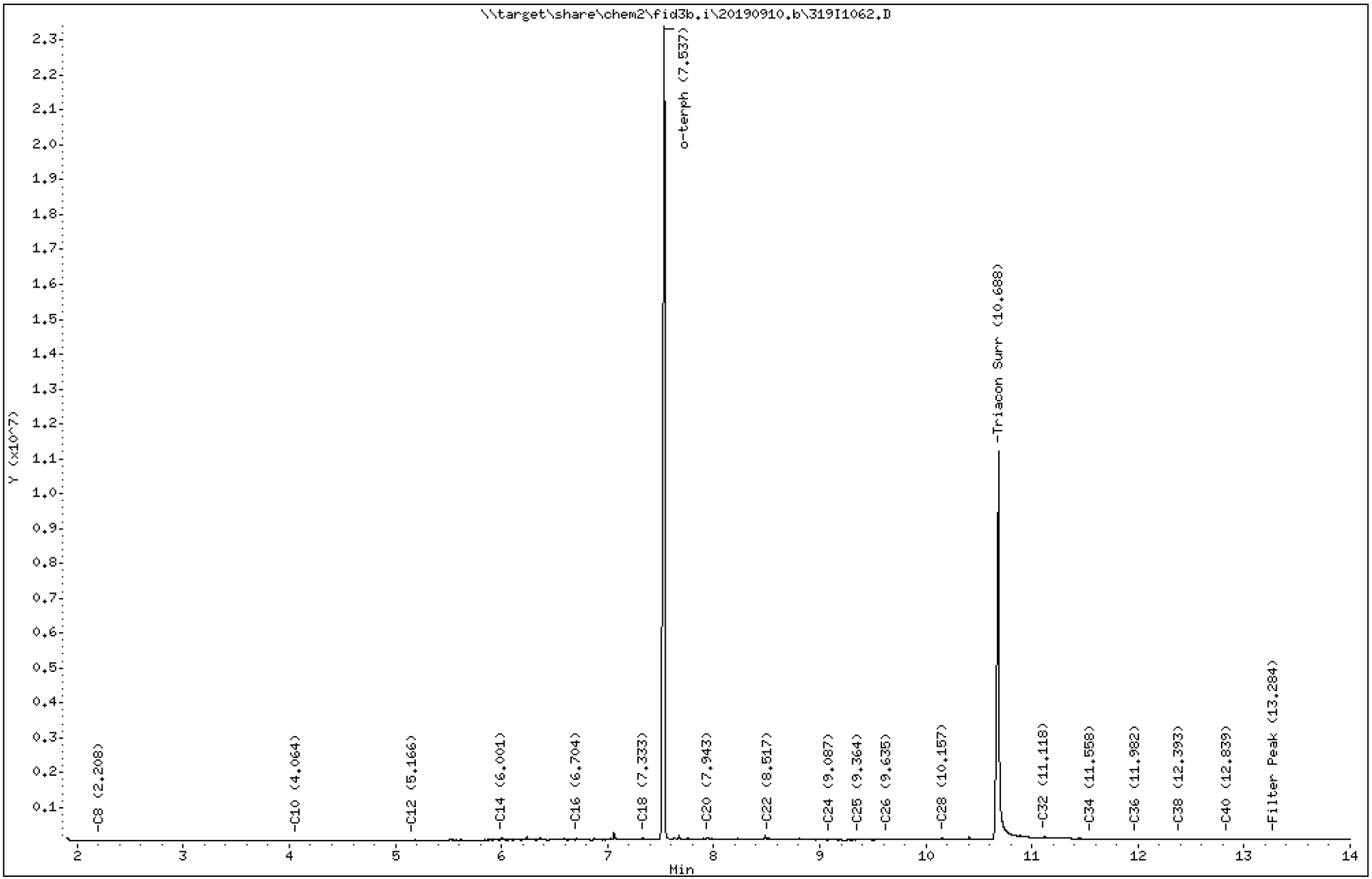
Sample Info: 19H0481-30

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1062.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-30
Client ID:
Injection: 11-SEP-2019 07:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	801339	4.5	
C8	2.208	0.032	3138	4678	WATPHD	(C12-C24)	6730851	38.6	
C10	4.064	-0.005	17742	16351	WATPHM	(C24-C38)	7296170	57.6	
C12	5.166	-0.000	8205	6940	AK102	(C10-C25)	7234879	35.5	M
C14	6.001	0.009	80675	127838	AK103	(C25-C36)	6681686	65.7	M
C16	6.704	0.002	78601	94899	OR.DIES	(C10-C28)	8565764	41.5	M
C18	7.333	-0.006	73023	77671					
C20	7.943	0.006	87544	139260					
C22	8.517	-0.007	88432	181343					
C24	9.087	-0.008	56417	82881					
C25	9.364	-0.010	57701	100961					
C26	9.635	-0.011	51162	119983					
C28	10.157	-0.011	83885	156607	IT.DIES	(C10-C24)	7099731	34.9	
C32	11.118	-0.013	118913	216968					
C34	11.558	-0.015	50304	184889					
Filter Peak	13.284	-0.034	32723	194137					
C36	11.982	-0.016	38034	79241					
o-terph	7.537	0.003	23326426	28127904					
Triacon Surr	10.688	-0.002	11110821	17273861					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

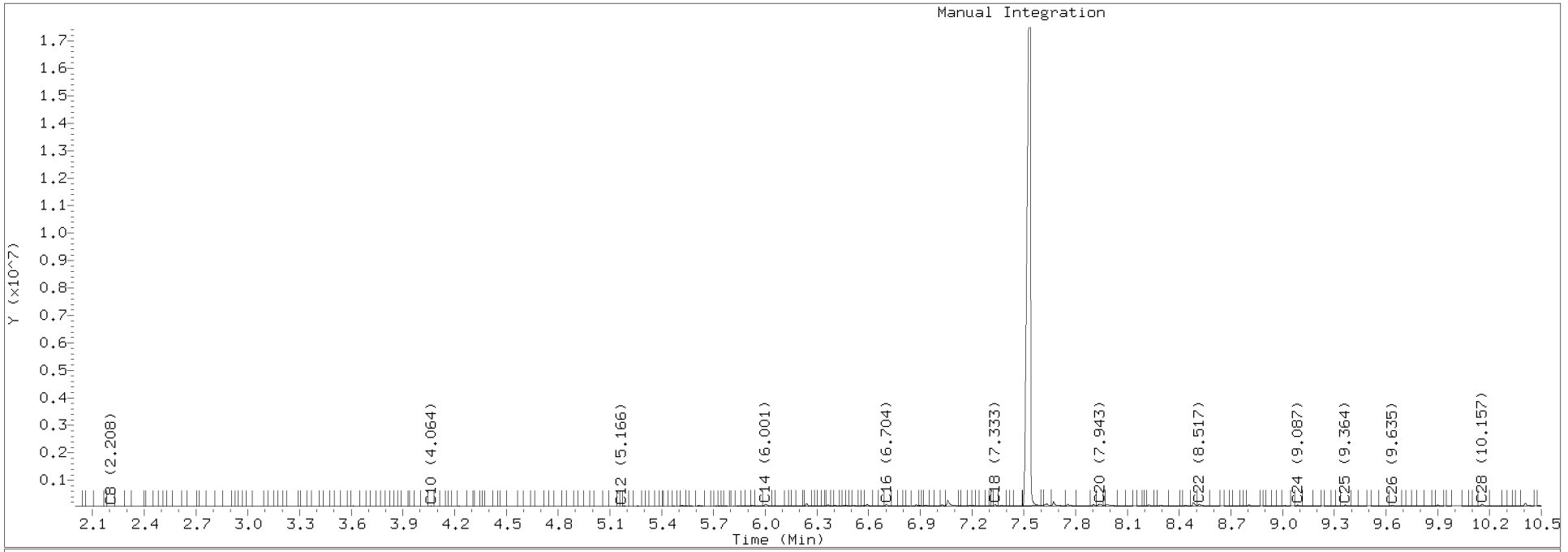
Surrogate	Area	Amount
o-Terphenyl	28127904	126.4
Triacontane	17273861	101.6

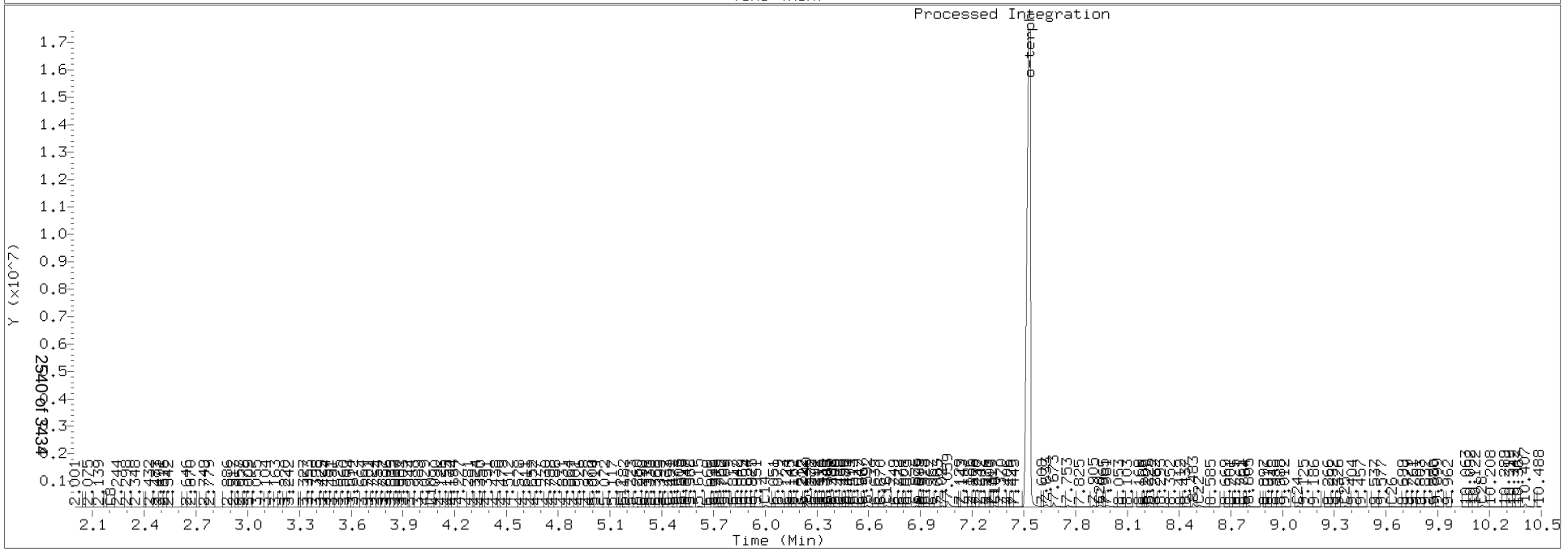
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1062.D Injection: 11-SEP-2019 07:50

Lab ID:19H0481-30





P40-UST-05-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-31 A	SDG:	19H0481
Sampled:	08/30/19 13:00	Prepared:	09/03/19 15:50	File ID:	419I0730.D
% Solids:	94.96	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/07/19 18:58
Batch:	BHI0051	Sequence:	SHI0185	Initial/Final:	10.02 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00039

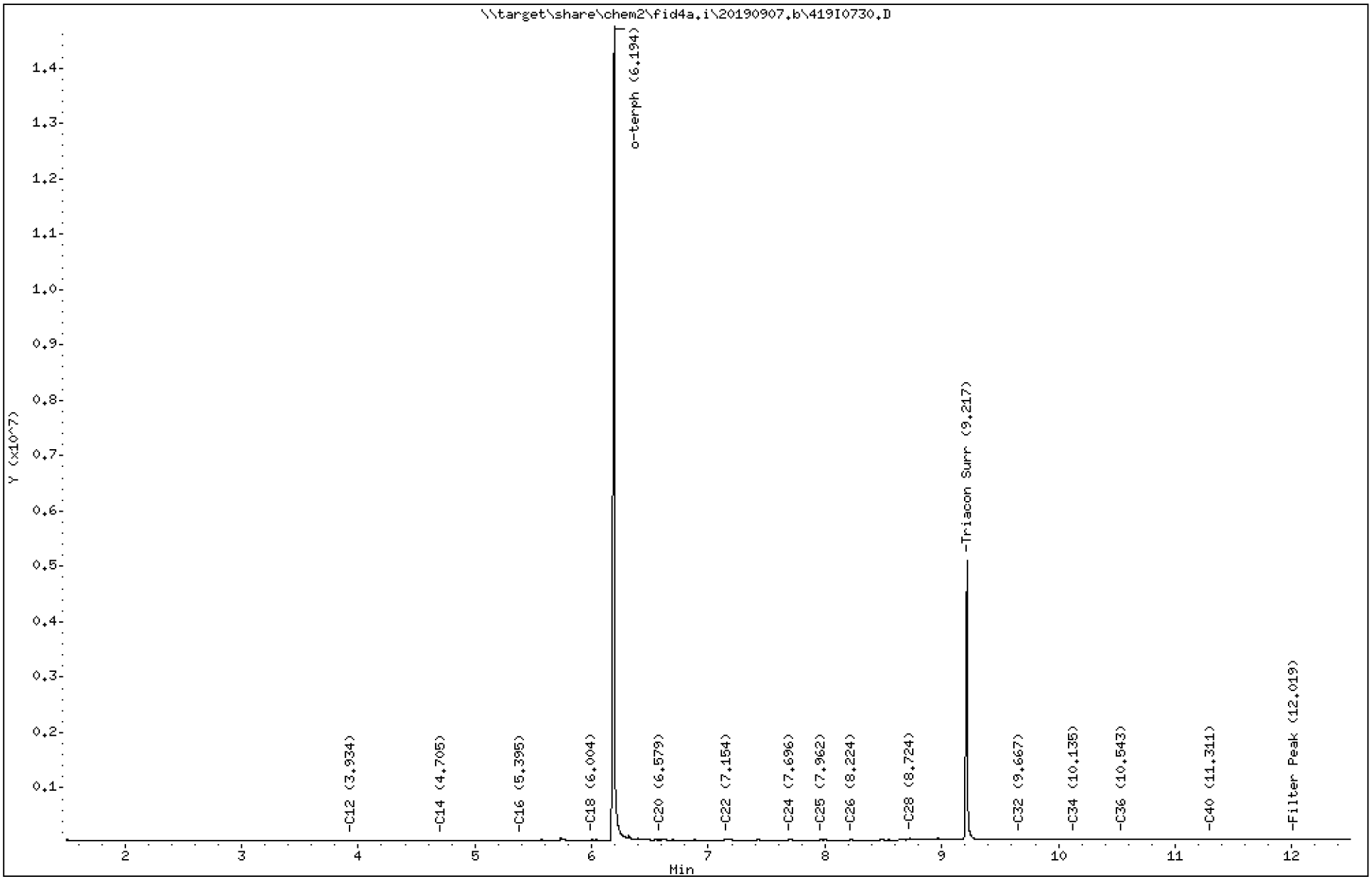
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.25	U	2.46	5.25
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.14	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.823	10.6	89.4	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0730.D
Date : 07-SEP-2019 18:58
Client ID:
Sample Info: 19H0481-31

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0730.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: 19H0481-31
Client ID:
Injection: 07-SEP-2019 18:58
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	871066	7.3
C10	----				WATPHM	(C24-C38)	497576	13.3
C12	3.934	-0.042	4758	4290	AK102	(C10-C25)	875356	6.3
C14	4.705	-0.036	6761	2936	AK103	(C25-C36)	483997	19.9
C16	5.395	-0.009	7884	4234	OR.DIES	(C10-C28)	1077245	7.8
C18	6.004	0.002	15416	23014				
C20	6.579	0.012	12492	13414				
C22	7.154	0.026	27993	102226				
C24	7.696	0.019	14925	36112				
C25	7.962	0.015	15928	32518				
C26	8.224	0.014	15895	32171				
C28	8.724	0.004	39926	57494				
C32	9.667	0.005	16856	8318				
C34	10.135	0.039	19612	16409				
Filter Peak	12.019	-0.017	25933	6456	BUNKERC	(C10-C38)	1372932	20.4
C36	10.543	0.036	22168	13156				
C38	----							
C40	11.311	0.007	29610	33381				
o-terph	6.194	0.003	14705753	15706522				
Triacon Surr	9.217	-0.000	5053778	5250712	NAS DIES	(C10-C24)	875356	6.3

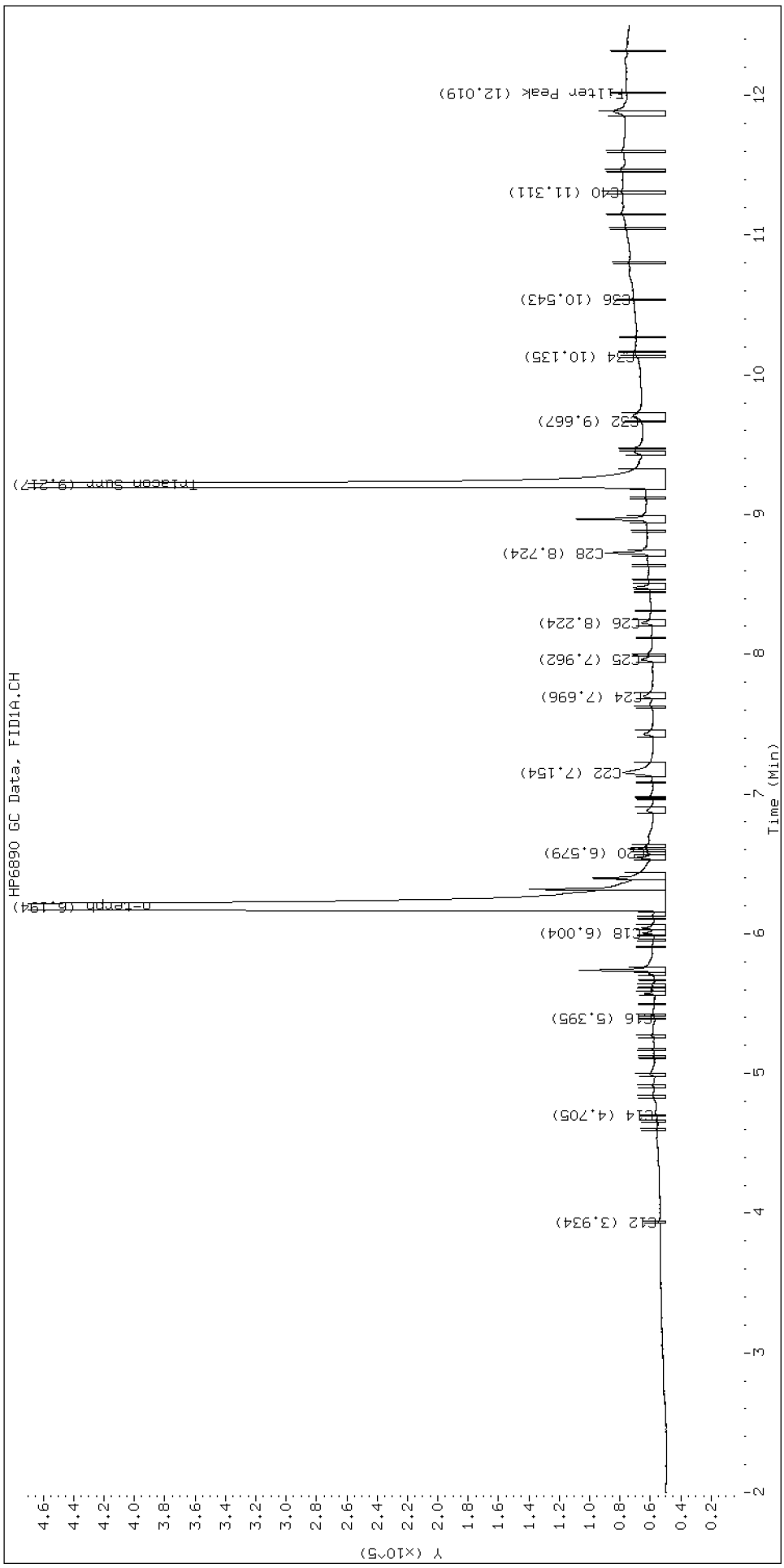
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	15706522	100.6
Triacontane	5250712	127.8

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190907.b/419I0730.D 19H0481-31



P40-UST-505-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-32 A	SDG:	19H0481
Sampled:	08/30/19 13:05	Prepared:	09/04/19 09:25	File ID:	319I1063.D
% Solids:	95.05	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/11/19 08:12
Batch:	BHI0054	Sequence:	SHI0095	Initial/Final:	10.05 g Wet / 1 mL
Instrument:	FID3	Column:	RTX-1	Calibration:	CI00036
Cleanups:	Silica Gel, Sulfuric Acid				

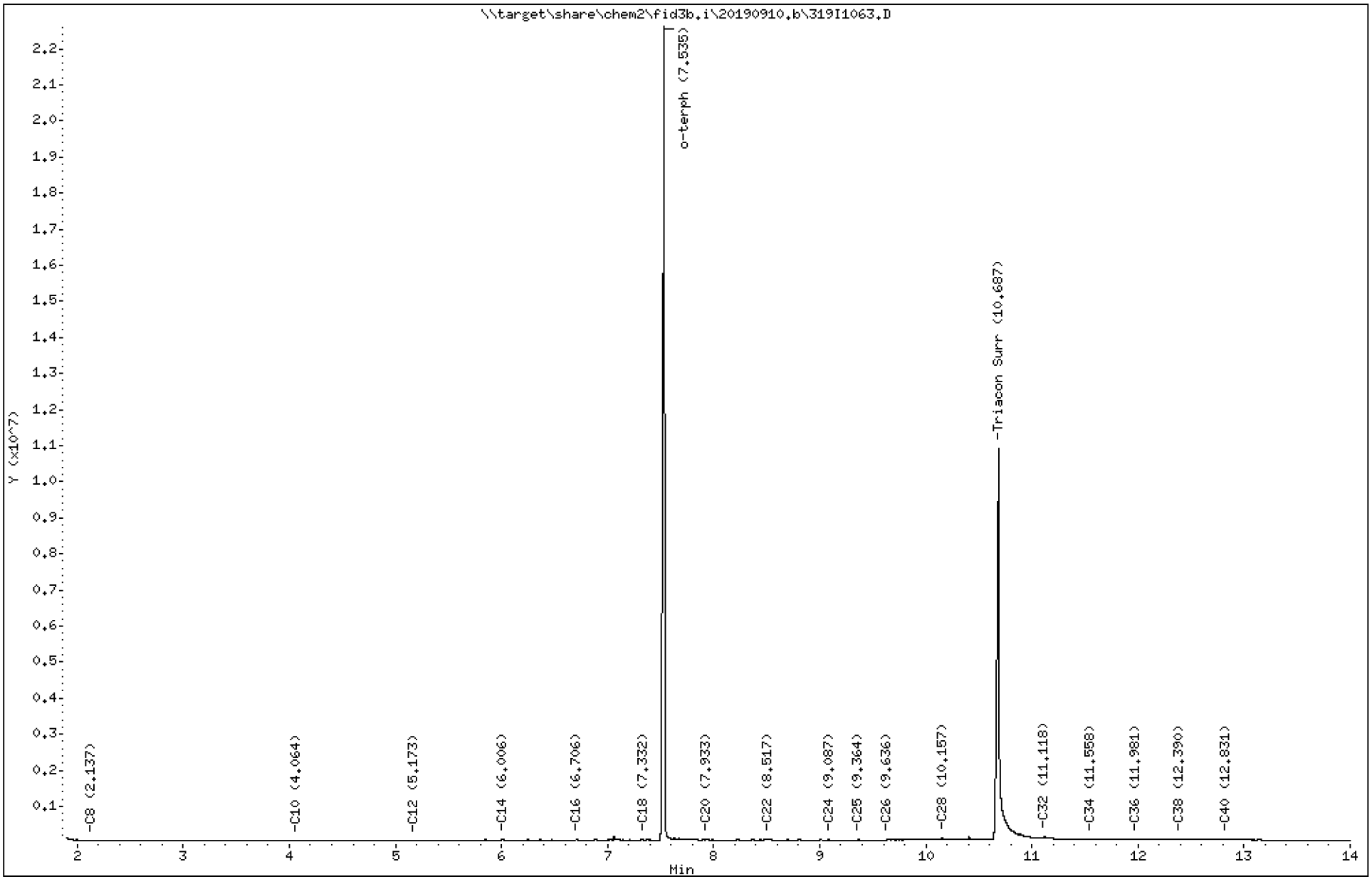
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.23	U	2.45	5.23
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.13	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.777	12.5	106	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1063.D
Date : 11-SEP-2019 08:12
Client ID:
Sample Info: 19H0481-32

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1063.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: 19H0481-32
Client ID:
Injection: 11-SEP-2019 08:12
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	665565	3.7	
C8	2.137	-0.039	9159	19230	WATPHD	(C12-C24)	3737173	21.4	
C10	4.064	-0.005	5693	6082	WATPHM	(C24-C38)	6587602	52.0	
C12	5.173	0.007	7414	17027	AK102	(C10-C25)	3911391	19.2	M
C14	6.006	0.014	25763	52441	AK103	(C25-C36)	6305040	62.0	M
C16	6.706	0.004	28697	47475	OR.DIES	(C10-C28)	4866307	23.6	M
C18	7.332	-0.006	38876	49092					
C20	7.933	-0.004	37708	73519					
C22	8.517	-0.006	46318	103382					
C24	9.087	-0.009	32410	51655					
C25	9.364	-0.010	34281	68079					
C26	9.636	-0.010	32618	69544					
C28	10.157	-0.011	70616	137559	IT.DIES	(C10-C24)	3828968	18.8	
C32	11.118	-0.013	103381	185512					
C34	11.558	-0.015	35997	209766					
Filter Peak	----								
C36	11.981	-0.018	26106	56817					
o-terph	7.535	0.002	22552842	26631253					
Triacon Surr	10.687	-0.003	10827457	18398386					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

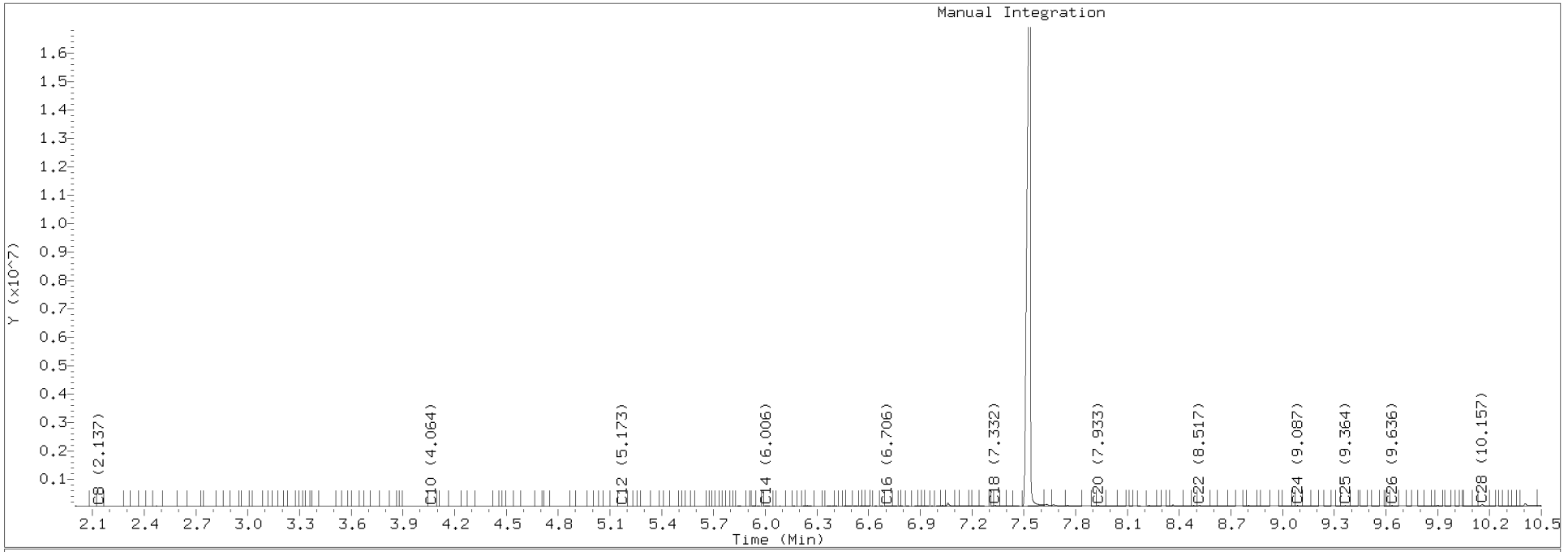
Surrogate	Area	Amount
o-Terphenyl	26631253	119.7
Triacontane	18398386	108.2

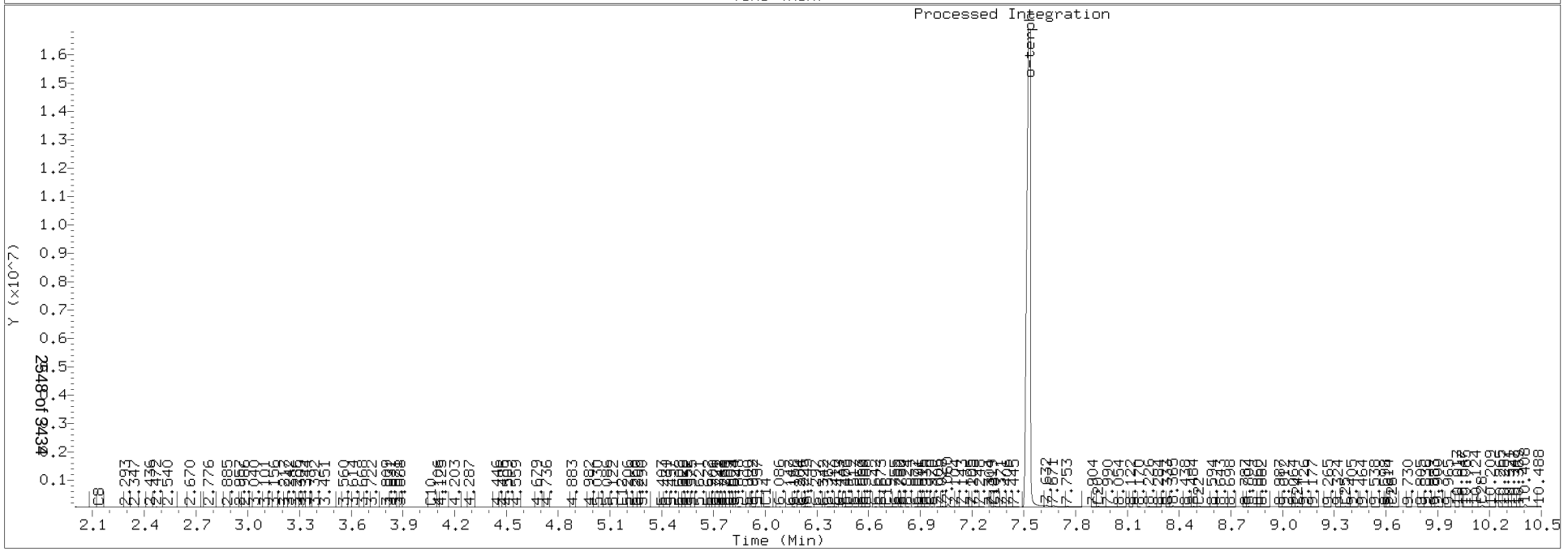
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1063.D Injection: 11-SEP-2019 08:12

Lab ID:19H0481-32





P40-UST-505-4.5'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-33 A	SDG:	19H0481
Sampled:	08/30/19 13:05	Prepared:	09/03/19 15:50	File ID:	419I0731.D
% Solids:	95.05	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/07/19 19:18
Batch:	BHI0051	Sequence:	SHI0185	Initial/Final:	10.04 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00039

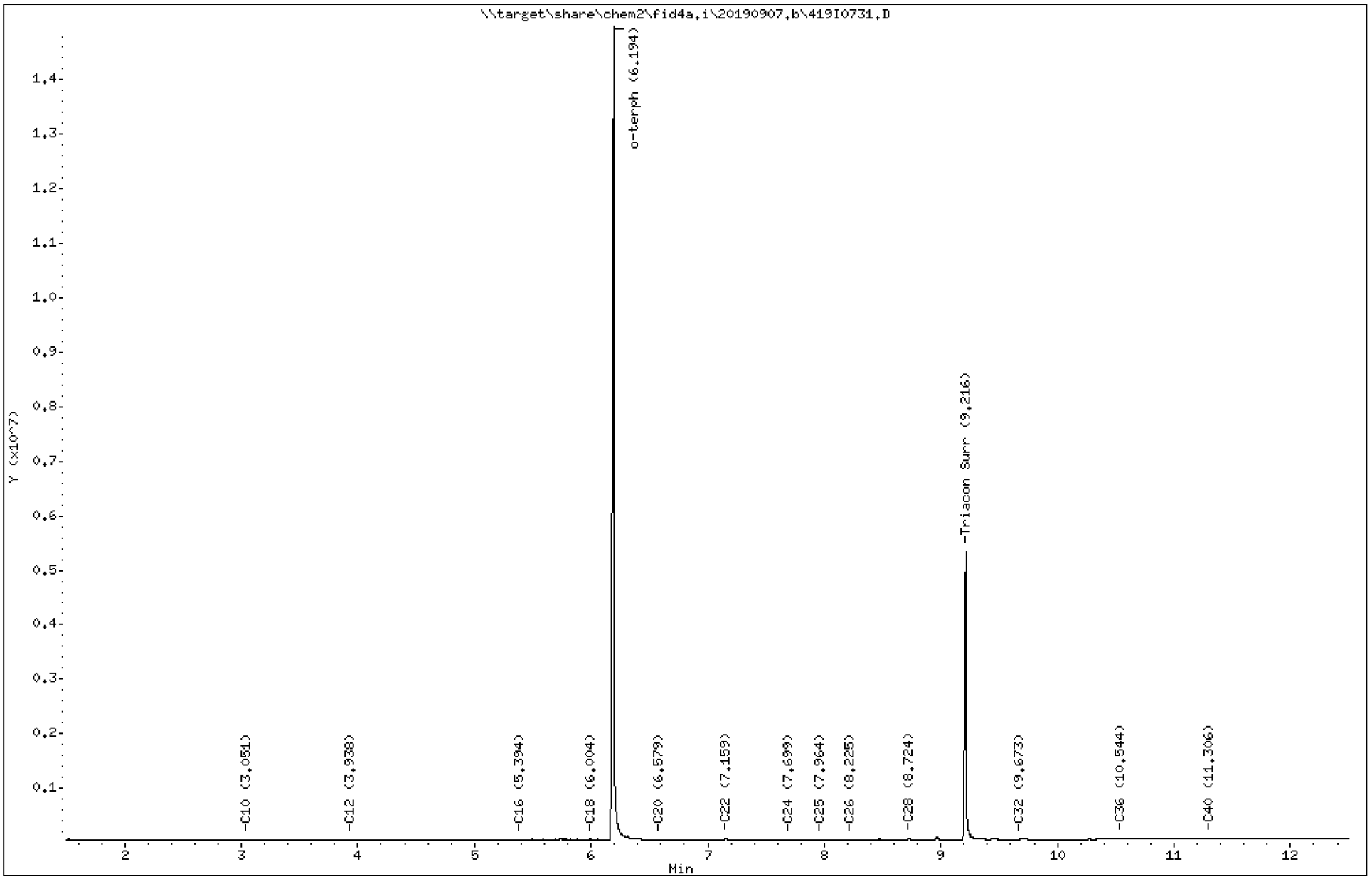
CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.24	U	2.45	5.24
RRO	Motor Oil Range Organics (C24-C38)	1	10.5	U	3.13	10.5

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	11.789	10.5	89.4	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0731.D
Date : 07-SEP-2019 19:18
Client ID:
Sample Info: 19H0481-33

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0731.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: 19H0481-33
Client ID:
Injection: 07-SEP-2019 19:18
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

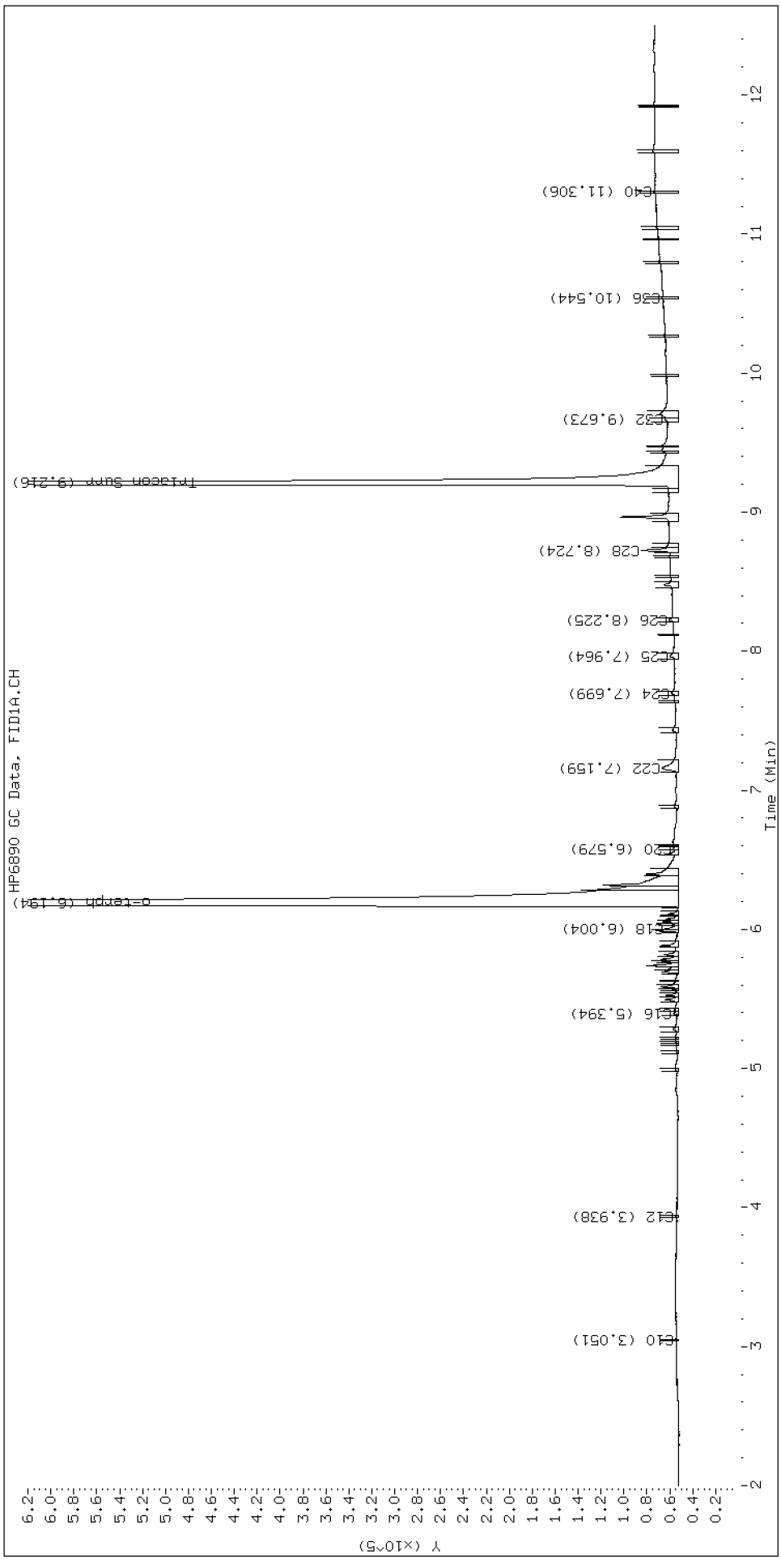
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	610708	5.1
C10	3.051	0.029	2394	1511	WATPHM	(C24-C38)	332537	8.9
C12	3.938	-0.038	2122	1891	AK102	(C10-C25)	614111	4.4
C14	----				AK103	(C25-C36)	321164	13.2
C16	5.394	-0.010	3906	4467	OR.DIES	(C10-C28)	734130	5.3
C18	6.004	0.002	11644	12640				
C20	6.579	0.012	4511	4883				
C22	7.159	0.032	14307	41347				
C24	7.699	0.022	6047	7883				
C25	7.964	0.018	7233	13547				
C26	8.225	0.014	8279	12920				
C28	8.724	0.005	32754	39948				
C32	9.673	0.011	11348	14977				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	946648	14.1
C36	10.544	0.037	14298	12629				
C38	----							
C40	11.306	0.002	21300	17676				
o-terph	6.194	0.004	14935392	15698761				
Triacon Surr	9.216	-0.001	5296427	5205158	NAS DIES	(C10-C24)	614111	4.5

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	15698761	100.6
Triacontane	5205158	126.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190907.b/419I0731.D 19H0481-33
HP6890 GC Data, FID1A.CH
n-Tetradecane (6.194)
C10 (3.051)
C12 (3.938)
C16 (5.394)
C18 (6.004)
C20 (6.579)
C22 (7.159)
C24 (7.699)
C25 (7.964)
C26 (8.225)
C28 (8.724)
Triacon Surr (9.216)
C32 (9.673)
C36 (10.544)
C40 (11.306)
Time (Min)
Y (x10^5)

P40-UST-05-11'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-34 A	SDG:	19H0481
Sampled:	08/30/19 13:10	Prepared:	09/04/19 09:25	File ID:	419I0741.D
% Solids:	72.37	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/07/19 22:46
Batch:	BHI0054	Sequence:	SHI0185	Initial/Final:	10.03 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00039
Cleanups:	Silica Gel, Sulfuric Acid				

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	51.9		3.22	6.89
RRO	Motor Oil Range Organics (C24-C38)	1	40.4		4.12	13.8

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.499	12.9	82.9	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0741.D

Date : 07-SEP-2019 22:46

Client ID:

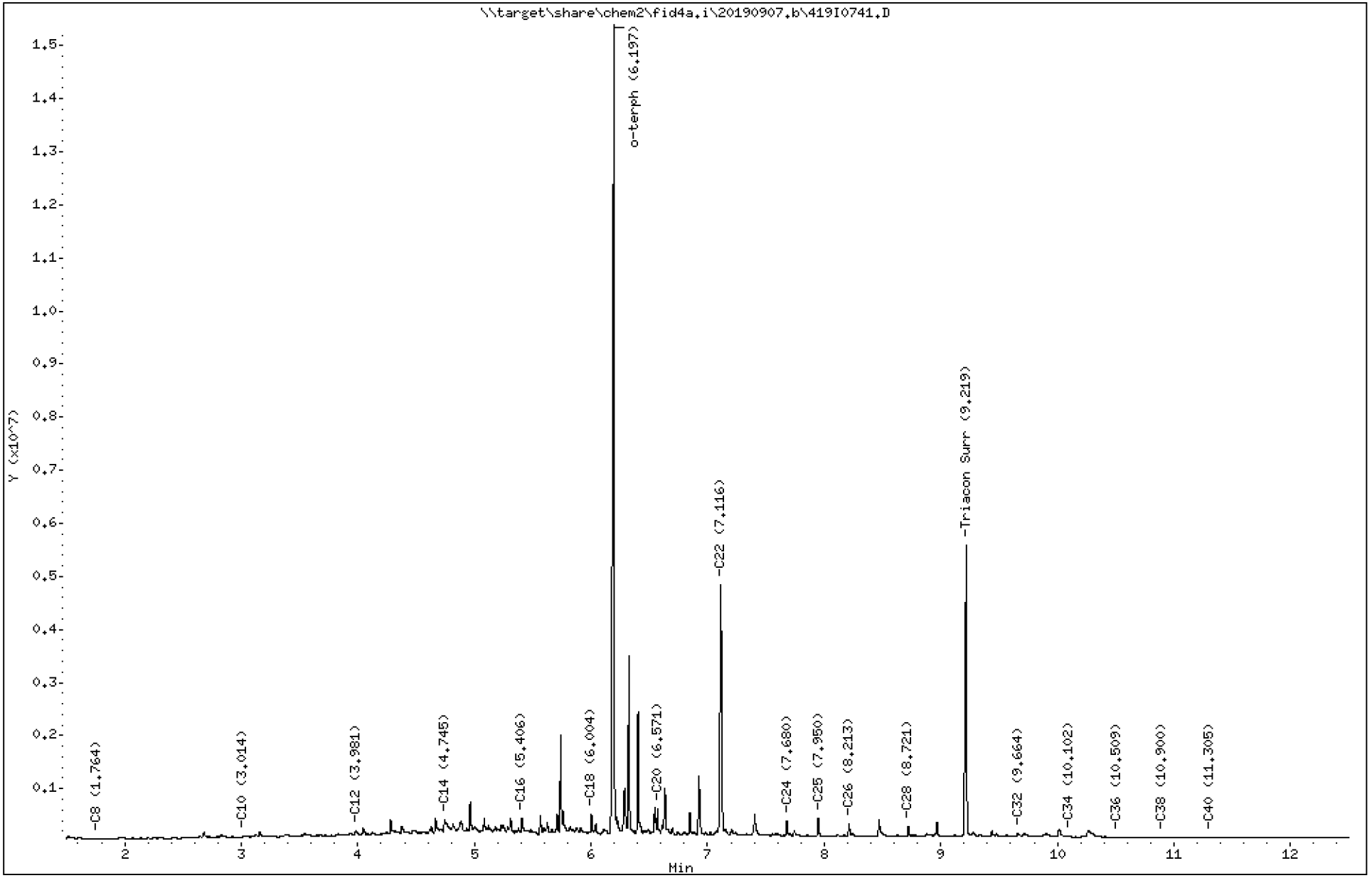
Sample Info: 19H0481-34

Instrument: fid4a.i

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0741.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: 19H0481-34
Client ID:
Injection: 07-SEP-2019 22:46
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

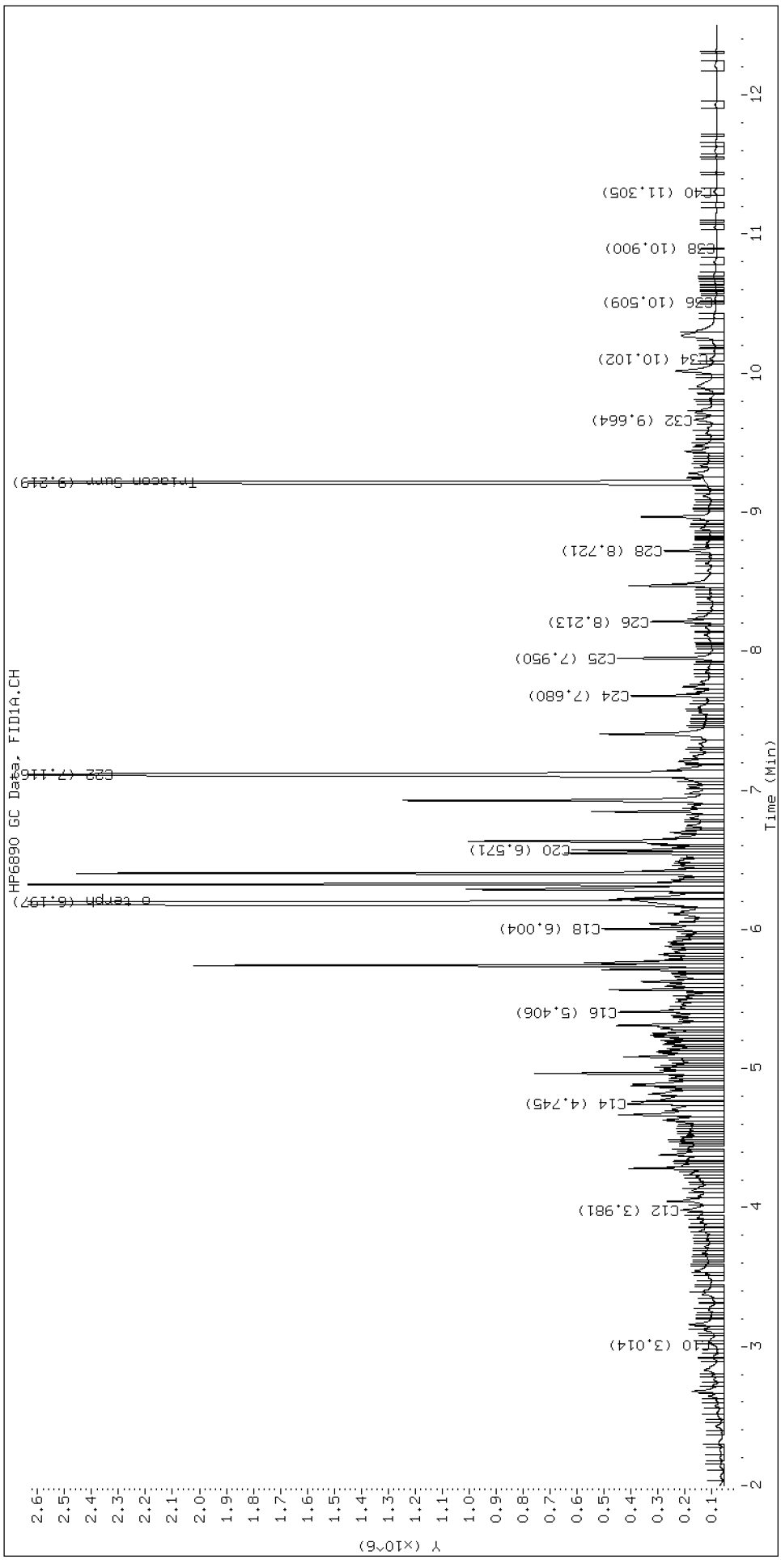
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.764	0.002	12178	20030	WATPHD	(C12-C24)	45047828	376.5
C10	3.014	-0.009	44618	78991	WATPHM	(C24-C38)	11002753	293.3
C12	3.981	0.006	160706	314324	AK102	(C10-C25)	49454707	358.1
C14	4.745	0.004	357533	512810	AK103	(C25-C36)	9866714	406.5
C16	5.406	0.002	390726	473560	OR.DIES	(C10-C28)	53028165	383.4
C18	6.004	0.002	454501	532180				
C20	6.571	0.003	564617	404835				
C22	7.116	-0.012	4795604	4646064				
C24	7.680	0.003	346130	353231				
C25	7.950	0.003	396113	444156				
C26	8.213	0.002	273468	276904				
C28	8.721	0.001	221814	291531				
C32	9.664	0.002	110610	254394				
C34	10.102	0.006	52856	141614				
Filter Peak	----				BUNKERC	(C10-C38)	59710182	887.5 M
C36	10.509	0.002	33453	27308				
C38	10.900	-0.005	28725	21089				
C40	11.305	0.001	37944	94572				
o-terph	6.197	0.006	15042237	14556492				
Triacon Surr	9.219	0.002	5466127	5108724	NAS DIES	(C10-C24)	48707430	353.0

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	14556492	93.3	M
Triacontane	5108724	124.3	M

M Indicates the peak was manually integrated

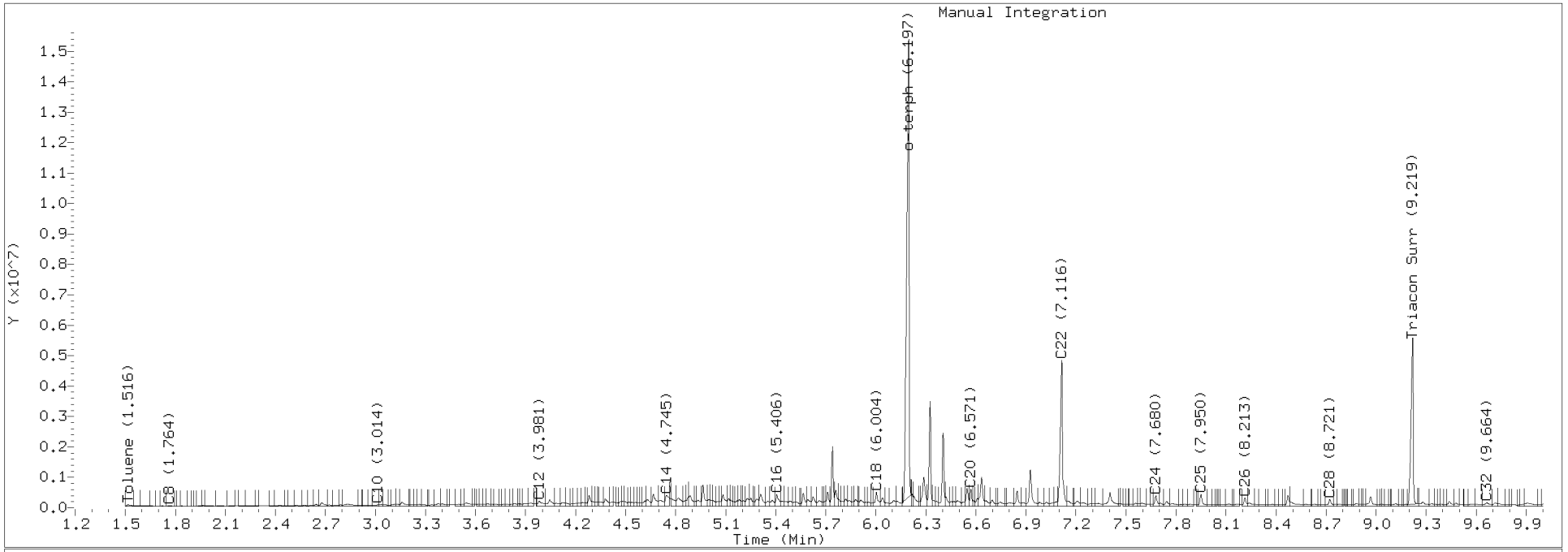
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

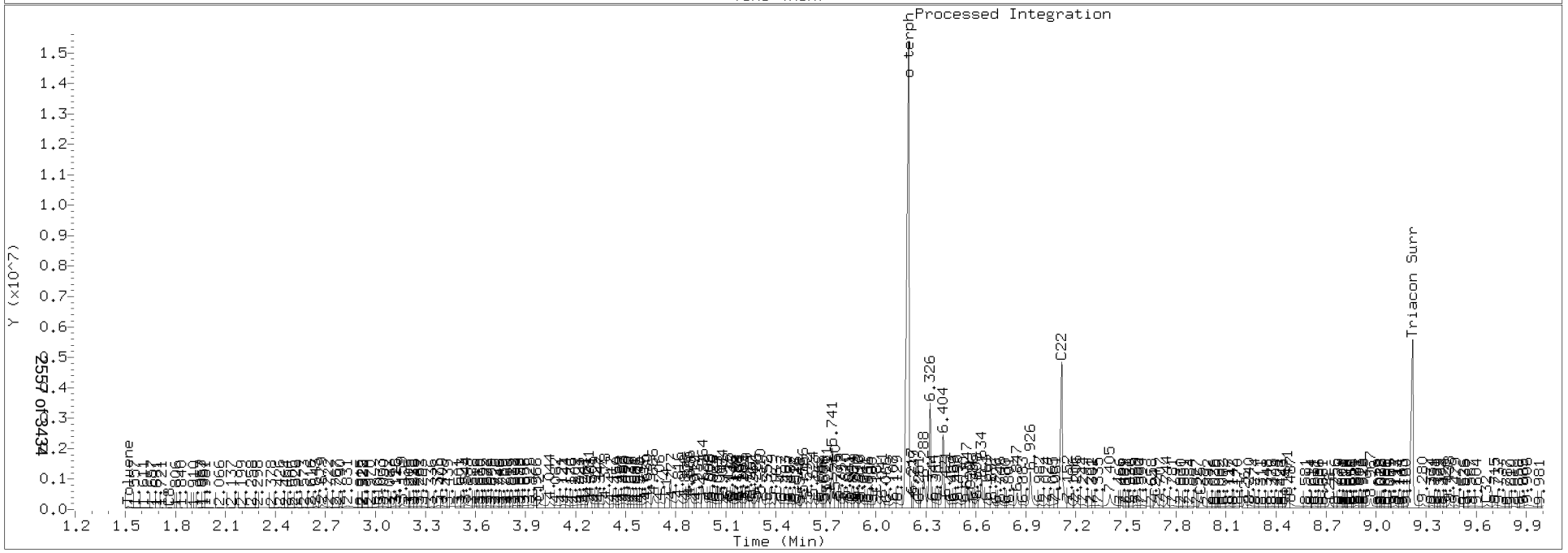

Datafile: FID4A, 20190907.b/419I0741.D 19H0481-34
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.014)
C12 (3.981)
C14 (4.745)
C16 (5.406)
C18 (6.004)
C20 (6.571)
C22 (7.116)
C24 (7.680)
C25 (7.950)
C26 (8.213)
C28 (8.721)
C32 (9.664)
C34 (10.102)
C36 (10.509)
C38 (10.900)
C40 (11.305)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0741.D Injection: 07-SEP-2019 22:46

Lab ID:19H0481-34





P40-UST-05-11'-083019

Form I

ORGANIC ANALYSIS DATA SHEET

NWTPH-Dx

TPH (Extractables) low level

Laboratory:	Analytical Resources, Inc.				
Client:	Anchor QEA, LLC				
Project:	Port of Tacoma - Parcel 40 UST PAD Investigation				
Matrix:	Soil	Laboratory ID:	19H0481-35 A	SDG:	19H0481
Sampled:	08/30/19 13:10	Prepared:	09/03/19 15:50	File ID:	419I0732.D
% Solids:	72.37	Preparation:	EPA 3546 (Microwave)	Analyzed:	09/07/19 19:39
Batch:	BHI0051	Sequence:	SHI0185	Initial/Final:	10.06 g Wet / 1 mL
Instrument:	FID4	Column:	RTX-1	Calibration:	CI00039

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg dry)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	51.3		3.21	6.87
RRO	Motor Oil Range Organics (C24-C38)	1	55.9		4.11	13.7

SURROGATES	ADDED (mg/kg dry)	CONC (mg/kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	15.452	11.3	73.2	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0732.D

Date : 07-SEP-2019 19:39

Client ID:

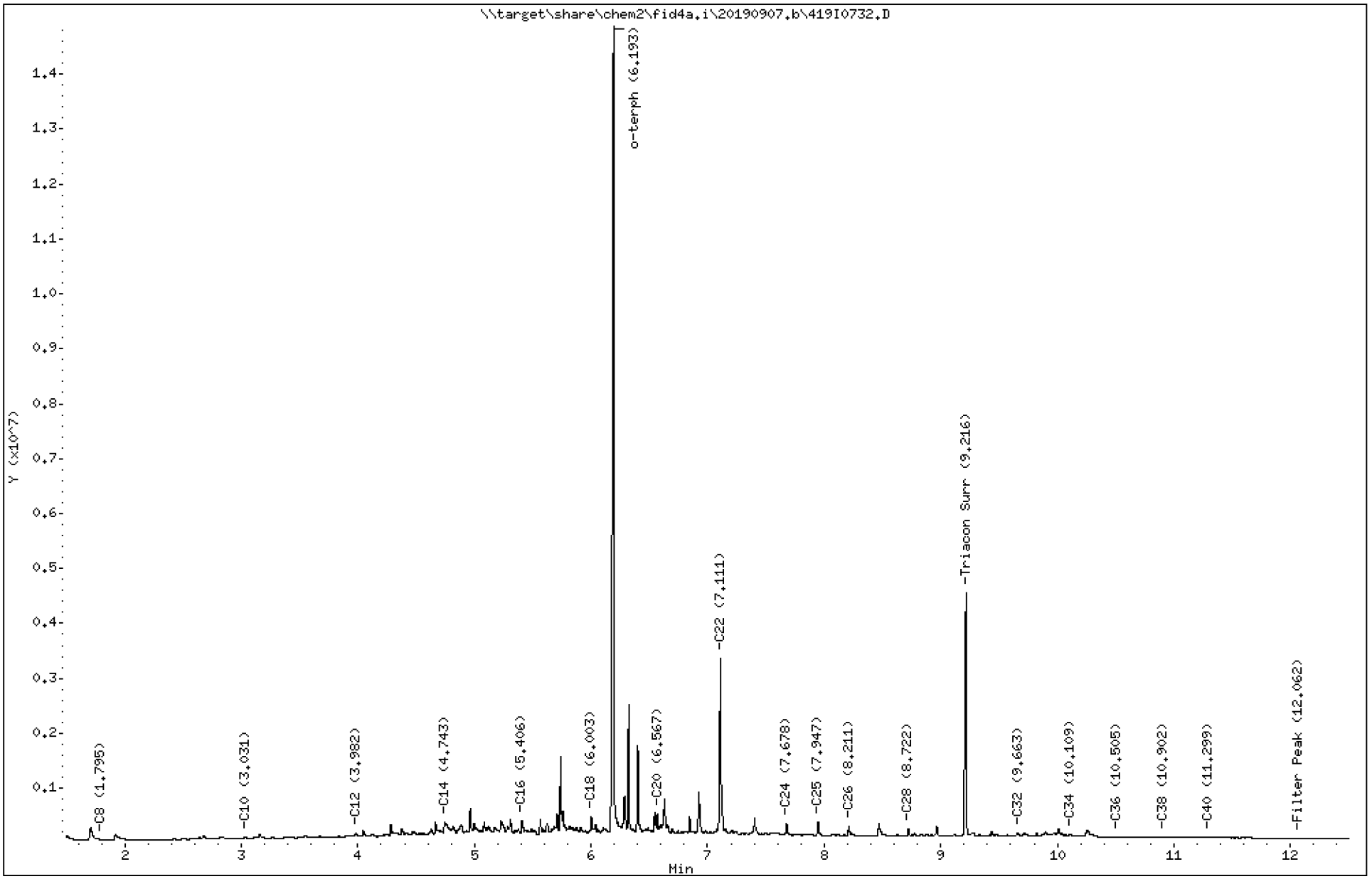
Sample Info: 19H0481-35

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0732.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: 19H0481-35
Client ID:
Injection: 07-SEP-2019 19:39
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

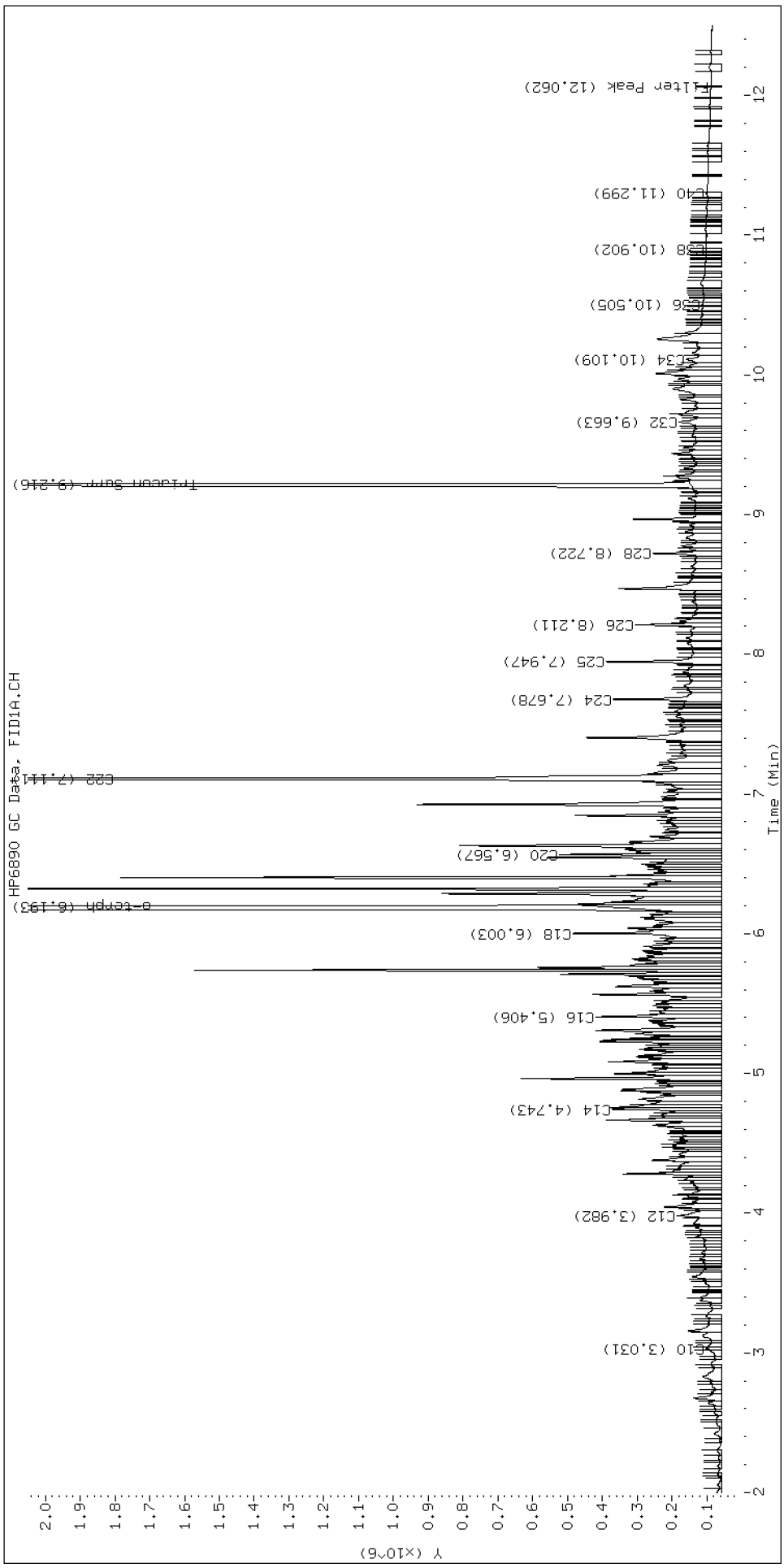
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.795	0.033	9592	15816	WATPHD	(C12-C24)	44656777	373.2
C10	3.031	0.008	44113	54282	WATPHM	(C24-C38)	15270167	407.1
C12	3.982	0.006	128021	265027	AK102	(C10-C25)	48304491	349.8
C14	4.743	0.003	313097	303357	AK103	(C25-C36)	13688517	564.0
C16	5.406	0.002	360389	469742	OR.DIES	(C10-C28)	53056506	383.7
C18	6.003	0.001	425780	726224				
C20	6.567	-0.001	466823	388218				
C22	7.111	-0.017	3305215	3322687				
C24	7.678	0.001	310534	524287				
C25	7.947	0.000	331101	475085				
C26	8.211	0.000	247773	266450				
C28	8.722	0.002	198050	262846				
C32	9.663	0.001	121387	320336				
C34	10.109	0.013	101309	257191				
Filter Peak	12.062	0.025	30698	13765	BUNKERC	(C10-C38)	62763312	932.9
C36	10.505	-0.002	55065	85675				
C38	10.902	-0.003	45445	56059				
C40	11.299	-0.005	43396	97769				
o-terph	6.193	0.003	14485407	12863355				
Triacon Surr	9.216	-0.001	4418111	3860649	NAS DIES	(C10-C24)	47493145	344.2

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	12863355	82.4	M
Triacontane	3860649	94.0	M

M Indicates the peak was manually integrated

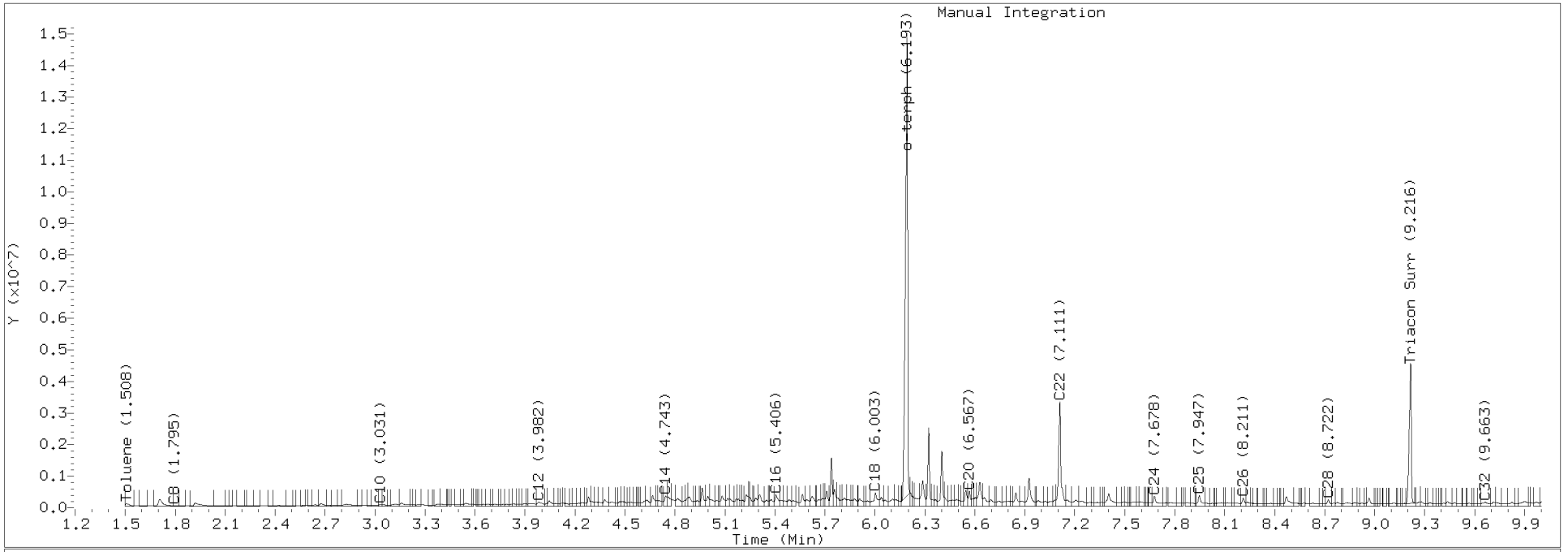
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

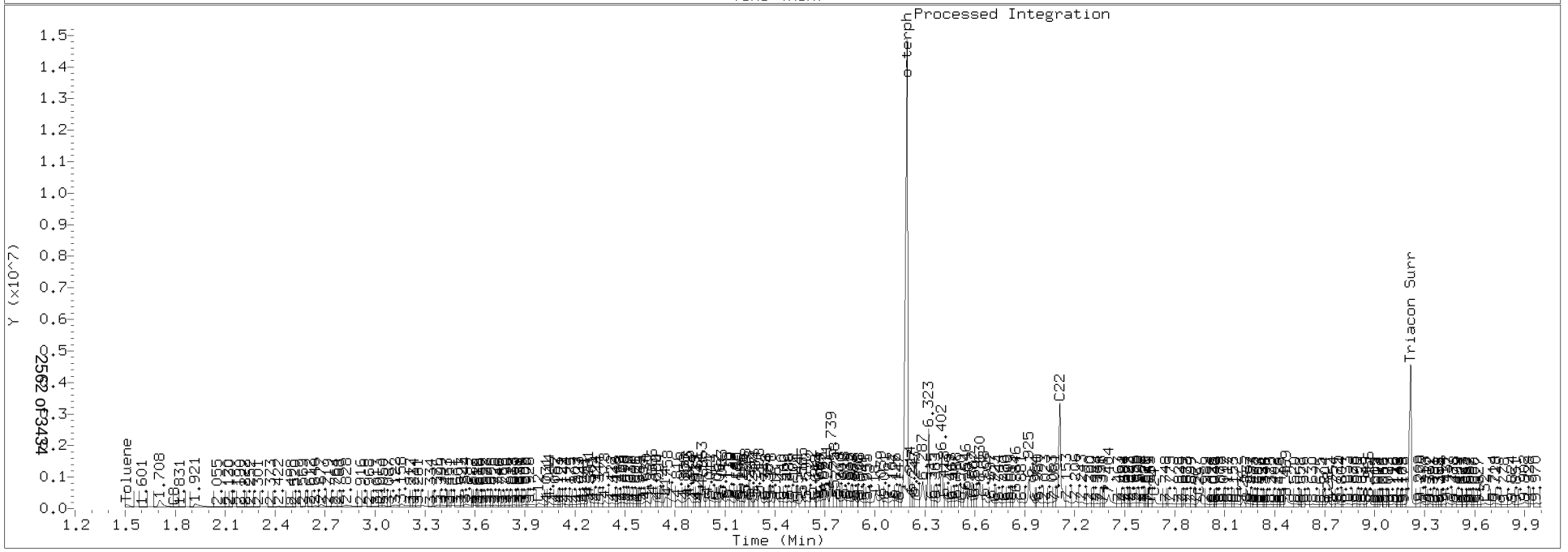

Datafile: FID4A, 20190907.b/419I0732.D 19H0481-35
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.031)
C12 (3.982)
C14 (4.743)
C16 (5.406)
C18 (6.003)
9-terph (6.193)
C20 (6.567)
C22 (7.111)
C24 (7.678)
C25 (7.947)
C26 (8.211)
C28 (8.722)
Triacon Surr (9.216)
C32 (9.663)
C34 (10.109)
C36 (10.505)
C38 (10.902)
C40 (11.299)
Filter Peak (12.062)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0732.D Injection: 07-SEP-2019 19:39

Lab ID:19H0481-35





PREPARATION BATCH SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0019 Batch Matrix: Water Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-083019	19H0481-02	419I0335.D	09/02/19 13:10	
P40-UST-101-083019	19H0481-04	419I0336.D	09/02/19 13:10	
P40-UST-02-083019	19H0481-11	419I0337.D	09/02/19 13:10	
P40-UST-03-083019	19H0481-17	419I0338.D	09/02/19 13:10	
P40-UST-03-083019	19H0481-17RE1	419I0413.D	09/02/19 13:10	Added 9/4/2019 by VTS
P40-UST-04-083019	19H0481-23	419I0339.D	09/02/19 13:10	
P40-UST-05-083019	19H0481-29	419I0340.D	09/02/19 13:10	
Blank	BHI0019-BLK1	419I0333.D	09/02/19 11:33	
LCS	BHI0019-BS1	419I0334.D	09/02/19 11:33	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0019

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:)

Matrix: Water **Date Prepared:** 9/2/19 **Balance ID:** N/A **Set Up By:** RcsM 09/02/19

The following standards may be missing from this batch!

Designator	Description
QLS 18	QLS Spike

Analysis: TPH NW (Extractables) low level

Lab Number & Container	Initial (mL) Actual	Acid/Silica Clean (1:1) (1mL) Y (N)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0481-02 A	(500.00) 500.00	(1:1) Y / N	1	1.0	
19H0481-04 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-11 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-17 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-23 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-29 A	(500.00)	(1:1) Y / N	1	1.0	

Batch QC

Lab Number	Initial (mL) Actual	Acid/Silica Clean (1:1) (1mL) Y (N)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHI0019-BLK1	(500.00) 500.00	(1:1) Y / N	1	1.0	
BHI0019-BS1	(500.00)	(1:1) Y / N	1	1.0	

SH 9/2/19
Client ID verified By Date

RD 9-3-19
Preparation Reviewed By Date

ym 9/2/19 ym 13:10
Extraction Date and Time

Printed: 9/2/2019 11:36:10AM

3014F

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0019

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:)

Prep Steps

KD 80-85°C

1 2 3 4 5 6

ym 9/2/19
Analyst/Date

TurboVap

1 2 3 4 5

RD 9-3-19
Analyst/Date

Vialing

RD 9-3-19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Separatory Funnel Analyst: ym/SH Date: 9/2/19	
1:1 Sulfuric Acid/DI H2O	H005885
Methylene Chloride	H008021
Anhydrous Sodium Sulfate	H007893
KD Analyst: ym Date: 9/2/19	
Methylene Chloride	H008021
Vialing Analyst: RD Date: 9-3-19	
Methylene Chloride	H008021
~~Concentrated Sulfuric~~ Acid	
~~0% Silica Gel~~	

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 1125µg/mL	P H006852 Exp: 07/16/2020	100µL	SH	ym
Spike 15000µg/mL	11 H005882 Exp: 03/28/2020	100µL	SH	ym

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: TPHD Extraction Batch BH100919

Total Solids Batch: _____ Work Order(s): 19H0481

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☒ Turbid/Color= 481 -02,04 481 -11 orange / light yellow 481 -17,23 / 481 -29 light orange	SH 9/2/19
☒ Particulates(%)=(Note: >5%=Notify Supervisor/Lead) 481 -11 dark particulate ~3-5ml settled at the bottom	SH 9/2/19
☒ Emulsions (%)= 481 -11,17 15,10% passed through + sulfate	SH 9/2/19
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0019

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Add Surr/Spk. 2. Acidify with 1 pipet of 1:1 Sulfuric Acid. 3. Check pH. 4. Extract 2X with 30mL DCM. 5. KD at 80°. 6. TurboVap. 7. Acid/Silica Clean-ups? Y / N 8. Vial in DCM. Archive: Y / N	

PREPARATION BATCH SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Batch: BHI0023 Batch Matrix: Water
Preparation: EPA 3510C SepF

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-083019	19H0481-01	419I0322.D	09/03/19 08:43	
P40-UST-101-083019	19H0481-03	419I0323.D	09/03/19 08:43	
P40-UST-02-083019	19H0481-10	419I0324.D	09/03/19 08:43	
P40-UST-03-083019	19H0481-16	419I0411.D	09/03/19 08:43	
P40-UST-04-083019	19H0481-22	419I0412.D	09/03/19 08:43	
P40-UST-05-083019	19H0481-28	419I0330.D	09/03/19 08:43	
Blank	BHI0023-BLK1	419I0320.D	09/03/19 08:43	
LCS	BHI0023-BS1	419I0321.D	09/03/19 08:43	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0023

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:Acid Silica Gel Cleanups)

Matrix: Water **Date Prepared:** 9/3/19 **Balance ID:** N/A **Set Up By:** RcsM 09/02/19

The following standards may be missing from this batch!

Designator	Description
QLS 18	QLS Spike

Analysis: TPH NW (Extractables) low level

Lab Number & Container	Initial (mL) Actual	Acid/Silica Clean (1:1) (1mL) [Y]/N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0481-01 A	(500.00) 500.00	(1:1) Y / N	1	1.0	
19H0481-03 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-10 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-16 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-22 A	(500.00)	(1:1) Y / N	1	1.0	
19H0481-28 A	(500.00)	(1:1) Y / N	1	1.0	

Batch QC

Lab Number	Initial (mL) Actual	Acid/Silica Clean (1:1) (1mL) [Y] N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHI0023-BLK1	(500.00) 500.00	(1:1) Y / N	1	1.0	
BHI0023-BS1	(500.00)	(1:1) Y / N	1	1.0	

CO 9/3/19 BH 9/3/19 9/03/19 8:43

Client ID verified By | Date | Preparation Reviewed By | Date | Extraction Date and Time

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0023

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:Acid Silica Gel Cleanups)

Prep Steps

KD 80-85°C

1 2 3 4 5 6

CO 9/3/19
Analyst/Date

TurboVap

1 2 3 4 5

BH 9/3/19
Analyst/Date

Vialing

BH 9/3/19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Separatory Funnel Analyst: CO Date: 9/3/19	
1:1 Sulfuric Acid/DI H2O	H005885 B.H. ~~H008558~~
Methylene Chloride	H008021
Anhydrous Sodium Sulfate	H007893
KD Analyst: CO Date: 9/3/19	
Methylene Chloride	~~H008021~~
Vialing Analyst: BH Date: 9/3/19	
Methylene Chloride	H008021
Concentrated Sulfuric Acid	H007734
0% Silica Gel	H005527

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 1125µg/mL	P H006852 Exp: 07/16/2020	100µL	CO	
Spike 15000µg/mL	11 H005882 Exp: 03/28/2020	100µL	CO	

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0023

Prepared using: EPA 3510C SepF

TPH NW (Extractables) low level in Water (Version:Acid Silica Gel Cleanups)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Add Surr/Spk. 2. Acidify with 1 pipet of 1:1 Sulfuric Acid. 3. Check pH. 4. Extract 2X with 30mL DCM. 5. KD at 80°. 6. TurboVap. 7. Acid/Silica Clean-ups (Y) N 8. Vial in DCM. Archive (Y) N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: TPHD A/S Extraction Batch BH100223

Total Solids Batch: N/A Work Order(s): 19H0481

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☒ Turbid/Color= 01,03~~01~~ 10: faded brown/orange 16,20: grayish green 28: grayish yellow (CO 9/3/19) (22 CO 9/3/19)	CO 9/03/19
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☐ Share Samples Y / N	
☐ Multiple Jars Y / N	
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

PREPARATION BATCH SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0051 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-4.5'-083019	19H0481-07	419I0446.D	09/03/19 15:50	
P40-UST-01-9'-083019	19H0481-09	419I0447.D	09/03/19 15:50	
P40-UST-02-4.5'-083019	19H0481-13	419I0448.D	09/03/19 15:50	
P40-UST-02-9'-083019	19H0481-15	419I0449.D	09/03/19 15:50	
P40-UST-03-4.5'-083019	19H0481-19	419I0450.D	09/03/19 15:50	
P40-UST-03-4.5'-083019	19H0481-19RE1	419I0558.D	09/03/19 15:50	Added 9/5/2019 by VTS
P40-UST-03-8'-083019	19H0481-21	419I0451.D	09/03/19 15:50	
P40-UST-03-8'-083019	19H0481-21RE1	419I0559.D	09/03/19 15:50	Added 9/5/2019 by VTS
P40-UST-04-4.5'-083019	19H0481-25	419I0452.D	09/03/19 15:50	
P40-UST-04-14.5'-083019	19H0481-27	419I0729.D	09/03/19 15:50	
P40-UST-04-14.5'-083019	19H0481-27RE1	319I1066.D	09/03/19 15:50	Added 9/10/2019 by JGR
P40-UST-05-4.5'-083019	19H0481-31	419I0730.D	09/03/19 15:50	
P40-UST-505-4.5'-083019	19H0481-33	419I0731.D	09/03/19 15:50	
P40-UST-05-11'-083019	19H0481-35	419I0732.D	09/03/19 15:50	
Blank	BHI0051-BLK1	419I0444.D	09/03/19 15:50	
LCS	BHI0051-BS1	419I0445.D	09/03/19 15:50	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0051

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:)

Matrix: Solid **Date Prepared:** 09/03/19 **Balance ID:** B14646261 4 **Set Up By:** RcsM 09/03/19

The following standards may be missing from this batch!

Designator	Description
QLS 18	QLS Spike

Analysis: TPH NW (Extractables) low level

Lab Number & Container	Initial (g) Target Wet: 10 (Wet) Actual	Acid/Silica Gel C/U (1:1) Y [N]	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0481-07 A	(10.00) 10.03	(1:1) Y / N	1	1.0	
19H0481-09 A	(10.00) 10.03	(1:1) Y / N	1	1.0	
19H0481-13 A	(10.00) 10.01	(1:1) Y / N	1	1.0	
19H0481-15 A	(10.00) 10.00	(1:1) Y / N	1	1.0	
19H0481-19 A	(10.00) 10.00	(1:1) Y / N	1	1.0	
19H0481-21 A	(10.00) 10.01	(1:1) Y / N	1	1.0	
19H0481-25 A	(10.00) 10.00	(1:1) Y / N	1	1.0	
19H0481-27 A	(10.00) 10.01	(1:1) Y / N	1	1.0	
19H0481-31 A	(10.00) 10.02	(1:1) Y / N	1	1.0	
19H0481-33 A	(10.00) 10.04	(1:1) Y / N	1	1.0	
19H0481-35 A	(10.00) 10.06	(1:1) Y / N	1	1.0	

Batch QC

Lab Number	Initial (g) Target Wet: 10 (Wet) Actual	Acid/Silica Gel C/U (1:1) Y [N]	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHI0051-BLK1	(10.00) 10.00	(1:1) Y / N	1	1.0	
BHI0051-BS1	(10.00) 10.00	(1:1) Y / N	1	1.0	

09/03/19 — Client ID verified By — Date

BH — Preparation Reviewed By

9/4/19 — Date

09/03/19 15:50 — Extraction Date and Time

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0051

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:)

Prep Steps

Microwave
CG
(1) 2 3
CG 09/03/19
Analyst/Date

TurboVap
~~Pre Acid/Silica Clean~~
1 2 (3) (4) 5
BH 9/4/19
Analyst/Date

Vialing
BH 9/4/19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: ME/CG Date: 09/03/19	
Methylene Chloride	H006021
Anhydrous Sodium Sulfate	H007893
Neutral Glass Wool	H006180
Vialing Analyst: BH Date: 9/4/19	
Methylene Chloride	H008021
~~Concentrated Sulfuric Acid~~	
~~[redacted]~~	

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 1125µg/mL	P H006852 Exp: 07/16/2020 H006852	100µL	CG	
Spike 15000µg/mL	11 H005882 Exp: 03/28/2020 H005882	100µL	CG	

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0051

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add DCM to the vessel until the solvent is 1 inch above soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then let cool 15 min. in Refridgerator 05. Re-homogenize while cool. 7. Collect into turbo tube with sm. funnel containing glasswool and 1 Inch sodium sulfate. 8. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 9. TurboVap. 10. Acid/Silica Clean-up?= Y (N) 11. Vial in DCM. A. Need Total Solids? (Y) N B. Archive/Freeze Y / N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: TPHD Extraction Batch BHI0451

Total Solids Batch: BHI0422 Work Order(s): 190481

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 06,07,12,13,24,25,30,31,32,33	DM 9-3-19
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)= 8,09,14,15,20,21	DM 9-3-19
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 18,19,20,21,26,27,	DM 9-3-19
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Double labeled Jars	DM 9-3-19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y (N)	DM 9-3-19
☒ Multiple Jars Y (N)	DM 9-3-19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

PREPARATION BATCH SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Batch: BHI0054 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-4.5'-083019	19H0481-06	319I1054.D	09/04/19 09:25	
P40-UST-01-9'-083019	19H0481-08	319I1055.D	09/04/19 09:25	
P40-UST-02-4.5'-083019	19H0481-12	319I1056.D	09/04/19 09:25	
P40-UST-02-9'-083019	19H0481-14	319I1057.D	09/04/19 09:25	
P40-UST-03-4.5'-083019	19H0481-18	319I1058.D	09/04/19 09:25	
P40-UST-03-4.5'-083019	19H0481-18RE1	319I1067.D	09/04/19 09:25	Added 9/10/2019 by JGR
P40-UST-03-8'-083019	19H0481-20	319I1059.D	09/04/19 09:25	
P40-UST-03-8'-083019	19H0481-20RE1	319I1068.D	09/04/19 09:25	Added 9/10/2019 by JGR
P40-UST-04-4.5'-083019	19H0481-24	319I1060.D	09/04/19 09:25	
P40-UST-04-14.5'-083019	19H0481-26	319I1061.D	09/04/19 09:25	
P40-UST-04-14.5'-083019	19H0481-26RE1	319I1069.D	09/04/19 09:25	Added 9/10/2019 by JGR
P40-UST-05-4.5'-083019	19H0481-30	319I1062.D	09/04/19 09:25	
P40-UST-505-4.5'-083019	19H0481-32	319I1063.D	09/04/19 09:25	
P40-UST-05-11'-083019	19H0481-34	419I0741.D	09/04/19 09:25	
Blank	BHI0054-BLK1	319I1052.D	09/04/19 09:25	
LCS	BHI0054-BS1	319I1053.D	09/04/19 09:25	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0054

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:Acid Silica Gel Cleanups)

Matrix: Solid **Date Prepared:** 09/04/19 **Balance ID:** B146462614 **Set Up By:** RcsM 09/03/19

The following standards may be missing from this batch!

Designator	Description
QLS 18	QLS Spike

Analysis: TPH NW (Extractables) low level

Lab Number & Container	Initial (g) Target Wet: 10 (Wet) Actual	Acid/Silica Gel C/U (1:1) (Y) N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
19H0481-06 A	(10.00) 10.01	(1:1) Y / N	1 ____	1.0 ____	
19H0481-08 A	(10.00) 10.03	(1:1) Y / N	1 ____	1.0 ____	
19H0481-12 A	(10.00) 10.02	(1:1) Y / N	1 ____	1.0 ____	
19H0481-14 A	(10.00) 10.01	(1:1) Y / N	1 ____	1.0 ____	
19H0481-18 A	(10.00) 10.01	(1:1) Y / N	1 ____	1.0 ____	
19H0481-20 A	(10.00) 10.02	(1:1) Y / N	1 ____	1.0 ____	
19H0481-24 A	(10.00) 10.02	(1:1) Y / N	1 ____	1.0 ____	
19H0481-26 A	(10.00) 10.01	(1:1) Y / N	1 ____	1.0 ____	
19H0481-30 A	(10.00) 10.04	(1:1) Y / N	1 ____	1.0 ____	
19H0481-32 A	(10.00) 10.05	(1:1) Y / N	1 ____	1.0 ____	
19H0481-34 A	(10.00) 10.03	(1:1) Y / N	1 ____	1.0 ____	

Batch QC

Lab Number	Initial (g) Target Wet: 10 (Wet) Actual	Acid/Silica Gel C/U (1:1) (Y) N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BHI0054-BLK1	(10.00) 10.00	(1:1) Y / N	1 ____	1.0 ____	
BHI0054-BS1	(10.00) 10.00	(1:1) Y / N	1 ____	1.0 ____	

09/04/19
Client ID verified By Date

RD 9-5-19
Preparation Reviewed By Date

09/04/19 09:25
Extraction Date and Time

Printed: 9/3/2019 3:21:18PM

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0054

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:Acid Silica Gel Cleanups)

Prep Steps

Microwave
1 2 3
09/04/19
Analyst/Date

TurboVap
Pre Acid/Silica Clean
1 2 3 4 5
RD 9-5-19
Analyst/Date

Vialing
RD 9-5-19
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: KG Date: ~~09~~ 09/04/19	
Methylene Chloride	H006021
Anhydrous Sodium Sulfate	H007893
Neutral Glass Wool	H006184
Vialing Analyst: RD Date: 9-5-19	
Methylene Chloride	H008021
Concentrated Sulfuric Acid	H007734
0% Silica Gel	H000527

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 1125µg/mL	P H006852 Exp: 07/16/2020 H006852	100µL	CT	
Spike 15000µg/mL	11 H005882 Exp: 03/28/2020 H005882	100µL	CT	

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

ORGANICS PREPARATION BENCH SHEET

Batch: BHI0054

Prepared using: EPA 3546 (Microwave)

TPH NW (Extractables) low level in Solid (Version:Acid Silica Gel Cleanups)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh into 100mL beakers-dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add DCM to the vessel until the solvent is 1 inch above soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then let cool 15 min. in Refridgerator 05. Re-homogenize while cool. 7. Collect into turbo tube with sm. funnel containing glasswool and 1 Inch sodium sulfate. 8. Add (2) 10mL DCM rinses to vessel and transfer to turbo tube. 9. TurboVap. 10. Acid/Silica Clean-up?=[Y] N. 11. Vial in DCM. A. Need Total Solids [Y] N B. Archive/Freeze [Y] N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: TPHD/AS Extraction Batch: BHIØØ54

Total Solids Batch: BHIØØ22 Work Order(s): 19HØ481

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= Ø6,Ø7,12,13,24,25,3Ø,31,32,33	DM 9-3-19
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☒ Clay/Clumps (Difficult to homogenize)= 8,Ø9,14,15,2Ø,21	DM 9-3-19
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 18,19,2Ø,21,26,27,	DM 9-3-19
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Double labeled Jars	DM 9-3-19
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y / (N)	DM 9-3-19
☒ Multiple Jars Y / (N)	DM 9-3-19
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Inv
Cleanup Batch:	CHI0008	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665A Sulfuric Acid Cleanup	Analysis:	NWTPH-Dx

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-01-083019	19H0481-01	419I0322.D	09/03/2019	
P40-UST-101-083019	19H0481-03	419I0323.D	09/03/2019	
P40-UST-05-083019	19H0481-28	419I0330.D	09/03/2019	
Blank	BHI0023-BLK1	419I0320.D	09/03/2019	
LCS	BHI0023-BS1	419I0321.D	09/03/2019	
P40-UST-04-083019	19H0481-22	419I0412.D	09/03/2019	
P40-UST-03-083019	19H0481-16	419I0411.D	09/03/2019	
P40-UST-02-083019	19H0481-10	419I0324.D	09/03/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHI0008

Matrix: Water **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 9/3/2019 12:10:49PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0481-01	A	P40-UST-01-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-03	A	P40-UST-101-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-10	A	P40-UST-02-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-16	A	P40-UST-03-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-22	A	P40-UST-04-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-28	A	P40-UST-05-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
BHI0023-BLK1	-	Blank	-	1	1	-	9/3/2019	BH	
BHI0023-BS1	-	LCS	-	1	1	-	9/3/2019	BH	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Inv
Cleanup Batch:	CHI0009	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	NWTPH-Dx

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-03-083019	19H0481-16	419I0411.D	09/03/2019	
LCS	BHI0023-BS1	419I0321.D	09/03/2019	
Blank	BHI0023-BLK1	419I0320.D	09/03/2019	
P40-UST-02-083019	19H0481-10	419I0324.D	09/03/2019	
P40-UST-04-083019	19H0481-22	419I0412.D	09/03/2019	
P40-UST-05-083019	19H0481-28	419I0330.D	09/03/2019	
P40-UST-101-083019	19H0481-03	419I0323.D	09/03/2019	
P40-UST-01-083019	19H0481-01	419I0322.D	09/03/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHI0009

Matrix: Water **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 9/3/2019 12:11:22PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0481-01	A	P40-UST-01-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-03	A	P40-UST-101-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-10	A	P40-UST-02-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-16	A	P40-UST-03-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-22	A	P40-UST-04-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
19H0481-28	A	P40-UST-05-083019	A 01	1	1	TPH NW (Extractables) low level	9/3/2019	BH	
BHI0023-BLK1	-	Blank	-	1	1	-	9/3/2019	BH	
BHI0023-BS1	-	LCS	-	1	1	-	9/3/2019	BH	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Inv
Cleanup Batch:	CHI0026	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665A Sulfuric Acid Cleanup	Analysis:	NWTPH-Dx

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-04-4.5'-083019	19H0481-24	319I1060.D	09/05/2019	
P40-UST-04-14.5'-083019	19H0481-26	319I1061.D	09/05/2019	
Blank	BHI0054-BLK1	319I1052.D	09/05/2019	
LCS	BHI0054-BS1	319I1053.D	09/05/2019	
P40-UST-505-4.5'-083019	19H0481-32	319I1063.D	09/05/2019	
P40-UST-05-11'-083019	19H0481-34	419I0741.D	09/05/2019	
P40-UST-03-8'-083019	19H0481-20	319I1059.D	09/05/2019	
P40-UST-03-4.5'-083019	19H0481-18	319I1058.D	09/05/2019	
P40-UST-02-9'-083019	19H0481-14	319I1057.D	09/05/2019	
P40-UST-02-4.5'-083019	19H0481-12	319I1056.D	09/05/2019	
P40-UST-01-9'-083019	19H0481-08	319I1055.D	09/05/2019	
P40-UST-01-4.5'-083019	19H0481-06	319I1054.D	09/05/2019	
P40-UST-05-4.5'-083019	19H0481-30	319I1062.D	09/05/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHI0026

Matrix: Solid **Cleanup using: Organics - EPA 3665A Sulfuric Acid Cleanup** **Printed: 9/5/2019 3:06:58PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0481-34	A	P40-UST-05-11'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-32	A	P40-UST-505-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-20	A	P40-UST-03-8'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-24	A	P40-UST-04-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-26	A	P40-UST-04-14.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-30	A	P40-UST-05-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-08	A	P40-UST-01-9'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-06	A	P40-UST-01-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-12	A	P40-UST-02-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-14	A	P40-UST-02-9'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-18	A	P40-UST-03-4.5'-083019	A 01	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
BHI0054-BS1	-	LCS	-	1	1	-	9/5/2019	RD	
BHI0054-BLK1	-	Blank	-	1	1	-	9/5/2019	RD	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Inv
Cleanup Batch:	CHI0027	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup	Analysis:	NWTPH-Dx

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
P40-UST-04-14.5'-083019	19H0481-26	319I1061.D	09/05/2019	
LCS	BHI0054-BS1	319I1053.D	09/05/2019	
P40-UST-01-4.5'-083019	19H0481-06	319I1054.D	09/05/2019	
P40-UST-01-9'-083019	19H0481-08	319I1055.D	09/05/2019	
P40-UST-02-4.5'-083019	19H0481-12	319I1056.D	09/05/2019	
P40-UST-02-9'-083019	19H0481-14	319I1057.D	09/05/2019	
P40-UST-03-8'-083019	19H0481-20	319I1059.D	09/05/2019	
P40-UST-04-4.5'-083019	19H0481-24	319I1060.D	09/05/2019	
P40-UST-05-11'-083019	19H0481-34	419I0741.D	09/05/2019	
P40-UST-05-4.5'-083019	19H0481-30	319I1062.D	09/05/2019	
P40-UST-505-4.5'-083019	19H0481-32	319I1063.D	09/05/2019	
Blank	BHI0054-BLK1	319I1052.D	09/05/2019	
P40-UST-03-4.5'-083019	19H0481-18	319I1058.D	09/05/2019	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CHI0027

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup** **Printed: 9/5/2019 3:07:42PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (mL)	Final (mL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
19H0481-24	A	P40-UST-04-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-20	A	P40-UST-03-8'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-08	A	P40-UST-01-9'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-12	A	P40-UST-02-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-14	A	P40-UST-02-9'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-18	A	P40-UST-03-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-06	A	P40-UST-01-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-26	A	P40-UST-04-14.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-30	A	P40-UST-05-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-32	A	P40-UST-505-4.5'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
19H0481-34	A	P40-UST-05-11'-083019	A	1	1	TPH NW (Extractables) low level	9/5/2019	RD	
BHI0054-BS1	-	LCS	-	1	1	-	9/5/2019	RD	
BHI0054-BLK1	-	Blank	-	1	1	-	9/5/2019	RD	

Form I

METHOD BLANK DATA SHEET

NWTPH-Dx

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Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Water	Laboratory ID:	BHI0019-BLK1	File ID:	419I0333.D
Sampled:	N/A	Prepared:	09/02/19 11:33	Analyzed:	09/03/19 20:50
Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	500 mL / 1 mL
Batch:	BHI0019	Sequence:	SHI0028	Calibration:	CH00097
Instrument:	FID4	Column:	RTX-1		

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

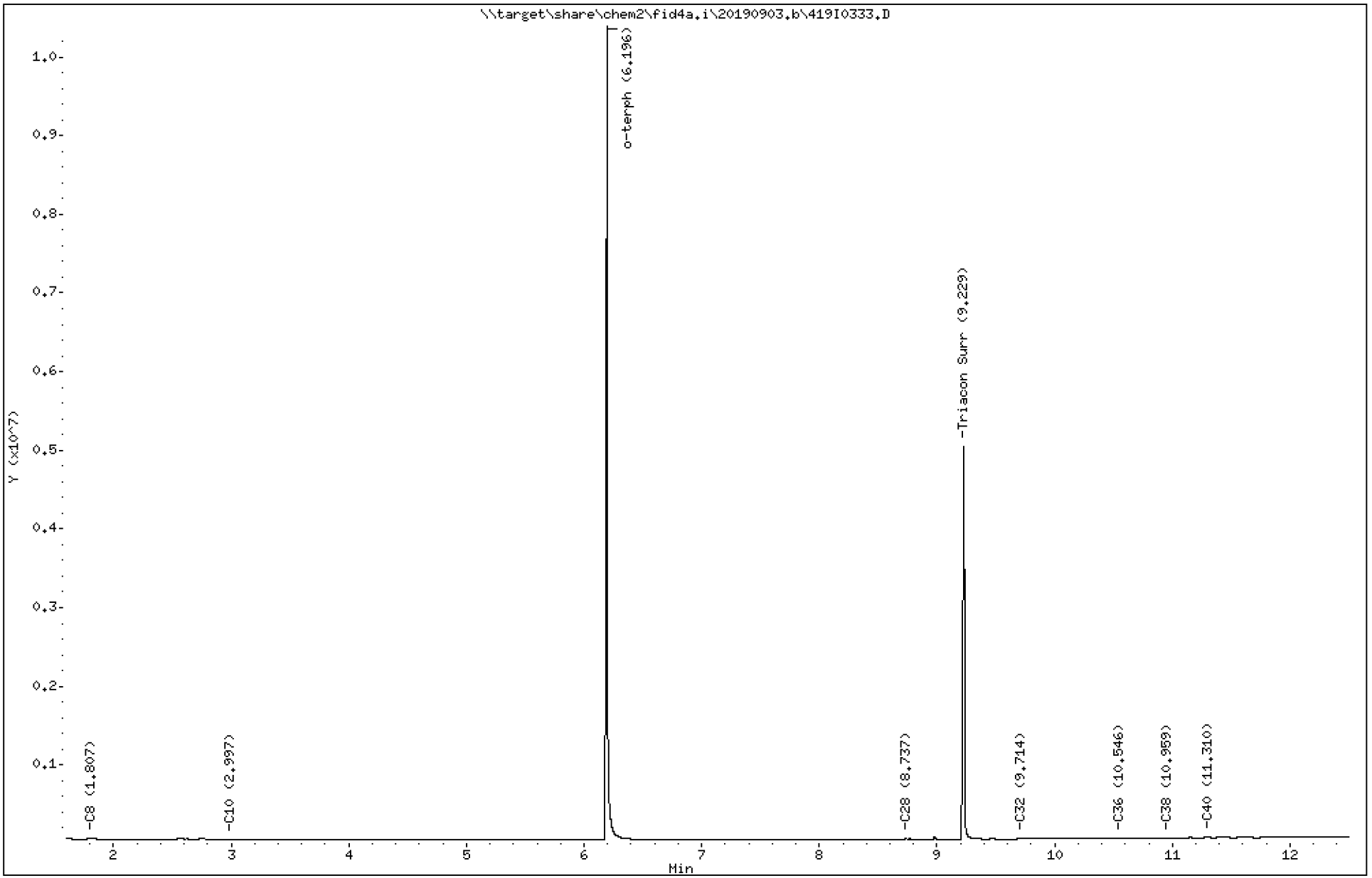
SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.218	96.8	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0333.D
Date : 03-SEP-2019 20:50
Client ID:
Sample Info: BHI0019-BLK1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0333.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0019-BLK1
Client ID:
Injection: 03-SEP-2019 20:50
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.807	-0.038	13324	22337	WATPHD	(C12-C24)	6958	0.1
C10	2.997	-0.050	7076	2801	WATPHM	(C24-C38)	319002	8.8
C12	----				AK102	(C10-C25)	17554	0.2
C14	----				AK103	(C25-C36)	175246	5.0
C16	----				OR.DIES	(C10-C28)	52557	0.6
C18	----							
C20	----							
C22	----							
C24	----							
C25	----							
C26	----							
C28	8.737	0.000	21484	20335				
C32	9.714	0.036	13753	29715				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	336556	5.0
C36	10.546	0.024	16010	12564				
C38	10.959	0.043	22268	16364				
C40	11.310	-0.002	27838	68815				
o-terph	6.196	-0.001	10340527	9344314				
Triacon Surr	9.229	-0.003	4988794	4845600	NAS DIES	(C10-C24)	17554	0.2

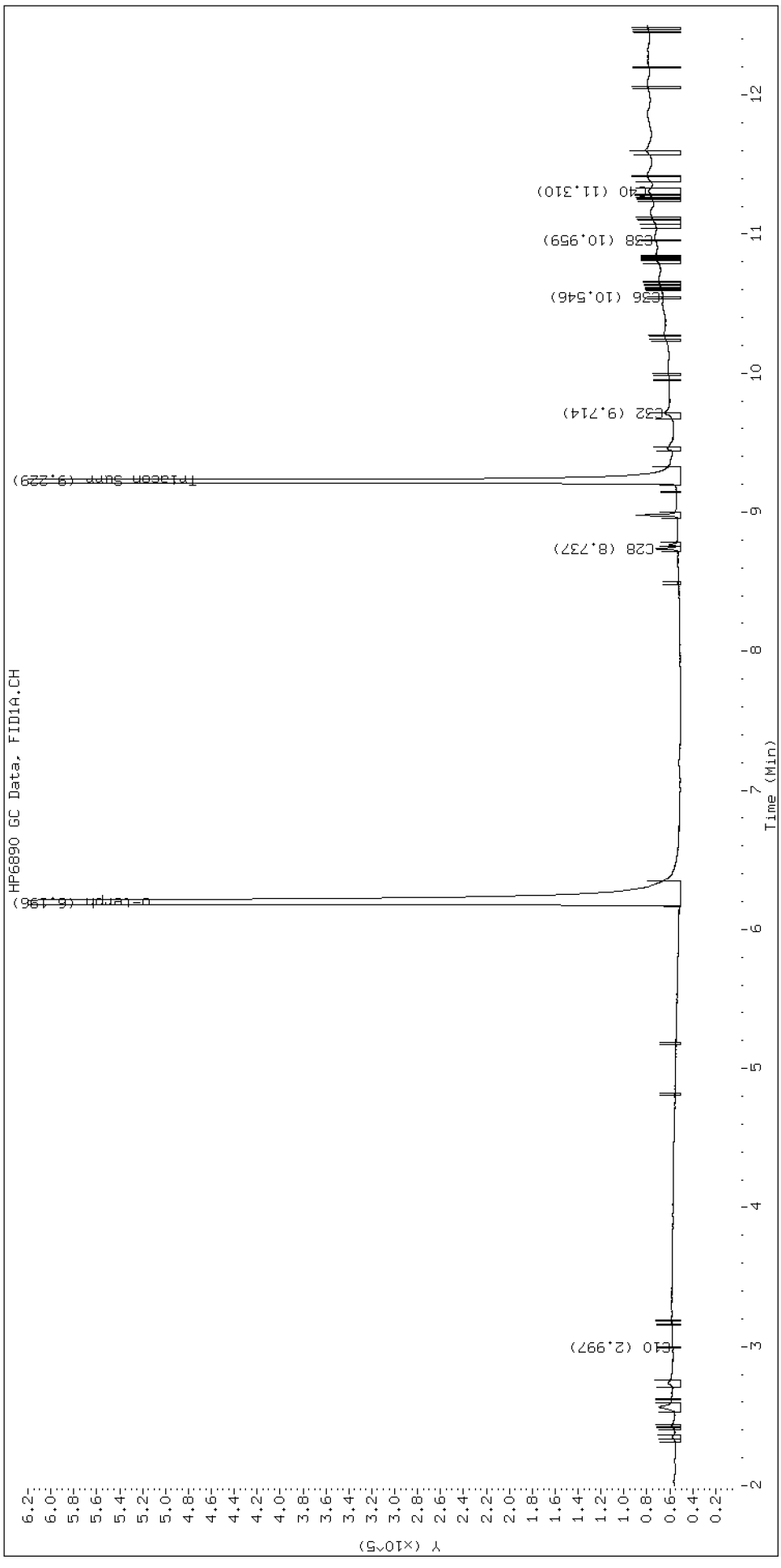
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	9344314	108.9
Triacontane	4845600	92.4

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190903.b/419I0333.D BHI0019-BLK1



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METHOD BLANK DATA SHEET

NWTPH-Dx

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Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Water	Laboratory ID:	BHI0023-BLK1	File ID:	419I0320.D
Sampled:	N/A	Prepared:	09/03/19 08:43	Analyzed:	09/03/19 16:12
Solids:		Preparation:	EPA 3510C SepF	Initial/Final:	500 mL / 1 mL
Batch:	BHI0023	Sequence:	SHI0028	Calibration:	CH00097
Instrument:	FID4	Column:	RTX-1	Cleanups:	Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/L)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	0.100	U	0.033	0.100
RRO	Motor Oil Range Organics (C24-C38)	1	0.200	U	0.056	0.200

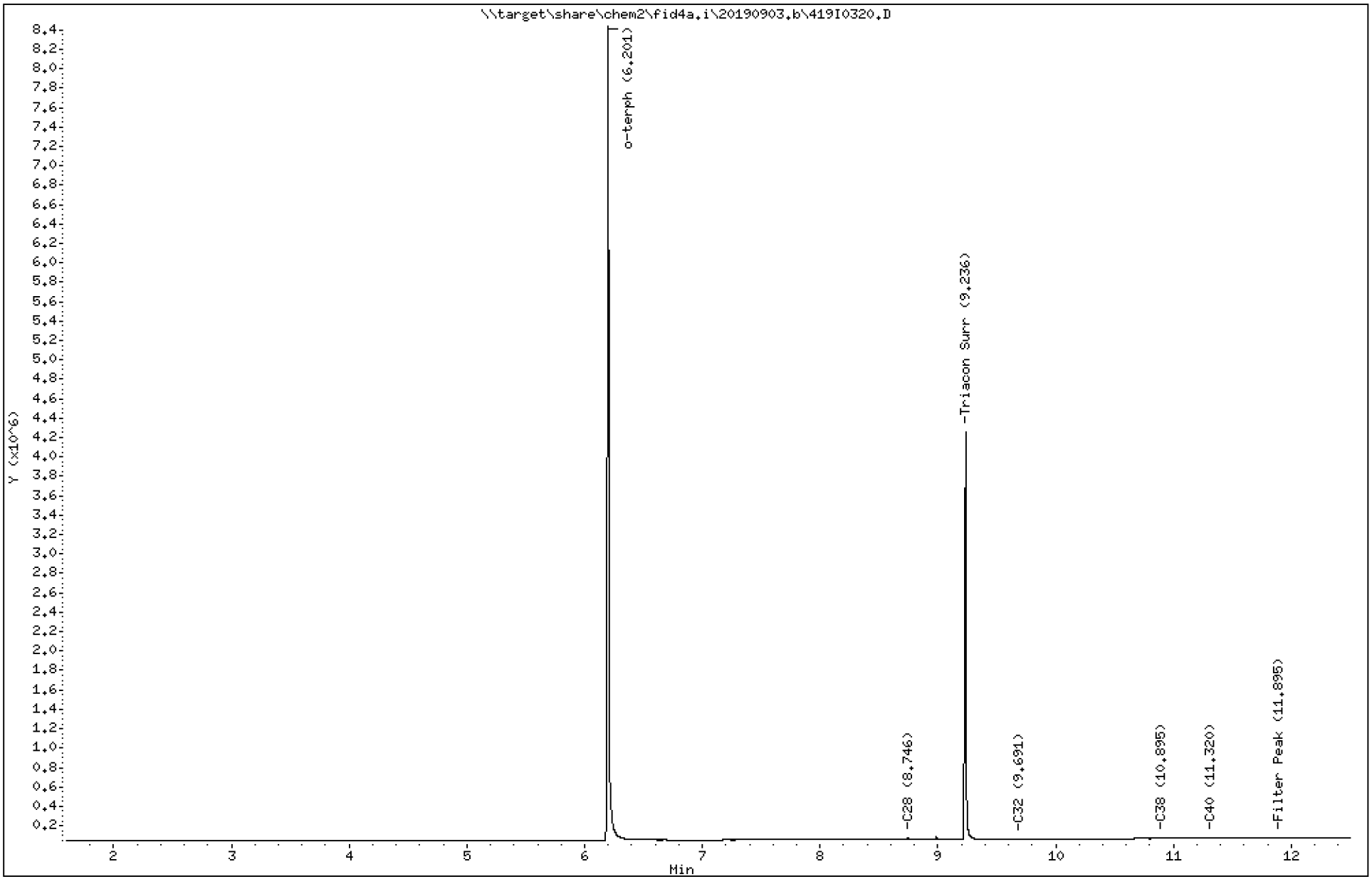
SURROGATES	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.22500	0.181	80.3	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0320.D
Date : 03-SEP-2019 16:12
Client ID:
Sample Info: BHI0023-BLK1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0320.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0023-BLK1
Client ID:
Injection: 03-SEP-2019 16:12
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	14102	0.2
C10	----				WATPHM	(C24-C38)	332604	9.2
C12	----				AK102	(C10-C25)	15321	0.2
C14	----				AK103	(C25-C36)	240613	6.8
C16	----				OR.DIES	(C10-C28)	59720	0.7
C18	----							
C20	----							
C22	----							
C24	----							
C25	----							
C26	----							
C28	8.746	0.009	23979	36837				
C32	9.691	0.013	14040	11608				
C34	----							
Filter Peak	11.895	-0.051	31595	23513	BUNKERC	(C10-C38)	347925	5.2
C36	----							
C38	10.895	-0.021	24529	12207				
C40	11.320	0.008	28730	36303				
o-terph	6.201	0.004	8390374	7751908				
Triacon Surr	9.236	0.003	4202519	3861782	NAS DIES	(C10-C24)	15321	0.2

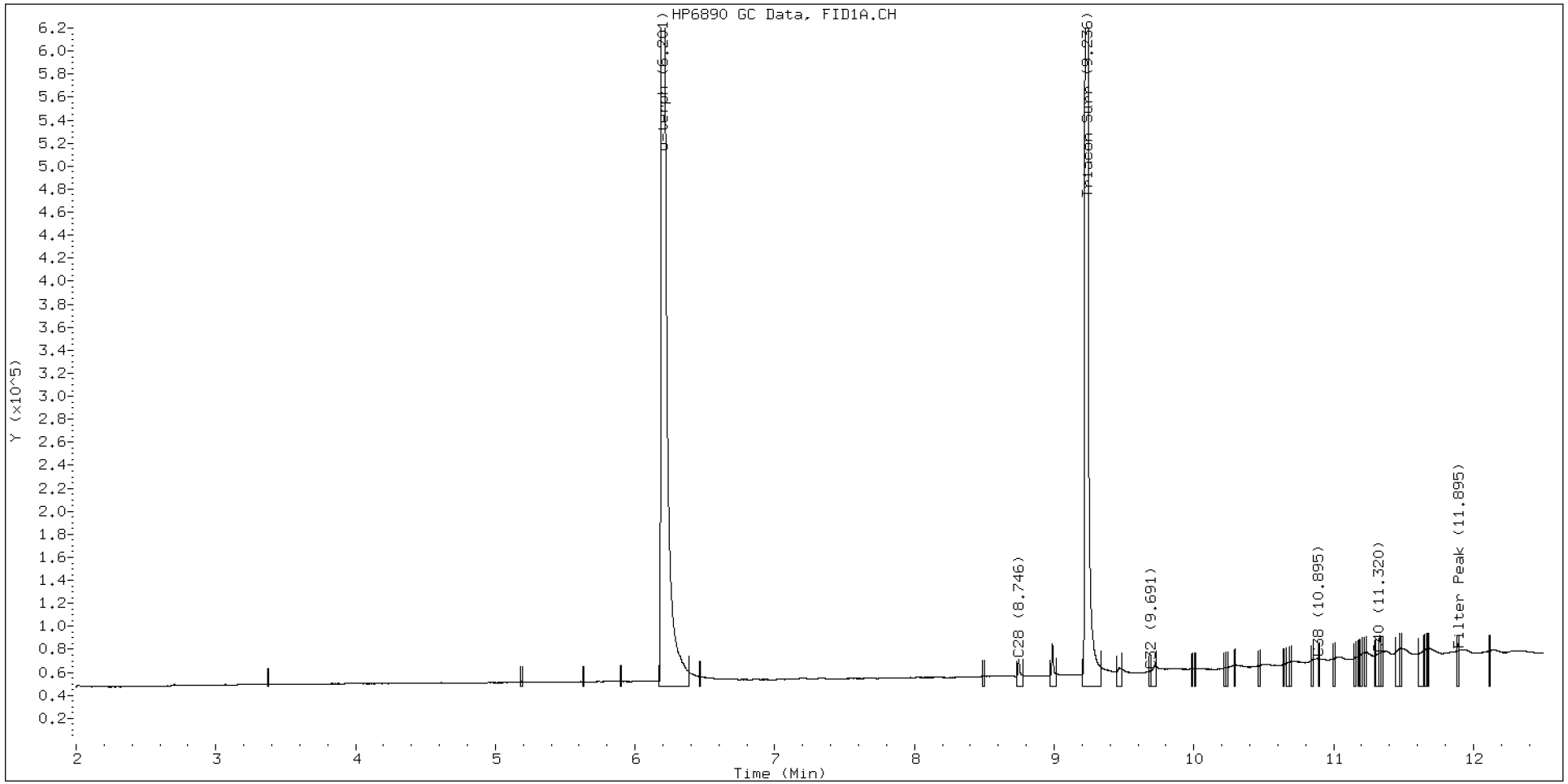
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	7751908	90.3
Triacontane	3861782	73.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190903.b/419I0320.D BHI0023-BLK1



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NWTPH-Dx

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Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0051-BLK1	File ID:	419I0444.D
Sampled:	N/A	Prepared:	09/03/19 15:50	Analyzed:	09/05/19 00:06
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	10 g / 1 mL
Batch:	BHI0051	Sequence:	SHI0031	Calibration:	CH00097
Instrument:	FID4	Column:	RTX-1		

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg wet)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.00	U	2.34	5.00
RRO	Motor Oil Range Organics (C24-C38)	1	10.0	U	2.99	10.0

SURROGATES	ADDED (mg/kg wet)	CONC (mg/kg wet)	% REC	QC LIMITS	Q
o-Terphenyl	11.250	9.81	87.2	50 - 150	

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0444.D

Date : 05-SEP-2019 00:06

Client ID:

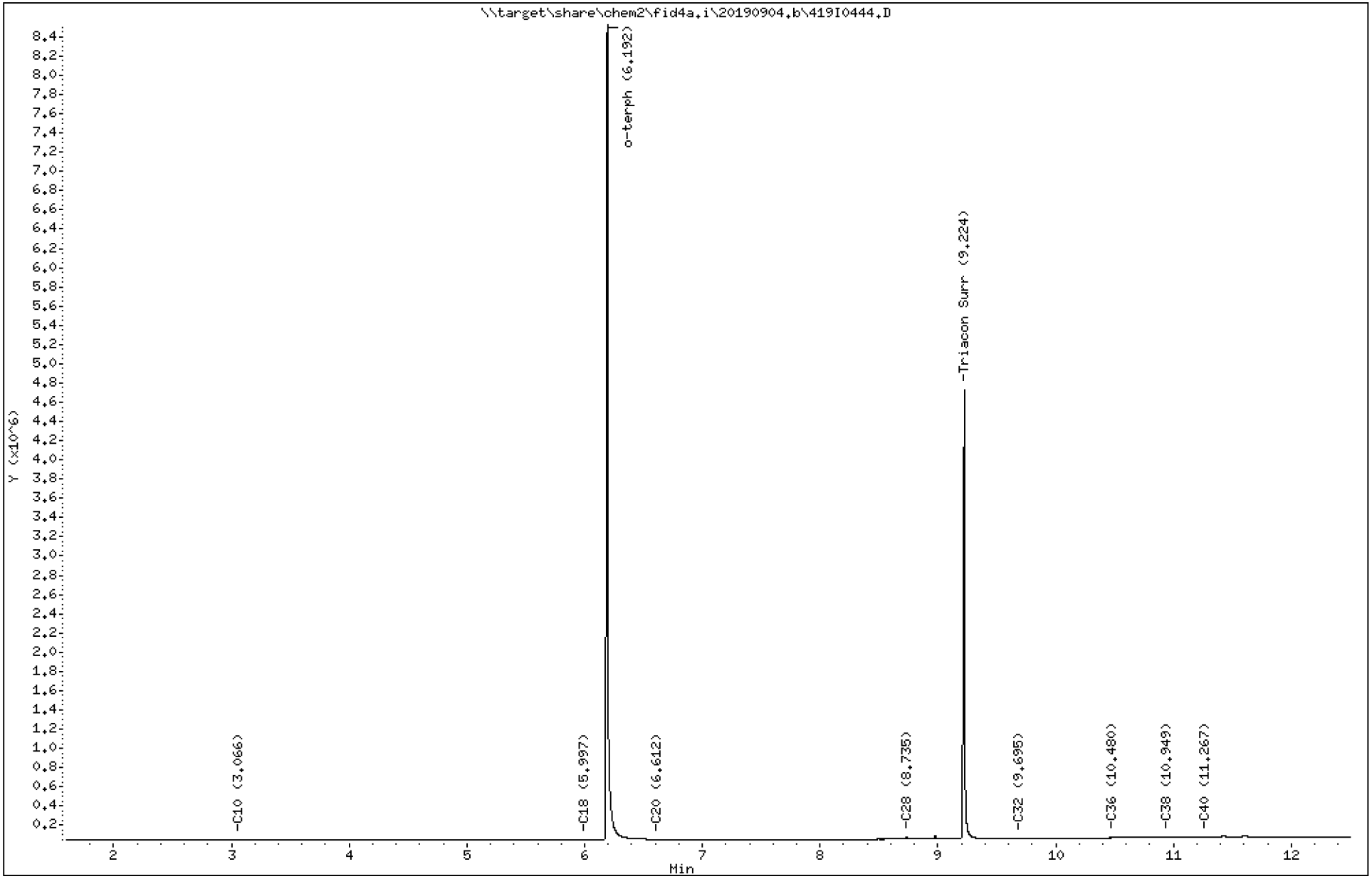
Sample Info: BHI0051-BLK1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0444.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0051-BLK1
Client ID:
Injection: 05-SEP-2019 00:06
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	60156	0.8
C10	3.066	0.024	1909	1621	WATPHM	(C24-C38)	418263	11.5
C12	----				AK102	(C10-C25)	64131	0.7
C14	----				AK103	(C25-C36)	225901	6.4
C16	----				OR.DIES	(C10-C28)	110349	1.2
C18	5.997	-0.013	4354	4138				
C20	6.612	0.034	5510	1911				
C22	----							
C24	----							
C25	----							
C26	----							
C28	8.735	0.002	23903	30922				
C32	9.695	0.021	13931	14267				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	482393	7.2
C36	10.480	-0.039	21671	13947				
C38	10.949	0.033	28751	18467				
C40	11.267	-0.046	33377	14946				
o-terph	6.192	-0.002	8477176	8419153				
Triacon Surr	9.224	-0.005	4678999	4607624	NAS DIES	(C10-C24)	64131	0.7

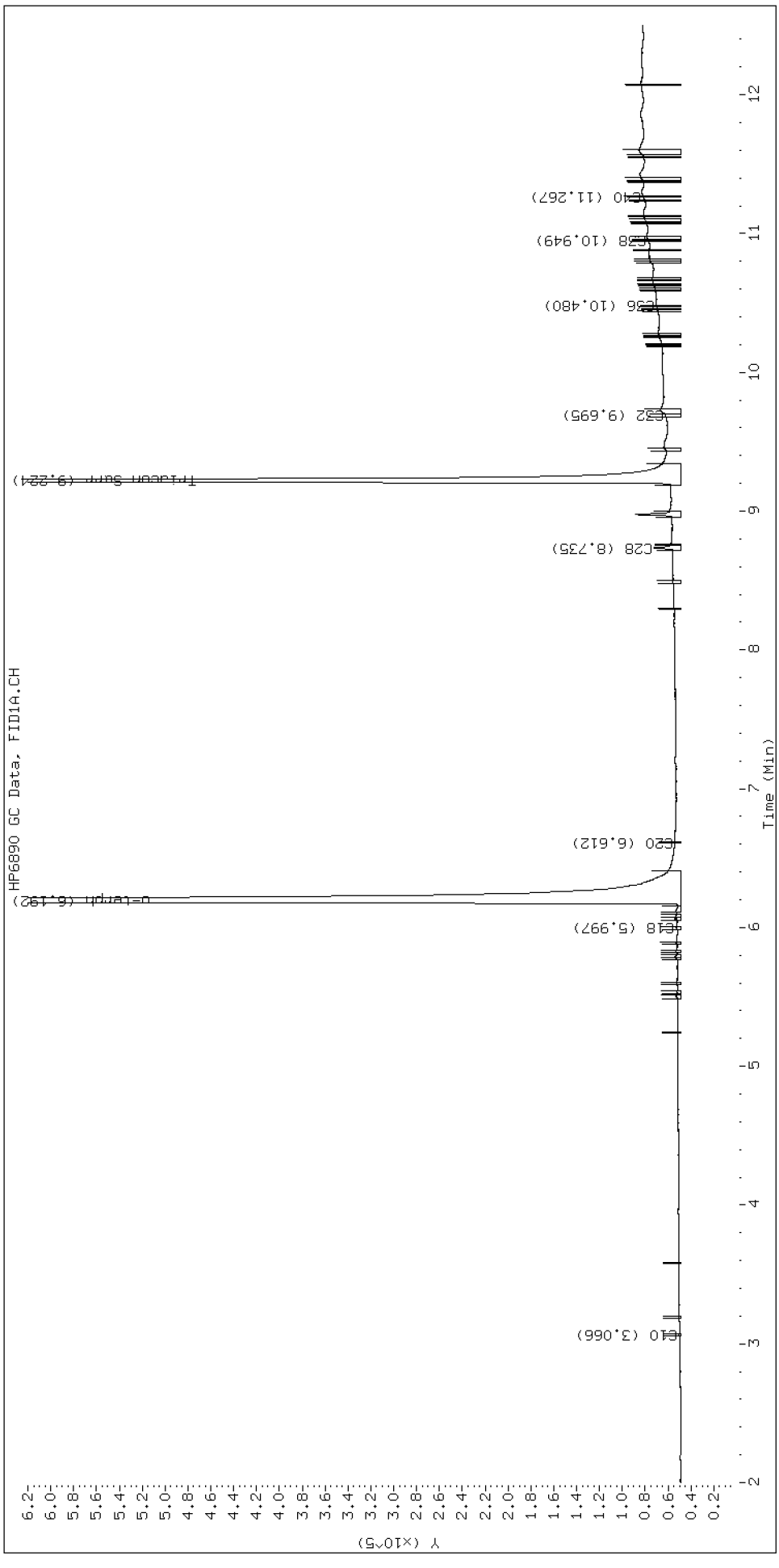
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	8419153	98.1
Triacontane	4607624	87.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190904.b/419I0444.D BHI0051-BLK1



Form I

METHOD BLANK DATA SHEET

NWTPH-Dx

Blank

Laboratory:	Analytical Resources, Inc.			SDG:	19H0481
Client:	Anchor QEA, LLC			Project:	Port of Tacoma - Parcel 40 UST P
Matrix:	Solid	Laboratory ID:	BHI0054-BLK1	File ID:	319I1052.D
Sampled:	N/A	Prepared:	09/04/19 09:25	Analyzed:	09/11/19 04:09
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	10 g / 1 mL
Batch:	BHI0054	Sequence:	SHI0095	Calibration:	CI00036
Instrument:	FID3	Column:	RTX-1	Cleanups:	Silica Gel, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC. (mg/kg wet)	Q	DL	RL
DRO	Diesel Range Organics (C12-C24)	1	5.00	U	2.34	5.00
RRO	Motor Oil Range Organics (C24-C38)	1	10.0	U	2.99	10.0

SURROGATES	ADDED (mg/kg wet)	CONC (mg/kg wet)	% REC	QC LIMITS	Q
o-Terphenyl	11.250	14.9	132	50 - 150	

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1052.D

Date : 11-SEP-2019 04:09

Client ID:

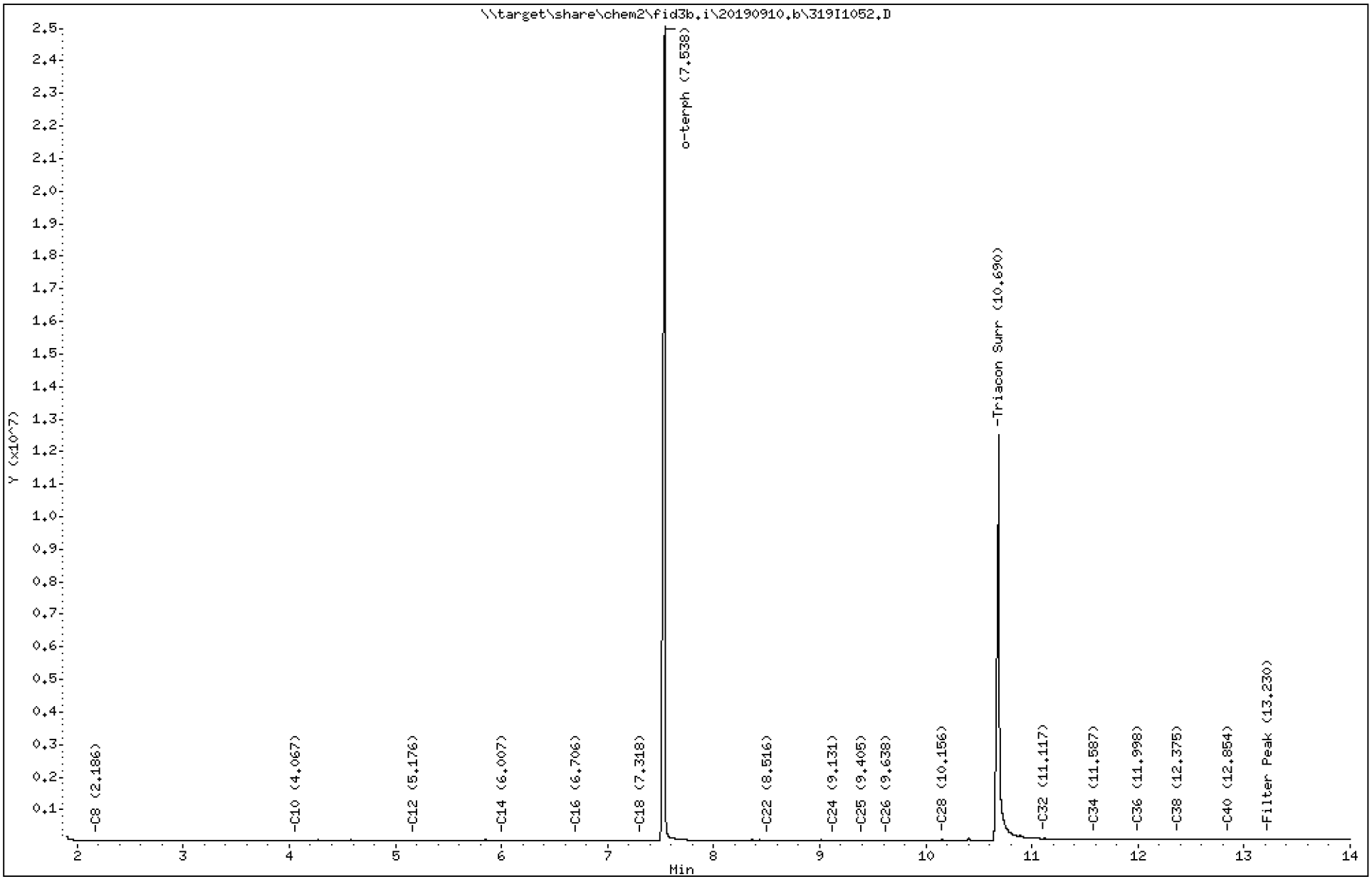
Sample Info: BHI0054-BLK1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1052.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: BHI0054-BLK1
Client ID:
Injection: 11-SEP-2019 04:09
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	850675	4.7
C8	2.186	0.011	6131	16664	WATPHD	(C12-C24)	593800	3.4
C10	4.067	-0.003	5850	6931	WATPHM	(C24-C38)	3500113	27.6
C12	5.176	0.010	14747	19713	AK102	(C10-C25)	918397	4.5
C14	6.007	0.015	7219	16607	AK103	(C25-C36)	3088276	30.4
C16	6.706	0.003	5126	6757	OR.DIES	(C10-C28)	1074724	5.2
C18	7.318	-0.020	3763	5613				
C20	----							
C22	8.516	-0.008	14751	24865				
C24	9.131	0.035	3121	6910				
C25	9.405	0.031	4486	7349				
C26	9.638	-0.008	2631	4523				
C28	10.156	-0.013	46787	75790	IT.DIES	(C10-C24)	906356	4.5
C32	11.117	-0.014	96075	155616				
C34	11.587	0.014	30611	47704				
Filter Peak	13.230	-0.089	27361	108293				
C36	11.998	-0.000	26901	66469				
o-terph	7.538	0.005	25014909	33128637				
Triacon Surr	10.690	0.000	12472120	22487496				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	33128637	148.9
Triacontane	22487496	132.3

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

LCS / LCS DUPLICATE RECOVERY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Water	Analyzed:	09/03/19 21:11
Batch:	BHI0019	Laboratory ID:	BHI0019-BS1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS
Initial/Final:	500 mL / 1 mL		

COMPOUND	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	Q	LCS % REC. #	QC LIMITS REC.
Diesel Range Organics (C12-C24)	3.00	2.93		97.7	56 - 120

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0334.D

Date : 03-SEP-2019 21:11

Client ID:

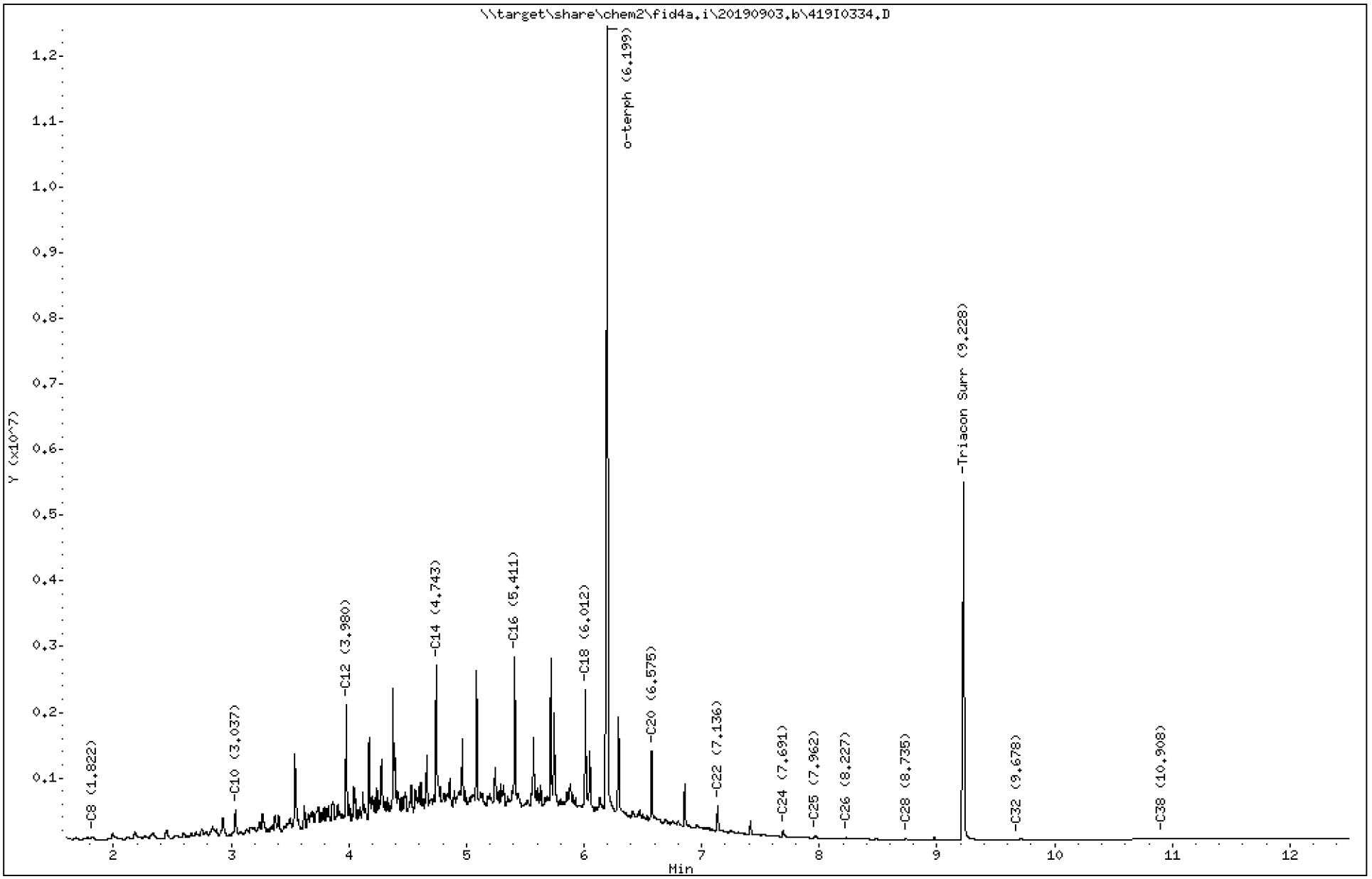
Sample Info: BHI0019-BS1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0334.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0019-BS1
Client ID:
Injection: 03-SEP-2019 21:11
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

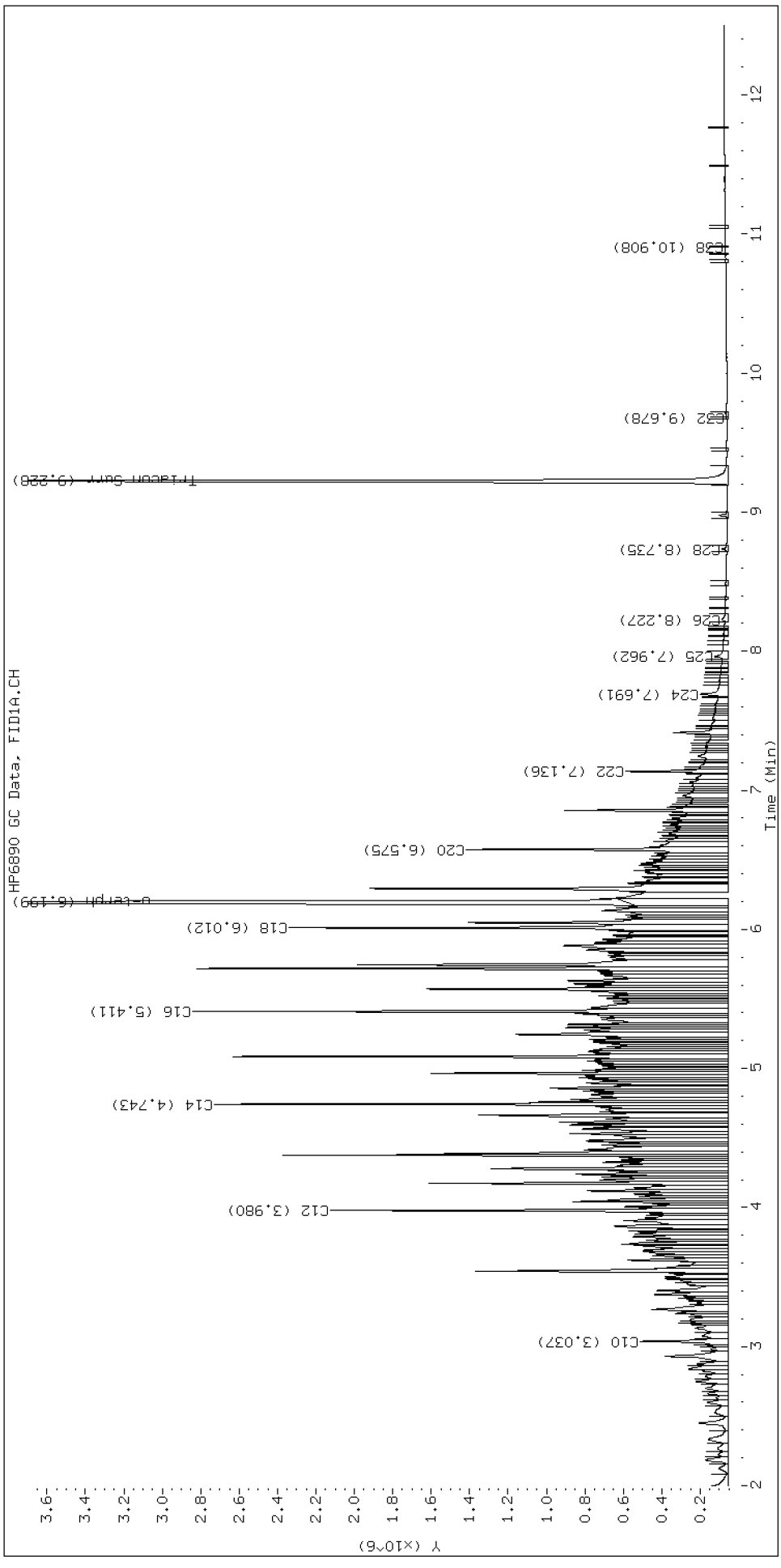
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.822	-0.024	45107	77921	WATPHD	(C12-C24)	109999579	1465.3
C10	3.037	-0.009	456694	549825	WATPHM	(C24-C38)	879427	24.2
C12	3.980	-0.006	2069016	1992125	AK102	(C10-C25)	129122325	1417.4
C14	4.743	-0.008	2670796	2022765	AK103	(C25-C36)	534806	15.2
C16	5.411	-0.006	2783763	2428421	OR.DIES	(C10-C28)	129571778	1420.4
C18	6.012	-0.001	2282696	2453517				
C20	6.575	-0.005	1362009	1532856				
C22	7.136	-0.005	529087	553571				
C24	7.691	-0.000	145296	323005				
C25	7.962	0.000	69949	142801				
C26	8.227	0.001	32937	71831				
C28	8.735	-0.002	30927	35508				
C32	9.678	0.000	6682	5949				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	129682556	1927.6 M
C36	----							
C38	10.908	-0.008	12553	4983				
C40	----							
o-terph	6.199	0.002	11867011	10227784				
Triacon Surr	9.228	-0.005	5448583	5229037	NAS DIES	(C10-C24)	128803129	1414.8

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	10227784	119.2	M
Triacontane	5229037	99.8	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019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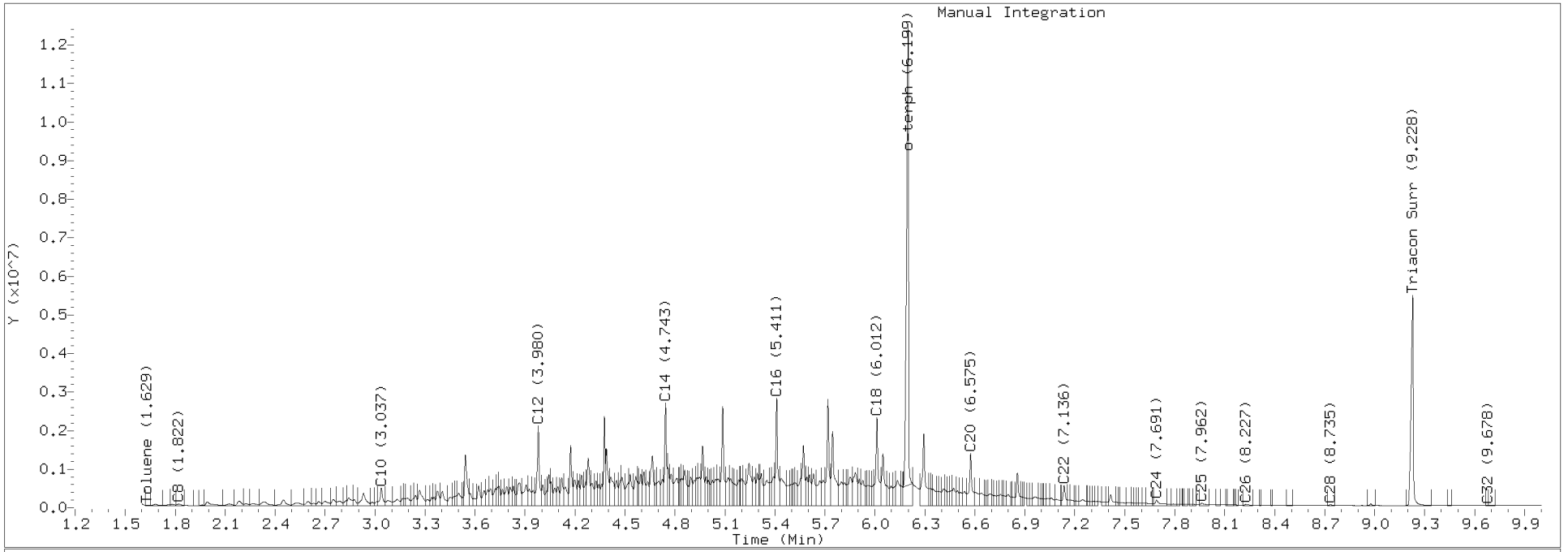
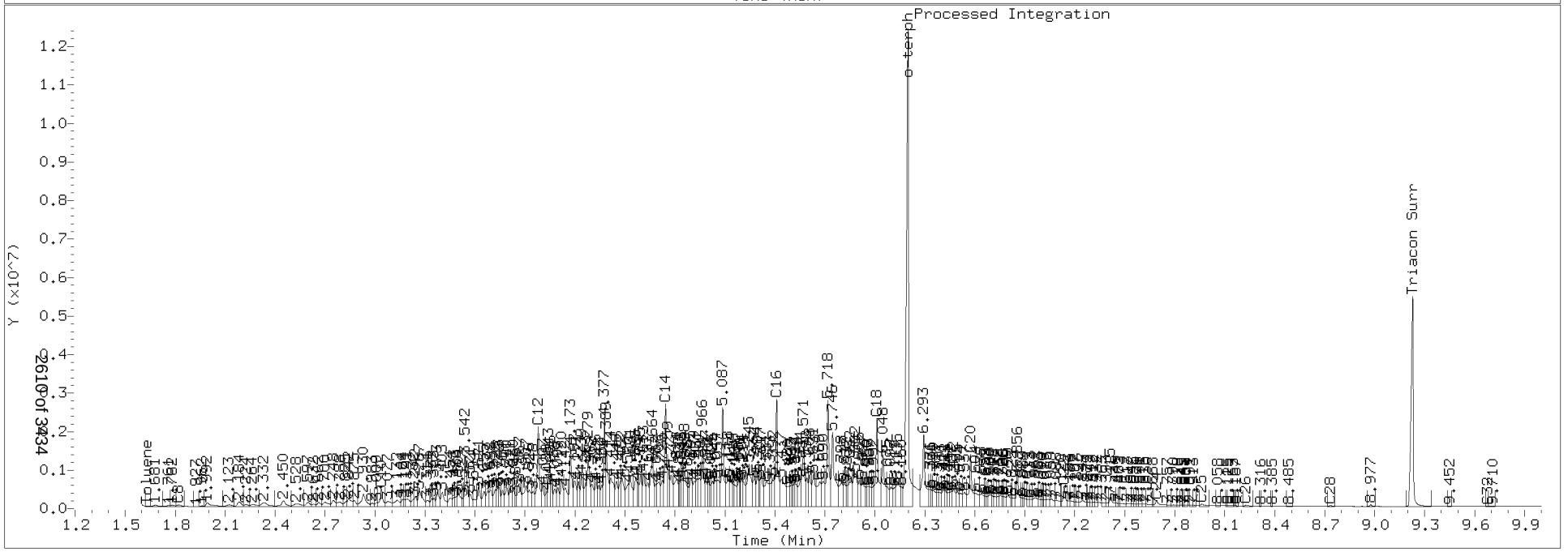
HP6890 GC Data, FID1A.CH
Y (X10^6)
Time (Min)
C10 (3.037)
C12 (3.980)
C14 (4.743)
C16 (5.411)
C18 (6.012)
n-tetra (6.199)
C20 (6.575)
C22 (7.136)
C24 (7.691)
C25 (7.962)
C26 (8.227)
C28 (8.735)
Tricosn Surr (9.228)
C32 (9.678)
C38 (10.908)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0334.D Injection: 03-SEP-2019 21:11

Lab ID:BHI0019-BS1





LCS / LCS DUPLICATE RECOVERY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Water	Analyzed:	09/03/19 16:33
Batch:	BHI0023	Laboratory ID:	BHI0023-BS1
Preparation:	EPA 3510C SepF	Sequence Name:	LCS
Initial/Final:	500 mL / 1 mL		

COMPOUND	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	Q	LCS % REC. #	QC LIMITS REC.
Diesel Range Organics (C12-C24)	3.00	2.59		86.4	56 - 120

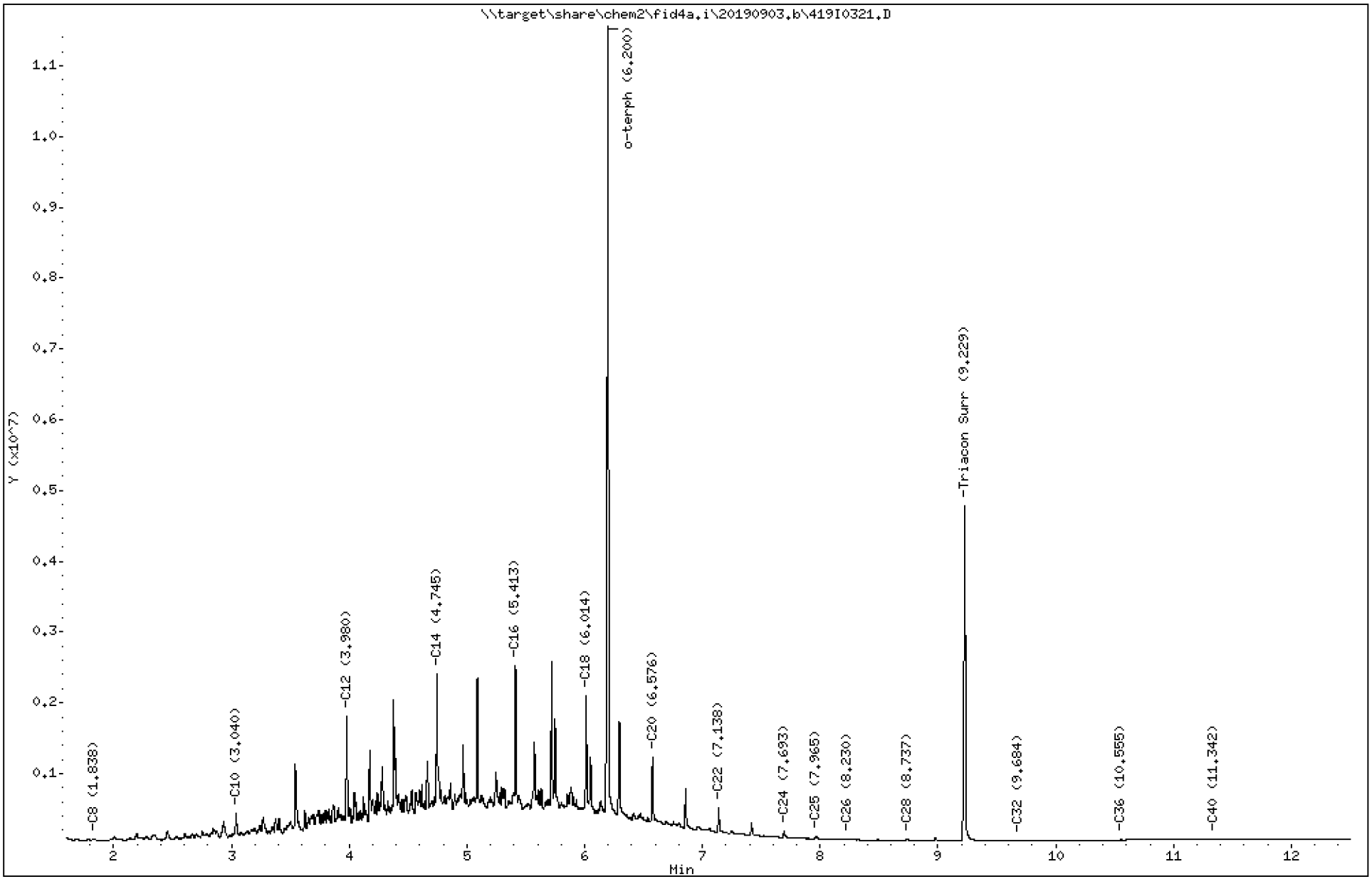
* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0321.D
Date : 03-SEP-2019 16:33
Client ID:
Sample Info: BHI0023-BS1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0321.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0023-BS1
Client ID:
Injection: 03-SEP-2019 16:33
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

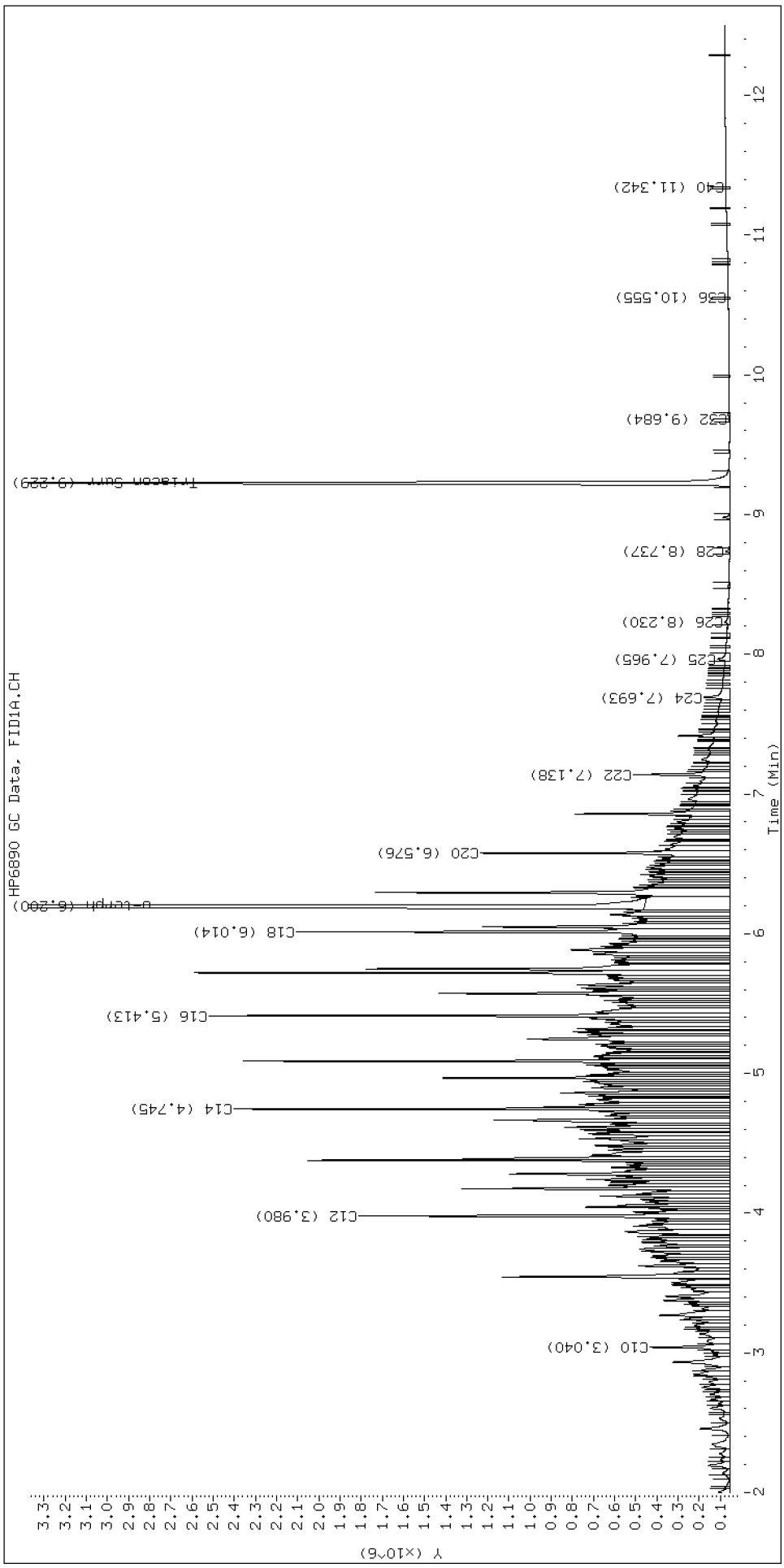
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.838	-0.007	25670	27909	WATPHD	(C12-C24)	97252060	1295.5
C10	3.040	-0.007	382090	449675	WATPHM	(C24-C38)	527572	14.5
C12	3.980	-0.006	1756449	1700005	AK102	(C10-C25)	113259171	1243.2
C14	4.745	-0.006	2347633	1782630	AK103	(C25-C36)	387380	11.0
C16	5.413	-0.004	2467388	2174696	OR.DIES	(C10-C28)	113571682	1245.0
C18	6.014	0.000	2050783	2444126				
C20	6.576	-0.003	1182250	1337146				
C22	7.138	-0.002	457543	526522				
C24	7.693	0.002	126427	283121				
C25	7.965	0.003	59265	119651				
C26	8.230	0.004	26591	56832				
C28	8.737	0.000	22584	23791				
C32	9.684	0.006	4607	5495				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	113669387	1689.5 M
C36	10.555	0.033	9889	8067				
C38	----							
C40	11.342	0.030	21047	20776				
o-terph	6.200	0.003	11100591	9152491				
Triacon Surr	9.229	-0.004	4727928	4212251	NAS DIES	(C10-C24)	113141815	1242.8

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9152491	106.6	M
Triacontane	4212251	80.4	

M Indicates the peak was manually integrated

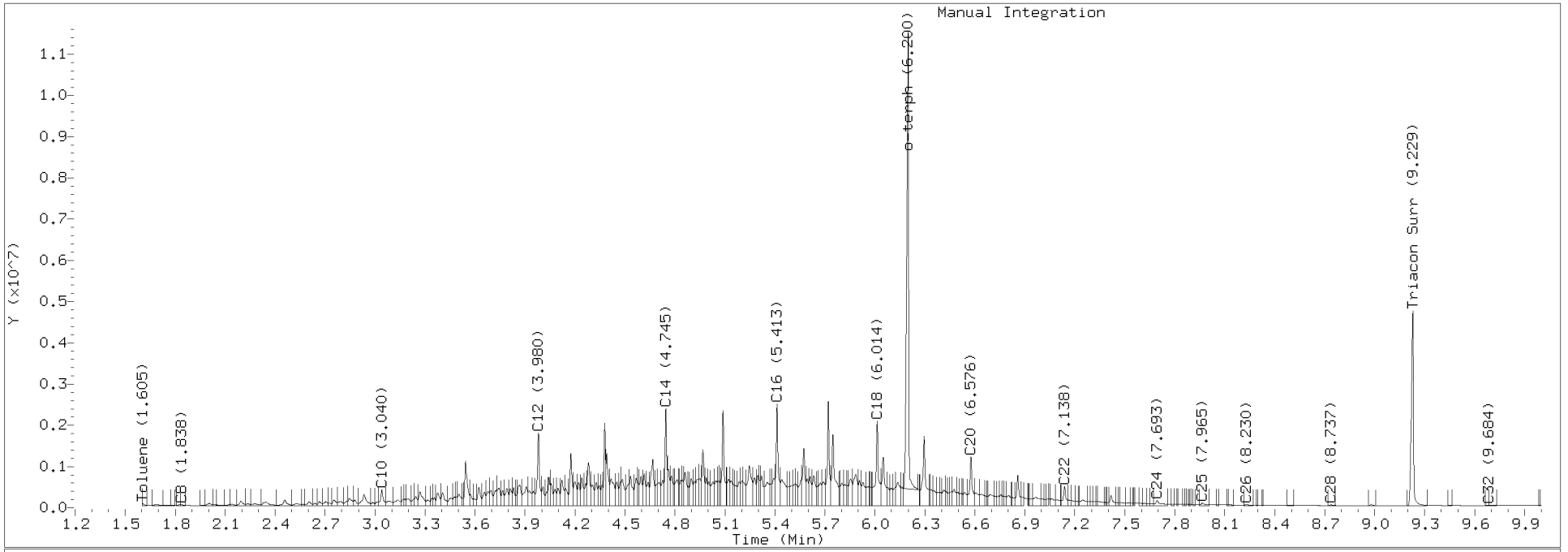
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

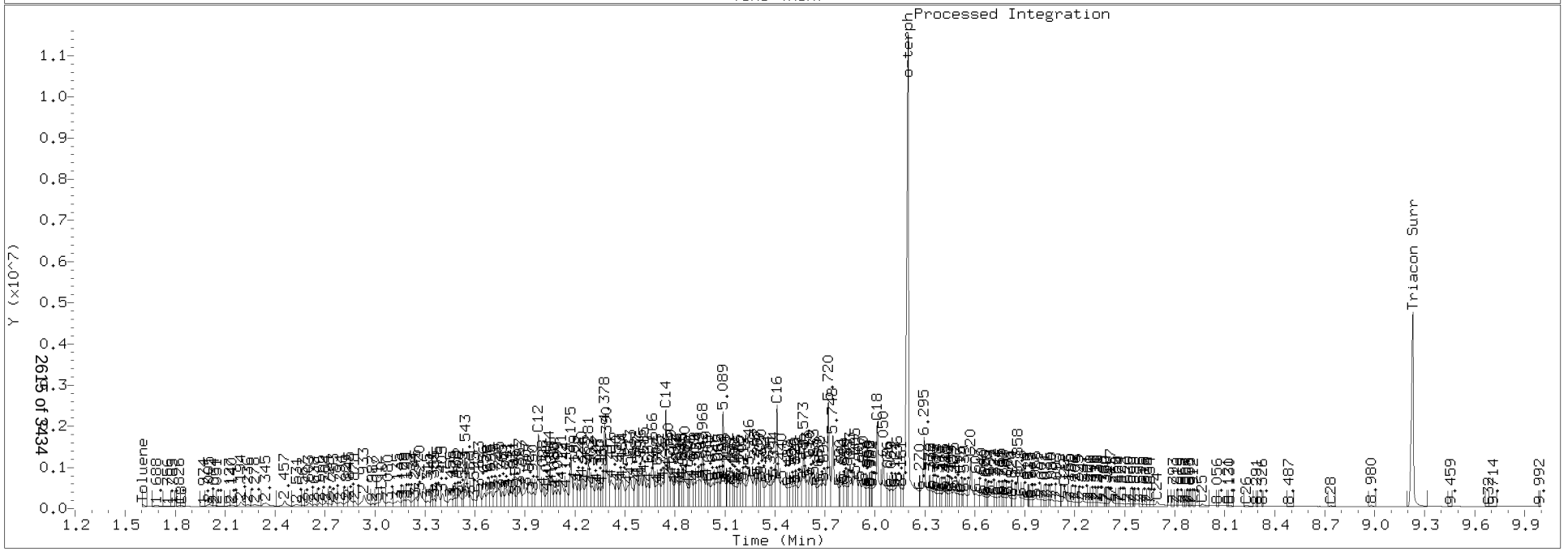

Datafile: FID4A, 20190903.b/419I0321.D BHI0023-BS1
HP6890 GC Data, FID1A.CH
C10 (3.040)
C12 (3.980)
C14 (4.745)
C16 (5.413)
C18 (6.014)
n-Eicosane (6.200)
C20 (6.576)
C22 (7.138)
C24 (7.693)
C25 (7.965)
C26 (8.230)
C28 (8.737)
Triacontane Surr (9.229)
C32 (9.684)
C36 (10.555)
C40 (11.342)
Time (Min)
Y (X10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0321.D Injection: 03-SEP-2019 16:33

Lab ID:BHI0023-BS1





LCS / LCS DUPLICATE RECOVERY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/05/19 00:26
Batch:	BHI0051	Laboratory ID:	BHI0051-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	10 g / 1 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Diesel Range Organics (C12-C24)	150	128		85.4	63 - 120

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0445.D

Date : 05-SEP-2019 00:26

Client ID:

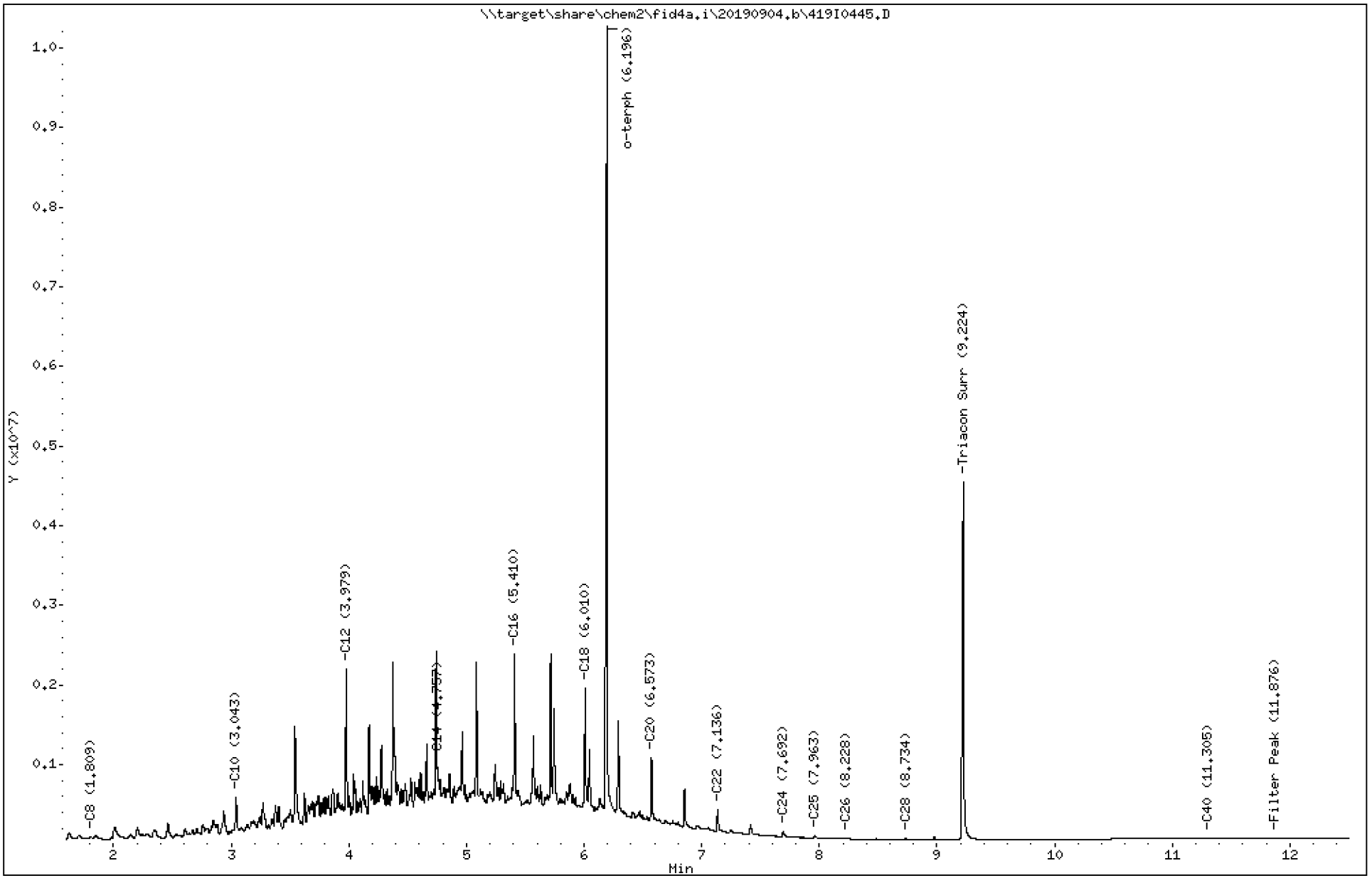
Sample Info: BHI0051-BS1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0445.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: BHI0051-BS1
Client ID:
Injection: 05-SEP-2019 00:26
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

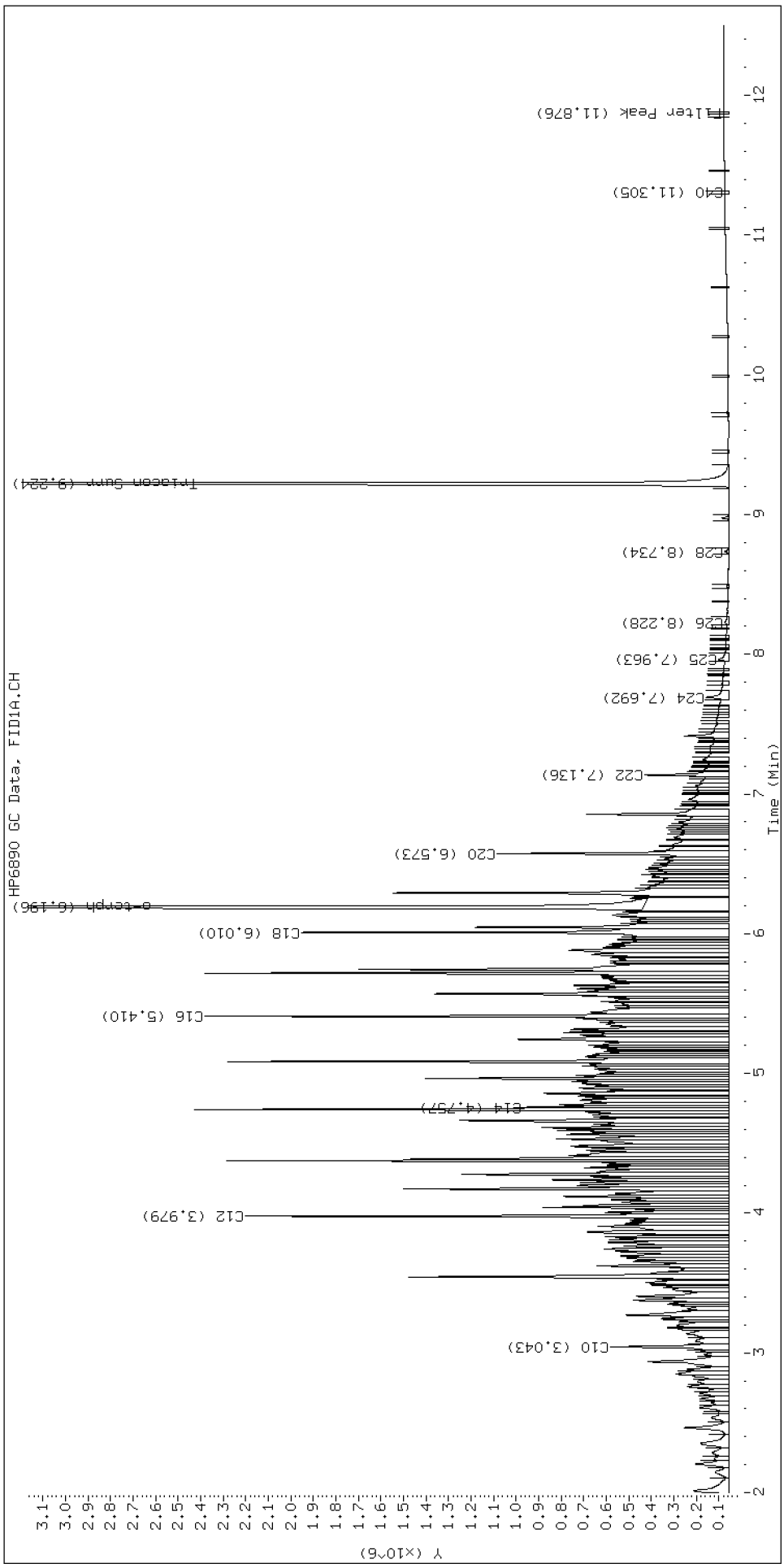
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.809	-0.016	28548	51740	WATPHD	(C12-C24)	96215419	1281.7
C10	3.043	0.002	525145	656566	WATPHM	(C24-C38)	381408	10.5
C12	3.979	-0.006	2148481	2040623	AK102	(C10-C25)	117108126	1285.5
C14	4.757	0.007	911532	735460	AK103	(C25-C36)	270836	7.7
C16	5.410	-0.006	2325958	2082746	OR.DIES	(C10-C28)	117333219	1286.2
C18	6.010	-0.001	1897547	2382636				
C20	6.573	-0.005	1027171	1188054				
C22	7.136	-0.001	373280	445816				
C24	7.692	0.004	99964	207749				
C25	7.963	0.005	47801	96742				
C26	8.228	0.005	20054	42560				
C28	8.734	0.001	19375	18453				
C32	----							
C34	----							
Filter Peak	11.876	-0.069	22113	13196	BUNKERC	(C10-C38)	117382871	1744.7
C36	----							
C38	----							
C40	11.305	-0.009	20413	24151				
o-terph	6.196	0.001	9844021	8327225				
Triacon Surr	9.224	-0.005	4492294	4407733	NAS DIES	(C10-C24)	117001463	1285.2

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	8327225	97.0	M
Triacontane	4407733	84.1	

M Indicates the peak was manually integrated

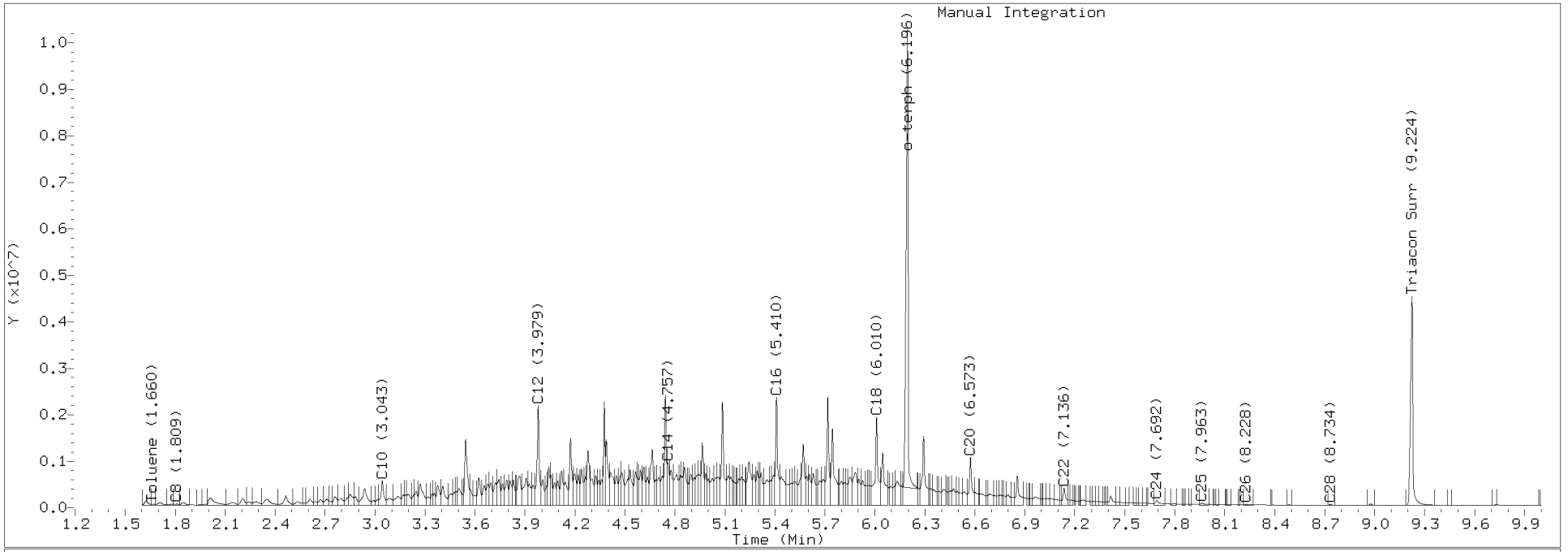
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

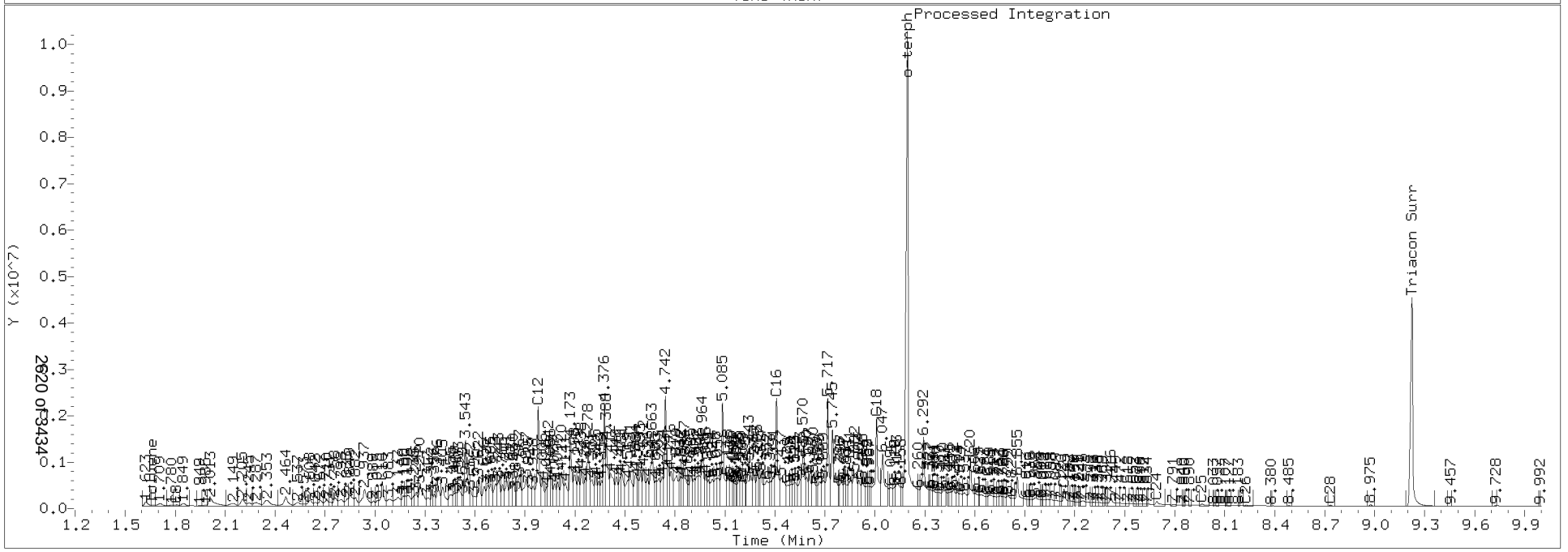

Datafile: FID4A, 20190904.b/419I0445.D BHI0051-BS1
HP6890 GC Data, FID1A.CH
Y (x10^6)
Time (Min)
C10 (3.043)
C12 (3.979)
C14 (4.757)
C16 (5.410)
C18 (6.010)
o-terph (6.196)
C20 (6.573)
C22 (7.136)
C24 (7.692)
C25 (7.963)
C26 (8.228)
C28 (8.734)
TriAcon Surr (9.224)
C40 (11.305)
Alter Peak (11.876)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0445.D Injection: 05-SEP-2019 00:26

Lab ID:BHI0051-BS1





LCS / LCS DUPLICATE RECOVERY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Matrix:	Solid	Analyzed:	09/11/19 04:31
Batch:	BHI0054	Laboratory ID:	BHI0054-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	10 g / 1 mL		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Diesel Range Organics (C12-C24)	150	159		106	63 - 120

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1053.D

Date : 11-SEP-2019 04:31

Client ID:

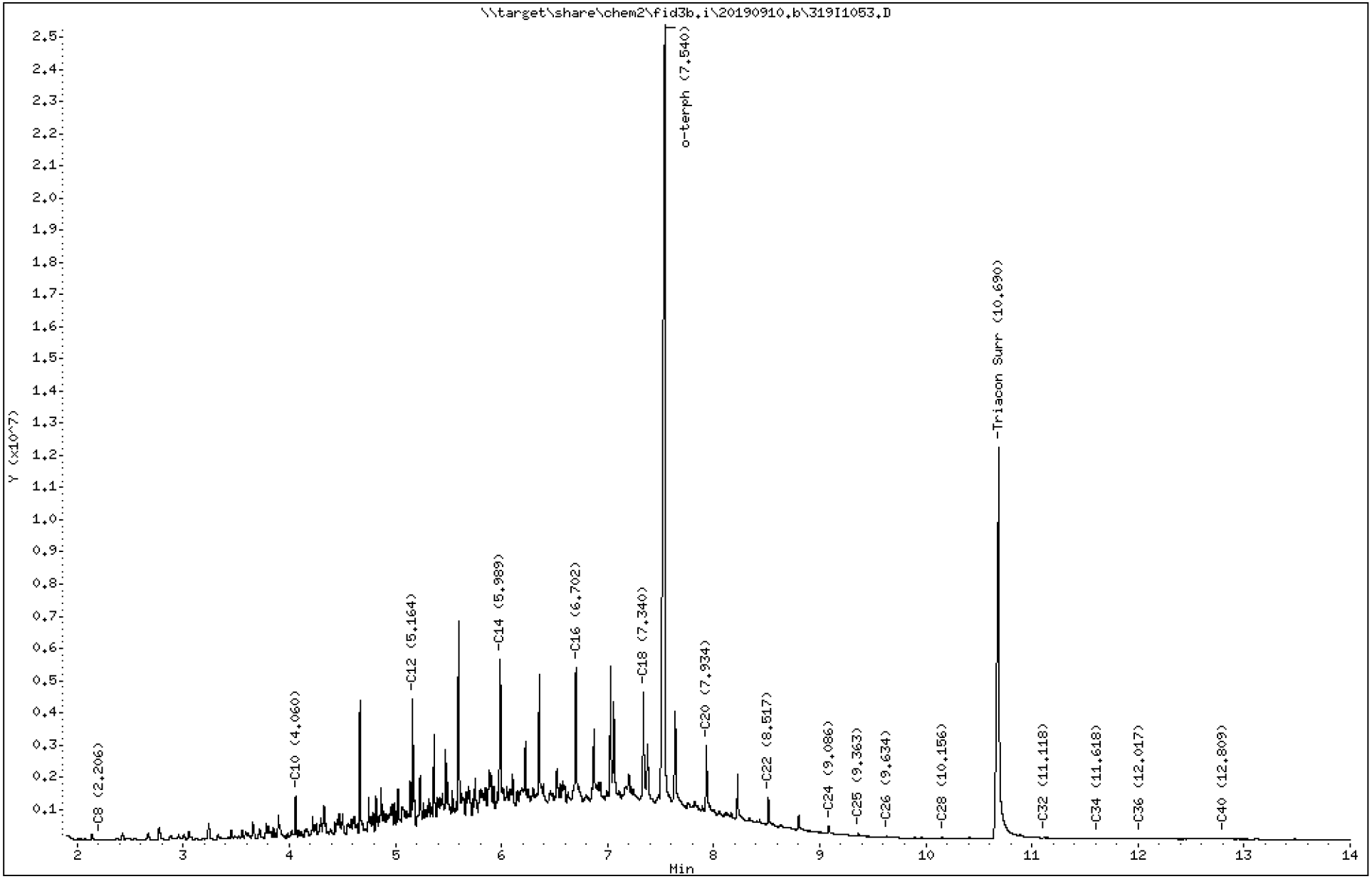
Sample Info: BHI0054-BS1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1053.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: BHI0054-BS1
Client ID:
Injection: 11-SEP-2019 04:31
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	52593429	293.1	
C8	2.206	0.030	13562	14056	WATPHD	(C12-C24)	278140394	1594.3	
C10	4.060	-0.010	1341231	1021287	WATPHM	(C24-C38)	8122684	64.2	
C12	5.164	-0.002	4393252	4220792	AK102	(C10-C25)	321735761	1578.3	M
C14	5.989	-0.003	5603415	6037958	AK103	(C25-C36)	6499501	63.9	
C16	6.702	-0.001	5374184	8556293	OR.DIES	(C10-C28)	325273364	1576.0	M
C18	7.340	0.001	4597955	7388371					
C20	7.934	-0.002	2946335	5111475					
C22	8.517	-0.007	1304726	2303756					
C24	9.086	-0.010	426618	1396942					
C25	9.363	-0.011	225228	846243					
C26	9.634	-0.012	119702	459185					
C28	10.156	-0.012	81993	168135	IT.DIES	(C10-C24)	320280333	1574.2	
C32	11.118	-0.013	99169	167086					
C34	11.618	0.046	28863	112095					
Filter Peak	----								
C36	12.017	0.018	33702	107187					
o-terph	7.540	0.007	23999038	33290005					
Triacon Surr	10.690	0.000	12207481	21964596					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

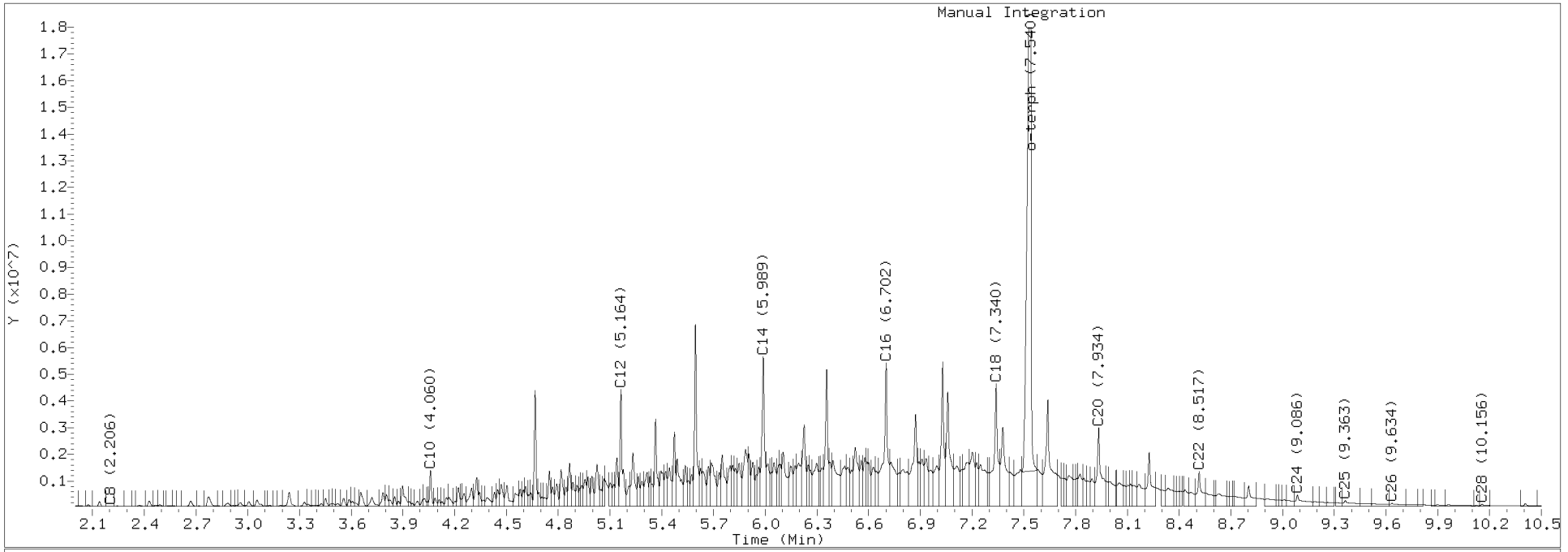
Surrogate	Area	Amount
o-Terphenyl	33290005	149.6
Triacontane	21964596	129.2

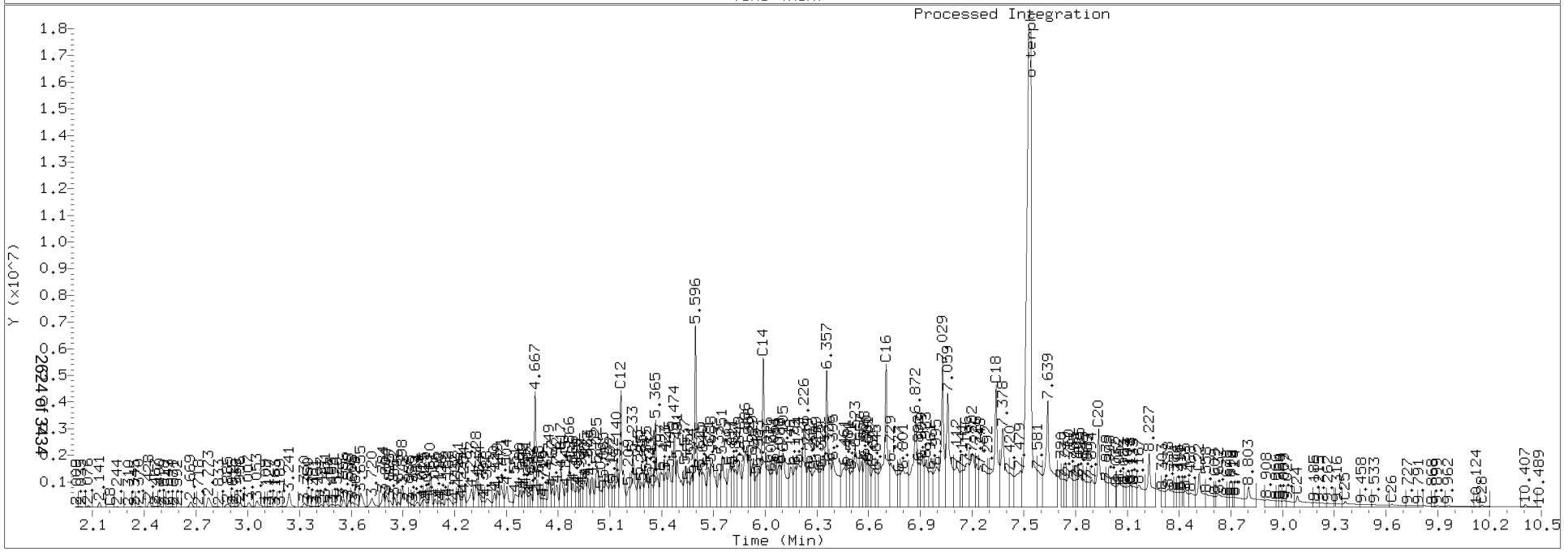
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1053.D Injection: 11-SEP-2019 04:31

Lab ID:BHI0054-BS1





INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00097	Instrument:	FID4
Calibration Date:	08/29/2019 8:33	Column (1):	RTX-1

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Diesel Range Organics (C12-C24)	50	62390.16	100	81025.43	250	83649.8	500	75916.28	1000	76256.91	2500	71182.16
o-Terphenyl	9	86929.55	18	87771.05	45	88758.4	90	82661.32	180	88901.05	450	79976.78

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00097	Instrument:	FID4
Calibration Date:	08/29/2019 8:33	Column (1):	RTX-1

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Motor Oil Range Organics (C24-C38)	100	27155.5	250	37444.93	500	40658.12	1000	40032.81	2500	37137.17	5000	35527.62

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00097	Instrument:	FID4
Calibration Date:	08/29/2019 8:33	Column (1):	RTX-1

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CH00097	Instrument:	FID4
Calibration Date:	08/29/2019 8:33	Column (1):	RTX-1

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Diesel Range Organics (C12-C24)	75070.12	10.1			RSD (20)	
Motor Oil Range Organics (C24-C38)	36326.02	13.4			RSD (20)	
o-Terphenyl	85833.03	4.3			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/31/2019 11:57:06AM

ANALYSIS SEQUENCE

SHH0420

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0420-IBL1	Retention Time Standard	QC		1	H006806		
SHH0420-IBL2	Instrument Blank	QC		2	H007457		
SHH0420-CALJ	BunkerC	QC		3	H007603		
SHH0420-CAL1	50ppm DIESEL	QC		4	H006819		
SHH0420-CAL2	100ppm DIESEL	QC		5	H006818		
SHH0420-CAL3	250ppm DIESEL	QC		6	H006817		
SHH0420-CAL4	500ppm DIESEL	QC		7	H006816		
SHH0420-CAL5	1000ppm DIESEL	QC		8	H006815		
SHH0420-CAL6	2500ppm DIESEL	QC		9	H006794		
SHH0420-CAL7	100ppmmoil	QC		10	H008395		
SHH0420-CAL8	250ppmmoil	QC		11	H008396		
SHH0420-CAL9	500ppmmoil	QC		12	H008397		
SHH0420-CALA	1000ppmmoil	QC		13	H007659		
SHH0420-CALB	2500ppmmoil	QC		14	H008398		
SHH0420-CALC	5000ppmmoil	QC		15	H007458		
SHH0420-CALD	100ppmak103	QC		16	H006838		
SHH0420-CALE	250ppmak103	QC		17	H006837		
SHH0420-CALF	500ppmak103	QC		18	H006839		
SHH0420-CALG	1000ppmak103	QC		19	H006836		
SHH0420-CALH	2500ppmak103	QC		20	H006835		
SHH0420-CALI	5000ppmak103	QC		21	H006795		
SHH0420-SCV1	DIESEL SCV	QC		22	H008294		

7162201 37334

Printed: 8/31/2019 11:57:06AM

ANALYSIS SEQUENCE

SHH0420

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0420-SCV2	MOIL SCV	QC		23	H008399		
SHH0420-SCV3	AK103 SCV	QC		24	H008400		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190829.b

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2	29-AUG-2019 16:31	419H2922.D	1	SHH0420-IBL2	
3	29-AUG-2019 16:54	419H2923.D	1	SHH0420-CAL1	
4	29-AUG-2019 17:15	419H2924.D	1	SHH0420-CAL2	
5	29-AUG-2019 17:36	419H2925.D	1	SHH0420-CAL3	
6	29-AUG-2019 17:57	419H2926.D	1	SHH0420-CAL4	
7	29-AUG-2019 18:20	419H2927.D	1	SHH0420-CAL5	
8	29-AUG-2019 18:41	419H2928.D	1	SHH0420-CAL6	
9	29-AUG-2019 19:02	419H2929.D	1	SHH0420-CAL7	
10	29-AUG-2019 19:23	419H2930.D	1	SHH0420-CAL8	
11	29-AUG-2019 19:44	419H2931.D	1	SHH0420-CAL9	
12	29-AUG-2019 20:06	419H2932.D	1	SHH0420-CALA	
13	29-AUG-2019 20:27	419H2933.D	1	SHH0420-CALB	
14	29-AUG-2019 20:48	419H2934.D	1	SHH0420-CALC	
15	29-AUG-2019 21:09	419H2935.D	1	SHH0420-CALD	
16	29-AUG-2019 21:30	419H2936.D	1	SHH0420-CALE	
17	29-AUG-2019 21:50	419H2937.D	1	SHH0420-CALF	
18	29-AUG-2019 22:11	419H2938.D	1	SHH0420-CALG	
19	29-AUG-2019 22:33	419H2939.D	1	SHH0420-CALH	
20	29-AUG-2019 22:55	419H2940.D	1	SHH0420-CALI	
21	29-AUG-2019 23:15	419H2941.D	1	SHH0420-SCV1	
22	29-AUG-2019 23:36	419H2942.D	1	SHH0420-SCV2	
23	29-AUG-2019 23:57	419H2943.D	1	SHH0420-SCV3	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190829.b

Instrument: fid4a.i Date: 29-AUG-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
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1631	419H2922.D	SHH0420-IBL2	1	NO MANUAL INTEGRATION
1654	419H2923.D	SHH0420-CAL1	1	o-terph,
1715	419H2924.D	SHH0420-CAL2	1	o-terph,
1736	419H2925.D	SHH0420-CAL3	1	o-terph,
1757	419H2926.D	SHH0420-CAL4	1	o-terph,
1820	419H2927.D	SHH0420-CAL5	1	o-terph,
1841	419H2928.D	SHH0420-CAL6	1	o-terph,
1902	419H2929.D	SHH0420-CAL7	1	Triacon Surr,
1923	419H2930.D	SHH0420-CAL8	1	Triacon Surr,
1944	419H2931.D	SHH0420-CAL9	1	Triacon Surr,
2006	419H2932.D	SHH0420-CALA	1	Triacon Surr,
2027	419H2933.D	SHH0420-CALB	1	Triacon Surr,
2048	419H2934.D	SHH0420-CALC	1	Triacon Surr,
2109	419H2935.D	SHH0420-CALD	1	Triacon Surr,
2130	419H2936.D	SHH0420-CALE	1	Triacon Surr,
2150	419H2937.D	SHH0420-CALF	1	Triacon Surr,

Instrument: fid4a.i Date: 29-AUG-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2211	419H2938.D	SHH0420-CALG	1	Triacon Surr,
2233	419H2939.D	SHH0420-CALH	1	Triacon Surr,
2255	419H2940.D	SHH0420-CALI	1	Triacon Surr,
2315	419H2941.D	SHH0420-SCV1	1	NO MANUAL INTEGRATION
2336	419H2942.D	SHH0420-SCV2	1	Triacon Surr,
2357	419H2943.D	SHH0420-SCV3	1	Triacon Surr,

Security Status Report

Date: 31-Aug-2019 11:44

419H2901.D	Data Locked	van, 31-Aug-2019 11:44
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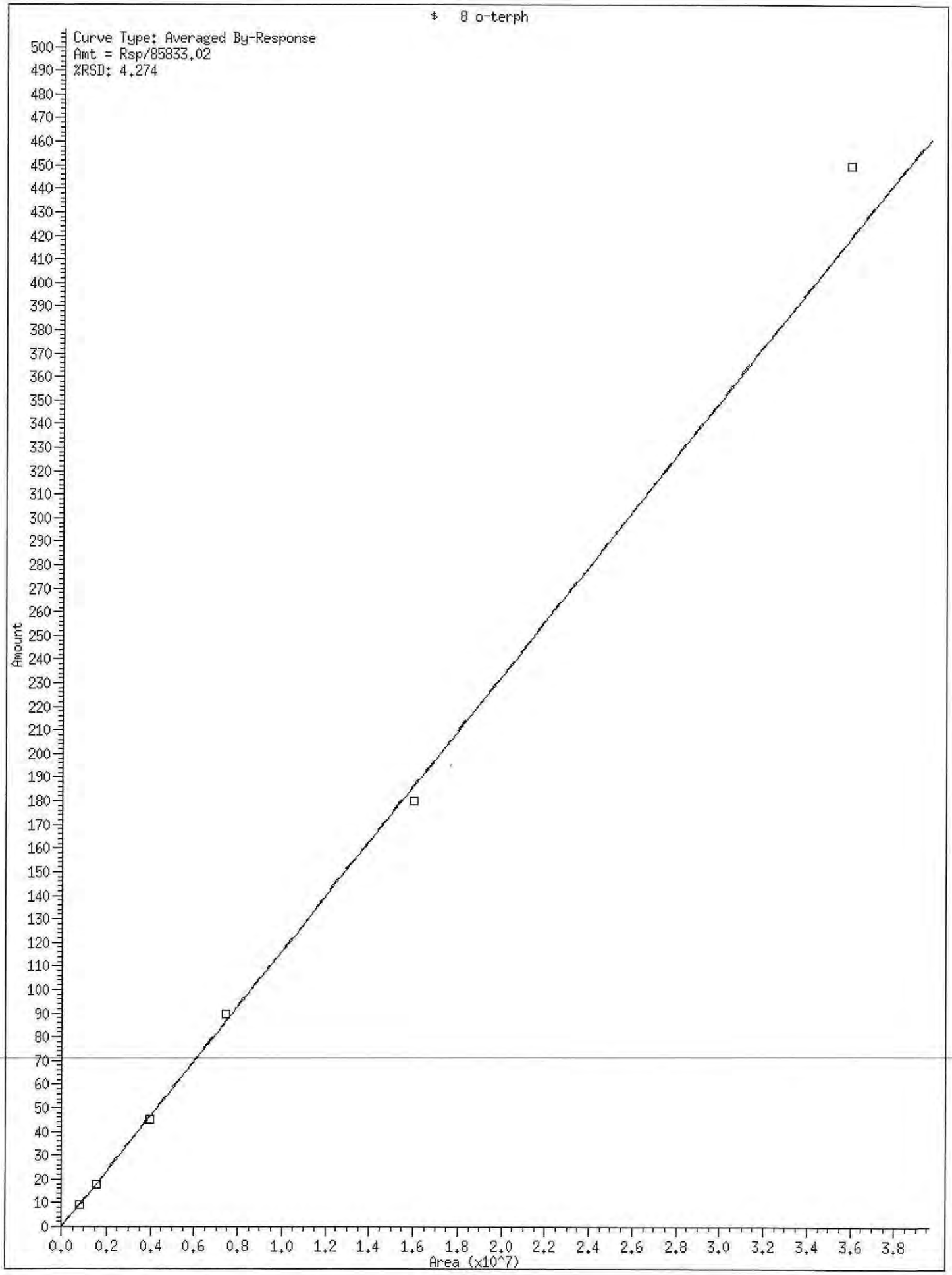
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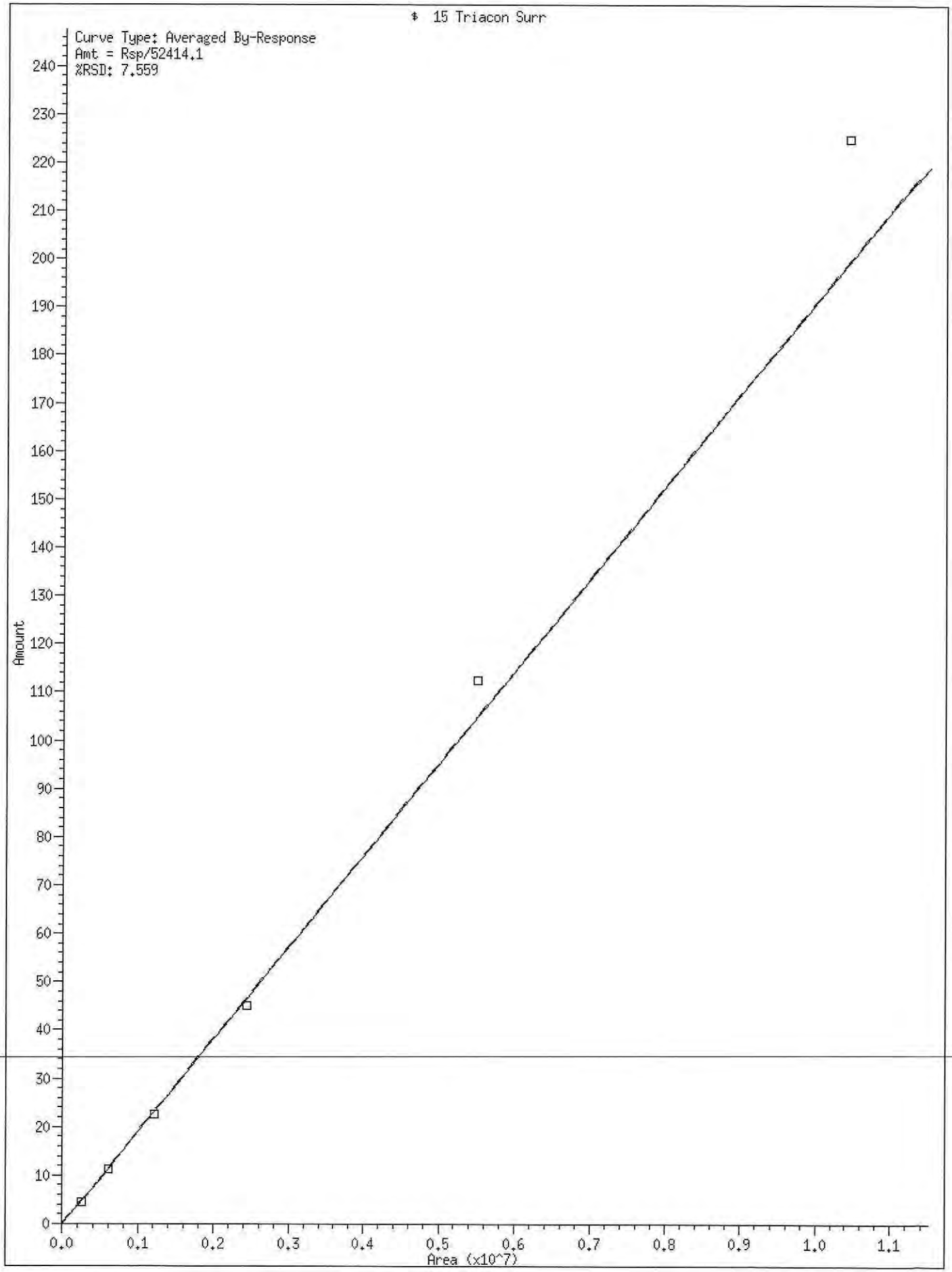
$ 15 Triacon Surr
Curve Type: Averaged By-Response
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Amount
Area (x10^7)
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30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
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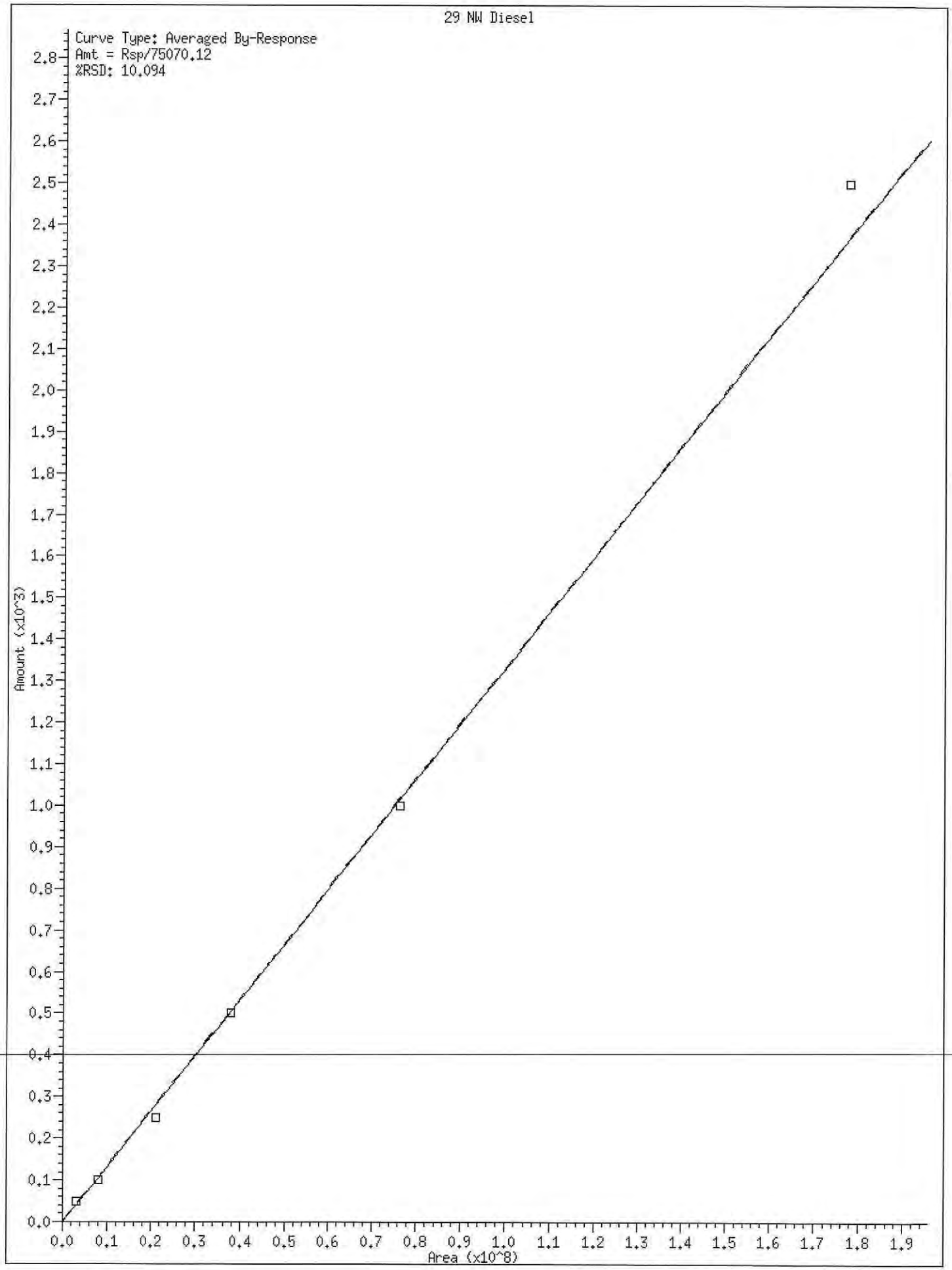
29 NW Diesel
Curve Type: Averaged By-Response
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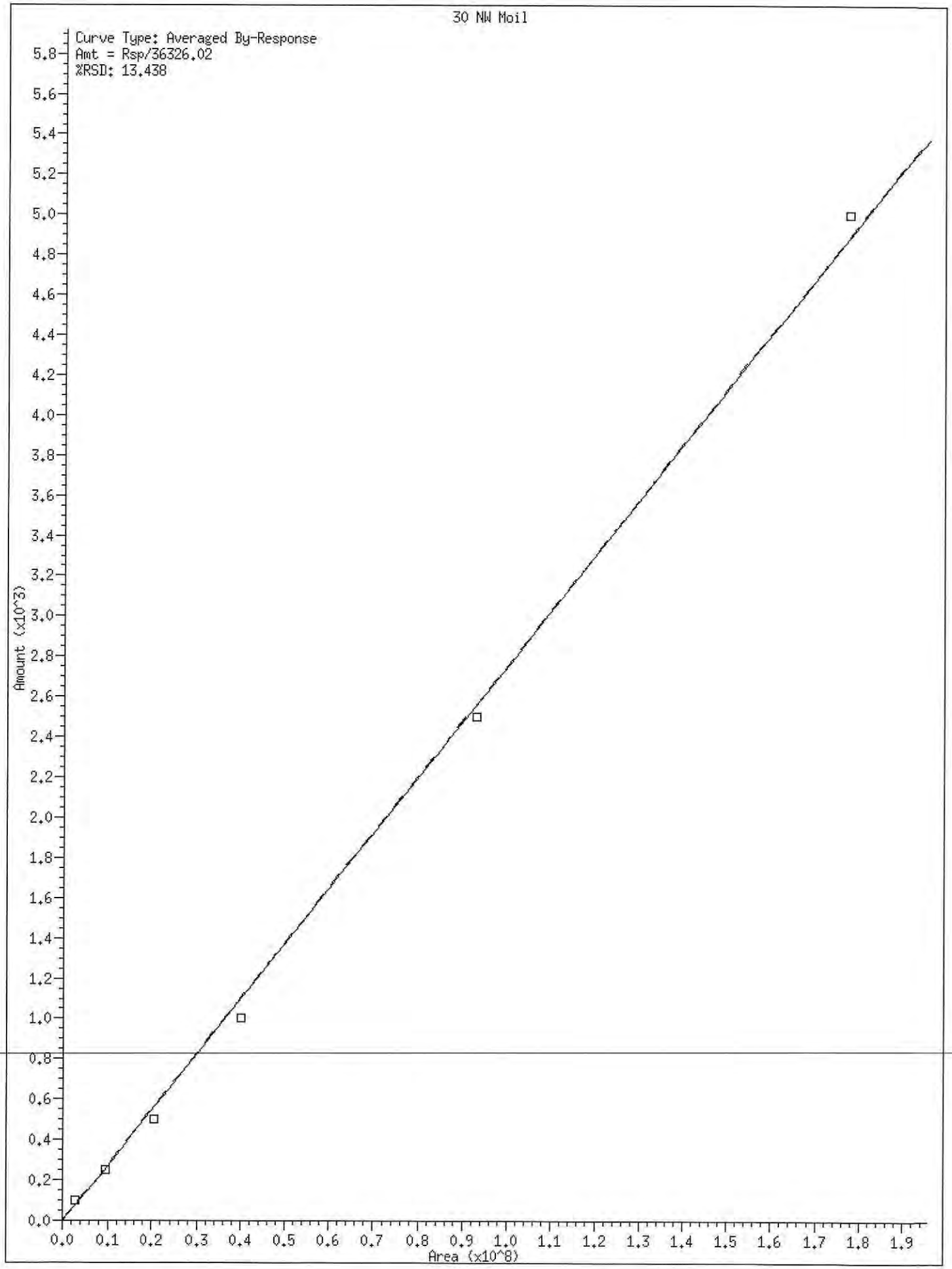
%RSD: 10.094
Amount (x10^3)
Area (x10^8)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8


30 NW Moil
Curve Type: Averaged By-Response
Amt = Rsp/36326.02
%RSD: 13.438
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Area (x10^8)
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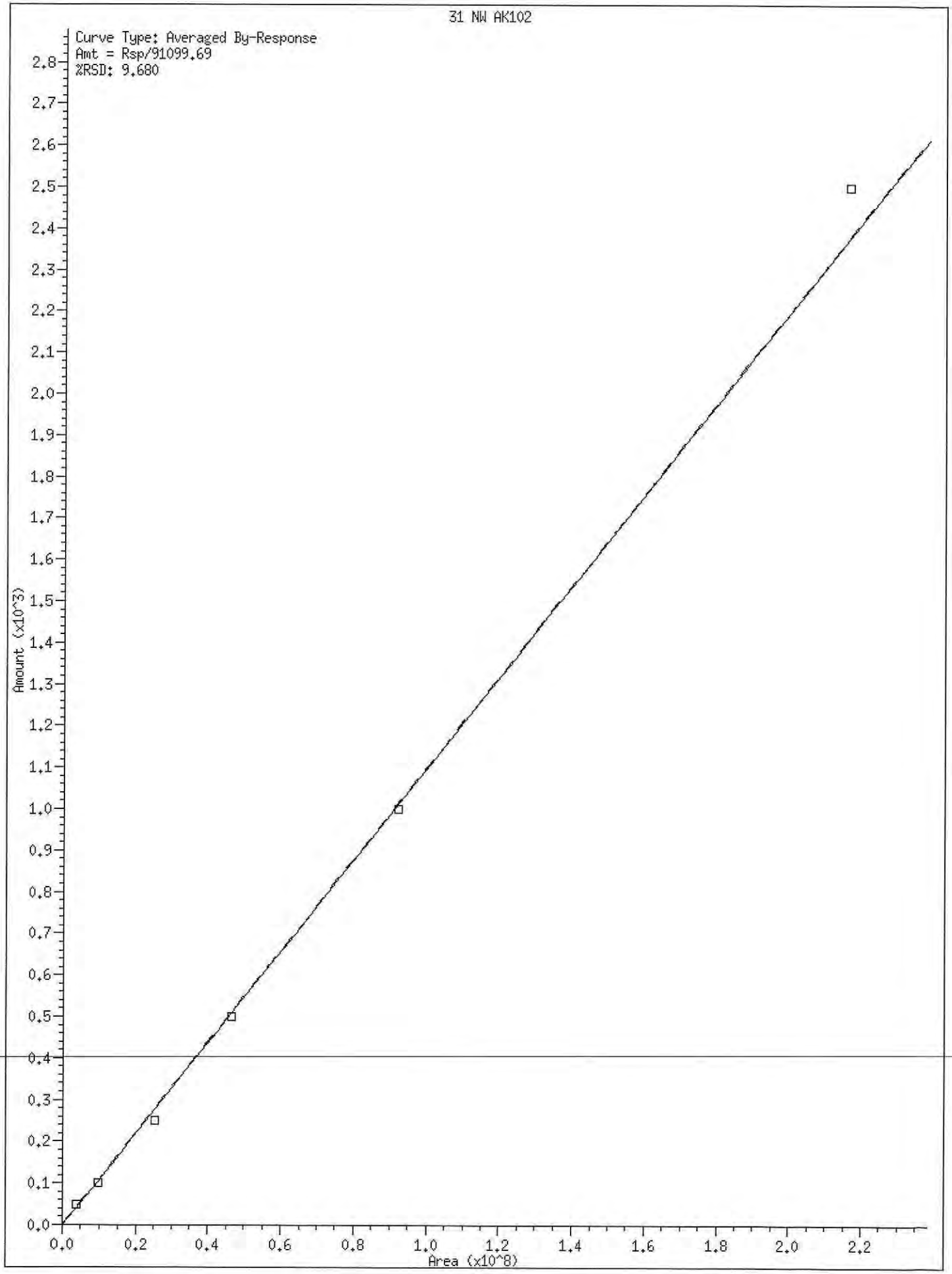
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9


31 NW AK102
Curve Type: Averaged By-Response
Amt = Rsp/91099.69
%RSD: 9.680
Amount (x10^3)
Area (x10^8)
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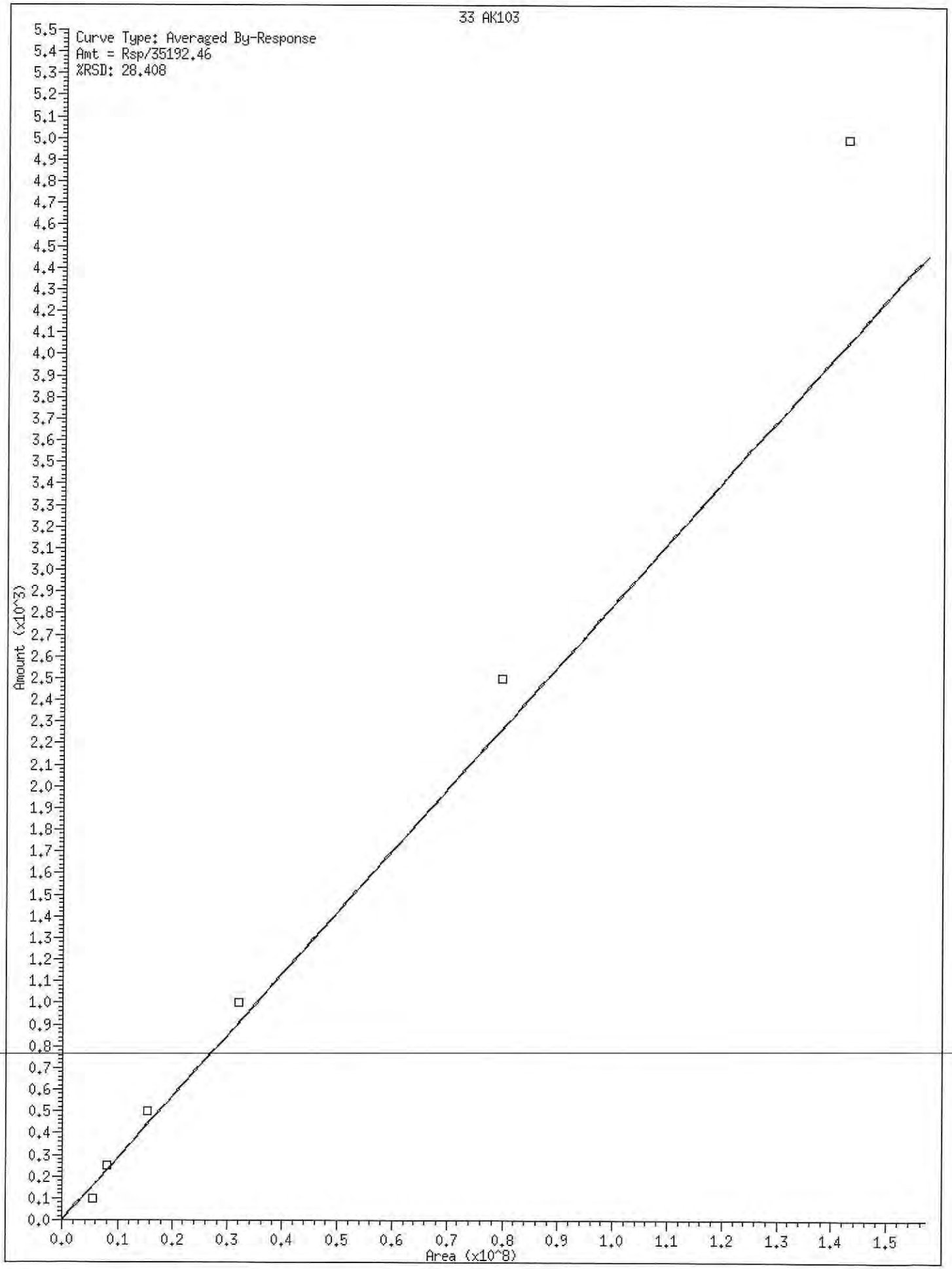
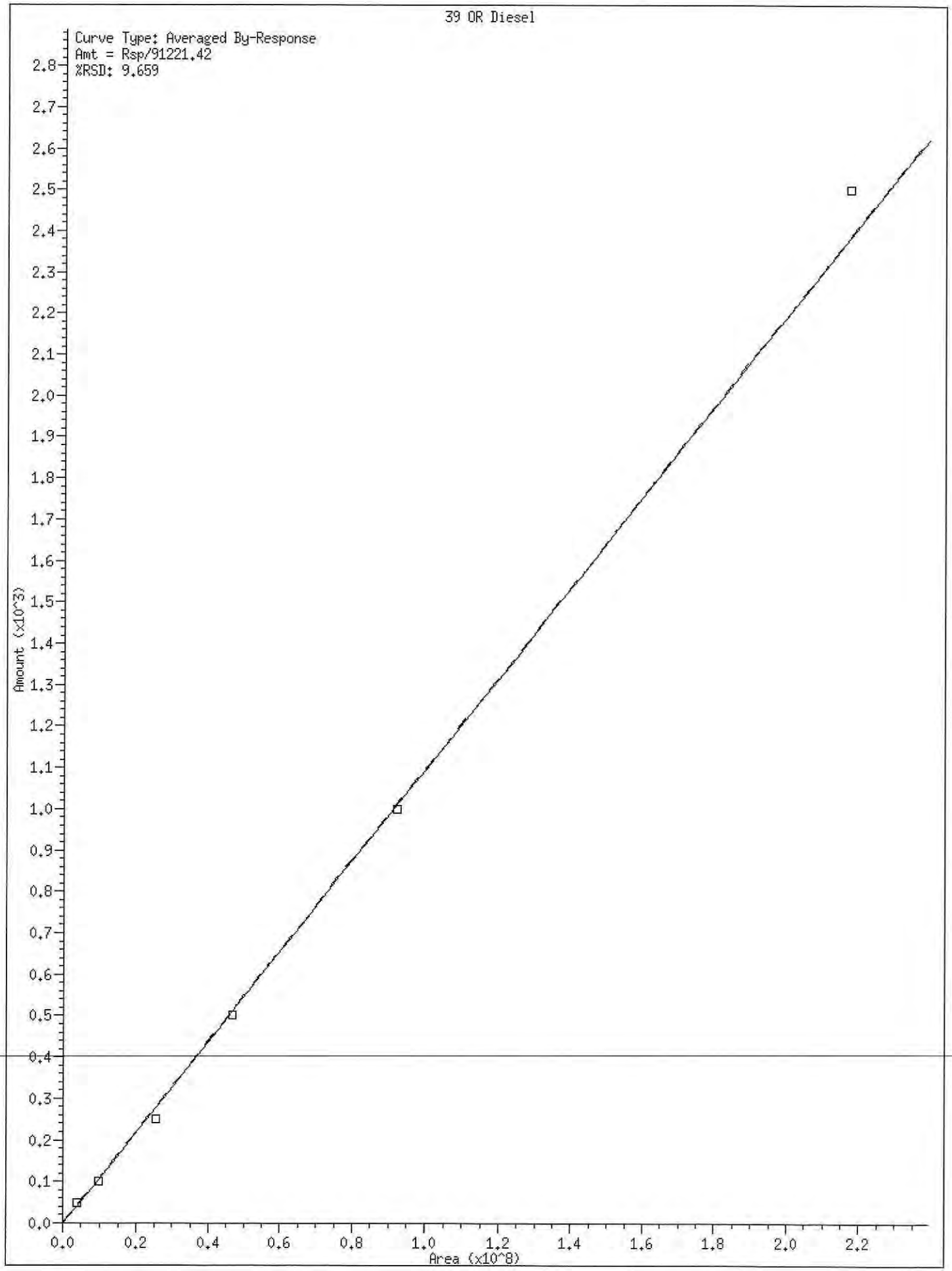
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8


33 AK103
Curve Type: Averaged By-Response
Amt = Rsp/35192.46
%RSD: 28.408
Amount (x10^3)
Area (x10^8)


39 OR Diesel
Curve Type: Averaged By-Response
Amt = Rsp/91221.42
%RSD: 9.659
Amount (x10^3)
Area (x10^8)
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0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
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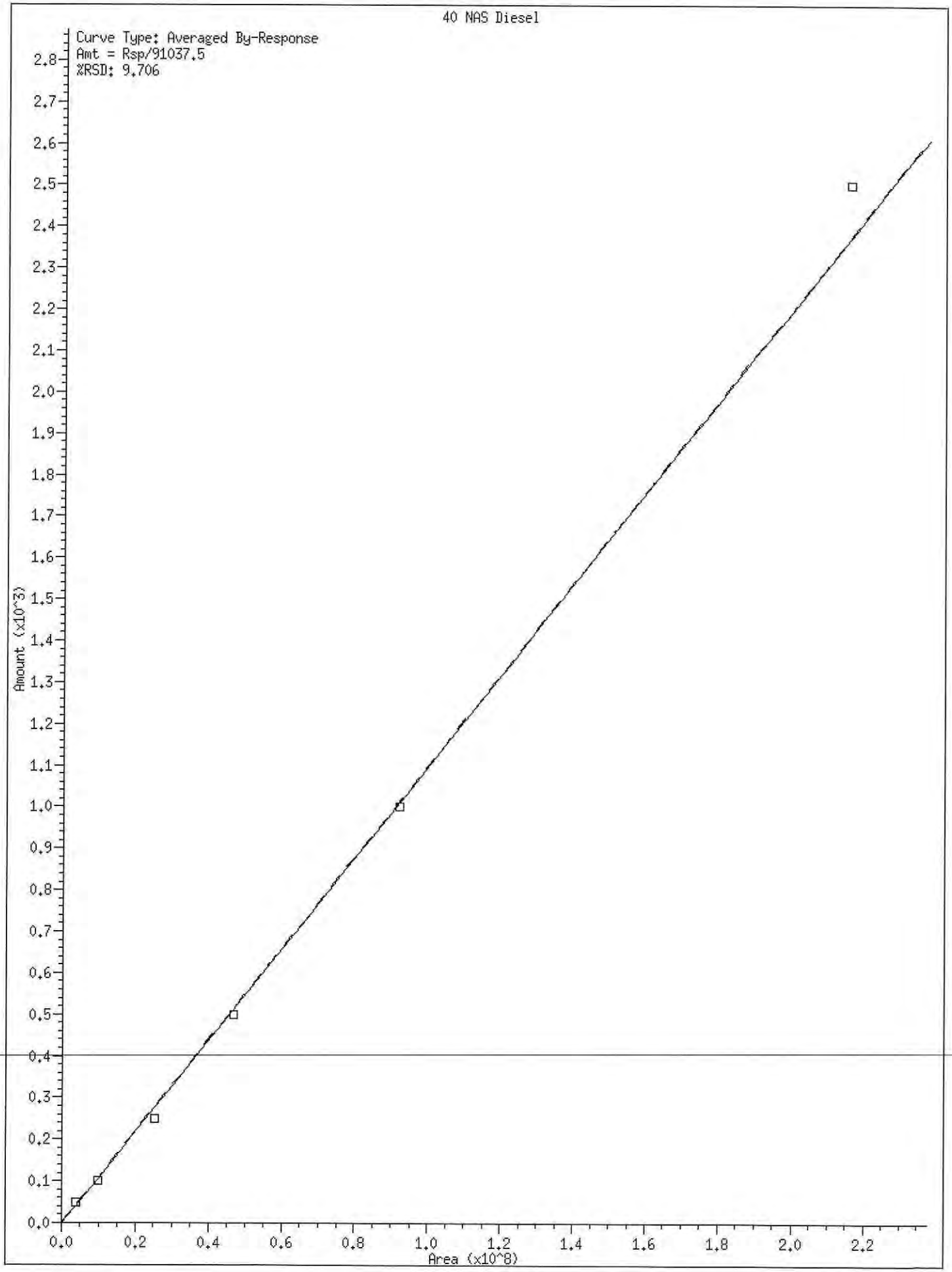
40 NAS Diesel
Curve Type: Averaged By-Response
Amt = Rsp/91037.5
%RSD: 9.706
Amount (x10^3)
Area (x10^8)
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0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190829.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190829.b
Inst ID: fid4a.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
FILENAME:	419H2921	419H2922	419H2923	419H2924	419H2925	419H2926	419H2927	419H2928	419H2929	419H2930
INJ.DATE:	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019
INJ.TIME:	16:10	16:31	16:54	17:15	17:36	17:57	18:20	18:41	19:02	19:23

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
	1 Toluene	1.663	+++++	1.649	1.645	1.637	1.649	1.651	1.651	+++++	+++++
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	2 C8	1.812	+++++	1.797	1.791	1.786	1.904	1.905	1.907	+++++	+++++
	3 C10	3.041	3.084	3.057	3.046	3.038	3.036	3.073	3.071	+++++	+++++
	4 C12	3.986	+++++	4.003	3.992	3.985	3.983	4.009	3.984	+++++	+++++
	5 C14	4.754	+++++	4.765	4.758	4.751	4.766	4.763	4.764	+++++	+++++
	6 C16	5.418	+++++	5.426	5.420	5.417	5.416	5.414	5.419	+++++	+++++
	7 C18	6.017	+++++	6.022	6.017	6.015	6.016	6.016	6.021	+++++	+++++
$	8 o-terph	6.202	6.201	6.196	6.193	6.195	6.200	6.210	6.227	+++++	+++++
	9 C20	6.582	+++++	6.597	6.588	6.582	6.581	6.579	6.582	+++++	+++++
	10 C22	7.143	+++++	7.172	7.158	7.147	7.143	7.168	7.141	7.123	7.141
	11 C24	7.695	+++++	+++++	7.723	7.709	7.701	7.696	7.694	7.706	7.712
	12 C25	7.965	+++++	+++++	7.996	7.985	7.977	7.969	7.965	7.984	7.980
	13 C26	8.229	+++++	+++++	+++++	8.250	8.245	8.239	8.232	8.239	8.245
	14 C28	8.739	8.740	+++++	+++++	+++++	+++++	8.757	8.750	8.754	8.748

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190829.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190829.b
Inst ID: fid4a.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
$ 15 Triacon Surr	9.238	9.235	+++++	9.246	+++++	+++++	+++++	+++++	9.221	9.221
16 C32	9.681	9.702	+++++	9.693	+++++	+++++	+++++	+++++	9.711	9.698
17 C34	10.114	+++++	10.157	+++++	10.160	10.089	+++++	+++++	10.157	10.138
18 Filter Peak	+++++	+++++	+++++	+++++	+++++	+++++	11.938	11.945	+++++	11.976
19 C36	10.526	+++++	+++++	+++++	10.546	10.548	+++++	+++++	10.539	10.546
20 C38	10.926	+++++	+++++	+++++	+++++	+++++	10.936	+++++	10.951	10.952
21 C40	11.325	+++++	11.301	+++++	11.319	11.316	11.312	11.350	11.309	11.346
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190829.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190829.b
Inst ID: fid4a.i

ID:	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20
FILENAME:	419H2931	419H2932	419H2933	419H2934	419H2935	419H2936	419H2937	419H2938	419H2939	419H2940
INJ.DATE:	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019	29-AUG-2019
INJ.TIME:	19:44	20:06	20:27	20:48	21:09	21:30	21:50	22:11	22:33	22:55

	Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.612	+++++	1.663	1.563-1.763	1.645	0.015
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	2 C8	1.784	+++++	+++++	+++++	+++++	+++++	1.938	1.940	1.941	1.874	1.812	1.712-1.912	1.865	0.066
	3 C10	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.104	3.041	2.991-3.091	3.061	0.023
	4 C12	+++++	+++++	+++++	+++++	3.946	+++++	+++++	+++++	+++++	+++++	3.986	3.936-4.036	3.986	0.019
	5 C14	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.764	4.754	4.704-4.804	4.761	0.005
	6 C16	+++++	+++++	+++++	5.440	+++++	+++++	+++++	+++++	5.427	5.420	5.418	5.368-5.468	5.422	0.008
	7 C18	+++++	6.047	6.044	6.018	+++++	+++++	+++++	6.025	6.020	6.032	6.017	5.967-6.067	6.024	0.011
$	8 o-terph	6.205	+++++	6.228	6.225	6.208	+++++	+++++	6.190	6.222	6.221	6.202	6.152-6.252	6.208	0.013
	9 C20	6.585	6.581	6.578	6.590	+++++	+++++	6.600	6.600	6.598	6.596	6.582	6.532-6.632	6.588	0.008
	10 C22	7.154	7.155	7.153	7.154	+++++	7.157	7.157	7.150	7.155	7.152	7.143	7.093-7.193	7.151	0.011
	11 C24	7.700	7.699	7.711	7.705	7.709	7.705	7.703	7.720	7.710	7.702	7.695	7.645-7.745	7.706	0.008
	12 C25	7.984	7.972	7.973	7.976	7.980	7.970	7.980	7.986	7.988	7.973	7.965	7.915-8.015	7.978	0.008
	13 C26	8.244	8.243	8.248	8.238	8.250	8.245	8.244	8.245	8.244	8.252	8.229	8.179-8.279	8.243	0.006
	14 C28	8.760	8.756	8.753	8.750	8.738	8.756	8.753	8.757	8.756	8.754	8.739	8.689-8.789	8.751	0.007
$	15 Triacon Surr	9.224	9.227	9.240	9.253	9.221	9.221	9.224	9.229	9.240	9.252	9.238	9.188-9.288	9.233	0.011
	16 C32	9.689	9.703	9.703	9.705	9.685	9.714	9.702	9.703	9.701	9.702	9.681	9.631-9.731	9.699	0.009
	17 C34	10.142	10.131	10.132	10.131	10.120	10.141	10.145	10.125	10.130	10.133	10.114	10.064-10.164	10.134	0.018

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190829.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190829.b
Inst ID: fid4a.i

Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
18 Filter Peak	12.005	12.000	11.997	11.991	11.981	11.996	12.007	11.992	11.997	12.001	11.995	11.895-12.095	11.987	0.022
19 C36	10.548	10.544	10.545	10.546	10.544	10.542	10.553	10.541	10.546	10.551	10.526	10.476-10.576	10.544	0.006
20 C38	10.952	10.947	10.945	10.950	10.955	10.949	10.947	10.947	10.948	10.946	10.926	10.876-10.976	10.947	0.008
21 C40	11.353	11.343	11.343	11.354	+++++	11.346	11.345	11.354	11.351	11.344	11.325	11.275-11.375	11.336	0.018
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2921.D

Date : 29-AUG-2019 16:10

Client ID:

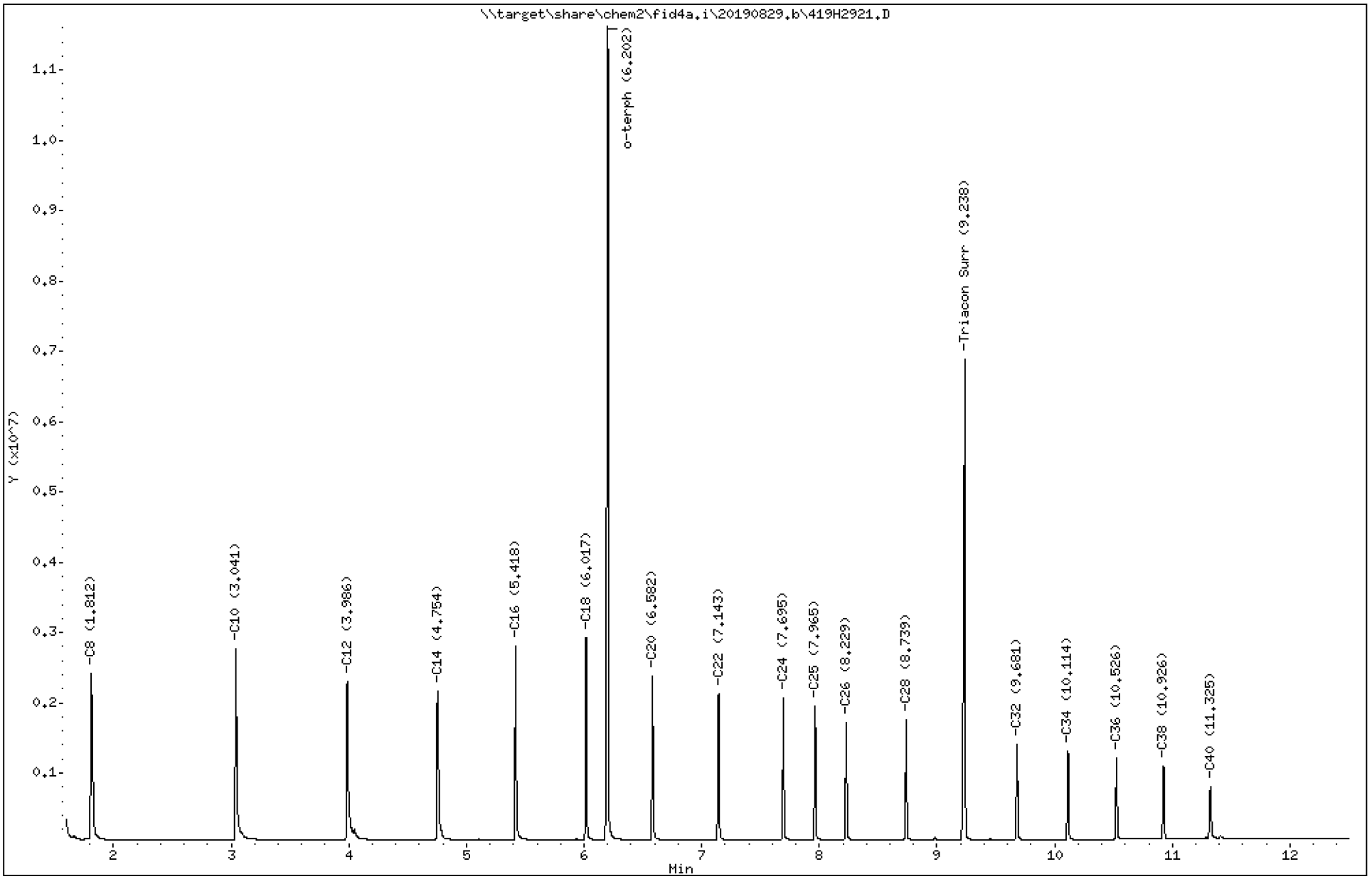
Sample Info: SHH0420-IBL1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2921.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-IBL1
Client ID:
Injection: 29-AUG-2019 16:10
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.812	0.000	2360378	2862577	WATPHD	(C12-C24)	11365881	151.4
C10	3.041	0.000	2710484	2550099	WATPHM	(C24-C38)	8165423	224.8
C12	3.986	0.000	2260838	2302033	AK102	(C10-C25)	16454584	180.6
C14	4.754	0.000	2109692	2318035	AK103	(C25-C36)	7169276	203.7
C16	5.418	0.000	2756272	2082345	OR.DIES	(C10-C28)	20423148	223.9
C18	6.017	0.000	2871405	1834852				
C20	6.582	0.000	2327488	1703309				
C22	7.143	0.000	2077907	1567209				
C24	7.695	0.000	2018616	1437170				
C25	7.965	0.000	1894647	1383647				
C26	8.229	0.000	1676869	1325740				
C28	8.739	0.000	1702429	1250177				
C32	9.681	0.000	1366766	1088878				
C34	10.114	0.000	1263751	1011429				
Filter Peak	----				BUNKERC	(C10-C38)	24609259	365.8
C36	10.526	0.000	1155703	995600				
C38	10.926	0.000	1056898	944240				
C40	11.325	0.000	756303	882115				
o-terph	6.202	0.000	11574168	9530722				
Triacon Surr	9.238	0.000	6837632	6686626	NAS DIES	(C10-C24)	16443837	180.6

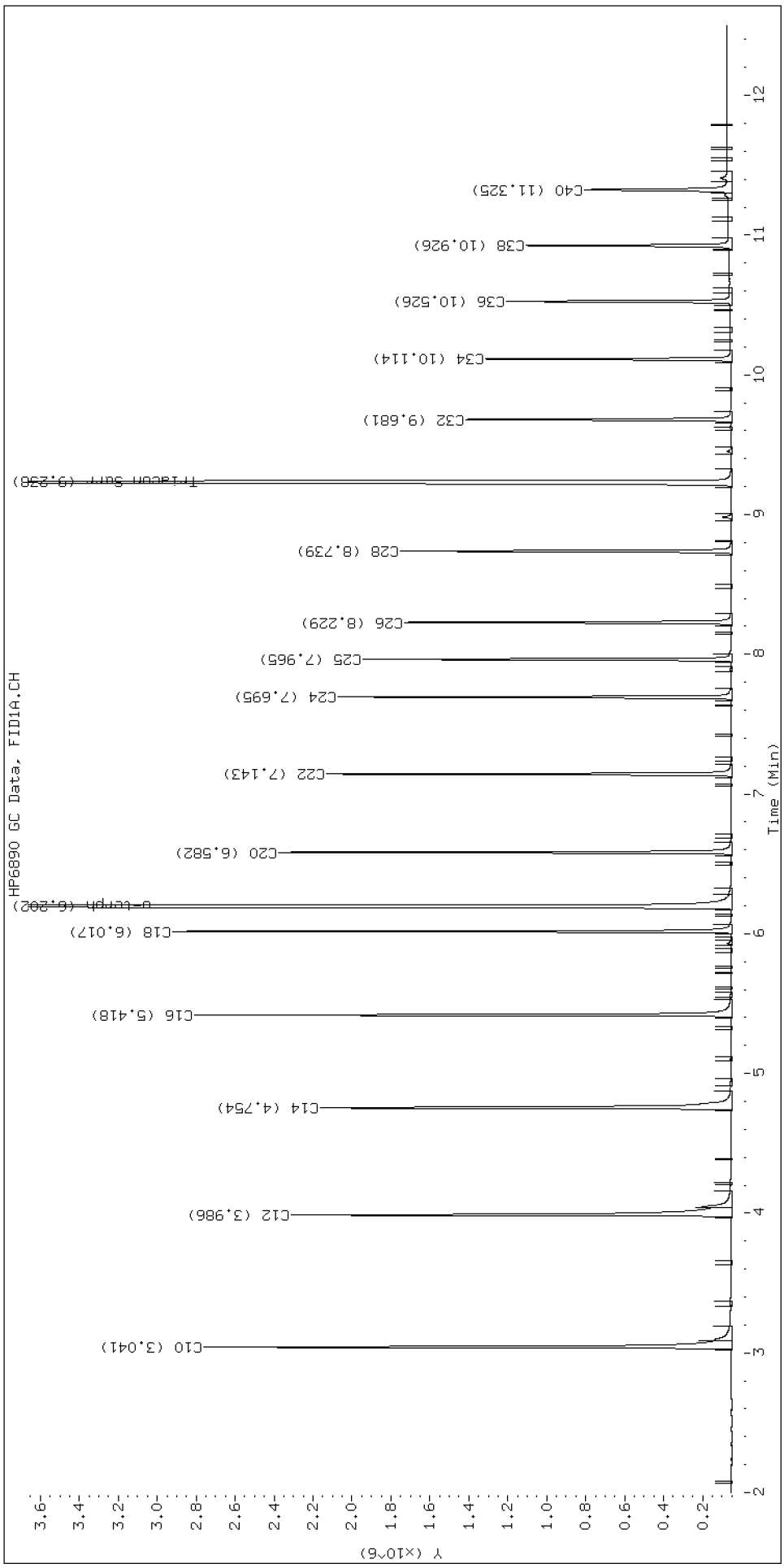
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	9530722	111.0
Triacontane	6686626	127.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190829.b/419H2921.D SHH0420-IBL1



Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2922.D

Date : 29-AUG-2019 16:31

Client ID:

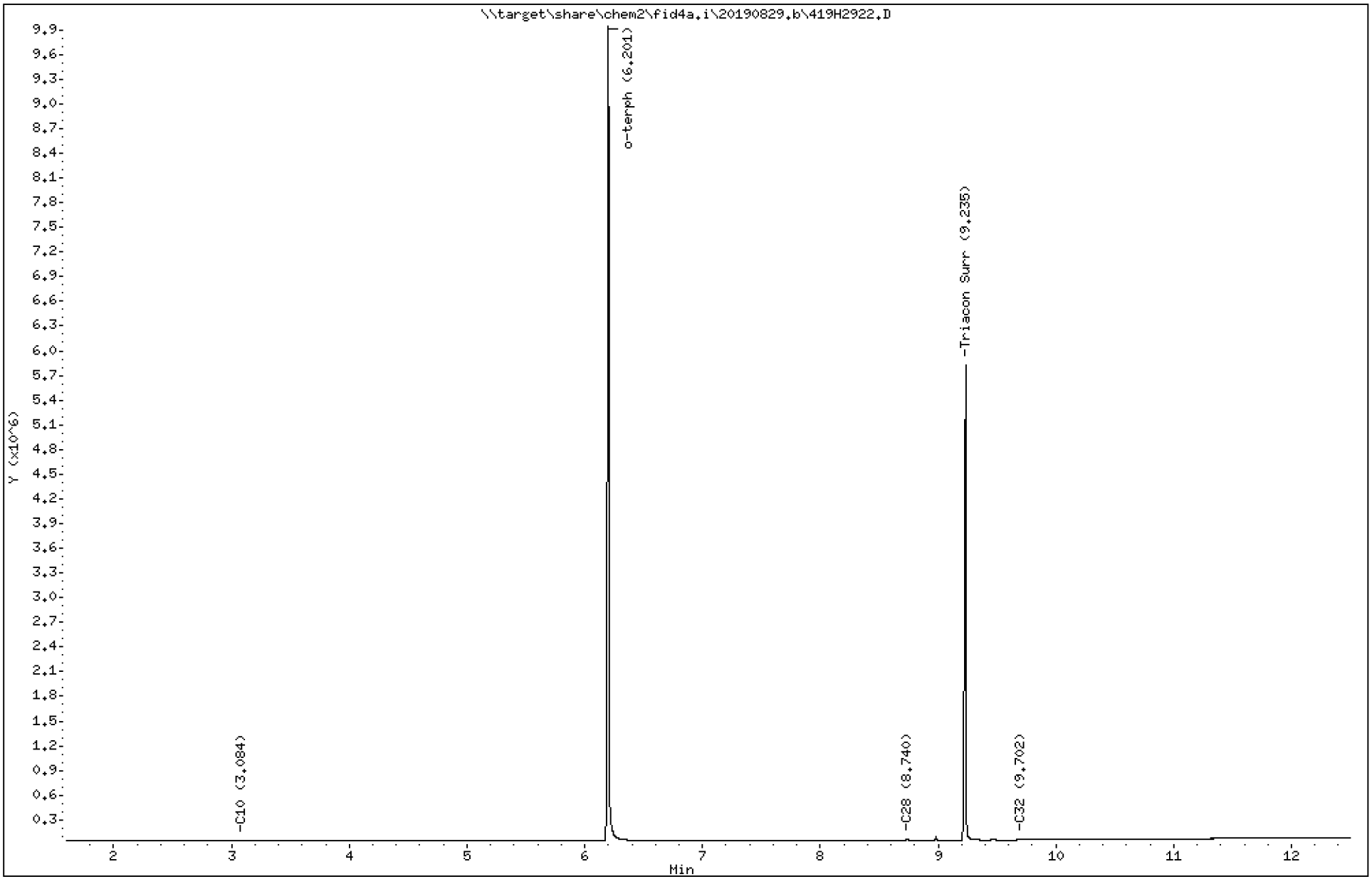
Sample Info: SHH0420-IBL2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2922.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-IBL2
Client ID:
Injection: 29-AUG-2019 16:31
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	1429	0.0
C10	3.084	0.042	3062	1042	WATPHM	(C24-C38)	150309	4.1
C12	----				AK102	(C10-C25)	6181	0.1
C14	----				AK103	(C25-C36)	150309	4.3
C16	----				OR.DIES	(C10-C28)	32226	0.4
C18	----							
C20	----							
C22	----							
C24	----							
C25	----							
C26	----							
C28	8.740	0.001	23416	23499				
C32	9.702	0.021	15198	47263				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	156490	2.3
C36	----							
C38	----							
C40	----							
o-terph	6.201	-0.001	9895843	8685686				
Triacon Surr	9.235	-0.003	5773052	5405400	NAS DIES	(C10-C24)	6181	0.1

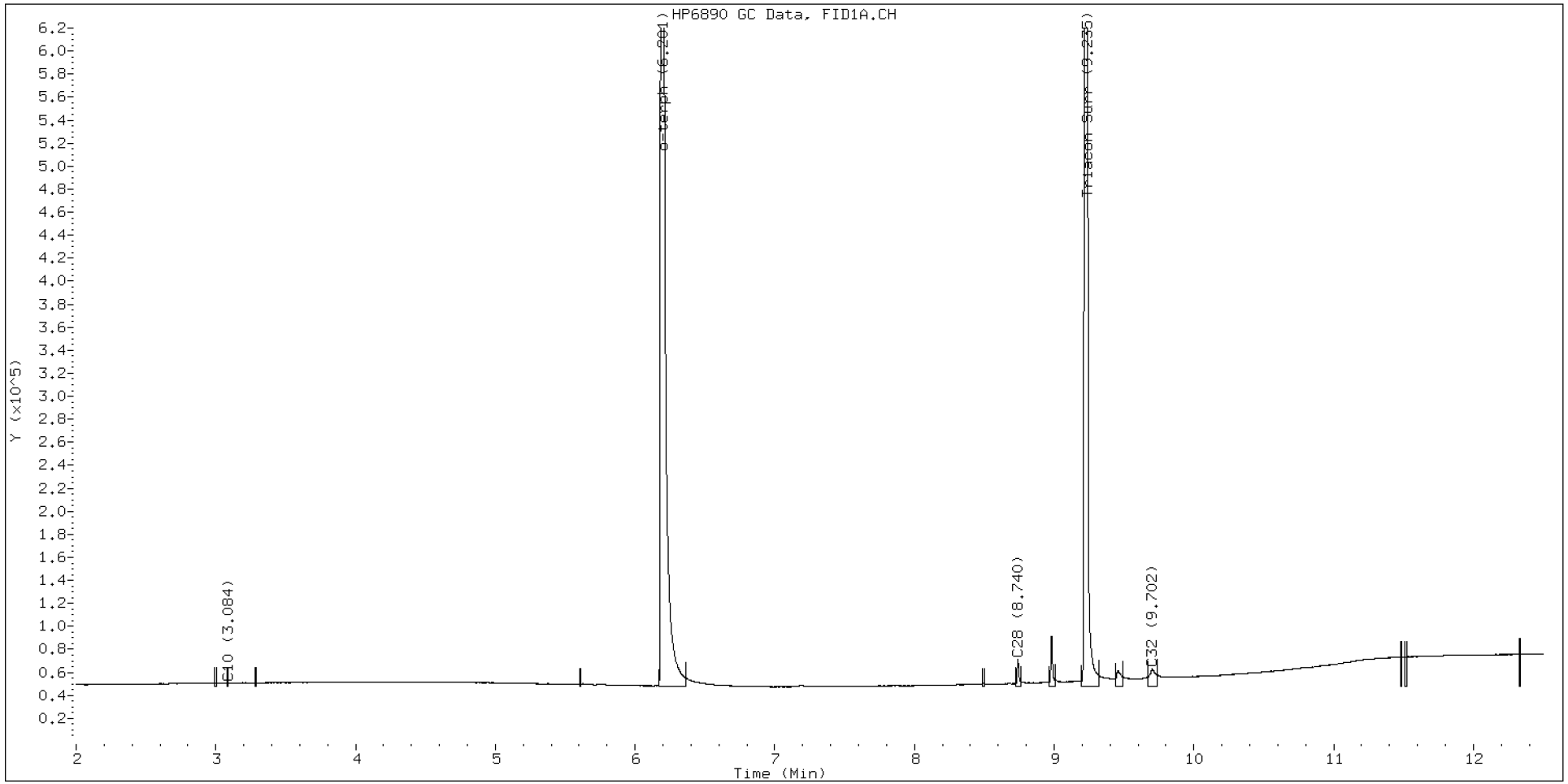
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	8685686	101.2
Triacontane	5405400	103.1

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190829.b/419H2922.D SHH0420-IBL2



Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2923.D

Date : 29-AUG-2019 16:54

Client ID:

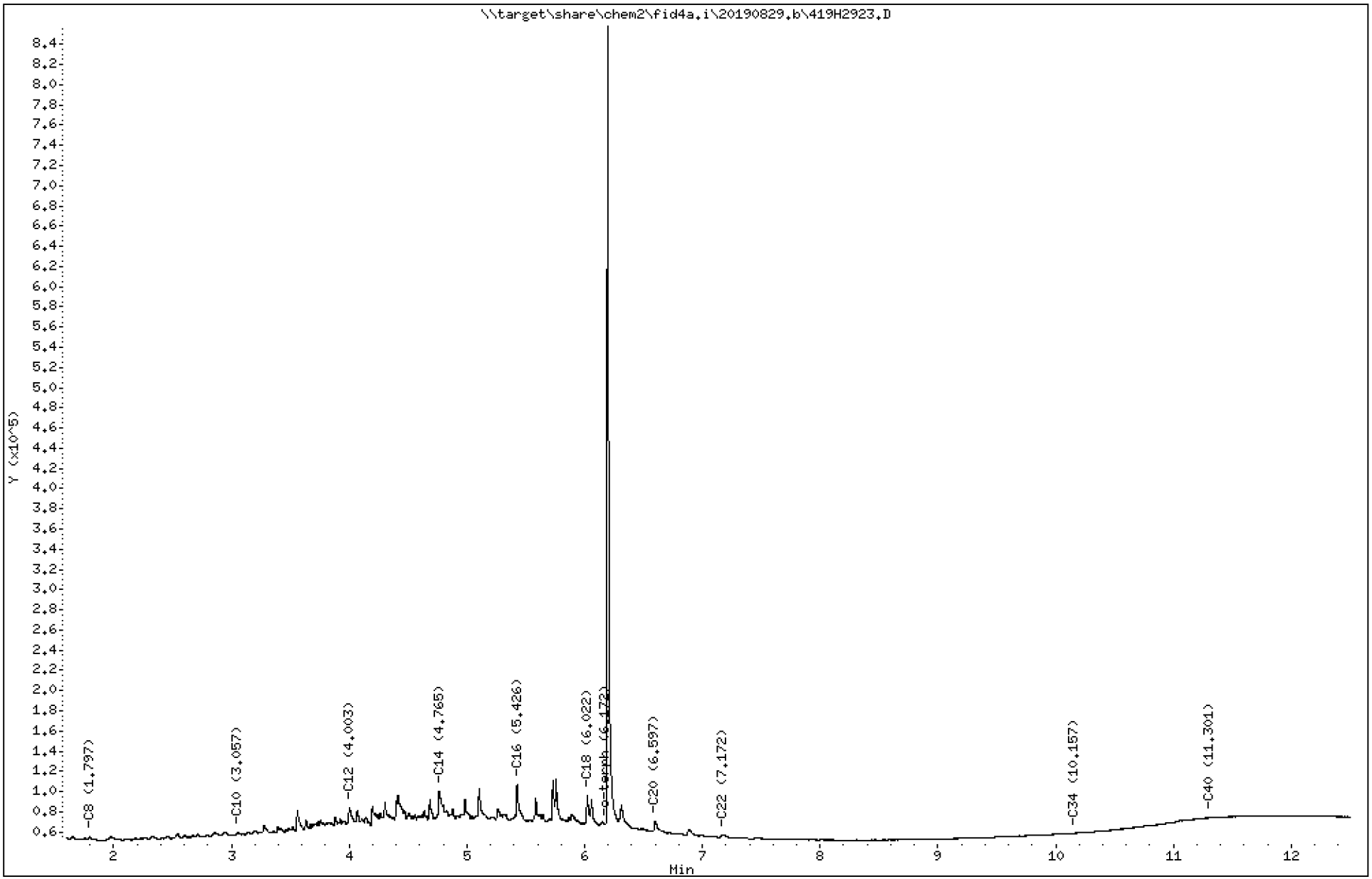
Sample Info: SHH0420-CAL1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2923.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL1
Client ID:
Injection: 29-AUG-2019 16:54
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.797	-0.016	3466	2280	WATPHD	(C12-C24)	3119508	41.6
C10	3.057	0.015	7679	9687	WATPHM	(C24-C38)	8985	0.2
C12	4.003	0.017	32120	75260	AK102	(C10-C25)	3805587	41.8
C14	4.765	0.011	49037	95795	AK103	(C25-C36)	8985	0.3
C16	5.426	0.008	54776	143376	OR.DIES	(C10-C28)	3805587	41.7
C18	6.022	0.005	43930	73247				
C20	6.597	0.015	18680	47504				
C22	7.172	0.029	5806	7904				
C24	----							
C25	----							
C26	----							
C32	----							
C34	10.157	0.044	7282	2875				
Filter Peak	----				BUNKERC	(C10-C38)	3814572	56.7 M
C36	----							
C38	----							
C40	11.301	-0.024	22540	5608				
o-terph	6.196	-0.006	789871	782366				
Triacon Surr	----				NAS DIES	(C10-C24)	3805587	41.8

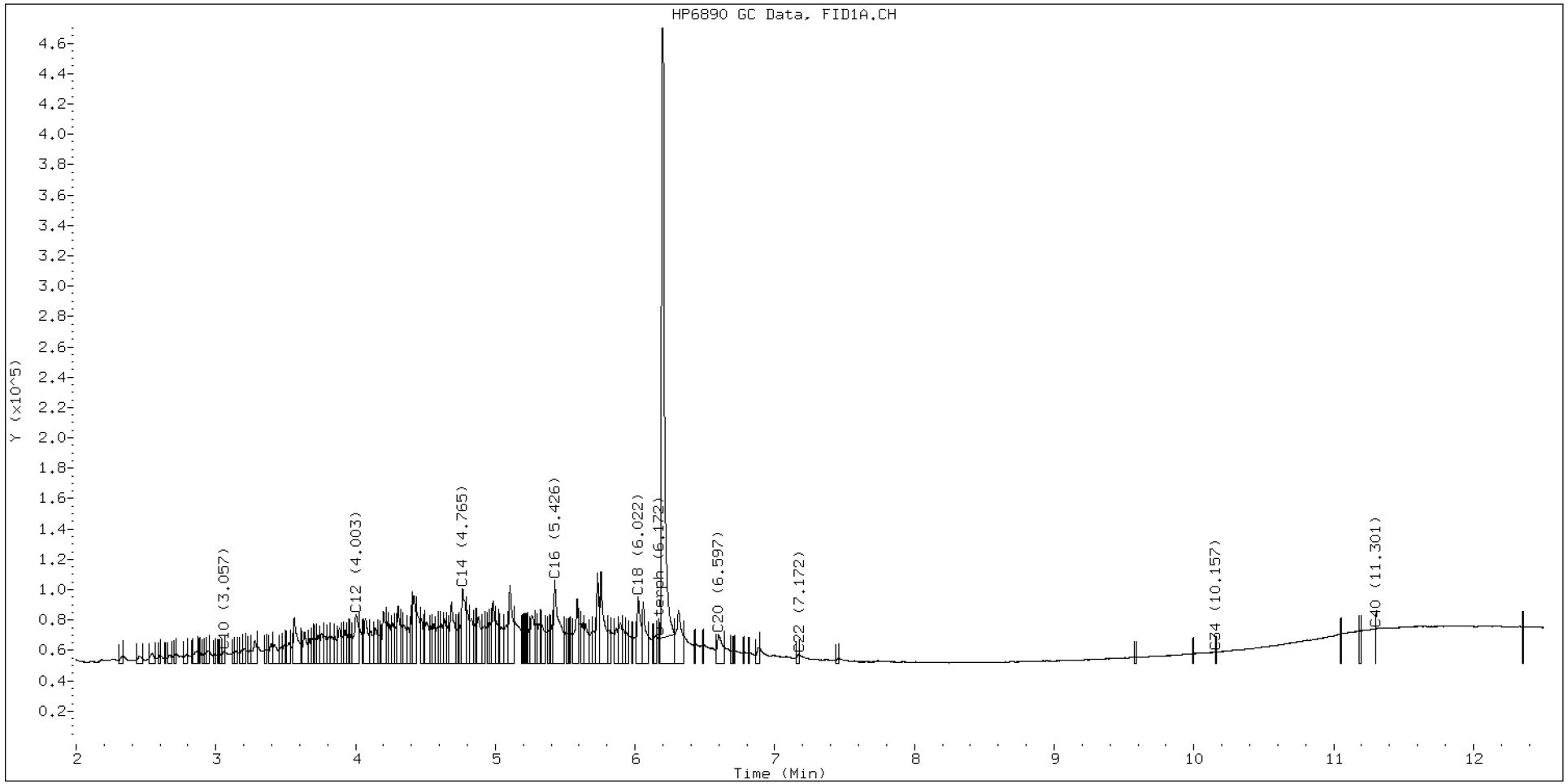
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	782366	9.1	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

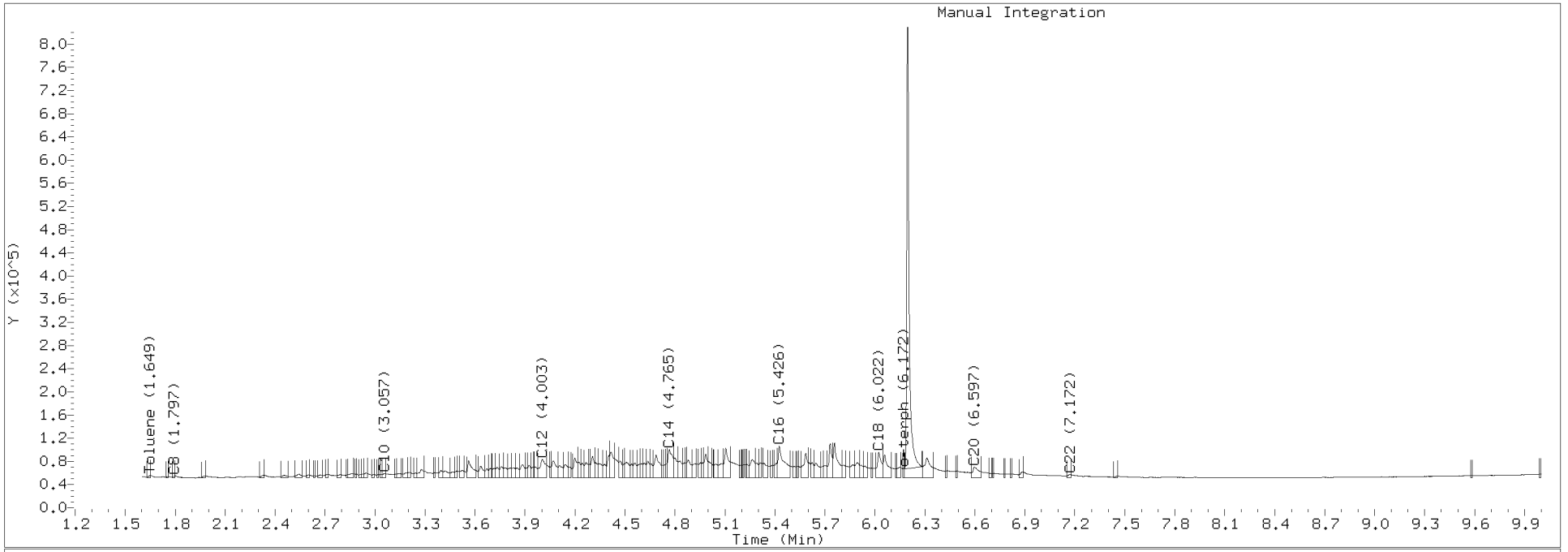
Datafile: FID4A, 20190829.b/419H2923.D SHH0420-CAL1

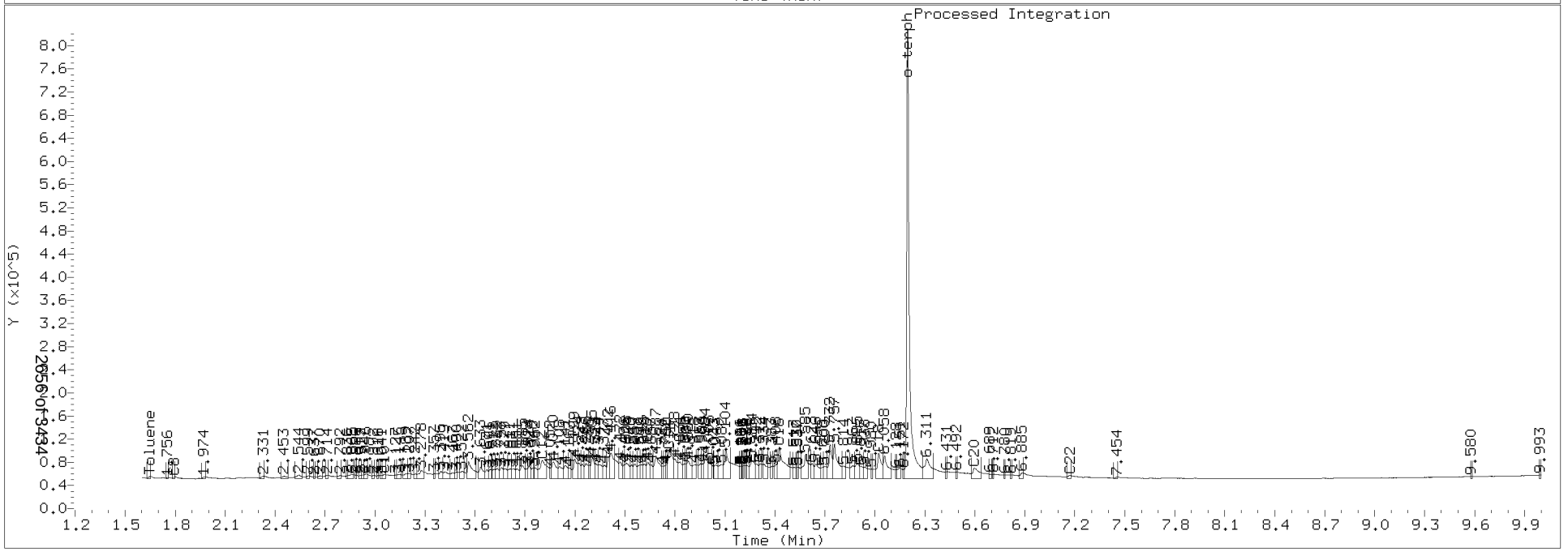


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2923.D Injection: 29-AUG-2019 16:54

Lab ID:SHH0420-CAL1





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2924.D

Date : 29-AUG-2019 17:15

Client ID:

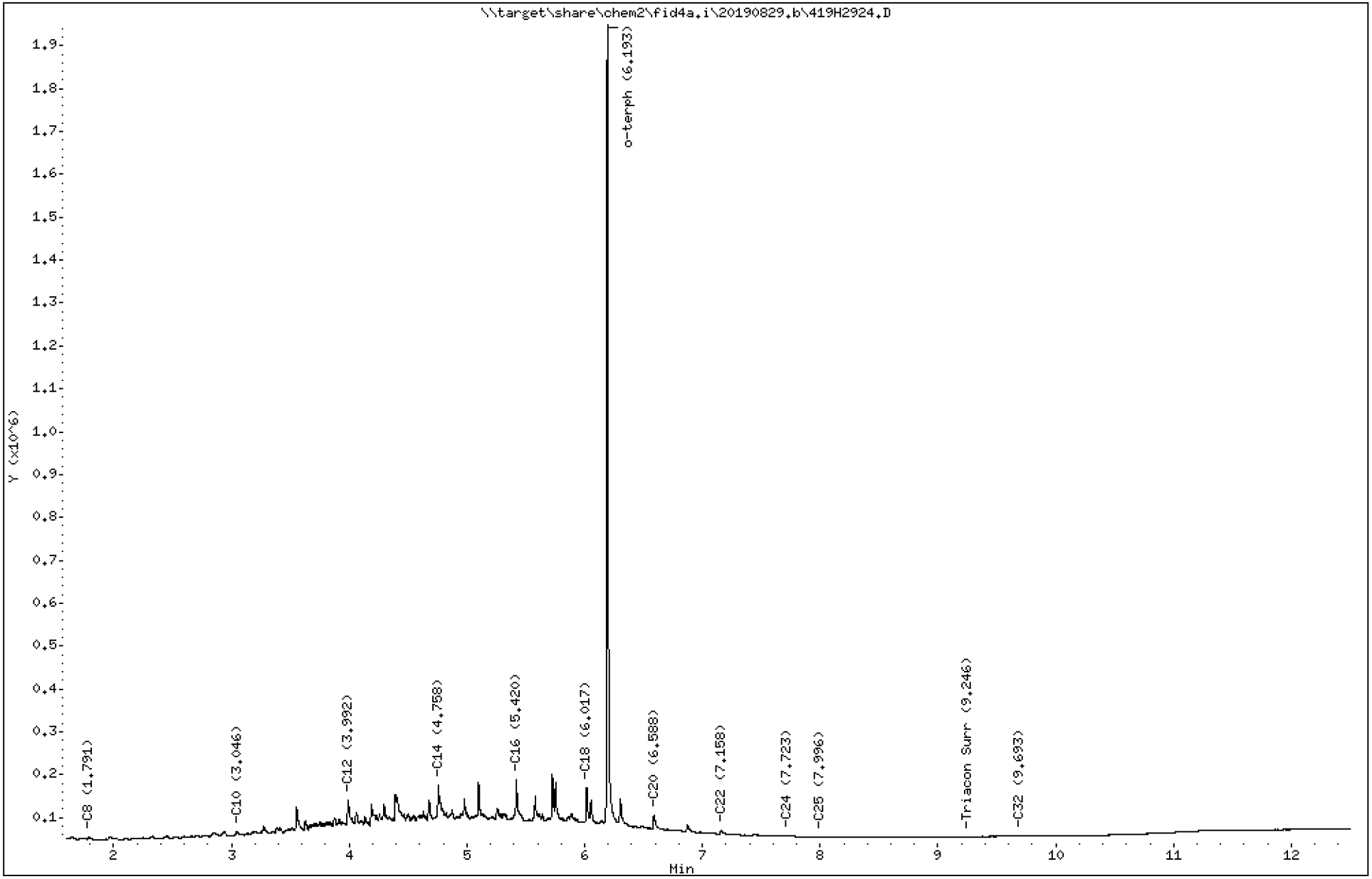
Sample Info: SHH0420-CAL2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2924.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL2
Client ID:
Injection: 29-AUG-2019 17:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

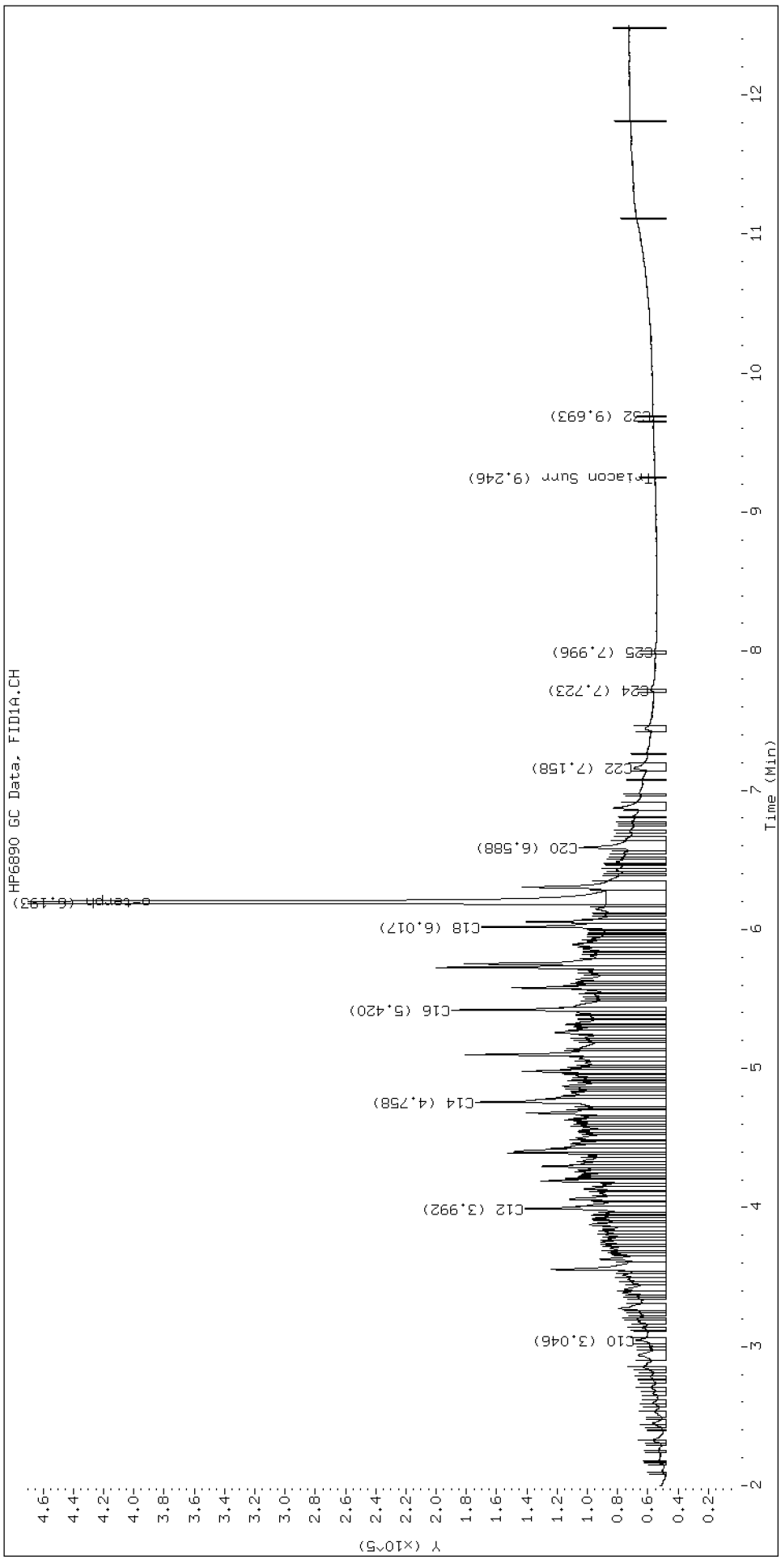
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.791	-0.021	5798	10435	WATPHD	(C12-C24)	8102543	107.9
C10	3.046	0.005	19469	40672	WATPHM	(C24-C38)	15328	0.4
C12	3.992	0.005	93235	153014	AK102	(C10-C25)	9749151	107.0
C14	4.758	0.004	126212	278933	AK103	(C25-C36)	15328	0.4
C16	5.420	0.002	141855	184913	OR.DIES	(C10-C28)	9756732	107.0
C18	6.017	-0.000	121692	177552				
C20	6.588	0.005	57184	154639				
C22	7.158	0.015	21478	61521				
C24	7.723	0.028	9854	13070				
C25	7.996	0.031	7612	7581				
C26	----							
C32	9.693	0.012	8867	4357				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	9764478	145.1 M
C36	----							
C38	----							
C40	----							
o-terph	6.193	-0.009	1861247	1579879				
Triacon Surr	9.246	0.008	7220	3592	NAS DIES	(C10-C24)	9749151	107.1

Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	1579879	18.4	M
Triacontane	3592	0.1	

M Indicates the peak was manually integrated

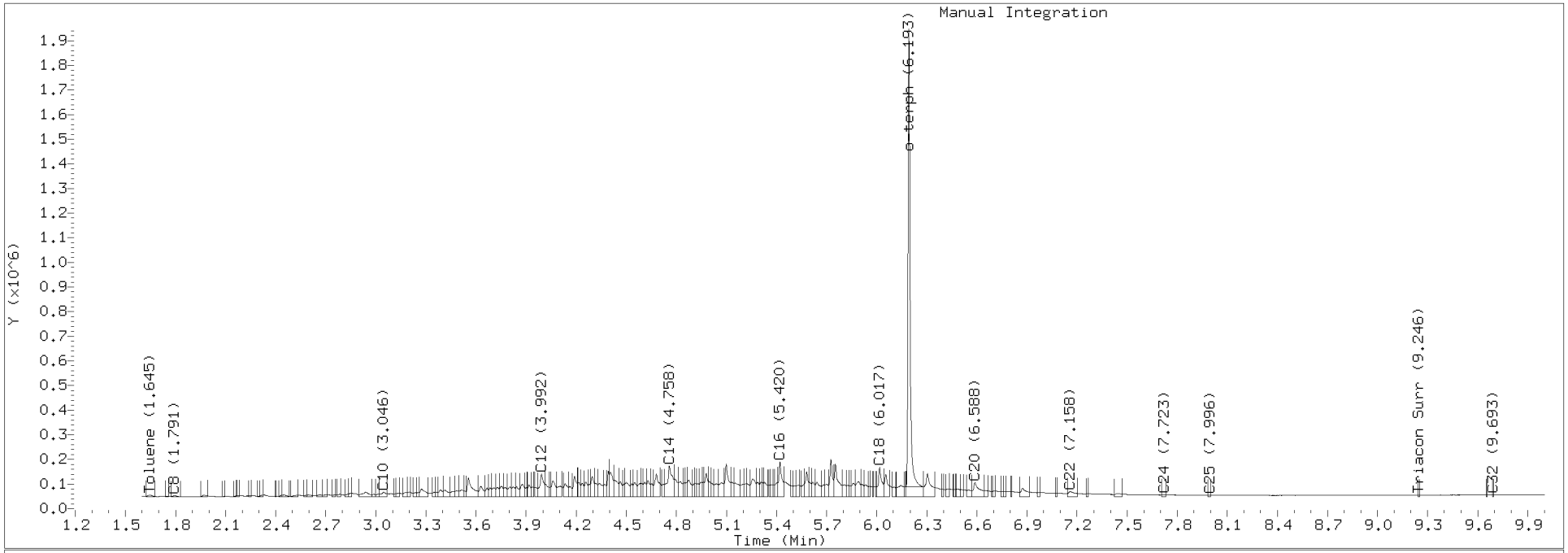
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

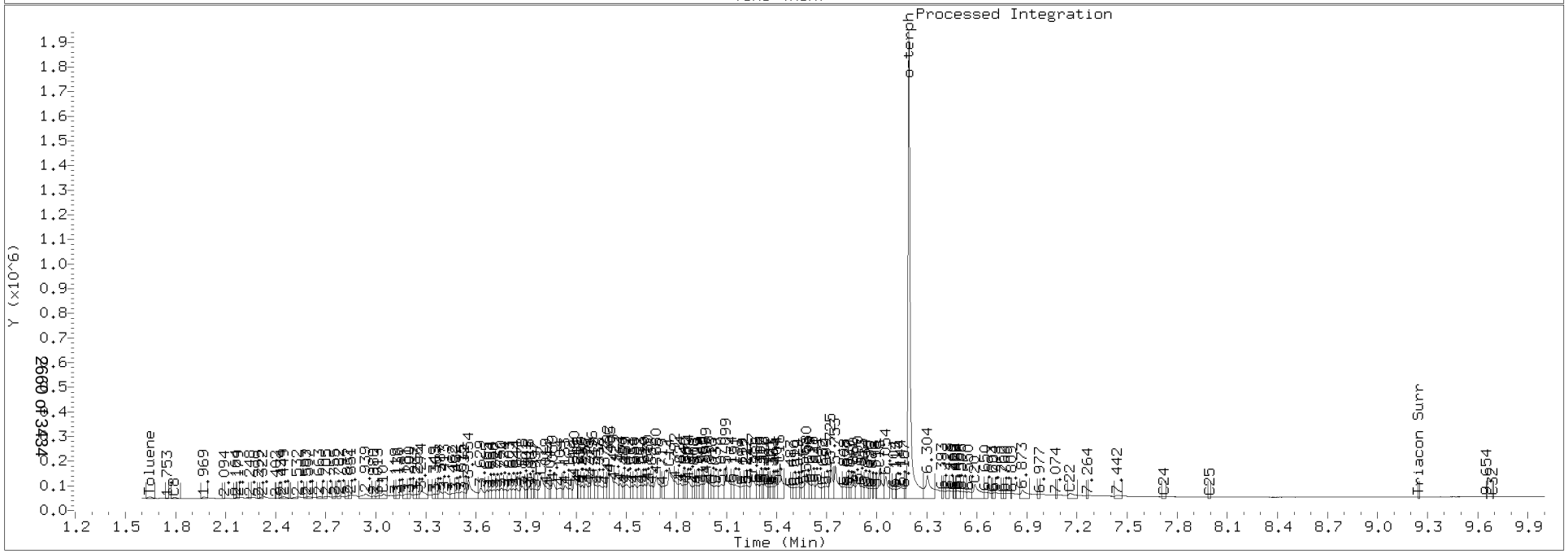

Datafile: FID4A, 20190829.b/419H2924.D SHH0420-CAL2
HP6890 GC Data, FID1A.CH
o-terph (6.193)
C18 (6.017)
C16 (5.420)
C14 (4.758)
C12 (3.992)
C10 (3.046)
C20 (6.588)
C22 (7.158)
C24 (7.723)
C25 (7.996)
Triacon Surr (9.246)
C32 (9.693)
Y (X10^5)
Time (Min)

TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2924.D Injection: 29-AUG-2019 17:15

Lab ID:SHH0420-CAL2



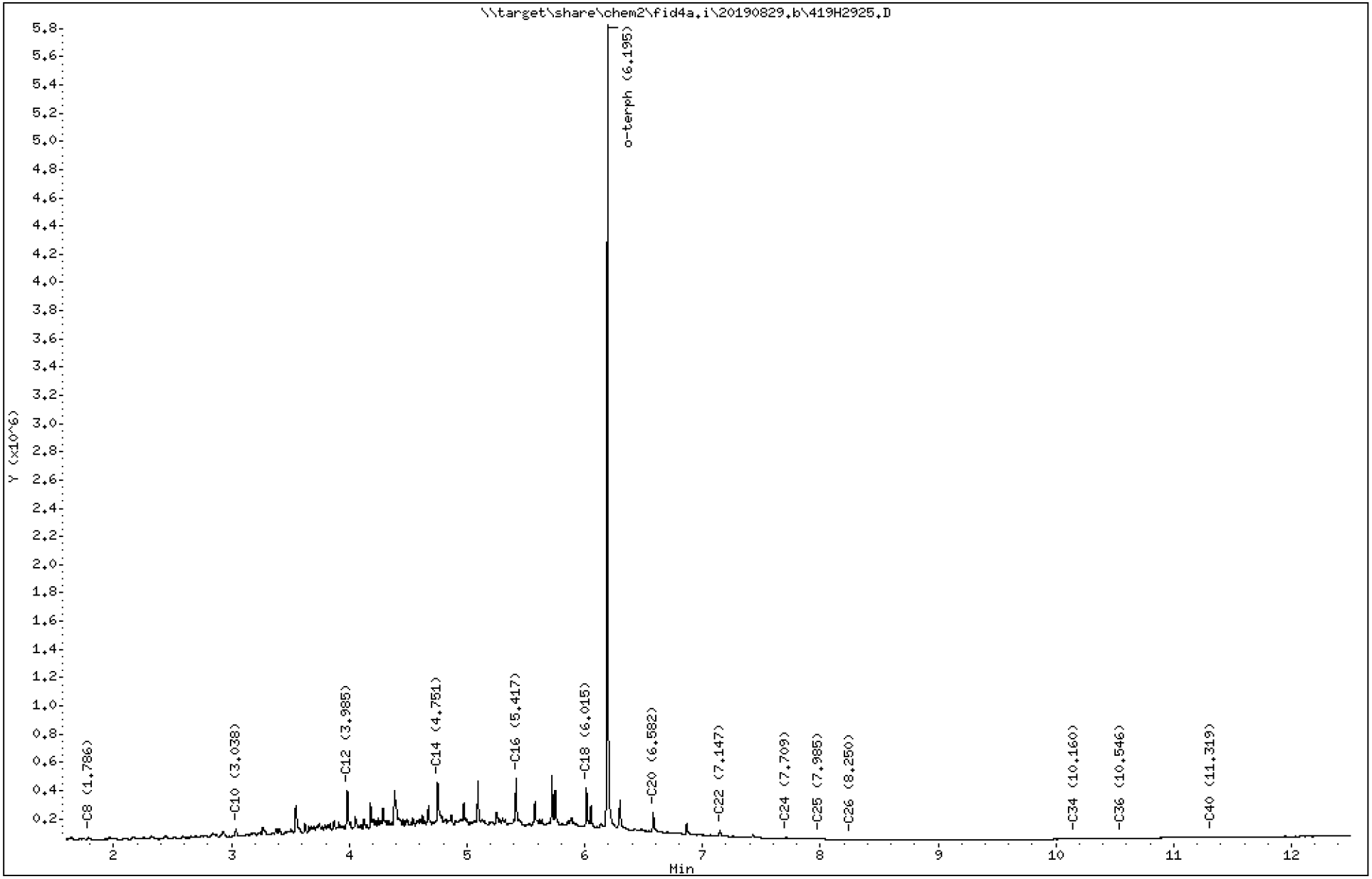


Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2925.D
Date : 29-AUG-2019 17:36
Client ID:
Sample Info: SHH0420-CAL3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2925.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL3
Client ID:
Injection: 29-AUG-2019 17:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

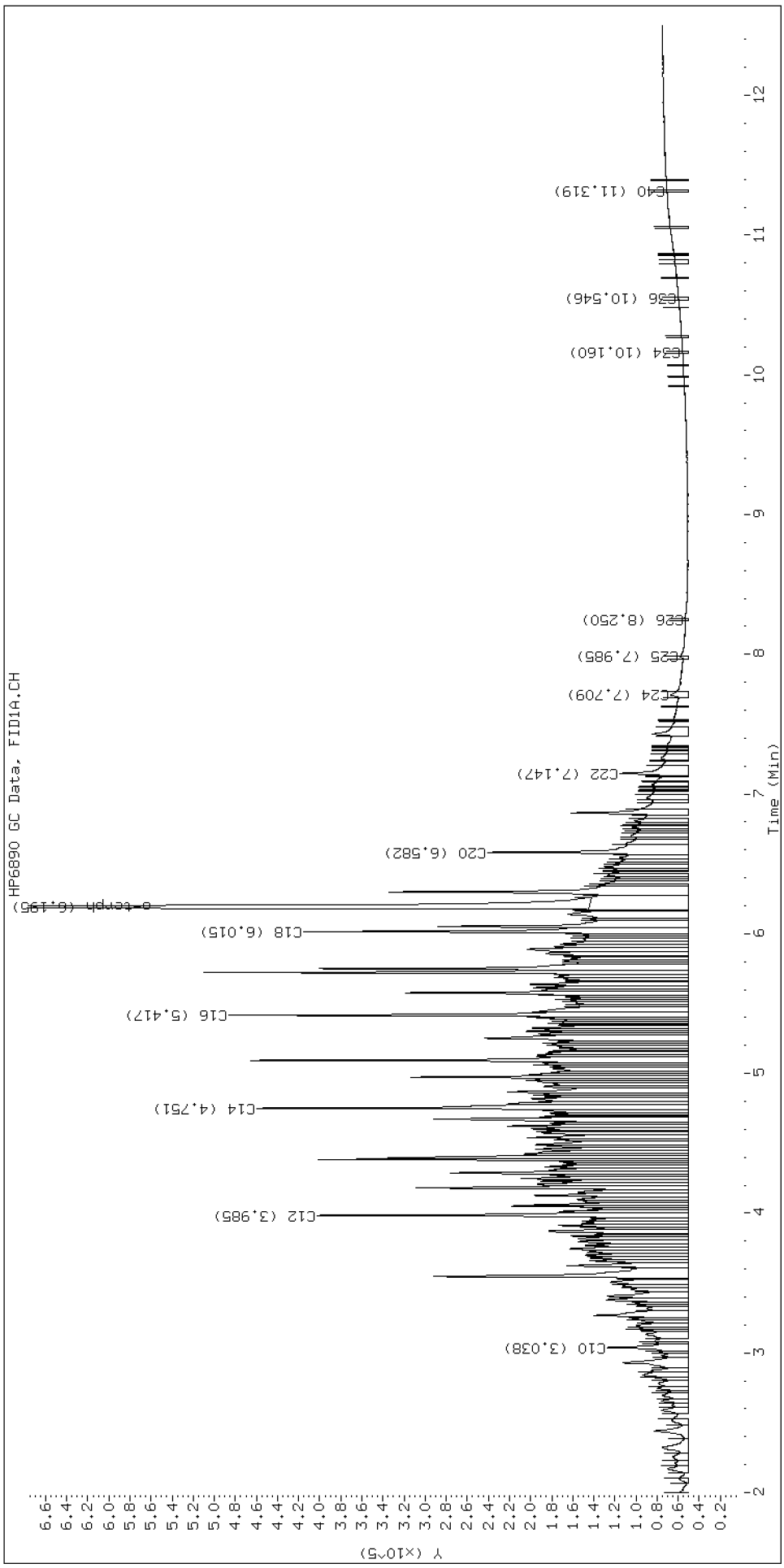
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.786	-0.026	14193	25688	WATPHD	(C12-C24)	20912447	278.6
C10	3.038	-0.004	76710	123607	WATPHM	(C24-C38)	73032	2.0
C12	3.985	-0.002	352241	417546	AK102	(C10-C25)	25254600	277.2
C14	4.751	-0.003	409472	550746	AK103	(C25-C36)	38506	1.1
C16	5.417	-0.001	435497	463145	OR.DIES	(C10-C28)	25264536	277.0
C18	6.015	-0.003	364795	422292				
C20	6.582	-0.000	189665	366300				
C22	7.147	0.004	64980	155720				
C24	7.709	0.014	16411	34709				
C25	7.985	0.021	7727	8290				
C26	8.250	0.021	3204	1645				
C32	----							
C34	10.160	0.046	5378	3956				
Filter Peak	----				BUNKERC	(C10-C38)	25327632	376.5 M
C36	10.546	0.020	9900	9615				
C38	----							
C40	11.319	-0.006	20937	24778				
o-terph	6.195	-0.007	5682121	3994128				
Triacon Surr	----				NAS DIES	(C10-C24)	25254600	277.4

Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	3994128	46.5	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

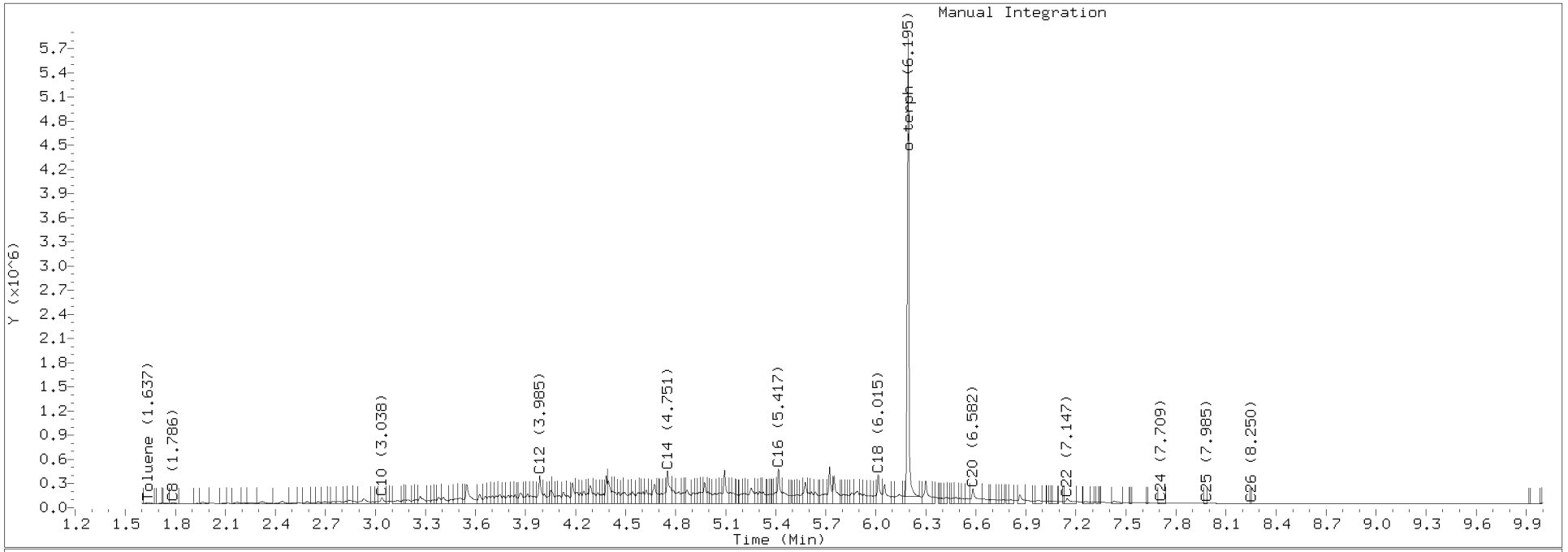
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

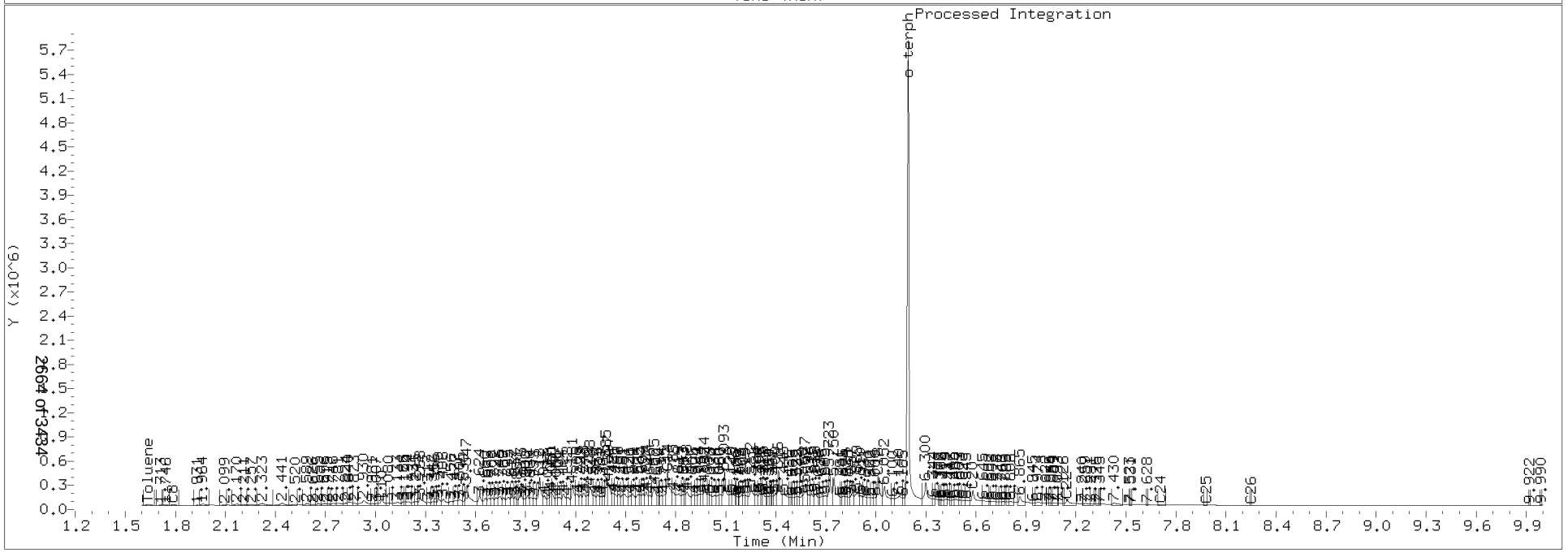

Datafile: FID4A, 20190829.b/419H2925.D SHH0420-CAL3
HP6890 GC Data, FID1A.CH
C10 (3.038)
C12 (3.985)
C14 (4.751)
C16 (5.417)
C18 (6.015)
C20 (6.582)
C22 (7.147)
C24 (7.709)
C25 (7.985)
C26 (8.250)
C34 (10.160)
C36 (10.546)
C40 (11.319)
Time (Min)
Y (x10^5)

TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2925.D Injection: 29-AUG-2019 17:36

Lab ID:SHH0420-CAL3





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2926.D

Date : 29-AUG-2019 17:57

Client ID:

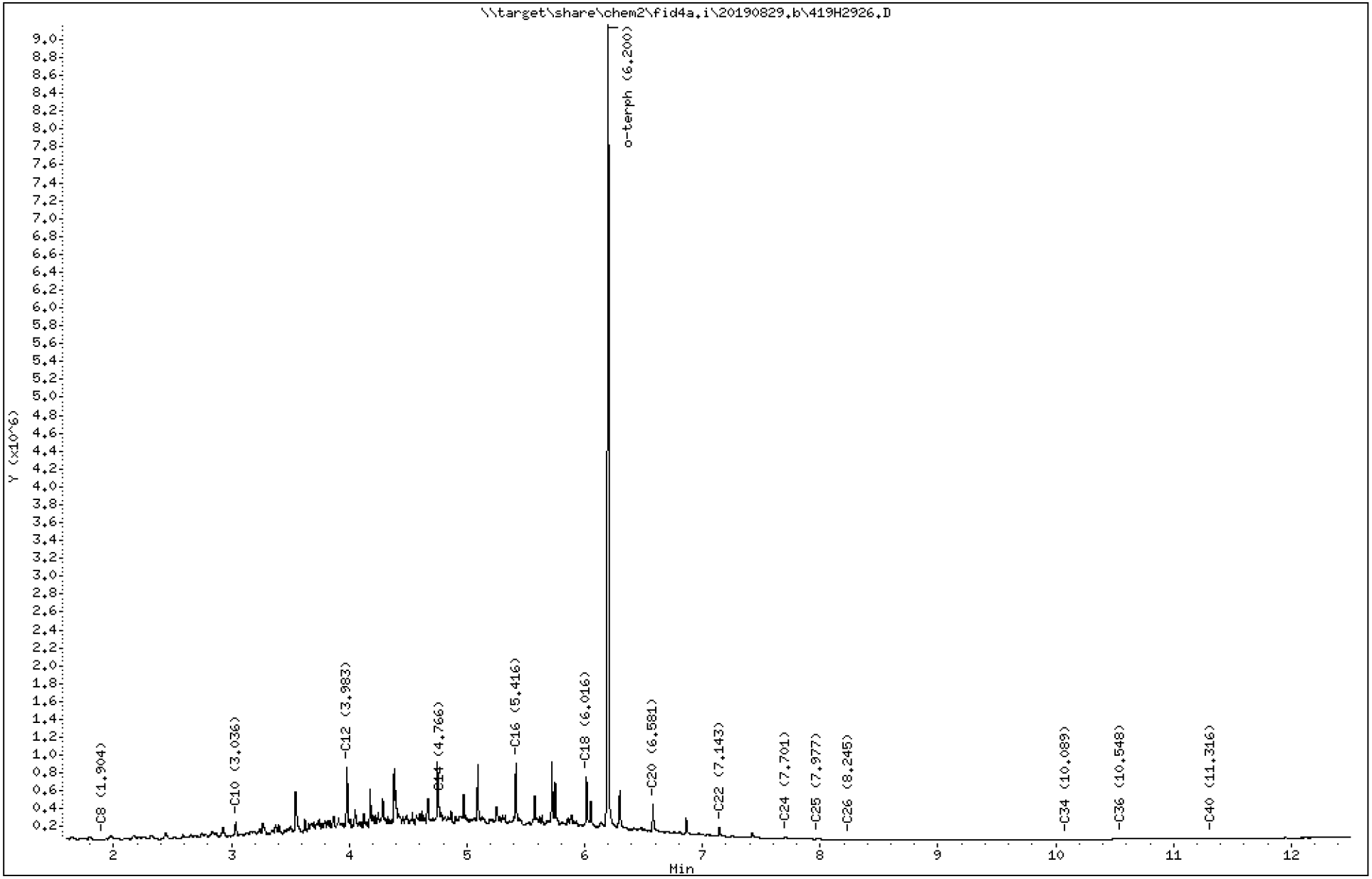
Sample Info: SHH0420-CAL4

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2926.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL4
Client ID:
Injection: 29-AUG-2019 17:57
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

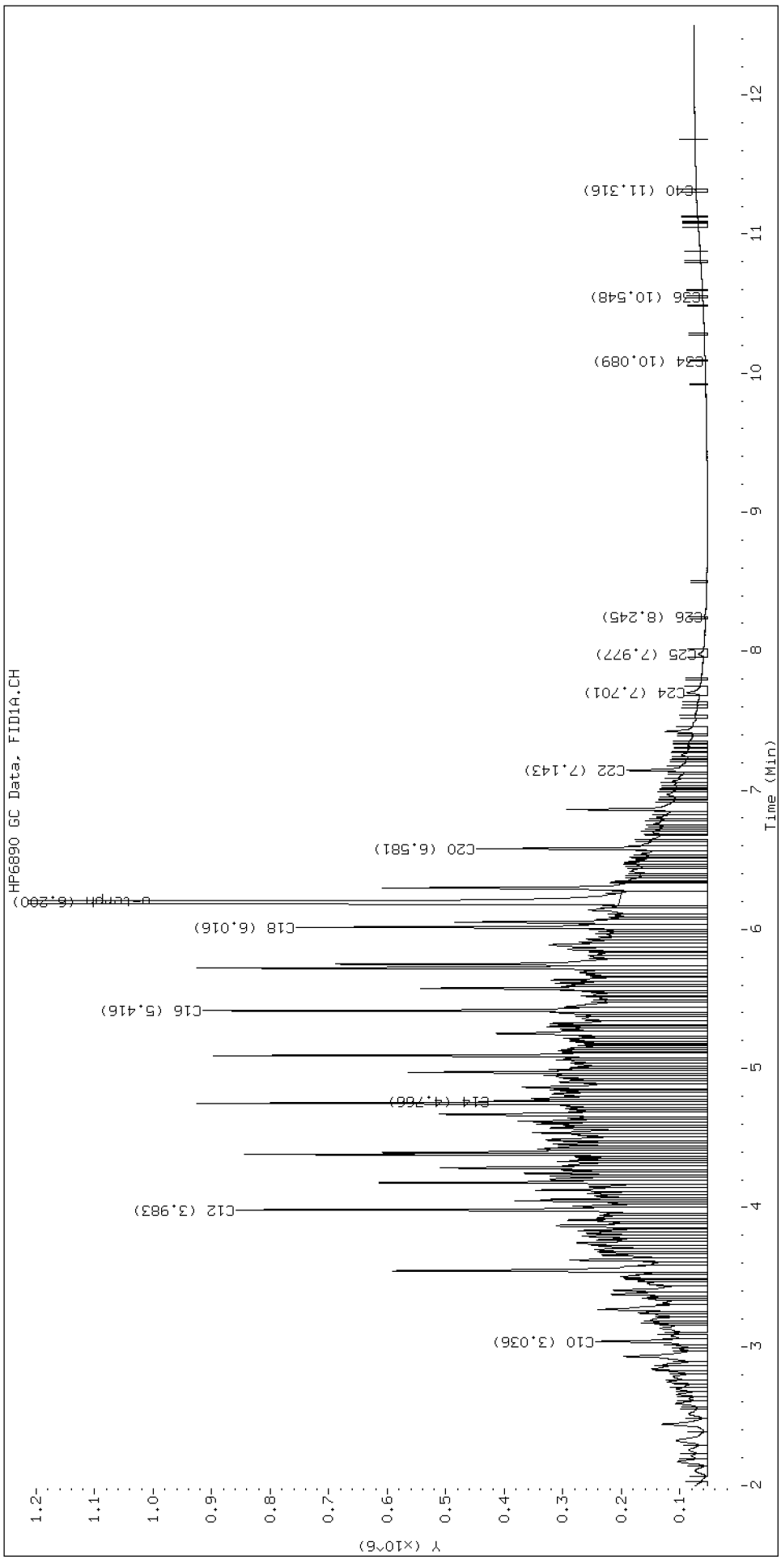
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.904	0.092	2442	2641	WATPHD	(C12-C24)	37958136	505.6
C10	3.036	-0.005	191313	259550	WATPHM	(C24-C38)	93631	2.6
C12	3.983	-0.003	805006	839864	AK102	(C10-C25)	46572828	511.2
C14	4.766	0.012	369815	283581	AK103	(C25-C36)	63654	1.8
C16	5.416	-0.003	861159	825567	OR.DIES	(C10-C28)	46613443	511.0
C18	6.016	-0.002	702351	729658				
C20	6.581	-0.002	394091	448281				
C22	7.143	-0.000	137620	212662				
C24	7.701	0.007	34651	79575				
C25	7.977	0.012	15205	35221				
C26	8.245	0.016	5964	3893				
C32	----							
C34	10.089	-0.025	4312	2750				
Filter Peak	----				BUNKERC	(C10-C38)	46657116	693.5 M
C36	10.548	0.022	9069	7954				
C38	----							
C40	11.316	-0.008	20449	26037				
o-terph	6.200	-0.002	8962973	7439519				
Triacon Surr	----				NAS DIES	(C10-C24)	46563486	511.5

Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	7439519	86.7	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

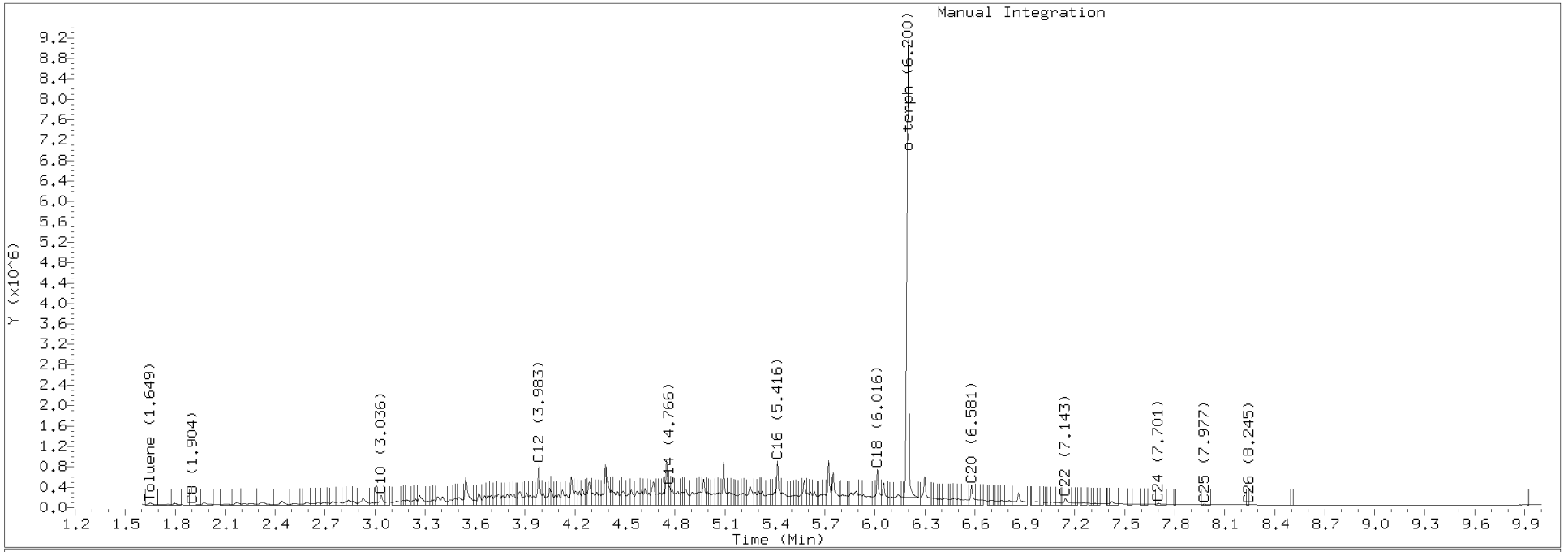
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

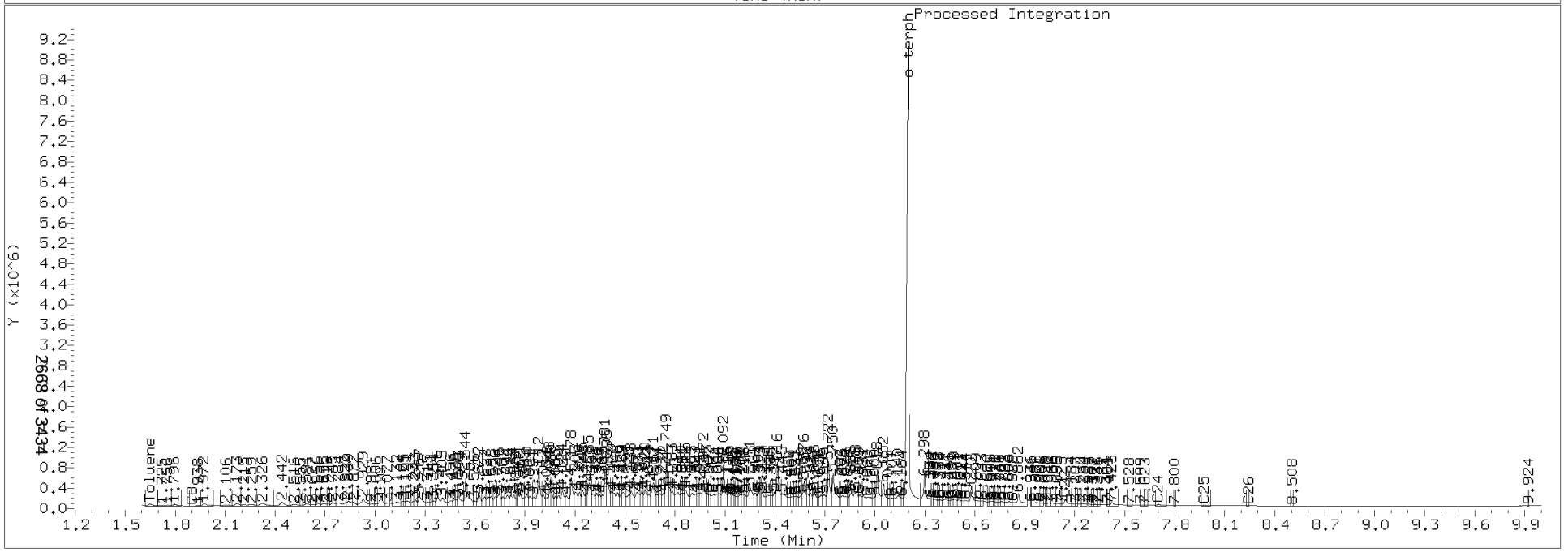

Datafile: FID4A, 20190829.b/419H2926.D SHH0420-CAL4
HP6890 GC Data, FID1A.CH
C10 (3.036)
C12 (3.983)
E14 (4.766)
C16 (5.416)
C18 (6.016)
n-Eicosane (6.200)
C20 (6.581)
C22 (7.143)
C24 (7.701)
DC25 (7.977)
E26 (8.245)
E34 (10.089)
E36 (10.548)
E40 (11.316)
Time (Min)
Y (X10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2926.D Injection: 29-AUG-2019 17:57

Lab ID:SHH0420-CAL4





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2927.D

Date : 29-AUG-2019 18:20

Client ID:

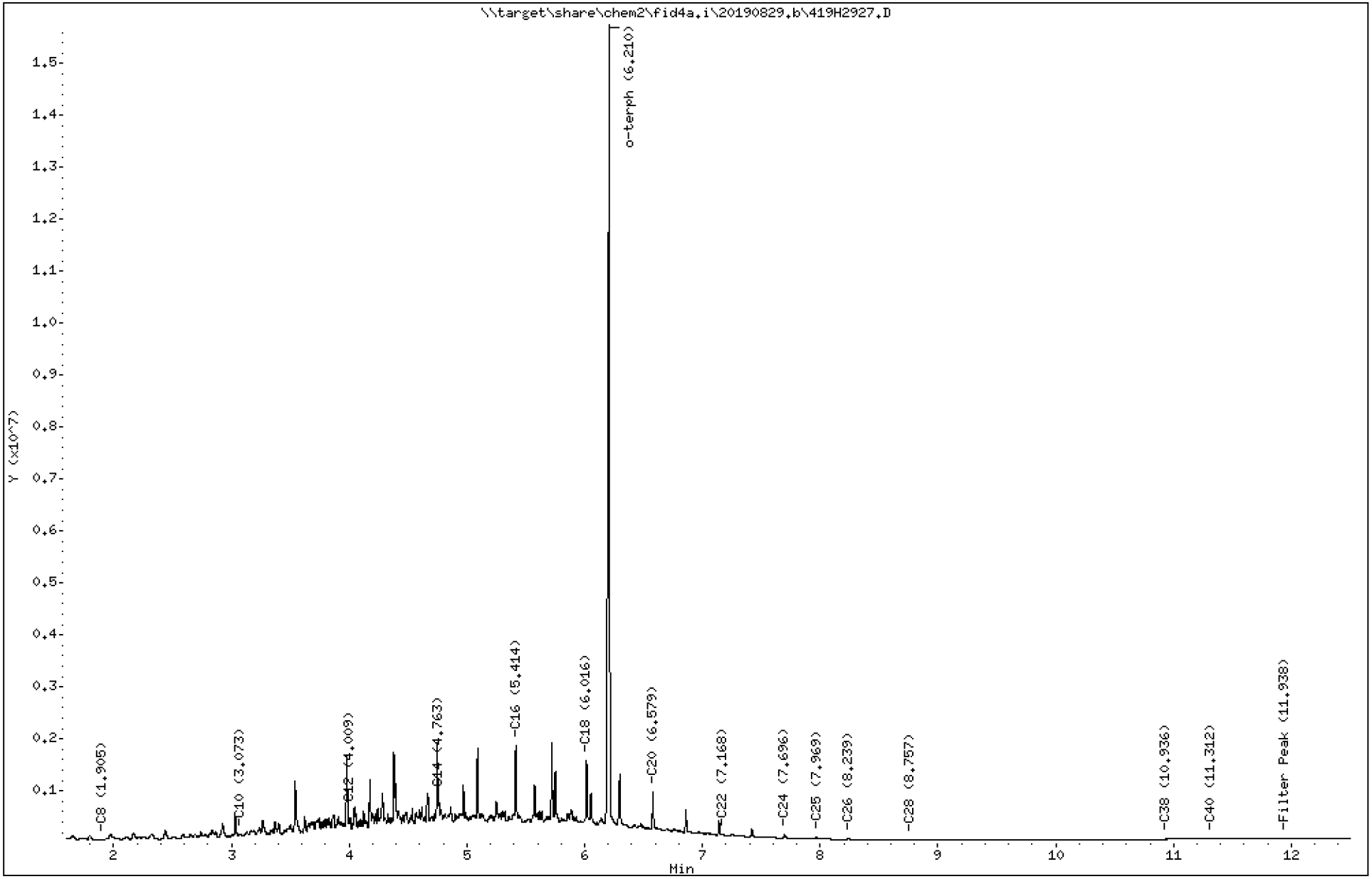
Sample Info: SHH0420-CAL5

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2927.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL5
Client ID:
Injection: 29-AUG-2019 18:20
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

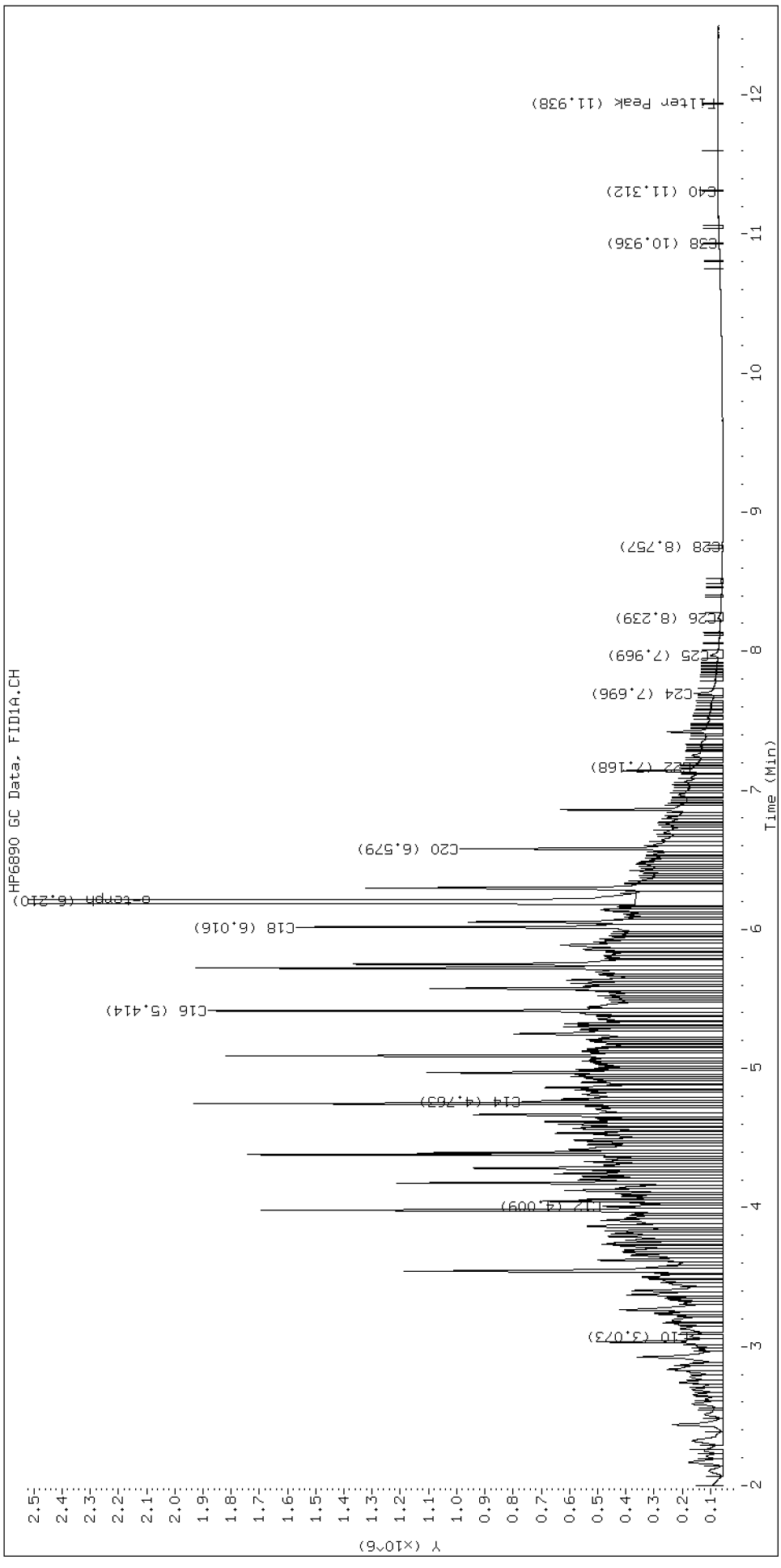
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.905	0.093	4999	5530	WATPHD	(C12-C24)	76256913	1015.8
C10	3.073	0.031	115693	172944	WATPHM	(C24-C38)	333073	9.2
C12	4.009	0.022	427025	411736	AK102	(C10-C25)	92160093	1011.6
C14	4.763	0.009	711291	562952	AK103	(C25-C36)	177424	5.0
C16	5.414	-0.004	1826811	1653506	OR.DIES	(C10-C28)	92337517	1012.2
C18	6.016	-0.001	1514245	1884986				
C20	6.579	-0.003	934594	956977				
C22	7.168	0.025	104232	81156				
C24	7.696	0.001	101316	162602				
C25	7.969	0.005	43752	90418				
C26	8.239	0.010	17330	39529				
C28	8.757	0.018	2151	2090				
C32	----							
C34	----							
Filter Peak	11.938	-0.058	18134	6291	BUNKERC	(C10-C38)	92352915	1372.7
C36	----							
C38	10.936	0.011	13118	6480				
C40	11.312	-0.013	18300	9054				
o-terph	6.210	0.008	15384961	16002187				
Triacon Surr	----				NAS DIES	(C10-C24)	92019842	1010.8

Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	16002187	186.4	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

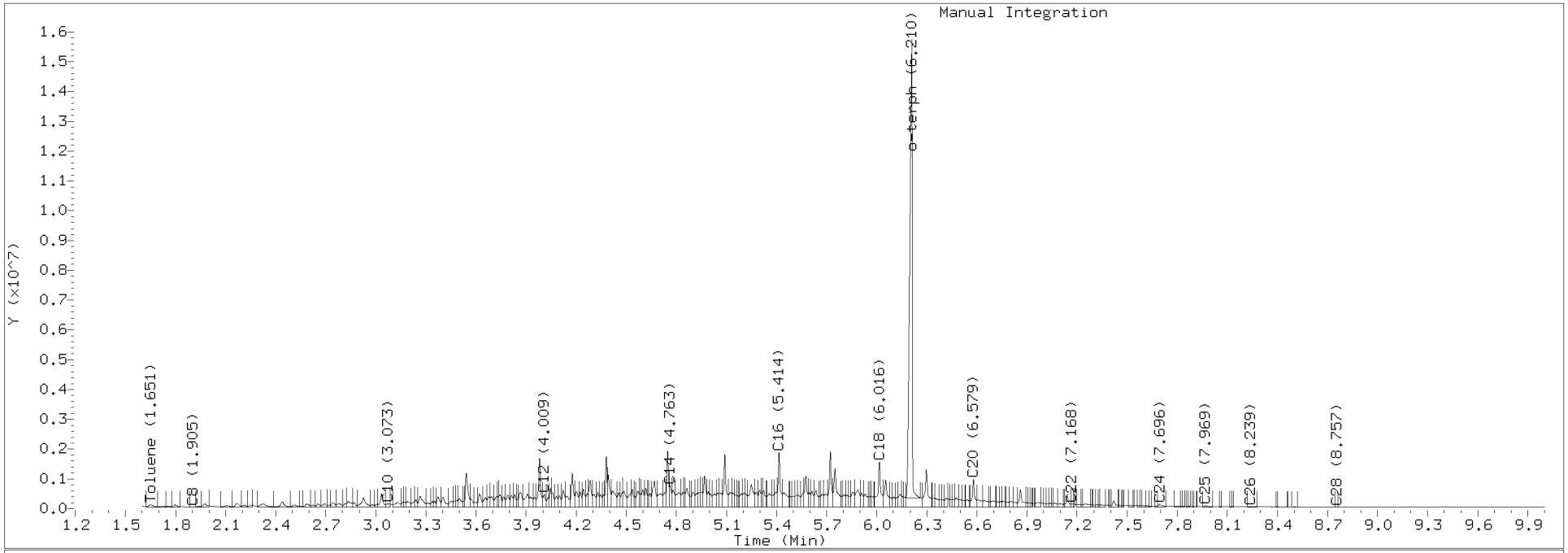
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

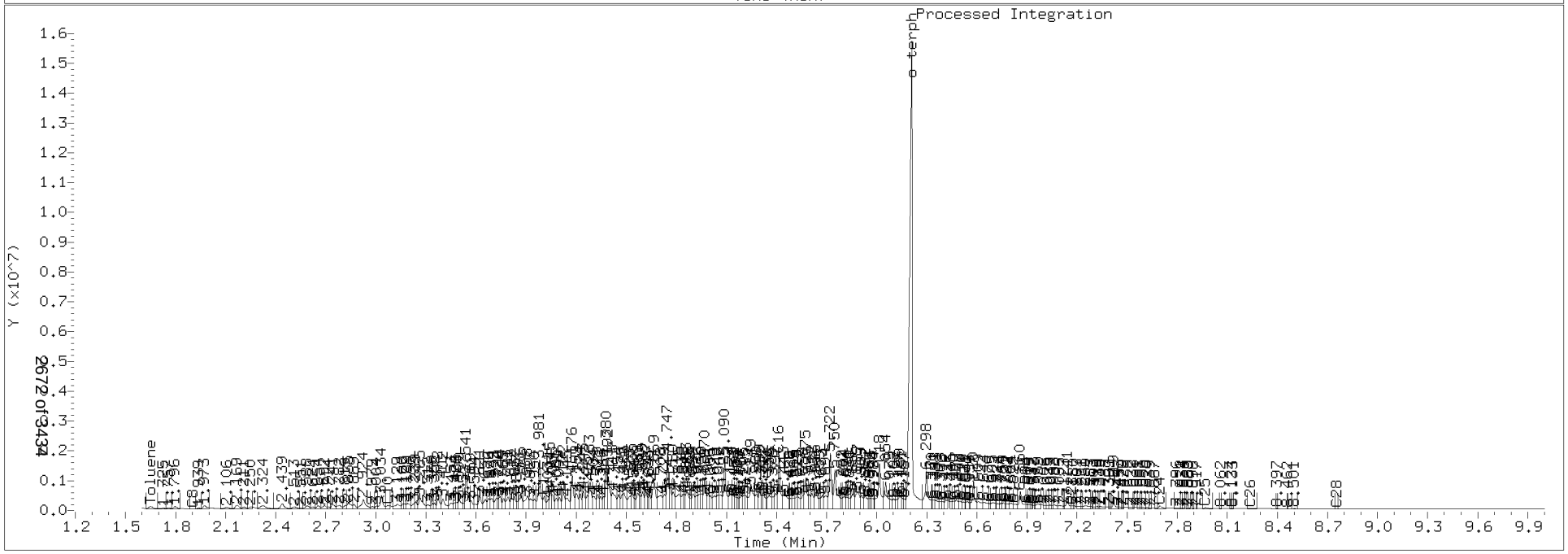

Datafile: FID4A, 20190829.b/419H2927.D SHH0420-CAL5
HP6890 GC Data, FID1A.CH
C10 (3.073)
C12 (4.009)
C14 (4.763)
C16 (5.414)
C18 (6.016)
n-tetra (6.210)
C20 (6.579)
C22 (7.168)
C24 (7.696)
C25 (7.969)
C26 (8.239)
C28 (8.757)
C30 (10.936)
C40 (11.312)
Filter Peak (11.938)
Time (Min)
Y (x10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2927.D Injection: 29-AUG-2019 18:20

Lab ID:SHH0420-CAL5





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2928.D

Date : 29-AUG-2019 18:41

Client ID:

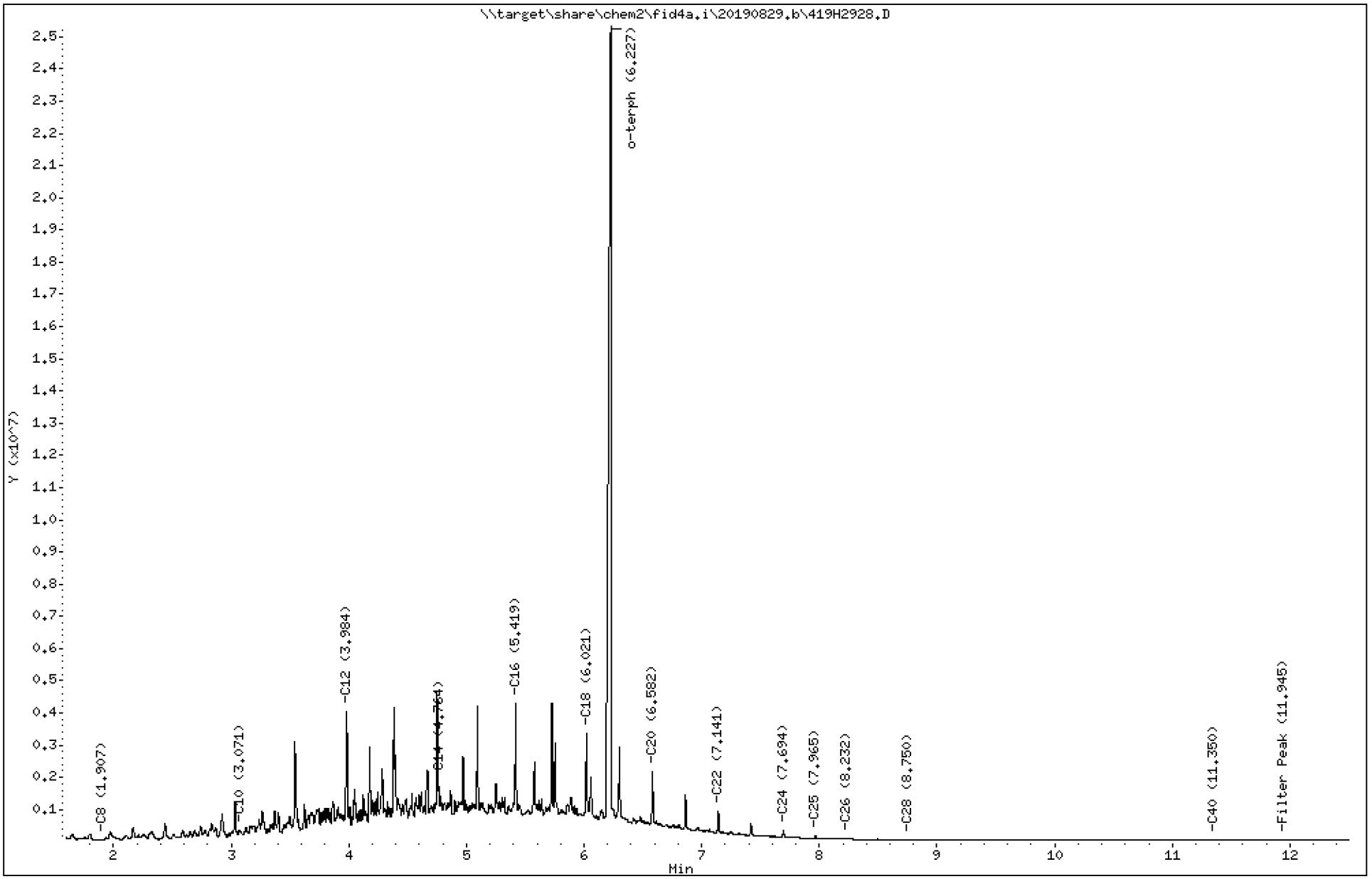
Sample Info: SHH0420-CAL6

Instrument: fid4a.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2928.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL6
Client ID:
Injection: 29-AUG-2019 18:41
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.907	0.095	11859	13652	WATPHD	(C12-C24)	177955384	2370.5
C10	3.071	0.029	291066	330467	WATPHM	(C24-C38)	1435704	39.5
C12	3.984	-0.003	3966345	3822822	AK102	(C10-C25)	216676804	2378.5
C14	4.764	0.010	1650890	1225463	AK103	(C25-C36)	893724	25.4
C16	5.419	0.001	4261902	3752213	OR.DIES	(C10-C28)	217567264	2385.0
C18	6.021	0.004	3288954	3134682				
C20	6.582	-0.000	2121490	2427673				
C22	7.141	-0.003	884373	975406				
C24	7.694	-0.001	276853	473933				
C25	7.965	-0.000	128212	240236				
C26	8.232	0.003	55819	124693				
C28	8.750	0.011	9917	20947				
C32	----							
C34	----							
Filter Peak	11.945	-0.051	15469	10004	BUNKERC	(C10-C38)	217576986	3234.0
C36	----							
C38	----							
C40	11.350	0.025	13312	9250				
o-terph	6.227	0.025	24383960	35989547				
Triacon Surr	----				NAS DIES	(C10-C24)	216141281	2374.2

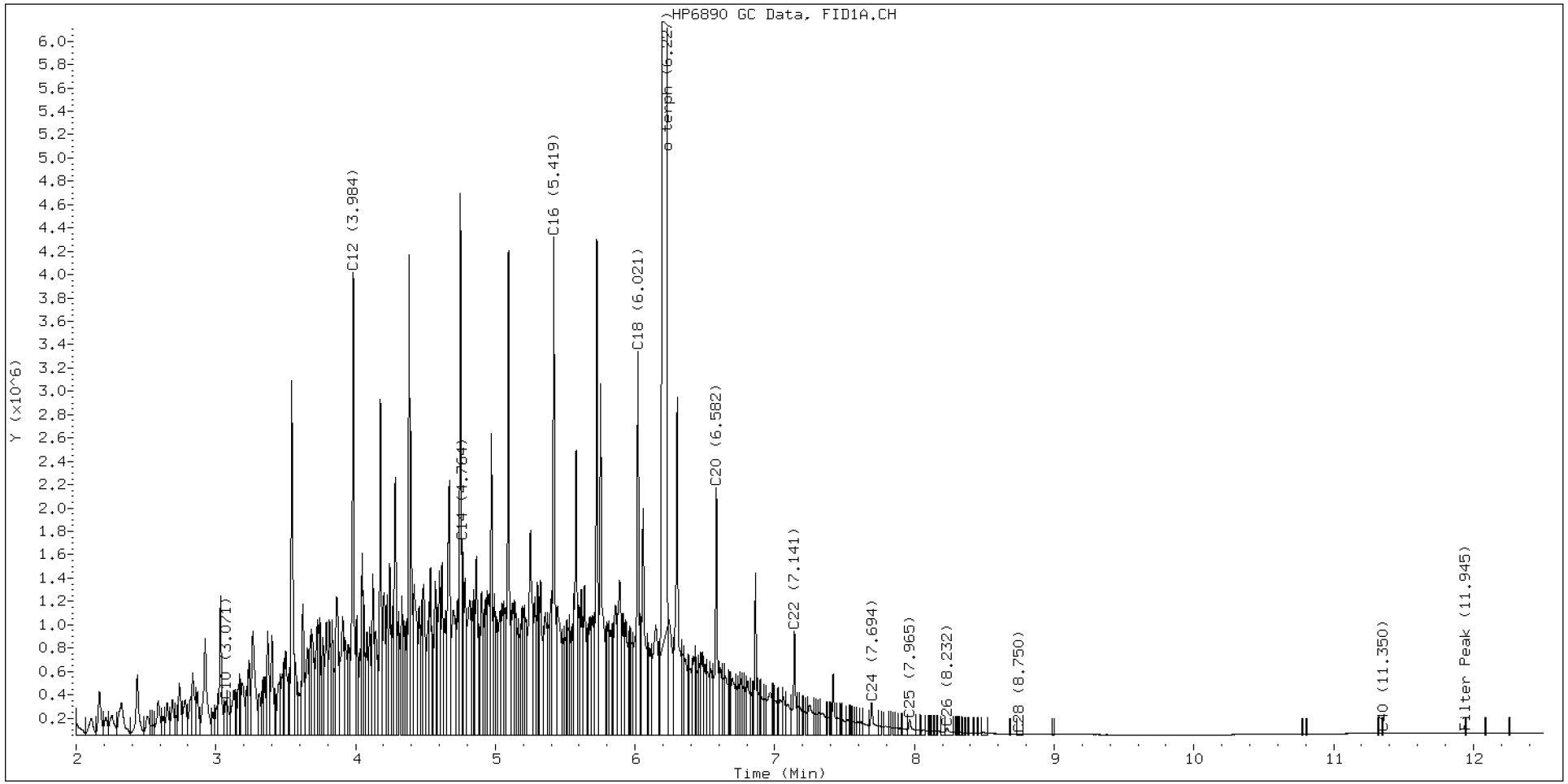
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	35989547	419.3	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

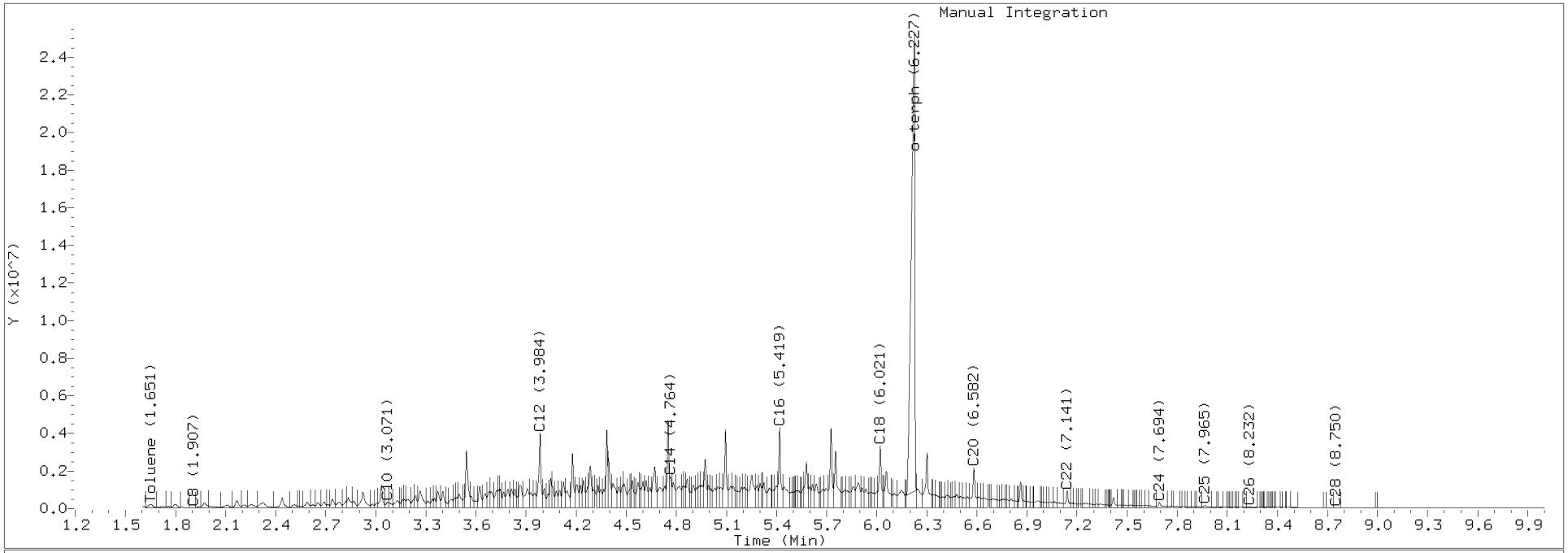
Datafile: FID4A, 20190829.b/419H2928.D SHH0420-CAL6

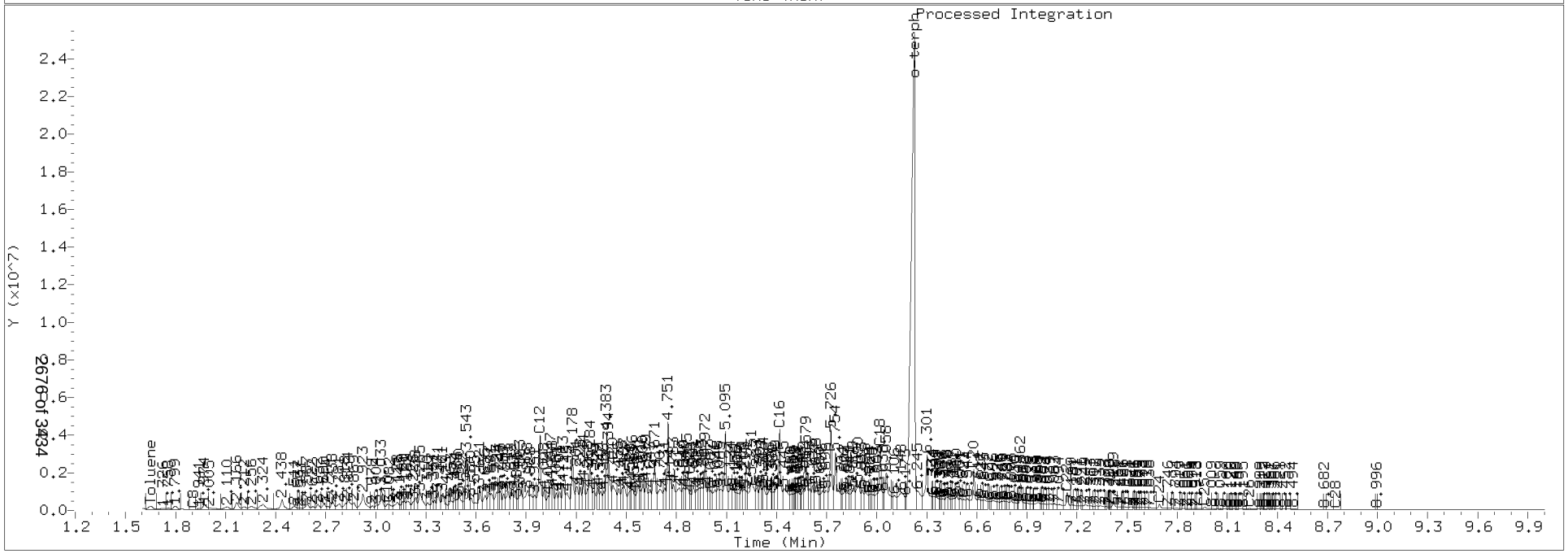


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2928.D Injection: 29-AUG-2019 18:41

Lab ID:SHH0420-CAL6





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2929.D

Date : 29-AUG-2019 19:02

Client ID:

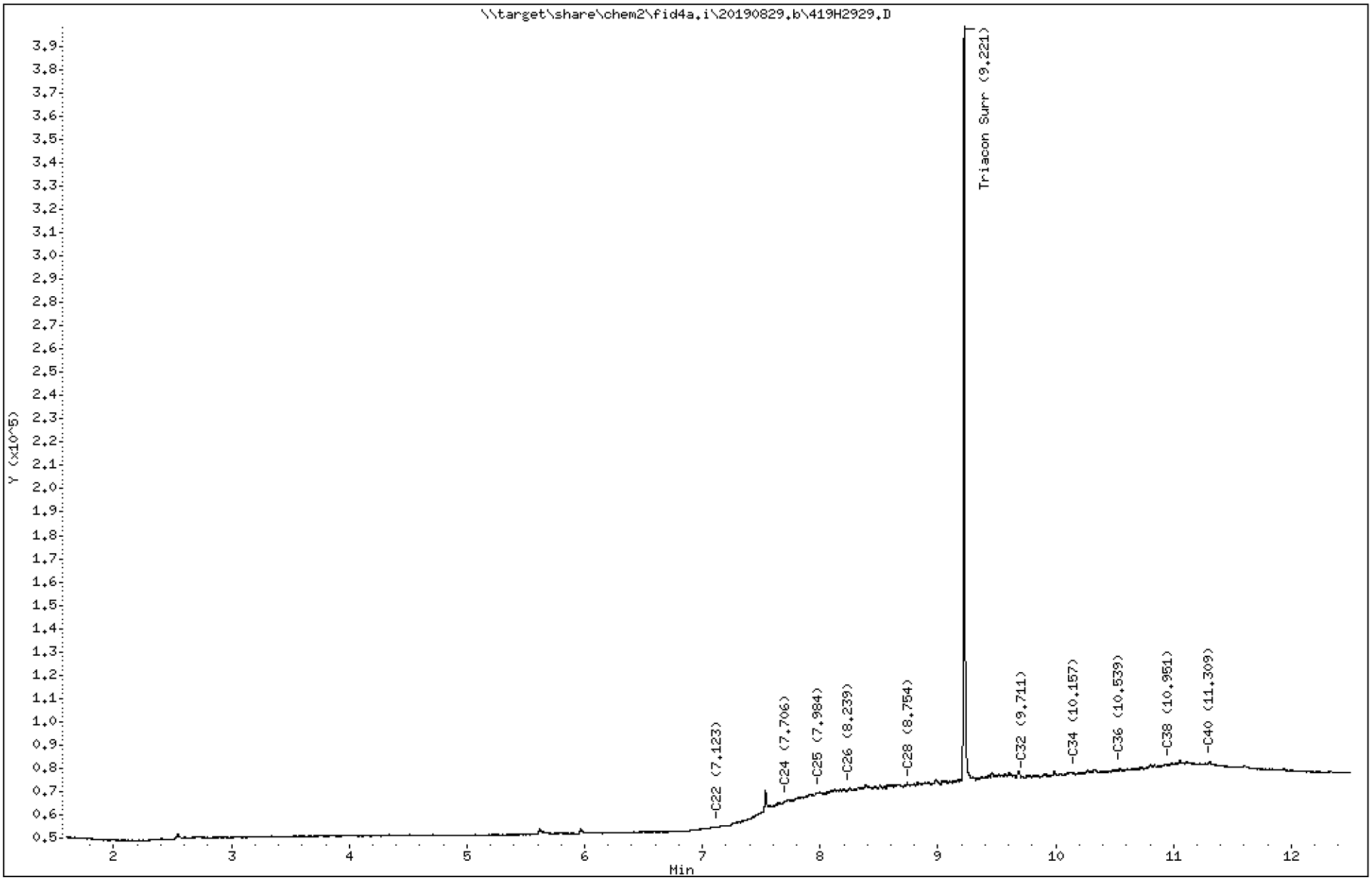
Sample Info: SHH0420-CAL7

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2929.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL7
Client ID:
Injection: 29-AUG-2019 19:02
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	143714	1.9
C10	----				WATPHM	(C24-C38)	2715550	74.8
C12	----				AK102	(C10-C25)	226965	2.5
C14	----				AK103	(C25-C36)	2296367	65.3
C16	----				OR.DIES	(C10-C28)	804273	8.8
C18	----							
C20	----							
C22	7.123	-0.020	5499	2140				
C24	7.706	0.011	16556	12259				
C25	7.984	0.020	19951	8928				
C26	8.239	0.010	21477	9550				
C28	8.754	0.015	23704	9406				
C32	9.711	0.030	27069	13443				
C34	10.157	0.043	28597	30933				
Filter Peak	----				BUNKERC	(C10-C38)	2859264	42.5 M
C36	10.539	0.013	30592	19558				
C38	10.951	0.025	32142	11217				
C40	11.309	-0.015	33265	19832				
o-terph	----							
Triacon Surr	9.221	-0.017	323428	257226	NAS DIES	(C10-C24)	143714	1.6

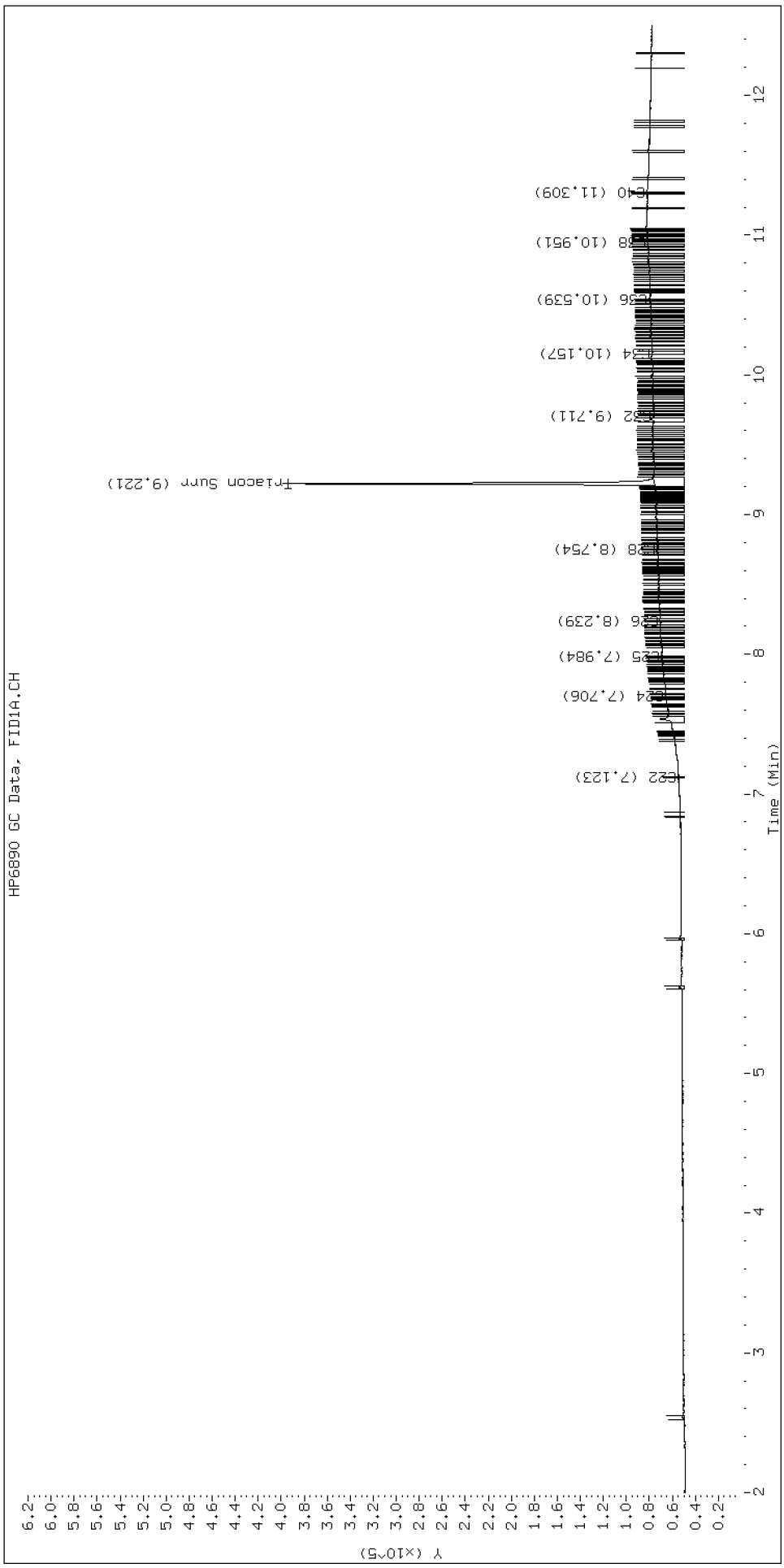
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	257226	4.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

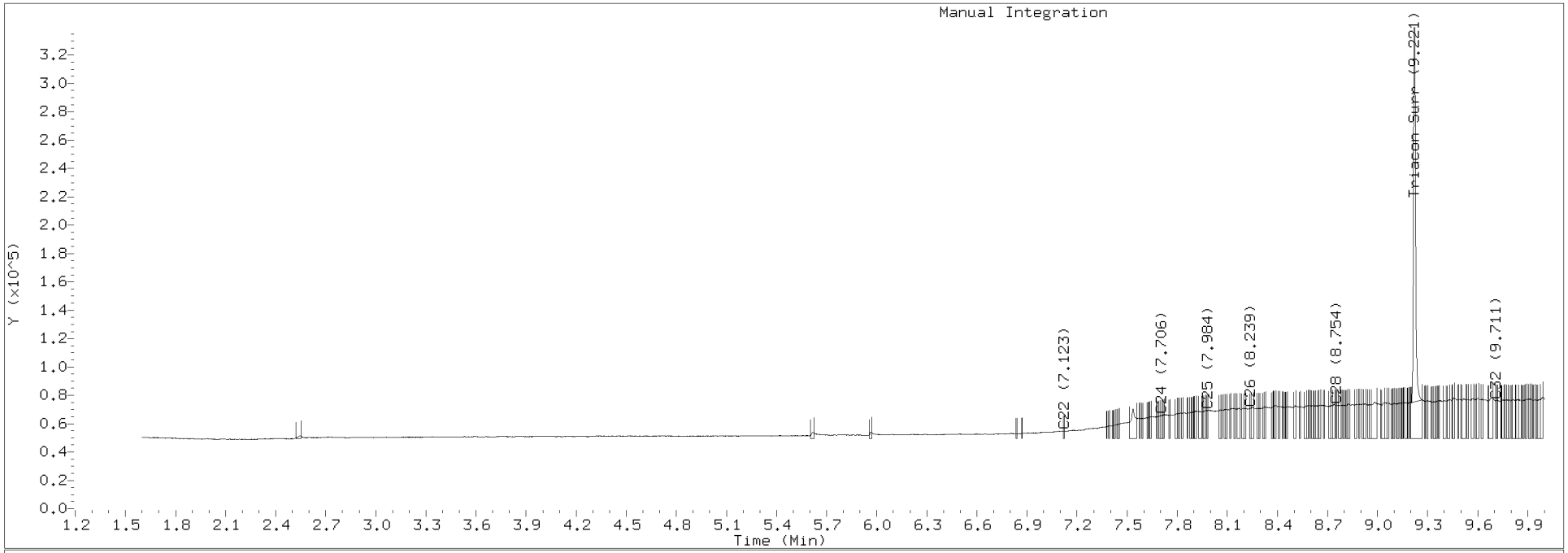
Datafile: FID4A, 20190829.b/419H2929.D SHH0420-CAL7

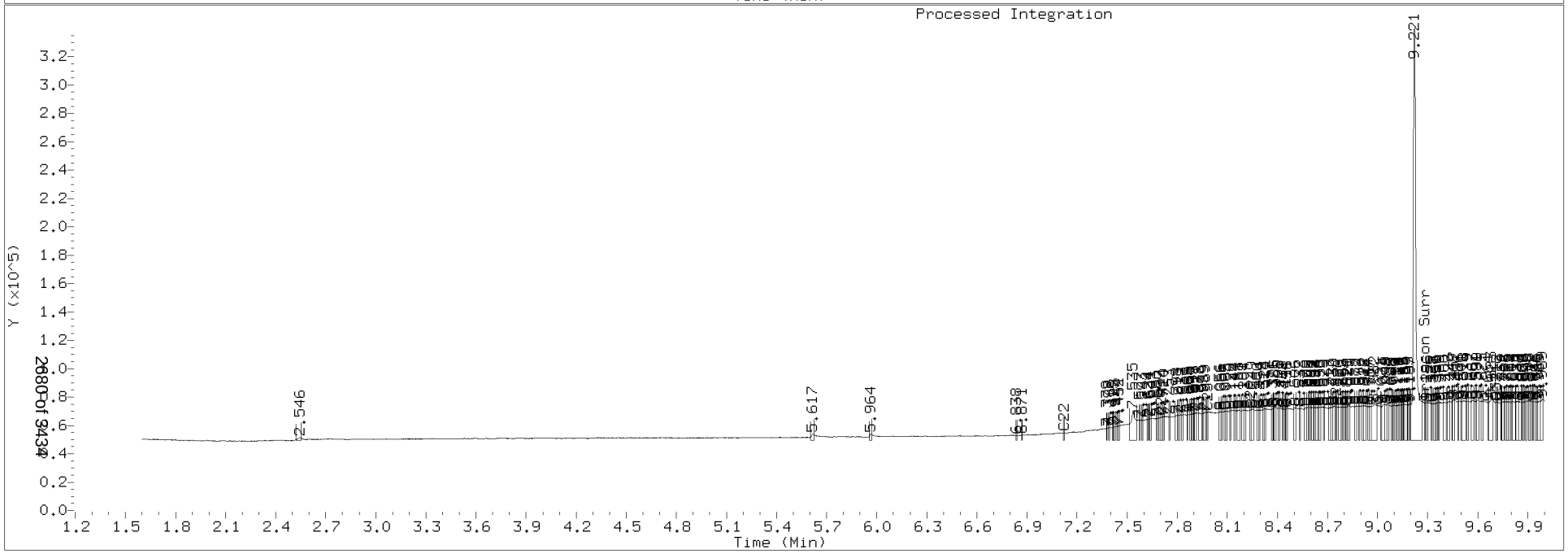


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2929.D Injection: 29-AUG-2019 19:02

Lab ID:SHH0420-CAL7





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2930.D

Date : 29-AUG-2019 19:23

Client ID:

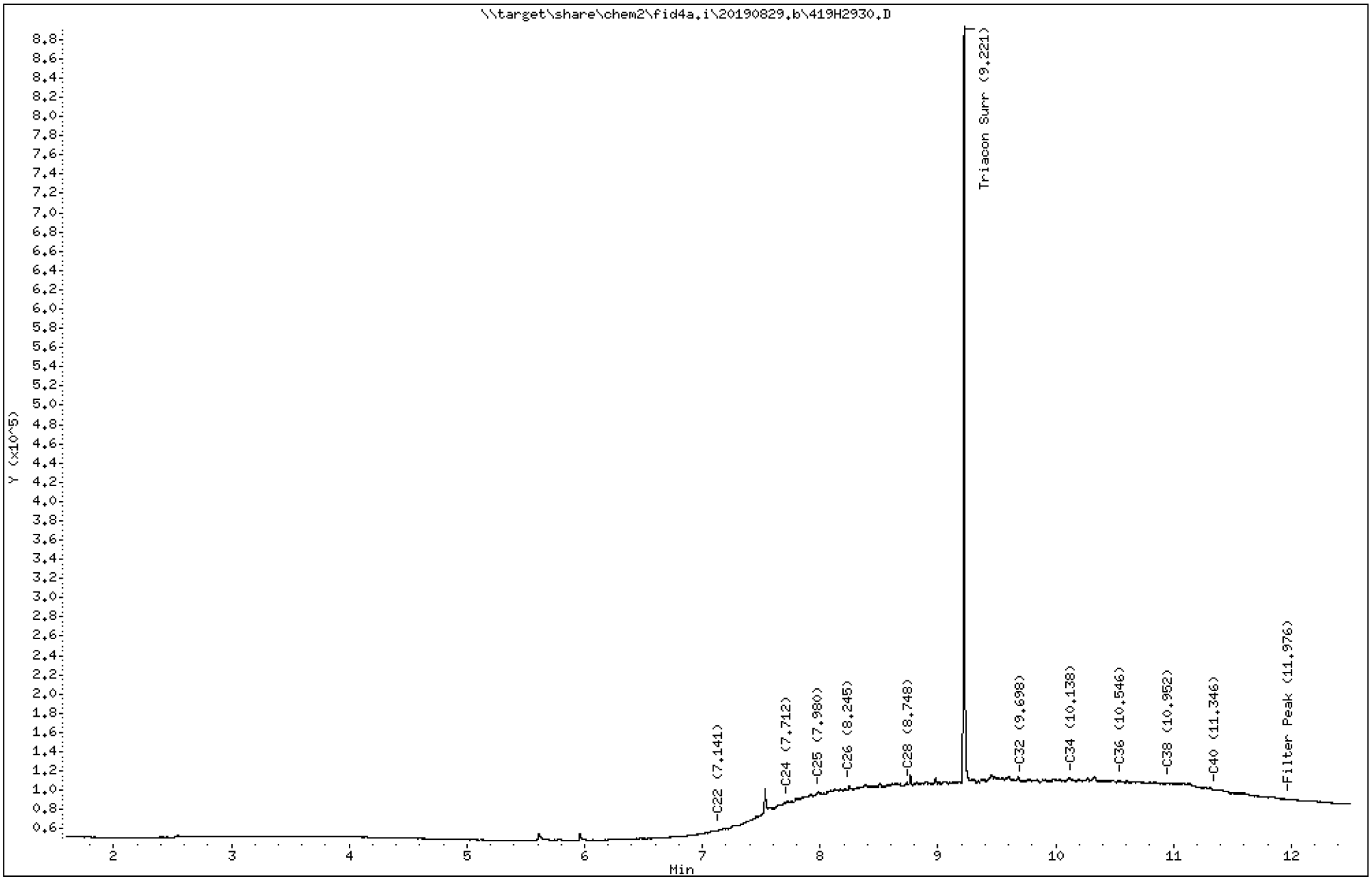
Sample Info: SHH0420-CAL8

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2930.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL8
Client ID:
Injection: 29-AUG-2019 19:23
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	694818	9.3
C10	----				WATPHM	(C24-C38)	9361231	257.7
C12	----				AK102	(C10-C25)	1013103	11.1
C14	----				AK103	(C25-C36)	8004555	227.5
C16	----				OR.DIES	(C10-C28)	3343289	36.7
C18	----							
C20	----							
C22	7.141	-0.002	10798	5702				
C24	7.712	0.018	39908	17843				
C25	7.980	0.015	50201	39631				
C26	8.245	0.016	56287	63415				
C28	8.748	0.009	58851	29211				
C32	9.698	0.018	62985	31216				
C34	10.138	0.024	63652	60121				
Filter Peak	11.976	-0.019	42918	14994	BUNKERC	(C10-C38)	10058144	149.5
C36	10.546	0.020	61814	49209				
C38	10.952	0.027	60018	32949				
C40	11.346	0.021	53146	18549				
o-terph	----							
Triacon Surr	9.221	-0.017	784675	603780	NAS DIES	(C10-C24)	696914	7.7

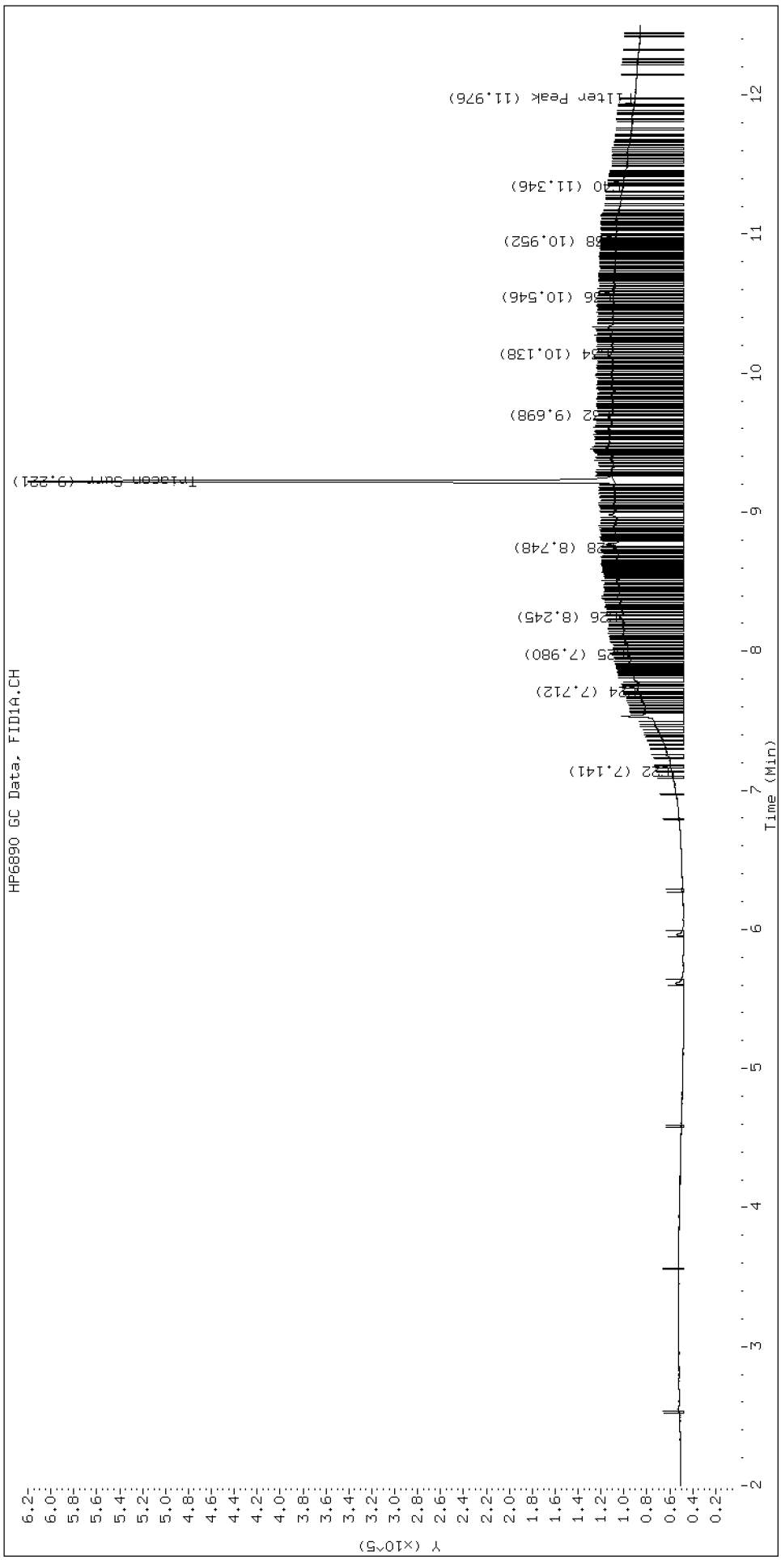
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	603780	11.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

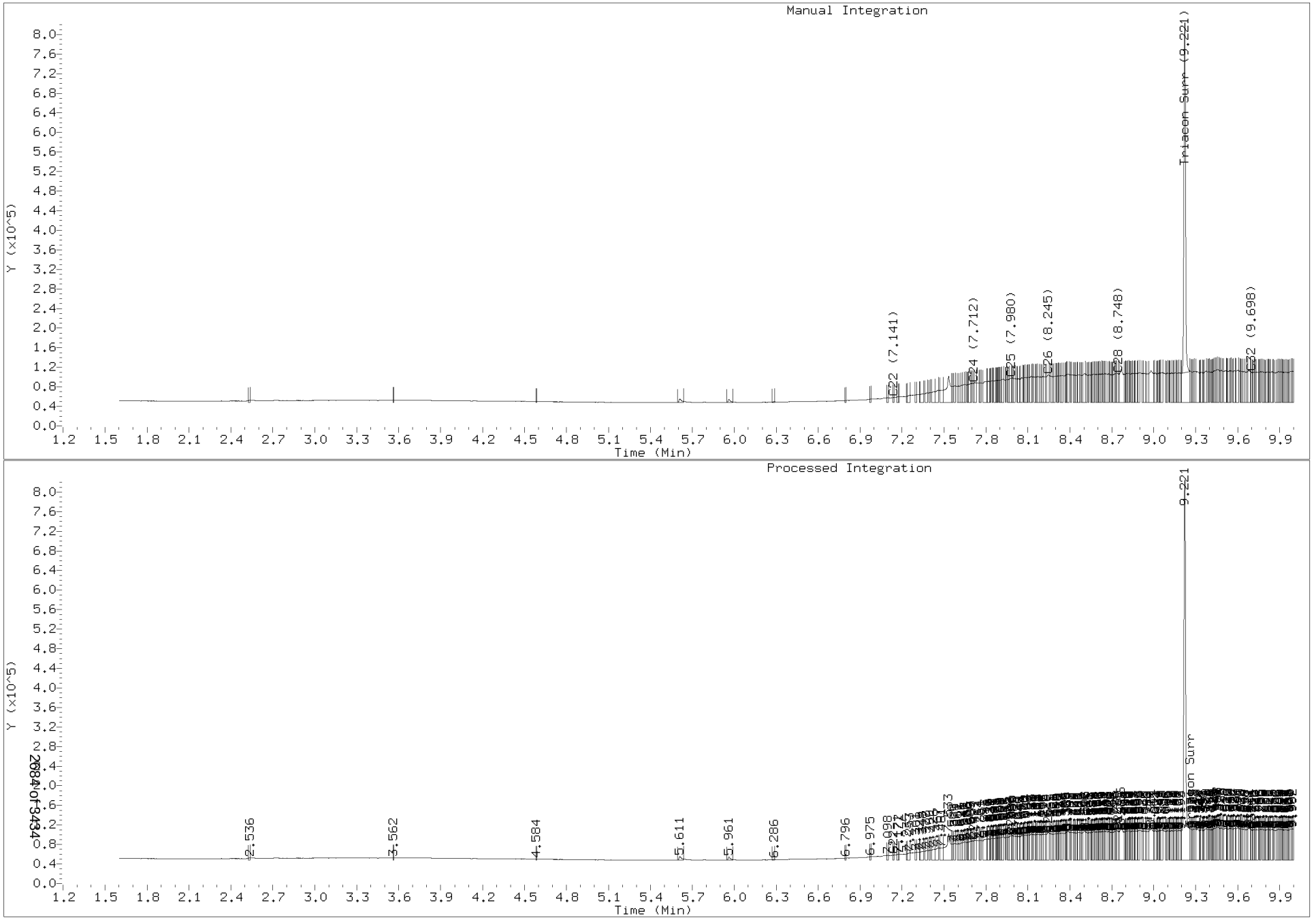
Datafile: FID4A, 20190829.b/419H2930.D SHH0420-CAL8



TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2930.D Injection: 29-AUG-2019 19:23

Lab ID:SHH0420-CAL8



Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2931.D

Date : 29-AUG-2019 19:44

Client ID:

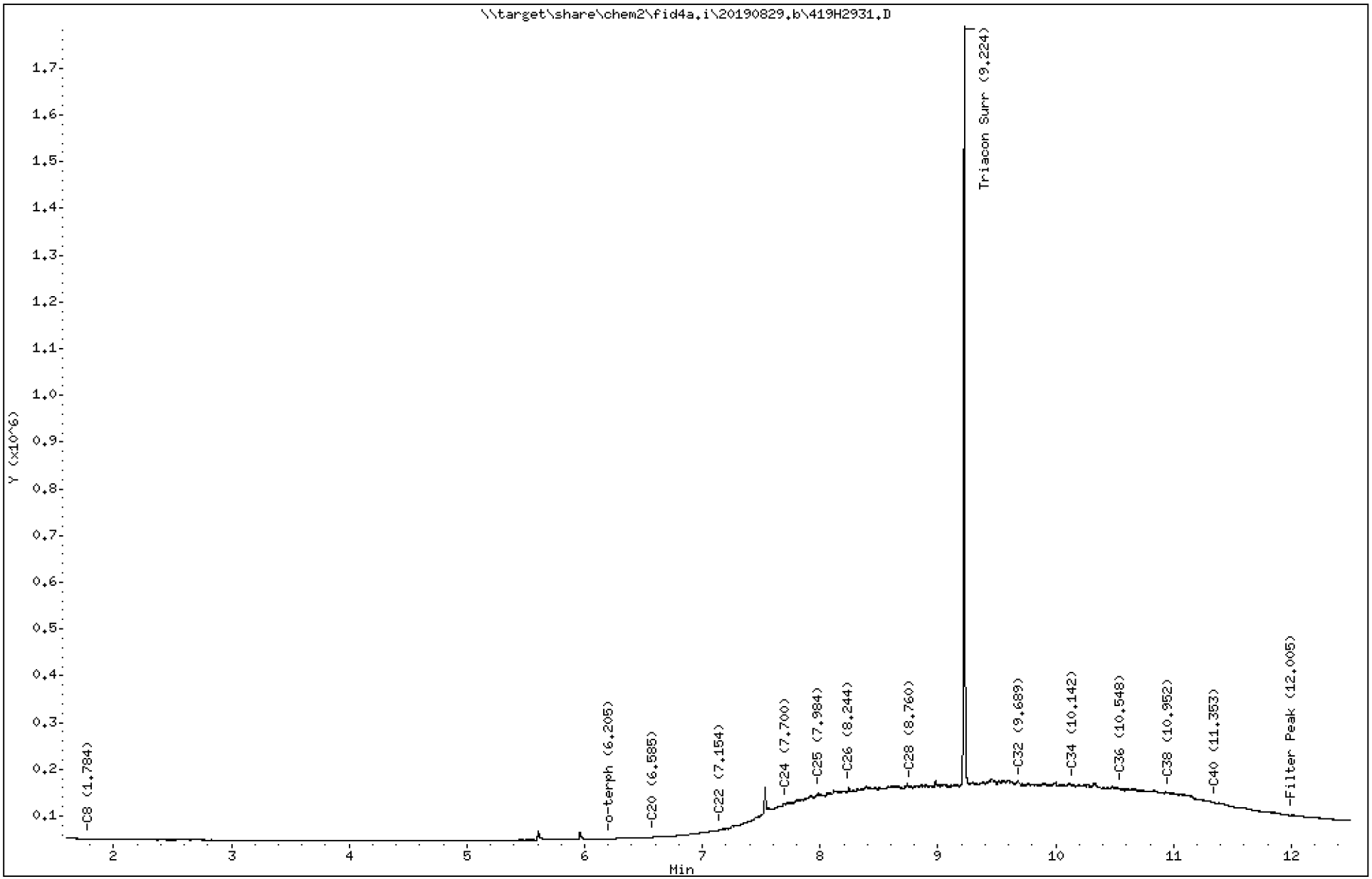
Sample Info: SHH0420-CAL9

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2931.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CAL9
Client ID:
Injection: 29-AUG-2019 19:44
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.784	-0.028	4115	1995	WATPHD	(C12-C24)	1922085	25.6
C10	----				WATPHM	(C24-C38)	20329061	559.6
C12	----				AK102	(C10-C25)	2739730	30.1
C14	----				AK103	(C25-C36)	17263265	490.5
C16	----				OR.DIES	(C10-C28)	8114589	89.0
C18	----							
C20	6.585	0.002	7394	6782				
C22	7.154	0.011	22954	7963				
C24	7.700	0.006	78661	66061				
C25	7.984	0.019	101475	104315				
C26	8.244	0.015	112709	267559				
C28	8.760	0.022	116029	34625				
C32	9.689	0.008	123493	79369				
C34	10.142	0.028	118649	52973				
Filter Peak	12.005	0.009	54105	64341	BUNKERC	(C10-C38)	22251146	330.7
C36	10.548	0.022	110905	38622				
C38	10.952	0.027	101970	76197				
C40	11.353	0.028	80410	36056				
o-terph	6.205	0.003	4016	2449				
Triacon Surr	9.224	-0.014	1621437	1214560	NAS DIES	(C10-C24)	1922085	21.1

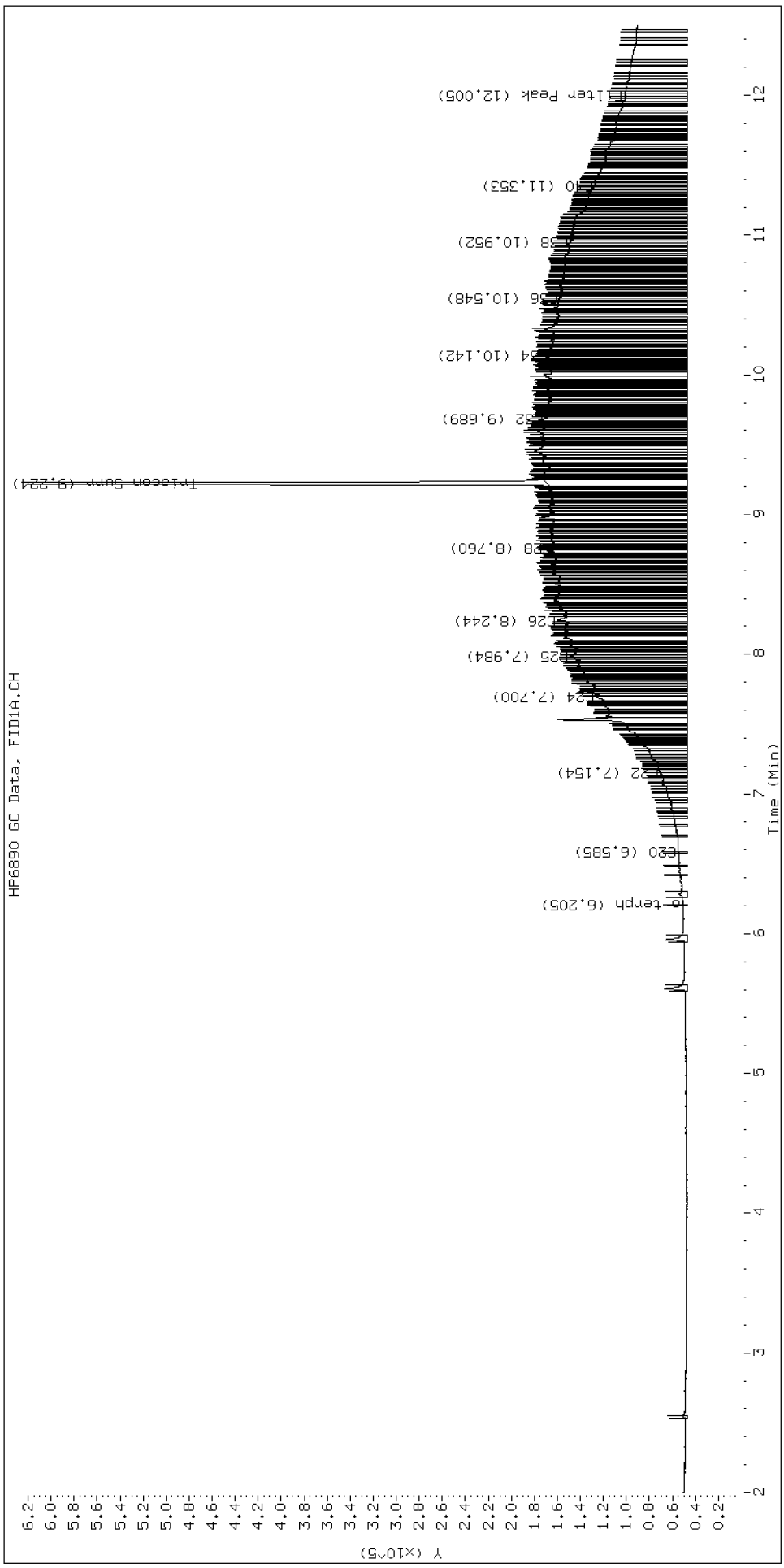
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	2449	0.0	
Triacontane	1214560	23.2	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

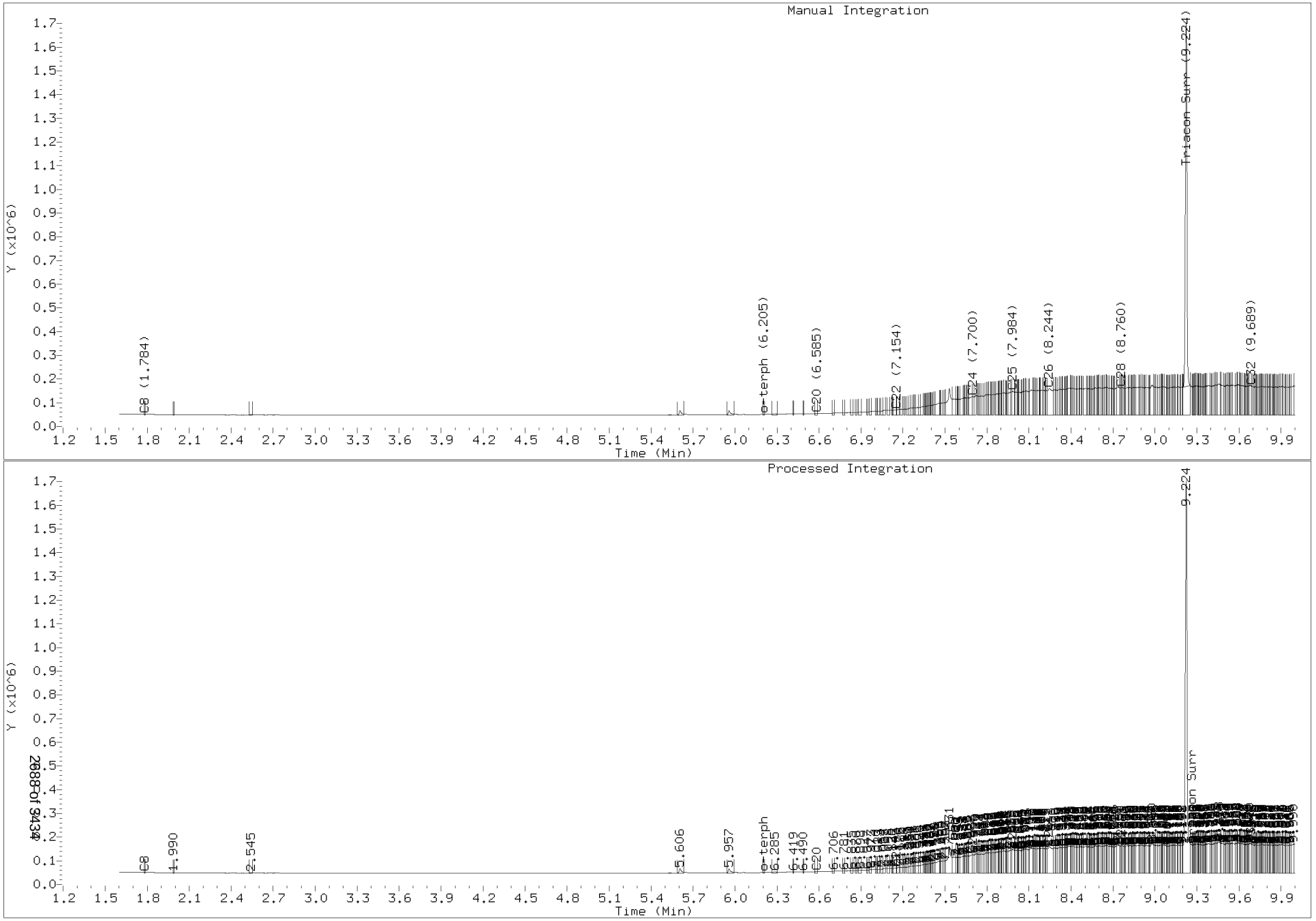
Datafile: FID4A, 20190829.b/419H2931.D SHH0420-CAL9



TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2931.D Injection: 29-AUG-2019 19:44

Lab ID:SHH0420-CAL9



Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2932.D

Date : 29-AUG-2019 20:06

Client ID:

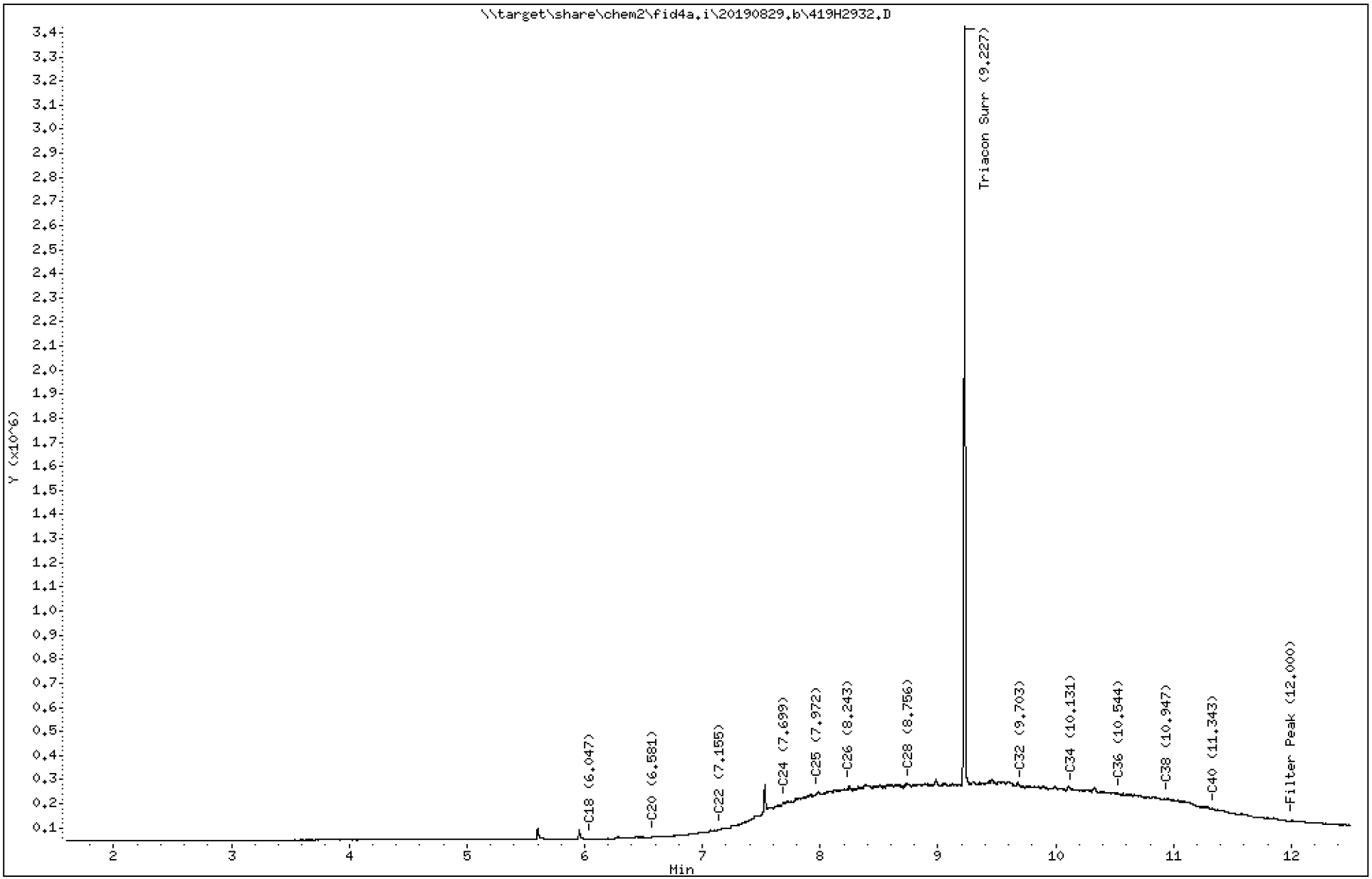
Sample Info: SHH0420-CALA

Instrument: fid4a.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2932.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALA
Client ID:
Injection: 29-AUG-2019 20:06
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4346994	57.9
C10	----				WATPHM	(C24-C38)	40032811	1102.0
C12	----				AK102	(C10-C25)	6074920	66.7
C14	----				AK103	(C25-C36)	34036398	967.2
C16	----				OR.DIES	(C10-C28)	17120635	187.7
C18	6.047	0.030	6627	3880				
C20	6.581	-0.001	14820	15409				
C22	7.155	0.012	46021	16016				
C24	7.699	0.004	155692	92805				
C25	7.972	0.007	195006	87371				
C26	8.243	0.014	227412	232734				
C28	8.756	0.017	230821	46102				
C32	9.703	0.022	224456	44776				
C34	10.131	0.017	216883	96164				
Filter Peak	12.000	0.004	81797	76698	BUNKERC	(C10-C38)	44379805	659.6
C36	10.544	0.017	192027	105127				
C38	10.947	0.022	173051	154344				
C40	11.343	0.018	129590	96814				
o-terph	----							
Triacon Surr	9.227	-0.011	3148638	2445843	NAS DIES	(C10-C24)	4346994	47.7

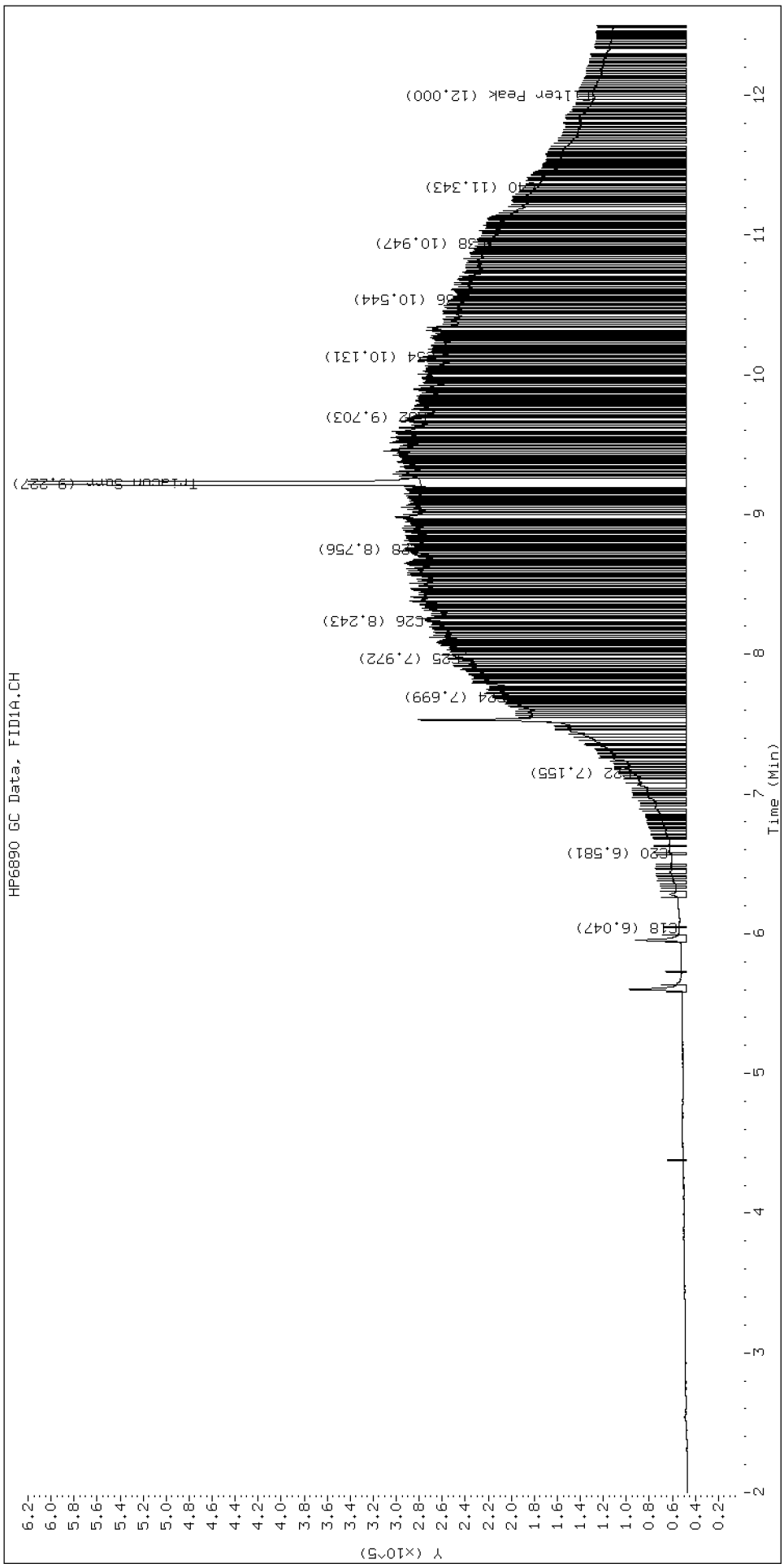
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2445843	46.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

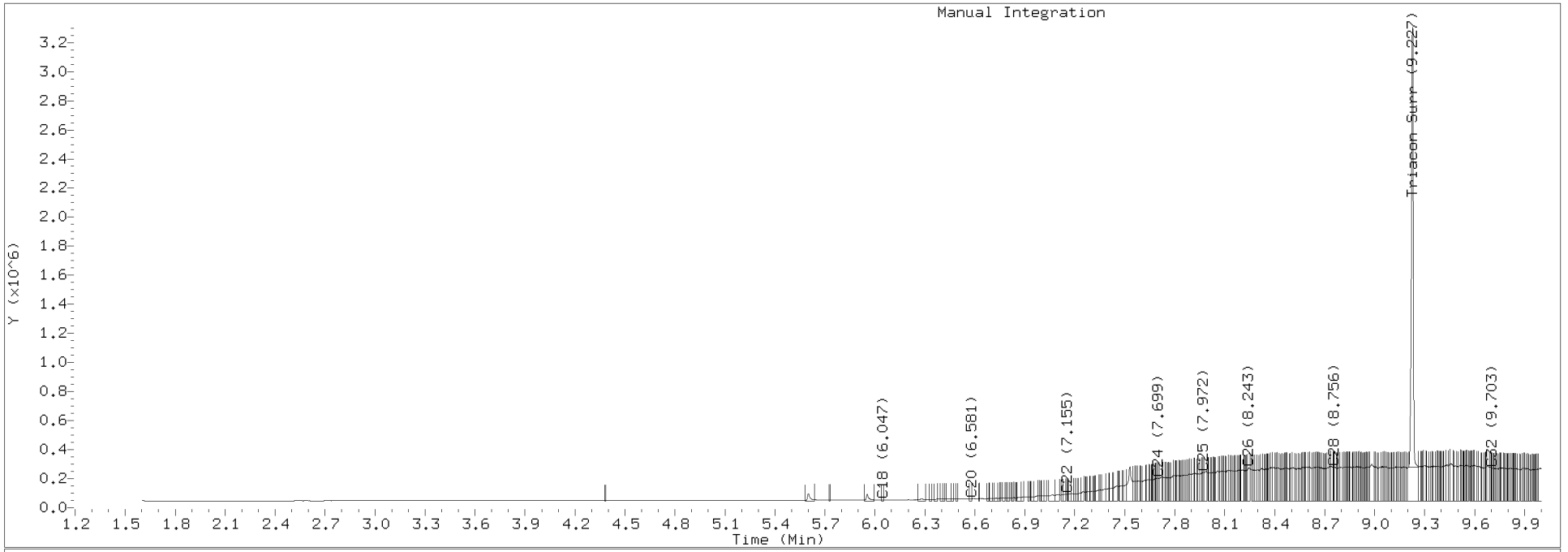
Datafile: FID4A, 20190829.b/419H2932.D SHH0420-CALA

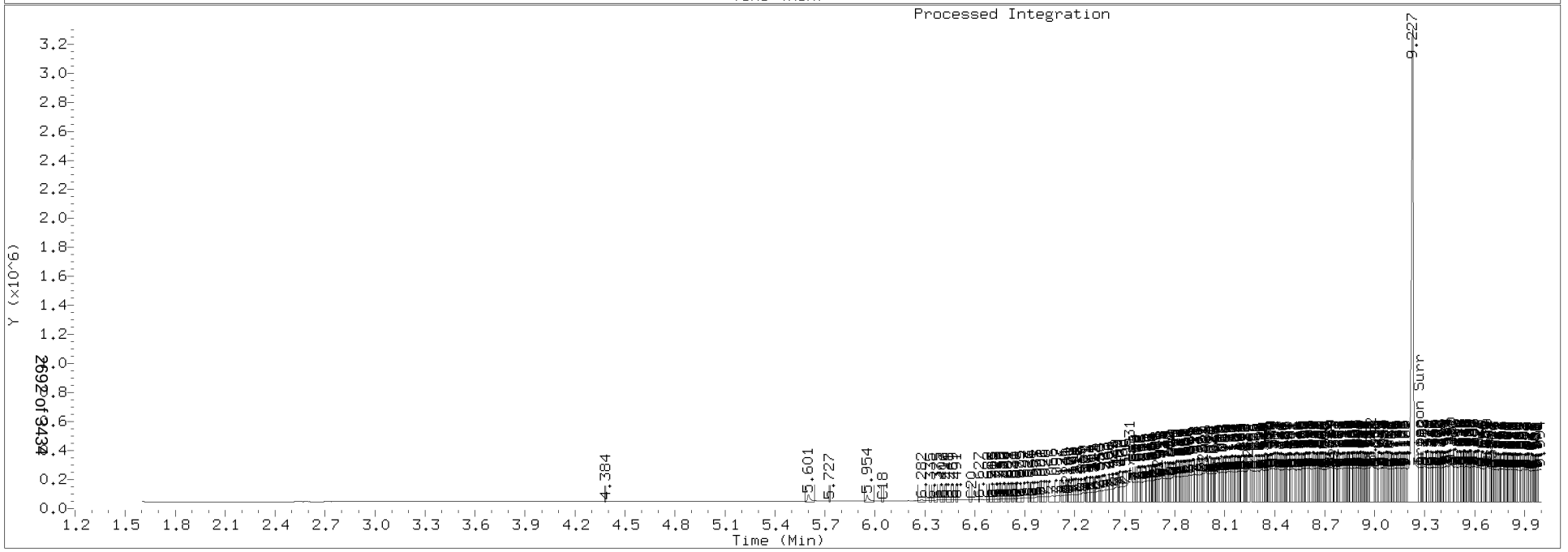


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2932.D Injection: 29-AUG-2019 20:06

Lab ID:SHH0420-CALA





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2933.D

Date : 29-AUG-2019 20:27

Client ID:

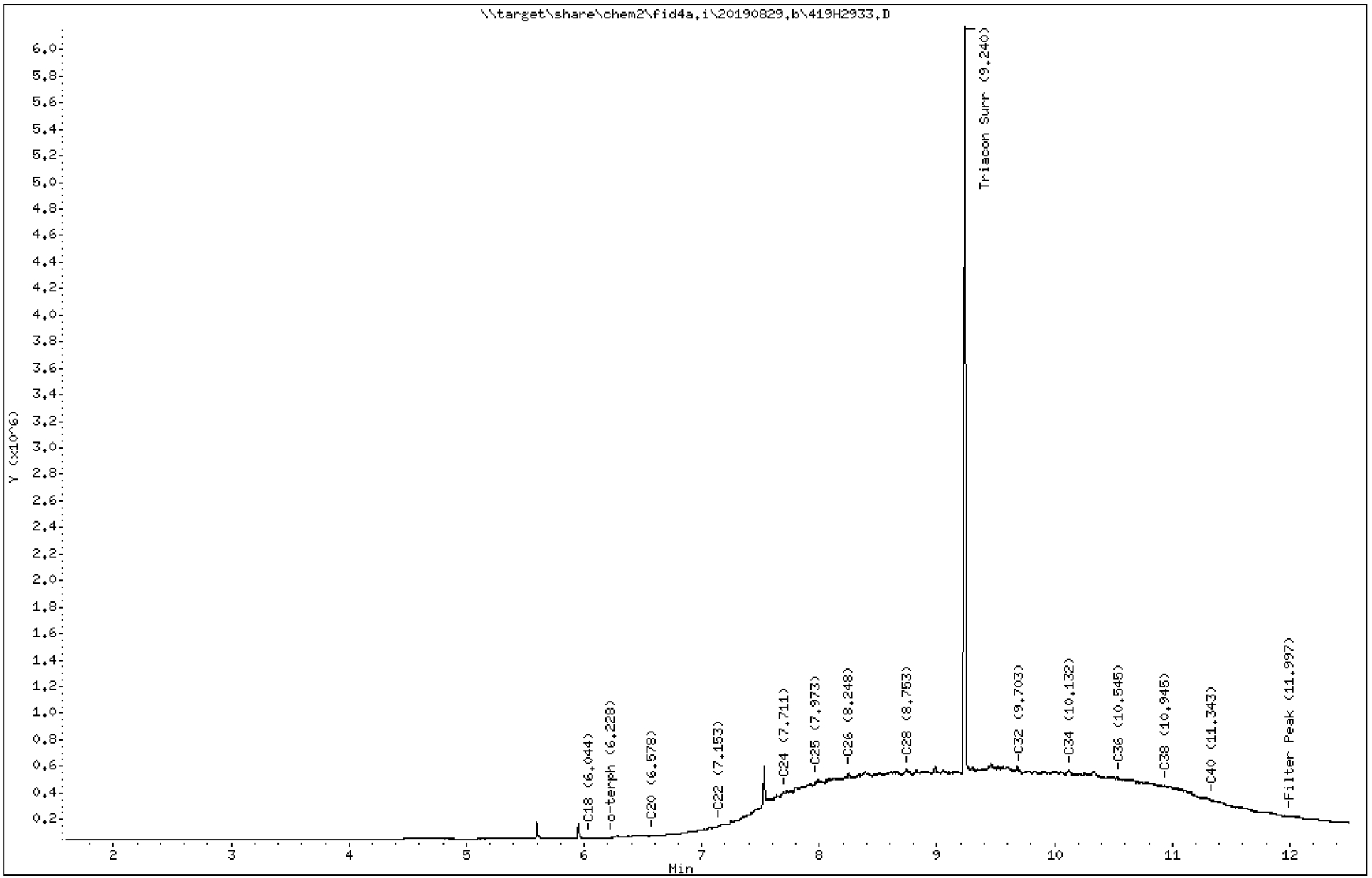
Sample Info: SHH0420-CALB

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2933.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALB
Client ID:
Injection: 29-AUG-2019 20:27
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	10787745	143.7
C10	----				WATPHM	(C24-C38)	92842931	2555.8
C12	----				AK102	(C10-C25)	14710193	161.5
C14	----				AK103	(C25-C36)	78764683	2238.1
C16	----				OR.DIES	(C10-C28)	39521630	433.2
C18	6.044	0.027	11856	11282				
C20	6.578	-0.005	32196	52390				
C22	7.153	0.010	102214	55992				
C24	7.711	0.016	347412	121172				
C25	7.973	0.008	442420	349529				
C26	8.248	0.019	498907	802613				
C28	8.753	0.014	513752	280475				
C32	9.703	0.023	523539	541252				
C34	10.132	0.018	515077	256134				
Filter Peak	11.997	0.001	174820	113003	BUNKERC	(C10-C38)	103632368	1540.4
C36	10.545	0.019	458561	297137				
C38	10.945	0.019	401523	219823				
C40	11.343	0.019	294660	190681				
o-terph	6.228	0.026	14908	9394				
Triacon Surr	9.240	0.002	5606869	5498866	NAS DIES	(C10-C24)	10789437	118.5

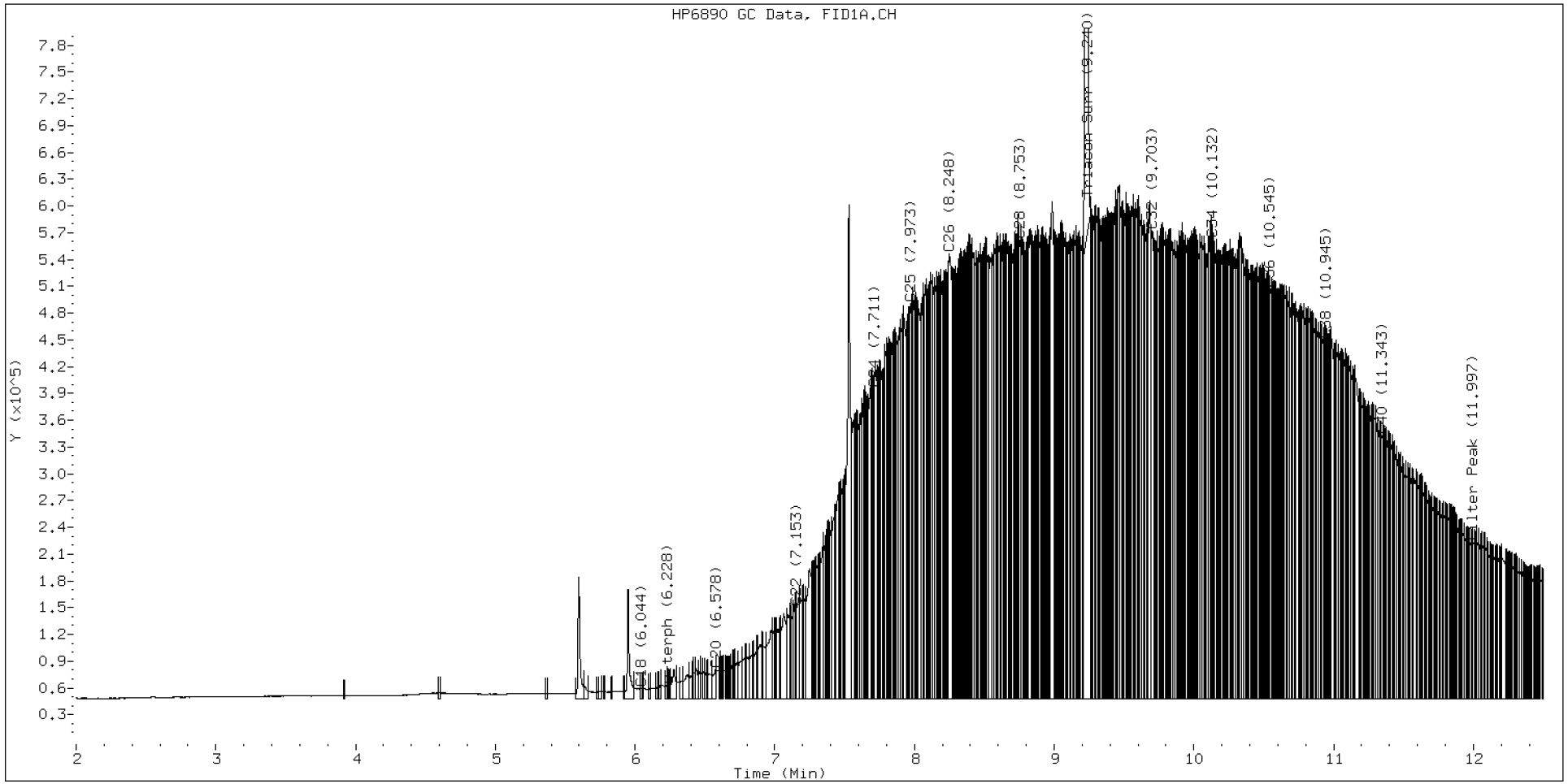
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9394	0.1	
Triacontane	5498866	104.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

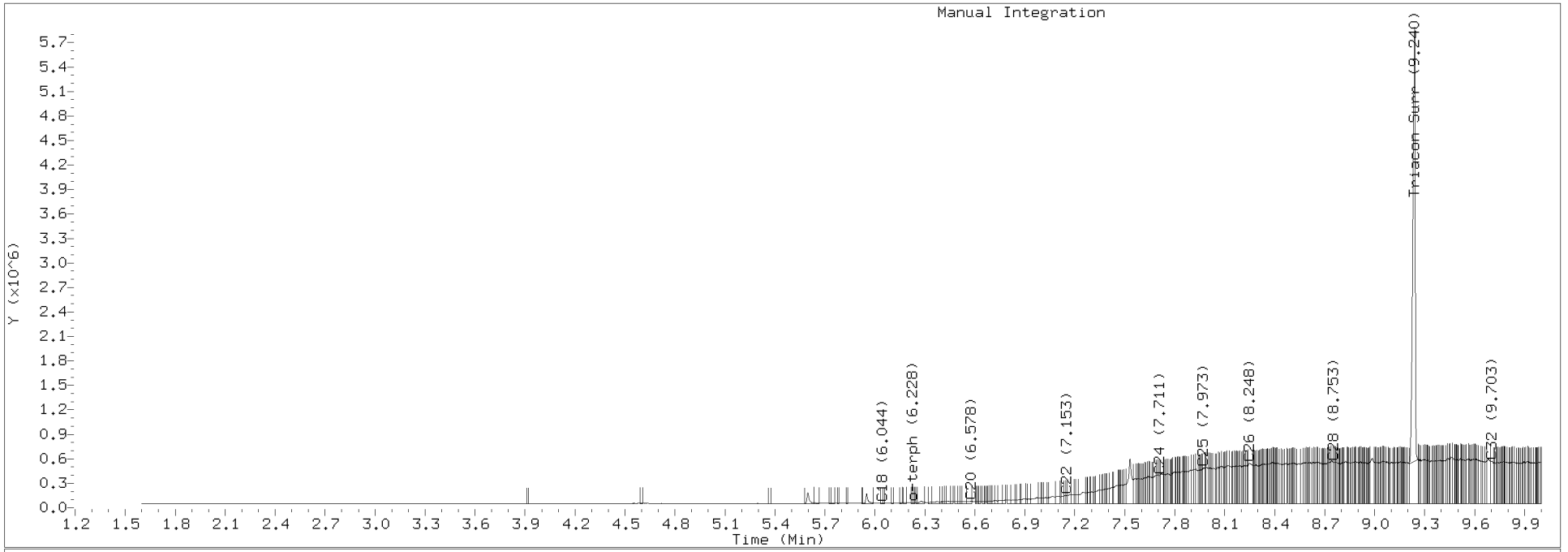
Datafile: FID4A, 20190829.b/419H2933.D SHH0420-CALB

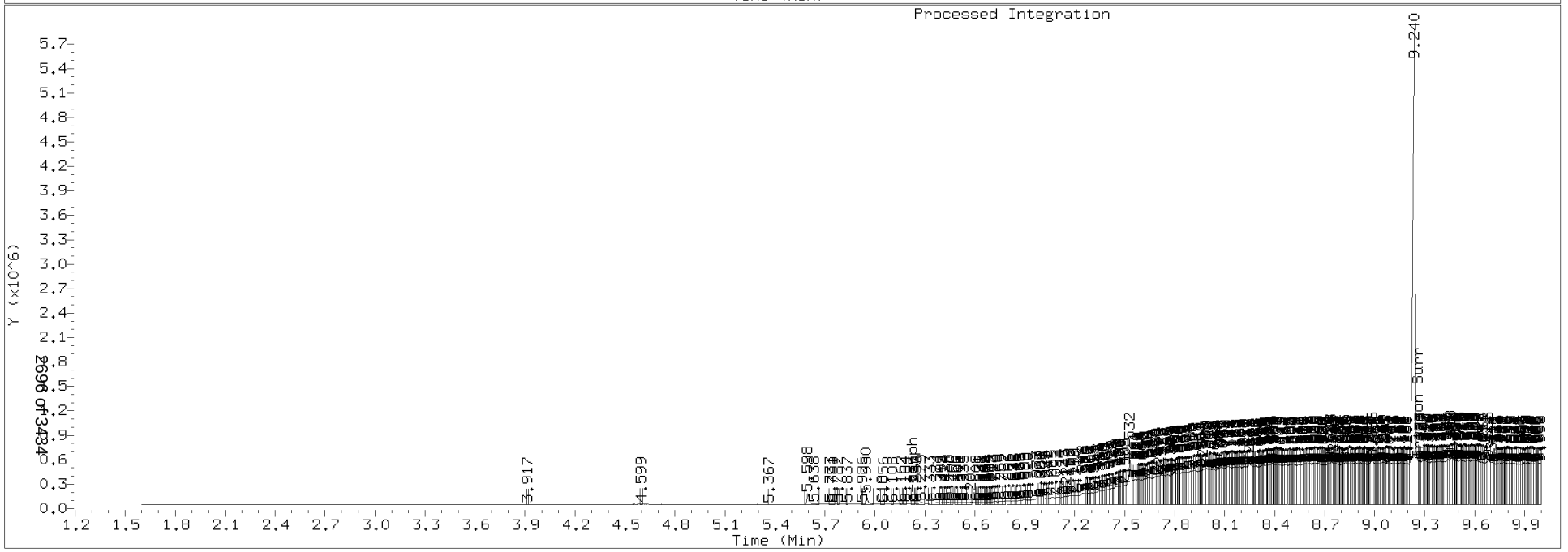


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2933.D Injection: 29-AUG-2019 20:27

Lab ID:SHH0420-CALB





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2934.D

Date : 29-AUG-2019 20:48

Client ID:

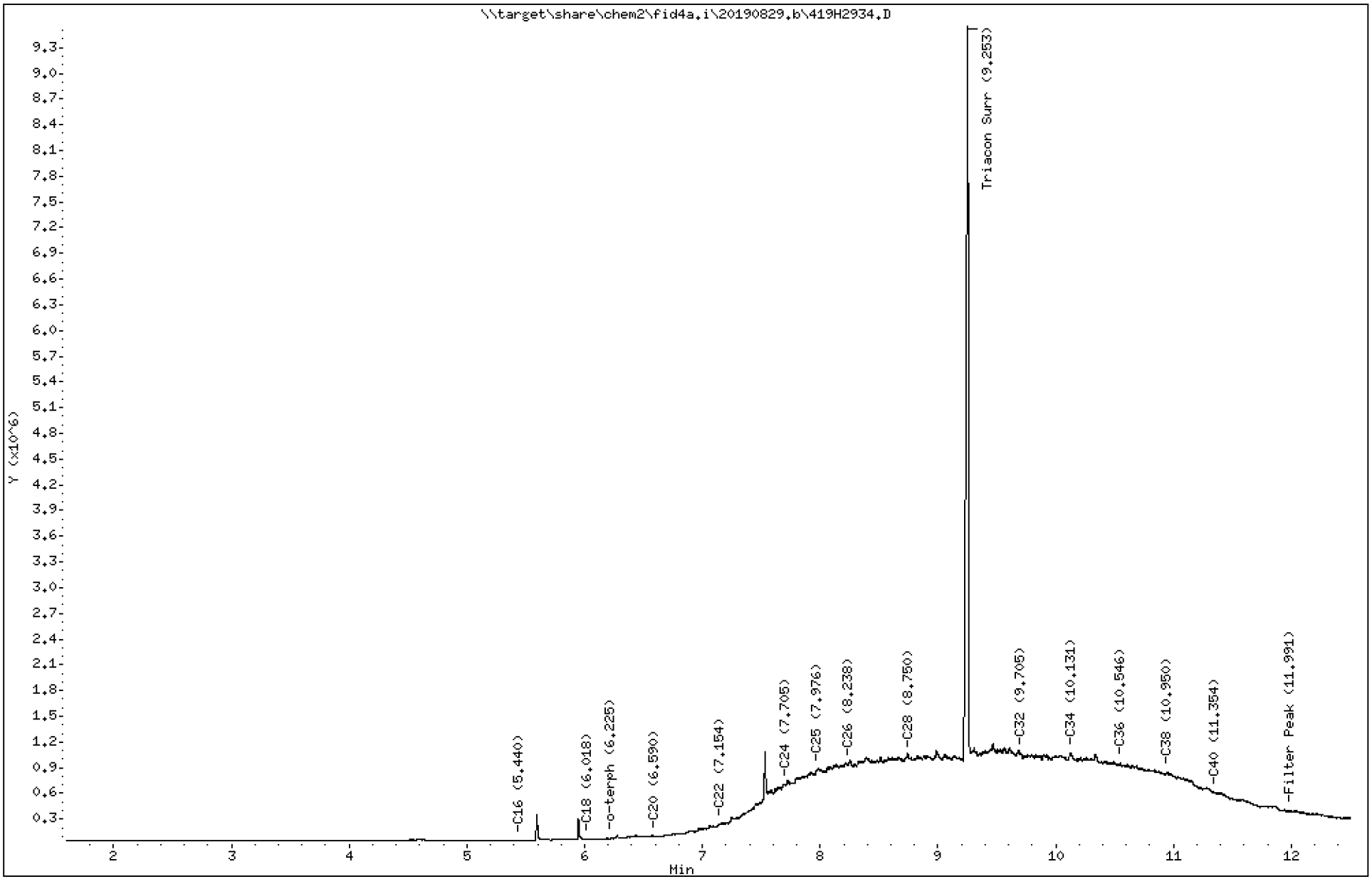
Sample Info: SHH0420-CALC

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2934.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALC
Client ID:
Injection: 29-AUG-2019 20:48
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	20418048	272.0
C10	----				WATPHM	(C24-C38)	177638100	4890.1
C12	----				AK102	(C10-C25)	27601909	303.0
C14	----				AK103	(C25-C36)	151372253	4301.3
C16	5.440	0.022	6552	2602	OR.DIES	(C10-C28)	73999289	811.2
C18	6.018	0.001	16354	18640				
C20	6.590	0.008	53985	32273				
C22	7.154	0.011	184745	64546				
C24	7.705	0.010	650570	258950				
C25	7.976	0.012	828236	494743				
C26	8.238	0.009	891630	355184				
C28	8.750	0.011	988610	583627				
C32	9.705	0.024	1018099	1286622				
C34	10.131	0.018	1025479	990839				
Filter Peak	11.991	-0.005	346183	154290	BUNKERC	(C10-C38)	198058848	2943.9
C36	10.546	0.019	902597	665865				
C38	10.950	0.024	789735	352720				
C40	11.354	0.029	560118	194926				
o-terph	6.225	0.023	23786	21319				
Triacon Surr	9.253	0.015	8483828	10449587	NAS DIES	(C10-C24)	20420749	224.3

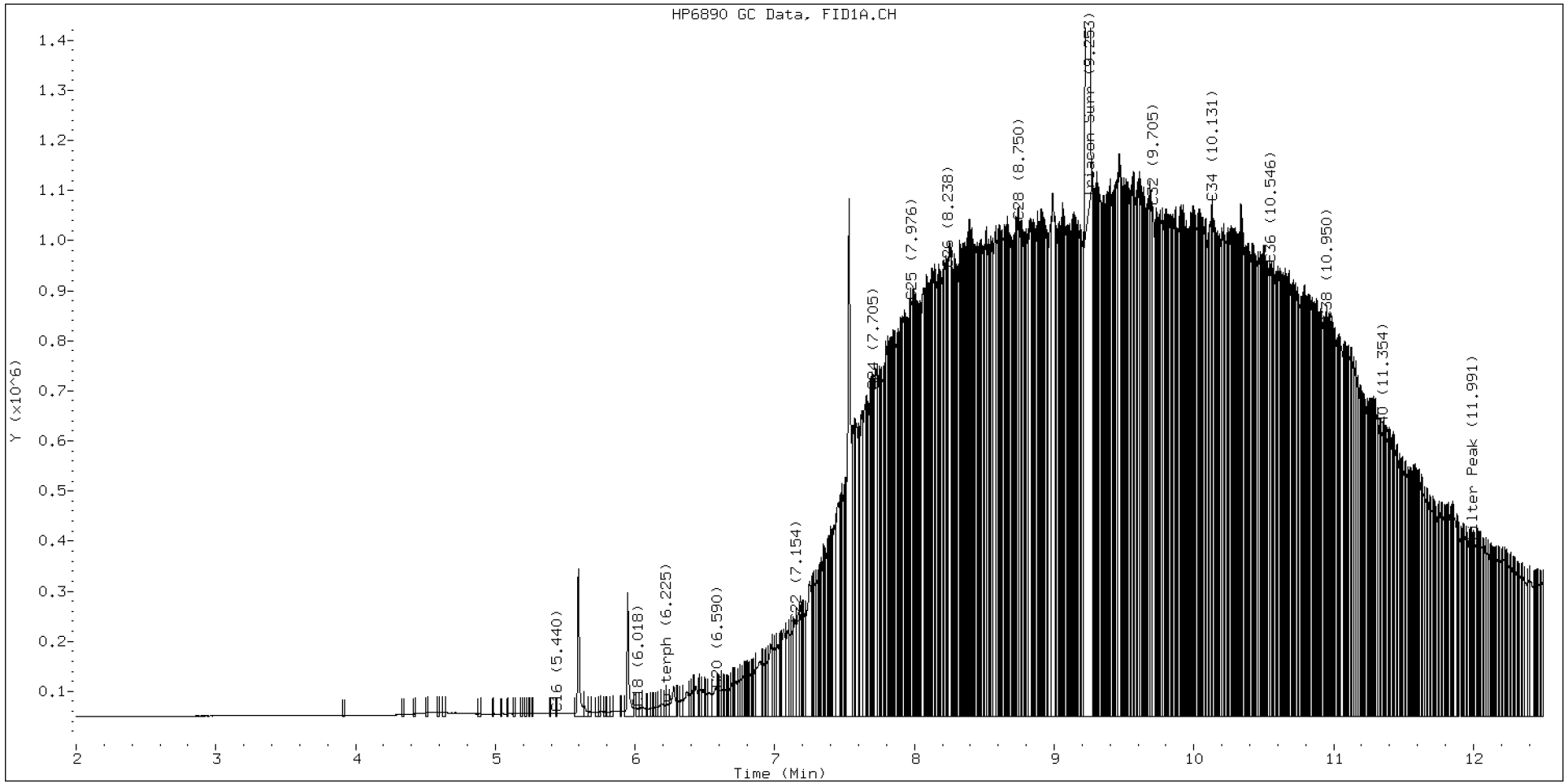
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	21319	0.2	
Triacontane	10449587	199.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

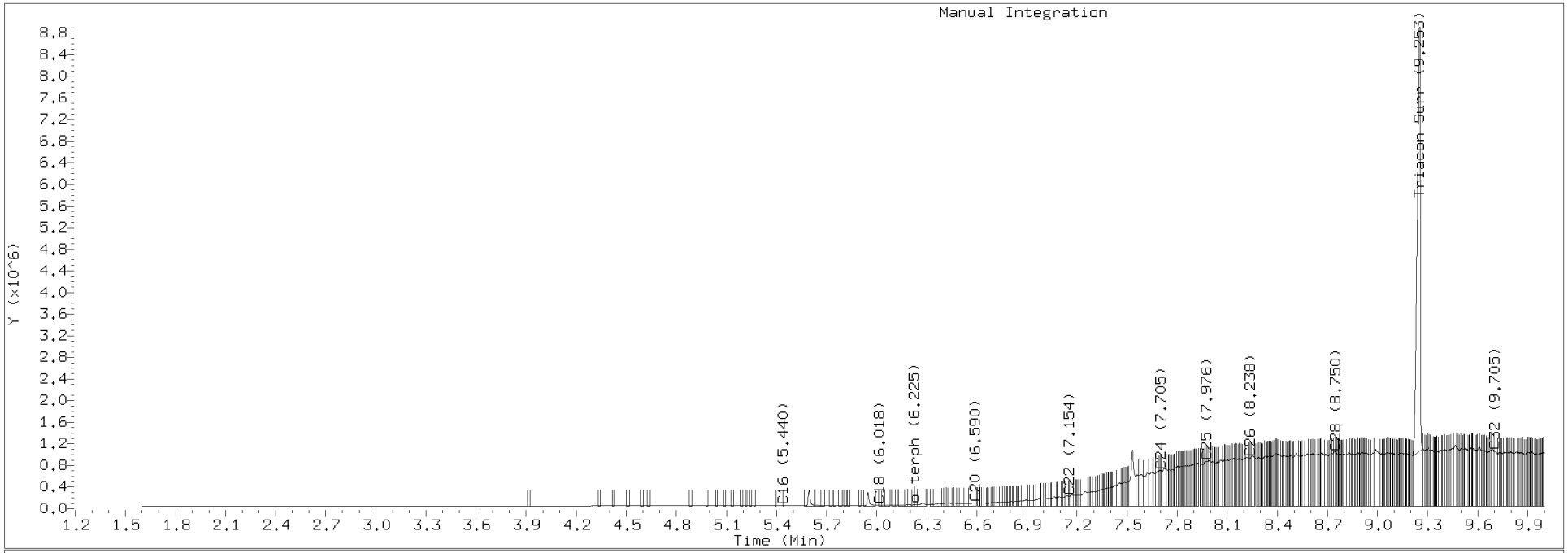
Datafile: FID4A, 20190829.b/419H2934.D SHH0420-CALC

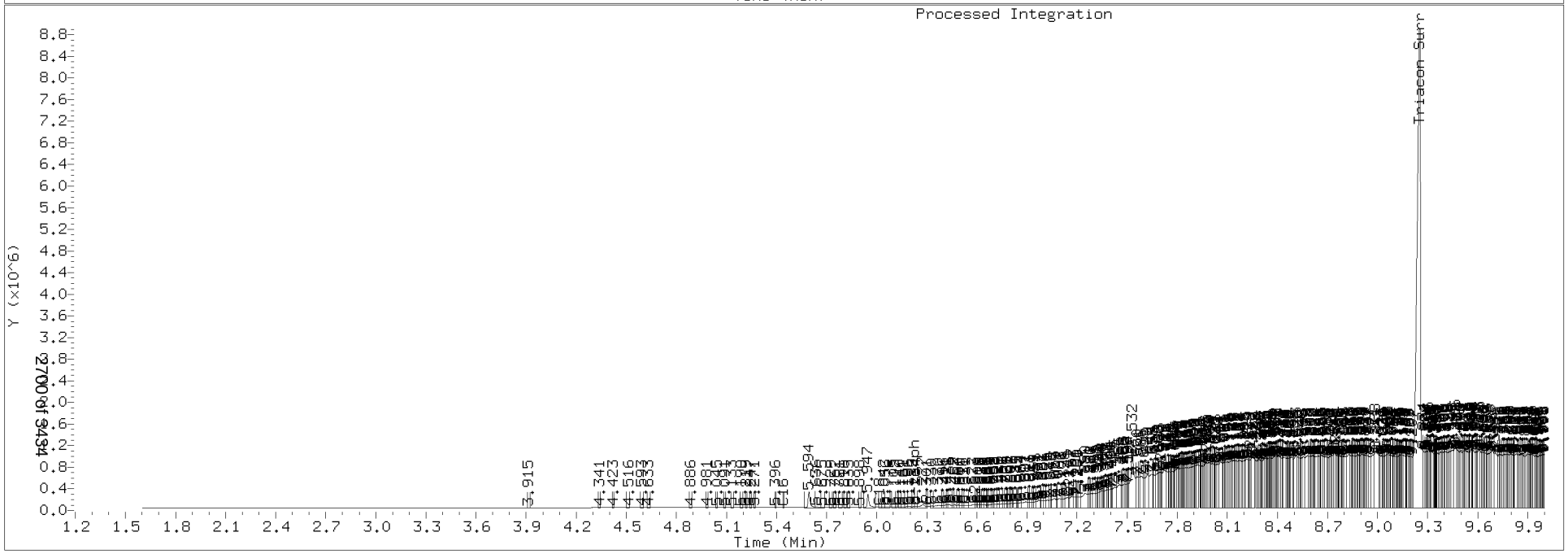


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2934.D Injection: 29-AUG-2019 20:48

Lab ID:SHH0420-CALC





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2935.D

Date : 29-AUG-2019 21:09

Client ID:

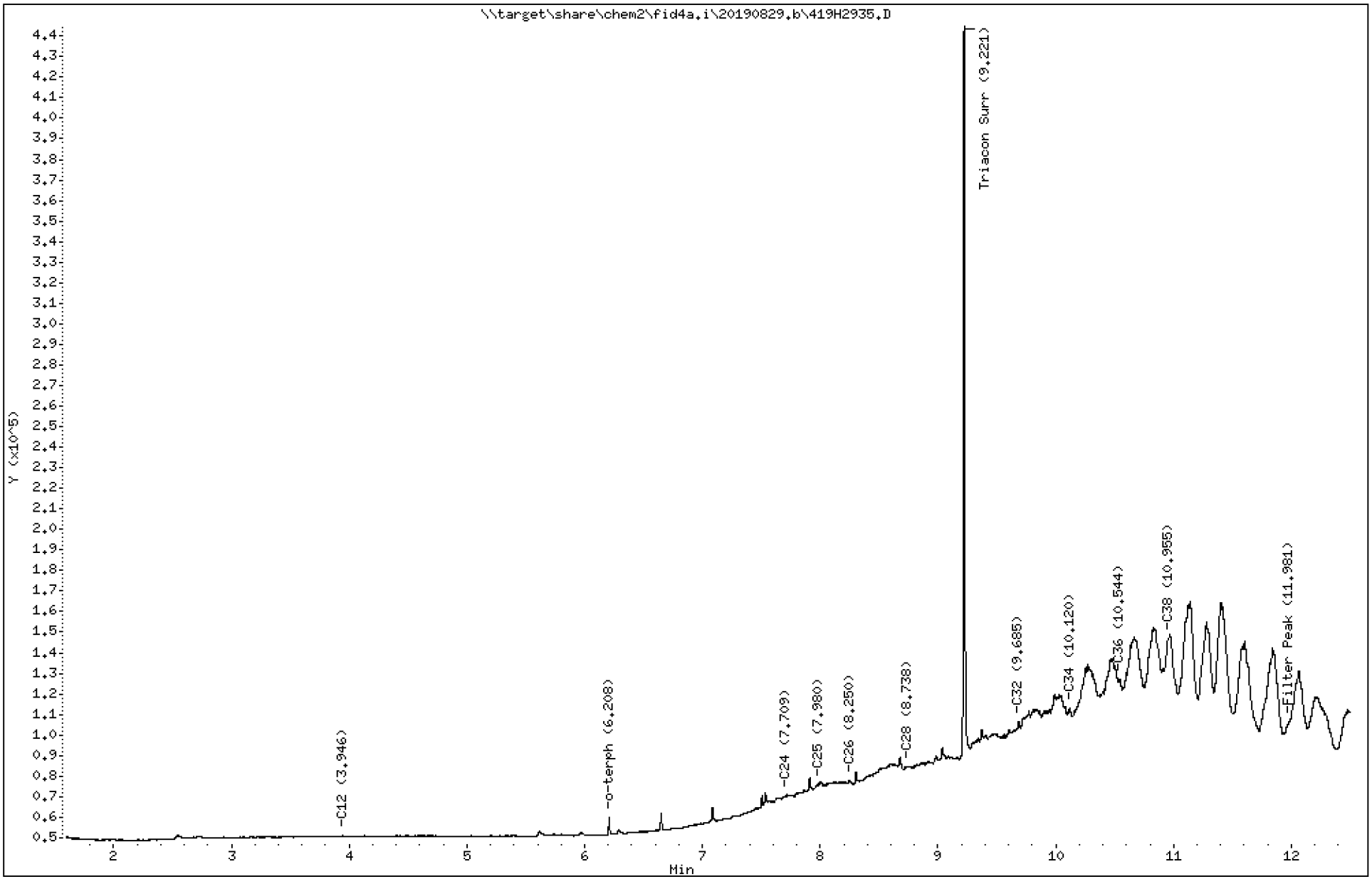
Sample Info: SHH0420-CALD

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2935.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALD
Client ID:
Injection: 29-AUG-2019 21:09
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	292307	3.9
C10	----				WATPHM	(C24-C38)	7607770	209.4
C12	3.946	-0.040	2325	2282	AK102	(C10-C25)	467978	5.1
C14	----				AK103	(C25-C36)	5540885	157.4
C16	----				OR.DIES	(C10-C28)	1349124	14.8
C18	----							
C20	----							
C22	----							
C24	7.709	0.014	21606	6432				
C25	7.980	0.015	27233	12156				
C26	8.250	0.021	29199	55532				
C28	8.738	-0.001	36123	14358				
C32	9.685	0.005	57614	78330				
C34	10.120	0.006	64129	53874				
Filter Peak	11.981	-0.014	57746	64620	BUNKERC	(C10-C38)	7902360	117.5
C36	10.544	0.017	78647	39024				
C38	10.955	0.030	98242	198978				
C40	----							
o-terph	6.208	0.006	10988	9241				
Triacon Surr	9.221	-0.017	354559	283898	NAS DIES	(C10-C24)	294590	3.2

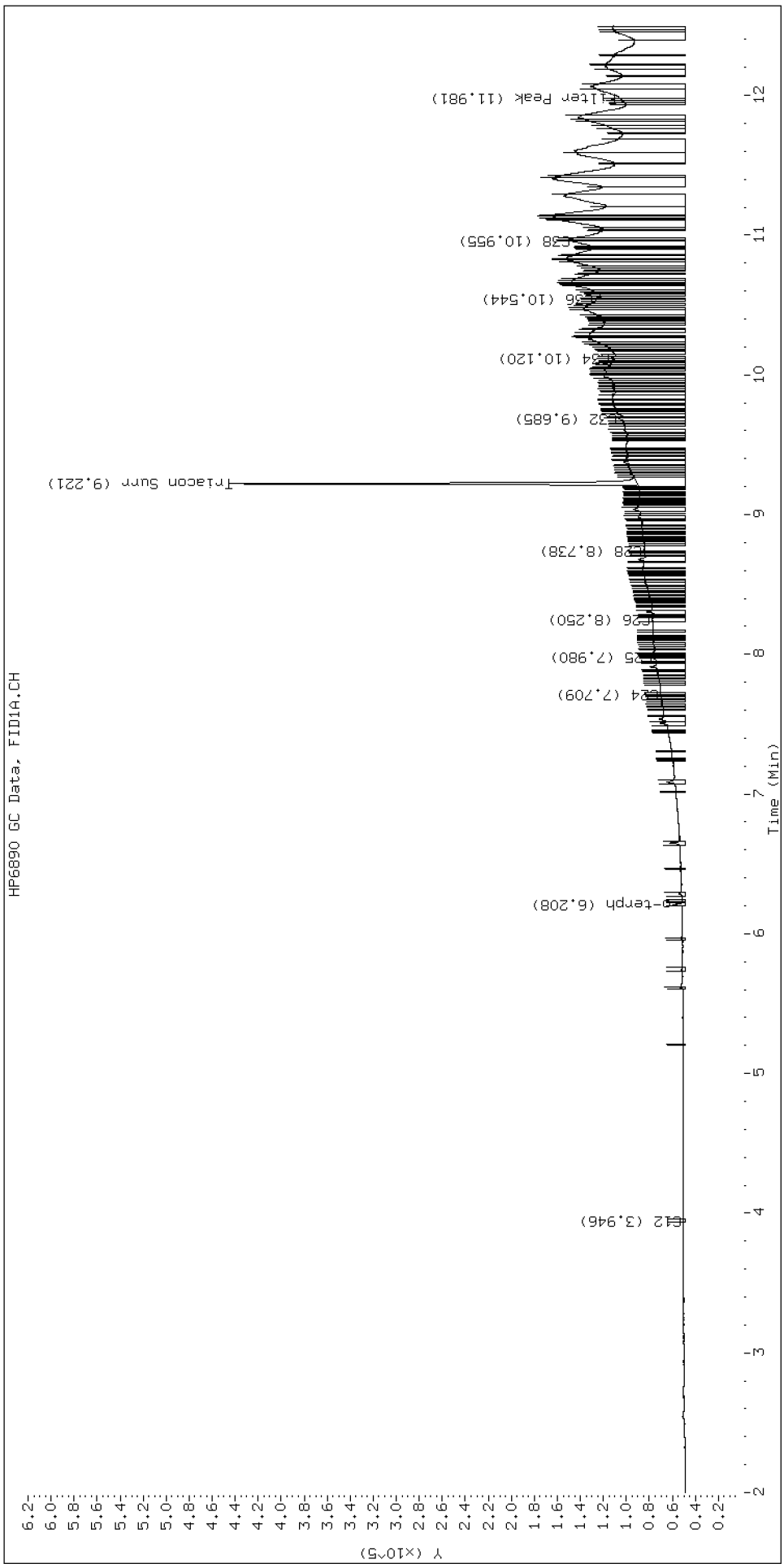
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9241	0.1	
Triacontane	283898	5.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

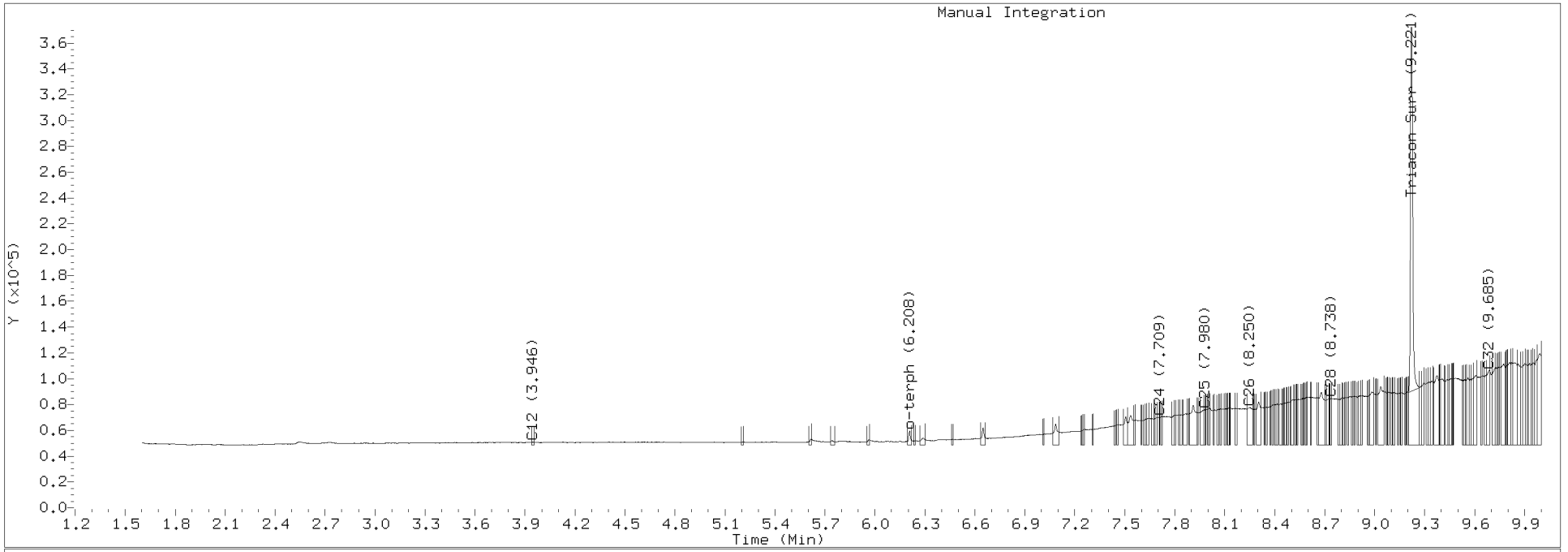
Datafile: FID4A, 20190829.b/419H2935.D SHH0420-CALD

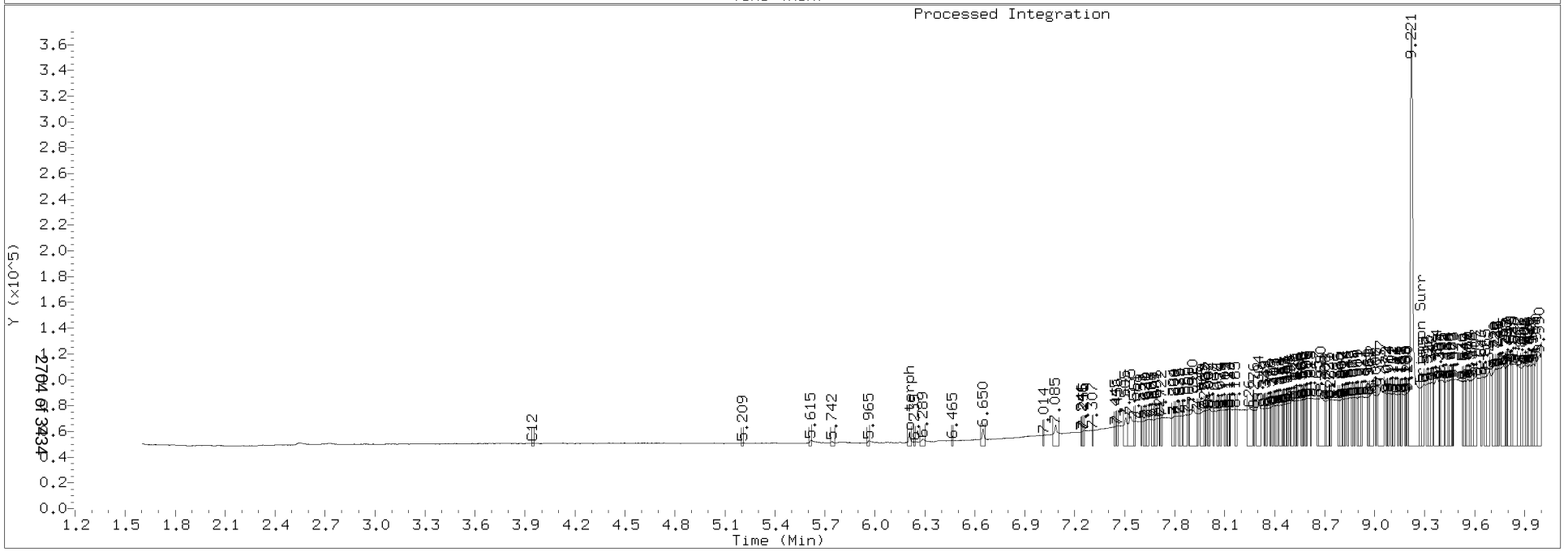


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2935.D Injection: 29-AUG-2019 21:09

Lab ID:SHH0420-CALD





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2936.D

Date : 29-AUG-2019 21:30

Client ID:

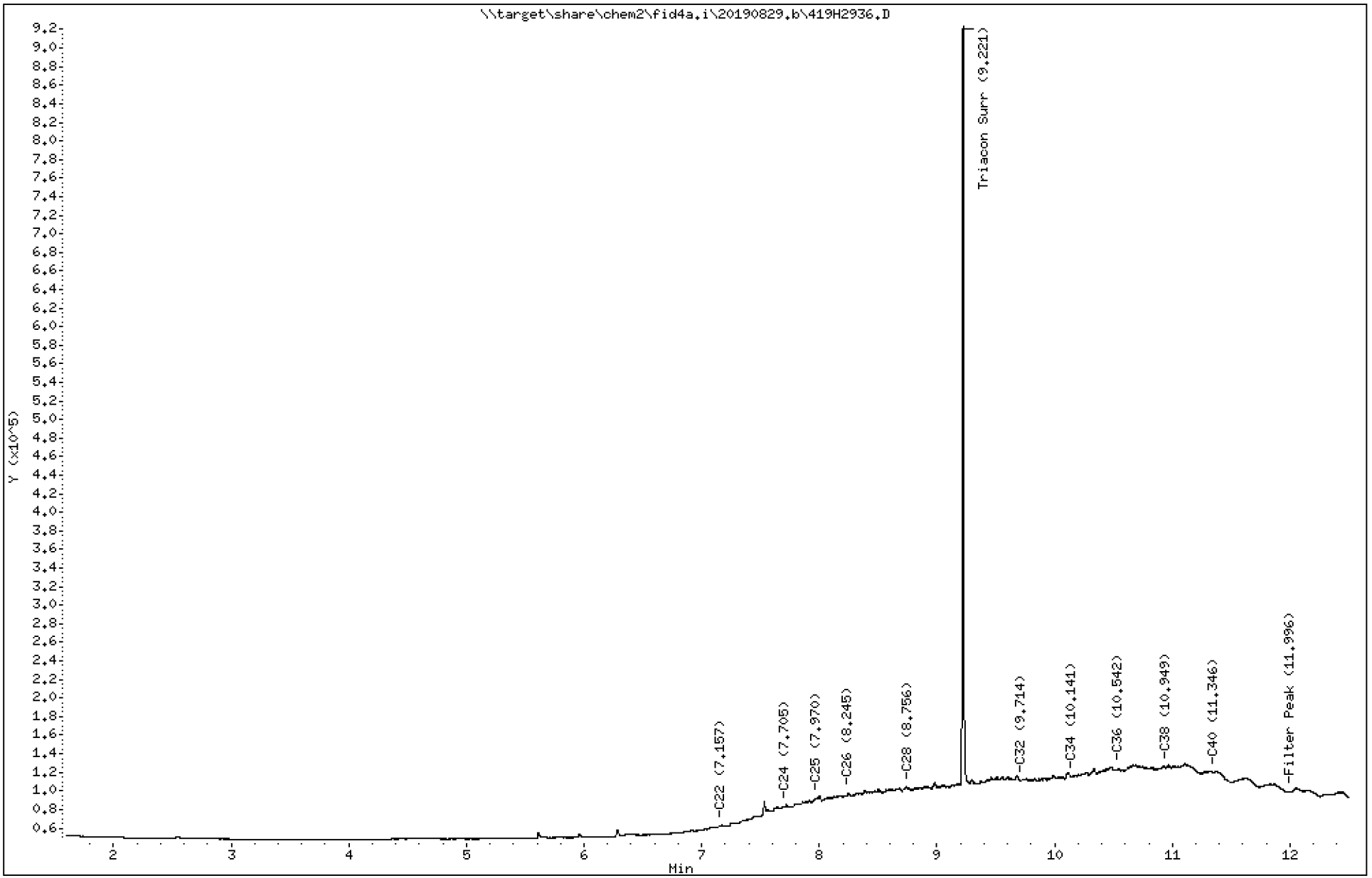
Sample Info: SHH0420-CALE

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2936.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALE
Client ID:
Injection: 29-AUG-2019 21:30
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	663995	8.8
C10	----				WATPHM	(C24-C38)	9835033	270.7
C12	----				AK102	(C10-C25)	985919	10.8
C14	----				AK103	(C25-C36)	8072091	229.4
C16	----				OR.DIES	(C10-C28)	3247329	35.6
C18	----							
C20	----							
C22	7.157	0.014	14256	4934				
C24	7.705	0.010	35149	15747				
C25	7.970	0.005	44276	17577				
C26	8.245	0.016	50541	46253				
C28	8.756	0.017	56013	41485				
C32	9.714	0.033	62988	15707				
C34	10.141	0.027	67875	23704				
Filter Peak	11.996	0.001	51357	28089	BUNKERC	(C10-C38)	10499029	156.1
C36	10.542	0.016	76059	60716				
C38	10.949	0.023	78154	38884				
C40	11.346	0.021	71930	35879				
o-terph	----							
Triacon Surr	9.221	-0.017	815718	608992	NAS DIES	(C10-C24)	663995	7.3

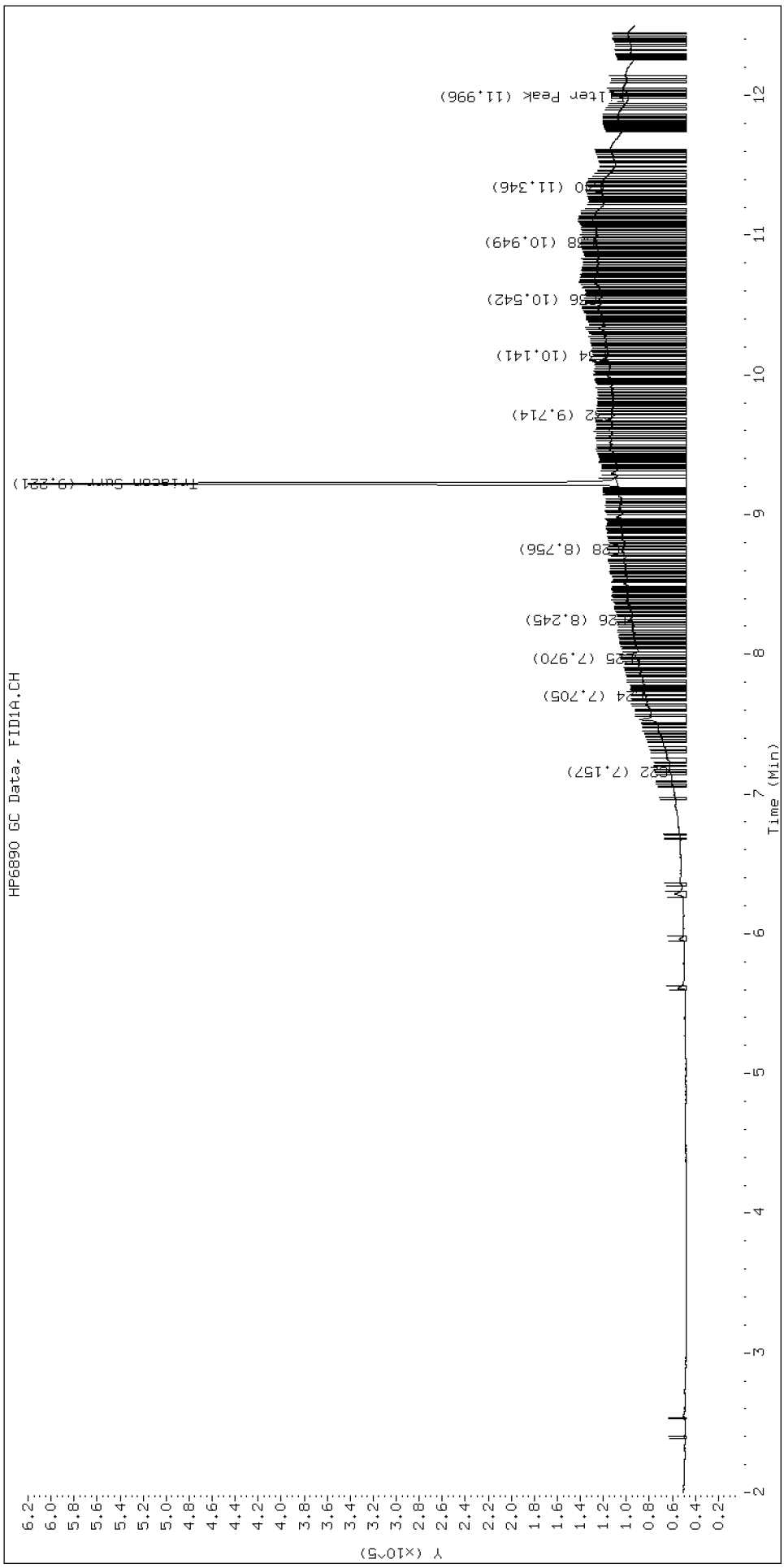
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	608992	11.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

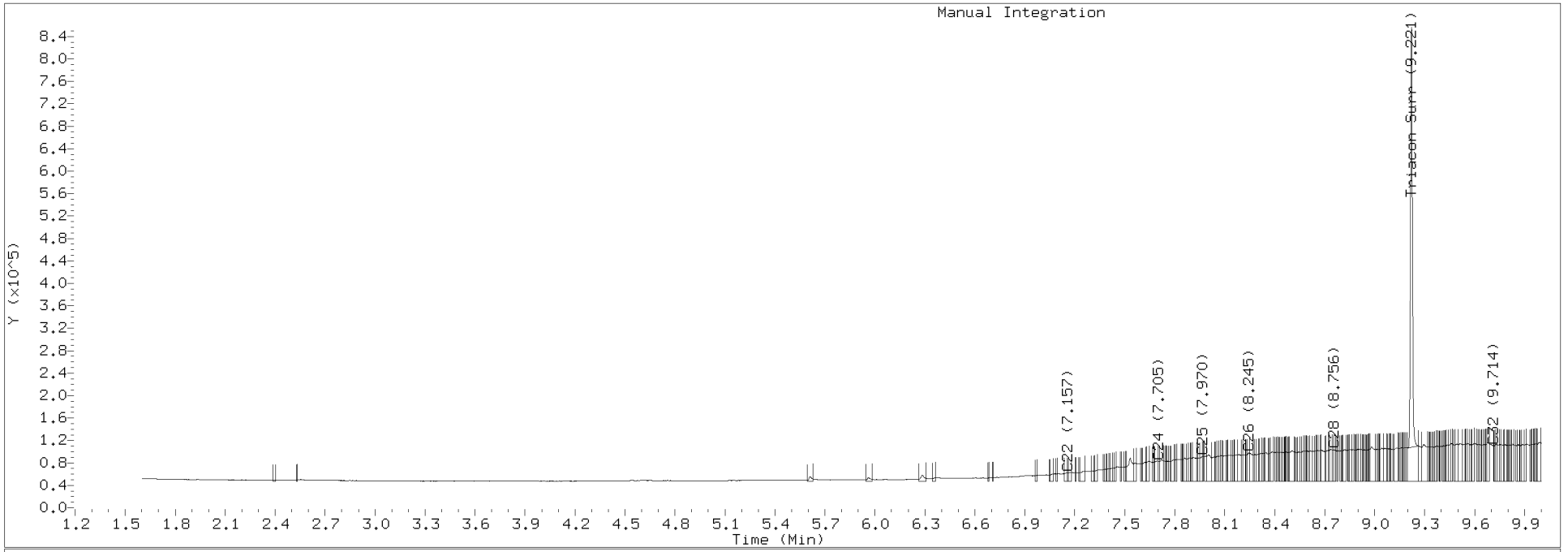
Datafile: FID4A, 20190829.b/419H2936.D SHH0420-CALE

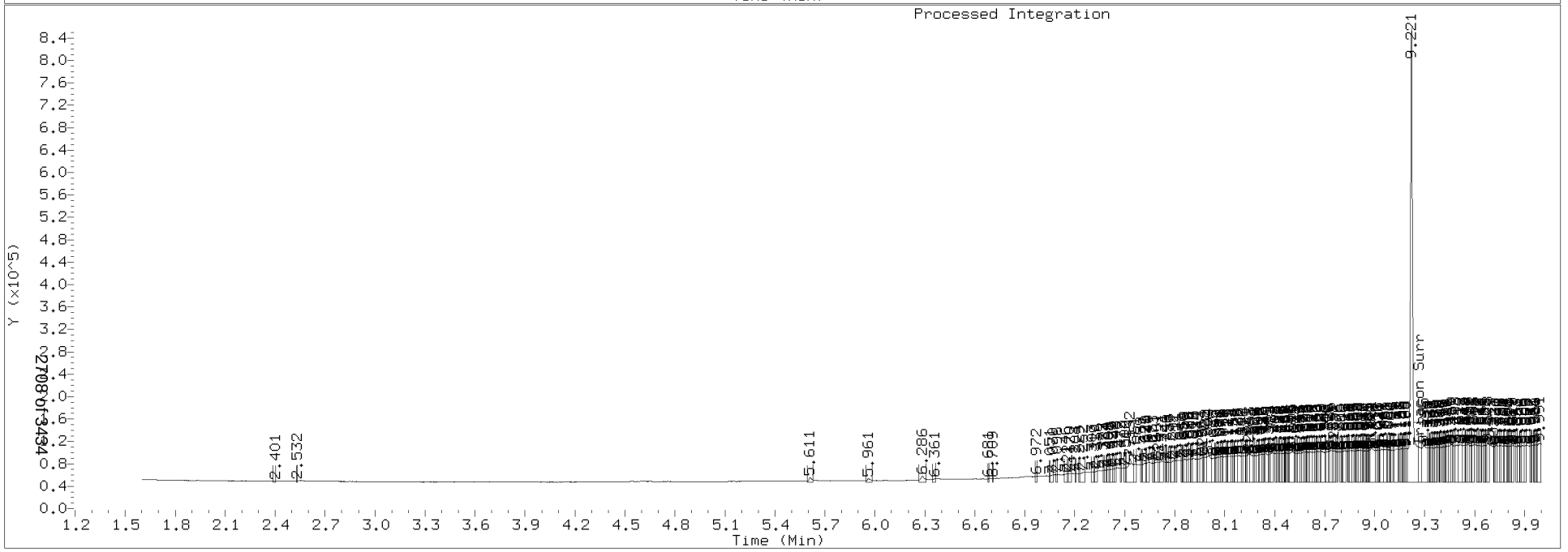


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2936.D Injection: 29-AUG-2019 21:30

Lab ID:SHH0420-CALE





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2937.D

Date : 29-AUG-2019 21:50

Client ID:

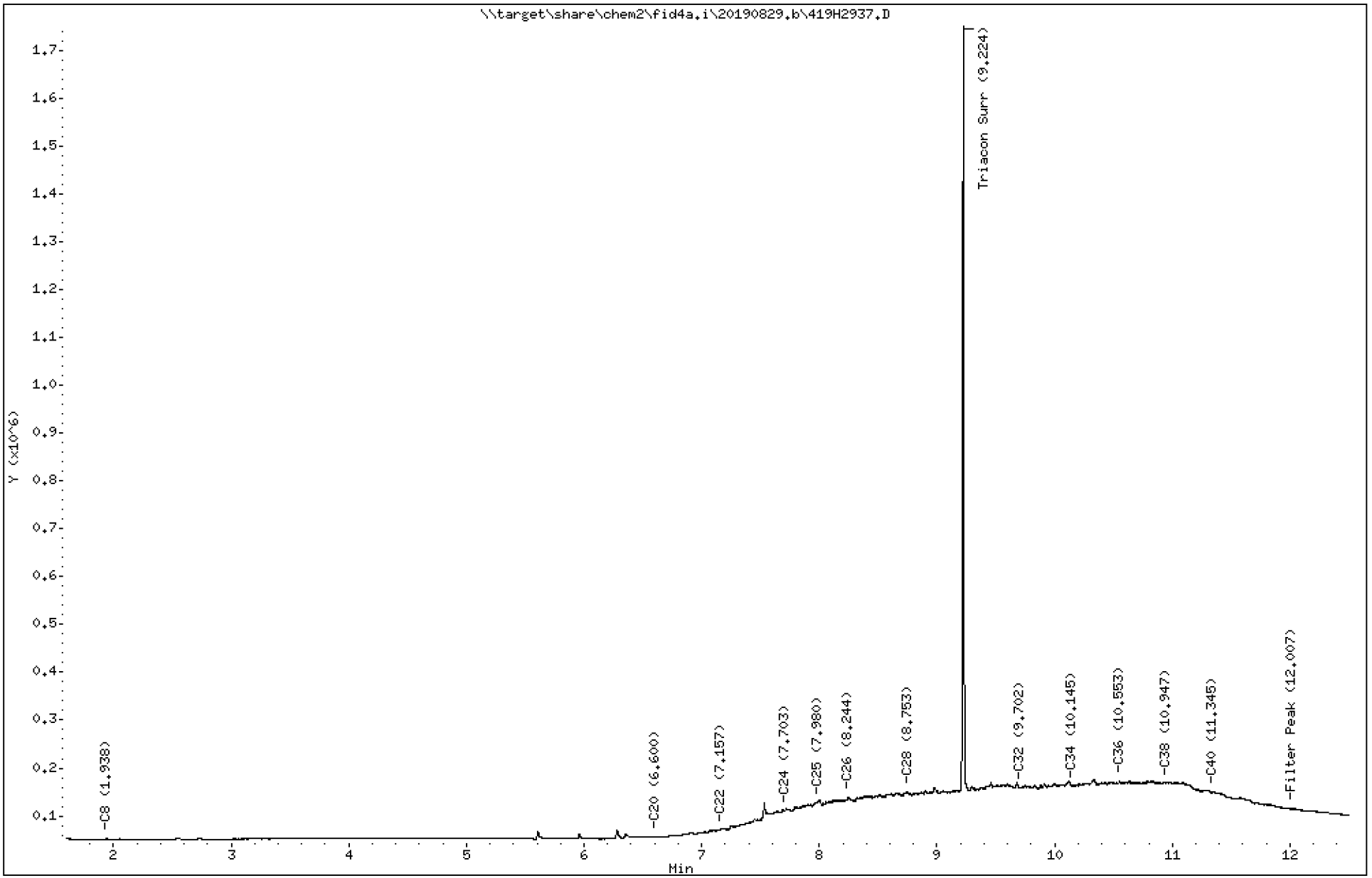
Sample Info: SHH0420-CALF

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2937.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALF
Client ID:
Injection: 29-AUG-2019 21:50
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.938	0.126	1616	1465	WATPHD	(C12-C24)	1644862	21.9
C10	----				WATPHM	(C24-C38)	18658498	513.6
C12	----				AK102	(C10-C25)	2202235	24.2
C14	----				AK103	(C25-C36)	15524006	441.1
C16	----				OR.DIES	(C10-C28)	6465972	70.9
C18	----							
C20	6.600	0.018	6315	3667				
C22	7.157	0.013	21057	10410				
C24	7.703	0.008	60531	27063				
C25	7.980	0.015	78058	23357				
C26	8.244	0.015	87816	85900				
C28	8.753	0.014	98225	110749				
C32	9.702	0.021	109013	70459				
C34	10.145	0.031	112432	39189				
Filter Peak	12.007	0.012	65015	54776	BUNKERC	(C10-C38)	20303360	301.8
C36	10.553	0.027	121850	179264				
C38	10.947	0.022	117782	23503				
C40	11.345	0.020	99346	59383				
o-terph	----							
Triacon Surr	9.224	-0.014	1598045	1200643	NAS DIES	(C10-C24)	1644862	18.1

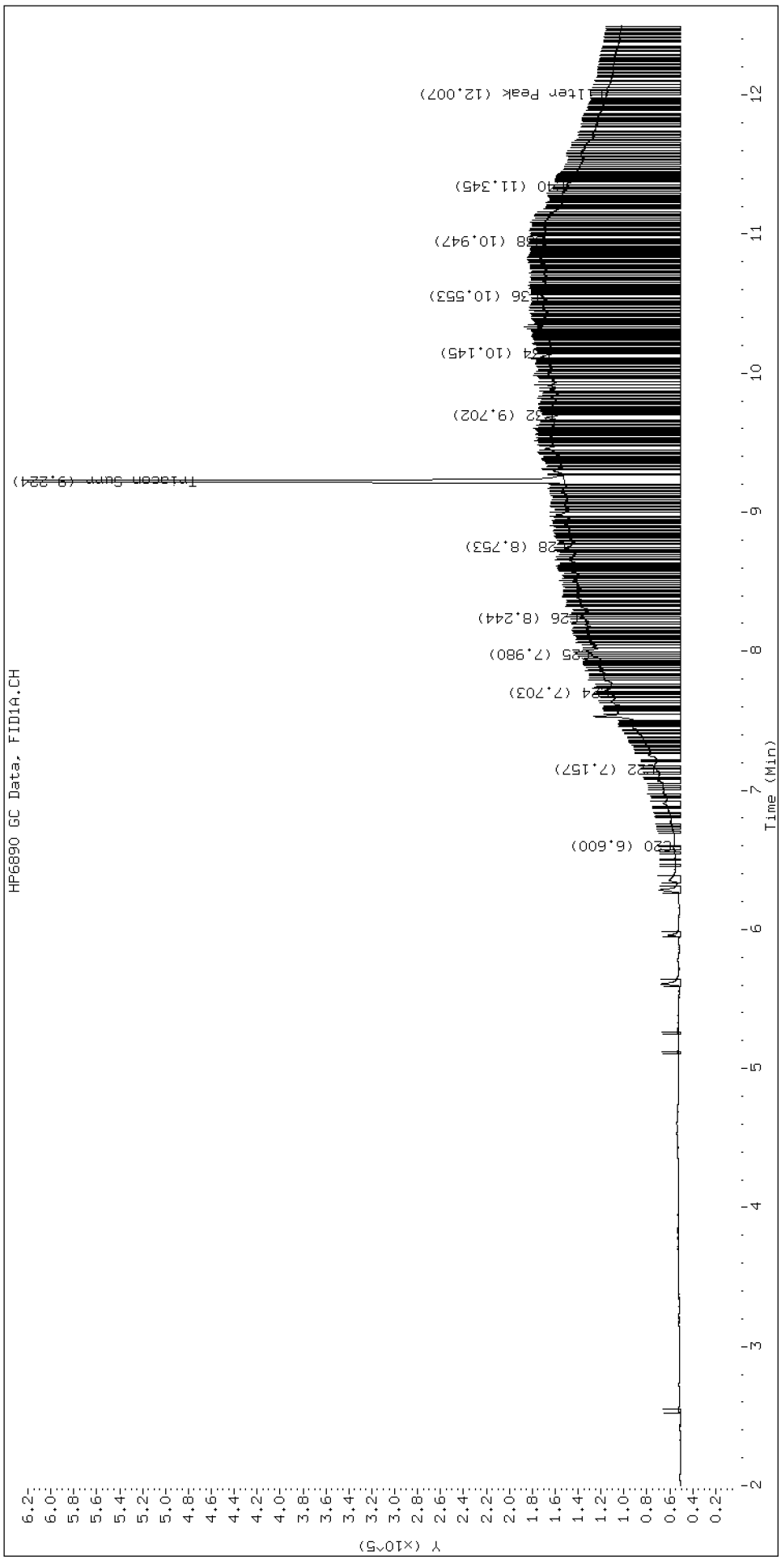
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	1200643	22.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

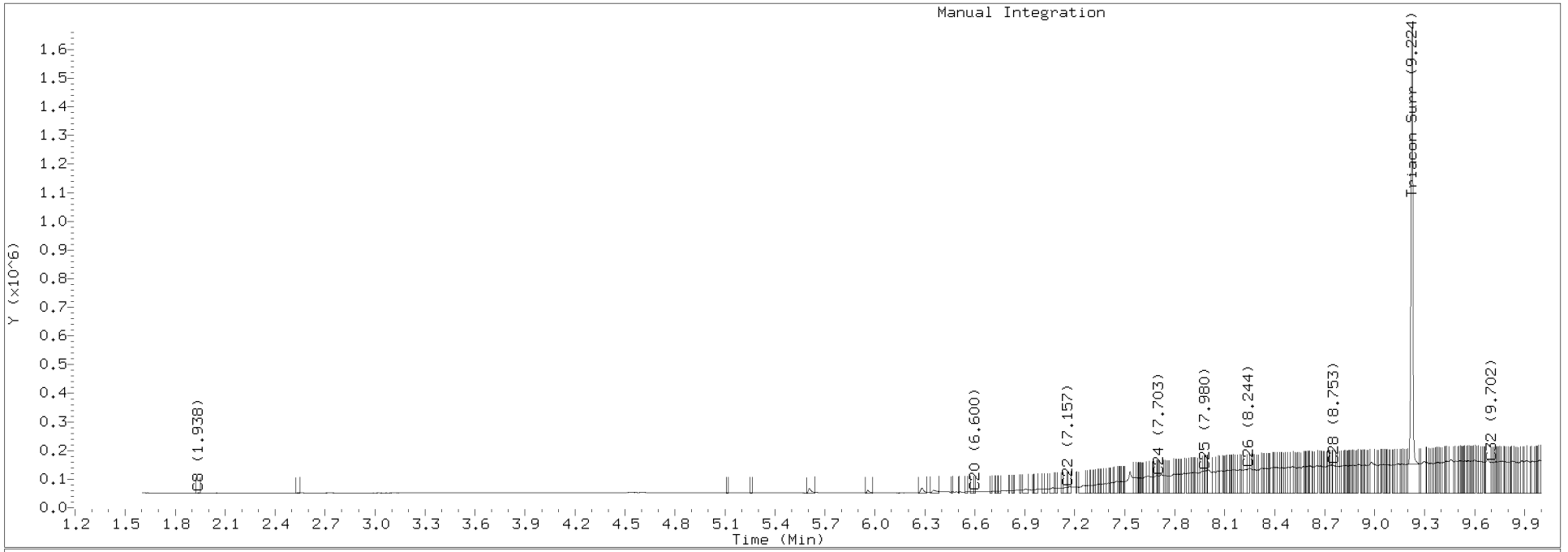
Datafile: FID4A, 20190829.b/419H2937.D SHH0420-CALF

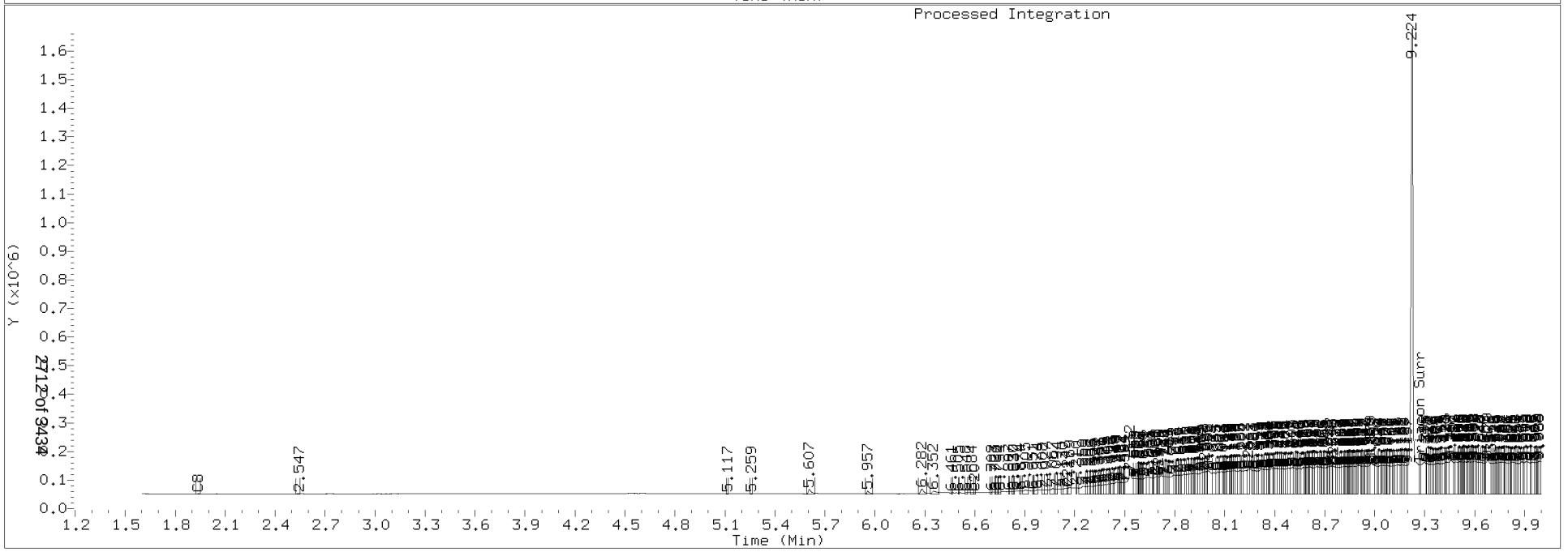


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2937.D Injection: 29-AUG-2019 21:50

Lab ID:SHH0420-CALF





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2938.D

Date : 29-AUG-2019 22:11

Client ID:

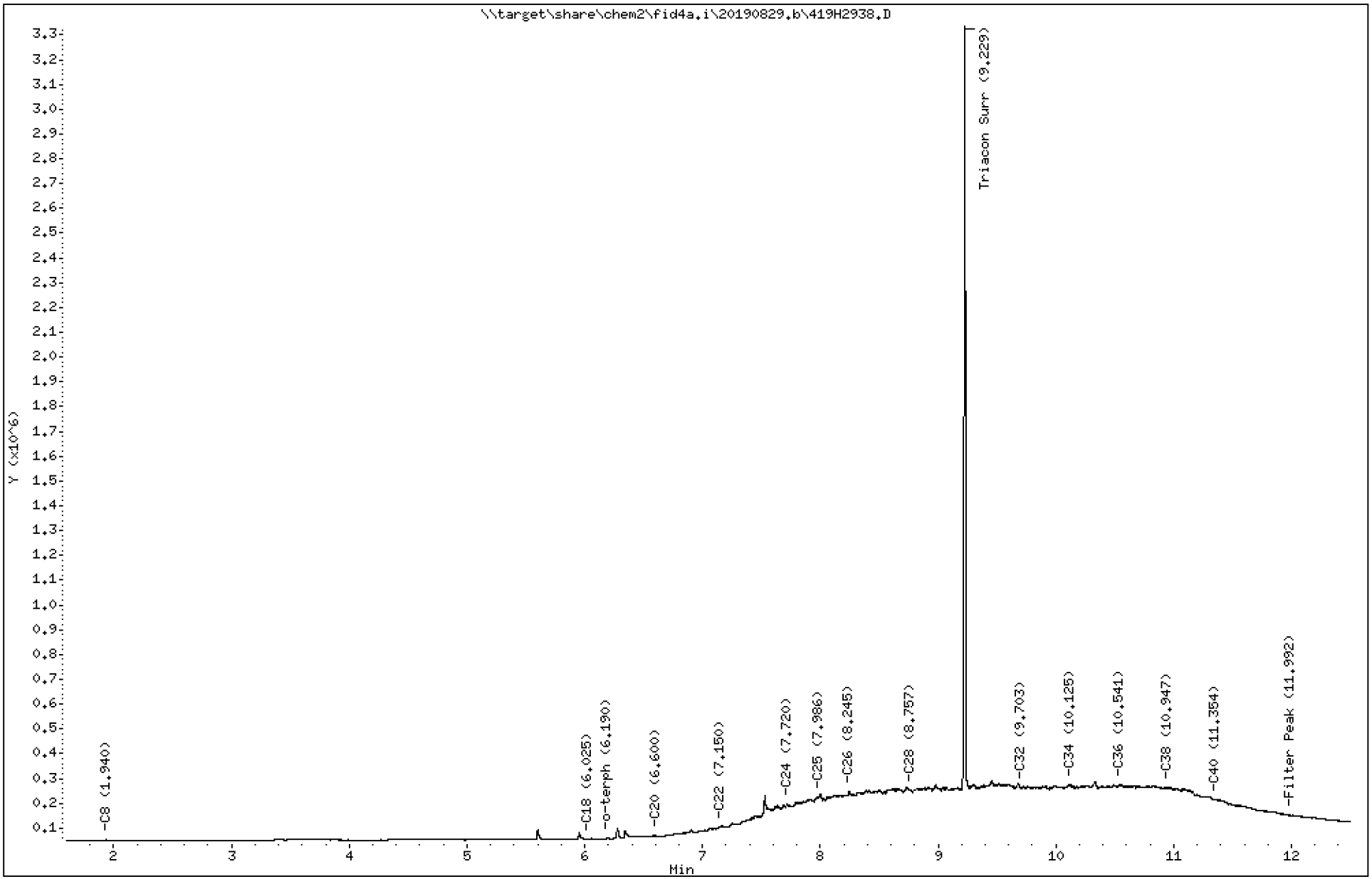
Sample Info: SHH0420-CALG

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2938.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALG
Client ID:
Injection: 29-AUG-2019 22:11
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.940	0.127	2621	2404	WATPHD	(C12-C24)	4794763	63.9
C10	----				WATPHM	(C24-C38)	38731751	1066.2
C12	----				AK102	(C10-C25)	6272424	68.9
C14	----				AK103	(C25-C36)	32027337	910.1
C16	----				OR.DIES	(C10-C28)	15761237	172.8
C18	6.025	0.007	7287	5223				
C20	6.600	0.018	19789	27578				
C22	7.150	0.006	54505	40497				
C24	7.720	0.025	148275	235934				
C25	7.986	0.021	177721	95983				
C26	8.245	0.016	198072	416173				
C28	8.757	0.018	205433	61435				
C32	9.703	0.022	211986	63500				
C34	10.125	0.011	227511	253527				
Filter Peak	11.992	-0.003	102257	76062	BUNKERC	(C10-C38)	43532464	647.0
C36	10.541	0.015	223516	132681				
C38	10.947	0.021	212858	74196				
C40	11.354	0.029	167203	149156				
o-terph	6.190	-0.012	9052	11005				
Triacon Surr	9.229	-0.009	3079849	2460208	NAS DIES	(C10-C24)	4800714	52.7

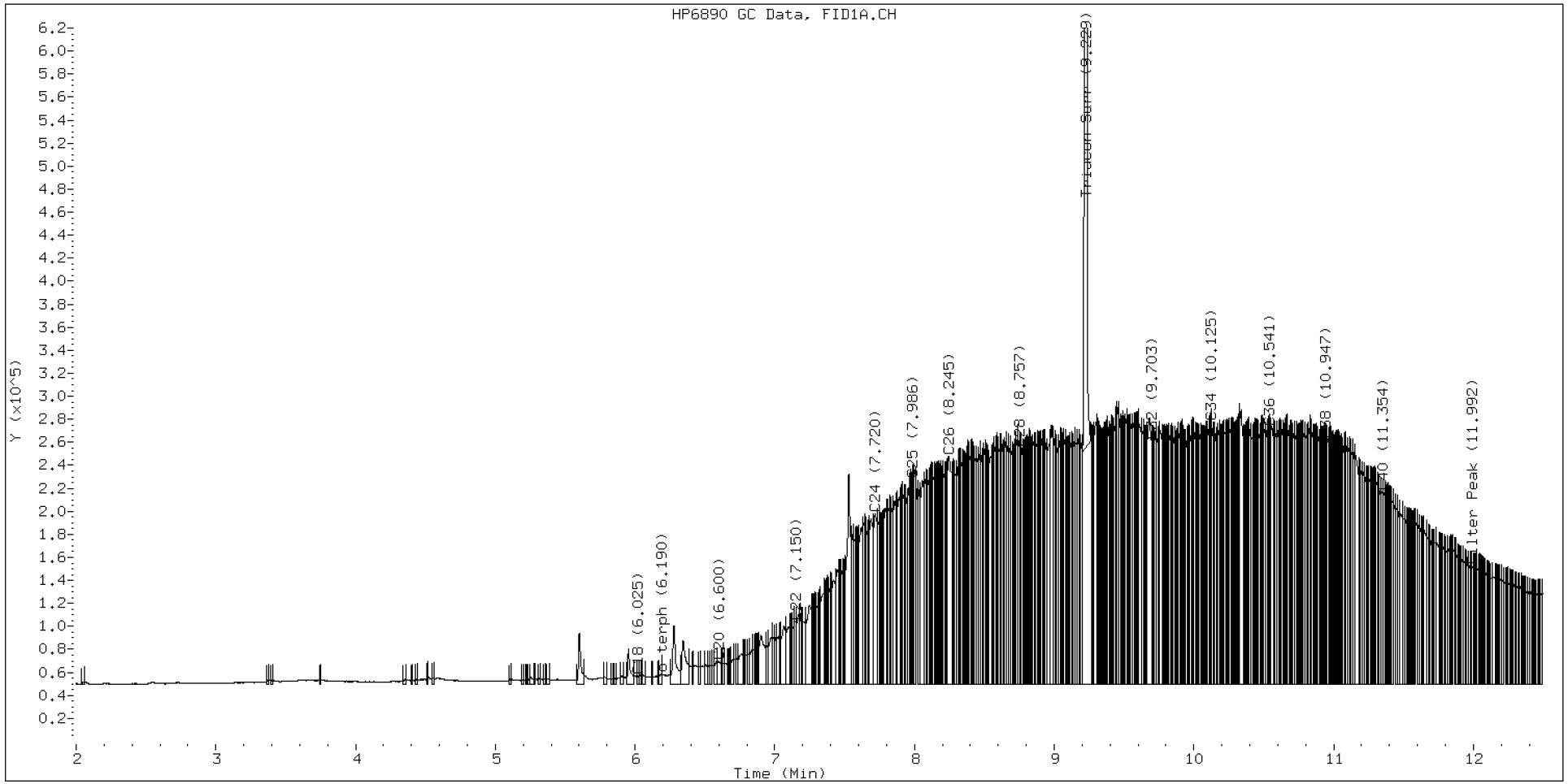
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	11005	0.1	
Triacontane	2460208	46.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

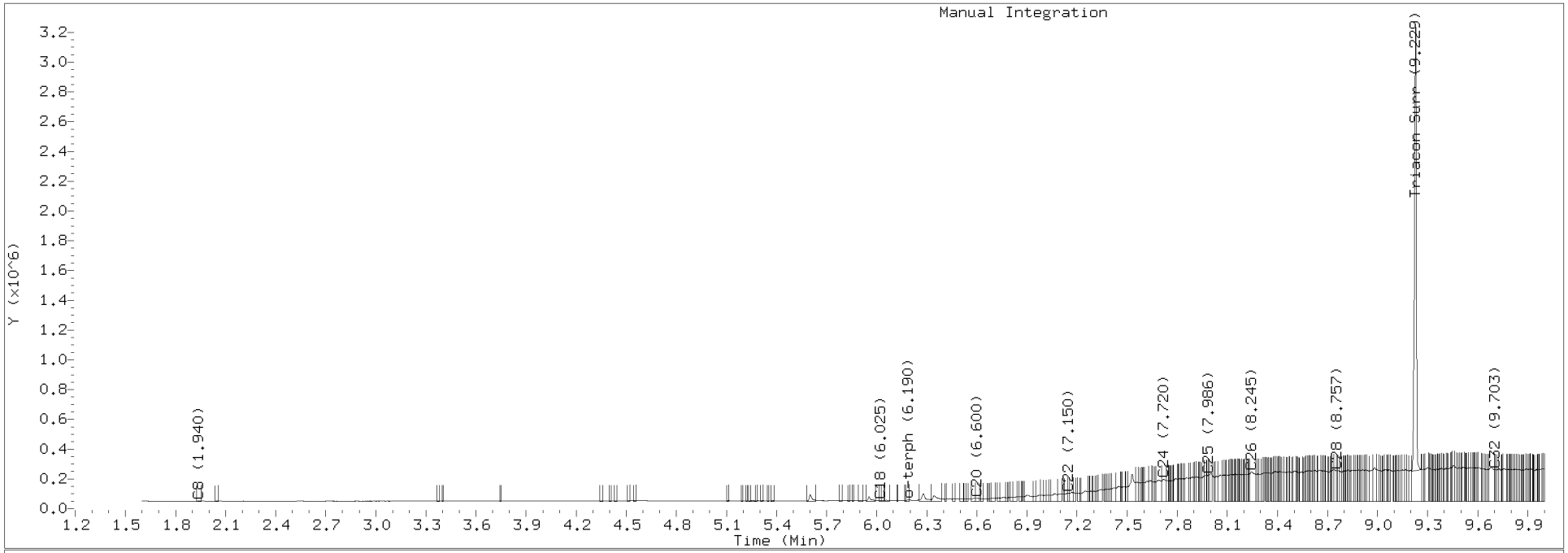
Datafile: FID4A, 20190829.b/419H2938.D SHH0420-CALG

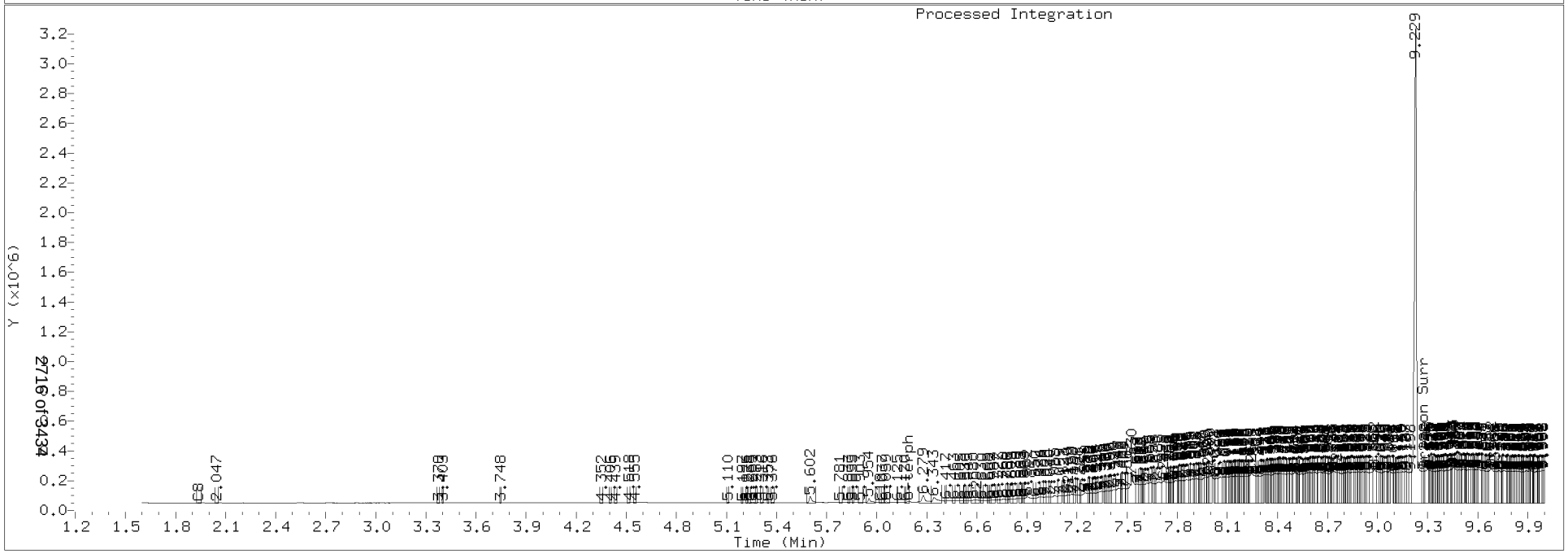


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2938.D Injection: 29-AUG-2019 22:11

Lab ID:SHH0420-CALG





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2939.D

Date : 29-AUG-2019 22:33

Client ID:

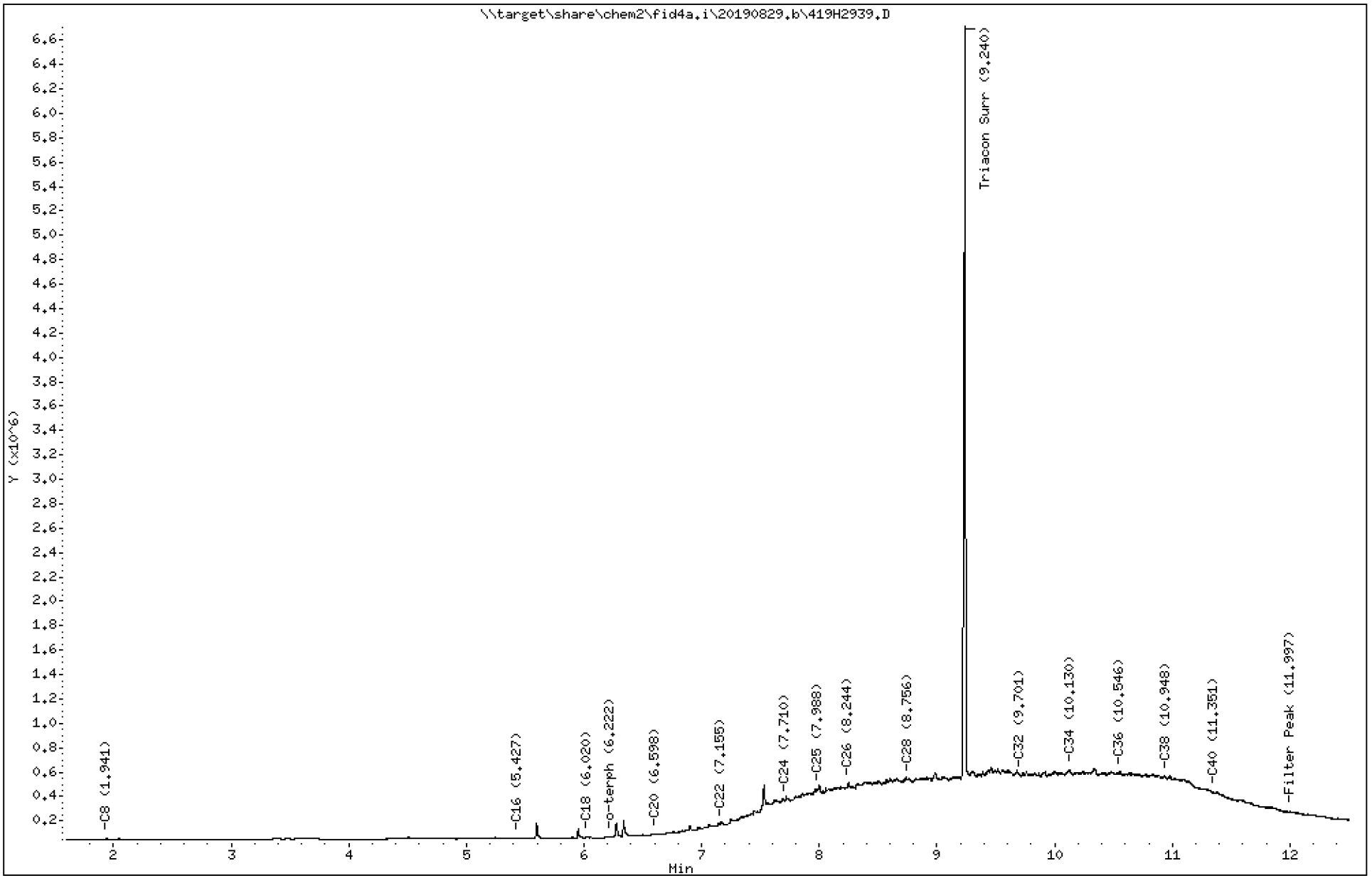
Sample Info: SHH0420-CALH

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2939.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALH
Client ID:
Injection: 29-AUG-2019 22:33
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.941	0.129	9392	15162	WATPHD	(C12-C24)	12583341	167.6
C10	----				WATPHM	(C24-C38)	95501628	2629.0
C12	----				AK102	(C10-C25)	16125080	177.0
C14	----				AK103	(C25-C36)	79587497	2261.5
C16	5.427	0.009	10810	11816	OR.DIES	(C10-C28)	39215335	429.9
C18	6.020	0.003	18957	20302				
C20	6.598	0.016	46608	60556				
C22	7.155	0.012	125489	31315				
C24	7.710	0.015	321291	79917				
C25	7.988	0.023	414953	283022				
C26	8.244	0.015	463110	114749				
C28	8.756	0.017	496238	197353				
C32	9.701	0.021	530075	132070				
C34	10.130	0.016	570905	974126				
Filter Peak	11.997	0.002	229764	113516	BUNKERC	(C10-C38)	108212595	1608.4
C36	10.546	0.020	548944	245656				
C38	10.948	0.022	516494	329914				
C40	11.351	0.027	387115	325821				
o-terph	6.222	0.020	19089	13105				
Triacon Surr	9.240	0.002	6151237	5914744	NAS DIES	(C10-C24)	12710966	139.6

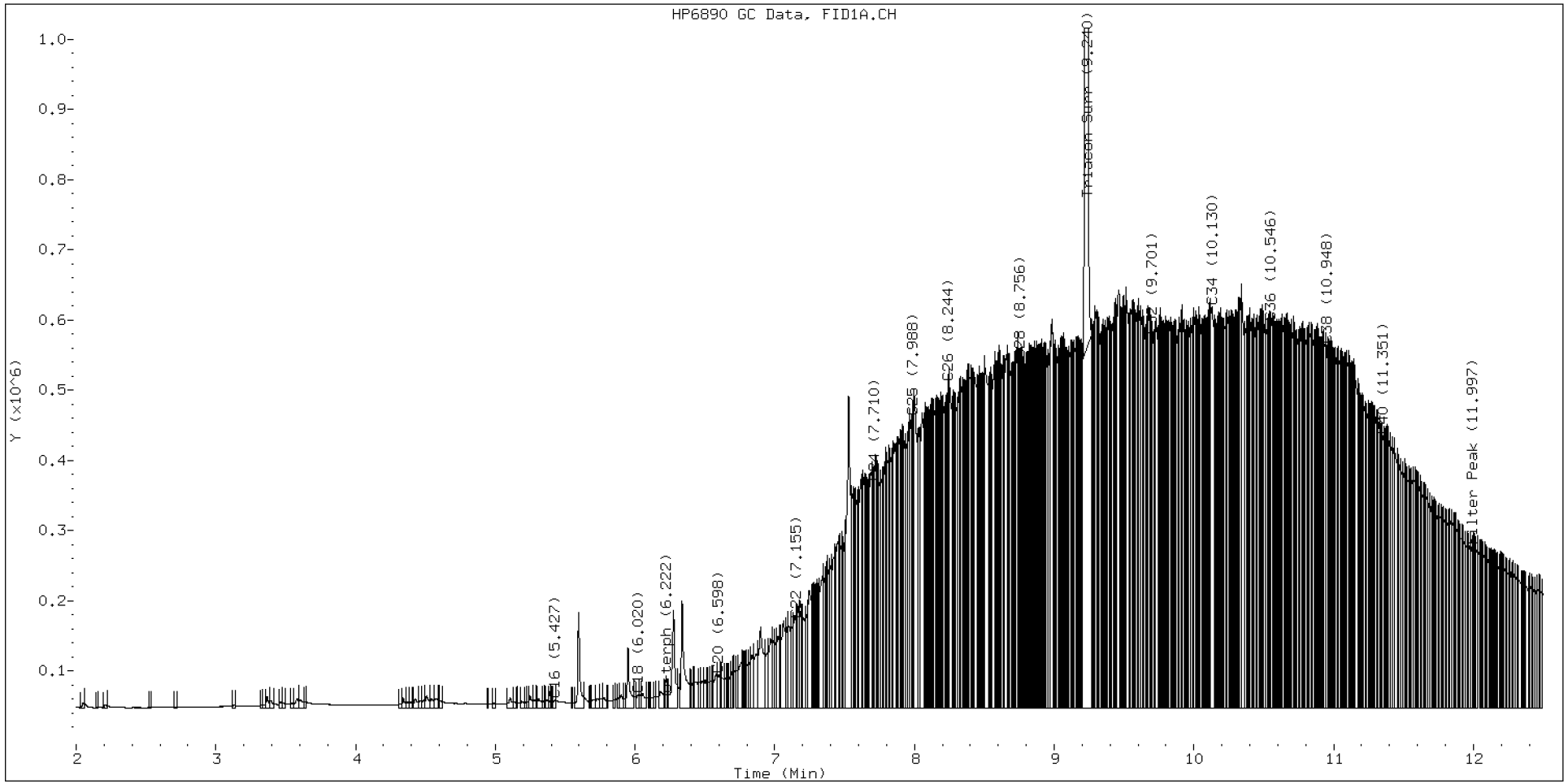
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	13105	0.2	
Triacontane	5914744	112.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

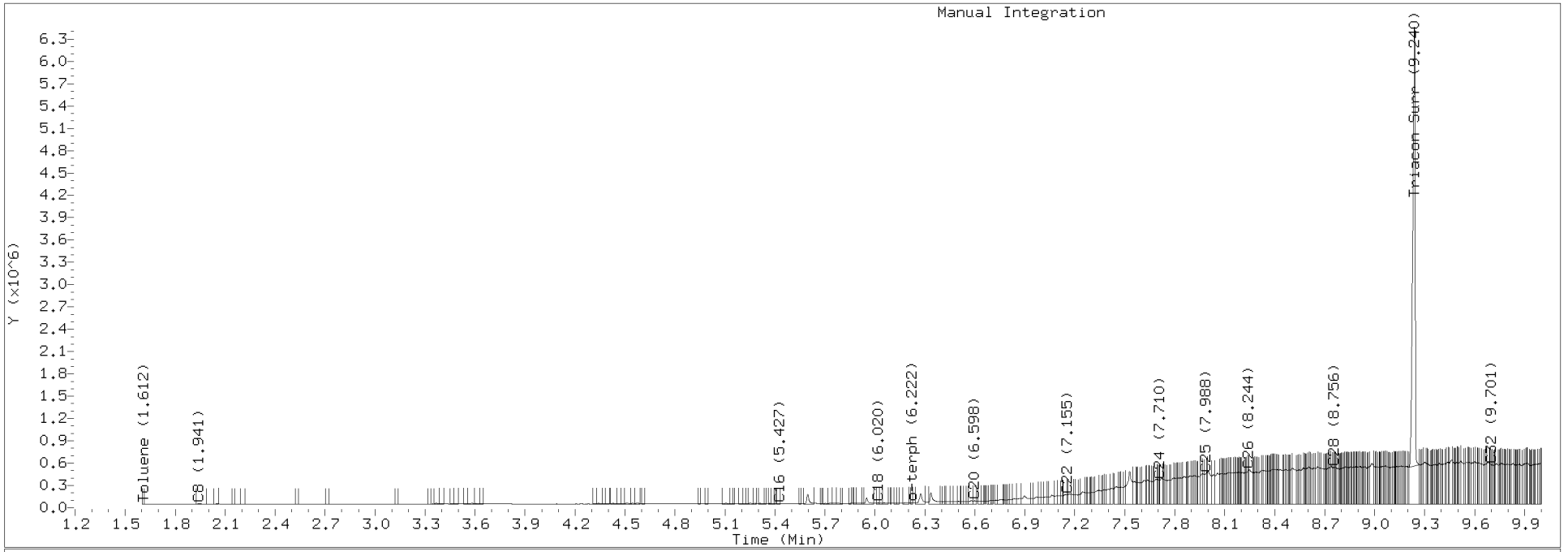
Datafile: FID4A, 20190829.b/419H2939.D SHH0420-CALH

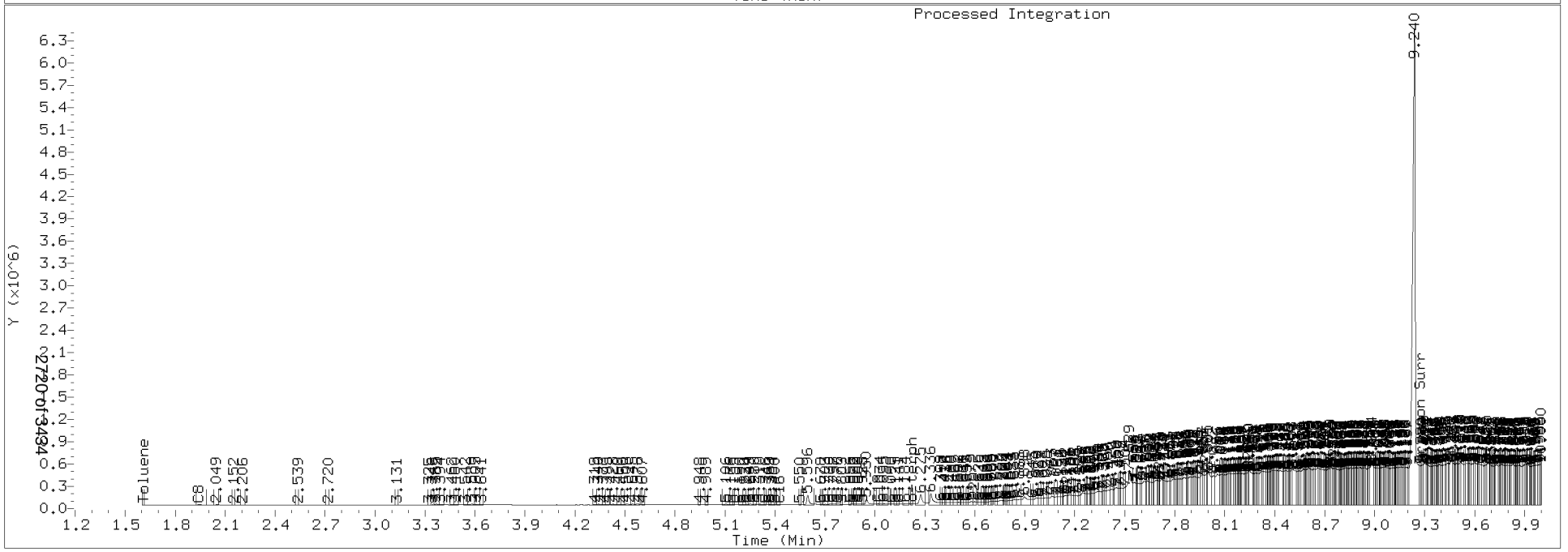


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2939.D   Injection: 29-AUG-2019 22:33

Lab ID:SHH0420-CALH





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Date : 29-AUG-2019 22:55

Client ID:

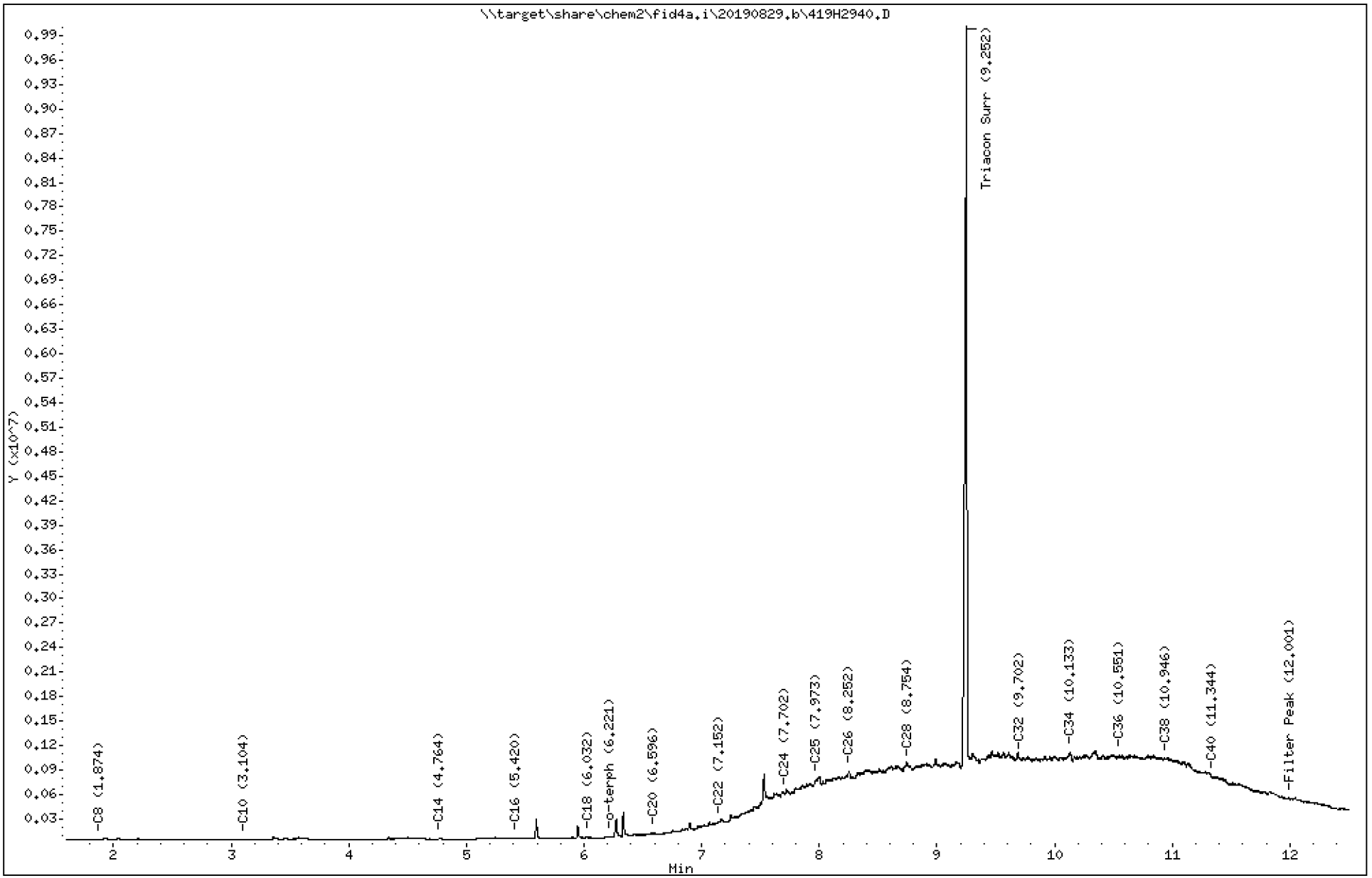
Sample Info: SHH0420-CALI

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2940.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-CALI
Client ID:
Injection: 29-AUG-2019 22:55
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.874	0.062	2374	1770	WATPHD	(C12-C24)	21669799	288.7
C10	3.104	0.063	1946	1219	WATPHM	(C24-C38)	172397262	4745.8
C12	----				AK102	(C10-C25)	28148204	309.0
C14	4.764	0.010	7243	7480	AK103	(C25-C36)	142735990	4055.9
C16	5.420	0.002	17831	22115	OR.DIES	(C10-C28)	70174477	769.3
C18	6.032	0.014	28147	28469				
C20	6.596	0.013	75620	83867				
C22	7.152	0.009	212924	74262				
C24	7.702	0.008	566140	280267				
C25	7.973	0.009	734223	434499				
C26	8.252	0.023	842389	1749002				
C28	8.754	0.015	913523	407410				
C32	9.702	0.022	999050	787918				
C34	10.133	0.019	1062339	526982				
Filter Peak	12.001	0.005	496393	172819	BUNKERC	(C10-C38)	194269670	2887.5
C36	10.551	0.024	1029434	659165				
C38	10.946	0.020	987917	148153				
C40	11.344	0.019	760489	339314				
o-terph	6.221	0.019	28696	23563				
Triacon Surr	9.252	0.014	8993789	10730589	NAS DIES	(C10-C24)	21872407	240.3

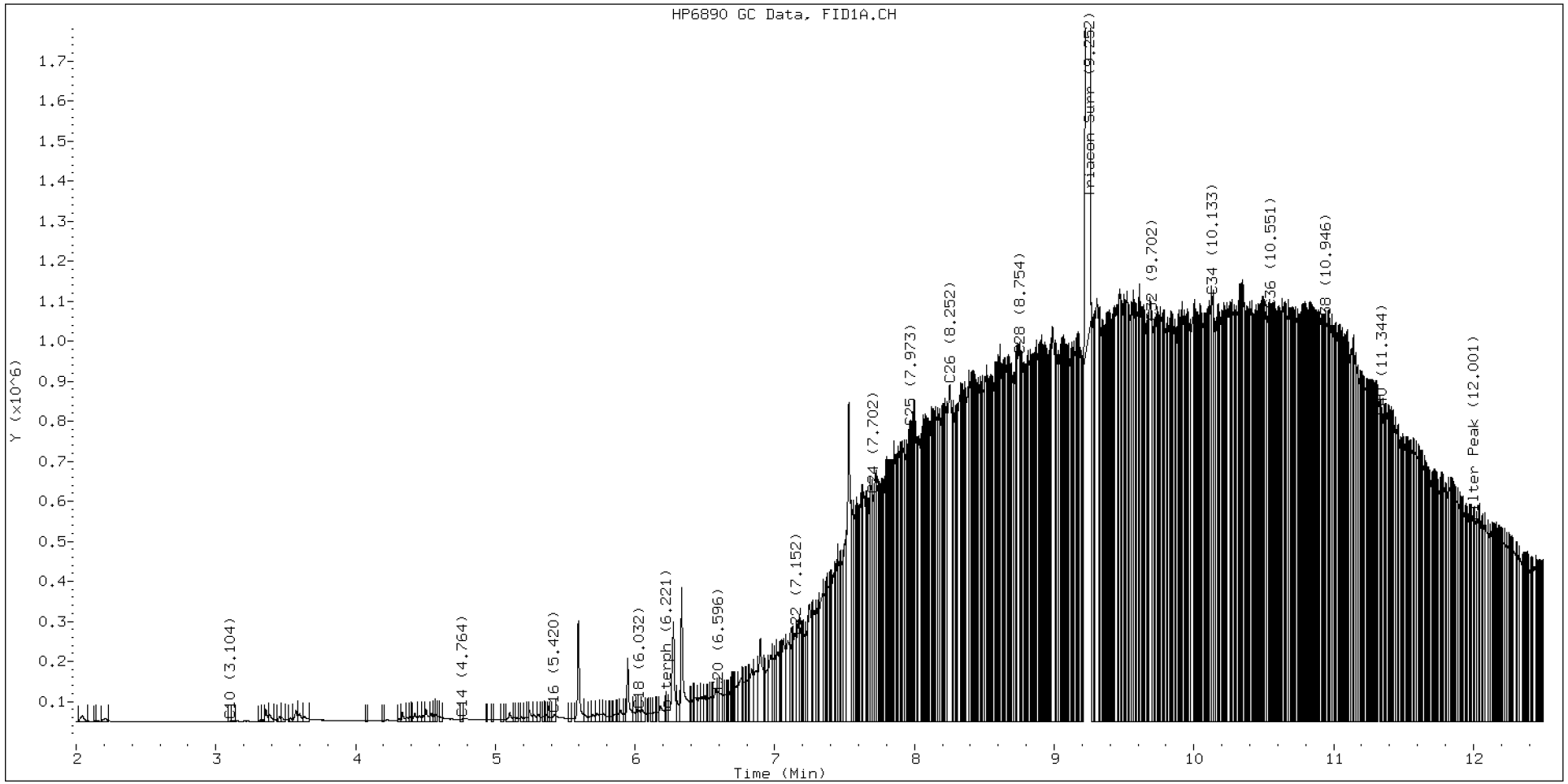
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	23563	0.3	
Triacontane	10730589	204.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

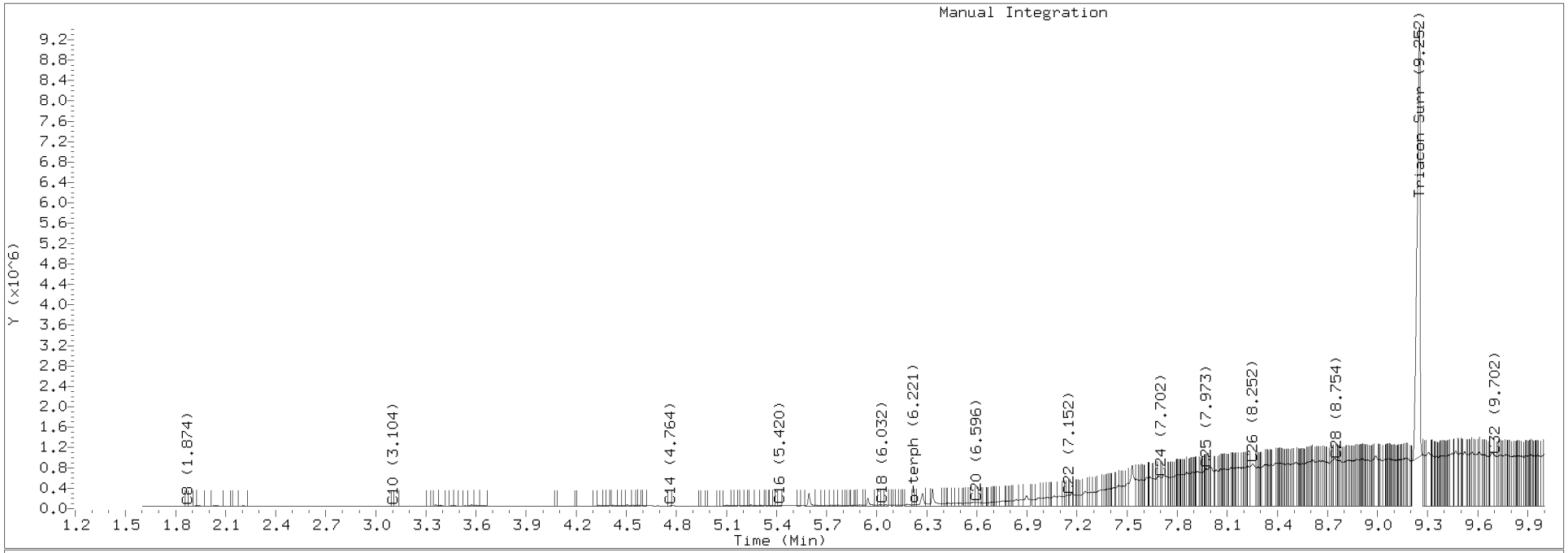
Datafile: FID4A, 20190829.b/419H2940.D SHH0420-CALI

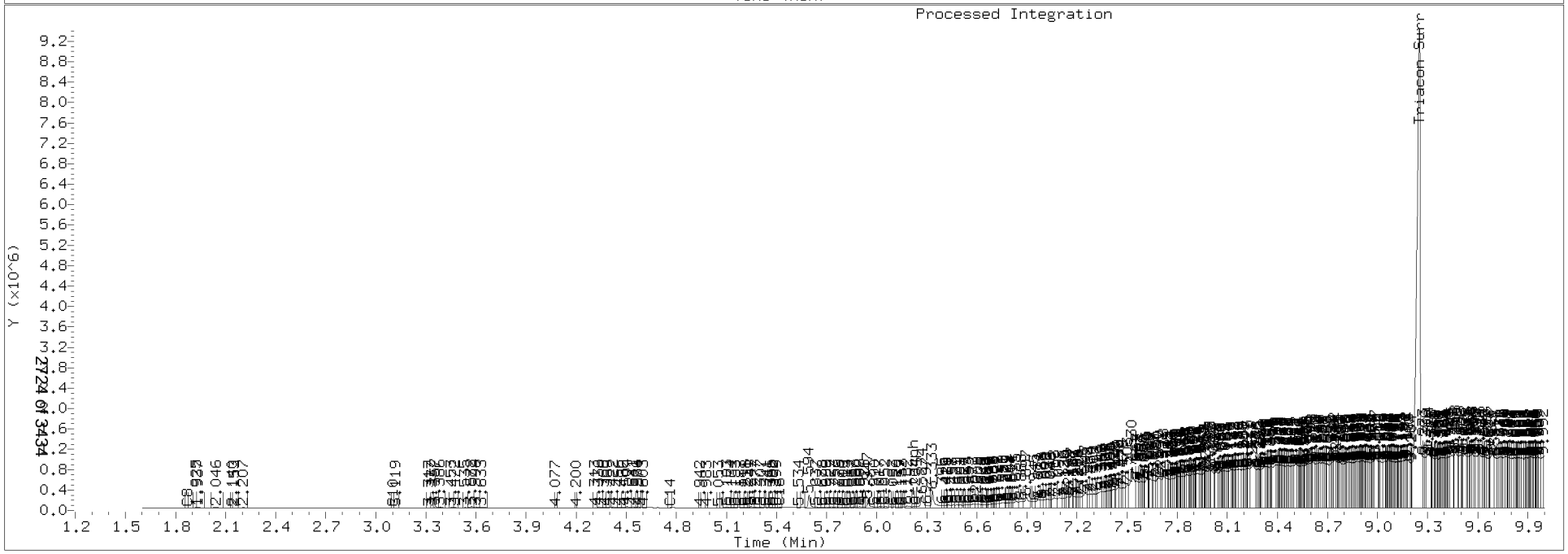


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2940.D Injection: 29-AUG-2019 22:55

Lab ID:SHH0420-CALI

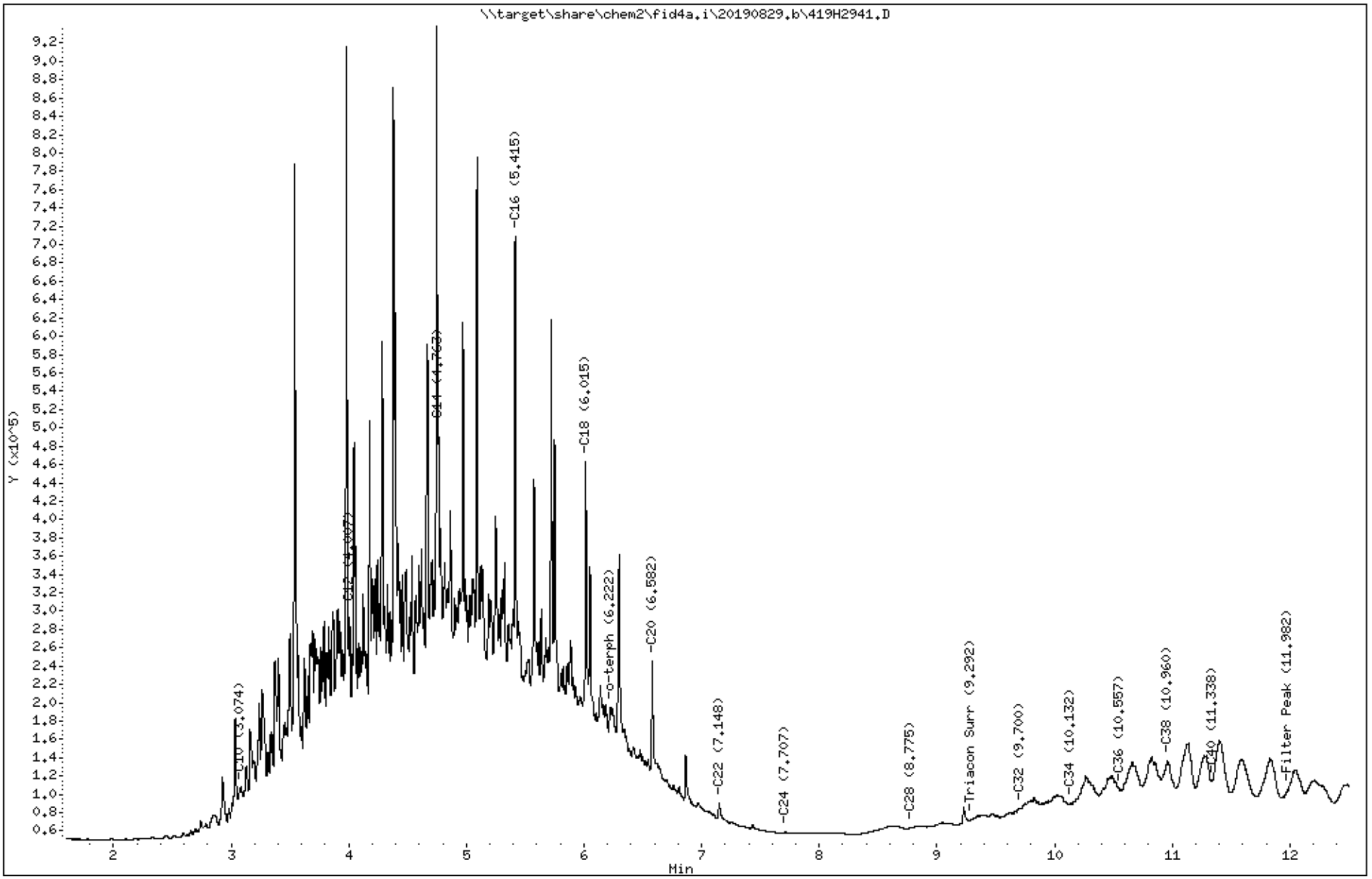




Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2941.D
Date : 29-AUG-2019 23:15
Client ID:
Sample Info: SHH0420-SCV1

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2941.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV1
Client ID:
Injection: 29-AUG-2019 23:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

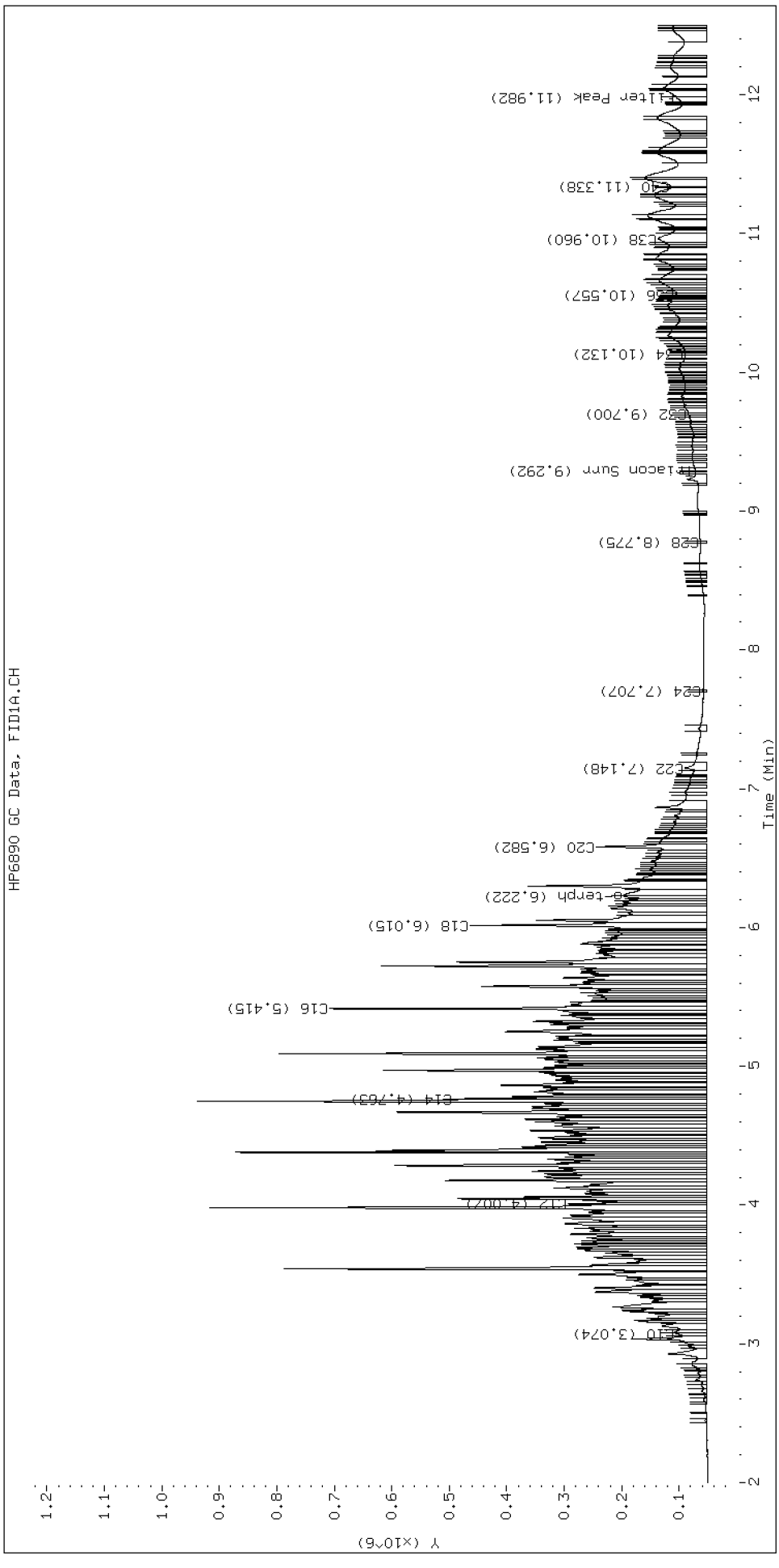
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	35049353	466.9
C10	3.074	0.033	55105	65751	WATPHM	(C24-C38)	4179019	115.0
C12	4.007	0.021	242134	232247	AK102	(C10-C25)	44602817	489.6
C14	4.763	0.009	441754	351001	AK103	(C25-C36)	2655832	75.5
C16	5.415	-0.003	656802	687766	OR.DIES	(C10-C28)	44663571	489.6
C18	6.015	-0.002	412064	607312				
C20	6.582	-0.001	193634	293460				
C22	7.148	0.005	38799	99012				
C24	7.707	0.013	7018	7530				
C25	----							
C26	----							
C28	8.775	0.036	11890	10595				
C32	9.700	0.019	32825	34112				
C34	10.132	0.018	38590	40048				
Filter Peak	11.982	-0.014	53371	106968	BUNKERC	(C10-C38)	48781836	725.1
C36	10.557	0.030	54513	26796				
C38	10.960	0.034	84898	307737				
C40	11.338	0.013	63039	25114				
o-terph	6.222	0.020	143970	158931				
Triacon Surr	9.292	0.054	20993	17519	NAS DIES	(C10-C24)	44602817	489.9

Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	158931	1.9
Triacontane	17519	0.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190829.b/419H2941.D SHH0420-SCV1
HP6890 GC Data, FID1A.CH
Y (x10^6)
Time (Min)
C10 (3.074)
C12 (4.002)
C14 (4.763)
C16 (5.415)
C18 (6.015)
9-terph (6.222)
C20 (6.582)
C22 (7.148)
C24 (7.707)
C28 (8.775)
Triacon Surr (9.292)
C32 (9.700)
C34 (10.132)
C36 (10.557)
C38 (10.960)
C40 (11.338)
Filter Peak (11.982)

Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2942.D

Date : 29-AUG-2019 23:36

Client ID:

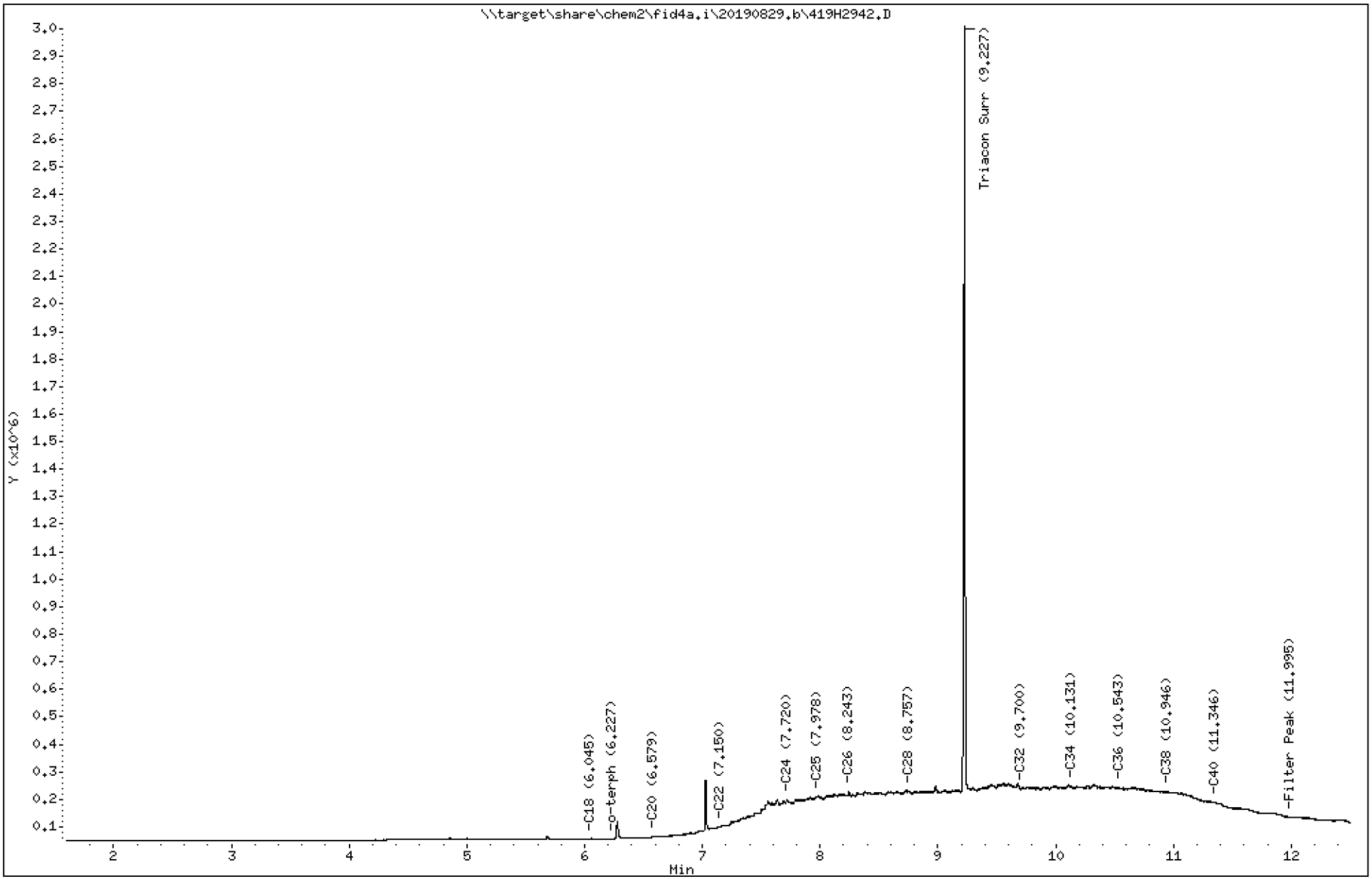
Sample Info: SHH0420-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2942.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV2
Client ID:
Injection: 29-AUG-2019 23:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4400375	58.6
C10	----				WATPHM	(C24-C38)	34158403	940.3
C12	----				AK102	(C10-C25)	5986821	65.7
C14	----				AK103	(C25-C36)	28296560	804.1
C16	----				OR.DIES	(C10-C28)	14213842	155.8
C18	6.045	0.027	7420	8858				
C20	6.579	-0.004	14933	25168				
C22	7.150	0.007	50379	22527				
C24	7.720	0.025	150691	206651				
C25	7.978	0.013	159402	39677				
C26	8.243	0.014	177015	353456				
C28	8.757	0.018	178994	62356				
C32	9.700	0.019	188322	121701				
C34	10.131	0.017	198341	126823				
Filter Peak	11.995	0.000	83831	41834	BUNKERC	(C10-C38)	38558778	573.1
C36	10.543	0.016	192360	95363				
C38	10.946	0.021	179298	88904				
C40	11.346	0.021	138879	69159				
o-terph	6.227	0.025	6741	2954				
Triacon Surr	9.227	-0.011	2778135	2180357	NAS DIES	(C10-C24)	4400375	48.3

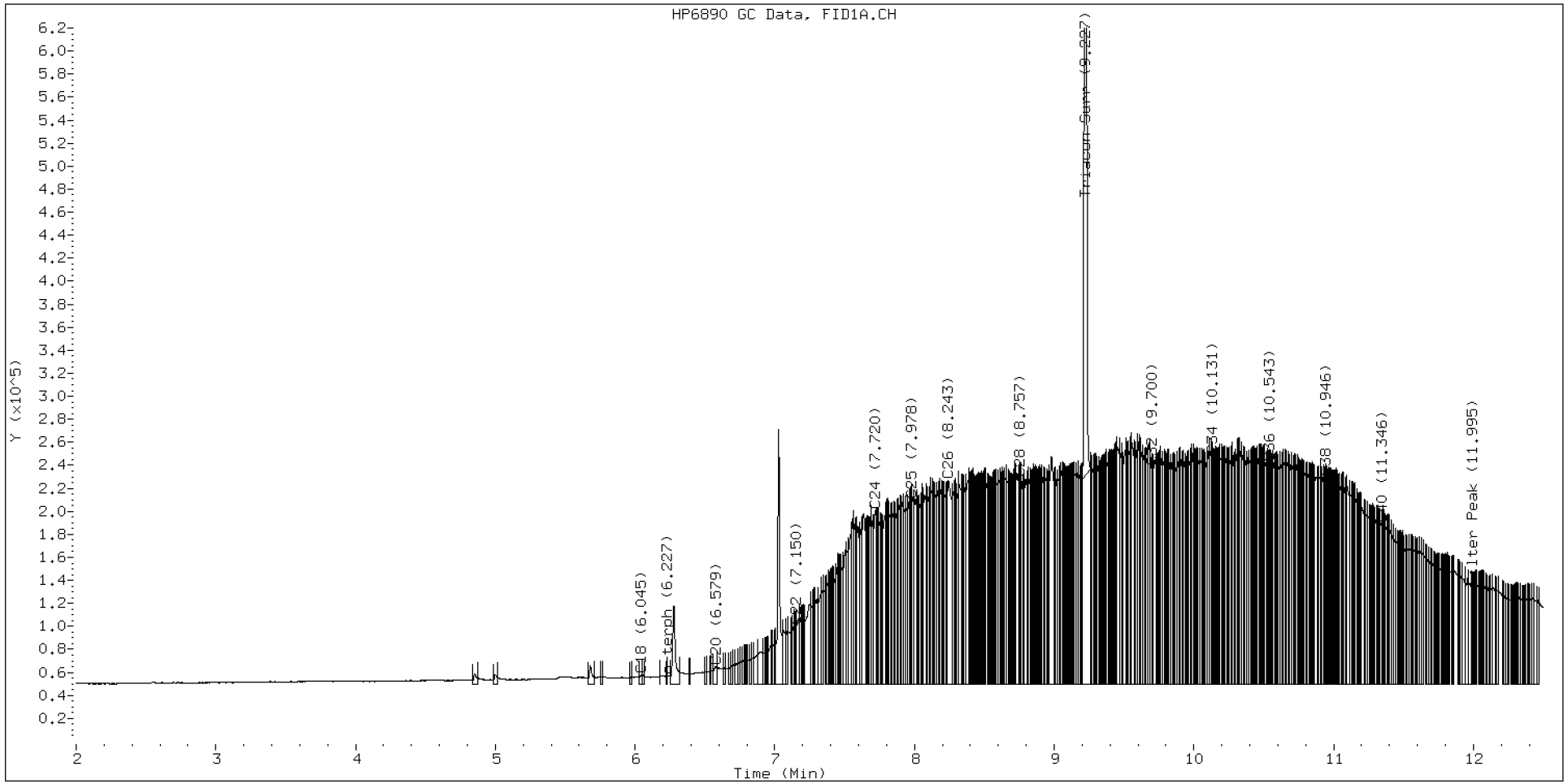
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	2954	0.0	
Triacontane	2180357	41.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

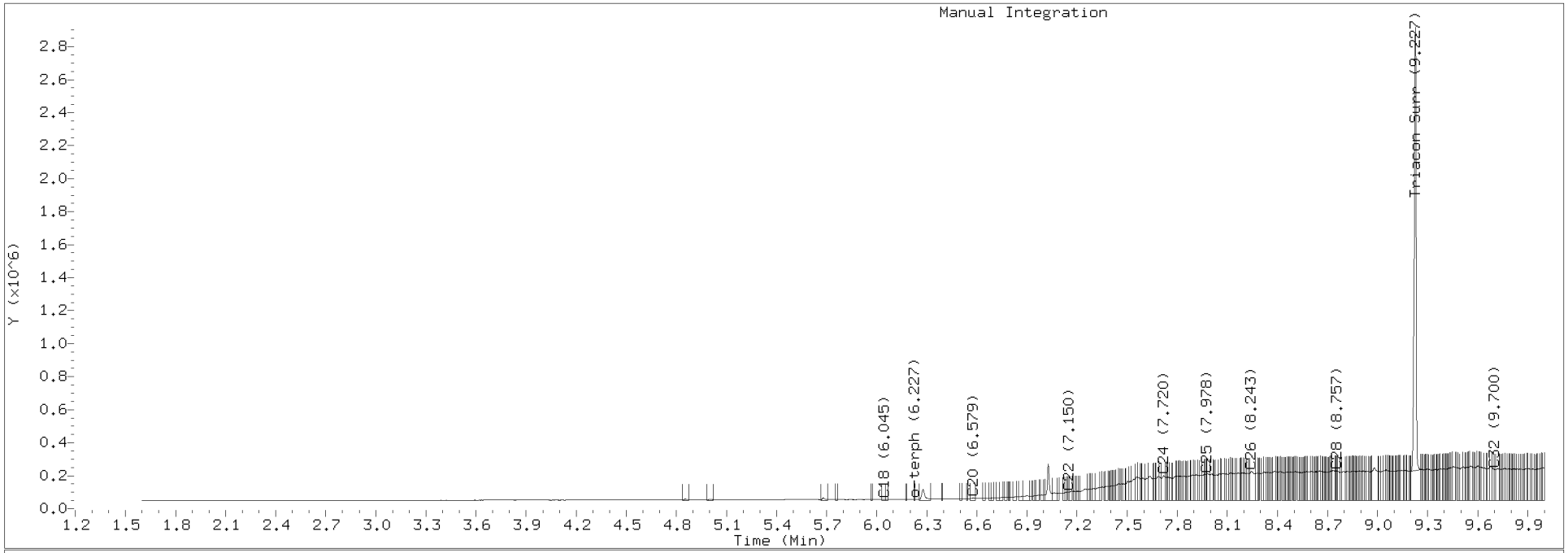
Datafile: FID4A, 20190829.b/419H2942.D SHH0420-SCV2

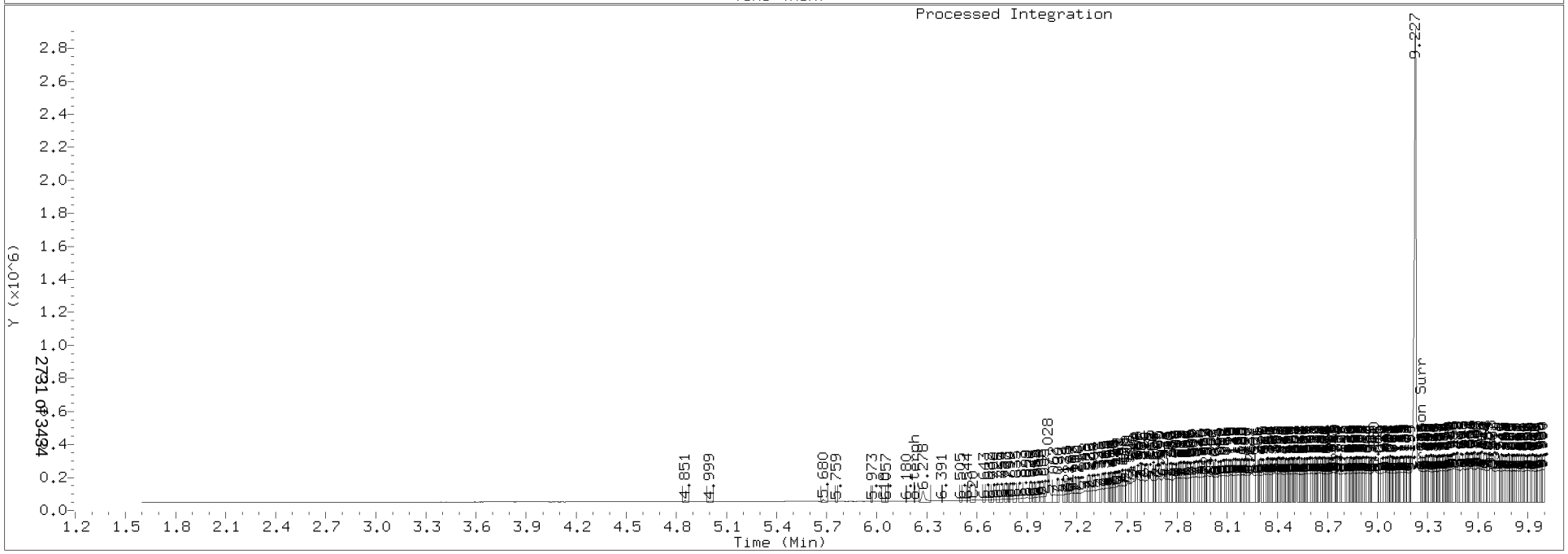


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2942.D Injection: 29-AUG-2019 23:36

Lab ID:SHH0420-SCV2





Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2943.D

Date : 29-AUG-2019 23:57

Client ID:

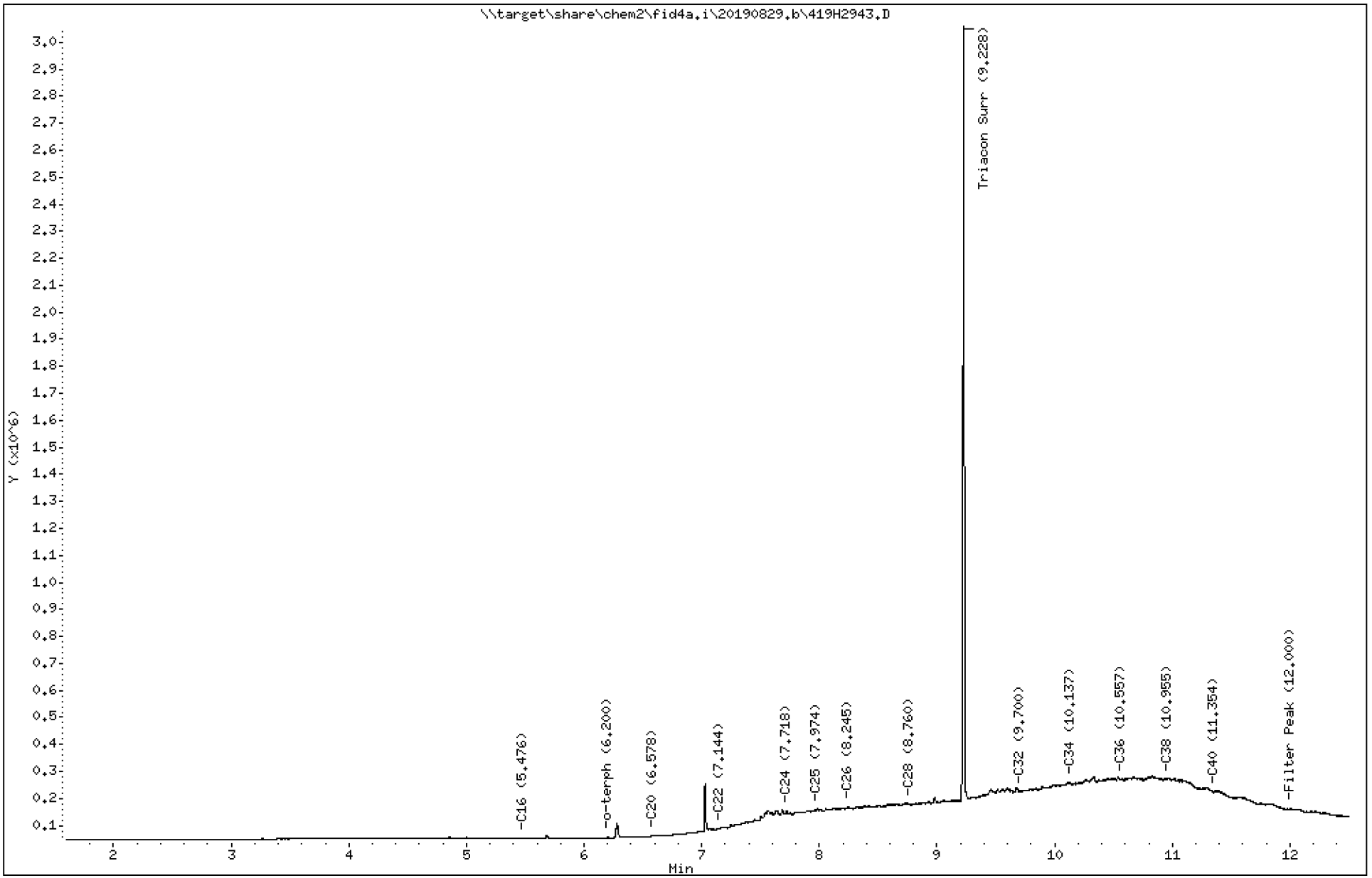
Sample Info: SHH0420-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2943.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV3
Client ID:
Injection: 29-AUG-2019 23:57
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3417874	45.5
C10	----				WATPHM	(C24-C38)	31152457	857.6
C12	----				AK102	(C10-C25)	4443955	48.8
C14	----				AK103	(C25-C36)	24974881	709.7
C16	5.476	0.058	6376	10231	OR.DIES	(C10-C28)	10234288	112.2
C18	----							
C20	6.578	-0.005	14192	17979				
C22	7.144	0.000	41376	50565				
C24	7.718	0.023	108126	182423				
C25	7.974	0.010	109265	27276				
C26	8.245	0.016	123094	237726				
C28	8.760	0.021	132246	195158				
C32	9.700	0.020	178596	62070				
C34	10.137	0.023	210543	145090				
Filter Peak	12.000	0.005	114077	84925	BUNKERC	(C10-C38)	34570331	513.8
C36	10.557	0.030	220949	55120				
C38	10.955	0.030	224132	89001				
C40	11.354	0.030	177306	123017				
o-terph	6.200	-0.002	8351	9034				
Triacon Surr	9.228	-0.010	2864691	2244772	NAS DIES	(C10-C24)	3417874	37.5

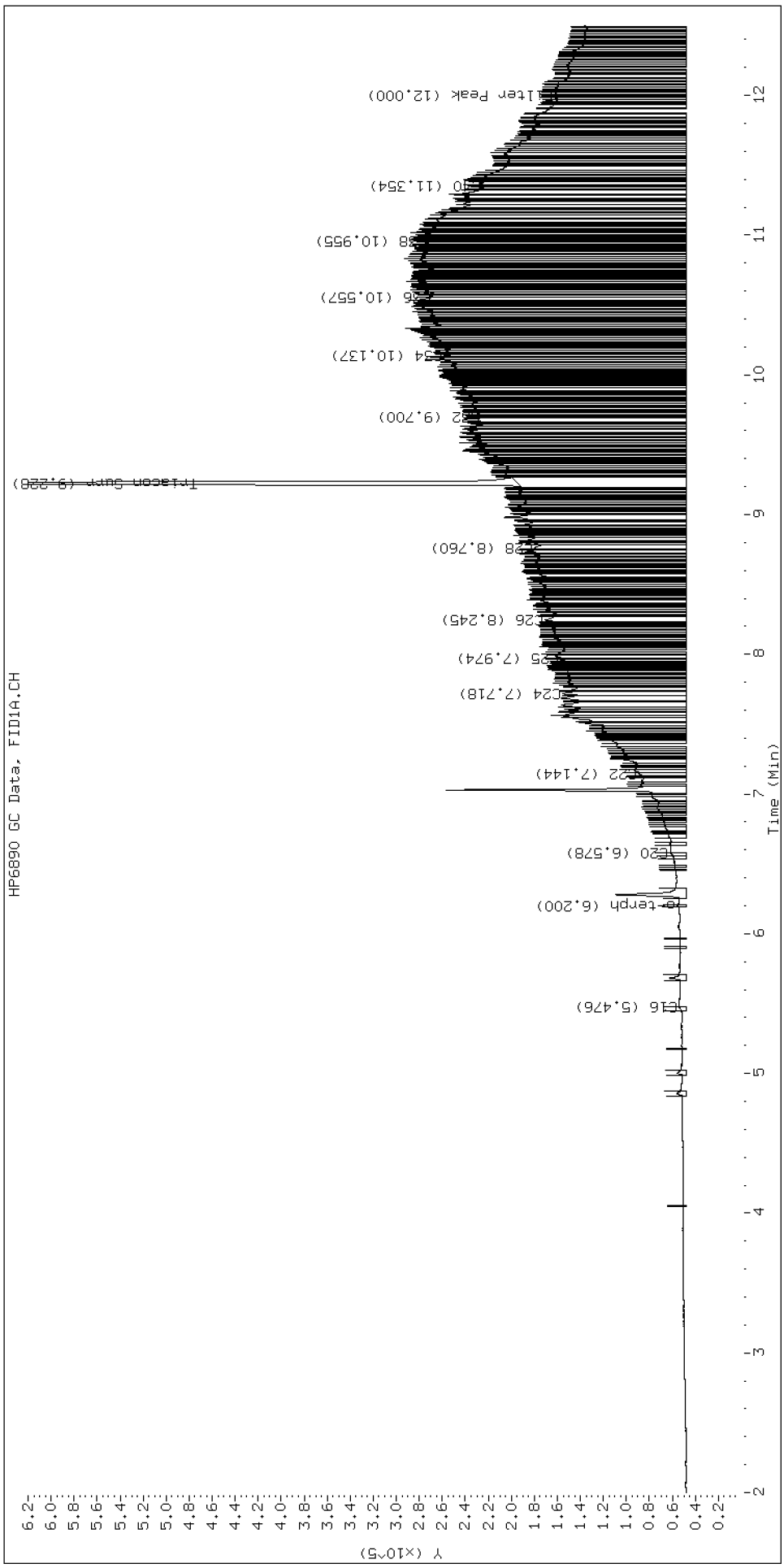
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9034	0.1	
Triacontane	2244772	42.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

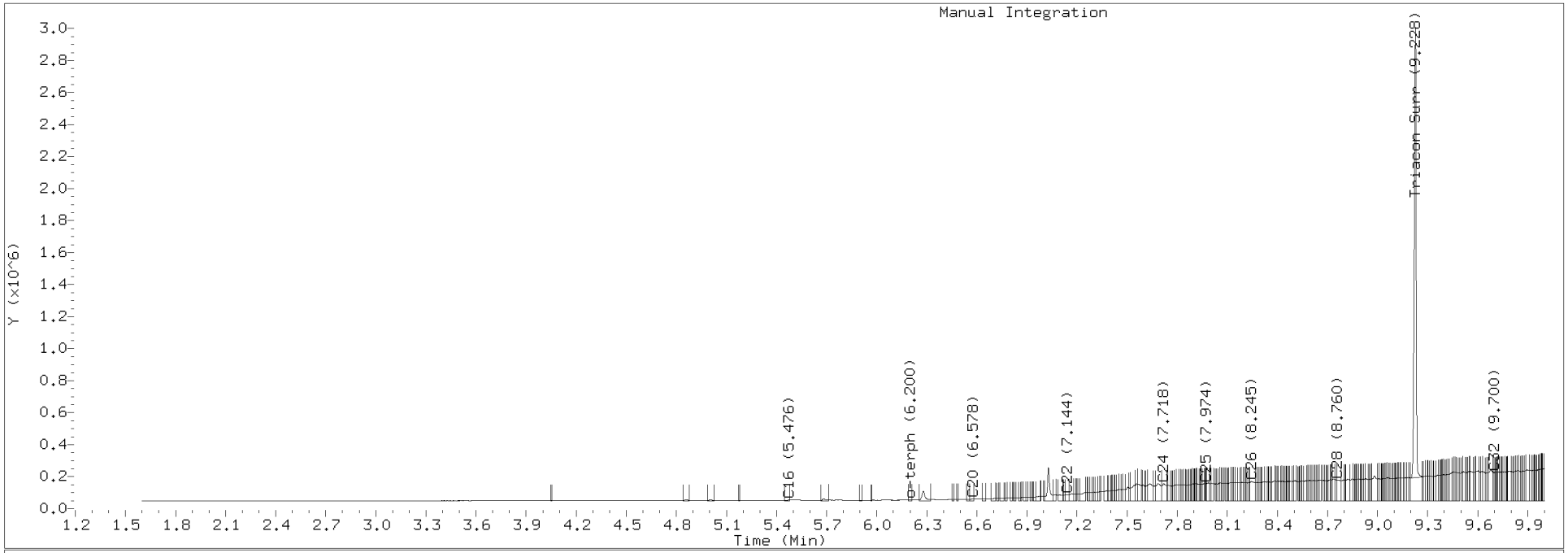
Datafile: FID4A, 20190829.b/419H2943.D SHH0420-SCV3

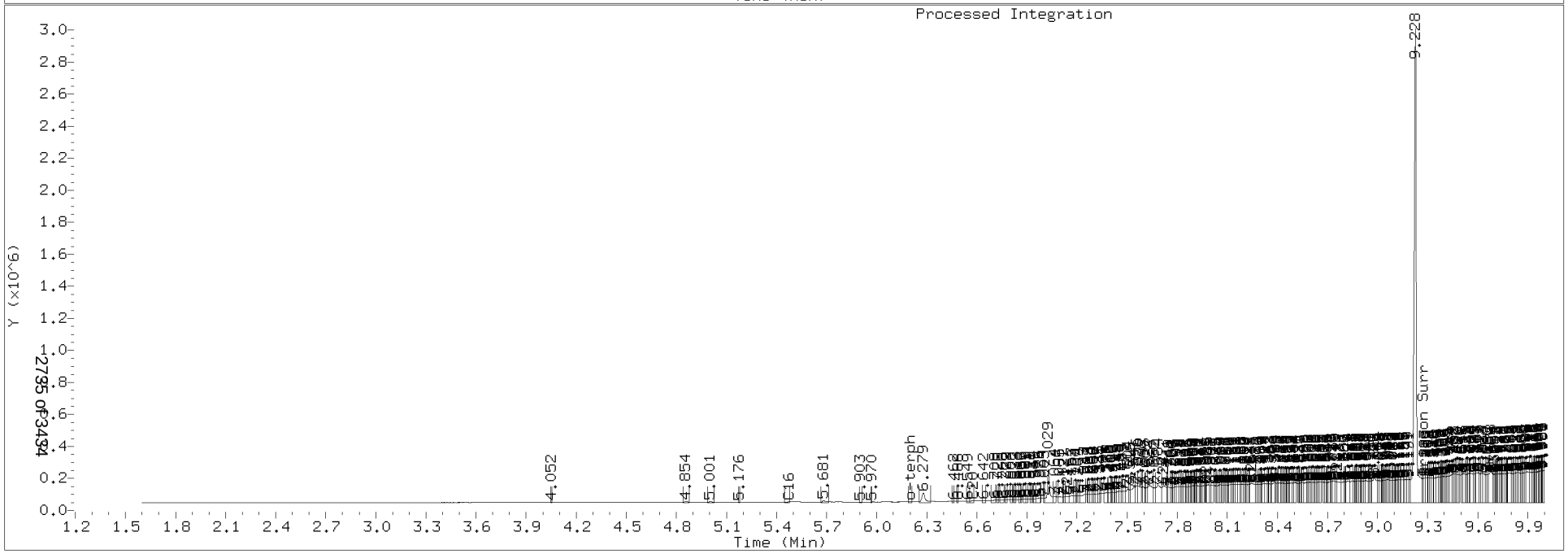


TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2943.D Injection: 29-AUG-2019 23:57

Lab ID:SHH0420-SCV3





INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00021	Instrument:	FID4
Calibration Date:	09/05/2019 0:00	Column (1):	RTX-1

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Diesel Range Organics (C12-C24)	50	83312	100	98058.83	250	104212.5	500	98196.8	1000	103502.8	2500	90368.96
o-Terphenyl	9	113540.3	18	128857.3	45	130523.7	90	122165.9	180	124576.8	450	112376.2

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00021	Instrument:	FID4
Calibration Date:	09/05/2019 0:00	Column (1):	RTX-1

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00021	Instrument:	FID4
Calibration Date:	09/05/2019 0:00	Column (1):	RTX-1

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Motor Oil Range Organics (C24-C38)	100	38338.46	250	46953.96	500	50859.68	1000	48816.29	2500	43599.56	5000	37956.8

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00021	Instrument:	FID4
Calibration Date:	09/05/2019 0:00	Column (1):	RTX-1

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Diesel Range Organics (C12-C24)	96275.31	8.4			RSD (20)	
Motor Oil Range Organics (C24-C38)	44420.79	12.2			RSD (20)	
o-Terphenyl	122006.7	6.2			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/6/2019 11:13:57AM

ANALYSIS SEQUENCE

SHI0053

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00021

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0053-IBL1	Instrument Blank	QC		1	H006806		
SHI0053-IBL2	Instrument Blank	QC		2	H007457		
SHI0053-CAL1	50ppm DIESEL	QC		3	H006819		
SHI0053-CAL2	100ppm DIESEL	QC		4	H006818		
SHI0053-CAL3	250ppm DIESEL	QC		5	H006817		
SHI0053-CAL4	500ppm DIESEL	QC		6	H006816		
SHI0053-CAL5	1000ppm DIESEL	QC		7	H006815		
SHI0053-CAL6	2500ppm DIESEL	QC		8	H006794		
SHI0053-CAL7	100ppmmoil	QC		9	H008395		
SHI0053-CAL8	250ppmmoil	QC		10	H008396		
SHI0053-CAL9	500ppmmoil	QC		11	H008397		
SHI0053-CALA	1000ppmmoil	QC		12	H007659		
SHI0053-CALB	2500ppmmoil	QC		13	H008398		
SHI0053-CALC	5000ppmmoil	QC		14	H007458		
SHI0053-CALD	100ppmak103	QC		15	H006838		
SHI0053-CALE	250ppmak103	QC		16	H006837		
SHI0053-CALF	500ppmak103	QC		17	H006839		
SHI0053-CALG	1000ppmak103	QC		18	H006836		
SHI0053-CALH	2500ppmak103	QC		19	H006835		
SHI0053-CALI	5000ppmak103	QC		20	H006795		
SHI0053-SCV1	DIESEL SCV	QC		21	H008294		
SHI0053-SCV2	MOIL SCV	QC		22	H008399		

27470, 3434

Printed: 9/6/2019 11:13:57AM

ANALYSIS SEQUENCE

SHI0053

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00021

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0053-SCV3	AK103 SCV	QC		23	H008400		
SHI0053-ICV1	DIESEL ICV	QC		24	H006816		
SHI0053-ICV2	MOIL ICV	QC		25	H007659		
BHI0089-BLK1	Blank	QC		26			
BHI0089-BS1	LCS	QC		27			
19I0015-01	190825-D01	TPH NW (Extractables)	A 01	28			
19I0015-01RE1	190825-D01	TPH NW (Extractables)	A 01	29			Added 9/5/2019 by VTS
19H0465-01RE1	852S-2019	TPH AK102	A 01	30			Added 9/5/2019 by VTS
19H0465-02RE1	862S-2019	TPH AK102	A 01	31			Added 9/5/2019 by VTS
19H0481-19RE1	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	32			Added 9/5/2019 by VTS
19H0481-21RE1	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	33			Added 9/5/2019 by VTS
SHI0053-CCV1	DIESEL CCV	QC		34	H006816		
SHI0053-CCV2	MOIL CCV	QC		35	H007659		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190905.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	05-SEP-2019 19:00	419I0527.D	1	SHI0053-IBL1	
2	05-SEP-2019 19:21	419I0528.D	1	SHI0053-IBL2	
3	05-SEP-2019 19:42	419I0529.D	1	SHI0053-CAL1	
4	05-SEP-2019 20:04	419I0530.D	1	SHI0053-CAL2	
5	05-SEP-2019 20:25	419I0531.D	1	SHI0053-CAL3	
6	05-SEP-2019 20:46	419I0532.D	1	SHI0053-CAL4	
7	05-SEP-2019 21:07	419I0533.D	1	SHI0053-CAL5	
8	05-SEP-2019 21:28	419I0534.D	1	SHI0053-CAL6	
9	05-SEP-2019 21:48	419I0535.D	1	SHI0053-CAL7	
10	05-SEP-2019 22:10	419I0536.D	1	SHI0053-CAL8	
11	05-SEP-2019 22:32	419I0537.D	1	SHI0053-CAL9	
12	05-SEP-2019 22:53	419I0538.D	1	SHI0053-CALA	
13	05-SEP-2019 23:13	419I0539.D	1	SHI0053-CALB	
14	05-SEP-2019 23:34	419I0540.D	1	SHI0053-CALC	
15	05-SEP-2019 23:55	419I0541.D	1	SHI0053-CALD	
16	06-SEP-2019 00:16	419I0542.D	1	SHI0053-CALE	
17	06-SEP-2019 00:36	419I0543.D	1	SHI0053-CALF	
18	06-SEP-2019 00:58	419I0544.D	1	SHI0053-CALG	
19	06-SEP-2019 01:20	419I0545.D	1	SHI0053-CALH	
20	06-SEP-2019 01:40	419I0546.D	1	SHI0053-CALI	
21	06-SEP-2019 02:01	419I0547.D	1	SHI0053-SCV1	
22	06-SEP-2019 02:22	419I0548.D	1	SHI0053-SCV2	
23	06-SEP-2019 02:42	419I0549.D	1	SHI0053-SCV3	
24	06-SEP-2019 03:03	419I0550.D	1	SHI0053-ICV1	
25	06-SEP-2019 03:24	419I0551.D	1	SHI0053-ICV2	
26	06-SEP-2019 03:44	419I0552.D	1	BHI0089-BLK1	
27	06-SEP-2019 04:05	419I0553.D	1	BHI0089-BS1	
28	06-SEP-2019 04:25	419I0554.D	1	19I0015-01	
29	06-SEP-2019 04:46	419I0555.D	20	19I0015-01RE1	
30	06-SEP-2019 05:07	419I0556.D	20	19H0465-01RE1	
31	06-SEP-2019 05:29	419I0557.D	20	19H0465-02RE1	
32	06-SEP-2019 05:50	419I0558.D	10	19H0481-19RE1	
33	06-SEP-2019 06:11	419I0559.D	10	19H0481-21RE1	
34	06-SEP-2019 06:31	419I0560.D	1	SHI0053-CCV1	
35	06-SEP-2019 06:52	419I0561.D	1	SHI0053-CCV2	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190905.b

Instrument: fid4a.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1900	419I0527.D	SHI0053-IBL1	1	C8,
1921	419I0528.D	SHI0053-IBL2	1	NO MANUAL INTEGRATION
1942	419I0529.D	SHI0053-CAL1	1	o-terph,
2004	419I0530.D	SHI0053-CAL2	1	o-terph,
2025	419I0531.D	SHI0053-CAL3	1	o-terph,
2046	419I0532.D	SHI0053-CAL4	1	o-terph,
2107	419I0533.D	SHI0053-CAL5	1	o-terph,
2128	419I0534.D	SHI0053-CAL6	1	o-terph,
2148	419I0535.D	SHI0053-CAL7	1	Triacon Surr,
2210	419I0536.D	SHI0053-CAL8	1	Triacon Surr,
2232	419I0537.D	SHI0053-CAL9	1	Triacon Surr,
2253	419I0538.D	SHI0053-CALA	1	Triacon Surr,
2313	419I0539.D	SHI0053-CALB	1	Triacon Surr,
2334	419I0540.D	SHI0053-CALC	1	Triacon Surr,
2355	419I0541.D	SHI0053-CALD	1	Triacon Surr,
0016	419I0542.D	SHI0053-CALE	1	Triacon Surr,
0036	419I0543.D	SHI0053-CALF	1	Triacon Surr,

Instrument: fid4a.i Date: 06-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0058	419I0544.D	SHI0053-CALG	1	Triacon Surr,
0120	419I0545.D	SHI0053-CALH	1	Triacon Surr,
0140	419I0546.D	SHI0053-CALI	1	Triacon Surr,
0201	419I0547.D	SHI0053-SCV1	1	NO MANUAL INTEGRATION
0222	419I0548.D	SHI0053-SCV2	1	Triacon Surr,
0242	419I0549.D	SHI0053-SCV3	1	Triacon Surr,
0303	419I0550.D	SHI0053-ICV1	1	o-terph,
0324	419I0551.D	SHI0053-ICV2	1	Triacon Surr,
0344	419I0552.D	BHI0089-BLK1	1	NO MANUAL INTEGRATION
0405	419I0553.D	BHI0089-BS1	1	NO MANUAL INTEGRATION
0425	419I0554.D	19I0015-01	1	NO MANUAL INTEGRATION
0446	419I0555.D	19I0015-01RE1	20	NO MANUAL INTEGRATION
0507	419I0556.D	19H0465-01RE1	20	NO MANUAL INTEGRATION
0529	419I0557.D	19H0465-02RE1	20	NO MANUAL INTEGRATION
0550	419I0558.D	19H0481-19RE1	10	NO MANUAL INTEGRATION
0611	419I0559.D	19H0481-21RE1	10	NO MANUAL INTEGRATION
0631	419I0560.D	SHI0053-CCV1	1	o-terph,
065	419I0561.D	SHI0053-CCV2	1	Triacon Surr,

Security Status Report

Date: 06-Sep-2019 11:14

419I0527.D	Data Locked	van, 06-Sep-2019 09:19
419I0528.D	Data Locked	van, 06-Sep-2019 09:19
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419I0540.D	Data Locked	van, 06-Sep-2019 09:19
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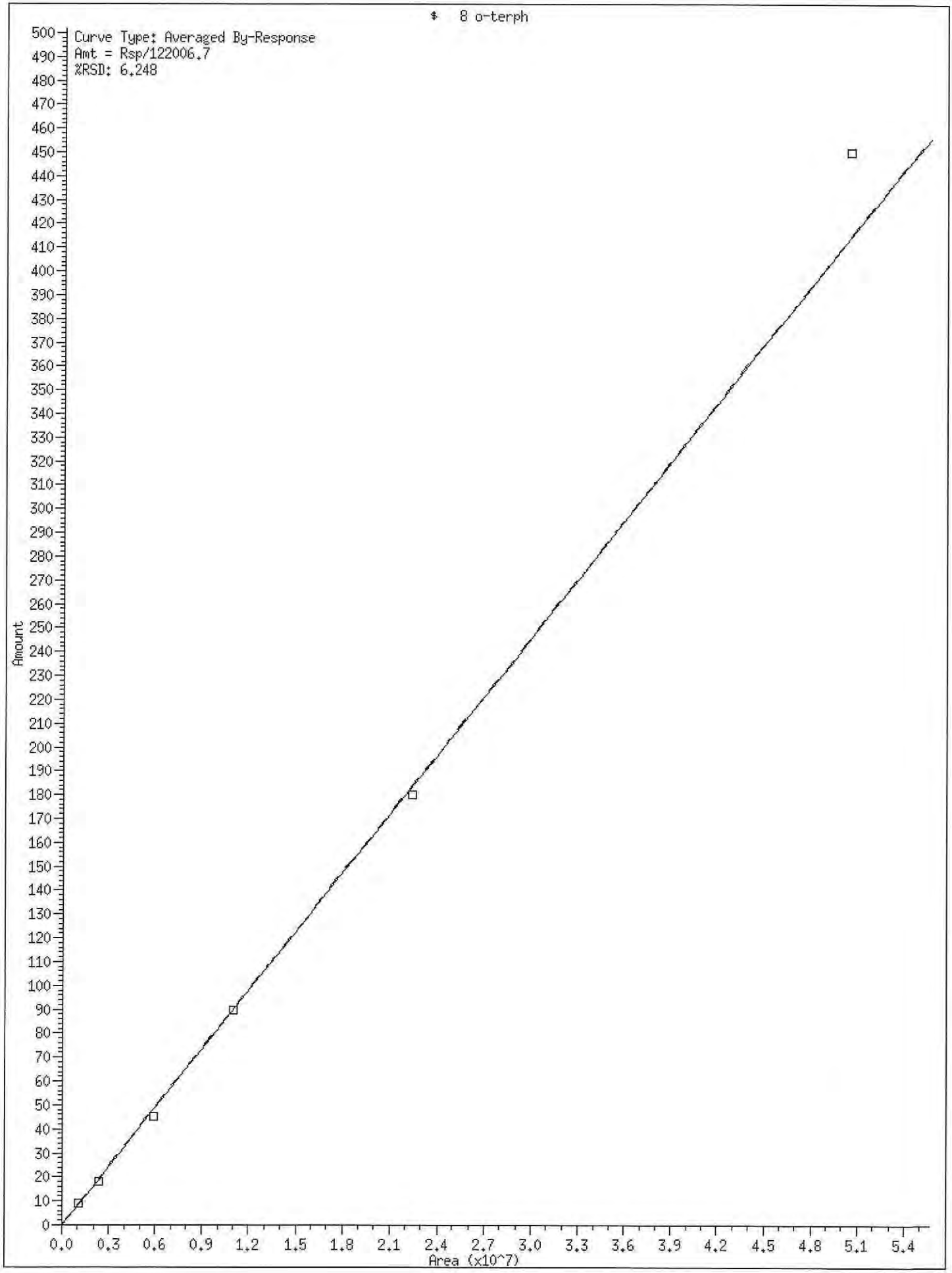
419I0561.D	Data Locked	van, 06-Sep-2019 09:19


$ 8 o-terph
Curve Type: Averaged By-Response
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%RSD: 6.248
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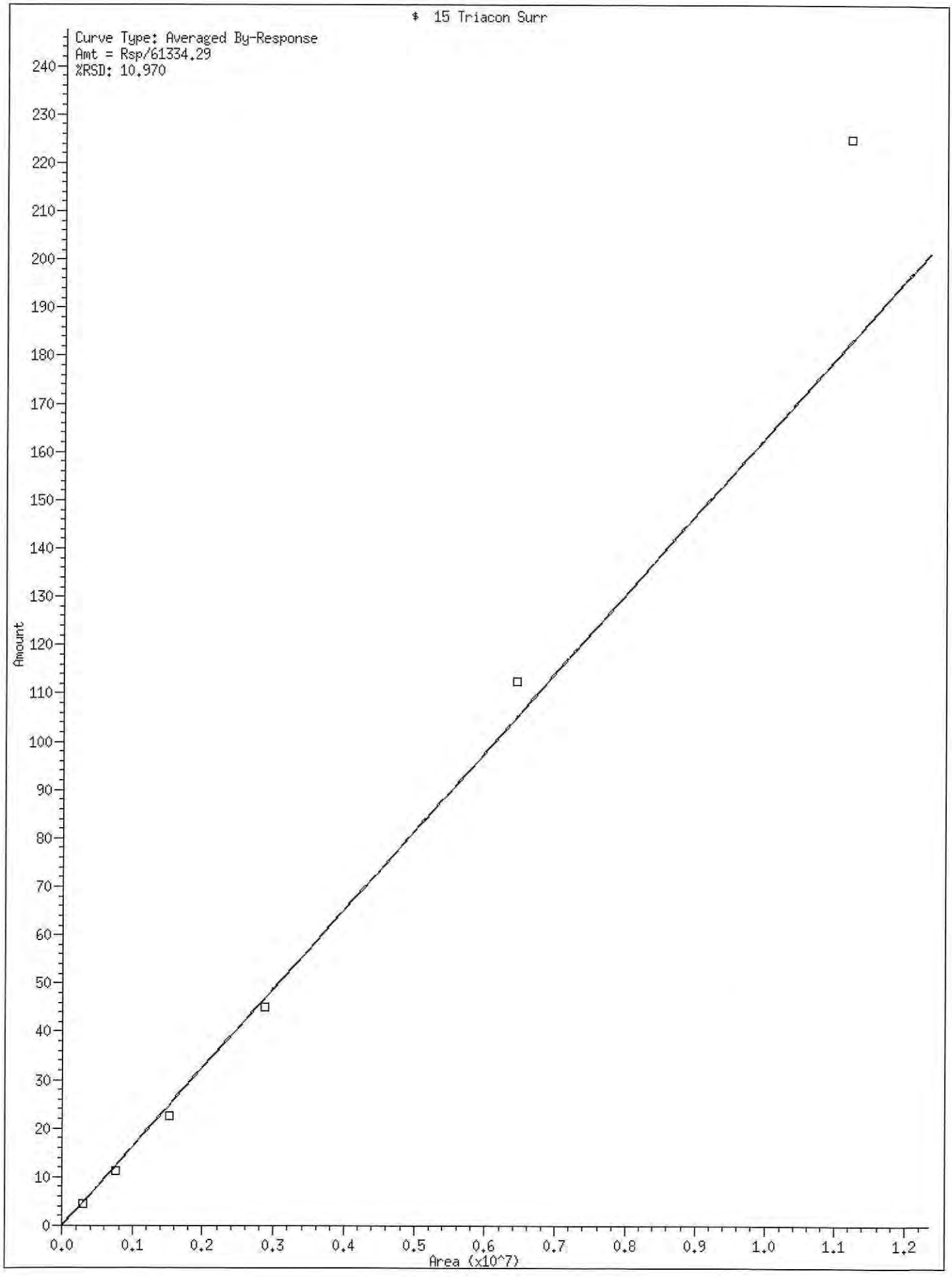
$ 15 Triacon Surr
Curve Type: Averaged By-Response
Amt = Rsp/61334.29
%RSD: 10.970
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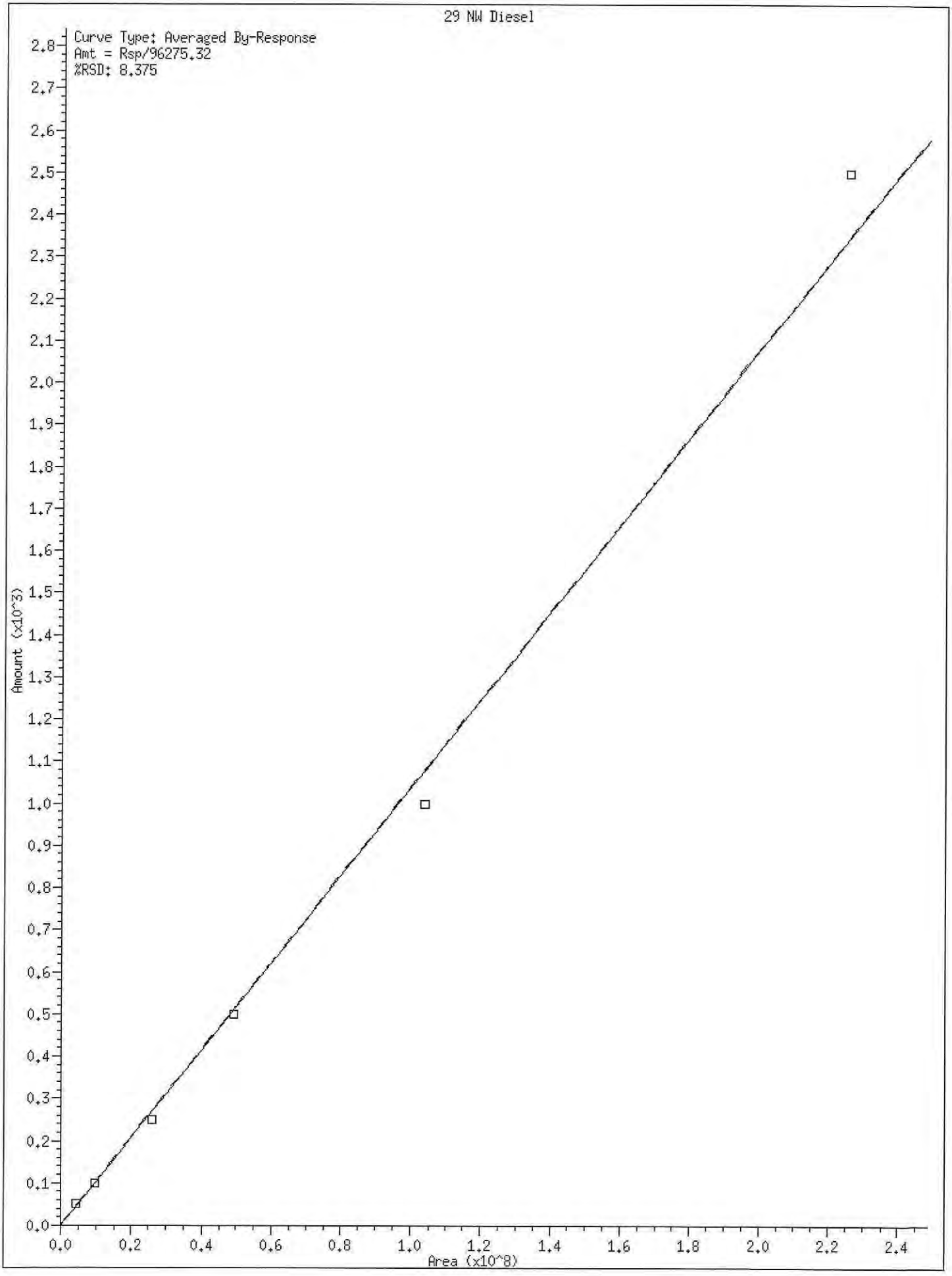
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2


29 NW Diesel
Curve Type: Averaged By-Response
Amt = Rsp/96275.32
%RSD: 8.375
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Area (x10^8)
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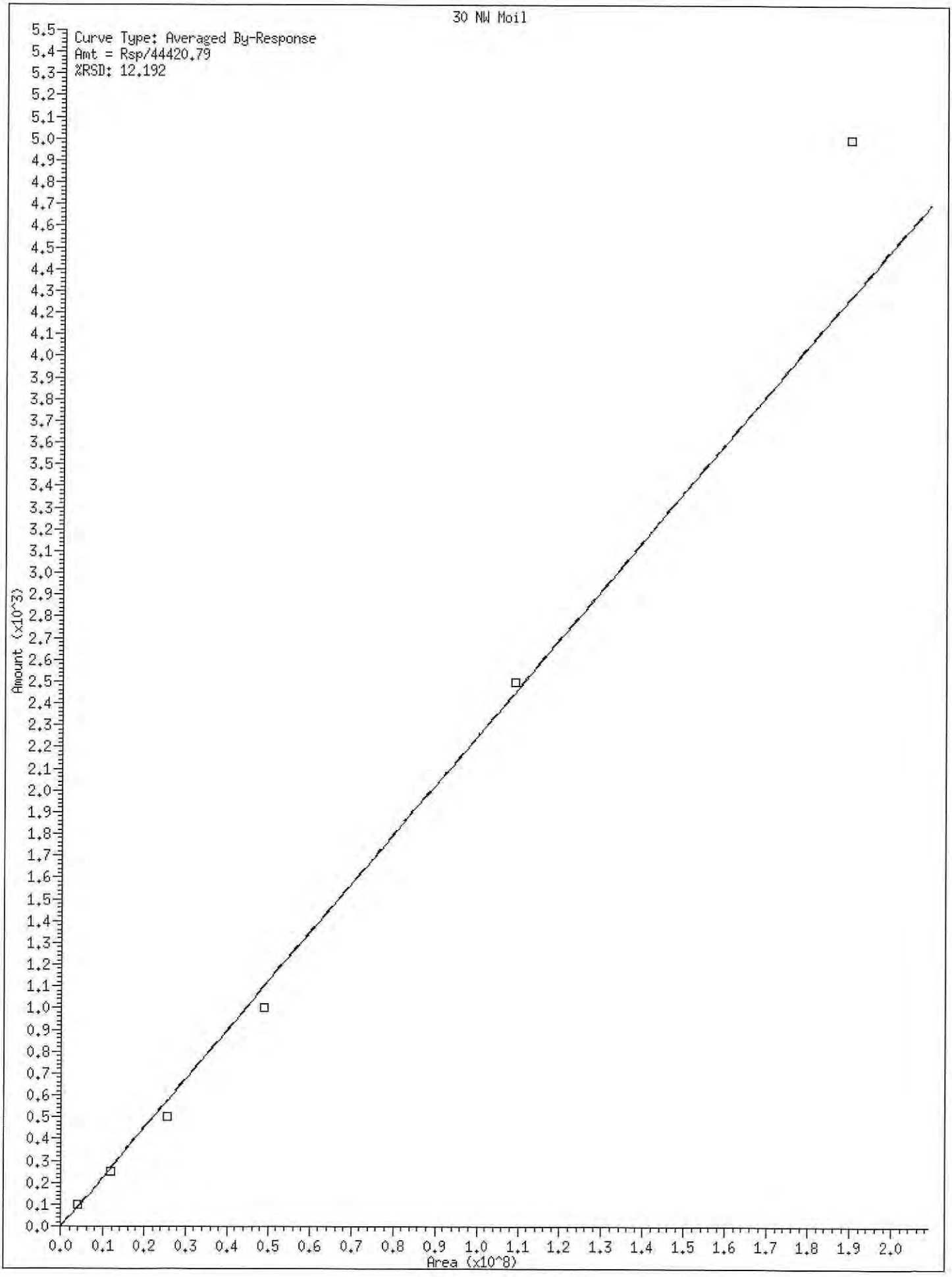
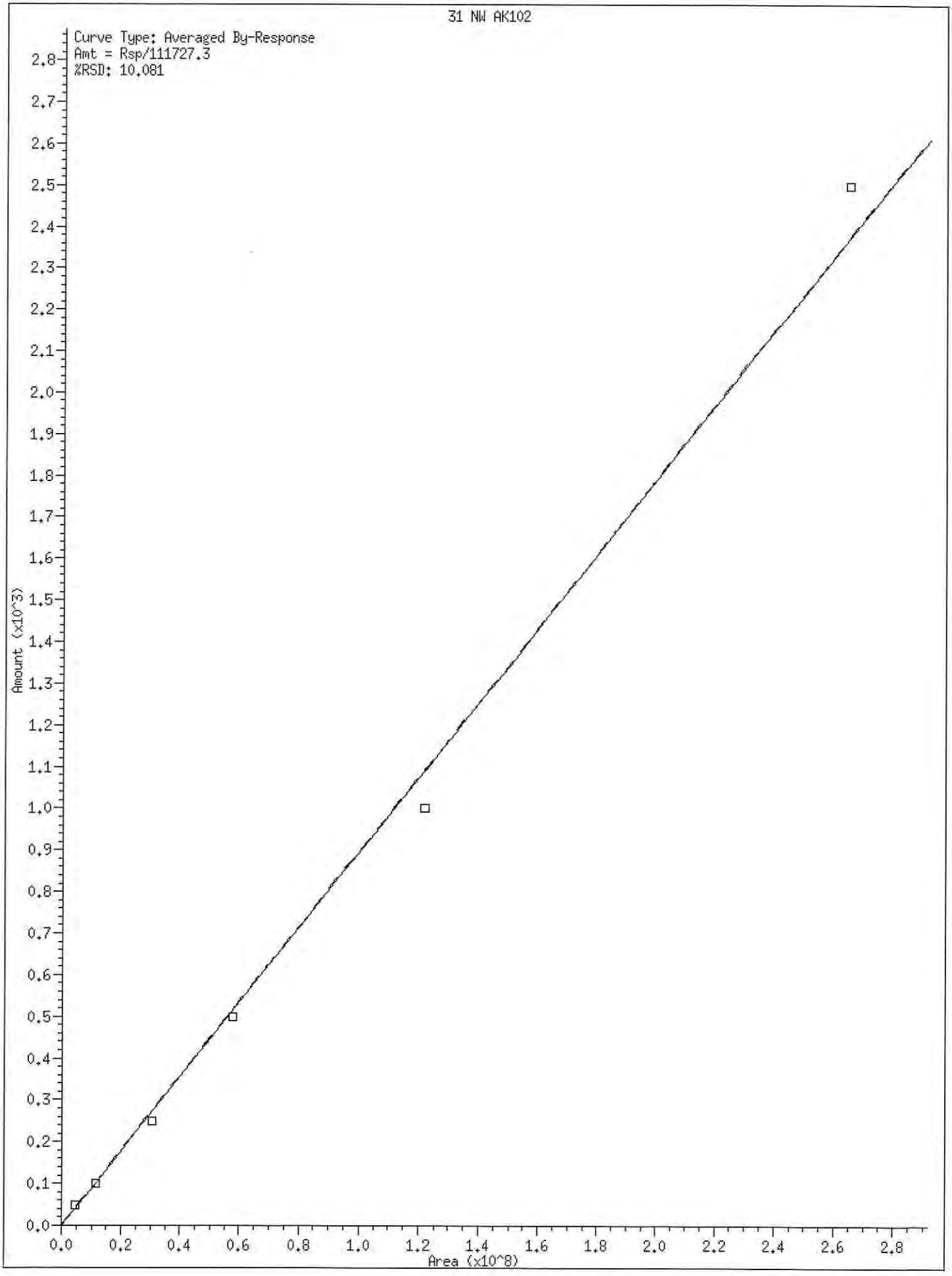
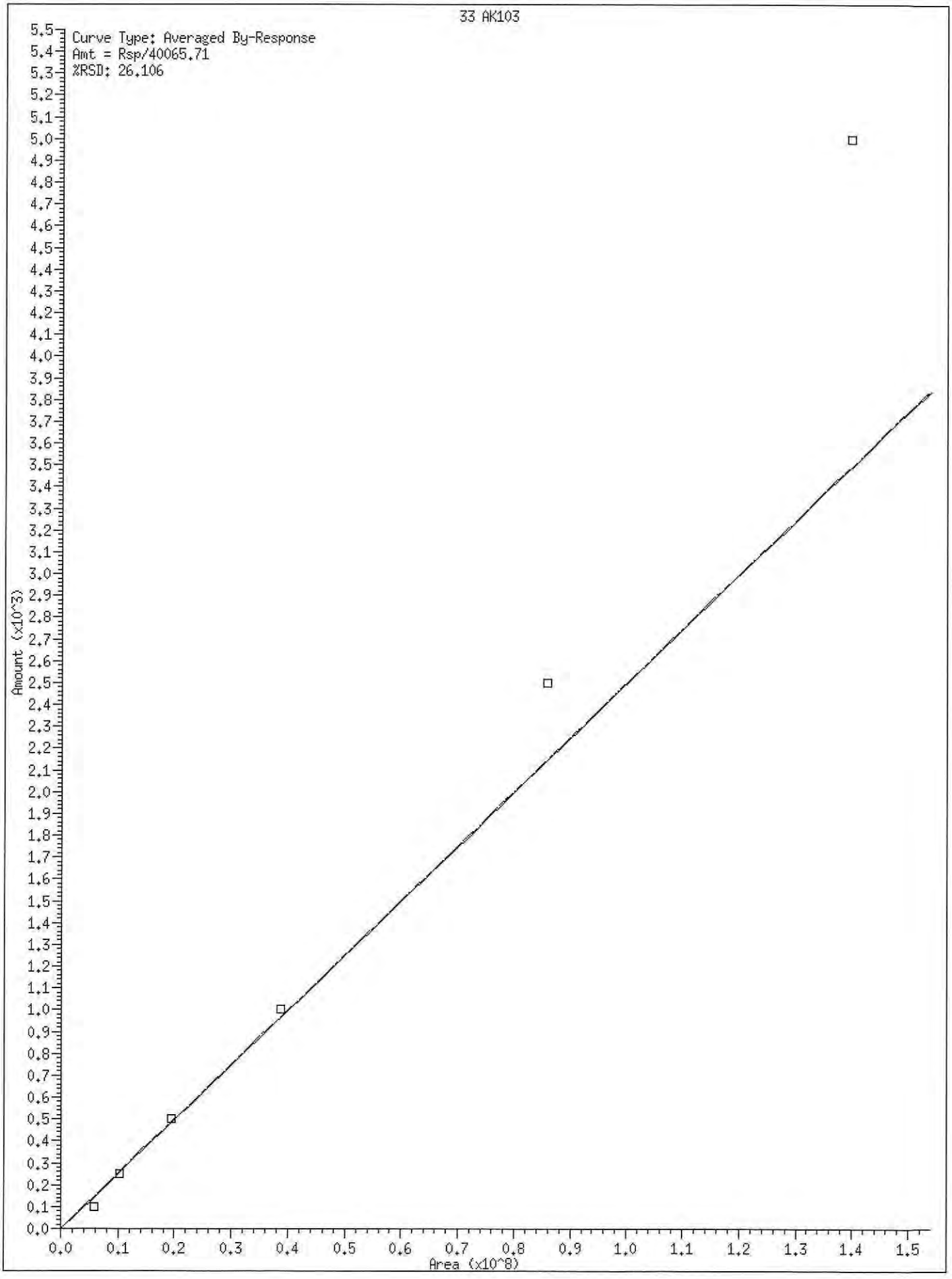
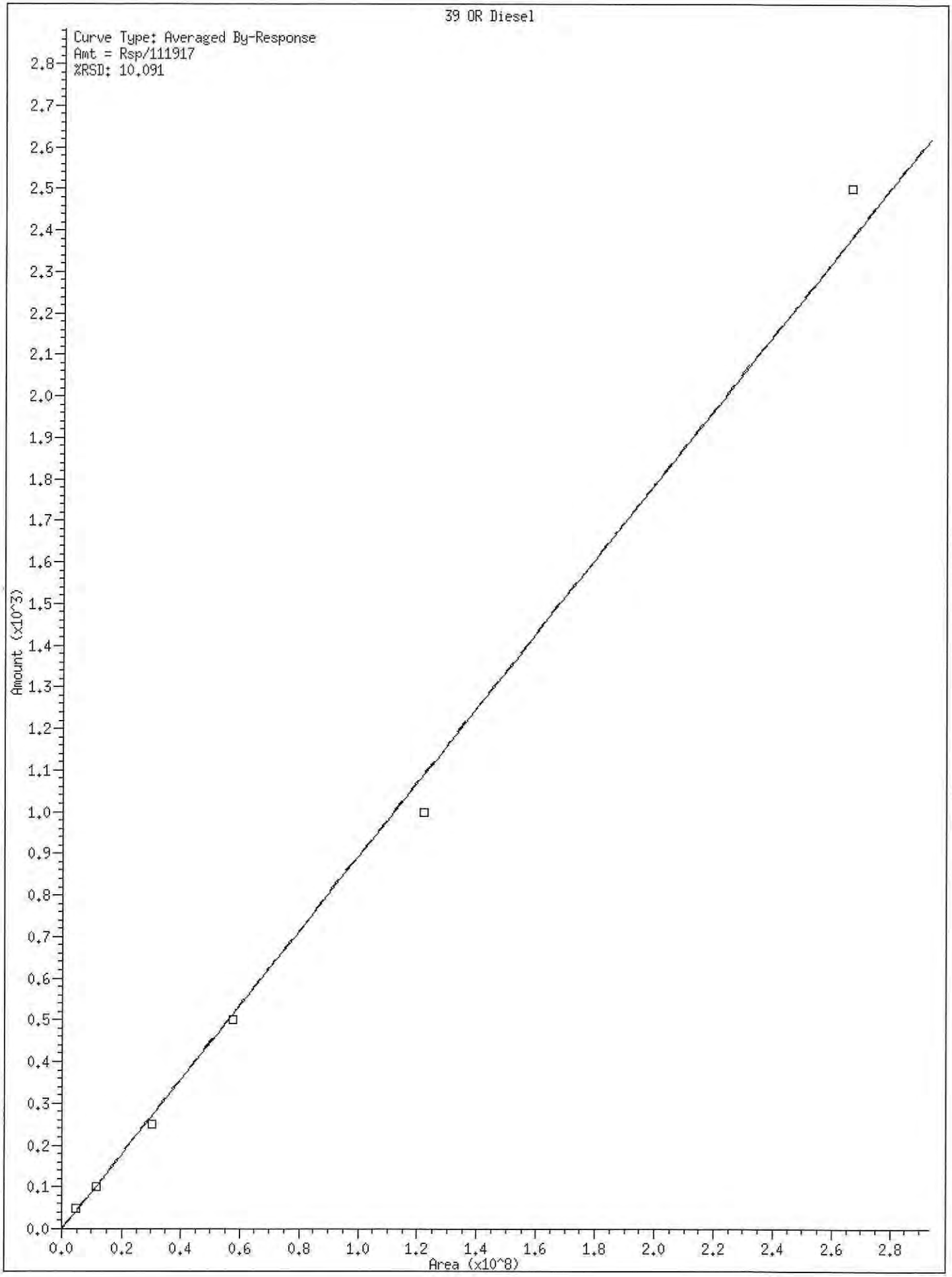
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4


30 NW Moil
Curve Type: Averaged By-Response
Amt = Rsp/44420.79
%RSD: 12.192
Amount (x10^3)
Area (x10^8)


31 NW AK102
Curve Type: Averaged By-Response
Amt = Rsp/111727.3
%RSD: 10.081
Amount (x10^3)
Area (x10^8)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8


33 AK103
Curve Type: Averaged By-Response
Amt = Rsp/40065.71
%RSD: 26.106
Amount (x10^3)
Area (x10^8)


39 OR Diesel
Curve Type: Averaged By-Response
Amt = Rsp/111917
%RSD: 10.091
Amount (x10^3)
Area (x10^8)
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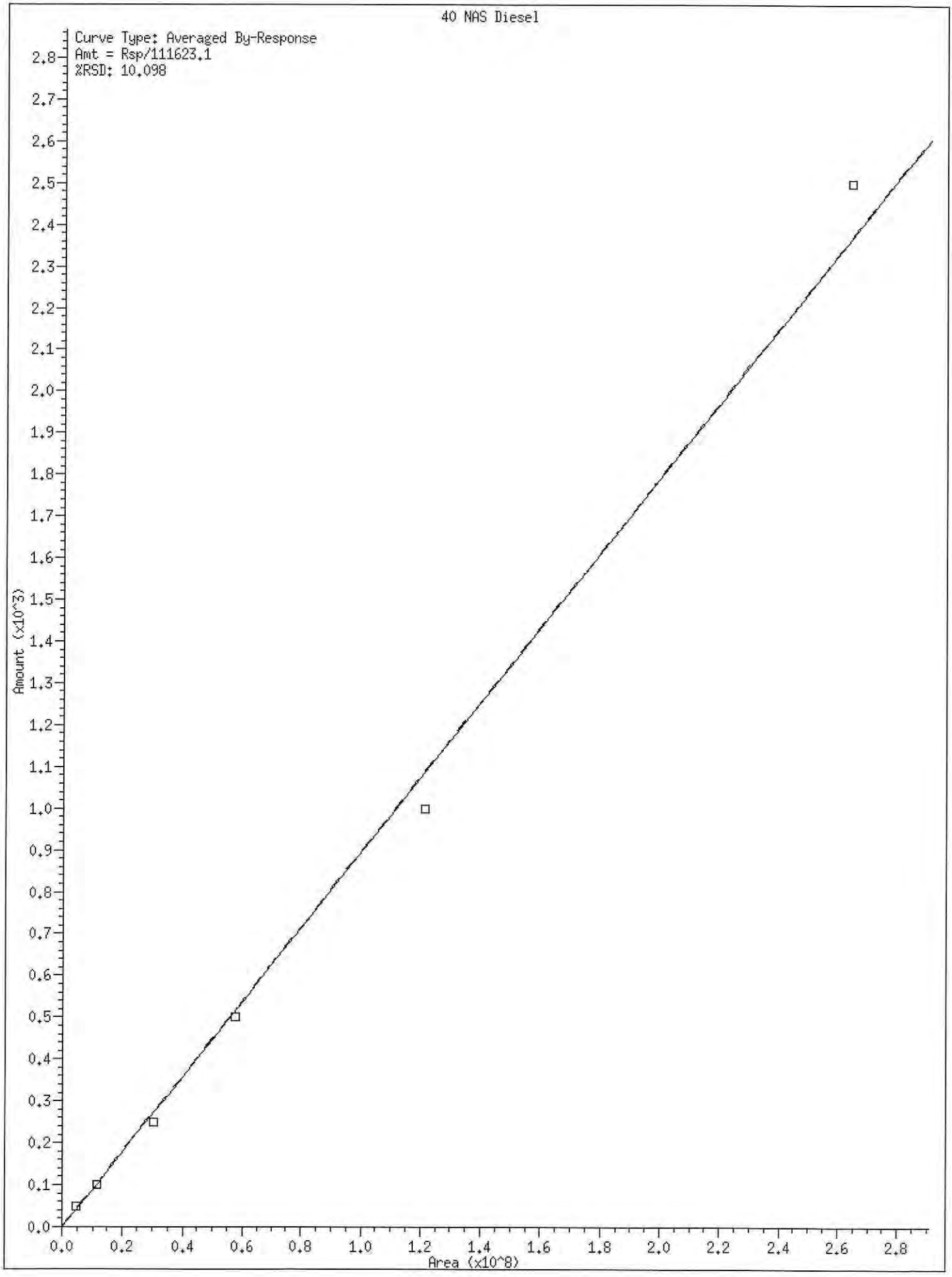
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8


40 NAS Diesel
Curve Type: Averaged By-Response
Amt = Rsp/111623.1
%RSD: 10.098
Amount (x10^3)
Area (x10^8)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190905.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190905.b
Inst ID: fid4a.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
FILENAME:	419I0527	419I0528	419I0529	419I0530	419I0531	419I0532	419I0533	419I0534	419I0535	419I0536
INJ.DATE:	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019
INJ.TIME:	19:00	19:21	19:42	20:04	20:25	20:46	21:07	21:28	21:48	22:10

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
	1 Toluene	+++++	1.623	+++++	+++++	1.642	1.655	1.651	1.638	+++++	+++++
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	2 C8	1.712	+++++	1.718	1.722	1.727	1.731	1.728	1.716	+++++	+++++
	3 C10	3.019	+++++	3.049	3.016	3.026	3.022	3.018	3.014	+++++	+++++
	4 C12	3.983	+++++	3.977	3.995	3.981	3.977	3.975	3.976	+++++	+++++
	5 C14	4.751	+++++	4.739	4.756	4.746	4.744	4.758	4.744	+++++	+++++
	6 C16	5.413	+++++	5.407	5.416	5.411	5.410	5.410	5.414	+++++	+++++
	7 C18	6.010	+++++	6.022	6.012	6.008	6.008	6.010	6.016	5.970	+++++
$	8 o-terph	6.198	6.197	6.192	6.189	6.190	6.197	6.208	6.227	+++++	6.204
	9 C20	6.577	+++++	+++++	6.568	6.576	6.574	6.573	6.577	+++++	+++++
	10 C22	7.137	7.173	+++++	7.168	7.146	7.139	7.134	7.134	7.125	7.141
	11 C24	7.688	+++++	+++++	+++++	7.716	7.705	7.693	7.687	7.692	7.688
	12 C25	7.958	8.005	+++++	+++++	8.004	7.988	7.971	7.961	7.958	7.965
	13 C26	8.223	+++++	+++++	+++++	+++++	8.241	8.245	8.232	8.229	8.213
	14 C28	8.733	8.733	+++++	+++++	+++++	+++++	+++++	8.756	8.736	8.738

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190905.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190905.b
Inst ID: fid4a.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
$ 15 Triacon Surr	9.233	9.229	+++++	+++++	+++++	+++++	+++++	+++++	9.214	9.213
16 C32	9.675	9.675	+++++	+++++	+++++	+++++	+++++	+++++	9.670	9.673
17 C34	10.106	+++++	+++++	+++++	+++++	+++++	+++++	+++++	10.098	10.107
18 Filter Peak	12.039	12.030	+++++	+++++	+++++	+++++	+++++	+++++	12.049	12.037
19 C36	10.517	10.487	10.541	+++++	+++++	+++++	+++++	+++++	10.515	10.517
20 C38	10.906	10.897	10.953	+++++	+++++	+++++	+++++	+++++	10.913	10.903
21 C40	11.297	11.309	+++++	+++++	+++++	+++++	+++++	+++++	11.280	11.294
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190905.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190905.b
Inst ID: fid4a.i

ID:	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20
FILENAME:	419I0537	419I0538	419I0539	419I0540	419I0541	419I0542	419I0543	419I0544	419I0545	419I0546
INJ.DATE:	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	05-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019	06-SEP-2019
INJ.TIME:	22:32	22:53	23:13	23:34	23:55	00:16	00:36	00:58	01:20	01:40

	Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.601	1.501-1.701	1.642	0.012
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	2 C8	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.712	1.612-1.812	1.722	0.007
	3 C10	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	3.019	2.969-3.069	3.023	0.012
	4 C12	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.032	3.983	3.933-4.033	3.987	0.019
	5 C14	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	4.751	4.701-4.801	4.748	0.007
	6 C16	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	5.423	5.413	5.363-5.463	5.413	0.005
	7 C18	+++++	6.051	6.038	6.012	+++++	+++++	+++++	6.051	6.012	6.012	6.010	5.960-6.060	6.017	0.020
$	8 o-terph	6.202	6.195	6.192	6.191	6.218	6.204	6.196	6.191	6.187	6.186	6.198	6.148-6.248	6.198	0.011
	9 C20	6.577	6.573	6.571	6.569	+++++	6.615	6.589	6.575	6.572	6.572	6.577	6.527-6.627	6.577	0.012
	10 C22	7.137	7.140	7.136	7.134	+++++	7.143	7.134	7.137	7.132	7.135	7.137	7.087-7.187	7.140	0.012
	11 C24	7.693	7.688	7.685	7.690	7.689	7.690	7.685	7.690	7.682	7.686	7.688	7.638-7.738	7.691	0.008
	12 C25	7.959	7.957	7.960	7.950	7.960	7.957	7.958	7.960	7.964	7.956	7.958	7.908-8.008	7.966	0.016
	13 C26	8.223	8.214	8.224	8.225	8.237	8.225	8.223	8.212	8.222	8.222	8.223	8.173-8.273	8.225	0.010
	14 C28	8.740	8.733	8.730	8.734	8.733	8.733	8.728	8.729	8.729	8.732	8.733	8.683-8.783	8.734	0.007
$	15 Triacon Surr	9.216	9.219	9.233	9.244	9.214	9.214	9.215	9.222	9.233	9.244	9.233	9.183-9.283	9.225	0.011
	16 C32	9.681	9.671	9.673	9.676	9.679	9.673	9.670	9.670	9.672	9.679	9.675	9.625-9.725	9.674	0.004
	17 C34	10.104	10.106	10.106	10.103	10.108	10.102	10.105	10.108	10.111	10.107	10.106	10.056-10.156	10.106	0.003

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190905.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190905.b
Inst ID: fid4a.i

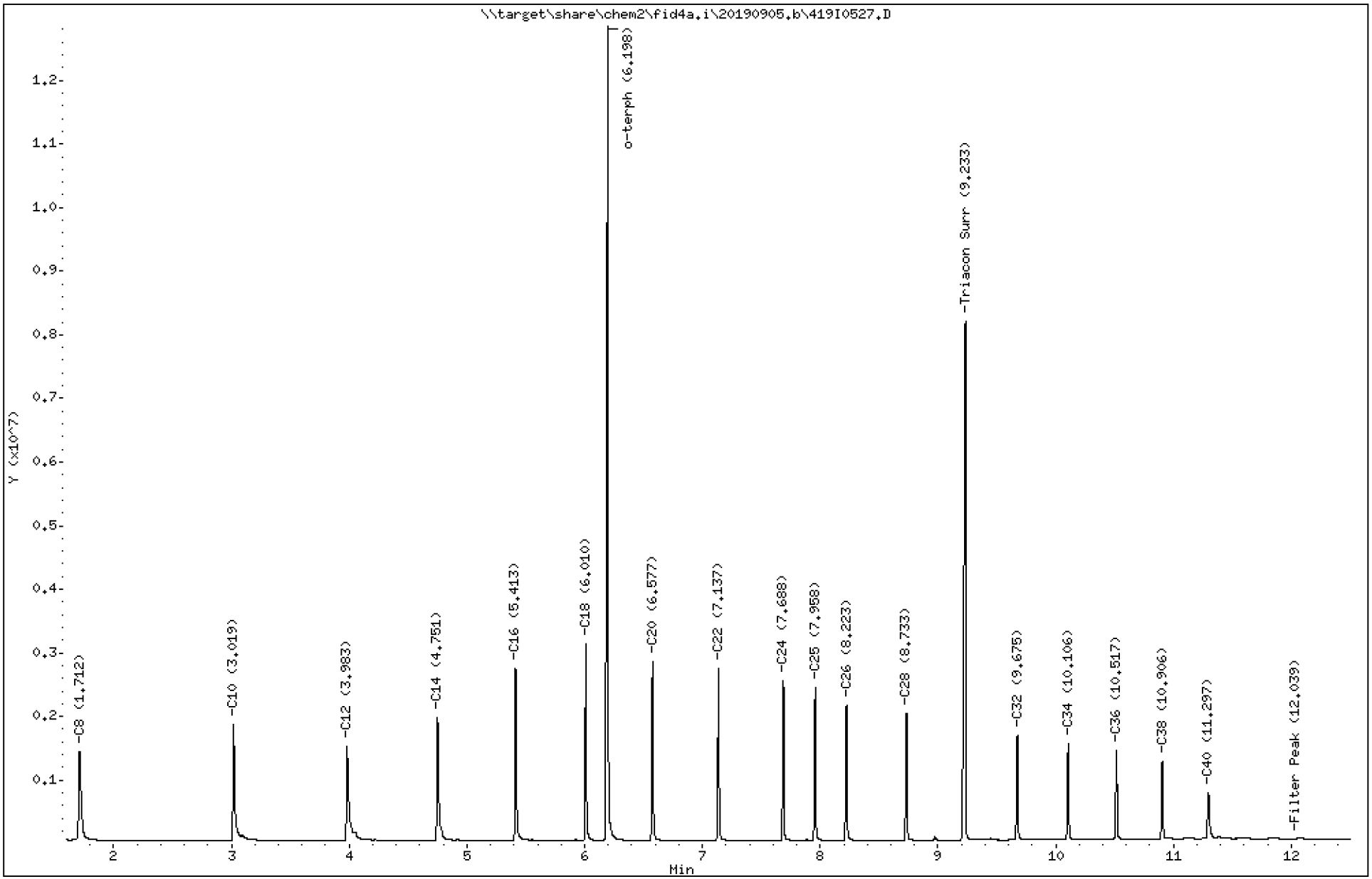
Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
18 Filter Peak	12.034	12.043	12.031	12.041	12.054	12.041	12.035	12.037	12.037	12.040	12.039	11.939-12.139	12.039	0.006
19 C36	10.513	10.519	10.520	10.512	10.503	10.516	10.516	10.514	10.512	10.513	10.517	10.467-10.567	10.514	0.011
20 C38	10.912	10.905	10.904	10.906	10.920	10.903	10.904	10.908	10.906	10.902	10.906	10.856-10.956	10.909	0.013
21 C40	11.304	11.294	11.296	11.296	11.301	11.296	11.296	11.297	11.302	11.298	11.297	11.247-11.347	11.297	0.007
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0527.D
Date : 05-SEP-2019 19:00
Client ID:
Sample Info: SHI0053-IBL1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0527.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-IBL1
Client ID:
Injection: 05-SEP-2019 19:00
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.712	0.000	1397963	2284905	WATPHD	(C12-C24)	13464854	139.9
C10	3.019	0.000	1824600	2097990	WATPHM	(C24-C38)	10919834	245.8
C12	3.983	0.000	1472517	2087191	AK102	(C10-C25)	17917044	160.4
C14	4.751	0.000	1924537	2329046	AK103	(C25-C36)	9517256	237.5
C16	5.413	0.000	2713571	2290570	OR.DIES	(C10-C28)	23205628	207.3
C18	6.010	0.000	3090174	2171796				
C20	6.577	0.000	2818639	2173729				
C22	7.137	0.000	2714208	2081715				
C24	7.688	0.000	2503731	1899011				
C25	7.958	0.000	2411363	1862720				
C26	8.223	0.000	2135151	1756407				
C28	8.733	0.000	2003348	1639708				
C32	9.675	0.000	1652482	1408554				
C34	10.106	0.000	1521521	1283773				
Filter Peak	12.039	0.000	31489	23289	BUNKERC	(C10-C38)	28819191	428.4
C36	10.517	0.000	1417580	1259927				
C38	10.906	0.000	1254303	1167457				
C40	11.297	0.000	754981	1200009				
o-terph	6.198	0.000	12802944	12163591				
Triacon Surr	9.233	0.000	8158889	8646831	NAS DIES	(C10-C24)	17899357	160.4

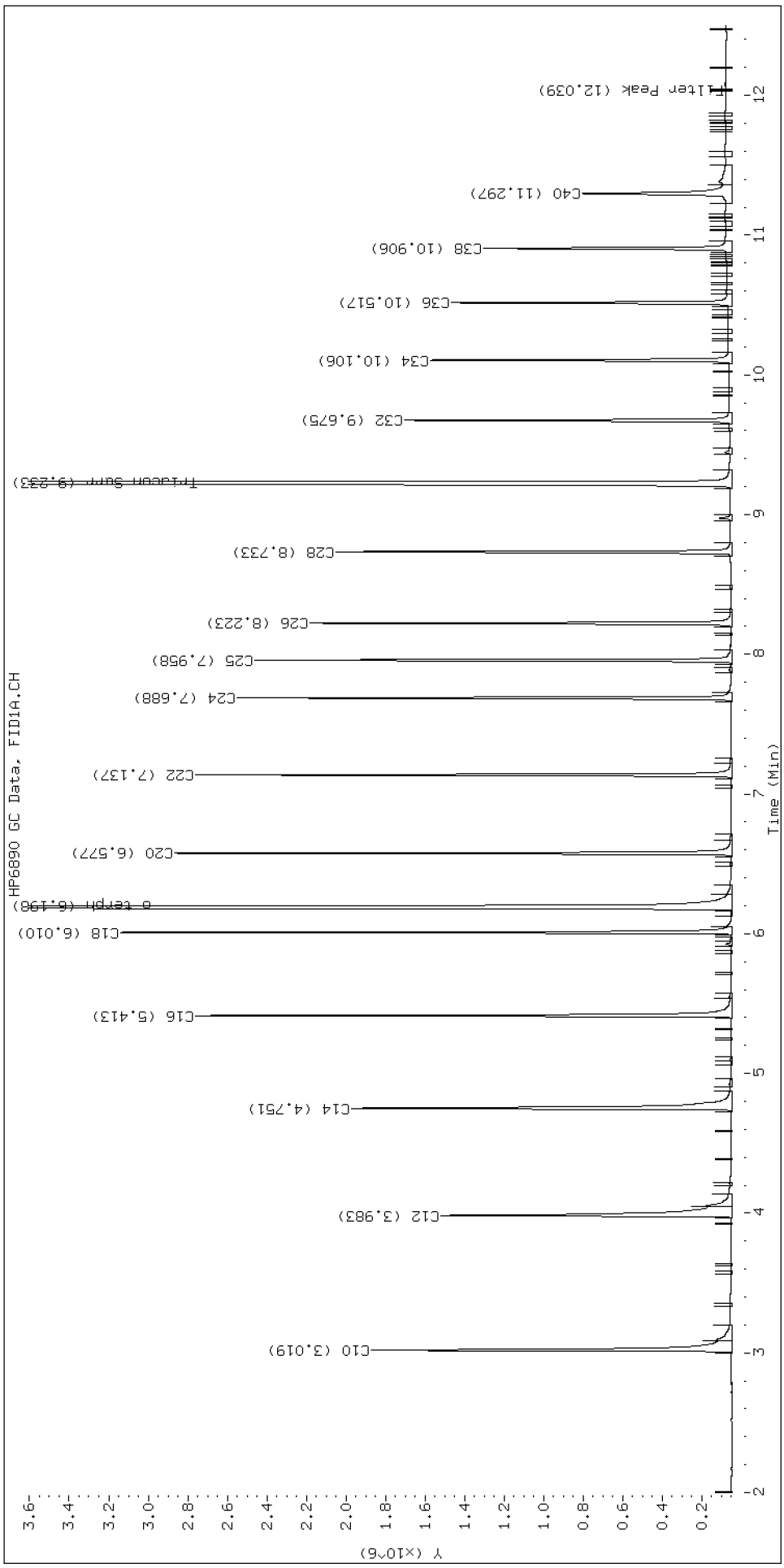
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	12163591	99.7
Triacontane	8646831	141.0

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

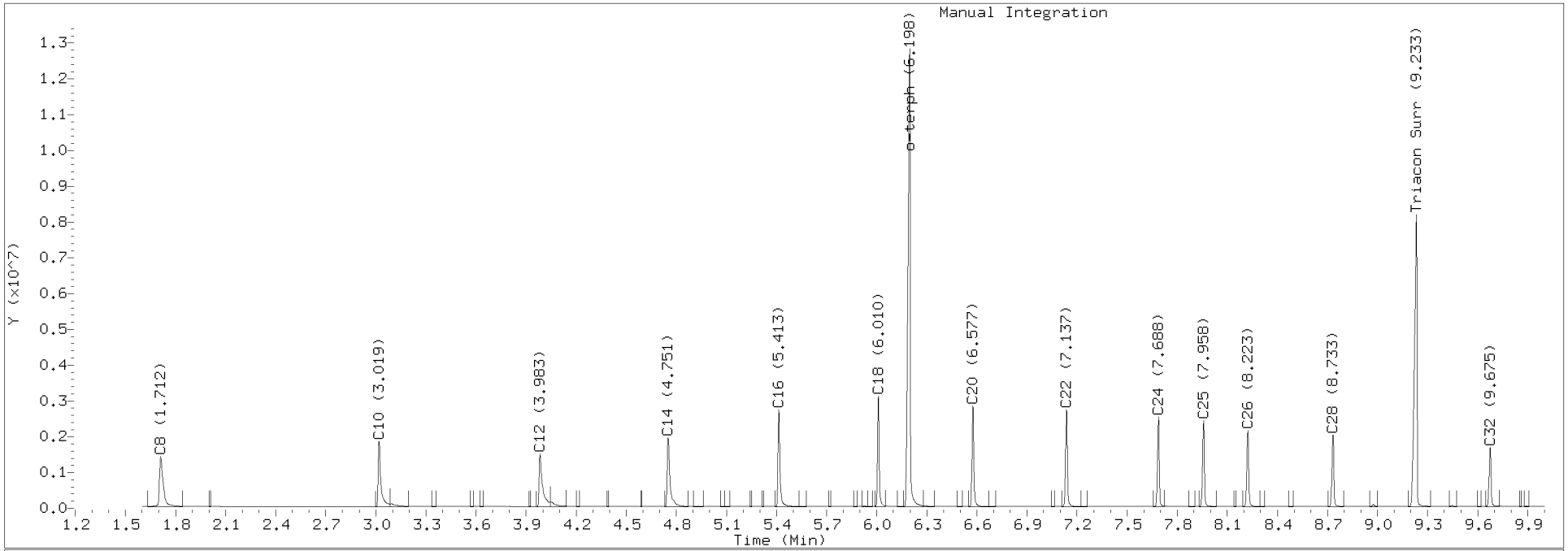
Datafile: FID4A, 20190905.b/419I0527.D SHI0053-IBL1

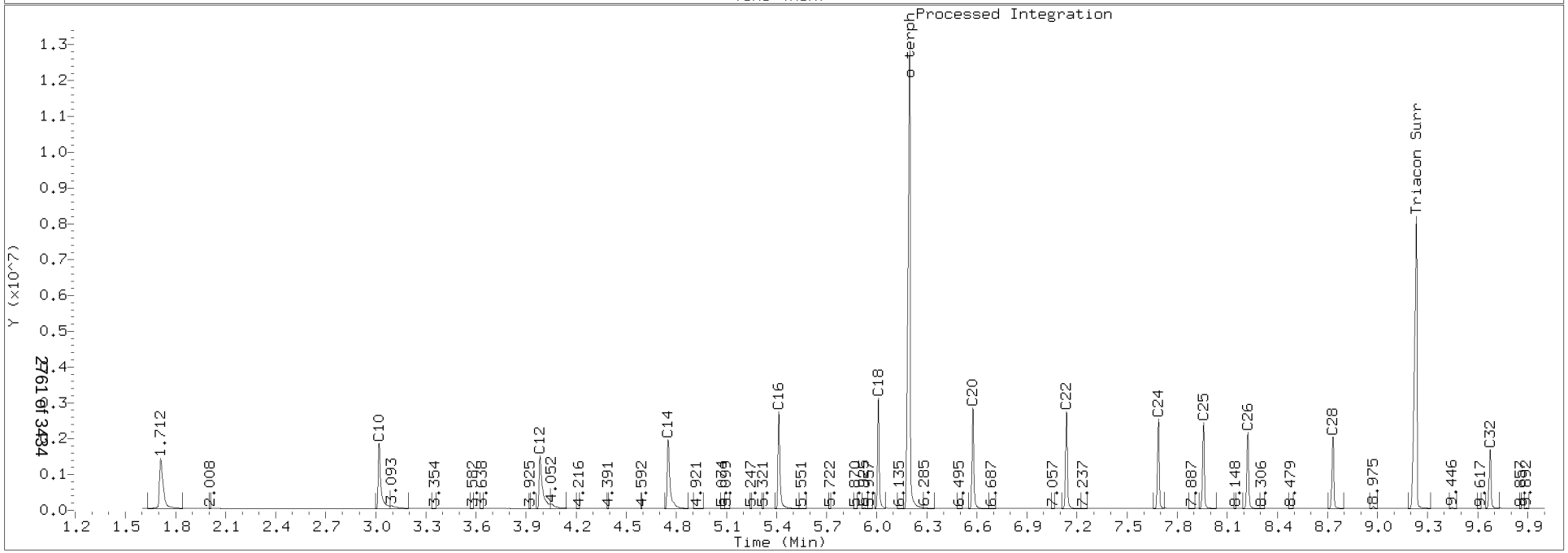


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0527.D Injection: 05-SEP-2019 19:00

Lab ID:SHI0053-IBL1



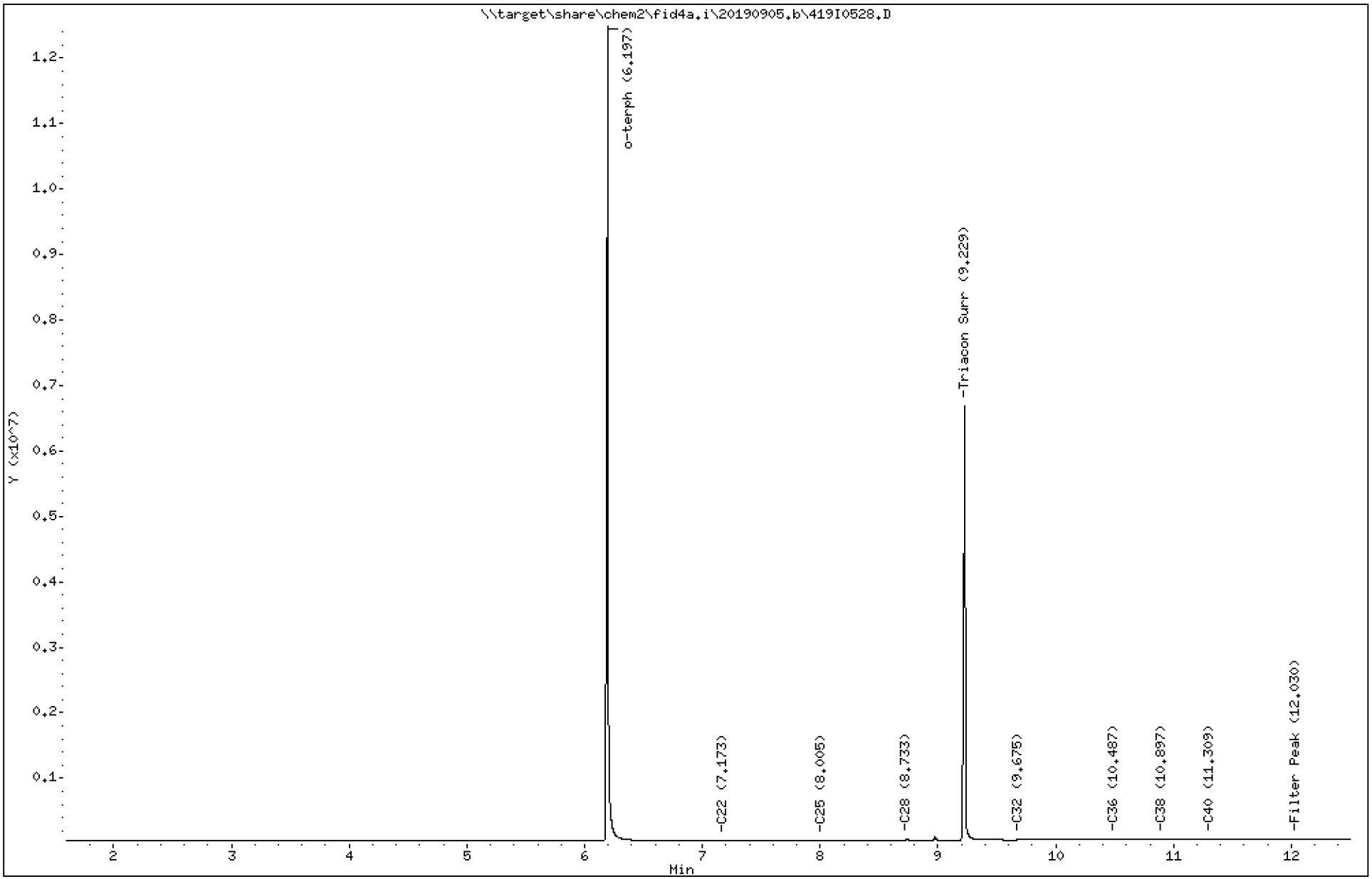


Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0528.D
Date : 05-SEP-2019 19:21
Client ID:
Sample Info: SHI0053-IBL2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0528.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-IBL2
Client ID:
Injection: 05-SEP-2019 19:21
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	2872	0.0
C10	----				WATPHM	(C24-C38)	189945	4.3
C12	----				AK102	(C10-C25)	2872	0.0
C14	----				AK103	(C25-C36)	178322	4.5
C16	----				OR.DIES	(C10-C28)	45165	0.4
C18	----							
C20	----							
C22	7.173	0.036	3302	2871				
C24	----							
C25	8.005	0.047	3138	1070				
C26	----							
C28	8.733	-0.000	30079	34518				
C32	9.675	-0.000	11028	10168				
C34	----							
Filter Peak	12.030	-0.009	28435	8506	BUNKERC	(C10-C38)	192817	2.9
C36	10.487	-0.029	15084	5257				
C38	10.897	-0.009	19496	11622				
C40	11.309	0.012	26277	26165				
o-terph	6.197	-0.001	12442469	12424242				
Triacon Surr	9.229	-0.004	6644822	6851159	NAS DIES	(C10-C24)	2872	0.0

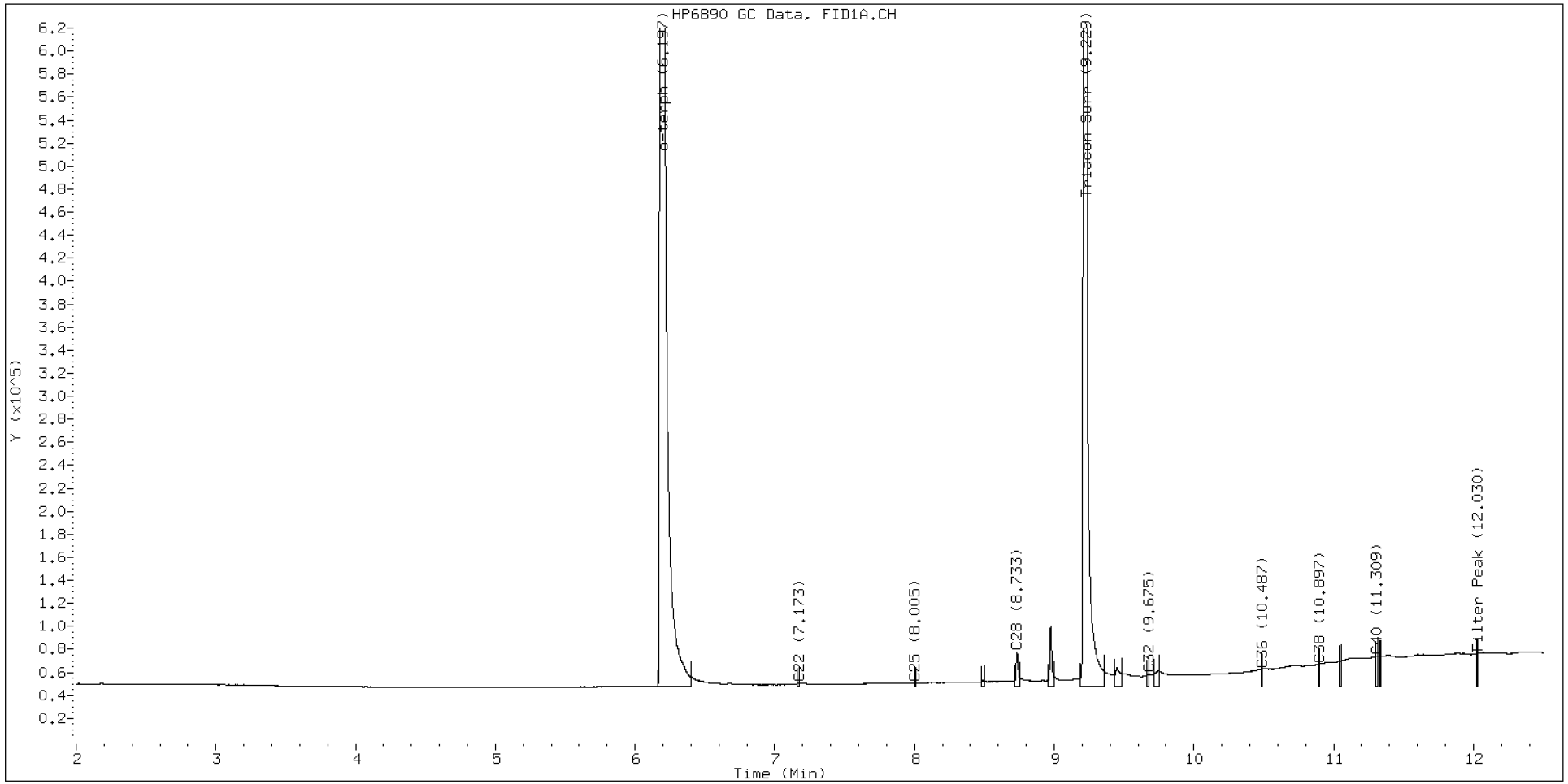
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	12424242	101.8
Triacontane	6851159	111.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

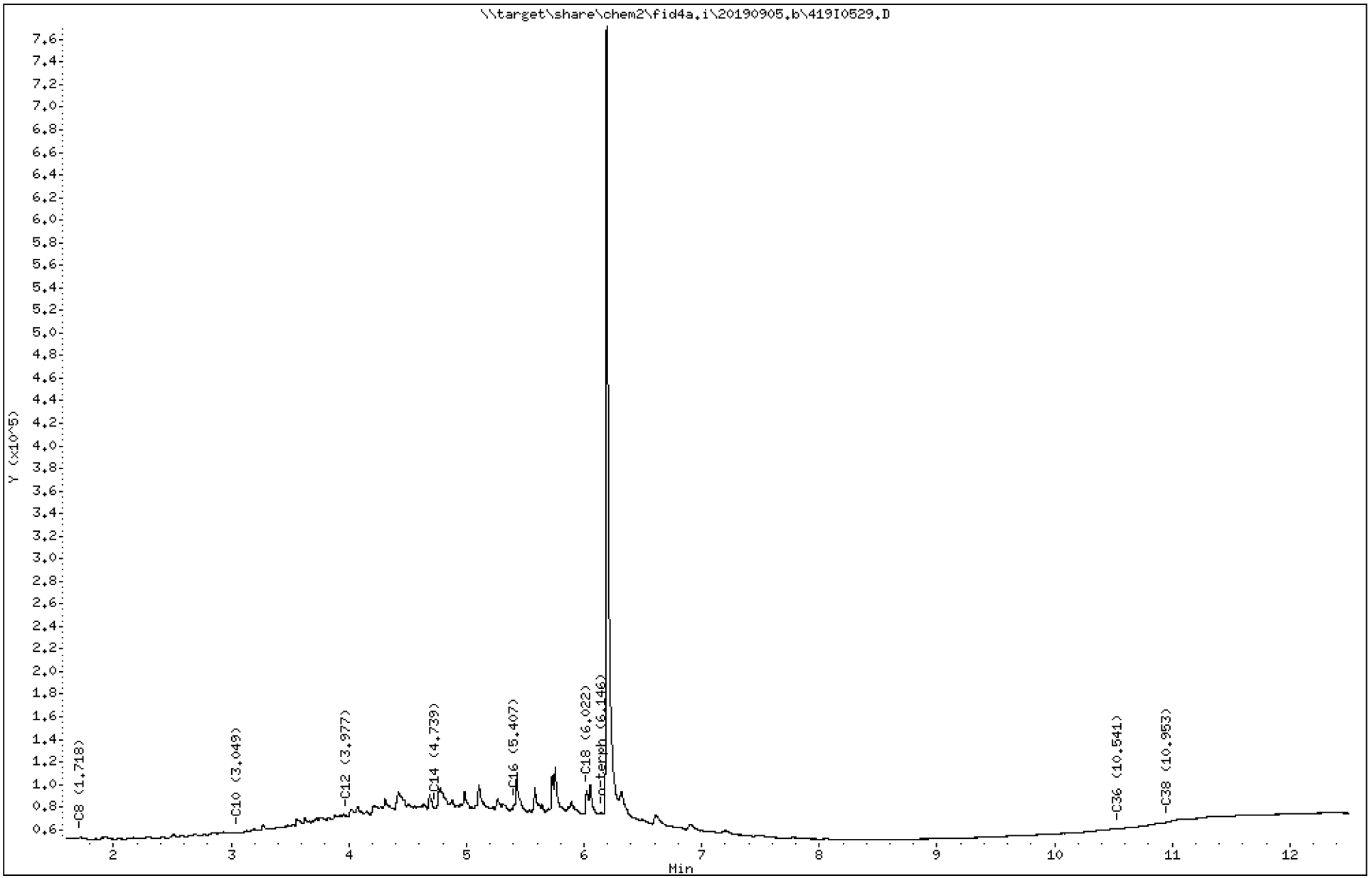
Datafile: FID4A, 20190905.b/419I0528.D SHI0053-IBL2



Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0529.D
Date : 05-SEP-2019 19:42
Client ID:
Sample Info: SHI0053-CAL1

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0529.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL1
Client ID:
Injection: 05-SEP-2019 19:42
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.718	0.007	1869	1360	WATPHD	(C12-C24)	4165600	43.3
C10	3.049	0.030	6077	3806	WATPHM	(C24-C38)	10518	0.2
C12	3.977	-0.006	21047	17579	AK102	(C10-C25)	4597925	41.2
C14	4.739	-0.012	27662	16449	AK103	(C25-C36)	3813	0.1
C16	5.407	-0.006	30409	28720	OR.DIES	(C10-C28)	4597925	41.1
C18	6.022	0.012	42592	85106				
C20	----							
C22	----							
C24	----							
C25	----							
C26	----							
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	4608443	68.5 M
C36	10.541	0.025	9712	3812				
C38	10.953	0.047	15064	6705				
C40	----							
o-terph	6.192	-0.006	696169	1021863				
Triacon Surr	----				NAS DIES	(C10-C24)	4597925	41.2

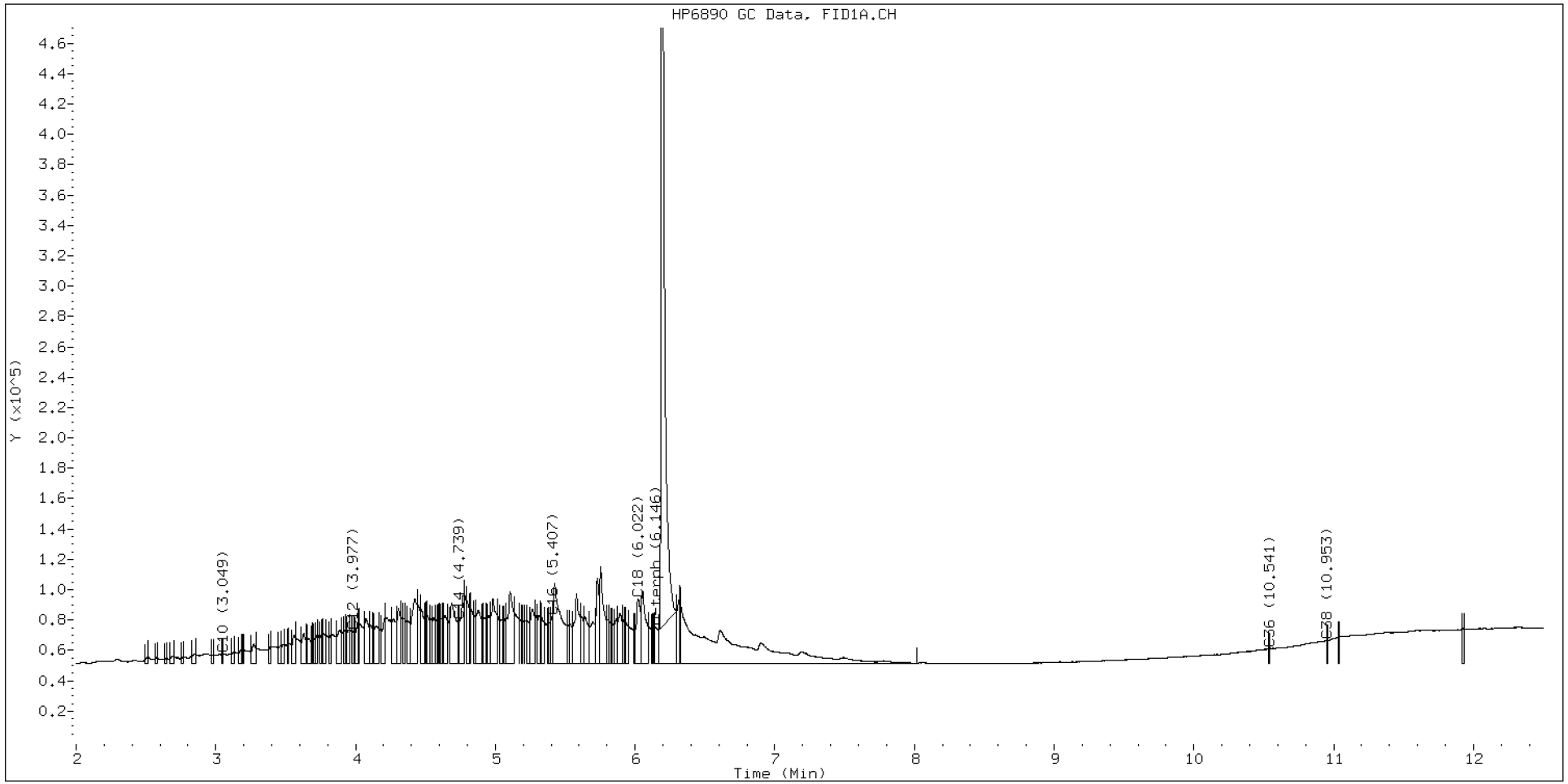
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	1021863	8.4	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

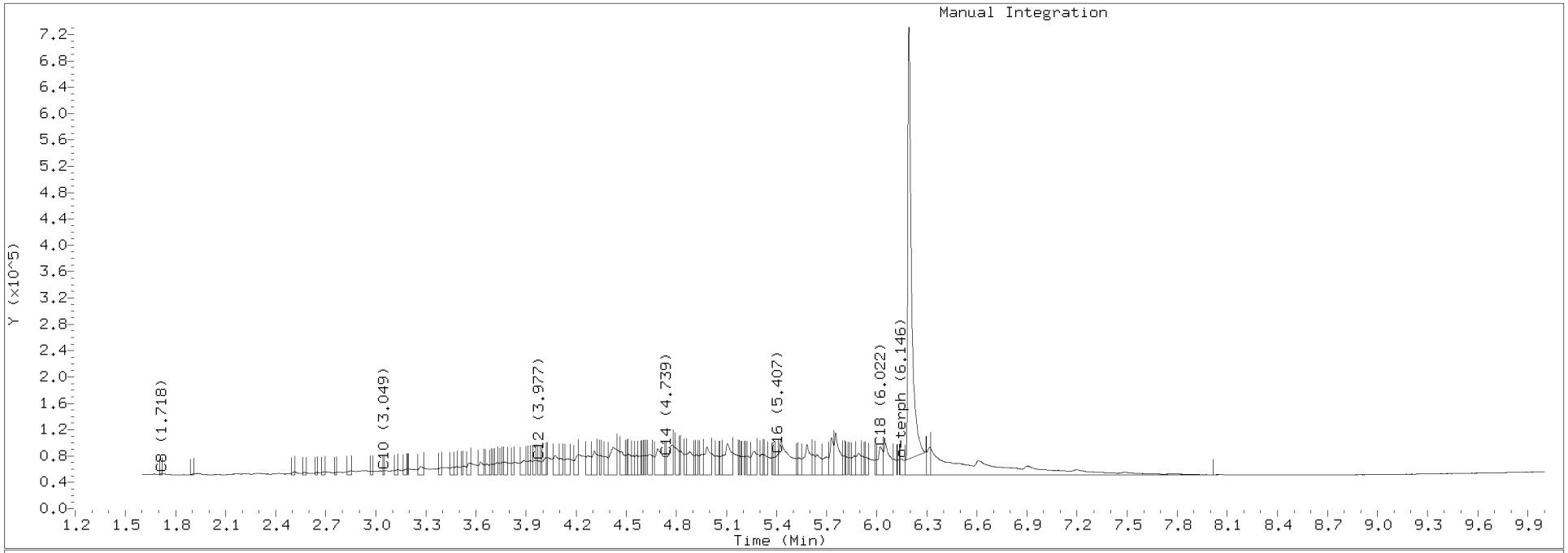
Datafile: FID4A, 20190905.b/419I0529.D SHI0053-CAL1

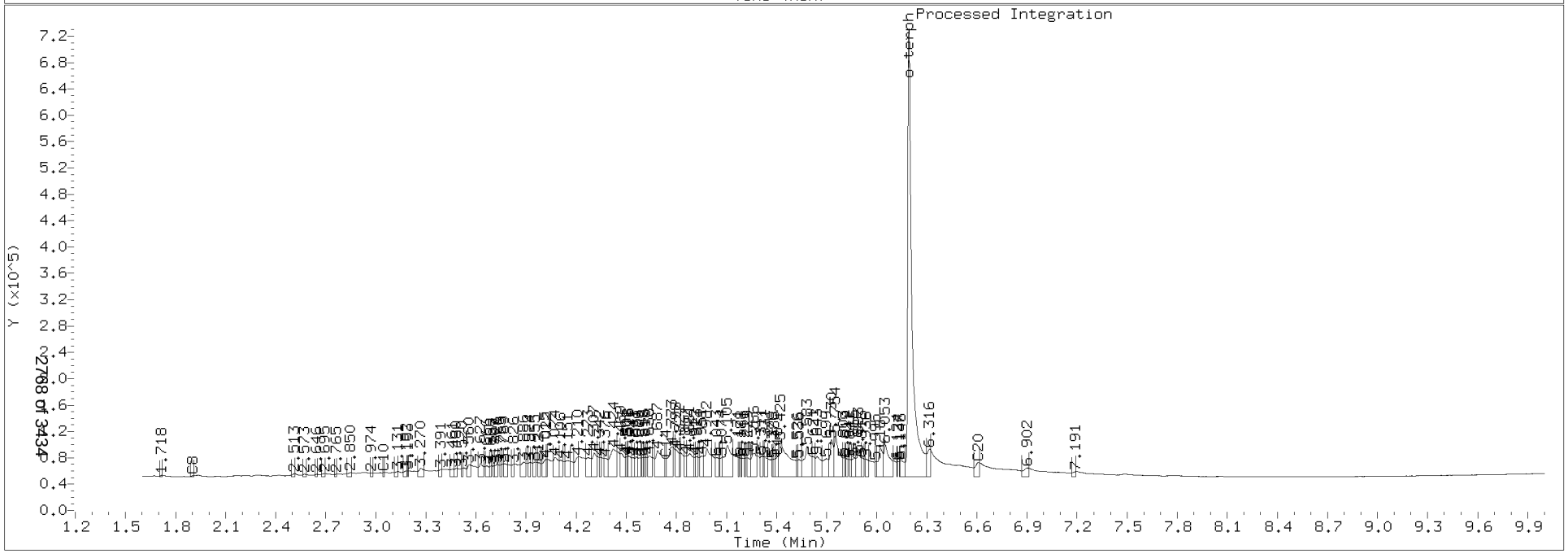


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0529.D Injection: 05-SEP-2019 19:42

Lab ID:SHI0053-CAL1





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0530.D

Date : 05-SEP-2019 20:04

Client ID:

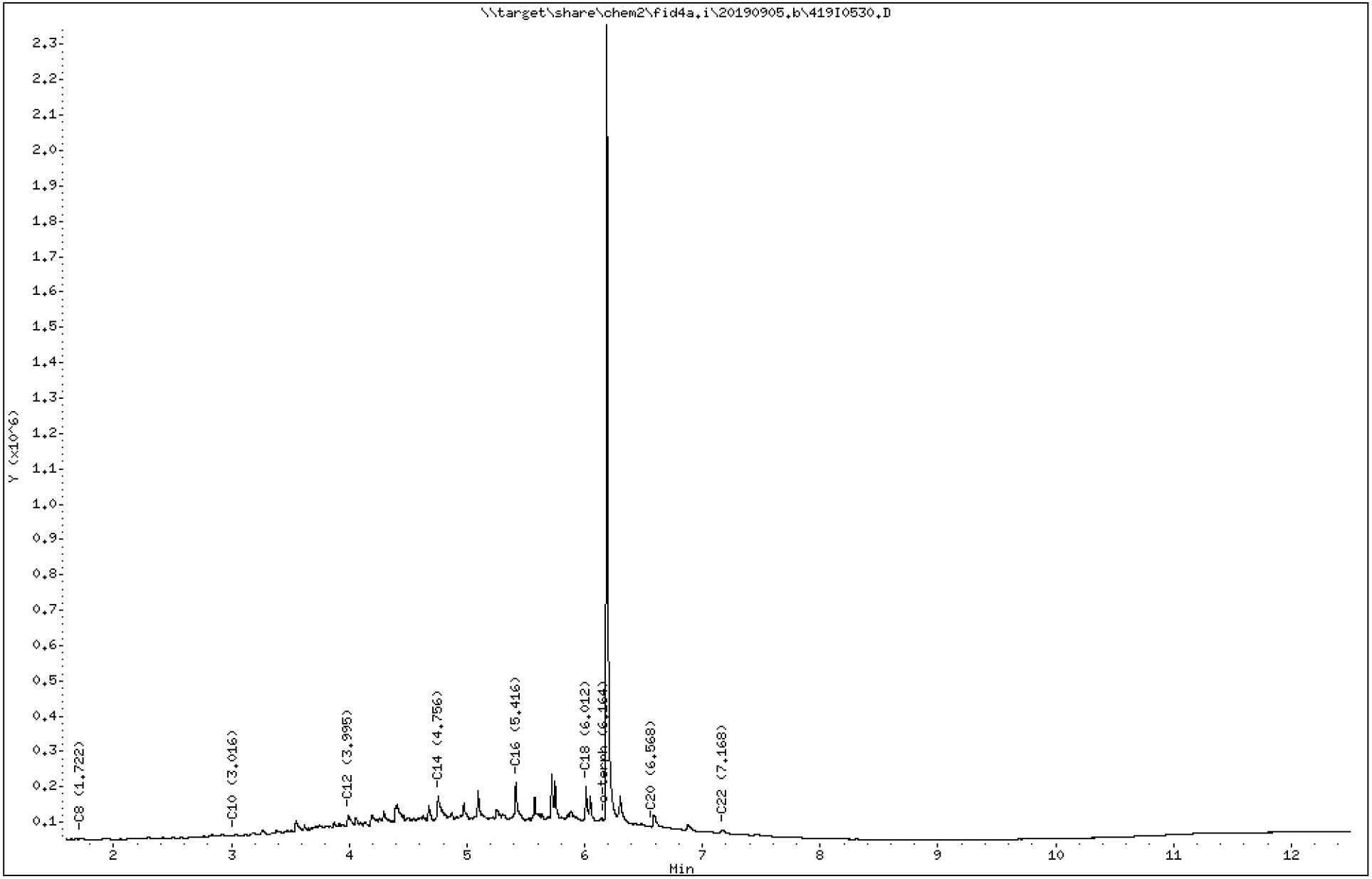
Sample Info: SHI0053-CAL2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0530.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL2
Client ID:
Injection: 05-SEP-2019 20:04
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.722	0.011	3658	4708	WATPHD	(C12-C24)	9805883	101.9
C10	3.016	-0.003	11306	6989	WATPHM	(C24-C38)	10250	0.2
C12	3.995	0.012	68287	222181	AK102	(C10-C25)	11388203	101.9
C14	4.756	0.005	122931	308258	AK103	(C25-C36)	0	0.0
C16	5.416	0.002	160802	248869	OR.DIES	(C10-C28)	11388203	101.8
C18	6.012	0.002	152034	225090				
C20	6.568	-0.008	36300	7244				
C22	7.168	0.031	27033	36397				
C24	----							
C25	----							
C26	----							
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	11388203	169.3 M
C36	----							
C38	----							
C40	----							
o-terph	6.189	-0.009	2246804	2319431				
Triacon Surr	----				NAS DIES	(C10-C24)	11377954	101.9

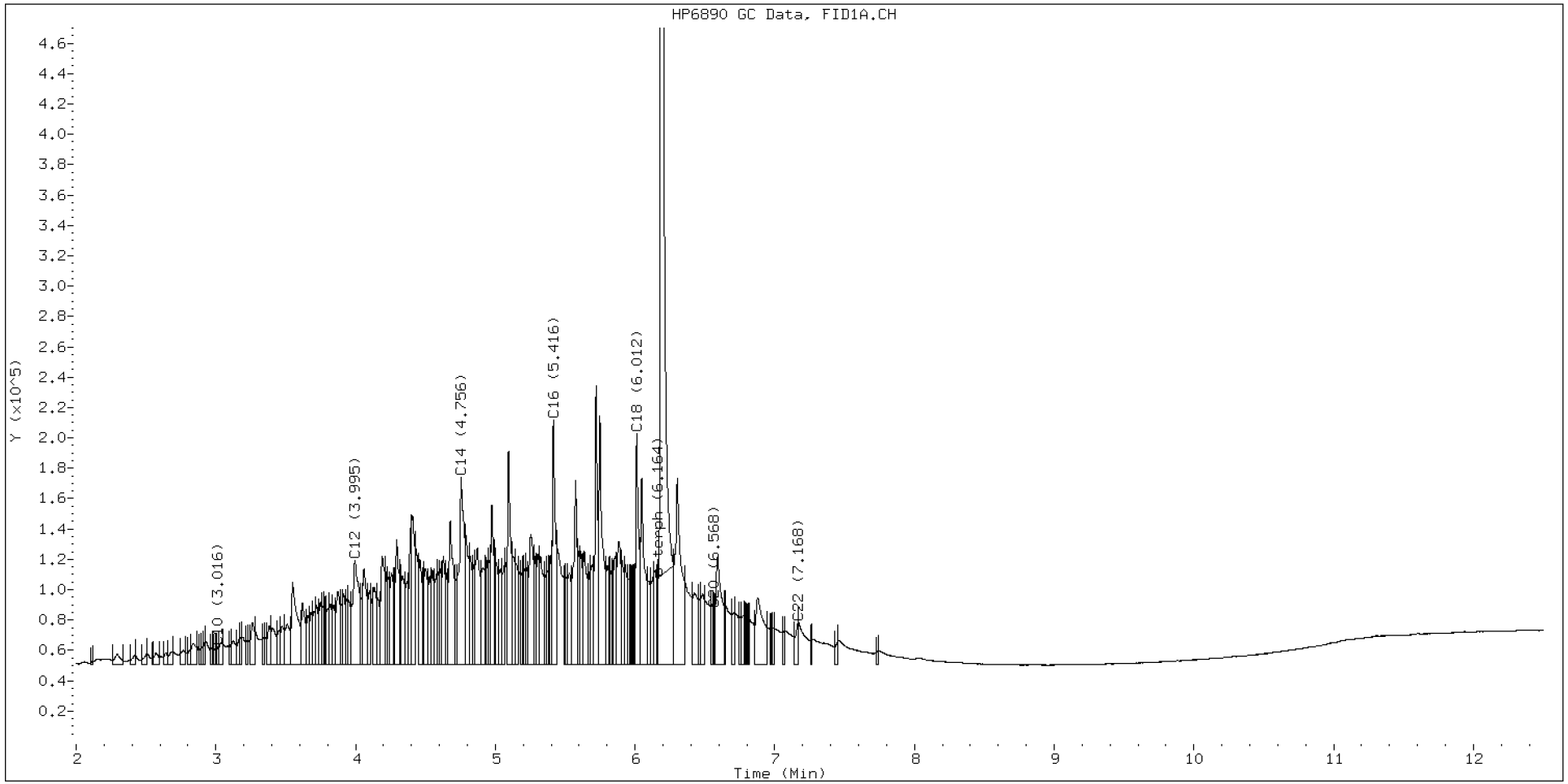
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	2319431	19.0	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

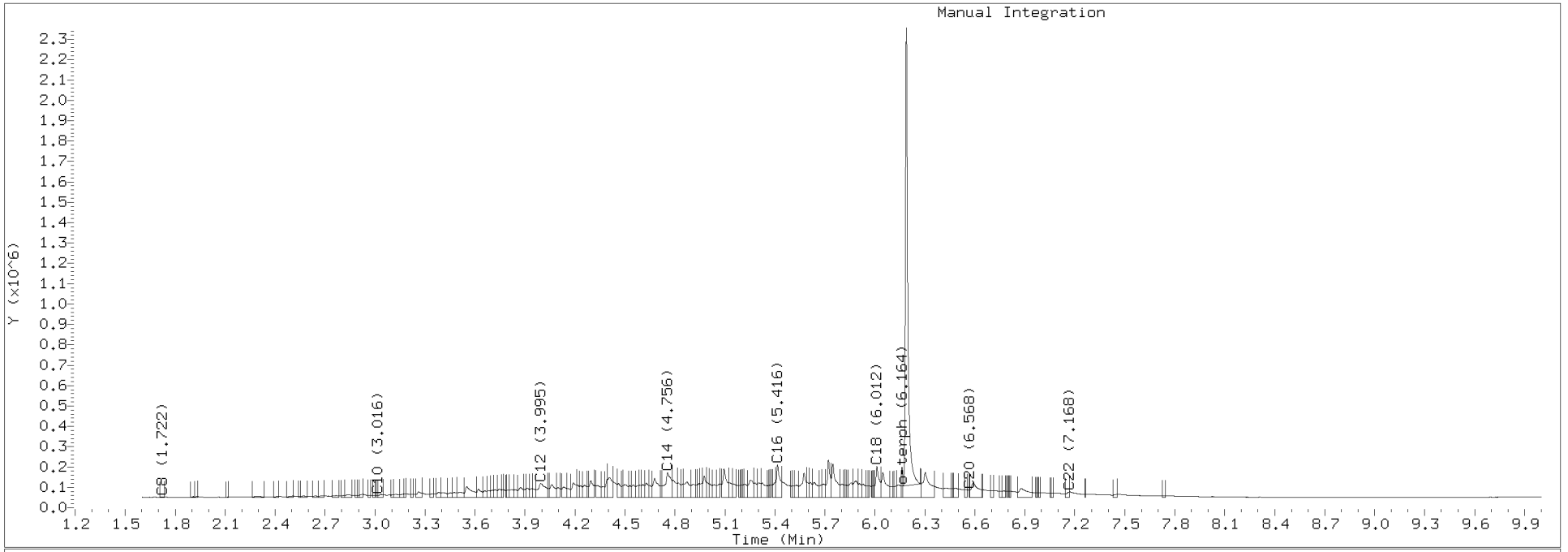
Datafile: FID4A, 20190905.b/419I0530.D SHI0053-CAL2

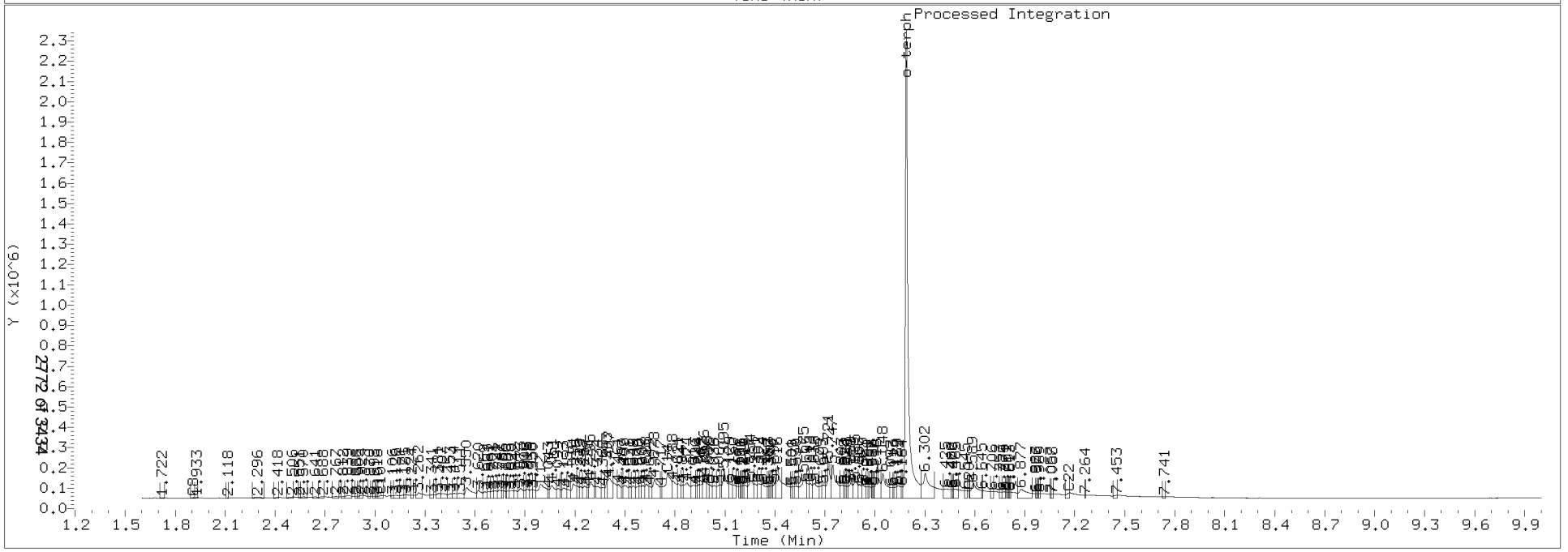


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0530.D Injection: 05-SEP-2019 20:04

Lab ID:SHI0053-CAL2





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0531.D

Date : 05-SEP-2019 20:25

Client ID:

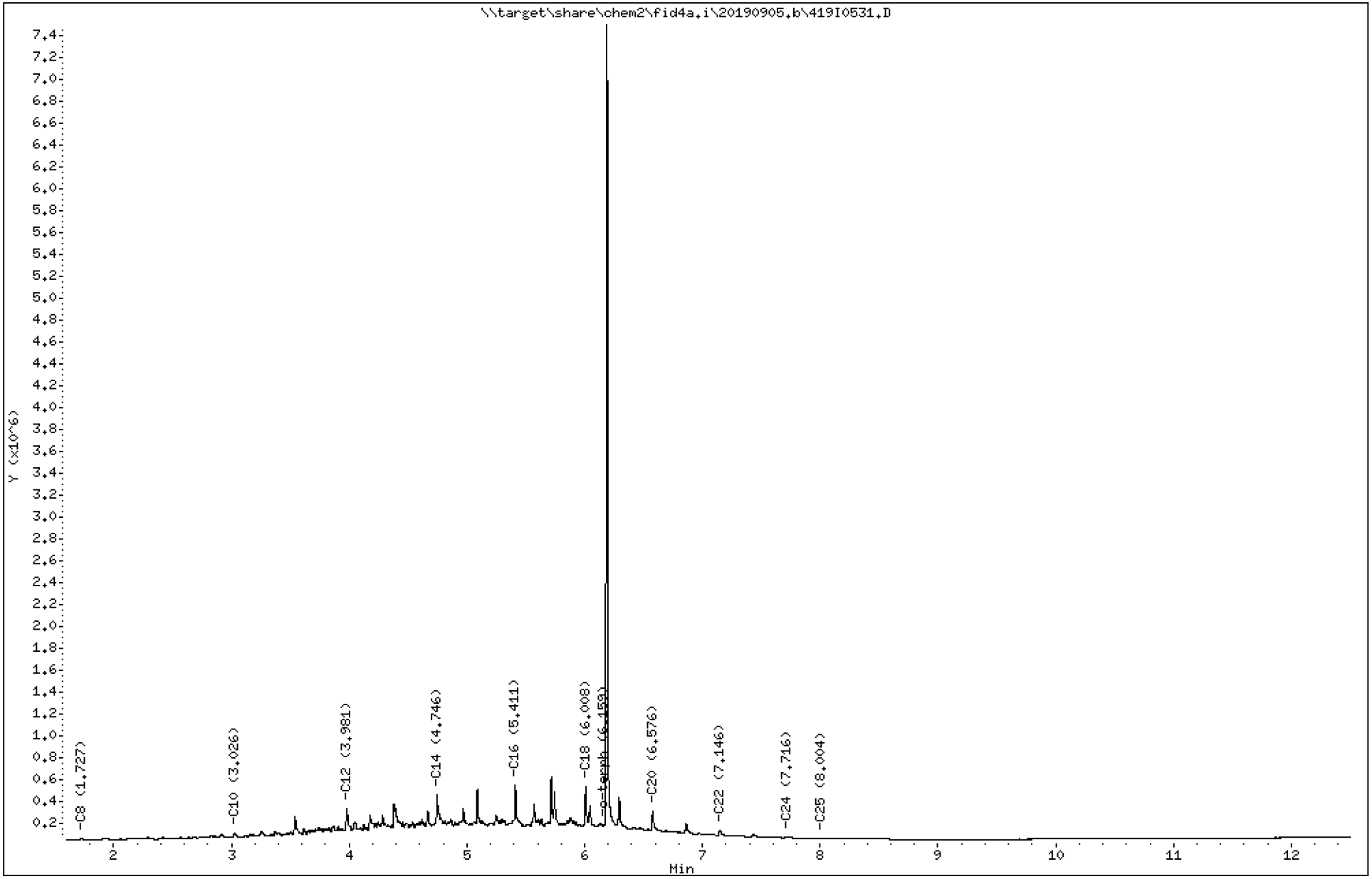
Sample Info: SHI0053-CAL3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0531.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL3
Client ID:
Injection: 05-SEP-2019 20:25
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.727	0.016	8911	19852	WATPHD	(C12-C24)	26053122	270.6
C10	3.026	0.007	59072	127315	WATPHM	(C24-C38)	32989	0.7
C12	3.981	-0.002	289695	420042	AK102	(C10-C25)	30405553	272.1
C14	4.746	-0.005	415773	610293	AK103	(C25-C36)	32989	0.8
C16	5.411	-0.002	499359	572647	OR.DIES	(C10-C28)	30438542	272.0
C18	6.008	-0.002	481781	671579				
C20	6.576	-0.000	255987	496069				
C22	7.146	0.009	84387	254769				
C24	7.716	0.028	26069	35764				
C25	8.004	0.045	14772	32989				
C26	----							
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	30438542	452.4 M
C36	----							
C38	----							
C40	----							
o-terph	6.190	-0.008	7317313	5873568				
Triacon Surr	----				NAS DIES	(C10-C24)	30405553	272.4

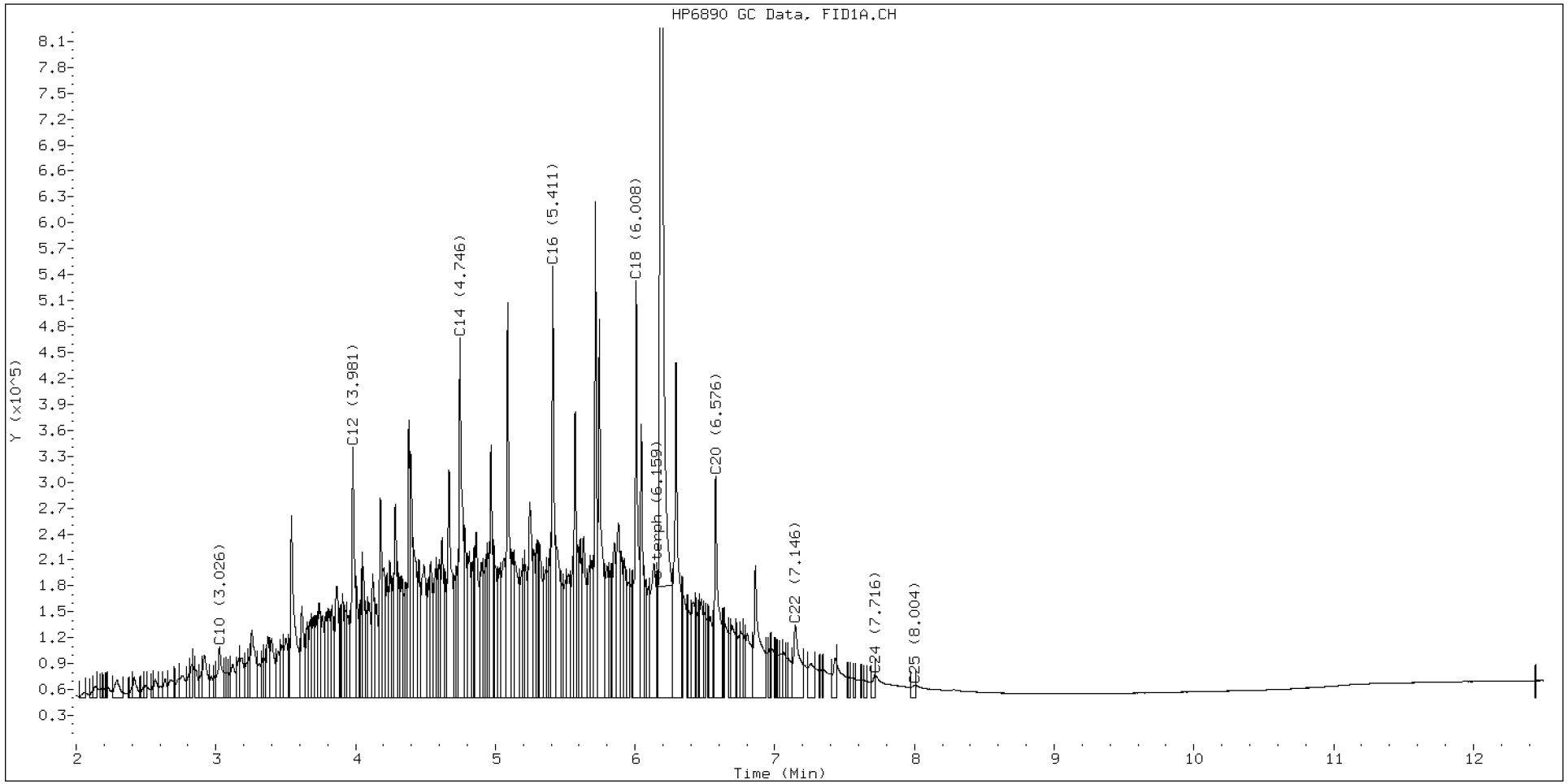
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	5873568	48.1	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

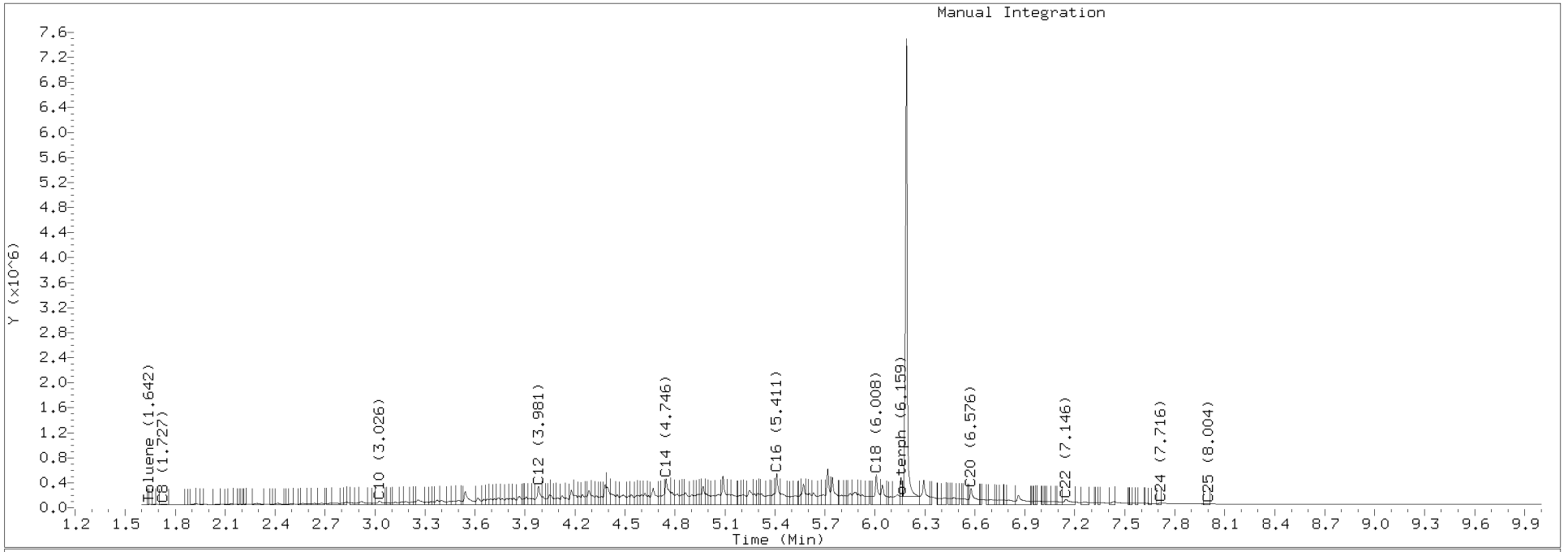
Datafile: FID4A, 20190905.b/419I0531.D SHI0053-CAL3

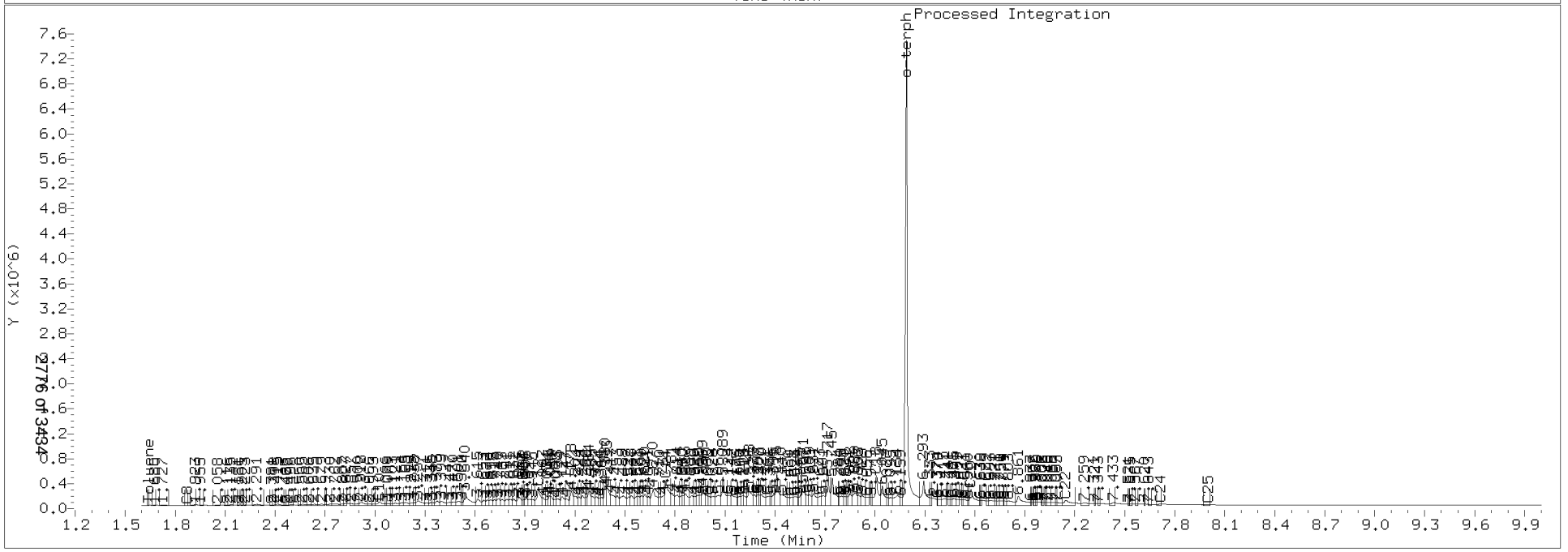


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0531.D Injection: 05-SEP-2019 20:25

Lab ID:SHI0053-CAL3

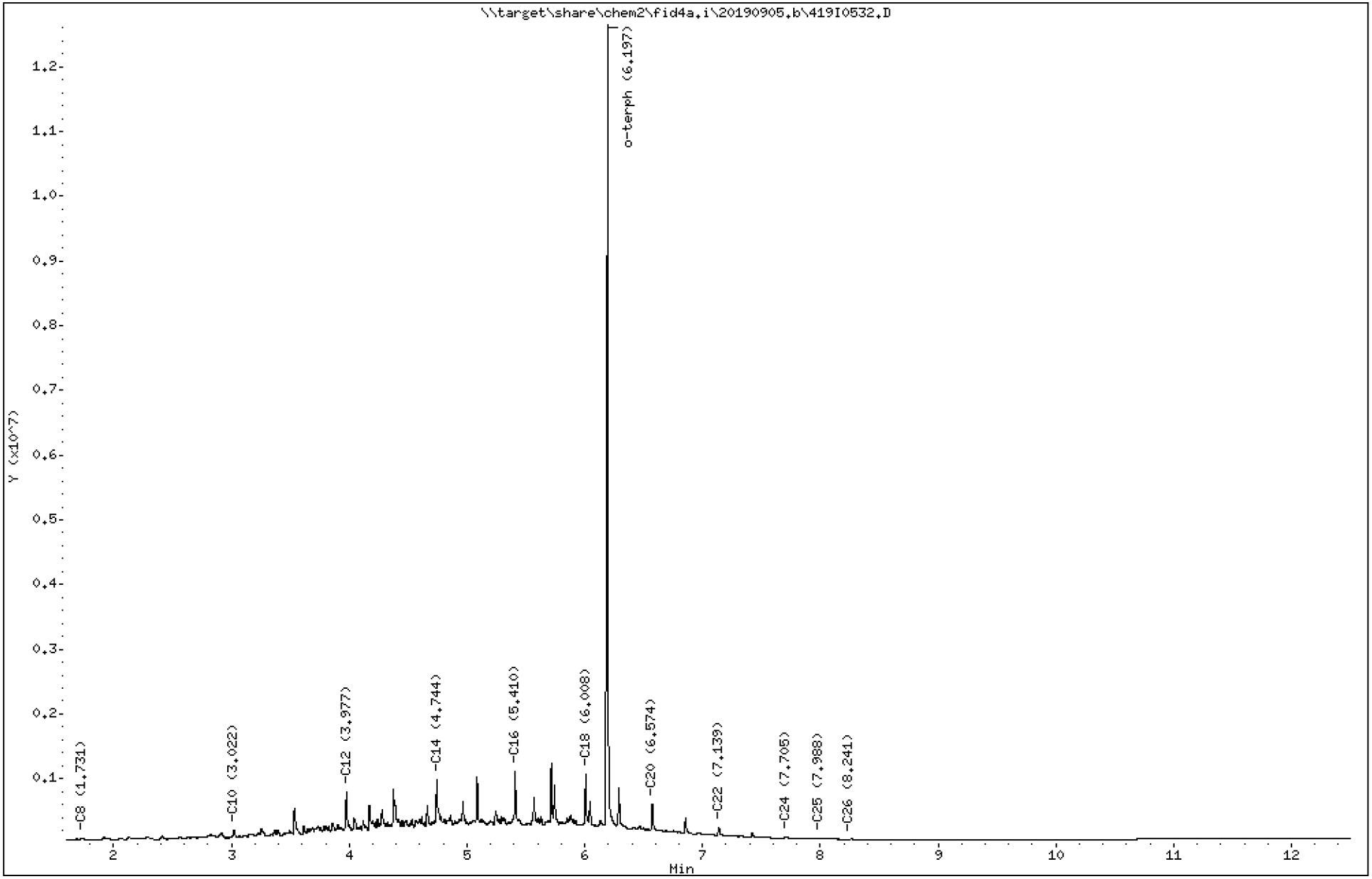




Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0532.D
Date : 05-SEP-2019 20:46
Client ID:
Sample Info: SHI0053-CAL4

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0532.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL4
Client ID:
Injection: 05-SEP-2019 20:46
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.731	0.020	27779	49044	WATPHD	(C12-C24)	49098397	510.0
C10	3.022	0.003	154700	257451	WATPHM	(C24-C38)	141022	3.2
C12	3.977	-0.006	734231	860803	AK102	(C10-C25)	57580243	515.4
C14	4.744	-0.007	926248	845892	AK103	(C25-C36)	101300	2.5
C16	5.410	-0.004	1064832	1074910	OR.DIES	(C10-C28)	57680421	515.4
C18	6.008	-0.002	1005289	1275058				
C20	6.574	-0.003	557277	651890				
C22	7.139	0.001	192439	504149				
C24	7.705	0.016	46917	145926				
C25	7.988	0.030	22906	80367				
C26	8.241	0.018	8951	3477				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	57685745	857.4 M
C36	----							
C38	----							
C40	----							
o-terph	6.197	-0.001	12374246	10994931				
Triacon Surr	----				NAS DIES	(C10-C24)	57544723	515.5

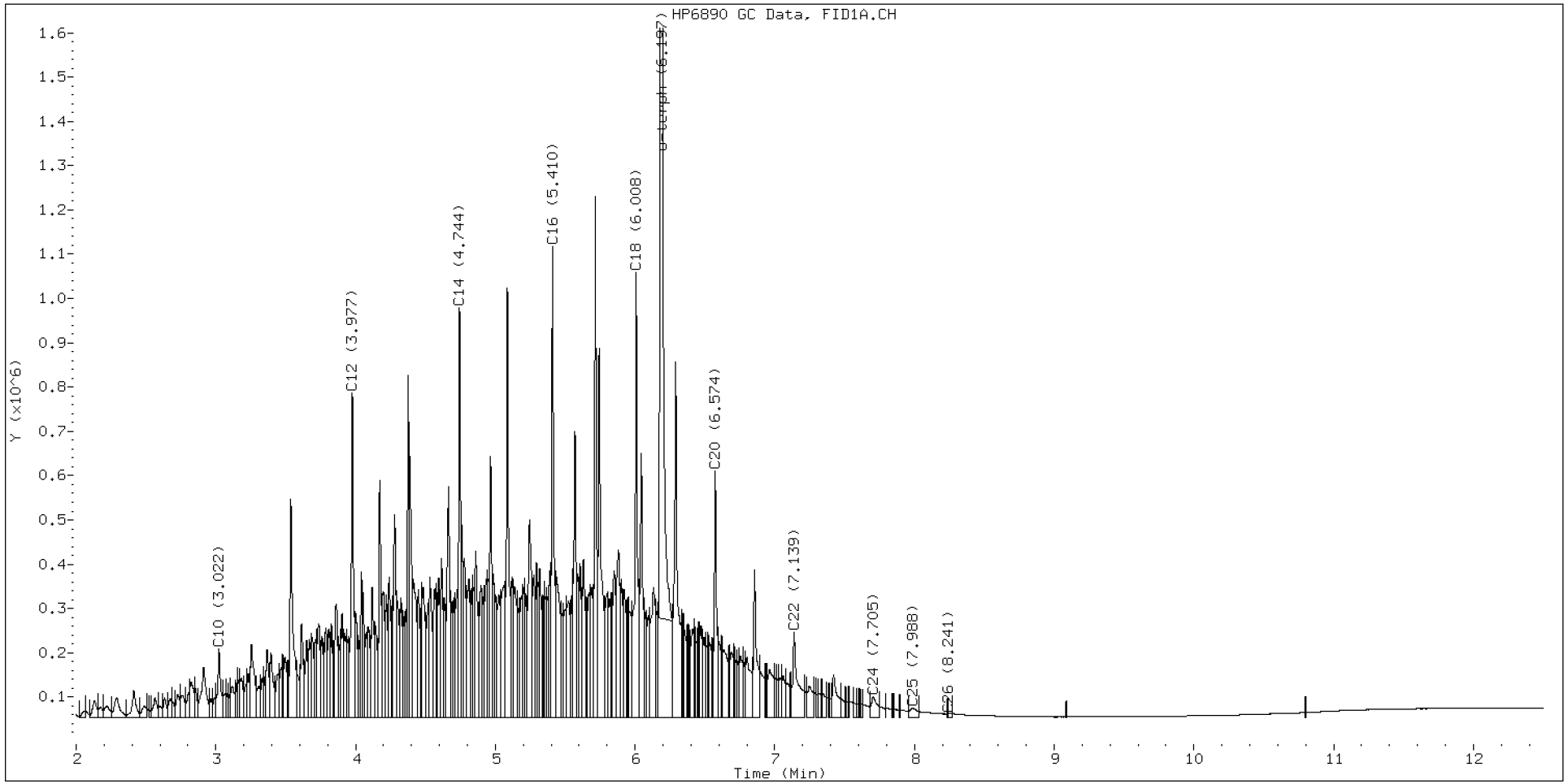
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	10994931	90.1	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

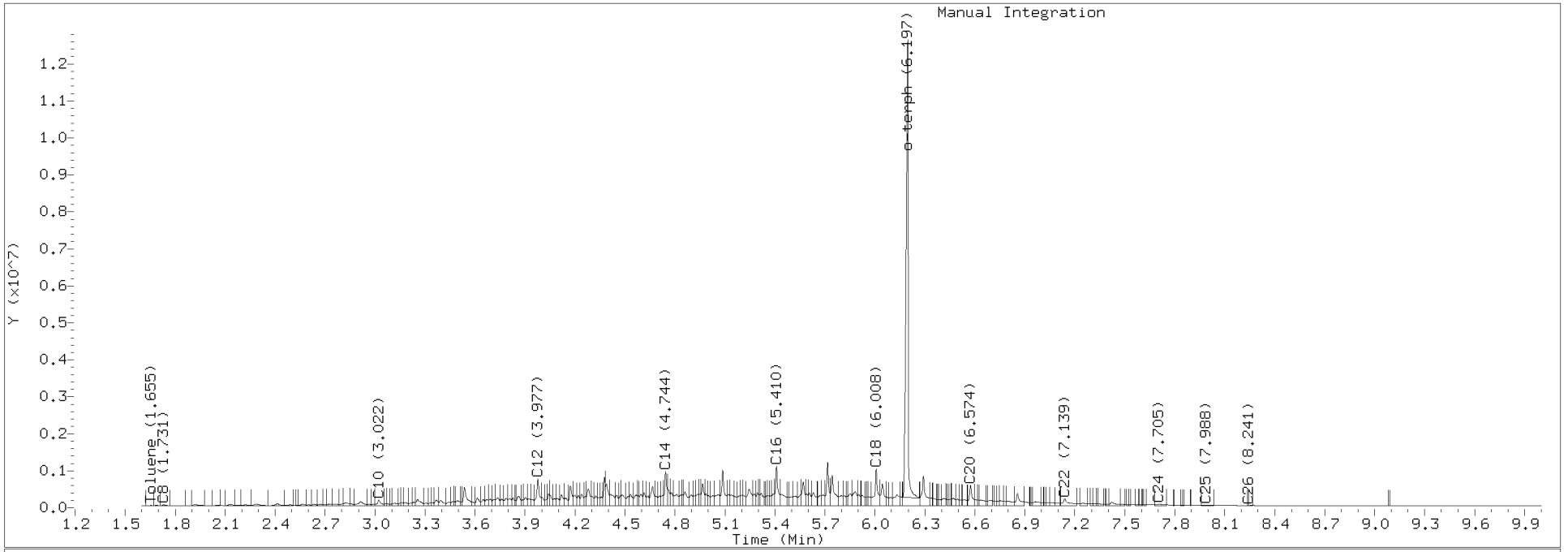
Datafile: FID4A, 20190905.b/419I0532.D SHI0053-CAL4

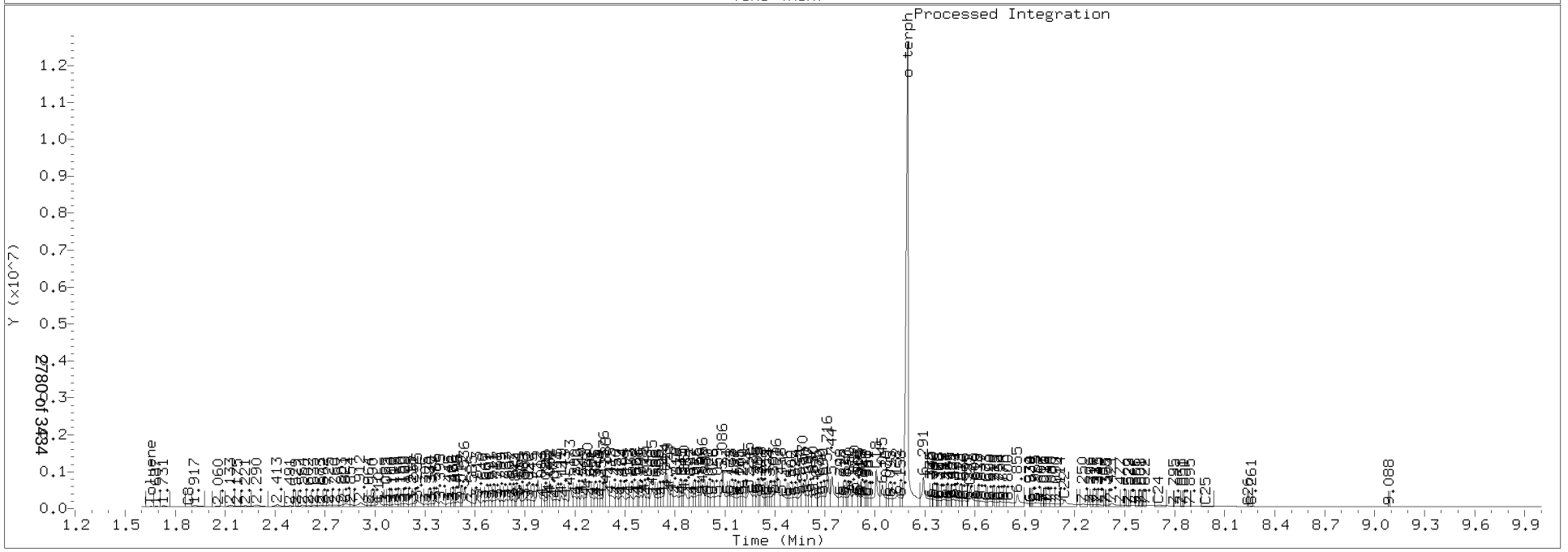


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0532.D Injection: 05-SEP-2019 20:46

Lab ID:SHI0053-CAL4





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0533.D

Date : 05-SEP-2019 21:07

Client ID:

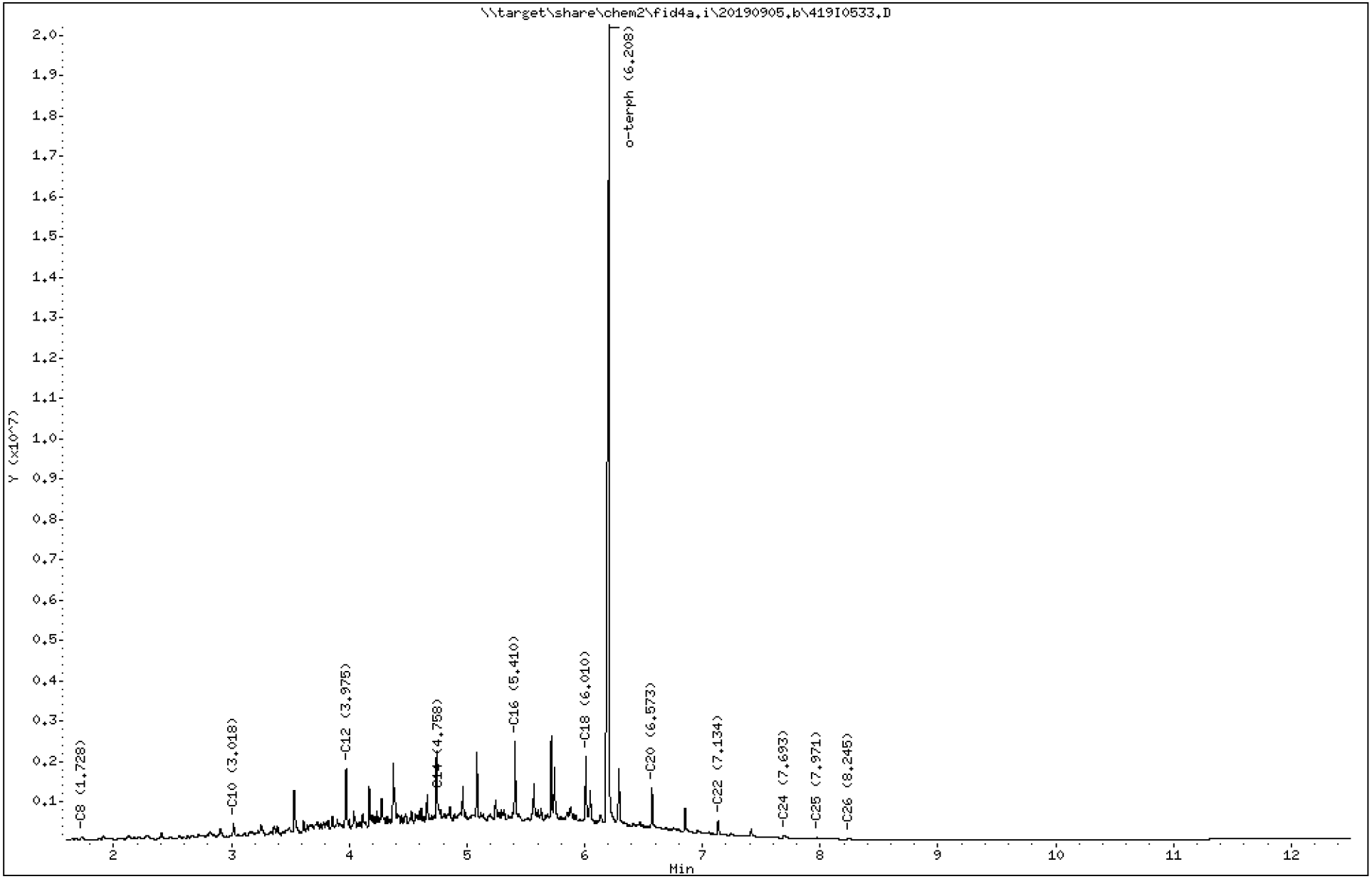
Sample Info: SHI0053-CAL5

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0533.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL5
Client ID:
Injection: 05-SEP-2019 21:07
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

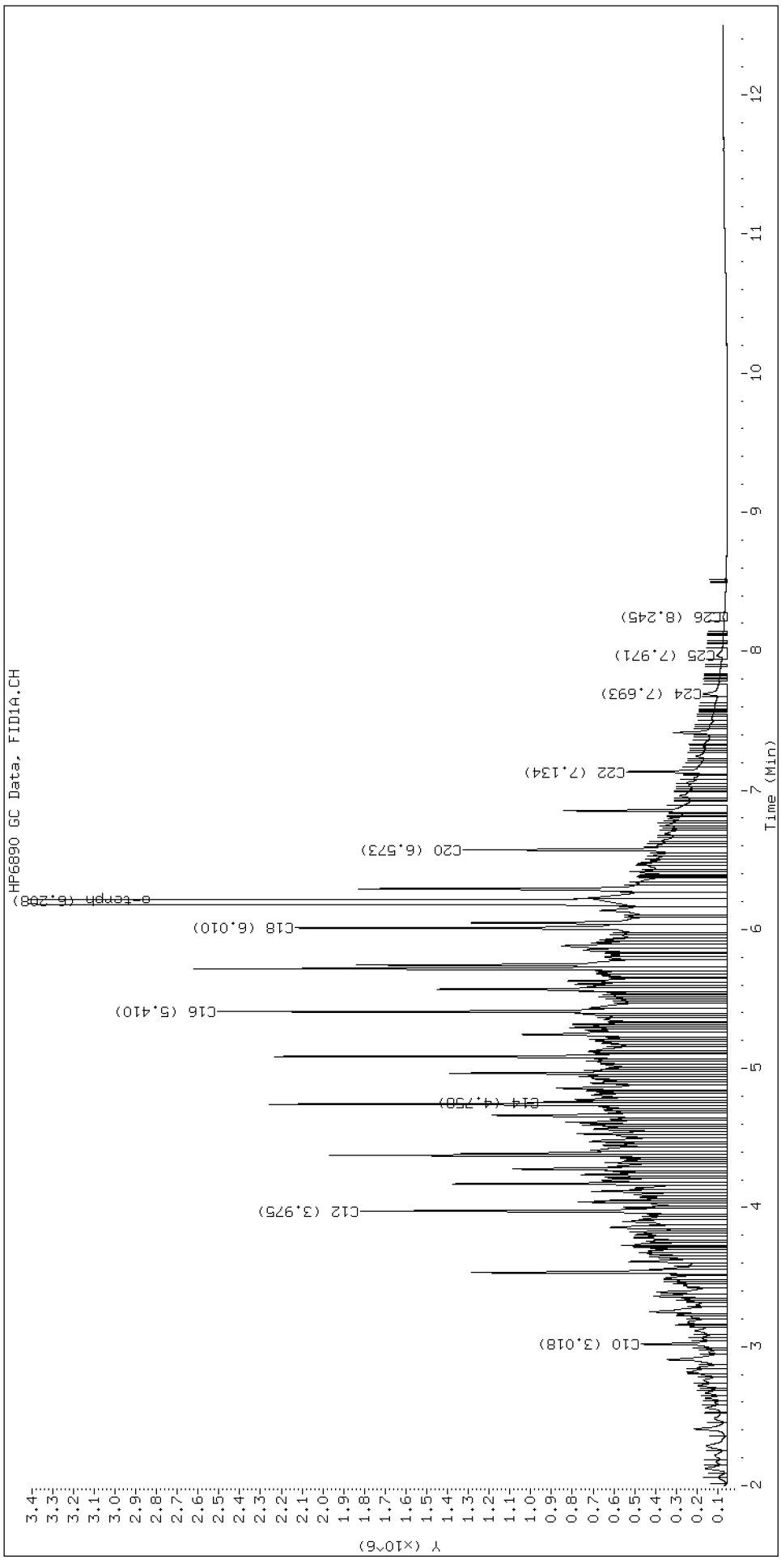
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.728	0.017	61727	103059	WATPHD	(C12-C24)	103502826	1075.1
C10	3.018	-0.001	412941	530620	WATPHM	(C24-C38)	375048	8.4
C12	3.975	-0.008	1765987	1866852	AK102	(C10-C25)	121614986	1088.5
C14	4.758	0.007	897266	670057	AK103	(C25-C36)	268457	6.7
C16	5.410	-0.003	2452137	2277830	OR.DIES	(C10-C28)	121883442	1089.1
C18	6.010	0.000	2079804	2680330				
C20	6.573	-0.004	1272591	1428433				
C22	7.134	-0.003	482649	696906				
C24	7.693	0.005	116871	327426				
C25	7.971	0.013	50379	154157				
C26	8.245	0.022	21214	60018				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	121883442	1811.6 M
C36	----							
C38	----							
C40	----							
o-terph	6.208	0.010	19609844	22423833				
Triacon Surr	----				NAS DIES	(C10-C24)	121508394	1088.6

Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	22423833	183.8	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

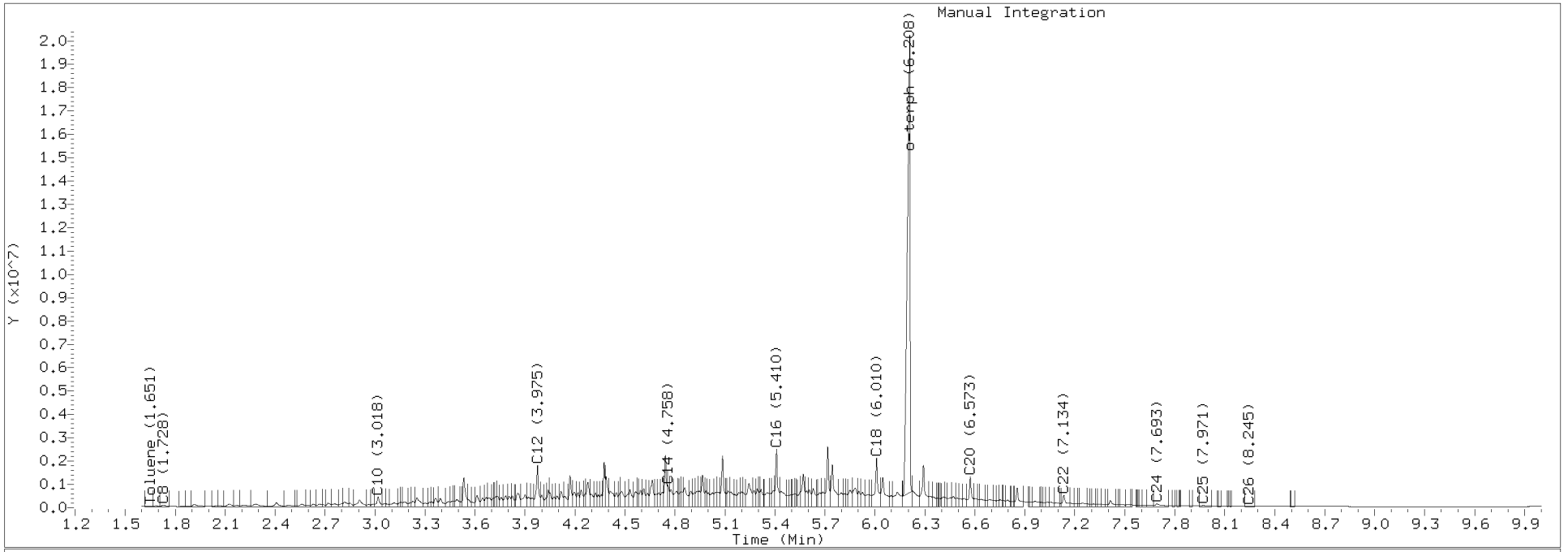
Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

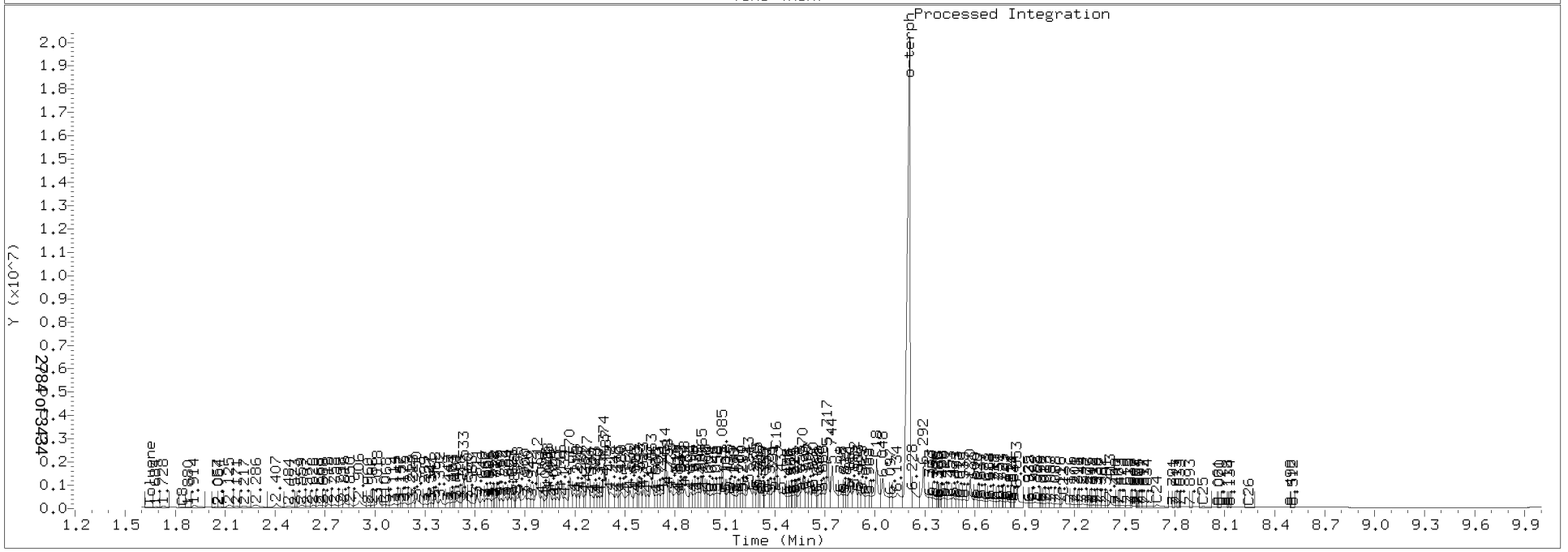

Datafile: FID4A, 20190905.b/419I0533.D SHI0053-CAL5
HP6890 GC Data, FID1A.CH
C10 (3.018)
C12 (3.975)
C14 (4.750)
C16 (5.410)
C18 (6.010)
o-terph (6.208)
C20 (6.573)
C22 (7.134)
C24 (7.693)
C25 (7.971)
C26 (8.245)
Time (Min)
Y (X10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0533.D Injection: 05-SEP-2019 21:07

Lab ID:SHI0053-CAL5

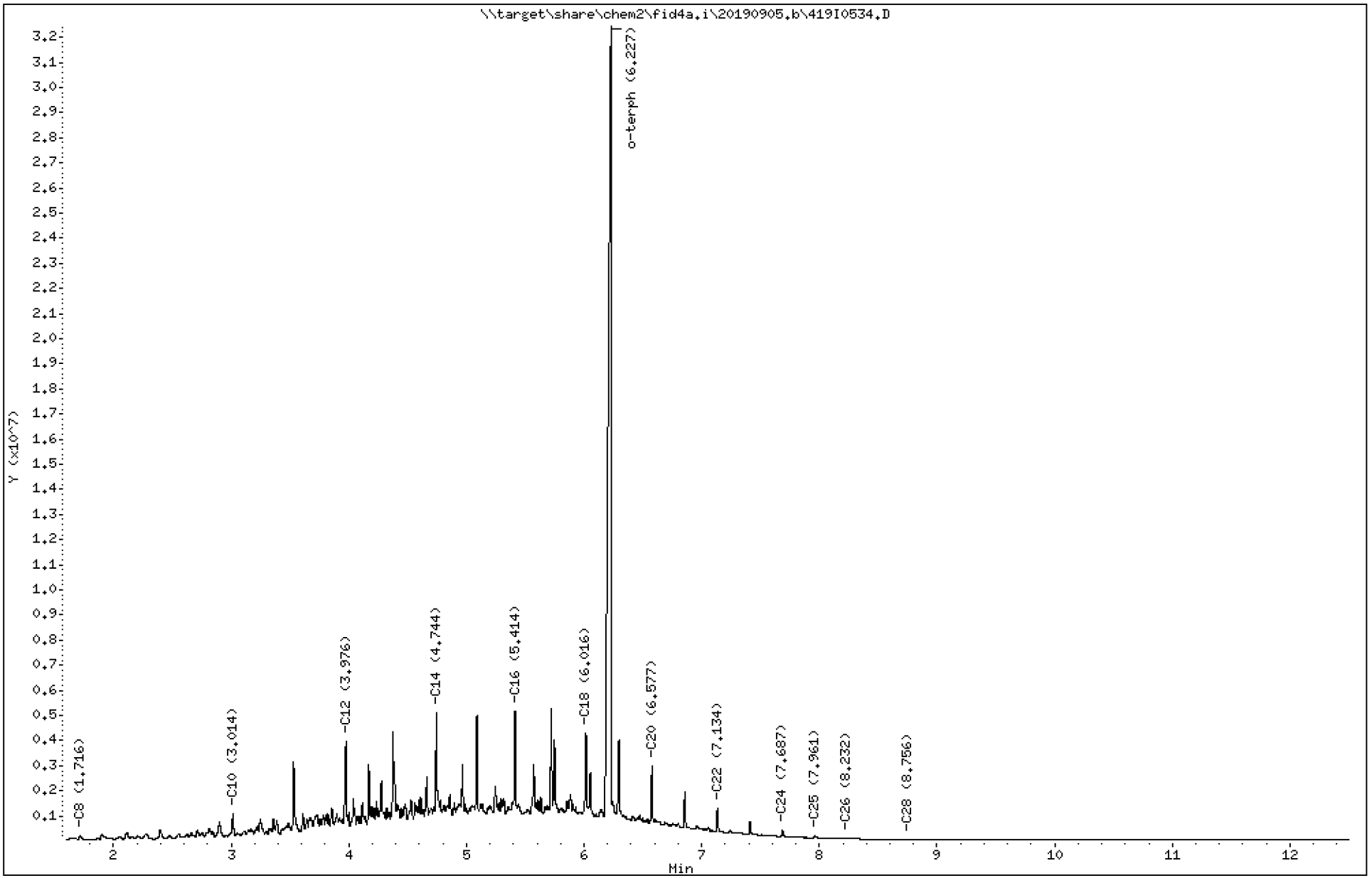




Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0534.D
Date : 05-SEP-2019 21:28
Client ID:
Sample Info: SHI0053-CAL6

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0534.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL6
Client ID:
Injection: 05-SEP-2019 21:28
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.716	0.005	143499	237482	WATPHD	(C12-C24)	225922441	2346.6
C10	3.014	-0.005	1009425	1205875	WATPHM	(C24-C38)	2209338	49.7
C12	3.976	-0.008	3894055	4028580	AK102	(C10-C25)	265314128	2374.7
C14	4.744	-0.007	5030875	3992143	AK103	(C25-C36)	1346925	33.6
C16	5.414	0.001	5129816	4844282	OR.DIES	(C10-C28)	266657214	2382.6
C18	6.016	0.007	4221143	5934461				
C20	6.577	0.001	2913559	3322673				
C22	7.134	-0.003	1233301	1358760				
C24	7.687	-0.001	355505	690834				
C25	7.961	0.002	153387	373030				
C26	8.232	0.009	63825	204291				
C28	8.756	0.022	12187	14780				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	266661053	3963.5 M
C36	----							
C38	----							
C40	----							
o-terph	6.227	0.029	31045793	50569279				
Triacon Surr	----				NAS DIES	(C10-C24)	264451716	2369.1

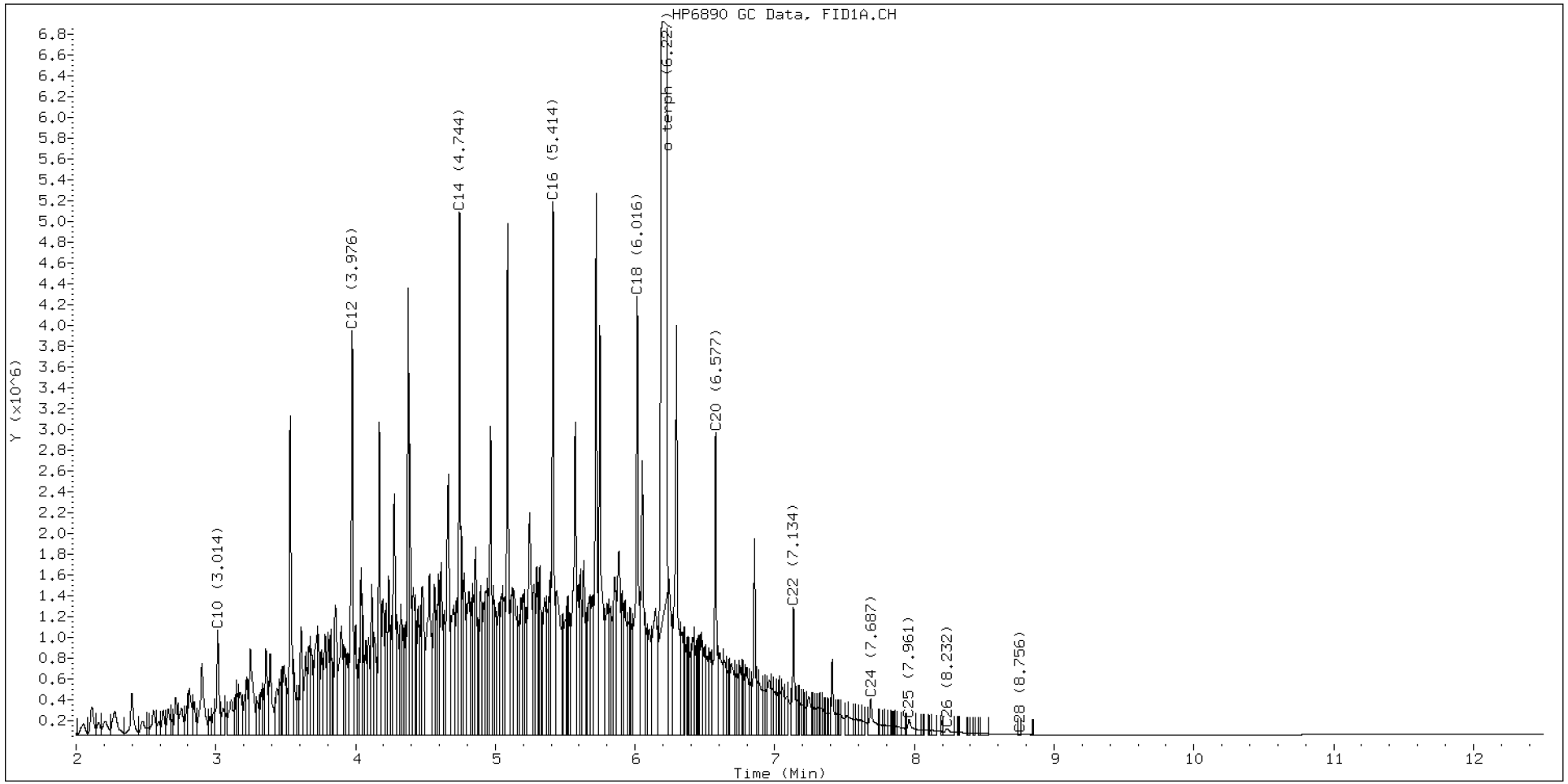
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	50569279	414.5	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

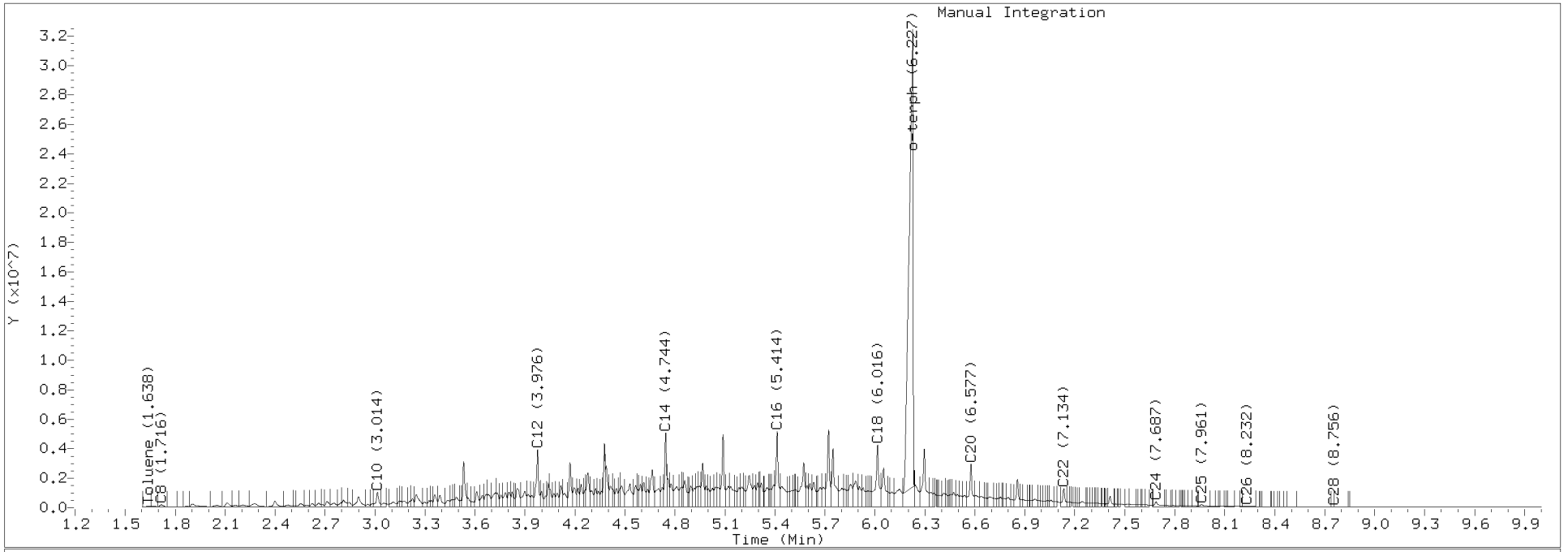
Datafile: FID4A, 20190905.b/419I0534.D SHI0053-CAL6

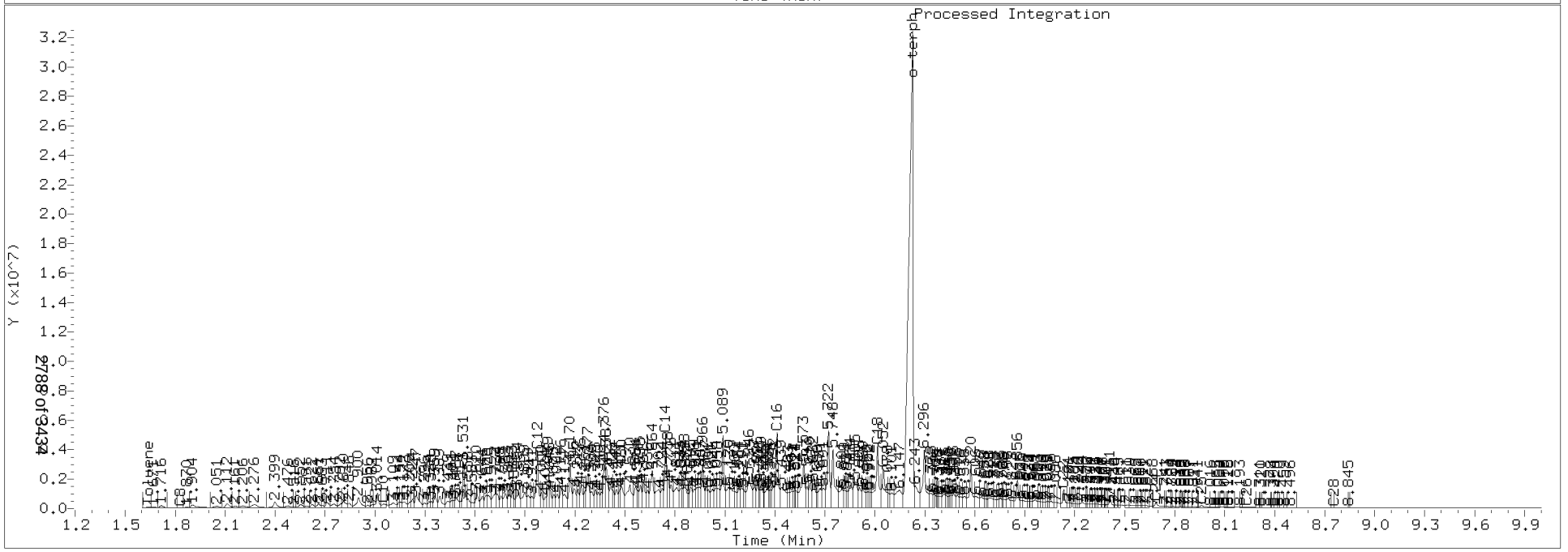


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0534.D Injection: 05-SEP-2019 21:28

Lab ID:SHI0053-CAL6





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0535.D

Date : 05-SEP-2019 21:48

Client ID:

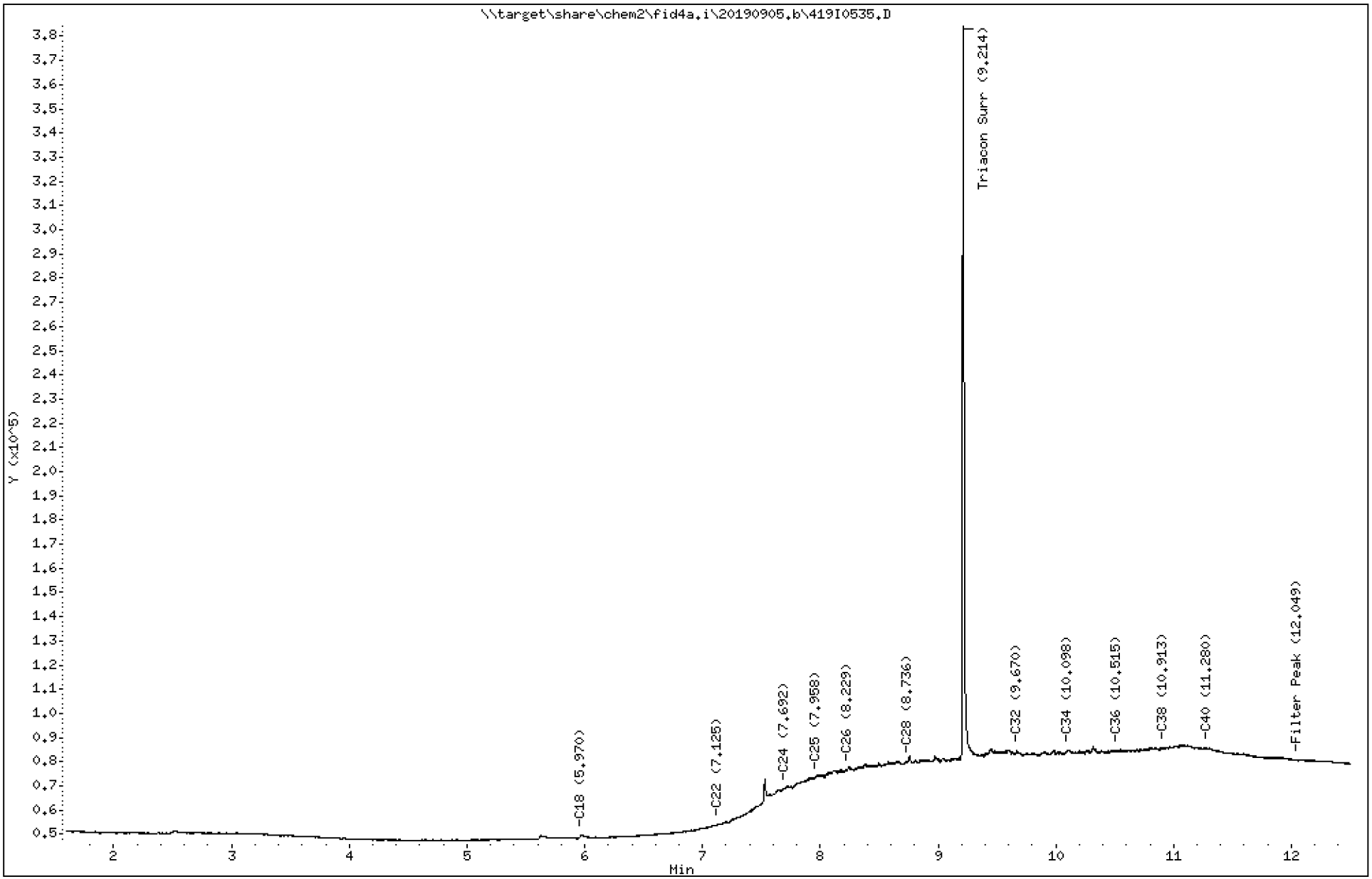
Sample Info: SHI0053-CAL7

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0535.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL7
Client ID:
Injection: 05-SEP-2019 21:48
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	199808	2.1
C10	----				WATPHM	(C24-C38)	3833846	86.3
C12	----				AK102	(C10-C25)	298743	2.7
C14	----				AK103	(C25-C36)	3329705	83.1
C16	----				OR.DIES	(C10-C28)	1272215	11.4
C18	5.970	-0.040	2070	1629				
C20	----							
C22	7.125	-0.013	6379	3782				
C24	7.692	0.004	21416	13841				
C25	7.958	-0.000	25804	10240				
C26	8.229	0.006	28968	11515				
C28	8.736	0.003	32588	16236				
C32	9.670	-0.005	36881	16493				
C34	10.098	-0.008	36956	14693				
Filter Peak	12.049	0.010	33155	11569	BUNKERC	(C10-C38)	4033654	60.0
C36	10.515	-0.002	37144	20220				
C38	10.913	0.007	38128	11380				
C40	11.280	-0.018	38067	13292				
o-terph	----							
Triacon Surr	9.214	-0.020	301665	281670	NAS DIES	(C10-C24)	199808	1.8

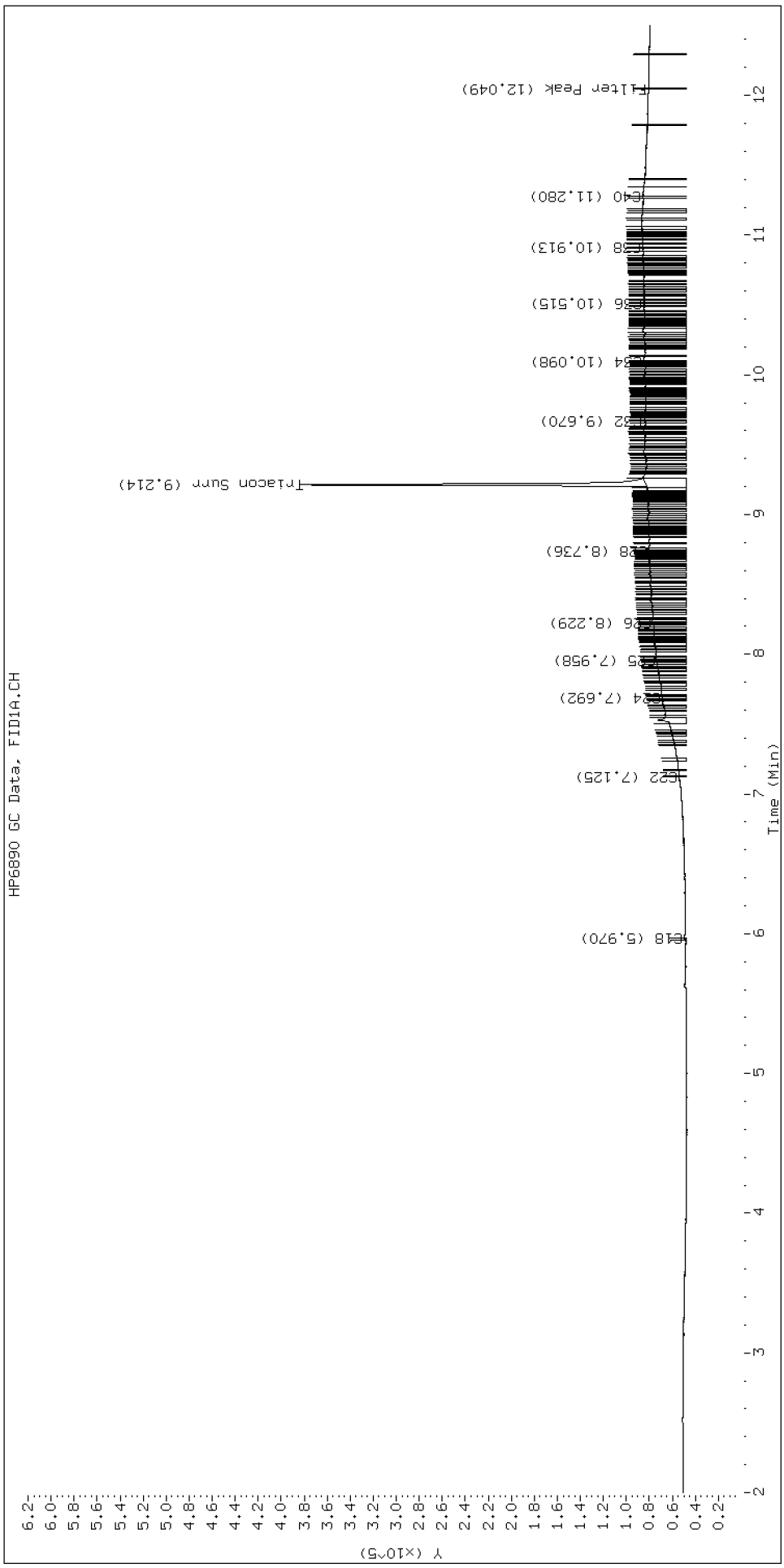
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	281670	4.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

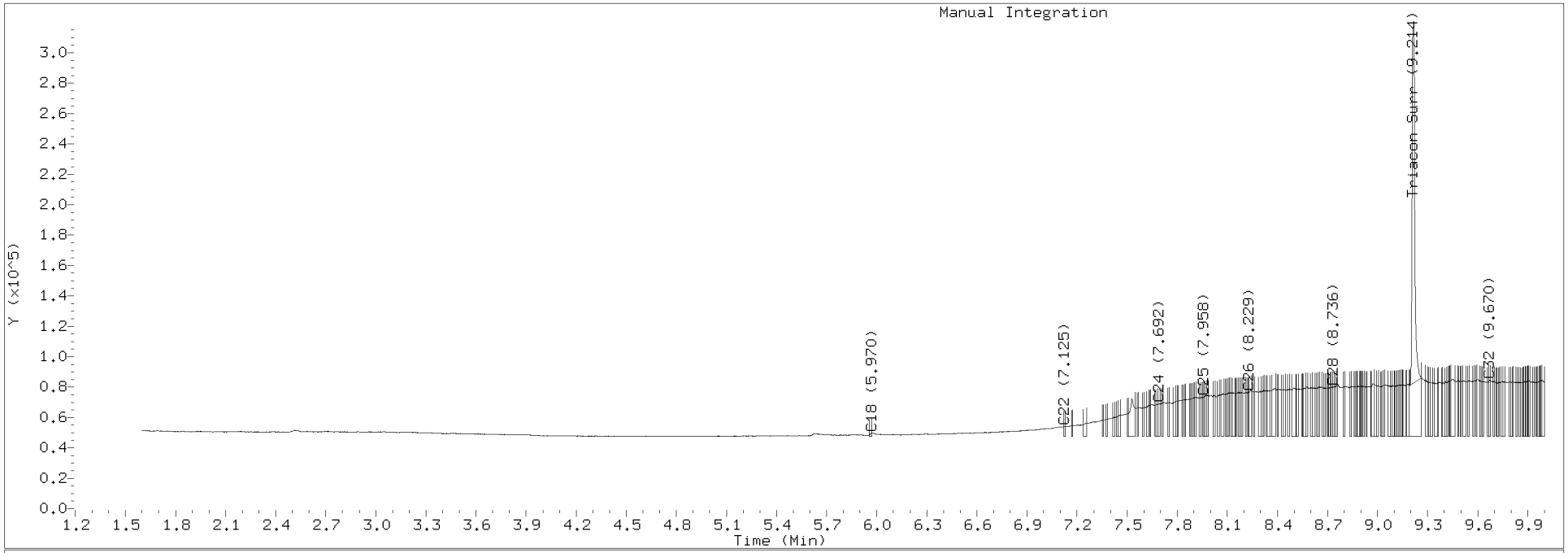
Datafile: FID4A, 20190905.b/419I0535.D SHI0053-CAL7

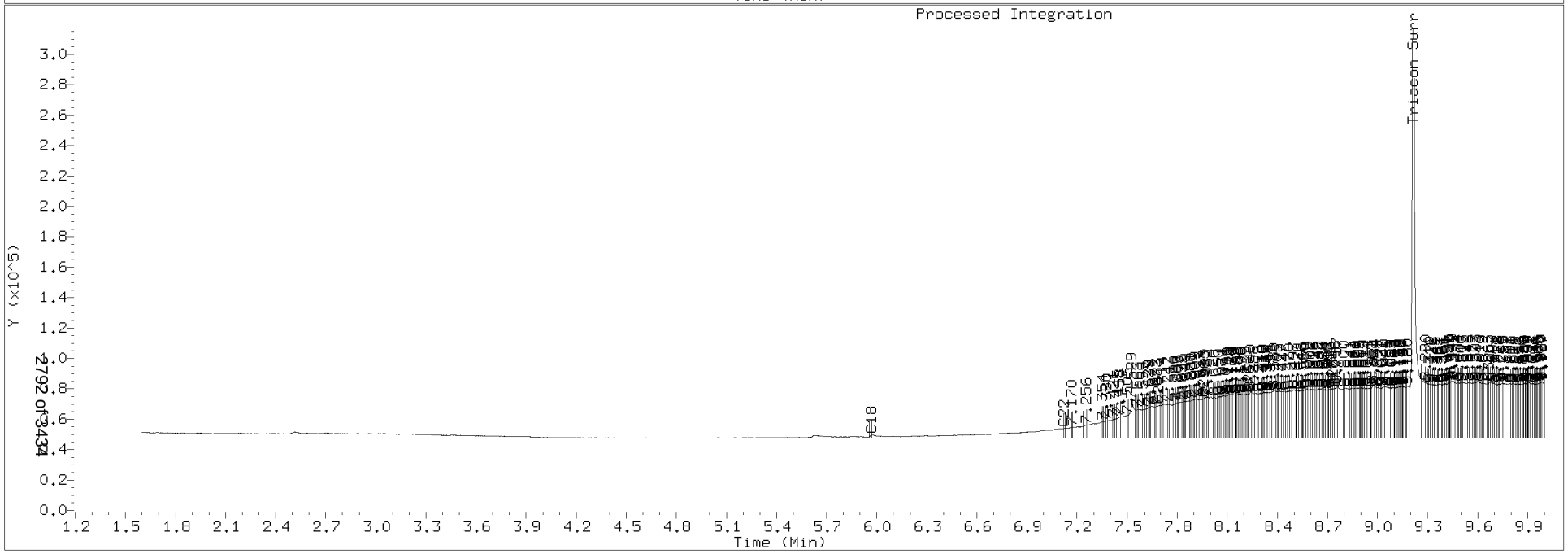


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0535.D Injection: 05-SEP-2019 21:48

Lab ID:SHI0053-CAL7



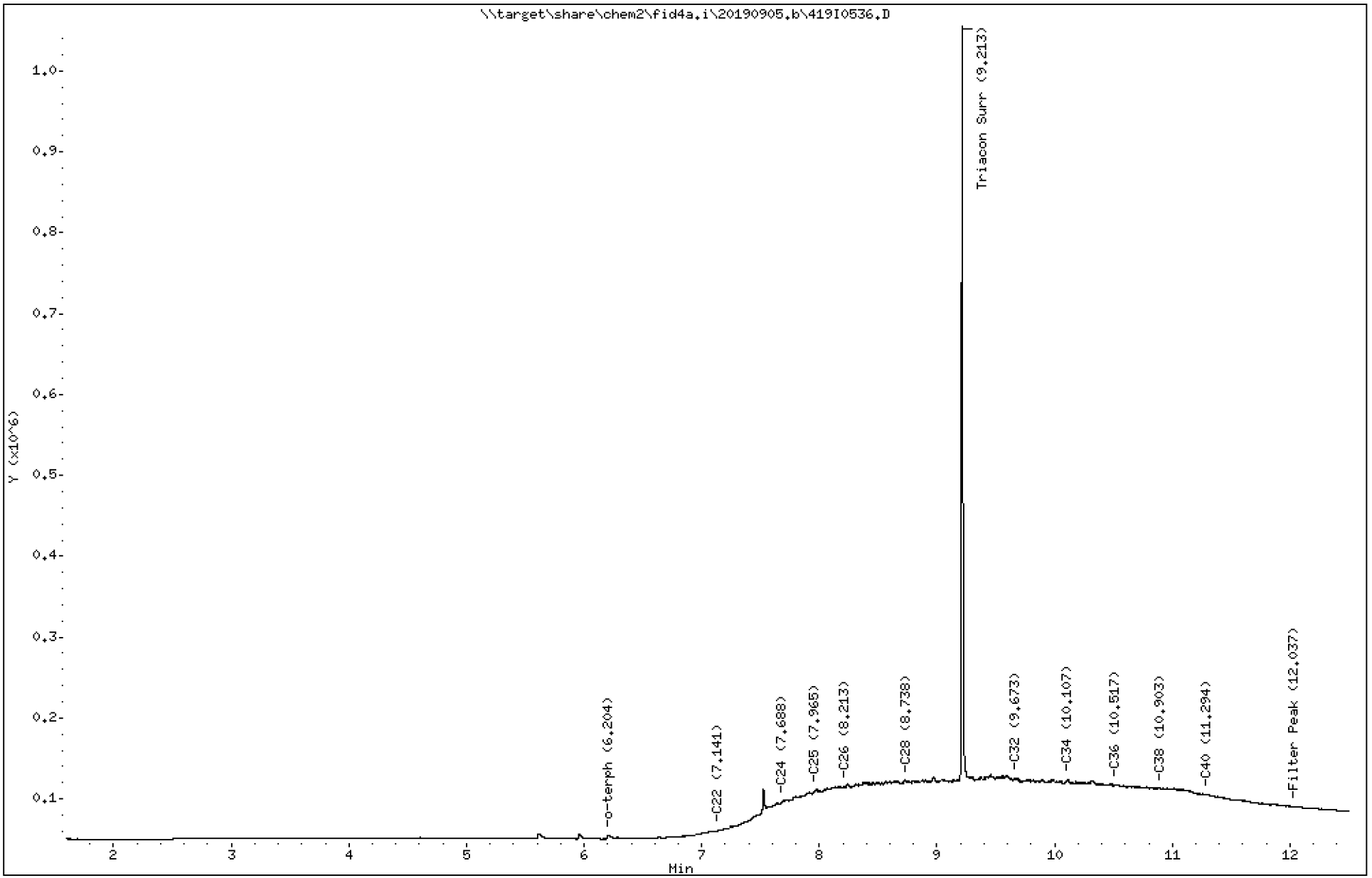


Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0536.D
Date : 05-SEP-2019 22:10
Client ID:
Sample Info: SHI0053-CAL8

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0536.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL8
Client ID:
Injection: 05-SEP-2019 22:10
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	931642	9.7
C10	----				WATPHM	(C24-C38)	11738488	264.3
C12	----				AK102	(C10-C25)	1446553	12.9
C14	----				AK103	(C25-C36)	10112437	252.4
C16	----				OR.DIES	(C10-C28)	4644019	41.5
C18	----							
C20	----							
C22	7.141	0.003	10462	6600				
C24	7.688	-0.001	46755	38682				
C25	7.965	0.007	59978	58958				
C26	8.213	-0.011	65332	86763				
C28	8.738	0.004	72544	57292				
C32	9.673	-0.002	75779	56073				
C34	10.107	0.001	74132	101221				
Filter Peak	12.037	-0.002	39791	25675	BUNKERC	(C10-C38)	12670130	188.3
C36	10.517	0.000	67166	33431				
C38	10.903	-0.003	62242	27881				
C40	11.294	-0.003	54952	19119				
o-terph	6.204	0.006	4572	4061				
Triacon Surr	9.213	-0.020	931805	745046	NAS DIES	(C10-C24)	931642	8.3

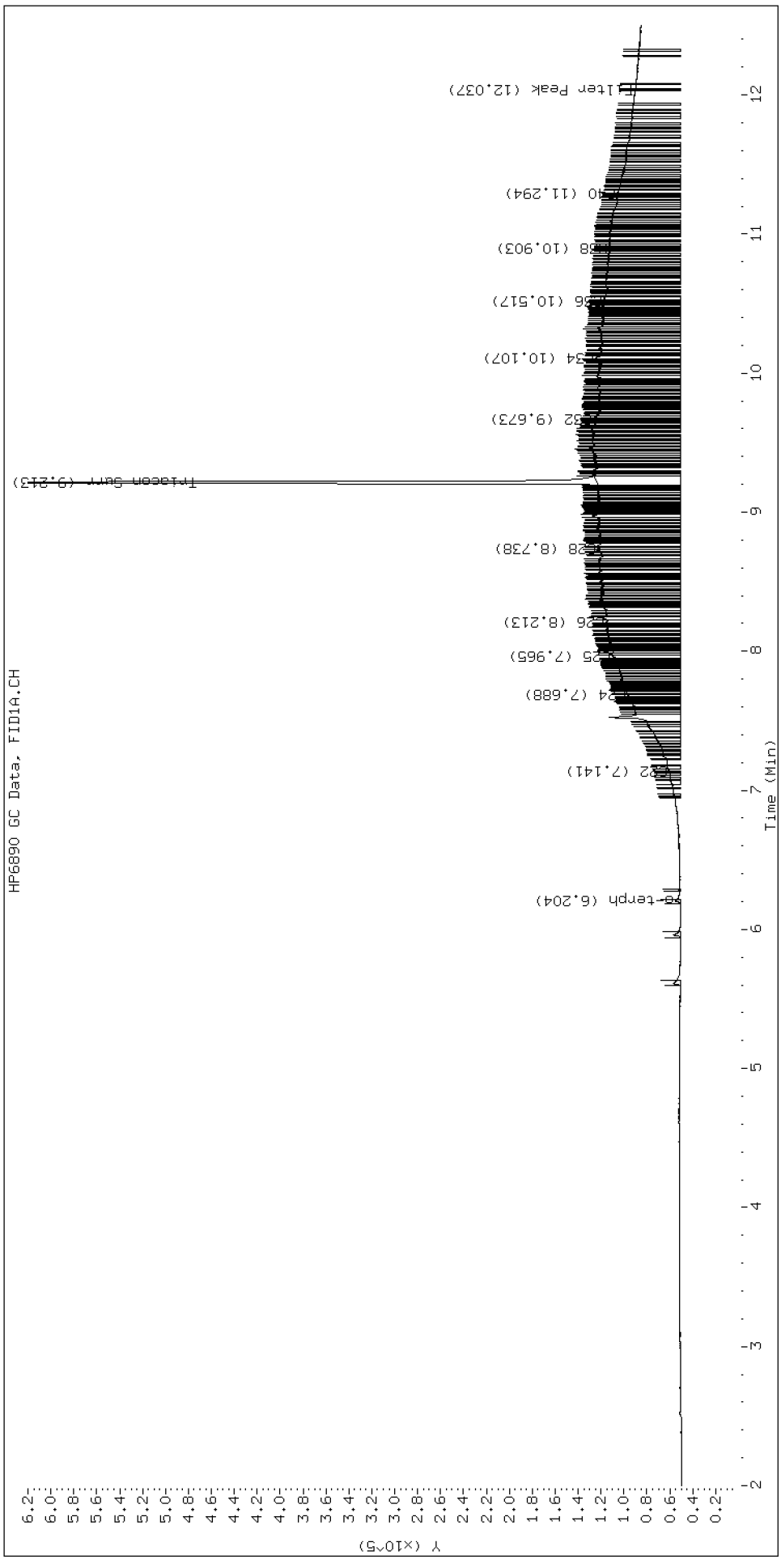
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	4061	0.0	
Triacontane	745046	12.1	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

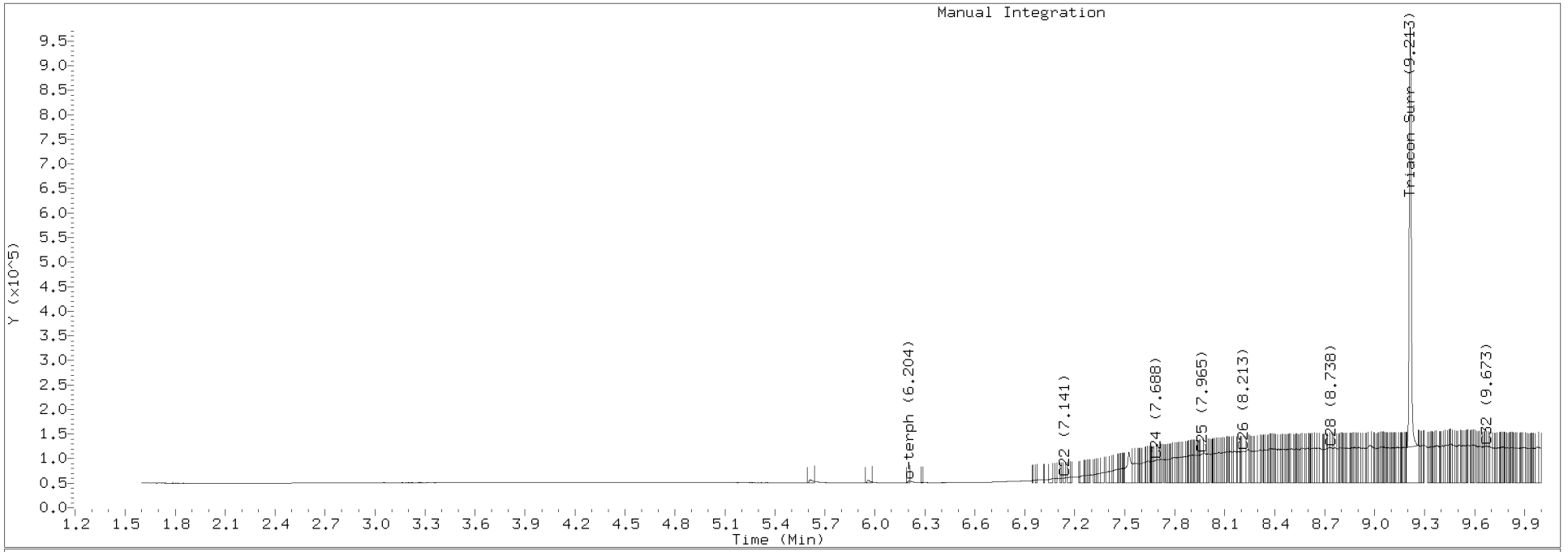
Datafile: FID4A, 20190905.b/419I0536.D SHI0053-CAL8

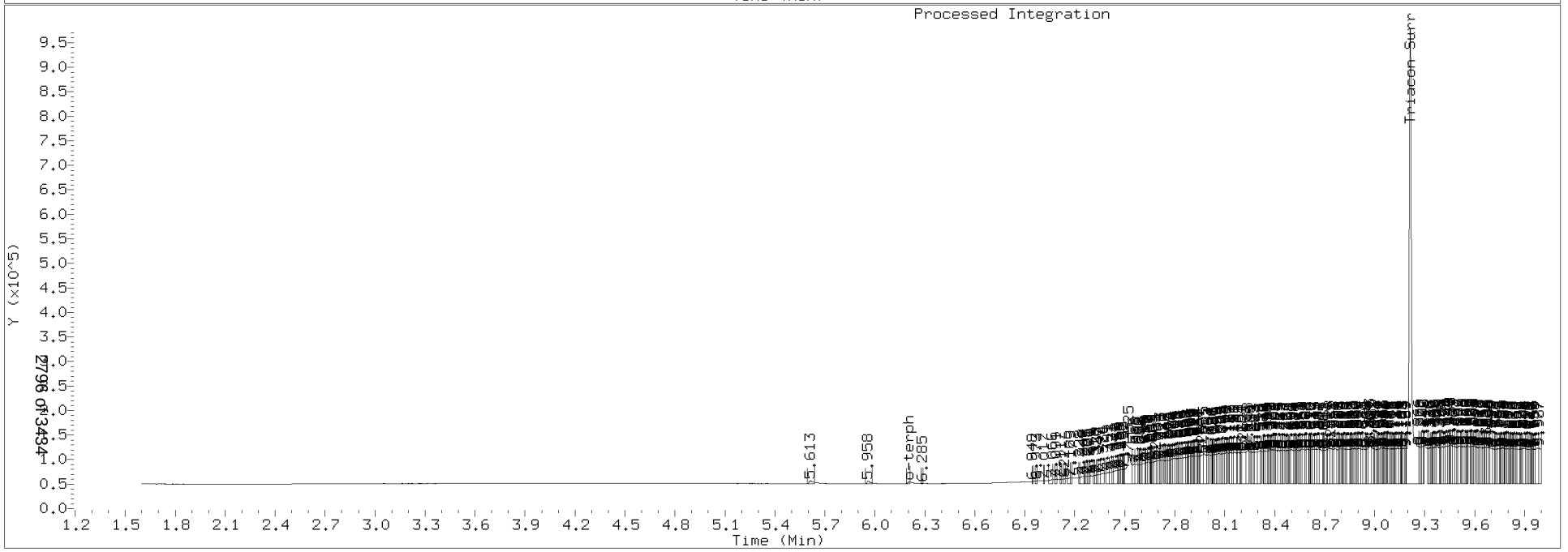


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0536.D Injection: 05-SEP-2019 22:10

Lab ID:SHI0053-CAL8





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0537.D

Date : 05-SEP-2019 22:32

Client ID:

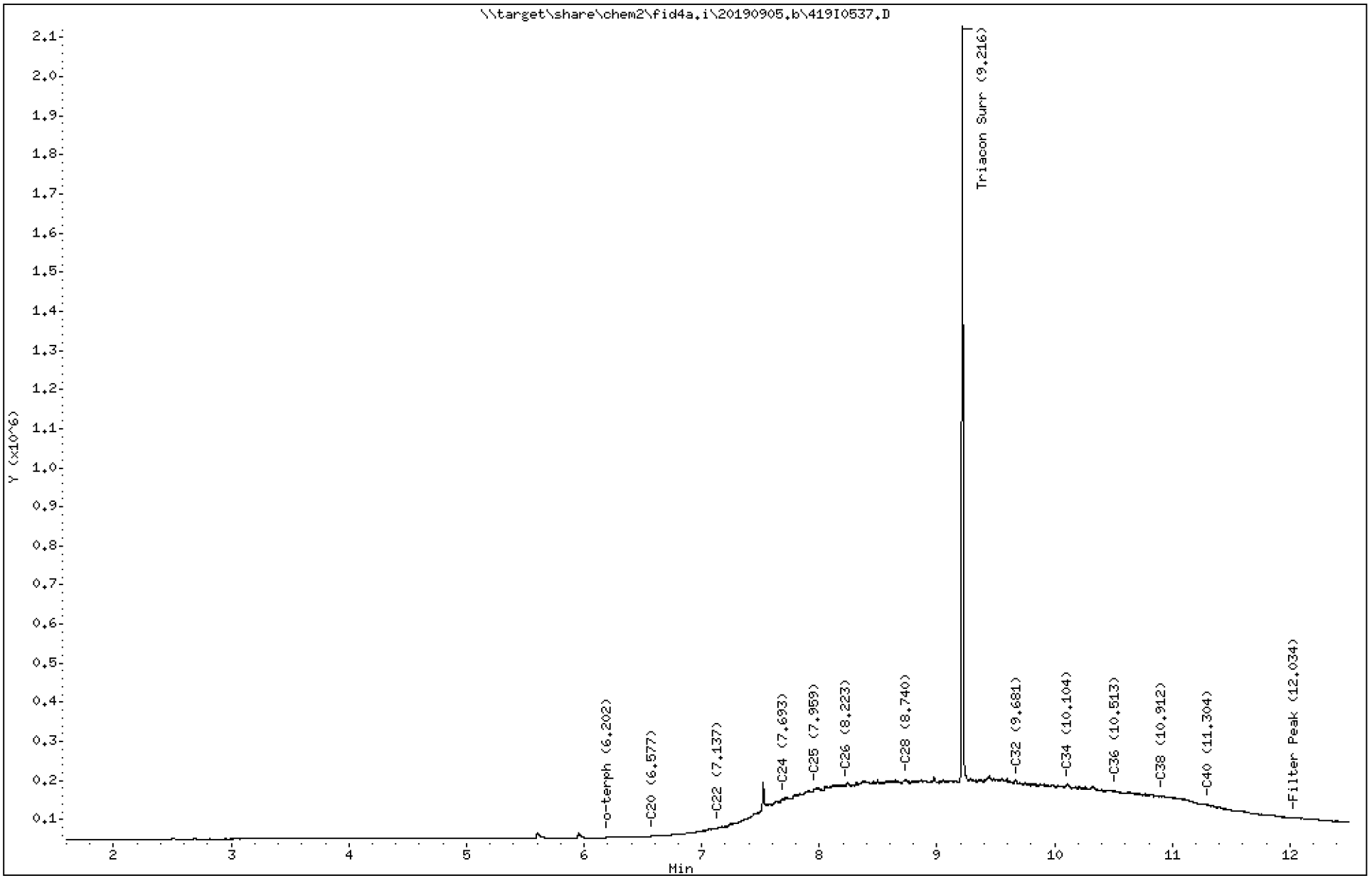
Sample Info: SHI0053-CAL9

Instrument: fid4a.i

Operator: JGR/VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0537.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CAL9
Client ID:
Injection: 05-SEP-2019 22:32
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	2600215	27.0
C10	----				WATPHM	(C24-C38)	25429840	572.5
C12	----				AK102	(C10-C25)	3667921	32.8
C14	----				AK103	(C25-C36)	21917072	547.0
C16	----				OR.DIES	(C10-C28)	10956052	97.9
C18	----							
C20	6.577	0.000	8246	5533				
C22	7.137	-0.001	28527	23253				
C24	7.693	0.005	102012	45657				
C25	7.959	0.001	129054	107151				
C26	8.223	-0.001	136794	61291				
C28	8.740	0.007	150770	104453				
C32	9.681	0.006	144720	57548				
C34	10.104	-0.002	139592	76267				
Filter Peak	12.034	-0.005	54680	19061	BUNKERC	(C10-C38)	28030055	416.6
C36	10.513	-0.004	124290	170907				
C38	10.912	0.006	109549	49078				
C40	11.304	0.007	87977	61096				
o-terph	6.202	0.003	5520	7683				
Triacon Surr	9.216	-0.017	1930528	1532248	NAS DIES	(C10-C24)	2600215	23.3

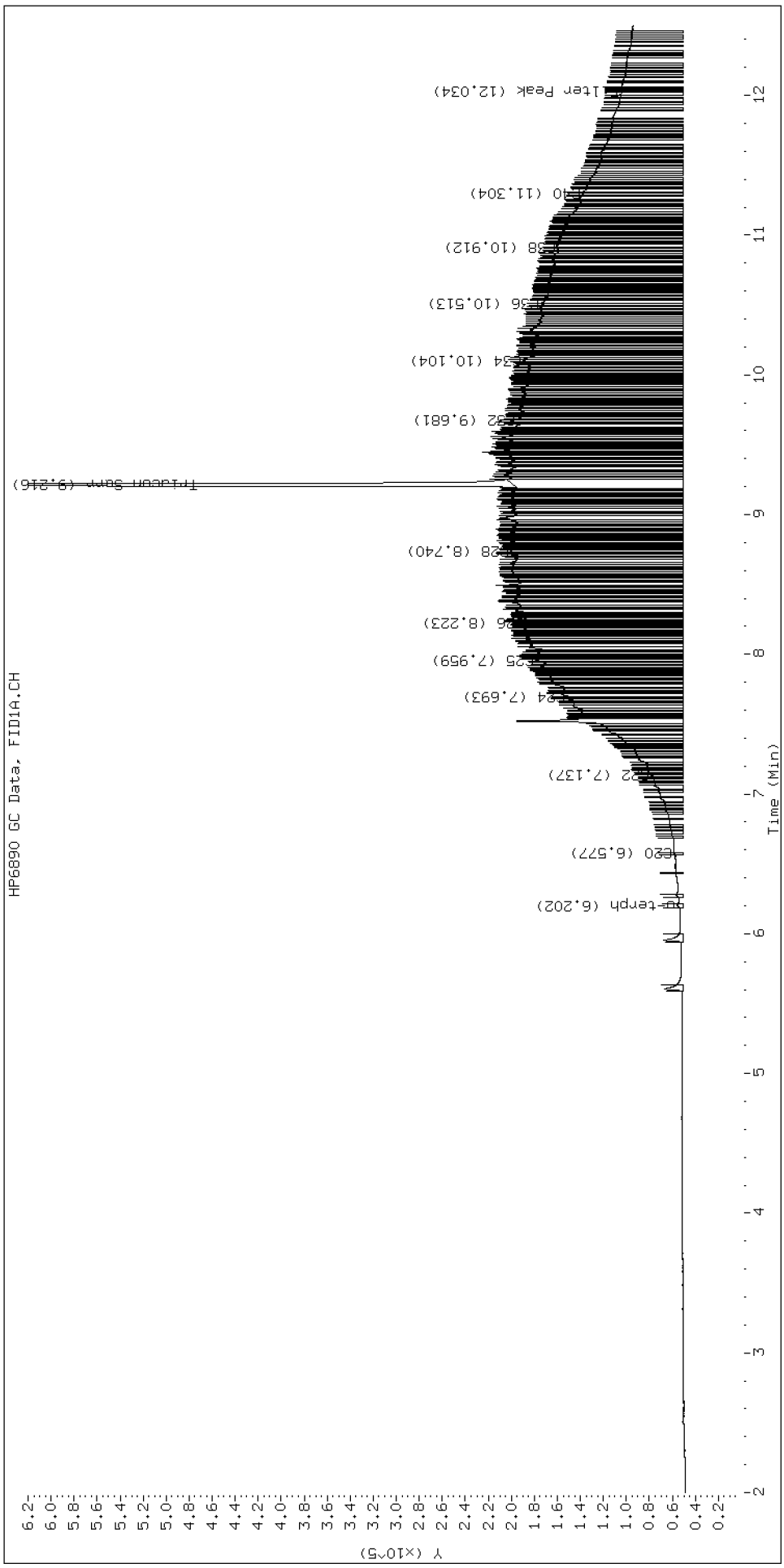
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7683	0.1	
Triacontane	1532248	25.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

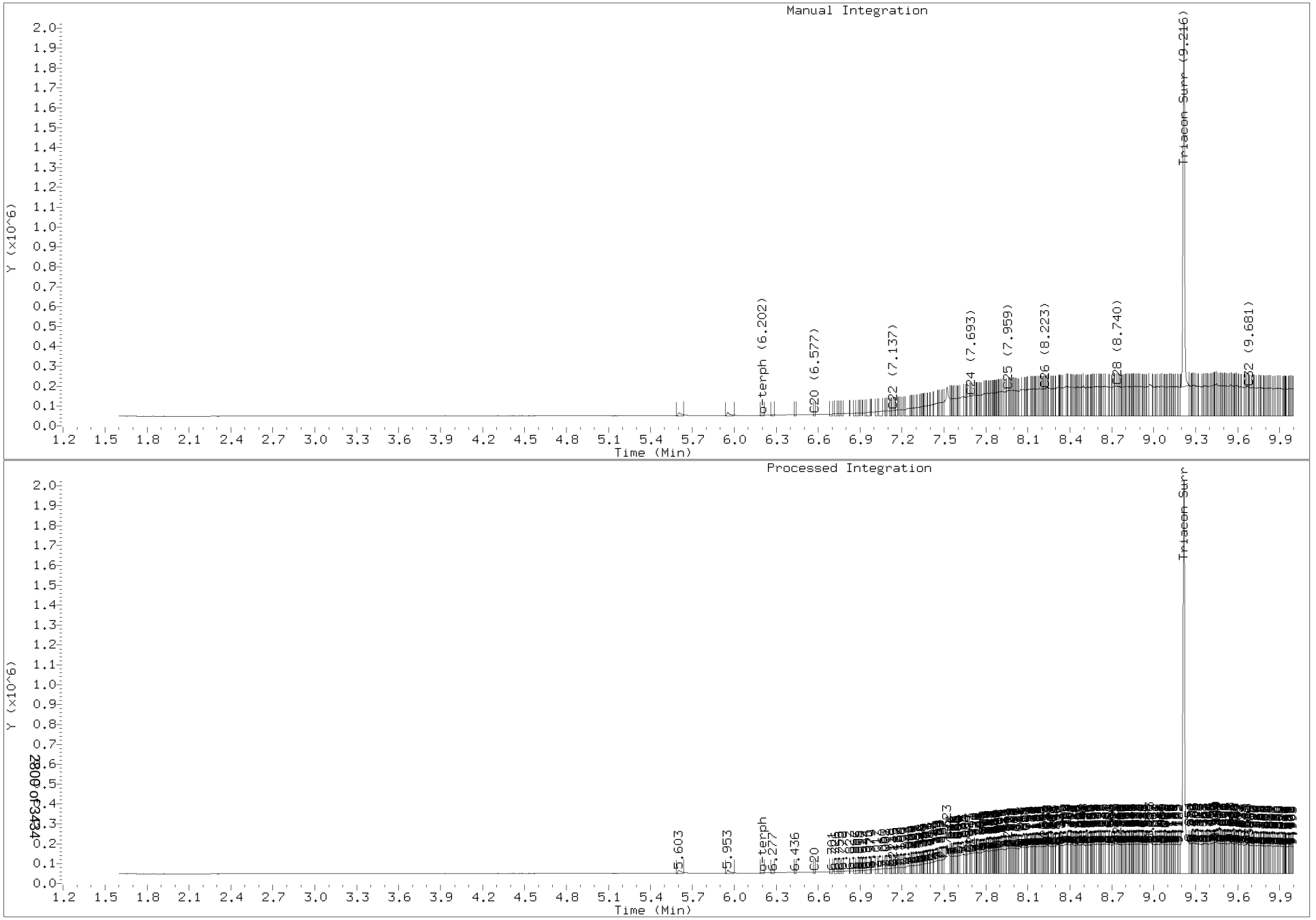
Datafile: FID4A, 20190905.b/419I0537.D SHI0053-CAL9



TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0537.D Injection: 05-SEP-2019 22:32

Lab ID:SHI0053-CAL9



Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0538.D

Date : 05-SEP-2019 22:53

Client ID:

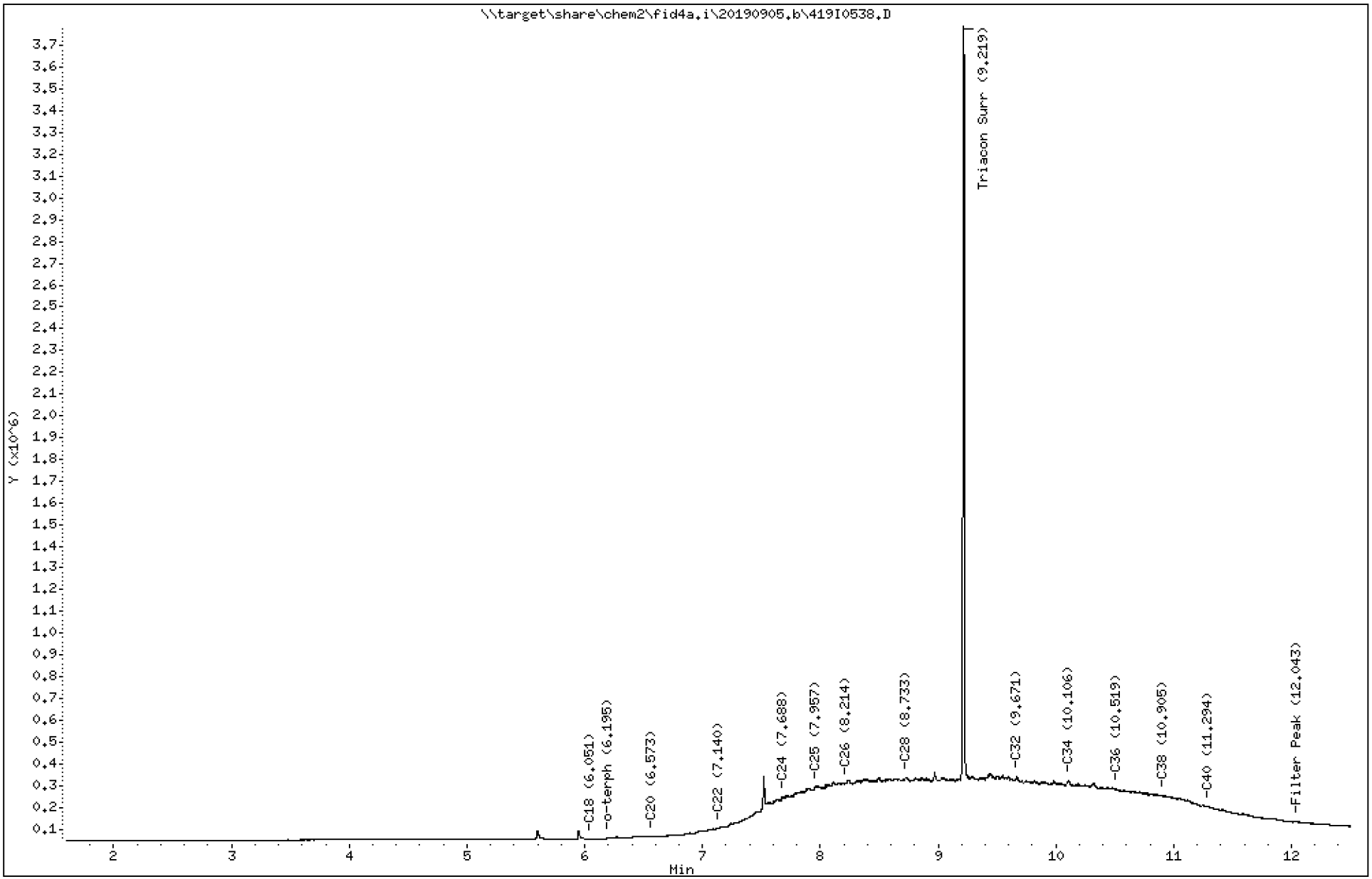
Sample Info: SHI0053-CALA

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0538.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALA
Client ID:
Injection: 05-SEP-2019 22:53
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5814094	60.4
C10	----				WATPHM	(C24-C38)	48816293	1099.0
C12	----				AK102	(C10-C25)	8169714	73.1
C14	----				AK103	(C25-C36)	41738259	1041.7
C16	----				OR.DIES	(C10-C28)	21702558	193.9
C18	6.051	0.041	8599	3820				
C20	6.573	-0.004	18779	22784				
C22	7.140	0.003	58706	20400				
C24	7.688	-0.000	198281	68946				
C25	7.957	-0.001	244284	203256				
C26	8.214	-0.010	263041	78632				
C28	8.733	-0.000	291624	172689				
C32	9.671	-0.004	295772	257378				
C34	10.106	0.000	274065	242682				
Filter Peak	12.043	0.004	86209	77280	BUNKERC	(C10-C38)	54630387	812.0
C36	10.519	0.003	235976	105368				
C38	10.905	-0.000	206441	141809				
C40	11.294	-0.004	158727	188279				
o-terph	6.195	-0.003	10024	8741				
Triacon Surr	9.219	-0.014	3462752	2878553	NAS DIES	(C10-C24)	5814094	52.1

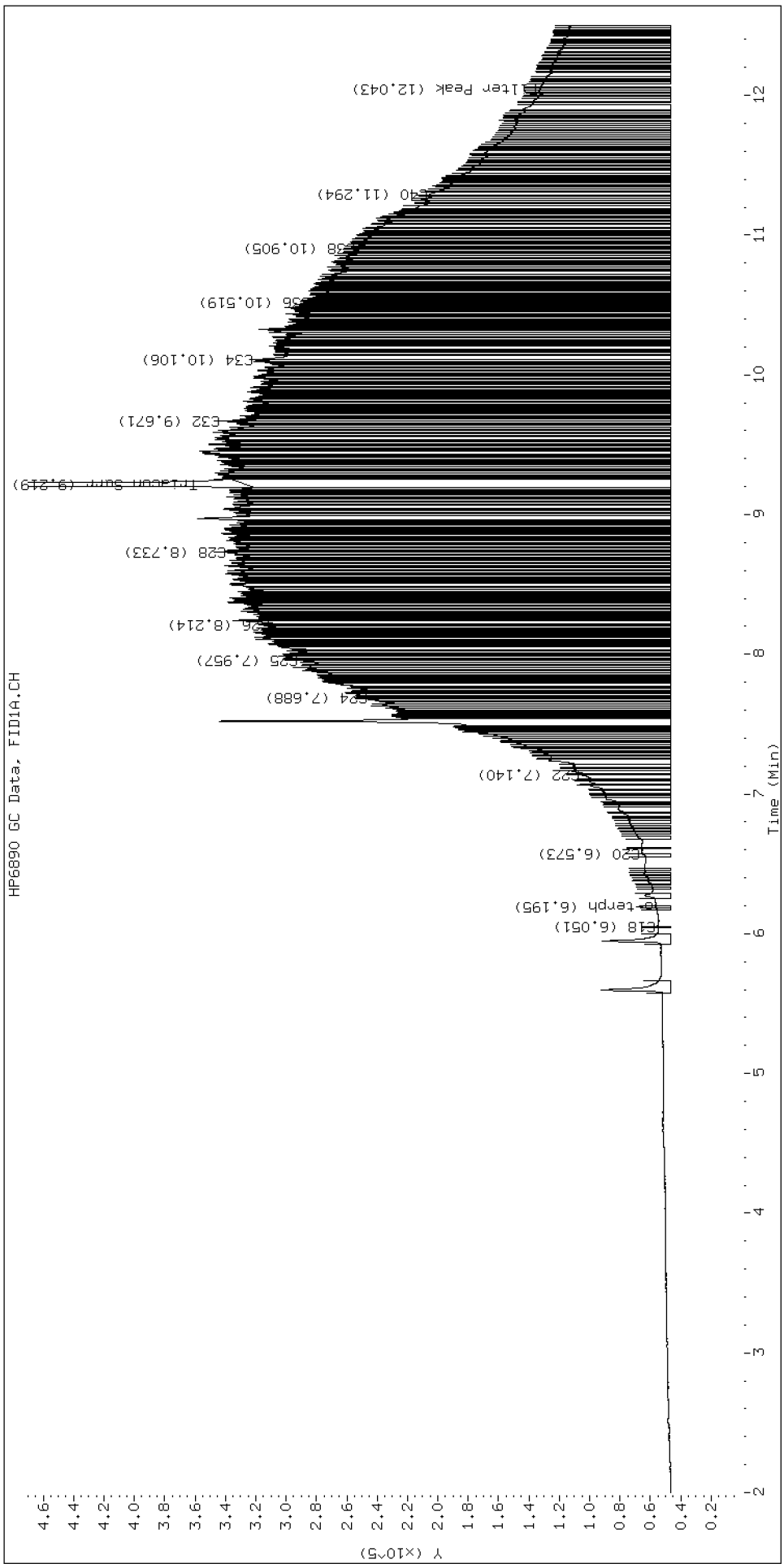
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	8741	0.1	
Triacontane	2878553	46.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

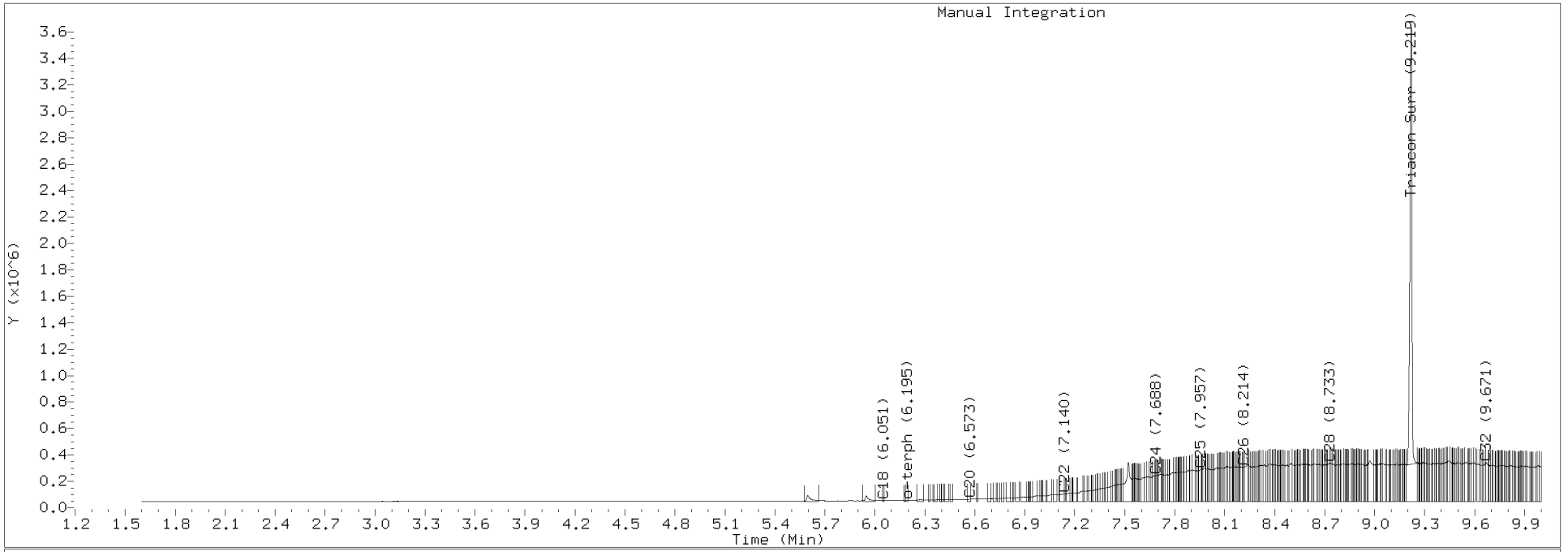
Datafile: FID4A, 20190905.b/419I0538.D SHI0053-CALA

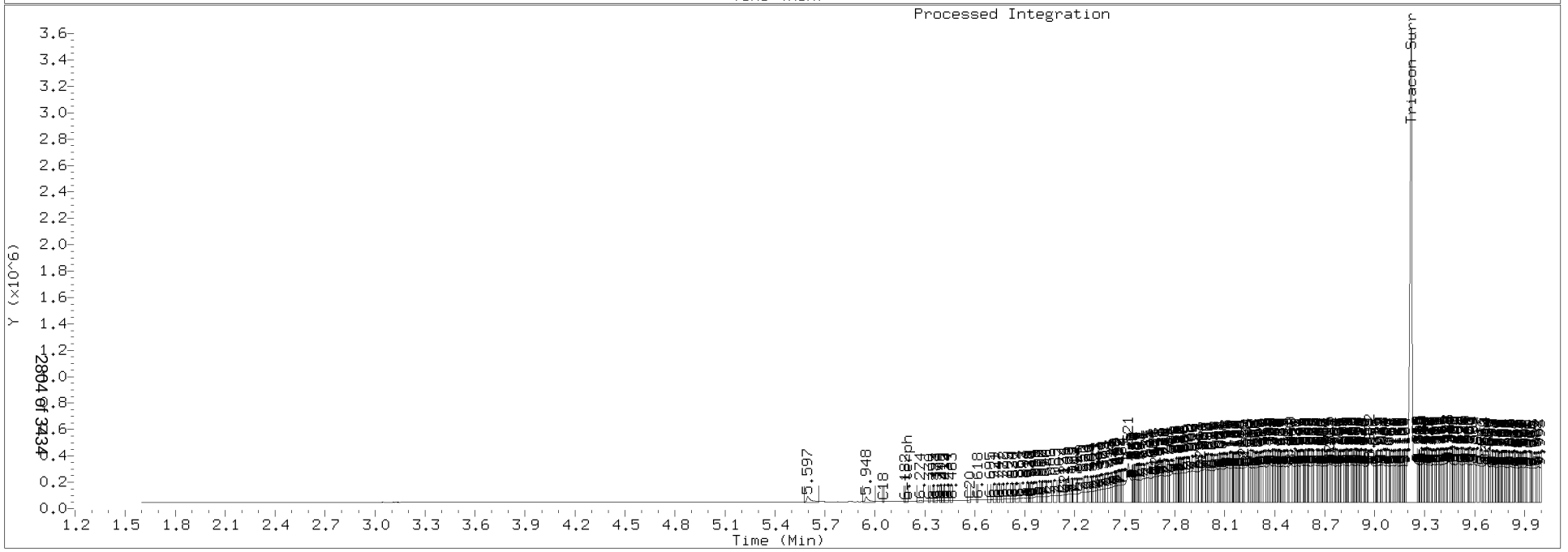


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0538.D Injection: 05-SEP-2019 22:53

Lab ID:SHI0053-CALA





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0539.D

Date : 05-SEP-2019 23:13

Client ID:

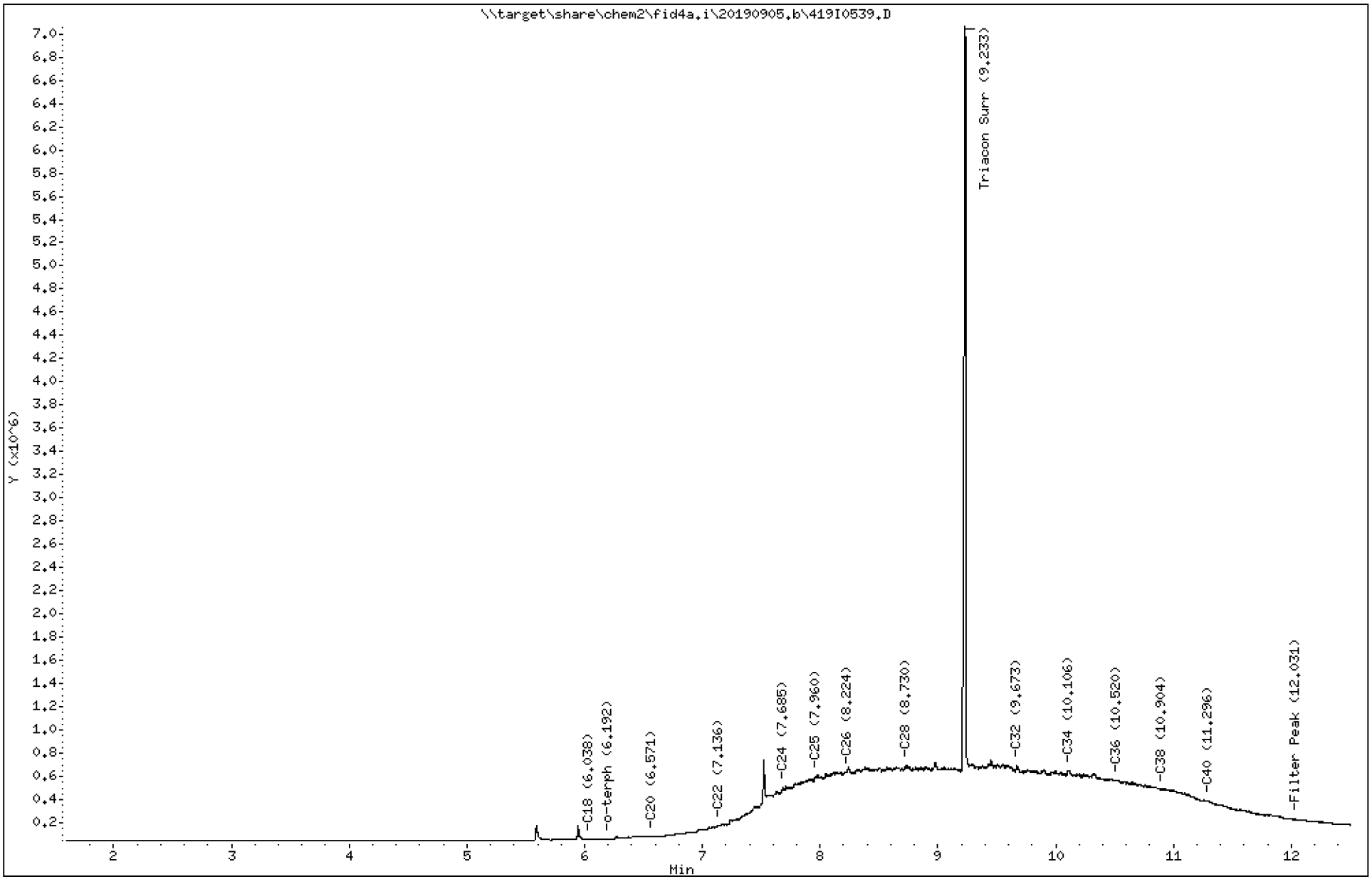
Sample Info: SHI0053-CALB

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0539.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALB
Client ID:
Injection: 05-SEP-2019 23:13
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	13045793	135.5
C10	----				WATPHM	(C24-C38)	108998897	2453.8
C12	----				AK102	(C10-C25)	17995639	161.1
C14	----				AK103	(C25-C36)	93275447	2328.1
C16	----				OR.DIES	(C10-C28)	48800779	436.0
C18	6.038	0.028	7383	5036				
C20	6.571	-0.006	33387	41194				
C22	7.136	-0.001	126103	235799				
C24	7.685	-0.003	451929	244002				
C25	7.960	0.002	545768	162841				
C26	8.224	0.001	587674	262893				
C28	8.730	-0.003	647454	699068				
C32	9.673	-0.002	637549	471009				
C34	10.106	0.001	597721	149022				
Filter Peak	12.031	-0.008	179911	133485	BUNKERC	(C10-C38)	122044690	1814.0
C36	10.520	0.003	509923	152809				
C38	10.904	-0.002	435342	86969				
C40	11.296	-0.002	333751	182796				
o-terph	6.192	-0.006	12136	29339				
Triacon Surr	9.233	-0.000	6382189	6440363	NAS DIES	(C10-C24)	13045793	116.9

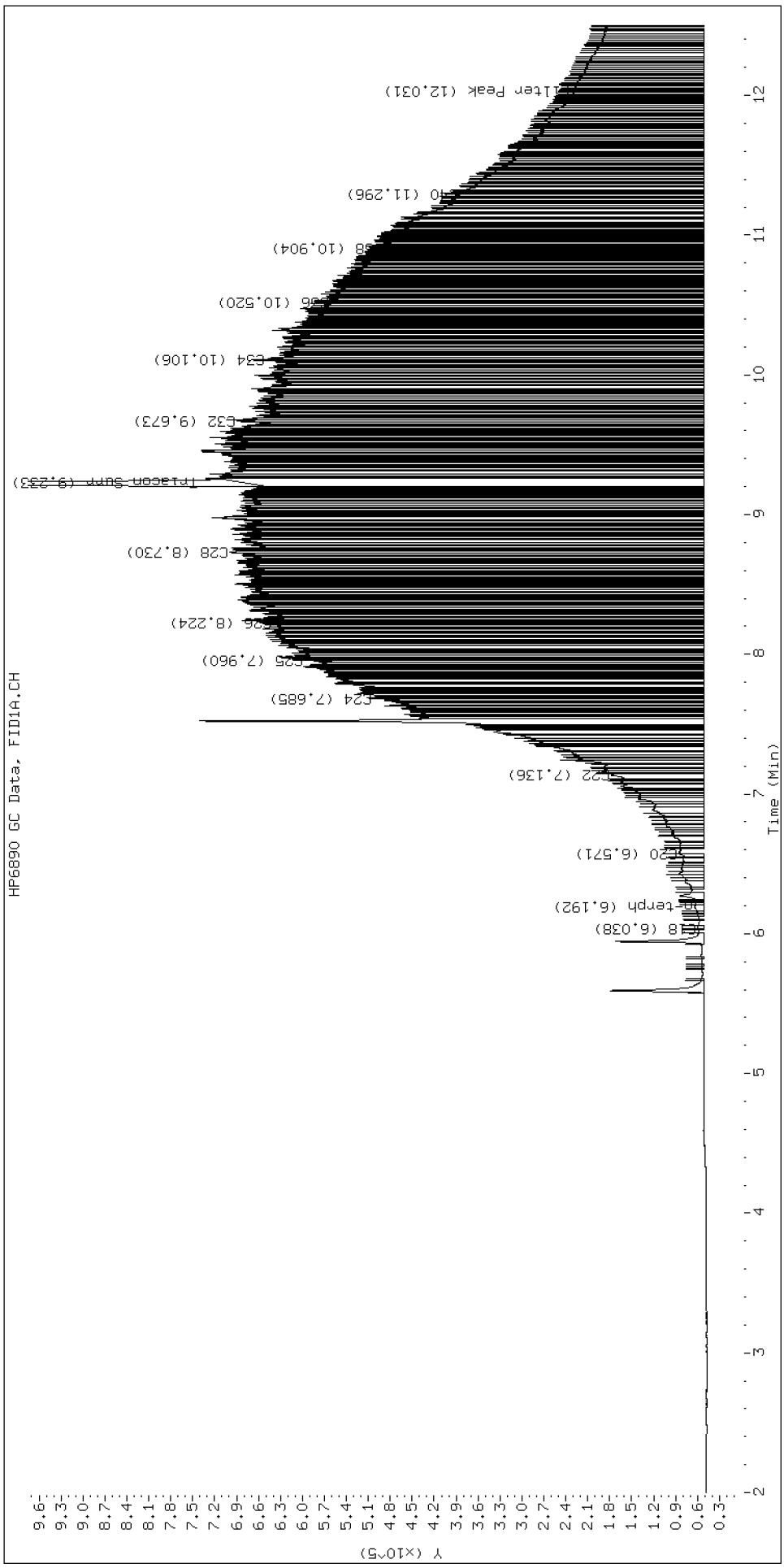
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	29339	0.2	
Triacontane	6440363	105.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

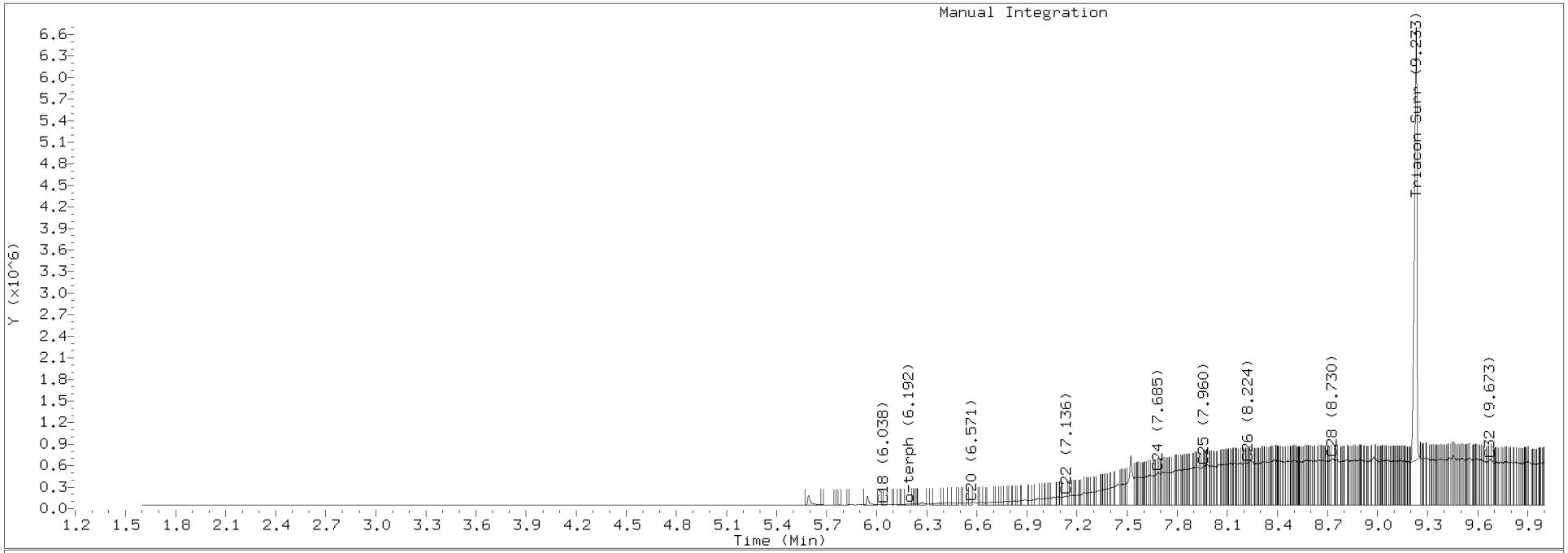
Datafile: FID4A, 20190905.b/419I0539.D SHI0053-CALB

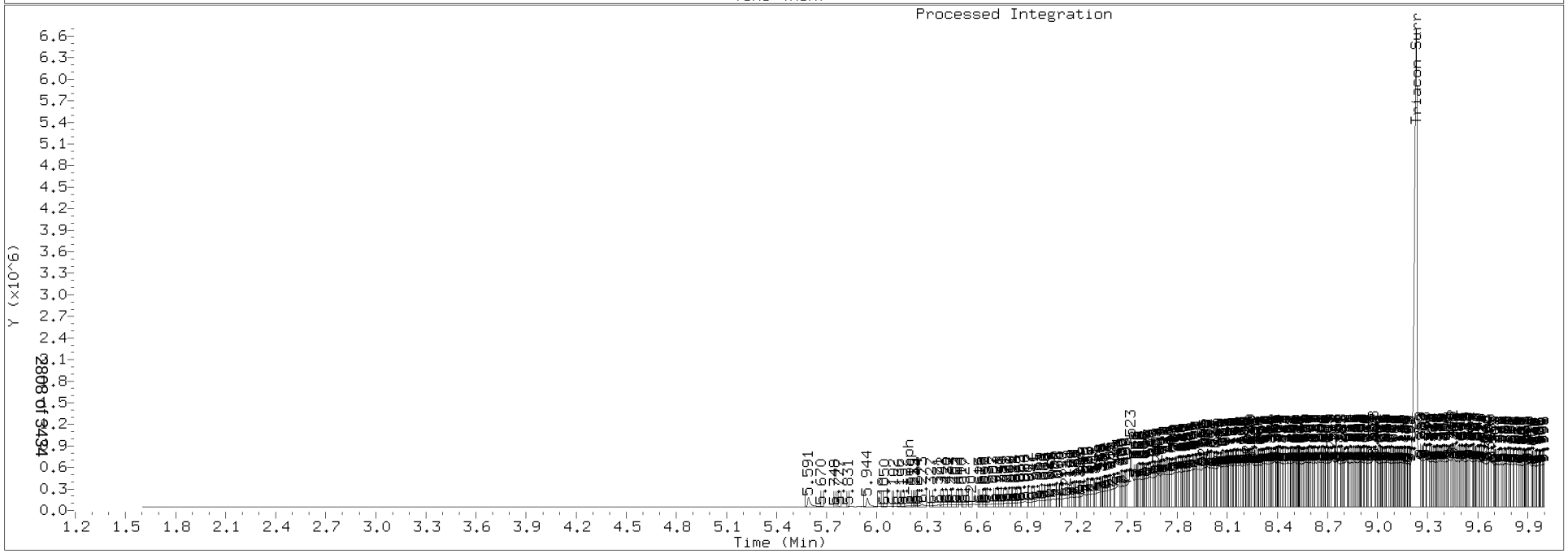


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0539.D   Injection: 05-SEP-2019 23:13

Lab ID:SHI0053-CALB





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0540.D

Date : 05-SEP-2019 23:34

Client ID:

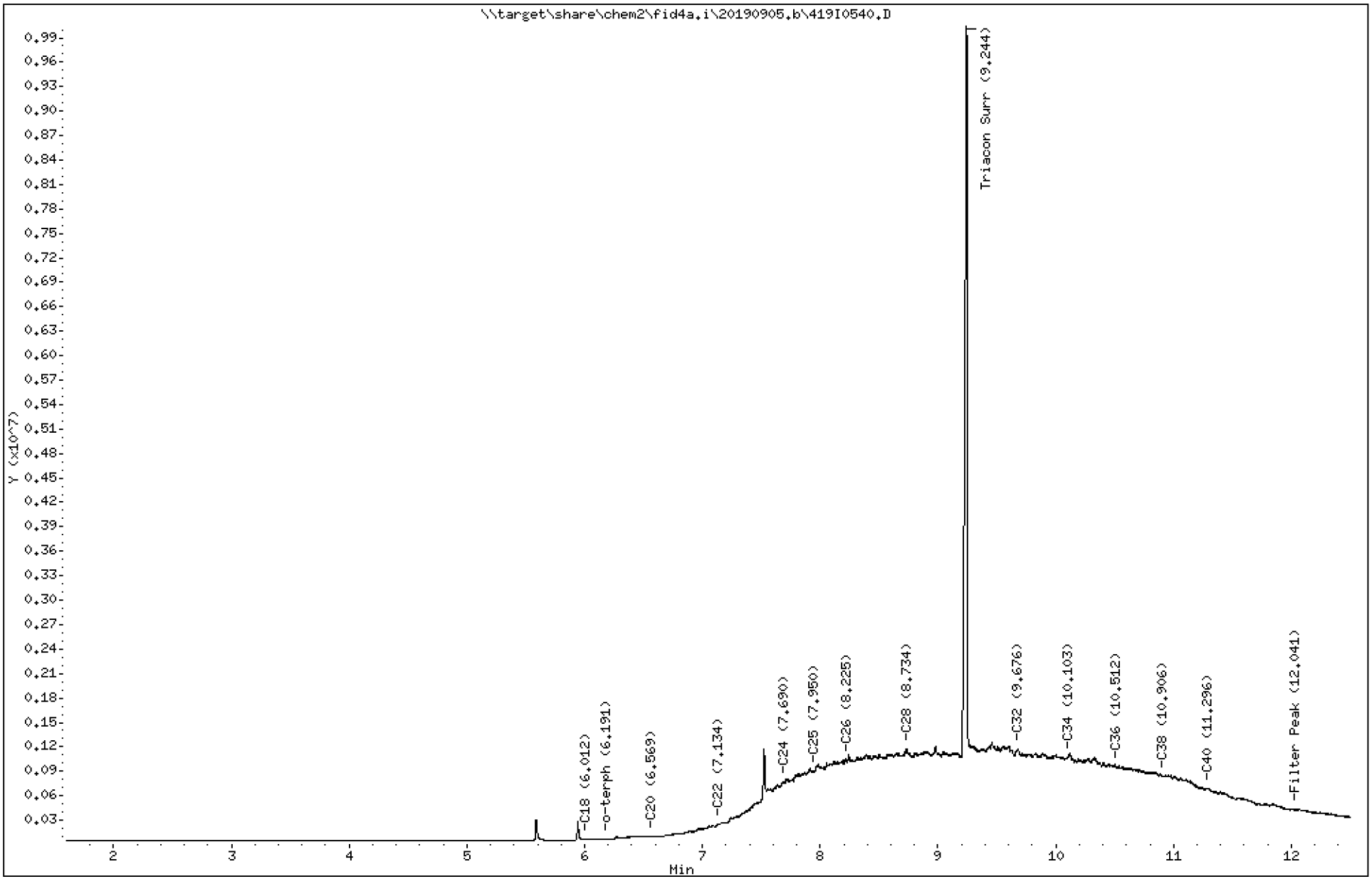
Sample Info: SHI0053-CALC

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0540.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALC
Client ID:
Injection: 05-SEP-2019 23:34
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	21251554	220.7
C10	----				WATPHM	(C24-C38)	189784016	4272.4
C12	----				AK102	(C10-C25)	29322512	262.4
C14	----				AK103	(C25-C36)	162829658	4064.1
C16	----				OR.DIES	(C10-C28)	81168498	725.3
C18	6.012	0.002	9900	11167				
C20	6.569	-0.008	53430	104656				
C22	7.134	-0.004	202885	242853				
C24	7.690	0.001	709744	387894				
C25	7.950	-0.009	856620	339839				
C26	8.225	0.001	981186	340557				
C28	8.734	0.001	1123886	1259868				
C32	9.676	0.001	1111738	495781				
C34	10.103	-0.003	1026629	306982				
Filter Peak	12.041	0.001	374586	167999	BUNKERC	(C10-C38)	211035569	3136.8
C36	10.512	-0.004	904983	405486				
C38	10.906	-0.000	790406	393097				
C40	11.296	-0.002	638530	443651				
o-terph	6.191	-0.008	18894	41190				
Triacon Surr	9.244	0.011	8872934	11220900	NAS DIES	(C10-C24)	21251554	190.4

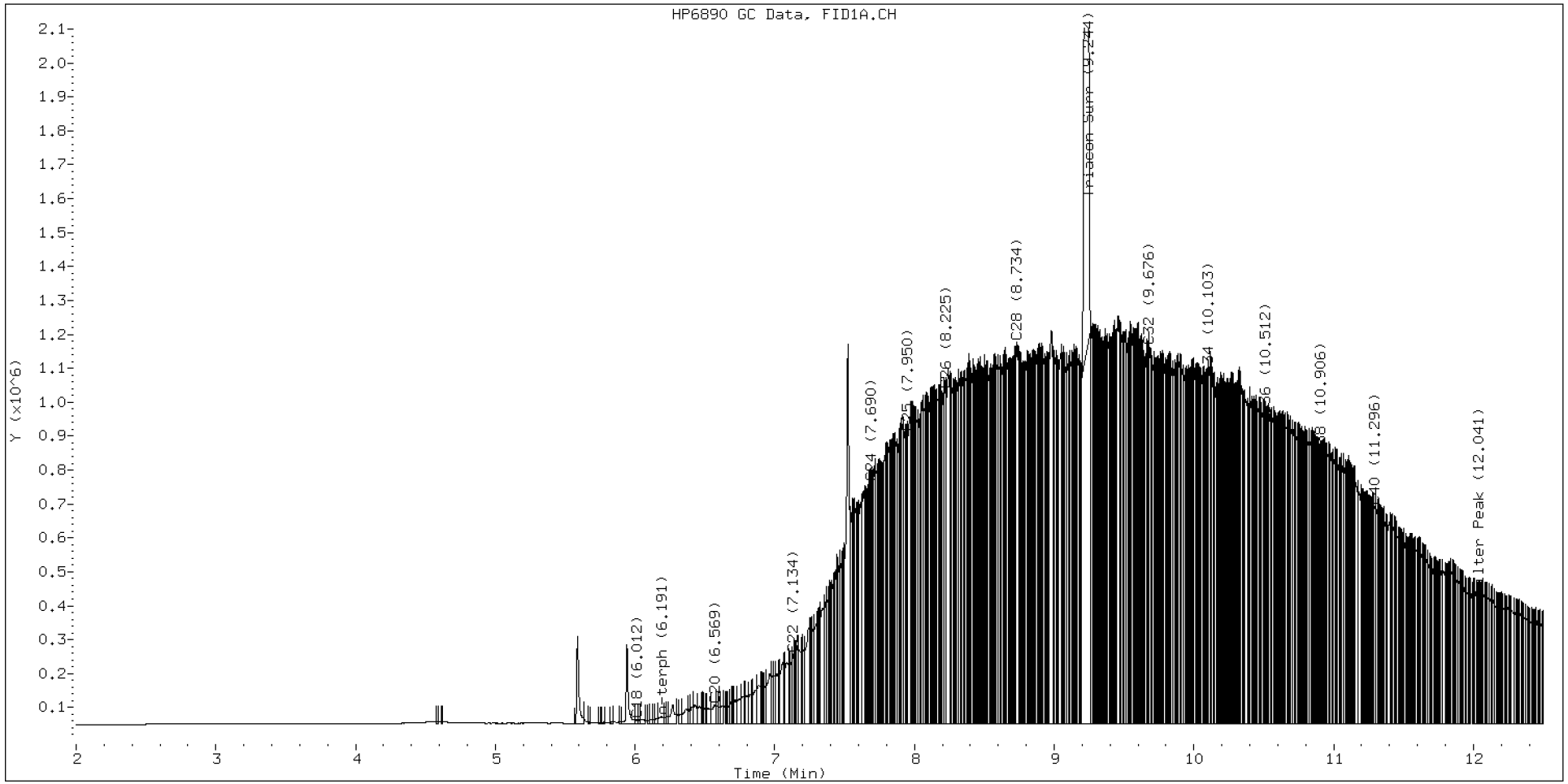
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	41190	0.3	
Triacontane	11220900	182.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

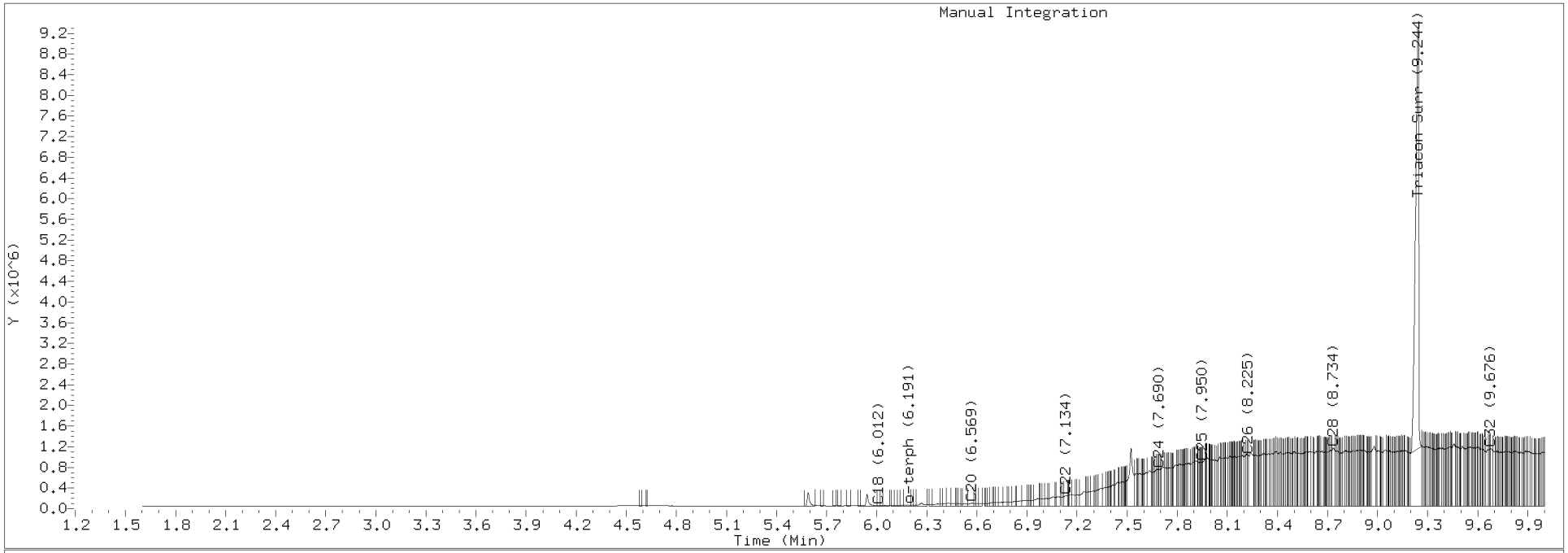
Datafile: FID4A, 20190905.b/419I0540.D SHI0053-CALC

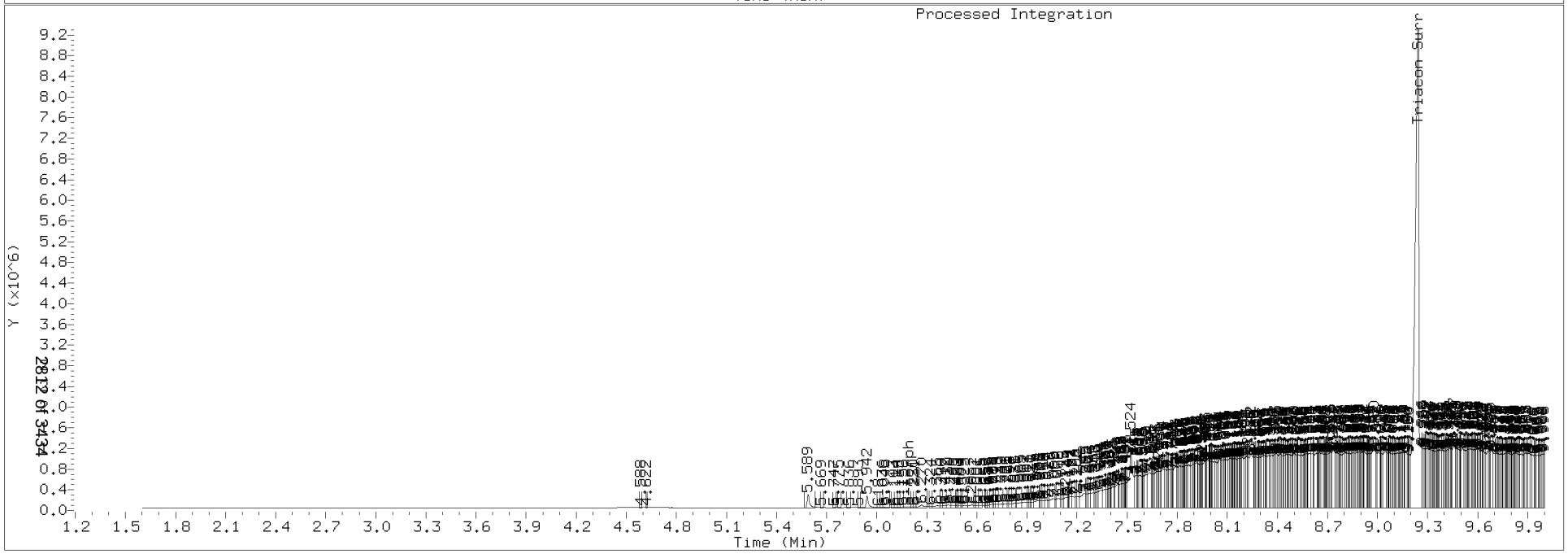


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0540.D   Injection: 05-SEP-2019 23:34

Lab ID:SHI0053-CALC





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0541.D

Date : 05-SEP-2019 23:55

Client ID:

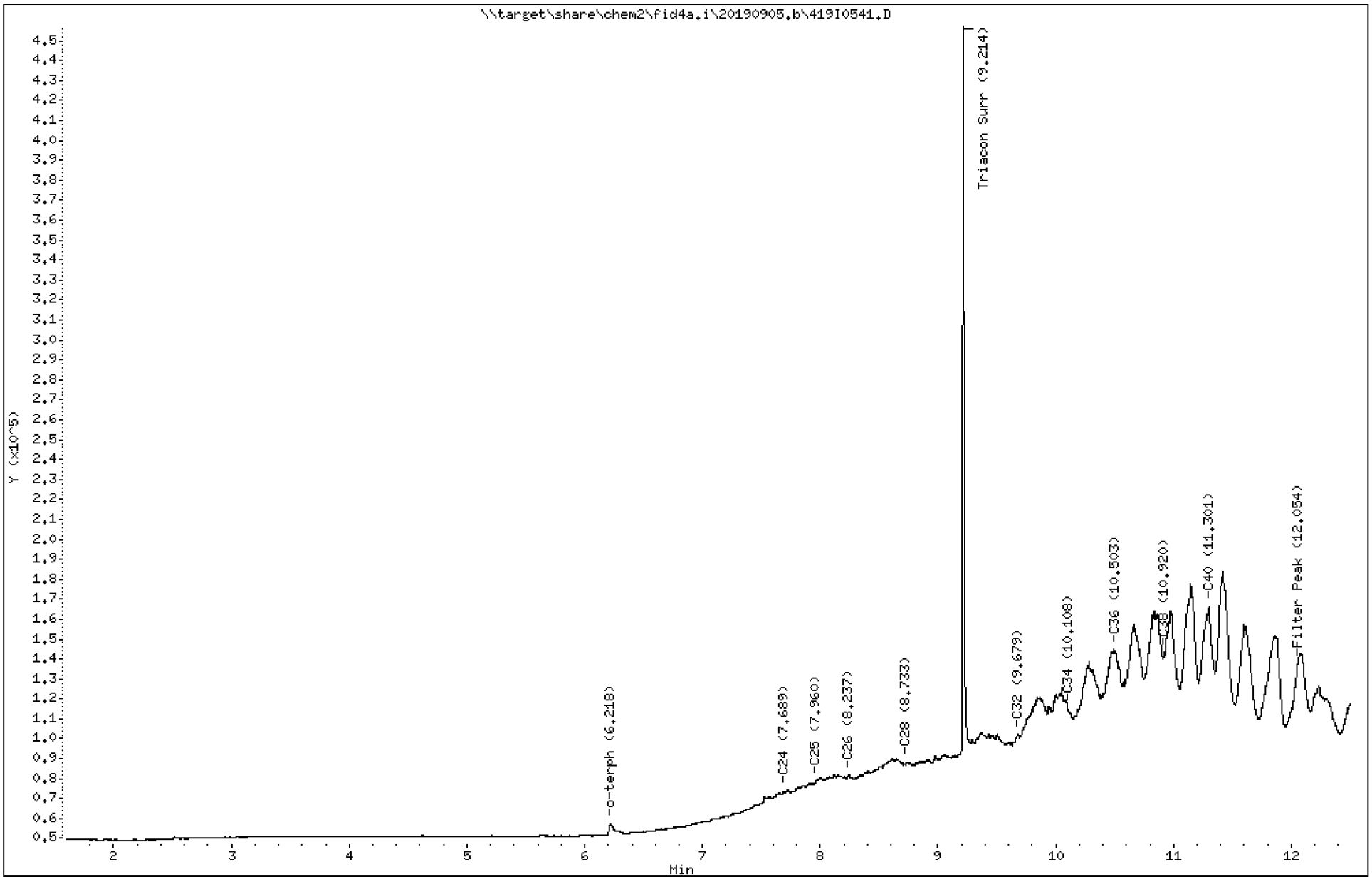
Sample Info: SHI0053-CALD

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0541.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALD
Client ID:
Injection: 05-SEP-2019 23:55
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	186040	1.9
C10	----				WATPHM	(C24-C38)	7826819	176.2
C12	----				AK102	(C10-C25)	322299	2.9
C14	----				AK103	(C25-C36)	5913524	147.6
C16	----				OR.DIES	(C10-C28)	1294056	11.6
C18	----							
C20	----							
C22	----							
C24	7.689	0.001	22607	16655				
C25	7.960	0.002	27899	24542				
C26	8.237	0.013	30691	28501				
C28	8.733	-0.001	37240	29508				
C32	9.679	0.004	51160	58239				
C34	10.108	0.003	63992	47574				
Filter Peak	12.054	0.015	86757	226438	BUNKERC	(C10-C38)	8012860	119.1
C36	10.503	-0.014	93246	41768				
C38	10.920	0.014	91923	45268				
C40	11.301	0.003	115052	216427				
o-terph	6.218	0.020	6167	9508				
Triacon Surr	9.214	-0.019	363756	341683	NAS DIES	(C10-C24)	186040	1.7

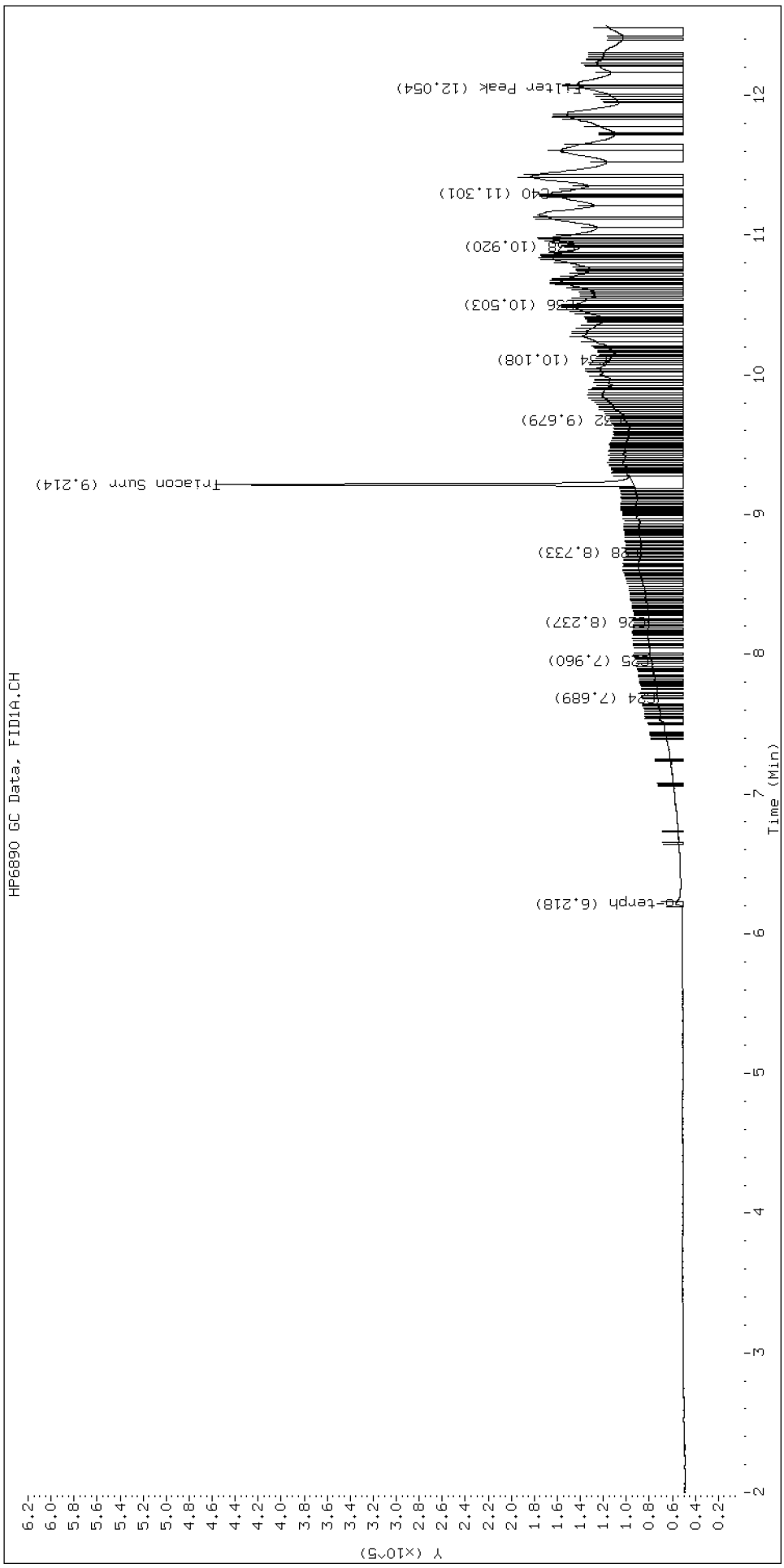
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	9508	0.1	
Triacontane	341683	5.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

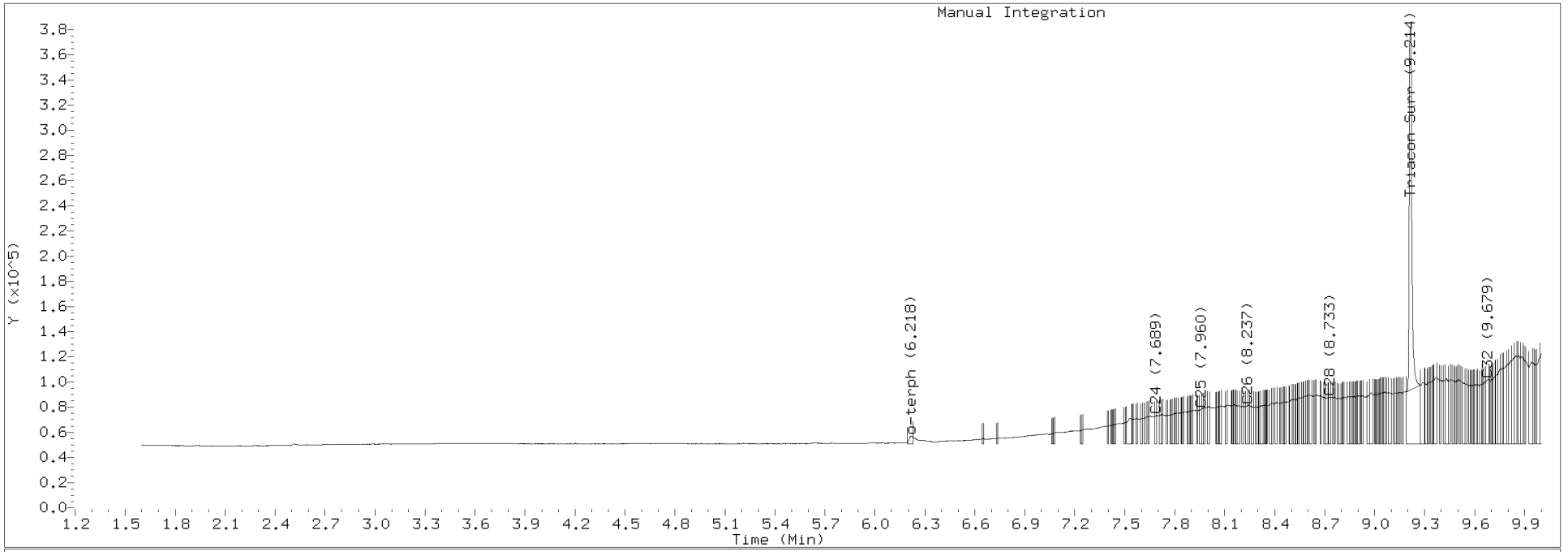
Datafile: FID4A, 20190905.b/419I0541.D SHI0053-CALD

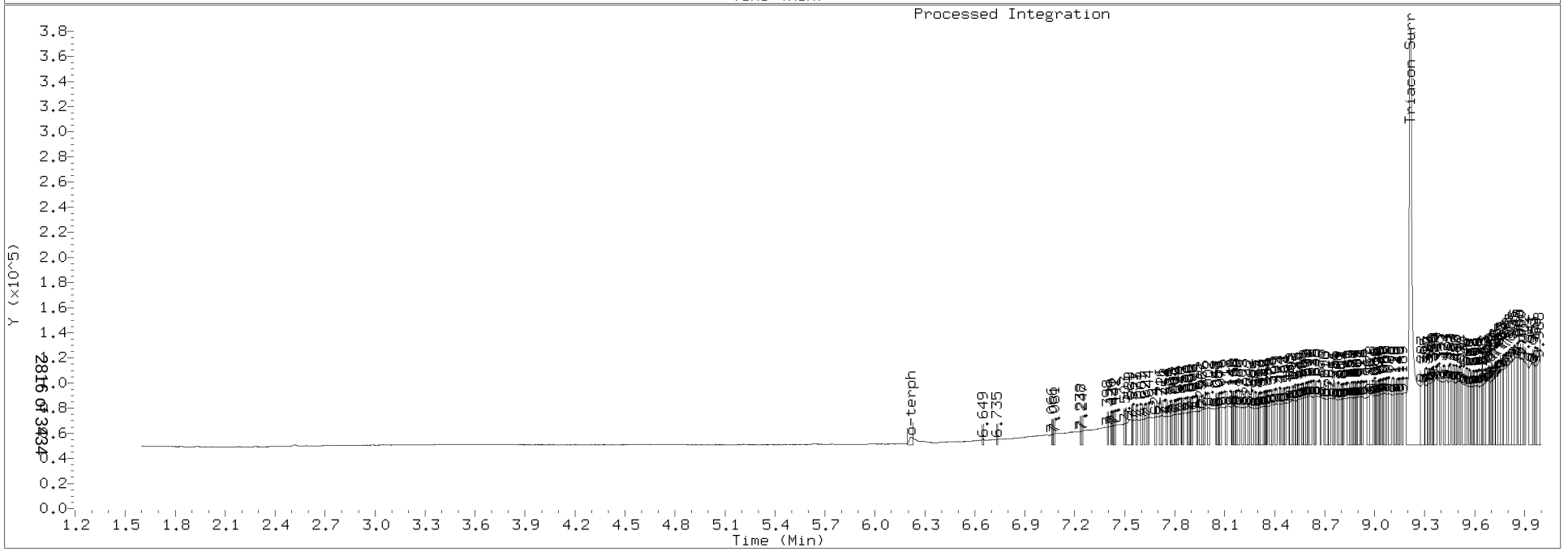


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0541.D Injection: 05-SEP-2019 23:55

Lab ID:SHI0053-CALD





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0542.D

Date : 06-SEP-2019 00:16

Client ID:

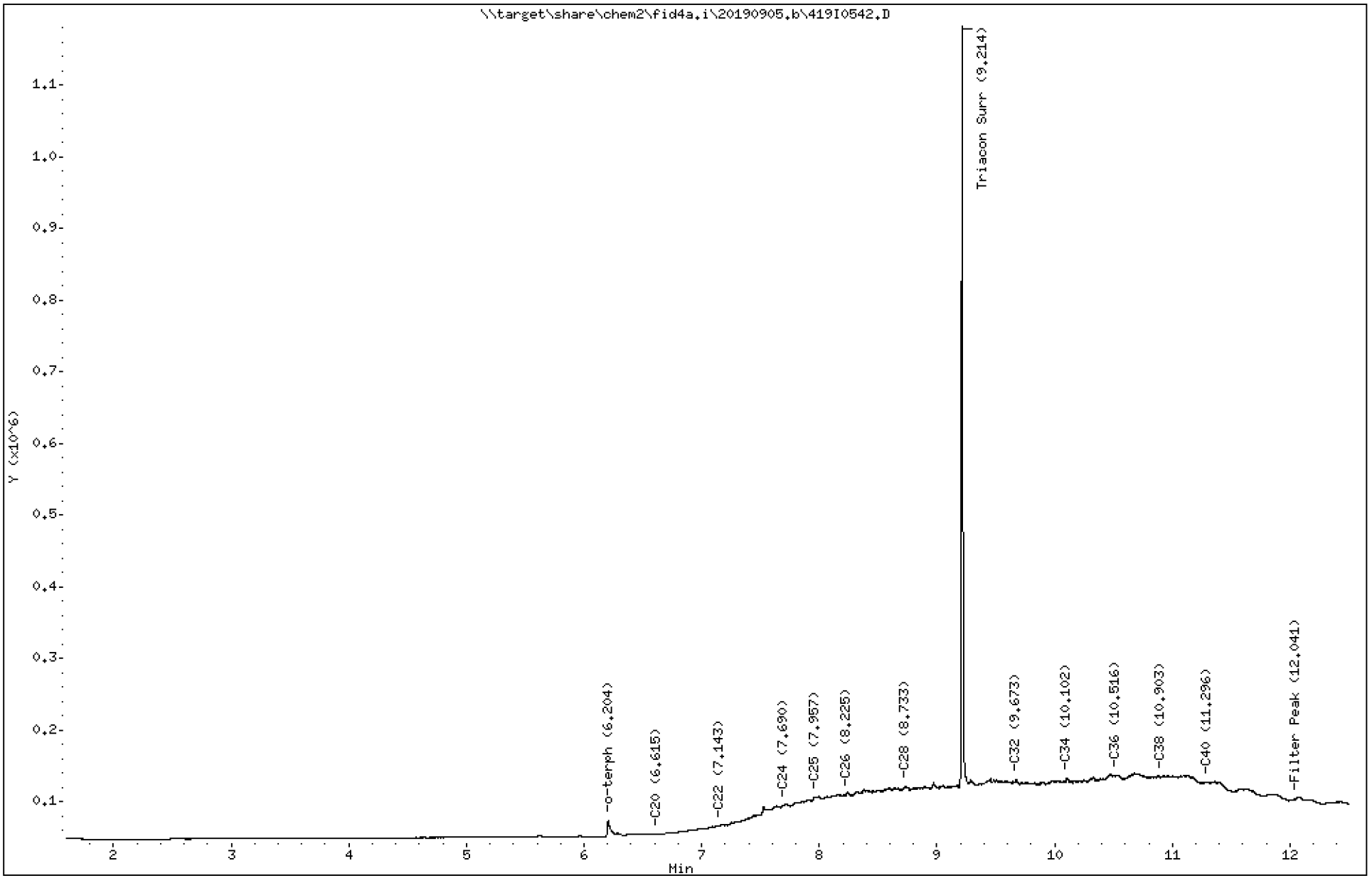
Sample Info: SHI0053-CALE

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0542.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALE
Client ID:
Injection: 06-SEP-2019 00:16
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	914250	9.5
C10	----				WATPHM	(C24-C38)	12469315	280.7
C12	----				AK102	(C10-C25)	1307186	11.7
C14	----				AK103	(C25-C36)	10316273	257.5
C16	----				OR.DIES	(C10-C28)	4172698	37.3
C18	----							
C20	6.615	0.038	5090	2472				
C22	7.143	0.006	15907	11613				
C24	7.690	0.002	45118	22306				
C25	7.957	-0.001	55709	51151				
C26	8.225	0.002	58838	17576				
C28	8.733	-0.000	70170	45229				
C32	9.673	-0.002	80407	55126				
C34	10.102	-0.003	81939	142854				
Filter Peak	12.041	0.002	52920	21074	BUNKERC	(C10-C38)	13383565	198.9
C36	10.516	-0.001	86018	34234				
C38	10.903	-0.003	84166	41921				
C40	11.296	-0.001	76675	34357				
o-terph	6.204	0.006	22628	48986				
Triacon Surr	9.214	-0.019	1060488	843414	NAS DIES	(C10-C24)	914250	8.2

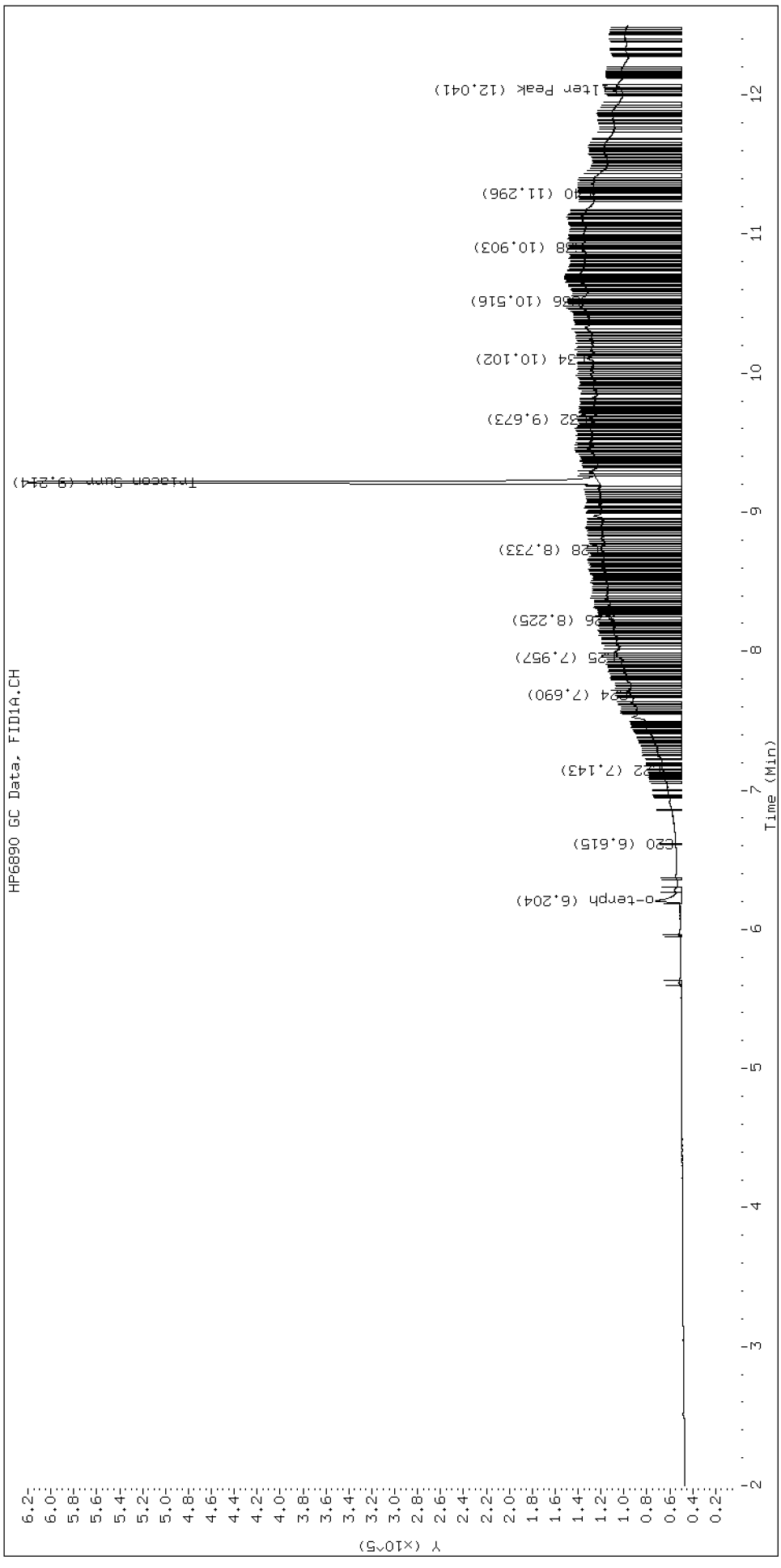
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	48986	0.4	
Triacontane	843414	13.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

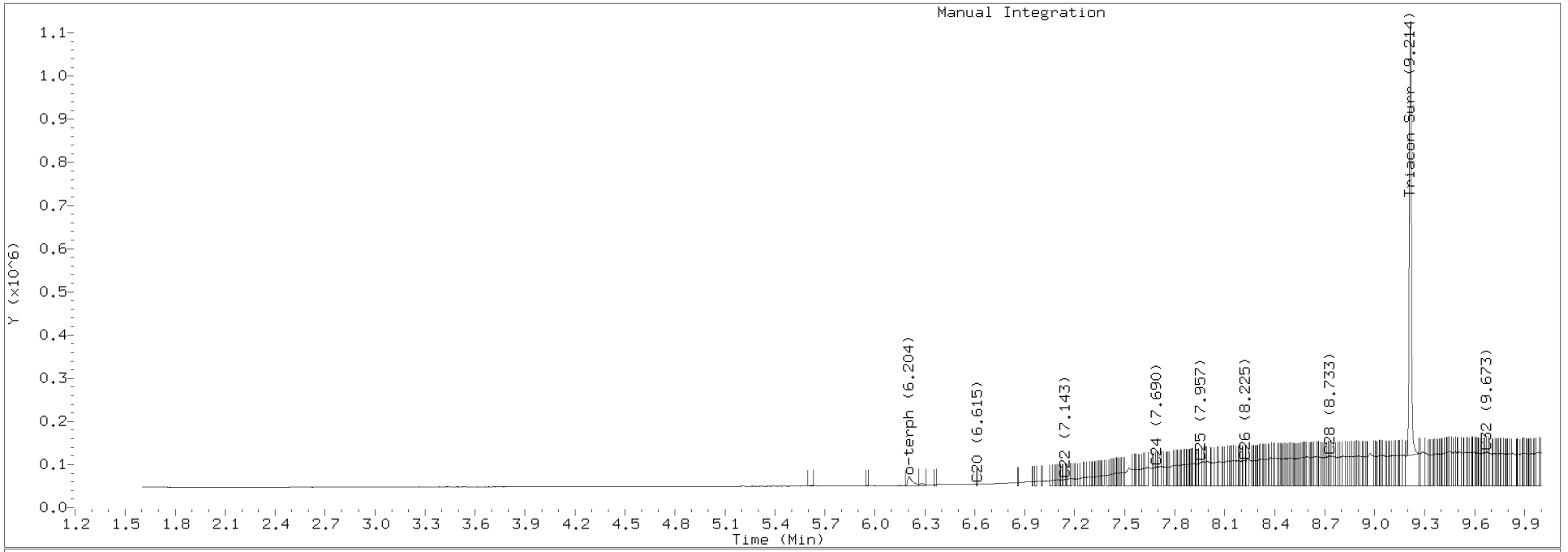
Datafile: FID4A, 20190905.b/419I0542.D SHI0053-CALE

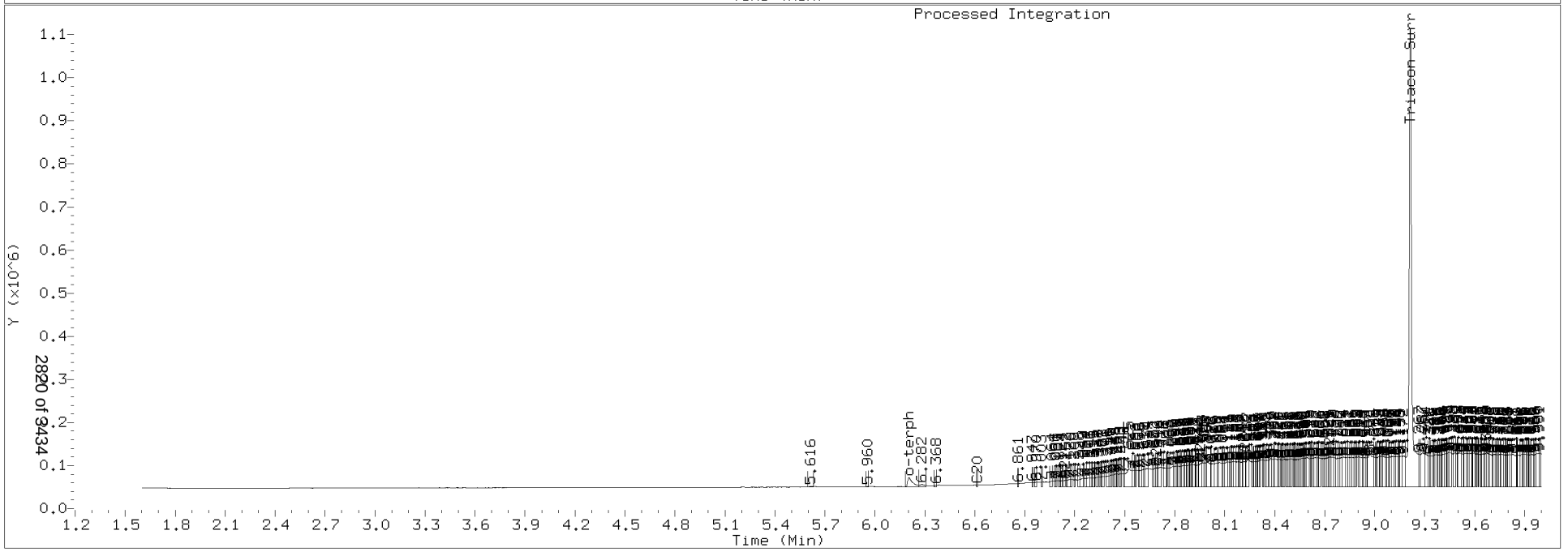


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0542.D Injection: 06-SEP-2019 00:16

Lab ID:SHI0053-CALE





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0543.D

Page 1

Date : 06-SEP-2019 00:36

Client ID:

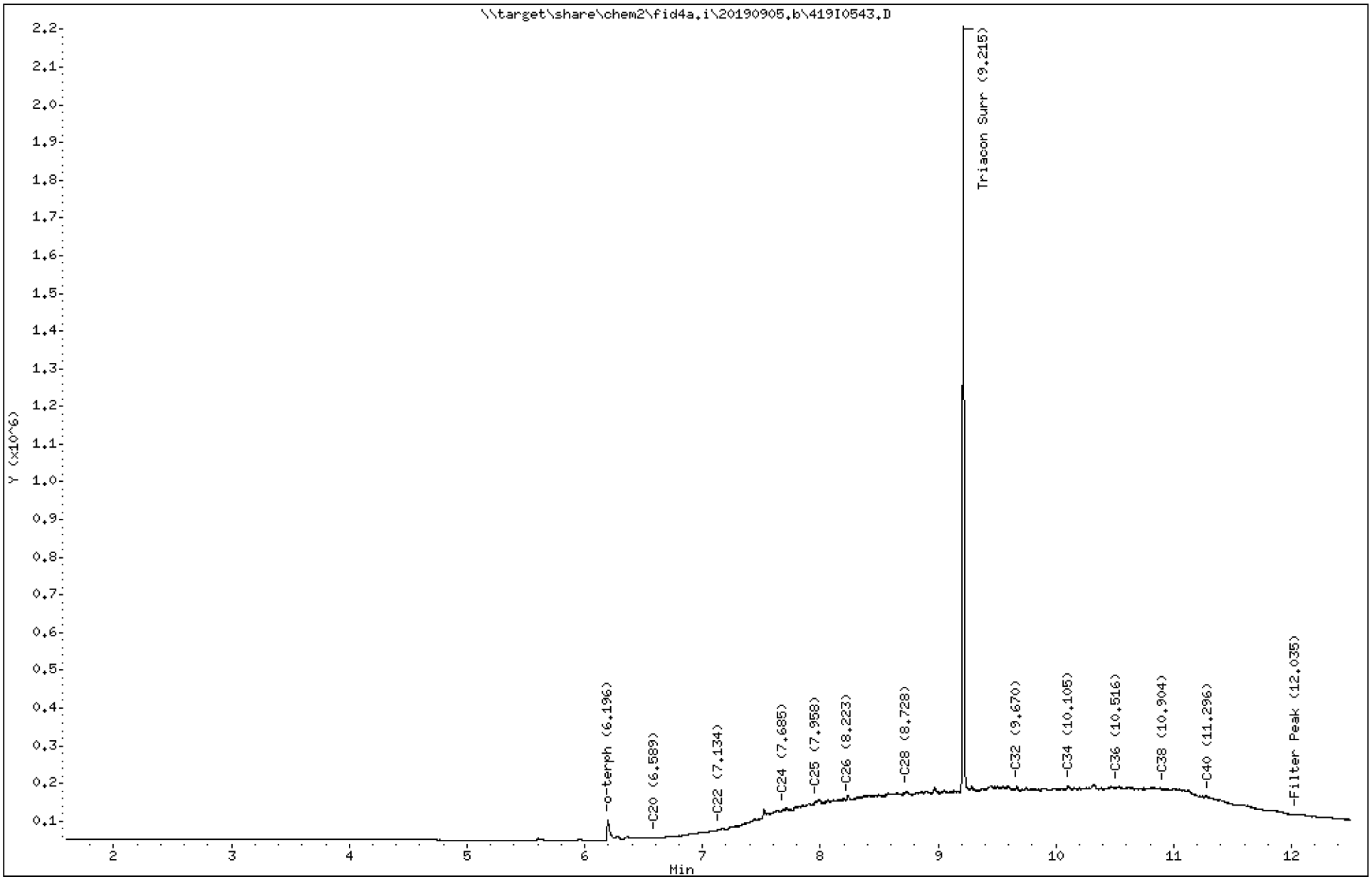
Instrument: fid4a.i

Sample Info: SHI0053-CALF

Operator: JGR/VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0543.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALF
Client ID:
Injection: 06-SEP-2019 00:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	2053537	21.3
C10	----				WATPHM	(C24-C38)	23581653	530.9
C12	----				AK102	(C10-C25)	3045420	27.3
C14	----				AK103	(C25-C36)	19468442	485.9
C16	----				OR.DIES	(C10-C28)	8700366	77.7
C18	----							
C20	6.589	0.013	8001	11496				
C22	7.134	-0.003	28534	20566				
C24	7.685	-0.003	83853	132927				
C25	7.958	-0.001	102585	98641				
C26	8.223	-0.001	107411	21428				
C28	8.728	-0.005	132000	123396				
C32	9.670	-0.005	145011	257771				
C34	10.105	-0.001	145866	193121				
Filter Peak	12.035	-0.004	70312	73048	BUNKERC	(C10-C38)	25635190	381.0
C36	10.516	-0.001	142745	126655				
C38	10.904	-0.001	136829	75008				
C40	11.296	-0.001	115401	57433				
o-terph	6.196	-0.002	55606	94341				
Triacon Surr	9.215	-0.018	2026923	1600113	NAS DIES	(C10-C24)	2053537	18.4

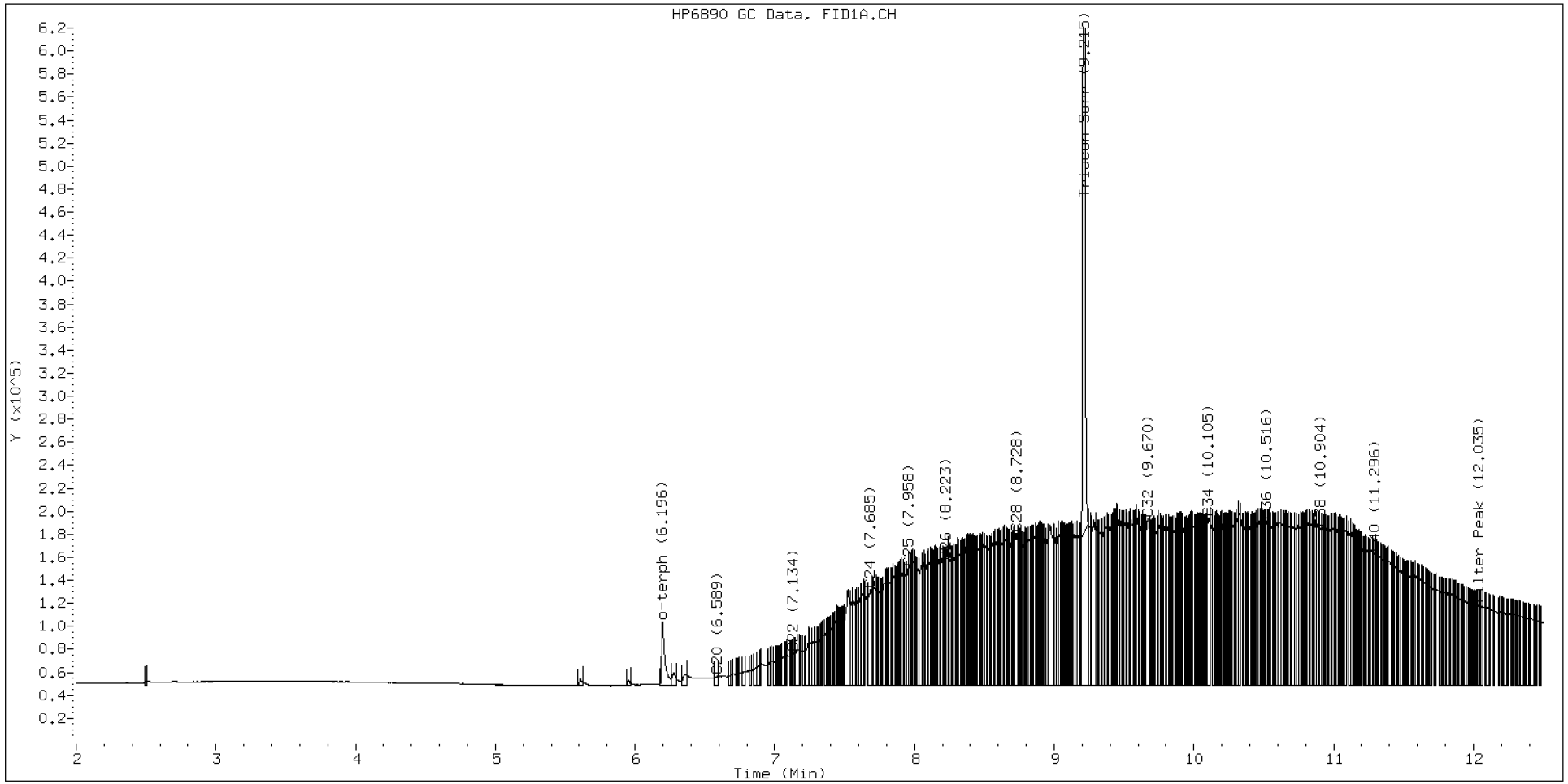
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	94341	0.8	
Triacontane	1600113	26.1	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

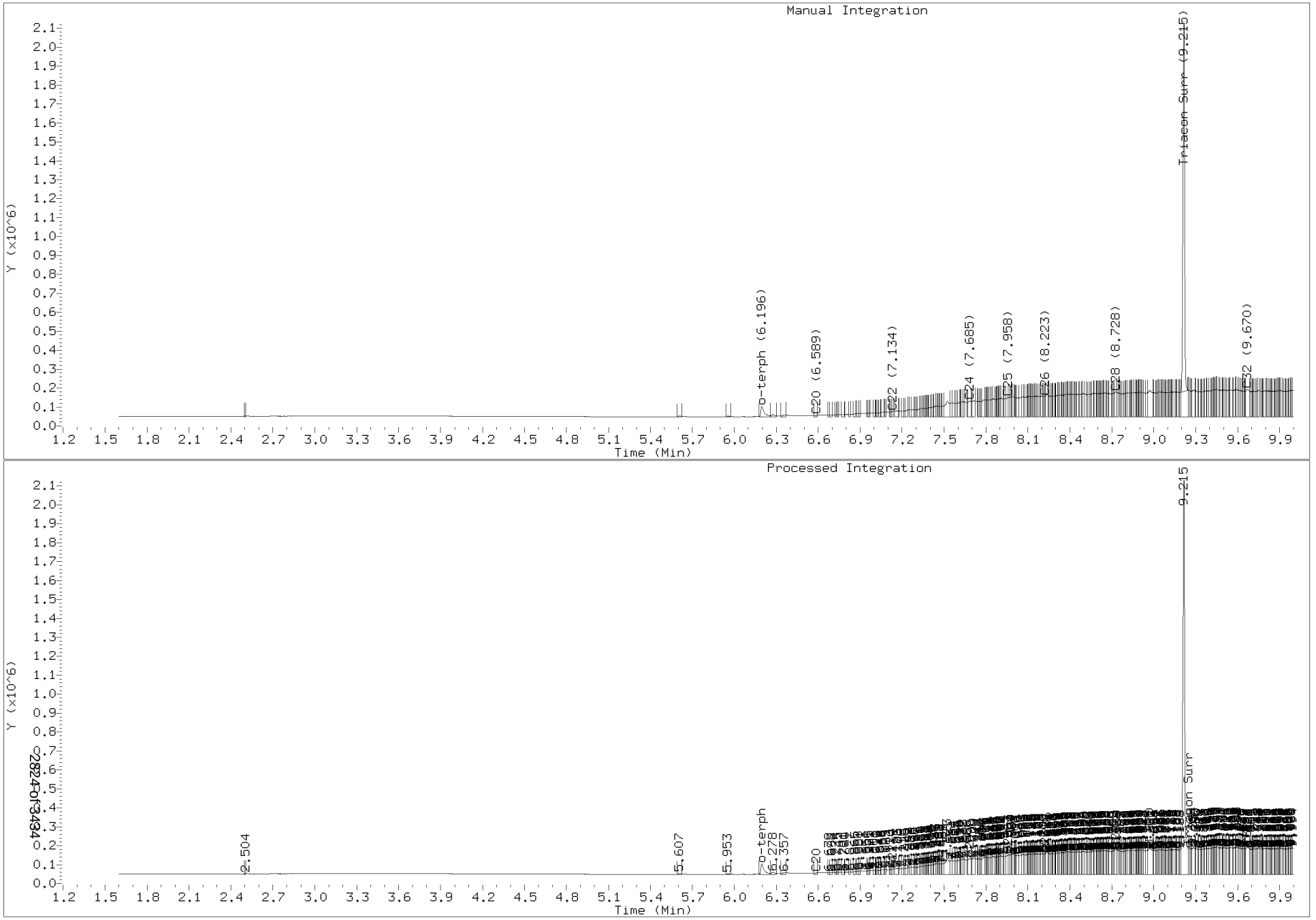
Datafile: FID4A, 20190905.b/419I0543.D SHI0053-CALF



TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0543.D Injection: 06-SEP-2019 00:36

Lab ID:SHI0053-CALF



Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0544.D

Date : 06-SEP-2019 00:58

Client ID:

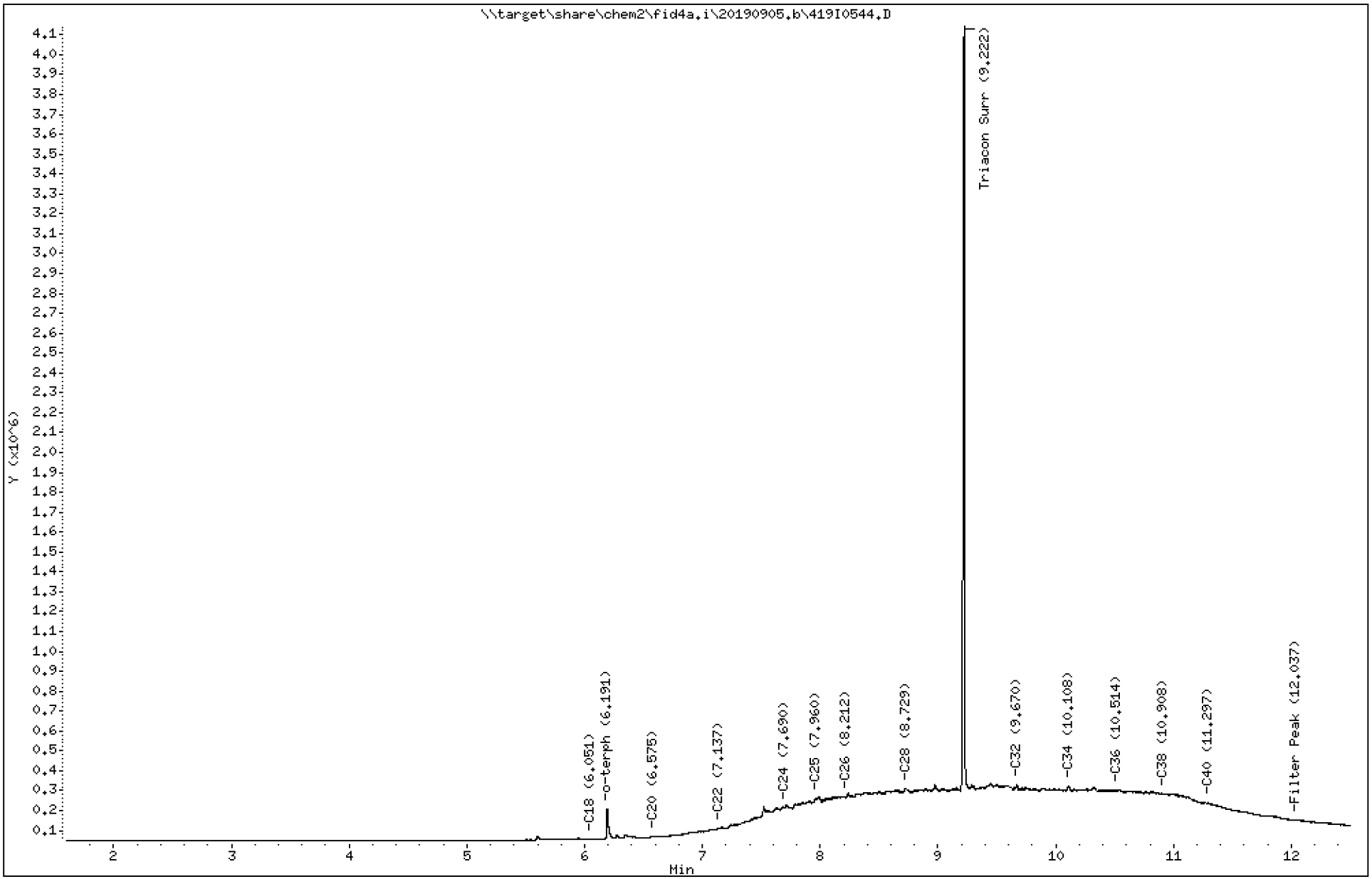
Sample Info: SHI0053-CALG

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0544.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALG
Client ID:
Injection: 06-SEP-2019 00:58
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5262832	54.7
C10	----				WATPHM	(C24-C38)	45911854	1033.6
C12	----				AK102	(C10-C25)	6937257	62.1
C14	----				AK103	(C25-C36)	38719127	966.4
C16	----				OR.DIES	(C10-C28)	18400960	164.4
C18	6.051	0.041	6435	4113				
C20	6.575	-0.001	19212	24231				
C22	7.137	-0.000	61083	103625				
C24	7.690	0.001	167369	115533				
C25	7.960	0.002	210303	248813				
C26	8.212	-0.011	220076	152944				
C28	8.729	-0.004	262152	219032				
C32	9.670	-0.005	281352	431056				
C34	10.108	0.002	273422	333283				
Filter Peak	12.037	-0.002	102677	55907	BUNKERC	(C10-C38)	51174685	760.6
C36	10.514	-0.003	251037	137334				
C38	10.908	0.002	234714	70223				
C40	11.297	-0.000	188723	84300				
o-terph	6.191	-0.007	160164	216978				
Triacon Surr	9.222	-0.011	3836582	3217543	NAS DIES	(C10-C24)	5262832	47.1

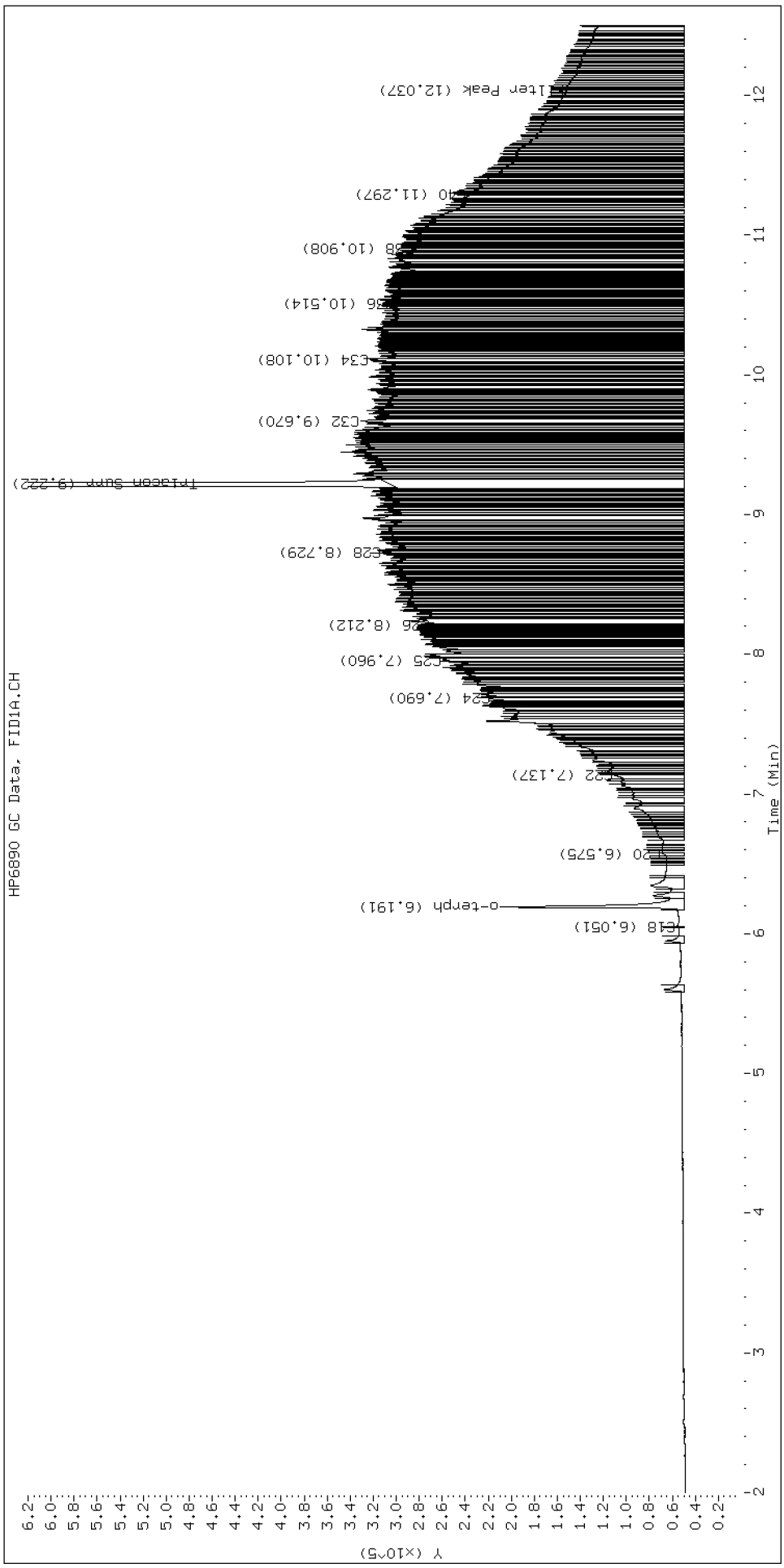
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	216978	1.8	
Triacontane	3217543	52.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

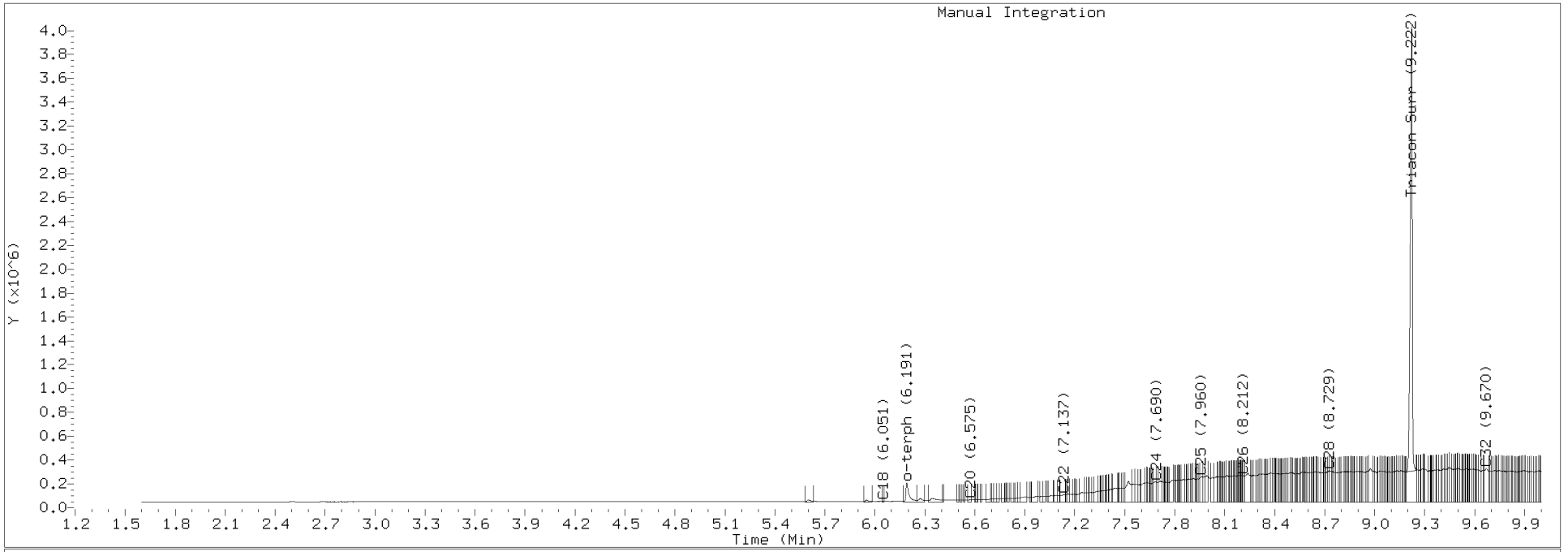
Datafile: FID4A, 20190905.b/419I0544.D SHI0053-CALG

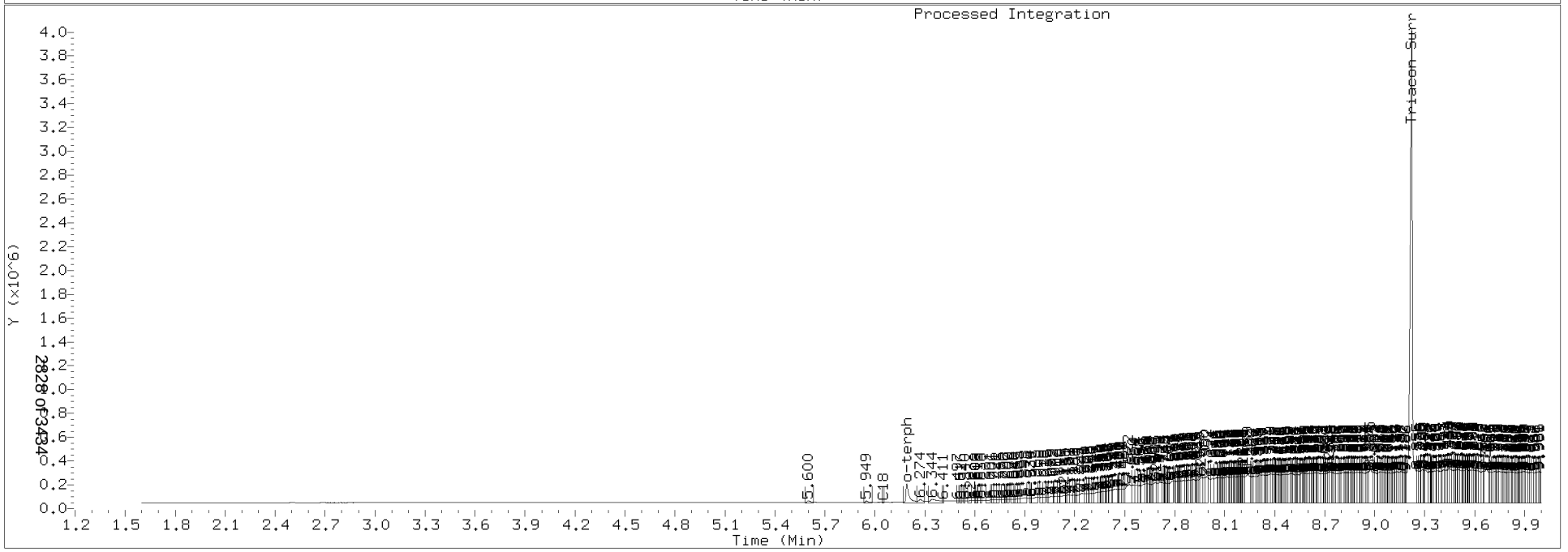


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0544.D Injection: 06-SEP-2019 00:58

Lab ID:SHI0053-CALG





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0545.D

Date : 06-SEP-2019 01:20

Client ID:

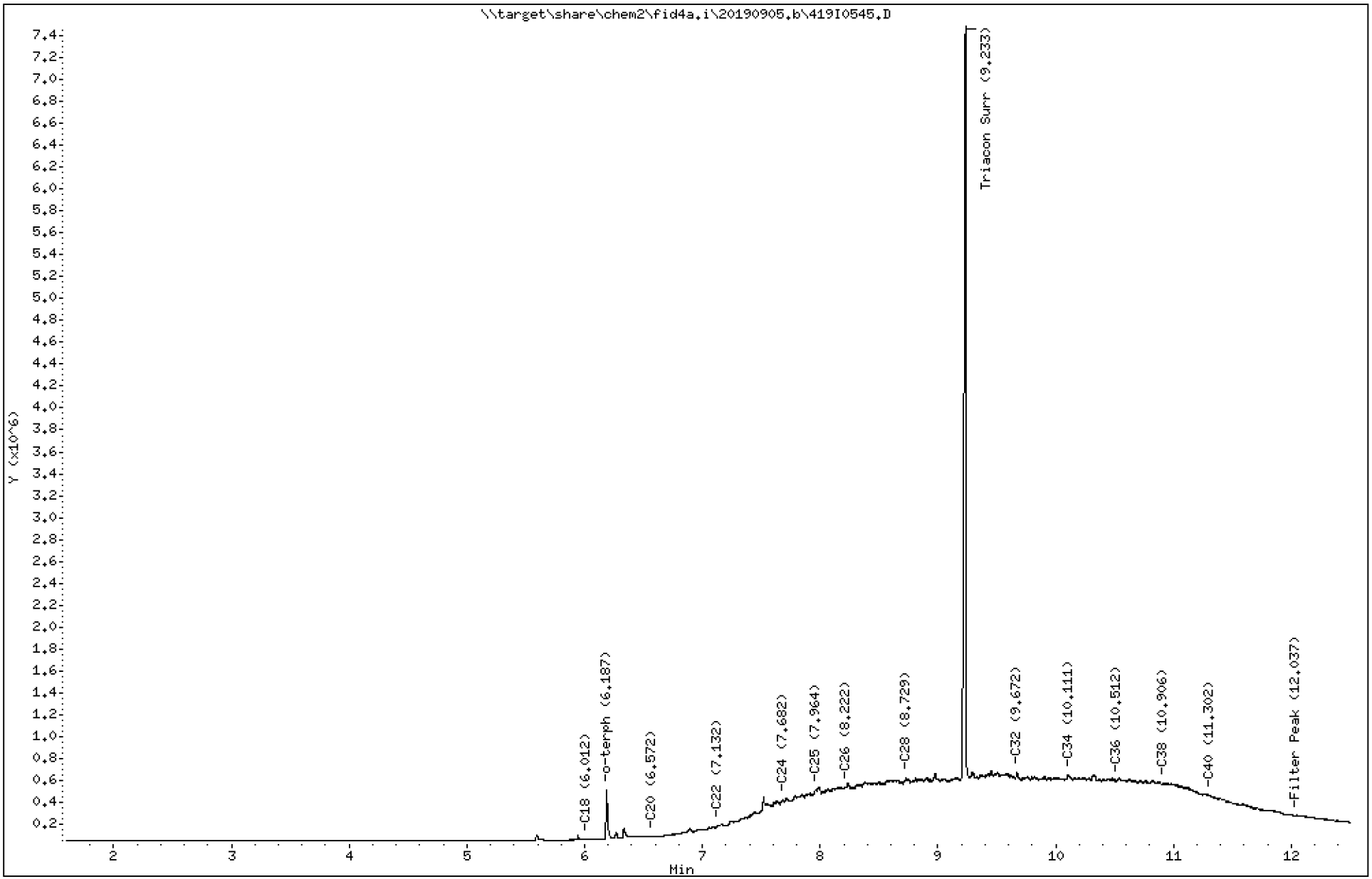
Sample Info: SHI0053-CALH

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0545.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALH
Client ID:
Injection: 06-SEP-2019 01:20
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	12350042	128.3
C10	----				WATPHM	(C24-C38)	102502554	2307.5
C12	----				AK102	(C10-C25)	16391731	146.7
C14	----				AK103	(C25-C36)	85933769	2144.8
C16	----				OR.DIES	(C10-C28)	42029357	375.5
C18	6.012	0.002	8986	5873				
C20	6.572	-0.004	42023	70286				
C22	7.132	-0.006	138761	314295				
C24	7.682	-0.006	374198	855566				
C25	7.964	0.006	461452	736437				
C26	8.222	-0.002	489163	146123				
C28	8.729	-0.004	579064	482392				
C32	9.672	-0.003	619935	979173				
C34	10.111	0.005	600933	561163				
Filter Peak	12.037	-0.003	230241	159912	BUNKERC	(C10-C38)	114852596	1707.1
C36	10.512	-0.004	545525	189917				
C38	10.906	-0.000	519014	231885				
C40	11.302	0.004	417220	124866				
o-terph	6.187	-0.011	463134	517383				
Triacon Surr	9.233	-0.000	6875179	7104161	NAS DIES	(C10-C24)	12350042	110.6

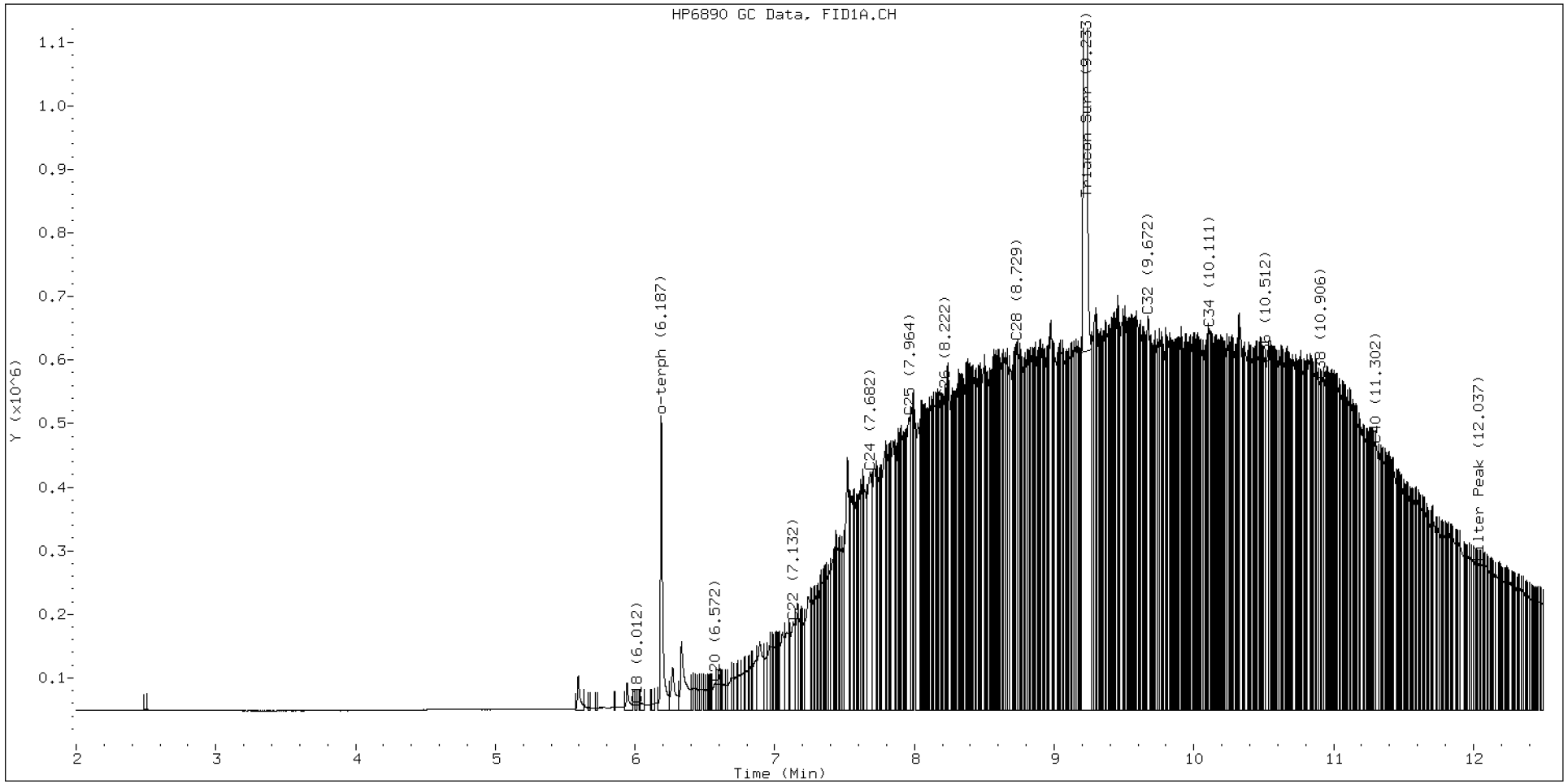
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	517383	4.2	
Triacontane	7104161	115.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

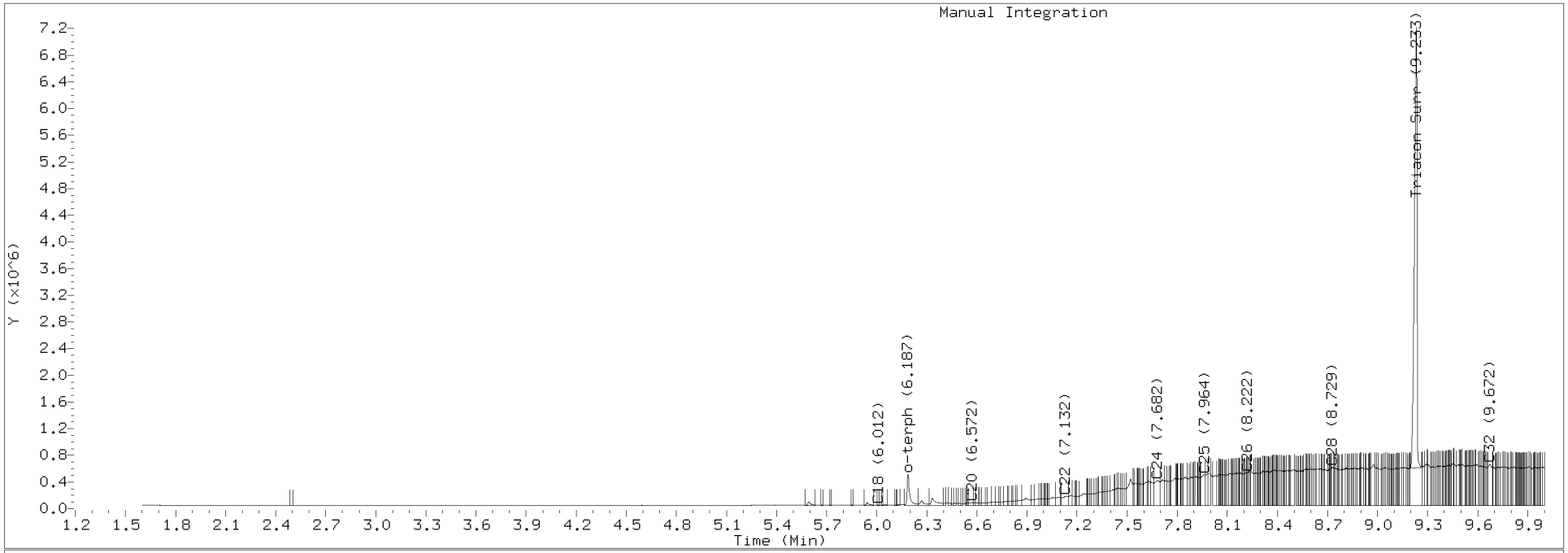
Datafile: FID4A, 20190905.b/419I0545.D SHI0053-CALH

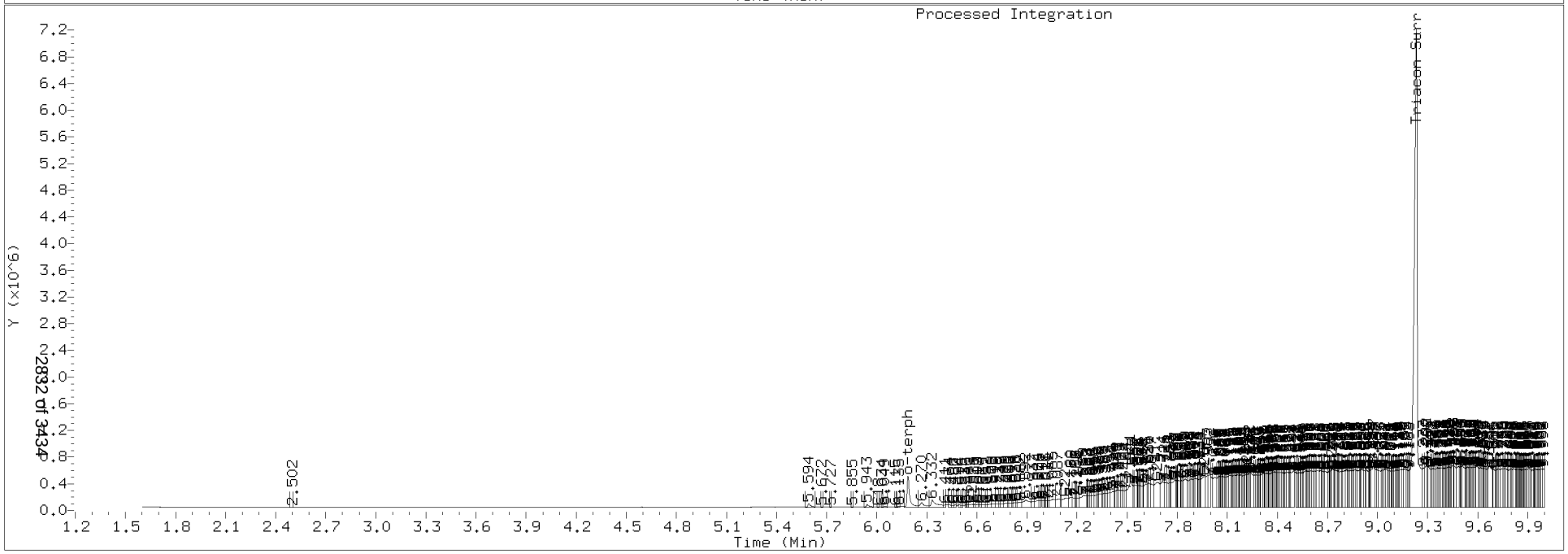


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0545.D Injection: 06-SEP-2019 01:20

Lab ID:SHI0053-CALH



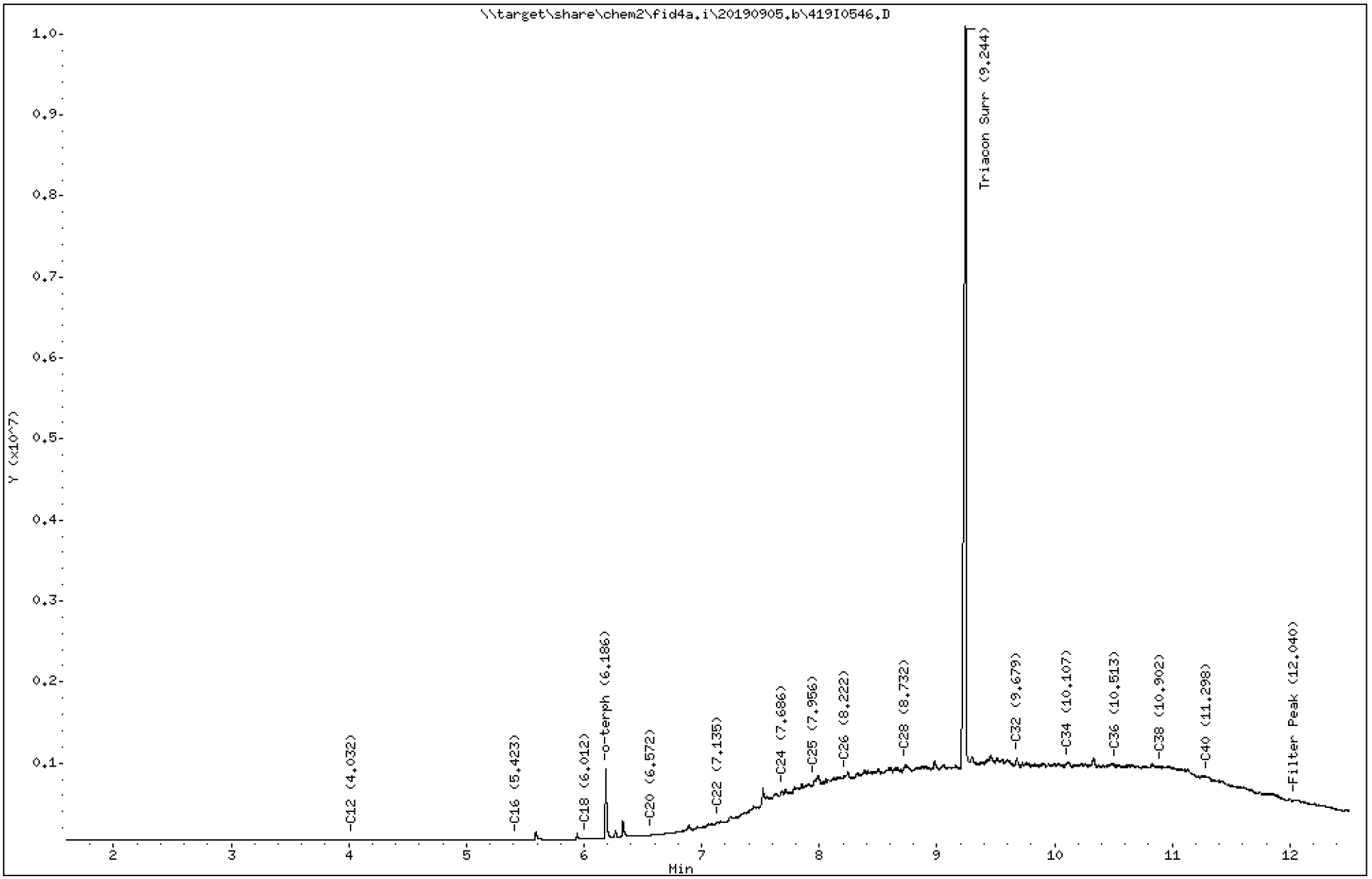


22832 of 34347

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0546.D
Date : 06-SEP-2019 01:40
Client ID:
Sample Info: SHI0053-CALI

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0546.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CALI
Client ID:
Injection: 06-SEP-2019 01:40
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	19222375	199.7
C10	----				WATPHM	(C24-C38)	166941440	3758.2
C12	4.032	0.048	2350	1154	AK102	(C10-C25)	25533211	228.5
C14	----				AK103	(C25-C36)	139821900	3489.8
C16	5.423	0.010	4290	3457	OR.DIES	(C10-C28)	67340990	601.7
C18	6.012	0.002	12882	16327				
C20	6.572	-0.005	64755	105850				
C22	7.135	-0.003	220305	304026				
C24	7.686	-0.003	613351	678935				
C25	7.956	-0.003	721293	594843				
C26	8.222	-0.002	785075	195787				
C28	8.732	-0.001	928041	731417				
C32	9.679	0.004	1003910	1498272				
C34	10.107	0.002	947208	329808				
Filter Peak	12.040	0.001	492214	244567	BUNKERC	(C10-C38)	186164970	2767.1
C36	10.513	-0.003	919267	591618				
C38	10.902	-0.004	890468	399036				
C40	11.298	0.001	774760	154661				
o-terph	6.186	-0.013	880754	843560				
Triacon Surr	9.244	0.011	9104635	11405485	NAS DIES	(C10-C24)	19223530	172.2

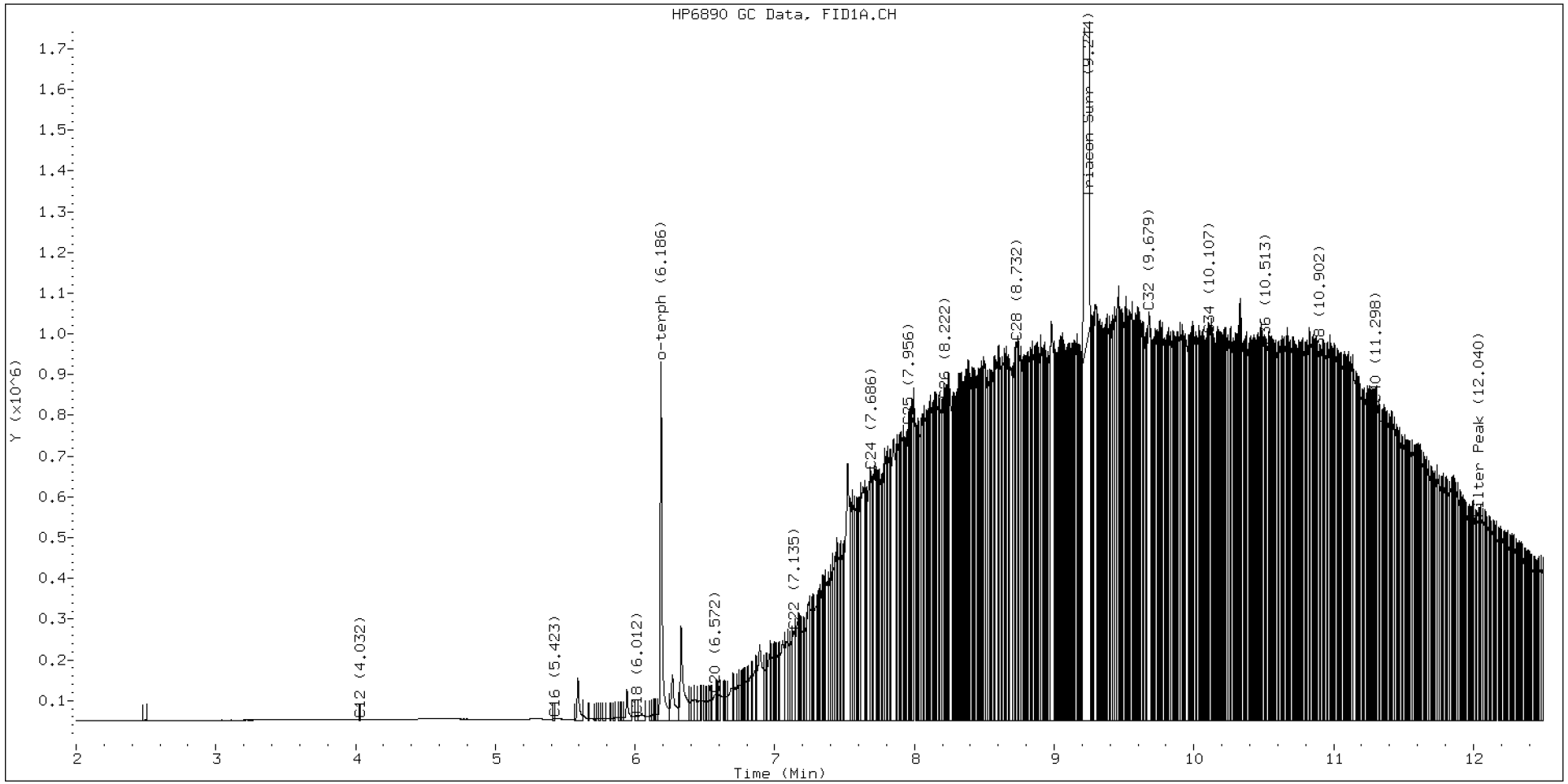
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	843560	6.9	
Triacontane	11405485	186.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

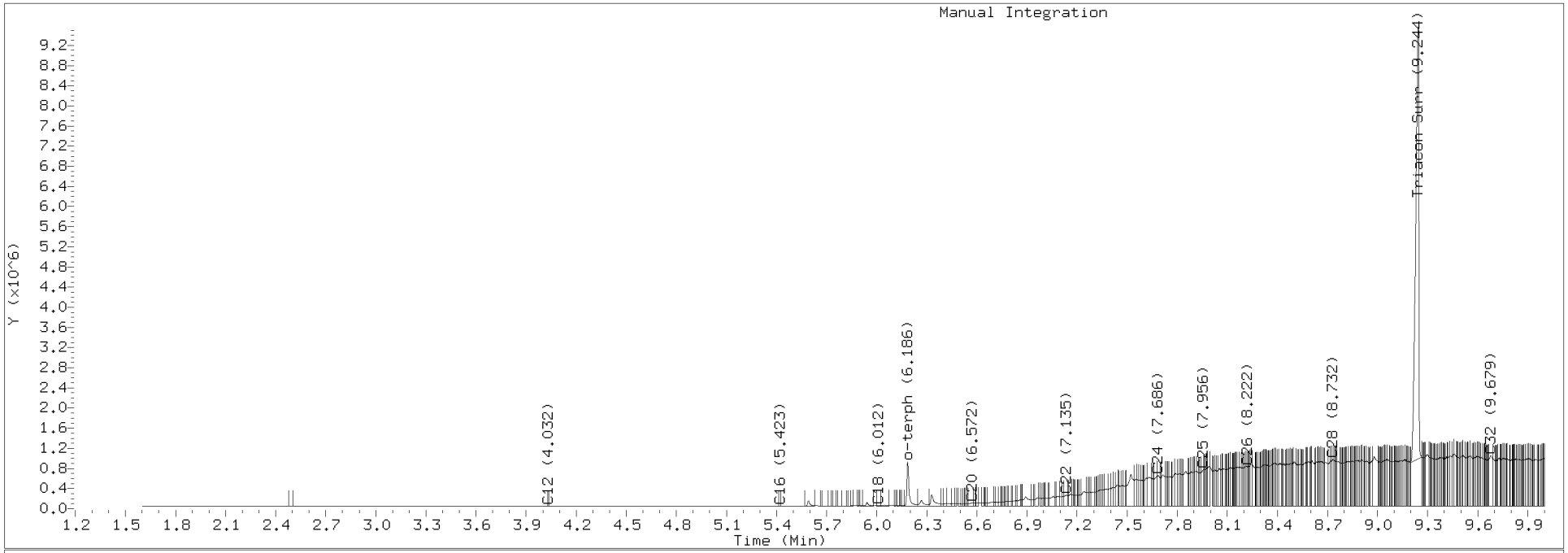
Datafile: FID4A, 20190905.b/419I0546.D SHI0053-CALI

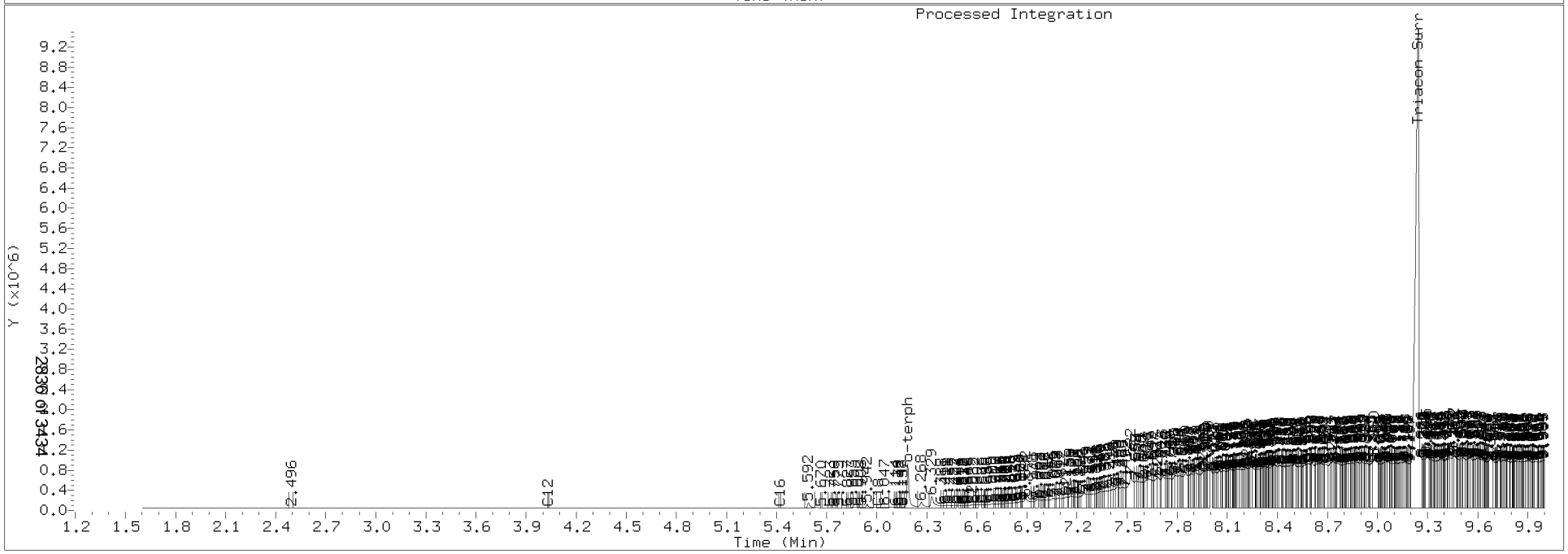


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0546.D Injection: 06-SEP-2019 01:40

Lab ID:SHI0053-CALI

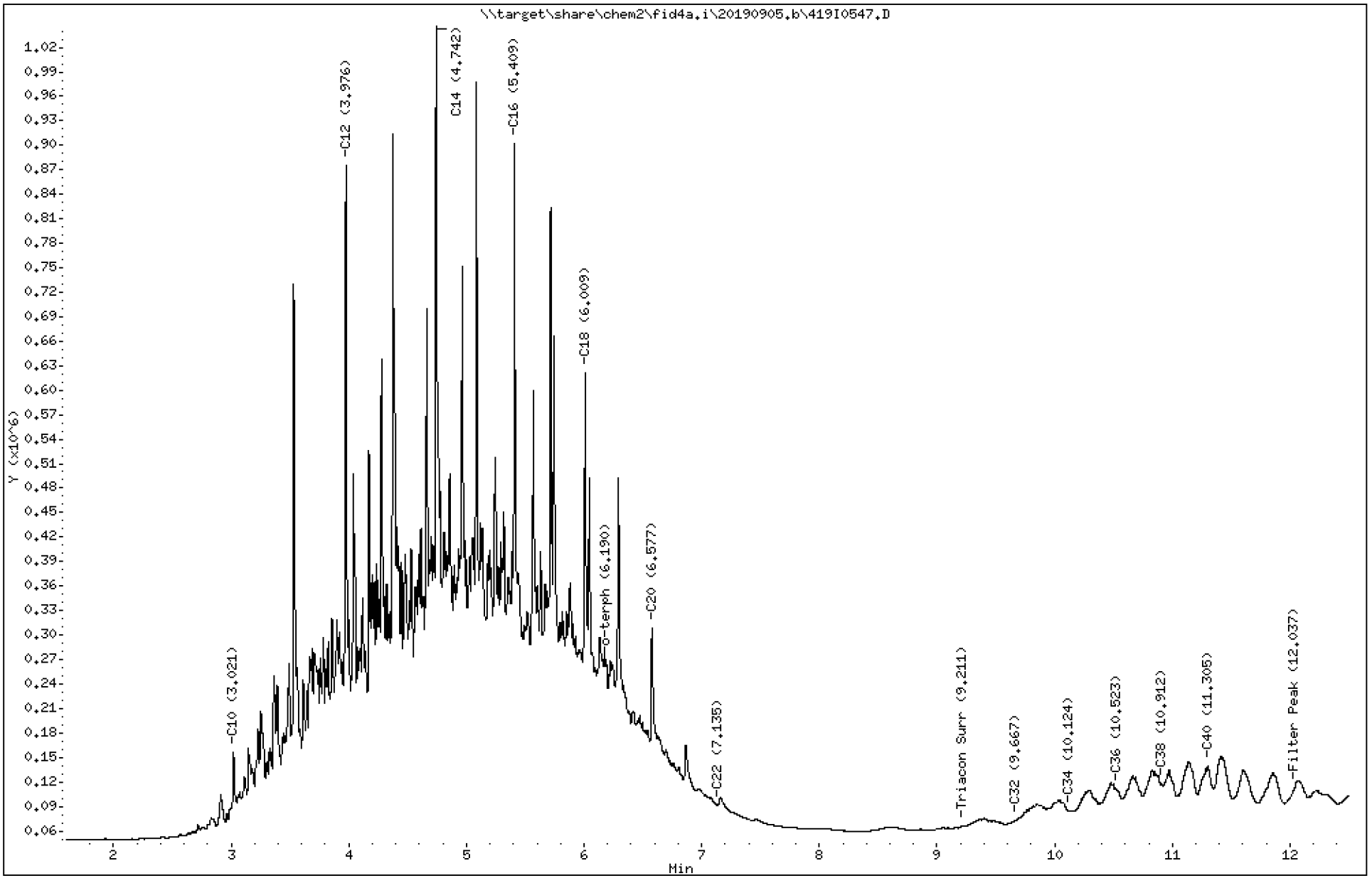




Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0547.D
Date : 06-SEP-2019 02:01
Client ID:
Sample Info: SEQ-SCV1

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0547.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV1
Client ID:
Injection: 06-SEP-2019 02:01
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

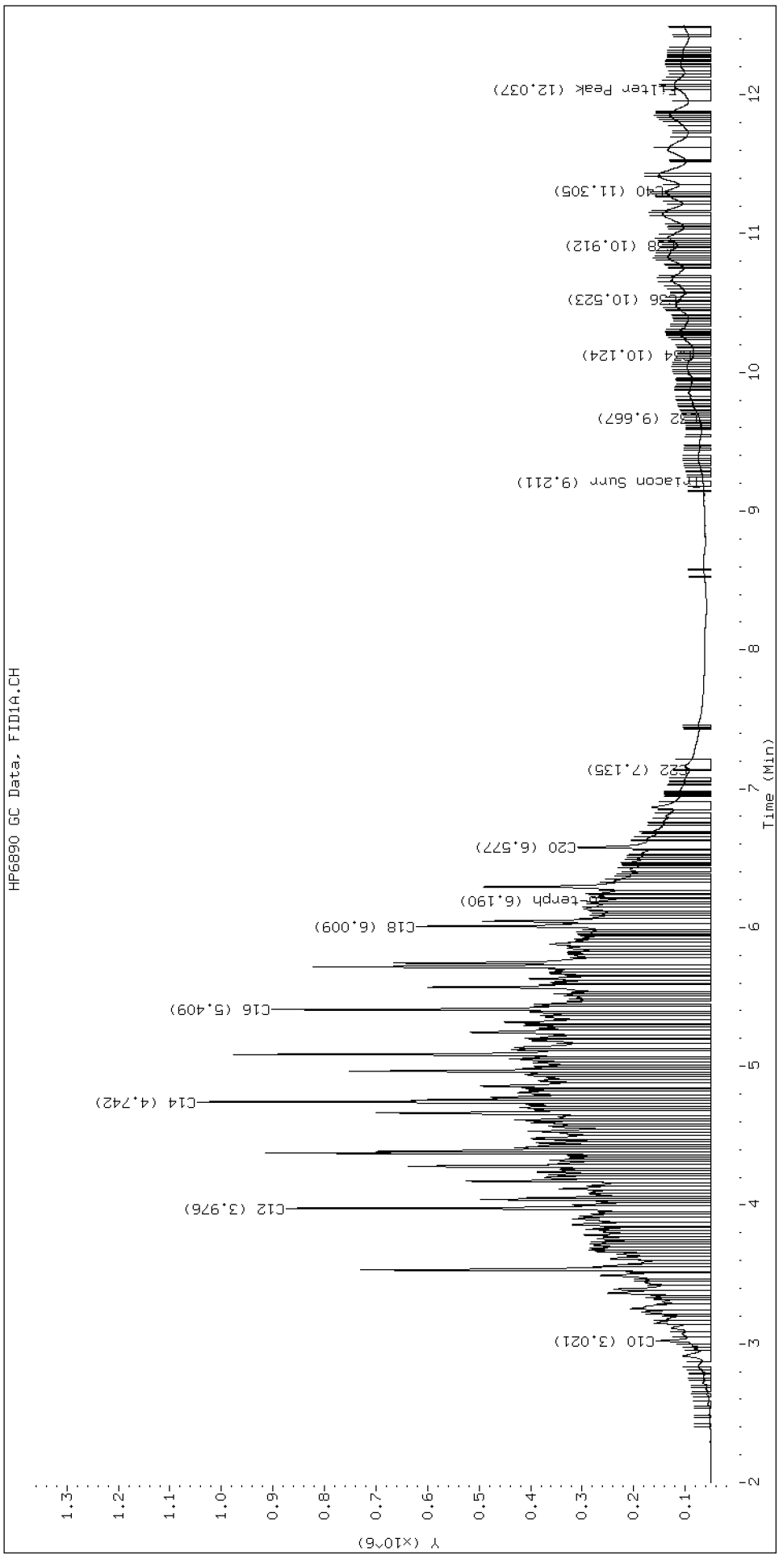
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	47198624	490.2
C10	3.021	0.002	107017	189534	WATPHM	(C24-C38)	3926192	88.4
C12	3.976	-0.007	825553	970800	AK102	(C10-C25)	57300068	512.9
C14	4.742	-0.008	996730	921930	AK103	(C25-C36)	2577356	64.3
C16	5.409	-0.004	853367	944515	OR.DIES	(C10-C28)	57315981	512.1
C18	6.009	-0.001	571467	924892				
C20	6.577	0.000	258974	584247				
C22	7.135	-0.002	42335	8432				
C24	----							
C25	----							
C26	----							
C32	9.667	-0.007	23024	29212				
C34	10.124	0.018	35699	33411				
Filter Peak	12.037	-0.002	62961	253045	BUNKERC	(C10-C38)	61226261	910.0
C36	10.523	0.007	62321	75360				
C38	10.912	0.007	67745	46495				
C40	11.305	0.008	89616	221492				
o-terph	6.190	-0.008	216639	232217				
Triacon Surr	9.211	-0.022	16258	32363	NAS DIES	(C10-C24)	57300068	513.3

Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	232217	1.9
Triacontane	32363	0.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190905.b/419I0547.D SHI0053-SCV1
HP6890 GC Data, FID1A.CH
Y (x10^6)
Time (Min)
C10 (3.021)
C12 (3.976)
C14 (4.742)
C16 (5.409)
C18 (6.009)
C20 (6.577)
C22 (7.135)
Eicosacon Surr (9.211)
C24 (9.667)
C26 (10.124)
C28 (10.523)
C30 (10.912)
C40 (11.305)
Filter Peak (12.037)

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0548.D

Date : 06-SEP-2019 02:22

Client ID:

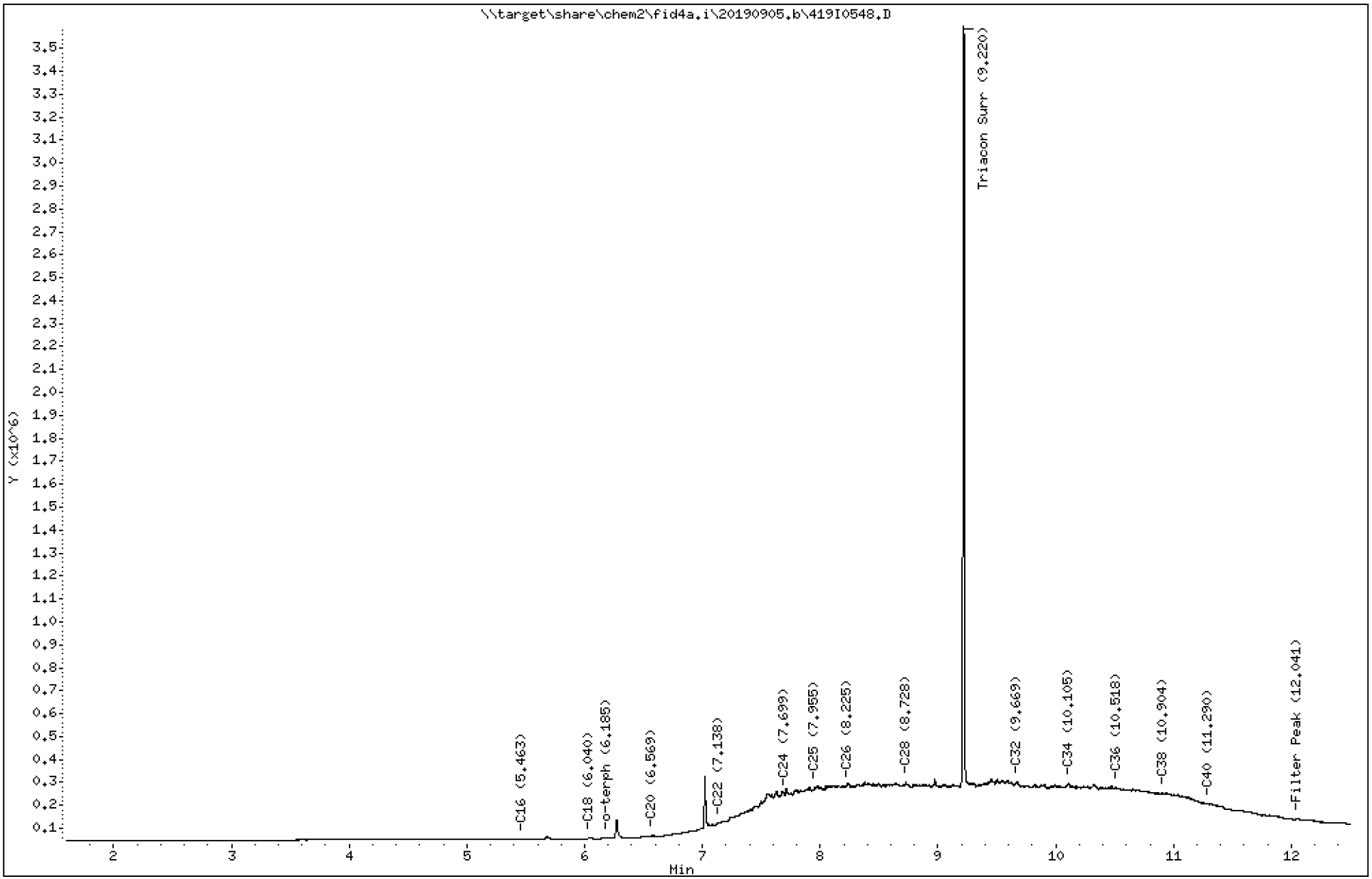
Sample Info: SEQ-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0548.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV2
Client ID:
Injection: 06-SEP-2019 02:22
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	6577610	68.3
C10	----				WATPHM	(C24-C38)	43231405	973.2
C12	----				AK102	(C10-C25)	8617963	77.1
C14	----				AK103	(C25-C36)	36664024	915.1
C16	5.463	0.050	2229	1128	OR.DIES	(C10-C28)	20702005	185.0
C18	6.040	0.030	5685	5475				
C20	6.569	-0.008	16864	18909				
C22	7.138	0.001	71370	46148				
C24	7.699	0.011	195206	48695				
C25	7.955	-0.004	226212	123100				
C26	8.225	0.001	232090	81001				
C28	8.728	-0.005	249634	328150				
C32	9.669	-0.006	253564	382876				
C34	10.105	-0.000	244652	193564				
Filter Peak	12.041	0.002	88932	48533	BUNKERC	(C10-C38)	49809015	740.3
C36	10.518	0.001	226452	123532				
C38	10.904	-0.002	202169	110203				
C40	11.290	-0.007	156301	124172				
o-terph	6.185	-0.014	5712	7191				
Triacon Surr	9.220	-0.013	3302296	2674658	NAS DIES	(C10-C24)	6577610	58.9

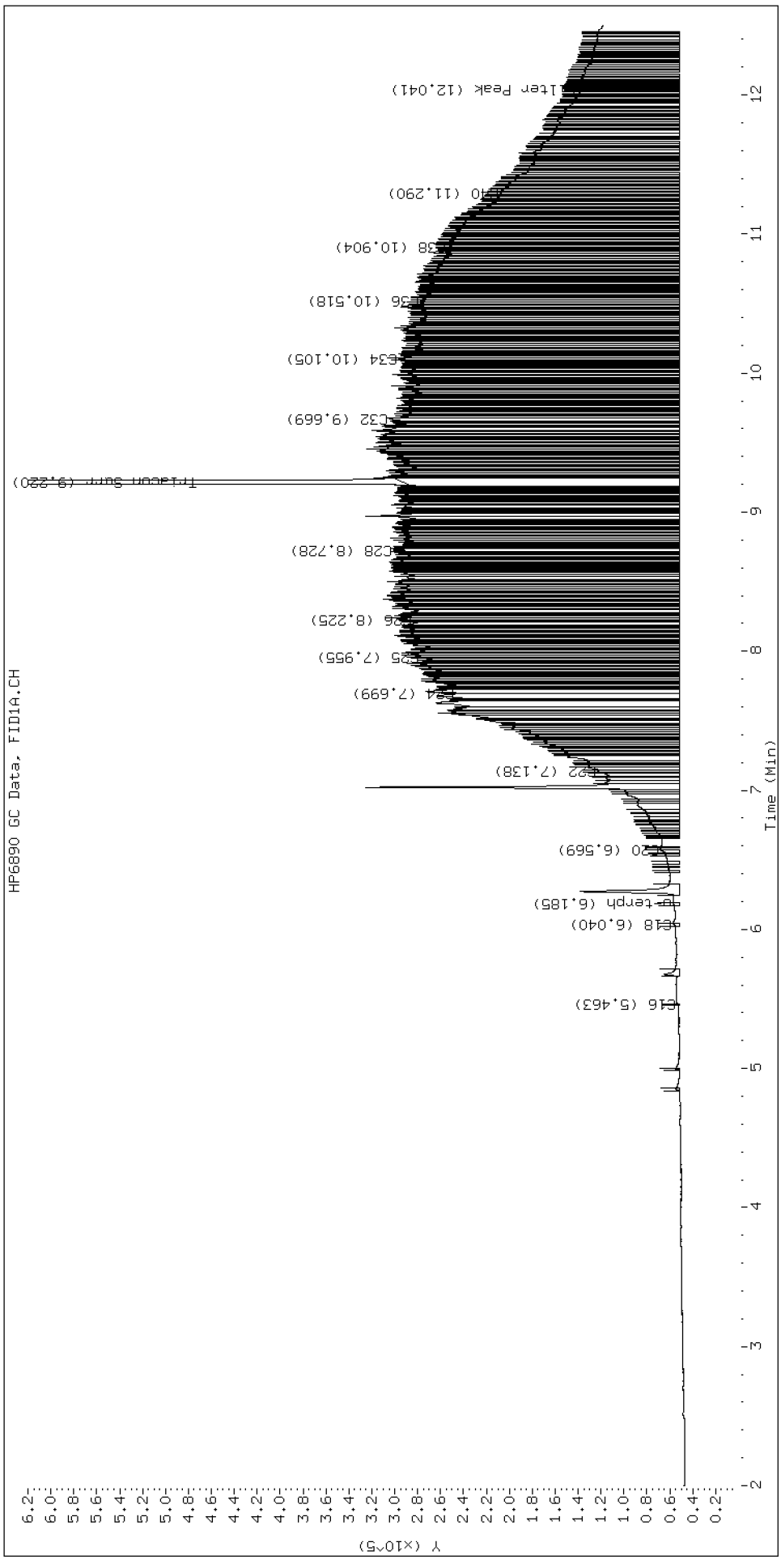
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7191	0.1	
Triacontane	2674658	43.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

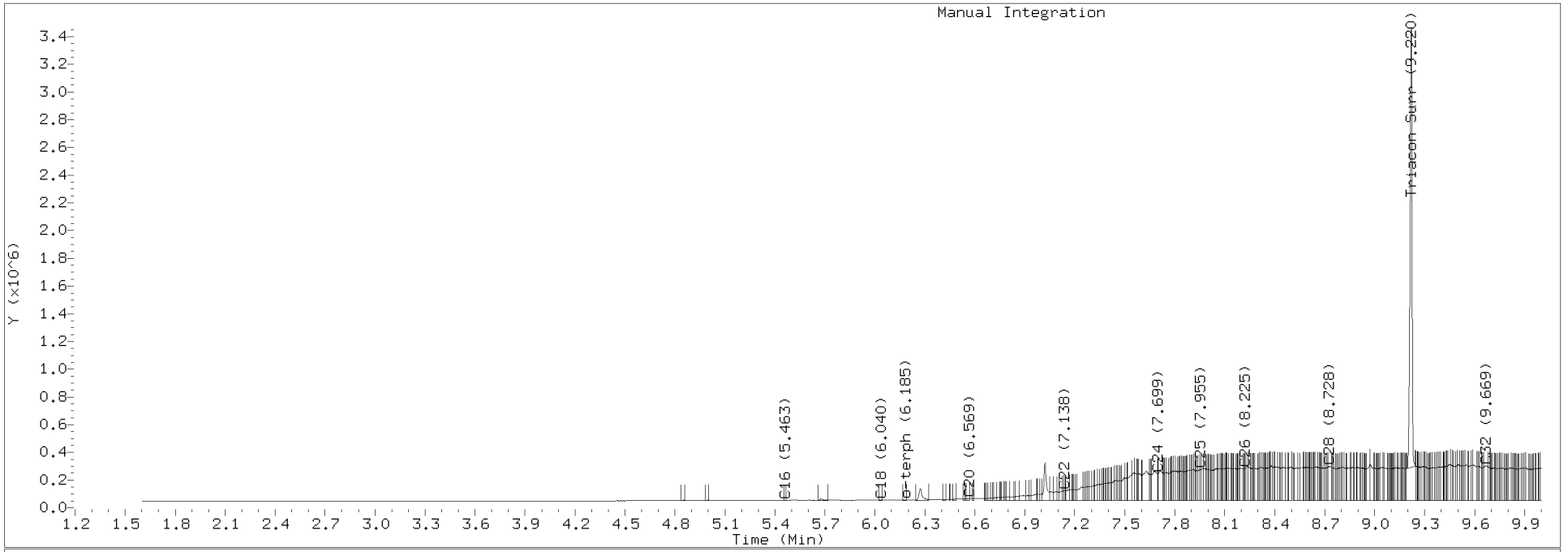
Datafile: FID4A, 20190905.b/419I0548.D SHI0053-SCV2

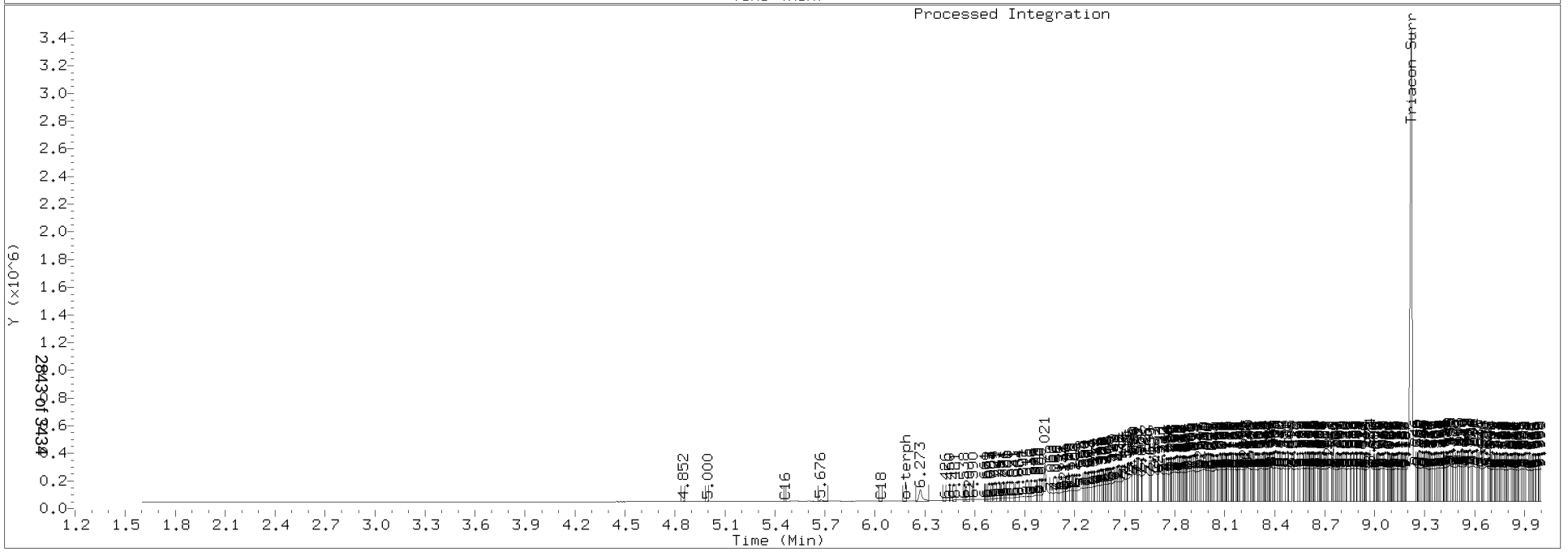


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0548.D Injection: 06-SEP-2019 02:22

Lab ID:SHI0053-SCV2





Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0549.D

Date : 06-SEP-2019 02:42

Client ID:

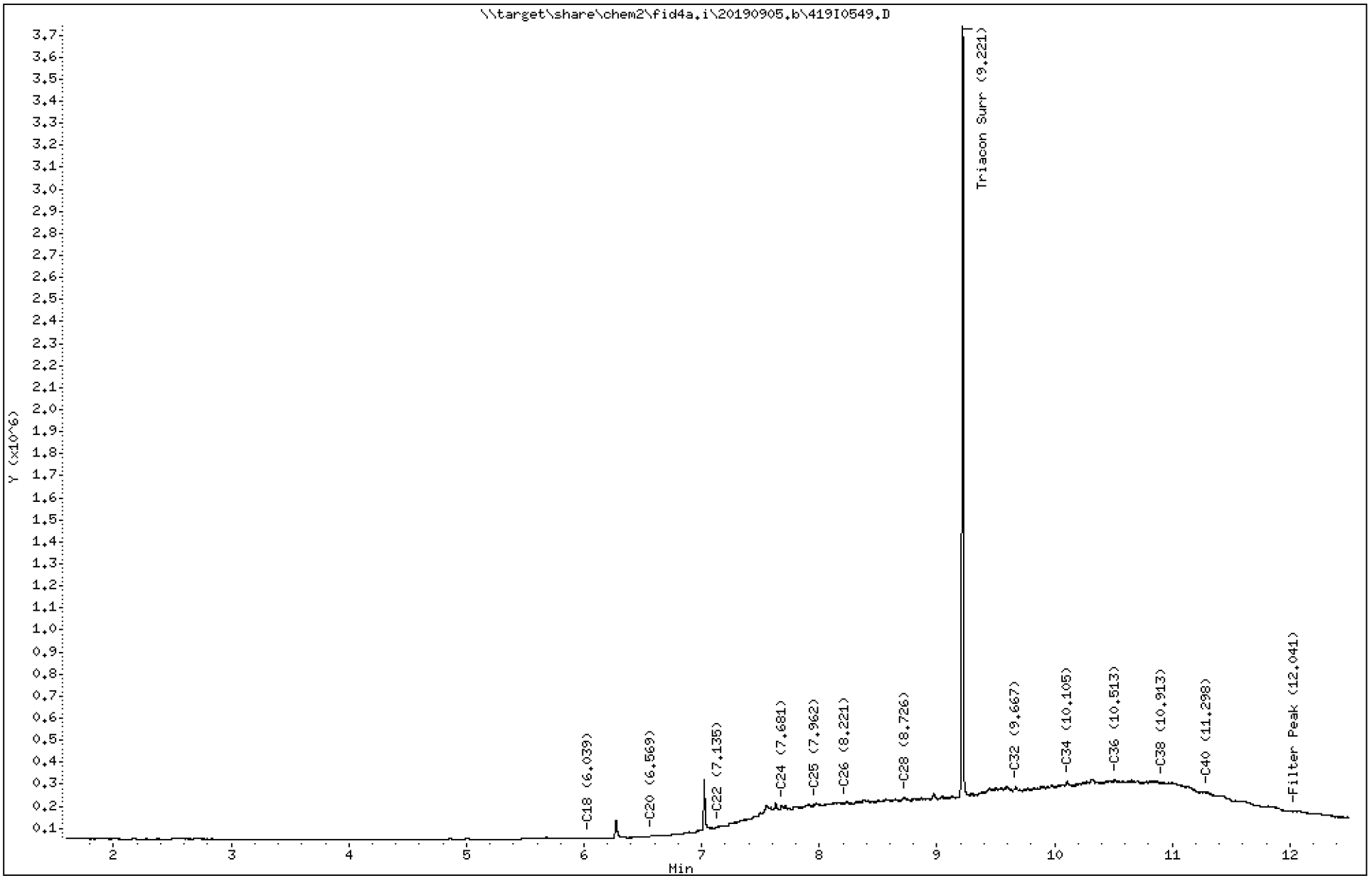
Sample Info: SEQ-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0549.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV3
Client ID:
Injection: 06-SEP-2019 02:42
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5015558	52.1
C10	----				WATPHM	(C24-C38)	39590761	891.3
C12	----				AK102	(C10-C25)	6513420	58.3
C14	----				AK103	(C25-C36)	31999485	798.7
C16	----				OR.DIES	(C10-C28)	15193638	135.8
C18	6.039	0.029	5296	4051				
C20	6.569	-0.007	15887	16787				
C22	7.135	-0.002	57835	37508				
C24	7.681	-0.007	156035	349994				
C25	7.962	0.004	160164	71527				
C26	8.221	-0.002	164369	97784				
C28	8.726	-0.007	193253	262816				
C32	9.667	-0.008	240483	428011				
C34	10.105	-0.001	264230	295928				
Filter Peak	12.041	0.002	129760	77266	BUNKERC	(C10-C38)	44606319	663.0
C36	10.513	-0.004	269456	120313				
C38	10.913	0.008	260433	180319				
C40	11.298	0.001	213708	137992				
o-terph	----							
Triacon Surr	9.221	-0.012	3493703	2925317	NAS DIES	(C10-C24)	5015558	44.9

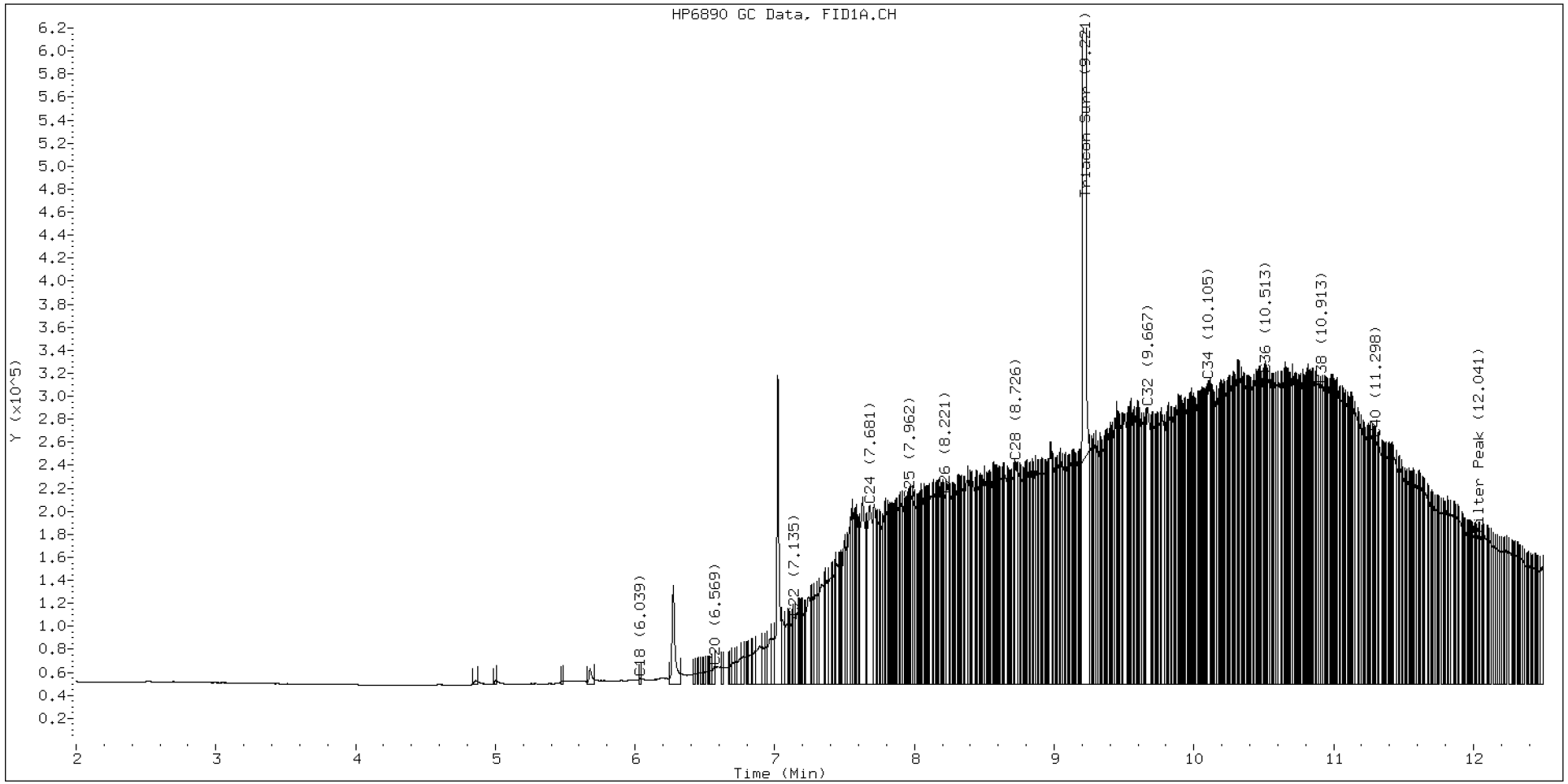
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2925317	47.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

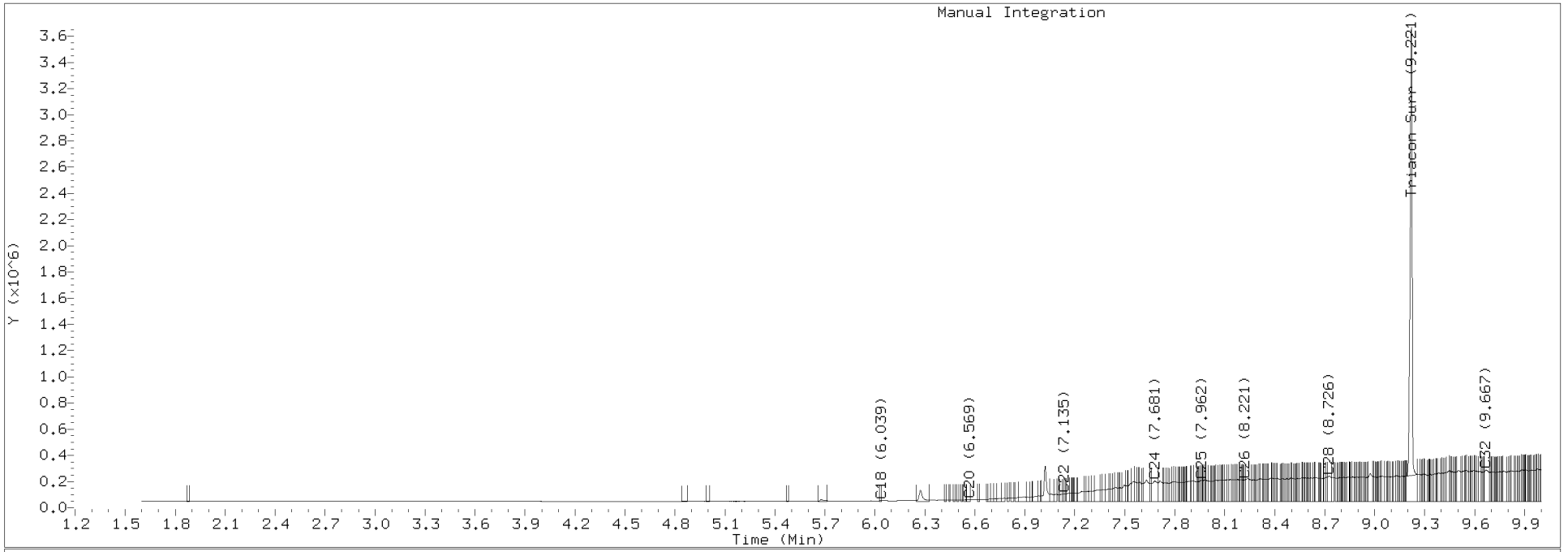
Datafile: FID4A, 20190905.b/419I0549.D SHI0053-SCV3

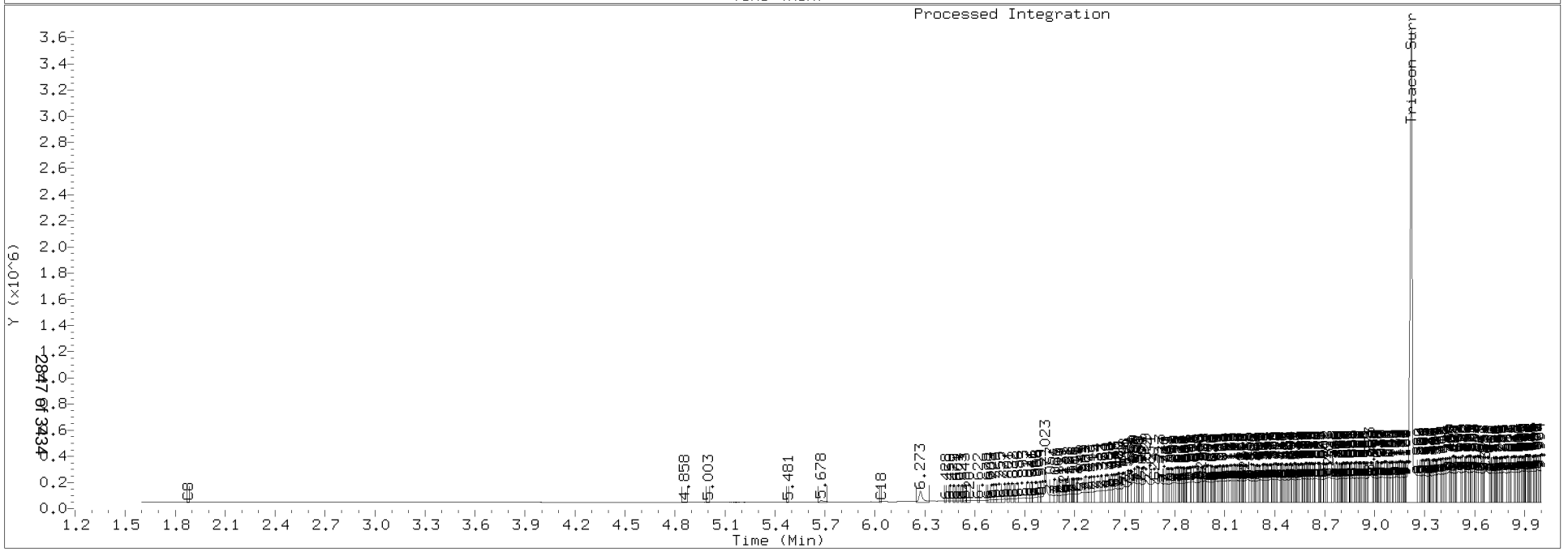


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0549.D Injection: 06-SEP-2019 02:42

Lab ID:SHI0053-SCV3





INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00036	Instrument:	FID3
Calibration Date:	09/10/2019 0:00	Column (1):	RTX-1

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Motor Oil Range Organics (C24-C38)	100	91580.18	250	125955.4	500	130990.3	1000	131403	2500	142934.4	5000	136838.9

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00036	Instrument:	FID3
Calibration Date:	09/10/2019 0:00	Column (1):	RTX-1

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00036	Instrument:	FID3
Calibration Date:	09/10/2019 0:00	Column (1):	RTX-1

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF
Diesel Range Organics (C12-C24)	50	177171.2	100	173229.4	250	171003.9	500	171969.5	1000	175565.6	2500	177818.6
o-Terphenyl	9	208174.6	18	215790.9	45	214411.3	90	223338.9	180	234199.2	450	238936.9

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00036	Instrument:	FID3
Calibration Date:	09/10/2019 0:00	Column (1):	RTX-1

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Diesel Range Organics (C12-C24)	174459.7	1.6			RSD (20)	
Motor Oil Range Organics (C24-C38)	126617	14.3			RSD (20)	
o-Terphenyl	222475.3	5.4			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/11/2019 12:30:54PM

ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-IBL1	Retention Time Standard	QC		1	H006806		
SHI0095-IBL2	Instrument Blank	QC		2	H007457		
SHI0095-CAL1	DIESEL 50	QC		3	H006819		
SHI0095-CAL2	DIESEL 100	QC		4	H006818		
SHI0095-CAL3	DIESEL 250	QC		5	H006817		
SHI0095-CAL4	DIESEL 500	QC		6	H006816		
SHI0095-CAL5	DIESEL 1000	QC		7	H006815		
SHI0095-CAL6	DIESEL 2500	QC		8	H006794		
SHI0095-CAL7	MOIL 100	QC		9	H008395		
SHI0095-CAL8	MOIL 250	QC		10	H008396		
SHI0095-CAL9	MOIL 500	QC		11	H008397		
SHI0095-CALA	MOIL 1000	QC		12	H007659		
SHI0095-CALB	MOIL 2500	QC		13	H008398		
SHI0095-CALD	AK103 100	QC		14	H006838		
SHI0095-CALC	MOIL 5000	QC		15	H007458		
SHI0095-CALE	AK103 250	QC		16	H006837		
SHI0095-CALF	AK103 500	QC		17	H006839		
SHI0095-CALG	AK103 1000	QC		18	H006836		
SHI0095-CALH	AK103 2500	QC		19	H006835		
SHI0095-CALI	AK103 5000	QC		20	H006795		
SHI0095-SCV1	DIESEL SCV	QC		21	H008294		
SHI0095-SCV2	MOIL SCV	QC		22	H008399		

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Printed: 9/11/2019 12:30:54PM

ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-SCV3	AK103 SCV	QC		23	H008400		
SHI0095-ICV1	DIESEL ICV	QC		24	H006816		
SHI0095-ICV2	MOIL ICV	QC		25	H007659		
SHI0095-CCV1	DIESEL CCV	QC		26	H006816		
SHI0095-CCV2	MOIL CCV	QC		27	H007659		
SHI0095-CCV3	AK103 CCV	QC		28	H006836		
SHI0095-CCV4	DIESEL CCV	QC		29	H006816		
SHI0095-CCV5	MOIL CCV	QC		30	H007659		
SHI0095-CCV6	AK103 CCV	QC		31	H006836		
BHI0054-BLK1	Blank	QC		32			
BHI0054-BS1	LCS	QC		33			
19H0481-06	P40-UST-01-4.5'-083019	TPH NW (Extractables) low level	A 01	34			
19H0481-08	P40-UST-01-9'-083019	TPH NW (Extractables) low level	A 01	35			
19H0481-12	P40-UST-02-4.5'-083019	TPH NW (Extractables) low level	A 01	36			
19H0481-14	P40-UST-02-9'-083019	TPH NW (Extractables) low level	A 01	37			
19H0481-18	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	38			
19H0481-20	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	39			
19H0481-24	P40-UST-04-4.5'-083019	TPH NW (Extractables) low level	A 01	40			
19H0481-26	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	41			
19H0481-30	P40-UST-05-4.5'-083019	TPH NW (Extractables) low level	A 01	42			
19H0481-32	P40-UST-505-4.5'-083019	TPH NW (Extractables) low level	A 01	43			
SHI0095-CCV7	DIESEL CCV	QC		44	H006816		

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ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-CCV8	MOIL CCV	QC		45	H007659		
19H0481-27RE1	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	46			Added 9/10/2019 by JGR
19H0481-18RE1	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	47			Added 9/10/2019 by JGR
19H0481-20RE1	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	48			Added 9/10/2019 by JGR
19H0481-26RE1	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	49			Added 9/10/2019 by JGR
SHI0095-CCV9	DIESEL CCV	QC		50	H006816		
SHI0095-CCVA	MOIL CCV	QC		51	H007659		
SHI0095-IBL3	RT2	QC		52	H006806		
SHI0095-IBL4	IB2	QC		53	H007457		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b

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3	10-SEP-2019 10:25	319I1003.D	1	SHI0095-IBL2	
4	10-SEP-2019 10:46	319I1004.D	1	SHI0095-CAL1	
5	10-SEP-2019 11:08	319I1005.D	1	SHI0095-CAL2	
6	10-SEP-2019 11:29	319I1006.D	1	SHI0095-CAL3	
7	10-SEP-2019 11:50	319I1007.D	1	SHI0095-CAL4	
8	10-SEP-2019 12:11	319I1008.D	1	SHI0095-CAL5	
9	10-SEP-2019 12:32	319I1009.D	1	SHI0095-CAL6	
10	10-SEP-2019 12:53	319I1010.D	1	SHI0095-CAL7	
11	10-SEP-2019 13:15	319I1011.D	1	SHI0095-CAL8	
12	10-SEP-2019 13:36	319I1012.D	1	SHI0095-CAL9	
13	10-SEP-2019 13:57	319I1013.D	1	SHI0095-CALA	
14	10-SEP-2019 14:18	319I1014.D	1	SHI0095-CALB	
15	10-SEP-2019 14:39	319I1015.D	1	SHI0095-CALC	
16	10-SEP-2019 15:00	319I1016.D	1	SHI0095-IBL	
17	10-SEP-2019 15:21	319I1017.D	1	SHI0095-CALD	
18	10-SEP-2019 15:42	319I1018.D	1	SHI0095-CALE	
19	10-SEP-2019 16:03	319I1019.D	1	SHI0095-CALF	
20	10-SEP-2019 16:24	319I1020.D	1	SHI0095-CALG	
21	10-SEP-2019 16:45	319I1021.D	1	SHI0095-CALH	
22	10-SEP-2019 17:06	319I1022.D	1	SHI0095-CALI	
23	10-SEP-2019 17:28	319I1023.D	1	SHI0095-IBL	
24	10-SEP-2019 17:50	319I1024.D	1	SHI0095-SCV1	
25	10-SEP-2019 18:13	319I1025.D	1	SHI0095-SCV2	
26	10-SEP-2019 18:35	319I1026.D	1	SHI0095-SCV3	
27	10-SEP-2019 18:58	319I1027.D	1	SHI0095-ICV1	
28	10-SEP-2019 19:20	319I1028.D	1	SHI0095-ICV2	
29	10-SEP-2019 19:42	319I1029.D	1	BHI0215-BLK1	
30	10-SEP-2019 20:05	319I1030.D	1	BHI0215-BS1	
31	10-SEP-2019 20:27	319I1031.D	1	19I0101-01	
32	10-SEP-2019 20:49	319I1032.D	10	19I0101-01RE1	
33	10-SEP-2019 21:11	319I1033.D	1	19I0101-02	
34	10-SEP-2019 21:34	319I1034.D	10	19I0101-02RE1	
35	10-SEP-2019 21:56	319I1035.D	1	SHI0095-CCV1	
36	10-SEP-2019 22:18	319I1036.D	1	SHI0095-CCV2	
37	10-SEP-2019 22:40	319I1037.D	1	SHI0095-CCV3	
38	10-SEP-2019 23:02	319I1038.D	1	BHI0137-BLK1	
39	10-SEP-2019 23:24	319I1039.D	1	BHI0137-BS1	
40	10-SEP-2019 23:46	319I1040.D	1	BHI0137-MRL1	
41	11-SEP-2019 00:08	319I1041.D	1	BHI0137-MRL2	
42	11-SEP-2019 00:30	319I1042.D	1	19H0461-01	
43	11-SEP-2019 00:52	319I1043.D	1	19H0461-02	
44	11-SEP-2019 01:14	319I1044.D	1	19H0461-03	
45	11-SEP-2019 01:36	319I1045.D	1	19H0461-04	

46	11-SEP-2019	01:58	319I1046.D	1	19H0461-05
47	11-SEP-2019	02:20	319I1047.D	1	19H0462-01
48	11-SEP-2019	02:42	319I1048.D	1	19H0462-02
49	11-SEP-2019	03:04	319I1049.D	1	SHI0095-CCV4
50	11-SEP-2019	03:26	319I1050.D	1	SHI0095-CCV5

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b p2

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53	11-SEP-2019 04:31	319I1053.D	1	BHI0054-BS1	
54	11-SEP-2019 04:53	319I1054.D	1	19H0481-06	
55	11-SEP-2019 05:15	319I1055.D	1	19H0481-08	
56	11-SEP-2019 05:37	319I1056.D	1	19H0481-12	
57	11-SEP-2019 05:59	319I1057.D	1	19H0481-14	
58	11-SEP-2019 06:21	319I1058.D	1	19H0481-18	
59	11-SEP-2019 06:43	319I1059.D	1	19H0481-20	
60	11-SEP-2019 07:05	319I1060.D	1	19H0481-24	
61	11-SEP-2019 07:28	319I1061.D	1	19H0481-26	
62	11-SEP-2019 07:50	319I1062.D	1	19H0481-30	
63	11-SEP-2019 08:12	319I1063.D	1	19H0481-32	
64	11-SEP-2019 08:35	319I1064.D	1	SHI0095-CCV7	
65	11-SEP-2019 08:57	319I1065.D	1	SHI0095-CCV8	
66	11-SEP-2019 09:19	319I1066.D	5	19H0481-27RE1	
67	11-SEP-2019 09:42	319I1067.D	5	19H0481-18RE1	
68	11-SEP-2019 10:04	319I1068.D	5	19H0481-20RE1	
69	11-SEP-2019 10:27	319I1069.D	5	19H0481-26RE1	
70	11-SEP-2019 10:49	319I1070.D	1	SHI0095-CCV9	
71	11-SEP-2019 11:11	319I1071.D	1	SHI0095-CCVA	
72	11-SEP-2019 11:34	319I1072.D	1	SHI0095-IBL3	
73	11-SEP-2019 11:57	319I1073.D	1	SHI0095-IBL4	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
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1004	319I1002.D	SHI0095-IBL1	1	NO MANUAL INTEGRATION
1025	319I1003.D	SHI0095-IBL2	1	NO MANUAL INTEGRATION
1046	319I1004.D	SHI0095-CAL1	1	o-terph,
1108	319I1005.D	SHI0095-CAL2	1	o-terph,
1129	319I1006.D	SHI0095-CAL3	1	o-terph,
1150	319I1007.D	SHI0095-CAL4	1	o-terph,
1211	319I1008.D	SHI0095-CAL5	1	o-terph,
1232	319I1009.D	SHI0095-CAL6	1	o-terph,
1253	319I1010.D	SHI0095-CAL7	1	Triacon Surr,
1315	319I1011.D	SHI0095-CAL8	1	Triacon Surr,
1336	319I1012.D	SHI0095-CAL9	1	Triacon Surr,
1357	319I1013.D	SHI0095-CALA	1	Triacon Surr,
1418	319I1014.D	SHI0095-CALB	1	Triacon Surr,
1439	319I1015.D	SHI0095-CALC	1	Triacon Surr,
1500	319I1016.D	SHI0095-IBL	1	NO MANUAL INTEGRATION
1521	319I1017.D	SHI0095-CALD	1	Triacon Surr,

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1542	319I1018.D	SHI0095-CALE	1	Triacon Surr,
1603	319I1019.D	SHI0095-CALF	1	Triacon Surr,
1624	319I1020.D	SHI0095-CALG	1	Triacon Surr,
1645	319I1021.D	SHI0095-CALH	1	Triacon Surr,
1706	319I1022.D	SHI0095-CALI	1	Triacon Surr,
1728	319I1023.D	SHI0095-IBL	1	NO MANUAL INTEGRATION
1750	319I1024.D	SHI0095-SCV1	1	NO MANUAL INTEGRATION
1813	319I1025.D	SHI0095-SCV2	1	Triacon Surr,
1835	319I1026.D	SHI0095-SCV3	1	Triacon Surr,
1858	319I1027.D	SHI0095-ICV1	1	o-terph,
1920	319I1028.D	SHI0095-ICV2	1	NO MANUAL INTEGRATION
1942	319I1029.D	BHI0215-BLK1	1	NO MANUAL INTEGRATION
2005	319I1030.D	BHI0215-BS1	1	NO MANUAL INTEGRATION
2027	319I1031.D	19I0101-01	1	NO MANUAL INTEGRATION
2049	319I1032.D	19I0101-01RE1	10	NO MANUAL INTEGRATION
2111	319I1033.D	19I0101-02	1	NO MANUAL INTEGRATION
2134	319I1034.D	19I0101-02RE1	10	NO MANUAL INTEGRATION
2156	319I1035.D	SHI0095-CCV1	1	o-terph,

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2218	319I1036.D	SHI0095-CCV2	1	Triacon Surr,
2240	319I1037.D	SHI0095-CCV3	1	NO MANUAL INTEGRATION
2302	319I1038.D	BHI0137-BLK1	1	NO MANUAL INTEGRATION
2324	319I1039.D	BHI0137-BS1	1	NO MANUAL INTEGRATION
2346	319I1040.D	BHI0137-MRL1	1	NO MANUAL INTEGRATION
0008	319I1041.D	BHI0137-MRL2	1	NO MANUAL INTEGRATION
0030	319I1042.D	19H0461-01	1	NO MANUAL INTEGRATION
0052	319I1043.D	19H0461-02	1	NO MANUAL INTEGRATION
0114	319I1044.D	19H0461-03	1	NO MANUAL INTEGRATION
0136	319I1045.D	19H0461-04	1	NO MANUAL INTEGRATION
0158	319I1046.D	19H0461-05	1	NO MANUAL INTEGRATION
0220	319I1047.D	19H0462-01	1	NO MANUAL INTEGRATION
0242	319I1048.D	19H0462-02	1	NO MANUAL INTEGRATION
0304	319I1049.D	SHI0095-CCV4	1	o-terph,
0326	319I1050.D	SHI0095-CCV5	1	Triacon Surr,
0347	319I1051.D	SHI0095-CCV6	1	Triacon Surr,
0409	319I1052.D	BHI0054-BLK1	1	NO MANUAL INTEGRATION
0431	319I1053.D	BHI0054-BS1	1	o-terph,

Instrument: fid3b.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0453	319I1054.D	19H0481-06	1	NO MANUAL INTEGRATION
0515	319I1055.D	19H0481-08	1	o-terph, Triacon Surr,
0537	319I1056.D	19H0481-12	1	o-terph, Triacon Surr,
0559	319I1057.D	19H0481-14	1	o-terph, Triacon Surr,
0621	319I1058.D	19H0481-18	1	NO MANUAL INTEGRATION
0643	319I1059.D	19H0481-20	1	o-terph, Triacon Surr,
0705	319I1060.D	19H0481-24	1	o-terph, Triacon Surr,
0728	319I1061.D	19H0481-26	1	o-terph, Triacon Surr,
0750	319I1062.D	19H0481-30	1	o-terph, Triacon Surr,
0812	319I1063.D	19H0481-32	1	o-terph, Triacon Surr,
0835	319I1064.D	SHI0095-CCV7	1	o-terph,
0857	319I1065.D	SHI0095-CCV8	1	Triacon Surr,
0919	319I1066.D	19H0481-27RE1	5	o-terph, Triacon Surr,
0942	319I1067.D	19H0481-18RE1	5	o-terph, Triacon Surr,
1004	319I1068.D	19H0481-20RE1	5	o-terph, Triacon Surr,
1027	319I1069.D	19H0481-26RE1	5	o-terph, Triacon Surr,
1049	319I1070.D	SHI0095-CCV9	1	o-terph,
1111	319I1071.D	SHI0095-CCVA	1	Triacon Surr,

Instrument: fid3b.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1134	319I1072.D	SHI0095-IBL3	1	C40,
1157	319I1073.D	SHI0095-IBL4	1	NO MANUAL INTEGRATION

Security Status Report

Date: 11-Sep-2019 12:22

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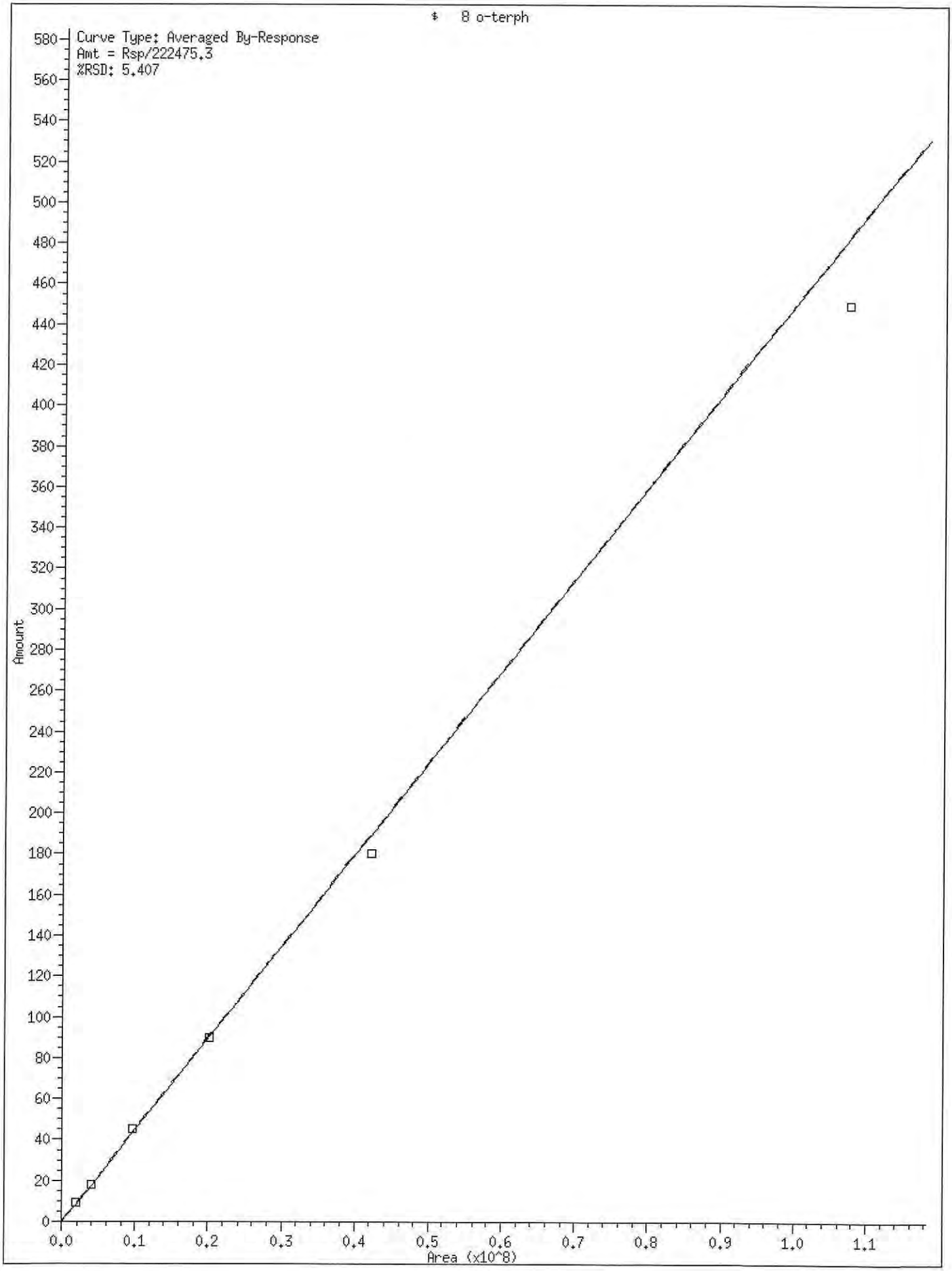
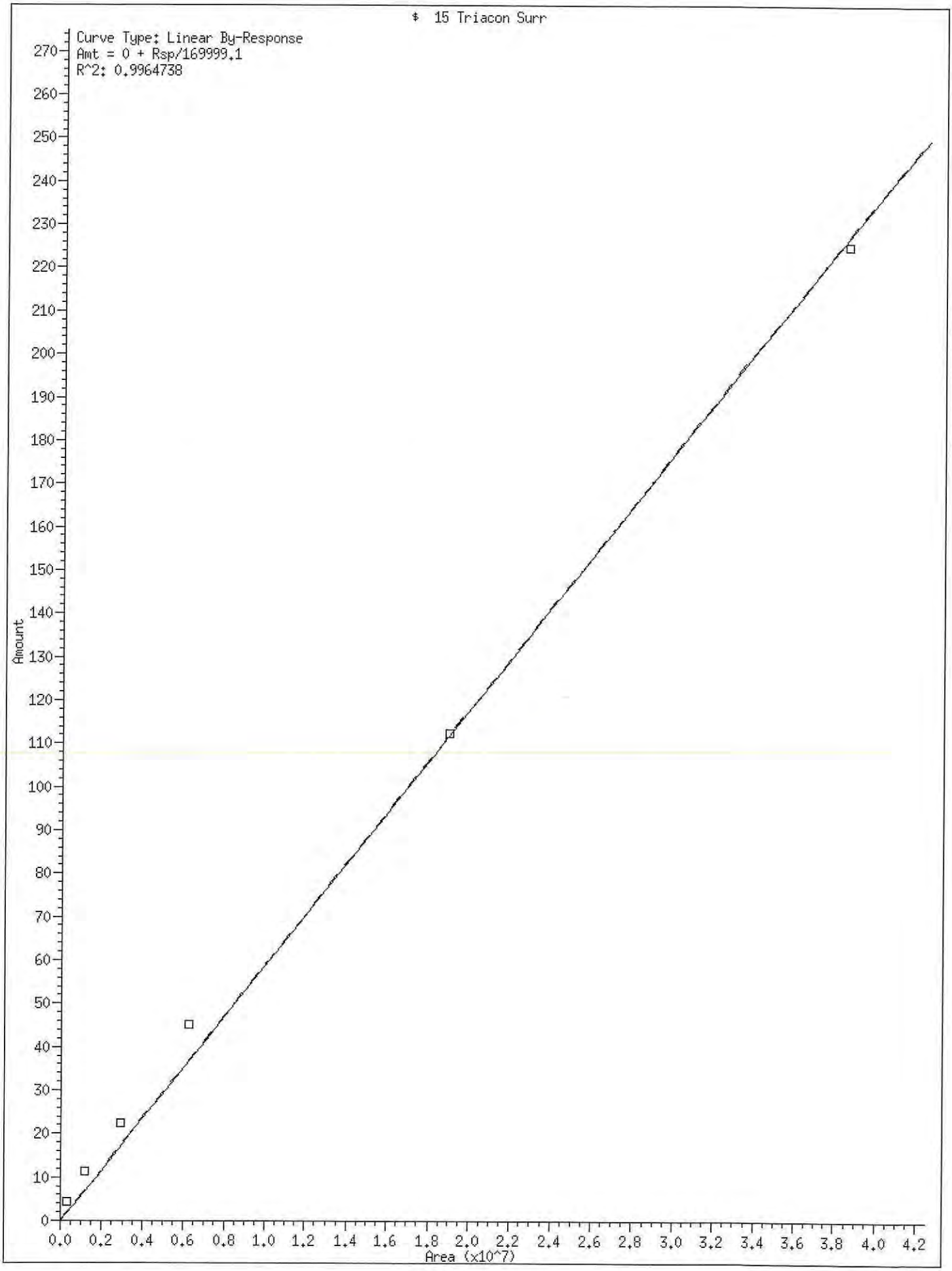
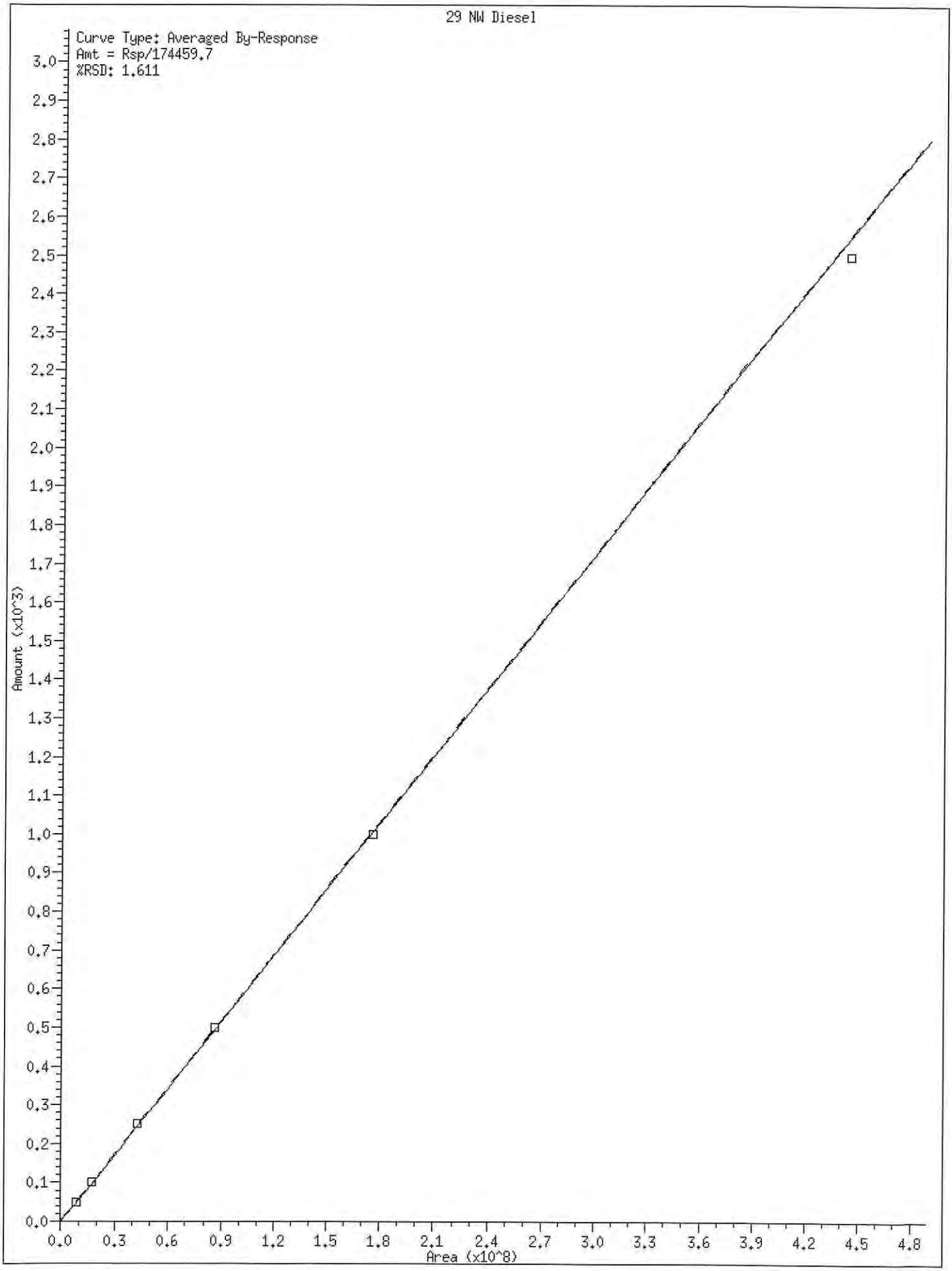
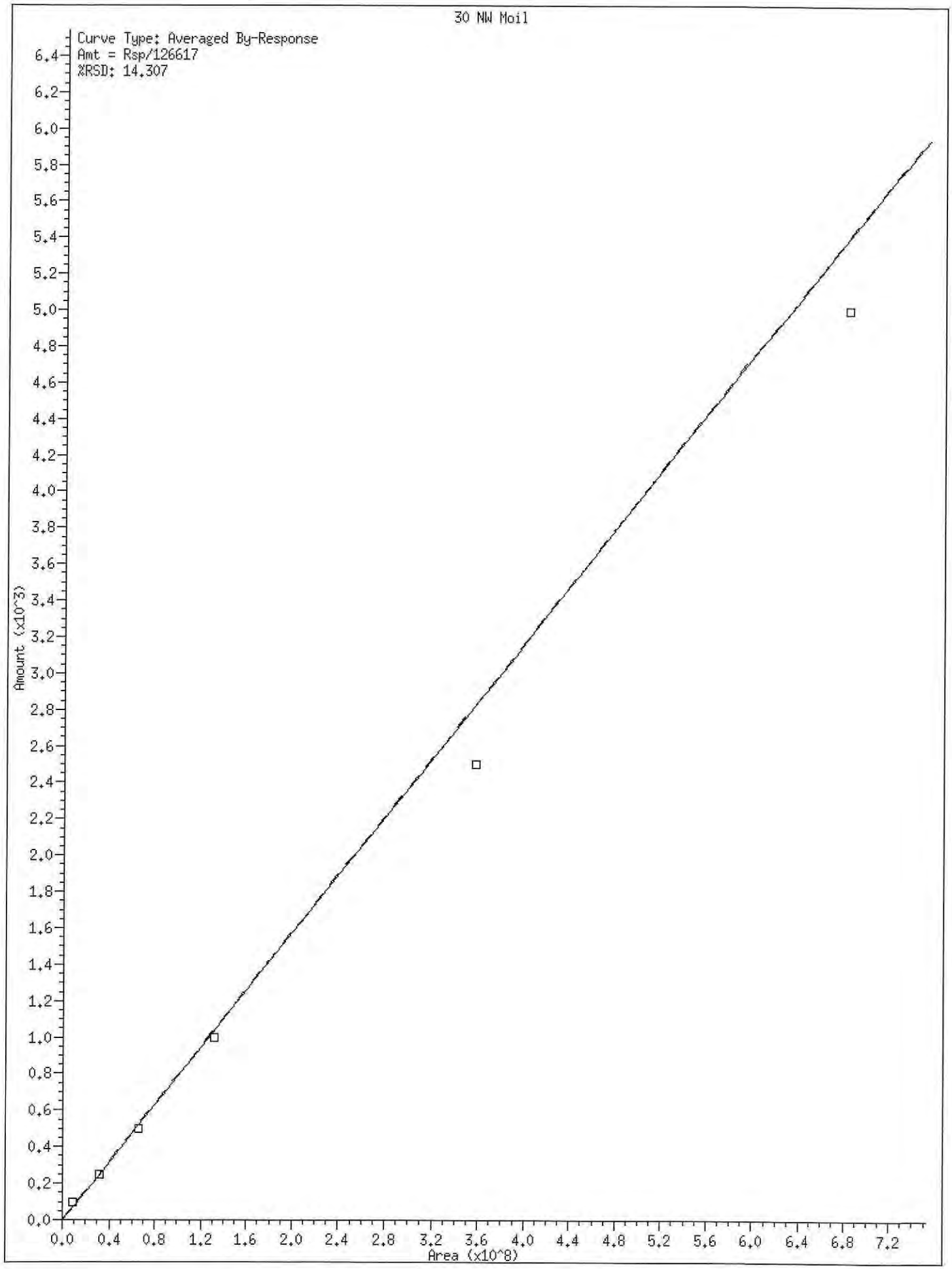
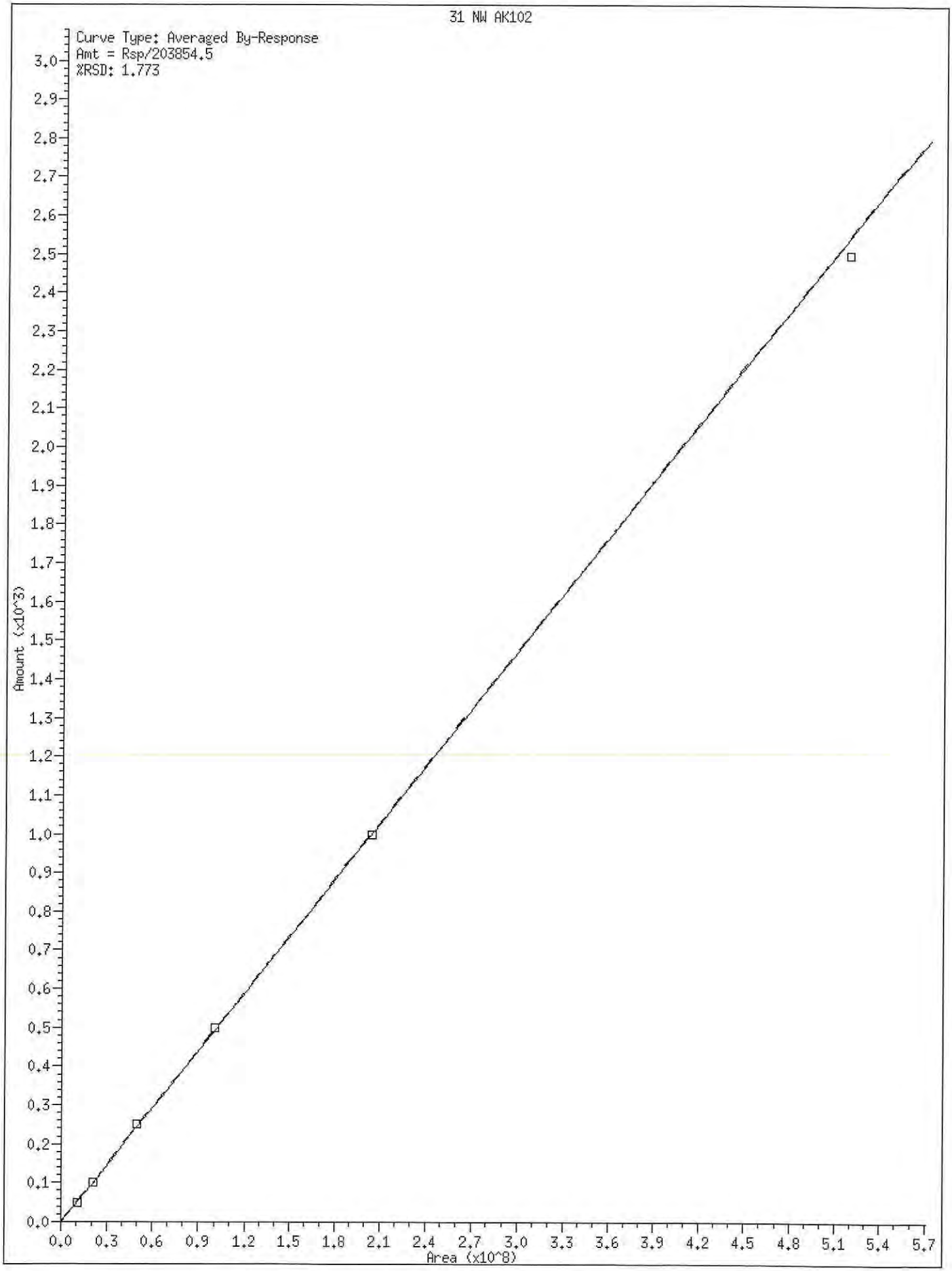
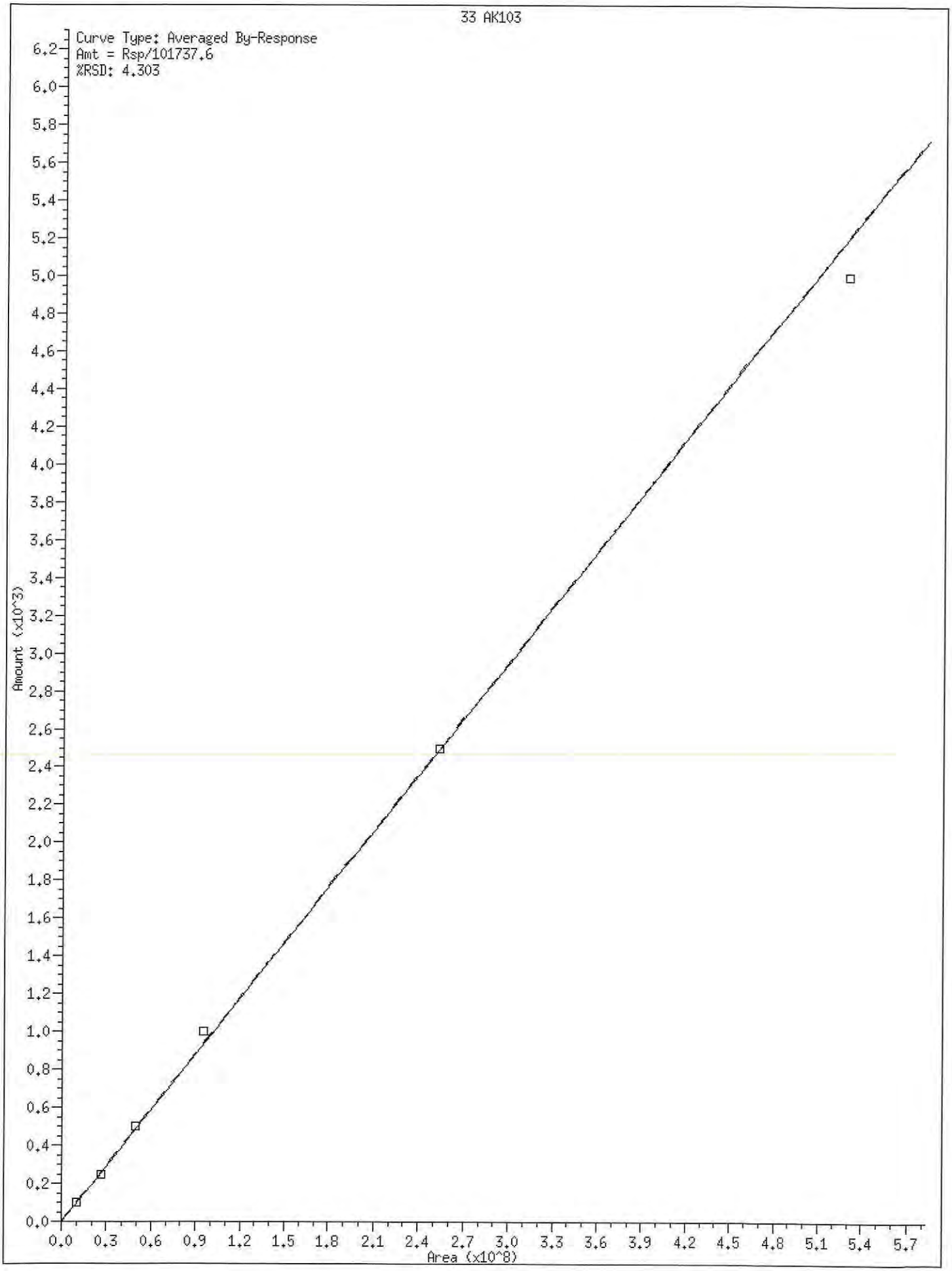

8 o-terph
Curve Type: Averaged By-Response
Amt = Rsp/222475.3
%RSD: 5.407
Amount
Area (x10^8)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1

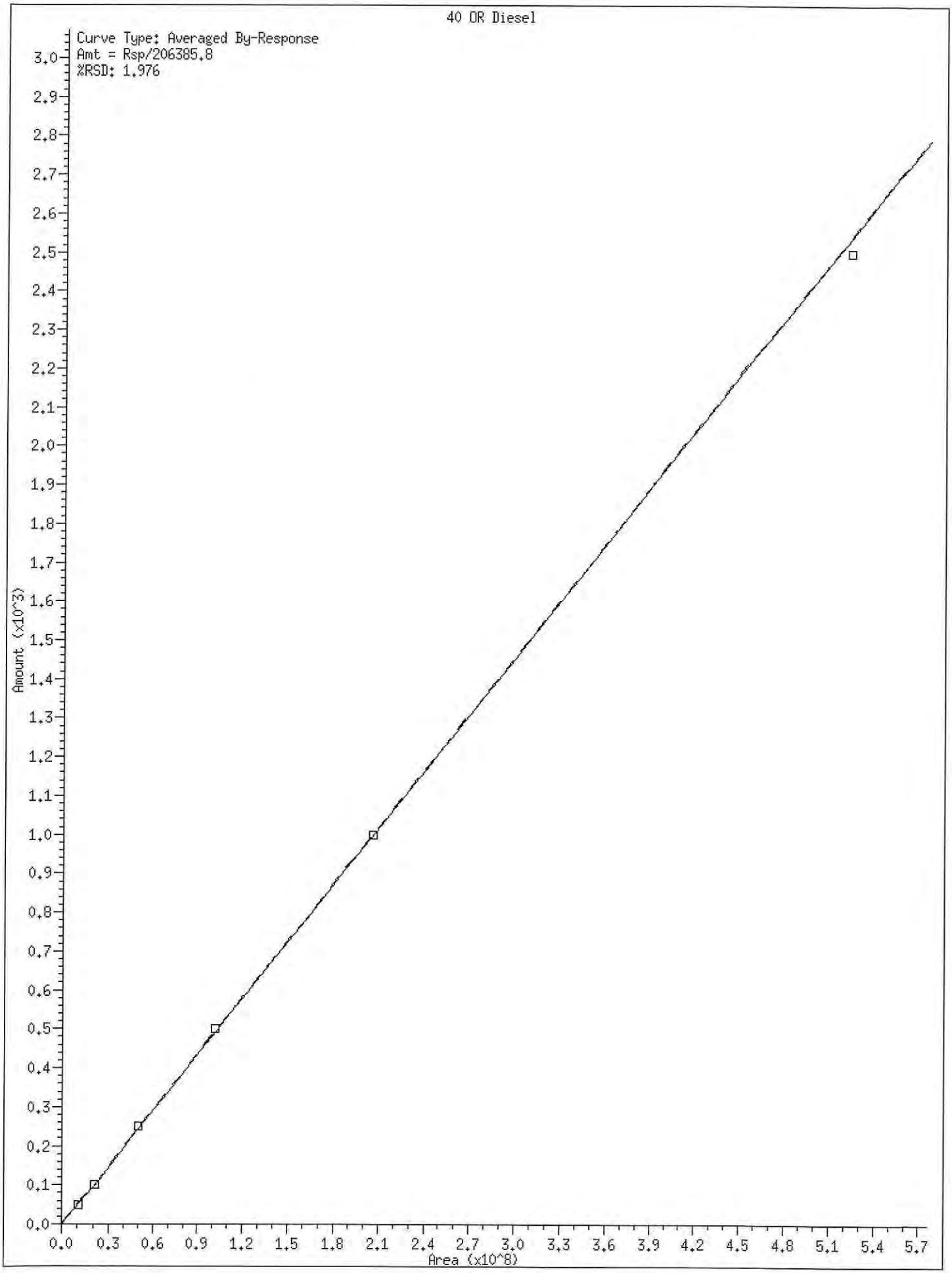

$ 15 Triacon Surr
Curve Type: Linear By-Response
Amt = 0 + Rsp/169999.1
R^2: 0.9964738
Amount
Area (x10^7)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2

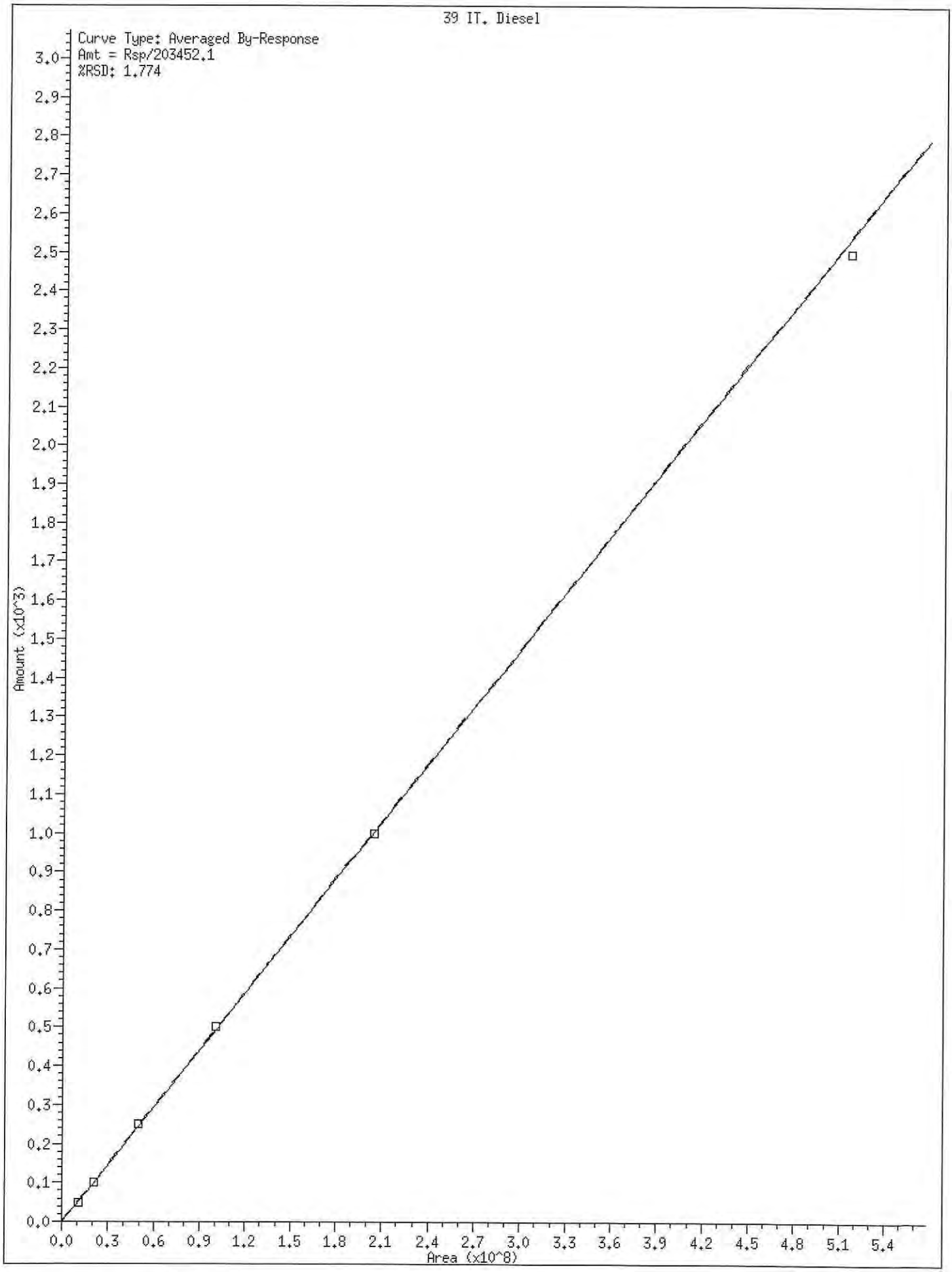

29 NW Diesel
Curve Type: Averaged By-Response
Amt = Rsp/174459.7
%RSD: 1.611
Amount (x10^3)
Area (x10^8)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
3.0
3.3
3.6
3.9
4.2
4.5
4.8


30 NW Moil
Curve Type: Averaged By-Response
Amt = Rsp/126617
%RSD: 14.307
Amount (x10^3)
Area (x10^8)


31 NW AK102
Curve Type: Averaged By-Response
Amt = Rsp/203854.5
%RSD: 1.773
Amount (x10^3)
Area (x10^8)


33 AK103
Curve Type: Averaged By-Response
Amt = Rsp/101737.6
%RSD: 4.303
Amount (x10^3)
Area (x10^8)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
2.7
3.0
3.3
3.6
3.9
4.2
4.5
4.8
5.1
5.4
5.7


40 OR Diesel
Curve Type: Averaged By-Response
Amt = Rsp/206385.8
%RSD: 1.976
Amount (x10^3)
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1 5.4 5.7
Area (x10^8)


39 IT. Diesel
Curve Type: Averaged By-Response
Amt = Rsp/203452.1
%RSD: 1.774
Amount (x10^3)
Area (x10^8)

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid3b.i\20190910.b\FID3TPH.m
Batch File: \\target\share\chem2\fid3b.i\20190910.b
Inst ID: fid3b.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
FILENAME:	319I1002	319I1003	319I1004	319I1005	319I1006	319I1007	319I1008	319I1009	319I1010	319I1011
INJ.DATE:	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019
INJ.TIME:	10:04	10:25	10:46	11:08	11:29	11:50	12:11	12:32	12:53	13:15

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
	2 C8	2.176	2.136	2.202	2.202	2.201	2.153	2.182	2.146	2.210	2.163
	3 C10	4.069	4.064	4.061	4.062	4.060	4.062	4.067	4.063	4.064	4.072
	4 C12	5.166	5.184	5.170	5.167	5.164	5.164	5.165	5.168	5.156	5.180
	5 C14	5.992	6.014	5.995	5.993	5.990	5.989	5.989	5.996	5.987	6.005
	6 C16	6.702	6.707	6.701	6.700	6.699	6.700	6.702	6.711	6.708	6.707
	7 C18	7.338	7.333	7.333	7.333	7.333	7.335	7.338	7.351	7.339	7.338
$	8 o-terph	7.533	7.534	7.514	7.516	7.523	7.533	7.548	7.577	7.518	7.519
	9 C20	7.936	7.934	7.931	7.931	7.930	7.930	7.934	7.944	7.933	7.935
	10 C22	8.523	8.517	8.516	8.516	8.516	8.515	8.517	8.524	8.517	8.516
	11 C24	9.096	9.088	9.087	9.088	9.087	9.086	9.087	9.089	9.116	9.083
	12 C25	9.374	9.365	9.366	9.366	9.365	9.365	9.364	9.365	9.366	9.387
	13 C26	9.646	9.637	9.637	9.637	9.637	9.636	9.635	9.636	9.660	9.659
	14 C28	10.168	10.157	10.128	10.130	10.132	10.194	10.156	10.157	10.176	10.174
$	15 Triacon Surr	10.690	10.686	10.651	10.652	10.653	10.654	10.653	10.652	10.655	10.660
	16 C32	11.131	11.119	11.117	11.153	11.155	11.156	11.154	11.155	11.118	11.119

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid3b.i\20190910.b\FID3TPH.m
Batch File: \\target\share\chem2\fid3b.i\20190910.b
Inst ID: fid3b.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	RT08	RT09	RT10
17 C34	11.573	11.564	11.559	11.563	+++++	11.560	+++++	+++++	11.566	11.574
18 Filter Peak	13.318	+++++	+++++	+++++	+++++	+++++	+++++	+++++	13.311	13.331
19 C36	11.998	11.993	12.029	12.033	12.043	12.036	12.040	12.034	11.984	12.010
20 C38	12.411	12.412	12.399	+++++	+++++	+++++	+++++	+++++	12.380	12.401
21 C40	12.831	12.836	12.844	12.851	12.822	12.856	12.867	12.855	12.851	12.843
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
40 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
39 IT. Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid3b.i\20190910.b\FID3TPH.m
Batch File: \\target\share\chem2\fid3b.i\20190910.b
Inst ID: fid3b.i

ID:	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20
FILENAME:	319I1012	319I1013	319I1014	319I1015	319I1017	319I1018	319I1019	319I1020	319I1021	319I1022
INJ.DATE:	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019	10-SEP-2019
INJ.TIME:	13:36	13:57	14:18	14:39	15:21	15:42	16:03	16:24	16:45	17:06

	Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.512	1.412-1.612	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	2 C8	2.148	2.212	2.157	2.177	2.212	2.211	2.212	2.179	2.162	2.158	2.176	2.076-2.276	2.180	0.026
	3 C10	4.070	4.065	4.069	4.062	4.068	4.068	4.066	4.064	4.069	4.067	4.069	4.019-4.119	4.066	0.003
	4 C12	5.179	5.174	5.171	5.169	5.186	5.181	5.181	5.175	5.172	5.170	5.166	5.116-5.216	5.172	0.008
	5 C14	6.001	5.999	5.996	5.994	6.009	6.006	6.005	6.001	5.997	5.995	5.992	5.942-6.042	5.998	0.007
	6 C16	6.706	6.703	6.702	6.701	6.704	6.708	6.706	6.705	6.703	6.700	6.702	6.652-6.752	6.704	0.003
	7 C18	7.339	7.337	7.336	7.335	7.343	7.340	7.338	7.338	7.335	7.336	7.338	7.288-7.388	7.337	0.004
$	8 o-terph	7.548	7.544	7.539	7.514	7.520	7.518	7.546	7.515	7.514	7.515	7.533	7.483-7.583	7.529	0.017
	9 C20	7.934	7.933	7.933	7.933	7.934	7.934	7.931	7.933	7.931	7.933	7.936	7.886-7.986	7.933	0.003
	10 C22	8.519	8.518	8.520	8.525	8.515	8.517	8.518	8.519	8.523	8.527	8.523	8.473-8.573	8.519	0.004
	11 C24	9.087	9.071	9.096	9.098	9.115	9.086	9.088	9.088	9.094	9.099	9.096	9.046-9.146	9.091	0.010
	12 C25	9.377	9.396	9.365	9.378	9.378	9.376	9.377	9.374	9.376	9.367	9.374	9.324-9.424	9.372	0.009
	13 C26	9.640	9.640	9.648	9.632	9.661	9.636	9.634	9.642	9.653	9.656	9.646	9.596-9.696	9.643	0.010
	14 C28	10.173	10.161	10.161	10.157	10.157	10.176	10.175	10.163	10.174	10.171	10.168	10.118-10.218	10.162	0.017
$	15 Triacon Surr	10.668	10.678	10.705	10.735	10.655	10.660	10.667	10.678	10.702	10.735	10.690	10.640-10.740	10.674	0.027
	16 C32	11.126	11.130	11.136	11.133	11.119	11.121	11.126	11.126	11.142	11.119	11.131	11.081-11.181	11.133	0.015
	17 C34	11.569	11.569	11.565	11.573	11.580	11.574	11.579	11.587	11.576	11.570	11.573	11.523-11.623	11.571	0.007
	18 Filter Peak	13.309	13.319	13.319	13.290	13.270	13.326	13.323	13.321	13.326	13.335	13.318	13.218-13.418	13.315	0.018
	19 C36	11.998	12.009	11.998	11.985	12.003	11.997	12.004	11.995	11.993	12.002	11.998	11.948-12.048	12.009	0.019

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid3b.i\20190910.b\FID3TPH.m
Batch File: \\target\share\chem2\fid3b.i\20190910.b
Inst ID: fid3b.i

Compound	RT11	RT12	RT13	RT14	RT15	RT16	RT17	RT18	RT19	RT20	EXPEC RT	RT WINDOW	AVG RT	STD DEV
20 C38	12.400	12.423	12.420	12.410	12.427	12.397	12.395	12.415	12.419	12.421	12.411	12.361-12.461	12.409	0.013
21 C40	12.821	12.828	12.847	12.813	12.829	12.855	12.840	12.832	12.844	12.826	12.831	12.781-12.881	12.839	0.014
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
40 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 IT. Diesel	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1002.D

Date : 10-SEP-2019 10:04

Client ID:

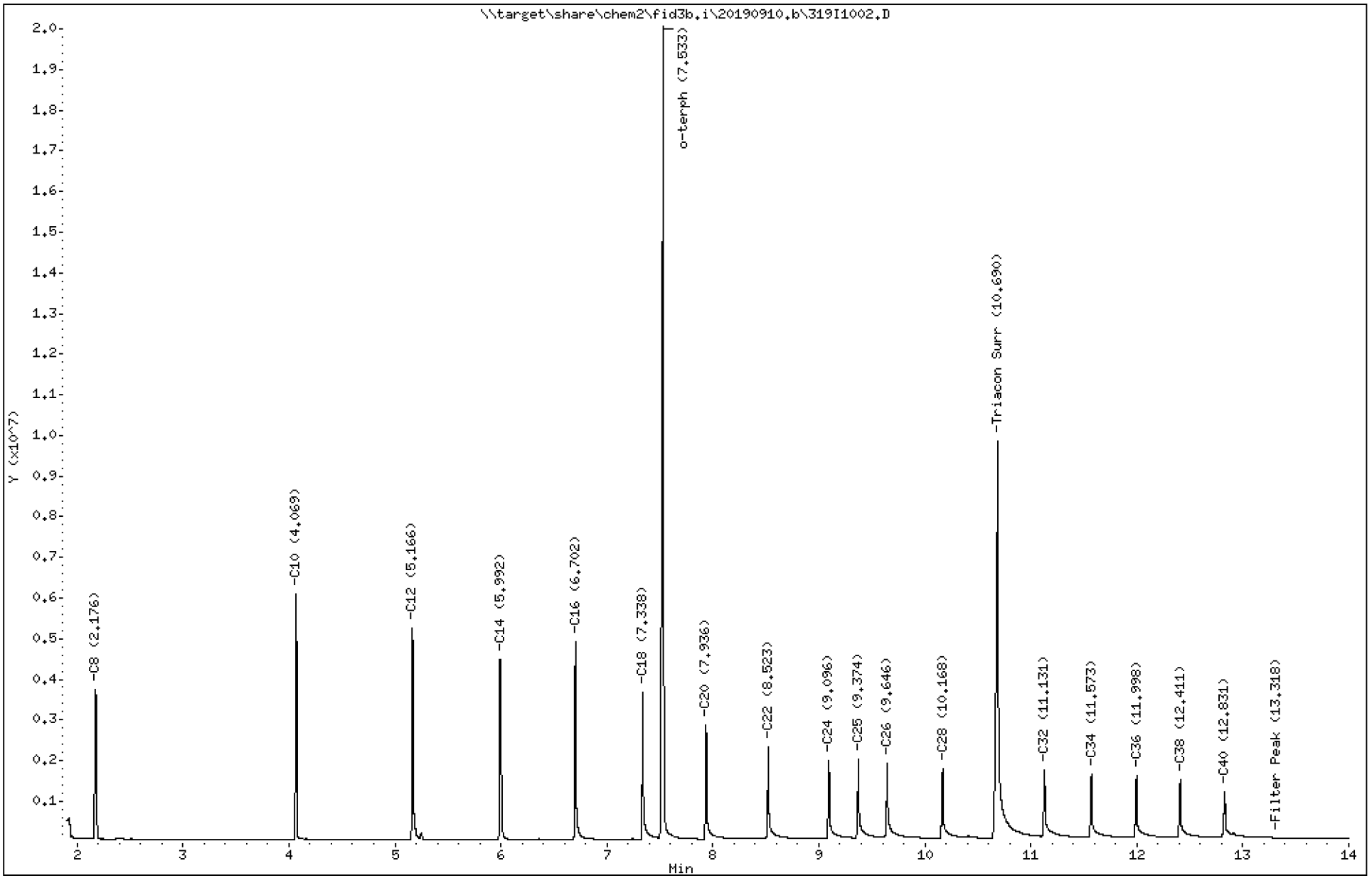
Sample Info: SHI0095-IBL1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1002.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL1
Client ID:
Injection: 10-SEP-2019 10:04
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	14185766	79.1
C8	2.176	0.000	3704134	3911478	WATPHD	(C12-C24)	22654542	129.9
C10	4.069	0.000	6042478	4252589	WATPHM	(C24-C38)	27415629	216.5
C12	5.166	0.000	5221767	4110397	AK102	(C10-C25)	31348319	153.8
C14	5.992	0.000	4447625	4256722	AK103	(C25-C36)	23460022	230.6
C16	6.702	0.000	4878687	4249742	OR.DIES	(C10-C28)	41467597	200.9
C18	7.338	0.000	3626779	3542888				
C20	7.936	0.000	2822310	3657166				
C22	8.523	0.000	2298308	3486963				
C24	9.096	0.000	1954271	2810072				
C25	9.374	0.000	1980732	3399242				
C26	9.646	0.000	1895172	3582014				
C28	10.168	0.000	1749305	3074306	IT.DIES	(C10-C24)	31162824	153.2
C32	11.131	0.000	1726058	4079448				
C34	11.573	0.000	1613373	2906134				
Filter Peak	13.318	0.000	50016	522698				
C36	11.998	0.000	1585438	3446582				
o-terph	7.533	0.000	20017154	23327841				
Triacon Surr	10.690	0.000	9814795	18785506				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	23327841	104.9
Triacontane	18785506	110.5

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1003.D

Date : 10-SEP-2019 10:25

Client ID:

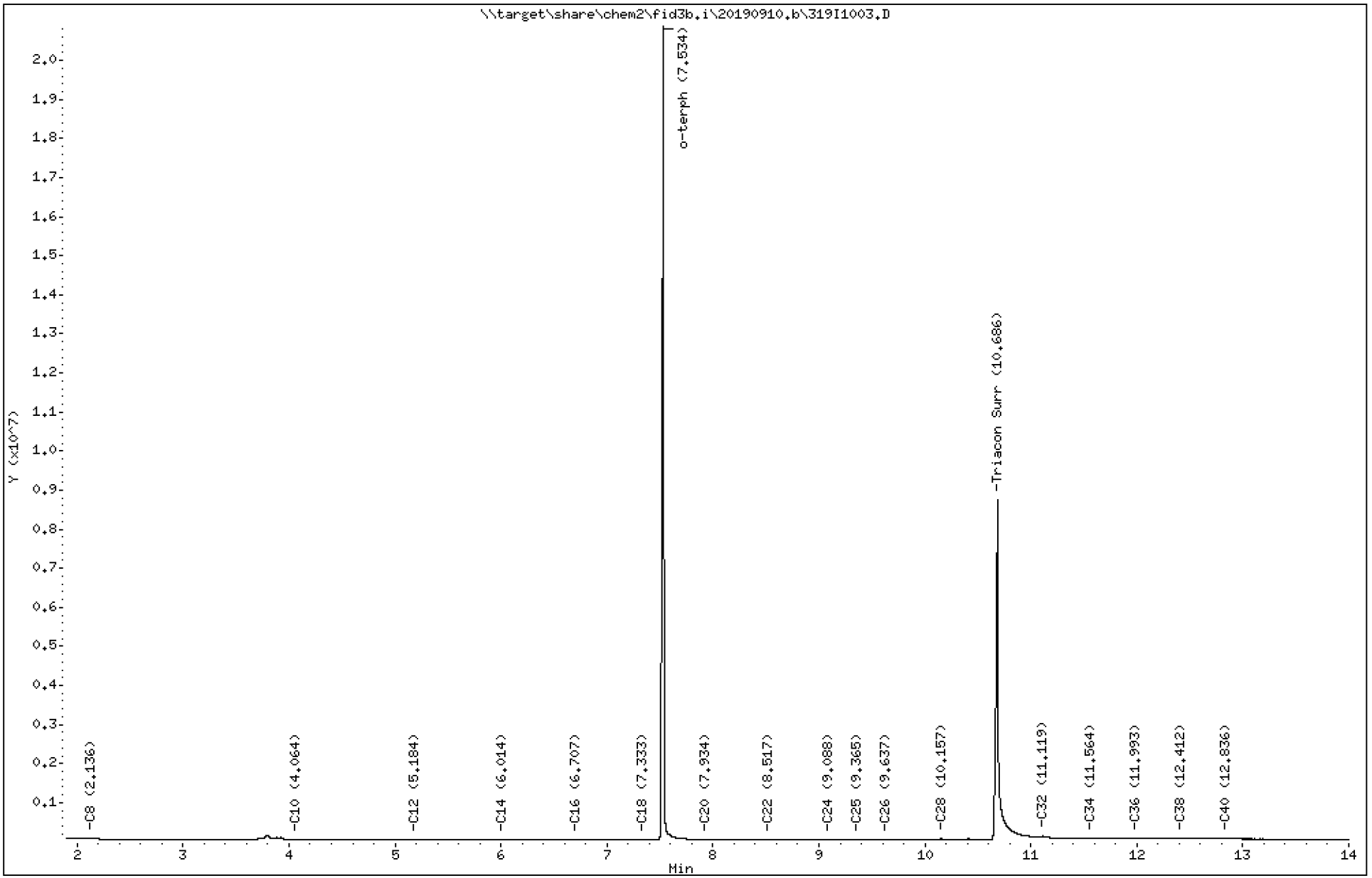
Sample Info: SHI0095-IBL2

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1003.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL2
Client ID:
Injection: 10-SEP-2019 10:25
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	1006010	5.6
C8	2.136	-0.039	22388	49530	WATPHD	(C12-C24)	250788	1.4
C10	4.064	-0.006	3514	3987	WATPHM	(C24-C38)	2219129	17.5
C12	5.184	0.018	3656	6872	AK102	(C10-C25)	307655	1.5
C14	6.014	0.022	4971	9889	AK103	(C25-C36)	2095473	20.6
C16	6.707	0.005	7585	12059	OR.DIES	(C10-C28)	473728	2.3
C18	7.333	-0.005	7197	10411				
C20	7.934	-0.003	10703	21478				
C22	8.517	-0.006	13737	20709				
C24	9.088	-0.008	8131	11521				
C25	9.365	-0.009	8469	15916				
C26	9.637	-0.009	8688	15439				
C28	10.157	-0.011	33176	36899	IT.DIES	(C10-C24)	307655	1.5
C32	11.119	-0.012	87654	223803				
C34	11.564	-0.009	33030	84290				
Filter Peak	----							
C36	11.993	-0.005	25032	65990				
o-terph	7.534	0.000	20828242	23980051				
Triacon Surr	10.686	-0.003	8705355	15308952				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

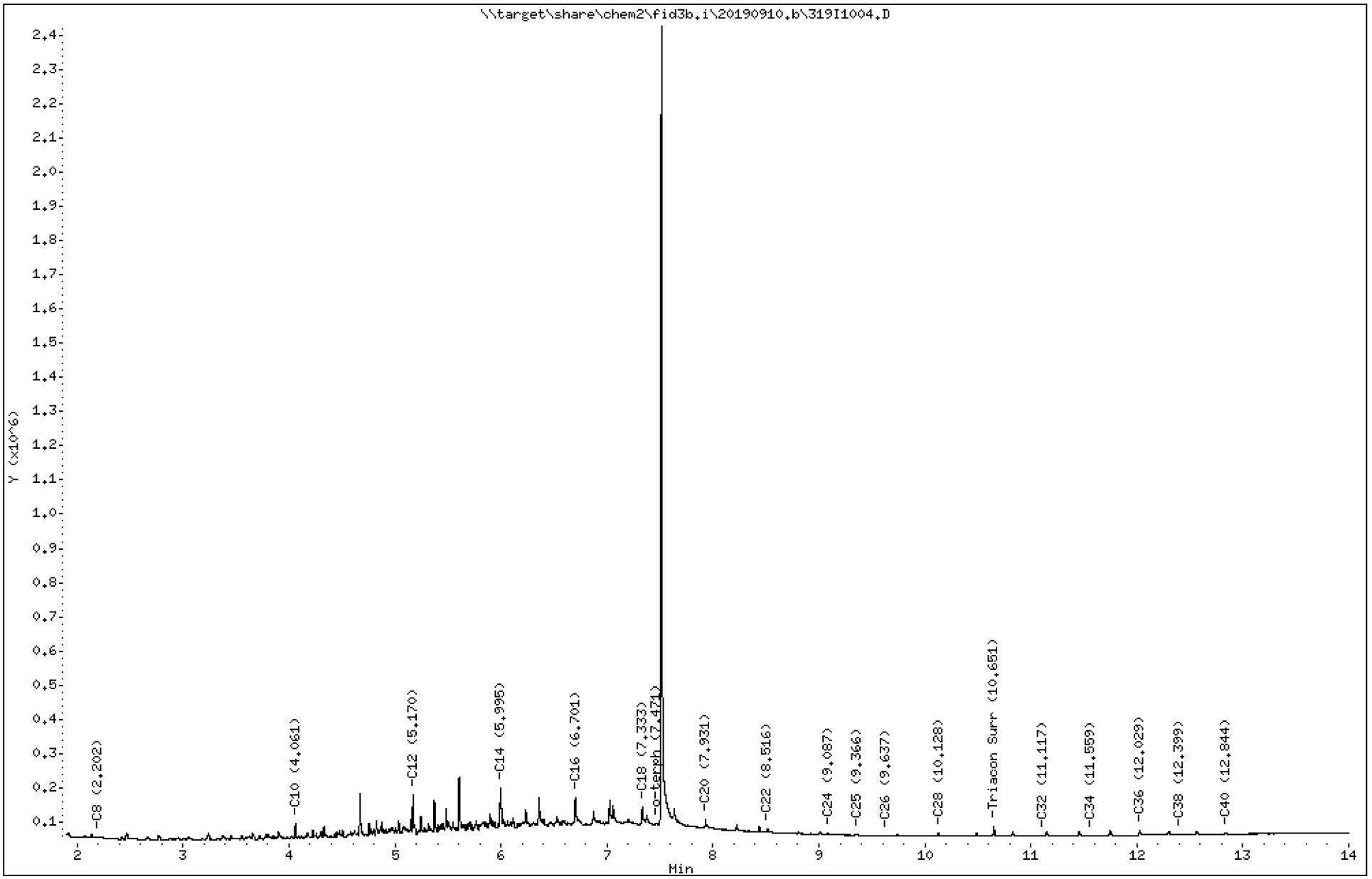
Surrogate	Area	Amount
o-Terphenyl	23980051	107.8
Triacontane	15308952	90.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1004.D
Date : 10-SEP-2019 10:46
Client ID:
Sample Info: SHI0095-CAL1

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1004.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL1
Client ID:
Injection: 10-SEP-2019 10:46
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	2113208	11.8	
C8	2.202	0.026	7421	21770	WATPHD	(C12-C24)	8858561	50.8	
C10	4.061	-0.008	49034	33216	WATPHM	(C24-C38)	772518	6.1	
C12	5.170	0.004	131909	92519	AK102	(C10-C25)	10374384	50.9	M
C14	5.995	0.003	151380	179158	AK103	(C25-C36)	646507	6.4	
C16	6.701	-0.001	122306	230093	OR.DIES	(C10-C28)	10593948	51.3	M
C18	7.333	-0.005	96772	178792					
C20	7.931	-0.005	60282	226599					
C22	8.516	-0.007	33153	79045					
C24	9.087	-0.008	19267	78764					
C25	9.366	-0.008	15509	51004					
C26	9.637	-0.009	13367	23264					
C28	10.128	-0.041	18329	46706	IT.DIES	(C10-C24)	10374384	51.0	
C32	11.117	-0.013	12356	23101					
C34	11.559	-0.013	13035	23179					
Filter Peak	----								
C36	12.029	0.030	26494	64106					
o-terph	7.514	-0.020	2328586	1873571					
Triacon Surr	10.651	-0.039	38646	67047					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

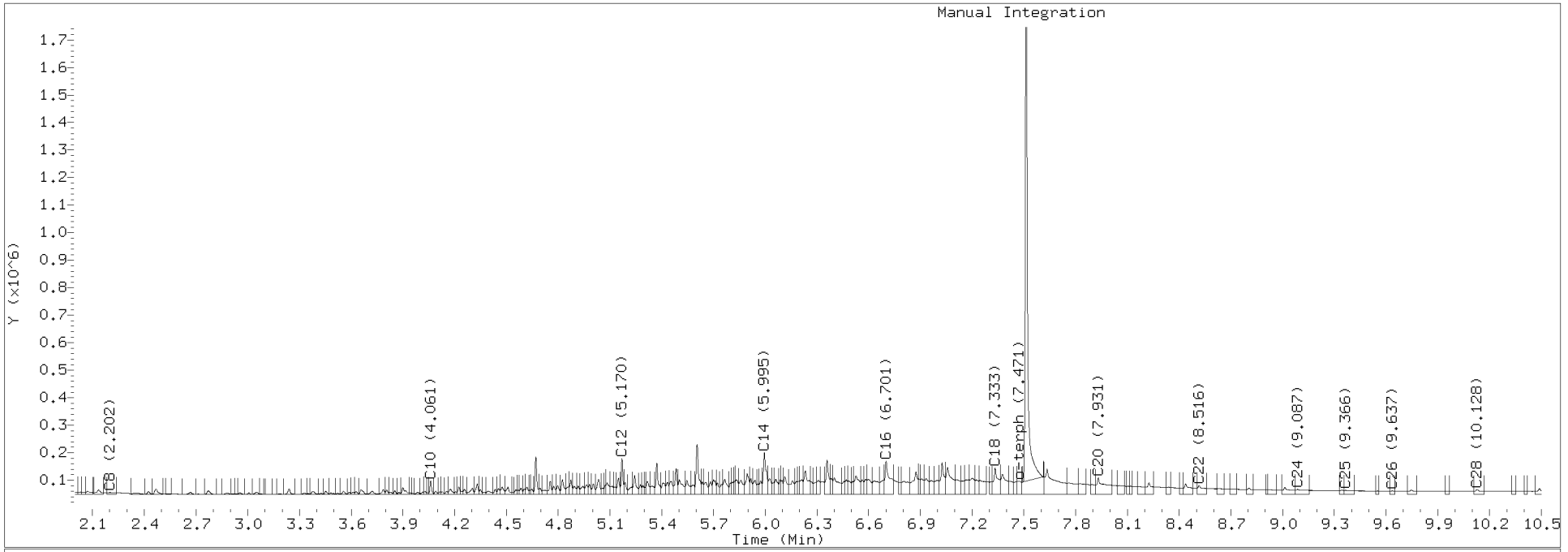
Surrogate	Area	Amount
o-Terphenyl	1873571	8.4
Triacontane	67047	0.4

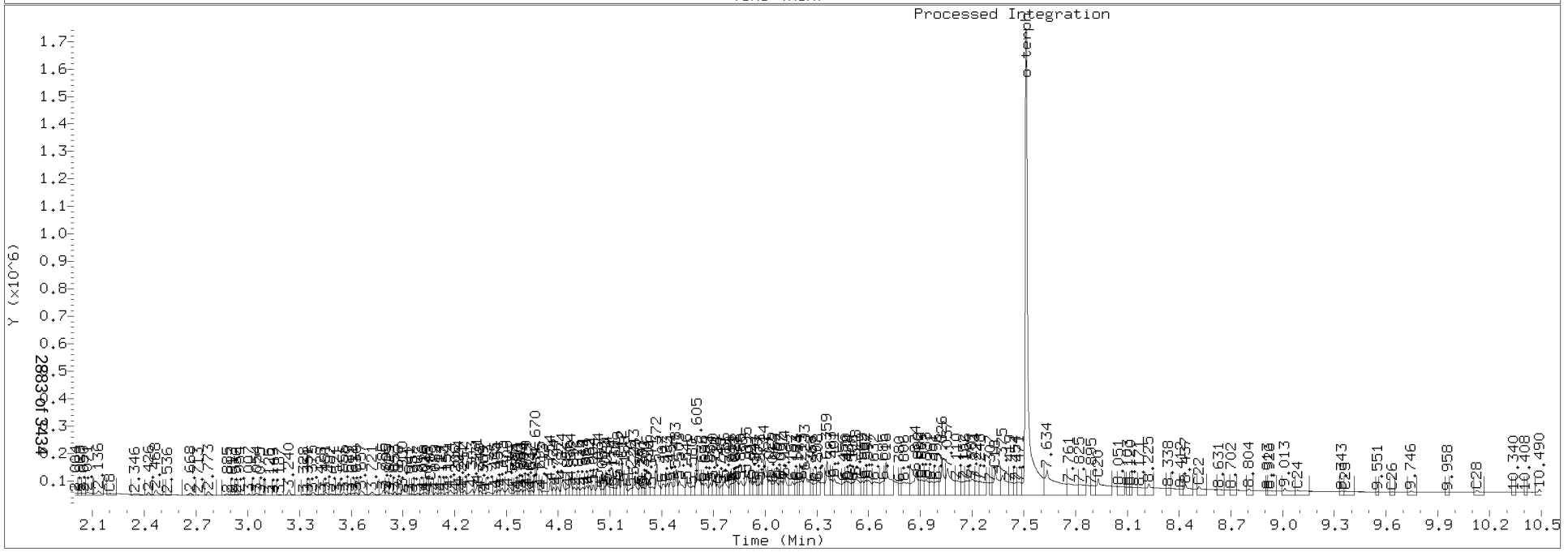
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1004.D Injection: 10-SEP-2019 10:46

Lab ID:SHI0095-CAL1





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1005.D

Date : 10-SEP-2019 11:08

Client ID:

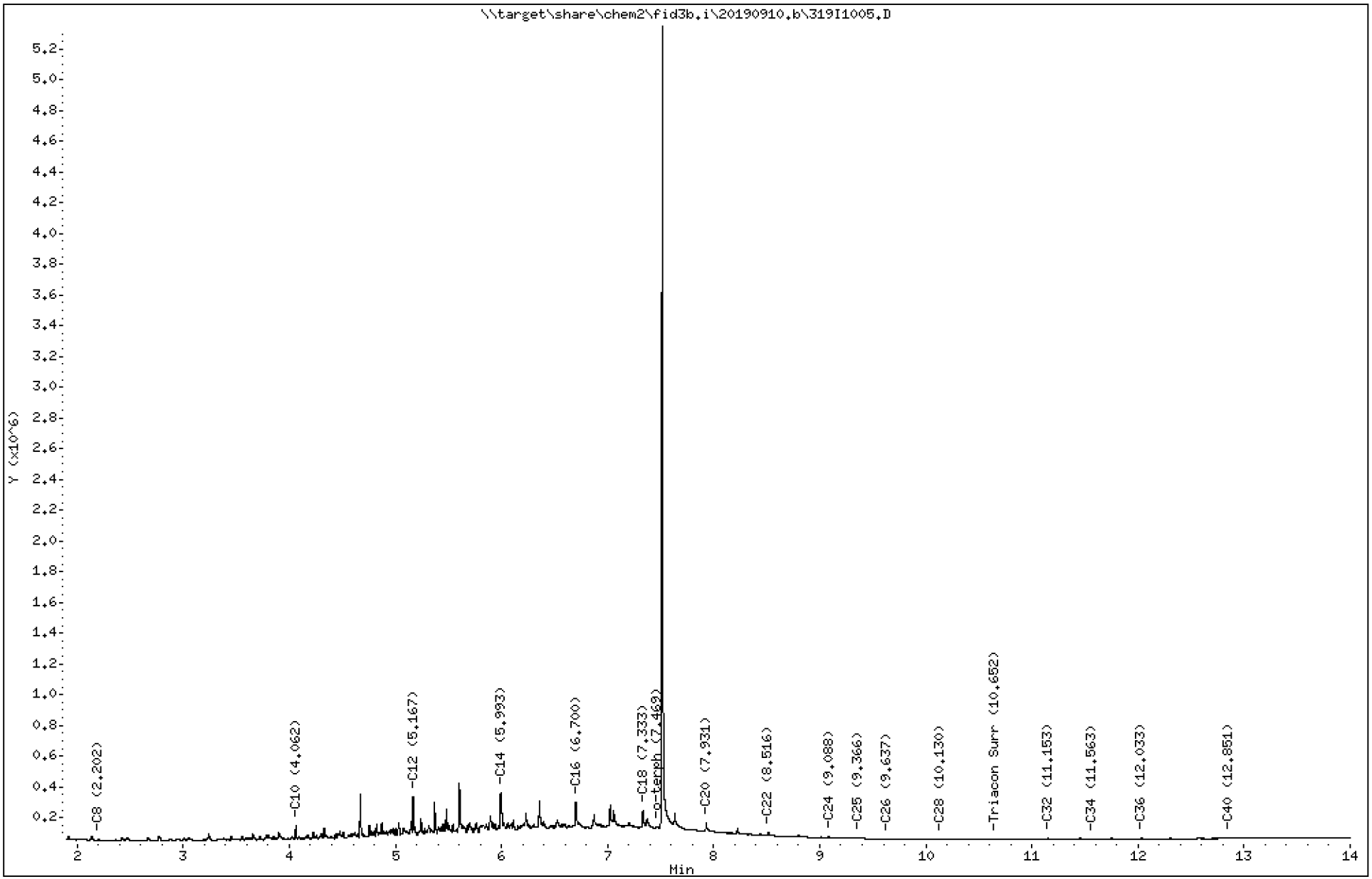
Sample Info: SHI0095-CAL2

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1005.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL2
Client ID:
Injection: 10-SEP-2019 11:08
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	4133132	23.0	
C8	2.202	0.027	5376	10862	WATPHD	(C12-C24)	17322935	99.3	
C10	4.062	-0.008	101972	69201	WATPHM	(C24-C38)	490066	3.9	
C12	5.167	0.001	281718	193220	AK102	(C10-C25)	20457808	100.4	M
C14	5.993	0.001	313750	375479	AK103	(C25-C36)	444458	4.4	
C16	6.700	-0.002	251350	331479	OR.DIES	(C10-C28)	20662150	100.1	M
C18	7.333	-0.005	194174	341875					
C20	7.931	-0.006	112926	188113					
C22	8.516	-0.008	54362	157252					
C24	9.088	-0.008	24594	47085					
C25	9.366	-0.008	17070	54226					
C26	9.637	-0.009	12763	22952					
C28	10.130	-0.038	12054	37909	IT.DIES	(C10-C24)	20457808	100.6	
C32	11.153	0.023	13856	34867					
C34	11.563	-0.010	9862	16249					
Filter Peak	----								
C36	12.033	0.034	16497	43310					
o-terph	7.516	-0.017	5212681	3884237					
Triacon Surr	10.652	-0.037	10551	20182					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

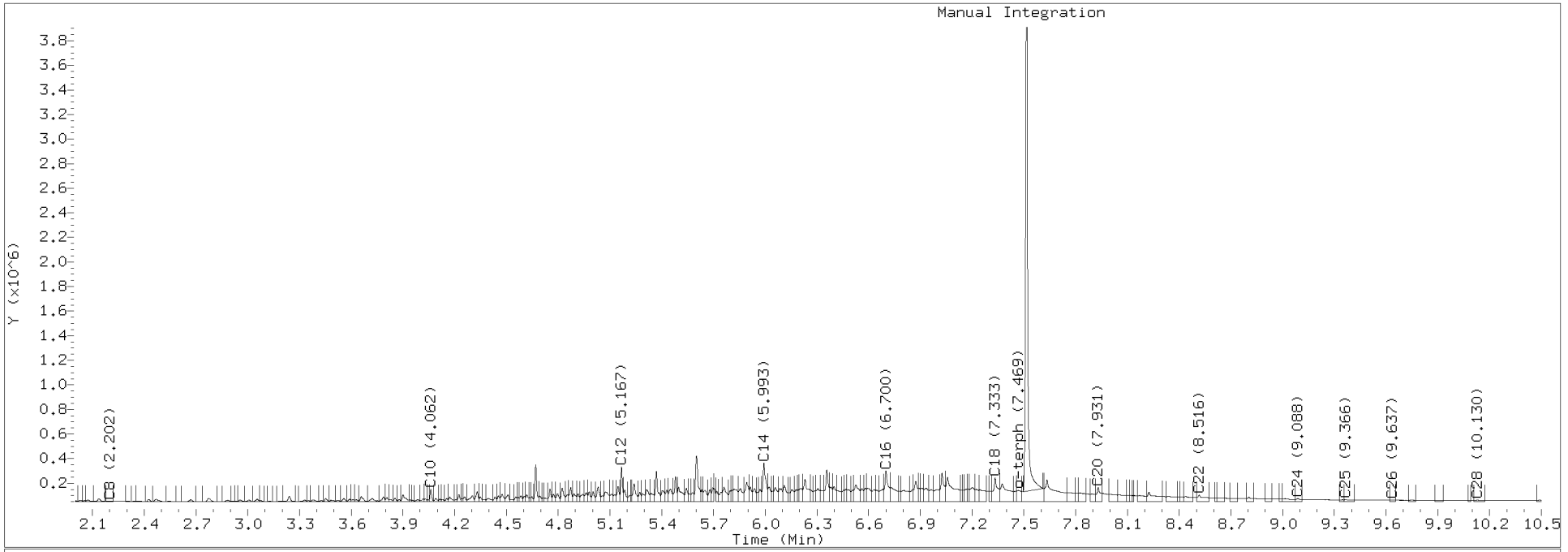
Surrogate	Area	Amount
o-Terphenyl	3884237	17.5
Triacontane	20182	0.1

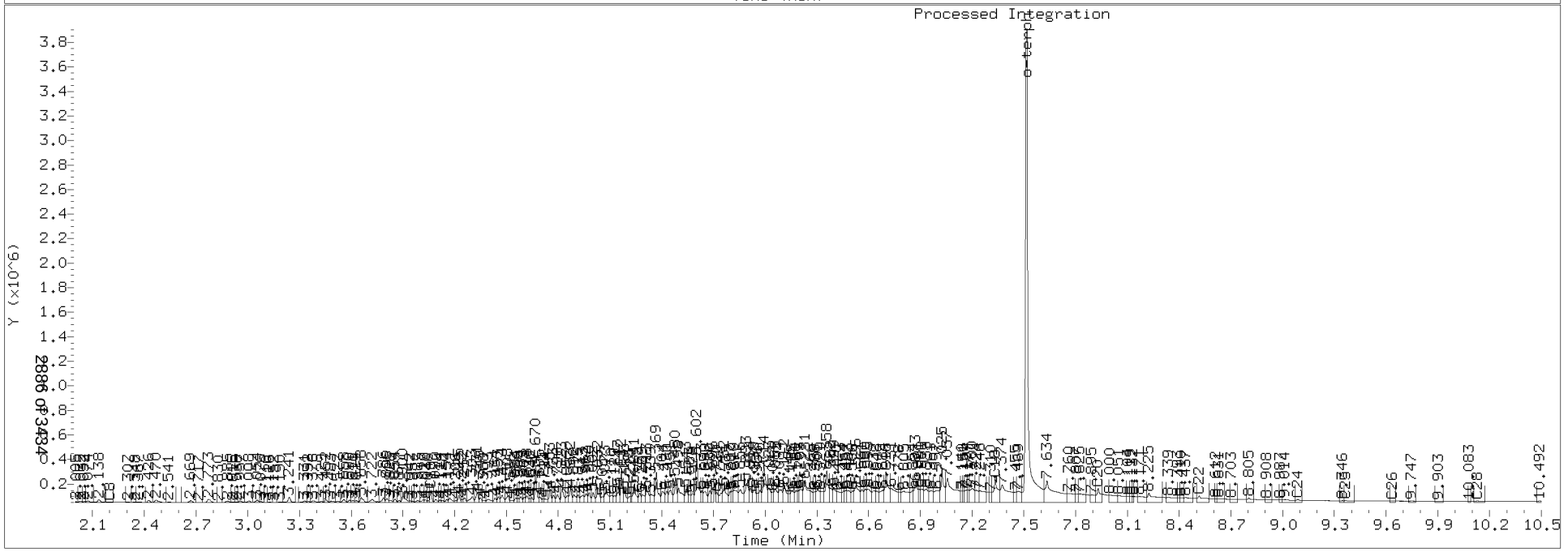
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1005.D Injection: 10-SEP-2019 11:08

Lab ID:SHI0095-CAL2





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1006.D

Date : 10-SEP-2019 11:29

Client ID:

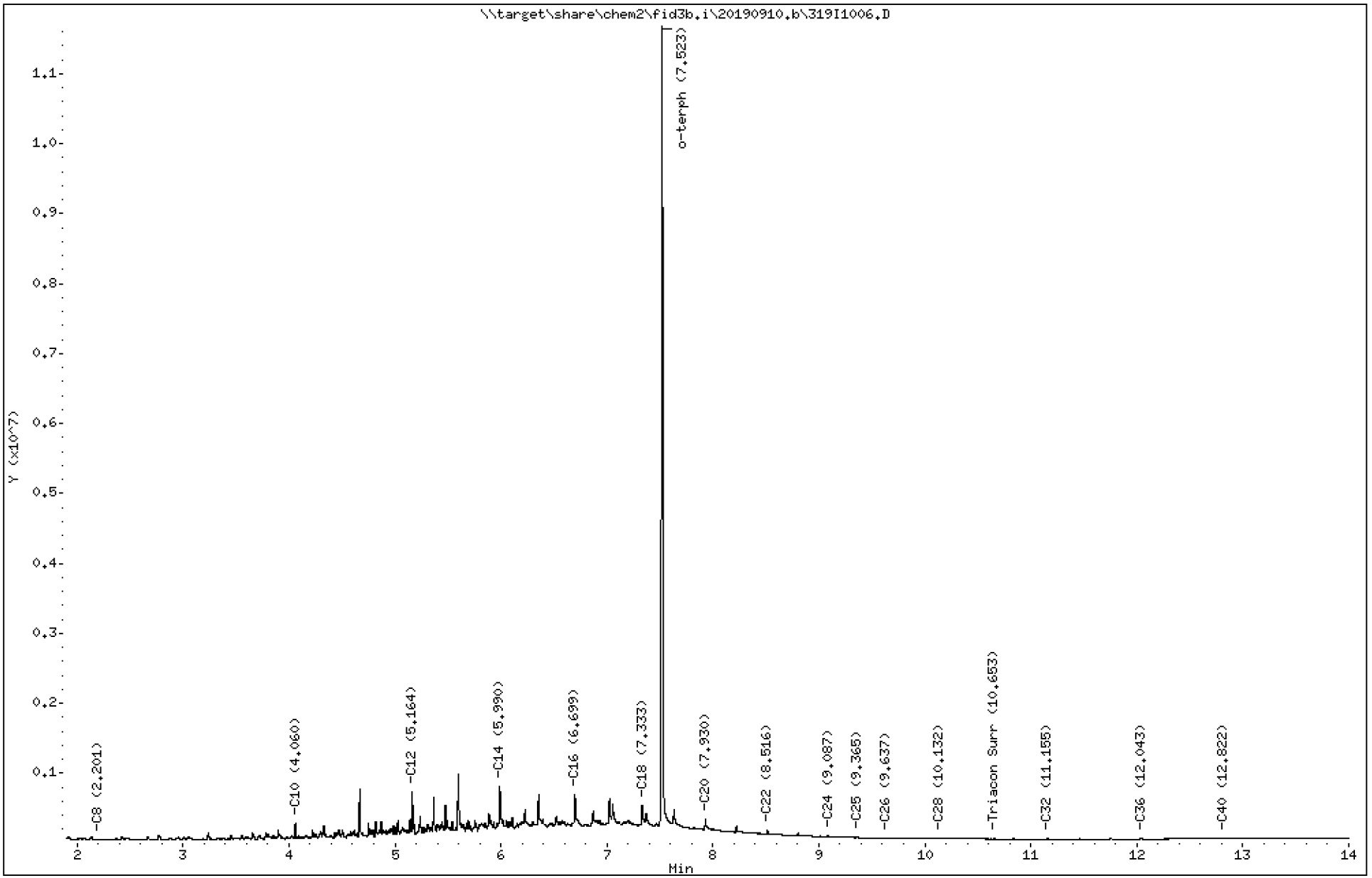
Sample Info: SHI0095-CAL3

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1006.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL3
Client ID:
Injection: 10-SEP-2019 11:29
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	8974164	50.0	
C8	2.201	0.026	6224	12219	WATPHD	(C12-C24)	42750978	245.0	
C10	4.060	-0.009	239797	160425	WATPHM	(C24-C38)	672773	5.3	
C12	5.164	-0.002	687519	448480	AK102	(C10-C25)	49706354	243.8	M
C14	5.990	-0.002	758231	891048	AK103	(C25-C36)	637380	6.3	
C16	6.699	-0.003	635834	828086	OR.DIES	(C10-C28)	50179771	243.1	M
C18	7.333	-0.005	494070	848950					
C20	7.930	-0.006	288309	803183					
C22	8.516	-0.007	134870	280234					
C24	9.087	-0.008	56958	288007					
C25	9.365	-0.009	36453	199253					
C26	9.637	-0.009	24556	110159					
C28	10.132	-0.036	14907	48558	IT.DIES	(C10-C24)	49706354	244.3	
C32	11.155	0.025	10780	24028					
C34	----								
Filter Peak	----								
C36	12.043	0.045	12097	29349					
o-terph	7.523	-0.010	11416761	9648508					
Triacon Surr	10.653	-0.036	10194	22196					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

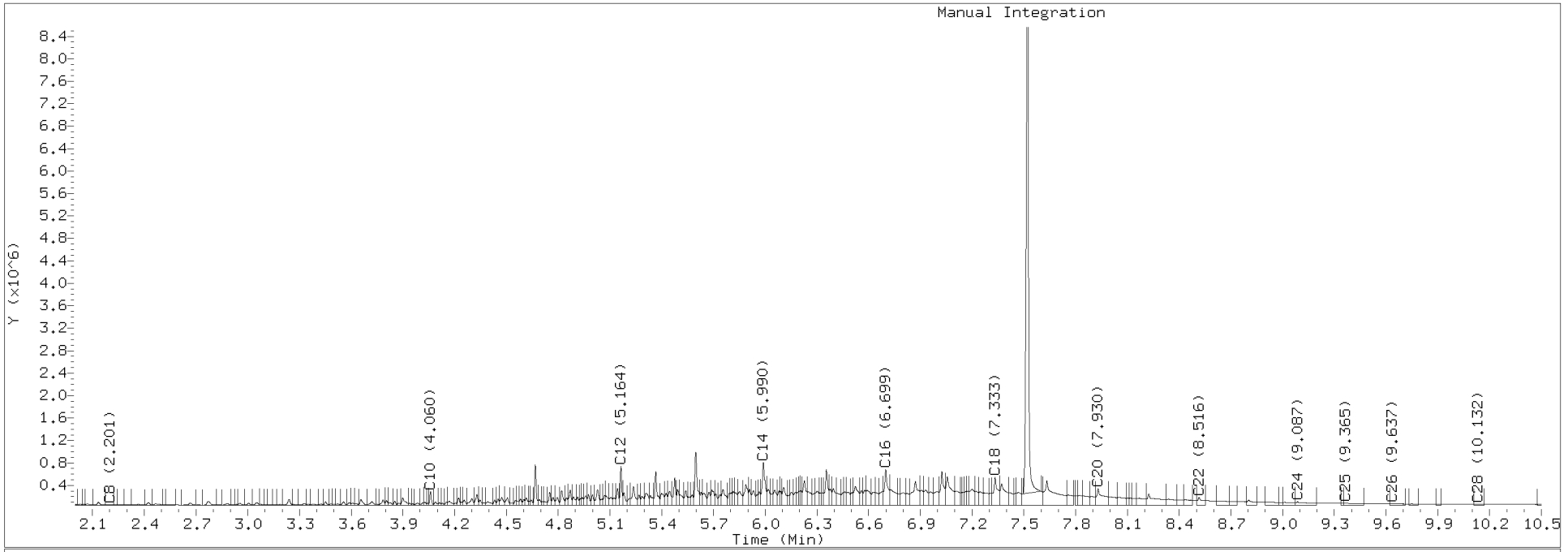
Surrogate	Area	Amount
o-Terphenyl	9648508	43.4
Triacontane	22196	0.1

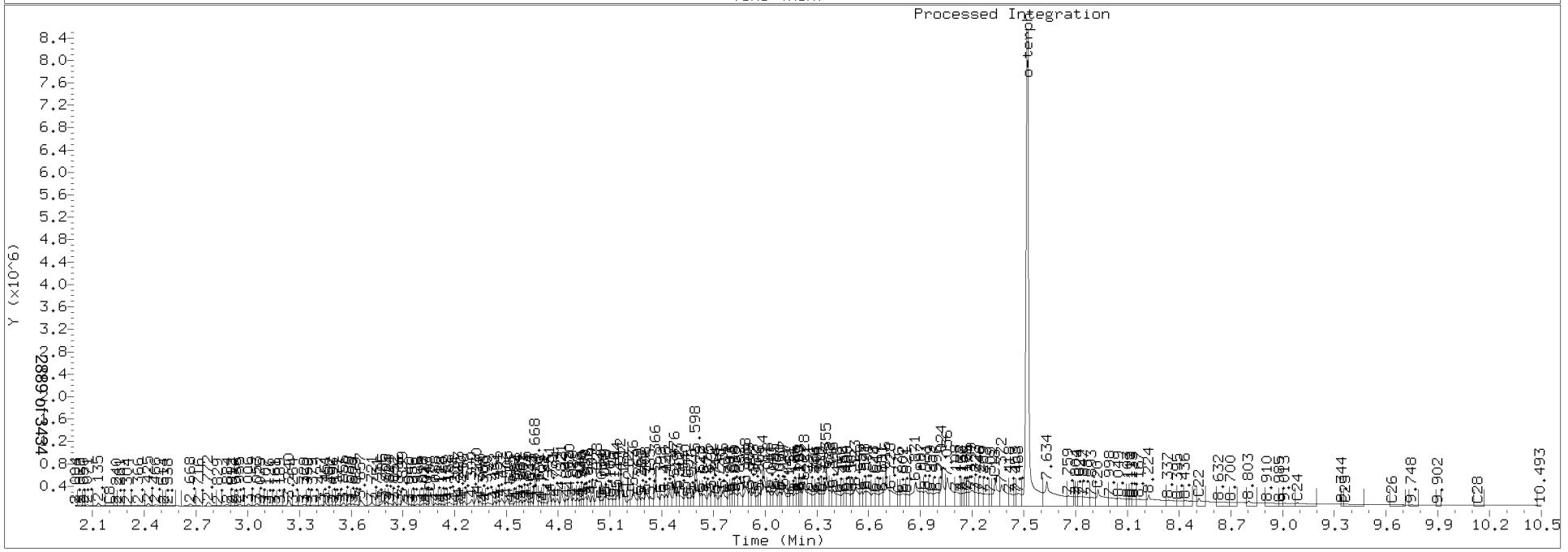
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1006.D Injection: 10-SEP-2019 11:29

Lab ID:SHI0095-CAL3





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1007.D

Date : 10-SEP-2019 11:50

Client ID:

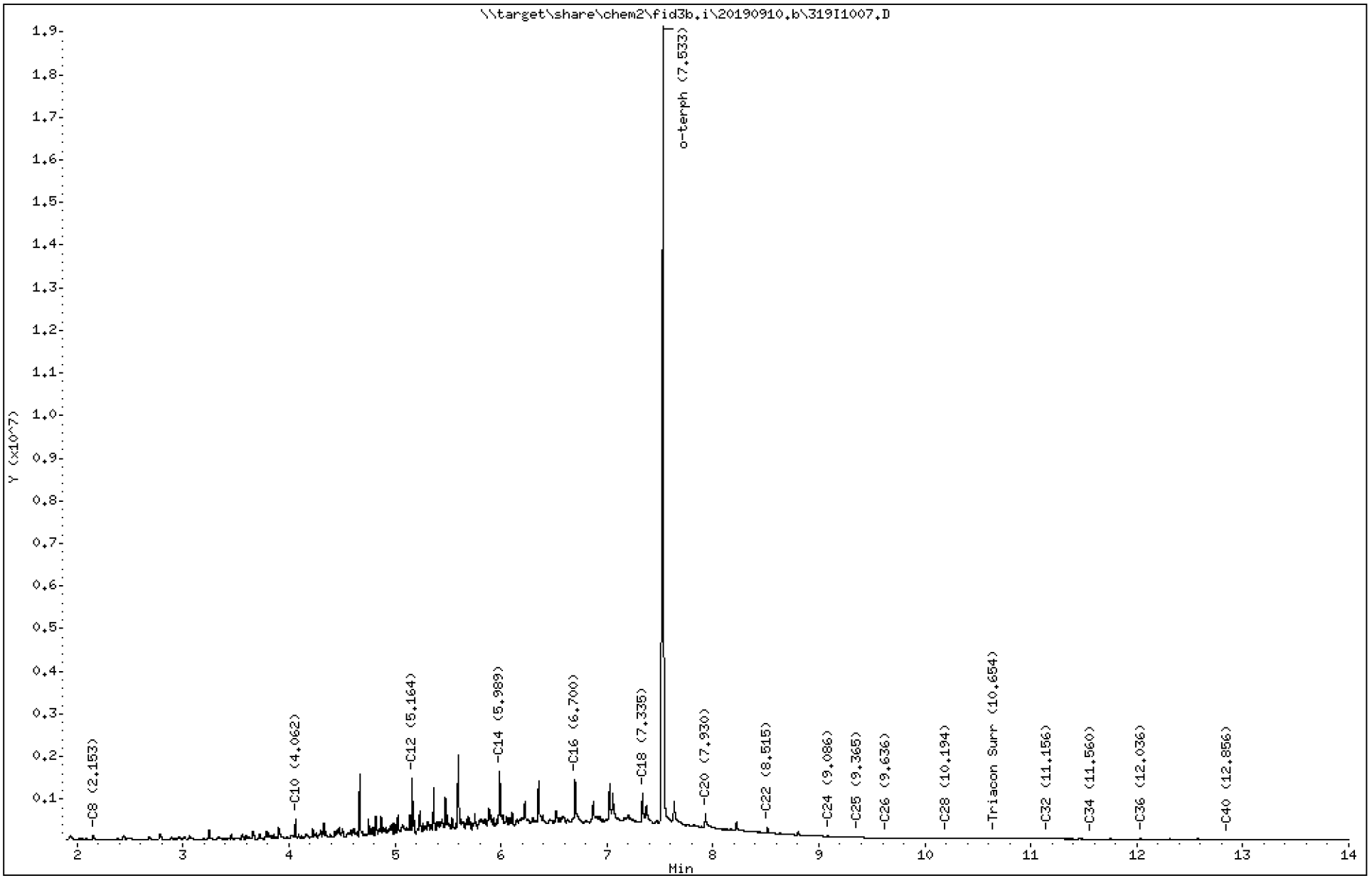
Sample Info: SHI0095-CAL4

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1007.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL4
Client ID:
Injection: 10-SEP-2019 11:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	17650786	98.4	
C8	2.153	-0.023	98664	102733	WATPHD	(C12-C24)	85984740	492.9	
C10	4.062	-0.007	494884	328246	WATPHM	(C24-C38)	2299079	18.2	
C12	5.164	-0.002	1432488	928781	AK102	(C10-C25)	100171154	491.4	M
C14	5.989	-0.003	1605383	1867276	AK103	(C25-C36)	1783877	17.5	
C16	6.700	-0.003	1394503	1729244	OR.DIES	(C10-C28)	101555599	492.1	M
C18	7.335	-0.004	1097444	2159853					
C20	7.930	-0.006	617145	1392086					
C22	8.515	-0.009	277072	578881					
C24	9.086	-0.010	110903	483100					
C25	9.365	-0.009	69372	361956					
C26	9.636	-0.010	45576	247393					
C28	10.194	0.026	23971	59217	IT.DIES	(C10-C24)	99708547	490.1	
C32	11.156	0.025	19751	53455					
C34	11.560	-0.013	15852	23261					
Filter Peak	----								
C36	12.036	0.037	17457	56025					
o-terph	7.533	-0.000	18656908	20100499					
Triacon Surr	10.654	-0.036	19187	36766					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

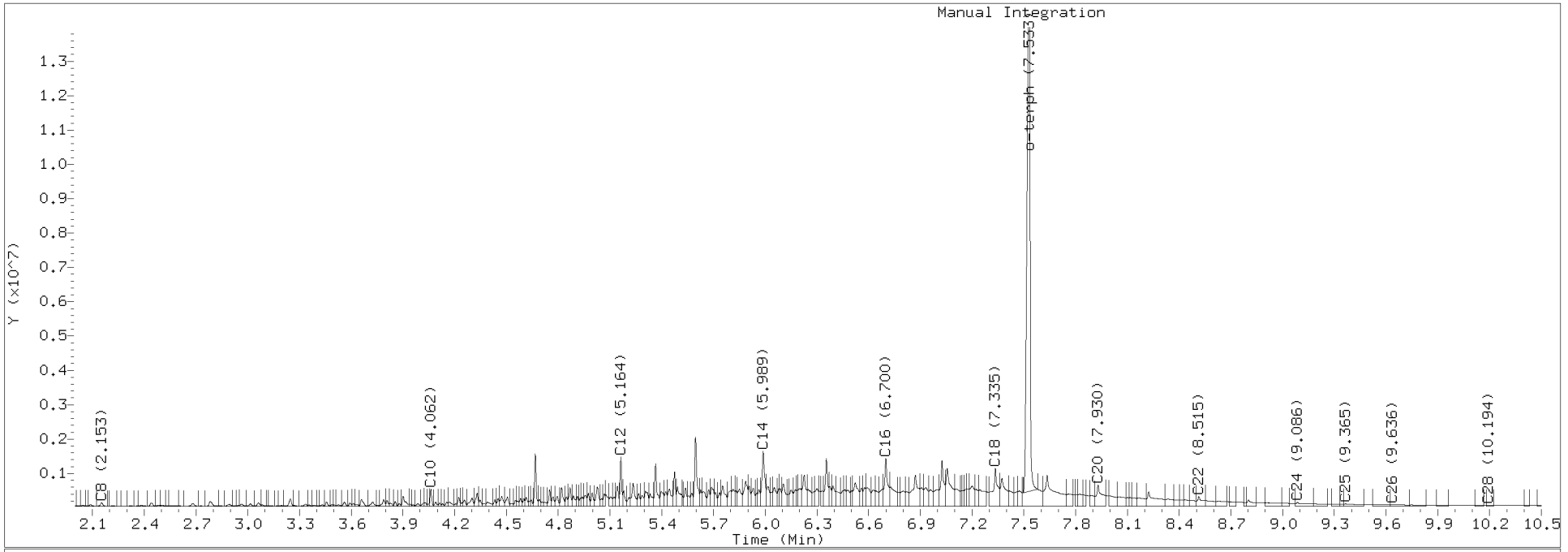
Surrogate	Area	Amount
o-Terphenyl	20100499	90.3
Triacontane	36766	0.2

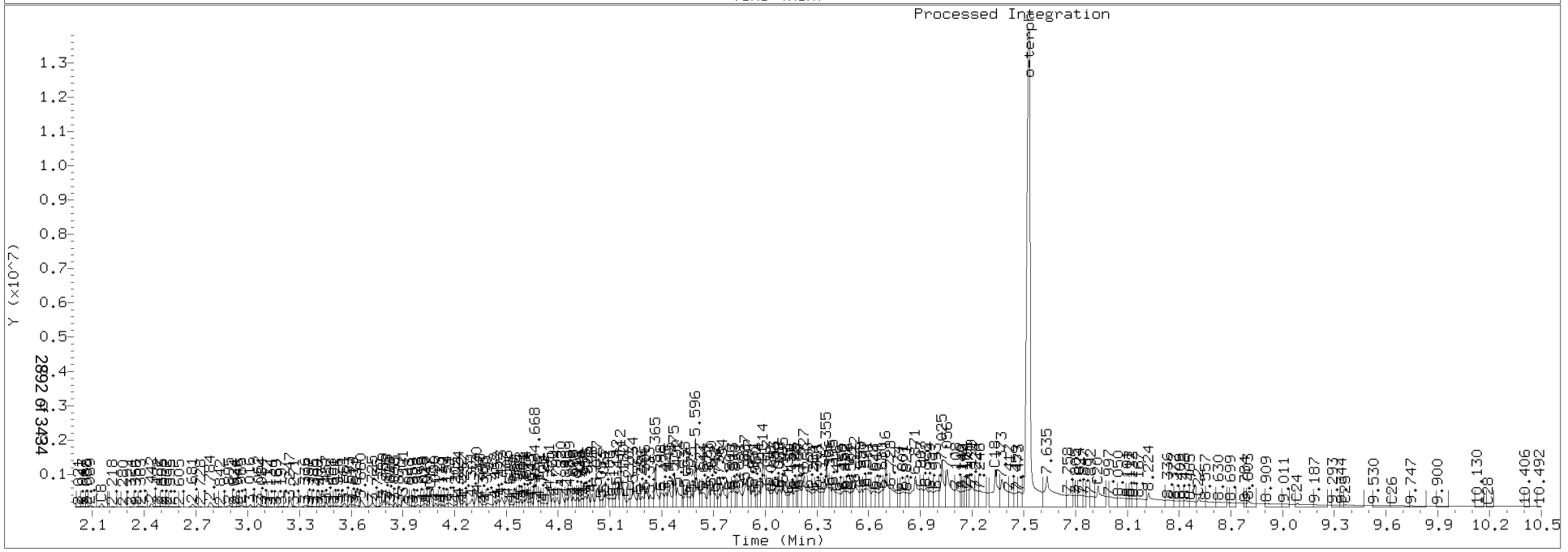
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1007.D   Injection: 10-SEP-2019 11:50

Lab ID:SHI0095-CAL4





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1008.D

Date : 10-SEP-2019 12:11

Client ID:

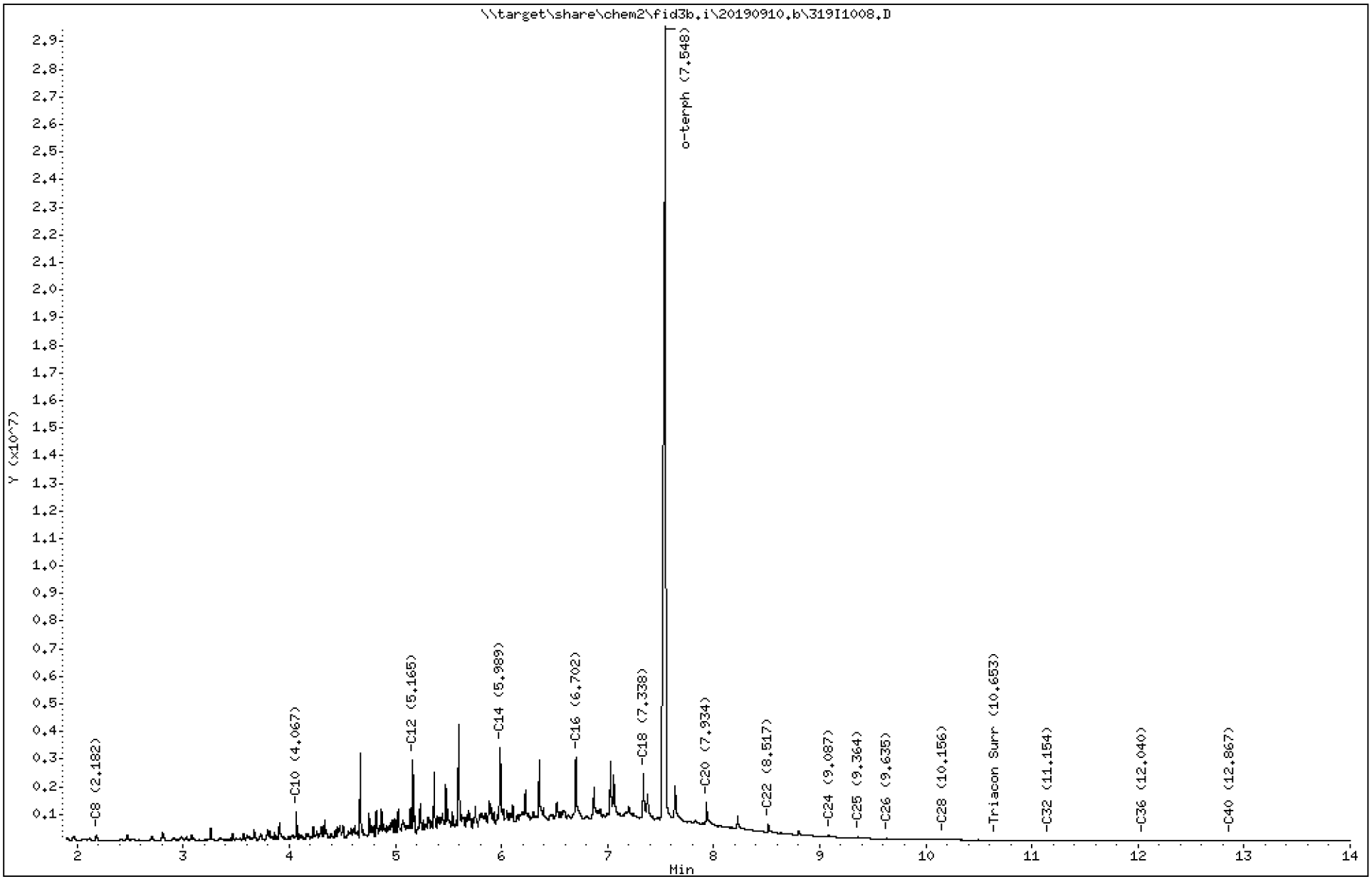
Sample Info: SHI0095-CAL5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1008.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL5
Client ID:
Injection: 10-SEP-2019 12:11
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	36092205	201.1	
C8	2.182	0.007	190674	211200	WATPHD	(C12-C24)	175565653	1006.3	
C10	4.067	-0.002	1035714	673081	WATPHM	(C24-C38)	3042610	24.0	
C12	5.165	-0.001	2923351	1880038	AK102	(C10-C25)	204331231	1002.3	M
C14	5.989	-0.003	3345598	3807702	AK103	(C25-C36)	2496043	24.5	
C16	6.702	-0.001	3002048	5193508	OR.DIES	(C10-C28)	206422909	1000.2	M
C18	7.338	0.000	2409382	3775397					
C20	7.934	-0.002	1369829	3468287					
C22	8.517	-0.007	576896	2313635					
C24	9.087	-0.009	215442	903366					
C25	9.364	-0.010	125414	620336					
C26	9.635	-0.011	75345	386332					
C28	10.156	-0.012	31913	100126	IT.DIES	(C10-C24)	203835764	1001.9	
C32	11.154	0.023	19301	51387					
C34	----								
Filter Peak	----								
C36	12.040	0.042	17308	56965					
o-terph	7.548	0.014	28680439	42155854					
Triacon Surr	10.653	-0.037	19958	42609					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

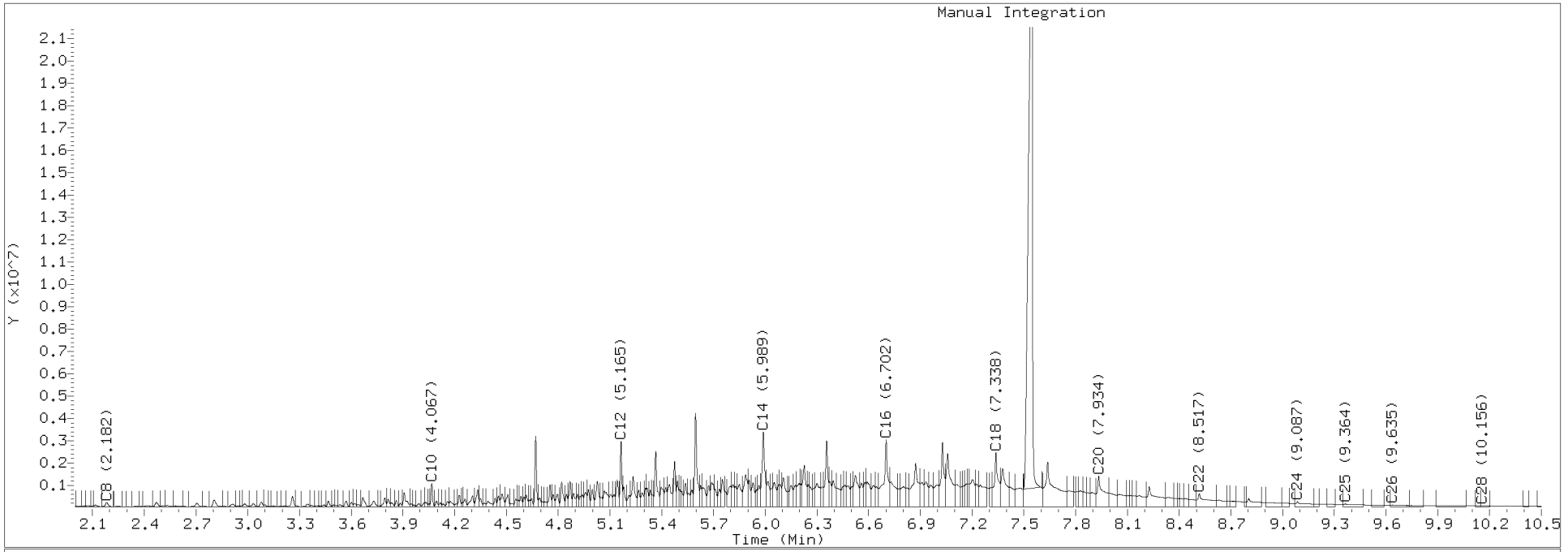
Surrogate	Area	Amount
o-Terphenyl	42155854	189.5
Triacontane	42609	0.3

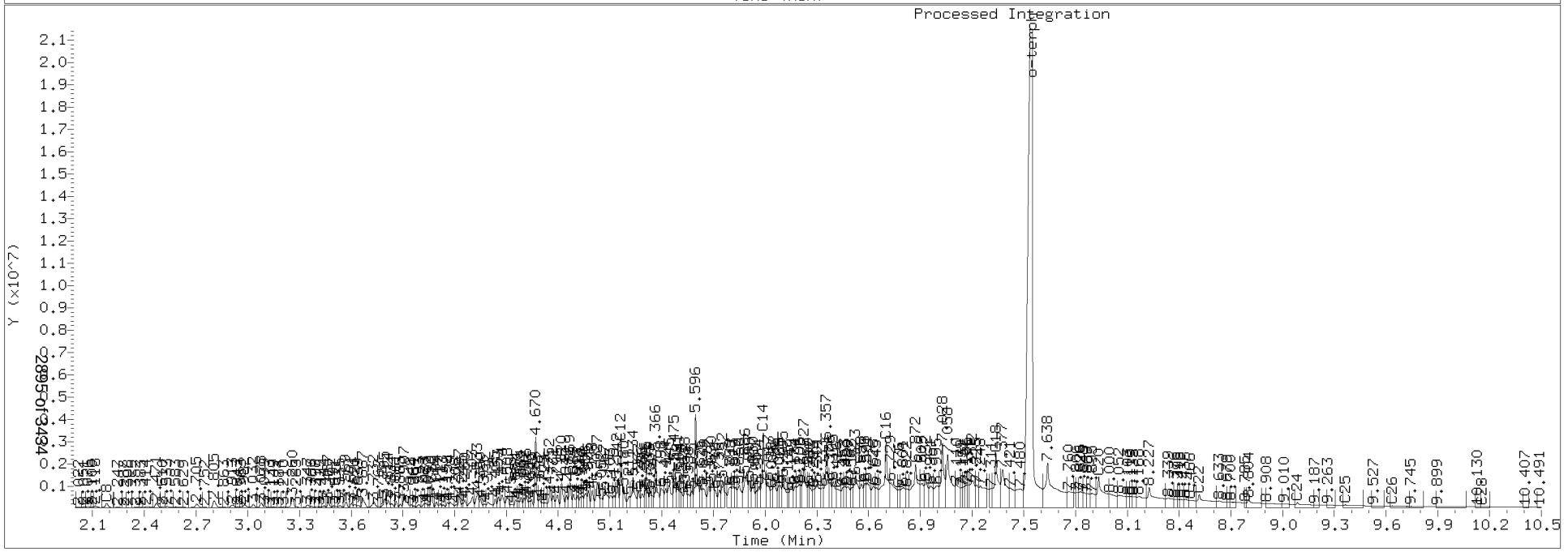
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1008.D Injection: 10-SEP-2019 12:11

Lab ID:SHI0095-CAL5

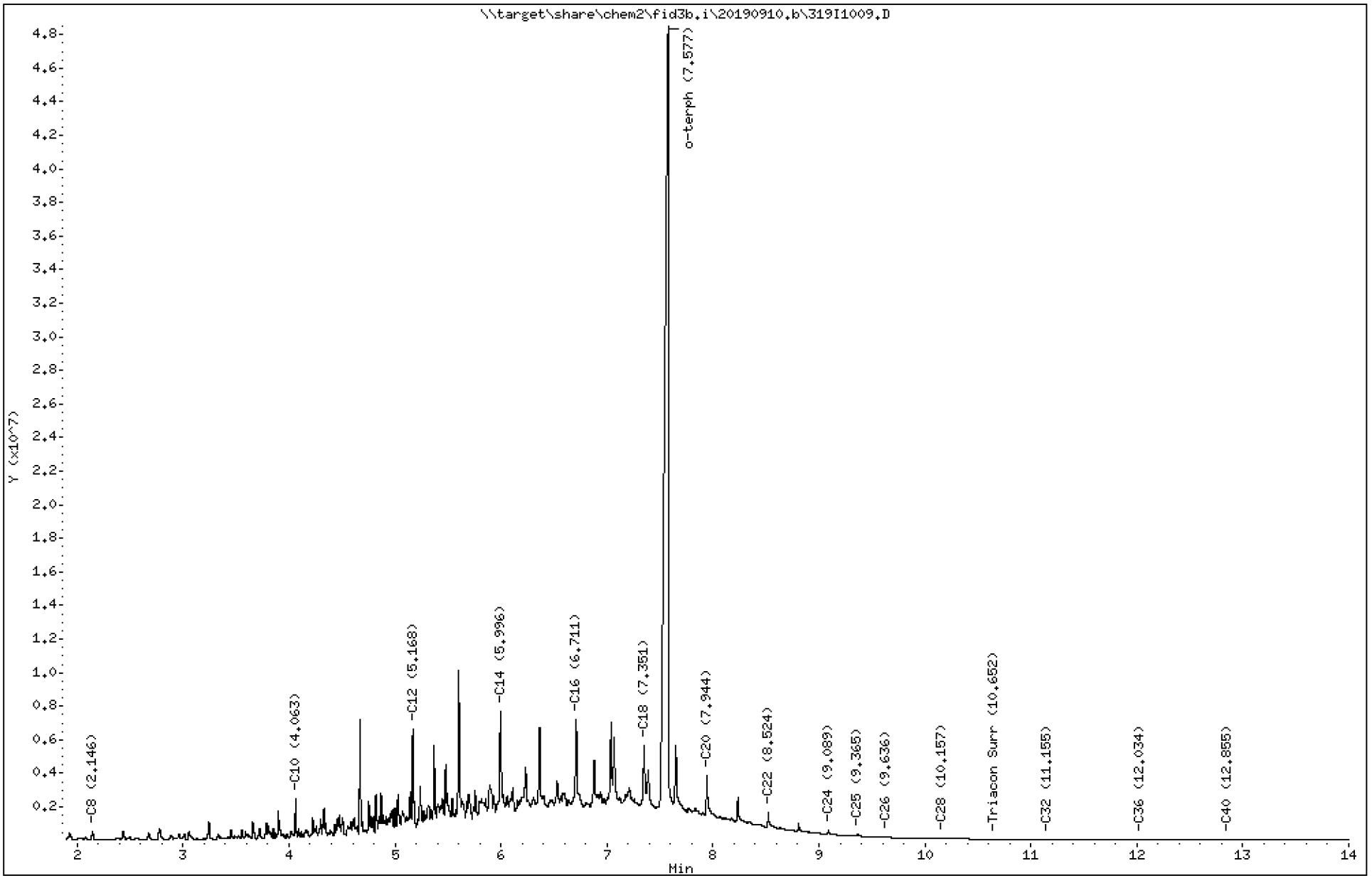




Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1009.D
Date : 10-SEP-2019 12:32
Client ID:
Sample Info: SHI0095-CAL6

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1009.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL6
Client ID:
Injection: 10-SEP-2019 12:32
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	91341399	509.0
C8	2.146	-0.030	449603	493294	WATPHD	(C12-C24)	444546554	2548.1
C10	4.063	-0.006	2470388	1705169	WATPHM	(C24-C38)	8117296	64.1
C12	5.168	0.002	6597097	6800987	AK102	(C10-C25)	518906252	2545.5 M
C14	5.996	0.004	7635112	10138764	AK103	(C25-C36)	5587348	54.9
C16	6.711	0.008	7147462	16476609	OR.DIES	(C10-C28)	523902587	2538.5 M
C18	7.351	0.013	5595769	11667793				
C20	7.944	0.008	3799207	13407515				
C22	8.524	0.000	1603775	6035791				
C24	9.089	-0.006	550164	2185035				
C25	9.365	-0.009	308007	1272111				
C26	9.636	-0.010	174267	866694				
C28	10.157	-0.011	62427	182036	IT.DIES	(C10-C24)	516420954	2538.3
C32	11.155	0.024	22652	51346				
C34	----							
Filter Peak	----							
C36	12.034	0.036	20316	57724				
o-terph	7.577	0.044	46325108	107521609				
Triacon Surr	10.652	-0.038	31891	122082				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

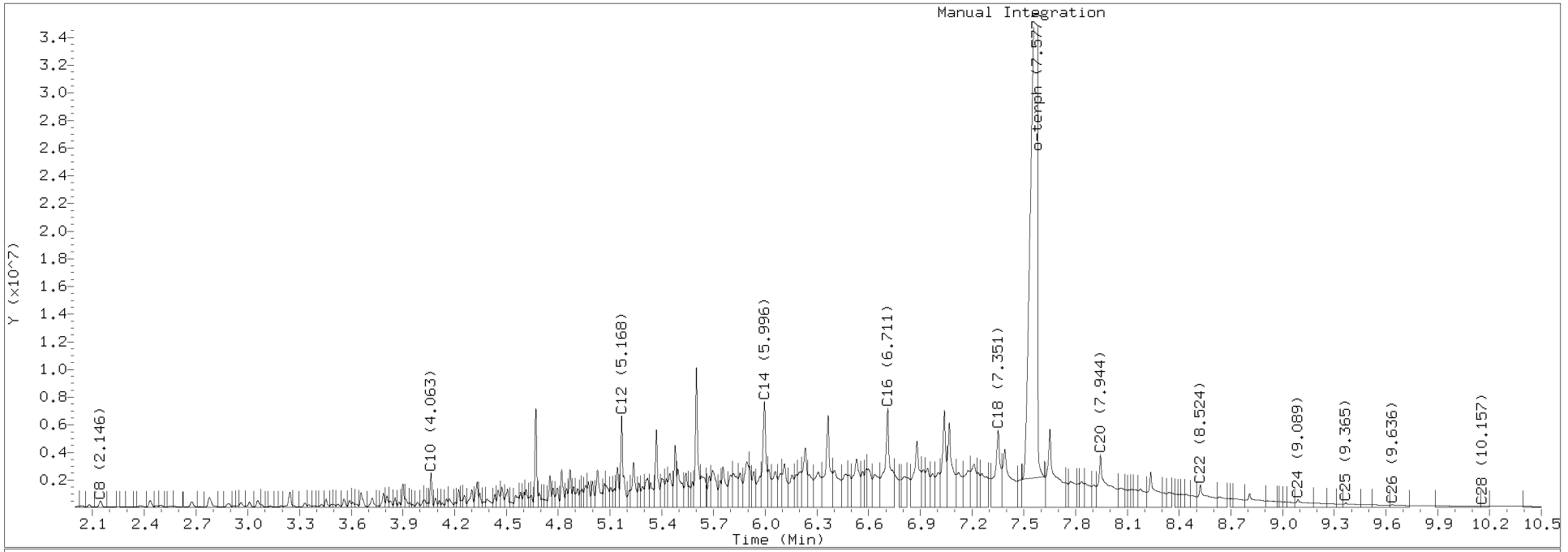
Surrogate	Area	Amount
o-Terphenyl	107521609	483.3
Triacontane	122082	0.7

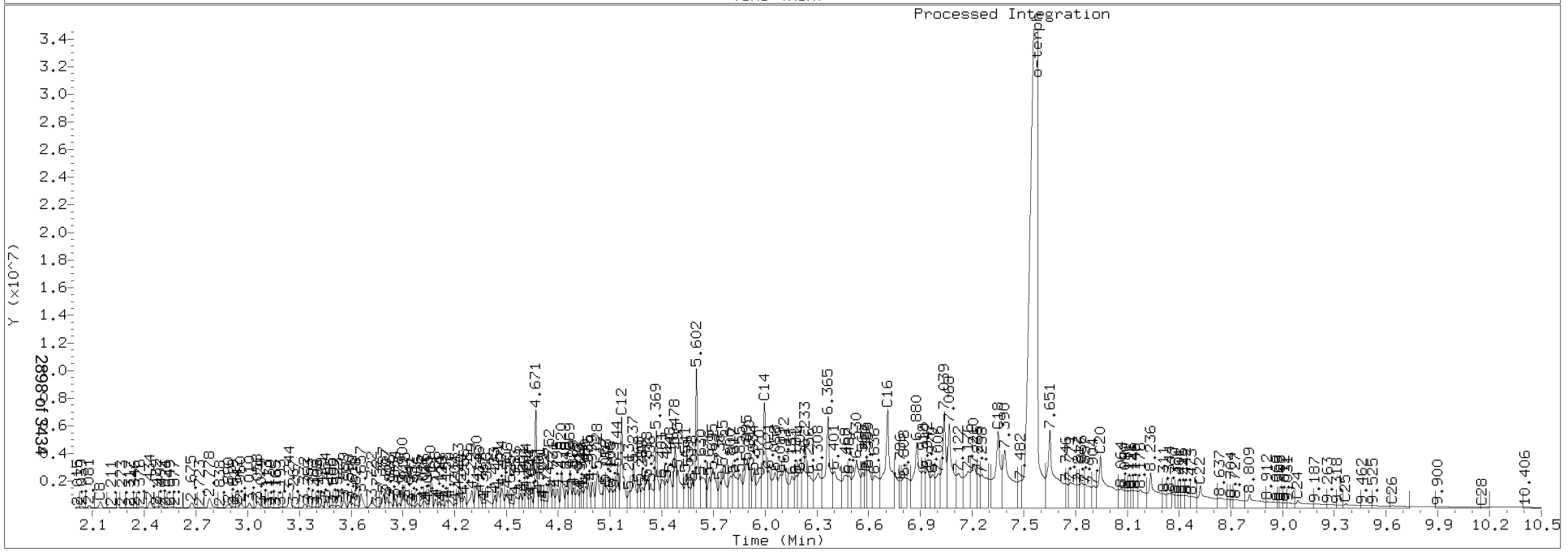
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1009.D Injection: 10-SEP-2019 12:32

Lab ID:SHI0095-CAL6





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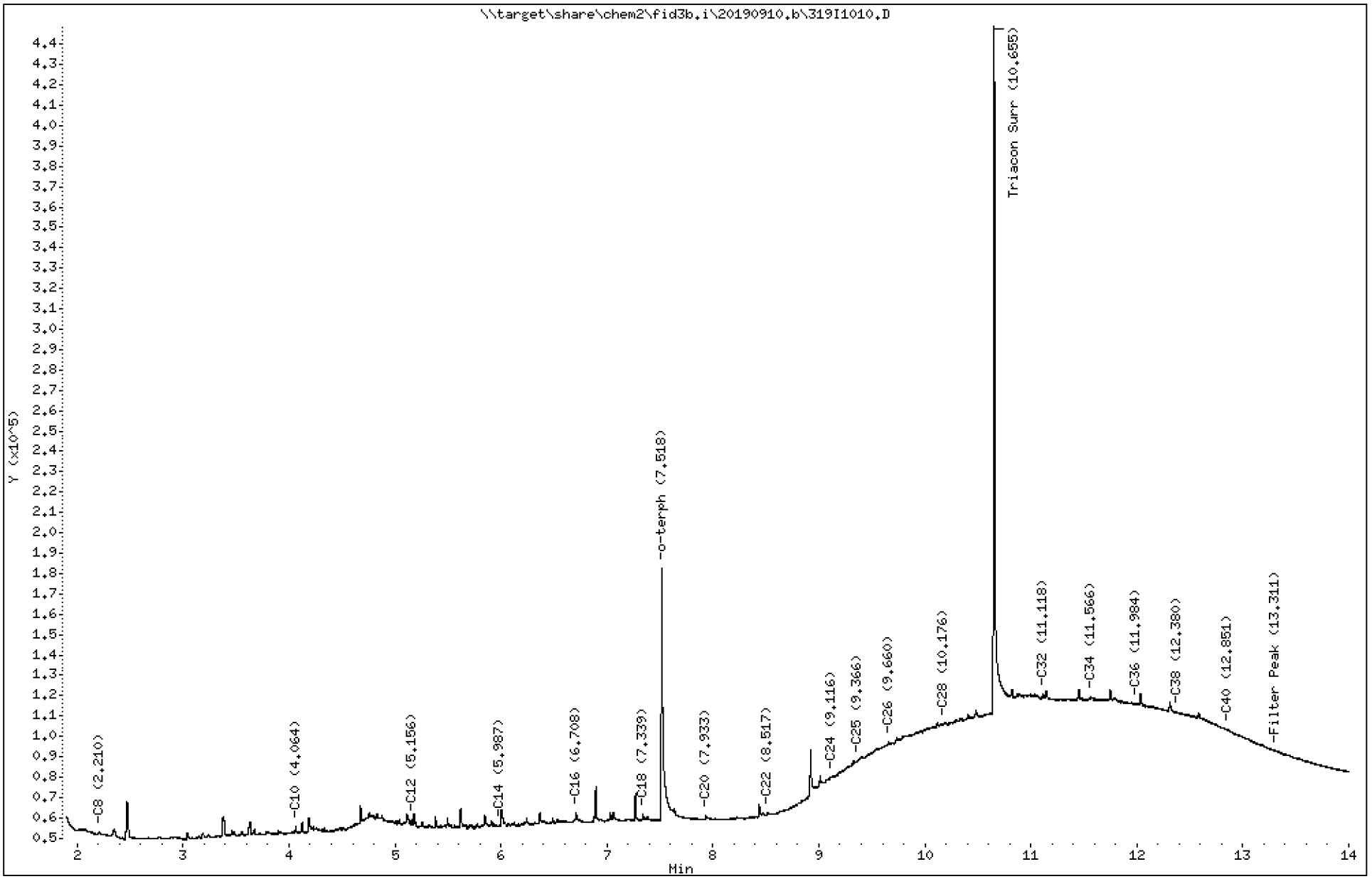
Date : 10-SEP-2019 12:53
Client ID:
Sample Info: SHI0095-CAL7

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1010.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL7
Client ID:
Injection: 10-SEP-2019 12:53
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	696115	3.9
C8	2.210	0.034	3707	10723	WATPHD	(C12-C24)	1849301	10.6
C10	4.064	-0.005	6624	7590	WATPHM	(C24-C38)	9158018	72.3
C12	5.156	-0.010	9773	12102	AK102	(C10-C25)	2676035	13.1
C14	5.987	-0.005	7701	6812	AK103	(C25-C36)	8159207	80.2 M
C16	6.708	0.005	13748	35445	OR.DIES	(C10-C28)	5036569	24.4
C18	7.339	0.001	12956	27834				
C20	7.933	-0.003	12034	22751				
C22	8.517	-0.006	13540	21985				
C24	9.116	0.020	30909	39190				
C25	9.366	-0.008	39121	37756				
C26	9.660	0.014	47956	143450				
C28	10.176	0.008	57169	107168	IT.DIES	(C10-C24)	2333014	11.5
C32	11.118	-0.013	71498	96018				
C34	11.566	-0.007	70316	129789				
Filter Peak	13.311	-0.008	43826	34029				
C36	11.984	-0.014	67168	113422				
o-terph	7.518	-0.015	133256	236367				
Triacon Surr	10.655	-0.035	336635	332200				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

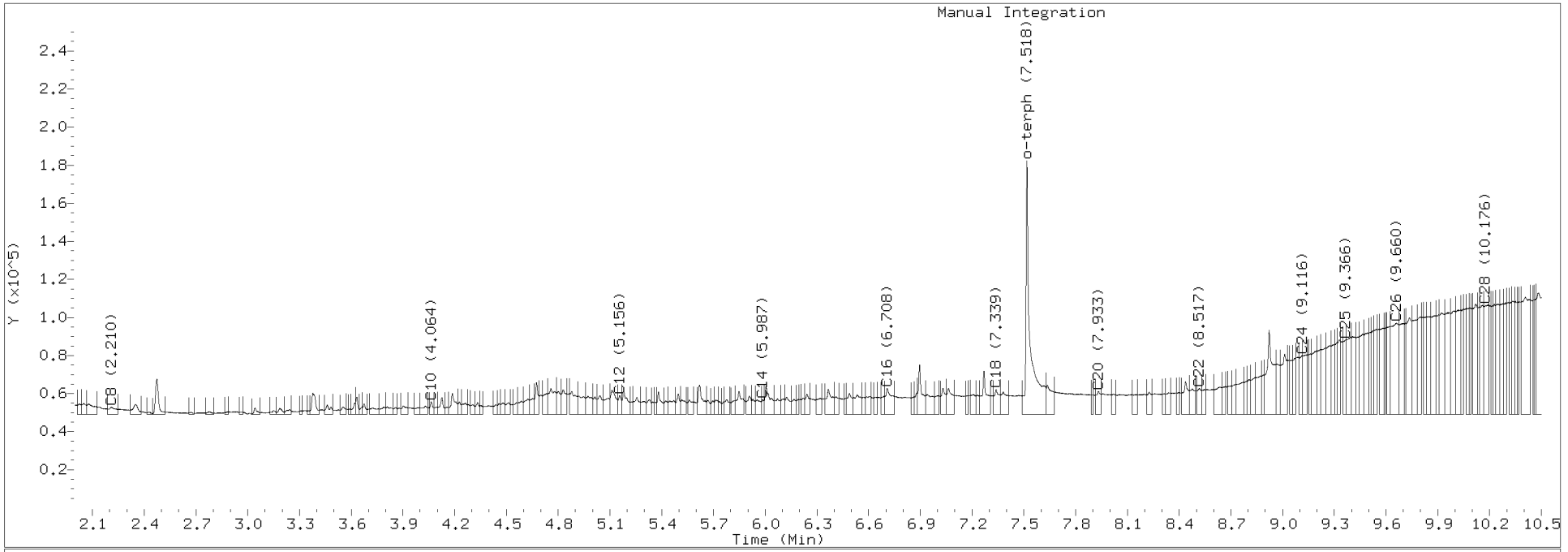
Surrogate	Area	Amount
o-Terphenyl	236367	1.1
Triacontane	332200	2.0

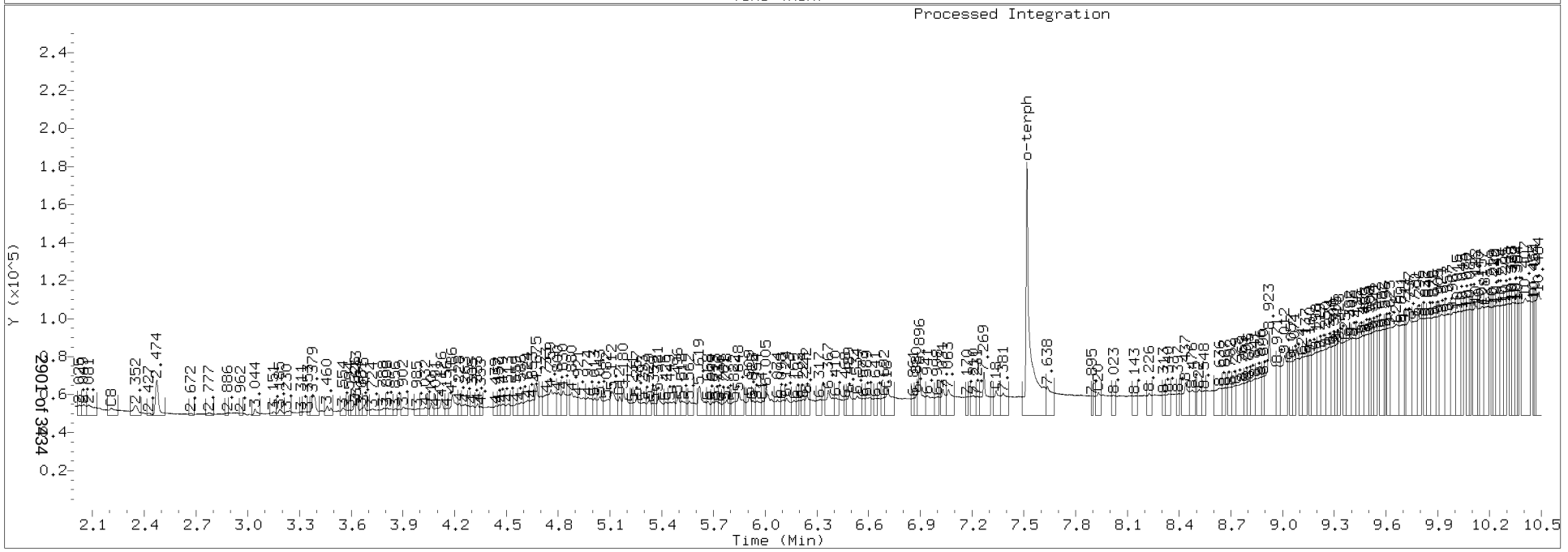
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1010.D Injection: 10-SEP-2019 12:53

Lab ID:SHI0095-CAL7





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Date : 10-SEP-2019 13:15

Client ID:

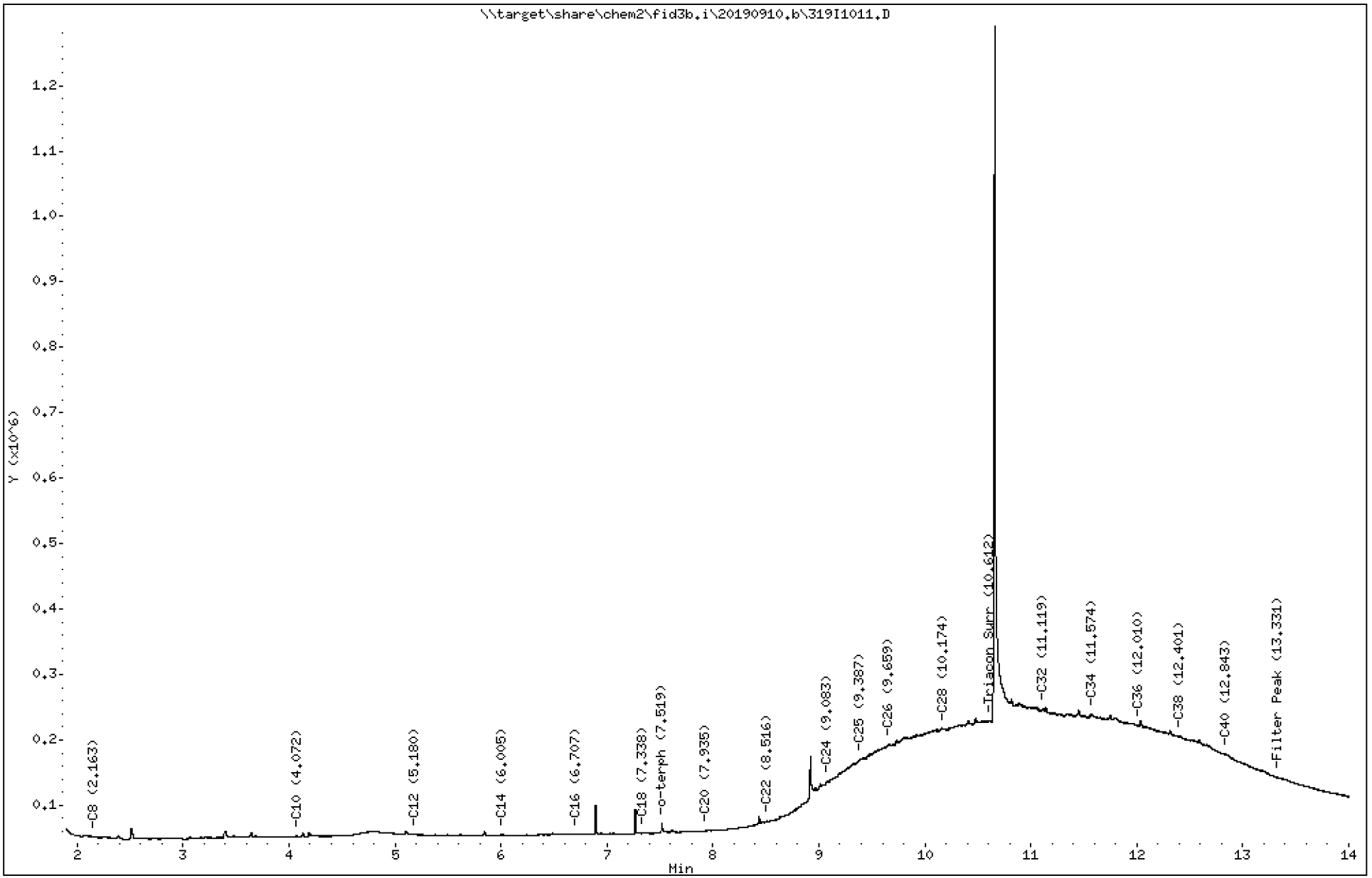
Sample Info: SHI0095-CAL8

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1011.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL8
Client ID:
Injection: 10-SEP-2019 13:15
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	554828	3.1
C8	2.163	-0.013	4876	14169	WATPHD	(C12-C24)	3411763	19.6
C10	4.072	0.002	6601	10566	WATPHM	(C24-C38)	31488854	248.7
C12	5.180	0.014	9127	15202	AK102	(C10-C25)	4706701	23.1
C14	6.005	0.013	8201	16553	AK103	(C25-C36)	27537776	270.7 M
C16	6.707	0.005	9387	15173	OR.DIES	(C10-C28)	12453882	60.3
C18	7.338	-0.000	10476	22931				
C20	7.935	-0.001	13948	35769				
C22	8.516	-0.008	28177	49696				
C24	9.083	-0.013	88812	65383				
C25	9.387	0.013	123393	347035				
C26	9.659	0.013	146743	479218				
C28	10.174	0.005	169858	84612	IT.DIES	(C10-C24)	3716351	18.3
C32	11.119	-0.012	200100	344767				
C34	11.574	0.001	191655	570830				
Filter Peak	13.331	0.013	95438	242763				
C36	12.010	0.012	175038	160437				
o-terph	7.519	-0.014	25714	40501				
Triacon Surr	10.660	-0.029	1057578	1160674				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

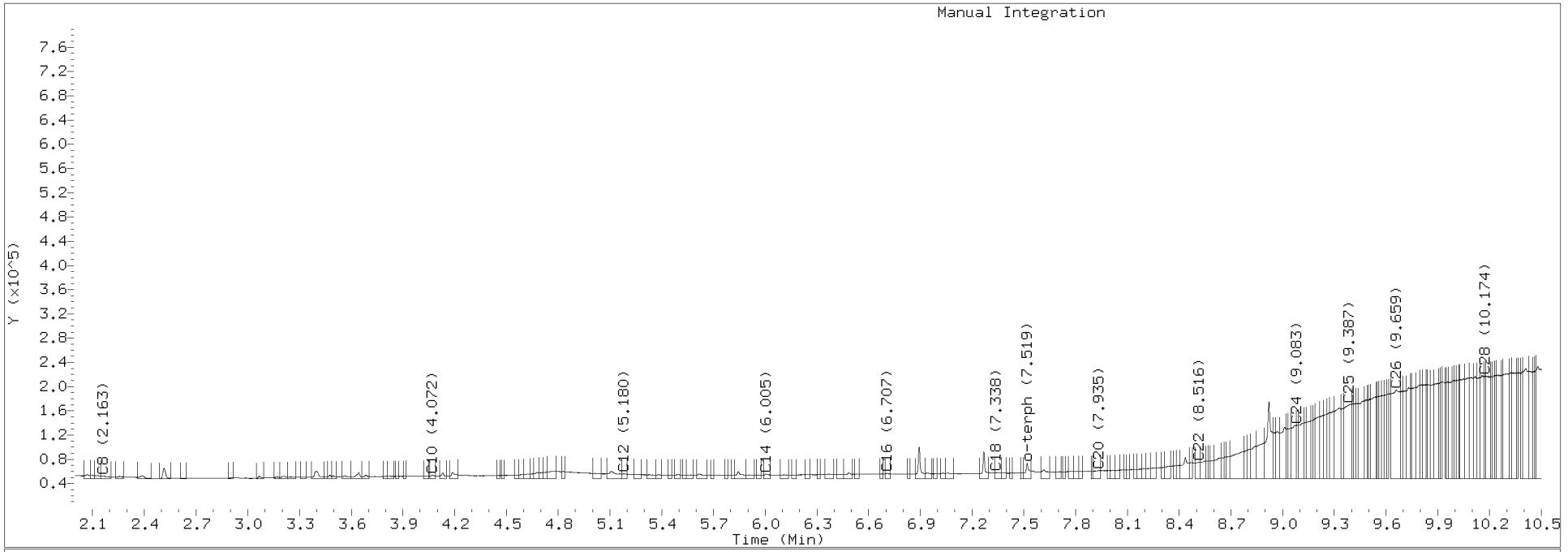
Surrogate	Area	Amount
o-Terphenyl	40501	0.2
Triacontane	1160674	6.8

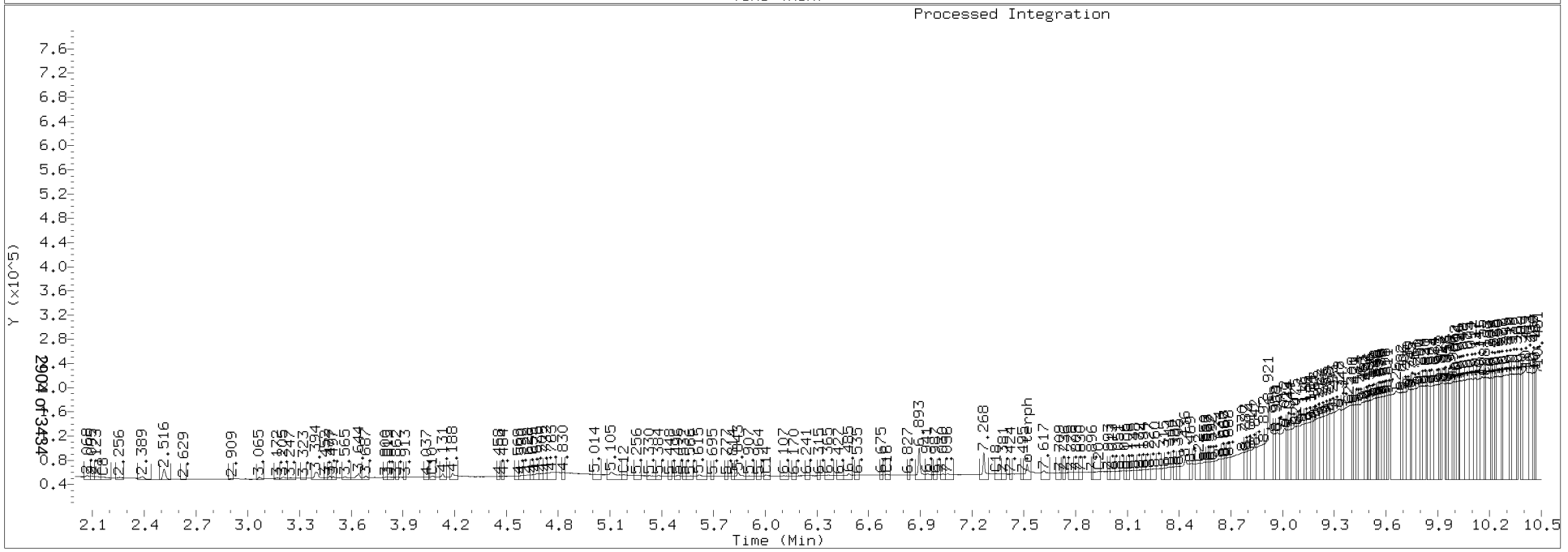
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1011.D   Injection: 10-SEP-2019 13:15

Lab ID:SHI0095-CAL8





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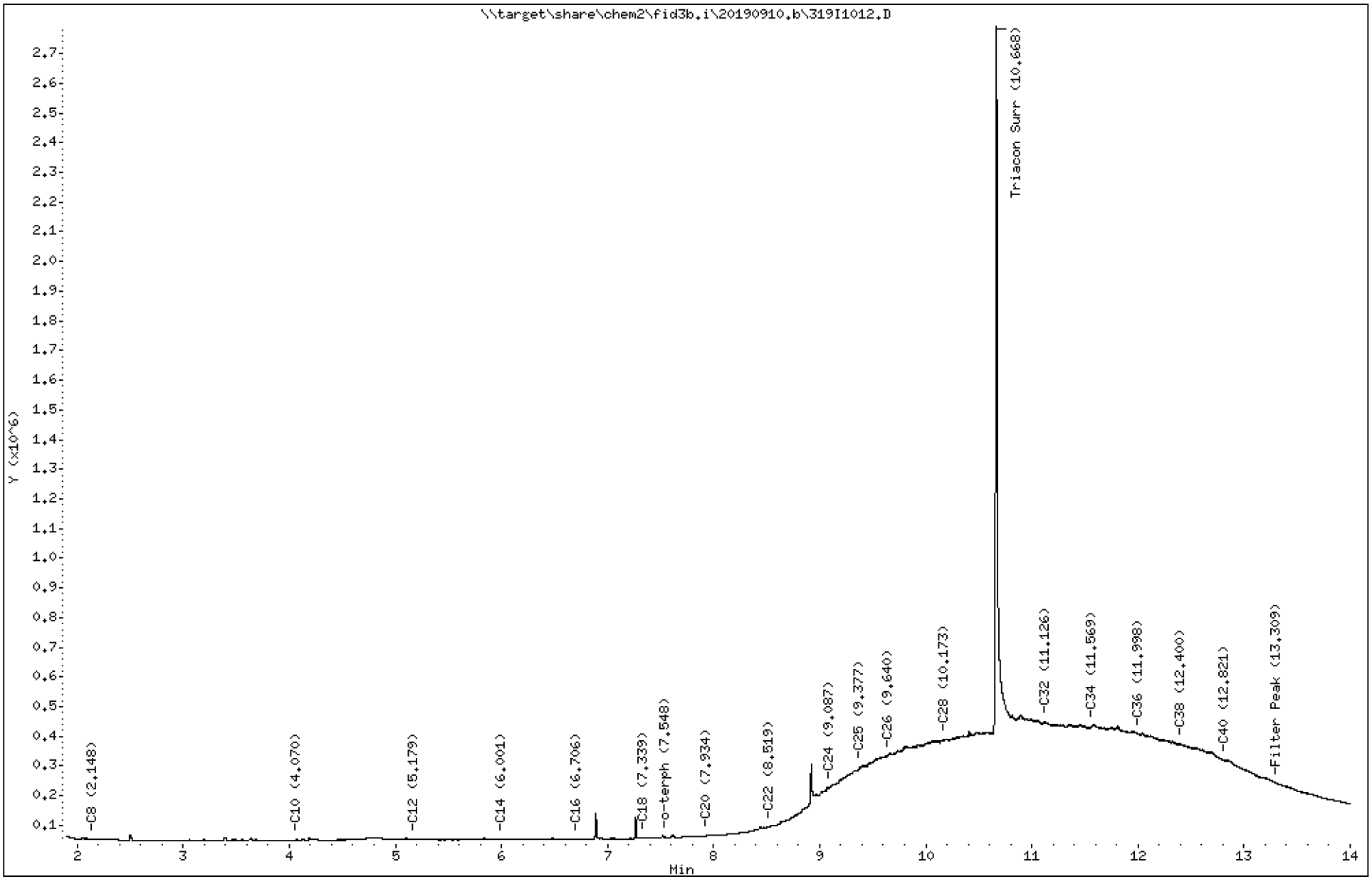
Date : 10-SEP-2019 13:36
Client ID:
Sample Info: SHI0095-CAL9

Instrument: fid3b.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1012.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL9
Client ID:
Injection: 10-SEP-2019 13:36
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	318473	1.8	
C8	2.148	-0.028	6218	17443	WATPHD	(C12-C24)	5855847	33.6	
C10	4.070	0.001	4375	6002	WATPHM	(C24-C38)	65495143	517.3	
C12	5.179	0.013	4829	7582	AK102	(C10-C25)	8461360	41.5	
C14	6.001	0.009	4579	8481	AK103	(C25-C36)	56051570	550.9	M
C16	6.706	0.004	6650	14488	OR.DIES	(C10-C28)	23998168	116.3	
C18	7.339	0.001	8814	20722					
C20	7.934	-0.003	17014	19537					
C22	8.519	-0.004	47249	82529					
C24	9.087	-0.009	177624	159141					
C25	9.377	0.003	246937	439958					
C26	9.640	-0.006	285359	289661					
C28	10.173	0.004	340667	339966	IT.DIES	(C10-C24)	5992846	29.5	
C32	11.126	-0.005	402764	637373					
C34	11.569	-0.004	386735	550247					
Filter Peak	13.309	-0.009	193040	420499					
C36	11.998	-0.001	360922	387719					
o-terph	7.548	0.015	11649	25321					
Triacon Surr	10.668	-0.021	2373340	2892883					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

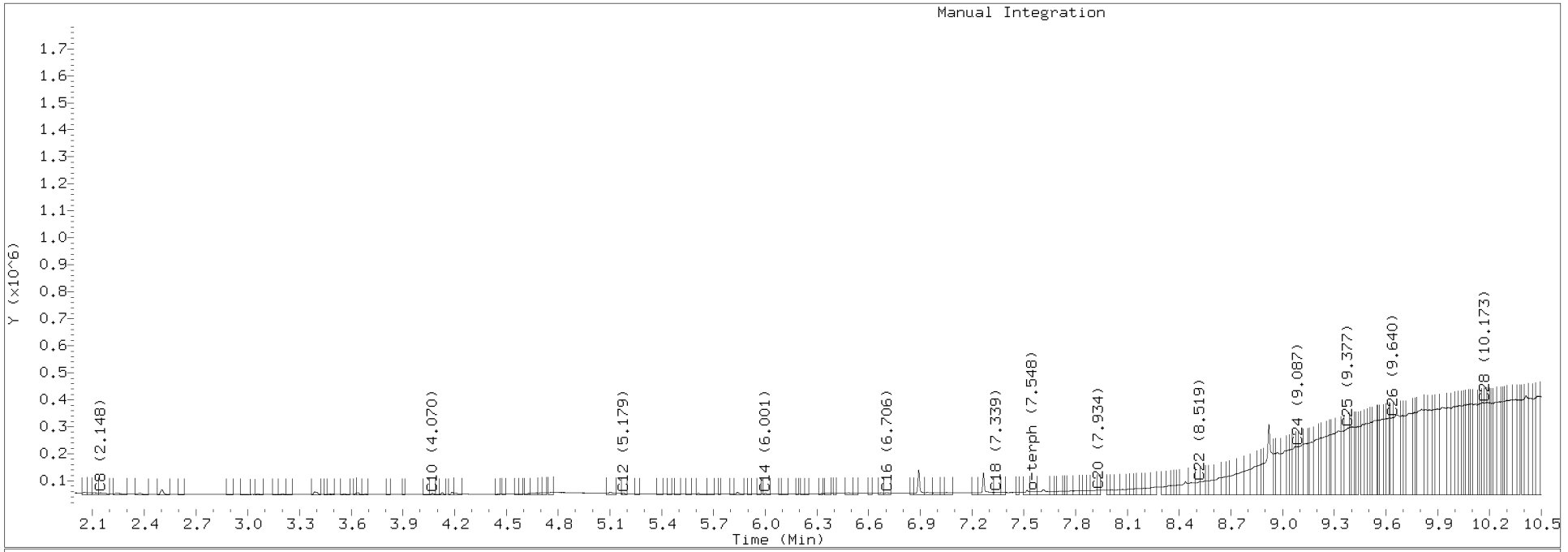
Surrogate	Area	Amount
o-Terphenyl	25321	0.1
Triacontane	2892883	17.0

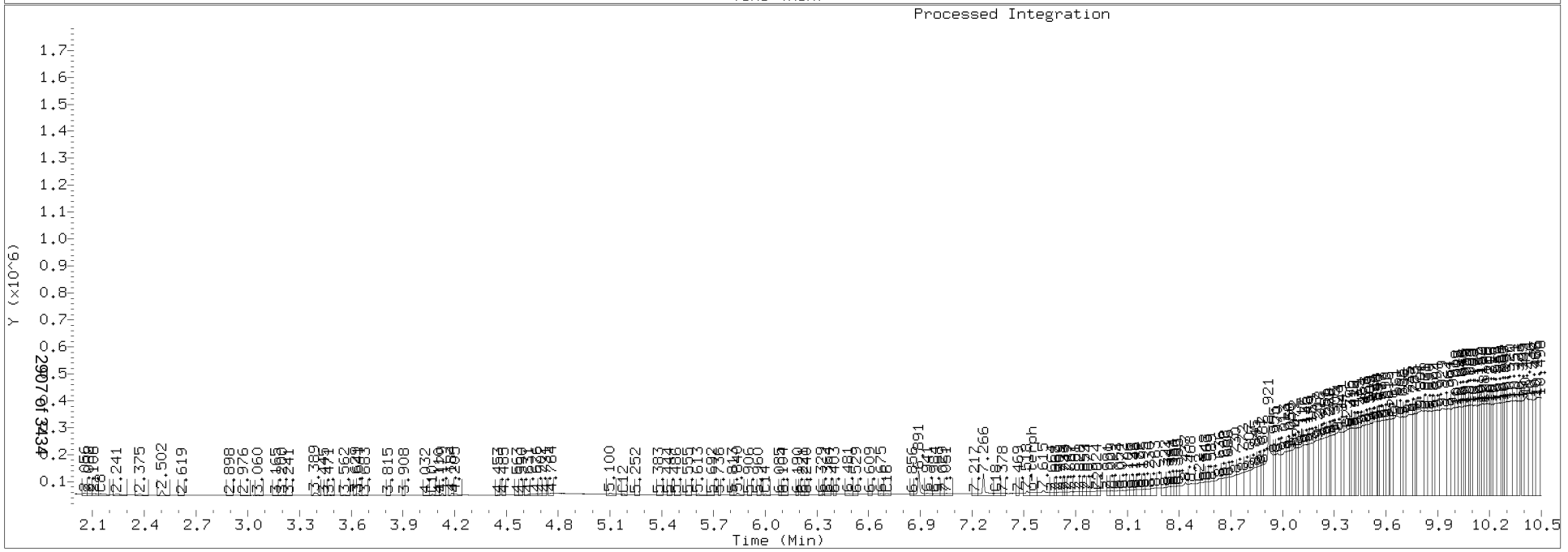
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1012.D   Injection: 10-SEP-2019 13:36

Lab ID:SHI0095-CAL9





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Date : 10-SEP-2019 13:57

Client ID:

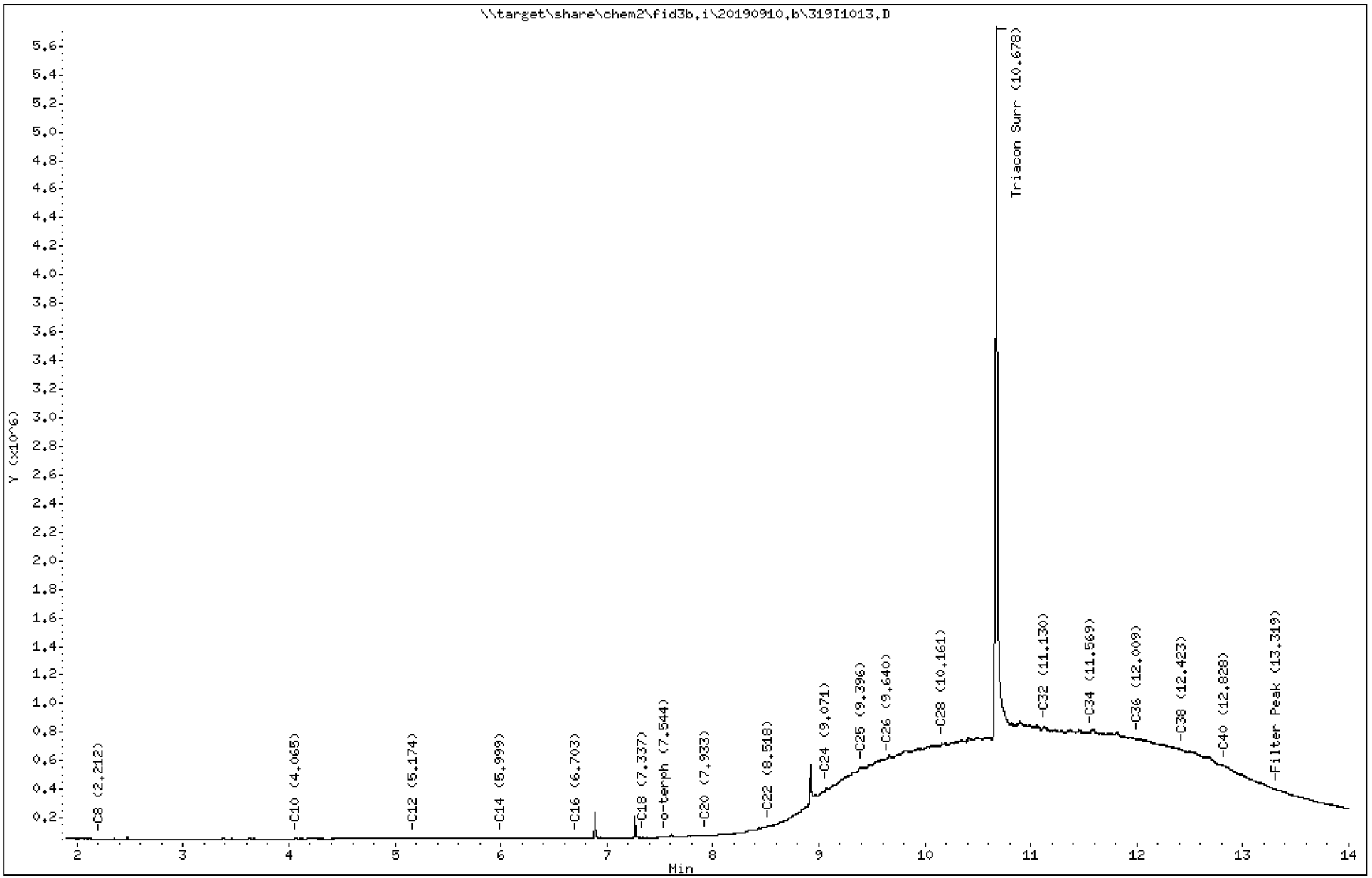
Sample Info: SHI0095-CALA

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1013.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALA
Client ID:
Injection: 10-SEP-2019 13:57
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	484259	2.7	
C8	2.212	0.036	4540	9654	WATPHD	(C12-C24)	11716399	67.2	
C10	4.065	-0.005	9131	14742	WATPHM	(C24-C38)	131402973	1037.8	
C12	5.174	0.008	8920	31972	AK102	(C10-C25)	17220223	84.5	
C14	5.999	0.007	10117	21948	AK103	(C25-C36)	110399301	1085.1	M
C16	6.703	0.001	11800	28915	OR.DIES	(C10-C28)	47975517	232.5	
C18	7.337	-0.001	14984	17955					
C20	7.933	-0.004	30761	60608					
C22	8.518	-0.006	91766	170699					
C24	9.071	-0.024	359493	725742					
C25	9.396	0.022	505513	1478251					
C26	9.640	-0.006	565559	506561					
C28	10.161	-0.007	675023	694935	IT.DIES	(C10-C24)	12018076	59.1	
C32	11.130	-0.001	792627	2304449					
C34	11.569	-0.003	757223	346729					
Filter Peak	13.319	0.001	351651	823860					
C36	12.009	0.011	703667	322630					
o-terph	7.544	0.011	17204	36621					
Triacon Surr	10.678	-0.011	4951794	6254514					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

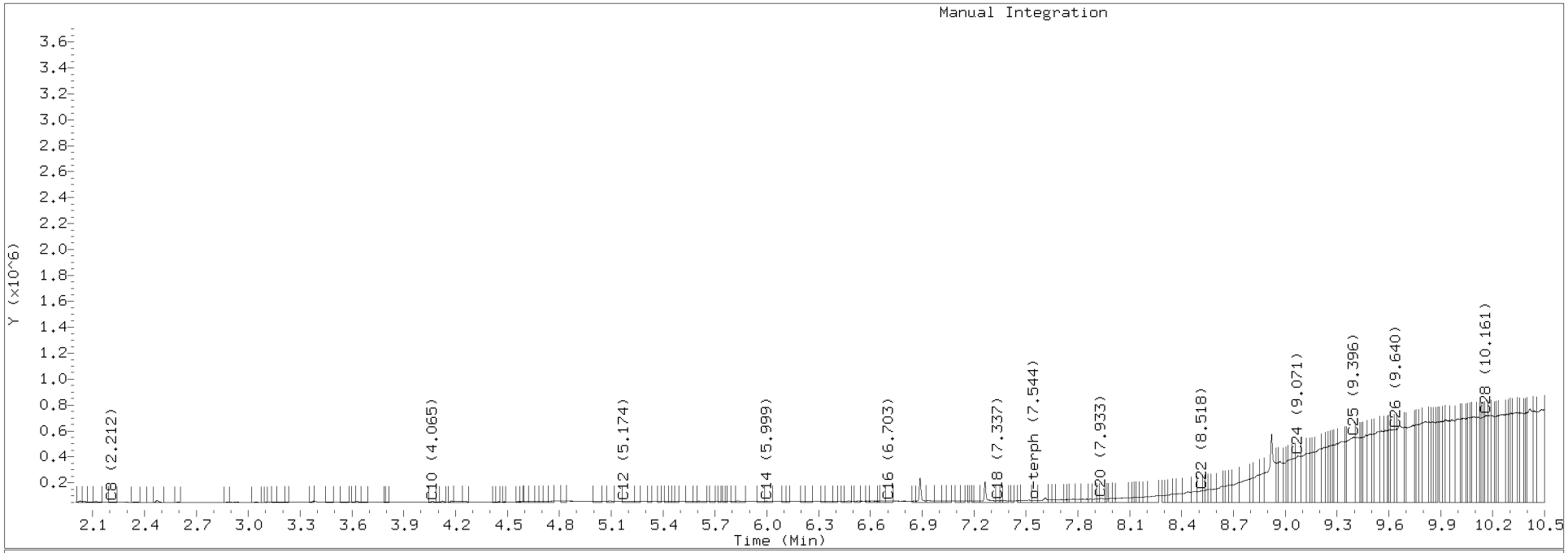
Surrogate	Area	Amount
o-Terphenyl	36621	0.2
Triacontane	6254514	36.8

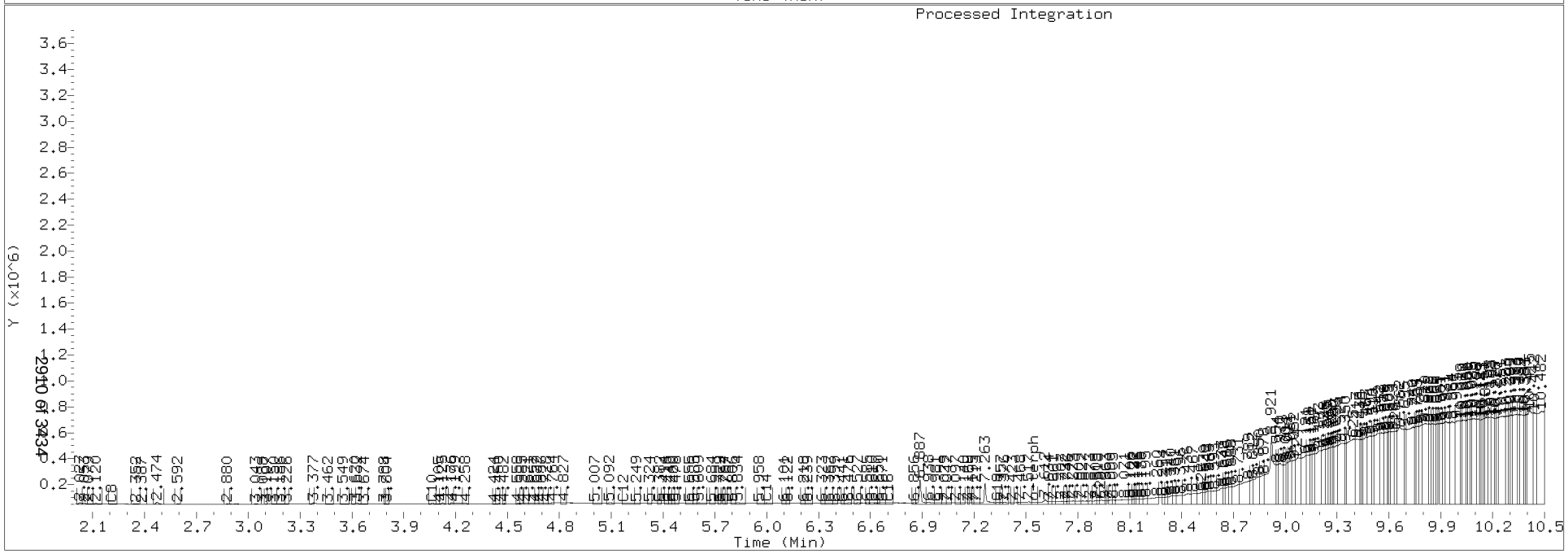
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1013.D Injection: 10-SEP-2019 13:57

Lab ID:SHI0095-CALA





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1014.D

Date : 10-SEP-2019 14:18

Client ID:

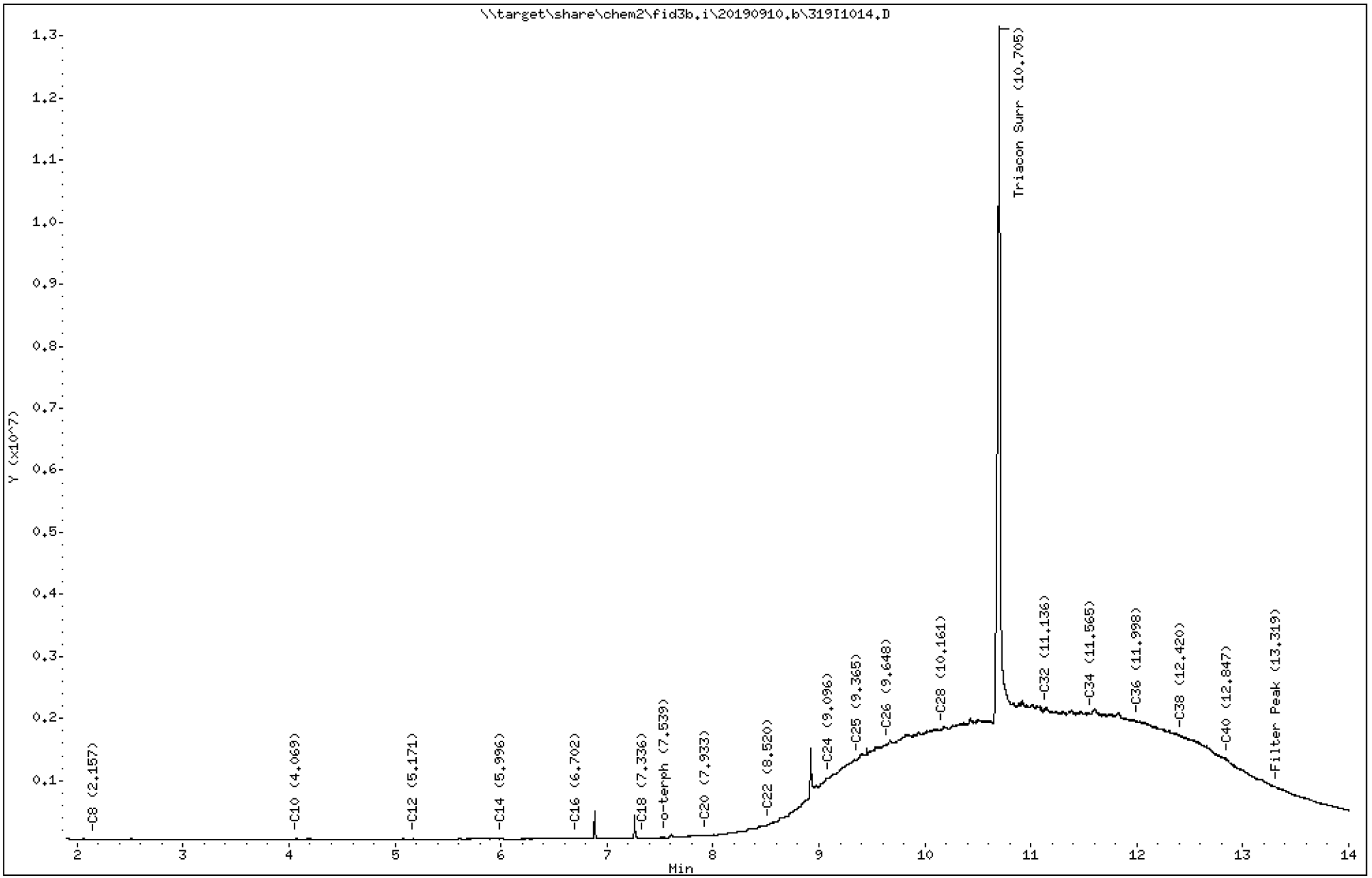
Sample Info: SHI0095-CALB

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1014.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALB
Client ID:
Injection: 10-SEP-2019 14:18
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	598181	3.3	
C8	2.157	-0.018	8998	14826	WATPHD	(C12-C24)	31348398	179.7	
C10	4.069	0.000	16240	26091	WATPHM	(C24-C38)	357336121	2822.2	
C12	5.171	0.005	12428	23051	AK102	(C10-C25)	42912945	210.5	
C14	5.996	0.004	17639	40229	AK103	(C25-C36)	304417507	2992.2	M
C16	6.702	-0.001	18833	40650	OR.DIES	(C10-C28)	128314010	621.7	
C18	7.336	-0.003	26599	33575					
C20	7.933	-0.004	73641	139461					
C22	8.520	-0.004	251942	608501					
C24	9.096	0.001	990516	769594					
C25	9.365	-0.009	1295757	773255					
C26	9.648	0.002	1538005	734810					
C28	10.161	-0.008	1785930	1103087	IT.DIES	(C10-C24)	31702073	155.8	
C32	11.136	0.005	2107706	964493					
C34	11.565	-0.008	2028537	1537496					
Filter Peak	13.319	0.001	843544	869627					
C36	11.998	0.000	1903843	948998					
o-terph	7.539	0.006	34432	63416					
Triacon Surr	10.705	0.015	11122169	19027885					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

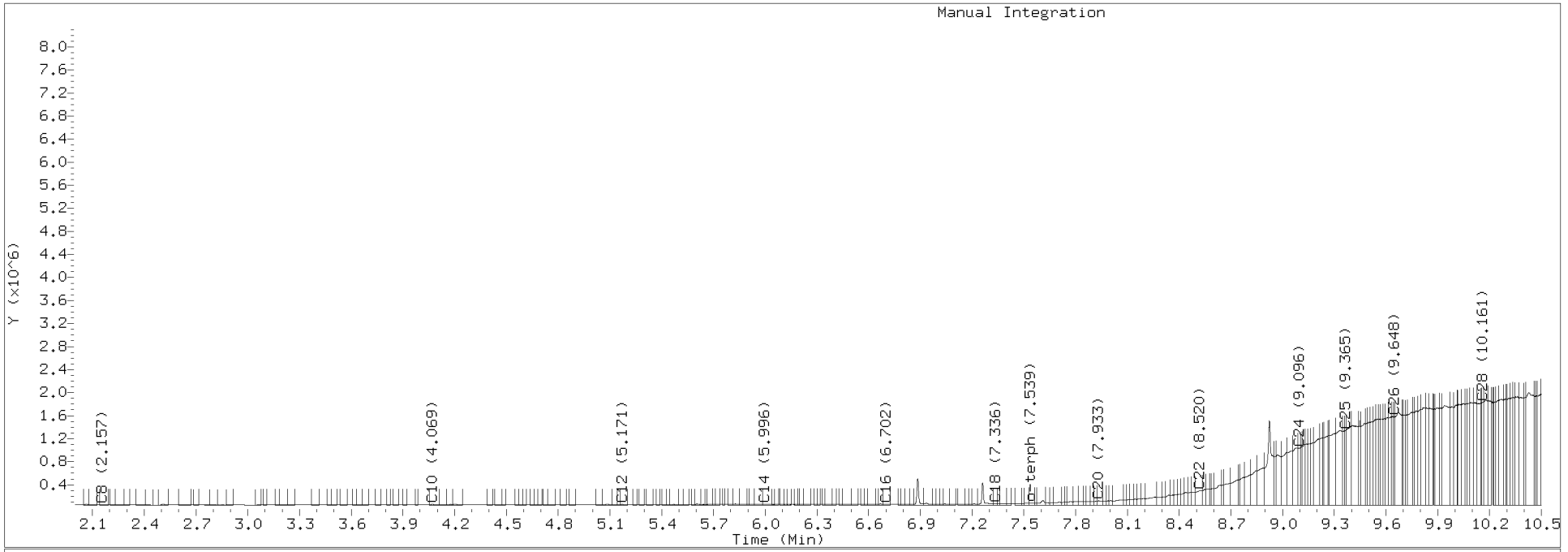
Surrogate	Area	Amount
o-Terphenyl	63416	0.3
Triacontane	19027885	111.9

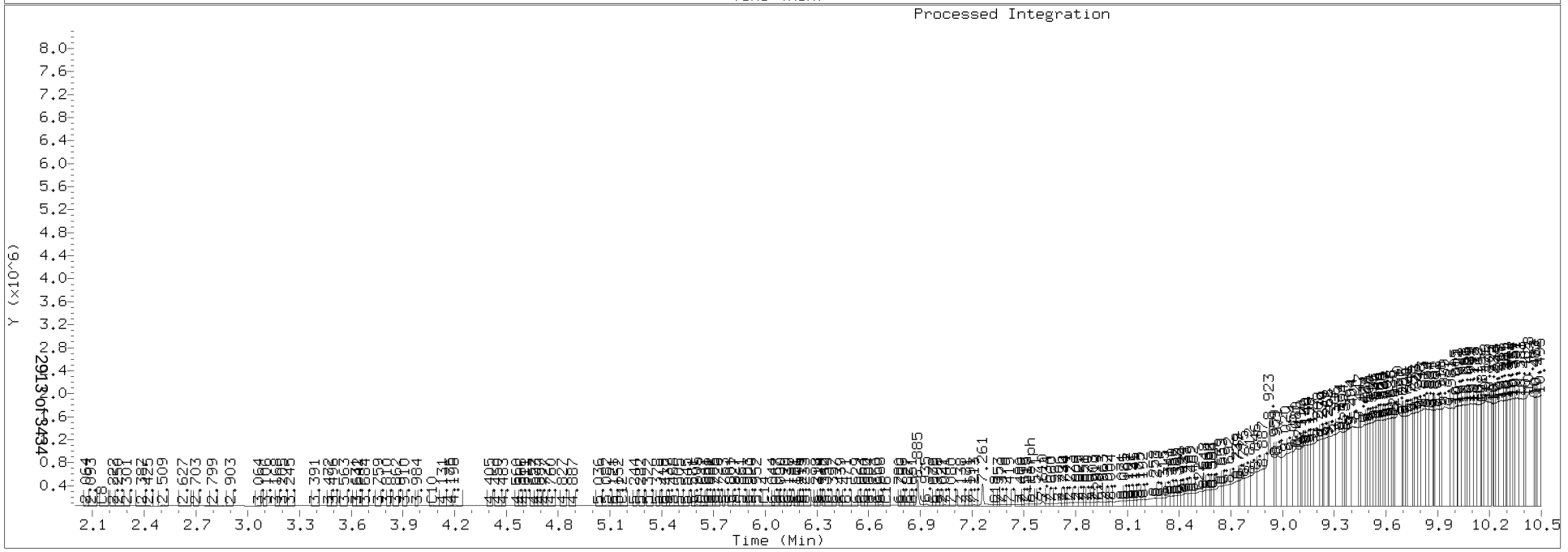
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1014.D Injection: 10-SEP-2019 14:18

Lab ID:SHI0095-CALB





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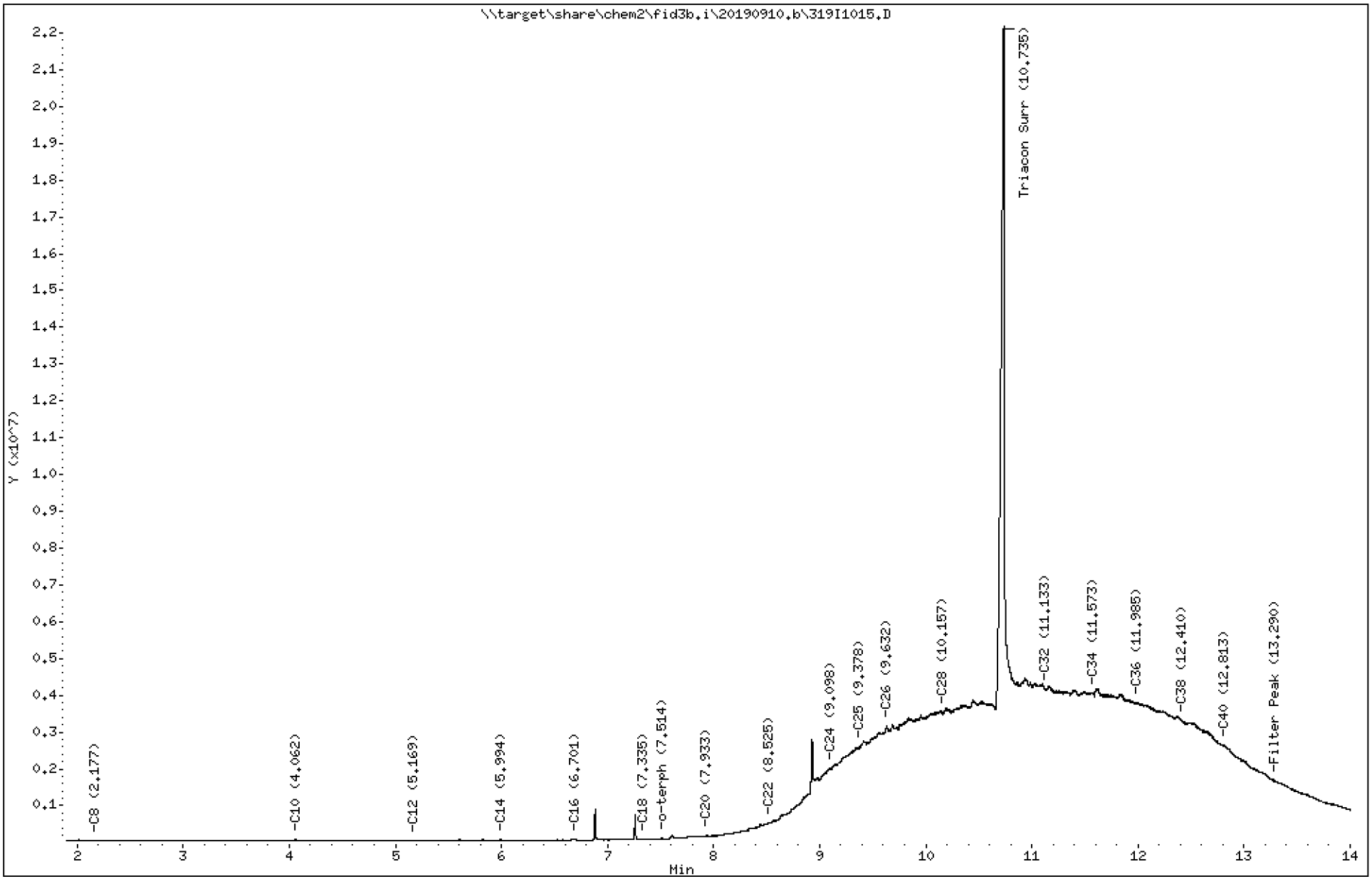
Date : 10-SEP-2019 14:39
Client ID:
Sample Info: SHI0095-CALC

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1015.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALC
Client ID:
Injection: 10-SEP-2019 14:39
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	417118	2.3
C8	2.177	0.002	3038	4044	WATPHD	(C12-C24)	60815282	348.6
C10	4.062	-0.007	23380	27469	WATPHM	(C24-C38)	684194536	5403.7
C12	5.169	0.003	11961	14890	AK102	(C10-C25)	80725873	396.0
C14	5.994	0.002	25026	43265	AK103	(C25-C36)	585454758	5754.6 M
C16	6.701	-0.002	24869	67089	OR.DIES	(C10-C28)	248013516	1201.7
C18	7.335	-0.003	39272	48973				
C20	7.933	-0.004	134457	239646				
C22	8.525	0.002	496918	1207393				
C24	9.098	0.002	1951354	1741062				
C25	9.378	0.004	2547654	1811778				
C26	9.632	-0.014	3120062	8223333				
C28	10.157	-0.011	3479728	2423999	IT.DIES	(C10-C24)	61050655	300.1
C32	11.133	0.002	4105408	3028605				
C34	11.573	-0.000	4028667	7094825				
Filter Peak	13.290	-0.029	1626492	3083594				
C36	11.985	-0.013	3738472	5737742				
o-terph	7.514	-0.019	57023	78332				
Triacon Surr	10.735	0.045	18164563	38619724				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

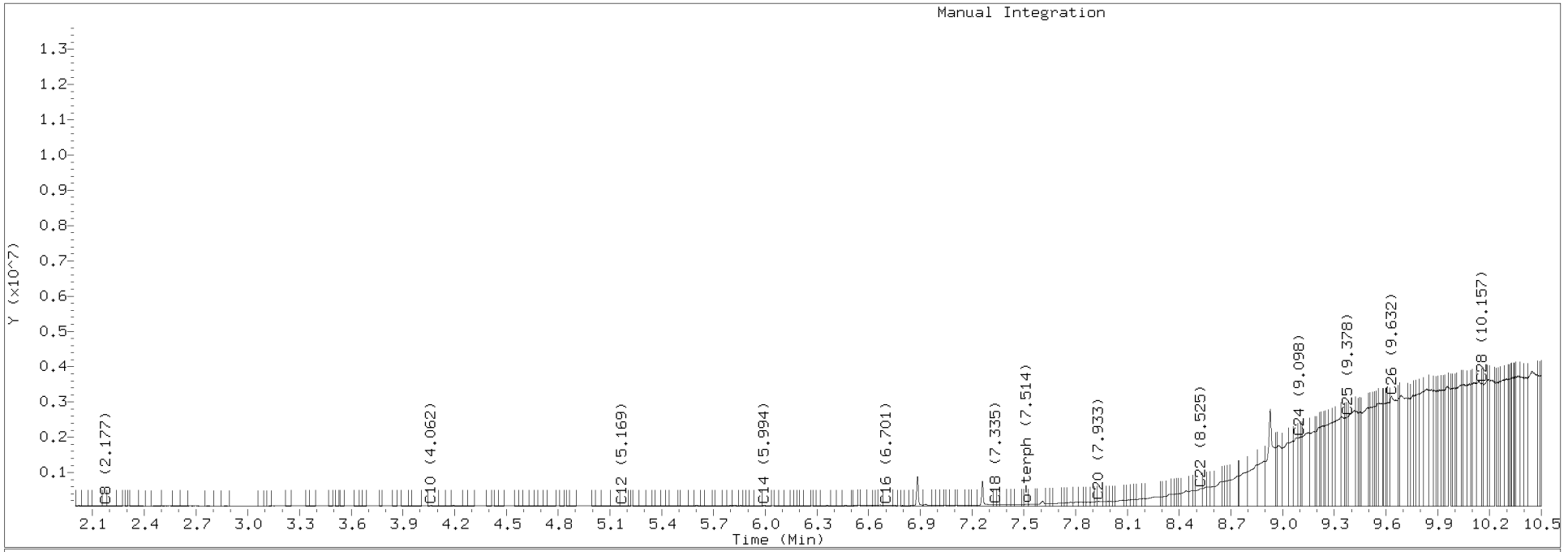
Surrogate	Area	Amount
o-Terphenyl	78332	0.4
Triacontane	38619724	227.2

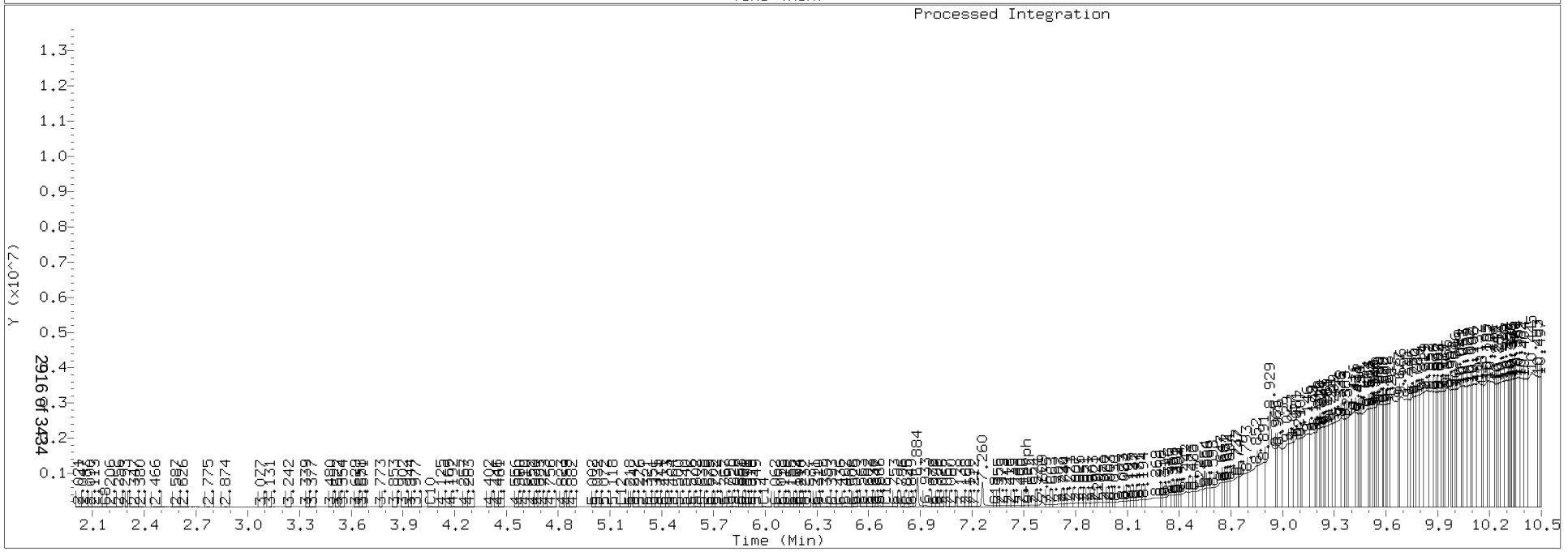
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1015.D   Injection: 10-SEP-2019 14:39

Lab ID:SHI0095-CALC





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Date : 10-SEP-2019 15:00

Client ID:

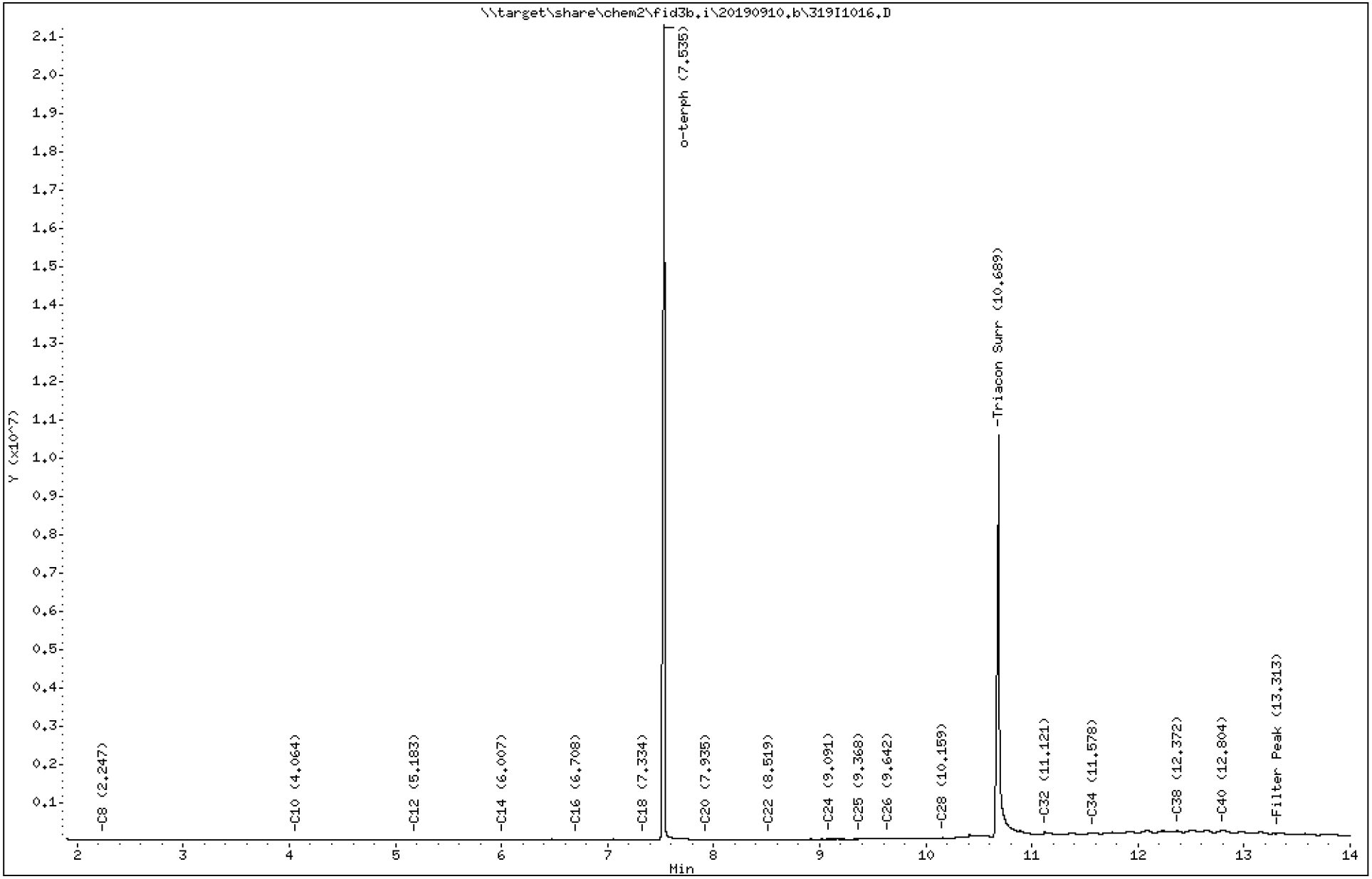
Sample Info: SHI0095-IBL

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1016.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL
Client ID:
Injection: 10-SEP-2019 15:00
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	334167	1.9
C8	2.247	0.072	3369	8359	WATPHD	(C12-C24)	902757	5.2
C10	4.064	-0.005	6301	9954	WATPHM	(C24-C38)	19451506	153.6
C12	5.183	0.017	5148	9050	AK102	(C10-C25)	1066248	5.2
C14	6.007	0.015	7701	12437	AK103	(C25-C36)	13997581	137.6
C16	6.708	0.006	11230	20084	OR.DIES	(C10-C28)	2246929	10.9
C18	7.334	-0.004	9767	18243				
C20	7.935	-0.002	12066	22450				
C22	8.519	-0.005	17350	35065				
C24	9.091	-0.005	18415	18387				
C25	9.368	-0.006	18695	31526				
C26	9.642	-0.004	31828	37149				
C28	10.159	-0.009	70619	111646	IT.DIES	(C10-C24)	1017066	5.0
C32	11.121	-0.009	203352	523977				
C34	11.578	0.005	188521	862550				
Filter Peak	13.313	-0.005	163174	126159				
C36	----							
o-terph	7.535	0.002	21273674	24297856				
Triacon Surr	10.689	-0.001	10569590	19434432				

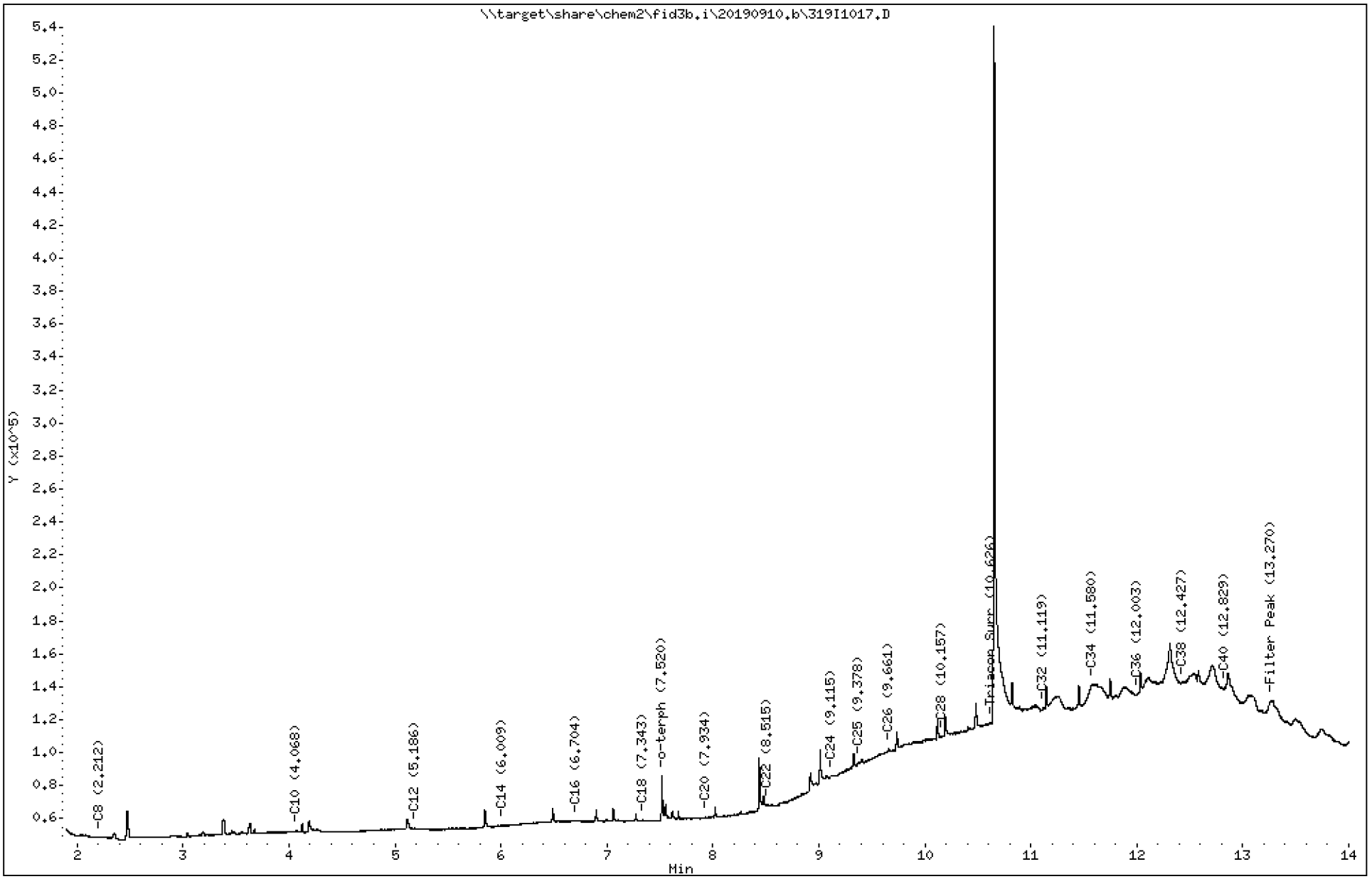
Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	24297856	109.2
Triacontane	19434432	114.3

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1017.D
Date : 10-SEP-2019 15:21
Client ID:
Sample Info: SHI0095-CALD

Instrument: fid3b.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1017.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALD
Client ID:
Injection: 10-SEP-2019 15:21
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	361579	2.0
C8	2.212	0.036	1921	2093	WATPHD	(C12-C24)	2126806	12.2
C10	4.068	-0.002	5663	9516	WATPHM	(C24-C38)	12911002	102.0
C12	5.186	0.020	7108	12532	AK102	(C10-C25)	2673318	13.1
C14	6.009	0.017	9153	15093	AK103	(C25-C36)	10333247	101.6 M
C16	6.704	0.002	11738	23740	OR.DIES	(C10-C28)	5368759	26.0
C18	7.343	0.004	12021	32641				
C20	7.934	-0.002	13703	16666				
C22	8.515	-0.008	21465	38763				
C24	9.115	0.019	39021	89524				
C25	9.378	0.004	46897	49246				
C26	9.661	0.015	55253	134225				
C28	10.157	-0.012	63120	68945	IT.DIES	(C10-C24)	2302790	11.3
C32	11.119	-0.012	80463	117808				
C34	11.580	0.008	94653	510671				
Filter Peak	13.270	-0.049	84686	285216				
C36	12.003	0.005	88207	63308				
o-terph	7.520	-0.014	38942	54735				
Triacon Surr	10.655	-0.034	421052	535318				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

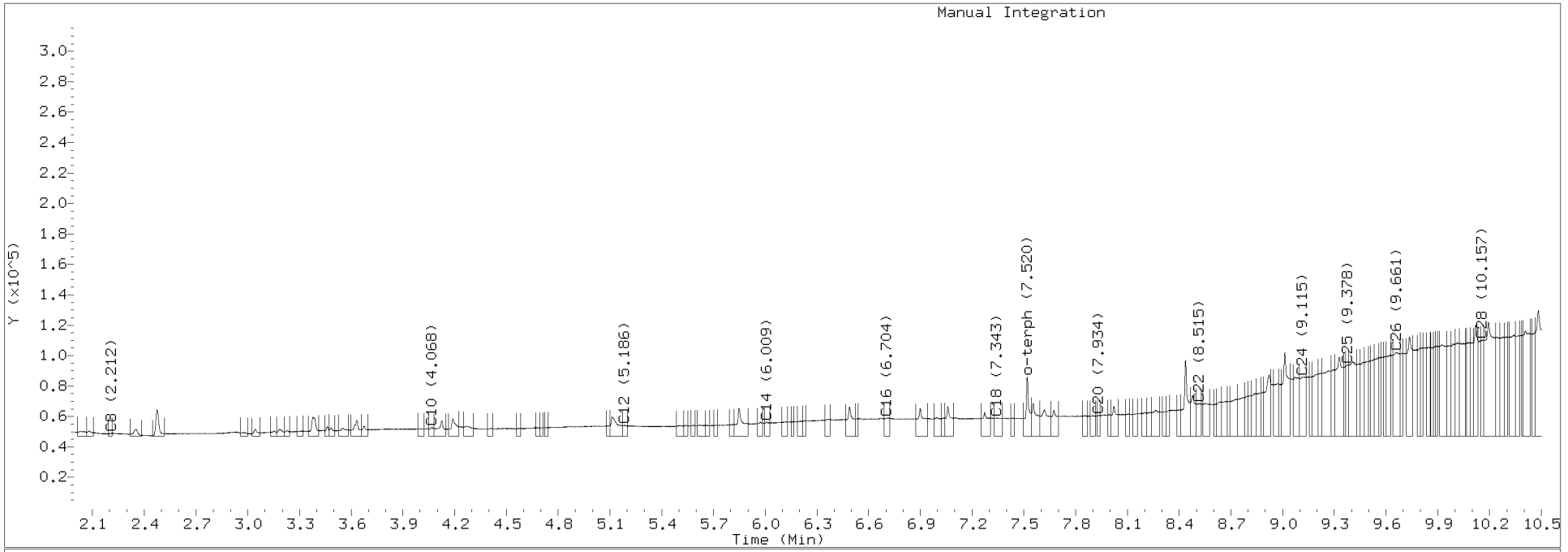
Surrogate	Area	Amount
o-Terphenyl	54735	0.2
Triacontane	535318	3.1

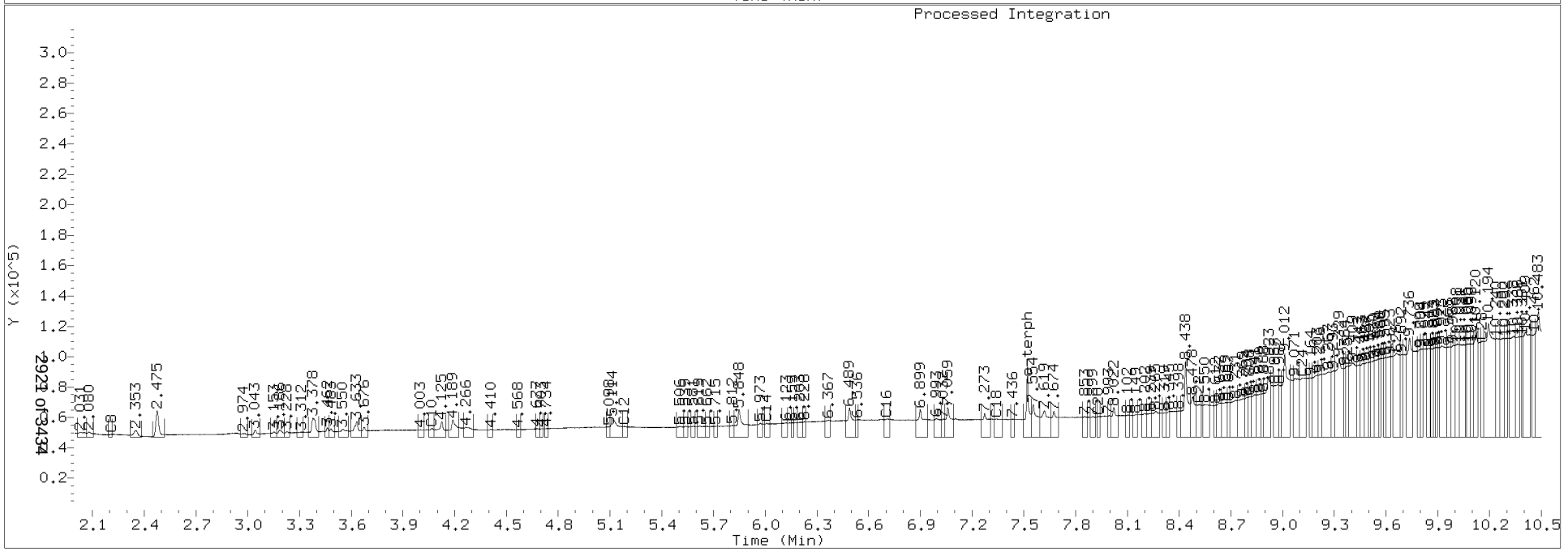
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1017.D Injection: 10-SEP-2019 15:21

Lab ID:SHI0095-CALD





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1018.D

Date : 10-SEP-2019 15:42

Client ID:

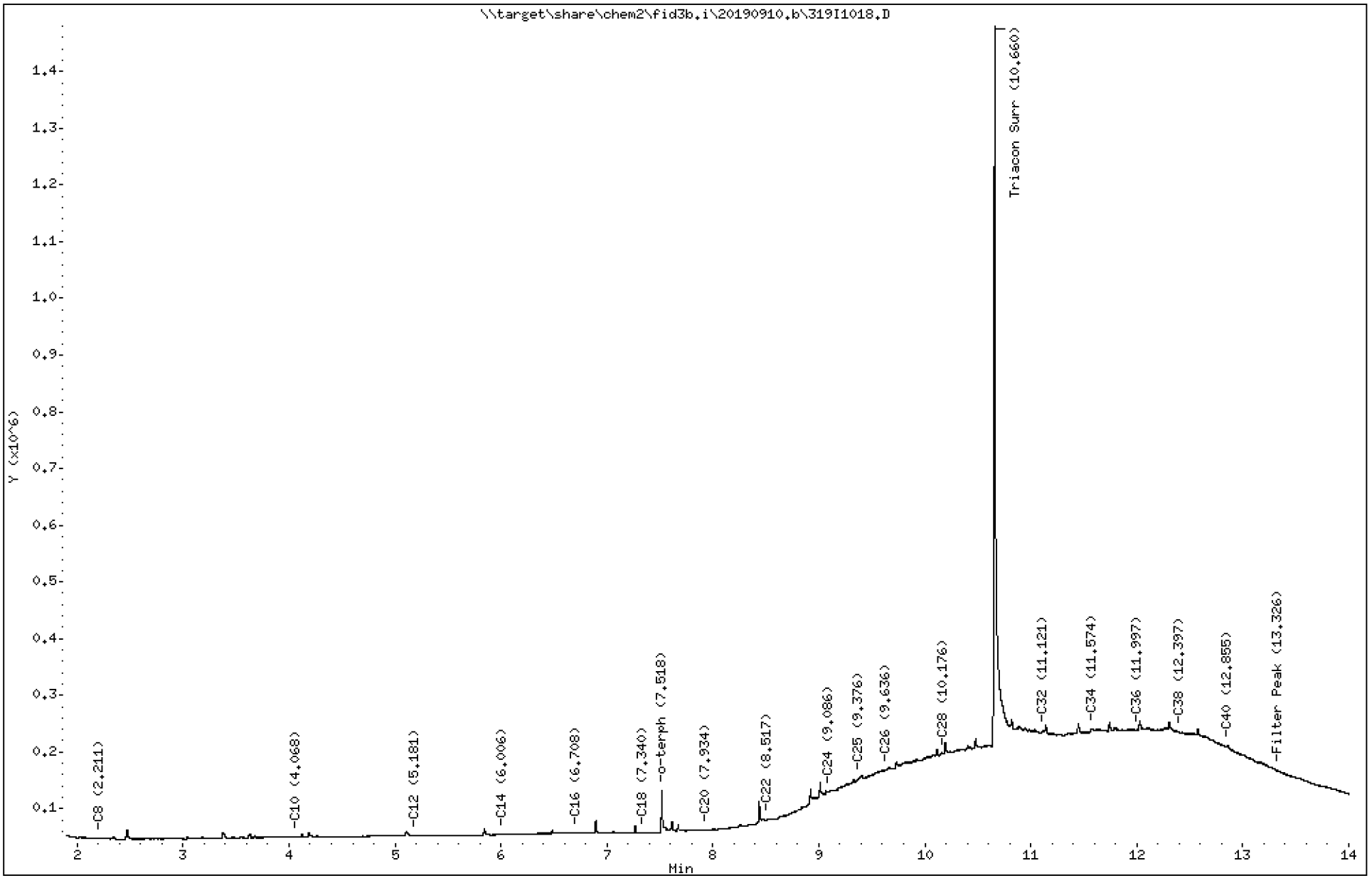
Sample Info: SHI0095-CALE

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1018.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALE
Client ID:
Injection: 10-SEP-2019 15:42
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	389662	2.2
C8	2.211	0.035	2835	5307	WATPHD	(C12-C24)	4023672	23.1
C10	4.068	-0.002	5627	10708	WATPHM	(C24-C38)	31866022	251.7
C12	5.181	0.015	7850	17485	AK102	(C10-C25)	5046130	24.8
C14	6.006	0.014	9931	15065	AK103	(C25-C36)	26528059	260.7 M
C16	6.708	0.006	12682	42257	OR.DIES	(C10-C28)	12331722	59.8
C18	7.340	0.001	13017	15132				
C20	7.934	-0.002	17816	31328				
C22	8.517	-0.006	35738	74650				
C24	9.086	-0.009	84735	105582				
C25	9.376	0.002	108642	88335				
C26	9.636	-0.010	123136	119852				
C28	10.176	0.008	152402	124587	IT.DIES	(C10-C24)	4243030	20.9
C32	11.121	-0.010	192081	323435				
C34	11.574	0.002	196060	546467				
Filter Peak	13.326	0.008	122012	413881				
C36	11.997	-0.001	193784	92717				
o-terph	7.518	-0.015	85795	111704				
Triacon Surr	10.660	-0.030	1264252	1593884				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

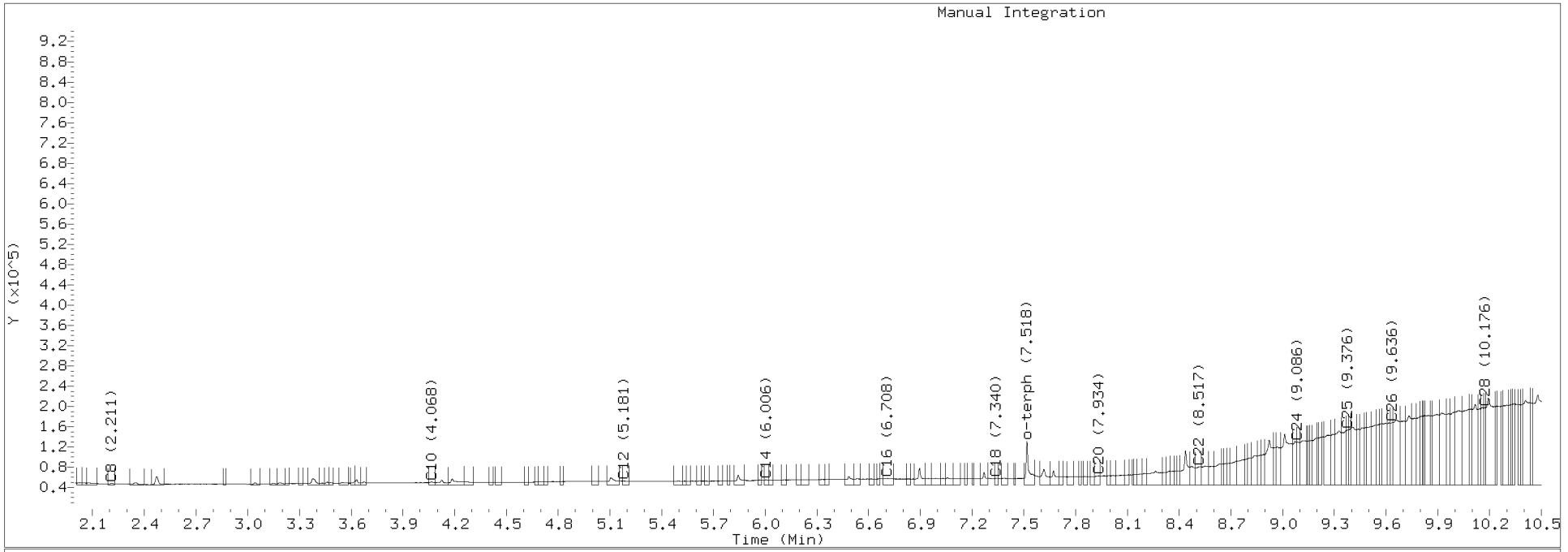
Surrogate	Area	Amount
o-Terphenyl	111704	0.5
Triacontane	1593884	9.4

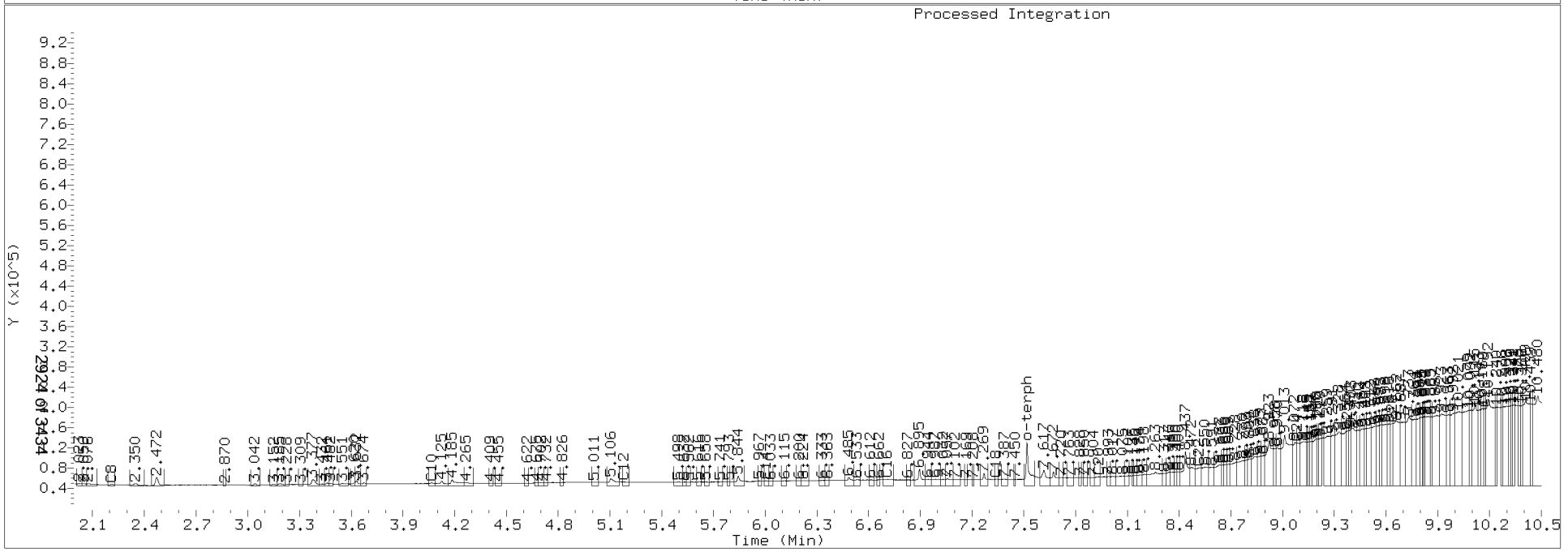
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1018.D   Injection: 10-SEP-2019 15:42

Lab ID:SHI0095-CALE

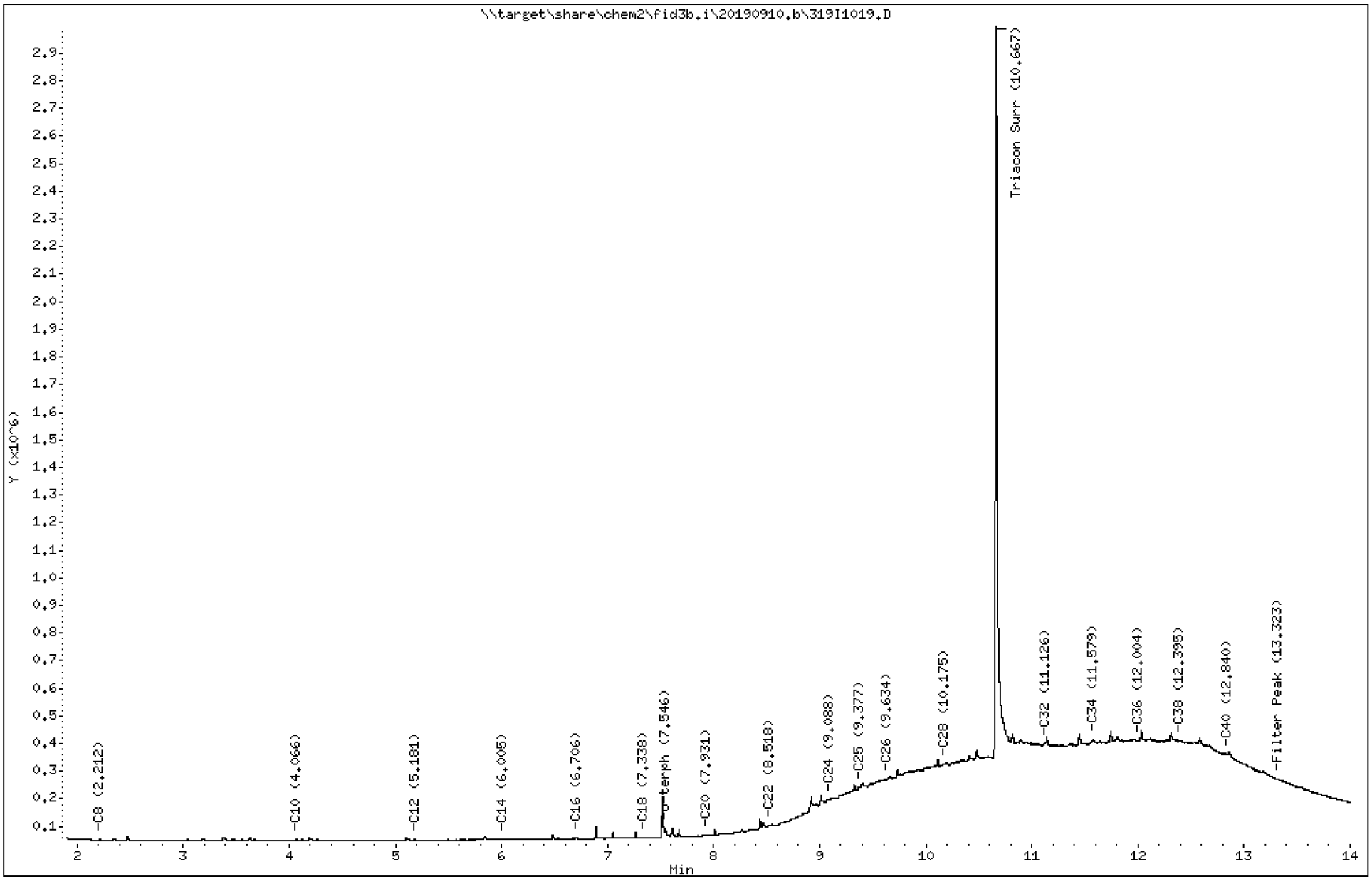




Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1019.D
Date : 10-SEP-2019 16:03
Client ID:
Sample Info: SHI0095-CALF

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1019.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALF
Client ID:
Injection: 10-SEP-2019 16:03
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	215194	1.2	
C8	2.212	0.037	3159	7695	WATPHD	(C12-C24)	5802533	33.3	
C10	4.066	-0.003	3594	5040	WATPHM	(C24-C38)	58965682	465.7	
C12	5.181	0.015	2732	5768	AK102	(C10-C25)	7304251	35.8	
C14	6.005	0.013	5176	8140	AK103	(C25-C36)	49477377	486.3	M
C16	6.706	0.004	8569	27063	OR.DIES	(C10-C28)	19811828	96.0	
C18	7.338	-0.000	9983	16262					
C20	7.931	-0.005	19931	36849					
C22	8.518	-0.006	53910	92000					
C24	9.088	-0.008	148815	147558					
C25	9.377	0.003	195145	327574					
C26	9.634	-0.012	222754	172772					
C28	10.175	0.006	277744	149348	IT.DIES	(C10-C24)	5866812	28.8	
C32	11.126	-0.005	352886	294262					
C34	11.579	0.007	364805	1520432					
Filter Peak	13.323	0.004	222115	451208					
C36	12.004	0.006	362499	231130					
o-terph	7.546	0.012	45427	84055					
Triacon Surr	10.667	-0.023	2633547	3167205					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

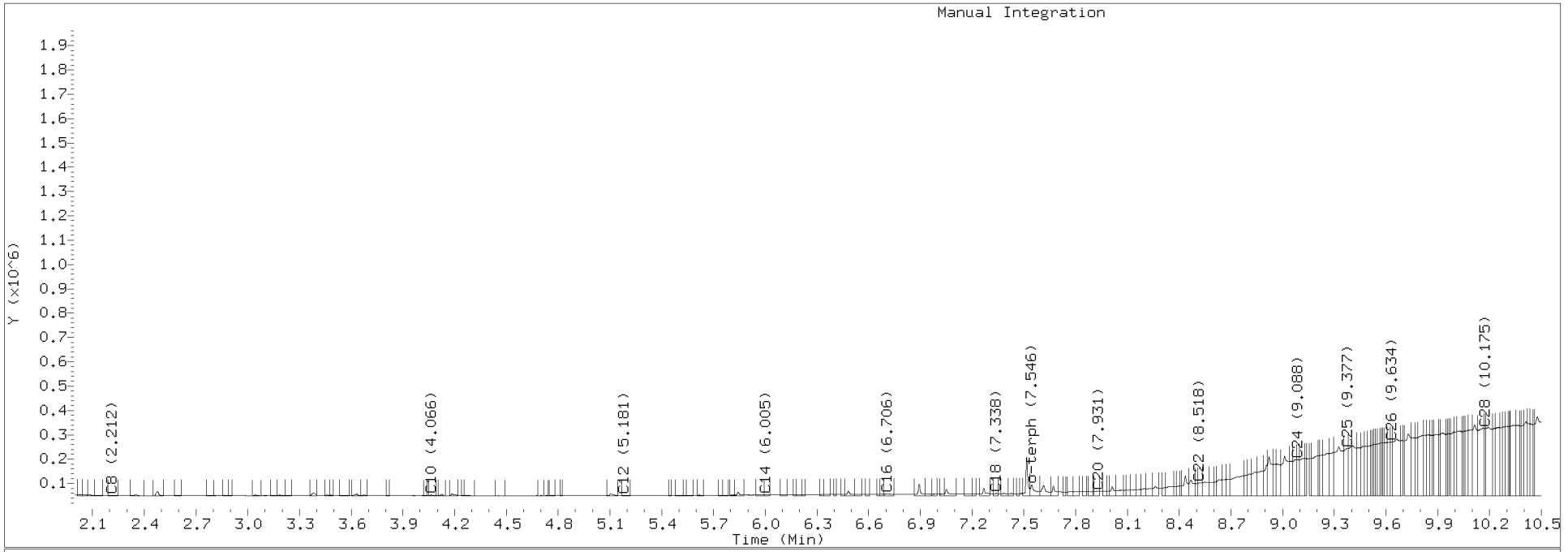
Surrogate	Area	Amount
o-Terphenyl	84055	0.4
Triacontane	3167205	18.6

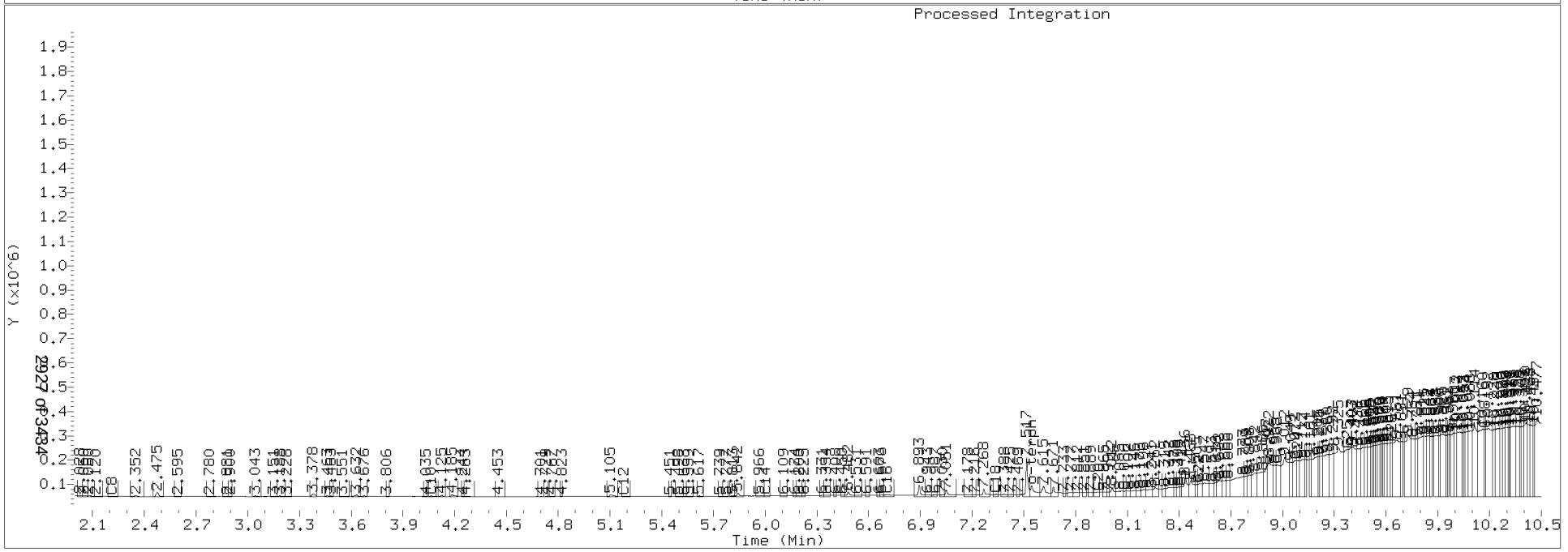
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1019.D   Injection: 10-SEP-2019 16:03

Lab ID:SHI0095-CALF





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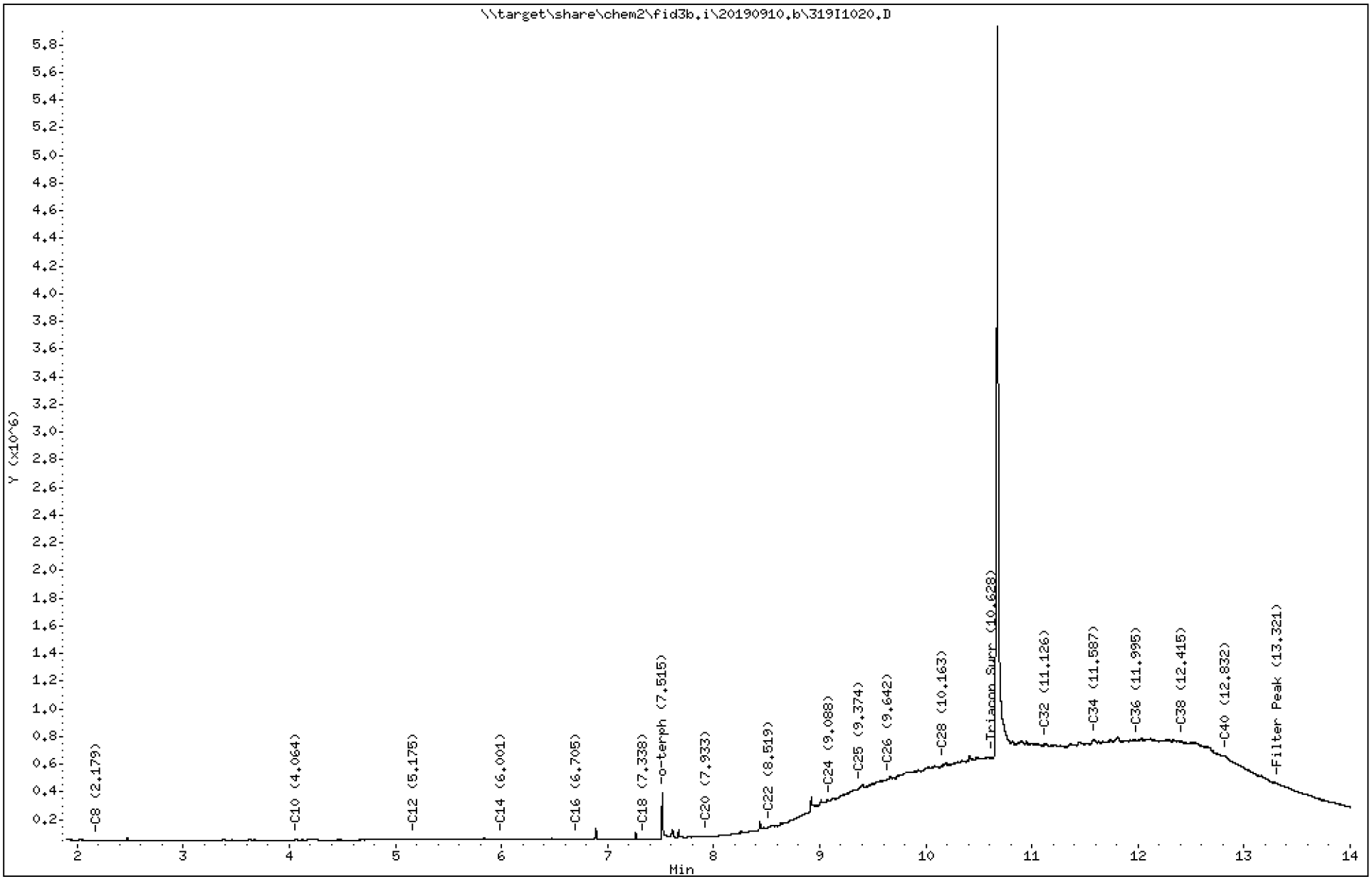
Date : 10-SEP-2019 16:24
Client ID:
Sample Info: SHI0095-CALG

Instrument: fid3b.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1020.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALG
Client ID:
Injection: 10-SEP-2019 16:24
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	442765	2.5
C8	2.179	0.003	1980	1057	WATPHD	(C12-C24)	10956989	62.8
C10	4.064	-0.005	8455	14129	WATPHM	(C24-C38)	115609117	913.1
C12	5.175	0.009	7430	11236	AK102	(C10-C25)	14104753	69.2
C14	6.001	0.009	10817	19980	AK103	(C25-C36)	94793949	931.7 M
C16	6.705	0.003	13024	32837	OR.DIES	(C10-C28)	39144459	189.7
C18	7.338	-0.001	13587	22733				
C20	7.933	-0.003	32502	83987				
C22	8.519	-0.005	100006	246164				
C24	9.088	-0.008	291061	335690				
C25	9.374	-0.000	386081	691937				
C26	9.642	-0.004	443345	519593				
C28	10.163	-0.005	552737	788133	IT.DIES	(C10-C24)	11180734	55.0
C32	11.126	-0.005	704638	1017528				
C34	11.587	0.014	735006	2696649				
Filter Peak	13.321	0.002	409960	649129				
C36	11.995	-0.004	723447	519360				
o-terph	7.515	-0.018	346584	386294				
Triacon Surr	10.678	-0.012	5258192	6724332				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

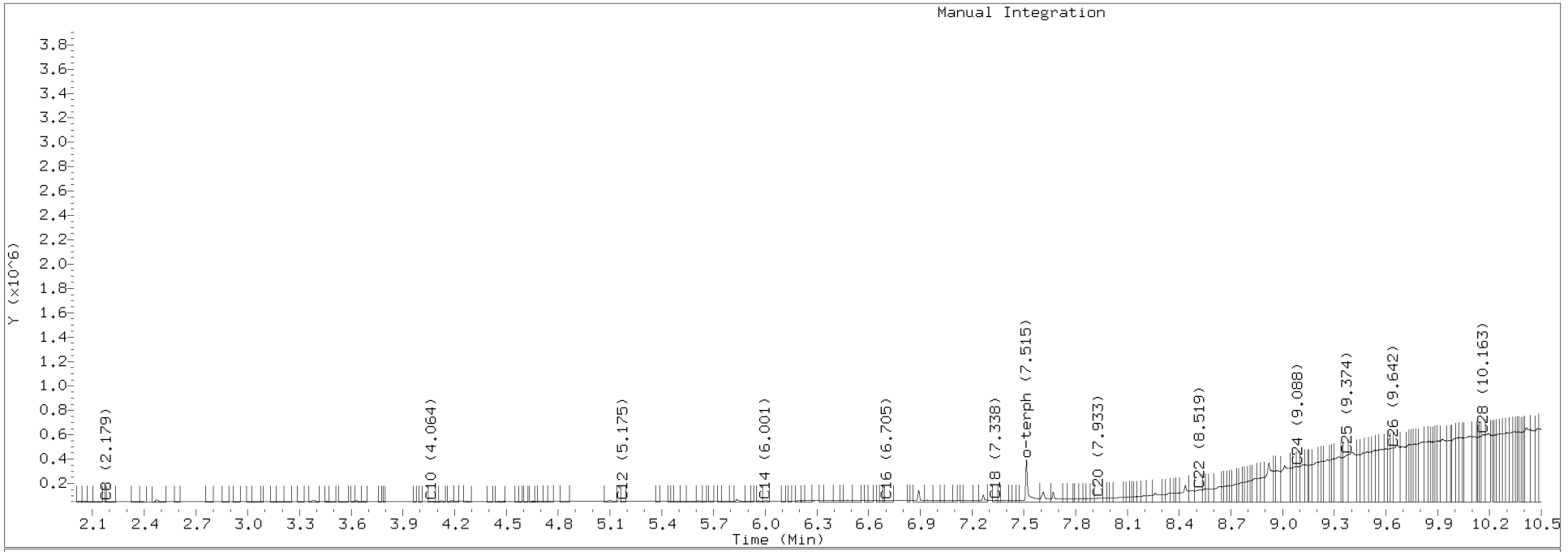
Surrogate	Area	Amount
o-Terphenyl	386294	1.7
Triacontane	6724332	39.6

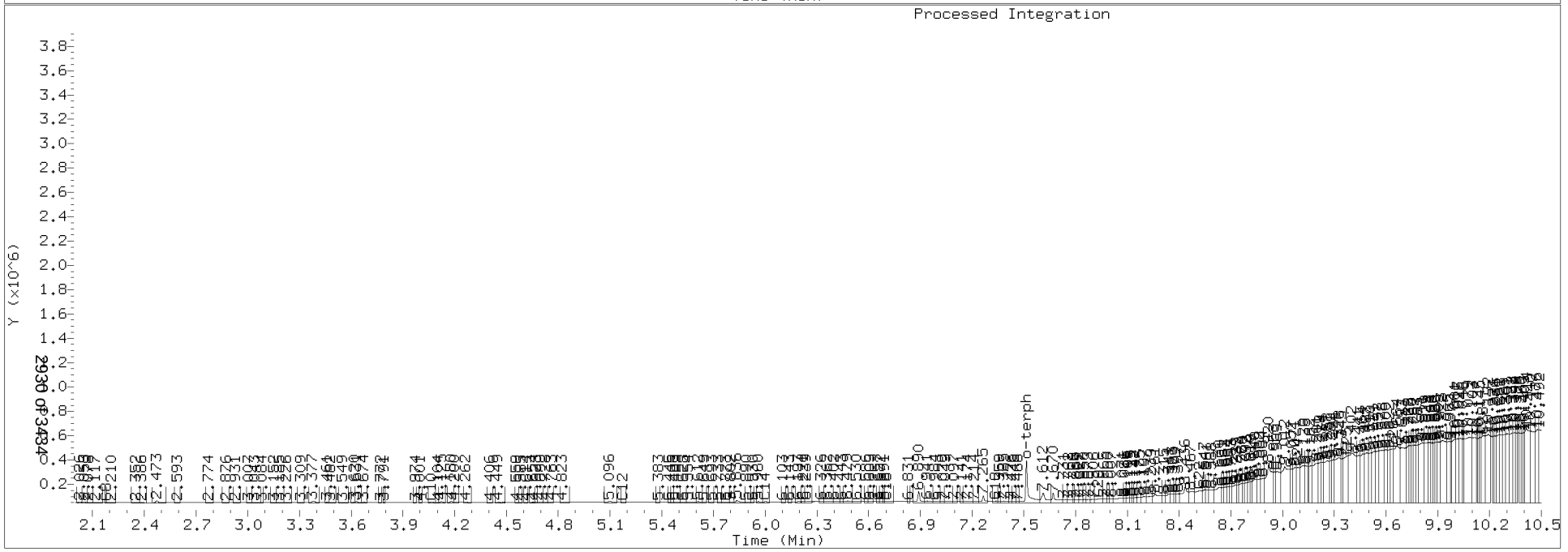
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1020.D   Injection: 10-SEP-2019 16:24

Lab ID:SHI0095-CALG

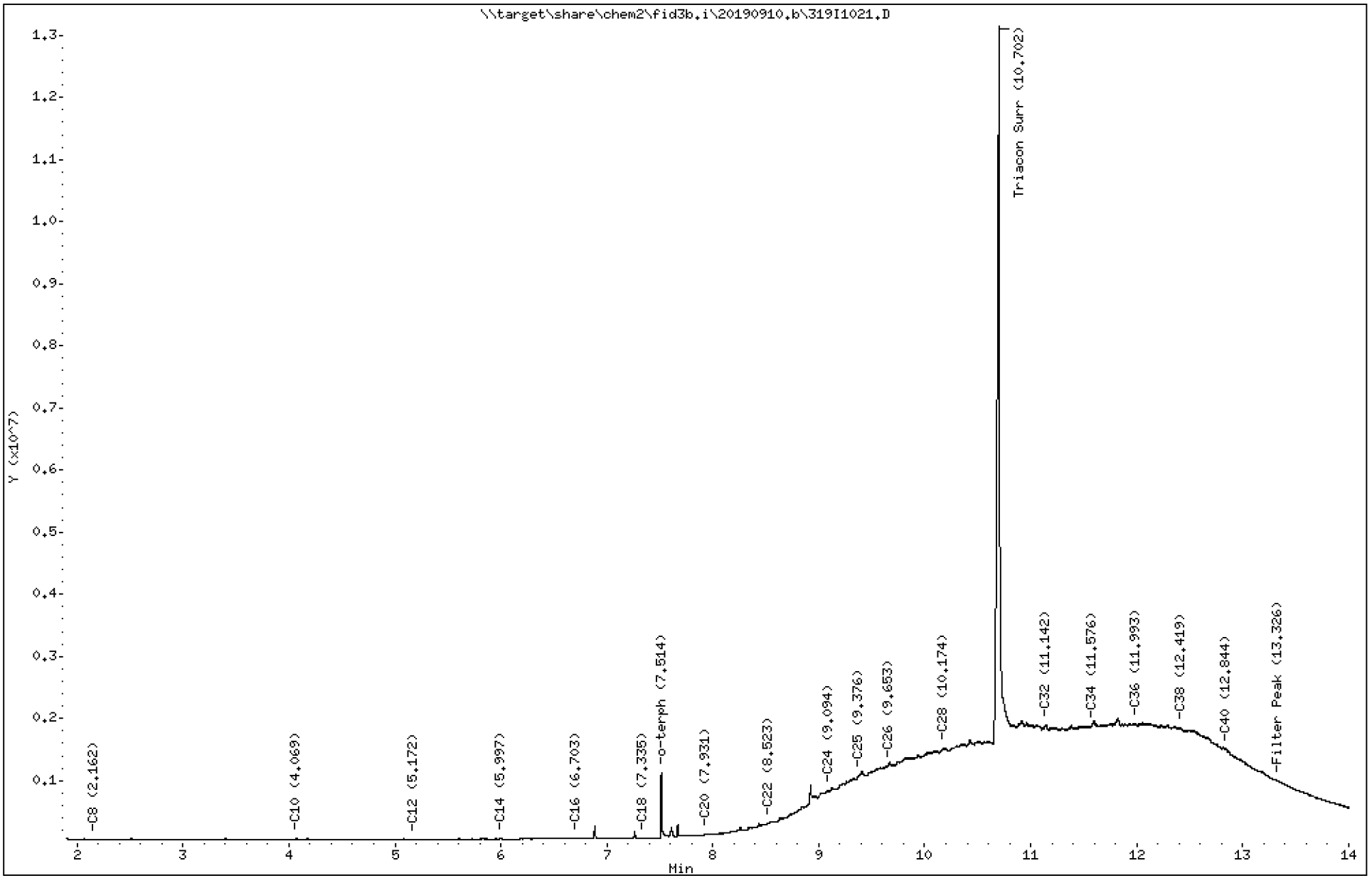




Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1021.D
Date : 10-SEP-2019 16:45
Client ID:
Sample Info: SHI0095-CALH

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1021.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALH
Client ID:
Injection: 10-SEP-2019 16:45
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	510796	2.8	
C8	2.162	-0.013	5840	11854	WATPHD	(C12-C24)	28590860	163.9	
C10	4.069	-0.000	14733	25890	WATPHM	(C24-C38)	307770473	2430.7	
C12	5.172	0.006	9037	16827	AK102	(C10-C25)	37026369	181.6	
C14	5.997	0.005	15409	37247	AK103	(C25-C36)	253141491	2488.2	M
C16	6.703	0.000	20629	49725	OR.DIES	(C10-C28)	103351907	500.8	
C18	7.335	-0.003	27845	46446					
C20	7.931	-0.005	84397	212593					
C22	8.523	-0.001	270203	642643					
C24	9.094	-0.002	784002	515559					
C25	9.376	0.002	1037795	2298839					
C26	9.653	0.007	1193390	897848					
C28	10.174	0.006	1471481	2304275	IT.DIES	(C10-C24)	28852570	141.8	
C32	11.142	0.011	1857248	4784092					
C34	11.576	0.003	1824694	1415805					
Filter Peak	13.326	0.008	941008	1739531					
C36	11.993	-0.005	1865293	2771323					
o-terph	7.514	-0.019	1084571	983660					
Triacon Surr	10.702	0.013	11393300	18706233					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

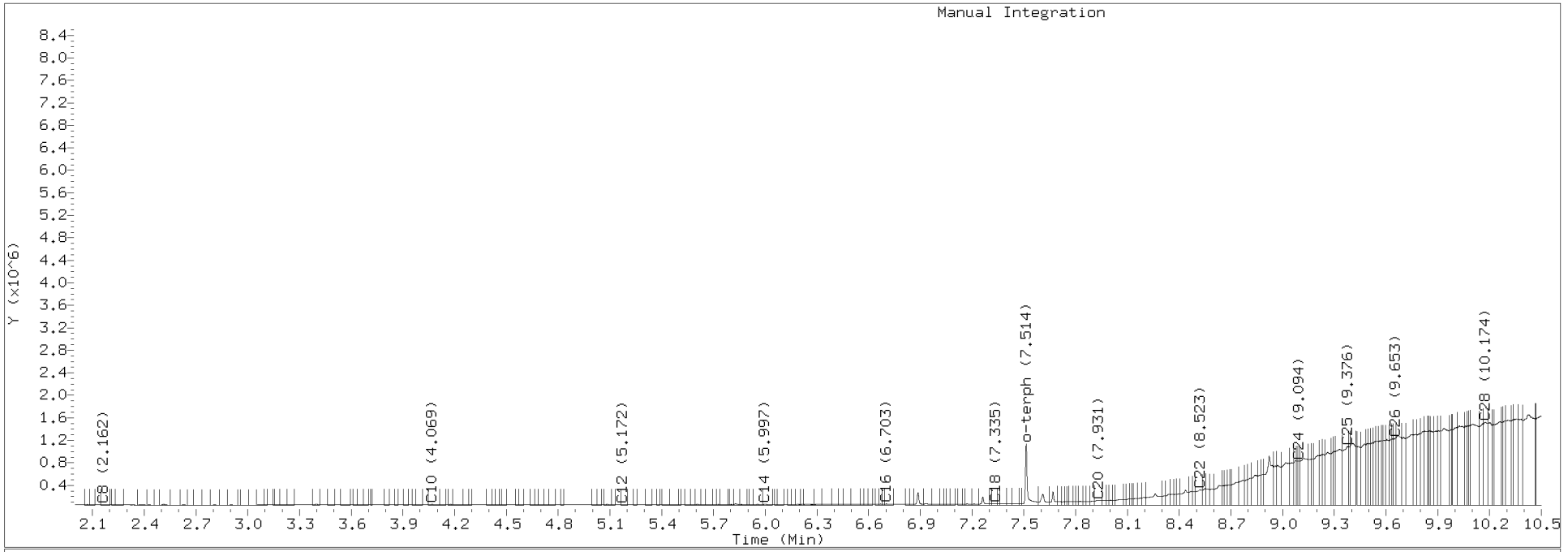
Surrogate	Area	Amount
o-Terphenyl	983660	4.4
Triacontane	18706233	110.0

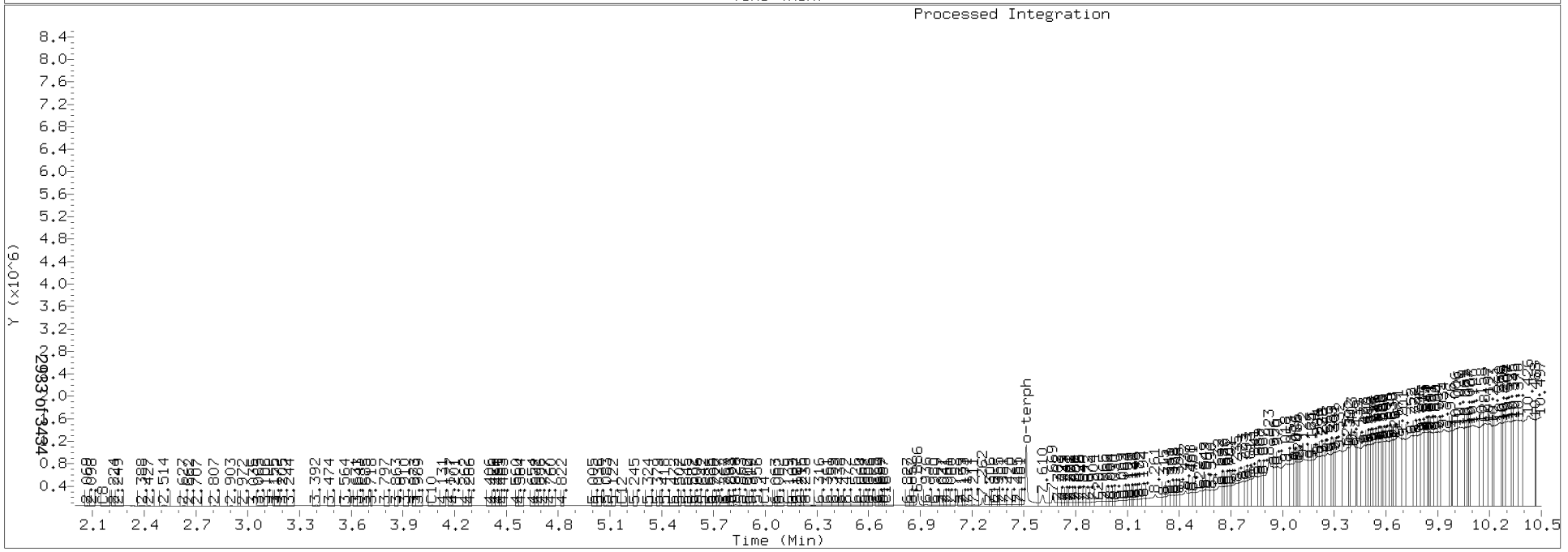
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1021.D Injection: 10-SEP-2019 16:45

Lab ID:SHI0095-CALH





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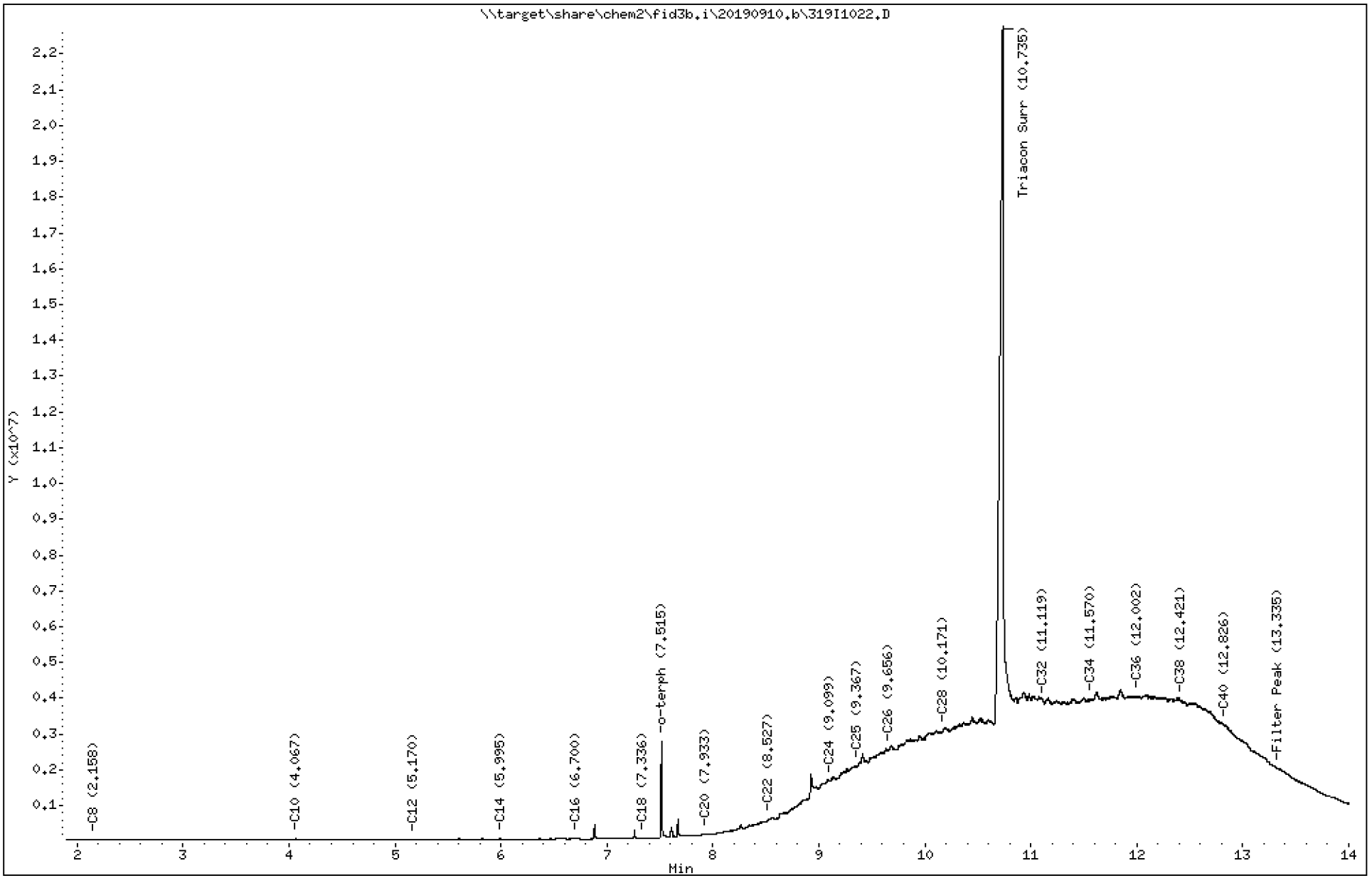
Date : 10-SEP-2019 17:06
Client ID:
Sample Info: SHI0095-CALI

Instrument: fid3b.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1022.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CALI
Client ID:
Injection: 10-SEP-2019 17:06
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	484348	2.7	
C8	2.158	-0.018	9826	22029	WATPHD	(C12-C24)	57429895	329.2	
C10	4.067	-0.003	22612	21087	WATPHM	(C24-C38)	649713325	5131.3	
C12	5.170	0.004	10334	13642	AK102	(C10-C25)	77053908	378.0	
C14	5.995	0.003	23605	49702	AK103	(C25-C36)	529878606	5208.3	M
C16	6.700	-0.002	33441	71994	OR.DIES	(C10-C28)	215274359	1043.1	
C18	7.336	-0.002	47878	52750					
C20	7.933	-0.003	167023	464210					
C22	8.527	0.004	565769	1411643					
C24	9.099	0.004	1648588	1410201					
C25	9.367	-0.007	2064519	1760594					
C26	9.656	0.010	2509495	1098645					
C28	10.171	0.003	3042836	1932518	IT.DIES	(C10-C24)	57631153	283.3	
C32	11.119	-0.012	3861357	2908821					
C34	11.570	-0.002	3917105	4297720					
Filter Peak	13.335	0.017	1994352	4561203					
C36	12.002	0.003	4011712	5507793					
o-terph	7.515	-0.018	2730802	2073158					
Triacon Surr	10.735	0.045	19171857	42875573					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

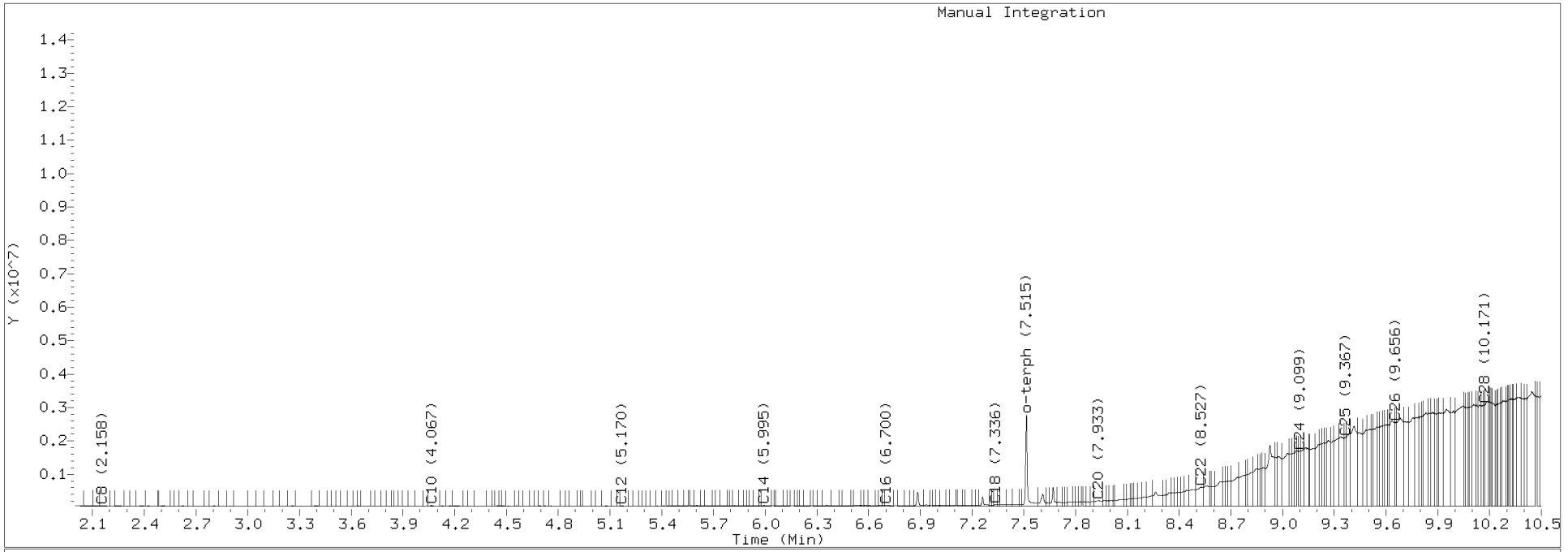
Surrogate	Area	Amount
o-Terphenyl	2073158	9.3
Triacontane	42875573	252.2

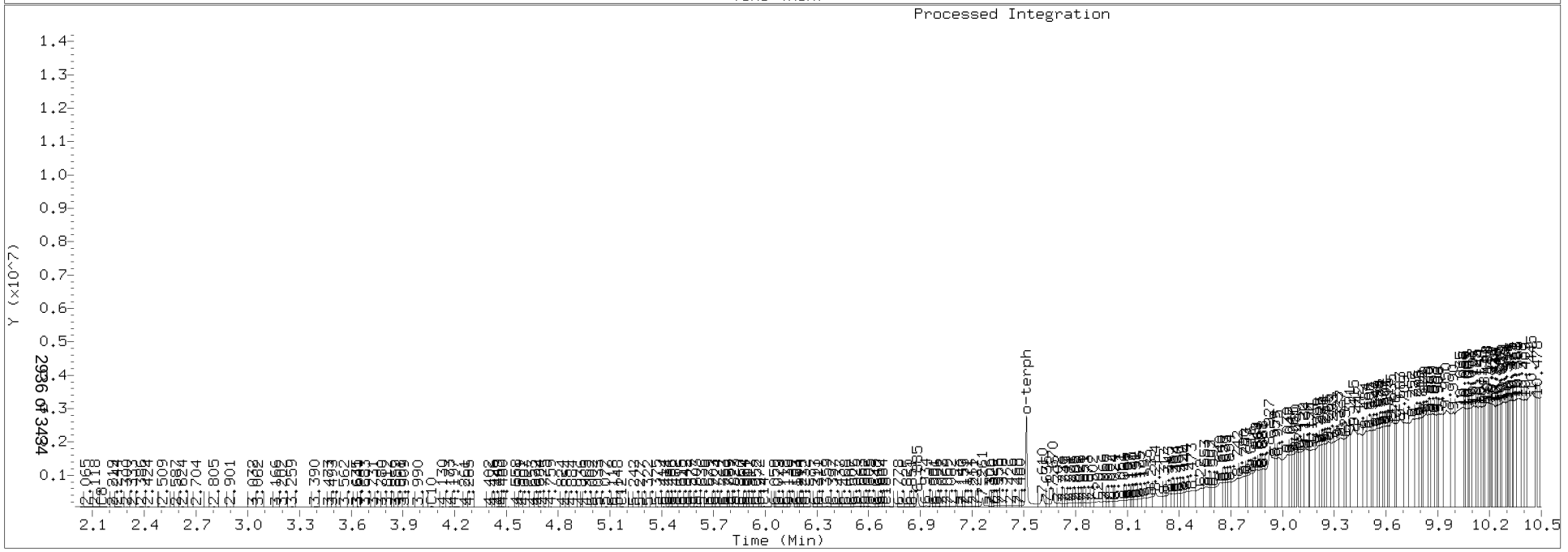
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1022.D Injection: 10-SEP-2019 17:06

Lab ID:SHI0095-CALI





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Date : 10-SEP-2019 17:28

Client ID:

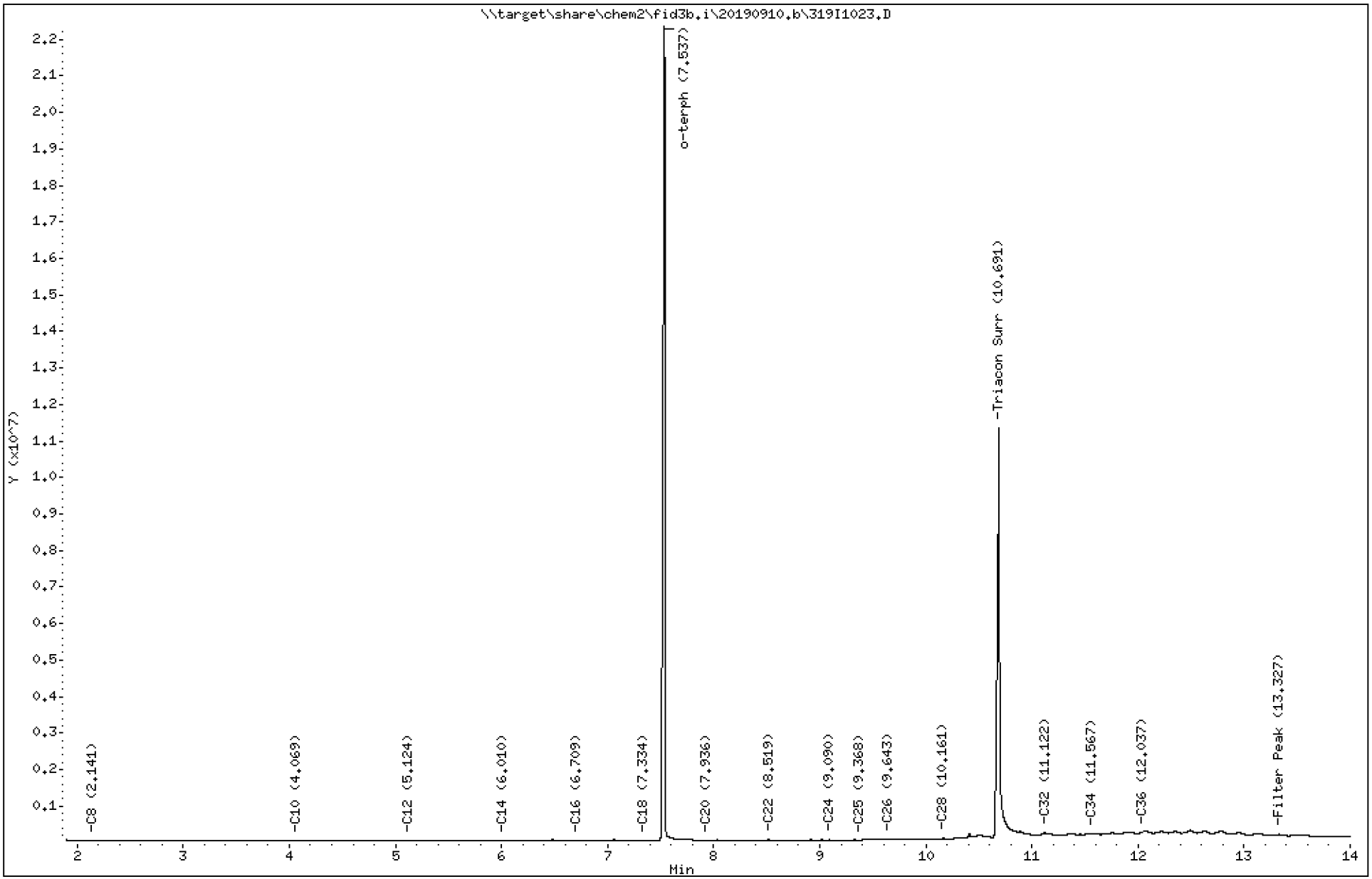
Sample Info: SHI0095-IBL

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1023.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL
Client ID:
Injection: 10-SEP-2019 17:28
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	296728	1.7
C8	2.141	-0.035	7715	21864	WATPHD	(C12-C24)	1185022	6.8
C10	4.069	-0.000	7497	10171	WATPHM	(C24-C38)	19867864	156.9
C12	5.124	-0.042	8036	22156	AK102	(C10-C25)	1272307	6.2
C14	6.010	0.018	10468	15478	AK103	(C25-C36)	15455983	151.9
C16	6.709	0.007	14107	42251	OR.DIES	(C10-C28)	2465490	11.9
C18	7.334	-0.004	13259	29172				
C20	7.936	-0.000	15332	32357				
C22	8.519	-0.004	21039	40982				
C24	9.090	-0.006	18909	27500				
C25	9.368	-0.006	17568	19495				
C26	9.643	-0.003	31570	114841				
C28	10.161	-0.007	77871	110971	IT.DIES	(C10-C24)	1272307	6.3
C32	11.122	-0.009	226709	385222				
C34	11.567	-0.005	204504	1153467				
Filter Peak	13.327	0.009	169114	1060645				
C36	12.037	0.038	238513	505797				
o-terph	7.537	0.003	22314946	26438331				
Triacon Surr	10.691	0.001	11306660	20922921				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	26438331	118.8
Triacontane	20922921	123.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1024.D

Date : 10-SEP-2019 17:50

Client ID:

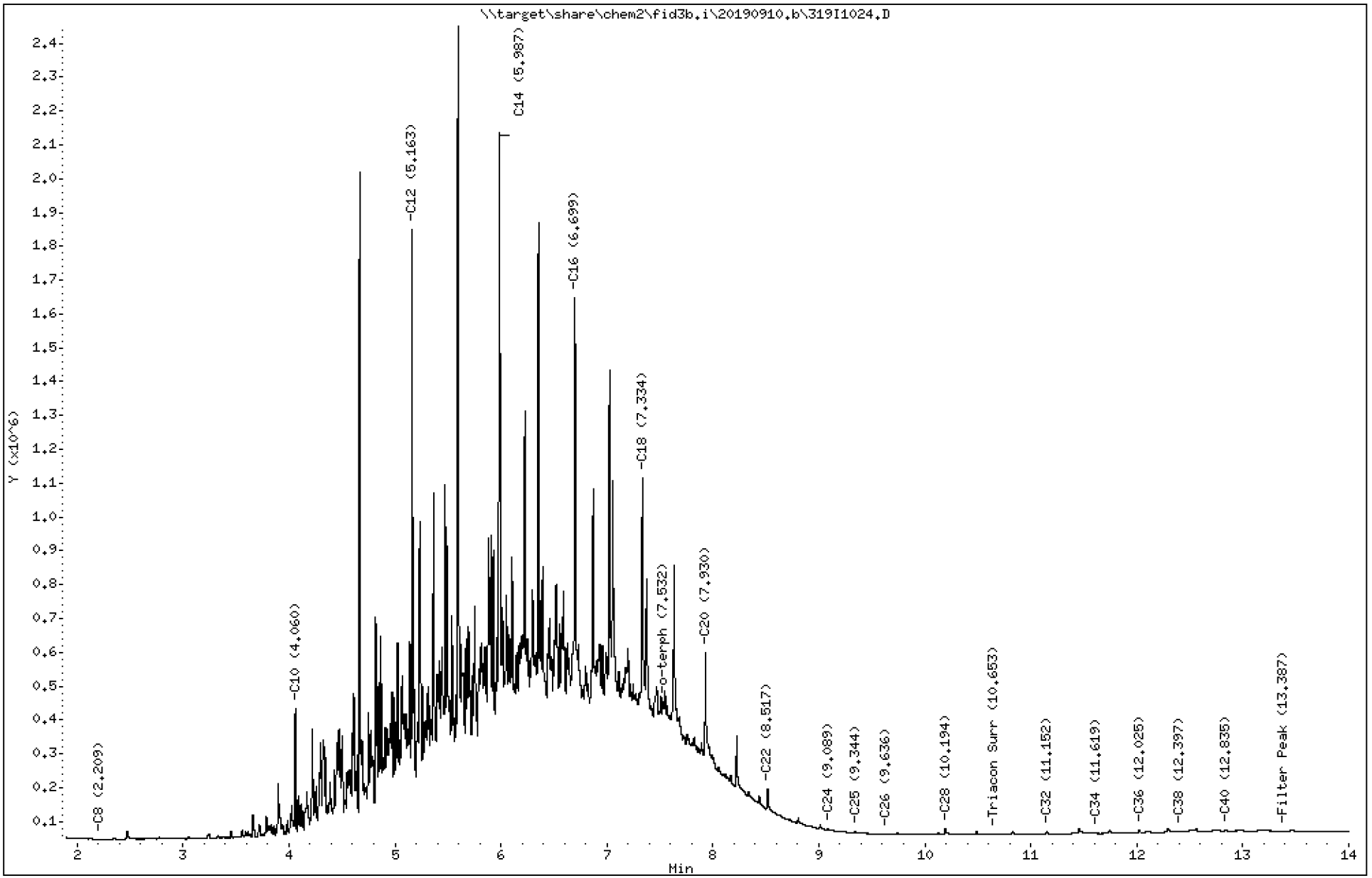
Sample Info: SHI0095-SCV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1024.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV1
Client ID:
Injection: 10-SEP-2019 17:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	18166834	101.2
C8	2.209	0.033	1933	4952	WATPHD	(C12-C24)	88603072	507.9
C10	4.060	-0.009	385327	254694	WATPHM	(C24-C38)	1571148	12.4
C12	5.163	-0.003	1804139	1159878	AK102	(C10-C25)	105644144	518.2
C14	5.987	-0.005	2090503	2284429	AK103	(C25-C36)	1243748	12.2
C16	6.699	-0.004	1601427	1786732	OR.DIES	(C10-C28)	106195300	514.5
C18	7.334	-0.004	1070625	1659662				
C20	7.930	-0.006	552027	835683				
C22	8.517	-0.006	148739	617018				
C24	9.089	-0.007	33019	146762				
C25	9.344	-0.030	23748	60865				
C26	9.636	-0.010	16436	23024				
C28	10.194	0.025	32651	169918	IT.DIES	(C10-C24)	105644144	519.3
C32	11.152	0.021	25156	54043				
C34	11.619	0.046	18838	51742				
Filter Peak	13.387	0.068	25528	21741				
C36	12.025	0.027	28189	56284				
o-terph	7.532	-0.002	405671	416993				
Triacon Surr	10.653	-0.037	16705	23260				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	416993	1.9
Triacontane	23260	0.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1025.D

Date : 10-SEP-2019 18:13

Client ID:

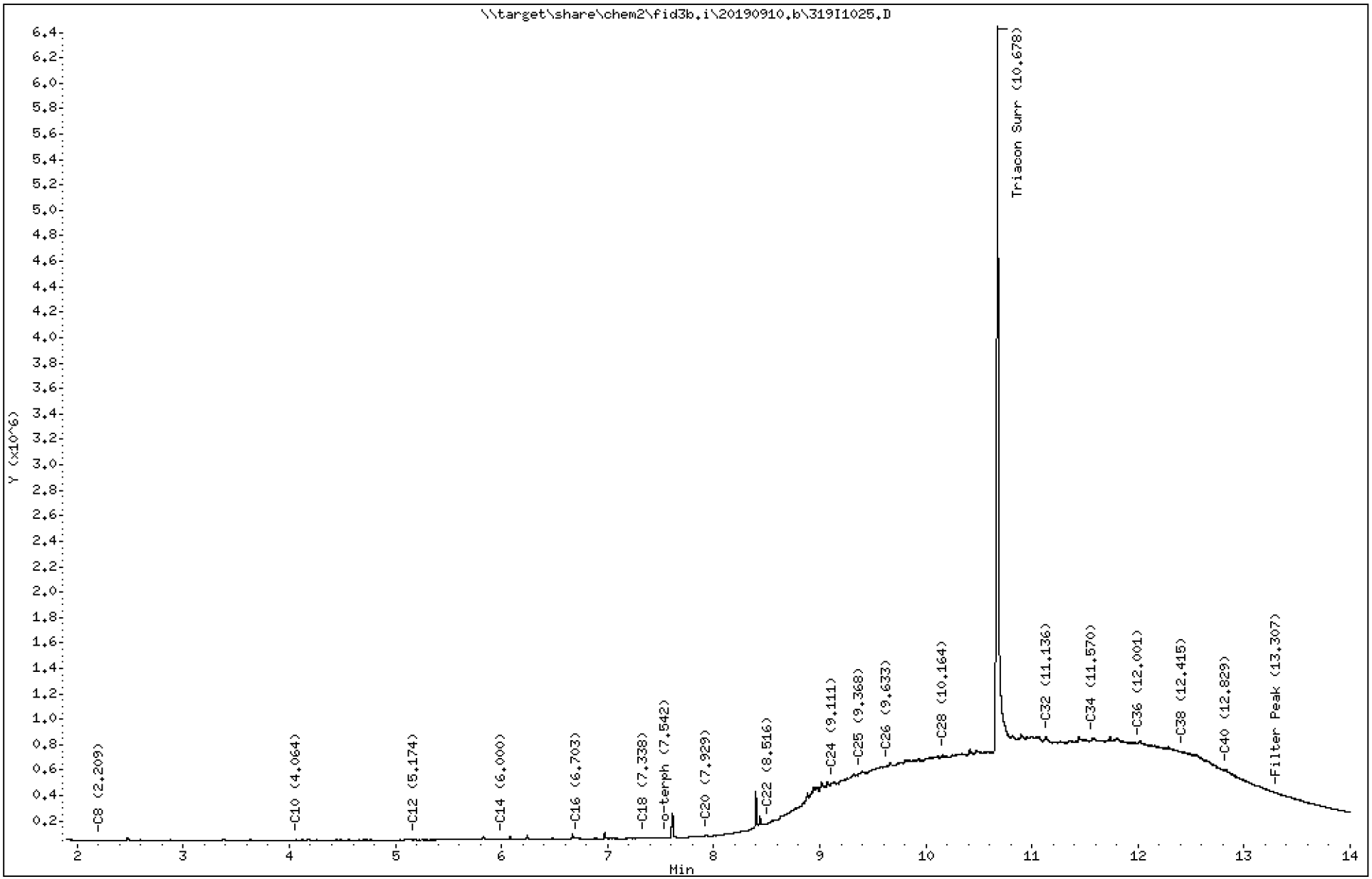
Sample Info: SHI0095-SCV2

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1025.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV2
Client ID:
Injection: 10-SEP-2019 18:13
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	420555	2.3
C8	2.209	0.034	5268	10275	WATPHD	(C12-C24)	16700300	95.7
C10	4.064	-0.005	6881	8187	WATPHM	(C24-C38)	134436796	1061.8
C12	5.174	0.008	6921	14266	AK102	(C10-C25)	21220077	104.1
C14	6.000	0.008	12196	12749	AK103	(C25-C36)	113307697	1113.7 M
C16	6.703	0.000	22674	65102	OR.DIES	(C10-C28)	53624510	259.8
C18	7.338	0.000	20684	26483				
C20	7.929	-0.007	41189	127363				
C22	8.516	-0.007	143253	280508				
C24	9.111	0.015	451100	414936				
C25	9.368	-0.006	525235	394195				
C26	9.633	-0.012	587576	326190				
C28	10.164	-0.005	673101	1234119	IT.DIES	(C10-C24)	16917193	83.2
C32	11.136	0.006	816398	2046618				
C34	11.570	-0.003	803474	1522330				
Filter Peak	13.307	-0.011	375795	979454				
C36	12.001	0.003	767809	367268				
o-terph	7.542	0.009	21898	49462				
Triacon Surr	10.678	-0.011	5683882	7402686				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

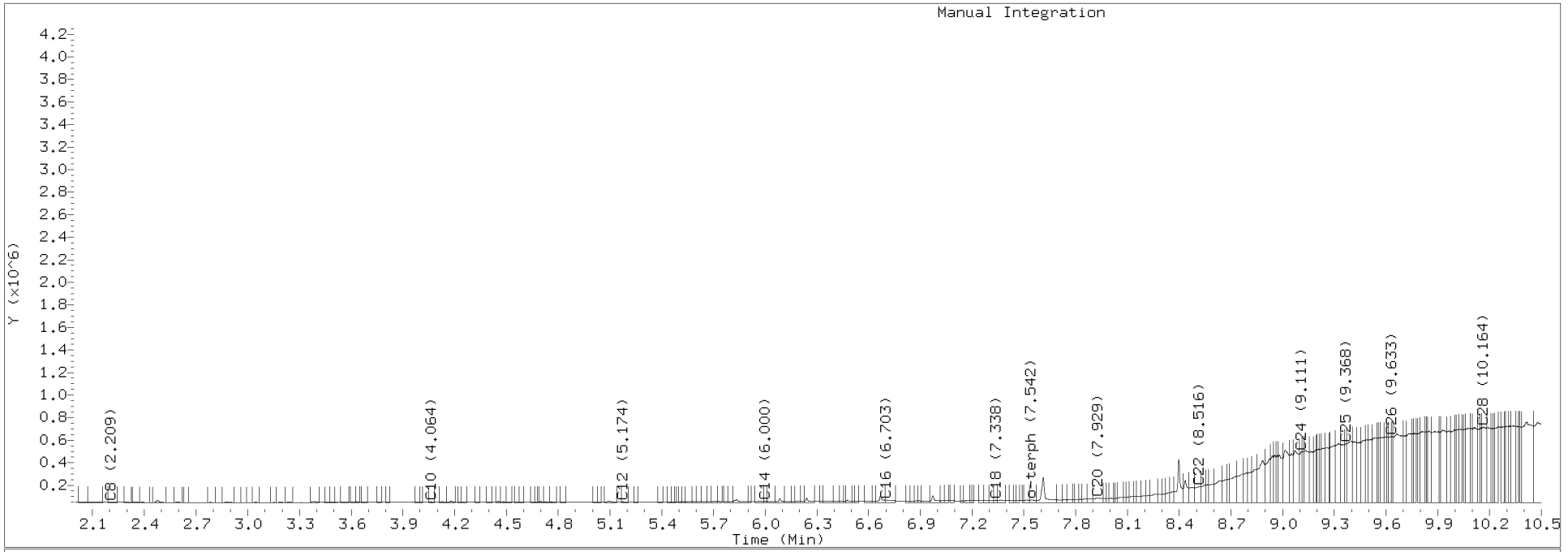
Surrogate	Area	Amount
o-Terphenyl	49462	0.2
Triacontane	7402686	43.5

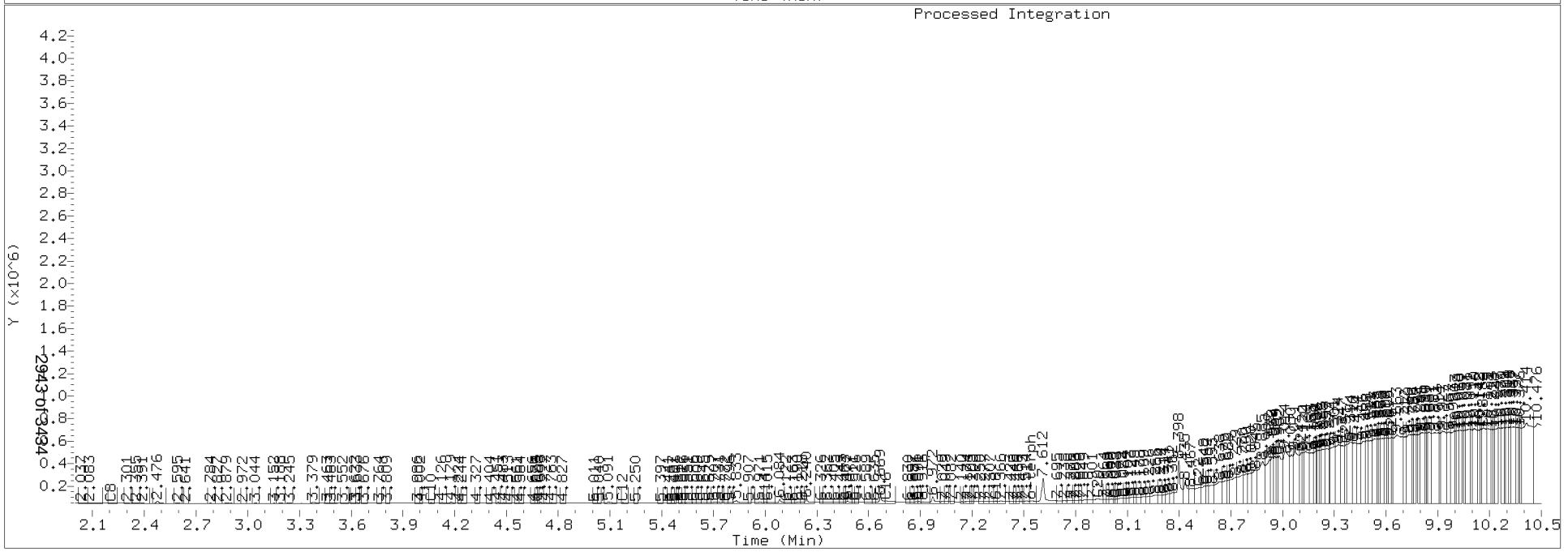
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1025.D Injection: 10-SEP-2019 18:13

Lab ID:SHI0095-SCV2





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1026.D

Date : 10-SEP-2019 18:35

Client ID:

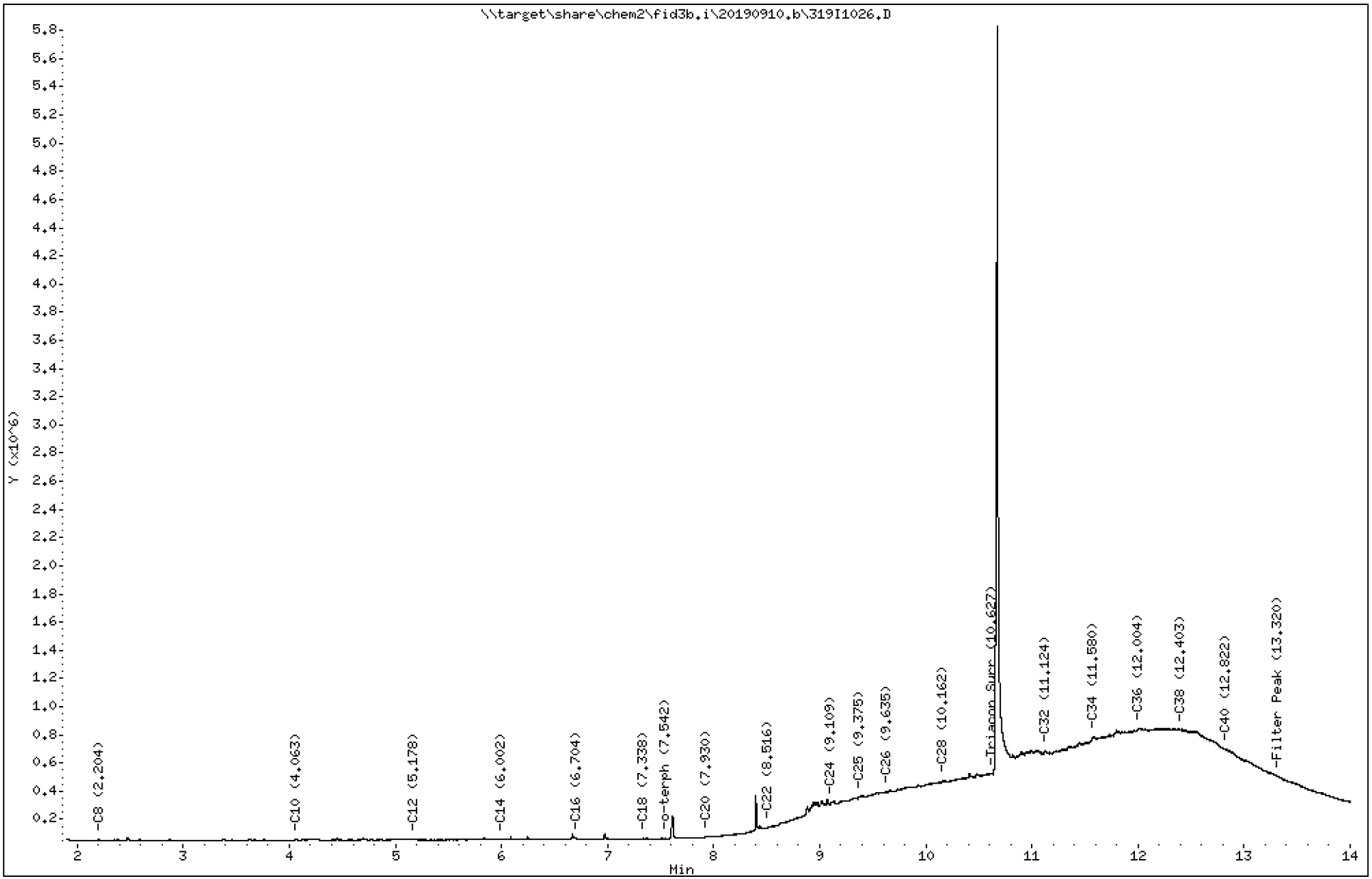
Sample Info: SHI0095-SCV3

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1026.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV3
Client ID:
Injection: 10-SEP-2019 18:35
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	536431	3.0
C8	2.204	0.028	4961	8201	WATPHD	(C12-C24)	10886905	62.4
C10	4.063	-0.006	8157	13014	WATPHM	(C24-C38)	109277246	863.1
C12	5.178	0.012	6604	12567	AK102	(C10-C25)	14242144	69.9
C14	6.002	0.010	8767	17683	AK103	(C25-C36)	86639215	851.6 M
C16	6.704	0.002	18334	51640	OR.DIES	(C10-C28)	32953505	159.7
C18	7.338	-0.000	15406	19235				
C20	7.930	-0.006	31233	63282				
C22	8.516	-0.007	96574	109176				
C24	9.109	0.013	274757	405304				
C25	9.375	0.001	310732	457792				
C26	9.635	-0.011	344762	315190				
C28	10.162	-0.006	429652	791004	IT.DIES	(C10-C24)	11195837	55.0
C32	11.124	-0.007	636629	1584179				
C34	11.580	0.007	732815	2258301				
Filter Peak	13.320	0.002	454536	922363				
C36	12.004	0.006	791000	674327				
o-terph	7.542	0.009	15185	31375				
Triacon Surr	10.676	-0.013	5280821	6781328				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

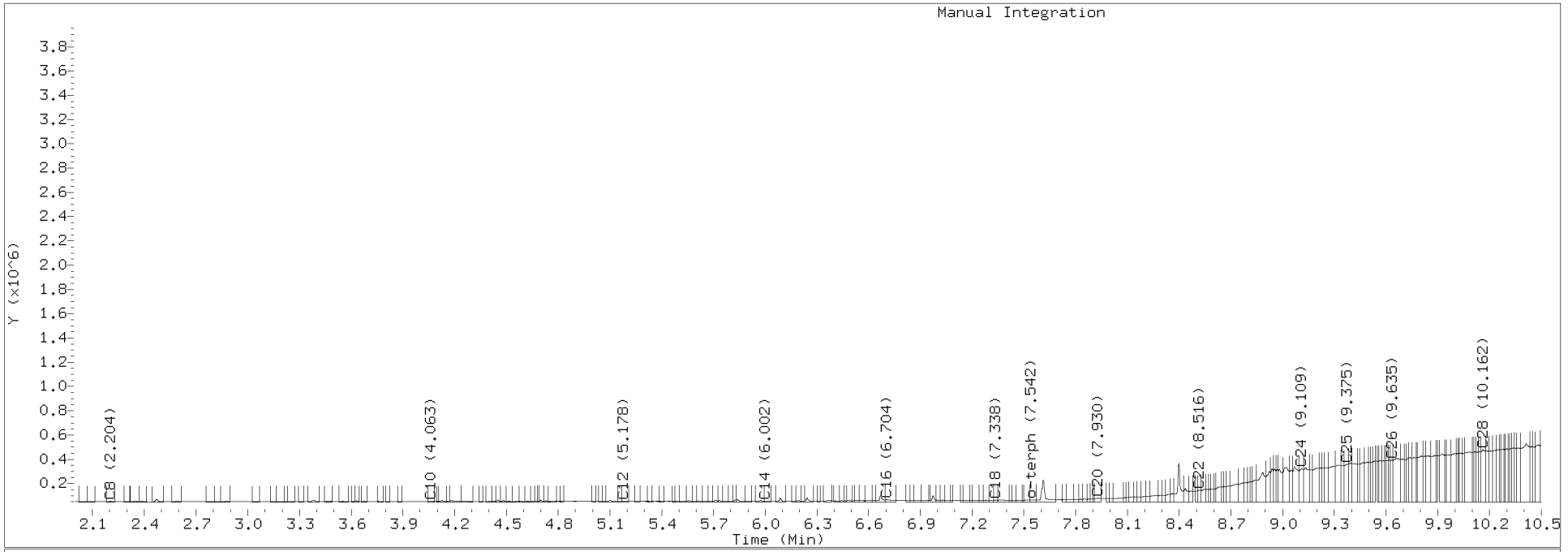
Surrogate	Area	Amount
o-Terphenyl	31375	0.1
Triacontane	6781328	39.9

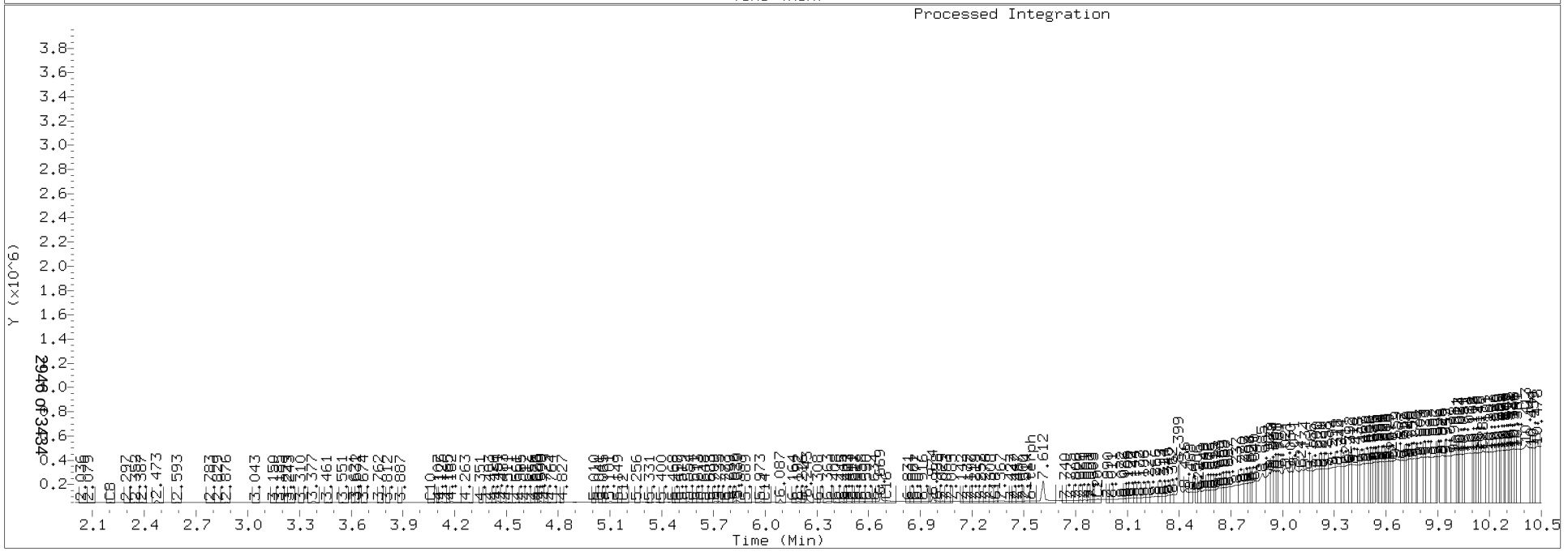
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1026.D Injection: 10-SEP-2019 18:35

Lab ID:SHI0095-SCV3





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Date : 10-SEP-2019 10:04

Client ID:

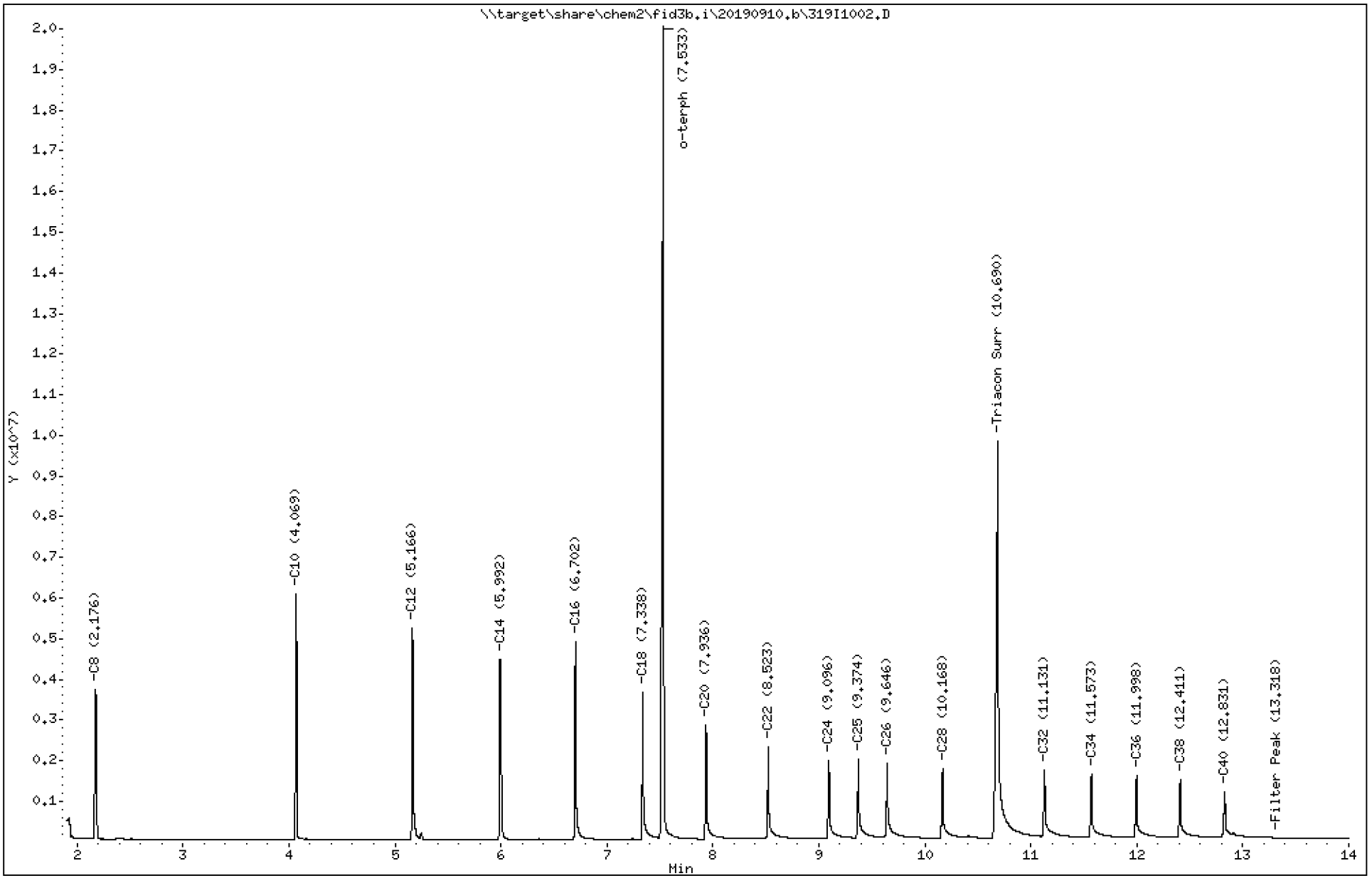
Sample Info: SHI0095-IBL1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1002.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL1
Client ID:
Injection: 10-SEP-2019 10:04
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	14185766	79.1
C8	2.176	0.000	3704134	3911478	modTPHD	(C12-C25)	26950434	150.2
C10	4.069	0.000	6042478	4252589	WATPHM	(C24-C38)	27415629	216.5
C12	5.166	0.000	5221767	4110397	AK102	(C10-C25)	31348319	153.8
C14	5.992	0.000	4447625	4256722	AK103	(C25-C36)	23460022	230.6
C16	6.702	0.000	4878687	4249742	OR.DIES	(C10-C28)	41467597	200.9
C18	7.338	0.000	3626779	3542888				
C20	7.936	0.000	2822310	3657166				
C22	8.523	0.000	2298308	3486963				
C24	9.096	0.000	1954271	2810072				
C25	9.374	0.000	1980732	3399242				
C26	9.646	0.000	1895172	3582014				
C28	10.168	0.000	1749305	3074306	IT.DIES	(C10-C24)	31162824	153.2
C32	11.131	0.000	1726058	4079448				
C34	11.573	0.000	1613373	2906134				
Filter Peak	13.318	0.000	50016	522698				
C36	11.998	0.000	1585438	3446582				
o-terph	7.533	0.000	20017154	23327841				
Triacon Surr	10.690	0.000	9814795	18785506				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	23327841	104.9
Triacontane	18785506	110.5

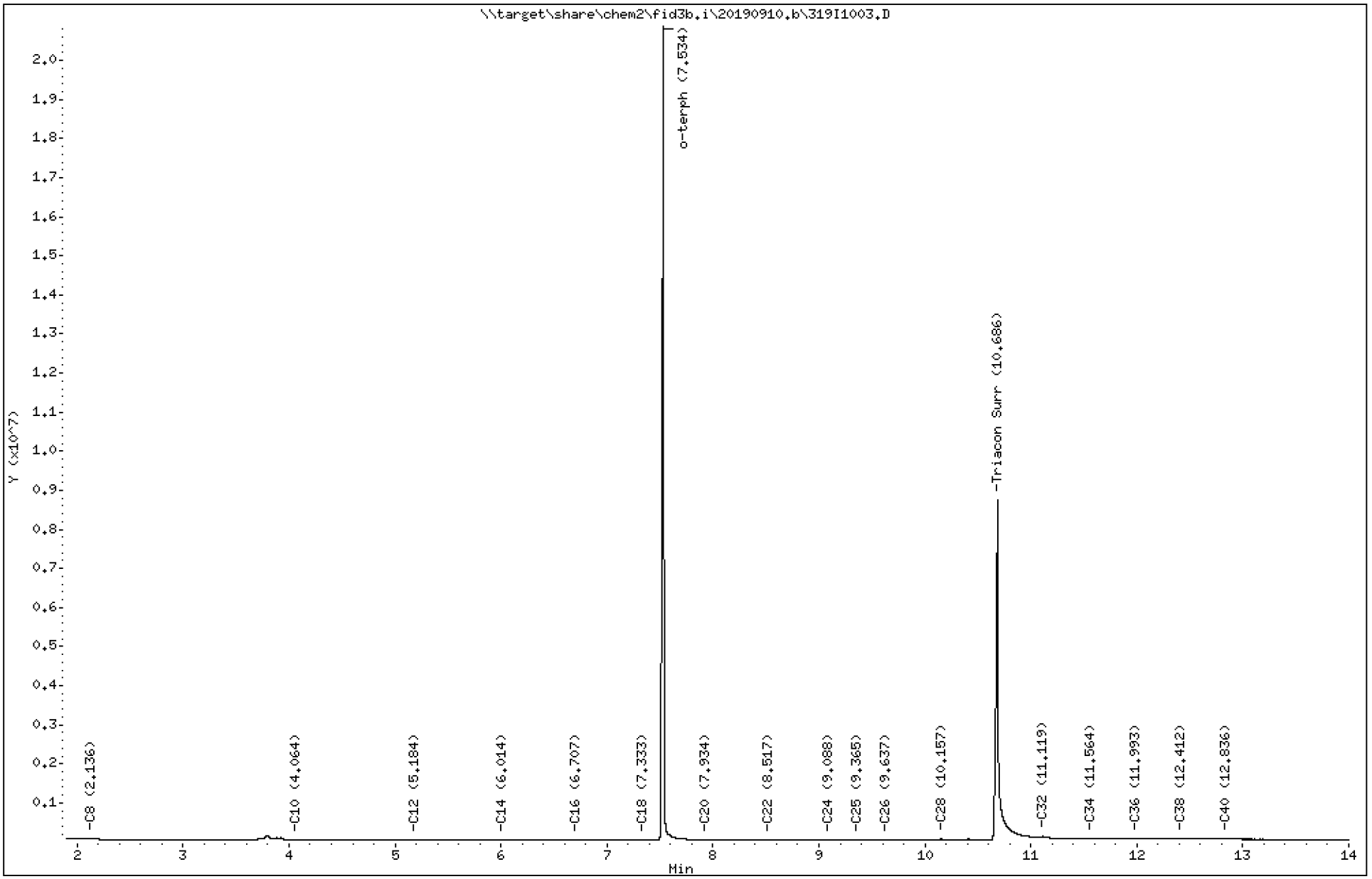
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1003.D
Date : 10-SEP-2019 10:25
Client ID:
Sample Info: SHI0095-IBL2

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1003.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-IBL2
Client ID:
Injection: 10-SEP-2019 10:25
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	1006010	5.6
C8	2.136	-0.039	22388	49530	modTPHD	(C12-C25)	269573	1.5
C10	4.064	-0.006	3514	3987	WATPHM	(C24-C38)	2219129	17.5
C12	5.184	0.018	3656	6872	AK102	(C10-C25)	307655	1.5
C14	6.014	0.022	4971	9889	AK103	(C25-C36)	2095473	20.6
C16	6.707	0.005	7585	12059	OR.DIES	(C10-C28)	473728	2.3
C18	7.333	-0.005	7197	10411				
C20	7.934	-0.003	10703	21478				
C22	8.517	-0.006	13737	20709				
C24	9.088	-0.008	8131	11521				
C25	9.365	-0.009	8469	15916				
C26	9.637	-0.009	8688	15439				
C28	10.157	-0.011	33176	36899	IT.DIES	(C10-C24)	307655	1.5
C32	11.119	-0.012	87654	223803				
C34	11.564	-0.009	33030	84290				
Filter Peak	----							
C36	11.993	-0.005	25032	65990				
o-terph	7.534	0.000	20828242	23980051				
Triacon Surr	10.686	-0.003	8705355	15308952				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	23980051	107.8
Triacontane	15308952	90.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1004.D

Date : 10-SEP-2019 10:46

Client ID:

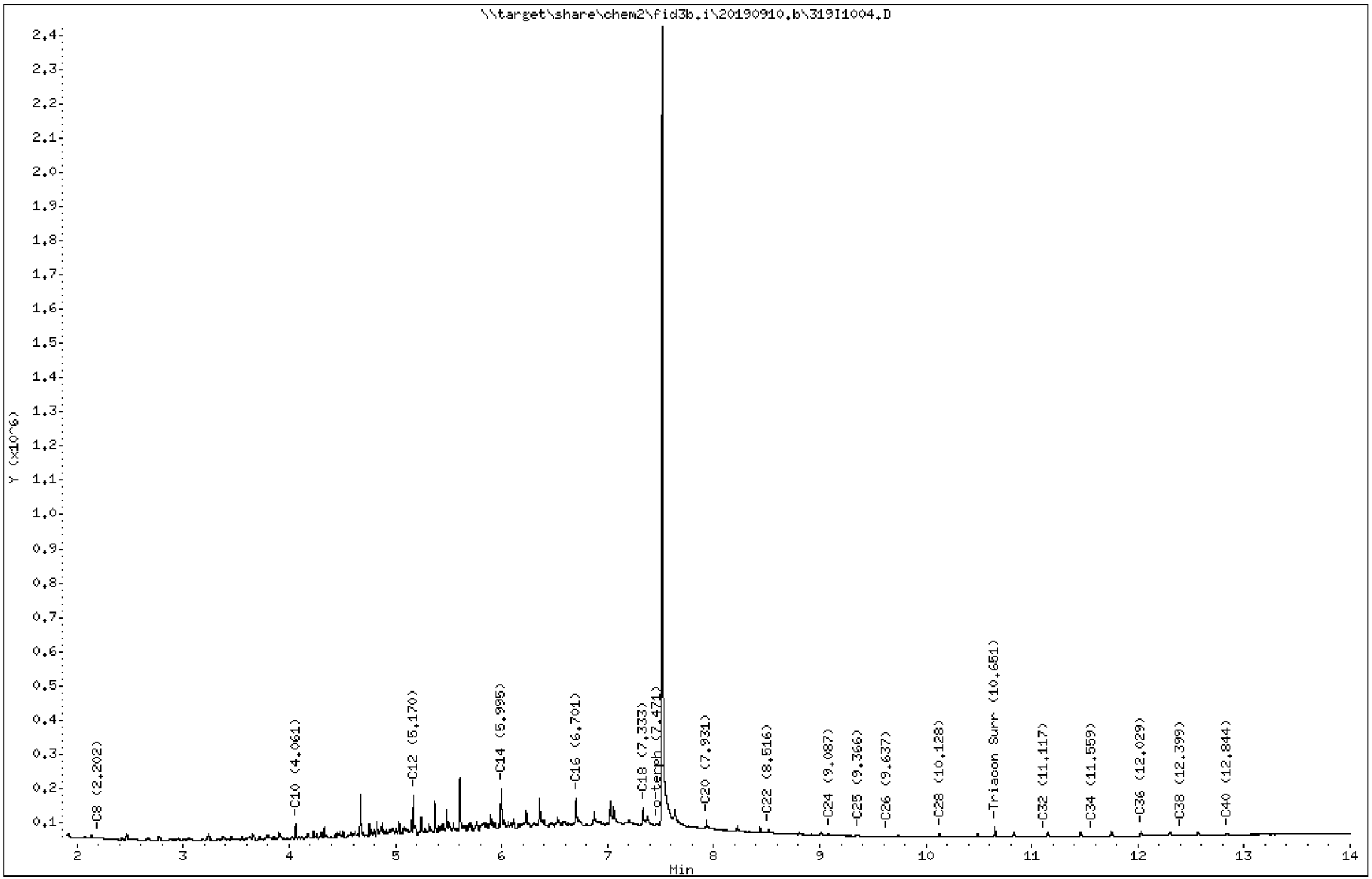
Sample Info: SHI0095-CAL1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1004.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL1
Client ID:
Injection: 10-SEP-2019 10:46
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	2113208	11.8	
C8	2.202	0.026	7421	21770	modTPHD	(C12-C25)	9070785	50.5	
C10	4.061	-0.008	49034	33216	WATPHM	(C24-C38)	772518	6.1	
C12	5.170	0.004	131909	92519	AK102	(C10-C25)	10374384	50.9	M
C14	5.995	0.003	151380	179158	AK103	(C25-C36)	646507	6.4	
C16	6.701	-0.001	122306	230093	OR.DIES	(C10-C28)	10593948	51.3	M
C18	7.333	-0.005	96772	178792					
C20	7.931	-0.005	60282	226599					
C22	8.516	-0.007	33153	79045					
C24	9.087	-0.008	19267	78764					
C25	9.366	-0.008	15509	51004					
C26	9.637	-0.009	13367	23264					
C28	10.128	-0.041	18329	46706	IT.DIES	(C10-C24)	10374384	51.0	
C32	11.117	-0.013	12356	23101					
C34	11.559	-0.013	13035	23179					
Filter Peak	----								
C36	12.029	0.030	26494	64106					
o-terph	7.514	-0.020	2328586	1873571					
Triacon Surr	10.651	-0.039	38646	67047					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

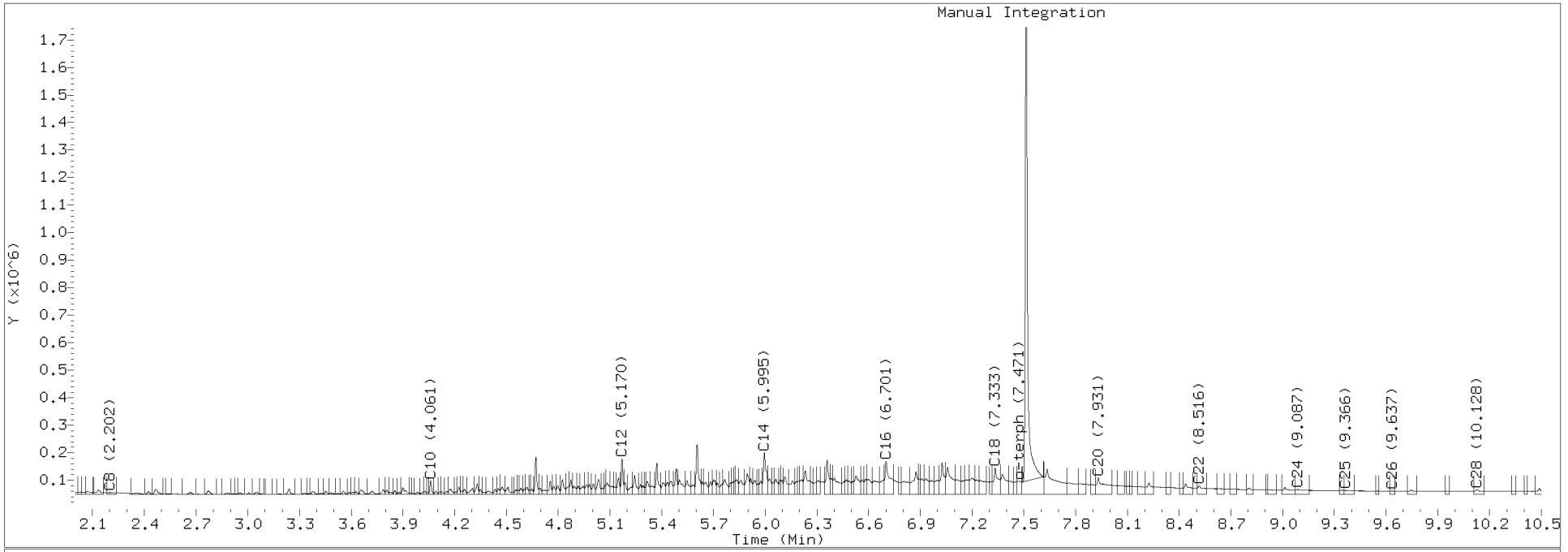
Surrogate	Area	Amount
o-Terphenyl	1873571	8.4
Triacontane	67047	0.4

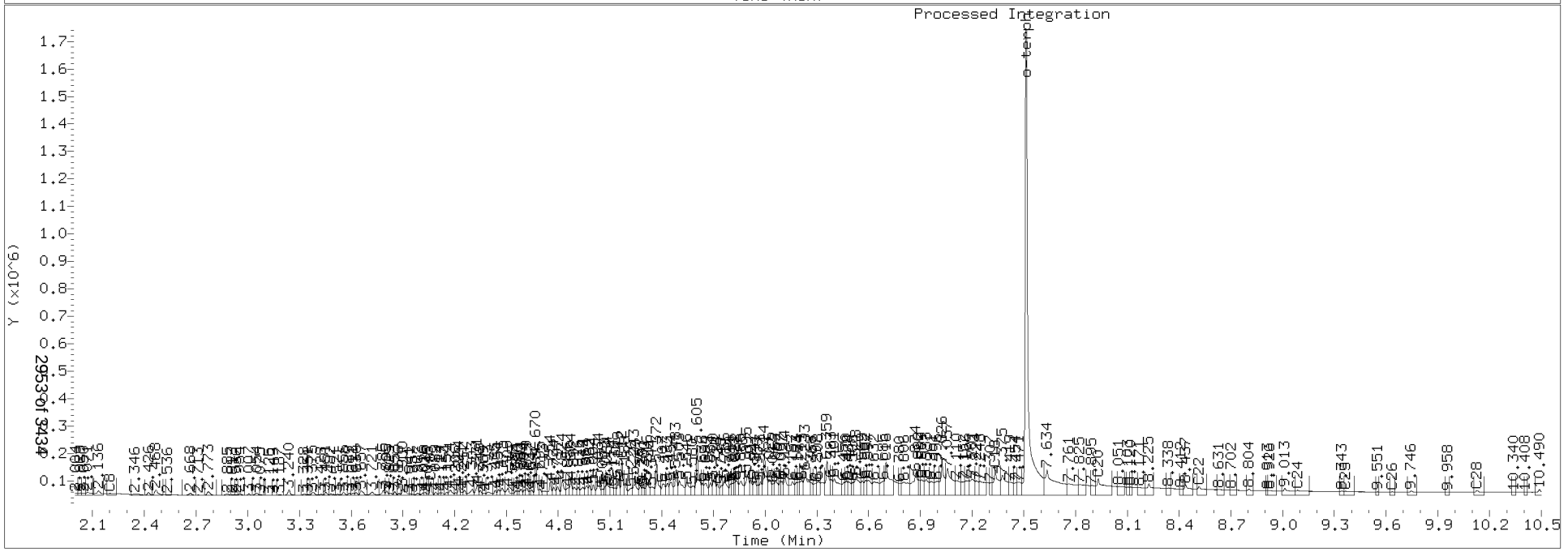
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1004.D Injection: 10-SEP-2019 10:46

Lab ID:SHI0095-CAL1

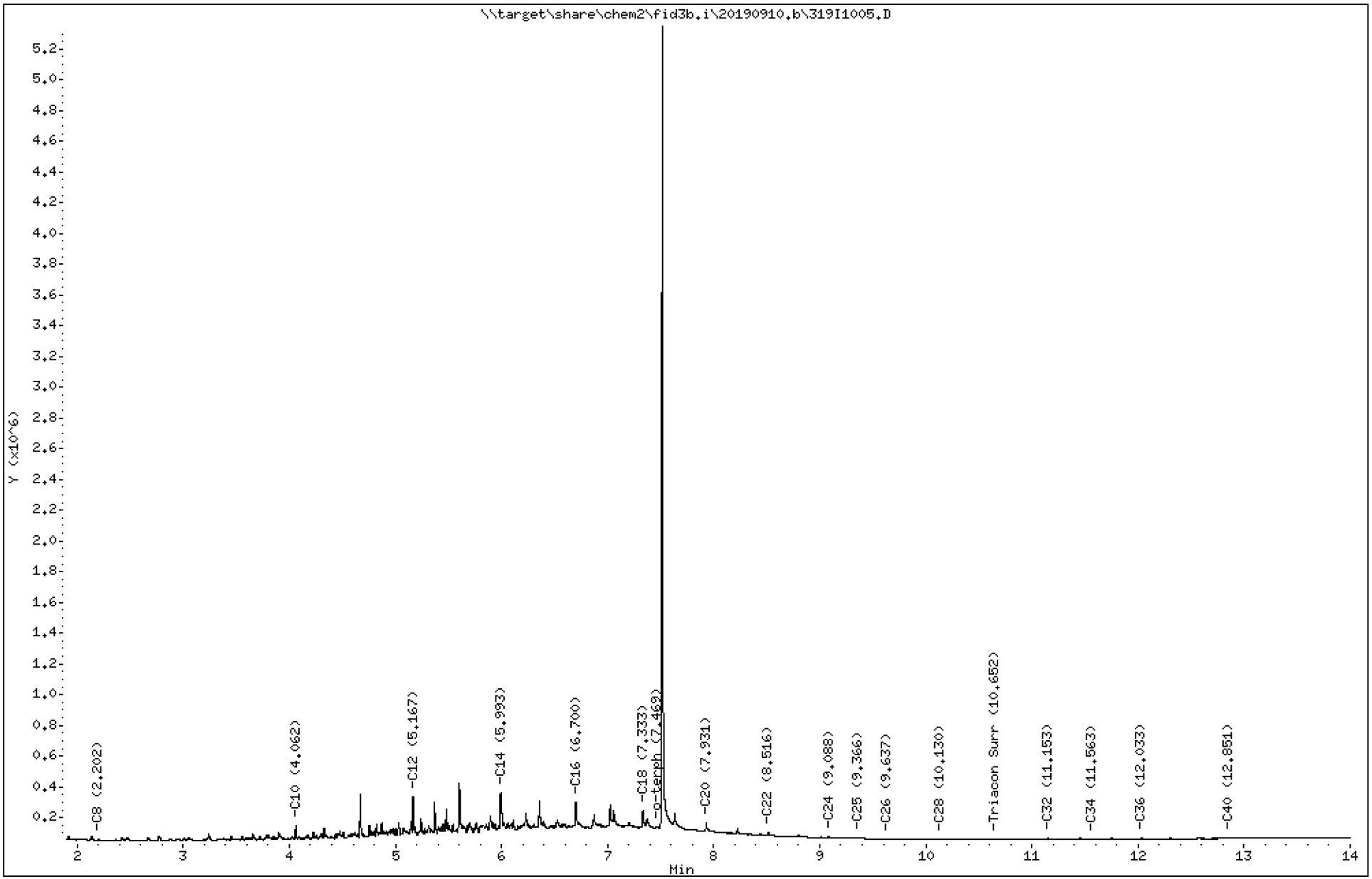




Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1005.D
Date : 10-SEP-2019 11:08
Client ID:
Sample Info: SHI0095-CAL2

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1005.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL2
Client ID:
Injection: 10-SEP-2019 11:08
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	4133132	23.0	
C8	2.202	0.027	5376	10862	modTPHD	(C12-C25)	17811349	99.2	
C10	4.062	-0.008	101972	69201	WATPHM	(C24-C38)	490066	3.9	
C12	5.167	0.001	281718	193220	AK102	(C10-C25)	20457808	100.4	M
C14	5.993	0.001	313750	375479	AK103	(C25-C36)	444458	4.4	
C16	6.700	-0.002	251350	331479	OR.DIES	(C10-C28)	20662150	100.1	M
C18	7.333	-0.005	194174	341875					
C20	7.931	-0.006	112926	188113					
C22	8.516	-0.008	54362	157252					
C24	9.088	-0.008	24594	47085					
C25	9.366	-0.008	17070	54226					
C26	9.637	-0.009	12763	22952					
C28	10.130	-0.038	12054	37909	IT.DIES	(C10-C24)	20457808	100.6	
C32	11.153	0.023	13856	34867					
C34	11.563	-0.010	9862	16249					
Filter Peak	----								
C36	12.033	0.034	16497	43310					
o-terph	7.516	-0.017	5212681	3884237					
Triacon Surr	10.652	-0.037	10551	20182					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

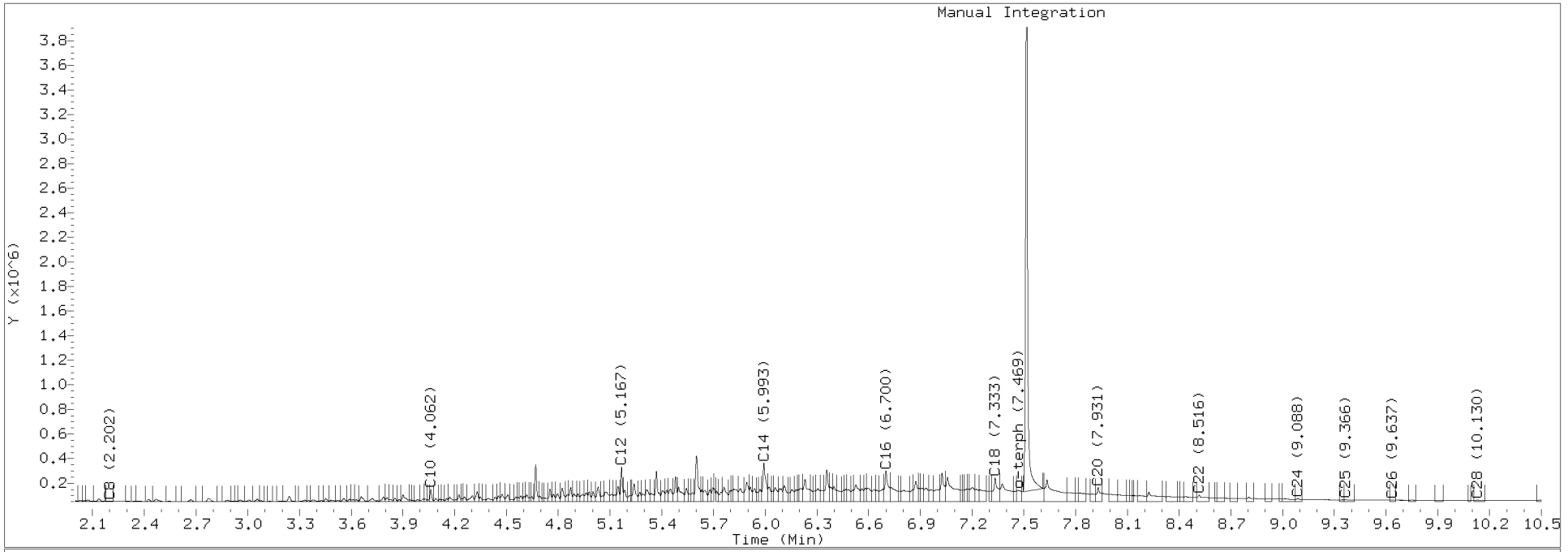
Surrogate	Area	Amount
o-Terphenyl	3884237	17.5
Triacontane	20182	0.1

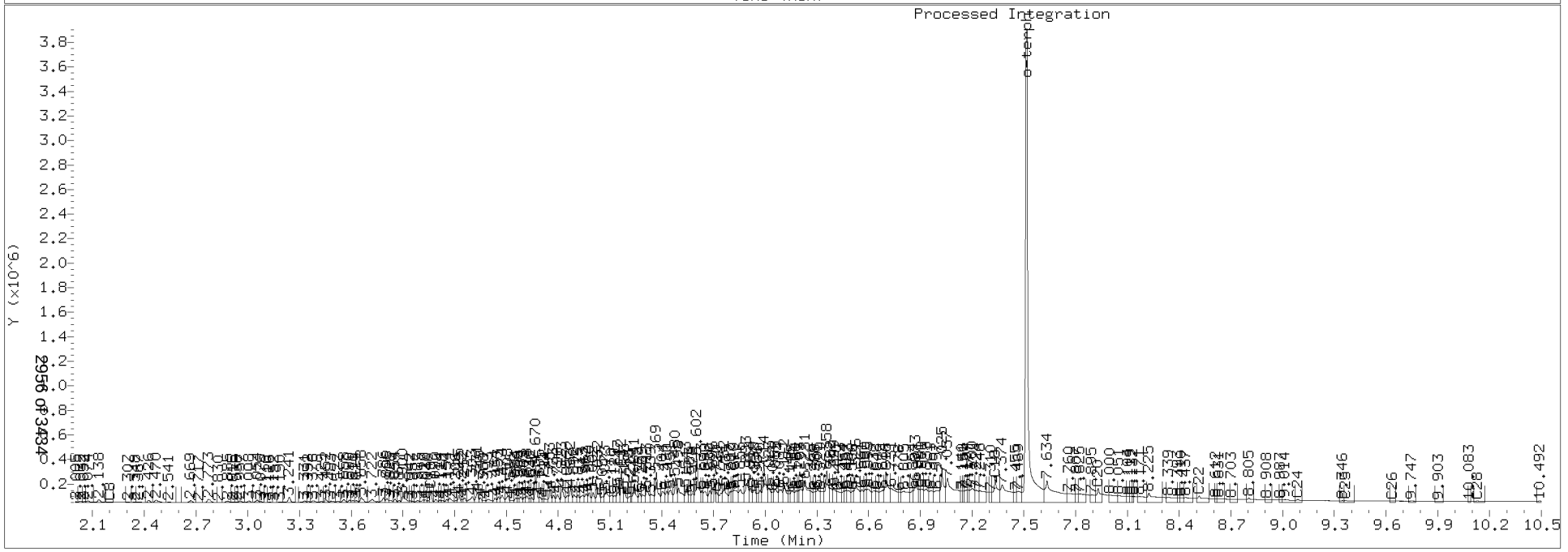
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1005.D Injection: 10-SEP-2019 11:08

Lab ID:SHI0095-CAL2





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Date : 10-SEP-2019 11:29

Client ID:

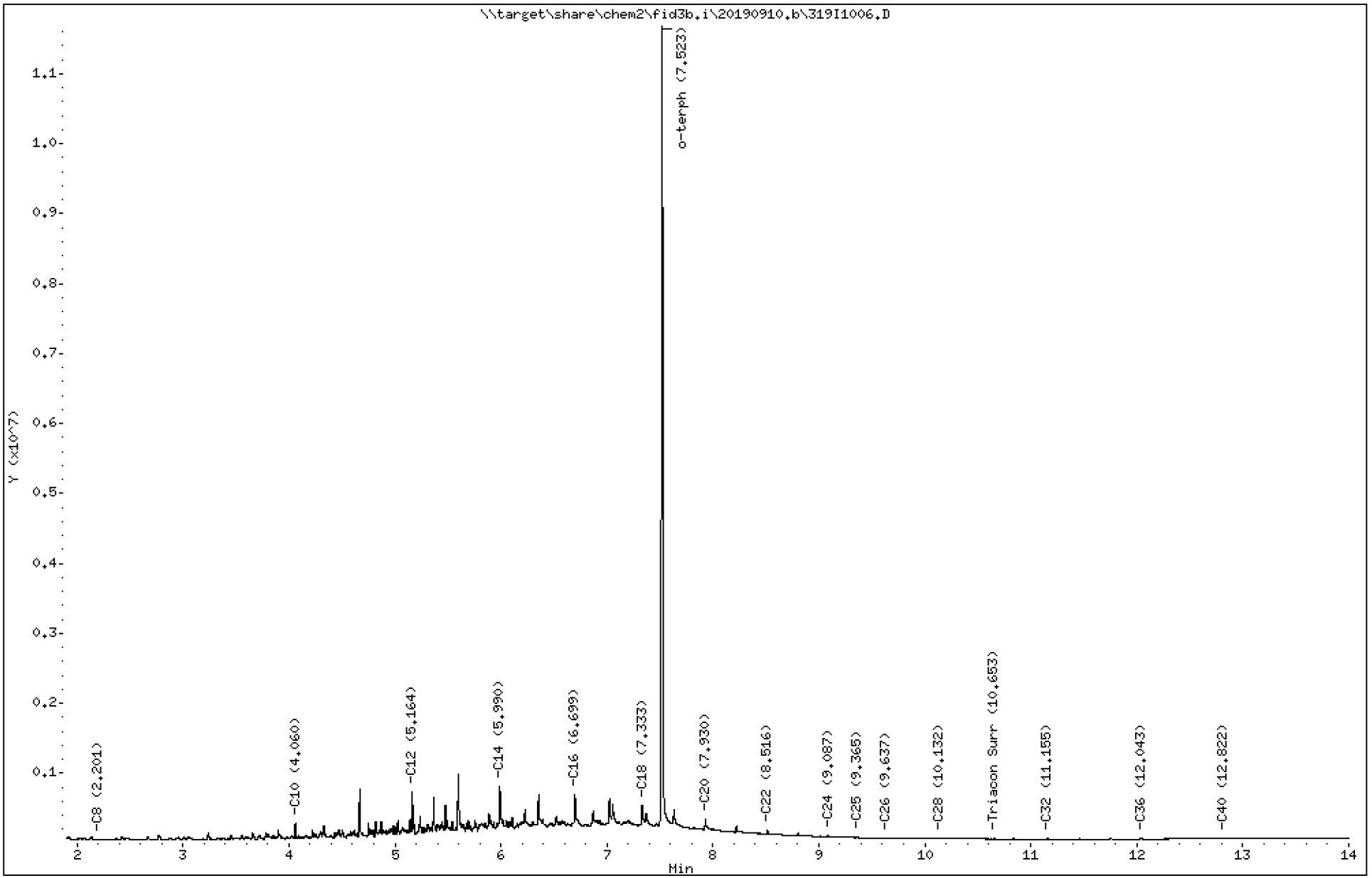
Sample Info: SHI0095-CAL3

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1006.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL3
Client ID:
Injection: 10-SEP-2019 11:29
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	8974164	50.0
C8	2.201	0.026	6224	12219	modTPHD	(C12-C25)	43884937	244.5
C10	4.060	-0.009	239797	160425	WATPHM	(C24-C38)	672773	5.3
C12	5.164	-0.002	687519	448480	AK102	(C10-C25)	49706354	243.8 M
C14	5.990	-0.002	758231	891048	AK103	(C25-C36)	637380	6.3
C16	6.699	-0.003	635834	828086	OR.DIES	(C10-C28)	50179771	243.1 M
C18	7.333	-0.005	494070	848950				
C20	7.930	-0.006	288309	803183				
C22	8.516	-0.007	134870	280234				
C24	9.087	-0.008	56958	288007				
C25	9.365	-0.009	36453	199253				
C26	9.637	-0.009	24556	110159				
C28	10.132	-0.036	14907	48558	IT.DIES	(C10-C24)	49706354	244.3
C32	11.155	0.025	10780	24028				
C34	----							
Filter Peak	----							
C36	12.043	0.045	12097	29349				
o-terph	7.523	-0.010	11416761	9648508				
Triacon Surr	10.653	-0.036	10194	22196				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

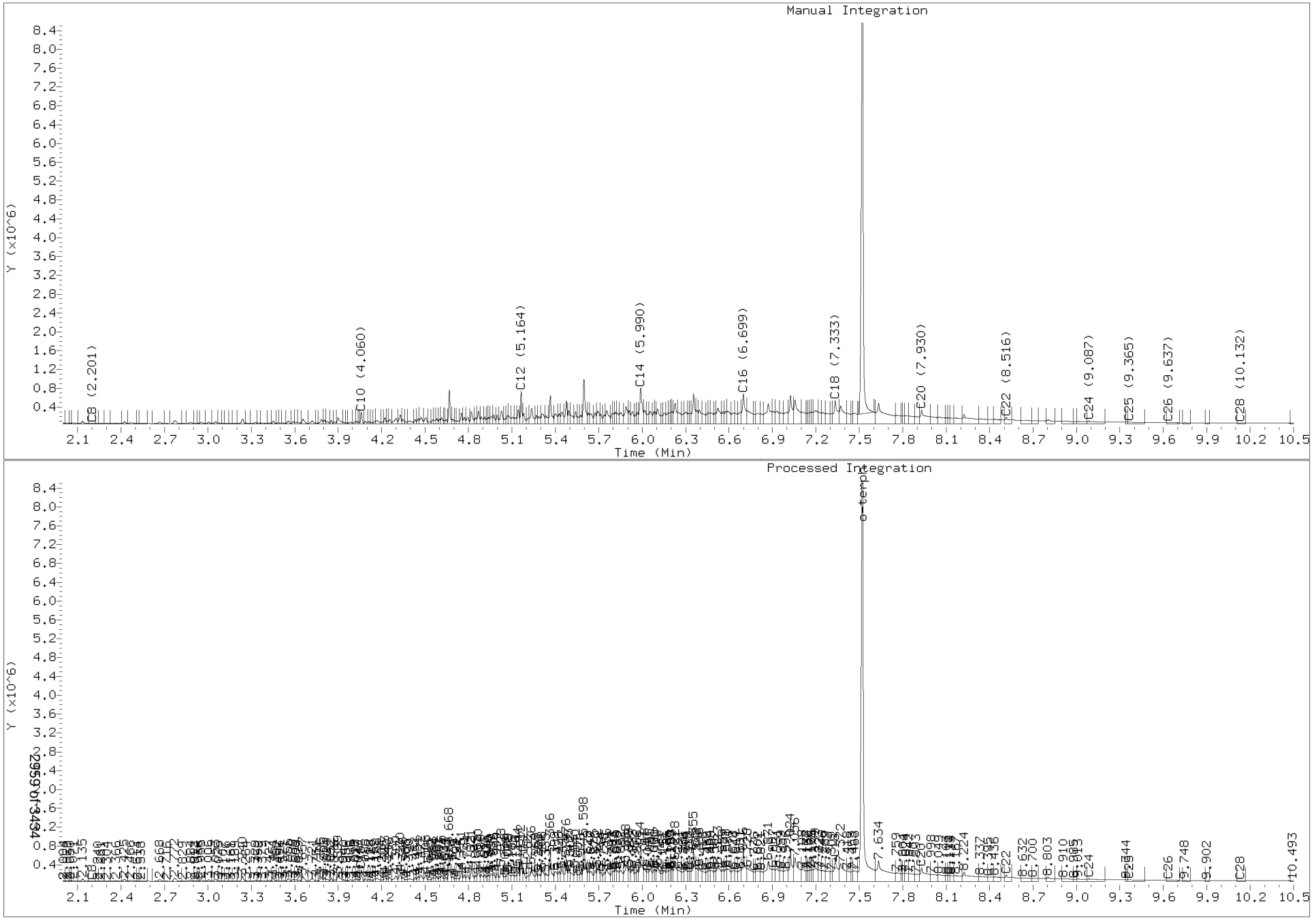
Surrogate	Area	Amount
o-Terphenyl	9648508	43.4
Triacontane	22196	0.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1006.D   Injection: 10-SEP-2019 11:29

Lab ID:SHI0095-CAL3



Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1007.D

Date : 10-SEP-2019 11:50

Client ID:

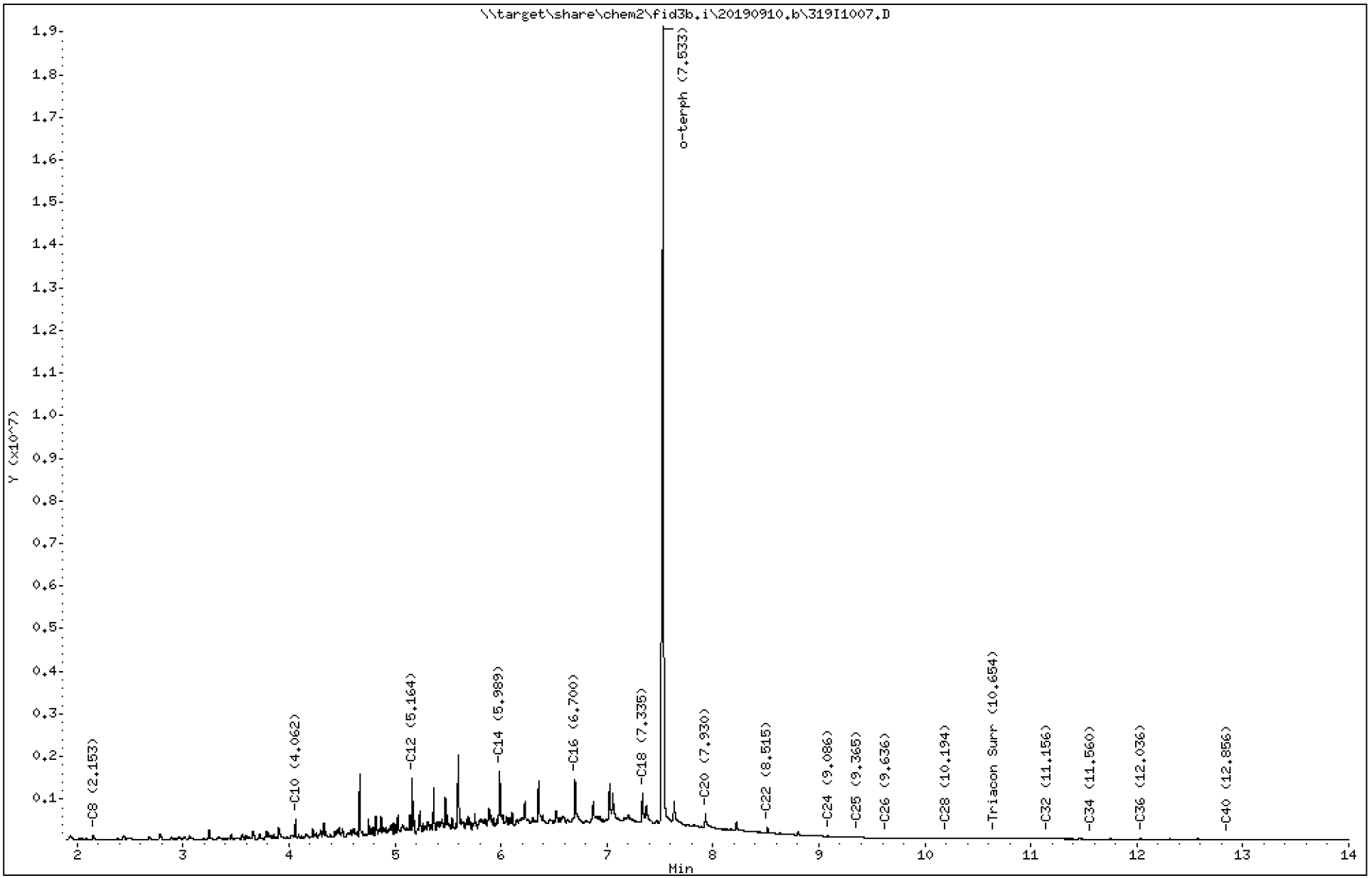
Sample Info: SHI0095-CAL4

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1007.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL4
Client ID:
Injection: 10-SEP-2019 11:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	17650786	98.4	
C8	2.153	-0.023	98664	102733	modTPHD	(C12-C25)	88769079	494.6	
C10	4.062	-0.007	494884	328246	WATPHM	(C24-C38)	2299079	18.2	
C12	5.164	-0.002	1432488	928781	AK102	(C10-C25)	100171154	491.4	M
C14	5.989	-0.003	1605383	1867276	AK103	(C25-C36)	1783877	17.5	
C16	6.700	-0.003	1394503	1729244	OR.DIES	(C10-C28)	101555599	492.1	M
C18	7.335	-0.004	1097444	2159853					
C20	7.930	-0.006	617145	1392086					
C22	8.515	-0.009	277072	578881					
C24	9.086	-0.010	110903	483100					
C25	9.365	-0.009	69372	361956					
C26	9.636	-0.010	45576	247393					
C28	10.194	0.026	23971	59217	IT.DIES	(C10-C24)	99708547	490.1	
C32	11.156	0.025	19751	53455					
C34	11.560	-0.013	15852	23261					
Filter Peak	----								
C36	12.036	0.037	17457	56025					
o-terph	7.533	-0.000	18656908	20100499					
Triacon Surr	10.654	-0.036	19187	36766					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

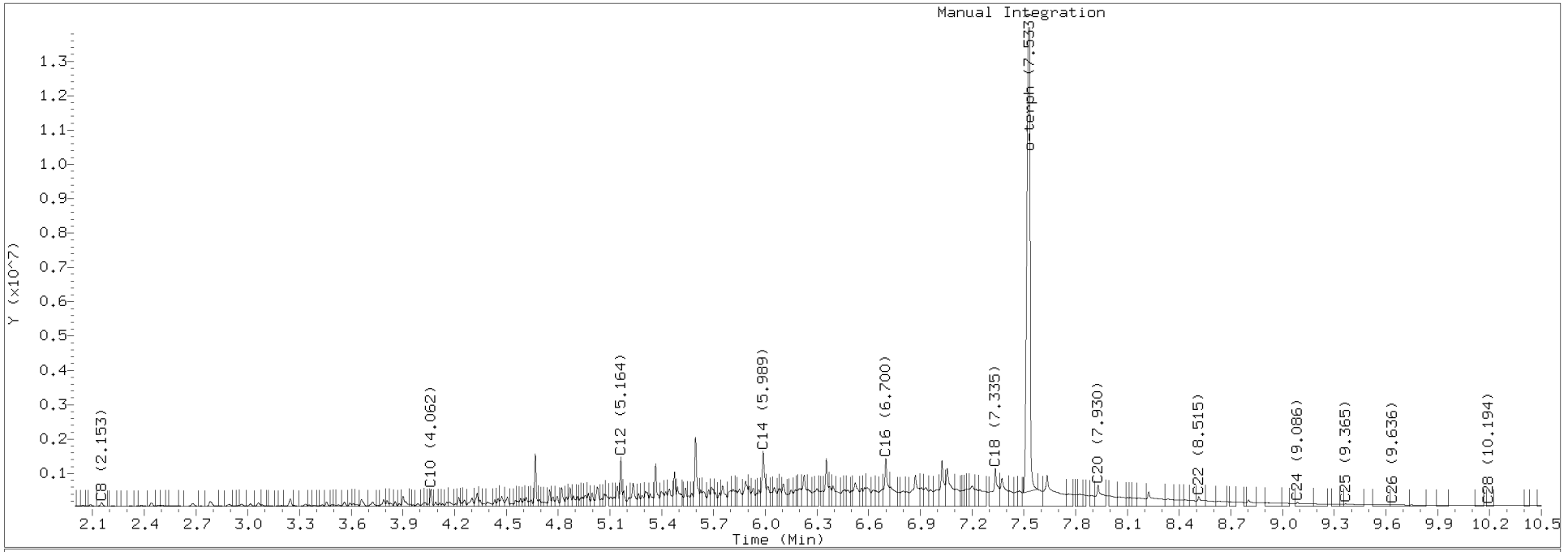
Surrogate	Area	Amount
o-Terphenyl	20100499	90.3
Triacontane	36766	0.2

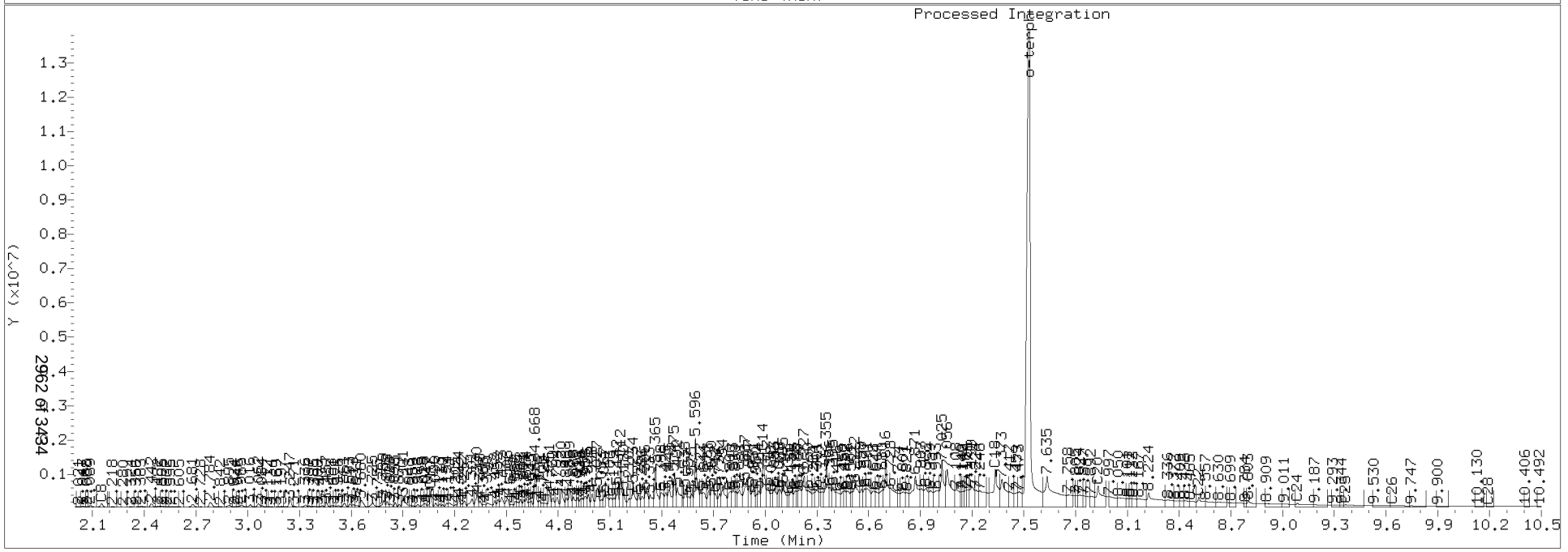
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1007.D   Injection: 10-SEP-2019 11:50

Lab ID:SHI0095-CAL4





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1008.D

Date : 10-SEP-2019 12:11

Client ID:

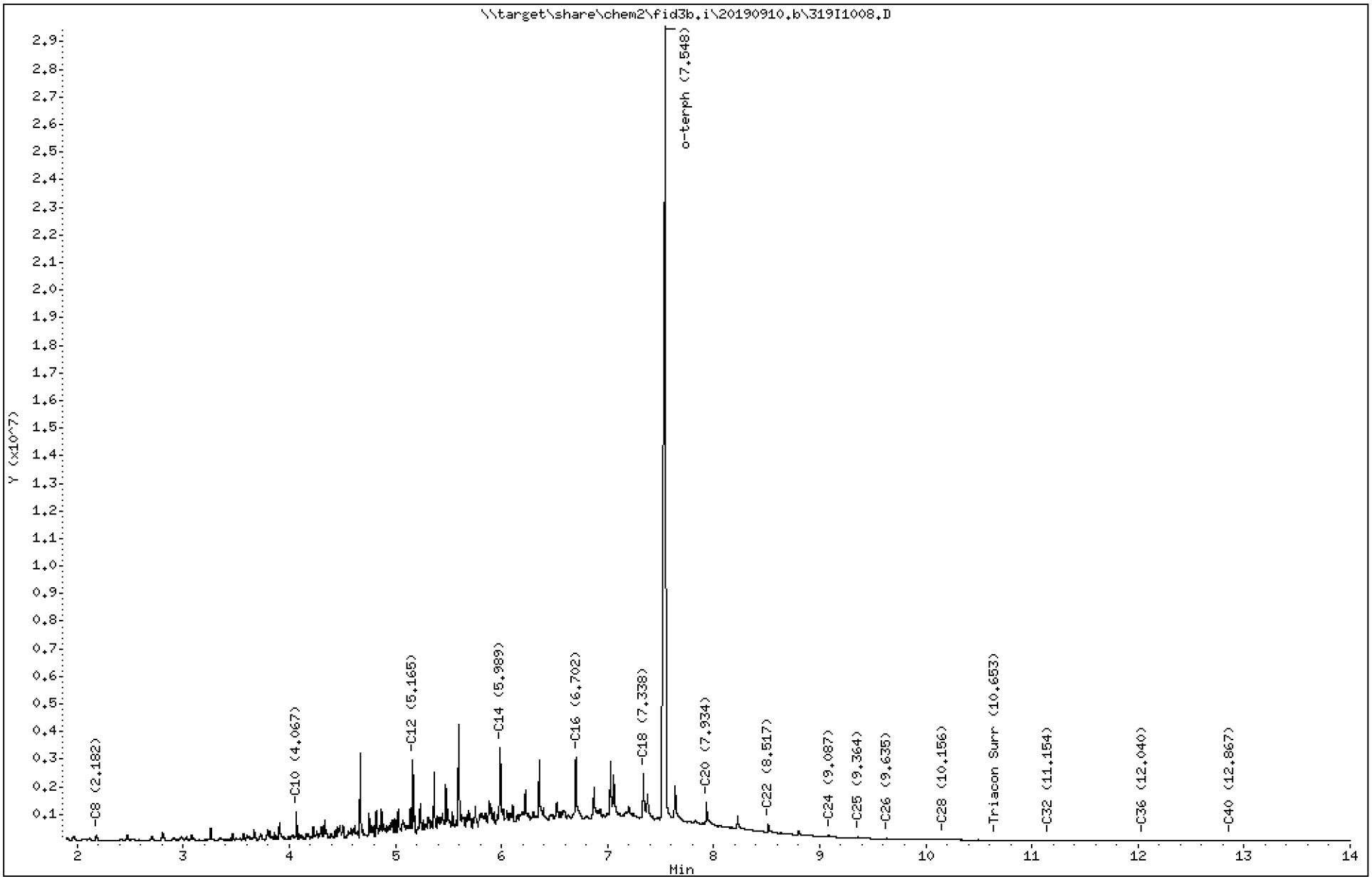
Sample Info: SHI0095-CAL5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1008.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL5
Client ID:
Injection: 10-SEP-2019 12:11
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	36092205	201.1	
C8	2.182	0.007	190674	211200	modTPHD	(C12-C25)	180722909	1006.9	
C10	4.067	-0.002	1035714	673081	WATPHM	(C24-C38)	3042610	24.0	
C12	5.165	-0.001	2923351	1880038	AK102	(C10-C25)	204331231	1002.3	M
C14	5.989	-0.003	3345598	3807702	AK103	(C25-C36)	2496043	24.5	
C16	6.702	-0.001	3002048	5193508	OR.DIES	(C10-C28)	206422909	1000.2	M
C18	7.338	0.000	2409382	3775397					
C20	7.934	-0.002	1369829	3468287					
C22	8.517	-0.007	576896	2313635					
C24	9.087	-0.009	215442	903366					
C25	9.364	-0.010	125414	620336					
C26	9.635	-0.011	75345	386332					
C28	10.156	-0.012	31913	100126	IT.DIES	(C10-C24)	203835764	1001.9	
C32	11.154	0.023	19301	51387					
C34	----								
Filter Peak	----								
C36	12.040	0.042	17308	56965					
o-terph	7.548	0.014	28680439	42155854					
Triacon Surr	10.653	-0.037	19958	42609					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

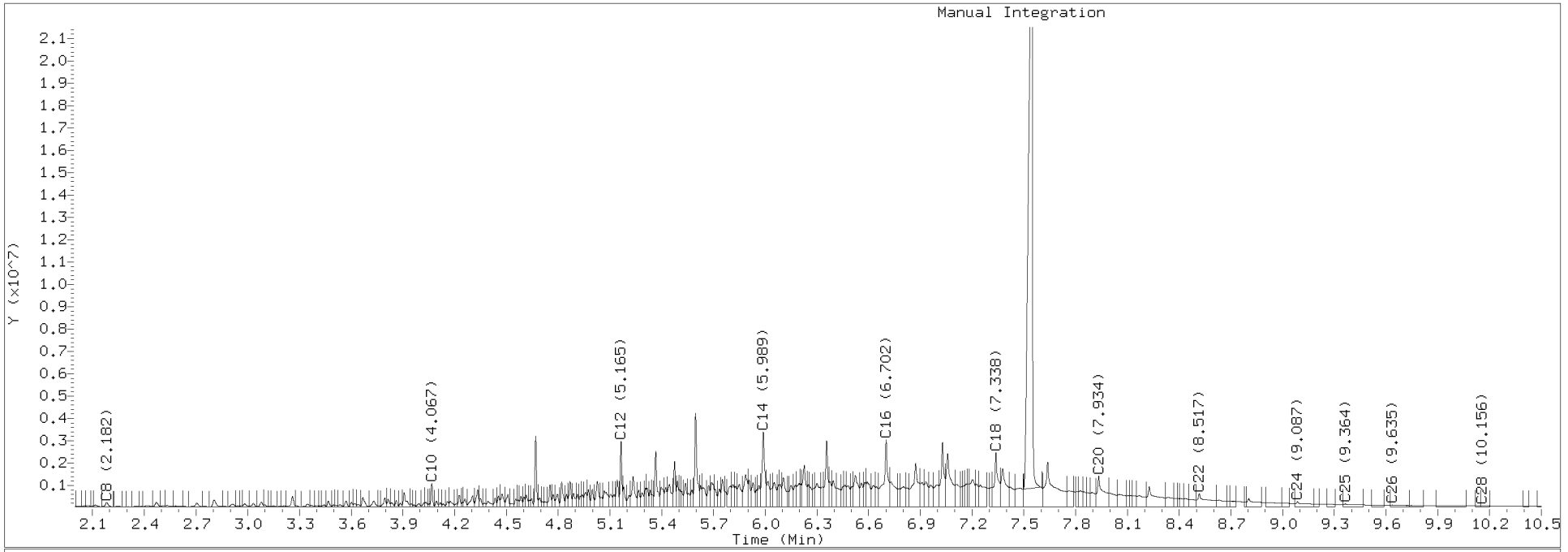
Surrogate	Area	Amount
o-Terphenyl	42155854	189.5
Triacontane	42609	0.3

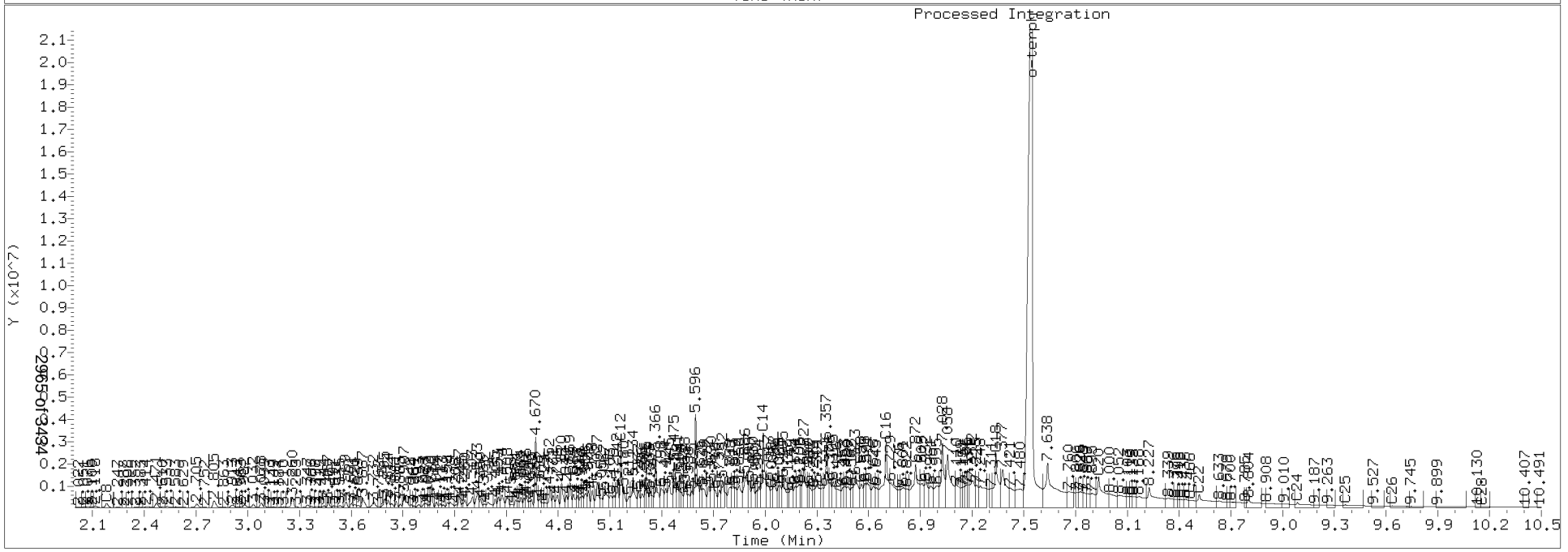
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1008.D Injection: 10-SEP-2019 12:11

Lab ID:SHI0095-CAL5



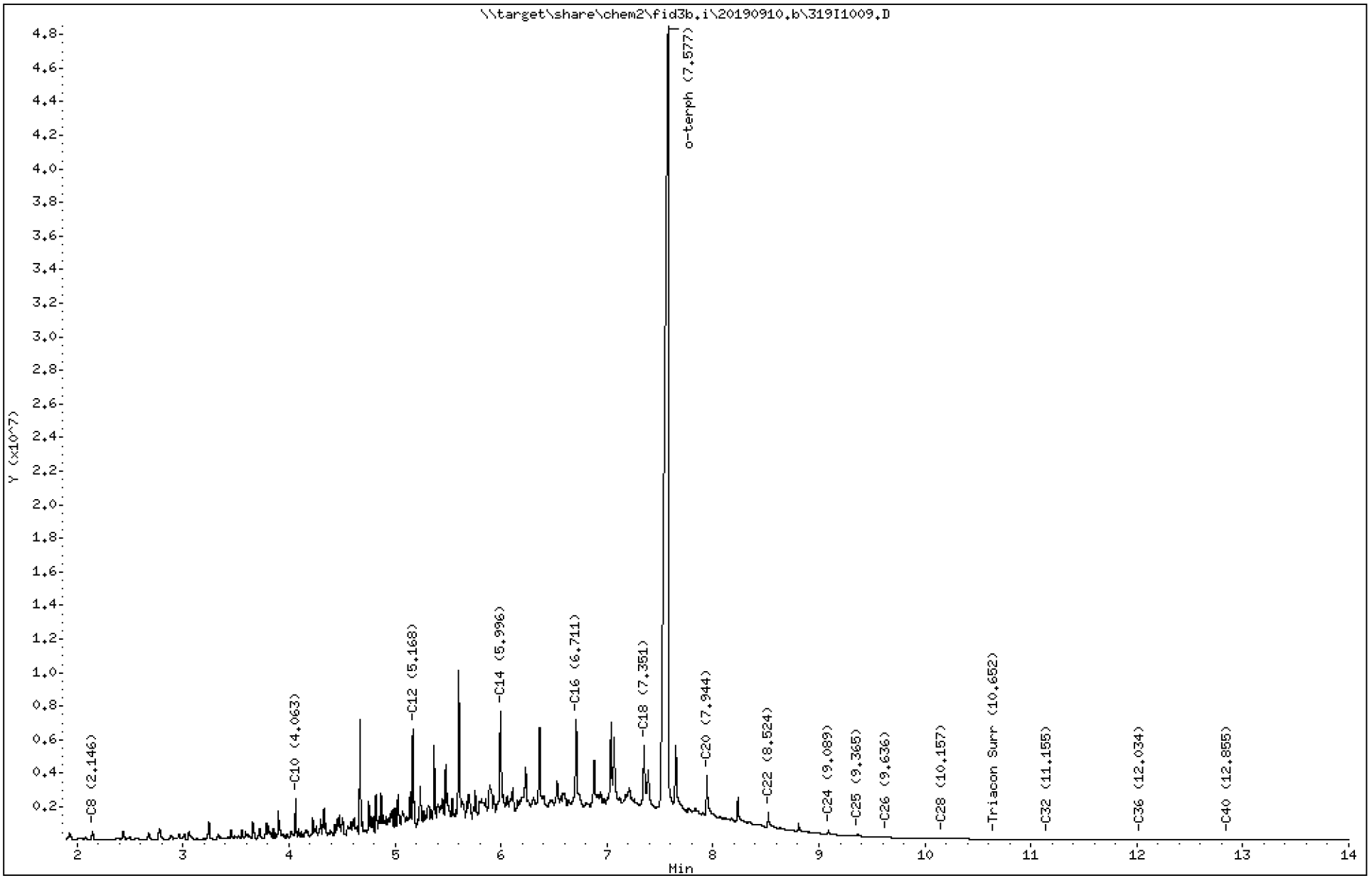


Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1009.D
Date : 10-SEP-2019 12:32
Client ID:
Sample Info: SHI0095-CAL6

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1009.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CAL6
Client ID:
Injection: 10-SEP-2019 12:32
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	91341399	509.0	
C8	2.146	-0.030	449603	493294	modTPHD	(C12-C25)	458909804	2556.9	
C10	4.063	-0.006	2470388	1705169	WATPHM	(C24-C38)	8117296	64.1	
C12	5.168	0.002	6597097	6800987	AK102	(C10-C25)	518906252	2545.5	M
C14	5.996	0.004	7635112	10138764	AK103	(C25-C36)	5587348	54.9	
C16	6.711	0.008	7147462	16476609	OR.DIES	(C10-C28)	523902587	2538.5	M
C18	7.351	0.013	5595769	11667793					
C20	7.944	0.008	3799207	13407515					
C22	8.524	0.000	1603775	6035791					
C24	9.089	-0.006	550164	2185035					
C25	9.365	-0.009	308007	1272111					
C26	9.636	-0.010	174267	866694					
C28	10.157	-0.011	62427	182036	IT.DIES	(C10-C24)	516420954	2538.3	
C32	11.155	0.024	22652	51346					
C34	----								
Filter Peak	----								
C36	12.034	0.036	20316	57724					
o-terph	7.577	0.044	46325108	107521609					
Triacon Surr	10.652	-0.038	31891	122082					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

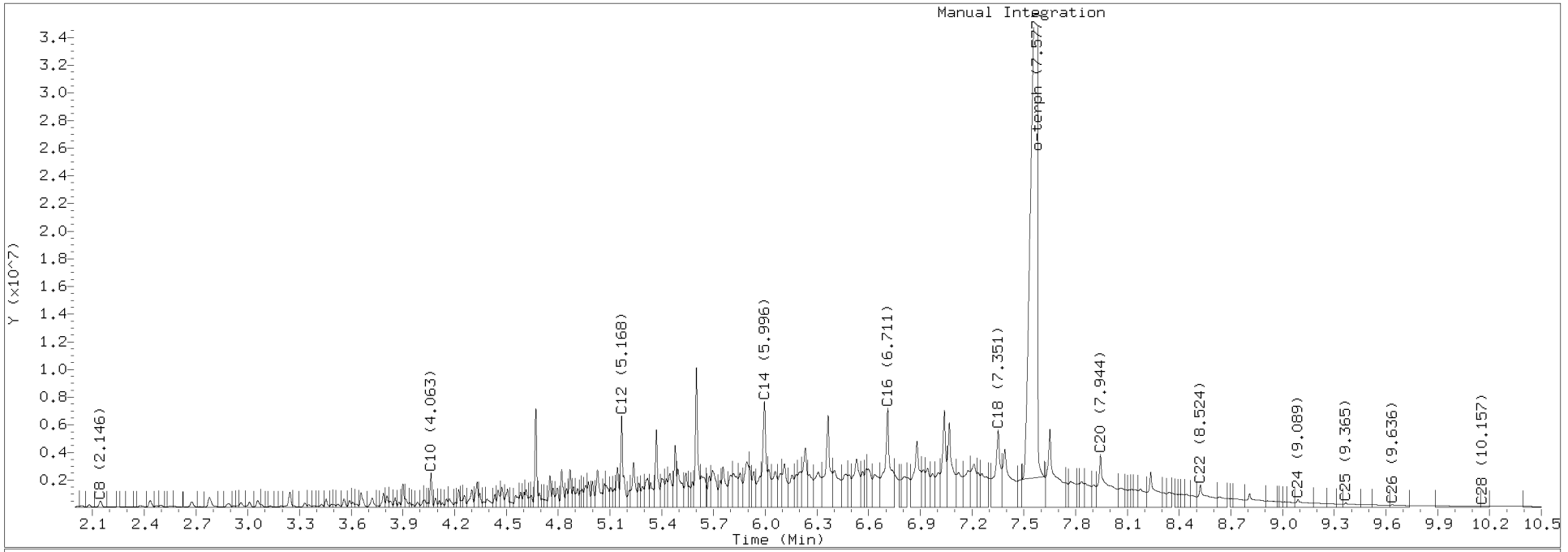
Surrogate	Area	Amount
o-Terphenyl	107521609	483.3
Triacontane	122082	0.7

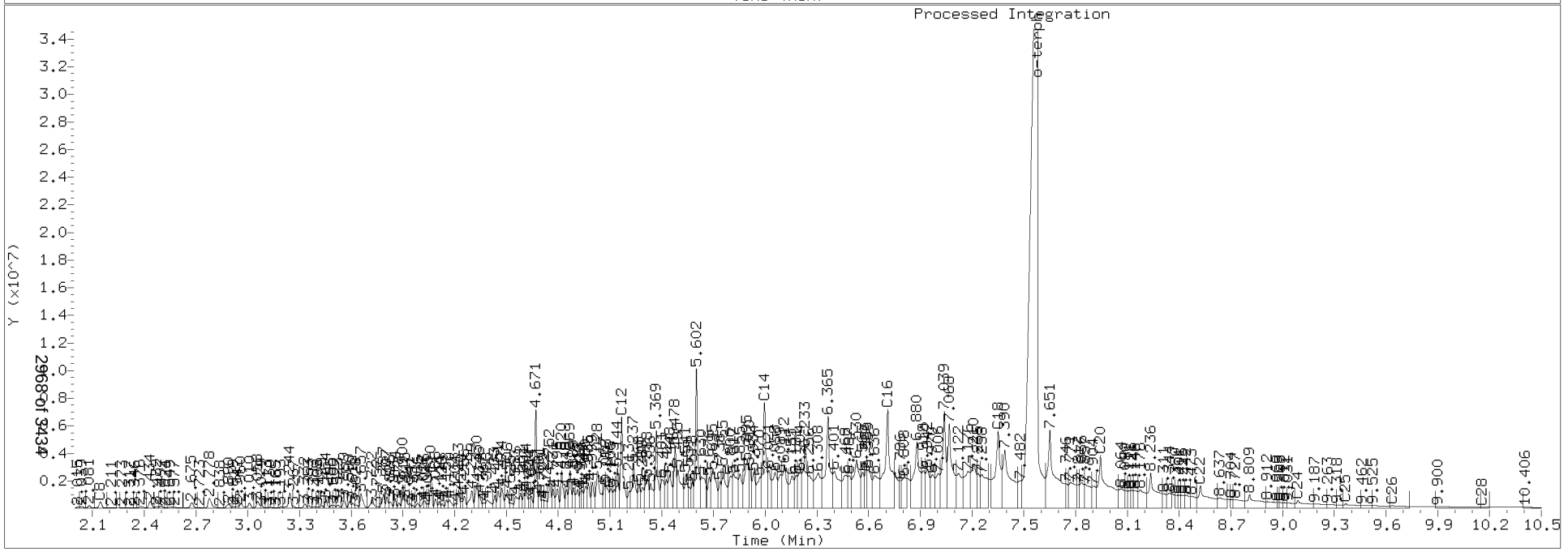
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1009.D Injection: 10-SEP-2019 12:32

Lab ID:SHI0095-CAL6





Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1024.D

Date : 10-SEP-2019 17:50

Client ID:

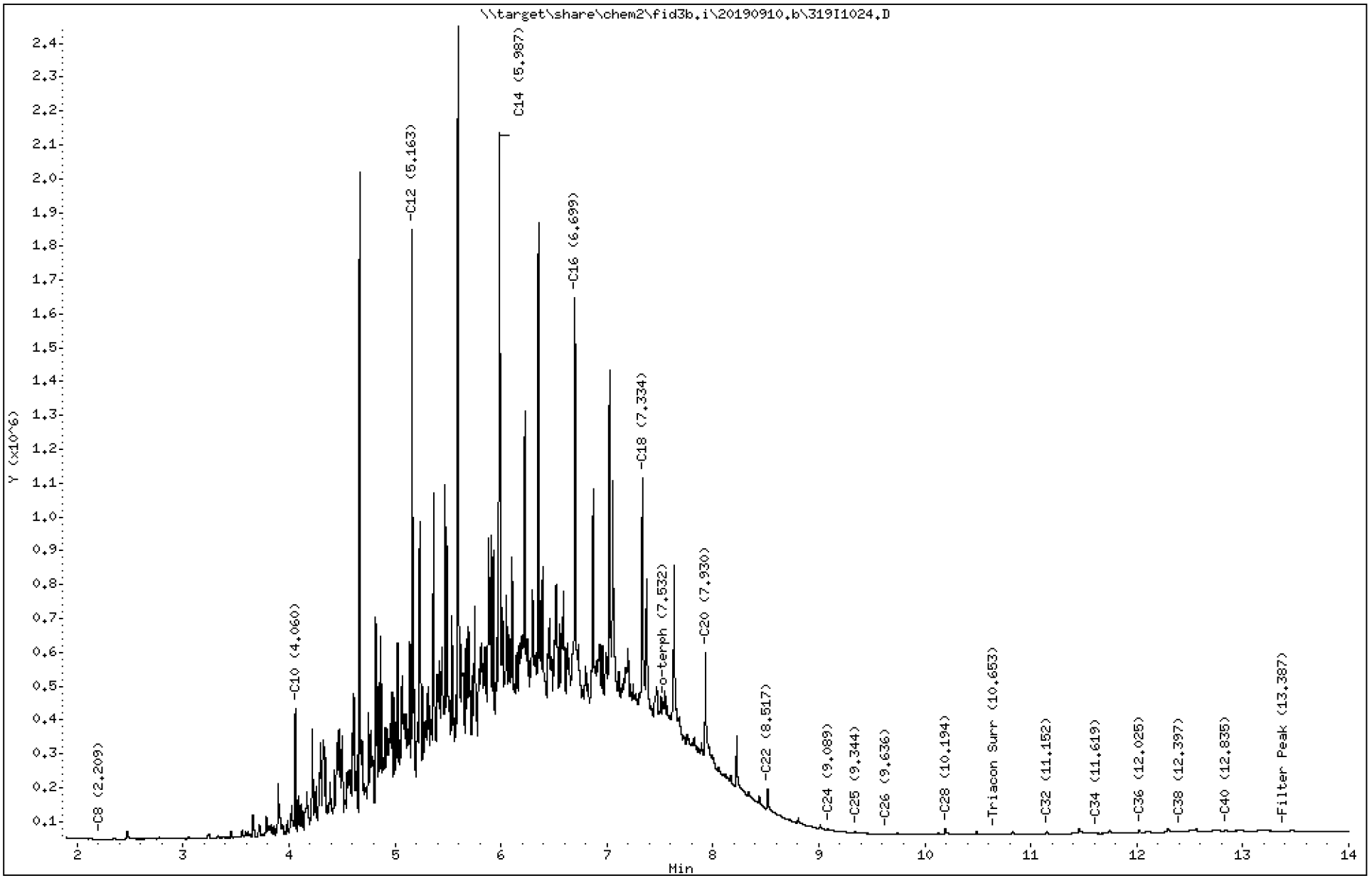
Sample Info: SHI0095-SCV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1024.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/14/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV1
Client ID:
Injection: 10-SEP-2019 17:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	18166834	101.2
C8	2.209	0.033	1933	4952	modTPHD	(C12-C25)	91435440	509.4
C10	4.060	-0.009	385327	254694	WATPHM	(C24-C38)	1571148	12.4
C12	5.163	-0.003	1804139	1159878	AK102	(C10-C25)	105644144	518.2
C14	5.987	-0.005	2090503	2284429	AK103	(C25-C36)	1243748	12.2
C16	6.699	-0.004	1601427	1786732	OR.DIES	(C10-C28)	106195300	514.5
C18	7.334	-0.004	1070625	1659662				
C20	7.930	-0.006	552027	835683				
C22	8.517	-0.006	148739	617018				
C24	9.089	-0.007	33019	146762				
C25	9.344	-0.030	23748	60865				
C26	9.636	-0.010	16436	23024				
C28	10.194	0.025	32651	169918	IT.DIES	(C10-C24)	105644144	519.3
C32	11.152	0.021	25156	54043				
C34	11.619	0.046	18838	51742				
Filter Peak	13.387	0.068	25528	21741				
C36	12.025	0.027	28189	56284				
o-terph	7.532	-0.002	405671	416993				
Triacon Surr	10.653	-0.037	16705	23260				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	416993	1.9
Triacontane	23260	0.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00039	Instrument:	FID4
Calibration Date:	09/07/2019 0:00	Column (1):	RTX-1

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
		RF		RF		RF		RF		RF		RF
Diesel Range Organics (C12-C24)	50	104295.7	100	129189.3	250	126125.9	500	126893	1000	125852	2500	105614.9
o-Terphenyl	9	155281.9	18	171963.4	45	161352.7	90	163613.9	180	156869.6	450	127277.5

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00039	Instrument:	FID4
Calibration Date:	09/07/2019 0:00	Column (1):	RTX-1

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
		RF		RF		RF		RF		RF		RF
Motor Oil Range Organics (C24-C38)	100	42231.6	250	45491.92	500	36468.48	1000	36318.76	2500	32503.01	5000	32036.3

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00039	Instrument:	FID4
Calibration Date:	09/07/2019 0:00	Column (1):	RTX-1

Compound	Level 13		Level 14		Level 15		Level 16		Level 17		Level 18	
		RF		RF		RF		RF		RF		RF

INITIAL CALIBRATION DATA

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investiga
Calibration:	CI00039	Instrument:	FID4
Calibration Date:	09/07/2019 0:00	Column (1):	RTX-1

COMPOUND	Mean RF	RF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Diesel Range Organics (C12-C24)	119661.8	9.6			RSD (20)	
Motor Oil Range Organics (C24-C38)	37508.35	14.3			RSD (20)	
o-Terphenyl	156059.8	9.8			RSD (20)	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/13/2019 6:41:56AM

ANALYSIS SEQUENCE

SHI0145

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00039

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0145-IBL1	Retention Time Standard	QC		1	H006806		
SHI0145-IBL2	Instrument Blank	QC		2	H007457		
SHI0145-CAL1	DIESEL 50	QC		3	H006819		
SHI0145-CAL2	DIESEL 100	QC		4	H006818		
SHI0145-CAL3	DIESEL 250	QC		5	H006817		
SHI0145-CAL4	DIESEL 500	QC		6	H006816		
SHI0145-CAL5	DIESEL 1000	QC		7	H006815		
SHI0145-CAL6	DIESEL 2500	QC		8	H006794		
SHI0145-CAL7	MOIL 100	QC		9	H008395		
SHI0145-CAL8	MOIL 250	QC		10	H008396		
SHI0145-CAL9	MOIL 500	QC		11	H008397		
SHI0145-CALA	MOIL 1000	QC		12	H007659		
SHI0145-CALB	MOIL 2500	QC		13	H008398		
SHI0145-CALC	MOIL 5000	QC		14	H007458		
SHI0145-CALD	AK103 100	QC		15	H006838		
SHI0145-CALE	AK103 250	QC		16	H006837		
SHI0145-CALF	AK103 500	QC		17	H006839		
SHI0145-CALG	AK103 1000	QC		18	H006836		
SHI0145-CALH	AK103 2500	QC		19	H006835		
SHI0145-CALI	AK103 5000	QC		20	H006795		
SHI0145-SCV1	DIESEL SCV	QC		21	H008294		
SHI0145-SCV2	MOIL SCV	QC		22	H008399		

297201
34434

Printed: 9/13/2019 6:41:56AM

ANALYSIS SEQUENCE

SHI0145

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00039

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0145-SCV3	AK103 SCV	QC		23	H008400		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	07-SEP-2019 08:51	419I0701.D	1	RINSE	
2	07-SEP-2019 09:12	419I0702.D	1	SHI0081-IBL1	
3	07-SEP-2019 09:33	419I0703.D	1	SHI0081-IBL2	
4	07-SEP-2019 09:53	419I0704.D	1	SHI0081-CAL1	
5	07-SEP-2019 10:14	419I0705.D	1	SHI0081-CAL2	
6	07-SEP-2019 10:36	419I0706.D	1	SHI0081-CAL3	
7	07-SEP-2019 10:58	419I0707.D	1	SHI0081-CAL4	
8	07-SEP-2019 11:19	419I0708.D	1	SHI0081-CAL5	
9	07-SEP-2019 11:39	419I0709.D	1	SHI0081-CAL6	
10	07-SEP-2019 12:00	419I0710.D	1	SHI0081-CAL7	
11	07-SEP-2019 12:21	419I0711.D	1	SHI0081-CAL8	
12	07-SEP-2019 12:42	419I0712.D	1	SHI0081-CAL9	
13	07-SEP-2019 13:04	419I0713.D	1	SHI0081-CALA	
14	07-SEP-2019 13:25	419I0714.D	1	SHI0081-CALB	
15	07-SEP-2019 13:46	419I0715.D	1	SHI0081-CALC	
16	07-SEP-2019 14:06	419I0716.D	1	SHI0081-IBL3	
17	07-SEP-2019 14:27	419I0717.D	1	SHI0081-CALD	
18	07-SEP-2019 14:48	419I0718.D	1	SHI0081-CALE	
19	07-SEP-2019 15:08	419I0719.D	1	SHI0081-CALF	
20	07-SEP-2019 15:29	419I0720.D	1	SHI0081-CALG	
21	07-SEP-2019 15:50	419I0721.D	1	SHI0081-CALH	
22	07-SEP-2019 16:11	419I0722.D	1	SHI0081-CALI	
23	07-SEP-2019 16:33	419I0723.D	1	SHI0081-IBL4	
24	07-SEP-2019 16:54	419I0724.D	1	SHI0081-SCV1	
25	07-SEP-2019 17:15	419I0725.D	1	SHI0081-SCV2	
26	07-SEP-2019 17:35	419I0726.D	1	SHI0081-SCV3	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

ARI Job No.: RINS Method: FID4TPH.m Instrument: fid4a.i Date: 07-SEP-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0851	419I0701.D	RINSE		1	NO MANUAL INTEGRATION
0912	419I0702.D	SHI0081-IBL1		1	NO MANUAL INTEGRATION
0933	419I0703.D	SHI0081-IBL2		1	NO MANUAL INTEGRATION
0953	419I0704.D	SHI0081-CAL1		1	o-terph,
1014	419I0705.D	SHI0081-CAL2		1	o-terph,
1036	419I0706.D	SHI0081-CAL3		1	o-terph,
1058	419I0707.D	SHI0081-CAL4		1	o-terph,
1119	419I0708.D	SHI0081-CAL5		1	o-terph,
1139	419I0709.D	SHI0081-CAL6		1	o-terph,
1200	419I0710.D	SHI0081-CAL7		1	Triacon Surr,
1221	419I0711.D	SHI0081-CAL8		1	Triacon Surr,
1242	419I0712.D	SHI0081-CAL9		1	Triacon Surr,
1304	419I0713.D	SHI0081-CALA		1	Triacon Surr,
1325	419I0714.D	SHI0081-CALB		1	Triacon Surr,
1346	419I0715.D	SHI0081-CALC		1	Triacon Surr,
1406	419I0716.D	SHI0081-IBL3		1	NO MANUAL INTEGRATION
1427	419I0717.D	SHI0081-CALD		1	Triacon Surr,

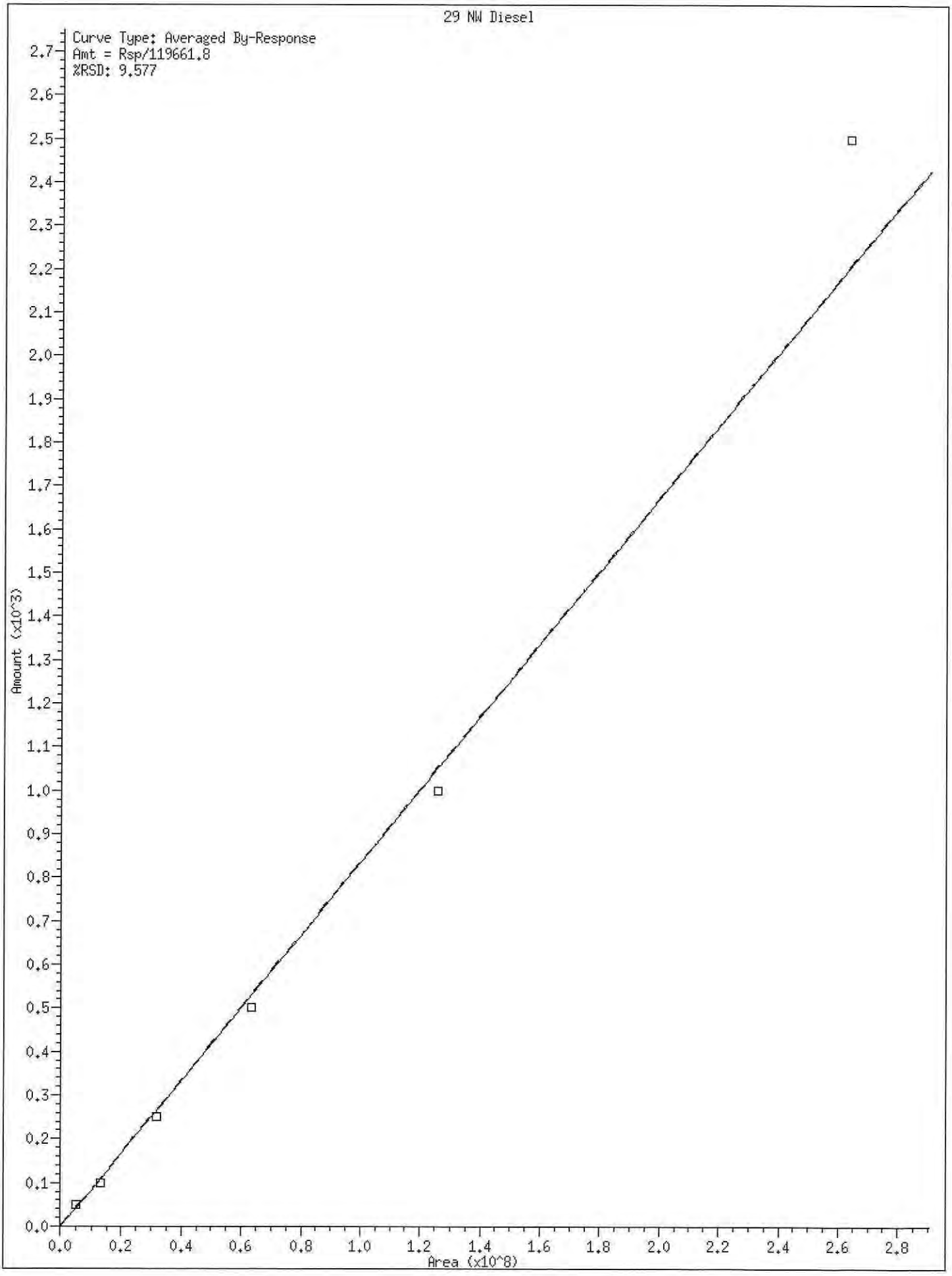
MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1448	419I0718.D	SHI0081-CALE		1	Triacon Surr,
1508	419I0719.D	SHI0081-CALF		1	Triacon Surr,
1529	419I0720.D	SHI0081-CALG		1	Triacon Surr,
1550	419I0721.D	SHI0081-CALH		1	Triacon Surr,
1611	419I0722.D	SHI0081-CALI		1	Triacon Surr,
1633	419I0723.D	SHI0081-IBL4		1	NO MANUAL INTEGRATION
1654	419I0724.D	SHI0081-SCV1		1	NO MANUAL INTEGRATION
1715	419I0725.D	SHI0081-SCV2		1	Triacon Surr,
1735	419I0726.D	SHI0081-SCV3		1	Triacon Surr,

Security Status Report

Date: 11-Sep-2019 12:53

419I0701.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0702.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0703.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0704.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0705.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0706.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0707.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0708.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0709.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0710.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0711.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0712.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0713.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0714.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0715.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0716.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0717.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0718.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0719.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0720.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0721.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0722.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0723.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0724.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0725.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0726.D	Data Locked	jrains, 11-Sep-2019 12:53


29 NW Diesel
Curve Type: Averaged By-Response
Amt = Rsp/119661.8
%RSD: 9.577
Amount (x10^3)
Area (x10^8)
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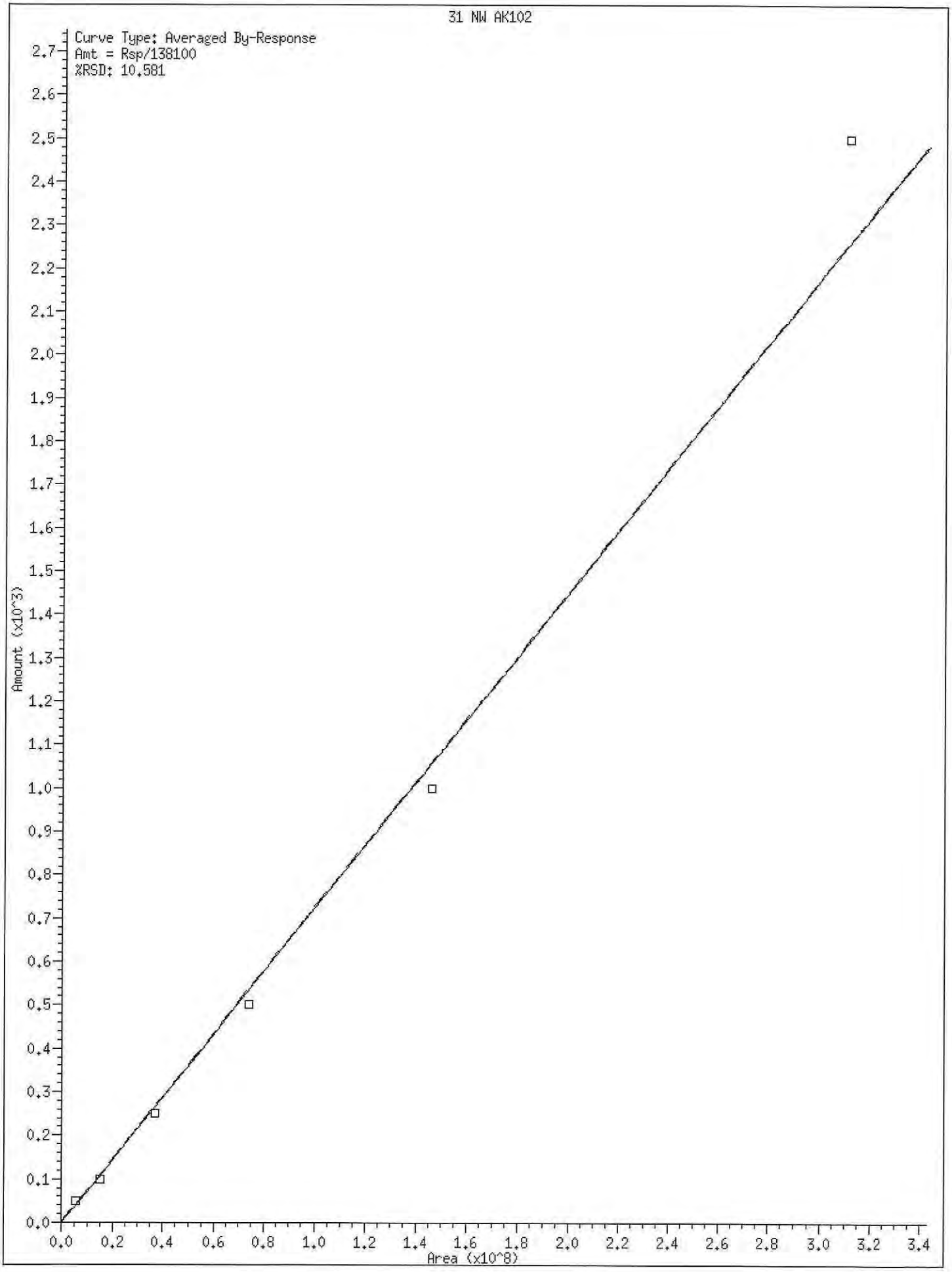
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8


31 NW AK102
Curve Type: Averaged By-Response
Amt = Rsp/138100
%RSD: 10.581
Amount (x10^3)
Area (x10^8)
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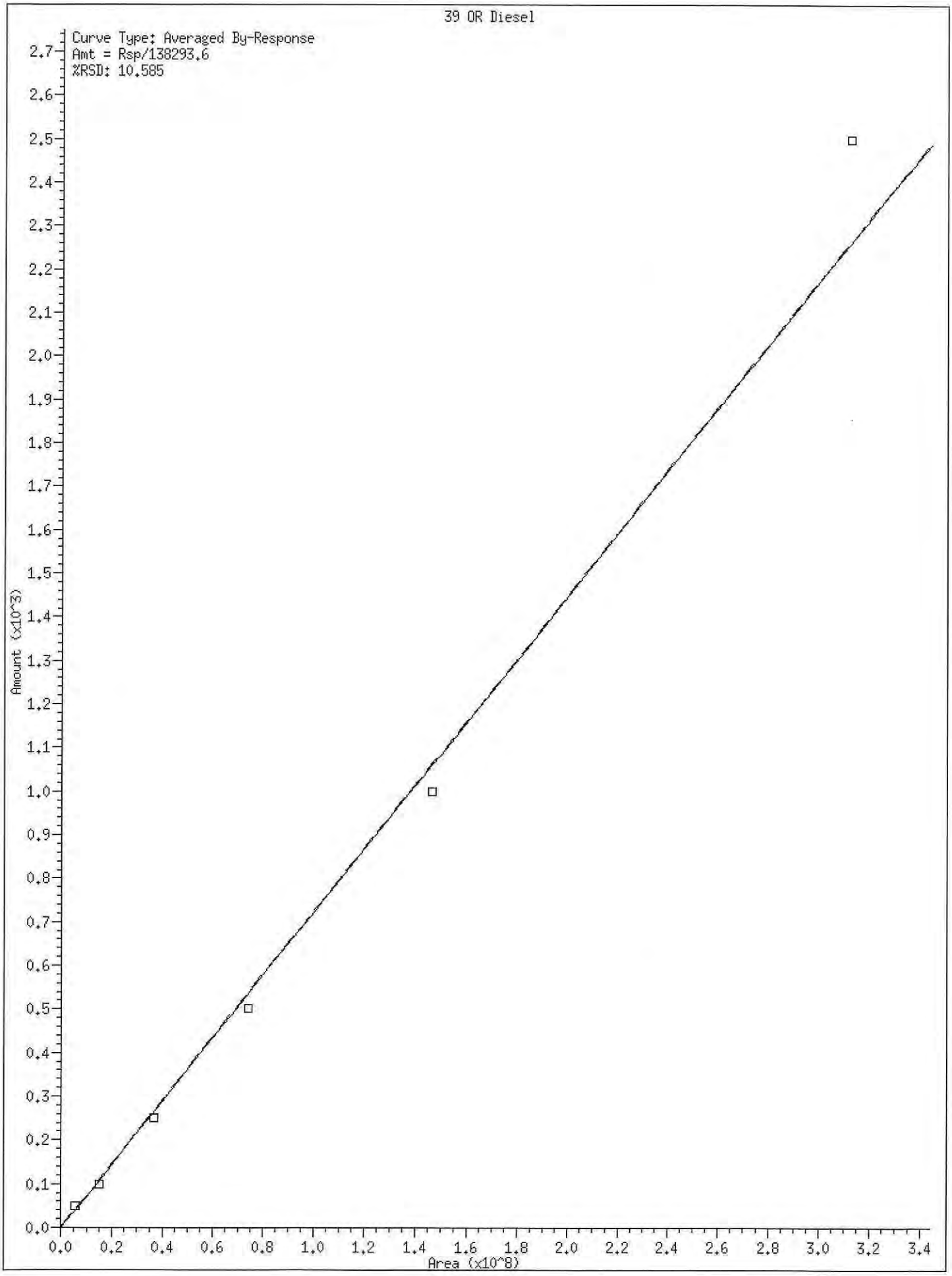
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4


39 OR Diesel
Curve Type: Averaged By-Response
Amt = Rsp/138293.6
%RSD: 10.585
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Area (x10^8)
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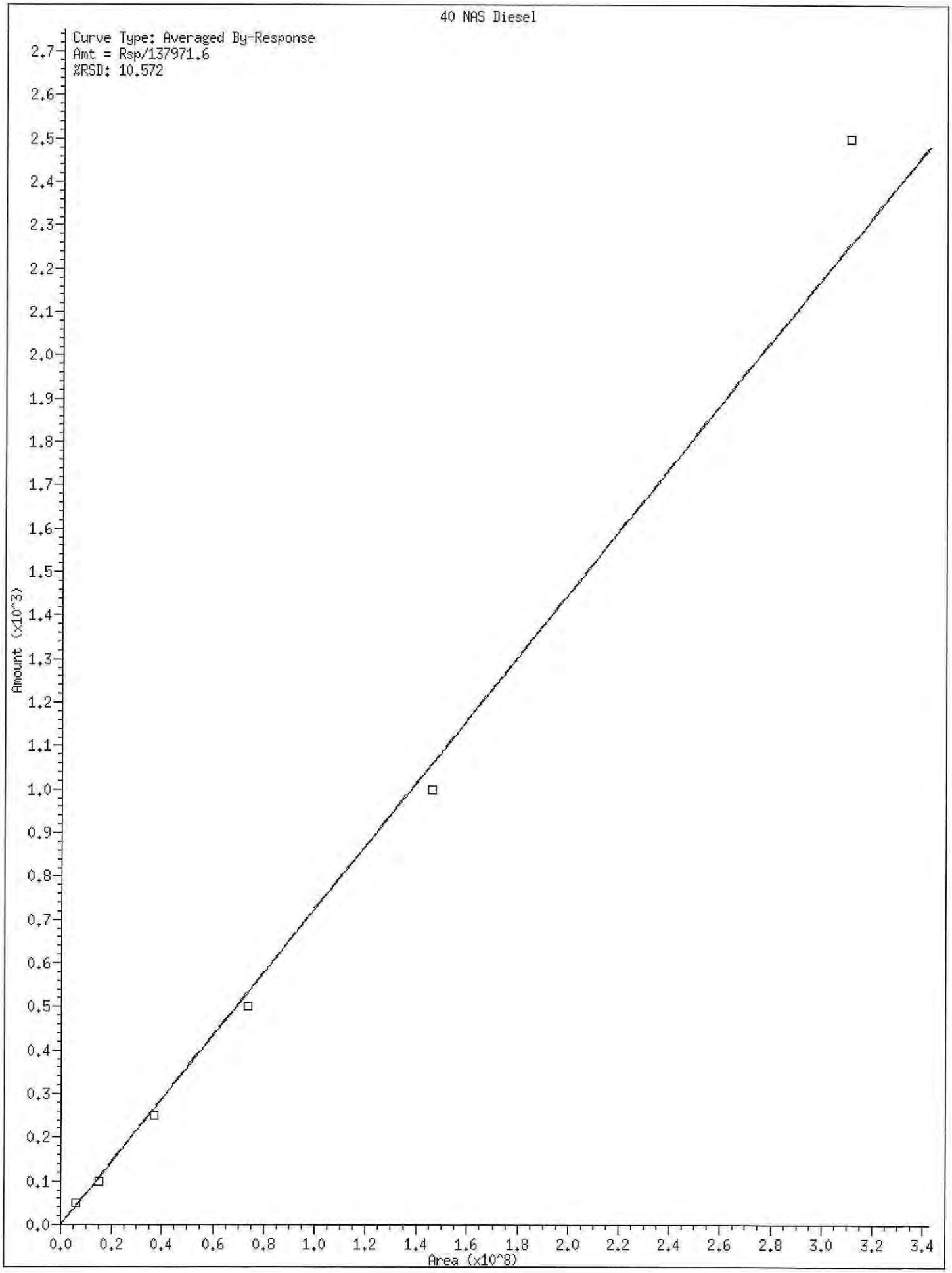
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4


40 NAS Diesel
Curve Type: Averaged By-Response
Amt = Rsp/137971.6
%RSD: 10.572
Amount (x10^3)
Area (x10^8)
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0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
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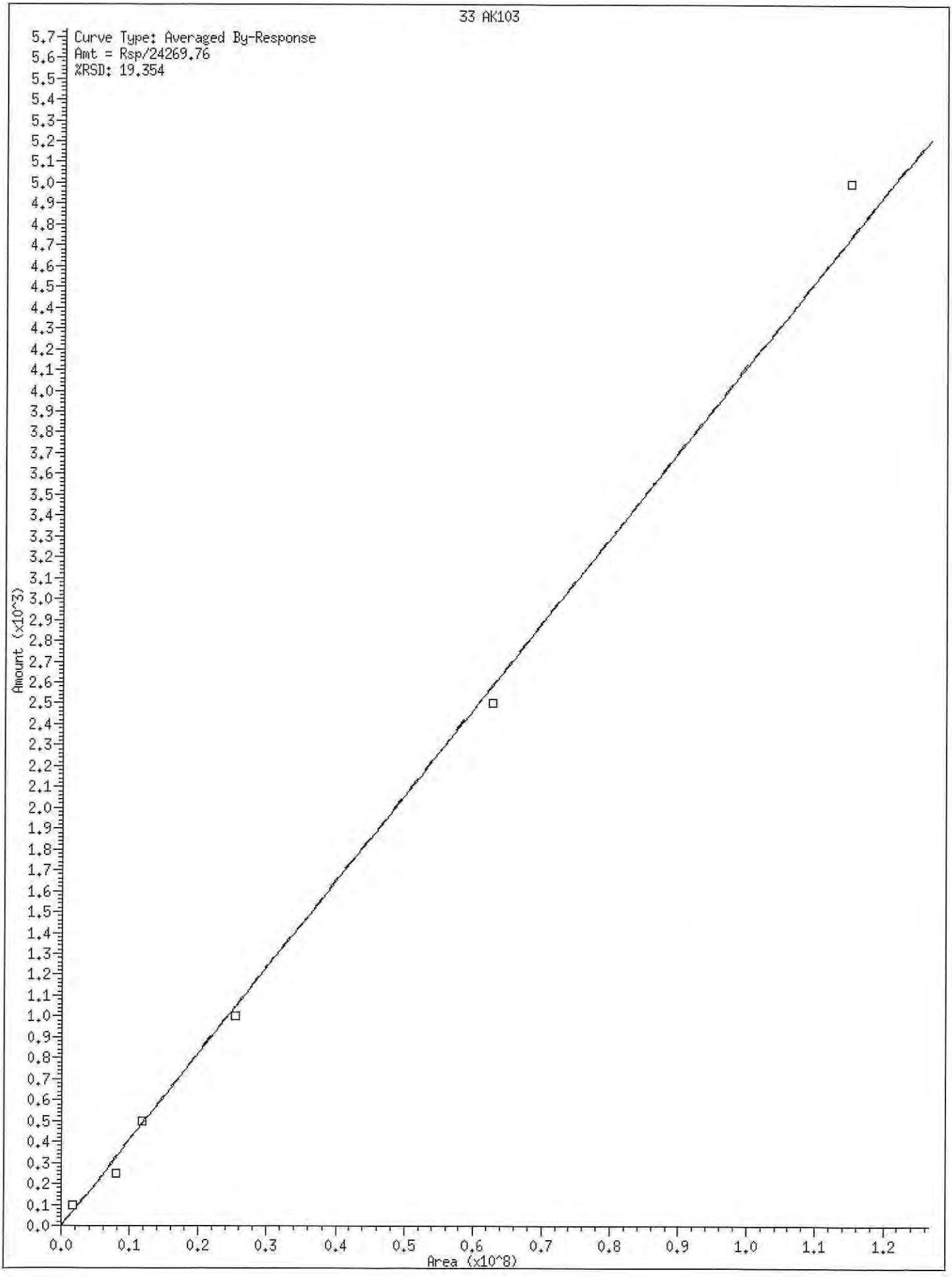
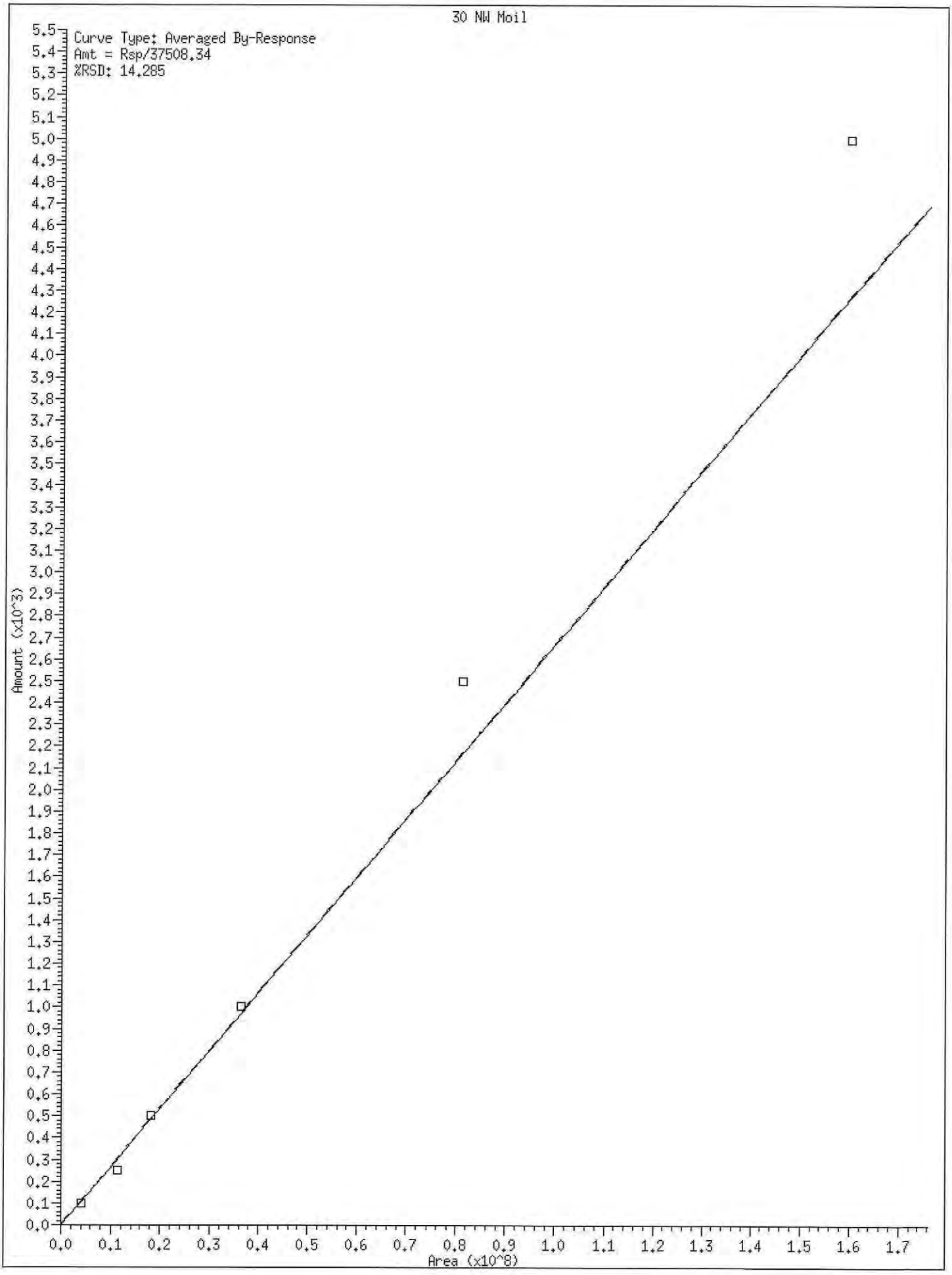
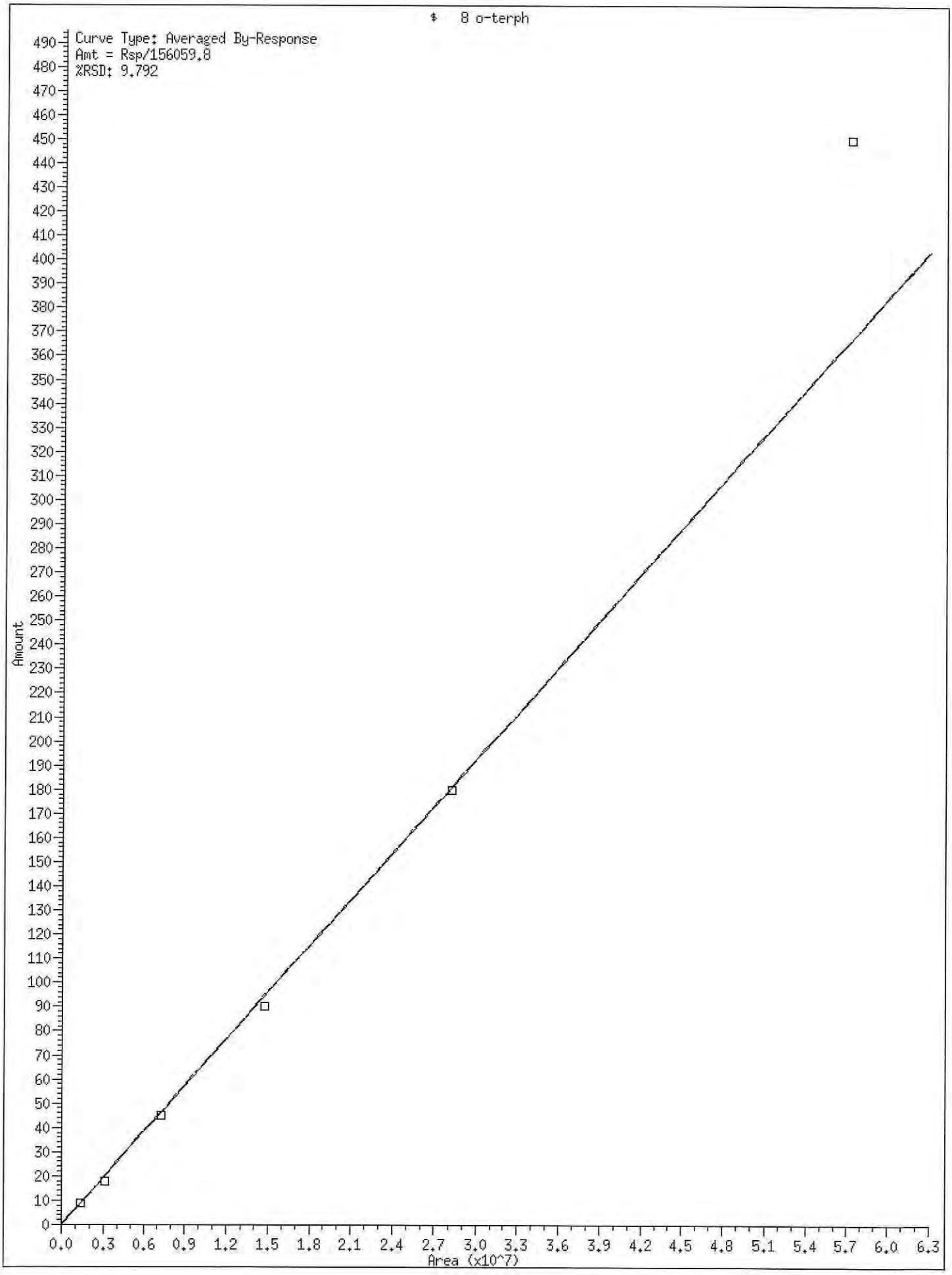
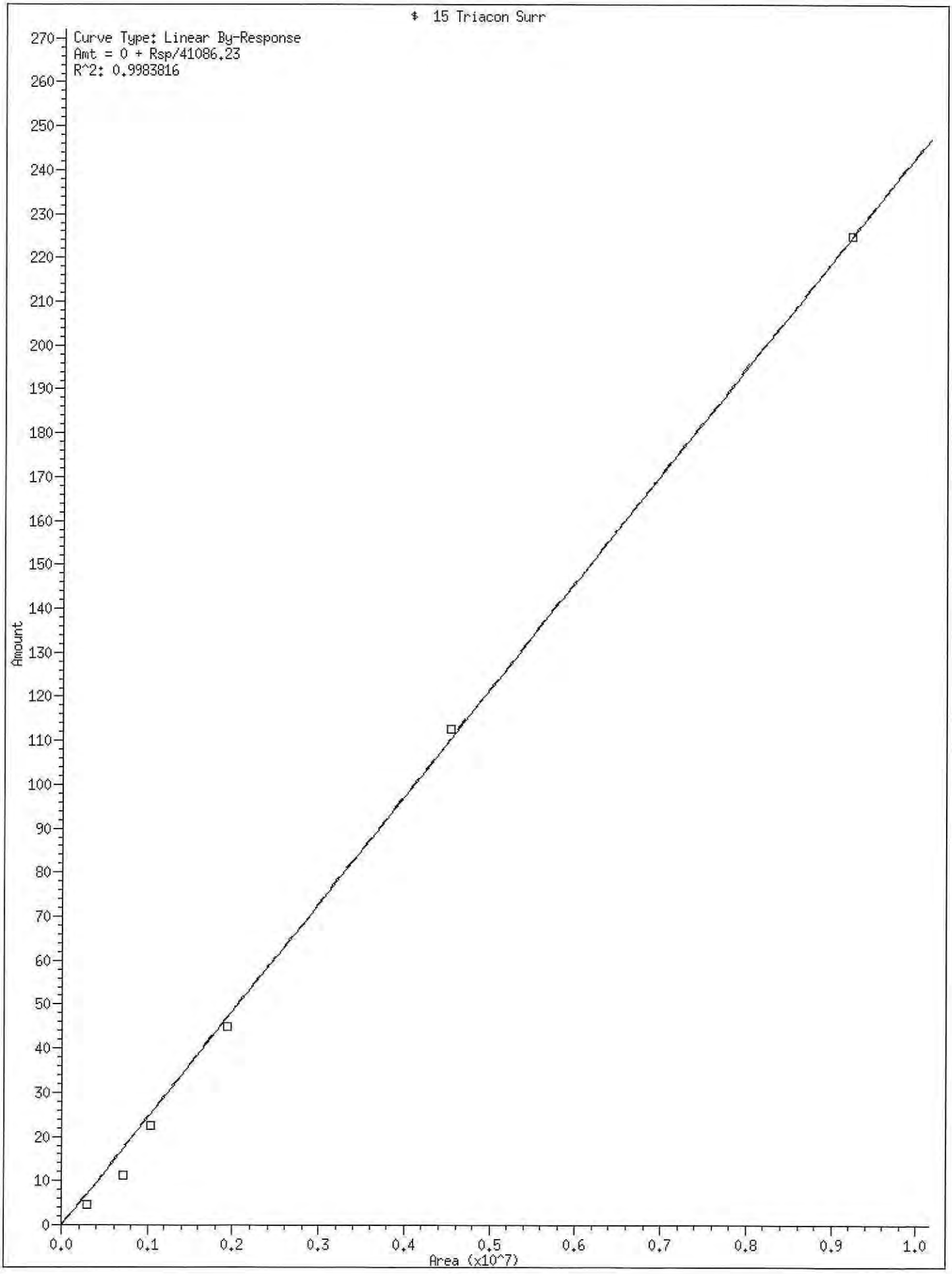
2.2
2.4
2.6
2.8
3.0
3.2
3.4


33 AK103
Curve Type: Averaged By-Response
Amt = Rsp/24269.76
%RSD: 19.354
Amount (x10^3)
Area (x10^8)


30 NW Moil
Curve Type: Averaged By-Response
Amt = Rsp/37508.34
%RSD: 14.285
Amount (x10^3)
Area (x10^8)


8 o-terph
Curve Type: Averaged By-Response
Amt = Rsp/156059.8
%RSD: 9.792
Amount
Area (x10^7)
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1 5.4 5.7 6.0 6.3


$ 15 Triacon Surr
Curve Type: Linear By-Response
Amt = 0 + Rsp/41086.23
R^2: 0.9983816
Amount
Area (x10^7)
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10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
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INJ.DATE:	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019
INJ.TIME:	09:53	10:14	10:36	10:58	11:19	11:39

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	1.507	1.515	1.511	1.513	1.515	1.504	1.512	1.412-1.612	1.511	0.004
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	2 C8	1.756	1.759	1.756	1.760	1.760	1.750	1.762	1.662-1.862	1.757	0.004
	3 C10	+++++	3.042	3.029	3.023	3.021	3.017	3.022	2.972-3.072	3.026	0.010
	4 C12	3.951	3.989	3.976	3.971	3.971	3.974	3.976	3.926-4.026	3.972	0.012
	5 C14	4.734	4.748	4.740	4.736	4.737	4.741	4.741	4.691-4.791	4.739	0.005
	6 C16	5.398	5.407	5.403	5.402	5.403	5.409	5.404	5.354-5.454	5.404	0.004
	7 C18	6.012	6.004	6.000	6.001	6.004	6.011	6.002	5.952-6.052	6.005	0.005
$	8 o-terph	6.182	6.180	6.183	6.193	6.205	6.223	6.191	6.141-6.241	6.194	0.017
	9 C20	6.602	6.579	6.567	6.564	6.566	6.569	6.567	6.517-6.617	6.574	0.014
	10 C22	+++++	7.160	7.136	7.128	7.125	7.126	7.127	7.077-7.177	7.135	0.015
	11 C24	+++++	+++++	7.713	7.695	7.685	7.679	7.677	7.627-7.727	7.693	0.015
	12 C25	+++++	+++++	7.983	7.983	7.935	7.954	7.947	7.897-7.997	7.964	0.023
	13 C26	+++++	+++++	+++++	8.224	8.243	8.231	8.211	8.161-8.261	8.233	0.010
	14 C28	+++++	+++++	+++++	+++++	+++++	8.761	8.720	8.670-8.770	8.761	0.000

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 15 Triacon Surr	+++++	+++++	+++++	+++++	+++++	+++++	9.217	9.167-9.267	+++++	+++++
16 C32	9.682	+++++	+++++	+++++	9.612	+++++	9.662	9.612-9.712	9.647	0.049
17 C34	+++++	+++++	+++++	+++++	+++++	+++++	10.096	10.046-10.146	+++++	+++++
18 Filter Peak	+++++	11.945	+++++	+++++	+++++	+++++	12.037	11.937-12.137	11.945	0.000
19 C36	10.537	10.543	10.543	10.542	10.547	10.548	10.507	10.457-10.557	10.543	0.004
20 C38	+++++	+++++	+++++	+++++	+++++	+++++	10.905	10.855-10.955	+++++	+++++
21 C40	11.310	11.320	11.314	11.306	11.315	11.313	11.304	11.254-11.354	11.313	0.005
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	419I0710	419I0711	419I0712	419I0713	419I0714	419I0715
INJ.DATE:	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019
INJ.TIME:	12:00	12:21	12:42	13:04	13:25	13:46

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	1.512	1.412-1.612	+++++	+++++
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	2 C8	+++++	+++++	+++++	+++++	+++++	+++++	1.762	1.662-1.862	+++++	+++++
	3 C10	+++++	3.051	+++++	+++++	+++++	+++++	3.022	2.972-3.072	3.051	0.000
	4 C12	+++++	+++++	+++++	+++++	+++++	+++++	3.976	3.926-4.026	+++++	+++++
	5 C14	+++++	+++++	+++++	+++++	+++++	+++++	4.741	4.691-4.791	+++++	+++++
	6 C16	+++++	+++++	+++++	+++++	+++++	+++++	5.404	5.354-5.454	+++++	+++++
	7 C18	5.968	5.957	5.952	+++++	6.026	6.032	6.002	5.952-6.052	5.987	0.039
$	8 o-terph	+++++	6.201	+++++	6.218	6.189	6.187	6.191	6.141-6.241	6.199	0.015
	9 C20	+++++	+++++	6.570	6.572	6.569	6.566	6.567	6.517-6.617	6.569	0.002
	10 C22	+++++	7.133	7.130	7.128	7.127	7.124	7.127	7.077-7.177	7.128	0.003
	11 C24	7.681	7.678	7.674	7.672	7.674	7.679	7.677	7.627-7.727	7.676	0.004
	12 C25	7.944	7.950	7.950	7.946	7.949	7.944	7.947	7.897-7.997	7.947	0.003
	13 C26	8.207	8.209	8.212	8.208	8.211	8.214	8.211	8.161-8.261	8.210	0.003
	14 C28	8.723	8.720	8.721	8.719	8.721	8.723	8.720	8.670-8.770	8.721	0.002

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 15 Triacon Surr	9.207	9.204	9.206	9.209	9.219	9.232	9.217	9.167-9.267	9.213	0.011
16 C32	9.663	9.658	9.663	9.661	9.666	9.661	9.662	9.612-9.712	9.662	0.003
17 C34	10.096	10.088	10.095	10.096	10.094	10.100	10.096	10.046-10.146	10.095	0.004
18 Filter Peak	+++++	12.012	12.061	12.032	12.038	12.037	12.037	11.937-12.137	12.036	0.018
19 C36	10.480	10.502	10.503	10.504	10.505	10.504	10.507	10.457-10.557	10.500	0.010
20 C38	+++++	10.907	10.898	10.907	10.905	10.911	10.905	10.855-10.955	10.905	0.005
21 C40	11.306	11.299	11.292	11.298	11.296	11.309	11.304	11.254-11.354	11.300	0.006
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	419I0717	419I0718	419I0719	419I0720	419I0721	419I0722
INJ.DATE:	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019	07-SEP-2019
INJ.TIME:	14:27	14:48	15:08	15:29	15:50	16:11

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 Toluene	+++++	+++++	+++++	+++++	+++++	+++++	1.512	1.412-1.612	+++++	+++++
	38 NewCpnd_31	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	35 Mineral Oil	+++++	+++++	+++++	+++++	+++++	+++++	1.015	0.965-1.065	+++++	+++++
	41 Mineral Spirits	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
	2 C8	+++++	+++++	+++++	+++++	+++++	+++++	1.762	1.662-1.862	+++++	+++++
	3 C10	+++++	+++++	+++++	+++++	+++++	+++++	3.022	2.972-3.072	+++++	+++++
	4 C12	+++++	+++++	+++++	+++++	+++++	+++++	3.976	3.926-4.026	+++++	+++++
	5 C14	+++++	+++++	+++++	+++++	+++++	+++++	4.741	4.691-4.791	+++++	+++++
	6 C16	+++++	+++++	+++++	+++++	+++++	+++++	5.404	5.354-5.454	+++++	+++++
	7 C18	+++++	5.961	5.953	+++++	6.012	6.009	6.002	5.952-6.052	5.984	0.031
$	8 o-terph	6.217	6.202	6.196	6.189	6.182	6.182	6.191	6.141-6.241	6.195	0.013
	9 C20	+++++	+++++	6.561	6.573	6.569	6.567	6.567	6.517-6.617	6.568	0.005
	10 C22	+++++	7.120	7.118	7.134	7.128	7.130	7.127	7.077-7.177	7.126	0.007
	11 C24	7.678	7.680	7.681	7.675	7.676	7.676	7.677	7.627-7.727	7.678	0.002
	12 C25	7.952	7.949	7.949	7.945	7.950	7.951	7.947	7.897-7.997	7.949	0.002
	13 C26	8.207	8.214	8.209	8.210	8.212	8.210	8.211	8.161-8.261	8.210	0.003
	14 C28	8.719	8.722	8.721	8.719	8.721	8.726	8.720	8.670-8.770	8.721	0.003

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem2\fid4a.i\20190907.b\FID4TPH.m
Batch File: \\target\share\chem2\fid4a.i\20190907.b
Inst ID: fid4a.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 15 Triacon Surr	9.209	9.207	9.207	9.210	9.220	9.232	9.217	9.167-9.267	9.214	0.010
16 C32	9.664	9.664	9.661	9.660	9.664	9.655	9.662	9.612-9.712	9.661	0.004
17 C34	10.099	10.097	10.098	10.094	10.101	10.091	10.096	10.046-10.146	10.097	0.004
18 Filter Peak	12.045	12.042	12.029	12.031	12.045	12.044	12.037	11.937-12.137	12.039	0.007
19 C36	10.497	10.510	10.505	10.511	10.504	10.508	10.507	10.457-10.557	10.506	0.005
20 C38	10.902	10.914	10.912	10.905	10.904	10.909	10.905	10.855-10.955	10.908	0.005
21 C40	11.302	11.299	11.306	11.300	11.305	11.309	11.304	11.254-11.354	11.303	0.004
29 NW Diesel	+++++	+++++	+++++	+++++	+++++	+++++	0.899	0.849-0.949	+++++	+++++
37 Creosote	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
34 Jet A	+++++	+++++	+++++	+++++	+++++	+++++	1.024	0.974-1.074	+++++	+++++
30 NW Moil	+++++	+++++	+++++	+++++	+++++	+++++	0.885	0.835-0.935	+++++	+++++
31 NW AK102	+++++	+++++	+++++	+++++	+++++	+++++	0.803	0.753-0.853	+++++	+++++
32 Bunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.812	0.762-0.862	+++++	+++++
33 AK103	+++++	+++++	+++++	+++++	+++++	+++++	1.344	1.294-1.394	+++++	+++++
36 ABunker C	+++++	+++++	+++++	+++++	+++++	+++++	0.985	0.935-1.035	+++++	+++++
39 OR Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++
40 NAS Diesel	+++++	+++++	+++++	+++++	+++++	+++++	1.000	0.950-1.050	+++++	+++++

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0702.D

Date : 07-SEP-2019 09:12

Client ID:

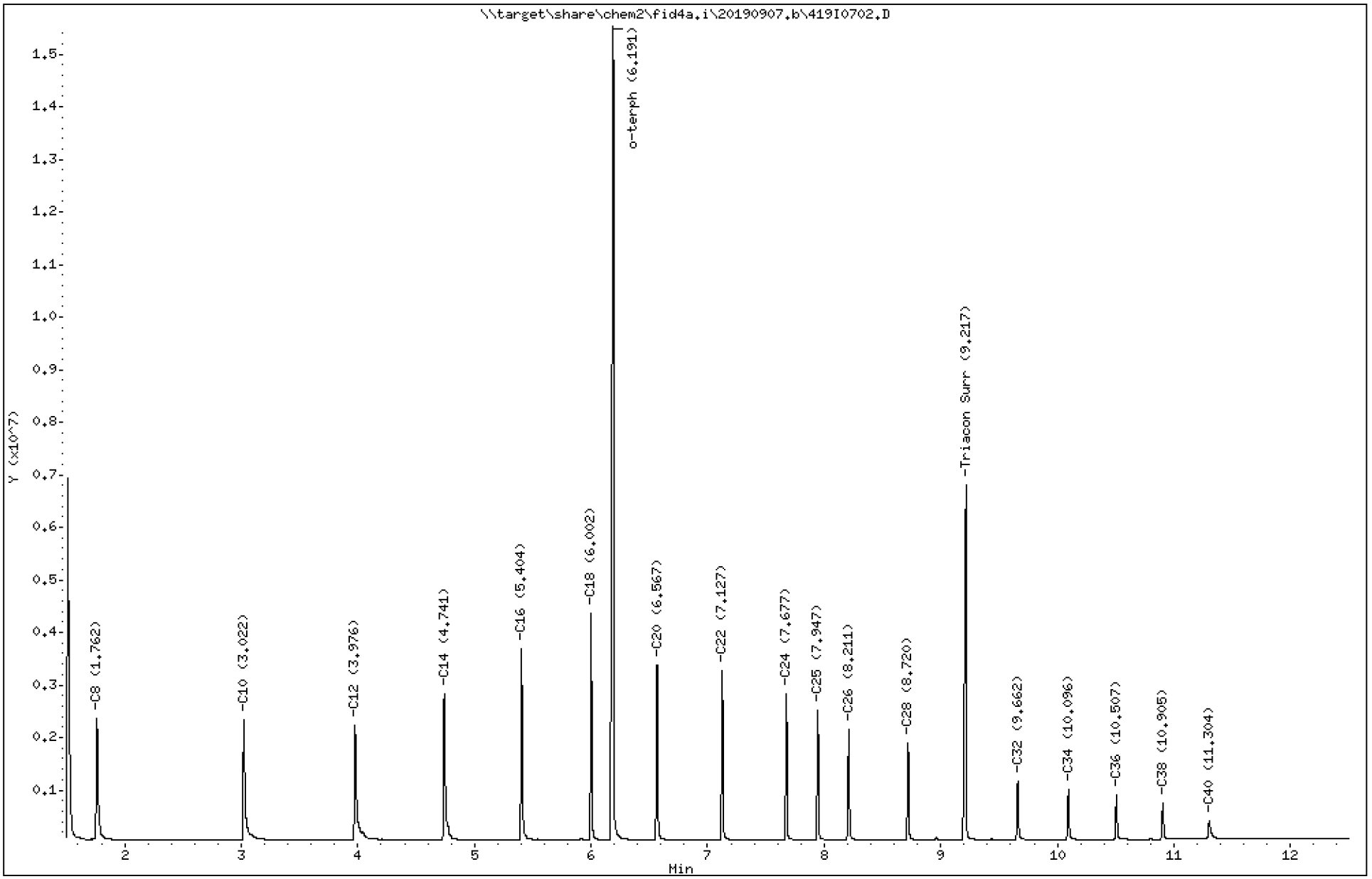
Sample Info: SHI0081-IBL1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0702.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-IBL1
Client ID:
Injection: 07-SEP-2019 09:12
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

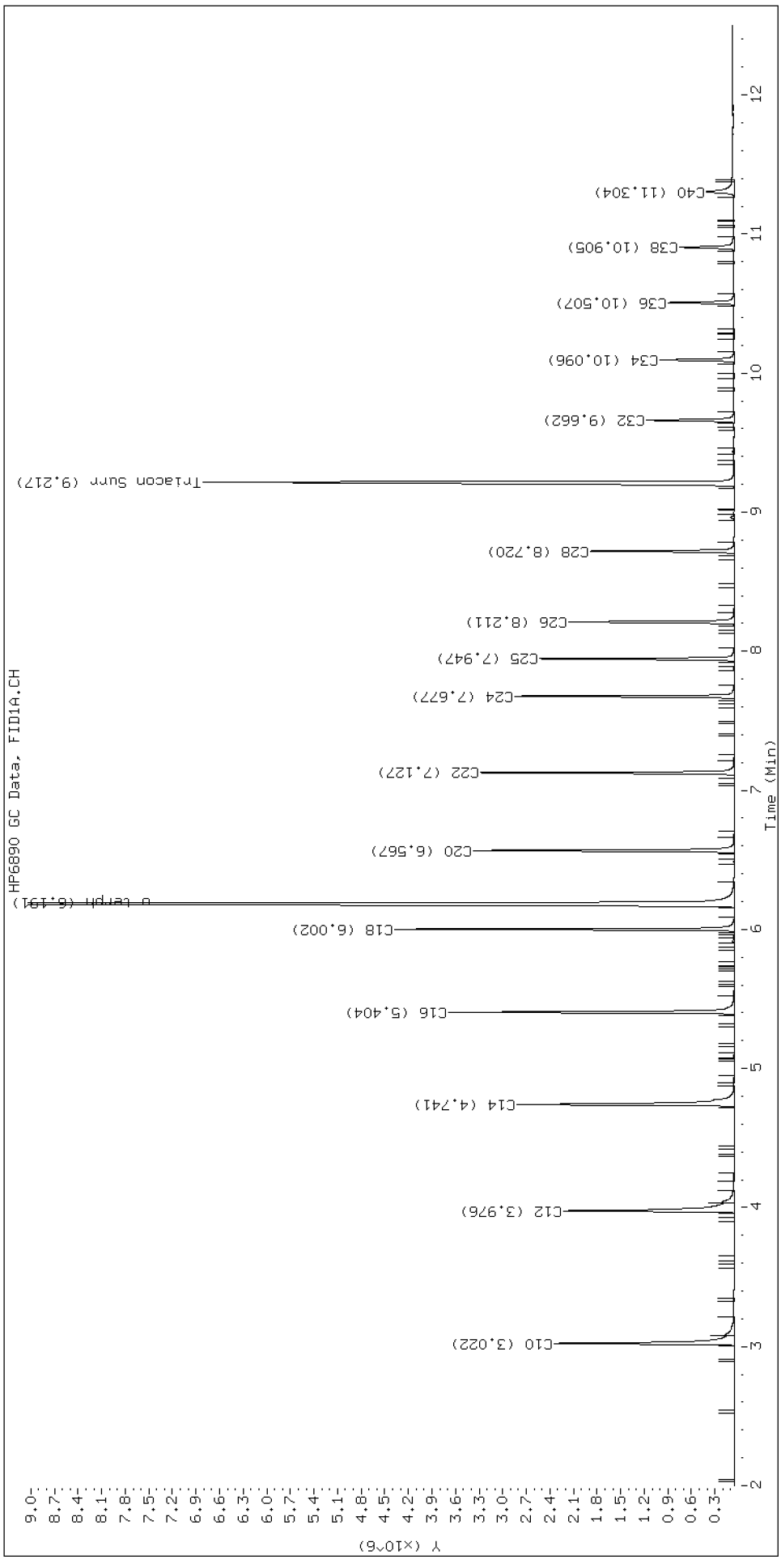
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.762	0.000	2316435	2770221	WATPHD	(C12-C24)	16950646	141.7
C10	3.022	0.000	2290949	2668764	WATPHM	(C24-C38)	8927713	238.0
C12	3.976	0.000	2176983	2764525	AK102	(C10-C25)	22754754	164.8
C14	4.741	0.000	2772565	3121016	AK103	(C25-C36)	8146719	335.7
C16	5.404	0.000	3633943	3063629	OR.DIES	(C10-C28)	28029322	202.7
C18	6.002	0.000	4320276	2881831				
C20	6.567	0.000	3322090	2729791				
C22	7.127	0.000	3225951	2470897				
C24	7.677	0.000	2789436	2127083				
C25	7.947	0.000	2470898	1971142				
C26	8.211	0.000	2111440	1769691				
C28	8.720	0.000	1835446	1491571				
C32	9.662	0.000	1122403	1030067				
C34	10.096	0.000	953254	858605				
Filter Peak	----				BUNKERC	(C10-C38)	31670465	470.7
C36	10.507	0.000	843791	807885				
C38	10.905	0.000	692207	756386				
C40	11.304	0.000	354310	708888				
o-terph	6.191	0.000	15483783	16067355				
Triacon Surr	9.217	-0.000	6758932	7053136	NAS DIES	(C10-C24)	22742752	164.8

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	16067355	103.0
Triacontane	7053136	171.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019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C12 (3.976)
C14 (4.741)
C16 (5.404)
C18 (6.002)
C20 (6.567)
C22 (7.127)
C24 (7.677)
C25 (7.947)
C26 (8.211)
C28 (8.720)
Triacon Surr (9.217)
C32 (9.662)
C34 (10.096)
C36 (10.507)
C38 (10.905)
C40 (11.304)
Time (Min)
Y (X10^6)

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0703.D

Date : 07-SEP-2019 09:33

Client ID:

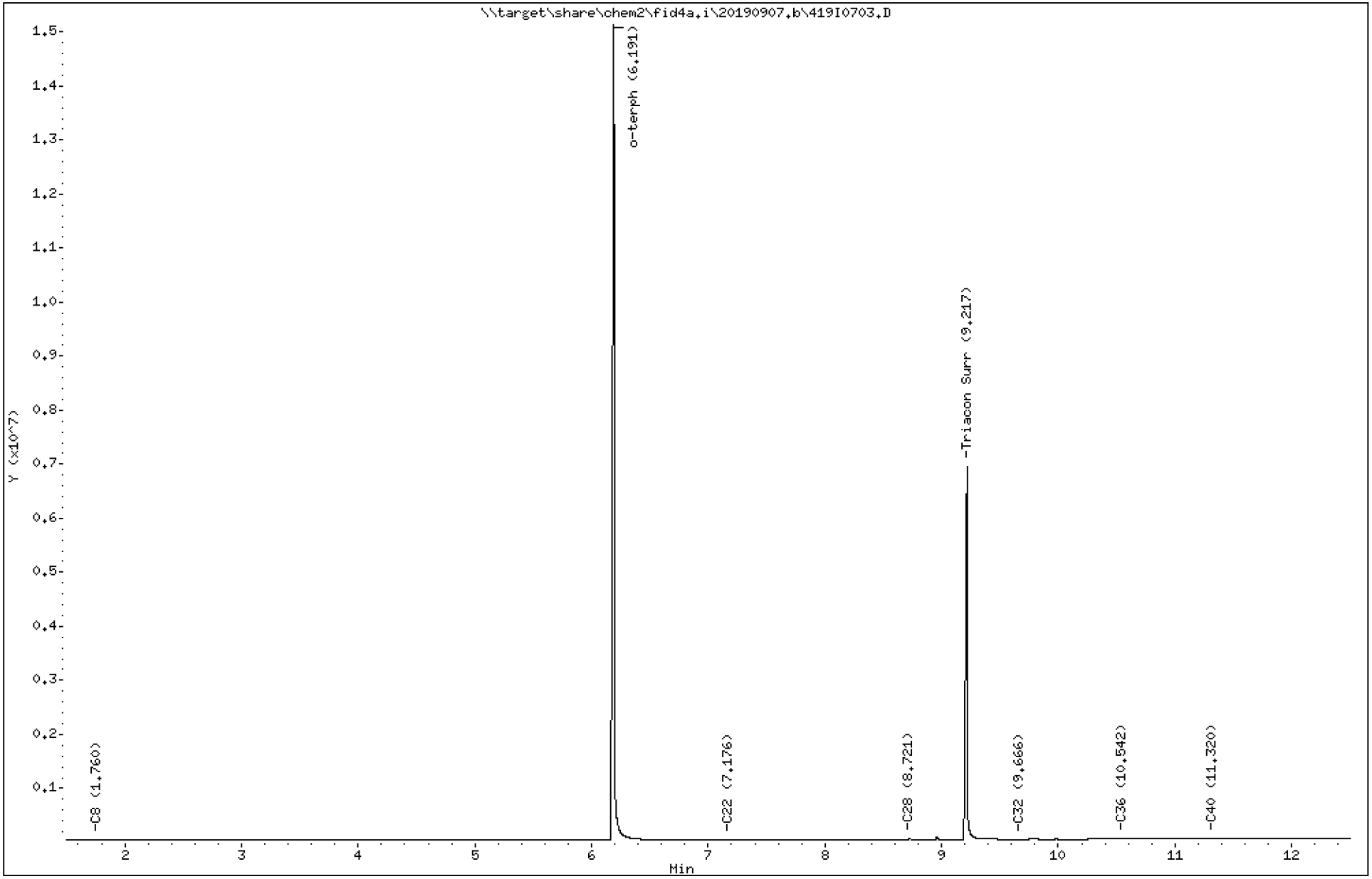
Sample Info: SHI0081-IBL2

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0703.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-IBL2
Client ID:
Injection: 07-SEP-2019 09:33
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

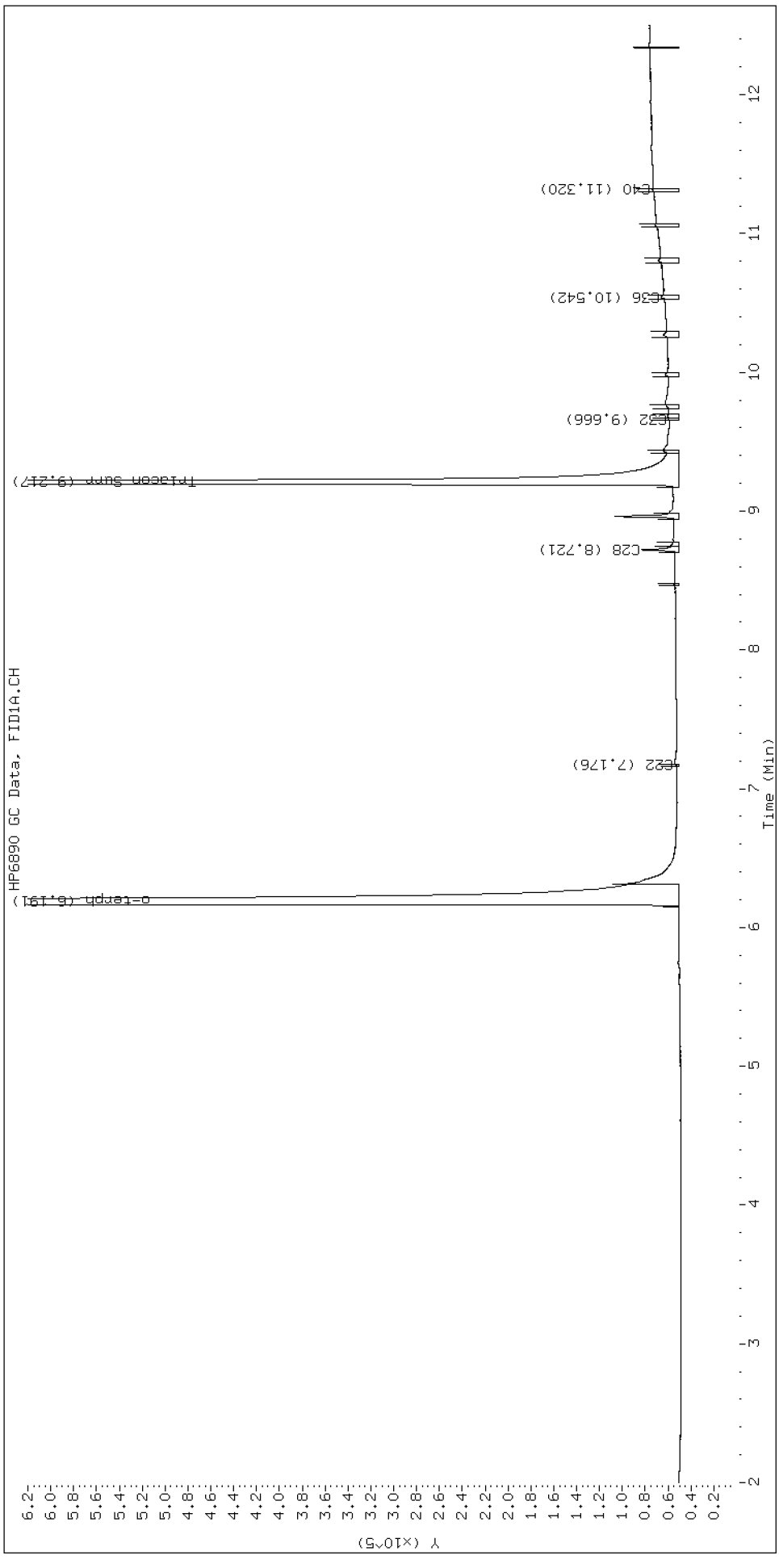
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.760	-0.002	3562	5454	WATPHD	(C12-C24)	2874	0.0
C10	----				WATPHM	(C24-C38)	287628	7.7
C12	----				AK102	(C10-C25)	2874	0.0
C14	----				AK103	(C25-C36)	250149	10.3
C16	----				OR.DIES	(C10-C28)	54546	0.4
C18	----							
C20	----							
C22	7.176	0.048	3435	2873				
C24	----							
C25	----							
C26	----							
C28	8.721	0.001	32295	36072				
C32	9.666	0.004	9375	8278				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	290502	4.3
C36	10.542	0.036	15962	30887				
C38	----							
C40	11.320	0.016	23671	25475				
o-terph	6.191	-0.000	15085193	16375342				
Triacon Surr	9.217	0.000	6898793	7589582	NAS DIES	(C10-C24)	2874	0.0

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	16375342	104.9
Triacontane	7589582	184.7

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019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E22 (7.176)
C28 (8.721)
Triacon Surr (9.217)
E32 (9.666)
E36 (10.542)
E40 (11.320)
Time (Min)
Y (X10^5)

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0704.D

Date : 07-SEP-2019 09:53

Client ID:

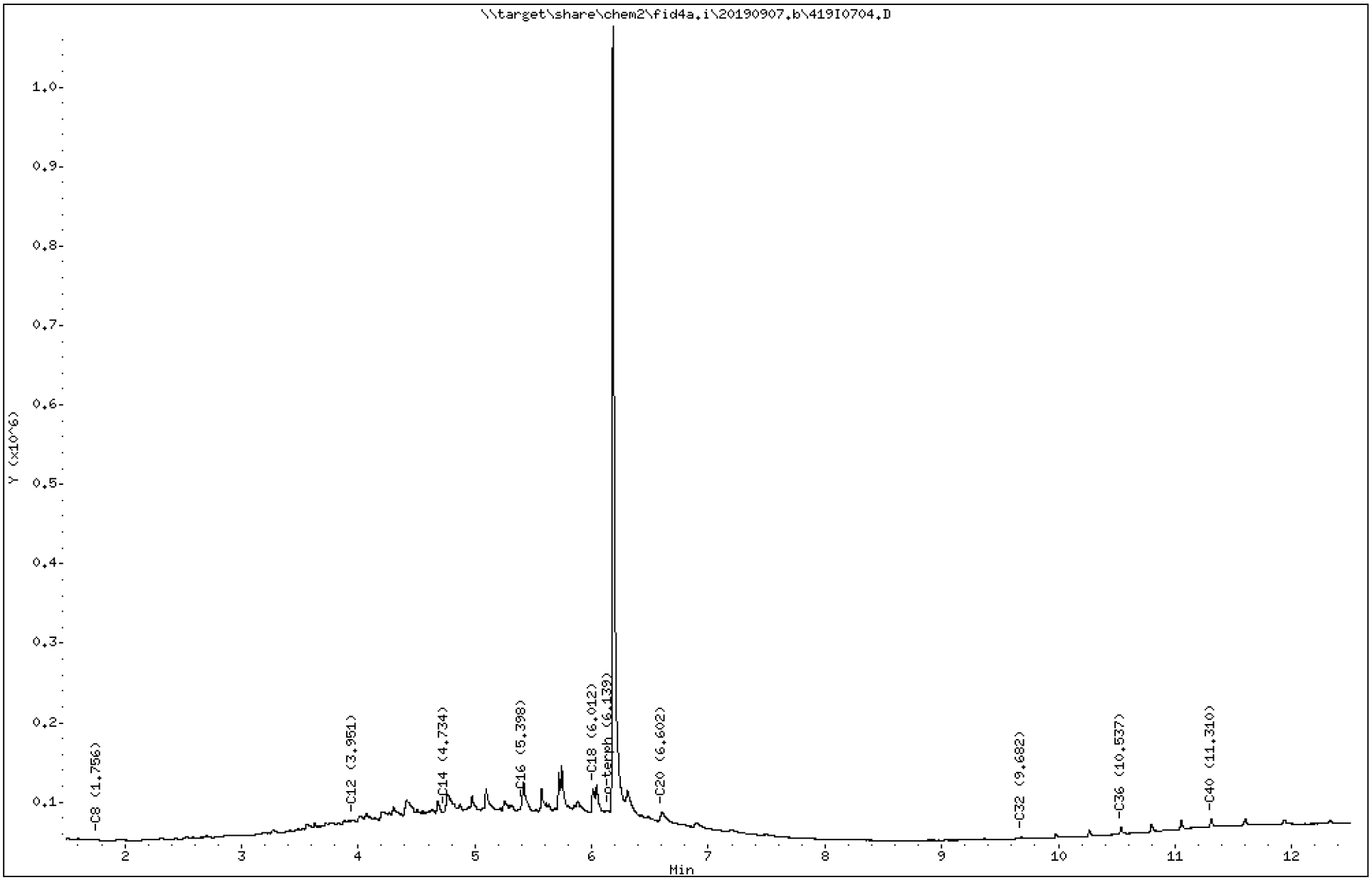
Sample Info: SHI0081-CAL1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0704.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL1
Client ID:
Injection: 07-SEP-2019 09:53
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

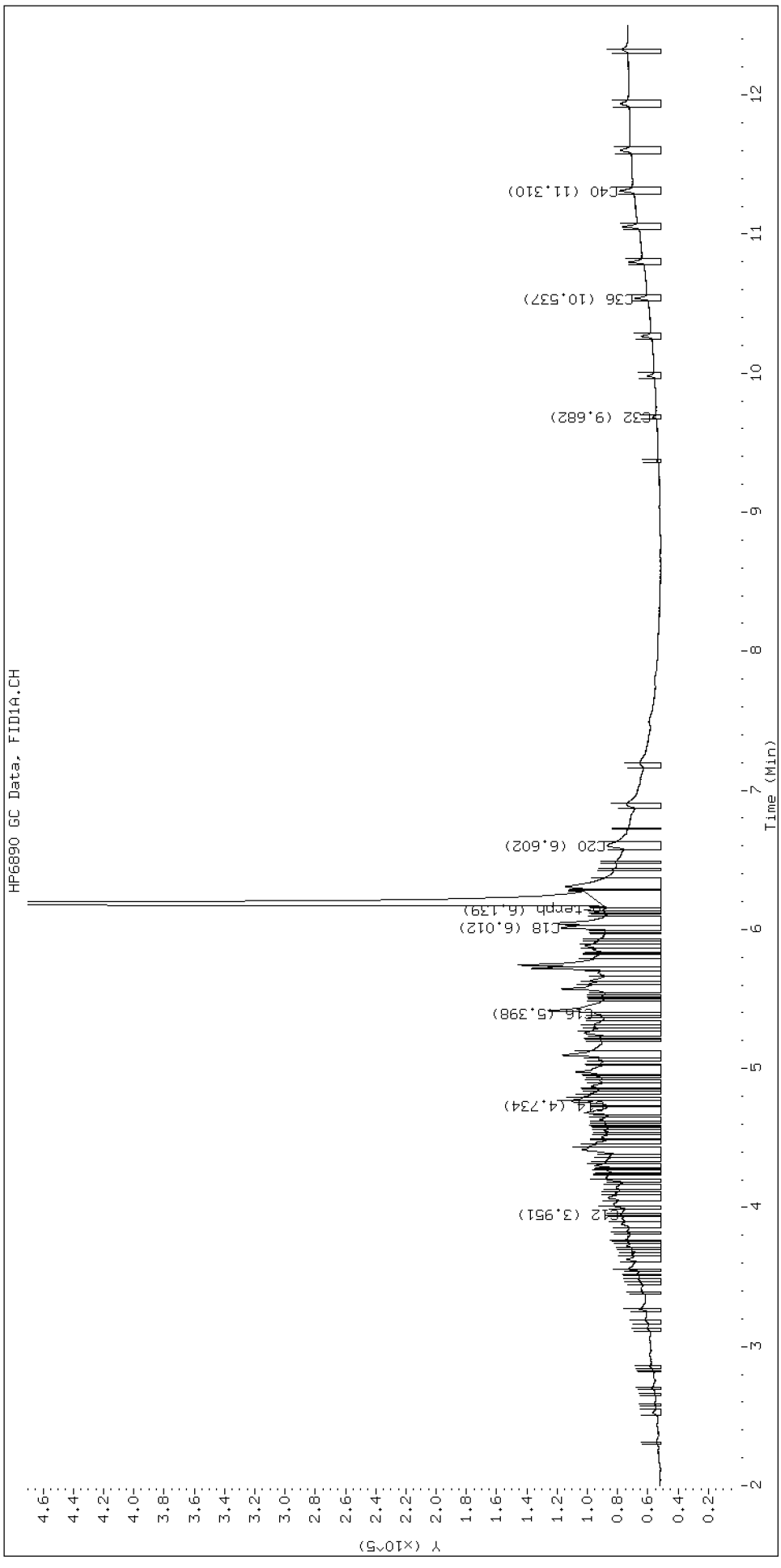
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.756	-0.006	2163	2434	WATPHD	(C12-C24)	5214787	43.6
C10	----				WATPHM	(C24-C38)	121197	3.2
C12	3.951	-0.025	26151	25881	AK102	(C10-C25)	5733437	41.5
C14	4.734	-0.007	35892	23111	AK103	(C25-C36)	79737	3.3
C16	5.398	-0.006	43909	51709	OR.DIES	(C10-C28)	5733437	41.5
C18	6.012	0.010	65473	125283				
C20	6.602	0.034	35189	105964				
C22	----							
C24	----							
C25	----							
C26	----							
C32	9.682	0.021	5091	7854				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	5854634	87.0 M
C36	10.537	0.030	16803	32639				
C38	----							
C40	11.310	0.006	26858	67690				
o-terph	6.182	-0.009	986139	1397537				
Triacon Surr	----				NAS DIES	(C10-C24)	5733437	41.6

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	1397537	9.0	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

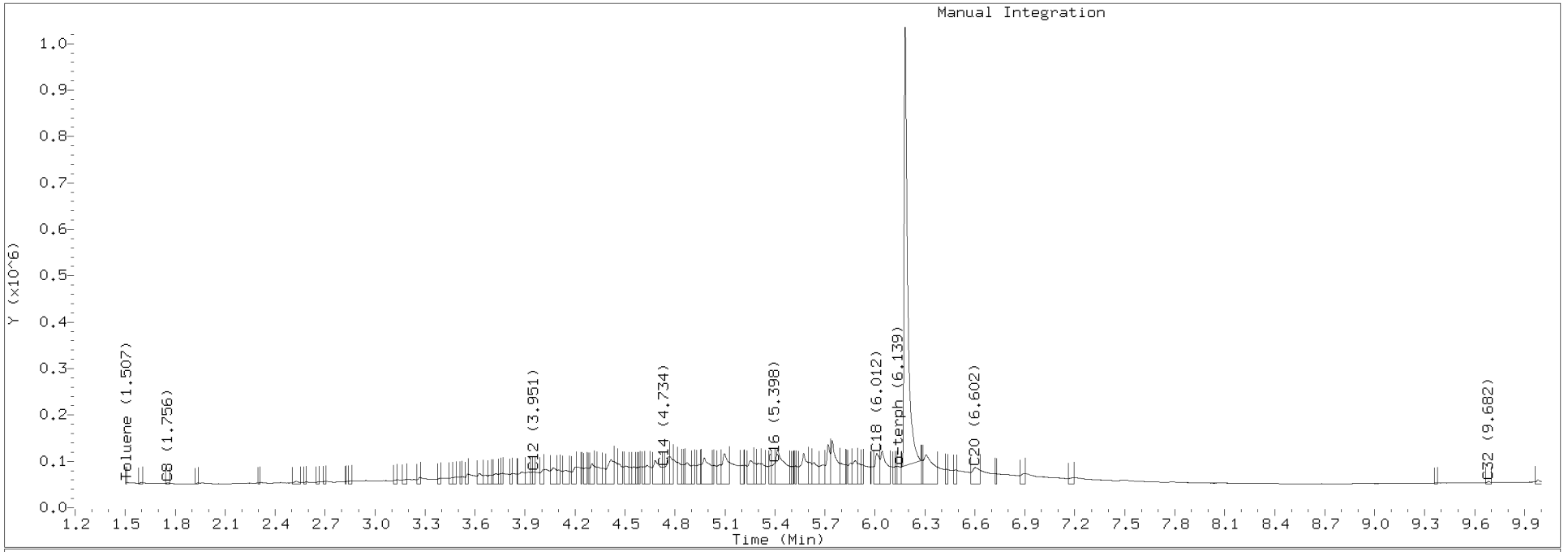
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

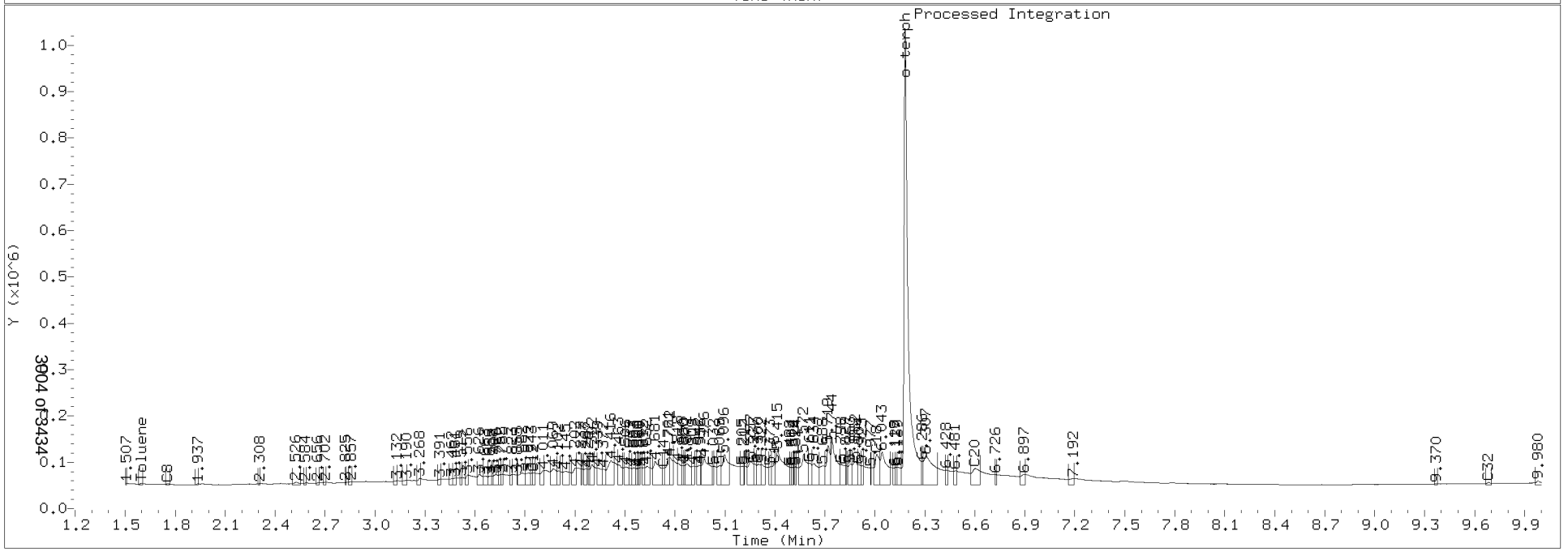

Datafile: FID4A, 20190907.b/419I0704.D SHI0081-CAL1
HP6890 GC Data, FID1A.CH
C12 (3.951)
C14 (4.734)
C16 (5.398)
C18 (6.012)
C20 (6.602)
C32 (9.682)
C36 (10.537)
C40 (11.310)
Time (Min)
Y (X10^5)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0704.D Injection: 07-SEP-2019 09:53

Lab ID:SHI0081-CAL1





3004 of 3434

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0705.D

Date : 07-SEP-2019 10:14

Client ID:

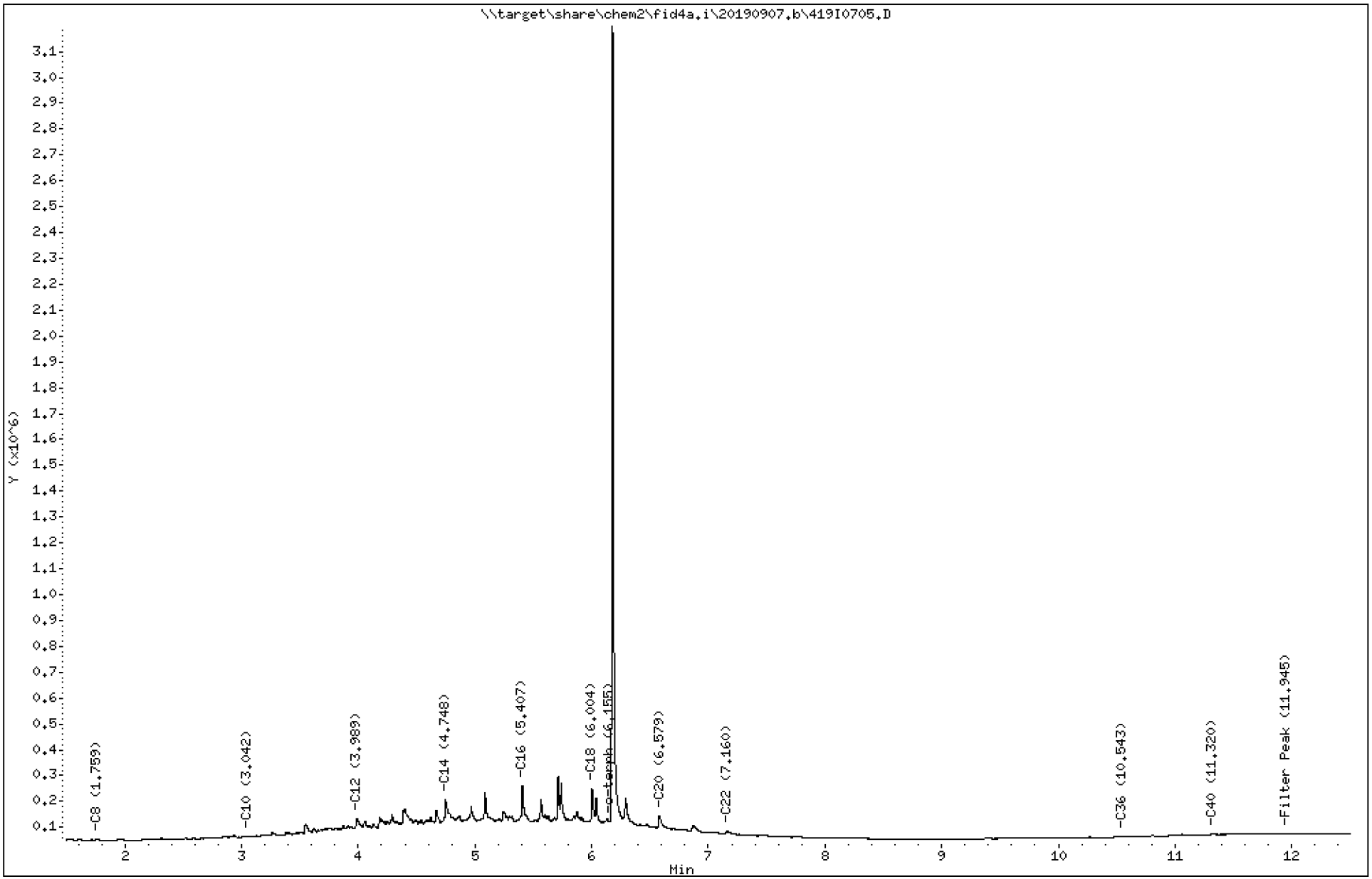
Sample Info: SHI0081-CAL2

Instrument: fid4a.i

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0705.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL2
Client ID:
Injection: 07-SEP-2019 10:14
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.759	-0.003	4498	5066	WATPHD	(C12-C24)	12918929	108.0
C10	3.042	0.020	17902	42138	WATPHM	(C24-C38)	149372	4.0
C12	3.989	0.013	85710	272882	AK102	(C10-C25)	14865309	107.6
C14	4.748	0.007	156689	398767	AK103	(C25-C36)	77181	3.2
C16	5.407	0.003	213714	340281	OR.DIES	(C10-C28)	14865309	107.5
C18	6.004	0.002	199953	308457				
C20	6.579	0.011	97045	334081				
C22	7.160	0.033	36286	53220				
C24	----							
C25	----							
C26	----							
C32	----							
C34	----							
Filter Peak	11.945	-0.091	27143	42213	BUNKERC	(C10-C38)	14986112	222.7
C36	10.543	0.036	17826	34076				
C38	----							
C40	11.320	0.015	26648	61106				
o-terph	6.180	-0.011	3072736	3095341				
Triacon Surr	----				NAS DIES	(C10-C24)	14836741	107.5

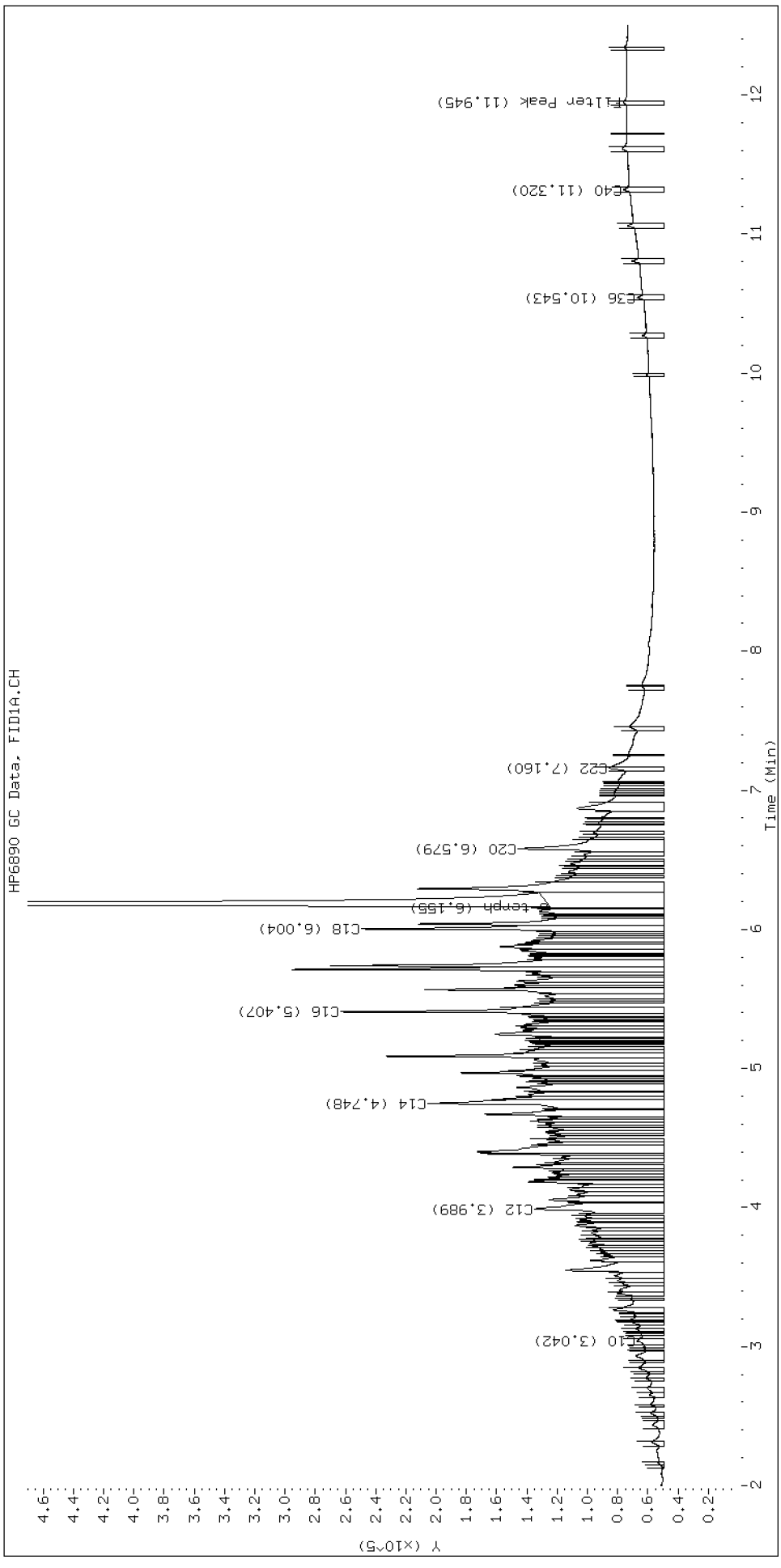
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	3095341	19.8	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

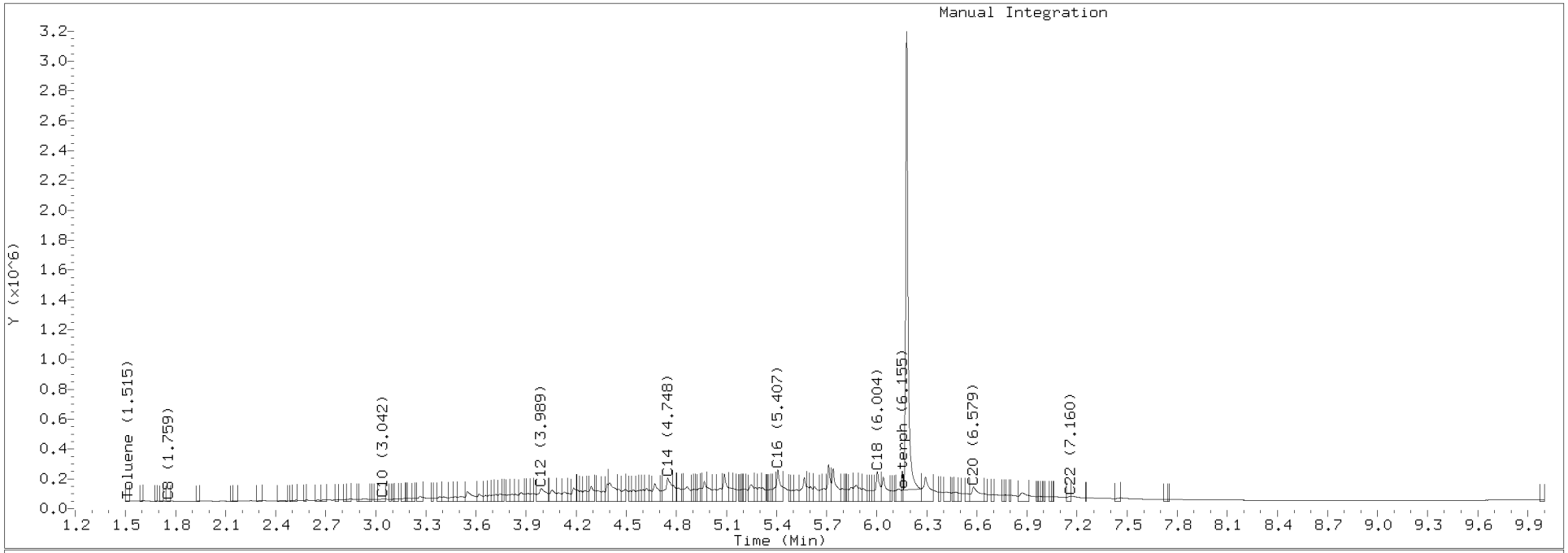
Datafile: FID4A, 20190907.b/419I0705.D SHI0081-CAL2

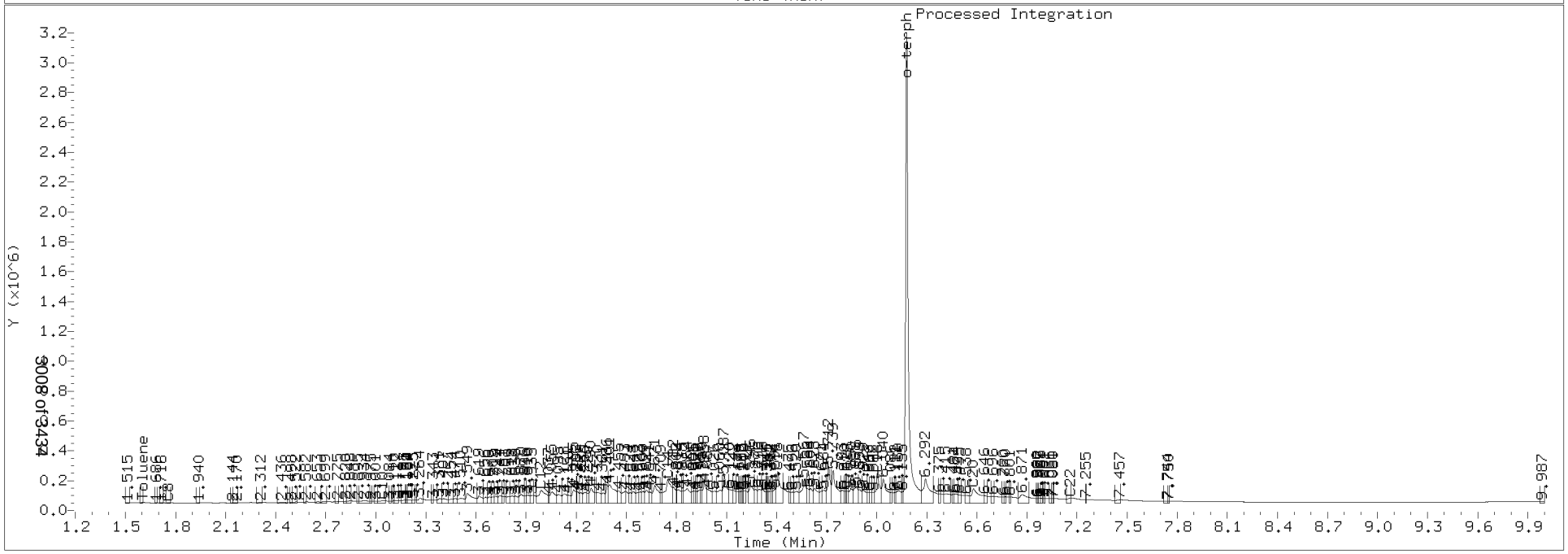


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0705.D Injection: 07-SEP-2019 10:14

Lab ID:SHI0081-CAL2





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0706.D

Date : 07-SEP-2019 10:36

Client ID:

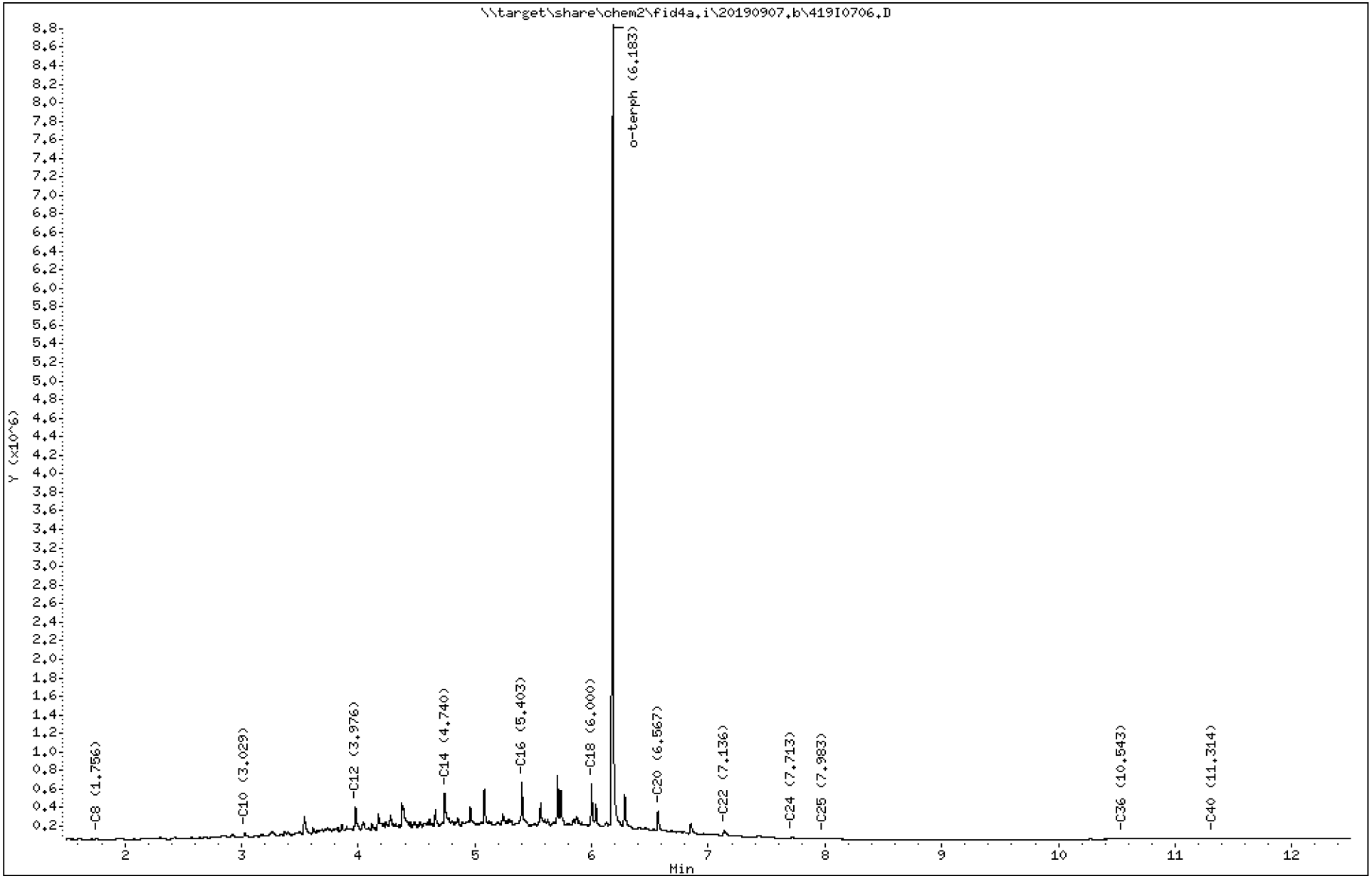
Sample Info: SHI0081-CAL3

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0706.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL3
Client ID:
Injection: 07-SEP-2019 10:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.756	-0.005	14737	24240	WATPHD	(C12-C24)	31531474	263.5
C10	3.029	0.006	67588	154385	WATPHM	(C24-C38)	80400	2.1
C12	3.976	-0.000	360519	512110	AK102	(C10-C25)	36719036	265.9
C14	4.740	-0.001	503595	738017	AK103	(C25-C36)	54149	2.2
C16	5.403	-0.001	619713	682683	OR.DIES	(C10-C28)	36738695	265.7
C18	6.000	-0.002	605450	683168				
C20	6.567	-0.000	304813	649389				
C22	7.136	0.009	95685	303289				
C24	7.713	0.036	24349	34130				
C25	7.983	0.037	10273	3030				
C26	----							
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	36799436	547.0 M
C36	10.543	0.037	10626	17791				
C38	----							
C40	11.314	0.010	19198	30385				
o-terph	6.183	-0.008	8636195	7260873				
Triacon Surr	----				NAS DIES	(C10-C24)	36719036	266.1

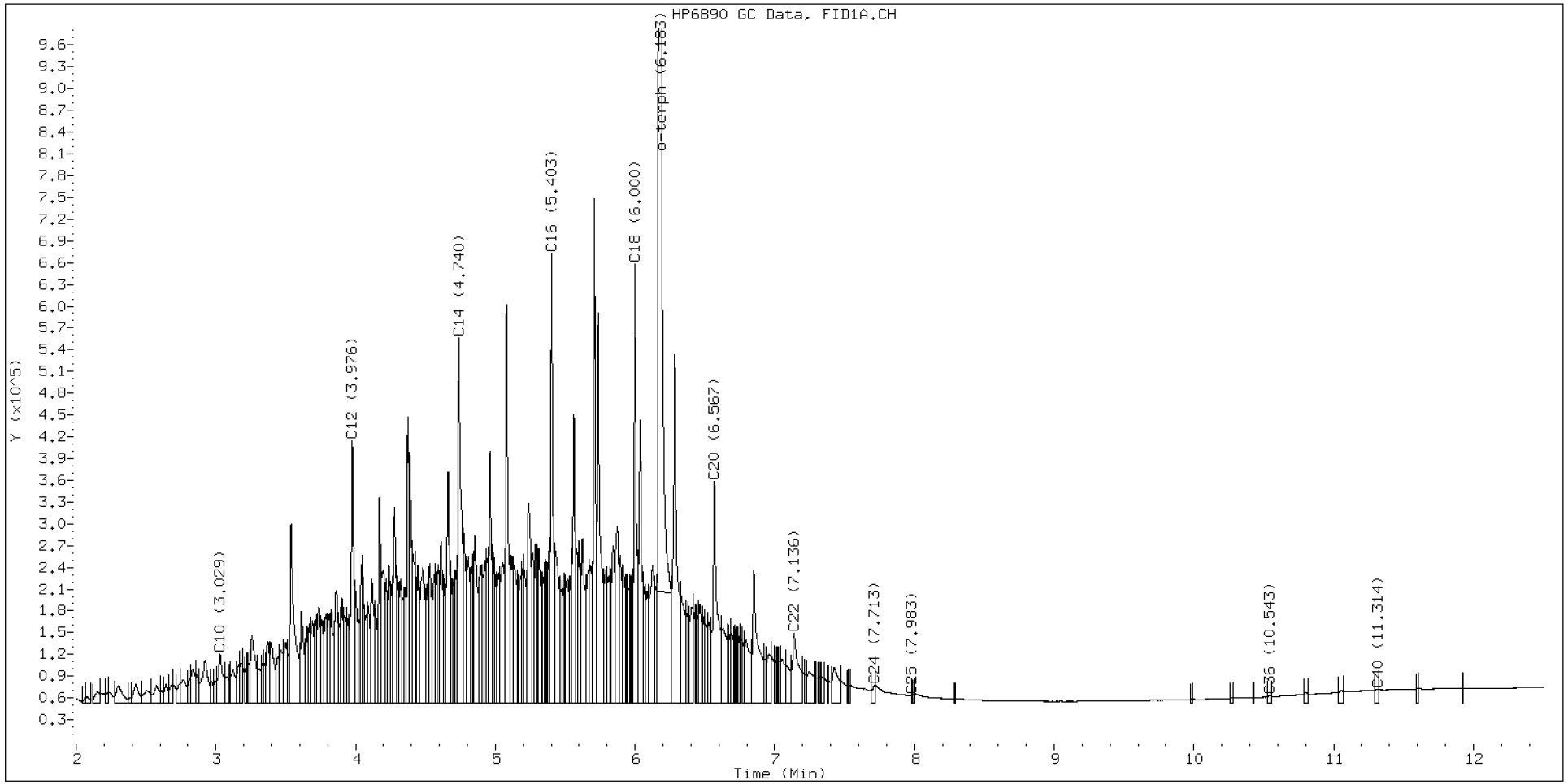
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	7260873	46.5	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

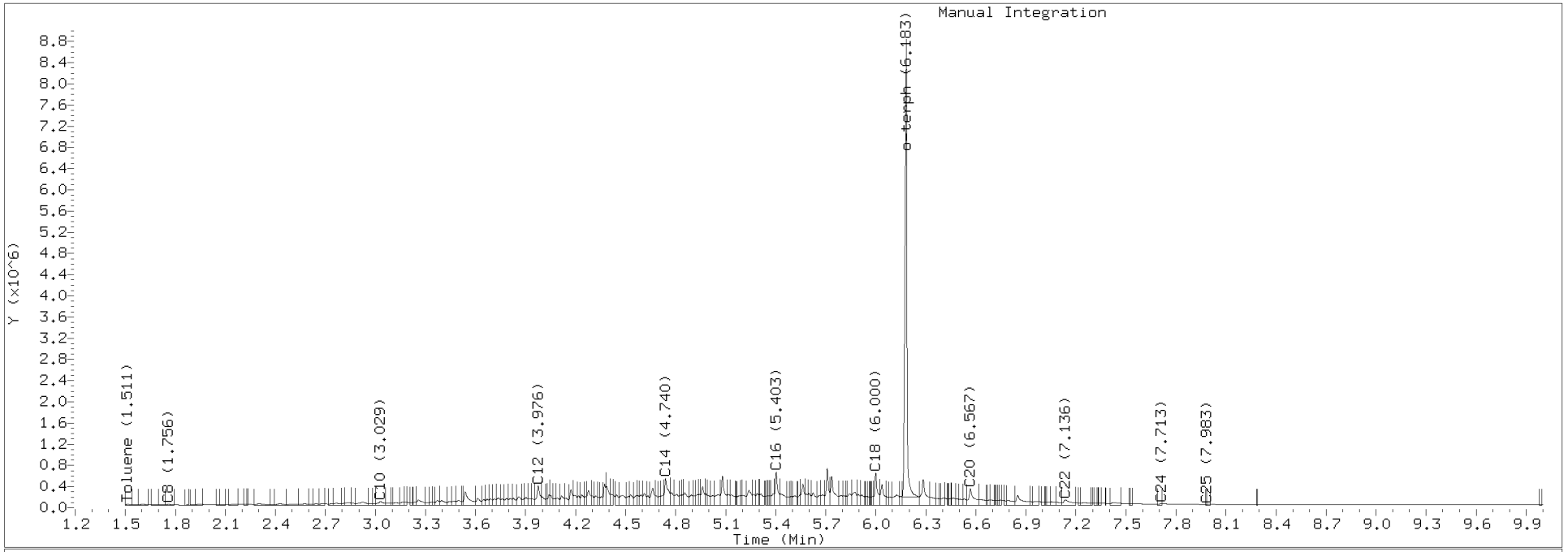
Datafile: FID4A, 20190907.b/419I0706.D SHI0081-CAL3

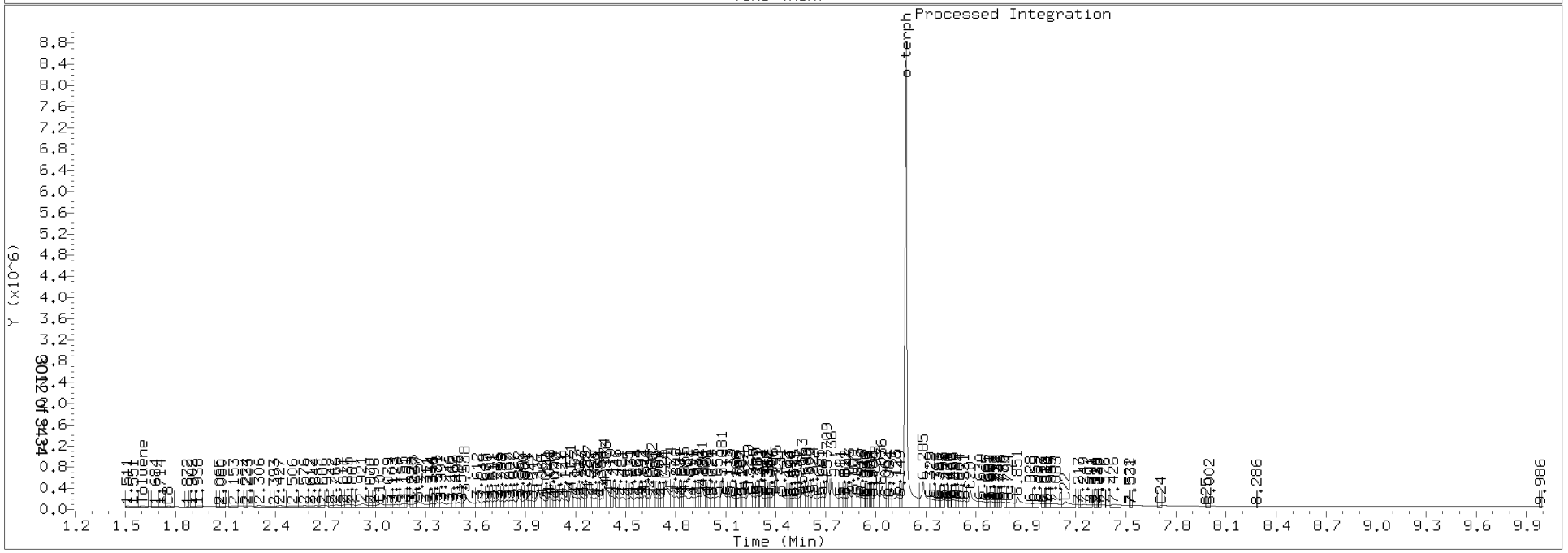


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0706.D Injection: 07-SEP-2019 10:36

Lab ID:SHI0081-CAL3



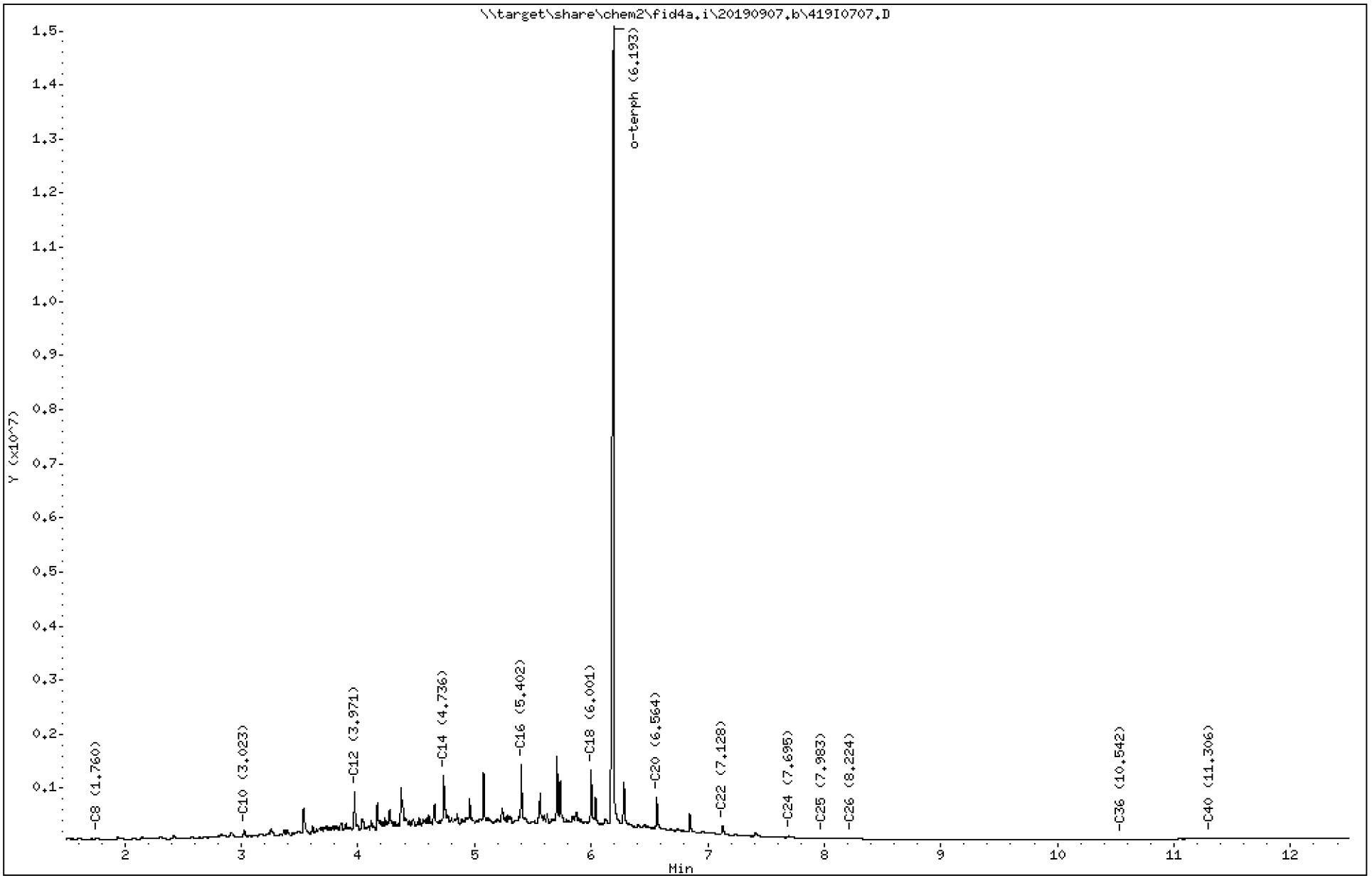


Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0707.D
Date : 07-SEP-2019 10:58
Client ID:
Sample Info: SHI0081-CAL4

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0707.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL4
Client ID:
Injection: 07-SEP-2019 10:58
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

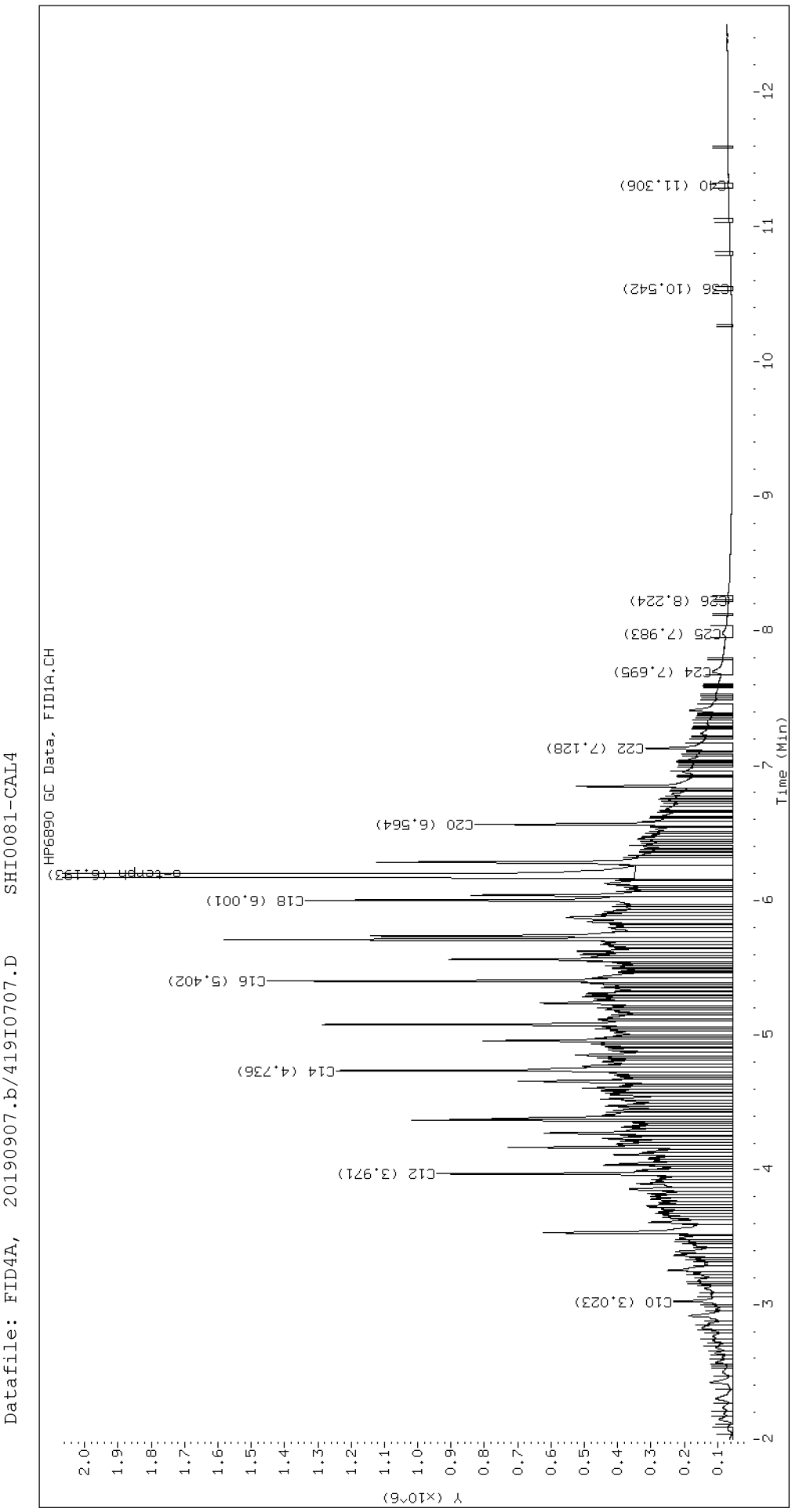
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.760	-0.002	35757	49323	WATPHD	(C12-C24)	63446502	530.2
C10	3.023	0.001	180258	302218	WATPHM	(C24-C38)	259663	6.9
C12	3.971	-0.005	889752	1044363	AK102	(C10-C25)	73676667	533.5
C14	4.736	-0.005	1192370	1481797	AK103	(C25-C36)	206171	8.5
C16	5.402	-0.002	1398753	1388754	OR.DIES	(C10-C28)	73864450	534.1
C18	6.001	-0.001	1286119	1779258				
C20	6.564	-0.003	775535	899554				
C22	7.128	0.001	264825	531337				
C24	7.695	0.018	63092	286115				
C25	7.983	0.036	31916	134943				
C26	8.224	0.013	14492	10748				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	73903344	1098.5 M
C36	10.542	0.035	8513	12927				
C38	----							
C40	11.306	0.002	16513	32101				
o-terph	6.193	0.002	14741315	14725249				
Triacon Surr	----				NAS DIES	(C10-C24)	73643681	533.8

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	14725249	94.4	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

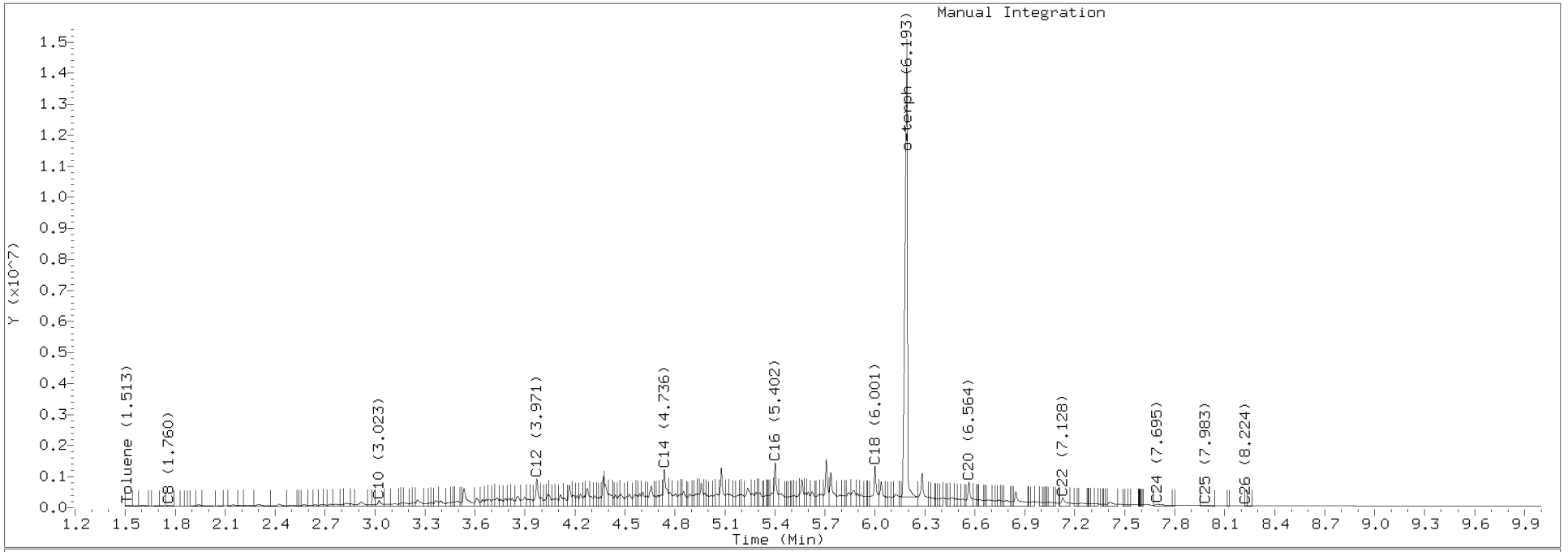
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

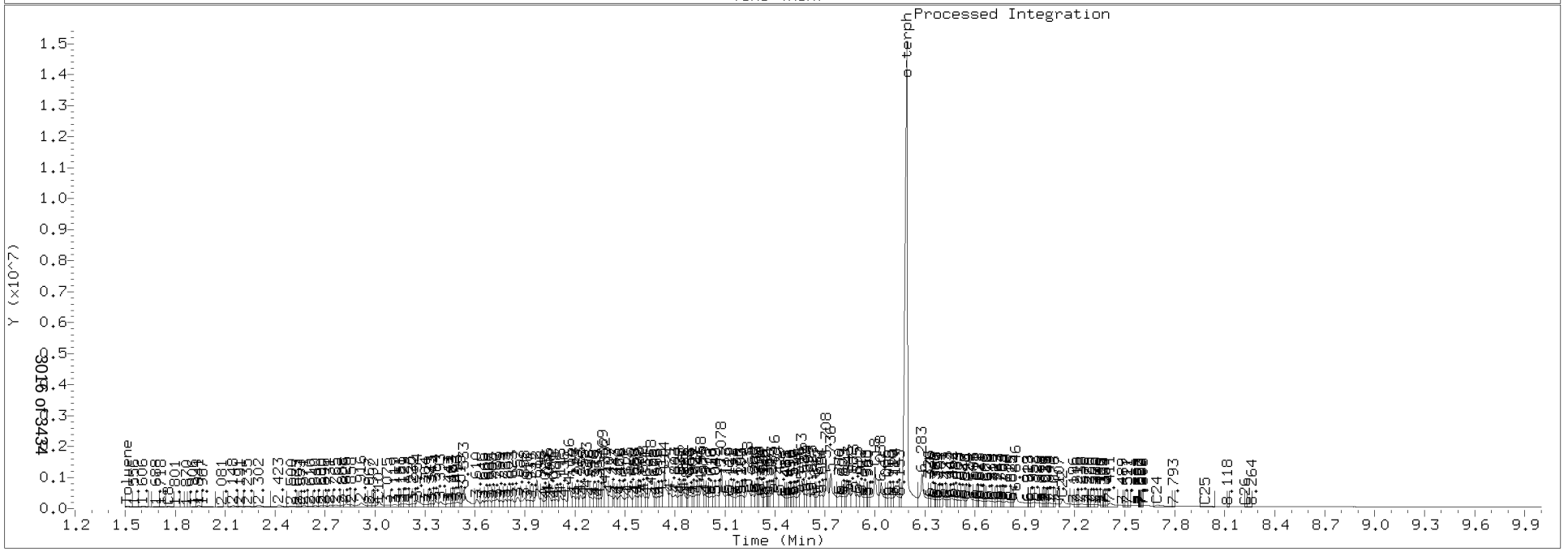

Datafile: FID4A, 20190907.b/419I0707.D SHI0081-CAL4
HP6890 GC Data, FID1A.CH
C10 (3.023)
C12 (3.971)
C14 (4.736)
C16 (5.402)
C18 (6.001)
o-terph (6.193)
C20 (6.564)
C22 (7.128)
C24 (7.695)
C25 (7.983)
C26 (8.224)
C36 (10.542)
C40 (11.306)
Time (Min)
Y (x10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0707.D Injection: 07-SEP-2019 10:58

Lab ID:SHI0081-CAL4





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0708.D

Date : 07-SEP-2019 11:19

Client ID:

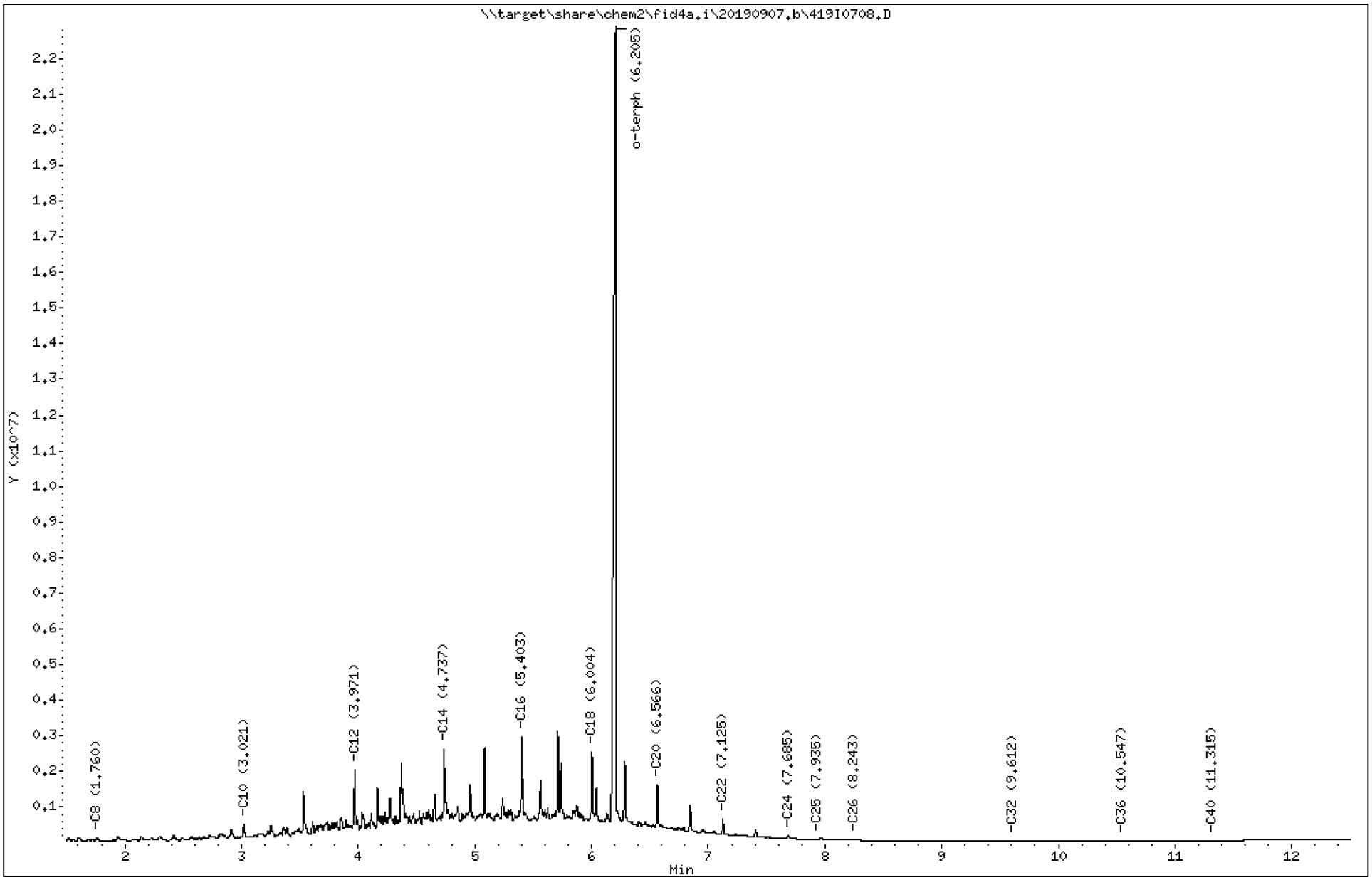
Sample Info: SHI0081-CAL5

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0708.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL5
Client ID:
Injection: 07-SEP-2019 11:19
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

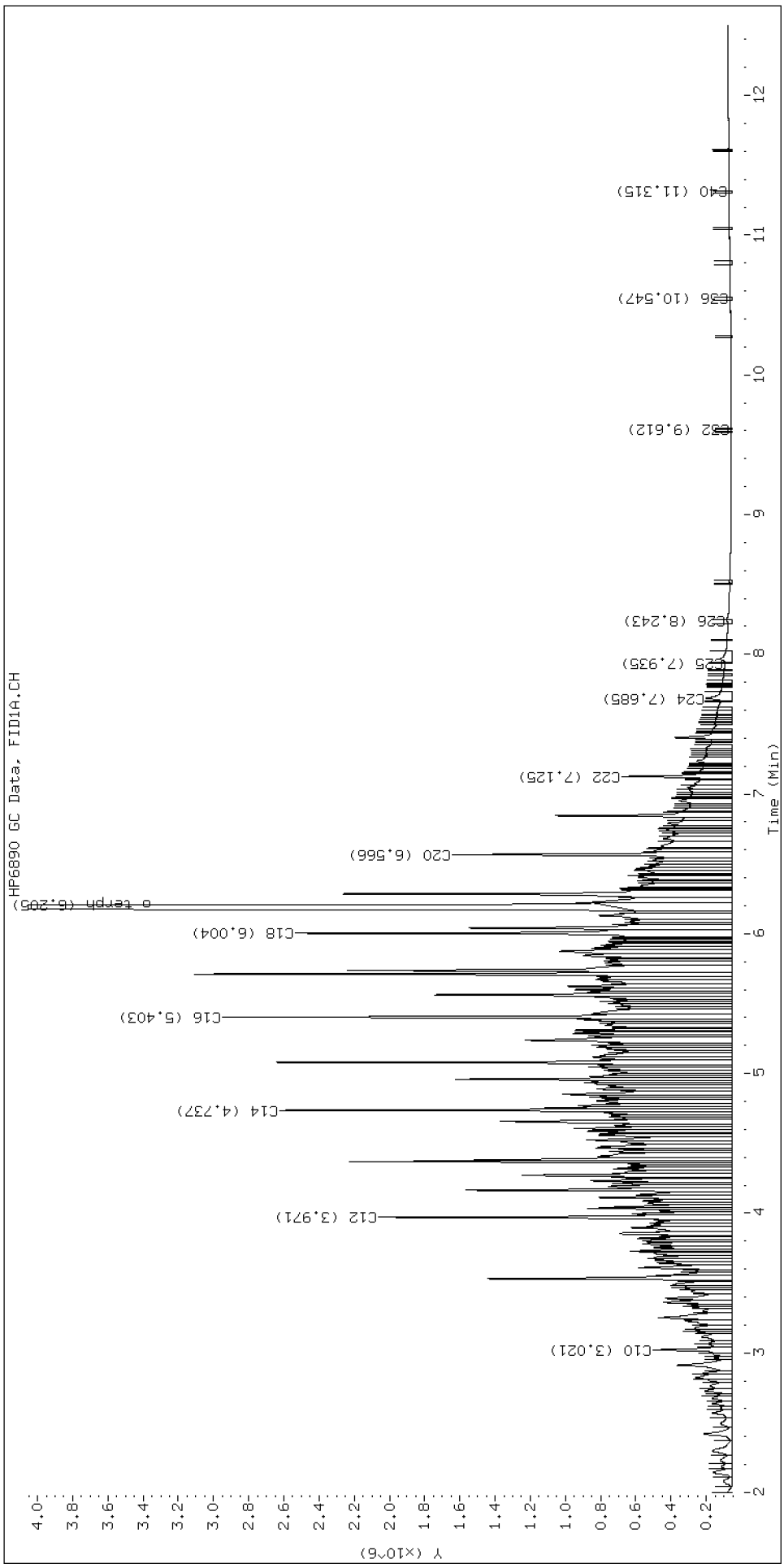
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.760	-0.002	75097	112354	WATPHD	(C12-C24)	125852000	1051.7
C10	3.021	-0.002	449943	589685	WATPHM	(C24-C38)	553620	14.8
C12	3.971	-0.005	2007425	2141844	AK102	(C10-C25)	146279220	1059.2
C14	4.737	-0.004	2571336	2138385	AK103	(C25-C36)	351166	14.5
C16	5.403	-0.001	2896102	2676764	OR.DIES	(C10-C28)	146605350	1060.1
C18	6.004	0.002	2478819	3195846				
C20	6.566	-0.002	1590701	1861656				
C22	7.125	-0.003	625272	735649				
C24	7.685	0.008	146018	377312				
C25	7.935	-0.012	38411	18835				
C26	8.243	0.032	28437	46740				
C32	9.612	-0.049	4562	2191				
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	146649285	2179.7 M
C36	10.547	0.041	10077	13476				
C38	----							
C40	11.315	0.011	18969	17693				
o-terph	6.205	0.014	22122375	28236521				
Triacon Surr	----				NAS DIES	(C10-C24)	146095665	1058.9

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	28236521	180.9	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

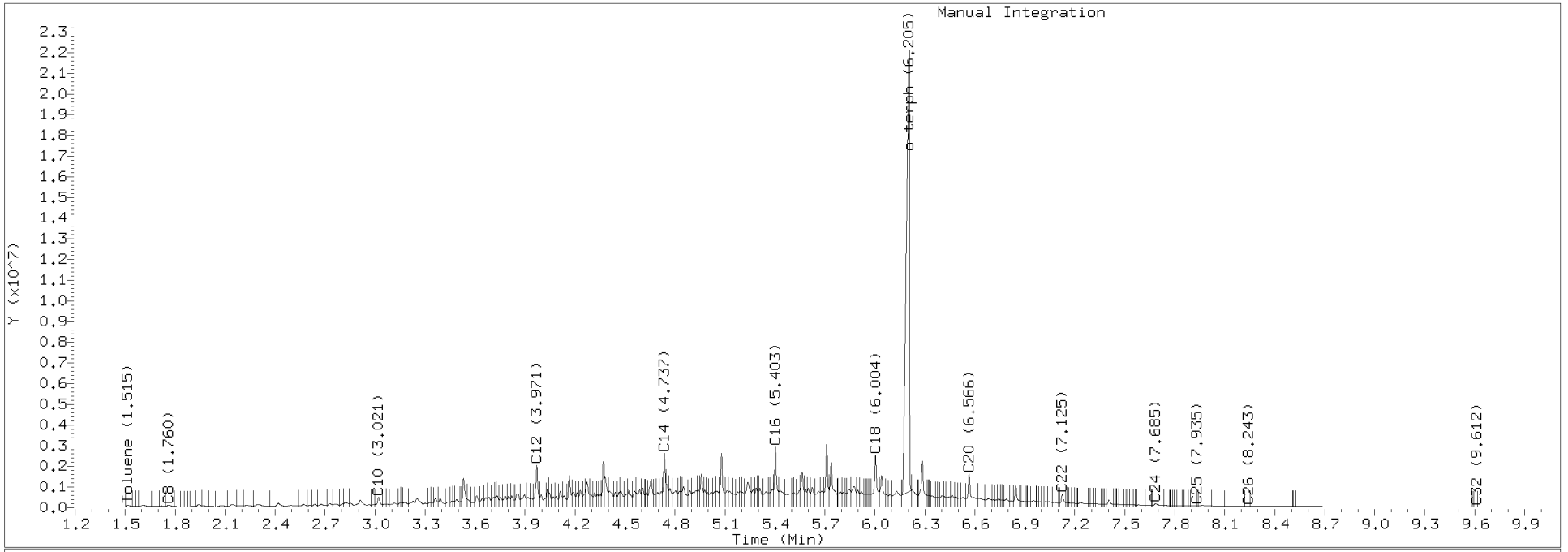
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

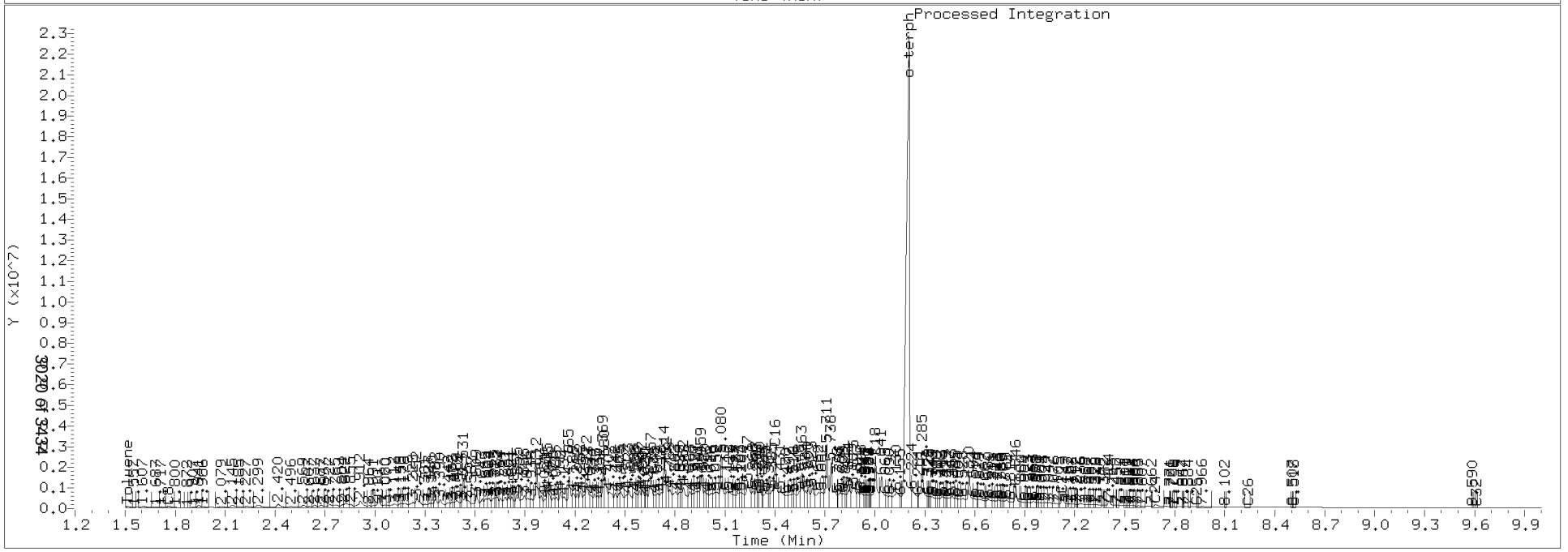

Datafile: FID4A, 20190907.b/419I0708.D SHI0081-CAL5
HP6890 GC Data, FID1A.CH
C10 (3.021)
C12 (3.971)
C14 (4.737)
C16 (5.403)
C18 (6.004)
o terph (6.205)
C20 (6.566)
C22 (7.125)
C24 (7.685)
C25 (7.935)
C26 (8.243)
C32 (9.612)
C36 (10.547)
C40 (11.315)
Time (Min)
Y (X10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0708.D Injection: 07-SEP-2019 11:19

Lab ID:SHI0081-CAL5





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0709.D

Date : 07-SEP-2019 11:39

Client ID:

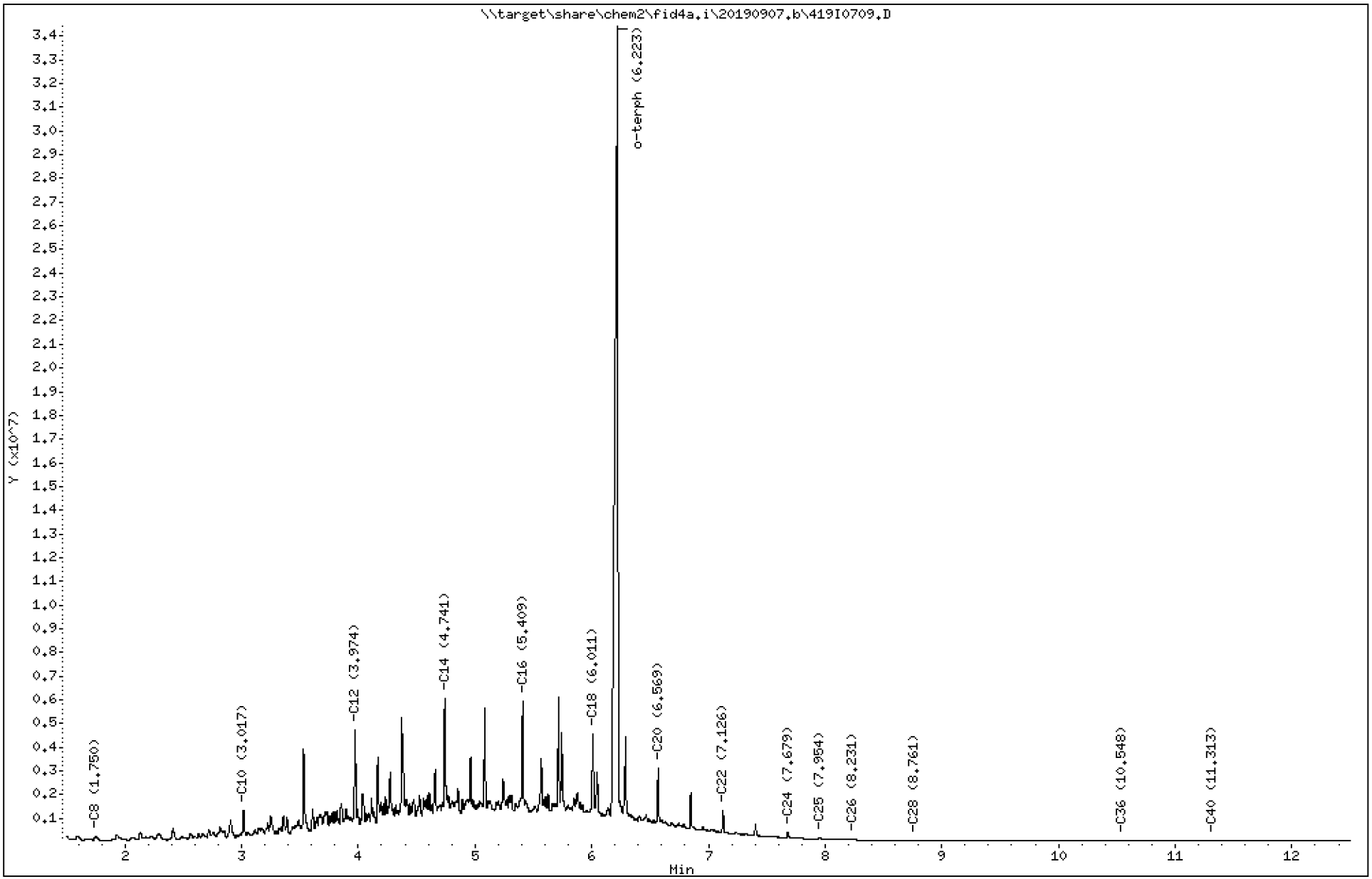
Sample Info: SHI0081-CAL6

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0709.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL6
Client ID:
Injection: 07-SEP-2019 11:39
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.750	-0.011	180499	323133	WATPHD	(C12-C24)	264037256	2206.5
C10	3.017	-0.006	1258374	1507860	WATPHM	(C24-C38)	1553498	41.4
C12	3.974	-0.002	4656840	5040796	AK102	(C10-C25)	311923399	2258.7
C14	4.741	0.000	5969916	5936679	AK103	(C25-C36)	956490	39.4
C16	5.409	0.004	5857663	5888868	OR.DIES	(C10-C28)	312876132	2262.4
C18	6.011	0.009	4503296	6366085				
C20	6.569	0.002	3079600	3284915				
C22	7.126	-0.001	1255491	1349694				
C24	7.679	0.003	322142	648770				
C25	7.954	0.008	125023	423824				
C26	8.231	0.020	46464	148446				
C28	8.761	0.041	4615	2312				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	312888876	4650.7 M
C36	10.548	0.041	2637	3756				
C38	----							
C40	11.313	0.009	11784	11541				
o-terph	6.223	0.032	32865647	57274862				
Triacon Surr	----				NAS DIES	(C10-C24)	311335378	2256.5

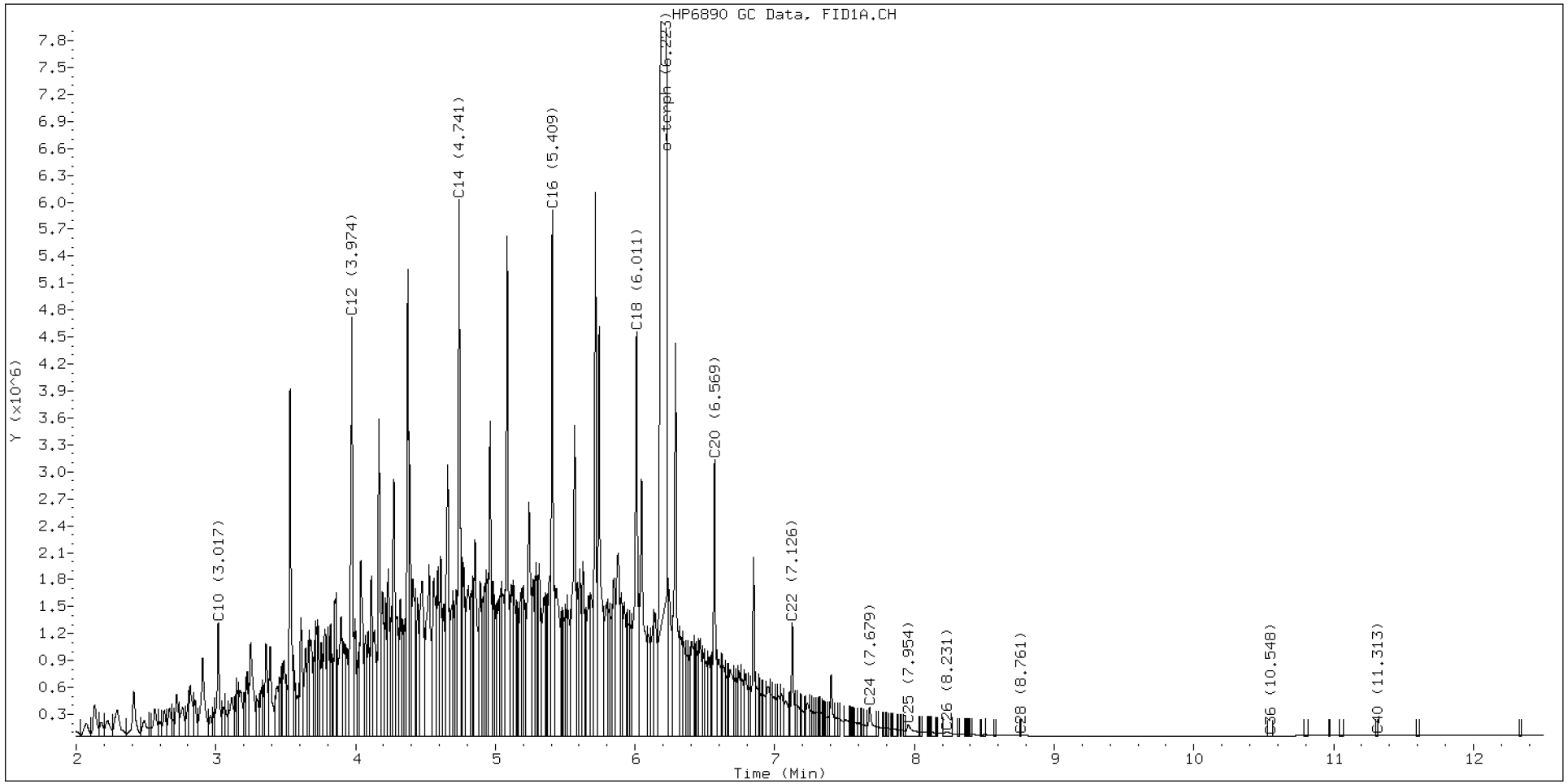
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	57274862	367.0	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

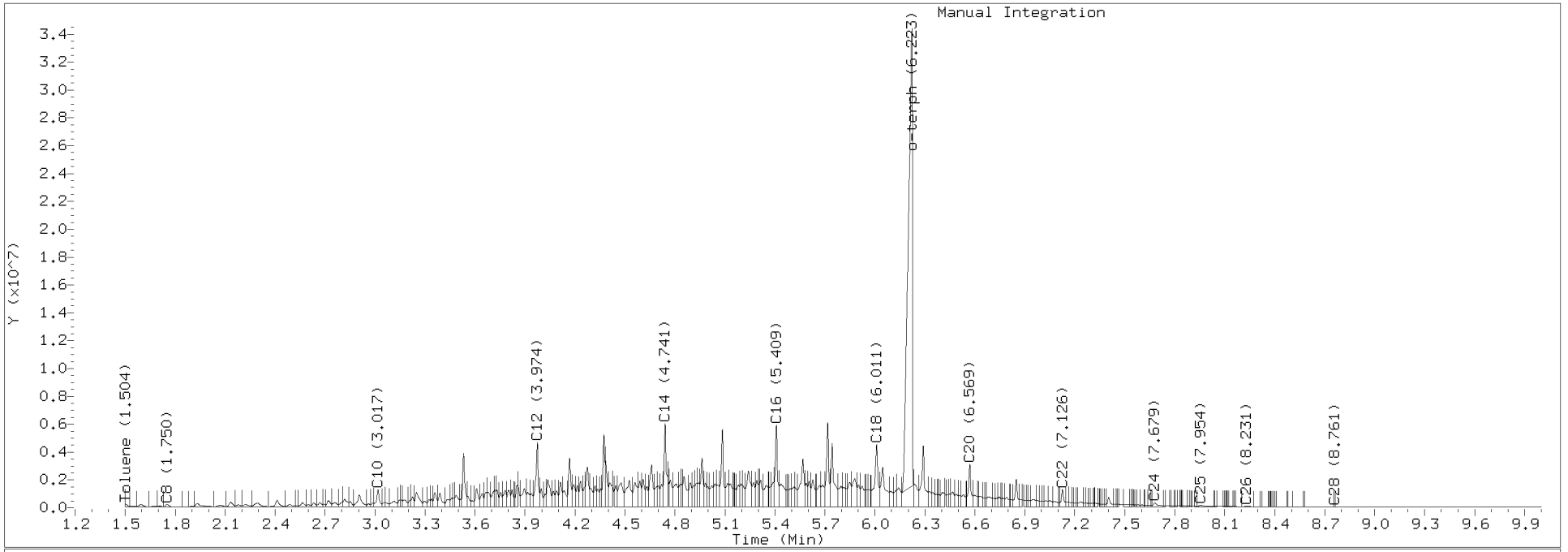
Datafile: FID4A, 20190907.b/419I0709.D SHI0081-CAL6

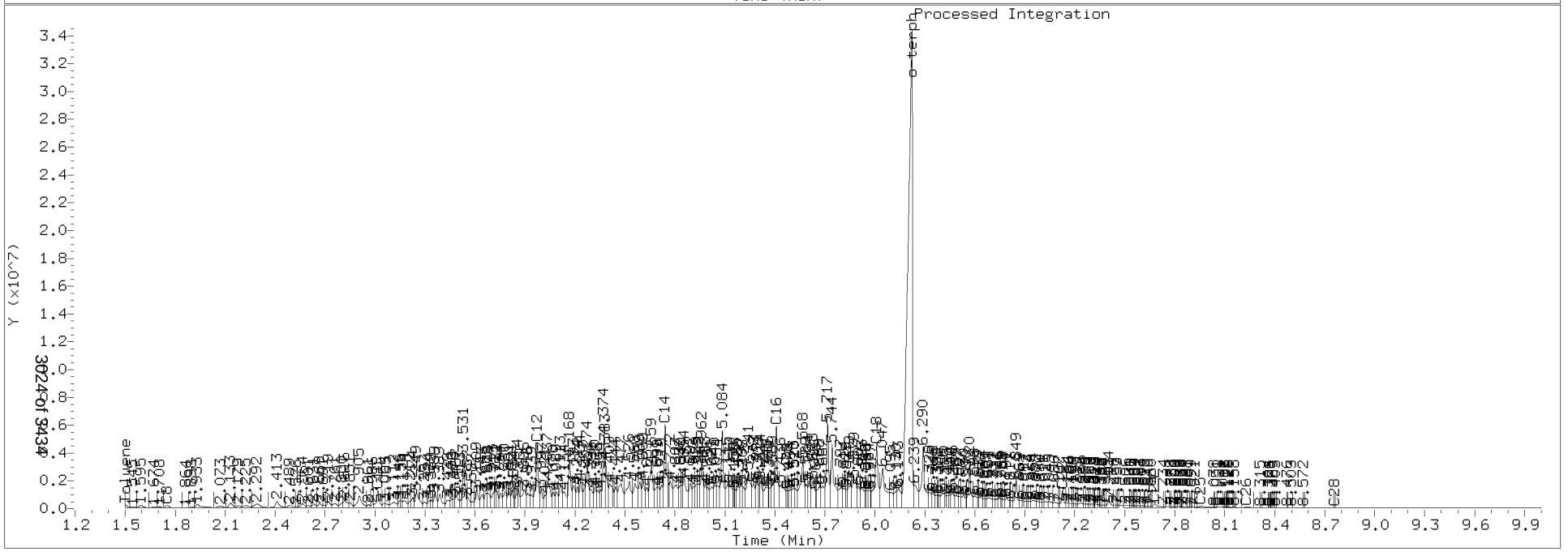


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0709.D Injection: 07-SEP-2019 11:39

Lab ID:SHI0081-CAL6



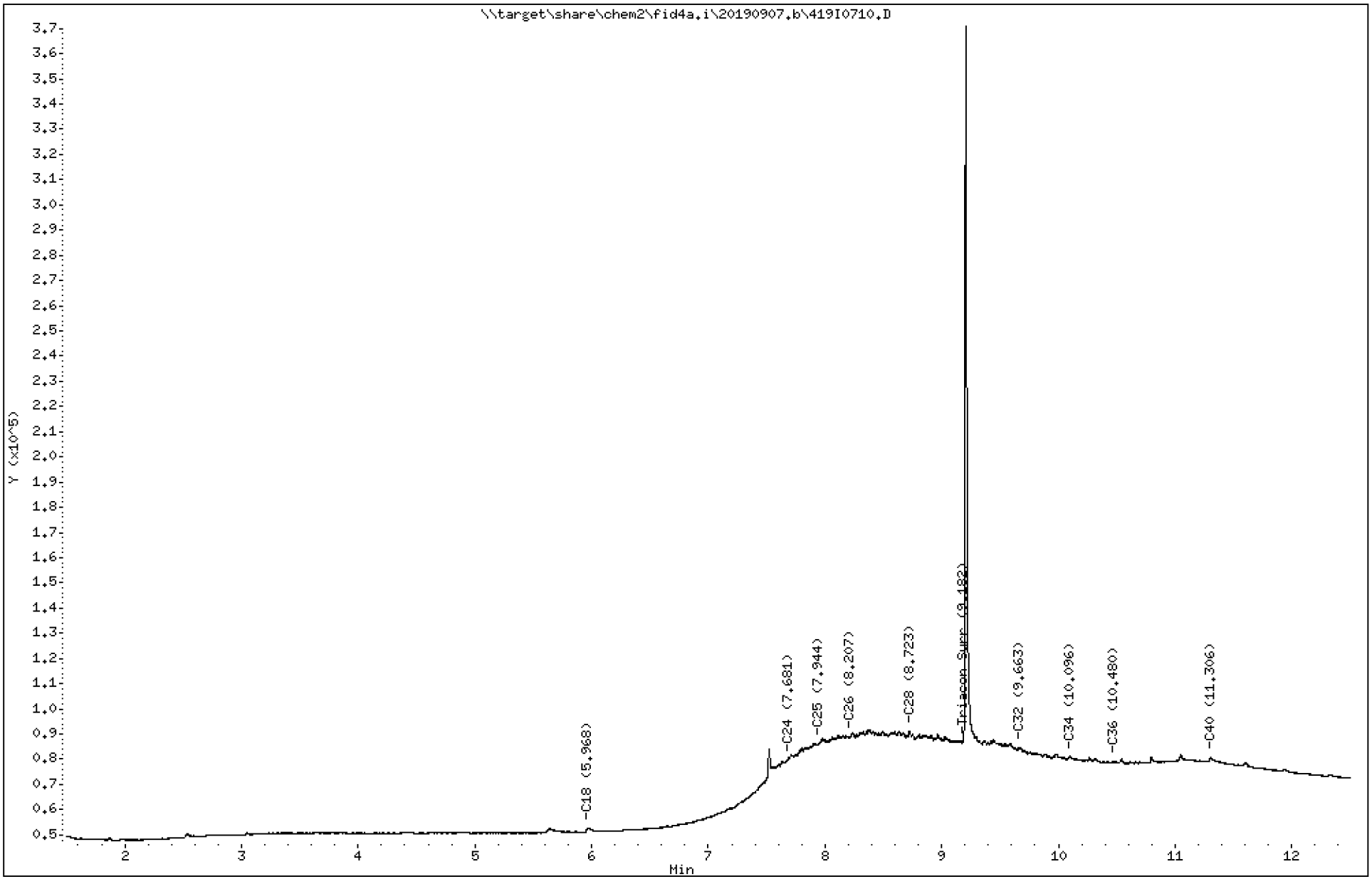


Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0710.D
Date : 07-SEP-2019 12:00
Client ID:
Sample Info: SHI0081-CAL7

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0710.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL7
Client ID:
Injection: 07-SEP-2019 12:00
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)	
C8	----				WATPHD	(C12-C24)	420838	3.5	
C10	----				WATPHM	(C24-C38)	4223160	112.6	
C12	----				AK102	(C10-C25)	708638	5.1	
C14	----				AK103	(C25-C36)	3830763	157.8	
C16	----				OR.DIES	(C10-C28)	2287729	16.5	
C18	5.968	-0.033	4573	4436					
C20	----								
C22	----								
C24	7.681	0.004	31738	18846					
C25	7.944	-0.002	37900	18839					
C26	8.207	-0.003	40843	26364					
C28	8.723	0.003	42861	43855					
C32	9.663	0.002	36433	25291					
C34	10.096	0.000	32841	13033					
Filter Peak	----				BUNKERC	(C10-C38)	4643999	69.0	M
C36	10.480	-0.027	30694	10705					
C38	----								
C40	11.306	0.002	32746	41860					
o-terph	----								
Triacon Surr	9.207	-0.010	283591	299921	NAS DIES	(C10-C24)	420838	3.1	

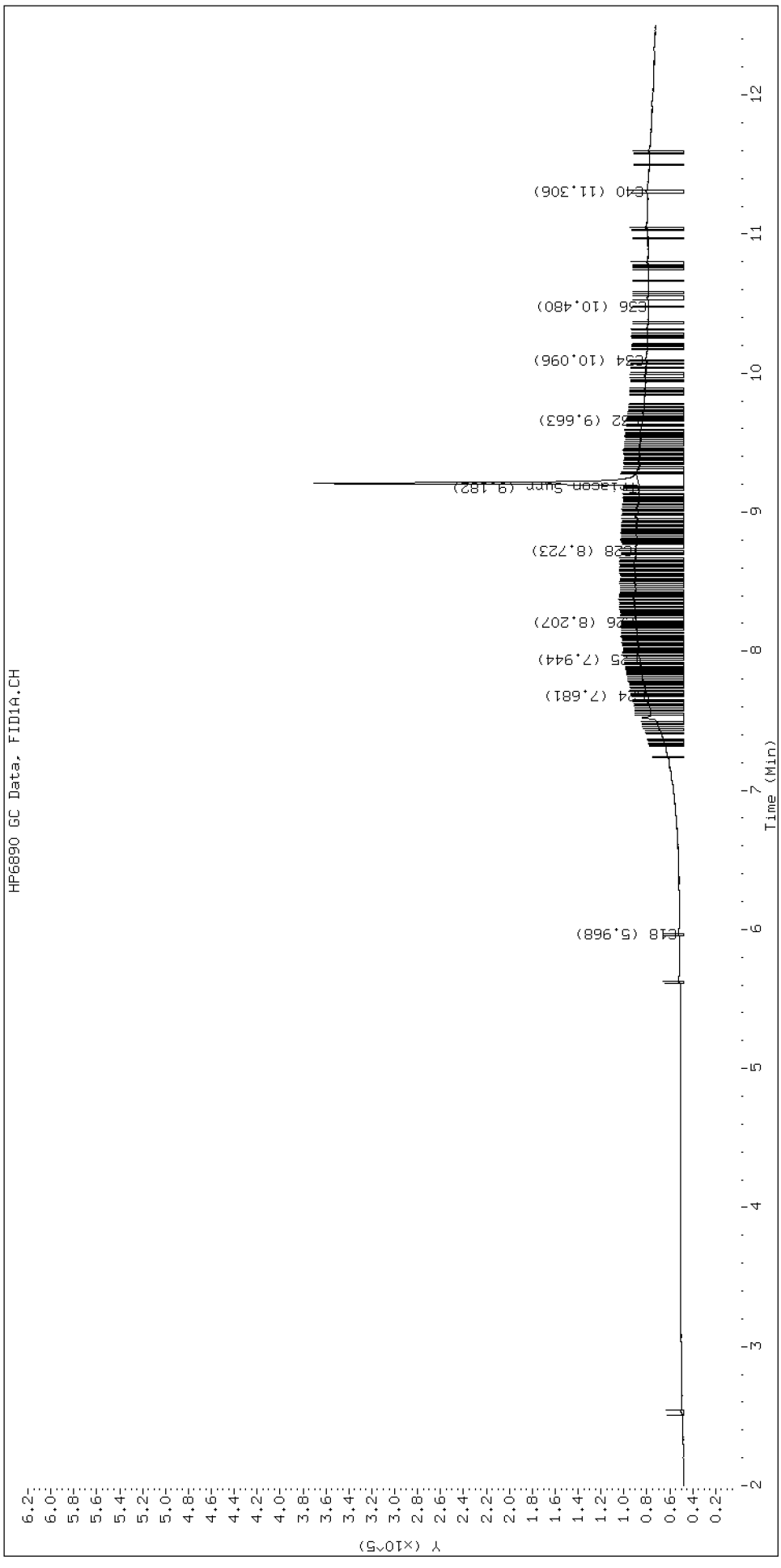
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	299921	7.3	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

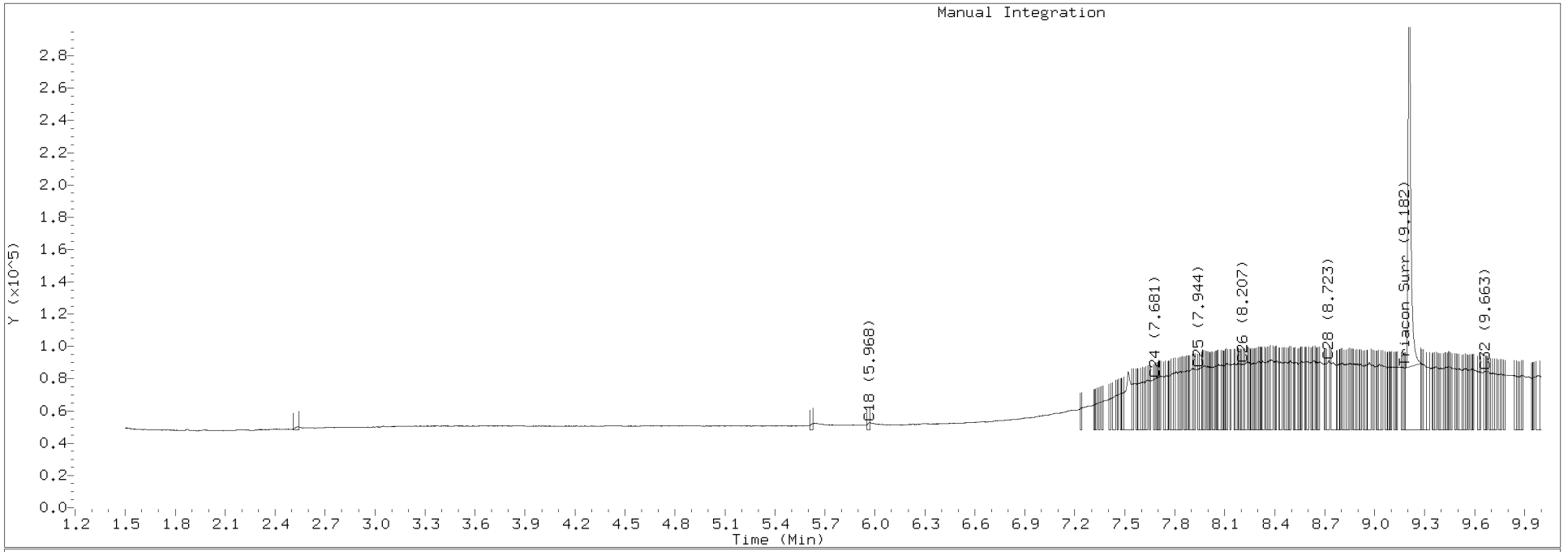
Datafile: FID4A, 20190907.b/419I0710.D SHI0081-CAL7

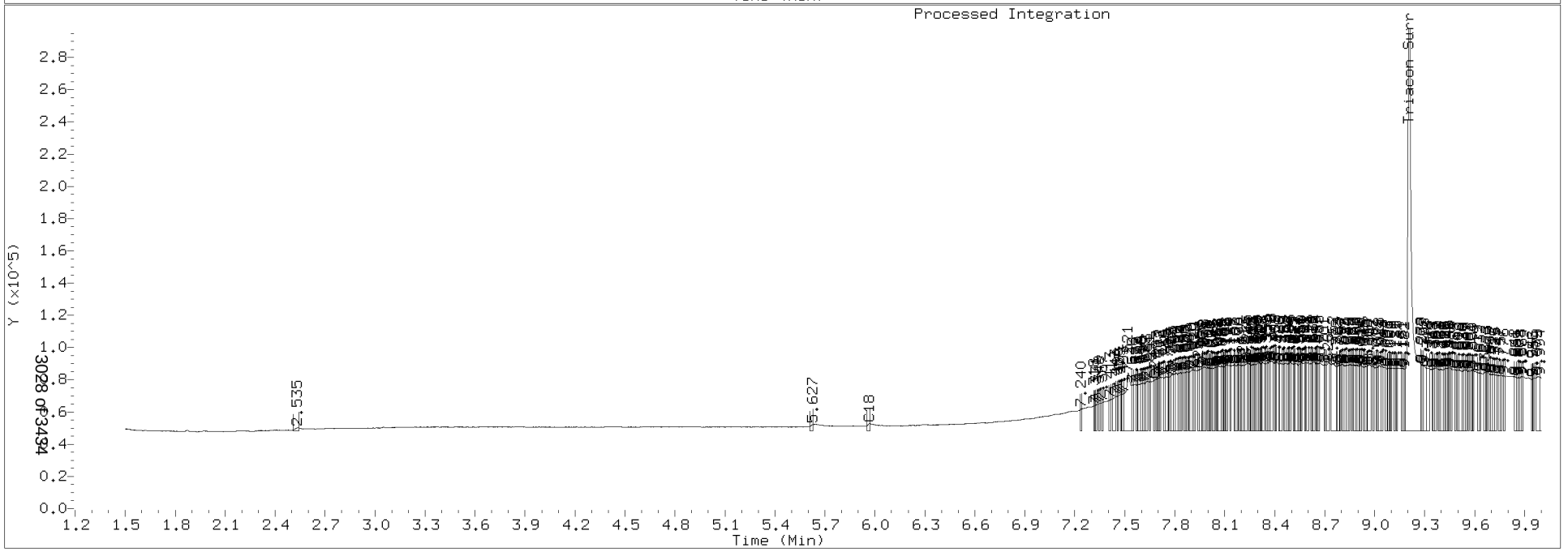


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0710.D Injection: 07-SEP-2019 12:00

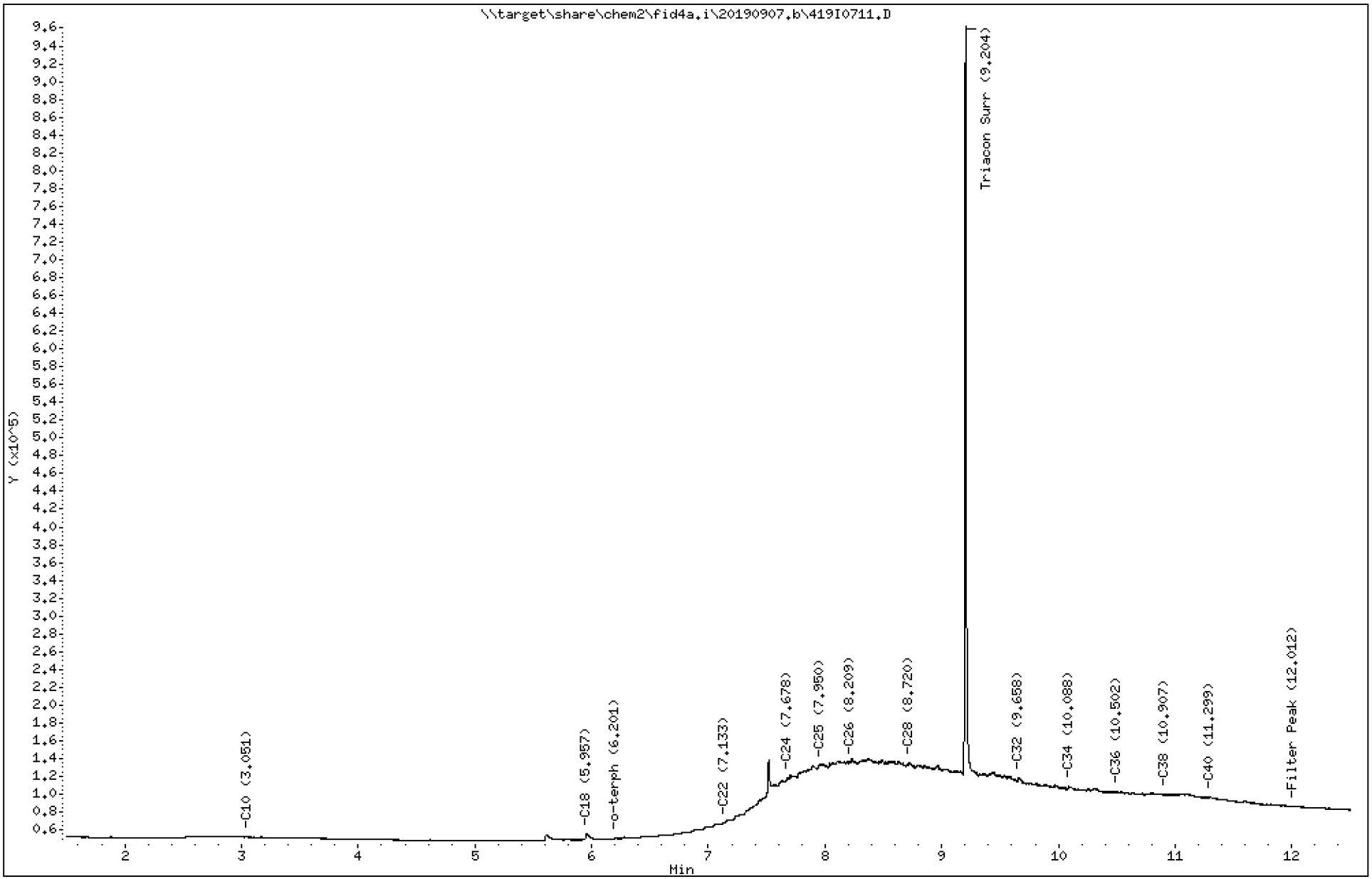
Lab ID:SHI0081-CAL7





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0711.D
Date : 07-SEP-2019 12:21
Client ID:
Sample Info: SHI0081-CAL8

Instrument: fid4a.i
Operator: VTS
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0711.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL8
Client ID:
Injection: 07-SEP-2019 12:21
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	1591138	13.3
C10	3.051	0.028	4195	2412	WATPHM	(C24-C38)	11372976	303.2
C12	----				AK102	(C10-C25)	2281539	16.5
C14	----				AK103	(C25-C36)	9889346	407.5
C16	----				OR.DIES	(C10-C28)	6333980	45.8
C18	5.957	-0.045	7409	13899				
C20	----							
C22	7.133	0.006	20251	15699				
C24	7.678	0.002	70713	45322				
C25	7.950	0.003	84602	37727				
C26	8.209	-0.002	87543	34810				
C28	8.720	-0.000	87453	69017				
C32	9.658	-0.003	69939	78397				
C34	10.088	-0.008	60464	53759				
Filter Peak	12.012	-0.025	38228	26654	BUNKERC	(C10-C38)	12966526	192.7
C36	10.502	-0.004	54252	34785				
C38	10.907	0.002	51538	38541				
C40	11.299	-0.005	48930	53515				
o-terph	6.201	0.010	2341	1491				
Triacon Surr	9.204	-0.013	838910	705328	NAS DIES	(C10-C24)	1593551	11.5

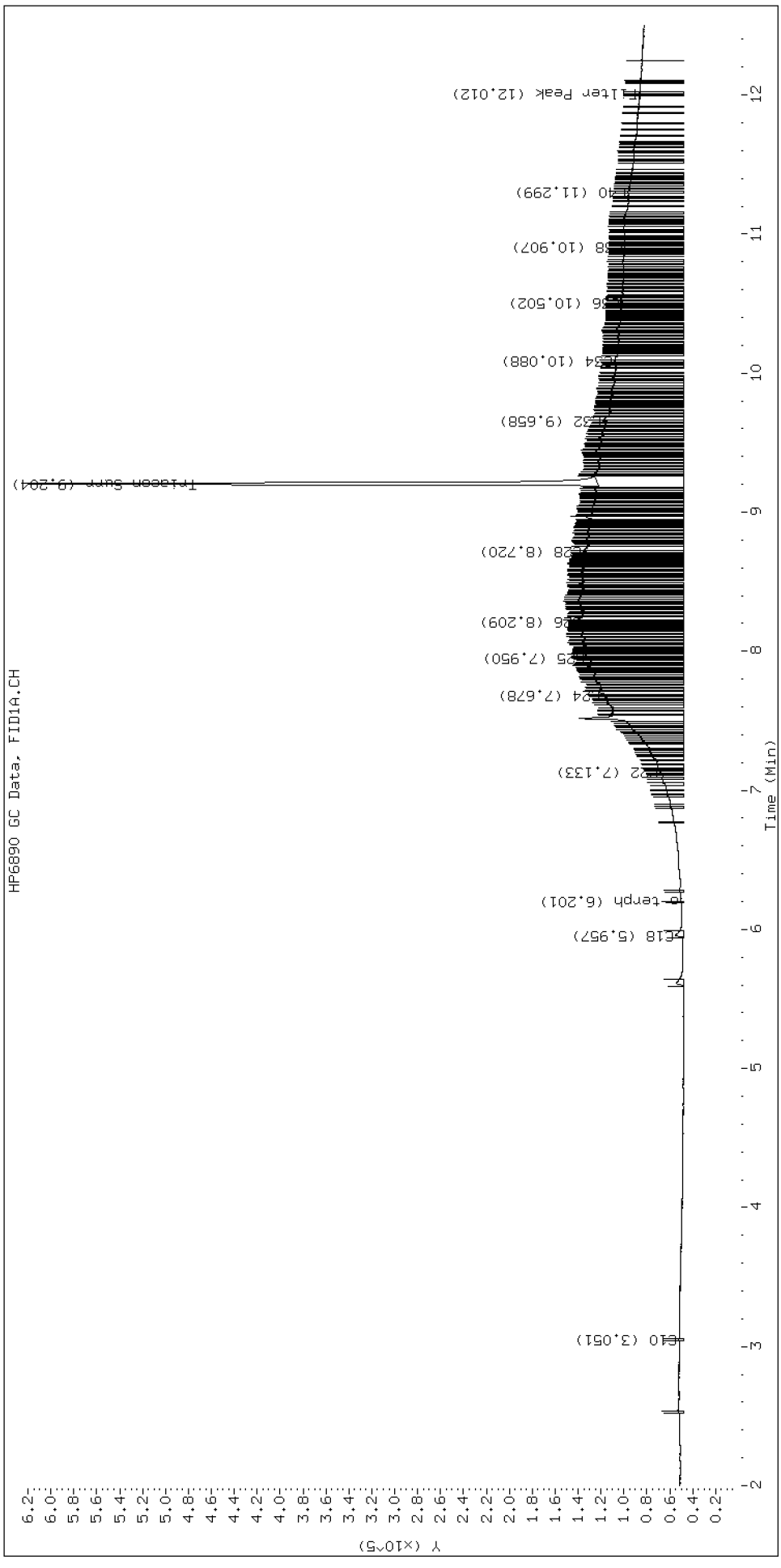
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	1491	0.0	
Triacontane	705328	17.2	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

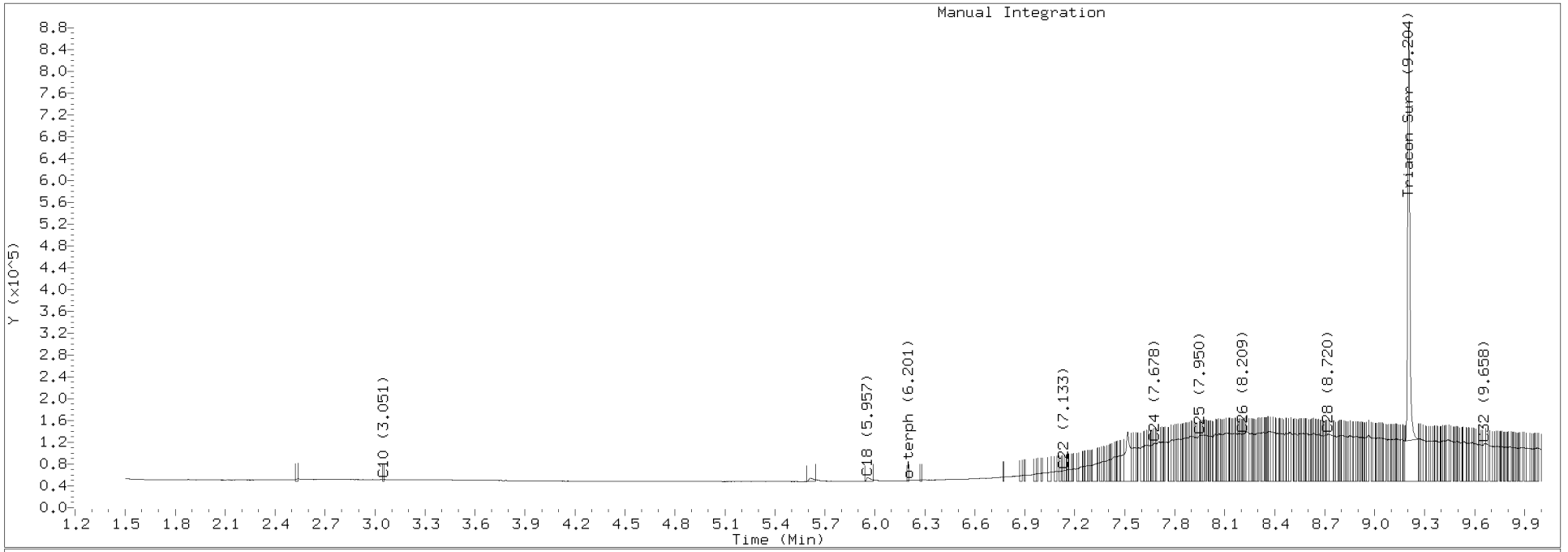
Datafile: FID4A, 20190907.b/419I0711.D SHI0081-CAL8

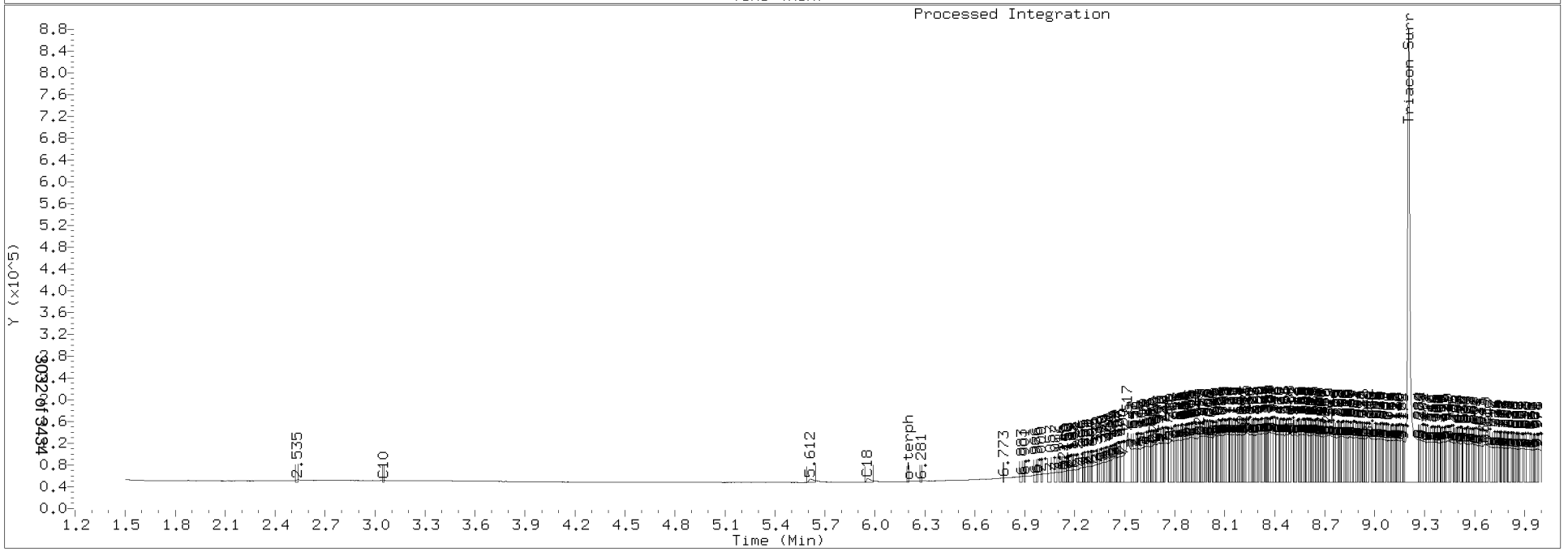


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0711.D Injection: 07-SEP-2019 12:21

Lab ID:SHI0081-CAL8





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0712.D

Date : 07-SEP-2019 12:42

Client ID:

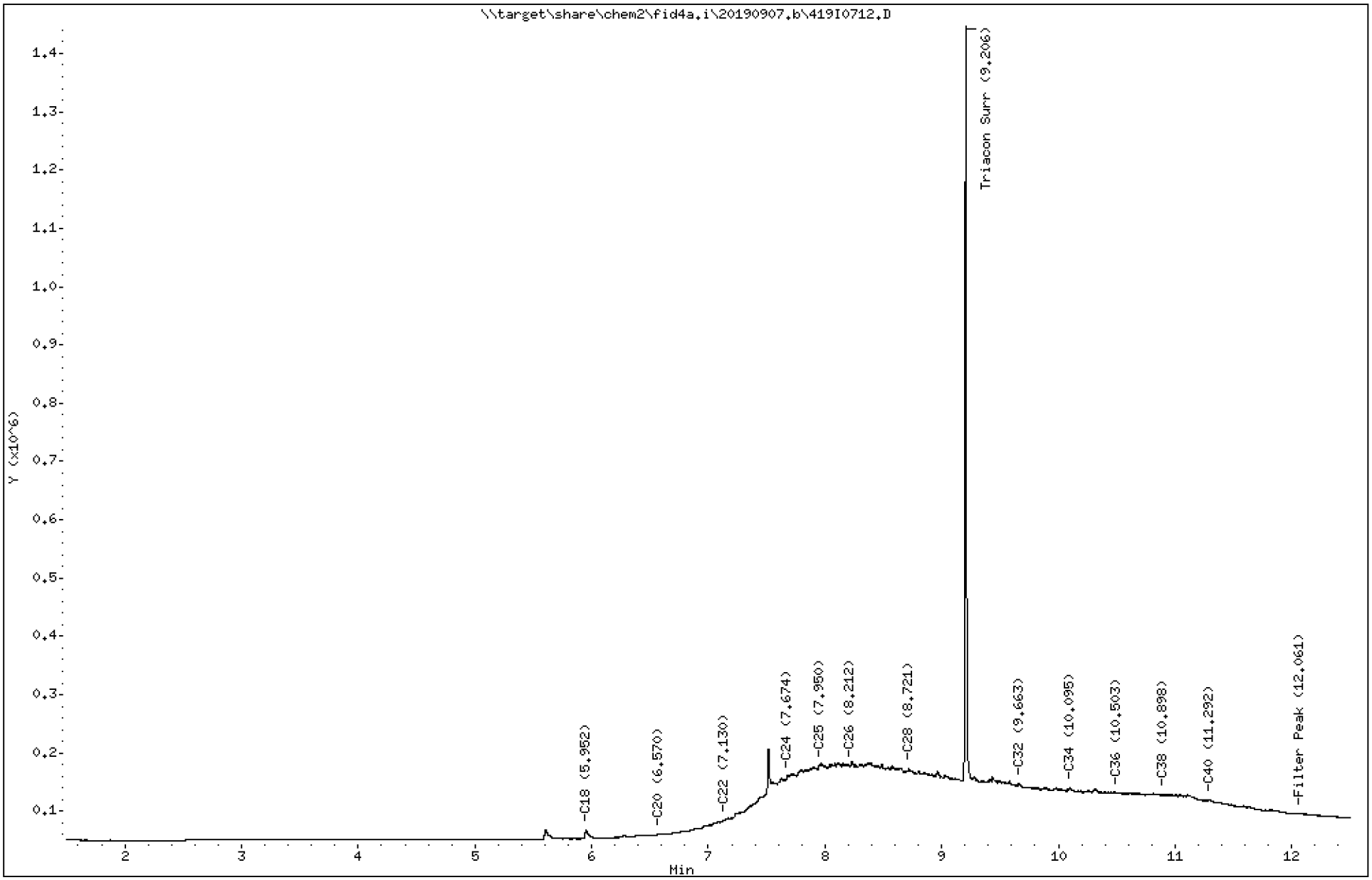
Instrument: fid4a.i

Sample Info: SHI0081-CAL9

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0712.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CAL9
Client ID:
Injection: 07-SEP-2019 12:42
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	2990144	25.0
C10	----				WATPHM	(C24-C38)	18234245	486.1
C12	----				AK102	(C10-C25)	3928994	28.5
C14	----				AK103	(C25-C36)	15654980	645.0
C16	----				OR.DIES	(C10-C28)	10439005	75.5
C18	5.952	-0.049	18026	38857				
C20	6.570	0.002	9874	6146				
C22	7.130	0.002	33951	23008				
C24	7.674	-0.003	109688	85019				
C25	7.950	0.003	127798	100252				
C26	8.212	0.001	128662	63796				
C28	8.721	0.001	122338	90398				
C32	9.663	0.001	98323	137617				
C34	10.095	-0.001	89458	44234				
Filter Peak	12.061	0.025	45771	18241	BUNKERC	(C10-C38)	21224389	315.5
C36	10.503	-0.004	81668	52738				
C38	10.898	-0.007	78020	34887				
C40	11.292	-0.012	69511	79346				
o-terph	----							
Triacon Surr	9.206	-0.011	1293304	1038372	NAS DIES	(C10-C24)	2990144	21.7

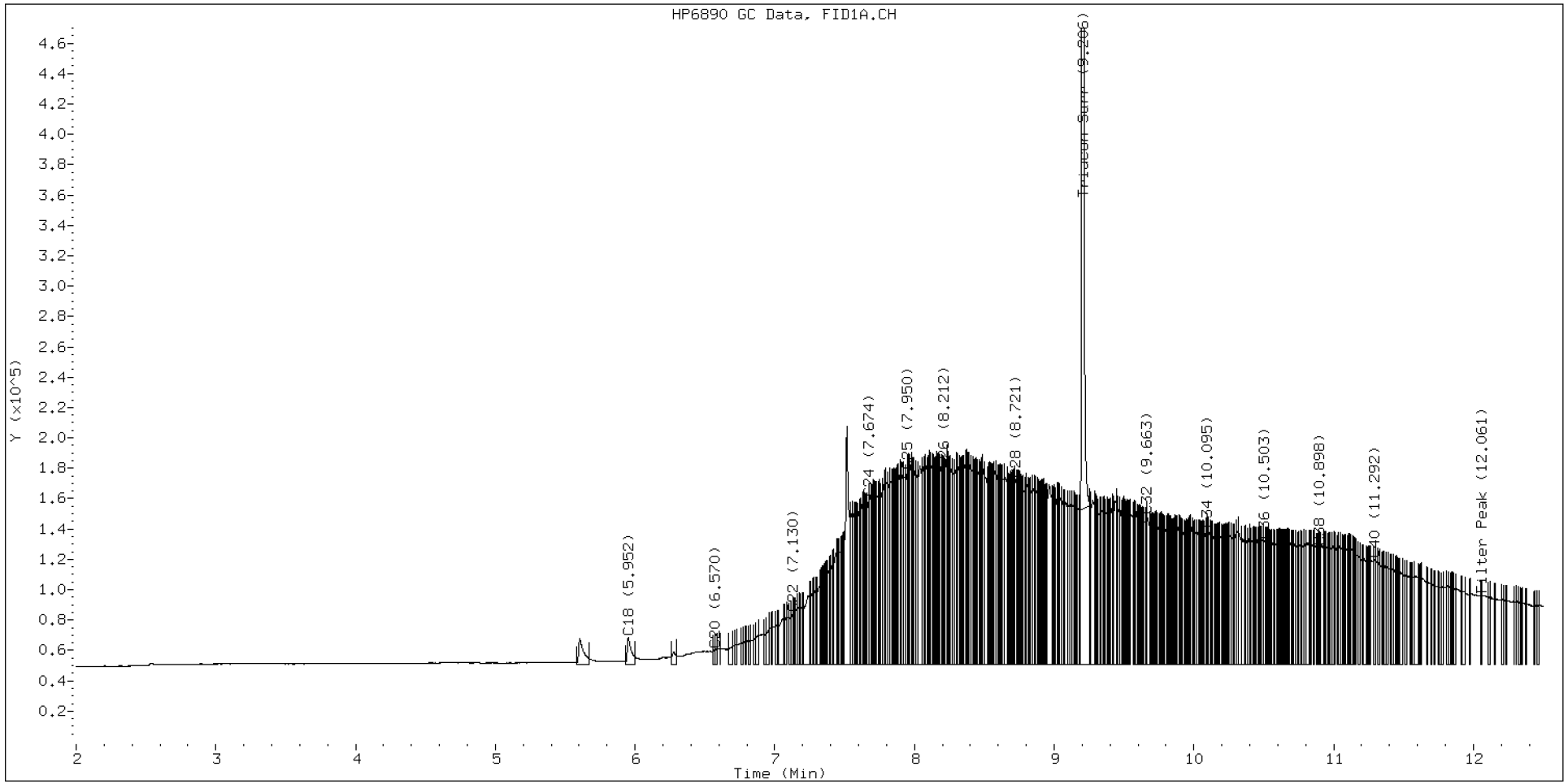
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	1038372	25.3	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

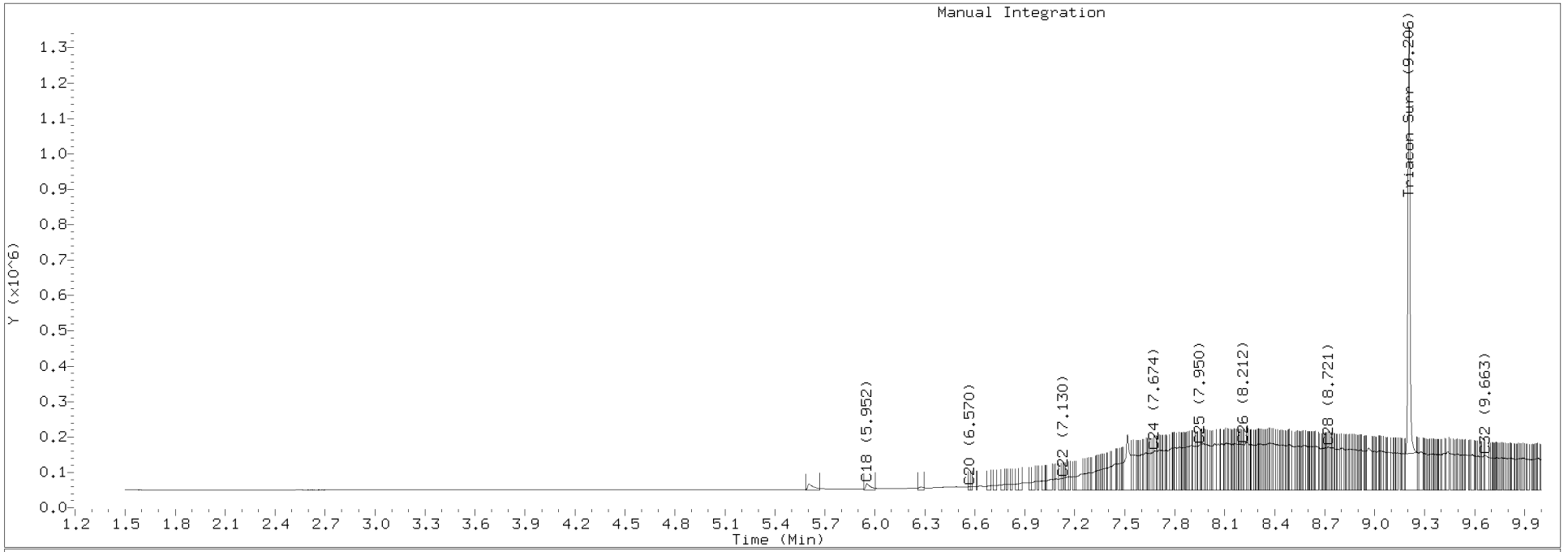
Datafile: FID4A, 20190907.b/419I0712.D SHI0081-CAL9

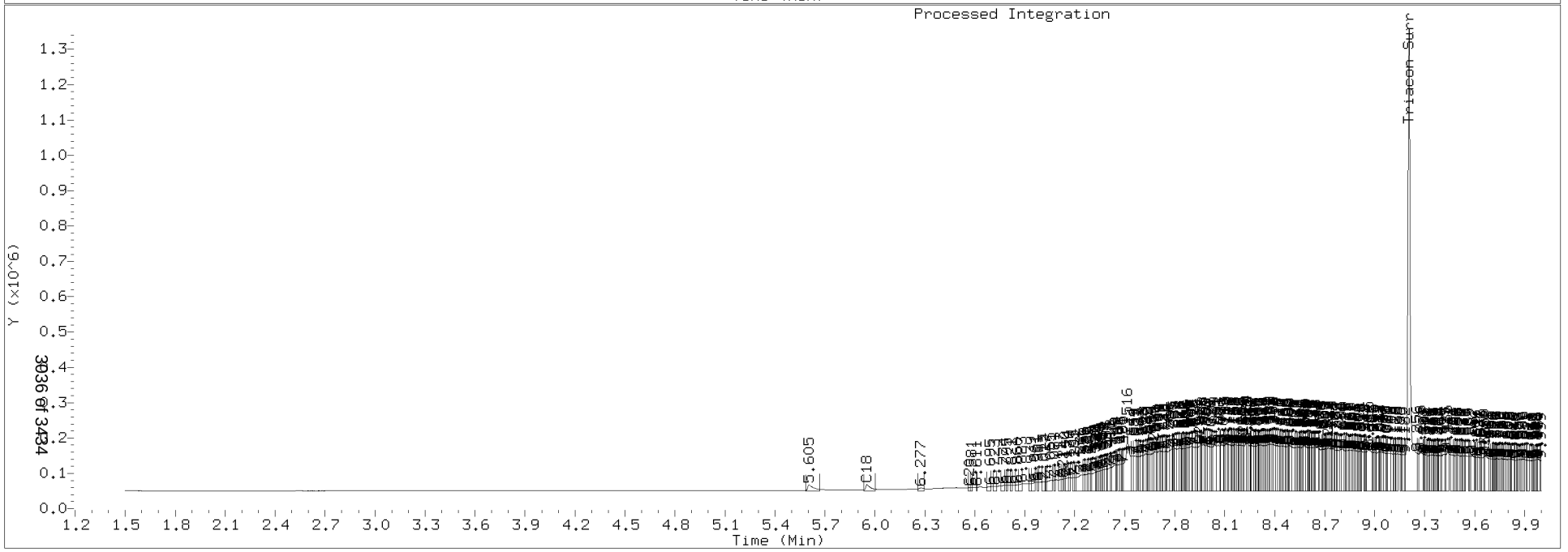


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0712.D Injection: 07-SEP-2019 12:42

Lab ID:SHI0081-CAL9





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0713.D

Date : 07-SEP-2019 13:04

Client ID:

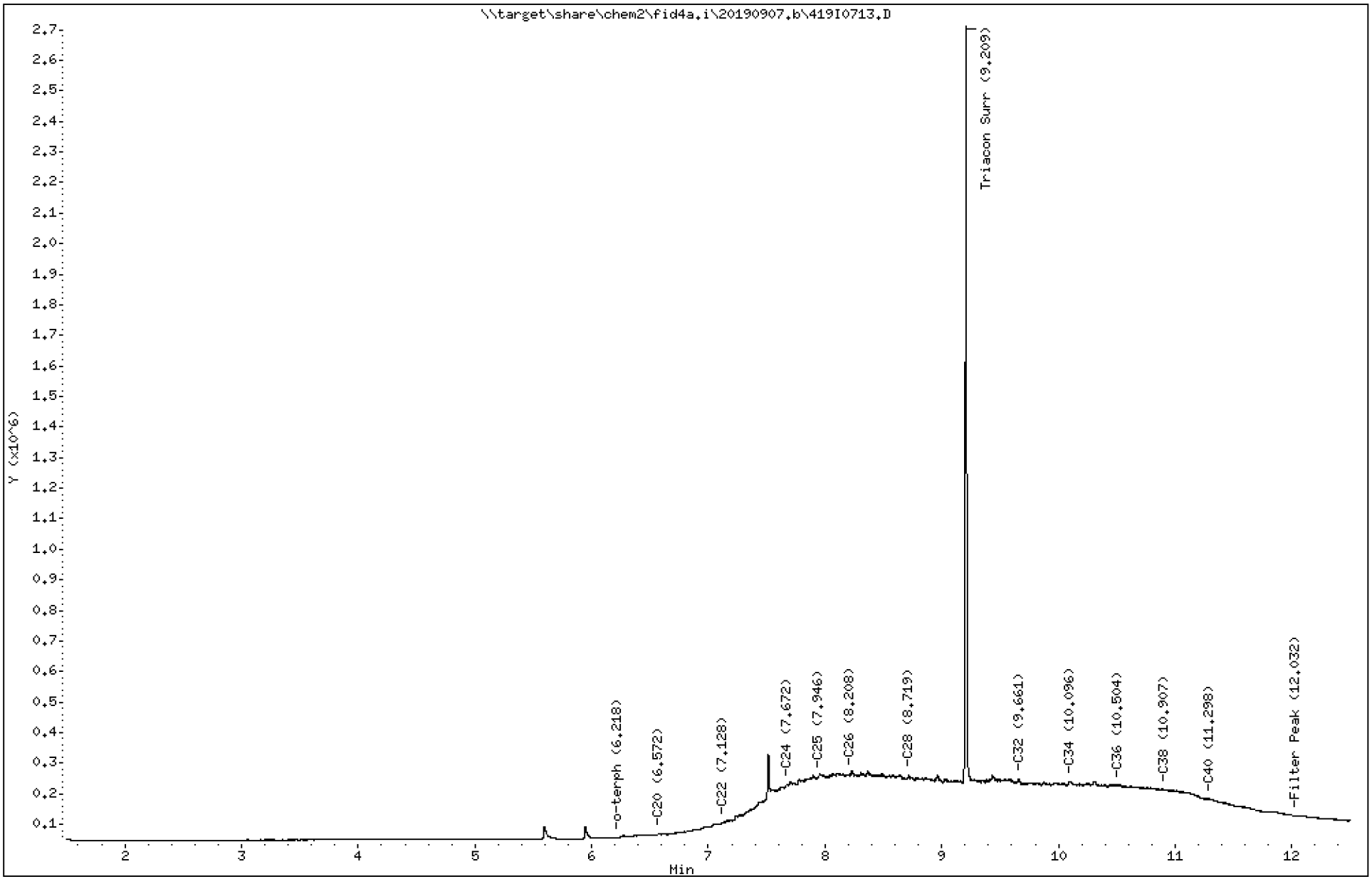
Instrument: fid4a.i

Sample Info: SHI0081-CALA

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0713.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALA
Client ID:
Injection: 07-SEP-2019 13:04
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5464810	45.7
C10	----				WATPHM	(C24-C38)	36318764	968.3
C12	----				AK102	(C10-C25)	7369402	53.4
C14	----				AK103	(C25-C36)	30447143	1254.5
C16	----				OR.DIES	(C10-C28)	18270150	132.1
C18	----							
C20	6.572	0.004	18183	23353				
C22	7.128	0.001	57908	75291				
C24	7.672	-0.004	181022	168449				
C25	7.946	-0.001	207798	163318				
C26	8.208	-0.003	215390	127943				
C28	8.719	-0.001	212149	320604				
C32	9.661	-0.001	199509	166061				
C34	10.096	-0.000	191043	142529				
Filter Peak	12.032	-0.005	80532	103760	BUNKERC	(C10-C38)	41783574	621.1
C36	10.504	-0.003	177961	44389				
C38	10.907	0.002	163881	73362				
C40	11.298	-0.006	133332	86078				
o-terph	6.218	0.027	8634	5074				
Triacon Surr	9.209	-0.008	2471600	1931615	NAS DIES	(C10-C24)	5464810	39.6

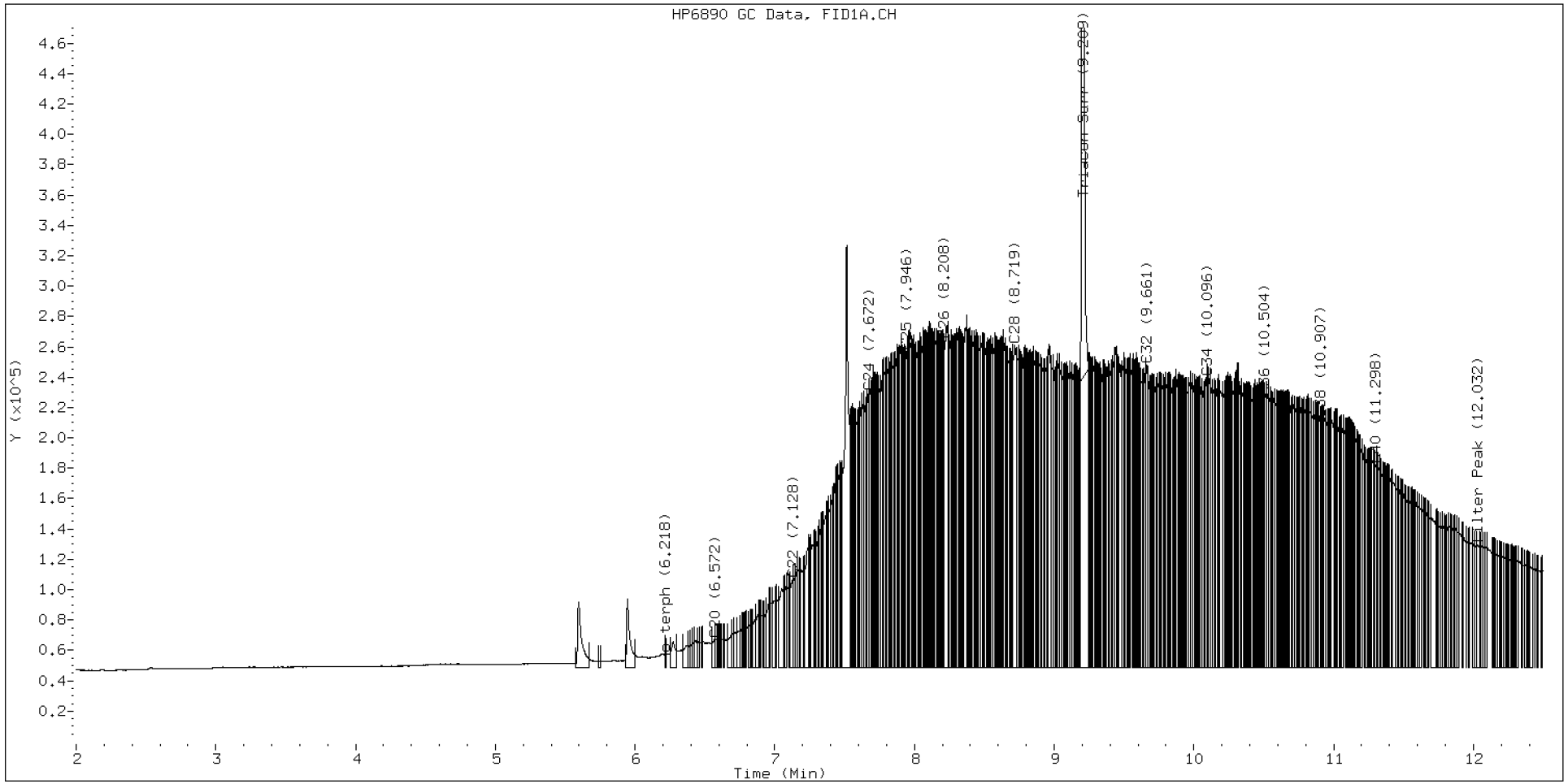
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	5074	0.0	
Triacontane	1931615	47.0	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

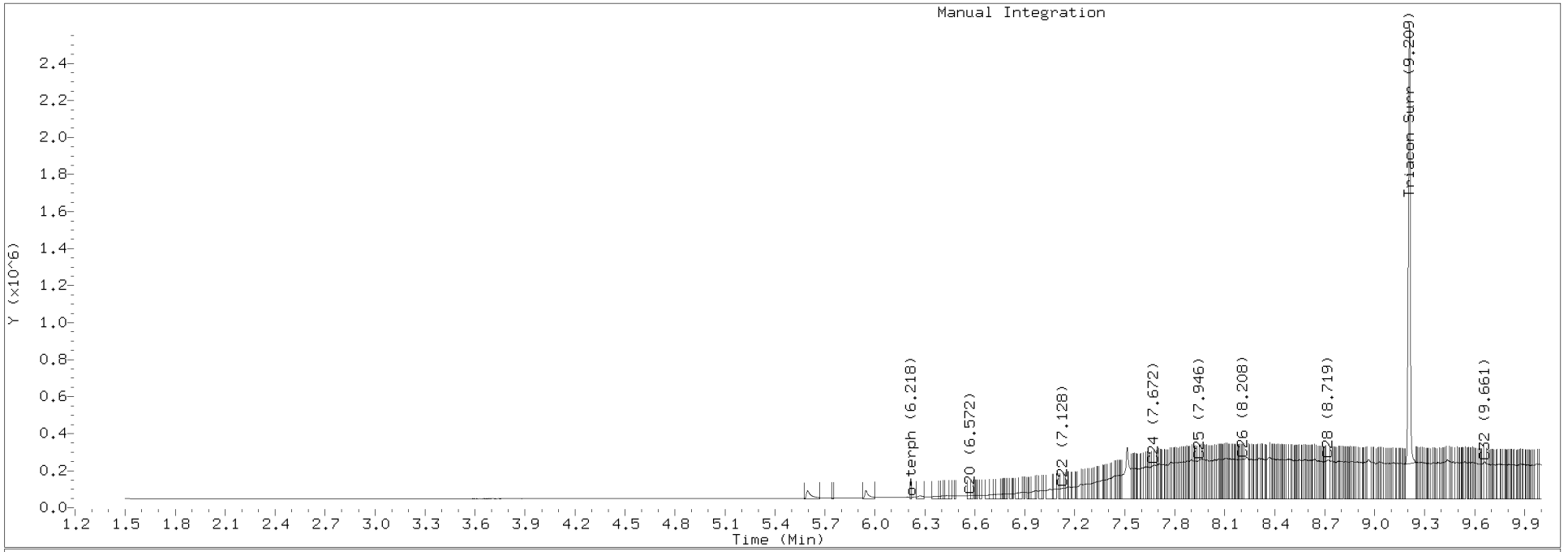
Datafile: FID4A, 20190907.b/419I0713.D SHI0081-CALA

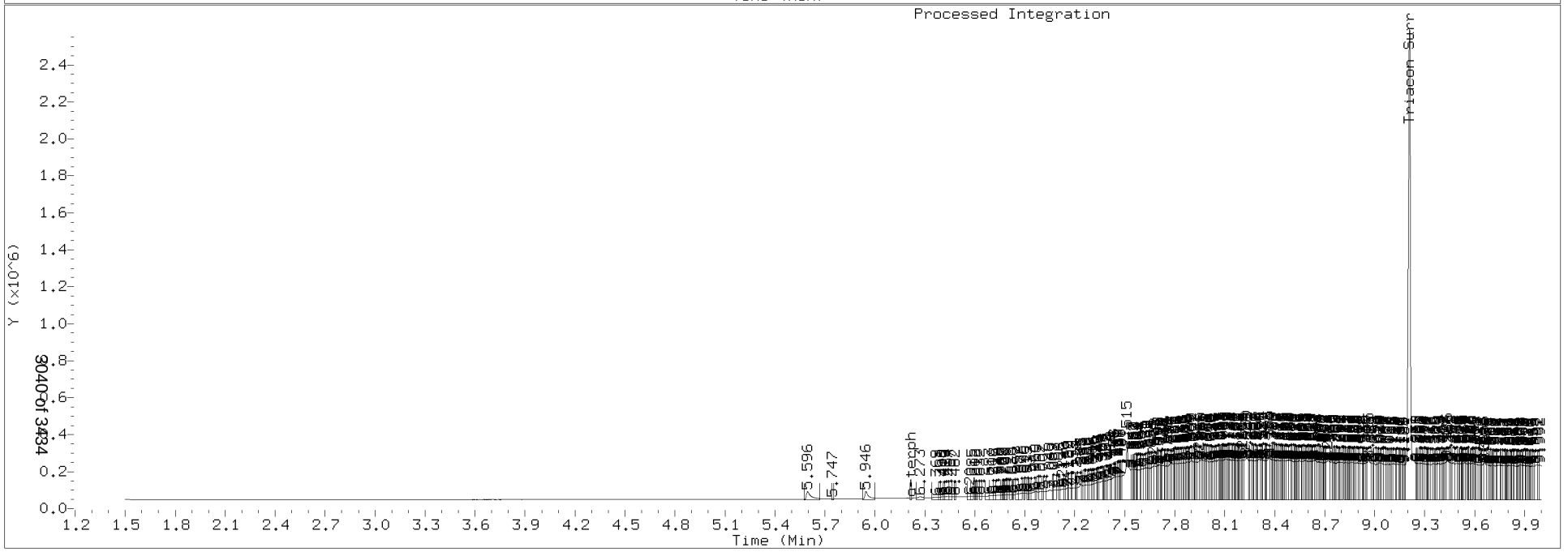


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0713.D Injection: 07-SEP-2019 13:04

Lab ID:SHI0081-CALA





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0714.D

Date : 07-SEP-2019 13:25

Client ID:

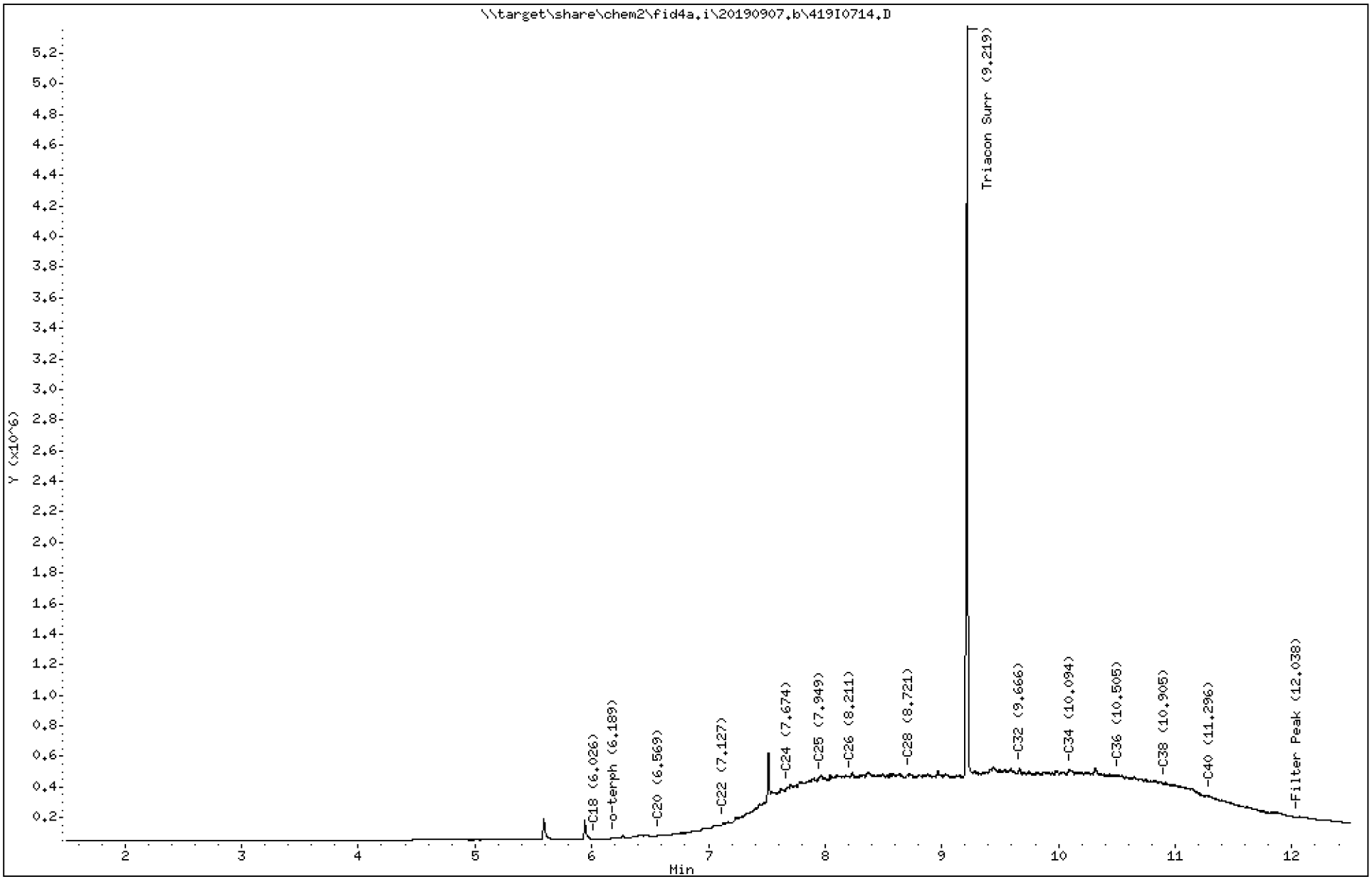
Sample Info: SHI0081-CALB

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0714.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALB
Client ID:
Injection: 07-SEP-2019 13:25
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	10918972	91.2
C10	----				WATPHM	(C24-C38)	81257522	2166.4
C12	----				AK102	(C10-C25)	14731945	106.7
C14	----				AK103	(C25-C36)	67954434	2800.0
C16	----				OR.DIES	(C10-C28)	36637290	264.9
C18	6.026	0.024	10096	3007				
C20	6.569	0.002	34706	57822				
C22	7.127	-0.001	112065	102852				
C24	7.674	-0.003	352103	309824				
C25	7.949	0.003	410083	338077				
C26	8.211	0.000	422463	146510				
C28	8.721	0.001	435435	235753				
C32	9.666	0.004	471902	731389				
C34	10.094	-0.002	462897	230542				
Filter Peak	12.038	0.001	155157	146206	BUNKERC	(C10-C38)	92176494	1370.1
C36	10.505	-0.001	424899	126960				
C38	10.905	0.000	371975	276989				
C40	11.296	-0.008	289806	271810				
o-terph	6.189	-0.002	15872	39986				
Triacon Surr	9.219	0.002	4898716	4536603	NAS DIES	(C10-C24)	10918972	79.1

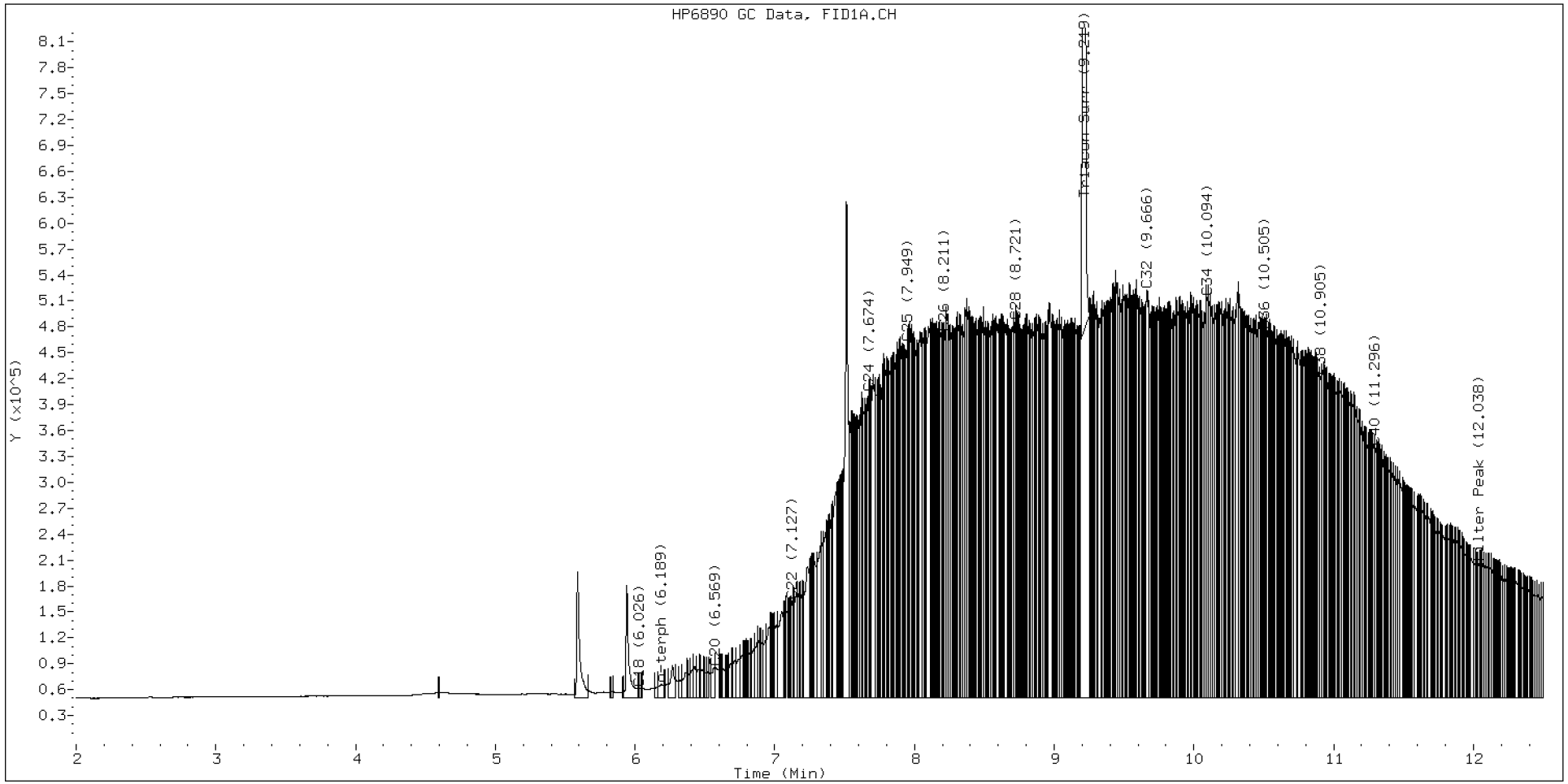
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	39986	0.3	
Triacontane	4536603	110.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

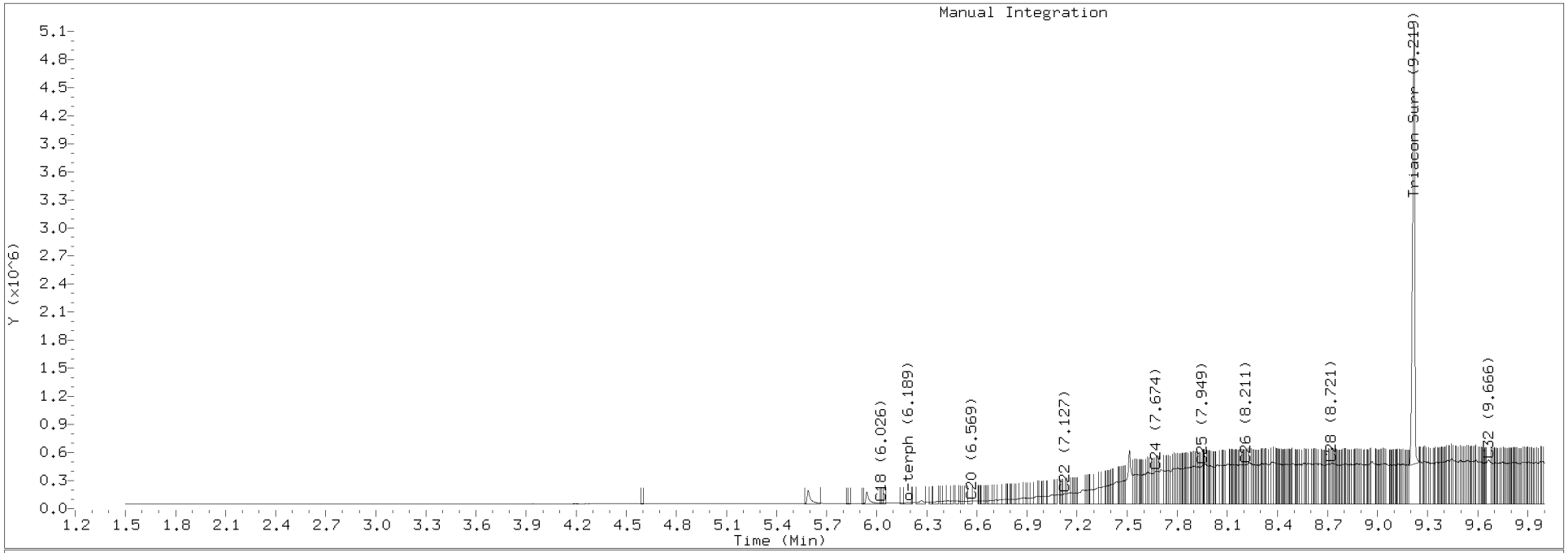
Datafile: FID4A, 20190907.b/419I0714.D SHI0081-CALB

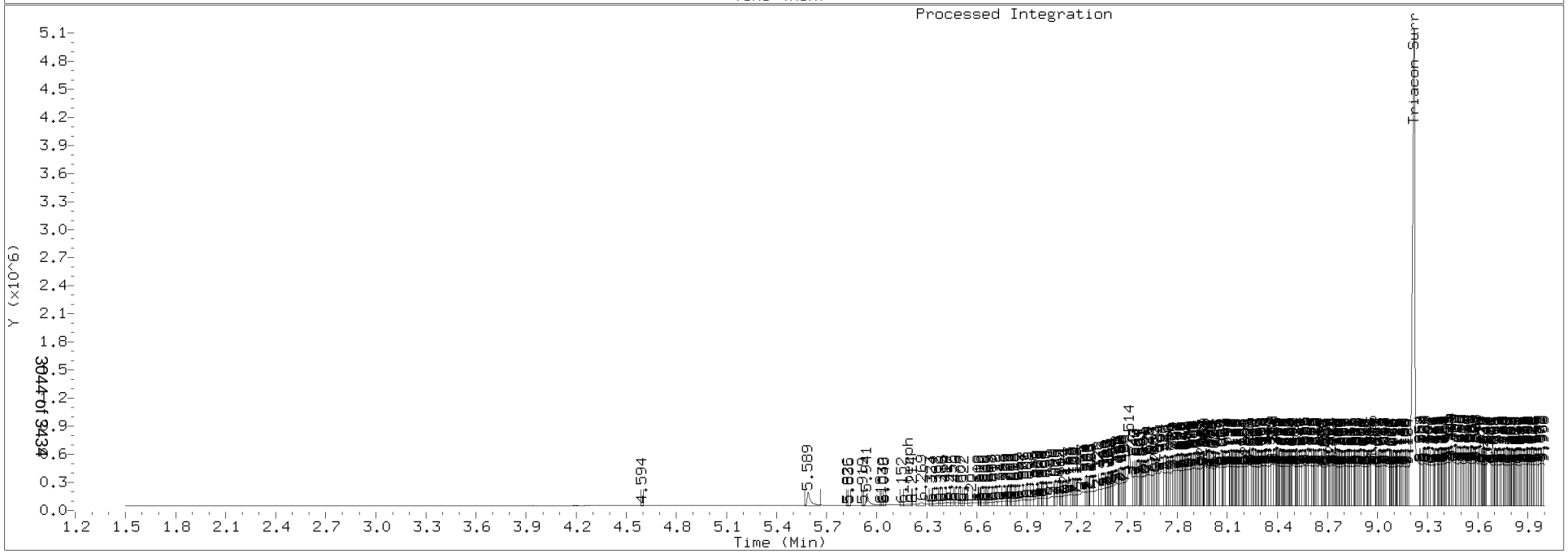


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0714.D Injection: 07-SEP-2019 13:25

Lab ID:SHI0081-CALB





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0715.D

Date : 07-SEP-2019 13:46

Client ID:

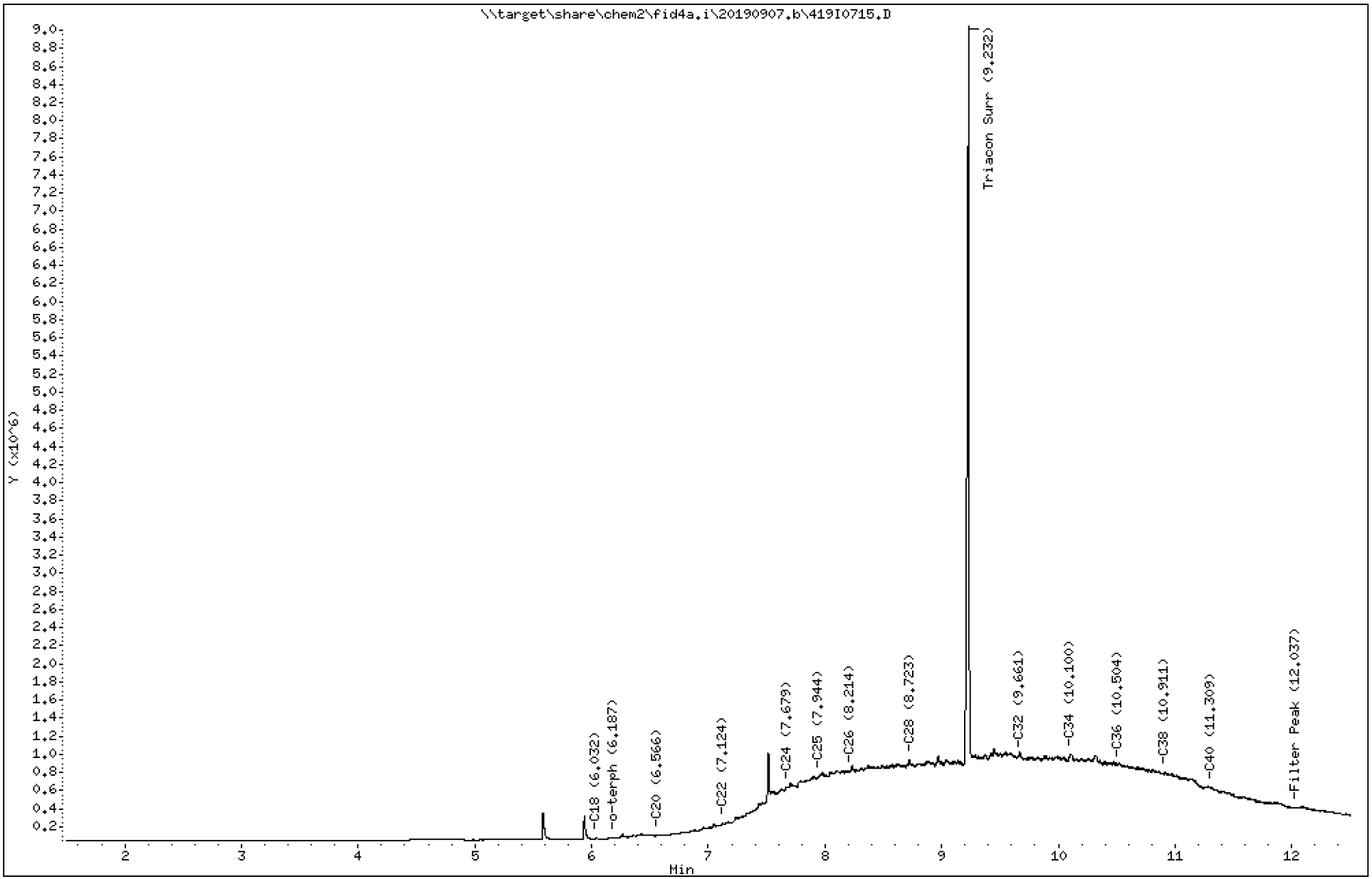
Sample Info: SHI0081-CALC

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0715.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALC
Client ID:
Injection: 07-SEP-2019 13:46
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	19877911	166.1
C10	----				WATPHM	(C24-C38)	160181476	4270.6
C12	----				AK102	(C10-C25)	26328969	190.7
C14	----				AK103	(C25-C36)	135157512	5569.0
C16	----				OR.DIES	(C10-C28)	67216131	486.0
C18	6.032	0.031	21691	19423				
C20	6.566	-0.002	64178	108711				
C22	7.124	-0.003	188462	341192				
C24	7.679	0.002	593098	325578				
C25	7.944	-0.002	703610	174545				
C26	8.214	0.003	773980	650884				
C28	8.723	0.003	884987	1333883				
C32	9.661	-0.001	938413	557921				
C34	10.100	0.004	956833	1059403				
Filter Peak	12.037	0.000	366469	200763	BUNKERC	(C10-C38)	180059387	2676.3
C36	10.504	-0.002	827682	206454				
C38	10.911	0.006	753236	481942				
C40	11.309	0.005	582029	116140				
o-terph	6.187	-0.004	30595	51379				
Triacon Surr	9.232	0.015	8088384	9234030	NAS DIES	(C10-C24)	19877911	144.1

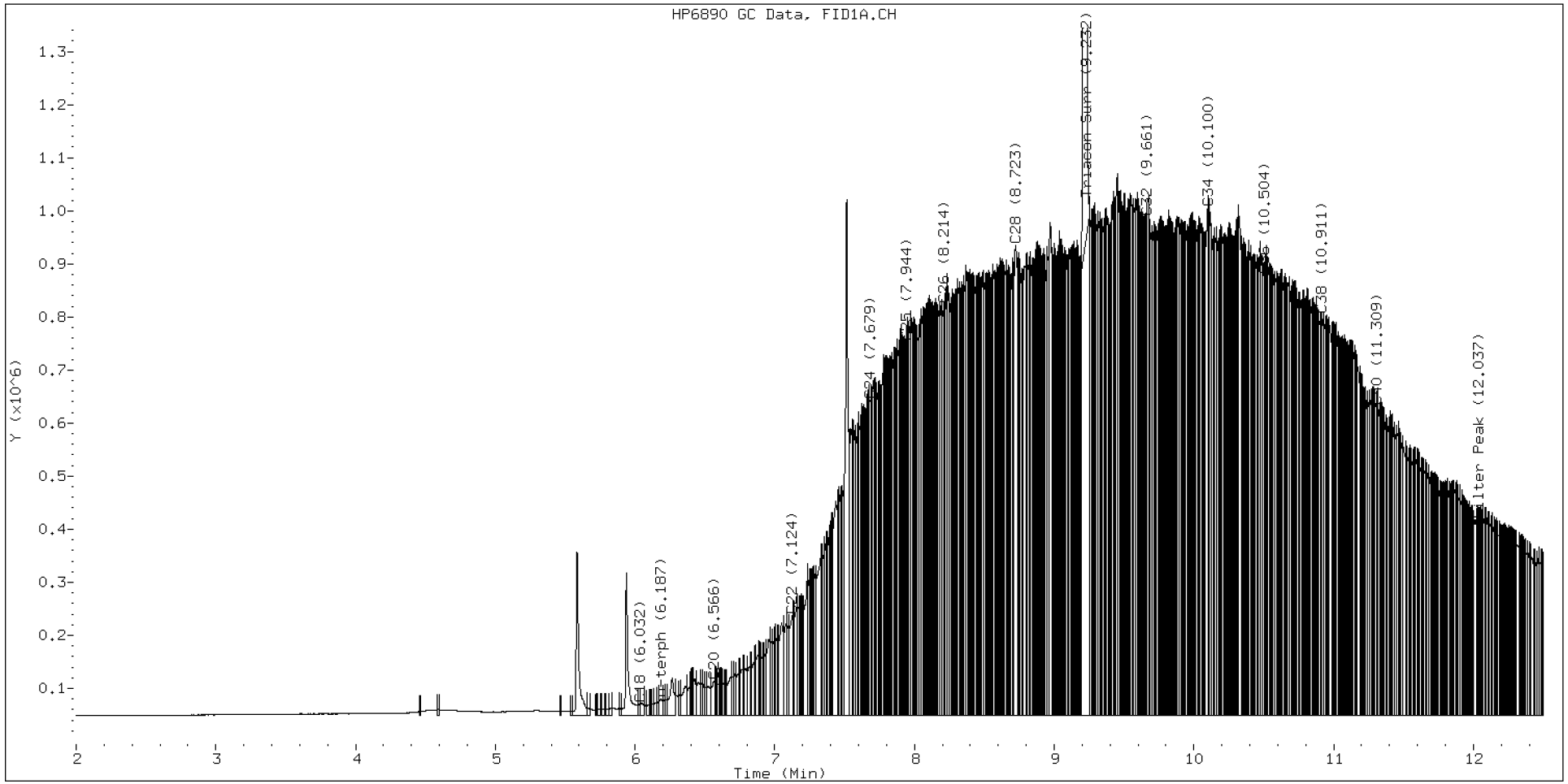
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	51379	0.3	
Triacontane	9234030	224.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

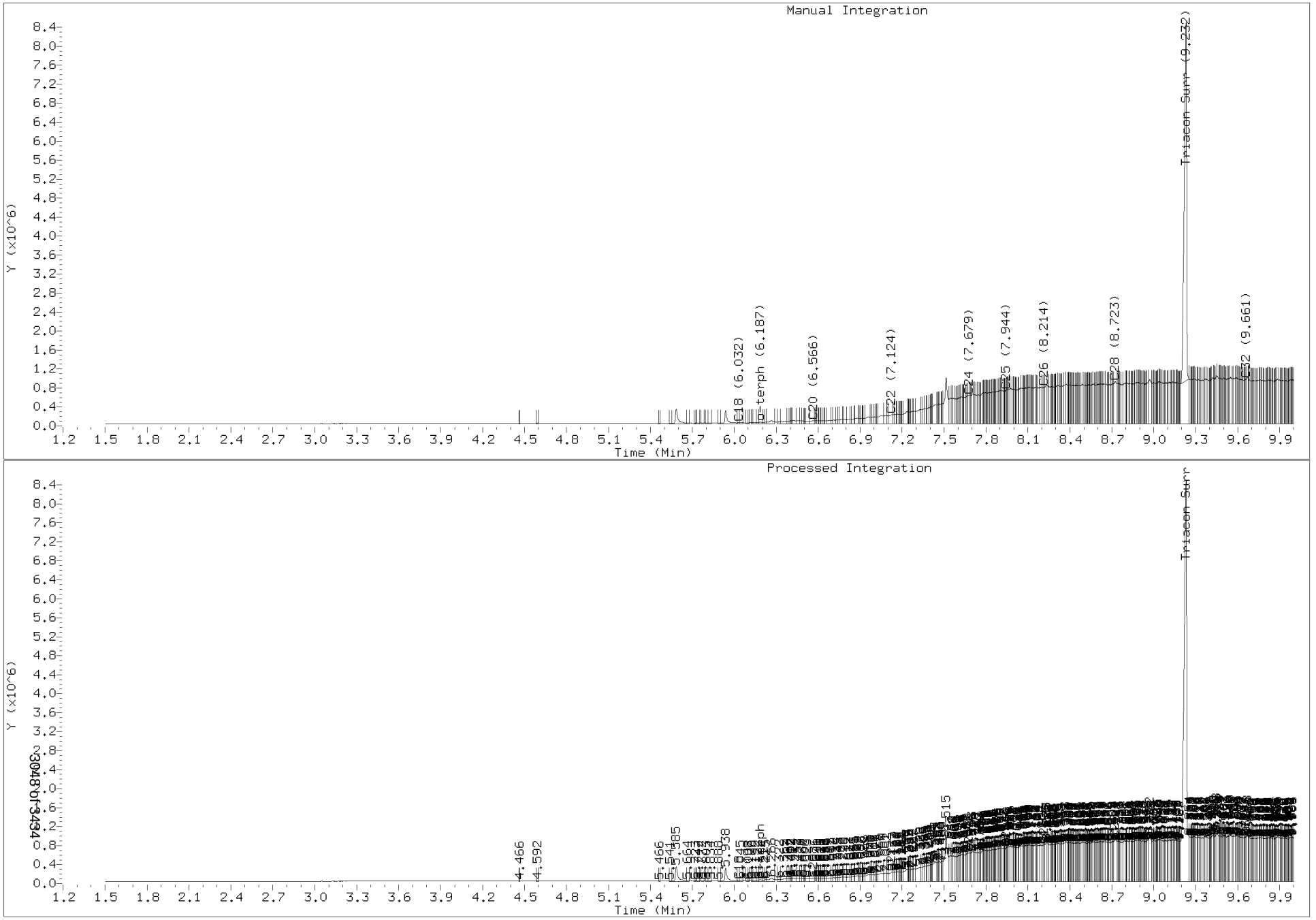
Datafile: FID4A, 20190907.b/419I0715.D SHI0081-CALC



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0715.D Injection: 07-SEP-2019 13:46

Lab ID:SHI0081-CALC



Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0717.D

Date : 07-SEP-2019 14:27

Client ID:

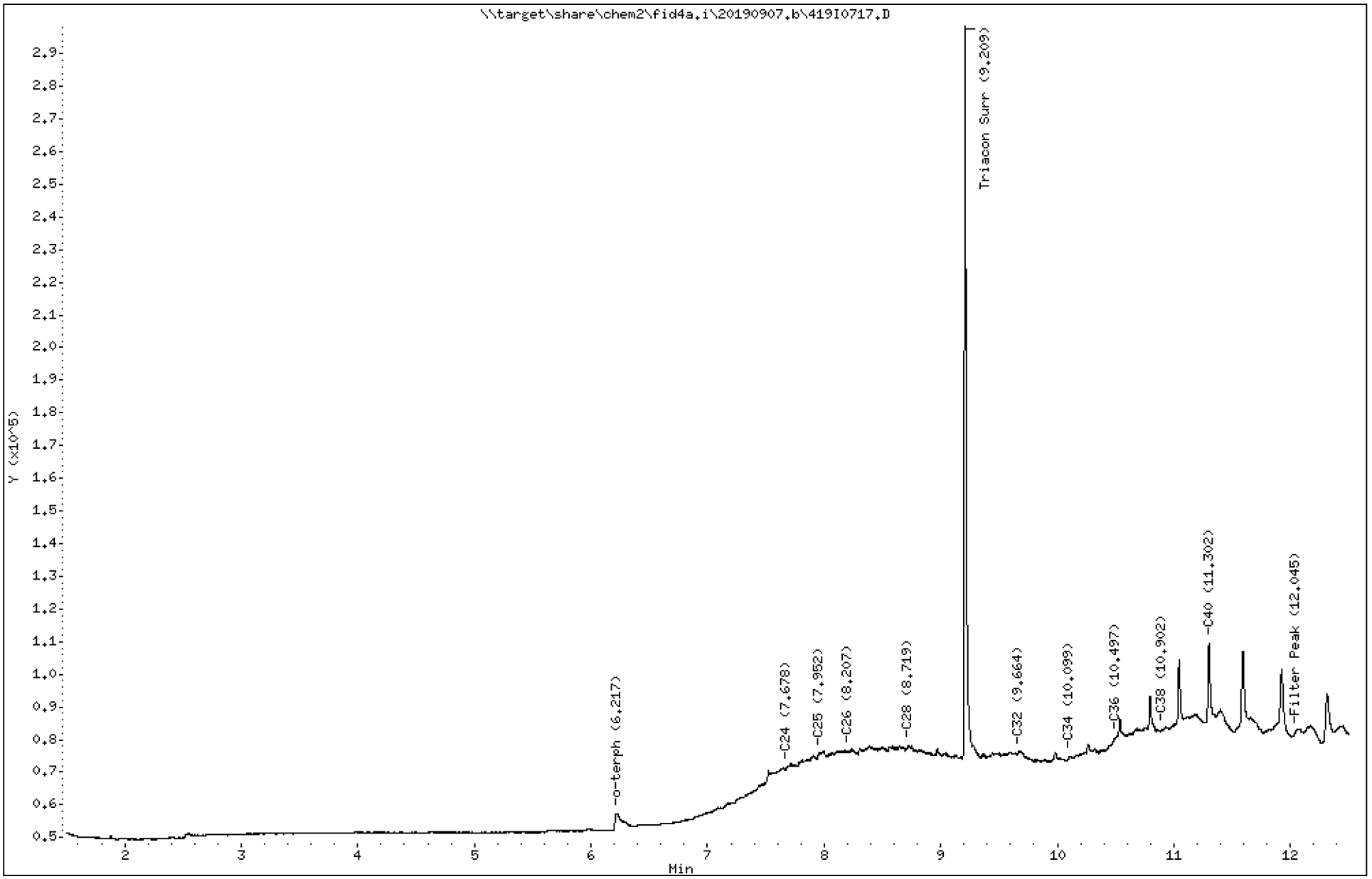
Sample Info: SHI0081-CALD

Instrument: fid4a.i

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0717.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALD
Client ID:
Injection: 07-SEP-2019 14:27
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

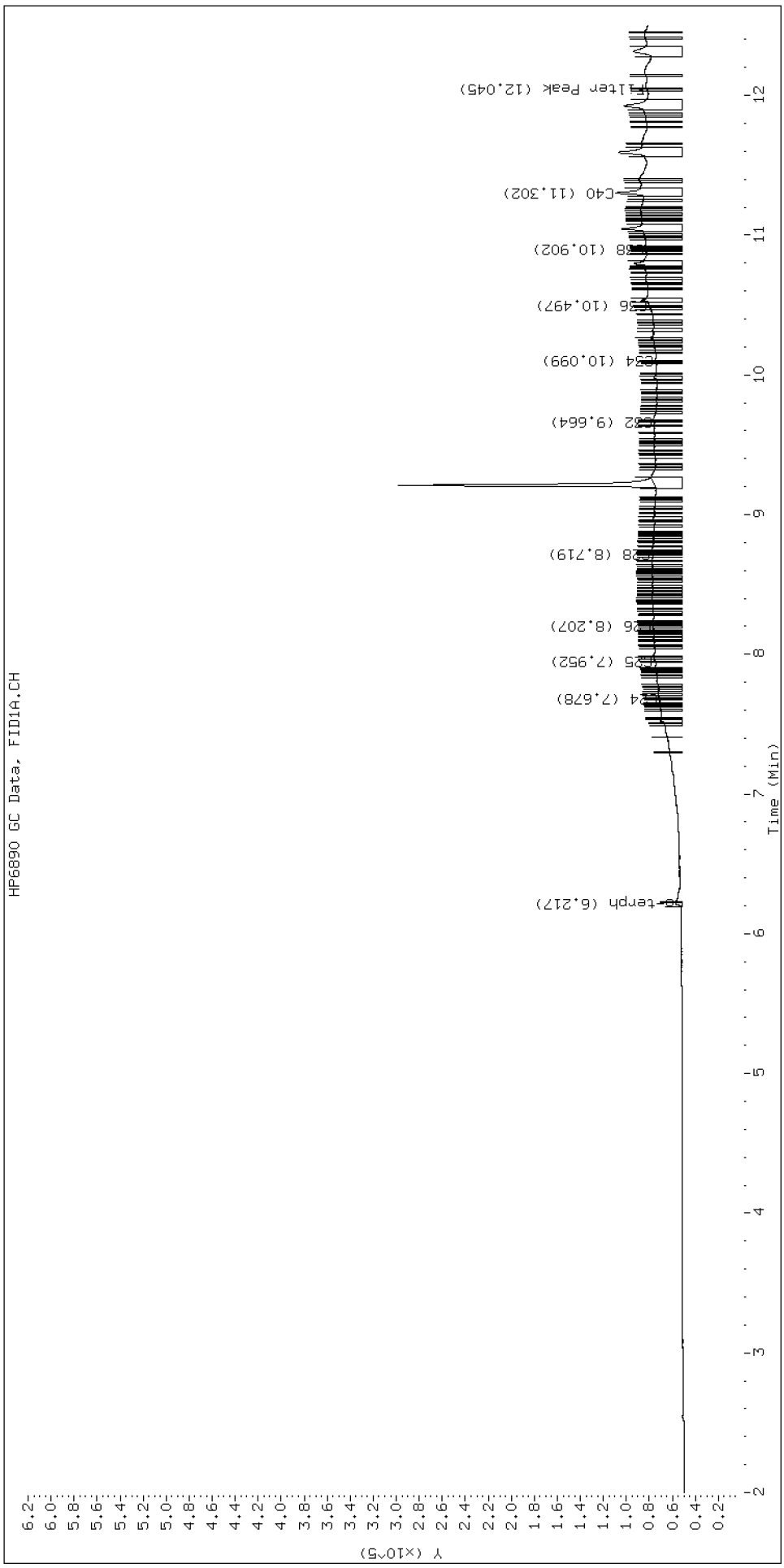
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	147477	1.2
C10	----				WATPHM	(C24-C38)	2136213	57.0
C12	----				AK102	(C10-C25)	260876	1.9
C14	----				AK103	(C25-C36)	1689423	69.6
C16	----				OR.DIES	(C10-C28)	929480	6.7
C18	----							
C20	----							
C22	----							
C24	7.678	0.002	20231	9954				
C25	7.952	0.005	24138	17596				
C26	8.207	-0.004	25085	12440				
C28	8.719	-0.001	26592	17210				
C32	9.664	0.002	24683	8559				
C34	10.099	0.003	23359	12671				
Filter Peak	12.045	0.008	31074	21513	BUNKERC	(C10-C38)	2283690	33.9
C36	10.497	-0.010	29482	17520				
C38	10.902	-0.003	31586	9441				
C40	11.302	-0.003	58089	157924				
o-terph	6.217	0.026	5974	6838				
Triacon Surr	9.209	-0.008	222933	239879	NAS DIES	(C10-C24)	147477	1.1

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	6838	0.0	
Triacontane	239879	5.8	M

M Indicates the peak was manually integrated

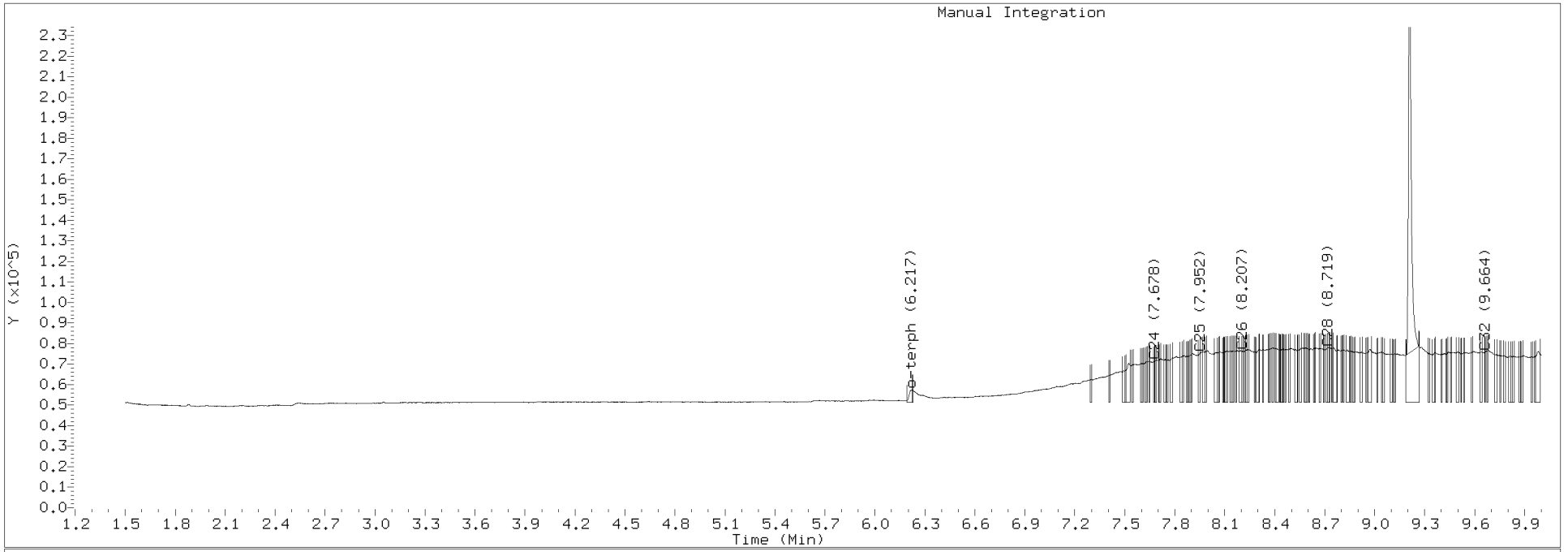
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

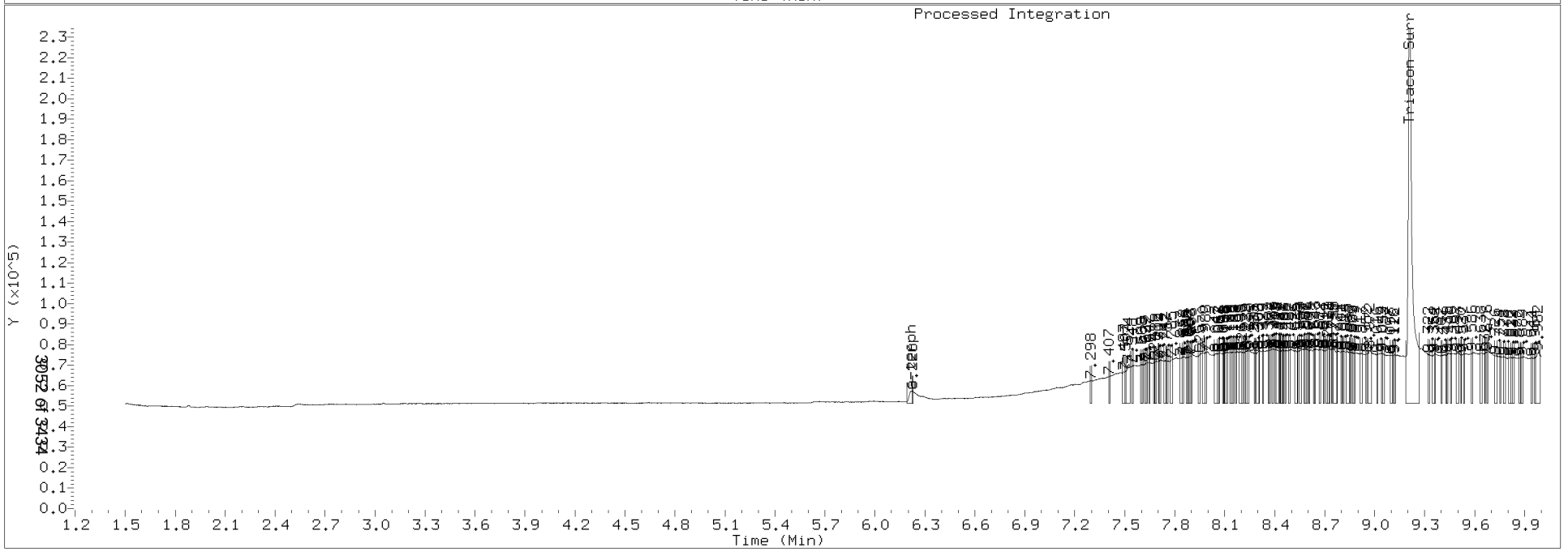

Datafile: FID4A, 20190907.b/419I0717.D SHI0081-CALD
HP6890 GC Data, FID1A.CH
Time (Min)
Y (x10^5)
Filter Peak (12.045)
C40 (11.302)
C38 (10.902)
C36 (10.497)
C34 (10.099)
C32 (9.664)
C28 (8.719)
C26 (8.207)
C25 (7.952)
C24 (7.678)
Octaterph (6.217)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0717.D Injection: 07-SEP-2019 14:27

Lab ID:SHI0081-CALD



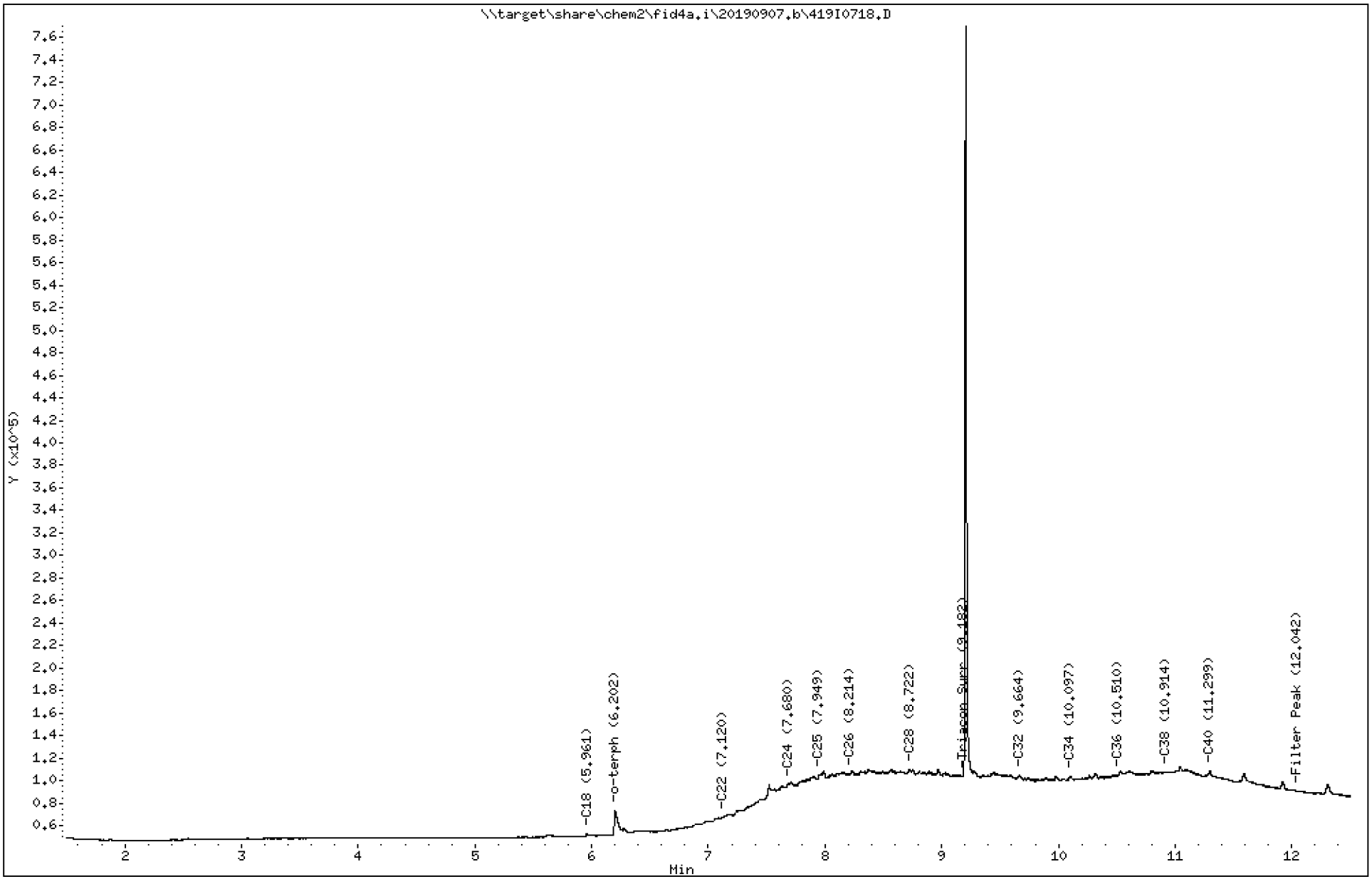


Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0718.D
Date : 07-SEP-2019 14:48
Client ID:
Sample Info: SHI0081-CALE

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0718.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALE
Client ID:
Injection: 07-SEP-2019 14:48
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

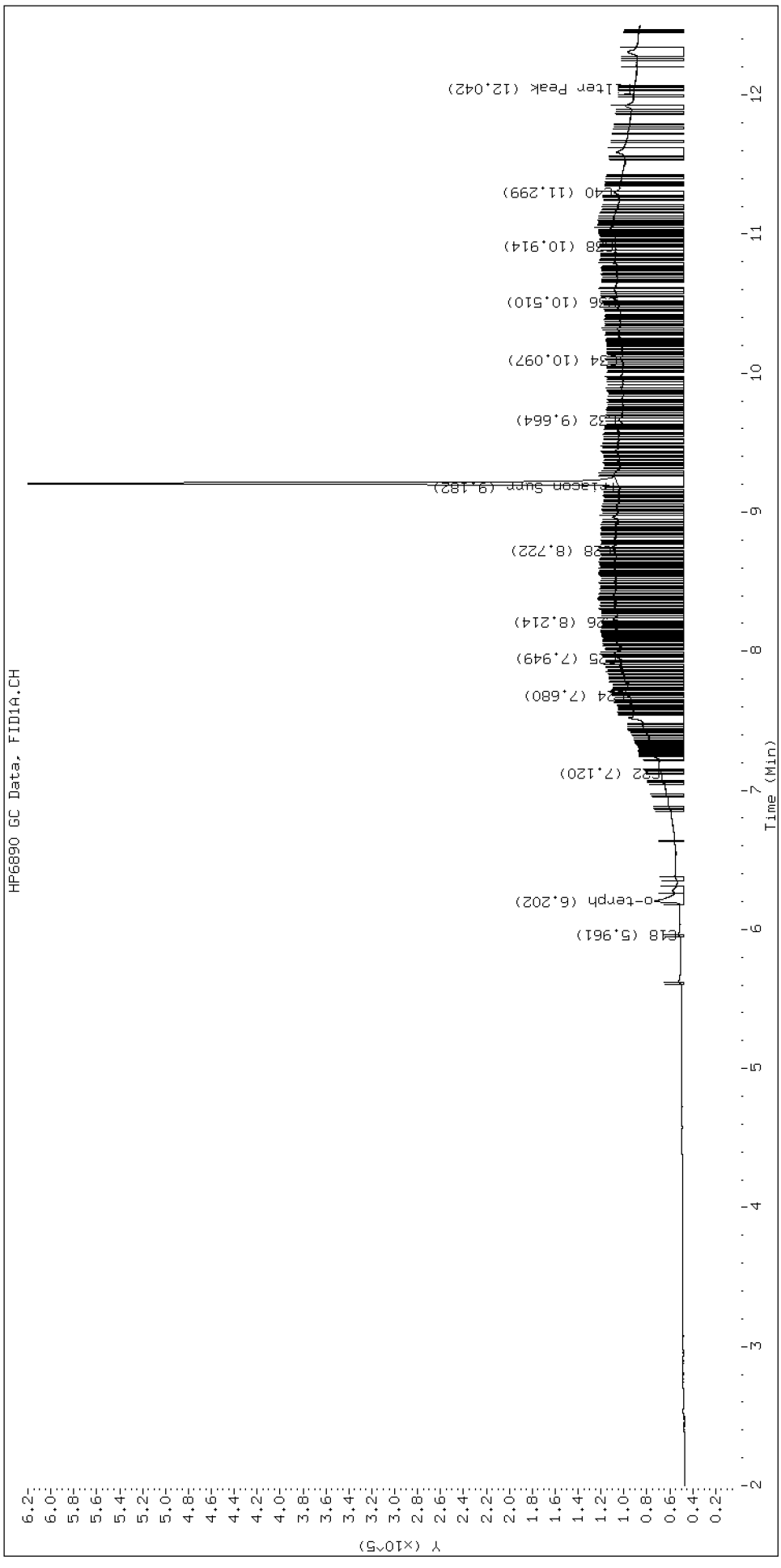
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	1071188	9.0
C10	----				WATPHM	(C24-C38)	9204918	245.4
C12	----				AK102	(C10-C25)	1498154	10.8
C14	----				AK103	(C25-C36)	7868449	324.2
C16	----				OR.DIES	(C10-C28)	4165620	30.1
C18	5.961	-0.041	4989	4997				
C20	----							
C22	7.120	-0.008	19651	9721				
C24	7.680	0.003	49732	52918				
C25	7.949	0.002	57527	64855				
C26	8.214	0.003	58803	35195				
C28	8.722	0.002	62264	46240				
C32	9.664	0.002	57416	78692				
C34	10.097	0.002	56600	44855				
Filter Peak	12.042	0.006	43585	30412	BUNKERC	(C10-C38)	10276106	152.7
C36	10.510	0.003	57587	20056				
C38	10.914	0.009	60159	18006				
C40	11.299	-0.005	61227	103927				
o-terph	6.202	0.012	25816	70617				
Triacon Surr	9.207	-0.010	664596	597390	NAS DIES	(C10-C24)	1071188	7.8

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	70617	0.5	
Triacontane	597390	14.5	M

M Indicates the peak was manually integrated

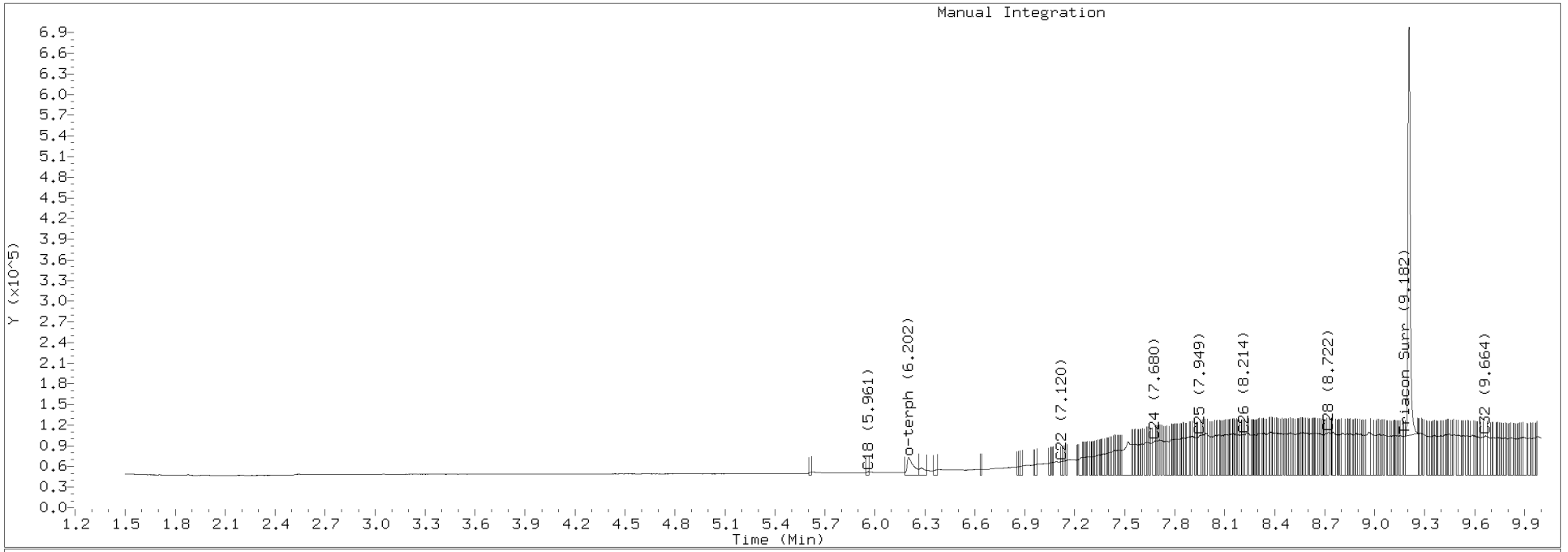
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

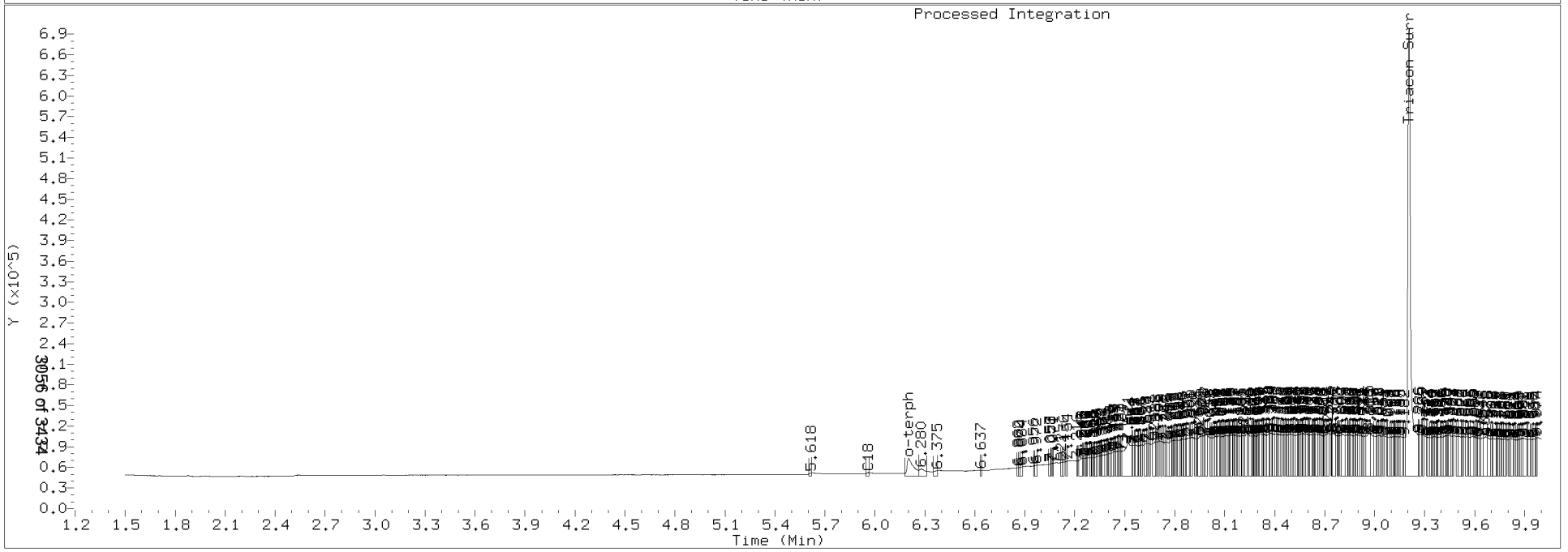

Datafile: FID4A, 20190907.b/419I0718.D SHI0081-CALE
HP6890 GC Data, FID1A.CH
Y (X10^5)
Time (Min)
Filter Peak (12.042)
(11.299)
(10.914)
(10.510)
(10.097)
(9.664)
Jasop Supr (9.182)
(8.722)
(8.214)
(7.949)
(7.680)
(7.120)
o-terph (6.202)
(5.961)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0718.D Injection: 07-SEP-2019 14:48

Lab ID:SHI0081-CALE





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0719.D

Date : 07-SEP-2019 15:08

Client ID:

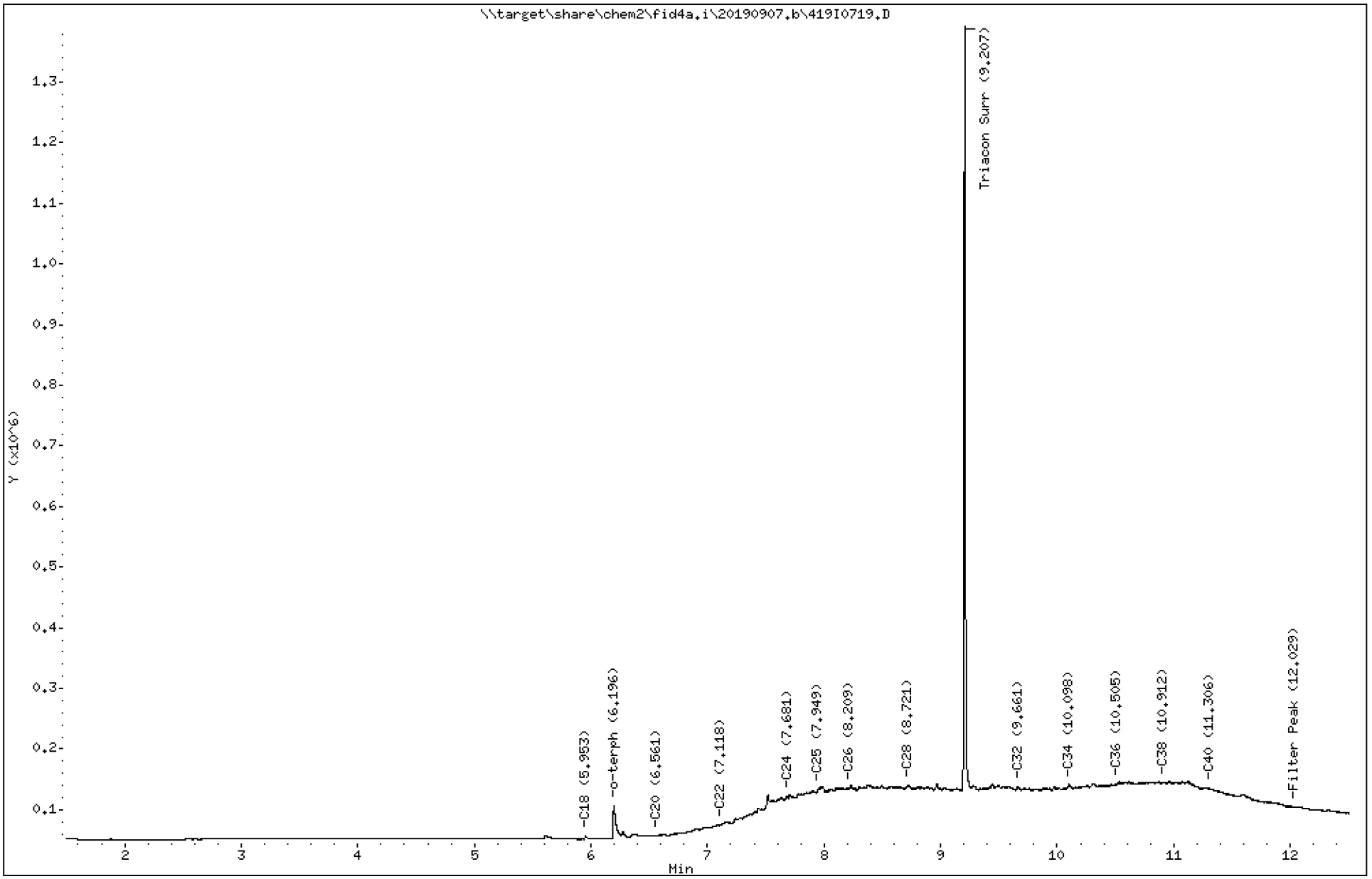
Sample Info: SHI0081-CALF

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0719.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALF
Client ID:
Injection: 07-SEP-2019 15:08
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	1815073	15.2
C10	----				WATPHM	(C24-C38)	14666674	391.0
C12	----				AK102	(C10-C25)	2511389	18.2
C14	----				AK103	(C25-C36)	11847995	488.2
C16	----				OR.DIES	(C10-C28)	6576220	47.6
C18	5.953	-0.049	5304	7843				
C20	6.561	-0.006	6269	1845				
C22	7.118	-0.009	24516	14572				
C24	7.681	0.005	71585	83204				
C25	7.949	0.002	83962	72461				
C26	8.209	-0.002	84220	29331				
C28	8.721	0.001	90167	110420				
C32	9.661	-0.001	87627	30435				
C34	10.098	0.002	89843	35622				
Filter Peak	12.029	-0.008	53608	26735	BUNKERC	(C10-C38)	16481747	245.0
C36	10.505	-0.002	91455	49855				
C38	10.912	0.007	95081	56753				
C40	11.306	0.001	84143	29339				
o-terph	6.196	0.006	54868	106146				
Triacon Surr	9.207	-0.010	1257810	1003317	NAS DIES	(C10-C24)	1815073	13.2

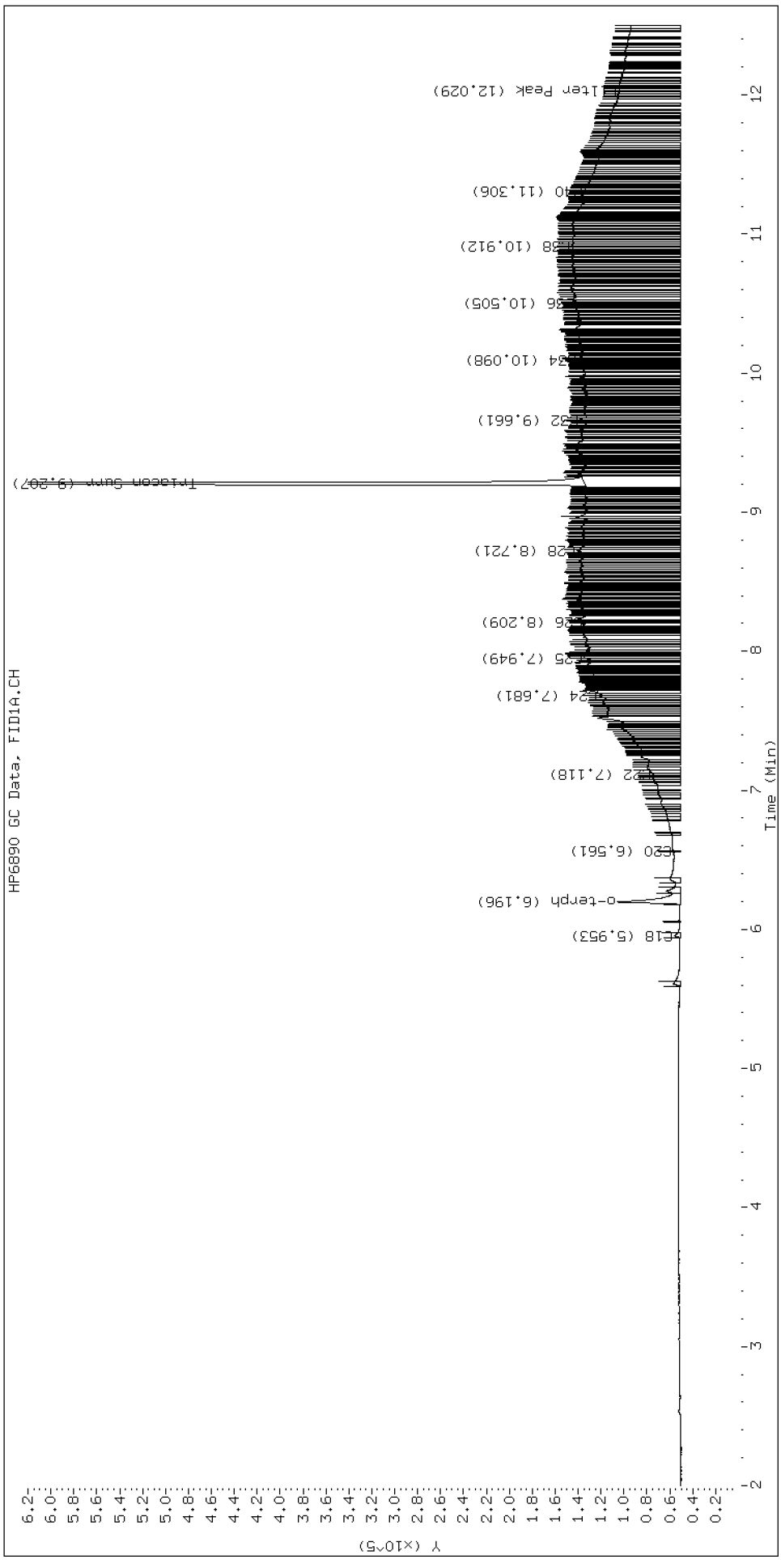
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	106146	0.7	
Triacontane	1003317	24.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

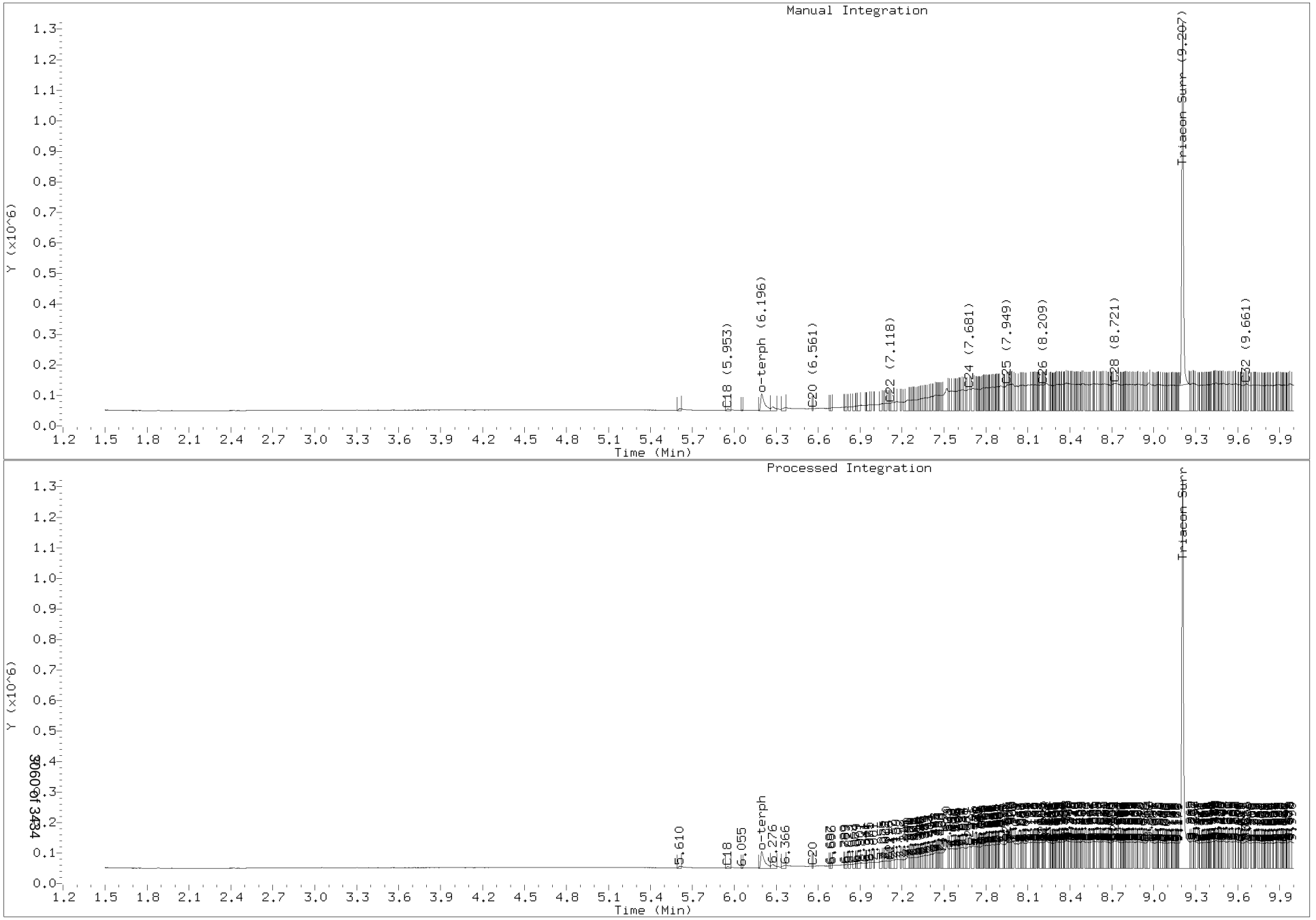
Datafile: FID4A, 20190907.b/419I0719.D SHI0081-CALF



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0719.D Injection: 07-SEP-2019 15:08

Lab ID:SHI0081-CALF



Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0720.D

Date : 07-SEP-2019 15:29

Client ID:

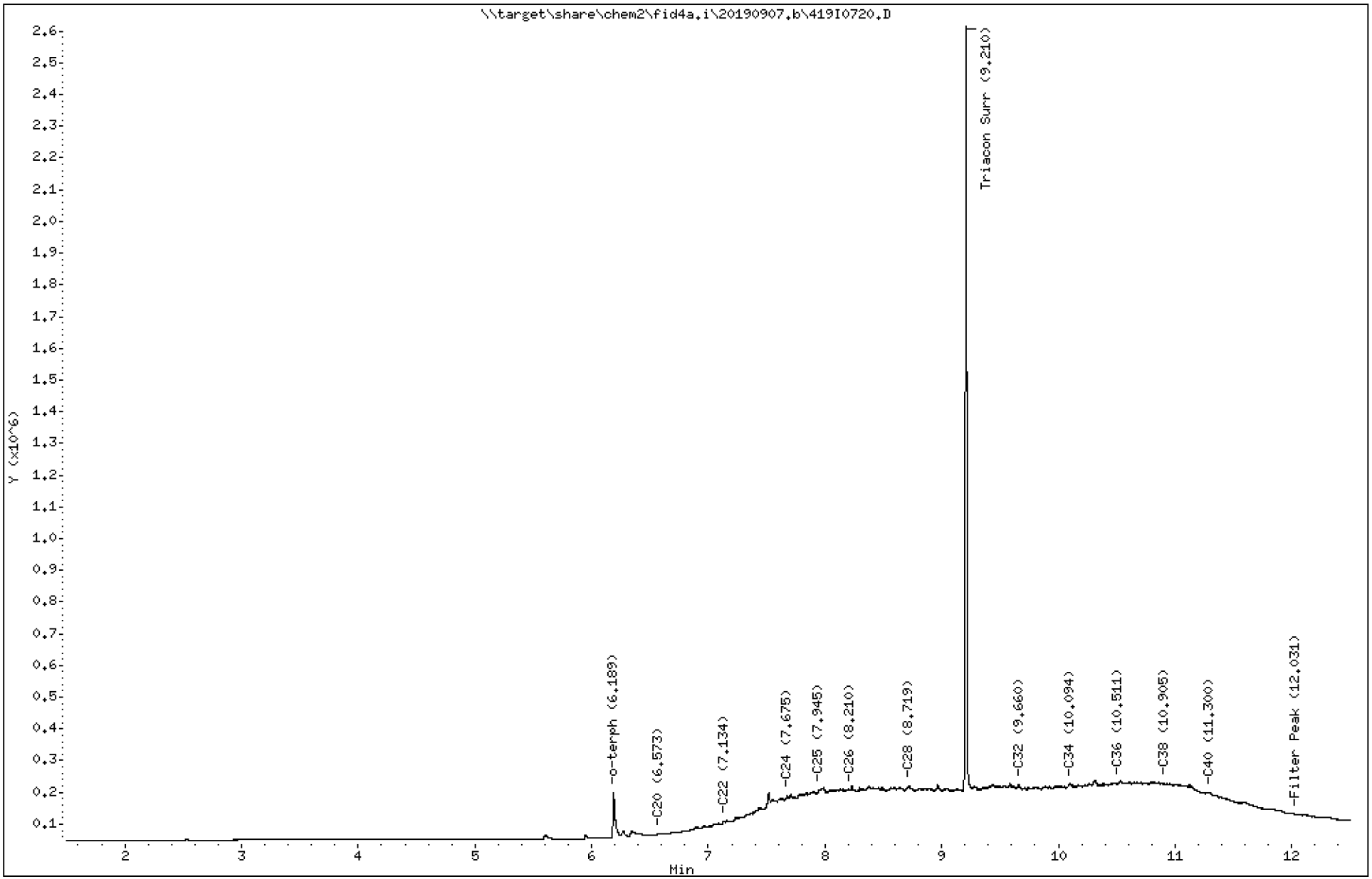
Sample Info: SHI0081-CALG

Instrument: fid4a.i

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0720.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALG
Client ID:
Injection: 07-SEP-2019 15:29
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4516532	37.7
C10	----				WATPHM	(C24-C38)	31072855	828.4
C12	----				AK102	(C10-C25)	5951348	43.1
C14	----				AK103	(C25-C36)	25460422	1049.1
C16	----				OR.DIES	(C10-C28)	14179246	102.5
C18	----							
C20	6.573	0.005	20644	27255				
C22	7.134	0.006	59219	76001				
C24	7.675	-0.001	140876	164079				
C25	7.945	-0.001	158581	138465				
C26	8.210	-0.001	159923	79487				
C28	8.719	-0.001	170007	75867				
C32	9.660	-0.001	176338	147479				
C34	10.094	-0.002	176495	181476				
Filter Peak	12.031	-0.005	82340	53325	BUNKERC	(C10-C38)	35589387	529.0
C36	10.511	0.005	181189	80756				
C38	10.905	0.001	179697	71310				
C40	11.300	-0.005	151723	127086				
o-terph	6.189	-0.002	149627	246676				
Triacon Surr	9.210	-0.007	2405778	1919824	NAS DIES	(C10-C24)	4516532	32.7

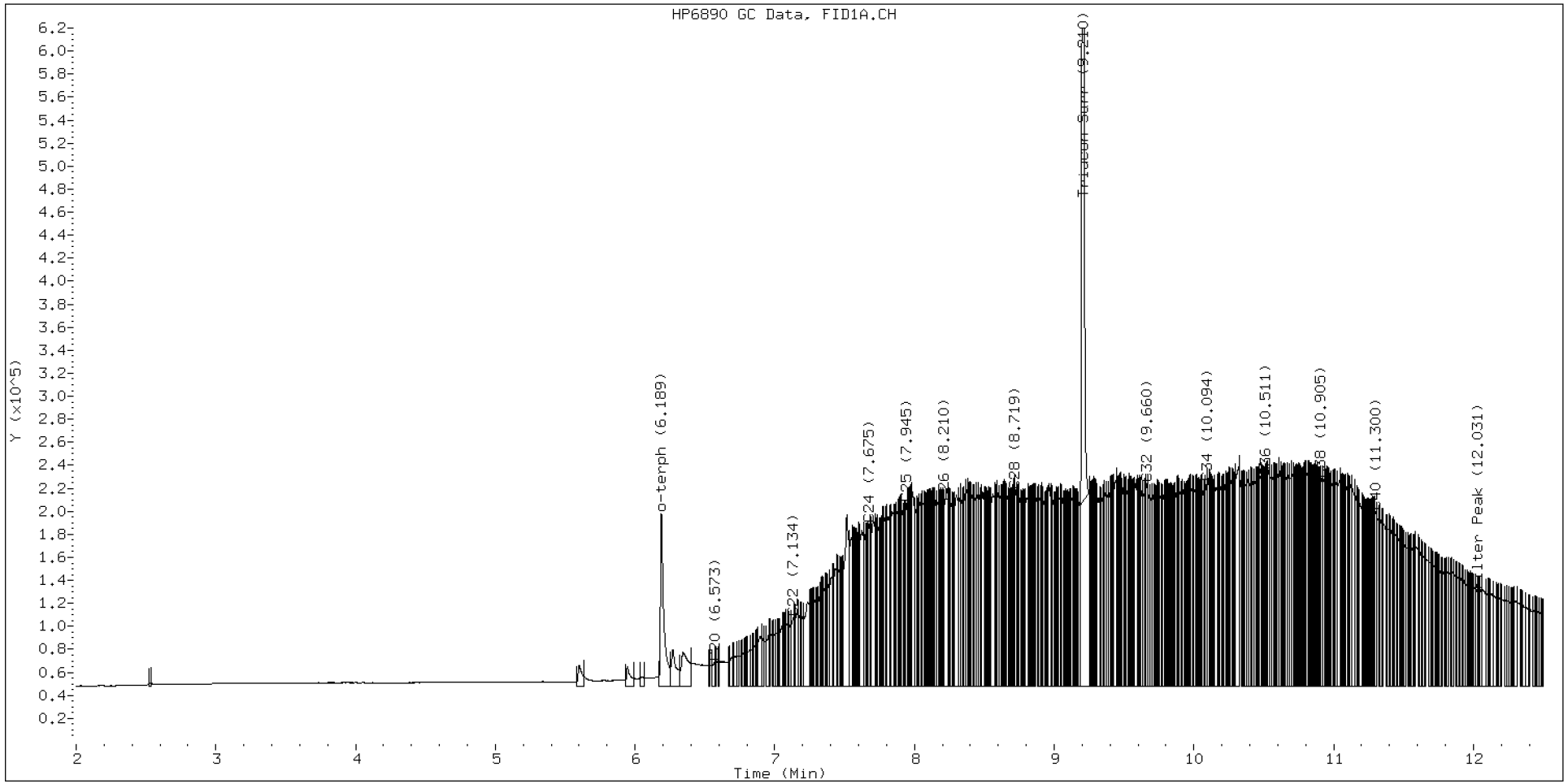
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	246676	1.6	
Triacontane	1919824	46.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

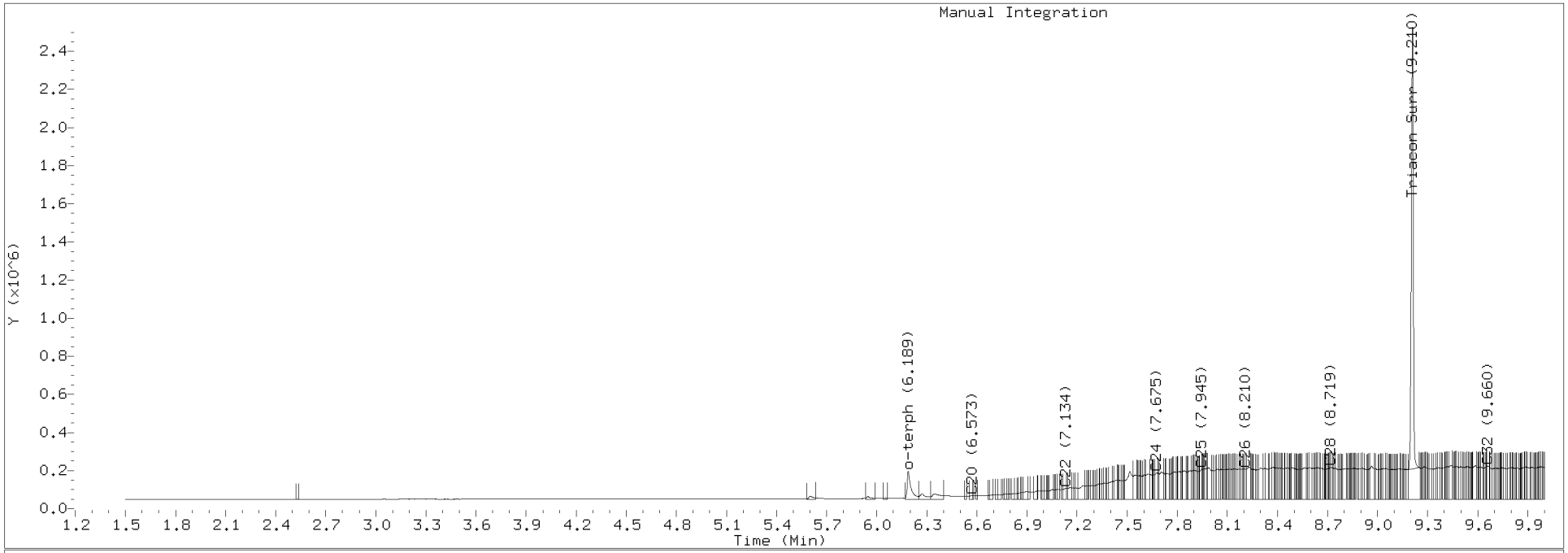
Datafile: FID4A, 20190907.b/419I0720.D SHI0081-CALG

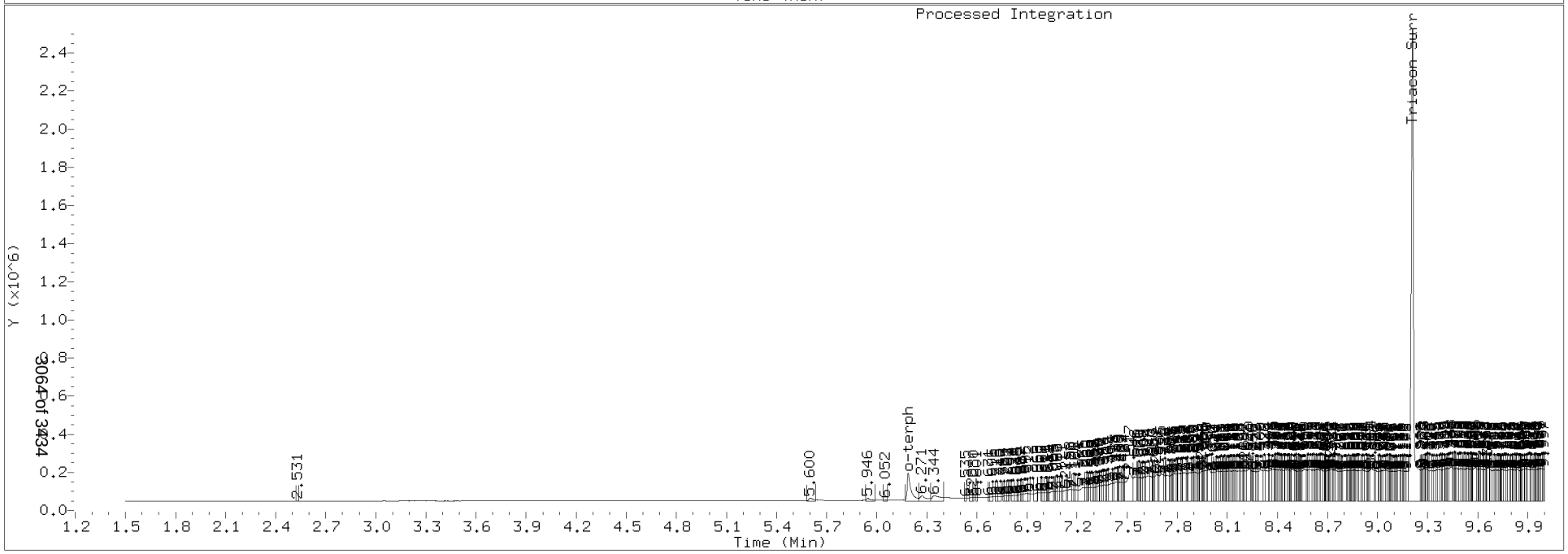


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0720.D Injection: 07-SEP-2019 15:29

Lab ID:SHI0081-CALG





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0721.D

Date : 07-SEP-2019 15:50

Client ID:

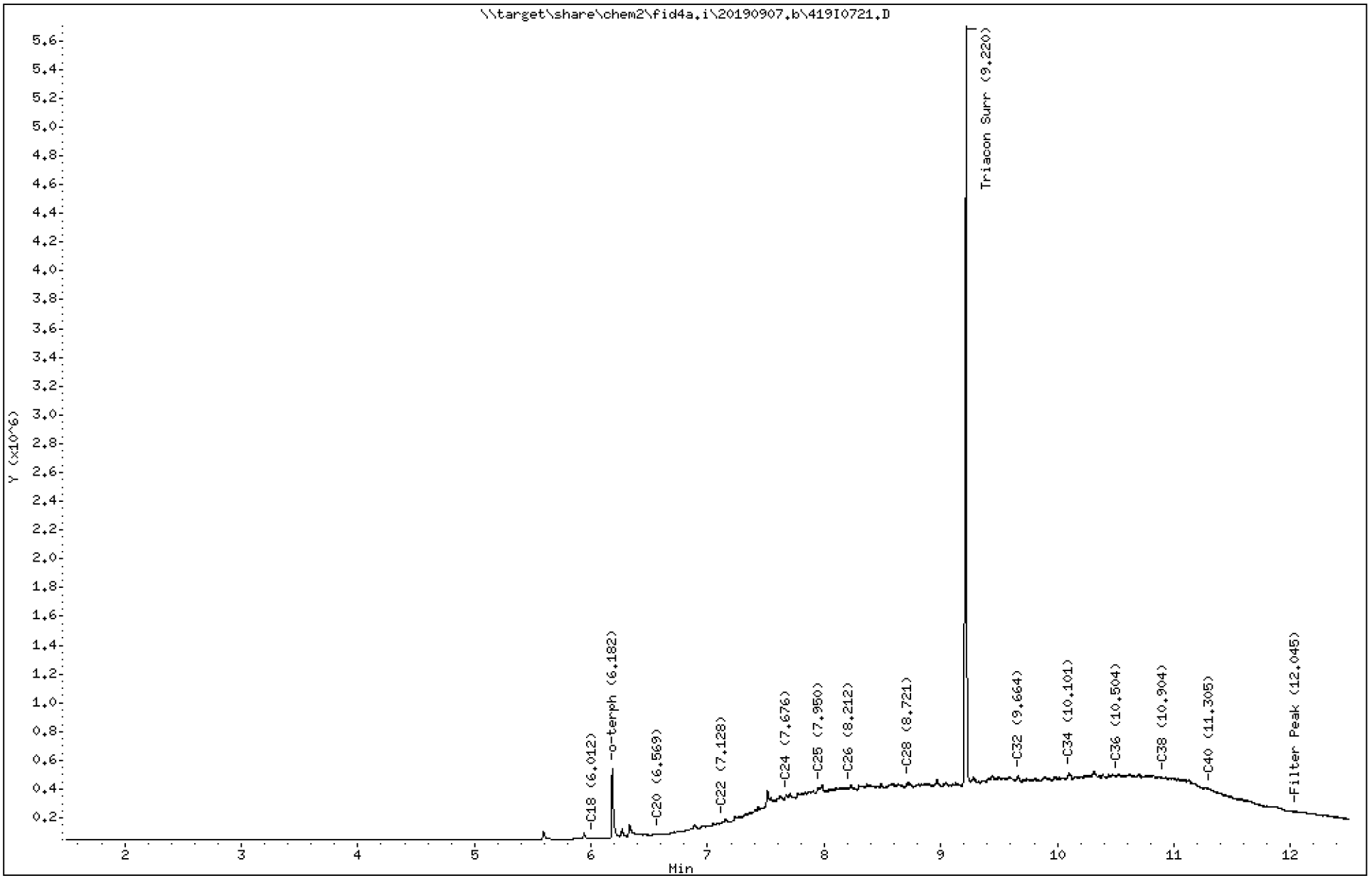
Sample Info: SHI0081-CALH

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0721.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALH
Client ID:
Injection: 07-SEP-2019 15:50
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	10701061	89.4
C10	----				WATPHM	(C24-C38)	76111087	2029.2
C12	----				AK102	(C10-C25)	13691617	99.1
C14	----				AK103	(C25-C36)	62724137	2584.5
C16	----				OR.DIES	(C10-C28)	32539384	235.3
C18	6.012	0.011	6757	6146				
C20	6.569	0.001	40500	58445				
C22	7.128	0.001	125725	172956				
C24	7.676	-0.000	306153	282883				
C25	7.950	0.003	356166	410710				
C26	8.212	0.001	356691	159612				
C28	8.721	0.001	397975	215922				
C32	9.664	0.002	444110	807516				
C34	10.101	0.006	460087	428568				
Filter Peak	12.045	0.008	192851	134394	BUNKERC	(C10-C38)	86812148	1290.3
C36	10.504	-0.003	438152	196399				
C38	10.904	-0.001	426611	190956				
C40	11.305	0.001	352240	157386				
o-terph	6.182	-0.009	492075	566823				
Triacon Surr	9.220	0.003	5261576	4913863	NAS DIES	(C10-C24)	10701061	77.6

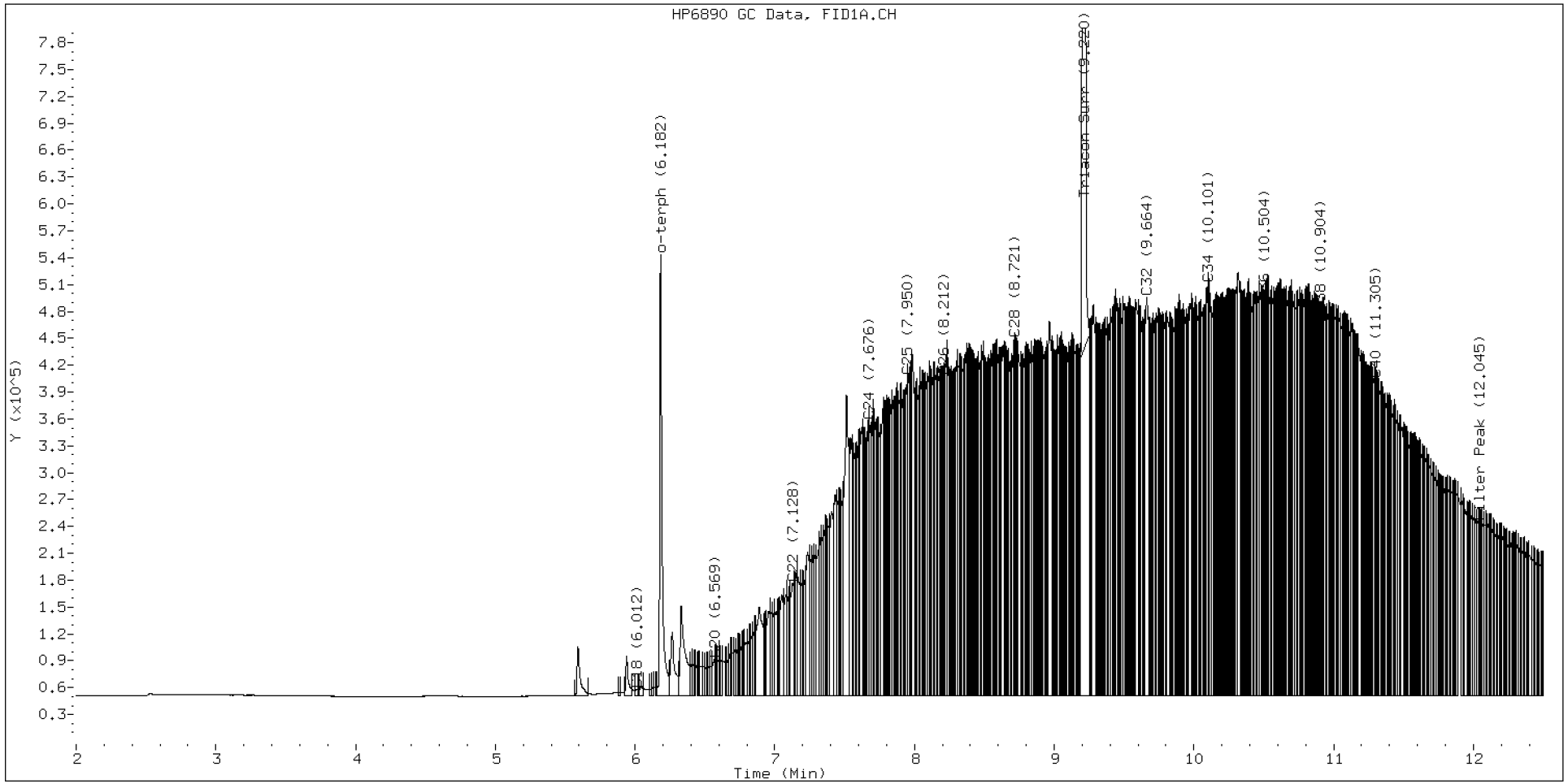
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	566823	3.6	
Triacontane	4913863	119.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

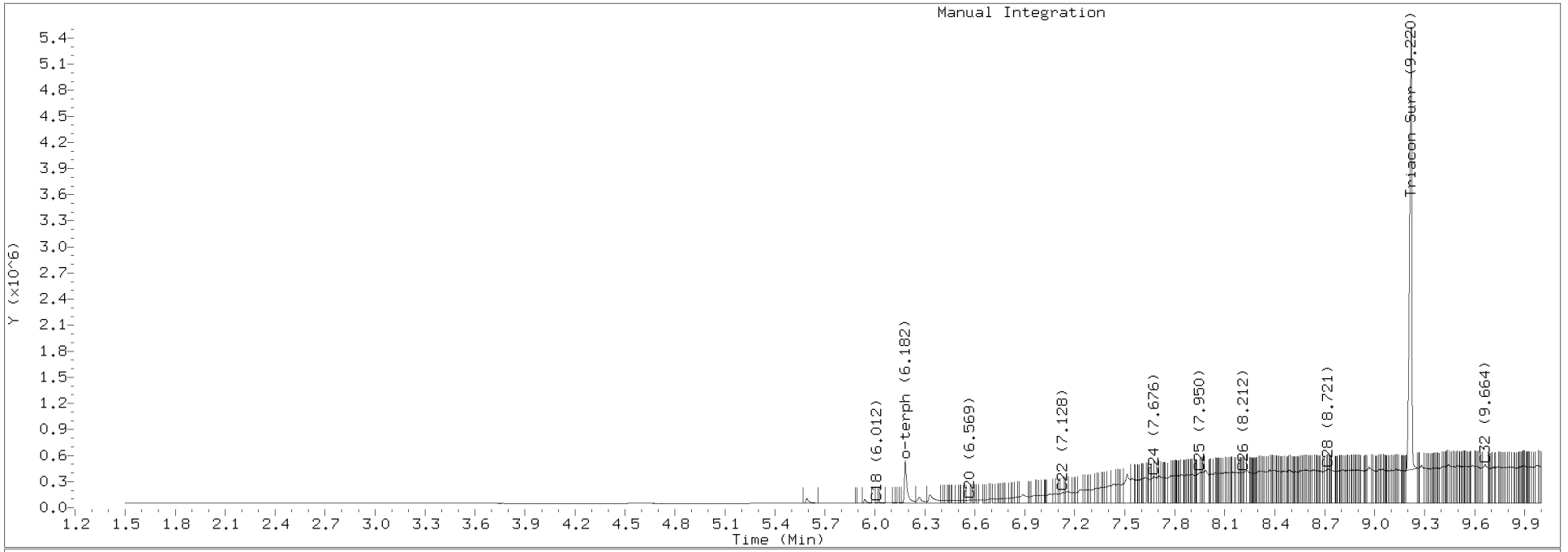
Datafile: FID4A, 20190907.b/419I0721.D SHI0081-CALH

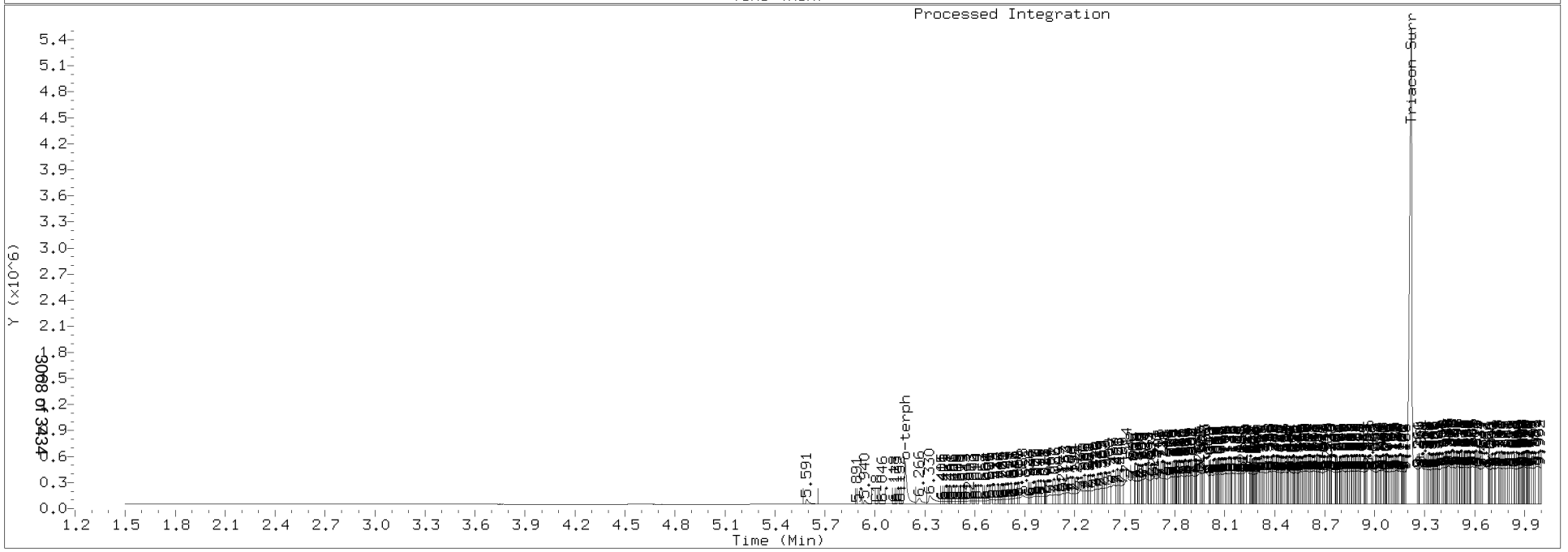


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0721.D Injection: 07-SEP-2019 15:50

Lab ID:SHI0081-CALH





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0722.D

Date : 07-SEP-2019 16:11

Client ID:

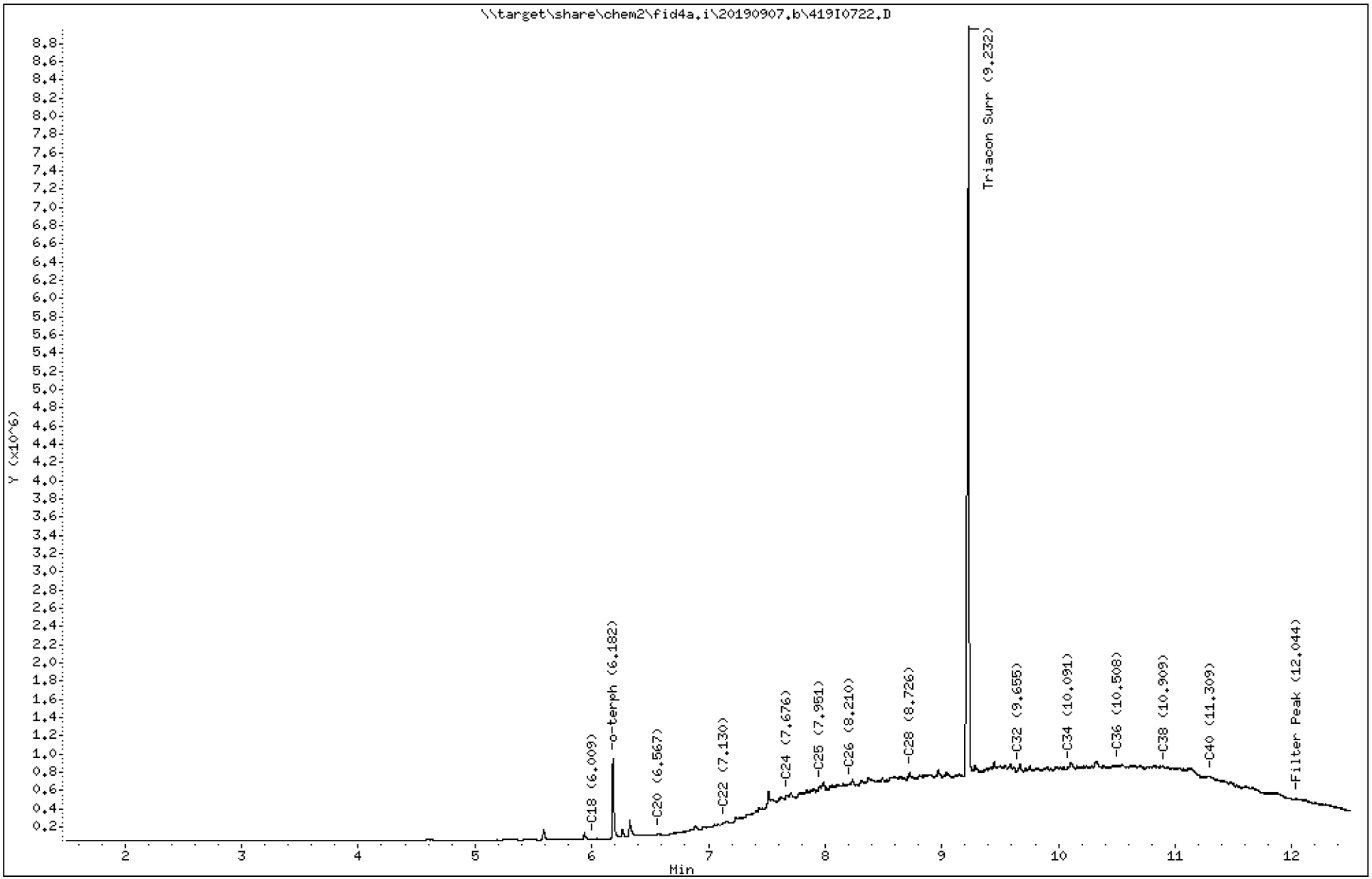
Sample Info: SHI0081-CALI

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0722.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CALI
Client ID:
Injection: 07-SEP-2019 16:11
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	17934230	149.9
C10	----				WATPHM	(C24-C38)	139383684	3716.1
C12	----				AK102	(C10-C25)	23036587	166.8
C14	----				AK103	(C25-C36)	115022389	4739.3
C16	----				OR.DIES	(C10-C28)	56085652	405.6
C18	6.009	0.007	18247	21350				
C20	6.567	-0.000	70137	126831				
C22	7.130	0.003	201917	212243				
C24	7.676	-0.000	502153	370282				
C25	7.951	0.005	595097	486352				
C26	8.210	-0.000	631318	373520				
C28	8.726	0.006	742226	1043218				
C32	9.655	-0.007	793390	733494				
C34	10.091	-0.005	808853	281339				
Filter Peak	12.044	0.007	457373	181966	BUNKERC	(C10-C38)	157317913	2338.3
C36	10.508	0.001	825613	450888				
C38	10.909	0.004	800193	199628				
C40	11.309	0.005	701966	488650				
o-terph	6.182	-0.009	899739	959082				
Triacon Surr	9.232	0.015	8185905	9273094	NAS DIES	(C10-C24)	17934230	130.0

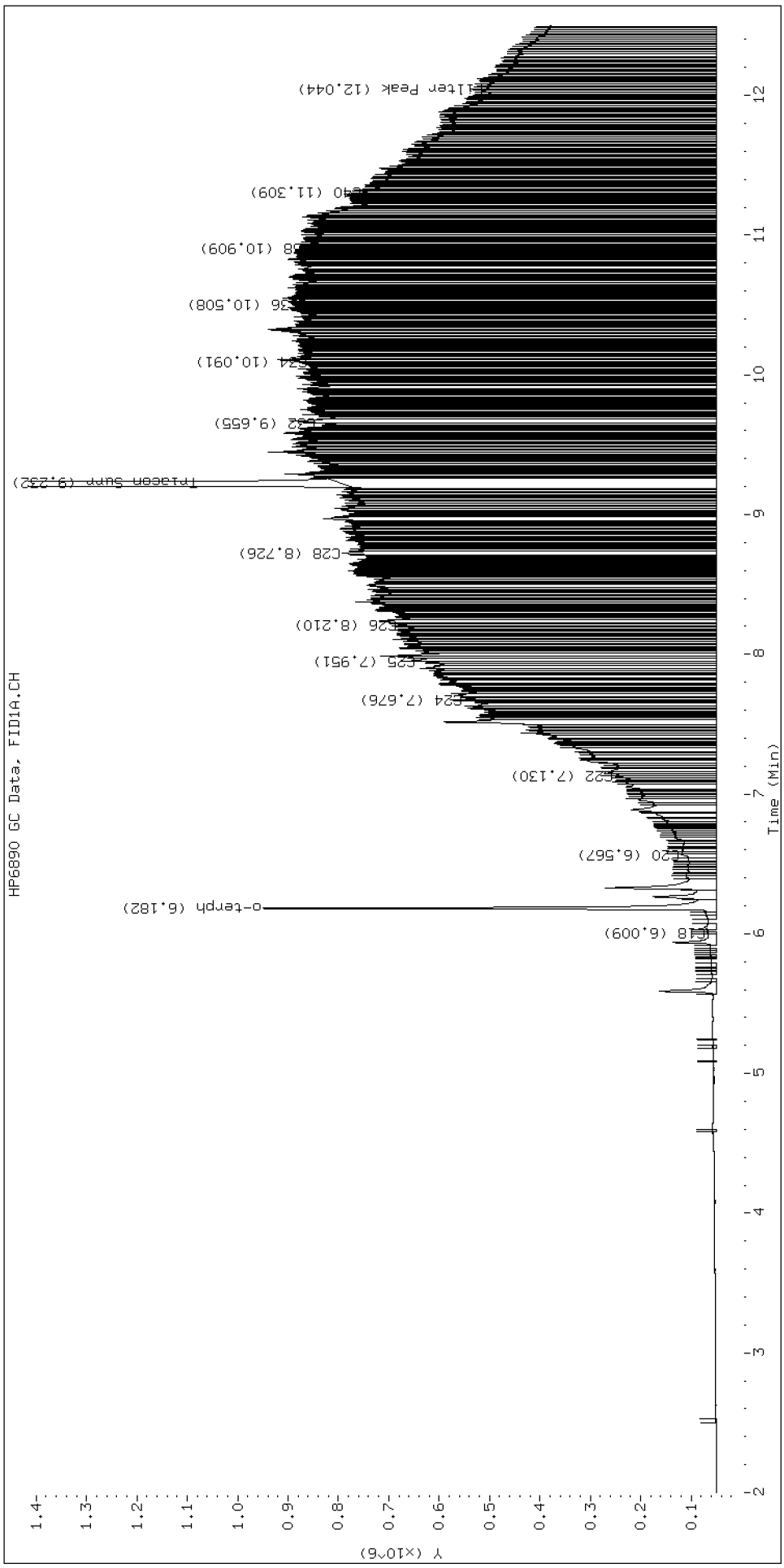
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	959082	6.1	
Triacontane	9273094	225.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

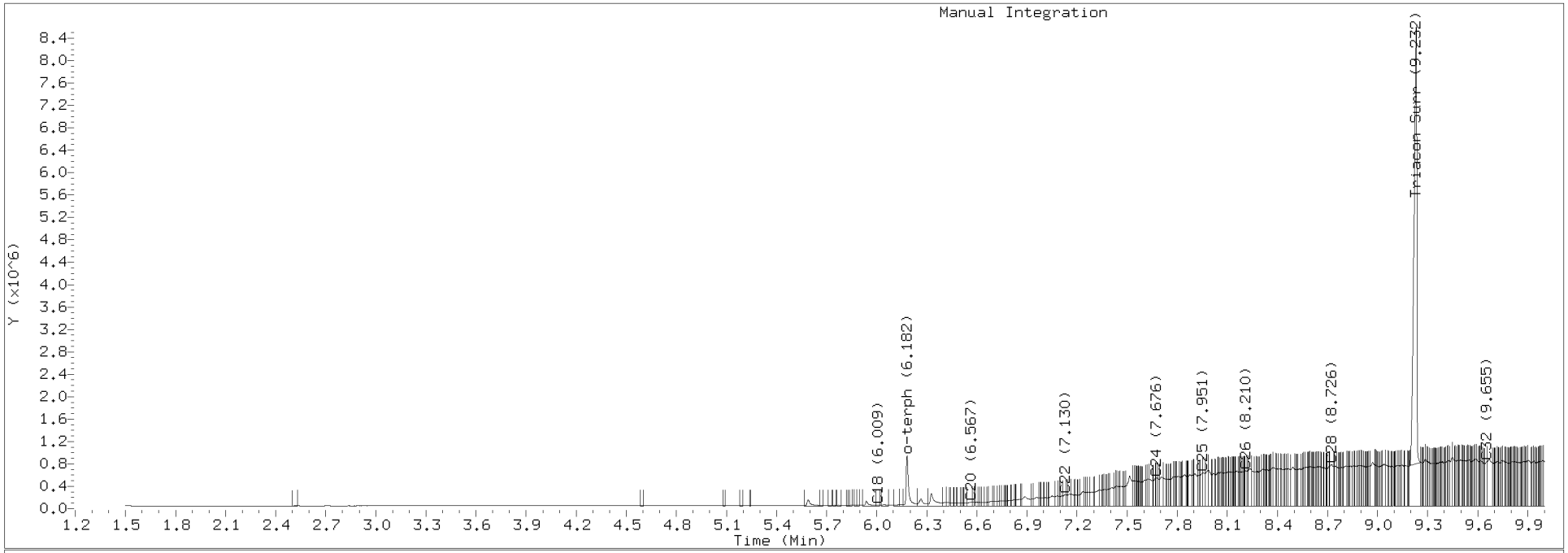
Datafile: FID4A, 20190907.b/419I0722.D SHI0081-CALI

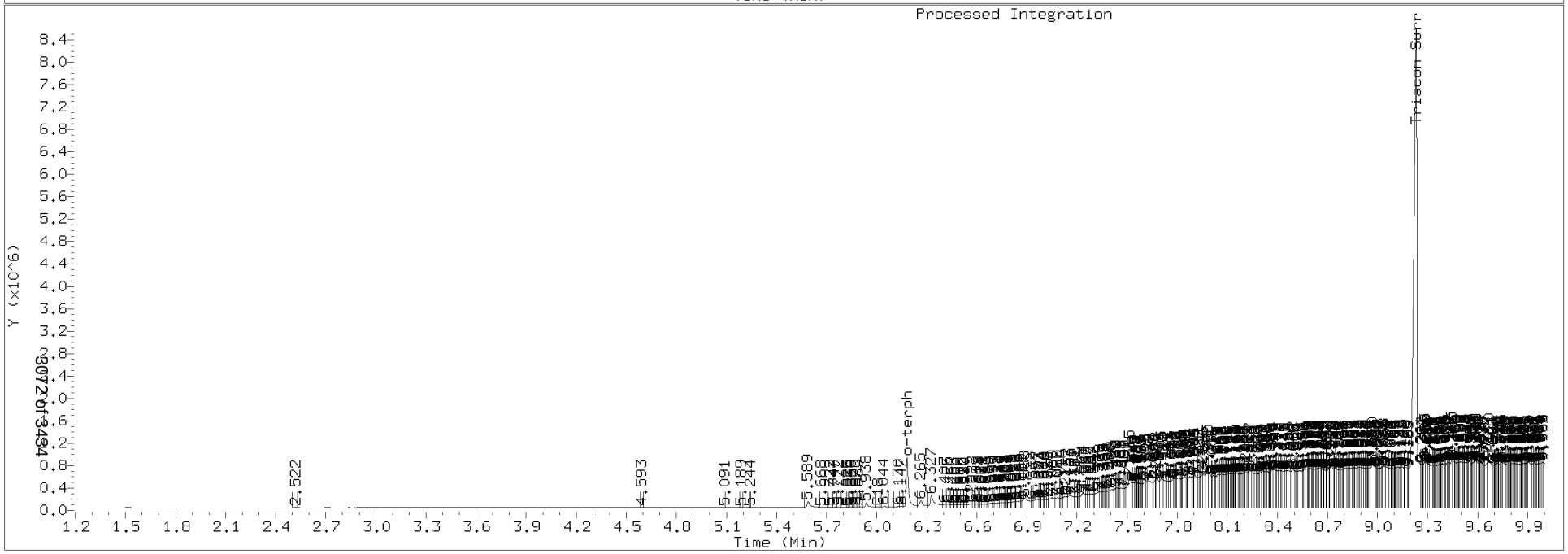


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0722.D Injection: 07-SEP-2019 16:11

Lab ID:SHI0081-CALI





Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0724.D

Date : 07-SEP-2019 16:54

Client ID:

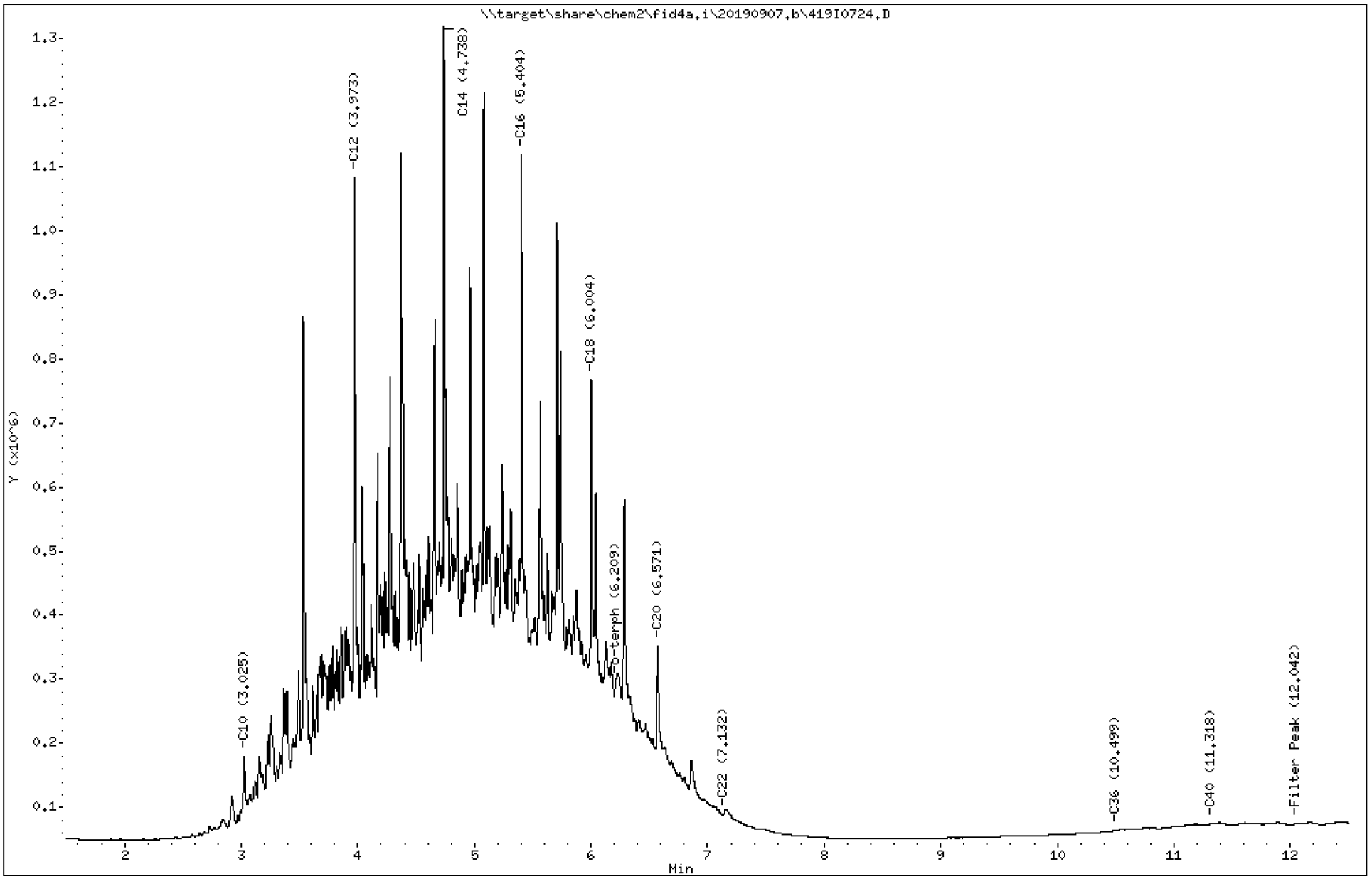
Sample Info: SHI0081-SCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0724.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV1
Client ID:
Injection: 07-SEP-2019 16:54
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

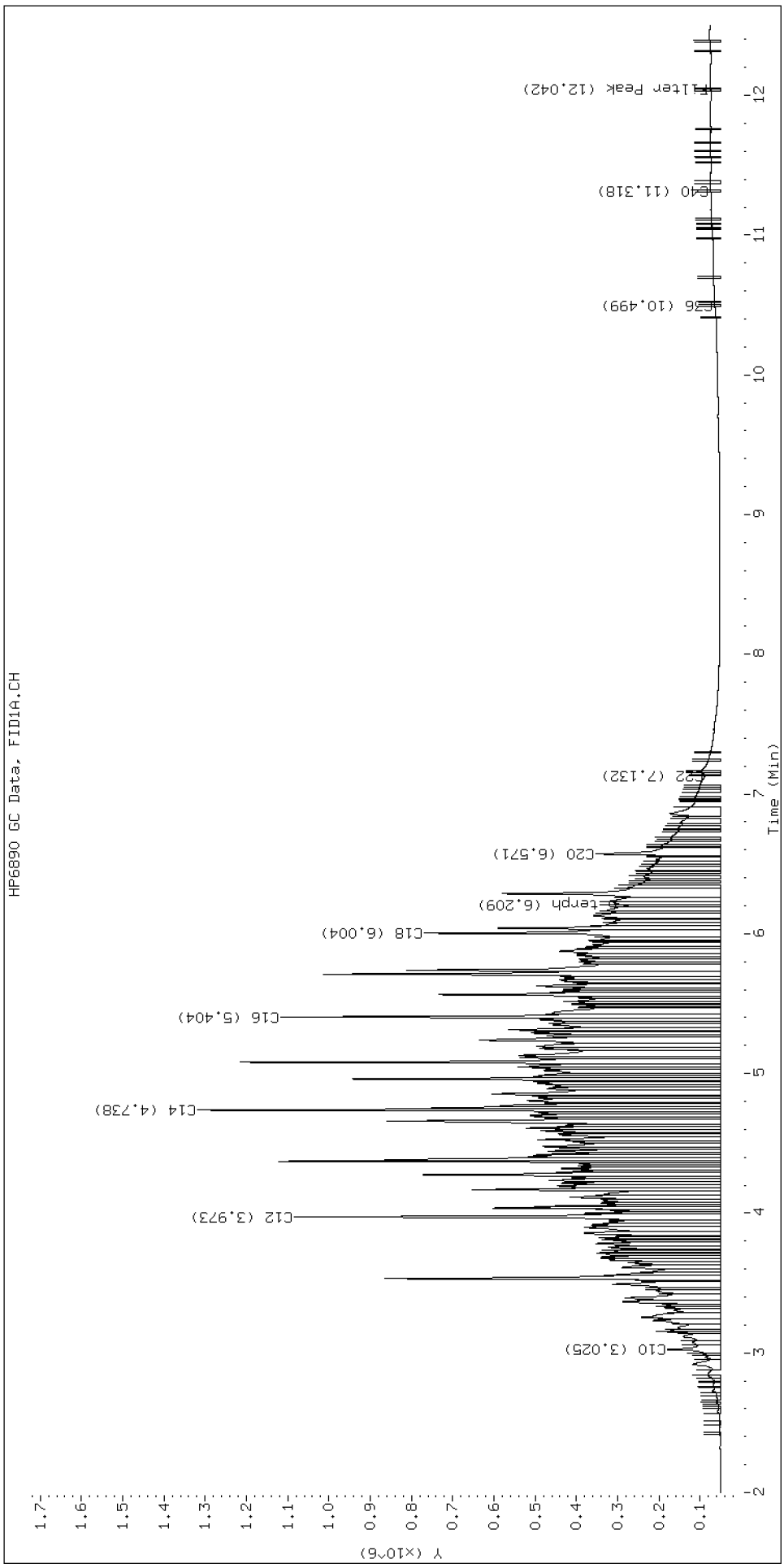
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	58036481	485.0
C10	3.025	0.002	129006	231879	WATPHM	(C24-C38)	35465	0.9
C12	3.973	-0.003	1033475	1205273	AK102	(C10-C25)	70243523	508.6
C14	4.738	-0.003	1268807	1170109	AK103	(C25-C36)	24123	1.0
C16	5.404	-0.000	1067954	1148535	OR.DIES	(C10-C28)	70243523	507.9
C18	6.004	0.002	717691	1167657				
C20	6.571	0.004	302771	656939				
C22	7.132	0.005	39112	15596				
C24	----							
C25	----							
C26	----							
C32	----							
C34	----							
Filter Peak	12.042	0.006	24620	21842	BUNKERC	(C10-C38)	70278988	1044.6
C36	10.499	-0.008	15068	8901				
C38	----							
C40	11.318	0.014	24810	29388				
o-terph	6.209	0.018	247412	198947				
Triacon Surr	----				NAS DIES	(C10-C24)	70243523	509.1

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	198947	1.3
Triacontane	0	0.0

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190907.b/419I0724.D SHI0081-SCV1
HP6890 GC Data, FID1A.CH
C10 (3.025)
C12 (3.973)
C14 (4.738)
C16 (5.404)
C18 (6.004)
Terph (6.209)
C20 (6.571)
C32 (7.132)
C36 (10.499)
C40 (11.318)
Filter Peak (12.042)
Time (Min)
Y (x10^6)

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0725.D

Date : 07-SEP-2019 17:15

Client ID:

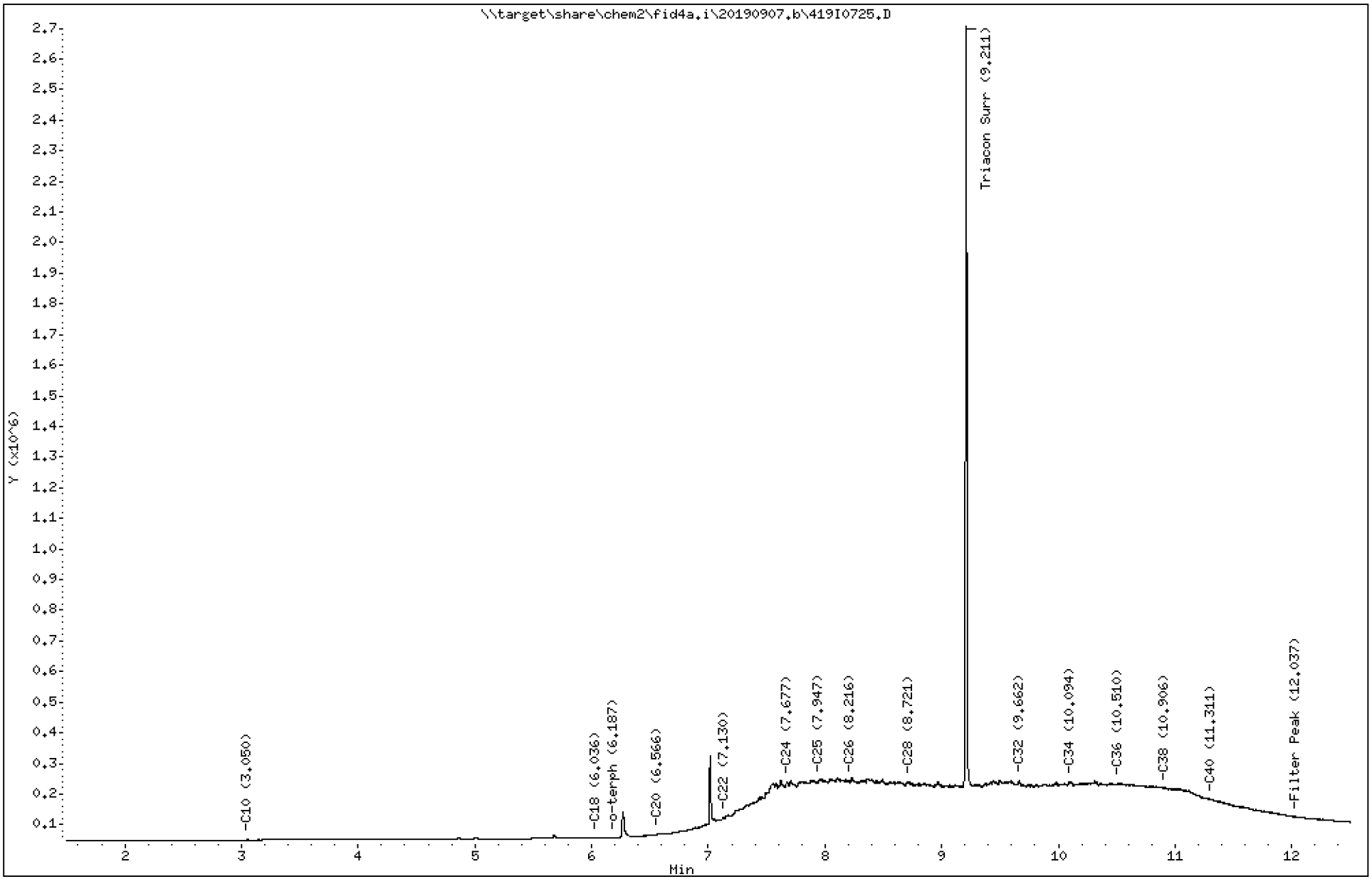
Sample Info: SHI0081-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0725.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV2
Client ID:
Injection: 07-SEP-2019 17:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	6512231	54.4
C10	3.050	0.027	2534	1890	WATPHM	(C24-C38)	34887364	930.1
C12	----				AK102	(C10-C25)	8441640	61.1
C14	----				AK103	(C25-C36)	28870805	1189.6
C16	----				OR.DIES	(C10-C28)	18297238	132.3
C18	6.036	0.034	10218	8686				
C20	6.566	-0.001	22117	30237				
C22	7.130	0.002	73922	68158				
C24	7.677	0.001	190990	220070				
C25	7.947	0.001	195744	154609				
C26	8.216	0.006	194781	115643				
C28	8.721	0.002	191119	141011				
C32	9.662	0.001	195304	134471				
C34	10.094	-0.002	190829	75816				
Filter Peak	12.037	0.001	77658	38520	BUNKERC	(C10-C38)	41401486	615.4
C36	10.510	0.003	185807	156657				
C38	10.906	0.002	171111	68027				
C40	11.311	0.007	133822	59706				
o-terph	6.187	-0.003	10431	6626				
Triacon Surr	9.211	-0.006	2479038	1967160	NAS DIES	(C10-C24)	6514122	47.2

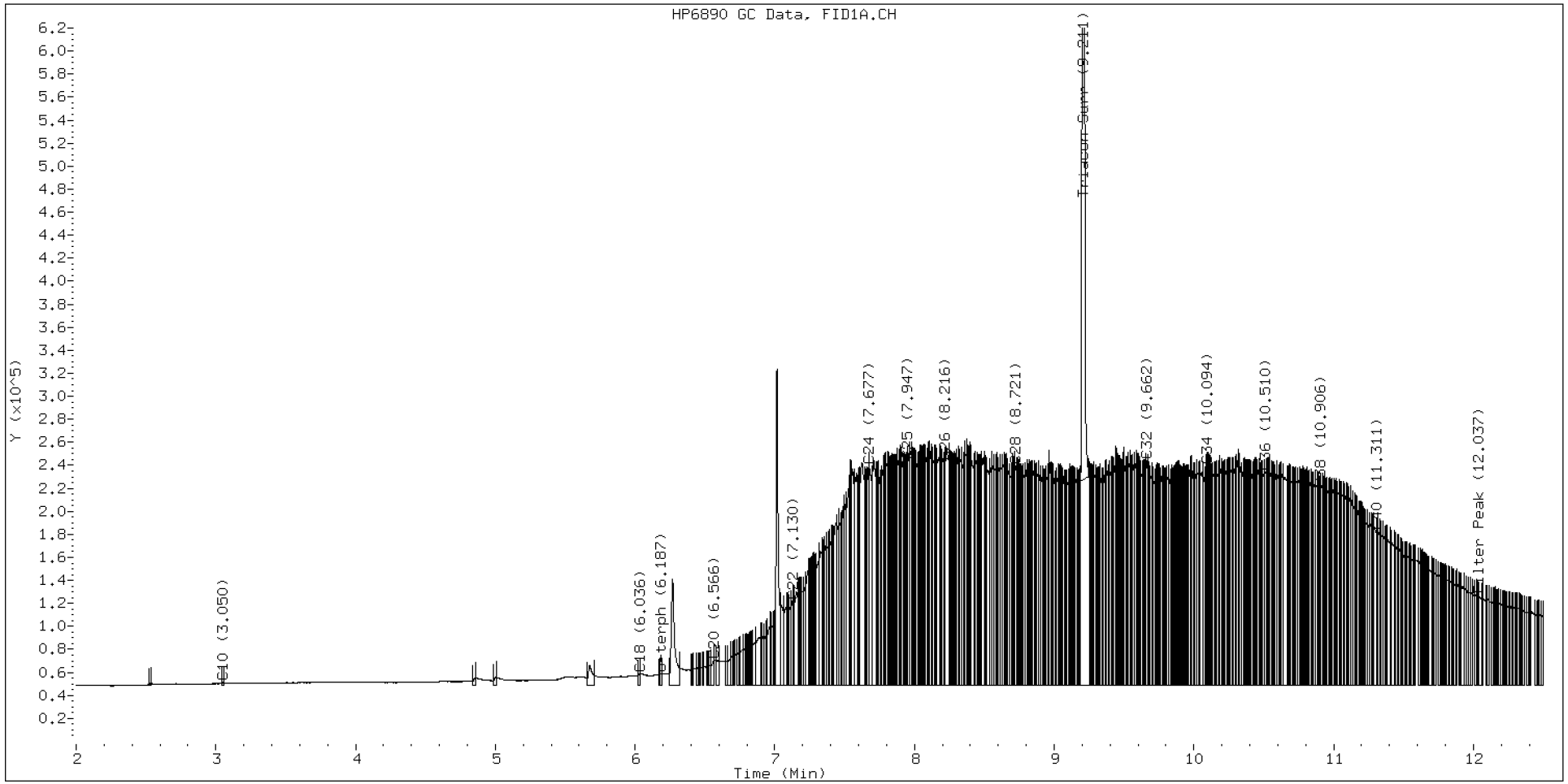
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	6626	0.0	
Triacontane	1967160	47.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

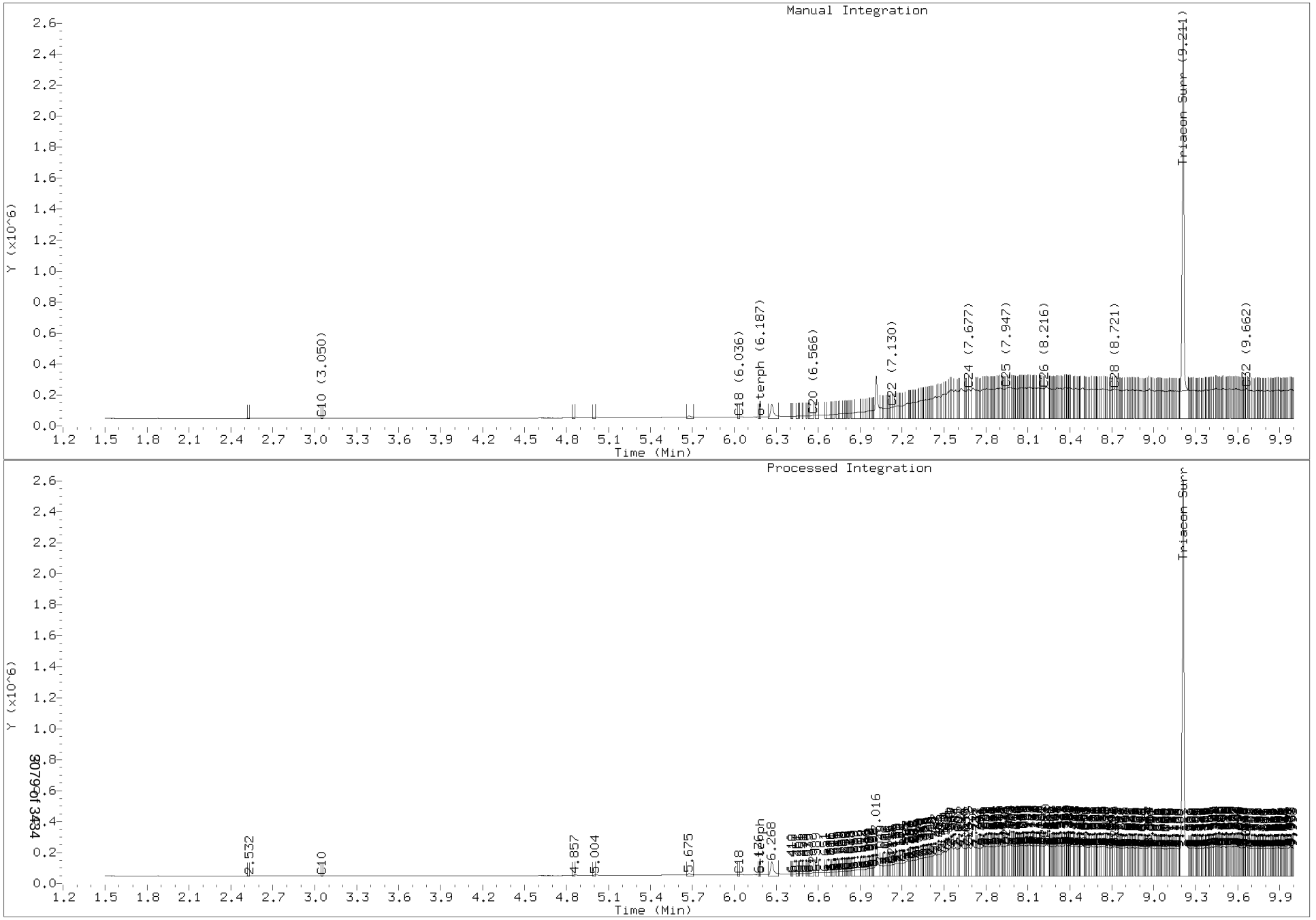
Datafile: FID4A, 20190907.b/419I0725.D SHI0081-SCV2



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0725.D Injection: 07-SEP-2019 17:15

Lab ID:SHI0081-SCV2



Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0726.D

Date : 07-SEP-2019 17:35

Client ID:

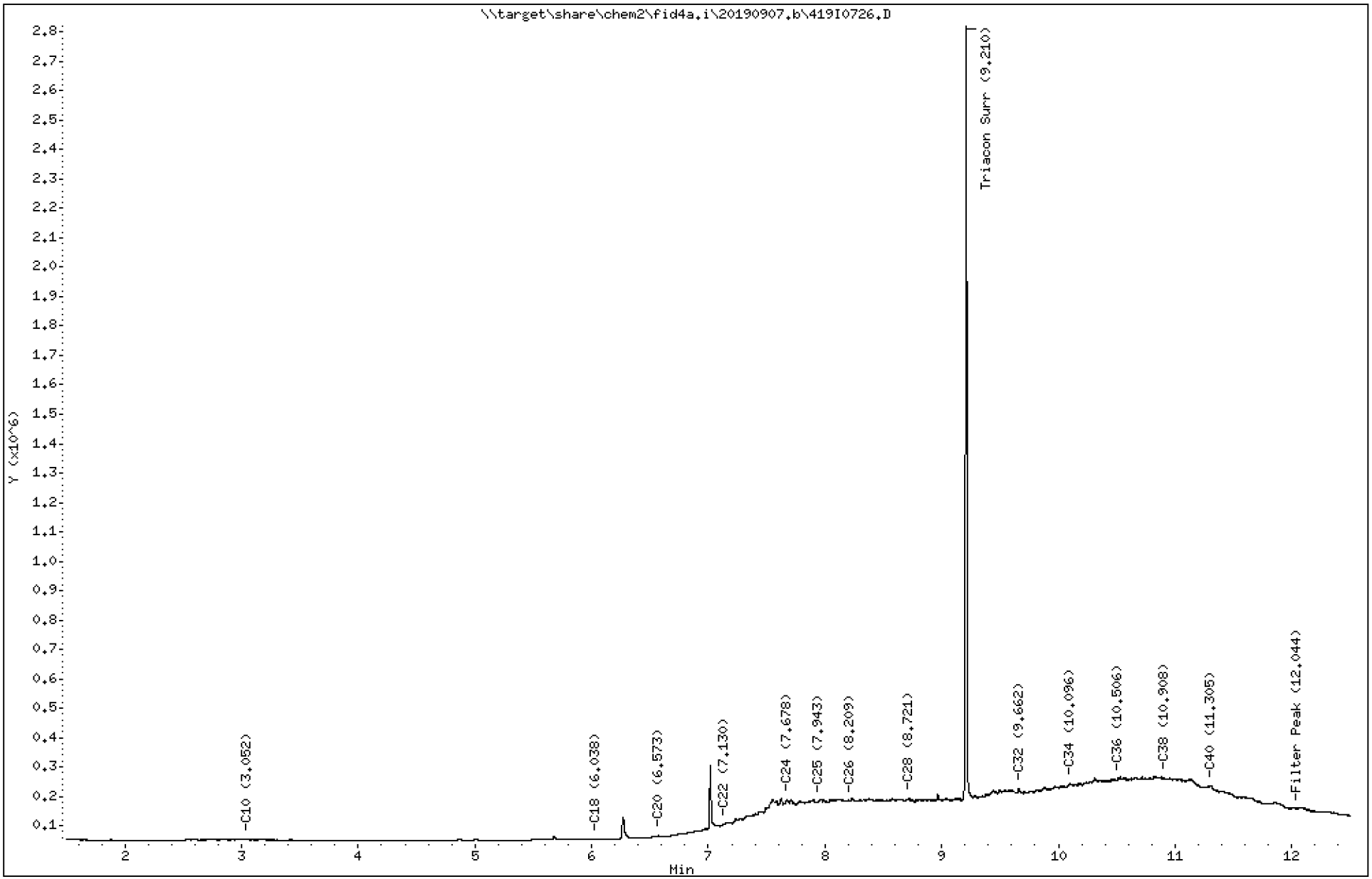
Sample Info: SHI0081-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0726.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV3
Client ID:
Injection: 07-SEP-2019 17:35
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4566425	38.2
C10	3.052	0.029	2675	2628	WATPHM	(C24-C38)	30792508	821.0
C12	----				AK102	(C10-C25)	5862069	42.4
C14	----				AK103	(C25-C36)	24491942	1009.2
C16	----				OR.DIES	(C10-C28)	12640283	91.4
C18	6.038	0.036	4909	4340				
C20	6.573	0.005	15943	28920				
C22	7.130	0.003	55048	109550				
C24	7.678	0.001	138213	101962				
C25	7.943	-0.004	133959	59586				
C26	8.209	-0.002	135994	60741				
C28	8.721	0.001	144318	126414				
C32	9.662	0.000	176771	213258				
C34	10.096	0.000	194052	105382				
Filter Peak	12.044	0.007	108128	26999	BUNKERC	(C10-C38)	35361561	525.6
C36	10.506	-0.001	207732	61857				
C38	10.908	0.003	211391	63201				
C40	11.305	0.001	185124	73734				
o-terph	----							
Triacon Surr	9.210	-0.007	2625296	2070745	NAS DIES	(C10-C24)	4569053	33.1

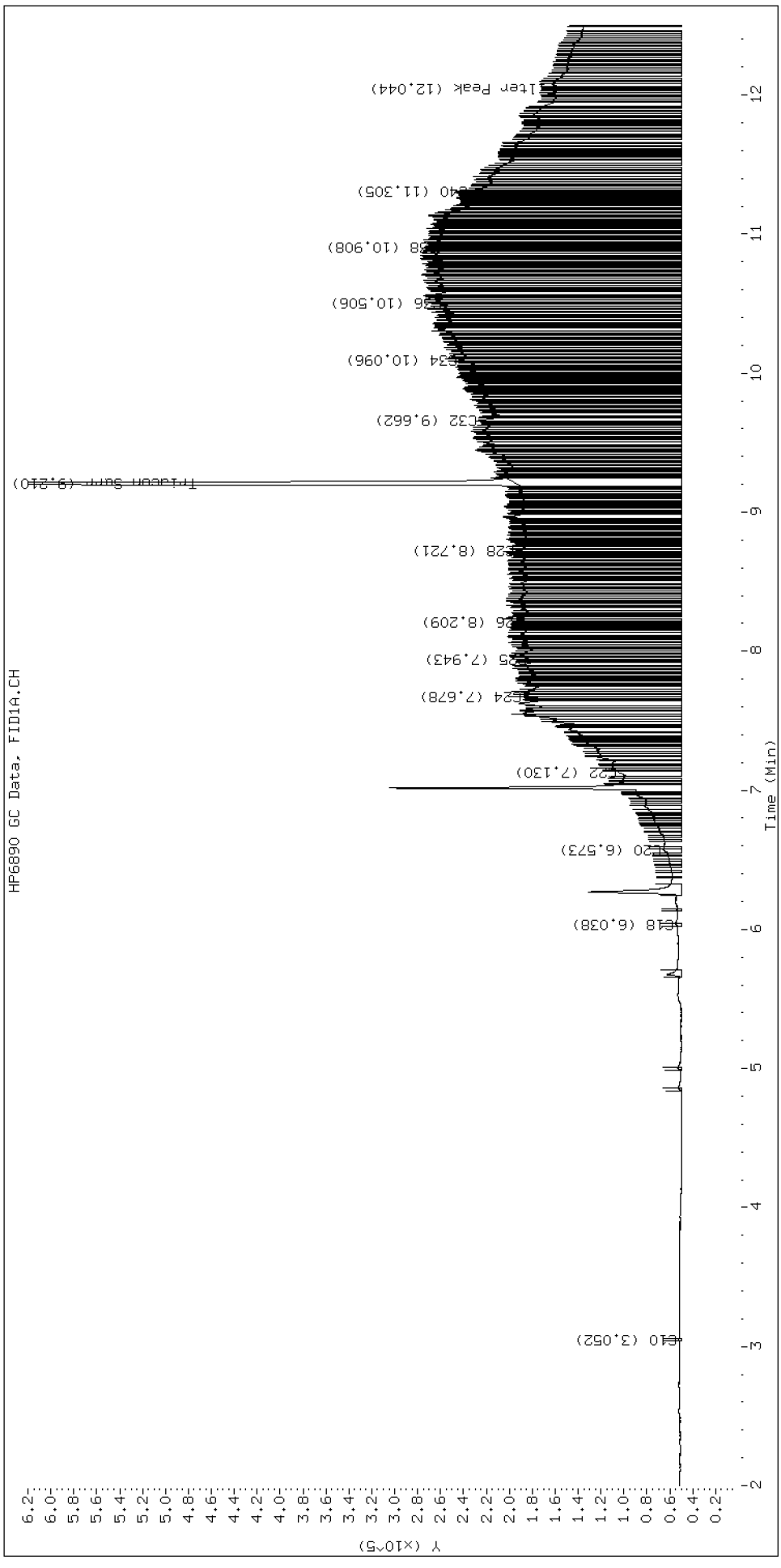
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2070745	50.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

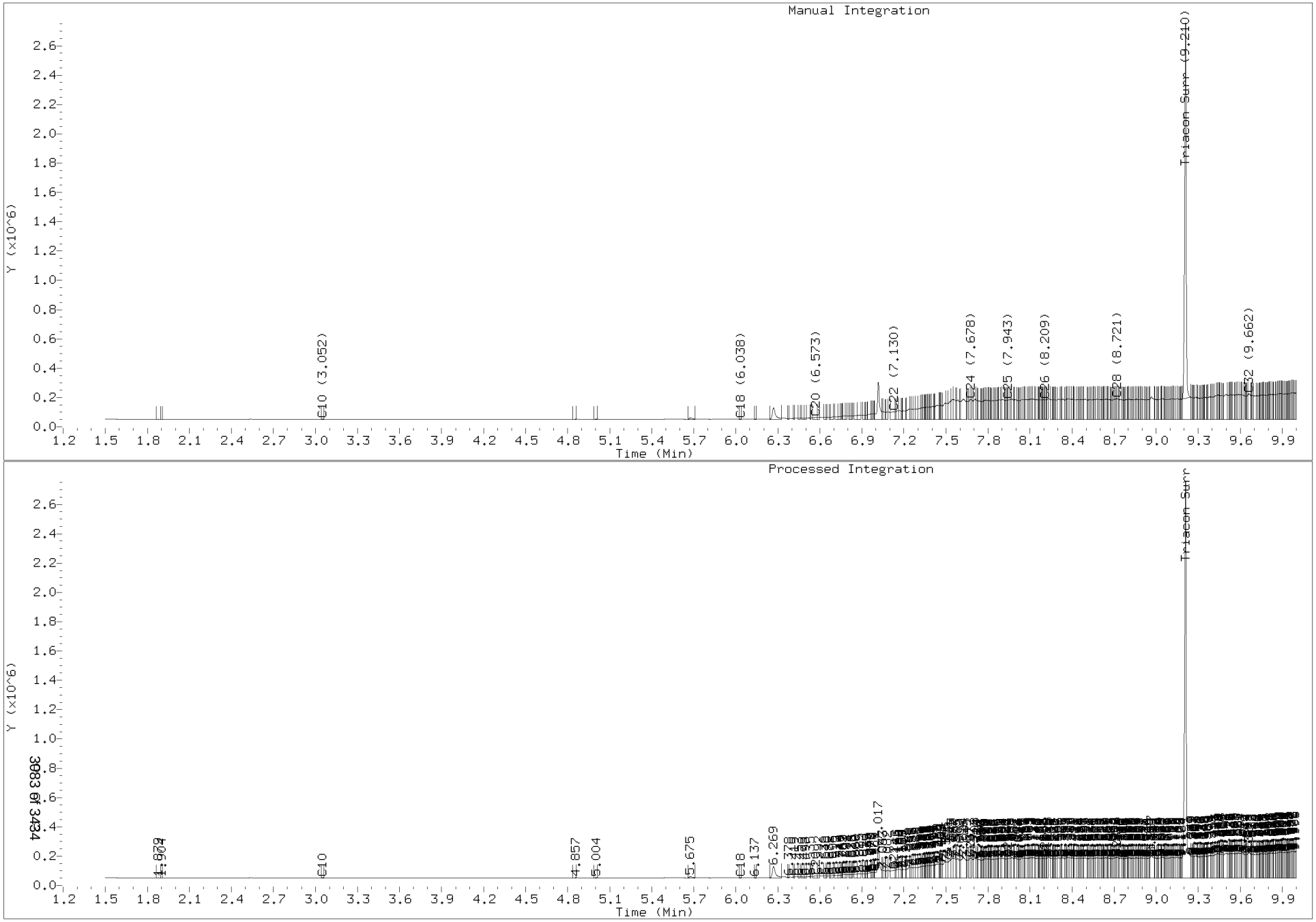
Datafile: FID4A, 20190907.b/419I0726.D SHI0081-SCV3



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0726.D Injection: 07-SEP-2019 17:35

Lab ID:SHI0081-SCV3



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CH00097
Laboratory ID: SHH0420-SCV1
Sequence: SHH0420
Sequence Name: DIESEL SCV
Standard ID: H008294

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Diesel Range Organics (C12-C24)	500.00	467	-6.6	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2941.D

Date : 29-AUG-2019 23:15

Client ID:

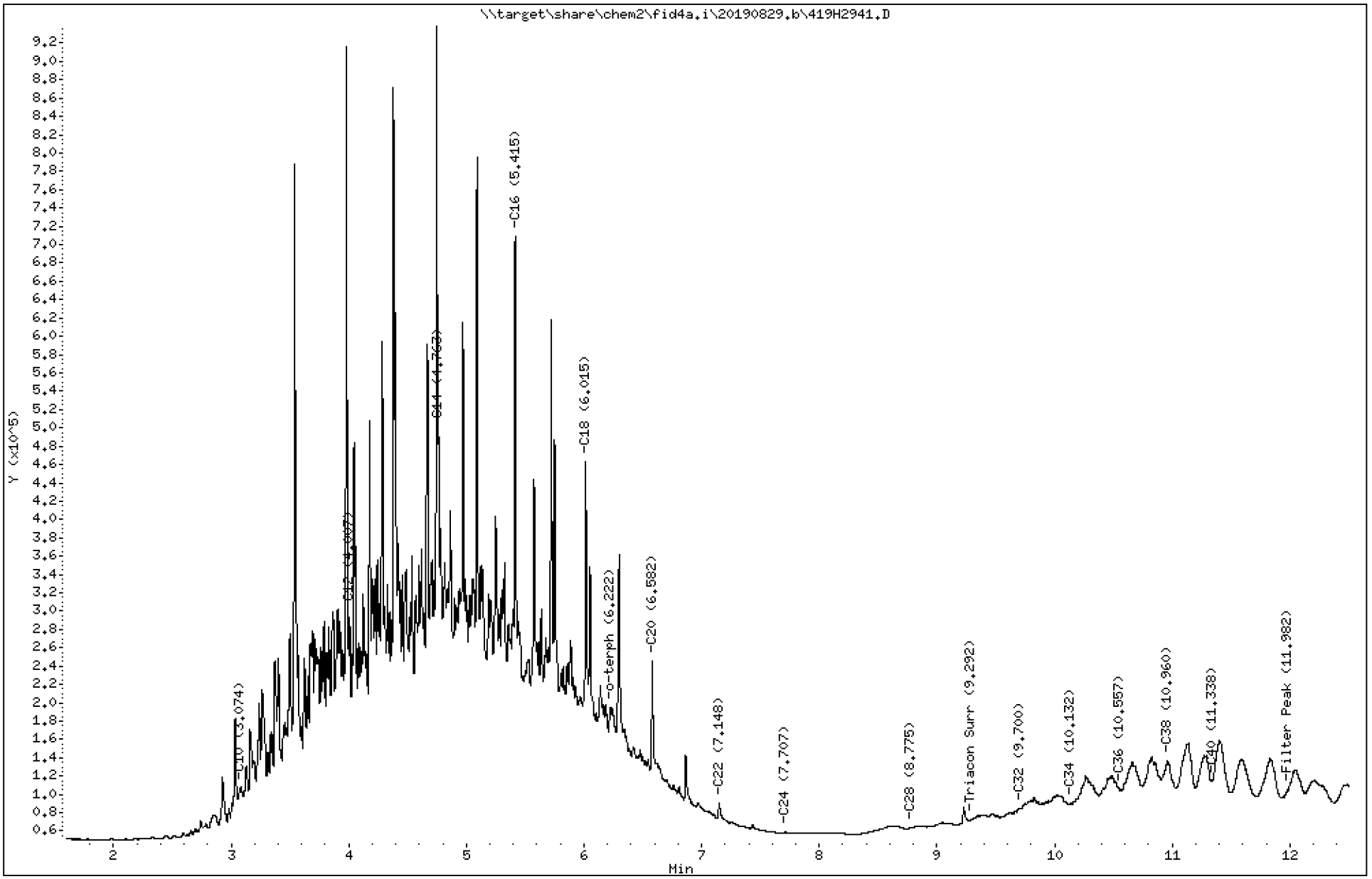
Sample Info: SHH0420-SCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2941.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV1
Client ID:
Injection: 29-AUG-2019 23:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	35049353	466.9
C10	3.074	0.033	55105	65751	WATPHM	(C24-C38)	4179019	115.0
C12	4.007	0.021	242134	232247	AK102	(C10-C25)	44602817	489.6
C14	4.763	0.009	441754	351001	AK103	(C25-C36)	2655832	75.5
C16	5.415	-0.003	656802	687766	OR.DIES	(C10-C28)	44663571	489.6
C18	6.015	-0.002	412064	607312				
C20	6.582	-0.001	193634	293460				
C22	7.148	0.005	38799	99012				
C24	7.707	0.013	7018	7530				
C25	----							
C26	----							
C28	8.775	0.036	11890	10595				
C32	9.700	0.019	32825	34112				
C34	10.132	0.018	38590	40048				
Filter Peak	11.982	-0.014	53371	106968	BUNKERC	(C10-C38)	48781836	725.1
C36	10.557	0.030	54513	26796				
C38	10.960	0.034	84898	307737				
C40	11.338	0.013	63039	25114				
o-terph	6.222	0.020	143970	158931				
Triacon Surr	9.292	0.054	20993	17519	NAS DIES	(C10-C24)	44602817	489.9

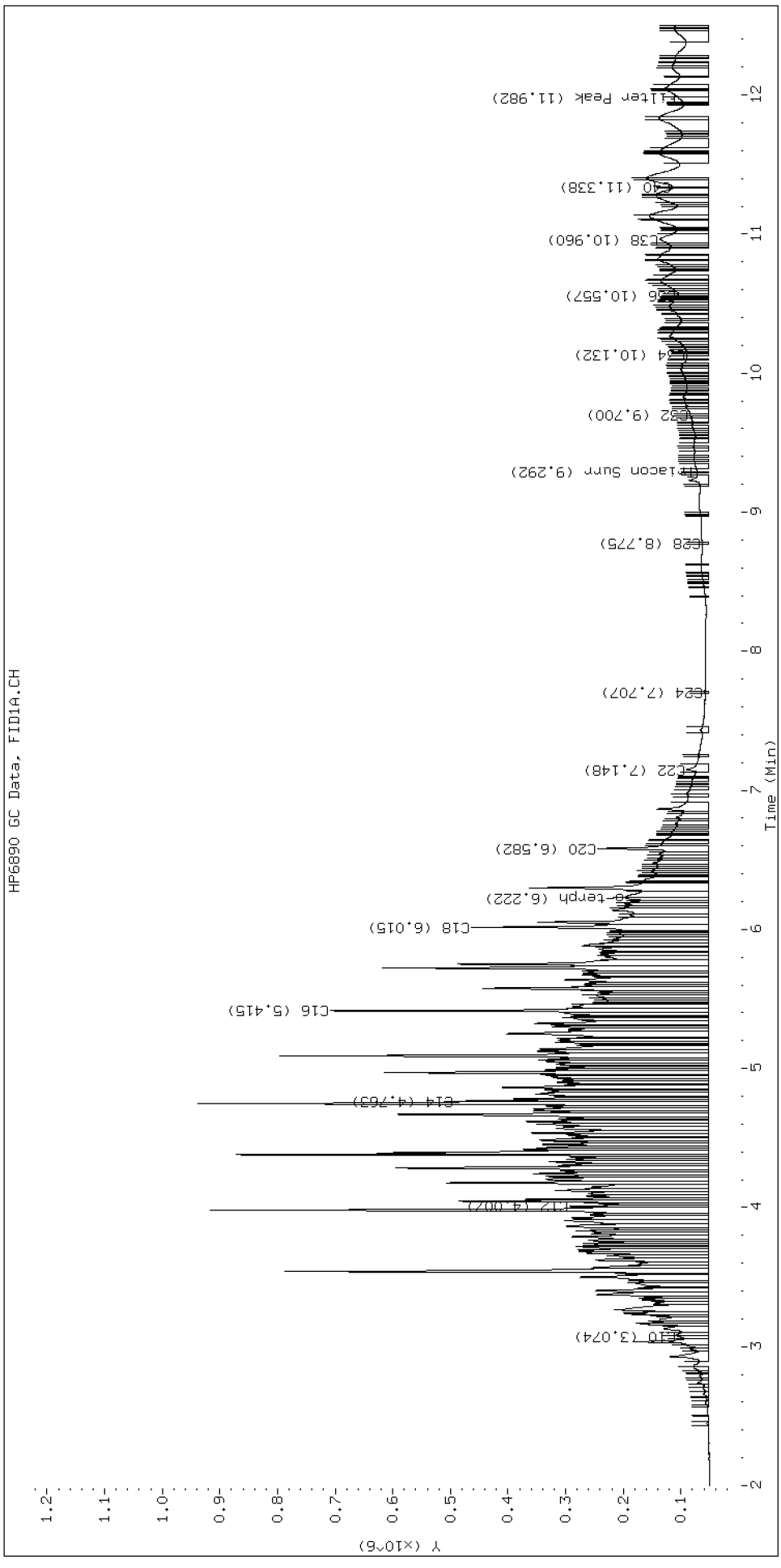
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount
o-Terphenyl	158931	1.9
Triacontane	17519	0.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190829.b/419H2941.D SHH0420-SCV1



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CH00097
Laboratory ID: SHH0420-SCV2
Sequence: SHH0420
Sequence Name: MOIL SCV
Standard ID: H008399

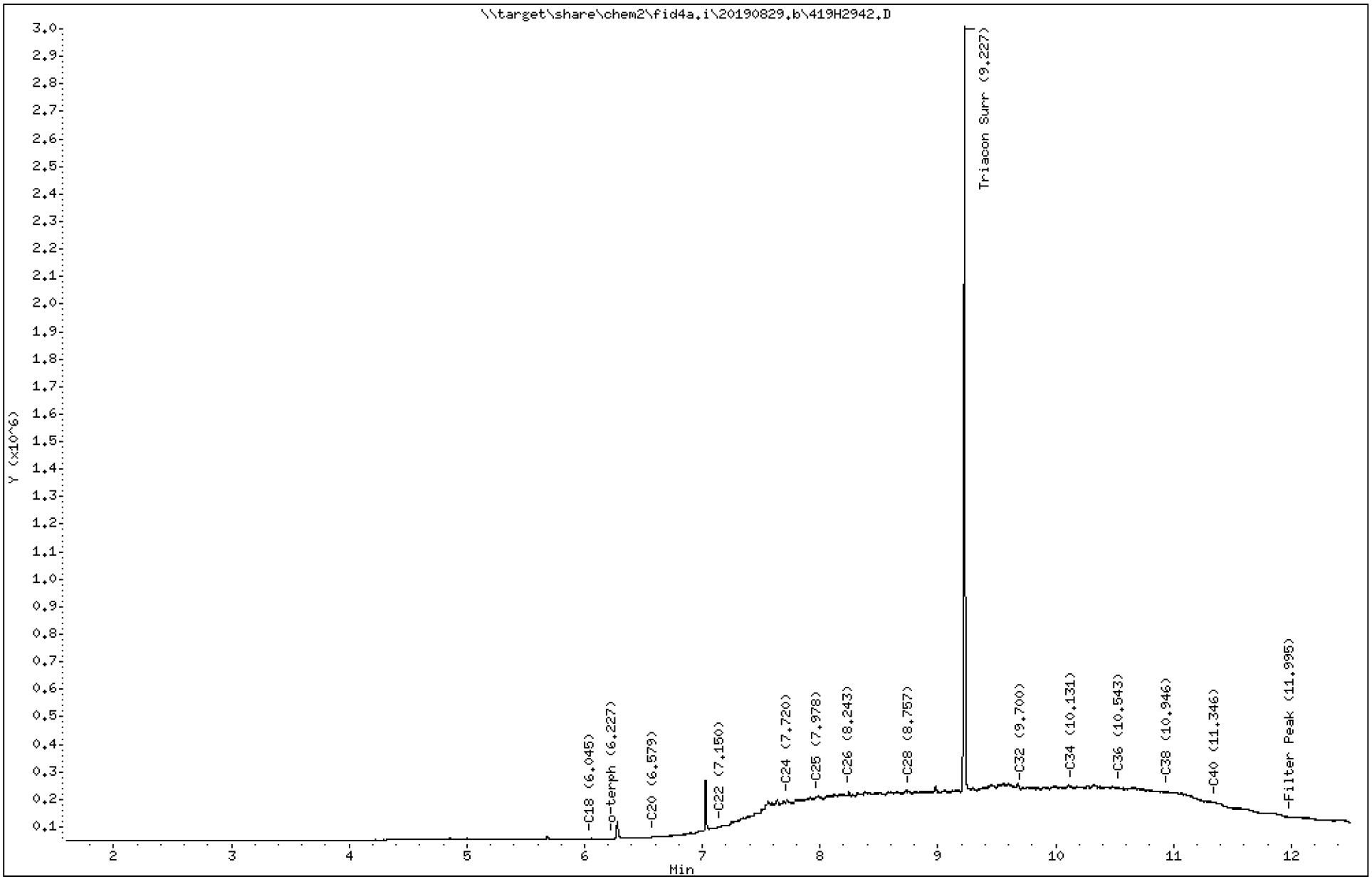
ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	940	-6.0	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2942.D
Date : 29-AUG-2019 23:36
Client ID:
Sample Info: SHH0420-SCV2

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2942.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV2
Client ID:
Injection: 29-AUG-2019 23:36
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4400375	58.6
C10	----				WATPHM	(C24-C38)	34158403	940.3
C12	----				AK102	(C10-C25)	5986821	65.7
C14	----				AK103	(C25-C36)	28296560	804.1
C16	----				OR.DIES	(C10-C28)	14213842	155.8
C18	6.045	0.027	7420	8858				
C20	6.579	-0.004	14933	25168				
C22	7.150	0.007	50379	22527				
C24	7.720	0.025	150691	206651				
C25	7.978	0.013	159402	39677				
C26	8.243	0.014	177015	353456				
C28	8.757	0.018	178994	62356				
C32	9.700	0.019	188322	121701				
C34	10.131	0.017	198341	126823				
Filter Peak	11.995	0.000	83831	41834	BUNKERC	(C10-C38)	38558778	573.1
C36	10.543	0.016	192360	95363				
C38	10.946	0.021	179298	88904				
C40	11.346	0.021	138879	69159				
o-terph	6.227	0.025	6741	2954				
Triacon Surr	9.227	-0.011	2778135	2180357	NAS DIES	(C10-C24)	4400375	48.3

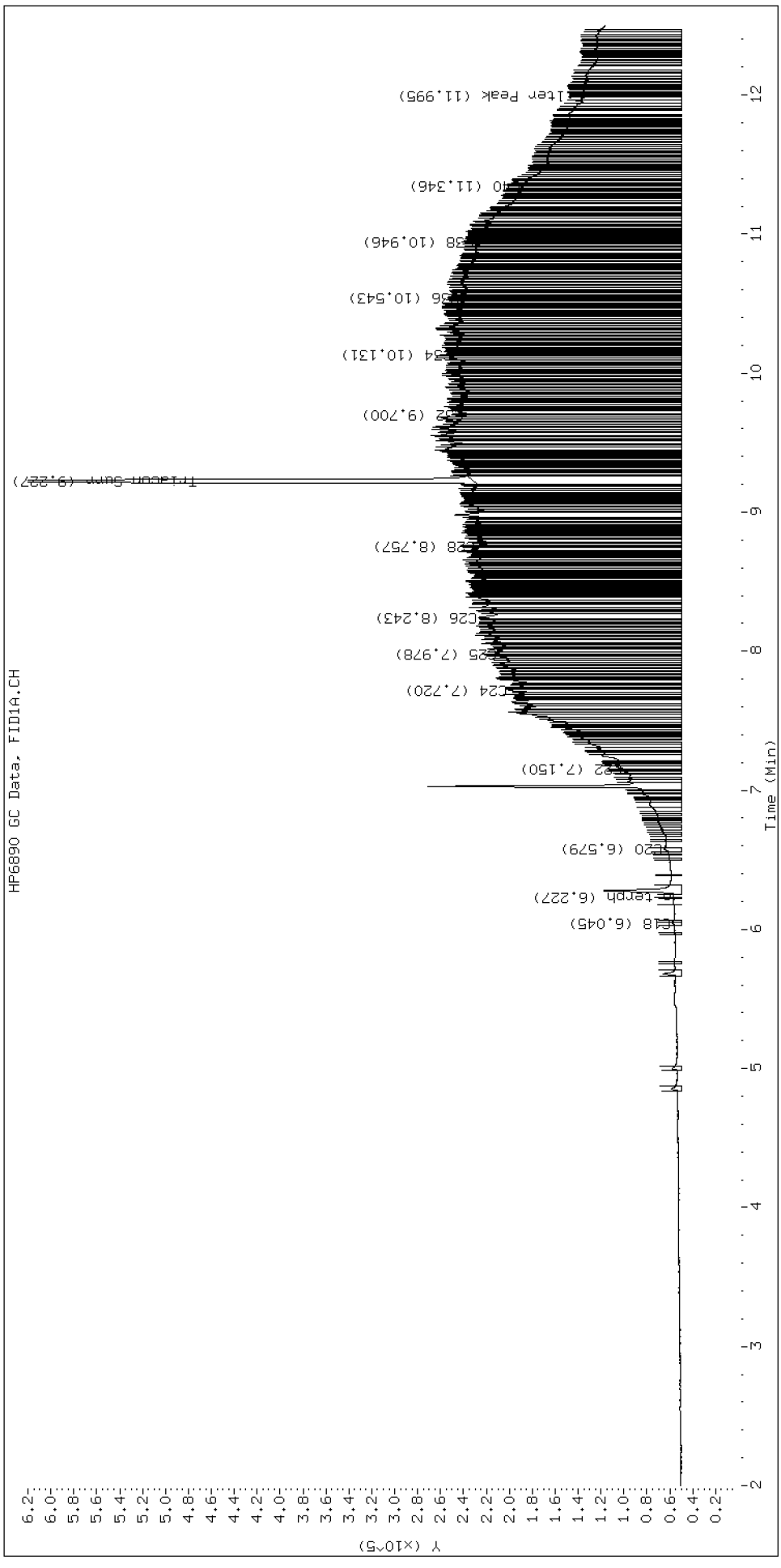
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	2954	0.0	
Triacontane	2180357	41.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

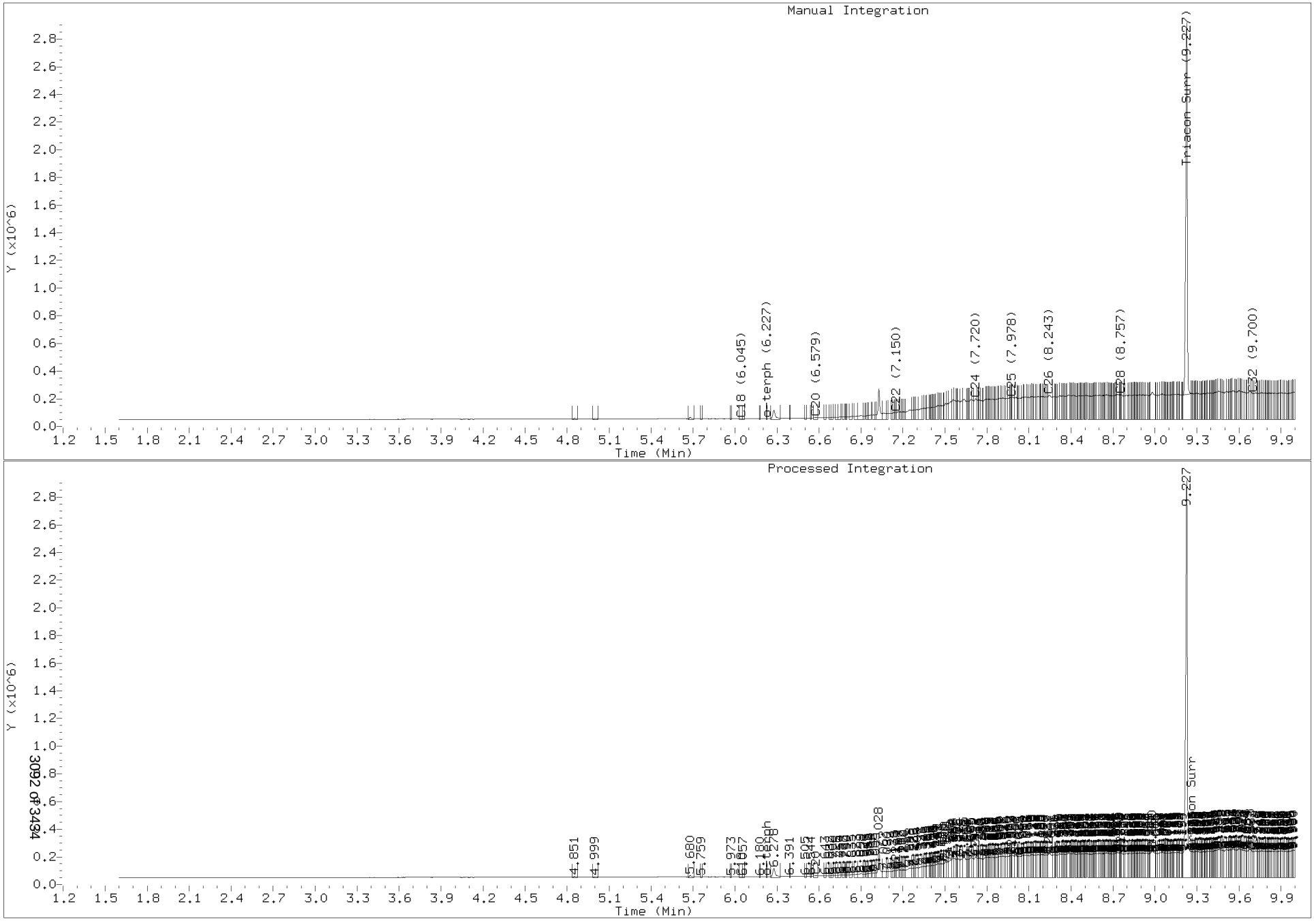
Datafile: FID4A, 20190829.b/419H2942.D SHH0420-SCV2



TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2942.D Injection: 29-AUG-2019 23:36

Lab ID:SHH0420-SCV2



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CH00097
Laboratory ID: SHH0420-SCV3
Sequence: SHH0420
Sequence Name: AK103 SCV
Standard ID: H008400

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	858	-14.2	30.00

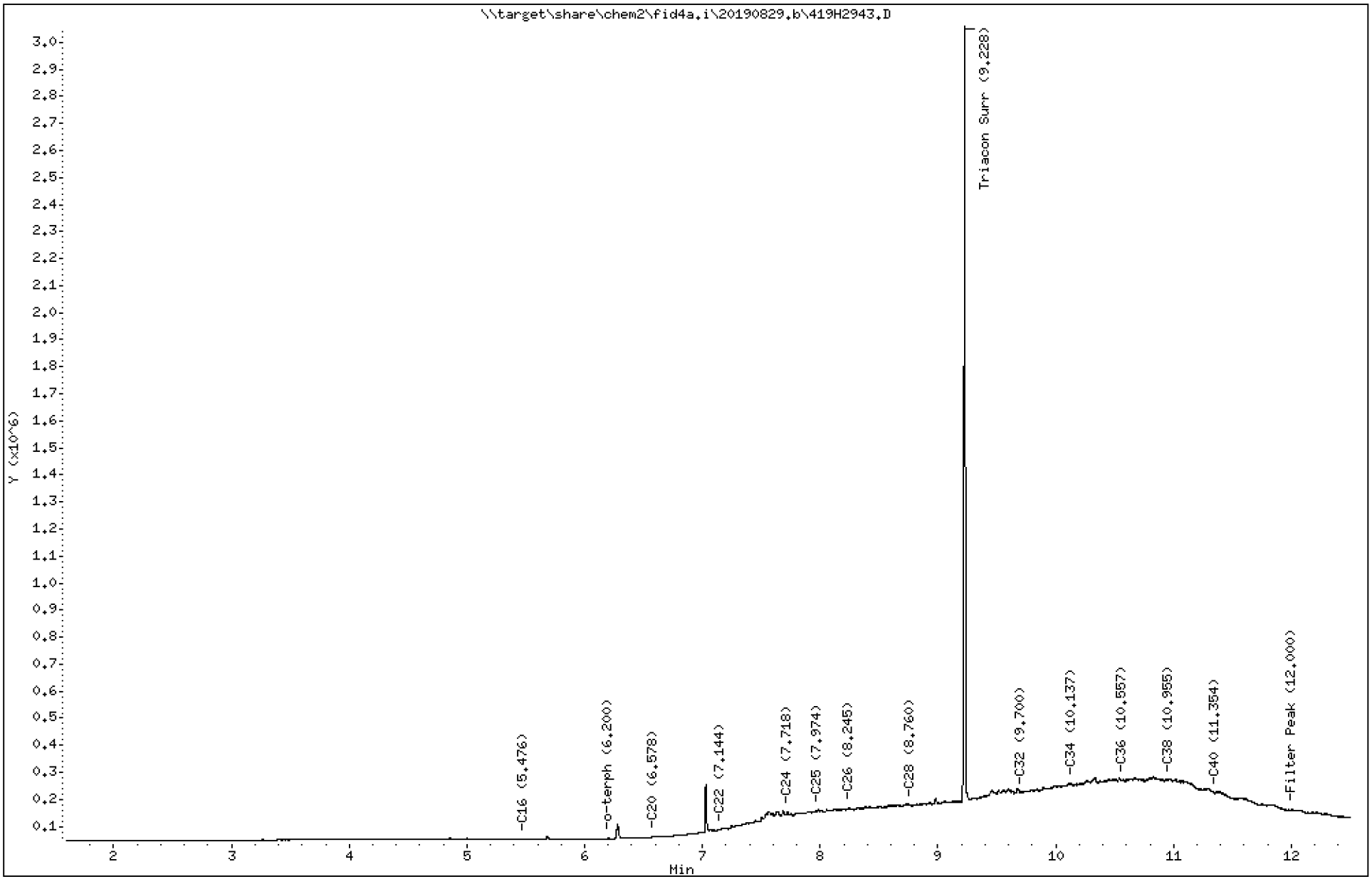
* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190829.b\419H2943.D
Date : 29-AUG-2019 23:57
Client ID:
Sample Info: SHH0420-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190829.b/419H2943.D
Method: 20190829.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 08/31/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHH0420-SCV3
Client ID:
Injection: 29-AUG-2019 23:57
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3417874	45.5
C10	----				WATPHM	(C24-C38)	31152457	857.6
C12	----				AK102	(C10-C25)	4443955	48.8
C14	----				AK103	(C25-C36)	24974881	709.7
C16	5.476	0.058	6376	10231	OR.DIES	(C10-C28)	10234288	112.2
C18	----							
C20	6.578	-0.005	14192	17979				
C22	7.144	0.000	41376	50565				
C24	7.718	0.023	108126	182423				
C25	7.974	0.010	109265	27276				
C26	8.245	0.016	123094	237726				
C28	8.760	0.021	132246	195158				
C32	9.700	0.020	178596	62070				
C34	10.137	0.023	210543	145090				
Filter Peak	12.000	0.005	114077	84925	BUNKERC	(C10-C38)	34570331	513.8
C36	10.557	0.030	220949	55120				
C38	10.955	0.030	224132	89001				
C40	11.354	0.030	177306	123017				
o-terph	6.200	-0.002	8351	9034				
Triacon Surr	9.228	-0.010	2864691	2244772	NAS DIES	(C10-C24)	3417874	37.5

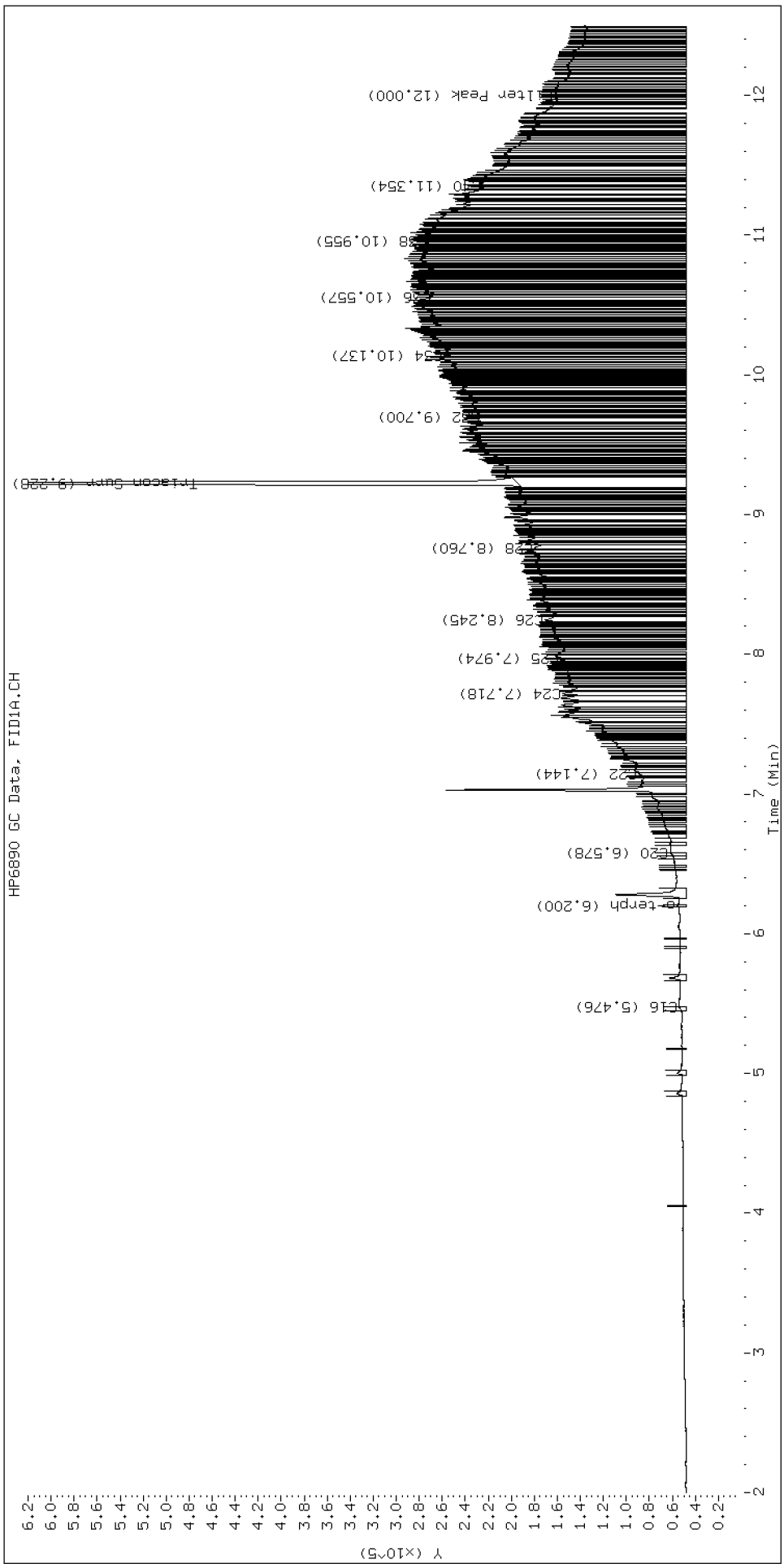
Range Times: NW Diesel(3.986 - 7.695) AK102(3.04 - 7.96) Jet A(3.04 - 6.02)
NW M.Oil(7.69 - 10.93) AK103(7.96 - 10.53) OR Diesel(3.04 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	9034	0.1	
Triacontane	2244772	42.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

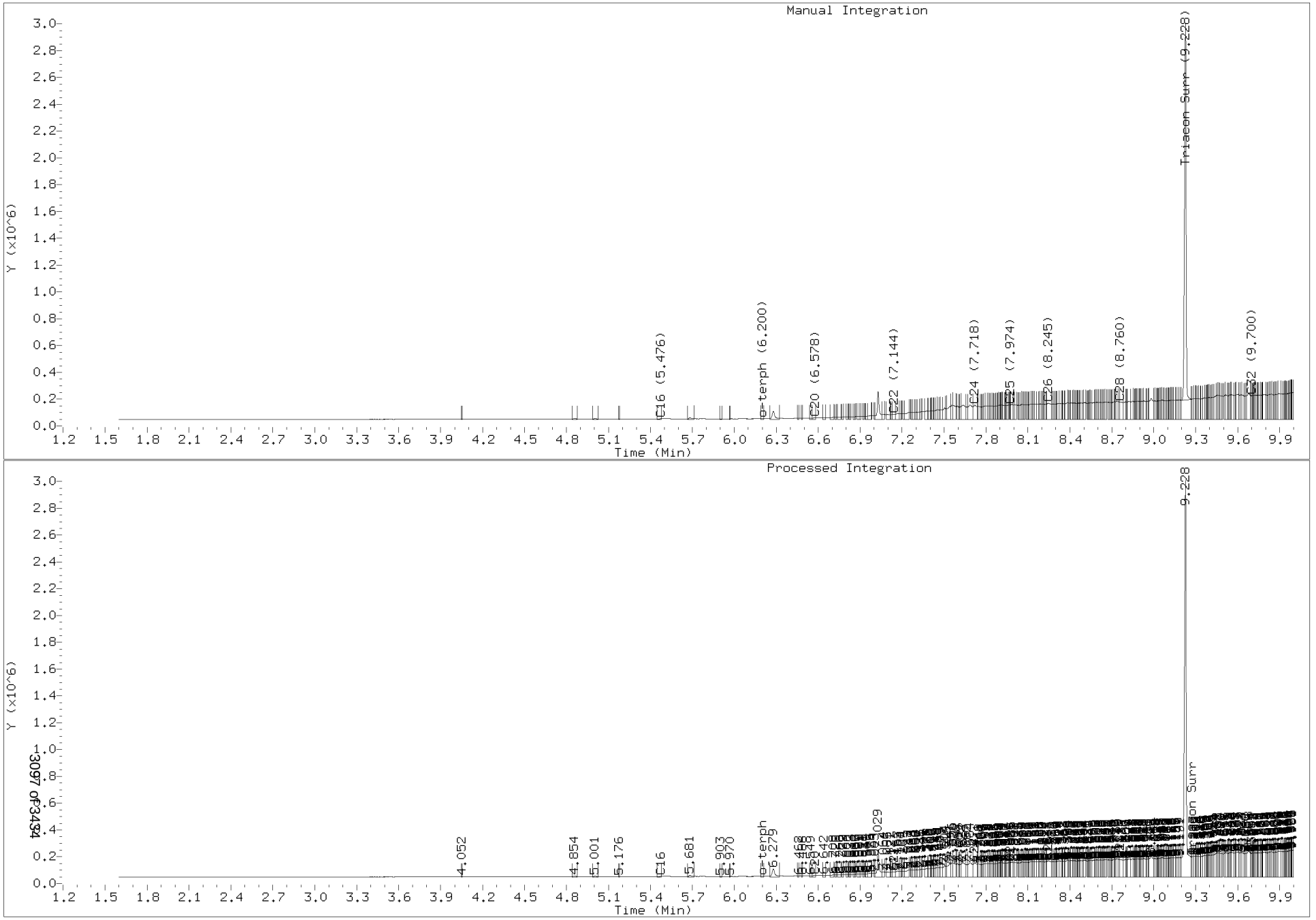
Datafile: FID4A, 20190829.b/419H2943.D SHH0420-SCV3



TPH Manual Integrations Report

Datafile: FID4A, 20190829.b/419H2943.D Injection: 29-AUG-2019 23:57

Lab ID:SHH0420-SCV3



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00021
Laboratory ID: SHI0053-SCV1
Sequence: SHI0053
Sequence Name: DIESEL SCV
Standard ID: H008294

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Diesel Range Organics (C12-C24)	500.00	490	-2.0	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0547.D

Date : 06-SEP-2019 02:01

Client ID:

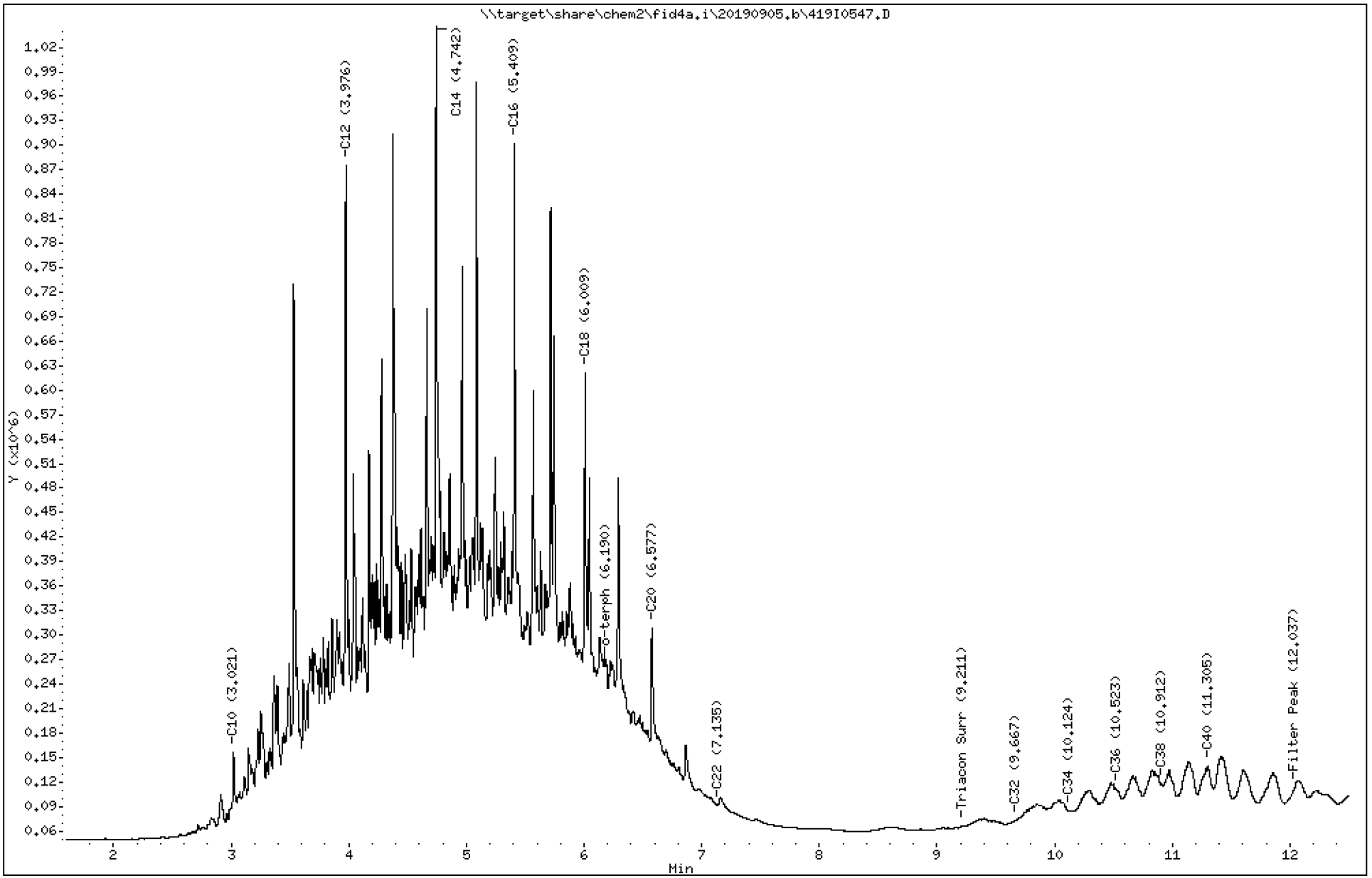
Sample Info: SEQ-SCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0547.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV1
Client ID:
Injection: 06-SEP-2019 02:01
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	47198624	490.2
C10	3.021	0.002	107017	189534	WATPHM	(C24-C38)	3926192	88.4
C12	3.976	-0.007	825553	970800	AK102	(C10-C25)	57300068	512.9
C14	4.742	-0.008	996730	921930	AK103	(C25-C36)	2577356	64.3
C16	5.409	-0.004	853367	944515	OR.DIES	(C10-C28)	57315981	512.1
C18	6.009	-0.001	571467	924892				
C20	6.577	0.000	258974	584247				
C22	7.135	-0.002	42335	8432				
C24	----							
C25	----							
C26	----							
C32	9.667	-0.007	23024	29212				
C34	10.124	0.018	35699	33411				
Filter Peak	12.037	-0.002	62961	253045	BUNKERC	(C10-C38)	61226261	910.0
C36	10.523	0.007	62321	75360				
C38	10.912	0.007	67745	46495				
C40	11.305	0.008	89616	221492				
o-terph	6.190	-0.008	216639	232217				
Triacon Surr	9.211	-0.022	16258	32363	NAS DIES	(C10-C24)	57300068	513.3

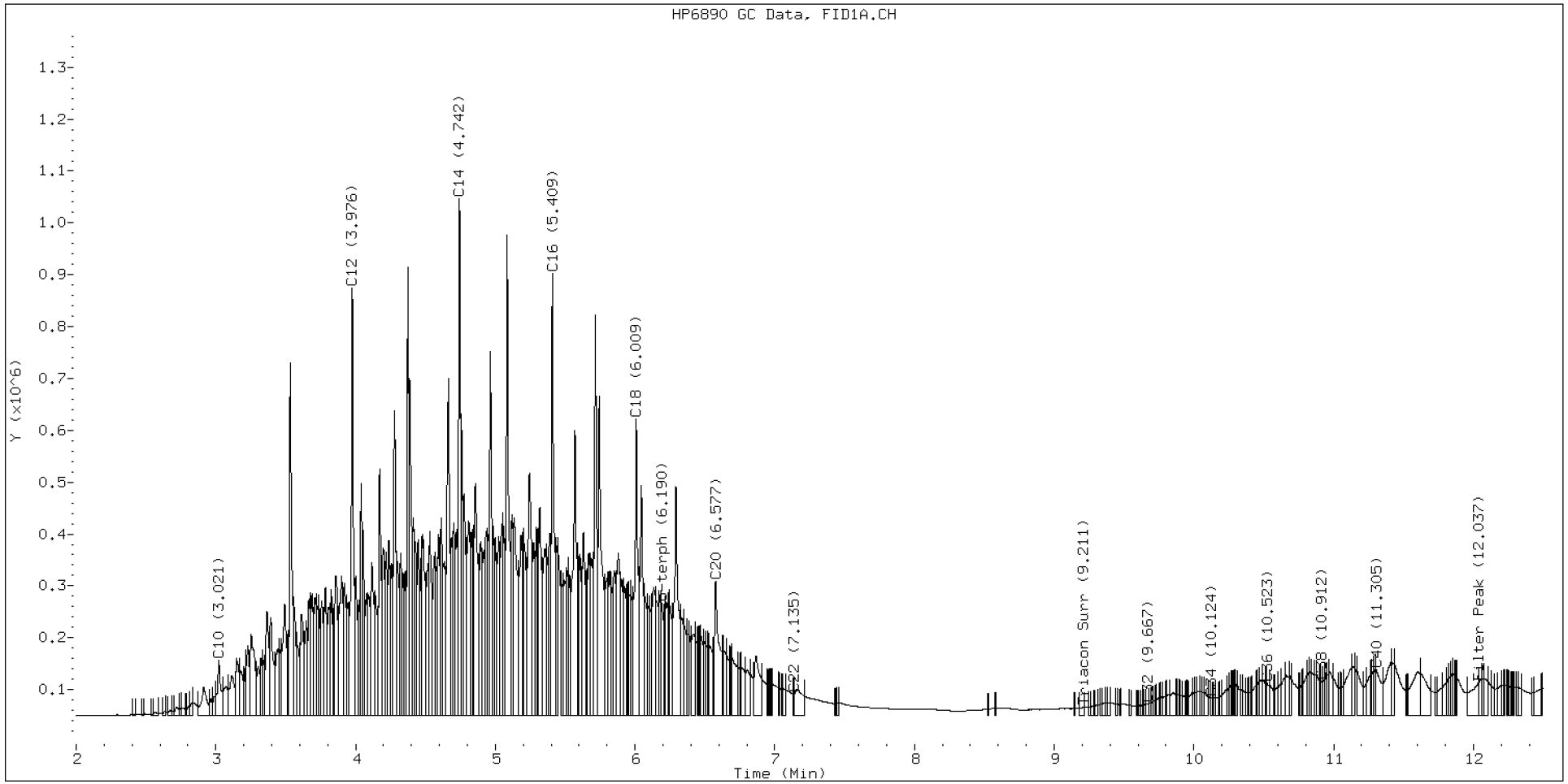
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	232217	1.9
Triacontane	32363	0.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190905.b/419I0547.D SHI0053-SCV1



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00021
Laboratory ID: SHI0053-SCV2
Sequence: SHI0053
Sequence Name: MOIL SCV
Standard ID: H008399

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	973	-2.7	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0548.D

Date : 06-SEP-2019 02:22

Client ID:

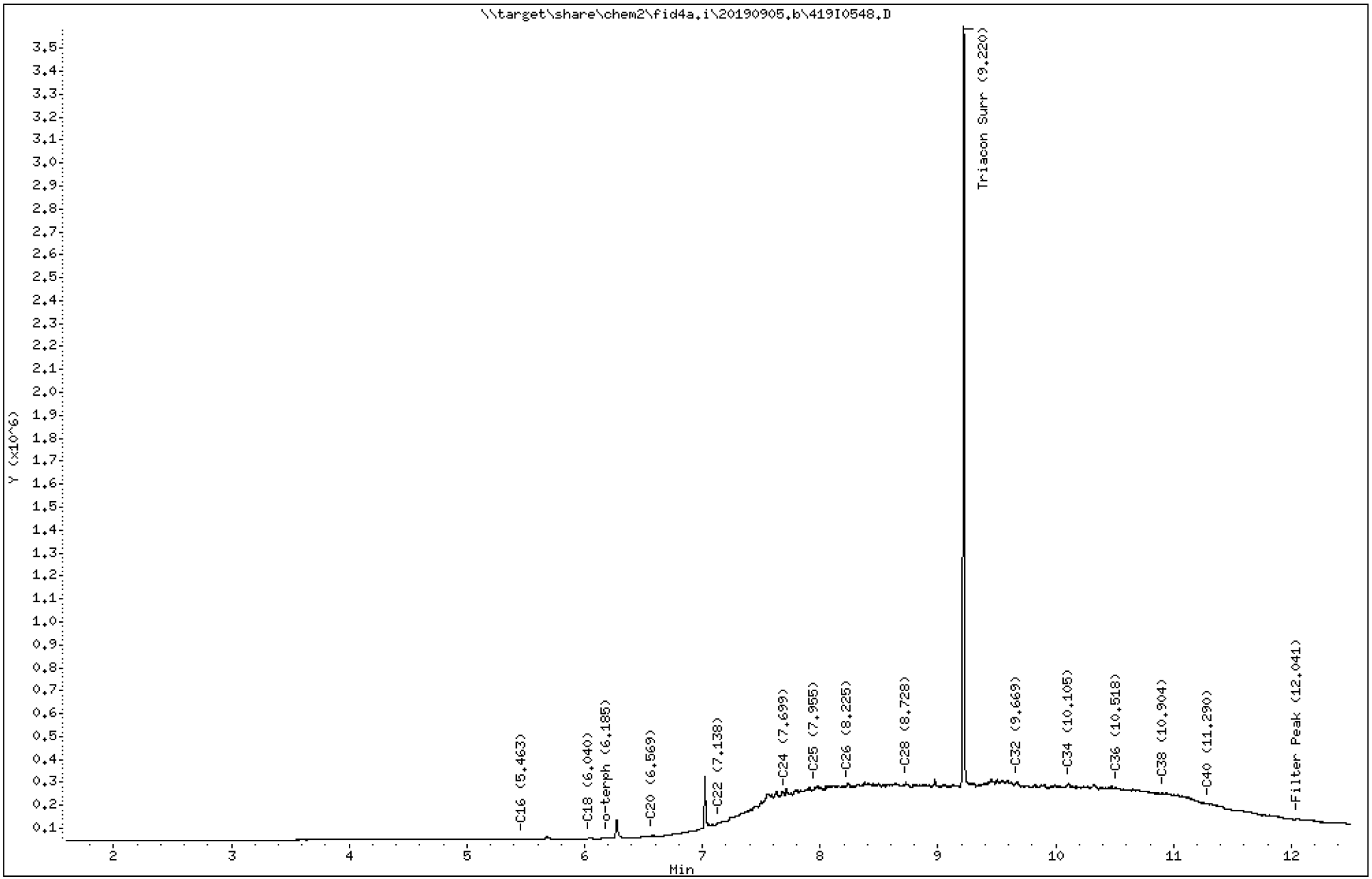
Sample Info: SEQ-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0548.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV2
Client ID:
Injection: 06-SEP-2019 02:22
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	6577610	68.3
C10	----				WATPHM	(C24-C38)	43231405	973.2
C12	----				AK102	(C10-C25)	8617963	77.1
C14	----				AK103	(C25-C36)	36664024	915.1
C16	5.463	0.050	2229	1128	OR.DIES	(C10-C28)	20702005	185.0
C18	6.040	0.030	5685	5475				
C20	6.569	-0.008	16864	18909				
C22	7.138	0.001	71370	46148				
C24	7.699	0.011	195206	48695				
C25	7.955	-0.004	226212	123100				
C26	8.225	0.001	232090	81001				
C28	8.728	-0.005	249634	328150				
C32	9.669	-0.006	253564	382876				
C34	10.105	-0.000	244652	193564				
Filter Peak	12.041	0.002	88932	48533	BUNKERC	(C10-C38)	49809015	740.3
C36	10.518	0.001	226452	123532				
C38	10.904	-0.002	202169	110203				
C40	11.290	-0.007	156301	124172				
o-terph	6.185	-0.014	5712	7191				
Triacon Surr	9.220	-0.013	3302296	2674658	NAS DIES	(C10-C24)	6577610	58.9

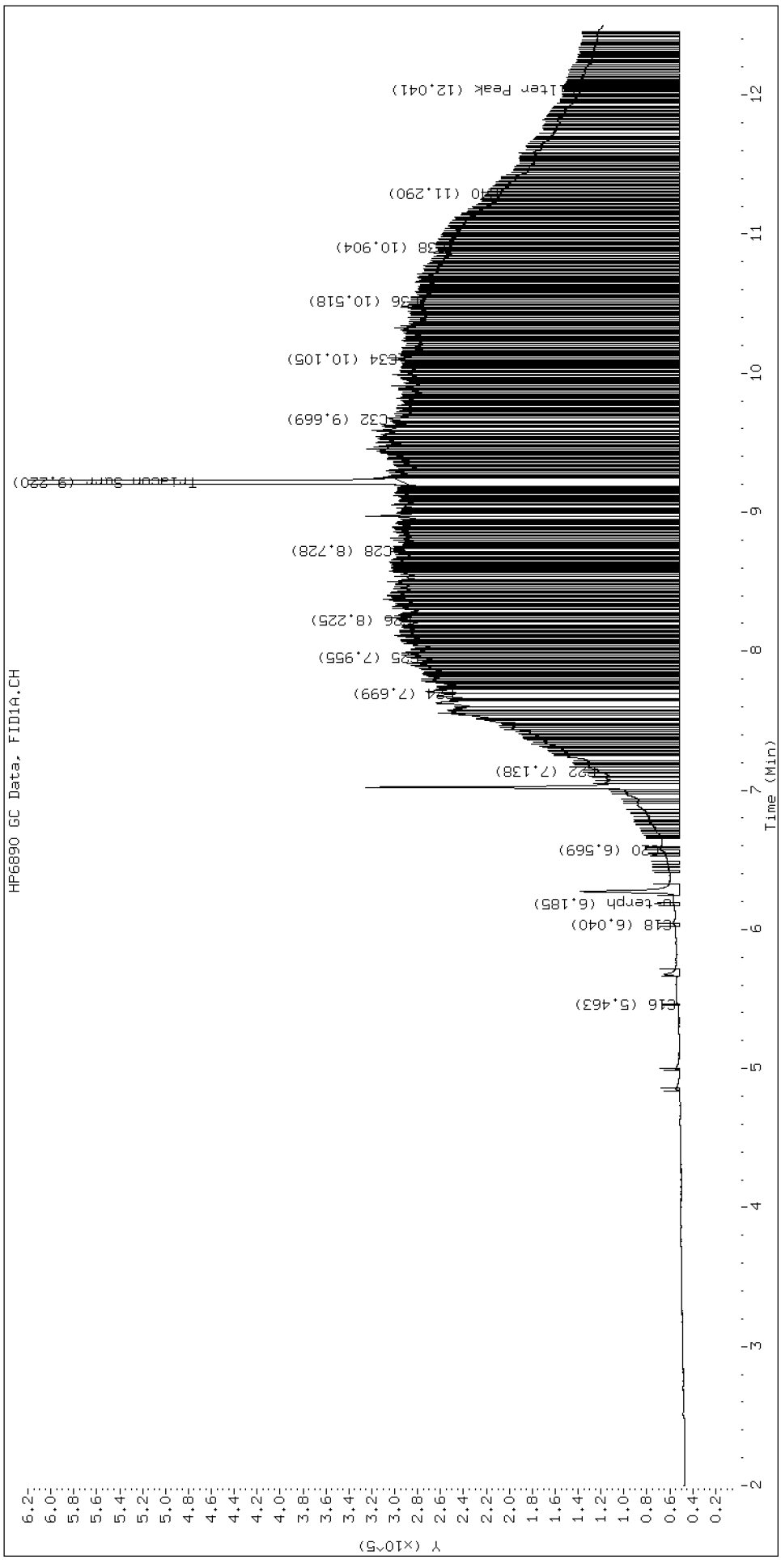
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7191	0.1	
Triacontane	2674658	43.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

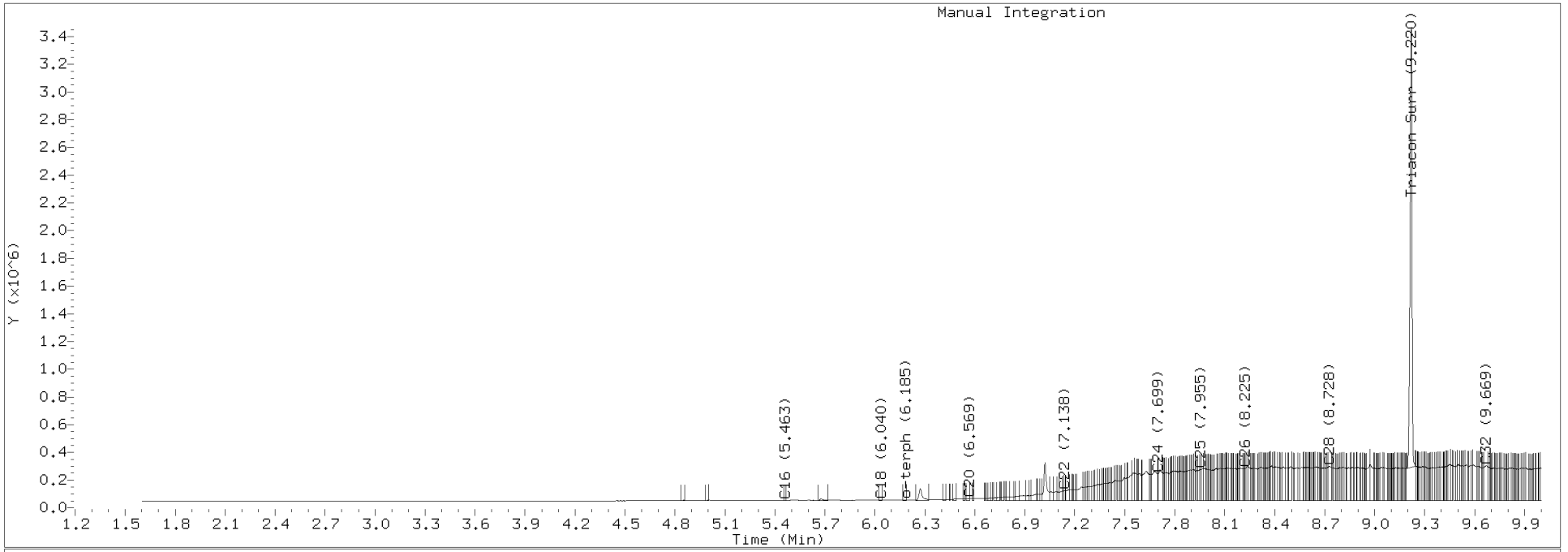
Datafile: FID4A, 20190905.b/419I0548.D SHI0053-SCV2

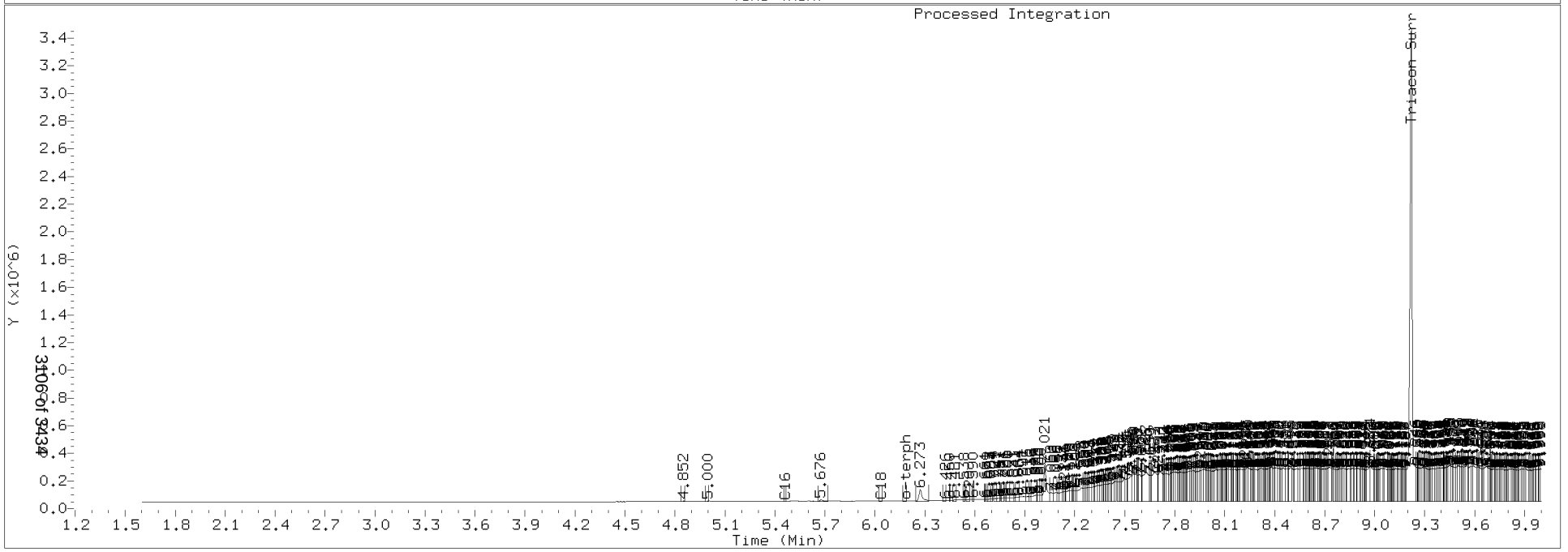


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0548.D Injection: 06-SEP-2019 02:22

Lab ID:SHI0053-SCV2





SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00021
Laboratory ID: SHI0053-SCV3
Sequence: SHI0053
Sequence Name: AK103 SCV
Standard ID: H008400

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	891	-10.9	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0549.D

Date : 06-SEP-2019 02:42

Client ID:

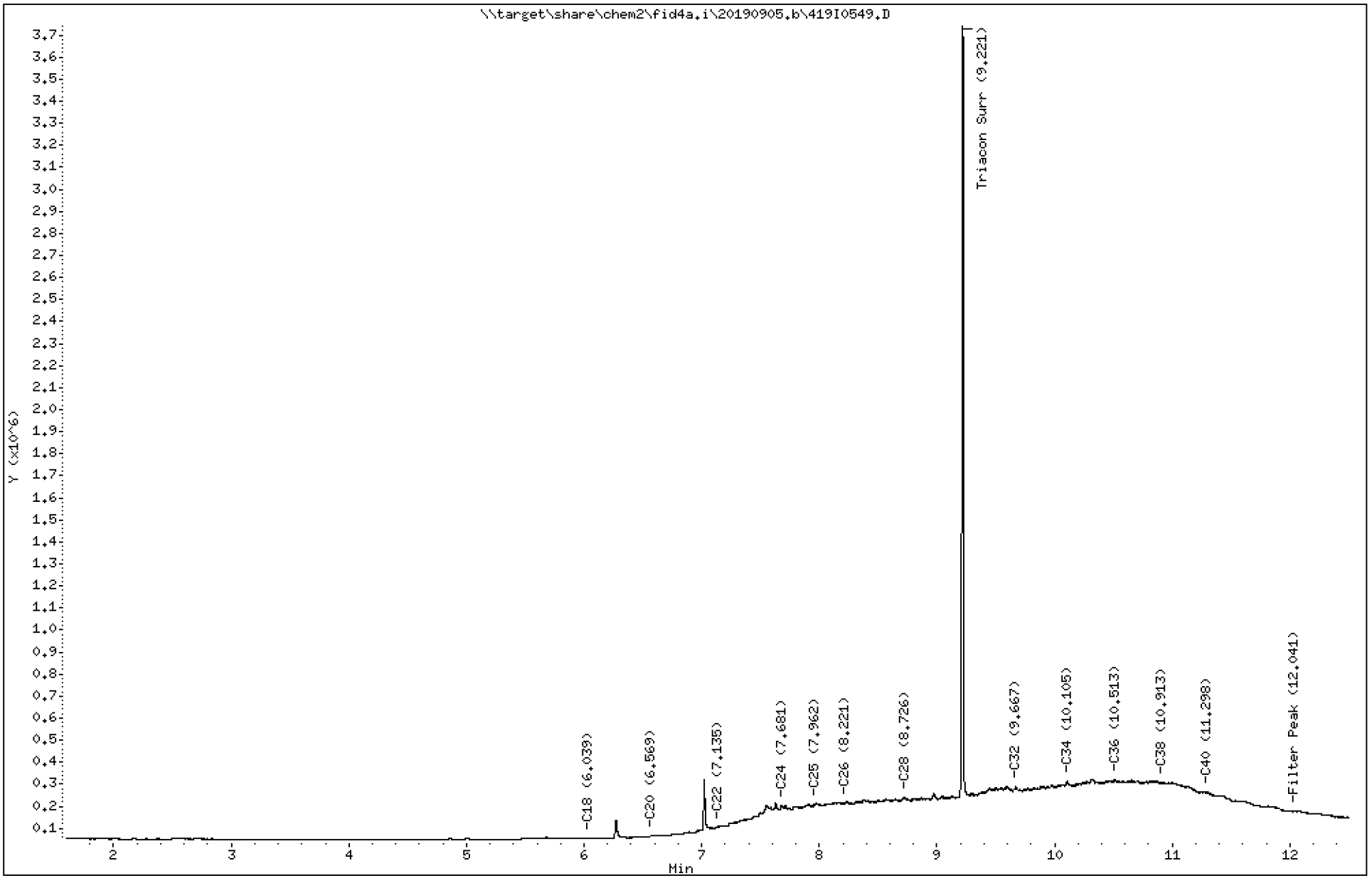
Sample Info: SEQ-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0549.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV3
Client ID:
Injection: 06-SEP-2019 02:42
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5015558	52.1
C10	----				WATPHM	(C24-C38)	39590761	891.3
C12	----				AK102	(C10-C25)	6513420	58.3
C14	----				AK103	(C25-C36)	31999485	798.7
C16	----				OR.DIES	(C10-C28)	15193638	135.8
C18	6.039	0.029	5296	4051				
C20	6.569	-0.007	15887	16787				
C22	7.135	-0.002	57835	37508				
C24	7.681	-0.007	156035	349994				
C25	7.962	0.004	160164	71527				
C26	8.221	-0.002	164369	97784				
C28	8.726	-0.007	193253	262816				
C32	9.667	-0.008	240483	428011				
C34	10.105	-0.001	264230	295928				
Filter Peak	12.041	0.002	129760	77266	BUNKERC	(C10-C38)	44606319	663.0
C36	10.513	-0.004	269456	120313				
C38	10.913	0.008	260433	180319				
C40	11.298	0.001	213708	137992				
o-terph	----							
Triacon Surr	9.221	-0.012	3493703	2925317	NAS DIES	(C10-C24)	5015558	44.9

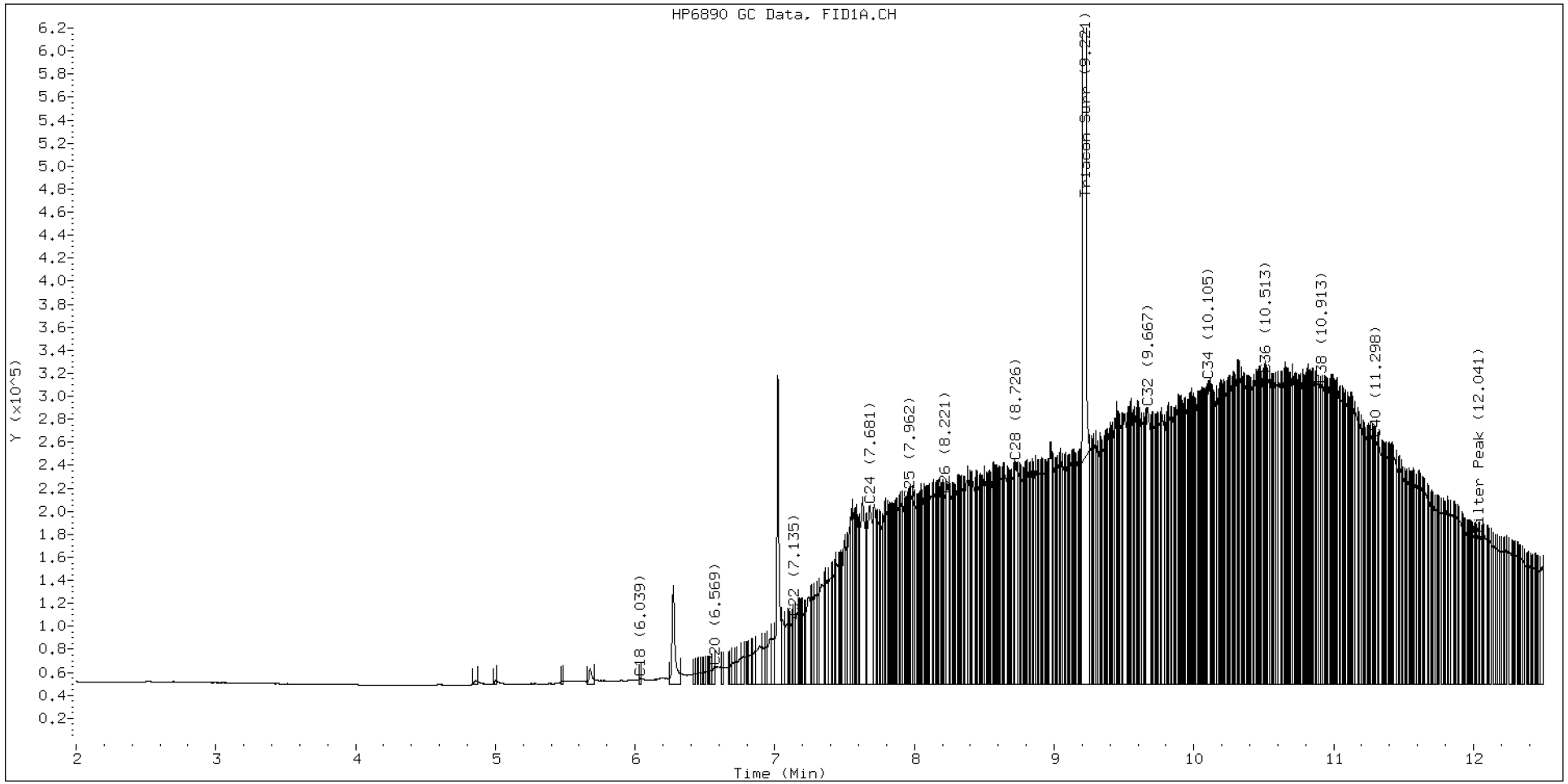
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2925317	47.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

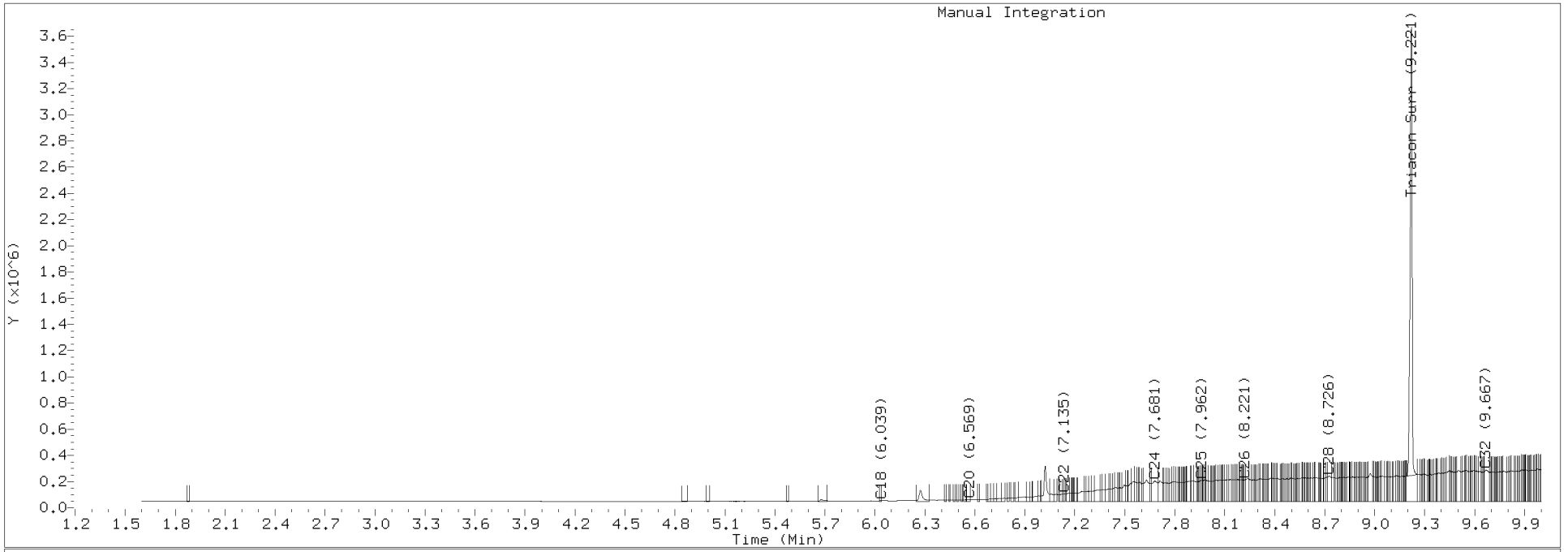
Datafile: FID4A, 20190905.b/419I0549.D SHI0053-SCV3

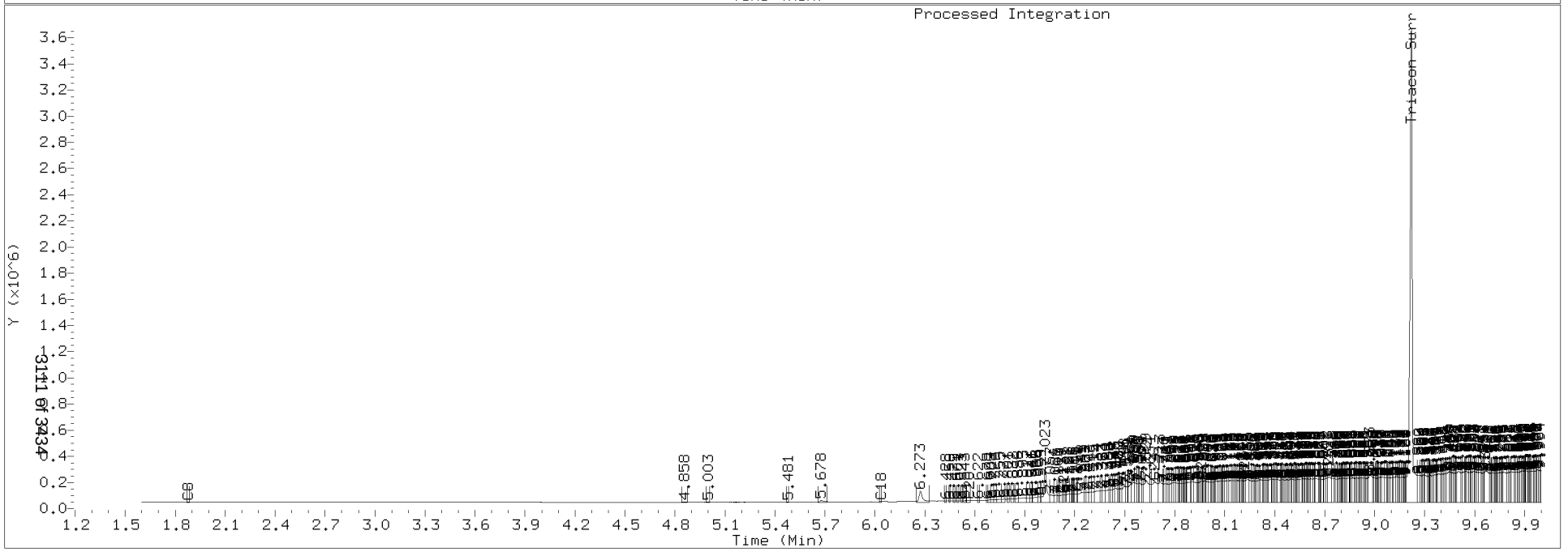


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0549.D Injection: 06-SEP-2019 02:42

Lab ID:SHI0053-SCV3





SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00036
Laboratory ID: SHI0095-SCV1
Sequence: SHI0095
Sequence Name: DIESEL SCV
Standard ID: H008294

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Diesel Range Organics (C12-C24)	500.00	508	1.6	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1024.D

Date : 10-SEP-2019 17:50

Client ID:

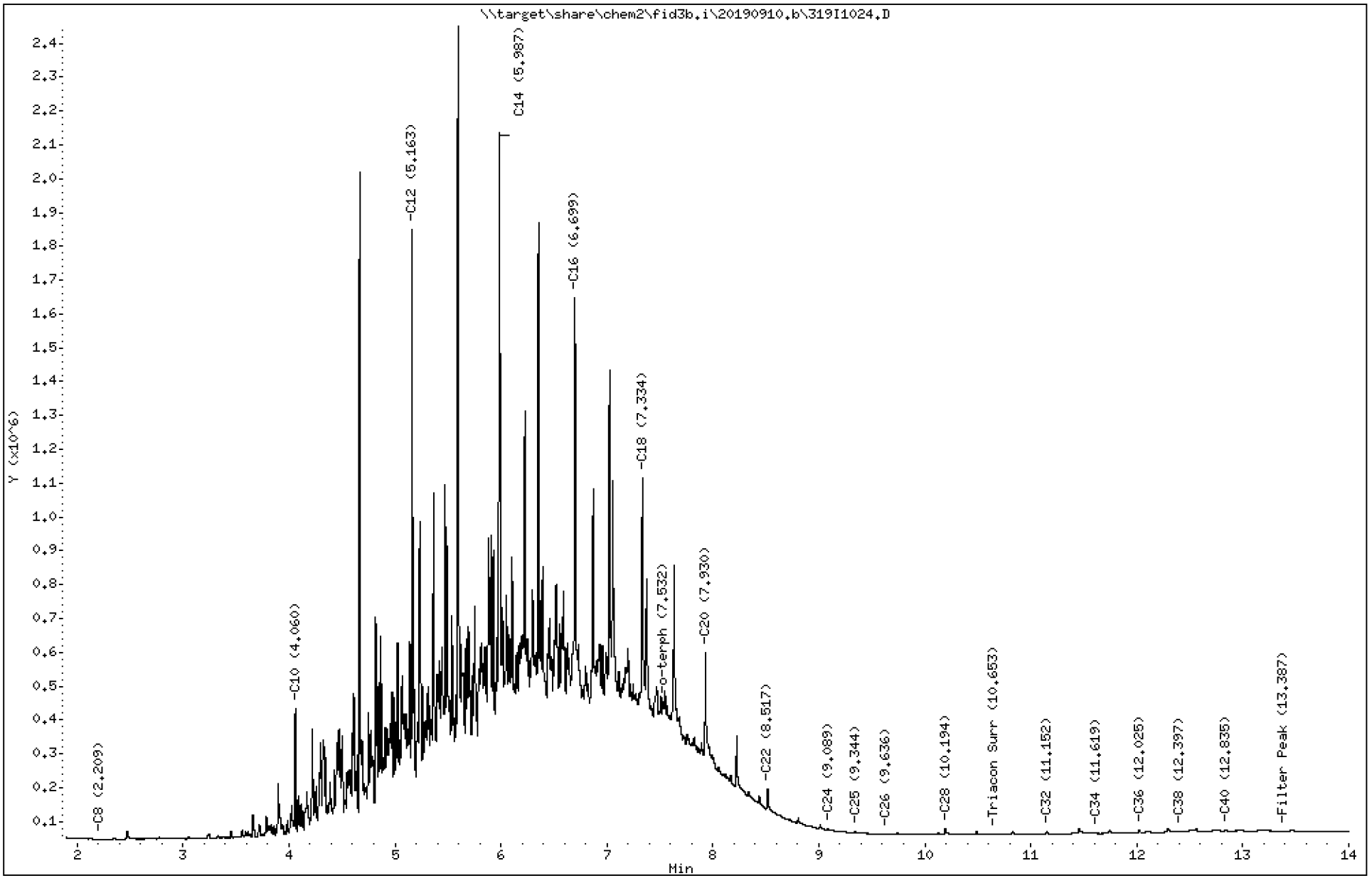
Sample Info: SHI0095-SCV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1024.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV1
Client ID:
Injection: 10-SEP-2019 17:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	18166834	101.2
C8	2.209	0.033	1933	4952	WATPHD	(C12-C24)	88603072	507.9
C10	4.060	-0.009	385327	254694	WATPHM	(C24-C38)	1571148	12.4
C12	5.163	-0.003	1804139	1159878	AK102	(C10-C25)	105644144	518.2
C14	5.987	-0.005	2090503	2284429	AK103	(C25-C36)	1243748	12.2
C16	6.699	-0.004	1601427	1786732	OR.DIES	(C10-C28)	106195300	514.5
C18	7.334	-0.004	1070625	1659662				
C20	7.930	-0.006	552027	835683				
C22	8.517	-0.006	148739	617018				
C24	9.089	-0.007	33019	146762				
C25	9.344	-0.030	23748	60865				
C26	9.636	-0.010	16436	23024				
C28	10.194	0.025	32651	169918	IT.DIES	(C10-C24)	105644144	519.3
C32	11.152	0.021	25156	54043				
C34	11.619	0.046	18838	51742				
Filter Peak	13.387	0.068	25528	21741				
C36	12.025	0.027	28189	56284				
o-terph	7.532	-0.002	405671	416993				
Triacon Surr	10.653	-0.037	16705	23260				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	416993	1.9
Triacontane	23260	0.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00036
Laboratory ID: SHI0095-SCV2
Sequence: SHI0095
Sequence Name: MOIL SCV
Standard ID: H008399

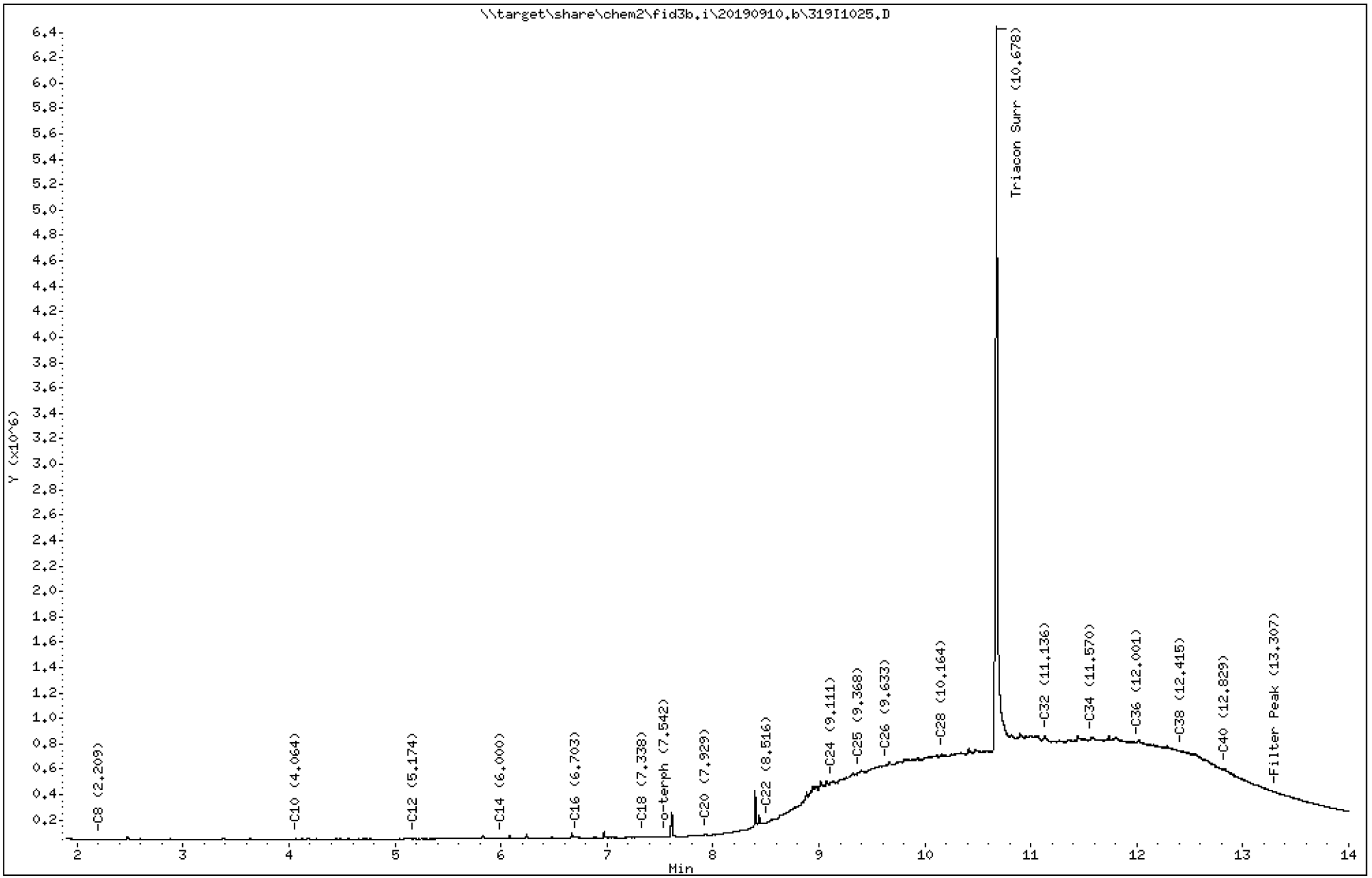
ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	1060	6.2	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1025.D
Date : 10-SEP-2019 18:13
Client ID:
Sample Info: SHI0095-SCV2

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1025.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV2
Client ID:
Injection: 10-SEP-2019 18:13
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	420555	2.3	
C8	2.209	0.034	5268	10275	WATPHD	(C12-C24)	16700300	95.7	
C10	4.064	-0.005	6881	8187	WATPHM	(C24-C38)	134436796	1061.8	
C12	5.174	0.008	6921	14266	AK102	(C10-C25)	21220077	104.1	
C14	6.000	0.008	12196	12749	AK103	(C25-C36)	113307697	1113.7	M
C16	6.703	0.000	22674	65102	OR.DIES	(C10-C28)	53624510	259.8	
C18	7.338	0.000	20684	26483					
C20	7.929	-0.007	41189	127363					
C22	8.516	-0.007	143253	280508					
C24	9.111	0.015	451100	414936					
C25	9.368	-0.006	525235	394195					
C26	9.633	-0.012	587576	326190					
C28	10.164	-0.005	673101	1234119	IT.DIES	(C10-C24)	16917193	83.2	
C32	11.136	0.006	816398	2046618					
C34	11.570	-0.003	803474	1522330					
Filter Peak	13.307	-0.011	375795	979454					
C36	12.001	0.003	767809	367268					
o-terph	7.542	0.009	21898	49462					
Triacon Surr	10.678	-0.011	5683882	7402686					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

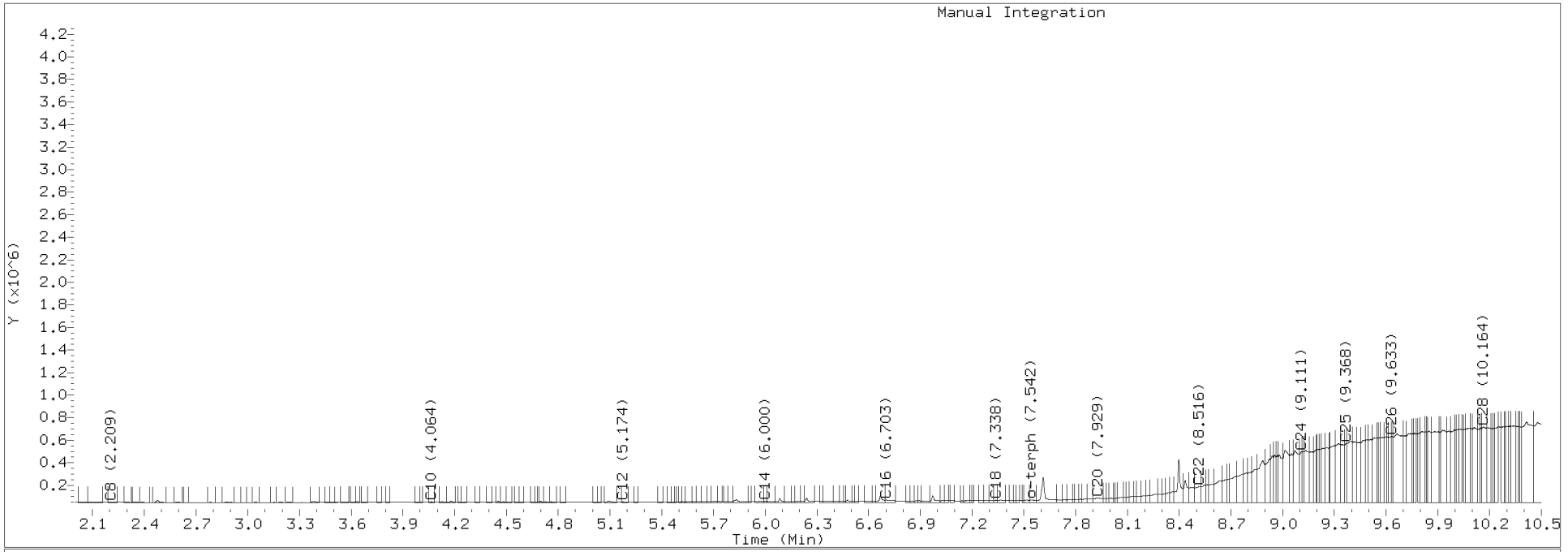
Surrogate	Area	Amount
o-Terphenyl	49462	0.2
Triacontane	7402686	43.5

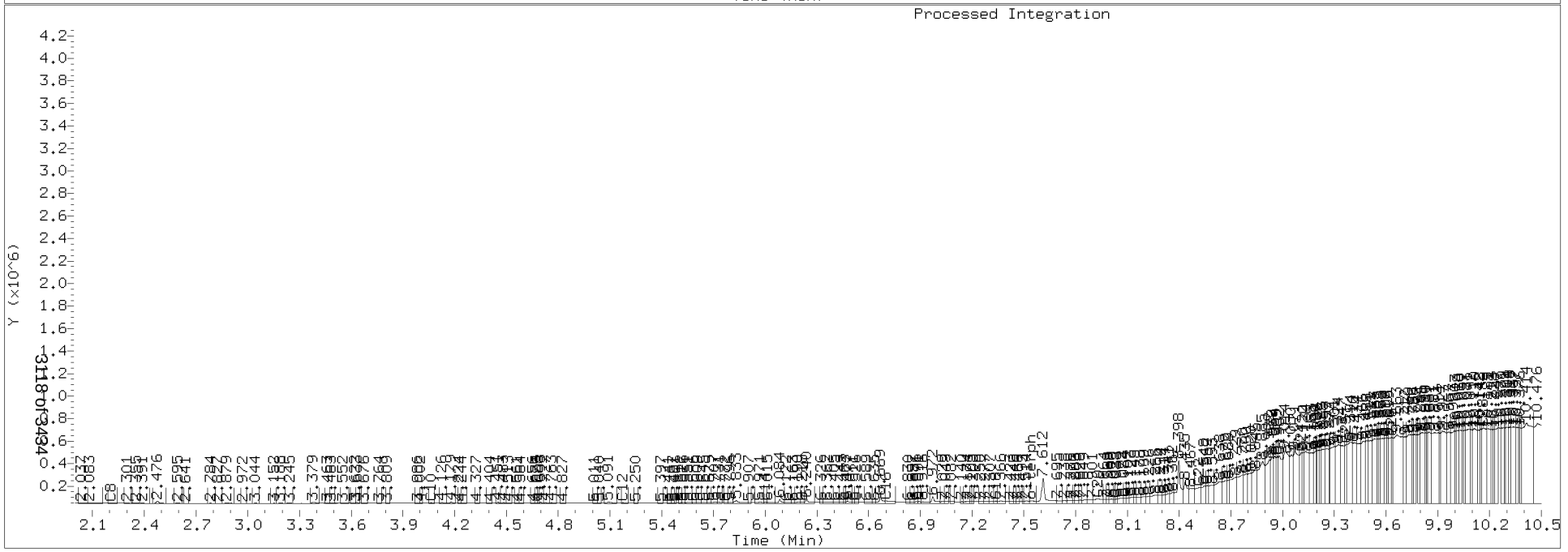
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1025.D Injection: 10-SEP-2019 18:13

Lab ID:SHI0095-SCV2





SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00036
Laboratory ID: SHI0095-SCV3
Sequence: SHI0095
Sequence Name: AK103 SCV
Standard ID: H008400

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	863	-13.7	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1026.D

Date : 10-SEP-2019 18:35

Client ID:

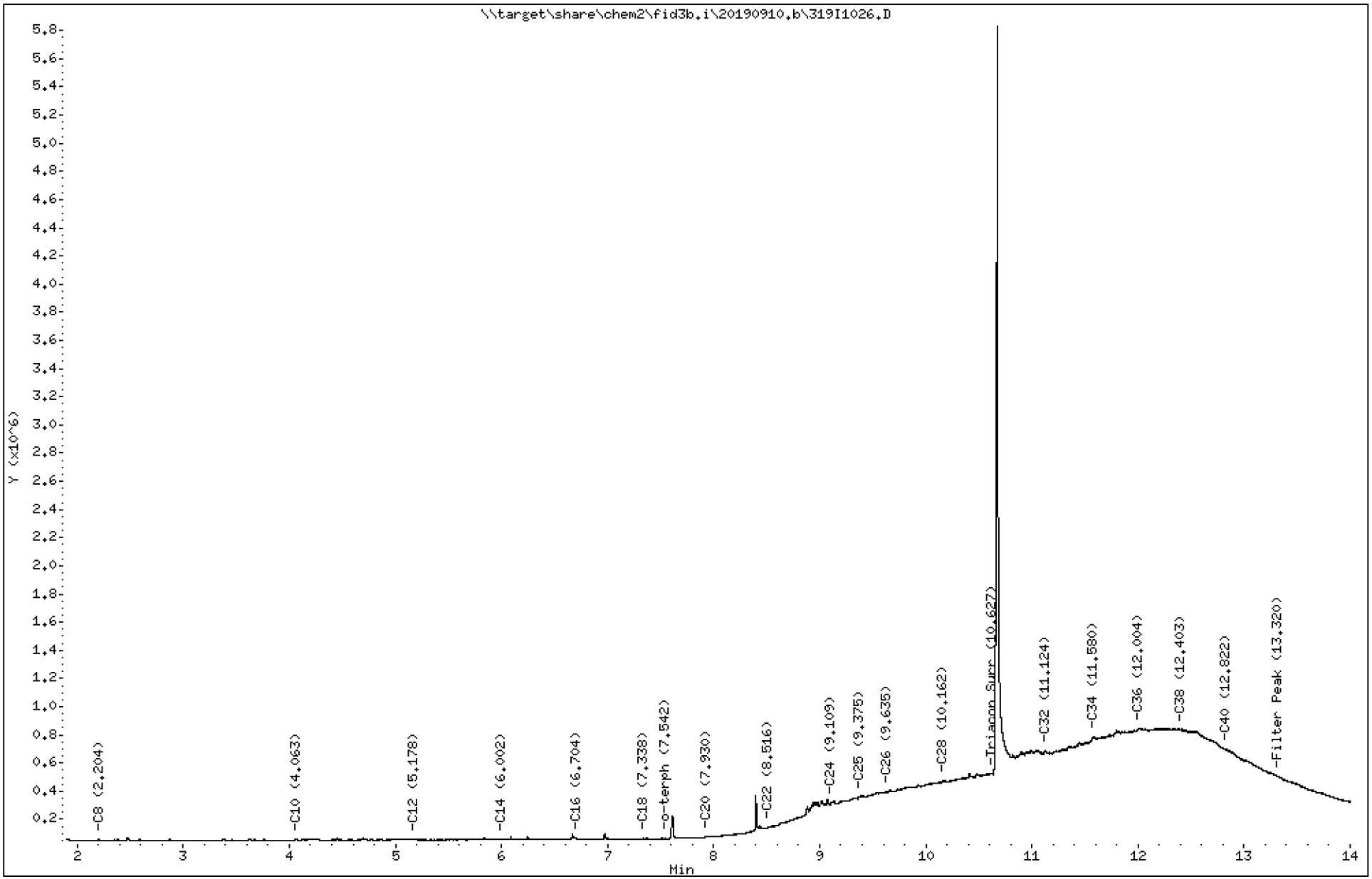
Sample Info: SHI0095-SCV3

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1026.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV3
Client ID:
Injection: 10-SEP-2019 18:35
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	536431	3.0
C8	2.204	0.028	4961	8201	WATPHD	(C12-C24)	10886905	62.4
C10	4.063	-0.006	8157	13014	WATPHM	(C24-C38)	109277246	863.1
C12	5.178	0.012	6604	12567	AK102	(C10-C25)	14242144	69.9
C14	6.002	0.010	8767	17683	AK103	(C25-C36)	86639215	851.6 M
C16	6.704	0.002	18334	51640	OR.DIES	(C10-C28)	32953505	159.7
C18	7.338	-0.000	15406	19235				
C20	7.930	-0.006	31233	63282				
C22	8.516	-0.007	96574	109176				
C24	9.109	0.013	274757	405304				
C25	9.375	0.001	310732	457792				
C26	9.635	-0.011	344762	315190				
C28	10.162	-0.006	429652	791004	IT.DIES	(C10-C24)	11195837	55.0
C32	11.124	-0.007	636629	1584179				
C34	11.580	0.007	732815	2258301				
Filter Peak	13.320	0.002	454536	922363				
C36	12.004	0.006	791000	674327				
o-terph	7.542	0.009	15185	31375				
Triacon Surr	10.676	-0.013	5280821	6781328				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

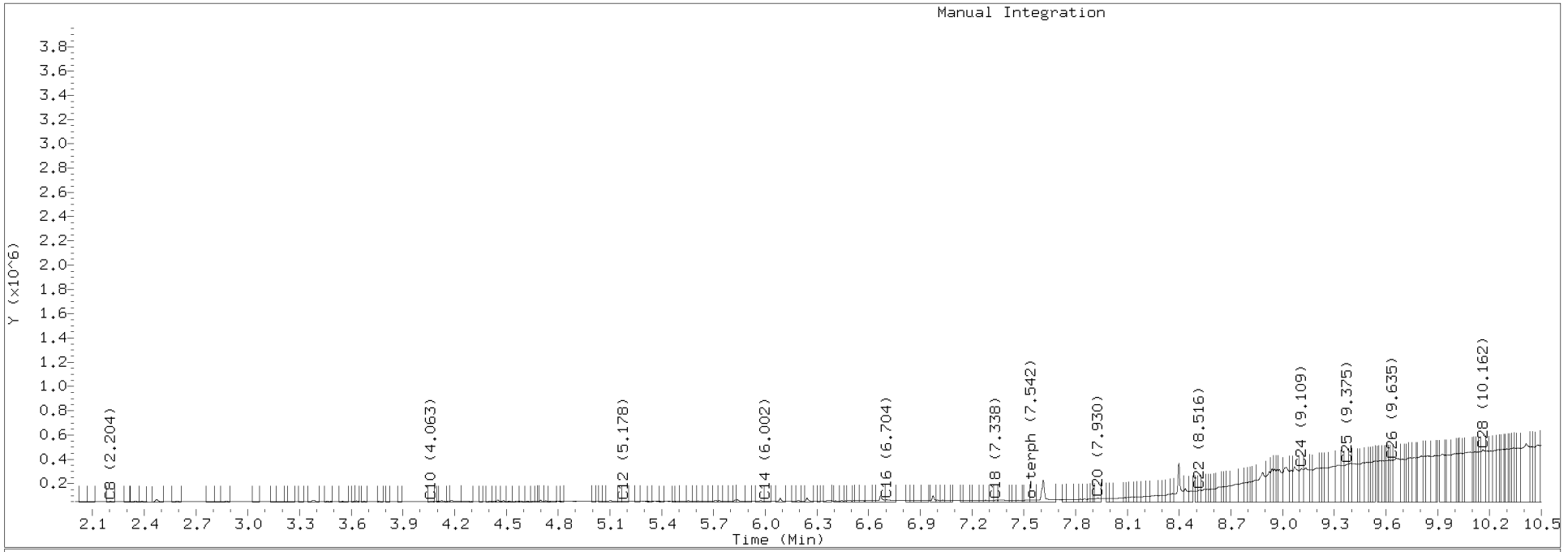
Surrogate	Area	Amount
o-Terphenyl	31375	0.1
Triacontane	6781328	39.9

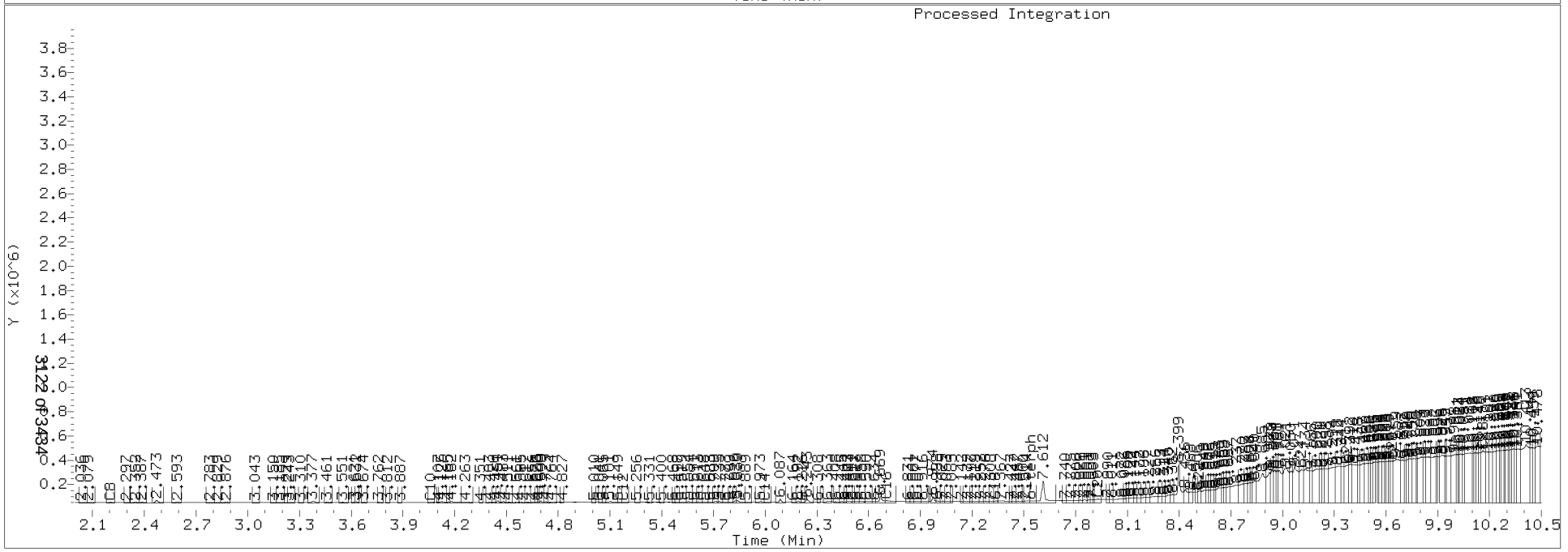
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1026.D Injection: 10-SEP-2019 18:35

Lab ID:SHI0095-SCV3





SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00039
Laboratory ID: SHI0145-SCV1
Sequence: SHI0145
Sequence Name: DIESEL SCV
Standard ID: H008294

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Diesel Range Organics (C12-C24)	500.00	485	-3.0	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0724.D

Date : 07-SEP-2019 16:54

Client ID:

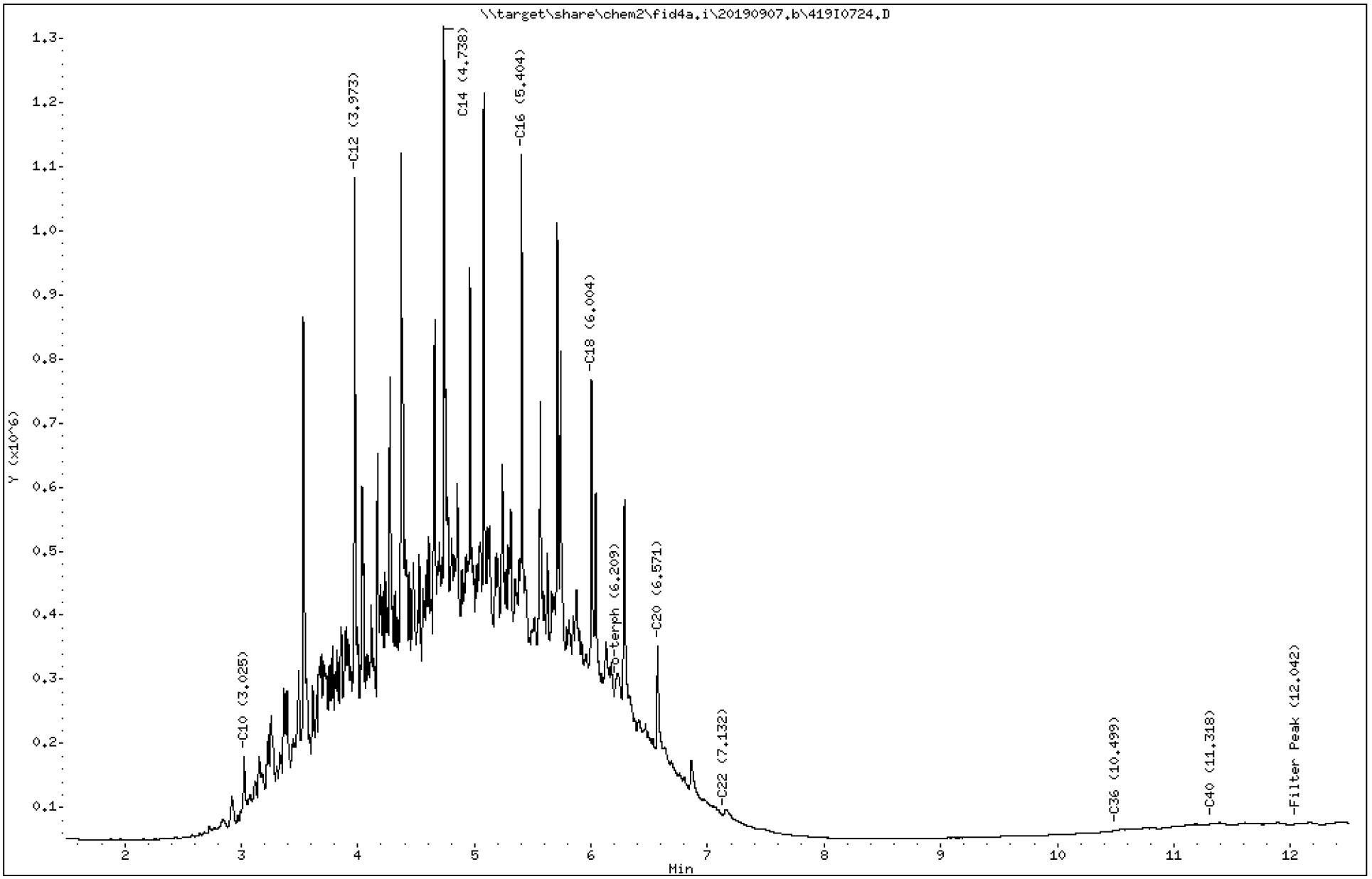
Sample Info: SHI0081-SCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0724.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV1
Client ID:
Injection: 07-SEP-2019 16:54
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

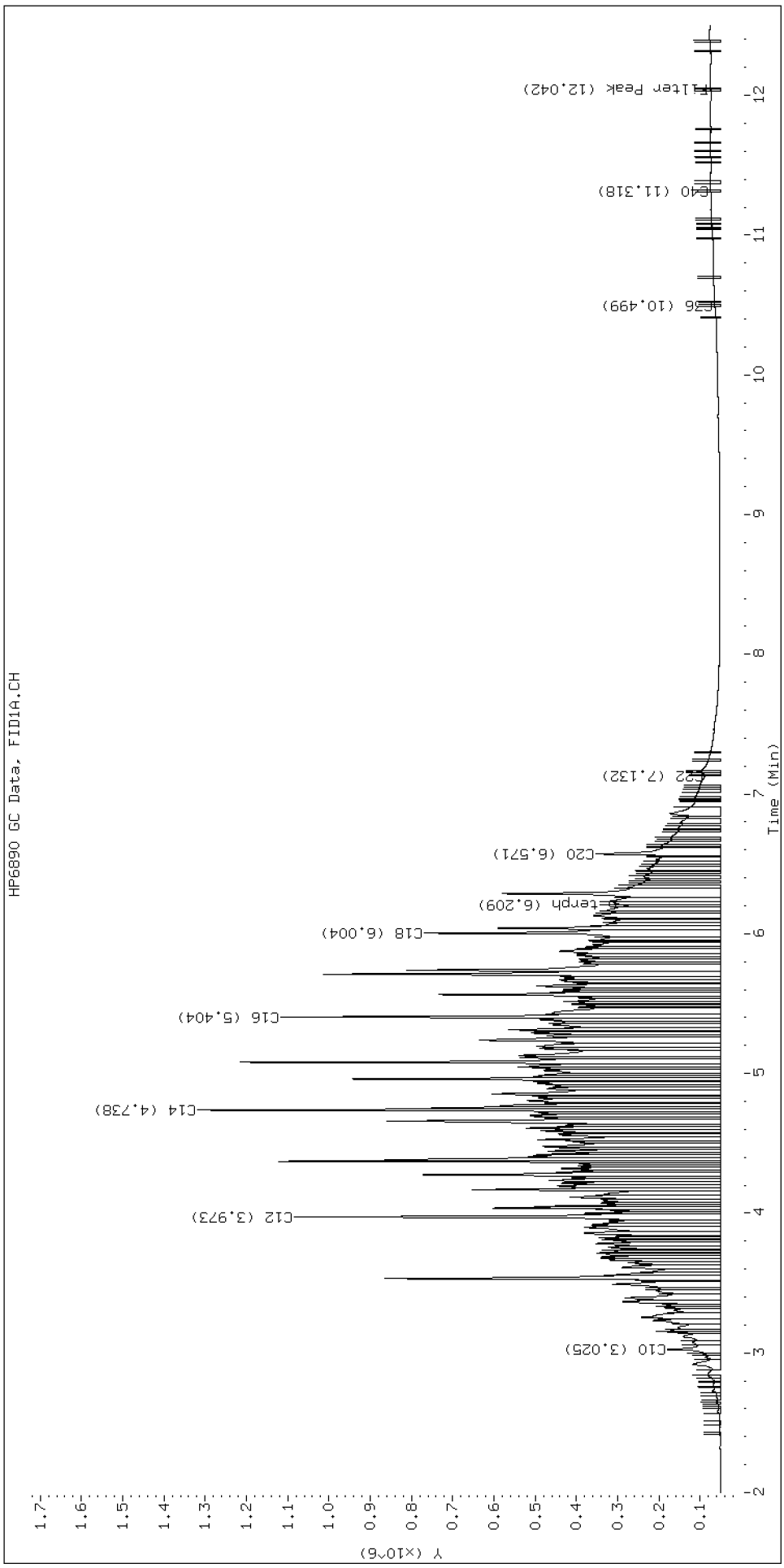
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	58036481	485.0
C10	3.025	0.002	129006	231879	WATPHM	(C24-C38)	35465	0.9
C12	3.973	-0.003	1033475	1205273	AK102	(C10-C25)	70243523	508.6
C14	4.738	-0.003	1268807	1170109	AK103	(C25-C36)	24123	1.0
C16	5.404	-0.000	1067954	1148535	OR.DIES	(C10-C28)	70243523	507.9
C18	6.004	0.002	717691	1167657				
C20	6.571	0.004	302771	656939				
C22	7.132	0.005	39112	15596				
C24	----							
C25	----							
C26	----							
C32	----							
C34	----							
Filter Peak	12.042	0.006	24620	21842	BUNKERC	(C10-C38)	70278988	1044.6
C36	10.499	-0.008	15068	8901				
C38	----							
C40	11.318	0.014	24810	29388				
o-terph	6.209	0.018	247412	198947				
Triacon Surr	----				NAS DIES	(C10-C24)	70243523	509.1

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount
o-Terphenyl	198947	1.3
Triacontane	0	0.0

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019


Datafile: FID4A, 20190907.b/419I0724.D SHI0081-SCV1
HP6890 GC Data, FID1A.CH
C10 (3.025)
C12 (3.973)
C14 (4.738)
C16 (5.404)
C18 (6.004)
C20 (6.571)
C22 (7.132)
C26 (10.499)
C40 (11.318)
Filter Peak (12.042)
Time (Min)
Y (x10^6)

SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00039
Laboratory ID: SHI0145-SCV2
Sequence: SHI0145
Sequence Name: MOIL SCV
Standard ID: H008399

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	930	-7.0	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0725.D

Date : 07-SEP-2019 17:15

Client ID:

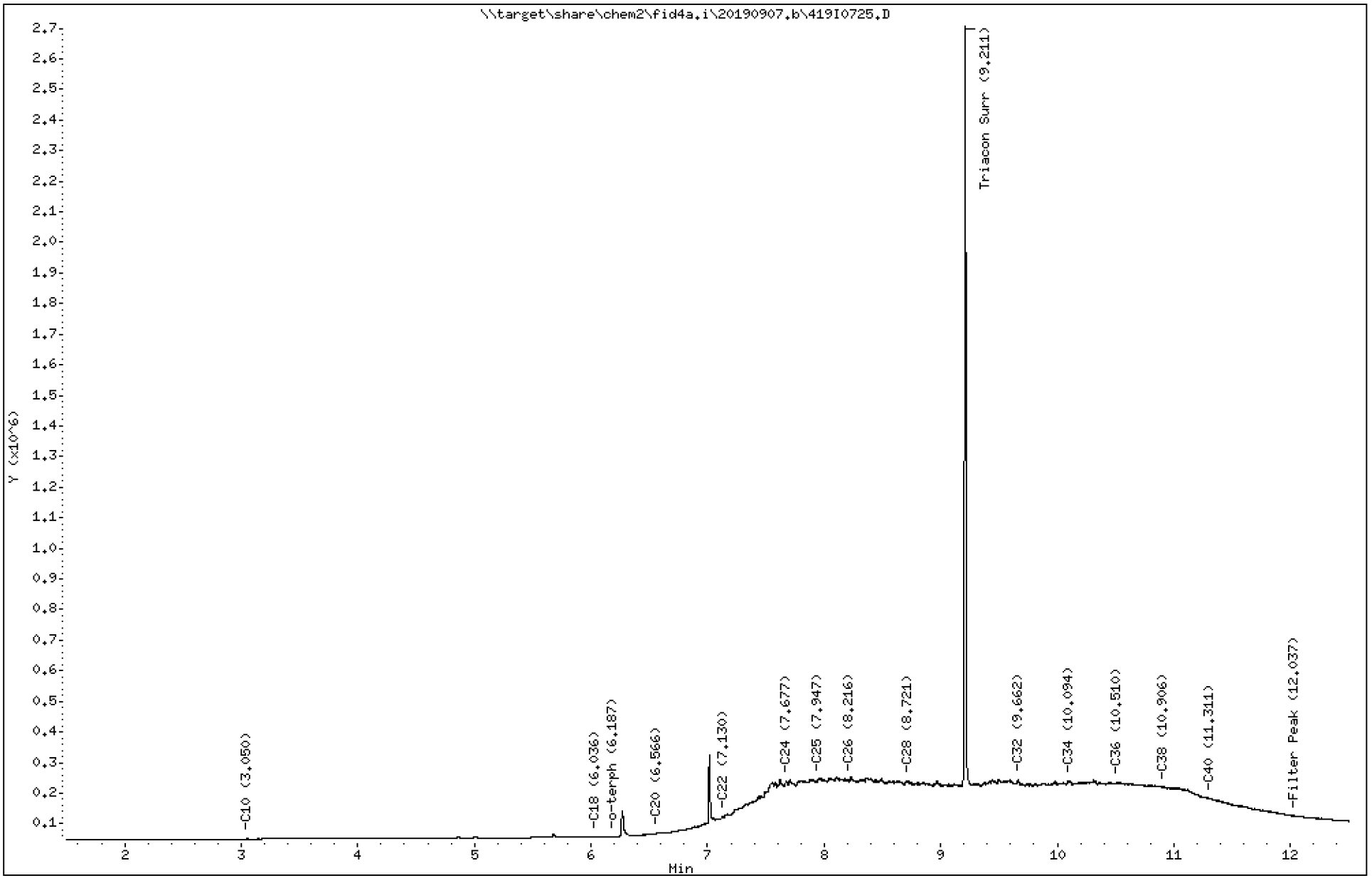
Sample Info: SHI0081-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0725.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV2
Client ID:
Injection: 07-SEP-2019 17:15
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	6512231	54.4
C10	3.050	0.027	2534	1890	WATPHM	(C24-C38)	34887364	930.1
C12	----				AK102	(C10-C25)	8441640	61.1
C14	----				AK103	(C25-C36)	28870805	1189.6
C16	----				OR.DIES	(C10-C28)	18297238	132.3
C18	6.036	0.034	10218	8686				
C20	6.566	-0.001	22117	30237				
C22	7.130	0.002	73922	68158				
C24	7.677	0.001	190990	220070				
C25	7.947	0.001	195744	154609				
C26	8.216	0.006	194781	115643				
C28	8.721	0.002	191119	141011				
C32	9.662	0.001	195304	134471				
C34	10.094	-0.002	190829	75816				
Filter Peak	12.037	0.001	77658	38520	BUNKERC	(C10-C38)	41401486	615.4
C36	10.510	0.003	185807	156657				
C38	10.906	0.002	171111	68027				
C40	11.311	0.007	133822	59706				
o-terph	6.187	-0.003	10431	6626				
Triacon Surr	9.211	-0.006	2479038	1967160	NAS DIES	(C10-C24)	6514122	47.2

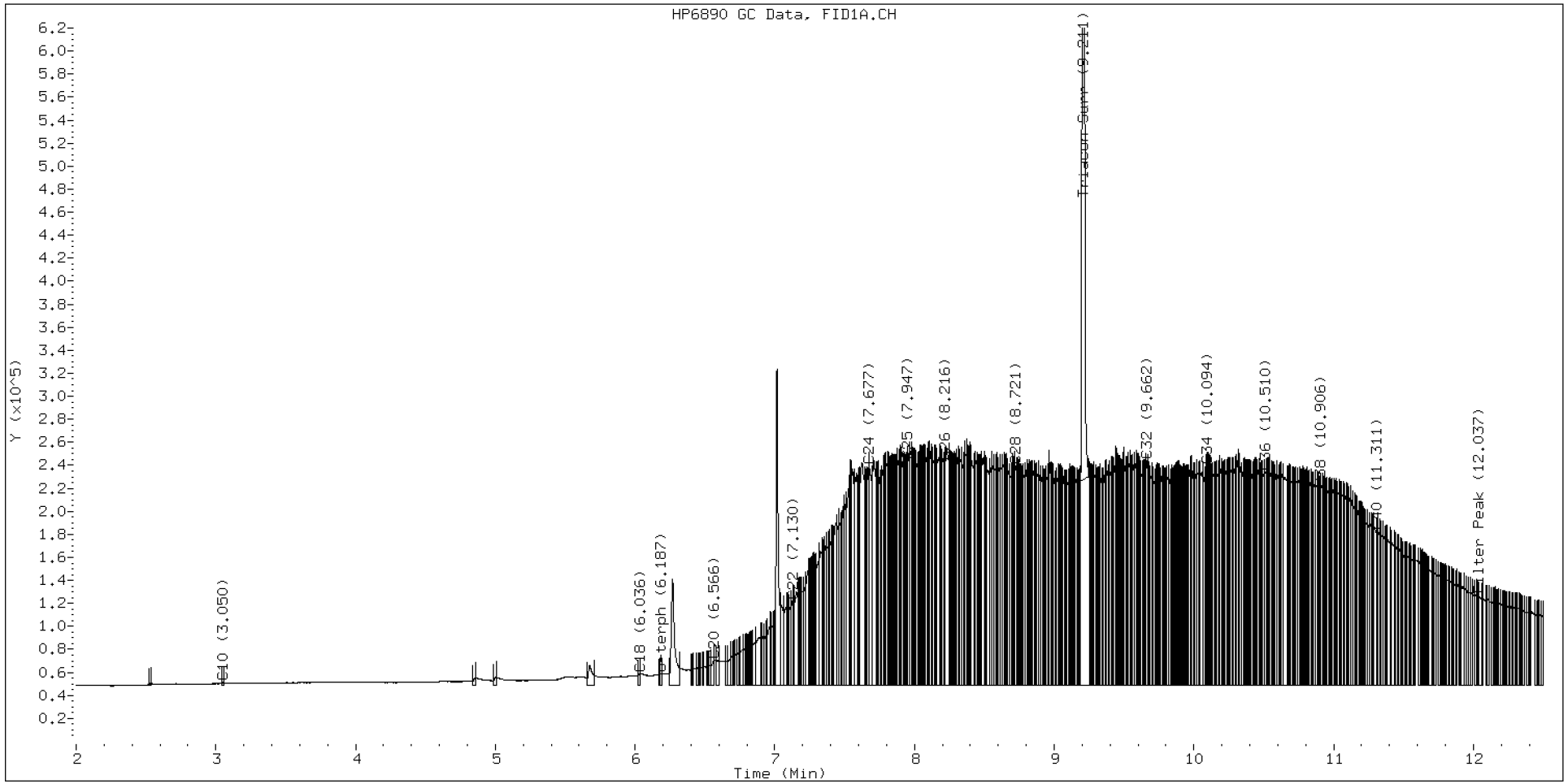
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	6626	0.0	
Triacontane	1967160	47.9	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

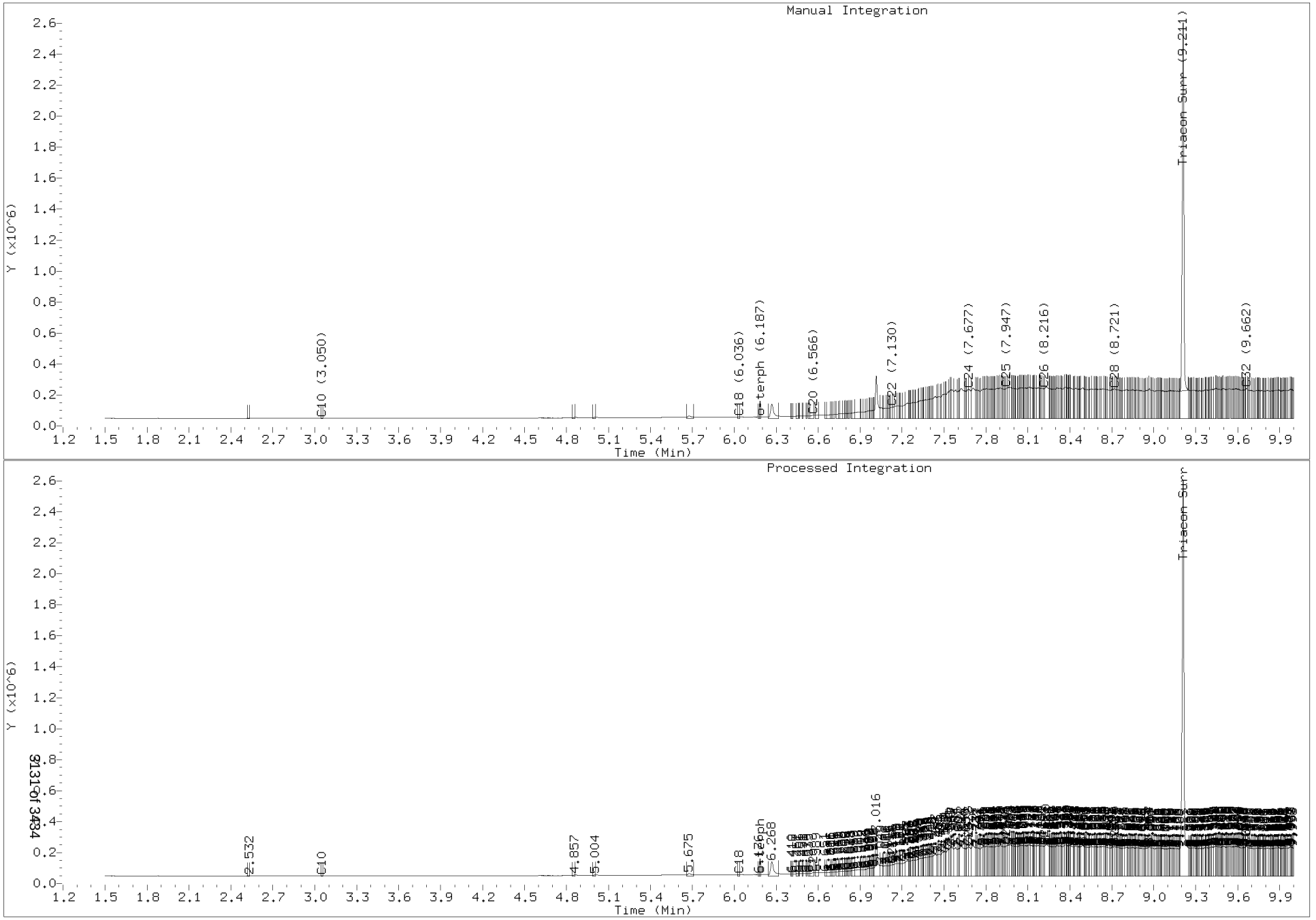
Datafile: FID4A, 20190907.b/419I0725.D SHI0081-SCV2



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0725.D Injection: 07-SEP-2019 17:15

Lab ID:SHI0081-SCV2



SECOND-SOURCE CALIBRATION VERIFICATION

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Invest
Calibration: CI00039
Laboratory ID: SHI0145-SCV3
Sequence: SHI0145
Sequence Name: AK103 SCV
Standard ID: H008400

ANALYTE	EXPECTED (mg/L)	FOUND (mg/L)	% DRIFT	QC LIMIT
Motor Oil Range Organics (C24-C38)	1000.0	821	-17.9	30.00

* Indicates values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0726.D

Date : 07-SEP-2019 17:35

Client ID:

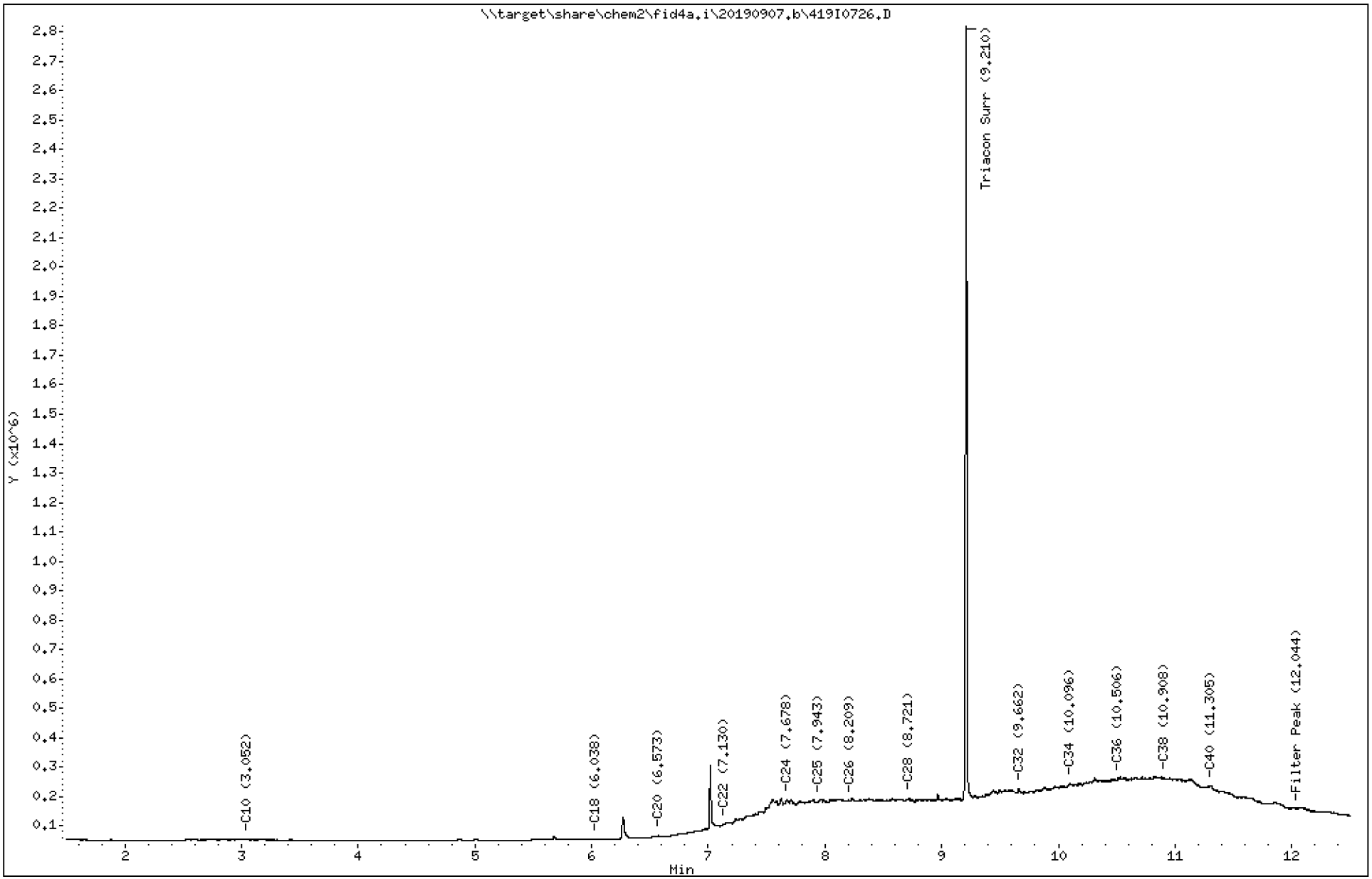
Sample Info: SHI0081-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0726.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-SCV3
Client ID:
Injection: 07-SEP-2019 17:35
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4566425	38.2
C10	3.052	0.029	2675	2628	WATPHM	(C24-C38)	30792508	821.0
C12	----				AK102	(C10-C25)	5862069	42.4
C14	----				AK103	(C25-C36)	24491942	1009.2
C16	----				OR.DIES	(C10-C28)	12640283	91.4
C18	6.038	0.036	4909	4340				
C20	6.573	0.005	15943	28920				
C22	7.130	0.003	55048	109550				
C24	7.678	0.001	138213	101962				
C25	7.943	-0.004	133959	59586				
C26	8.209	-0.002	135994	60741				
C28	8.721	0.001	144318	126414				
C32	9.662	0.000	176771	213258				
C34	10.096	0.000	194052	105382				
Filter Peak	12.044	0.007	108128	26999	BUNKERC	(C10-C38)	35361561	525.6
C36	10.506	-0.001	207732	61857				
C38	10.908	0.003	211391	63201				
C40	11.305	0.001	185124	73734				
o-terph	----							
Triacon Surr	9.210	-0.007	2625296	2070745	NAS DIES	(C10-C24)	4569053	33.1

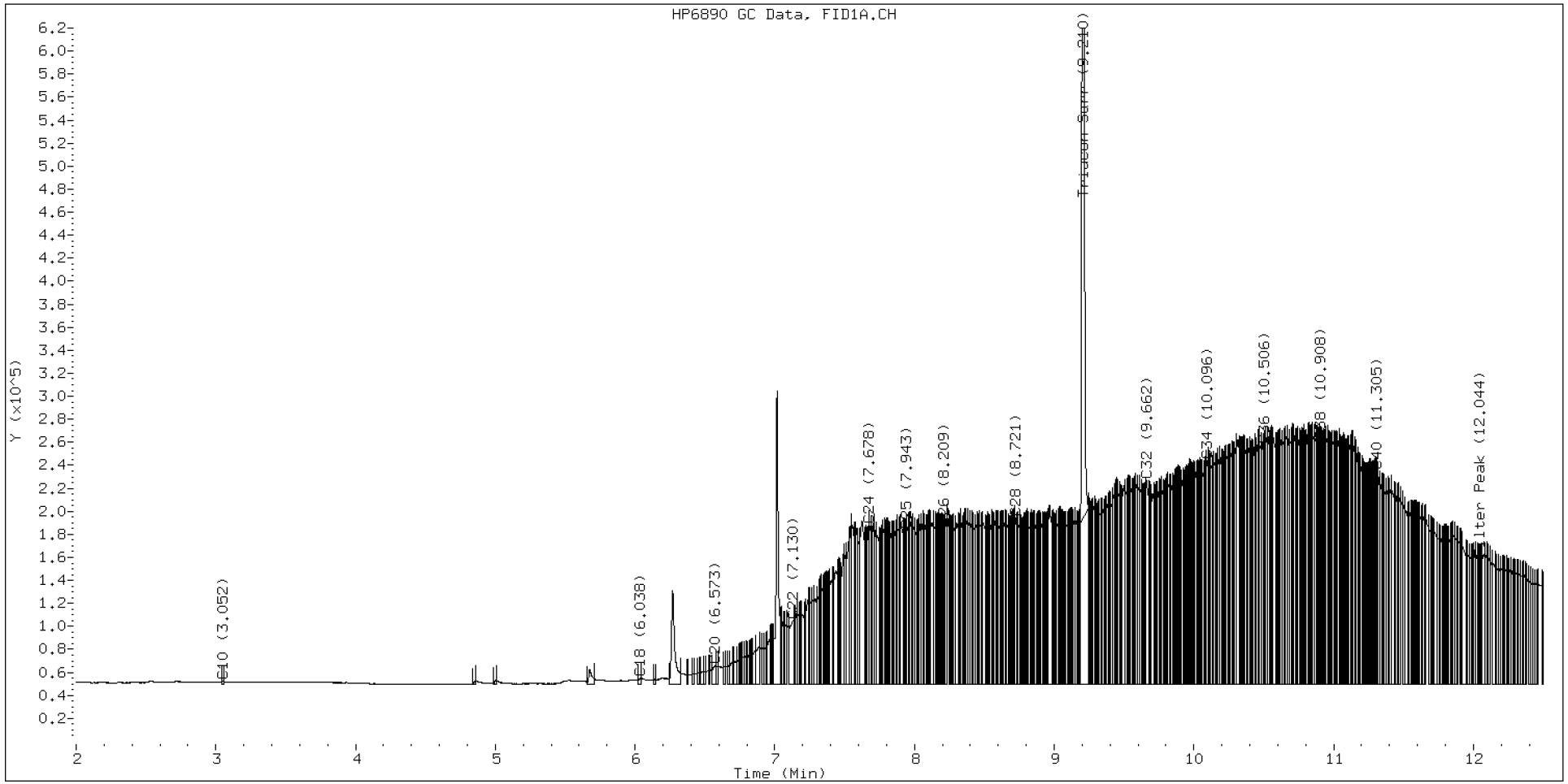
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2070745	50.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

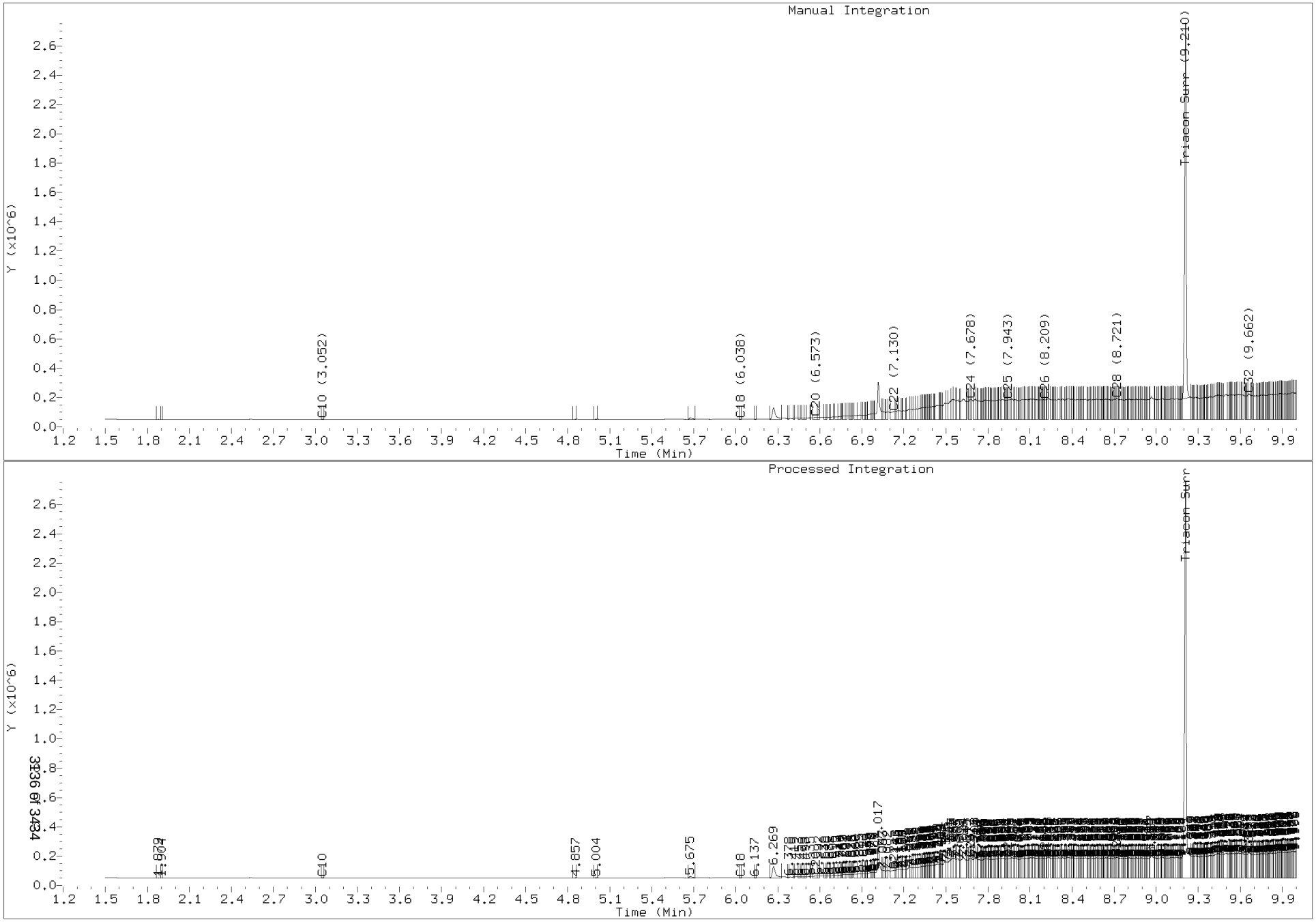
Datafile: FID4A, 20190907.b/419I0726.D SHI0081-SCV3



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0726.D Injection: 07-SEP-2019 17:35

Lab ID:SHI0081-SCV3



INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0304.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-ICV1	Injection Time:	09:09
Sequence Name:	DIESEL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	456	75070.1200	68501.0800		-8.8	15
o-Terphenyl	A	90.000	78.0	85833.0300	74353.5000		-13.3	15

* Values outside of QC limits

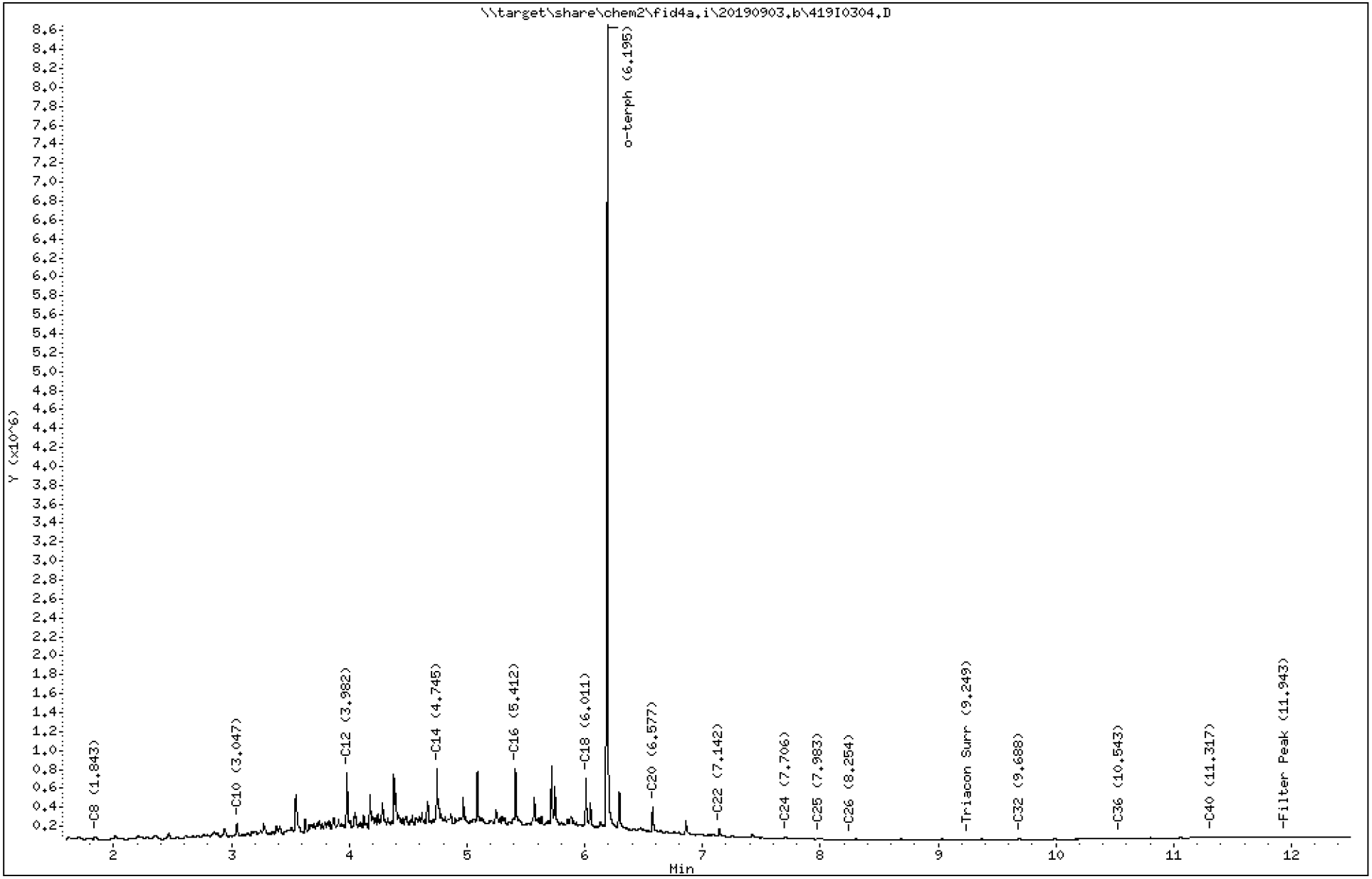
* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0304.D
Date : 03-SEP-2019 09:09
Client ID:
Sample Info: SEQ-ICV1

Instrument: fid4a.i

Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0304.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/03/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SEQ-ICV1
Client ID:
Injection: 03-SEP-2019 09:09
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

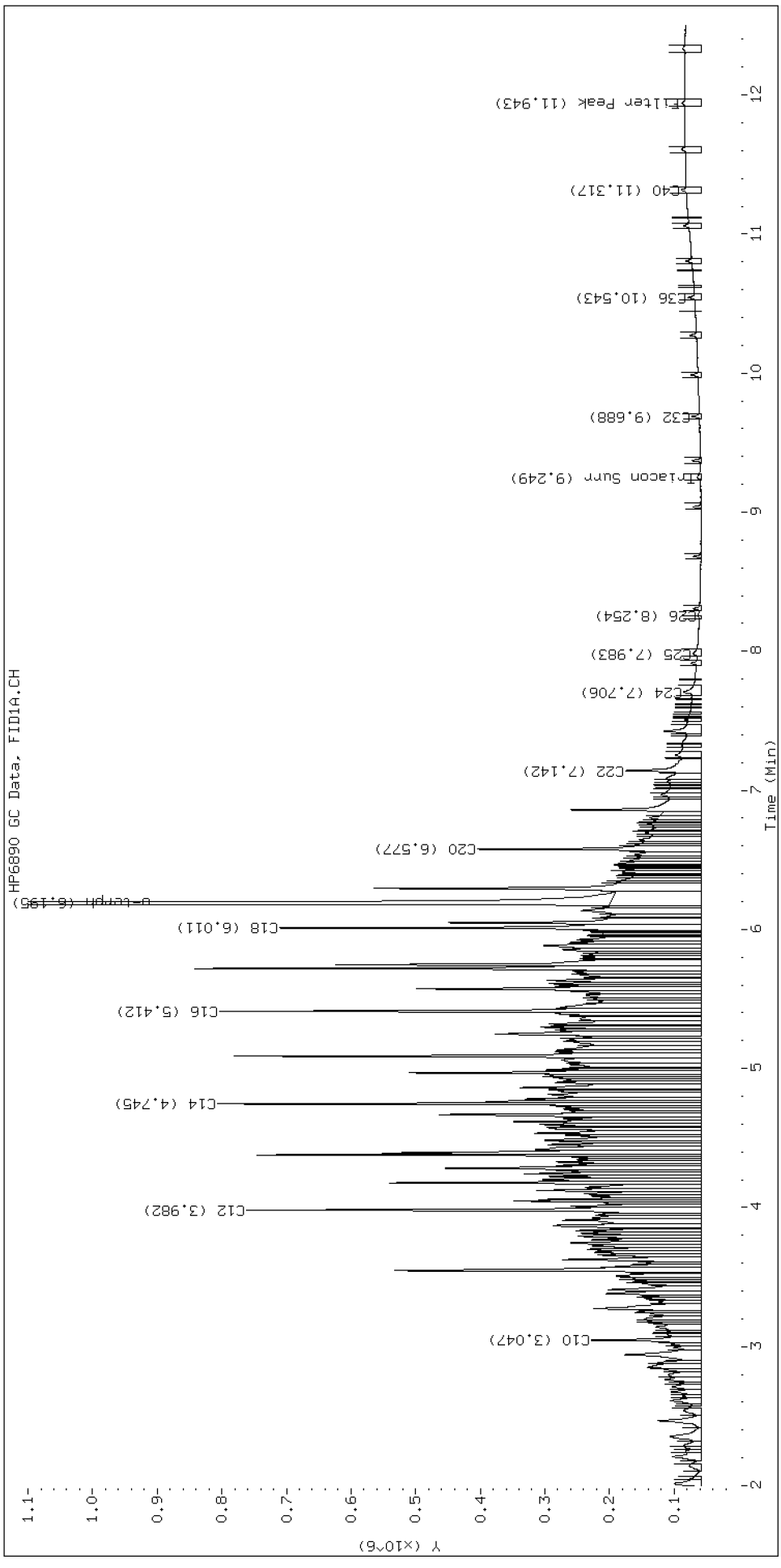
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.843	-0.002	27696	56210	WATPHD	(C12-C24)	34250538	456.2
C10	3.047	-0.000	170542	243519	WATPHM	(C24-C38)	294385	8.1
C12	3.982	-0.004	703872	738853	AK102	(C10-C25)	41926237	460.2
C14	4.745	-0.006	749596	660281	AK103	(C25-C36)	233255	6.6
C16	5.412	-0.005	746777	743649	OR.DIES	(C10-C28)	42015538	460.6
C18	6.011	-0.003	653051	706762				
C20	6.577	-0.003	346442	437409				
C22	7.142	0.001	117582	303662				
C24	7.706	0.015	28302	82429				
C25	7.983	0.021	12745	32080				
C26	8.254	0.028	5695	6175				
C32	9.688	0.010	15394	18703				
C34	----							
Filter Peak	11.943	-0.003	30432	79864	BUNKERC	(C10-C38)	42214343	627.5
C36	10.543	0.021	21255	39699				
C38	----							
C40	11.317	0.005	31455	71721				
o-terph	6.195	-0.002	8465551	6691815				
Triacon Surr	9.249	0.016	6937	13141	NAS DIES	(C10-C24)	41919958	460.5

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	6691815	78.0	M
Triacontane	13141	0.3	

M Indicates the peak was manually integrated

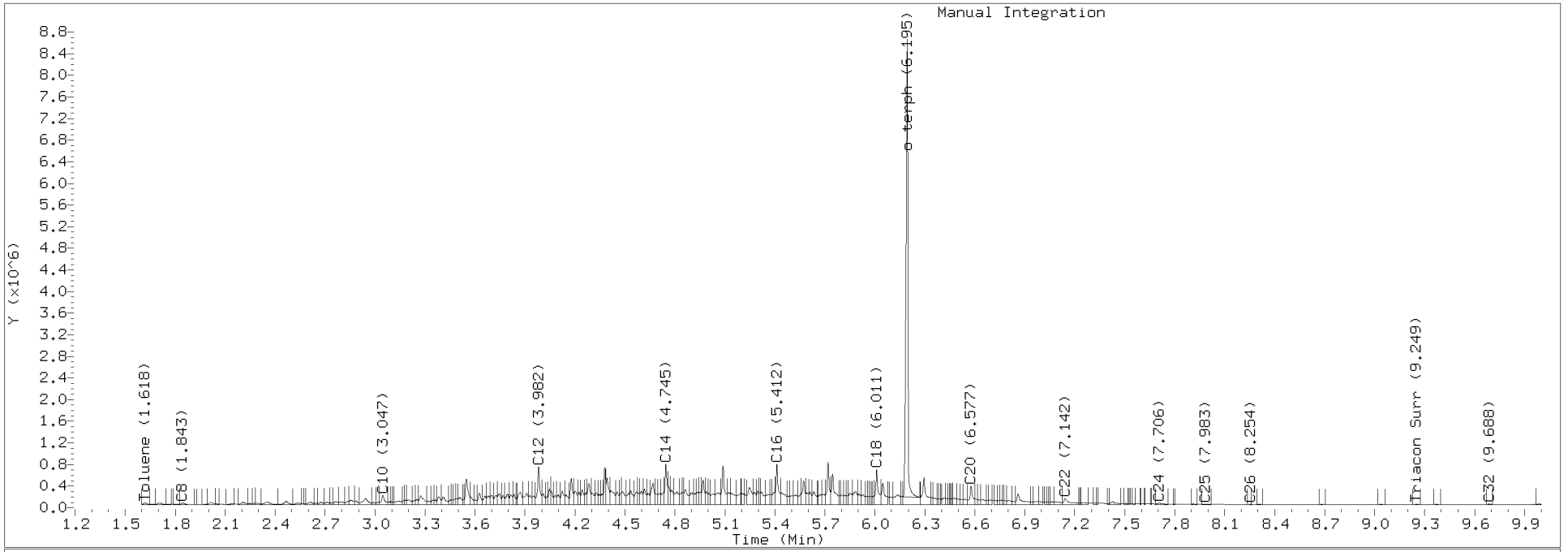
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

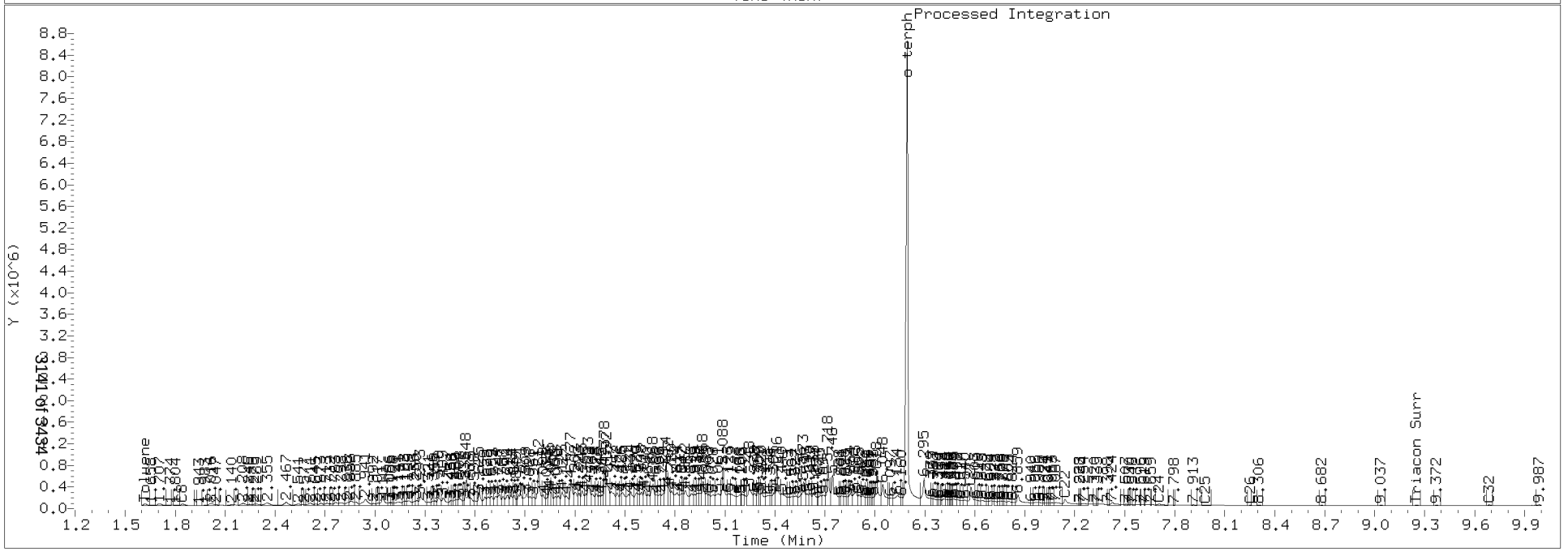

Datafile: FID4A, 20190903.b/419I0304.D SEQ-ICV1
HP6890 GC Data, FID1A.CH
n-Dodecane (6.195)
C10 (3.047)
C12 (3.982)
C14 (4.745)
C16 (5.412)
C18 (6.011)
C20 (6.577)
C22 (7.142)
C24 (7.706)
C25 (7.983)
C26 (8.254)
Triacon Surr (9.249)
C32 (9.688)
C36 (10.543)
C40 (11.317)
Filter Peak (11.943)
Time (Min)
Y (x10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0304.D Injection: 03-SEP-2019 09:09

Lab ID:SEQ-ICV1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0305.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-ICV2	Injection Time:	09:31
Sequence Name:	MOIL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	973	36326.0200	35340.6100		-2.7	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0305.D

Date : 03-SEP-2019 09:31

Client ID:

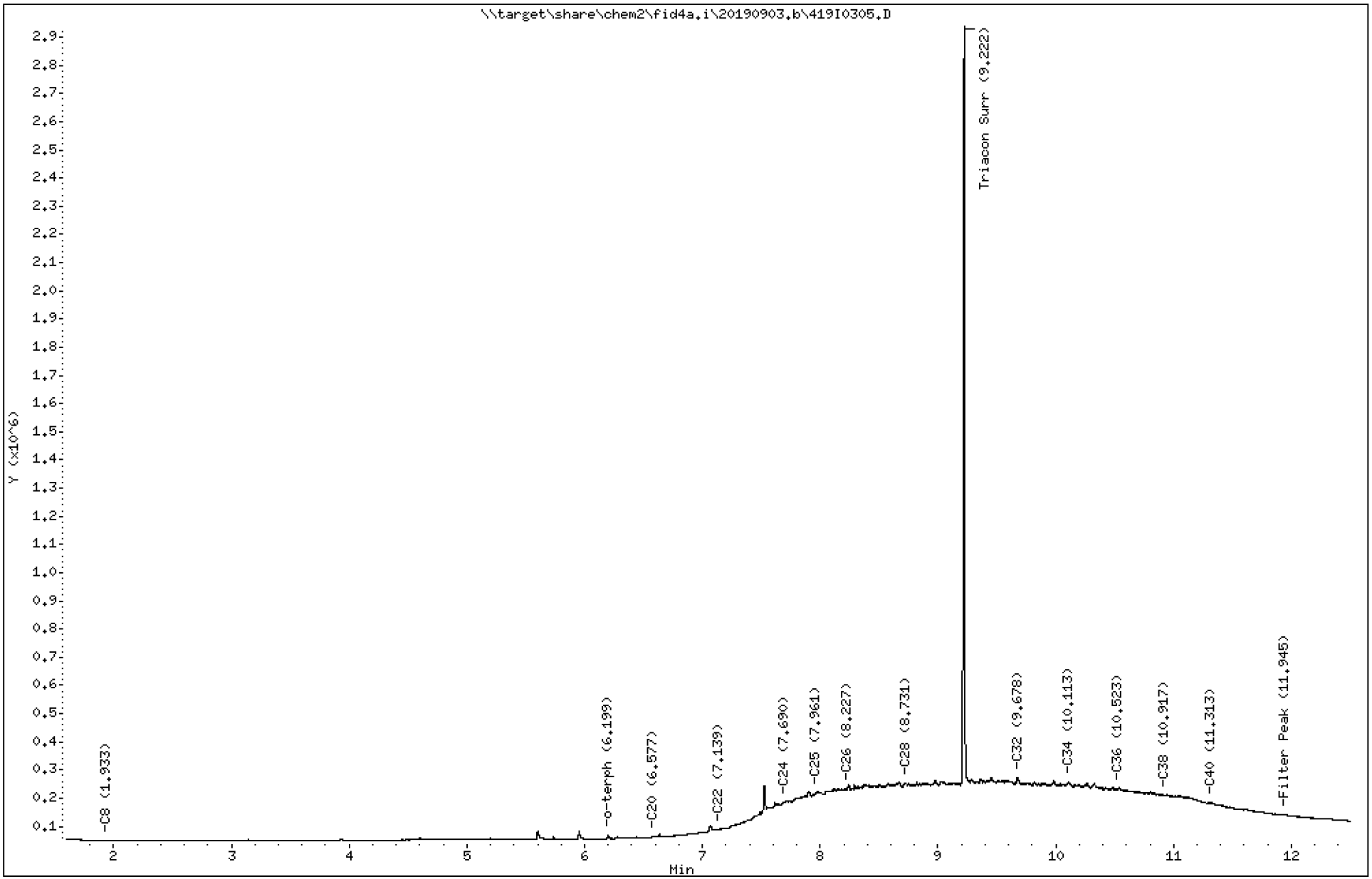
Sample Info: SEQ-ICV2

Instrument: fid4a.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0305.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/03/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SEQ-ICV2
Client ID:
Injection: 03-SEP-2019 09:31
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.933	0.088	1102	1016	WATPHD	(C12-C24)	3853279	51.3
C10	----				WATPHM	(C24-C38)	35340610	972.9
C12	----				AK102	(C10-C25)	5413030	59.4
C14	----				AK103	(C25-C36)	29994944	852.3
C16	----				OR.DIES	(C10-C28)	14787526	162.1
C18	----							
C20	6.577	-0.002	12576	10595				
C22	7.139	-0.001	40471	31352				
C24	7.690	-0.001	134908	73772				
C25	7.961	-0.001	169953	140107				
C26	8.227	0.000	181329	54161				
C28	8.731	-0.006	204865	251398				
C32	9.678	0.000	222771	182718				
C34	10.113	0.002	205784	223338				
Filter Peak	11.945	-0.001	93135	110038	BUNKERC	(C10-C38)	39198891	582.6
C36	10.523	0.001	181541	99308				
C38	10.917	0.000	159285	79042				
C40	11.313	0.001	133616	93116				
o-terph	6.199	0.002	17610	19429				
Triacon Surr	9.222	-0.010	2679468	2120487	NAS DIES	(C10-C24)	3858281	42.4

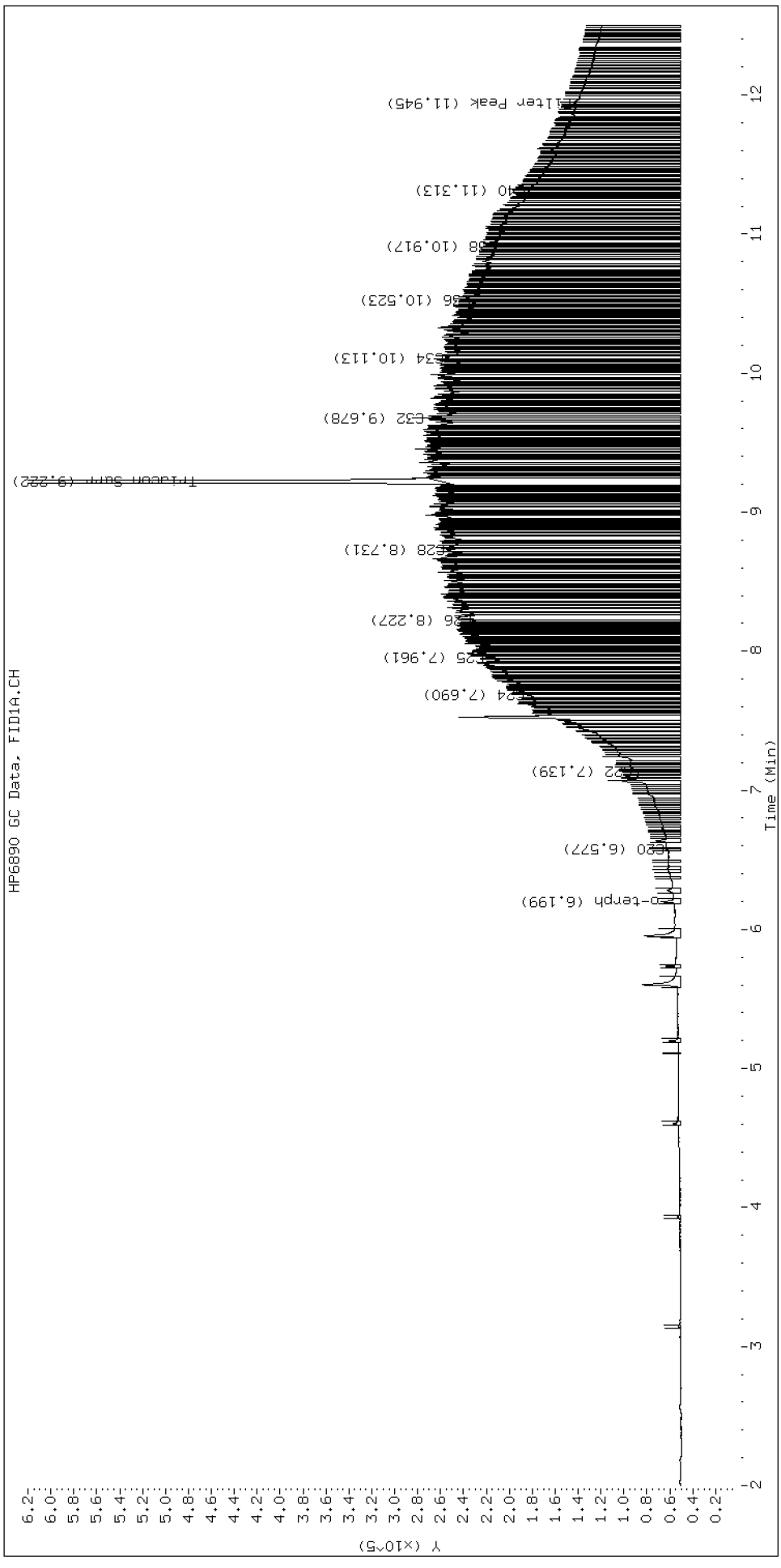
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	19429	0.2	
Triacontane	2120487	40.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

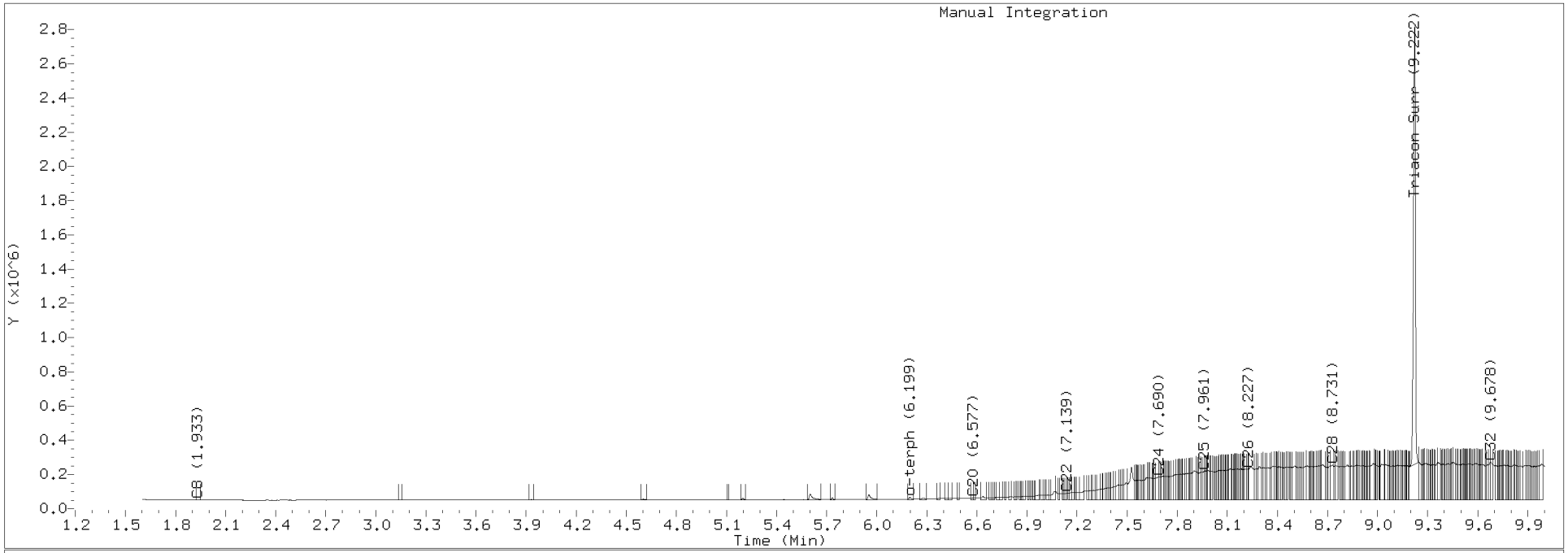
Datafile: FID4A, 20190903.b/419I0305.D SEQ-ICV2

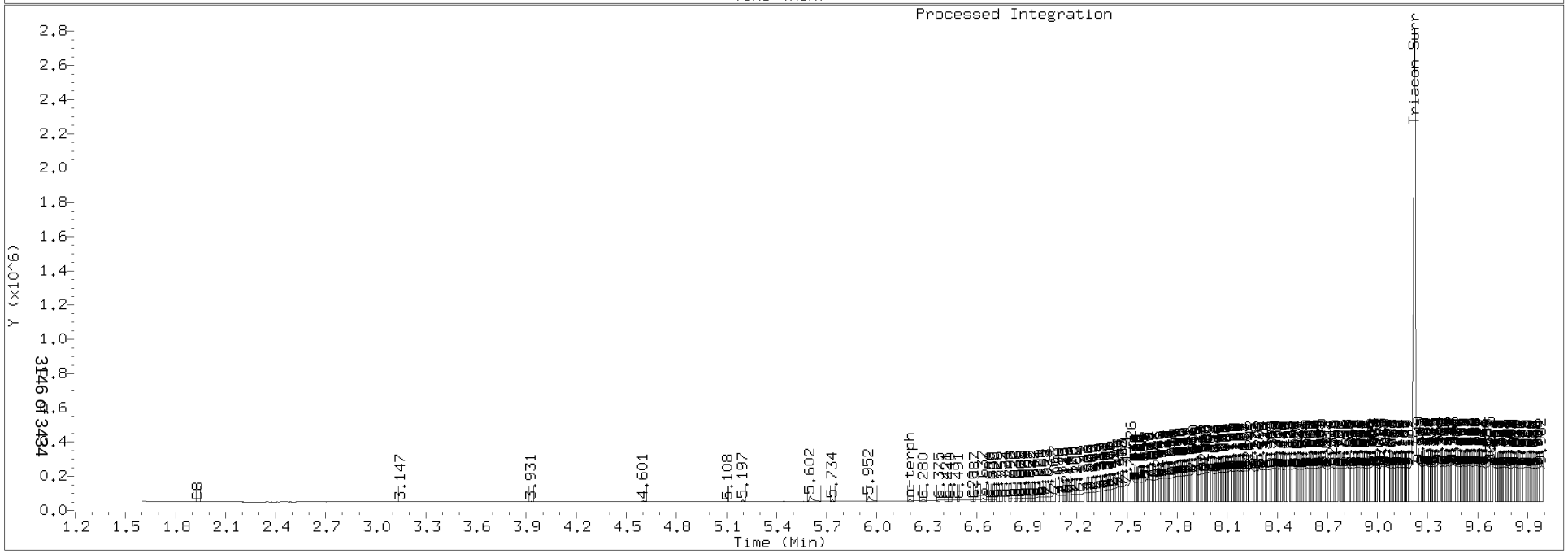


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0305.D Injection: 03-SEP-2019 09:31

Lab ID:SEQ-ICV2





INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0406.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-ICV1	Injection Time:	10:43
Sequence Name:	DIESEL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	547	75070.1200	82193.2000		9.5	15
o-Terphenyl	A	90.000	89.7	85833.0300	85534.7300		-0.3	15

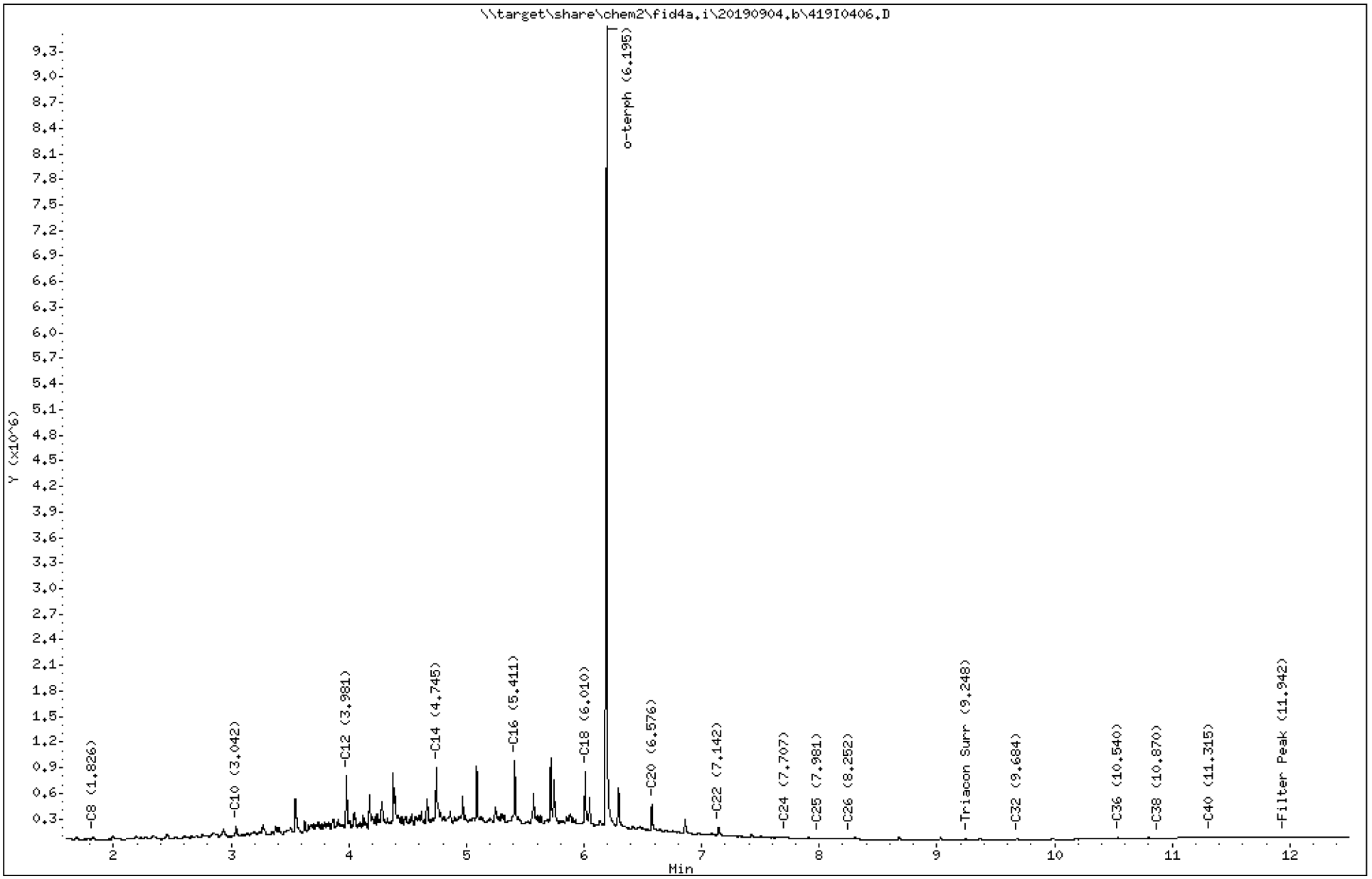
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0406.D
Date : 04-SEP-2019 10:43
Client ID:
Sample Info: SHI0031-ICV1

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0406.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-ICV1
Client ID:
Injection: 04-SEP-2019 10:43
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.826	0.001	26761	44113	WATPHD	(C12-C24)	41096603	547.4
C10	3.042	0.001	165054	251886	WATPHM	(C24-C38)	459425	12.6
C12	3.981	-0.004	754374	814409	AK102	(C10-C25)	49367166	541.9
C14	4.745	-0.006	847063	773336	AK103	(C25-C36)	362324	10.3
C16	5.411	-0.004	930386	901053	OR.DIES	(C10-C28)	49525619	542.9
C18	6.010	-0.000	795366	837731				
C20	6.576	-0.002	411552	545663				
C22	7.142	0.005	140598	355675				
C24	7.707	0.019	38645	119731				
C25	7.981	0.023	19003	21726				
C26	8.252	0.029	10723	13665				
C32	9.684	0.011	23000	27860				
C34	----							
Filter Peak	11.942	-0.003	38707	118436	BUNKERC	(C10-C38)	49803812	740.3
C36	10.540	0.021	26106	43676				
C38	10.870	-0.046	18529	12862				
C40	11.315	0.001	38540	86937				
o-terph	6.195	0.001	9371328	7698126				
Triacon Surr	9.248	0.019	8168	7998	NAS DIES	(C10-C24)	49344387	542.0

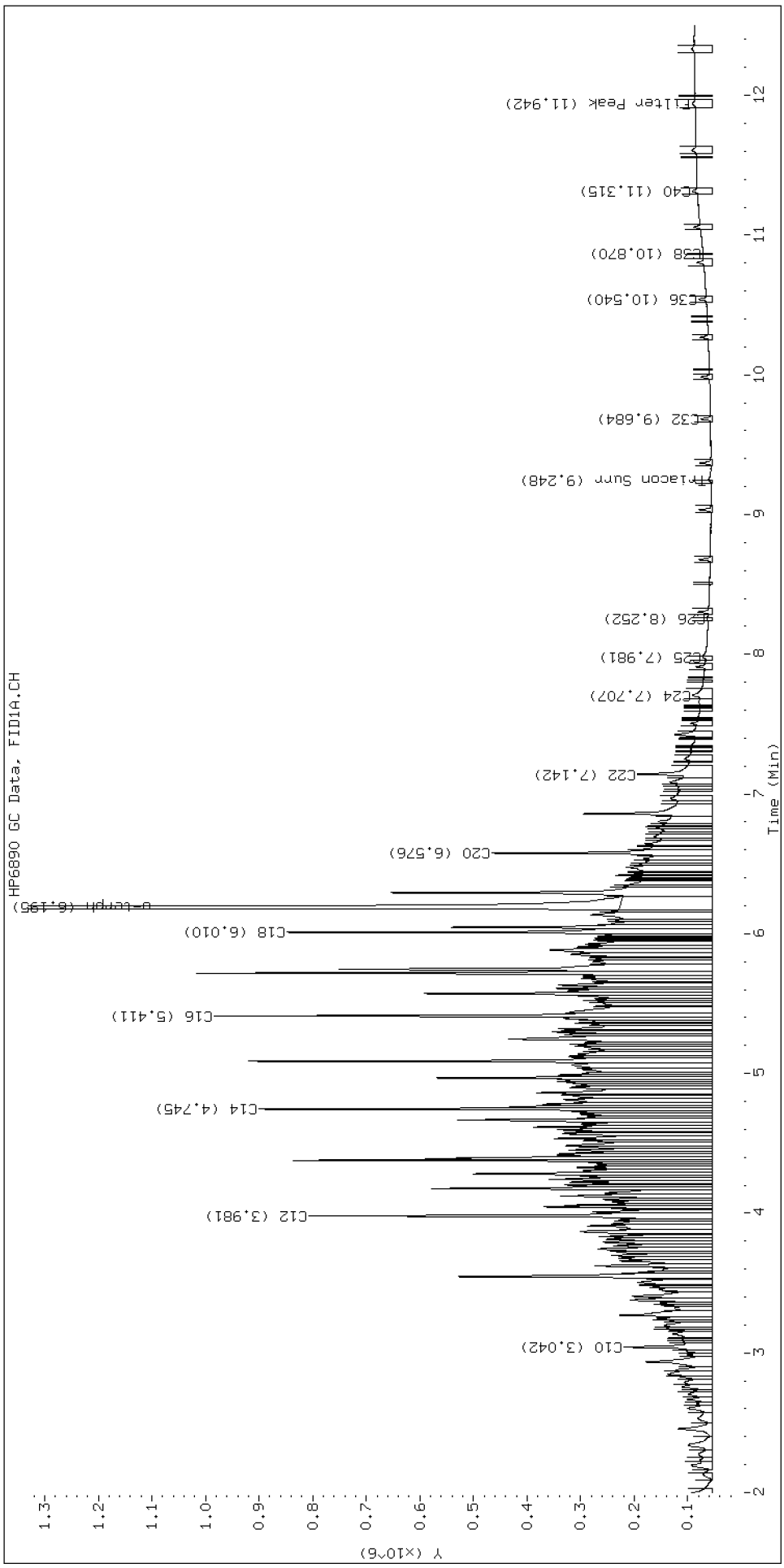
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7698126	89.7	M
Triacontane	7998	0.2	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

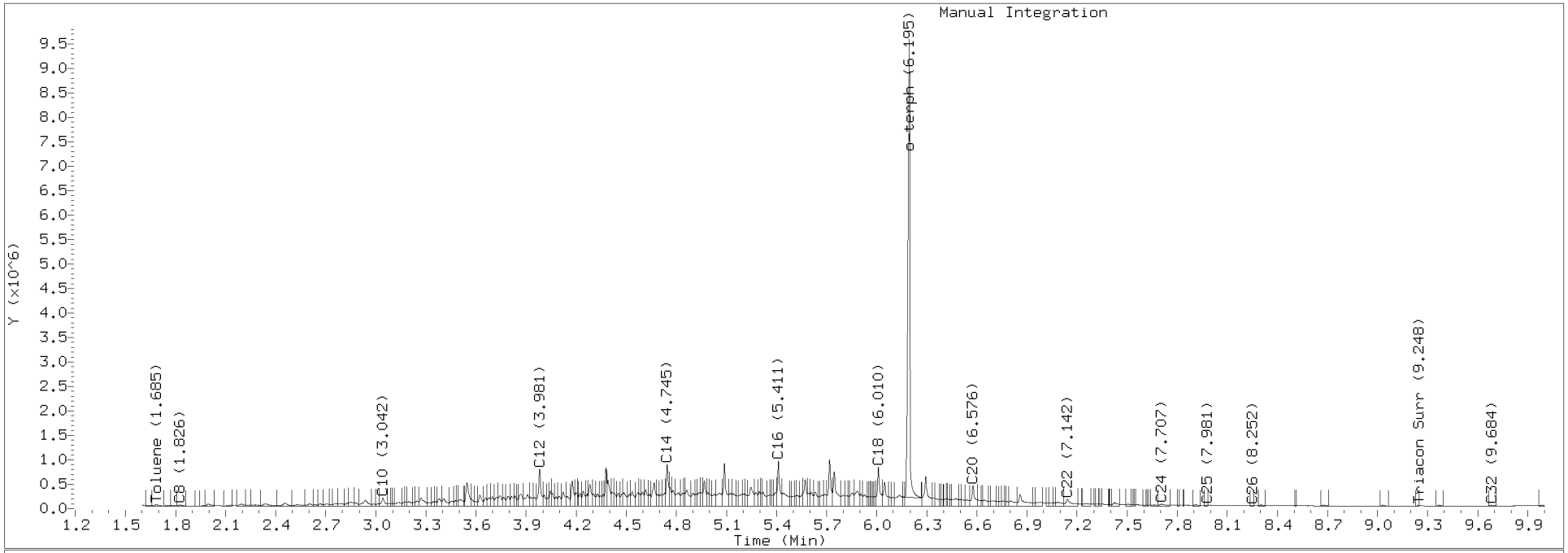
Datafile: FID4A, 20190904.b/419I0406.D SHI0031-ICV1

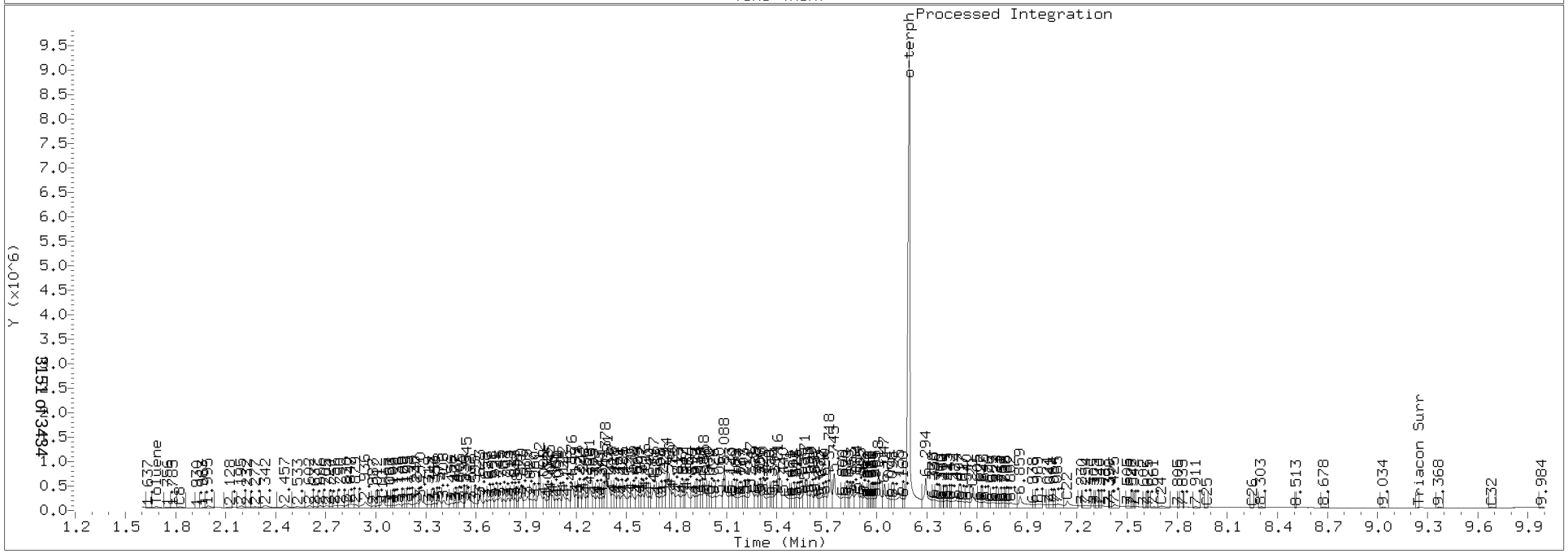


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0406.D Injection: 04-SEP-2019 10:43

Lab ID:SHI0031-ICV1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0407.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-ICV2	Injection Time:	11:03
Sequence Name:	MOIL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	927	36326.0200	33677.0800		-7.3	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0407.D

Date : 04-SEP-2019 11:03

Client ID:

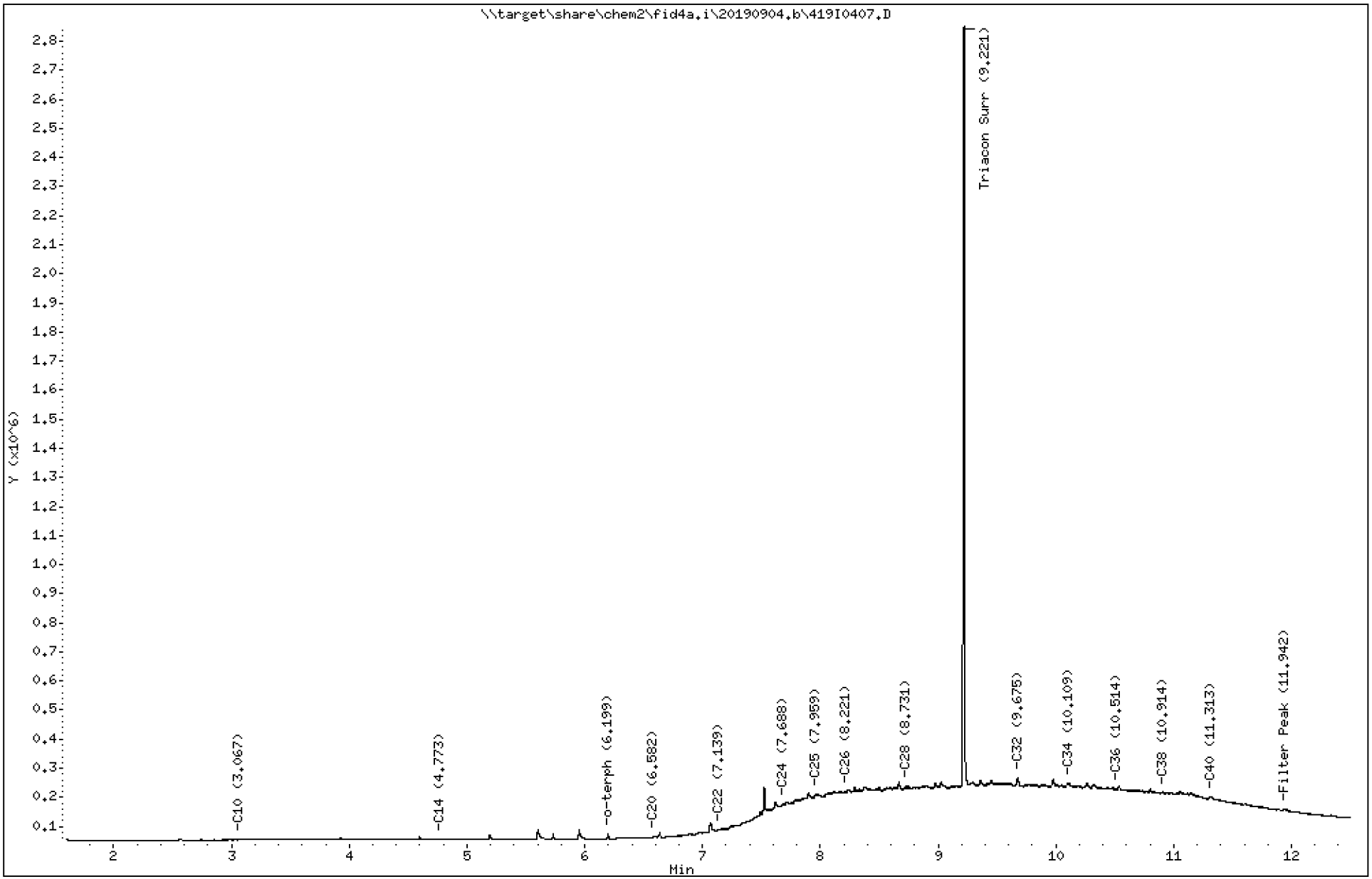
Sample Info: SHI0031-ICV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0407.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-ICV2
Client ID:
Injection: 04-SEP-2019 11:03
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3470742	46.2
C10	3.067	0.026	2746	1793	WATPHM	(C24-C38)	33677084	927.1
C12	----				AK102	(C10-C25)	5001381	54.9
C14	4.773	0.022	4260	1668	AK103	(C25-C36)	28230119	802.2
C16	----				OR.DIES	(C10-C28)	13538369	148.4
C18	----							
C20	6.582	0.004	11452	12696				
C22	7.139	0.001	37532	43912				
C24	7.688	-0.000	124761	37283				
C25	7.959	0.001	157424	168404				
C26	8.221	-0.002	166237	74121				
C28	8.731	-0.002	189611	166273				
C32	9.675	0.001	215973	496486				
C34	10.109	0.002	198449	117640				
Filter Peak	11.942	-0.003	107622	190299	BUNKERC	(C10-C38)	37164836	552.4
C36	10.514	-0.004	177673	149110				
C38	10.914	-0.003	164302	121504				
C40	11.313	-0.001	151787	156362				
o-terph	6.199	0.004	23001	21835				
Triacon Surr	9.221	-0.008	2614042	2019809	NAS DIES	(C10-C24)	3487753	38.3

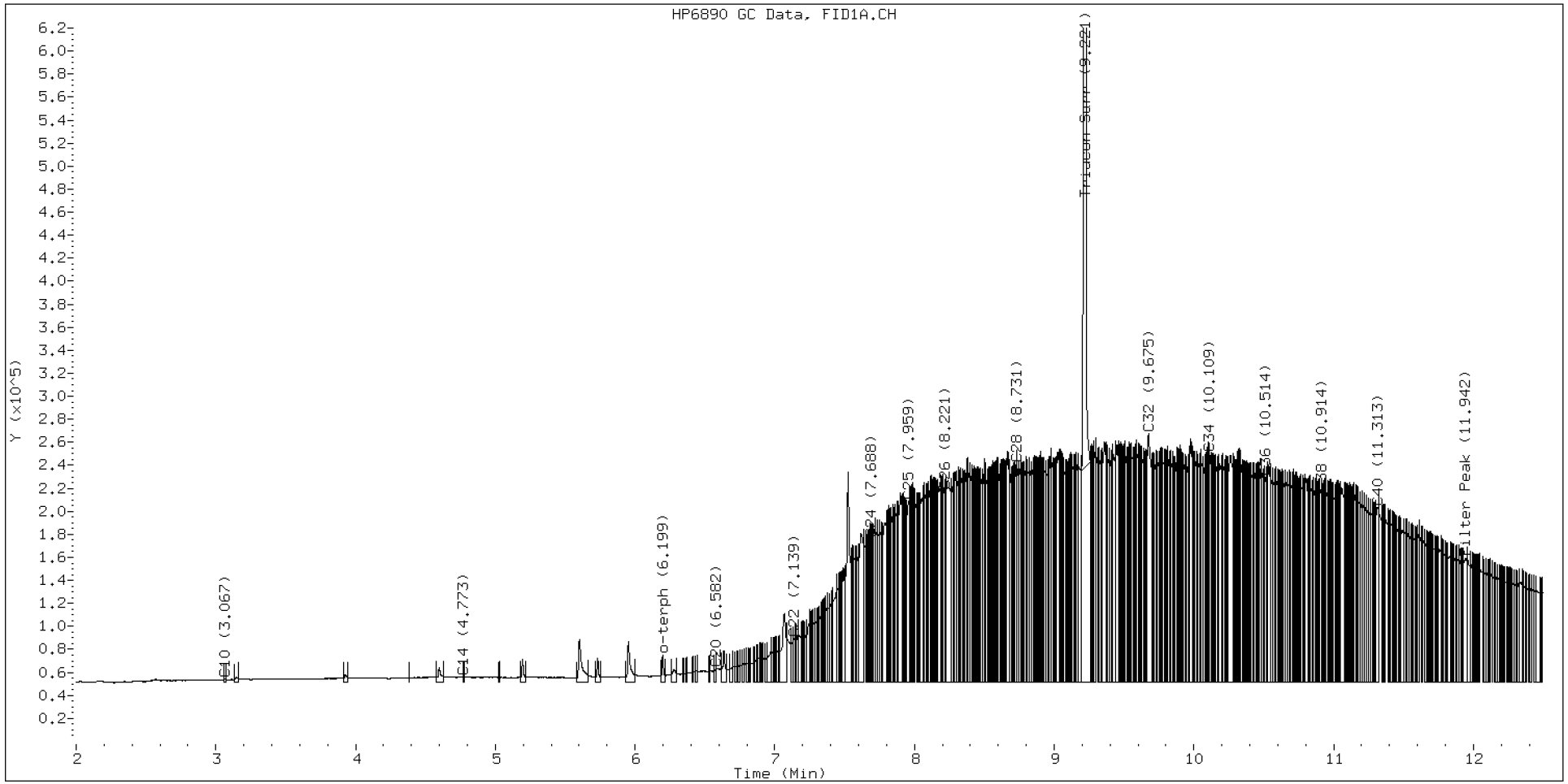
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	21835	0.3	
Triacontane	2019809	38.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

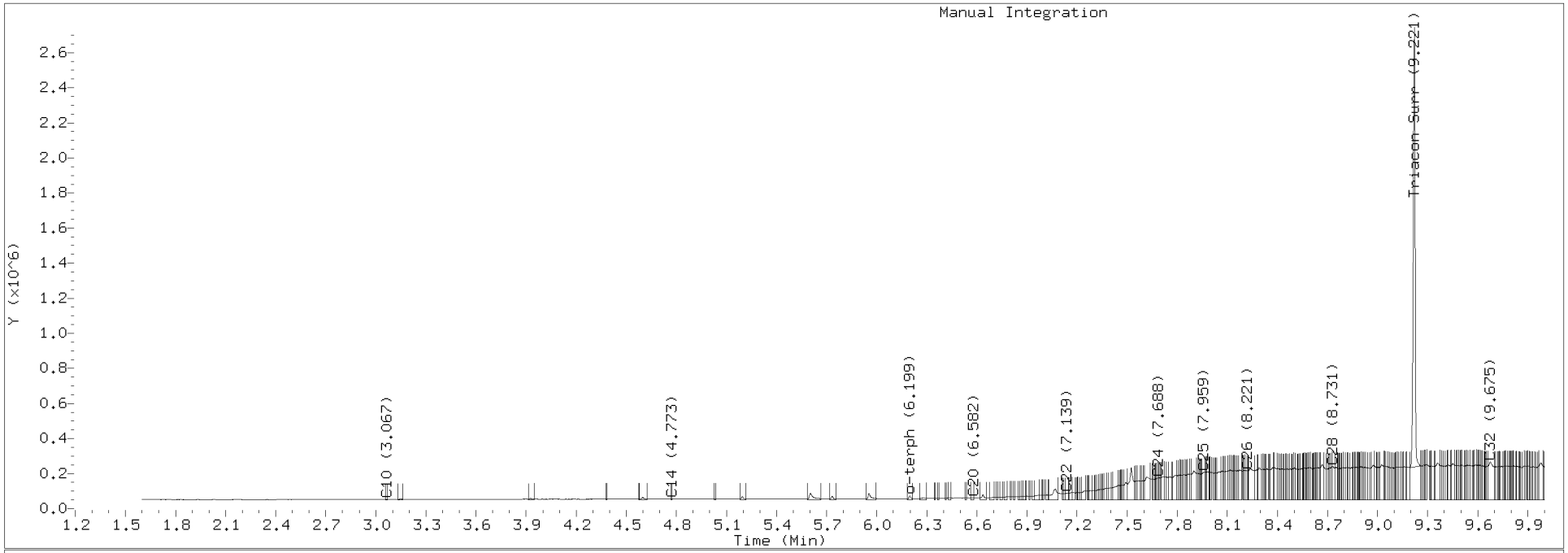
Datafile: FID4A, 20190904.b/419I0407.D SHI0031-ICV2

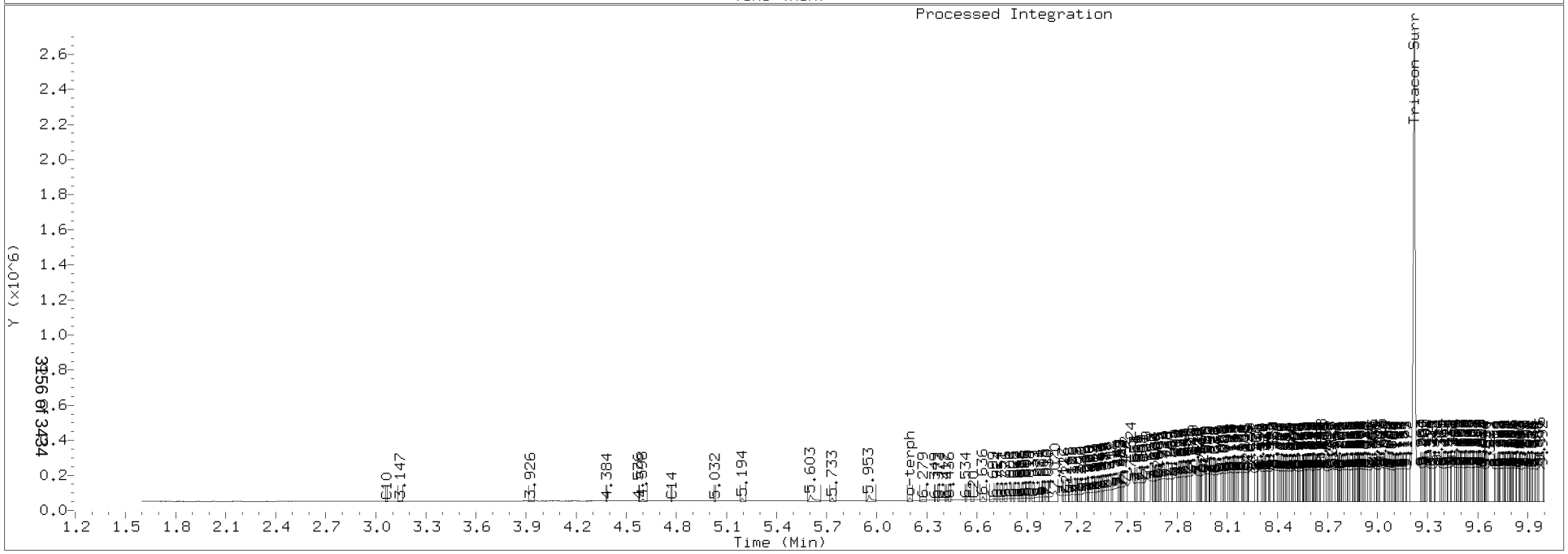


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0407.D Injection: 04-SEP-2019 11:03

Lab ID:SHI0031-ICV2





INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0550.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-ICV1	Injection Time:	03:03
Sequence Name:	DIESEL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	523	96275.3100	100611.6000		4.5	15
o-Terphenyl	A	90.000	90.3	122006.7000	122470.7000		0.3	15

* Values outside of QC limits

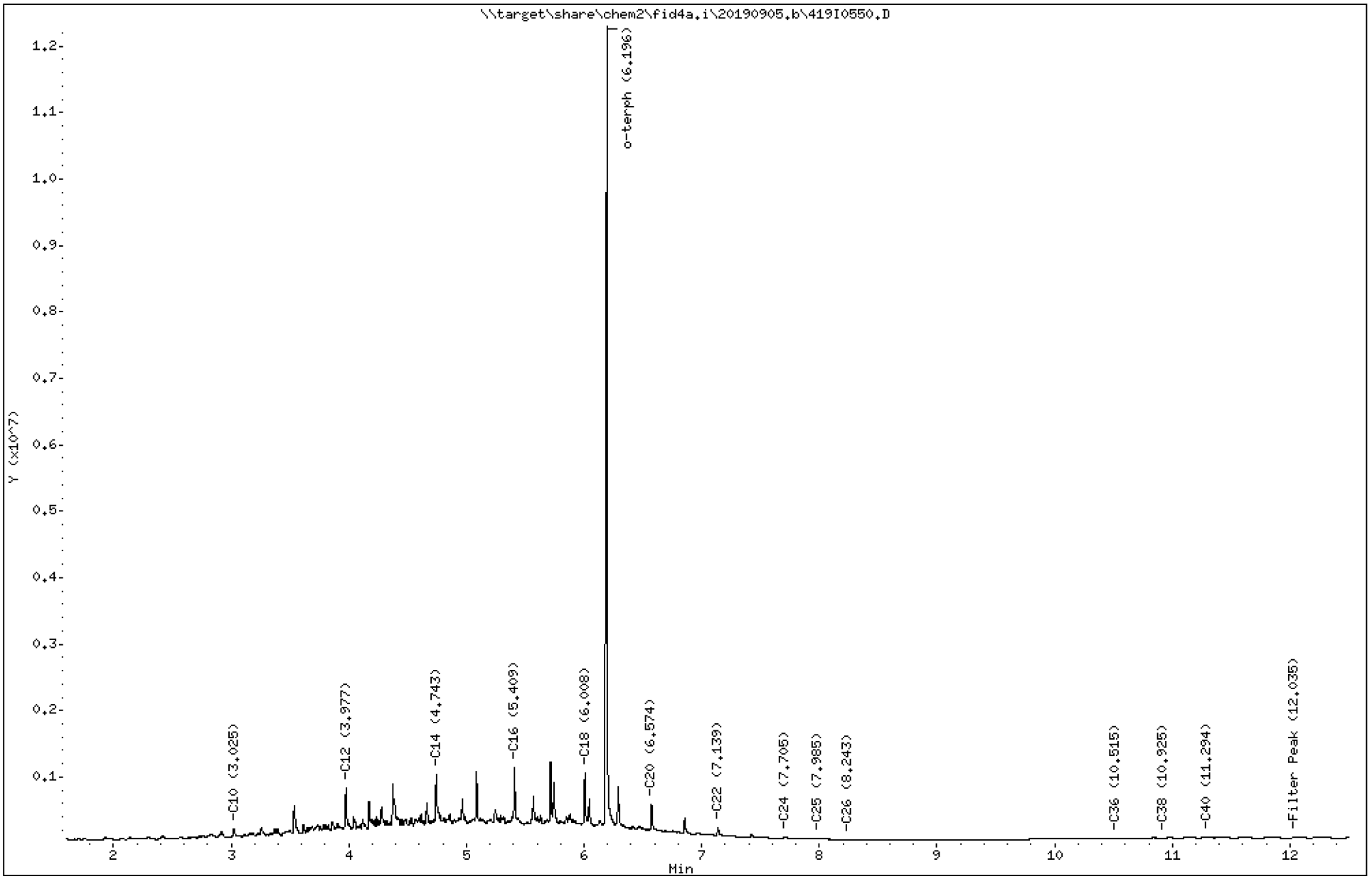
* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0550.D
Date : 06-SEP-2019 03:03
Client ID:
Sample Info: SHI0053-ICV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0550.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-ICV1
Client ID:
Injection: 06-SEP-2019 03:03
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.703	-0.009	13494	22342	WATPHD	(C12-C24)	50305782	522.5
C10	3.025	0.006	169335	269103	WATPHM	(C24-C38)	757794	17.1
C12	3.977	-0.006	785465	911806	AK102	(C10-C25)	59484431	532.4
C14	4.743	-0.008	983643	1242953	AK103	(C25-C36)	371554	9.3
C16	5.409	-0.005	1093885	1108489	OR.DIES	(C10-C28)	59524639	531.9
C18	6.008	-0.002	998638	1224722				
C20	6.574	-0.003	529662	689055				
C22	7.139	0.001	182139	366748				
C24	7.705	0.016	41359	137080				
C25	7.985	0.027	19354	31094				
C26	8.243	0.020	6776	2301				
C32	----							
C34	----							
Filter Peak	12.035	-0.005	33211	53047	BUNKERC	(C10-C38)	60221069	895.1
C36	10.515	-0.002	22447	8922				
C38	10.925	0.020	28251	15196				
C40	11.294	-0.004	39718	61875				
o-terph	6.196	-0.002	12023967	11022357				
Triacon Surr	----				NAS DIES	(C10-C24)	59463275	532.7

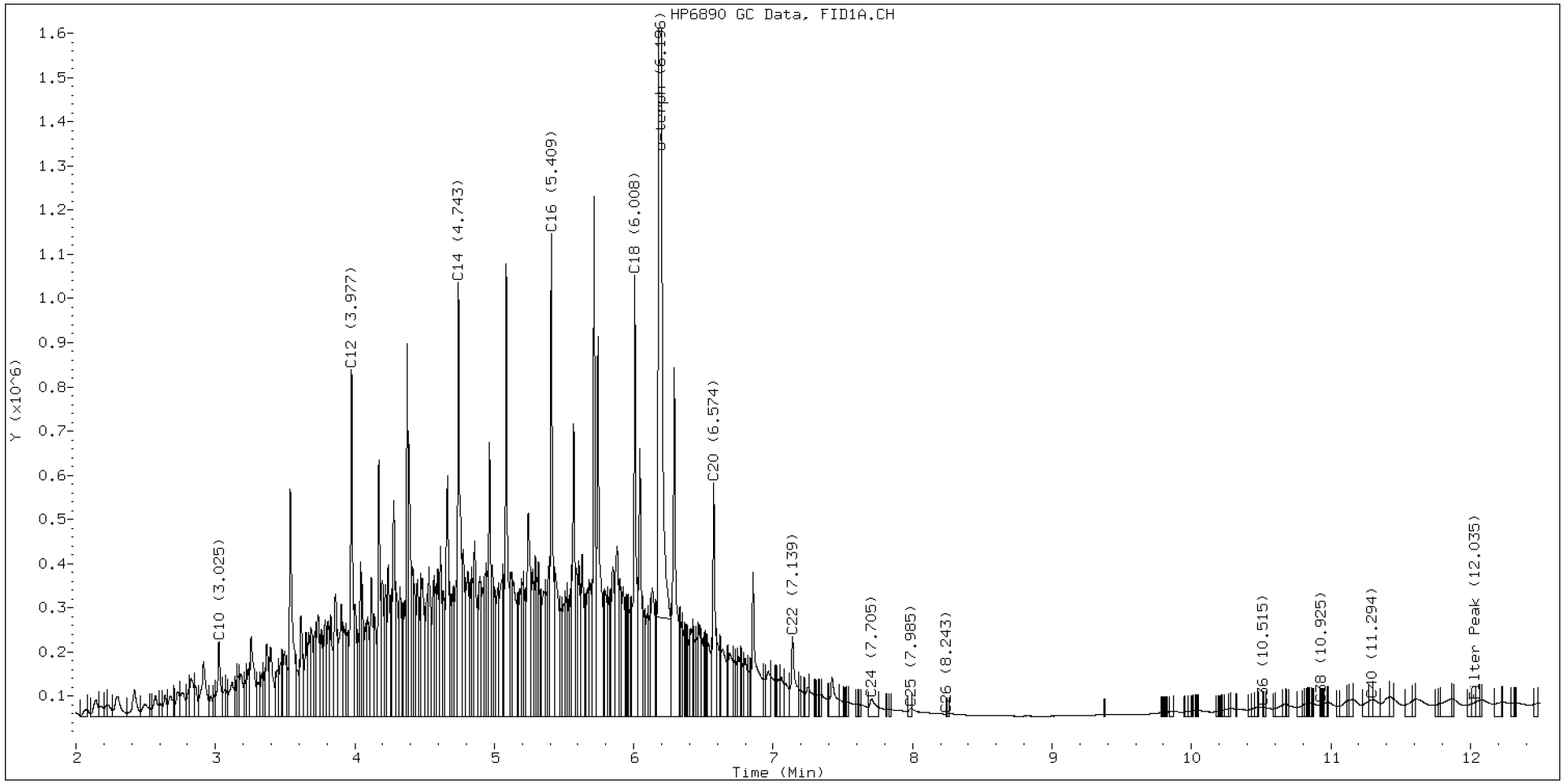
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	11022357	90.3	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

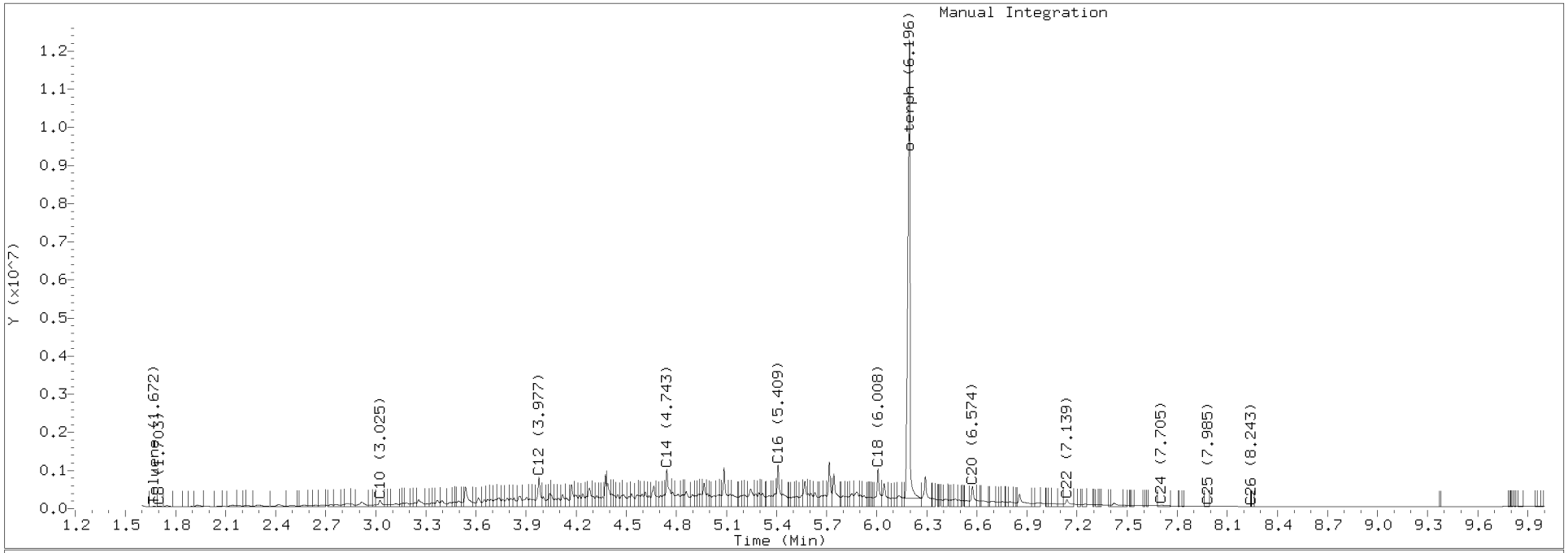
Datafile: FID4A, 20190905.b/419I0550.D SHI0053-ICV1

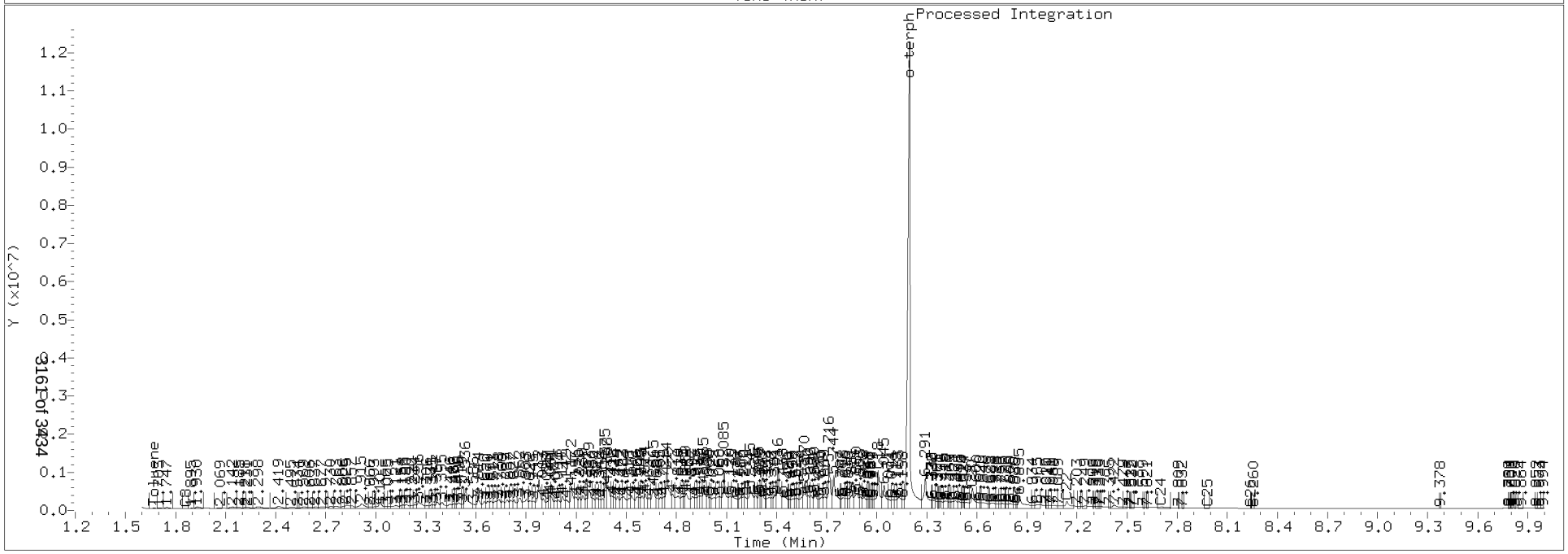


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0550.D Injection: 06-SEP-2019 03:03

Lab ID:SHI0053-ICV1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0551.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-ICV2	Injection Time:	03:24
Sequence Name:	MOIL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	905	44420.7900	40180.6800		-9.6	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0551.D

Date : 06-SEP-2019 03:24

Client ID:

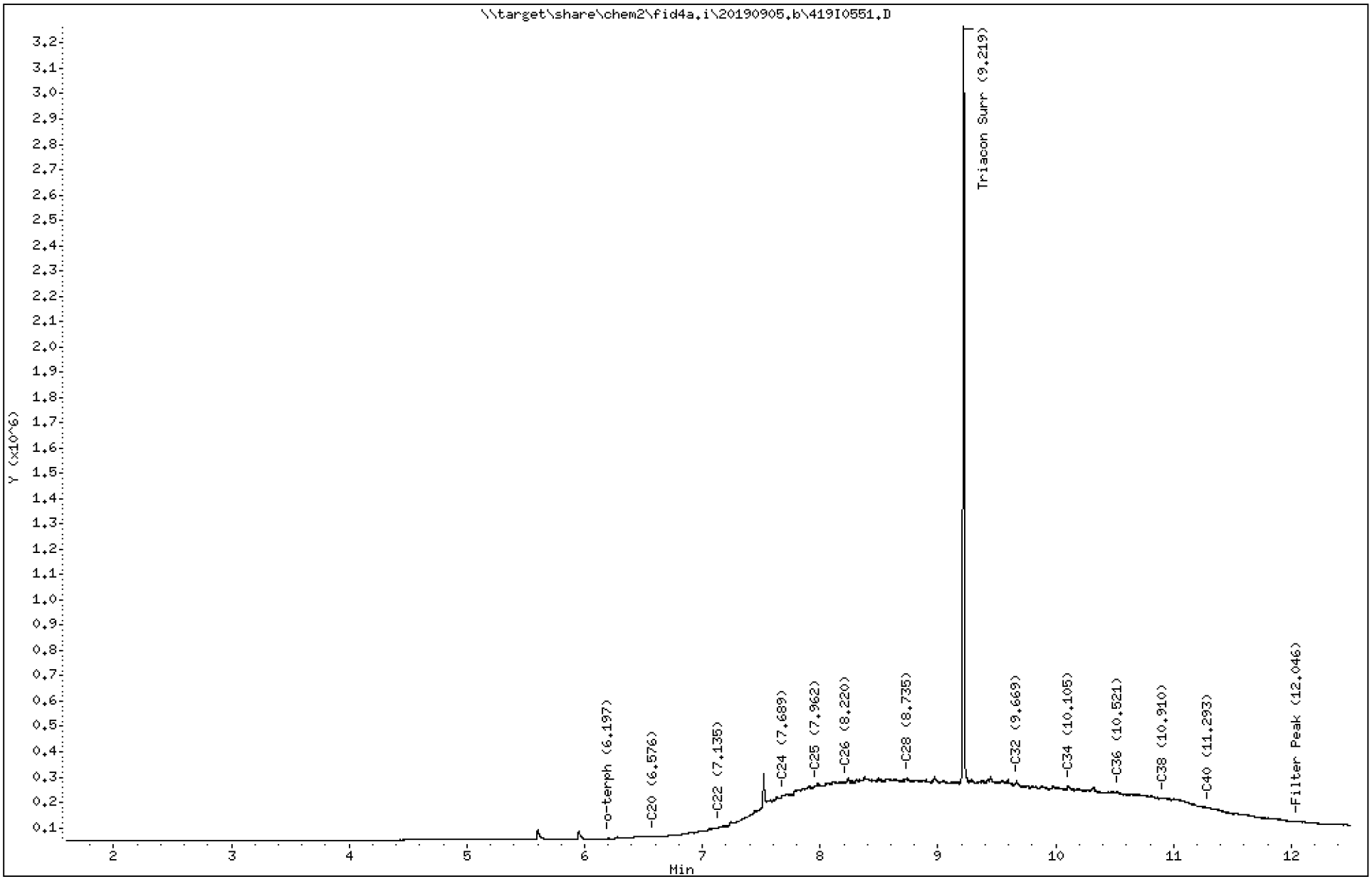
Sample Info: SHI0053-ICV2

Instrument: fid4a.i

Operator: JGR/VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0551.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-ICV2
Client ID:
Injection: 06-SEP-2019 03:24
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4821531	50.1
C10	----				WATPHM	(C24-C38)	40180676	904.5
C12	----				AK102	(C10-C25)	7019805	62.8
C14	----				AK103	(C25-C36)	34090550	850.9
C16	----				OR.DIES	(C10-C28)	18680272	166.9
C18	----							
C20	6.576	-0.001	12883	15638				
C22	7.135	-0.003	48737	42310				
C24	7.689	0.001	175296	96290				
C25	7.962	0.004	213865	200563				
C26	8.220	-0.004	227444	68036				
C28	8.735	0.001	243917	84439				
C32	9.669	-0.006	231745	281858				
C34	10.105	-0.001	214462	322666				
Filter Peak	12.046	0.006	72649	46878	BUNKERC	(C10-C38)	45002208	668.9
C36	10.521	0.005	190608	234869				
C38	10.910	0.004	166611	90513				
C40	11.293	-0.004	128002	44467				
o-terph	6.197	-0.001	5126	3408				
Triacon Surr	9.219	-0.014	2990240	2418586	NAS DIES	(C10-C24)	4821531	43.2

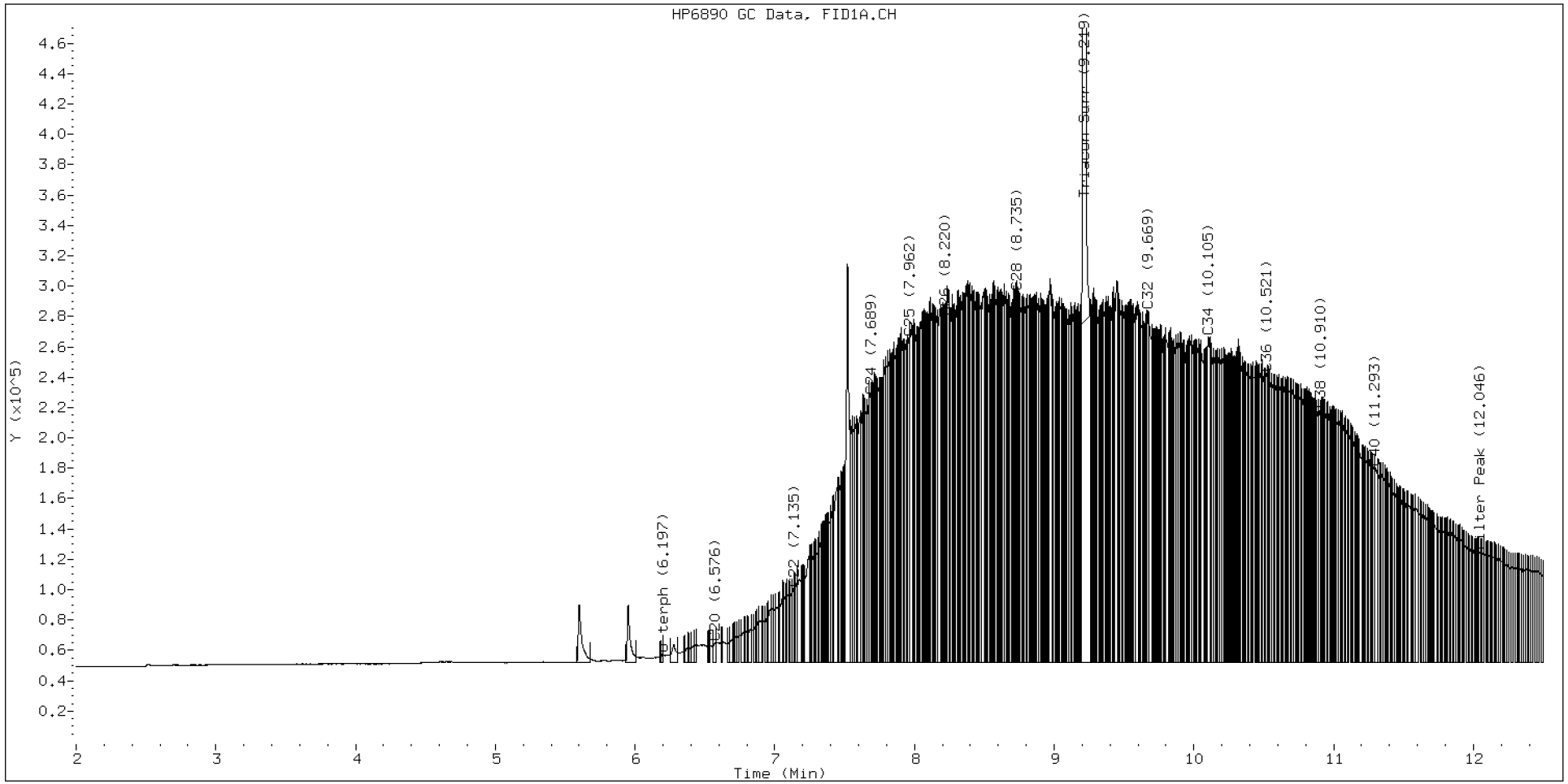
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	3408	0.0	
Triacontane	2418586	39.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

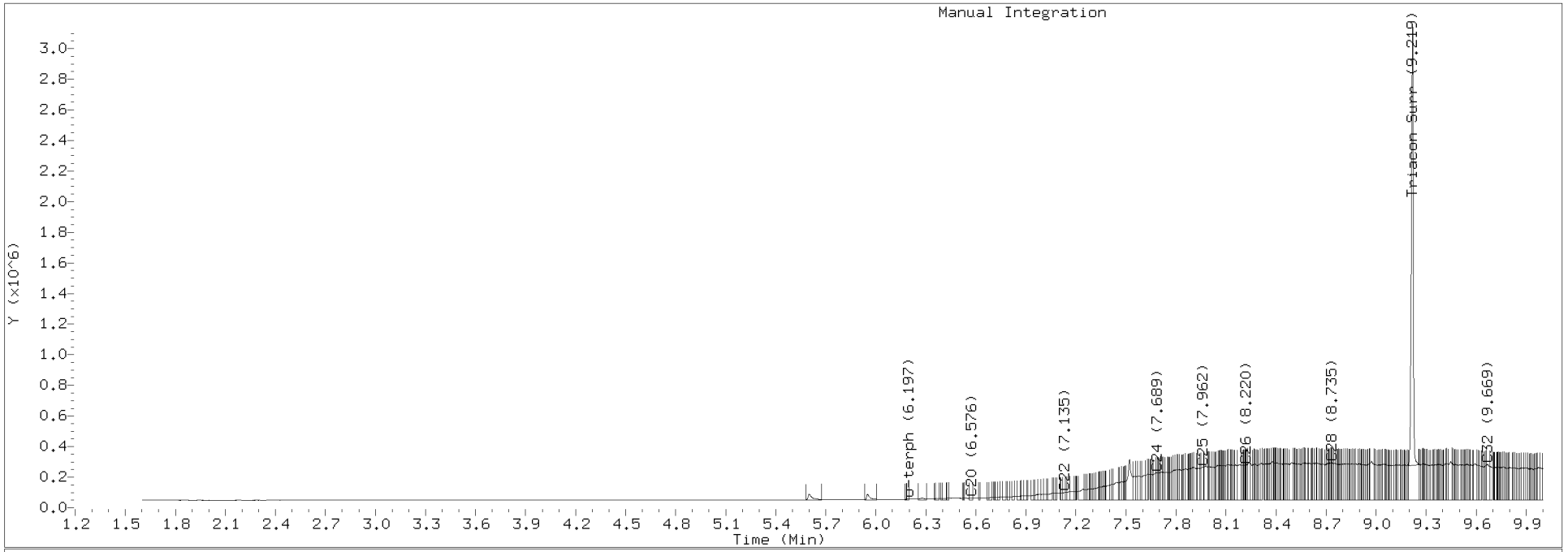
Datafile: FID4A, 20190905.b/419I0551.D SHI0053-ICV2

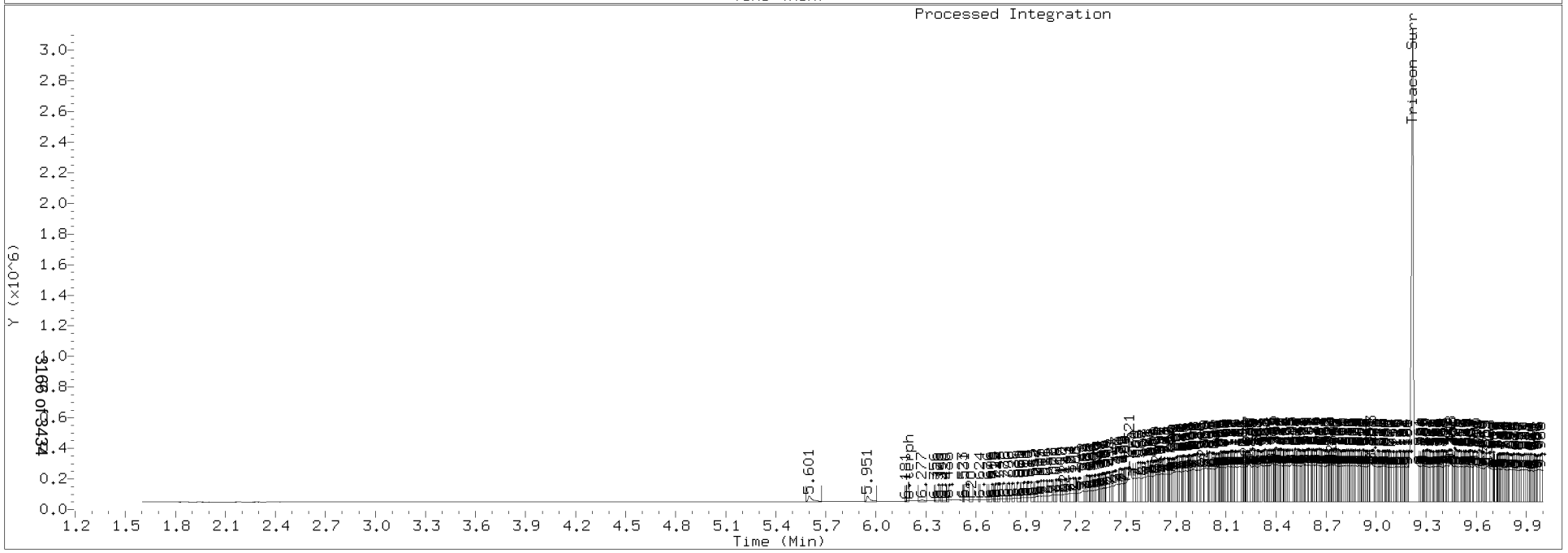


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0551.D Injection: 06-SEP-2019 03:24

Lab ID:SHI0053-ICV2





INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1027.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-ICV1	Injection Time:	18:58
Sequence Name:	DIESEL ICV		

COMPOUND	TYPE	CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
		STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	511	174459.7000	178413.4000		2.3	15
o-Terphenyl	A	90.000	90.4	222475.3000	223419.9000		0.4	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1027.D

Date : 10-SEP-2019 18:58

Client ID:

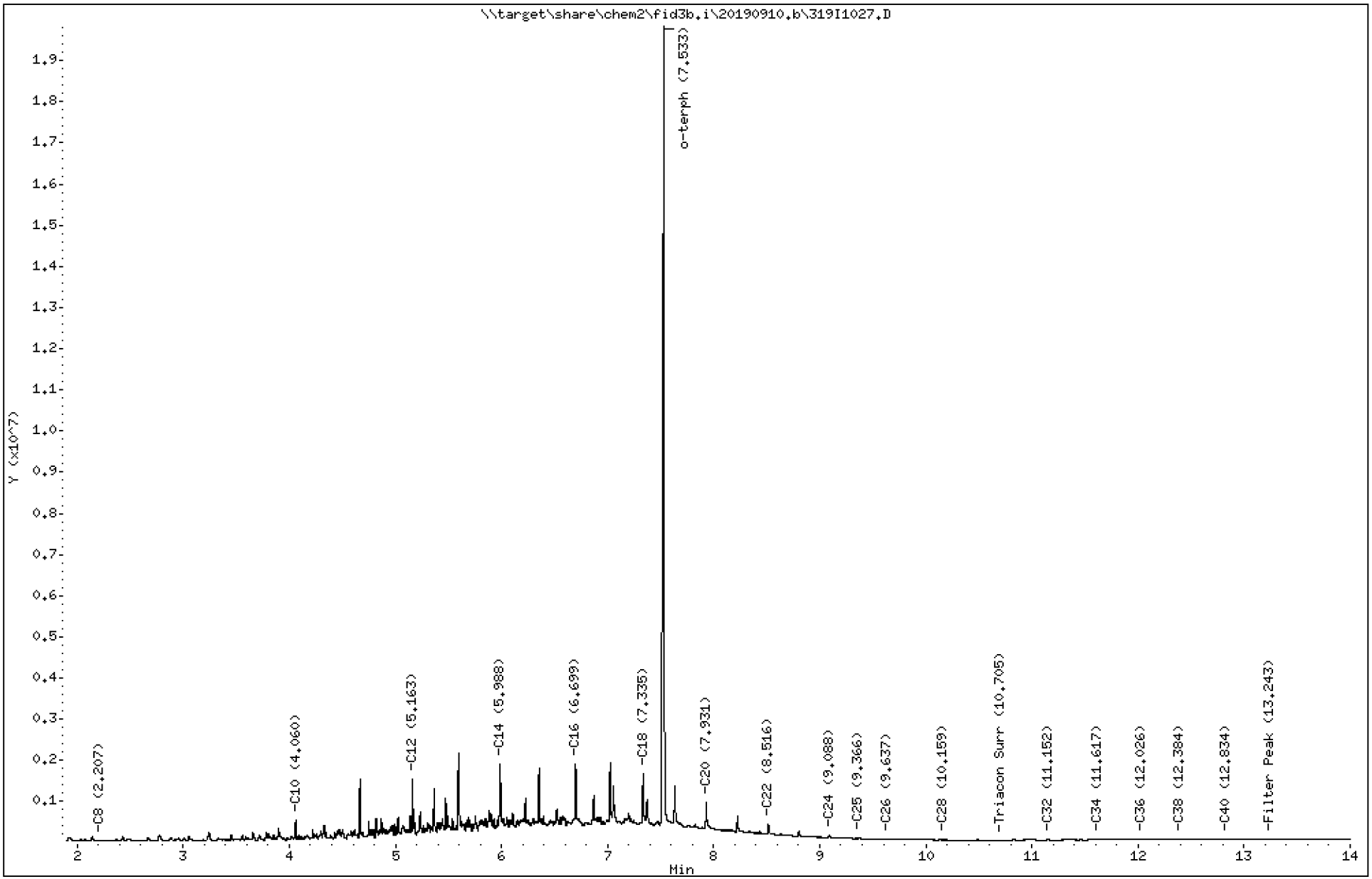
Sample Info: SHI0095-ICV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1027.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-ICV1
Client ID:
Injection: 10-SEP-2019 18:58
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	17567455	97.9	
C8	2.207	0.031	6842	7873	WATPHD	(C12-C24)	89206707	511.3	
C10	4.060	-0.009	497683	323761	WATPHM	(C24-C38)	3336371	26.4	
C12	5.163	-0.003	1487261	910731	AK102	(C10-C25)	103242542	506.5	M
C14	5.988	-0.004	1871931	1877822	AK103	(C25-C36)	2511193	24.7	
C16	6.699	-0.004	1869838	1855001	OR.DIES	(C10-C28)	104354574	505.6	M
C18	7.335	-0.004	1622716	2133898					
C20	7.931	-0.005	922870	1229388					
C22	8.516	-0.007	384369	703183					
C24	9.088	-0.008	128990	479747					
C25	9.366	-0.008	72140	286506					
C26	9.637	-0.009	40612	180552					
C28	10.159	-0.009	17683	32589	IT.DIES	(C10-C24)	102924273	505.9	
C32	11.152	0.021	24129	62489					
C34	11.617	0.044	23081	262262					
Filter Peak	13.243	-0.075	34007	175631					
C36	12.026	0.027	36397	276043					
o-terph	7.533	-0.001	19336123	20107786					
Triacon Surr	10.705	0.015	11452	11216					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

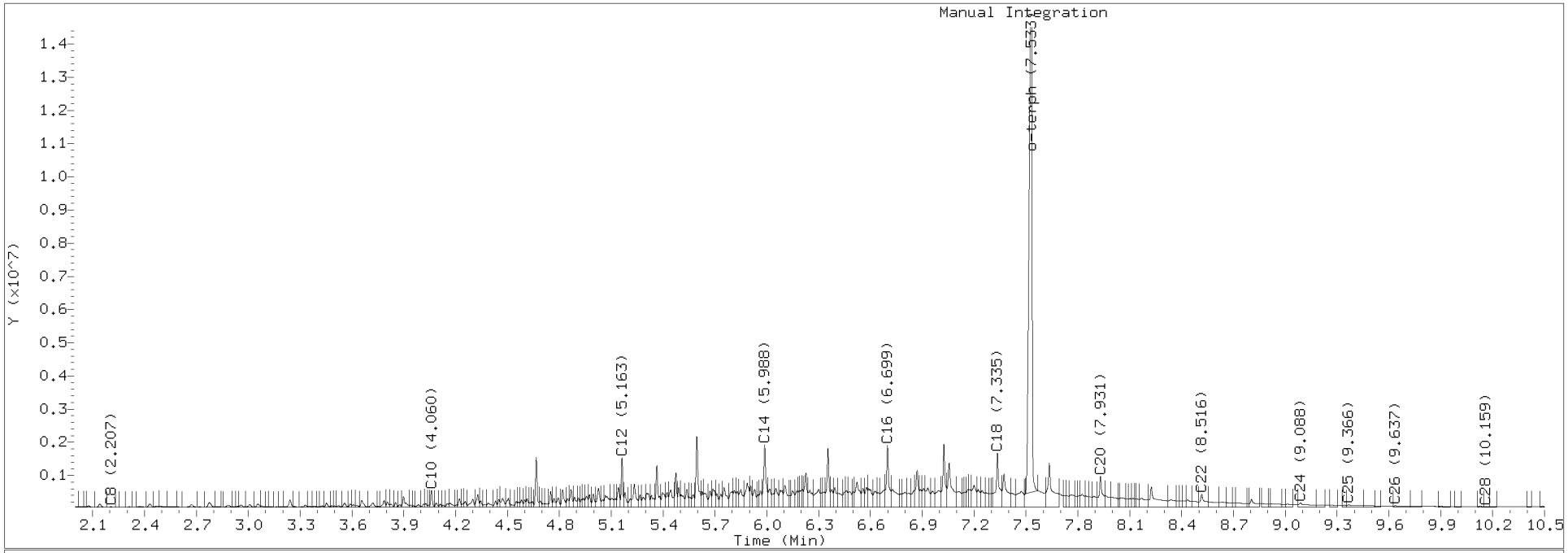
Surrogate	Area	Amount
o-Terphenyl	20107786	90.4
Triacontane	11216	0.1

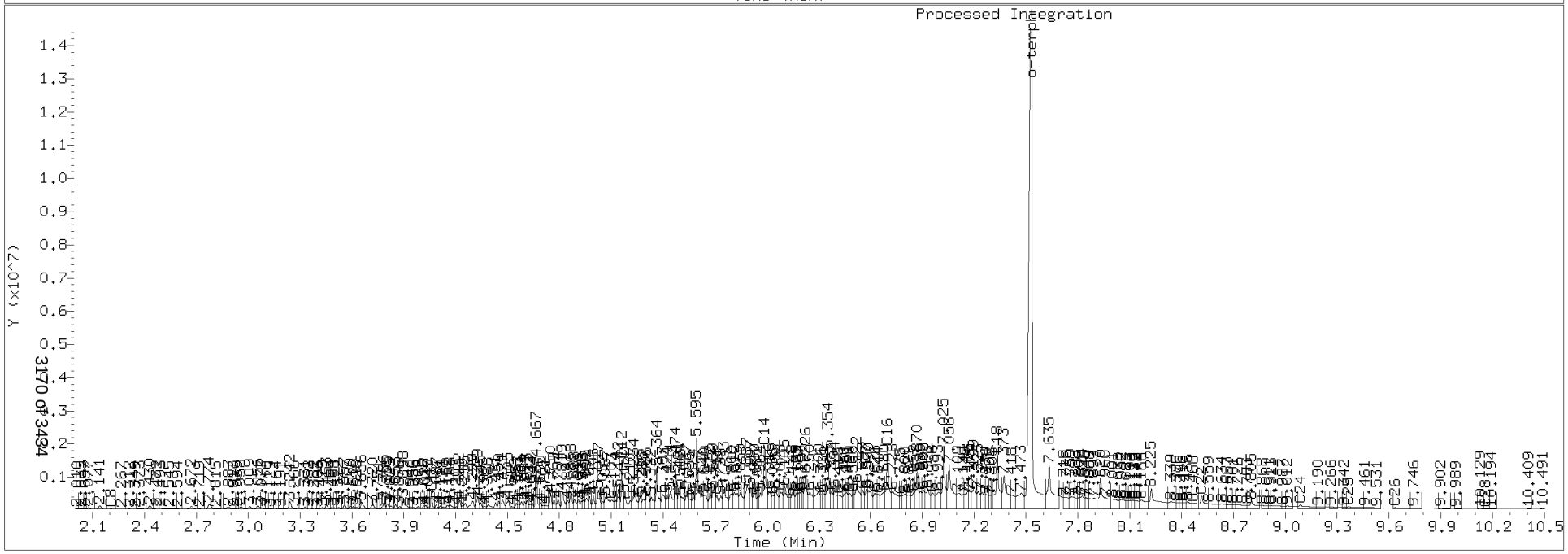
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1027.D   Injection: 10-SEP-2019 18:58

Lab ID:SHI0095-ICV1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1028.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-ICV2	Injection Time:	19:20
Sequence Name:	MOIL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1070	126617.0000	134978.6000		6.6	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1028.D

Date : 10-SEP-2019 19:20

Client ID:

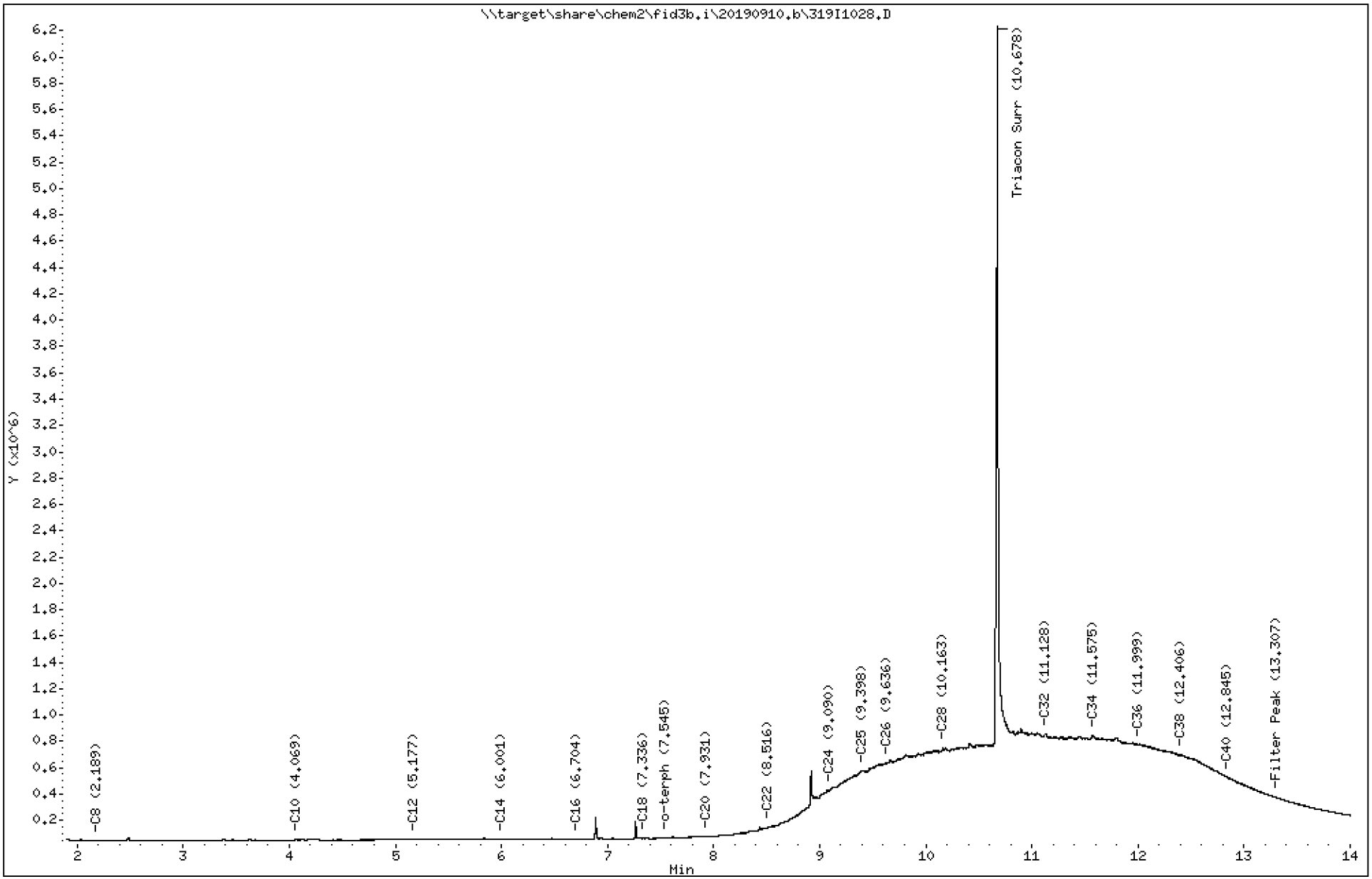
Sample Info: SHI0095-ICV2

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1028.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-ICV2
Client ID:
Injection: 10-SEP-2019 19:20
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	434461	2.4	
C8	2.189	0.014	1899	2856	WATPHD	(C12-C24)	12937904	74.2	
C10	4.069	0.000	11472	16571	WATPHM	(C24-C38)	134978626	1066.0	
C12	5.177	0.011	8098	16215	AK102	(C10-C25)	18484394	90.7	
C14	6.001	0.009	12423	25608	AK103	(C25-C36)	113433842	1115.0	M
C16	6.704	0.002	14338	35620	OR.DIES	(C10-C28)	49821572	241.4	
C18	7.336	-0.002	17017	21229					
C20	7.931	-0.005	33534	66350					
C22	8.516	-0.007	101836	100949					
C24	9.090	-0.006	383144	341792					
C25	9.398	0.024	531414	1761662					
C26	9.636	-0.010	590355	411284					
C28	10.163	-0.005	701303	914078	IT.DIES	(C10-C24)	13182219	64.8	
C32	11.128	-0.003	811727	1763226					
C34	11.575	0.003	795720	2367176					
Filter Peak	13.307	-0.011	327652	822665					
C36	11.999	0.001	729914	393143					
o-terph	7.545	0.012	20625	42163					
Triacon Surr	10.678	-0.012	5417367	6644475					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	42163	0.2
Triacontane	6644475	39.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00039
Lab File ID:	419I0727.D	Calibration Date:	09/07/19 00:00
Sequence:	SHI0185	Injection Date:	09/07/19
Lab Sample ID:	SHI0185-ICV1	Injection Time:	17:56
Sequence Name:	DIESEL ICV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	497	119661.8000	118922.1000		-0.6	15
o-Terphenyl	A	90.000	85.4	156059.8000	147998.6000		-5.1	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0727.D

Date : 07-SEP-2019 17:56

Client ID:

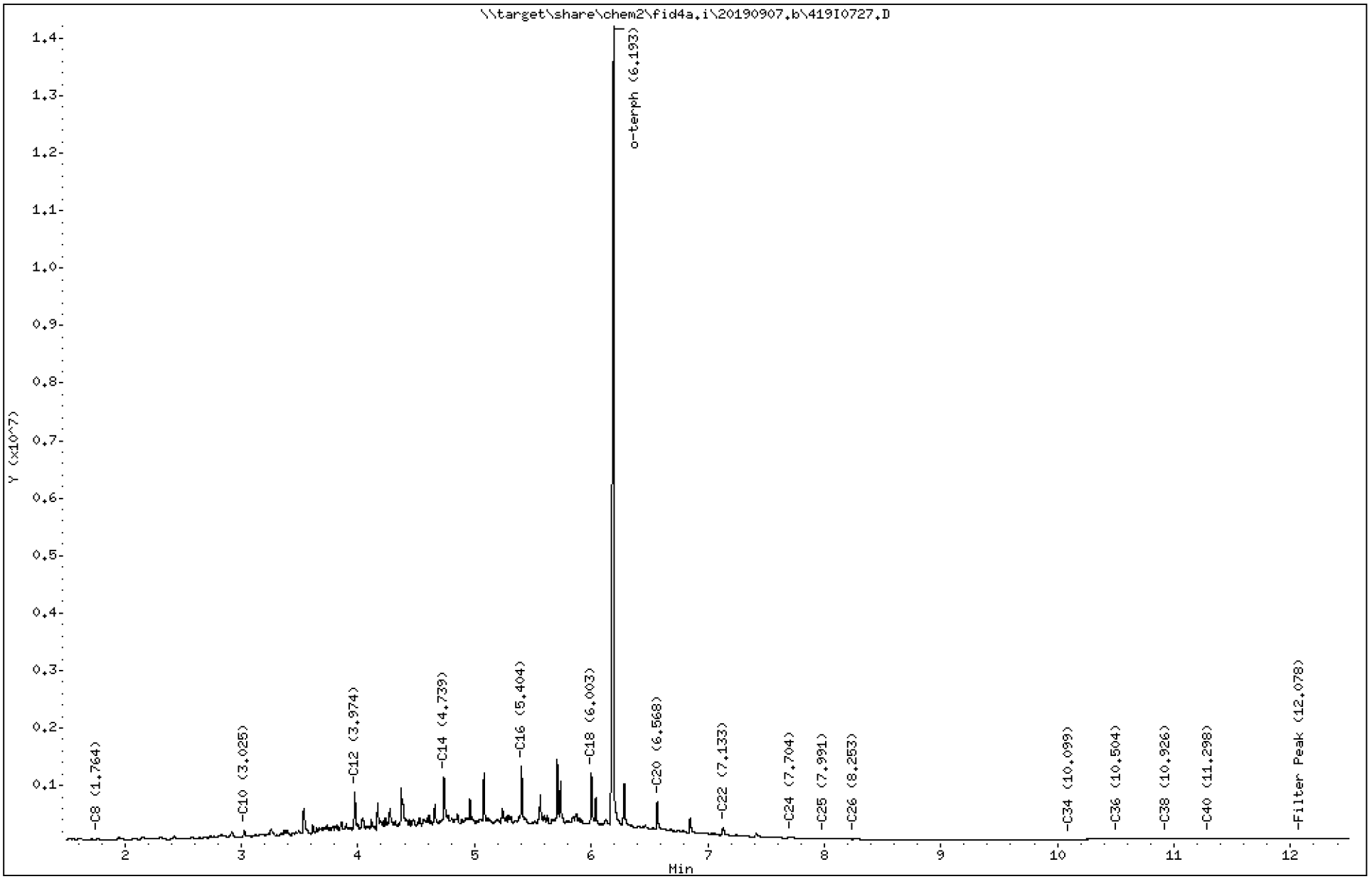
Sample Info: SHI0081-ICV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0727.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-ICV1
Client ID:
Injection: 07-SEP-2019 17:56
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.764	0.002	27919	47412	WATPHD	(C12-C24)	59461047	496.9
C10	3.025	0.003	172898	296491	WATPHM	(C24-C38)	583040	15.5
C12	3.974	-0.002	841973	986760	AK102	(C10-C25)	69318309	501.9
C14	4.739	-0.002	1093226	1419281	AK103	(C25-C36)	262064	10.8
C16	5.404	-0.001	1272640	1306223	OR.DIES	(C10-C28)	69388696	501.7
C18	6.003	0.001	1172096	1504964				
C20	6.568	0.000	661728	869705				
C22	7.133	0.005	217587	537188				
C24	7.704	0.028	50490	69227				
C25	7.991	0.044	25415	56898				
C26	8.253	0.042	12035	5343				
C32	----							
C34	10.099	0.004	10438	9236				
Filter Peak	12.078	0.041	31432	117795	BUNKERC	(C10-C38)	69891248	1038.8
C36	10.504	-0.002	18088	12454				
C38	10.926	0.021	23471	11618				
C40	11.298	-0.006	32234	19129				
o-terph	6.193	0.002	13877513	13319872				
Triacon Surr	----				NAS DIES	(C10-C24)	69308208	502.3

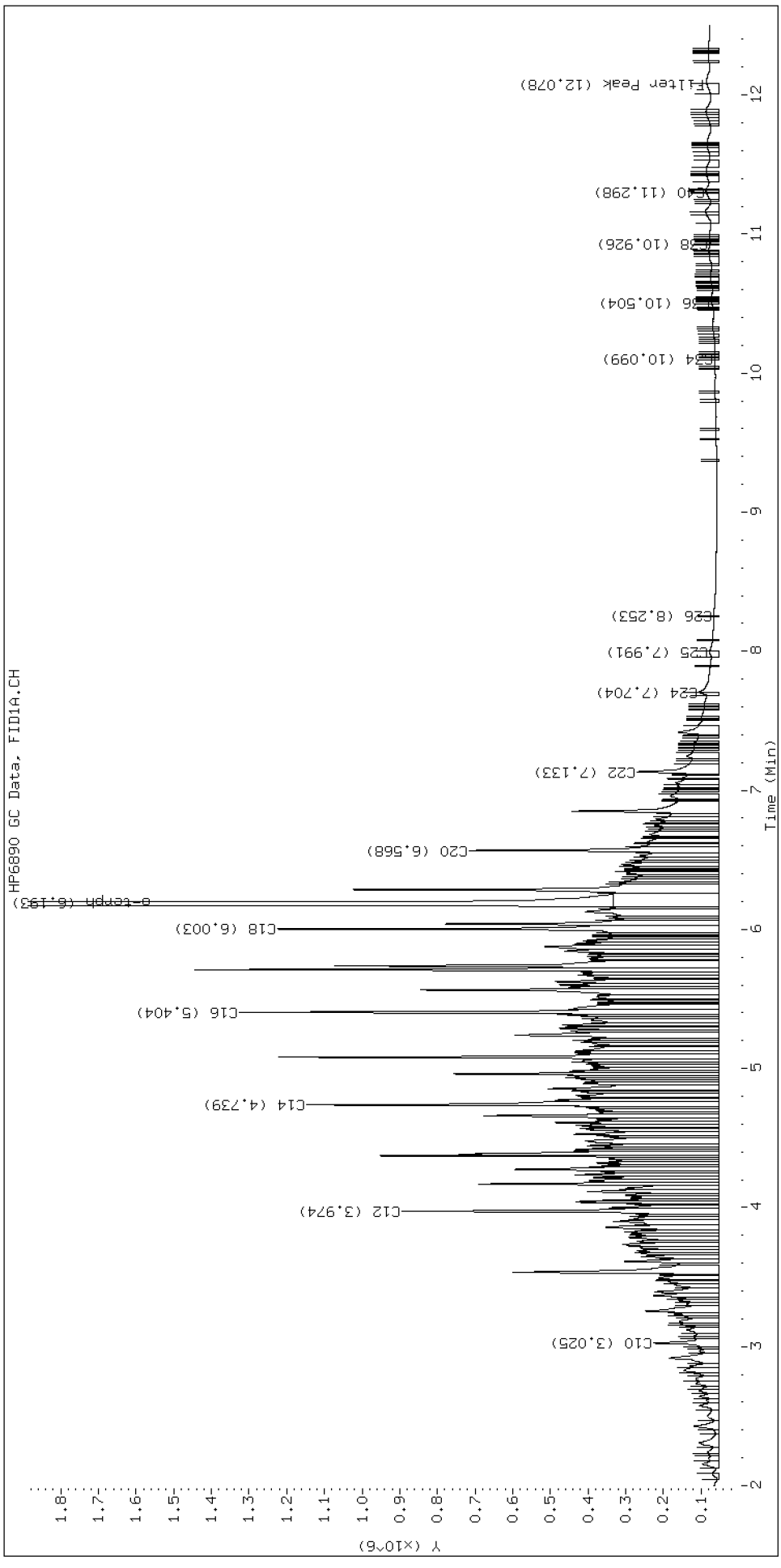
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	13319872	85.4	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

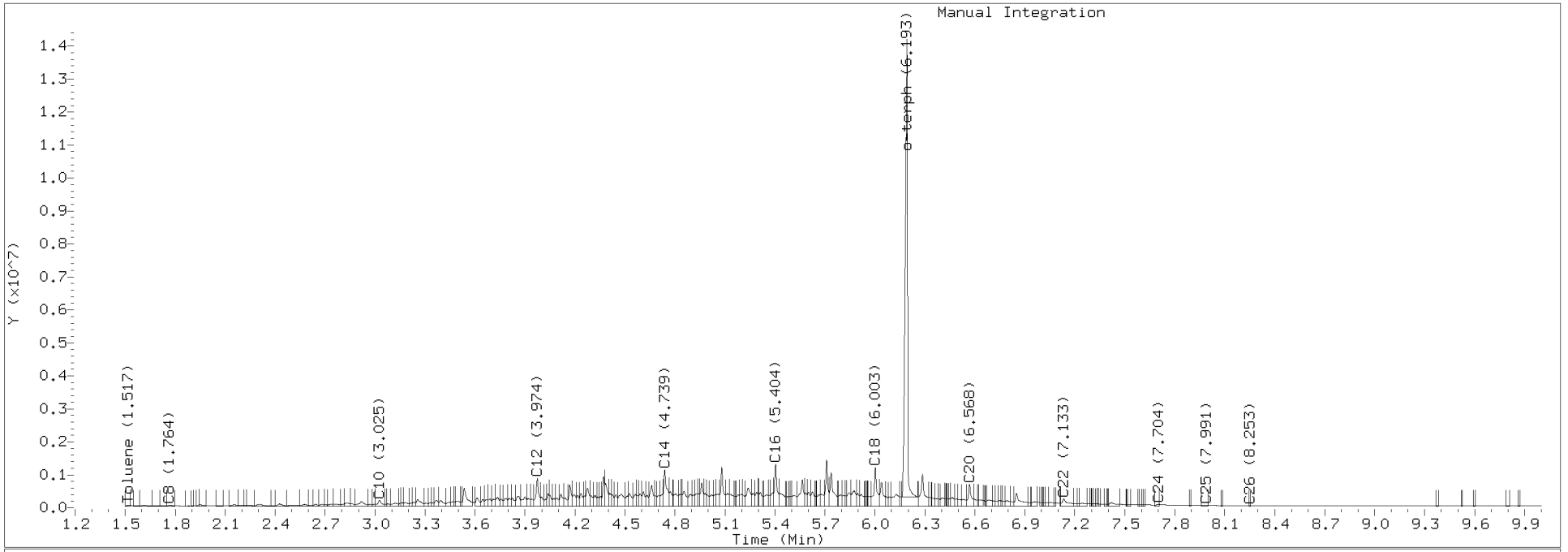
Datafile: FID4A, 20190907.b/419I0727.D SHI0081-ICV1

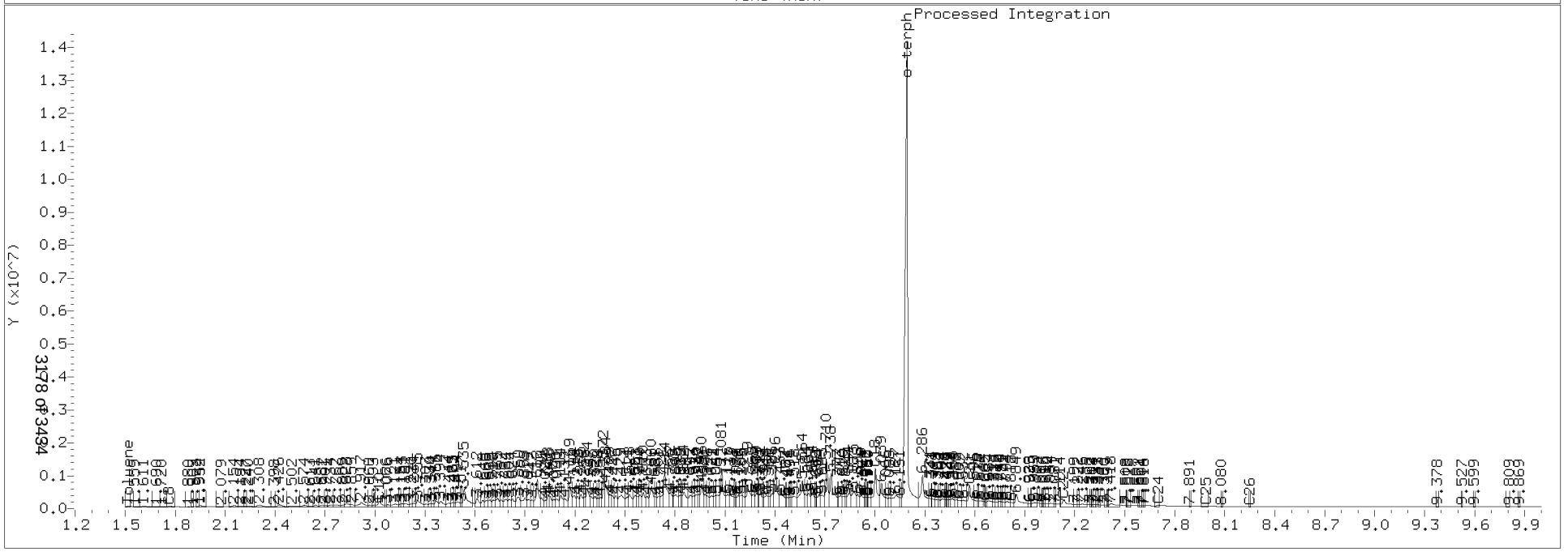


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0727.D Injection: 07-SEP-2019 17:56

Lab ID:SHI0081-ICV1





Analytical Resources, Incorporated
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00039
Lab File ID:	419I0728.D	Calibration Date:	09/07/19 00:00
Sequence:	SHI0185	Injection Date:	09/07/19
Lab Sample ID:	SHI0185-ICV2	Injection Time:	18:16
Sequence Name:	MOIL ICV		

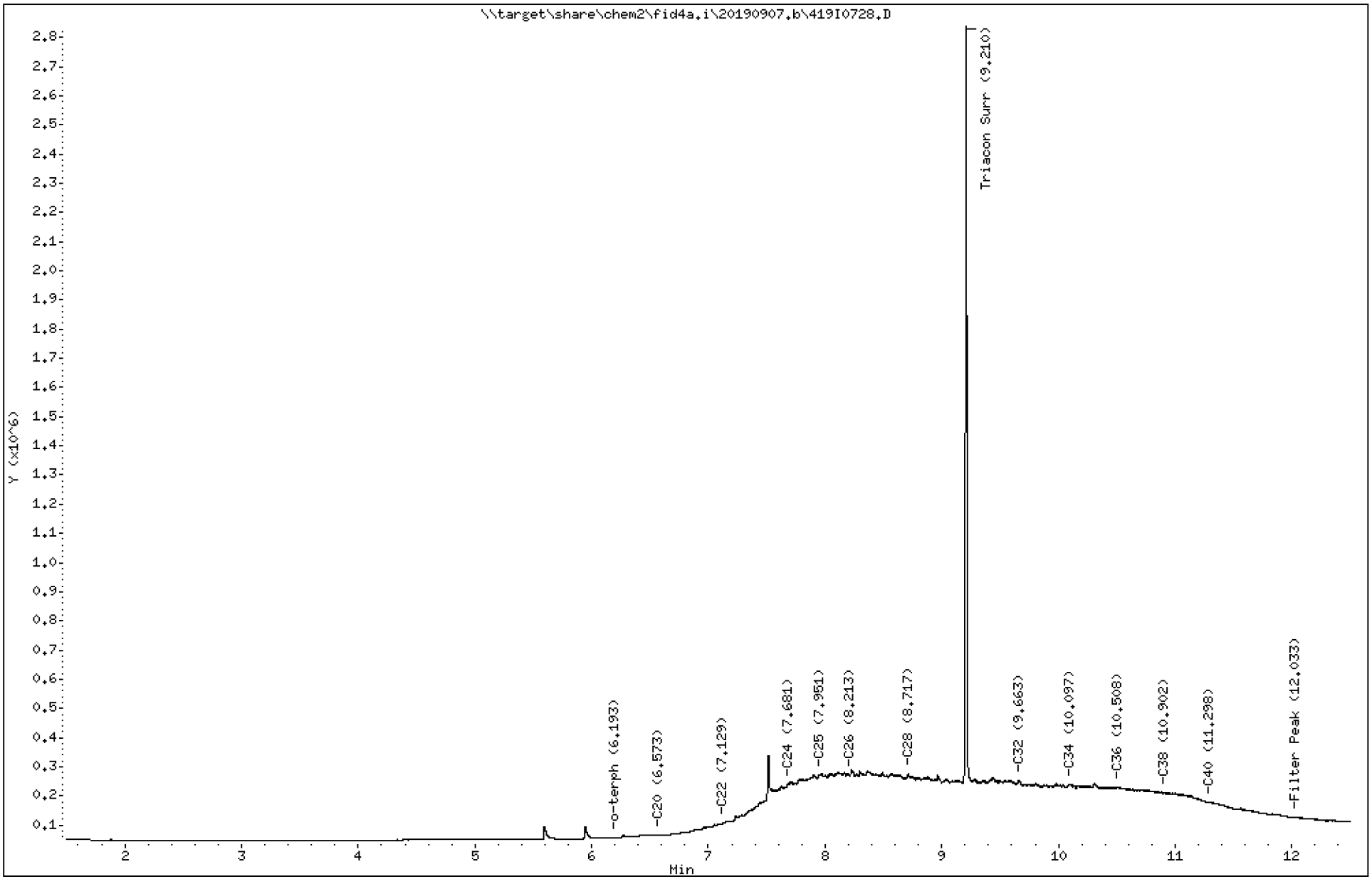
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	997	37508.3500	37378.6400		-0.4	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0728.D
Date : 07-SEP-2019 18:16
Client ID:
Sample Info: SHI0081-ICV2

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0728.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-ICV2
Client ID:
Injection: 07-SEP-2019 18:16
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5879513	49.1
C10	----				WATPHM	(C24-C38)	37378640	996.5
C12	----				AK102	(C10-C25)	7900190	57.2
C14	----				AK103	(C25-C36)	31467587	1296.6
C16	----				OR.DIES	(C10-C28)	19442090	140.6
C18	----							
C20	6.573	0.006	18765	22289				
C22	7.129	0.002	60418	43845				
C24	7.681	0.004	191776	142603				
C25	7.951	0.004	224647	132871				
C26	8.213	0.002	223321	77604				
C28	8.717	-0.003	228151	200207				
C32	9.663	0.002	206671	413294				
C34	10.097	0.002	192635	133699				
Filter Peak	12.033	-0.003	77776	46580	BUNKERC	(C10-C38)	43258153	643.0
C36	10.508	0.002	182101	99585				
C38	10.902	-0.003	163371	80956				
C40	11.298	-0.006	131988	111235				
o-terph	6.193	0.002	9477	7723				
Triacon Surr	9.210	-0.007	2587430	2023788	NAS DIES	(C10-C24)	5879513	42.6

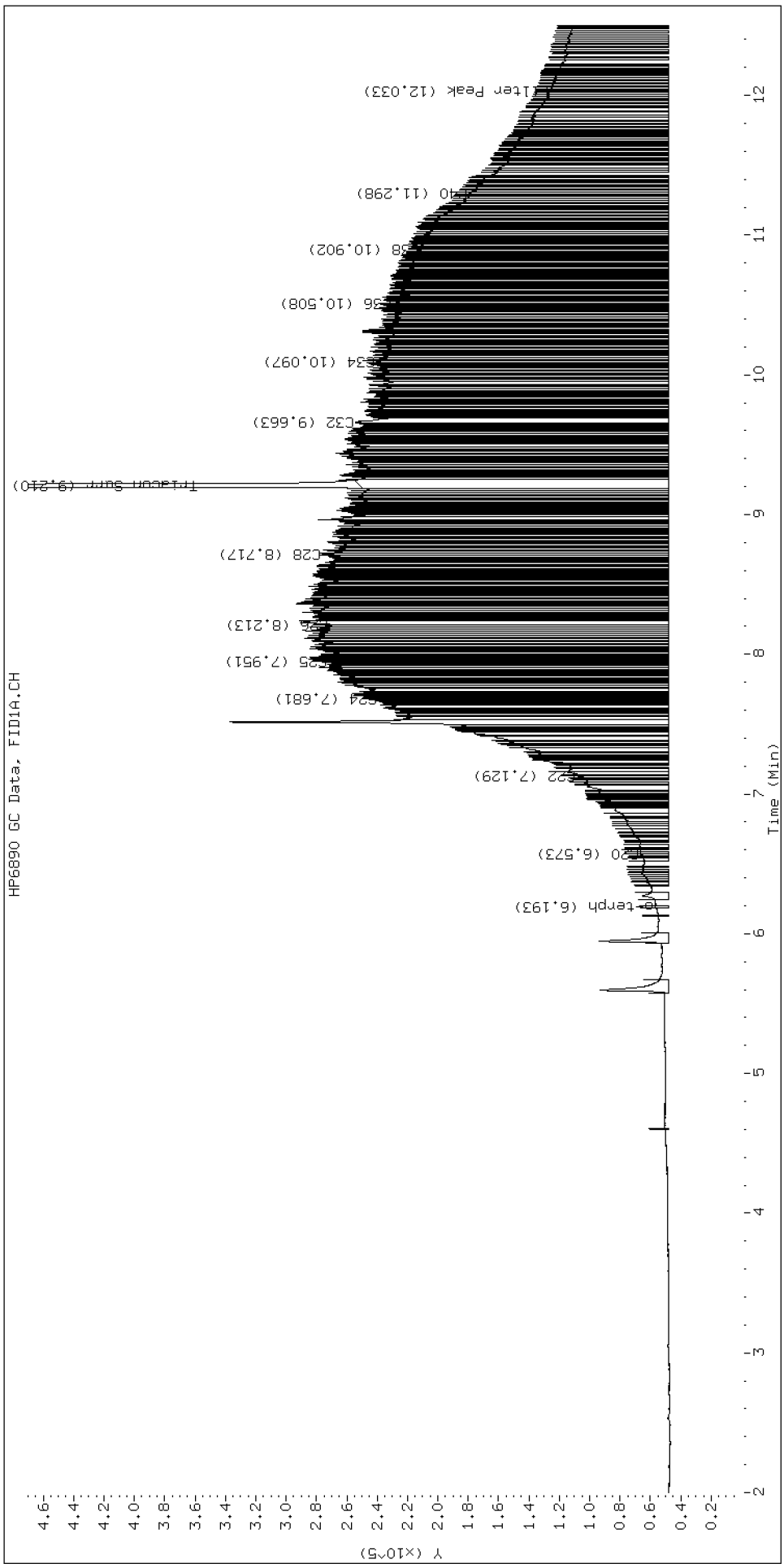
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	7723	0.0	
Triacontane	2023788	49.3	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

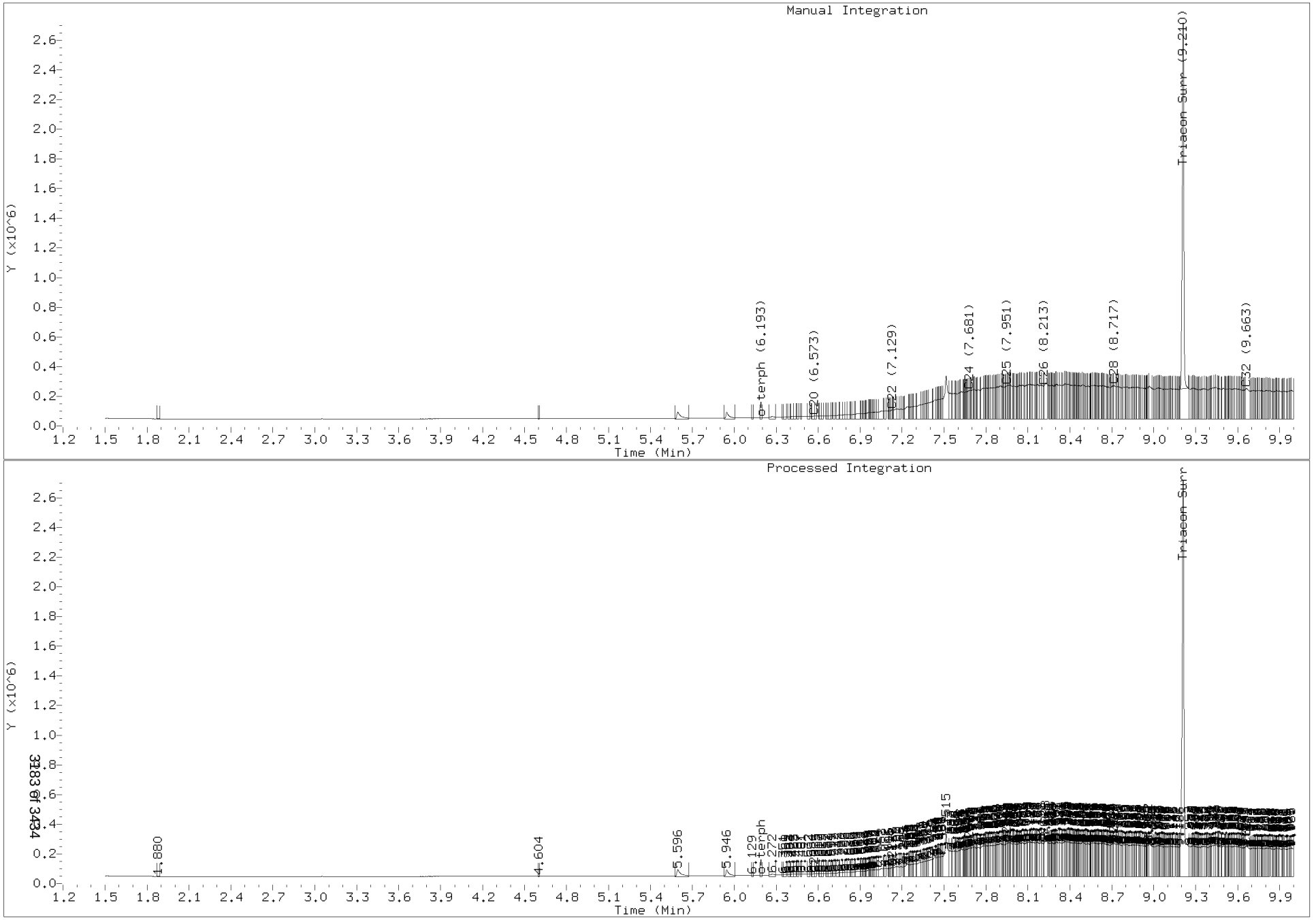
Datafile: FID4A, 20190907.b/419I0728.D SHI0081-ICV2



TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0728.D Injection: 07-SEP-2019 18:16

Lab ID:SHI0081-ICV2



CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0318.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV1	Injection Time:	15:04
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Diesel Range Organics (C12-C24)	A	500.00	612	75070.12	91925.44		22.5	15	*
o-Terphenyl	A	90.000	104	85833.03	98810.09		15.1	15	

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0318.D

Date : 03-SEP-2019 15:04

Client ID:

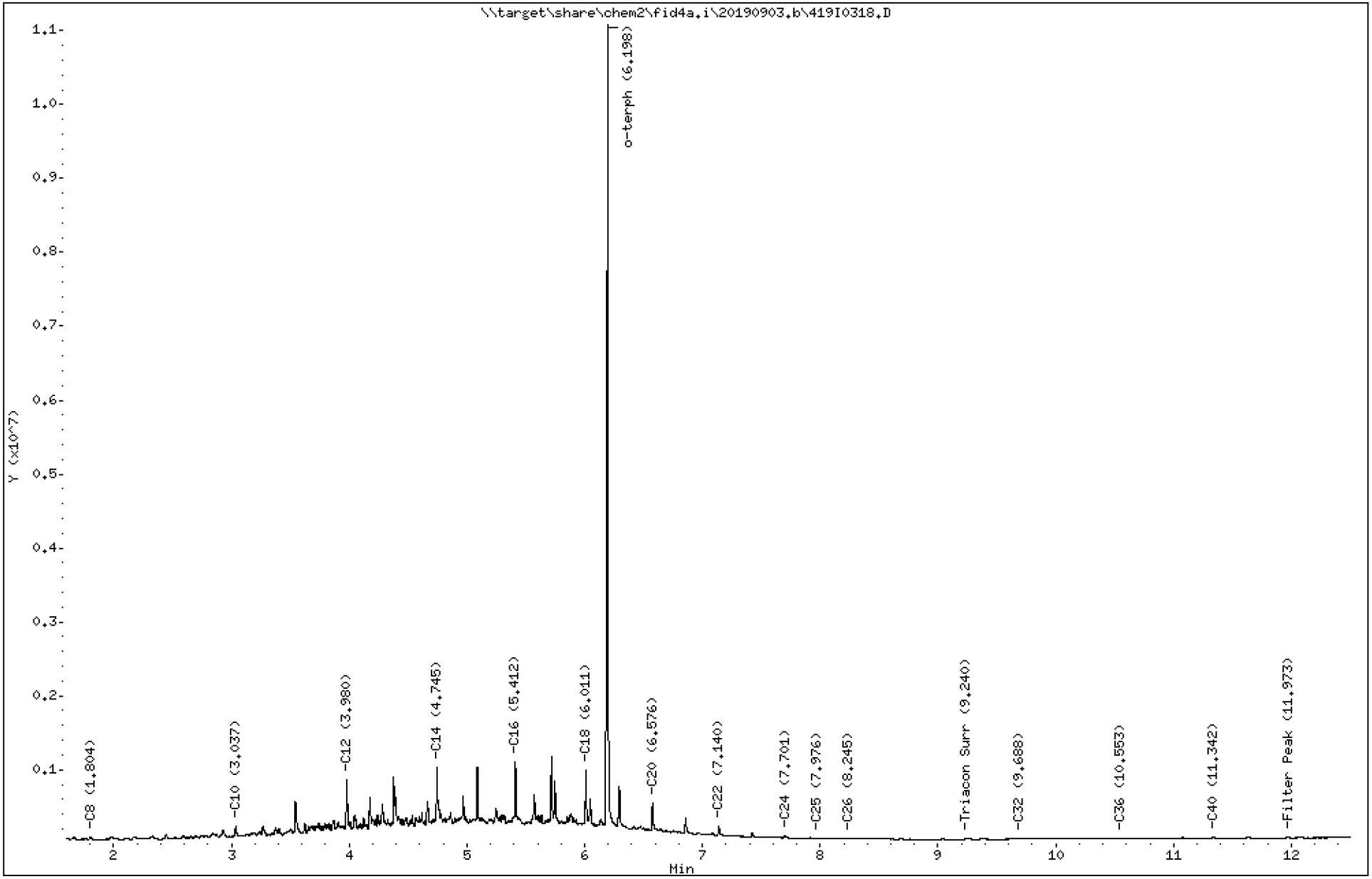
Sample Info: SEQ-CCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0318.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/03/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SEQ-CCV1
Client ID:
Injection: 03-SEP-2019 15:04
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

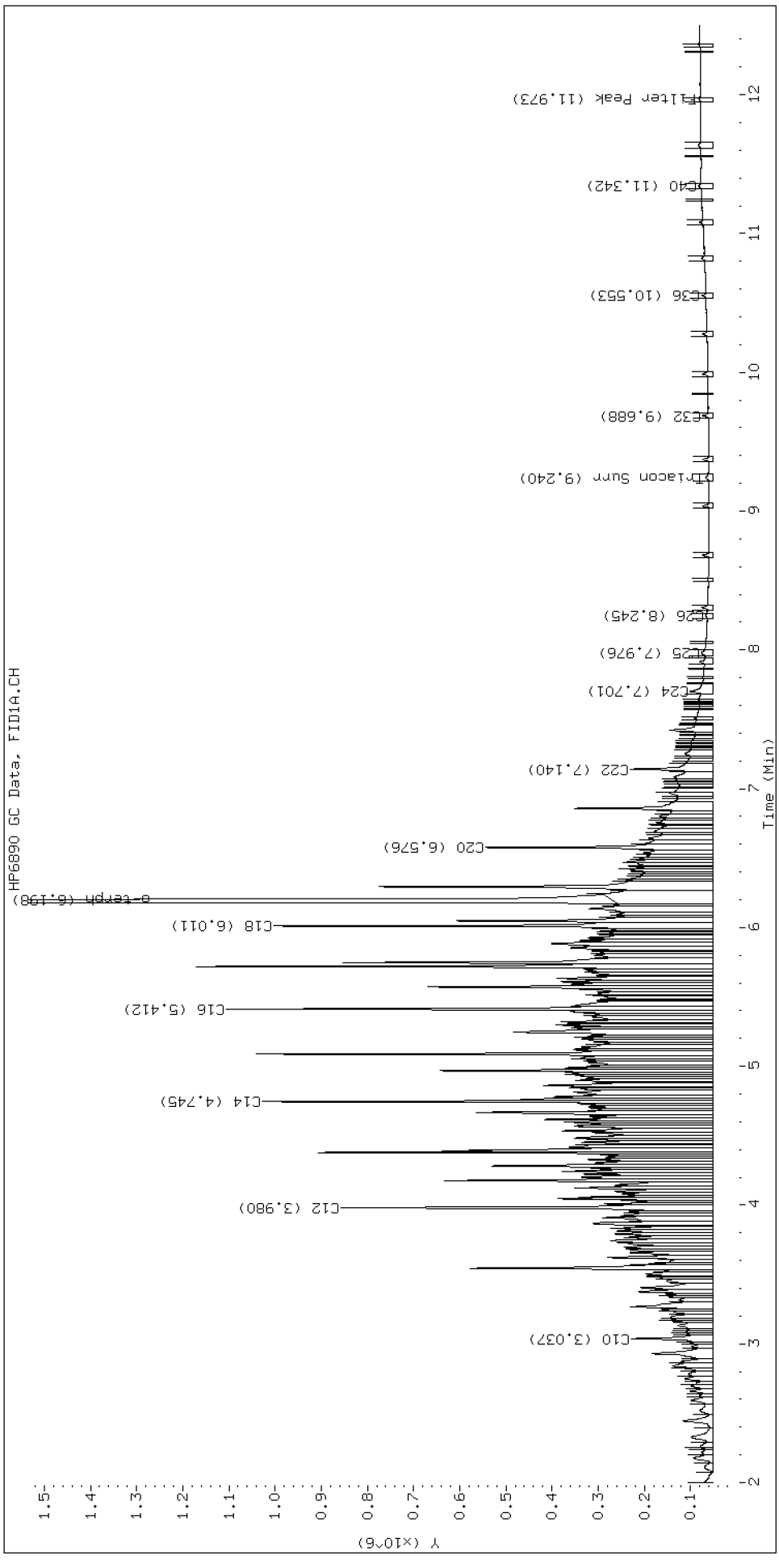
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.804	-0.042	29978	48083	WATPHD	(C12-C24)	45962723	612.3
C10	3.037	-0.010	176221	242659	WATPHM	(C24-C38)	545737	15.0
C12	3.980	-0.006	806445	848500	AK102	(C10-C25)	54526421	598.5
C14	4.745	-0.006	976716	797397	AK103	(C25-C36)	464865	13.2
C16	5.412	-0.005	1054799	1021698	OR.DIES	(C10-C28)	54767800	600.4
C18	6.011	-0.002	951030	1024611				
C20	6.576	-0.003	492810	585776				
C22	7.140	0.000	178401	328583				
C24	7.701	0.010	49728	141630				
C25	7.976	0.014	25825	60586				
C26	8.245	0.019	15749	31422				
C32	9.688	0.010	22010	34792				
C34	----							
Filter Peak	11.973	0.027	30643	43384	BUNKERC	(C10-C38)	55038552	818.1
C36	10.553	0.031	23633	41209				
C38	----							
C40	11.342	0.030	31673	70887				
o-terph	6.198	0.001	10809312	8892908				
Triacon Surr	9.240	0.007	15946	36866	NAS DIES	(C10-C24)	54492815	598.6

Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	8892908	103.6	M
Triacontane	36866	0.7	

M Indicates the peak was manually integrated

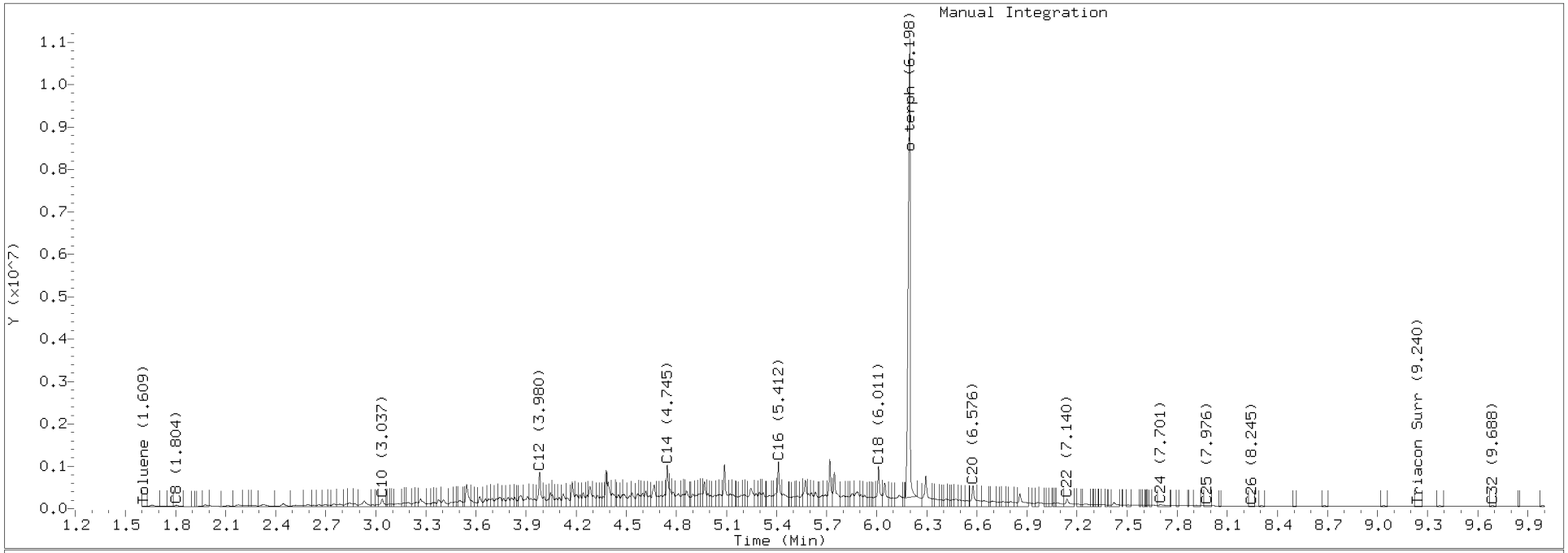
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

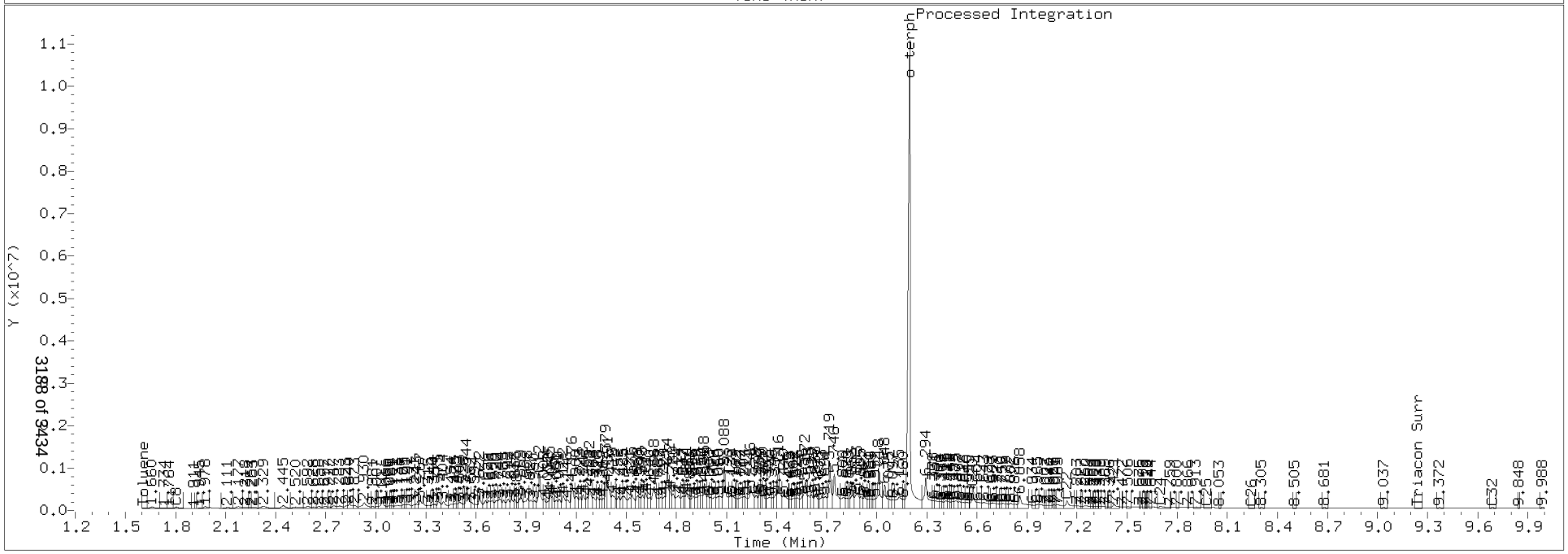

Datafile: FID4A, 20190903.b/419I0318.D SEQ-CCV1
HP6890 GC Data, FID1A.CH
Y (x10^6)
Time (Min)
C10 (3.037)
C12 (3.980)
C14 (4.745)
C16 (5.412)
C18 (6.011)
o-terph (6.198)
C20 (6.576)
C22 (7.140)
C24 (7.701)
C25 (7.976)
C26 (8.245)
Triacon Surr (9.240)
C32 (9.688)
C36 (10.553)
C40 (11.342)
Filter Peak (11.973)

TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0318.D Injection: 03-SEP-2019 15:04

Lab ID:SEQ-CCV1





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0319.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV2	Injection Time:	15:25
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1000	36326.02	36358.42		0.09	15

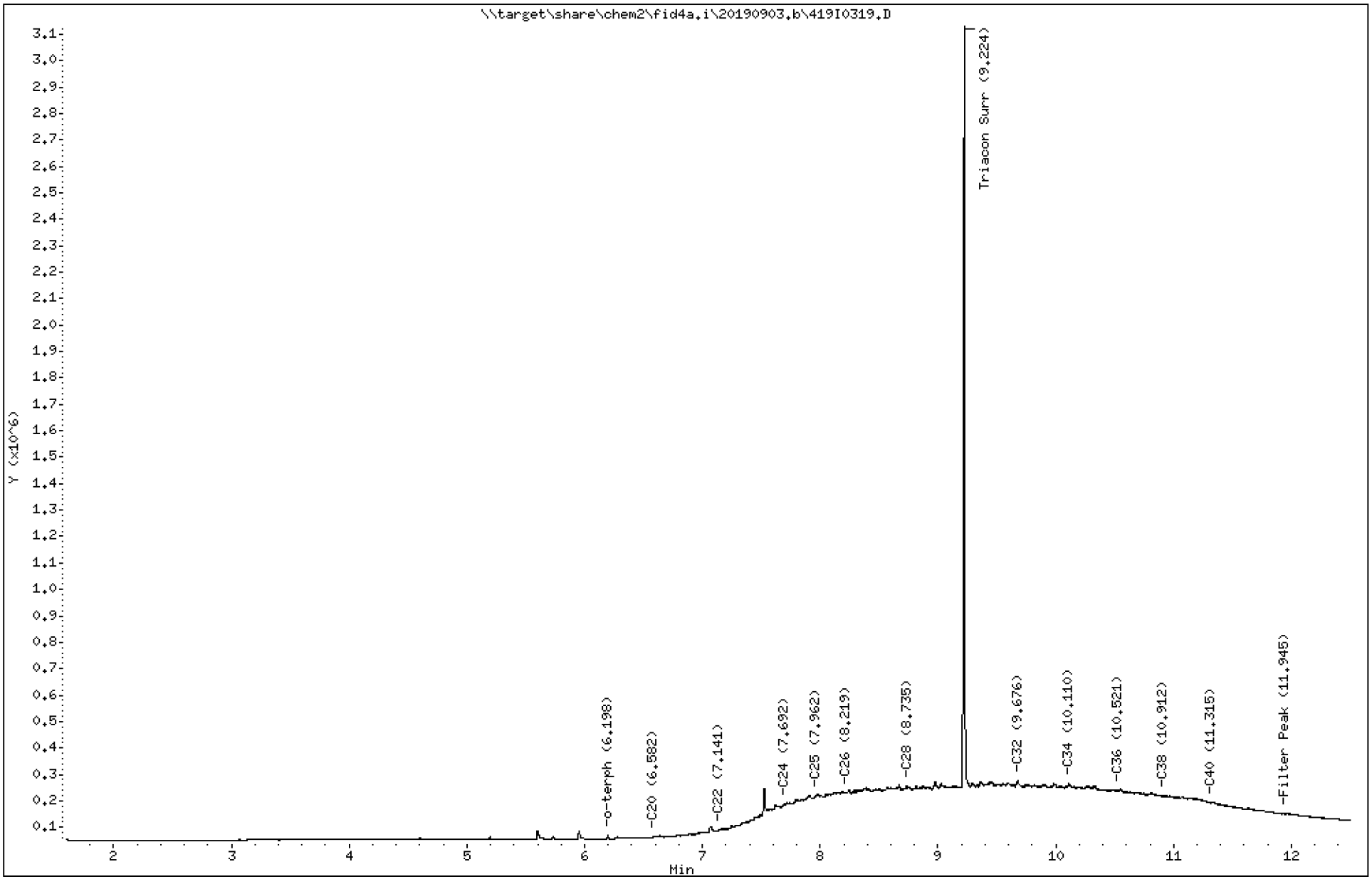
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0319.D
Date : 03-SEP-2019 15:25
Client ID:
Sample Info: SEQ-CCV2

Instrument: fid4a.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0319.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/03/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SEQ-CCV2
Client ID:
Injection: 03-SEP-2019 15:25
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3873529	51.6
C10	----				WATPHM	(C24-C38)	36358417	1000.9
C12	----				AK102	(C10-C25)	5478715	60.1
C14	----				AK103	(C25-C36)	30716616	872.8
C16	----				OR.DIES	(C10-C28)	14943198	163.8
C18	----							
C20	6.582	0.003	13208	16539				
C22	7.141	0.001	40950	43202				
C24	7.692	0.001	136974	127968				
C25	7.962	0.000	169646	208325				
C26	8.219	-0.007	182728	136163				
C28	8.735	-0.002	206613	101365				
C32	9.676	-0.002	226329	316851				
C34	10.110	-0.001	214427	167574				
Filter Peak	11.945	-0.002	101577	50466	BUNKERC	(C10-C38)	40241205	598.1
C36	10.521	-0.001	191324	198909				
C38	10.912	-0.004	168018	66706				
C40	11.315	0.003	142113	42521				
o-terph	6.198	0.001	18382	17778				
Triacon Surr	9.224	-0.009	2867537	2188180	NAS DIES	(C10-C24)	3882788	42.7

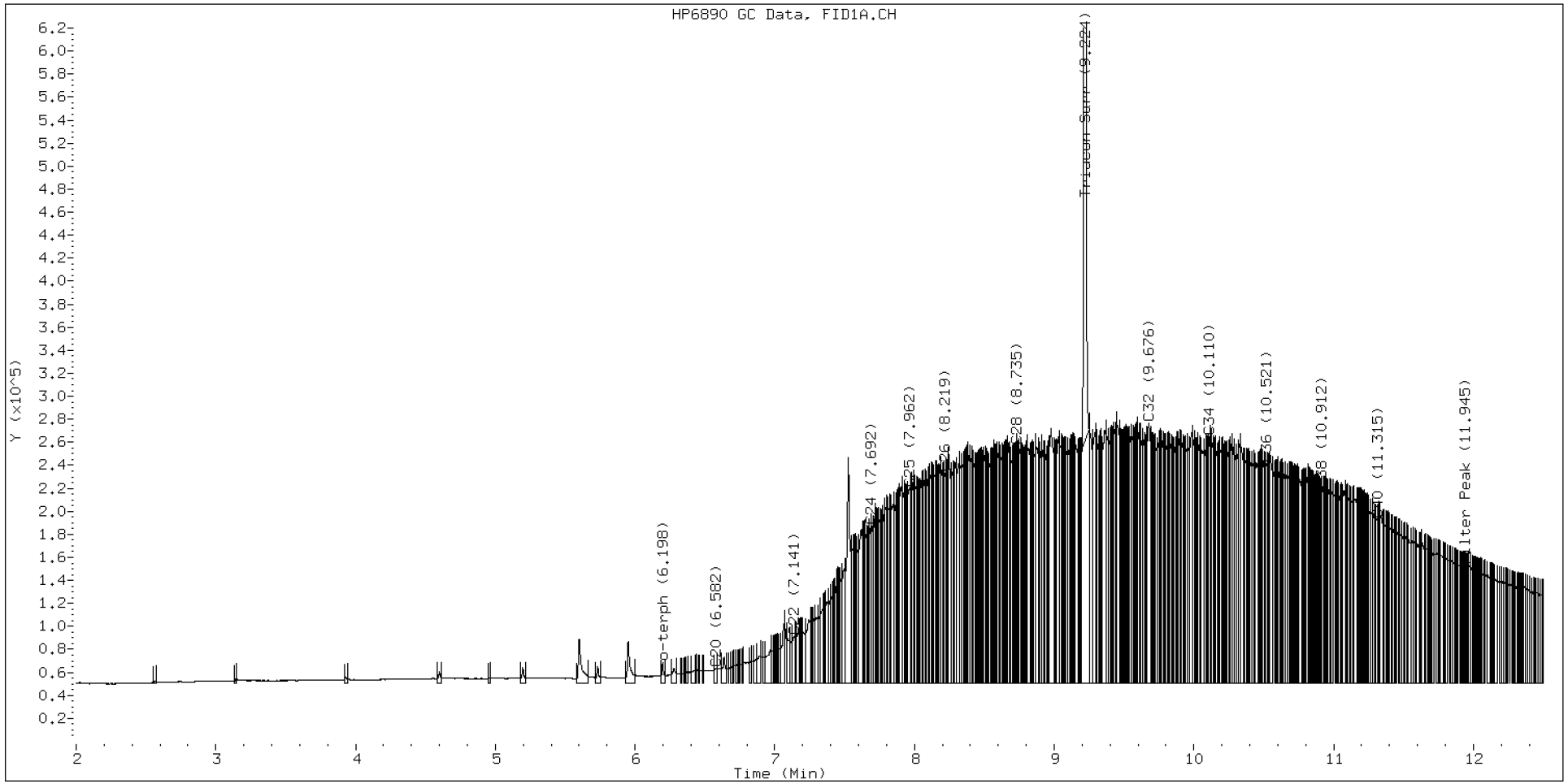
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	17778	0.2	
Triacontane	2188180	41.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

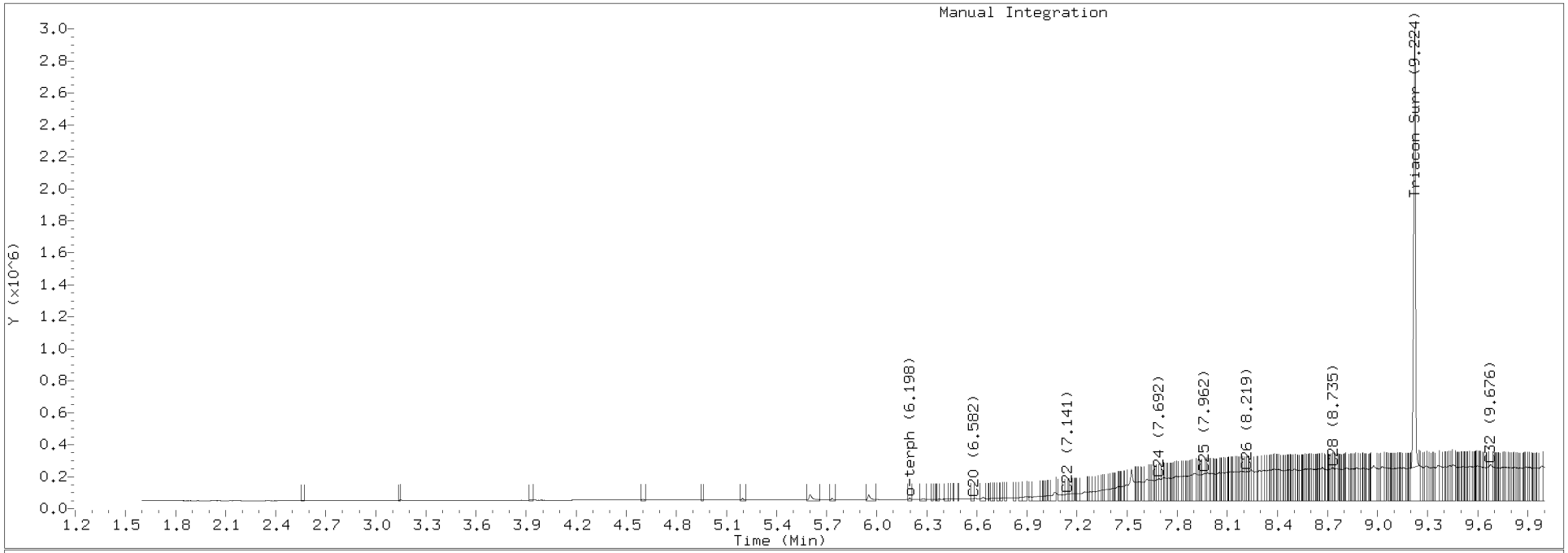
Datafile: FID4A, 20190903.b/419I0319.D SEQ-CCV2

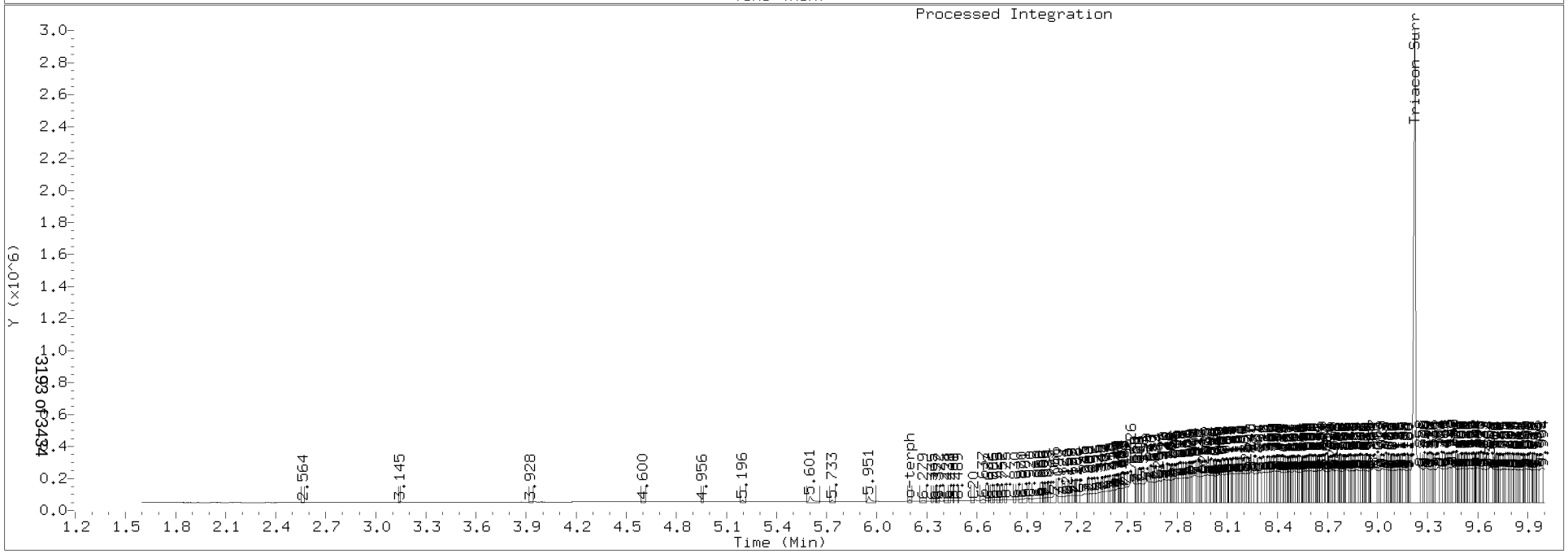


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0319.D Injection: 03-SEP-2019 15:25

Lab ID:SEQ-CCV2





3193 of 3434

CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0331.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV3	Injection Time:	20:07
Sequence Name:	DIESEL CCV		

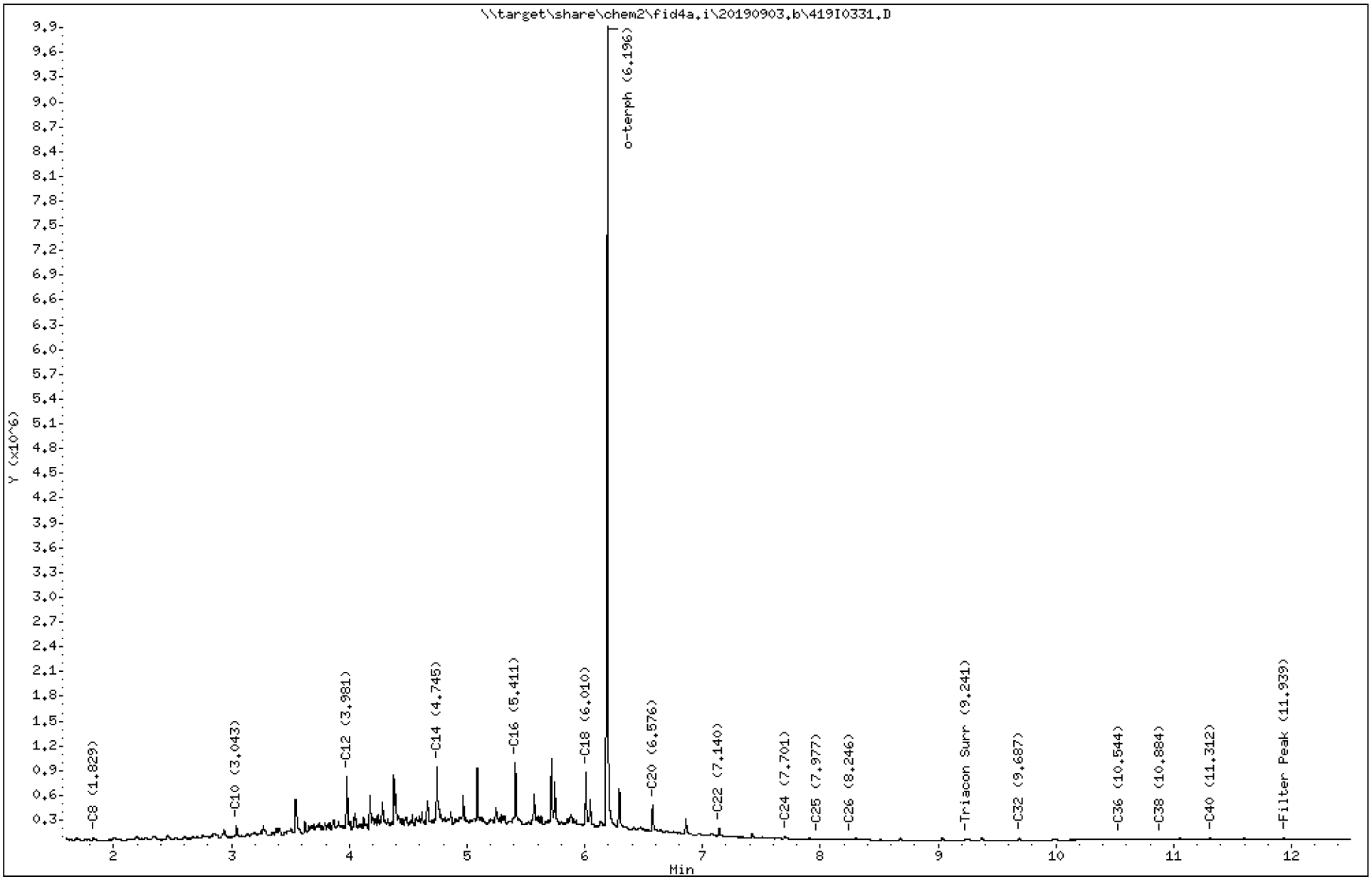
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	561	75070.12	84195.42		12.2	15
o-Terphenyl	A	90.000	92.6	85833.03	88291.02		2.9	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0331.D
Date : 03-SEP-2019 20:07
Client ID:
Sample Info: SHI0028-CCV3

Instrument: fid4a.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0331.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0028-CCV3
Client ID:
Injection: 03-SEP-2019 20:07
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.829	-0.017	28136	45964	WATPHD	(C12-C24)	42097710	560.8
C10	3.043	-0.004	174462	241390	WATPHM	(C24-C38)	516969	14.2
C12	3.981	-0.005	770620	815414	AK102	(C10-C25)	50513035	554.5
C14	4.745	-0.006	888422	739422	AK103	(C25-C36)	392086	11.1
C16	5.411	-0.006	950909	920617	OR.DIES	(C10-C28)	50679601	555.6
C18	6.010	-0.003	830868	845697				
C20	6.576	-0.003	425983	536011				
C22	7.140	-0.000	156392	284490				
C24	7.701	0.010	43100	115793				
C25	7.977	0.015	21699	53036				
C26	8.246	0.020	13118	17408				
C32	9.687	0.009	26469	36087				
C34	----							
Filter Peak	11.939	-0.007	25172	67779	BUNKERC	(C10-C38)	50948066	757.3
C36	10.544	0.022	23273	40295				
C38	10.884	-0.033	13814	4115				
C40	11.312	-0.000	26643	59721				
o-terph	6.196	-0.001	9683818	7946192				
Triacon Surr	9.241	0.008	12455	26323	NAS DIES	(C10-C24)	50431096	554.0

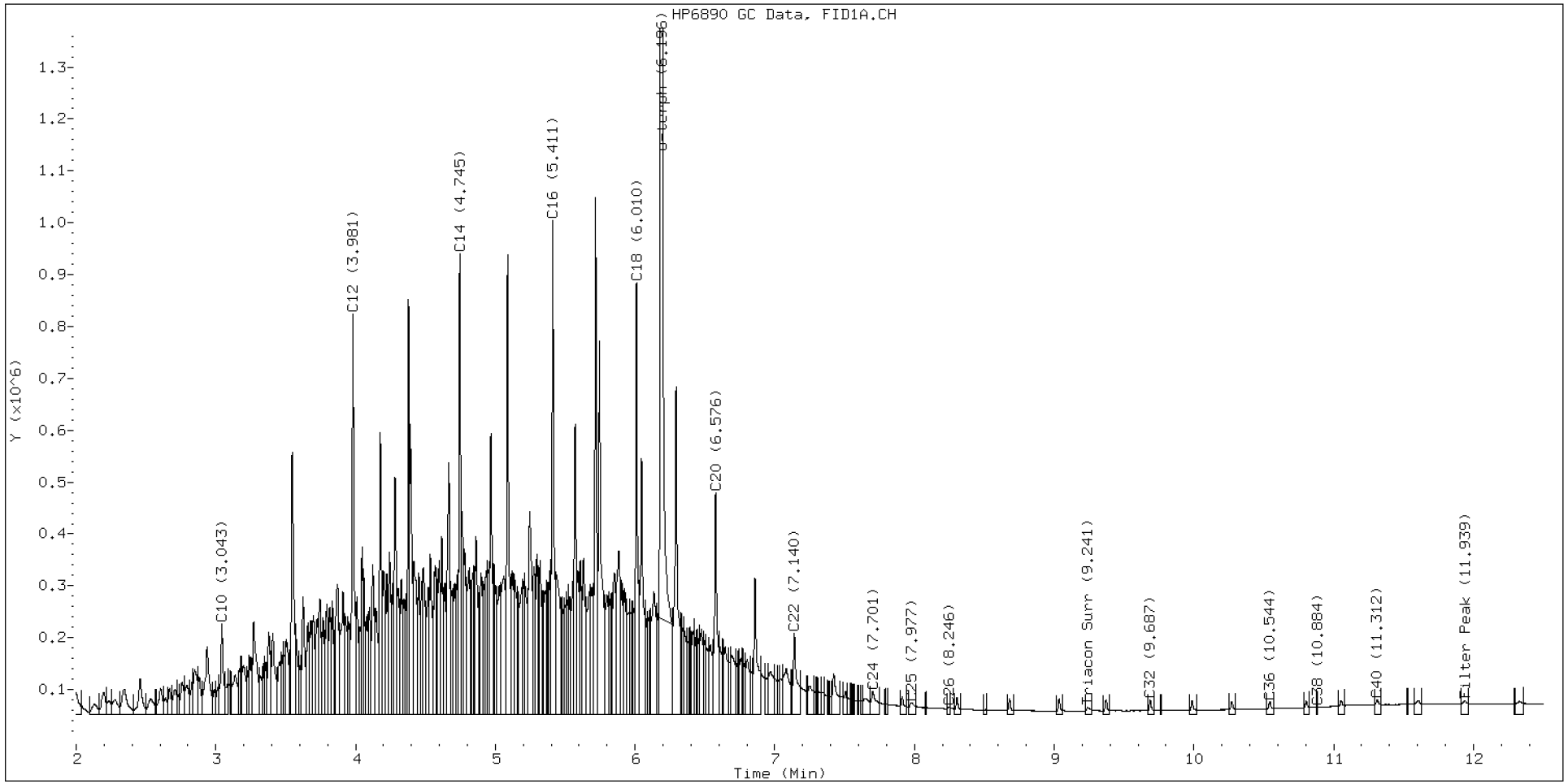
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	7946192	92.6	M
Triacontane	26323	0.5	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

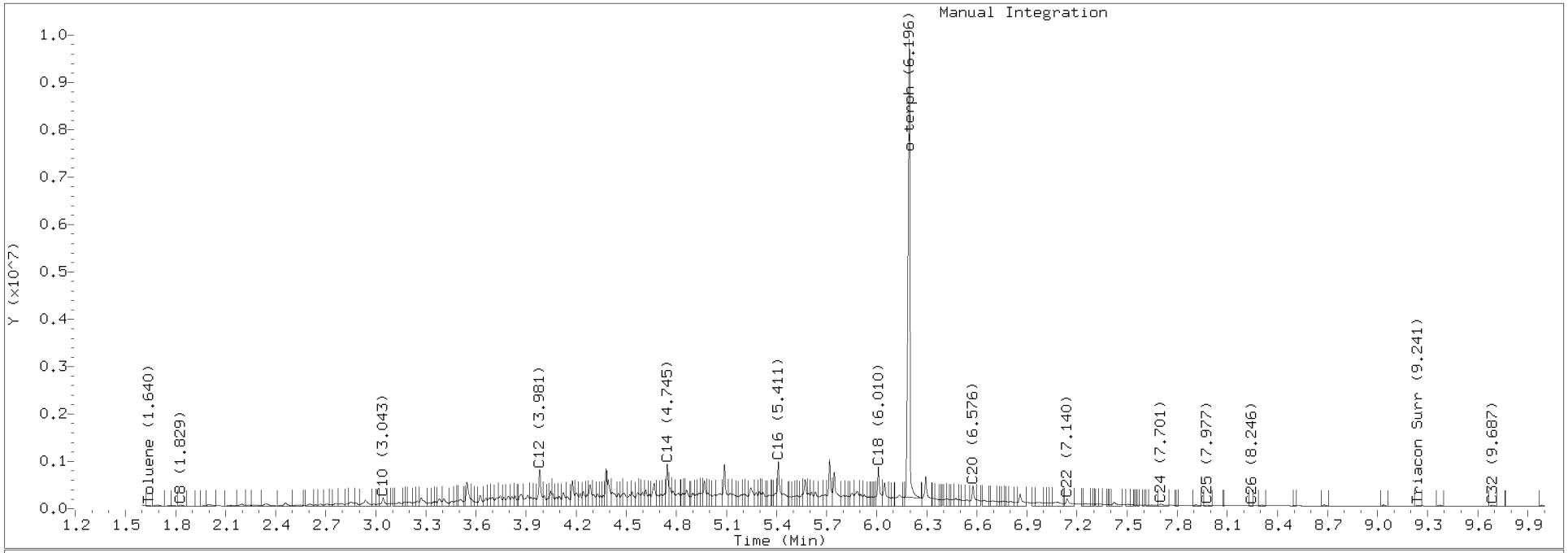
Datafile: FID4A, 20190903.b/419I0331.D SHI0028-CCV3

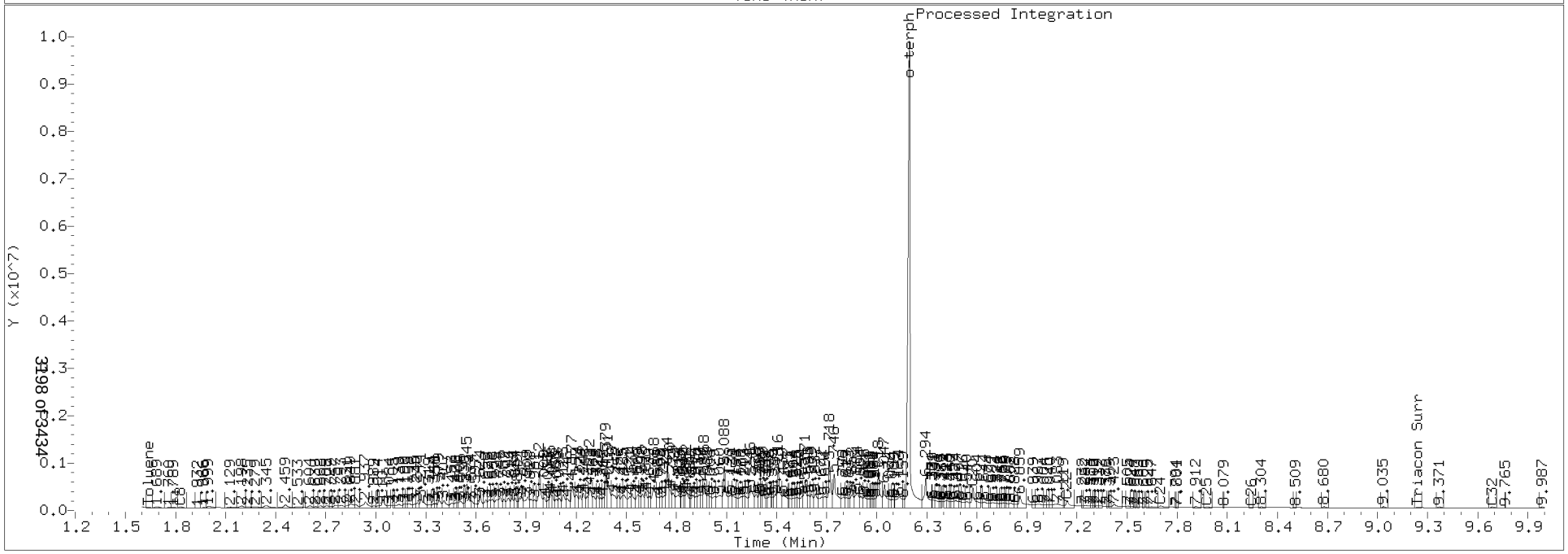


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0331.D Injection: 03-SEP-2019 20:07

Lab ID:SHI0028-CCV3





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0332.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV4	Injection Time:	20:30
Sequence Name:	MOIL CCV		

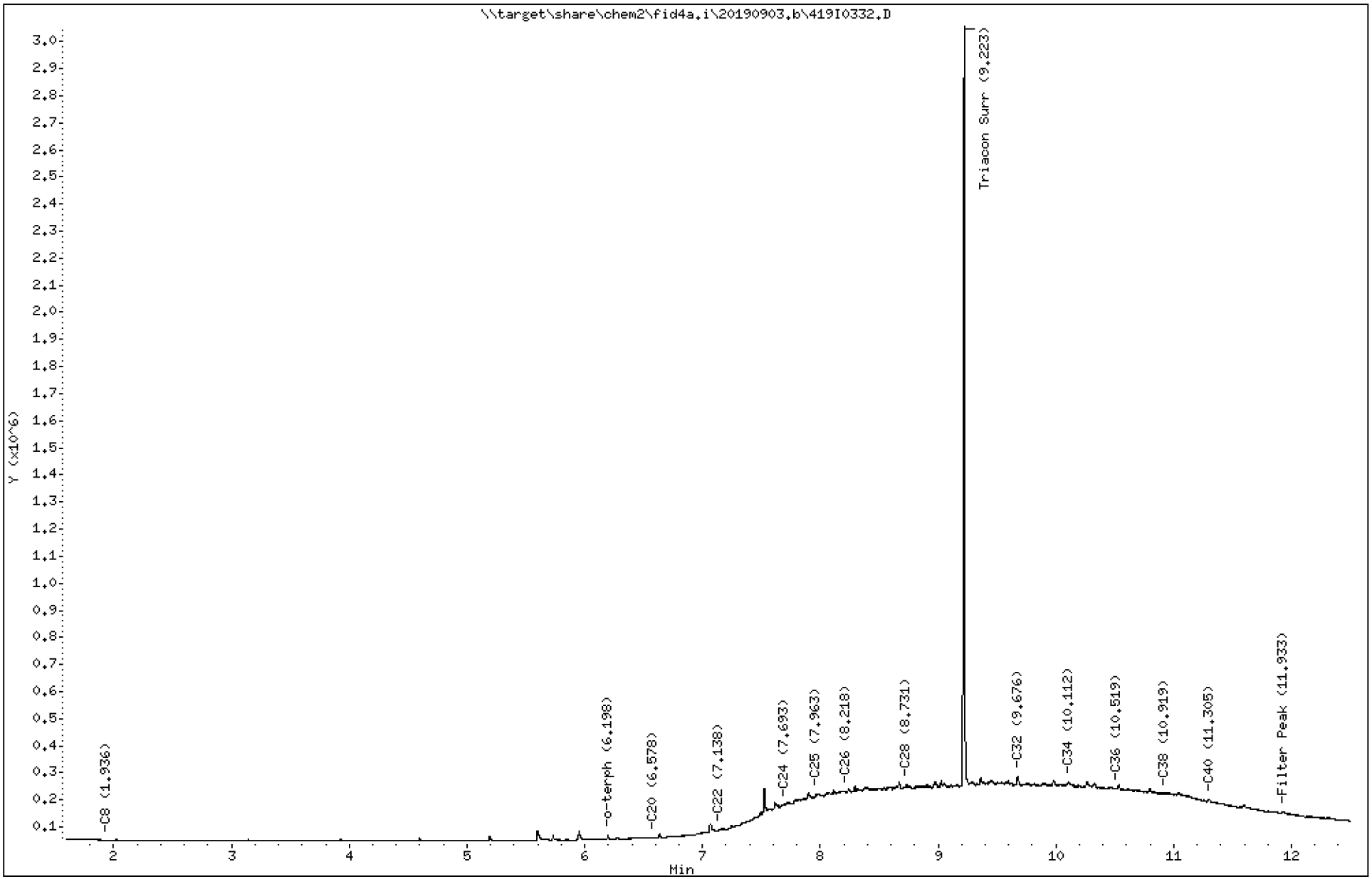
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1000	36326.02	36316.56		-0.03	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0332.D
Date : 03-SEP-2019 20:30
Client ID:
Sample Info: SHI0028-CCV4

Instrument: fid4a.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0332.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0028-CCV4
Client ID:
Injection: 03-SEP-2019 20:30
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.936	0.091	1950	1325	WATPHD	(C12-C24)	3731697	49.7
C10	----				WATPHM	(C24-C38)	36316557	999.7
C12	----				AK102	(C10-C25)	5274397	57.9
C14	----				AK103	(C25-C36)	30738971	873.5
C16	----				OR.DIES	(C10-C28)	14383382	157.7
C18	----							
C20	6.578	-0.002	10727	8926				
C22	7.138	-0.002	39415	41628				
C24	7.693	0.001	132999	39821				
C25	7.963	0.001	169120	140712				
C26	8.218	-0.008	180622	107087				
C28	8.731	-0.006	208472	252594				
C32	9.676	-0.002	237751	490949				
C34	10.112	0.001	215302	137956				
Filter Peak	11.933	-0.014	104952	93560	BUNKERC	(C10-C38)	40053487	595.3
C36	10.519	-0.003	192095	76397				
C38	10.919	0.003	172753	51564				
C40	11.305	-0.007	152530	175911				
o-terph	6.198	0.001	21367	18685				
Triacon Surr	9.223	-0.010	2803281	2179720	NAS DIES	(C10-C24)	3736930	41.0

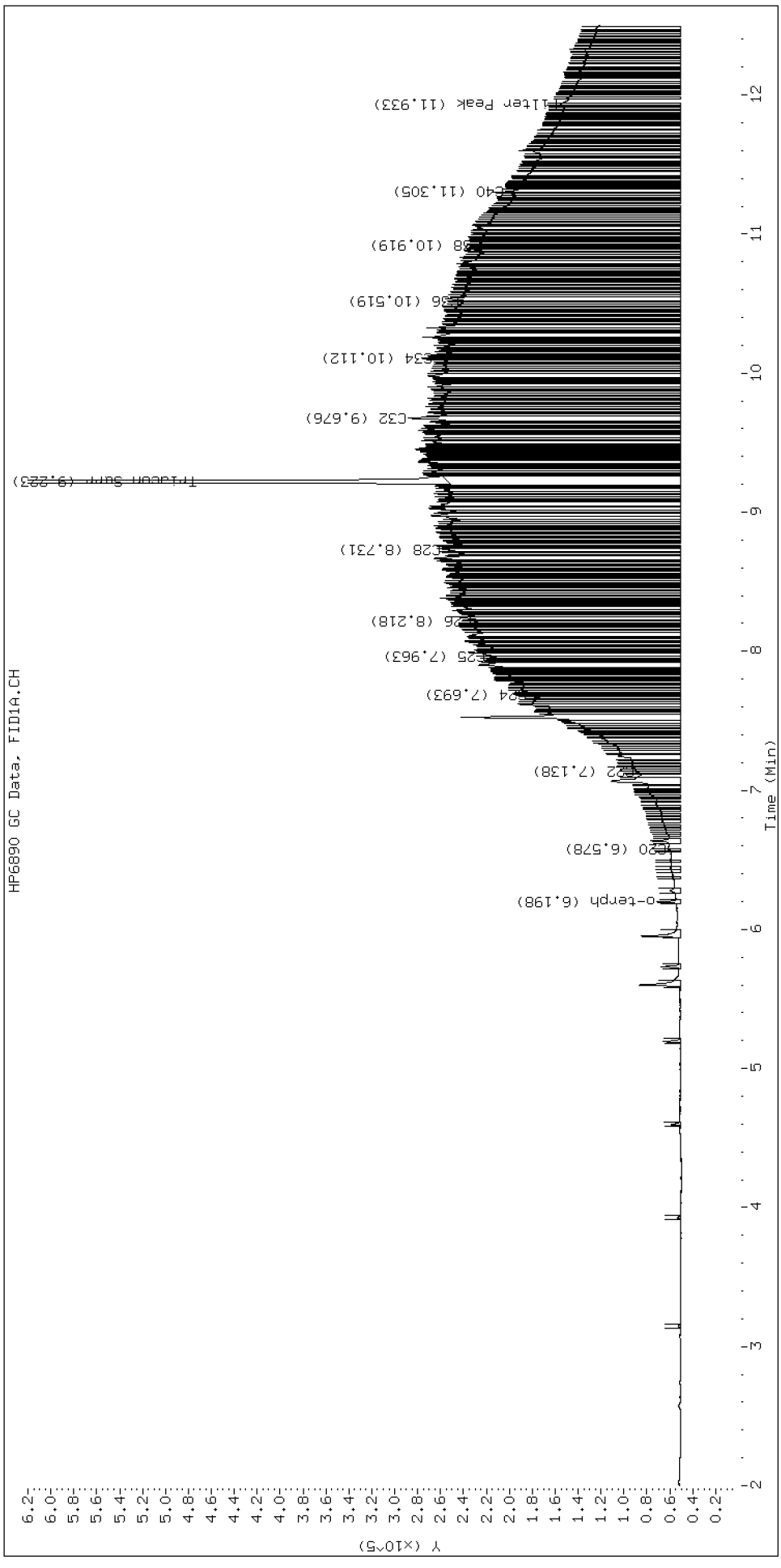
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	18685	0.2	
Triacontane	2179720	41.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

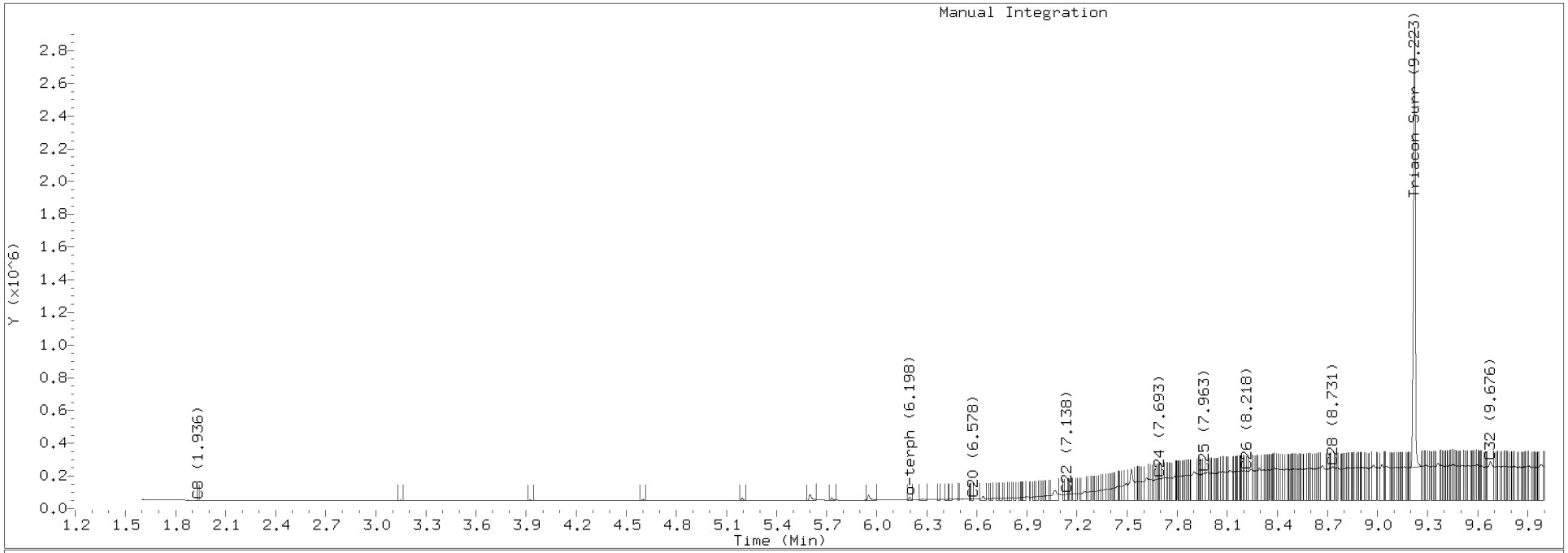
Datafile: FID4A, 20190903.b/419I0332.D SHI0028-CCV4

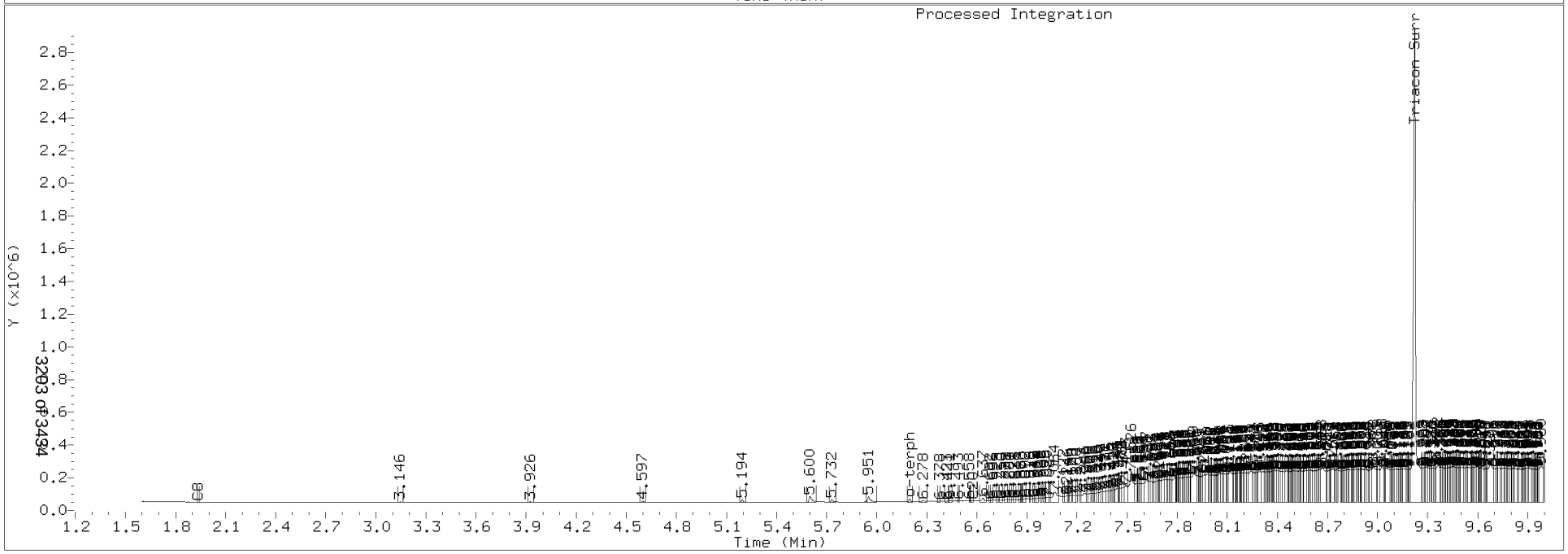


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0332.D Injection: 03-SEP-2019 20:30

Lab ID:SHI0028-CCV4





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0341.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV5	Injection Time:	23:38
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	512	75070.12	76931.36		2.5	15
o-Terphenyl	A	90.000	84.3	85833.03	80435.01		-6.3	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0341.D

Date : 03-SEP-2019 23:38

Client ID:

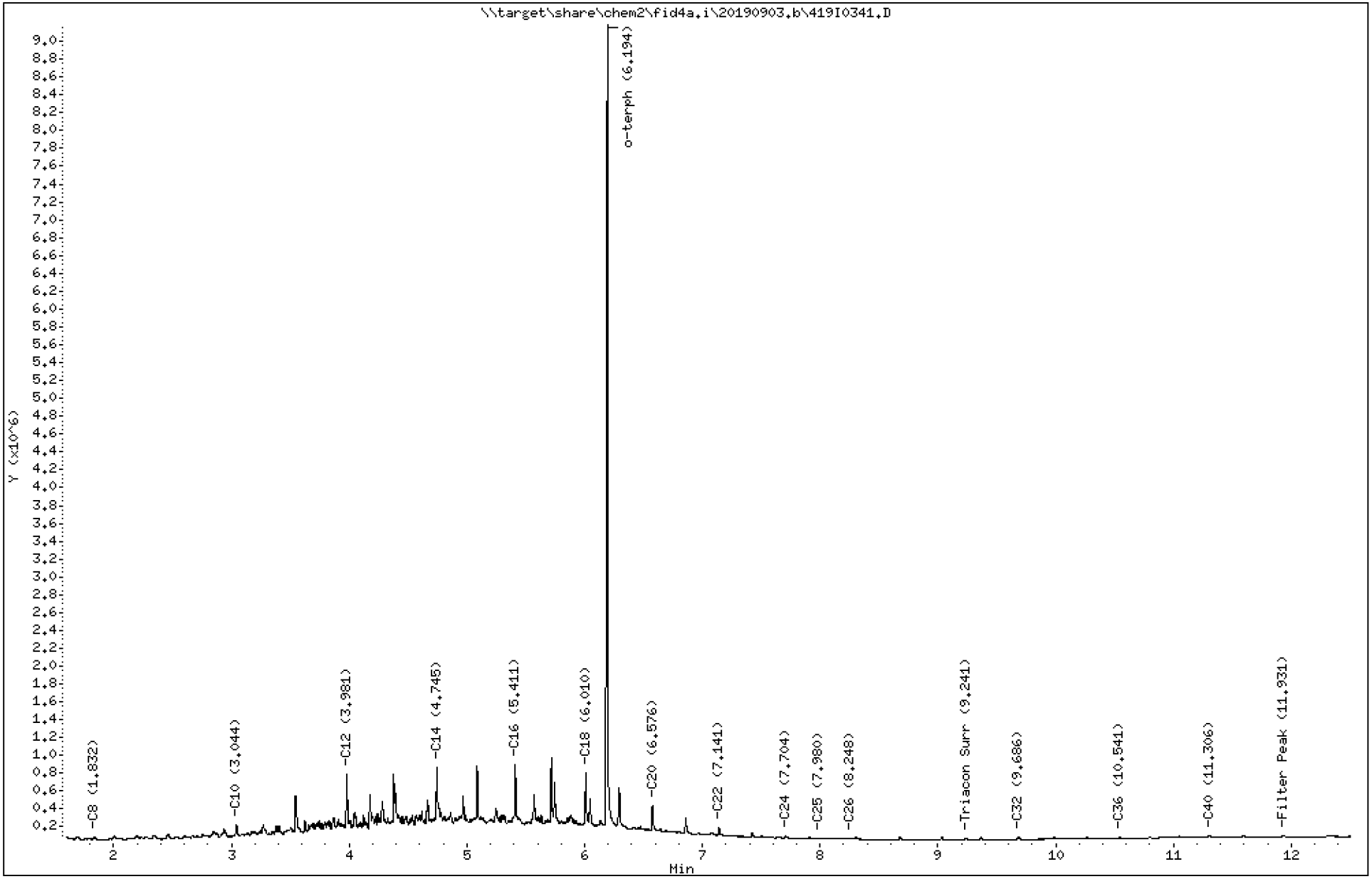
Sample Info: SHI0028-CCV5

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0341.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0028-CCV5
Client ID:
Injection: 03-SEP-2019 23:38
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.832	-0.013	25081	45817	WATPHD	(C12-C24)	38465681	512.4
C10	3.044	-0.003	165088	255185	WATPHM	(C24-C38)	499767	13.8
C12	3.981	-0.005	737930	775912	AK102	(C10-C25)	46577895	511.3
C14	4.745	-0.006	814146	735652	AK103	(C25-C36)	352872	10.0
C16	5.411	-0.006	845874	839233	OR.DIES	(C10-C28)	46703051	512.0
C18	6.010	-0.004	743359	787583				
C20	6.576	-0.003	386463	488434				
C22	7.141	0.001	138032	307008				
C24	7.704	0.013	39251	89598				
C25	7.980	0.018	19505	42182				
C26	8.248	0.022	10769	15638				
C32	9.686	0.008	25644	31396				
C34	----							
Filter Peak	11.931	-0.015	42786	131405	BUNKERC	(C10-C38)	47026207	699.0
C36	10.541	0.019	29994	46711				
C38	----							
C40	11.306	-0.006	43169	107257				
o-terph	6.194	-0.003	8968883	7239151				
Triacon Surr	9.241	0.009	10691	24849	NAS DIES	(C10-C24)	46526440	511.1

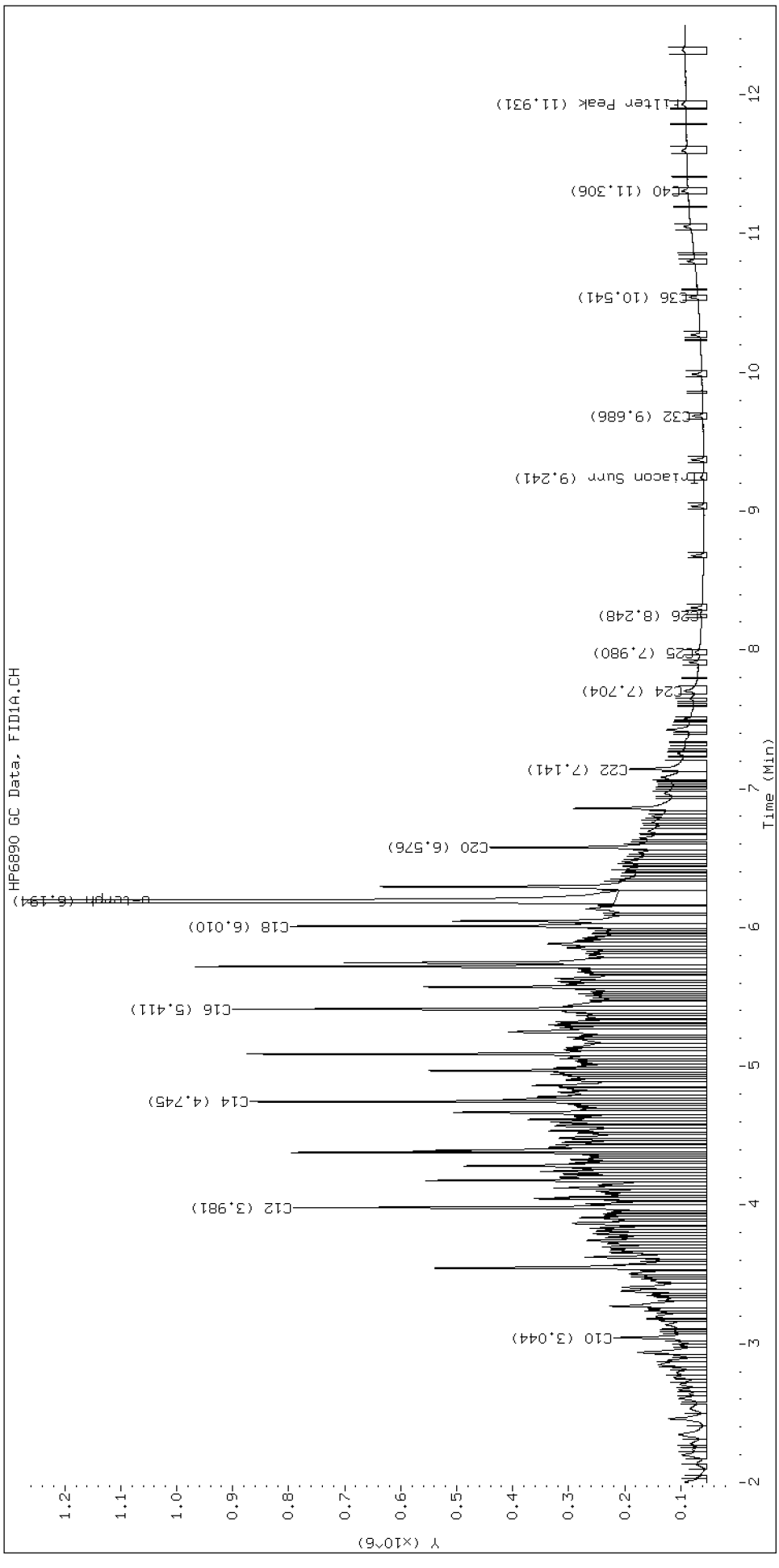
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	7239151	84.3	M
Triacontane	24849	0.5	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

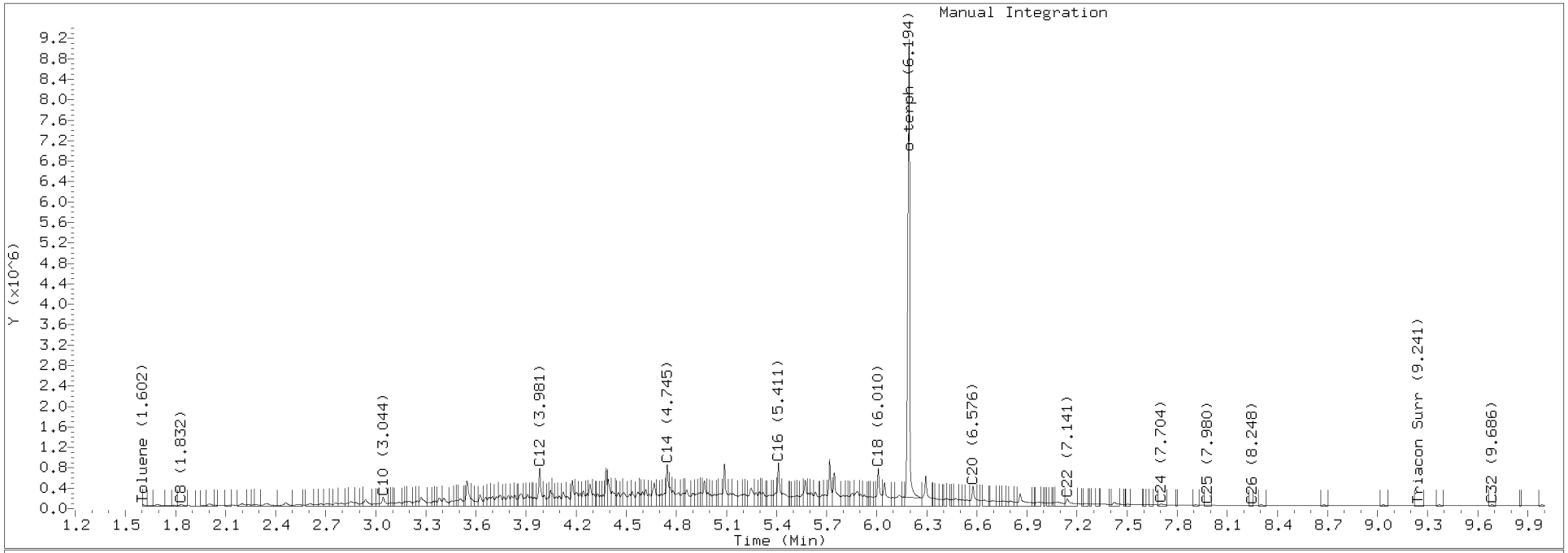
Datafile: FID4A, 20190903.b/419I0341.D SHI0028-CCV5

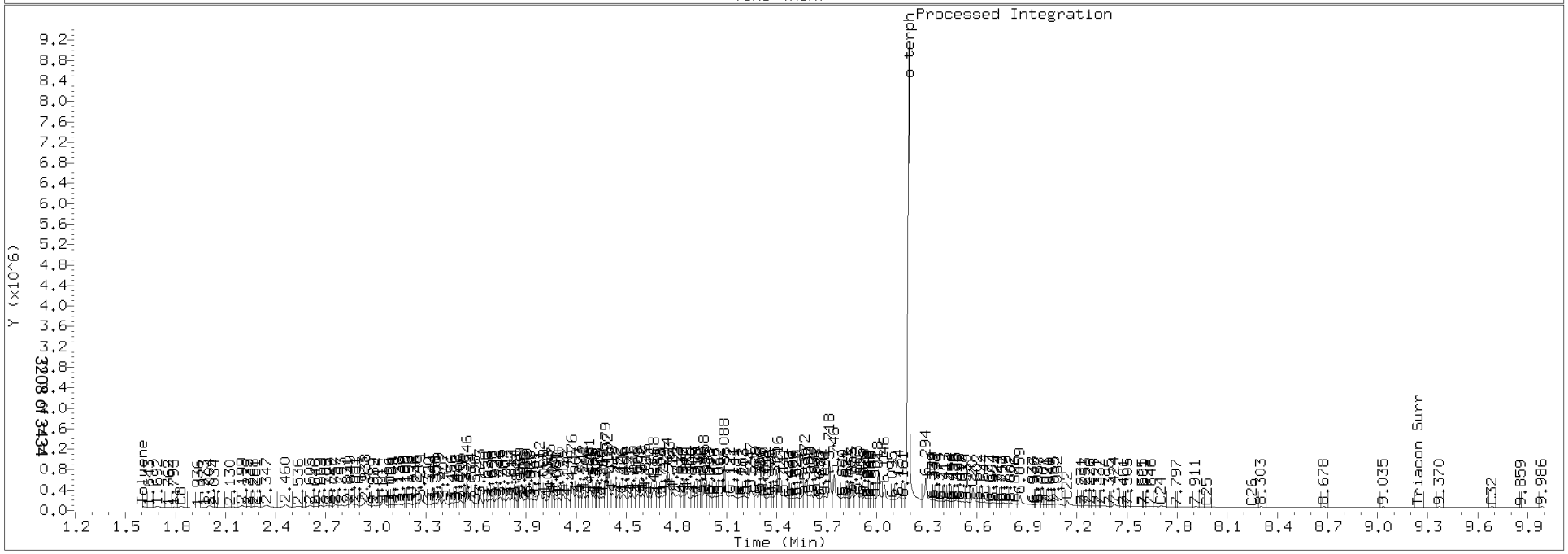


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0341.D Injection: 03-SEP-2019 23:38

Lab ID:SHI0028-CCV5





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0342.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0028	Injection Date:	09/03/19
Lab Sample ID:	SHI0028-CCV6	Injection Time:	23:59
Sequence Name:	MOIL_CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	938	36326.02	34076.45		-6.2	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190903.b\419I0342.D

Date : 03-SEP-2019 23:59

Client ID:

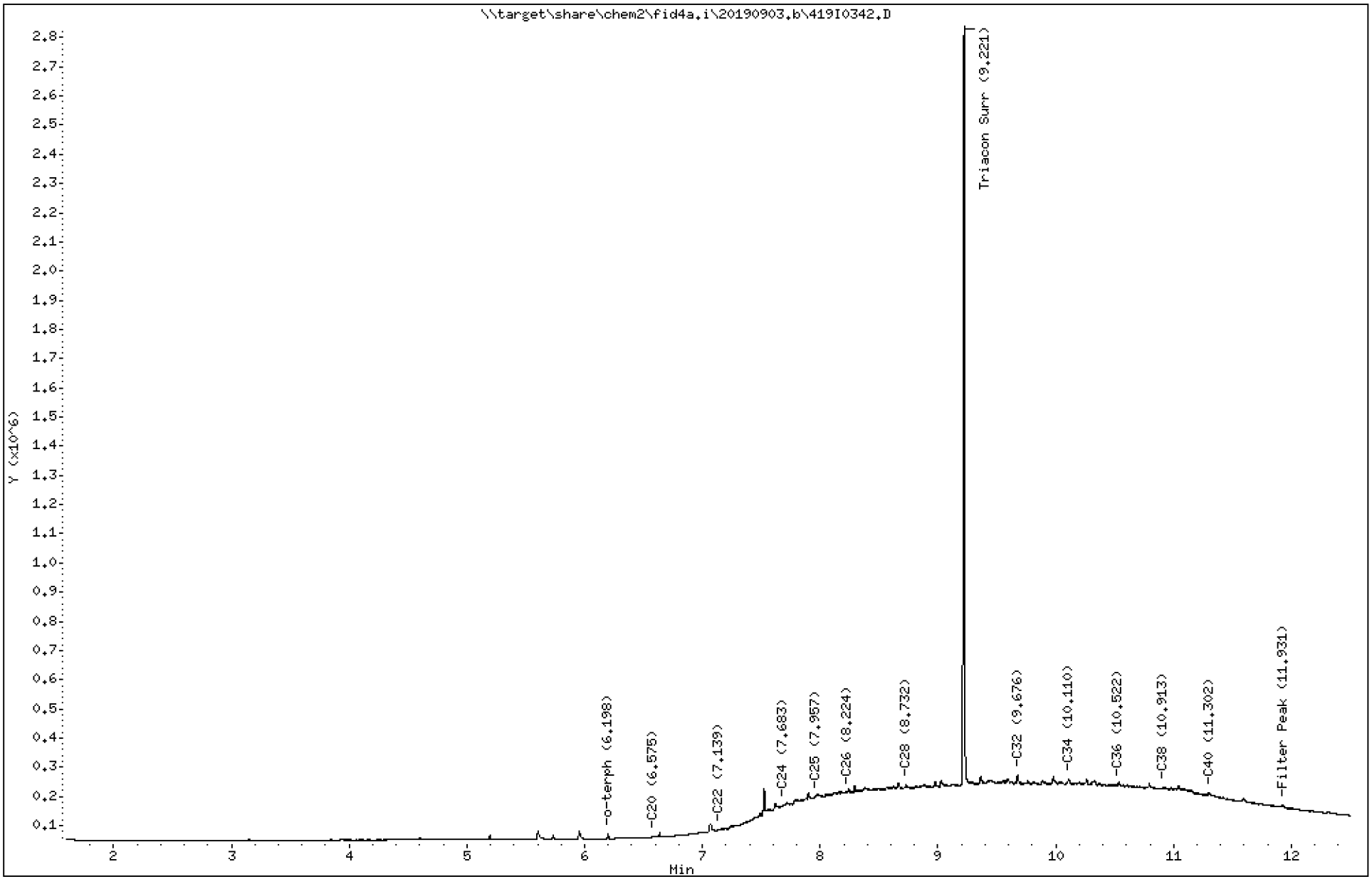
Sample Info: SHI0028-CCV6

Instrument: fid4a.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190903.b/419I0342.D
Method: 20190903.b\FID4TPH.m
Instrument: fid4a.i, JGR
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0028-CCV6
Client ID:
Injection: 03-SEP-2019 23:59
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3196999	42.6
C10	----				WATPHM	(C24-C38)	34076451	938.1
C12	----				AK102	(C10-C25)	4656140	51.1
C14	----				AK103	(C25-C36)	28257733	802.9
C16	----				OR.DIES	(C10-C28)	12847956	140.8
C18	----							
C20	6.575	-0.005	11388	8497				
C22	7.139	-0.001	36837	24957				
C24	7.683	-0.008	121076	77481				
C25	7.957	-0.005	150593	67508				
C26	8.224	-0.002	162348	48562				
C28	8.732	-0.005	190469	195574				
C32	9.676	-0.002	222757	365321				
C34	10.110	-0.001	208088	314943				
Filter Peak	11.931	-0.016	118668	260859	BUNKERC	(C10-C38)	37279600	554.1
C36	10.522	0.000	188704	56333				
C38	10.913	-0.003	179478	141878				
C40	11.302	-0.010	163418	346691				
o-terph	6.198	0.001	21395	19702				
Triacon Surr	9.221	-0.011	2596123	1980844	NAS DIES	(C10-C24)	3203149	35.2

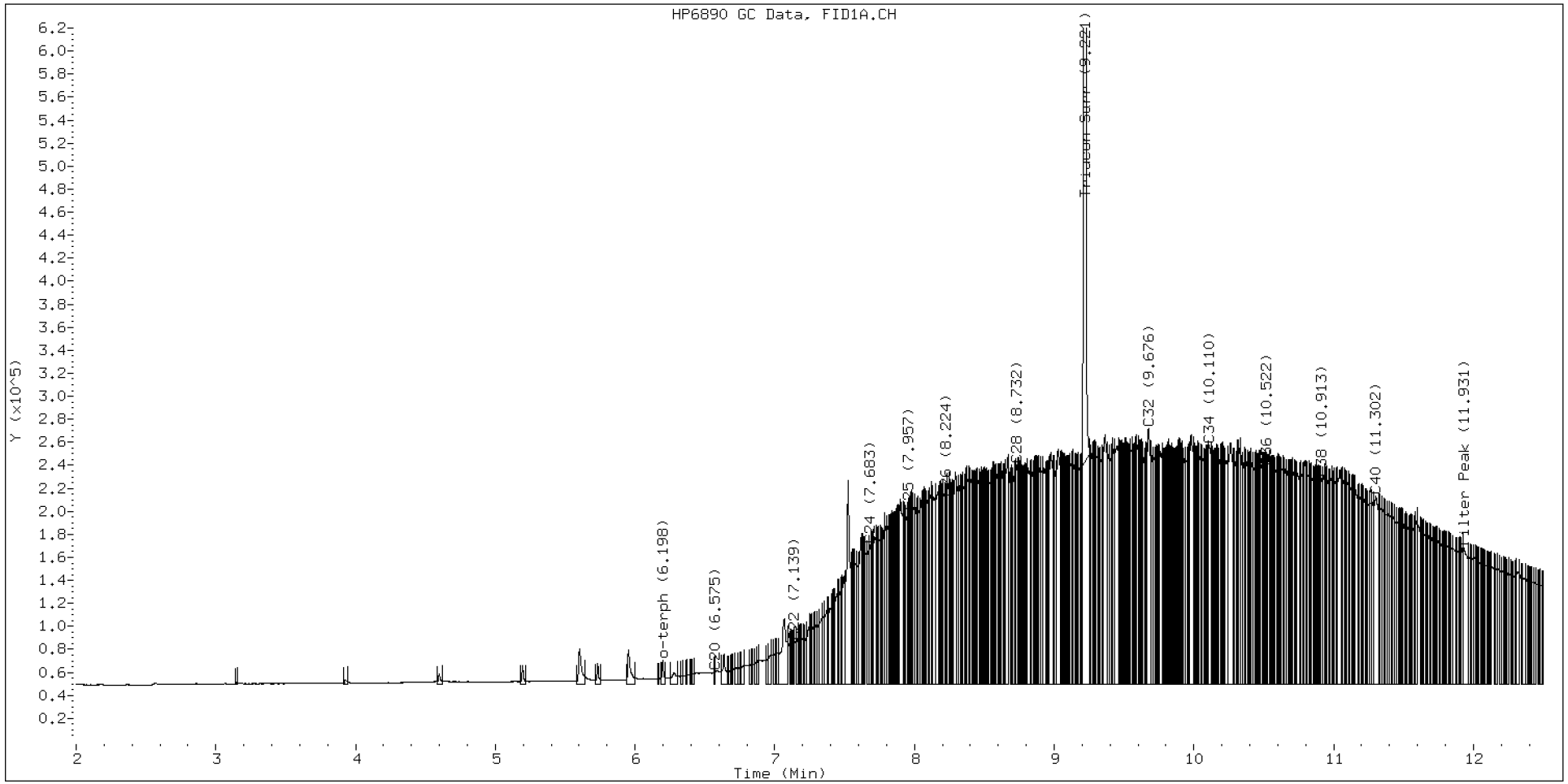
Range Times: NW Diesel(3.986 - 7.691) AK102(3.05 - 7.96) Jet A(3.05 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.05 - 8.74)

Surrogate	Area	Amount	
o-Terphenyl	19702	0.2	
Triacontane	1980844	37.8	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

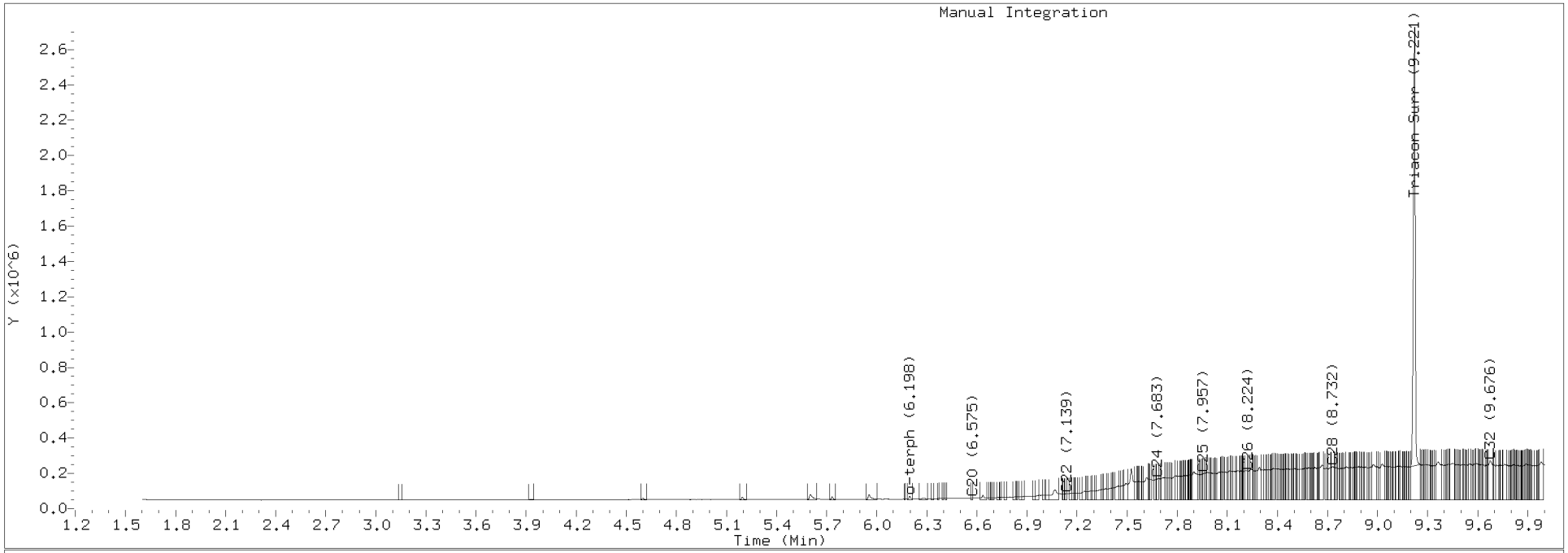
Datafile: FID4A, 20190903.b/419I0342.D SHI0028-CCV6

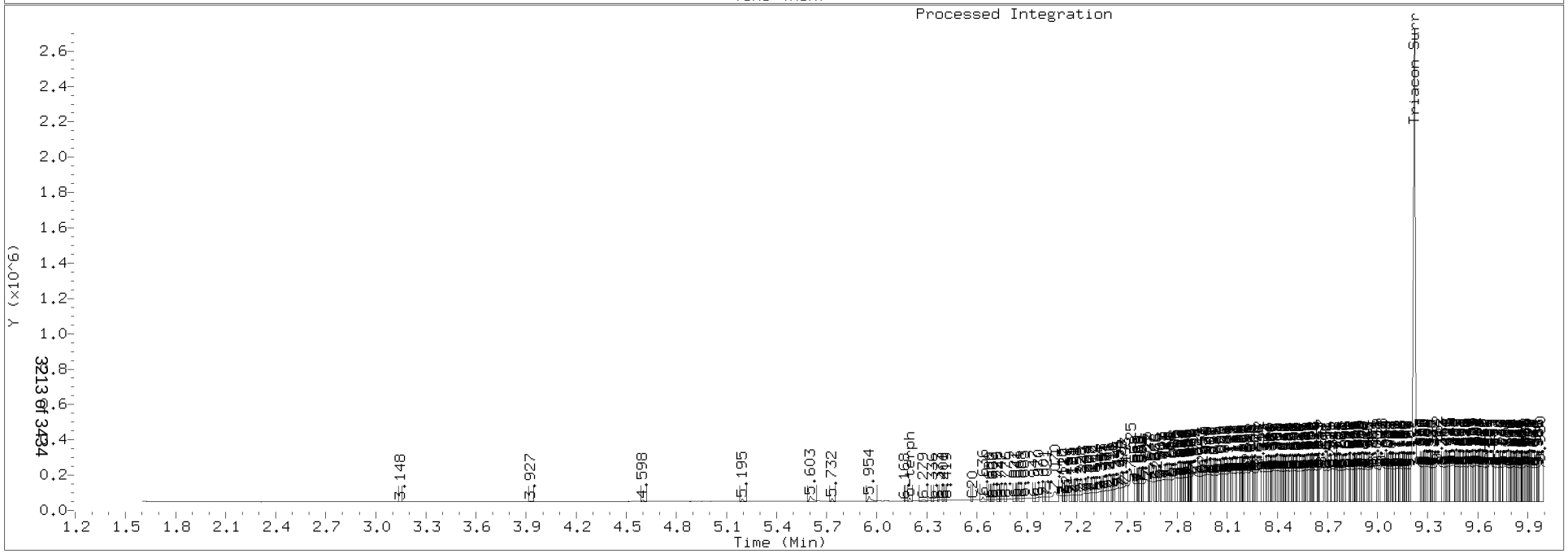


TPH Manual Integrations Report

Datafile: FID4A, 20190903.b/419I0342.D Injection: 03-SEP-2019 23:59

Lab ID:SHI0028-CCV6





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0414.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV1	Injection Time:	13:31
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	509	75070.12	76436.24		1.8	15
o-Terphenyl	A	90.000	84.2	85833.03	80342.24		-6.4	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0414.D

Date : 04-SEP-2019 13:31

Client ID:

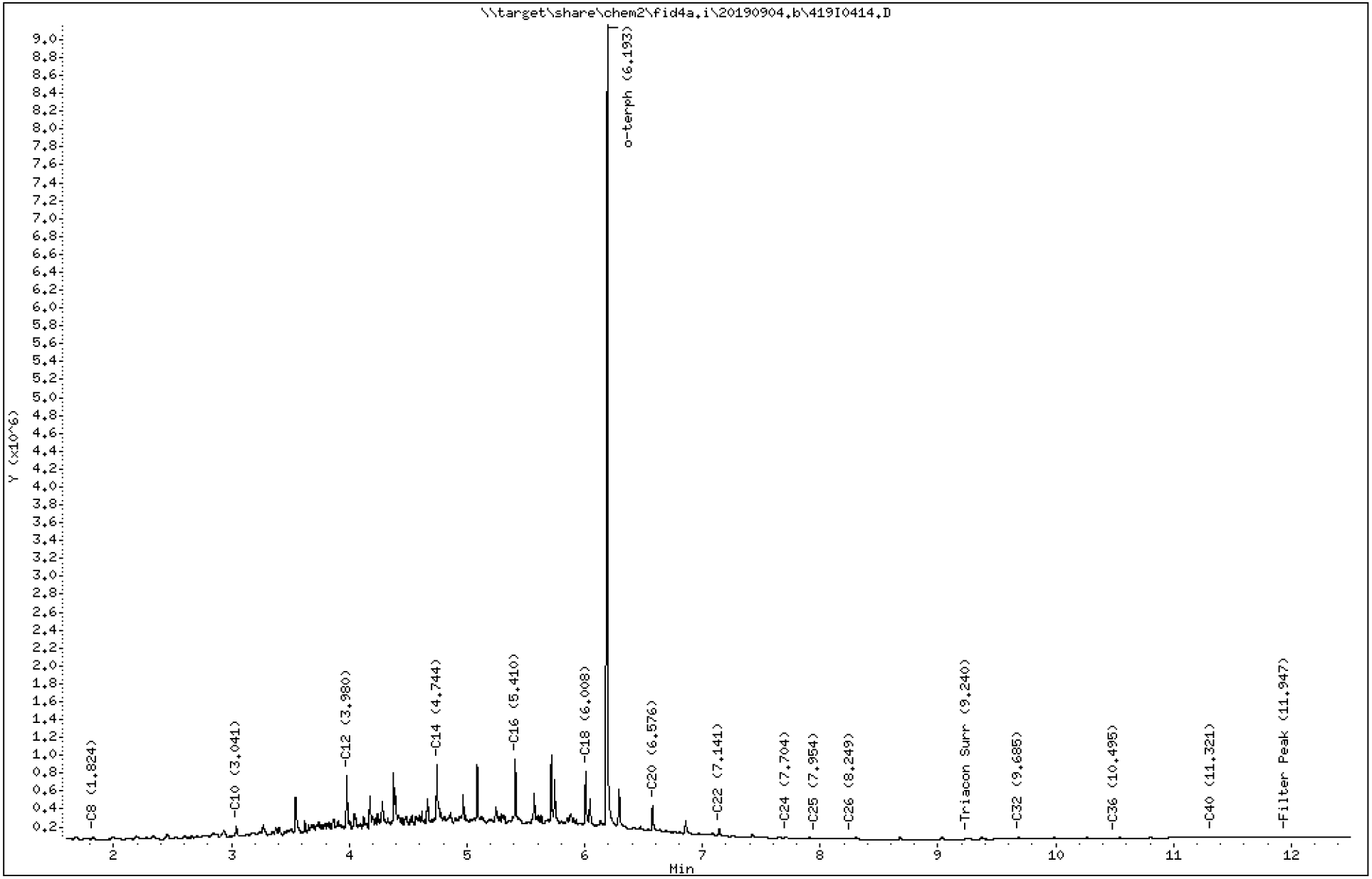
Sample Info: SHI0031-CCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0414.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV1
Client ID:
Injection: 04-SEP-2019 13:31
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

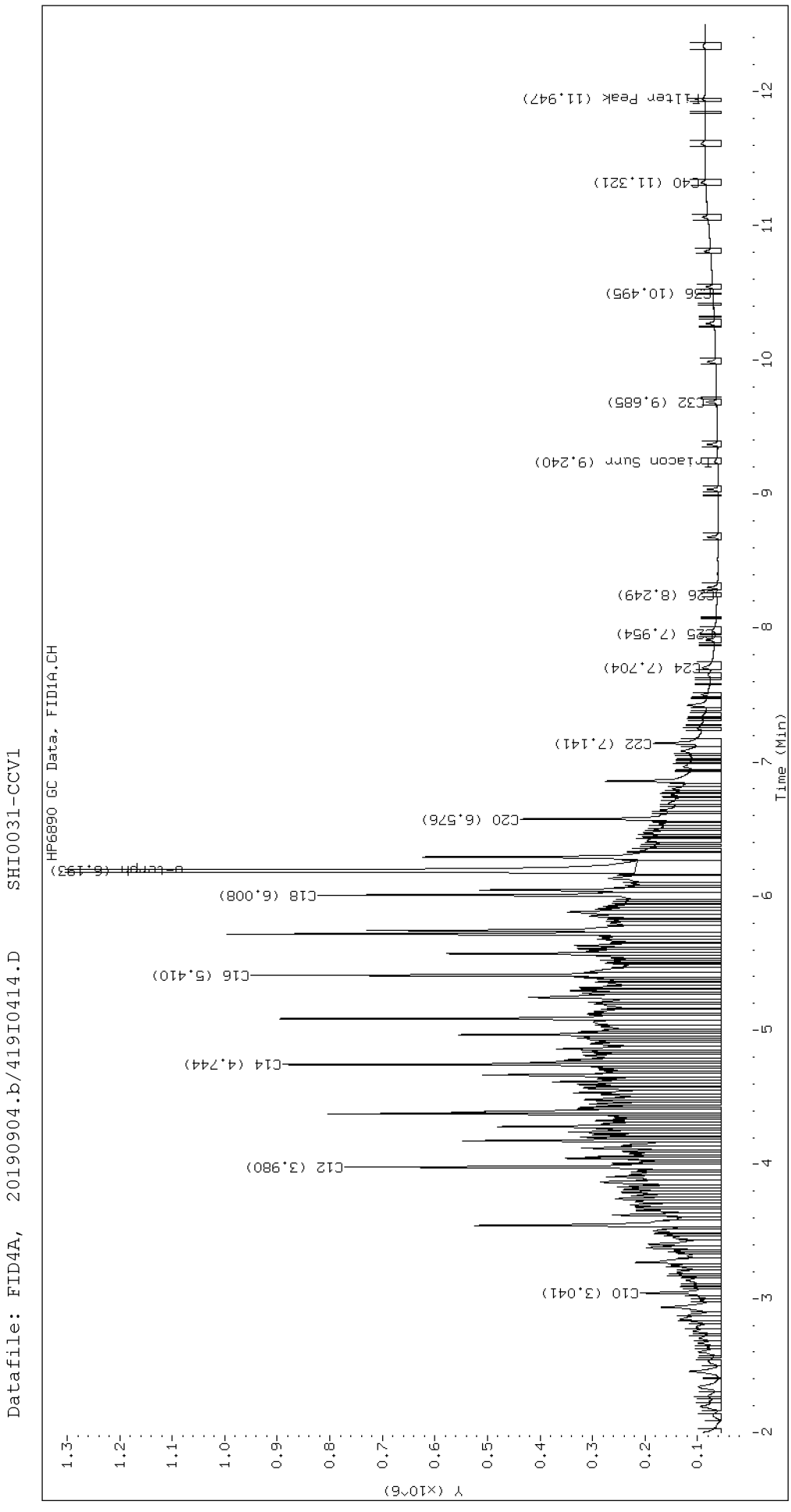
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.824	-0.001	23677	48784	WATPHD	(C12-C24)	38218115	509.1
C10	3.041	-0.001	154718	233384	WATPHM	(C24-C38)	566127	15.6
C12	3.980	-0.006	717020	743525	AK102	(C10-C25)	45804041	502.8
C14	4.744	-0.006	833634	724039	AK103	(C25-C36)	503335	14.3
C16	5.410	-0.006	896197	851636	OR.DIES	(C10-C28)	46000185	504.3
C18	6.008	-0.002	768514	983717				
C20	6.576	-0.002	381370	570382				
C22	7.141	0.004	129069	253063				
C24	7.704	0.016	35567	97978				
C25	7.954	-0.004	11718	5812				
C26	8.249	0.026	10456	15953				
C32	9.685	0.011	27690	41033				
C34	----							
Filter Peak	11.947	0.002	35967	51348	BUNKERC	(C10-C38)	46363692	689.1
C36	10.495	-0.024	15683	4676				
C38	----							
C40	11.321	0.007	37910	85734				
o-terph	6.193	-0.001	8947502	7230802				
Triacon Surr	9.240	0.011	12485	27347	NAS DIES	(C10-C24)	45797565	503.1

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7230802	84.2	M
Triacontane	27347	0.5	

M Indicates the peak was manually integrated

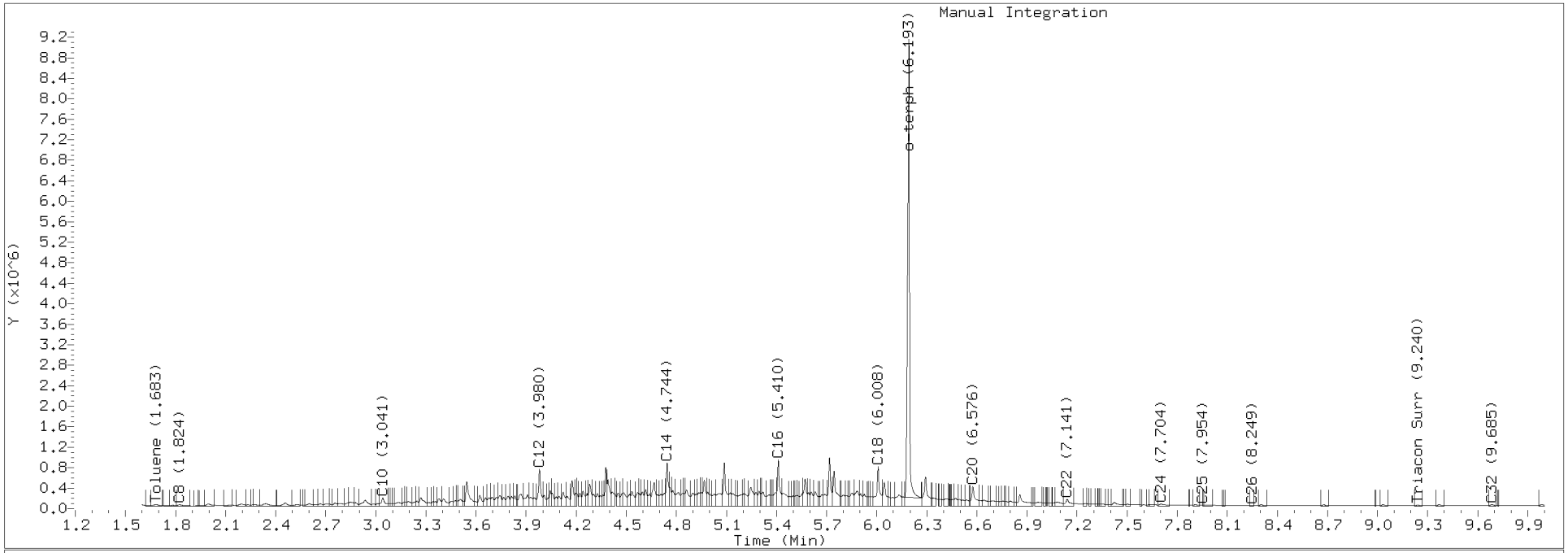
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

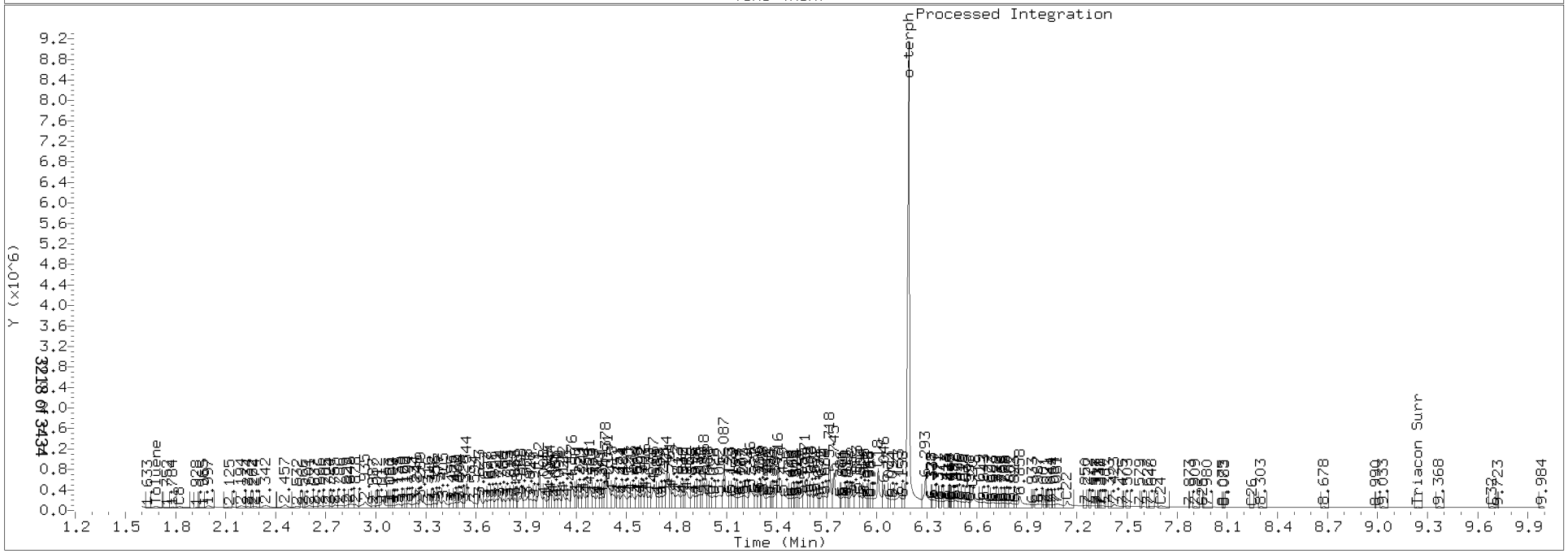

Datafile: FID4A, 20190904.b/419I0414.D SHI0031-CCV1
HP6890 GC Data, FID1A.CH
n-Heptane (6.193)
C10 (3.041)
C12 (3.980)
C14 (4.744)
C16 (5.410)
C18 (6.008)
C20 (6.576)
C22 (7.141)
C24 (7.704)
C25 (7.954)
C26 (8.249)
Triacon Surr (9.240)
C32 (9.685)
C36 (10.495)
C40 (11.321)
Filter Peak (11.947)
Time (Min)
Y (x10^6)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0414.D Injection: 04-SEP-2019 13:31

Lab ID:SHI0031-CCV1





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0415.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV2	Injection Time:	13:52
Sequence Name:	MOIL CCV		

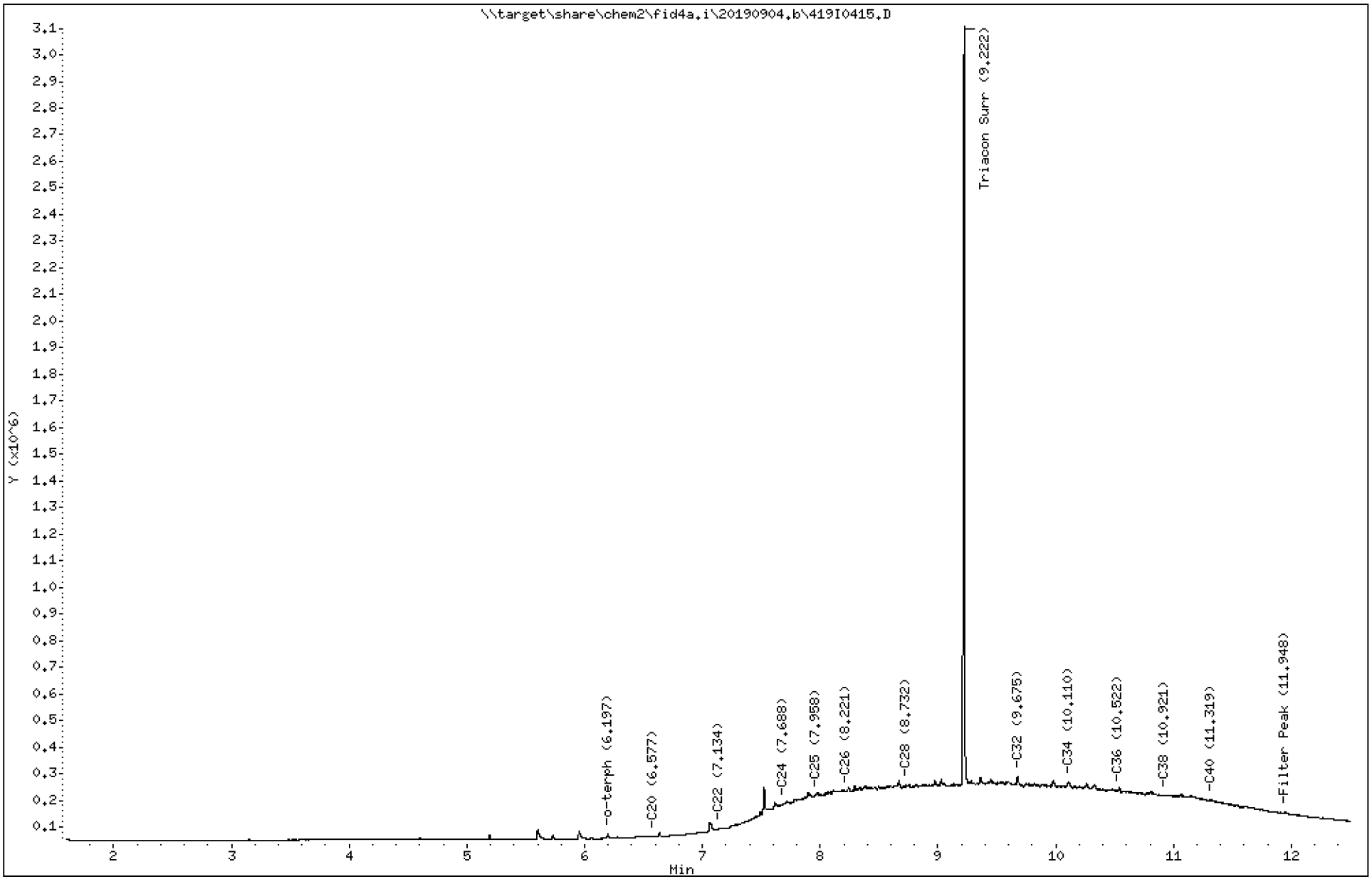
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1020	36326.02	37007.47		1.9	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0415.D
Date : 04-SEP-2019 13:52
Client ID:
Sample Info: SHI0031-CCV2

Instrument: fid4a.i
Operator: VTS
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0415.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/04/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV2
Client ID:
Injection: 04-SEP-2019 13:52
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4067950	54.2
C10	----				WATPHM	(C24-C38)	37007467	1018.8
C12	----				AK102	(C10-C25)	5708390	62.7
C14	----				AK103	(C25-C36)	31280005	888.8
C16	----				OR.DIES	(C10-C28)	15314061	167.9
C18	----							
C20	6.577	-0.001	14901	13982				
C22	7.134	-0.003	43197	35481				
C24	7.688	-0.000	138147	122316				
C25	7.958	-0.000	170973	92883				
C26	8.221	-0.002	184377	82683				
C28	8.732	-0.001	208902	215994				
C32	9.675	0.001	239610	602623				
C34	10.110	0.004	219922	340088				
Filter Peak	11.948	0.003	106069	161502	BUNKERC	(C10-C38)	41082186	610.6
C36	10.522	0.003	188072	65168				
C38	10.921	0.005	169597	76047				
C40	11.319	0.005	151484	67703				
o-terph	6.197	0.002	27299	27843				
Triacon Surr	9.222	-0.007	2846695	2179028	NAS DIES	(C10-C24)	4074719	44.8

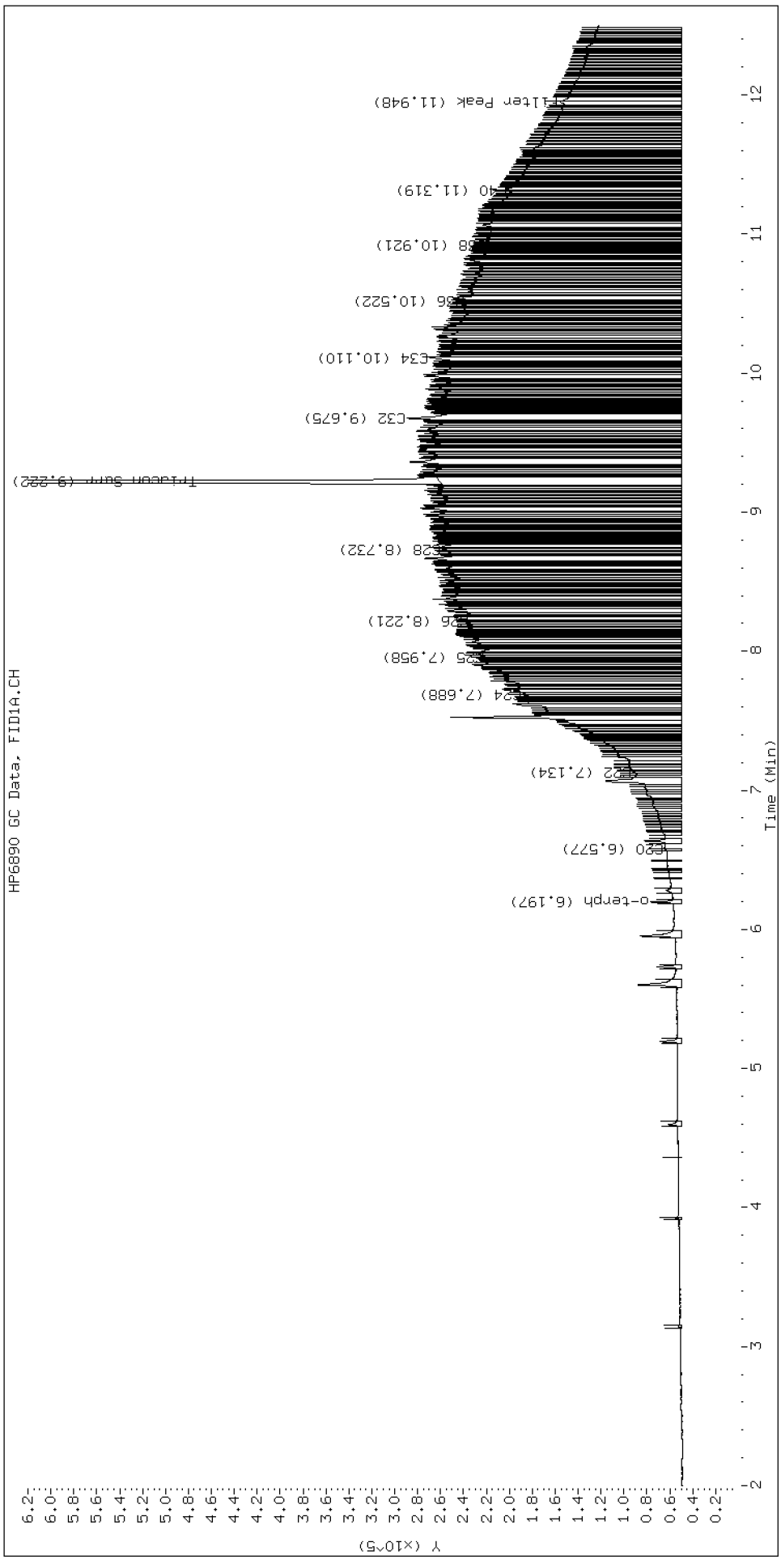
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	27843	0.3	
Triacontane	2179028	41.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

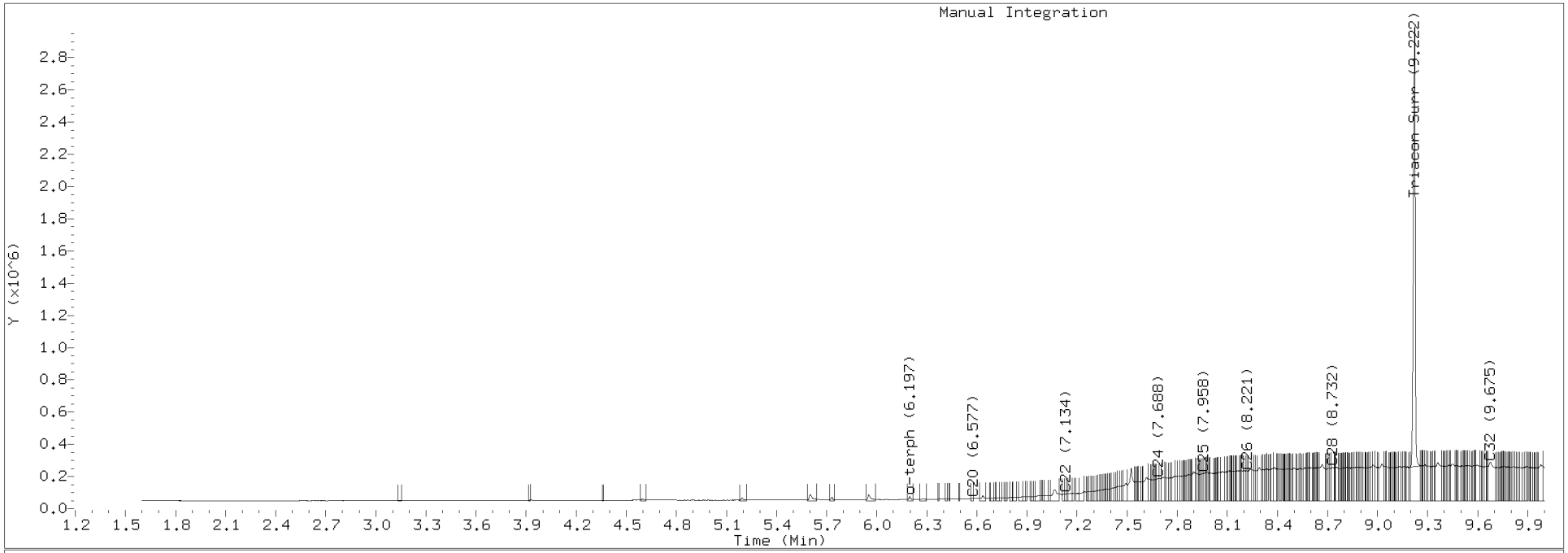
Datafile: FID4A, 20190904.b/419I0415.D SHI0031-CCV2

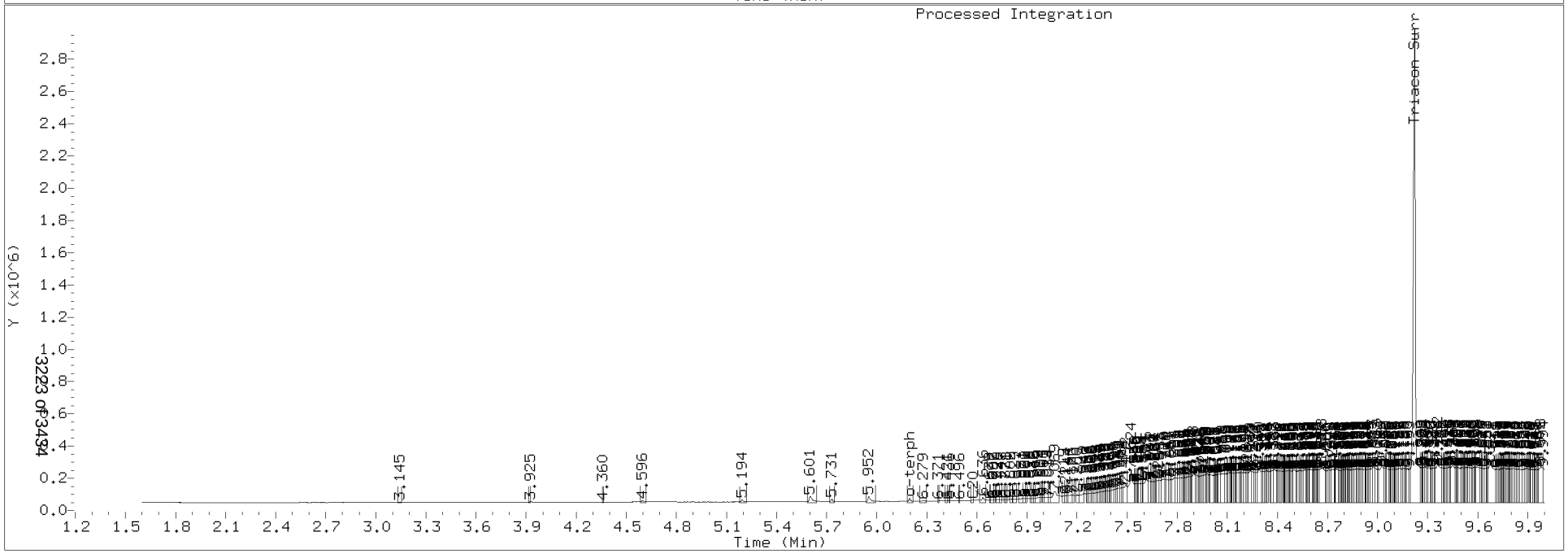


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0415.D Injection: 04-SEP-2019 13:52

Lab ID:SHI0031-CCV2





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0427.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV3	Injection Time:	18:07
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	529	75070.12	79449.48		5.8	15
o-Terphenyl	A	90.000	82.9	85833.03	79025.31		-7.9	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0427.D

Date : 04-SEP-2019 18:07

Client ID:

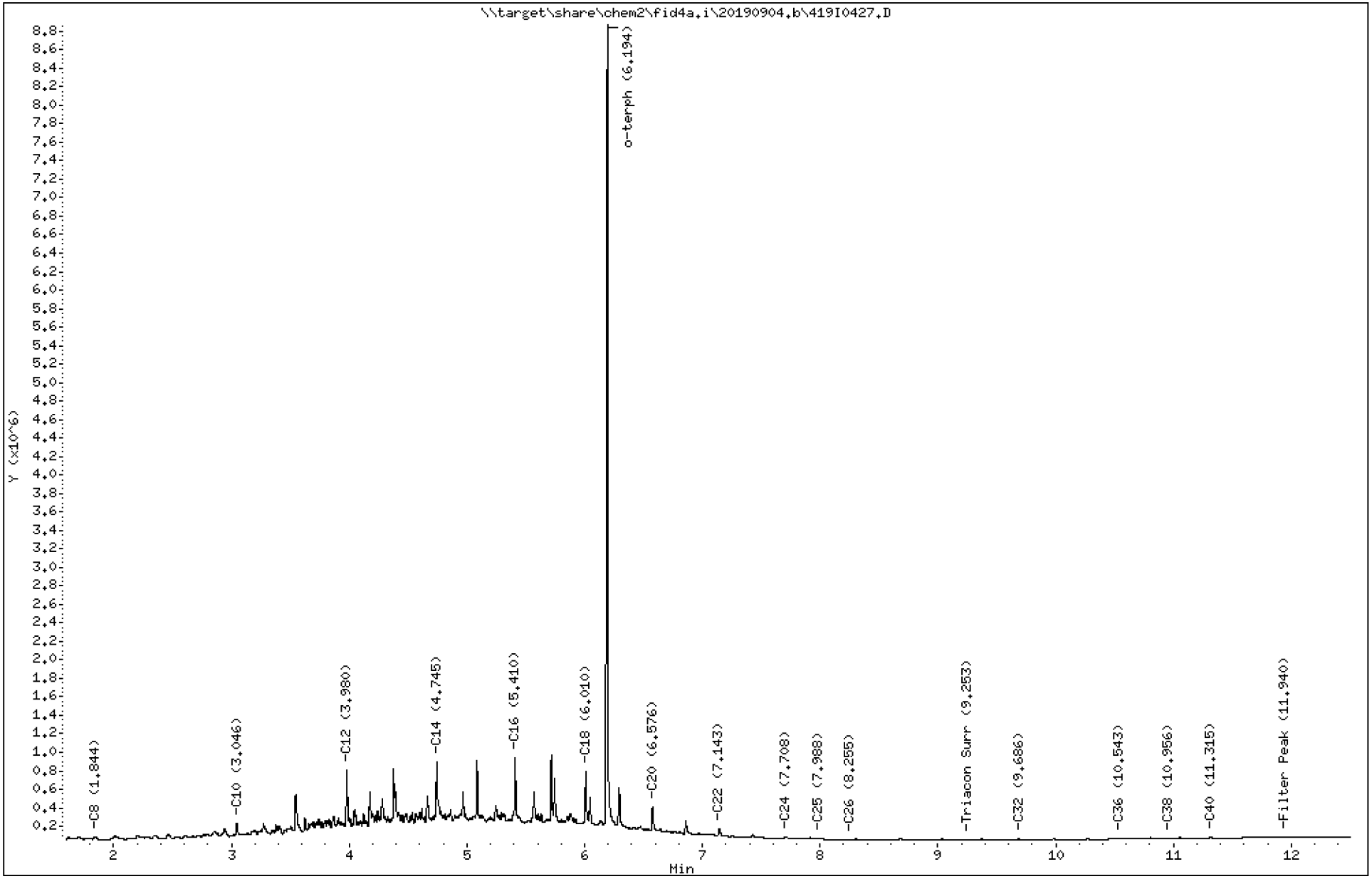
Instrument: fid4a.i

Sample Info: SHI0031-CCV3

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0427.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV3
Client ID:
Injection: 04-SEP-2019 18:07
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.844	0.018	29763	52175	WATPHD	(C12-C24)	39724740	529.2
C10	3.046	0.005	173377	275206	WATPHM	(C24-C38)	317090	8.7
C12	3.980	-0.005	754756	806667	AK102	(C10-C25)	48324196	530.5
C14	4.745	-0.006	844795	1066071	AK103	(C25-C36)	255589	7.3
C16	5.410	-0.005	881998	882106	OR.DIES	(C10-C28)	48427192	530.9
C18	6.010	-0.001	739973	936971				
C20	6.576	-0.002	358667	480813				
C22	7.143	0.006	116997	290427				
C24	7.708	0.020	29428	81652				
C25	7.988	0.030	12847	23017				
C26	8.255	0.032	4993	4336				
C32	9.686	0.012	19114	22658				
C34	----							
Filter Peak	11.940	-0.004	29223	91221	BUNKERC	(C10-C38)	48637303	722.9
C36	10.543	0.024	20726	33501				
C38	10.956	0.040	14609	7214				
C40	11.315	0.001	28783	70625				
o-terph	6.194	-0.001	8654915	7112278				
Triacon Surr	9.253	0.024	5039	6900	NAS DIES	(C10-C24)	48320213	530.8

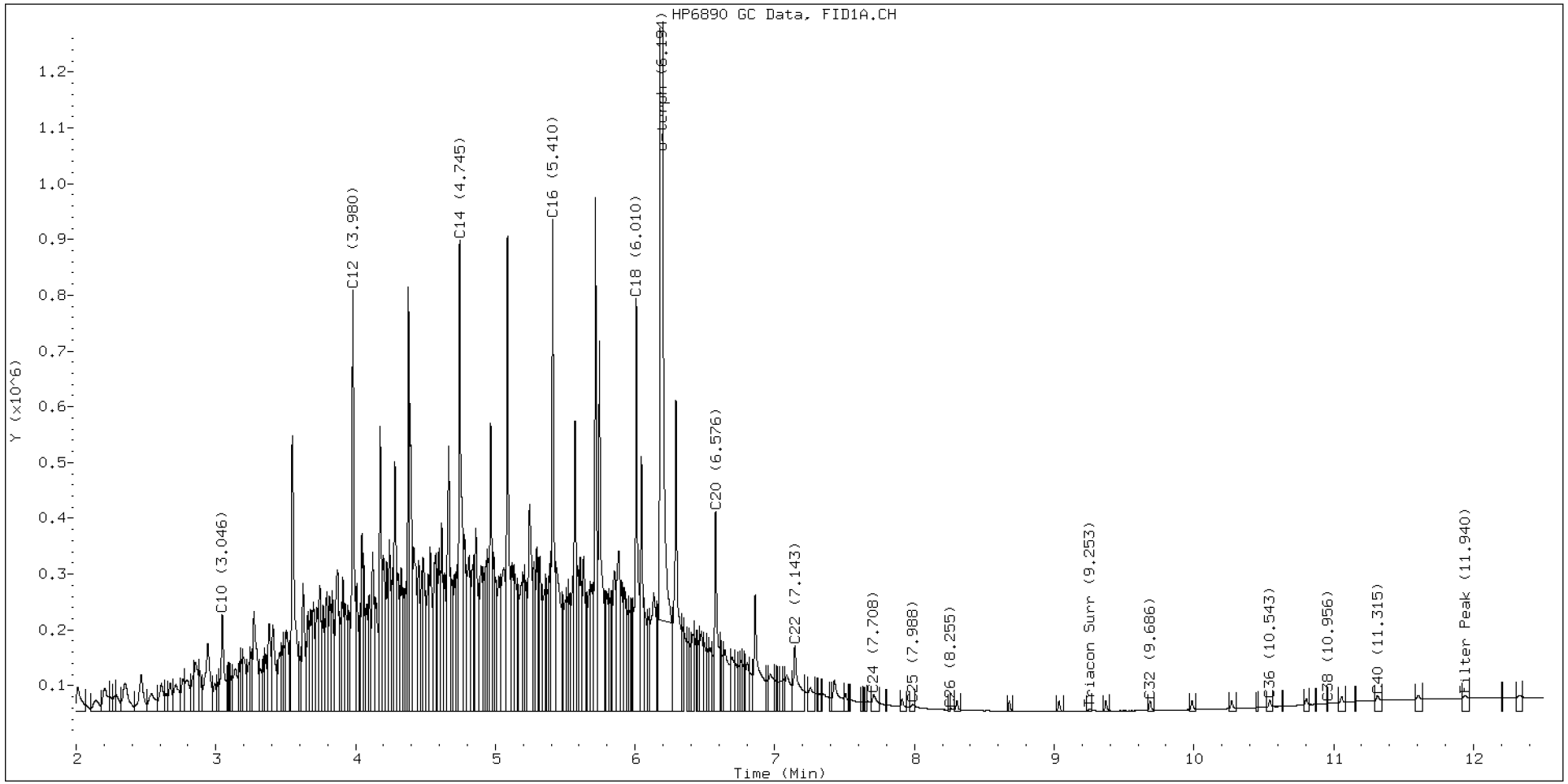
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7112278	82.9	M
Triacontane	6900	0.1	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

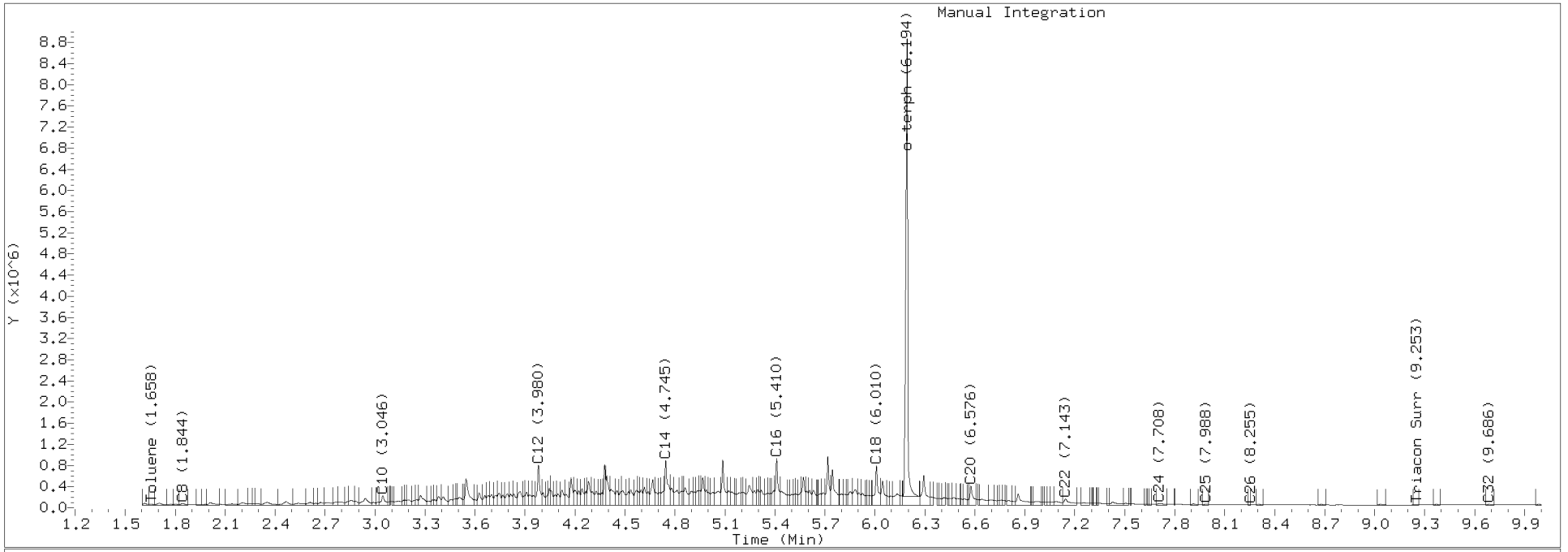
Datafile: FID4A, 20190904.b/419I0427.D SHI0031-CCV3

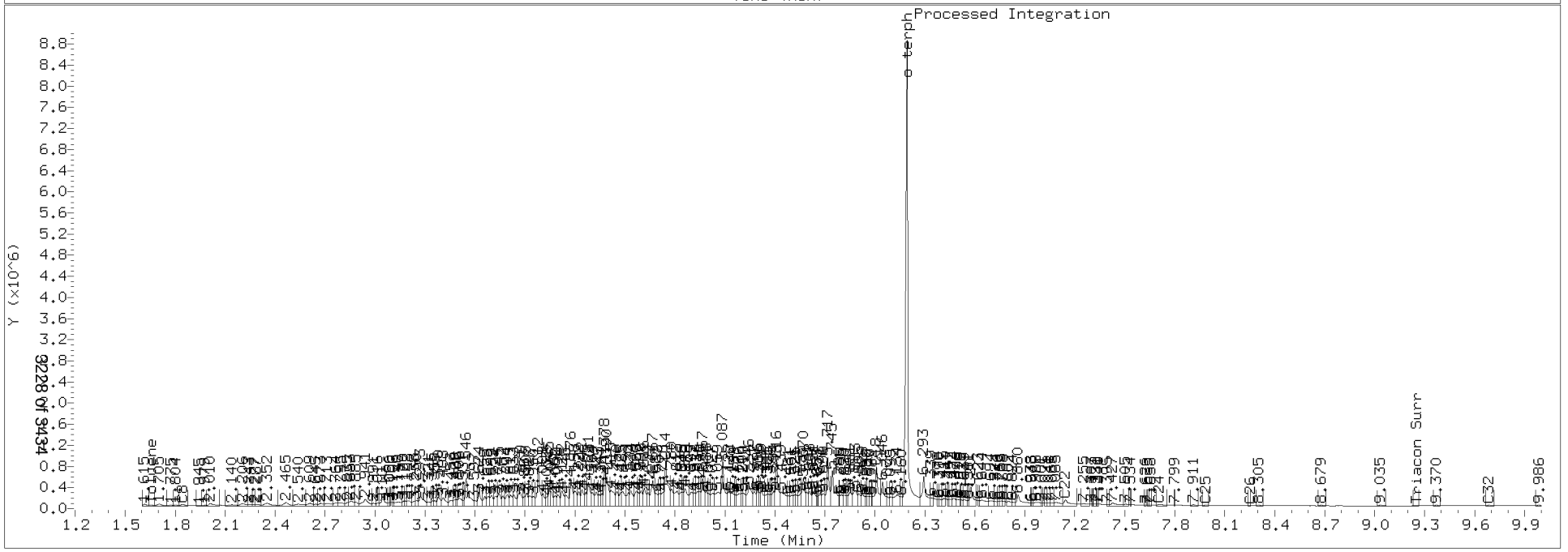


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0427.D Injection: 04-SEP-2019 18:07

Lab ID:SHI0031-CCV3





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0428.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV4	Injection Time:	18:29
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	986	36326.02	35833.27		-1.4	15

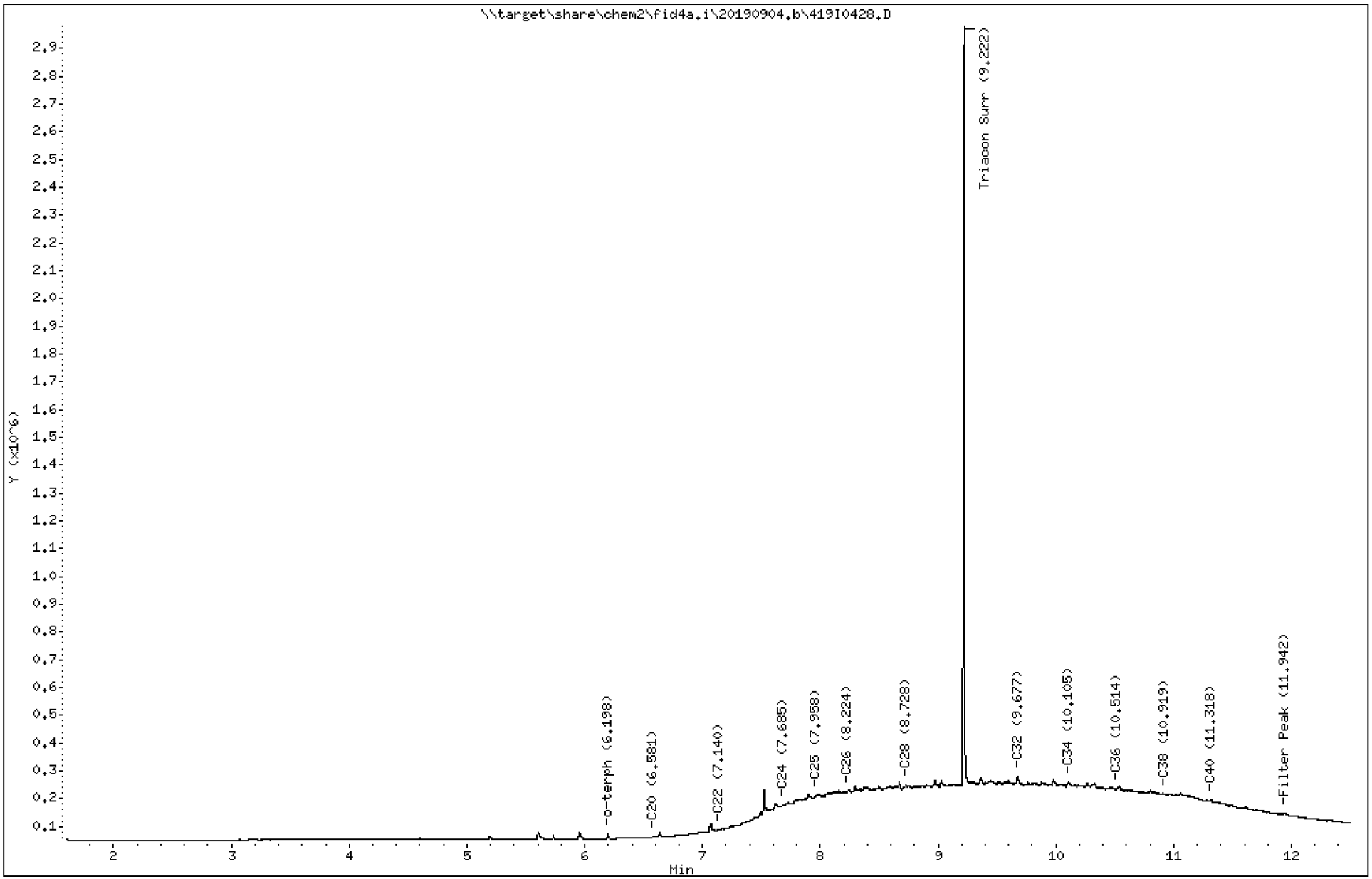
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0428.D
Date : 04-SEP-2019 18:29
Client ID:
Sample Info: SHI0031-CCV4

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0428.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV4
Client ID:
Injection: 04-SEP-2019 18:29
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3610141	48.1
C10	----				WATPHM	(C24-C38)	35833272	986.4
C12	----				AK102	(C10-C25)	5076066	55.7
C14	----				AK103	(C25-C36)	30298492	860.9
C16	----				OR.DIES	(C10-C28)	14338309	157.2
C18	----							
C20	6.581	0.003	12883	16658				
C22	7.140	0.003	40321	46812				
C24	7.685	-0.003	128728	57473				
C25	7.958	0.000	161590	72034				
C26	8.224	0.001	175180	96072				
C28	8.728	-0.005	201204	245933				
C32	9.677	0.003	229818	463860				
C34	10.105	-0.001	209811	145673				
Filter Peak	11.942	-0.003	98161	107019	BUNKERC	(C10-C38)	39454904	586.4
C36	10.514	-0.005	185466	73885				
C38	10.919	0.003	167625	124942				
C40	11.318	0.004	149576	286619				
o-terph	6.198	0.004	22528	22506				
Triacon Surr	9.222	-0.007	2731848	2121850	NAS DIES	(C10-C24)	3621632	39.8

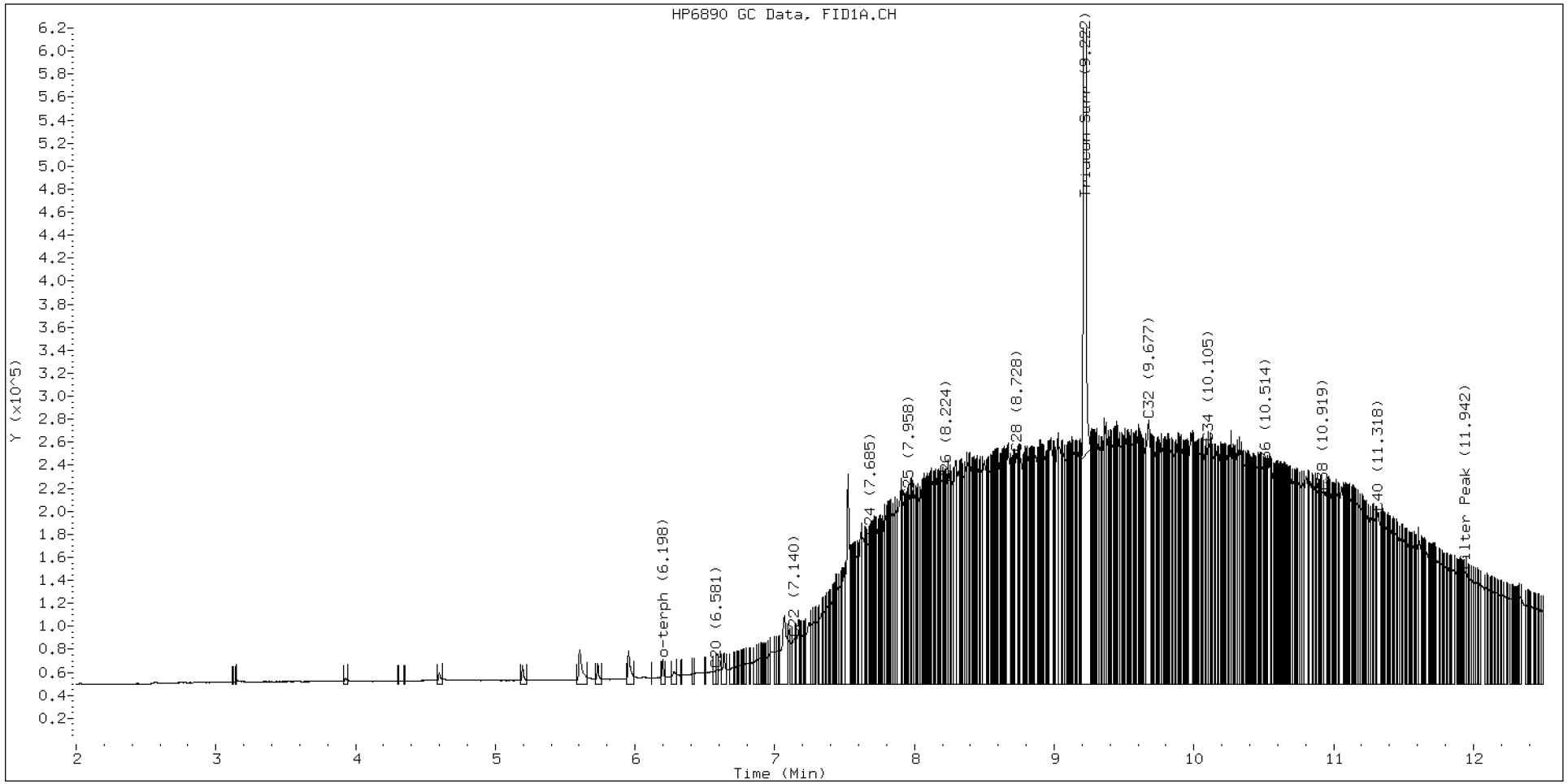
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	22506	0.3	
Triacontane	2121850	40.5	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

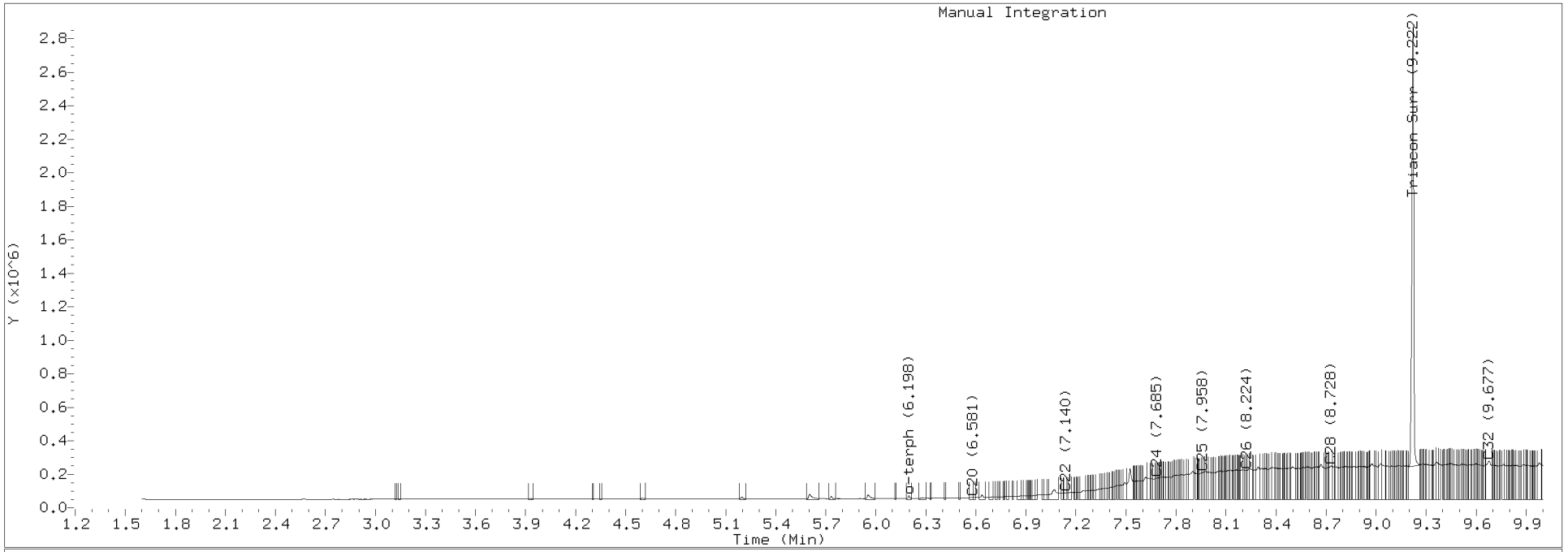
Datafile: FID4A, 20190904.b/419I0428.D SHI0031-CCV4

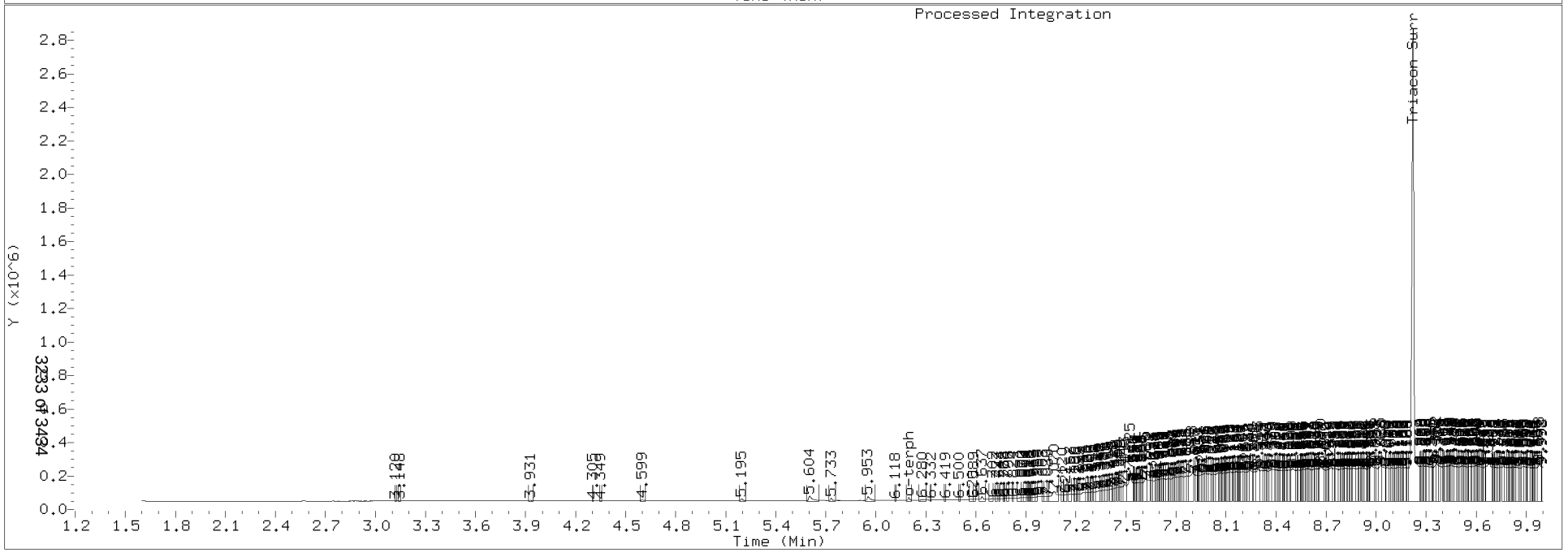


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0428.D Injection: 04-SEP-2019 18:29

Lab ID:SHI0031-CCV4





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0442.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV5	Injection Time:	23:24
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	538	75070.12	80700.84		7.5	15
o-Terphenyl	A	90.000	86.0	85833.03	82046.29		-4.4	15

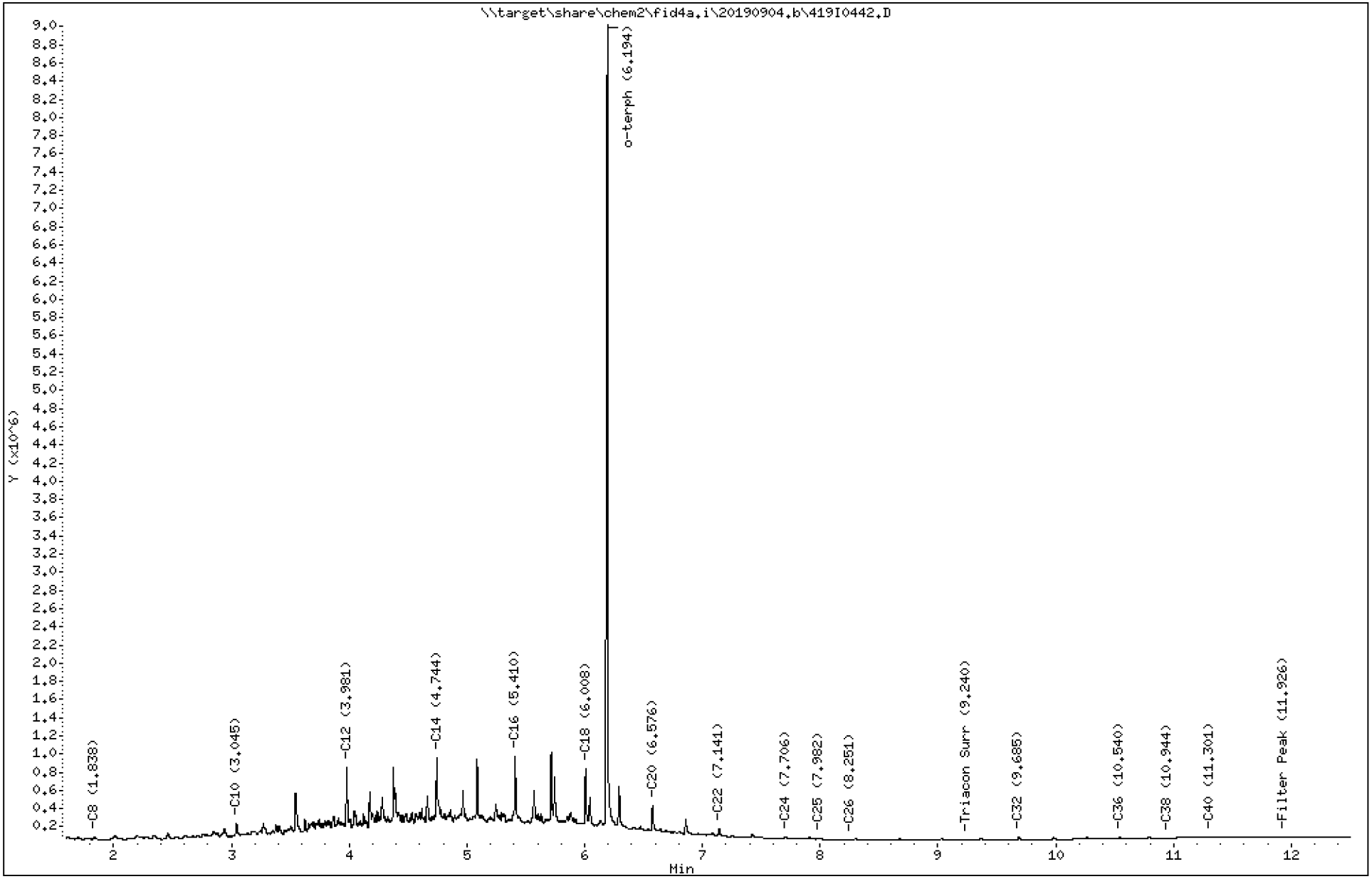
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0442.D
Date : 04-SEP-2019 23:24
Client ID:
Sample Info: SHI0031-CCV5

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0442.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV5
Client ID:
Injection: 04-SEP-2019 23:24
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

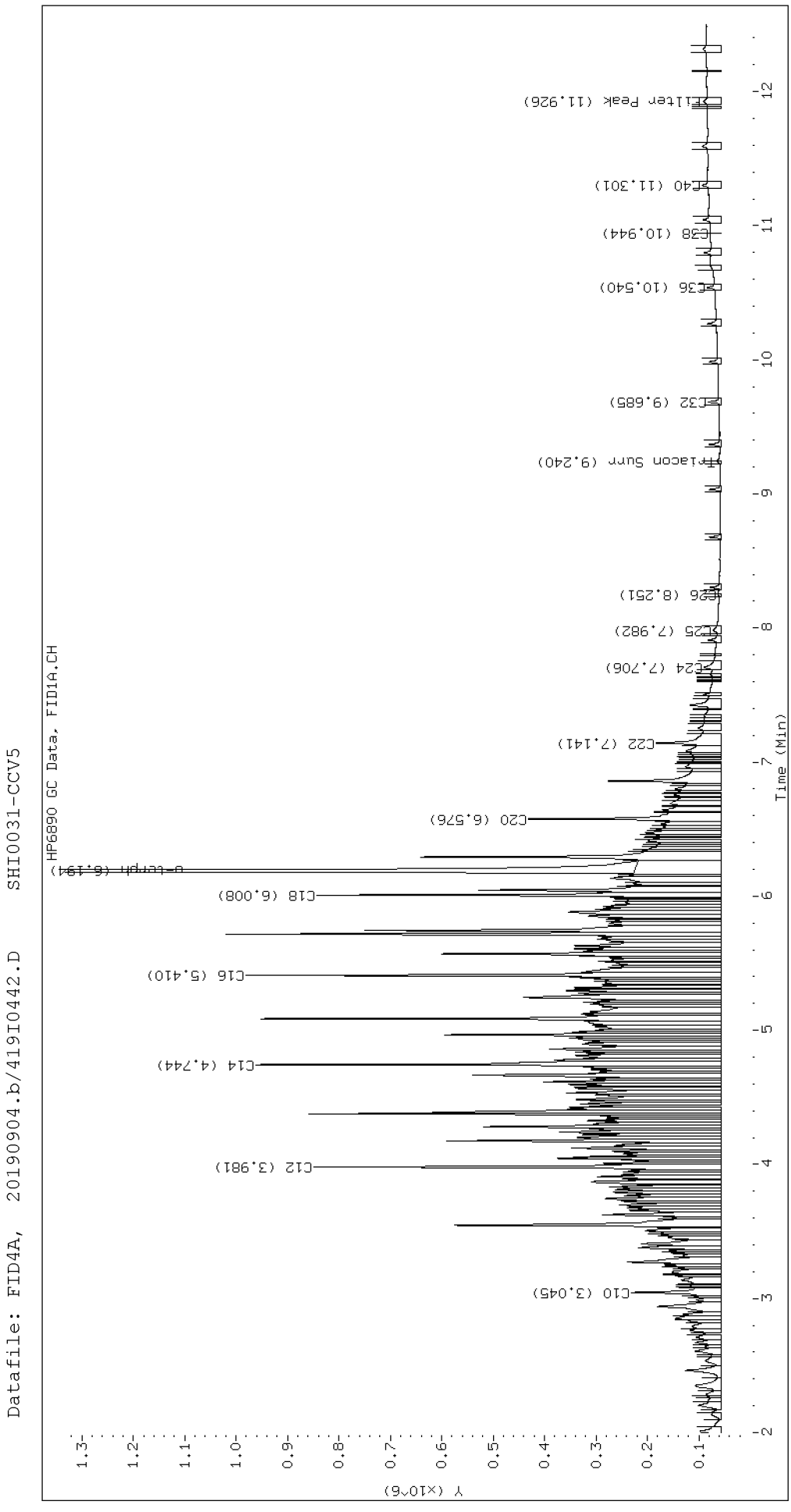
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.838	0.012	27443	55978	WATPHD	(C12-C24)	40350415	537.5
C10	3.045	0.003	173910	273869	WATPHM	(C24-C38)	471449	13.0
C12	3.981	-0.005	792287	828353	AK102	(C10-C25)	48885774	536.6
C14	4.744	-0.007	904582	1087929	AK103	(C25-C36)	337102	9.6
C16	5.410	-0.006	924720	917046	OR.DIES	(C10-C28)	49017124	537.3
C18	6.008	-0.003	786197	821917				
C20	6.576	-0.003	375402	624115				
C22	7.141	0.004	125499	317489				
C24	7.706	0.017	32646	90959				
C25	7.982	0.024	14445	35651				
C26	8.251	0.028	6188	8036				
C32	9.685	0.011	23923	30922				
C34	----							
Filter Peak	11.926	-0.018	33818	97454	BUNKERC	(C10-C38)	49347137	733.5
C36	10.540	0.021	26905	45304				
C38	10.944	0.027	21149	6309				
C40	11.301	-0.013	36180	84633				
o-terph	6.194	-0.001	8796654	7384166				
Triacon Surr	9.240	0.011	7297	5769	NAS DIES	(C10-C24)	48875688	536.9

Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7384166	86.0	M
Triacontane	5769	0.1	

M Indicates the peak was manually integrated

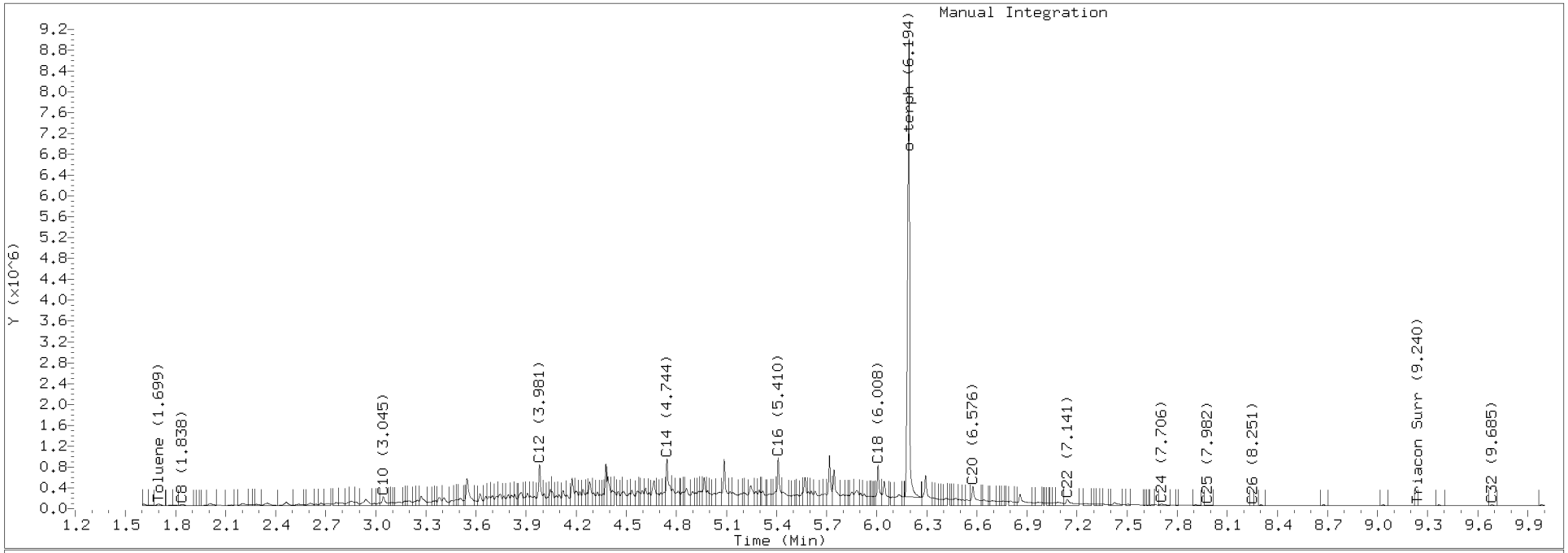
Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

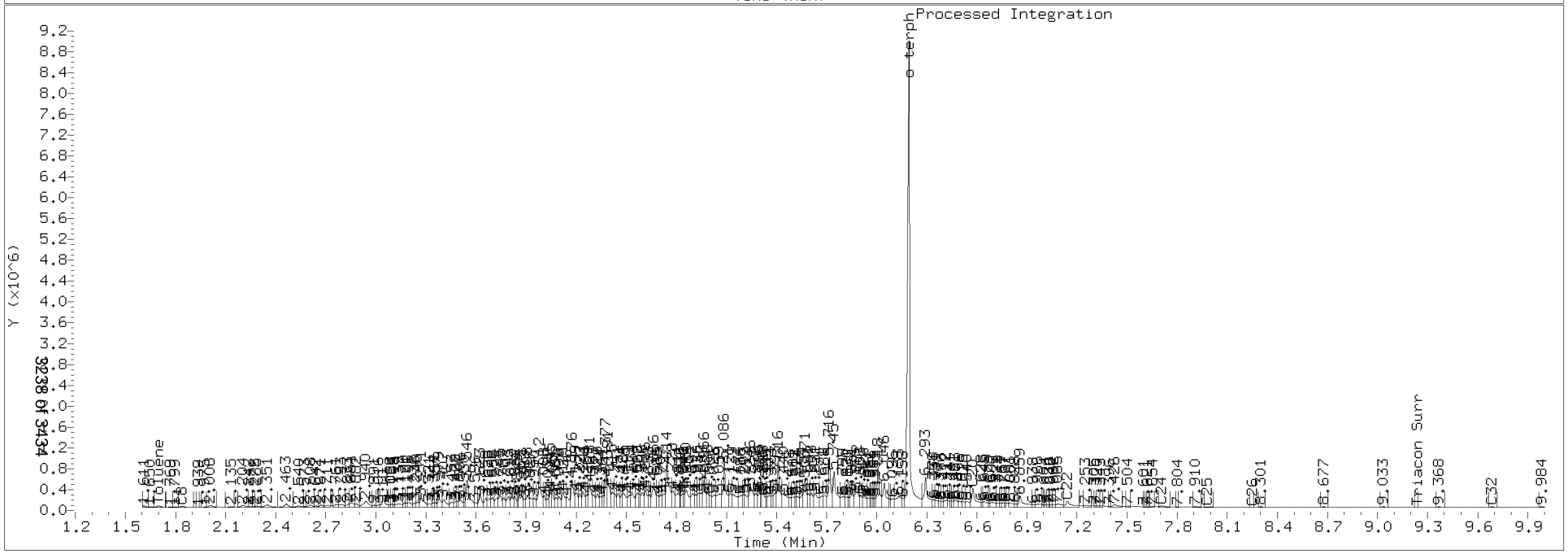

Datafile: FID4A, 20190904.b/419I0442.D SHI0031-CCV5
HP6890 GC Data, FID1A.CH
Y (x10^6)
Time (Min)
C10 (3.045)
C12 (3.981)
C14 (4.744)
C16 (5.410)
C18 (6.008)
n-Decane (6.194)
C20 (6.576)
C22 (7.141)
C24 (7.706)
C25 (7.982)
C26 (8.251)
Tricosane Surr (9.240)
C32 (9.685)
C36 (10.540)
C38 (10.944)
C40 (11.301)
Filter Peak (11.926)

TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0442.D Injection: 04-SEP-2019 23:24

Lab ID:SHI0031-CCV5





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0443.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/04/19
Lab Sample ID:	SHI0031-CCV6	Injection Time:	23:45
Sequence Name:	MOIL_CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	935	36326.02	33945.62		-6.6	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0443.D

Date : 04-SEP-2019 23:45

Client ID:

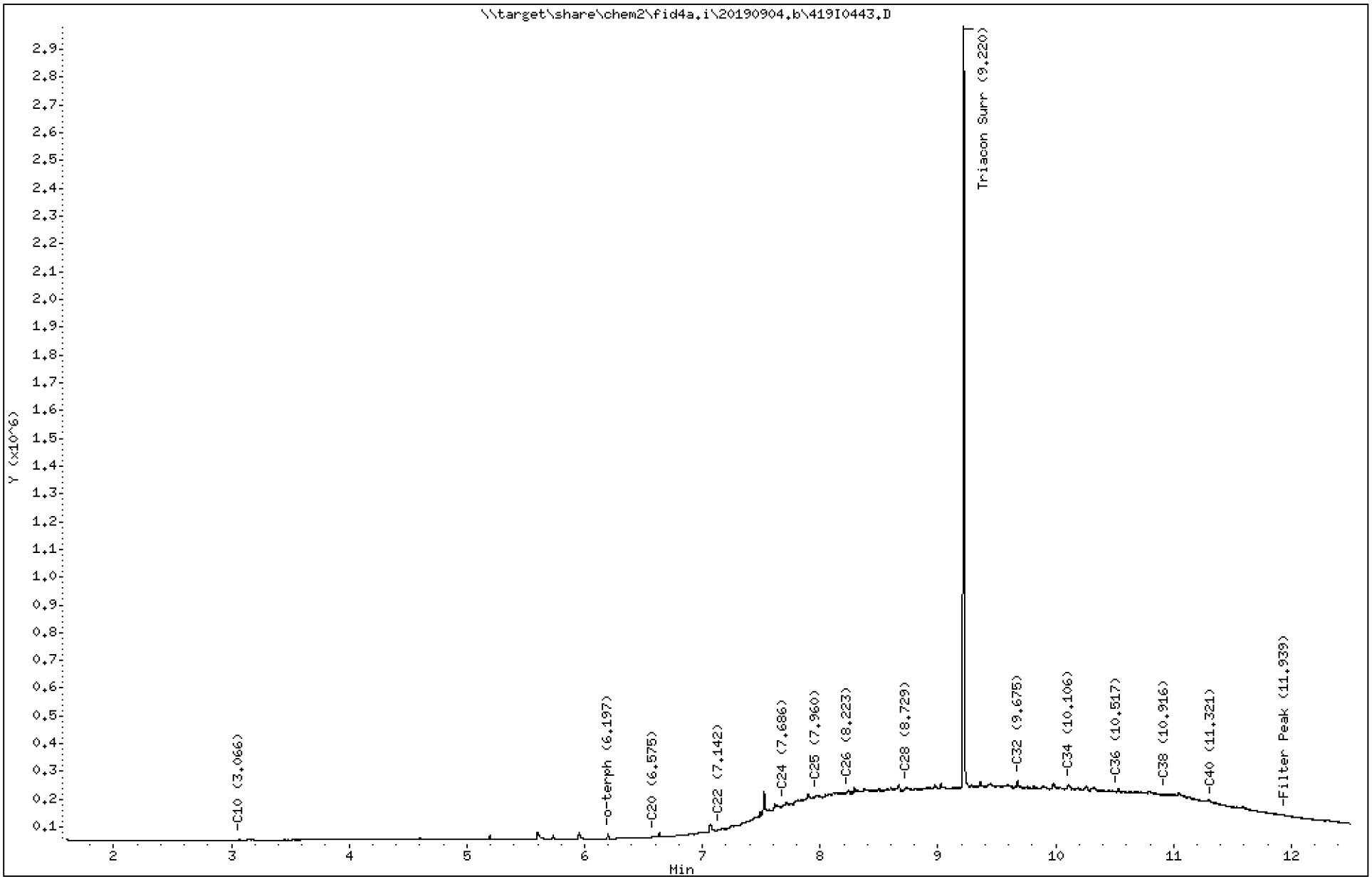
Sample Info: SHI0031-CCV6

Instrument: fid4a.i

Operator: VTS

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0443.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV6
Client ID:
Injection: 04-SEP-2019 23:45
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	3456391	46.0
C10	3.066	0.025	2527	1833	WATPHM	(C24-C38)	33945625	934.5
C12	----				AK102	(C10-C25)	4937884	54.2
C14	----				AK103	(C25-C36)	28578724	812.1
C16	----				OR.DIES	(C10-C28)	13700341	150.2
C18	----							
C20	6.575	-0.003	12294	8621				
C22	7.142	0.005	40098	60594				
C24	7.686	-0.002	129302	156843				
C25	7.960	0.002	160250	147627				
C26	8.223	-0.000	171595	42820				
C28	8.729	-0.004	194041	105579				
C32	9.675	0.001	214802	325173				
C34	10.106	-0.001	200324	235198				
Filter Peak	11.939	-0.006	91958	136072	BUNKERC	(C10-C38)	37416339	556.1
C36	10.517	-0.002	178185	88500				
C38	10.916	-0.000	166938	66256				
C40	11.321	0.007	139507	62441				
o-terph	6.197	0.002	23411	24277				
Triacon Surr	9.220	-0.009	2741850	2064386	NAS DIES	(C10-C24)	3470713	38.1

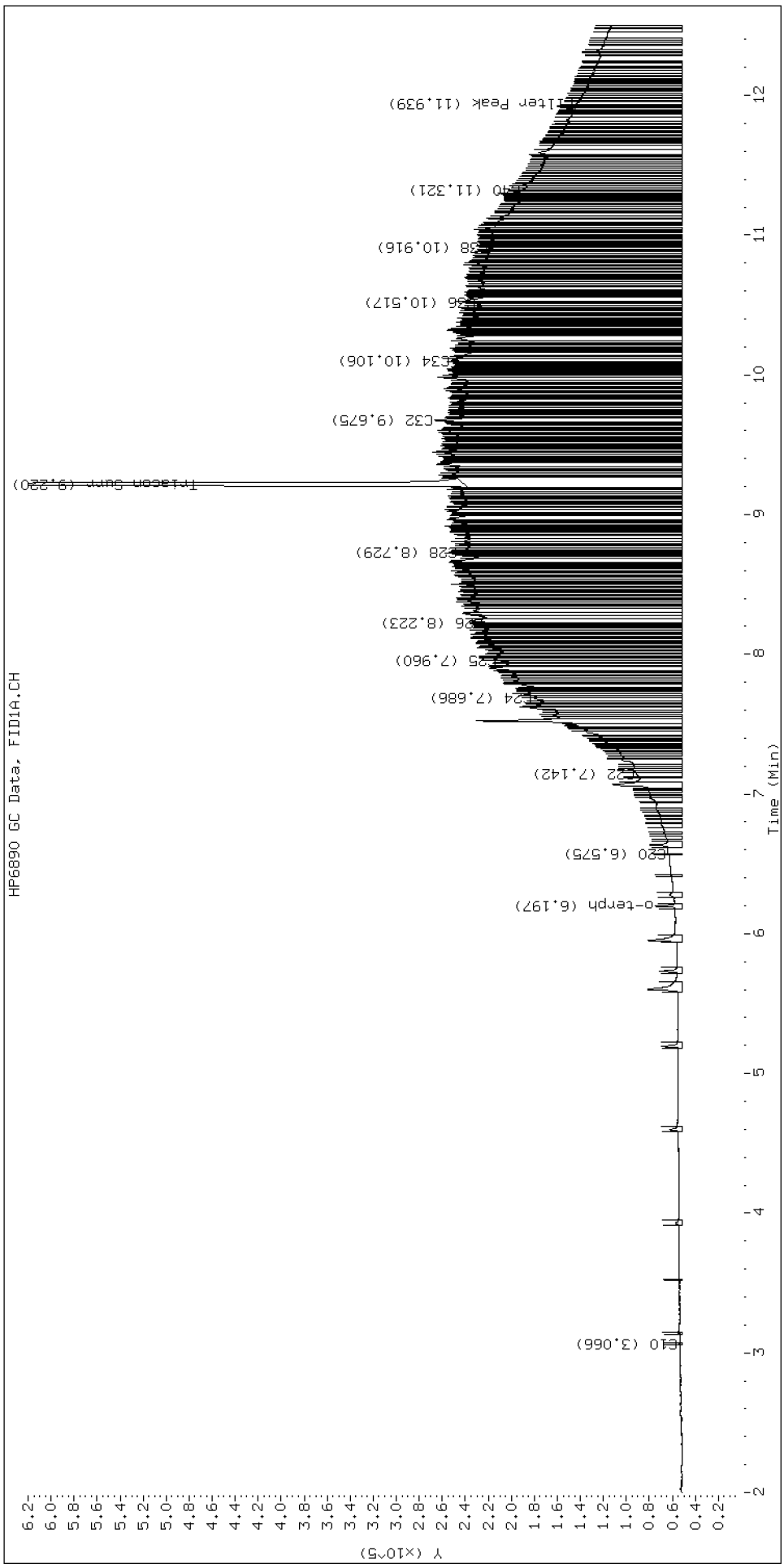
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	24277	0.3	
Triacontane	2064386	39.4	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

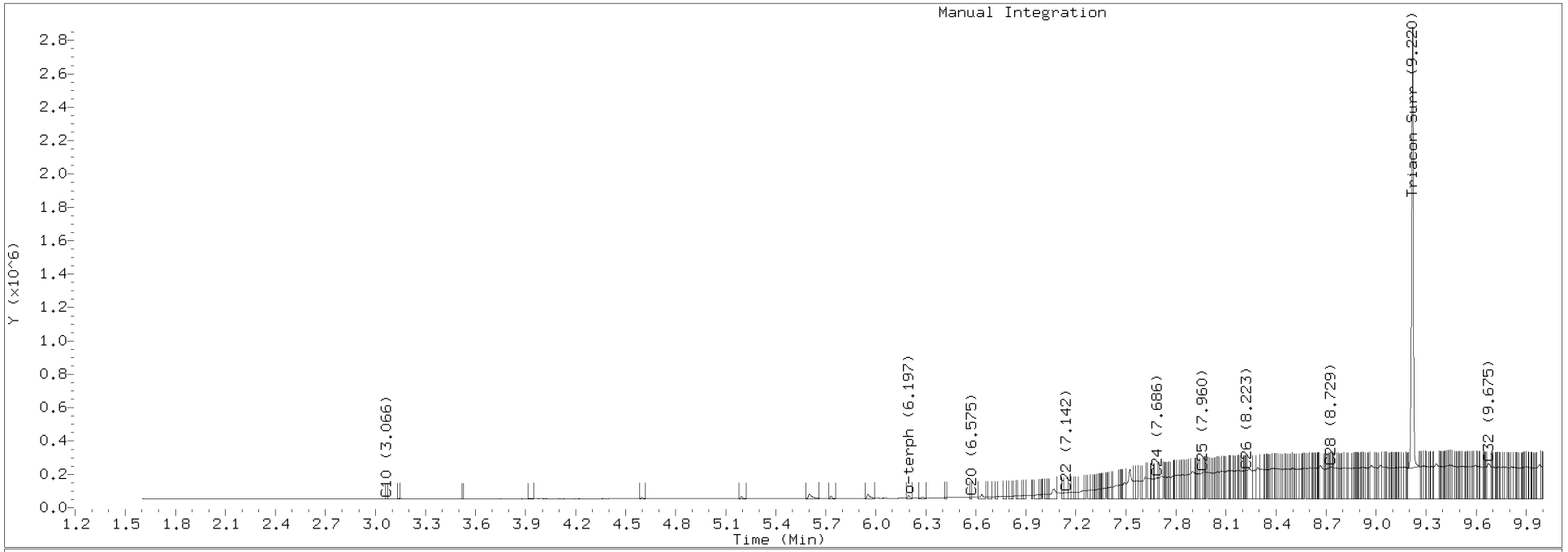
Datafile: FID4A, 20190904.b/419I0443.D SHI0031-CCV6

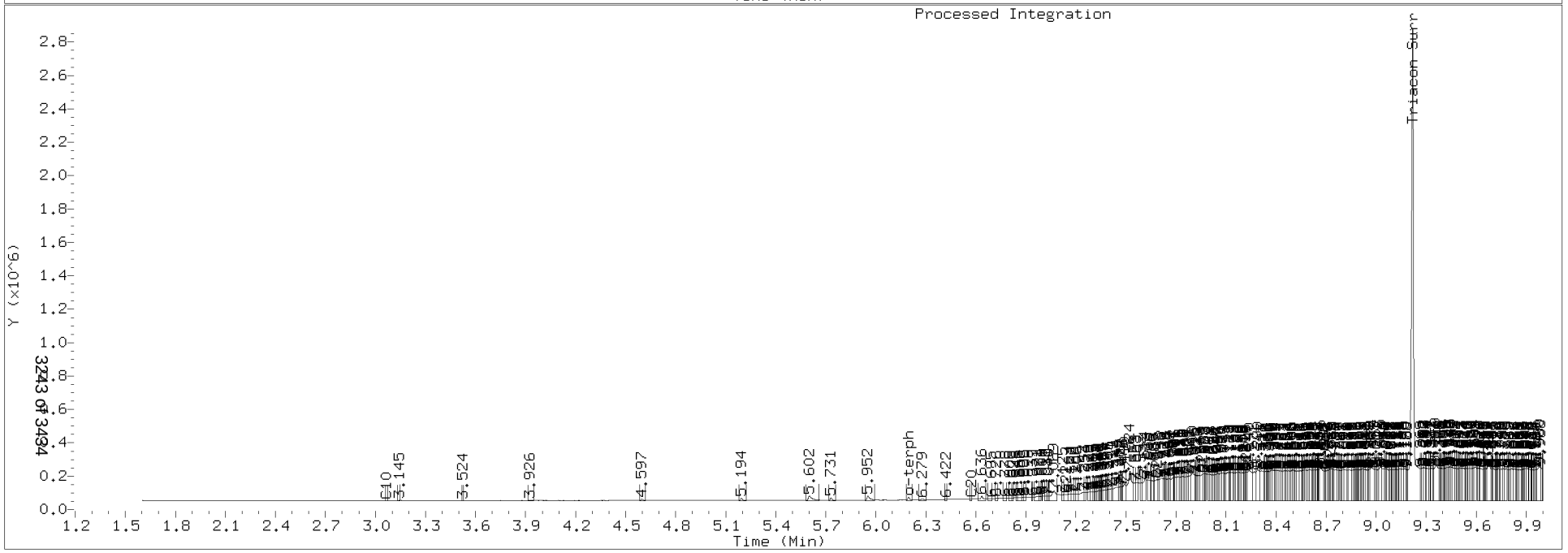


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0443.D Injection: 04-SEP-2019 23:45

Lab ID:SHI0031-CCV6





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0453.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/05/19
Lab Sample ID:	SHI0031-CCV7	Injection Time:	03:13
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	509	75070.12	76444.54		1.8	15
o-Terphenyl	A	90.000	77.0	85833.03	73456.34		-14.4	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0453.D

Date : 05-SEP-2019 03:13

Client ID:

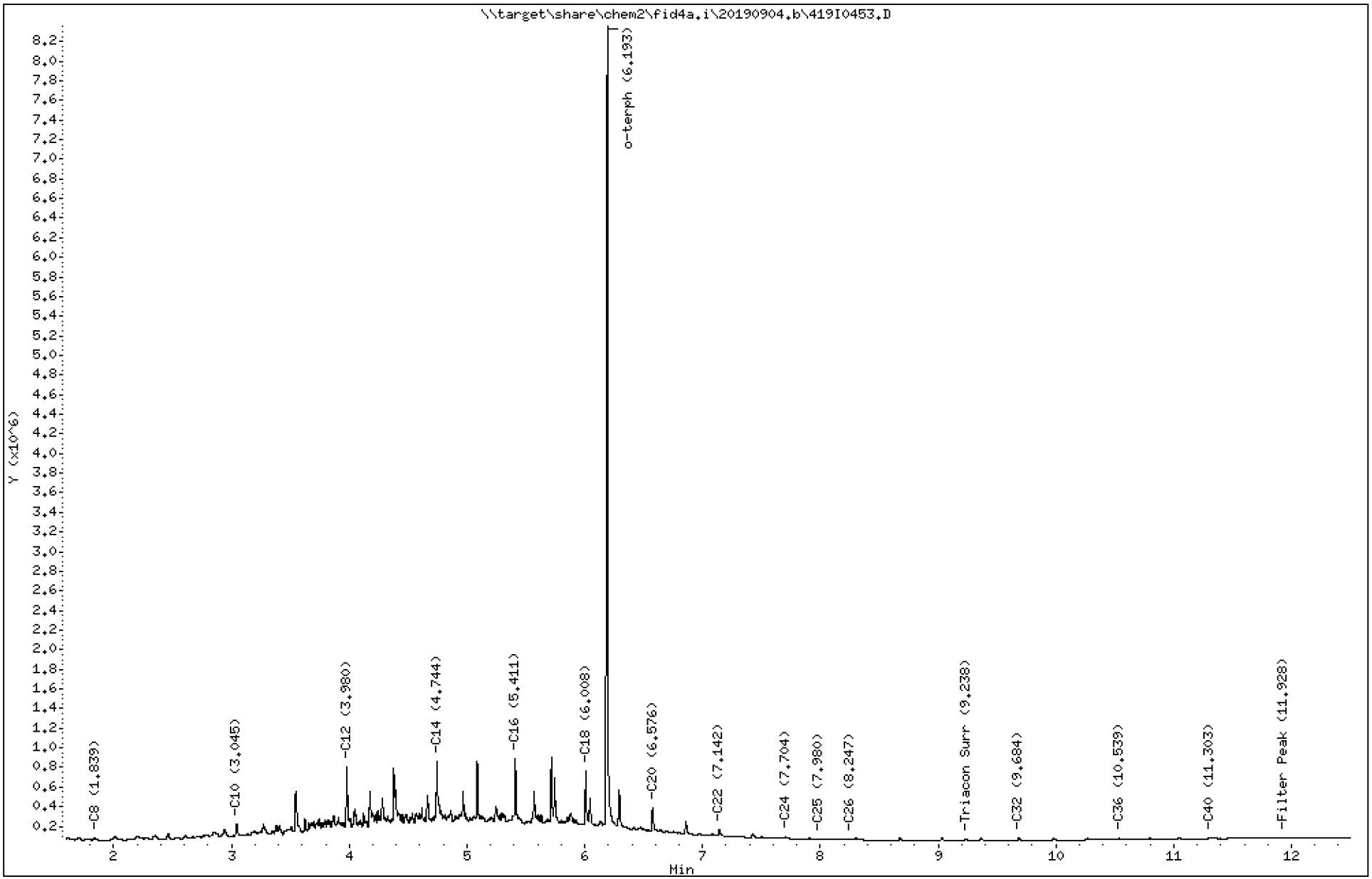
Sample Info: SHI0031-CCV7

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0453.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV7
Client ID:
Injection: 05-SEP-2019 03:13
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.839	0.014	27828	47421	WATPHD	(C12-C24)	38222272	509.2
C10	3.045	0.004	166674	272593	WATPHM	(C24-C38)	419316	11.5
C12	3.980	-0.006	748378	802008	AK102	(C10-C25)	46638231	511.9
C14	4.744	-0.006	808523	1030398	AK103	(C25-C36)	371185	10.5
C16	5.411	-0.005	829395	848995	OR.DIES	(C10-C28)	46804432	513.1
C18	6.008	-0.002	704092	762679				
C20	6.576	-0.002	340132	478529				
C22	7.142	0.004	117293	329684				
C24	7.704	0.016	36231	104443				
C25	7.980	0.022	18814	43134				
C26	8.247	0.024	10488	10400				
C32	9.684	0.010	21298	30140				
C34	----							
Filter Peak	11.928	-0.016	28423	77967	BUNKERC	(C10-C38)	47051739	699.4
C36	10.539	0.020	21909	40653				
C38	----							
C40	11.303	-0.011	29177	61895				
o-terph	6.193	-0.002	8143748	6611071				
Triacon Surr	9.238	0.009	9403	18555	NAS DIES	(C10-C24)	46632423	512.2

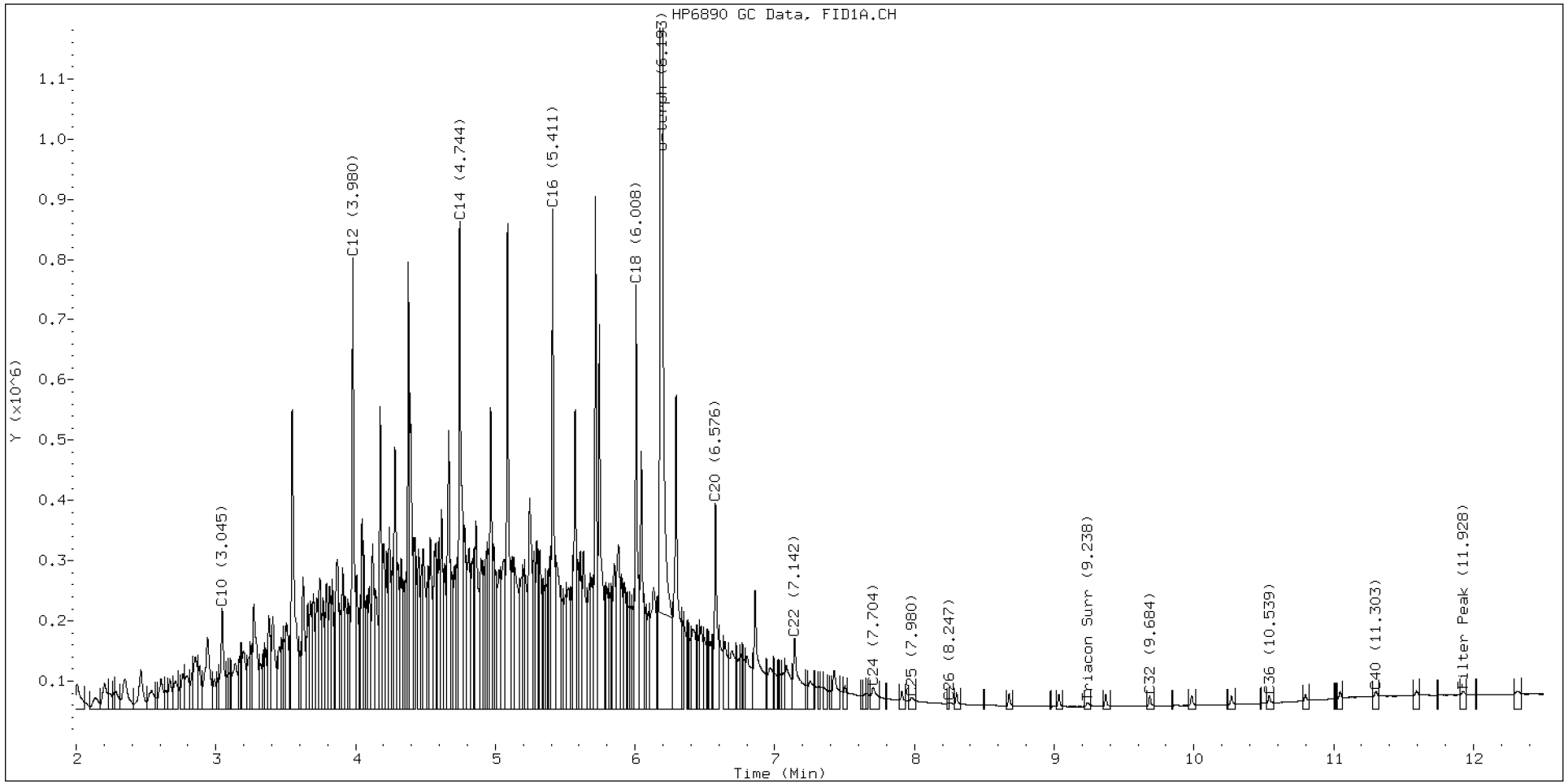
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	6611071	77.0	M
Triacontane	18555	0.4	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

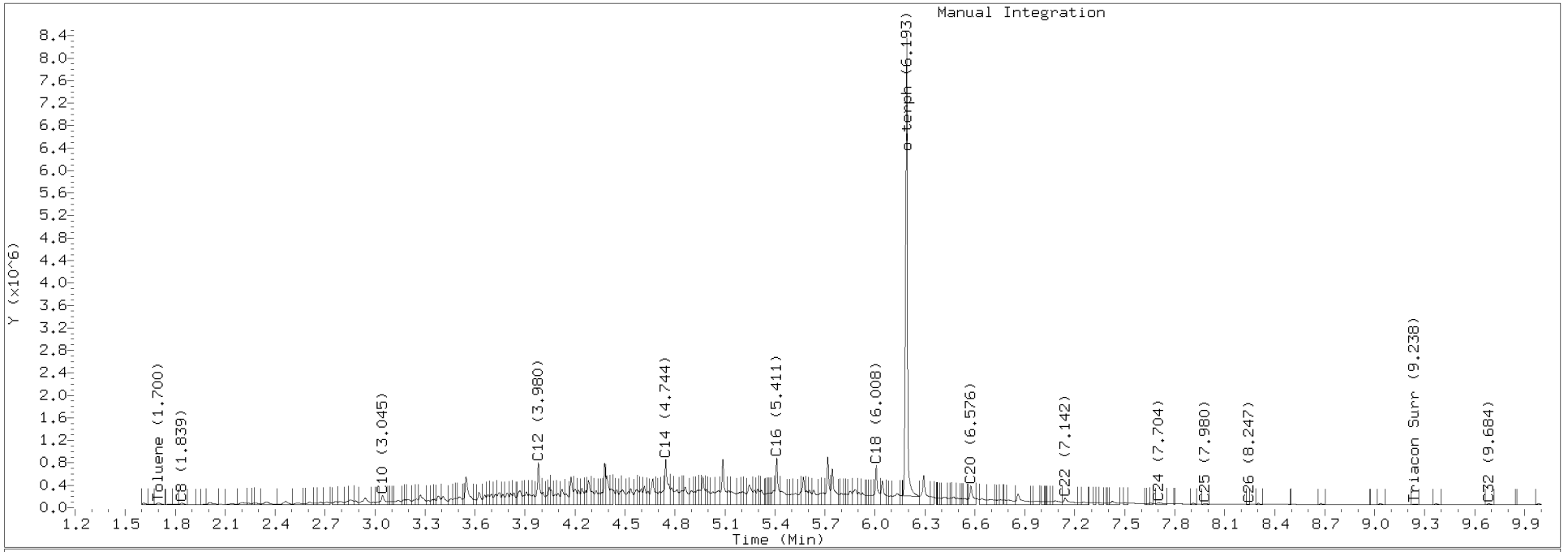
Datafile: FID4A, 20190904.b/419I0453.D SHI0031-CCV7

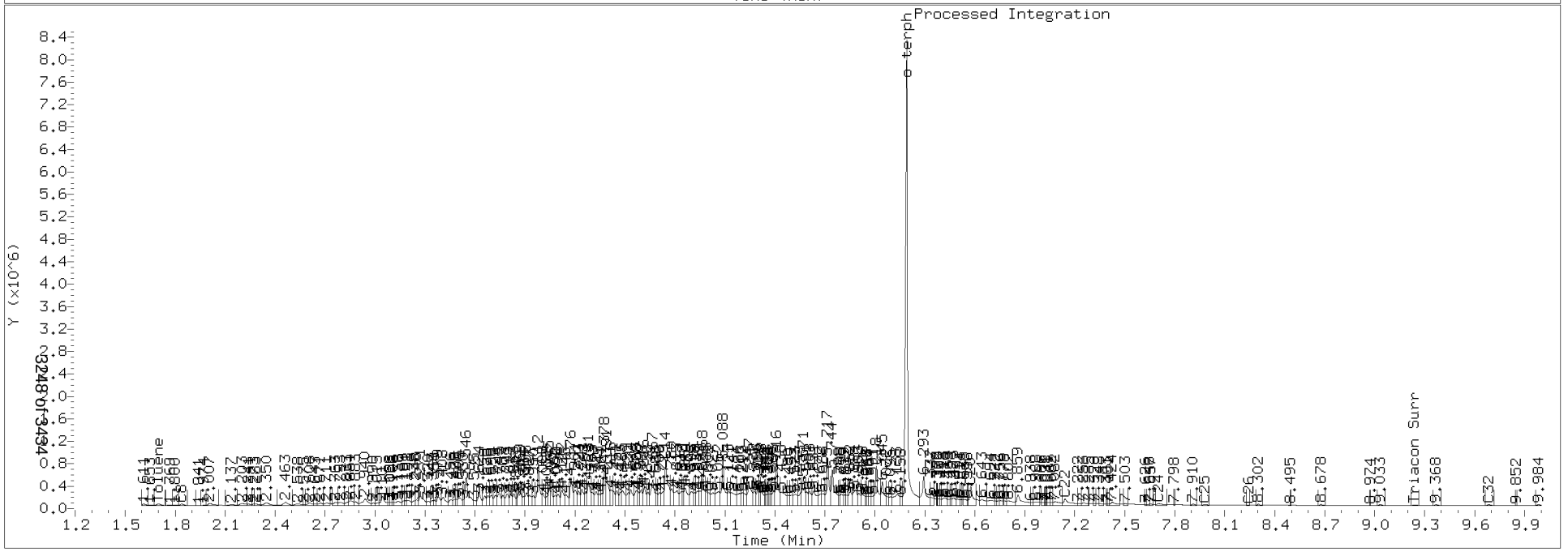


TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0453.D Injection: 05-SEP-2019 03:13

Lab ID:SHI0031-CCV7





CONTINUING CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CH00097
Lab File ID:	419I0454.D	Calibration Date:	08/29/19 08:33
Sequence:	SHI0031	Injection Date:	09/05/19
Lab Sample ID:	SHI0031-CCV8	Injection Time:	03:34
Sequence Name:	MOIL CCV		

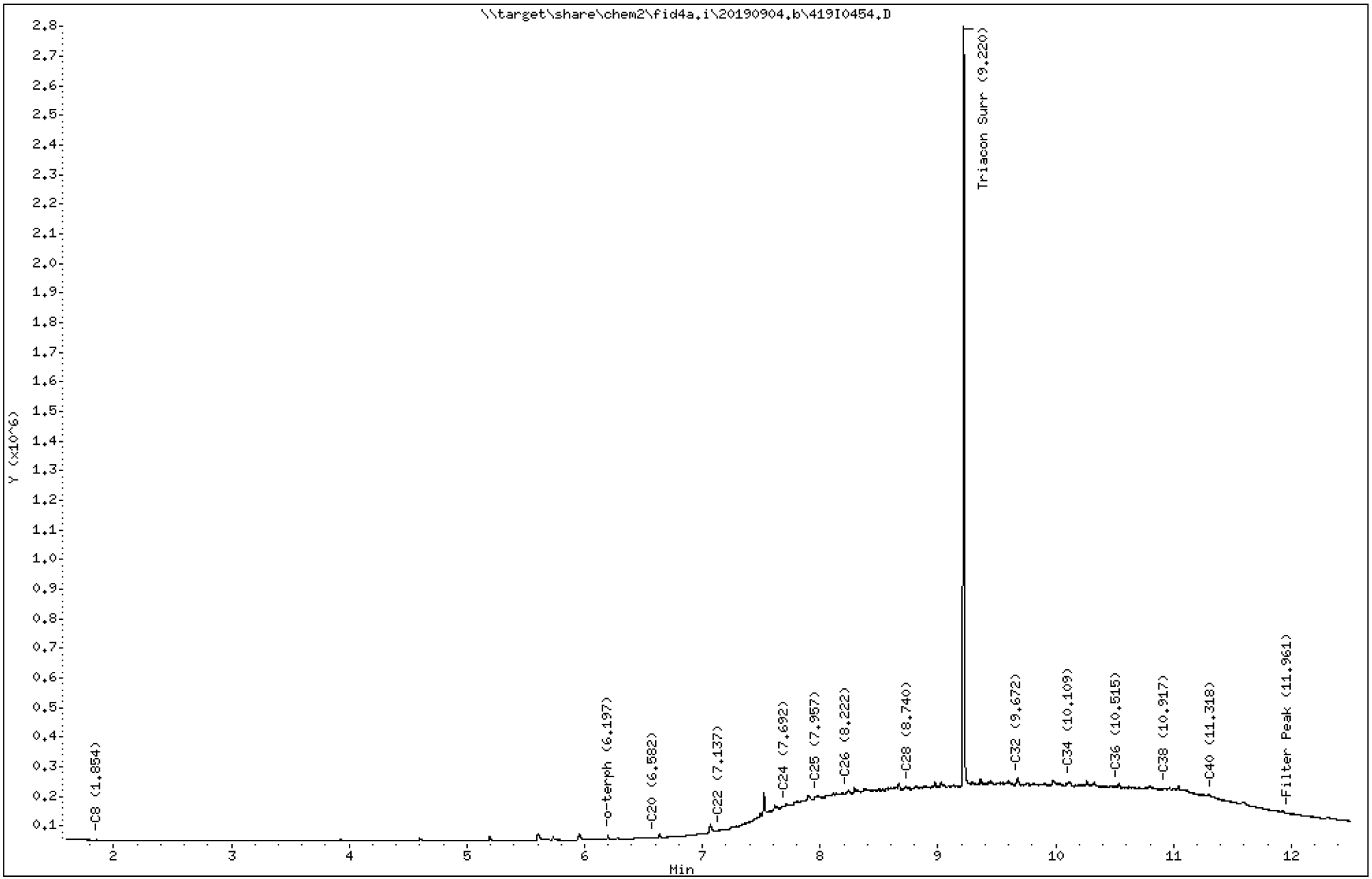
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	917	36326.02	33323.64		-8.3	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190904.b\419I0454.D
Date : 05-SEP-2019 03:34
Client ID:
Sample Info: SHI0031-CCV8

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190904.b/419I0454.D
Method: 20190904.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/05/2019
Macro: 29-AUG-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:29-AUG-2019 M.Oil:29-AUG-2019

ARI ID: SHI0031-CCV8
Client ID:
Injection: 05-SEP-2019 03:34
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.854	0.028	2293	1576	WATPHD	(C12-C24)	2940032	39.2
C10	----				WATPHM	(C24-C38)	33323640	917.3
C12	----				AK102	(C10-C25)	4287243	47.1
C14	----				AK103	(C25-C36)	27747674	788.5
C16	----				OR.DIES	(C10-C28)	12557424	137.7
C18	----							
C20	6.582	0.003	9711	9878				
C22	7.137	-0.001	34377	26493				
C24	7.692	0.003	117007	92590				
C25	7.957	-0.001	149466	116389				
C26	8.222	-0.001	162502	128345				
C28	8.740	0.007	179202	62352				
C32	9.672	-0.002	209845	159842				
C34	10.109	0.003	198178	146980				
Filter Peak	11.961	0.016	93640	60565	BUNKERC	(C10-C38)	36267184	539.1
C36	10.515	-0.004	183141	126884				
C38	10.917	0.000	175716	131188				
C40	11.318	0.004	150245	104500				
o-terph	6.197	0.003	18794	18501				
Triacon Surr	9.220	-0.009	2566676	1975270	NAS DIES	(C10-C24)	2943545	32.3

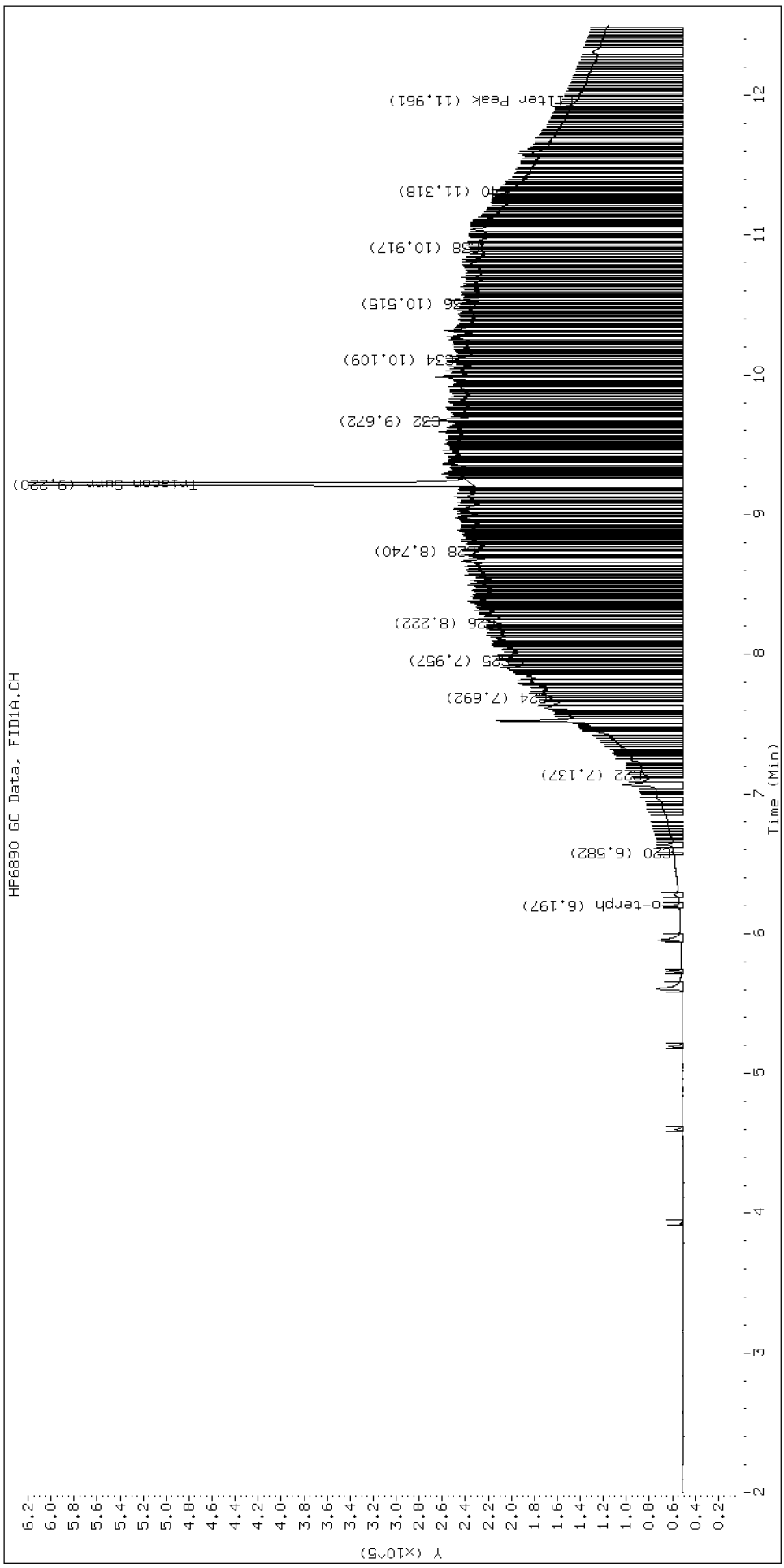
Range Times: NW Diesel(3.986 - 7.688) AK102(3.04 - 7.96) Jet A(3.04 - 6.01)
NW M.Oil(7.69 - 10.92) AK103(7.96 - 10.52) OR Diesel(3.04 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	18501	0.2	
Triacontane	1975270	37.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	85833.0	08-AUG-2019
Triacon Surr	52414.1	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	75070.1	29-AUG-2019
Motor Oil	36326.0	29-AUG-2019
AK102	91099.7	29-AUG-2019
AK103	35192.5	29-AUG-2019
OR Diesel	91221.4	29-AUG-2019
NAS Diesel	91037.5	29-AUG-2019
Bunker C	67278.4	09-AUG-2019

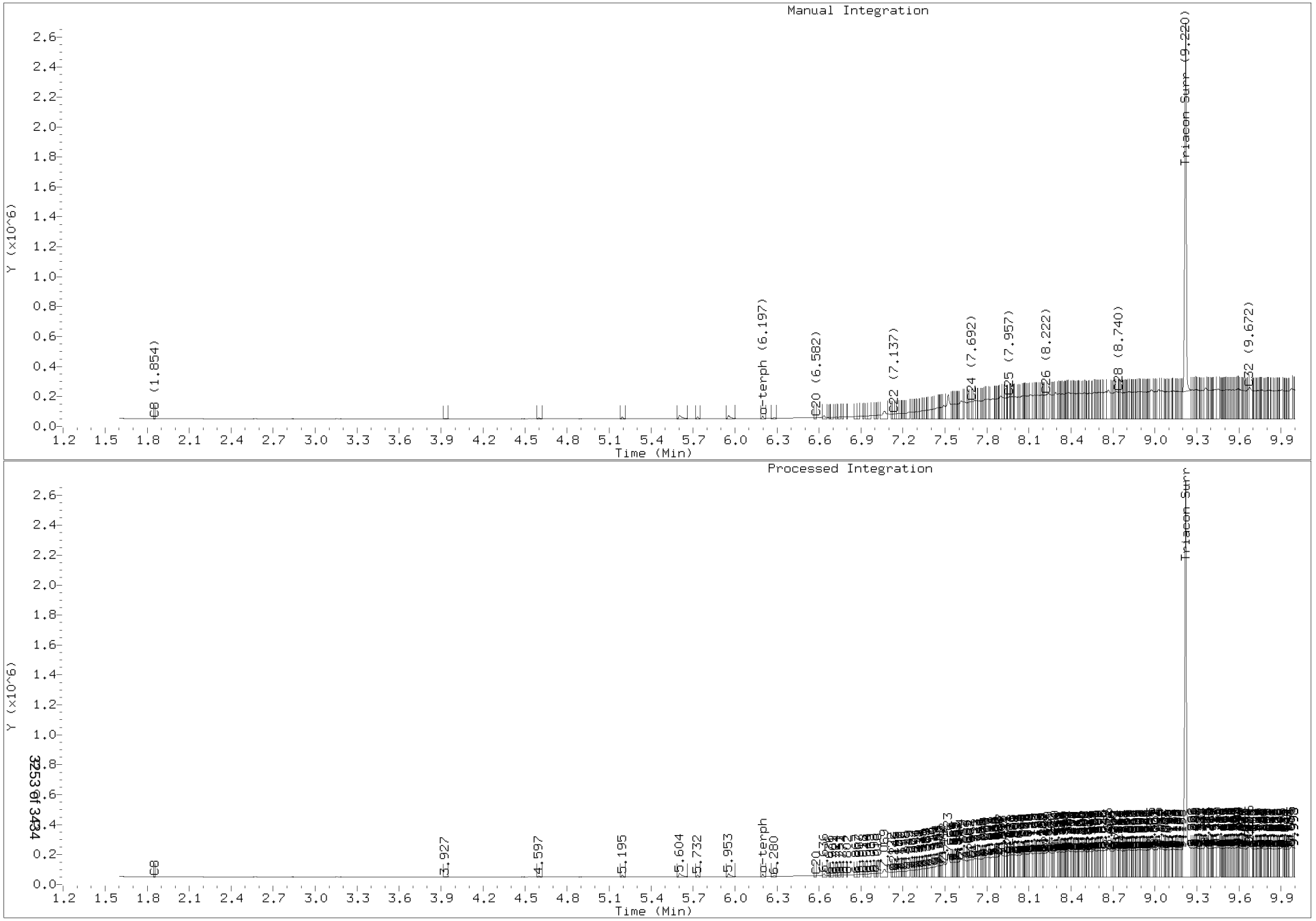
Datafile: FID4A, 20190904.b/419I0454.D SHI0031-CCV8



TPH Manual Integrations Report

Datafile: FID4A, 20190904.b/419I0454.D Injection: 05-SEP-2019 03:34

Lab ID:SHI0031-CCV8



CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0560.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-CCV1	Injection Time:	06:31
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	534	96275.31	102787.7		6.8	15
o-Terphenyl	A	90.000	92.5	122006.7	125456.9		2.8	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0560.D

Date : 06-SEP-2019 06:31

Client ID:

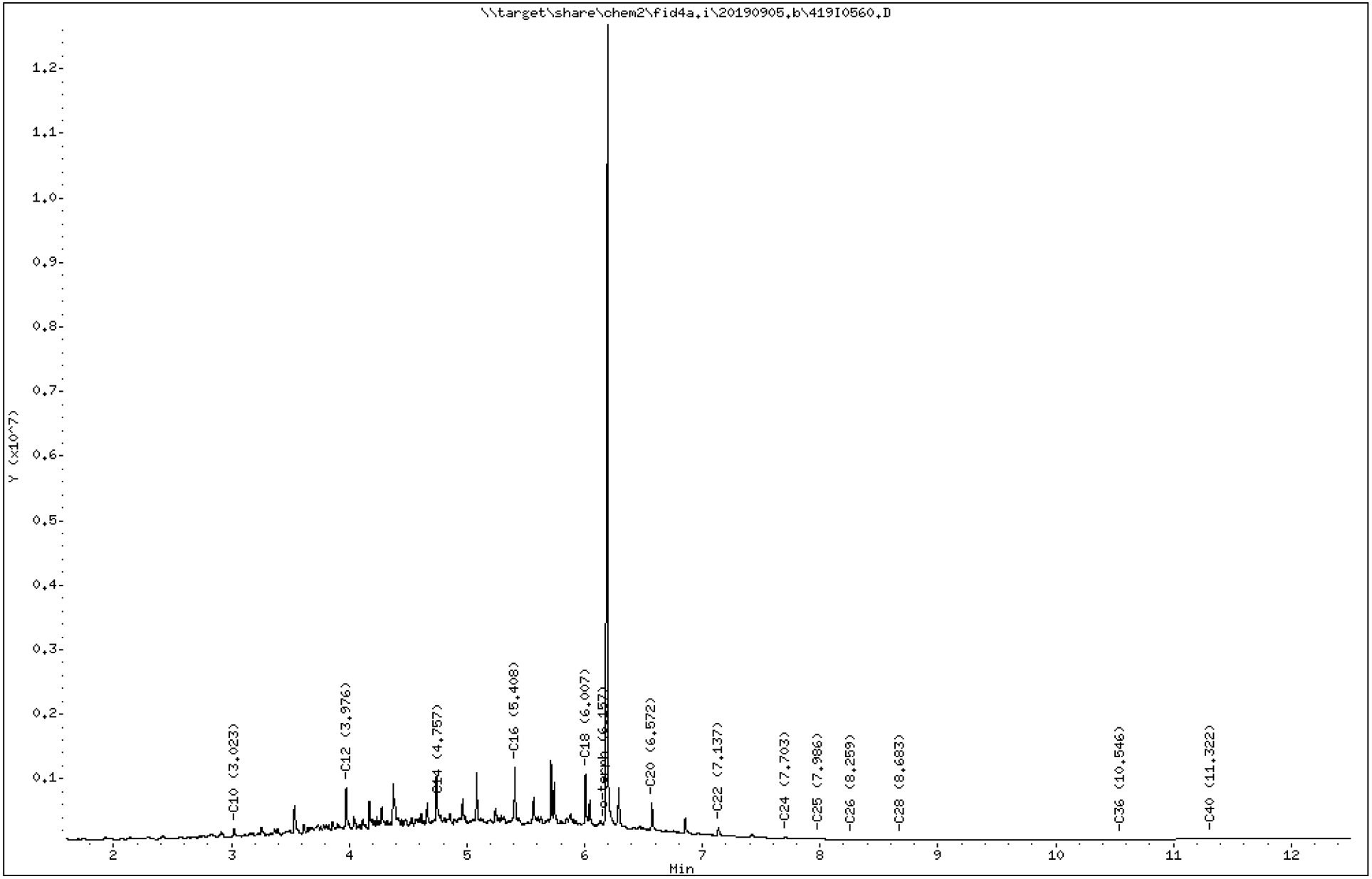
Sample Info: SHI0053-CCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0560.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CCV1
Client ID:
Injection: 06-SEP-2019 06:31
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.700	-0.012	13009	23394	WATPHD	(C12-C24)	51393863	533.8
C10	3.023	0.004	173163	262494	WATPHM	(C24-C38)	108677	2.4
C12	3.976	-0.007	811416	941409	AK102	(C10-C25)	60732718	543.6
C14	4.757	0.006	473491	355782	AK103	(C25-C36)	90123	2.2
C16	5.408	-0.005	1121911	1151350	OR.DIES	(C10-C28)	60809825	543.3
C18	6.007	-0.003	1023483	1369059				
C20	6.572	-0.004	566376	681523				
C22	7.137	-0.001	184241	477183				
C24	7.703	0.015	42557	122814				
C25	7.986	0.028	18858	63453				
C26	8.259	0.036	7840	7907				
C28	8.683	-0.050	1643	1237				
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	60832469	904.2 M
C36	10.546	0.029	6856	5142				
C38	----							
C40	11.322	0.025	14517	25036				
o-terph	6.197	-0.002	12401480	11291117				
Triacon Surr	----				NAS DIES	(C10-C24)	60723791	544.0

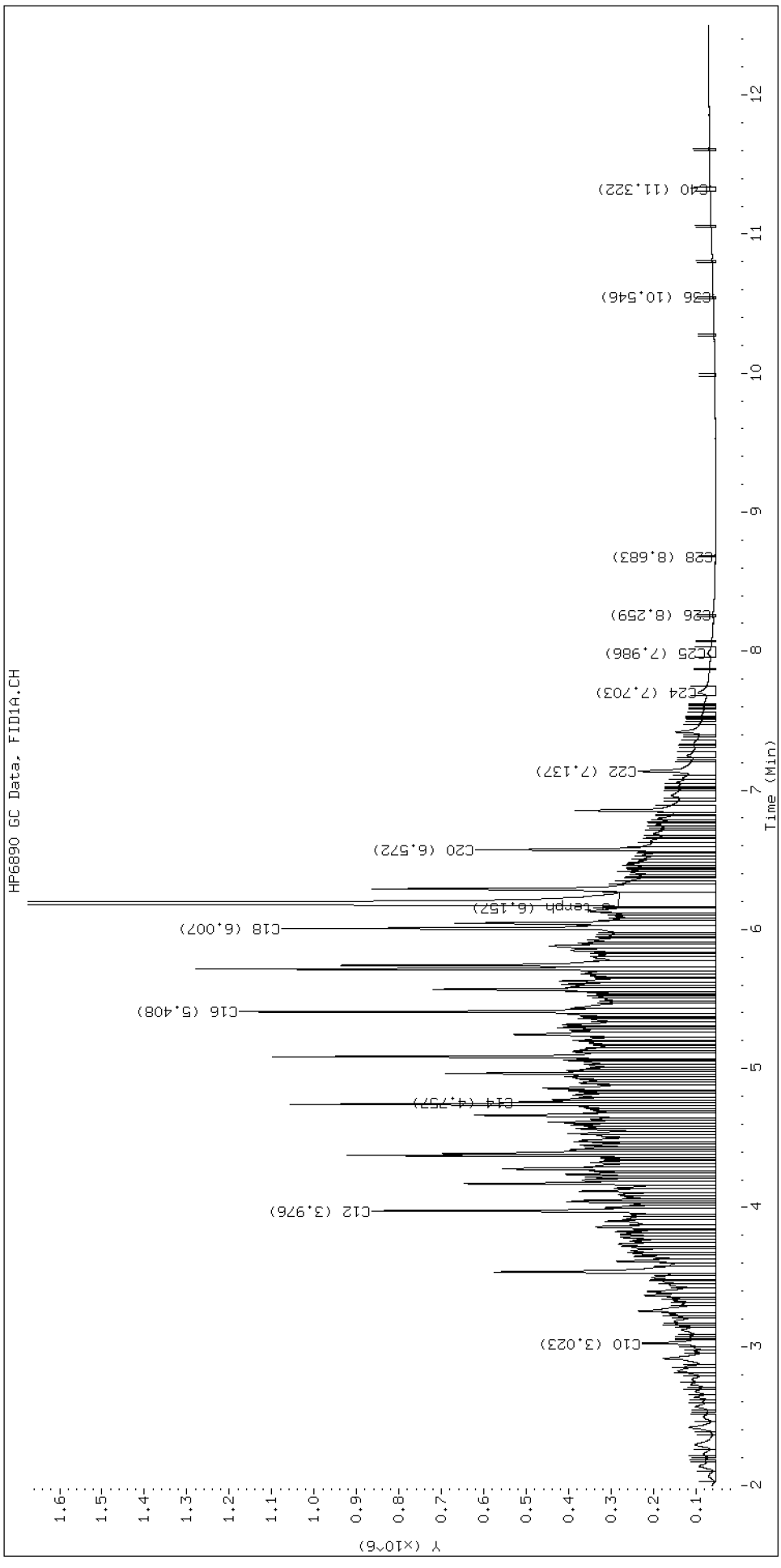
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	11291117	92.5	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

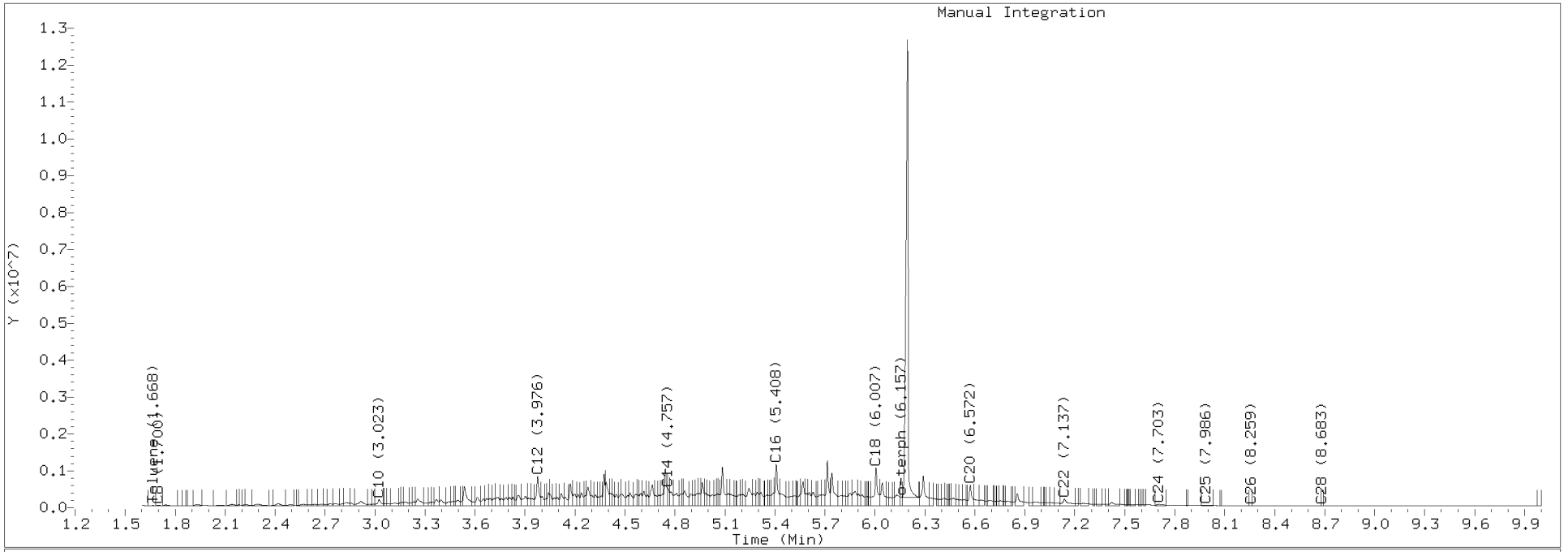
Datafile: FID4A, 20190905.b/419I0560.D SHI0053-CCV1

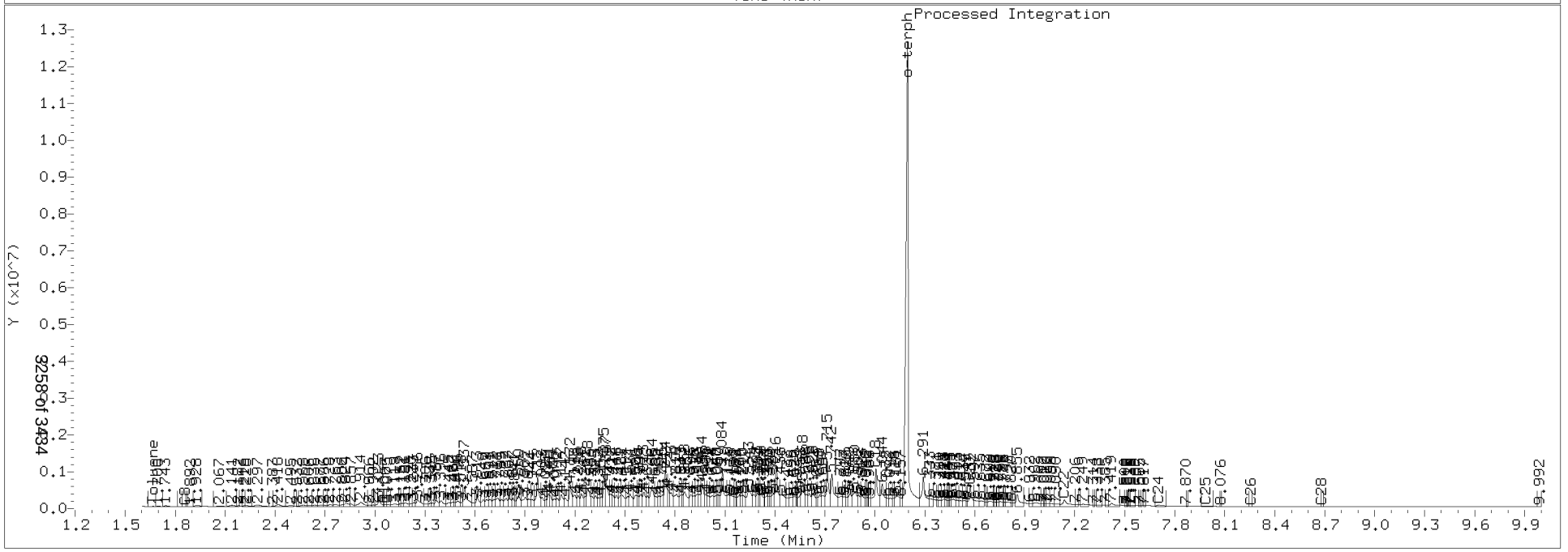


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0560.D Injection: 06-SEP-2019 06:31

Lab ID:SHI0053-CCV1





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0561.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-CCV2	Injection Time:	06:52
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	883	44420.79	39213.76		-11.7	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0561.D

Date : 06-SEP-2019 06:52

Client ID:

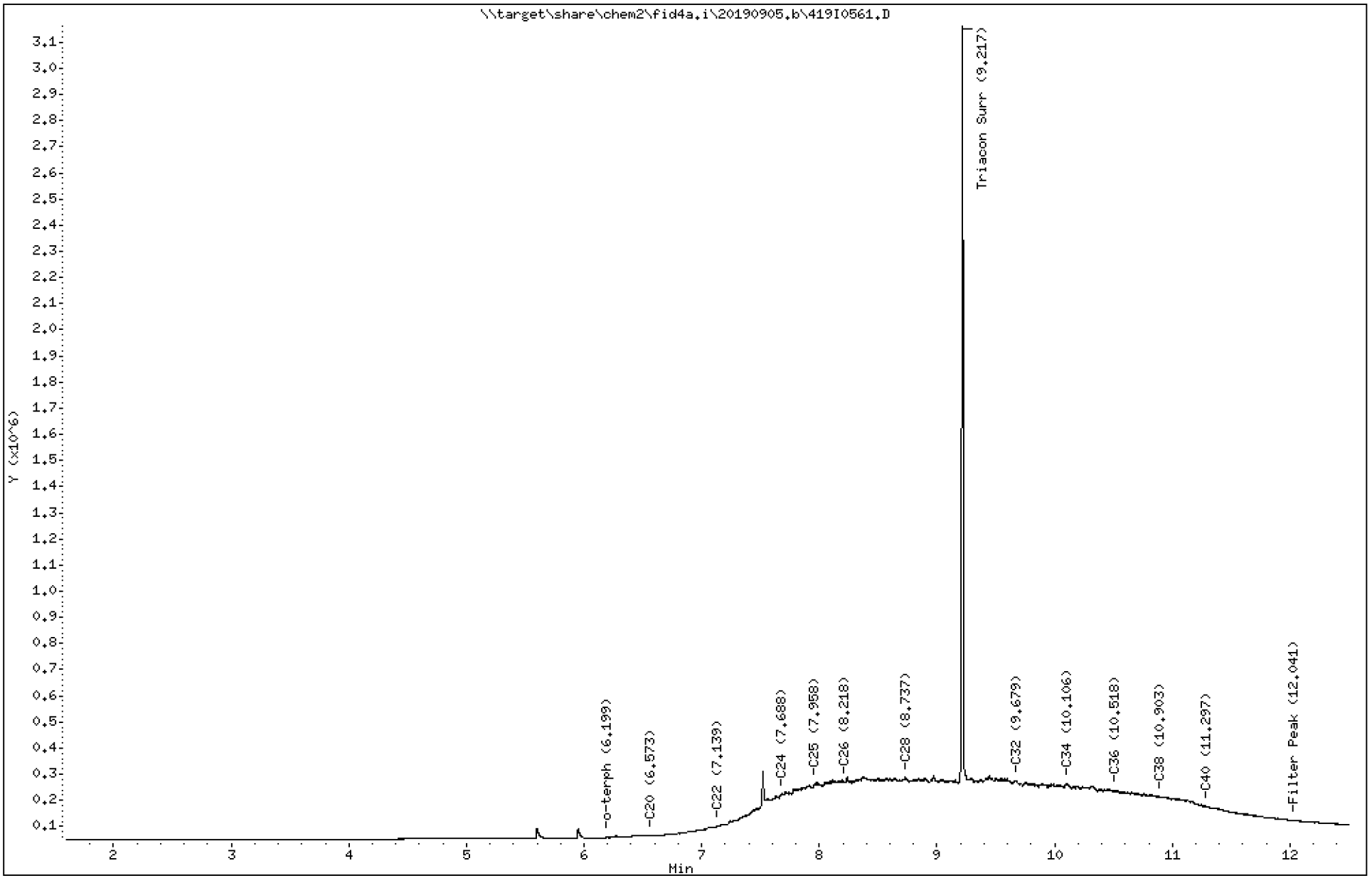
Sample Info: SHI0053-CCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0561.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-CCV2
Client ID:
Injection: 06-SEP-2019 06:52
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4694137	48.8
C10	----				WATPHM	(C24-C38)	39213758	882.8
C12	----				AK102	(C10-C25)	6624567	59.3
C14	----				AK103	(C25-C36)	33412592	833.9
C16	----				OR.DIES	(C10-C28)	17953457	160.4
C18	----							
C20	6.573	-0.003	13163	12200				
C22	7.139	0.002	48851	21846				
C24	7.688	0.000	168688	42011				
C25	7.958	0.000	208798	355392				
C26	8.218	-0.006	216668	86409				
C28	8.737	0.004	230226	102942				
C32	9.679	0.004	219171	193786				
C34	10.106	0.000	209563	104120				
Filter Peak	12.041	0.002	70419	45387	BUNKERC	(C10-C38)	43907895	652.6
C36	10.518	0.002	185129	91704				
C38	10.903	-0.002	160623	134926				
C40	11.297	-0.001	122823	60967				
o-terph	6.199	0.001	5098	5337				
Triacon Surr	9.217	-0.016	2889131	2364640	NAS DIES	(C10-C24)	4694137	42.1

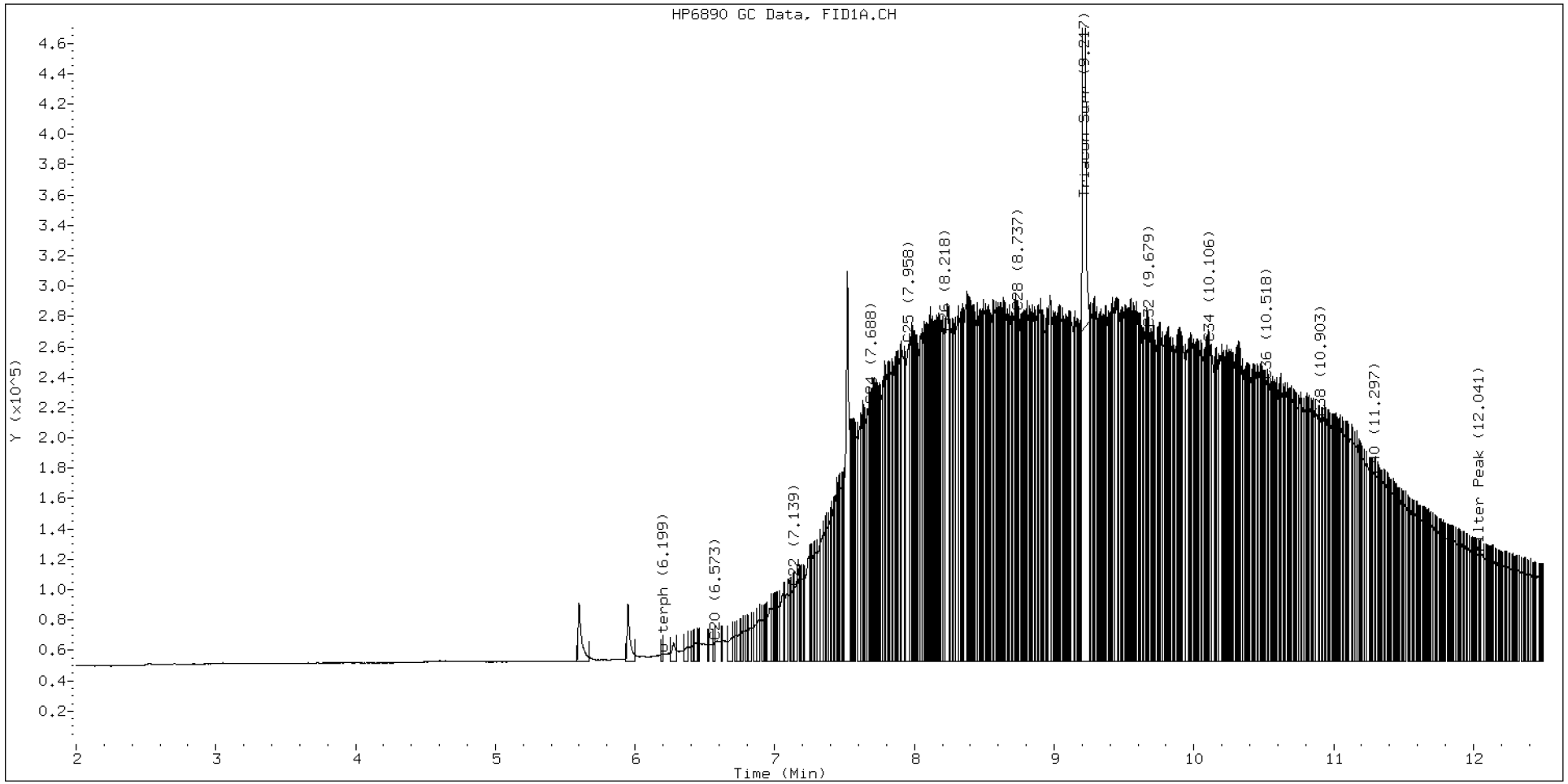
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	5337	0.0	
Triacontane	2364640	38.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

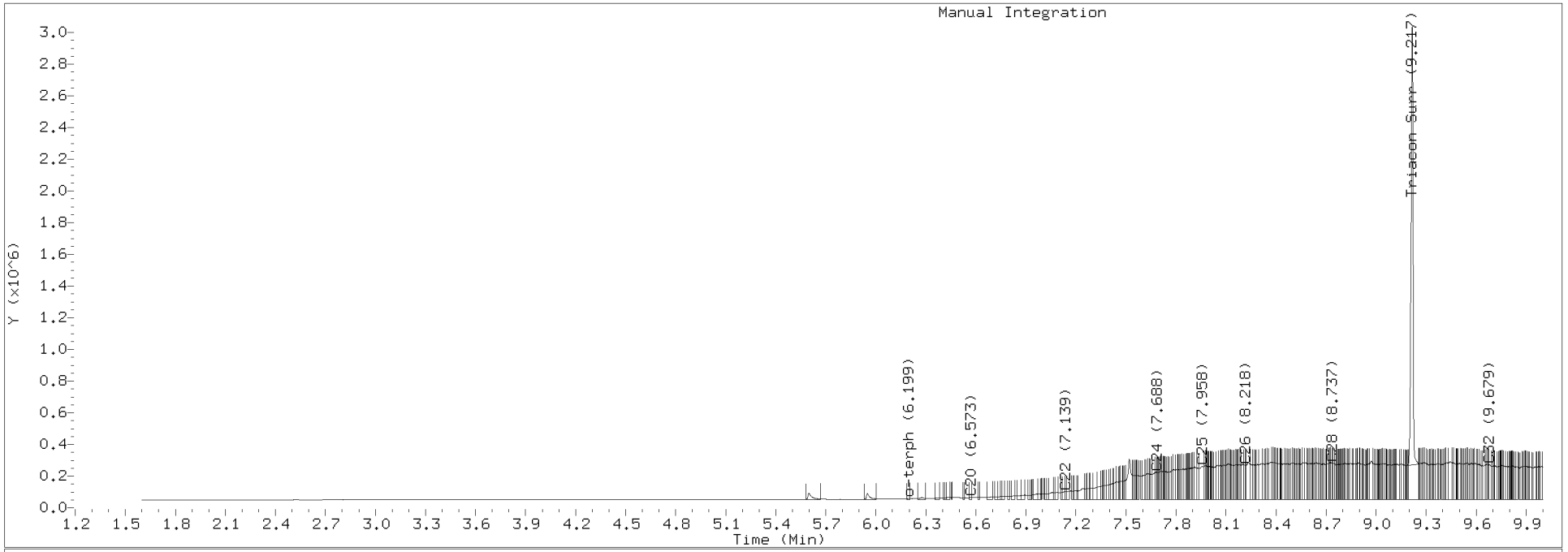
Datafile: FID4A, 20190905.b/419I0561.D SHI0053-CCV2

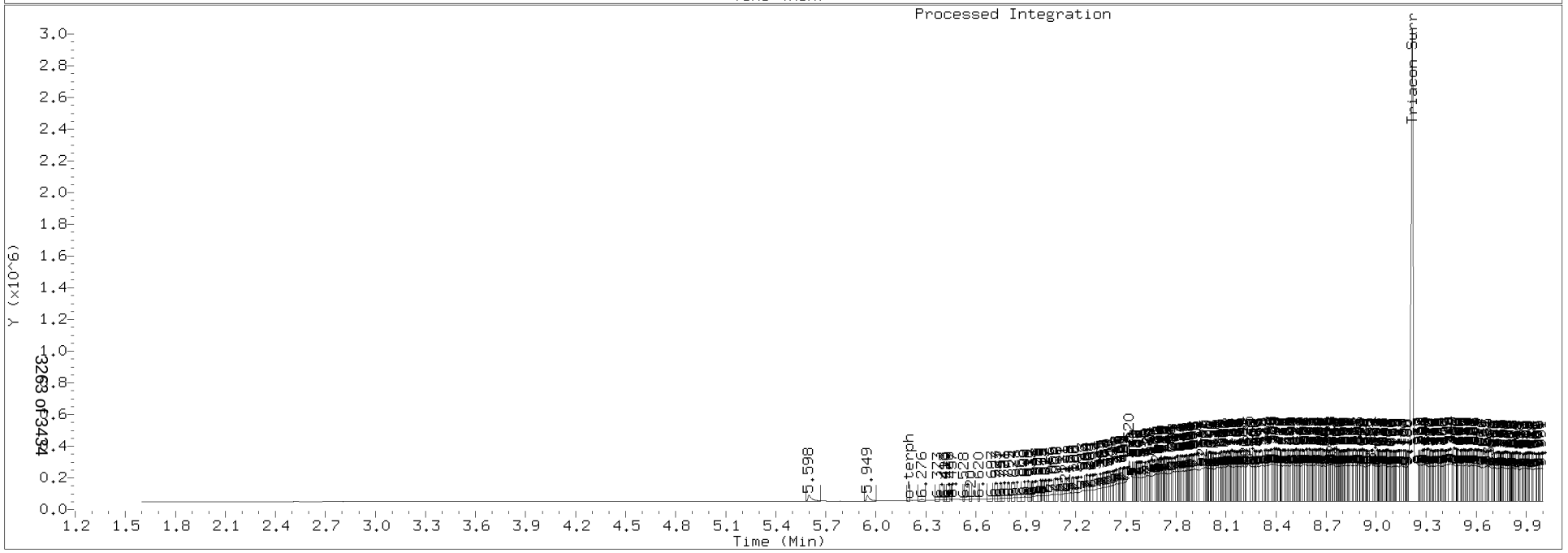


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0561.D Injection: 06-SEP-2019 06:52

Lab ID:SHI0053-CCV2





Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0547.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-SCV1	Injection Time:	02:01
Sequence Name:	DIESEL SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	490	96275.31	94397.24		-2.0	30

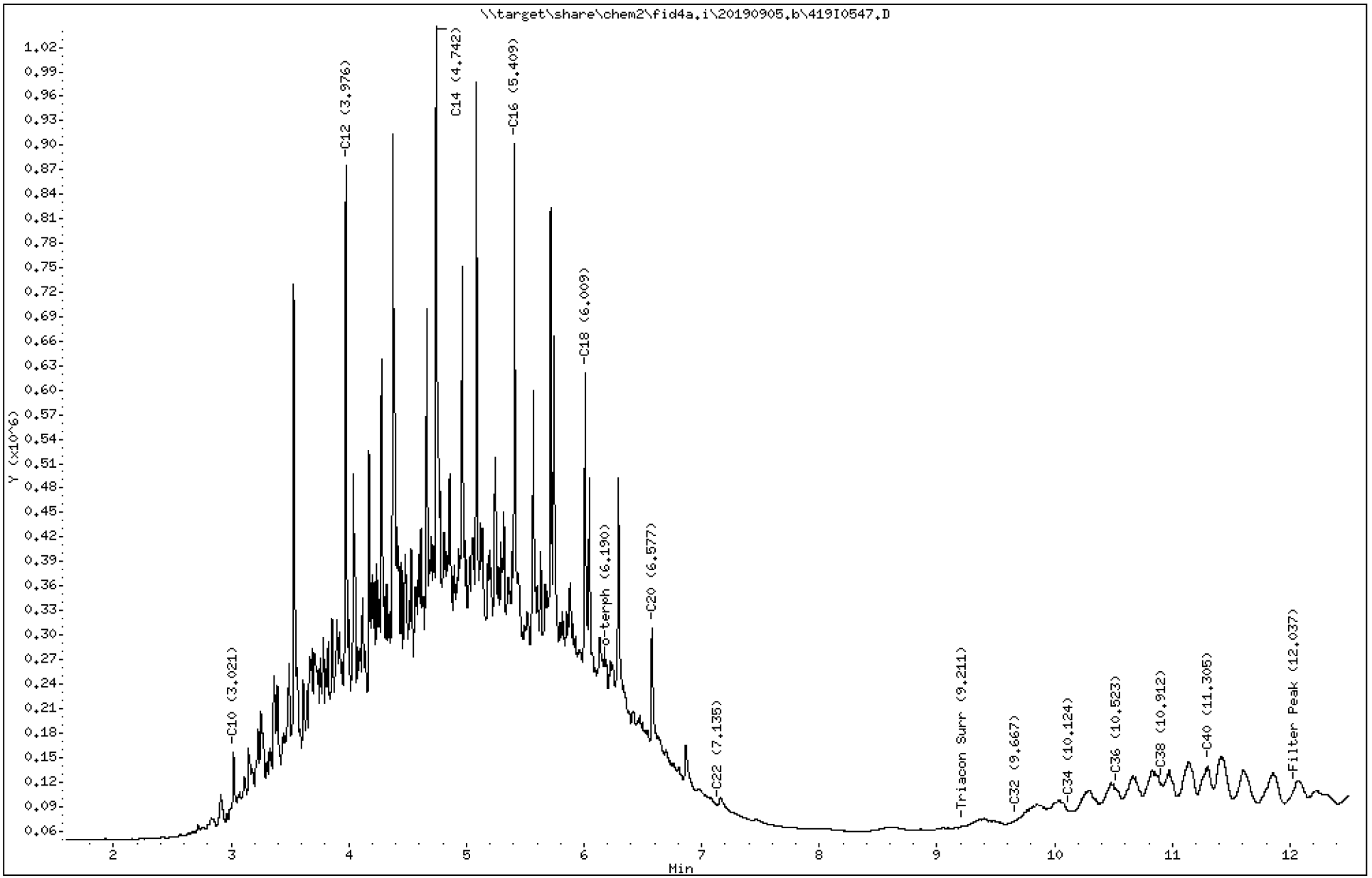
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0547.D
Date : 06-SEP-2019 02:01
Client ID:
Sample Info: SEQ-SCV1

Instrument: fid4a.i
Operator: JGR/VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0547.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV1
Client ID:
Injection: 06-SEP-2019 02:01
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	47198624	490.2
C10	3.021	0.002	107017	189534	WATPHM	(C24-C38)	3926192	88.4
C12	3.976	-0.007	825553	970800	AK102	(C10-C25)	57300068	512.9
C14	4.742	-0.008	996730	921930	AK103	(C25-C36)	2577356	64.3
C16	5.409	-0.004	853367	944515	OR.DIES	(C10-C28)	57315981	512.1
C18	6.009	-0.001	571467	924892				
C20	6.577	0.000	258974	584247				
C22	7.135	-0.002	42335	8432				
C24	----							
C25	----							
C26	----							
C32	9.667	-0.007	23024	29212				
C34	10.124	0.018	35699	33411				
Filter Peak	12.037	-0.002	62961	253045	BUNKERC	(C10-C38)	61226261	910.0
C36	10.523	0.007	62321	75360				
C38	10.912	0.007	67745	46495				
C40	11.305	0.008	89616	221492				
o-terph	6.190	-0.008	216639	232217				
Triacon Surr	9.211	-0.022	16258	32363	NAS DIES	(C10-C24)	57300068	513.3

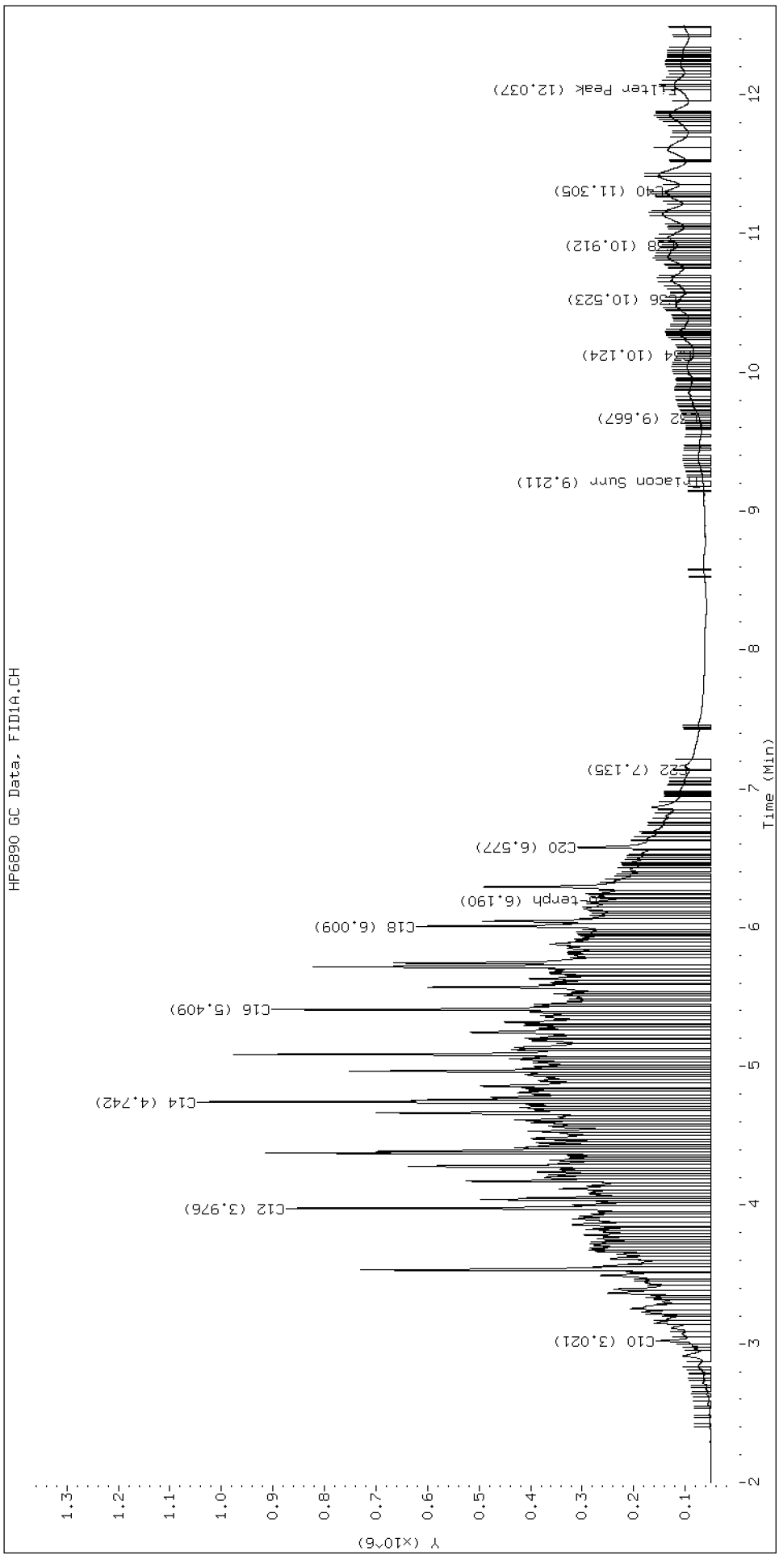
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount
o-Terphenyl	232217	1.9
Triacontane	32363	0.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190905.b/419I0547.D SHI0053-SCV1



SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0548.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-SCV2	Injection Time:	02:22
Sequence Name:	MOIL SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	973	44420.79	43231.4		-2.7	30

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0548.D

Date : 06-SEP-2019 02:22

Client ID:

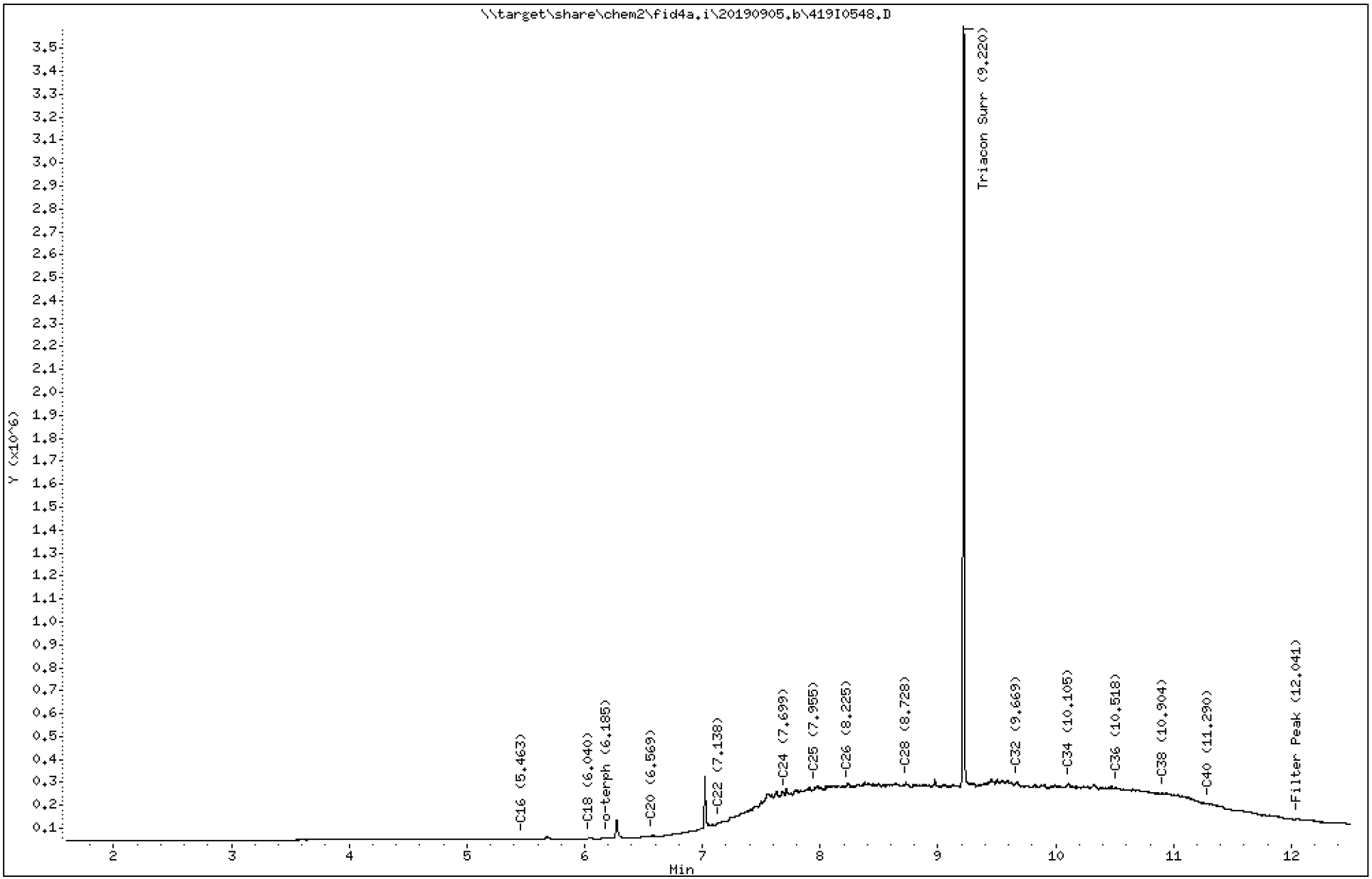
Sample Info: SEQ-SCV2

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0548.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV2
Client ID:
Injection: 06-SEP-2019 02:22
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	6577610	68.3
C10	----				WATPHM	(C24-C38)	43231405	973.2
C12	----				AK102	(C10-C25)	8617963	77.1
C14	----				AK103	(C25-C36)	36664024	915.1
C16	5.463	0.050	2229	1128	OR.DIES	(C10-C28)	20702005	185.0
C18	6.040	0.030	5685	5475				
C20	6.569	-0.008	16864	18909				
C22	7.138	0.001	71370	46148				
C24	7.699	0.011	195206	48695				
C25	7.955	-0.004	226212	123100				
C26	8.225	0.001	232090	81001				
C28	8.728	-0.005	249634	328150				
C32	9.669	-0.006	253564	382876				
C34	10.105	-0.000	244652	193564				
Filter Peak	12.041	0.002	88932	48533	BUNKERC	(C10-C38)	49809015	740.3
C36	10.518	0.001	226452	123532				
C38	10.904	-0.002	202169	110203				
C40	11.290	-0.007	156301	124172				
o-terph	6.185	-0.014	5712	7191				
Triacon Surr	9.220	-0.013	3302296	2674658	NAS DIES	(C10-C24)	6577610	58.9

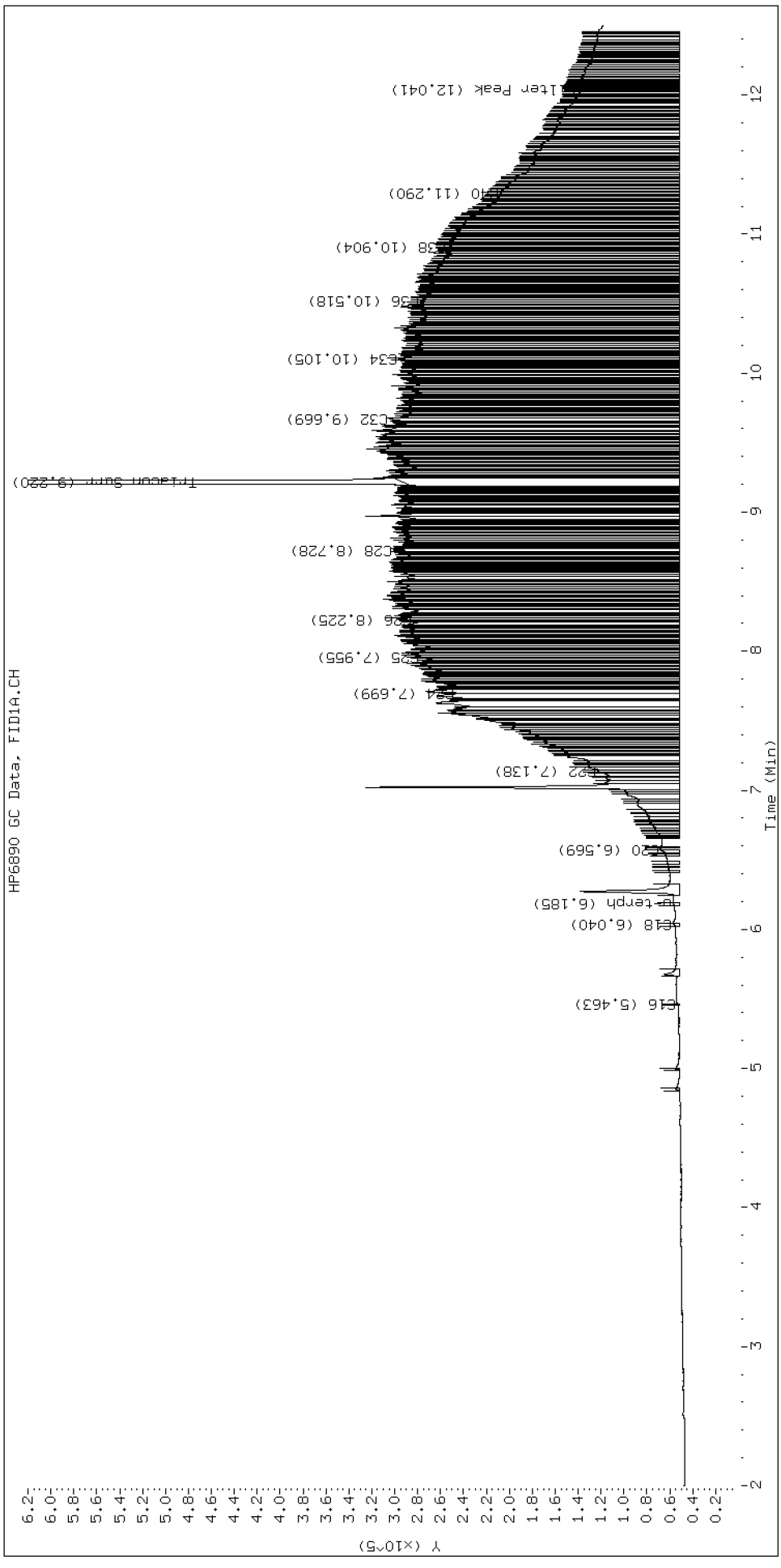
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	7191	0.1	
Triacontane	2674658	43.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

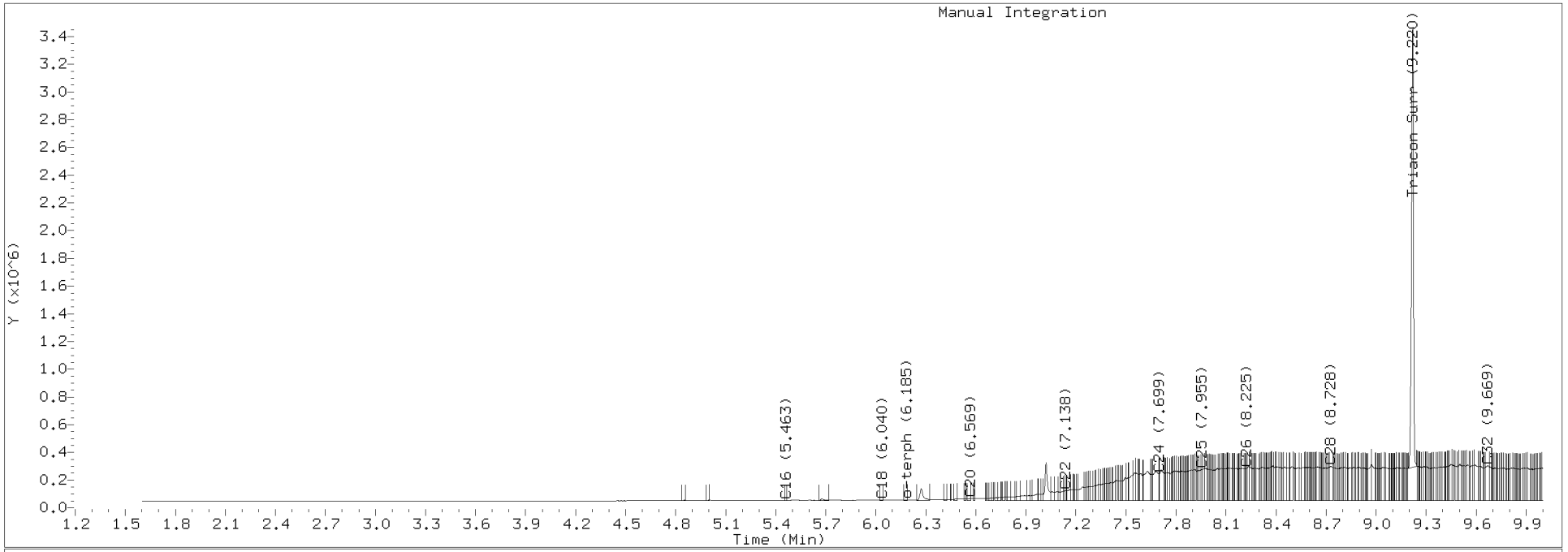
Datafile: FID4A, 20190905.b/419I0548.D SHI0053-SCV2

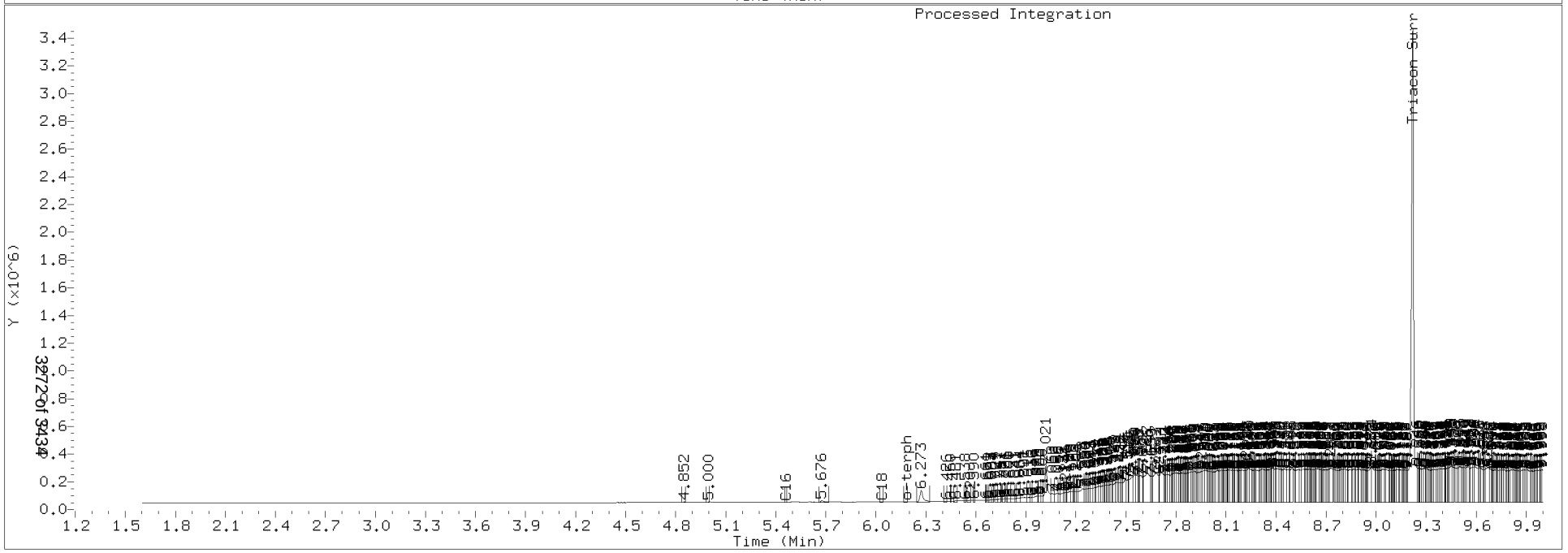


TPH Manual Integrations Report

Datafile: FID4A, 20190905.b/419I0548.D Injection: 06-SEP-2019 02:22

Lab ID:SHI0053-SCV2





Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00021
Lab File ID:	419I0549.D	Calibration Date:	09/05/19 00:00
Sequence:	SHI0053	Injection Date:	09/06/19
Lab Sample ID:	SHI0053-SCV3	Injection Time:	02:42
Sequence Name:	AK103 SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	891	44420.79	39590.76		-10.9	30

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190905.b\419I0549.D

Date : 06-SEP-2019 02:42

Client ID:

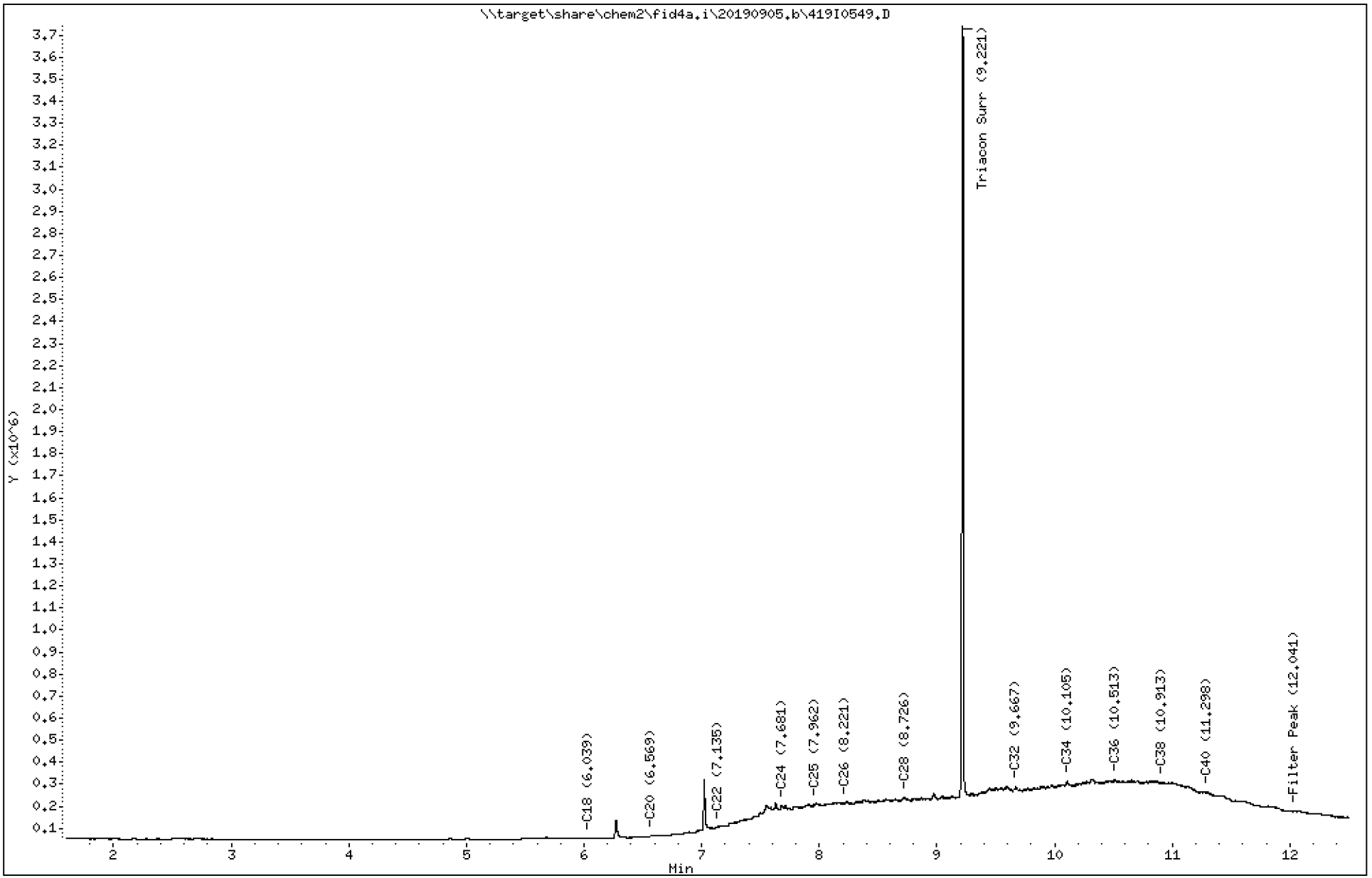
Sample Info: SEQ-SCV3

Column phase: RTX-1

Instrument: fid4a.i

Operator: JGR/VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190905.b/419I0549.D
Method: 20190905.b\FID4TPH.m
Instrument: fid4a.i, JGR/VTS
Report Date: 09/06/2019
Macro: 05-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:05-SEP-2019 M.Oil:05-SEP-2019

ARI ID: SHI0053-SCV3
Client ID:
Injection: 06-SEP-2019 02:42
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	5015558	52.1
C10	----				WATPHM	(C24-C38)	39590761	891.3
C12	----				AK102	(C10-C25)	6513420	58.3
C14	----				AK103	(C25-C36)	31999485	798.7
C16	----				OR.DIES	(C10-C28)	15193638	135.8
C18	6.039	0.029	5296	4051				
C20	6.569	-0.007	15887	16787				
C22	7.135	-0.002	57835	37508				
C24	7.681	-0.007	156035	349994				
C25	7.962	0.004	160164	71527				
C26	8.221	-0.002	164369	97784				
C28	8.726	-0.007	193253	262816				
C32	9.667	-0.008	240483	428011				
C34	10.105	-0.001	264230	295928				
Filter Peak	12.041	0.002	129760	77266	BUNKERC	(C10-C38)	44606319	663.0
C36	10.513	-0.004	269456	120313				
C38	10.913	0.008	260433	180319				
C40	11.298	0.001	213708	137992				
o-terph	----							
Triacon Surr	9.221	-0.012	3493703	2925317	NAS DIES	(C10-C24)	5015558	44.9

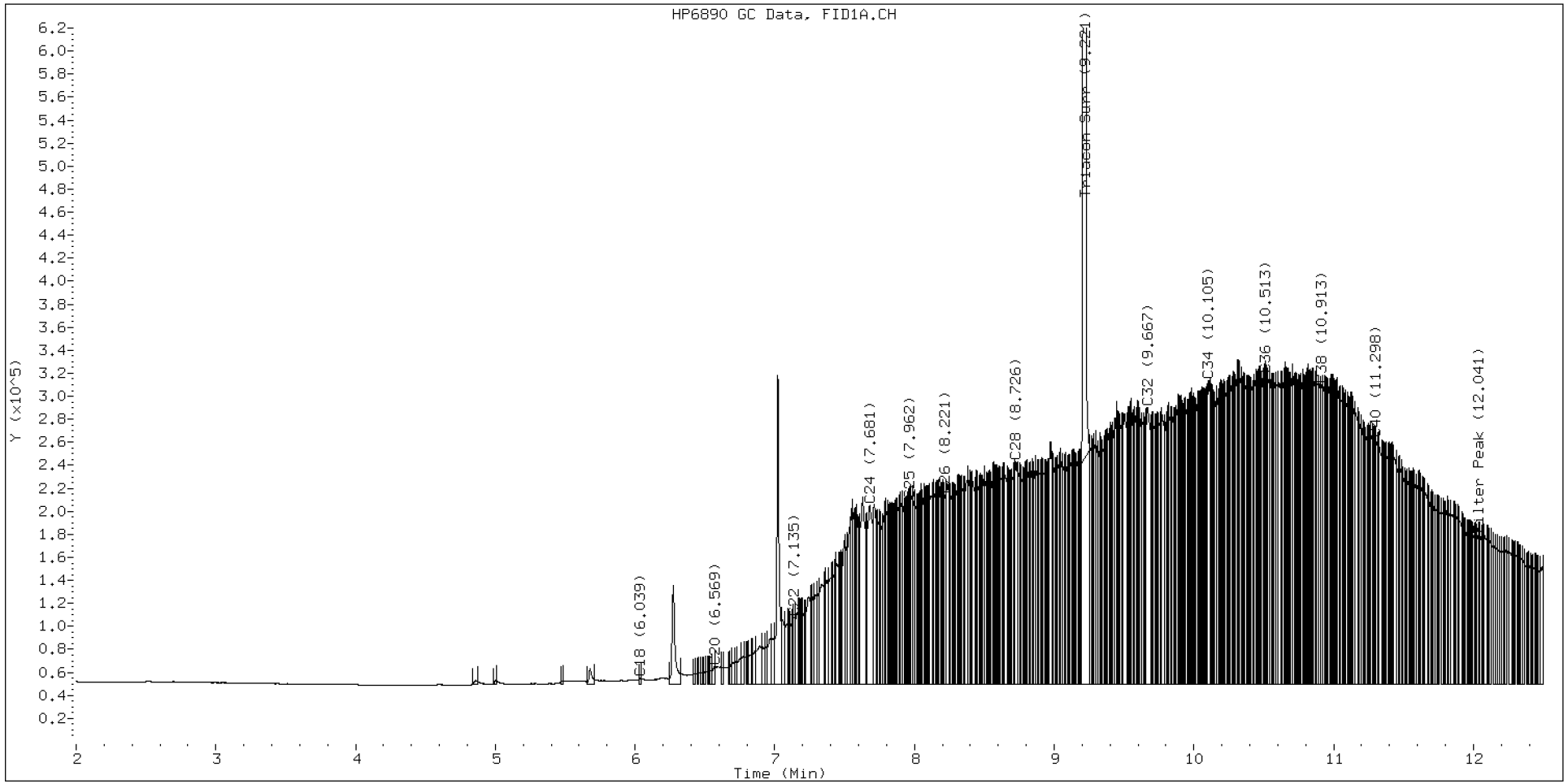
Range Times: NW Diesel(3.983 - 7.688) AK102(3.02 - 7.96) Jet A(3.02 - 6.01)
NW M.Oil(7.69 - 10.91) AK103(7.96 - 10.52) OR Diesel(3.02 - 8.73)

Surrogate	Area	Amount	
o-Terphenyl	0	0.0	
Triacontane	2925317	47.7	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	122006.7	08-AUG-2019
Triacon Surr	61334.3	08-AUG-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	96275.3	05-SEP-2019
Motor Oil	44420.8	05-SEP-2019
AK102	111727.3	05-SEP-2019
AK103	40065.7	05-SEP-2019
OR Diesel	111917.0	05-SEP-2019
NAS Diesel	111623.1	05-SEP-2019
Bunker C	67278.4	09-AUG-2019

Datafile: FID4A, 20190905.b/419I0549.D SHI0053-SCV3



TPH Manual Integrations Report

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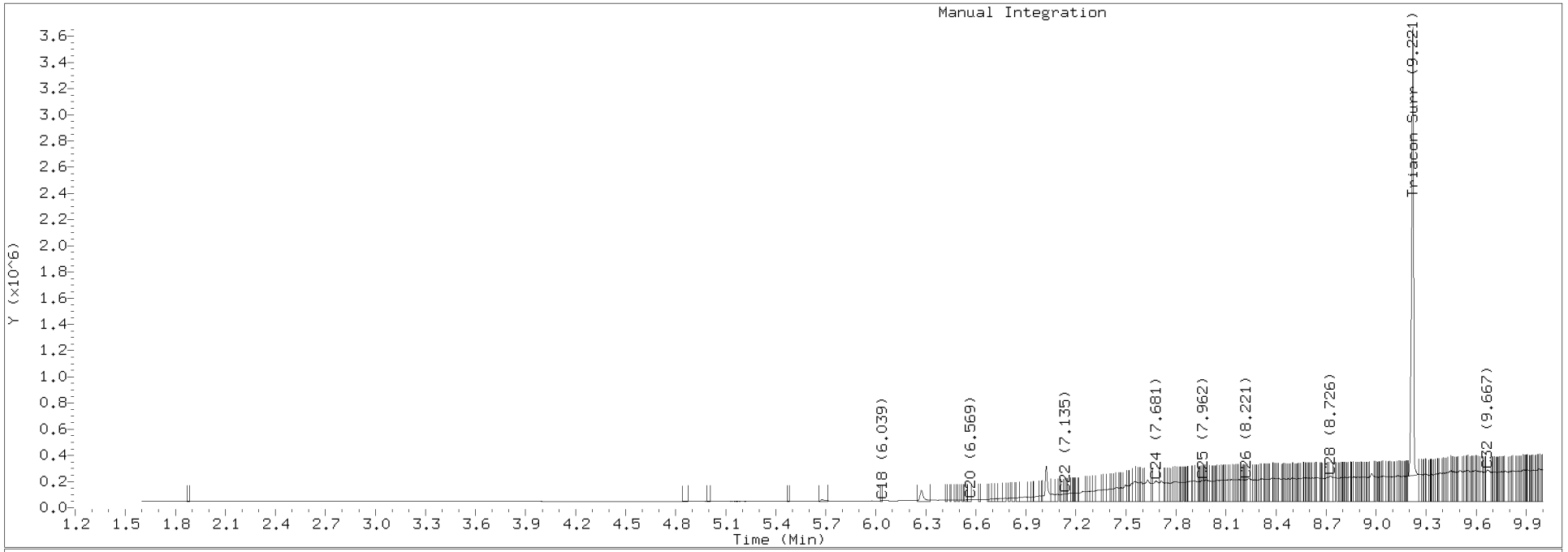
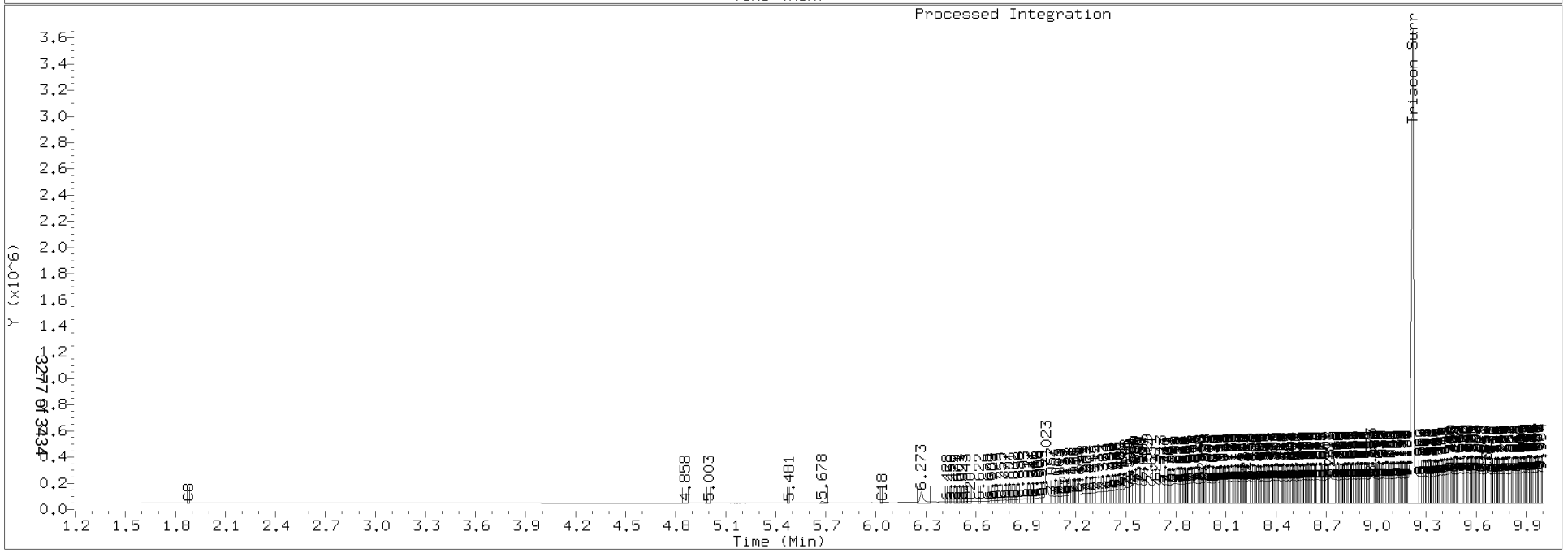
Lab ID:SHI0053-SCV3





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1035.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-CCV1	Injection Time:	21:56
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	475	174459.7	165705.6		-5.0	15
o-Terphenyl	A	90.000	87.2	222475.3	215539.1		-3.1	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1035.D

Date : 10-SEP-2019 21:56

Client ID:

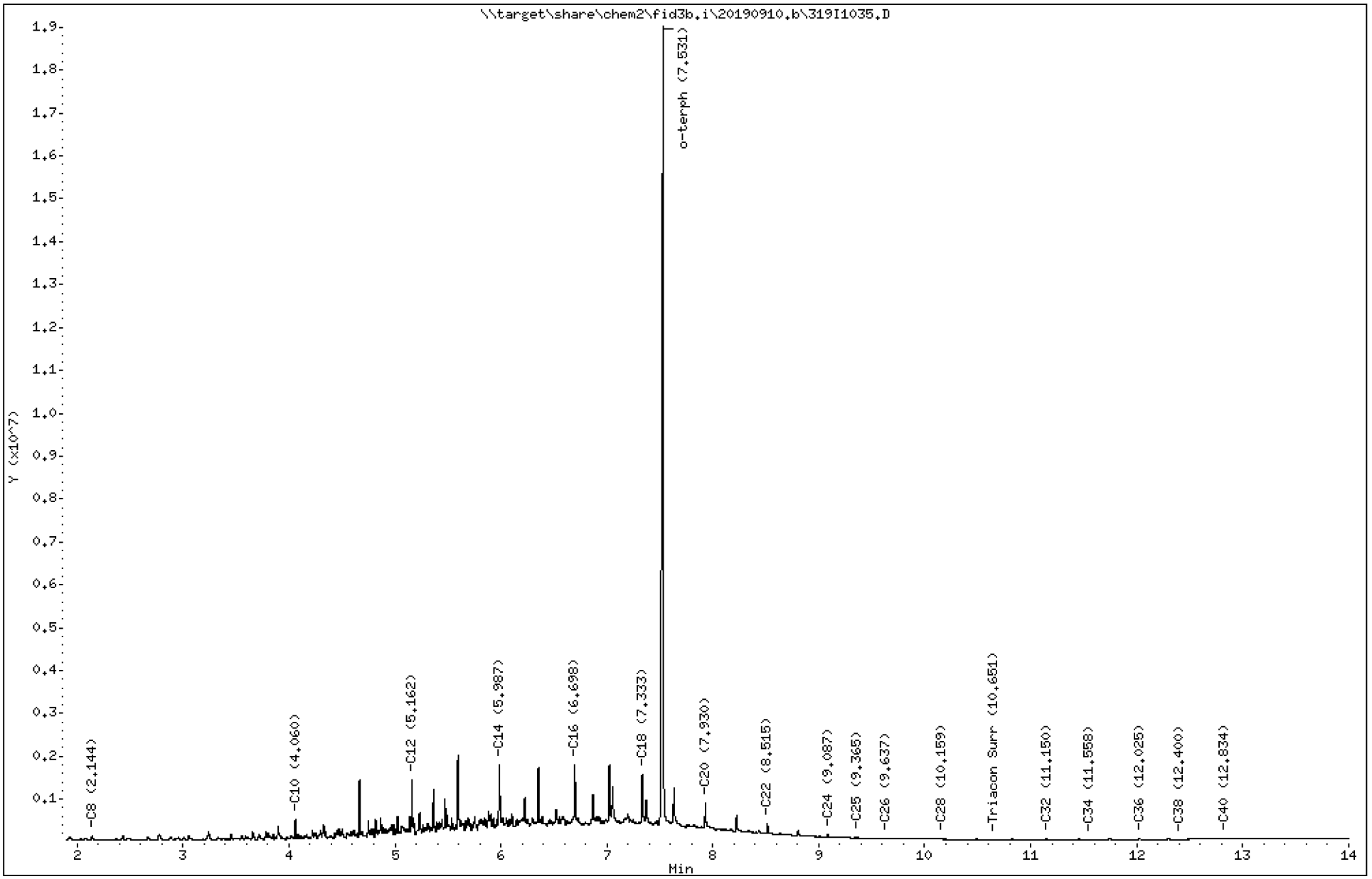
Sample Info: SHI0095-CCV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1035.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV1
Client ID:
Injection: 10-SEP-2019 21:56
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	16439080	91.6	
C8	2.144	-0.032	94235	86469	WATPHD	(C12-C24)	82852781	474.9	
C10	4.060	-0.010	477700	306258	WATPHM	(C24-C38)	2067511	16.3	
C12	5.162	-0.004	1407873	855231	AK102	(C10-C25)	96025201	471.0	M
C14	5.987	-0.005	1737857	1753452	AK103	(C25-C36)	1566605	15.4	
C16	6.698	-0.005	1754737	1757323	OR.DIES	(C10-C28)	97179092	470.9	M
C18	7.333	-0.005	1537666	1936128					
C20	7.930	-0.006	865272	1158508					
C22	8.515	-0.008	370763	642755					
C24	9.087	-0.008	127571	461856					
C25	9.365	-0.009	70636	271994					
C26	9.637	-0.009	39927	169030					
C28	10.159	-0.010	17593	53265	IT.DIES	(C10-C24)	95642573	470.1	
C32	11.150	0.019	23852	42166					
C34	11.558	-0.015	11160	21975					
Filter Peak	----								
C36	12.025	0.026	28580	63237					
o-terph	7.531	-0.002	18587168	19398525					
Triacon Surr	10.651	-0.039	11939	24534					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

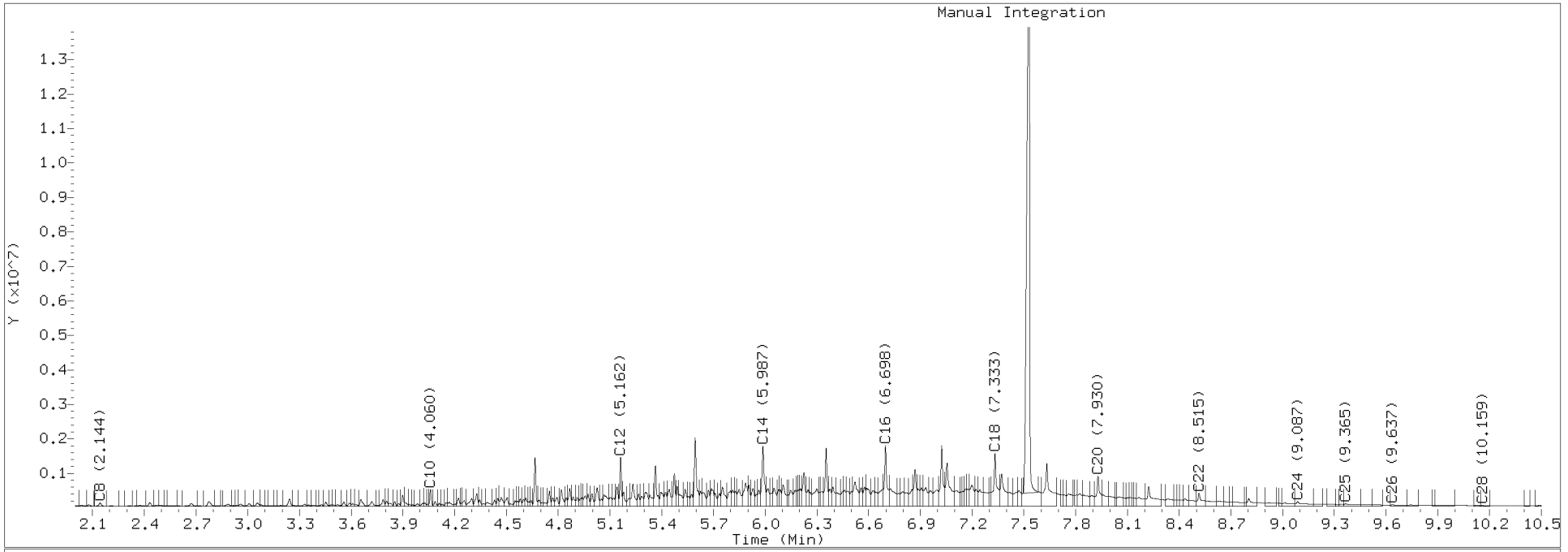
Surrogate	Area	Amount
o-Terphenyl	19398525	87.2
Triacontane	24534	0.1

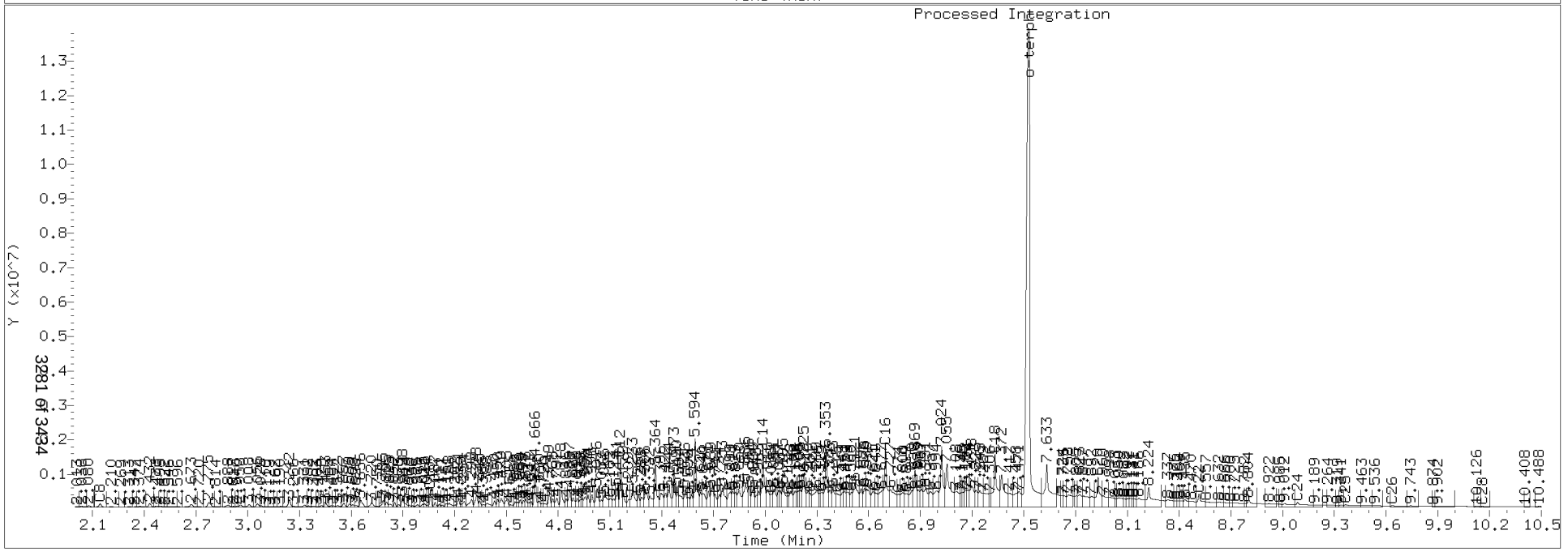
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1035.D Injection: 10-SEP-2019 21:56

Lab ID:SHI0095-CCV1





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1036.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-CCV2	Injection Time:	22:18
Sequence Name:	MOIL CCV		

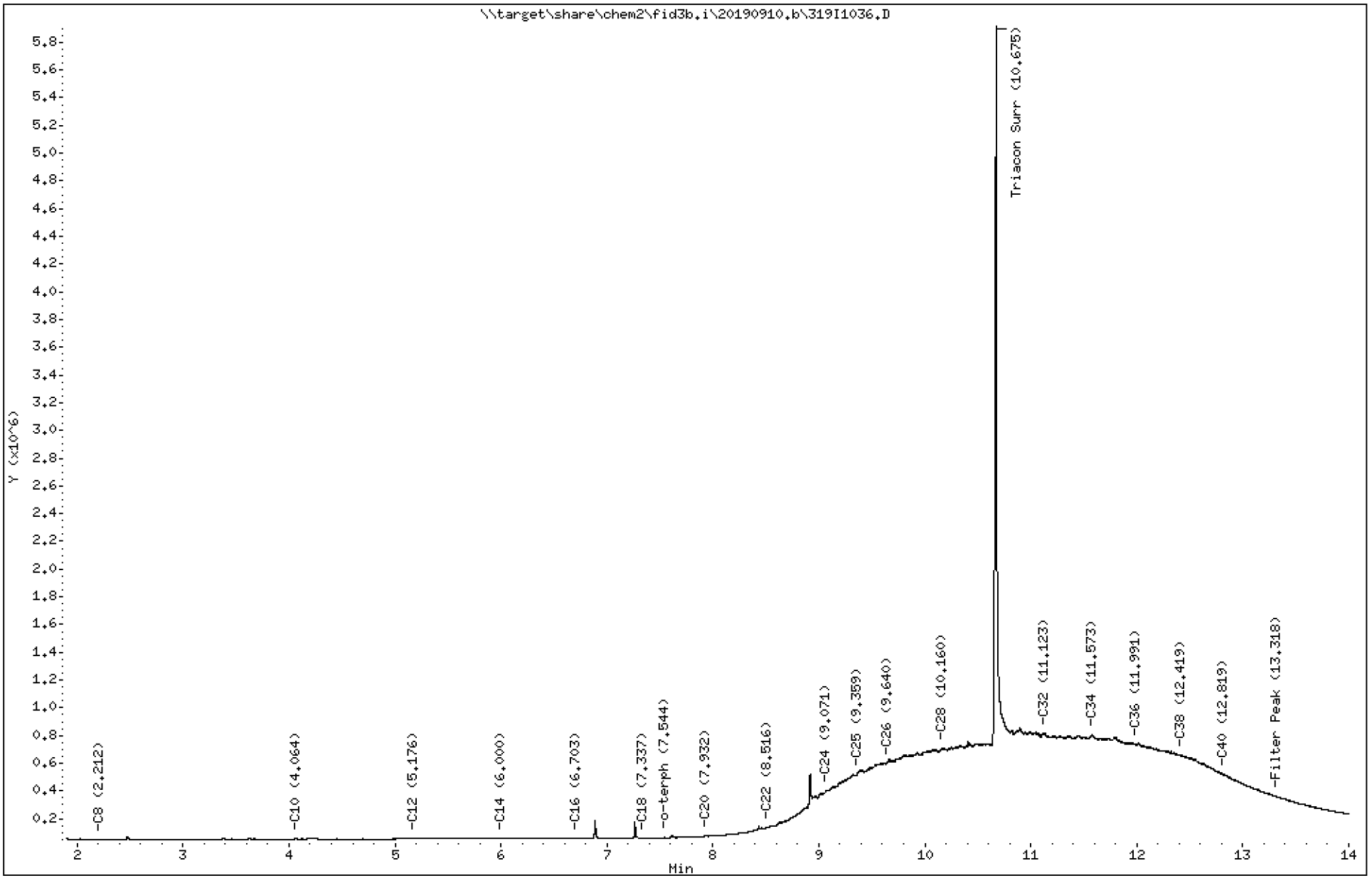
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	982	126617	124380.1		-1.8	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1036.D
Date : 10-SEP-2019 22:18
Client ID:
Sample Info: SHI0095-CCV2

Instrument: fid3b.i
Operator: JGR
Column phase: RTX-1
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1036.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV2
Client ID:
Injection: 10-SEP-2019 22:18
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	390806	2.2	
C8	2.212	0.036	2412	4359	WATPHD	(C12-C24)	11360405	65.1	
C10	4.064	-0.005	8379	14337	WATPHM	(C24-C38)	124380087	982.3	
C12	5.176	0.010	7439	15680	AK102	(C10-C25)	16537164	81.1	
C14	6.000	0.008	11046	32666	AK103	(C25-C36)	104576161	1027.9	M
C16	6.703	0.001	11169	35620	OR.DIES	(C10-C28)	45993909	222.9	
C18	7.337	-0.001	12316	14632					
C20	7.932	-0.005	26912	51808					
C22	8.516	-0.007	90319	228060					
C24	9.071	-0.025	358282	774198					
C25	9.359	-0.015	472690	288937					
C26	9.640	-0.006	554047	529380					
C28	10.160	-0.008	660921	811735	IT.DIES	(C10-C24)	11557745	56.8	
C32	11.123	-0.008	768197	2061200					
C34	11.573	0.000	757081	1830862					
Filter Peak	13.318	-0.001	311227	522740					
C36	11.991	-0.008	689891	905067					
o-terph	7.544	0.010	15400	28693					
Triacon Surr	10.675	-0.015	5157088	6504328					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

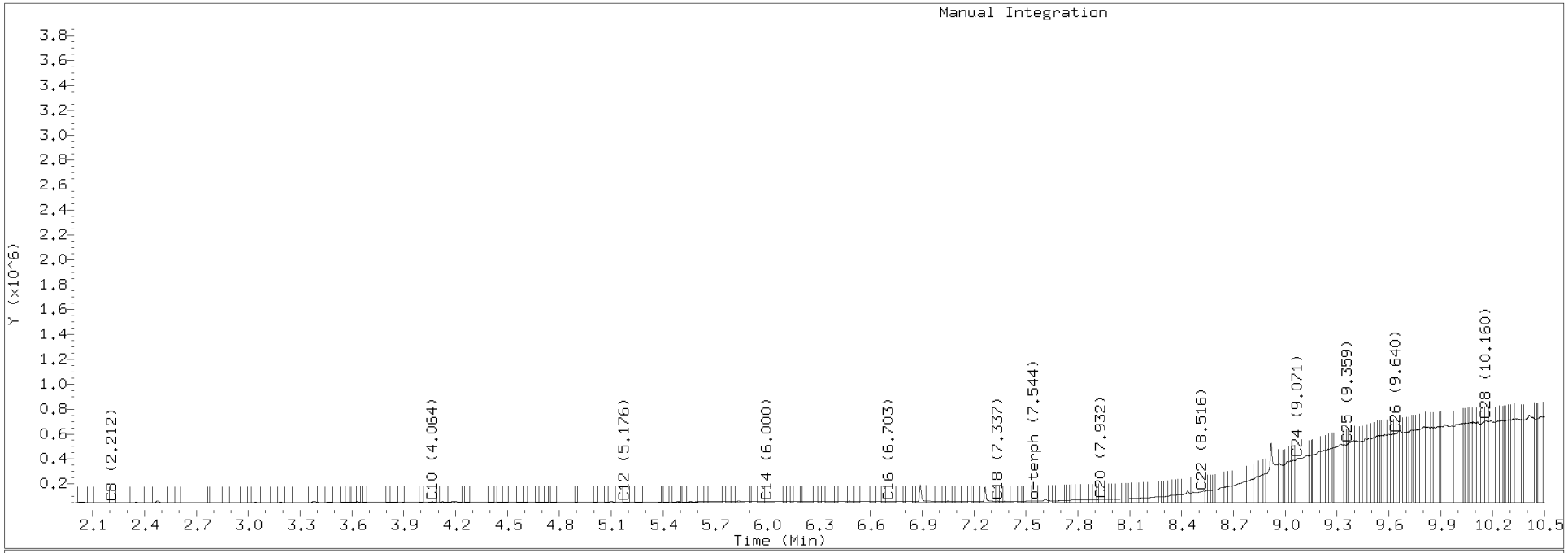
Surrogate	Area	Amount
o-Terphenyl	28693	0.1
Triacontane	6504328	38.3

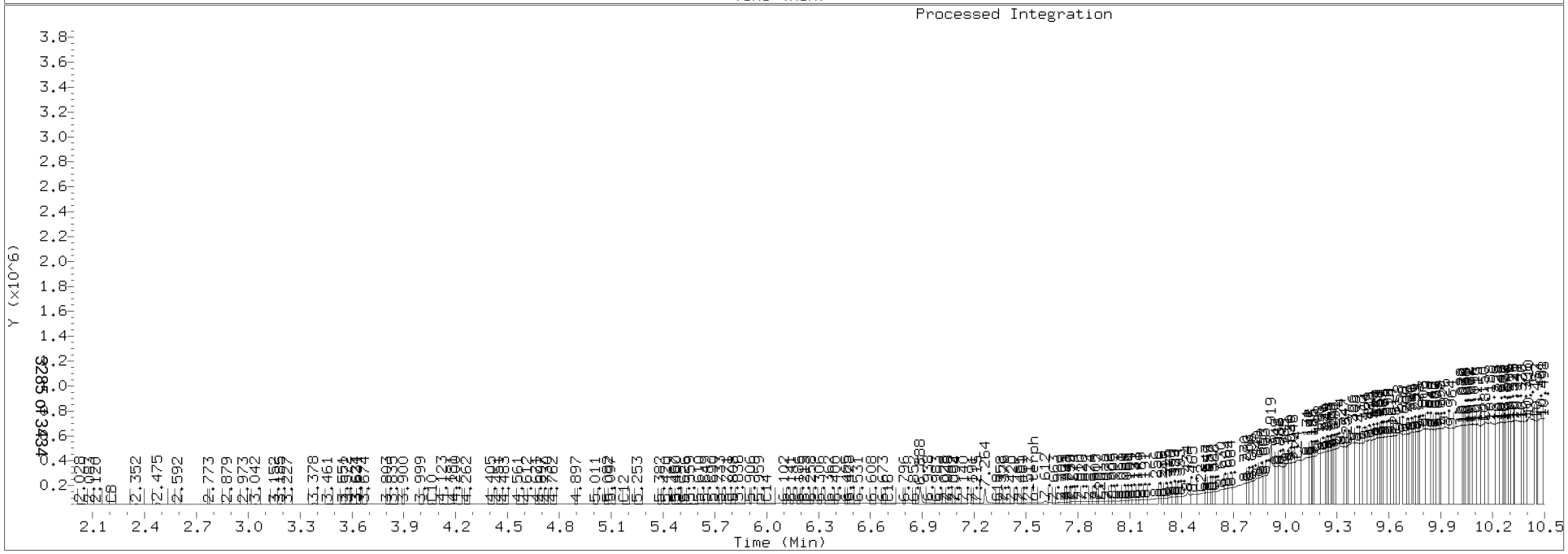
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1036.D Injection: 10-SEP-2019 22:18

Lab ID:SHI0095-CCV2





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1037.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-CCV3	Injection Time:	22:40
Sequence Name:	AK103 CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	913	126617	115553.8		-8.7	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1037.D

Date : 10-SEP-2019 22:40

Client ID:

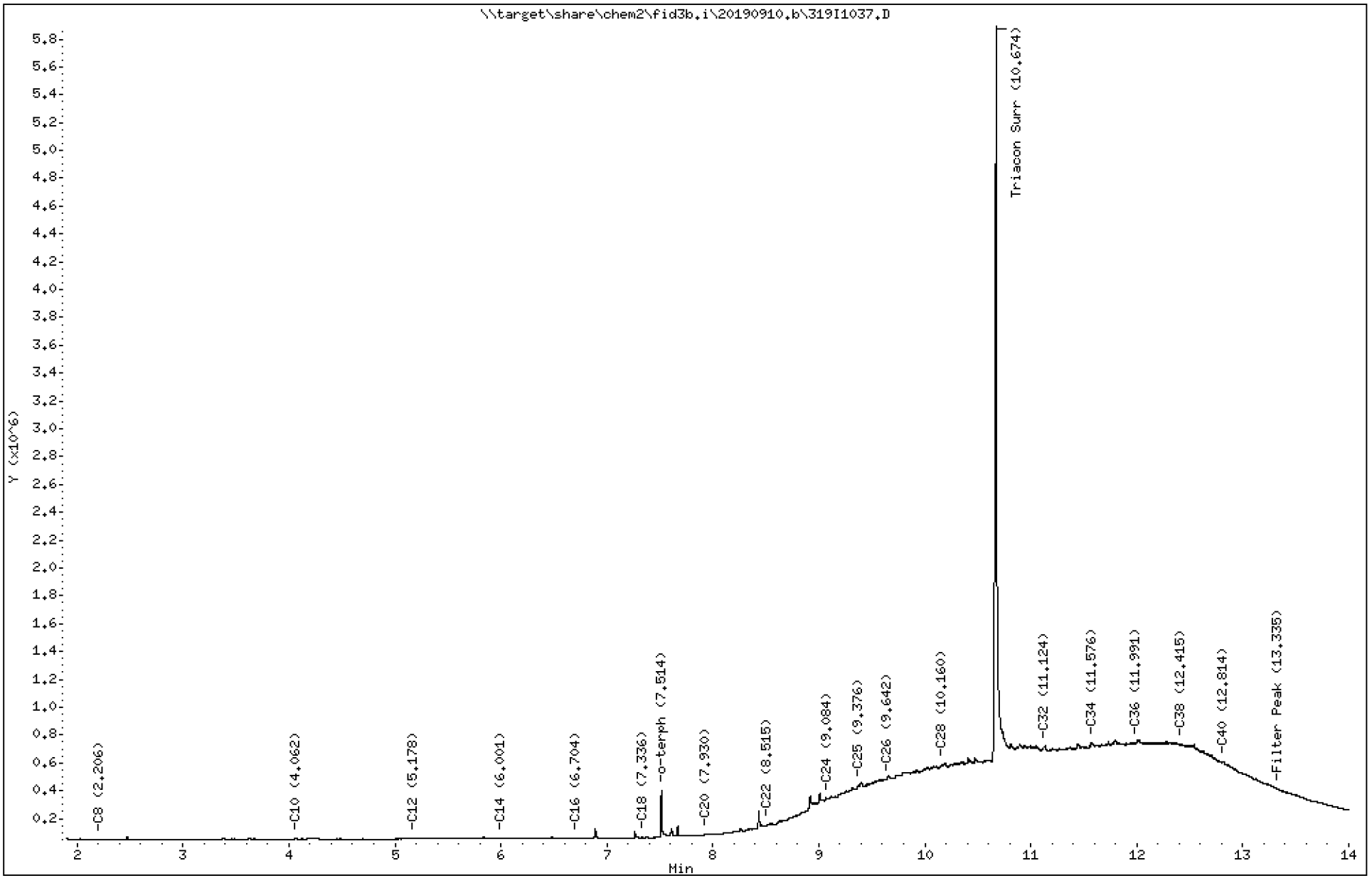
Instrument: fid3b.i

Sample Info: SHI0095-CCV3

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1037.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV3
Client ID:
Injection: 10-SEP-2019 22:40
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	418913	2.3
C8	2.206	0.031	2512	4905	WATPHD	(C12-C24)	11315791	64.9
C10	4.062	-0.007	8234	13380	WATPHM	(C24-C38)	115553838	912.6
C12	5.178	0.012	7081	9747	AK102	(C10-C25)	15376303	75.4
C14	6.001	0.009	11359	21364	AK103	(C25-C36)	94583167	929.7 M
C16	6.704	0.002	13541	34206	OR.DIES	(C10-C28)	39805199	192.9
C18	7.336	-0.003	16200	28969				
C20	7.930	-0.007	37036	93059				
C22	8.515	-0.009	106970	171665				
C24	9.084	-0.011	295894	194145				
C25	9.376	0.002	389012	600815				
C26	9.642	-0.004	433556	233433				
C28	10.160	-0.008	540493	618075	IT.DIES	(C10-C24)	11517817	56.6
C32	11.124	-0.007	668666	1025449				
C34	11.576	0.003	693900	1657209				
Filter Peak	13.335	0.016	361701	873428				
C36	11.991	-0.008	691831	289668				
o-terph	7.514	-0.019	357631	400585				
Triacon Surr	10.674	-0.015	5198572	5961497				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	400585	1.8
Triacontane	5961497	35.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1049.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV4	Injection Time:	03:04
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	475	174459.7	165799.6		-5.0	15
o-Terphenyl	A	90.000	87.7	222475.3	216764.6		-2.6	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1049.D

Date : 11-SEP-2019 03:04

Client ID:

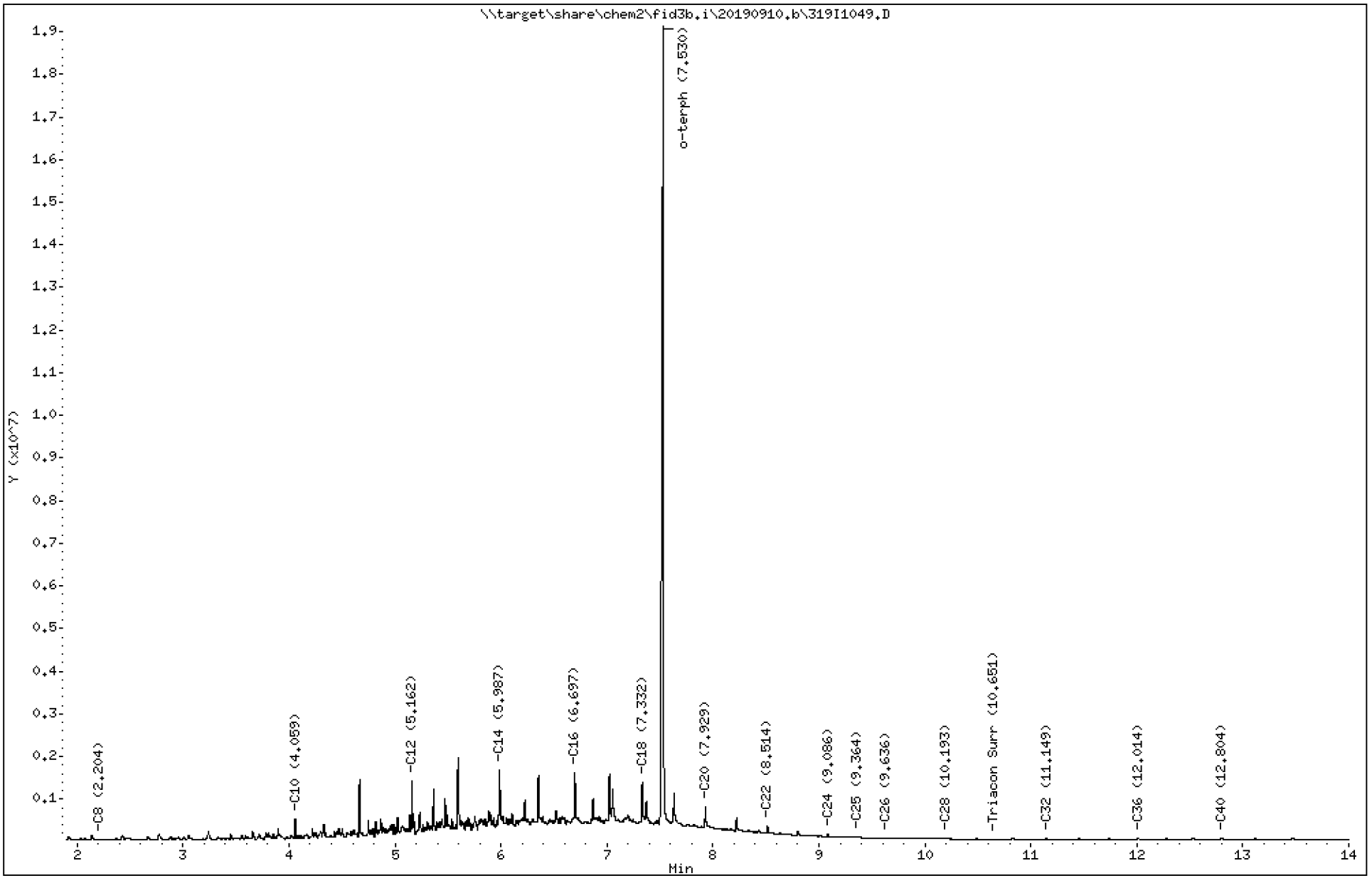
Sample Info: SHI0095-CCV4

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1049.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV4
Client ID:
Injection: 11-SEP-2019 03:04
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	16689803	93.0	
C8	2.204	0.029	6041	6480	WATPHD	(C12-C24)	82899820	475.2	
C10	4.059	-0.010	474226	308795	WATPHM	(C24-C38)	1934341	15.3	
C12	5.162	-0.004	1376077	865927	AK102	(C10-C25)	96429793	473.0	M
C14	5.987	-0.005	1630807	1779334	AK103	(C25-C36)	1373788	13.5	
C16	6.697	-0.005	1562520	1696145	OR.DIES	(C10-C28)	97436865	472.1	M
C18	7.332	-0.006	1340788	1920756					
C20	7.929	-0.007	777777	1382361					
C22	8.514	-0.009	328791	640225					
C24	9.086	-0.010	120164	463057					
C25	9.364	-0.010	70234	336760					
C26	9.636	-0.010	41439	188620					
C28	10.193	0.024	17749	43497	IT.DIES	(C10-C24)	95922015	471.5	
C32	11.149	0.018	24605	55147					
C34	----								
Filter Peak	----								
C36	12.014	0.016	23739	42349					
o-terph	7.530	-0.003	18661140	19508812					
Triacon Surr	10.651	-0.038	12310	29890					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

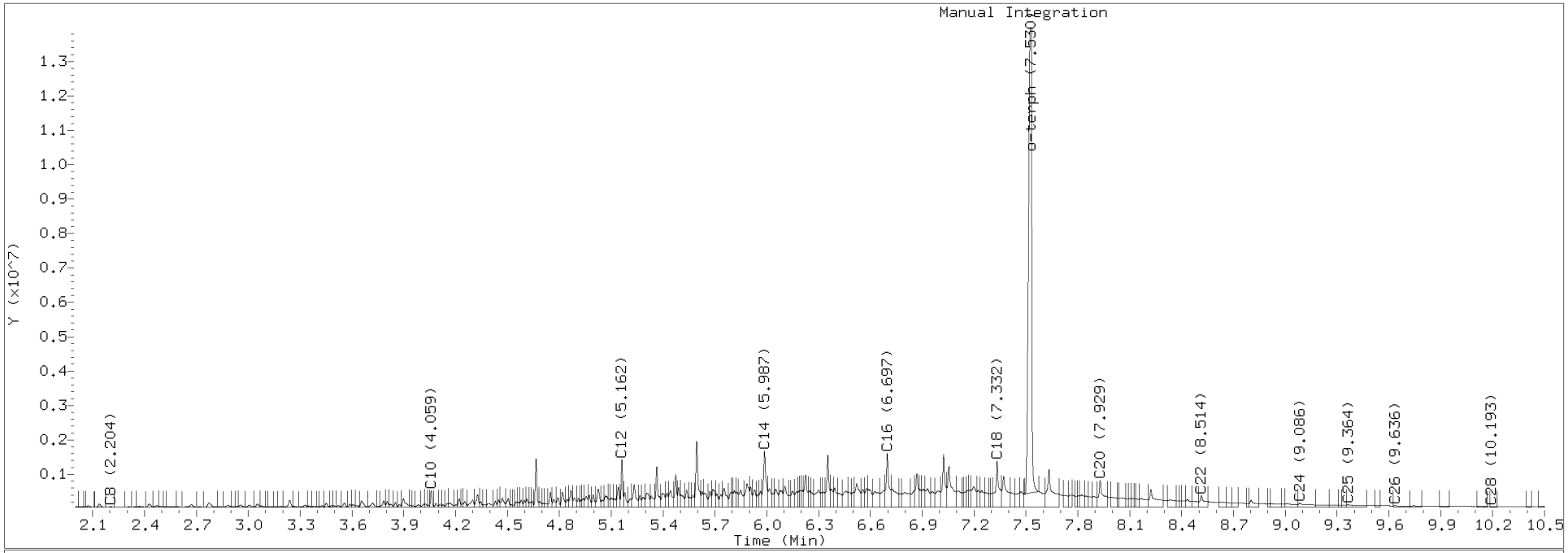
Surrogate	Area	Amount
o-Terphenyl	19508812	87.7
Triacontane	29890	0.2

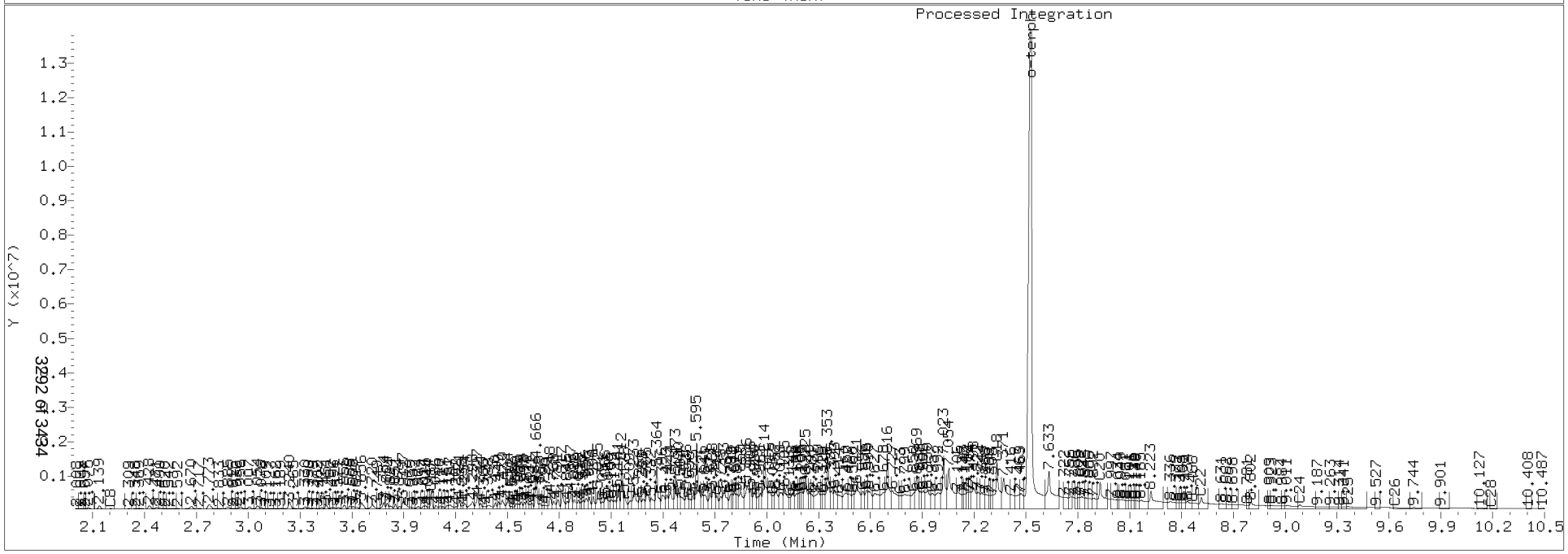
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1049.D Injection: 11-SEP-2019 03:04

Lab ID:SHI0095-CCV4





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1050.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV5	Injection Time:	03:26
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1020	126617	129021		1.9	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1050.D

Date : 11-SEP-2019 03:26

Client ID:

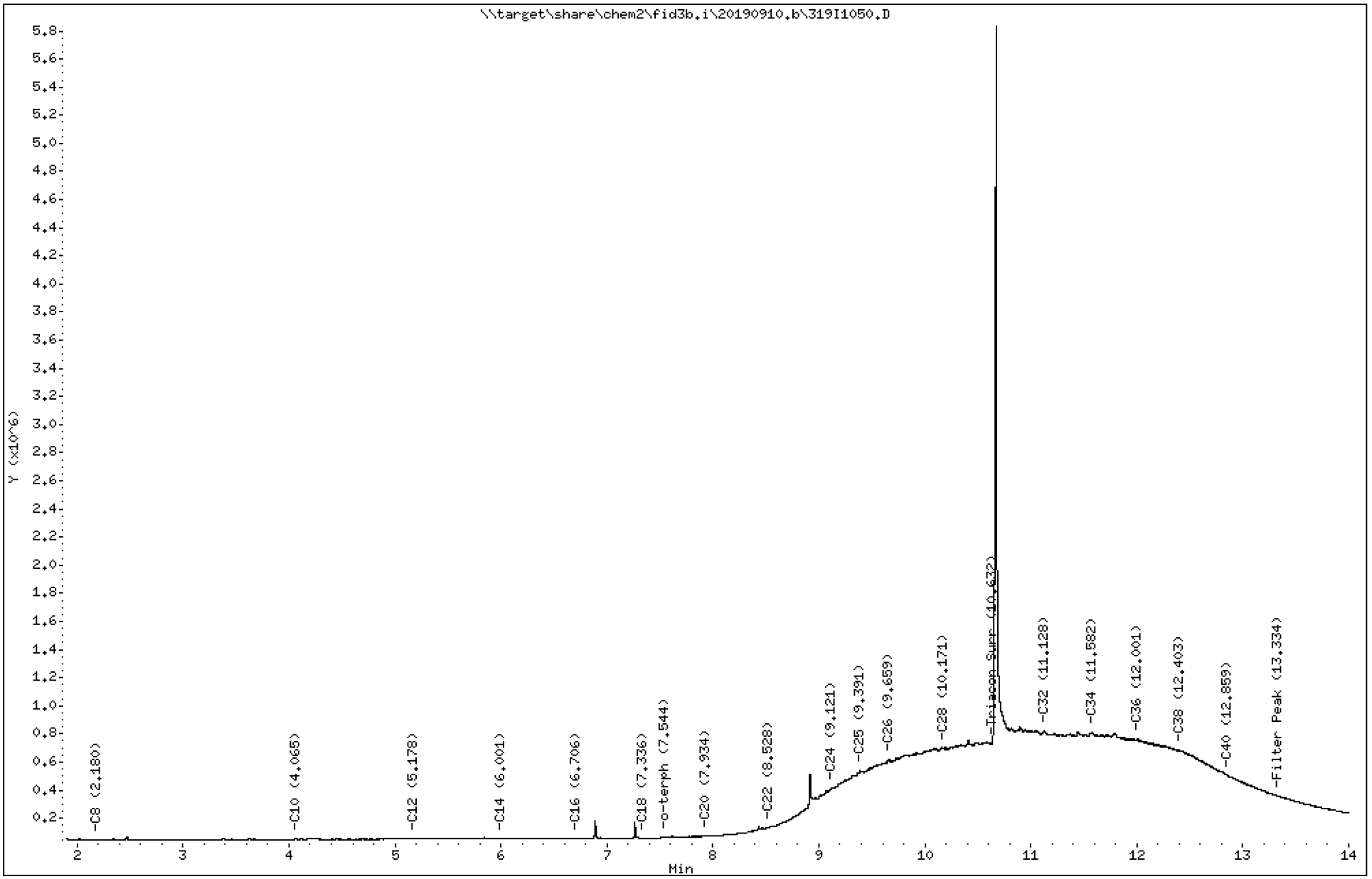
Sample Info: SHI0095-CCV5

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1050.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV5
Client ID:
Injection: 11-SEP-2019 03:26
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	392419	2.2
C8	2.180	0.005	1901	2573	WATPHD	(C12-C24)	11370083	65.2
C10	4.065	-0.004	9017	15066	WATPHM	(C24-C38)	129020990	1019.0
C12	5.178	0.013	7905	12429	AK102	(C10-C25)	16318104	80.0
C14	6.001	0.010	10646	21787	AK103	(C25-C36)	107291512	1054.6 M
C16	6.706	0.003	11319	31451	OR.DIES	(C10-C28)	46446004	225.0
C18	7.336	-0.002	14012	15030				
C20	7.934	-0.002	28744	76915				
C22	8.528	0.005	89815	83907				
C24	9.121	0.026	367105	781768				
C25	9.391	0.018	491209	1436995				
C26	9.659	0.014	573430	1237141				
C28	10.171	0.003	655174	663772	IT.DIES	(C10-C24)	11560553	56.8
C32	11.128	-0.002	774748	1058071				
C34	11.582	0.009	765299	1647711				
Filter Peak	13.334	0.016	312341	598480				
C36	12.001	0.003	717154	695498				
o-terph	7.544	0.011	17813	34354				
Triacon Surr	10.674	-0.015	5073680	6135794				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

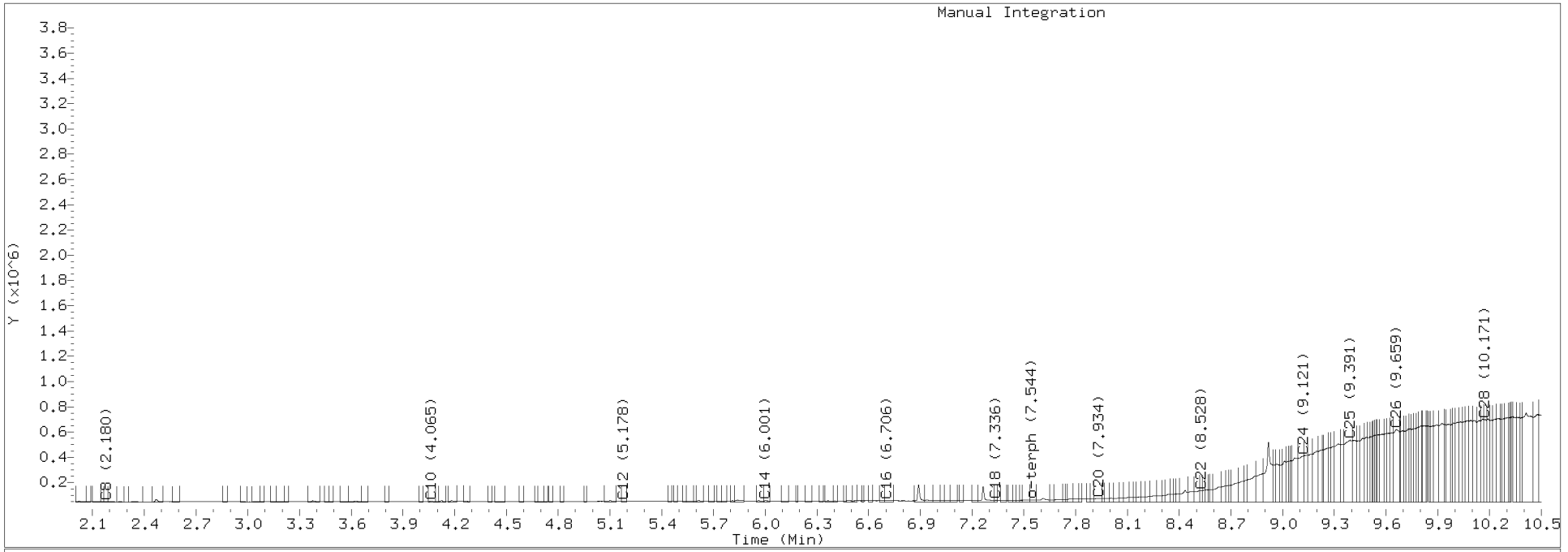
Surrogate	Area	Amount
o-Terphenyl	34354	0.2
Triacontane	6135794	36.1

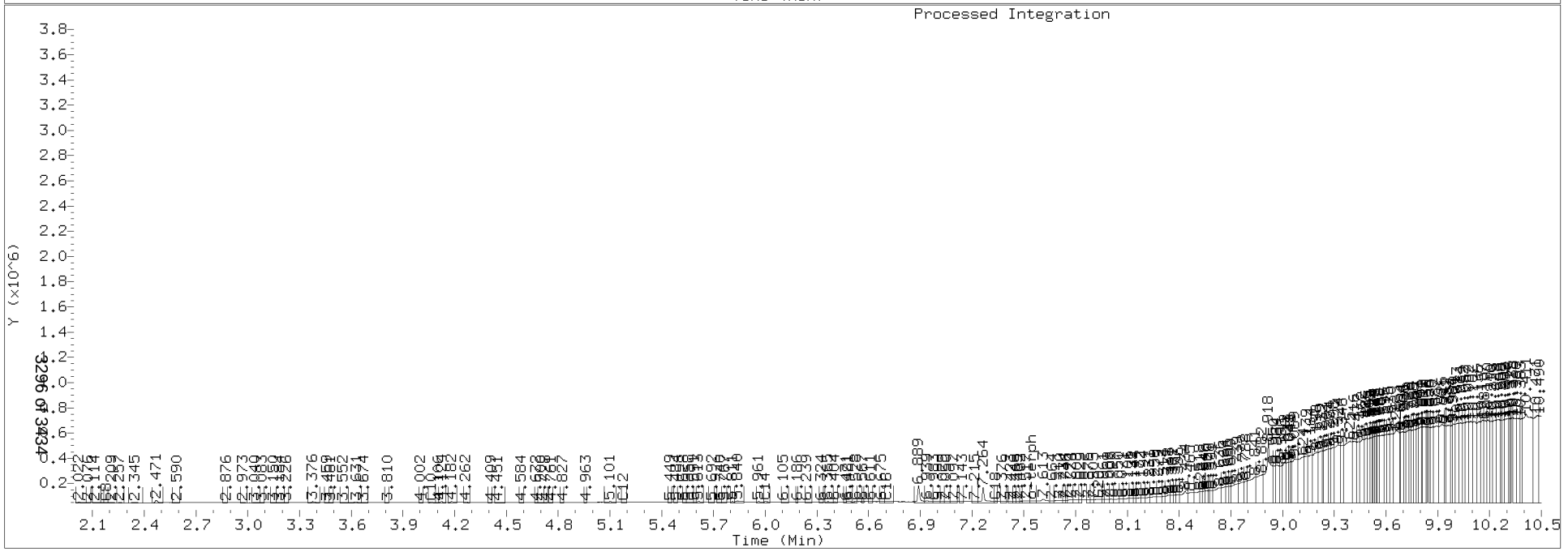
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1050.D Injection: 11-SEP-2019 03:26

Lab ID:SHI0095-CCV5





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1051.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV6	Injection Time:	03:47
Sequence Name:	AK103_CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	913	126617	115589.6		-8.7	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1051.D

Date : 11-SEP-2019 03:47

Client ID:

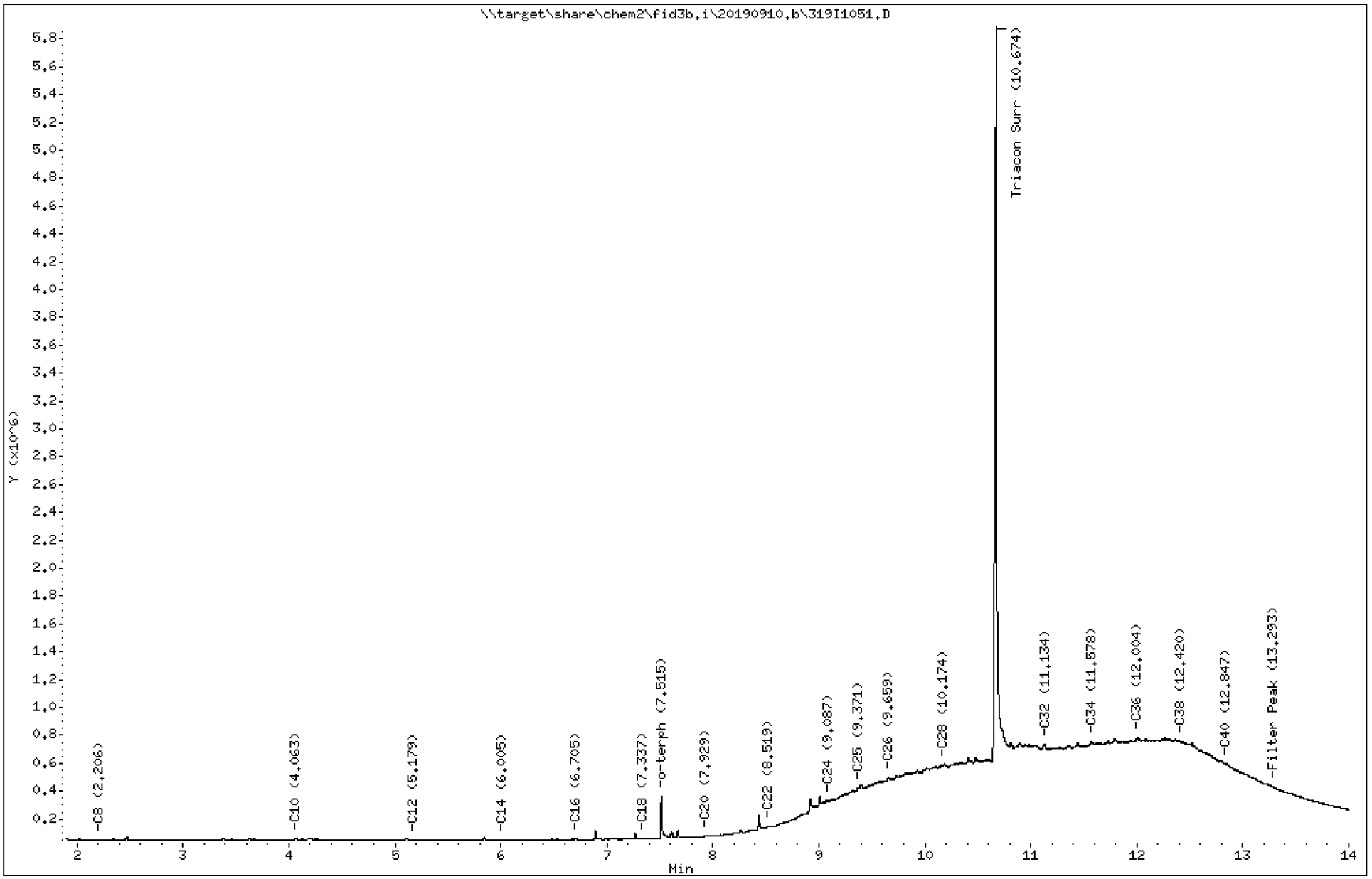
Sample Info: SHI0095-CCV6

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1051.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV6
Client ID:
Injection: 11-SEP-2019 03:47
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	369812	2.1	
C8	2.206	0.030	3176	6251	WATPHD	(C12-C24)	10023084	57.5	
C10	4.063	-0.006	7502	12363	WATPHM	(C24-C38)	115589603	912.9	
C12	5.179	0.013	3256	5947	AK102	(C10-C25)	13722380	67.3	
C14	6.005	0.013	4900	10880	AK103	(C25-C36)	94567248	929.5	M
C16	6.705	0.003	6213	15901	OR.DIES	(C10-C28)	37123259	179.9	
C18	7.337	-0.001	8738	14149					
C20	7.929	-0.007	28639	73067					
C22	8.519	-0.005	94852	228561					
C24	9.087	-0.008	279503	306410					
C25	9.371	-0.003	371899	484710					
C26	9.659	0.013	448593	1289790					
C28	10.174	0.006	536317	416907	IT.DIES	(C10-C24)	10160184	49.9	
C32	11.134	0.003	687724	1045815					
C34	11.578	0.005	709707	2393203					
Filter Peak	13.293	-0.025	379685	884345					
C36	12.004	0.006	738360	1427190					
o-terph	7.515	-0.018	309650	339502					
Triacon Surr	10.674	-0.016	5244670	6422904					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

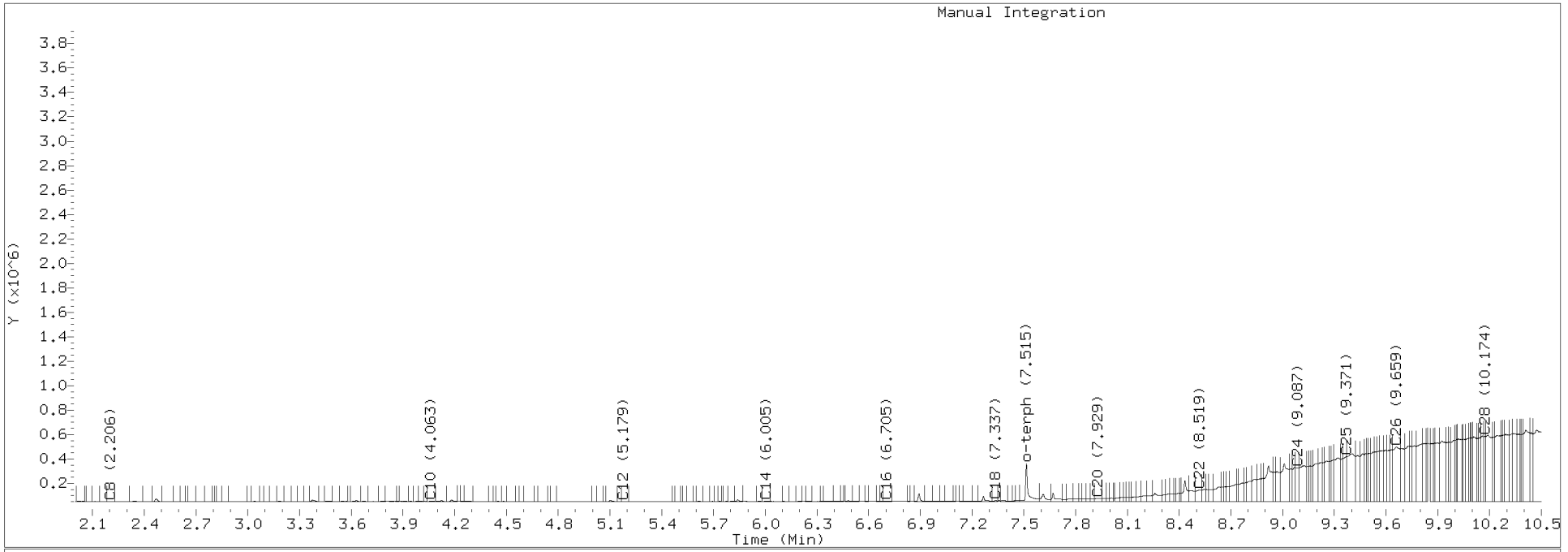
Surrogate	Area	Amount
o-Terphenyl	339502	1.5
Triacontane	6422904	37.8

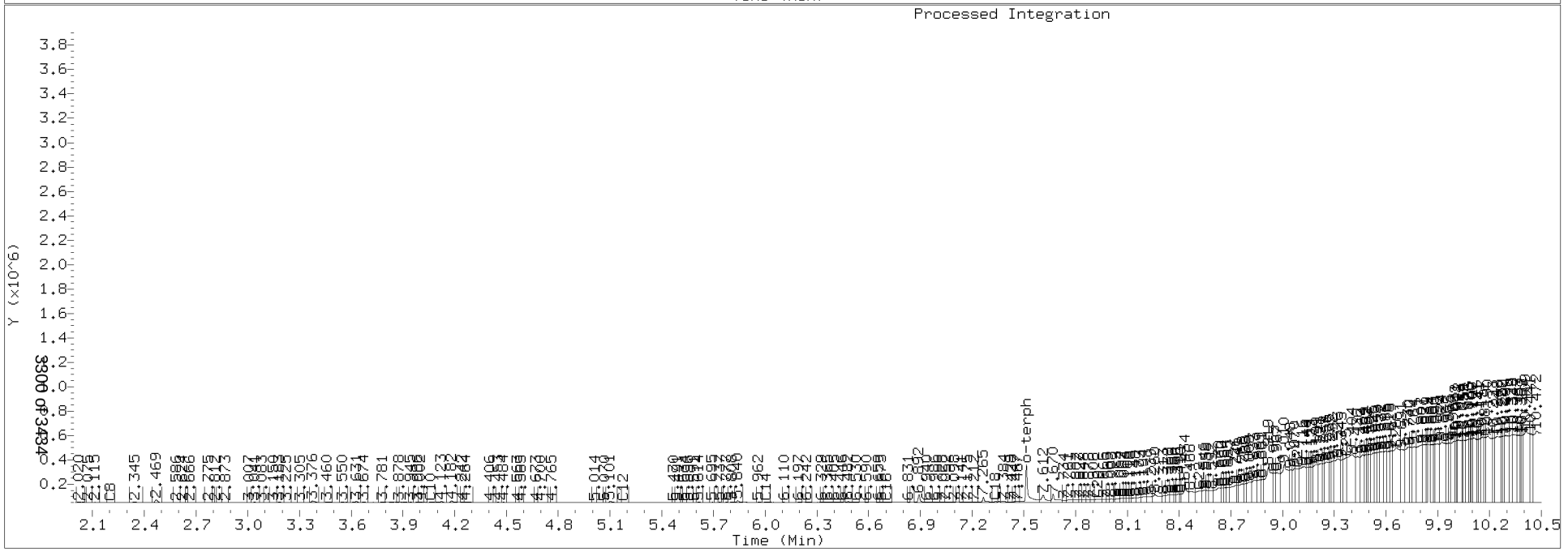
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1051.D Injection: 11-SEP-2019 03:47

Lab ID:SHI0095-CCV6





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1064.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV7	Injection Time:	08:35
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	499	174459.7	173936.2		-0.3	15
o-Terphenyl	A	90.000	89.9	222475.3	222322.3		-0.07	15

* Values outside of QC limits

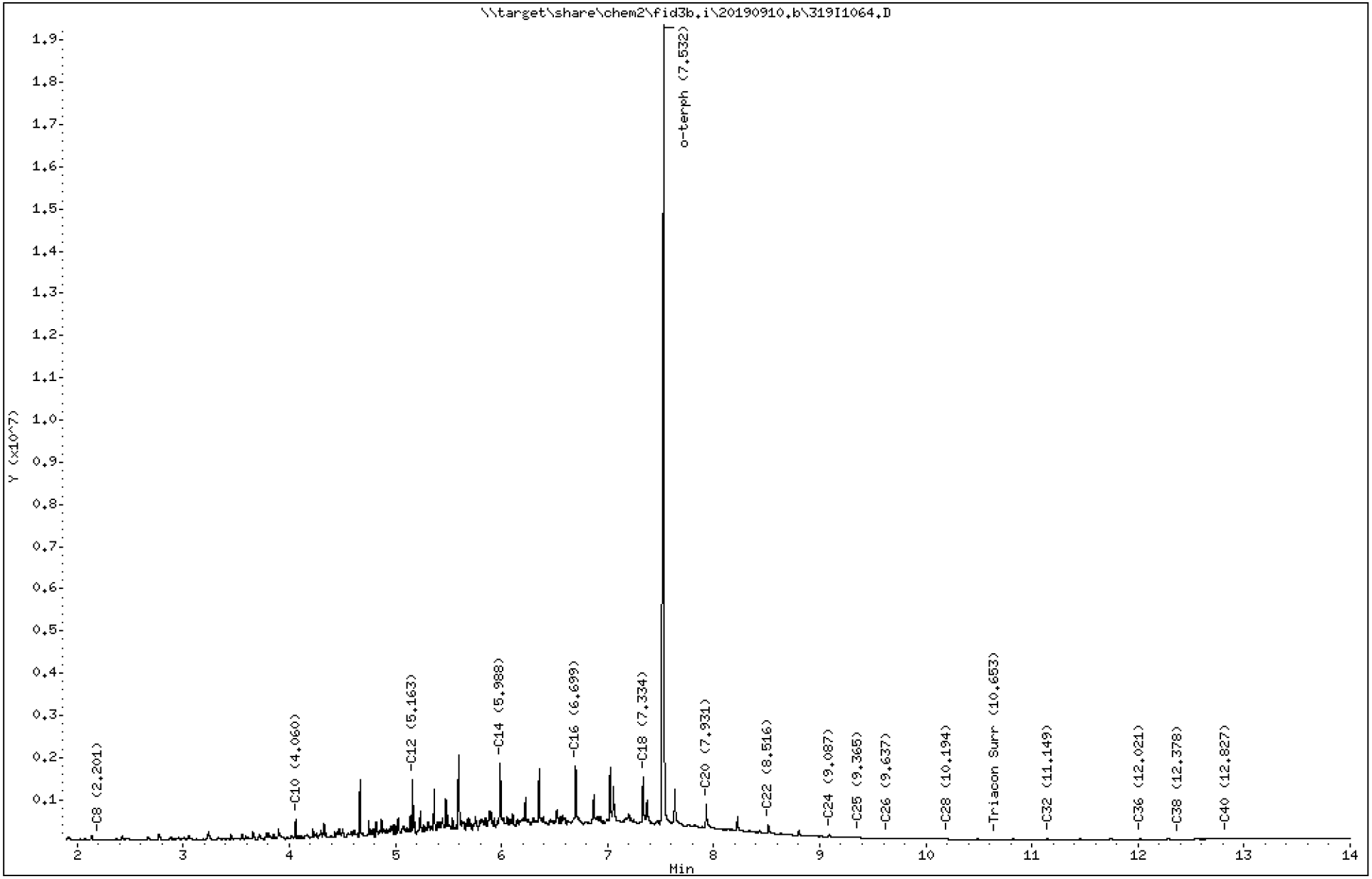
* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1064.D
Date : 11-SEP-2019 08:35
Client ID:
Sample Info: SHI0095-CCV7

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR
Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1064.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV7
Client ID:
Injection: 11-SEP-2019 08:35
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	16931766	94.4	
C8	2.201	0.026	6490	7891	WATPHD	(C12-C24)	86968087	498.5	
C10	4.060	-0.009	476042	316435	WATPHM	(C24-C38)	2243938	17.7	
C12	5.163	-0.003	1430625	885440	AK102	(C10-C25)	100661897	493.8	M
C14	5.988	-0.004	1807170	1835079	AK103	(C25-C36)	1657952	16.3	
C16	6.699	-0.003	1758427	1795183	OR.DIES	(C10-C28)	101903873	493.8	M
C18	7.334	-0.004	1487131	2300982					
C20	7.931	-0.006	846100	1147892					
C22	8.516	-0.008	353320	687426					
C24	9.087	-0.009	122048	476212					
C25	9.365	-0.009	69322	332019					
C26	9.637	-0.009	40895	187412					
C28	10.194	0.025	17285	52625	IT.DIES	(C10-C24)	100157830	492.3	
C32	11.149	0.018	27430	62486					
C34	----								
Filter Peak	----								
C36	12.021	0.023	26907	66519					
o-terph	7.532	-0.002	18942446	20009009					
Triacon Surr	10.653	-0.037	12898	23603					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

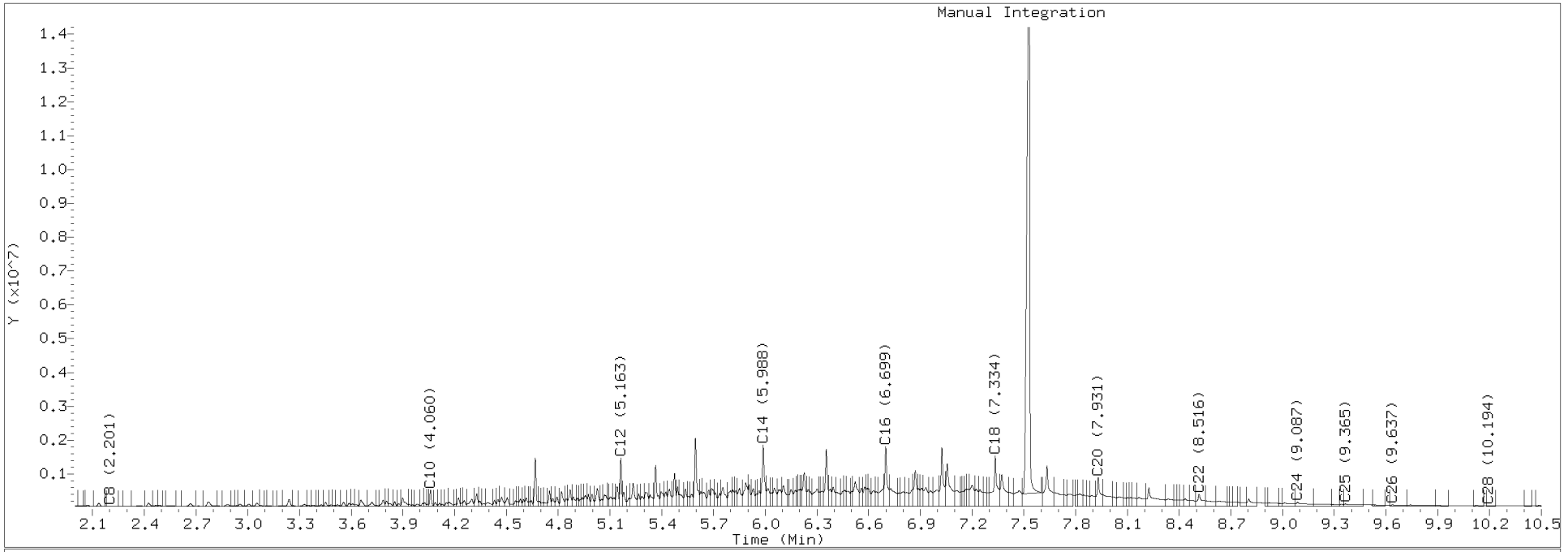
Surrogate	Area	Amount
o-Terphenyl	20009009	89.9
Triacontane	23603	0.1

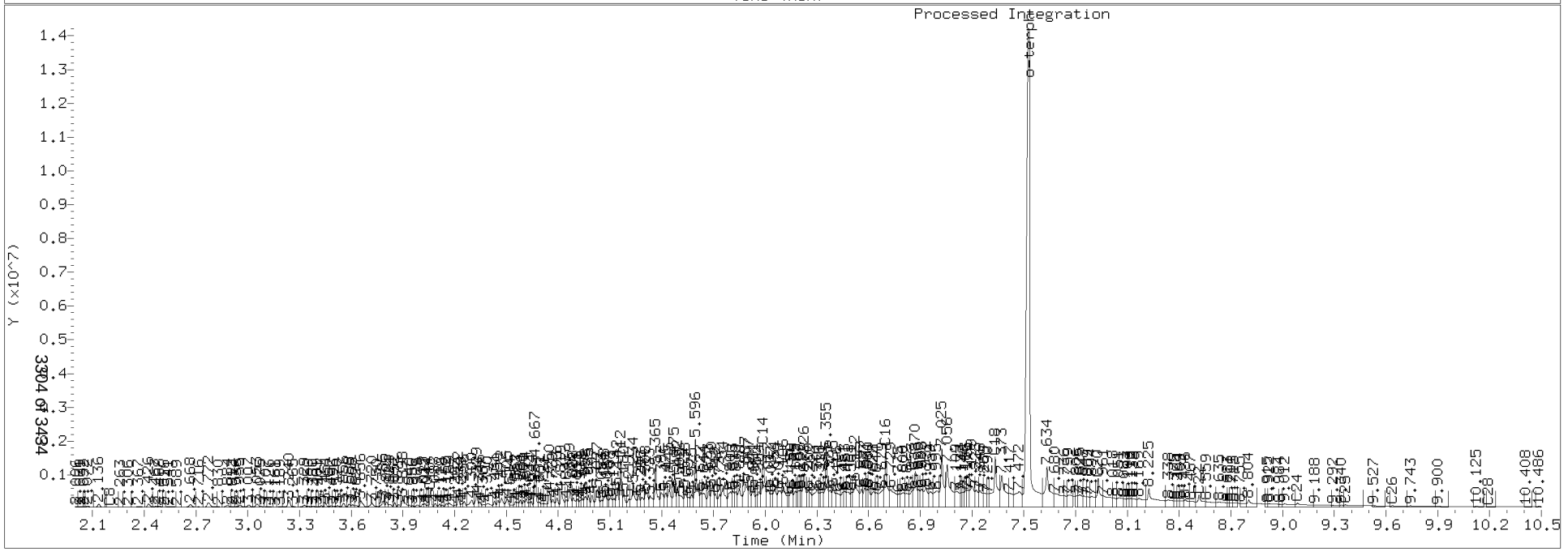
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1064.D Injection: 11-SEP-2019 08:35

Lab ID:SHI0095-CCV7





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1065.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV8	Injection Time:	08:57
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1030	126617	130619.7		3.2	15

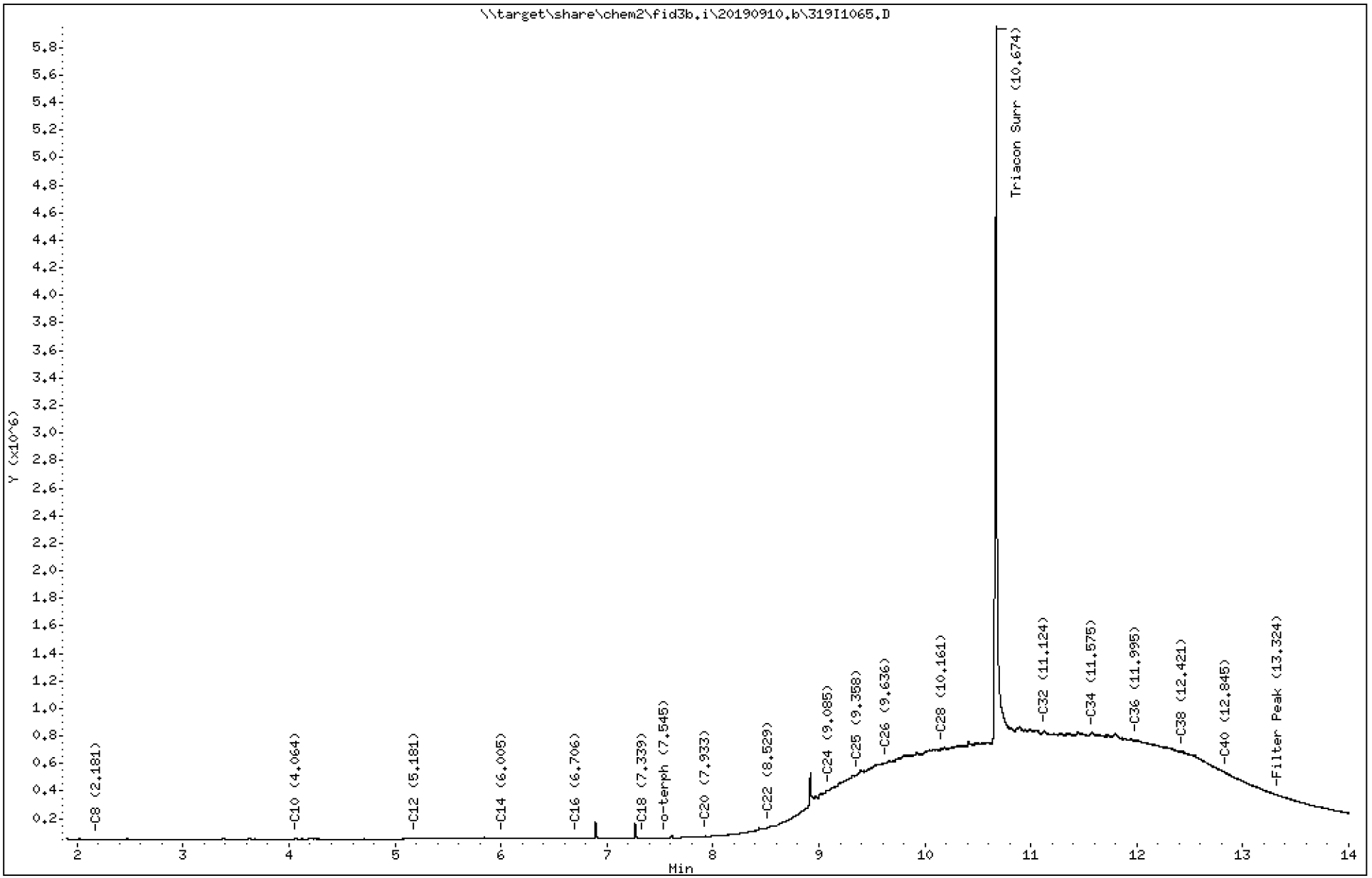
* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1065.D
Date : 11-SEP-2019 08:57
Client ID:
Sample Info: SHI0095-CCV8

Instrument: fid3b.i
Operator: JGR
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1065.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV8
Client ID:
Injection: 11-SEP-2019 08:57
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	323263	1.8	
C8	2.181	0.005	1368	1665	WATPHD	(C12-C24)	11182779	64.1	
C10	4.064	-0.005	7834	15518	WATPHM	(C24-C38)	130619684	1031.6	
C12	5.181	0.015	7437	10754	AK102	(C10-C25)	16400554	80.5	
C14	6.005	0.013	11478	34882	AK103	(C25-C36)	109304776	1074.4	M
C16	6.706	0.003	9598	20472	OR.DIES	(C10-C28)	46323203	224.4	
C18	7.339	0.001	10525	14214					
C20	7.933	-0.004	25017	92937					
C22	8.529	0.006	90351	76868					
C24	9.085	-0.011	358595	313074					
C25	9.358	-0.016	468944	233426					
C26	9.636	-0.010	556857	399678					
C28	10.161	-0.007	668870	702260	IT.DIES	(C10-C24)	11347923	55.8	
C32	11.124	-0.007	794433	2046627					
C34	11.575	0.003	777442	1208274					
Filter Peak	13.324	0.005	325306	779076					
C36	11.995	-0.003	721445	1193193					
o-terph	7.545	0.011	13356	26894					
Triacon Surr	10.674	-0.015	5180227	6507232					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

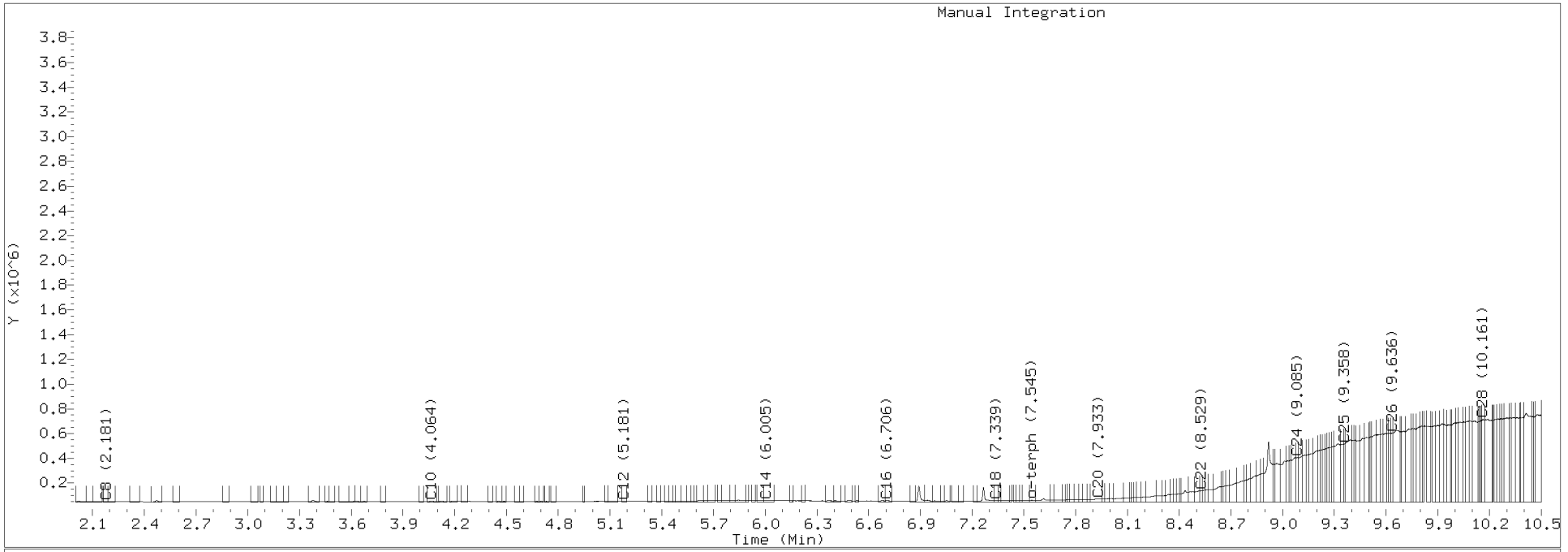
Surrogate	Area	Amount
o-Terphenyl	26894	0.1
Triacontane	6507232	38.3

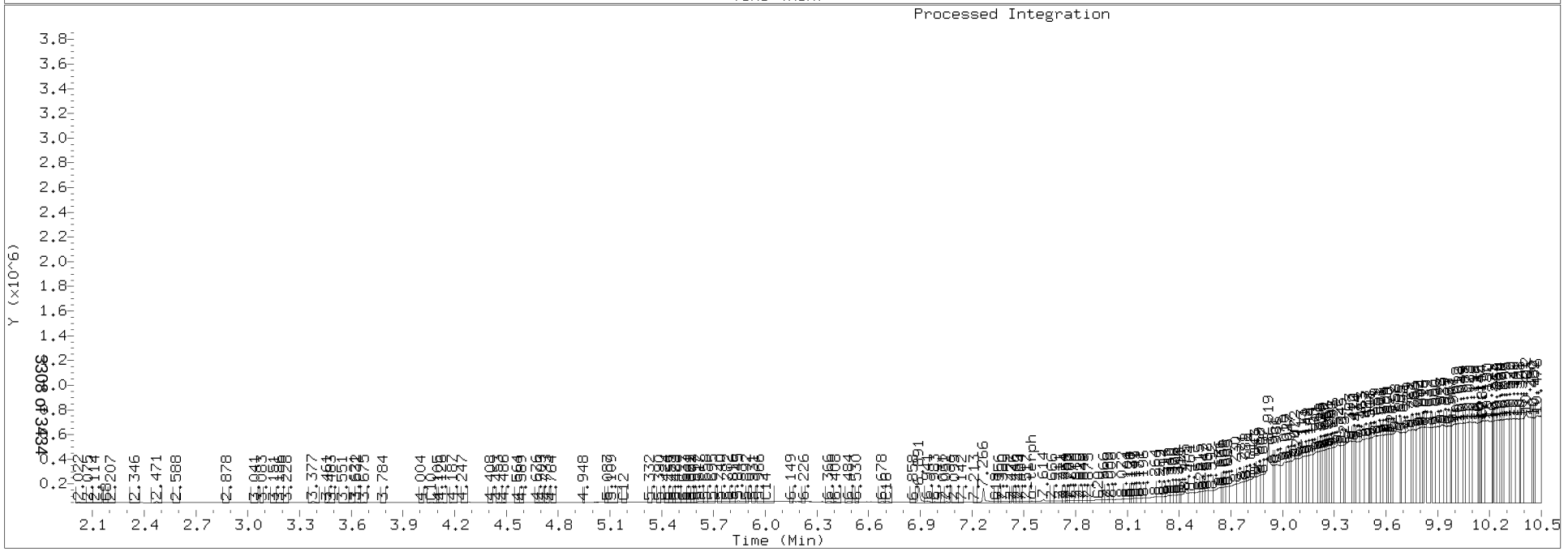
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1065.D Injection: 11-SEP-2019 08:57

Lab ID:SHI0095-CCV8





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1070.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCV9	Injection Time:	10:49
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	495	174459.7	172711.2		-1.0	15
o-Terphenyl	A	90.000	91.3	222475.3	225666.4		1.4	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1070.D

Date : 11-SEP-2019 10:49

Client ID:

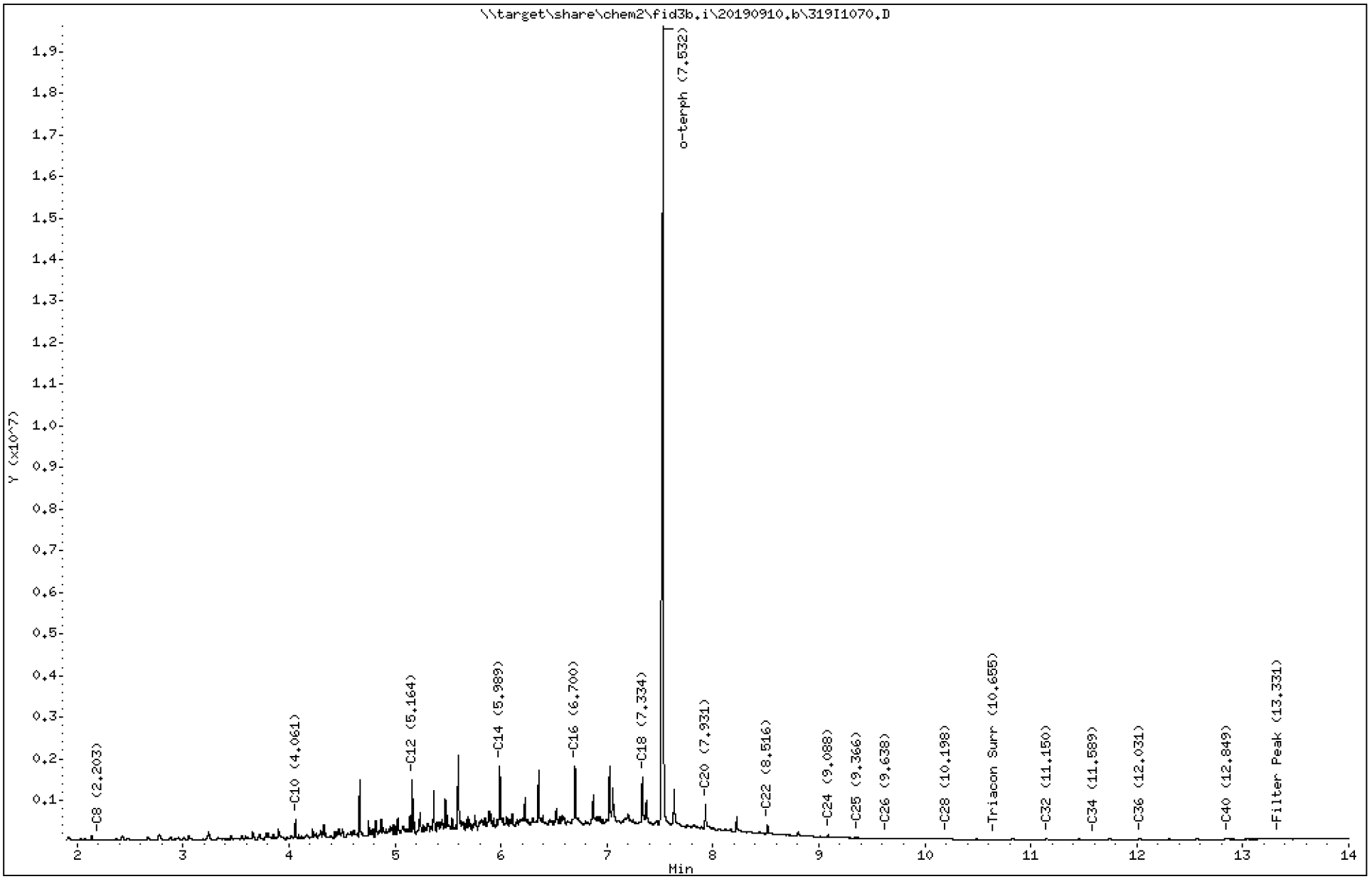
Sample Info: SHI0095-CCV9

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1070.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCV9
Client ID:
Injection: 11-SEP-2019 10:49
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	17011077	94.8	
C8	2.203	0.027	6109	7248	WATPHD	(C12-C24)	86355602	495.0	
C10	4.061	-0.008	477013	317438	WATPHM	(C24-C38)	1978962	15.6	
C12	5.164	-0.002	1448349	889527	AK102	(C10-C25)	100073030	490.9	M
C14	5.989	-0.003	1783551	1836964	AK103	(C25-C36)	1413624	13.9	
C16	6.700	-0.003	1764260	1785811	OR.DIES	(C10-C28)	101057554	489.7	M
C18	7.334	-0.004	1503990	1938064					
C20	7.931	-0.005	853843	1487037					
C22	8.516	-0.007	347909	636173					
C24	9.088	-0.008	118221	358043					
C25	9.366	-0.008	66322	266631					
C26	9.638	-0.008	39704	179812					
C28	10.198	0.030	18511	26432	IT.DIES	(C10-C24)	99608585	489.6	
C32	11.150	0.020	27540	53951					
C34	11.589	0.016	11849	9130					
Filter Peak	13.331	0.012	16916	20439					
C36	12.031	0.032	28773	69887					
o-terph	7.532	-0.001	19197291	20309975					
Triacon Surr	10.655	-0.034	13620	25659					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

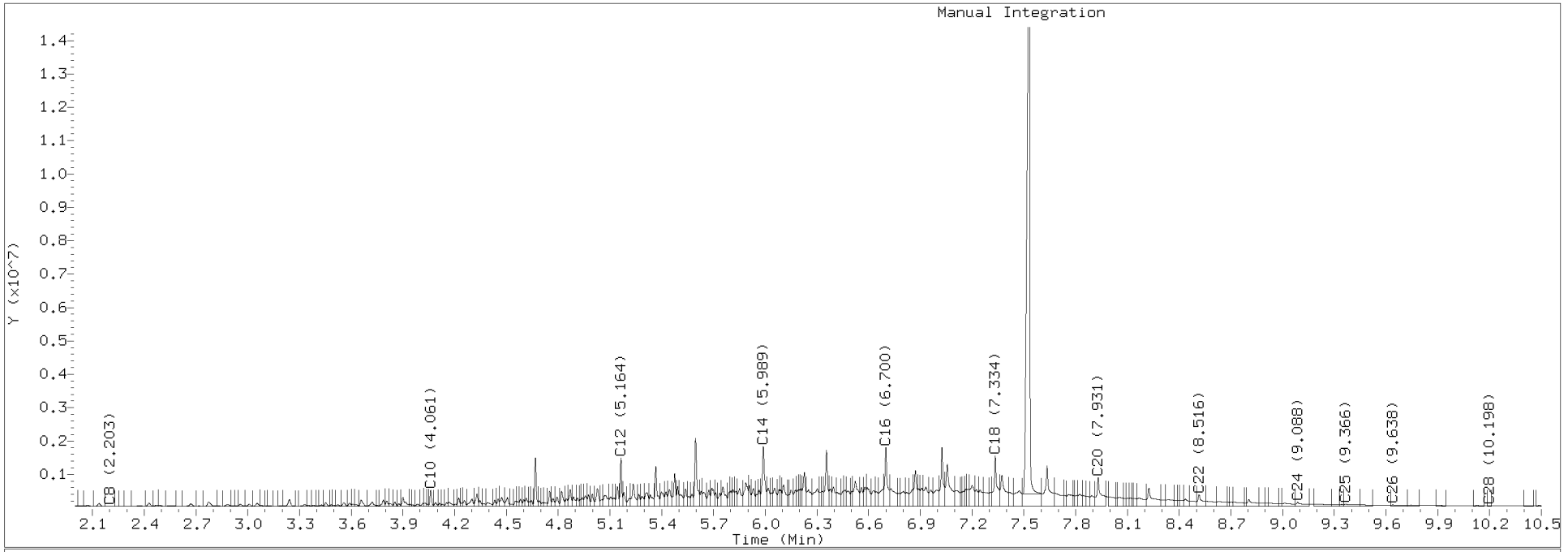
Surrogate	Area	Amount
o-Terphenyl	20309975	91.3
Triacontane	25659	0.2

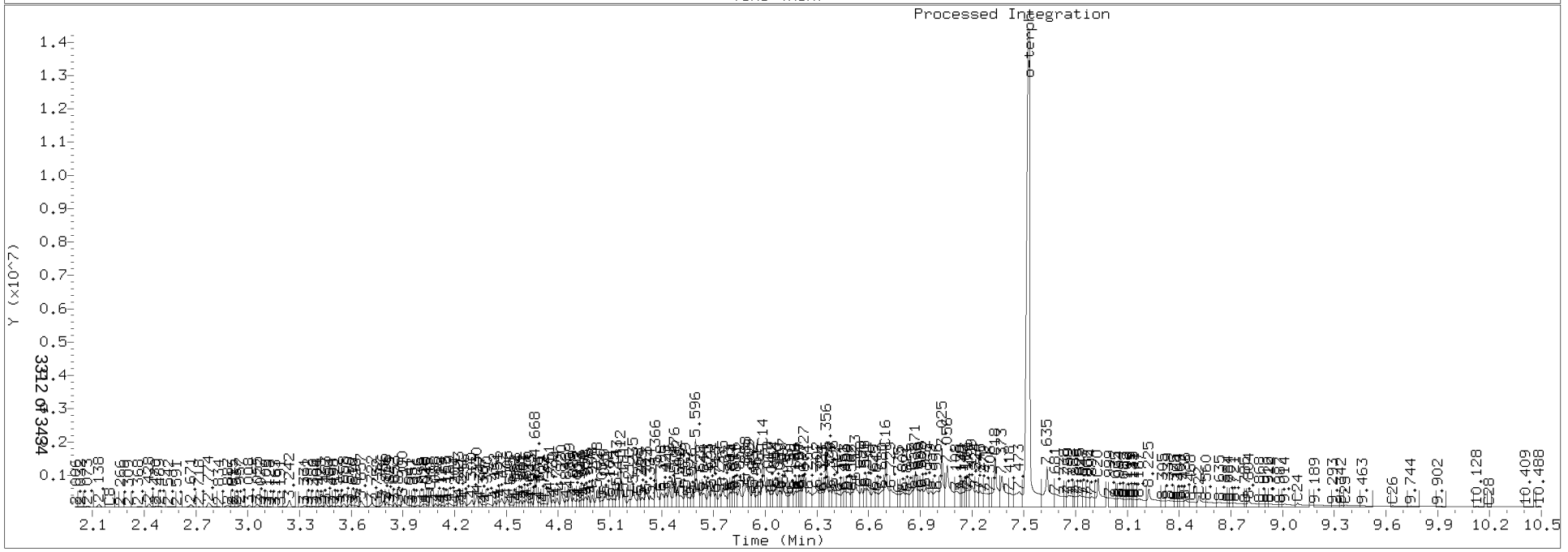
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1070.D Injection: 11-SEP-2019 10:49

Lab ID:SHI0095-CCV9





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1071.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/11/19
Lab Sample ID:	SHI0095-CCVA	Injection Time:	11:11
Sequence Name:	MOIL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1030	126617	130377		3.0	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1071.D

Date : 11-SEP-2019 11:11

Client ID:

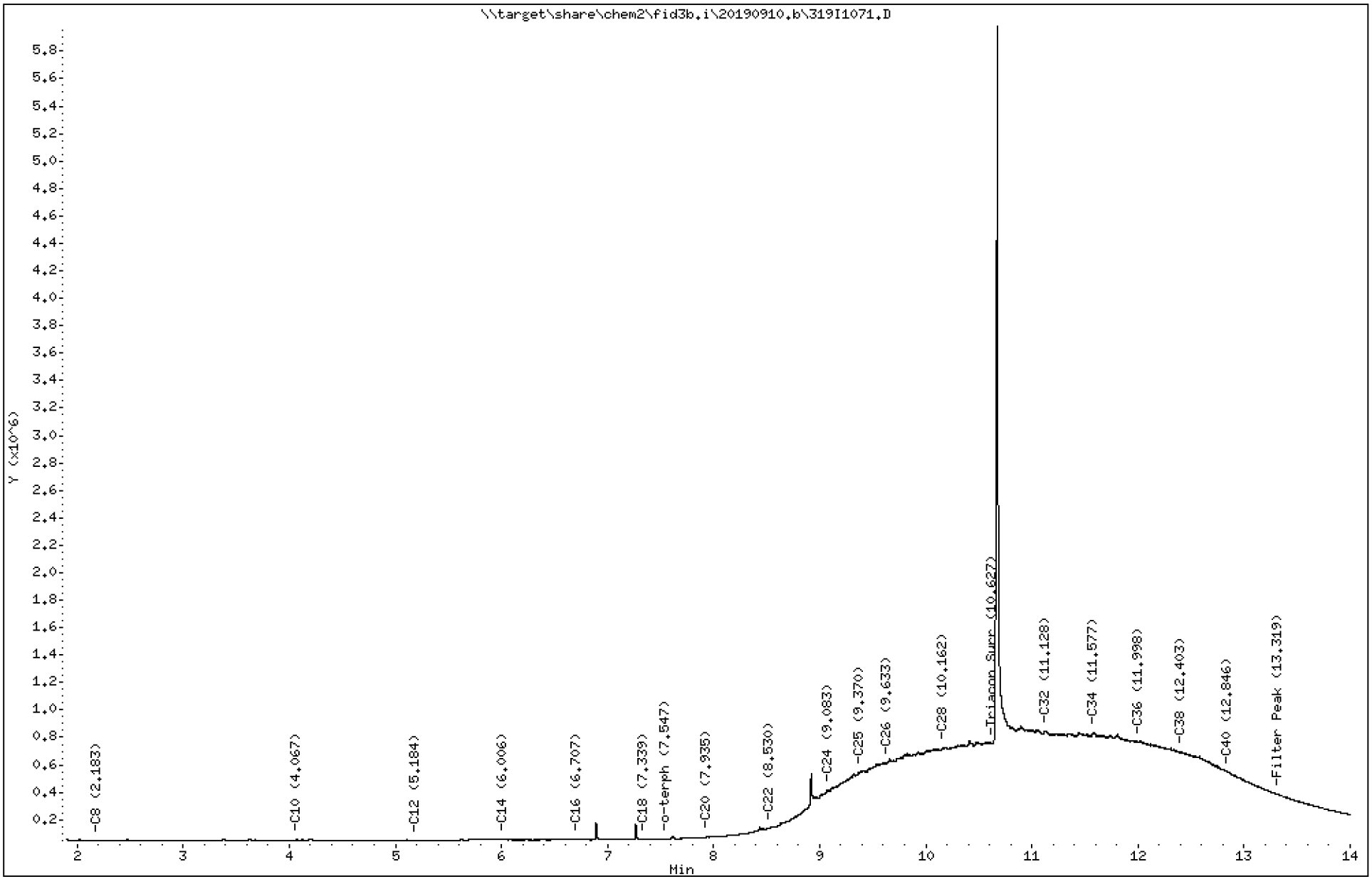
Sample Info: SHI0095-CCVA

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1071.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-CCVA
Client ID:
Injection: 11-SEP-2019 11:11
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	283166	1.6	
C8	2.183	0.007	1571	1838	WATPHD	(C12-C24)	11365254	65.1	
C10	4.067	-0.003	7407	13181	WATPHM	(C24-C38)	130376950	1029.7	
C12	5.184	0.018	3550	5044	AK102	(C10-C25)	15600198	76.5	
C14	6.006	0.014	7235	22342	AK103	(C25-C36)	110693867	1088.0	M
C16	6.707	0.005	7035	25076	OR.DIES	(C10-C28)	47474677	230.0	
C18	7.339	0.001	10070	12229					
C20	7.935	-0.001	26239	67212					
C22	8.530	0.006	92532	66243					
C24	9.083	-0.012	364674	159511					
C25	9.370	-0.004	494654	618478					
C26	9.633	-0.013	567435	475142					
C28	10.162	-0.007	681099	674063	IT.DIES	(C10-C24)	11470315	56.4	
C32	11.128	-0.003	801296	1420052					
C34	11.577	0.004	784884	2128737					
Filter Peak	13.319	0.001	338463	288788					
C36	11.998	-0.000	720220	775154					
o-terph	7.547	0.013	13444	28750					
Triacon Surr	10.677	-0.013	5205058	6640173					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

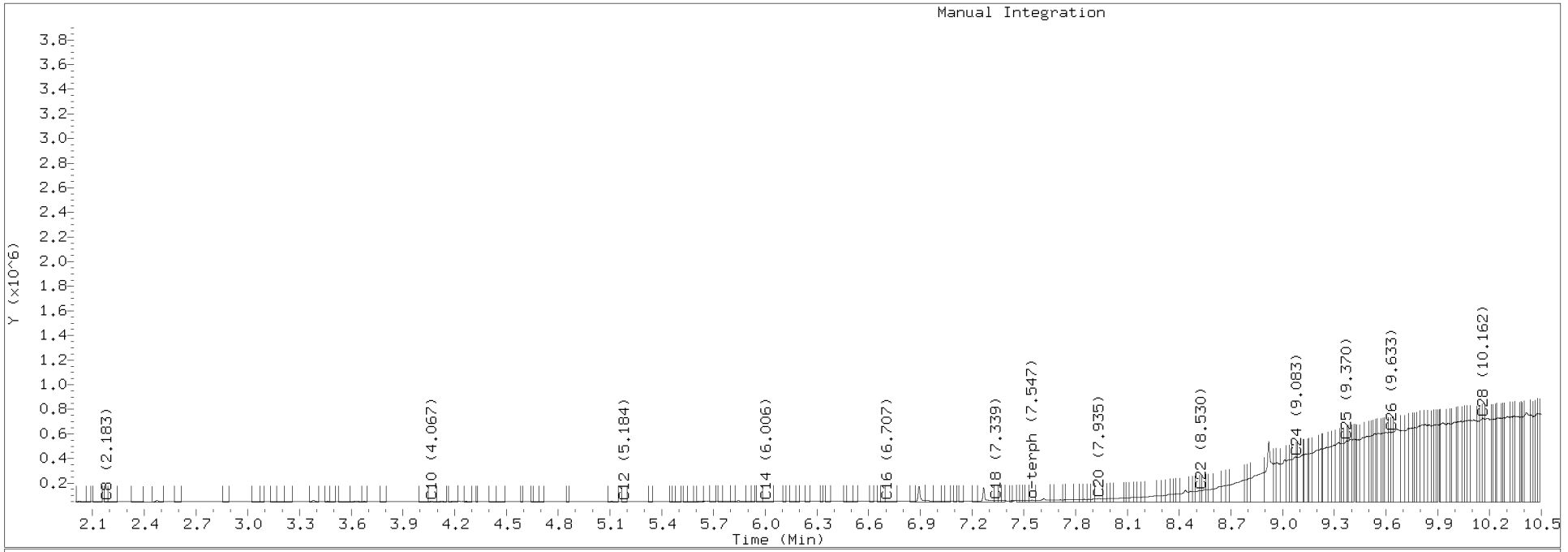
Surrogate	Area	Amount
o-Terphenyl	28750	0.1
Triacontane	6640173	39.1

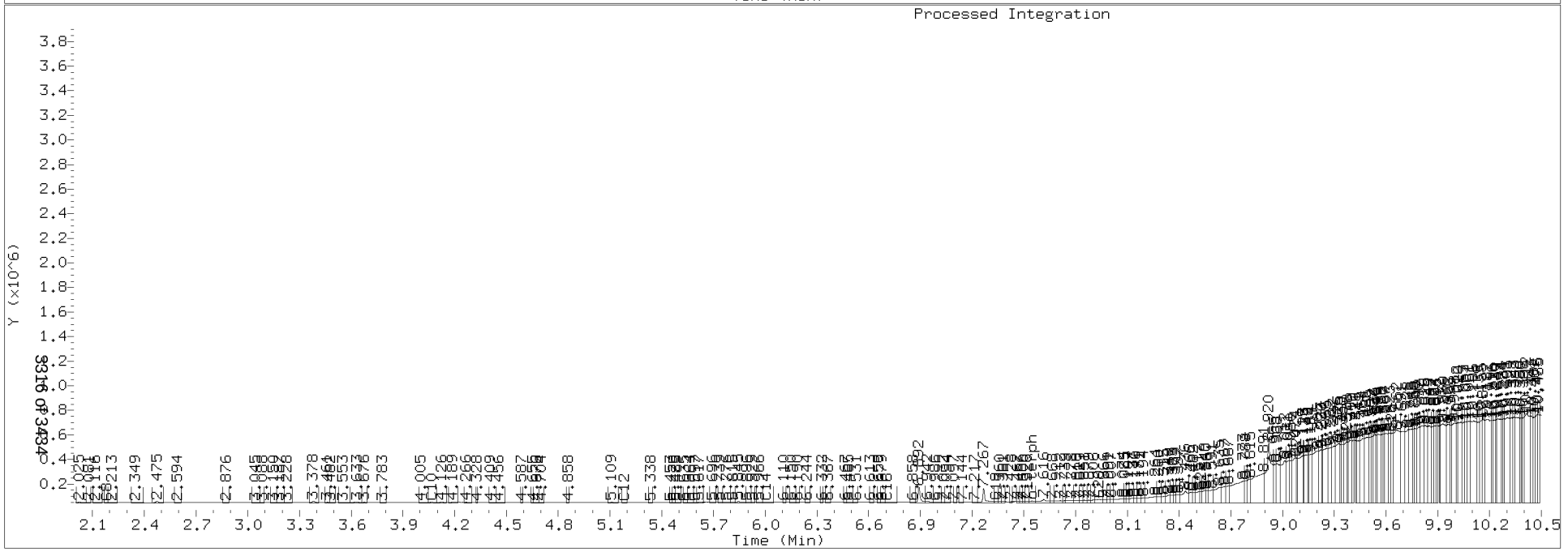
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1071.D Injection: 11-SEP-2019 11:11

Lab ID:SHI0095-CCVA





Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1024.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-SCV1	Injection Time:	17:50
Sequence Name:	DIESEL SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	508	174459.7	177206.1		1.6	30

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1024.D

Date : 10-SEP-2019 17:50

Client ID:

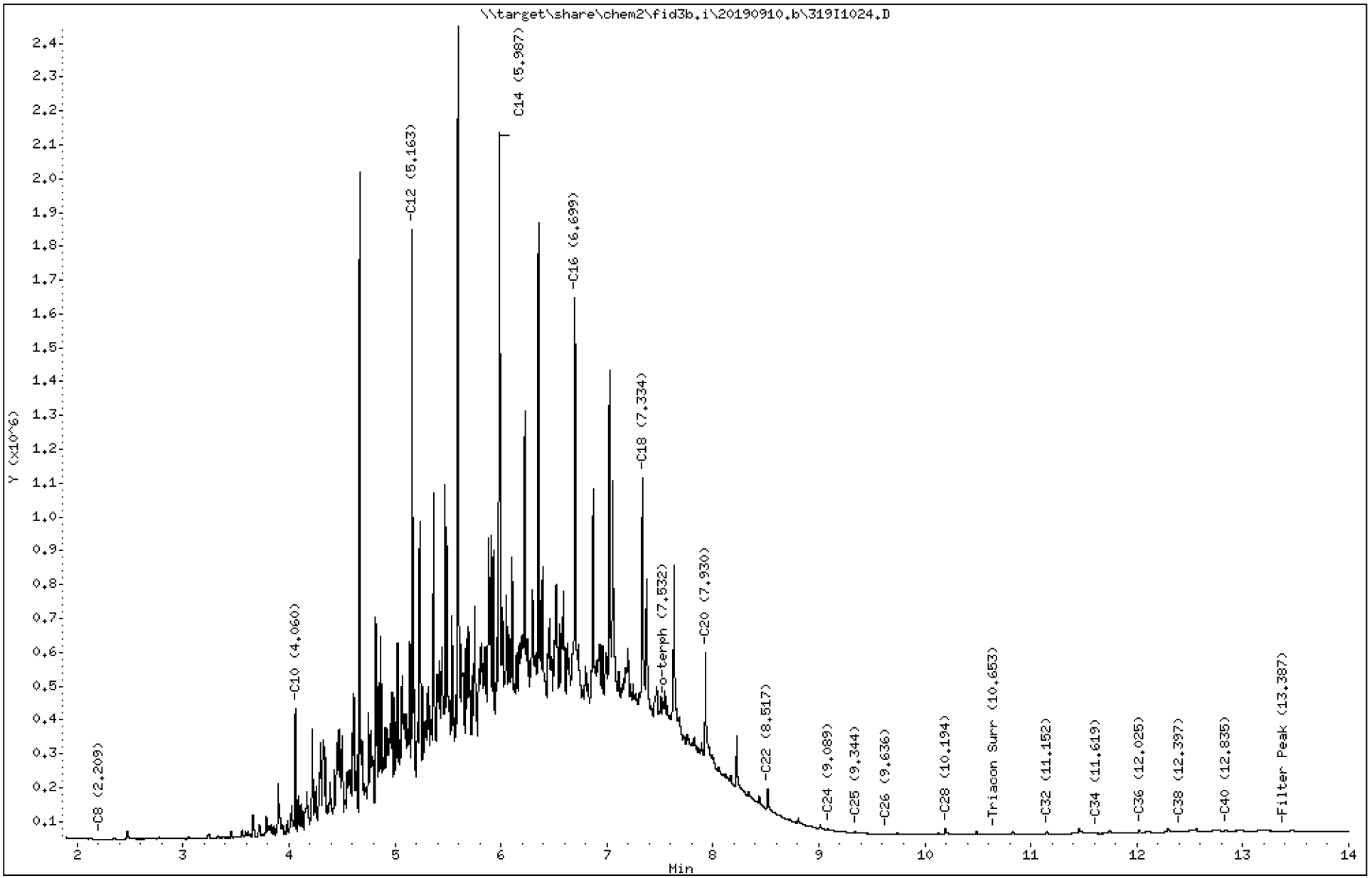
Sample Info: SHI0095-SCV1

Column phase: RTX-1

Instrument: fid3b.i

Operator: JGR

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1024.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV1
Client ID:
Injection: 10-SEP-2019 17:50
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	18166834	101.2
C8	2.209	0.033	1933	4952	WATPHD	(C12-C24)	88603072	507.9
C10	4.060	-0.009	385327	254694	WATPHM	(C24-C38)	1571148	12.4
C12	5.163	-0.003	1804139	1159878	AK102	(C10-C25)	105644144	518.2
C14	5.987	-0.005	2090503	2284429	AK103	(C25-C36)	1243748	12.2
C16	6.699	-0.004	1601427	1786732	OR.DIES	(C10-C28)	106195300	514.5
C18	7.334	-0.004	1070625	1659662				
C20	7.930	-0.006	552027	835683				
C22	8.517	-0.006	148739	617018				
C24	9.089	-0.007	33019	146762				
C25	9.344	-0.030	23748	60865				
C26	9.636	-0.010	16436	23024				
C28	10.194	0.025	32651	169918	IT.DIES	(C10-C24)	105644144	519.3
C32	11.152	0.021	25156	54043				
C34	11.619	0.046	18838	51742				
Filter Peak	13.387	0.068	25528	21741				
C36	12.025	0.027	28189	56284				
o-terph	7.532	-0.002	405671	416993				
Triacon Surr	10.653	-0.037	16705	23260				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

Surrogate	Area	Amount
o-Terphenyl	416993	1.9
Triacontane	23260	0.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1025.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-SCV2	Injection Time:	18:13
Sequence Name:	MOIL SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	1060	126617	134436.8		6.2	30

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1025.D

Date : 10-SEP-2019 18:13

Client ID:

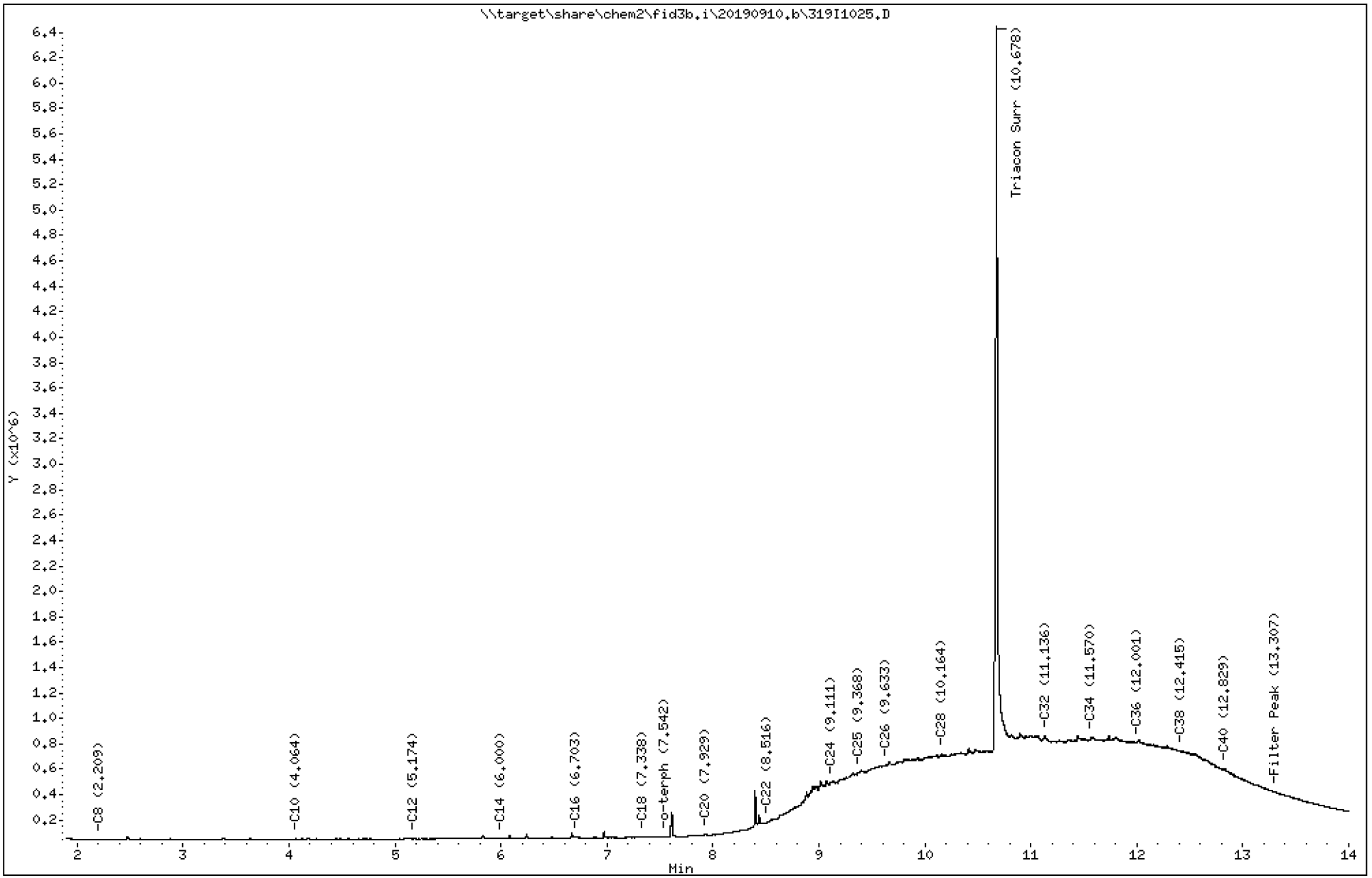
Sample Info: SHI0095-SCV2

Instrument: fid3b.i

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1025.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV2
Client ID:
Injection: 10-SEP-2019 18:13
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)	
Toluene	----				WATPHG	(Tol-C12)	420555	2.3	
C8	2.209	0.034	5268	10275	WATPHD	(C12-C24)	16700300	95.7	
C10	4.064	-0.005	6881	8187	WATPHM	(C24-C38)	134436796	1061.8	
C12	5.174	0.008	6921	14266	AK102	(C10-C25)	21220077	104.1	
C14	6.000	0.008	12196	12749	AK103	(C25-C36)	113307697	1113.7	M
C16	6.703	0.000	22674	65102	OR.DIES	(C10-C28)	53624510	259.8	
C18	7.338	0.000	20684	26483					
C20	7.929	-0.007	41189	127363					
C22	8.516	-0.007	143253	280508					
C24	9.111	0.015	451100	414936					
C25	9.368	-0.006	525235	394195					
C26	9.633	-0.012	587576	326190					
C28	10.164	-0.005	673101	1234119	IT.DIES	(C10-C24)	16917193	83.2	
C32	11.136	0.006	816398	2046618					
C34	11.570	-0.003	803474	1522330					
Filter Peak	13.307	-0.011	375795	979454					
C36	12.001	0.003	767809	367268					
o-terph	7.542	0.009	21898	49462					
Triacon Surr	10.678	-0.011	5683882	7402686					

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

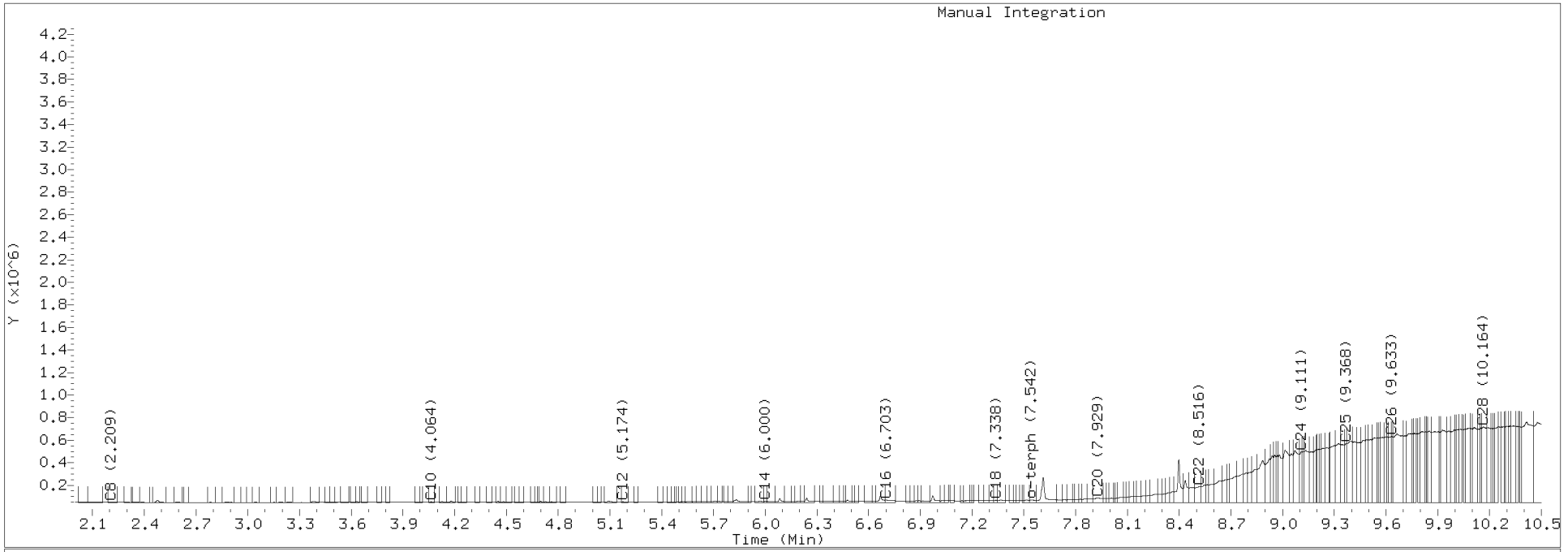
Surrogate	Area	Amount
o-Terphenyl	49462	0.2
Triacontane	7402686	43.5

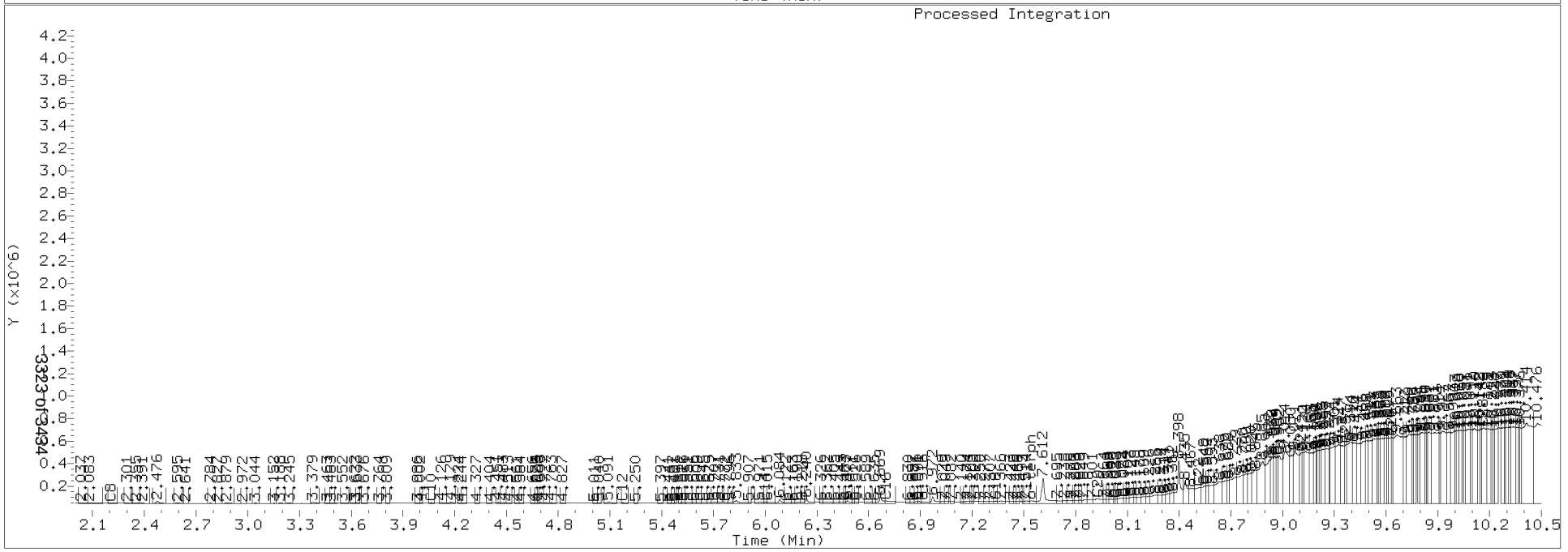
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1025.D Injection: 10-SEP-2019 18:13

Lab ID:SHI0095-SCV2





Analytical Resources, Incorporated
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID3	Calibration:	CI00036
Lab File ID:	319I1026.D	Calibration Date:	09/10/19 00:00
Sequence:	SHI0095	Injection Date:	09/10/19
Lab Sample ID:	SHI0095-SCV3	Injection Time:	18:35
Sequence Name:	AK103 SCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	863	126617	109277.2		-13.7	30

* Values outside of QC limits

Data File: \\target\share\chem2\fid3b.i\20190910.b\319I1026.D

Date : 10-SEP-2019 18:35

Client ID:

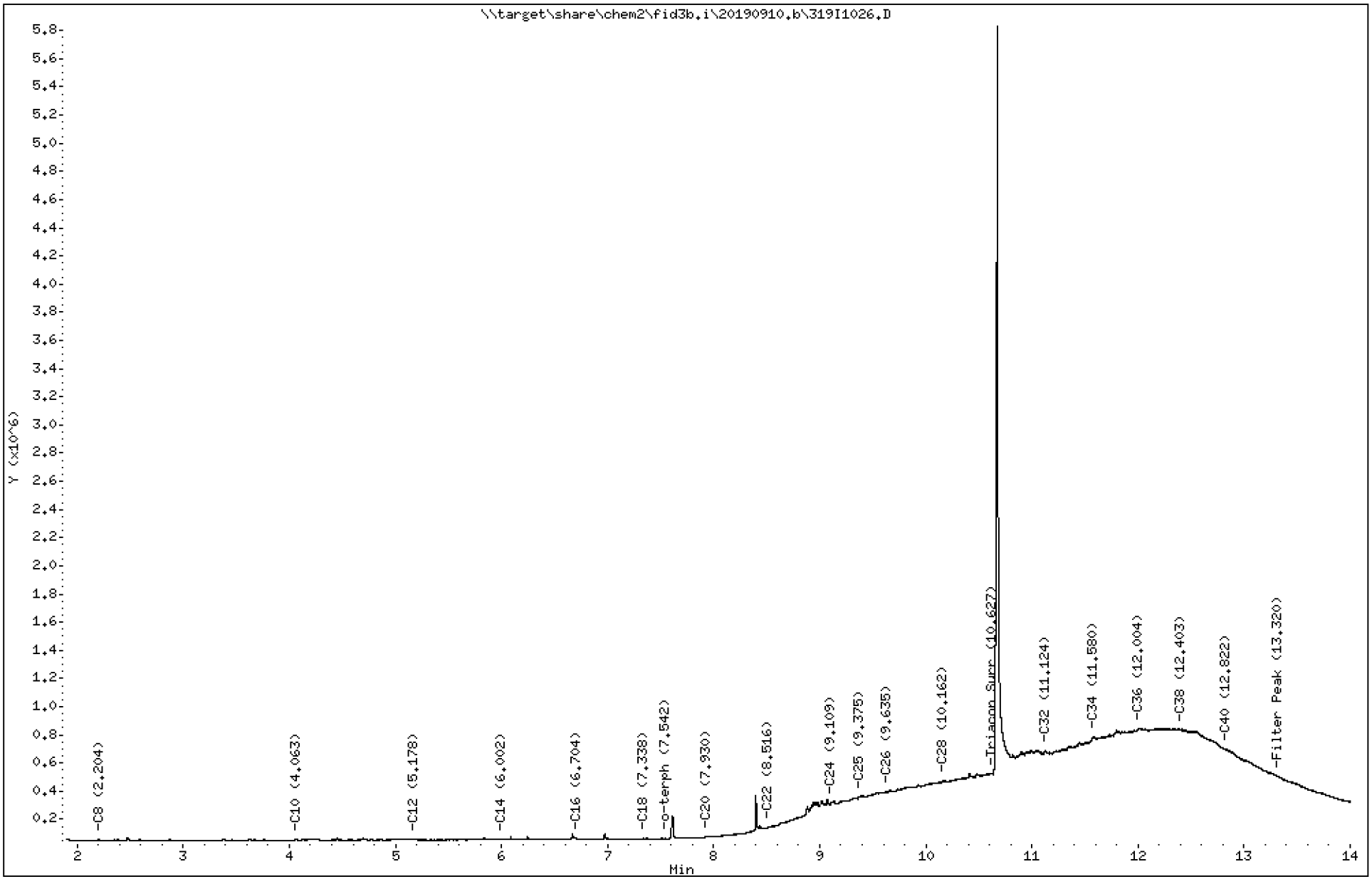
Instrument: fid3b.i

Sample Info: SHI0095-SCV3

Operator: JGR

Column phase: RTX-1

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190910.b/319I1026.D
Method: 20190910.b\FID3TPH.m
Instrument: fid3b.i, JGR
Report Date: 09/11/2019
Macro: FID3_091019
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-SEP-2019 M.Oil:10-SEP-2019

ARI ID: SHI0095-SCV3
Client ID:
Injection: 10-SEP-2019 18:35
Dilution Factor: 1
RT Std: 319I1002.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg per L)
Toluene	----				WATPHG	(Tol-C12)	536431	3.0
C8	2.204	0.028	4961	8201	WATPHD	(C12-C24)	10886905	62.4
C10	4.063	-0.006	8157	13014	WATPHM	(C24-C38)	109277246	863.1
C12	5.178	0.012	6604	12567	AK102	(C10-C25)	14242144	69.9
C14	6.002	0.010	8767	17683	AK103	(C25-C36)	86639215	851.6 M
C16	6.704	0.002	18334	51640	OR.DIES	(C10-C28)	32953505	159.7
C18	7.338	-0.000	15406	19235				
C20	7.930	-0.006	31233	63282				
C22	8.516	-0.007	96574	109176				
C24	9.109	0.013	274757	405304				
C25	9.375	0.001	310732	457792				
C26	9.635	-0.011	344762	315190				
C28	10.162	-0.006	429652	791004	IT.DIES	(C10-C24)	11195837	55.0
C32	11.124	-0.007	636629	1584179				
C34	11.580	0.007	732815	2258301				
Filter Peak	13.320	0.002	454536	922363				
C36	12.004	0.006	791000	674327				
o-terph	7.542	0.009	15185	31375				
Triacon Surr	10.676	-0.013	5280821	6781328				

Range Times: NW Diesel(5.216 - 9.146) NW Gas(1.462 - 5.216) NW M.Oil(9.146 - 12.461)
AK102(4.019 - 9.324) AK103(9.324 - 12.048) Jet A(4.019 - 7.388)

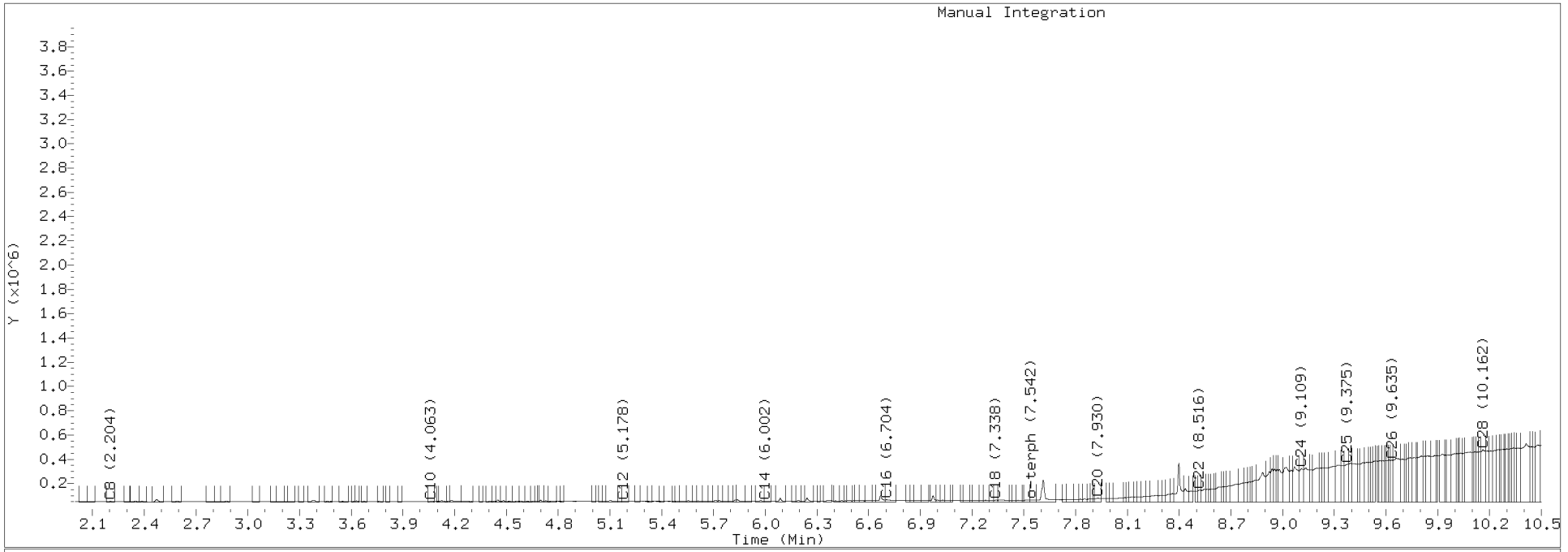
Surrogate	Area	Amount
o-Terphenyl	31375	0.1
Triacontane	6781328	39.9

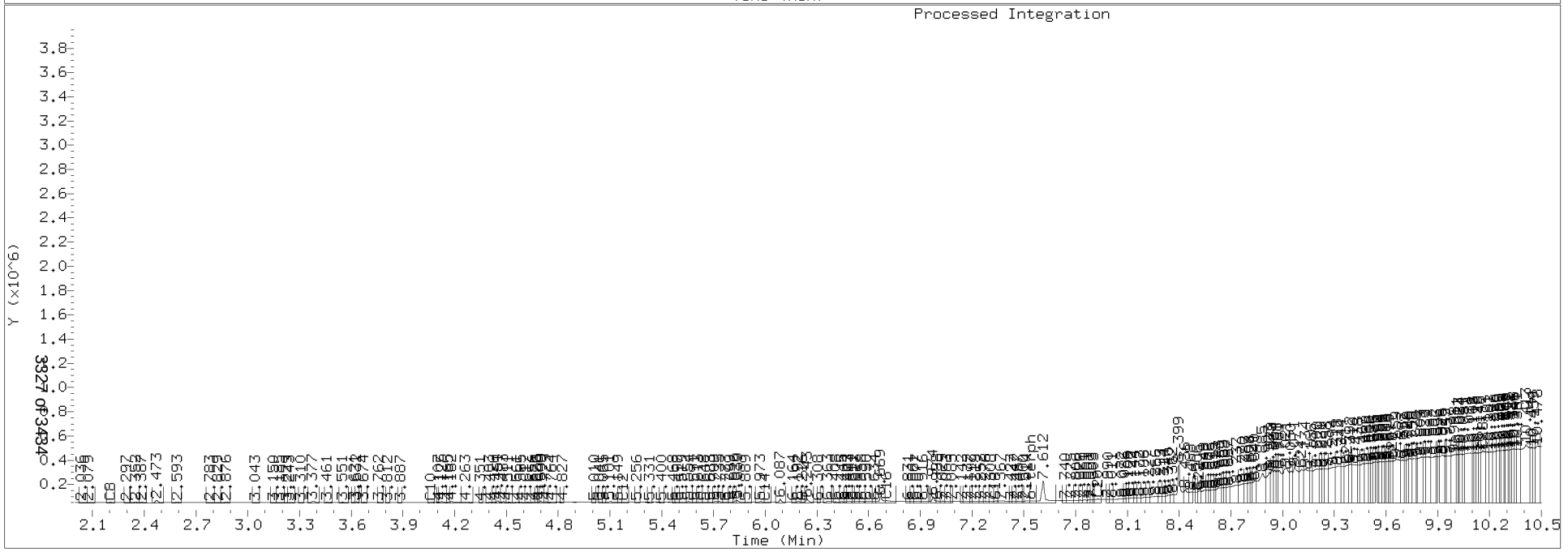
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	174459.7	10-SEP-2019
Motor Oil	126617.0	10-SEP-2019
AK102	203854.5	10-SEP-2019
AK103	101737.6	10-SEP-2019
OR Diesel	206385.8	10-SEP-2019
IT Diesel	203452.1	10-SEP-2019

TPH Manual Integrations Report

Datafile: FID3B, 20190910.b/319I1026.D Injection: 10-SEP-2019 18:35

Lab ID:SHI0095-SCV3





CONTINUING CALIBRATION CHECK
NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00039
Lab File ID:	419I0742.D	Calibration Date:	09/07/19 00:00
Sequence:	SHI0185	Injection Date:	09/07/19
Lab Sample ID:	SHI0185-CCV1	Injection Time:	23:06
Sequence Name:	DIESEL CCV		

		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Diesel Range Organics (C12-C24)	A	500.00	487	119661.8	116513.8		-2.6	15
o-Terphenyl	A	90.000	79.1	156059.8	137163.4		-12.1	15

* Values outside of QC limits

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0742.D

Date : 07-SEP-2019 23:06

Client ID:

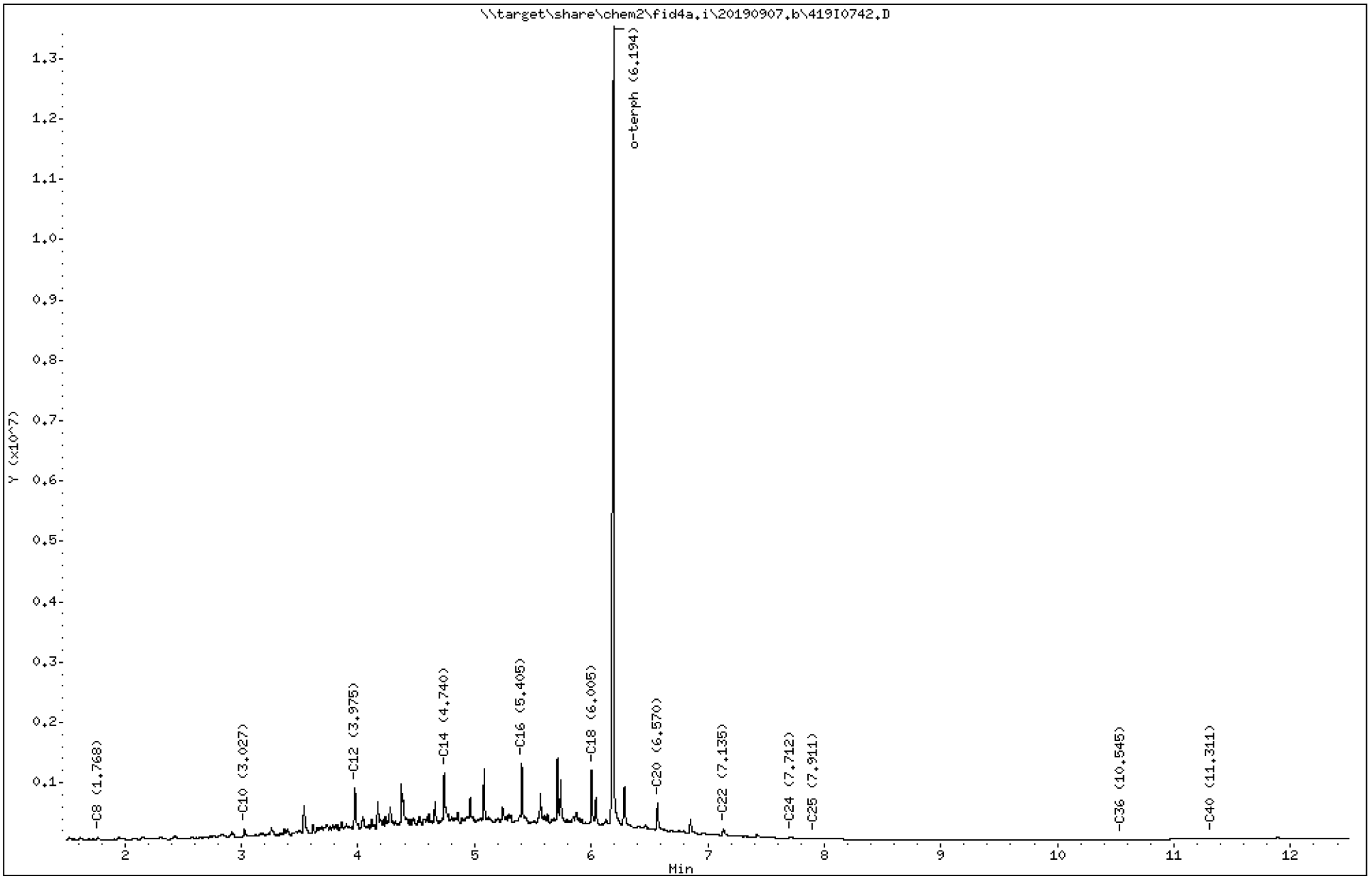
Sample Info: SHI0081-CCV1

Column phase: RTX-1

Instrument: fid4a.i

Operator: VTS

Column diameter: 0.25



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0742.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CCV1
Client ID:
Injection: 07-SEP-2019 23:06
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

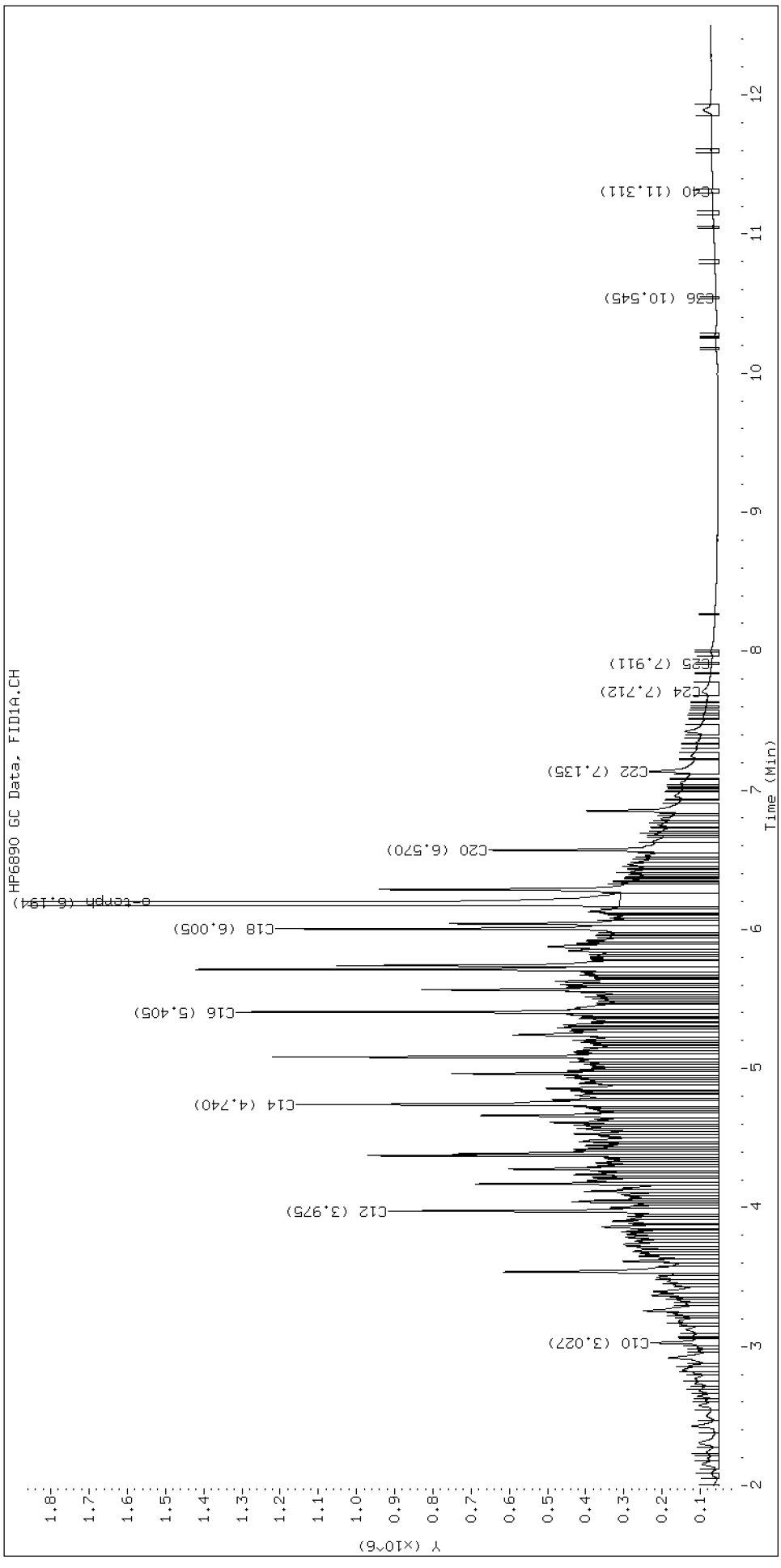
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	1.768	0.006	35563	49805	WATPHD	(C12-C24)	58256906	486.8
C10	3.027	0.005	176489	303597	WATPHM	(C24-C38)	120272	3.2
C12	3.975	-0.000	863415	1006118	AK102	(C10-C25)	68123390	493.3
C14	4.740	-0.000	1105193	1430808	AK103	(C25-C36)	94823	3.9
C16	5.405	0.001	1261640	1291337	OR.DIES	(C10-C28)	68191250	493.1
C18	6.005	0.003	1159016	1491047				
C20	6.570	0.002	601615	1068680				
C22	7.135	0.008	180118	565787				
C24	7.712	0.035	41948	191462				
C25	7.911	-0.035	18597	16519				
C26	----							
C32	----							
C34	----							
Filter Peak	----				BUNKERC	(C10-C38)	68233105	1014.2 M
C36	10.545	0.038	7790	6464				
C38	----							
C40	11.311	0.007	17584	27053				
o-terph	6.194	0.003	13229802	12344710				
Triacon Surr	----				NAS DIES	(C10-C24)	68112834	493.7

Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	12344710	79.1	M
Triacontane	0	0.0	

M Indicates the peak was manually integrated

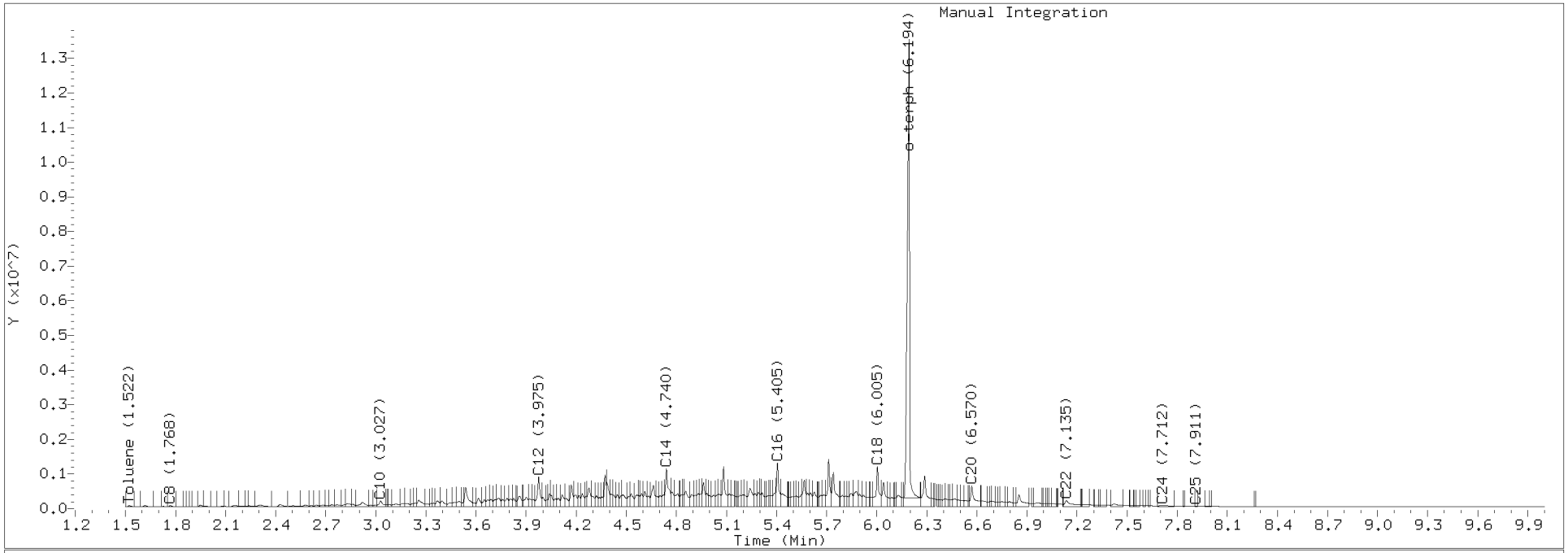
Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

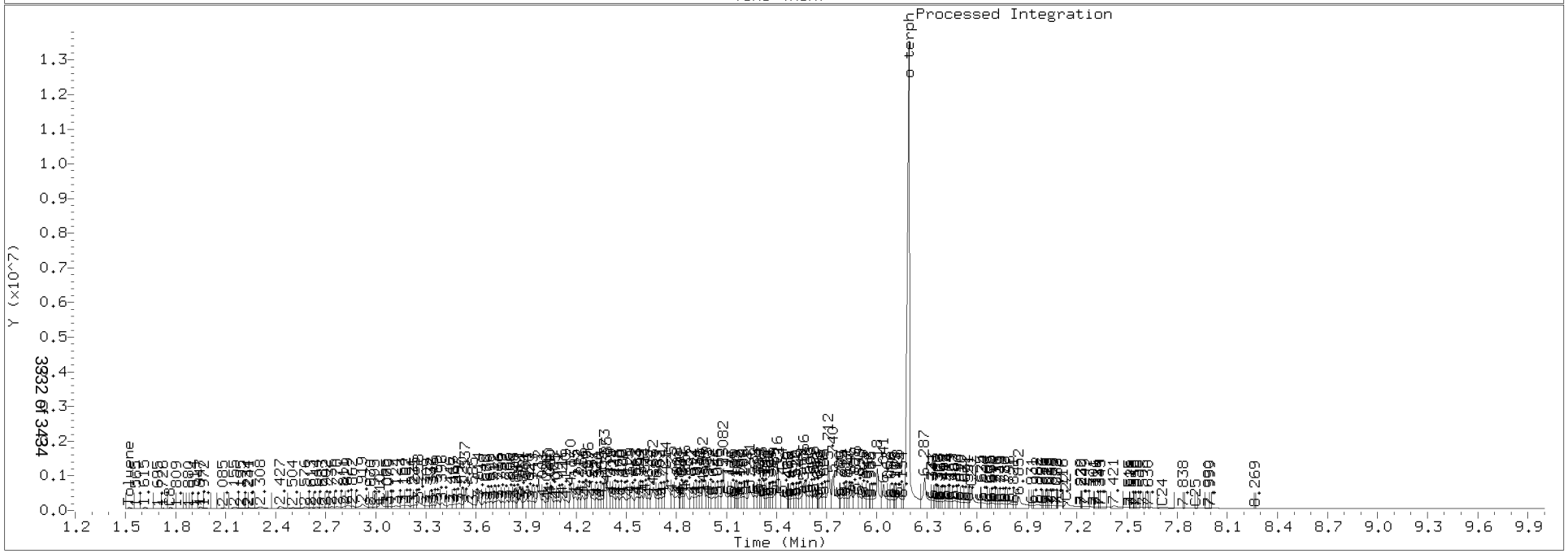

Datafile: FID4A, 20190907.b/419I0742.D SHI0081-CCV1
HP6890 GC Data, FID1A.CH
C10 (3.027)
C12 (3.975)
C14 (4.740)
C16 (5.405)
C18 (6.005)
9-terph (6.194)
C20 (6.570)
C22 (7.135)
C24 (7.712)
C25 (7.911)
C36 (10.545)
C40 (11.311)
Y (X10^6)
Time (Min)

TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0742.D Injection: 07-SEP-2019 23:06

Lab ID:SHI0081-CCV1





CONTINUING CALIBRATION CHECK

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument ID:	FID4	Calibration:	CI00039
Lab File ID:	419I0743.D	Calibration Date:	09/07/19 00:00
Sequence:	SHI0185	Injection Date:	09/07/19
Lab Sample ID:	SHI0185-CCV2	Injection Time:	23:27
Sequence Name:	MOIL CCV		

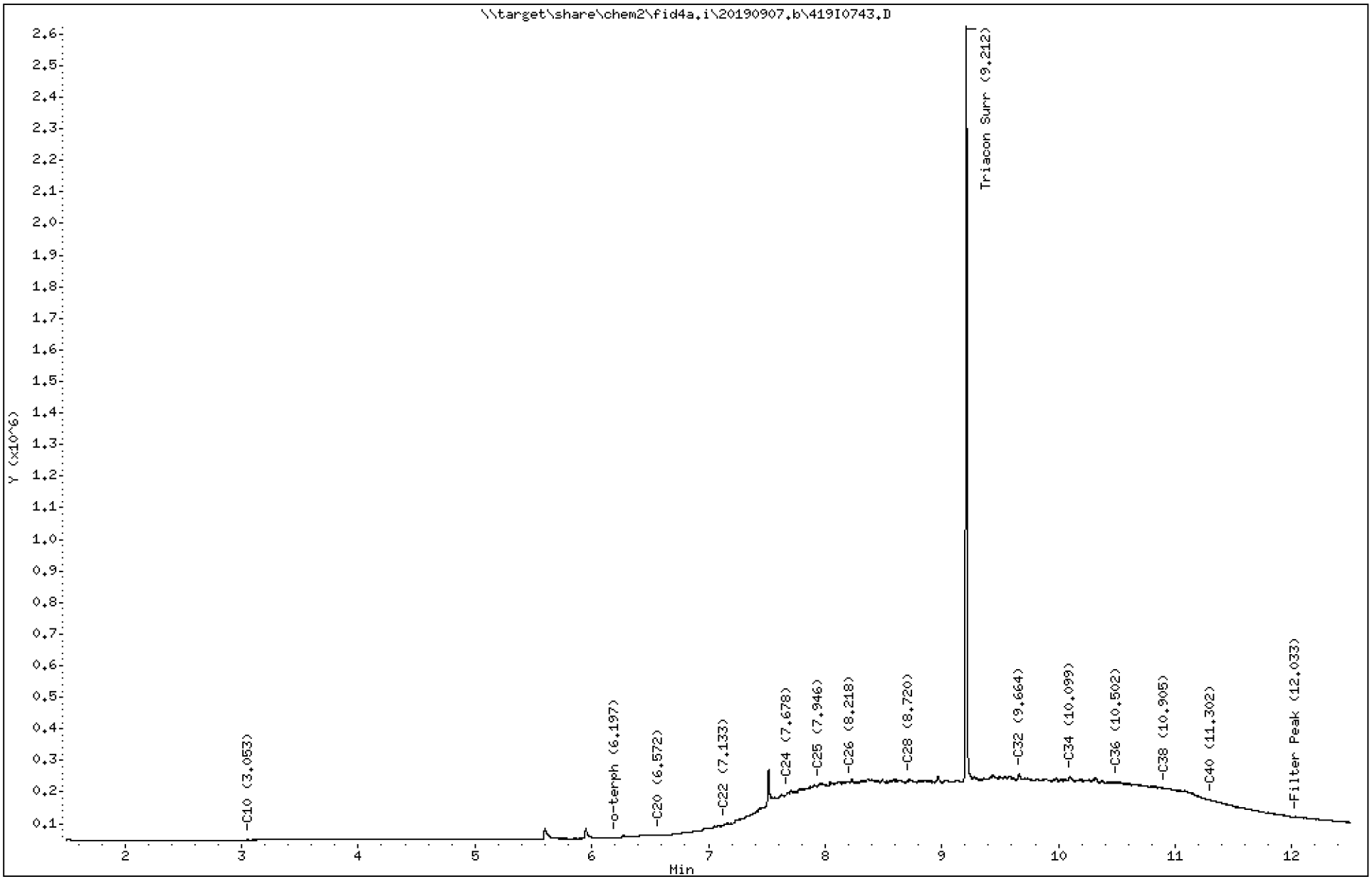
		CONC. (mg/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Motor Oil Range Organics (C24-C38)	A	1000.0	939	37508.35	35209.48		-6.1	15

* Values outside of QC limits

Data File: \\target\share\chem2\fid4a.i\20190907.b\419I0743.D
Date : 07-SEP-2019 23:27
Client ID:
Sample Info: SHI0081-CCV2

Instrument: fid4a.i
Operator: VTS
Column diameter: 0.25

Column phase: RTX-1



Analytical Resources Inc.
TPH Quantitation Report

Data file: 20190907.b/419I0743.D
Method: 20190907.b\FID4TPH.m
Instrument: fid4a.i, VTS
Report Date: 09/11/2019
Macro: 07-SEP-2019
Calibration Dates: Gas:XX-XXX-XXXX Diesel:07-SEP-2019 M.Oil:07-SEP-2019

ARI ID: SHI0081-CCV2
Client ID:
Injection: 07-SEP-2019 23:27
Dilution Factor: 1
RT Std: 419H1603.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc(mg/L)
C8	----				WATPHD	(C12-C24)	4409167	36.8
C10	3.053	0.031	2420	2402	WATPHM	(C24-C38)	35209476	938.7
C12	----				AK102	(C10-C25)	6046712	43.8
C14	----				AK103	(C25-C36)	29425564	1212.4
C16	----				OR.DIES	(C10-C28)	15642099	113.1
C18	----							
C20	6.572	0.004	17365	14946				
C22	7.133	0.006	49447	55213				
C24	7.678	0.002	151214	125894				
C25	7.946	-0.001	177094	121661				
C26	8.218	0.007	187758	129600				
C28	8.720	0.000	193080	170611				
C32	9.664	0.003	210130	444788				
C34	10.099	0.003	202177	366210				
Filter Peak	12.033	-0.003	75286	63287	BUNKERC	(C10-C38)	39621046	588.9
C36	10.502	-0.005	185167	128595				
C38	10.905	0.000	164180	57171				
C40	11.302	-0.002	130463	109291				
o-terph	6.197	0.006	10149	12960				
Triacon Surr	9.212	-0.005	2388775	1914732	NAS DIES	(C10-C24)	4411569	32.0

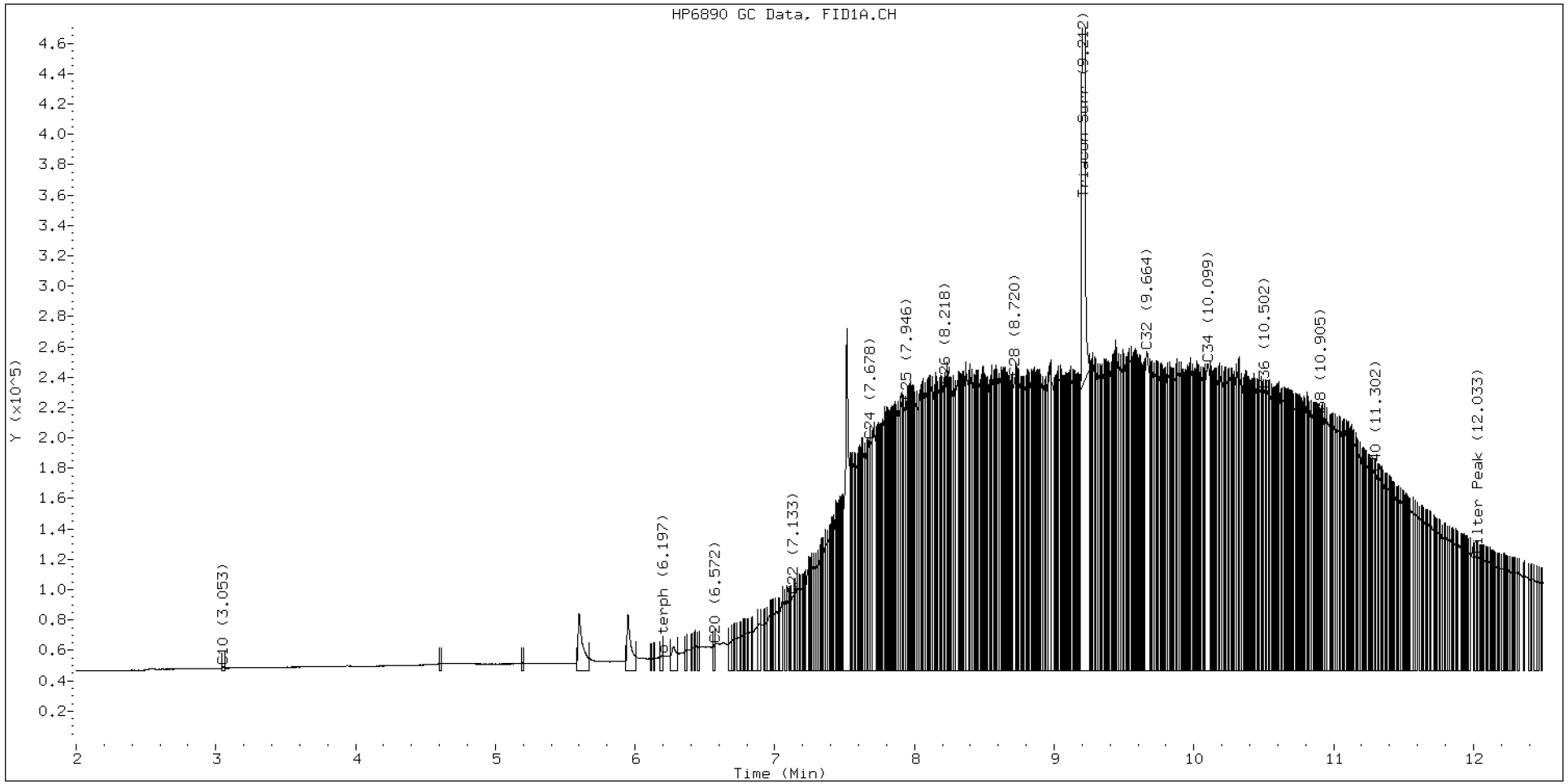
Range Times: NW Diesel(3.976 - 7.677) AK102(3.02 - 7.95) Jet A(3.02 - 6.00)
NW M.Oil(7.68 - 10.90) AK103(7.95 - 10.51) OR Diesel(3.02 - 8.72)

Surrogate	Area	Amount	
o-Terphenyl	12960	0.1	
Triacontane	1914732	46.6	M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	156059.8	07-SEP-2019
Triacon Surr	41086.2	07-SEP-2019
Gas	15000.0	XX-XXX-XXXX
Diesel	119661.8	07-SEP-2019
Motor Oil	37508.3	07-SEP-2019
AK102	138100.0	07-SEP-2019
AK103	24269.8	07-SEP-2019
OR Diesel	138293.6	07-SEP-2019
NAS Diesel	137971.6	07-SEP-2019
Bunker C	67278.4	09-AUG-2019

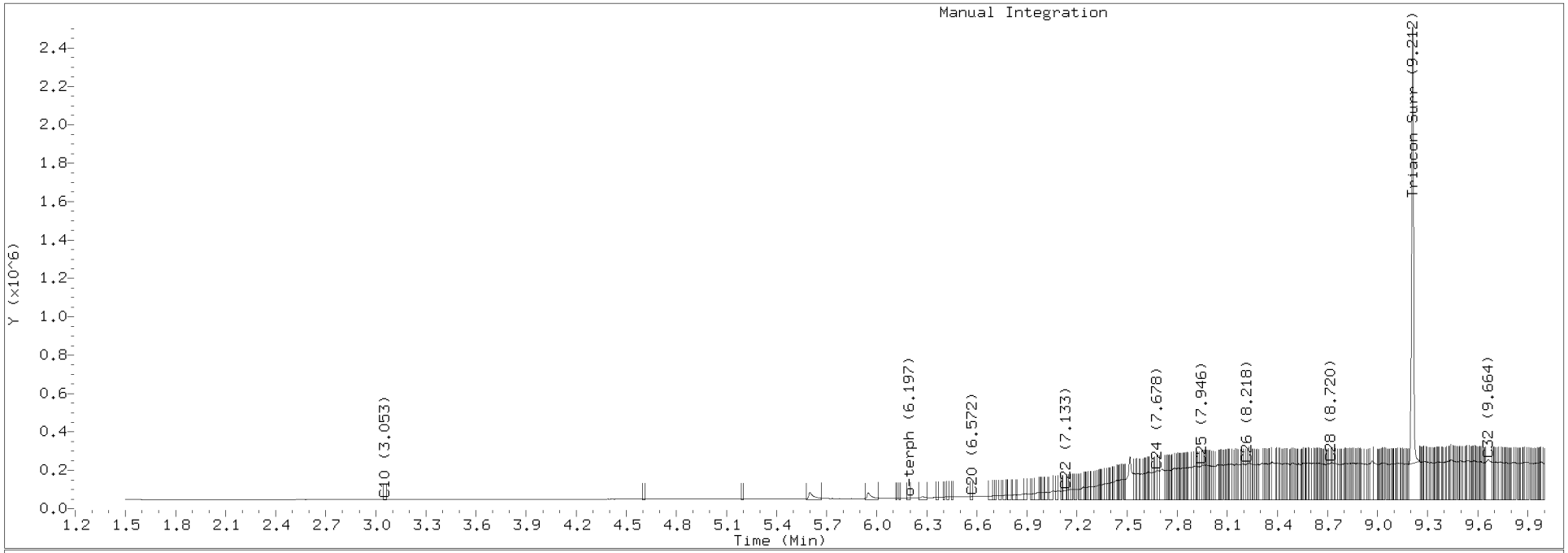
Datafile: FID4A, 20190907.b/419I0743.D SHI0081-CCV2

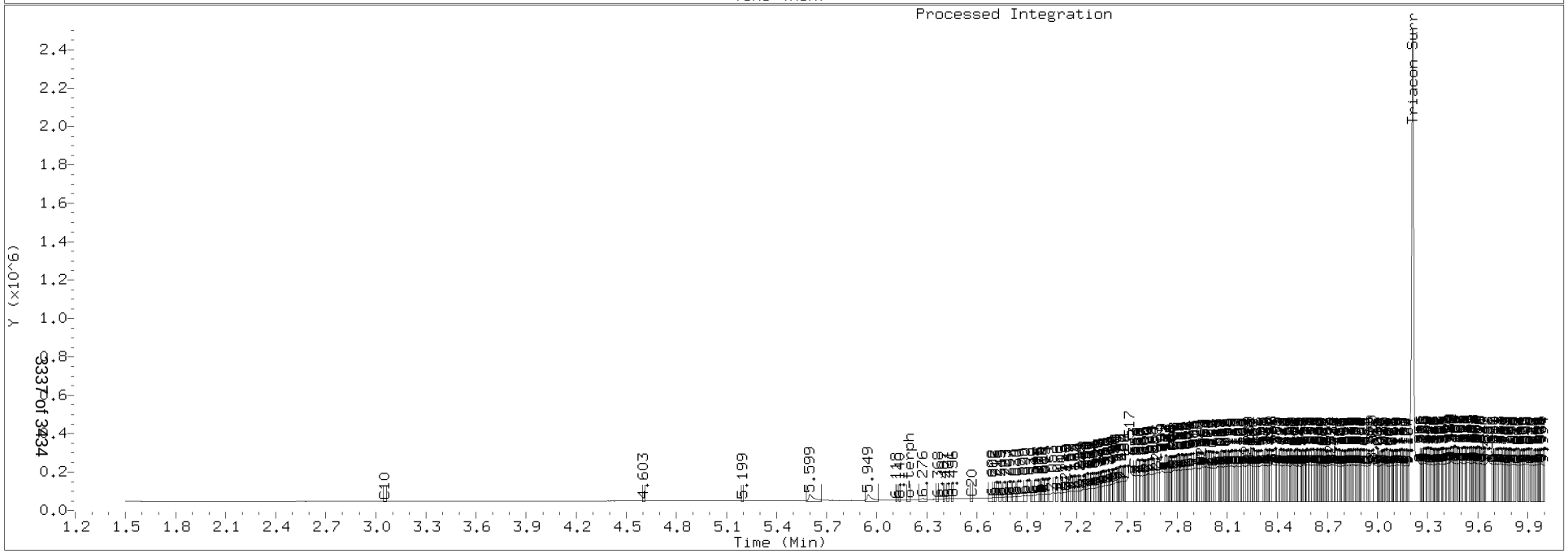


TPH Manual Integrations Report

Datafile: FID4A, 20190907.b/419I0743.D Injection: 07-SEP-2019 23:27

Lab ID:SHI0081-CCV2





ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHH0420
Instrument: FID4
Calibration: CH00097

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Retention Time Standard	SHH0420-IBL1	419H2921.D	NA	08/29/19 16:10
Instrument Blank	SHH0420-IBL2	419H2922.D	NA	08/29/19 16:31
50ppm DIESEL	SHH0420-CAL1	419H2923.D	NA	08/29/19 16:54
100ppm DIESEL	SHH0420-CAL2	419H2924.D	NA	08/29/19 17:15
250ppm DIESEL	SHH0420-CAL3	419H2925.D	NA	08/29/19 17:36
500ppm DIESEL	SHH0420-CAL4	419H2926.D	NA	08/29/19 17:57
1000ppm DIESEL	SHH0420-CAL5	419H2927.D	NA	08/29/19 18:20
2500ppm DIESEL	SHH0420-CAL6	419H2928.D	NA	08/29/19 18:41
100ppmmoil	SHH0420-CAL7	419H2929.D	NA	08/29/19 19:02
250ppmmoil	SHH0420-CAL8	419H2930.D	NA	08/29/19 19:23
500ppmmoil	SHH0420-CAL9	419H2931.D	NA	08/29/19 19:44
1000ppmmoil	SHH0420-CALA	419H2932.D	NA	08/29/19 20:06
2500ppmmoil	SHH0420-CALB	419H2933.D	NA	08/29/19 20:27
5000ppmmoil	SHH0420-CALC	419H2934.D	NA	08/29/19 20:48
100ppmak103	SHH0420-CALD	419H2935.D	NA	08/29/19 21:09
250ppmak103	SHH0420-CALE	419H2936.D	NA	08/29/19 21:30
500ppmak103	SHH0420-CALF	419H2937.D	NA	08/29/19 21:50
1000ppmak103	SHH0420-CALG	419H2938.D	NA	08/29/19 22:11
2500ppmak103	SHH0420-CALH	419H2939.D	NA	08/29/19 22:33
5000ppmak103	SHH0420-CALI	419H2940.D	NA	08/29/19 22:55
DIESEL SCV	SHH0420-SCV1	419H2941.D	NA	08/29/19 23:15
MOIL SCV	SHH0420-SCV2	419H2942.D	NA	08/29/19 23:36
AK103 SCV	SHH0420-SCV3	419H2943.D	NA	08/29/19 23:57

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/31/2019 11:57:06AM

ANALYSIS SEQUENCE

SHH0420

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0420-IBL1	Retention Time Standard	QC		1	H006806		
SHH0420-IBL2	Instrument Blank	QC		2	H007457		
SHH0420-CALJ	BunkerC	QC		3	H007603		
SHH0420-CAL1	50ppm DIESEL	QC		4	H006819		
SHH0420-CAL2	100ppm DIESEL	QC		5	H006818		
SHH0420-CAL3	250ppm DIESEL	QC		6	H006817		
SHH0420-CAL4	500ppm DIESEL	QC		7	H006816		
SHH0420-CAL5	1000ppm DIESEL	QC		8	H006815		
SHH0420-CAL6	2500ppm DIESEL	QC		9	H006794		
SHH0420-CAL7	100ppmmoil	QC		10	H008395		
SHH0420-CAL8	250ppmmoil	QC		11	H008396		
SHH0420-CAL9	500ppmmoil	QC		12	H008397		
SHH0420-CALA	1000ppmmoil	QC		13	H007659		
SHH0420-CALB	2500ppmmoil	QC		14	H008398		
SHH0420-CALC	5000ppmmoil	QC		15	H007458		
SHH0420-CALD	100ppmak103	QC		16	H006838		
SHH0420-CALE	250ppmak103	QC		17	H006837		
SHH0420-CALF	500ppmak103	QC		18	H006839		
SHH0420-CALG	1000ppmak103	QC		19	H006836		
SHH0420-CALH	2500ppmak103	QC		20	H006835		
SHH0420-CALI	5000ppmak103	QC		21	H006795		
SHH0420-SCV1	DIESEL SCV	QC		22	H008294		

3333501 2434

Printed: 8/31/2019 11:57:06AM

ANALYSIS SEQUENCE

SHH0420

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHH0420-SCV2	MOIL SCV	QC		23	H008399		
SHH0420-SCV3	AK103 SCV	QC		24	H008400		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190829.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	29-AUG-2019 16:10	419H2921.D	1	SHH0420-IBL1	
2	29-AUG-2019 16:31	419H2922.D	1	SHH0420-IBL2	
3	29-AUG-2019 16:54	419H2923.D	1	SHH0420-CAL1	
4	29-AUG-2019 17:15	419H2924.D	1	SHH0420-CAL2	
5	29-AUG-2019 17:36	419H2925.D	1	SHH0420-CAL3	
6	29-AUG-2019 17:57	419H2926.D	1	SHH0420-CAL4	
7	29-AUG-2019 18:20	419H2927.D	1	SHH0420-CAL5	
8	29-AUG-2019 18:41	419H2928.D	1	SHH0420-CAL6	
9	29-AUG-2019 19:02	419H2929.D	1	SHH0420-CAL7	
10	29-AUG-2019 19:23	419H2930.D	1	SHH0420-CAL8	
11	29-AUG-2019 19:44	419H2931.D	1	SHH0420-CAL9	
12	29-AUG-2019 20:06	419H2932.D	1	SHH0420-CALA	
13	29-AUG-2019 20:27	419H2933.D	1	SHH0420-CALB	
14	29-AUG-2019 20:48	419H2934.D	1	SHH0420-CALC	
15	29-AUG-2019 21:09	419H2935.D	1	SHH0420-CALD	
16	29-AUG-2019 21:30	419H2936.D	1	SHH0420-CALE	
17	29-AUG-2019 21:50	419H2937.D	1	SHH0420-CALF	
18	29-AUG-2019 22:11	419H2938.D	1	SHH0420-CALG	
19	29-AUG-2019 22:33	419H2939.D	1	SHH0420-CALH	
20	29-AUG-2019 22:55	419H2940.D	1	SHH0420-CALI	
21	29-AUG-2019 23:15	419H2941.D	1	SHH0420-SCV1	
22	29-AUG-2019 23:36	419H2942.D	1	SHH0420-SCV2	
23	29-AUG-2019 23:57	419H2943.D	1	SHH0420-SCV3	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190829.b

Instrument: fid4a.i Date: 29-AUG-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1610	419H2921.D	SHH0420-IBL1	1	NO MANUAL INTEGRATION
1631	419H2922.D	SHH0420-IBL2	1	NO MANUAL INTEGRATION
1654	419H2923.D	SHH0420-CAL1	1	o-terph,
1715	419H2924.D	SHH0420-CAL2	1	o-terph,
1736	419H2925.D	SHH0420-CAL3	1	o-terph,
1757	419H2926.D	SHH0420-CAL4	1	o-terph,
1820	419H2927.D	SHH0420-CAL5	1	o-terph,
1841	419H2928.D	SHH0420-CAL6	1	o-terph,
1902	419H2929.D	SHH0420-CAL7	1	Triacon Surr,
1923	419H2930.D	SHH0420-CAL8	1	Triacon Surr,
1944	419H2931.D	SHH0420-CAL9	1	Triacon Surr,
2006	419H2932.D	SHH0420-CALA	1	Triacon Surr,
2027	419H2933.D	SHH0420-CALB	1	Triacon Surr,
2048	419H2934.D	SHH0420-CALC	1	Triacon Surr,
2109	419H2935.D	SHH0420-CALD	1	Triacon Surr,
2130	419H2936.D	SHH0420-CALE	1	Triacon Surr,
2150	419H2937.D	SHH0420-CALF	1	Triacon Surr,

Instrument: fid4a.i Date: 29-AUG-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2211	419H2938.D	SHH0420-CALG	1	Triacon Surr,
2233	419H2939.D	SHH0420-CALH	1	Triacon Surr,
2255	419H2940.D	SHH0420-CALI	1	Triacon Surr,
2315	419H2941.D	SHH0420-SCV1	1	NO MANUAL INTEGRATION
2336	419H2942.D	SHH0420-SCV2	1	Triacon Surr,
2357	419H2943.D	SHH0420-SCV3	1	Triacon Surr,

Security Status Report

Date: 31-Aug-2019 11:44

419H2901.D	Data Locked	van, 31-Aug-2019 11:44
419H2902.D	Data Locked	van, 31-Aug-2019 11:44
419H2903.D	Data Locked	van, 31-Aug-2019 11:44
419H2904.D	Data Locked	van, 31-Aug-2019 11:44
419H2905.D	Data Locked	van, 31-Aug-2019 11:44
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419H2928.D	Data Locked	van, 31-Aug-2019 11:03
419H2929.D	Data Locked	van, 31-Aug-2019 11:03
419H2930.D	Data Locked	van, 31-Aug-2019 11:03
419H2931.D	Data Locked	van, 31-Aug-2019 11:03
419H2932.D	Data Locked	van, 31-Aug-2019 11:03
419H2933.D	Data Locked	van, 31-Aug-2019 11:03
419H2934.D	Data Locked	van, 31-Aug-2019 11:03
419H2935.D	Data Locked	van, 31-Aug-2019 11:03
419H2936.D	Data Locked	van, 31-Aug-2019 11:03
419H2937.D	Data Locked	van, 31-Aug-2019 11:03
419H2938.D	Data Locked	van, 31-Aug-2019 11:03
419H2939.D	Data Locked	van, 31-Aug-2019 11:03
419H2940.D	Data Locked	van, 31-Aug-2019 11:03
419H2941.D	Data Locked	van, 31-Aug-2019 11:03
419H2942.D	Data Locked	van, 31-Aug-2019 11:03
419H2943.D	Data Locked	van, 31-Aug-2019 11:03

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0028
Instrument: FID4
Calibration: CH00097

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Instrument Blank	SHI0028-IBL1	419I0302.D	NA	09/03/19 08:26
Instrument Blank	SHI0028-IBL2	419I0303.D	NA	09/03/19 08:47
DIESEL ICV	SHI0028-ICV1	419I0304.D	NA	09/03/19 09:09
MOIL ICV	SHI0028-ICV2	419I0305.D	NA	09/03/19 09:31
ZZZZZ	BHI0014-BLK1	419I0306.D	Solid	09/03/19 10:47
ZZZZZ	BHI0014-BS1	419I0307.D	Solid	09/03/19 11:08
ZZZZZ	BHI0014-BSD1	419I0308.D	Solid	09/03/19 11:30
ZZZZZ	19I0001-01	419I0311.D	Solid	09/03/19 12:33
ZZZZZ	19I0001-02	419I0312.D	Solid	09/03/19 12:54
ZZZZZ	19I0001-03	419I0313.D	Solid	09/03/19 13:17
ZZZZZ	19H0477-01	419I0314.D	Solid	09/03/19 13:38
ZZZZZ	19H0477-02	419I0315.D	Solid	09/03/19 13:59
DIESEL CCV	SHI0028-CCV1	419I0318.D	NA	09/03/19 15:04
MOIL CCV	SHI0028-CCV2	419I0319.D	NA	09/03/19 15:25
Blank	BHI0023-BLK1	419I0320.D	Water	09/03/19 16:12
LCS	BHI0023-BS1	419I0321.D	Water	09/03/19 16:33
P40-UST-01-083019	19H0481-01	419I0322.D	Water	09/03/19 16:54
P40-UST-101-083019	19H0481-03	419I0323.D	Water	09/03/19 17:15
P40-UST-02-083019	19H0481-10	419I0324.D	Water	09/03/19 17:38
P40-UST-05-083019	19H0481-28	419I0330.D	Water	09/03/19 19:46
DIESEL CCV	SHI0028-CCV3	419I0331.D	NA	09/03/19 20:07
MOIL CCV	SHI0028-CCV4	419I0332.D	NA	09/03/19 20:30
Blank	BHI0019-BLK1	419I0333.D	Water	09/03/19 20:50
LCS	BHI0019-BS1	419I0334.D	Water	09/03/19 21:11
P40-UST-01-083019	19H0481-02	419I0335.D	Water	09/03/19 21:32
P40-UST-101-083019	19H0481-04	419I0336.D	Water	09/03/19 21:53
P40-UST-02-083019	19H0481-11	419I0337.D	Water	09/03/19 22:14
P40-UST-03-083019	19H0481-17	419I0338.D	Water	09/03/19 22:36
P40-UST-04-083019	19H0481-23	419I0339.D	Water	09/03/19 22:57
P40-UST-05-083019	19H0481-29	419I0340.D	Water	09/03/19 23:18

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0028	Instrument:	FID4
		Calibration:	CH00097

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
DIESEL CCV	SHI0028-CCV5	419I0341.D	NA	09/03/19 23:38
MOIL CCV	SHI0028-CCV6	419I0342.D	NA	09/03/19 23:59

Work Order(s): 19H0481

Checklist for SEQUENCE SHI0028

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is entered in Element	NA		JGR	09/03/2019
2	Detail all ICV/CCV failures for all affected Workorders	YES		JGR	09/03/2019
	Comments: *diesel ccv1 fails high, sample with dro hits will be re-run, reporting re-runs if qc passes.*				
3	Narrate any Retention times not within windows for all affected Workorders	NA		JGR	09/03/2019
4	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	YES		JGR	09/03/2019
	Comments: *skimmed surr*				
5	Narrate any Workorders where the Project specific requirements have not been met	NA		JGR	09/03/2019
6	Extraction basis, cleanups, and total solids are correctly entered	YES		JGR	09/03/2019
7	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA		JGR	09/03/2019
8	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	JGR	09/03/2019
9	AUTOCHECK: Check blank spike recovery	YES	*	JGR	09/03/2019
10	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	YES	*	JGR	09/03/2019
11	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	JGR	09/03/2019
12	AUTOCHECK: Matrix spike recoveries within limits	YES	*	JGR	09/03/2019
13	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	YES	*	JGR	09/03/2019
14	AUTOCHECK: Check Surrogate recoveries	YES	*	JGR	09/03/2019
15	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	JGR	09/03/2019
16	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		MW	09/04/2019
17	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		MW	09/04/2019
18	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO		MW	09/04/2019
	Comments: *EXCEPTION REPORT REQUIRED*				
19	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	YES		JGR	09/03/2019
	Comments: *19h0477* *19i0001* *Re-analyzing samples 19H0481-16, 22 and -17 at dilution*				
20	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	NA		JGR	09/03/2019
21	Additional Notes (ANALYST and REVIEWER)	YES		JGR	09/03/2019
	Comments: *data is pre-lims to this point re-running samples with dro range hits due to closing diesel ccal failing high 122 % limit 115%* *Upload completed by Van. Reporting all samples that are ND for diesel. Failing CCV is high bias.*				

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0028 **Checklist: Analyst Checklist-FID(rev4)**

#	Checklist Item	Response	Analyst Initials	Date
	Re-analyzing samples 19H0481-16, 22, 19H0477-1,2, 19I0001-01 thru -03.			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/4/2019 8:44:13AM

ANALYSIS SEQUENCE

SHI0028

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0028-IBL1	Instrument Blank	QC		1	H006806		
SHI0028-IBL2	Instrument Blank	QC		2	H007457		
SHI0028-ICV1	DIESEL ICV	QC		3	H006816		
SHI0028-ICV2	MOIL ICV	QC		4	H007659		
BHI0014-BLK1	Blank	QC		5			
BHI0014-BS1	LCS	QC		6			
BHI0014-BSD1	LCS Dup	QC		7			
BHI0014-MS1	Matrix Spike	QC		8			
BHI0014-MSD1	Matrix Spike Dup	QC		9			
19I0001-01	B11-SW7-4.5	TPH NW (Extractables) low level	A 01	10			
19I0001-02	B11-SW8-7.0	TPH NW (Extractables) low level	A 01	11			
19I0001-03	B11-SW9	TPH NW (Extractables) low level	A 01	12			
19H0477-01	DD5A	TPH NW (Extractables) low level	A 01	13			
19H0477-02	DD5D	TPH NW (Extractables) low level	A 01	14			
SHI0028-CCV1	DIESEL CCV	QC		15	H006816		
SHI0028-CCV2	MOIL CCV	QC		16	H007659		
BHI0023-BLK1	Blank	QC		17			
BHI0023-BS1	LCS	QC		18			
19H0481-01	P40-UST-01-083019	TPH NW (Extractables) low level	A 01	19			
19H0481-03	P40-UST-101-083019	TPH NW (Extractables) low level	A 01	20			
19H0481-10	P40-UST-02-083019	TPH NW (Extractables) low level	A 01	21			
19H0481-28	P40-UST-05-083019	TPH NW (Extractables) low level	A 01	22			

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Printed: 9/4/2019 8:44:13AM

ANALYSIS SEQUENCE

SHI0028

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0028-CCV3	DIESEL CCV	QC		23	H006816		
SHI0028-CCV4	MOIL CCV	QC		24	H007659		
BHI0019-BLK1	Blank	QC		25			
BHI0019-BS1	LCS	QC		26			
19H0481-02	P40-UST-01-083019	TPH NW (Extractables) low level	A 01	27			
19H0481-04	P40-UST-101-083019	TPH NW (Extractables) low level	A 01	28			
19H0481-11	P40-UST-02-083019	TPH NW (Extractables) low level	A 01	29			
19H0481-17	P40-UST-03-083019	TPH NW (Extractables) low level	A 01	30			
19H0481-23	P40-UST-04-083019	TPH NW (Extractables) low level	A 01	31			
19H0481-29	P40-UST-05-083019	TPH NW (Extractables) low level	A 01	32			
SHI0028-CCV5	DIESEL CCV	QC		33	H006816		
SHI0028-CCV6	MOIL CCV	QC		34	H007659		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190903.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	03-SEP-2019 08:06	419I0301.D	1	RINSE	
2	03-SEP-2019 08:26	419I0302.D	1	SEQ-IBL1	
3	03-SEP-2019 08:47	419I0303.D	1	SEQ-IBL2	
4	03-SEP-2019 09:09	419I0304.D	1	SEQ-ICV1	
5	03-SEP-2019 09:31	419I0305.D	1	SEQ-ICV2	
6	03-SEP-2019 10:47	419I0306.D	1	BHI0014-BLK1	
7	03-SEP-2019 11:08	419I0307.D	1	BHI0014-BS1	
8	03-SEP-2019 11:30	419I0308.D	1	BHI0014-BSD1	
9	03-SEP-2019 11:51	419I0309.D	50	19H0477-01	
10	03-SEP-2019 12:12	419I0310.D	50	19H0477-02	
11	03-SEP-2019 12:33	419I0311.D	1	19I0001-01	
12	03-SEP-2019 12:54	419I0312.D	1	19I0001-02	
13	03-SEP-2019 13:17	419I0313.D	1	19I0001-03	
14	03-SEP-2019 13:38	419I0314.D	1	19H0477-01	
15	03-SEP-2019 13:59	419I0315.D	1	19H0477-02	
16	03-SEP-2019 14:20	419I0316.D	1	BHI0014-MS1	
17	03-SEP-2019 14:43	419I0317.D	1	BHI0014-MSD1	
18	03-SEP-2019 15:04	419I0318.D	1	SEQ-CCV1	
19	03-SEP-2019 15:25	419I0319.D	1	SEQ-CCV2	
20	03-SEP-2019 16:12	419I0320.D	1	BHI0023-BLK1	
21	03-SEP-2019 16:33	419I0321.D	1	BHI0023-BS1	
22	03-SEP-2019 16:54	419I0322.D	1	19H0481-01	
23	03-SEP-2019 17:15	419I0323.D	1	19H0481-03	
24	03-SEP-2019 17:38	419I0324.D	1	19H0481-10	
25	03-SEP-2019 17:59	419I0325.D	1	19H0477-01RE	
26	03-SEP-2019 18:20	419I0326.D	1	19H0477-02RE	
27	03-SEP-2019 18:42	419I0327.D	1	19H0001-03RE	
28	03-SEP-2019 19:04	419I0328.D	1	19H0481-16	
29	03-SEP-2019 19:25	419I0329.D	1	19H0481-22	
30	03-SEP-2019 19:46	419I0330.D	1	19H0481-28	
31	03-SEP-2019 20:07	419I0331.D	1	SHI0028-CCV3	
32	03-SEP-2019 20:30	419I0332.D	1	SHI0028-CCV4	
33	03-SEP-2019 20:50	419I0333.D	1	BHI0019-BLK1	
34	03-SEP-2019 21:11	419I0334.D	1	BHI0019-BS1	
35	03-SEP-2019 21:32	419I0335.D	1	19H0481-02	
36	03-SEP-2019 21:53	419I0336.D	1	19H0481-04	
37	03-SEP-2019 22:14	419I0337.D	1	19H0481-11	
38	03-SEP-2019 22:36	419I0338.D	1	19H0481-17	
39	03-SEP-2019 22:57	419I0339.D	1	19H0481-23	
40	03-SEP-2019 23:18	419I0340.D	1	19H0481-29	
41	03-SEP-2019 23:38	419I0341.D	1	SHI0028-CCV5	
42	03-SEP-2019 23:59	419I0342.D	1	SHI0028-CCV6	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190903.b

Instrument: fid4a.i Date: 03-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0806	419I0301.D	RINSE	1	NO MANUAL INTEGRATION
0826	419I0302.D	SEQ-IBL1	1	NO MANUAL INTEGRATION
0847	419I0303.D	SEQ-IBL2	1	NO MANUAL INTEGRATION
0909	419I0304.D	SEQ-ICV1	1	o-terph,
0931	419I0305.D	SEQ-ICV2	1	Triacon Surr,
1047	419I0306.D	BHI0014-BLK1	1	NO MANUAL INTEGRATION
1108	419I0307.D	BHI0014-BS1	1	o-terph,
1130	419I0308.D	BHI0014-BSD1	1	o-terph,
1151	419I0309.D	19H0477-01	50	NO MANUAL INTEGRATION
1212	419I0310.D	19H0477-02	50	NO MANUAL INTEGRATION
1233	419I0311.D	19I0001-01	1	NO MANUAL INTEGRATION
1254	419I0312.D	19I0001-02	1	NO MANUAL INTEGRATION
1317	419I0313.D	19I0001-03	1	NO MANUAL INTEGRATION
1338	419I0314.D	19H0477-01	1	o-terph, Triacon Surr,
1359	419I0315.D	19H0477-02	1	o-terph, Triacon Surr,
1420	419I0316.D	BHI0014-MS1	1	o-terph,
1443	419I0317.D	BHI0014-MSD1	1	o-terph,

Instrument: fid4a.i Date: 03-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1504	419I0318.D	SEQ-CCV1	1	o-terph,
1525	419I0319.D	SEQ-CCV2	1	Triacon Surr,
1612	419I0320.D	BHI0023-BLK1	1	NO MANUAL INTEGRATION
1633	419I0321.D	BHI0023-BS1	1	o-terph,
1654	419I0322.D	19H0481-01	1	NO MANUAL INTEGRATION
1715	419I0323.D	19H0481-03	1	NO MANUAL INTEGRATION
1738	419I0324.D	19H0481-10	1	NO MANUAL INTEGRATION
1759	419I0325.D	19H0477-01RE	1	o-terph, Triacon Surr,
1820	419I0326.D	19H0477-02RE	1	o-terph, Triacon Surr,
1842	419I0327.D	19H0001-03RE	1	o-terph, Triacon Surr,
1904	419I0328.D	19H0481-16	1	o-terph,
1925	419I0329.D	19H0481-22	1	NO MANUAL INTEGRATION
1946	419I0330.D	19H0481-28	1	NO MANUAL INTEGRATION
2007	419I0331.D	SHI0028-CCV3	1	o-terph,
2030	419I0332.D	SHI0028-CCV4	1	Triacon Surr,
2050	419I0333.D	BHI0019-BLK1	1	NO MANUAL INTEGRATION
2111	419I0334.D	BHI0019-BS1	1	o-terph,
2133	419I0335.D	19H0481-02	1	o-terph, Triacon Surr,

Instrument: fid4a.i Date: 03-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2153	419I0336.D	19H0481-04	1	o-terph, Triacon Surr,
2214	419I0337.D	19H0481-11	1	o-terph, Triacon Surr,
2236	419I0338.D	19H0481-17	1	o-terph, Triacon Surr,
2257	419I0339.D	19H0481-23	1	o-terph, Triacon Surr,
2318	419I0340.D	19H0481-29	1	o-terph, Triacon Surr,
2338	419I0341.D	SHI0028-CCV5	1	o-terph,
2359	419I0342.D	SHI0028-CCV6	1	Triacon Surr,

Security Status Report

Date: 04-Sep-2019 08:44

419I0301.D	Data Locked	van, 04-Sep-2019 07:37
419I0302.D	Data Locked	van, 04-Sep-2019 07:37
419I0303.D	Data Locked	van, 04-Sep-2019 07:37
419I0304.D	Data Locked	van, 04-Sep-2019 07:37
419I0305.D	Data Locked	van, 04-Sep-2019 07:37
419I0306.D	Data Locked	van, 04-Sep-2019 07:37
419I0307.D	Data Locked	van, 04-Sep-2019 07:37
419I0308.D	Data Locked	van, 04-Sep-2019 07:37
419I0309.D	Data Locked	van, 04-Sep-2019 07:37
419I0310.D	Data Locked	van, 04-Sep-2019 07:37
419I0311.D	Data Locked	van, 04-Sep-2019 07:37
419I0312.D	Data Locked	van, 04-Sep-2019 07:37
419I0313.D	Data Locked	van, 04-Sep-2019 07:37
419I0314.D	Data Locked	van, 04-Sep-2019 07:37
419I0315.D	Data Locked	van, 04-Sep-2019 07:37
419I0316.D	Data Locked	van, 04-Sep-2019 07:37
419I0317.D	Data Locked	van, 04-Sep-2019 07:37
419I0318.D	Data Locked	van, 04-Sep-2019 07:37
419I0319.D	Data Locked	van, 04-Sep-2019 07:37
419I0320.D	Data Locked	van, 04-Sep-2019 07:36
419I0321.D	Data Locked	van, 04-Sep-2019 07:36
419I0322.D	Data Locked	van, 04-Sep-2019 07:36
419I0323.D	Data Locked	van, 04-Sep-2019 07:36
419I0324.D	Data Locked	van, 04-Sep-2019 07:36
419I0325.D	Data Locked	van, 04-Sep-2019 07:36
419I0326.D	Data Locked	van, 04-Sep-2019 07:36
419I0327.D	Data Locked	van, 04-Sep-2019 07:36
419I0328.D	Data Locked	van, 04-Sep-2019 07:36
419I0329.D	Data Locked	van, 04-Sep-2019 07:36
419I0330.D	Data Locked	van, 04-Sep-2019 07:36
419I0331.D	Data Locked	van, 04-Sep-2019 07:36
419I0332.D	Data Locked	van, 04-Sep-2019 07:36
419I0333.D	Data Locked	van, 04-Sep-2019 07:36
419I0334.D	Data Locked	van, 04-Sep-2019 07:36
419I0335.D	Data Locked	van, 04-Sep-2019 07:36
419I0336.D	Data Locked	van, 04-Sep-2019 07:36
419I0337.D	Data Locked	van, 04-Sep-2019 07:36
419I0338.D	Data Locked	van, 04-Sep-2019 07:36
419I0339.D	Data Locked	van, 04-Sep-2019 07:36
419I0340.D	Data Locked	van, 04-Sep-2019 07:36
419I0341.D	Data Locked	van, 04-Sep-2019 07:36
419I0342.D	Data Locked	van, 04-Sep-2019 07:36

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
Client: Anchor QEA, LLC
Sequence: SHI0031

SDG: 19H0481
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Instrument: FID4
Calibration: CH00097

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Instrument Blank	SHI0031-IBL1	419I0404.D	NA	09/04/19 09:59
Instrument Blank	SHI0031-IBL2	419I0405.D	NA	09/04/19 10:21
DIESEL ICV	SHI0031-ICV1	419I0406.D	NA	09/04/19 10:43
MOIL ICV	SHI0031-ICV2	419I0407.D	NA	09/04/19 11:03
ZZZZZ	19H0477-01RE1	419I0408.D	Solid	09/04/19 11:24
ZZZZZ	19H0477-02RE1	419I0409.D	Solid	09/04/19 11:45
ZZZZZ	19I0001-03RE1	419I0410.D	Solid	09/04/19 12:05
P40-UST-03-083019	19H0481-16	419I0411.D	Water	09/04/19 12:26
P40-UST-04-083019	19H0481-22	419I0412.D	Water	09/04/19 12:47
P40-UST-03-083019	19H0481-17RE1	419I0413.D	Water	09/04/19 13:10
DIESEL CCV	SHI0031-CCV1	419I0414.D	NA	09/04/19 13:31
MOIL CCV	SHI0031-CCV2	419I0415.D	NA	09/04/19 13:52
ZZZZZ	BHH0789-BLK1	419I0416.D	Water	09/04/19 14:12
ZZZZZ	BHH0789-BS1	419I0417.D	Water	09/04/19 14:33
ZZZZZ	BHH0789-BSD1	419I0418.D	Water	09/04/19 14:56
ZZZZZ	19H0429-03	419I0419.D	Water	09/04/19 15:17
ZZZZZ	19H0437-02	419I0420.D	Water	09/04/19 15:38
ZZZZZ	19H0437-04	419I0421.D	Water	09/04/19 15:59
ZZZZZ	19H0437-09	419I0422.D	Water	09/04/19 16:20
ZZZZZ	19H0437-11	419I0423.D	Water	09/04/19 16:43
ZZZZZ	19H0437-13	419I0424.D	Water	09/04/19 17:04
ZZZZZ	19H0437-16	419I0425.D	Water	09/04/19 17:25
ZZZZZ	19H0438-06	419I0426.D	Water	09/04/19 17:45
DIESEL CCV	SHI0031-CCV3	419I0427.D	NA	09/04/19 18:07
MOIL CCV	SHI0031-CCV4	419I0428.D	NA	09/04/19 18:29
DIESEL CCV	SHI0031-CCV5	419I0442.D	NA	09/04/19 23:24
MOIL CCV	SHI0031-CCV6	419I0443.D	NA	09/04/19 23:45
Blank	BHI0051-BLK1	419I0444.D	Solid	09/05/19 00:06
LCS	BHI0051-BS1	419I0445.D	Solid	09/05/19 00:26
P40-UST-01-4.5'-083019	19H0481-07	419I0446.D	Solid	09/05/19 00:47

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0031	Instrument:	FID4
		Calibration:	CH00097

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
P40-UST-01-9'-083019	19H0481-09	419I0447.D	Solid	09/05/19 01:08
P40-UST-02-4.5'-083019	19H0481-13	419I0448.D	Solid	09/05/19 01:28
P40-UST-02-9'-083019	19H0481-15	419I0449.D	Solid	09/05/19 01:49
P40-UST-03-4.5'-083019	19H0481-19	419I0450.D	Solid	09/05/19 02:10
P40-UST-03-8'-083019	19H0481-21	419I0451.D	Solid	09/05/19 02:30
P40-UST-04-4.5'-083019	19H0481-25	419I0452.D	Solid	09/05/19 02:52
DIESEL CCV	SHI0031-CCV7	419I0453.D	NA	09/05/19 03:13
MOIL CCV	SHI0031-CCV8	419I0454.D	NA	09/05/19 03:34

Work Order(s): 19H0481

Checklist for SEQUENCE SHI0031

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is entered in Element	NA		VTS	09/04/2019
2	Detail all ICV/CCV failures for all affected Workorders	NA		VTS	09/04/2019
3	Narrate any Retention times not within windows for all affected Workorders	NA		VTS	09/04/2019
4	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA		VTS	09/04/2019
5	Narrate any Workorders where the Project specific requirements have not been met	NA		VTS	09/04/2019
6	Extraction basis, cleanups, and total solids are correctly entered	YES		VTS	09/04/2019
7	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA		BB	09/04/2019
8	AUTOCHECK: Blank checked for exceedence of criteria	NR	*	BB	09/04/2019
	Comments: *No blanks were analyzed.*				
9	AUTOCHECK: Check blank spike recovery	YES	*	BB	09/04/2019
10	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	BB	09/04/2019
11	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	BB	09/04/2019
12	AUTOCHECK: Matrix spike recoveries within limits	YES	*	BB	09/04/2019
13	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	BB	09/04/2019
14	AUTOCHECK: Check Surrogate recoveries	YES	*	BB	09/04/2019
15	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	BB	09/04/2019
16	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		BB	09/04/2019
17	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		BB	09/04/2019
18	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NA		BB	09/04/2019
19	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	YES		VTS	09/05/2019
	Comments: *Samples 19H0465-1 and 2 will require a dilution run* *Samples 19H0481-19 and 21 will require a dilution run*				
20	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	YES		VTS	09/04/2019
	Comments: *Samples 19H0477-01 and -02 reported with failing CCV originally. RE's reported from today's bracket.* *Sample 19I0001-03 reported twice. Original run from failing bracket and RE reported from today's run. Samples 1 and 2 were clean and not-reanalyzed for CCV failing high.*				
21	Additional Notes (ANALYST and REVIEWER)	YES		VTS	09/04/2019
	Comments: *Sequence is complete. Final CCV failed low for terphenyl. Re-analyzing final bracket.*				

* = Indicates Automated Response from Element DataSyst

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/5/2019 10:46:38AM

ANALYSIS SEQUENCE

SHI0031

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0031-IBL1	Instrument Blank	QC		1	H006806		
SHI0031-IBL2	Instrument Blank	QC		2	H007457		
SHI0031-ICV1	DIESEL ICV	QC		3	H006816		
SHI0031-ICV2	MOIL ICV	QC		4	H007659		
19H0477-01RE1	DD5A	TPH NW (Extractables) low level	A 01	5			Added 9/3/2019 by JGR
19H0477-02RE1	DD5D	TPH NW (Extractables) low level	A 01	6			Added 9/3/2019 by JGR
19I0001-03RE1	B11-SW9	TPH NW (Extractables) low level	A 01	7			Added 9/3/2019 by JGR
19H0481-16	P40-UST-03-083019	TPH NW (Extractables) low level	A 01	8			
19H0481-22	P40-UST-04-083019	TPH NW (Extractables) low level	A 01	9			
19H0481-17RE1	P40-UST-03-083019	TPH NW (Extractables) low level	A 01	10			Added 9/4/2019 by VTS
SHI0031-CCV1	DIESEL CCV	QC		11	H006816		
SHI0031-CCV2	MOIL CCV	QC		12	H007659		
BHH0789-BLK1	Blank	QC		13			
BHH0789-BS1	LCS	QC		14			
BHH0789-BSD1	LCS Dup	QC		15			
19H0429-03	92-9S	TPH NW (Extractables) low level	A 02	16			
19H0437-02	92-5	TPH NW (Extractables) low level	A 01	17			
19H0437-04	01-1	TPH NW (Extractables) low level	A 01	18			
19H0437-09	04-2	TPH NW (Extractables) low level	A 01	19			
19H0437-11	82-17	TPH NW (Extractables) low level	A 01	20			
19H0437-13	82-18	TPH NW (Extractables) low level	A 01	21			
19H0437-16	04-1	TPH NW (Extractables) low level	A 01	22			

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ANALYSIS SEQUENCE

SHI0031

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
19H0438-06	05-1	TPH NW (Extractables) low level	A 01	23			
SHI0031-CCV3	DIESEL CCV	QC		24	H006816		
SHI0031-CCV4	MOIL CCV	QC		25	H007659		
BHI0046-BLK1	Blank	QC		26			
BHI0046-BS1	LCS	QC		27			
19H0465-04	NL-08-2019	TPH AK102	A 01	28			
BHI0046-MS1	Matrix Spike	QC		29			
BHI0046-MSD1	Matrix Spike Dup	QC		30			
19H0465-05	NL-18-2019	TPH AK102	A 01	31			
BHI0060-BLK1	Blank	QC		32			
BHI0060-BS1	LCS	QC		33			
19H0465-01	852S-2019	TPH AK102	A 01	34			
19H0465-02	862S-2019	TPH AK102	A 01	35			
19H0465-03	NL-08S-2019	TPH AK102	A 01	36			
BHI0060-MS1	Matrix Spike	QC		37			
BHI0060-MSD1	Matrix Spike Dup	QC		38			
SHI0031-CCV5	DIESEL CCV	QC		39	H006816		
SHI0031-CCV6	MOIL CCV	QC		40	H007659		
BHI0051-BLK1	Blank	QC		41			
BHI0051-BS1	LCS	QC		42			
19H0481-07	P40-UST-01-4.5'-083019	TPH NW (Extractables) low level	A 01	43			
19H0481-09	P40-UST-01-9'-083019	TPH NW (Extractables) low level	A 01	44			

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ANALYSIS SEQUENCE

SHI0031

Instrument: FID4 Element Column ID: G004923
Calibration ID: CH00097

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
19H0481-13	P40-UST-02-4.5'-083019	TPH NW (Extractables) low level	A 01	45			
19H0481-15	P40-UST-02-9'-083019	TPH NW (Extractables) low level	A 01	46			
19H0481-19	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	47			
19H0481-21	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	48			
19H0481-25	P40-UST-04-4.5'-083019	TPH NW (Extractables) low level	A 01	49			
SHI0031-CCV7	DIESEL CCV	QC		50	H006816		
SHI0031-CCV8	MOIL CCV	QC		51	H007659		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190904.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	04-SEP-2019 08:57	419I0401.D	1	RINSE	
2	04-SEP-2019 09:17	419I0402.D	1	RINSE	
3	04-SEP-2019 09:38	419I0403.D	1	RINSE	
4	04-SEP-2019 09:59	419I0404.D	1	SHI0031-IBL1	
5	04-SEP-2019 10:21	419I0405.D	1	SHI0031-IBL2	
6	04-SEP-2019 10:43	419I0406.D	1	SHI0031-ICV1	
7	04-SEP-2019 11:03	419I0407.D	1	SHI0031-ICV2	
8	04-SEP-2019 11:24	419I0408.D	1	19H0477-01RE1	
9	04-SEP-2019 11:45	419I0409.D	1	19H0477-02RE1	
10	04-SEP-2019 12:05	419I0410.D	1	19I0001-03RE1	
11	04-SEP-2019 12:26	419I0411.D	1	19H0481-16	
12	04-SEP-2019 12:47	419I0412.D	1	19H0481-22	
13	04-SEP-2019 13:10	419I0413.D	3	19H0481-17RE1	
14	04-SEP-2019 13:31	419I0414.D	1	SHI0031-CCV1	
15	04-SEP-2019 13:52	419I0415.D	1	SHI0031-CCV2	
16	04-SEP-2019 14:12	419I0416.D	1	BHH0789-BLK1	
17	04-SEP-2019 14:33	419I0417.D	1	BHH0789-BS1	
18	04-SEP-2019 14:56	419I0418.D	1	BHH0789-BSD1	
19	04-SEP-2019 15:17	419I0419.D	1	19H0429-03	
20	04-SEP-2019 15:38	419I0420.D	1	19H0437-02	
21	04-SEP-2019 15:59	419I0421.D	1	19H0437-04	
22	04-SEP-2019 16:20	419I0422.D	1	19H0437-09	
23	04-SEP-2019 16:43	419I0423.D	1	19H0437-11	
24	04-SEP-2019 17:04	419I0424.D	1	19H0437-13	
25	04-SEP-2019 17:25	419I0425.D	1	19H0437-16	
26	04-SEP-2019 17:45	419I0426.D	1	19H0438-06	
27	04-SEP-2019 18:07	419I0427.D	1	SHI0031-CCV3	
28	04-SEP-2019 18:29	419I0428.D	1	SHI0031-CCV4	
29	04-SEP-2019 18:50	419I0429.D	1	BHI0046-BLK1	
30	04-SEP-2019 19:11	419I0430.D	1	BHI0046-BS1	
31	04-SEP-2019 19:32	419I0431.D	1	19H0465-04	
32	04-SEP-2019 19:53	419I0432.D	1	BHI0046-MS1	
33	04-SEP-2019 20:15	419I0433.D	1	BHI0046-MSD1	
34	04-SEP-2019 20:36	419I0434.D	1	19H0465-05	
35	04-SEP-2019 20:57	419I0435.D	1	BHI0060-BLK1	
36	04-SEP-2019 21:18	419I0436.D	1	BHI0060-BS1	
37	04-SEP-2019 21:39	419I0437.D	5	19H0465-01	
38	04-SEP-2019 21:59	419I0438.D	5	19H0465-02	
39	04-SEP-2019 22:20	419I0439.D	1	19H0465-03	
40	04-SEP-2019 22:41	419I0440.D	1	BHI0060-MS1	
41	04-SEP-2019 23:03	419I0441.D	1	BHI0060-MSD1	
42	04-SEP-2019 23:24	419I0442.D	1	SHI0031-CCV5	
43	04-SEP-2019 23:45	419I0443.D	1	SHI0031-CCV6	
44	05-SEP-2019 00:06	419I0444.D	1	BHI0051-BLK1	
45	05-SEP-2019 00:26	419I0445.D	1	BHI0051-BS1	

46	05-SEP-2019	00:47	419I0446.D	1	19H0481-07
47	05-SEP-2019	01:08	419I0447.D	1	19H0481-09
48	05-SEP-2019	01:28	419I0448.D	1	19H0481-13
49	05-SEP-2019	01:49	419I0449.D	1	19H0481-15
50	05-SEP-2019	02:10	419I0450.D	1	19H0481-19

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190904.b p2

	Inject Date/Time	Filename	DF	LabID	ClientID
51	05-SEP-2019 02:30	419I0451.D	1	19H0481-21	
52	05-SEP-2019 02:52	419I0452.D	1	19H0481-25	
53	05-SEP-2019 03:13	419I0453.D	1	SHI0031-CCV7	
54	05-SEP-2019 03:34	419I0454.D	1	SHI0031-CCV8	
55	05-SEP-2019 03:55	419I0455.D	1	19H0481-27	
56	05-SEP-2019 04:15	419I0456.D	1	19H0481-31	
57	05-SEP-2019 04:36	419I0457.D	1	19H0481-33	
58	05-SEP-2019 04:56	419I0458.D	1	19H0481-35	
59	05-SEP-2019 05:17	419I0459.D	1	SHI0031-CCV9	
60	05-SEP-2019 05:38	419I0460.D	1	SHI0031-CCVA	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190904.b

Instrument: fid4a.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0857	419I0401.D	RINSE	1	NO MANUAL INTEGRATION
0917	419I0402.D	RINSE	1	o-terph,
0938	419I0403.D	RINSE	1	Triacon Surr,
0959	419I0404.D	SHI0031-IBL1	1	Toluene,
1021	419I0405.D	SHI0031-IBL2	1	NO MANUAL INTEGRATION
1043	419I0406.D	SHI0031-ICV1	1	o-terph,
1103	419I0407.D	SHI0031-ICV2	1	Triacon Surr,
1124	419I0408.D	19H0477-01RE1	1	o-terph, Triacon Surr,
1145	419I0409.D	19H0477-02RE1	1	o-terph, Triacon Surr,
1205	419I0410.D	19I0001-03RE1	1	o-terph, Triacon Surr,
1226	419I0411.D	19H0481-16	1	o-terph, Triacon Surr,
1247	419I0412.D	19H0481-22	1	NO MANUAL INTEGRATION
1310	419I0413.D	19H0481-17RE1	3	o-terph, Triacon Surr,
1331	419I0414.D	SHI0031-CCV1	1	o-terph,
1352	419I0415.D	SHI0031-CCV2	1	Triacon Surr,
1412	419I0416.D	BHH0789-BLK1	1	NO MANUAL INTEGRATION
1433	419I0417.D	BHH0789-BS1	1	o-terph,

Instrument: fid4a.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1456	419I0418.D	BHH0789-BSD1	1	o-terph,
1517	419I0419.D	19H0429-03	1	NO MANUAL INTEGRATION
1538	419I0420.D	19H0437-02	1	NO MANUAL INTEGRATION
1559	419I0421.D	19H0437-04	1	NO MANUAL INTEGRATION
1620	419I0422.D	19H0437-09	1	NO MANUAL INTEGRATION
1643	419I0423.D	19H0437-11	1	NO MANUAL INTEGRATION
1704	419I0424.D	19H0437-13	1	NO MANUAL INTEGRATION
1725	419I0425.D	19H0437-16	1	NO MANUAL INTEGRATION
1745	419I0426.D	19H0438-06	1	NO MANUAL INTEGRATION
1807	419I0427.D	SHI0031-CCV3	1	o-terph,
1829	419I0428.D	SHI0031-CCV4	1	Triacon Surr,
1850	419I0429.D	BHI0046-BLK1	1	NO MANUAL INTEGRATION
1911	419I0430.D	BHI0046-BS1	1	o-terph, Triacon Surr,
1932	419I0431.D	19H0465-04	1	o-terph,
1953	419I0432.D	BHI0046-MS1	1	o-terph, Triacon Surr,
2015	419I0433.D	BHI0046-MSD1	1	o-terph, Triacon Surr,
2036	419I0434.D	19H0465-05	1	o-terph,
2056	419I0435.D	BHI0060-BLK1	1	NO MANUAL INTEGRATION

Instrument: fid4a.i Date: 04-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2118	419I0436.D	BHI0060-BS1	1	o-terph,
2139	419I0437.D	19H0465-01	5	Triacon Surr,
2159	419I0438.D	19H0465-02	5	o-terph, Triacon Surr,
2220	419I0439.D	19H0465-03	1	o-terph, Triacon Surr,
2241	419I0440.D	BHI0060-MS1	1	o-terph, Triacon Surr,
2303	419I0441.D	BHI0060-MSD1	1	o-terph, Triacon Surr,
2324	419I0442.D	SHI0031-CCV5	1	o-terph,
2345	419I0443.D	SHI0031-CCV6	1	Triacon Surr,
0006	419I0444.D	BHI0051-BLK1	1	NO MANUAL INTEGRATION
0026	419I0445.D	BHI0051-BS1	1	o-terph,
0047	419I0446.D	19H0481-07	1	NO MANUAL INTEGRATION
0108	419I0447.D	19H0481-09	1	o-terph, Triacon Surr,
0128	419I0448.D	19H0481-13	1	o-terph, Triacon Surr,
0149	419I0449.D	19H0481-15	1	o-terph, Triacon Surr,
0210	419I0450.D	19H0481-19	1	o-terph, Triacon Surr,
0230	419I0451.D	19H0481-21	1	o-terph, Triacon Surr,
0252	419I0452.D	19H0481-25	1	NO MANUAL INTEGRATION
0313	419I0453.D	SHI0031-CCV7	1	o-terph,

Instrument: fid4a.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0334	419I0454.D	SHI0031-CCV8	1	Triacon Surr,
0355	419I0455.D	19H0481-27	1	NO MANUAL INTEGRATION
0415	419I0456.D	19H0481-31	1	NO MANUAL INTEGRATION
0436	419I0457.D	19H0481-33	1	NO MANUAL INTEGRATION
0456	419I0458.D	19H0481-35	1	NO MANUAL INTEGRATION
0517	419I0459.D	SHI0031-CCV9	1	o-terph,
0538	419I0460.D	SHI0031-CCVA	1	Triacon Surr,

Security Status Report

Date: 05-Sep-2019 10:47

419I0401.D	Data Locked	van, 04-Sep-2019 14:26
419I0402.D	Data Locked	van, 04-Sep-2019 14:26
419I0403.D	Data Locked	van, 04-Sep-2019 14:26
419I0404.D	Data Locked	van, 04-Sep-2019 14:26
419I0405.D	Data Locked	van, 04-Sep-2019 14:26
419I0406.D	Data Locked	van, 04-Sep-2019 14:26
419I0407.D	Data Locked	van, 04-Sep-2019 14:26
419I0408.D	Data Locked	van, 04-Sep-2019 14:26
419I0409.D	Data Locked	van, 04-Sep-2019 14:26
419I0410.D	Data Locked	van, 04-Sep-2019 14:26
419I0411.D	Data Locked	van, 04-Sep-2019 14:26
419I0412.D	Data Locked	van, 04-Sep-2019 14:26
419I0413.D	Data Locked	van, 04-Sep-2019 14:26
419I0414.D	Data Locked	van, 04-Sep-2019 14:26
419I0415.D	Data Locked	van, 04-Sep-2019 14:26
419I0416.D	Data Locked	van, 05-Sep-2019 10:33
419I0417.D	Data Locked	van, 05-Sep-2019 10:33
419I0418.D	Data Locked	van, 05-Sep-2019 10:33
419I0419.D	Data Locked	van, 05-Sep-2019 10:33
419I0420.D	Data Locked	van, 05-Sep-2019 10:33
419I0421.D	Data Locked	van, 05-Sep-2019 10:33
419I0422.D	Data Locked	van, 05-Sep-2019 10:33
419I0423.D	Data Locked	van, 05-Sep-2019 10:33
419I0424.D	Data Locked	van, 05-Sep-2019 10:33
419I0425.D	Data Locked	van, 05-Sep-2019 10:33
419I0426.D	Data Locked	van, 05-Sep-2019 10:33
419I0427.D	Data Locked	van, 05-Sep-2019 10:33
419I0428.D	Data Locked	van, 05-Sep-2019 10:33
419I0429.D	Data Locked	van, 05-Sep-2019 10:33
419I0430.D	Data Locked	van, 05-Sep-2019 10:33
419I0431.D	Data Locked	van, 05-Sep-2019 10:33
419I0432.D	Data Locked	van, 05-Sep-2019 10:33
419I0433.D	Data Locked	van, 05-Sep-2019 10:33
419I0434.D	Data Locked	van, 05-Sep-2019 10:33
419I0435.D	Data Locked	van, 05-Sep-2019 10:33
419I0436.D	Data Locked	van, 05-Sep-2019 10:33
419I0437.D	Data Locked	van, 05-Sep-2019 10:33
419I0438.D	Data Locked	van, 05-Sep-2019 10:33
419I0439.D	Data Locked	van, 05-Sep-2019 10:33
419I0440.D	Data Locked	van, 05-Sep-2019 10:33
419I0441.D	Data Locked	van, 05-Sep-2019 10:33
419I0442.D	Data Locked	van, 05-Sep-2019 10:33
419I0443.D	Data Locked	van, 05-Sep-2019 10:33
419I0444.D	Data Locked	van, 05-Sep-2019 10:33

419I0445.D	Data Locked	van, 05-Sep-2019 10:33
419I0446.D	Data Locked	van, 05-Sep-2019 10:33
419I0447.D	Data Locked	van, 05-Sep-2019 10:33
419I0448.D	Data Locked	van, 05-Sep-2019 10:33
419I0449.D	Data Locked	van, 05-Sep-2019 10:33
419I0450.D	Data Locked	van, 05-Sep-2019 10:33
419I0451.D	Data Locked	van, 05-Sep-2019 10:33
419I0452.D	Data Locked	van, 05-Sep-2019 10:33
419I0453.D	Data Locked	van, 05-Sep-2019 10:33
419I0454.D	Data Locked	van, 05-Sep-2019 10:33
419I0455.D	Data Locked	van, 05-Sep-2019 10:33
419I0456.D	Data Locked	van, 05-Sep-2019 10:33
419I0457.D	Data Locked	van, 05-Sep-2019 10:33
419I0458.D	Data Locked	van, 05-Sep-2019 10:33
419I0459.D	Data Locked	van, 05-Sep-2019 10:33
419I0460.D	Data Locked	van, 05-Sep-2019 10:33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Extract Dilution Bench Sheet

Sequence: SHI0031
Analyst: VB Date: 9.4.19

Sample ID	Primary Dilution				Secondary Dilution			
	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor
19H0481-17	200	DCM	400	3				
19H0465-1,2	100	DCM	400	5				

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0053
Instrument: FID4
Calibration: CI00021

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Instrument Blank	SHI0053-IBL1	419I0527.D	NA	09/05/19 19:00
Instrument Blank	SHI0053-IBL2	419I0528.D	NA	09/05/19 19:21
50ppm DIESEL	SHI0053-CAL1	419I0529.D	NA	09/05/19 19:42
100ppm DIESEL	SHI0053-CAL2	419I0530.D	NA	09/05/19 20:04
250ppm DIESEL	SHI0053-CAL3	419I0531.D	NA	09/05/19 20:25
500ppm DIESEL	SHI0053-CAL4	419I0532.D	NA	09/05/19 20:46
1000ppm DIESEL	SHI0053-CAL5	419I0533.D	NA	09/05/19 21:07
2500ppm DIESEL	SHI0053-CAL6	419I0534.D	NA	09/05/19 21:28
100ppmmoil	SHI0053-CAL7	419I0535.D	NA	09/05/19 21:48
250ppmmoil	SHI0053-CAL8	419I0536.D	NA	09/05/19 22:10
500ppmmoil	SHI0053-CAL9	419I0537.D	NA	09/05/19 22:32
1000ppmmoil	SHI0053-CALA	419I0538.D	NA	09/05/19 22:53
2500ppmmoil	SHI0053-CALB	419I0539.D	NA	09/05/19 23:13
5000ppmmoil	SHI0053-CALC	419I0540.D	NA	09/05/19 23:34
100ppmak103	SHI0053-CALD	419I0541.D	NA	09/05/19 23:55
250ppmak103	SHI0053-CALE	419I0542.D	NA	09/06/19 00:16
500ppmak103	SHI0053-CALF	419I0543.D	NA	09/06/19 00:36
1000ppmak103	SHI0053-CALG	419I0544.D	NA	09/06/19 00:58
2500ppmak103	SHI0053-CALH	419I0545.D	NA	09/06/19 01:20
5000ppmak103	SHI0053-CALI	419I0546.D	NA	09/06/19 01:40
DIESEL SCV	SHI0053-SCV1	419I0547.D	NA	09/06/19 02:01
MOIL SCV	SHI0053-SCV2	419I0548.D	NA	09/06/19 02:22
AK103 SCV	SHI0053-SCV3	419I0549.D	NA	09/06/19 02:42
DIESEL ICV	SHI0053-ICV1	419I0550.D	NA	09/06/19 03:03
MOIL ICV	SHI0053-ICV2	419I0551.D	NA	09/06/19 03:24
ZZZZZ	19I0015-01	419I0554.D	Solid	09/06/19 04:25
ZZZZZ	19I0015-01RE1	419I0555.D	Solid	09/06/19 04:46
P40-UST-03-4.5'-083019	19H0481-19RE1	419I0558.D	Solid	09/06/19 05:50
P40-UST-03-8'-083019	19H0481-21RE1	419I0559.D	Solid	09/06/19 06:11
DIESEL CCV	SHI0053-CCV1	419I0560.D	NA	09/06/19 06:31

Analytical Resources, Incorporated
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence:	SHI0053	Instrument:	FID4
		Calibration:	CI00021

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MOIL CCV	SHI0053-CCV2	419I0561.D	NA	09/06/19 06:52

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0053

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is entered in Element	NA		VTS	09/05/2019
2	Detail all ICV/CCV failures for all affected Workorders	NA		VTS	09/06/2019
3	Narrate any Retention times not within windows for all affected Workorders	NA		VTS	09/06/2019
4	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA		VTS	09/06/2019
5	Narrate any Workorders where the Project specific requirements have not been met	NA		VTS	09/06/2019
6	Extraction basis, cleanups, and total solids are correctly entered	YES		VTS	09/06/2019
7	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	YES		VTS	09/06/2019
	Comments: *See 2nd PDF*				
8	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	VTS	09/06/2019
9	AUTOCHECK: Check blank spike recovery	YES	*	VTS	09/06/2019
10	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	VTS	09/06/2019
11	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	VTS	09/06/2019
12	AUTOCHECK: Matrix spike recoveries within limits	YES	*	VTS	09/06/2019
13	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	VTS	09/06/2019
14	AUTOCHECK: Check Surrogate recoveries	NO	*	VTS	09/06/2019

Comments:

Surrogate Recovery for o-Terphenyl (480%) was outside acceptance limits (50-150) in 19H0465-01RE1 for TPH AK102 - This surrogate not reported due to chromatographic interference

Surrogate Recovery for o-Terphenyl (267%) was outside acceptance limits (50-150) in 19H0465-02RE1 for TPH AK102 - This surrogate not reported due to chromatographic interference

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH AK103)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL1 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH AK103)

Checklist for SEQUENCE SHI0053 **Checklist: Analyst Checklist-FID(rev4)**

#	Checklist Item	Response	Analyst Initials	Date

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL2 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH AK103)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL3 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH AK103)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL4 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH AK103)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL5 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH 8015C (Extractables) low level)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH AK102)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH AK103)

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH NW (Extractables))

Missing or Incomplete Control Limits supplied for o-Terphenyl in SHI0053-CAL6 (TPH NW (Extractables) low level)

Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL7 (TPH 8015C (Extractables))

Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL7 (TPH AK103)

Checklist for SEQUENCE SHI0053 — Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response		Analyst Initials	Date
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL8 (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL8 (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL9 (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CAL9 (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALA (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALA (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALB (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALB (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALC (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALC (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALD (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALD (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALE (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALE (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALF (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALF (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALG (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALG (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALH (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALH (TPH AK103)				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALI (TPH 8015C (Extractables))				
	Missing or Incomplete Control Limits supplied for n-Triacontane in SHI0053-CALI (TPH AK103)				
15	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	VTS	09/06/2019
16	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		MW	09/06/2019
17	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		MW	09/06/2019
18	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	NO		MW	09/06/2019
	Comments: *EXCEPTION REPORT REQUIRED*				
19	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)				12/30/1899

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0053

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response	Analyst Initials	Date
20	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)			12/30/1899
21	Additional Notes (ANALYST and REVIEWER)	YES	VTS	09/05/2019

Comments:
Sequence includes an ICAL and sample data

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0053

Checklist: Initial Calibration Checklist-FID

#	Checklist Item	Response	Analyst Initials	Date
1	ICal %RSD < 20% Comments: *All ranges within limits except for AK103*	YES	VTS	09/06/2019
2	Instrument maintenance is recorded in Element	YES	VTS	09/06/2019
3	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA	VTS	09/06/2019
4	All SCV within +/- 20% (DOD)	YES	VTS	09/06/2019
5	All SCV within +/- 30%	YES	VTS	09/06/2019
6	NO Linear or Quadratic fits used	YES	VTS	09/06/2019
7	NO Calibration points dropped	YES	VTS	09/06/2019
8	Initial Results compared to calculated results in the DET table (ResultCheck.exe)	YES	VTS	09/06/2019
9	Calibration mid-point basis entered in calibration (CV ref)	YES	VTS	09/06/2019
10	Additonal Notes Comments: *Sequence includes an ICAL and sample data*	YES	VTS	09/06/2019

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/6/2019 11:13:57AM

ANALYSIS SEQUENCE

SHI0053

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00021

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0053-IBL1	Instrument Blank	QC		1	H006806		
SHI0053-IBL2	Instrument Blank	QC		2	H007457		
SHI0053-CAL1	50ppm DIESEL	QC		3	H006819		
SHI0053-CAL2	100ppm DIESEL	QC		4	H006818		
SHI0053-CAL3	250ppm DIESEL	QC		5	H006817		
SHI0053-CAL4	500ppm DIESEL	QC		6	H006816		
SHI0053-CAL5	1000ppm DIESEL	QC		7	H006815		
SHI0053-CAL6	2500ppm DIESEL	QC		8	H006794		
SHI0053-CAL7	100ppmmoil	QC		9	H008395		
SHI0053-CAL8	250ppmmoil	QC		10	H008396		
SHI0053-CAL9	500ppmmoil	QC		11	H008397		
SHI0053-CALA	1000ppmmoil	QC		12	H007659		
SHI0053-CALB	2500ppmmoil	QC		13	H008398		
SHI0053-CALC	5000ppmmoil	QC		14	H007458		
SHI0053-CALD	100ppmak103	QC		15	H006838		
SHI0053-CALE	250ppmak103	QC		16	H006837		
SHI0053-CALF	500ppmak103	QC		17	H006839		
SHI0053-CALG	1000ppmak103	QC		18	H006836		
SHI0053-CALH	2500ppmak103	QC		19	H006835		
SHI0053-CALI	5000ppmak103	QC		20	H006795		
SHI0053-SCV1	DIESEL SCV	QC		21	H008294		
SHI0053-SCV2	MOIL SCV	QC		22	H008399		

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ANALYSIS SEQUENCE

SHI0053

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00021

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0053-SCV3	AK103 SCV	QC		23	H008400		
SHI0053-ICV1	DIESEL ICV	QC		24	H006816		
SHI0053-ICV2	MOIL ICV	QC		25	H007659		
BHI0089-BLK1	Blank	QC		26			
BHI0089-BS1	LCS	QC		27			
19I0015-01	190825-D01	TPH NW (Extractables)	A 01	28			
19I0015-01RE1	190825-D01	TPH NW (Extractables)	A 01	29			Added 9/5/2019 by VTS
19H0465-01RE1	852S-2019	TPH AK102	A 01	30			Added 9/5/2019 by VTS
19H0465-02RE1	862S-2019	TPH AK102	A 01	31			Added 9/5/2019 by VTS
19H0481-19RE1	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	32			Added 9/5/2019 by VTS
19H0481-21RE1	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	33			Added 9/5/2019 by VTS
SHI0053-CCV1	DIESEL CCV	QC		34	H006816		
SHI0053-CCV2	MOIL CCV	QC		35	H007659		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190905.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	05-SEP-2019 19:00	419I0527.D	1	SHI0053-IBL1	
2	05-SEP-2019 19:21	419I0528.D	1	SHI0053-IBL2	
3	05-SEP-2019 19:42	419I0529.D	1	SHI0053-CAL1	
4	05-SEP-2019 20:04	419I0530.D	1	SHI0053-CAL2	
5	05-SEP-2019 20:25	419I0531.D	1	SHI0053-CAL3	
6	05-SEP-2019 20:46	419I0532.D	1	SHI0053-CAL4	
7	05-SEP-2019 21:07	419I0533.D	1	SHI0053-CAL5	
8	05-SEP-2019 21:28	419I0534.D	1	SHI0053-CAL6	
9	05-SEP-2019 21:48	419I0535.D	1	SHI0053-CAL7	
10	05-SEP-2019 22:10	419I0536.D	1	SHI0053-CAL8	
11	05-SEP-2019 22:32	419I0537.D	1	SHI0053-CAL9	
12	05-SEP-2019 22:53	419I0538.D	1	SHI0053-CALA	
13	05-SEP-2019 23:13	419I0539.D	1	SHI0053-CALB	
14	05-SEP-2019 23:34	419I0540.D	1	SHI0053-CALC	
15	05-SEP-2019 23:55	419I0541.D	1	SHI0053-CALD	
16	06-SEP-2019 00:16	419I0542.D	1	SHI0053-CALE	
17	06-SEP-2019 00:36	419I0543.D	1	SHI0053-CALF	
18	06-SEP-2019 00:58	419I0544.D	1	SHI0053-CALG	
19	06-SEP-2019 01:20	419I0545.D	1	SHI0053-CALH	
20	06-SEP-2019 01:40	419I0546.D	1	SHI0053-CALI	
21	06-SEP-2019 02:01	419I0547.D	1	SHI0053-SCV1	
22	06-SEP-2019 02:22	419I0548.D	1	SHI0053-SCV2	
23	06-SEP-2019 02:42	419I0549.D	1	SHI0053-SCV3	
24	06-SEP-2019 03:03	419I0550.D	1	SHI0053-ICV1	
25	06-SEP-2019 03:24	419I0551.D	1	SHI0053-ICV2	
26	06-SEP-2019 03:44	419I0552.D	1	BHI0089-BLK1	
27	06-SEP-2019 04:05	419I0553.D	1	BHI0089-BS1	
28	06-SEP-2019 04:25	419I0554.D	1	19I0015-01	
29	06-SEP-2019 04:46	419I0555.D	20	19I0015-01RE1	
30	06-SEP-2019 05:07	419I0556.D	20	19H0465-01RE1	
31	06-SEP-2019 05:29	419I0557.D	20	19H0465-02RE1	
32	06-SEP-2019 05:50	419I0558.D	10	19H0481-19RE1	
33	06-SEP-2019 06:11	419I0559.D	10	19H0481-21RE1	
34	06-SEP-2019 06:31	419I0560.D	1	SHI0053-CCV1	
35	06-SEP-2019 06:52	419I0561.D	1	SHI0053-CCV2	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190905.b

Instrument: fid4a.i Date: 05-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1900	419I0527.D	SHI0053-IBL1	1	C8,
1921	419I0528.D	SHI0053-IBL2	1	NO MANUAL INTEGRATION
1942	419I0529.D	SHI0053-CAL1	1	o-terph,
2004	419I0530.D	SHI0053-CAL2	1	o-terph,
2025	419I0531.D	SHI0053-CAL3	1	o-terph,
2046	419I0532.D	SHI0053-CAL4	1	o-terph,
2107	419I0533.D	SHI0053-CAL5	1	o-terph,
2128	419I0534.D	SHI0053-CAL6	1	o-terph,
2148	419I0535.D	SHI0053-CAL7	1	Triacon Surr,
2210	419I0536.D	SHI0053-CAL8	1	Triacon Surr,
2232	419I0537.D	SHI0053-CAL9	1	Triacon Surr,
2253	419I0538.D	SHI0053-CALA	1	Triacon Surr,
2313	419I0539.D	SHI0053-CALB	1	Triacon Surr,
2334	419I0540.D	SHI0053-CALC	1	Triacon Surr,
2355	419I0541.D	SHI0053-CALD	1	Triacon Surr,
0016	419I0542.D	SHI0053-CALE	1	Triacon Surr,
0036	419I0543.D	SHI0053-CALF	1	Triacon Surr,

Instrument: fid4a.i Date: 06-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0058	419I0544.D	SHI0053-CALG	1	Triacon Surr,
0120	419I0545.D	SHI0053-CALH	1	Triacon Surr,
0140	419I0546.D	SHI0053-CALI	1	Triacon Surr,
0201	419I0547.D	SHI0053-SCV1	1	NO MANUAL INTEGRATION
0222	419I0548.D	SHI0053-SCV2	1	Triacon Surr,
0242	419I0549.D	SHI0053-SCV3	1	Triacon Surr,
0303	419I0550.D	SHI0053-ICV1	1	o-terph,
0324	419I0551.D	SHI0053-ICV2	1	Triacon Surr,
0344	419I0552.D	BHI0089-BLK1	1	NO MANUAL INTEGRATION
0405	419I0553.D	BHI0089-BS1	1	NO MANUAL INTEGRATION
0425	419I0554.D	19I0015-01	1	NO MANUAL INTEGRATION
0446	419I0555.D	19I0015-01RE1	20	NO MANUAL INTEGRATION
0507	419I0556.D	19H0465-01RE1	20	NO MANUAL INTEGRATION
0529	419I0557.D	19H0465-02RE1	20	NO MANUAL INTEGRATION
0550	419I0558.D	19H0481-19RE1	10	NO MANUAL INTEGRATION
0611	419I0559.D	19H0481-21RE1	10	NO MANUAL INTEGRATION
0631	419I0560.D	SHI0053-CCV1	1	o-terph,
0651	419I0561.D	SHI0053-CCV2	1	Triacon Surr,

Security Status Report

Date: 06-Sep-2019 11:14

419I0527.D	Data Locked	van, 06-Sep-2019 09:19
419I0528.D	Data Locked	van, 06-Sep-2019 09:19
419I0529.D	Data Locked	van, 06-Sep-2019 09:19
419I0530.D	Data Locked	van, 06-Sep-2019 09:19
419I0531.D	Data Locked	van, 06-Sep-2019 09:19
419I0532.D	Data Locked	van, 06-Sep-2019 09:19
419I0533.D	Data Locked	van, 06-Sep-2019 09:19
419I0534.D	Data Locked	van, 06-Sep-2019 09:19
419I0535.D	Data Locked	van, 06-Sep-2019 09:19
419I0536.D	Data Locked	van, 06-Sep-2019 09:19
419I0537.D	Data Locked	van, 06-Sep-2019 09:19
419I0538.D	Data Locked	van, 06-Sep-2019 09:19
419I0539.D	Data Locked	van, 06-Sep-2019 09:19
419I0540.D	Data Locked	van, 06-Sep-2019 09:19
419I0541.D	Data Locked	van, 06-Sep-2019 09:19
419I0542.D	Data Locked	van, 06-Sep-2019 09:19
419I0543.D	Data Locked	van, 06-Sep-2019 09:19
419I0544.D	Data Locked	van, 06-Sep-2019 09:19
419I0545.D	Data Locked	van, 06-Sep-2019 09:19
419I0546.D	Data Locked	van, 06-Sep-2019 09:19
419I0547.D	Data Locked	van, 06-Sep-2019 09:19
419I0548.D	Data Locked	van, 06-Sep-2019 09:19
419I0549.D	Data Locked	van, 06-Sep-2019 09:19
419I0550.D	Data Locked	van, 06-Sep-2019 09:19
419I0551.D	Data Locked	van, 06-Sep-2019 09:19
419I0552.D	Data Locked	van, 06-Sep-2019 09:47
419I0553.D	Data Locked	van, 06-Sep-2019 09:47
419I0554.D	Data Locked	van, 06-Sep-2019 09:47
419I0555.D	Data Locked	van, 06-Sep-2019 09:47
419I0556.D	Data Locked	van, 06-Sep-2019 09:47
419I0557.D	Data Locked	van, 06-Sep-2019 09:47
419I0558.D	Data Locked	van, 06-Sep-2019 09:47
419I0559.D	Data Locked	van, 06-Sep-2019 09:47
419I0560.D	Data Locked	van, 06-Sep-2019 09:19
419I0561.D	Data Locked	van, 06-Sep-2019 09:19

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Extract Dilution Bench Sheet

Sequence: SHI0053
Analyst: VB Date: 9/5/19

Sample ID	Primary Dilution				Secondary Dilution			
	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor
19H0465-1, 2	25	DCM	475	20				
19H0481-19, 21	50	DCM	450	10				
19I0015-01	~~100~~ 50	DCM	950	20				

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0095
Instrument: FID3
Calibration: CI00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Retention Time Standard	SHI0095-IBL1	319I1002.D	NA	09/10/19 10:04
Instrument Blank	SHI0095-IBL2	319I1003.D	NA	09/10/19 10:25
DIESEL 50	SHI0095-CAL1	319I1004.D	NA	09/10/19 10:46
DIESEL 100	SHI0095-CAL2	319I1005.D	NA	09/10/19 11:08
DIESEL 250	SHI0095-CAL3	319I1006.D	NA	09/10/19 11:29
DIESEL 500	SHI0095-CAL4	319I1007.D	NA	09/10/19 11:50
DIESEL 1000	SHI0095-CAL5	319I1008.D	NA	09/10/19 12:11
DIESEL 2500	SHI0095-CAL6	319I1009.D	NA	09/10/19 12:32
MOIL 100	SHI0095-CAL7	319I1010.D	NA	09/10/19 12:53
MOIL 250	SHI0095-CAL8	319I1011.D	NA	09/10/19 13:15
MOIL 500	SHI0095-CAL9	319I1012.D	NA	09/10/19 13:36
MOIL 1000	SHI0095-CALA	319I1013.D	NA	09/10/19 13:57
MOIL 2500	SHI0095-CALB	319I1014.D	NA	09/10/19 14:18
MOIL 5000	SHI0095-CALC	319I1015.D	NA	09/10/19 14:39
AK103 100	SHI0095-CALD	319I1017.D	NA	09/10/19 15:21
AK103 250	SHI0095-CALE	319I1018.D	NA	09/10/19 15:42
AK103 500	SHI0095-CALF	319I1019.D	NA	09/10/19 16:03
AK103 1000	SHI0095-CALG	319I1020.D	NA	09/10/19 16:24
AK103 2500	SHI0095-CALH	319I1021.D	NA	09/10/19 16:45
AK103 5000	SHI0095-CALI	319I1022.D	NA	09/10/19 17:06
DIESEL SCV	SHI0095-SCV1	319I1024.D	NA	09/10/19 17:50
MOIL SCV	SHI0095-SCV2	319I1025.D	NA	09/10/19 18:13
AK103 SCV	SHI0095-SCV3	319I1026.D	NA	09/10/19 18:35
DIESEL ICV	SHI0095-ICV1	319I1027.D	NA	09/10/19 18:58
MOIL ICV	SHI0095-ICV2	319I1028.D	NA	09/10/19 19:20
DIESEL CCV	SHI0095-CCV1	319I1035.D	NA	09/10/19 21:56
MOIL CCV	SHI0095-CCV2	319I1036.D	NA	09/10/19 22:18
AK103 CCV	SHI0095-CCV3	319I1037.D	NA	09/10/19 22:40
DIESEL CCV	SHI0095-CCV4	319I1049.D	NA	09/11/19 03:04
MOIL CCV	SHI0095-CCV5	319I1050.D	NA	09/11/19 03:26

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0095
Instrument: FID3
Calibration: CI00036

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
AK103 CCV	SHI0095-CCV6	319I1051.D	NA	09/11/19 03:47
Blank	BHI0054-BLK1	319I1052.D	Solid	09/11/19 04:09
LCS	BHI0054-BS1	319I1053.D	Solid	09/11/19 04:31
P40-UST-01-4.5'-083019	19H0481-06	319I1054.D	Solid	09/11/19 04:53
P40-UST-01-9'-083019	19H0481-08	319I1055.D	Solid	09/11/19 05:15
P40-UST-02-4.5'-083019	19H0481-12	319I1056.D	Solid	09/11/19 05:37
P40-UST-02-9'-083019	19H0481-14	319I1057.D	Solid	09/11/19 05:59
P40-UST-03-4.5'-083019	19H0481-18	319I1058.D	Solid	09/11/19 06:21
P40-UST-03-8'-083019	19H0481-20	319I1059.D	Solid	09/11/19 06:43
P40-UST-04-4.5'-083019	19H0481-24	319I1060.D	Solid	09/11/19 07:05
P40-UST-04-14.5'-083019	19H0481-26	319I1061.D	Solid	09/11/19 07:28
P40-UST-05-4.5'-083019	19H0481-30	319I1062.D	Solid	09/11/19 07:50
P40-UST-505-4.5'-083019	19H0481-32	319I1063.D	Solid	09/11/19 08:12
DIESEL CCV	SHI0095-CCV7	319I1064.D	NA	09/11/19 08:35
MOIL CCV	SHI0095-CCV8	319I1065.D	NA	09/11/19 08:57
P40-UST-04-14.5'-083019	19H0481-27RE1	319I1066.D	Solid	09/11/19 09:19
P40-UST-03-4.5'-083019	19H0481-18RE1	319I1067.D	Solid	09/11/19 09:42
P40-UST-03-8'-083019	19H0481-20RE1	319I1068.D	Solid	09/11/19 10:04
P40-UST-04-14.5'-083019	19H0481-26RE1	319I1069.D	Solid	09/11/19 10:27
DIESEL CCV	SHI0095-CCV9	319I1070.D	NA	09/11/19 10:49
MOIL CCV	SHI0095-CCVA	319I1071.D	NA	09/11/19 11:11
RT2	SHI0095-IBL3	319I1072.D	NA	09/11/19 11:34
IB2	SHI0095-IBL4	319I1073.D	NA	09/11/19 11:57

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0095

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response		Analyst Initials	Date
1	Instrument maintenance is entered in Element	YES		VTS	09/11/2019
2	Detail all ICV/CCV failures for all affected Workorders	NA		VTS	09/11/2019
3	Narrate any Retention times not within windows for all affected Workorders	NA		VTS	09/11/2019
4	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA		VTS	09/11/2019
5	Narrate any Workorders where the Project specific requirements have not been met	NA		VTS	09/11/2019
6	Extraction basis, cleanups, and total solids are correctly entered	YES		VTS	09/11/2019
7	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	YES		VTS	09/11/2019
	Comments: *See 2nd PDF*				
8	AUTOCHECK: Blank checked for exceedence of criteria	YES	*	VTS	09/11/2019
9	AUTOCHECK: Check blank spike recovery	YES	*	VTS	09/11/2019
10	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA	*	VTS	09/11/2019
11	AUTOCHECK: Check %RPD between sample and sample duplicate	NA	*	VTS	09/11/2019
12	AUTOCHECK: Matrix spike recoveries within limits	NA	*	VTS	09/11/2019
13	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	NA	*	VTS	09/11/2019
14	AUTOCHECK: Check Surrogate recoveries	YES	*	VTS	09/11/2019
15	AUTOCHECK: Checks Surrogate spike list against Analysis	YES	*	VTS	09/11/2019
16	Data locked, checklist completed and status is analyzed (REVIEWER)	YES		BB	09/11/2019
17	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)	YES		BB	09/11/2019
18	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)	YES		BB	09/11/2019
19	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA		VTS	09/11/2019
20	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	YES		VTS	09/11/2019
	Comments: *Samples 19H0481-18, 20, 26, and 27 will be reported twice*				
21	Additional Notes (ANALYST and REVIEWER)	YES		VTS	09/11/2019
	Comments: *Queue by Josh. Data by Josh and Van* *Entire queue was about 25 hours so we bracketed a RT and IB standard onto the end of the queue.*				

* = Indicates Automated Response from Element DataSyst

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0095

Checklist: Initial Calibration Checklist-FID

#	Checklist Item	Response	Analyst Initials	Date
1	ICal %RSD < 20%	YES	VTS	09/11/2019
2	Instrument maintenance is recorded in Element	YES	VTS	09/11/2019
3	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s	NA	VTS	09/11/2019
4	All SCV within +/- 20% (DOD)	YES	VTS	09/11/2019
5	All SCV within +/- 30%	YES	VTS	09/11/2019
6	NO Linear or Quadratic fits used	NO	VTS	09/11/2019
	Comments: *Forced linear fit for N-triacontane*			
7	NO Calibration points dropped	YES	VTS	09/11/2019
8	Initial Results compared to calculated results in the DET table (ResultCheck.exe)	YES	VTS	09/11/2019
9	Calibration mid-point basis entered in calibration (CV ref)	YES	VTS	09/11/2019
10	Additonal Notes	YES	VTS	09/11/2019
	Comments: *Queue by Josh. Data by Josh and Van* *Manually added diesel range c12-c25 to calibration for low level NW TPhd method*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 9/11/2019 12:30:54PM

ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-IBL1	Retention Time Standard	QC		1	H006806		
SHI0095-IBL2	Instrument Blank	QC		2	H007457		
SHI0095-CAL1	DIESEL 50	QC		3	H006819		
SHI0095-CAL2	DIESEL 100	QC		4	H006818		
SHI0095-CAL3	DIESEL 250	QC		5	H006817		
SHI0095-CAL4	DIESEL 500	QC		6	H006816		
SHI0095-CAL5	DIESEL 1000	QC		7	H006815		
SHI0095-CAL6	DIESEL 2500	QC		8	H006794		
SHI0095-CAL7	MOIL 100	QC		9	H008395		
SHI0095-CAL8	MOIL 250	QC		10	H008396		
SHI0095-CAL9	MOIL 500	QC		11	H008397		
SHI0095-CALA	MOIL 1000	QC		12	H007659		
SHI0095-CALB	MOIL 2500	QC		13	H008398		
SHI0095-CALD	AK103 100	QC		14	H006838		
SHI0095-CALC	MOIL 5000	QC		15	H007458		
SHI0095-CALE	AK103 250	QC		16	H006837		
SHI0095-CALF	AK103 500	QC		17	H006839		
SHI0095-CALG	AK103 1000	QC		18	H006836		
SHI0095-CALH	AK103 2500	QC		19	H006835		
SHI0095-CALI	AK103 5000	QC		20	H006795		
SHI0095-SCV1	DIESEL SCV	QC		21	H008294		
SHI0095-SCV2	MOIL SCV	QC		22	H008399		

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ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-SCV3	AK103 SCV	QC		23	H008400		
SHI0095-ICV1	DIESEL ICV	QC		24	H006816		
SHI0095-ICV2	MOIL ICV	QC		25	H007659		
SHI0095-CCV1	DIESEL CCV	QC		26	H006816		
SHI0095-CCV2	MOIL CCV	QC		27	H007659		
SHI0095-CCV3	AK103 CCV	QC		28	H006836		
SHI0095-CCV4	DIESEL CCV	QC		29	H006816		
SHI0095-CCV5	MOIL CCV	QC		30	H007659		
SHI0095-CCV6	AK103 CCV	QC		31	H006836		
BHI0054-BLK1	Blank	QC		32			
BHI0054-BS1	LCS	QC		33			
19H0481-06	P40-UST-01-4.5'-083019	TPH NW (Extractables) low level	A 01	34			
19H0481-08	P40-UST-01-9'-083019	TPH NW (Extractables) low level	A 01	35			
19H0481-12	P40-UST-02-4.5'-083019	TPH NW (Extractables) low level	A 01	36			
19H0481-14	P40-UST-02-9'-083019	TPH NW (Extractables) low level	A 01	37			
19H0481-18	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	38			
19H0481-20	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	39			
19H0481-24	P40-UST-04-4.5'-083019	TPH NW (Extractables) low level	A 01	40			
19H0481-26	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	41			
19H0481-30	P40-UST-05-4.5'-083019	TPH NW (Extractables) low level	A 01	42			
19H0481-32	P40-UST-505-4.5'-083019	TPH NW (Extractables) low level	A 01	43			
SHI0095-CCV7	DIESEL CCV	QC		44	H006816		

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Printed: 9/11/2019 12:30:54PM

ANALYSIS SEQUENCE

SHI0095

Instrument: FID3 Element Column ID: G004924
Calibration ID: CI00036

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0095-CCV8	MOIL CCV	QC		45	H007659		
19H0481-27RE1	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	46			Added 9/10/2019 by JGR
19H0481-18RE1	P40-UST-03-4.5'-083019	TPH NW (Extractables) low level	A 01	47			Added 9/10/2019 by JGR
19H0481-20RE1	P40-UST-03-8'-083019	TPH NW (Extractables) low level	A 01	48			Added 9/10/2019 by JGR
19H0481-26RE1	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	49			Added 9/10/2019 by JGR
SHI0095-CCV9	DIESEL CCV	QC		50	H006816		
SHI0095-CCVA	MOIL CCV	QC		51	H007659		
SHI0095-IBL3	RT2	QC		52	H006806		
SHI0095-IBL4	IB2	QC		53	H007457		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	10-SEP-2019 09:43	319I1001.D	1	RINSE	
2	10-SEP-2019 10:04	319I1002.D	1	SHI0095-IBL1	
3	10-SEP-2019 10:25	319I1003.D	1	SHI0095-IBL2	
4	10-SEP-2019 10:46	319I1004.D	1	SHI0095-CAL1	
5	10-SEP-2019 11:08	319I1005.D	1	SHI0095-CAL2	
6	10-SEP-2019 11:29	319I1006.D	1	SHI0095-CAL3	
7	10-SEP-2019 11:50	319I1007.D	1	SHI0095-CAL4	
8	10-SEP-2019 12:11	319I1008.D	1	SHI0095-CAL5	
9	10-SEP-2019 12:32	319I1009.D	1	SHI0095-CAL6	
10	10-SEP-2019 12:53	319I1010.D	1	SHI0095-CAL7	
11	10-SEP-2019 13:15	319I1011.D	1	SHI0095-CAL8	
12	10-SEP-2019 13:36	319I1012.D	1	SHI0095-CAL9	
13	10-SEP-2019 13:57	319I1013.D	1	SHI0095-CALA	
14	10-SEP-2019 14:18	319I1014.D	1	SHI0095-CALB	
15	10-SEP-2019 14:39	319I1015.D	1	SHI0095-CALC	
16	10-SEP-2019 15:00	319I1016.D	1	SHI0095-IBL	
17	10-SEP-2019 15:21	319I1017.D	1	SHI0095-CALD	
18	10-SEP-2019 15:42	319I1018.D	1	SHI0095-CALE	
19	10-SEP-2019 16:03	319I1019.D	1	SHI0095-CALF	
20	10-SEP-2019 16:24	319I1020.D	1	SHI0095-CALG	
21	10-SEP-2019 16:45	319I1021.D	1	SHI0095-CALH	
22	10-SEP-2019 17:06	319I1022.D	1	SHI0095-CALI	
23	10-SEP-2019 17:28	319I1023.D	1	SHI0095-IBL	
24	10-SEP-2019 17:50	319I1024.D	1	SHI0095-SCV1	
25	10-SEP-2019 18:13	319I1025.D	1	SHI0095-SCV2	
26	10-SEP-2019 18:35	319I1026.D	1	SHI0095-SCV3	
27	10-SEP-2019 18:58	319I1027.D	1	SHI0095-ICV1	
28	10-SEP-2019 19:20	319I1028.D	1	SHI0095-ICV2	
29	10-SEP-2019 19:42	319I1029.D	1	BHI0215-BLK1	
30	10-SEP-2019 20:05	319I1030.D	1	BHI0215-BS1	
31	10-SEP-2019 20:27	319I1031.D	1	19I0101-01	
32	10-SEP-2019 20:49	319I1032.D	10	19I0101-01RE1	
33	10-SEP-2019 21:11	319I1033.D	1	19I0101-02	
34	10-SEP-2019 21:34	319I1034.D	10	19I0101-02RE1	
35	10-SEP-2019 21:56	319I1035.D	1	SHI0095-CCV1	
36	10-SEP-2019 22:18	319I1036.D	1	SHI0095-CCV2	
37	10-SEP-2019 22:40	319I1037.D	1	SHI0095-CCV3	
38	10-SEP-2019 23:02	319I1038.D	1	BHI0137-BLK1	
39	10-SEP-2019 23:24	319I1039.D	1	BHI0137-BS1	
40	10-SEP-2019 23:46	319I1040.D	1	BHI0137-MRL1	
41	11-SEP-2019 00:08	319I1041.D	1	BHI0137-MRL2	
42	11-SEP-2019 00:30	319I1042.D	1	19H0461-01	
43	11-SEP-2019 00:52	319I1043.D	1	19H0461-02	
44	11-SEP-2019 01:14	319I1044.D	1	19H0461-03	
45	11-SEP-2019 01:36	319I1045.D	1	19H0461-04	

46	11-SEP-2019	01:58	319I1046.D	1	19H0461-05
47	11-SEP-2019	02:20	319I1047.D	1	19H0462-01
48	11-SEP-2019	02:42	319I1048.D	1	19H0462-02
49	11-SEP-2019	03:04	319I1049.D	1	SHI0095-CCV4
50	11-SEP-2019	03:26	319I1050.D	1	SHI0095-CCV5

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b p2

	Inject Date/Time	Filename	DF	LabID	ClientID
51	11-SEP-2019 03:47	319I1051.D	1	SHI0095-CCV6	
52	11-SEP-2019 04:09	319I1052.D	1	BHI0054-BLK1	
53	11-SEP-2019 04:31	319I1053.D	1	BHI0054-BS1	
54	11-SEP-2019 04:53	319I1054.D	1	19H0481-06	
55	11-SEP-2019 05:15	319I1055.D	1	19H0481-08	
56	11-SEP-2019 05:37	319I1056.D	1	19H0481-12	
57	11-SEP-2019 05:59	319I1057.D	1	19H0481-14	
58	11-SEP-2019 06:21	319I1058.D	1	19H0481-18	
59	11-SEP-2019 06:43	319I1059.D	1	19H0481-20	
60	11-SEP-2019 07:05	319I1060.D	1	19H0481-24	
61	11-SEP-2019 07:28	319I1061.D	1	19H0481-26	
62	11-SEP-2019 07:50	319I1062.D	1	19H0481-30	
63	11-SEP-2019 08:12	319I1063.D	1	19H0481-32	
64	11-SEP-2019 08:35	319I1064.D	1	SHI0095-CCV7	
65	11-SEP-2019 08:57	319I1065.D	1	SHI0095-CCV8	
66	11-SEP-2019 09:19	319I1066.D	5	19H0481-27RE1	
67	11-SEP-2019 09:42	319I1067.D	5	19H0481-18RE1	
68	11-SEP-2019 10:04	319I1068.D	5	19H0481-20RE1	
69	11-SEP-2019 10:27	319I1069.D	5	19H0481-26RE1	
70	11-SEP-2019 10:49	319I1070.D	1	SHI0095-CCV9	
71	11-SEP-2019 11:11	319I1071.D	1	SHI0095-CCVA	
72	11-SEP-2019 11:34	319I1072.D	1	SHI0095-IBL3	
73	11-SEP-2019 11:57	319I1073.D	1	SHI0095-IBL4	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid3b.i\20190910.b

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0943	319I1001.D	RINSE	1	NO MANUAL INTEGRATION
1004	319I1002.D	SHI0095-IBL1	1	NO MANUAL INTEGRATION
1025	319I1003.D	SHI0095-IBL2	1	NO MANUAL INTEGRATION
1046	319I1004.D	SHI0095-CAL1	1	o-terph,
1108	319I1005.D	SHI0095-CAL2	1	o-terph,
1129	319I1006.D	SHI0095-CAL3	1	o-terph,
1150	319I1007.D	SHI0095-CAL4	1	o-terph,
1211	319I1008.D	SHI0095-CAL5	1	o-terph,
1232	319I1009.D	SHI0095-CAL6	1	o-terph,
1253	319I1010.D	SHI0095-CAL7	1	Triacon Surr,
1315	319I1011.D	SHI0095-CAL8	1	Triacon Surr,
1336	319I1012.D	SHI0095-CAL9	1	Triacon Surr,
1357	319I1013.D	SHI0095-CALA	1	Triacon Surr,
1418	319I1014.D	SHI0095-CALB	1	Triacon Surr,
1439	319I1015.D	SHI0095-CALC	1	Triacon Surr,
1500	319I1016.D	SHI0095-IBL	1	NO MANUAL INTEGRATION
1521	319I1017.D	SHI0095-CALD	1	Triacon Surr,

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1542	319I1018.D	SHI0095-CALE	1	Triacon Surr,
1603	319I1019.D	SHI0095-CALF	1	Triacon Surr,
1624	319I1020.D	SHI0095-CALG	1	Triacon Surr,
1645	319I1021.D	SHI0095-CALH	1	Triacon Surr,
1706	319I1022.D	SHI0095-CALI	1	Triacon Surr,
1728	319I1023.D	SHI0095-IBL	1	NO MANUAL INTEGRATION
1750	319I1024.D	SHI0095-SCV1	1	NO MANUAL INTEGRATION
1813	319I1025.D	SHI0095-SCV2	1	Triacon Surr,
1835	319I1026.D	SHI0095-SCV3	1	Triacon Surr,
1858	319I1027.D	SHI0095-ICV1	1	o-terph,
1920	319I1028.D	SHI0095-ICV2	1	NO MANUAL INTEGRATION
1942	319I1029.D	BHI0215-BLK1	1	NO MANUAL INTEGRATION
2005	319I1030.D	BHI0215-BS1	1	NO MANUAL INTEGRATION
2027	319I1031.D	19I0101-01	1	NO MANUAL INTEGRATION
2049	319I1032.D	19I0101-01RE1	10	NO MANUAL INTEGRATION
2111	319I1033.D	19I0101-02	1	NO MANUAL INTEGRATION
2134	319I1034.D	19I0101-02RE1	10	NO MANUAL INTEGRATION
2156	319I1035.D	SHI0095-CCV1	1	o-terph,

Instrument: fid3b.i Date: 10-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
2218	319I1036.D	SHI0095-CCV2	1	Triacon Surr,
2240	319I1037.D	SHI0095-CCV3	1	NO MANUAL INTEGRATION
2302	319I1038.D	BHI0137-BLK1	1	NO MANUAL INTEGRATION
2324	319I1039.D	BHI0137-BS1	1	NO MANUAL INTEGRATION
2346	319I1040.D	BHI0137-MRL1	1	NO MANUAL INTEGRATION
0008	319I1041.D	BHI0137-MRL2	1	NO MANUAL INTEGRATION
0030	319I1042.D	19H0461-01	1	NO MANUAL INTEGRATION
0052	319I1043.D	19H0461-02	1	NO MANUAL INTEGRATION
0114	319I1044.D	19H0461-03	1	NO MANUAL INTEGRATION
0136	319I1045.D	19H0461-04	1	NO MANUAL INTEGRATION
0158	319I1046.D	19H0461-05	1	NO MANUAL INTEGRATION
0220	319I1047.D	19H0462-01	1	NO MANUAL INTEGRATION
0242	319I1048.D	19H0462-02	1	NO MANUAL INTEGRATION
0304	319I1049.D	SHI0095-CCV4	1	o-terph,
0326	319I1050.D	SHI0095-CCV5	1	Triacon Surr,
0347	319I1051.D	SHI0095-CCV6	1	Triacon Surr,
0409	319I1052.D	BHI0054-BLK1	1	NO MANUAL INTEGRATION
0431	319I1053.D	BHI0054-BS1	1	o-terph,

Instrument: fid3b.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
0453	319I1054.D	19H0481-06	1	NO MANUAL INTEGRATION
0515	319I1055.D	19H0481-08	1	o-terph, Triacon Surr,
0537	319I1056.D	19H0481-12	1	o-terph, Triacon Surr,
0559	319I1057.D	19H0481-14	1	o-terph, Triacon Surr,
0621	319I1058.D	19H0481-18	1	NO MANUAL INTEGRATION
0643	319I1059.D	19H0481-20	1	o-terph, Triacon Surr,
0705	319I1060.D	19H0481-24	1	o-terph, Triacon Surr,
0728	319I1061.D	19H0481-26	1	o-terph, Triacon Surr,
0750	319I1062.D	19H0481-30	1	o-terph, Triacon Surr,
0812	319I1063.D	19H0481-32	1	o-terph, Triacon Surr,
0835	319I1064.D	SHI0095-CCV7	1	o-terph,
0857	319I1065.D	SHI0095-CCV8	1	Triacon Surr,
0919	319I1066.D	19H0481-27RE1	5	o-terph, Triacon Surr,
0942	319I1067.D	19H0481-18RE1	5	o-terph, Triacon Surr,
1004	319I1068.D	19H0481-20RE1	5	o-terph, Triacon Surr,
1027	319I1069.D	19H0481-26RE1	5	o-terph, Triacon Surr,
1049	319I1070.D	SHI0095-CCV9	1	o-terph,
1113	319I1071.D	SHI0095-CCVA	1	Triacon Surr,

Instrument: fid3b.i Date: 11-SEP-2019

Time	Filename	LabID	DF	Manually Integrated Compounds
1134	319I1072.D	SHI0095-IBL3	1	C40,
1157	319I1073.D	SHI0095-IBL4	1	NO MANUAL INTEGRATION

Security Status Report

Date: 11-Sep-2019 12:22

319I1001.D	Data Locked	van, 11-Sep-2019 12:22
319I1002.D	Data Locked	van, 11-Sep-2019 10:43
319I1003.D	Data Locked	van, 11-Sep-2019 10:43
319I1004.D	Data Locked	van, 11-Sep-2019 10:43
319I1005.D	Data Locked	van, 11-Sep-2019 10:43
319I1006.D	Data Locked	van, 11-Sep-2019 10:43
319I1007.D	Data Locked	van, 11-Sep-2019 10:43
319I1008.D	Data Locked	van, 11-Sep-2019 10:43
319I1009.D	Data Locked	van, 11-Sep-2019 10:43
319I1010.D	Data Locked	van, 11-Sep-2019 10:43
319I1011.D	Data Locked	van, 11-Sep-2019 10:43
319I1012.D	Data Locked	van, 11-Sep-2019 10:43
319I1013.D	Data Locked	van, 11-Sep-2019 10:43
319I1014.D	Data Locked	van, 11-Sep-2019 10:43
319I1015.D	Data Locked	van, 11-Sep-2019 10:43
319I1016.D	Data Locked	van, 11-Sep-2019 10:43
319I1017.D	Data Locked	van, 11-Sep-2019 10:43
319I1018.D	Data Locked	van, 11-Sep-2019 10:43
319I1019.D	Data Locked	van, 11-Sep-2019 10:43
319I1020.D	Data Locked	van, 11-Sep-2019 10:43
319I1021.D	Data Locked	van, 11-Sep-2019 10:43
319I1022.D	Data Locked	van, 11-Sep-2019 10:43
319I1023.D	Data Locked	van, 11-Sep-2019 10:43
319I1024.D	Data Locked	van, 11-Sep-2019 10:43
319I1025.D	Data Locked	van, 11-Sep-2019 10:43
319I1026.D	Data Locked	van, 11-Sep-2019 10:43
319I1027.D	Data Locked	van, 11-Sep-2019 10:43
319I1028.D	Data Locked	van, 11-Sep-2019 10:43
319I1029.D	Data Locked	van, 11-Sep-2019 10:43
319I1030.D	Data Locked	van, 11-Sep-2019 10:43
319I1031.D	Data Locked	van, 11-Sep-2019 10:43
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319I1036.D	Data Locked	van, 11-Sep-2019 10:43
319I1037.D	Data Locked	van, 11-Sep-2019 10:43
319I1038.D	Data Locked	van, 11-Sep-2019 10:43
319I1039.D	Data Locked	van, 11-Sep-2019 10:43
319I1040.D	Data Locked	van, 11-Sep-2019 10:43
319I1041.D	Data Locked	van, 11-Sep-2019 10:43
319I1042.D	Data Locked	van, 11-Sep-2019 10:43
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319I1061.D	Data Locked	van, 11-Sep-2019 10:43
319I1062.D	Data Locked	van, 11-Sep-2019 10:43
319I1063.D	Data Locked	van, 11-Sep-2019 10:43
319I1064.D	Data Locked	van, 11-Sep-2019 10:43
319I1065.D	Data Locked	van, 11-Sep-2019 10:43
319I1066.D	Data Locked	van, 11-Sep-2019 12:15
319I1067.D	Data Locked	van, 11-Sep-2019 12:15
319I1068.D	Data Locked	van, 11-Sep-2019 12:15
319I1069.D	Data Locked	van, 11-Sep-2019 12:15
319I1070.D	Data Locked	van, 11-Sep-2019 12:15
319I1071.D	Data Locked	van, 11-Sep-2019 12:15
319I1072.D	Data Locked	van, 11-Sep-2019 12:15
319I1073.D	Data Locked	van, 11-Sep-2019 12:15

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Extract Dilution Bench Sheet

Sequence: SHI0095
Analyst: [signature] Date: 09/09/19

Sample ID	Primary Dilution				Secondary Dilution			
	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor	Extract Volume (uL)	Diluent ID	Diluent Volume (uL)	Dilution Factor
191+0481-27	100	Dcm	400	5				
19H0481-18	100	DCM	400	5				
19H0481-20	100	DcM	400	5				
191+0481-26	100	DCM	400	5				
19I0101-01	100	DcM	900	10				
19I0101-02	100	DcM	900	10				

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0145
Instrument: FID4
Calibration: CI00039

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Retention Time Standard	SHI0145-IBL1	419I0702.D	NA	09/07/19 09:12
Instrument Blank	SHI0145-IBL2	419I0703.D	NA	09/07/19 09:33
DIESEL 50	SHI0145-CAL1	419I0704.D	NA	09/07/19 09:53
DIESEL 100	SHI0145-CAL2	419I0705.D	NA	09/07/19 10:14
DIESEL 250	SHI0145-CAL3	419I0706.D	NA	09/07/19 10:36
DIESEL 500	SHI0145-CAL4	419I0707.D	NA	09/07/19 10:58
DIESEL 1000	SHI0145-CAL5	419I0708.D	NA	09/07/19 11:19
DIESEL 2500	SHI0145-CAL6	419I0709.D	NA	09/07/19 11:39
MOIL 100	SHI0145-CAL7	419I0710.D	NA	09/07/19 12:00
MOIL 250	SHI0145-CAL8	419I0711.D	NA	09/07/19 12:21
MOIL 500	SHI0145-CAL9	419I0712.D	NA	09/07/19 12:42
MOIL 1000	SHI0145-CALA	419I0713.D	NA	09/07/19 13:04
MOIL 2500	SHI0145-CALB	419I0714.D	NA	09/07/19 13:25
MOIL 5000	SHI0145-CALC	419I0715.D	NA	09/07/19 13:46
AK103 100	SHI0145-CALD	419I0717.D	NA	09/07/19 14:27
AK103 250	SHI0145-CALE	419I0718.D	NA	09/07/19 14:48
AK103 500	SHI0145-CALF	419I0719.D	NA	09/07/19 15:08
AK103 1000	SHI0145-CALG	419I0720.D	NA	09/07/19 15:29
AK103 2500	SHI0145-CALH	419I0721.D	NA	09/07/19 15:50
AK103 5000	SHI0145-CALI	419I0722.D	NA	09/07/19 16:11
DIESEL SCV	SHI0145-SCV1	419I0724.D	NA	09/07/19 16:54
MOIL SCV	SHI0145-SCV2	419I0725.D	NA	09/07/19 17:15
AK103 SCV	SHI0145-SCV3	419I0726.D	NA	09/07/19 17:35

Printed: 9/13/2019 6:41:56AM

ANALYSIS SEQUENCE

SHI0145

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00039

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0145-IBL1	Retention Time Standard	QC		1	H006806		
SHI0145-IBL2	Instrument Blank	QC		2	H007457		
SHI0145-CAL1	DIESEL 50	QC		3	H006819		
SHI0145-CAL2	DIESEL 100	QC		4	H006818		
SHI0145-CAL3	DIESEL 250	QC		5	H006817		
SHI0145-CAL4	DIESEL 500	QC		6	H006816		
SHI0145-CAL5	DIESEL 1000	QC		7	H006815		
SHI0145-CAL6	DIESEL 2500	QC		8	H006794		
SHI0145-CAL7	MOIL 100	QC		9	H008395		
SHI0145-CAL8	MOIL 250	QC		10	H008396		
SHI0145-CAL9	MOIL 500	QC		11	H008397		
SHI0145-CALA	MOIL 1000	QC		12	H007659		
SHI0145-CALB	MOIL 2500	QC		13	H008398		
SHI0145-CALC	MOIL 5000	QC		14	H007458		
SHI0145-CALD	AK103 100	QC		15	H006838		
SHI0145-CALE	AK103 250	QC		16	H006837		
SHI0145-CALF	AK103 500	QC		17	H006839		
SHI0145-CALG	AK103 1000	QC		18	H006836		
SHI0145-CALH	AK103 2500	QC		19	H006835		
SHI0145-CALI	AK103 5000	QC		20	H006795		
SHI0145-SCV1	DIESEL SCV	QC		21	H008294		
SHI0145-SCV2	MOIL SCV	QC		22	H008399		

340of34

ANALYSIS SEQUENCE

SHI0145

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00039

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0145-SCV3	AK103 SCV	QC		23	H008400		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	07-SEP-2019 08:51	419I0701.D	1	RINSE	
2	07-SEP-2019 09:12	419I0702.D	1	SHI0081-IBL1	
3	07-SEP-2019 09:33	419I0703.D	1	SHI0081-IBL2	
4	07-SEP-2019 09:53	419I0704.D	1	SHI0081-CAL1	
5	07-SEP-2019 10:14	419I0705.D	1	SHI0081-CAL2	
6	07-SEP-2019 10:36	419I0706.D	1	SHI0081-CAL3	
7	07-SEP-2019 10:58	419I0707.D	1	SHI0081-CAL4	
8	07-SEP-2019 11:19	419I0708.D	1	SHI0081-CAL5	
9	07-SEP-2019 11:39	419I0709.D	1	SHI0081-CAL6	
10	07-SEP-2019 12:00	419I0710.D	1	SHI0081-CAL7	
11	07-SEP-2019 12:21	419I0711.D	1	SHI0081-CAL8	
12	07-SEP-2019 12:42	419I0712.D	1	SHI0081-CAL9	
13	07-SEP-2019 13:04	419I0713.D	1	SHI0081-CALA	
14	07-SEP-2019 13:25	419I0714.D	1	SHI0081-CALB	
15	07-SEP-2019 13:46	419I0715.D	1	SHI0081-CALC	
16	07-SEP-2019 14:06	419I0716.D	1	SHI0081-IBL3	
17	07-SEP-2019 14:27	419I0717.D	1	SHI0081-CALD	
18	07-SEP-2019 14:48	419I0718.D	1	SHI0081-CALE	
19	07-SEP-2019 15:08	419I0719.D	1	SHI0081-CALF	
20	07-SEP-2019 15:29	419I0720.D	1	SHI0081-CALG	
21	07-SEP-2019 15:50	419I0721.D	1	SHI0081-CALH	
22	07-SEP-2019 16:11	419I0722.D	1	SHI0081-CALI	
23	07-SEP-2019 16:33	419I0723.D	1	SHI0081-IBL4	
24	07-SEP-2019 16:54	419I0724.D	1	SHI0081-SCV1	
25	07-SEP-2019 17:15	419I0725.D	1	SHI0081-SCV2	
26	07-SEP-2019 17:35	419I0726.D	1	SHI0081-SCV3	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

ARI Job No.: RINS Method: FID4TPH.m Instrument: fid4a.i Date: 07-SEP-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0851	419I0701.D	RINSE		1	NO MANUAL INTEGRATION
0912	419I0702.D	SHI0081-IBL1		1	NO MANUAL INTEGRATION
0933	419I0703.D	SHI0081-IBL2		1	NO MANUAL INTEGRATION
0953	419I0704.D	SHI0081-CAL1		1	o-terph,
1014	419I0705.D	SHI0081-CAL2		1	o-terph,
1036	419I0706.D	SHI0081-CAL3		1	o-terph,
1058	419I0707.D	SHI0081-CAL4		1	o-terph,
1119	419I0708.D	SHI0081-CAL5		1	o-terph,
1139	419I0709.D	SHI0081-CAL6		1	o-terph,
1200	419I0710.D	SHI0081-CAL7		1	Triacon Surr,
1221	419I0711.D	SHI0081-CAL8		1	Triacon Surr,
1242	419I0712.D	SHI0081-CAL9		1	Triacon Surr,
1304	419I0713.D	SHI0081-CALA		1	Triacon Surr,
1325	419I0714.D	SHI0081-CALB		1	Triacon Surr,
1346	419I0715.D	SHI0081-CALC		1	Triacon Surr,
1406	419I0716.D	SHI0081-IBL3		1	NO MANUAL INTEGRATION
1427	419I0717.D	SHI0081-CALD		1	Triacon Surr,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1448	419I0718.D	SHI0081-CALE		1	Triacon Surr,
1508	419I0719.D	SHI0081-CALF		1	Triacon Surr,
1529	419I0720.D	SHI0081-CALG		1	Triacon Surr,
1550	419I0721.D	SHI0081-CALH		1	Triacon Surr,
1611	419I0722.D	SHI0081-CALI		1	Triacon Surr,
1633	419I0723.D	SHI0081-IBL4		1	NO MANUAL INTEGRATION
1654	419I0724.D	SHI0081-SCV1		1	NO MANUAL INTEGRATION
1715	419I0725.D	SHI0081-SCV2		1	Triacon Surr,
1735	419I0726.D	SHI0081-SCV3		1	Triacon Surr,

Security Status Report

Date: 11-Sep-2019 12:53

419I0701.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0702.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0703.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0704.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0705.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0706.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0707.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0708.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0709.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0710.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0711.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0712.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0713.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0714.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0715.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0716.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0717.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0718.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0719.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0720.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0721.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0722.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0723.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0724.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0725.D	Data Locked	jrains, 11-Sep-2019 12:53
419I0726.D	Data Locked	jrains, 11-Sep-2019 12:53

ANALYSIS BATCH (SEQUENCE) SUMMARY

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Investigation
Sequence: SHI0185
Instrument: FID4
Calibration: CI00039

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
Retention Time Standard	SHI0185-IBL1	419I0702B.D	NA	09/07/19 09:12
Instrument Blank	SHI0185-IBL2	419I0703B.D	NA	09/07/19 09:33
DIESEL ICV	SHI0185-ICV1	419I0727.D	NA	09/07/19 17:56
MOIL ICV	SHI0185-ICV2	419I0728.D	NA	09/07/19 18:16
P40-UST-04-14.5'-083019	19H0481-27	419I0729.D	Solid	09/07/19 18:37
P40-UST-05-4.5'-083019	19H0481-31	419I0730.D	Solid	09/07/19 18:58
P40-UST-505-4.5'-083019	19H0481-33	419I0731.D	Solid	09/07/19 19:18
P40-UST-05-11'-083019	19H0481-35	419I0732.D	Solid	09/07/19 19:39
ZZZZZ	BHI0077-BLK1	419I0733.D	Water	09/07/19 19:59
ZZZZZ	BHI0077-BS1	419I0734.D	Water	09/07/19 20:20
ZZZZZ	19I0014-01	419I0735.D	Water	09/07/19 20:41
ZZZZZ	19I0014-02	419I0736.D	Water	09/07/19 21:02
ZZZZZ	19I0014-03	419I0737.D	Water	09/07/19 21:23
ZZZZZ	19I0014-04	419I0738.D	Water	09/07/19 21:44
P40-UST-05-11'-083019	19H0481-34	419I0741.D	Solid	09/07/19 22:46
DIESEL CCV	SHI0185-CCV1	419I0742.D	NA	09/07/19 23:06
MOIL CCV	SHI0185-CCV2	419I0743.D	NA	09/07/19 23:27

Work Order(s):	19H0481

Checklist for SEQUENCE SHI0185

Checklist: Analyst Checklist-FID(rev4)

#	Checklist Item	Response	Analyst Initials	Date
1	Instrument maintenance is entered in Element	NA	JGR	09/13/2019
2	Detail all ICV/CCV failures for all affected Workorders	NA	JGR	09/13/2019
3	Narrate any Retention times not within windows for all affected Workorders	NA	JGR	09/13/2019
4	Rationale provided for all manual integrations not done for baseline correction per SOP 1021s Comments: *skimmed surrogates*	YES	JGR	09/13/2019
5	Narrate any Workorders where the Project specific requirements have not been met	NA	JGR	09/13/2019
6	Extraction basis, cleanups, and total solids are correctly entered	YES	JGR	09/13/2019
7	An extract dilution bench sheet is attached to the sequence PDF for all dilutions performed	NA	JGR	09/13/2019
8	AUTOCHECK: Blank checked for exceedence of criteria	YES *	JGR	09/13/2019
9	AUTOCHECK: Check blank spike recovery	YES *	JGR	09/13/2019
10	AUTOCHECK: Check blank spike/blank spike duplicate RPD. If exceeded include outliers in exception report.	NA *	JGR	09/13/2019
11	AUTOCHECK: Check %RPD between sample and sample duplicate	NA *	JGR	09/13/2019
12	AUTOCHECK: Matrix spike recoveries within limits	YES *	JGR	09/13/2019
13	AUTOCHECK: Matrix spike/matrix spike duplicate RPD within limits	YES *	JGR	09/13/2019
14	AUTOCHECK: Check Surrogate recoveries	YES *	JGR	09/13/2019
15	AUTOCHECK: Checks Surrogate spike list against Analysis	YES *	JGR	09/13/2019
16	Data locked, checklist completed and status is analyzed (REVIEWER)			12/30/1899
17	Color warnings have been addressed, narrated and (or) qualified (REVIEWER)			12/30/1899
18	rev_DilutionCheck.rpt and rev_DilutionCheck.exe was run to verify multiple sample results are consistent (REVIEWER)			12/30/1899
19	List samples by workorder or batch QC to be reanalyzed-verify rebatch created (ANALYST)	NA	JGR	09/13/2019
20	List samples by workorder or batch QC reanalyzed and samples reported from two or more analyses (ANALYST)	YES	JGR	09/13/2019
21	Additional Notes (ANALYST and REVIEWER)	YES	JGR	09/13/2019

Comments:
misc peaks throughout smaples, samples might beneifit from acid/silica clean-ups

* = Indicates Automated Response from Element DataSyst

Printed: 9/13/2019 8:33:21AM

ANALYSIS SEQUENCE

SHI0185

Instrument: FID4 Element Column ID: G004923
Calibration ID: CI00039

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Comments
SHI0185-IBL1	Retention Time Standard	QC		1	H006806		
SHI0185-IBL2	Instrument Blank	QC		2	H007457		
SHI0185-ICV1	DIESEL ICV	QC		3	H006816		
SHI0185-ICV2	MOIL ICV	QC		4	H007659		
19H0481-27	P40-UST-04-14.5'-083019	TPH NW (Extractables) low level	A 01	5			
19H0481-31	P40-UST-05-4.5'-083019	TPH NW (Extractables) low level	A 01	6			
19H0481-33	P40-UST-505-4.5'-083019	TPH NW (Extractables) low level	A 01	7			
19H0481-35	P40-UST-05-11'-083019	TPH NW (Extractables) low level	A 01	8			
BHI0077-BLK1	Blank	QC		9			
BHI0077-BS1	LCS	QC		10			
19I0014-01	CNGMW-1	TPH NW (Extractables) low level	A 01	11			Client Gets raw data
19I0014-02	CNGMW-3	TPH NW (Extractables) low level	A 01	12			Client Gets raw data
19I0014-03	CNGMW-4	TPH NW (Extractables) low level	A 01	13			Client Gets raw data
19I0014-04	CNGMW-5	TPH NW (Extractables) low level	A 01	14			Client Gets raw data
BHI0077-MS1	Matrix Spike	QC		15			
BHI0077-MSD1	Matrix Spike Dup	QC		16			
19H0481-34	P40-UST-05-11'-083019	TPH NW (Extractables) low level	A 01	17			
SHI0185-CCV1	DIESEL CCV	QC		18	H006816		
SHI0185-CCV2	MOIL CCV	QC		19	H007659		

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	07-SEP-2019 08:51	419I0701.D	1	RINSE	
2	07-SEP-2019 09:12	419I0702.D	1	SHI0081-IBL1	
3	07-SEP-2019 09:33	419I0703.D	1	SHI0081-IBL2	
4	07-SEP-2019 09:53	419I0704.D	1	SHI0081-CAL1	
5	07-SEP-2019 10:14	419I0705.D	1	SHI0081-CAL2	
6	07-SEP-2019 10:36	419I0706.D	1	SHI0081-CAL3	
7	07-SEP-2019 10:58	419I0707.D	1	SHI0081-CAL4	
8	07-SEP-2019 11:19	419I0708.D	1	SHI0081-CAL5	
9	07-SEP-2019 11:39	419I0709.D	1	SHI0081-CAL6	
10	07-SEP-2019 12:00	419I0710.D	1	SHI0081-CAL7	
11	07-SEP-2019 12:21	419I0711.D	1	SHI0081-CAL8	
12	07-SEP-2019 12:42	419I0712.D	1	SHI0081-CAL9	
13	07-SEP-2019 13:04	419I0713.D	1	SHI0081-CALA	
14	07-SEP-2019 13:25	419I0714.D	1	SHI0081-CALB	
15	07-SEP-2019 13:46	419I0715.D	1	SHI0081-CALC	
16	07-SEP-2019 14:06	419I0716.D	1	SHI0081-IBL3	
17	07-SEP-2019 14:27	419I0717.D	1	SHI0081-CALD	
18	07-SEP-2019 14:48	419I0718.D	1	SHI0081-CALE	
19	07-SEP-2019 15:08	419I0719.D	1	SHI0081-CALF	
20	07-SEP-2019 15:29	419I0720.D	1	SHI0081-CALG	
21	07-SEP-2019 15:50	419I0721.D	1	SHI0081-CALH	
22	07-SEP-2019 16:11	419I0722.D	1	SHI0081-CALI	
23	07-SEP-2019 16:33	419I0723.D	1	SHI0081-IBL4	
24	07-SEP-2019 16:54	419I0724.D	1	SHI0081-SCV1	
25	07-SEP-2019 17:15	419I0725.D	1	SHI0081-SCV2	
26	07-SEP-2019 17:35	419I0726.D	1	SHI0081-SCV3	
27	07-SEP-2019 17:56	419I0727.D	1	SHI0081-ICV1	
28	07-SEP-2019 18:16	419I0728.D	1	SHI0081-ICV2	
29	07-SEP-2019 18:37	419I0729.D	1	19H0481-27	
30	07-SEP-2019 18:58	419I0730.D	1	19H0481-31	
31	07-SEP-2019 19:18	419I0731.D	1	19H0481-33	
32	07-SEP-2019 19:39	419I0732.D	1	19H0481-35	
33	07-SEP-2019 19:59	419I0733.D	1	BHI0077-BLK1	
34	07-SEP-2019 20:20	419I0734.D	1	BHI0077-BS1	
35	07-SEP-2019 20:41	419I0735.D	1	19I0014-01	
36	07-SEP-2019 21:02	419I0736.D	1	19I0014-02	
37	07-SEP-2019 21:23	419I0737.D	1	19I0014-03	
38	07-SEP-2019 21:44	419I0738.D	1	19I0014-04	
39	07-SEP-2019 22:05	419I0739.D	1	BHI0077-MS1	
40	07-SEP-2019 22:25	419I0740.D	1	BHI0077-MSD1	
41	07-SEP-2019 22:46	419I0741.D	1	19H0481-34	
42	07-SEP-2019 23:06	419I0742.D	1	SHI0081-CCV1	
43	07-SEP-2019 23:27	419I0743.D	1	SHI0081-CCV2	
44	07-SEP-2019 23:47	419I0744.D	1	BHI0054-BLK1	
45	08-SEP-2019 00:08	419I0745.D	1	BHI0054-BS1	
46	08-SEP-2019 00:28	419I0746.D	1	19H0481-06	
47	08-SEP-2019 00:49	419I0747.D	1	19H0481-06	
48	08-SEP-2019 01:09	419I0748.D	1	19H0481-08	
49	08-SEP-2019 01:30	419I0749.D	1	19H0481-12	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

ARI Job No.: RINS Method: FID4TPH.m Instrument: fid4a.i Date: 07-SEP-2019

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0851	419I0701.D	RINSE		1	NO MANUAL INTEGRATION
0912	419I0702.D	SHI0081-IBL1		1	NO MANUAL INTEGRATION
0933	419I0703.D	SHI0081-IBL2		1	NO MANUAL INTEGRATION
0953	419I0704.D	SHI0081-CAL1		1	o-terph,
1014	419I0705.D	SHI0081-CAL2		1	o-terph,
1036	419I0706.D	SHI0081-CAL3		1	o-terph,
1058	419I0707.D	SHI0081-CAL4		1	o-terph,
1119	419I0708.D	SHI0081-CAL5		1	o-terph,
1139	419I0709.D	SHI0081-CAL6		1	o-terph,
1200	419I0710.D	SHI0081-CAL7		1	Triacon Surr,
1221	419I0711.D	SHI0081-CAL8		1	Triacon Surr,
1242	419I0712.D	SHI0081-CAL9		1	Triacon Surr,
1304	419I0713.D	SHI0081-CALA		1	Triacon Surr,
1325	419I0714.D	SHI0081-CALB		1	Triacon Surr,
1346	419I0715.D	SHI0081-CALC		1	Triacon Surr,
1406	419I0716.D	SHI0081-IBL3		1	NO MANUAL INTEGRATION
1427	419I0717.D	SHI0081-CALD		1	Triacon Surr,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1448	419I0718.D	SHI0081-CALE		1	Triacon Surr,
1508	419I0719.D	SHI0081-CALF		1	Triacon Surr,
1529	419I0720.D	SHI0081-CALG		1	Triacon Surr,
1550	419I0721.D	SHI0081-CALH		1	Triacon Surr,
1611	419I0722.D	SHI0081-CALI		1	Triacon Surr,
1633	419I0723.D	SHI0081-IBL4		1	NO MANUAL INTEGRATION
1654	419I0724.D	SHI0081-SCV1		1	NO MANUAL INTEGRATION
1715	419I0725.D	SHI0081-SCV2		1	Triacon Surr,
1735	419I0726.D	SHI0081-SCV3		1	Triacon Surr,
1756	419I0727.D	SHI0081-ICV1		1	o-terph,
1816	419I0728.D	SHI0081-ICV2		1	Triacon Surr,
1837	419I0729.D	19H0481-27		1	o-terph, Triacon Surr,
1858	419I0730.D	19H0481-31		1	NO MANUAL INTEGRATION
1918	419I0731.D	19H0481-33		1	NO MANUAL INTEGRATION
1939	419I0732.D	19H0481-35		1	o-terph, Triacon Surr,
1959	419I0733.D	BHI0077-BLK1		1	NO MANUAL INTEGRATION
2020	419I0734.D	BHI0077-BS1		1	o-terph,
2041	419I0735.D	19I0014-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem2\fid4a.i\20190907.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2102	419I0736.D	19I0014-02		1	o-terph,
2123	419I0737.D	19I0014-03		1	o-terph,
2144	419I0738.D	19I0014-04		1	o-terph,
2205	419I0739.D	BHI0077-MS1		1	o-terph,
2225	419I0740.D	BHI0077-MSD1		1	o-terph,
2246	419I0741.D	19H0481-34		1	o-terph, Triacon Surr,
2306	419I0742.D	SHI0081-CCV1		1	o-terph,
2327	419I0743.D	SHI0081-CCV2		1	Triacon Surr,
2347	419I0744.D	BHI0054-BLK1		1	NO MANUAL INTEGRATION
0008	419I0745.D	BHI0054-BS1		1	NO MANUAL INTEGRATION
0028	419I0746.D	19H0481-06		1	NO MANUAL INTEGRATION
0049	419I0747.D	19H0481-06		1	NO MANUAL INTEGRATION
0109	419I0748.D	19H0481-08		1	NO MANUAL INTEGRATION
0130	419I0749.D	19H0481-12		1	NO MANUAL INTEGRATION

Security Status Report

Date: 13-Sep-2019 08:16

419I0727.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0728.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0729.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0730.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0731.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0732.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0733.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0734.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0735.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0736.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0737.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0738.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0739.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0740.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0741.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0742.D	Data Locked	jrains, 13-Sep-2019 08:16
419I0743.D	Data Locked	jrains, 13-Sep-2019 08:16

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0028	Instrument:	FID4
Calibration:	CH00097	Calibration Date:	08/29/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHI0028-IBL1 (Solid)				Lab File ID: 419I0302.D			Analyzed: 09/03/19 08:26	
o-Terphenyl	100.00	91.6	50 - 150	6.2	6.203333	-0.0033	N/A	
SHI0028-IBL2 (Solid)				Lab File ID: 419I0303.D			Analyzed: 09/03/19 08:47	
o-Terphenyl	100.00	92.6	50 - 150	6.2	6.203333	-0.0033	N/A	
SHI0028-ICV1 (Solid)				Lab File ID: 419I0304.D			Analyzed: 09/03/19 09:09	
o-Terphenyl	90.000	86.7	85 - 115	6.2	6.203333	-0.0033	N/A	
BHI0023-BLK1 (Water)				Lab File ID: 419I0320.D			Analyzed: 09/03/19 16:12	
o-Terphenyl	0.22500	80.3	50 - 150	6.2	6.203333	-0.0033	N/A	
BHI0023-BS1 (Water)				Lab File ID: 419I0321.D			Analyzed: 09/03/19 16:33	
o-Terphenyl	0.22500	94.8	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-01 (Water)				Lab File ID: 419I0322.D			Analyzed: 09/03/19 16:54	
o-Terphenyl	0.22500	89.1	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-03 (Water)				Lab File ID: 419I0323.D			Analyzed: 09/03/19 17:15	
o-Terphenyl	0.22500	77.8	50 - 150	6.19	6.203333	-0.0133	N/A	
19H0481-10 (Water)				Lab File ID: 419I0324.D			Analyzed: 09/03/19 17:38	
o-Terphenyl	0.22500	63.9	50 - 150	6.19	6.203333	-0.0133	N/A	
19H0481-28 (Water)				Lab File ID: 419I0330.D			Analyzed: 09/03/19 19:46	
o-Terphenyl	0.22500	106	50 - 150	6.2	6.203333	-0.0033	N/A	
BHI0019-BLK1 (Water)				Lab File ID: 419I0333.D			Analyzed: 09/03/19 20:50	
o-Terphenyl	0.22500	96.8	50 - 150	6.2	6.203333	-0.0033	N/A	
BHI0019-BS1 (Water)				Lab File ID: 419I0334.D			Analyzed: 09/03/19 21:11	
o-Terphenyl	0.22500	106	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-02 (Water)				Lab File ID: 419I0335.D			Analyzed: 09/03/19 21:32	
o-Terphenyl	0.22500	96.7	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-04 (Water)				Lab File ID: 419I0336.D			Analyzed: 09/03/19 21:53	
o-Terphenyl	0.22500	104	50 - 150	6.2	6.203333	-0.0033	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0028	Instrument:	FID4
Calibration:	CH00097	Calibration Date:	08/29/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0481-11 (Water)				Lab File ID: 419I0337.D			Analyzed: 09/03/19 22:14	
o-Terphenyl	0.22500	102	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-17 (Water)				Lab File ID: 419I0338.D			Analyzed: 09/03/19 22:36	
o-Terphenyl	0.22500	92.3	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-23 (Water)				Lab File ID: 419I0339.D			Analyzed: 09/03/19 22:57	
o-Terphenyl	0.22500	94.5	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-29 (Water)				Lab File ID: 419I0340.D			Analyzed: 09/03/19 23:18	
o-Terphenyl	0.22500	92.4	50 - 150	6.2	6.203333	-0.0033	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0031	Instrument:	FID4
Calibration:	CH00097	Calibration Date:	08/29/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHI0031-IBL1 (Water)				Lab File ID: 419I0404.D			Analyzed: 09/04/19 09:59	
o-Terphenyl	100.00	95.3	50 - 150	6.19	6.203333	-0.0133	N/A	
SHI0031-IBL2 (Water)				Lab File ID: 419I0405.D			Analyzed: 09/04/19 10:21	
o-Terphenyl	100.00	112	50 - 150	6.2	6.203333	-0.0033	N/A	
SHI0031-ICV1 (Water)				Lab File ID: 419I0406.D			Analyzed: 09/04/19 10:43	
o-Terphenyl	90.000	99.7	85 - 115	6.2	6.203333	-0.0033	N/A	
19H0481-16 (Water)				Lab File ID: 419I0411.D			Analyzed: 09/04/19 12:26	
o-Terphenyl	0.22500	97.2	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-22 (Water)				Lab File ID: 419I0412.D			Analyzed: 09/04/19 12:47	
o-Terphenyl	0.22500	104	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-17RE1 (Water)				Lab File ID: 419I0413.D			Analyzed: 09/04/19 13:10	
o-Terphenyl	0.22500	107	50 - 150	6.19	6.203333	-0.0133	N/A	
BHI0051-BLK1 (Solid)				Lab File ID: 419I0444.D			Analyzed: 09/05/19 00:06	
o-Terphenyl	11.250	87.2	50 - 150	6.19	6.203333	-0.0133	N/A	
BHI0051-BS1 (Solid)				Lab File ID: 419I0445.D			Analyzed: 09/05/19 00:26	
o-Terphenyl	11.250	86.2	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-07 (Solid)				Lab File ID: 419I0446.D			Analyzed: 09/05/19 00:47	
o-Terphenyl	11.606	90.0	50 - 150	6.19	6.203333	-0.0133	N/A	
19H0481-09 (Solid)				Lab File ID: 419I0447.D			Analyzed: 09/05/19 01:08	
o-Terphenyl	15.529	86.8	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-13 (Solid)				Lab File ID: 419I0448.D			Analyzed: 09/05/19 01:28	
o-Terphenyl	12.174	87.8	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-15 (Solid)				Lab File ID: 419I0449.D			Analyzed: 09/05/19 01:49	
o-Terphenyl	15.365	79.5	50 - 150	6.19	6.203333	-0.0133	N/A	
19H0481-19 (Solid)				Lab File ID: 419I0450.D			Analyzed: 09/05/19 02:10	
o-Terphenyl	11.890	78.3	50 - 150	6.21	6.203333	0.0067	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0031	Instrument:	FID4
Calibration:	CH00097	Calibration Date:	08/29/2019

Surrogate Compound	Spike Level mg/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0481-21 (Solid)			Lab File ID: 419I0451.D				Analyzed: 09/05/19 02:30	
o-Terphenyl	16.352	76.3	50 - 150	6.2	6.203333	-0.0033	N/A	
19H0481-25 (Solid)			Lab File ID: 419I0452.D				Analyzed: 09/05/19 02:52	
o-Terphenyl	11.850	74.3	50 - 150	6.19	6.203333	-0.0133	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0053	Instrument:	FID4
Calibration:	CI00021	Calibration Date:	09/06/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHI0053-IBL1 (Water)				Lab File ID: 419I0527.D			Analyzed: 09/05/19 19:00	
o-Terphenyl	100.00	99.7	50 - 150	6.2	6.201667	-0.0017	N/A	
SHI0053-IBL2 (Water)				Lab File ID: 419I0528.D			Analyzed: 09/05/19 19:21	
o-Terphenyl	100.00	102	50 - 150	6.2	6.201667	-0.0017	N/A	
SHI0053-ICV1 (Water)				Lab File ID: 419I0550.D			Analyzed: 09/06/19 03:03	
o-Terphenyl	90.000	100	85 - 115	6.2	6.201667	-0.0017	N/A	
19H0481-19RE1 (Solid)				Lab File ID: 419I0558.D			Analyzed: 09/06/19 05:50	
o-Terphenyl	11.890	99.6	50 - 150	6.18	6.201667	-0.0217	N/A	
19H0481-21RE1 (Solid)				Lab File ID: 419I0559.D			Analyzed: 09/06/19 06:11	
o-Terphenyl	16.352	84.4	50 - 150	6.18	6.201667	-0.0217	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0095	Instrument:	FID3
Calibration:	CI00036	Calibration Date:	09/10/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHI0095-IBL1 (Water)				Lab File ID: 319I1002.D			Analyzed: 09/10/19 10:04	
o-Terphenyl	100.00	105	50 - 150	7.53	7.535	-0.0050	N/A	
SHI0095-IBL2 (Water)				Lab File ID: 319I1003.D			Analyzed: 09/10/19 10:25	
o-Terphenyl	100.00	108	50 - 150	7.53	7.535	-0.0050	N/A	
SHI0095-ICV1 (Water)				Lab File ID: 319I1027.D			Analyzed: 09/10/19 18:58	
o-Terphenyl	90.000	100	85 - 115	7.53	7.535	-0.0050	N/A	
BHI0054-BLK1 (Solid)				Lab File ID: 319I1052.D			Analyzed: 09/11/19 04:09	
o-Terphenyl	11.250	132	50 - 150	7.54	7.535	0.0050	N/A	
BHI0054-BS1 (Solid)				Lab File ID: 319I1053.D			Analyzed: 09/11/19 04:31	
o-Terphenyl	11.250	133	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-06 (Solid)				Lab File ID: 319I1054.D			Analyzed: 09/11/19 04:53	
o-Terphenyl	11.630	116	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-08 (Solid)				Lab File ID: 319I1055.D			Analyzed: 09/11/19 05:15	
o-Terphenyl	15.514	119	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-12 (Solid)				Lab File ID: 319I1056.D			Analyzed: 09/11/19 05:37	
o-Terphenyl	12.162	95.1	50 - 150	7.53	7.535	-0.0050	N/A	
19H0481-14 (Solid)				Lab File ID: 319I1057.D			Analyzed: 09/11/19 05:59	
o-Terphenyl	15.349	116	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-18 (Solid)				Lab File ID: 319I1058.D			Analyzed: 09/11/19 06:21	
o-Terphenyl	11.878	123	50 - 150	7.56	7.535	0.0250	N/A	
19H0481-20 (Solid)				Lab File ID: 319I1059.D			Analyzed: 09/11/19 06:43	
o-Terphenyl	16.336	127	50 - 150	7.58	7.535	0.0450	N/A	
19H0481-24 (Solid)				Lab File ID: 319I1060.D			Analyzed: 09/11/19 07:05	
o-Terphenyl	11.826	121	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-26 (Solid)				Lab File ID: 319I1061.D			Analyzed: 09/11/19 07:28	
o-Terphenyl	15.047	107	50 - 150	7.56	7.535	0.0250	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0095	Instrument:	FID3
Calibration:	CI00036	Calibration Date:	09/10/2019

Surrogate Compound	Spike Level mg/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
19H0481-30 (Solid)				Lab File ID: 319I1062.D			Analyzed: 09/11/19 07:50	
o-Terphenyl	11.847	112	50 - 150	7.54	7.535	0.0050	N/A	
19H0481-32 (Solid)				Lab File ID: 319I1063.D			Analyzed: 09/11/19 08:12	
o-Terphenyl	11.777	106	50 - 150	7.53	7.535	-0.0050	N/A	
19H0481-27RE1 (Solid)				Lab File ID: 319I1066.D			Analyzed: 09/11/19 09:19	
o-Terphenyl	15.047	103	50 - 150	7.52	7.535	-0.0150	N/A	
19H0481-18RE1 (Solid)				Lab File ID: 319I1067.D			Analyzed: 09/11/19 09:42	
o-Terphenyl	11.878	122	50 - 150	7.52	7.535	-0.0150	N/A	
19H0481-20RE1 (Solid)				Lab File ID: 319I1068.D			Analyzed: 09/11/19 10:04	
o-Terphenyl	16.336	105	50 - 150	7.52	7.535	-0.0150	N/A	
19H0481-26RE1 (Solid)				Lab File ID: 319I1069.D			Analyzed: 09/11/19 10:27	
o-Terphenyl	15.047	113	50 - 150	7.52	7.535	-0.0150	N/A	
SHI0095-IBL3 (Water)				Lab File ID: 319I1072.D			Analyzed: 09/11/19 11:34	
o-Terphenyl	100.00	116	50 - 150	7.53	7.535	-0.0050	N/A	
SHI0095-IBL4 (Water)				Lab File ID: 319I1073.D			Analyzed: 09/11/19 11:57	
o-Terphenyl	100.00	117	50 - 150	7.54	7.535	0.0050	N/A	

SURROGATE RECOVERY AND RT SUMMARY

NWTPH-Dx

Laboratory:	Analytical Resources, Inc.	SDG/WO:	19H0481
Client:	Anchor QEA, LLC	Project:	Port of Tacoma - Parcel 40 UST PAD Investigatior
Sequence:	SHI0185	Instrument:	FID4
Calibration:	CI00039	Calibration Date:	09/07/2019

Surrogate Compound	Spike Level mg/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SHI0185-IBL1 (Water)				Lab File ID: 419I0702B.D			Analyzed: 09/07/19 09:12	
o-Terphenyl	100.00	103	50 - 150	6.19	6.191667	-0.0017	N/A	
SHI0185-IBL2 (Water)				Lab File ID: 419I0703B.D			Analyzed: 09/07/19 09:33	
o-Terphenyl	100.00	105	50 - 150	6.19	6.191667	-0.0017	N/A	
SHI0185-ICV1 (Water)				Lab File ID: 419I0727.D			Analyzed: 09/07/19 17:56	
o-Terphenyl	90.000	94.9	85 - 115	6.19	6.191667	-0.0017	N/A	
19H0481-27 (Solid)				Lab File ID: 419I0729.D			Analyzed: 09/07/19 18:37	
o-Terphenyl	15.047	66.6	50 - 150	6.2	6.191667	0.0083	N/A	
19H0481-31 (Solid)				Lab File ID: 419I0730.D			Analyzed: 09/07/19 18:58	
o-Terphenyl	11.823	89.4	50 - 150	6.19	6.191667	-0.0017	N/A	
19H0481-33 (Solid)				Lab File ID: 419I0731.D			Analyzed: 09/07/19 19:18	
o-Terphenyl	11.789	89.4	50 - 150	6.19	6.191667	-0.0017	N/A	
19H0481-35 (Solid)				Lab File ID: 419I0732.D			Analyzed: 09/07/19 19:39	
o-Terphenyl	15.452	73.2	50 - 150	6.19	6.191667	-0.0017	N/A	
19H0481-34 (Solid)				Lab File ID: 419I0741.D			Analyzed: 09/07/19 22:46	
o-Terphenyl	15.499	82.9	50 - 150	6.2	6.191667	0.0083	N/A	

HOLDING TIME SUMMARY

Analysis: NWTPH-Dx

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
P40-UST-01-083019 19H0481-01	08/30/19 09:20	08/30/19 16:25	09/03/19 08:43	3	7	09/03/19 16:54	0	40	
P40-UST-01-083019 19H0481-02	08/30/19 09:20	08/30/19 16:25	09/02/19 13:10	3	7	09/03/19 21:32	1	40	
P40-UST-101-083019 19H0481-03	08/30/19 09:25	08/30/19 16:25	09/03/19 08:43	3	7	09/03/19 17:15	0	40	
P40-UST-101-083019 19H0481-04	08/30/19 09:25	08/30/19 16:25	09/02/19 13:10	3	7	09/03/19 21:53	1	40	
P40-UST-01-4.5'-083019 19H0481-06	08/30/19 08:40	08/30/19 16:25	09/04/19 09:25	5	14	09/11/19 04:53	7	40	
P40-UST-01-4.5'-083019 19H0481-07	08/30/19 08:40	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 00:47	1	40	
P40-UST-01-9'-083019 19H0481-08	08/30/19 08:50	08/30/19 16:25	09/04/19 09:25	5	14	09/11/19 05:15	7	40	
P40-UST-01-9'-083019 19H0481-09	08/30/19 08:50	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 01:08	1	40	
P40-UST-02-083019 19H0481-10	08/30/19 10:00	08/30/19 16:25	09/03/19 08:43	3	7	09/03/19 17:38	0	40	
P40-UST-02-083019 19H0481-11	08/30/19 10:00	08/30/19 16:25	09/02/19 13:10	3	7	09/03/19 22:14	1	40	
P40-UST-02-4.5'-083019 19H0481-12	08/30/19 10:40	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 05:37	7	40	
P40-UST-02-4.5'-083019 19H0481-13	08/30/19 10:40	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 01:28	1	40	
P40-UST-02-9'-083019 19H0481-14	08/30/19 10:50	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 05:59	7	40	
P40-UST-02-9'-083019 19H0481-15	08/30/19 10:50	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 01:49	1	40	
P40-UST-03-083019 19H0481-16	08/30/19 12:10	08/30/19 16:25	09/03/19 08:43	3	7	09/04/19 12:26	1	40	
P40-UST-03-083019 19H0481-17	08/30/19 12:10	08/30/19 16:25	09/02/19 13:10	3	7	09/03/19 22:36	1	40	
P40-UST-03-083019 19H0481-17RE1	08/30/19 12:10	08/30/19 16:25	09/02/19 13:10	3	7	09/04/19 13:10	2	40	
P40-UST-03-4.5'-083019 19H0481-18	08/30/19 11:10	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 06:21	7	40	
P40-UST-03-4.5'-083019 19H0481-18RE1	08/30/19 11:10	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 09:42	7	40	
P40-UST-03-4.5'-083019 19H0481-19	08/30/19 11:10	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 02:10	1	40	
P40-UST-03-4.5'-083019 19H0481-19RE1	08/30/19 11:10	08/30/19 16:25	09/03/19 15:50	4	14	09/06/19 05:50	3	40	
P40-UST-03-8'-083019 19H0481-20	08/30/19 11:15	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 06:43	7	40	

HOLDING TIME SUMMARY

Analysis: NWTPH-Dx

Laboratory: Analytical Resources, Inc. SDG: 19H0481

Client: Anchor QEA, LLC Project: Port of Tacoma - Parcel 40 UST PAD Investigation

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
P40-UST-03-8'-083019 19H0481-20RE1	08/30/19 11:15	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 10:04	7	40	
P40-UST-03-8'-083019 19H0481-21	08/30/19 11:15	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 02:30	1	40	
P40-UST-03-8'-083019 19H0481-21RE1	08/30/19 11:15	08/30/19 16:25	09/03/19 15:50	4	14	09/06/19 06:11	3	40	
P40-UST-04-083019 19H0481-22	08/30/19 12:25	08/30/19 16:25	09/03/19 08:43	3	7	09/04/19 12:47	1	40	
P40-UST-04-083019 19H0481-23	08/30/19 12:25	08/30/19 16:25	09/02/19 13:10	3	7	09/03/19 22:57	1	40	
P40-UST-04-4.5'-083019 19H0481-24	08/30/19 11:30	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 07:05	7	40	
P40-UST-04-4.5'-083019 19H0481-25	08/30/19 11:30	08/30/19 16:25	09/03/19 15:50	4	14	09/05/19 02:52	1	40	
P40-UST-04-14.5'-083019 19H0481-26	08/30/19 11:40	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 07:28	7	40	
P40-UST-04-14.5'-083019 19H0481-26RE1	08/30/19 11:40	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 10:27	7	40	
P40-UST-04-14.5'-083019 19H0481-27	08/30/19 11:40	08/30/19 16:25	09/03/19 15:50	4	14	09/07/19 18:37	4	40	
P40-UST-04-14.5'-083019 19H0481-27RE1	08/30/19 11:40	08/30/19 16:25	09/03/19 15:50	4	14	09/11/19 09:19	8	40	
P40-UST-05-083019 19H0481-28	08/30/19 14:10	08/30/19 16:25	09/03/19 08:43	3	7	09/03/19 19:46	0	40	
P40-UST-05-083019 19H0481-29	08/30/19 14:10	08/30/19 16:25	09/02/19 13:10	2	7	09/03/19 23:18	1	40	
P40-UST-05-4.5'-083019 19H0481-30	08/30/19 13:00	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 07:50	7	40	
P40-UST-05-4.5'-083019 19H0481-31	08/30/19 13:00	08/30/19 16:25	09/03/19 15:50	4	14	09/07/19 18:58	4	40	
P40-UST-505-4.5'-083019 19H0481-32	08/30/19 13:05	08/30/19 16:25	09/04/19 09:25	4	14	09/11/19 08:12	7	40	
P40-UST-505-4.5'-083019 19H0481-33	08/30/19 13:05	08/30/19 16:25	09/03/19 15:50	4	14	09/07/19 19:18	4	40	
P40-UST-05-11'-083019 19H0481-34	08/30/19 13:10	08/30/19 16:25	09/04/19 09:25	4	14	09/07/19 22:46	4	40	
P40-UST-05-11'-083019 19H0481-35	08/30/19 13:10	08/30/19 16:25	09/03/19 15:50	4	14	09/07/19 19:39	4	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Solid
Instrument: FID3

Analyte	MDL	RL	Units
Diesel Range Organics (C12-C24)	2.34	5.00	mg/kg
Motor Oil Range Organics (C24-C38)	2.99	10.0	mg/kg

METHOD DETECTION AND REPORTING LIMITS

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Solid
Instrument: FID4

Analyte	MDL	RL	Units
Diesel Range Organics (C12-C24)	2.34	5.00	mg/kg
Motor Oil Range Organics (C24-C38)	2.99	10.0	mg/kg

METHOD DETECTION AND REPORTING LIMITS

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Water
Instrument: FID3

Analyte	MDL	RL	Units
Diesel Range Organics (C12-C24)	0.033	0.100	mg/L
Motor Oil Range Organics (C24-C38)	0.056	0.200	mg/L

METHOD DETECTION AND REPORTING LIMITS

NWTPH-Dx

Laboratory: Analytical Resources, Inc.
SDG: 19H0481
Client: Anchor QEA, LLC
Project: Port of Tacoma - Parcel 40 UST PAD Inve
Matrix: Water
Instrument: FID4

Analyte	MDL	RL	Units
Diesel Range Organics (C12-C24)	0.033	0.100	mg/L
Motor Oil Range Organics (C24-C38)	0.056	0.200	mg/L

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BHI0022
Date:	9/2/2019 11:54
Analyst:	DM
Drying Oven:	15
Analytical Balance:	B139298002

Batch drying time	
record times as mm/dd/yy hh:mm	
date/time in oven:	9/3/2019 15:30
date/time out:	9/4/2019 7:13
elapsed hrs:	15.7

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
19H0481-06	1.1200	12.7200	12.3300	11.21	**96.64%**	No
19H0481-07	1.1200	12.7200	12.3300	11.21	**96.64%**	No
19H0481-08	1.1100	12.7000	9.4900	8.38	**72.30%**	No
19H0481-09	1.1100	12.7000	9.4900	8.38	**72.30%**	No
19H0481-12	1.1300	12.2000	11.3500	10.22	**92.32%**	No
19H0481-13	1.1300	12.2000	11.3500	10.22	**92.32%**	No
19H0481-14	1.1200	13.0300	9.8400	8.72	**73.22%**	No
19H0481-15	1.1200	13.0300	9.8400	8.72	**73.22%**	No
19H0481-18	1.1100	12.4400	11.8300	10.72	**94.62%**	No
19H0481-19	1.1100	12.4400	11.8300	10.72	**94.62%**	No
19H0481-20	1.1200	12.2500	8.7700	7.65	**68.73%**	No
19H0481-21	1.1200	12.2500	8.7700	7.65	**68.73%**	No
19H0481-24	1.1500	12.0300	11.4800	10.33	**94.94%**	No
19H0481-25	1.1500	12.0300	11.4800	10.33	**94.94%**	No
19H0481-26	1.1100	12.4500	9.5800	8.47	**74.69%**	No
19H0481-27	1.1100	12.4500	9.5800	8.47	**74.69%**	No
19H0481-30	1.1400	12.4600	11.8900	10.75	**94.96%**	No
19H0481-31	1.1400	12.4600	11.8900	10.75	**94.96%**	No
19H0481-32	1.0900	12.8100	12.2300	11.14	**95.05%**	No
19H0481-33	1.0900	12.8100	12.2300	11.14	**95.05%**	No
19H0481-34	1.1100	12.5100	9.3600	8.25	**72.37%**	No
19H0481-35	1.1100	12.5100	9.3600	8.25	**72.37%**	No

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BHI0022
Date:	9/2/2019 11:54
Analyst:	DM
Drying Oven:	Ø15
Analytical Balance:	B139298Ød2

Batch drying time		
record times as mm/dd/yy hh:mm		
date/time in oven:	9-3-19	15,3Ø
date/time out:	9-4-19	07:13
elapsed hrs:	0.0	

TS (%) calculated as:

Final dry wt (g) = (Dry Wt - Tare Wt)

TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
19H0481-06	1.12	12.72	12.33			No
19H0481-07	1.12	12.72	12.33			No
19H0481-08	1.11	12.7Ø	9.49			No
19H0481-09	1.11	12.7Ø	9.49			No
19H0481-12	1.13	12.2Ø	11.35			No
19H0481-13	1.13	12.2Ø	11.35			No
19H0481-14	1.12	13.Ø3	9.84			No
19H0481-15	1.12	13.Ø3	9.84			No
19H0481-18	1.11	12.44	11.83			No
19H0481-19	1.11	12.44	11.83			No
19H0481-20	1.12	12.25	8.77			No
19H0481-21	1.12	12.25	8.77			No
19H0481-24	1.15	12.Ø3	11.48			No
19H0481-25	1.15	12.Ø3	11.48			No
19H0481-26	1.11	12.45	9.58			No
19H0481-27	1.11	12.45	9.58			No
19H0481-30	1.14	12.46	11.89			No
19H0481-31	1.14	12.46	11.89			No
19H0481-32	1.Ø9	12.81	12.23			No
19H0481-33	1.Ø9	12.81	12.23			No
19H0481-34	1.11	12.51	9.36			No
19H0481-35	1.11	12.51	9.36			No

Appendix E
Data Validation Report

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ANCHOR QEA

Data Validation Report – EPA Stage 2A

October 28, 2019

Project: Port of Tacoma Parcel 40 Groundwater Monitoring

Project Number: 170092-01.19

This report summarizes the review of analytical results for 5 water samples, 10 soil samples, 2 field duplicate sample, and one trip blank sample collected on August 30, 2019. The samples were collected by Anchor QEA, LLC and submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington. The following analytical parameter results were reviewed in this report:

- Diesel range organics (DRO) and oil range organics (ORO) by Northwest Total Petroleum Hydrocarbons – Diesel Range Extended (NWTPH-Dx) with and without silica gel extraction clean-ups
- Gasoline range organics (GRO) by Northwest Total Petroleum Hydrocarbons – Gasoline Extended (NWTPH-Gx)
- Volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (USEPA) method 8260C

ARI sample data group (SDG) number 19H0481 was reviewed in this report. Sample IDs, matrices, and analyses are presented in Table 1.

Table 1
Sample IDs, Matrices, Analyses, and SDGs

Sample ID	Lab Sample IDs	Matrix	Analyses
P40-UST-01-083019	19H0481-01	Water	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-02		NWTPHDx
P40-UST-101-083019	19H0481-03	Water	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-04		NWTPH-Dx
P40-UST-TB-083019	19H0481-05	Water	NWTPH-Gx, VOCs
P40-UST-01-4.5-083019	19H0481-06	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-07		NWTPHDx
P40-UST-01-9-083019	19H0481-08	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-09		NWTPHDx
P40-UST-02-083019	19H0481-10	Water	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-11		NWTPHDx
P40-UST-02-4.5-083019	19H0481-12	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-13		NWTPHDx
P40-UST-02-9-083019	19H0481-14	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-15		NWTPHDx
P40-UST-03-083019	19H0481-16	Water	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-17		NWTPHDx
P40-UST-03-4.5-083019	19H0481-18	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-19		NWTPHDx
P40-UST-03-8-083019	19H0481-20	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-21		NWTPHDx
P40-UST-04-083019	19H0481-22	Water	NWTPH-Dx, NWTPH-Gx, VOCs

Sample ID	Lab Sample IDs	Matrix	Analyses
	19H0481-23		NWTPHDx
P40-UST-04-4.5-083019	19H0481-24	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-25		NWTPHDx
P40-UST-04-14.5-083019	19H0481-26	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-27		NWTPHDx
P40-UST-05-083019	19H0481-28	Water	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-29		NWTPHDx
P40-UST-05-4.5-083019	19H0481-30	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-31		NWTPHDx
P40-UST-505-4.5-083019	19H0481-32	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-33		NWTPHDx
P40-UST-05-11-083019	19H0481-34	Soil	NWTPH-Dx, NWTPH-Gx, VOCs
	19H0481-35		NWTPHDx

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the analytical procedures. Laboratory results were reviewed using the laboratory control limits and the following guidelines:

- USEPA 1986 (SW-846, Third Edition), Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
- USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2016a)

Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by ARI at the time of sample receipt. Samples were received in good condition and within the recommended temperature range.

Holding Times and Sample Preservation and Analytical Methods

All samples were appropriately preserved and analyzed within method recommended holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes.

Field Quality Control

Trip Blanks

One trip blank sample was collected in association with these sample sets and all results were reported as non-detect.

Field Duplicates

Two field duplicate samples were collected in association with these sample sets. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	P40-UST-01-083019	P40-UST-101-083019	RPD	Difference	Control Limit
Benzene	0.2U µg/L	0.04J ug/L	--	0.16 µg/L	0.20 µg/L
Ethylbenzene	0.08J µg/L	0.09J ug/L	--	0.01 µg/L	0.20 µg/L
m,p-Xylene	0.34J µg/L	0.39J ug/L	--	0.05 µg/L	0.40 µg/L
o-Xylene	0.19J µg/L	0.19J ug/L	--	0 µg/L	0.20 µg/L
Toluene	0.28 µg/L	0.28 ug/L	--	0 µg/L	0.20 µg/L
DRO	3.32 mg/L	3.49 mg/L	5.0%	--	--
ORO	0.643 mg/L	0.755 mg/L	--	0.112 mg/L	0.200 mg/L

Notes:
µg/L: microgram per liter
mg/L: milligram per liter

Result values less than five times the reporting limit (RL) may have exaggerated relative percent difference (RPD) values; therefore, if the sample or field duplicate result was less than five times the RL, the sample result was evaluated by the difference between. The water control limit used is the RL and the soil control limit used is two times the RL. All RPD and/or difference values were within control limits, so no data were qualified.

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits.

Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSDs) were analyzed at the required frequencies. All LCS and LCSD recovery values were within laboratory control limits.

Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike (MS) samples and matrix spike duplicate (MSD) samples were analyzed at the required frequencies, or LCS and LCSDs were analyzed in place of MS and MSD samples. All recovery values were within laboratory control limits.

Laboratory Duplicates

Laboratory duplicates were not analyzed in association with these sample sets.

Method Reporting Limits

RLs were acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted or when diluted, the reporting limit reflects the dilution factor.

Sample Analysis

Three samples were submitted for NWTPH-Gx in methanol preserved vials that were not pre-weighed, which the laboratory requires to calculate final results. The laboratory internally sampled 5g aliquots for each sample and preserved in pre-weighed vials for analysis. Aliquots were taken from totals solids jars which contained headspace, so all results for these samples qualified "UJ" to indicate they are estimated.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the surrogate, LCS, LCSD, MS, and MSD recovery values. Precision was acceptable as demonstrated by the LCS/LCSD, MS/MSD, and field duplicate RPD values or difference values. All data are acceptable as reported or qualified. Table 3 summarizes the qualifiers applied to the sample results reviewed in this report.

Data Qualifier Definitions

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated.

Table 3
Data Qualification Summary

Sample ID	Analyte	Reported Result	Qualified Result	Reason
P40-UST-01-4.5-083019	GRO	5160U µg/kg	5160UJ µg/kg	GRO volume collected from container with headspace
P40-UST-01-9-083019	GRO	8820U µg/kg	8820UJ µg/kg	GRO volume collected from container with headspace
P40-UST-02-4.5-083019	GRO	5620U µg/kg	5620UJ µg/kg	GRO volume collected from container with headspace

Notes:
µg/kg: microgram per kilogram

References

USEPA. 1986. Test methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-530/SW-846.

USEPA. 2016a. National Functional Guidelines for Superfund Organic Methods Data Review. Office of Superfund Remediation and Technology Innovation. United States Environmental Protection Agency. EPA-540-R-2016-002. September 2016.