LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 25

2022

Bate Stamp Numbers
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LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX

VOLUME 25

2022

A. Title: Minutes – Final Monthly Managers' Meeting, Longhorn Army Ammunition Plant, April 20, 2022
Author(s): Department of the Army
Recipient: All Parties
Date: July 6, 2022
Bate Stamp: 01118243 – 01118269

B. Title: Report – Draft Final Technical Memorandum, Proposed Revisions to LHAAP-04 and LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs, Longhorn Army Ammunition Plant, Karnack Texas, July 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: July 18, 2022
Bate Stamp: 01118270 – 01118395

C. Title: Tech Memo – Preliminary (30%) Remedial Design for LHAAP-29, Former TNT Production Area, Group 2, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: July 20, 2022
Bate Stamp: 01118396 – 01118430

D. Title: Report – Eighth Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: July 21, 2022
Bate Stamp: 01118431 – 01119526

E. Title: Minutes – Final Monthly Managers' Meeting, Longhorn Army Ammunition Plant, June 22, 2022
Author(s): Department of the Army
Recipient: All Parties
Date: July 26, 2022
Bate Stamp: 01119527 – 01119540

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2022

F.	Title:	Report – Draft Final 2021 Remedial Action Operation Report, Landfill 12 (LHAAP-12), Longhorn Army Ammunition Plant, Karnack, Texas
	Author(s):	Department of the Army
	Recipient:	U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
	Date:	August 2, 2022
	Bate Stamp:	01119541 – 01119645

Subject: **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting: **WebEx Conference Call**
Date of Meeting: **20 April 2022 – 11:00 AM Central Daylight Time (CDT)**

Attendees:
Army BRAC: Rose M. Zeiler (RMZ)
USEPA: Brian Follin (BF)
TCEQ: April Palmie (AP)
USACE: Aaron Williams (AW)
Bhate: Kim Nemmers (KN) and Zack Beck (ZB)
APTIM: William Foss (WF) and Praveen Srivastav (PS)
TLI: Jonathan Tatman (JT)
HDR: Phil Werner (PW)

Defense Environmental Restoration Program (DERP) Performance-Based Remediation Update

Groundwater Treatment Plant (GWTP) – KN stated that the pH probe was finally delivered in April 2022 and was installed and operating. The pH probe controls the pH before the groundwater goes to fluidized bed reactor (FBR). Ideally, the pH should be 7.1 – 7.4. In general, the pH in the FBR has been about 7.6 to 7.8, which we were told by Envirogen was adequate. However, with the new pH probe installed the pH has remained steady at about 7.2 – 7.4, which is within the target range for pH. KN stated the FBR is not treating the perchlorate to non-detect like we have historically seen. Therefore, we have been working with Envirogen to troubleshoot the FBR to explain the perchlorate detections. KN said that based on Envirogen's review of the FBR data and monitoring parameters there is nothing obvious that is causing an issue with the FBR. KN said that as of April 13, 2022, perchlorate detections are at about the 200 parts per billion (ppb). KN said that the increase in perchlorate is in part due to water coming in from the LHAAP Site 17. KN said that the influent concentrations of perchlorate are about 13,000 ppb versus our previously observed influent concentrations of 9,000 ppb. KN said that we are working to get additional granulated activated carbon (GAC), which can enhance the FBR treatment, although no GAC is currently available. Otherwise, the pH and oxidation-reduction potential are in range and there is no additional biomass being observed, which would indicate a problem. KN said that temperature is another factor that can affect the FBR performance. In January and February 2022 cold temperatures may have adversely affected the FBR; however, the temperatures are getting warmer and more consistent. KN said that in the interim, the treated groundwater continues to go through the ion exchange vessels before discharge to Harrison Bayou.

Field Work – WF stated that the Year 2 Quarter 4 LHAAP-50 groundwater sampling was completed in April 2022. WF stated that no field work is currently going on.

KN asked everyone to refer to the Document and Issues (DI) Tracking Table dated 20 April 2022.

- **Task 1** (Project Management) – KN said that the March 2022 MMM minutes were issued to the regulators on 18 April 2022. AP and BF confirmed receipt of the March 2022 MMM minutes. KN said that the next RAB meeting is scheduled for 22 June 2022.
- **Task 4** (LHAAP-04) –PS stated that the Year 3 Semiannual 1, Remedial Action – Operation (RA-O) groundwater sampling event was completed in February 2022. The validated data for the February 2022 event is provided in this month's validated data package. WF presented a summary of the analytical results. WF said that is data represents the 8th quarter of clean analytical results. WF said that there are four monitoring wells that had low

estimated detections of perchlorate less than 1 microgram per liter (µg/L), but all four are well below the perchlorate protective concentration level (PCL) of 17 µg/L. All other perchlorate results were non-detect. WF said that aerobic conditions are still being observed, with a few low dissolved oxygen values, but all are coming back towards normal oxidative conditions. WF said that recommendations will be made in the upcoming report to reduce sampling accordingly. WF presented the proposed Year 3 RA-O sampling monitoring well network and parameters (see validated data package). RMZ asked if total organic carbon (TOC) concentrations have decreased below 20 milligrams per liter (mg/L). WF confirmed that the TOC concentrations were all below 20 mg/L in the wells monitored. RMZ said that this is a key point. PS stated that the LHAAP-04 Year 2 Annual RA-O Report is in preparation with a tentative delivery date in May 2022.

- **Task 5** (LHAAP-12) – PS said that the 2021 Annual RA-O Report is under preparation with a tentative delivery date to the regulators in late April 2022 or May 2022.
- **Task 6** (LHAAP-16) – PS stated that the Year 3 Semiannual 1 groundwater sampling event is scheduled for July 2022. The validated data for the July 2022 event will be included in the September 2022 MMM. PS noted that a change to the monitoring well network will be recommended. WF said that details of the recommended changes are under Army review; however, the Remedial Action Work Plan and Remedial Action Completion Report did not include a monitoring schedule beyond Year 2. Therefore, a recommended list of wells for Year 3 Semiannual 1 groundwater sampling event is necessary to evaluate performance of the remedy, as well as to evaluate the monitored natural attenuation of the broader plume. PS stated that the Draft Final Year 1 RA-O Report was issued as Final on 19 April 2022. PS stated that the Year 2 RA-O Report is in progress with a tentative delivery date in June 2022.
- **Task 9** (LHAAP-37) – PS said that the Year 4 RA-O Report has gone Final with approvals of the Draft Final received from Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) in February 2022. PS said that the Year 5 Second Semi-Annual sampling will be performed in May 2022 with the validated data to be presented at the July 2022 MMM.
- **Task 10** (LHAAP-46) – PS said that the Year 7 RA-O Report has gone Final with approvals of the Draft Final received from TCEQ and USEPA in February 2022. PS said that the Year 8 Annual RA-O groundwater sampling was completed in February 2022 and the validated data will be presented at the May 2022 MMM.
- **Task 11** (LHAAP-50) **–** PS stated the Year 2 Quarter 4 sampling was completed in April 2022. The validated data for the April 2022 event will be presented in the June 2022 MMM. PS said that the Draft Final Year 7 RA-O Report has gone Final with no comments received on the Draft Final document.
- **Task 12** (LHAAP-58) – KN stated that the next sampling semiannual event for LHAAP-58 is scheduled for June 2022. The validated data for the June 2022 semiannual sampling event will be included in the August 2022 MMM. KN said that the LHAAP-58 Year 8 RA-O Report will follow.
- **Task 13** (LHAAP-67) – PS stated that the Year 8 Annual RA-O Report is in progress and is expected to be ready for regulatory review in May 2022.
- **Task 16** (GWTP) **–** KN said that the 3rd Quarter 2021 GWTP Report comments were received from the regulators in February 2022 and that the 4th Quarter 2021 GWTP Report will incorporate the comments received. The 4th Quarter 2021 GWTP Report is under review and is expected to be ready for regulatory review in May 2022. The 1st Quarter 2022 GWTP Report is under preparation as well.

- **Task 17** (LHAAP-18/24) – KN said that the 4th Quarter 2021 GWTP Report will include the analytical data from semi-annual groundwater sampling completed in December 2021.
- **Task 18** (Surface Water) – KN said that due to limited rainfall surface water sampling was not completed until the end of the 1st Quarter 2022 in March; however, the March 2022 surface water data is included in the validated data package. KN said that the 2nd Quarter 2022 surface water samples were collected in April 2022.
- **Task 19:** (2021 Land Use Control Management Plan) – No discussion.
- **Administrative Record (AR) –** PS said that the July – September 2021 AR documents have been compiled and printed including the 3rd Quarter 2021 GWTP Report. PS said that shipment of the July – September 2021 AR documents should happen in April 2022. PS said that compiling of the October – December 2021 AR is ongoing, and a list of the January – March 2022 AR documents is being prepared.

Update on other DERP Sites:

- **LHAAP 18/24 –** PW stated that the 30-percent (Conceptual Design) LHAAP-18/24 Remedial Design is in development and on track for regulatory submittal in April 2022.
- **LHAAP-29** – PW said that the additional LHAAP-29 Pre-Design Investigation (PDI) Field Work was completed on 25 March 2022. PW said that the laboratory data is still pending. PW said that the Draft PDI Report is on schedule for submittal in June 2022.
- **LHAAP-47** – PW said that the Revised Draft Final Record of Decision was submitted to the Regulators on 2 March 2022. PW stated that all the TCEQ comments have been received. PW stated that EPA has requested a 30-day extension.
- **LHAAP-17** – JT said that the intrusive operations were completed in April 2022 including 401 targets of interest that were dug and investigated. Two of the items were confirmed as Munitions and Explosives of Concern (MEC), including one fuse and one signal flare, which were considered low risk. JT said that site restoration will continue along with installation of the groundwater extraction system. ZB said that a baseline groundwater sampling event was completed in April 2022. ZB said that installation of the extraction system infrastructure has begun. ZB said that once the system is in place and operating, groundwater sampling will occur monthly for the first six months, and then quarterly for the next year. ZB said that weekly operations and maintenance inspections will be completed on the groundwater extraction system once it is operable. AP asked about the baseline results and whether they have impacted the design of the extraction system including the number of extraction wells. ZB said that at a minimum extraction pumps are to be installed at wells 17WW02 and 17WW06. The baseline analytical results do not indicate a need for an additional extraction well. However, the sample at 17WW01 was not collected in accordance with the Unified Federal Policy-Quality Assurance Project Plan. ZB said that another sample at 17WW01 is planned for 21 April 2022, during which the pump inlet will be placed at a deeper depth of 28 feet below the top of well casing. ZB explained that the 17WW01 resample will confirm the results of the initial sample and whether a third extraction pump is necessary. ZB said that the results of the LHAAP-17 baseline groundwater sampling event should be available for the May 2022 MMM. KN said that the LHAAP-17 extraction system and tank will be integrated with the groundwater treatment plant via a programmable logic controller (PLC) system. KN said that this allows the system to be largely automated. AP asked for clarification that groundwater discharge will be to the GWTP. KN confirmed that the extracted groundwater from LHAAP-17 will be discharged to the double walled pipe that runs to the GWTP. RMZ asked when we anticipate the extraction system will be online and operable. KN said that the extraction system should be fully operational in June 2022. KN said that in addition to having

Palmetto install the extraction system infrastructure, Ark-La-Tex Electric needs to install overhead power to the site, and an electrician will install wiring and set up the PLC. KN added that with the upcoming changes to sampling at LHAAP-04, LHAAP-16, and LHAAP-17 an update to the sampling plan will need to be presented sometime in June 2022. AW said that sounds good. **Action Item:** Prepare an update to the 2022 sampling plan.

Transfer Update: RMZ stated that the Army is on track to complete transfer by the end of the fiscal year.

Schedule Next Managers' Meeting: The next MMM will be held on Wednesday, 18 May 2022 at 10:00 am CDT via a WebEx. The next RAB will be held on 22 June 2022, at the Karnack Community Center. AP said that she will not be attending the RAB in person, but will call in. KN said that a call-in conference call number would be provided.

Meeting concluded at approximately 11:46 am CDT.

ACRONYM LIST

AP	April Palmie
APTIM	APTIM Federal Services, LLC
AR	Administrative Record
AW	Aaron Williams
BF	Brian Follin
Bhate	Bhate Environmental Associates, Inc.
BRAC	Base Realignment and Closure
CDT	Central Daylight Time
DERP	Defense Environmental Restoration Program
DI	Documents and Issues
FBR	Fluidized Bed Reactor
GAC	Granulated Activated Carbon
GWTP	Groundwater Treatment Plant
HDR	HDR, Inc.
KN	Kim Nemmers
LHAAP	Longhorn Army Ammunition Plant
MEC	Munitions and Explosives of Concern
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MMM	Monthly Managers' Meeting
PCL	Protective Concentration Levels
PLC	Programmable Logic Controller
ppb	parts per billion
PS	Praveen Srivastav
JT	Jonathan Tatman
PW	Phil Werner
RAB	Restoration Advisory Board
RA-O	Remedial Action – Operation
RMZ	Rose M. Zeiler
TCEQ	Texas Commission on Environmental Quality
TLI	TLI Solutions
TOC	Total Organic Carbon
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
WF	William (Bill) Foss
ZB	Zack Beck

LHAAP Validated Data Packages for
April 2022 Monthly Manager's Meeting

LHAAP-04	*Remedial Performance Monitoring (Year 3, Semiannual #1) - February 2022* Perchlorate (EPA 6850) Total Organic Carbon (SM5310B) Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, Ferrous Iron, and pH)
GWTP Effluent	*Weekly Perchlorate Sampling – February/March 2022* Perchlorate (6850)
GWTP Effluent	*Bi-Weekly Sampling - February/March 2022* Volatile Organic Compounds (8260C) Anions (9056A)
GWTP Effluent	*Weekly Sampling – February/March 2022* Ammonia (350.3) Ortho-Phosphate (365.3) Total Organic Carbon (415.1)
GWTP Effluent	*Monthly Sampling - February/March 2022* Volatile Organic Compounds (8260C) Metals (6020A) Hexavalent Chromium (7196A) 1,4-Dioxane (8270D-SIM) Perchlorate (6850)
GWTP Influent	*Monthly Sampling – February/March 2022* Metals (6020A) Perchlorate (6850) Hexavalent Chromium (7196A)
GWTP Quarterly	*Influent and Effluent – February 2022* Oil and Grease (1664A) Perchlorate (6850) Metals (6020A) 1,4-Dioxane (8270D-SIM) Chemical Oxygen Demand (410.4) VOC (8260C) Anions (9056)
LHAAP Surface Water	*Quarterly Perchlorate Sampling - March 2022* Perchlorate (6850)

LHAAP-04 Remedial Performance Monitoring
Year 3 Semiannual Event #1
(February 2022)

		Location Code	04WW01		04WW02		04WW04		04WW05		04WW06	
		Sample ID	04WW01-220201		04WW02-220201		04WW04-220201		04WW05-220202		04WW06-220201	
		Sample Date	2/1/2022		2/1/2022		2/1/2022		2/2/2022		2/1/2022	
		Location Description:	Shallow Zone, Downgradient of Former Plume Area		Shallow Zone, Upgradient of Former Plume Area		Shallow Zone, Within Former Plume Area		Shallow Zone, Within Treatment Area		Shallow Zone, Cross-Gradient to Former Plume Area	
Analyte	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Measurements												
Dissolved oxygen	mg/L	NV	0.65		0.66		0.49		0.76		1.74	
Ferrous Iron	mg/L	NV	NM		NM		NM		3.02		NM	
Oxidation Reduction Potential	mV	NV	52		118		151		127		98	
pH	Std. Units	NV	6.34		5.36		4.87		5.85		5.91	
General Chemistry (SM5310B)												
Total organic carbon	mg/L	NV	NA		NA		NA		4.61		NA	
Perchlorate (EPA 6850)												
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	0.055	J	0.28		< 0.2	U

Notes:

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

< - The analyte was not detected above the concentration shown

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level

ID - identification

FD - field duplicate

mV - millivolts

Std. Units - standard pH units

mg/L - milligrams per liter

µg/L - micrograms per liter

NV - No value, PCL values are only shown for constituents of concern

Val Qual - validation qualfier

NM - not measured

NA - not analyzed

LHAAP-04 Remedial Performance Monitoring
Year 3 Semiannual Event #1
(February 2022)

		Location Code	04WW07				04WW08		04WW09		04WW10		04WW11	
		Sample ID	04WW07-220202		04WW07-220202-FD		04WW08-220201		04WW09-220202		04WW10-220202		04WW11-220201	
		Sample Date	2/2/2022		2/2/2022		2/1/2022		2/2/2022		2/2/2022		2/1/2022	
		Location Description:	Shallow Zone, Downgradient of Former Plume Area				Intermediate Zone, Slightly Upgradient of Former Plume Area		Shallow Zone, Within Treatment Area		Shallow Zone, Within Treatment Area		Shallow Zone, Downgradient of Former Plume Area	
Analyte	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Measurements														
Dissolved oxygen	mg/L	NV	0.67		0.67		0.73		0.43		0.63		0.63	
Ferrous Iron	mg/L	NV	0.83		0.83		NM		2.77		0.14		NM	
Oxidation Reduction Potential	mV	NV	150		150		60		23		68		158	
pH	Std. Units	NV	6.11		6.11		5.99		6		5.8		5.42	
General Chemistry (SM5310B)														
Total organic carbon	mg/L	NV	10		12.6		NA		16.3		5.63		NA	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 1	U	< 1	U	< 0.2	U	< 0.2	U

Notes:

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FD - field duplicate

mV - millivolts

Std. Units - standard pH units

mg/L - milligrams per liter

µg/L - micrograms per liter

NV - No value, PCL values are only shown for constituents of concern

Val Qual - validation qualfier

NM - not measured

NA - not analyzed

LHAAP-04 Remedial Performance Monitoring
Year 3 Semiannual Event #1
(February 2022)

		Location Code	LHSMW01		LHSMW02			
		Sample ID	LHSMW01-220201		LHSMW02-220201		LHSMW02-220201-FD	
		Sample Date	2/1/2022		2/1/2022		2/1/2022	
		Location Description:	Shallow Zone, Cross-Gradient to Former Plume Area		Shallow Zone, Downgradient to Former Plume Area			
Analyte	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Measurements								
Dissolved oxygen	mg/L	NV	0.65		0.85		0.85	
Ferrous Iron	mg/L	NV	NM		NM		NM	
Oxidation Reduction Potential	mV	NV	263		124		124	
pH	Std. Units	NV	4.89		5.75		5.75	
General Chemistry (SM5310B)								
Total organic carbon	mg/L	NV	NA		NA		NA	
Perchlorate (EPA 6850)								
Perchlorate	µg/L	17	0.078	J	< 0.2	U	< 0.2	U

Notes:

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

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< - The analyte was not detected above the concentration shown

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level

ID - identification

FD - field duplicate

mV - millivolts

Std. Units - standard pH units

mg/L - milligrams per liter

µg/L - micrograms per liter

NV - No value, PCL values are only shown for constituents of concern

Val Qual - validation qualfier

NM - not measured

NA - not analyzed

LHAAP-04

Proposed Year 3 Remedial Action Operation Monitoring

Monitoring Location	Primary Rationale for Well Selection	LTM – Years 3 and Beyond				
		Perchlorate (EPA 6850)	Dissolved Oxygen (field reading)	Oxidation-Reduction Potential (field reading)	pH (field reading)	~~Total Organic Carbon (SW9060)~~
04WW05	Performance data within the treatment zone	✓	✓	✓	✓	~~0~~
04WW07	Performance data within the treatment zone	✓	✓	✓	✓	~~0~~
04WW09	Performance data within the treatment zone	✓	✓	✓	✓	~~0~~
04WW10	Performance data within the treatment zone	✓	✓	✓	✓	~~0~~
04WW01	Downgradient well for measuring plume stability	✓	✓	✓	✓	
04WW04	Upgradient well for measuring plume stability	✓	✓	✓	✓	
04WW06	Upgradient well for measuring plume stability	~~0~~	~~0~~	~~0~~	~~0~~	
04WW11	Downgradient well for measuring plume stability	✓	✓	✓	✓	
LHSMW01	Crossgradient well for measuring plume stability	~~0~~	~~0~~	~~0~~	~~0~~	
LHSMW02	Crossgradient well	~~0~~	~~0~~	~~0~~	~~0~~	
04WW08	Intermediate Zone well	~~0~~	~~0~~	~~0~~	~~0~~	
04WW02	Upgradient well	~~0~~	~~0~~	~~0~~	~~0~~	

Notes:

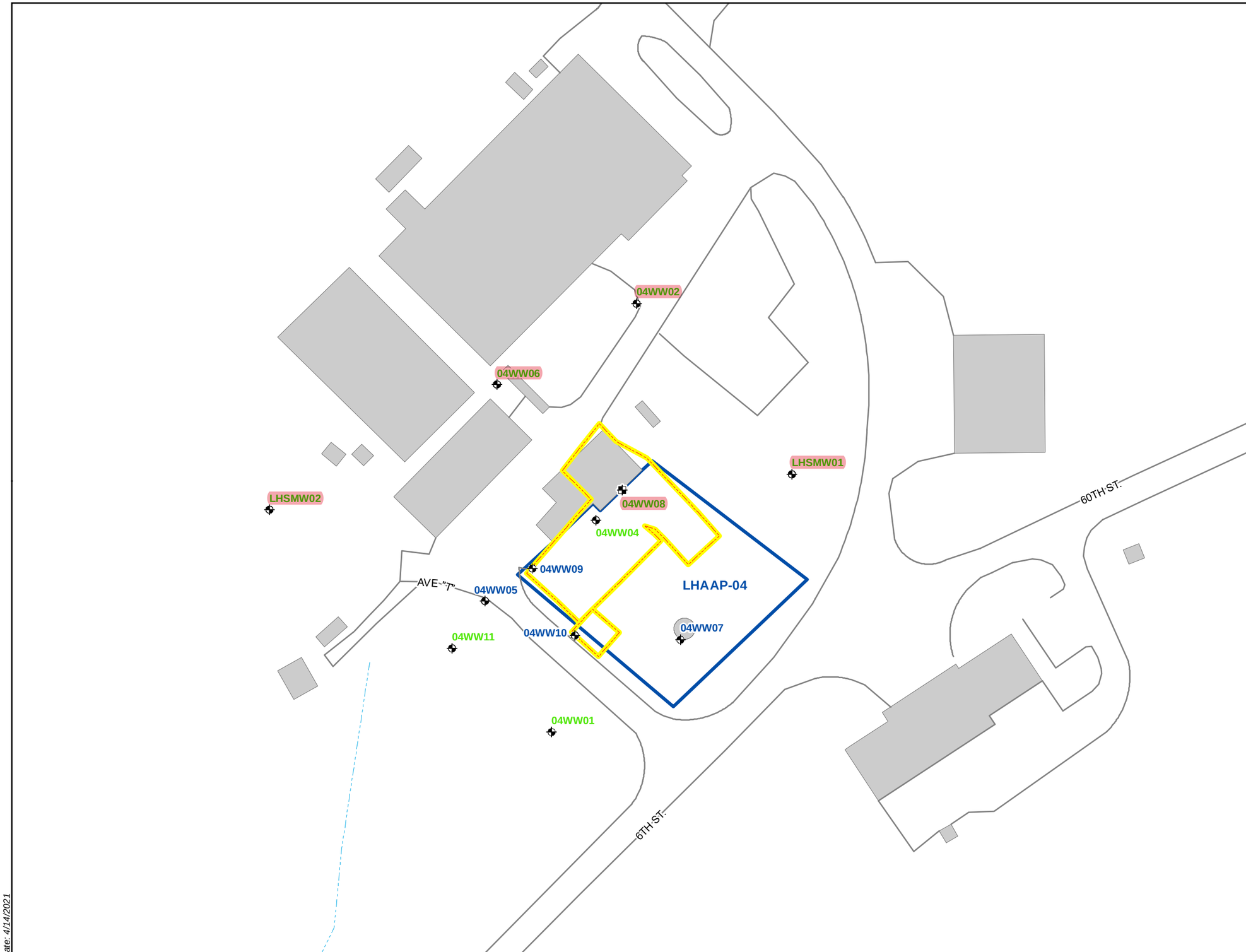
[a] Anions include nitrate, nitrites, and sulfate.

✓ Indicates that sample will be collected and analyzed for the listed analyte.

LTM - Long-term monitoring.

MNA - Monitored natural attenuation.

~~0~~ - Paramter will not be measured/monitored



Shallow Monitoring Well

Intermediate Monitoring Well

Limits of Excavation at Surface (*Source: LHAAP-04 Final Completion Report, Shaw, 2011*)

Stream

Road

Building

Site Boundary

04WW02 Well locations to be removed from the monitoring network

Notes:
1. **Blue** = Monitoring well will be analyzed for perchlorate and MNA parameters as defined on Table 2-1.
Green = Monitoring well will only be analyzed for perchlorate.
2. LHAAP = Longhorn Army Ammunition Plant
3. RA-O = Remedial Action Operations

N

0 35 70 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Proposed LTM Monitoring Network
LHAAP-04

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/14/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_RAO Monitoring LocationMap.mxd

GWTP Weekly Sampling - February 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	LH18/24-SP650_020222 2/2/22	LH18/24-SP650_021022 2/10/22	LH18/24-SP650_021522 2/15/22	LH18/24-SP650_022222 2/22/22
Location Description			**GWTP–Collected from a spigot on the discharge of effluent TK-650. Sampled Weekly.**			
Ammonia as N (350.3)						
Ammonia as N	mg/L	NV	**25**	**28**	**11**	**13**
Ortho-Phosphate (365.3)						
Ortho-Phosphate	mg/L	NV	**0.967 J**	**8.38**	**9.20**	**21.5 J**
Organic Carbon (415.1)						
Total Organic Carbon (TOC)	mg/L	NV	**22.6**	**10.5**	**22.9**	**36.1**

mg/L - milligrams per liter

NV - No Value

GWTP Weekly/Effluent Perchlorate Sampling - February 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	PCL	LH18/24-SP650_020222_AIX 2/2/22	LH18/24-SP650_020222_AIX 2/2/22	LH18/24-SP650_021022_AIX 2/10/22	LH18/24-SP650_021522_AIX 2/15/22	LH18/24-SP650_021522_AIX 2/15/22	LH18/24-SP650_022222_AIX 2/22/22
Location Description									
				Weekly	Monthly Eff	Weekly	Weekly	Quarterly Eff	Weekly
Perchlorate (6850)									
Perchlorate	µg/L	589	17	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	**0.626**

µg/L - micrograms per liter

BIX - before ion exchange/AIX - after ion exchange

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

GWTP Bi-Weekly Sampling - February 2022

Location ID: Sample Date:	Units	(Bayou) Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_021022 2/10/22	LH18/24-SP650_022222 2/22/22
Location Description				**GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled Biweekly.**	
Volatile Organic Compounds (8260C)					
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U	< 2.0 UJ
Benzene	µg/L	181	5	< 0.50 U	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene	µg/L	NV	70	**1.4**	**1.00 J**
Ethylbenzene	µg/L	57,025	700	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 1.0 U	< 1.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U	< 0.50 U
Anions (9056)					
Chloride	mg/L	NV	NV	**916**	**863**
Sulfate	mg/L	NV	NV	**43.1**	**28.9**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - No Value

J - estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

UJ - estimated non-detect due to a quality control discrepancy

GWTP Monthly Effluent Sampling - February 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_020222 2/2/22
Location Description				GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled monthly
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-dichloroethene	µg/L	NV	70	**1.6**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 2.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Metals (6020A)				
Barium	mg/L	2	2	**0.838**
Lead	mg/L	0.0046	0.015	< 0.00100 U
Selenium	mg/L	0.012	0.05	< 0.00250 U
Silver	mg/L	0.003	0.1	< 0.000500 U
Hexavalent Chromium (7196A)				
Hexavalent Chromium	mg/L	0.1244	NV	< 0.0100 UJ
Semi-Volatile Organic Compounds (8270D SIM)				
1,4-Dioxane	µg/L	134.2	NV	**8**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - no value

UJ - estimated non-detect due to a quality control discrepancy

GWTP Monthly Influent Sampling - February 2022

Location ID: Sample Date:	Units	LH18/24-SP140_020222 2/2/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Monthly.**
Metals (6020A)		
Selenium	mg/L	< 0.00250 U
Silver	mg/L	< 0.000500 U
Hexavalent Chromium (7196A)		
Hexavalent Chromium	mg/L	< 0.0100 UJ
Perchlorate (6850)		
Perchlorate	µg/L	**18,900**

mg/L - milligrams per liter

µg/L - micrograms per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

UJ - estimated non-detect due to quality control deficiencies

GWTP Quarterly Effluent Sampling - February 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_021522 2/15/22
Location Description				GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled quarterly
Oil and Grease (1664A)				
Oil & Grease	mg/L	15	NV	< 1.00 U
Chemical Oxygen Demand (410.4)				
Chemical Oxygen Demand	mg/L	200	NV	**61.0**
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-dichloroethene	mg/L	NV	70	**0.61 J**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 2.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Metals (6020A)				
Aluminum	mg/L	1.644	NV	0.0254 UB
Antimony	mg/L	NV	0.006	< 0.00100 U
Arsenic	mg/L	0.722	0.01	**0.000415 J**
Barium	mg/L	2	2	**1.05**
Beryllium	mg/L	NV	0.004	< 0.000500 U
Cadmium	mg/L	0.0034	0.005	< 0.000500 U
Calcium	mg/L	NV	NV	**66.5**
Chromium	mg/L	0.752	0.1	**0.00206 J**
Cobalt	mg/L	11.495	NV	**0.000898 J**
Iron	mg/L	2.395	NV	**0.159 J**
Lead	mg/L	0.0046	0.015	< 0.00100 U
Magnesium	mg/L	NV	NV	**17.7**
Manganese	mg/L	15.494	NV	**0.165**

GWTP Quarterly Effluent Sampling - February 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_021522 2/15/22
Location Description				**GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled quarterly**
Nickel	mg/L	0.184	NV	0.00254 UB
Potassium	mg/L	NV	NV	**1.72**
Selenium	mg/L	0.012	0.05	< 0.00250 U
Silver	mg/L	0.003	NV	< 0.000500 U
Sodium	mg/L	NV	NV	**579**
Thallium	mg/L	NV	NV	< 0.000500 U
Vanadium	mg/L	3.592	NV	**0.000900 J**
Zinc	mg/L	0.31	NV	**0.0257**
Mercury	mg/L	NV	0.002	**0.0000580 J**
Anions (9056)				
Chloride	mg/L	NV	NV	**878**
Sulfate	mg/L	NV	NV	**41.7**
Semi-Volatile Organic Compounds (8270D SIM)				
1,4-Dioxane	µg/L	134.2	NV	**4.5**

µg/L - micrograms per liter

mg/L - milligrams per liter

J - estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

NV - No Value

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

UB - considered an artifact of blank contamination

GWTP Quarterly Influent Sampling - February 2022

Location ID: Sample Date:	Units	LH18/24-SP140_021522 2/15/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Quarterly.**
Oil and Grease (1664A)		
Oil & Grease	mg/L	< 1.00 U
Chemical Oxygen Demand (410.4)		
Chemical Oxygen Demand	mg/L	**14.0 J**
Perchlorate (6850)		
Perchlorate	µg/L	**15,300**
Volatile Organic Compounds (8260C)		
1,1,1,2-Tetrachloroethane	µg/L	< 10 U
1,1,1-Trichloroethane	µg/L	< 5.0 U
1,1,2,2-Tetrachloroethane	µg/L	< 10 U
1,1,2-Trichloroethane	µg/L	< 10 U
1,1-Dichloroethane	µg/L	< 5.0 U
1,1-Dichloroethene	µg/L	**24**
1,1-Dichloropropene	µg/L	< 10 U
1,2,3-Trichlorobenzene	µg/L	< 10 U
1,2,3-Trichloropropane	µg/L	< 10 U
1,2,4-Trichlorobenzene	µg/L	< 10 U
1,2,4-Trimethylbenzene	µg/L	< 10 U
1,2-Dibromo-3-chloropropane	µg/L	< 10 U
1,2-Dibromoethane	µg/L	< 5.0 U
1,2-Dichlorobenzene	µg/L	< 10 U
1,2-Dichloroethane	µg/L	**21**
1,2-Dichloropropane	µg/L	< 10 U
1,3,5-Trimethylbenzene	µg/L	< 10 U
1,3-Dichlorobenzene	µg/L	< 10 U
1,3-Dichloropropane	µg/L	< 10 U
1,4-Dichlorobenzene	µg/L	< 10 U
2,2-Dichloropropane	µg/L	< 5.0 U
2-Butanone	µg/L	< 10 U
2-Chlorotoluene	µg/L	< 10 U
2-Hexanone	µg/L	< 20 U
4-Chlorotoluene	µg/L	< 10 U
4-Isopropyltoluene	µg/L	< 10 U
4-Methyl-2-pentanone	µg/L	< 20 U
Acetone	µg/L	< 20 U
Benzene	µg/L	< 5.0 U
Bromobenzene	µg/L	< 10 U
Bromochloromethane	µg/L	< 5.0 U
Bromodichloromethane	µg/L	< 5.0 U

GWTP Quarterly Influent Sampling - February 2022

Location ID: Sample Date:	Units	LH18/24-SP140_021522 2/15/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Quarterly.**
Bromoform	µg/L	< 10 U
Bromomethane	µg/L	< 10 U
Carbon disulfide	µg/L	< 20 U
Carbon tetrachloride	µg/L	**12**
Chlorobenzene	µg/L	< 10 U
Chloroethane	µg/L	< 10 U
Chloroform	µg/L	< 5.0 U
Chloromethane	µg/L	< 5.0 U
cis-1,2-Dichloroethene	µg/L	**930**
cis-1,3-Dichloropropene	µg/L	< 5.0 U
Dibromochloromethane	µg/L	< 10 U
Dibromomethane	µg/L	< 5.0 U
Dichlorodifluoromethane	µg/L	< 10 U
Ethylbenzene	µg/L	< 10 U
Hexachlorobutadiene	µg/L	< 10 U
Isopropylbenzene	µg/L	< 10 U
m,p-Xylene	µg/L	< 10 U
Methylene chloride	µg/L	**220**
Naphthalene	µg/L	< 10 U
n-Butylbenzene	µg/L	< 10 U
n-Propylbenzene	µg/L	< 10 U
o-Xylene	µg/L	< 10 U
sec-Butylbenzene	µg/L	< 10 U
Styrene	µg/L	< 10 U
tert-Butylbenzene	µg/L	< 10 U
Tetrachloroethene	µg/L	< 10 U
Toluene	µg/L	< 5.0 U
trans-1,2-Dichloroethene	µg/L	< 5.0 U
trans-1,3-Dichloropropene	µg/L	< 5.0 U
Trichloroethene	µg/L	**3,500**
Trichlorofluoromethane	µg/L	< 10 U
Vinyl chloride	µg/L	**22**
Metals (6020A)		
Aluminum	mg/L	**0.0720**
Antimony	mg/L	**0.00109 J**
Arsenic	mg/L	**0.00131 J**
Barium	mg/L	**0.491**
Beryllium	mg/L	< 0.000500 U
Cadmium	mg/L	< 0.000500 U

GWTP Quarterly Influent Sampling - February 2022

Location ID: Sample Date:	Units	LH18/24-SP140_021522 2/15/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Quarterly.**
Calcium	mg/L	**33.2**
Chromium	mg/L	**0.00354 J**
Cobalt	mg/L	**0.00182 J**
Iron	mg/L	**0.260**
Lead	mg/L	**0.00101 J**
Magnesium	mg/L	**22.8**
Manganese	mg/L	**0.110**
Nickel	mg/L	**0.00950**
Potassium	mg/L	**1.35**
Selenium	mg/L	< 0.00250 U
Silver	mg/L	< 0.000500 U
Sodium	mg/L	**288**
Thallium	mg/L	< 0.000500 U
Vanadium	mg/L	**0.00208 J**
Zinc	mg/L	**0.0344**
Mercury	mg/L	**0.0000540 J**
Anions (9056)		
Chloride	mg/L	**407**
Sulfate	mg/L	**40.3**
Semi-Volatile Organic Compounds (8270D SIM)		
1,4-Dioxane	µg/L	**12**

µg/L - micrograms per liter

mg/L - milligrams per liter

J -estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

GWTP Weekly Sampling - March 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	LH18/24-SP650_030122 3/1/22	LH18/24-SP650_030822 3/8/22	LH18/24-SP650_031522 3/15/22	LH18/24-SP650_032222 3/22/22	LH18/24-SP650_032922 3/29/22
Location Description			**GWTP–Collected from a spigot on the discharge of effluent TK-650. Sampled Weekly.**				
Ammonia as N (350.3)							
Ammonia as N	mg/L	NV	**13**	**22**	**31**	**38**	**40**
Ortho-Phosphate (365.3)							
Ortho-Phosphate	mg/L	NV	**12.6**	**9.45**	**5.6**	**5.94**	**6.00**
Organic Carbon (415.1)							
Total Organic Carbon (TOC)	mg/L	NV	**30.3**	**10.7**	**2.32**	**4.18**	**4.57**

mg/L - milligrams per liter

NV - No Value

GWTP Weekly/Effluent Perchlorate Sampling - March 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	PCL	LH18/24-SP650_030122_AIX 3/1/22	LH18/24-SP650_030122_AIX 3/1/22	LH18/24-SP650_030822_BIX 3/8/22	LH18/24-SP650_030822_AIX 3/8/22	LH18/24-SP650_031522_BIX 3/15/22	LH18/24-SP650_031522_AIX 3/15/22	LH18/24-SP650_032222_BIX 3/22/22	LH18/24-SP650_032222_AIX 3/22/22	LH18/24-SP650_032922_BIX 3/29/22	LH18/24-SP650_032922_AIX 3/29/22
Location Description													
				Weekly	Monthly Eff	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly	Weekly
Perchlorate (6850)													
Perchlorate	µg/L	589	17	< 0.0500 U	< 0.0500 U	**1,630**	**0.221**	**903**	< 0.0500 U	**577**	< 0.0500 U	**605**	**0.102**

µg/L - micrograms per liter

BIX - before ion exchange/AIX - after ion exchange

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

GWTP Bi-Weekly Sampling - March 2022

Location ID: Sample Date:	Units	(Bayou) Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_030822 3/8/22	LH18/24-SP650_032222 3/22/22
Location Description				**GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled Biweekly.**	
Volatile Organic Compounds (8260C)					
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U	< 2.0 UJ
Benzene	µg/L	181	5	< 0.50 U	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U	< 0.50 U
cis-1,2-Dichloroethene	µg/L	NV	70	**1.5**	**1.2**
Ethylbenzene	µg/L	57,025	700	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 1.0 U	< 1.0 UJ
o-Xylene	µg/L	83.6	NV	< 1.0 U	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U	< 0.50 U
Anions (9056)					
Chloride	mg/L	NV	NV	**853**	**834**
Sulfate	mg/L	NV	NV	**32.6**	**34.8**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - No Value

UJ - estimated non-detect due to quality control discrepancy

GWTP Monthly Effluent Sampling - March 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_030122 3/1/22
Location Description				GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled monthly
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-dichloroethene	µg/L	NV	70	**0.62 J**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 2.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Metals (6020A)				
Barium	mg/L	2	2	**0.785**
Lead	mg/L	0.0046	0.015	< 0.00100 U
Selenium	mg/L	0.012	0.05	< 0.00250 U
Silver	mg/L	0.003	0.1	< 0.000500 U
Hexavalent Chromium (7196A)				
Hexavalent Chromium	mg/L	0.1244	NV	< 0.0100 U
Semi-Volatile Organic Compounds (8270D SIM)				
1,4-Dioxane	µg/L	134.2	NV	**14**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - no value

J - estimated value between the detection limit and limit of quantitation and/or due to quality control discrepancies

GWTP Monthly Influent Sampling - March 2022

Location ID: Sample Date:	Units	LH18/24-SP140_030122 3/1/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Monthly.**
Metals (6020A)		
Selenium	mg/L	< 0.00250 U
Silver	mg/L	< 0.000500 U
Hexavalent Chromium (7196A)		
Hexavalent Chromium	mg/L	< 0.0100 U
Perchlorate (6850)		
Perchlorate	µg/L	**16,800**

mg/L - milligrams per liter

µg/L - micrograms per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

LHAAP-Quarterly Surface Water Sampling

March 2022 (Quarter 1)

Location ID: / Sample Date:	Units	PCL	HBW7_031522 3/15/22	HBW10_031522 3/15/22	HBW1_031522 3/15/22	HBW1_031522_a 3/15/22	GPW1_031522 3/15/22	GPW3_031522 3/15/22
Perchlorate (6850)			Harrison Bayou				Goose Prairie Creek	
Perchlorate	µg/L	17	**10.4**	< 0.0500 U	**0.0318 J**	**0.0520 J**	**0.162**	**0.198**

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level

µg/L - micrograms per liter

J - estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

U - nondetect; reported to the limit of detection

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 18, 2022

DAIN-ISE

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final Technical Memorandum, Proposed Revisions to LHAAP-04 and LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs, Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). The Draft Final includes Responses to Comments (RTCs) for the USEPA comment received June 9, 2022 and the TCEQ comments received June 10, 2022. An electronic copy of this letter and download instructions for the electronic file have been sent via email. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
K. Nemmers, Bhate, Lakewood, CO

P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 18, 2022

DAIN-ISE

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Final Technical Memorandum, Proposed Revisions to LHAAP-04 and LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs, Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). The Draft Final includes Responses to Comments (RTCs) for the USEPA comment received June 9, 2022 and the TCEQ comments received June 10, 2022. An electronic copy of this letter and download instructions for the electronic file have been sent via email. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
B. Follin, USEPA, Dallas, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
K. Nemmers, Bhate, Lakewood, CO

P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

Response to Comments on
Draft Technical Memorandum Proposed Revisions to LHAAP-04 and
LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs

Document Date: June 1, 2022
Comment Date: June 9, 2022

Reviewer: Brian Follin - USEPA
Respondent: Dr. Rose Zeiler - Army

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
Specific Comments					
1	General	The EPA has reviewed the Tech Memo Proposed changes to LHAAP-04 and LHAAP-16. The only question we have is about the status of the wells that will no longer be included in the updated monitoring plan. I assume that the wells will be available in the event we need to start sampling again in the future. Otherwise, the EPA agrees with the changes to the RAO Revisions.	C	There are no current plans to plug/abandon any of the wells where sampling is being discontinued. They will remain available if sampling is desired in the future.	

Response to Comments on
Draft Technical Memorandum Proposed Revisions to LHAAP-04 and
LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs

Document Date: June 1, 2022
Comment Date: June 10, 2022

Reviewer: April Palmie - TCEQ
Respondent: Dr. Rose Zeiler - Army

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
Specific Comments					
1	Table 1	Add LHAAP-04 to the title.	C	The title for Table 1 will be revised to: "2019 to 2022 LHAAP-04 Groundwater Analytical Results".	
2	Table 4	Could title include "Beginning with Year 3 Semi-Annual" or something similar?	C	The title for Table 4 will be revised to: "Proposed Changes to LHAAP-16 Remedial Action Operation Monitoring Network Beginning with the Year 3 Semiannual Sampling Events"	
3	Table 4 Bromide Notes	Revise to "Sampling for bromide not needed to evaluate remedy operation" or at least revise the occurrences that say "Bromide not needed to evaluate design".	C	The notes for each location where bromide was removed from the monitoring program will be revised to include the following statement: "Sampling for bromide not needed to evaluate remedy operation." The notes for duplicate wells being removed from the table and wells where sampling is being completely discontinued will not be revised.	

TECHNICAL MEMORANDUM

DATE: July 18, 2022

PROJECT NAME: Remediation at Multiple Sites, Longhorn Army Ammunition Plant, Karnack, Texas

TO:

Rose Zeiler	Longhorn Army Ammunition Plant
Aaron Williams	U.S. Army Corps of Engineers
Michael Bowlby	U.S. Army Environmental Command

FROM:

Kimberly Nemmers	Bhate Project Manager
Praveen Srivastav	APTIM Project Manager

SUBJECT: **Proposed Revisions to LHAAP-04 and LHAAP-16 Remedial Action Operation Groundwater Monitoring Programs, Longhorn Army Ammunition Plant, Karnack, Texas (Contract No. W9128F-13-D-0012, Task Order No. W912BV17F0150)**

INTRODUCTION

The purpose of this memorandum is to present proposed revisions to the Remedial Action Operation (RA-O) groundwater monitoring well networks at Longhorn Army Ammunition Plant (LHAAP) sites LHAAP-04 and LHAAP-16. RA-O monitoring at LHAAP-04 shows that the remedial action objectives for groundwater have been met for the past two years and we are proposing a reduction of monitoring locations, analytes, and monitoring frequency. At LHAAP-16, the Remedial Action Work Plan (Bhate 2018) described the monitoring program for Years 1 and 2 following the in situ bioremediation (ISB) injections but indicated that the program for Year 3 and beyond would be adjusted based on the results from the first two years of monitoring. Due to the length of time necessary to receive the monitoring data from the laboratory, perform proper validation, and prepare the Year 2 reports for LHAAP-04 and LHAAP-16, we are submitting this memo to briefly discuss the results from RA-O Years 1 and 2 in the context of identifying an appropriate monitoring program for Years 3 and beyond at both the sites.

LHAAP-04 Proposed Monitoring Program Revisions

Eight quarterly RA-O sampling events from RA-O Years 1 and 2 and one semiannual sampling event from RA-O Year 3 have been completed at LHAAP-04 between February 2020 and February 2022. All concentrations of the only constituent of concern (COC), perchlorate, have been below the Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (PCL) of 17 micrograms per liter (µg/L) at all LHAAP-04 monitoring locations for eight consecutive quarters (two years), as shown on **Table 1.** The dissolved oxygen and oxidation reduction potential at wells within the former contaminant plume area and downgradient where ISB injections were performed in November 2019 have mostly returned to aerobic conditions as of the February 2022 sampling event. The total organic carbon (TOC) concentrations have declined below 20 milligrams per liter (mg/L) in all wells where it is analyzed. Based on those results, it appears that the site has returned to aerobic conditions and the carbon source injected has been consumed. No rebound in perchlorate concentrations has been observed concurrent with the return to aerobic conditions. Therefore, we are proposing that the monitoring

program beginning with the 2nd semiannual event of the Year 3 RA-O in August 2022 consist of the monitoring locations on **Figure 1** and the analytical program shown in **Table 2**, and that the monitoring frequency should be reduced to annual beginning in Year 4 (2024). The recommended revisions to the monitoring network include reducing the number of wells monitored from 12 to 7 by discontinuing monitoring at wells upgradient and outside of the historical plume area. The recommended revisions to the analytical program include discontinuing monitoring for TOC and anions at all locations since the site has returned to aerobic conditions, the TOC has been consumed, and there has been no sign of a rebound in perchlorate concentrations.

LHAAP-16 Proposed Monitoring Program Revisions

The first eight quarters of the RA-O monitoring program (Years 1 and 2) at LHAAP-16 have been completed as of the January 2022 sampling event. The Final Remedial Design (AECOM 2017) and RAWP (Bhate 2018) indicated that sampling would be conducted semiannually after Year 2 and that the monitoring network would be modified based on the results of the MNA evaluation and remedial performance. The monitoring results for Years 1 and 2 of the RA-O at LHAAP-16 are shown on **Table 3**. It is apparent that there is a need to continue monitoring the performance of the biobarriers and mid-plume treatment zones, as well as the monitored natural attenuation (MNA) of the plume beyond the areas treated by the 2019 ISB injections.

We are proposing a few additions and removals of monitoring locations to the RA-O network, as well as changes to the analytical suite for the samples collected at some locations. The proposed monitoring network locations for Year 3 RA-O beginning with the first semiannual event in June/July 2022 are shown on **Figure 2** and the analytical suite for the samples to be collected is shown on **Table 4**. Specific changes proposed for the monitoring network include:

- Remove 16RW02 from the RA-O monitoring network because it is clean and redundant. Upgradient well 16RW01 is currently being sampled.
- Replace 16RW11 with 16RW12 in the monitoring network because 16RW11 is clean and duplicates nearby monitoring location 16IW20. Well 16RW12 will provide an additional monitoring location immediately adjacent to and downgradient of the northern portion of the Bayou Biobarrier.
- Remove 16WW14 from the RA-O monitoring network due to redundancy. There are three upgradient wells currently being monitored.
- Remove 16WW21 from the RA-O monitoring network since it is clean and is located in the upper deep zone.
- Remove 16EW05, 16EW06, and 16EW07 from the RA-O monitoring network due to biofouling caused by their use as injection locations. These wells will be replaced in the monitoring network by well 16IW26 and a new well proposed for installation in the intermediate zone between 16EW06 and 16EW07, as shown in **Figure 2**. The new well will not be installed prior to the June/July 2022 sampling event but will be added to the monitoring program once it has been installed and developed.

The following changes are proposed to optimize the analytical data collected to improve evaluation of ISB performance within and near the treatment zones and focus the MNA evaluation outside of the treatment areas:

- Remove analysis for bromide from all locations because it is no longer needed to evaluate the injection radius for the remedial design.

- Replace alkalinity with carbon dioxide for consistency with the MNA parameters collected elsewhere at LHAAP, in accordance with the *Final Technical Memorandum – Monitored Natural Attenuation Parameters* (Bhate 2019).
- Adjust MNA parameters to be analyzed at wells outside of the treatment areas that are contaminated with detectable concentrations of COCs and/or within the treatment areas in downgradient locations expected to be affected by the ISB remedy.
- Change some of the DHC sampling locations within the biobarriers to allow more effective evaluation of the 3rd line of evidence for the RA-O Reports.

The revisions to the monitoring locations and analytical suites are shown on **Table 4** in red type, with a "Rationale for Change" in the far righthand column. The monitoring locations where changes are proposed are shown with the well identification highlighted on **Figure 2**, with the nature of the proposed change at each location identified by the color of the highlighting (defined in the figure legend). Please note that a significant number of the wells being used to monitor the ISB injection areas were previously duplicated on Table 4-9 of the RAWP as wells for monitoring of the MNA remedy. We have removed that duplication on **Table 4**, so there are quite a few wells shown as removed from the MNA Evaluation portion of the table. However, please note in the rationale for those removals that most will still be monitored as part of the ISB monitoring and only two wells (16WW14 and 16WW21) are proposed for removal from monitoring.

Conclusion

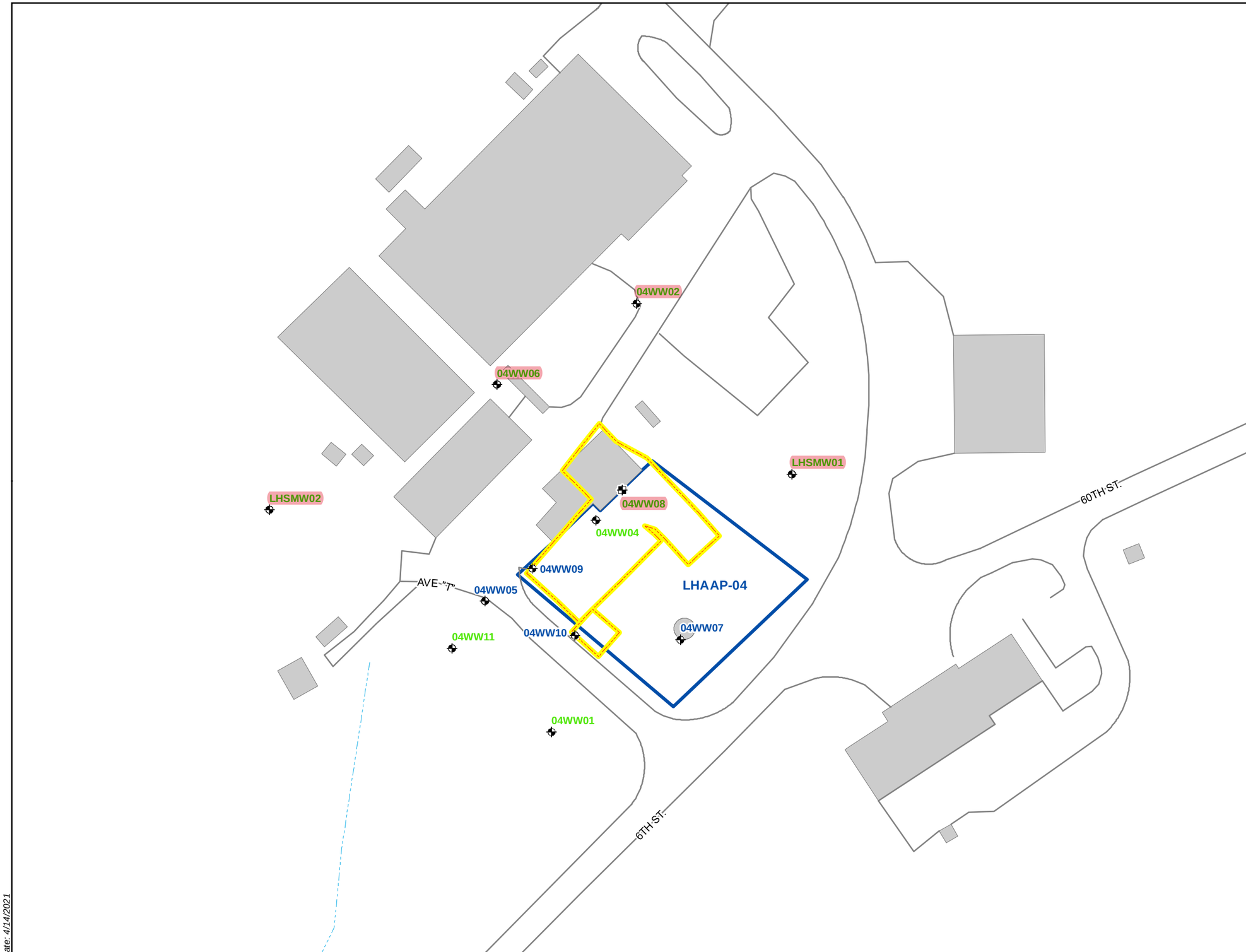
The proposed revisions to the monitoring programs at LHAAP-04 and LHAAP-16 will allow us to continue to monitor both remedies at the intensity necessary based on the current conditions at the sites. We believe the revisions will streamline and eliminate unnecessary locations or analytes, and in the case of LHAAP-16, will improve the ability to evaluate the effectiveness of the ISB treatment area performance. If the geochemical conditions change significantly or the monitoring indicates that rebound is potentially occurring at LHAAP-04, the monitoring network will be re-evaluated at that time.

References

AECOM. 2017. *Final Remedial Design for LHAAP-16 Landfill at Longhorn Army Ammunition Plant, Karnack, Texas*. January.

Bhate Environmental Associates, Inc. (Bhate). 2018. *Draft Final, Remedial Action Work Plan, Longhorn Army Ammunition Plant, Karnack, Texas*. June.

FIGURES



Shallow Monitoring Well

Intermediate Monitoring Well

Limits of Excavation at Surface (*Source: LHAAP-04 Final Completion Report, Shaw, 2011*)

Stream

Road

Building

Site Boundary

04WW02 Well locations to be removed from the monitoring network

Notes:
1. **Blue** = Monitoring well will be analyzed for perchlorate and MNA parameters as defined on Table 2-1.
Green = Monitoring well will only be analyzed for perchlorate.
2. LHAAP = Longhorn Army Ammunition Plant
3. RA-O = Remedial Action Operations

N

0 35 70 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

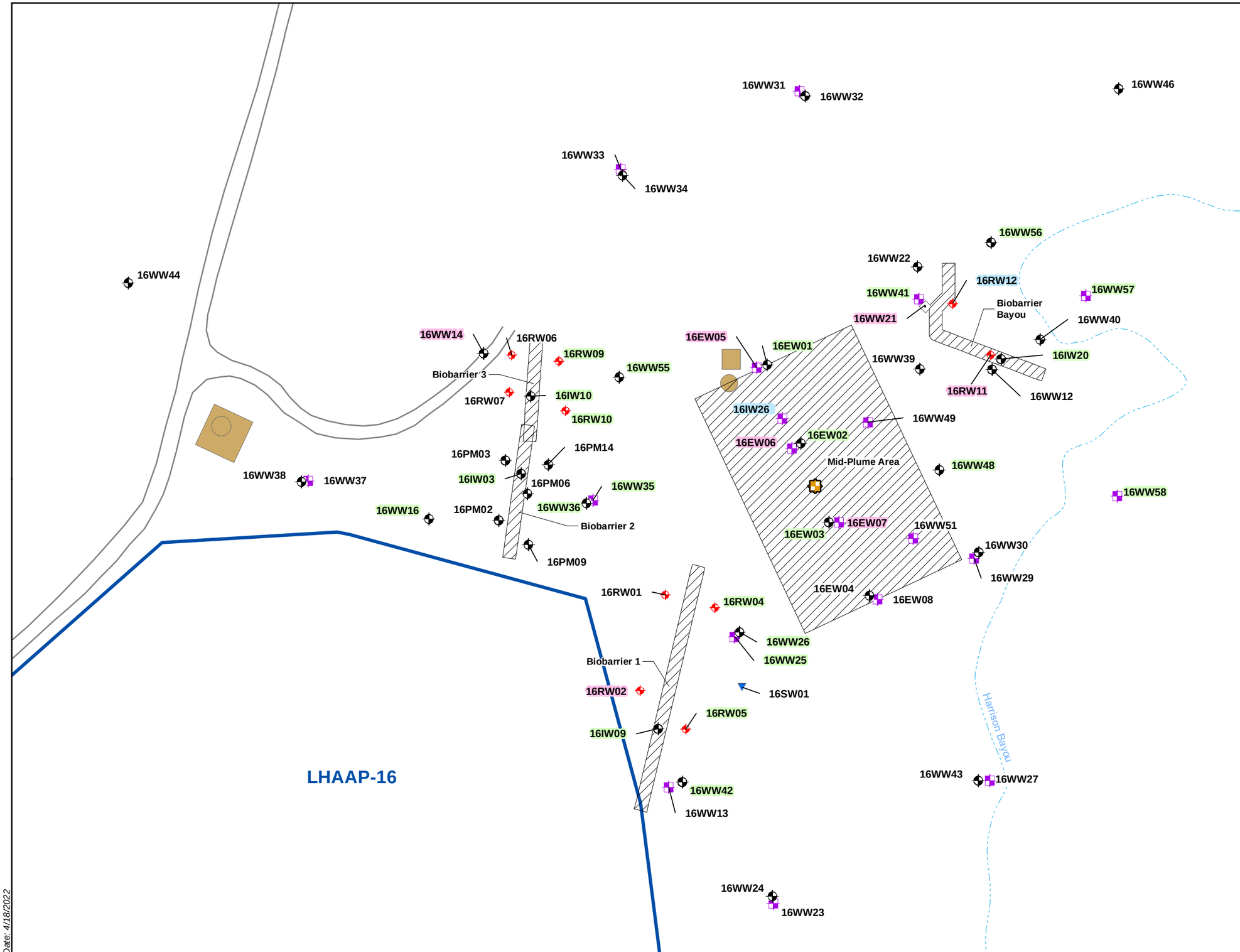
bhate APTIM

Figure 1
Proposed LTM Monitoring Network
LHAAP-04

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/14/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP04\RAO\Year1\LHAAP04_RAO Monitoring LocationMap.mxd



Proposed New Intermediate Well
Surface Water Sampling Location
Existing Shallow Monitoring Well
Existing Intermediate Monitoring Well
Existing Upper Deep Monitoring Well
Shallow Recovery Well
Sub Area
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank

16WW41 Parameters are modified
16WW21 Removed from monitoring network
16RW12 Added to monitoring network

N

0 50 100 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 2
Proposed Year 3 RA-O Monitoring Network
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 4/18/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year2\RAOMonitoringNetwork.mxd

TABLES

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW01													
		Sample Identification	04WW01-190122 [a]		04WW01-200204		04WW01-200504		04WW01-200810		04WW01-201104		04WW01-210310		04WW01-210524	
		Sample Date	1/22/2019		2/4/2020		5/4/2020		8/10/2020		11/4/2020		3/10/2021		5/24/2021	
		Location Description	Shallow Zone, Downgradient of Plume													
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.15		0.03		0.04		0.05		0.03		0.02		0.03	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	327		-52		-135		-191		-115		-219		-152	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 2	U	19		< 0.05	U	0.561	J	0.246	J	< 0.05	U	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW01						04WW02							
		Sample Identification	04WW01-210804		04WW01-211104		04WW01-220201		04WW02-191105		04WW02-200203		04WW02-200504		04WW02-200810	
		Sample Date	8/4/2021		11/4/2021		2/1/2022		11/5/2019		2/3/2020		5/4/2020		8/10/2020	
		Location Description	Shallow Zone, Downgradient of Plume						Shallow Zone, Upgradient of Plume							
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.41		0.38		0.65		1.44		0.02		0.04		0.09	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-110		-50		52		221		23		76		67	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA				NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.5	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U	< 0.05	U	0.0477	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW02												04WW04	
		Sample Identification	04WW02-201104		04WW02-210310		04WW02-210524		04WW02-210804		04WW02-211104		04WW02-220201		04WW04-191106	
		Sample Date	11/4/2020		3/10/2021		5/24/2021		8/4/2021		11/4/2021		2/1/2022		11/6/2019	
		Location Description	Shallow Zone, Upgradient of Plume												Shallow Zone, Within Plume Area	
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.57		0.03		0.1		0.93		1.22		0.66		0.06	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	60		-6		32		90		39		118		-43	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	0.0693	J	< 0.05	U	0.54		< 0.25	U	< 0.2	U	< 0.2	U	< 2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW04													
		Sample Identification	04WW04-200203		04WW04-200504		04WW04-200810		04WW04-201104		04WW04-210310		04WW04-210524		04WW04-210804	
		Sample Date	2/3/2020		5/4/2020		8/10/2020		11/4/2020		3/10/2021		5/24/2021		8/4/2021	
		Location Description	Shallow Zone, Within Plume Area													
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.06		1.5		0.05		0.45		0.08		0.44		0.45	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-26		-111		-45		127		-88		-44		18	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 2	U	< 0.05	U	< 0.1	U	0.158		0.139		< 0.05	U	< 0.25	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW04				04WW05									
		Sample Identification	04WW04-211104		04WW04-220201		04WW05-191106		04WW05-200204		04WW05-200505		04WW05-200811		04WW05-201105	
		Sample Date	11/4/2021		2/1/2022		11/6/2019		2/4/2020		5/5/2020		8/11/2020		11/5/2020	
		Location Description	Shallow Zone, Within Plume Area				Shallow Zone, Within Plume Area									
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.48		0.49		0.18		0.09		0.22		0.14		0.15	
Ferrous Iron	NA	NV	NM		NM		0.31		0.63		2.55		0.73		3.3	
Oxidation-Reduction Potential	mV	NV	25		151		-36		-88		-90		-66		-36	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		438		535		448		542		605	
Nitrate	mg/L	NV	NA		NA				0.0475	J	< 0.1	U	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	NA		NA				< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	NA		NA		72.8		41.1		61.5		85.8		117	
Total Organic Carbon	mg/L	NV	NA		NA		20		3.97		2.64		2.31		1.93	
Perchlorate																
Perchlorate	µg/L	17	< 0.2	U	0.055	J	< 2	U	< 2	U	< 0.05	U	0.399	J	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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U - Undetected: The analyte was analyzed for, but not detected.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW05										04WW06			
		Sample Identification	04WW05-210311		04WW05-210525		04WW05-210805		04WW05-211109		04WW05-220202		04WW06-191106		04WW06-200203	
		Sample Date	3/11/2021		5/25/2021		8/5/2021		11/9/2021		2/2/2022		11/6/2019		2/3/2020	
		Location Description	Shallow Zone, Within Plume Area										Shallow Zone, Cross-Gradient to Plume Area			
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.08		0.08		0.48		0.52		0.76		0.01		0.05	
Ferrous Iron	NA	NV	1.81		2.73		1.33		2.15		3.02		NM		NM	
Oxidation-Reduction Potential	mV	NV	-320		-60		3		-4		127		2		-16	
General Chemistry																
Alkalinity	mg/L	NV	404		422		494		606		NA		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	0.0598	J	NA		NA		NA	
Nitrite	mg/L	NV	< 0.1	U	0.0939	J	< 0.1	U	< 0.1	U	NA		NA		NA	
Sulfate	mg/L	NV	65.6		54.7		77		119		NA		NA		NA	
Total Organic Carbon	mg/L	NV	2.09		2.44		2.26		6.29		4.61		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.5	U	< 0.2	U	0.28		< 2	U	< 2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW06													
		Sample Identification	04WW06-200504		04WW06-200810		04WW06-201104		04WW06-210310		04WW06-210524		04WW06-210804		04WW06-211104	
		Sample Date	5/4/2020		8/10/2020		11/4/2020		3/10/2021		5/24/2021		8/4/2021		11/4/2021	
		Location Description	Shallow Zone, Cross-Gradient to Plume Area													
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.08		0.04		0.14		0.1		0.22		0.68		0.47	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	106		41		37		10		42		33		44	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.05	U	0.567	J	< 0.05	U	< 0.05	U	0.0272	J	< 0.1	U	< 0.2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW06		04WW07											
		Sample Identification	04WW06-220201		04WW07-190122 [a]		04WW07-200204		04WW07-200505		04WW07-200811		04WW07-200811-FD		04WW07-201105	
		Sample Date	2/1/2022		1/22/2019		2/4/2020		5/5/2020		8/11/2020		8/11/2020		11/5/2020	
		Location Description	Shallow Zone, Cross-Gradient to Former Plume Area		Shallow Zone, Within Treatment Zone											
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	1.74		1.83		0.05		2.12		0.04		0.04		0.03	
Ferrous Iron	NA	NV	NM		NM		1.31		0.97		1.17		1.17		2.59	
Oxidation-Reduction Potential	mV	NV	98		338		-260		-314		-112		-112		-105	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		1130		865		923		922		1180	
Nitrate	mg/L	NV	NA		NA		< 0.1	U	0.0318	J	< 0.1	U	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	NA		NA		< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	NA		NA		2.6		1.78		1.27		2.47		2.68	
Total Organic Carbon	mg/L	NV	NA		NA		75.5		25		23.8		24.2		19.8	
Perchlorate																
Perchlorate	µg/L	17	< 0.2	U	110		86		3.51		0.557	J	0.58	J	0.19	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW07											
		Sample Identification	04WW07-210311		04WW07-210525		04WW07-210525-FD		04WW07-210805		04WW07-211109		04WW07-211109-FD	
		Sample Date	3/11/2021		5/25/2021		5/25/2021		8/5/2021		11/9/2021		11/9/2021	
		Location Description	Shallow Zone, Within Treatment Zone											
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.04		0.02		0.02		0.46		3.46		3.46	
Ferrous Iron	NA	NV	1.21		0.99		0.99		0.39		0.36		0.36	
Oxidation-Reduction Potential	mV	NV	-436		-311		-311		-252		-34		-34	
General Chemistry														
Alkalinity	mg/L	NV	708		753		735		616		723		719	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	0.0562	J	0.0585	J
Nitrite	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	30.1		82.8		85.3		96.1		112		109	
Total Organic Carbon	mg/L	NV	7.97		7.52		8.49		7.73		12.1		15.3	
Perchlorate														
Perchlorate	µg/L	17	0.169		< 0.05	U	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW07				04WW08									
		Sample Identification	04WW07-220202		04WW07-220202-FD		04WW08-191106		04WW08-200203		04WW08-200504		04WW08-200810		04WW08-200810-FD	
		Sample Date	2/2/2022		2/2/2022		11/6/2019		2/3/2020		5/4/2020		8/10/2020		8/10/2020	
		Location Description	Shallow Zone, Downgradient of Former Plume Area				Intermediate Zone, Slightly Upgradient of Plume									
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.67		0.67		0.03		0.08		0.26		0.06		0.06	
Ferrous Iron	NA	NV	0.83		0.83		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	150		150		-151		27		-160		-25		-25	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	10		12.6		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	13		< 2	U	9.29		1.66		1.22	

Notes:

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[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW08												04WW09	
		Sample Identification	04WW08-201104		04WW08-210310		04WW08-210524		04WW08-210804		04WW08-211104		04WW08-220201		04WW09-190122 [a]	
		Sample Date	11/4/2020		3/10/2021		5/24/2021		8/4/2021		11/4/2021		2/1/2022		1/22/2019	
		Location Description	Intermediate Zone, Slightly Upgradient of Plume Area												Shallow Zone, Within Treatment Area	
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.8		0.09		0.13		0.49		0.46		0.73		5.78	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-8		-21		43		51		9		60		326	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	4.65		4		0.0359	J	< 0.5	U	< 0.2	U	< 1	U	2,100	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW09											
		Sample Identification	04WW09-200204		04WW09-200204-FD		04WW09-200505		04WW09-200811		04WW09-201105		04WW09-201105-FD	
		Sample Date	2/4/2020		2/4/2020		5/5/2020		8/11/2020		11/5/2020		11/5/2020	
		Location Description	Shallow Zone, Within Treatment Area											
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.08		0.08		0.04		0.03		0.02		0.02	
Ferrous Iron	NA	NV	3.3		3.3		3.3		1.38		3.87		3.87	
Oxidation-Reduction Potential	mV	NV	-74		-74		-16		-87		-91		-91	
General Chemistry														
Alkalinity	mg/L	NV	332		332		328		504		537		538	
Nitrate	mg/L	NV	< 0.2	U	< 0.2	U	0.0732	J	0.0347	J	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	< 0.2	U	< 0.2	U	1.77		< 0.1	U	1.63		1.57	
Sulfate	mg/L	NV	0.732	J	0.659	J	2		2.31		1.04		0.956	
Total Organic Carbon	mg/L	NV	880		910		334		470		177		178	
Perchlorate														
Perchlorate	µg/L	17	18		22		11.1		3.92		2.02		2.58	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW09												04WW10	
		Sample Identification	04WW09-210311		04WW09-210311-FD		04WW09-210525		04WW09-210805		04WW09-211109		04WW09-220202		04WW10-190122 [a]	
		Sample Date	3/11/2021		3/11/2021		5/25/2021		8/5/2021		11/9/2021		2/2/2022		1/22/2019	
		Location Description	Shallow Zone, Within Treatment Area												Shallow Zone, Within Treatment Area	
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.09		0.09		0.04		0.33		0.22		0.43		3.59	
Ferrous Iron	NA	NV	3.24		3.24		3.67		2.27		2.78		2.77		NM	
Oxidation-Reduction Potential	mV	NV	-308		-308		-246		-132		-85		23		333	
General Chemistry																
Alkalinity	mg/L	NV	643		593		845		839		838		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	0.0418	J	0.0338	J	0.06	J	NA		NA	
Nitrite	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA	
Sulfate	mg/L	NV	1		1.06		2.65		3.86		11.9		NA		NA	
Total Organic Carbon	mg/L	NV	102		101		79.6		58.4		60.8		16.3		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.5	U	< 0.5	U	< 0.2	U	< 1	U	10,000	

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW10													
		Sample Identification	04WW10-200204		04WW10-200505		04WW10-200505-FD		04WW10-200811		04WW10-201105		04WW10-210311		04WW10-210525	
		Sample Date	2/4/2020		5/5/2020		5/5/2020		8/11/2020		11/5/2020		3/11/2021		5/25/2021	
		Location Description	Shallow Zone, Within Treatment Area													
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	5.54		2.72		2.72		1.03		0.11		0.04		0.15	
Ferrous Iron	NA	NV	1.8		1.08		1.08		0.89		3.14		1.18		2.3	
Oxidation-Reduction Potential	mV	NV	-79		-286		-286		-47		-62		-159		-77	
General Chemistry																
Alkalinity	mg/L	NV	565		690		696		703		663		492		554	
Nitrate	mg/L	NV	0.109		< 0.1	U	< 0.1	U	< 0.5	U	< 0.1	U	< 0.1	U	< 0.1	U
Nitrite	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	< 0.5	U	< 0.1	U	< 0.1	U	0.0693	J
Sulfate	mg/L	NV	368		924		918		1540		1040		286		186	
Total Organic Carbon	mg/L	NV	4.82		4.37		4.52		3.1		3.32		3.03		2.62	
Perchlorate																
Perchlorate	µg/L	17	< 2	U	< 0.05	U	< 0.05	U	0.339	J+	0.0888	J	< 0.05	U	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW10								04WW11					
		Sample Identification	04WW10-210805		04WW10-210805-FD		04WW10-211109		04WW10-220202		04WW11-191106		04WW11-200204		04WW11-200504	
		Sample Date	8/5/2021		8/5/2021		11/9/2021		2/2/2022		11/6/2019		2/4/2020		5/4/2020	
		Location Description	Shallow Zone, Within Treatment Area								Shallow Zone, Downgradient of Plume					
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.7		0.7		1.64		0.63		3.21		5.54		0.14	
Ferrous Iron	NA	NV	1.08		1.08		1.42		0.14		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	-38		-38		-35		68		158		-79		136	
General Chemistry																
Alkalinity	mg/L	NV	573		553		614		NA		NA		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA		NA	
Nitrite	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	UJ	NA		NA		NA		NA	
Sulfate	mg/L	NV	416		424		686		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	3.68		3.59		3.52		5.63		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW11											
		Sample Identification	04WW11-200810		04WW11-201104		04WW11-201104-FD		04WW11-210310		04WW11-210310-FD		04WW11-210524	
		Sample Date	8/10/2020		11/4/2020		11/4/2020		3/10/2021		3/10/2021		5/24/2021	
		Location Description	Shallow Zone, Downgradient of Plume											
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.03		1.66		1.66		0.05		0.05		0.85	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	72		86		86		98		98		237	
General Chemistry														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate														
Perchlorate	µg/L	17	0.0435	J	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	0.0627	J

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	04WW11								LHSMW01					
		Sample Identification	04WW11-210804		04WW11-210804-FD		04WW11-211104		04WW11-220201		LHSMW01-191106		LHSMW01-200203		LHSMW01-200504	
		Sample Date	8/4/2021		8/4/2021		11/4/2021		2/1/2022		11/6/2019		2/3/2020		5/4/2020	
		Location Description	Shallow Zone, Downgradient of Plume								Shallow Zone, Cross-Gradient to Plume					
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.8		0.8		0.44		0.63		0.48		0.04		0.05	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	175		175		129		158		127		63		96	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.25	U	< 0.25	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U	< 0.05	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	LHSMW01											
		Sample Identification	LHSMW01-200810		LHSMW01-201104		LHSMW01-210310		LHSMW01-210524		LHSMW01-210524-FD		LHSMW01-210804	
		Sample Date	8/10/2020		11/4/2020		3/10/2021		5/24/2021		5/24/2021		8/4/2021	
		Location Description	Shallow Zone, Cross-Gradient to Plume Area											
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.5		0.53		0.07		0.2		0.2		0.95	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	143		211		-7		90		90		109	
General Chemistry														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate														
Perchlorate	µg/L	17	0.179	J	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.1	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	LHSMW01						LHSMW02					
		Sample Identification	LHSMW01-211104		LHSMW01-211104-FD		LHSMW01-220201		LHSMW02-191105		LHSMW02-200203		LHSMW02-200203-FD	
		Sample Date	11/4/2021		11/4/2021		2/1/2022		11/5/2019		2/3/2020		2/3/2020	
		Location Description	Shallow Zone, Cross-Gradient to Plume Area						Shallow Zone, Downgradient of Plume					
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters														
Dissolved Oxygen	mg/L	NV	0.74		0.74		0.65		0.22		0.03		0.03	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	154		154		263		52		7		7	
General Chemistry														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA	
Perchlorate														
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	0.078	J	< 2	U	< 2	U	< 2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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µg/L - micrograms per liter

mg/L - milligrams per liter

mV - millivolt

NA - not analyzed

NM - not measured

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Std. Units - standard pH units

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Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	LHSMW02													
		Sample Identification	LHSMW02-200504		LHSMW02-200504-FD		LHSMW02-200810		LHSMW02-201104		LHSMW02-210310		LHSMW02-210524		LHSMW02-210804	
		Sample Date	5/4/2020		5/4/2020		8/10/2020		11/4/2020		3/10/2021		5/24/2021		8/4/2021	
		Location Description	Shallow Zone, Downgradient to Plume Area													
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters																
Dissolved Oxygen	mg/L	NV	0.56		0.56		0.07		0.17		0.06		0.62		0.57	
Ferrous Iron	NA	NV	NM		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	170		170		165		102		167		177		132	
General Chemistry																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	0.121		0.169		0.082	J	0.0392	J	< 0.25	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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Val Qual - validation qualifier

Table 1
2019 to 2022 LHAAP-04 Groundwater Analytical Results

		Location	LHSMW02					
		Sample Identification	LHSMW02-211104		LHSMW02-220201		LHSMW02-220201-FD	
		Sample Date	11/4/2021		2/1/2022		2/1/2022	
		Location Description	Shallow Zone, Downgradient to Former Plume Area					
Parameter	Units	PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Parameters								
Dissolved Oxygen	mg/L	NV	0.39		0.85		0.85	
Ferrous Iron	NA	NV	NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	87		124		124	
General Chemistry								
Alkalinity	mg/L	NV	NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA	
Nitrite	mg/L	NV	NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA	
Total Organic Carbon	mg/L	NV	NA		NA		NA	
Perchlorate								
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 0.2	U

Notes:

Perchlorate concentrations highlighted in blue exceed the PCL.

[a] Emulsified vegetable oil was present in monitoring wells 04WW01, 04WW07, 04WW09, and 04WW10 when baseline sampling was attempted in November 2019 and samples were not collected. The January 2019 sample results will be used as the baseline at these locations. Samples collected in January 2019 were only analyzed for perchlorate.

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Std. Units - standard pH units

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Table 2
Proposed LHAAP-04 Remedial Action Operation Monitoring

Monitoring Location	Primary Rationale for Well Selection	**LTM – Year 3 Semiannual Event #2 and** Annually Beyond			
		Perchlorate (6850)	Dissolved Oxygen (field reading)	Oxidation-Reduction Potential (field reading)	pH (field reading)
04WW01	Well downgradient of pre-treatment plume area	✓	✓	✓	✓
04WW04	Upgradient well in original source area	✓	✓	✓	✓
04WW05	Well located within pre-treatment plume area	✓	✓	✓	✓
04WW07	Well located within pre-treatment plume area	✓	✓	✓	✓
04WW09	Well located within pre-treatment plume area	✓	✓	✓	✓
04WW10	Well located within pre-treatment plume area	✓	✓	✓	✓
04WW11	Well downgradient of pre-treatment plume area	✓	✓	✓	✓

Notes:

✓ Indicates sample will be collected and analyzed for the listed analyte.

LTM - long-term monitoring

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW01													
		Sample ID	16EW01-200716		16EW01-201020		16EW01-210125		16EW01-210421		16EW01-210713		16EW01-211020		16EW01-220113	
		Sample Date	7/16/2020		10/20/2020		1/25/2021		4/21/2021		7/13/2021		10/20/2021		1/13/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.2	J	0.4	J	292		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.79		0.34		0.6		0.28		1.59		0.28		0.67	
Oxidation Reduction Potential	mV	NV	58		22		46.2		-18		12		77		42	
pH	SU	NV	5.88		6.33		6.61		6.55		6.18		5.93		6.3	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	0.603	J	< 2.5	U	< 0.47	U	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	105		112		9.1		102	J	20.2	J	50.9	J	51.8	J
Methane	µg/L	NV	177		182		11		406		89		122	J	122	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	418		517		891		529		397		610		598	
Bromide	mg/L	NV	6.04		7.02		13.5		8.22		7.26		10.1		0.85	
Nitrate	mg/L	NV	< 0.5	U	< 0.5	U	1.46		0.494	J	1.66		< 0.5	U	0.22	J
Sulfate	mg/L	NV	3510		3960		4270		3420		2290		3150		3410	
Total organic carbon	mg/L	NV	13.7		14.4		19.4		16.8		12.1		19.5		18.8	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	28.4		27.5		180	J	41.9		29		40.3		61	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 20	U	< 12	U	< 10	U	< 25	U	< 10	U	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	36		29		24		22	J	7.4	J	6.8	J	9.6	J
1,2-Dichloroethane	µg/L	5	27		25		16		18	J	7.1	J	8	J	9.6	J
cis-1,2-Dichloroethene	µg/L	70	6800		7600		7200		6000		2000		3400		3600	
Methylene chloride	µg/L	5	< 20	U	< 25	U	< 20	U	< 50	U	< 10	U	< 10	U	< 20	U
Trichloroethene	µg/L	5	4700		5400		4100		3500		990		970		1800	
Vinyl chloride	µg/L	2	780		630		820		720		100		180		260	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW02													
		Sample ID	16EW02-181009		16EW02-190918		16EW02-200716		16EW02-200716-FD		16EW02-201021		16EW02-210126		16EW02-210419	
		Sample Date	10/9/2018		9/18/2019		7/16/2020		7/16/2020		10/21/2020		1/26/2021		4/19/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.2	J	NA		5.9		NA		406		3600		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.16		1.11		0.37		0.37		0.02		0.67		0.15	
Oxidation Reduction Potential	mV	NV	80.2		171		191		191		43		65.6		43	
pH	SU	NV	6.00		6.16		5.96		5.96		6.25		6.19		6.37	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	1.16		NA		0.275	J	0.349	J	< 0.25	U	0.71		NA	
Ethylene	µg/L	NV	8.81		NA		0.627	J	1.12		1.54		26		NA	
Methane	µg/L	NV	33.6		NA		5.65		6.34		9.39		130		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	438		NA		407		411		328		473		NA	
Bromide	mg/L	NV	2.66		NA		12.7		11.9		6.87		7.05		NA	
Nitrate	mg/L	NV	< 0.1	U	NA		< 0.1	U	< 0.1	U	< 0.5	U	< 0.2	U	NA	
Sulfate	mg/L	NV	2130		NA		1650		1590		1380		2950		NA	
Total organic carbon	mg/L	NV	10.3		NA		8.37		8.3		7.36		12		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	16.2		9.34		< 0.05	U	< 0.5	U	0.53	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 12	U	< 25	U	< 25	U	< 25	U	< 25	U	< 25	U
1,1-Dichloroethene	µg/L	7	100		110		97		86		110		140		64	
1,2-Dichloroethane	µg/L	5	< 25	U	51		43		39		48	J	55		35	
cis-1,2-Dichloroethene	µg/L	70	16000		25000		22000		21000		26000		35000		18000	
Methylene chloride	µg/L	5	< 50	U	< 25	U	< 25	U	< 25	U	< 50	U	< 50	U	41	J
Trichloroethene	µg/L	5	24000		42000		37000		35000		26000		38000		23000	
Vinyl chloride	µg/L	2	470		650		39		28		51		930		45	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW02						16EW03							
		Sample ID	16EW02-210726		16EW02-211020		16EW02-220112		16EW03-200325		16EW03-200728		16EW03-201022		16EW03-210202	
		Sample Date	7/26/2021		10/20/2021		1/12/2022		3/25/2020		7/28/2020		10/22/2020		2/2/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.58		0.26		0.76		0.24		2.25		0.02		0.09	
Oxidation Reduction Potential	mV	NV	36		15		69		-98		-263		-73		-189	
pH	SU	NV	6.38		6.11		6.42		6.97		6.39		6.18		6.25	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.984	J	2.53		1.6		< 10	U	2.09		< 0.1	U	< 0.5	UJ
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	7.2	J	< 25	U	< 2.5	U	< 25	U	1.3		< 5	U
1,1-Dichloroethene	µg/L	7	58		65		50		< 2.5	U	< 12	U	1.2		4	J
1,2-Dichloroethane	µg/L	5	29		37		35		4.5	J	< 12	U	3.4		< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	18000		22000		16000		1700	J-	440		1400		1100	
Methylene chloride	µg/L	5	< 25	U	< 10	U	< 50	U	< 5	U	< 25	U	< 1	U	< 10	U
Trichloroethene	µg/L	5	25000		23000		19000		170		60		130		290	
Vinyl chloride	µg/L	2	42		630		340		750		< 12	U	200		780	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW03								16EW04					
		Sample ID	16EW03-210421		16EW03-210722		16EW03-211020		16EW03-220127		16EW04-200728		16EW04-201020		16EW04-210202	
		Sample Date	4/21/2021		7/22/2021		10/20/2021		1/27/2022		7/28/2020		10/20/2020		2/2/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.54		0.52		0.11		0.3		0.11		0.02		0.03	
Oxidation Reduction Potential	mV	NV	-104		-43		-81		-95		82		-105		-54	
pH	SU	NV	6.80		6.61		5.45		7.09		5.91		6.70		5.66	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U	NA		NA		NA	
Ethylene	µg/L	NV	527	J	701	J	131	J	175	J	NA		NA		NA	
Methane	µg/L	NV	528		1140		164	J	574		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	961		1140		1050		1160		NA		NA		NA	
Bromide	mg/L	NV	5.93		3.7		9.02		7.37		NA		NA		NA	
Nitrate	mg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	NA		NA		NA	
Sulfate	mg/L	NV	1090		1350		1860		1920		NA		NA		NA	
Total organic carbon	mg/L	NV	12.2		14.8		67		20.9		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U	1.42		< 0.05	U	< 0.5	UJ
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 10	U	< 10	U	< 5	U	< 25	U	< 5	UJ	< 10	U
1,1-Dichloroethene	µg/L	7	3.1	J	< 5	U	< 5	U	< 2.5	U	20	J	5.9	J-	16	
1,2-Dichloroethane	µg/L	5	2.8	J	< 5	U	< 5	U	< 2.5	U	13	J	< 5	UJ	13	
cis-1,2-Dichloroethene	µg/L	70	1200		1500		270		1000		4300		4400		4800	
Methylene chloride	µg/L	5	< 10	U	15	UB	< 10	U	< 10	U	< 25	U	< 10	UJ	< 20	U
Trichloroethene	µg/L	5	250		77		54		84		15000		520	J-	17000	
Vinyl chloride	µg/L	2	460		310		92		230		15	J	< 5	UJ	29	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW04								16EW05					
		Sample ID	16EW04-210419		16EW04-210726		16EW04-211020		16EW04-220112		16EW05-181011		16EW05-200330		16EW05-200716	
		Sample Date	4/19/2021		7/26/2021		10/20/2021		1/12/2022		10/11/2018		3/30/2020		7/16/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		5060		5040	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.15		1.45		0.34		0.79		0.74		0.07		0.04	
Oxidation Reduction Potential	mV	NV	73		117		115		43		189.9		-47		-32	
pH	SU	NV	5.81		5.70		5.95		6.11		6.17		5.25		5.65	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		9.16		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		2.22		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		248		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		102	U	66.2	
Bromide	mg/L	NV	NA		NA		NA		NA		3.1		5	U	19.8	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		5	U	0.995	U
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		25	U	64.7	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		300			
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U			< 20	U	0.16	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 5	U	< 10	U	< 10	U			< 50	UJ	< 100	U
1,1-Dichloroethene	µg/L	7	11		3.2	J	5.6	J	5.5	J			< 50	UJ	< 100	U
1,2-Dichloroethane	µg/L	5	6.2	J	< 2.5	U	< 5	U	< 5	U			< 50	UJ	< 100	U
cis-1,2-Dichloroethene	µg/L	70	2600		640		1300		1300				< 50	UJ	< 100	U
Methylene chloride	µg/L	5	17	J	< 5	U	< 10	U	< 20	U			< 100	UJ	< 100	U
Trichloroethene	µg/L	5	9500		3100		5100		3400				< 50	UJ	< 100	U
Vinyl chloride	µg/L	2	11		2.5	J	15		11				< 50	UJ	< 100	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW05								16EW06					
		Sample ID	16EW05-211021		16EW05-211021-FD		16EW05-220127		16EW05-220127-FD		16EW06-181009		16EW06-190918		16EW06-200325	
		Sample Date	10/21/2021		10/21/2021		1/27/2022		1/27/2022		10/9/2018		9/18/2019		3/25/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA				1.7		NA		NA	
Field Measurements									NA							
Dissolved oxygen	mg/L	NV	0.4		0.4		0.35		0.35		0.95		0.53		0.02	
Oxidation Reduction Potential	mV	NV	-78		-78		63		63		59.3		58		29	
pH	SU	NV	5.19		5.19		5.27		5.27		5.84		6.18		4.52	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		34.2		35.2	J	0.31	J	NA		NA	
Ethylene	µg/L	NV	NA		NA		26.1	J	29.2	J	3.76		NA		NA	
Methane	µg/L	NV	NA		NA		6440		7470		8.39		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	324		298		346	J	501	J	438		NA		NA	
Bromide	mg/L	NV	74		72.3		70.2		70.1		3.38		NA		NA	
Nitrate	mg/L	NV	< 0.5	U	< 0.5	U	< 0.2	U	0.156	J	< 0.2	U	NA		NA	
Sulfate	mg/L	NV	3.95	J	1.8	J	104	J	2.4	J	6120		NA		NA	
Total organic carbon	mg/L	NV	21900		20800		161000		165000		31		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.164	J	< 0.2	U	0.16	J	0.19	J	< 2	U	42		< 10	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10000	UJ	< 10000	UJ	< 5000	U	< 5000	U	< 2.5	U	< 12	U	< 50	U
1,1-Dichloroethene	µg/L	7	< 5000	UJ	< 5000	UJ	< 2500	U	< 2500	U	25		22	J	< 50	U
1,2-Dichloroethane	µg/L	5	< 5000	UJ	< 5000	UJ	< 2500	U	< 2500	U	4.6	J	< 12	U	< 50	U
cis-1,2-Dichloroethene	µg/L	70	< 5000	UJ	< 5000	UJ	< 2500	U	< 2500	U	3700		3700		160	
Methylene chloride	µg/L	5	< 10000	UJ	< 10000	UJ	< 10000	U	< 10000	U	< 5	U	< 25	U	< 100	U
Trichloroethene	µg/L	5	< 5000	UJ	< 5000	UJ	< 2500	U	< 2500	U	5500		6500		< 50	U
Vinyl chloride	µg/L	2	< 5000	UJ	< 5000	UJ	< 2500	U	< 2500	U	240		190		< 50	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW06													
		Sample ID	16EW06-200716		16EW06-201021		16EW06-201021-FD		16EW06-210202		16EW06-210202-FD		16EW06-210422		16EW06-211021	
		Sample Date	7/16/2020		10/21/2020		10/21/2020		2/2/2021		2/2/2021		4/22/2021		10/21/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.08		0.11		0.11		0.07		0.07		0.05		0.08	
Oxidation Reduction Potential	mV	NV	-41		-49		-49		-59		-59		-70		-105	
pH	SU	NV	5.87		5.93		5.93		5.87		5.87		5.73		5.2	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		10	U	NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		9.89	U	NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		9.89	U	NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		49.4	U	NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.75	U	< 0.75	U	< 0.75	U	< 0.75	U	< 0.75	U	< 7.5	U	< 0.2	UJ
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 100	U	< 250	U	< 500	U	< 500	U	< 500	U	< 1000	U	< 5000	UJ
1,1-Dichloroethene	µg/L	7	< 100	U	< 250	U	< 250	U	< 250	U	< 250	U	< 500	U	< 2500	UJ
1,2-Dichloroethane	µg/L	5	< 100	U	< 250	U	< 250	U	< 250	U	< 250	U	< 500	U	< 2500	UJ
cis-1,2-Dichloroethene	µg/L	70	470		750		520		400	J	520		< 500	U	6800	J
Methylene chloride	µg/L	5	82	J	< 500	U	< 500	U	< 1000	U	< 1000	U	< 2000	U	< 5000	UJ
Trichloroethene	µg/L	5	40	J	< 250	U	< 250	U	< 250	U	< 250	U	< 500	U	3000	J
Vinyl chloride	µg/L	2	370		510		< 250	U	250	J	240	J	< 500	U	< 2500	UJ

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW06		16EW07											
		Sample ID	16EW06-220127		16EW07-181013		16EW07-200325		16EW07-200728		16EW07-201022		16EW07-210202		16EW07-210415	
		Sample Date	1/27/2022		10/13/2018		3/25/2020		7/28/2020		10/22/2020		2/2/2021		4/15/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.27		1.62		0.05		0.33		0.47		0.4		0.38	
Oxidation Reduction Potential	mV	NV	25		-130.9		-37		-247		-261		-257		-261	
pH	SU	NV	5.89		7.12		5.10		5.53		5.59		5.45		5.37	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	10	U	NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.996	U	2.14		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	0.449	J	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	4.98	U	NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 1	U	NA		< 10	U	4.68	J	< 0.75	U	< 0.75	U	0.375	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 4900	U	NA		< 50	U	< 980	U	< 500	U	< 500	U	< 1000	U
1,1-Dichloroethene	µg/L	7	< 2400	U	NA		< 50	U	10000	J-	< 250	U	< 250	U	< 500	U
1,2-Dichloroethane	µg/L	5	< 2400	U	NA		< 50	U	< 980	U	< 250	U	< 250	U	< 500	U
cis-1,2-Dichloroethene	µg/L	70	< 2400	U	NA		< 50	U	4100	J-	< 250	U	< 250	U	< 500	U
Methylene chloride	µg/L	5	< 9800	U	NA		< 100	U	< 980	U	< 500	U	< 1000	U	< 2000	U
Trichloroethene	µg/L	5	< 2400	U	NA		100		5000	J-	490	J	< 250	U	< 500	U
Vinyl chloride	µg/L	2	< 2400	U	NA		< 50	U	< 980	U	< 250	U	< 250	U	< 500	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW07						16EW08							
		Sample ID	16EW07-210727		16EW07-211021		16EW07-220125		16EW08-181013		16EW08-200331		16EW08-200728		16EW08-201020	
		Sample Date	7/27/2021		10/21/2021		1/25/2022		10/13/2018		3/31/2020		7/28/2020		10/20/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.43		0.14		0.35		0.48		0.07		0.26		0.03	
Oxidation Reduction Potential	mV	NV	-197		-6		14		-16		-27		-243		74	
pH	SU	NV	5.31		5.47		5.43		6.23		5.20		5.85		4.97	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		1.11		< 0.5	U	16		9.59	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		800		711		332	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.75	U	0.22	J	< 2	U	NA		< 20	U	0.0836	J	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1000	UJ	< 10000	UJ	< 10000	U	NA		< 100	U	< 50	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 500	UJ	< 5000	UJ	< 5000	U	NA		< 50	U	< 25	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 500	UJ	< 5000	UJ	< 5000	U	NA		< 50	U	< 25	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 500	UJ	< 5000	UJ	< 5000	U	NA		< 50	U	< 25	U	1.7	
Methylene chloride	µg/L	5	< 1000	UJ	< 10000	UJ	< 20000	U	NA		< 100	U	< 50	U	< 1	U
Trichloroethene	µg/L	5	< 500	UJ	< 5000	UJ	< 5000	U	NA		52	J	< 25	U	1.6	
Vinyl chloride	µg/L	2	< 500	UJ	< 5000	UJ	< 5000	U	NA		< 50	U	< 25	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16EW08										16IW03			
		Sample ID	16EW08-210202		16EW08-210419		16EW08-210726		16EW08-211020		16EW08-220112		16IW03-200123		16IW03-200325	
		Sample Date	2/2/2021		4/19/2021		7/26/2021		10/20/2021		1/12/2022		1/23/2020		3/25/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		866	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.06		0.02		0.45		0.21		0.47		0.04		0.1	
Oxidation Reduction Potential	mV	NV	-122		-15		15		19		76		-78		-53	
pH	SU	NV	5.00		5.26		5.350		4.95		5.5		7.25		5.21	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		1.38	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		4.6	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		12.4	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		502	
Bromide	mg/L	NV	7.93		NA		NA		NA		NA		0.66		0.582	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		0.325	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		6.92	J-
Total organic carbon	mg/L	NV	445		NA		NA		NA		NA		222		650	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	UJ	< 0.05	U	< 0.05	U	< 0.2	U	< 0.2	U	NA		< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 5	U	< 1	U	NA		< 5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 0.5	U	NA		37	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 0.5	U	NA		< 5	U
cis-1,2-Dichloroethene	µg/L	70	1	J	0.84	J	1.3		14		11		NA		14000	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 5	U	< 2	U	NA		< 10	U
Trichloroethene	µg/L	5	3.1		2.6		1.8		3.3	J	3.4		NA		8000	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 0.5	U	NA		160	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16IW03													
		Sample ID	16IW03-200728		16IW03-201013		16IW03-210126		16IW03-210126-FD		16IW03-210420		16IW03-210722		16IW03-211021	
		Sample Date	7/28/2020		10/13/2020		1/26/2021		1/26/2021		4/20/2021		7/22/2021		10/21/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	817		634		976		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.04		0.04		1.38		1.38		0.18		0.45		0.18	
Oxidation Reduction Potential	mV	NV	-97		-103		49.9		49.9		-58		-27		19	
pH	SU	NV	5.41		5.35		5.33		5.33		5.21		5.16		5.13	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	7.46		4.98	J+	2.7		2.8		< 0.5	U	< 0.25	UJ	< 0.5	U
Ethylene	µg/L	NV	50		57.7	J+	500		530		819	J	1640	J	714	J
Methane	µg/L	NV	946		685		610		630		1330		2930	J	1740	J
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		771		1390		1240		1700		1580		1510	
Bromide	mg/L	NV	0.973		1.27		5.17		4.2		6.6		3.3		3.1	
Nitrate	mg/L	NV	0.851		0.665	J+	< 0.1	UJ	0.152	J	< 0.5	U	< 0.5	U	< 0.5	U
Sulfate	mg/L	NV	18.7	J-	10.9	J-	11.6	J	18.1	J	44.3		1.3	J	< 2.5	U
Total organic carbon	mg/L	NV	47.8		1190		< 1	U	< 1	U	2860		2750		2610	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	1.85		0.0876	J	< 0.5	U	< 0.5	U	0.754	J	< 0.5	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	4.1	J	< 10	U	< 10	U	< 10	U	< 10	U	< 20	UJ
1,1-Dichloroethene	µg/L	7	51		38		49		48		46		38		38	J
1,2-Dichloroethane	µg/L	5	< 12	U	5.4		5.9	J	5.7	J	6.2	J	6.7	J	< 10	UJ
cis-1,2-Dichloroethene	µg/L	70	14000		11000		12000		12000		11000		10000		14000	J
Methylene chloride	µg/L	5	< 25	U	< 5	U	< 20	U	< 20	U	17	J	16	UB	< 20	UJ
Trichloroethene	µg/L	5	13000		10000		8800		8700		8900		8100		9000	J
Vinyl chloride	µg/L	2	460		530		3700		3600		3700		2600		2500	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16IW03		16IW09											
		Sample ID	16IW03-220127		16IW09-200325		16IW09-200325-FD		16IW09-200716		16IW09-201013		16IW09-210126		16IW09-210422	
		Sample Date	1/27/2022		3/25/2020		3/25/2020		7/16/2020		10/13/2020		1/26/2021		4/22/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		27.8		NA		5.1	J	< 7.2	U	2.9		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.23		0.09		0.09		1.52		0.09		2.5		0.03	
Oxidation Reduction Potential	mV	NV	35		8		8		143		56		53.2		11	
pH	SU	NV	5.46		4.94		4.94		4.62		5.42		5.56		5.76	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	UJ	11.4		11.9		17.9		< 0.25	U	< 0.47	U	< 0.5	U
Ethylene	µg/L	NV	876	J	10.2		7.93		16.6		1.25		< 0.55	U	< 0.5	UJ
Methane	µg/L	NV	3210	J	1340		1110		3970		< 0.25	U	5200		3500	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	1320		432		440		428		698		610		598	
Bromide	mg/L	NV	12.6		11.6		11.3		13.4		7.76		4.65		4.13	
Nitrate	mg/L	NV	< 0.2	U	< 0.1	U	< 0.1	U	< 2	U	0.499		0.615		0.0908	J
Sulfate	mg/L	NV	< 1	U	1.43		1.48		4.44	J	11.2		7.11		4.75	
Total organic carbon	mg/L	NV	2630		820		820		1840		1250		787		572	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 1	U	< 2	UJ	< 2	U	0.184	J	0.0381	J	< 0.25	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 5	UJ	< 5	U	< 50	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	42	J	< 5	UJ	< 5	U	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 12	U	< 5	UJ	< 5	UJ	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	15000		< 5	UJ	< 5	UJ	< 25	U	4.1		2.8		3.1	
Methylene chloride	µg/L	5	< 50	U	< 10	UJ	< 10	UJ	< 50	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	5600		< 5	UJ	< 5	U	< 25	U	5.8		1		0.62	J
Vinyl chloride	µg/L	2	3000	J	< 5	UJ	< 5	UJ	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16IW09						16IW10							
		Sample ID	16IW09-210714		16IW09-211020		16IW09-220125		16IW10-200325		16IW10-200714		16IW10-201013		16IW10-210126	
		Sample Date	7/14/2021		10/20/2021		1/25/2022		3/25/2020		7/14/2020		10/13/2020		1/26/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		9120		6110		59500		370000	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.38		0.2		0.58		0.09		0.05		0.13		1.1	
Oxidation Reduction Potential	mV	NV	-2		-3		65		-21		-17		-83		61.1	
pH	SU	NV	5.65		6.15		6.29		5.19		5.72		6.37		6.11	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.25	U	< 0.5	U	< 0.5	U	6.46		7.51		< 0.25	U	< 0.47	U
Ethylene	µg/L	NV	< 0.5	UJ	< 0.5	UJ	6.6	J	48.3		66.7		19.1		9.9	
Methane	µg/L	NV	1460		2540	J	936		1450		4650		1470		1200	J
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	649		774		782		2390		1760		1680		1320	
Bromide	mg/L	NV	4.02		3.89		5.23		143		119		94.8		83.6	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	0.0407	J	< 0.1	U	< 0.1	U	< 0.5	U	< 0.2	U
Sulfate	mg/L	NV	1.44		1.34		2.38		3.19		4.43		5.73		6.59	
Total organic carbon	mg/L	NV	381		140		102		2720		< 2	U	1220		836	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 1	U	< 0.2	U	0.16	J	< 2	U	< 0.5	U	< 0.1	U	< 0.5	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	1.5		0.67	J	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	0.96	J	0.98	J	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	4.6		3.5		2.4		110		110		220		23	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 10	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	3.8		0.99	J	< 0.5	U	200		190		46		31	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	8.4		53		8.3	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16IW10										16IW20			
		Sample ID	16IW10-210126-FD		16IW10-210421		16IW10-210722		16IW10-211020		16IW10-220125		16IW20-200721		16IW20-201021	
		Sample Date	1/26/2021		4/21/2021		7/22/2021		10/20/2021		1/25/2022		7/21/2020		10/21/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		1.1		55400	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.1		0.03		0.36		0.32		0.51		0.04		0.07	
Oxidation Reduction Potential	mV	NV	61.1		-40		-41		-65		-16		-211		-23	
pH	SU	NV	6.11		6.08		6.10		6.55		6.52		6.00		6.20	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.47	U	< 0.5	UJ	< 0.25	UJ	< 0.5	U	< 0.5	UJ	3.87		4	
Ethylene	µg/L	NV	7.6		6.83	J	2.68	J	13.2	J	3.28	J	9.89		30.9	
Methane	µg/L	NV	780	J	733		257		2520	J	343		1450		2400	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	1320		1190		1050		1110		1130		870		877	
Bromide	mg/L	NV	84.5		88.1		79.1		59.6	J	56.5		37.5		34.9	
Nitrate	mg/L	NV	< 0.2	U	1.26	J	< 0.5	U	< 0.2	U	< 0.2	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	6.79		< 1	U	< 2.5	U	< 1	U	< 1	U	214		165	
Total organic carbon	mg/L	NV	857		746		630		203	J	211		8.4		14.4	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	U	< 0.1	U	< 0.1	U	< 0.2	U	0.13	J	0.562	J	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 10	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 0.5	U	3.5		1.6	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 0.5	U	4.4		2.7	
cis-1,2-Dichloroethene	µg/L	70	22		15		19		11		2		170		170	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 10	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	29		5.4		13		< 5	U	0.91	J	280		130	
Vinyl chloride	µg/L	2	8.3		2.5		1.3		< 5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16IW20										16PM02			
		Sample ID	16IW20-210127		16IW20-210421		16IW20-210722		16IW20-211021		16IW20-220125		16PM02-200123		16PM02-200317	
		Sample Date	1/27/2021		4/21/2021		7/22/2021		10/21/2021		1/25/2022		1/23/2020		3/17/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	2100		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.5		0.04		0.39		0.15		0.44		0.08		0.09	
Oxidation Reduction Potential	mV	NV	-41.2		26		11		47		83		53		102	
pH	SU	NV	6.44		5.98		6.12		5.98		6.4		7.15		5.91	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	1.1		< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U	NA		NA	
Ethylene	µg/L	NV	22		20.2	J	16	J	6.77	J	11.1	J	NA		NA	
Methane	µg/L	NV	2900		2240		2170		1370	J	2080		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	1110		550		429		547		361		NA		NA	
Bromide	mg/L	NV	46.7		12.3		6.43		13.3		6.27		0.774		NA	
Nitrate	mg/L	NV	0.0802	J	0.0503	J	< 0.5	U	< 0.5	U	0.09	J	NA		NA	
Sulfate	mg/L	NV	105		95.2		125		254		227		NA		NA	
Total organic carbon	mg/L	NV	20.1		10.6		7.63		8.46		9.73		6.58		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	UJ	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U	NA		< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	UJ	< 1	U	NA		< 25	U
1,1-Dichloroethene	µg/L	7	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	NA		32	J
1,2-Dichloroethane	µg/L	5	0.92	J	0.7	J	0.56	J	< 0.5	UJ	< 0.5	U	NA		< 25	U
cis-1,2-Dichloroethene	µg/L	70	47	J	30		7.2		1.9	J	1.1		NA		3200	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	UJ	< 2	U	NA		< 50	U
Trichloroethene	µg/L	5	13		5.7		7.6		1.2	J	0.96	J	NA		21000	
Vinyl chloride	µg/L	2	7.2	J	9.1		10		3.2	J	4.6		NA		51	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM02													
		Sample ID	16PM02-200720		16PM02-201026		16PM02-210122		16PM02-210414		16PM02-210713		16PM02-211025		16PM02-220124	
		Sample Date	7/20/2020		10/26/2020		1/22/2021		4/14/2021		7/13/2021		10/25/2021		1/24/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.03		0.11		0.49		0.07		0.55		0.23		0.78	
Oxidation Reduction Potential	mV	NV	136		74		133		150		64		97		245	
pH	SU	NV	5.42		5.59		5.91		5.33		5.21		5.64		5.42	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.0686	J	< 0.05	U	< 0.05	UJ	0.0372	J	< 2.5	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 25	U	< 25	U	< 25	U	< 25	U	< 25	U	< 25	U
1,1-Dichloroethene	µg/L	7	44		74		34		27		32		21	J	48	
1,2-Dichloroethane	µg/L	5	25		60		13	J	14	J	15	J	16	J	23	J
cis-1,2-Dichloroethene	µg/L	70	4800		8800		2700		2200		3400		2500		4500	
Methylene chloride	µg/L	5	< 25	U	< 50	U	< 50	U	< 50	U	< 25	U	< 25	U	< 50	U
Trichloroethene	µg/L	5	31000		65000		23000		15000		17000		16000		31000	
Vinyl chloride	µg/L	2	110		240		50		40		43		35		99	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM03													
		Sample ID	16PM03-200123		16PM03-200317		16PM03-200720		16PM03-201026		16PM03-210122		16PM03-210414		16PM03-210414-FD	
		Sample Date	1/23/2020		3/17/2020		7/20/2020		10/26/2020		1/22/2021		4/14/2021		4/14/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.02		0.06		3.7		0.02		0.51		0.13		0.13	
Oxidation Reduction Potential	mV	NV	18		74		117		48		107.6		80		80	
pH	SU	NV	7.06		6.35		5.57		6.28		6.38		6.06		6.06	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	4.55		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	4.88		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	NA		400		245		360		330	J	193		189	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	NA		< 5	U	< 20	U	< 10	U	< 10	U	< 25	U	< 25	U
1,1-Dichloroethene	µg/L	7	NA		66		50		40		31		37		37	
1,2-Dichloroethane	µg/L	5	NA		21		25		23		18		23	J	23	J
cis-1,2-Dichloroethene	µg/L	70	NA		6600		9300		5700		5300		6800		7100	
Methylene chloride	µg/L	5	NA		< 10	U	< 20	U	17	J	< 20	U	< 50	U	< 50	U
Trichloroethene	µg/L	5	NA		9700		9100		12000		9800		8800		9000	
Vinyl chloride	µg/L	2	NA		370		320		370		310		220		240	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM03										16PM06			
		Sample ID	16PM03-210713		16PM03-210713-FD		16PM03-211025		16PM03-211025-FD		16PM03-220124		16PM06-200123		16PM06-200123-FD	
		Sample Date	7/13/2021		7/13/2021		10/25/2021		10/25/2021		1/24/2022		1/23/2020		1/23/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.49		0.49		0.15		0.15		0.6		0.08		0.08	
Oxidation Reduction Potential	mV	NV	38		38		112		112		187		-21		-21	
pH	SU	NV	5.86		5.86		5.97		5.97		6.03		6.85		6.85	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		2.74		2.74	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		9.03		9.01	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	118		117		220		264		278		NA		NA	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 10	U	< 10	U	< 10	U	< 10	U	NA		NA	
1,1-Dichloroethene	µg/L	7	37		36		21		21		31		NA		NA	
1,2-Dichloroethane	µg/L	5	20		20		21		21		25		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	8300		8000		7400		7500		7100		NA		NA	
Methylene chloride	µg/L	5	< 10	U	< 10	U	< 10	U	< 10	U	10	J	NA		NA	
Trichloroethene	µg/L	5	8400		8400		6300		6300		6800		NA		NA	
Vinyl chloride	µg/L	2	220		230		120		120		200		NA		NA	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM06													
		Sample ID	16PM06-200720		16PM06-201026		16PM06-210202		16PM06-210413		16PM06-210713		16PM06-211026		16PM06-220124	
		Sample Date	7/20/2020		10/26/2020		2/2/2021		4/13/2021		7/13/2021		10/26/2021		1/24/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.05		0.02		0.03		0.1		1.4		0.22		0.48	
Oxidation Reduction Potential	mV	NV	1		-1		-108		-33		-10		43		120	
pH	SU	NV	5.87		5.93		5.37		6.29		5.55		5.81		5.84	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	6.08		4.26		6.17		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	8.08		6.88		8.53		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	U	< 0.05	U	< 0.5	UJ	< 0.5	U	0.0474	J	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 25	U	< 25	U	< 100	U	< 50	U	< 50	U	< 25	U
1,1-Dichloroethene	µg/L	7	150		140		65	J	120		100		36	J	36	
1,2-Dichloroethane	µg/L	5	50		55		40	J	54	J	35	J	40	J	33	
cis-1,2-Dichloroethene	µg/L	70	49000		47000		33000	J	42000		38000		11000		17000	
Methylene chloride	µg/L	5	< 25	U	< 50	U	< 50	U	< 200	U	< 50	U	< 50	U	< 50	U
Trichloroethene	µg/L	5	58000		85000		49000	J	77000		57000		19000		28000	
Vinyl chloride	µg/L	2	2100		1800		790	J	1800		930		390		350	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM09													
		Sample ID	16PM09-200123		16PM09-200720		16PM09-201026		16PM09-210122		16PM09-210413		16PM09-210722		16PM09-211026	
		Sample Date	1/23/2020		7/20/2020		10/26/2020		1/22/2021		4/13/2021		7/22/2021		10/26/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.03		0.06		0.1		0.67		0.12		0.55		0.14	
Oxidation Reduction Potential	mV	NV	175		77		95		152.7		138		132		185	
pH	SU	NV	6.73		5.76		5.22		6.15		5.88		5.41		5.36	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.744		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	7.58		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	NA		< 0.05	U	0.0253	J	< 0.05	UJ	0.0355	J	< 0.05	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	NA		< 5	U	< 5	U	1.8		0.82	J	0.79	J	< 5	U
1,1-Dichloroethene	µg/L	7	NA		30		50		33		13		11		20	
1,2-Dichloroethane	µg/L	5	NA		< 2.5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		520		1000		560		210		200		520	
Methylene chloride	µg/L	5	NA		< 5	U	< 5	U	< 2	U	< 2	U	< 1	U	< 5	U
Trichloroethene	µg/L	5	NA		1400		2000		1300		640		370		770	
Vinyl chloride	µg/L	2	NA		23		47		32		10		9.1		23	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM09		16PM14											
		Sample ID	16PM09-220124		16PM14-200123		16PM14-200720		16PM14-201026		16PM14-201026-FD		16PM14-210202		16PM14-210413	
		Sample Date	1/24/2022		1/23/2020		7/20/2020		10/26/2020		10/26/2020		2/2/2021		4/13/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.52		0.04		0.2		0.26		0.26		0.08		0.18	
Oxidation Reduction Potential	mV	NV	137		6		132		133		133		25		169	
pH	SU	NV	5.41		6.81		5.97		6.20		6.20		5.69		6.03	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		2.99		5.04		2.01		2.93		7.54		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		10.4		9.97		8.93		8.88		9.84		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	NA		0.435	J	< 0.1	U	< 0.1	U	0.648	J	0.259	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	3.7	J	NA		< 10	U	< 10	U	< 5	U	< 10	U	< 20	U
1,1-Dichloroethene	µg/L	7	52		NA		21		25		22		18		14	J
1,2-Dichloroethane	µg/L	5	< 2.5	U	NA		24		26		25		23	J	22	
cis-1,2-Dichloroethene	µg/L	70	950		NA		3300		3200		3500		3500		2900	
Methylene chloride	µg/L	5	< 10	U	NA		< 10	U	< 10	U	< 10	U	< 20	U	< 40	U
Trichloroethene	µg/L	5	1300		NA		5100		5400		5800		3800		4300	
Vinyl chloride	µg/L	2	84		NA		150		140		140		130		110	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16PM14						16RW01							
		Sample ID	16PM14-210722		16PM14-211026		16PM14-220124		16RW01-200312		16RW01-200727		16RW01-201020		16RW01-210122	
		Sample Date	7/22/2021		10/26/2021		1/24/2022		3/12/2020		7/27/2020		10/20/2020		1/22/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.63		0.26		0.63		0.08		0.05		0.52		0.73	
Oxidation Reduction Potential	mV	NV	118		151		176		151		304		94		185.6	
pH	SU	NV	6.17		6		6.06		5.49		5.15		5.08		5.31	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	U	< 0.2	U	< 0.2	U	< 2	U	1.63		< 0.05	U	< 0.05	UJ
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 10	U	< 10	U	< 2.5	U	< 5	U	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	15		9.5	J	13		< 2.5	U	3.1	J	< 5	U	< 5	U
1,2-Dichloroethane	µg/L	5	21		18		21		< 2.5	U	< 2.5	U	< 5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	3700		2900		3100		120		150		120		120	
Methylene chloride	µg/L	5	< 10	U	< 10	U	< 20	U	< 5	U	< 5	U	< 10	U	< 20	U
Trichloroethene	µg/L	5	3700		2200		2300		3300		4200		4000		2900	
Vinyl chloride	µg/L	2	110		56		81		4	J	5.7		< 5	U	< 5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW01								16RW02					
		Sample ID	16RW01-210414		16RW01-210726		16RW01-211026		16RW01-220124		16RW02-200312		16RW02-200721		16RW02-201022	
		Sample Date	4/14/2021		7/26/2021		10/26/2021		1/24/2022		3/12/2020		7/21/2020		10/22/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.21		0.97		0.63		0.54		0.69		0.02		0.26	
Oxidation Reduction Potential	mV	NV	289		160		311		210		119		170		100	
pH	SU	NV	4.84		5.46		4.97		4.84		5.26		5.24		5.17	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.0618	J	< 0.5	U	< 0.2	U	0.053	J	< 2	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 5	U	< 5	U	< 5	U	< 0.5	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U	< 0.5	U	0.65	J
1,2-Dichloroethane	µg/L	5	< 5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	130		84		81		64		< 0.5	U	1		1.5	
Methylene chloride	µg/L	5	< 20	U	< 5	U	< 5	U	< 10	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	3000		2300		2200		1200		2.3		4.8		6.7	
Vinyl chloride	µg/L	2	< 5	U	< 2.5	U	2.3	J	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW02												16RW04	
		Sample ID	16RW02-210122		16RW02-210414		16RW02-210726		16RW02-211013		16RW02-220124		16RW02-220124-FD		16RW04-200728	
		Sample Date	1/22/2021		4/14/2021		7/26/2021		10/13/2021		1/24/2022		1/24/2022		7/28/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.83		0.2		0.69		0.24		0.76		0.76		0.04	
Oxidation Reduction Potential	mV	NV	164.5		206		118		257		226		226		198	
pH	SU	NV	6.04		5.30		5.54		4.84		4.98		4.98		5.33	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		2.41	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		3.34	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	UJ	0.0612	J	0.0255	J	< 0.2	U	< 0.2	U	< 0.2	U	2.08	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 10	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	0.8	J	0.67	J	< 0.5	U	150	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 2	U	< 10	U
Trichloroethene	µg/L	5	1.9		3.1		2.1		2.7		2.7		2.6		3500	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	4.1	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW04													
		Sample ID	16RW04-201021		16RW04-201021-FD		16RW04-210128		16RW04-210414		16RW04-210726		16RW04-211020		16RW04-220124	
		Sample Date	10/21/2020		10/21/2020		1/28/2021		4/14/2021		7/26/2021		10/20/2021		1/24/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.03		0.03		0.52		0.09		0.34		0.24		0.57	
Oxidation Reduction Potential	mV	NV	156		156		-3.6		283		159		220		222	
pH	SU	NV	5.00		5.00		5.62		4.71		4.85		4.7		4.93	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	1.21		1.19		1.53		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	2.7		2.67		2.84		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	0.328	J	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 2.5	U	< 5	U	< 10	U	< 5	U	< 1	U	< 10	U	< 1	U
1,1-Dichloroethene	µg/L	7	4.1	J	3.2	J	< 5	U	< 2.5	U	1.1		< 5	U	0.64	J
1,2-Dichloroethane	µg/L	5	< 2.5	U	< 2.5	U	< 5	U	< 2.5	U	< 0.5	U	< 5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	140		140		130		62		80		88		66	
Methylene chloride	µg/L	5	< 5	U	< 5	U	< 20	U	< 10	U	< 1	U	< 10	U	< 2	U
Trichloroethene	µg/L	5	3400		3600		2800		1100		1200		1600		970	
Vinyl chloride	µg/L	2	5.3		5.6		< 5	U	< 2.5	U	2		< 5	U	1.2	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW05													
		Sample ID	16RW05-200312		16RW05-200716		16RW05-201022		16RW05-210129		16RW05-210419		16RW05-210714		16RW05-211018	
		Sample Date	3/12/2020		7/16/2020		10/22/2020		1/29/2021		4/19/2021		7/14/2021		10/18/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.03		0.05		0.05		2.51		0.03		0.26		0.11	
Oxidation Reduction Potential	mV	NV	-97		-207		-55		73.8		-3.44		-122		-43	
pH	SU	NV	6.36		5.79		6.68		7.25		7.25		6.83		6.73	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	52.8		55.2		44		45.8		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	500		416		117		34.8		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	1.77		< 0.05	U	< 0.5	U	< 0.1	U	< 2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 10	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	7.8		8	J	9.3		1.5		< 0.5	U	0.69	J	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 10	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	3		< 5	U	0.89	J	< 0.5	U	0.52	J	1.1		< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW05		16RW06											
		Sample ID	16RW05-220124		16RW06-200317		16RW06-200714		16RW06-201026		16RW06-210122		16RW06-210419		16RW06-210727	
		Sample Date	1/24/2022		3/17/2020		7/14/2020		10/26/2020		1/22/2021		4/19/2021		7/27/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.69		0.73		1.68		0.27		0.55		0.49		0.85	
Oxidation Reduction Potential	mV	NV	117		134		136		69		91.1		-236		100	
pH	SU	NV	7.01		5.99		5.94		6.27		6.61		5.61		5.80	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 2	U	< 0.5	U	< 0.1	U	< 0.25	UJ	< 0.5	U	< 1	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	UJ
1,1-Dichloroethene	µg/L	7	< 0.5	U	0.9	J	1		1.3		1.3		0.82	J	< 0.5	UJ
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ
cis-1,2-Dichloroethene	µg/L	70	0.86	J	1.9		2.4		4.8		3.3		1.7		4.4	J
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	UJ
Trichloroethene	µg/L	5	0.81	J	86		77	J+	110		95		60		64	J
Vinyl chloride	µg/L	2	0.9	J	0.84	J	1.2		2.5		2.2		< 0.5	U	< 0.5	UJ

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW06				16RW07									
		Sample ID	16RW06-211025		16RW06-220125		16RW07-200317		16RW07-200714		16RW07-200714-FD		16RW07-201026		16RW07-210122	
		Sample Date	10/25/2021		1/25/2022		3/17/2020		7/14/2020		7/14/2020		10/26/2020		1/22/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.37		0.57		0.09		0.48		0.48		0.91		0.58	
Oxidation Reduction Potential	mV	NV	135		59		-26		86		86		143		70.1	
pH	SU	NV	5.75		6.03		6.41		5.96		5.96		5.60		6.52	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	0.089	J	4.9		2.45		2.33		0.391		0.638	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 2.5	U	< 5	U	< 5	U	< 1	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	12		13		15		6.4		13	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	6.8		5.3		120		110		100		38		120	
Methylene chloride	µg/L	5	< 1	U	< 2	U	< 5	U	< 5	U	< 5	U	< 1	U	< 10	U
Trichloroethene	µg/L	5	34		37		1900		2100		2300		1100		2000	
Vinyl chloride	µg/L	2	< 0.5	U	1.2		76		89		95		28		90	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW07								16RW09					
		Sample ID	16RW07-210419		16RW07-210727		16RW07-211025		16RW07-220125		16RW09-200714		16RW09-201026		16RW09-210202	
		Sample Date	4/19/2021		7/27/2021		10/25/2021		1/25/2022		7/14/2020		10/26/2020		2/2/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.98		1.4		0.86		0.48		0.03		0.14		0.11	
Oxidation Reduction Potential	mV	NV	-195		107		117		87		128		208		-14	
pH	SU	NV	5.73		6.01		6.23		6.07		5.95		5.56		5.65	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		6.98		5.38		5.84	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		2.56		1.58		2.28	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	1		< 0.5	U	0.262	J	0.27		0.491	J	0.12	J	0.459	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	UJ	< 5	U	< 1	U	< 5	U	< 0.5	U	< 5	U
1,1-Dichloroethene	µg/L	7	4.8		4.1	J	4.1	J	3.4		9.9		7.5		6.8	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	UJ	< 2.5	U	< 0.5	U	< 2.5	U	< 0.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	46		35	J	35		38		45		290		230	
Methylene chloride	µg/L	5	< 2	U	< 1	UJ	< 5	U	< 2	U	< 5	U	< 1	U	< 10	U
Trichloroethene	µg/L	5	900		760	J	700		540		1300		980		690	
Vinyl chloride	µg/L	2	29		15	J	15		15		52		33		25	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW09										16RW10			
		Sample ID	16RW09-210420		16RW09-210714		16RW09-210727		16RW09-211026		16RW09-220126		16RW10-200720		16RW10-201026	
		Sample Date	4/20/2021		7/14/2021		7/27/2021		10/26/2021		1/26/2022		7/20/2020		10/26/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.16		0.16		0.48		0.31		0.41		0.07		0.04	
Oxidation Reduction Potential	mV	NV	127		127		23		54		230		94		52	
pH	SU	NV	5.82		5.82		6.61		6.08		5.89		6.35		6.34	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	NA		< 0.25	U	< 0.5	U	< 0.5	U	NA		NA	
Ethylene	µg/L	NV	1.97	J	NA		1.25	J	2.6	J	2.54	J	NA		NA	
Methane	µg/L	NV	144		NA		255	J	180		95.8		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		8.29		< 0.1	U
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	2.28		NA		2.52		2.58		6.29		4.58		4.1	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.241		< 2	U	< 1	U	< 0.2	U	< 0.2	U	62.7		8.11	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 5	U	< 5	U	< 1	U	< 5	U	< 2.5	U
1,1-Dichloroethene	µg/L	7	4.8		< 0.5	U	9.6		5.4		4.4		17		21	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 0.5	U	4	J	4.6	J
cis-1,2-Dichloroethene	µg/L	70	160		0.69	J	180		340		160		290		390	
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 5	U	< 5	U	< 2	U	< 5	U	5.5	J
Trichloroethene	µg/L	5	810		1.1		1400		610		730		1800		2000	
Vinyl chloride	µg/L	2	33		< 0.5	U	59		28		25		80		100	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW10										16RW11			
		Sample ID	16RW10-210202		16RW10-210420		16RW10-210727		16RW10-211026		16RW10-220126		16RW11-200317		16RW11-200721	
		Sample Date	2/2/2021		4/20/2021		7/27/2021		10/26/2021		1/26/2022		3/17/2020		7/21/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.09		0.16		0.6		0.2		0.61		0.07		0.24	
Oxidation Reduction Potential	mV	NV	-30		58		129		97		221		-82		-66	
pH	SU	NV	6.16		6.25		6.15		6.2		6.26		6.28		6.46	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		< 0.5	U	< 0.25	U	< 0.5	U	2.83		NA		NA	
Ethylene	µg/L	NV	NA		26.1	J	10.4	J	5.19	J	5.76	J	NA		NA	
Methane	µg/L	NV	NA		330		416	J	216		413		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	7.4		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	3.24		4.84		5.15		5.9		5.35		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	125	J	36.5		18.7		27.8		4.1		< 2	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 5	U	< 5	U	< 5	U	< 5	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	14		14		8.5		3.9	J	6.7		0.56	J	< 0.5	U
1,2-Dichloroethane	µg/L	5	66		24		16		15		18		1.6		1.6	
cis-1,2-Dichloroethene	µg/L	70	1200		710		670		500		620		73		60	J-
Methylene chloride	µg/L	5	< 20	U	8.7	J	< 5	U	< 5	U	16		< 1	U	< 1	U
Trichloroethene	µg/L	5	5300		2400		2000		950		1300		20		8.9	J-
Vinyl chloride	µg/L	2	50		93		49		25		49		< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW11													
		Sample ID	16RW11-201021		16RW11-201021-FD		16RW11-210203		16RW11-210421		16RW11-210421-FD		16RW11-210722		16RW11-210722-FD	
		Sample Date	10/21/2020		10/21/2020		2/3/2021		4/21/2021		4/21/2021		7/22/2021		7/22/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.04		0.04		0.04		0.03		0.03		0.29		0.29	
Oxidation Reduction Potential	mV	NV	-18		-18		-220		-118		-118		-102		-102	
pH	SU	NV	6.24		6.24		6.68		6.79		6.79		6.91		6.91	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.25	UJ	0.0617	J	< 0.1	U	< 0.5	U	< 0.5	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	0.73	J	0.91	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	3.5		3.3		0.92	J	0.85	J	0.75	J	1.1		0.97	J
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	3.7		3.3		2.2		2		1.9		2.3		2.1	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.77	J	0.79	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16RW11								16WW12					
		Sample ID	16RW11-211021		16RW11-211021-FD		16RW11-220126		16RW11-220126-FD		16WW12-181012		16WW12-190918		16WW12-200311	
		Sample Date	10/21/2021		10/21/2021		1/26/2022		1/26/2022		10/12/2018		9/18/2019		3/11/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.27		0.27		0.36		0.27		0.36		0.34		0.61	
Oxidation Reduction Potential	mV	NV	-11		-11		101		-11		130.1		163.3		158	
pH	SU	NV	6.19		6.19		6.58		6.19		5.74		5.79		6.41	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		3.9		NA		3.71	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		7.08	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	12		120		53	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	UJ	< 1	UJ	< 1	U	< 1	U	< 5	U	< 2.5	U	< 2.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U	< 5	U	4.9	J	3.6	J
1,2-Dichloroethane	µg/L	5	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U	16		9.2		7.5	
cis-1,2-Dichloroethene	µg/L	70	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U	86		52		48	
Methylene chloride	µg/L	5	< 1	UJ	< 1	UJ	< 2	U	< 2	U	< 10	U	< 5	U	< 5	U
Trichloroethene	µg/L	5	1.3	J	1.2	J	1.1		0.83	J	4100		2100		1700	
Vinyl chloride	µg/L	2	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U	12		5.5		3.4	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW12													
		Sample ID	16WW12-200721		16WW12-201021		16WW12-210203		16WW12-210421		16WW12-210728		16WW12-211021		16WW12-220126	
		Sample Date	7/21/2020		10/21/2020		2/3/2021		4/21/2021		7/28/2021		10/21/2021		1/26/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.07		0.25		0.08		0.03		0.78		0.27		0.49	
Oxidation Reduction Potential	mV	NV	68		72		55		130		82		165		93	
pH	SU	NV	6.01		6.02		5.82		6.35		6.21		5.75		6.47	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	6.16		5.76		5.7		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	8.72		3.98		3.73		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	61.5		18.5		24.1	J	42.1		16		23.2		30.5	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 5	U	< 1	U	< 10	U	< 5	U	< 10	UJ	< 5	U
1,1-Dichloroethene	µg/L	7	7.5		3.8	J	3.2		5.4	J	4	J	< 5	UJ	< 2.5	U
1,2-Dichloroethane	µg/L	5	12		5.5		4.3		7.3	J	5.8		5.1	J	4.8	J
cis-1,2-Dichloroethene	µg/L	70	71		67		84		76		64		69	J	77	
Methylene chloride	µg/L	5	< 5	U	< 5	U	< 2	U	< 20	U	< 5	U	< 10	UJ	5.1	J
Trichloroethene	µg/L	5	2800		1500		1100		2100		1700		1000	J	1100	
Vinyl chloride	µg/L	2	8.1		5.8		4.8		8.2	J	5.5		4.6	J	5	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW13													
		Sample ID	16WW13-181012		16WW13-190918		16WW13-200312		16WW13-200723		16WW13-200723-FD		16WW13-201022		16WW13-210122	
		Sample Date	10/12/2018		9/18/2019		3/12/2020		7/23/2020		7/23/2020		10/22/2020		1/22/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.02		0.16		2.47		0.07		0.07		0.32		5.7	
Oxidation Reduction Potential	mV	NV	225.7		190		161		183		183		137		156.7	
pH	SU	NV	4.68		5.52		5.58		5.58		5.58		4.69		6.04	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.929		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	0.134		< 0.1	U	< 0.05	U	< 0.05	UJ
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 5	U	0.7	J	< 0.5	U	< 0.5	U	0.61	J	1.3		< 0.5	U
1,2-Dichloroethane	µg/L	5	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1700		210		18		180		200		620		190	
Methylene chloride	µg/L	5	< 10	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	4400		630		7.5		190		190		1100		97	
Vinyl chloride	µg/L	2	51		5.6		< 0.5	U	4		3.9		8.8		1.1	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW13								16WW14					
		Sample ID	16WW13-210419		16WW13-210726		16WW13-211026		16WW13-220127		16WW14-181010		16WW14-190916		16WW14-200317	
		Sample Date	4/19/2021		7/26/2021		10/26/2021		1/27/2022		10/10/2018		9/16/2019		3/17/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.89		0.51		0.63		0.56		0.44		0.88		0.03	
Oxidation Reduction Potential	mV	NV	139		125		218		239		57.1		24		52	
pH	SU	NV	5.54		5.47		5.2		5.47		5.93		6.17		6.41	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.292		< 0.5	U	< 0.2	U	< 1	U	< 2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 5	U	< 10	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	140		560		680		690		2.6		0.79	J	1.2	
Methylene chloride	µg/L	5	< 2	U	< 5	U	< 5	U	< 20	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	22		1500		2800		2300		42		25		33	
Vinyl chloride	µg/L	2	0.87	J	9.6		10		10		1.1		< 0.5	U	0.4	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW14													
		Sample ID	16WW14-200720		16WW14-201019		16WW14-210122		16WW14-210412		16WW14-210712		16WW14-211025		16WW14-220110	
		Sample Date	7/20/2020		10/19/2020		1/22/2021		4/12/2021		7/12/2021		10/25/2021		1/10/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.26		0.37		0.93		0.47		0.73		0.36		0.42	
Oxidation Reduction Potential	mV	NV	95		96		103.5		129		120		196		165	
pH	SU	NV	6.24		6.02		6.67		5.97		5.72		5.82		5.17	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.544	J	< 0.05	U	< 0.05	UJ	< 0.05	U	0.21		< 0.2	U	0.21	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.4		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.63	J
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	42		25		18		17		8.4		12		17	
Vinyl chloride	µg/L	2	0.61	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW16													
		Sample ID	16WW16-181010		16WW16-190916		16WW16-200311		16WW16-200714		16WW16-201008		16WW16-210120		16WW16-210415	
		Sample Date	10/10/2018		9/16/2019		3/11/2020		7/14/2020		10/8/2020		1/20/2021		4/15/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0	U	NA		5.1		2.3		0.5		1.1		0.1	J
Field Measurements																
Dissolved oxygen	mg/L	NV	0.96		0.28		0.44		0.76		0.02		0.99		1.36	
Oxidation Reduction Potential	mV	NV	193.6		58.9		113		104		75		162.1		173	
pH	SU	NV	6.10		6.12		6.59		6.48		6.36		6.59		6.08	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	2.31		NA		4.87		5.33		5.64		0.75		2.4	
Ethylene	µg/L	NV	4.98		NA		10.2		10.4		11.6		2.8		3.44	J
Methane	µg/L	NV	403		NA		1210		997		907		380		437	J
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	362		NA		397		400		391		344		338	
Bromide	mg/L	NV	4.69		NA		4.51		5.82		6.75		5.92		3.97	
Nitrate	mg/L	NV	< 0.1	U	NA		< 0.1	U	< 0.1	U	< 0.5	U	0.741		< 0.1	U
Sulfate	mg/L	NV	722		NA		433		521		491		849		367	
Total organic carbon	mg/L	NV	4.34		NA		4.85		18.4		3.35		4.07		4.71	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	420		460		510		442		480		309		288	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 12	U	< 12	U	< 25	U	< 25	U	< 5	U	< 50	U
1,1-Dichloroethene	µg/L	7	< 25	U	25		37		50		59		12		33	J
1,2-Dichloroethane	µg/L	5	< 25	U	19	J	30		32		33		8.6		32	J
cis-1,2-Dichloroethene	µg/L	70	8500		6600		13000		16000		17000		2800		13000	
Methylene chloride	µg/L	5	< 50	U	< 25	U	< 25	U	< 25	U	44	J	< 10	U	< 100	U
Trichloroethene	µg/L	5	21000		13000		27000		28000		32000		5700		28000	
Vinyl chloride	µg/L	2	330		220		300		430		470		110		260	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW16						16WW21							
		Sample ID	16WW16-210720		16WW16-211013		16WW16-220111		16WW21-181012		16WW21-200316		16WW21-200316-FD		16WW21-200715	
		Sample Date	7/20/2021		10/13/2021		1/11/2022		10/12/2018		3/16/2020		3/16/2020		7/15/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		UPPER DEEP		UPPER DEEP		UPPER DEEP		UPPER DEEP	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.5	J	0.1	J	0.4	J	NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.93		0.41		0.73		0.82		0.88		0.88		0.41	
Oxidation Reduction Potential	mV	NV	107		128		191		166.4		50		50		153	
pH	SU	NV	6.15		5.83		6.14		5.52		7.89		7.89		5.67	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	2.23		2.29		2.63		NA		NA		NA		NA	
Ethylene	µg/L	NV	4.11	J	3.29	J	3.93	J	NA		NA		NA		NA	
Methane	µg/L	NV	407		406		490	J	NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	363		365		365		NA		NA		NA		NA	
Bromide	mg/L	NV	4.32		< 0.1	U	2.54		0.218		0.206		0.209		1.3	
Nitrate	mg/L	NV	< 0.2	U	< 0.1	U	0.0442	J	NA		NA		NA		NA	
Sulfate	mg/L	NV	428		192		372		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	4.46		6.66		4.69	J	NA		< 0.2	UJ	< 0.2	UJ	0.89	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	408		555		561		< 2	U	< 2	U	< 2	U	0.25	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 25	U	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	29		33		25		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	33		41		35		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	15000		18000		14000		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	35	UB	< 25	U	< 50	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	30000		34000		29000		< 0.5	U	1.3		1.1		0.55	J
Vinyl chloride	µg/L	2	170		200		170		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW21													
		Sample ID	16WW21-201014		16WW21-201014-FD		16WW21-210203		16WW21-210203-FD		16WW21-210415		16WW21-210720		16WW21-211019	
		Sample Date	10/14/2020		10/14/2020		2/3/2021		2/3/2021		4/15/2021		7/20/2021		10/19/2021	
		Groundwater Zone	UPPER DEEP		UPPER DEEP		UPPER DEEP		UPPER DEEP		UPPER DEEP		UPPER DEEP		UPPER DEEP	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.23		0.23		0.12		0.12		0.41		0.84		0.64	
Oxidation Reduction Potential	mV	NV	17		17		-152		-152		84		30		33	
pH	SU	NV	6.55		6.55		6.50		6.50		5.51		6.17		6.18	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.864		0.895		0.578		0.62		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	0.58		0.12	J	< 0.2	U	< 0.2	U	NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	UJ	< 0.05	UJ	< 0.05	U	< 0.5	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	1.5		1.9		< 0.5	U	< 0.5	U	1.1		1		0.56	J
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW21		16WW22											
		Sample ID	16WW21-220113		16WW22-181010		16WW22-190917		16WW22-200316		16WW22-200715		16WW22-201014		16WW22-210125	
		Sample Date	1/13/2022		10/10/2018		9/17/2019		3/16/2020		7/15/2020		10/14/2020		1/25/2021	
		Groundwater Zone	UPPER DEEP		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		5.2		NA		4.6		4		11.1		28.3	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.88		0.89		0.23		0.05		0.05		0.62		0.78	
Oxidation Reduction Potential	mV	NV	112		68.3		-17.7		-5		51		8		51.1	
pH	SU	NV	5.93		5.86		6.05		6.39		6.21		6.27		6.30	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		< 1	U	NA		0.288	J	< 0.25	U	< 0.25	U	< 0.47	U
Ethylene	µg/L	NV	NA		1.56		NA		1.68		1.16		< 0.5	U	< 0.55	U
Methane	µg/L	NV	NA		2.46		NA		2.98		2.04		2.04		0.91	J
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		239		NA		168		204		183		200	
Bromide	mg/L	NV	NA		4.46		NA		4		5.77		5.26		5.54	
Nitrate	mg/L	NV	NA		< 0.1	U	NA		< 0.5	U	< 0.1	U	< 0.1	U	0.186	J
Sulfate	mg/L	NV	NA		772		NA		368		283		163		307	
Total organic carbon	mg/L	NV	NA		2.62		NA		2.35		1.23		0.81		1.13	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	5.5		< 2	U	< 2	U	0.442	J	< 0.05	U	0.246	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	1.9		< 0.5	U	0.65	J	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	19		2.7		4.2		2.7		3		3.2	
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	0.95	J	150		34		52		24		7.8		30	
Vinyl chloride	µg/L	2	< 0.5	U	4.5		0.44	J	0.69	J	< 0.5	U	< 0.5	U	0.49	J

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW22								16WW23					
		Sample ID	16WW22-210415		16WW22-210720		16WW22-211019		16WW22-220111		16WW23-181012		16WW23-190917		16WW23-200331	
		Sample Date	4/15/2021		7/20/2021		10/19/2021		1/11/2022		10/12/2018		9/17/2019		3/31/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	13.7	J	24.9		51.1		38		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.04		0.64		0.19		0.61		1.23		0.14		0.08	
Oxidation Reduction Potential	mV	NV	110		100		146		139		13.2		8		2	
pH	SU	NV	5.99		6.10		5.45		6.33		5.49		6.07		4.53	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U	NA		NA		NA	
Ethylene	µg/L	NV	1.24	J	0.673	J	0.951	J	1.04	J	NA		NA		NA	
Methane	µg/L	NV	0.981		2.51		1.11		1.86	J	NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	252		243		205		214		NA		NA		NA	
Bromide	mg/L	NV	4.62		4.85		1.8		3.44		NA		NA		NA	
Nitrate	mg/L	NV	0.0682	J	< 0.2	U	< 0.2	UJ	0.0496	J	NA		NA		NA	
Sulfate	mg/L	NV	209		209		166		157		NA		NA		NA	
Total organic carbon	mg/L	NV	1.49		2.39		3.04		6.19		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.471		0.148		0.486		0.4		< 2	U	< 2	U	< 20	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	2		2.2		2.5		2.9		< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	12		13		7.6		13		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW23													
		Sample ID	16WW23-200727		16WW23-201008		16WW23-210128		16WW23-210422		16WW23-210714		16WW23-211013		16WW23-220127	
		Sample Date	7/27/2020		10/8/2020		1/28/2021		4/22/2021		7/14/2021		10/13/2021		1/27/2022	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.03		0.04		1.37		3.42		0.47		0.23		0.5	
Oxidation Reduction Potential	mV	NV	17		-23		56.7		53		12		-5		90	
pH	SU	NV	5.67		5.96		5.61		5.57		5.20		5.87		6.3	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	0.346	J	< 0.05	U	< 2	U	< 0.2	UJ	< 1	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.8		< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW24													
		Sample ID	16WW24-181009		16WW24-181009-FD		16WW24-190917		16WW24-200331		16WW24-200331-FD		16WW24-200727		16WW24-201008	
		Sample Date	10/9/2018		10/9/2018		9/17/2019		3/31/2020		3/31/2020		7/27/2020		10/8/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	1.6		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.17		0.17		0.44		0.04		0.04		1.71		0.03	
Oxidation Reduction Potential	mV	NV	282.6		282.6		357		356		356		402		225	
pH	SU	NV	3.54		3.54		3.76		4.78		4.78		4.03		3.89	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	0.256	J	0.555	J	NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	1.39	J	1.24		NA		NA		NA		NA		NA	
Methane	µg/L	NV	1.65		3.27		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	< 5	U	< 5	U	NA		NA		NA		NA		NA	
Bromide	mg/L	NV	1.26		1.32		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	905		898		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	2.76		2.65		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	2.38		< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW24										16WW25			
		Sample ID	16WW24-210128		16WW24-210422		16WW24-210714		16WW24-211013		16WW24-220127		16WW25-181009		16WW25-190919	
		Sample Date	1/28/2021		4/22/2021		7/14/2021		10/13/2021		1/27/2022		10/9/2018		9/19/2019	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		0	U	NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	2.09		0.43		0.61		1		0.72		0.31		0.2	
Oxidation Reduction Potential	mV	NV	189.3		482		262		327		312		-13.4		-18.2	
pH	SU	NV	3.44		3.31		3.30		3.52		3.76		5.95		5.68	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		0.316	J	NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		0.954	J	NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		13.7		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		69		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		2.86		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		< 0.1	U	NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		5710		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		23.8		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	U	< 0.05	U	< 0.5	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	1.2		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW25													
		Sample ID	16WW25-190919-FD		16WW25-200316		16WW25-200721		16WW25-201014		16WW25-210121		16WW25-210121-FD		16WW25-210420	
		Sample Date	9/19/2019		3/16/2020		7/21/2020		10/14/2020		1/21/2021		1/21/2021		4/20/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		6.2		1.9		3.5		7		NA		< 0.5	U
Field Measurements																
Dissolved oxygen	mg/L	NV	0.2		0.05		0.02		0.02		0.69		0.69		0.06	
Oxidation Reduction Potential	mV	NV	-18.2		-38		-16		-14		-37.4		-37.4		-34	
pH	SU	NV	5.68		6.20		5.97		6.10		6.27		6.27		6.28	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		0.371	J	0.284	J	< 0.25	U	< 0.47	U	< 0.47	U	< 0.5	U
Ethylene	µg/L	NV	NA		2.26		0.845	J	< 0.5	U	< 0.55	U	< 0.55	U	< 0.5	UJ
Methane	µg/L	NV	NA		22.1		15.6		15.3		9.9		9.6		16.7	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		32.4		52.8		52.7		28.7		32.3		86.5	
Bromide	mg/L	NV	NA		3.71	J	2.69		2.11		2.67		2.67		3.13	
Nitrate	mg/L	NV	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Sulfate	mg/L	NV	NA		5000		5550		5270		2160		2050		5500	
Total organic carbon	mg/L	NV	NA		31.2		27.9		27.7	J-	13.1	J	12.5		39.1	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	0.512	J	0.077	J	< 0.5	U	< 0.5	U	< 0.25	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	0.85	J	0.58	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW25													
		Sample ID	16WW25-210420-FD		16WW25-210713		16WW25-210713-FD		16WW25-211014		16WW25-211014-FD		16WW25-220112		16WW25-220112-FD	
		Sample Date	4/20/2021		7/13/2021		7/13/2021		10/14/2021		10/14/2021		1/12/2022		1/12/2022	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		5.3		NA		3.7		NA		3.2		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.06		0.65		0.65		0.33		0.33		0.62		0.62	
Oxidation Reduction Potential	mV	NV	-34		-13		-13		27		27		40		40	
pH	SU	NV	6.28		5.92		5.92		5.82		5.82		6.42		6.42	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.25	U	< 0.25	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	< 0.5	UJ	0.657	J	< 0.5	UJ	< 0.5	UJ	1.94	J	< 0.5	UJ	< 0.5	UJ
Methane	µg/L	NV	15.3		14.5		14		12	J	7.66	J	16.6		16.9	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	77.5		60		54.3		76.7	J	110	J	44.7	J	65.1	J
Bromide	mg/L	NV	2.75		2.63		2.5		< 0.5	U	< 0.5	U	< 5	U	< 5	U
Nitrate	mg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.324	J	0.201	J
Sulfate	mg/L	NV	5560		5570		5340		4250		4070		4840		4780	
Total organic carbon	mg/L	NV	37		37.8		37.3		28.3		26.1		33.8		32.6	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.25	U	< 1	U	< 1	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW26													
		Sample ID	16WW26-181009		16WW26-190917		16WW26-190917-FD		16WW26-200721		16WW26-201014		16WW26-210121		16WW26-210420	
		Sample Date	10/9/2018		9/17/2019		9/18/2019		7/21/2020		10/14/2020		1/21/2021		4/20/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.3	J	NA		NA		5.4		21.9		7.6		2.9	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.66		0.44		0.44		0.05		0.71		0.97		0.88	
Oxidation Reduction Potential	mV	NV	50.4		-1.6		-1.6		189		68		99.9		279	
pH	SU	NV	5.08		5.21		5.21		5.02		5.48		5.25		4.86	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	0.591	J	NA		NA		0.239	J	< 0.25	U	< 0.47	U	< 0.5	U
Ethylene	µg/L	NV	2.59		NA		NA		1.38		< 0.5	U	< 0.55	U	< 0.5	UJ
Methane	µg/L	NV	10.5		NA		NA		5.1		4.5		2.5		1.18	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	12		NA		NA		21.5		38.4		15		< 5	U
Bromide	mg/L	NV	< 0.1	U	NA		NA		0.774		0.638		1.11		1.52	
Nitrate	mg/L	NV	< 0.1	U	NA		NA		< 0.1	U	< 0.1	U	0.22		< 0.5	U
Sulfate	mg/L	NV	1170		NA		NA		665		375	J-	354		749	
Total organic carbon	mg/L	NV	5.03		NA		NA		3.05		2.11		1.65		3.54	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	0.025	J	< 0.05	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 2.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 2.5	U	1.4		1.6		1.7		2.5		1.5		0.7	J
1,2-Dichloroethane	µg/L	5	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	290		35		36		38		78		54		8.7	
Methylene chloride	µg/L	5	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	2400		380		440		490		850		1000		130	
Vinyl chloride	µg/L	2	5	J	< 0.5	U	< 0.5	U	0.88	J	1.9		1.4		< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW26								16WW27					
		Sample ID	16WW26-210713		16WW26-211014		16WW26-220112		16WW26-220112-FD		16WW27-181012		16WW27-190917		16WW27-200312	
		Sample Date	7/13/2021		10/14/2021		1/12/2022		1/12/2022		10/12/2018		9/17/2019		3/12/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	5.4		26.4		35.7		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.66		0.48		0.59		0.59		0.98		0.04		0.05	
Oxidation Reduction Potential	mV	NV	175		243		155		155		-11.4		-26		-52	
pH	SU	NV	4.50		4.49		5.04		5.04		5.54		5.99		6.17	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.25	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA		NA	
Ethylene	µg/L	NV	0.852	J	2.18	J	0.997	J	< 0.5	UJ	NA		NA		NA	
Methane	µg/L	NV	1.54		5.49		4.01		3.86		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	15.2		24.3		43		44.3		NA		NA		NA	
Bromide	mg/L	NV	0.282		< 0.1	U	0.457		0.522		NA		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	0.0479	J	0.0376	J	NA		NA		NA	
Sulfate	mg/L	NV	341		342		372		370		NA		NA		NA	
Total organic carbon	mg/L	NV	3.18		4.31		4.58	J	6.48	J	NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 1	U	< 0.2	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	0.77	J	0.79	J	0.76	J	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	3.7		36		44		41		< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	26		500		440		380		< 0.5	U	< 0.5	U	1.1	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	0.65	J	0.69	J	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW27													
		Sample ID	16WW27-200312-FD		16WW27-200723		16WW27-201022		16WW27-201022-FD		16WW27-210128		16WW27-210422		16WW27-210728	
		Sample Date	3/12/2020		7/23/2020		10/22/2020		10/22/2020		1/28/2021		4/22/2021		7/28/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.05		0.03		0.03		0.03		0.67		0.3		1.19	
Oxidation Reduction Potential	mV	NV	-52		2		4		4		-28.8		-20		23	
pH	SU	NV	6.17		5.83		5.99		5.99		5.87		6.0		5.47	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 0.5	U	< 0.05	U	< 0.05	U	< 0.5	U	< 0.05	U	< 0.25	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Trichloroethene	µg/L	5	1.3		< 0.5	U	1.2		1.1		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW27				16WW29									
		Sample ID	16WW27-211018		16WW27-220125		16WW29-181015		16WW29-190918		16WW29-200330		16WW29-200715		16WW29-201014	
		Sample Date	10/18/2021		1/25/2022		10/15/2018		9/18/2019		3/30/2020		7/15/2020		10/14/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		0.5		NA		10.1		7.5		32.2	
Field Measurements																
Dissolved oxygen	mg/L	NV	4.72		0.68		1.16		0.42		0.04		0.07		3.01	
Oxidation Reduction Potential	mV	NV	11		63		25.1		-39.1		-44		-6		-2	
pH	SU	NV	5.62		6.14		6.19		5.85		4.96		5.77		5.99	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		< 1	U	NA		0.275	J	0.26	J	< 0.25	U
Ethylene	µg/L	NV	NA		NA		1.87		NA		0.864	J	1.14		1.13	
Methane	µg/L	NV	NA		NA		2.41		NA		35.5		31.3		15.3	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		45.9		NA		65.2		24.4		71.8	
Bromide	mg/L	NV	NA		NA		0.218		NA		1.16		2.62		1.37	
Nitrate	mg/L	NV	NA		NA		< 0.1	U	NA		< 0.1	U	< 0.2	U	< 0.2	U
Sulfate	mg/L	NV	NA		NA		99.2		NA		1560		1900		1200	
Total organic carbon	mg/L	NV	NA		NA		1.8		NA		16		15.3		11.2	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 2		< 2	U	< 2	U	< 0.5	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	8.4		< 0.5	U	< 0.5	U	< 0.5	U	1.1	
Methylene chloride	µg/L	5	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	3.3		2.7		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW29													
		Sample ID	16WW29-210121		16WW29-210420		16WW29-210420-FD		16WW29-210720		16WW29-210720-FD		16WW29-211014		16WW29-211014-FD	
		Sample Date	1/21/2021		4/20/2021		4/20/2021		7/20/2021		7/20/2021		10/14/2021		10/14/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	7.2		19.9		NA		25.1		NA		32.4		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	4.79		0.04		0.04		0.47		0.47		0.43		0.43	
Oxidation Reduction Potential	mV	NV	138.3		-86		-86		-48		-48		-9		-9	
pH	SU	NV	5.97		6.42		6.42		6.50		6.50		6.1		6.1	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.47	U	< 0.5	U	< 0.5	U	< 0.25	U	< 0.25	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	< 0.55	U	< 0.5	UJ	1.36	J	< 0.5	UJ	1.72	J	3.66	J	2.32	J
Methane	µg/L	NV	8		30.6		30.2		21.5		22.3		19.8		21.4	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	26.2		41.4		35.4		36.5	J	22.5	J	24		26.5	
Bromide	mg/L	NV	0.886		2.35		2.23		0.897		0.916		< 0.2	U	< 0.2	U
Nitrate	mg/L	NV	0.273		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.2	U	< 0.2	U
Sulfate	mg/L	NV	462		1800		1850		1790		1790		1700		1890	
Total organic carbon	mg/L	NV	4.47		16.9		16.9		17.4		17		16.8		18	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	U	< 0.25	U	< 0.25	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.8		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	0.99	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.64	J	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW30													
		Sample ID	16WW29-220112		16WW30-181012		16WW30-190918		16WW30-200330		16WW30-200715		16WW30-201014		16WW30-210121	
		Sample Date	1/12/2022		10/12/2018		9/18/2019		3/30/2020		7/15/2020		10/14/2020		1/21/2021	
		Groundwater Zone	INTERMEDIATE		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	43.8		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.44		1.3		0.22		0.06		0.07		0.08		0.52	
Oxidation Reduction Potential	mV	NV	-12		50.1		-54.3		152		2		-27		-28.3	
pH	SU	NV	6.74		5.83		6.14		4.40		5.81		6.19		6.23	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	0.859	J	NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	29.1		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	23.4		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	< 0.5	U	3.22		NA		1.05		3.79		3.56		4.18	
Nitrate	mg/L	NV	0.254	J	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	1950		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	22		NA		NA		5.23		2.35		2.13		1.01	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 2	U	< 2	U	< 2	U	0.309	J	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	0.82	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	79		< 0.5	U	< 0.5	U	< 0.5	U	0.77	J
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	1.8		360		14		3.5		5.7		2.2	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	0.41	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW30								16WW31					
		Sample ID	16WW30-210420		16WW30-210720		16WW30-211014		16WW30-220112		16WW31-181010		16WW31-181010-FD		16WW31-200312	
		Sample Date	4/20/2021		7/20/2021		10/14/2021		1/12/2022		10/10/2018		10/10/2018		3/12/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.18		0.54		0.24		0.68		0.71		0.71		0.04	
Oxidation Reduction Potential	mV	NV	40		-34		11		67		219.1		219.1		101	
pH	SU	NV	5.83		6.42		5.91		6.28		5.32		5.32		6.30	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.2	UJ	< 0.2	U	< 2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	1.2		1.1	J	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	11		12		32		31		< 0.5	U	< 0.5	U	1.1	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW31													
		Sample ID	16WW31-200727		16WW31-201019		16WW31-210119		16WW31-210412		16WW31-210712		16WW31-211018		16WW31-220111	
		Sample Date	7/27/2020		10/19/2020		1/19/2021		4/12/2021		7/12/2021		10/18/2021		1/11/2022	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.22		0.12		0.98		0.86		0.58		0.57		0.64	
Oxidation Reduction Potential	mV	NV	129		89		182.5		217		168		190		172	
pH	SU	NV	6.47		6.27		6.05		5.60		5.61		5.4		5.82	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	1.31		< 0.05	U	< 0.05	U	< 0.05	U	< 2.5	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW32													
		Sample ID	16WW32-181011		16WW32-200312		16WW32-200727		16WW32-201019		16WW32-210119		16WW32-210412		16WW32-210712	
		Sample Date	10/11/2018		3/12/2020		7/27/2020		10/19/2020		1/19/2021		4/12/2021		7/12/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.94		0.64		2		0.34		1.04		0.66		0.66	
Oxidation Reduction Potential	mV	NV	115.4		19		78		70		142.2		190		149	
pH	SU	NV	5.64		6.71		6.58		6.52		6.40		5.76		5.88	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2		< 2	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 5	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	0.8	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	9.9		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW32				16WW33									
		Sample ID	16WW32-211018		16WW32-220110		16WW33-181010		16WW33-200312		16WW33-200723		16WW33-200723-FD		16WW33-201019	
		Sample Date	10/18/2021		1/10/2022		10/10/2018		3/12/2020		7/23/2020		7/23/2020		10/19/2020	
		Groundwater Zone	SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.39		0.76		1.39		0.06		0.03		0.03		0.11	
Oxidation Reduction Potential	mV	NV	133		105		132.3		63		99		99		116	
pH	SU	NV	5.8		6.69		6.49		6.51		6.33		6.33		6.09	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	0.089	J	< 2	U	< 2	U	< 0.5	U	< 0.5	U	0.0259	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	13		< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	79		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW33										16WW34			
		Sample ID	16WW33-210203		16WW33-210412		16WW33-210712		16WW33-211018		16WW33-220110		16WW34-181010		16WW34-200312	
		Sample Date	2/3/2021		4/12/2021		7/12/2021		10/18/2021		1/10/2022		10/10/2018		3/12/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.11		0.08		0.69		0.38		0.44		0.92		0.85	
Oxidation Reduction Potential	mV	NV	-56		239		190		152		117		13.2		-18	
pH	SU	NV	6.26		5.25		5.67		5.37		6.63		6.15		6.86	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	UJ	< 0.05	U	< 5	U	< 0.2	U	0.12	J	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	31	
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	130	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW34													
		Sample ID	16WW34-200723		16WW34-201019		16WW34-201019-FD		16WW34-210203		16WW34-210203-FD		16WW34-210412		16WW34-210412-FD	
		Sample Date	7/23/2020		10/19/2020		10/19/2020		2/3/2021		2/3/2021		4/12/2021		4/12/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.57		0.36		0.36		0.04		0.04		0.33		0.33	
Oxidation Reduction Potential	mV	NV	77		139		139		-2		-2		154		154	
pH	SU	NV	6.37		5.76		5.76		5.72		5.72		5.55		5.55	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.5	U	< 0.05	U	< 0.05	U	< 0.05	UJ	< 0.05	UJ	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW34												16WW35	
		Sample ID	16WW34-210712		16WW34-210712-FD		16WW34-211018		16WW34-211018-FD		16WW34-220110		16WW34-220110-FD		16WW35-181010	
		Sample Date	7/12/2021		7/12/2021		10/18/2021		10/18/2021		1/10/2022		1/10/2022		10/10/2018	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		33.9	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.46		1.46		0.36		0.36		0.61		0.61		0.42	
Oxidation Reduction Potential	mV	NV	166		166		171		171		132		132		158.6	
pH	SU	NV	5.91		5.91		5.34		5.34		6.4		6.4		6.17	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		0.644	J
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		4.38	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		55	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		969	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.2	U
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.2	U
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		8400	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		44	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2.5	U	< 2.5	U	< 0.2	U	< 0.2	U	0.14	J	0.13	J	420	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 25	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	190	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 25	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	19000	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 50	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.51	J	< 0.5	U	21000	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	170	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW35													
		Sample ID	16WW35-190918		16WW35-200311		16WW35-200714		16WW35-201013		16WW35-210120		16WW35-210413		16WW35-210714	
		Sample Date	9/18/2019		3/11/2020		7/14/2020		10/13/2020		1/20/2021		4/13/2021		7/14/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		516		36.6		76.2		61.4		30		21.1	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.26		0.07		0.18		0.16		0.89		0.07		0.59	
Oxidation Reduction Potential	mV	NV	143		122		137		181		147.9		105		100	
pH	SU	NV	6.64		6.85		6.62		6.63		6.89		6.88		6.64	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		1.2		0.824	J	1.01		0.2	J	< 0.5	U	1.47	
Ethylene	µg/L	NV	NA		10.9		9.31		9.34		2.6		8.75	J	11.8	J
Methane	µg/L	NV	NA		140		114		96.9		53		102	J	15.4	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		1140		1180		1140		886		1090		1080	
Bromide	mg/L	NV	NA		< 1	U	< 1	U	< 0.5	U	3.46		< 0.5	U	< 0.5	U
Nitrate	mg/L	NV	NA		< 1	U	< 1	U	< 0.5	U	< 0.2	U	< 0.5	U	< 0.5	U
Sulfate	mg/L	NV	NA		8660		9850		9510		7880		9810		4850	
Total organic carbon	mg/L	NV	NA		58.5		67		65.5		27.8		59.1		68.7	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	410		560		451		565		< 0.5	U	367		352	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 12	U	< 5	U	< 10	U	< 2.5	U	7.2	J	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	120		96		81		93		120		85		100	
1,2-Dichloroethane	µg/L	5	< 12	U	< 5	U	< 5	U	< 2.5	U	8.2	J	< 5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	8800		4000		1700		1600		12000		2100		2000	
Methylene chloride	µg/L	5	< 25	U	< 10	U	< 10	U	< 5	U	< 20	U	17	J	< 10	U
Trichloroethene	µg/L	5	13000		11000		9500		11000		13000		9300		8100	
Vinyl chloride	µg/L	2	75		82		93		97		60		90		74	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW35				16WW36									
		Sample ID	16WW35-211013		16WW35-220111		16WW36-181009		16WW36-190916		16WW36-200123		16WW36-200311		16WW36-200714	
		Sample Date	10/13/2021		1/11/2022		10/9/2018		9/16/2019		1/23/2020		3/11/2020		7/14/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	52.2		59.2		202		NA		NA		1500		892	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.27		0.45		0.39		0.21		0.07		0.1		2.42	
Oxidation Reduction Potential	mV	NV	158		125		116.1		87.4		152		101		105	
pH	SU	NV	6.04		7.14		6.07		5.98		7.14		6.61		6.29	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 1	U	NA		NA		2.16		3.38	
Ethylene	µg/L	NV	5.3	J	3.47	J	12.3		NA		NA		18.9		26.1	
Methane	µg/L	NV	49.8		76.6	J	175		NA		NA		749		944	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	1020		1000		613		NA		NA		614		580	
Bromide	mg/L	NV	< 0.5	U	< 0.5	U	2.7		NA		1.4		0.91		2.85	
Nitrate	mg/L	NV	< 0.5	U	0.262	J	< 0.2	U	NA		NA		< 0.5	U	< 0.5	U
Sulfate	mg/L	NV	8550		8090		6290		NA		NA		2670		3330	
Total organic carbon	mg/L	NV	52.2		53.1		33		NA		21	J	19.7		18.6	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	366		342		< 2	U	< 2	U	NA		< 2	U	< 0.5	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 10	U	< 25	U	< 12	U	NA		< 12	U	< 25	U
1,1-Dichloroethene	µg/L	7	72		77		450		190		NA		160		290	
1,2-Dichloroethane	µg/L	5	< 5	U	< 5	U	34	J	13	J	NA		13	J	20	J
cis-1,2-Dichloroethene	µg/L	70	5100		4400		66000		19000		NA		19000		29000	
Methylene chloride	µg/L	5	< 10	U	< 20	U	< 50	U	< 25	U	NA		< 25	U	< 25	U
Trichloroethene	µg/L	5	9700		11000		22000		15000		NA		18000		25000	
Vinyl chloride	µg/L	2	39		58		610		230		NA		180		320	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW36												16WW37	
		Sample ID	16WW36-201013		16WW36-210120		16WW36-210413		16WW36-210714		16WW36-211013		16WW36-220111		16WW37-181010	
		Sample Date	10/13/2020		1/20/2021		4/13/2021		7/14/2021		10/13/2021		1/11/2022		10/10/2018	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	1680		7.9		620		1200		1020		1200		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.25		2.77		0.7		0.53		0.19		0.54		0.57	
Oxidation Reduction Potential	mV	NV	223		141.1		179		100		149		154		48.3	
pH	SU	NV	6.06		6.72		6.20		6.07		5.65		6.58		6.73	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	1.09		< 0.47	U	< 0.5	U	1.51		< 0.5	U	< 0.5	U	NA	
Ethylene	µg/L	NV	10.1		0.81	J	4.9	J	11.7	J	2.54	J	3.3	J	NA	
Methane	µg/L	NV	273		240		151	J	325		65.7		101	J	NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	563		465		479		462		482		490		NA	
Bromide	mg/L	NV	2.41		0.503		1.96		0.931		< 0.5	U	< 0.5	U	NA	
Nitrate	mg/L	NV	< 0.5	U	0.074	J	< 0.5	U	0.48	J	< 0.5	U	0.225	J	NA	
Sulfate	mg/L	NV	2840		180		1850		2940		2910		2310		NA	
Total organic carbon	mg/L	NV	18.3		10.2		15.1		19.5		21.6		21.7		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.167		< 0.05	U	1.26		0.438	J	0.291	J	0.098	J	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 50	U	0.94	J	< 25	U	5.7	J	< 10	U	< 10	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	170		15		74		180		39		39		< 0.5	U
1,2-Dichloroethane	µg/L	5	< 25	U	0.85	J	< 12	U	13	J	10		8	J	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	26000		980		9000		17000		8700		6700		5.2	
Methylene chloride	µg/L	5	< 50	U	< 2	U	43	J	< 10	U	< 10	U	< 20	U	< 1	U
Trichloroethene	µg/L	5	22000		1500		10000		15000		8100		8100		84	
Vinyl chloride	µg/L	2	180		17		78		140		43		49		< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW37													
		Sample ID	16WW37-200317		16WW37-200723		16WW37-201019		16WW37-210120		16WW37-210412		16WW37-210712		16WW37-211025	
		Sample Date	3/17/2020		7/23/2020		10/19/2020		1/20/2021		4/12/2021		7/12/2021		10/25/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.08		0.67		0.15		0.58		0.19		0.88		0.54	
Oxidation Reduction Potential	mV	NV	-11		72		50		23.4		166		136		216	
pH	SU	NV	7.17		6.96		6.23		6.82		5.96		6.36		5.79	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 0.5	U	0.393		0.786		1.6		2.74		168	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	0.82	J	0.76	J	0.64	J	0.7	J	0.9	J	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	6.1		5.7		5.9		6.5		5.8		5.4		15	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	110		87		120		99		110		89		190	
Vinyl chloride	µg/L	2	2.1		0.41	J	1.4		3.1		2.2		< 0.5	U	4.2	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW38													
		Sample ID	16WW37-220110		16WW38-181010		16WW38-200317		16WW38-200723		16WW38-201019		16WW38-210120		16WW38-210412	
		Sample Date	1/10/2022		10/10/2018		3/17/2020		7/23/2020		10/19/2020		1/20/2021		4/12/2021	
		Groundwater Zone	INTERMEDIATE		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.63		0.38		0.07		1.17		0.13		0.65		0.04	
Oxidation Reduction Potential	mV	NV	180		-44.9		-16		45		33		101.3		97	
pH	SU	NV	5.24		5.94		6.50		6.37		6.35		6.51		5.62	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	55.3		< 2	U	< 2	U	< 0.5	U	< 0.05	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 2.5	U	< 5	U	< 5	U	< 1	U	< 10	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	21		13		17		20		12		11	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 5	U	< 2.5	U	< 2.5	U	< 5	U	< 0.5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	13		240		200		940		1100		210		600	
Methylene chloride	µg/L	5	< 2	U	< 10	U	< 5	U	< 5	U	< 10	U	< 2	U	16	UB
Trichloroethene	µg/L	5	180		4400		3000		2400		3800		2300		2100	
Vinyl chloride	µg/L	2	4.9		160		95		57		100		94		39	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW38						16WW39							
		Sample ID	16WW38-210712		16WW38-211025		16WW38-220110		16WW39-181010		16WW39-190917		16WW39-200316		16WW39-200715	
		Sample Date	7/12/2021		10/25/2021		1/10/2022		10/10/2018		9/17/2019		3/16/2020		7/15/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.76		0.29		0.58		0.48		0.23		0.08		0.05	
Oxidation Reduction Potential	mV	NV	67		49		158		115.9		24.1		122		92	
pH	SU	NV	6.25		6.15		5.07		5.74		5.97		6.50		5.94	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		4.2		NA		4.84		7.98	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		4.57		2.61	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2.5	U	< 0.2	U	0.17	J	120		130		62		15.1	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 5	U	< 1	U	< 5	U	< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	14		10		5.1		< 5	U	2.7		2.3		2	
1,2-Dichloroethane	µg/L	5	< 2.5	U	< 2.5	U	< 0.5	U	< 5	U	2		1.7		1.2	
cis-1,2-Dichloroethene	µg/L	70	1000		870		380		220		110		98		74	
Methylene chloride	µg/L	5	< 5	U	< 5	U	< 2	U	< 10	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	2000		1200		1200		3900		1200		1100		560	
Vinyl chloride	µg/L	2	37		48		30		15		7.1		5.3		3.3	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW39												16WW40	
		Sample ID	16WW39-201014		16WW39-210203		16WW39-210415		16WW39-210728		16WW39-211025		16WW39-220111		16WW40-181012	
		Sample Date	10/14/2020		2/3/2021		4/15/2021		7/28/2021		10/25/2021		1/11/2022		10/12/2018	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.25		0.03		0.14		0.46		0.14		0.51		0.3	
Oxidation Reduction Potential	mV	NV	47		-50		117		120		111		176		-44.1	
pH	SU	NV	6.13		5.38		5.56		5.57		5.9		5.87		5.90	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	7.9		8.44		NA		NA		NA		NA		5.57	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	2.31		1.62	J	NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	1.08		3.64	J	7.87		6.76		9.07		4		< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	1.7		0.84	J	0.75	J	0.58	J	0.61	J	< 0.5	U	3.5	
1,2-Dichloroethane	µg/L	5	1.3		0.72	J	0.72	J	0.58	J	< 0.5	U	< 0.5	U	3.8	
cis-1,2-Dichloroethene	µg/L	70	73		37		39		29		28		10		220	
Methylene chloride	µg/L	5	< 1	U	< 2	UJ	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U
Trichloroethene	µg/L	5	350		300		330		230		210	J	120		660	
Vinyl chloride	µg/L	2	5		2		1.1		0.97	J	1.8		0.73	J	4.5	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW40													
		Sample ID	16WW40-181012-FD		16WW40-190917		16WW40-200721		16WW40-201021		16WW40-210203		16WW40-210203-FD		16WW40-210421	
		Sample Date	10/12/2018		9/17/2019		7/21/2020		10/21/2020		2/3/2021		2/3/2021		4/21/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.3		2.09		0.04		0.04		0.04		0.04		0.02	
Oxidation Reduction Potential	mV	NV	-44.1		7.8		-107		22		47		47		135	
pH	SU	NV	5.90		5.88		6.12		6.21		5.46		5.46		5.64	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		< 0.5	U
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		1.25	J
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		9.57	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	5.72		NA		8.9		6.97		9.31		8.78		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		8.66		7.35		7.61		7.57		11.3	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	0.898	J	0.24		1.31	J	0.85	J	0.88	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 5	U	< 2.5	U	< 5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	3.5		3.7		7		7.5		5.3		4.3	J	2.8	J
1,2-Dichloroethane	µg/L	5	3.8		3.8		6.1		6		7	J	6.8		5.6	
cis-1,2-Dichloroethene	µg/L	70	240		130		220		230		150		160		210	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 5	U	< 5	U	< 10	U	< 10	U	< 10	U
Trichloroethene	µg/L	5	640		740		1700		1700		1500		1400		1000	
Vinyl chloride	µg/L	2	4.2		3		5.3		6.3		4.4	J	4.5	J	5.4	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW40						16WW41							
		Sample ID	16WW40-210727		16WW40-211021		16WW40-220126		16WW41-181009		16WW41-190917		16WW41-200316		16WW41-200715	
		Sample Date	7/27/2021		10/21/2021		1/26/2022		10/9/2018		9/17/2019		3/16/2020		7/15/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		0	U	NA		< 0.5	U	0.15	J
Field Measurements																
Dissolved oxygen	mg/L	NV	0.45		0.27		0.35		0.79		0.27		0.09		0.06	
Oxidation Reduction Potential	mV	NV	60		89		85		266		109.5		82		149	
pH	SU	NV	6.33		6		6.42		6.21		6.18		6.59		6.32	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	0.953	J	1.67		< 0.5	U	0.281	J	NA		0.374	J	< 0.25	U
Ethylene	µg/L	NV	1.6	J	2.88	J	< 0.5	UJ	3.04		NA		9.96		10.2	
Methane	µg/L	NV	309	J	616	J	214		6.55		NA		16.3		16.6	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		951		NA		1010		1040	
Bromide	mg/L	NV	NA		NA		NA		3.35		NA		< 0.5	U	5.9	
Nitrate	mg/L	NV	NA		NA		NA		< 0.2	U	NA		< 0.5	U	< 1	U
Sulfate	mg/L	NV	NA		NA		NA		9260		NA		8060		8830	
Total organic carbon	mg/L	NV	10.1		11.3		10.2		58		NA		44.8		42	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.693	J	0.622		0.55		60		< 2	U	310		155	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 10	UJ	< 1	U	< 5	U	< 5	U	< 2.5	U	< 20	U
1,1-Dichloroethene	µg/L	7	7		< 5	UJ	1.5		17		11		14		24	J+
1,2-Dichloroethane	µg/L	5	6.4		5.2	J	3.7		< 5	U	< 5	U	4	J	< 10	U
cis-1,2-Dichloroethene	µg/L	70	190		170	J	120		1200		1300		2000		2000	J+
Methylene chloride	µg/L	5	< 1	U	< 10	UJ	< 2	U	< 10	U	< 10	U	< 5	U	< 20	U
Trichloroethene	µg/L	5	1900		1000	J	540		9800		3900		6400		6200	
Vinyl chloride	µg/L	2	9		< 5	UJ	2.9		110		80		120		160	J+

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW41												16WW42	
		Sample ID	16WW41-201014		16WW41-210125		16WW41-210415		16WW41-210720		16WW41-211019		16WW41-220113		16WW42-181012	
		Sample Date	10/14/2020		1/25/2021		4/15/2021		7/20/2021		10/19/2021		1/13/2022		10/12/2018	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.3	J	0.3	J	< 0.5	UJ	0.4	J	< 0.5	U	0.5	J	NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.28		0.67		0.02		0.6		0.2		0.56		1.21	
Oxidation Reduction Potential	mV	NV	10		61.5		143		110		208		44		113.6	
pH	SU	NV	6.63		6.61		6.65		6.72		5.84		6.57		5.27	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.25	U	0.54	J	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U	NA	
Ethylene	µg/L	NV	10.7		110		14.3	J	13.8	J	4.41	J	8.32	J	NA	
Methane	µg/L	NV	14.5		180		16		13.5		3.37		7.22		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	1000		1010		1040		983		850		908		NA	
Bromide	mg/L	NV	< 0.5	U	< 1	U	9.79		1.92		< 0.5	U	< 1	U	0.182	
Nitrate	mg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	0.188	J	NA	
Sulfate	mg/L	NV	9220		9300		7890		7670		1450		6990		NA	
Total organic carbon	mg/L	NV	40.8		49.6		47.6		52.4		37.9		43		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	81.2		3.71	J	212		107		66.5		59.1		< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 10	U	< 5	U	< 10	U	< 10	U	< 10	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	17		20		19		17		< 5	U	12		< 0.5	U
1,2-Dichloroethane	µg/L	5	5.7	J	< 5	U	4.2	J	< 5	U	< 5	U	< 5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	2400		2400		2600		2300		920		1600		42	
Methylene chloride	µg/L	5	< 10	U	< 20	U	< 10	U	14	UB	< 10	U	< 20	U	< 1	U
Trichloroethene	µg/L	5	5400		5400		6200		5400		1900		3800		6	
Vinyl chloride	µg/L	2	230		340		330		270		59		210		< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW42													
		Sample ID	16WW42-190916		16WW42-200723		16WW42-200723-FD		16WW42-201022		16WW42-210128		16WW42-210419		16WW42-210726	
		Sample Date	9/16/2019		7/23/2020		7/23/2020		10/22/2020		1/28/2021		4/19/2021		7/26/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	1.89		0.04		0.04		0.04		2.94		0.15		0.56	
Oxidation Reduction Potential	mV	NV	-31.4		9		9		21		215.1		143		42	
pH	SU	NV	6.10		5.70		5.70		5.94		5.37		5.88		5.48	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		< 0.5	U	< 0.25	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		< 0.5	UJ	0.83	J
Methane	µg/L	NV	NA		NA		NA		NA		NA		3.45		5.17	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV			2.45		2.43		2.74		2.03		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		4.16		4.33		4.31		2.12		2.55		5.52	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	240		24	J+	20		180		98		66		67	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Trichloroethene	µg/L	5	29		1.3		1.2		3.2		0.59	J	0.97	J	1.1	
Vinyl chloride	µg/L	2	1.1		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW42				16WW43									
		Sample ID	16WW42-211026		16WW42-220127		16WW43-181009		16WW43-190917		16WW43-200312		16WW43-200723		16WW43-201022	
		Sample Date	10/26/2021		1/27/2022		10/9/2018		9/17/2019		3/12/2020		7/23/2020		10/22/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		2.1		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.31		0.46		1.46		0.09		1.37		0.05		0.04	
Oxidation Reduction Potential	mV	NV	82		223		-1.7		42		62		56		15	
pH	SU	NV	5.7		5.54		6.12		5.92		6.24		5.83		5.92	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 1	U	NA		NA		NA		NA	
Ethylene	µg/L	NV	< 0.5	UJ	< 0.5	UJ	2.28		NA		NA		NA		NA	
Methane	µg/L	NV	12.1		8.45		133		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		104		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		0.173		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		< 0.1	U	NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		6.35		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	6.91	J	6.93		9.46		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 1	U	< 2	U	< 2	U	< 2	U	0.0428	J	< 0.05	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 10	U	< 5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	980		1200		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 10	U	< 10	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	180		190		< 0.5	U	< 0.5	U	0.61	J	< 0.5	U	0.94	J
Vinyl chloride	µg/L	2	< 5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW43										16WW44			
		Sample ID	16WW43-210128		16WW43-210422		16WW43-210728		16WW43-211018		16WW43-220125		16WW44-181010		16WW44-200317	
		Sample Date	1/28/2021		4/22/2021		7/28/2021		10/18/2021		1/25/2022		10/10/2018		3/17/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	3.24		0.38		0.54		0.39		0.76		1.8		0.03	
Oxidation Reduction Potential	mV	NV	-6.8		136		1		34		127		53.5		4	
pH	SU	NV	6.30		5.20		5.94		5.47		5.46		5.99		6.42	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.0777	J	< 0.25	U	< 0.05	U	< 0.2	U	< 0.2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW44													
		Sample ID	16WW44-200720		16WW44-201019		16WW44-210122		16WW44-210412		16WW44-210712		16WW44-211025		16WW44-220110	
		Sample Date	7/20/2020		10/19/2020		1/22/2021		4/12/2021		7/12/2021		10/25/2021		1/10/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.2		0.08		0.67		0.3		0.91		0.31		0.8	
Oxidation Reduction Potential	mV	NV	107		22		-45.1		157		162		156		267	
pH	SU	NV	5.55		6.05		6.46		5.79		5.13		5.28		3.98	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	UJ	0.134		1.35		< 0.2	U	3.2	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.5	J
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW46													
		Sample ID	16WW46-181012		16WW46-200312		16WW46-200727		16WW46-200727-FD		16WW46-201019		16WW46-210119		16WW46-210412	
		Sample Date	10/12/2018		3/12/2020		7/27/2020		7/27/2020		10/19/2020		1/19/2021		4/12/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.49		0.61		0.02		0.02		0.16		0.74		0.85	
Oxidation Reduction Potential	mV	NV	43.9		70		3		3		85		-12		127	
pH	SU	NV	6.24		6.88		6.42		6.42		5.89		6.52		6.70	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	4.07		3.31		< 0.05	U	< 0.05	U	< 0.5	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	3		2.7		0.57	J	0.66	J	0.66	J	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW46						16WW48							
		Sample ID	16WW46-210727		16WW46-211018		16WW46-220111		16WW48-181018		16WW48-190918		16WW48-200330		16WW48-200330-FD	
		Sample Date	7/27/2021		10/18/2021		1/11/2022		10/18/2018		9/18/2019		3/30/2020		3/30/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		0.3	J	NA		1		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.53		0.48		0.52		0.98		0.25		0.08		0.08	
Oxidation Reduction Potential	mV	NV	-29		94		128		173.1		124.7		33		33	
pH	SU	NV	6.71		5.7		6.38		5.75		5.80		5.60		5.60	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		0.174	J	NA		< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	NA		NA		NA		2.19		NA		0.244	J	0.546	J
Methane	µg/L	NV	NA		NA		NA		2.21		NA		1.12		1.48	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		259		NA		312		313	
Bromide	mg/L	NV	NA		NA		NA		4.33		NA		4.55		4.62	
Nitrate	mg/L	NV	NA		NA		NA		< 0.2		NA		< 0.5	U	< 0.5	U
Sulfate	mg/L	NV	NA		NA		NA		1770		NA		2020		2010	
Total organic carbon	mg/L	NV	NA		NA		NA		8.78		NA		9.82		9.5	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 1	U	< 0.2	U	0.098	J	14		< 2	U	120		110	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	UJ	< 1	U	< 1	U	< 0.5		< 2.5	U	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	< 0.5	UJ	< 0.5	U	< 0.5	U	11		7		12	J	13	J
1,2-Dichloroethane	µg/L	5	< 0.5	UJ	< 0.5	U	< 0.5	U	12		7		19	J	18	J
cis-1,2-Dichloroethene	µg/L	70	< 0.5	UJ	< 0.5	U	< 0.5	U	2600		1800		5000		4800	
Methylene chloride	µg/L	5	< 1	UJ	< 1	U	< 2	U	< 1		< 5	U	< 20	U	< 20	U
Trichloroethene	µg/L	5	0.63	J	< 0.5	U	0.82	J	8800		3700		7100		6900	
Vinyl chloride	µg/L	2	< 0.5	UJ	< 0.5	U	< 0.5	U	15		7.4		< 10	U	< 10	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW48													
		Sample ID	16WW48-200715		16WW48-201020		16WW48-210121		16WW48-210422		16WW48-210713		16WW48-211019		16WW48-220113	
		Sample Date	7/15/2020		10/20/2020		1/21/2021		4/22/2021		7/13/2021		10/19/2021		1/13/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	0.5		1.9		25.8		192		4.6		923		563	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.04		0.03		1.78		0.47		0.8		0.46		0.7	
Oxidation Reduction Potential	mV	NV	158		59		40.9		168		170		200		66	
pH	SU	NV	5.57		6.26		6.37		6.20		5.79		5.97		6.33	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	0.249	J	< 0.25	UJ	< 0.47	U	< 0.5	U	< 0.25	U	2.36		< 0.5	U
Ethylene	µg/L	NV	1.6		1.23	J-	< 0.55	U	< 0.5	UJ	6.87	J	23.3	J	< 0.5	UJ
Methane	µg/L	NV	2.69		3.53	J-	1.2	J	2.83		3.5		6.74		2.69	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	312		351		358		356		379		409		411	
Bromide	mg/L	NV	9.4		7.35		7.43		7.59		7.85		< 0.2	U	3.48	
Nitrate	mg/L	NV	< 0.2	U	< 0.5	U	0.408		< 0.5	U	< 0.2	U	< 0.2	U	0.212	J
Sulfate	mg/L	NV	2330		2490		2380		2300		2550		2530		3130	
Total organic carbon	mg/L	NV	8.9		8.44		7.81		13.2		12.4		15.7		13.7	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	157		167		122		94.7		53.7		37.9		14.8	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 20	U	< 25	U	< 10	U	< 25	U	< 10	U	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	27		32		36		38		40		37		29	
1,2-Dichloroethane	µg/L	5	34		44		36		39		34		35		33	
cis-1,2-Dichloroethene	µg/L	70	9500		16000		15000		17000		18000		17000		13000	
Methylene chloride	µg/L	5	< 20	U	< 25	U	< 20	U	< 50	U	< 10	U	< 10	U	< 20	U
Trichloroethene	µg/L	5	9000		14000	J+	13000		15000		13000		15000		13000	
Vinyl chloride	µg/L	2	22		57		20		16	J	110		170		48	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW49													
		Sample ID	16WW49-190919		16WW49-200316		16WW49-200727		16WW49-201020		16WW49-210129		16WW49-210422		16WW49-210728	
		Sample Date	9/19/2019		3/16/2020		7/27/2020		10/20/2020		1/29/2021		4/22/2021		7/28/2021	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.44		0.08		0.04		0.09		1.48		1.11		0.94	
Oxidation Reduction Potential	mV	NV	-27.3		-38		28		-23		-11.4		130		143	
pH	SU	NV	6.16		6.51		6.23		6.39		6.67		6.21		5.82	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		2.16		3.01		2.66		3.12		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		5.22		4.11		3.74		3.81		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	2.41		< 0.05	U	< 0.5	U	< 0.05	U	0.0291	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	0.77	J	0.77	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	0.86	J	0.85	J	0.77	J	0.66	J	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	130		270		170		190		120		100		77	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Trichloroethene	µg/L	5	260		8.3		36		4.8		2.5		11		19	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	0.41	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW49				16WW51									
		Sample ID	16WW49-211019		16WW49-220113		16WW51-190206		16WW51-190918		16WW51-200317		16WW51-200727		16WW51-200727-FD	
		Sample Date	10/19/2021		1/13/2022		2/6/2019		9/18/2019		3/17/2020		7/27/2020		7/27/2020	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.35		0.45		NM		0		0.07		0.1		0.1	
Oxidation Reduction Potential	mV	NV	140		100		NM		-90.8		-84		21		21	
pH	SU	NV	5.44		5.96		NM		6.06		6.32		5.99		5.99	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		4.72		NA		3.71		5.27		5.26	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		4.43		4.55		4.57	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	NA		< 2	U	< 2	U	2.86		2.82	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.4		2.8	J	3.4	J
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	72		60		58		9.1		25		54		57	
Methylene chloride	µg/L	5	< 1	U	< 2	U	< 0.5	U	< 1	U	< 1	U	< 5	U	< 5	U
Trichloroethene	µg/L	5	30		46		68		90		830		1300		1300	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW51												16WW55	
		Sample ID	16WW51-201020		16WW51-210129		16WW51-210415		16WW51-210720		16WW51-211019		16WW51-220113		16WW55-181015	
		Sample Date	10/20/2020		1/29/2021		4/15/2021		7/20/2021		10/19/2021		1/13/2022		10/15/2018	
		Groundwater Zone	INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		INTERMEDIATE		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		0	U
Field Measurements																
Dissolved oxygen	mg/L	NV	0.18		0.54		0.51		0.63		0.52		0.54		2.08	
Oxidation Reduction Potential	mV	NV	41		-58.3		70		-39		-24		57		319.9	
pH	SU	NV	5.49		6.14		5.45		6.25		6.04		6.11		6.19	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		0.749	J
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		3.79	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		136	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		347	
Bromide	mg/L	NV	4.65		5.58		NA		NA		NA		NA		2.12	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.1	U
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		1110	
Total organic carbon	mg/L	NV	4.52		3.9		NA		NA		NA		NA		7.32	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.05	U	< 0.5	U	0.306		< 0.05	U	< 0.2	U	< 0.2	U	400	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 2.5	U	< 1	U	< 1	U	< 5	U	< 5	U	< 10	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 2.5	U	1.3		0.83	J	2.6	J	< 2.5	U	< 5	U	< 5	U
1,2-Dichloroethane	µg/L	5	< 2.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	50		86		44		71		140		220		540	
Methylene chloride	µg/L	5	< 5	U	< 2	U	< 2	U	6.8	UB	< 5	U	< 20	U	< 10	U
Trichloroethene	µg/L	5	1700		1000		560		1800		2500		3200		5900	
Vinyl chloride	µg/L	2	< 2.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	< 5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW55													
		Sample ID	16WW55-190917		16WW55-200325		16WW55-200714		16WW55-201013		16WW55-210120		16WW55-210420		16WW55-210713	
		Sample Date	9/17/2019		3/25/2020		7/14/2020		10/13/2020		1/20/2021		4/20/2021		7/13/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		0.3	J	3.8		< 0.5	U	0.8		0.2	J	0.3	J
Field Measurements																
Dissolved oxygen	mg/L	NV	0.2		0.05		0.52		0.56		0.69		0.34		0.59	
Oxidation Reduction Potential	mV	NV	90.7		134		182		60		153.5		189		136	
pH	SU	NV	6.17		6.24		6.21		6.14		6.52		5.82		5.71	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		0.607	J	0.682	J	< 0.25	U	0.25	J	< 0.5	U	0.642	J
Ethylene	µg/L	NV	NA		2.06		2.76		1.07		0.92		< 0.5	UJ	< 0.5	UJ
Methane	µg/L	NV	NA		70.1		82.2		30.1		63		7.09		18.2	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		381		358		355		325		321		333	
Bromide	mg/L	NV	NA		3.78		5.53		4.75		6.06		7.73		7.42	
Nitrate	mg/L	NV	NA		1.21		< 0.1	U	< 0.1	U	0.861		1.1		0.214	
Sulfate	mg/L	NV	NA		770		982		745		1020		862		932	
Total organic carbon	mg/L	NV			5.21		5.58		4.98		4.25		6.21		7.07	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	480		360		263		287		259		198		125	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 2.5	U	< 10	U	< 5	U	< 5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	9.1	J	10		12		< 5	U	7.1		5.4		5.8	
1,2-Dichloroethane	µg/L	5	5.3	J	5.8		6.9	J	12		4	J	3.6	J	3.3	J
cis-1,2-Dichloroethene	µg/L	70	310		380		440		450		340		270		270	
Methylene chloride	µg/L	5	< 10	U	< 5	U	< 10	U	< 10	U	< 10	U	< 10	U	< 5	U
Trichloroethene	µg/L	5	3200		4300		4500		4400		2900		2200		1900	
Vinyl chloride	µg/L	2	37		25		32		26		26		18		14	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW55				16WW56									
		Sample ID	16WW55-211014		16WW55-220112		16WW56-190206		16WW56-190917		16WW56-200316		16WW56-200715		16WW56-201021	
		Sample Date	10/14/2021		1/12/2022		2/6/2019		9/17/2019		3/16/2020		7/15/2020		10/21/2020	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	< 0.5	U	< 0.5	U	3.8		NA		8.8		27.4		41.5	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.61		0.89		NM		0.22		0.55		1.48		0.31	
Oxidation Reduction Potential	mV	NV	183		64		NM		33.7		2		105		233	
pH	SU	NV	5.9		6.07		NM		6.05		6.75		6.67		6.40	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	< 0.5	U	< 1	U	NA		0.417	J	< 0.25	U	< 0.25	U
Ethylene	µg/L	NV	1.45	J	2.22	J	0.953	J	NA		5.17		0.93	J	2.01	J+
Methane	µg/L	NV	10.9		26.8		1.26		NA		4.94		1.39		1.26	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	303		305		187		NA		389		178		233	
Bromide	mg/L	NV	< 0.2	U	3.67		5.06		NA		3.19		5.2		3.95	J+
Nitrate	mg/L	NV	0.311		0.364		< 0.1	U	NA		< 0.5	U	< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	638		581		307		NA		2090		140		1190	
Total organic carbon	mg/L	NV	5.54		5.05		4.26		NA		10.7		0.93		0.72	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	363		297		NA		< 2	U	< 2	U	< 0.5	U	0.309	
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 10	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	5.5		< 5	U	< 0.5	U	< 0.5	U	2.9		< 0.5	U	1.5	
1,2-Dichloroethane	µg/L	5	28		24		< 0.5	U	< 0.5	U	3.4		< 0.5	U	0.66	J
cis-1,2-Dichloroethene	µg/L	70	660		470		3.1		1.7		44		< 0.5	U	20	J+
Methylene chloride	µg/L	5	< 5	U	< 20	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	2900		2500		40		27		520		9.3		270	
Vinyl chloride	µg/L	2	< 2.5	U	8.2	J	< 0.5	U	0.41	J	6.3		< 0.5	U	2.8	

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW56										16WW57			
		Sample ID	16WW56-210125		16WW56-210415		16WW56-210720		16WW56-211019		16WW56-220111		16WW57-190815		16WW57-190918	
		Sample Date	1/25/2021		4/15/2021		7/20/2021		10/19/2021		1/11/2022		8/15/2019		9/18/2019	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	65.3		21.9	J	28.6		5.85		1.6		NA		35.3	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.64		0.48		0.87		0.33		0.69		NM		0.17	
Oxidation Reduction Potential	mV	NV	204.7		199		160		253		131		NM		13.6	
pH	SU	NV	6.33		5.82		5.78		5.32		6.07		NM		5.69	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.47	U	< 0.5	U	< 0.25	U	< 0.5	UJ	< 0.5	U	NA		0.246	J
Ethylene	µg/L	NV	0.36	J	< 0.5	UJ	0.714	J	< 0.5	UJ	1.19	J	NA		1.18	
Methane	µg/L	NV	0.57	J	1.02	J	1.68	J	0.952	J	2.29	J	NA		2.44	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	188		170		168		186		165		NA		133	
Bromide	mg/L	NV	5.1		5.19		4.29		1.55		3.42		NA		3.16	
Nitrate	mg/L	NV	0.213		0.249		< 0.2	U	< 0.2	UJ	0.0514	J	NA		< 0.1	U
Sulfate	mg/L	NV	252		137		123		137		106		NA		2310	
Total organic carbon	mg/L	NV	1.17		1.8		1.78		1.34	J	1.14		NA		10.9	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.1	UJ	0.0783	J	< 0.05	U	< 0.2	U	0.13	J	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.6	J	0.56	J
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	3.7		1.2		1.5		0.76	J	0.67	J	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	29		14		12		6.2		7		25		24	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW57													
		Sample ID	16WW57-200717		16WW57-201008		16WW57-210127		16WW57-210413		16WW57-210714		16WW57-211013		16WW57-220113	
		Sample Date	8/17/2020		10/8/2020		1/27/2021		4/13/2021		7/14/2021		10/13/2021		1/13/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	1.3		2.6		4.3		3.1		4.7		6.7		9.9	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.04		0.04		0.44		0.36		0.56		0.26		0.58	
Oxidation Reduction Potential	mV	NV	45		2		14.9		54		26		-21		106	
pH	SU	NV	5.79		5.85		6.02		5.83		5.28		5.54		5.74	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.25		< 0.25	U	< 0.47	U	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	< 0.5		1.25		< 0.55	U	< 0.5	UJ	1.08	J	1.95	J	1.45	J
Methane	µg/L	NV	2.19		2.99		0.86	J	1.41	J	3.14		1.43		2.6	J
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	138		77.6		131		175		126		164		191	
Bromide	mg/L	NV	4.7		5.69		4.96		4.78		1.96		< 0.5	U	< 0.5	UJ
Nitrate	mg/L	NV	< 0.5		< 1	U	< 0.5	U	< 0.5	U	< 0.2	U	< 0.5	U	0.215	J
Sulfate	mg/L	NV	2610		2440		2520		2360		1660		2250		2650	J
Total organic carbon	mg/L	NV	13.2		13.1		12.6		16.8		17.1		19		19.8	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	0.454		< 0.05	U	< 0.5	UJ	0.171	J	< 0.5	U	< 0.2	UJ	0.099	J
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1		< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	1.5		1.3		0.94	J	1		1.1		1.2		1.1	
1,2-Dichloroethane	µg/L	5	< 0.5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5		< 0.5	U	< 0.5	U	< 0.5	U	0.8	J	< 0.5	U	0.66	J
Methylene chloride	µg/L	5	< 1		< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	69		72		65	J	57		60		75		85	
Vinyl chloride	µg/L	2	< 0.5		< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW58													
		Sample ID	16WW58-190815		16WW58-190815-FD		16WW58-190918		16WW58-190918-FD		16WW58-200717		16WW58-201008		16WW58-210127	
		Sample Date	8/15/2019		8/15/2019		9/18/2019		9/18/2019		8/17/2020		10/8/2020		1/27/2021	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		17.8		NA		1.1		10.3		28	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.34		0.34		0.16		0.16		0.03		0.06		0.47	
Oxidation Reduction Potential	mV	NV	-91.1		-91.1		-78.1		-78.1		-23		-73		-39.2	
pH	SU	NV	6.36		6.36		5.98		5.98		5.69		6.23		6.21	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		NA		0.332	J	0.318	J	< 0.25	U	< 0.25	U	< 0.47	U
Ethylene	µg/L	NV	NA		NA		1.51		1.43		1.71		0.645	J	0.44	J
Methane	µg/L	NV	NA		NA		3.62		4.37		9.69		6.59		7.7	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		NA		94		107		97.8		41.9		85.6	
Bromide	mg/L	NV	NA		NA		3.52		3.48		3.42		4.33		3.7	
Nitrate	mg/L	NV	NA		NA		< 0.1	U	< 0.1	U	< 0.1	U	< 0.5	U	0.234	
Sulfate	mg/L	NV	NA		NA		394		396		348		383		367	
Total organic carbon	mg/L	NV	NA		NA		4.21		4.27		4.56		4.13		3.53	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 2	U	< 0.5	U	< 0.05	U	< 0.25	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 5	U	< 2.5	U	< 2.5	U	< 5	U	< 2.5	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 5	U	< 5	U	3.9	J	3.9	J	2.9	J	3.3	J	< 2.5	U
1,2-Dichloroethane	µg/L	5	< 5	U	< 5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	78		76		170		180		110		140		94	
Methylene chloride	µg/L	5	< 10	U	< 10	U	< 5	U	< 5	U	< 5	U	5.7	J	< 10	U
Trichloroethene	µg/L	5	2700		2700		4300		4100		3400		4400		2700	
Vinyl chloride	µg/L	2	< 5	U	< 5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 2.5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

		Location Code	16WW58							
		Sample ID	16WW58-210413		16WW58-210714		16WW58-211013		16WW58-220113	
		Sample Date	4/13/2021		7/14/2021		10/13/2021		1/13/2022	
		Groundwater Zone	SHALLOW		SHALLOW		SHALLOW		SHALLOW	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)										
Dehalococcoides	cells/mL	NV	13		6.9		8.05		21.6	
Field Measurements										
Dissolved oxygen	mg/L	NV	0.05		0.63		0.34		0.77	
Oxidation Reduction Potential	mV	NV	10		17		-53		118	
pH	SU	NV	5.53		5.22		5.11		5.91	
Dissolved Gases (RSK-175)										
Ethane	µg/L	NV	< 0.5	U	< 0.25	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	< 0.5	UJ	2.15	J	3.14	J	3.72	J
Methane	µg/L	NV	6.29	J	8.35		1.67		4.57	
General Chemistry (2320B/SM5310B/SW9056A)										
Alkalinity	mg/L	NV	98.4		99.2		162		144	
Bromide	mg/L	NV	2.5		2.3		< 0.1	U	2.24	
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	0.0416	J
Sulfate	mg/L	NV	282		162		194		594	
Total organic carbon	mg/L	NV	3.43		4.68		5.5		9.26	
Perchlorate (EPA 6850)										
Perchlorate	µg/L	17	0.0348	J	< 1	U	< 0.2	UJ	< 0.2	U
Volatile Organic Compounds (8260C)										
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 5	U	< 10	U
1,1-Dichloroethene	µg/L	7	1.1		< 2.5	U	< 2.5	U	< 5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	49		52		120		170	
Methylene chloride	µg/L	5	< 2	U	< 5	U	< 5	U	< 20	U
Trichloroethene	µg/L	5	1100		1000		3300		5500	
Vinyl chloride	µg/L	2	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U

Table 3
2018 to 2022 LHAAP-16 Groundwater Analytical Results

Notes:

[a] Cleanup Level for manganese identifed in Table 1-1 of the Remedial Action Work Plan is the 95% upper tolerance limit value from the *Final Evaluation of Perimeter Well Data for Use as Groundwater Background* (Shaw, 2007)

[b] Due to high viscosity of the samples collected from 16EW05, 16EW06, and 16EW07, the volatile organic compound analyses were performed at high dilutions. The TOC and alkalinity analyses could not be performed on the sample from 16EW06. Dissolved gases analyses could not be performed on samples from 16EW05 or 16EW06.

Blue highlighting indicates the concentration (bolded) or detection level (unbolded) exceeds the MCL/PCL

Some samples have been diluted due to the concentration(s) of one or more analytes exceeding the upper limit of the calibration curve.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ – Undetected estimated. The analyte was analyzed for but, was not detected. Even though the analyte was not detected, certain discrepancies in meeting analyte specific quality control were not met.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate, manganese, and nickel where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

SU - standard pH Units

mV - millivolts

cells/mL - cells per milliliter

UTL - upper tolerance limit

Table 4
Proposed Changes to LHAAP-16 Remedial Action Operation Monitoring Network Beginning with the Year 3 Semiannual Sampling Events

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	~~Alkalinity (2320B)~~ [b]	Anions [c] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [b]	Bromide (E300.0)	TOC (SW9060)	DHC (qPCR)	Rationale for Change
Landfill Biobarrier #1 (RAWP Table 4-4)																
16IW09	Performance data within the biobarrier	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	X	X	Sampling for bromide not needed to evaluate remedy operation
16RW01	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
~~16RW02~~	~~Upgradient well for monitoring influent concentrations~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Clean; 16RW01 upgradient well being sampled currently.
16RW04	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X					Added dissolved gases to monitor treatment effectiveness downgradient of the barrier
16RW05	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X					Added dissolved gases to monitor treatment effectiveness downgradient of the barrier
16WW26	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			~~O~~	~~O~~	~~O~~			X		Well significantly downgradient of the barrier, Dissolved gases not necessary. Analysis of dissolved gases added at 16RW04 and 16RW05, closer to barrier, to evaluate effectiveness of the barrier.
16WW42	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			~~O~~	~~O~~	~~O~~			~~O~~		Well significantly downgradient of the barrier, TOC and dissolved gases not necessary. Analysis of dissolved gases added at 16RW04 and 16RW05, closer to barrier, to evaluate effectiveness of the barrier.
Landfill Biobarrier #2 (RAWP Table 4-5)																
16IW03	Performance data within the biobarrier	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	X	X	Sampling for bromide not needed to evaluate remedy operation
16IW04	Performance data within the biobarrier															
16PM02	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
16PM03	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
16PM06	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X					
16PM09	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X										
16PM14	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X										
16WW36	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			~~O~~	~~O~~	~~O~~			X		Well significantly downgradient of the barrier, Dissolved gases not necessary. Analysis of dissolved gases being performed at 16PM06, closer to barrier, to evaluate effectiveness of the barrier.

Table 4
Proposed Changes to LHAAP-16 Remedial Action Operation Monitoring Network Beginning with the Year 3 Semiannual Sampling Events

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	~~Alkalinity (2320B)~~ [b]	Anions [c] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [b]	Bromide (E300.0)	TOC (SW9060)	DHC (qPCR)	Rationale for Change
Landfill Biobarrier #3 (RAWP Table 4-6)																
16IW10	Performance data within the biobarrier	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	X	X	Sampling for bromide not needed to evaluate remedy operation
16RW06	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
16RW07	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
16RW09	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X			X		
16RW10	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X			~~O~~		Well downgradient of the barrier; TOC at this location will not affect reinjection decisions.
Bayou Biobarrier (RAWP Table 4-7)																
16IW20	Performance data within the biobarrier	X	X	X	X	X	~~O~~	X	X	X	X	X		X	X	
~~16RW11~~	~~Performance data within the biobarrier~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Duplicates monitoring location 16IW20. Concentrations not above MCL.
16RW12	Performance data downgradient of biobarrier	X	X	X	X	X										Additional monitoring location added based on comments on Year 1 RAO Report
16WW12	Upgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X										
16WW22	Upgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X										
16WW39	Upgradient well for monitoring influent concentrations	X	X	X	X	X										
16WW40	Downgradient well to monitor effluent concentrations and biobarrier effectiveness	X	X	X	X	X			X	X	X			X		
Mid-Plume ISB (RAWP Table 4-8)																
16EW01	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	X		Switching MNA parameters to 16EW02 since 16EW01 is on the fringe of the treatment area; sampling for bromide not needed to evaluate remedy operation
16EW02	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X	X	X	X	X	X	X		X	X	Adding MNA parameters from 16EW01 since 16EW02 is within the core of the treatment area
16EW03	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	X		Sampling for bromide not needed to evaluate remedy operation
16EW04	Performance data for injection ISB area - Shallow Zone	X	X	X	X	X										
~~16EW05~~	~~Performance Data for Injection Well - Intermediate Zone~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~		Well fouled by injections; replace with 16IW26
~~16EW06~~	~~Performance data for injection well - Intermediate Zone~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~		Well fouled by injections; replace with 16IW26 and new well to be installed between 16EW06 and 16EW07

Table 4
Proposed Changes to LHAAP-16 Remedial Action Operation Monitoring Network Beginning with the Year 3 Semiannual Sampling Events

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	~~Alkalinity (2320B)~~ [b]	Anions [c] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [b]	Bromide (E300.0)	TOC (SW9060)	DHC (qPCR)	Rationale for Change
New Well (to be installed)	Performance data for injection ISB area - Intermediate Zone	X	X	X	X	X		X	X	X	X	X		X	X	Well to be added to the monitoring program following installation between 16EW06 and 16EW07.
~~16EW07~~	~~Performance data for injection well - Intermediate Zone~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Well fouled by injections; replace with new well to be installed between 16EW06 and 16EW07
16EW08	Performance data for injection well - Intermediate Zone	X	X	X	X	X										
16IW26	Performance data for injection well - Intermediate Zone	X	X	X	X	X		X	X	X	X	X		X	X	Additional well added along with a new well to be installed to replace 16EW05, 16EW06 and 16EW07
~~16WW21~~	~~Performance data for downgradient well in Upper Deep Zone~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Everything except TCE consistently ND; TCE below MCL;
16WW29	Performance data for downgradient well - Intermediate Zone	X	X	X	X	X										
16WW30	Performance data for downgradient - Shallow Zone	X	X	X	X	X										
16WW39	Performance data for downgradient - Shallow Zone	X	X	X	X	X										
16WW48	Performance data for downgradient - Shallow Zone (proposed)	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	~~O~~		Well outside of treatment area; bromide and TOC not expected; sampling for bromide not needed to evaluate remedy operation
16WW49	Performance data for downgradient well - Intermediate Zone (proposed)	X	X	X	X	X										
16WW51	Performance data for downgradient well - Intermediate Zone (proposed)	X	X	X	X	X										
MNA and LTM "Other Wells" (RAWP Table 4-9)																
16WW13	Intermediate	X	X	X	X	X										
~~16WW14~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										There are three upgradient wells. Suggested for removal due to redundancy.
16WW16	Shallow	X	X	X	X	X	~~O~~	X	X	X	X	X	~~O~~	X	~~O~~	Upgradient of the treatment areas; DHC and bromide not needed to evaluate remedy operation
~~16WW21~~	~~Upper Deep~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already in Mid Plume ISB monitoring
~~16WW22~~	~~Shallow~~	~~O~~	~~O~~	~~ü~~	~~ü~~	~~ü~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Already part of Bayou Biobarrier monitoring
16WW23	Intermediate	X	X	X	X	X										
16WW24	Shallow	X	X	X	X	X										
16WW25	Intermediate	X	X	X	X	X	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Well is ND; MNA parameters not required; sampling for bromide not needed to evaluate remedy operation
~~16WW26~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Already part of LF Biobarrier #1 monitoring
16WW27	Intermediate	X	X	X	X	X										

Table 4
Proposed Changes to LHAAP-16 Remedial Action Operation Monitoring Network Beginning with the Year 3 Semiannual Sampling Events

Sampling Location	Sampling Purpose	Perchlorate (EPA 6850)	VOCs [a] (SW8260B)	DO (field reading)	ORP (field reading)	pH (field reading)	~~Alkalinity (2320B)~~ [b]	Anions [c] (E300.0)	Ethene (RSK-175)	Ethane (RSK-175)	Methane (RSK-175)	Carbon Dioxide (RSK-175) [b]	Bromide (E300.0)	TOC (SW9060)	DHC (qPCR)	Rationale for Change
~~16WW29~~	~~Intermediate~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Already in Mid Plume ISB monitoring
~~16WW30~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of Mid Plume ISB monitoring
16WW31	Intermediate	X	X	X	X	X										
16WW32	Shallow	X	X	X	X	X										
16WW33	Intermediate	X	X	X	X	X										
16WW34	Shallow	X	X	X	X	X										
16WW35	Intermediate	X	X	X	X	X	~~O~~	X	X	X	X	~~X~~	~~O~~	X	~~O~~	Downgradient of shallow treatment area; DHC and bromide not expected; sampling for bromide not needed to evaluate remedy operation
~~16WW36~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Already part of LF Biobarrier #2 monitoring
16WW37	Intermediate	X	X	X	X	X										
16WW38	Shallow	X	X	X	X	X										
~~16WW39~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of Mid Plume ISB monitoring
~~16WW40~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of Bayou Biobarrier monitoring
16WW41	Intermediate	X	X	X	X	X	~~O~~	X	X	X	X	~~X~~	~~O~~	X	~~O~~	Upgradient of Bayou Barrier; DHC not expected; sampling for bromide not needed to evaluate remedy operation
~~16WW42~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of LF Biobarrier #1 monitoring
16WW43	Shallow	X	X	X	X	X										
16WW44	Shallow	X	X	X	X	X										
16WW46	Shallow	X	X	X	X	X										
~~16WW48~~	~~Shallow~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Already part of Mid Plume ISB monitoring
~~16WW49~~	~~Intermediate~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of Mid Plume ISB monitoring
~~16WW51~~	~~Intermediate~~	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~										Already part of Mid Plume ISB monitoring
16WW55	Shallow	X	X	X	X	X	~~O~~	X	X	X	X	~~X~~	~~O~~	X	~~O~~	Downgradient of treatment area; DHC not expected; sampling for bromide not needed to evaluate remedy operation
16WW56	Shallow	X	X	X	X	X	~~O~~	~~O~~	~~O~~	~~O~~	~~O~~		~~O~~	~~O~~	~~O~~	Remove MNA Parameters since well is on the fringe of the plume and not downgradient of the treatment area; sampling for bromide not needed to evaluate remedy operation
16WW57	Shallow	X	X	X	X	X	~~O~~	X	X	X	X	~~X~~	~~O~~	X	~~O~~	Remove DHC due to distance from treatment areas; sampling for bromide not needed to evaluate remedy operation
16WW58	Shallow	X	X	X	X	X	~~O~~	X	X	X	X	~~X~~	~~O~~	X	~~O~~	Remove DHC due to distance from treatment areas; sampling for bromide not needed to evaluate remedy operation

Notes:

Red - Text or indicators shown in red represent a change from the previous sampling

X - Parameter/measurement will be analyzed/collected at this location

~~O~~ - Sampling/measurement of this parameter has been removed

a - VOCs include TCE; cis-1,2-DCE; 1,1-DCE; 1,2-DCA; 1,1,2-TCA; VC; and methylene chloride.

b - As discussed in the Final Technical Memorandum - MNA Monitoring Parameters (Bhate 2019), Alkalinity is a proxy for carbon dioxide. Switching the two parameters allows removal of one laboratory method, since carbon dioxide can be analyzed using RSK-175.

c - Anions include nitrate and sulfate.

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 20, 2022

DAIN-ISE

Mr. Brian Follin
U.S. Environmental Protection Agency
Federal Facilities Section R6
1201 Elm Street, Suite 500
Dallas, TX 75202-2102

Re: Preliminary (30%) Remedial Design for LHAAP-29, Former TNT Production Area Group 2, Longhorn Army Ammunition Plant, Karnack, Texas

Dear Mr. Follin,

The above-referenced document is being transmitted to you for review. In accordance with the FFA, please provide your comments by 19 August 2022.

The document was prepared by HDR Environmental, Operations and Construction, Inc. (HDR) on behalf of the Army as part of HDR's contract for the facility. I ask that Phil Werner, HDR's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.zeiler@calibresys.com.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager
BRAC Branch

Copies furnished:
A. Palmie, TCEQ, Austin, TX (1 electronic only)
P. Bruckwicki, Caddo Lake NWR, TX (1 hard copy, 1 CD)
A. Williams, USACE, Tulsa District, OK (1 electronic only)
C. Montoya, USAE, Tulsa District OK (1 electronic only)
M. Bowlby, USAEC, San Antonio, TX (1 electronic only)
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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 20, 2022

DAIN-ISE

Ms. April Palmie
Texas Commission on Environmental Quality Superfund Section – MC-136
Remediation Division
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Preliminary (30%) Remedial Design for LHAAP-29, Former TNT Production Area Group 2, Longhorn Army Ammunition Plant, Karnack, Texas

Dear Ms. Palmie,

The above-referenced document is being transmitted to you for review. In accordance with the FFA, please provide comments by 19 August 2022.

The document was prepared by HDR Environmental, Operations and Construction, Inc. (HDR) on behalf of the Army as part of HDR's contract for the facility. I ask that Phil Werner, HDR's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.zeiler@calibresys.com.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager
BRAC Branch

Copies furnished:
B. Follin, USEPA Region 6, Dallas, TX (1 electronic only)
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Technical Memorandum

Subject: 30% Design Narrative	
Client:	USACE Tulsa District
Project:	LHAAP-29
Date:	July 20, 2022

Site Background and Description

Site History

The former Longhorn Army Ammunition Plant (LHAAP) is an inactive, government-owned, formerly contractor operated and maintained Department of Defense facility, occupied 8,416 acres in central east Texas (see **Figure 1**) in the northeast corner of Harrison County. LHAAP was placed on the Superfund National Priorities List (NPL) on August 9, 1990, and activities to remediate contamination commenced that year. The U.S. Army, the United States Environmental Protection Agency (USEPA), and the Texas Commission on Environmental Quality (TCEQ) entered into a CERCLA §120 Federal Facilities Agreement (FFA) for remedial activities at LHAAP, effective December 30, 1991. LHAAP operated until 1997 when it was placed on inactive status and classified by the U.S. Army Armament, Munitions, and Chemical Command as excess property.

The LHAAP-29 Former Trinitrotoluene (TNT) Production Area (site) is an 85-acre site located within a heavily wooded area in the western-central portion of LHAAP (**Figure 2**). From October 1942 to August 1945, LHAAP-29 produced 400 million pounds of flake TNT using five TNT production lines (A through E) and one standby line (F). Each production line was essentially the same and consisted of four main components: An Unloading Area where acids and toluene were unloaded and held in tanks until ready for use; A Nitrating Area where TNT flakes were produced by nitrating toluene with nitric acid and oleum; a Wash Area where the TNT flakes were washed to remove impurities and then dried; and a Loading Area where the cardboard-boxed TNT was loaded onto trucks.

The Unloading Area included aboveground holding tanks for acids (Tanks 508 and 817) and toluene (Tank 804). The toluene holding tank was surrounded by an earthen dike to contain spills. Features of the Nitrating Area included the Mono House (Building 801), the Di House (Building 803), the Tri House (Building 802) and the Recovery House (Building 812). Associated with these structures were numerous aboveground holding tanks and concrete-lined, partially, and completely sunken pits up to seven (7) feet (ft) deep. The Wash Area included a Wash House (Building 806), several aboveground holding tanks, and shallow

concrete-lined pits. A covered conveyor connected the Wash House with the Nail House (Building 808) in the Loading Area. Each Loading Area served two production lines.

The TNT wastewater (red liquor) generated at each of the Wash Areas was collected by a 12-inch underground wood stave pipeline. The red liquor flowed by gravity through the pipeline to a storage tank and pump house located on the northeastern end of the area adjacent to 16th Street. From here it was pumped through a 6-inch underground bored wood pipeline to the TNT Waste Disposal Plant (LHAAP-32) located approximately ¼ mile northwest of the site. A yellow liquor wastewater generated by the production plant was also pumped to the disposal plant through the bored pipeline. The wooden TNT wastewater pipeline was cleared-flushed and abandoned in 1946 (LHAAP, 1988). A transite TNT wastewater pipeline installed approximately five feet north of the wooden pipeline.

Cooling water (blue water) drain lines from the former production lines were collected in cooling water pipelines that carried water and discharged into an open ditch alongside 16th Street. This ditch conveyed the cooling water to the Neutralization House where it was neutralized before being discharged to the surface water.

A figure showing the TNT Production Area and the approximate location of all structures, production line facilities, and utilities is included as **Figure 3**.

LHAAP-29 was inactive from August 1945 up to 1959, when most of the LHAAP-29 buildings and aboveground storage tanks were removed. Remaining on site at this point were concrete foundations, open-top concrete lined pits, most of the underground utilities, some wood-frame buildings alongside the northwest site boundary and a few aboveground storage tanks in the F Line Area. The only subsequent documented activity at the site was the “soak out” or solvent bath of out-of-specification rocket motors in methylene chloride (MC) based industrial solvents at tank 801-F from 1959 to the mid-1970s. This activity took place in the northeast portion of the site and consisted of cleaning and recycling rocket motor casings. Rocket motor casings that failed quality inspection were soaked in the solvent bath and then washed to remove propellant and casing coating materials. This activity is also the most likely source of perchlorate contamination found in the northeast portion of the site.

The site is currently heavily wooded and only concrete foundations, open-top concrete-lined pits, most of the underground utilities, and a network of underground pipelines for cooling water drainage and TNT wastewater conveyance remain at the site.

Environmental investigations at the wider LHAAP installation commenced in 1976, including a series of investigations to determine the nature and extent of contamination in soil, groundwater, surface water, and sediments at LHAAP-29. In 2010, an initial Feasibility Study (FS) was prepared based on all available results from previous investigations through 2009. The Final Proposed Plan (PP) and Draft Record of Decision (ROD) were prepared in 2011 based on investigation results and the FS. A supplemental remedial investigation (RI) was conducted in 2014 followed by the preparation of a supplemental FS, prepared in 2017. Based on the

supplemental FS, a remedy was selected and a Final ROD for LHAAP-29 was issued by the Army on September 13, 2019 following concurrence on the selected remedy by both the Environmental Protection Agency (EPA) and TCEQ.

Site Geology and Hydrogeology

The local geology at LHAAP-29 consists of a silty to clayey sand at the surface that extends from 3 to 10 feet below ground surface (ft bgs). A clayey silt, grading to a silty clay was encountered extending to a depth of 40 ft bgs with an underlying silty to clayey sand. Except for boreholes 29WW02, 29WW10, and 29WW11, a sandy silt to silty clay layer was encountered below the sand deposit at depths ranging from 15 to 26 ft bgs. Additional silt, clay, and sand layers were encountered down to depths of approximately 160 ft bgs.

There are three groundwater zones at LHAAP-29: shallow, intermediate, and deep. Semi-confining clay or silty clay layers of varying thickness separate the three groundwater zones. The depth of the shallow groundwater zone generally ranges from 17 to 45 ft bgs due to the variable ground surface elevations across the site and conditions due to reoccurring drought. The shallow groundwater zone has wells that are screened at two depths (shallow and lower shallow); however, the wells have similar water level elevations and are all considered to be shallow zone wells. The intermediate zone is less well-defined, but its depth has been measured to approximately 88 ft bgs. The deep groundwater zone extends to a depth of approximately 155 ft bgs. Based on the 2007 water levels and historic potentiometric maps, the predominant groundwater flow is east/southeast in the shallow zone and east/northeast in the intermediate zone. **Figures 4 and 5** illustrate the groundwater elevations in the shallow zone and intermediate zone, respectively. The deep zone was determined to be unimpacted by site contaminants.

Nature and Extent of Contamination

The suspected primary contaminant sources consist of explosive compound releases from the manufacturing of TNT from associated process tanks and wastewater pipelines and rocket motor “soak-out” operations using MC based solvent. The wastewater pipelines include the TNT process wastewater lines and cooling water lines that transported cooling water to an outfall ditch. Based on the investigation activities performed for the site the following affected media and contaminants of concern (COCs) were identified and are described further in the ROD:

- Shallow soil impacted by perchlorate and explosive compounds including 2,4,6-trinitrotoluene (TNT), 2,4-dinitrotoluene (DNT), and 2,6-DNT, 2-amino-4,6-DNT and 4-amino-2,6-DNT;
- Shallow groundwater zone impacted by volatile organic compounds (VOCs), explosive compounds, metals, and perchlorate; and
- Intermediate groundwater zone impacted by VOCs, mainly MC.

Based on the investigation results, the ROD identified the following areas and media for active remedial action (RA) measures (excludes passive RA measures identified for the contaminated shallow groundwater):

- Six (6) specific target areas for remedial action of shallow soil with impacts resulting from potential sources associated with the tanks or buildings used for production. Explosive compounds are associated with the TNT production and perchlorate is likely associated with the motor rocket washout operations;
- Remedial action for the existing underground TNT wastewater pipelines and cooling water pipelines and associated cooling water drainage ditch; and
- Remedial action for the intermediate groundwater contaminated with MC at concentrations indicating the presence of a dense nonaqueous phase liquid (DNAPL).

Selected Remedy

The final selected remedy for LHAAP-29 as published in the ROD dated September 2019 is summarized below. The elements listed below exclude the Land Use Control (LUC) objectives and requirements listed in the ROD:

- *Contaminated soil removal with off-site disposal to protect the hypothetical future maintenance worker and ecological receptors and eliminate the soil-to-groundwater pathway. Additional confirmation soil sampling during the remedial design (RD) will be needed to define the final excavation extent and volume of soil contaminated with explosives near former Building 812-F and in the cooling water outfall/ditch and may identify additional areas for soil removal adjacent to the North and South Cooling water lines as well as the wooden and transite TNT wastewater lines,*
- *Flushing, inspection, and plugging of the transite TNT wastewater line and the vitrified clay cooling water lines to eliminate potential exposure from residual contamination. Confirmation sampling of the wooden TNT wastewater line during the RD may result in excavation.*
- *Monitored Natural Attenuation (MNA) in the shallow groundwater zone to confirm protection of human health and the environment by documenting that contaminated groundwater remains localized with minimal migration and that COCs are being reduced to cleanup levels.*
    - *Performance objectives will be evaluated after two years of MNA. During those two years, monitoring will be quarterly. If MNA is found to be effective, it will be continued, and long-term monitoring (LTM) will be semiannual for three years. In subsequent years, LTM will be annual until the next five-year review and annually thereafter until recommended otherwise by the five-year review. The monitoring*

and reporting associated with this remedy will be used to track the effectiveness of MNA and will continue until recommended otherwise at the five-year review.

- *If MNA is found to be ineffective, a contingency remedy to enhance MNA would be developed. The contingency remedy would consist of injection of bioremediation amendments to enhance degradation of the groundwater contaminants at selected locations based on data available at the time it is determined MNA is not successful. Development and specific description of the contingency remedy would be presented in a Remedial Design/Remedial Action Work Plan (RD/RAWP).*

- *ISTD treatment will be performed for the DNAPL MC plume in the intermediate groundwater zone to reduce concentrations to levels amenable to MNA. One of two ISTD treatment process options, Electrical Resistance Heating (ERH) or Thermal Conduction Heating (TCH),will be selected during the RD.*

- *MNA will be implemented in the intermediate groundwater zone following successful implementation of ISTD to confirm protection of human health and the environment by documenting that the contaminated groundwater remains localized with minimal migration and that contaminant concentrations are being reduced to cleanup levels. Trigger level or target value for successful ISTD treatment of MC in the intermediate zone is 8,000 micrograms per liter (µg/L). Performance monitoring will be conducted at a frequency necessary to evaluate the effectiveness of the in-situ treatment, with sampling and LTM conducted as described for the shallow groundwater MNA.*

- *Groundwater monitoring will be conducted to evaluate inorganic COCs. The need to continue groundwater monitoring for this purpose will be evaluated at five-year reviews.*

Design Approach

This section provides the basis for the design for the active remedial measures that will be implemented per the ROD. Passive measures include MNA and LUCs. The design for passive measures will be provided in the remedial design prepared as part of the 60% design.

Excavation Areas

The selected remedy includes excavation and off-site disposal to remove contaminants with concentrations greater than the soil medium-specific concentration (MSC) for industrial use based on groundwater protection (GWP-Ind) (TCEQ, 2006). Contaminants identified with concentrations greater than their respective cleanup levels are summarized in **Table 1**.

Table 1 Cleanup Levels for Contaminants of Concern in Soil		
Contaminant of Concern	**Cleanup Level mg/kg**	**Basis for Standard**
Perchlorate	7.2	GWP-Ind[a]
2,4,6-Trinitrotoluene	4.7[b] 5.1[c]	GWP-Ind[a]
2,4-DNT	0.042	GWP-Ind[a]
2,6-DNT	0.042	GWP-Ind[a]

a – TCEQ soil medium specific concentration for industrial use based on groundwater protection
b – applies to 0-3 ft bgs
c – applies from 3 ft bgs to groundwater interface

The ROD identified six target areas with contaminants exceeding the cleanup levels for soil. These six target areas are shown on Figure 2.12 of the ROD. One of seven areas (inset 3) shown on Figure 2.12 did not have any exceedances and therefore no further action was identified for this area. The six target excavation areas are shown on Drawing Sheet G003 and have been designated as E-1, E-2, E-3, E-4, E-5, and E-6.

The extent of excavations identified for each of the areas was based on sample results collected during the previous investigations and sample results collected during the Pre-Design Investigation (PDI) conducted in 2021 and 2022. Limits for excavation areas were extended to the next closest clean sample when available. For excavation areas where no samples are available to define the excavation limits, the excavation limit was then estimated based on engineering judgement and information known about the suspected release pattern for the contamination source. The final excavation limits for undelineated areas will be based on visual indications of contamination and confirmation samples to verify cleanup levels identified in the ROD have been met. For these areas it is possible that the size of the excavation may increase in order to meet the cleanup levels and the cost may increase. Where excavations extend to the groundwater table no bottom confirmation samples will be collected and a groundwater monitoring well will be installed to monitor shallow groundwater for these areas..

The overall estimated in-place volume for removal and off-site disposal is approximately 6,300 cubic yards (cy) which assumes excavations deeper than one foot will be cut using a slope of 1 horizontal foot to 1 vertical foot (1H:1V). This volume is greater than the estimate provided in the ROD (3,900 cy). Volumes estimated for excavations associated with the TNT wastewater and cooling water pipelines are not included in this estimate. Details for the development of excavation limits are discussed below for each area.

Excavation E-1 – B806A Area

Excavation area E-1 is in the vicinity of former building 806-A which was used as a Wash House where TNT flakes were washed to remove impurities and generated red liquor wastewater. The wash out areas included a Wash House (806 building), several aboveground holding tanks, and shallow concrete lined pits. A covered conveyor connected the Wash House with the Nail House (808 building) in the Loading Area. TNT wastewater (red liquor) was generated at each of the Wash Areas and was collected by a 12-inch underground wood stave pipeline (wooden TNT wastewater pipeline). This wooden TNT wastewater pipeline was later replaced with a 6-inch transite pipeline. The red liquor flowed by gravity through the pipeline to a storage tank and pump house located at the northeastern end of the area adjacent to 16th Street. Wastewater was then pumped from this location through a 6-inch underground bored wood pipeline to the TNT Waste Disposal Plant (LHAAP-32) located approximately ¼ mile northwest of the LHAAP-29 site. The transite pressure wastewater pipeline is located parallel to and approximately 5 ft to the east of this wooden TNT wastewater pressure pipeline.

This area was first identified as a target area based on the existence of stained surface soil surrounding the foundation of the former Wash House and a TNT exceedance in surface soils at location 29SB09R (BERA dated 2013), which is located in the vicinity of the wooden TNT wastewater pipeline northwest of the former Wash House building. As discussed below the wooden TNT wastewater pipeline exists in a deteriorated condition and will be excavated as part of the RA. The area surrounding sample location 29SB09R will therefore be excavated along with the wooden pipeline and is not included as part of the excavation area for E-1.

Two soil borings (29SB93 and 29SB92) were completed at random locations within the stained soil area as part of the supplemental RI to evaluate the concentration of explosive compounds in the stained soil area surrounding the former Wash House building foundation. If concentrations were below the soil cleanup objectives no further action would be proposed in this location. Boring 29SB92 was located southwest of the former building. Two samples were collected with 2,6-DNT results exceeding the soil cleanup standard at both depths (0-2 ft and 2-4 ft). Boring 29SB93 was located in the northeast area of the former building footprint. One sample (0-2 ft) was collected from this boring which did not have any exceedances for explosive compounds. The excavation area surrounding this sample is defined to the northeast by sample location 29SB93 and to the southeast by historic sample 29SB10. No samples are available to delineate the southwest and northwest boundaries and current estimation of these limits is based on the extent of stained soil identified during historic investigations. The final limit will be verified by visual observation and the collection of confirmation samples.

Results for samples used to assist in delineating the excavation limits for E-1 are shown on **Figure 6**. Excavation area E-1 is approximately 1,520 square feet (sf) and is planned to be excavated to a depth of 5 ft based on the depth of contamination observed at 29SB92. The in-place volume for this area is estimated to be approximately 280 cy. The excavation is assumed to be completed using a 1H:1V slope. This will increase the total volume for this excavation to 330 cy.

Excavation E-2 – B806D Area

Excavation area E-2 was identified as a target area based on the existence of stained surface soil southwest of the former Wash House building foundation in this area and a TNT exceedance at sample location 29DLineWHW01. During the 2014 supplemental RI three boring locations (29SB94, 29SB95, and 29SB96) were drilled 20 ft from 29DLineWHW01 to the northwest, southwest, and southeast. No samples were completed northeast as clean samples already existed from historic sample locations 29DLineWHC01 and 29DLineWHC02. Samples were collected from 0-1 ft from all locations. Results from 29SB94 and 29SB96 were non-detect. Results from 29SB95 had a concentration of TNT of 3.28 mg/kg at 0-1 ft which is below the cleanup standard of 4.7 mg/kg.

Delineation of excavation area E-2 is provided via sample locations 29SB94, 29SB95, 29SB96 and 29DLineWHC01 and is shown on **Figure 7**. The excavation encompasses an area of 700 sf and will be excavated to a depth of 1 ft. The in-place volume is estimated to be 30 cy. The collection of confirmation samples will be used to verify cleanup objectives are met at this location.

Excavation E-3 – Perchlorate Excavation

Excavation area E-3 was identified as a target area based on perchlorate concentrations detected in soil at 29SB86 (8.6 mg/kg at 6-8 ft). As part of the 2014 supplemental RI seven new borings (29SB101 – 29SB107) were drilled and soil samples were collected for perchlorate analysis. Four soil borings (29SB102 and 29SB104 – 29SB106) were drilled approximately 20 ft from 29SB86 and the remaining three borings (29SB101, 29SB103, and 29SB107) were drilled 40 ft from 29SB86.

Sample results from borings 29SB103, 29SB102, 29SB105, and 29SB107 had perchlorate concentrations less than the soil cleanup standard and were used to define the boundary of the E-3 excavation as shown on **Figure 8**. The E-3 excavation is approximately 3,220 sf and will consist of two excavation depths. The north portion (1,600 sf) will be excavated to 13 ft bgs and the south portion (1,620 sf) will be excavated to 10 ft bgs. Vertical delineation of the southern portion of the excavation is defined by sample 29SB104. No vertical delineation is defined for the north portion and a deeper excavation may be necessary based on results of confirmation samples collected during the RA. Deeper excavations will be limited by the depth of groundwater which is 13 ft bgs based on depth to water measurements collected in 2022. No bottom confirmation samples will be collected for excavations stopped at the groundwater table. Excavations will be backfilled once confirmation samples meeting the cleanup levels have been received. The estimated volume is 1,800 cy and assumes the excavation will be completed using a 1H:1V slope.

Excavation E-4 – 29SG118 Location

Excavation area E-4 was identified as a target area based on explosive compound results detected in soil at 29SG118 completed during the 2014 supplemental RI. Samples for

explosive compounds were collected at this location due to a strong, sweet odor observed during drilling. The sample location was completed southwest of former building 812-F which was reportedly used as an acid and fume recovery house as part of the TNT production process and is also in the vicinity of a cooling water service line that carried cooling water from former buildings 801-F and 803-F. Results for explosive compounds were greater than the cleanup standard at depths of 6 ft (0.138 mg/kg of 2,4-DNT) and 10 ft (17.1 mg/kg of 2,4-DNT and 3.42 mg/kg of 2,6-DNT) at sample location 29SG118. Eight soil borings were conducted approximately 10 ft from the 29SG118 location during the PDI. Results from samples collected from these locations indicate contaminated soil extend beyond the PDI sample locations collected to the northeast, southeast, and southwest of the original sample location. Additional samples were collected in 2021 and 2022 to further delineate this area. These samples were generally collected 15 ft or more from the impacted samples. Of the samples collected in 2022 only two samples, 29SB174 and 29SB182 had no detections. All other locations had exceedances of explosives at one or more depth intervals as shown on **Figure 9**. The excavation limits were revised to extend out beyond additional boring locations that were identified with impacts. The area still remains undefined spatially and confirmation samples will need to be collected to verify the cleanup objectives have been met in this area. Explosive concentrations greater than the soil cleanup levels extend to a depth of 15-16 ft. The depth for this excavation will end at the groundwater table, estimated to be 15 ft based on depth to water measurements collected as part of the PDI.

The estimated area for excavation E-4 is approximately 4,860 sf with the majority of the area assumed to be excavated to 15 ft and smaller portions excavated to 5 and 8 ft. The excavation limit is shown on **Figure 9.** Because this area has not been delineated horizontally the extent of excavation could be enlarged during the RA depending upon results of confirmation samples collected as part of the RA. The depth will be defined by the groundwater table and no bottom confirmation samples will be collected for areas dug to the top of the groundwater table. The excavation is currently estimated to be 3,060 cy which includes a 30% contingency for sloping and uncertainties in the excavation limit. Because the excavation will be ended at the groundwater table and no confirmation samples will be collected a single monitoring well will be installed in the vicinity of this excavation following restoration. The newly installed monitoring well will be screened at the shallow water table to provide long term monitoring of the shallow groundwater in this area.

Excavations E-5 & E-6 – Cooling Water Outfall Ditch

Sediment sampled in cooling water pipelines identified concentrations of contaminants exceeding the soil cleanup levels. As a result, investigations were conducted along the open ditch historically used to convey cooling water to the Neutralization House for treatment. Samples along the ditch identified two areas of contamination that required remedial action. These areas have been identified as excavation areas E-5 and E-6.

Excavation area E-5 is approximately 180 ft from the pipeline discharge points and surrounds historic surface soil sample location 29SD46 (46,000 mg/kg of TNT). To further define this area,

four additional sample locations (29SB10 – 29SB113) were completed as part of the 2014 supplemental RI. Based on results horizontal delineation was provided on the southwest, northwest, and southeast boundaries. Sample 29SB112, collected northeast of the original sample had explosive concentrations greater than the cleanup levels in the surface soil and between 2-4 ft bgs. Location 29SB113 was then collected as a step out from 29SB112 to define the northeast limit. Results for this location all met the soil cleanup levels. As part of the PDI, four samples were collected closer to 29SD46 to potentially reduce the extent of excavation in this area. Based on results from these sample locations (29SB128 and 29SB127) the southwest and southeast boundaries of the excavation were moved closer to the original sample location. Location 29SB126 northeast of the original sample location had a detection of 2,6-DNT (0.178 mg/kg) greater than the soil cleanup limit at 1-2 ft bgs, but no other detections at deeper depths which provides horizontal and vertical delineation for 29SB112 (2,6-DNT at 2-4 ft bgs). Location 29SB113 collected during the supplemental RI is still used to provide overall horizontal delineation to the northeast. PDI location 29SB129, northwest of the original sample location was impacted from 3 – 8 ft with explosive compounds greater than the soil cleanup levels. Additional samples were collected in 2022 to define the limits of 29SB129. This location has now been delineated for depth by 29SB186 and 29SB184 and the northwest boundary along the road has been shifted inward slightly based on results of 29SB184 and 29SB185. Delineation for 29SB126 has been vertically and horizontally delineated by results from 29SB183.

The estimated excavation area for E-5 is 2,840 sf and is divided into three depths and is shown on **Figure 10**. The most southern portion (1,480 sf) is estimated to be excavated to a depth of 9 ft bgs, the middle portion (1,100 sf) is estimated to be excavated to a depth of 4 ft bgs and the north portion (260 sf) is estimated to be excavated to a depth of 3 ft bgs. The total estimated volume is approximately 930 cy and assumes excavations will be completed using a 1H:1V slope.

Excavation area E-6 is located along the cooling water ditch at the culvert that conveys water beneath Avenue D and includes area on the north side of Avenue D at the discharge end of the culvert. Historic surface sample locations with exceedances included locations 29SD13 and subsurface soils in GPS-12. Based on exceedances at both the inlet and outlet of the culvert, it is possible contaminated sediment may also exist in the culvert beneath Avenue D that will also need to be removed.

To delineate the contaminated soils surrounding 29SD13, located south of Avenue D, four surface samples (29SB114 – 29SB117), were collected during the 2014 supplement RI at approximately 30 ft from the original sample location. No explosive compounds were detected at any of the sample locations. Four additional borings (29SB130 – 29SB133) were completed as part of the 2021 PDI at approximately 20 ft from the original sample location to reduce the overall excavation area. Results from these locations also came back as non-detect and provide horizontal delineation for the south portion of the excavation area.

Sample location GPS-12 located north of Avenue D had a concentration of TNT in surface soil that exceeded the cleanup standard. One additional soil sample (29SB15R) conducted as part of the Baseline Ecological Risk Assessment (BERA) completed in 2013 had no concentrations of explosive compounds and is used to provide delineation to the northeast of this sample location. No other additional samples have been collected in the vicinity of this sample location. As a result, the extent of excavation for the north portion is estimated to the northwest, southwest, and southeast and is based on a 20 ft distance from the original sample location. The vertical extent for this excavation is estimated to be 1 ft bgs.

Excavation area E-6 is broken up into the north (E-6N) and south (E-6S) excavations and is shown on **Figure 11**. It is assumed that any sediment inside the existing culvert beneath Avenue D is also contaminated and will be removed as part of the remedial action. The north excavation area is approximately 1,770 sf and will be excavated to 1 ft bgs for an estimated in-place volume of approximately 70 cy. The south excavation area is approximately 1,380 sf and will be excavated to 1 ft bgs for an estimated in-place volume of approximately 50 cy for a total estimated volume of 120 cy. The excavation is expected to be bounded on the southwest by the road and the culvert. The southeast and northwest limits are expected to remain inside the drainage ditch, but because there are no samples defining these limits visual observations and confirmation samples will be needed to verify remaining soils meet the cleanup objectives for the site.

ISTD Treatment Area

The ROD identified ISTD for treatment of the MC DNAPL in the intermediate groundwater. Following treatment of the DNAPL MC plume, the ROD identified MNA. The 2010 MNA evaluation demonstrated that MNA in the intermediate zone would not be effective in reducing high MC concentrations in the vicinity of 29WW16, which are considered toxic to the micro-organisms (Shaw, 2010). Per the MNA Evaluation MC concentrations of 93,000 µg/l can be toxic for indigenous microbes and inhibit MNA. Observations made during the MNA evaluation supports this conclusion, as no significant reduction of MC was observed in monitoring well 29WW16.

For MNA to be effective at reducing MC concentrations in the intermediate groundwater, MC concentrations first need to be reduced to levels amenable to remediation by MNA. The MNA Evaluation identified a MC concentration of 93,000 µg/l. The ROD indicated treatment to be limited to the estimated area of MC DNAPL (130,000 µg/l which is 1% of the MC solubility limit) and also stated the ISTD target value for successful ISTD treatment of MC in the intermediate zone to be 8,000 µg/l. After evaluating the objectives identified, the treatment area for ISTD was adjusted to encompass the estimated area of groundwater with MC concentrations greater than 8,000 µg/l which is approximately 6,600 sf and is shown on **Figure 12**. The treatment depth was estimated based on the groundwater grab samples and soil samples collected during the 2014 supplement RI and a correlation between the concentration in groundwater and soil based on the water octanol partitioning factor for MC. The thickness of the treatment area is 20 ft and will be from a depth of 70 to 90 ft bgs. Typically, thermal treatment is applied below and

above the targeted treatment area to mitigate the potential for downward migration of DNAPL as it is heated and to reduce the potential of contaminating cooler zones above the thermal treatment area as a result of condensation of contaminant vapors. The overall treatment thickness will be further evaluated as part of the 60% design but preliminarily has been assumed to include five feet above and five feet below for an overall thickness of 30 ft.

The FS evaluated electrical resistivity heating (ERH) and thermal conduction heating (TCH) for completing ISTD at the site. Both technologies can achieve the desired temperature in soils having low permeability (silt and clay) and can be used at the site. Selection of the final technology for implementation was to be selected as part of the RD. In order to allow flexibility for the remedial action, the RD will be a performance-based design and the final selection of the technology (ERH or TCH), and design will be provided by the ISTD vendor. This follows the RODs requirement that the technology be selected during the RD, because the technology (ERH or TCH) will be selected and designed by the ISTD vendor prior to its implementation.

The ISTD design will be performance-based and include the following information that can be used by the ISTD vendor to prepare the final design documents for implementation of ISTD at the site:

- General site layout drawings showing locations for equipment staging, equipment access, and the thermal treatment zone (TTZ).
- Conceptual well field layout showing number and spacing of electrodes.
- Process flow diagrams for aboveground treatment equipment.
- Equipment layout area and access to the TTZ.
- Utility locations.
- Clean up goal of achieving overall concentration of MC in groundwater of less than 8,000 µg/l in the treatment area.

The ISTD design includes the following elements, and a layout is included on drawing sheet 02C201 of the 30% Design Drawings:

- Thirty-nine (39), 12-inch diameter electrode borings will be installed to a depth of approximately 90 feet bgs with co-located vapor extraction wells screened above the water table; average electrode spacing will be 18 ft. The electrodes will be used to heat the subsurface to near boiling temperatures to volatilize MC from the subsurface, and the vapor extraction wells will extract the steam generated.
- A minimum of five temperature-monitoring probes, with 10 sensors per probe to monitor subsurface temperatures. This number will be further refined as part of the 60% design.

- Vapor treatment consisting of either activated carbon or a thermal oxidizer will be used to treat the vapors. Final selection of which vapor treatment system will be provided as the design progresses.
- Extraction wells will mitigate the potential for mobilized NAPL to migrate away from the TTZ. The final number and location of wells and estimated extraction rates will be provided as the design progresses. Water discharges (condensate and extracted groundwater) are anticipated to be stored in aboveground tanks for transfer to the existing groundwater treatment plant (GWTP) at the LHAAP 18/24 site for treatment and discharge.
- Power supply is still being evaluated but based on initial evaluation, an appropriate electrical connection is anticipated to be available in the vicinity of Avenue C and Avenue Q.

Inspection and Excavation/Abandonment of Pipelines

The remedial action requires existing pipelines to be flushed to remove visual residue, inspected to visually confirm residue was removed, followed by plugging the lines. Three types of pipelines exist at the site, transite (asbestos containing) TNT wastewater pipeline, a wooden TNT wastewater pipeline, and two 8-18-inch diameter vitrified clay cooling water pipelines with associated manholes. Methodologies for meeting the remedial objectives identified in the ROD are described below.

Wooden TNT Wastewater Pipeline

The wooden TNT wastewater pipeline was previously flushed and abandoned. However, during the March 2021 PDI, explosive solids residue was encountered within the line with COC concentrations (2,4,6-TNT, 2,4-DNT, 2-amino-4,6-DNT, 4-amino-2,6-DNT) greater than the GWP-Ind MSCs. A release of COCs from the wooden pipeline to the surrounding soil was also detected: three of eight PDI soil boring locations along the wooden pipeline (29SB134, 29SB155, and 29SB156) encountered detections of 2,4,6-TNT. The pipeline is constructed of wood staves with 2-inch-wide metal bands spaced at 6-inch intervals and an asphaltic coating. Based on test pits completed during the 2021 PDI the pipeline is buried between 1.5 – 10 ft bgs. The gravity portion of the wood pipeline is 12 inches in diameter and extends approximately 2,900 linear feet (lf) from just north of former Wash House building 8-A to the pump station, and its pressurized portion is 6 inches in diameter and extends approximately 1,700 lf from the pump station to LHAAP-32. Due to the deteriorated condition of the pipeline, the presence of residual explosives within sediment inside the pipeline, and the detected release to the surrounding soil, the wooden pipeline along with the surrounding soil will be excavated and disposed off-site. The excavation along the pipeline is estimated to be 2 ft wide and a minimum depth of 6 inches beneath the pipeline. Unimpacted soil above the pipeline will be stockpiled alongside the trench and used as backfill. In order to minimize disturbance to the TNT transite pipeline that is reported to be approximately 5 ft north of the wooden TNT pipeline, excavations to remove the wood pipeline will be accomplished using a 1V:1H slope starting at the top of the excavation and ending with a 3.5 ft vertical cut to remove the pipeline and surrounding soil. For areas

where the pipeline is buried within the top 7.5 ft, it is assumed that removal of the wooden TNT wastewater pipeline can be accomplished without disturbing the transite TNT wastewater pipeline. There is an estimated 1,100 lf of the gravity wooden pipeline that is buried greater than 7.5 ft and may result in disturbance to the transite TNT pipeline depending on the buried depth of the transite TNT pipeline. It is assumed the 1,100 lf of transite pipeline will be disturbed during the removal of the wooden TNT pipeline and will be disposed off site.

Following removal of the wooden TNT wastewater pipeline, samples will be collected at the bottom of the trench and sidewalls to confirm remaining material meets the soil cleanup level. Once sample results are received verifying the cleanup levels have been achieved the trench will be backfilled with material stockpiled along the trench and the area will be graded.

Transite TNT Wastewater Line

The ROD specified that solid residue containing COCs (2,4,6-TNT, 2,4-DNT, 1,3 dinitrobenzene, 2-amino-4,6-DNT, 4-amino-2,6-DNT) present inside the transite TNT wastewater line be removed and the pipeline to be sealed and abandoned in place. The transite pipe is a 6-inch diameter pipeline installed approximately 5 ft north of the wooden TNT wastewater pipeline and extends from the production buildings to the pump-house. From the pump house the pipeline is approximately 5 ft east of the wooden TNT wastewater pipeline and conveyed wastewater to the TNT Waste Disposal Plant designated as LHAAP-32 (*Final Addendum Phase 2 Work Plan for Wasteline Sampling*, Svendrup, April 1995). The depth of the transite pipeline is estimated to be buried between 3 to 3.5 ft bgs based on previous historic investigations where the transite pipeline was uncovered, however based on information collected on the depth of the wooden TNT pipeline which runs parallel to the transite pipeline it is possible this pipeline may be buried up to 10 ft in some areas. Historic investigations indicated the transite TNT pipeline to be in good condition. The gravity flow portion of the pipeline extends approximately 3,000 lf, and the pressurized portion of the pipeline extends approximately 1,000 lf.

Flushing of the pipelines will be completed using hydro-jetting. It is estimated that access ports will be needed at 400 ft lengths along the transite pipeline. Maximum lengths that the hydro-jet can effectively clean will be further evaluated as the design progresses and if longer pipeline lengths are feasible then a reduced number of access ports will be provided. The access ports will also serve as collection points to collect residual solids and wastewater and rinse water removed during hydro-jetting. Water and residual solids collected in the temporary sumps will be vacuumed out and temporarily stored in a fractional tank. Based on characterization results water will be either disposed off-site, treated at the existing GWTP or discharged at the site.

To provide access ports, section of transite pipeline will be exposed using an excavator. The excavation will be large enough to provide sufficient space to cut away a section of the pipeline for temporary installation of a collection sump. During cutting, the transite pipeline will be wetted to protect the worker from potential airborne asbestos fibers. The pipeline sections that are cut and removed will be disposed off site in accordance with all regulatory requirements to

an approved disposal facility licensed to accept ACM. The pipeline section will be visually inspected to determine the condition and whether the material is considered to be regulated (friable) ACM or non-regulated (not friable) ACM. All ACM will be disposed in accordance with the applicable requirements of 30 TAC 330.171(c).

The transite pipeline is close to 80 years old. Typical lifespan for transite pipeline is estimated to be 70 years. As a result, it is possible that the pipeline may not be in good enough condition to clean and abandon in place per the ROD. Prior to performing the hydro-jetting the line will be inspected using video inspection equipment to visually confirm the integrity of the pipeline and whether any cracks or other defects are visually apparent. The video inspection will also confirm whether sediment or wastewater exists in each 400 ft section of pipeline. If sediment or water is present within the 400 ft section of the pipeline and the integrity of the pipeline is visually sound, the section of pipeline will be cleaned with the hydro-jet as described above before grouting and abandoning in place. For sections of pipeline identified with cracks or other defects, these pipeline sections will be excavated and removed. In general, excavations will have a width of 2 ft and be completed a minimum of 1 ft below the bottom of the pipeline. The excavation will be visually inspected for impacts before collecting a sample from the underlying soil to verify concentrations meet the cleanup levels. Because it will not be known whether the pipeline will be in good enough condition to clean and abandon in place, the request for bids could include options in order to get costs for both conditions. One option could be for cleaning and abandoning the pipeline, and the second option could be for cleaning and removal. As described above there is approximately 1,100 lf of transite pipeline that may be disturbed as part of the wooden TNT pipeline removal. It is assumed that these sections of transite pipeline will be removed along with the wooden transite pipeline and disposed off site.

Following any excavation of the transite pipeline, the exposed soil will be visually inspected for any indications of contamination before collecting confirmation samples along the side walls and bottom to confirm all residual contamination has been removed and the excavated section meets the soil cleanup levels of the ROD.

Once a section of pipeline has been cleaned using hydro-jetting, the pipeline section will be re-inspected using video inspection to verify no remaining solids exist in the pipeline section. If no remaining solids exist, the temporary sump will be cleaned of its contents and removed and then the pipeline will be abandoned in-place by filling the section completely with flowable fill or similar material and work will continue in the next 400 ft section of pipeline.

There were two samples collected along the pressurized section of transite pipeline that exceeded the soil cleanup levels. One sample result (29SB137) had concentrations exceeding the cleanup levels for TNT and 2,4-DNT at depths of 11-12 ft and 15-16 ft bgs and another had concentrations of TNT exceed the cleanup level at 3-4 ft bgs (**Figure 13**). These sample locations were approximately 10 to 15 ft from the assumed location of the pipeline. The deeper location (29SB137) will be excavated down to the water table which is estimated to be approximately 16 ft bgs. The areas and volumes estimated for these excavations are 400 sf and 270 cy (29SB137), and 200 sf and 40 cy (29SB201). Excavations are assumed to be

completed using 1H:1V slopes. These locations will be used as access ports to clean out and grout the transite pressure pipeline for abandonment in place.

Cooling Water Lines

There are two drain pipelines (North Cooling Water Line and South Cooling Water Line) that were historically used to collect cooling water that came into direct contact with TNT production mixtures from the six TNT production plants. The pipelines conveyed water to an open drainage ditch that continued to convey the water east beneath Avenue D to the Neutralization House located in the Toluene Bulk Storage Area on the northeast side of Avenue D. Cooling water was neutralized at the Neutralization House before being discharged to surface water.

During previous investigations conducted in 2004 by Shaw the following observations were noted:

- Manhole 4 was collapsed and unable to be sampled
- Manholes 1, 3, and 11 did not contain enough residue to collect samples
- Manholes 3, 5 and 12 were the only locations where water samples could be collected.

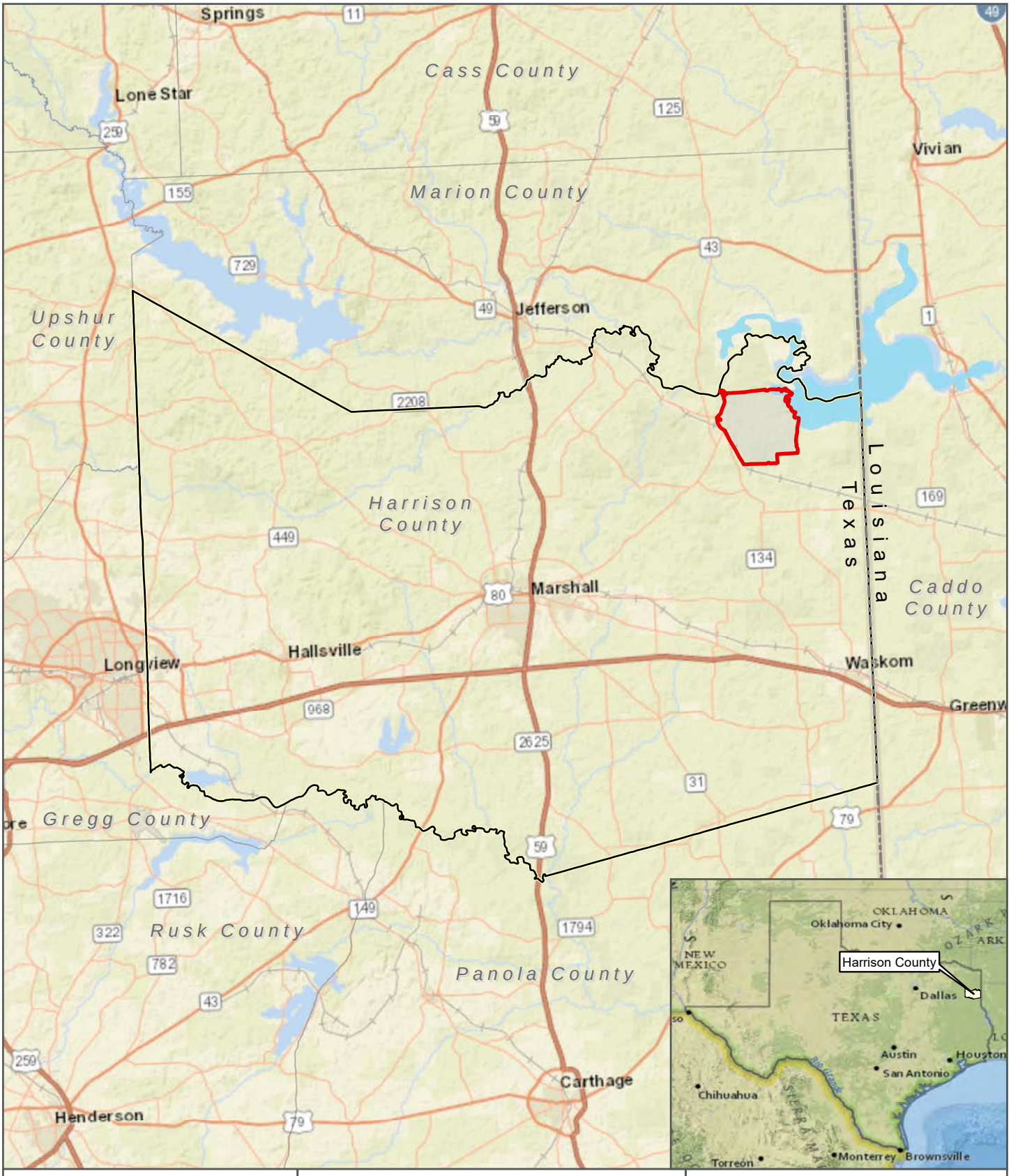
The cooling water lines are reported as having pipeline diameters of 8-inches and 18-inches. For the design it was assumed that all the service laterals to the production buildings were constructed of 8-inch pipeline and the main trunkline that runs across the site collecting water from each of the service lines consists of an 18-inch pipeline. The north cooling pipeline consists of 8-inch drain lines that carried water from the TNT production buildings to the main 18-inch diameter pipeline that carried water to the cooling water ditch. Each of the service lines is connected to the main pipeline with five manholes. The south cooling water pipeline is similarly constructed and consists of 8-inch drain lines from each of the former production areas and is connected to the main 18-inch diameter pipeline via seven manholes. The northern cooling water line is approximately 2,500 lf of pipeline and the southern cooling water line is approximately 2,800 lf of pipeline. The service laterals connecting to the cooling water lines total approximately 5,100 lf in length. Based on field observations service laterals remain as open-end pipelines which will allow access to each of the service lateral pipeline sections from the former building foundations.

Based on sample results collected adjacent to the north cooling water pipeline during the 2021 PDI there are indications that sections of this pipeline will be removed along with surrounding impacted soil at sample locations 29SB139, 29SB138 and 29SB143 (**Figures 14**, **15**, and **16**). Additional samples were collected in 2022 to provide further delineation for these areas. Samples were offset 10 ft to either side of the impacted samples. All sample results for samples collected in 2022 were non-detect with the exception of 29SB191 which had an exceedance of 2,4-DNT (0.11 mg/kg) at a depth of 9.5-10 ft. Boundaries for the excavation areas are shown on **Figures 14**, **15**, and **16**. These areas will be excavated, and associated piping will be cut at either end of the excavation and the pipeline section will be removed and disposed off-site along

with the soil impacted above the cleanup standard. The final extent of the excavation will be determined based on visual observations and the collection of confirmation samples. The depth of the excavations will be based on the depth to groundwater. An estimated in-place volume for removal of contaminated soil and the pipeline sections for these areas is 4,500 cy with an estimated 4,950 cy of loose material (assumed 10% expansion of soils) for off-site disposal.

There were also four other sample locations (29SB165, 29SB147, 29SB146, and 29SB142) where impacts were observed but the results were all below the cleanup standard. If the integrity of the pipeline is found to be defective during the video inspection, these sections will also be excavated, and the pipeline will be cut and the section of pipeline along with surrounding soil will be removed and disposed off-site. All other sections along the north cooling water pipeline, where no soil impacts have been observed will be video inspected, cleaned, and abandoned in-place per the ROD. Samples collected adjacent to the south cooling water line did not have any detections of COCs. As a result, it is assumed that the south cooling water line is generally intact and can be video inspected, cleaned, and abandoned in-place per the ROD.

Intact cooling water lines will be inspected and cleaned as described above for the TNT wastewater pipeline. Following hydro-jetting of the pipeline section, the pipeline will be reinspected to verify all sediment has been removed from a pipeline section and then the pipeline will be abandoned in place by filling the pipeline section completely with flowable fill or a similar material. Existing manholes will be dug out and used as collection sumps for collecting water and sediment removed from the pipelines and for access ports for the hydro-jet. Sediment and water will be removed via a vacuum truck and temporarily stored in a fractional tank. Once sediment has settled, water will be removed from the tank and taken to the existing GWTP for treatment and sediment will be transported off site for disposal.



N

0 5 10
MILES

LEGEND

- LHAAP Installation Boundary
- Harrison County
- State Boundary

SITE LOCATION

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

DATA SOURCES: AECOM, 2017, Draft Final Feasibility Study Addendum LHAAP-29, Former TNT Production Area, Group 2 Longhorn Army Ammunition Plant, Karnack, Texas. August

DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

FIGURE 1

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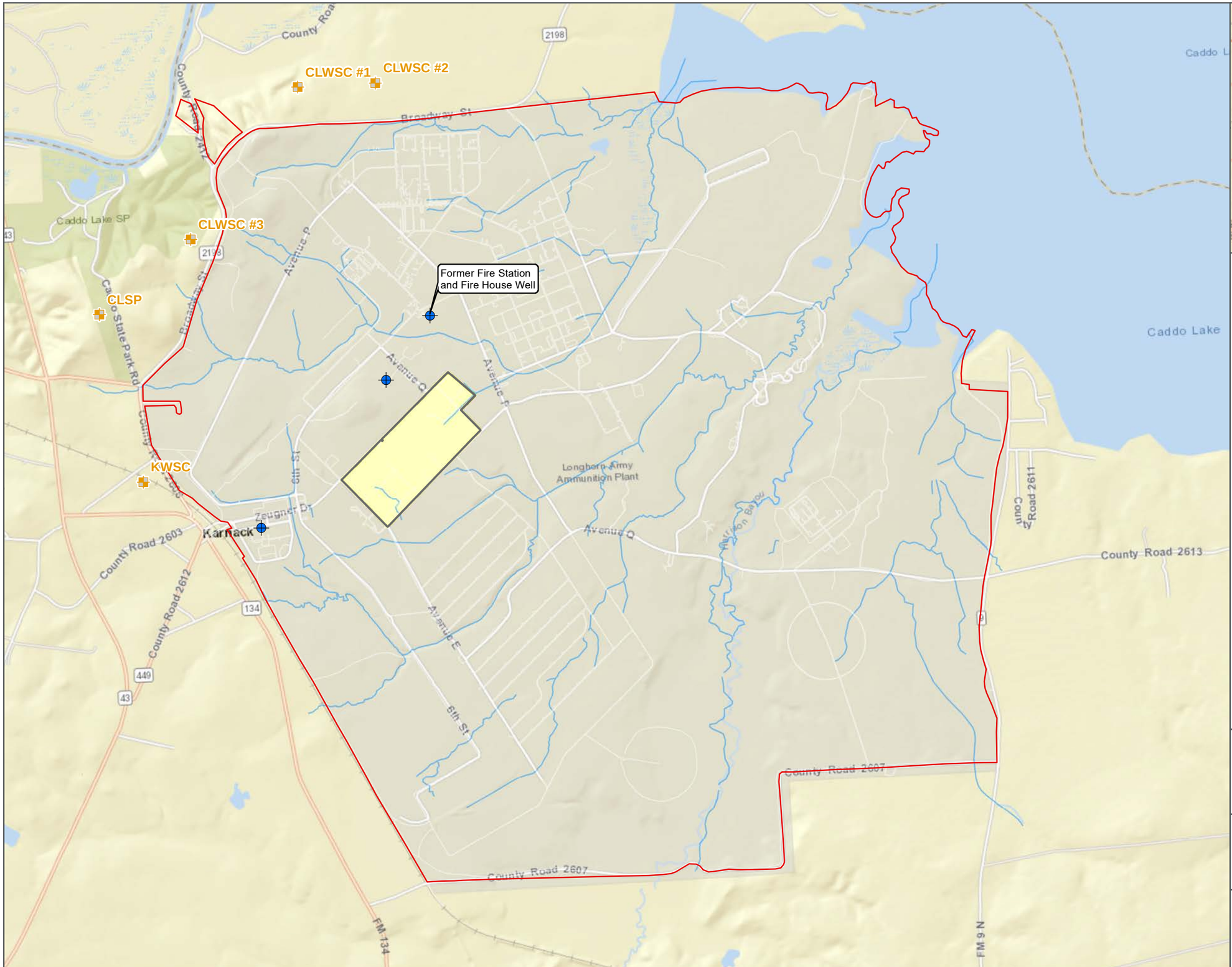
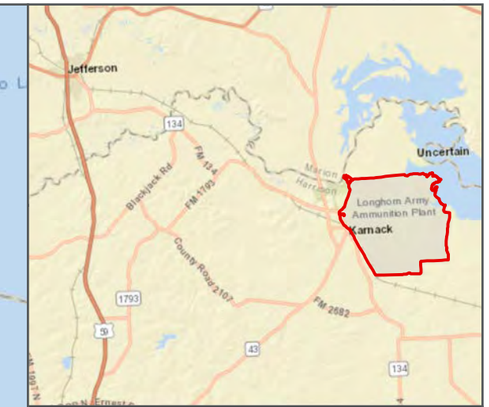
Figure 2-2. LHAAP-29 TNT Production Facility Site Location





LEGEND

- Public Water Supply Well Locations
- Potable Water Wells
- Roads
- Streams
- Site LHAAP-29
- LHAAP Installation Boundary

DATA SOURCES: AECOM, 2016, Draft Final Remedial Investigation Addendum LHAAP-29, Former TNT Production Area, Group 2 Longhorn Army Ammunition Plant, Karnack, Texas. July. ESRI

DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

SITE VICINTY MAP

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

N

0 0.5 1
MILES

FIGURE 2

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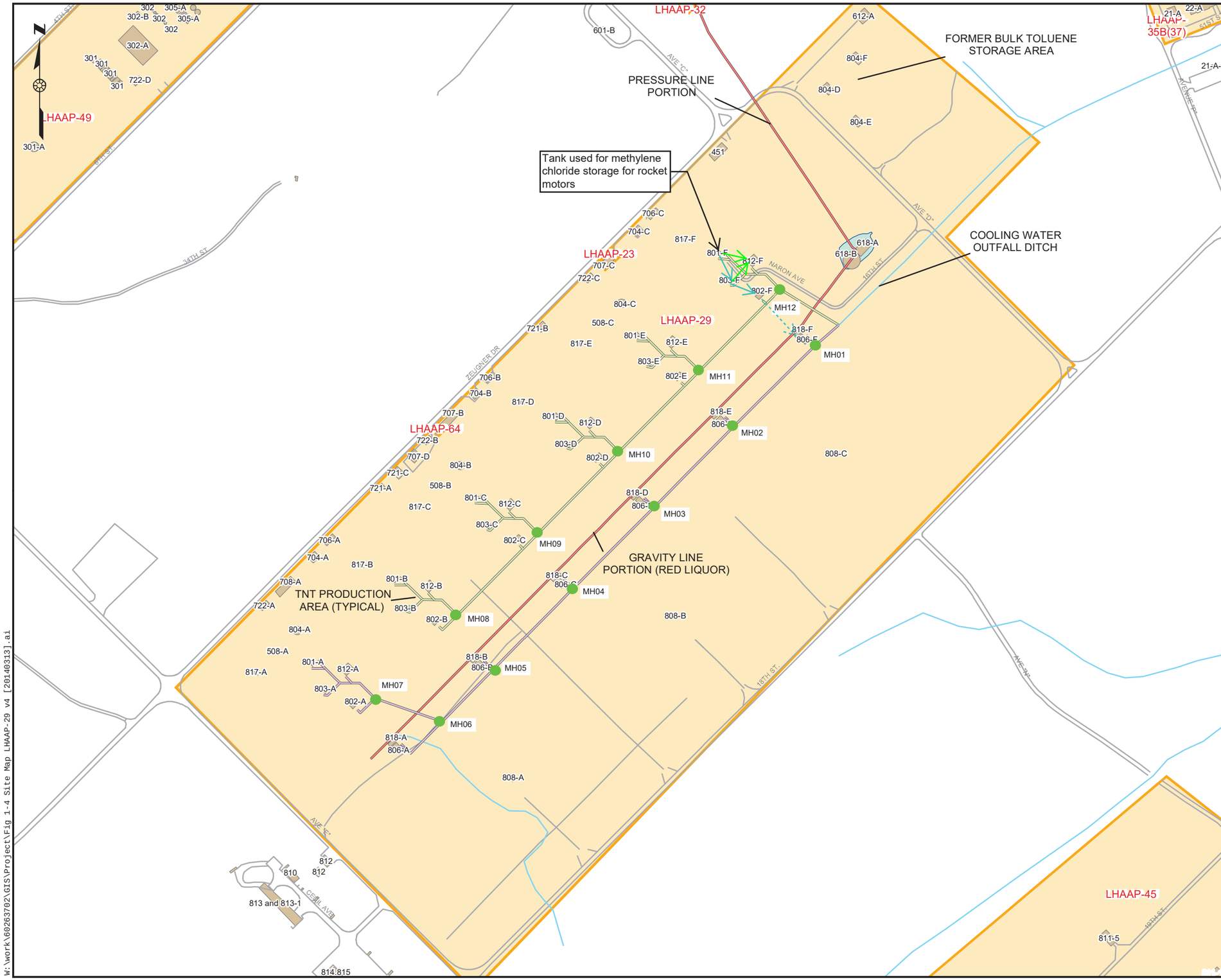

LEGEND

- TNT Cooling Water Drain Line (South)
- TNT Cooling Water Drain Line (North)
- TNT Wastewater Lines (Wood/Transite)
- Stream
- Road
- Former Building or Concrete Slab
- Pond
- Site
- Manhole

Former Buildings and Structures in or Adjacent to LHAAP-29

Structure or Building Number	Description	Materials Handled
Original Use (1942-1945)		
451	Compressed Air Plant	- - -
508-A to -C	Start-Up Mixed Acid Storage	Acids
612-A	Neutralization House	Cooling water from production (blue water)
618-A	Pump House	TNT waste water (red liquor)
618-B	Wooden Storage Tank	TNT waste water (red liquor)
704-A to -C	Supervisor's Office	- - -
706-A to -C	Solvent Storage Building and/or Powder Magazine	Solvents
707-B to -D	Change House	- - -
708-A	Garage Building	- - -
721-A to -C	Inspector's Office	- - -
722-A to -C	Paint Shop	- - -
801-A to -F	Mono-Nitrating House	Toluene, nitrotoluene, nitric acid, sulfuric acid
802-A to -F	Tri-Nitrating House	Dinitrotoluene, TNT, nitric acid, sulfuric acid
803-A to -F	Bi-Nitrating House	Nitrotoluene, dinitrotoluene, nitric acid, sulfuric acid
804-A to -C	Toluene Working Storage	Toluene
804-D to -F	Toluene Tank	Toluene
806-A to -F	Wash House	TNT, caustic soda, sellite, residual acids, TNT wastewater (red liquor), yellow liquor
808-A to -C	Nail House	TNT, boxes, nails
812-A to -F	Acid & Fume Recovery House	Nitric acid fumes, recovered acid
817-A to -F	Oleum Storage	Oleum
818-A to -F	Barricade	- - -
Subsequent Use		
707-C	General Purpose Warehouse	- - -
801-F	Rocket Motor Soak-Out Facility	Out-of-specification rocket motors containing composite propellants (e.g. polysulfide perchlorate), methylene chloride-based industrial solvent, liquid solvent waste, lubricants, polymers, fuels

- - - Not documented
Reference: Environmental Site Assessment, Phase I and II Report (Plexus, 2004)

Notes:
1. Manholes located along the TNT cooling water drain line.
2. 806 series buildings are wash houses and generated red liquor.

Source: Shaw, 2010, Final Feasibility Study. LHAAP-29, Former TNT Production Area, Group 2, Longhorn Army Ammunition Plant, Karnack, Texas, April.

0 205 410 820 Feet

Figure 3
Site Map
LHAAP-29

Longhorn Army Ammunition Plant
Karnack, Texas

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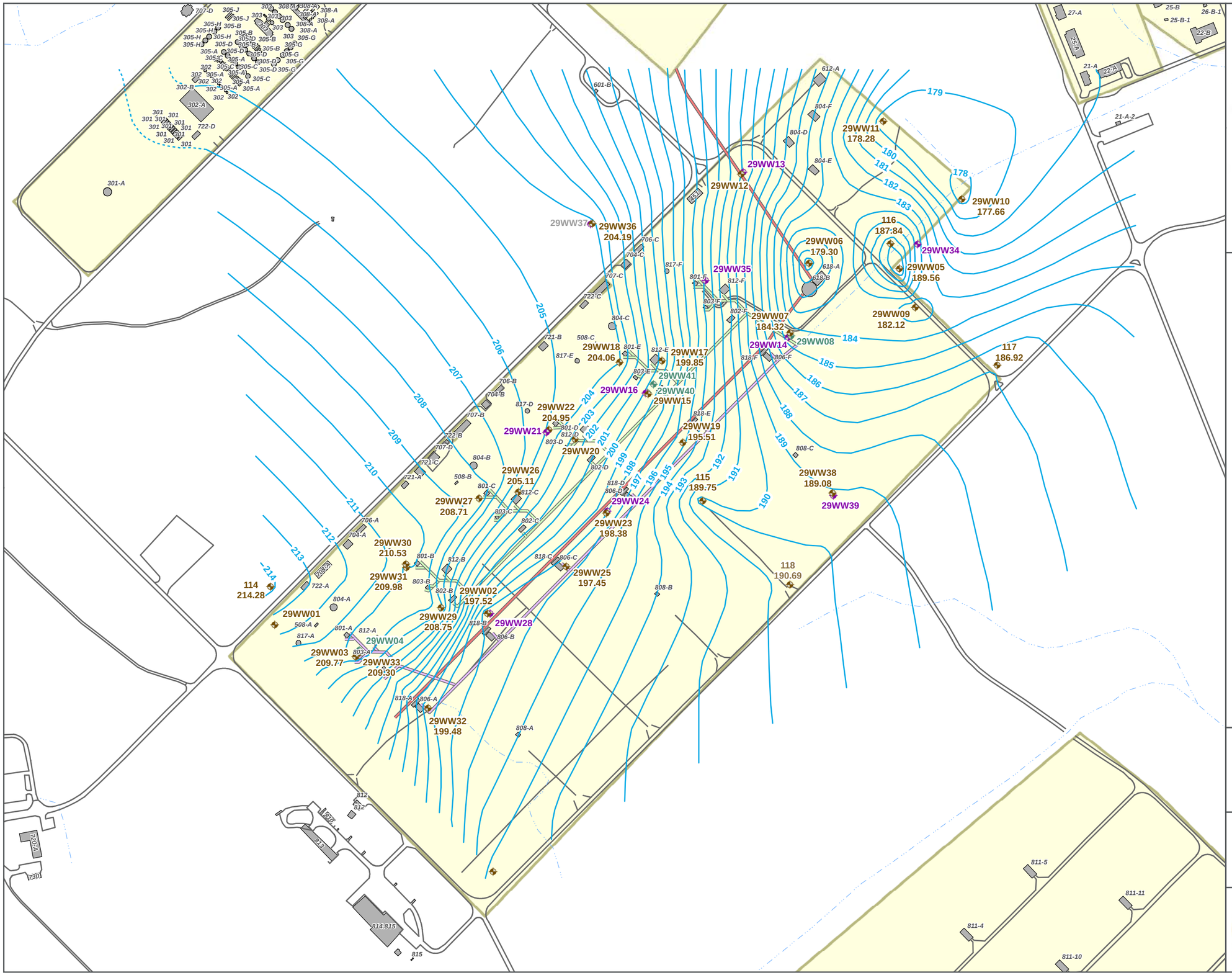
Figure 2-5. LHAAP-29 Shallow Zone Wells and Groundwater Elevations



LEGEND

- Shallow or Lower Shallow Monitoring Well
- Intermediate Monitoring Well
- Deep Monitoring Well
- Groundwater Elevation Contour (Dashed Where Inferred)
- TNT Cooling Water Drain Line (North)
- TNT Cooling Water Drain Line (South)
- TNT Wastewater Line
- Stream
- Road
- Building
- Site LHAAP-29

NOTE:
Groundwater contours are based on data collected November 29, 2007 through December 3, 2007.

DATA SOURCES: AECOM, 2016, Draft Final Remedial Investigation Addendum LHAAP-29, Former TNT Production Area, Group 2 Longhorn Army Ammunition Plant, Karnack, Texas. July.

DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

GROUNDWATER ELEVATION MAP (SHALLOW ZONE)

LHAAP 29
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

N

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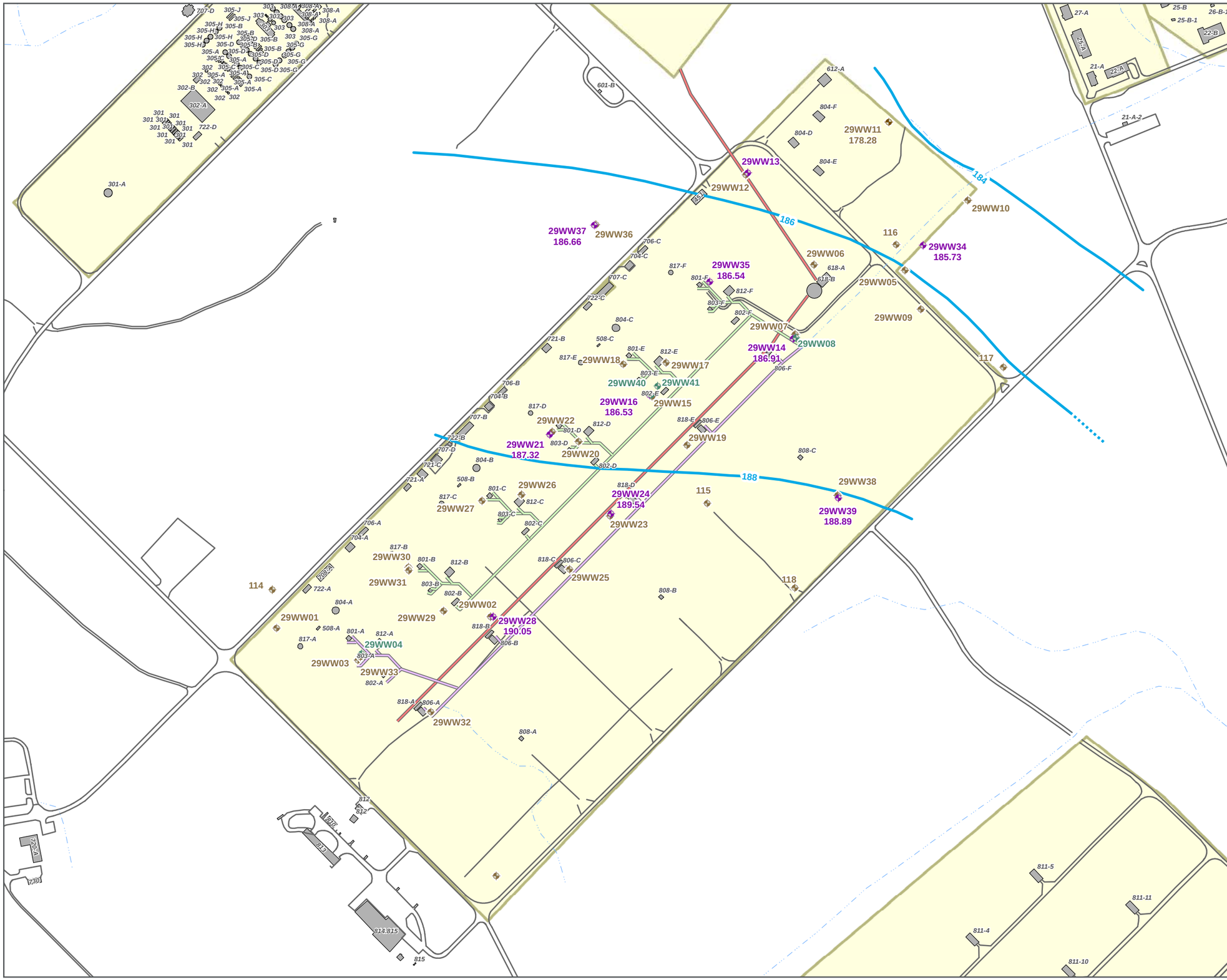
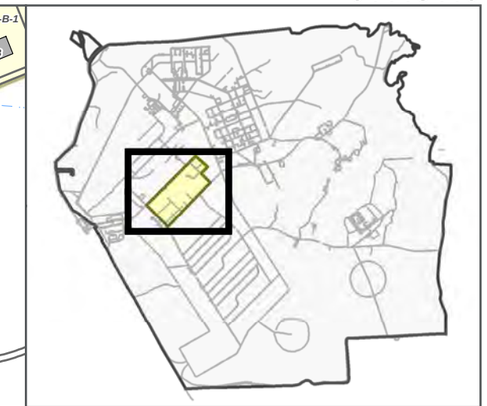
FEET

FIGURE 4

PATH: J:\2018\18-025_LHAAP_SITES29_47_18AND24_ROD_(WERNER)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\LHAAP29\LHAAP_29_ROD_GW_ELEVATION_SHALLOW.MXD - USER: KLOFGREN - DATE: 5/17/2019

Figure 2-6. LHAAP-29 Intermediate Groundwater Zone Wells and Elevations





LEGEND

- Shallow or Lower Shallow Monitoring Well
- Intermediate Monitroing Well
- Deep Monitoring Well
- Groundwater Elevation Contour (Dashed Where Inferred)
- TNT Cooling Water Drain Line (North)
- TNT Cooling Water Drain Line (South)
- TNT Wastewater Line
- Stream
- Road
- Building
- Site LHAAP-29

NOTE:
Groundwater contours are based on data collected November 29, 2007 through December 3, 2007.

DATA SOURCES: AECOM, 2016, Draft Final Remedial Investigation Addendum LHAAP-29, Former TNT Production Area, Group 2 Longhorn Army Ammunition Plant, Karnack, Texas. July.

DISCLAIMER: Map information was compiled from the best available sources. No warranty is made for its accuracy or completeness.

GROUNDWATER ELEVATION MAP (INTERMEDIATE ZONE)

LHAAP 29
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

N

0 250 500
FEET

FIGURE 5

PATH: J:\2018\18-025_LHAAP_SITES29_47_18AND24_ROD_(WERNER)\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\LHAAP29\LHAAP_29_ROD_GW_ELEVATION_INTERMEDIATE.MXD - USER: KLOFGREN - DATE: 5/17/2019

29SB140				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.015	<0.199	<0.015	0.018
2,4-DNT	<0.029	<0.199	<0.029	0.0094
2,6-DNT	<0.029	<0.199	<0.029	<0.029

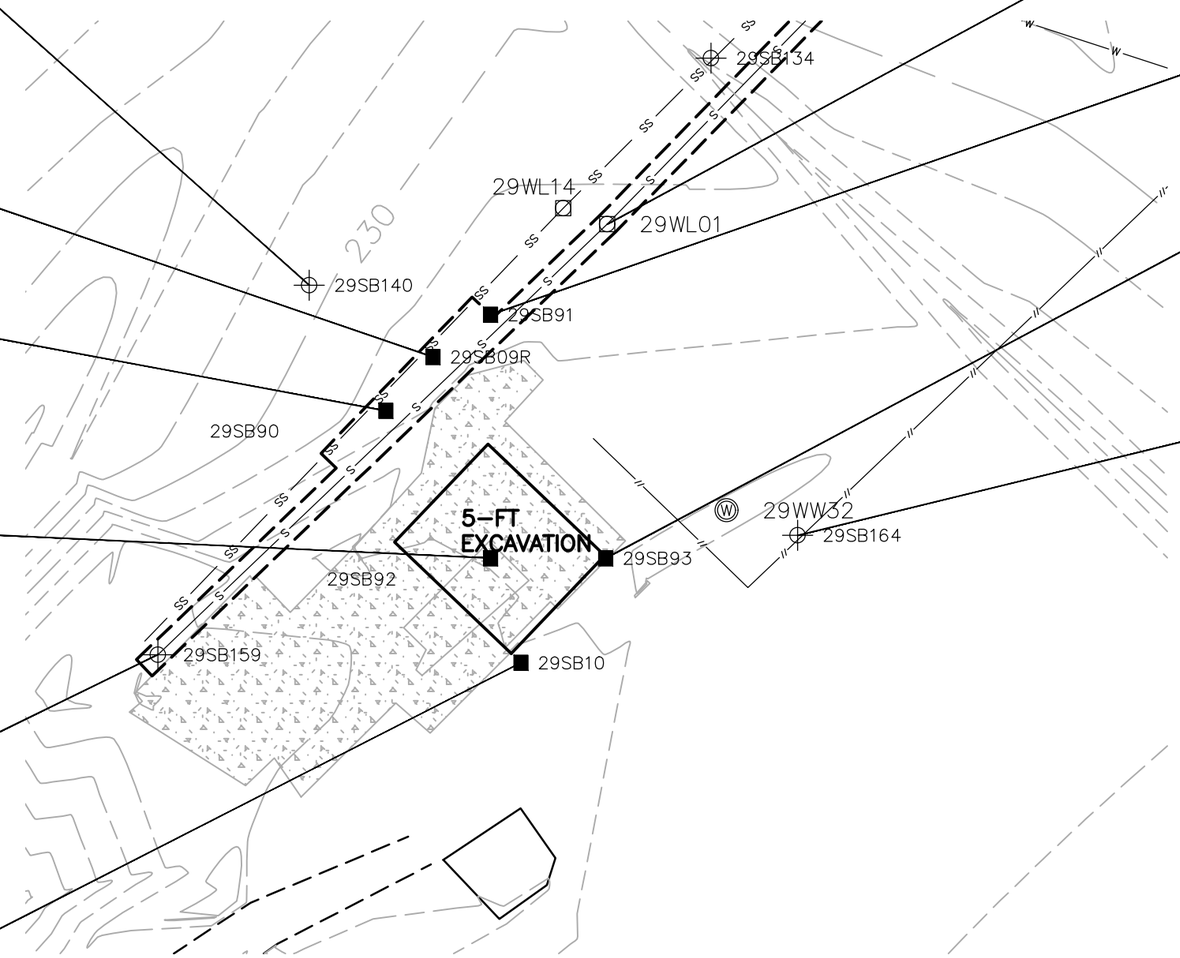
29SB09R	
	0-0.5 ft
2,4,6-TNT	**14.7**

29SB90		
	0-0.5 ft	0-2 ft
2,4,6-TNT	**7.5**	0.332
2,4-DNT	<0.0276	NA
2,6-DNT	<0.0276	NA

29SB92		
	0-2 ft	2-4 ft
2,4,6-TNT	<0.195	NA
2,4-DNT	0.0385	<0.126
2,6-DNT	**0.0488**	**0.0796**

29SB159			
	1.5-2 ft	4.5-5.5 ft	8.5-9.5 ft
2,4,6-TNT	0.016	0.01	0.01
2,4-DNT	<0.028	<0.029	<0.03
2,6-DNT	<0.028	<0.029	<0.03

29SB10		
	0-2 ft	15-17 ft
2,4,6-TNT	<0.3	<0.31



29WL01	
	4.5 ft
2,4,6-TNT	<0.3

29SB91	
	0-0.5 ft
2,4,6-TNT	1.18
2,4-DNT	<0.0314
2,6-DNT	<0.0314

29SB93	
	0-2 ft
2,4,6-TNT	<0.196
2,4-DNT	<0.0322
2,6-DNT	<0.0322

29SB164				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.191	0.0096	<0.014	<0.015
2,4-DNT	<0.191	<0.029	<0.029	<0.029
2,6-DNT	<0.191	<0.029	<0.029	<0.029

N

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   2.1. 2,4,6-TNT = 4.7 MG/KG (0-3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   2.2. 2,4-DNT = 0.042 MG/KG
   2.3. 2,6-DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. SAMPLE RESULTS FOR 29SB10 AND 29WL01 WERE TAKEN FROM FIGURE 4-5 OF THE DRAFT DATA SUMMARY REPORT PREPARED BY SHAW ENVIRONMENTAL, INC, DATED JUNE 2005.
5. LOCATIONS OF THE TNT WASTEWATER PIPES ARE ESTIMATED BASED ON HISTORIC WASTE SAMPLES COLLECTED FROM THE PIPES AND BEST AVAILABLE INFORMATION. THE TRANSITE PIPE IS REPORTED AS BEING 5-FT NORTH OF THE WOODEN TNT WASTEWATER PIPE.

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- COOLING WATER MAIN PIPE – ASSUMED 18"
- COOLING WATER BUILDING SERVICE PIPE
- 12" WOOD TNT WASTEWATER LINE
- 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT
- ESTIMATED PIPE REMOVAL TRENCH LIMIT

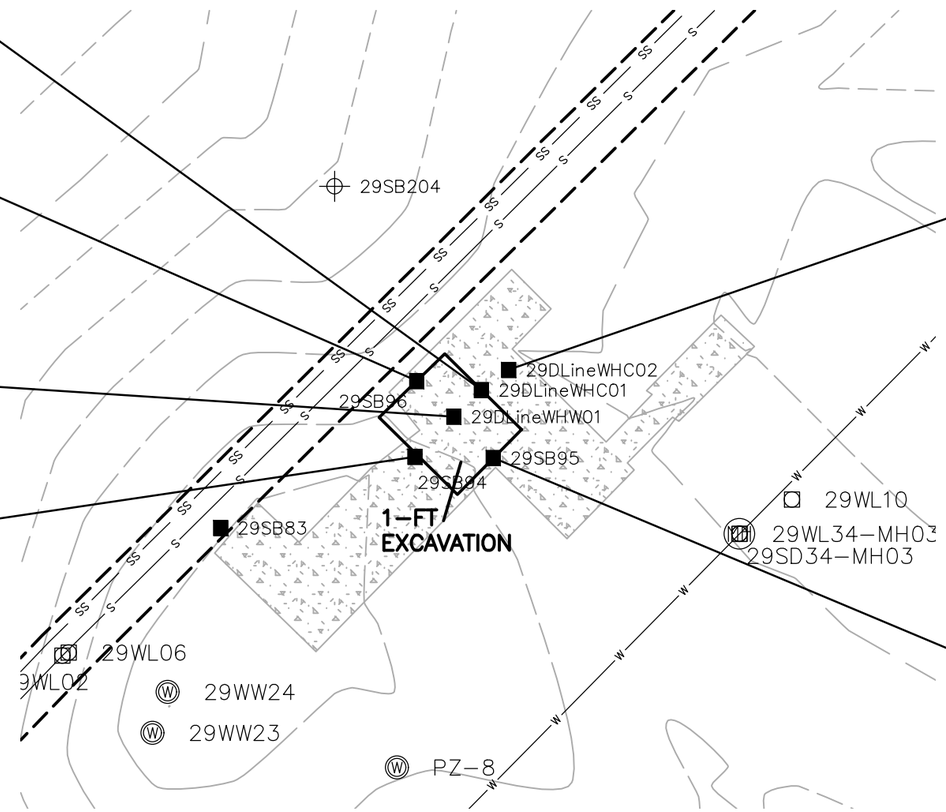
HDR

EXCAVATION AREA E-1
SOIL SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
6



29DLineWHC01	
	0-0.5 ft
2,4,6-TNT	<0.375

29SB96	
	0-0.5 ft
2,4,6-TNT	<0.19
2,4-DNT	<0.027
2,6-DNT	<0.027

29DLineWHW01	
	0-0.5 ft
2,4,6-TNT	**27.3**

29SB94	
	0-1 ft
2,4,6-TNT	<0.19
2,4-DNT	<0.034
2,6-DNT	<0.034

29DLineWHC02	
	0-0.5 ft
2,4,6-TNT	<0.375

29SB95	
	0-1 ft
2,4,6-TNT	3.28
2,4-DNT	<0.0276
2,6-DNT	<0.0276

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- COOLING WATER MAIN PIPE – ASSUMED 18"
- COOLING WATER BUILDING SERVICE PIPE
- 12" WOOD TNT WASTEWATER LINE
- 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT
- ESTIMATED PIPE REMOVAL TRENCH LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

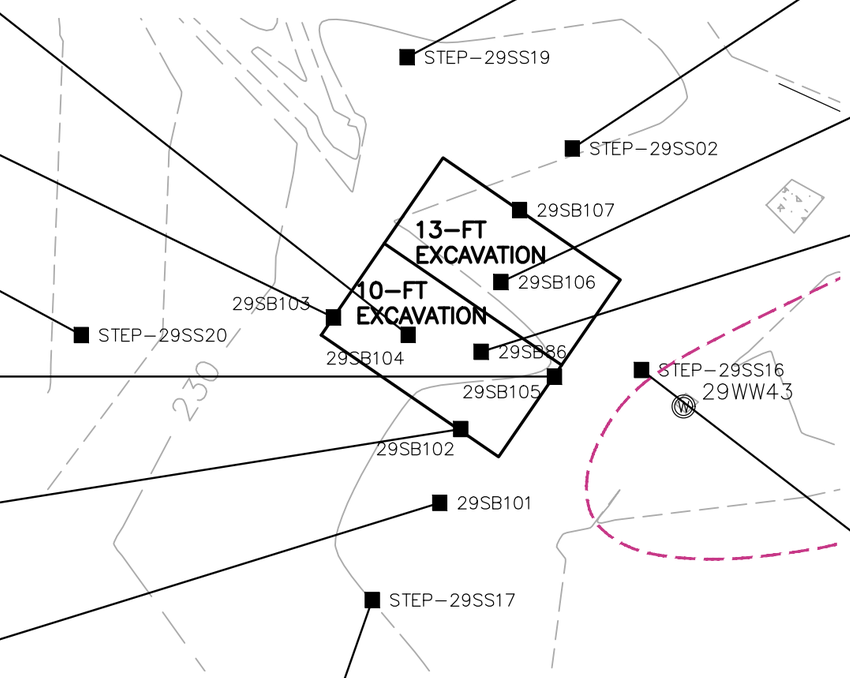
1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   2.2. 2,4–DNT = 0.042 MG/KG
   2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. SAMPLE RESULTS FOR 29SD46, AND 29SDS30 WERE TAKEN FROM FIGURES 4–5 AND 4–6 OF THE DRAFT SITE DATA SUMMARY REPORT PREPARED BY SHAW ENVIRONMENTAL, INC, DATED JUNE 2005.
5. RESULTS FOR SAMPLES COLLECTED ALONG THE WASTEWATER TNT LINES AND COOLING WATER LINES ARE NOT SHOWN ON THIS FIGURE.
6. LOCATIONS OF THE TNT WASTEWATER PIPES ARE ESTIMATED BASED ON HISTORIC WASTE SAMPLES COLLECTED FROM THE PIPES AND BEST AVAILABLE INFORMATION. THE TRANSITE PIPE IS REPORTED AS BEING 5–FT NORTH OF THE WOODEN TNT WASTEWATER PIPE.

HDR

EXCAVATION AREA E-2
SOIL SAMPLE RESULTS
LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
7



STEP-29SS19	
	1-2 ft
PERCHLORATE	ND

STEP-29SS02		
	0-0.5 ft	1-2 ft
PERCHLORATE	0.104	2.41

29SB104				
	0-2 ft	6-8 ft	8-10 ft	10-12 ft
PERCHLORATE	NA	6.06	**7.96**	6.49

29SB106			
	6-8 ft	8-10 ft	10-12 ft
PERCHLORATE	1.19	3.23	**7.40**

29SB103				
	0-2 ft	6-8 ft	8-10 ft	10-12 ft
PERCHLORATE	NA	4.56	3.63	2.92

29SB86			
	0-0.5 ft	6-8 ft	20-21 ft
PERCHLORATE	0.04	**8.60**	0.689

STEP-29SS20	
	1-2 ft
PERCHLORATE	ND

29SB105			
	0-2 ft	6-8 ft	8-10 ft
PERCHLORATE	NA	0.081	0.265

29SB102			
	0-2 ft	6-8 ft	8-10 ft
PERCHLORATE	NA	0.00334	0.00301

STEP-29SS16	
	1-2 ft
PERCHLORATE	ND

29SB101	
	0-1 ft
PERCHLORATE	NA

STEP-29SS17	
	0-0.5 ft
PERCHLORATE	0.004

0 40' 80'

SCALE: 1" = 40'

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- M — COOLING WATER MAIN PIPE – ASSUMED 18"
- // — COOLING WATER BUILDING SERVICE PIPE
- S — 12" WOOD TNT WASTEWATER LINE
- SS — 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT
- MC PLUME TREATMENT AREA

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR PERCHLORATE IS 7.2 MG/KG. SAMPLES EXCEEDING THIS CRITERIA HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
3. NO RESULTS WERE ABLE TO BE FOUND FOR 29SB107. TEXT IN THE RI WORK PLAN INDICATED SAMPLES WERE PROPOSED TO BE COLLECTED AT DEPTHS OF 6–8', 8–10', AND 10–12'. TEXT IN THE RI INDICATE ALL SAMPLE RESULTS CAME BACK AS NON–DETECT ALTHOUGH THESE RESULTS WERE NOT PROVIDED IN THE RI REPORT.

HDR

EXCAVATION AREA E-3
SOIL SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
8

29SB176	
	14.5-15 ft
2,4-DNT	**3.2**
2,6-DNT	**1.1**

29SB118				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.196	<0.202	<0.203	<0.200
2,4-DNT	**0.258**	<0.202	<0.203	**0.132**
2,6-DNT	<0.196	<0.202	<0.203	<0.200

29SB175				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	**0.057**	<0.047	<0.047	<0.049
2,6-DNT	<0.049	<0.047	<0.047	<0.049

29SB121				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	0.014	<0.015	<0.014	<0.015
2,4-DNT	**0.068J**	0.0081	<0.027	0.0096
2,6-DNT	<0.028	0.02	<0.027	0.023

29SB182	
	14.5-15 ft
2,4-DNT	<0.048
2,6-DNT	<0.048

29SB123				
	2-3 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.015	<0.014	<0.014	0.0066
2,4-DNT	0.012	<0.028	<0.028	<0.028
2,6-DNT	<0.029	<0.028	<0.028	**0.047**

29SB174				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.047	<0.048	<0.049	<0.049
2,6-DNT	<0.047	<0.048	<0.049	<0.049

29SB181	
	14.5-15 ft
2,4-DNT	**1.9**
2,6-DNT	**0.74**

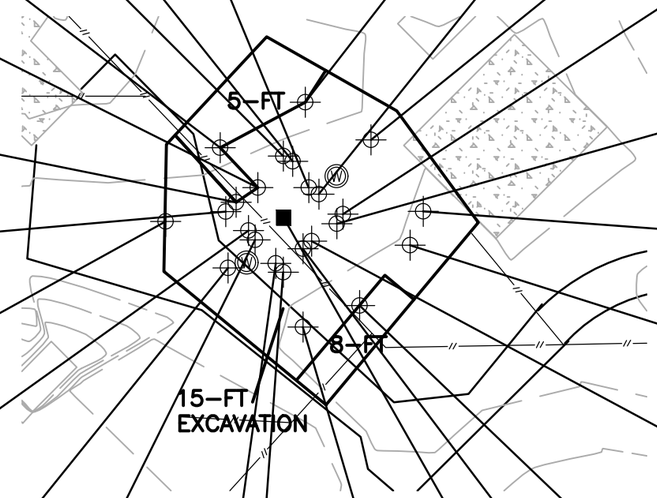
29SB173				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.048	<0.048	<0.048	**1.6**
2,6-DNT	<0.048	<0.048	<0.048	**0.58**

29SB124				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.193	<0.196	<0.208	<0.203
2,4-DNT	<0.193	<0.196	<0.208	**5.78**
2,6-DNT	<0.193	<0.196	<0.208	**1.13**

29SB180	
	14.5-15 ft
2,4-DNT	**0.56**
2,6-DNT	**0.072**

29SB125				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.200	<0.204	<0.201	<0.208
2,4-DNT	<0.200	**0.201**	<0.201	**0.3**
2,6-DNT	<0.200	<0.204	<0.201	<0.208

29SB119				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	1.04	<0.201	<0.205	<0.196
2,4-DNT	**0.647**	<0.201	**0.548**	**0.763**
2,6-DNT	**0.0996**	<0.201	<0.205	**0.683**



29SB167				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	**0.2**	<0.049	<0.048	<0.047
2,6-DNT	<0.049	<0.049	<0.048	<0.047

29SB177	
	14.5-15 ft
2,4-DNT	**2.2**
2,6-DNT	**0.51**

29SB168				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	**1**	**5.1**	**31**	**0.19**
2,6-DNT	**0.1**	**0.47**	**4.8**	<0.047

29SB120				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.197	0.296	<0.194	<0.207
2,4-DNT	**0.581**	**0.746**	**2.12**	**0.571**
2,6-DNT	<0.197	<0.201	**0.45**	**0.135**

29SB178	
	14.5-15 ft
2,4-DNT	**0.19**
2,6-DNT	<0.048

29SB169				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.048	**0.76**	**0.14**	**0.11**
2,6-DNT	<0.048	<0.050	<0.048	<0.047

29SB170				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.049	**0.37**	<0.049	**0.079**
2,6-DNT	<0.049	<0.047	<0.049	<0.048

29SB122				
	3-4 ft	7-8 ft	11-12 ft	15-16 ft
2,4,6-TNT	<0.199	<0.196	<0.206	<0.198
2,4-DNT	**0.418**	**0.43**	**0.609**	**4.78**
2,6-DNT	<0.199	<0.196	<0.206	**0.318**

29SB171				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.049	**0.066**	<0.049	<0.048
2,6-DNT	<0.049	<0.050	<0.049	<0.048

29SB179	
	14.5-15 ft
2,4-DNT	**0.27**
2,6-DNT	<0.050

29SG118		
	6 ft	10 ft
2,4-DNT	**0.138**	**17.10**
2,6-DNT	<0.379	**3.42**

29SB172				
	3-4 ft	6-7 ft	11-12 ft	14.5-15 ft
2,4-DNT	<0.048	<0.047	<0.048	<0.049
2,6-DNT	<0.048	<0.047	<0.048	**0.11**

N

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6-TNT = 4.7 MG/KG (0-3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4-DNT = 0.042 MG/KG
   - 2.3. 2,6-DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. ONLY CONTAMINANTS WITH DETECTIONS ABOVE THE CLEANUP STANDARD ARE SHOWN ON THIS PLAN.

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- M — COOLING WATER MAIN PIPE – ASSUMED 18"
- // — COOLING WATER BUILDING SERVICE PIPE
- S — 12" WOOD TNT WASTEWATER LINE
- SS — 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT

0 40' 80'

SCALE: 1" = 40'

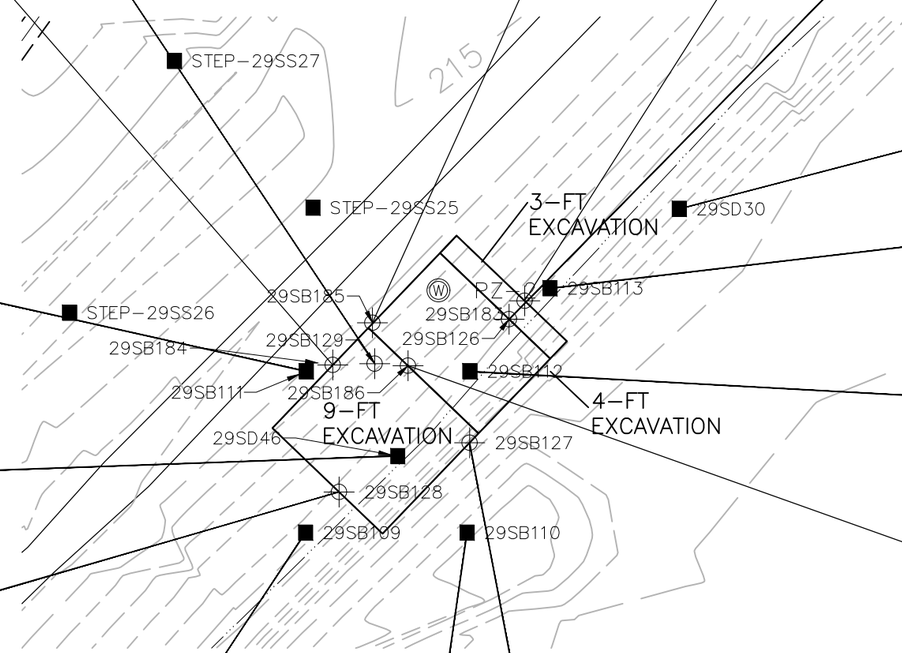
HDR

EXCAVATION AREA E-4
SOIL SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
9



SB185				
	3-4 ft	7-8 ft	11-12 ft	13.5-14 ft
2,4,6-TNT	<0.048	<0.048	<0.048	<0.049
2,4-DNT	<0.048	<0.048	<0.048	<0.049
2,6-DNT	<0.048	<0.048	<0.048	<0.049

29SB129				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.205	**5.13**	**22**	2.72
2,4-DNT	<0.205	**1.45**	**180**	**6.7**
2,6-DNT	<0.205	**21.3**	**130**	**58.3**

SB183		
	1-2 ft	3-4 ft
2,4,6-TNT	<0.049	<0.048
2,4-DNT	<0.049	<0.048
2,6-DNT	<0.049	<0.048

29SB126				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.197	0.011	<0.015	<0.204
2,4-DNT	<0.197	0.0088	<0.029	<0.204
2,6-DNT	**0.178**	0.022	<0.029	<0.204

SB184				
	3-4 ft	7-8 ft	11-12 ft	13.5-14 ft
2,4,6-TNT	<0.050	<0.050	<0.047	<0.047
2,4-DNT	<0.050	<0.050	<0.047	<0.047
2,6-DNT	<0.050	<0.050	<0.047	<0.047

29SD30	
	0-0.5 ft
2,4,6-TNT	<0.1

29SB113	
	0-0.5 ft
2,4,6-TNT	NA
2,4-DNT	0.022
2,6-DNT	0.0365

29SB111	
	0-0.5 ft
2,4,6-TNT	<0.193
2,4-DNT	<0.0284
2,6-DNT	<0.0284

29SB112		
	0-0.5 ft	2-4 ft
2,4,6-TNT	<0.202	<0.202
2,4-DNT	**0.0544**	<0.0596
2,6-DNT	**0.0862**	**0.0704**

29SD46	
	0-0.5 ft
2,4,6-TNT	**46,000**

29SB128				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	0.0097	<0.197	<0.198	<0.209
2,4-DNT	<0.029	<0.197	<0.198	<0.209
2,6-DNT	<0.029	<0.197	<0.198	<0.209

SB186			
	9-10 ft	11-12 ft	13.5-14 ft
2,4,6-TNT	<0.047	<0.049	<0.047
2,4-DNT	<0.047	<0.049	<0.047
2,6-DNT	<0.047	<0.049	<0.047

29SB109	
	0-0.5 ft
2,4,6-TNT	<0.193
2,4-DNT	<0.0276
2,6-DNT	<0.0276

29SB110	
	0-0.5 ft
2,4,6-TNT	<0.193
2,4-DNT	<0.0284
2,6-DNT	<0.0284

29SB127				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.015	<0.195	<0.203	<0.194
2,4-DNT	<0.029	<0.195	<0.203	<0.194
2,6-DNT	<0.029	<0.195	<0.203	<0.194

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- M — COOLING WATER MAIN PIPE – ASSUMED 18"
- // — COOLING WATER BUILDING SERVICE PIPE
- S — 12" WOOD TNT WASTEWATER LINE
- SS — 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. SAMPLE LOCATIONS LABELED AS "STEP" WERE SAMPLES COLLECTED FOR PERCHLORATE ANALYSIS. RESULTS ARE NOT SHOWN ON THIS FIGURE.
5. SAMPLE RESULTS FOR 29SD46, AND 29SDS30 WERE TAKEN FROM FIGURES 4–5 AND 4–6 OF THE DRAFT SITE DATA SUMMARY REPORT PREPARED BY SHAW ENVIRONMENTAL, INC, DATED JUNE 2005.

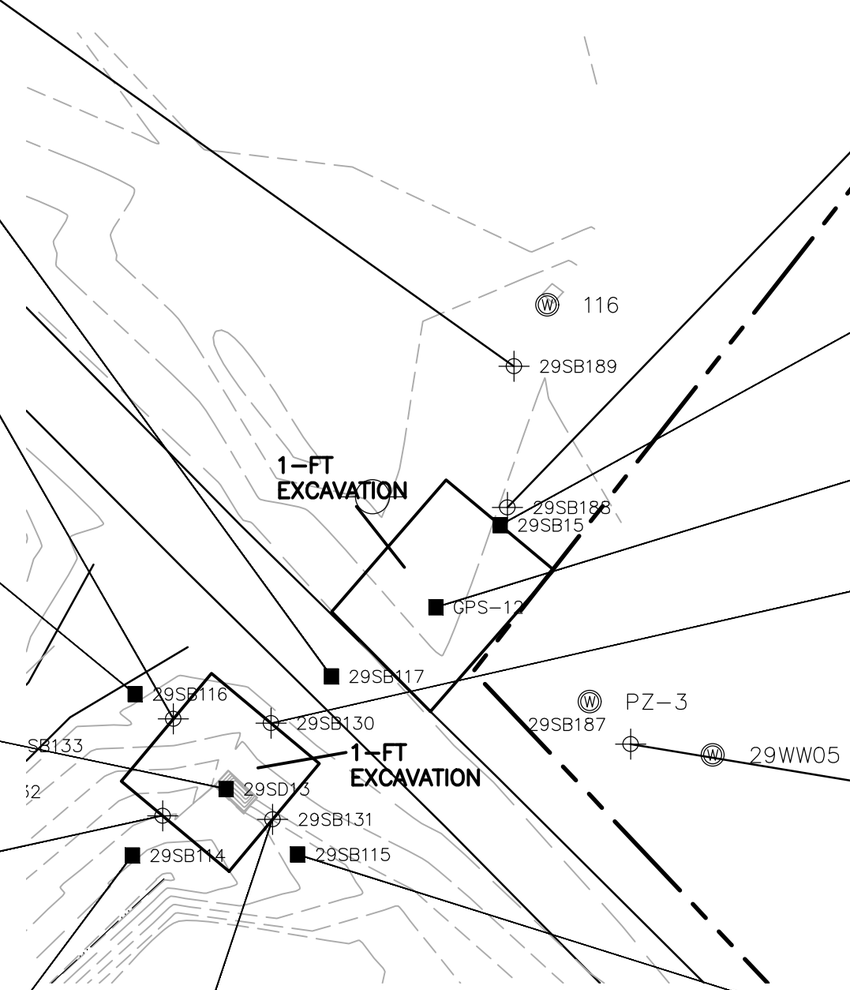
HDR

EXCAVATION AREA E-5
SOIL SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
10



SB189			
	0-2 ft	5-7 ft	10-10.5 ft
2,4,6-TNT	<0.047	<0.049	<0.047
2,4-DNT	<0.047	<0.049	<0.047
2,6-DNT	<0.047	<0.049	<0.047

29SB117		
	0-0.5 ft	2-4 ft
2,4,6-TNT	<0.202	NA
2,4-DNT	<0.52	<0.536
2,6-DNT	<0.52	<0.536

29SB133				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.193	<0.196	<0.203	<0.206
2,4-DNT	<0.193	<0.196	<0.203	<0.206
2,6-DNT	<0.193	<0.196	<0.203	<0.206

29SB116	
	0-0.5 ft
2,4,6-TNT	<0.199
2,4-DNT	<0.0304
2,6-DNT	<0.0304

29SD13	
	0-0.5 ft
2,4,6-TNT	**51**

29SB132				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.015	<0.192	<0.201	<0.202
2,4-DNT	<0.029	<0.192	<0.201	<0.202
2,6-DNT	<0.029	<0.192	<0.201	<0.202

29SB114	
	0-0.5 ft
2,4,6-TNT	<0.185
2,4-DNT	<0.0248
2,6-DNT	<0.0248

29SB131				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.197	<0.201	<0.210	<0.200
2,4-DNT	<0.197	<0.210	<0.210	<0.200
2,6-DNT	<0.197	<0.210	<0.210	<0.200

29SB115	
	0-0.5 ft
2,4,6-TNT	<0.21
2,4-DNT	<0.0252
2,6-DNT	<0.0252

SB188		
	7-9 ft	10-10.5 ft
2,4,6-TNT	<0.050	<0.048
2,4-DNT	<0.050	<0.048
2,6-DNT	<0.050	<0.048

29SB15R		
	0-0.5 ft	0.5-3 ft
2,4,6-TNT	<0.0944	<0.0921
2,4-DNT	<0.0944	<0.0921
2,6-DNT	<0.0944	<0.0921

GPS-12	
	0-0.5 ft
2,4,6-TNT	**6.21**

29SB130				
	1-2 ft	3-4 ft	5-6 ft	7-8 ft
2,4,6-TNT	<0.014	<0.196	<0.199	<0.197
2,4-DNT	<0.029	<0.196	<0.199	<0.197
2,6-DNT	<0.029	<0.196	<0.199	<0.197

SB187			
	0-2 ft	5-7 ft	10-10.5 ft
2,4,6-TNT	<0.048	<0.048	<0.050
2,4-DNT	<0.048	<0.048	<0.050
2,6-DNT	<0.048	<0.048	<0.050

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- M — COOLING WATER MAIN PIPE – ASSUMED 18"
- // — COOLING WATER BUILDING SERVICE PIPE
- S — 12" WOOD TNT WASTEWATER LINE
- SS — 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. SAMPLE RESULTS FOR 29SB15, 29SD13, AND 29SDS29 WERE TAKEN FROM FIGURES 4–5 AND 4–6 OF THE DRAFT SITE DATA SUMMARY REPORT PREPARED BY SHAW ENVIRONMENTAL, INC, DATED JUNE 2005.

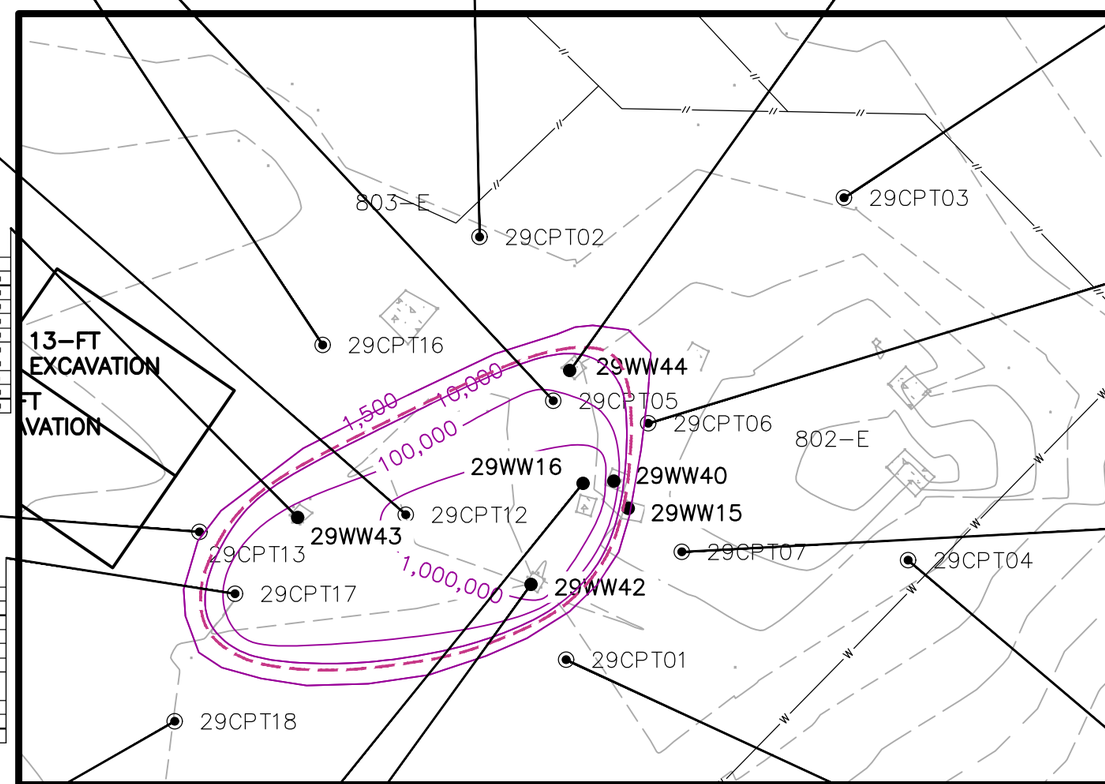
HDR

EXCAVATION AREA E-6
SOIL SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
11



29CPT16
85 ft bgs

1,1-DICHLOROETHANE	<0.25 U
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	<0.5 U
TRICHLOROETHENE	<0.5 U
VINYL CHLORIDE	<0.5 U

29CPT05
73 ft bgs

1,1-DICHLOROETHANE	97.6
1,1-DICHLOROETHENE	3.77 J
1,2-DICHLOROETHANE	0.617 J
BROMODICHLOROMETHANE	<1 U
CARBON DISULFIDE	<2 U
CHLOROMETHANE	63.6 J
CIS-1,2-DICHLOROETHENE	34.2
CIS-1,3-DICHLOROPROPENE	<1 U
METHYLENE CHLORIDE	295000
TRICHLOROETHENE	508
VINYL CHLORIDE	1.92 J

29CPT02

	63 FT BGS	80 FT BGS
1,1-DICHLOROETHANE	<0.25 U	<0.25 UJ
1,1-DICHLOROETHENE	<1 U	<1 UJ
1,2-DICHLOROETHANE	<0.5 U	<0.5 UJ
BROMODICHLOROMETHANE	<0.5 U	<0.5 UJ
CARBON DISULFIDE	<1 U	<1 UJ
CHLOROMETHANE	<1 U	<1 UJ
CIS-1,2-DICHLOROETHENE	<0.5 U	<0.5 UJ
CIS-1,3-DICHLOROPROPENE	<0.5 U	<0.5 UJ
METHYLENE CHLORIDE	<0.5 U	<0.5 UJ
TRICHLOROETHENE	<0.5 U	<0.5 UJ
VINYL CHLORIDE	<0.5 U	<0.5 UJ

29CPT15
85 ft bgs

1,1-DICHLOROETHANE	54 J
1,1-DICHLOROETHENE	<200 U
1,2-DICHLOROETHANE	<200 U
BROMODICHLOROMETHANE	<200 U
CARBON DISULFIDE	<200 U
CHLOROMETHANE	<200 U
CIS-1,2-DICHLOROETHENE	<200 U
CIS-1,3-DICHLOROPROPENE	<200 U
METHYLENE CHLORIDE	36400
TRICHLOROETHENE	138
VINYL CHLORIDE	<200 U

29WW44
77.5-87.1 FT

1,1-DICHLOROETHANE	23.3
1,1-DICHLOROETHENE	1.69 J
1,1-DICHLOROPROPENE	<0.5 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	1.24
CHLOROMETHANE	8.73
CIS-1,2-DICHLOROETHENE	11.1
METHYLENE CHLORIDE	11,500
TRICHLOROETHENE	135
VINYL CHLORIDE	0.388 J

29CPT12
85 ft bgs

1,1-DICHLOROETHANE	820 J
1,1-DICHLOROETHENE	<1,000 U
1,2-DICHLOROETHANE	<500 U
BROMODICHLOROMETHANE	<500 U
CARBON DISULFIDE	2760
CHLOROMETHANE	614
CIS-1,2-DICHLOROETHENE	<500 U
CIS-1,3-DICHLOROPROPENE	<500 U
METHYLENE CHLORIDE	2350000
TRICHLOROETHENE	1210
VINYL CHLORIDE	<500 U

29CPT03
80 ft bgs

1,1-DICHLOROETHANE	<0.626 U
1,1-DICHLOROETHENE	<2.5 U
1,2-DICHLOROETHANE	<1.25 U
BROMODICHLOROMETHANE	<1.25 U
CARBON DISULFIDE	<2.5 U
CHLOROMETHANE	1.77 J
CIS-1,2-DICHLOROETHENE	<1.25 U
CIS-1,3-DICHLOROPROPENE	<1.25 U
METHYLENE CHLORIDE	<1.25 U
TRICHLOROETHENE	<1.25 U
VINYL CHLORIDE	<1.25 U

29WW43
77.5-87.1 FT

1,1-DICHLOROETHANE	114
1,1-DICHLOROETHENE	<1 U
1,1-DICHLOROPROPENE	<0.5 U
1,2-DICHLOROETHANE	0.439 J
BROMODICHLOROMETHANE	12.5
CHLOROMETHANE	10.2
CIS-1,2-DICHLOROETHENE	10.2
METHYLENE CHLORIDE	279,000
TRICHLOROETHENE	34.1
VINYL CHLORIDE	0.991 J

29CPT14
85 ft bgs

1,1-DICHLOROETHANE	<50 U
1,1-DICHLOROETHENE	<200 U
1,2-DICHLOROETHANE	<200 U
BROMODICHLOROMETHANE	<200 U
CARBON DISULFIDE	<200 U
CHLOROMETHANE	<200 U
CIS-1,2-DICHLOROETHENE	<200 U
CIS-1,3-DICHLOROPROPENE	<200 U
METHYLENE CHLORIDE	54600
TRICHLOROETHENE	<200 U
VINYL CHLORIDE	<200 U

29CPT06
83 ft bgs

1,1-DICHLOROETHANE	2.73
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	63.8
TRICHLOROETHENE	0.262 J
VINYL CHLORIDE	<0.5 U

29CPT13
85 ft bgs

1,1-DICHLOROETHANE	<1.25 U
1,1-DICHLOROETHENE	<5 U
1,2-DICHLOROETHANE	<2.5 U
BROMODICHLOROMETHANE	<2.5 U
CARBON DISULFIDE	<5 U
CHLOROMETHANE	<5 U
CIS-1,2-DICHLOROETHENE	<2.5 U
CIS-1,3-DICHLOROPROPENE	<2.5 U
METHYLENE CHLORIDE	1400
TRICHLOROETHENE	<2.5 U
VINYL CHLORIDE	<2.5 U

29CPT17
85 ft bgs

1,1-DICHLOROETHANE	63
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 UJ
CHLOROMETHANE	6.2
CIS-1,2-DICHLOROETHENE	5.7
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	261000
TRICHLOROETHENE	15.3
VINYL CHLORIDE	0.553 J

29CPT07
87 ft bgs

1,1-DICHLOROETHANE	<0.25 U
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	<0.5 U
TRICHLOROETHENE	<0.5 U
VINYL CHLORIDE	<0.5 U

29CPT18
75 ft bgs

1,1-DICHLOROETHANE	<0.25 U
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	<0.5 U
TRICHLOROETHENE	<0.5 U
VINYL CHLORIDE	<0.5 U

29WW16
78-88 FT

1,1-DICHLOROETHANE	4320 J
1,1-DICHLOROETHENE	<25000 U
1,1-DICHLOROPROPENE	<12500 U
1,2-DICHLOROETHANE	<12500 U
BROMODICHLOROMETHANE	6,330
CHLOROMETHANE	<25000 U
CIS-1,2-DICHLOROETHENE	<12500 U
METHYLENE CHLORIDE	8,260,000
TRICHLOROETHENE	28,100
VINYL CHLORIDE	<12500 U

29WW42
77.5-87.1 FT

1,1-DICHLOROETHANE	[illegible]
1,1-DICHLOROETHENE	68.2
1,1-DICHLOROPROPENE	13.3
1,2-DICHLOROETHANE	4.81
BROMODICHLOROMETHANE	[illegible]
CHLOROMETHANE	333
CIS-1,2-DICHLOROETHENE	319
METHYLENE CHLORIDE	1,380,000
TRICHLOROETHENE	4,300
VINYL CHLORIDE	18

29CPT11
80 ft bgs

1,1-DICHLOROETHANE	721
1,1-DICHLOROETHENE	48.1
1,2-DICHLOROETHANE	1.38
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	29.5 J
CIS-1,2-DICHLOROETHENE	183
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	132000
TRICHLOROETHENE	3380
VINYL CHLORIDE	9.2

29CPT01
85 ft bgs

1,1-DICHLOROETHANE	<0.25 U
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	<0.5 U
TRICHLOROETHENE	<0.5 U
VINYL CHLORIDE	<0.5 U

29CPT04
87 ft bgs

1,1-DICHLOROETHANE	<0.25 U
1,1-DICHLOROETHENE	<1 U
1,2-DICHLOROETHANE	<0.5 U
BROMODICHLOROMETHANE	<0.5 U
CARBON DISULFIDE	<1 U
CHLOROMETHANE	<1 U
CIS-1,2-DICHLOROETHENE	<0.5 U
CIS-1,3-DICHLOROPROPENE	<0.5 U
METHYLENE CHLORIDE	<0.5 U
TRICHLOROETHENE	<0.5 U
VINYL CHLORIDE	<0.5 U

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- M — COOLING WATER MAIN PIPE – ASSUMED 18"
- // — COOLING WATER BUILDING SERVICE PIPE
- S — 12" WOOD TNT WASTEWATER LINE
- SS — 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- CONTINUOUS CONE PENETROMETER (CPT) / MEMBRANE INTERFACE PROBE (MIP) LOCATION
- EXCAVATION LIMIT
- MC PLUME TREATMENT AREA

NOTES:

1. SAMPLES WERE COLLECTED BY AECOM IN 2014.
2. SAMPLE RESULTS ARE SHOWN IN UG/L.
3. SAMPLE RESULTS SHOWN IN BOLD EXCEED THE FEDERAL MAXIMUM CONTAMINANT LEVEL (MCL)/TEXAS RISK REDUCTION PROGRAM TIER 1 PROTECTIVE CONCENTRATION LEVEL FOR RESIDENTIAL GROUNDWATER (PCL).
4. ISO–CONCENTRATIONS ARE SHOWN IN UG/L.
5. LOCATION OF UNDERGROUND PIPES ARE APPROXIMATE.

0 40' 80'

SCALE: 1" = 40'

HDR

ISTD TREATMENT AREA AND GROUNDWATER SAMPLE RESULTS

LHAAP-29

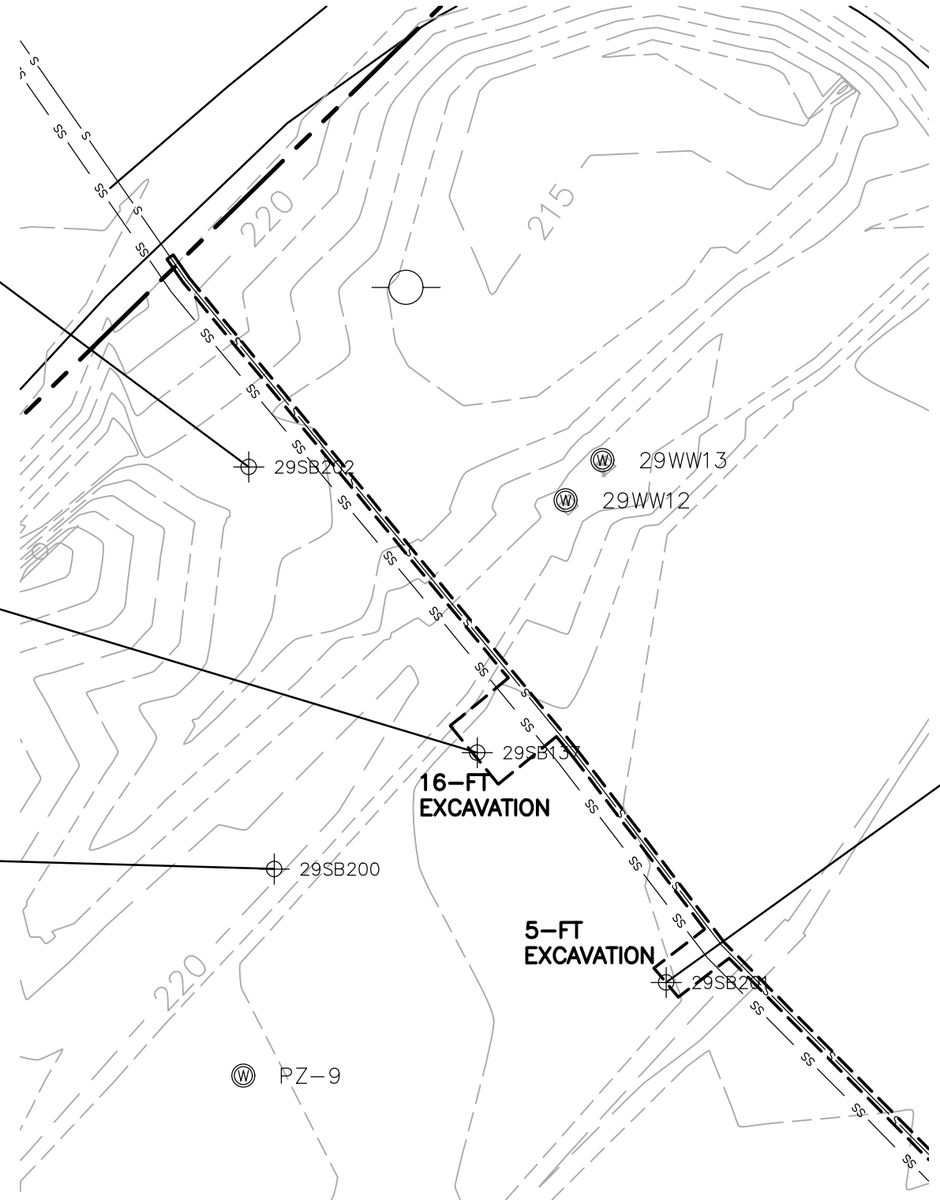
KARNACK, TX

DATE

JULY 2022

FIGURE

12



SB202			
	3-4 ft	11-12 ft	15-15.5 ft
2,4,6-TNT	<0.049	<0.047	<0.050
2,4-DNT	<0.049	<0.047	<0.050
2,6-DNT	<0.049	<0.047	<0.050

29SB137				
	3-4	7-8	11-12	15-16
2,4,6-TNT	0.209	<0.208	**41.6**	**21**
2,4-DNT	<0.193	<0.208	**0.196**	**0.069**
2,6-DNT	<0.193	<0.208	<0.201	0.029

SB200	
	15-15.5 ft
2,4,6-TNT	<0.048
2,4-DNT	<0.048
2,6-DNT	<0.048

SB201			
	3-4 ft	11-12 ft	15-15.5 ft
2,4,6-TNT	<0.048	<0.047	<0.049
2,4-DNT	**0.19**	<0.047	<0.049
2,6-DNT	<0.048	<0.047	<0.049

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- COOLING WATER MAIN PIPE – ASSUMED 18"
- COOLING WATER BUILDING SERVICE PIPE
- 12" WOOD TNT WASTEWATER LINE
- 6" TRANSITE TNT WASTEWATER LINE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT
- ESTIMATED PIPE REMOVAL TRENCH LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. LOCATION OF TNT WASTEWATER LINES ARE APPROXIMATE.

HDR

TRANSITE TNT PRESSURE PIPE
EXCAVATION AREA

LHAAP-29
KARNACK, TX

DATE
JULY 2022

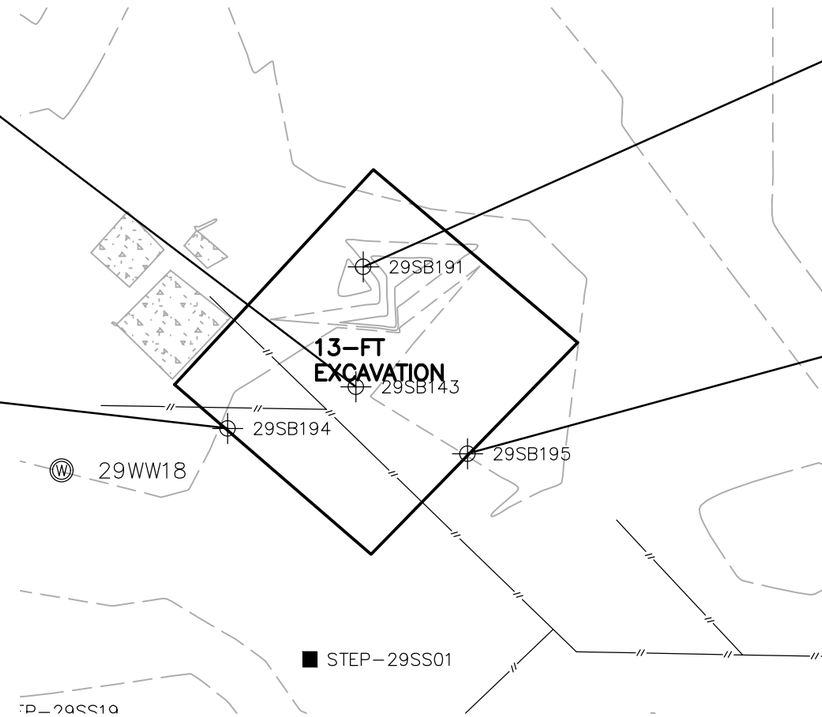
FIGURE
13

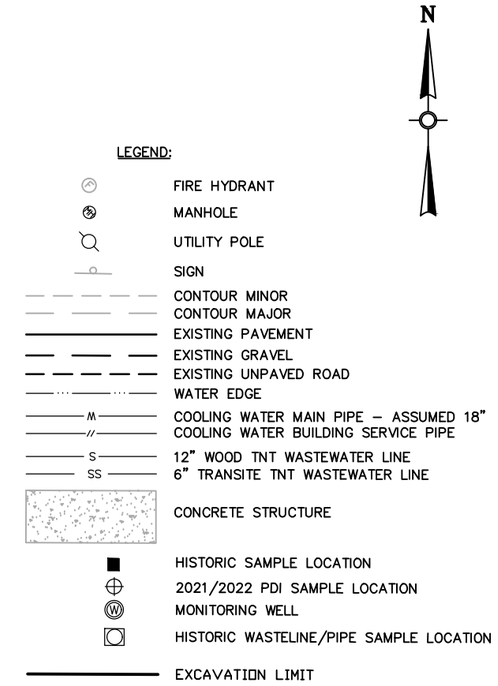
29SB143				
	3-4	7-8	11-12	15-16
2,4,6-TNT	**6.25**	**5.57**	**4.87**	**26.6**
2,4-DNT	<0.194	<0.199	<0.196	<0.197
2,6-DNT	<0.194	<0.199	<0.196	<0.197

SB191	
	9.5-10 ft
2,4,6-TNT	<0.048
2,4-DNT	**0.11**
2,6-DNT	<0.048

SB194		
	7-8 ft	9.5-10 ft
2,4,6-TNT	<0.049	<0.047
2,4-DNT	<0.049	<0.047
2,6-DNT	<0.049	<0.047

SB195		
	7-8 ft	9.5-10 ft
2,4,6-TNT	<0.048	<0.047
2,4-DNT	<0.048	<0.047
2,6-DNT	<0.048	<0.047





0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. SAMPLE LOCATIONS LABELED AS "STEP" WERE SAMPLES COLLECTED FOR PERCHLORATE ANALYSIS. RESULTS ARE NOT SHOWN ON THIS FIGURE.
5. LOCATION OF WATER COOLING LINES ARE APPROXIMATE.
6. EXCAVATION WILL END AT THE GROUNDWATER TABLE. NO BOTTOM CONFIRMATION SAMPLES WILL BE COLLECTED.

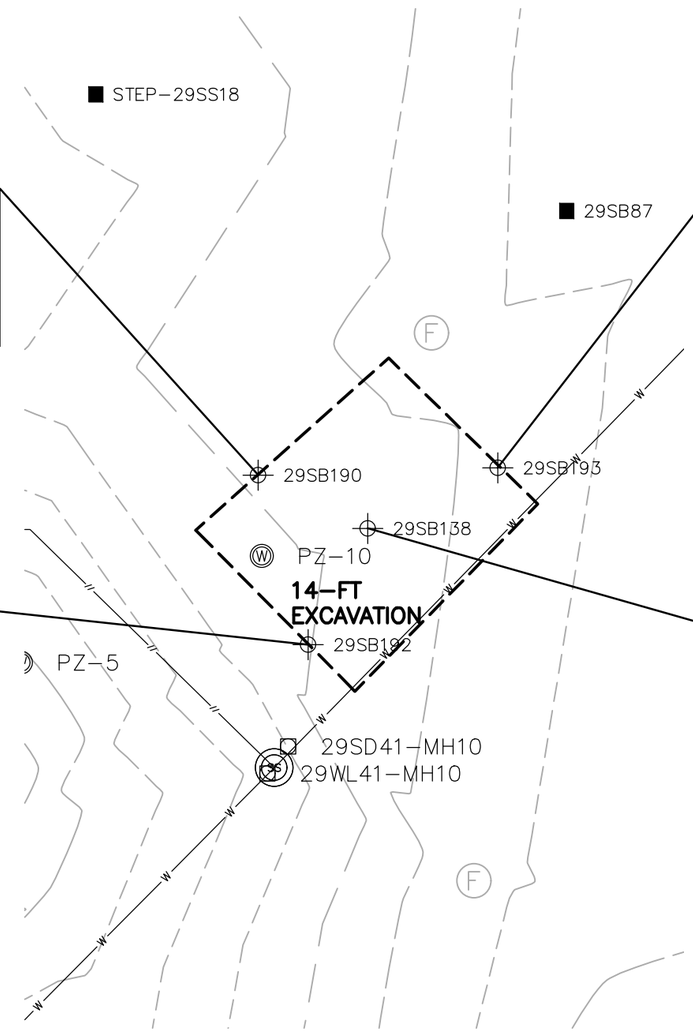
HDR

NORTH COOLING WATER LINE
EXCAVATION AREA 1 SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
14



SB190		
	3-4 ft	19-20 ft
2,4,6-TNT	<0.049	<0.048
2,4-DNT	<0.049	<0.048
2,6-DNT	<0.049	<0.048

SB193				
	7-8 ft	11-12 ft	15-16 ft	19-20 ft
2,4,6-TNT	<0.047	<0.049	<0.050	<0.048
2,4-DNT	<0.047	<0.049	<0.050	<0.048
2,6-DNT	<0.047	<0.049	<0.050	<0.048

SB192				
	7-8 ft	11-12 ft	15-16 ft	19-20 ft
2,4,6-TNT	<0.048	<0.050	<0.047	<0.049
2,4-DNT	<0.048	<0.050	<0.047	<0.049
2,6-DNT	<0.048	<0.050	<0.047	<0.049

29SB138				
	3-4	7-8	11-12	15-16
2,4,6-TNT	<0.199	<0.199	**9.14**	**7.34**
2,4-DNT	<0.199	<0.199	<0.194	<0.200
2,6-DNT	<0.199	<0.199	<0.194	<0.200

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- COOLING WATER MAIN PIPE – ASSUMED 18"
- COOLING WATER BUILDING SERVICE PIPE
- 12" WOOD TNT WASTEWATER LINE
- 6" TRANSITE TNT WASTEWATER LINE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- EXCAVATION LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. LOCATION OF WATER COOLING LINES ARE APPROXIMATE.
5. EXCAVATION WILL BE COMPLETED TO THE WATER TABLE WHICH IS ESTIMATED TO BE 14–FT BGS. NO BOTTOM CONFIRMATION SAMPLES WILL BE COLLECTED.

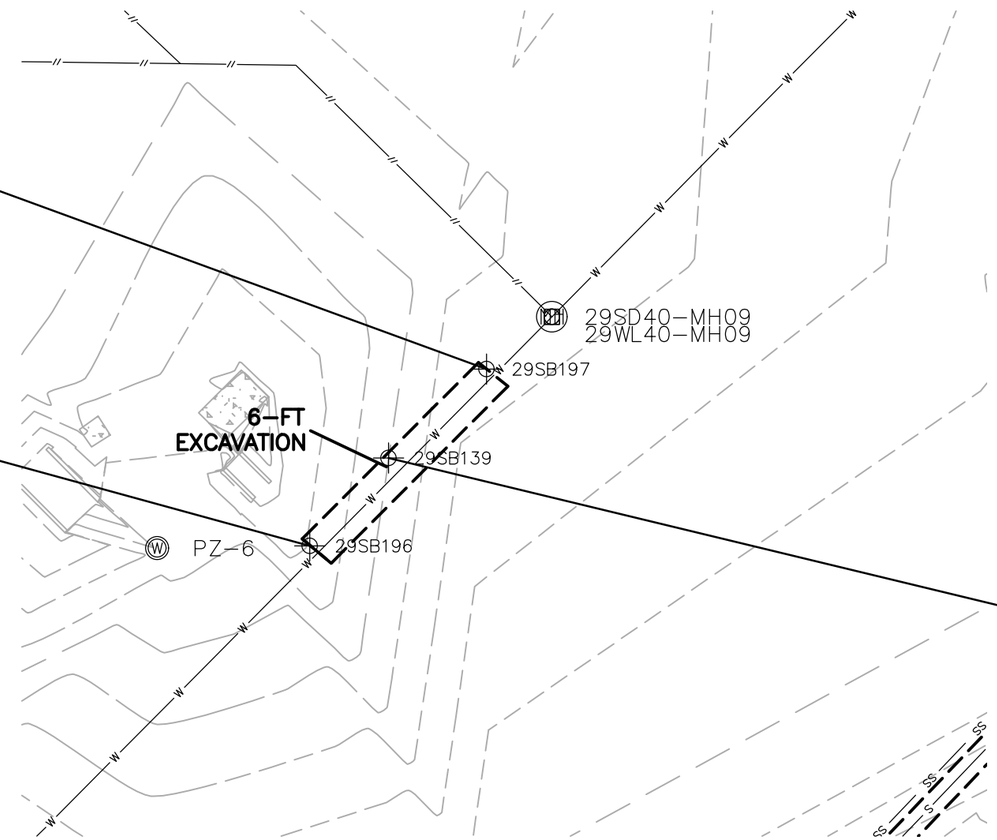
HDR

NORTH COOLING WATER LINE
EXCAVATION AREA 2 SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
15



SB197		
	3-4 ft	7-7.5 ft
2,4,6-TNT	<0.047	<0.048
2,4-DNT	<0.047	<0.048
2,6-DNT	<0.047	<0.048

SB196		
	3-4 ft	7-7.5 ft
2,4,6-TNT	<0.049	<0.048
2,4-DNT	<0.049	<0.048
2,6-DNT	<0.049	<0.048

29SB139				
	3-4	7-8	11-12	15-16
2,4,6-TNT	**97.6**	4.56	<0.196	0.3
2,4-DNT	<0.193	<0.192	<0.196	<0.202
2,6-DNT	<0.193	<0.192	<0.196	<0.202

N

LEGEND:

- FIRE HYDRANT
- MANHOLE
- UTILITY POLE
- SIGN
- CONTOUR MINOR
- CONTOUR MAJOR
- EXISTING PAVEMENT
- EXISTING GRAVEL
- EXISTING UNPAVED ROAD
- WATER EDGE
- COOLING WATER MAIN PIPE – ASSUMED 18"
- COOLING WATER BUILDING SERVICE PIPE
- 12" WOOD TNT WASTEWATER LINE
- 6" TRANSITE TNT WASTEWATER LINE
- CONCRETE STRUCTURE
- HISTORIC SAMPLE LOCATION
- 2021/2022 PDI SAMPLE LOCATION
- MONITORING WELL
- HISTORIC WASTELINE/PIPE SAMPLE LOCATION
- ESTIMATED PIPE REMOVAL TRENCH LIMIT

0 40' 80'

SCALE: 1" = 40'

NOTES:

1. SAMPLE RESULTS ARE SHOWN IN MG/KG.
2. SOIL CLEANUP STANDARD FOR EXPLOSIVE COMPOUNDS ARE AS FOLLOWS:
   - 2.1. 2,4,6–TNT = 4.7 MG/KG (0–3 FT BGS); 5.1 MG/KG (>3 FT BGS)
   - 2.2. 2,4–DNT = 0.042 MG/KG
   - 2.3. 2,6–DNT = 0.042 MG/KG
3. SAMPLES EXCEEDING THE SOIL CLEANUP STANDARD HAVE BEEN HIGHLIGHTED IN YELLOW AND BOLDED.
4. LOCATION OF WATER COOLING LINES ARE APPROXIMATE.
5. EXCAVATIONS WILL STOP AT THE GROUNDWATER TABLE. ANY EXCAVATIONS COMPLETED TO THE GROUNDWATER TABLE WILL NOT REQUIRE COLLECTION OF CONFIRMATION SAMPLES.

HDR

NORTH COOLING WATER LINE
EXCAVATION AREA 3 SAMPLE RESULTS

LHAAP-29
KARNACK, TX

DATE
JULY 2022

FIGURE
16

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 21, 2022

DAIN-ISE

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Final Eighth Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Final document includes revisions based upon the Environmental Protection Agency (EPA) comments on the Draft version received on June 2, 2022, with concurrence received via email on July 20, 2022. The Texas Commission on Environmental Quality (TCEQ) indicated that they had no comments on the document via email on June 15, 2022. A table of responses to the EPA comments on the Draft version is included with this Final document.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK

A. Williams, USACE, Tulsa District, OK
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 21, 2022

DAIN-ISE

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Eighth Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm), Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Final document includes revisions based upon the Environmental Protection Agency (EPA) comments on the Draft version received on June 2, 2022, with concurrence received via email on July 20, 2022. The Texas Commission on Environmental Quality (TCEQ) indicated that they had no comments on the document via email on June 15, 2022. A table of responses to the EPA comments on the Draft version is included with this Final document.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
B. Follin, USEPA, Dallas, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK

A. Williams, USACE, Tulsa District, OK
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

Response to USEPA Comments on
Draft Eighth Annual Remedial Action Operation Report, LHAAP-67
Longhorn Army Ammunition Plant, Karnack, Texas

Document Date: 3 May 2022
Comment Date: 6 June 2022

Reviewer: Brian Follin, USEPA
Respondent: Dr. Rose Zeiler

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment Ref. #	USEPA Comment	C, D, E, or X	Response	A or D[2]	USEPA Counter-Response	C, D, E, or X	Response
1	The only comment EPA has at this time is regarding Goose Prairie Creek. Central Creek is considered upgradient from the plume, so would that mean that Goose Prairie is downgradient? On map, Goose Prairie looks like same distance as Central Creek to LHAAP-67 study area. Given the extent of the contaminants, I don't think Goose Prairie is an issue but visual may question potential. There is no complete pathway with Central Creek, does this hold true for Goose Prairie Creek as well? Otherwise, it would seem that continued monitoring and sampling will monitor any groundwater/ plume fluctuations.	C C C	Yes, Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. Central Creek is slightly closer at approximately 900 feet upgradient of the upgradient plume edge. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to detect contaminant migration towards Goose Prairie Creek should it occur.	A	We have reviewed and agree with the response to our comments on the 8th Annual RAO Report for LHAAP-67 but can you provide an explanation about the relation of Goose creek to the OU since one of the RAOs is the protection of surface water. There is some discussion in the earlier decision documents but since the creek is now downgradient, an explanation of the protectiveness would be helpful. The language you provided in the RTC would be sufficient: Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to detect contaminant migration towards Goose Prairie Creek should it occur.	C	The 2nd to last sentence of the 3rd paragraph on Page 1-4 will be replaced with the suggested text shown below <u>Revised Paragraph 3 on Page 1-4:</u> The nearest significant surface water body to the LHAAP-67 site is Central Creek, located upgradient and approximately 870 feet from the site, as shown on Figure 1-2. ~~There is no other surface water body in close proximity to the LHAAP-67 site.~~ Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to detect contaminant migration towards Goose Prairie Creek should it occur. Therefore, there is not a complete pathway from groundwater to surface water.

Foss, William A.

From: Follin, Brian <Follin.Brian@epa.gov>
Sent: Wednesday, July 20, 2022 12:46 PM
To: Foss, William A.; April Palmie
Cc: pbging@usgs.gov; clbraun; Bruckwicki, Paul; Williams, Aaron K SWF @SWT; 'rose.m.zeiler.ctr@army.mil'; Zeiler, Rose; 'lena.j.sierocinski.civ@mail.mil'; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA); Kim Nemmers; Zack Beck; Srivastav, Praveen; Mayer, Robert; Suryanarayanan, Sowmya
Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

EXTERNAL SENDER

Bill,

Thank you for drafting up this revision to the Eighth Annual RAO Report for LHAAP-67. I concur with this change and please just send the final document with the revision.

Thank you,

Brian Follin
(214)665-7490

From: Foss, William A. <William.Foss@aptim.com>
Sent: Friday, July 8, 2022 11:08 AM
To: Follin, Brian <Follin.Brian@epa.gov>; April Palmie <april.palmie@tceq.texas.gov>
Cc: pbging@usgs.gov; clbraun <clbraun@usgs.gov>; Bruckwicki, Paul <paul_bruckwicki@fws.gov>; Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; 'rose.m.zeiler.ctr@army.mil' <rose.m.zeiler.ctr@army.mil>; Zeiler, Rose <Rose.Zeiler@calibresys.com>; 'lena.j.sierocinski.civ@mail.mil' <lena.j.sierocinski.civ@mail.mil>; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>; Suryanarayanan, Sowmya <Sowmya.Suryanarayanan@aptim.com>
Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

Brian,

Thanks for the quick response. We concur with your request to add the discussion of Goose Prairie Creek to the surface water discussion. We propose to replace the 2nd to last sentence of the 3rd paragraph on Page 1-4 with the suggested text from your email. The revised paragraph is shown below with the revisions in red. Would you like to see this as a draft final or can we make this revision once you concur and send a final document?

<u>Revised Paragraph 3 on Page 1-4:</u>
The nature and extent of groundwater contamination at LHAAP-67 was evaluated during field investigations conducted between 1998 and 2007. It is believed that historical releases from the ASTs at the site contaminated the soil, with contaminants then leaching from the soil into groundwater. A relatively small area of contamination is observed in the shallow groundwater which poses an unacceptable carcinogenic risk and noncarcinogenic hazard to a hypothetical
future maintenance worker under an industrial exposure scenario. There is no groundwater contamination in the deeper "intermediate" groundwater zone. The only potentially complete exposure pathway is via use of the shallow groundwater zone as drinking water. However, shallow groundwater is not used as drinking water at the

refuge, and the pathway is eliminated from any hypothetical receptor because LUCs are in place that prohibit the use of groundwater
other than for environmental monitoring and testing. The nearest significant surface water body to the LHAAP-67 site is Central Creek, located upgradient and approximately 870 feet from the site, as shown on Figure 1-2. ~~There is no other surface water body in close proximity to the LHAAP-67 site.~~ Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to detect contaminant migration towards Goose Prairie Creek should it occur. Therefore, there is not a complete pathway from groundwater to surface water.

WILLIAM A. FOSS, PG
Senior Geologist

APTIM | Government

O 713 243 7095
M 281 380 3241
E William.Foss@aptim.com

10333 Richmond Ave, Suite 1030
Houston, TX 77042

APTIM.com

From: Follin, Brian <Follin.Brian@epa.gov>
Sent: Wednesday, July 6, 2022 2:11 PM
To: Foss, William A. <William.Foss@aptim.com>; April Palmie <april.palmie@tceq.texas.gov>
Cc: pbging@usgs.gov; clbraun <clbraun@usgs.gov>; Bruckwicki, Paul <paul_bruckwicki@fws.gov>; Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; 'rose.m.zeiler.ctr@army.mil' <rose.m.zeiler.ctr@army.mil>; Zeiler, Rose <Rose.Zeiler@calibresys.com>; 'lena.j.sierocinski.civ@mail.mil' <lena.j.sierocinski.civ@mail.mil>; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>; Suryanarayanan, Sowmya <Sowmya.Suryanarayanan@aptim.com>
Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

EXTERNAL SENDER

We have reviewed and agree with the response to our comments on the 8th Annual RAO Report for LHAAP-67 but can you provide an explanation about the relation of Goose creek to the OU since one of the RAOs is the protection of surface water. There is some discussion in the earlier decision documents but since the creek is now downgradient, an explanation of the protectiveness would be helpful. The language you provided in the RTC would be sufficient:

Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and

northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to detect contaminant migration towards Goose Prairie Creek should it occur.

Thank you,

Brian Follin
(214)665-7490

From: Foss, William A. <William.Foss@aptim.com>
Sent: Thursday, June 30, 2022 12:57 PM
To: Follin, Brian <Follin.Brian@epa.gov>; April Palmie <april.palmie@tceq.texas.gov>
Cc: pbging@usgs.gov; clbraun <clbraun@usgs.gov>; Bruckwicki, Paul <paul_bruckwicki@fws.gov>; Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; 'rose.m.zeiler.ctr@army.mil' <rose.m.zeiler.ctr@army.mil>; Zeiler, Rose <Rose.Zeiler@calibresys.com>; 'lena.j.sierocinski.civ@mail.mil' <lena.j.sierocinski.civ@mail.mil>; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>; Suryanarayanan, Sowmya <Sowmya.Suryanarayanan@aptim.com>
Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

Brian,

Please see attached for the Army's response to the EPA Comment on the Draft 8th Annual RAO Report for LHAAP-67. We did not make any changes to the document in response to the EPA comment, and therefore did not produce a Draft Final version of the document. If you concur with the response, we will produce a Final version for the record. If you do not concur or wish for additional text regarding the Goose Prairie Creek to be added to the document, please let us know and we can revise the response and produce a draft final version. Thanks!

Bill

WILLIAM A. FOSS, PG
Senior Geologist

APTIM | Government

O 713 243 7095
M 281 380 3241
E William.Foss@aptim.com

APTIM

10333 Richmond Ave, Suite 1030
Houston, TX 77042

APTIM.com

From: Follin, Brian <Follin.Brian@epa.gov>
Sent: Monday, June 6, 2022 3:10 PM
To: Foss, William A. <William.Foss@aptim.com>; April Palmie <april.palmie@tceq.texas.gov>

Cc: pbging@usgs.gov; clbraun <clbraun@usgs.gov>; Bruckwicki, Paul <paul_bruckwicki@fws.gov>; Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; 'rose.m.zeiler.ctr@army.mil' <rose.m.zeiler.ctr@army.mil>; Zeiler, Rose <Rose.Zeiler@calibresys.com>; 'lena.j.sierocinski.civ@mail.mil' <lena.j.sierocinski.civ@mail.mil>; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>; Suryanarayanan, Sowmya <Sowmya.Suryanarayanan@aptim.com>
Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

EXTERNAL SENDER

The only comment EPA has at this time is regarding Goose Prairie Creek. Central Creek is considered upgradient from the plume, so would that mean that Goose Prairie is downgradient? On map, Goose Prairie looks like same distance as Central Creek to LHAAP-67 study area. Given the extent of the contaminants, I don't think Goose Prairie is an issue but visual may question potential. There is no complete pathway with Central Creek, does this hold true for Goose Prairie Creek as well?

Otherwise it would seem that continued monitoring and sampling will monitor any groundwater/ plume fluctuations.

Thank you,

Brian Follin
(214)665-7490

From: Foss, William A. <William.Foss@aptim.com>
Sent: Tuesday, May 3, 2022 5:25 PM
To: Follin, Brian <Follin.Brian@epa.gov>; April Palmie <april.palmie@tceq.texas.gov>
Cc: pbging@usgs.gov; clbraun@usgs.gov; Bruckwicki, Paul <paul_bruckwicki@fws.gov>; Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; 'rose.m.zeiler.ctr@army.mil' <rose.m.zeiler.ctr@army.mil>; Zeiler, Rose <Rose.Zeiler@calibresys.com>; 'lena.j.sierocinski.civ@mail.mil' <lena.j.sierocinski.civ@mail.mil>; michael.a.bowlby.civ@army.mil; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>; Suryanarayanan, Sowmya <Sowmya.Suryanarayanan@aptim.com>
Subject: Draft Eighth Annual RAO Report for LHAAP-67 for Review

Brian and April,

The *Draft Eighth Annual Remedial Action Operation Report* for LHAAP-67 has been uploaded to a subfolder in the "Documents" folder of the project portal for your review and can be accessed directly via the links provided below. Comments for this draft report are requested by June 6, 2022. Electronic copies of the transmittal letters are included in the report PDF and are attached to this email for your convenience.

May 2022 Draft Eighth Annual Remedial Action Operation Report, LHAAP-67 (~45 MB)
May 2022 Draft Eighth Annual Remedial Action Operation Report - LHAAP-67

Please let us know if you have any questions or have any difficulty accessing the files. Thanks!

Bill

WILLIAM A. FOSS, PG
Senior Geologist

APTIM | Government

O 713 243 7095
M 281 380 3241
E William.Foss@aptim.com

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Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

EXTERNAL SENDER

Good afternoon. I have reviewed the Draft Eighth Annual RAO Report for LHAAP-67 and don't have additional comments.

Thank you for the extra time.

April

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Subject: RE: Draft Eighth Annual RAO Report for LHAAP-67 for Review

The only comment EPA has at this time is regarding Goose Prairie Creek. Central Creek is considered upgradient from the plume, so would that mean that Goose Prairie is downgradient? On map, Goose Prairie looks like same distance as Central Creek to LHAAP-67 study area. Given the extent of the contaminants, I don't think Goose Prairie is an issue but visual may question potential. There is no complete pathway with Central Creek, does this hold true for Goose Prairie Creek as well?

Otherwise it would seem that continued monitoring and sampling will monitor any groundwater/ plume fluctuations.

Thank you,

Brian Follin
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Subject: Draft Eighth Annual RAO Report for LHAAP-67 for Review

Brian and April,

The *Draft Eighth Annual Remedial Action Operation Report* for LHAAP-67 has been uploaded to a subfolder in the "Documents" folder of the project portal for your review and can be accessed directly via the links provided below. Comments for this draft report are requested by June 6, 2022. Electronic copies of the transmittal letters are included in the report PDF and are attached to this email for your convenience.

May 2022 Draft Eighth Annual Remedial Action Operation Report, LHAAP-67 (~45 MB)
May 2022 Draft Eighth Annual Remedial Action Operation Report - LHAAP-67

Please let us know if you have any questions or have any difficulty accessing the files. Thanks!

Bill

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Final

Eighth Annual Remedial Action Operation Report, LHAAP-67 (Aboveground Storage Tank Farm)

Longhorn Army Ammunition Plant
Karnack, Texas

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Acronyms and Abbreviations

µg/L	micrograms per liter
AECOM	AECOM Technical Services, Inc.
AST	aboveground storage tank
bgs	below ground surface
Bhate	Bhate Environmental Associates, Inc.
COC	contaminant of concern
DCA	dichloroethane
DCE	dichloroethene
DHC	*Dehalococcoides sp.*
DO	dissolved oxygen
J	estimated value
LHAAP	Longhorn Army Ammunition Plant
LUC	land-use control
MCL	maximum contaminant level
mg/L	milligrams per liter
MNA	monitored natural attenuation
mV	millivolts
No.	number
ORP	oxidation-reduction potential
pH	potential of hydrogen
RACR	Remedial Action Completion Report
RA-O	remedial action operation
RAWP	Remedial Action Work Plan
ROD	Record of Decision
RD	Remedial Design
Shaw	Shaw Environmental & Infrastructure, Inc.
SU	standard unit
TCA	trichloroethane
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted with Bhate Environmental Associates, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract, Environmental Remediation Services with Military Munitions Response Program, Task Order Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team consists of Bhate and Aptim Federal Services, LLC.

LHAAP is located in east Texas in the northeastern corner of Harrison County, between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1-1**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds LHAAP to the north and east. The eastern fence of the LHAAP installation is 3.5 miles from the Texas-Louisiana state border.

A Final Record of Decision (ROD) was executed for LHAAP-67 in June 2010 (USACE 2010). Groundwater monitoring at LHAAP-67 is ongoing as described in the Final Remedial Action Completion Report (RACR) (AECOM Technical Services, Inc. [AECOM] 2016). This Eighth Annual Remedial Action Operation (RA-O) report covers the period from May 2021 to March 2022, including the annual groundwater monitoring event in November 2021, and provides analysis for eight years of monitored natural attenuation (MNA) data.

1.1 Remedial Action Objectives

The remedial action objectives at the LHAAP-67 site must protect human health and meet applicable or relevant and appropriate requirements. There are no ecological risks at the LHAAP-67 site (USACE 2010).

The remedial action objectives for the LHAAP-67 site, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health by preventing human exposure to the contaminated groundwater.
- Protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water.
- Return of groundwater to its potential beneficial use as drinking water wherever practicable.

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1.2 Performance Objectives

The remedy selected for LHAAP-67 is land-use controls (LUC) and MNA. The performance objectives at LHAAP-67 consist of two components: 1) physical inspections and 2) groundwater/surface water monitoring. As a component of the LUC implementation, the civil survey of the LUC boundary was conducted in November 2014 and recorded in the Harrison County Courthouse in December 2014. Physical inspections are conducted periodically to confirm compliance with the LUC objectives, which consist of preventing human exposure to groundwater contamination presenting an unacceptable risk to a future maintenance worker and ensuring that there is no withdrawal or use of groundwater from the site for anything other than environmental monitoring and testing until the cleanup levels are attained. Groundwater monitoring has been in-progress at the site since May 2013, and LHAAP-67 was included as part of the sitewide Final Fourth Five-Year Review Report finalized in May 2019 (USACE 2019).

According to the Remedial Design (RD), groundwater monitoring is being performed to demonstrate that natural attenuation is an effective remedy that will attain the remediation objectives over time and that the groundwater plume will not migrate to nearby surface water bodies at levels that may present an unacceptable risk to human health and the environment (Shaw Environmental & Infrastructure, Inc. (Shaw) 2011). Groundwater monitoring is being performed in accordance with the Remedial Action Work Plan (RAWP) (AECOM 2013) to:

- Detect changes in environmental conditions that may reduce the efficacy of natural attenuation processes.
- Identify potentially toxic and/or mobile transformation products.
- Verify that the plume is not expanding and poses no unacceptable risk to downgradient receptors.
- Detect new releases of contaminants to the environment that could impact effectiveness of the natural attenuation remedy.
- Verify attainment of the remediation objectives.

Work completed as part of the 2021–2022 RA-O consisted of the following:

- Annual groundwater monitoring event in November 2021 consisting of 17 wells; however, one well (67WW03) did not have a sufficient quantity of water to collect a sample.
- Conducted the annual LUC inspection on November 10, 2021.
- Mowing and brush clearing on November 21, 2021.
- Well maintenance inspections in November 2021.

This report summarizes the LUC compliance inspection, the results of groundwater sampling, and an evaluation of the MNA remedy.

1.3 Site Description

LHAAP-67 is in the central portion of LHAAP, as shown on **Figure 1-2**, and covers an area of approximately 1.9 acres. The site topography is relatively flat. The nearest significant surface water body is Central Creek, located approximately 870 feet southeast and upgradient of LHAAP-67. Central Creek eventually flows into Caddo Lake.

When operational, LHAAP-67 consisted of seven aboveground storage tanks (AST) used for storing No. 2 fuel oil, kerosene, and solvents. The size of the tanks is unknown. The tanks were surrounded by earthen dikes designed to contain potential spills. The ASTs have been removed, and the only man-made structure remaining at the site is a railroad bed.

The LUC area associated with the groundwater use restriction at LHAAP-67 extends beyond the historical site boundaries along the western, eastern, and southern sections of the site and encompasses a total of 2.6 acres. LHAAP-67 has no known areas of archaeological or historical importance.

1.4 Conceptual Site Model

A detailed Conceptual Site Model of LHAAP-67 was previously presented in the ROD (USACE 2010). Based upon additional data collected as part of final remedy implementation as presented in the LHAAP-67 Final RACR (AECOM 2016), the lithologic units at the site have been reclassified.

Historically, two distinct water-bearing zones (shallow and intermediate) had been designated at LHAAP-67; however, during drilling performed for the 2013 investigation, no continuous clay layer (i.e., aquitard) or significant lithological differences between previously identified shallow and intermediate zones were encountered. Collocated monitoring wells 67WW06 (total depth 51 feet below ground surface [bgs]) and 67WW07 (total depth 24.0 feet bgs), historically identified as intermediate and shallow zone wells, respectively, had similar static groundwater levels during the four sampling events performed during 2013–2014, with a maximum difference of 1.04 feet noted during the January 2014 event (these small differences were confirmed in the four 2014–2015 sampling events, with a maximum difference of 0.08 feet). Therefore, the previously designated shallow and intermediate zones are now considered to be hydraulically connected and constitute a single uppermost groundwater-bearing unit at LHAAP-67 to a depth of approximately 50 feet bgs. Monitoring well 67WW06, which was previously identified as an intermediate zone well, has been reclassified as a shallow zone monitoring well, screened in the uppermost groundwater-bearing unit. A deeper "intermediate" water-bearing zone was identified at a depth of approximately 68 feet bgs in

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boring 67DPT14 (drilled in June 2014), with a clear aquitard separating this unit from the shallow zone. To assess the deeper "intermediate" water-bearing zone, 67WW16I was installed in May 2016. Based on this information, shallow and intermediate water-bearing zones are present in the LHAAP-67 investigation area, but the configuration has been modified from that presented in the RD as discussed above.

The contaminants of concern (COC) identified in the ROD for LHAAP-67 shallow zone groundwater are trichloroethene (TCE), 1,1-dichloroethene (DCE), 1,2-dichloroethane (DCA), 1,1,1-trichloroethane (TCA), and 1,1,2-TCA. TCE has not been observed above the maximum contaminant level (MCL) of 5 micrograms per liter (µg/L) since 2016 at 6WW17. It is also noted that vinyl chloride, a degradation product of TCE, was detected in May 2019 below the MCL and then was below the detection limit of 0.5 µg/L in October 2019 and continues to be below the detection limit during the Year 8 RA-O sampling event. The presence of these COCs in the shallow groundwater zone represents the primary driver for remedial action, as they are at concentrations above the human health standards for a hypothetical future maintenance worker under an industrial exposure scenario. No COCs have been detected in 67WW16I since the first sampling event in November 2017, confirming the June 2014 results from temporary well 67DPT14 and indicating that COCs are confined to the shallow groundwater zone.

The nature and extent of groundwater contamination at LHAAP-67 was evaluated during field investigations conducted between 1998 and 2007. It is believed that historical releases from the ASTs at the site contaminated the soil, with contaminants then leaching from the soil into groundwater. A relatively small area of contamination is observed in the shallow groundwater which poses an unacceptable carcinogenic risk and noncarcinogenic hazard to a hypothetical future maintenance worker under an industrial exposure scenario. There is no groundwater contamination in the deeper "intermediate" groundwater zone. The only potentially complete exposure pathway is via use of the shallow groundwater zone as drinking water. However, shallow groundwater is not used as drinking water at the refuge, and the pathway is eliminated from any hypothetical receptor because LUCs are in place that prohibit the use of groundwater other than for environmental monitoring and testing. The nearest significant surface water body to the LHAAP-67 site is Central Creek, located upgradient and approximately 870 feet from the site, as shown on **Figure 1-2**. Goose Prairie Creek is located downgradient of LHAAP-67, approximately 1,400 feet to the north-northwest of the downgradient edge of the LHAAP-67 1,1-dichloroethene plume. While groundwater flowing from the vicinity of LHAAP-67 may eventually reach Goose Prairie Creek, the presence of clean wells (67WW05, 67WW17, and 67WW18) north and northwest of the plume edge, between the site and Goose Prairie Creek, confirms that there is no complete pathway for contamination to reach Goose Prairie Creek from LHAAP-67. The current groundwater monitoring network is adequate to

detect contaminant migration towards Goose Prairie Creek should it occur. Therefore, there is not a complete pathway from groundwater to surface water.

The First Annual RA-O report indicated that the dominant shallow zone groundwater gradient was to the north-northeast, but the flow direction began to shift by May 2014 towards the north-northwest and in 2021 has shifted back to the north. Based on groundwater level data collected in November 2021, the dominant shallow zone groundwater gradient appears to be generally northward. The apparent change of the shallow zone groundwater gradient may have been due to the increase in precipitation the area received during 2015 and the resulting rise in groundwater levels during 2016. However, the increase in water levels has continued in 2021 and the gradient has shifted back to the north. Also, the groundwater levels fluctuate with seasonal precipitation as the groundwater elevations are normally higher in most wells in the spring (May) sampling events. However, the highest water levels recorded during RA-O sampling were observed during the Year 7, November 2020, sampling event. The historical gradient was originally assumed to be towards the southeast in the Final RD (Shaw 2011) and was based on data collected primarily from three monitoring wells because some of the wells, such as 67WW03 and 67WW04, which are screened higher than most wells that produce groundwater, were dry most of the time. Therefore, because the groundwater is flowing away from Central Creek at LHAAP-67, the potential discharge to surface water in Central Creek became an incomplete exposure pathway and, as stated in the RAWP and RACR, surface water sampling was no longer deemed to be necessary (AECOM 2013, 2016).

To assess the deeper "intermediate" water-bearing zone, monitoring well 67WW16I was completed to a depth of 78 feet bgs. This well has been sampled annually since 2016, and no COCs have been detected, including during the most recent sampling event in November 2021. This sampling confirms that COCs are confined to the shallow zone groundwater.

In response to the Fourth Five-Year Review Report (USACE 2019), recommendation to "evaluate data in the north area of the plume to determine if temporary exceedances indicate plume migration or require extension of the plume boundary monitoring well system," two new monitoring wells (67WW17 and 67WW18) were installed in the shallow groundwater zone in July and August 2019. These wells have been sampled three times, during the sixth, seventh and eighth annual RA-O events, and all COCs were below their respective MCLs. Therefore, the plume boundary does not extend farther to the north and is currently bounded to the north and northwest by the data from these two wells.

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2.0 SITE ACTIVITIES AT LHAAP-67

This chapter describes the results of the Year 8 RA-O activities, including annual LUC compliance inspection, the first annual groundwater monitoring, and monitoring system repairs and/or maintenance performed at LHAAP-67.

2.1 Annual LUC Compliance Inspection

The annual LUC compliance inspection for LHAAP-67 was performed on November 10, 2021. The LUC for this site is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing and residential groundwater use until the levels of COCs in groundwater and soil allow unrestricted use and unlimited exposure. The restriction applies to groundwater underlying an approximately 6-acre area defined by the surveyed LUC boundary (AECOM 2016). The Annual LUC Compliance Certification Documentation Form for the Year 8 RA-O monitoring period is included in **Appendix A**. No noncompliance issues or concerns were noted during the annual inspection.

2.2 Groundwater Monitoring

The Year 8 RA-O monitoring event performed in November 2021 is the third annual monitoring event after three years of semiannual monitoring. Sample Collection Logs are included in **Appendix B**. Sampling was attempted at 17 monitoring wells, which included the third sampling event at the two new monitoring wells, 67WW17 and 67WW18, as shown in **Table 2-1**. Monitoring well locations are depicted on **Figure 2-1**.

Prior to collecting groundwater samples, monitoring wells were gauged using a water level probe, and the depth to water was recorded to the nearest 0.01 feet from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-2**. In November 2021, groundwater was measured in 67WW03 during gauging, but there was not sufficient volume to collect a sample. The groundwater elevation measured at 67WW03 appears to be anomalous relative to nearby well 67WW12, and it was not used in the development of potentiometric contours on **Figure 2-2**. Monitoring well 67WW04 is planned to be gauged only but continued to be dry in 2021, as it was in 2020.

Groundwater samples were collected using low-flow sampling techniques as described in the groundwater sampling procedures found in the *Final Installation-Wide Work Plan* (Bhate 2018).

2.2.1 Approved Modifications to the Groundwater Monitoring Program

The following minor modifications have been made to the groundwater monitoring program since the beginning of the RA-Os, in coordination with U.S. Environmental Protection Agency

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(USEPA) and the Texas Commission on Environmental Quality (TCEQ), since it was first developed in the RAWP (AECOM 2013):

- Monitoring wells 67WW09A and 67WW10 replaced the sampling of 67WW04 to bound the plume to the south.
- Well 67WW04 will continue to be gauged for water levels only during each sampling event.
- Monitoring wells 67WW06 and 67WW07 are considered duplicative, and only 67WW07 will is sampled.
- Well 67WW06 will continue to be gauged for water levels only during each sampling event.
- Monitoring wells 67WW01 and 67WW08 were selected in the RAWP for collection of MNA geochemical parameters. Based on the lack of consistent groundwater at 67WW01 and an evaluation of COC concentrations and monitoring well locations with respect to the plume, it was determined in coordination with USEPA and TCEQ that future sampling for MNA geochemical parameters will occur at monitoring wells 67WW13 and 67WW08.
- No further surface water monitoring is planned for the LHAAP-67 site at Central Creek (AECOM 2016).
- Two additional wells, 67WW17 and 67WW18, were installed and added to the monitoring plan to evaluate the groundwater and bound the plume to the north and northwest of the site.

2.2.2 Groundwater Elevations and Flow Direction

During the Year 8 RA-O sampling event, water levels were gauged in November 2021 and used to determine groundwater flow direction, as shown on **Figure 2-2**. Monitoring well 67WW04 was dry in November 2021. The groundwater elevation measured at 67WW01 in 2020 was anomalous relative to the nearby monitoring locations and was not used to draw the potentiometric contours. However, in 2021, the elevation was in line with the other wells and was used to construct a potentiometric surface contour map. The groundwater elevation measured in 67WW03 in November 2021 is considered to be anomalous and was not used to develop the contours on **Figure 2-2**. Based on the gauging data during this event, the groundwater flow direction is interpreted to be northerly. As observed previously, the groundwater levels have fluctuated with seasonal precipitation, as the groundwater elevations are higher in the spring and lower in the fall, as shown on **Figure 2-3**. This figure shows that on average, the primary pattern is the groundwater elevations have historically been approximately 1.5 feet lower in the fall than in the spring. The annual sampling that began during the Year 6 RA-O event will continue in the future and may provide more consistent groundwater water levels from event to event without the seasonal fluctuations.

The groundwater elevations across the site during the Years 2, 3, 4, 5, 6, 7, and 8 RA-O sampling events have fluctuated by approximately one foot since 2014, with a predominantly north-northwesterly groundwater flow direction.

2.2.3 Groundwater Monitoring and Analytical Results

The eighth annual RA-O is the third annual groundwater sampling event after three years of semiannual sampling. Groundwater samples were collected and analyzed for volatile organic compounds (VOC) according to SW-846 Method 8260. During the November 2021 sampling event, the amount of water was insufficient to collect for analysis at monitoring well 67WW03. Samples collected from 67WW08 and 67WW13 were analyzed for MNA geochemical parameters (**Table 2-1**).

During the annual Year 8 RA-O sampling event, VOCs were detected above their respective MCLs in monitoring wells 67WW01, 67WW02, 67WW08, 67WW09, 67WW13, and 67WW15. The highest concentration of VOCs was detected in well 67WW15, with 1,1-DCE levels at 420 µg/L.

Analytical results for the annual RA-O period are presented in **Table 2-3** and **Table 2-4**. **Table 2-3** presents the VOC and MNA data from the RA-O Year 8 (2021) annual sampling event, while **Table 2-4** presents the RA-O data from the first (2013) through the eighth year (2021) sampling events. Historical COC results, as far back as 1988 for some wells, are presented in **Table 2-5**. **Figure 2-4** depicts the VOC data in wells sampled in November 2021.

An expanded discussion on the VOCs and their distribution, including trend analysis, is included in **Section 3.1**.

Groundwater monitoring well Sample Collection Logs for the November 2021 sampling event were completed for each monitoring well sampled and are included in **Appendix B**. Laboratory analytical results are included in **Appendix C**.

2.3 Surface Water Sampling

Surface water monitoring is not required for LHAAP-67, based on the change in the groundwater flow direction and with TCEQ and USEPA concurrence. The current northerly groundwater flow direction indicates that Central Creek, located south of the LHAAP-67 site, is upgradient from the site and surface water monitoring continues to be unnecessary.

2.4 Groundwater Monitoring System Maintenance

Inspections of the conditions and integrity of monitoring wells are conducted during each sampling event and the information is recorded on the field sampling forms. **Appendix D** includes a photographic log, which shows the condition of the wells in November 2021.

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Maintenance or repairs are performed as needed, based on observed conditions. During the Year 7 reporting period, no damage to well bollards, pads, or protective well casings was observed. Also, only minimal encroachment of weeds or brush on the well pads was observed. Mowing of the area to control brush and weeds is conducted on a routine basis as needed to allow access to the wells. During the Year 8 RA-O, mowing of LHAAP-67 was conducted on November 21, 2021. **Table 2-6** provides a summary of the maintenance activities that were performed at the site during the Year 8 RA-O period.

2.5 Groundwater Monitoring Optimization

In accordance with the recommendation in the Fourth Five-Year Review Report (USACE 2019) and as discussed in the Year 5 RA-O, two monitoring wells, 67WW17 and 67WW18, were installed to the north and northwest of the site to evaluate the extent of the plume boundary in those directions. Monitoring well 67WW17 was installed at 27 feet bgs with a screened interval from 17 to 27 feet to match the shallow screened interval in well 67WW02, while well 16WW18 was installed at 39 feet bgs with a screened interval from 29 to 39 feet bgs to match the screened interval in well 67WW15. The two new monitoring wells were sampled in October 2019, November 2020, and November 2021, and all the COCs were below the MCLs. These wells will continue to be sampled annually to bound the plume in the north-northwest direction. The monitoring well network for Year 9 RA-O sampling is presented in **Table 2-7**. In accordance with the RAWP (AECOM 2013), monitoring will continue to be conducted annually until the next Five-Year Review.

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3.0 NATURAL ATTENUATION EVALUATION

This chapter presents the results of the MNA remedy evaluation in accordance with the three lines of evidence discussed in the Final RD (Shaw 2011) for site COCs.

3.1 First Line of Evidence: Change in COC Concentrations

Natural attenuation is the combination of multiple mechanisms that reduce contaminant concentrations, including biodegradation, volatilization, dilution, advection, and absorption. The decrease of COC concentrations over time and distance is evidence of natural attenuation. The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-67. COC concentrations for the November 2021 sampling event are provided on **Figure 2-4** as well as in **Tables 2-3** and **2-4**. COCs exceeding their respective MCLs are highlighted. To aid in evaluating groundwater levels and COCs over time, concentration graphs are provided on **Figure 3-1**. The graphs were constructed for wells where current COC concentrations are greater than the MCLs. Two wells (67WW12 and 67WW14) are also included on **Figure 3-1** because COCs have fluctuated near the MCL and the trends continue to be evaluated.

3.1.1 Plume Migration

Based on the general direction of groundwater flow, monitoring wells 67WW09A and 67WW10 are considered upgradient background monitoring wells. Well 67WW04 was previously used as an upgradient background well; however, it has been removed from the RA-O because it was dry during most sampling events since 2013. Monitoring wells 67WW02, 67WW05, 678WW17, and 67WW18 are downgradient monitoring wells. In-plume monitoring wells include 67WW01, 67WW09, 67WW13, and 67WW15. Monitoring wells 67WW07 and 67WW14 are considered cross-gradient wells. In the Year 8 RA-O event, six monitoring wells had COC concentrations above the MCLs: 67WW01, 67WW02, 67WW08, 67WW09, 67WW13, and 67WW15.

The two primary changes observed in the plume shape in 2021 have occurred due to 67WW09 and 67WW12. During this RA-O period, the COCs at 67WW11 have continued to remain below the MCLs since the Year 4 RA-O period in November 2017. In close proximity to 67WW11, at 67WW09, 1,1,2-TCA and 1,2-DCA increased in November 2021 above the MCL for the first time and will be evaluated in the Year 9 RA-O to determine if COCs remain above the MCL in this upgradient well.

During the last two years, 1,1-DCE concentrations have increased above the MCL at 67WW12, on the east side of the plume. However, in November 2021, 1,1-DCE levels

decreased from 40 µg/L in November 2020 to 6.5 µg/ in November 2021, suggesting the plume may be retracting on the east side.

At the in-plume well, 67WW13, 1,1-DCE concentrations seasonally fluctuated, with the highest levels often observed in the fall. Since sampling is now conducted annually in the fall, the higher concentration will be observed. 1,1-DCE concentrations in the fall sampling events have been increasing from 320, 570, 640, and 720 µg/L in 2017, 2018, 2019, and 2020, respectively. In November 2021, 1,2-DCE concentrations had decreased for the first time in this in-plume well since 2017, from 720 µg/L in 2021 to 410 µg/L. The decrease in 1,1-DCE levels may indicate that higher concentrations peaked in 2020 at this in-plume well. Concentrations of 1,2-DCE and 1,1,2-TCA have remained consistent, and in 2021 they were observed at 5.9 and 43 µg/L, respectively.

The Year 8 RA-O data indicate that contaminant concentrations are decreasing with distance, from the highest levels inside the plume towards the downgradient edge of the plume. Concentrations of 1,1-DCE decreased along the groundwater path from 67WW13 towards 67WW02 (116 feet) and then to 67WW17 (87 feet) from 410 to 100 µg/L to below the detection limit of 0.5 µg/L. Also, a decrease in 1,1-DCE has been observed from 420 µg/L to below the detection limit of 0.5 µg/L as groundwater flows 202 feet from 67WW15 to 67WW18. During the Year 7 RA-O sampling event, 1,2-DCA was observed above the MCL at 67WW02 for the first time at 5.5 µg/L, and during the Year 8 RA-O sampling in 2021, the concentration decreased back below the MCL again at 3.2 µg/L. At this well, 1,1-DCE also decreased from 220 to 100 µg/L between 2020 and 2021.

3.1.2 Trend Analysis

Mann-Kendall analysis for the Year 8 RA-O monitoring period was completed for compounds at the six wells where one or more COCs were above the MCLs. One other well, 67WW12, was also included due to the recent increases and decreases in 1,1-DCE, even though in November 2021 the concentration was observed at 6.5 µg/L, below the MCL of 7.0 µg/L. The results are presented in **Appendix E** in graphical format with statistical results presented on the bottom of the page. The GSI Mann-Kendall Tool Kit was used for this analysis. The concentrations of COCs are presented in µg/L. Half the reporting limit was used for nondetect values. For locations with field duplicate samples, the primary sample concentration was used in the trend analysis. The level of significance is calculated for each analysis and provided on the trend analysis sheet. A summary of the Mann-Kendall results is provided in **Table 3-1**. Graphical trend charts of historical COC results for all wells discussed are presented on **Figure 3-1**, and the historical COC results are provided in **Table 2-5**.

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Significant Decreases

Mann-Kendall analysis identified statistically significant evidence of decreasing trends at the following well:

- **Monitoring well 67WW08—1,1-DCE and 1,2-DCA.** This well is located upgradient of the higher COC concentrations present at LHAAP-67, and the decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). A decrease in 1,1-DCE has been observed, from 2,320 µg/L in December 2014 to 18 µg/L in November 2021. Concentrations of 1,2-DCA have remained below the MCL since October 2019 and it was detected at 0.67 µg/L in November 2021, as shown on **Figure 3-1**. Results from future sampling events will continue to be evaluated for COC concentration trends.

Significant Increases

Mann-Kendall analysis identified statistically significant evidence of increasing trends at the following wells for the indicated COCs:

- **Monitoring well 67WW02—1,1-DCE and 1,1-DCA.** This well is a downgradient well and increasing trends for both 1,1-DCE and 1,1-DCA continues to be observed, although concentrations of both compounds have decreased between 2020 and 2021. Concentrations have been the highest during the spring sampling events, until the November 2020 sampling event, where levels increased to the highest level of 1,1-DCE at 220 µg/L. At this well, 1,1-DCE concentrations increased from 6.9 µg/L in October 2018 to 220 µg/L in November 2020, and then decreased to 100 µg/L in November 2021. An increasing trend has also been observed for 1,2-DCA and was evaluated for the first time in November 2020 because the concentration had increased to 5.5 µg/L, above the MCL of 5 µg/L, for the first time. However, in November 2021, 1,2-DCA decreased to 3.3 µg/L, below the MCL. Due to the groundwater flow direction becoming more northerly, this well is now on the downgradient edge of the plume, and the trend suggests that the plume may be expanding in this direction. The two new wells, 67WW17 and 67WW18, are downgradient of this well and bound the plume. Results from future sampling events will continue to be evaluated for COC concentration trends.
- **Monitoring well 67WW09—1,2-DCA and 1,1,1-TCA.** At monitoring well 67WW09, 1,2-DCA and 1,1,1-TCA concentrations have been below the MCLs until the Year 8 RA-O sampling event in November 2021. This well is located on the upgradient edge of the plume, and concentrations increased from below the detection limit of 0.5 µg/L for both compounds in November 2021 to 29 µg/L and 5.5 µg/L, respectively. This is the first time any COC has increased above a detection limit since 2016, as there is not a known source upgradient of this well. The data will continue to be evaluated in the future to determine if this trend continues.

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- **Monitoring well 67WW12—1,1-DCE.** During the first five years of RA-O sampling, 1,1-DCE concentrations at 67WW12 were below the MCL until levels increased in October 2019 and November 2020. During the November 2001 sampling event, the concentrations decreased to below the MCL and therefore no COCs were above the MCL at this time. This well is located on the eastern edge of the plume, and concentrations increased from 2.1 to 40 µg/L between May 2019 and November 2020 and then decreased to 6.5 µg/L in November 2021. The data from this well will continue to be evaluated in the future to determine if the increasing trend continues and concentrations are detected over their respective MCLs.
- **Monitoring well 67WW13—1,2-DCA and 1,1,2-TCA.** This well is located near the center of the contaminant plume and 1,2-DCA concentrations were stable until the Year 6 RA-O sampling events, when an increasing trend was observed. Since May 2018 concentrations have increased from 27 µg/L to 43 µg/L in November 2021. Concentrations of 1,1,2-TCA have fluctuated near the MCL of 5 µg/L, and in November 2021, the level increased slightly from 5.7 in 2020 to 5.9 µg/L. Since 2013, 1,1,2-TCA levels ranged from 7.66 µg/L in November 2015 to 3.9 µg/L in May 2019; however, the overall trend is increasing.

Stable/No Trend

Mann-Kendall analysis identified a trend as either stable or no trend at the following wells for the indicated COCs:

- **Monitoring** well **67WW01—1,1-DCE and 1,2-DCA.** This well is located close to the center of the plume. Historically, 1,1,1-TCA and 1,1,2-TCA were detected above the MCL at this well (1998) along with their degradation daughter products 1,1-DCE and 1,2-DCA. The initial increase in daughter products 1,1-DCE and 1,2-DCA indicated that degradation was occurring. In 2016, 1,1,1-TCA and 1,1,2-TCA were reduced to or near nondetect levels. Although the statistical trend is stable, decreases in both 1,1-DCE and 1,2-DCA have continued since 2019 and 1,2-DCA has decreased to 3.0 µg/L, below the MCL of 5 µg/L for the first time. 1,1-DCE has also decreased to the lowest level again at this well, from 49 µg/L in 2020 to 23 µg/L in November 2021.
- **Monitoring well 67WW13—1,1-DCE.** This well is also near the center of the contaminant plume. Over the eight years of RA-O sampling, 1,1-DCE concentrations have fluctuated from 240 µg/L in May 2014 to 720 µg/L in November 2020. In November 2021, the concentration has decreased to 410 µg/L. The data show that there is not a statistical trend and indicate that the 1,1-DCE groundwater contaminant plume in the vicinity of 67WW13 is stable.
- **Monitoring well 67WW15—1,1-DCE, 1,2-DCA, and 1,1,2-TCA.** Monitoring well 67WW15 is located cross gradient of 67WW13, and during the Year 8 RA-O, the Mann-Kendall analysis showed that concentration trends of the COCs

above the MCL are stable or have no trend. Concentrations of 1,1-DCE decreased from 2,460 µg/L in May 2016 to 510 µg/L in November 2017 (**Figure 3-1**). Since November 2017, concentrations have fluctuated with the seasonal groundwater; however, a decrease from 730 to 420 µg/L was observed between 2020 and 2021 and statistically there is no trend. Concentrations of 1,2-DCA and 1,1,2-TCA also decreased between May 2016 and November 2017, but the trends of these two compounds also show that the data are stable.

3.1.3 Predictive Modeling

During the Year 8 RA-O sampling event, a statistically significant decrease was observed at one well, 67WW08. At this upgradient in-plume well, the decreasing trend was observed for 1,1-DCE and 1,2-DCA. To determine the estimated time to achieve the MCLs in this upgradient plume well, time-dependent attenuation rates were determined (**Appendix F)**.

During the Year 5 RA-O, predictive modeling estimated 0.1 year for 1,2-DCA to decrease below the MCL. During the Year 8 RA-O sampling, 1,2-DCA has remained below the MCL since the Year 6 RA-O and was detected at an estimated level of 0.67 J µg/L, confirming that the predictive modeling was correct.

A first order rate constant estimated for 1,1-DCE during the Year 8 RA-O continues to be 0.001 day^{-1}. The estimated time to reduce 1,1-DCE from 18 µg/L observed in November 2021 to the MCL of 5 µg/L is estimated to be 2.6 years. A statistically significant decrease in COCs is not occurring in other wells at LHAAP-67; therefore, degradation rates cannot be calculated to determine a time to achieve the MCL for the plume (i.e., predictive modeling by assuming some degree of degradation and degradation half-lives is not meaningful for this plume).

3.1.4 Plume Stability

Plume maps from the May 2018 through November 2021 sampling events are presented for comparison on **Figure 3-2**. 1,1,2-TCA, 1,1-DCE, and 1,2-DCA are the most widespread COCs in the shallow groundwater. Since baseline sampling in 2013, the plume has remained fairly stable with small shifts due to seasonal groundwater elevation changes.

The most significant change in the plume shape in November 2021 is upgradient, at monitoring well 67WW09, Two COCs have increased above a detection limit in November 2021 for the first time since 2015. During the Year 8 RA-O sampling, 1,1-TCA and 1,2-DCA concentrations increased to 5.5 and 29 µg/L, respectively. The increases in these two COCs indicates that the plume size is increasing on the upgradient side of the plume, and future sampling will aid in determining if the plume is expanding or this is an anomaly.

Historically, the COC data from the RA-O monitoring indicate that the plume has migrated north-northwest, in the direction of groundwater flow. In the past two years, the plume was

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migrating to the northeast, beyond 67WW12; however, in November 2021, the groundwater flow is primarily northerly, and the concentrations have decreased to below the MCLs, indicating that the plume may be contracting. At monitoring well 67WW12, a statistically significant increase in 1,1-DCE has been observed. In the past two years, 1,1-DCE concentrations increased, and the plume was migrating to the northeast, beyond 67WW12. However, in November 2021, the concentrations have decreased to below the MCLs in this well and the plume is currently delineated again to the east.

At cross-gradient monitoring well 67WW14, located on the west side of the LHAAP-67 contaminant plume, 1,1-DCE was above the MCL in 2015, 2016, and 2019, suggesting that the western plume boundary is fluctuating, perhaps due to seasonal variations. However, all COCs have been below the MCL in 2017, 2018, 2020, and 2021 (four of the last five years) indicating that the west side of the plume is stable.

At the downgradient well 67WW02, concentrations decreased in November 2021, but have been fluctuating with groundwater levels, and the overall trends are increasing. In November 2020, 1,2-DCA was detected above the MCL for the first time and in November 2021, the compound was back below the MCL. The three downgradient monitoring wells, 67WW17, 67WW18, and 67WW05, are nondetect for site COCs, thus bounding the downgradient edge of the plumes.

At upgradient in-plume monitoring well 67WW08, COC trends continue to decrease, indicating that the plume is shrinking on the eastern edge of the upgradient plume. During the Year 8 RA-O sampling event, 1,1-DCE decreased again, from 50 µg/L in November 2020 to 18 µg/L in November 2021. Also, 1,2-DCA concentrations continue to decrease farther below the MCL of 5 µg/L to 0.67 µg/L in November 2021. The decreases in COCs are attributed to primarily abiotic natural attenuation processes, including dilution from upgradient clean groundwater.

Historically, upgradient monitoring well 67WW11 contained elevated levels of 1,1-DCE. Since 2016, all COCs have remained below the MCLs, which suggests that natural attenuation has decreased contaminant levels, likely due to dilution effects from upgradient groundwater.

At upgradient monitoring well 67WW09, closest to 67WW11, two COCs have increased above the MCL in November 2021 for the first time since 2015. During the Year 8 RA-O sampling, 1,1-TCA and 1,2-DCA concentrations increased to 5.5 and 29 µg/L, respectively. The increases in these two COCs indicates that the plume may be increasing in size on the upgradient side of the plume. Future sampling will aid in determining whether the plume is expanding, or this is an anomaly.

Mann-Kendall analysis at the in-plume monitoring well 67WW15 indicates COC concentrations continue to be stable or do not have a trend. At monitoring well 67WW18, downgradient of 67WW15, all the COCs are nondetect, suggesting that concentrations are decreasing in the downgradient direction, indicating a relatively stable plume near 67WW15.

Monitoring well 67WW13, located near the center of the plume, exhibited a stable trend for 1,1-DCE and a statistically increasing trend for 1,2-DCA and 1,1,2-TCA. As shown on **Figure 3-2**, 1,1,2-TCA levels have fluctuated around the MCL and were above 5 µg/L most recently in November 2020 and 2021. As with monitoring well 67WW15, monitoring well 67WW13 remains bounded by downgradient monitoring wells 67WW17 and 67WW18, where COCs have not been detected above MCLs.

Cross-gradient and downgradient monitoring well 67WW07 has also had concentrations below the MCLs over the eight-year RA-O period.

COCs in upgradient monitoring wells 67WW09A, 67WW10, and 67WW11 have remained below the MCLs.

The Year 8 RA-O data suggest that the core of the plume is stable; however, the COCs present at the downgradient and upgradient edges may be migrating. Decreasing concentrations at wells on the east and west suggest that the plume is retracting, which may be due to clean groundwater upgradient of these areas migrating and reducing contaminant levels. Additional sampling in the future will aid in determining whether these trends continue, or additional monitoring locations will be needed.

3.2 Second Line of Evidence: Geochemical Indicators

Table 2-3 includes the November 2021 geochemical indicators that are useful MNA evaluation parameters. Some geochemical indicators are collected in the field and recorded for all sampling events for all wells. In February 2019, the *Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters* (Bhate 2019) updated the list of geochemical parameters to reduce redundancy. The updated list of parameters collected at LHAAP-67 is reflected in **Table 2-3**. The full list of parameters analyzed for the MNA evaluation were collected at two wells, 67WW08 and 67WW013. The field parameters for LHAAP-67 wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), potential of hydrogen (pH), conductivity, turbidity, ferrous iron, and temperature.

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria, which are the primary microbes able to degrade the site COCs, generally

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cannot function at DO concentrations greater than about 0.5 milligrams per liter (mg/L) and hence, reductive dechlorination may not occur.

Monitoring wells 67WW01, 67WW02, 67WW08, 67WW09, 67WW13, and 67WW15 were evaluated because at least one COC is greater than the MCL. The DO concentrations during the Year 8 RA-O sampling event ranged from 0.34 to 0.83 mg/L, and only one of the six wells had a value below the 0.5 mg/L threshold, indicating that the groundwater is mildly reducing but not conducive to complete reductive dechlorination.

Oxidation-Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values less than 50 millivolts (mV) indicate that anaerobic conditions are present in the aquifer and favorable for biological reductive dechlorination of chlorinated ethenes and ethanes. During the Year 8 RA-O monitoring period, the ORP measurements collected from groundwater in the impacted wells were greater than 50 mV in all wells except for one (67WW01) and ranged from 39 to 263 mV. The measurements observed in the impacted wells indicate generally oxidative conditions are present, which are not favorable for reductive dechlorination.

Nitrate

After DO has been depleted by microbes in the treatment zone, nitrate may be used as an electron acceptor for the degradation of organic carbon via denitrification and during this process it is reduced to nitrite. Nitrate levels above 1.0 mg/L may compete with reductive dechlorination (USEPA 1998). Nitrate was analyzed in monitoring wells 67WW08 and 67WW13 during the Year 8 RA-O sampling event and has historically been below 1.0 mg/L. In November 2021, the nitrate levels were detected at an estimated level of 0.32 J mg/L in both wells, indicating that nitrate will not compete as a respiratory substrate with site COCs.

Iron Reduction

After nitrate, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which is soluble in water. Therefore, an increase in ferrous iron can indicate reducing groundwater conditions. Increases in ferrous iron have been observed during RA-O sampling in monitoring wells 67WW08 and 67WW13, indicating that limited biological degradation may have been occurring. In November 2021, ferrous iron was detected at 0.28 mg/L in 67WW08 and was not detected at 67WW13. The Year 8 RA-O sampling in November 2021 indicates that ferrous iron-reducing conditions are not present, which is not favorable for reductive dechlorination.

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Sulfate

After DO, nitrate, and iron have been depleted in the groundwater, sulfate is used as an electron acceptor and reduced to sulfide. Concentrations of sulfate greater than 20 mg/L may compete with reductive dechlorination of the site COCs. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). Sulfate was analyzed at monitoring wells 67WW08 and 67WW13 during the Year 8 RA-O and detected at 333 and 471 mg/L, respectively. Since RA-O sampling began at LHAAP-67, relatively high concentrations of sulfate have been observed and have not declined. Sulfide analysis was conducted at LHAAP-67 through October 2018, and levels were consistently below the detection limit. Due to the historically low levels of sulfide, this analysis was removed and changes in sulfate levels will be used to aid in determining sulfate-reducing conditions (Bhate 2019). The data from the November 2021 sampling event indicate that sulfate-reducing conditions do not exist in the groundwater.

Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, iron, and sulfate have been depleted. Methane levels above 500 µg/L are considered indicative of methanogenic conditions (USEPA 1998). Methane concentrations remain low and were less than 2.29 µg/L during the Year 8 RA-O at 67WW08 and 67WW13. These methane levels suggest that methanogenic conditions are not present in the groundwater at LHAAP-67.

Total Organic Carbon

Organic carbon is utilized as an energy and hydrogen source to support the reductive dechlorination of the chlorinated COCs. Total organic carbon (TOC) concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC was analyzed at monitoring wells 67WW08 and 67WW13 during the Year 8 RA-O sampling event and detected at 4.71 and 4.00 mg/L, respectively. The data indicate that carbon concentrations in the groundwater are not at levels sufficient to be supportive of reductive dechlorination.

pH

The pH of the groundwater has an effect on the activity of microbial populations. Microbes capable of degrading chlorinated aliphatic hydrocarbons generally prefer pH values from 6 to 8 standard units (SU) (USEPA 1998). The shallow zone groundwater pH within the plume during the Year 8 RA-O period ranged from 4.89 SU (67WW10) to 6.46 SU (67WW01). The pH levels in these wells are low to marginal for dechlorinating bacteria and would likely limit the proliferation of the microbes.

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Ethene and Ethane

Ethane and ethene are the end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes. During the Year 8 RA-O, 67WW08 and 67WW13 were analyzed for ethane and ethene, and concentrations were above the detection limits for the first time for both compounds. Ethane was detected in November 2021 at estimated levels of 0.151 J µg/L at 67WW08 and 0.794 J µg/L at 67WW13. Ethene was also detected in wells during the Year 8 RA-O sampling event at estimated levels of 0.304 J µg/L at 67WW08 and 1.02 J µg/L at 67WW13. Although ethane and ethene were observed at low levels, the parent product of these compounds, vinyl chloride, has not been observed. The data indicate that dechlorination may be occurring; however, the primary mechanism for the reduction of COCs is not biological.

Geochemical Indicator MNA Parameter Summary

The qualitative assessment of geochemical indicators during the Year 8 RA-O period in the shallow groundwater zone at LHAAP-67 indicates current geochemical conditions are not favorable for MNA processes via biological reduction. The presence of degradation products, 1,2-DCA, 1,1-DCE, ethane, and ethene suggest that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations are abiotic.

3.3 Third Line of Evidence: Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive and/or the need for a contingency remedy is evaluated, data from field or microcosm studies will be necessary to establish the third line of evidence for MNA.

Analysis for the dechlorinating bacteria *Dehalococcoides* sp. (DHC) was not conducted during the Year 8 RA-O, based on the recommendation in the 2019 Five-Year Review (USACE 2019), and will not be conducted in the future. During the last sampling event for DHC in October 2018, low concentrations were detected, but the populations would not be sufficient to aid the biological degradation of site COCs.

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4.0 SUMMARY AND CONCLUSIONS

The LUC for LHAAP-67 is a groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing and residential groundwater use within the LUC boundary until the levels of COCs in groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the Year 8 RA-O period was conducted on November 10, 2021. No change in land use or groundwater use has occurred at the site during the eight years of RA-O monitoring.

No LUC noncompliance issues, or concerns were identified during the annual inspection. Site monitoring wells were in good condition, with no maintenance other than mowing required.

VOC data and geochemical indicators were collected over the course of the monitoring period at LHAAP-67 to evaluate effectiveness of MNA as a site remedy. A tiered approach was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations and assessed the time to achieve the MCLs. The second line of evidence evaluated geochemical indicators. The third line of evidence evaluates microbial populations in the aquifer, but due to low historical concentrations and the 2019 MNA memo, this analysis has been eliminated. The results of the tiered evaluation and the conclusions are summarized below.

An assessment of the first line of evidence included an evaluation of the groundwater flow and COC degradation trends. The groundwater flow direction at LHAAP-67 has shifted over the years. In 2007, the groundwater flowed to the northwest, but during the Year 1 RA-O in 2013-2014, it flowed toward the east. Since the Year 2 RA-O in 2014–2015, the groundwater flow has been in a more northwesterly direction. During the Year 8 RA-O, the groundwater direction on the west side was toward north-northwest and on the east side of the plume, it was towards the north-northeast. During the semiannual sampling which occurred for Year 3 through Year 5 of RA-O sampling, groundwater levels were shown to fluctuate with seasonal precipitation, being higher in the spring and lower in the fall. The Year 6 RA-O marked the change from semiannual to annual sampling and will aid in removing the observed seasonal fluctuations, for a more reliable MNA analysis. During the November 2021 sampling, groundwater levels decreased from the previous year; however, the groundwater elevations have continued to increase since the beginning of the RA-O sampling as shown on **Figure 2-3**.

Two wells, 67WW17 and 67WW18, were installed in August 2019 to determine the extent of the downgradient plume and were sampled for the third time during the Year 8 RA-O. Concentrations of COCs in these wells continue to be below the MCLs, and the wells bound the plume to the north and northwest.

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The COCs in upgradient wells 67WW09A, 67WW10, and 67WW11 remain below their respective MCLs and have bounded the plume in the upgradient direction. However, COCs increased in the upgradient well 67WW09 closest to 67WW11, have increased above the MCL in November 2021 for the first time since 2015, and will be evaluated in the future to see if increases continue.

At monitoring wells within the center of the plume, 67WW01 and 67WW15, COC concentrations remained statistically stable or no trend. At 67WW13, no trend was observed for 1,1-DCE; however, an increasing trend continues to be observed for 1,2-DCA and 1,1,2-TCA. In-plume well 67WW15 exhibited the highest levels of COCs during the Year 8 RA-O monitoring period for the fifth year in a row.

At 67WW02, located at the downgradient edge of the plume, COC concentrations decreased in 2021. A statistical increasing trend continues to be observed over time; however, 1,2-DCA which was observed above the MCL for the first in 2020, has decreased below the level in November 2021. The plume is bounded by the two new downgradient monitoring wells, 67WW17 and 67WW18.

The western edge of the plume is evaluated using well 67WW14, and all COCs have been below the MCL during the Year 4, Year 5, Year 7, and Year 8 RA-O sampling events. During the Year 6 RA-O, 1,2-DCA increased over the MCL suggesting that the plume may have been migrating to the west, although more recent sampling indicates that this is not occurring.

At the eastern edge of the plume, COCs at 67WW12 were below the MCLs until the Year 6 RA-O sampling event. At this well, 1,1-DCE concentrations rose above the MCL for the first time in October 2019 and continued to increase during the Year 7 RA-O sampling, suggesting the plume may be expanding to the east. As observed on the western edge of the plume, the COC concentrations decreased at 67WW12 in the November 2021 sampling event and may suggest that the plume may be contracting on the eastern edge.

In the upgradient in-plume monitoring well 67WW08, statistically significant decreasing trend for 1,2-DCA and 1,1-DCE continues to be observed, suggesting that cleaner upgradient groundwater is migrating into this area of the plume.

Using the first-order rate constant for 1,2-DCA during in the Year 5 RA-O, the estimated time for levels to decrease to below the MCL was less than one year, and the concentrations have remained below the MCL since 2019.

The rate constant for 1,1-DCE was estimated at 0.001 day^{-1} in November 2021, and the time to achieve the MCL of 7 µg/L is 2.6 years. The continued degradation at this well has decreased concentrations quicker than the regression analysis has determined in the past, as the time to

reach the MCL has decreased from 6.3 years to 2.6 years between 2020 and 2021. The degradation rate calculated may be significantly influenced by seasonal fluctuations in groundwater elevation; however, the change to annual sampling may create more reliable attenuation rates as observed by the contaminate trends at this well.

The qualitative assessment of geochemical indicators performed as the second line of evidence at LHAAP-67 indicates that the conditions in the groundwater are not reducing and are not optimal for the biological degradation processes that will degrade site COCs. Although degradation products (1,2-DCA and 1,1-DCE) have been detected in monitoring wells, groundwater conditions within the impacted area are not favorable for complete biological reductive dechlorination of site COCs.

The third line of evidence to assess MNA is to evaluate microorganisms that demonstrate biological degradation. DHC analysis was not conducted in October 2019, based on the recommendation in the 2019 Five-Year Review (USACE 2019), and will not be conducted in the future. The last DHC analysis was conducted during the Year 5 RA-O, and concentrations were not favorable for reductive dechlorination.

The evaluation of MNA at LHAAP-67 indicates decreasing concentrations in most wells in the upgradient part of the plume may have some limited biological degradation, but the primary pathways for reductions are abiotic processes, including dispersion, dilution, sorption, and volatilization. The increase in COC concentrations observed for the first time at the upgradient well 67WW09 may be to the result of groundwater fluctuations. Additional sampling in 2022 and beyond will be required to determine if the increases observed at 67WW09 continue. However, at the leading edges of the plume, there is no strong evidence that MNA will prevent the plume from expanding over time.

In the wells located at the eastern and western edge of the plume, COCs are decreasing, and the plume may be contracting in these areas. Additional sampling is required to determine if the downgradient increases are sustained. The Year 9 RA-O groundwater monitoring will continue on an annual basis until the next Five-Year Review, in compliance with the RAWP (AECOM 2013).

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Tables

Table 2-1
Groundwater Remedial Action Operation Sampling, 2021

Monitoring Well ID	November 2021			
	VOCs	Field Parameters [a]	MNA Parameters [b]	Water Levels
67WW01	X	X		X
67WW02	X	X		X
67WW03	Not sufficient amount of water to sample			Dry
67WW04 [c]	Gauge for water levels only			Dry
67WW05	X	X		X
67WW06 [d]	Gauge for water levels only			X
67WW07	X	X		X
67WW08	X	X	X	X
67WW09	X	X		X
67WW09A	X	X		X
67WW10	X	X		X
67WW11	X	X		X
67WW12	X	X		X
67WW13	X	X	X	X
67WW14	X	X		X
67WW15	X	X		X
67WW16I	X	X		X
67WW17	X	X		X
67WW18	X	X		X

Notes:

[a] Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferrous iron.

[b] MNA parameters include nitrate, sulfate, chloride, TOC, dissolved gases (methane, ethane, ethene), carbon dioxide, and dissolved iron.

[c] 67WW04 was replaced by 67WW09A and 67WW10.

[d] 67WW06 was eliminated in May 2018 due to the close proximity of 67WW07.

X - well will be analyzed for that parameter.

ID - Identifier

MNA - monitored natural attenuation

TOC - total organic carbon

VOC - volatile organic compound

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	
67WW01	05/31/13	200.92	198.21	25.55	14.68	24.68	186.24	176.24	175.37
	09/27/13	200.92	198.21	Dry	14.68	24.68	186.24	176.24	Dry
	01/23/14	200.92	198.21	Dry	14.68	24.68	186.24	176.24	Dry
	05/07/14	200.92	198.21	26.9	14.68	24.68	186.24	176.24	174.02
	07/24/14	200.92	198.21	26.20	14.68	24.68	186.24	176.24	174.72
	12/02/14	200.92	198.21	25.17	14.68	24.68	186.24	176.24	175.75
	02/10/15	200.92	198.21	25.55	14.68	24.68	186.24	176.24	175.37
	05/19/15	200.92	198.21	23.40	14.68	24.68	186.24	176.24	177.52
	11/18/15	200.92	198.21	26.17	14.68	24.68	186.24	176.24	174.75
	03/28/16	200.92	198.21	23.71	14.68	24.68	186.24	176.24	177.21
	05/18/16	200.92	198.21	23.26	14.68	24.68	186.24	176.24	177.66
	11/28/17	200.92	198.21	25.95	14.68	24.68	186.24	176.24	174.97
	05/02/18	200.92	198.21	24.00	14.68	24.68	186.24	176.24	176.92
	10/25/18	200.92	198.21	26.98	14.68	24.68	186.24	176.24	173.94
	05/03/19	200.92	198.21	22.97	14.68	24.68	186.24	176.24	177.95
	10/24/19	200.92	198.21	23.77	14.68	24.68	186.24	176.24	177.15
	11/03/20	200.92	198.21	24.77	14.68	24.68	186.24	176.24	176.15
	11/10/21	200.92	198.21	22.65	14.68	24.68	186.24	176.24	178.27
67WW02	05/31/13	199.69	196.61	24.38	18.08	28.08	181.61	171.61	175.31
	09/27/13	199.69	196.61	25.28	18.08	28.08	181.61	171.61	174.41
	01/23/14	199.69	196.61	24.77	18.08	28.08	181.61	171.61	174.92
	05/06/14	199.69	196.61	27.68	18.08	28.08	181.61	171.61	172.01
	07/23/14	199.69	196.61	23.45	18.08	28.08	181.61	171.61	176.24
	12/02/14	199.69	196.61	24.13	18.08	28.08	181.61	171.61	175.56
	02/10/15	199.69	196.61	23.65	18.08	28.08	181.61	171.61	176.04
	05/11/15	199.69	196.61	22.79	18.08	28.08	181.61	171.61	176.90
	11/18/15	199.69	196.61	24.22	18.08	28.08	181.61	171.61	175.47
	05/18/16	199.69	196.61	22.58	18.08	28.08	181.61	171.61	177.11
	11/28/17	199.69	196.61	23.95	18.08	28.08	181.61	171.61	175.74
	05/03/18	199.69	196.61	24.15	18.08	28.08	181.61	171.61	175.54
	10/25/18	199.69	196.61	24.35	18.08	28.08	181.61	171.61	175.34
	05/01/19	199.69	196.61	22.42	18.08	28.08	181.61	171.61	177.27
	10/24/19	199.69	196.61	22.97	18.08	28.08	181.61	171.61	176.72
	11/03/20	199.69	196.61	21.95	18.08	28.08	181.61	171.61	177.74
	11/10/21	199.69	196.61	21.61	18.08	28.08	181.61	171.61	178.08
67WW03	05/31/13	200.44	198.12	25.39	16.32	26.32	184.12	174.14	175.05
	09/27/13	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	01/23/14	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	05/06/14	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	07/23/14	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	12/02/14	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	02/10/15	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	05/11/15	200.44	198.12	22.98	16.32	26.32	184.12	174.14	177.46
	11/18/15	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	03/28/16	200.44	198.12	23.2	16.32	26.32	184.12	174.14	177.24
	05/18/16	200.44	198.12	22.76	16.32	26.32	184.12	174.14	177.68
	11/27/17	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	05/02/18	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	10/22/18	200.44	198.12	24.95	16.32	26.32	184.12	174.14	175.49
	05/02/19	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	10/28/19	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	11/03/20	200.44	198.12	Dry	16.32	26.32	184.12	174.14	Dry
	11/10/21	200.44	198.12	24.84	16.32	26.32	184.12	174.14	175.60

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	
67WW04	09/27/13	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	01/23/14	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	05/06/14	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	07/25/14	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	12/02/14	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	02/10/15	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	05/11/15	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	11/18/15	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	05/16/16	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	11/27/17	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	05/02/18	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	10/25/18	203.76	200.5	24.48	14.71	24.71	189.5	179.5	179.28
	05/02/19	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	10/28/19	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	11/03/20	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
	11/10/21	203.76	200.5	Dry	14.71	24.71	189.5	179.5	Dry
67WW05	09/28/13	201	197.48	26.40	19.52	29.52	181.48	171.48	174.60
	01/23/14	201	197.48	26.00	19.52	29.52	181.48	171.48	175.00
	05/06/14	201	197.48	25.85	19.52	29.52	181.48	171.48	175.15
	07/23/14	201	197.48	25.20	19.52	29.52	181.48	171.48	175.80
	12/02/14	201	197.48	25.55	19.52	29.52	181.48	171.48	175.45
	02/10/15	201	197.48	26.20	19.52	29.52	181.48	171.48	174.80
	05/11/15	201	197.48	24.68	19.52	29.52	181.48	171.48	176.32
	11/18/15	201	197.48	25.76	19.52	29.52	181.48	171.48	175.24
	05/18/16	201	197.48	24.56	19.52	29.52	181.48	171.48	176.44
	11/28/17	201	197.48	25.6	19.52	29.52	181.48	171.48	175.40
	05/02/18	201	197.48	25.8	19.52	29.52	181.48	171.48	175.20
	10/25/18	201	197.48	25.8	19.52	29.52	181.48	171.48	175.20
	05/02/19	201	197.48	24.46	19.52	29.52	181.48	171.48	176.54
	10/24/19	201	197.48	24.72	19.52	29.52	181.48	171.48	176.28
	11/03/20	201	197.48	23.50	19.52	29.52	181.48	171.48	177.50
	11/10/21	201	197.48	23.00	19.52	29.52	181.48	171.48	178.00
67WW06	05/31/13	200.81	196.95	25.32	41.86	51.86	158.95	148.95	175.49
	09/28/13	200.81	196.95	26.32	41.86	51.86	158.95	148.95	174.49
	01/24/14	200.81	196.95	26.61	41.86	51.86	158.95	148.95	174.20
	05/06/14	200.81	196.95	23.75	41.86	51.86	158.95	148.95	177.06
	07/23/14	200.81	196.95	23.75	41.86	51.86	158.95	148.95	177.06
	12/02/14	200.81	196.95	24.80	41.86	51.86	158.95	148.95	176.01
	02/10/15	200.81	196.95	23.95	41.86	51.86	158.95	148.95	176.86
	05/11/15	200.81	196.95	22.38	41.86	51.86	158.95	148.95	178.43
	11/18/15	200.81	196.95	24.80	41.86	51.86	158.95	148.95	176.01
	05/18/16	200.81	196.95	22.16	41.86	51.86	158.95	148.95	178.65
	11/29/17	200.81	196.95	24.66	41.86	51.86	158.95	148.95	176.15
	05/02/18	200.81	196.95	23.18	41.86	51.86	158.95	148.95	177.63
	10/25/18	200.81	196.95	24.91	41.86	51.86	158.95	148.95	175.90
	05/03/19	200.81	196.95	21.63	41.86	51.86	158.95	148.95	179.18
	10/28/19	200.81	196.95	23.37	41.86	51.86	158.95	148.95	177.44
	11/03/20	200.81	196.95	22.12	41.86	51.86	158.95	148.95	178.69
	11/10/21	200.81	196.95	22.10	41.86	51.86	158.95	148.95	178.71
67WW07	05/31/13	200.84	197.04	25.35	17.8	27.8	183.04	173.04	175.49
	09/27/13	200.84	197.04	26.32	17.8	27.8	183.04	173.04	174.52
	01/23/14	200.84	197.04	25.6	17.8	27.8	183.04	173.04	175.24
	05/06/14	200.84	197.04	23.8	17.8	27.8	183.04	173.04	177.04
	07/24/14	200.84	197.04	23.83	17.8	27.8	183.04	173.04	177.01
	12/02/14	200.84	197.04	24.75	17.8	27.8	183.04	173.04	176.09
	02/10/15	200.84	197.04	24.00	17.8	27.8	183.04	173.04	176.84

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	
67WW07	05/11/15	200.84	197.04	22.45	17.8	27.8	183.04	173.04	178.39
	11/18/15	200.84	197.04	24.84	17.8	27.8	183.04	173.04	176.00
	05/18/16	200.84	197.04	22.21	17.8	27.8	183.04	173.04	178.63
	11/29/17	200.84	197.04	24.65	17.8	27.8	183.04	173.04	176.19
	05/02/18	200.84	197.04	24.25	17.8	27.8	183.04	173.04	176.59
	10/25/18	200.84	197.04	24.94	17.8	27.8	183.04	173.04	175.90
	05/03/19	200.84	197.04	21.72	17.8	27.8	183.04	173.04	179.12
	10/28/19	200.84	197.04	23.40	17.8	27.8	183.04	173.04	177.44
	11/03/20	200.84	197.04	22.07	17.8	27.8	183.04	173.04	178.77
	11/10/21	200.84	197.04	22.16	17.8	27.8	183.04	173.04	178.68
67WW08	06/03/13	200.02	197.60	24.65	26.02	50.52	174	149.5	175.37
	10/02/13	200.02	197.60	25.57	26.02	50.52	174	149.5	174.45
	01/23/14	200.02	197.60	24.9	26.02	50.52	174	149.5	175.12
	05/07/14	200.02	197.60	23.65	26.02	50.52	174	149.5	176.37
	07/24/14	200.02	197.60	23.41	26.02	50.52	174	149.5	176.61
	12/04/14	200.02	197.60	24.23	26.02	50.52	174	149.5	175.79
	02/11/15	200.02	197.60	23.46	26.02	50.52	174	149.5	176.56
	05/19/15	200.02	197.60	22.25	26.02	50.52	174	149.5	177.77
	11/19/15	200.02	197.60	24.38	26.02	50.52	174	149.5	175.64
	05/19/16	200.02	197.60	22.12	26.02	50.52	174	149.5	177.90
	11/28/17	200.02	197.60	24.00	26.02	50.52	174	149.5	176.02
	05/01/18	200.02	197.60	22.92	26.02	50.52	174	149.5	177.10
	10/23/18	200.02	197.60	24.41	26.02	50.52	174	149.5	175.61
	05/01/19	200.02	197.60	21.67	26.02	50.52	174	149.5	178.35
	10/28/19	200.02	197.60	22.85	26.02	50.52	174	149.5	177.17
	11/03/20	200.02	197.60	21.8	26.02	50.52	174	149.5	178.22
	11/10/21	200.02	197.60	21.50	26.02	50.52	174	149.5	178.52
67WW09	06/01/13	198.21	195.72	22.78	16.99	36.49	181.22	161.72	175.43
	09/28/13	198.21	195.72	23.66	16.99	36.49	181.22	161.72	174.55
	01/24/14	198.21	195.72	22.95	16.99	36.49	181.22	161.72	175.26
	05/06/14	198.21	195.72	21.52	16.99	36.49	181.22	161.72	176.69
	07/25/14	198.21	195.72	21.40	16.99	36.49	181.22	161.72	176.81
	12/04/14	198.21	195.72	22.25	16.99	36.49	181.22	161.72	175.96
	02/11/15	198.21	195.72	21.50	16.99	36.49	181.22	161.72	176.71
	05/19/15	198.21	195.72	20.30	16.99	36.49	181.22	161.72	177.91
	11/18/15	198.21	195.72	22.24	16.99	36.49	181.22	161.72	175.97
	05/18/16	198.21	195.72	20.15	16.99	36.49	181.22	161.72	178.06
	11/27/17	198.21	195.72	22.06	16.99	36.49	181.22	161.72	176.15
	05/02/18	198.21	195.72	20.95	16.99	36.49	181.22	161.72	177.26
	10/23/18	198.21	195.72	22.43	16.99	36.49	181.22	161.72	175.78
	05/03/19	198.21	195.72	19.83	16.99	36.49	181.22	161.72	178.38
	10/24/19	198.21	195.72	20.78	16.99	36.49	181.22	161.72	177.43
	11/03/20	198.21	195.72	19.85	16.99	36.49	181.22	161.72	178.36
	11/10/21	198.21	195.72	19.54	16.99	36.49	181.22	161.72	178.67
67WW09A	09/27/13	202.93	200.4	28.4	23.33	38.03	179.6	164.9	174.53
	01/23/14	202.93	200.4	27.65	23.33	38.03	179.6	164.9	175.28
	05/06/14	202.93	200.4	26.1	23.33	38.03	179.6	164.9	176.83
	07/24/14	202.93	200.4	26.06	23.33	38.03	179.6	164.9	176.87
	12/03/14	202.93	200.4	27.00	23.33	38.03	179.6	164.9	175.93
	02/10/15	202.93	200.4	26.11	23.33	38.03	179.6	164.9	176.82
	05/12/15	202.93	200.4	24.97	23.33	38.03	179.6	164.9	177.96
	11/18/15	202.93	200.4	26.97	23.33	38.03	179.6	164.9	175.96
	05/18/16	202.93	200.4	24.61	23.33	38.03	179.6	164.9	178.32
	11/29/17	202.93	200.4	26.81	23.33	38.03	179.6	164.9	176.12
	05/03/18	202.93	200.4	25.78	23.33	38.03	179.6	164.9	177.15
	10/25/18	202.93	200.4	27.02	23.33	38.03	179.6	164.9	175.91

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	
67WW09A	05/02/19	202.93	200.4	24.35	23.33	38.03	179.6	164.9	178.58
	10/28/19	202.93	200.4	25.5	23.33	38.03	179.6	164.9	177.43
	11/03/20	202.93	200.4	24.72	23.33	38.03	179.6	164.9	178.21
	11/10/21	202.93	200.4	24.33	23.33	38.03	179.6	164.9	178.60
67WW10	06/01/13	201.51	198.8	26.1	22.71	52.21	178.8	149.3	175.41
	09/27/13	201.51	198.8	27.03	22.71	52.21	178.8	149.3	174.48
	01/24/14	201.51	198.8	26.22	22.71	52.21	178.8	149.3	175.29
	05/06/14	201.51	198.8	24.4	22.71	52.21	178.8	149.3	177.11
	07/24/14	201.51	198.8	24.42	22.71	52.21	178.8	149.3	177.09
	12/03/14	201.51	198.8	25.58	22.71	52.21	178.8	149.3	175.93
	02/10/15	201.51	198.8	24.55	22.71	52.21	178.8	149.3	176.96
	05/12/15	201.51	198.8	23.10	22.71	52.21	178.8	149.3	178.41
	11/18/15	201.51	198.8	25.49	22.71	52.21	178.8	149.3	176.02
	05/18/16	201.51	198.8	22.73	22.71	52.21	178.8	149.3	178.78
	11/29/17	201.51	198.8	25.35	22.71	52.21	178.8	149.3	176.16
	05/03/18	201.51	198.8	23.77	22.71	52.21	178.8	149.3	177.74
	10/22/18	201.51	198.8	25.65	22.71	52.21	178.8	149.3	175.86
	05/02/19	201.51	198.8	22.31	22.71	52.21	178.8	149.3	179.20
	10/28/19	201.51	198.8	24.07	22.71	52.21	178.8	149.3	177.44
	11/03/20	201.51	198.8	23.2	22.71	52.21	178.8	149.3	178.31
	11/10/21	201.51	198.8	22.82	22.71	52.21	178.8	149.3	178.69
67WW11	06/01/13	199.64	197.21	24.21	22.93	47.43	176.71	152.21	175.43
	10/02/13	199.64	197.21	25.17	22.93	47.43	176.71	152.21	174.47
	01/23/14	199.64	197.21	24.45	22.93	47.43	176.71	152.21	175.19
	05/06/14	199.64	197.21	22.86	22.93	47.43	176.71	152.21	176.78
	07/24/14	199.64	197.21	23.89	22.93	47.43	176.71	152.21	175.75
	12/04/14	199.64	197.21	23.77	22.93	47.43	176.71	152.21	175.87
	02/11/15	199.64	197.21	23.95	22.93	47.43	176.71	152.21	175.69
	05/19/15	199.64	197.21	21.67	22.93	47.43	176.71	152.21	177.97
	11/19/15	199.64	197.21	23.91	22.93	47.43	176.71	152.21	175.73
	05/19/16	199.64	197.21	22.48	22.93	47.43	176.71	152.21	177.16
	11/27/17	199.64	197.21	23.53	22.93	47.43	176.71	152.21	176.11
	05/02/18	199.64	197.21	22.37	22.93	47.43	176.71	152.21	177.27
	10/23/18	199.64	197.21	23.95	22.93	47.43	176.71	152.21	175.69
	05/01/19	199.64	197.21	21.21	22.93	47.43	176.71	152.21	178.43
	10/24/19	199.64	197.21	22.28	22.93	47.43	176.71	152.21	177.36
	11/03/20	199.64	197.21	21.3	22.93	47.43	176.71	152.21	178.34
	11/10/21	199.64	197.21	21.02	22.93	47.43	176.71	152.21	178.62
67WW12	06/01/13	201.65	199.07	26.46	26.58	36.08	175.07	165.57	175.19
	10/01/13	201.65	199.07	24.4	26.58	36.08	175.07	165.57	177.25
	01/24/14	201.65	199.07	26.8	26.58	36.08	175.07	165.57	174.85
	05/06/14	201.65	199.07	25.43	26.58	36.08	175.07	165.57	176.22
	07/25/14	201.65	199.07	25.30	26.58	36.08	175.07	165.57	176.35
	12/03/14	201.65	199.07	26.12	26.58	36.08	175.07	165.57	175.53
	02/10/15	201.65	199.07	25.35	26.58	36.08	175.07	165.57	176.30
	05/12/15	201.65	199.07	24.50	26.58	36.08	175.07	165.57	177.15
	11/18/15	201.65	199.07	26.16	26.58	36.08	175.07	165.57	175.49
	05/18/16	201.65	199.07	24.16	26.58	36.08	175.07	165.57	177.49
	11/29/17	201.65	199.07	26.03	26.58	36.08	175.07	165.57	175.62
	05/03/18	201.65	199.07	24.85	26.58	36.08	175.07	165.57	176.80
	10/22/18	201.65	199.07	26.30	26.58	36.08	175.07	165.57	175.35
	05/02/19	201.65	199.07	23.85	26.58	36.08	175.07	165.57	177.80
	10/28/19	201.65	199.07	24.87	26.58	36.08	175.07	165.57	176.78
	11/03/20	201.65	199.07	23.85	26.58	36.08	175.07	165.57	177.80
	11/10/21	201.65	199.07	23.45	26.58	36.08	175.07	165.57	178.20

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	
67WW13	05/31/13	197.92	195.85	22.55	12.57	27.07	185.35	170.85	175.37
	10/01/13	197.92	195.85	23.42	12.57	27.07	185.35	170.85	174.50
	01/24/14	197.92	195.85	22.68	12.57	27.07	185.35	170.85	175.24
	05/06/14	197.92	195.85	21.66	12.57	27.07	185.35	170.85	176.26
	07/25/14	197.92	195.85	21.55	12.57	27.07	185.35	170.85	176.37
	12/04/14	197.92	195.85	22.22	12.57	27.07	185.35	170.85	175.70
	02/11/15	197.92	195.85	21.61	12.57	27.07	185.35	170.85	176.31
	05/19/15	197.92	195.85	20.55	12.57	27.07	185.35	170.85	177.37
	11/18/15	197.92	195.85	22.22	12.57	27.07	185.35	170.85	175.70
	05/19/16	197.92	195.85	20.40	12.57	27.07	185.35	170.85	177.52
	11/28/17	197.92	195.85	21.98	12.57	27.07	185.35	170.85	175.94
	05/01/18	197.92	195.85	21.10	12.57	27.07	185.35	170.85	176.82
	10/23/18	197.92	195.85	22.38	12.57	27.07	185.35	170.85	175.54
	05/01/19	197.92	195.85	20.18	12.57	27.07	185.35	170.85	177.74
	10/28/19	197.92	195.85	20.95	12.57	27.07	185.35	170.85	176.97
	11/03/20	197.92	195.85	19.90	12.57	27.07	185.35	170.85	178.02
	11/10/21	197.92	195.85	19.60	12.57	27.07	185.35	170.85	178.32
67WW14	10/01/13	196.96	194.52	21.8	14.44	29.44	182.52	167.52	175.16
	01/24/14	196.96	194.52	21.47	14.44	29.44	182.52	167.52	175.49
	05/07/14	196.96	194.52	20.58	14.44	29.44	182.52	167.52	176.38
	07/25/14	196.96	194.52	20.25	14.44	29.44	182.52	167.52	176.71
	12/03/14	196.96	194.52	20.85	14.44	29.44	182.52	167.52	176.11
	02/10/15	196.96	194.52	20.40	14.44	29.44	182.52	167.52	176.56
	05/12/15	196.96	194.52	19.64	14.44	29.44	182.52	167.52	177.32
	11/18/15	196.96	194.52	20.81	14.44	29.44	182.52	167.52	176.15
	05/18/16	196.96	194.52	19.4	14.44	29.44	182.52	167.52	177.56
	11/27/17	196.96	194.52	20.51	14.44	29.44	182.52	167.52	176.45
	05/02/18	196.96	194.52	19.9	14.44	29.44	182.52	167.52	177.06
	10/22/18	196.96	194.52	20.85	14.44	29.44	182.52	167.52	176.11
	05/02/19	196.96	194.52	18.78	14.44	29.44	182.52	167.52	178.18
	10/24/19	196.96	194.52	19.37	14.44	29.44	182.52	167.52	177.59
	11/03/20	196.96	194.52	18.57	14.44	29.44	182.52	167.52	178.39
	11/10/21	196.96	194.52	17.85	14.44	29.44	182.52	167.52	179.11
67WW15	05/19/16	199.82	197.24	22.18	36.78	46.48	163.04	153.34	177.64
	11/27/17	199.82	197.24	23.85	36.78	46.48	163.04	153.34	175.97
	05/02/18	199.82	197.24	23.00	36.78	46.48	163.04	153.34	176.82
	10/23/18	199.82	197.24	24.23	36.78	46.48	163.04	153.34	175.59
	05/03/19	199.82	197.24	22.04	36.78	46.48	163.04	153.34	177.78
	10/24/19	199.82	197.24	22.72	36.78	46.48	163.04	153.34	177.10
	11/03/20	199.82	197.24	21.71	36.78	46.48	163.04	153.34	178.11
	11/10/21	199.82	197.24	21.40	36.78	46.48	163.04	153.34	178.42
67WW16I	05/18/16	199.51	197.12	21.95	70.09	79.79	129.42	119.72	177.56
	11/29/17	199.51	197.12	24.81	70.09	79.79	129.42	119.72	174.70
	05/03/18	199.51	197.12	22.75	70.09	79.79	129.42	119.72	176.76
	10/25/18	199.51	197.12	24.03	70.09	79.79	129.42	119.72	175.48
	05/01/19	199.51	197.12	21.8	70.09	79.79	129.42	119.72	177.71
	10/24/19	199.51	197.12	22.69	70.09	79.79	129.42	119.72	176.82
	11/03/20	199.51	197.12	21.67	70.09	79.79	129.42	119.72	177.84
	11/10/21	199.51	197.12	21.43	70.09	79.79	129.42	119.72	178.08
67WW17	10/24/19	199.73	196.33	23.65	20.40	30.40	179.33	169.33	176.08
	11/03/20	199.73	196.33	22.48	20.40	30.40	179.33	169.33	177.25
	11/10/21	199.73	196.33	22.23	20.40	30.40	179.33	169.33	177.50
67WW18	10/24/19	198.9	195.29	23.55	32.61	42.61	166.29	156.29	175.35
	11/03/20	198.9	195.29	21.49	32.61	42.61	166.29	156.29	177.41
	11/10/21	198.9	195.29	21.05	32.61	42.61	166.29	156.29	177.85

Table 2-2
Groundwater Elevation Data

Well ID	Sampling Date	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Groundwater Elevation (ft MSL)
					Top	Bottom	Top	Bottom	

Notes:
Elevations are reported as feet above mean sea level (ft MSL).
[a] Screen information calculated from Data Gap Investigation Report (Shaw 2007).
[b] Screen information calculated from well construction detail forms.
[c] Well screen top and bottom depths and elevations for monitoring wells 67WW01, 67WW02, and 67WW03 were revised/confirmed with a downhole camera survey performed in March 2015.
[d] Monitoring wells 67WW01, 67WW02, and 67WW08 were re-surveyed in September 2016 and elevations in the table for these wells are based on the re-survey
[e] Intermediate zone monitoring well
Dry - insufficient or no water in well
ft - feet
ID - identification
MSL - mean sea level
TOC - top of casing

Table 2-3
Groundwater Results, November 2021

		Location Code	67WW01		67WW02		67WW05				67WW07		67WW08		67WW09		67WW09A		67WW10	
		Sample ID	67WW01-211111		67WW02-211110		67WW05-211110-FD		67WW05-211110		67WW07-211110		67WW08-211111		67WW09-211111		67WW09A-211110		67WW10-211110	
		Sample Date	11/11/2021		11/10/2021		11/10/2021		11/10/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/10/2021	
		Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		REG	
Parameter	Units	SDWA MCL-GW	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
FIELD TESTS																				
Dissolved oxygen	mg/L	NV	0.55		0.34				0.3		0.85		0.83		0.5		0.26		0.27	
Ferrous Iron	mg/L	NV											0.28							
Oxidation Reduction Potential	mV	NV	39		108				48		154		174		234		184		201	
pH	SU	NV	6.46		5.89				5.95		5.43		5.73		5.92		5.99		4.89	
Specific conductivity	mS/cm	NV	3.31		4.65				3.11		1.23		6.41		3.47		4.77		5.25	
Temperature	C	NV	18.37		18.21				17.77		19.19		18.27		20.08		21.21		19.67	
Turbidity	NTU	NV	97.7		71				64.1		14.1		13.8		1.4		5.7		78.3	
GASES																				
Carbon dioxide		NV											466,000							
Ethane	µg/L	NV											0.151	J						
Ethylene	µg/L	NV											0.304	J						
Methane	µg/L	NV											1.79	J						
ANIONS																				
Chloride	mg/L	NV											1,660							
Nitrate	mg/L	10											0.318	J						
Sulfate	mg/L	NV											471							
TOTAL ORGANIC CARBON																				
Total organic carbon	mg/L	NV											4.71							
VOLATILES																				
1,1,1,2-Tetrachloroethane	µg/L	110	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	0.6	J	< 1	U	< 1	U	< 1	U	< 1	U	5.5		< 1	U	< 1	U
1,1-Dichloroethane	µg/L	10,000	1.6		5.2		< 0.5	U	< 0.5	U	< 0.5	U	4.4		13		< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	23		100		0.62	J	< 0.5	U	< 0.5	U	18		< 0.5	UJ	< 0.5	U	< 0.5	U
1,1-Dichloropropene	µg/L	3	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,3-Trichloropropane	µg/L	0	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dibromoethane	µg/L	0	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	3		3.2		< 0.5	U	< 0.5	U	< 0.5	U	0.67	J	29		< 0.5	U	< 0.5	U
1,2-Dichloropropane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3-Dichloropropane	µg/L	29	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Hexanone	µg/L	6,100	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U

Table 2-3
Groundwater Results, November 2021

		Location Code	67WW01		67WW02		67WW05				67WW07		67WW08		67WW09		67WW09A		67WW10	
		Sample ID	67WW01-211111		67WW02-211110		67WW05-211110-FD		67WW05-211110		67WW07-211110		67WW08-211111		67WW09-211111		67WW09A-211110		67WW10-211110	
		Sample Date	11/11/2021		11/10/2021		11/10/2021		11/10/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/10/2021	
		Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		REG	
Parameter	Units	SDWA MCL-GW	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
4-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Acetone	µg/L	92,000	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Bromomethane	µg/L	140	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Carbon disulfide	µg/L	10,000	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Carbon tetrachloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chlorobenzene	µg/L	100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chloroethane	µg/L	41,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.4		< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Ethylbenzene	µg/L	700	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Hexachlorobutadiene	µg/L	20	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	1,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U
Naphthalene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
o-Xylene	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
p-Isopropyltoluene	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
sec-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Styrene	µg/L	100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
tert-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Tetrachloroethene	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.4		< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Groundwater Results, November 2021

		Location Code	67WW11		67WW12		67WW13				67WW14		67WW15		67WW16I		67WW17		67WW18	
		Sample ID	67WW11-211111		67WW12-211110		67WW13-211111		67WW13-211111-FD		67WW14-211110		67WW15-211111		67WW16I-211111		67WW17-211110		67WW18-211110	
		Sample Date	11/11/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/10/2021	
		Sample Purpose	REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	SDWA MCL-GW	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
FIELD TESTS																				
Dissolved oxygen	mg/L	NV	0.76		1.35		0.67				0.58		0.69		0.77		0.25		0.63	
Ferrous Iron	mg/L	NV					0													
Oxidation Reduction Potential	mV	NV	172		244		196				28		263		92		184		174	
pH	SU	NV	6.19		5.23		6.07				6.09		5.43		5.61		5.94		5.73	
Specific conductivity	mS/cm	NV	4.68		3.42		4.83				1.82		1.89		1.27		3.29		1.1	
Temperature	C	NV	18.48		18.82		18.03				15.58		19.31		17.81		18.72		18.79	
Turbidity	NTU	NV	2.1		2.1		1.2				9		4.4		33.7		28.4		4.4	
GASES																				
Carbon dioxide		NV					637,000		657,000											
Ethane	µg/L	NV					0.794	J	0.293	J										
Ethylene	µg/L	NV					1.02	J	< 0.5	UJ										
Methane	µg/L	NV					2.29		1.72											
ANIONS																				
Chloride	mg/L	NV					1200		1210											
Nitrate	mg/L	10					0.32	J	0.31	J										
Sulfate	mg/L	NV					268		261											
TOTAL ORGANIC CARBON																				
Total organic carbon	mg/L	NV					4		4.61											
VOLATILES																				
1,1,1,2-Tetrachloroethane	µg/L	110	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	UJ	5.9	J	< 1	U	5.7		< 1	U	< 1	U	< 1	U
1,1-Dichloroethane	µg/L	10,000	0.57	J	< 0.5	U	< 0.5	UJ	32	J	0.89	J	31		< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	6.5		< 0.5	UJ	410	J	3		420		< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloropropene	µg/L	3	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,3-Trichloropropane	µg/L	0	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dibromoethane	µg/L	0	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	UJ	43	J	0.58	J	43		< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloropropane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,3-Dichloropropane	µg/L	29	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Hexanone	µg/L	6,100	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U

Table 2-3
Groundwater Results, November 2021

		Location Code	67WW11		67WW12		67WW13				67WW14		67WW15		67WW16I		67WW17		67WW18	
		Sample ID	67WW11-211111		67WW12-211110		67WW13-211111		67WW13-211111-FD		67WW14-211110		67WW15-211111		67WW16I-211111		67WW17-211110		67WW18-211110	
		Sample Date	11/11/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/11/2021		11/11/2021		11/10/2021		11/10/2021	
		Sample Purpose	REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	SDWA MCL-GW	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
4-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Acetone	µg/L	92,000	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Bromomethane	µg/L	140	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Carbon disulfide	µg/L	10,000	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Carbon tetrachloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chlorobenzene	µg/L	100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chloroethane	µg/L	41,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	UJ	1.6	J	< 0.5	U	1.6		< 0.5	U	< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Ethylbenzene	µg/L	700	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Hexachlorobutadiene	µg/L	20	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	1,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Methylene chloride	µg/L	5	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 2	U	< 1	U
Naphthalene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
o-Xylene	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
p-Isopropyltoluene	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
sec-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Styrene	µg/L	100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
tert-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Tetrachloroethene	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	UJ	2.4	J	< 0.5	U	2.2		< 0.5	U	< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

µS/cm - microsiemens per centimeter

°C - degrees Celsius

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

cells/mL - cells per milliliter

CEQ/mL - cell equivalence per milliliter

FD - field duplicate

GW-Ind - groundwater medium-specific concentration for industrial use

ID - identifier

MCL - maximum contaminant level

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

mV - millivolts

NTU - nephelometric turbidity unit

NV - no value established

REG - regular sample

SU - standard unit

Val Qual - validation qualifier

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01																									
		Sample ID	67WW01-130430		67WW01-050113		67WW01-130531		67WW01-053113		67WW01-130927		67WW01-140123		67WW01-050714		67WW01-140507		67WW01-140725		67WW01-072514		67WW01-141203		67WW01-120314		67WW01-150210	
		Sample Date	4/30/2013		5/1/2013		5/31/2013		5/31/2013		9/27/2013		1/23/2014		5/7/2014		5/7/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV													981													
Nitrate	mg/L	10													< 1	U												
Nitrite	mg/L	1													< 1	U												
Sulfate	mg/L	NV													167													
Sulfide	mg/L	NV													< 1	U												
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV													23.4													
Total Organic Carbon	mg/L	NV													5.25													
DHC																												
BVC	cells/mL	NV													0.5	U												
Dehalococcoides	cells/mL	NV													4.7													
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.74				3.41		3.41		-	-	-	-	3.57		3.57		3.57		3.57		3.69		3.69		3.36	
Dissolved oxygen	mg/L	NV	2.33				8.62		8.62		-	-	-	-	8.81		8.81		8.79		8.79		-	-			-	-
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	0				15		15		-	-	-	-	85		85		107		107		-13		-13		-101	
pH	SU	NV	5.57				5.84		5.84		-	-	-	-	5.52		5.52		5.91		5.91		6.15		6.15		6.92	
Temperature	C	NV	19.98				28		28			-		-	19.77		19.77		21.9		21.9		17.6		17.6		18.85	
Total Purge	L	NV																										
Turbidity	NTU	NV	116				69.6		69.6		-	-	-	-	36.6		36.6		33		33		23.3		23.3		194	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV													< 2	U												
Ethylene	µg/L	NV													< 2	U												
Methane	µg/L	NV													33.5													
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV													5.69													
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26			4.15																							
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5							< 1	U					< 0.5	U					0.29	J			0.483	J		
1,1-Dichloroethane	µg/L	10,000							6.37						11						9.2				14.9			
1,1-Dichloroethene	µg/L	7							139						257						224				349			
1,1-Dichloropropene	µg/L	3							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310							< 1	U					< 0.3	U					< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04							< 2	U					< 1	U					< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2							< 5	U					< 2	U					< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5							6.68						12.2						10.7				16.6			
1,2-Dichloropropane	µg/L	5							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01																									
		Sample ID	67WW01-130430		67WW01-050113		67WW01-130531		67WW01-053113		67WW01-130927		67WW01-140123		67WW01-050714		67WW01-140507		67WW01-140725		67WW01-072514		67WW01-141203		67WW01-120314		67WW01-150210	
		Sample Date	4/30/2013		5/1/2013		5/31/2013		5/31/2013		9/27/2013		1/23/2014		5/7/2014		5/7/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000							< 10	U					< 5	U					< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100							< 10	U					< 5	U					< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000							< 10	U					< 5	U					< 5	U			< 5	U		
Benzene	µg/L	5							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Bromoform	µg/L	36							< 2	U					< 1	U					< 1	U			< 1	U		
Bromomethane	µg/L	140							< 2	U					< 1	U					< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000							< 2	U					< 1	U					< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000							< 2	U					< 1	U					< 1	U			< 1	U		
Chloroform	µg/L	1,000							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220							< 2	U					< 1	U					< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70							1.12						1.29						1.02				1.26			
cis-1,3-Dichloropropene	µg/L	5							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000							< 2	U					< 1	U					< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200							< 10	U					< 5	U					< 5	U			< 5	U		
Methylene chloride	µg/L	5							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000							< 1	U					< 0.4	U					< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Styrene	µg/L	100							< 1	U					< 0.25	U					< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000							< 1	U					< 0.5	U					0.473	J			0.398	J		
trans-1,2-Dichloroethene	µg/L	100							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29							< 2	U					< 1	U					< 1	U			< 1	U		
Trichloroethene	µg/L	5							2.96						3						2.3				3.36			
Trichlorofluoromethane	µg/L	31,000							< 1	U					< 0.5	U					< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2							2.18						2.15						1.16				2.16			

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01																									
		Sample ID	67WW01-021015		67WW01-150519		67WW01-051915		67WW01-151119		67WW01-111915		67WW01-151215		67WW01-160329		67WW01-032916		67WW01-160519		67WW01-051916		67WW01-112817		67WW01-180503		67WW01-181025	
		Sample Date	2/10/2015		5/19/2015		5/19/2015		11/19/2015		11/19/2015		12/15/2015		3/29/2016		3/29/2016		5/19/2016		5/19/2016		11/28/2017		5/3/2018		10/25/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV					988																					
Nitrate	mg/L	10					< 1	U																				
Nitrite	mg/L	1					2.02																					
Sulfate	mg/L	NV					143																					
Sulfide	mg/L	NV					< 1	U																				
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV					42.6																					
Total Organic Carbon	mg/L	NV					12.7																					
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.36		3.2		3.2		3.95		3.95			-	3.8		3.8		3.9		3.9		3.77		3.37			
Dissolved oxygen	mg/L	NV			-	-			-	-			-	-	-	-			-	-			6.95		9.14			
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																							0			
Measured well depth	Ft BTOC	NV																					27		27		27	
Oxidation Reduction Potential	mV	NV	-101		-52		-52		-	-			-	-	-	-			-	-			19		73			
pH	SU	NV	6.92		7.11		7.11		6.19		6.19		-	-	5.57		5.57		6.28		6.28		6.47		6.61			
Temperature	C	NV	18.85		21.65		21.65		16.27		16.27		-	-	15.38		15.38		17.86		17.86		17.22		19.98			
Total Purge	L	NV																							0			
Turbidity	NTU	NV	194		161		161		284		284		-	-	50.2		50.2		26.2		26.2		184		67.6			
Water Level at Reading Time	Ft BTOC	NV																					25.99		24			
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV					< 2	U																				
Ethylene	µg/L	NV					< 2	U																				
Methane	µg/L	NV					20																					
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV					0.0539																					
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																					17					
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																					< 1	U	< 0.5	U		
1,1,2-Trichloroethane	µg/L	5	1.44				1.72	J			2.14	J					2.67				1.62	J	< 1	U	1.2			
1,1-Dichloroethane	µg/L	10,000	23.7				23.5				26.2						38.5				27.6		22		15			
1,1-Dichloroethene	µg/L	7	544				631				694						728				714		250		450			
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.75	U			< 0.75	U					< 0.3	U			< 1.5	U	< 1	U	< 0.5	U		
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 5	U			< 5	U					< 2	U			< 10	U	< 1	U	< 0.5	U		
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
1,2-Dichloroethane	µg/L	5	28.7				31.4				38.6						52.6				43.3		28		22			
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01																									
		Sample ID	67WW01-021015		67WW01-150519		67WW01-051915		67WW01-151119		67WW01-111915		67WW01-151215		67WW01-160329		67WW01-032916		67WW01-160519		67WW01-051916		67WW01-112817		67WW01-180503		67WW01-181025	
		Sample Date	2/10/2015		5/19/2015		5/19/2015		11/19/2015		11/19/2015		12/15/2015		3/29/2016		3/29/2016		5/19/2016		5/19/2016		11/28/2017		5/3/2018		10/25/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
2,2-Dichloropropane	µg/L	42	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
2-Butanone	µg/L	61,000	< 5	U			< 12.5	U			< 12.5	U					< 5	U			< 25	U	< 2	U	< 1	U		
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.626	UJ			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
2-Hexanone	µg/L	6,100	< 5	U			< 12.5	U			< 12.5	U					< 5	U			< 25	U	< 2	U	< 1	U		
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Acetone	µg/L	92,000	< 5	U			< 12.5	U			< 12.5	U					< 5	U			< 25	U	< 2	U	< 1	U		
Benzene	µg/L	5	< 0.25	U			< 0.626	U			< 0.626	U					0.168	J			< 1.25	U	< 1	U	< 0.5	U		
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
Bromochloromethane	µg/L	4,100	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
Bromodichloromethane	µg/L	5	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Bromoform	µg/L	36	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
Bromomethane	µg/L	140	< 1	UJ			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
Carbon disulfide	µg/L	10,000	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 2	U	< 1	U		
Carbon tetrachloride	µg/L	5	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Chlorobenzene	µg/L	100	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
Chloroethane	µg/L	41,000	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
Chloroform	µg/L	1,000	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
Chloromethane	µg/L	220	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
cis-1,2-Dichloroethene	µg/L	70	1.82				1.54	J			1.6	J					2.16				1.47	J	1.3		0.95	J		
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Dibromochloromethane	µg/L	34	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Dibromomethane	µg/L	380	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	UJ			< 2.5	U	< 1	U	< 0.5	U		
Ethylbenzene	µg/L	700	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	UJ	< 1	U	< 0.5	U		
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
m,p-Xylenes	µg/L	10,000	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 2	U	< 1	U		
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 12.5	U			< 12.5	U					< 5	U			< 25	U	< 2	U	< 1	U		
Methylene chloride	µg/L	5	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 2	U	< 1	U		
Naphthalene	µg/L	2,000	< 0.4	U			< 1	U			< 1	U					< 0.4	U			< 2	U	< 1	U	< 0.5	U		
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
o-Xylene	µg/L	10,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Styrene	µg/L	100	< 0.25	U			< 0.626	U			< 0.626	U					< 0.25	U			< 1.25	U	< 1	U	< 0.5	U		
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Tetrachloroethene	µg/L	5	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Toluene	µg/L	1,000	0.287	J			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 2.5	U			< 2.5	U					< 1	U			< 5	U	< 1	U	< 0.5	U		
Trichloroethene	µg/L	5	4.07				3.03				2.84						4				3.28	J	2.1		1.7			
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 1.25	U			< 1.25	U					< 0.5	U			< 2.5	U	< 1	U	< 0.5	U		
Vinyl chloride	µg/L	2	2.38				1.86	J			2.38	J					3.64				2.98	J	< 1	U	1.4			

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01								67WW02																	
		Sample ID	67WW01-190503		67WW01-191024		67WW01-201103		67WW01-211111		67WW02-130502		67WW02-050213		67WW02-130531		67WW02-053113		67WW02-130927		67WW02-092713		67WW02-140123		67WW02-012314		67WW02-140506	
		Sample Date	5/3/2019		10/24/2019		11/3/2020		11/11/2021		5/2/2013		5/2/2013		5/31/2013		5/31/2013		9/27/2013		9/27/2013		1/23/2014		1/23/2014		5/6/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.67		4.39		4.44		3.31		3.25		3.25		3.02		3.02		2.94		2.94		3.04		3.04		3	
Dissolved oxygen	mg/L	NV	0.46		0.43		0.1		0.55		3.4		3.4		8.68		8.68		10.06		10.06		5.81		5.81		6.54	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV	100		100		100																					
Measured well depth	Ft BTOC	NV	27.03		26.94																							
Oxidation Reduction Potential	mV	NV	202		99		55		39		92		92		-8		-8		73		73		-65		-65		47	
pH	SU	NV	6.17		5.99		6.23		6.46		5.72		5.72		6.57		6.57		6.69		6.69		6.78		6.78		5.62	
Temperature	C	NV	19.81		21.04		17.90		18.37		20.58		20.58		27.07		27.07		25.23		25.23		16.2		16.2		21.01	
Total Purge	L	NV	3		3.0		3																					
Turbidity	NTU	NV	100		57.3		168		97.7		78.4		78.4		51.4		51.4		21		21		49.7		49.7		106	
Water Level at Reading Time	Ft BTOC	NV	23.23		24.01		25.02																					
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26											1.7	J														
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	UJ			< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U																		
1,1,2-Trichloroethane	µg/L	5	1.4		0.53	J	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000	12		3.4		2.6		1.6								0.507	J			0.508	J			0.406	J		
1,1-Dichloroethene	µg/L	7	280		70		49		23								< 2	U			< 1	U			< 1	U		
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U							< 1	U			< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 2	U			< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 5	U			< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5	21		7.6		6.1		3								< 1	U			< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW01								67WW02																	
		Sample ID	67WW01-190503		67WW01-191024		67WW01-201103		67WW01-211111		67WW02-130502		67WW02-050213		67WW02-130531		67WW02-053113		67WW02-130927		67WW02-092713		67WW02-140123		67WW02-012314		67WW02-140506	
		Sample Date	5/3/2019		10/24/2019		11/3/2020		11/11/2021		5/2/2013		5/2/2013		5/31/2013		5/31/2013		9/27/2013		9/27/2013		1/23/2014		1/23/2014		5/6/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ							< 1	U			< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U							< 10	U			< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100	< 1	U	< 1	U	< 2	U	< 2	U							< 10	U			< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000	< 1	U	< 1	U	< 1	U	< 2	U							< 10	U			< 5	U			< 5	U		
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 2	U			< 1	U			< 1	U		
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 2	UJ			< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 2	U							< 2	U			< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 2	U			< 1	U			< 1	U		
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 2	UJ			< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70	0.86	J	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20	< 1	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U							< 2	U			< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200	< 1	U	< 1	U	< 2	U	< 2	U							< 10	U			< 5	U			< 5	U		
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U							< 1	U			< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U							< 1	U			< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U							< 2	U			< 1	U			< 1	U		
Trichloroethene	µg/L	5	1.3		0.53	J	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U							< 1	U			< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2	0.92	J	< 0.5	U	< 0.5	U	< 0.5	U							< 1	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW02																									
		Sample ID	67WW02-050614		67WW02-140724		67WW02-072414		67WW02-141203		67WW02-120314		67WW02-150210		67WW02-021015		67WW02-150511		67WW02-051215		67WW02FD-051215		67WW02-151119		67WW02-111915		67WW02-151215	
		Sample Date	5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/11/2015		5/12/2015		5/12/2015		11/19/2015		11/19/2015		12/15/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3		2.94		2.94		3.07		3.07		2.92		2.92		3.03						3.33		3.33		3.43	
Dissolved oxygen	mg/L	NV	6.54		8.83		8.83		-	-			-	-			-	-					-	-			0.29	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	47		192		192		61		61		-30		-30		52						-	-			119	
pH	SU	NV	5.62		7.02		7.02		6.27		6.27		7.25		7.25		6.57						6.29		6.29		6.42	
Temperature	C	NV	21.01		22.38		22.38		19		19		19.49		19.49		19.34						17.57		17.57		20.93	
Total Purge	L	NV																										
Turbidity	NTU	NV	106		11.6		11.6		19.3		19.3		8.9		8.9		23						49.3		49.3		12.3	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																									2.75	
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000	0.44	J			0.335	J			0.406	J			0.592	J			0.883	J	0.873	J			0.302	J		
1,1-Dichloroethene	µg/L	7	< 1	U			< 1	U			< 1	U			3.59				13.2		13				0.857	J		
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 2	U			< 2	U			< 2	U			< 2	U	< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW02																									
		Sample ID	67WW02-050614		67WW02-140724		67WW02-072414		67WW02-141203		67WW02-120314		67WW02-150210		67WW02-021015		67WW02-150511		67WW02-051215		67WW02FD-051215		67WW02-151119		67WW02-111915		67WW02-151215	
		Sample Date	5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/11/2015		5/12/2015		5/12/2015		11/19/2015		11/19/2015		12/15/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42	< 0.5	UJ			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000	< 5	U			< 5	U			< 5	U			< 5	U			< 5	UJ	< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100	< 5	U			< 5	U			< 5	U			< 5	U			< 5	UJ	< 5	UJ			< 5	U		
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000	< 5	U			< 5	U			< 5	U			< 5	U			< 5	U	< 5	U			< 5	U		
Benzene	µg/L	5	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Bromoform	µg/L	36	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
Bromomethane	µg/L	140	< 1	U			< 1	U			< 1	U			< 1	UJ			< 1	U	< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
Chloroform	µg/L	1,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 5	U			< 5	U			< 5	U			< 5	UJ	< 5	UJ			< 5	U		
Methylene chloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Styrene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U	< 1	U			< 1	U		
Trichloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW02																						67WW03			
		Sample ID	67WW02-160519		67WW02FD-051916		67WW02-051916		67WW02-112817		67WW02-180503		67WW02-180503FD		67WW02-181025		67WW02-190501		67WW02-191024		67WW02-201102		67WW02-211110		67WW03-130927		67WW03-140123	
		Sample Date	5/19/2016		5/19/2016		5/19/2016		11/28/2017		5/3/2018		5/3/2018		10/25/2018		5/1/2019		10/24/2019		11/2/2020		11/10/2021		9/27/2013		1/23/2014	
		Sample Purpose	REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.8				3.8		4.26		3.87				4		4.03		4.12		4.42		4.65			-	-	-
Dissolved oxygen	mg/L	NV	-	-					7.82		8.6				1.27		0.27		0.36		0.17		0.34		-	-	-	-
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV									0				100		100		100		100							
Measured well depth	Ft BTOC	NV							27.78		27.88				27.92		27.8		27.75									
Oxidation Reduction Potential	mV	NV	-	-					90		155				129		73		125		51		108		-	-	-	-
pH	SU	NV	6.08				6.08		6.12		6.37				6.50		5.74		6.26		6.68		5.89		-	-	-	-
Temperature	C	NV	18.37				18.37		15.93		20.69				19.04		24.0		22.60		20.0		18.21		-	-		-
Total Purge	L	NV									0				3		3.0		3		3.0							
Turbidity	NTU	NV	10.6				10.6		20.9		14.3				1.1		0		8.7		20.2		71		-	-	-	-
Water Level at Reading Time	Ft BTOC	NV							23.97		24.15				24.6		22.67		23.22		22.19							
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26							0.26																			
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,1,1-Trichloroethane	µg/L	200			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000							< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,1,2-Trichloroethane	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	1.2		< 0.5	U	1		0.6	J				
1,1-Dichloroethane	µg/L	10,000			3.25		3.27		< 1	U	7.8		7.7		< 0.5	U	8.4		1.7		7.6		5.2					
1,1-Dichloroethene	µg/L	7			66.3		67.6		< 1	U	190		190		6.9		180		34		220		100					
1,1-Dichloropropene	µg/L	3			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U	< 0.3	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,2,3-Trichloropropane	µg/L	0.04			< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U	< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,2-Dibromoethane	µg/L	0.1			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
1,2-Dichlorobenzene	µg/L	600			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,2-Dichloroethane	µg/L	5			0.321	J	0.377	J	< 1	U	2		1.9		< 0.5	U	4.7		< 0.5	U	5.5		3.2					
1,2-Dichloropropane	µg/L	5			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW02																						67WW03			
		Sample ID	67WW02-160519		67WW02FD-051916		67WW02-051916		67WW02-112817		67WW02-180503		67WW02-180503FD		67WW02-181025		67WW02-190501		67WW02-191024		67WW02-201102		67WW02-211110		67WW03-130927		67WW03-140123	
		Sample Date	5/19/2016		5/19/2016		5/19/2016		11/28/2017		5/3/2018		5/3/2018		10/25/2018		5/1/2019		10/24/2019		11/2/2020		11/10/2021		9/27/2013		1/23/2014	
		Sample Purpose	REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
1,4-Dichlorobenzene	µg/L	75			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
2,2-Dichloropropane	µg/L	42			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
2-Butanone	µg/L	61,000			< 5	U	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U				
2-Chlorotoluene	µg/L	2,000			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
2-Hexanone	µg/L	6,100			< 5	U	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U				
4-Chlorotoluene	µg/L	2,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
Acetone	µg/L	92,000			< 5	U	< 5	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U				
Benzene	µg/L	5			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Bromobenzene	µg/L	2,000			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
Bromochloromethane	µg/L	4,100			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Bromodichloromethane	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Bromoform	µg/L	36			< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Bromomethane	µg/L	140			< 1	UJ	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Carbon disulfide	µg/L	10,000			< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U				
Carbon tetrachloride	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Chlorobenzene	µg/L	100			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Chloroethane	µg/L	41,000			< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Chloroform	µg/L	1,000			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Chloromethane	µg/L	220			< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Dibromochloromethane	µg/L	34			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Dibromomethane	µg/L	380			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Ethylbenzene	µg/L	700			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Hexachlorobutadiene	µg/L	20			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U				
Isopropylbenzene	µg/L	10,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
m,p-Xylenes	µg/L	10,000			< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U				
Methyl isobutyl ketone	µg/L	8,200			< 5	U	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U				
Methylene chloride	µg/L	5			< 0.5	U	< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U				
Naphthalene	µg/L	2,000			< 0.4	U	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
n-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
n-Propylbenzene	µg/L	4,100			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
o-Xylene	µg/L	10,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
p-Isopropyltoluene	µg/L	10,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
sec-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Styrene	µg/L	100			< 0.25	U	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
tert-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Tetrachloroethene	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Toluene	µg/L	1,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
trans-1,3-Dichloropropene	µg/L	29			< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				
Trichloroethene	µg/L	5			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	0.87	J	< 0.5	U	0.83	J	< 0.5	U				
Trichlorofluoromethane	µg/L	31,000			< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U				
Vinyl chloride	µg/L	2			0.273	J	0.285	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW03																									
		Sample ID	67WW03-140506		67WW03-140723		67WW03-141202		67WW03-150210		67WW03-150511		67WW03-051215		67WW03-151118		67WW03-151215		67WW03-160329		67WW03-032916		67WW03-160519		67WW03-051916		67WW03-180502	
		Sample Date	5/6/2014		7/23/2014		12/2/2014		2/10/2015		5/11/2015		5/12/2015		11/18/2015		12/15/2015		3/29/2016		3/29/2016		5/19/2016		5/19/2016		5/2/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV		-	-	-		-		-	4.56				-	-		-	5.5				5.22					
Dissolved oxygen	mg/L	NV	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-			-	-				
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																									24.9	
Oxidation Reduction Potential	mV	NV	-	-	-	-	-	-	-	-	40				-	-	-	-	-	-			-	-				
pH	SU	NV	-	-	-	-	-	-	-	-	6.12				-	-	-	-	4.41				6.26					
Temperature	C	NV	-	-	-	-	-	-		-	18.52				-	-		-	13.21				17.89					
Total Purge	L	NV																										
Turbidity	NTU	NV	-	-	-	-	-	-	-	-	200				-	-	-	-	28.9				9.1					
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110											< 0.5	U							< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200											< 0.5	U							< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14											< 0.4	U							< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000											< 0.25	U							< 0.25	U			< 0.25	U		
1,1-Dichloroethene	µg/L	7											< 1	U							< 1	U			< 1	U		
1,1-Dichloropropene	µg/L	3											< 0.5	U							< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310											< 0.3	U							< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04											< 1	U							< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70											< 0.4	U							< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100											< 0.5	U							< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2											< 2	U							< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1											< 0.5	U							< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600											< 0.25	U							< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5											< 0.4	U							< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100											< 0.5	U							< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100											< 0.5	U							< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW03																									
		Sample ID	67WW03-140506		67WW03-140723		67WW03-141202		67WW03-150210		67WW03-150511		67WW03-051215		67WW03-151118		67WW03-151215		67WW03-160329		67WW03-032916		67WW03-160519		67WW03-051916		67WW03-180502	
		Sample Date	5/6/2014		7/23/2014		12/2/2014		2/10/2015		5/11/2015		5/12/2015		11/18/2015		12/15/2015		3/29/2016		3/29/2016		5/19/2016		5/19/2016		5/2/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29											< 0.4	U							< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75											< 0.25	U							< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42											< 0.5	U							< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000											< 5	UJ							< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000											< 0.25	U							< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100											< 5	U							< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000											< 0.5	U							< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000											< 5	U							< 5	U			< 5	U		
Benzene	µg/L	5											< 0.25	U							< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000											< 0.25	U							< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100											< 0.4	U							< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Bromoform	µg/L	36											< 1	U							< 1	U			< 1	U		
Bromomethane	µg/L	140											< 1	U							< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000											< 1	U							< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100											< 0.25	U							< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000											< 1	U							< 1	U			< 1	U		
Chloroform	µg/L	1,000											< 0.25	U							< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220											< 1	U							< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70											< 0.5	U							< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34											< 0.5	U							< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380											< 0.5	U							< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000											< 0.5	U							< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700											< 0.5	U							< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20											< 0.5	U							< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000											< 0.5	U							< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000											< 1	U							< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200											< 5	U							< 5	U			< 5	U		
Methylene chloride	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000											< 0.4	U							< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100											< 0.5	U							< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100											< 0.25	U							< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000											< 0.5	U							< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000											0.411	J							0.456	J			< 0.5	U		
sec-Butylbenzene	µg/L	4,100											< 0.5	U							< 0.5	U			< 0.5	U		
Styrene	µg/L	100											< 0.25	U							< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100											< 0.5	U							< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000											< 0.5	U							< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100											< 0.5	U							< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29											< 1	U							< 1	U			< 1	U		
Trichloroethene	µg/L	5											< 0.5	U							< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000											< 0.5	U							< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2											< 0.5	U							< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW03						67WW04																		67WW05	
		Sample ID	67WW03-181025		67WW03-190502		67WW03-191028		67WW04-130927		67WW04-140123		67WW04-140506		67WW04-140725		67WW04-141202		67WW04-150210		67WW04-150511		67WW04-151118		67WW04-160518		67WW05-130531	
		Sample Date	10/25/2018		5/2/2019		10/28/2019		9/27/2013		1/23/2014		5/6/2014		7/25/2014		12/2/2014		2/10/2015		5/11/2015		11/18/2015		5/18/2016		5/31/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV							-	-		-		-	-	-	-	-		-		-	-	-		-	2.66	
Dissolved oxygen	mg/L	NV							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.72	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV	24.95		24.9		24.87																					
Oxidation Reduction Potential	mV	NV							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-15	
pH	SU	NV							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.94	
Temperature	C	NV							-	-	-	-		-		-	-	-		-		-		-	-	-	26.87	
Total Purge	L	NV																										
Turbidity	NTU	NV							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110																										
1,1,1-Trichloroethane	µg/L	200																										
1,1,2,2-Tetrachloroethane	µg/L	14																										
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5																										
1,1-Dichloroethane	µg/L	10,000																										
1,1-Dichloroethene	µg/L	7																										
1,1-Dichloropropene	µg/L	3																										
1,2,3-Trichlorobenzene	µg/L	310																										
1,2,3-Trichloropropane	µg/L	0.04																										
1,2,4-Trichlorobenzene	µg/L	70																										
1,2,4-Trimethylbenzene	µg/L	5,100																										
1,2-Dibromo-3-chloropropane	µg/L	0.2																										
1,2-Dibromoethane	µg/L	0.1																										
1,2-Dichlorobenzene	µg/L	600																										
1,2-Dichloroethane	µg/L	5																										
1,2-Dichloropropane	µg/L	5																										
1,3,5-Trimethylbenzene	µg/L	5,100																										
1,3-Dichlorobenzene	µg/L	3,100																										

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW03						67WW04																		67WW05	
		Sample ID	67WW03-181025		67WW03-190502		67WW03-191028		67WW04-130927		67WW04-140123		67WW04-140506		67WW04-140725		67WW04-141202		67WW04-150210		67WW04-150511		67WW04-151118		67WW04-160518		67WW05-130531	
		Sample Date	10/25/2018		5/2/2019		10/28/2019		9/27/2013		1/23/2014		5/6/2014		7/25/2014		12/2/2014		2/10/2015		5/11/2015		11/18/2015		5/18/2016		5/31/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29																										
1,4-Dichlorobenzene	µg/L	75																										
2,2-Dichloropropane	µg/L	42																										
2-Butanone	µg/L	61,000																										
2-Chlorotoluene	µg/L	2,000																										
2-Hexanone	µg/L	6,100																										
4-Chlorotoluene	µg/L	2,000																										
Acetone	µg/L	92,000																										
Benzene	µg/L	5																										
Bromobenzene	µg/L	2,000																										
Bromochloromethane	µg/L	4,100																										
Bromodichloromethane	µg/L	5																										
Bromoform	µg/L	36																										
Bromomethane	µg/L	140																										
Carbon disulfide	µg/L	10,000																										
Carbon tetrachloride	µg/L	5																										
Chlorobenzene	µg/L	100																										
Chloroethane	µg/L	41,000																										
Chloroform	µg/L	1,000																										
Chloromethane	µg/L	220																										
cis-1,2-Dichloroethene	µg/L	70																										
cis-1,3-Dichloropropene	µg/L	5																										
Dibromochloromethane	µg/L	34																										
Dibromomethane	µg/L	380																										
Dichlorodifluoromethane	µg/L	20,000																										
Ethylbenzene	µg/L	700																										
Hexachlorobutadiene	µg/L	20																										
Isopropylbenzene	µg/L	10,000																										
m,p-Xylenes	µg/L	10,000																										
Methyl isobutyl ketone	µg/L	8,200																										
Methylene chloride	µg/L	5																										
Naphthalene	µg/L	2,000																										
n-Butylbenzene	µg/L	4,100																										
n-Propylbenzene	µg/L	4,100																										
o-Xylene	µg/L	10,000																										
p-Isopropyltoluene	µg/L	10,000																										
sec-Butylbenzene	µg/L	4,100																										
Styrene	µg/L	100																										
tert-Butylbenzene	µg/L	4,100																										
Tetrachloroethene	µg/L	5																										
Toluene	µg/L	1,000																										
trans-1,2-Dichloroethene	µg/L	100																										
trans-1,3-Dichloropropene	µg/L	29																										
Trichloroethene	µg/L	5																										
Trichlorofluoromethane	µg/L	31,000																										
Vinyl chloride	µg/L	2																										

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05																									
		Sample ID	67WW05-053113		67WW05-130928		67WW05-092813		67WW05-140123		67WW05-012314		67WW05-140506		67WW05-050614		67WW05-140724		67WW05-072414		67WW05-141203		67WW05-120314		67WW05-150210		67WW05-021015	
		Sample Date	5/31/2013		9/28/2013		9/28/2013		1/23/2014		1/23/2014		5/6/2014		5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV													697													
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV			2.67				2.75				2.62				2.49				2.61				2.36			
Dissolved oxygen	mg/L	NV			10.02				6.01				7.35				8.31				-	-			-	-		
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV			-72				-34				13				221				34				-10			
pH	SU	NV			6.37				6.57				5.56				6.92				5.7				6.83			
Temperature	C	NV			21.75				15.83				22.15				22.72				18.55				19.82			
Total Purge	L	NV																										
Turbidity	NTU	NV			16.2				9.7				8.1				28.5				24.8				22.7			
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
1,1-Dichloroethene	µg/L	7	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
1,1-Dichloropropene	µg/L	3	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 1	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 5	U			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichloropropane	µg/L	5	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05																									
		Sample ID	67WW05-053113		67WW05-130928		67WW05-092813		67WW05-140123		67WW05-012314		67WW05-140506		67WW05-050614		67WW05-140724		67WW05-072414		67WW05-141203		67WW05-120314		67WW05-150210		67WW05-021015	
		Sample Date	5/31/2013		9/28/2013		9/28/2013		1/23/2014		1/23/2014		5/6/2014		5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 10	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 10	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 10	UJ			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
Benzene	µg/L	5	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Bromomethane	µg/L	140	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	UJ
Carbon disulfide	µg/L	10,000	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Chloroform	µg/L	1,000	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 10	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
Methylene chloride	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 1	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 1	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 2	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Trichloroethene	µg/L	5	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	< 1	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05																									
		Sample ID	67WW05-150511		67WW05-051215		67WW05-151119		67WW05-111915		67WW05-160519		67WW05-051916		67WW05-112817		67WW05-180503		67WW05-181025		67WW05-181025-FD		67WW05-190502		67WW05-191024		67WW05-201102	
		Sample Date	5/11/2015		5/12/2015		11/19/2015		11/19/2015		5/19/2016		5/19/2016		11/28/2017		5/3/2018		10/25/2018		10/25/2018		5/2/2019		10/24/2019		11/2/2020	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	2.43				2.83				2.77				2.75		2.45		2.75				2.65		2.58		3.03	
Dissolved oxygen	mg/L	NV	-	-			-	-			-	-			7.47		9.51		0.11				1.99		0.9		0.58	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV															0		100				100		100		100	
Measured well depth	Ft BTOC	NV													30.13		24.9		30.2				30.13		30.08			
Oxidation Reduction Potential	mV	NV	127				-	-			-	-			133		229		172				247		62		31	
pH	SU	NV	5.74				5.12				5.42				5.26		5.68		5.17				4.11		5.63		6.11	
Temperature	C	NV	19.69				16.33				18.66				16.09		20.63		17.93				20.10		18.35		17.69	
Total Purge	L	NV															0		3.0				3		3		3.0	
Turbidity	NTU	NV	100				129				91.8				301		54		21.3				55.2		48.8		96.1	
Water Level at Reading Time	Ft BTOC	NV													25.6		25.08		26.07				24.68		24.98		23.74	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26													0.53													
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,1-Trichloroethane	µg/L	200			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000													< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,2-Trichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethane	µg/L	10,000			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloropropene	µg/L	3			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U			< 0.3	U			< 0.3	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,3-Trichloropropane	µg/L	0.04			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U			< 2	U			< 2	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromoethane	µg/L	0.1			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2-Dichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloropropane	µg/L	5			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05																									
		Sample ID	67WW05-150511		67WW05-051215		67WW05-151119		67WW05-111915		67WW05-160519		67WW05-051916		67WW05-112817		67WW05-180503		67WW05-181025		67WW05-181025-FD		67WW05-190502		67WW05-191024		67WW05-201102	
		Sample Date	5/11/2015		5/12/2015		11/19/2015		11/19/2015		5/19/2016		5/19/2016		11/28/2017		5/3/2018		10/25/2018		10/25/2018		5/2/2019		10/24/2019		11/2/2020	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,4-Dichlorobenzene	µg/L	75			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
2,2-Dichloropropane	µg/L	42			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000			< 5	U			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Hexanone	µg/L	6,100			< 5	UJ			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
4-Chlorotoluene	µg/L	2,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Acetone	µg/L	92,000			< 5	U			< 5	U			< 5	U	< 2	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U
Benzene	µg/L	5			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Bromochloromethane	µg/L	4,100			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromomethane	µg/L	140			< 1	U			< 1	U			< 1	UJ	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Carbon disulfide	µg/L	10,000			< 1	U			< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Carbon tetrachloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chlorobenzene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroethane	µg/L	41,000			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroform	µg/L	1,000			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromomethane	µg/L	380			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Ethylbenzene	µg/L	700			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Hexachlorobutadiene	µg/L	20			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 1	U
Isopropylbenzene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
m,p-Xylenes	µg/L	10,000			< 1	U			< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200			< 5	UJ			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Methylene chloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000			< 0.4	U			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
n-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
n-Propylbenzene	µg/L	4,100			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
o-Xylene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
p-Isopropyltoluene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
sec-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Styrene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
tert-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Toluene	µg/L	1,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29			< 1	U			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2			< 0.5	U			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05				67WW06																					
		Sample ID	67WW05-211110-FD		67WW05-211110		67WW06-130430		67WW06-043013		67WW06-130531		67WW06-053113		67WW06-053113-FD		67WW06-130928		67WW06-092813		67WW06-140124		67WW06-012414		67WW06-140506		67WW06-140723	
		Sample Date	11/10/2021		11/10/2021		4/30/2013		4/30/2013		5/31/2013		5/31/2013		5/31/2013		9/28/2013		9/28/2013		1/24/2014		1/24/2014		5/6/2014		7/23/2014	
		Sample Purpose	FD		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV			3.11		6.38		6.38		6.37		6.37				6.45		6.45		7.09		7.09		-	-		-
Dissolved oxygen	mg/L	NV			0.3		0		0		1.57		1.57				0.82		0.82		0.8		0.8		-	-	-	-
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV			48		82		82		22		22				13		13		67		67		-	-	-	-
pH	SU	NV			5.95		5.01		5.01		5.27		5.27				5.45		5.45		5.58		5.58		-	-	-	-
Temperature	C	NV			17.77		24.95		24.95		24.28		24.28				20.2		20.2		15.42		15.42			-		-
Total Purge	L	NV																										
Turbidity	NTU	NV			64.1		9.7		9.7		13.4		13.4				5.5		5.5		42.9		42.9		-	-	-	-
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26							< 1	U																		
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,1,2,2-Tetrachloroethane	µg/L	14	< 1	U	< 1	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 1	U	< 1	U																						
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,1-Dichloroethane	µg/L	10,000	< 0.5	U	< 0.5	U							0.212	J	0.193	J			< 0.25	U			0.234	J				
1,1-Dichloroethene	µg/L	7	0.62	J	< 0.5	U							< 2	U	< 2	U			< 1	U			0.752	J				
1,1-Dichloropropene	µg/L	3	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 1	U							< 1	U	< 1	U			< 0.3	U			< 0.3	U				
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U							< 2	U	< 2	U			< 1	U			< 1	U				
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 1	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
1,2,4-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1	U	< 1	U							< 5	U	< 5	U			< 2	U			< 2	U				
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U							2.25		2.2				1.77				2.03					
1,2-Dichloropropane	µg/L	5	< 1	U	< 1	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
1,3,5-Trimethylbenzene	µg/L	5,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW05				67WW06																					
		Sample ID	67WW05-211110-FD		67WW05-211110		67WW06-130430		67WW06-043013		67WW06-130531		67WW06-053113		67WW06-053113-FD		67WW06-130928		67WW06-092813		67WW06-140124		67WW06-012414		67WW06-140506		67WW06-140723	
		Sample Date	11/10/2021		11/10/2021		4/30/2013		4/30/2013		5/31/2013		5/31/2013		5/31/2013		9/28/2013		9/28/2013		1/24/2014		1/24/2014		5/6/2014		7/23/2014	
		Sample Purpose	FD		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 1	U	< 1	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
2-Butanone	µg/L	61,000	< 1	U	< 1	U							< 10	U	< 10	U			< 5	U			< 5	U				
2-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
2-Hexanone	µg/L	6,100	< 2	U	< 2	U							< 10	U	< 10	U			< 5	U			< 5	U				
4-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Acetone	µg/L	92,000	< 2	U	< 2	U							< 10	UJ	< 10	UJ			< 5	U			< 5	U				
Benzene	µg/L	5	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
Bromobenzene	µg/L	2,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Bromoform	µg/L	36	< 1	U	< 1	U							< 2	U	< 2	U			< 1	U			< 1	U				
Bromomethane	µg/L	140	< 1	U	< 1	U							< 2	U	< 2	U			< 1	UJ			< 1	U				
Carbon disulfide	µg/L	10,000	< 2	U	< 2	U							< 2	U	< 2	U			< 1	U			< 1	U				
Carbon tetrachloride	µg/L	5	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Chlorobenzene	µg/L	100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
Chloroethane	µg/L	41,000	< 1	U	< 1	U							< 2	U	< 2	U			< 1	U			< 1	U				
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U							< 2	U	< 2	U			< 1	U			< 1	U				
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Dibromochloromethane	µg/L	34	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Dichlorodifluoromethane	µg/L	20,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Ethylbenzene	µg/L	700	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Hexachlorobutadiene	µg/L	20	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Isopropylbenzene	µg/L	10,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U							< 2	U	< 2	U			< 1	U			< 1	U				
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 2	U							< 10	U	< 10	U			< 5	U			< 5	U				
Methylene chloride	µg/L	5	< 1	U	< 2	U							0.918	J	0.846	J			0.966	J			< 0.5	U				
Naphthalene	µg/L	2,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.4	U			< 0.4	U				
n-Butylbenzene	µg/L	4,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
n-Propylbenzene	µg/L	4,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
o-Xylene	µg/L	10,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
p-Isopropyltoluene	µg/L	10,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
sec-Butylbenzene	µg/L	4,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Styrene	µg/L	100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.25	U			< 0.25	U				
tert-Butylbenzene	µg/L	4,100	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Tetrachloroethene	µg/L	5	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U							< 2	U	< 2	U			< 1	U			< 1	U				
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Trichlorofluoromethane	µg/L	31,000	< 1	U	< 1	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U							< 1	U	< 1	U			< 0.5	U			< 0.5	U				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW06																67WW07									
		Sample ID	67WW06-141202		67WW06-150210		67WW06-150511		67WW06-151118		67WW06-151216		67WW06-161215		67WW06-160518		67WW06-112917		67WW07-130531		67WW07-053113		67WW07-130927		67WW07-092713		67WW07-140123	
		Sample Date	12/2/2014		2/10/2015		5/11/2015		11/18/2015		12/16/2015		12/16/2015		5/18/2016		11/29/2017		5/31/2013		5/31/2013		9/27/2013		9/27/2013		1/23/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV		-	-	-	-	-		-	6.13		6.13		-	-	5.36		3.99				4.13				4.14	
Dissolved oxygen	mg/L	NV	-	-	-	-	-	-	-	-	0		0		-	-	0.1		8.75				10.55				5.96	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV															100											
Measured well depth	Ft BTOC	NV															47.17											
Oxidation Reduction Potential	mV	NV	-	-	-	-	-	-	-	-	56		56		-	-	204		35				0				60	
pH	SU	NV	-	-	-	-	-	-	-	-	5.74		5.74		-	-	5.11		5.52				5.78				5.79	
Temperature	C	NV		-		-	-	-	-	-	19.27		19.27			-	18.57		25.72				25.11				14.63	
Total Purge	L	NV															0.91											
Turbidity	NTU	NV	-	-	-	-	-	-	-	-	36.2		36.2		-	-	150		13.9				9.6				54.4	
Water Level at Reading Time	Ft BTOC	NV															24.87											
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26											< 1	U			1.7											
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110															< 1	U			< 1	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200															< 1	U			< 1	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14															< 1	U			< 1	UJ			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000															< 1	U										
1,1,2-Trichloroethane	µg/L	5															< 1	U			< 1	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000															< 1	U			< 1	U			< 0.25	U		
1,1-Dichloroethene	µg/L	7															< 1	U			< 2	U			< 1	U		
1,1-Dichloropropene	µg/L	3															< 1	U			< 1	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310															< 1	U			< 1	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04															< 1	U			< 2	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70															< 1	U			< 1	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100															< 1	U			< 1	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2															< 1	U			< 5	UJ			< 2	U		
1,2-Dibromoethane	µg/L	0.1															< 1	U			< 1	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600															< 1	U			< 1	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5															1				1.67				1.77			
1,2-Dichloropropane	µg/L	5															< 1	U			< 1	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100															< 1	U			< 1	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100															< 1	U			< 1	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW06																67WW07									
		Sample ID	67WW06-141202		67WW06-150210		67WW06-150511		67WW06-151118		67WW06-151216		67WW06-161215		67WW06-160518		67WW06-112917		67WW07-130531		67WW07-053113		67WW07-130927		67WW07-092713		67WW07-140123	
		Sample Date	12/2/2014		2/10/2015		5/11/2015		11/18/2015		12/16/2015		12/16/2015		5/18/2016		11/29/2017		5/31/2013		5/31/2013		9/27/2013		9/27/2013		1/23/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29															< 1	U			< 1	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75															< 1	U			< 1	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42															< 1	U			< 1	U			< 0.5	U		
2-Butanone	µg/L	61,000															< 2	U			< 10	U			< 5	U		
2-Chlorotoluene	µg/L	2,000															< 1	U			< 1	U			< 0.25	U		
2-Hexanone	µg/L	6,100															< 2	U			< 10	U			< 5	U		
4-Chlorotoluene	µg/L	2,000															< 1	U			< 1	U			< 0.5	U		
Acetone	µg/L	92,000															< 2	U			< 10	U			< 5	U		
Benzene	µg/L	5															< 1	U			< 1	U			< 0.25	U		
Bromobenzene	µg/L	2,000															< 1	U			< 1	U			< 0.25	U		
Bromochloromethane	µg/L	4,100															< 1	U			< 1	U			< 0.4	U		
Bromodichloromethane	µg/L	5															< 1	U			< 1	U			< 0.5	U		
Bromoform	µg/L	36															< 1	U			< 2	U			< 1	U		
Bromomethane	µg/L	140															< 1	U			< 2	UJ			< 1	U		
Carbon disulfide	µg/L	10,000															< 2	U			< 2	U			< 1	U		
Carbon tetrachloride	µg/L	5															< 1	U			< 1	U			< 0.5	U		
Chlorobenzene	µg/L	100															< 1	U			< 1	U			< 0.25	U		
Chloroethane	µg/L	41,000															< 1	U			< 2	U			< 1	U		
Chloroform	µg/L	1,000															< 1	U			< 1	U			< 0.25	U		
Chloromethane	µg/L	220															< 1	U			< 2	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70															< 1	U			< 1	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5															< 1	U			< 1	U			< 0.5	U		
Dibromochloromethane	µg/L	34															< 1	U			< 1	U			< 0.5	U		
Dibromomethane	µg/L	380															< 1	U			< 1	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000															< 1	U			< 1	UJ			< 0.5	U		
Ethylbenzene	µg/L	700															< 1	U			< 1	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20															< 1	U			< 1	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000															< 1	U			< 1	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000															< 2	U			< 2	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200															< 2	U			< 10	U			< 5	U		
Methylene chloride	µg/L	5															< 2	U			< 1	U			< 0.5	U		
Naphthalene	µg/L	2,000															< 1	U			< 1	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100															< 1	U			< 1	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100															< 1	U			< 1	U			< 0.25	U		
o-Xylene	µg/L	10,000															< 1	U			< 1	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000															< 1	U			< 1	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100															< 1	U			< 1	U			< 0.5	U		
Styrene	µg/L	100															< 1	U			< 1	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100															< 1	U			< 1	U			< 0.5	U		
Tetrachloroethene	µg/L	5															< 1	U			< 1	U			< 0.5	U		
Toluene	µg/L	1,000															< 1	U			< 1	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100															< 1	U			< 1	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29															< 1	U			< 2	U			< 1	U		
Trichloroethene	µg/L	5															< 1	U			< 1	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000															< 1	U			< 1	U			< 0.5	U		
Vinyl chloride	µg/L	2															< 1	U			< 1	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW07																									
		Sample ID	67WW07-012314		67WW07-140506		67WW07-050614		67WW07-140725		67WW07-072514		67WW07-141203		67WW07-120314		67WW07-150210		67WW07-021015		67WW07-150511		67WW07-051215		67WW07-151119		67WW07-111915	
		Sample Date	1/23/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/11/2015		5/12/2015		11/19/2015		11/19/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV			3.71				3.99				4.06				3.76				3.61				4.08			
Dissolved oxygen	mg/L	NV			6.12				9.24				-	-			-	-			-	-			-	-		
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV			36				91				51				-18				31				-	-		
pH	SU	NV			5.45				5.58				5.79				6.41				5.98				6.22			
Temperature	C	NV			26.29				21.89				17.46				18.47				18.5				15.55			
Total Purge	L	NV																										
Turbidity	NTU	NV			30.2				8.8				10.7				6.7				35.3				40.8			
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
1,1-Dichloroethene	µg/L	7	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	1.35				1.44				1.39				1.19				1.04				0.817	J			0.601	J
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW07																									
		Sample ID	67WW07-012314		67WW07-140506		67WW07-050614		67WW07-140725		67WW07-072514		67WW07-141203		67WW07-120314		67WW07-150210		67WW07-021015		67WW07-150511		67WW07-051215		67WW07-151119		67WW07-111915	
		Sample Date	1/23/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/11/2015		5/12/2015		11/19/2015		11/19/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U			< 0.5	UJ			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			3.18	Q			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
Benzene	µg/L	5	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Bromomethane	µg/L	140	< 1	U			< 1	U			< 1	U			< 1	U			< 1	UJ			< 1	U			< 1	U
Carbon disulfide	µg/L	10,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Chloroform	µg/L	1,000	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U
Methylene chloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW07																		67WW08							
		Sample ID	67WW07-160519		67WW07-051916		67WW07-112917		67WW07-180503		67WW07-181025		67WW07-190503		67WW07-191028		67WW07-201102		67WW07-211110		67WW08-130603		67WW08-060313		67WW08-131002		67WW08-100213	
		Sample Date	5/19/2016		5/19/2016		11/29/2017		5/3/2018		10/25/2018		5/3/2019		10/28/2019		11/2/2020		11/10/2021		6/3/2013		6/3/2013		10/2/2013		10/2/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																					1,320				1,360	
Nitrate	mg/L	10																					< 20	U			< 2	U
Nitrite	mg/L	1																					< 20	U			< 2	U
Sulfate	mg/L	NV																					300				297	
Sulfide	mg/L	NV																									< 1	U
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																					10.3				28.9	
Total Organic Carbon	mg/L	NV																					3.61				6.32	
DHC																												
BVC	cells/mL	NV																									0.5	U
Dehalococcoides	cells/mL	NV																					1	U			0.5	U
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.96				3.80		3.56		3.80		3.7		2.06		1.72		1.23		4.85		4.85		5.11		5.11	
Dissolved oxygen	mg/L	NV	-	-			8.55		8.73		0.1		0.07		0.08		0.05		0.85		0		0		0.74		0.74	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV							0		100		100		100		100											
Measured well depth	Ft BTOC	NV					27.9		27.85		28		27.88		27.85													
Oxidation Reduction Potential	mV	NV	-	-			264		88		200		249		61		38		154		74		74		-165		-165	
pH	SU	NV	6.04				4.72		6.68		5.01		5.05		6.34		6.37		5.43		6.62		6.62		6.47		6.47	
Temperature	C	NV	17.91				17.74		19.86		17.79		20.26		18.36		19.95		19.19		29.25		29.25		21.82		21.82	
Total Purge	L	NV							0		3.0		3.0		3.0		3											
Turbidity	NTU	NV	10.5				3.2		13.3		65.6		31.4		42.9		0		14.1		7.6		7.6		1.5		1.5	
Water Level at Reading Time	Ft BTOC	NV					24.7		24.25		25.19		21.95		23.63		22.3											
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																					< 5	U			< 2	U
Ethylene	µg/L	NV																					1.29	J			< 2	U
Methane	µg/L	NV																					10.6				< 2	
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																					0.0795				0.161	
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26					0.53																					
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			6.25	R			< 5	U
1,1,1-Trichloroethane	µg/L	200			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 5	U
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000					< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U								
1,1,2-Trichloroethane	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			4.25				5.08	J
1,1-Dichloroethane	µg/L	10,000			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			37.5	R			46.5	
1,1-Dichloroethene	µg/L	7			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			940				1,120	
1,1-Dichloropropene	µg/L	3			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U			< 1	U			< 3	U
1,2,3-Trichloropropane	µg/L	0.04			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 2	U			< 10	U
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			5	R			< 4	U
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			6.25	R			< 5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			25	R			< 20	U
1,2-Dibromoethane	µg/L	0.1			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			6.25	R			< 5	U
1,2-Dichlorobenzene	µg/L	600			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			3.13	R			< 2.5	U
1,2-Dichloroethane	µg/L	5			0.33	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			64.3	R			76.5	
1,2-Dichloropropane	µg/L	5			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 4	U
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW07																		67WW08							
		Sample ID	67WW07-160519		67WW07-051916		67WW07-112917		67WW07-180503		67WW07-181025		67WW07-190503		67WW07-191028		67WW07-201102		67WW07-211110		67WW08-130603		67WW08-060313		67WW08-131002		67WW08-100213	
		Sample Date	5/19/2016		5/19/2016		11/29/2017		5/3/2018		10/25/2018		5/3/2019		10/28/2019		11/2/2020		11/10/2021		6/3/2013		6/3/2013		10/2/2013		10/2/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 4	U
1,4-Dichlorobenzene	µg/L	75			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 2.5	U
2,2-Dichloropropane	µg/L	42			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			6.25	R			< 5	U
2-Butanone	µg/L	61,000			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 10	U			< 50	U
2-Chlorotoluene	µg/L	2,000			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 2.5	U
2-Hexanone	µg/L	6,100			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			62.5	R			< 50	U
4-Chlorotoluene	µg/L	2,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			6.25	R			< 5	U
Acetone	µg/L	92,000			< 5	U	< 2	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U			< 10	U			< 50	U
Benzene	µg/L	5			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			0.194	J			< 2.5	U
Bromobenzene	µg/L	2,000			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			3.13	R			< 2.5	U
Bromochloromethane	µg/L	4,100			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			5	R			< 4	U
Bromodichloromethane	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 5	U
Bromoform	µg/L	36			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			12.5	R			< 10	U
Bromomethane	µg/L	140			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			12.5	R			< 10	U
Carbon disulfide	µg/L	10,000			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			12.5	R			< 10	U
Carbon tetrachloride	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			6.25	R			< 5	U
Chlorobenzene	µg/L	100			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 2.5	U
Chloroethane	µg/L	41,000			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U			< 10	U
Chloroform	µg/L	1,000			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			3.56				< 2.5	UJ
Chloromethane	µg/L	220			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			12.5	R			< 10	U
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			2.18				< 5	U
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 5	U
Dibromochloromethane	µg/L	34			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
Dibromomethane	µg/L	380			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 5	U
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	UJ			< 5	U
Ethylbenzene	µg/L	700			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
Hexachlorobutadiene	µg/L	20			< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 5	U
Isopropylbenzene	µg/L	10,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
m,p-Xylenes	µg/L	10,000			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			12.5	R			< 10	U
Methyl isobutyl ketone	µg/L	8,200			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			62.5	R			< 50	U
Methylene chloride	µg/L	5			< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			6.25	R			< 5	U
Naphthalene	µg/L	2,000			< 0.4	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U			5	R			< 4	U
n-Butylbenzene	µg/L	4,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 5	U
n-Propylbenzene	µg/L	4,100			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 2.5	U
o-Xylene	µg/L	10,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			6.25	R			< 5	U
p-Isopropyltoluene	µg/L	10,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
sec-Butylbenzene	µg/L	4,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
Styrene	µg/L	100			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 2.5	U
tert-Butylbenzene	µg/L	4,100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
Tetrachloroethene	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 5	U
Toluene	µg/L	1,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 5	U
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			6.25	R			< 5	U
trans-1,3-Dichloropropene	µg/L	29			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			12.5	R			< 10	U
Trichloroethene	µg/L	5			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			2.86				< 5	U
Trichlorofluoromethane	µg/L	31,000			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			6.25	R			< 5	U
Vinyl chloride	µg/L	2			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			0.951	J			< 5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08																									
		Sample ID	67WW08-012314		67WW08-140123		67WW08-050714		67WW08-140507		67WW08-072414		67WW08-140724		67WW08-141204		67WW08-120414		67WW08-150211		67WW08-021115		67WW08-150519		67WW08-051915		67WW08-151119	
		Sample Date	1/23/2014		1/23/2014		5/7/2014		5/7/2014		7/24/2014		7/24/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		5/19/2015		5/19/2015		11/19/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV	1,490				1,380				1,340						1,410	H1			1,250				1,750			
Nitrate	mg/L	10	< 2	U			< 2	U			< 1	U					< 2	U			< 4	U			< 2	U		
Nitrite	mg/L	1	< 2	U			< 2	U			< 1	U					2.04	J			< 4	U			3.95	J		
Sulfate	mg/L	NV	303				365				317						302	J			258				524			
Sulfide	mg/L	NV	< 1	U			< 1	U													< 1	U			< 1	U		
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV					80.6				70.9						22.9				160				55.2			
Total Organic Carbon	mg/L	NV	9.95				10.6				7.58						3.68				22.4				8.32			
DHC																												
BVC	cells/mL	NV	0.5	U			0.5	U																				
Dehalococcoides	cells/mL	NV	0.5	U			0.6																					
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	5.08		5.08		5.43		5.43		4.98		4.98		5.07		5.07		4.38		4.38		5.85		5.85		5.06	
Dissolved oxygen	mg/L	NV	0.38		0.38		0.45		0.45		0		0		0		0		0		0		0.66		0.66		0.44	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	-90		-90		-32		-32		-7		-7		-1		-1		45		45		-16		-16		113	
pH	SU	NV	6.8		6.8		5.55		5.55		6.89		6.89		6.42		6.42		6.61		6.61		6.53		6.53		6.13	
Temperature	C	NV	17.22		17.22		19.33		19.33		21.72		21.72		19.14		19.14		18.75		18.75		20.12		20.12		19.15	
Total Purge	L	NV																										
Turbidity	NTU	NV	0.6		0.6		9.7		9.7		6.1		6.1		2.7		2.7		3.7		3.7		67.1		67.1		45.3	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV															89,600											
Ethane	µg/L	NV	< 2	U			< 2	U			< 2	U					< 2	U			< 2	U			< 2	U		
Ethylene	µg/L	NV	< 2	U			< 2	U			< 2	U					< 2	U			< 2	U			< 2	U		
Methane	µg/L	NV	7.79				6.97				6.47						14.4				9.4				5.16			
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV	0.344				0.282				0.227						0.374				0.0907				0.944			
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,1,1-Trichloroethane	µg/L	200	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	6.7				5.01	J			7.74	J					7.36	J			6.96	J			4.5	J		
1,1-Dichloroethane	µg/L	10,000	54.4				57.3				56.7						63.9				61.1				52.1			
1,1-Dichloroethene	µg/L	7	1,340				1,590				1,890						2,320				1,930				1,570			
1,1-Dichloropropene	µg/L	3	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 1.5	U			< 3	U			< 3	U					< 3	U			< 3	U			< 3	U		
1,2,3-Trichloropropane	µg/L	0.04	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
1,2,4-Trichlorobenzene	µg/L	70	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 10	U			< 20	U			< 20	U					< 20	U			< 20	U			< 20	U		
1,2-Dibromoethane	µg/L	0.1	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,2-Dichlorobenzene	µg/L	600	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
1,2-Dichloroethane	µg/L	5	89.9				101				98.9						106				104				85.6			
1,2-Dichloropropane	µg/L	5	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08																									
		Sample ID	67WW08-012314		67WW08-140123		67WW08-050714		67WW08-140507		67WW08-072414		67WW08-140724		67WW08-141204		67WW08-120414		67WW08-150211		67WW08-021115		67WW08-150519		67WW08-051915		67WW08-151119	
		Sample Date	1/23/2014		1/23/2014		5/7/2014		5/7/2014		7/24/2014		7/24/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		5/19/2015		5/19/2015		11/19/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
1,4-Dichlorobenzene	µg/L	75	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
2,2-Dichloropropane	µg/L	42	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
2-Butanone	µg/L	61,000	< 25	U			< 50	U			< 50	U					< 50	U			< 50	U			< 50	U		
2-Chlorotoluene	µg/L	2,000	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
2-Hexanone	µg/L	6,100	< 25	U			< 50	U			< 50	U					< 50	U			< 50	U			< 50	U		
4-Chlorotoluene	µg/L	2,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Acetone	µg/L	92,000	< 25	U			< 50	U			< 50	U					< 50	U			< 50	U			< 50	U		
Benzene	µg/L	5	< 1.25	U			< 2.5	B			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
Bromobenzene	µg/L	2,000	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
Bromochloromethane	µg/L	4,100	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
Bromodichloromethane	µg/L	5	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Bromoform	µg/L	36	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Bromomethane	µg/L	140	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Carbon disulfide	µg/L	10,000	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Carbon tetrachloride	µg/L	5	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Chlorobenzene	µg/L	100	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
Chloroethane	µg/L	41,000	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Chloroform	µg/L	1,000	4.11	J			4.88	J			5.13	J					2.53	J			2.57	J			3.04	J		
Chloromethane	µg/L	220	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
cis-1,2-Dichloroethene	µg/L	70	2.73	J			< 5	U			< 5	U					2.69	J			2.71	J			< 5	U		
cis-1,3-Dichloropropene	µg/L	5	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Dibromochloromethane	µg/L	34	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Dibromomethane	µg/L	380	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Dichlorodifluoromethane	µg/L	20,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Ethylbenzene	µg/L	700	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Hexachlorobutadiene	µg/L	20	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Isopropylbenzene	µg/L	10,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
m,p-Xylenes	µg/L	10,000	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Methyl isobutyl ketone	µg/L	8,200	< 25	U			< 50	U			< 50	U					< 50	U			< 50	U			< 50	U		
Methylene chloride	µg/L	5	< 2.5	U			< 5	U			< 5	U					3.42	J			< 5	U			< 5	U		
Naphthalene	µg/L	2,000	< 2	U			< 4	U			< 4	U					< 4	U			< 4	U			< 4	U		
n-Butylbenzene	µg/L	4,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
n-Propylbenzene	µg/L	4,100	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
o-Xylene	µg/L	10,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
p-Isopropyltoluene	µg/L	10,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
sec-Butylbenzene	µg/L	4,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Styrene	µg/L	100	< 1.25	U			< 2.5	U			< 2.5	U					< 2.5	U			< 2.5	U			< 2.5	U		
tert-Butylbenzene	µg/L	4,100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Tetrachloroethene	µg/L	5	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Toluene	µg/L	1,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
trans-1,2-Dichloroethene	µg/L	100	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
trans-1,3-Dichloropropene	µg/L	29	< 5	U			< 10	U			< 10	U					< 10	U			< 10	U			< 10	U		
Trichloroethene	µg/L	5	3.12	J			4.41	J			3.14	J					3.55	J			3.15	J			< 5	U		
Trichlorofluoromethane	µg/L	31,000	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		
Vinyl chloride	µg/L	2	< 2.5	U			< 5	U			< 5	U					< 5	U			< 5	U			< 5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08																							
		Sample ID	67WW08-111915		67WW08-160519		67WW08-051916		67WW08-112817-FD		67WW08-112817		67WW08-180501		67WW08-181023		67WW08-181023-FD		67WW08-190501		67WW08-191028-FD		67WW08-191028		67WW08-201103-FD	
		Sample Date	11/19/2015		5/19/2016		5/19/2016		11/28/2017		11/28/2017		5/1/2018		10/23/2018		10/23/2018		5/1/2019		10/28/2019		10/28/2019		11/3/2020	
		Sample Purpose	REG		REG		REG		FD		REG		REG		REG		FD		REG		FD		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Chloride	mg/L	NV	1,400				1,510		1,590		1,600		1,530		1,820		1,770		1,680		1,890		1,920		1,810	
Nitrate	mg/L	10	< 2	U			< 2	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.2	U	< 0.2	U	< 0.5	U	< 0.2	U	< 0.2	U	< 0.2	U
Nitrite	mg/L	1	< 2	U			< 2	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.2	U	< 0.2	U								
Sulfate	mg/L	NV	300				365		440		4290		407		499		489		479		513		515		500	
Sulfide	mg/L	NV	< 1	U			< 1	U	1.48	J	1.48	J	< 1.5	U	< 1	U	< 1	U								
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L	NV	103				44.2		140		130		150		55		58									
Total Organic Carbon	mg/L	NV	47.5				65.4		4		3.99		4.14		2.86		3.19		2.09		1.23		1.38	J	1.21	
DHC																										
BVC	cells/mL	NV																								
Dehalococcoides	cells/mL	NV							<	U	<	U	0.2		9.3											
FIELD TESTS																										
Specific conductivity	µmhos/cm	NV	5.06		5.42		5.42				5.83		5.49		6.29				6.28				6.57			
Dissolved oxygen	mg/L	NV	0.44		0.82		0.82				0.26		0		0.08				0.08				0.11			
Ferrous Iron	NA	NV											0.11						0.21				0.41			
Flow Rate	mL/Min	NV									100		100		100				100				100			
Measured well depth	Ft BTOC	NV									52		50.9		52.45				51.95				50.9			
Oxidation Reduction Potential	mV	NV	113		129		129				186		260		150				138				126			
pH	SU	NV	6.13		5.79		5.79				5.88		6.18		6.33				5.82				6.05			
Temperature	C	NV	19.15		18.74		18.74				19.04		22.80		18.14				20.44				18.88			
Total Purge	L	NV									0.78		3.5		3.5				3				3.0			
Turbidity	NTU	NV	45.3		9.3		9.3				21.3		5.1		0				0				0			
Water Level at Reading Time	Ft BTOC	NV									24.17		23.11		24.62				21.9				23.04			
GASES																										
Carbon dioxide	µg/L	NV							240,000		290,000		420,000		130,000		130,000		270,000		110,000		130,000		270,000	
Ethane	µg/L	NV	< 2	U			< 2	U	< 0.23	U	< 0.23	U	< 0.47	U	< 0.94	U	< 0.94	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U
Ethylene	µg/L	NV	< 2	U			< 2	U	< 0.22	U	< 0.22	U	< 0.55	UJ	< 1.1	U	< 1.1	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U
Methane	µg/L	NV	12.1				11.3		1.6	J	2	J	2.1		5.4		5.5		2.5		2.1		2.5		1	J
GENERAL CHEMISTRY																										
Alkalinity	mg/L	NV													220		221									
Ferrous Iron	mg/L	NV	0.0931				0.0585						0.063	J	0.343		0.27									
SEMIVOLATILES																										
1,4-Dioxane	µg/L	26							29	J	22	J														
VOLATILES																										
1,1,1,2-Tetrachloroethane	µg/L	110	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	4.67	J			2.76	J	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethane	µg/L	10,000	48.1				31.9		18		15		14		12		12		7.5		7.6		7.7		7.1	
1,1-Dichloroethene	µg/L	7	1,710				1,130		350		340		300		160		160		110		65		63		44	
1,1-Dichloropropene	µg/L	3	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 3	U			< 3	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 1	U
1,2,3-Trichloropropane	µg/L	0.04	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 20	U			< 20	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromoethane	µg/L	0.1	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2-Dichloroethane	µg/L	5	77.6				56.1		13		13		11		6.5		6.2		5.1		2.4		2.3		1.6	
1,2-Dichloropropane	µg/L	5	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08																							
		Sample ID	67WW08-111915		67WW08-160519		67WW08-051916		67WW08-112817-FD		67WW08-112817		67WW08-180501		67WW08-181023		67WW08-181023-FD		67WW08-190501		67WW08-191028-FD		67WW08-191028		67WW08-201103-FD	
		Sample Date	11/19/2015		5/19/2016		5/19/2016		11/28/2017		11/28/2017		5/1/2018		10/23/2018		10/23/2018		5/1/2019		10/28/2019		10/28/2019		11/3/2020	
		Sample Purpose	REG		REG		REG		FD		REG		REG		REG		FD		REG		FD		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,4-Dichlorobenzene	µg/L	75	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000	< 50	U			< 50	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Hexanone	µg/L	6,100	< 50	U			< 50	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
4-Chlorotoluene	µg/L	2,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Acetone	µg/L	92,000	< 50	U			< 50	U	< 2	U	< 2	U	< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Benzene	µg/L	5	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Bromochloromethane	µg/L	4,100	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromomethane	µg/L	140	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Carbon disulfide	µg/L	10,000	< 10	U			< 10	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Carbon tetrachloride	µg/L	5	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chlorobenzene	µg/L	100	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroethane	µg/L	41,000	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroform	µg/L	1,000	1.61	J			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromomethane	µg/L	380	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Ethylbenzene	µg/L	700	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Hexachlorobutadiene	µg/L	20	< 5	U			< 5	UJ	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U
Isopropylbenzene	µg/L	10,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
m,p-Xylenes	µg/L	10,000	< 10	U			< 10	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 50	U			< 50	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Methylene chloride	µg/L	5	< 5	U			< 5	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000	< 4	U			< 4	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	U
n-Butylbenzene	µg/L	4,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
o-Xylene	µg/L	10,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Styrene	µg/L	100	< 2.5	U			< 2.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
tert-Butylbenzene	µg/L	4,100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Toluene	µg/L	1,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 10	U			< 10	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 5	U			< 5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08				67WW09																					
		Sample ID	67WW08-201103		67WW08-211111		67WW09-130601		67WW10-060113		67WW09-060113		67WW09-130928		67WW09-092813		67WW09-140124		67WW09-012414		67WW09-140506		67WW09-140725		67WW09-072514		67WW09-141204	
		Sample Date	11/3/2020		11/11/2021		6/1/2013		6/1/2013		6/3/2013		9/28/2013		9/28/2013		1/24/2014		1/24/2014		5/6/2014		7/25/2014		7/25/2014		12/4/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV	1,830		1,660																							
Nitrate	mg/L	10	< 0.2	U	0.318	J																						
Nitrite	mg/L	1																										
Sulfate	mg/L	NV	521		471																							
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV	1.17		4.71																							
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	6.74		6.41		3.31		3.31				3.47		3.47		3.39		3.39		-	-	3.42		3.42		3.55	
Dissolved oxygen	mg/L	NV	0.32		0.83		0.52		0.52				0.83		0.83		0.86		0.86		-	-	0.61		0.61		0	
Ferrous Iron	NA	NV	1.06		0.28																							
Flow Rate	mL/Min	NV	100																									
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	62		174		189		189				157		157		136		136		-	-	310		310		166	
pH	SU	NV	5.94		5.73		6.64		6.64				6.31		6.31		6.24		6.24		-	-	5.41		5.41		5.95	
Temperature	C	NV	18.65		18.27		27.95		27.95				22.22		22.22		16.27		16.27		-	-	26.09		26.09		20.48	
Total Purge	L	NV	3.0																									
Turbidity	NTU	NV	0.8		13.8		4.5		4.5				1.7		1.7		0.9		0.9		-	-	4.4		4.4		1.8	
Water Level at Reading Time	Ft BTOC	NV	22.02																									
GASES																												
Carbon dioxide	µg/L	NV	270,000																									
Ethane	µg/L	NV	< 0.47	U	0.151	J																						
Ethylene	µg/L	NV	< 0.55	U	0.304	J																						
Methane	µg/L	NV	1.2	J	1.79	J																						
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 1	U			< 1	UJ	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 1	U			< 1	U	< 1	UJ			< 0.4	U			< 0.4	U					< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 1	U	< 1	U																						
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,1-Dichloroethane	µg/L	10,000	7.3		4.4				0.39	J	3.6				3.97				4.59						3.03			
1,1-Dichloroethene	µg/L	7	50		18				< 2	U	16.1				17.5				20.8						8.93			
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 1	U			< 1	U	< 1	U			< 0.3	U			< 0.3	U					< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 1	U			< 1	U	< 1	U			< 0.4	U			< 0.4	U					< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 1	U			< 5	UJ	< 5	UJ			< 2	U			< 2	UJ					< 2	U		
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
1,2-Dichloroethane	µg/L	5	1.8		0.67	J			< 1	U	< 1	U			0.414	J			0.347	J					< 0.5	U		
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U			< 0.4	U					< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW08				67WW09																					
		Sample ID	67WW08-201103		67WW08-211111		67WW09-130601		67WW10-060113		67WW09-060113		67WW09-130928		67WW09-092813		67WW09-140124		67WW09-012414		67WW09-140506		67WW09-140725		67WW09-072514		67WW09-141204	
		Sample Date	11/3/2020		11/11/2021		6/1/2013		6/1/2013		6/3/2013		9/28/2013		9/28/2013		1/24/2014		1/24/2014		5/6/2014		7/25/2014		7/25/2014		12/4/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U			< 0.4	U					< 0.4	U		
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	UJ			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
2-Butanone	µg/L	61,000	< 1	U	< 1	U			< 10	U	< 10	U			< 5	U			< 5	U					< 5	U		
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
2-Hexanone	µg/L	6,100	< 2	U	< 2	U			< 10	U	< 10	U			< 5	U			< 5	U					< 5	U		
4-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Acetone	µg/L	92,000	< 1	U	< 2	U			< 10	U	< 10	U			< 5	U			< 5	U					< 5	U		
Benzene	µg/L	5	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
Bromobenzene	µg/L	2,000	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.4	U			< 0.4	U					< 0.4	U		
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Bromoform	µg/L	36	< 0.5	U	< 1	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
Bromomethane	µg/L	140	< 0.5	U	< 1	U			< 2	UJ	< 2	UJ			< 1	U			< 1	U					< 1	U		
Carbon disulfide	µg/L	10,000	< 1	U	< 2	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
Carbon tetrachloride	µg/L	5	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Chlorobenzene	µg/L	100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
Chloroethane	µg/L	41,000	< 0.5	U	< 1	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U			< 2	UJ	< 2	U			< 1	U			< 1	U					< 1	U		
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Dibromochloromethane	µg/L	34	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 1	U			< 1	U	< 1	UJ			< 0.5	U			< 0.5	U					< 0.5	U		
Ethylbenzene	µg/L	700	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Hexachlorobutadiene	µg/L	20	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 2	U			< 10	U	< 10	U			< 5	U			< 5	U					< 5	U		
Methylene chloride	µg/L	5	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Naphthalene	µg/L	2,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U			< 0.4	U					< 0.4	U		
n-Butylbenzene	µg/L	4,100	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
o-Xylene	µg/L	10,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Styrene	µg/L	100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U			< 0.25	U					< 0.25	U		
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Tetrachloroethene	µg/L	5	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U			< 2	U	< 2	U			< 1	U			< 1	U					< 1	U		
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U			< 0.5	U					< 0.5	U		
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U			0.472	J					< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09																									
		Sample ID	67WW09-120414		67WW09-150211		67WW09FD-021115		67WW09-021115		67WW09-150519		67WW09-051915		67WW09-151118		67WW09-111815		67WW09FD-111815		67WW09-160518		67WW09-051816		67WW09FD-051816		67WW09-112717	
		Sample Date	12/4/2014		2/11/2015		2/11/2015		2/11/2015		5/19/2015		5/19/2015		11/18/2015		11/18/2015		11/18/2015		5/18/2016		5/18/2016		5/18/2016		11/27/2017	
		Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.55		3.29				3.29		3.35		3.35		3.98		3.98				3.95		3.95				3.65	
Dissolved oxygen	mg/L	NV	0		1.02				1.02		1.13		1.13		0		0				0.6		0.6				0.09	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																									100	
Measured well depth	Ft BTOC	NV																									37.9	
Oxidation Reduction Potential	mV	NV	166		164				164		259		259		224		224				305		305				325	
pH	SU	NV	5.95		6.45				6.45		5.48		5.48		5.63		5.63				5.19		5.19				5.27	
Temperature	C	NV	20.48		18.13				18.13		18.88		18.88		19.88		19.88				18.25		18.25				19.97	
Total Purge	L	NV																									0.78	
Turbidity	NTU	NV	1.8		3.4				3.4		12.5		12.5		0		0				0.8		0.8				31.4	
Water Level at Reading Time	Ft BTOC	NV																									22.29	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																									1.2	
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																									< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethane	µg/L	10,000	3.93				2.92		2.93				1.56				1.08		1.08				0.477	J	0.487	J	< 1	U
1,1-Dichloroethene	µg/L	7	11.6				8.29		8.17				2.71				1.66	J	1.62	J			< 1	U	< 1	U	< 1	U
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U	< 0.3	U	< 1	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 2	U	< 2	U			< 2	U			< 2	U	< 2	U			< 2	U	< 2	U	< 1	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09																									
		Sample ID	67WW09-120414		67WW09-150211		67WW09FD-021115		67WW09-021115		67WW09-150519		67WW09-051915		67WW09-151118		67WW09-111815		67WW09FD-111815		67WW09-160518		67WW09-051816		67WW09FD-051816		67WW09-112717	
		Sample Date	12/4/2014		2/11/2015		2/11/2015		2/11/2015		5/19/2015		5/19/2015		11/18/2015		11/18/2015		11/18/2015		5/18/2016		5/18/2016		5/18/2016		11/27/2017	
		Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
2-Butanone	µg/L	61,000	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U	< 2	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	UJ			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
2-Hexanone	µg/L	6,100	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U	< 2	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Acetone	µg/L	92,000	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U	< 2	U
Benzene	µg/L	5	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
Bromochloromethane	µg/L	4,100	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
Bromodichloromethane	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Bromoform	µg/L	36	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 1	U
Bromomethane	µg/L	140	< 1	U			< 1	UJ	< 1	UJ			< 1	U			< 1	U	< 1	U			< 1	UJ	< 1	UJ	< 1	U
Carbon disulfide	µg/L	10,000	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 2	U
Carbon tetrachloride	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Chlorobenzene	µg/L	100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
Chloroethane	µg/L	41,000	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 1	U
Chloroform	µg/L	1,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
Chloromethane	µg/L	220	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Dibromochloromethane	µg/L	34	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Dibromomethane	µg/L	380	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Ethylbenzene	µg/L	700	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
m,p-Xylenes	µg/L	10,000	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 2	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U	< 2	U
Methylene chloride	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 2	U
Naphthalene	µg/L	2,000	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
o-Xylene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Styrene	µg/L	100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U	< 1	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Tetrachloroethene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Toluene	µg/L	1,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09												67WW09A													
		Sample ID	67WW09-180502		67WW09-181023		67WW09-190503		67WW09-191024		67WW09-201103		67WW09-211111		67WW09A-130927		67WW09A-092713-FD		67WW09A-092713		67WW09A-140123		67WW09A-012314		67WW09A-140506		67WW09A-050614	
		Sample Date	5/2/2018		10/23/2018		5/3/2019		10/24/2019		11/3/2020		11/11/2021		9/27/2013		9/27/2013		9/27/2013		1/23/2014		1/23/2014		5/6/2014		5/6/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.48		3.35		3.49		3.22		3.24		3.47		2.45				2.45		2.49		2.49		2.53		2.53	
Dissolved oxygen	mg/L	NV	0.2		0.1		0.13		0.09		0.42		0.5		1.19				1.19		0.59		0.59		0.46		0.46	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV	100		100		100		100		100																	
Measured well depth	Ft BTOC	NV	37.8		38		37.88		37.8																			
Oxidation Reduction Potential	mV	NV	413		203		250		194		191		234		182				182		18		18		20		20	
pH	SU	NV	5.35		6.23		5.36		6.05		6.17		5.92		5.62				5.62		6.73		6.73		5.55		5.55	
Temperature	C	NV	19.40		18.75		20.04		21.04		17.87		20.08		28.67				28.67		15.63		15.63		19.01		19.01	
Total Purge	L	NV	2.0		3.0		3.0		3		3.0																	
Turbidity	NTU	NV	4.7		0		0		0		0		1.4		21.5				21.5		32.1		32.1		20.7		20.7	
Water Level at Reading Time	Ft BTOC	NV	21.2		22.65		20.06		21.02		20.1																	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	5.5				< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	13				< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ			< 1	U	< 1	U			< 1	U			< 1	U
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U			< 0.3	U	< 0.3	U			< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U	< 2	U			< 2	UJ			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	29				< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09												67WW09A													
		Sample ID	67WW09-180502		67WW09-181023		67WW09-190503		67WW09-191024		67WW09-201103		67WW09-211111		67WW09A-130927		67WW09A-092713-FD		67WW09A-092713		67WW09A-140123		67WW09A-012314		67WW09A-140506		67WW09A-050614	
		Sample Date	5/2/2018		10/23/2018		5/3/2019		10/24/2019		11/3/2020		11/11/2021		9/27/2013		9/27/2013		9/27/2013		1/23/2014		1/23/2014		5/6/2014		5/6/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 5	U	< 5	U			< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 5	U	< 5	U			< 5	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U			< 5	U	< 5	U			< 5	U			< 5	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 1	U	< 1	U			< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.4				< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 5	U	< 5	U			< 5	U			< 5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 1	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.4				< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09A																									
		Sample ID	67WW09A-140724		67WW09AFD-072414		67WW09A-072414		67WW09A-141203		67WW09A-120314		67WW09AFD-120314		67WW09A-150210		67WW09A-021015		67WW09A-150512		67WW09A-051215		67WW09A-151118		67WW09A-111815		67WW09A-160518	
		Sample Date	7/24/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016	
		Sample Purpose	REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	2.36				2.36		2.31		2.31				2.25		2.25		2.02		2.02		2.35		2.35		2.48	
Dissolved oxygen	mg/L	NV	0.12				0.12		0		0				0		0		0.47		0.47		0		0		0.42	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	26				26		30		30				-12		-12		112		112		127		127		137	
pH	SU	NV	6.89				6.89		6.5		6.5				7.13		7.13		5.67		5.67		5.81		5.81		5.64	
Temperature	C	NV	24.26				24.26		18.75		18.75				17.83		17.83		18.84		18.84		18.3		18.3		18.55	
Total Purge	L	NV																										
Turbidity	NTU	NV	5.8				5.8		4.3		4.3				20.8		20.8		31.3		31.3		12		12		0	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
1,1-Dichloroethene	µg/L	7			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
1,1-Dichloropropene	µg/L	3			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U	< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U	< 2	U			< 2	U	< 2	U			< 2	U			< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09A																									
		Sample ID	67WW09A-140724		67WW09AFD-072414		67WW09A-072414		67WW09A-141203		67WW09A-120314		67WW09AFD-120314		67WW09A-150210		67WW09A-021015		67WW09A-150512		67WW09A-051215		67WW09A-151118		67WW09A-111815		67WW09A-160518	
		Sample Date	7/24/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016	
		Sample Purpose	REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U			< 5	U		
Benzene	µg/L	5			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Bromoform	µg/L	36			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
Bromomethane	µg/L	140			< 1	U	< 1	U			< 1	U	< 1	U			< 1	UJ			< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
Chloroform	µg/L	1,000			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U			< 5	U		
Methylene chloride	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Styrene	µg/L	100			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U			< 1	U		
Trichloroethene	µg/L	5			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09A																67WW10									
		Sample ID	67WW09A-051816		67WW09A-112917		67WW09A-180503		67WW09A-181025		67WW09A-190502		67WW09A-191028		67WW09A-201102		67WW09A-211110		67WW10-130601		67WW10-130927		67WW10-092713		67WW10-140124		67WW10-012414	
		Sample Date	5/18/2016		11/29/2017		5/3/2018		10/25/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013		9/27/2013		9/27/2013		1/24/2014		1/24/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	2.48		2.87		2.88		3.26		3.42		4.07		4.93		4.77		5.08		6.23		6.23		6.45		6.45	
Dissolved oxygen	mg/L	NV	0.42		0.16		1.21		0.05		0.09		0.04		0.06		0.26		0.11		0.6		0.6		0.54		0.54	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV			100		100		100		100		100		100													
Measured well depth	Ft BTOC	NV			38.7		38.76		38.71		38.77		37.62															
Oxidation Reduction Potential	mV	NV	137		128		242		138		123		71		75		184		190		-9		-9		29		29	
pH	SU	NV	5.64		5.94		6.32		6.04		6.0		6.22		6.44		5.99		6.27		6.02		6.02		6.07		6.07	
Temperature	C	NV	18.55		19.55		20.30		17.79		20.8		18.51		19.86		21.21		24.32		25.2		25.2		15.1		15.1	
Total Purge	L	NV			0.78		2		3		3		3.0		3.0													
Turbidity	NTU	NV	0		0		6.1		0		24		1.7		0		5.7		4.9		1.6		1.6		0.4		0.4	
Water Level at Reading Time	Ft BTOC	NV			27		25.9		27.26		24.58		25.72		24.98													
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26			3.6																							
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000			< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					0.362	J			0.319	J
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 1	U			< 1	U
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U					< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 2	U			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
1,2-Dichloropropane	µg/L	5	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW09A																67WW10									
		Sample ID	67WW09A-051816		67WW09A-112917		67WW09A-180503		67WW09A-181025		67WW09A-190502		67WW09A-191028		67WW09A-201102		67WW09A-211110		67WW10-130601		67WW10-130927		67WW10-092713		67WW10-140124		67WW10-012414	
		Sample Date	5/18/2016		11/29/2017		5/3/2018		10/25/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013		9/27/2013		9/27/2013		1/24/2014		1/24/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U					< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U					< 5	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 5	U	< 2	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U					< 5	U			< 5	U
Benzene	µg/L	5	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 1	U			< 1	U
Bromomethane	µg/L	140	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 1	U			< 1	U
Carbon disulfide	µg/L	10,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U					< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 1	U			< 1	U
Chloroform	µg/L	1,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U					< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U					< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U					< 5	U			< 5	U
Methylene chloride	µg/L	5	< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U					< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.4	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U					< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 1	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U					< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U					< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW10																									
		Sample ID	67WW10-140506		67WW10-050614		67WW10-140724		67WW10-072414		67WW10-141203		67WW10-120314		67WW10-150210		67WW10-021015		67WW10-150512		67WW10-051215		67WW10-151118		67WW10-111815		67WW10-160518	
		Sample Date	5/6/2014		5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	6.02		6.02		6.13		6.13		6.09		6.09		5.84		5.84		5.65		5.65		5.95		5.95		6.36	
Dissolved oxygen	mg/L	NV	0.44		0.44		0.52		0.52		0		0		0		0		0.64		0.64		0.1		0.1		0.5	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	55		55		174		174		83		83		25		25		117		117		68		68		163	
pH	SU	NV	5.29		5.29		5.59		5.59		5.56		5.56		6.18		6.18		5.53		5.53		5.77		5.77		5.02	
Temperature	C	NV	20.2		20.2		22.24		22.24		19.2		19.2		17.33		17.33		18.78		18.78		17.68		17.68		18.66	
Total Purge	L	NV																										
Turbidity	NTU	NV	2.6		2.6		54.7		54.7		9.1		9.1		0		0		217		217		90.8		90.8		30.9	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000			< 0.25	U			< 0.25	U			0.173	J			< 0.25	U			< 0.25	U			0.14	J		
1,1-Dichloroethene	µg/L	7			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
1,1-Dichloropropene	µg/L	3			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW10																									
		Sample ID	67WW10-140506		67WW10-050614		67WW10-140724		67WW10-072414		67WW10-141203		67WW10-120314		67WW10-150210		67WW10-021015		67WW10-150512		67WW10-051215		67WW10-151118		67WW10-111815		67WW10-160518	
		Sample Date	5/6/2014		5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
Benzene	µg/L	5			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Bromoform	µg/L	36			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Bromomethane	µg/L	140			< 1	U			< 1	U			< 1	U			< 1	UJ			< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Chloroform	µg/L	1,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
Methylene chloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Styrene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Trichloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW10																67WW11									
		Sample ID	67WW10-051816		67WW10-112917		67WW10-180503		67WW10-181022		67WW10-190502		67WW10-191028		67WW10-201102		67WW10-211110		67WW11-130601		67WW11-060113-FD		67WW11-060113		67WW11-131002		67WW11-100213	
		Sample Date	5/18/2016		11/29/2017		5/3/2018		10/22/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013		6/1/2013		6/1/2013		10/2/2013		10/2/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																									< 2	U
Nitrite	mg/L	1																									< 2	U
Sulfate	mg/L	NV																									375	
Sulfide	mg/L	NV																									< 1	U
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																									17.6	
Total Organic Carbon	mg/L	NV																									5.7	
DHC																												
BVC	cells/mL	NV																									0.5	U
Dehalococcoides	cells/mL	NV																									0.5	U
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	6.36		5.12		5.53		5.17		5.80		5.1		5.58		5.25		4.27				4.27		4.74		4.74	
Dissolved oxygen	mg/L	NV	0.5		0.32		1.16		0.18		0.06		0.03		0.15		0.27		1.17				1.17		0.63		0.63	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV			100		100		100		100		100		100													
Measured well depth	Ft BTOC	NV			50.65		50.6		50.9		50.8		50.68															
Oxidation Reduction Potential	mV	NV	163		221		284		178		157		164		115		201		168				168		64		64	
pH	SU	NV	5.02		5.01		5.86		5.51		5.37		5.34		5.62		4.89		6.78				6.78		6.23		6.23	
Temperature	C	NV	18.66		19.32		22.03		18.54		20.46		18.48		19.34		19.67		23.9				23.9		22.65		22.65	
Total Purge	L	NV			0.78		2.0		3.0		3.0		3.0		3													
Turbidity	NTU	NV	30.9		42		22.9		31.2		25.4		160		57.1		78.3		9.6				9.6		4		4	
Water Level at Reading Time	Ft BTOC	NV			25.6		23.93		25.88		22.53		24.3		23.39													
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																									< 2	U
Ethylene	µg/L	NV																									< 2	U
Methane	µg/L	NV																									< 2	J
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																									< 0.04	U
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26			0.23																							
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	UJ	< 1	UJ			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000			< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			10.6		10.6				10.6	
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			46.8		47.1				42.8	
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U			< 1	U	< 1	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 2	U	< 2	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 5	UJ	< 5	UJ			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			0.85	J	0.869	J			0.799	J
1,2-Dichloropropane	µg/L	5	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW10																67WW11									
		Sample ID	67WW10-051816		67WW10-112917		67WW10-180503		67WW10-181022		67WW10-190502		67WW10-191028		67WW10-201102		67WW10-211110		67WW11-130601		67WW11-060113-FD		67WW11-060113		67WW11-131002		67WW11-100213	
		Sample Date	5/18/2016		11/29/2017		5/3/2018		10/22/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013		6/1/2013		6/1/2013		10/2/2013		10/2/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
2-Butanone	µg/L	61,000	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 10	U	< 10	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 10	U	< 10	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Acetone	µg/L	92,000	< 5	U	< 2	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U			< 10	U	< 10	U			33.6	
Benzene	µg/L	5	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
Bromoform	µg/L	36	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U	< 2	U			< 1	U
Bromomethane	µg/L	140	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	UJ	< 2	UJ			< 1	U
Carbon disulfide	µg/L	10,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 2	U	< 2	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U
Chloroethane	µg/L	41,000	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U	< 2	U			< 1	U
Chloroform	µg/L	1,000	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.25	U
Chloromethane	µg/L	220	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	U	< 2	UJ			0.536	J
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 2	U	< 2	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 10	U	< 10	U			< 5	U
Methylene chloride	µg/L	5	< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Styrene	µg/L	100	< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	U	< 2	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U			< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW11																									
		Sample ID	67WW11 FD-012314		67WW11-140123		67WW11FD-012314		67WW11-012314		67WW11-140506		67WW11-072414		67WW11-140724		67WW11-141204		67WW11-120414		67WW11-150211		67WW11-021115		67WW11-150519		67WW11-051915	
		Sample Date	1/23/2014		1/23/2014		1/23/2014		1/23/2014		5/6/2014		7/24/2014		7/24/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		5/19/2015		5/19/2015	
		Sample Purpose	FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																	1,330				1,350					
Nitrate	mg/L	10											< 1	U					2	J			< 2	U				
Nitrite	mg/L	1											< 1	U					1.97	J			< 2	U				
Sulfate	mg/L	NV											414						424				389					
Sulfide	mg/L	NV																					< 1	U				
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV											49.4						140				121					
Total Organic Carbon	mg/L	NV											8.7						9.1	J			12.9					
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV			4.77				4.77			-	4.85		4.85		5.17		5.17		4.8		4.8		4.47		4.47	
Dissolved oxygen	mg/L	NV			0.48				0.48		-	-	1.07		1.07		0		0		0		0		0.69		0.69	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV			129				129		-	-	194		194		204		204		165		165		246		246	
pH	SU	NV			5.84				5.84		-	-	6.72		6.72		5.63		5.63		6.04		6.04		5.49		5.49	
Temperature	C	NV			17.25				17.25			-	22		22		19.1		19.1		18.42		18.42		19.2		19.2	
Total Purge	L	NV																										
Turbidity	NTU	NV			1.9				1.9		-	-	2.9		2.9		5.6		5.6		4.7		4.7		105		105	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																	364,000									
Ethane	µg/L	NV											< 2	U					< 2	U			< 2	U				
Ethylene	µg/L	NV											< 2	U					< 2	U			< 2	U				
Methane	µg/L	NV											< 2	U					2.41	J			1.78	J				
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV											< 0.04	U					< 0.04	U			< 0.04	U				
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	10.7				10.7		9.83				10.4						11.1				9.81				8.25	
1,1-Dichloroethene	µg/L	7	43				43		38.8				34.5						37.5				30.4				21.6	
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U					< 0.3	U			< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 2	U	< 2	U			< 2	U					< 2	U			< 2	U			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	0.823	J			0.823	J	0.748	J			0.684	J					0.567	J			0.559	J			0.518	J
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW11																									
		Sample ID	67WW11 FD-012314		67WW11-140123		67WW11FD-012314		67WW11-012314		67WW11-140506		67WW11-072414		67WW11-140724		67WW11-141204		67WW11-120414		67WW11-150211		67WW11-021115		67WW11-150519		67WW11-051915	
		Sample Date	1/23/2014		1/23/2014		1/23/2014		1/23/2014		5/6/2014		7/24/2014		7/24/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		5/19/2015		5/19/2015	
		Sample Purpose	FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 5	U			< 5	U	< 5	U			< 5	U					< 5	U			< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 5	U			< 5	U	< 5	U			< 5	U					< 5	U			< 5	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 5	U			< 5	U	< 5	U			< 5	U					< 5	U			< 5	U			< 5	U
Benzene	µg/L	5	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
Bromomethane	µg/L	140	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	UJ			< 1	U
Carbon disulfide	µg/L	10,000	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
Chloroform	µg/L	1,000	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 5	U	< 5	U			< 5	U					< 5	U			< 5	U			< 5	U
Methylene chloride	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U					< 0.4	U			< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U					< 0.25	U			< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 1	U	< 1	U			< 1	U					< 1	U			< 1	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U					< 0.5	U			< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	0.296	J			0.296	J	< 0.5	U			0.271	J					0.302	J			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW11																						67WW12			
		Sample ID	67WW11-151119		67WW11-111915		67WW11-160519		67WW11-051916		67WW11-112717		67WW11-180502		67WW11-181023		67WW11-190501		67WW11-191024		67WW11-201103		67WW11-211111		67WW12-130601		67WW12-060113	
		Sample Date	11/19/2015		11/19/2015		5/19/2016		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		6/1/2013		6/1/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV			1,380				1,430																			
Nitrate	mg/L	10			< 2	U			< 2	U																		
Nitrite	mg/L	1			< 2	U			< 2	U																		
Sulfate	mg/L	NV			376				409																			
Sulfide	mg/L	NV			< 1	U			< 1	U																		
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV			113				74.8																			
Total Organic Carbon	mg/L	NV			23.1				22.1																			
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	4.89		4.89		5.19		5.19		5.15		4.94		4.99		4.65		4.73		4.87		4.68		4.4		4.4	
Dissolved oxygen	mg/L	NV	0.18		0.18		0.74		0.74		0.19		0.21		0.07		0.5		0.04		0.05		0.76		0.57		0.57	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV									100		100		100		100		100		100							
Measured well depth	Ft BTOC	NV									46.68		46.63		47.05		46.64		46.6									
Oxidation Reduction Potential	mV	NV	183		183		169		169		291		415		171		195		187		29		172		175		175	
pH	SU	NV	5.61		5.61		5.87		5.87		5.87		5.58		6.45		5.29		6.23		6.38		6.19		6.71		6.71	
Temperature	C	NV	18.49		18.49		18.29		18.29		19.49		19.77		18.02		20.60		21.72		19.92		18.48		27.34		27.34	
Total Purge	L	NV									0.91		1.5		1.5		3.0		3.0		3.0							
Turbidity	NTU	NV	25.9		25.9		1.2		1.2		20.7		8		1.9		7.8		0		0		2.1		2.7		2.7	
Water Level at Reading Time	Ft BTOC	NV									23.77		22.43		24.14		21.44		22.5		21.54							
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV			< 2	U			< 2	U																		
Ethylene	µg/L	NV			< 2	U			< 2	U																		
Methane	µg/L	NV			2.11	J			< 2	U																		
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV			< 0.04	U			< 0.04	U																		
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26									18																	
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,1,1-Trichloroethane	µg/L	200			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000									< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U				
1,1,2-Trichloroethane	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,1-Dichloroethane	µg/L	10,000			8.54				6.58		3.6		3.3		3.8		1.9	J	1.9		1.3		0.57	J			< 1	U
1,1-Dichloroethene	µg/L	7			28.5				19.3		5.2		5.5		6.1		2.8		1.9		1.2		< 0.5	U			< 2	U
1,1-Dichloropropene	µg/L	3			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U			< 0.3	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U			< 1	U
1,2,3-Trichloropropane	µg/L	0.04			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 2	U
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	U			< 2	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 5	UJ
1,2-Dibromoethane	µg/L	0.1			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
1,2-Dichlorobenzene	µg/L	600			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
1,2-Dichloroethane	µg/L	5			0.513	J			0.396	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
1,2-Dichloropropane	µg/L	5			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW11																						67WW12			
		Sample ID	67WW11-151119		67WW11-111915		67WW11-160519		67WW11-051916		67WW11-112717		67WW11-180502		67WW11-181023		67WW11-190501		67WW11-191024		67WW11-201103		67WW11-211111		67WW12-130601		67WW12-060113	
		Sample Date	11/19/2015		11/19/2015		5/19/2016		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		6/1/2013		6/1/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
1,4-Dichlorobenzene	µg/L	75			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
2,2-Dichloropropane	µg/L	42			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ			< 1	U
2-Butanone	µg/L	61,000			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 10	U
2-Chlorotoluene	µg/L	2,000			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
2-Hexanone	µg/L	6,100			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 10	U
4-Chlorotoluene	µg/L	2,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
Acetone	µg/L	92,000			< 5	U			< 5	U	< 2	U	< 1	U	< 2	U	5.6		< 1	U	< 1	U	< 2	U			< 10	U
Benzene	µg/L	5			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Bromobenzene	µg/L	2,000			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
Bromochloromethane	µg/L	4,100			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Bromodichloromethane	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Bromoform	µg/L	36			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U
Bromomethane	µg/L	140			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	UJ
Carbon disulfide	µg/L	10,000			< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 2	U
Carbon tetrachloride	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Chlorobenzene	µg/L	100			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Chloroethane	µg/L	41,000			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U
Chloroform	µg/L	1,000			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Chloromethane	µg/L	220			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	UJ
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Dibromochloromethane	µg/L	34			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Dibromomethane	µg/L	380			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Ethylbenzene	µg/L	700			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Hexachlorobutadiene	µg/L	20			< 0.5	U			< 0.5	UJ	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 1	U
Isopropylbenzene	µg/L	10,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
m,p-Xylenes	µg/L	10,000			< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 2	U
Methyl isobutyl ketone	µg/L	8,200			< 5	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 10	U
Methylene chloride	µg/L	5			< 0.5	U			< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 1	U
Naphthalene	µg/L	2,000			< 0.4	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U			< 1	U
n-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U
n-Propylbenzene	µg/L	4,100			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
o-Xylene	µg/L	10,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
p-Isopropyltoluene	µg/L	10,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			0.299	J
sec-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Styrene	µg/L	100			< 0.25	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
tert-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Tetrachloroethene	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Toluene	µg/L	1,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
trans-1,3-Dichloropropene	µg/L	29			< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	U
Trichloroethene	µg/L	5			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U
Trichlorofluoromethane	µg/L	31,000			< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U
Vinyl chloride	µg/L	2			0.333	J			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12																									
		Sample ID	67WW12-131001		67WW12-100113		67WW12-140124		67WW12-012414		67WW12-140506		67WW12-050614		67WW12-140725		67WW12-072514		67WW12-141203		67WW12-120314		67WW12-150210		67WW12-021015		67WW12-150512	
		Sample Date	10/1/2013		10/1/2013		1/24/2014		1/24/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	4.54		4.54		4.12		4.12		4.56		4.56		4.52		4.52		5.21		5.21		3.37		3.37		3.34	
Dissolved oxygen	mg/L	NV	0.66		0.66		0.62		0.62		0.8		0.8		0.21		0.21		0		0		0.17		0.17		1.23	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	-119		-119		91		91		43		43		12		12		20		20		139		139		54	
pH	SU	NV	6.31		6.31		6.22		6.22		5.39		5.39		6.36		6.36		6.06		6.06		5.32		5.32		5.41	
Temperature	C	NV	22.99		22.99		15.69		15.69		20.51		20.51		22.61		22.61		19.09		19.09		19.7		19.7		18.55	
Total Purge	L	NV																										
Turbidity	NTU	NV	0.3		0.3		0		0		5.2		5.2		10.8		10.8		0.5		0.5		2.1		2.1		0	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
1,1-Dichloroethene	µg/L	7			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
1,1-Dichloropropene	µg/L	3			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 2	UJ			< 2	U			< 2	U			< 2	U			< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichloropropane	µg/L	5			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12																									
		Sample ID	67WW12-131001		67WW12-100113		67WW12-140124		67WW12-012414		67WW12-140506		67WW12-050614		67WW12-140725		67WW12-072514		67WW12-141203		67WW12-120314		67WW12-150210		67WW12-021015		67WW12-150512	
		Sample Date	10/1/2013		10/1/2013		1/24/2014		1/24/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		5/12/2015	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
Benzene	µg/L	5			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromobenzene	µg/L	2,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Bromoform	µg/L	36			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Bromomethane	µg/L	140			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Chloroform	µg/L	1,000			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U			< 5	U		
Methylene chloride	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Styrene	µg/L	100			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U			< 1	U		
Trichloroethene	µg/L	5			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12																							
		Sample ID	67WW12-051215		67WW12FFD-111815		67WW12-151118		67WW12-111815		67WW12-151216		67WW12-161215 DUP		67WW12-161215		67WW12-161215DUP		67WW12-160518		67WW12-051816		67WW12-112917		67WW12-112917-FD	
		Sample Date	5/12/2015		11/18/2015		11/18/2015		11/18/2015		12/16/2015		12/16/2015		12/16/2015		12/16/2015		5/18/2016		5/18/2016		11/29/2017		11/29/2017	
		Sample Purpose	REG		FD		REG		REG		REG		REG		REG		FD		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Chloride	mg/L	NV																								
Nitrate	mg/L	10																								
Nitrite	mg/L	1																								
Sulfate	mg/L	NV																								
Sulfide	mg/L	NV																								
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L	NV																								
Total Organic Carbon	mg/L	NV																								
DHC																										
BVC	cells/mL	NV																								
Dehalococcoides	cells/mL	NV																								
FIELD TESTS																										
Specific conductivity	µmhos/cm	NV	3.34				3.69		3.69		4.66				4.66				4.06		4.06		5.17			
Dissolved oxygen	mg/L	NV	1.23				0.05		0.05		0				0				0.36		0.36		0.43			
Ferrous Iron	NA	NV																								
Flow Rate	mL/Min	NV																					100			
Measured well depth	Ft BTOC	NV																					36.93			
Oxidation Reduction Potential	mV	NV	54				178		178		50				50				221		221		209			
pH	SU	NV	5.41				5.21		5.21		5.85				5.85				4.96		4.96		5.52			
Temperature	C	NV	18.55				17.95		17.95		19.38				19.38				18.41		18.41		19.71			
Total Purge	L	NV																					0.78			
Turbidity	NTU	NV	0				3.1		3.1		11				11				5.7		5.7		0			
Water Level at Reading Time	Ft BTOC	NV																					26.26			
GASES																										
Carbon dioxide	µg/L	NV																								
Ethane	µg/L	NV																								
Ethylene	µg/L	NV																								
Methane	µg/L	NV																								
GENERAL CHEMISTRY																										
Alkalinity	mg/L	NV																								
Ferrous Iron	mg/L	NV																								
SEMIVOLATILES																										
1,4-Dioxane	µg/L	26											< 1	U	< 1	U	< 1	U					0.6	J	0.48	J
VOLATILES																										
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U	< 0.4	U			< 0.4	U											< 0.4	U	< 1	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																					< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethane	µg/L	10,000	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U			< 1	U											0.681	J	2.2		1.8	
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U	< 0.3	U			< 0.3	U											< 0.3	U	< 1	U	< 1	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U			< 1	U											< 1	U	< 1	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U	< 0.4	U			< 0.4	U											< 0.4	U	< 1	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U	< 2	U			< 2	U											< 2	U	< 1	U	< 1	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,2-Dichloropropane	µg/L	5	< 0.4	U	< 0.4	U			< 0.4	U											< 0.4	U	< 1	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12																							
		Sample ID	67WW12-051215		67WW12FFD-111815		67WW12-151118		67WW12-111815		67WW12-151216		67WW12-161215 DUP		67WW12-161215		67WW12-161215DUP		67WW12-160518		67WW12-051816		67WW12-112917		67WW12-112917-FD	
		Sample Date	5/12/2015		11/18/2015		11/18/2015		11/18/2015		12/16/2015		12/16/2015		12/16/2015		12/16/2015		5/18/2016		5/18/2016		11/29/2017		11/29/2017	
		Sample Purpose	REG		FD		REG		REG		REG		REG		REG		FD		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U	< 0.4	U			< 0.4	U											< 0.4	U	< 1	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
2-Butanone	µg/L	61,000	< 5	U	< 5	U			< 5	U											< 5	U	< 2	U	< 2	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
2-Hexanone	µg/L	6,100	< 5	U	< 5	U			< 5	U											< 5	U	< 2	U	< 2	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
Acetone	µg/L	92,000	< 5	U	< 5	U			< 5	U											< 5	U	< 2	U	< 2	U
Benzene	µg/L	5	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
Bromobenzene	µg/L	2,000	< 0.25	U	< 0.25	U			< 0.25	U											< 0.25	U	< 1	U	< 1	U
Bromochloromethane	µg/L	4,100	< 0.4	U	< 0.4	U			< 0.4	U											< 0.4	U	< 1	U	< 1	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U			< 0.5	U											< 0.5	U	< 1	U	< 1	U
Bromoform	µg/L	36	< 1	U	< 1	U			< 1	U											< 1	U	< 1	U	< 1	U
Bromomethane	µg/L	140	< 1	U	< 1	U			< 1	U											< 1	UJ	< 1	U	< 1	U
Carbon disulfide	µg/L	10,000	< 1	U					< 1	U											< 1	U	< 2	U	< 2	U
Carbon tetrachloride	µg/L	5	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Chlorobenzene	µg/L	100	< 0.25	U					< 0.25	U											< 0.25	U	< 1	U	< 1	U
Chloroethane	µg/L	41,000	< 1	U					< 1	U											< 1	U	< 1	U	< 1	U
Chloroform	µg/L	1,000	< 0.25	U					< 0.25	U											< 0.25	U	< 1	U	< 1	U
Chloromethane	µg/L	220	< 1	U					< 1	U											< 1	U	< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Dibromochloromethane	µg/L	34	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Dibromomethane	µg/L	380	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Ethylbenzene	µg/L	700	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Hexachlorobutadiene	µg/L	20	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	10,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
m,p-Xylenes	µg/L	10,000	< 1	U					< 1	U											< 1	U	< 2	U	< 2	U
Methyl isobutyl ketone	µg/L	8,200	< 5	UJ	< 5	U			< 5	U											< 5	U	< 2	U	< 2	U
Methylene chloride	µg/L	5	< 0.5	U					< 0.5	U											< 0.5	U	< 2	U	< 2	U
Naphthalene	µg/L	2,000	< 0.4	U					< 0.4	U											< 0.4	U	< 1	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 0.25	U					< 0.25	U											< 0.25	U	< 1	U	< 1	U
o-Xylene	µg/L	10,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Styrene	µg/L	100	< 0.25	U					< 0.25	U											< 0.25	U	< 1	U	< 1	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Tetrachloroethene	µg/L	5	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Toluene	µg/L	1,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U					< 1	U											< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U					< 0.5	U											< 0.5	U	< 1	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12												67WW13													
		Sample ID	67WW12-180503		67WW12-181022		67WW12-190502		67WW12-191028		67WW12-201102		67WW12-211110		67WW13-130531		67WW13-053113		67WW13-131001		67WW13-100113		67WW13-140124		67WW13-012414		67WW13FD-012414	
		Sample Date	5/3/2018		10/22/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		5/31/2013		5/31/2013		10/1/2013		10/1/2013		1/24/2014		1/24/2014		1/24/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	3.87		5.24		3.56		4.35		5.10		3.42		5.55		5.55		6.65		6.65		6.87		6.87			
Dissolved oxygen	mg/L	NV	0.58		0.29		0.61		0.62		0.07		1.35		1.17		1.17		0.98		0.98		0.16		0.16			
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV	100		100		100		100		100																	
Measured well depth	Ft BTOC	NV	36.93		37.08		36.94		36.85																			
Oxidation Reduction Potential	mV	NV	300		209		187		126		55		244		106		106		37		37		125		125			
pH	SU	NV	5.34		5.68		5.35		5.72		6.31		5.23		6.68		6.68		7.09		7.09		6.76		6.76			
Temperature	C	NV	20.79		18.77		20.12		18.62		19.17		18.82		34.55		34.55		21.97		21.97		15.8		15.8			
Total Purge	L	NV	2.5		3		3.0		3		3.0																	
Turbidity	NTU	NV	0		0		6.3		1.8		0		2.1		0.2		0.2		0.3		0.3		0		0			
Water Level at Reading Time	Ft BTOC	NV	25.01		26.55		24.05		25.12		23.99																	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.4	U			< 1	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			2.91	J			3.37				2.99		3.01	
1,1-Dichloroethane	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	0.51	J	1.1		< 0.5	U			30.6				33.8				32.7		32.4	
1,1-Dichloroethene	µg/L	7	< 0.5	U	4.8		2.1		17		40		6.5				498				515				572		569	
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U			< 1	U			< 0.3	U			< 0.75	U	< 0.75	U
1,2,3-Trichloropropane	µg/L	0.04	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 20	U			< 1	U			< 2.5	U	< 2.5	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 0.4	U			< 1	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 50	U			< 2	UJ			< 5	UJ	< 5	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
1,2-Dichlorobenzene	µg/L	600	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U			< 0.25	U			< 0.626	U	< 0.626	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			19.9				23.8				22.9		22.9	
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.4	U			< 1	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW12												67WW13													
		Sample ID	67WW12-180503		67WW12-181022		67WW12-190502		67WW12-191028		67WW12-201102		67WW12-211110		67WW13-130531		67WW13-053113		67WW13-131001		67WW13-100113		67WW13-140124		67WW13-012414		67WW13FD-012414	
		Sample Date	5/3/2018		10/22/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		5/31/2013		5/31/2013		10/1/2013		10/1/2013		1/24/2014		1/24/2014		1/24/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.4	U			< 1	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U			< 0.25	U			< 0.626	U	< 0.626	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 10	U			< 5	U			< 12.5	U	< 12.5	U
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.25	U			< 0.626	U	< 0.626	U
2-Hexanone	µg/L	6,100	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 10	U			< 5	U			< 12.5	U	< 12.5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Acetone	µg/L	92,000	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U			< 100	U			< 5	U			< 12.5	U	< 12.5	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 0.25	U			< 0.626	U	< 0.626	U
Bromobenzene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 0.25	U			< 0.626	U	< 0.626	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.4	U			< 1	U	< 1	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U			< 1	U			< 2.5	U	< 2.5	U
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 20	U			< 1	U			< 2.5	U	< 2.5	U
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 20	U			< 1	U			< 2.5	U	< 2.5	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.25	U			< 0.626	U	< 0.626	U
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 2	U			< 1	U			< 2.5	U	< 2.5	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			0.462	J			< 0.25	UJ			< 0.626	U	0.359	J
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	U			< 1	U			< 2.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			1.68				1.66				1.67	J	1.77	J
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Hexachlorobutadiene	µg/L	20	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 2	U			< 1	U			< 2.5	U	< 2.5	U
Methyl isobutyl ketone	µg/L	8,200	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 100	U			< 5	U			< 12.5	U	< 12.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Naphthalene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U			< 1	U			< 0.4	U			< 1	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.25	U			< 0.626	U	< 0.626	U
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.25	U			< 0.626	U	< 0.626	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U			< 0.5	U			< 1.25	U	< 1.25	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 2	U			< 1	U			< 2.5	U	< 2.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			3.11				2.81				2.86		2.99	
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U			< 0.5	U			< 1.25	U	< 1.25	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			2.55				2.1				2.37	J	2.37	J

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13																									
		Sample ID	67WW13-140506		67WW13-050614		67WW13FD-050614		67WW13-140725		67WW13FD-072514		67WW13-072514		67WW13-141204		67WW13FD-120414		67WW13-120414		67WW13-150211		67WW13-021115		67WW13-150325		67WW13-032515	
		Sample Date	5/6/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		7/25/2014		12/4/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		3/25/2015		3/25/2015	
		Sample Purpose	REG		REG		FD		REG		FD		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																									1,820	
Nitrate	mg/L	10																									< 2	U
Nitrite	mg/L	1																									< 2	U
Sulfate	mg/L	NV																									334	
Sulfide	mg/L	NV																									< 1	U
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																									144	
Total Organic Carbon	mg/L	NV																									16.8	J
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	6.16		6.16				6.83				6.83		6.81				6.81		6.08		6.08		6.54		6.54	
Dissolved oxygen	mg/L	NV	2.03		2.03				1.19				1.19		0.29				0.29		1.73		1.73		1.55		1.55	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	122		122				178				178		150				150		145		145		176		176	
pH	SU	NV	5.86		5.86				6.24				6.24		6.46				6.46		7.16		7.16		4.62		4.62	
Temperature	C	NV	25.17		25.17				25.2				25.2		19.85				19.85		16.69		16.69		20.67		20.67	
Total Purge	L	NV																										
Turbidity	NTU	NV	1.2		1.2				0.2				0.2		0				0		0.2		0.2		0		0	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																									< 2	U
Ethylene	µg/L	NV																									< 2	U
Methane	µg/L	NV																									< 2	U
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																									< 0.04	U
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,1,1-Trichloroethane	µg/L	200			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,1,2,2-Tetrachloroethane	µg/L	14			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5			1.99	J	1.95	J			3.56		3.48				4.56	J	4.4	J			4.87					
1,1-Dichloroethane	µg/L	10,000			15.5		14.4				22.1		21.9				27.4		28.8				29.1					
1,1-Dichloroethene	µg/L	7			240		228				362		353				522		572				521					
1,1-Dichloropropene	µg/L	3			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,2,3-Trichlorobenzene	µg/L	310			< 0.6	U	< 0.6	U			< 0.3	U	< 0.3	U			< 1.5	U	< 1.5	U			< 0.75	U				
1,2,3-Trichloropropane	µg/L	0.04			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
1,2,4-Trichlorobenzene	µg/L	70			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
1,2,4-Trimethylbenzene	µg/L	5,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 4	U	< 4	U			< 2	U	< 2	U			< 10	U	< 10	U			< 5	U				
1,2-Dibromoethane	µg/L	0.1			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,2-Dichlorobenzene	µg/L	600			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
1,2-Dichloroethane	µg/L	5			13.7		12.9				20.1		19.8				24.6		24.9				26					
1,2-Dichloropropane	µg/L	5			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
1,3,5-Trimethylbenzene	µg/L	5,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
1,3-Dichlorobenzene	µg/L	3,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13																									
		Sample ID	67WW13-140506		67WW13-050614		67WW13FD-050614		67WW13-140725		67WW13FD-072514		67WW13-072514		67WW13-141204		67WW13FD-120414		67WW13-120414		67WW13-150211		67WW13-021115		67WW13-150325		67WW13-032515	
		Sample Date	5/6/2014		5/6/2014		5/6/2014		7/25/2014		7/25/2014		7/25/2014		12/4/2014		12/4/2014		12/4/2014		2/11/2015		2/11/2015		3/25/2015		3/25/2015	
		Sample Purpose	REG		REG		FD		REG		FD		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
1,4-Dichlorobenzene	µg/L	75			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
2,2-Dichloropropane	µg/L	42			< 1	UJ	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
2-Butanone	µg/L	61,000			< 10	U	< 10	U			< 5	U	< 5	U			< 25	U	< 25	U			< 12.5	U				
2-Chlorotoluene	µg/L	2,000			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
2-Hexanone	µg/L	6,100			< 10	U	< 10	U			< 5	U	< 5	U			< 25	U	< 25	U			< 12.5	U				
4-Chlorotoluene	µg/L	2,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Acetone	µg/L	92,000			< 10	U	< 10	U			< 5	U	< 5	U			< 25	U	< 25	U			< 12.5	U				
Benzene	µg/L	5			1.21	J	0.79	J			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
Bromobenzene	µg/L	2,000			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
Bromochloromethane	µg/L	4,100			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
Bromodichloromethane	µg/L	5			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Bromoform	µg/L	36			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
Bromomethane	µg/L	140			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	UJ				
Carbon disulfide	µg/L	10,000			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
Carbon tetrachloride	µg/L	5			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Chlorobenzene	µg/L	100			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
Chloroethane	µg/L	41,000			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
Chloroform	µg/L	1,000			< 0.5	U	< 0.5	U			0.55	J	0.57	J			0.848	J	0.813	J			1.32	J				
Chloromethane	µg/L	220			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
cis-1,2-Dichloroethene	µg/L	70			0.755	J	0.684	J			1.15		1.19				1.49	J	1.31	J			1.6	J				
cis-1,3-Dichloropropene	µg/L	5			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Dibromochloromethane	µg/L	34			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Dibromomethane	µg/L	380			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Dichlorodifluoromethane	µg/L	20,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Ethylbenzene	µg/L	700			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Hexachlorobutadiene	µg/L	20			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Isopropylbenzene	µg/L	10,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
m,p-Xylenes	µg/L	10,000			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
Methyl isobutyl ketone	µg/L	8,200			< 10	U	< 10	U			< 5	U	< 5	U			< 25	U	< 25	U			< 12.5	U				
Methylene chloride	µg/L	5			< 1	U	< 1	U			< 0.5	U	< 0.5	U			2.9	J	2.88	J			< 1.25	U				
Naphthalene	µg/L	2,000			< 0.8	U	< 0.8	U			< 0.4	U	< 0.4	U			< 2	U	< 2	U			< 1	U				
n-Butylbenzene	µg/L	4,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
n-Propylbenzene	µg/L	4,100			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
o-Xylene	µg/L	10,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
p-Isopropyltoluene	µg/L	10,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
sec-Butylbenzene	µg/L	4,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Styrene	µg/L	100			< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 1.25	U	< 1.25	U			< 0.626	U				
tert-Butylbenzene	µg/L	4,100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Tetrachloroethene	µg/L	5			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Toluene	µg/L	1,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
trans-1,2-Dichloroethene	µg/L	100			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
trans-1,3-Dichloropropene	µg/L	29			< 2	U	< 2	U			< 1	U	< 1	U			< 5	U	< 5	U			< 2.5	U				
Trichloroethene	µg/L	5			1.25	J	1.27	J			1.71		1.72				1.94	J	1.65	J			2.63					
Trichlorofluoromethane	µg/L	31,000			< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 2.5	U	< 2.5	U			< 1.25	U				
Vinyl chloride	µg/L	2			0.644	J	0.619	J			0.728	J	0.707	J			< 2.5	U	< 2.5	U			0.653	J				

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13																									
		Sample ID	67WW13-150519		67WW13-051915		67WW13-151118		67WW13-111815		67WW13-151216		67WW13-161215		67WW13-160519		67WW13-051916		67WW13-112817		67WW13-180501		67WW13-180501FD		67WW13-181023		67WW13-190501-FD	
		Sample Date	5/19/2015		5/19/2015		11/18/2015		11/18/2015		12/16/2015		12/16/2015		5/19/2016		5/19/2016		11/28/2017		5/1/2018		5/1/2018		10/23/2018		5/1/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV			1,680												1,660		1,570		1,650		1,520		1,420		1,300	
Nitrate	mg/L	10			< 2	U											< 2	U	< 0.1	U	0.674		< 0.1	U	< 0.2	U	0.657	
Nitrite	mg/L	1			3.4	J											< 2	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.2	U		
Sulfate	mg/L	NV			344												358		390		405		370		355		318	
Sulfide	mg/L	NV			< 1	U											< 1	U	1.28		< 1.5	U	< 1.5	U	2.28			
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV			224												71.9		320		340		350		130			
Total Organic Carbon	mg/L	NV			62.4												93.3		3.4		3.07		3.18		3.99		3.24	
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																	0.3	NV	0.2				0.4	J		
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	5.52		5.52		6.27		6.27		5.89		5.89		5.74		5.74		5.73		5.42				5.39			
Dissolved oxygen	mg/L	NV	1.25		1.25		0.28		0.28		0		0		0.55		0.55		0.08		0.6				0.19			
Ferrous Iron	NA	NV																			0.04	UJ						
Flow Rate	mL/Min	NV																	100		100				100			
Measured well depth	Ft BTOC	NV																	28.63		28.48				28.75			
Oxidation Reduction Potential	mV	NV	219		219		158		158		85		85		244		244		303		337				281			
pH	SU	NV	5.95		5.95		6.69		6.69		6.49		6.49		5.38		5.38		5.62		5.66				5.78			
Temperature	C	NV	20.22		20.22		20.18		20.18		18.41		18.41		18.85		18.85		20.23		19.80				18.49			
Total Purge	L	NV																	0.65		2.5				3.0			
Turbidity	NTU	NV	0		0		0		0		1		1		0		0		1		1.2				0			
Water Level at Reading Time	Ft BTOC	NV																	22.16		21.17				22.62			
GASES																												
Carbon dioxide	µg/L	NV																	470,000		870,000		860,000		620,000		860,000	
Ethane	µg/L	NV			< 2	U											< 2	U	< 0.23	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U
Ethylene	µg/L	NV			< 2	U											< 2	U	< 0.22	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U
Methane	µg/L	NV			< 2	U											< 2	U	0.32	J	< 1	U	< 1	U	< 1	U	< 1	U
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																							368			
Ferrous Iron	mg/L	NV			< 0.04	U											< 0.04	U							0.035	J		
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26											78.3						36									
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,1-Trichloroethane	µg/L	200			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5			5.96				7.66								7		5.1		4.8		4.7		6.1		3.8	
1,1-Dichloroethane	µg/L	10,000			30.2				46.3								22.5		19	J	15		15		32		13	
1,1-Dichloroethene	µg/L	7			522				762								274		320		160		170		570		160	
1,1-Dichloropropene	µg/L	3			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310			< 0.75	U			< 0.75	U							< 0.6	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichloropropane	µg/L	0.04			< 2.5	U			< 2.5	U							< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,4-Trichlorobenzene	µg/L	70			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,4-Trimethylbenzene	µg/L	5,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2			< 5	U			< 5	U							< 4	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,2-Dibromoethane	µg/L	0.1			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5			30.6				42.6								35.7		32		27		28		43		23	
1,2-Dichloropropane	µg/L	5			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13																									
		Sample ID	67WW13-150519		67WW13-051915		67WW13-151118		67WW13-111815		67WW13-151216		67WW13-161215		67WW13-160519		67WW13-051916		67WW13-112817		67WW13-180501		67WW13-180501FD		67WW13-181023		67WW13-190501-FD	
		Sample Date	5/19/2015		5/19/2015		11/18/2015		11/18/2015		12/16/2015		12/16/2015		5/19/2016		5/19/2016		11/28/2017		5/1/2018		5/1/2018		10/23/2018		5/1/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,4-Dichlorobenzene	µg/L	75			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2,2-Dichloropropane	µg/L	42			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000			< 12.5	U			< 12.5	U							< 10	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000			< 0.626	UJ			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Hexanone	µg/L	6,100			< 12.5	U			< 12.5	U							< 10	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
4-Chlorotoluene	µg/L	2,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Acetone	µg/L	92,000			< 12.5	U			< 12.5	U							< 10	U	< 2	U	< 1	U	< 1	U	< 2	U	< 1	U
Benzene	µg/L	5			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromochloromethane	µg/L	4,100			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36			< 2.5	U			< 2.5	U							< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromomethane	µg/L	140			< 2.5	U			< 2.5	U							< 2	U	< 1	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Carbon disulfide	µg/L	10,000			< 2.5	U			< 2.5	U							< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Carbon tetrachloride	µg/L	5			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chlorobenzene	µg/L	100			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroethane	µg/L	41,000			< 2.5	U			< 2.5	U							< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroform	µg/L	1,000			1.7	J			2.27	J							1.36	J	< 1	U	0.76	J	0.78	J	1.4		< 0.5	U
Chloromethane	µg/L	220			< 2.5	U			< 2.5	U							< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70			2.08	J			2.75								1.55	J	< 1	U	0.99	J	1		1.9		0.81	J
cis-1,3-Dichloropropene	µg/L	5			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromomethane	µg/L	380			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U
Ethylbenzene	µg/L	700			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Hexachlorobutadiene	µg/L	20			< 1.25	U			< 1.25	U							< 1	UJ	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	10,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
m,p-Xylenes	µg/L	10,000			< 2.5	U			< 2.5	U							< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200			< 12.5	U			< 12.5	U							< 10	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Methylene chloride	µg/L	5			< 1.25	U			< 1.25	U							< 1	U	< 2	UJ	< 1	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000			< 1	U			< 1	U							< 0.8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
n-Butylbenzene	µg/L	4,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
n-Propylbenzene	µg/L	4,100			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
o-Xylene	µg/L	10,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
p-Isopropyltoluene	µg/L	10,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
sec-Butylbenzene	µg/L	4,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Styrene	µg/L	100			< 0.626	U			< 0.626	U							< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
tert-Butylbenzene	µg/L	4,100			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Toluene	µg/L	1,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100			< 1.25	U			< 1.25	U							< 1	U	< 1	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29			< 2.5	U			< 2.5	U							< 2	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5			2.91				3.32								1.67	J	< 1	U	< 0.5	U	< 0.5	U	2.4		1	
Trichlorofluoromethane	µg/L	31,000			< 1.25	U			< 1.25	U							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2			0.695	J			1.65	J							< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13										67WW14															
		Sample ID	67WW13-190501		67WW13-191028		67WW13-201103		67WW13-211111		67WW13-211111-FD		67WW14-131001		67WW14-100113		67WW14-100113-FD		67WW14-140124		67WW14-012414		67WW14-140507		67WW14-050714		67WW14-140725	
		Sample Date	5/1/2019		10/28/2019		11/3/2020		11/11/2021		11/11/2021		10/1/2013		10/1/2013		10/1/2013		1/24/2014		1/24/2014		5/7/2014		5/7/2014		7/25/2014	
		Sample Purpose	REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV	1,240		1,280		1,270		1,200		1,210																	
Nitrate	mg/L	10	0.697		< 0.2	U	< 0.2	U	0.32	J	0.31	J																
Nitrite	mg/L	1																										
Sulfate	mg/L	NV	284		304		346		268		261																	
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV	2.91		1.69		1.45	J	4		4.61																	
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	4.83		4.87		4.97		4.83				1.55		1.55				1.53		1.53		1.68		1.68		1.66	
Dissolved oxygen	mg/L	NV	2.77		0.8		1.28		0.67				1.34		1.34				0.67		0.67		1.17		1.17		0.12	
Ferrous Iron	NA	NV	0.00		0.06		0.9		0.00																			
Flow Rate	mL/Min	NV	100		100		100																					
Measured well depth	Ft BTOC	NV	28.6		28.58																							
Oxidation Reduction Potential	mV	NV	209		185		205		196				-60		-60				-37		-37		-5		-5		210	
pH	SU	NV	5.48		6.26		6.07		6.07				6.47		6.47				6.52		6.52		5.67		5.67		5.34	
Temperature	C	NV	21.37		19.38		15.93		18.03				22.78		22.78				18.42		18.42		19.86		19.86		25.56	
Total Purge	L	NV	3		3		3.0																					
Turbidity	NTU	NV	0		0		0		1.2				3.6		3.6				15.5		15.5		24.8		24.8		17.3	
Water Level at Reading Time	Ft BTOC	NV	20.4		21.21		20.14																					
GASES																												
Carbon dioxide	µg/L	NV	840,000		140,000		350,000																					
Ethane	µg/L	NV	< 0.47	U	< 0.47	U	< 0.47	U	0.794	J	0.293	J																
Ethylene	µg/L	NV	< 0.55	U	< 0.55	U	< 0.55	U	1.02	J	< 0.5	UJ																
Methane	µg/L	NV	< 1	U	< 1	U	< 1	U	2.29		1.72																	
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U																
1,1,2-Trichloroethane	µg/L	5	3.9		5		5.7		< 1	UJ	5.9	J			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,1-Dichloroethane	µg/L	10,000	14		31		33		< 0.5	UJ	32	J			0.197	J	0.304	J			0.275	J			0.538	J		
1,1-Dichloroethene	µg/L	7	200		640		720		< 0.5	UJ	410	J			1.82	J	2.22				2.58				4.27			
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U	< 1	U			< 0.3	U	< 0.3	U			< 0.3	U			< 0.3	U		
1,2,3-Trichloropropane	µg/L	0.04	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U		
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 2	UJ	< 2	UJ			< 2	U			< 2	U		
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,2-Dichlorobenzene	µg/L	600	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
1,2-Dichloroethane	µg/L	5	24		36		44		< 0.5	UJ	43	J			0.692	J	0.849	J			0.666	J			0.897	J		
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW13										67WW14															
		Sample ID	67WW13-190501		67WW13-191028		67WW13-201103		67WW13-211111		67WW13-211111-FD		67WW14-131001		67WW14-100113		67WW14-100113-FD		67WW14-140124		67WW14-012414		67WW14-140507		67WW14-050714		67WW14-140725	
		Sample Date	5/1/2019		10/28/2019		11/3/2020		11/11/2021		11/11/2021		10/1/2013		10/1/2013		10/1/2013		1/24/2014		1/24/2014		5/7/2014		5/7/2014		7/25/2014	
		Sample Purpose	REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
1,4-Dichlorobenzene	µg/L	75	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	UJ			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			9.06	J	7.47	J			< 5	U			< 5	U		
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
2-Hexanone	µg/L	6,100	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U			< 5	U	< 5	U			< 5	U			< 5	U		
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Acetone	µg/L	92,000	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			3.27	J	2.59	J			< 5	U			< 5	U		
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	B		
Bromobenzene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U		
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U		
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 1	U	< 1	U			< 1	U			< 1	U		
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U		
Chloroform	µg/L	1,000	< 0.5	U	0.66	J	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			0.64	J	< 1	U			< 1	U			< 1	U		
cis-1,2-Dichloroethene	µg/L	70	0.94	J	1.8		1.6		< 0.5	UJ	1.6	J			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Hexachlorobutadiene	µg/L	20	< 1	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U		
Methyl isobutyl ketone	µg/L	8,200	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U			< 5	U	< 5	U			< 5	U			< 5	U		
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Naphthalene	µg/L	2,000	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U		
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			0.431	J	0.353	J			< 0.5	U			< 0.5	U		
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U		
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U			< 1	U			< 1	U		
Trichloroethene	µg/L	5	1.1		2.6		3.1		< 0.5	UJ	2.4	J			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		
Vinyl chloride	µg/L	2	< 0.5	U	0.82	J	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U		

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW14																									
		Sample ID	67WW14-072514		67WW14-141203		67WW14-120314		67WW14-150210		67WW14-021015		67WW14FD-021015		67WW14-150512		67WW14-051215		67WW14FD-051215		67WW14-151118		67WW14-111815		67WW14-160518		67WW14-051816	
		Sample Date	7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		2/10/2015		5/12/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016		5/18/2016	
		Sample Purpose	REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	1.66		1.52		1.52		1.51		1.51				1.47		1.47				2.25		2.25		0.021		0.021	
Dissolved oxygen	mg/L	NV	0.12		0		0		0.63		0.63				0.68		0.68				0.52		0.52		1.04		1.04	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV																										
Measured well depth	Ft BTOC	NV																										
Oxidation Reduction Potential	mV	NV	210		-8		-8		-13		-13				158		158				136		136		252		252	
pH	SU	NV	5.34		6.34		6.34		6.79		6.79				5.57		5.57				6.58		6.58		5.36		5.36	
Temperature	C	NV	25.56		20.74		20.74		15.24		15.24				20.48		20.48				21.67		21.67		19.84		19.84	
Total Purge	L	NV																										
Turbidity	NTU	NV	17.3		8.1		8.1		7		7				161		161				6.5		6.5		172		172	
Water Level at Reading Time	Ft BTOC	NV																										
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26																										
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000																										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,1-Dichloroethane	µg/L	10,000	0.58	J			0.451	J			0.434	J	0.369	J			0.418	J	0.427	J			3.7				2.15	
1,1-Dichloroethene	µg/L	7	3.57				4.73				3.46		3.61				2.77		2.93				26.3				10.8	
1,1-Dichloropropene	µg/L	3	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.3	U			< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U	< 0.3	U			< 0.3	U			< 0.3	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 2	U			< 2	U			< 2	U	< 2	U			< 2	U	< 2	U			< 2	U			< 2	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
1,2-Dichloroethane	µg/L	5	1.31				0.79	J			0.64	J	0.657	J			0.799	J	0.815	J			5.83				3.54	
1,2-Dichloropropane	µg/L	5	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW14																									
		Sample ID	67WW14-072514		67WW14-141203		67WW14-120314		67WW14-150210		67WW14-021015		67WW14FD-021015		67WW14-150512		67WW14-051215		67WW14FD-051215		67WW14-151118		67WW14-111815		67WW14-160518		67WW14-051816	
		Sample Date	7/25/2014		12/3/2014		12/3/2014		2/10/2015		2/10/2015		2/10/2015		5/12/2015		5/12/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016		5/18/2016	
		Sample Purpose	REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
1,4-Dichlorobenzene	µg/L	75	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
2,2-Dichloropropane	µg/L	42	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
2-Butanone	µg/L	61,000	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U
2-Chlorotoluene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
2-Hexanone	µg/L	6,100	< 5	U			< 5	U			< 5	U	< 5	U			< 5	UJ	< 5	UJ			< 5	U			< 5	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Acetone	µg/L	92,000	< 5	U			< 5	U			< 5	U	< 5	U			4	J	< 5	U			< 5	U			< 5	U
Benzene	µg/L	5	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Bromobenzene	µg/L	2,000	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Bromochloromethane	µg/L	4,100	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
Bromodichloromethane	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Bromoform	µg/L	36	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Bromomethane	µg/L	140	< 1	U			< 1	U			< 1	U	< 1	UJ			< 1	U	< 1	U			< 1	U			< 1	UJ
Carbon disulfide	µg/L	10,000	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Chlorobenzene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Chloroethane	µg/L	41,000	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Chloroform	µg/L	1,000	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
Chloromethane	µg/L	220	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 5	U			< 5	U			< 5	U	< 5	U			< 5	U	< 5	U			< 5	U			< 5	U
Methylene chloride	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Naphthalene	µg/L	2,000	< 0.4	U			< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U	< 0.4	U			< 0.4	U			< 0.4	U
n-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
o-Xylene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Styrene	µg/L	100	< 0.25	U			< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U	< 0.25	U			< 0.25	U			< 0.25	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Toluene	µg/L	1,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U			< 1	U			< 1	U	< 1	U			< 1	U	< 1	U			< 1	U			< 1	U
Trichloroethene	µg/L	5	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U			< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U			< 0.5	U			< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U			0.297	J			< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW14														67WW15											
		Sample ID	67WW14-112717		67WW14-180502		67WW14-181022		67WW14-190502		67WW14-191024		67WW14-201102		67WW14-211110		67WW15-160519		67WW15-051916		67WW15-112717		67WW15-180502		67WW15-181023		67WW15-190503	
		Sample Date	11/27/2017		5/2/2018		10/22/2018		5/2/2019		10/24/2019		11/2/2020		11/10/2021		5/19/2016		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/3/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	2.09		1.66		2.09		2.17		2.31		2.64		1.82		2.45		2.45		1.52		1.44		1.8		1.93	
Dissolved oxygen	mg/L	NV	1.17		0		0.66		0.27		0.15		0.25		0.58		1.5		1.5		2.2		0		0.16		2.85	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV	100		100		100		100		100		100								100		100		100		100	
Measured well depth	Ft BTOC	NV	30.58		30.55		30.47		30.62		30.52										47.4		47.35		47.59		47.43	
Oxidation Reduction Potential	mV	NV	250		372		274		228		-44		47		28		228		228		321		395		253		231	
pH	SU	NV	5.85		5.73		5.76		5.89		6.19		5.60		6.09		5.58		5.58		5.28		5.28		5.61		5.43	
Temperature	C	NV	19.19		21.65		21.68		20.83		17.99		16.43		15.58		18.7		18.7		18.3		19.54		18.06		20.33	
Total Purge	L	NV	0.91		2.5		3.0		3		3		3.0								0.65		3		3.0		3	
Turbidity	NTU	NV	20.7		7.2		0		30.6		3.7		0		9		6.8		6.8		40.3		14.2		2.1		0	
Water Level at Reading Time	Ft BTOC	NV	20.75		19.98		21.08		19.02		19.62		18.81								23.96		23.21		24.44		22.23	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26	17																		12							
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U					< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			22.7		5.6		5.6		6		5.4	
1,1-Dichloroethane	µg/L	10,000	< 1	U	< 0.5	U	1.3		1.4		1.8		1.2		0.89	J			46		11		10		13		9.2	
1,1-Dichloroethene	µg/L	7	5.6		4.2		6.6		5.3		7.4		4.9		3				2,460		510		380		670		330	
1,1-Dichloropropene	µg/L	3	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.3	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 20	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			52.6	J	< 1	U	< 0.5	U	< 1	U	< 0.5	U
1,2-Dibromoethane	µg/L	0.1	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	3.1		1.9		2.5		1.8		1.5		< 0.5	U	0.58	J			117		27		26		30		22	
1,2-Dichloropropane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW14														67WW15											
		Sample ID	67WW14-112717		67WW14-180502		67WW14-181022		67WW14-190502		67WW14-191024		67WW14-201102		67WW14-211110		67WW15-160519		67WW15-051916		67WW15-112717		67WW15-180502		67WW15-181023		67WW15-190503	
		Sample Date	11/27/2017		5/2/2018		10/22/2018		5/2/2019		10/24/2019		11/2/2020		11/10/2021		5/19/2016		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/3/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
2,2-Dichloropropane	µg/L	42	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 100	U	< 2	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Hexanone	µg/L	6,100	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 100	U	< 2	U	< 1	U	< 1	U	< 1	U
4-Chlorotoluene	µg/L	2,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Acetone	µg/L	92,000	< 2	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U			< 100	U	< 2	U	< 1	U	< 2	U	< 1	U
Benzene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromochloromethane	µg/L	4,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 8	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromomethane	µg/L	140	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 20	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Carbon disulfide	µg/L	10,000	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U			< 20	U	< 2	U	< 1	U	< 1	U	< 1	U
Carbon tetrachloride	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Chlorobenzene	µg/L	100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroethane	µg/L	41,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloroform	µg/L	1,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 20	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			6.1	J	1.5		1.3		1.7		1.3	
cis-1,3-Dichloropropene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromomethane	µg/L	380	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U
Ethylbenzene	µg/L	700	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Hexachlorobutadiene	µg/L	20	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U			< 0.5	UJ	< 1	U	< 0.5	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	10,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
m,p-Xylenes	µg/L	10,000	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U			< 100	U	< 2	U	< 1	U	< 1	U	< 1	U
Methylene chloride	µg/L	5	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U			< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			36.7		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
n-Butylbenzene	µg/L	4,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
n-Propylbenzene	µg/L	4,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
o-Xylene	µg/L	10,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Styrene	µg/L	100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
tert-Butylbenzene	µg/L	4,100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Toluene	µg/L	1,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			5.48	J	< 1	U	1.2		1.4		1.1	
Trichlorofluoromethane	µg/L	31,000	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			1.07		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW15						67WW16I																		67WW17	
		Sample ID	67WW15-191024		67WW15-201103		67WW15-211111		67WW16-160518		67WW16-051816		67WW16I-112917		67WW16I-180503		67WW16I-181025		67WW16I-190501		67WW16I-191024		67WW16I-201103		67WW16I-211111		67WW17-191024	
		Sample Date	10/24/2019		11/3/2020		11/11/2021		5/18/2016		5/18/2016		11/29/2017		5/3/2018		10/25/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		10/24/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Chloride	mg/L	NV																										
Nitrate	mg/L	10																										
Nitrite	mg/L	1																										
Sulfate	mg/L	NV																										
Sulfide	mg/L	NV																										
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L	NV																										
Total Organic Carbon	mg/L	NV																										
DHC																												
BVC	cells/mL	NV																										
Dehalococcoides	cells/mL	NV																										
FIELD TESTS																												
Specific conductivity	µmhos/cm	NV	1.80		1.90		1.89		1.53		1.53		1.43		0.982		1.53		1.50		1.32		1.43		1.27		2.36	
Dissolved oxygen	mg/L	NV	0.03		0.56		0.69		0.37		0.37		0.41		0		0.14		1.63		0.06		0.14		0.77		0.95	
Ferrous Iron	NA	NV																										
Flow Rate	mL/Min	NV	100		100								100		100		100		100		100		100				100	
Measured well depth	Ft BTOC	NV	47.3										80.38		80.23		80.49		80.38		80.42						29.04	
Oxidation Reduction Potential	mV	NV	230		224		263		94		94		-2		84		41		18		-53		1		92		87	
pH	SU	NV	5.69		5.37		5.43		4.99		4.99		6.26		6.20		6.24		5.35		5.88		6.41		5.61		6.65	
Temperature	C	NV	21.62		16.91		19.31		18.98		18.98		19.76		19.31		17.69		22.48		21.45		18.41		17.81		20.4	
Total Purge	L	NV	3.5		3								0.78		2.5		3		3.0		3.0		3.0				3.0	
Turbidity	NTU	NV	0		0		4.4		8.7		8.7		6.3		4.2		7.6		1.9		5.8		1.5		33.7		0	
Water Level at Reading Time	Ft BTOC	NV	22.95		21.92								25		22.83		24.22		21.98		22.87		21.84				23.88	
GASES																												
Carbon dioxide	µg/L	NV																										
Ethane	µg/L	NV																										
Ethylene	µg/L	NV																										
Methane	µg/L	NV																										
GENERAL CHEMISTRY																												
Alkalinity	mg/L	NV																										
Ferrous Iron	mg/L	NV																										
SEMIVOLATILES																												
1,4-Dioxane	µg/L	26											0.33															
VOLATILES																												
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U	< 1	U	< 1	U					< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	6.4		6.4		5.7				< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1-Dichloroethane	µg/L	10,000	13		14		31				< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	640	J	730		420				< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	UJ	< 1	U	< 1	U			< 0.3	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U	< 0.5	U
1,2,3-Trichloropropane	µg/L	0.04	< 0.5	U	< 1	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U	< 1	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 0.5	U	< 1	U			< 2	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	27		29		43				< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW15						67WW16I																		67WW17	
		Sample ID	67WW15-191024		67WW15-201103		67WW15-211111		67WW16-160518		67WW16-051816		67WW16I-112917		67WW16I-180503		67WW16I-181025		67WW16I-190501		67WW16I-191024		67WW16I-201103		67WW16I-211111		67WW17-191024	
		Sample Date	10/24/2019		11/3/2020		11/11/2021		5/18/2016		5/18/2016		11/29/2017		5/3/2018		10/25/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		10/24/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,4-Dichlorobenzene	µg/L	75	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	UJ			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
2-Hexanone	µg/L	6,100	< 1	U	< 2	U	< 2	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
Acetone	µg/L	92,000	< 1	U	< 1	U	< 2	U			< 5	U	< 2	U	< 1	U	< 2	U	3.3		< 1	U	< 1	U	< 2	U	< 1	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 0.5	U	< 1	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	2.3	
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 2	U			< 1	U	< 2	U	< 1	U	< 1	U	0.9	J	< 1	U	< 1	U	< 2	U	< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 1	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.7		1.7		1.6				< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	2.2	
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.72	J
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Hexachlorobutadiene	µg/L	20	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U			< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 1	U	< 2	U	< 2	U			< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U			< 0.5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000	< 0.5	UJ	< 0.5	U	< 1	U			< 0.4	U	< 1	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	UJ	< 0.5	U	< 1	U	< 0.5	U
n-Butylbenzene	µg/L	4,100	< 0.5	U	< 1	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 1	U			< 0.25	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U			< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	1.5		2		2.2				< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 1	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW17						67WW18							
		Sample ID	67WW17-201102		67WW17-201102-FD		67WW17-211110		67WW18-191024		67WW18-191024-FD		67WW18-201102		67WW18-211110	
		Sample Date	11/2/2020		11/2/2020		11/10/2021		10/24/2019		10/24/2019		11/2/2020		11/10/2021	
		Sample Purpose	REG		FD		REG		REG		FD		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																
Chloride	mg/L	NV														
Nitrate	mg/L	10														
Nitrite	mg/L	1														
Sulfate	mg/L	NV														
Sulfide	mg/L	NV														
TOTAL ORGANIC CARBON																
Total Inorganic Carbon	mg/L	NV														
Total Organic Carbon	mg/L	NV														
DHC																
BVC	cells/mL	NV														
Dehalococcoides	cells/mL	NV														
FIELD TESTS																
Specific conductivity	µmhos/cm	NV	3.15				3.29		0.974				1.14		1.1	
Dissolved oxygen	mg/L	NV	0.76				0.25		1.54				0.36		0.63	
Ferrous Iron	NA	NV														
Flow Rate	mL/Min	NV	100						100				100			
Measured well depth	Ft BTOC	NV							43.58							
Oxidation Reduction Potential	mV	NV	96				184		125				63		174	
pH	SU	NV	5.76				5.94		6.52				5.92		5.73	
Temperature	C	NV	18.46				18.72		20.26				19.07		18.79	
Total Purge	L	NV	3.0						3.5				3.0			
Turbidity	NTU	NV	0				28.4		8.1				0		4.4	
Water Level at Reading Time	Ft BTOC	NV	22.72						23.81				21.71			
GASES																
Carbon dioxide	µg/L	NV														
Ethane	µg/L	NV														
Ethylene	µg/L	NV														
Methane	µg/L	NV														
GENERAL CHEMISTRY																
Alkalinity	mg/L	NV														
Ferrous Iron	mg/L	NV														
SEMIVOLATILES																
1,4-Dioxane	µg/L	26														
VOLATILES																
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethane	µg/L	10,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloropropene	µg/L	3	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2,3-Trichlorobenzene	µg/L	310	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,2,3-Trichloropropane	µg/L	0.04	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,2,4-Trichlorobenzene	µg/L	70	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,2-Dibromoethane	µg/L	0.1	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloropropane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,3-Dichlorobenzene	µg/L	3,100	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U

Table 2-4
Groundwater Results, 2013–2021

		Location Code	67WW17						67WW18							
		Sample ID	67WW17-201102		67WW17-201102-FD		67WW17-211110		67WW18-191024		67WW18-191024-FD		67WW18-201102		67WW18-211110	
		Sample Date	11/2/2020		11/2/2020		11/10/2021		10/24/2019		10/24/2019		11/2/2020		11/10/2021	
		Sample Purpose	REG		FD		REG		REG		FD		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,3-Dichloropropane	µg/L	29	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,4-Dichlorobenzene	µg/L	75	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
2,2-Dichloropropane	µg/L	42	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
2-Butanone	µg/L	61,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
2-Chlorotoluene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
2-Hexanone	µg/L	6,100	< 2	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 2	U
4-Chlorotoluene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
Acetone	µg/L	92,000	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U
Benzene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromobenzene	µg/L	2,000	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
Bromochloromethane	µg/L	4,100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromodichloromethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Bromoform	µg/L	36	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Bromomethane	µg/L	140	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Carbon disulfide	µg/L	10,000	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 2	U
Carbon tetrachloride	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Chlorobenzene	µg/L	100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Chloroethane	µg/L	41,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Chloroform	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Chloromethane	µg/L	220	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Dibromomethane	µg/L	380	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Ethylbenzene	µg/L	700	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Hexachlorobutadiene	µg/L	20	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
m,p-Xylenes	µg/L	10,000	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 2	U	< 2	U	< 2	U	< 1	U	< 1	U	< 2	U	< 2	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Naphthalene	µg/L	2,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
n-Butylbenzene	µg/L	4,100	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
n-Propylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
o-Xylene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Styrene	µg/L	100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Toluene	µg/L	1,000	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichlorofluoromethane	µg/L	31,000	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

°C - degrees Celsius

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

µS/cm - microsiemens per centimeter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

cells/mL - cells per milliliter

CEQ/mL - cell equivalence per milliliter

FD - field duplicate

Ft BTOC - feet below top of casting

GW-Ind - groundwater medium-specific concentration for industrial use

ID - identifier

MCL - maximum contaminant level

mg/L - milligrams per liter

mL/Min - milliliters per minute

mS/cm - millisiemens per centimeter

mV - millivolts

NTU - nephelometric turbidity unit

NV - no value established

REG - regular sample

SU - standard unit

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW01																							
		Sample ID	67WW01-981208		67WW01-040912		67WW01-060806		67WW01-061218		67WW01-053113		67WW01-050714		67WW01-072514		67WW01-120314		67WW01-021015		67WW01-051915		67WW01-111915		67WW01-032916	
		Sample Date	12/8/1998		9/12/2004		8/6/2006		12/18/2006		5/31/2013		5/7/2014		7/25/2014		12/3/2014		2/10/2015		5/19/2015		11/19/2015		3/29/2016	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	560		< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1.25	U	< 1.25	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	33		1	J	0.305	JH	0.28	J	< 1	U	< 0.5	U	0.29	J	0.483	J	1.44		1.72	J	2.14	J	2.67	
1,1-Dichloroethene	µg/L	7	380		280		153		179		139		257		224		349		544		631		694		728	
1,2-Dichloroethane	µg/L	5	27		13		5.57	JH	6.37		6.68		12.2		10.7		16.6		28.7		31.4		38.6		52.6	
Trichloroethene	µg/L	5	6.3		6		5.38	JH	5.99		2.96		3		2.3		3.36		4.07		3.03		2.84		4	

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW01														67WW02									
		Sample ID	67WW01-051916		67WW01-112817		67WW01-180503		67WW01-190503		67WW01-191024		67WW01-201103		67WW01-211111		67WW02-981208		67WW02-981208FD		67WW02-040912		67WW02-060806		67WW02-061218	
		Sample Date	5/19/2016		11/28/2017		5/3/2018		5/3/2019		10/24/2019		11/3/2020		11/11/2021		12/8/1998		12/8/1998		9/12/2004		8/6/2006		12/18/2006	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 2.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	100		100		< 5	U	< 5	U	< 5	U
1,1,2-Trichloroethane	µg/L	5	1.62	J	< 1	U	1.2		1.4		0.53	J	< 0.5	U	< 1	U	**6.4**		**5.9**	J	< 5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	**714**		**250**		**450**		**280**		**70**		**49**		**23**		2.4		< 10	U	< 5	U	< 5	U	< 5	U
1,2-Dichloroethane	µg/L	5	**43.3**		**28**		**22**		**21**		**7.6**		**6.1**		3		< 1	U	< 10	U	< 5	U	< 5	U	< 5	U
Trichloroethene	µg/L	5	3.28	J	2.1		1.7		1.3		0.53	J	< 0.5	U	< 0.5	U	< 1	U	< 10	U	< 5	U	< 5	U	< 5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW02																							
		Sample ID	67WW02-053113		67WW02-092713		67WW02-012314		67WW02-050614		67WW02-072414		67WW02-120314		67WW02-021015		67WW02-051215		67WW02FD-051215		67WW02-111915		67WW02-051916		67WW02FD-051916	
		Sample Date	5/31/2013		9/27/2013		1/23/2014		5/6/2014		7/24/2014		12/3/2014		2/10/2015		5/12/2015		5/12/2015		11/19/2015		5/19/2016		5/19/2016	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	3.59		**13.2**		**13**		0.857	J	**67.6**		**66.3**	
1,2-Dichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.377	J	0.321	J
Trichloroethene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW02																67WW03							
		Sample ID	67WW02-112817		67WW02-180503		67WW02-180503FD		67WW02-181025		67WW02-190501		67WW02-191024		67WW02-201102		67WW02-211110		67WW03-981208		67WW03-040912		67WW03-060809		67WW03-061218	
		Sample Date	11/28/2017		5/3/2018		5/3/2018		10/25/2018		5/1/2019		10/24/2019		11/2/2020		11/10/2021		12/8/1998		9/12/2004		8/9/2006		12/18/2006	
		Sample Purpose	REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1800		< 5	U	< 5	U	< 5	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	1.2		< 0.5	U	1		0.6	J	24		< 5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 1	U	190		190		6.9		180		34		220		100		36		< 5	U	< 5	U	< 5	U
1,2-Dichloroethane	µg/L	5	< 1	U	2		1.9		< 0.5	U	4.7		< 0.5	U	5.5		3.2		< 20	U	< 5	U	< 5	U	< 5	U
Trichloroethene	µg/L	5	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	0.87	J	< 0.5	U	0.83	J	< 0.5	U	< 20	U	< 5	U	< 5	U	< 5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW03						67WW04				67WW05													
		Sample ID	67WW03-051215		67WW03-032916		67WW03-051916		67WW04-001219		67WW04-040912		67WW05-001219		67WW05-040912		67WW05-060808		67WW05-061217		67WW05-053113		67WW05-092813		67WW05-012314	
		Sample Date	5/12/2015		3/29/2016		5/19/2016		12/19/2000		9/12/2004		12/19/2000		9/12/2004		8/8/2006		12/17/2006		5/31/2013		9/28/2013		1/23/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	< 5	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	< 5	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 0.2	U	< 5	U	< 0.2	U	< 5	U	< 5	U	< 5	U	< 2	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	< 5	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	1	J	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW05																							
		Sample ID	67WW05-050614		67WW05-072414		67WW05-120314		67WW05-021015		67WW05-051215		67WW05-111915		67WW05-051916		67WW05-112817		67WW05-180503		67WW05-181025		67WW05-181025-FD		67WW05-190502	
		Sample Date	5/6/2014		7/24/2014		12/3/2014		2/10/2015		5/12/2015		11/19/2015		5/19/2016		11/28/2017		5/3/2018		10/25/2018		10/25/2018		5/2/2019	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW05								67WW06															
		Sample ID	67WW05-191024		67WW05-201102		67WW05-211110-FD		67WW05-211110		67WW06-001219		67WW06-001219FD		67WW06-040912		67WW06-060808		67WW06-061218		67WW06-100806		67WW06-053113		67WW06-053113-FD	
		Sample Date	10/24/2019		11/2/2020		11/10/2021		11/10/2021		12/19/2000		12/19/2000		9/12/2004		8/8/2006		12/18/2006		8/6/2010		5/31/2013		5/31/2013	
		Sample Purpose	REG		REG		FD		REG		REG		FD		REG		REG		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.1	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.1	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	0.62	J	< 0.5	U	< 0.2	U	< 0.2	U	< 5	U	< 5	U	< 5	U	< 1	U	< 2	U	< 2	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	3.51		3.5		< 5	U	3.02	J	1.62	J	2.39		2.25		2.2	
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.14	J	0.15	J	< 5	U	< 5	U	< 5	U	< 1	U	< 1	U	< 1	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW06						67WW07																	
		Sample ID	67WW06-092813		67WW06-012414		67WW06-112917		67WW07-001219		67WW07-040912		67WW07-060808		67WW07-061218		67WW07-053113		67WW07-092713		67WW07-012314		67WW07-050614		67WW07-072514	
		Sample Date	9/28/2013		1/24/2014		11/29/2017		12/19/2000		9/12/2004		8/8/2006		12/18/2006		5/31/2013		9/27/2013		1/23/2014		5/6/2014		7/25/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 1	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 1	U	0.752	J	< 1	U	< 0.2	U	< 5	U	< 5	U	< 5	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	1.77		2.03		1		2.28		< 5	U	< 5	U	1.65	J	1.67		1.77		1.35		1.44		1.39	
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 0.1	U	< 5	U	< 5	U	< 5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW07																							
		Sample ID	67WW07-120314		67WW07-021015		67WW07-051215		67WW07-111915		67WW07-051916		67WW07-112917		67WW07-180503		67WW07-181025		67WW07-190503		67WW07-191028		67WW07-201102		67WW07-211110	
		Sample Date	12/3/2014		2/10/2015		5/12/2015		11/19/2015		5/19/2016		11/29/2017		5/3/2018		10/25/2018		5/3/2019		10/28/2019		11/2/2020		11/10/2021	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	1.19		1.04		0.817	J	0.601	J	0.33	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW08																							
		Sample ID	67WW08-060313		67WW08-100213		67WW08-012314		67WW08-050714		67WW08-072414		67WW08-120414		67WW08-021115		67WW08-051915		67WW08-111915		67WW08-051916		67WW08-112817		67WW08-112817-FD	
		Sample Date	6/3/2013		10/2/2013		1/23/2014		5/7/2014		7/24/2014		12/4/2014		2/11/2015		5/19/2015		11/19/2015		5/19/2016		11/28/2017		11/28/2017	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 1	U	< 5	U	< 2.5	U	< 5	U	< 5	U	< 5	U	< 5	U	< 5	U	< 5	U	< 5	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	4.25		5.08	J	6.7		5.01	J	7.74	J	7.36	J	6.96	J	4.5	J	4.67	J	2.76	J	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	940		1,120		1,340		1,590		1,890		2,320		1,930		1,570		1,710		1,130		340		350	
1,2-Dichloroethane	µg/L	5	64.3	R	76.5		89.9		101		98.9		106		104		85.6		77.6		56.1		13		13	
Trichloroethene	µg/L	5	6.25	R	< 5	U	3.12	J	4.41	J	3.14	J	3.55	J	3.15	J	< 5	U	< 5	U	< 5	U	< 1	U	< 1	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW08																		67WW09					
		Sample ID	67WW08-180501		67WW08-181023-FD		67WW08-181023		67WW08-190501		67WW08-191028		67WW08-191028-FD		67WW08-201103-FD		67WW08-201103		67WW08-211111		67WW09-060113		67WW09-092813		67WW09-012414	
		Sample Date	5/1/2018		10/23/2018		10/23/2018		5/1/2019		10/28/2019		10/28/2019		11/3/2020		11/3/2020		11/11/2021		6/3/2013		9/28/2013		1/24/2014	
		Sample Purpose	REG		FD		REG		REG		REG		FD		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	**300**		**160**		**160**		**110**		**63**		**65**		**44**		**50**		**18**		**16.1**		**17.5**		**20.8**	
1,2-Dichloroethane	µg/L	5	**11**		**6.2**		**6.5**		**5.1**		2.3		2.4		1.6		1.8		0.67	J	< 1	U	0.414	J	0.347	J
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

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FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW09																							
		Sample ID	67WW09-072514		67WW09-120414		67WW09FD-021115		67WW09-021115		67WW09-051915		67WW09FD-111815		67WW09-111815		67WW09-051816		67WW09FD-051816		67WW09-112717		67WW09-180502		67WW09-181023	
		Sample Date	7/25/2014		12/4/2014		2/11/2015		2/11/2015		5/19/2015		11/18/2015		11/18/2015		5/18/2016		5/18/2016		11/27/2017		5/2/2018		10/23/2018	
		Sample Purpose	REG		REG		FD		REG		REG		FD		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	8.93		11.6		8.29		8.17		2.71		1.62	J	1.66	J	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U

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Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

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MCL - maximum contaminant level

MSC - medium-specific concentration

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW09								67WW09A															
		Sample ID	67WW09-190503		67WW09-191024		67WW09-201103		67WW09-211111		67WW09A-092713		67WW09A-092713-FD		67WW09A-012314		67WW09A-050614		67WW09AFD-072414		67WW09A-072414		67WW09AFD-120314		67WW09A-120314	
		Sample Date	5/3/2019		10/24/2019		11/3/2020		11/11/2021		9/27/2013		9/27/2013		1/23/2014		5/6/2014		7/24/2014		7/24/2014		12/3/2014		12/3/2014	
		Sample Purpose	REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	5.5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	29		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	1.4		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

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µg/L - micrograms per liter

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GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW09A																						67WW10	
		Sample ID	67WW09A-021015		67WW09A-051215		67WW09A-111815		67WW09A-051816		67WW09A-112917		67WW09A-180503		67WW09A-181025		67WW09A-190502		67WW09A-191028		67WW09A-201102		67WW09A-211110		67WW10-060113	
		Sample Date	2/10/2015		5/12/2015		11/18/2015		5/18/2016		11/29/2017		5/3/2018		10/25/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U

Notes:

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µg/L - micrograms per liter

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FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW10																							
		Sample ID	67WW10-092713		67WW10-012414		67WW10-050614		67WW10-072414		67WW10-120314		67WW10-021015		67WW10-051215		67WW10-111815		67WW10-051816		67WW10-112917		67WW10-180503		67WW10-181022	
		Sample Date	9/27/2013		1/24/2014		5/6/2014		7/24/2014		12/3/2014		2/10/2015		5/12/2015		11/18/2015		5/18/2016		11/29/2017		5/3/2018		10/22/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U

Notes:

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GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW10								67WW11															
		Sample ID	67WW10-190502		67WW10-191028		67WW10-201102		67WW10-211110		67WW11-060113-FD		67WW11-060113		67WW11-100213		67WW11 FD-012314		67WW11-012314		67WW11FD-012314		67WW11-072414		67WW11-120414	
		Sample Date	5/2/2019		10/28/2019		11/2/2020		11/10/2021		6/1/2013		6/1/2013		10/2/2013		1/23/2014		1/23/2014		1/23/2014		7/24/2014		12/4/2014	
		Sample Purpose	REG		REG		REG		REG		FD		REG		REG		FD		REG		FD		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	46.8		47.1		42.8		43		38.8		43		34.5		37.5	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.85	J	0.869	J	0.799	J	0.823	J	0.748	J	0.823	J	0.684	J	0.567	J
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

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GW-Ind - groundwater MSC for industrial use

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MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW11																						67WW12	
		Sample ID	67WW11-021115		67WW11-051915		67WW11-111915		67WW11-051916		67WW11-112717		67WW11-180502		67WW11-181023		67WW11-190501		67WW11-191024		67WW11-201103		67WW11-211111		67WW12-060113	
		Sample Date	2/11/2015		5/19/2015		11/19/2015		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		6/1/2013	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	30.4		21.6		28.5		19.3		5.2		5.5		6.1		2.8		1.9		1.2		< 0.5	U	< 2	U
1,2-Dichloroethane	µg/L	5	0.559	J	0.518	J	0.513	J	0.396	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

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GW-Ind - groundwater MSC for industrial use

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MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW12																							
		Sample ID	67WW12-100113		67WW12-012414		67WW12-050614		67WW12-072514		67WW12-120314		67WW12-021015		67WW12-051215		67WW12FFD-111815		67WW12-111815		67WW12-051816		67WW12-112917-FD		67WW12-112917	
		Sample Date	10/1/2013		1/24/2014		5/6/2014		7/25/2014		12/3/2014		2/10/2015		5/12/2015		11/18/2015		11/18/2015		5/18/2016		11/29/2017		11/29/2017	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	0.681	J	1.8		2.2	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U			< 0.5	U	< 0.5	U	< 1	U	< 1	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW12												67WW13											
		Sample ID	67WW12-180503		67WW12-181022		67WW12-190502		67WW12-191028		67WW12-201102		67WW12-211110		67WW13-053113		67WW13-100113		67WW13-012414		67WW13FD-012414		67WW13FD-050614		67WW13-050614	
		Sample Date	5/3/2018		10/22/2018		5/2/2019		10/28/2019		11/2/2020		11/10/2021		5/31/2013		10/1/2013		1/24/2014		1/24/2014		5/6/2014		5/6/2014	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 10	U	< 0.5	U	< 1.25	U	< 1.25	U	< 1	U	< 1	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	2.91	J	3.37		2.99		3.01		1.95	J	1.99	J
1,1-Dichloroethene	µg/L	7	< 0.5	U	4.8		2.1		17		40		6.5		498		515		572		569		228		240	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	19.9		23.8		22.9		22.9		12.9		13.7	
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	2.71	J	2.81		2.86		2.99		1.27	J	1.25	J

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW13																							
		Sample ID	67WW13FD-072514		67WW13-072514		67WW13-120414		67WW13FD-120414		67WW13-021115		67WW13-051915		67WW13-111815		67WW13-051916		67WW13-112817		67WW13-180501		67WW13-180501FD		67WW13-181023	
		Sample Date	7/25/2014		7/25/2014		12/4/2014		12/4/2014		2/11/2015		5/19/2015		11/18/2015		5/19/2016		11/28/2017		5/1/2018		5/1/2018		10/23/2018	
		Sample Purpose	FD		REG		REG		FD		REG		REG		REG		REG		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 1.25	U	< 1.25	U	< 1.25	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	3.56		3.48		4.4	J	4.56	J	4.87		5.96		7.66		7		5.1		4.8		4.7		6.1	
1,1-Dichloroethene	µg/L	7	362		353		572		522		521		522		762		274		320		160		170		570	
1,2-Dichloroethane	µg/L	5	20.1		19.8		24.9		24.6		26		30.6		42.6		35.7		32		27		28		43	
Trichloroethene	µg/L	5	1.71		1.72		1.65	J	1.94	J	2.63		2.91		3.32		1.67	J	< 1	U	< 0.5	U	< 0.5	U	2.4	

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW13												67WW14											
		Sample ID	67WW13-190501		67WW13-190501-FD		67WW13-191028		67WW13-201103		67WW13-211111		67WW13-211111-FD		67WW14-100113-FD		67WW14-100113		67WW14-012414		67WW14-050714		67WW14-072514		67WW14-120314	
		Sample Date	5/1/2019		5/1/2019		10/28/2019		11/3/2020		11/11/2021		11/11/2021		10/1/2013		10/1/2013		1/24/2014		5/7/2014		7/25/2014		12/3/2014	
		Sample Purpose	REG		FD		REG		REG		REG		FD		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	3.9		3.8		5		5.7		< 1	UJ	5.9	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	200		160		640		720		< 0.5	UJ	410	J	2.22		1.82	J	2.58		4.27		3.57		4.73	
1,2-Dichloroethane	µg/L	5	24		23		36		44		< 0.5	UJ	43	J	0.849	J	0.692	J	0.666	J	0.897	J	1.31		0.79	J
Trichloroethene	µg/L	5	1.1		1		2.6		3.1		< 0.5	UJ	2.4	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW14																							
		Sample ID	67WW14-021015		67WW14FD-021015		67WW14-051215		67WW14FD-051215		67WW14-111815		67WW14-051816		67WW14-112717		67WW14-180502		67WW14-181022		67WW14-190502		67WW14-191024		67WW14-201102	
		Sample Date	2/10/2015		2/10/2015		5/12/2015		5/12/2015		11/18/2015		5/18/2016		11/27/2017		5/2/2018		10/22/2018		5/2/2019		10/24/2019		11/2/2020	
		Sample Purpose	REG		FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	3.46		3.61		2.77		2.93		**26.3**		**10.8**		5.6		4.2		6.6		5.3		**7.4**		4.9	
1,2-Dichloroethane	µg/L	5	0.64	J	0.657	J	0.799	J	0.815	J	**5.83**		3.54		3.1		1.9		2.5		1.8		1.5		< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW14		67WW15																67WW16		67WW16I			
		Sample ID	67WW14-211110		67WW15-051916		67WW15-112717		67WW15-180502		67WW15-181023		67WW15-190503		67WW15-191024		67WW15-201103		67WW15-211111		67WW16-051816		67WW16I-112917		67WW16I-180503	
		Sample Date	11/10/2021		5/19/2016		11/27/2017		5/2/2018		10/23/2018		5/3/2019		10/24/2019		11/3/2020		11/11/2021		5/18/2016		11/29/2017		5/3/2018	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 10	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 1	U	**22.7**		**5.6**		**5.6**		**6**		**5.4**		**6.4**		**6.4**		**5.7**		< 0.5	U	< 1	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	3		**2,460**		**510**		**380**		**670**		**330**		**640**	J	**730**		**420**		< 1	U	< 1	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	0.58	J	**117**		**27**		**26**		**30**		**22**		**27**		**29**		**43**		< 0.5	U	< 1	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	**5.48**	J	< 1	U	1.2		1.4		1.1		1.5		2		2.2		< 0.5	U	< 1	U	< 0.5	U

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Table 2-5
Historical Contaminants of Concern

		Location Code	67WW16I										67WW17								67WW18					
		Sample ID	67WW16I-181025		67WW16I-190501		67WW16I-191024		67WW16I-201103		67WW16I-211111		67WW17-191024		67WW17-201102-FD		67WW17-201102		67WW17-211110		67WW18-191024		67WW18-191024-FD		67WW18-201102	
		Sample Date	10/25/2018		5/1/2019		10/24/2019		11/3/2020		11/11/2021		10/24/2019		11/2/2020		11/2/2020		11/10/2021		10/24/2019		10/24/2019		11/2/2020	
		Sample Purpose	REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		FD		REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-5
Historical Contaminants of Concern

		Location Code	67WW18	
		Sample ID	67WW18-211110	
		Sample Date	11/10/2021	
		Sample Purpose	REG	
Parameter	Units	MCL/GW-Ind	Result	Val Qual
1,1,1-Trichloroethane	µg/L	200	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U

Notes:

Bold and highlighted results indicate analyte is above the MCL/GW-Ind.

µg/L - micrograms per liter

< The analyte was not detected above the detection limit shown.

J - estimated value

U - Not detected; The analyte was analyzed for but not detected above the associated method detection limit.

FD - field duplicate

GW-Ind - groundwater MSC for industrial use

ID - identifier

MCL - maximum contaminant level

MSC - medium-specific concentration

REG - regular sample

Val Qual - validation qualifier

Table 2-6
Well Maintenance Activities, Year 8 Remedial Action Operation

Well ID	Date Inspected	Pads	Bollards	Protective Casings	Locks	Date Mowed	Photos	Comments
67WW01	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW02	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW03	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW04	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW05	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW06	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW07	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW08	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW09	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW09A	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW10	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW11	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW12	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW13	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW14	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW15	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW16I	11/11/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW17	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	
67WW18	11/10/21	Good	Good	Good	In Place	11/02/21	Yes	

Notes:

ID - identifier

Table 2-7
Year 9 Remedial Action Operation Sampling, 2022

Monitoring Well ID	VOCs	Field Parameters [a]	MNA Parameters [b]	Water Levels
67WW01	X	X		X
67WW02	X	X		X
67WW03	X	X		X
67WW04 [c]	Gauge for water levels only			X
67WW05	X	X		X
67WW06 [d]	Gauge for water levels only			X
67WW07	X	X		X
67WW08	X	X	X	X
67WW09	X	X		X
67WW09A	X	X		X
67WW10	X	X		X
67WW11	X	X		X
67WW12	X	X		X
67WW13	X	X	X	X
67WW14	X	X		X
67WW15	X	X		X
67WW16I	X	X		X
67WW17	X	X		X
67WW18	X	X		X

Notes:

[a] Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferrous iron.

[b] MNA parameters include nitrate, sulfate, chloride, TOC, dissolved gases (methane, ethane, ethene), carbon dioxide, and dissolved iron.

[c] 67WW04 was replaced by 67WW09A and 67WW10.

[d] 67WW06 was eliminated in May 2018 due to the close proximity of 67WW07.

X - Well will be analyzed for that parameter.

ID - identifier

MNA - monitored natural attenuation

RA-O - remedial action operation

TOC - total organic carbon

VOCs - volatile organic compounds

Table 3-1
Mann-Kendall Trend Summary, LHAAP-67

Monitoring Well	Well Location	1,1-DCE	1,2-DCA	1,1,2-TCA
67WW01	In Plume	Stable	Stable	NA
67WW02	Downgradient	Increasing	Increasing	NA
67WW08	Upgradient	Decreasing	Decreasing	NA
67WW09	Upgradient	NA	Increasing	Increasing
67WW12	Cross gradient – East	Increasing	NA	NA
67WW13	In Plume	No Trend	Increasing	Increasing
67WW15	In Plume	Stable	No Trend	Stable

Notes:

DCA - dichloroethane

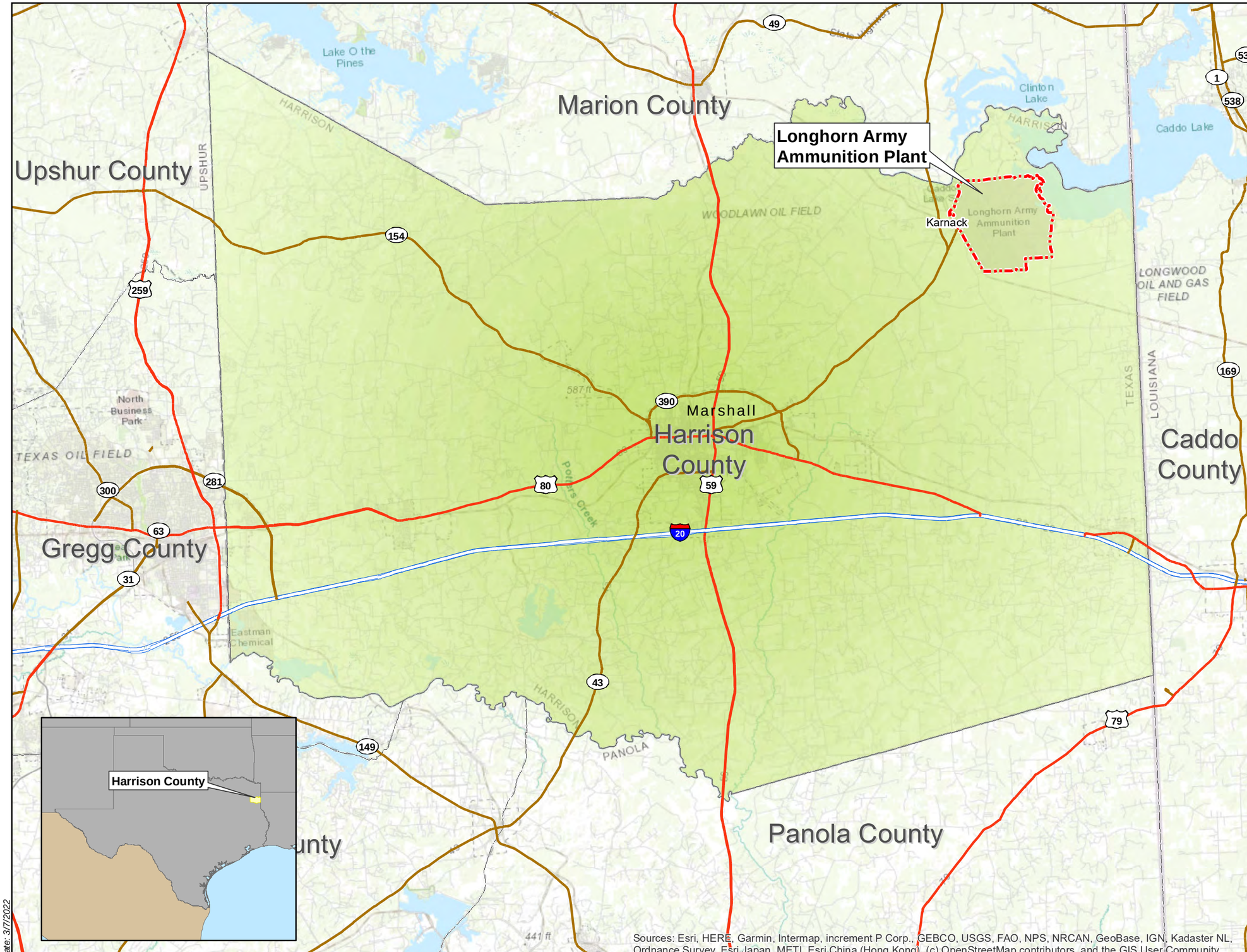
DCE - dichloroethene

MCL - maximum contaminant level

NA - Not analyzed because concentrations are below the MCL.

TCA - trichloroethane

Figures



Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

N

0 2 4 Miles

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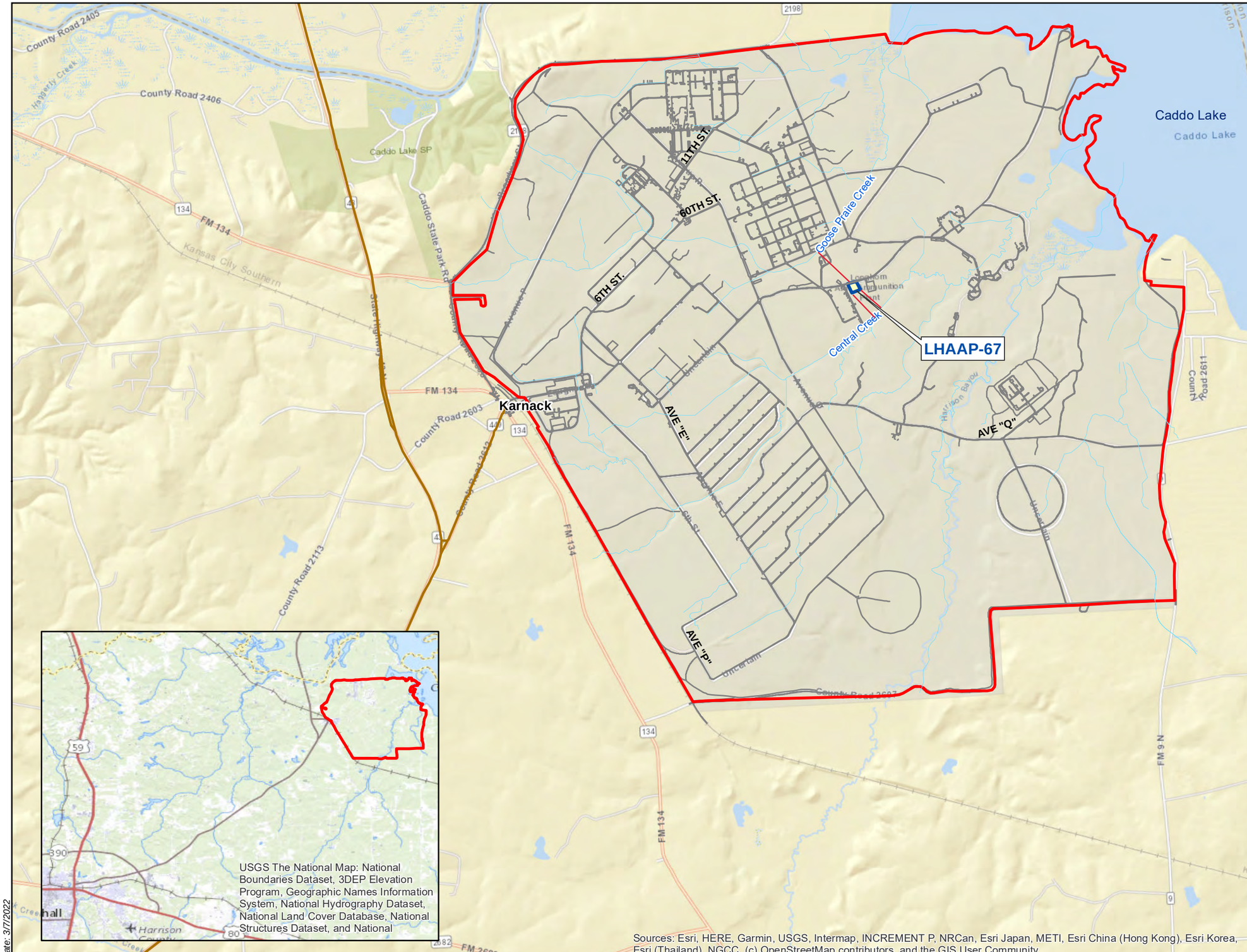
Figure 1-1

LHAAP Location Map
Eighth Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS



Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

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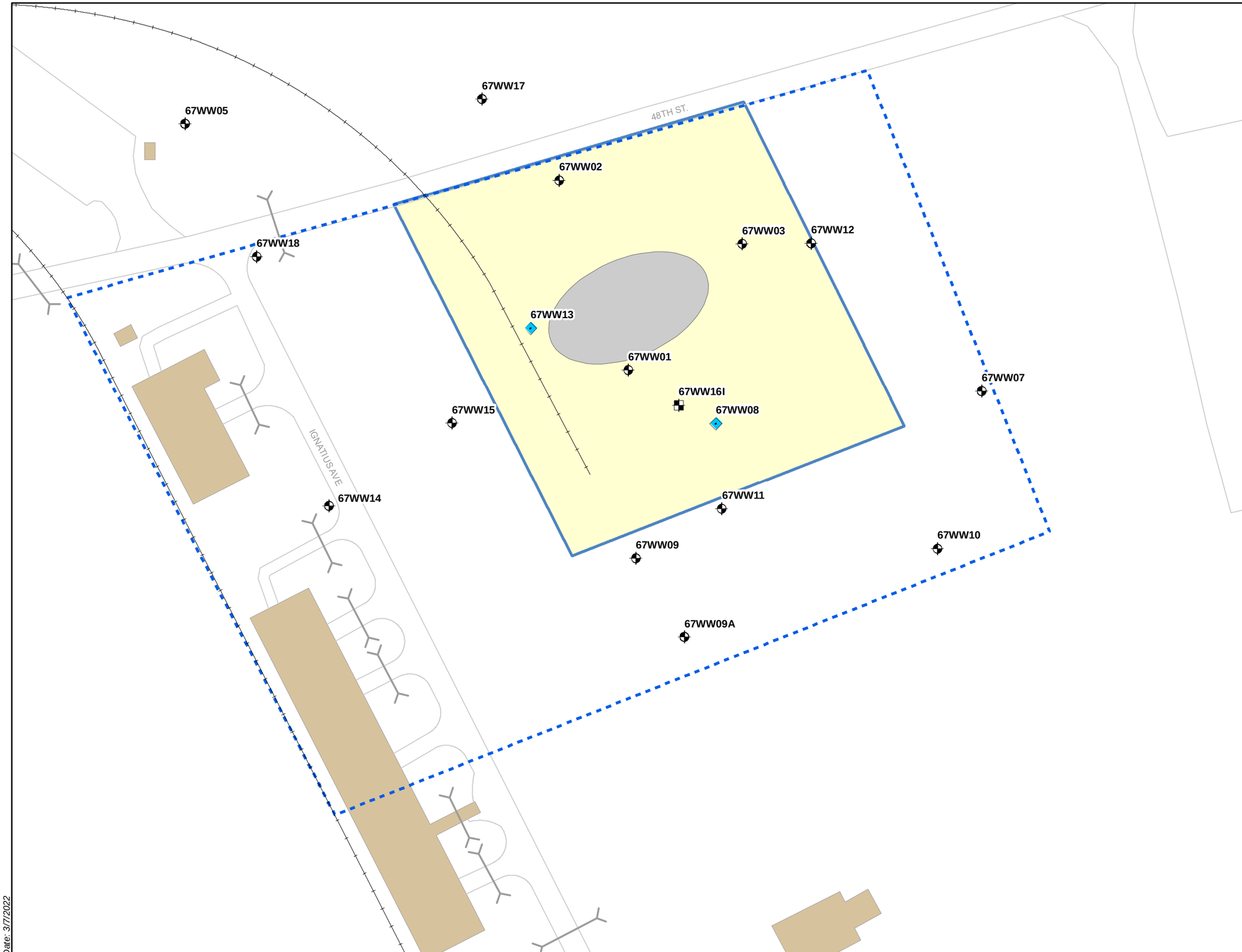
Figure 1-2

LHAAP Site Vicinity Map
Eighth Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/7/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_SiteLocationMap.mxd



Shallow Monitoring Well
Intermediate Monitoring Well
Current MNA Parameter Analysis Well Location
Former Railroad Location
Culvert
Surveyed Land Use Control Boundary
Roads
Buildings
Approximate Tank Location
LHAAP-67 Site Boundary

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

N

0 37.5 75 Feet

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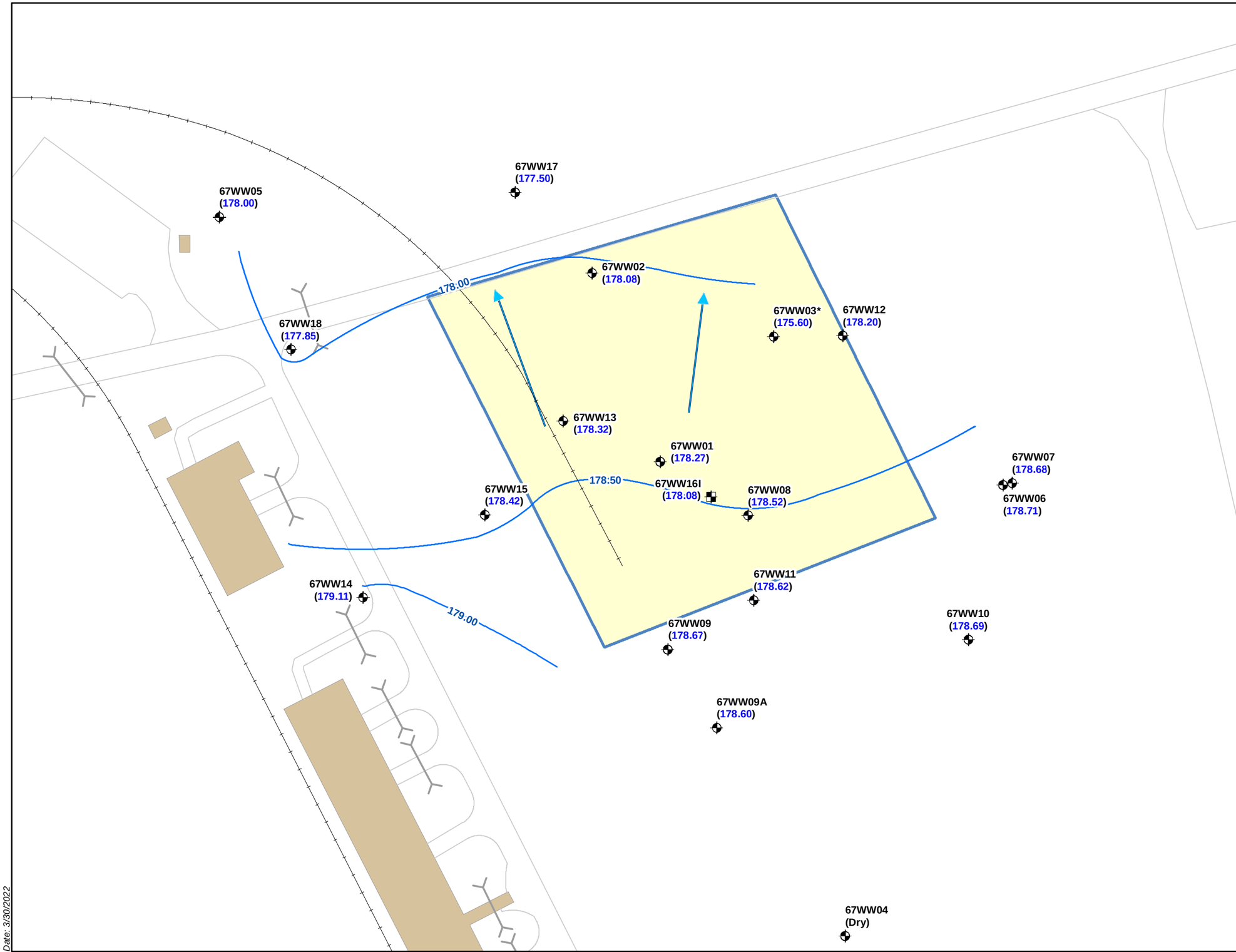
Figure 2-1

Groundwater Monitoring Well Locations
Eighth Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/7/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_GWMonitoringLocations.mxd



Shallow Monitoring Well
Intermediate Monitoring Well
Groundwater Flow Direction
Groundwater Contour
(*Dashed where inferred*)
Former Railroad Location
Culvert
Roads
Buildings

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations
3. Groundwater elevations are presented in feet above mean sea level (MSL).
4. * = The groundwater elevation measured at 67WW03 is believed to be anomalous and was not used to develop the potentiometric contours.

N

0 30 60
Feet

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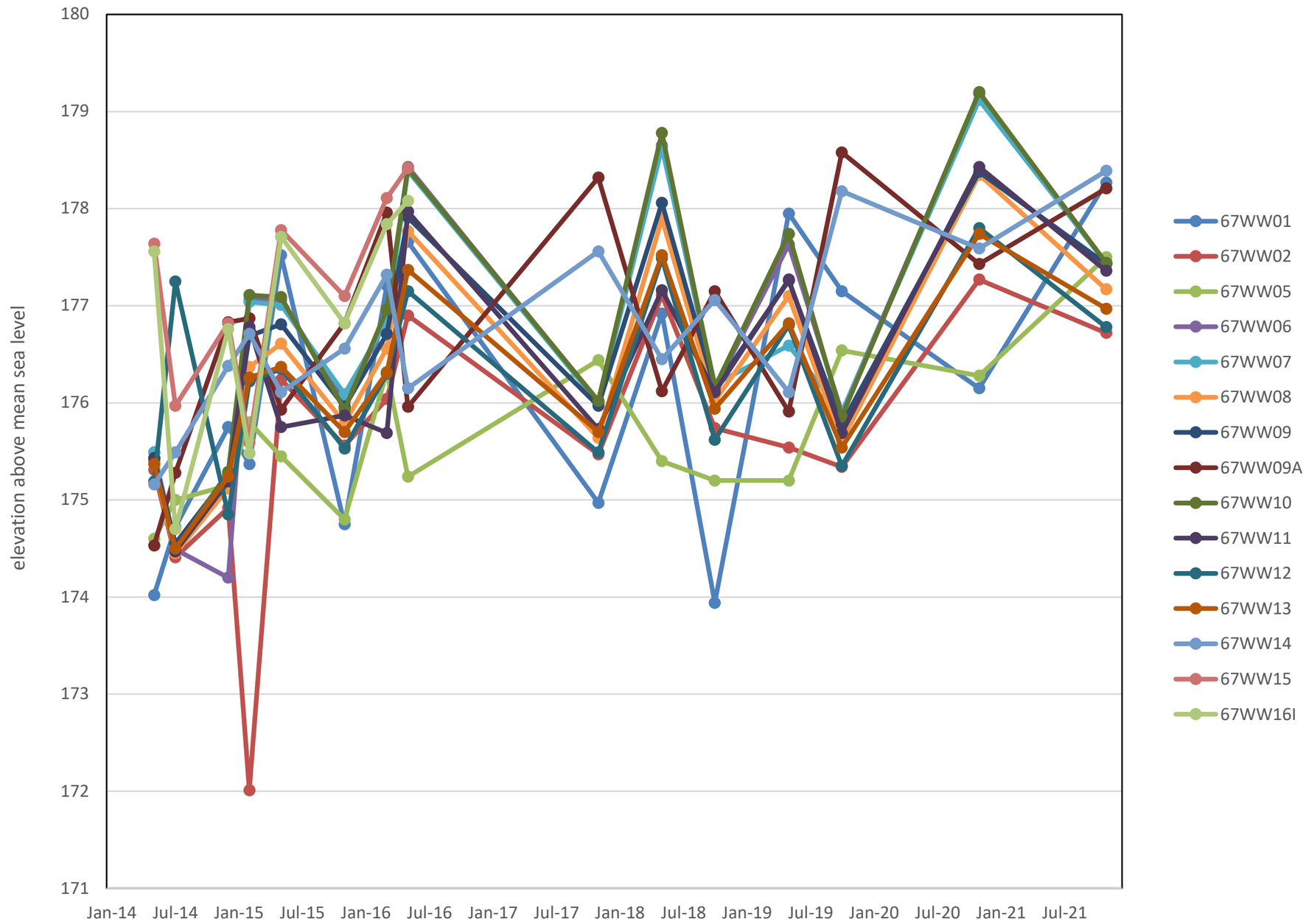
Figure 2-2
Shallow Zone Potentiometric Map - November 2021
Eighth Annual RA-O Report
LHAAP-67
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/30/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_ShallowZone_Pot_Nov2021.mxd



Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

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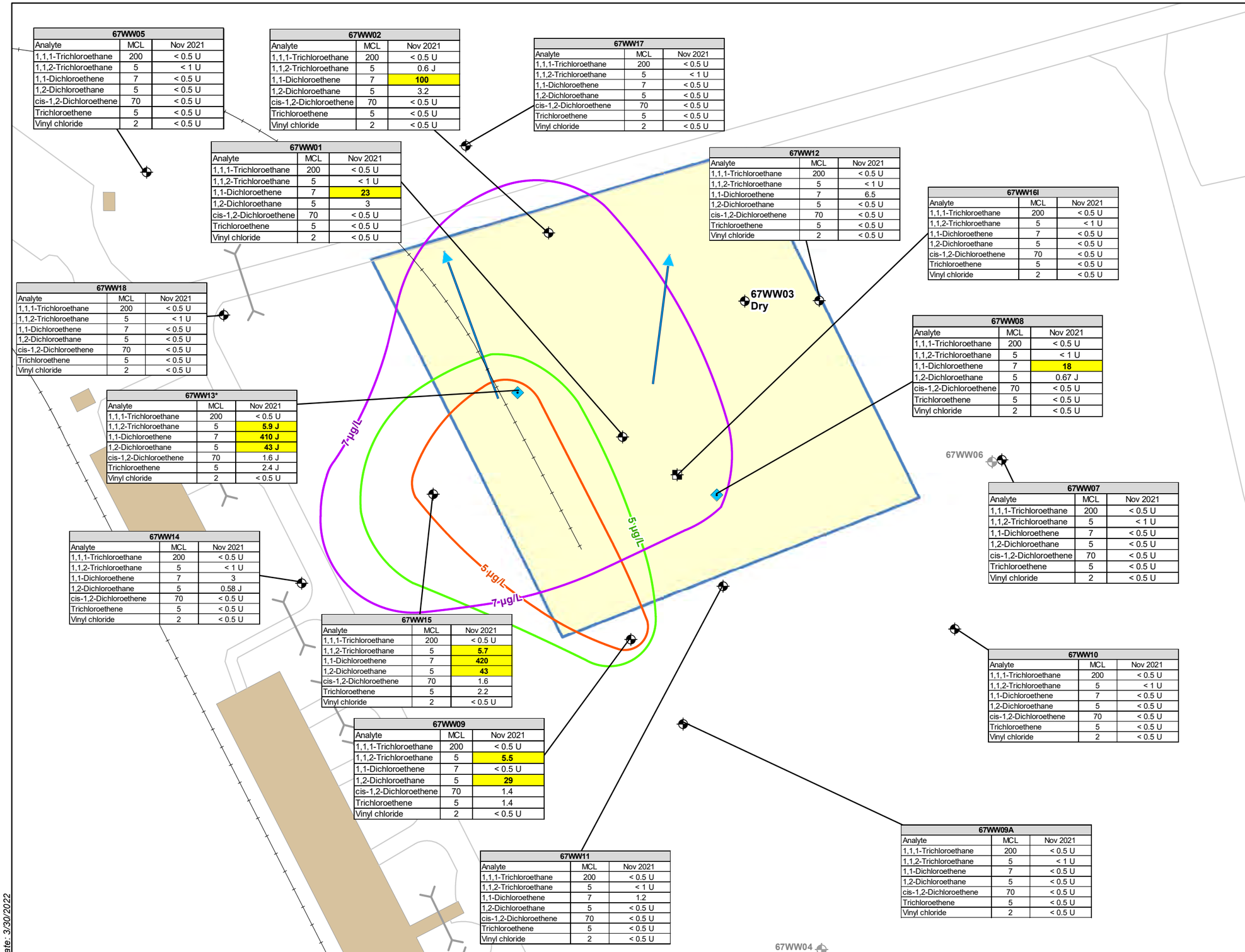
Figure 2-3
Groundwater Elevations
2014-2021
Eighth Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/7/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_GW_Elevations.mxd



67WW05		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW02		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	0.6 J
1,1-Dichloroethene	7	**100**
1,2-Dichloroethane	5	3.2
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW17		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW01		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	**23**
1,2-Dichloroethane	5	3
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW12		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	6.5
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW16I		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW18		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW08		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	**18**
1,2-Dichloroethane	5	0.67 J
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW13*		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	**5.9 J**
1,1-Dichloroethene	7	**410 J**
1,2-Dichloroethane	5	**43 J**
cis-1,2-Dichloroethene	70	1.6 J
Trichloroethene	5	2.4 J
Vinyl chloride	2	< 0.5 U

67WW07		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW14		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	3
1,2-Dichloroethane	5	0.58 J
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW15		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	**5.7**
1,1-Dichloroethene	7	**420**
1,2-Dichloroethane	5	**43**
cis-1,2-Dichloroethene	70	1.6
Trichloroethene	5	2.2
Vinyl chloride	2	< 0.5 U

67WW10		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW09		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	**5.5**
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	**29**
cis-1,2-Dichloroethene	70	1.4
Trichloroethene	5	1.4
Vinyl chloride	2	< 0.5 U

67WW11		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	1.2
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

67WW09A		
Analyte	MCL	Nov 2021
1,1,1-Trichloroethane	200	< 0.5 U
1,1,2-Trichloroethane	5	< 1 U
1,1-Dichloroethene	7	< 0.5 U
1,2-Dichloroethane	5	< 0.5 U
cis-1,2-Dichloroethene	70	< 0.5 U
Trichloroethene	5	< 0.5 U
Vinyl chloride	2	< 0.5 U

- Current MNA Parameter Analysis Well Location
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Former Railroad Location
- Groundwater Flow Direction
- 1,1,2-Trichloroethane Contour
- 1,1-Dichloroethene Contour (*Dashed where inferred*)
- 1,2-Dichloroethane Contour
- Culvert
- Roads
- Buildings
- LHAAP-67 Site Boundary

Note:
1. Data Qualifiers:
J = Estimated value; analyte concentration was less than the limit of quantification.
U = Analyte was not detected
2. Result highlighted yellow indicates results exceeds MCL.
3. MCL = Maximum Contaminant Level
4. All concentrations are in microgram per liter (µg/L)
5. RA-O = Remedial Action Operations
6. LHAAP = Longhorn Army Ammunition Plant
7. 67WW16I is an intermediate well and data was not used for contour lines
8. * = The Field Duplicate results were used. An evaluation of the historical data concluded that these values are more representative of the site groundwater.

Monitoring wells 67WW04 and 67WW06 are no longer part of the RA-O monitoring network.

N

0 35 70 Feet

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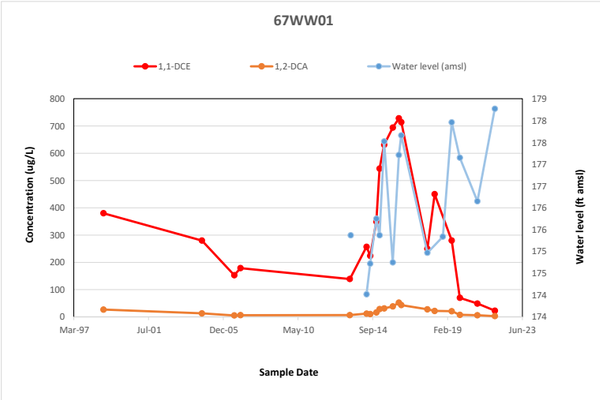
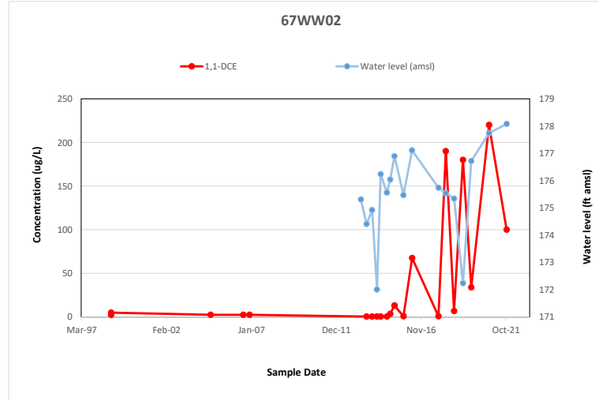
Figure 2-4
Groundwater Results
November 2021
Eighth Annual RA-O Report
LHAAP-67

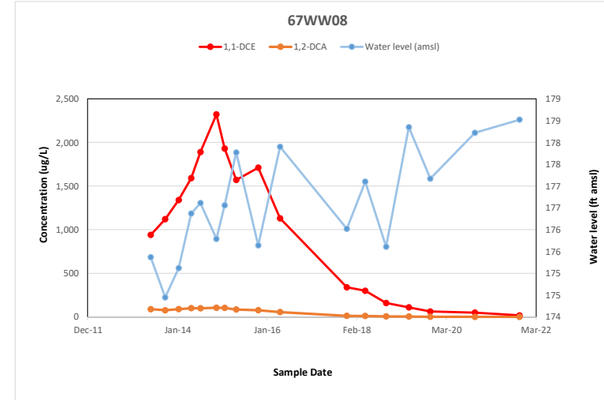
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

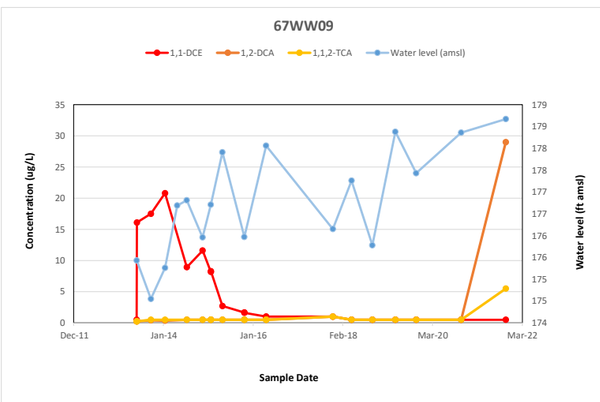
Date: 3/30/2022

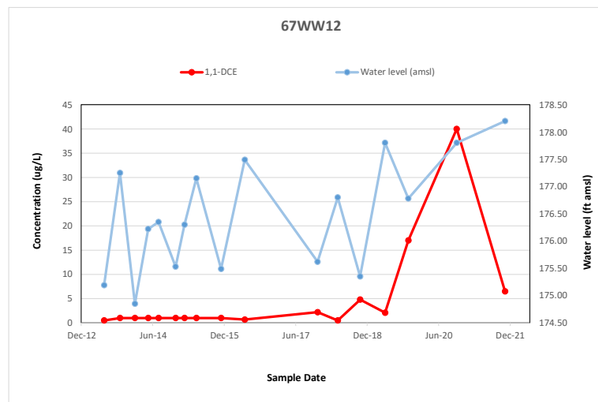
Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_VOCsShallowZoneNov2021_GW.mxd

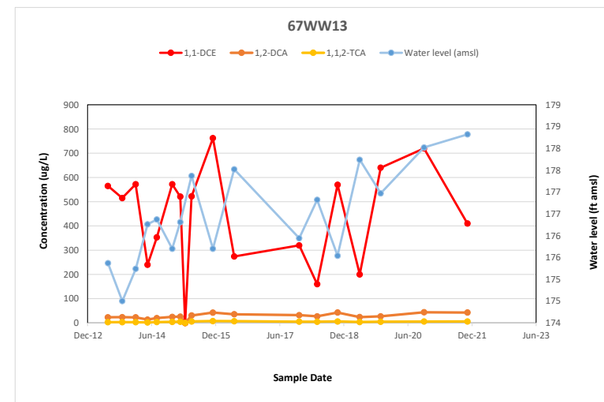


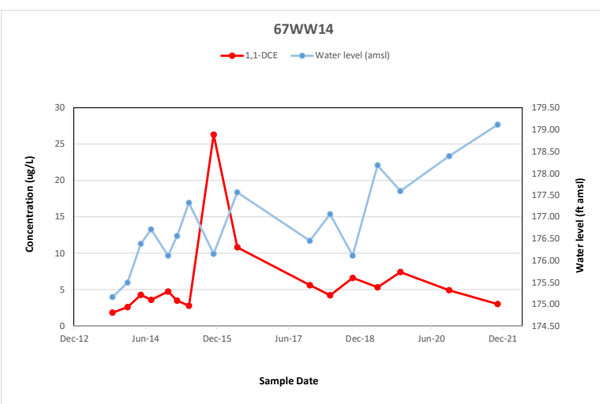


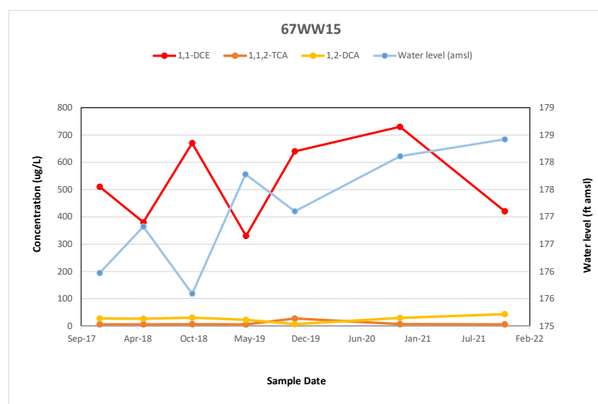












Cleanup Levels:
1,1-Dichlorothene (1,1-DCE) = 7 µg/L
1,2-Dichlorethane (1,2-DCA) = 5 µg/L
1,1,2-Trichloroethane (1,1,20TCA) = 5 µg/L

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

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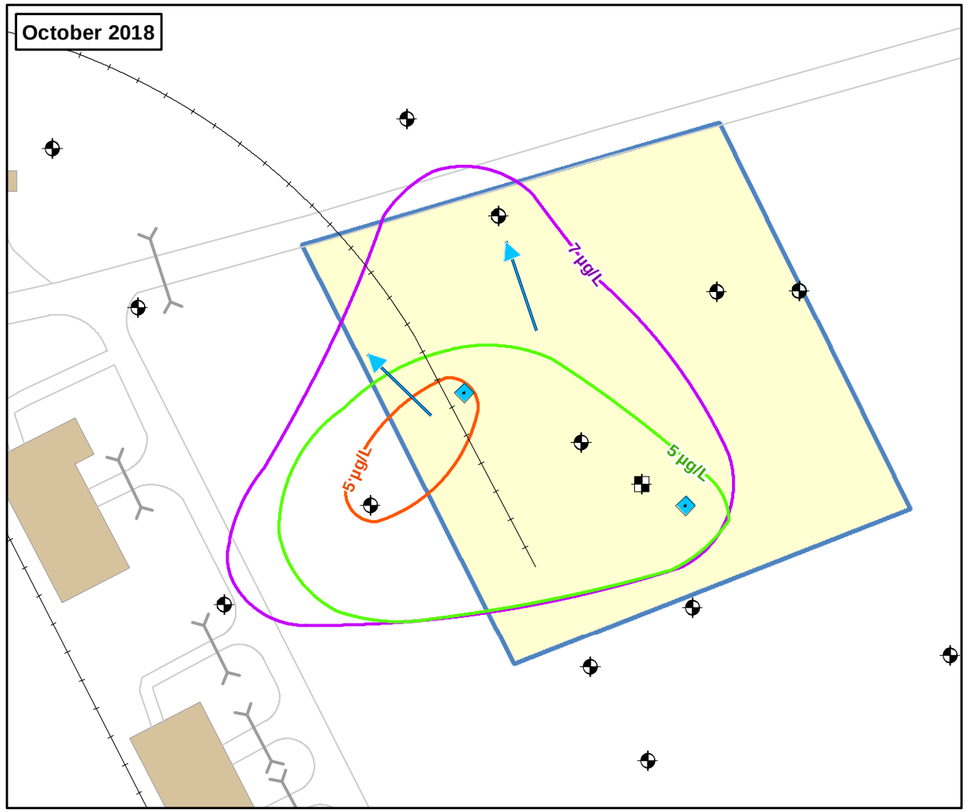
Figure 3-1

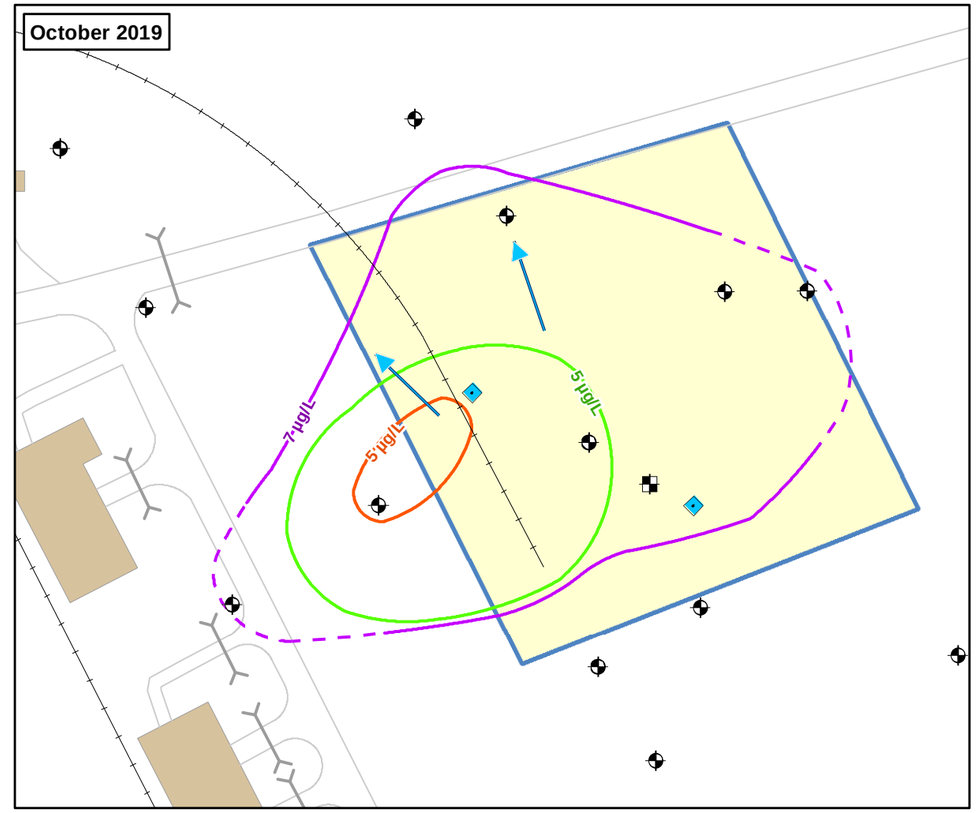
COC Concentrations
Eighth Annual RA-O Report
LHAAP-67

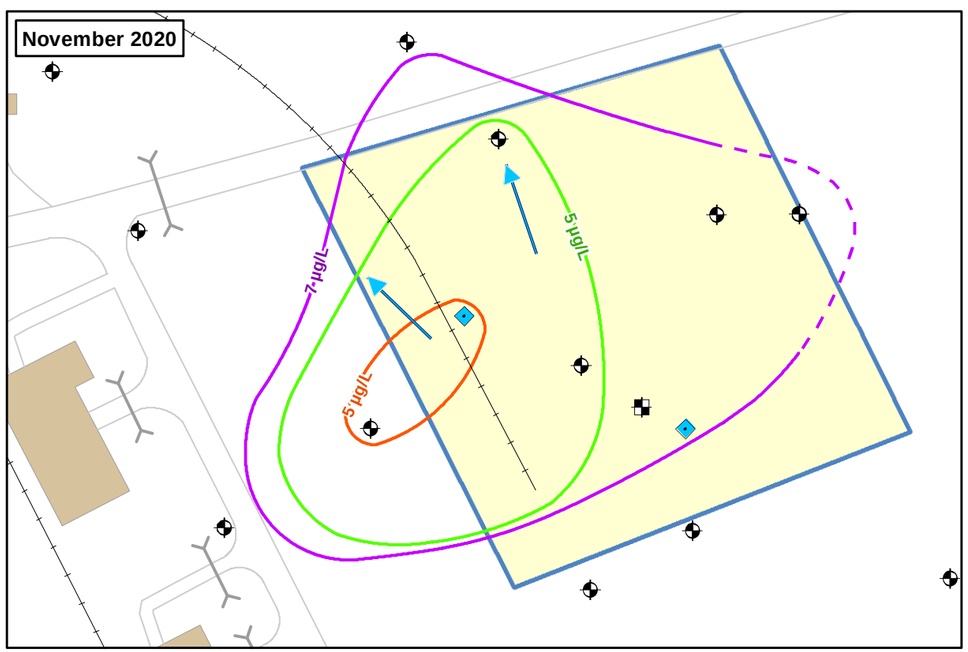
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

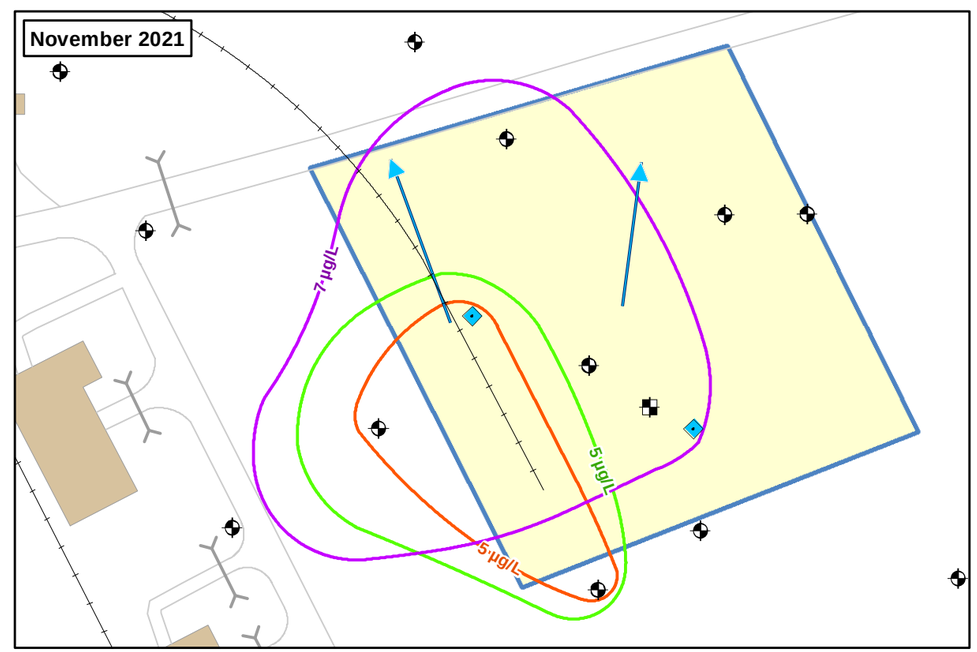
Date: 3/9/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_COC_Concentrations.mxd









- Current MNA Parameter Analysis Well Location
- Shallow Monitoring Well
- Intermediate Monitoring Well
- Former Railroad Location
- Groundwater Flow Direction
- 1,1,2-Trichloroethane Contour
- 1,1-Dichloroethene Contour
- 1,2-Dichloroethane Contour
- Culvert
- Roads
- Buildings
- LHAAP-67 Site Boundary

Notes:
1. LHAAP = Longhorn Army Ammunition Plant
2. RA-O = Remedial Action Operations

N

0 35 70 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

Figure 3-2

Plume Stability
Eighth Annual RA-O Report
LHAAP-67

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 3/30/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP67\RAO\Year8\LHAAP67_PlumeStability.mxd

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

Appendix A

Annual Land-Use Control Compliance Certification and Documentation

Sample Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Design dated SEPTEMBER 2011 for LHAAP-67 a certification of site was conducted by Aptim [indicate transferee] on 11/10/21.

A summary of land use control mechanisms is as follows:

Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met [Indicate whether groundwater restrictions are still required at LHAAP-67]

A summary of compliance with land use and restriction covenants is as follows:

No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-67.

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief.

Date: NOVEMBER 10, 2021

Name/Title: SCOTT BEESINGER SENIOR FIELD TECH

Signature: Scott Beesinger

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year.

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

Appendix B

Groundwater Sampling Forms

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW01-211111

DATE/TIME: 11/11/21, 0647

Pump Inlet Depth: 23.75

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 0655

Depth to Water - Initial (DTWi) (ft) 22.65

Purge End Date/Time: 11/11/21 0725

Depth to Well Bottom (ft) 26.95

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 14.68-24.68

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 23.75

Pump Start Time: 0625

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 22.65

APTIM

Sample Collection Log

Location ID: 67WW01 Sample No: 67WW01-2111 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0700	100	.5	22.72	3.23	18.94	7.10	115	43	1.21
	0705	100	1.0	22.78	3.28	18.27	6.71	101	35	0.95
	0710	100	1.5	22.82	3.30	18.30	6.48	99.1	38	0.58
	0715	100	2.0	22.85	3.31	18.33	6.47	98.5	38	0.57
	0720	100	2.5	22.88	3.31	18.35	6.47	98.0	39	0.56
	0725	100	3.0	22.91	3.31	18.37	6.46	97.7	39	0.55

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW02**

Sampler(s): Scott Bergsinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW02-211110 **DATE/TIME:** 11/10/21 0921 **Pump Inlet Depth:** 23.08

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.61

Depth to Well Bottom (ft) 27.77

Screen Interval (ft): 18.08 - 28.08

Approximate depth of pump inlet*(ft): 23.08

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/10/21 0925

Purge End Date/Time: 11/10/21 0955

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0925

2ND DTW - 21.61

APTIM

Sample Collection Log

Location ID: 67WW02 Sample No: 67WW02-2111_10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	0930	100	.5	21.69	4.57	17.38	6.62	83.5	90	0.77
	0935	100	1.0	21.75	4.63	17.81	6.10	75.1	95	0.49
	0940	100	1.5	21.79	4.64	18.07	5.90	72.8	106	0.36
	0945	100	2.0	21.82	4.65	18.13	5.90	72.4	107	0.35
	0950	100	2.5	21.85	4.65	18.17	5.89	71.5	107	0.34
	0955	100	3.0	21.87	4.65	18.21	5.89	71.0	108	0.34

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW03**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW03-2111 LD

DATE/TIME: 11/10/21 1001

Pump Inlet Depth: NA

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 NA

Depth to Water - Initial (DTWi) (ft) 24.84

Purge End Date/Time: 11/10/21 NA

Depth to Well Bottom (ft) 24.87

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 16.32-26.32

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): NA

Pump Start Time: NA

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 24.84

APTIM

Sample Collection Log

Location ID: 67WW03 Sample No: 67WW03-2111/0										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21										
			Dry well							

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **67WW05**

Project No: **501032**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW05-2111 10 **DATE/TIME:** 11/10/21 0706 **Pump Inlet Depth:** 24.52

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 0710

Depth to Water - Initial (DTWi) (ft) 23.00

Purge End Date/Time: 11/10/21 0740

Depth to Well Bottom (ft) 30.07

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.52 - 29.52

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 24.52

Pump Start Time: 0710

Ferrous Iron (Required Y or N) _____ mg/L

2ND DEPTH TO WATER - 23.00

APTIM

Sample Collection Log

Location ID: 67WW05					Sample No: 67WW05-2111/10					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	0715	100	.5	23.08	3.09	16.57	6.56	77.5	12	0.85
	0720	100	1.0	23.14	3.10	17.36	6.15	70.3	30	0.50
	0725	100	1.5	23.19	3.10	17.59	5.96	65.9	46	0.32
	0730	100	2.0	23.22	3.10	17.66	5.96	65.4	47	0.31
	0735	100	2.5	23.25	3.11	17.72	5.95	64.7	47	0.31
	0740	100	3.0	23.27	3.11	17.77	5.95	64.1	48	0.30

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW05**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW05-2111 10 -FD **DATE/TIME:** 11/10/21 0706 **Pump Inlet Depth:** 24.52

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 0710

Depth to Water - Initial (DTWi) (ft) 23.00

Purge End Date/Time: 11/10/21 0740

Depth to Well Bottom (ft) 30.07

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 19.52 - 29.52

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 24.52

Pump Start Time: 0710

Ferrous Iron (Required Y or N) _____ mg/L

2ND DEPTH TO WATER - 23.00

APTIM

Sample Collection Log

Location ID: 67WW05 Sample No: 67WW05-2111 10 -FD

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	0715	100	.5	23.08	3.09	16.57	6.56	77.5	12	0.85
	0720	100	1.0	23.14	3.10	17.36	6.15	70.3	30	0.50
	0725	100	1.5	23.19	3.10	17.59	5.96	65.9	46	0.32
	0730	100	2.0	23.22	3.10	17.66	5.96	65.4	47	0.31
	0735	100	2.5	23.25	3.11	17.72	5.95	64.7	47	0.31
	0740	100	3.0	23.27	3.11	17.77	5.95	64.1	48	0.30

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW07**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW07-211110 **DATE/TIME:** 11/10/21 1051 **Pump Inlet Depth:** 23.50

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 1100

Depth to Water - Initial (DTWi) (ft) 22.16

Purge End Date/Time: 11/10/21 1130

Depth to Well Bottom (ft) 27.81

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.80 - 27.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 23.50

Pump Start Time: 1100

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 22.16

APTIM

Sample Collection Log

Location ID: 67WW07 Sample No: 67WW07-2111/10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	1105	100	.5	22.23	1.26	18.98	6.12	21.5	135	1.17
	1110	100	1.0	22.28	1.23	18.98	5.69	16.7	146	0.98
	1115	100	1.5	22.31	1.23	19.09	5.45	15.2	153	0.88
	1120	100	2.0	22.35	1.23	19.12	5.44	14.9	153	0.87
	1125	100	2.5	22.37	1.23	19.15	5.44	14.4	154	0.86
	1130	100	3.0	22.39	1.23	19.19	5.43	14.1	154	0.85

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW08**

Sampler(s): Scott Begginger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW08-211111 **DATE/TIME:** 11/11/21 0811 **Pump Inlet Depth:** 38.27

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 0815

Depth to Water - Initial (DTWi) (ft) 21.50

Purge End Date/Time: 11/11/21 0845

Depth to Well Bottom (ft) 51.79

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 26.02-50.52

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 38.27

Pump Start Time: 0815

Ferrous Iron (Required Y or N) 0.28 mg/L

2ND DTW - 21.50

APTIM

Sample Collection Log

Location ID: 67WW08 Sample No: 67WW08-2111 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0820	100	.5	21.57	6.42	17.02	6.31	17.7	83	1.17
	0825	100	1.0	21.62	6.50	17.91	5.97	16.0	137	0.94
	0830	100	1.5	21.65	6.43	18.11	5.75	15.0	171	0.85
	0835	100	2.0	21.67	6.42	18.17	5.74	14.6	172	0.84
	0840	100	2.5	21.69	6.42	18.23	5.73	14.2	173	0.84
	0845	100	3.0	21.70	6.41	18.27	5.73	13.8	174	0.83

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW08**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW08-211111 -MS **DATE/TIME:** 11/11/21 0811 **Pump Inlet Depth:** 38.27

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 0815

Depth to Water - Initial (DTWi) (ft) 21.50

Purge End Date/Time: 11/11/21 0845

Depth to Well Bottom (ft) 51.79

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 26.02 - 50.52

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 38.27

Pump Start Time: 0815

Ferrous Iron (Required Y or N) 0.28 mg/L

2ND DTW - 21.50

APTIM

Sample Collection Log

Location ID: 67WW08				Sample No: 67WW08-2111_11_-MS						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0820	100	.5	21.57	6.42	17.02	6.31	17.7	83	1.17
	0825	100	1.0	21.62	6.50	17.91	5.97	16.0	137	0.94
	0830	100	1.5	21.65	6.43	18.11	5.75	15.0	171	0.85
	0835	100	2.0	21.67	6.42	18.17	5.74	14.6	172	0.84
	0840	100	2.5	21.69	6.42	18.23	5.73	14.2	173	0.84
	0845	100	3.0	21.70	6.41	18.27	5.73	13.8	174	0.83

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW08**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW08-211111-MSD **DATE/TIME:** 11/11/21 0811 **Pump Inlet Depth:** 38.27

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 0815

Depth to Water - Initial (DTWi) (ft) 21.50

Purge End Date/Time: 11/11/21 0845

Depth to Well Bottom (ft) 57.79

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 26.02 - 50.52

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 38.27

Pump Start Time: 0815

Ferrous Iron (Required Y or N) 0.28 mg/L

2ND DTW - 21.50

APTIM

Sample Collection Log

Location ID: 67WW08 Sample No: 67WW08-2111 11 -MSD

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0820	100	.5	21.57	6.42	17.02	6.31	17.7	83	1.17
	0825	100	1.0	21.62	6.50	17.91	5.97	16.0	137	0.94
	0830	100	1.5	21.65	6.43	18.11	5.75	15.0	171	0.85
	0835	100	2.0	21.67	6.42	18.17	5.74	14.6	172	0.84
	0840	100	2.5	21.69	6.42	18.23	5.73	14.2	173	0.84
	0845	100	3.0	21.70	6.41	18.27	5.73	13.8	174	0.83

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW09**

Sampler(s): Scott Bergsinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW09-211111 **DATE/TIME:** 11/11/21 1127 **Pump Inlet Depth:** 26.74

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 1135

Depth to Water - Initial (DTWi) (ft) 19.54

Purge End Date/Time: 11/11/21 1205

Depth to Well Bottom (ft) 37.78

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 16.99-36.49

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 26.74

Pump Start Time: 1135

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 19.54

APTIM

Sample Collection Log

Location ID: 67WW09 Sample No: 67WW09-2111 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	1140	100	.5	19.61	3.44	19.87	6.47	1.6	216	0.90
	1145	100	1.0	19.67	3.46	19.91	6.12	1.8	221	0.68
	1150	100	1.5	19.71	3.46	19.97	5.94	1.7	233	0.51
	1155	100	2.0	19.75	3.47	20.02	5.93	1.6	233	0.50
	1200	100	2.5	19.77	3.47	20.05	5.93	1.5	234	0.50
	1205	100	3.0	19.79	3.47	20.08	5.92	1.4	234	0.50

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW09A**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW09A-211110 **DATE/TIME:** 11/10/21 1221 **Pump Inlet Depth:** 30.68

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 24.33

Depth to Well Bottom (ft) 38.63

Screen Interval (ft): 23.33 - 38.03

Approximate depth of pump inlet*(ft): 30.68

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/10/21 1225

Purge End Date/Time: 11/10/21 1255

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1225

2ND DTW - 24.33

APTIM

Sample Collection Log

Location ID: 67WW09A Sample No: 67WW09A-2111 10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	1230	100	.5	24.40	4.46	21.99	6.34	16.7	77	0.83
	1235	100	1.0	24.46	4.69	22.26	6.03	11.5	150	0.51
	1240	100	1.5	24.50	4.75	21.40	6.00	8.0	181	0.28
	1245	100	2.0	24.52	4.76	21.33	6.00	7.4	182	0.27
	1250	100	2.5	24.54	4.76	21.27	5.99	6.3	183	0.26
	1255	100	3.0	24.55	4.77	21.21	5.99	5.7	184	0.26

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW10-211110

DATE/TIME: 11/10/21 1136

Pump Inlet Depth: 37.46

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 22.82

Depth to Well Bottom (ft) 50.60

Screen Interval (ft): 22.71 - 52.21

Approximate depth of pump inlet*(ft): 37.46

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 11/10/21 1145

Purge End Date/Time: 11/10/21 1215

Discharge Tube Length: NA

PID Reading: NA

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Pump Start Time: 1145

2ND DTW - 22.82

APTIM

Sample Collection Log

Location ID: 67WW10 Sample No: 67WW10-2111 10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	1150	100	.5	22.90	5.28	20.51	5.49	90.5	120	0.70
	1155	100	1.0	22.95	5.30	19.75	5.03	84.7	183	0.39
	1200	100	1.5	22.99	5.26	19.73	4.91	79.8	200	0.28
	1205	100	2.0	23.01	5.25	19.71	4.90	79.4	200	0.28
	1210	100	2.5	23.03	5.25	19.69	4.90	78.7	201	0.27
	1215	100	3.0	23.04	5.25	19.67	4.89	78.3	201	0.27

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW11**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW11-211111 **DATE/TIME:** 11/11/21 0903 **Pump Inlet Depth:** 35.18

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.02

Depth to Well Bottom (ft) 46.58

Screen Interval (ft): 22.93 - 47.43

Approximate depth of pump inlet*(ft): 35.18

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/11/21 0910

Purge End Date/Time: 11/11/21 0940

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0910

2ND DTW - 21.02

APTIM

Sample Collection Log

Location ID: 67WW11					Sample No: 67WW11-2111 11					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0915	100	.5	21.10	4.72	17.75	6.81	3.5	130	0.95
	0920	100	1.0	21.16	4.74	18.21	6.35	3.1	154	0.77
	0925	100	1.5	21.20	4.70	18.33	6.21	2.8	170	0.77
	0930	100	2.0	21.23	4.69	18.38	6.20	2.6	171	0.76
	0935	100	2.5	21.26	4.68	18.44	6.19	2.3	171	0.76
	0940	100	3.0	21.28	4.68	18.48	6.19	2.1	172	0.76

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW12**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW12-211110 **DATE/TIME:** 11/10/21 1003 **Pump Inlet Depth:** 31.33

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 1015

Depth to Water - Initial (DTWi) (ft) 23.45

Purge End Date/Time: 11/10/21 1045

Depth to Well Bottom (ft) ~~[illegible]~~ 36.80

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 26.58 - 36.08

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 31.33

Pump Start Time: 1015

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 23.45

APTIM

Sample Collection Log

Location ID: 67WW12 Sample No: 67WW12-2111/0										
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	1020	100	.5	23.52	3.72	18.33	6.65	3.8	162	1.91
	1025	100	1.0	23.58	3.45	18.65	5.61	2.8	195	1.63
	1030	100	1.5	23.62	3.43	18.70	5.25	2.6	241	1.41
	1035	100	2.0	23.64	3.42	18.73	5.24	2.4	242	1.39
	1040	100	2.5	23.66	3.42	18.77	5.24	2.2	243	1.37
	1045	100	3.0	23.67	3.42	18.82	5.23	2.1	244	1.35

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW13**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW13-211111 **DATE/TIME:** 11/11/21 0946 **Pump Inlet Depth:** 20.50

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 19.60

Depth to Well Bottom (ft) 28.53

Screen Interval (ft): 12.57 - 27.07

Approximate depth of pump inlet*(ft): 20.50

Ferrous Iron (Required Y or N) 0.00 mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/11/21 0955

Purge End Date/Time: 11/11/21 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0955

2ND DTW - 19.60

APTIM

Sample Collection Log

Location ID: 67WW13 Sample No: 67WW13-2111 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	1000	100	.5	19.68	4.80	17.85	6.80	3.5	149	1.05
	1005	100	1.0	19.74	4.81	18.08	6.39	2.3	161	0.89
	1010	100	1.5	19.78	4.82	18.07	6.10	2.0	193	0.70
	1015	100	2.0	19.81	4.83	18.05	6.09	1.7	194	0.69
	1020	100	2.5	19.84	4.83	18.04	6.08	1.4	195	0.68
	1025	100	3.0	19.87	4.83	18.03	6.07	1.2	196	0.67

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW13**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW13-211111 -FD **DATE/TIME:** 11/11/21 0946 **Pump Inlet Depth:** 20.50

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 19.60

Depth to Well Bottom (ft) 28.53

Screen Interval (ft): 12.57 - 27.07

Approximate depth of pump inlet*(ft): 20.50

Ferrous Iron (Required Y or N) 0.00 mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/11/21 0955

Purge End Date/Time: 11/11/21 1025

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0955

2ND DTW - 19.60

APTIM

Sample Collection Log

Location ID: 67WW13 Sample No: 67WW13-2111 11 -FD

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	1000	100	.5	19.68	4.80	17.85	6.80	3.5	149	1.05
	1005	100	1.0	19.74	4.81	18.08	6.39	2.3	161	0.89
	1010	100	1.5	19.78	4.82	18.07	6.10	2.0	193	0.70
	1015	100	2.0	19.81	4.83	18.05	6.09	1.7	194	0.69
	1020	100	2.5	19.84	4.83	18.04	6.08	1.4	195	0.68
	1025	100	3.0	19.87	4.83	18.03	6.07	1.2	196	0.67

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW14**

Sampler(s): Scott Beesinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW14-2111 10

DATE/TIME: 11/10/21 0625

Pump Inlet Depth: 21.94

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 17.85

Depth to Well Bottom (ft) 30.52

Screen Interval (ft): 14.44 - 29.44

Approximate depth of pump inlet*(ft): 21.94

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/10/21 0630

Purge End Date/Time: 11/10/21 0700

Discharge Tube Length: NA

PID Reading: NA

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Pump Start Time: 0630

2ND Depth To water- 17.85

APTIM

Sample Collection Log

Location ID: 67WW14				Sample No: 67WW14-2111_10						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	0635	100	.5	17.92	1.63	13.51	6.81	18.2	15	1.12
	0640	100	1.0	17.98	1.75	14.70	6.37	11.5	22	0.87
	0645	100	1.5	18.02	1.80	15.39	6.11	10.1	26	0.61
	0650	100	2.0	18.05	1.81	15.47	6.10	9.7	27	0.60
	0655	100	2.5	18.07	1.82	15.53	6.09	9.3	27	0.59
	0700	100	3.0	18.09	1.82	15.58	6.09	9.0	28	0.58

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW15**

Sampler(s): Scott Bressinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW15-211111 **DATE/TIME:** 11/11/21 1041 **Pump Inlet Depth:** 41.63

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.40

Depth to Well Bottom (ft) 47.30

Screen Interval (ft): 36.78 - 46.48

Approximate depth of pump inlet*(ft): 41.63

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 11/11/21 1050

Purge End Date/Time: 11/11/21 1120

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 1050

2ND DTW - 21.40

APTIM

Sample Collection Log

Location ID: 67WW15 Sample No: 67WW15-2111 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	1055	100	.5	21.46	1.97	18.78	6.47	6.3	158	1.21
	1100	100	1.0	21.51	1.93	18.90	5.77	5.9	211	0.91
	1105	100	1.5	21.55	1.90	19.19	5.45	5.6	260	0.71
	1110	100	2.0	21.57	1.89	19.24	5.43	5.2	261	0.70
	1115	100	2.5	21.59	1.89	19.28	5.43	4.8	262	0.70
	1120	100	3.0	21.60	1.89	19.31	5.43	4.4	263	0.69

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW16I**

Sampler(s): Scott Beggs/NGAR

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW16I-211111 **DATE/TIME:** 11/11/21 0731 **Pump Inlet Depth:** 74.94

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/11/21 0735

Depth to Water - Initial (DTWi) (ft) 21.43

Purge End Date/Time: 11/11/21 0805

Depth to Well Bottom (ft) 80.41

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 70.09-79.79

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 74.94

Pump Start Time: 0735

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW-21.43

APTIM

Sample Collection Log

Location ID: 67WW16I Sample No: 67WW16I-2111_11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/21	0740	100	.5	21.49	1.20	17.47	6.75	36.7	51	1.11
	0745	100	1.0	21.53	1.25	17.65	5.81	35.2	79	0.95
	0750	100	1.5	21.56	1.26	17.69	5.63	34.8	90	0.79
	0755	100	2.0	21.58	1.26	17.73	5.63	34.5	91	0.78
	0800	100	2.5	21.59	1.27	17.77	5.62	34.2	92	0.77
	0805	100	3.0	21.60	1.27	17.81	5.61	33.7	92	0.77

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW17**

Sampler(s): Scott Beessinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 67WW17-211110 **DATE/TIME:** 11/10/21 0737 **Pump Inlet Depth:** 25.40

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 22.23

Depth to Well Bottom (ft) 29.10

Screen Interval (ft): 20.40 - 30.40

Approximate depth of pump inlet*(ft): 25.40

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/10/21 0845

Purge End Date/Time: 11/10/21 0915

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0845

2ND DTW - 22.23

APTIM

Sample Collection Log

Location ID: 67WW17 Sample No: 67WW17-2111/10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria 28.3		± 10% or 0.2 mg/L
11/10/21	0850	100	.5	22.30	3.26	17.92	6.67	[redacted]	133	0.83
	0855	100	1.0	22.36	3.28	18.51	6.17	27.0	151	0.55
	0900	100	1.5	22.40	3.28	18.57	5.96	27.4	181	0.27
	0905	100	2.0	22.43	3.29	18.63	5.95	27.8	182	0.26
	0910	100	2.5	22.46	3.29	18.68	5.94	28.1	183	0.26
	0915	100	3.0	22.48	3.29	18.72	5.94	28.4	184	0.25

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **67WW18**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 67WW18-211110 **DATE/TIME:** 11/10/21 0747 **Pump Inlet Depth:** 37.61

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/21 0755

Depth to Water - Initial (DTWi) (ft) 21.05

Purge End Date/Time: 11/10/21 0825

Depth to Well Bottom (ft) 43.40

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 32.61 -42.61

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 37.61

Pump Start Time: 0755

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 21.05

APTIM

Sample Collection Log

Location ID: 67WW18 Sample No: 67WW18-2111/10

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/21	0800	100	.5	21.12	1.17	17.33	6.65	9.9	80	0.97
	0805	100	1.0	21.18	1.13	18.61	6.05	6.3	121	0.84
	0810	100	1.5	21.22	1.11	18.65	5.75	5.8	171	0.65
	0815	100	2.0	21.24	1.11	18.70	5.75	5.3	172	0.64
	0820	100	2.5	21.26	1.10	18.74	5.74	4.8	173	0.63
	0825	100	3.0	21.27	1.10	18.79	5.73	4.4	174	0.63

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/10/21

Project Number: 501032

Project Name: LHAAP-67

Recorded By: Scott BEESINGER

PID	Model:		Bulb: 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model: U-52 HORIBA				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time: 0605	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	5/22	164579	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 8.99	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/11/21

Project Number: 501032

Project Name: LHAAP-67

Recorded By: Scott Bersinger

PID	Model:		Bulb: 10.6 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	(isobutylene)			Value:	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model: U-52 HORIBA				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot#	Time: 0625	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00	5/22	1G2579	Value: 4.00	Value:	Value:
	Conductivity (mS/cm)	4.49			Value: 4.49	Value:	Value:
	Turbidity (NTU)	0			Value: 0.0	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value: 9.00	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

Groundwater Elevation Data, LHAAP-67

Well ID	Top of Casing Elevation	Ground Surface Elevation (ft MSL)	Depth to Water (ft from TOC)	Screen Interval (ft from TOC)		Screen Interval (ft MSL)		Ground Water Elevation (ft MSL)
				Top	Bottom	Top	Bottom	
67WW01 [c,d]	200.92	198.21	22.65	14.68	24.68	186.24	176.24	gauge and sample
67WW02 [c,d]	199.69	196.61	21.61	18.08	28.08	181.61	171.61	gauge and sample
67WW03 [c]	200.44	198.12	24.84	16.32	26.32	184.12	174.12	gauge and sample
67WW04 [a]	203.76	200.05	DRY	14.71	24.71	189.05	179.05	gauge only
67WW05 [a]	201	197.48	23.60	19.52	29.52	181.48	171.48	gauge and sample
67WW06 [a]	200.81	196.95	22.10	41.86	51.86	158.95	148.95	gauge only
67WW07 [a]	200.84	197.04	22.16	17.8	27.8	183.04	173.04	gauge and sample
67WW08 [b,d]	200.02	197.60	21.50	26.02	50.52	174	149.5	gauge and sample
67WW09 [b]	198.21	195.72	19.54	16.99	36.49	181.22	161.72	gauge and sample
67WW09A [b]	202.93	200.4	24.33	23.33	38.03	179.6	164.9	gauge and sample
67WW10 [b]	201.51	198.8	22.82	22.71	52.21	178.8	149.3	gauge and sample
67WW11 [b]	199.64	197.21	21.02	22.93	47.43	176.71	152.21	gauge and sample
67WW12 [b]	201.65	199.07	23.45	26.58	36.08	175.07	165.57	gauge and sample
67WW13	197.92	195.85	19.60	12.57	27.07	185.35	170.85	gauge and sample
67WW14	196.96	194.52	17.85	14.44	29.44	182.52	167.52	gauge and sample
67WW15	199.82	197.24	21.40	36.78	46.48	163.04	153.34	gauge and sample
67WW16I [e]	199.51	197.12	21.43	70.09	79.79	129.42	119.72	gauge and sample
67WW17	199.73	196.33	22.23	20.4	30.4	NA	NA	gauge and sample
67WW18	198.9	195.29	21.05	32.61	42.61	NA	NA	gauge and sample

Notes:

Elevations are reported as feet above mean sea level (ft MSL).

[a] Screen information calculated from Data Gap Investigation Report (Shaw 2007).

[b] Screen information calculated from well construction detail forms.

[c] Well screen top and bottom depths and elevations for monitoring wells 67WW01, 67WW02, and 67WW03 were revised/confirmed with a downhole camera survey performed

[d] Monitoring wells 67WW01, 67WW02, and 67WW08 were re-surveyed in September 2016 and elevations in the table for these wells are based on the re-survey results

[e] Intermediate zone monitoring well

Dry - insufficient or no water in well

MSL - mean sea level

ft - feet

TOC - top of casing

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

Appendix C

Laboratory Analytical Data Package

(Provided electronically on compact disk and the Portal)

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

January 20, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS21110813**

Laboratory Results for: **LHAAP 67 November 2021**

Dear Vicki Graves ,

ALS Environmental received 19 sample(s) on Nov 12, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110813-01	67WW14-211110	GW		10-Nov-2021 07:00	12-Nov-2021 11:50	☐
HS21110813-02	67WW05-211110	GW		10-Nov-2021 07:40	12-Nov-2021 11:50	☐
HS21110813-03	67WW05-211110-FD	GW		10-Nov-2021 07:40	12-Nov-2021 11:50	☐
HS21110813-04	67WW18-211110	GW		10-Nov-2021 08:25	12-Nov-2021 11:50	☐
HS21110813-05	67WW17-211110	GW		10-Nov-2021 09:15	12-Nov-2021 11:50	☐
HS21110813-06	67WW02-211110	GW		10-Nov-2021 09:55	12-Nov-2021 11:50	☐
HS21110813-07	67WW12-211110	GW		10-Nov-2021 10:45	12-Nov-2021 11:50	☐
HS21110813-08	67WW07-211110	GW		10-Nov-2021 11:30	12-Nov-2021 11:50	☐
HS21110813-09	67WW10-211110	GW		10-Nov-2021 12:15	12-Nov-2021 11:50	☐
HS21110813-10	67WW09A-211110	GW		10-Nov-2021 12:55	12-Nov-2021 11:50	☐
HS21110813-11	67WW01-211111	GW		11-Nov-2021 07:25	12-Nov-2021 11:50	☐
HS21110813-12	67WW16I-211111	GW		11-Nov-2021 08:05	12-Nov-2021 11:50	☐
HS21110813-13	67WW08-211111	GW		11-Nov-2021 08:45	12-Nov-2021 11:50	☐
HS21110813-14	67WW11-211111	GW		11-Nov-2021 09:40	12-Nov-2021 11:50	☐
HS21110813-15	67WW13-211111	GW		11-Nov-2021 10:25	12-Nov-2021 11:50	☐
HS21110813-16	67WW13-211111-FD	GW		11-Nov-2021 10:25	12-Nov-2021 11:50	☐
HS21110813-17	67WW15-211111	GW		11-Nov-2021 11:20	12-Nov-2021 11:50	☐
HS21110813-18	67WW09-211111	GW		11-Nov-2021 12:05	12-Nov-2021 11:50	☐
HS21110813-19	Trip Blank-211111	Water	CG-101321-151	11-Nov-2021 00:00	12-Nov-2021 11:50	☐

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

CASE NARRATIVE

Work Order Comments

- The analysis for CO2 by RSK175 was subcontracted to A Pace Analytical Gulf Coast in Baton Rouge LA. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R396307

Sample ID: 67WW08-211111 (HS21110813-13MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: 67WW08-211111 (HS21110813-13MSD)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R396415

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R396417

Sample ID: VSTD050

- Bromomethane exceeded %D limits for CCV .Samples are ND for this compound.

Sample ID: VSTD050-END

- 2,2,_Dichloropropane failed recovery limits for closing CCV due to temperature change.

Sample ID: HS21111214-06MS

- MS and MSD are for an unrelated sample

Sample ID: 67WW08-211111 (HS21110813-13MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference. 2,2-Dichloropropane

Batch ID: R396499

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R396691

Sample ID: 67WW09-211111 (HS21110813-18)

- Sample HS21110813-18 run out of hold for one compound. Dilution for 1,1-Dichloroethene did not match original run therefore reran second vial @1X to confirm. There are no more vials to rerun.

WetChemistry by Method SM5310B

Batch ID: R396090

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R395659

Sample ID: 67WW08-211111 (HS21110813-13)

- Dilution due to high concentration of CL

Sample ID: 67WW08-211111 (HS21110813-13MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)

Sample ID: 67WW13-211111 (HS21110813-15)

- Dilution due to high concentration of CL

Sample ID: 67WW13-211111-FD (HS21110813-16)

- Dilution due to high concentration of CL

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW14-211110
Collection Date: 10-Nov-2021 07:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1-Dichloroethane	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,1-Dichloroethene	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dichloroethane	**0.58**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 14:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW14-211110
Collection Date: 10-Nov-2021 07:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 14:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Surr: 1,2-Dichloroethane-d4	*94.5*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 14:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:43
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 14:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:43
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 14:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110-FD
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,1-Dichloroethene	**0.62**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 15:06
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:06
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:06
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110-FD
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:06
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 15:06
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW18-211110
Collection Date: 10-Nov-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW18-211110
Collection Date: 10-Nov-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 15:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW17-211110
Collection Date: 10-Nov-2021 09:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:51
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:51
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW17-211110
Collection Date: 10-Nov-2021 09:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:51
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:51
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW02-211110
Collection Date: 10-Nov-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-06
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2-Trichloroethane	**0.60**	J	**0.30**	**1.0**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloroethane	**5.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloroethene	**100**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dichloroethane	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW02-211110
Collection Date: 10-Nov-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-06
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:14
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 16:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Surr: 1,2-Dichloroethane-d4	*93.4*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:14*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW12-211110
Collection Date: 10-Nov-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-07
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,1-Dichloroethene	**6.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:36
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW12-211110
Collection Date: 10-Nov-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-07
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:36*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW07-211110
Collection Date: 10-Nov-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-08
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW07-211110
Collection Date: 10-Nov-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-08
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:58
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Surr: 1,2-Dichloroethane-d4	*94.9*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:58*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW10-211110
Collection Date: 10-Nov-2021 12:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-09
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 17:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW10-211110
Collection Date: 10-Nov-2021 12:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-09
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 17:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Surr: 1,2-Dichloroethane-d4	*94.5*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 17:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09A-211110
Collection Date: 10-Nov-2021 12:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-10
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:43
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 17:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09A-211110
Collection Date: 10-Nov-2021 12:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-10
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:43
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Surr: 1,2-Dichloroethane-d4	*93.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 17:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW01-211111
Collection Date: 11-Nov-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-11
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1-Dichloroethane	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,1-Dichloroethene	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dichloroethane	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:07
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:07
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW01-211111
Collection Date: 11-Nov-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-11
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:07
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:07
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:07*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW16I-211111
Collection Date: 11-Nov-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-12
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW16I-211111
Collection Date: 11-Nov-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-12
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 04:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: 4-Bromofluorobenzene	*99.1*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: Dibromofluoromethane	*87.9*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW08-211111
Collection Date: 11-Nov-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-13
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1-Dichloroethane	**4.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,1-Dichloroethene	**18**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dichloroethane	**0.67**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:24
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 00:24
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW08-211111
Collection Date: 11-Nov-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-13
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:24
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 00:24
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: Dibromofluoromethane	*87.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 00:24*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000151**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 11:39
Ethene	**0.000304**	J	**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 11:39
Methane	**0.00179**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	22-Nov-2021 11:39
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.71**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW08-211111
Collection Date: 11-Nov-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-13
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,660**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:44
Nitrogen, Nitrate (As N)	**0.318**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:07
Sulfate	**471**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:07
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW11-211111
Collection Date: 11-Nov-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-14
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1-Dichloroethane	**0.57**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:52
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:52
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:52
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW11-211111
Collection Date: 11-Nov-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-14
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:52
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:52
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: Dibromofluoromethane	*87.4*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:52*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:14
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 05:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Surr: 1,2-Dichloroethane-d4	*93.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:14*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000794**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:36
Ethene	**0.00102**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:36
Methane	**0.00229**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	22-Nov-2021 12:36
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.00**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,200**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:51
Nitrogen, Nitrate (As N)	**0.320**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:29
Sulfate	**268**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:29
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111-FD
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-16
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2-Trichloroethane	**5.9**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,1-Dichloroethane	**32**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,1-Dichloroethene	**410**		**2.0**	**5.0**	**10**	**ug/L**	10	24-Nov-2021 17:27
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dichloroethane	**43**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111-FD
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-16
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
cis-1,2-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:36
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 05:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Trichloroethene	**2.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*24-Nov-2021 17:27*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000293**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:48
Ethene	0.000500	U	0.000234	0.000500	0.00100	mg/L	1	22-Nov-2021 12:48
Methane	**0.00172**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	22-Nov-2021 12:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**	
Project:	LHAAP 67 November 2021	WorkOrder:HS21110813	
Sample ID:	67WW13-211111-FD	Lab ID:HS21110813-16	
Collection Date:	11-Nov-2021 10:25	Matrix:GW	

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.61**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:59
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,210**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:59
Nitrogen, Nitrate (As N)	**0.310**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:36
Sulfate	**261**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:36
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW15-211111
Collection Date: 11-Nov-2021 11:20

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-17
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2-Trichloroethane	**5.7**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,1-Dichloroethane	**31**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,1-Dichloroethene	**420**		**2.0**	**5.0**	**10**	**ug/L**	10	24-Nov-2021 17:50
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dichloroethane	**43**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW15-211111
Collection Date: 11-Nov-2021 11:20

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-17
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
cis-1,2-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:58
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Trichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Surr: 1,2-Dichloroethane-d4	*94.1*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: Dibromofluoromethane	*87.4*			**0**	*80-119*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*24-Nov-2021 17:50*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09-211111
Collection Date: 11-Nov-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-18
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2-Trichloroethane	**5.5**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,1-Dichloroethane	**13**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,1-Dichloroethene	0.50	HU	0.20	0.50	1.0	ug/L	1	30-Nov-2021 14:16
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dichloroethane	**29**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 06:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 06:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09-211111
Collection Date: 11-Nov-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-18
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
cis-1,2-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 06:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 06:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Trichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: Dibromofluoromethane	*88.1*			**0**	*80-119*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*30-Nov-2021 14:16*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: Trip Blank-211111
Collection Date: 11-Nov-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-19
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:01
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 00:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: Trip Blank-211111
Collection Date: 11-Nov-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-19
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:01
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Surr: 1,2-Dichloroethane-d4	*92.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 00:01*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R395659 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			13 Nov 2021 07:44	50
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			13 Nov 2021 07:07	5
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			13 Nov 2021 07:51	50
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			13 Nov 2021 07:29	5
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			13 Nov 2021 07:59	50
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			13 Nov 2021 07:36	5
Batch ID: R396090 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B-2011				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			19 Nov 2021 09:11	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			19 Nov 2021 09:43	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			19 Nov 2021 09:59	1
Batch ID: R396307 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			22 Nov 2021 11:39	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			22 Nov 2021 12:36	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			22 Nov 2021 12:48	1
Batch ID: R396415 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-01	67WW14-211110	10 Nov 2021 07:00			23 Nov 2021 14:21	1
HS21110813-02	67WW05-211110	10 Nov 2021 07:40			23 Nov 2021 14:43	1
HS21110813-03	67WW05-211110-FD	10 Nov 2021 07:40			23 Nov 2021 15:06	1
HS21110813-04	67WW18-211110	10 Nov 2021 08:25			23 Nov 2021 15:29	1
HS21110813-05	67WW17-211110	10 Nov 2021 09:15			23 Nov 2021 15:51	1
HS21110813-06	67WW02-211110	10 Nov 2021 09:55			23 Nov 2021 16:14	1
HS21110813-07	67WW12-211110	10 Nov 2021 10:45			23 Nov 2021 16:36	1
HS21110813-08	67WW07-211110	10 Nov 2021 11:30			23 Nov 2021 16:58	1
HS21110813-09	67WW10-211110	10 Nov 2021 12:15			23 Nov 2021 17:21	1
HS21110813-10	67WW09A-211110	10 Nov 2021 12:55			23 Nov 2021 17:43	1
Batch ID: R396417 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21110813-19	Trip Blank-211111	11 Nov 2021 00:00			24 Nov 2021 00:01	1
Batch ID: R396417 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-11	67WW01-211111	11 Nov 2021 07:25			24 Nov 2021 04:07	1
HS21110813-12	67WW16I-211111	11 Nov 2021 08:05			24 Nov 2021 04:29	1
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			24 Nov 2021 00:24	1
HS21110813-14	67WW11-211111	11 Nov 2021 09:40			24 Nov 2021 04:52	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			24 Nov 2021 05:14	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			24 Nov 2021 05:36	1
HS21110813-17	67WW15-211111	11 Nov 2021 11:20			24 Nov 2021 05:58	1
HS21110813-18	67WW09-211111	11 Nov 2021 12:05			24 Nov 2021 06:21	1

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Project: LHAAP 67 November 2021
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DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R396499 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			24 Nov 2021 17:27	10
HS21110813-17	67WW15-211111	11 Nov 2021 11:20			24 Nov 2021 17:50	10
Batch ID: R396691 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-18	67WW09-211111	11 Nov 2021 12:05			30 Nov 2021 14:16	1
Batch ID: R400655 (0)	**Test Name :** SUBCONTRACTED ANALYSIS				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			20 Jan 2022 09:09	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			20 Jan 2022 09:09	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			20 Jan 2022 09:09	1

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
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QC BATCH REPORT

Batch ID: R396307 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-211122** Units: **mg/L** Analysis Date: **22-Nov-2021 10:48**
Client ID: Run ID: **FID-4_396307** SeqNo: **6389452** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000250	0.000500								U

LCS Sample ID: **LCS-211122** Units: **mg/L** Analysis Date: **22-Nov-2021 11:04**
Client ID: Run ID: **FID-4_396307** SeqNo: **6389453** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0190	0.00100	0.01804	0	105	75 - 125				
Ethene	0.0167	0.00100	0.0168	0	99.5	75 - 125				
Methane	0.00906	0.000500	0.009647	0	93.9	75 - 125				

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **22-Nov-2021 12:10**
Client ID: **67WW08-211111** Run ID: **FID-4_396307** SeqNo: **6389457** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0163	0.00100	0.01804	0.0001515	89.6	75 - 125				
Ethene	0.0161	0.00100	0.0168	0.0003039	94.2	75 - 125				
Methane	0.00755	0.000500	0.009647	0.001789	59.8	75 - 125				S

MSD Sample ID: **HS21110813-13MSD** Units: **mg/L** Analysis Date: **22-Nov-2021 12:22**
Client ID: **67WW08-211111** Run ID: **FID-4_396307** SeqNo: **6389458** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0163	0.00100	0.01804	0.0001515	89.4	75 - 125	0.01631	0.136	30	
Ethene	0.0160	0.00100	0.0168	0.0003039	93.6	75 - 125	0.01614	0.647	30	
Methane	0.00719	0.000500	0.009647	0.001789	55.9	75 - 125	0.007554	5	30	S

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
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QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
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QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.75*	*1.0*	*50*	*0*	*91.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.81*	*1.0*	*50*	*0*	*99.6*	*85 - 114*				
Surr: Dibromofluoromethane	*43.71*	*1.0*	*50*	*0*	*87.4*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.14*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.53	1.0	20	0	97.7	78 - 124				
1,1,1-Trichloroethane	19.28	1.0	20	0	96.4	74 - 131				
1,1,2,2-Tetrachloroethane	21.4	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.36	1.0	20	0	102	70 - 136				
1,1,2-Trichloroethane	21.94	1.0	20	0	110	80 - 119				
1,1-Dichloroethane	20.67	1.0	20	0	103	77 - 125				
1,1-Dichloroethene	20.3	1.0	20	0	101	71 - 131				
1,1-Dichloropropene	21.09	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	21.03	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	20.61	1.0	20	0	103	73 - 122				
1,2,4-Trichlorobenzene	21.56	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	21.88	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	16.99	1.0	20	0	85.0	62 - 128				
1,2-Dibromoethane	22.74	1.0	20	0	114	77 - 121				
1,2-Dichlorobenzene	21.55	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	21.23	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.75	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	21.34	1.0	20	0	107	75 - 124				
1,3-Dichlorobenzene	20.81	1.0	20	0	104	80 - 119				
1,3-Dichloropropane	22.06	1.0	20	0	110	80 - 119				
1,4-Dichlorobenzene	21.12	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	18.77	1.0	20	0	93.8	60 - 139				
2-Butanone	41.26	2.0	40	0	103	56 - 143				
2-Chlorotoluene	21.46	1.0	20	0	107	79 - 122				
2-Hexanone	44.26	2.0	40	0	111	57 - 139				
4-Chlorotoluene	21.74	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	21.84	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	41.2	2.0	40	0	103	67 - 130				
Acetone	43.27	2.0	40	0	108	39 - 160				
Benzene	21.65	1.0	20	0	108	79 - 120				
Bromobenzene	21.26	1.0	20	0	106	80 - 120				
Bromochloromethane	22.4	1.0	20	0	112	78 - 123				
Bromodichloromethane	18.56	1.0	20	0	92.8	79 - 125				
Bromoform	16.36	1.0	20	0	81.8	66 - 130				

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QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.65	1.0	20	0	133	53 - 141				
Carbon disulfide	38.74	2.0	40	0	96.8	64 - 133				
Carbon tetrachloride	17.63	1.0	20	0	88.1	72 - 136				
Chlorobenzene	21.1	1.0	20	0	106	82 - 118				
Chloroethane	20.22	1.0	20	0	101	60 - 138				
Chloroform	21.75	1.0	20	0	109	79 - 124				
Chloromethane	21.12	1.0	20	0	106	50 - 139				
cis-1,2-Dichloroethene	21.61	1.0	20	0	108	78 - 123				
cis-1,3-Dichloropropene	17.99	1.0	20	0	89.9	75 - 124				
Dibromochloromethane	17.95	1.0	20	0	89.8	74 - 126				
Dibromomethane	21.2	1.0	20	0	106	79 - 123				
Dichlorodifluoromethane	15.36	1.0	20	0	76.8	32 - 152				
Ethylbenzene	21.54	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	24.95	1.0	20	0	125	66 - 134				
Isopropylbenzene	21.4	1.0	20	0	107	72 - 131				
m,p-Xylene	44.55	2.0	40	0	111	80 - 121				
Methylene chloride	20.14	2.0	20	0	101	74 - 124				
Naphthalene	20.34	1.0	20	0	102	61 - 128				
n-Butylbenzene	22.22	1.0	20	0	111	75 - 128				
n-Propylbenzene	21.72	1.0	20	0	109	76 - 126				
o-Xylene	21.77	1.0	20	0	109	78 - 122				
sec-Butylbenzene	21.29	1.0	20	0	106	77 - 126				
Styrene	22.52	1.0	20	0	113	78 - 123				
tert-Butylbenzene	20.76	1.0	20	0	104	78 - 124				
Tetrachloroethene	20.26	1.0	20	0	101	74 - 129				
Toluene	21.48	1.0	20	0	107	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	17.21	1.0	20	0	86.1	73 - 127				
Trichloroethene	21.31	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	19.67	1.0	20	0	98.3	65 - 141				
Vinyl chloride	19.1	1.0	20	0	95.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.05*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.62*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*51.95*	*1.0*	*50*	*0*	*104*	*80 - 119*				

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Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
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QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.51*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.91	1.0	20	0	94.5	78 - 124				
1,1,1-Trichloroethane	19.52	1.0	20	0	97.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.26	1.0	20	0	101	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	23.24	1.0	20	0	116	70 - 136				
1,1,2-Trichloroethane	20.84	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	19.77	1.0	20	0	98.8	77 - 125				
1,1-Dichloroethene	21	1.0	20	0	105	71 - 131				
1,1-Dichloropropene	23.03	1.0	20	0	115	78 - 125				
1,2,3-Trichlorobenzene	19.58	1.0	20	0	97.9	69 - 129				
1,2,3-Trichloropropane	19.36	1.0	20	0	96.8	73 - 122				
1,2,4-Trichlorobenzene	19.86	1.0	20	0	99.3	69 - 130				
1,2,4-Trimethylbenzene	21.98	1.0	20	0	110	76 - 124				
1,2-Dibromo-3-chloropropane	15.24	1.0	20	0	76.2	62 - 128				
1,2-Dibromoethane	21.06	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	20.8	1.0	20	0	104	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	21.2	1.0	20	0	106	78 - 122				
1,3,5-Trimethylbenzene	22.36	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	20.65	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	21.15	1.0	20	0	106	80 - 119				
1,4-Dichlorobenzene	21.02	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	18.26	1.0	20	0	91.3	60 - 139				
2-Butanone	38.98	2.0	40	0	97.5	56 - 143				
2-Chlorotoluene	22.13	1.0	20	0	111	79 - 122				
2-Hexanone	43.62	2.0	40	0	109	57 - 139				
4-Chlorotoluene	22.18	1.0	20	0	111	78 - 122				
4-Isopropyltoluene	23.17	1.0	20	0	116	77 - 127				
4-Methyl-2-pentanone	38.87	2.0	40	0	97.2	67 - 130				
Acetone	51.94	2.0	40	0	130	39 - 160				
Benzene	21.74	1.0	20	0	109	79 - 120				
Bromobenzene	20.96	1.0	20	0	105	80 - 120				
Bromochloromethane	20.02	1.0	20	0	100	78 - 123				
Bromodichloromethane	17.76	1.0	20	0	88.8	79 - 125				
Bromoform	15.4	1.0	20	0	77.0	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	25.84	1.0	20	0	129	53 - 141				
Carbon disulfide	38.57	2.0	40	0	96.4	64 - 133				
Carbon tetrachloride	19.55	1.0	20	0	97.8	72 - 136				
Chlorobenzene	21.02	1.0	20	0	105	82 - 118				
Chloroethane	22.51	1.0	20	0	113	60 - 138				
Chloroform	20.16	1.0	20	0	101	79 - 124				
Chloromethane	22.52	1.0	20	0	113	50 - 139				
cis-1,2-Dichloroethene	20.27	1.0	20	0	101	78 - 123				
cis-1,3-Dichloropropene	17.16	1.0	20	0	85.8	75 - 124				
Dibromochloromethane	17.02	1.0	20	0	85.1	74 - 126				
Dibromomethane	20.29	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	20.5	1.0	20	0	103	32 - 152				
Ethylbenzene	22.12	1.0	20	0	111	79 - 121				
Hexachlorobutadiene	23.72	1.0	20	0	119	66 - 134				
Isopropylbenzene	22.98	1.0	20	0	115	72 - 131				
m,p-Xylene	45.67	2.0	40	0	114	80 - 121				
Methylene chloride	18.54	2.0	20	0	92.7	74 - 124				
Naphthalene	18.58	1.0	20	0	92.9	61 - 128				
n-Butylbenzene	23.17	1.0	20	0	116	75 - 128				
n-Propylbenzene	23.4	1.0	20	0	117	76 - 126				
o-Xylene	21.72	1.0	20	0	109	78 - 122				
sec-Butylbenzene	23.29	1.0	20	0	116	77 - 126				
Styrene	22.42	1.0	20	0	112	78 - 123				
tert-Butylbenzene	22.39	1.0	20	0	112	78 - 124				
Tetrachloroethene	22.34	1.0	20	0	112	74 - 129				
Toluene	21.91	1.0	20	0	110	80 - 121				
trans-1,2-Dichloroethene	20.51	1.0	20	0	103	75 - 124				
trans-1,3-Dichloropropene	16.22	1.0	20	0	81.1	73 - 127				
Trichloroethene	21.93	1.0	20	0	110	79 - 123				
Trichlorofluoromethane	21.43	1.0	20	0	107	65 - 141				
Vinyl chloride	21.5	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.19*	*1.0*	*50*	*0*	*92.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.76*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*46.5*	*1.0*	*50*	*0*	*93.0*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.92*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.07	1.0	20	0	95.3	78 - 124	18.91	0.854	20	
1,1,1-Trichloroethane	18.58	1.0	20	0	92.9	74 - 131	19.52	4.94	20	
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121	20.26	4.74	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	21.36	1.0	20	0	107	70 - 136	23.24	8.41	20	
1,1,2-Trichloroethane	20.8	1.0	20	0	104	80 - 119	20.84	0.166	20	
1,1-Dichloroethane	18.39	1.0	20	0	92.0	77 - 125	19.77	7.21	20	
1,1-Dichloroethene	19.41	1.0	20	0	97.1	71 - 131	21	7.87	20	
1,1-Dichloropropene	21.59	1.0	20	0	108	78 - 125	23.03	6.48	20	
1,2,3-Trichlorobenzene	19.51	1.0	20	0	97.5	69 - 129	19.58	0.359	20	
1,2,3-Trichloropropane	19.29	1.0	20	0	96.5	73 - 122	19.36	0.342	20	
1,2,4-Trichlorobenzene	19.81	1.0	20	0	99.1	69 - 130	19.86	0.258	20	
1,2,4-Trimethylbenzene	21.85	1.0	20	0	109	76 - 124	21.98	0.559	20	
1,2-Dibromo-3-chloropropane	15.77	1.0	20	0	78.9	62 - 128	15.24	3.43	20	
1,2-Dibromoethane	20.47	1.0	20	0	102	77 - 121	21.06	2.81	20	
1,2-Dichlorobenzene	20.08	1.0	20	0	100	80 - 119	20.8	3.52	20	
1,2-Dichloroethane	19.72	1.0	20	0	98.6	73 - 128	20.36	3.21	20	
1,2-Dichloropropane	20.19	1.0	20	0	101	78 - 122	21.2	4.88	20	
1,3,5-Trimethylbenzene	21.68	1.0	20	0	108	75 - 124	22.36	3.08	20	
1,3-Dichlorobenzene	20.11	1.0	20	0	101	80 - 119	20.65	2.63	20	
1,3-Dichloropropane	20.53	1.0	20	0	103	80 - 119	21.15	2.97	20	
1,4-Dichlorobenzene	20.27	1.0	20	0	101	79 - 118	21.02	3.61	20	
2,2-Dichloropropane	16.72	1.0	20	0	83.6	60 - 139	18.26	8.82	20	
2-Butanone	39.34	2.0	40	0	98.3	56 - 143	38.98	0.897	20	
2-Chlorotoluene	21.05	1.0	20	0	105	79 - 122	22.13	5	20	
2-Hexanone	43.98	2.0	40	0	110	57 - 139	43.62	0.822	20	
4-Chlorotoluene	21.13	1.0	20	0	106	78 - 122	22.18	4.82	20	
4-Isopropyltoluene	22.5	1.0	20	0	113	77 - 127	23.17	2.92	20	
4-Methyl-2-pentanone	39.18	2.0	40	0	97.9	67 - 130	38.87	0.794	20	
Acetone	52.07	2.0	40	0	130	39 - 160	51.94	0.249	20	
Benzene	20.49	1.0	20	0	102	79 - 120	21.74	5.95	20	
Bromobenzene	20.51	1.0	20	0	103	80 - 120	20.96	2.16	20	
Bromochloromethane	19.35	1.0	20	0	96.8	78 - 123	20.02	3.41	20	
Bromodichloromethane	17.15	1.0	20	0	85.8	79 - 125	17.76	3.48	20	
Bromoform	15.29	1.0	20	0	76.4	66 - 130	15.4	0.76	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	23.46	1.0	20	0	117	53 - 141	25.84	9.68	20	
Carbon disulfide	36.31	2.0	40	0	90.8	64 - 133	38.57	6.01	20	
Carbon tetrachloride	18.57	1.0	20	0	92.8	72 - 136	19.55	5.17	20	
Chlorobenzene	20.17	1.0	20	0	101	82 - 118	21.02	4.15	20	
Chloroethane	19.26	1.0	20	0	96.3	60 - 138	22.51	15.5	20	
Chloroform	19.13	1.0	20	0	95.7	79 - 124	20.16	5.22	20	
Chloromethane	21	1.0	20	0	105	50 - 139	22.52	6.98	20	
cis-1,2-Dichloroethene	19.1	1.0	20	0	95.5	78 - 123	20.27	5.95	20	
cis-1,3-Dichloropropene	16.9	1.0	20	0	84.5	75 - 124	17.16	1.57	20	
Dibromochloromethane	16.87	1.0	20	0	84.4	74 - 126	17.02	0.863	20	
Dibromomethane	19.53	1.0	20	0	97.6	79 - 123	20.29	3.83	20	
Dichlorodifluoromethane	18.98	1.0	20	0	94.9	32 - 152	20.5	7.69	20	
Ethylbenzene	21.29	1.0	20	0	106	79 - 121	22.12	3.84	20	
Hexachlorobutadiene	22.85	1.0	20	0	114	66 - 134	23.72	3.72	20	
Isopropylbenzene	22.15	1.0	20	0	111	72 - 131	22.98	3.69	20	
m,p-Xylene	43.32	2.0	40	0	108	80 - 121	45.67	5.27	20	
Methylene chloride	17.5	2.0	20	0	87.5	74 - 124	18.54	5.76	20	
Naphthalene	19.02	1.0	20	0	95.1	61 - 128	18.58	2.34	20	
n-Butylbenzene	22.62	1.0	20	0	113	75 - 128	23.17	2.4	20	
n-Propylbenzene	22.79	1.0	20	0	114	76 - 126	23.4	2.64	20	
o-Xylene	20.86	1.0	20	0	104	78 - 122	21.72	4.08	20	
sec-Butylbenzene	22.44	1.0	20	0	112	77 - 126	23.29	3.72	20	
Styrene	21.3	1.0	20	0	107	78 - 123	22.42	5.12	20	
tert-Butylbenzene	21.78	1.0	20	0	109	78 - 124	22.39	2.74	20	
Tetrachloroethene	21.51	1.0	20	0	108	74 - 129	22.34	3.81	20	
Toluene	20.91	1.0	20	0	105	80 - 121	21.91	4.67	20	
trans-1,2-Dichloroethene	19.1	1.0	20	0	95.5	75 - 124	20.51	7.13	20	
trans-1,3-Dichloropropene	15.66	1.0	20	0	78.3	73 - 127	16.22	3.52	20	
Trichloroethene	20.58	1.0	20	0	103	79 - 123	21.93	6.36	20	
Trichlorofluoromethane	20.09	1.0	20	0	100	65 - 141	21.43	6.41	20	
Vinyl chloride	19.89	1.0	20	0	99.5	58 - 137	21.5	7.78	20	
Surr: 1,2-Dichloroethane-d4	*46.07*	*1.0*	*50*	*0*	*92.1*	*81 - 118*	*46.19*	*0.278*	*20*	
Surr: 4-Bromofluorobenzene	*51.68*	*1.0*	*50*	*0*	*103*	*85 - 114*	*51.76*	*0.157*	*20*	
Surr: Dibromofluoromethane	*46.43*	*1.0*	*50*	*0*	*92.9*	*80 - 119*	*46.5*	*0.155*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.08*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.92*	*0.322*	*20*	

The following samples were analyzed in this batch:

HS21110813-01	HS21110813-02	HS21110813-03	HS21110813-04
HS21110813-05	HS21110813-06	HS21110813-07	HS21110813-08
HS21110813-09	HS21110813-10		

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.3*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.72*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*44.22*	*1.0*	*50*	*0*	*88.4*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.47*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.05	1.0	20	0	95.3	78 - 124				
1,1,1-Trichloroethane	19.6	1.0	20	0	98.0	74 - 131				
1,1,2,2-Tetrachloroethane	21.67	1.0	20	0	108	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.15	1.0	20	0	90.7	70 - 136				
1,1,2-Trichloroethane	21.79	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	21.4	1.0	20	0	107	77 - 125				
1,1-Dichloroethene	20.73	1.0	20	0	104	71 - 131				
1,1-Dichloropropene	19.75	1.0	20	0	98.8	78 - 125				
1,2,3-Trichlorobenzene	20.03	1.0	20	0	100	69 - 129				
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	20.06	1.0	20	0	100	69 - 130				
1,2,4-Trimethylbenzene	21.05	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	16.1	1.0	20	0	80.5	62 - 128				
1,2-Dibromoethane	21.97	1.0	20	0	110	77 - 121				
1,2-Dichlorobenzene	21.33	1.0	20	0	107	80 - 119				
1,2-Dichloroethane	20.82	1.0	20	0	104	73 - 128				
1,2-Dichloropropane	21.32	1.0	20	0	107	78 - 122				
1,3,5-Trimethylbenzene	20.5	1.0	20	0	102	75 - 124				
1,3-Dichlorobenzene	20.4	1.0	20	0	102	80 - 119				
1,3-Dichloropropane	21.99	1.0	20	0	110	80 - 119				
1,4-Dichlorobenzene	20.51	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	15.05	1.0	20	0	75.2	60 - 139				
2-Butanone	40.33	2.0	40	0	101	56 - 143				
2-Chlorotoluene	20.95	1.0	20	0	105	79 - 122				
2-Hexanone	43.07	2.0	40	0	108	57 - 139				
4-Chlorotoluene	21.25	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	19.72	1.0	20	0	98.6	77 - 127				
4-Methyl-2-pentanone	39.95	2.0	40	0	99.9	67 - 130				
Acetone	39.94	2.0	40	0	99.8	39 - 160				
Benzene	21.24	1.0	20	0	106	79 - 120				
Bromobenzene	21.46	1.0	20	0	107	80 - 120				
Bromochloromethane	23.05	1.0	20	0	115	78 - 123				
Bromodichloromethane	18.08	1.0	20	0	90.4	79 - 125				
Bromoform	16.62	1.0	20	0	83.1	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	28.19	1.0	20	0	141	53 - 141				
Carbon disulfide	38.73	2.0	40	0	96.8	64 - 133				
Carbon tetrachloride	16.68	1.0	20	0	83.4	72 - 136				
Chlorobenzene	20.63	1.0	20	0	103	82 - 118				
Chloroethane	19.85	1.0	20	0	99.2	60 - 138				
Chloroform	22.46	1.0	20	0	112	79 - 124				
Chloromethane	21.5	1.0	20	0	107	50 - 139				
cis-1,2-Dichloroethene	22.16	1.0	20	0	111	78 - 123				
cis-1,3-Dichloropropene	17.14	1.0	20	0	85.7	75 - 124				
Dibromochloromethane	17.76	1.0	20	0	88.8	74 - 126				
Dibromomethane	20.75	1.0	20	0	104	79 - 123				
Dichlorodifluoromethane	14.52	1.0	20	0	72.6	32 - 152				
Ethylbenzene	20.6	1.0	20	0	103	79 - 121				
Hexachlorobutadiene	18.75	1.0	20	0	93.7	66 - 134				
Isopropylbenzene	20.15	1.0	20	0	101	72 - 131				
m,p-Xylene	42.01	2.0	40	0	105	80 - 121				
Methylene chloride	20.51	2.0	20	0	103	74 - 124				
Naphthalene	19.87	1.0	20	0	99.3	61 - 128				
n-Butylbenzene	18.93	1.0	20	0	94.7	75 - 128				
n-Propylbenzene	20.51	1.0	20	0	103	76 - 126				
o-Xylene	21	1.0	20	0	105	78 - 122				
sec-Butylbenzene	19.32	1.0	20	0	96.6	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	19.83	1.0	20	0	99.1	78 - 124				
Tetrachloroethene	18.1	1.0	20	0	90.5	74 - 129				
Toluene	20.94	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	21.25	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	16.35	1.0	20	0	81.8	73 - 127				
Trichloroethene	20.5	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	19.37	1.0	20	0	96.9	65 - 141				
Vinyl chloride	19.13	1.0	20	0	95.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.77*	*1.0*	*50*	*0*	*110*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.47*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*53.52*	*1.0*	*50*	*0*	*107*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.48	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	20.72	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	21.35	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	22.4	1.0	20	0	112	70 - 136				
1,1,2-Trichloroethane	22.56	1.0	20	0	113	80 - 119				
1,1-Dichloroethane	25.01	1.0	20	4.165	104	77 - 125				
1,1-Dichloroethene	30.59	1.0	20	8.721	109	71 - 131				
1,1-Dichloropropene	24.02	1.0	20	0	120	78 - 125				
1,2,3-Trichlorobenzene	21.04	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	20.36	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	20.81	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	22.8	1.0	20	0	114	76 - 124				
1,2-Dibromo-3-chloropropane	16.24	1.0	20	0	81.2	62 - 128				
1,2-Dibromoethane	22.69	1.0	20	0	113	77 - 121				
1,2-Dichlorobenzene	22.38	1.0	20	0	112	80 - 119				
1,2-Dichloroethane	22.45	1.0	20	0.6746	109	73 - 128				
1,2-Dichloropropane	27.59	1.0	20	4.123	117	78 - 122				
1,3,5-Trimethylbenzene	23.18	1.0	20	0	116	75 - 124				
1,3-Dichlorobenzene	21.76	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	22.84	1.0	20	0	114	80 - 119				
1,4-Dichlorobenzene	22	1.0	20	0	110	79 - 118				
2,2-Dichloropropane	12.73	1.0	20	0	63.6	60 - 139				
2-Butanone	36.96	2.0	40	0	92.4	56 - 143				
2-Chlorotoluene	22.79	1.0	20	0	114	79 - 122				
2-Hexanone	43.82	2.0	40	0	110	57 - 139				
4-Chlorotoluene	23	1.0	20	0	115	78 - 122				
4-Isopropyltoluene	23.16	1.0	20	0	116	77 - 127				
4-Methyl-2-pentanone	41.55	2.0	40	0	104	67 - 130				
Acetone	37.87	2.0	40	0	94.7	39 - 160				
Benzene	23.54	1.0	20	0	118	79 - 120				
Bromobenzene	22.73	1.0	20	0	114	80 - 120				
Bromochloromethane	21.04	1.0	20	0	105	78 - 123				
Bromodichloromethane	19.12	1.0	20	0	95.6	79 - 125				
Bromoform	16.55	1.0	20	0	82.7	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.4	1.0	20	0	132	53 - 141				
Carbon disulfide	39.07	2.0	40	0	97.7	64 - 133				
Carbon tetrachloride	20.43	1.0	20	0	102	72 - 136				
Chlorobenzene	22.38	1.0	20	0	112	82 - 118				
Chloroethane	21.52	1.0	20	0	108	60 - 138				
Chloroform	21.92	1.0	20	0	110	79 - 124				
Chloromethane	23.15	1.0	20	0	116	50 - 139				
cis-1,2-Dichloroethene	63	1.0	20	41.84	106	78 - 123				
cis-1,3-Dichloropropene	17.7	1.0	20	0	88.5	75 - 124				
Dibromochloromethane	18.31	1.0	20	0	91.5	74 - 126				
Dibromomethane	21.87	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	19.2	1.0	20	0	96.0	32 - 152				
Ethylbenzene	22.97	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	21.93	1.0	20	0	110	66 - 134				
Isopropylbenzene	23.76	1.0	20	0	119	72 - 131				
m,p-Xylene	47.12	2.0	40	0	118	80 - 121				
Methylene chloride	19.68	2.0	20	0	98.4	74 - 124				
Naphthalene	20.51	1.0	20	0	103	61 - 128				
n-Butylbenzene	22.67	1.0	20	0	113	75 - 128				
n-Propylbenzene	23.81	1.0	20	0	119	76 - 126				
o-Xylene	22.97	1.0	20	0	115	78 - 122				
sec-Butylbenzene	23.7	1.0	20	0	119	77 - 126				
Styrene	23.38	1.0	20	0	117	78 - 123				
tert-Butylbenzene	23.73	1.0	20	0	119	78 - 124				
Tetrachloroethene	34.24	1.0	20	12.88	107	74 - 129				
Toluene	23.02	1.0	20	0	115	80 - 121				
trans-1,2-Dichloroethene	21.25	1.0	20	0.7949	102	75 - 124				
trans-1,3-Dichloropropene	16.55	1.0	20	0	82.8	73 - 127				
Trichloroethene	66.88	1.0	20	44.65	111	79 - 123				
Trichlorofluoromethane	21.73	1.0	20	0	109	65 - 141				
Vinyl chloride	21.75	1.0	20	0	109	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.33*	*1.0*	*50*	*0*	*90.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.48*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.14*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.82	1.0	20	0	99.1	78 - 124				
1,1,1-Trichloroethane	19.83	1.0	20	0	99.1	74 - 131				
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	21.23	1.0	20	0	106	70 - 136				
1,1,2-Trichloroethane	21.89	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	25.03	1.0	20	4.38	103	77 - 125				
1,1-Dichloroethene	38.68	1.0	20	17.94	104	71 - 131				
1,1-Dichloropropene	22.88	1.0	20	0	114	78 - 125				
1,2,3-Trichlorobenzene	18.91	1.0	20	0	94.5	69 - 129				
1,2,3-Trichloropropane	19.53	1.0	20	0	97.7	73 - 122				
1,2,4-Trichlorobenzene	19.39	1.0	20	0	96.9	69 - 130				
1,2,4-Trimethylbenzene	21.84	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	15.02	1.0	20	0	75.1	62 - 128				
1,2-Dibromoethane	22.25	1.0	20	0	111	77 - 121				
1,2-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119				
1,2-Dichloroethane	22.36	1.0	20	0.6695	108	73 - 128				
1,2-Dichloropropane	22.54	1.0	20	0	113	78 - 122				
1,3,5-Trimethylbenzene	21.88	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	20.65	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	22.46	1.0	20	0	112	80 - 119				
1,4-Dichlorobenzene	20.97	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	12.42	1.0	20	0	62.1	60 - 139				
2-Butanone	34.84	2.0	40	0	87.1	56 - 143				
2-Chlorotoluene	21.86	1.0	20	0	109	79 - 122				
2-Hexanone	43.48	2.0	40	0	109	57 - 139				
4-Chlorotoluene	21.92	1.0	20	0	110	78 - 122				
4-Isopropyltoluene	21.84	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	41.15	2.0	40	0	103	67 - 130				
Acetone	35.31	2.0	40	0	88.3	39 - 160				
Benzene	22.93	1.0	20	0	115	79 - 120				
Bromobenzene	21.62	1.0	20	0	108	80 - 120				
Bromochloromethane	21.15	1.0	20	0	106	78 - 123				
Bromodichloromethane	18.52	1.0	20	0	92.6	79 - 125				
Bromoform	15.75	1.0	20	0	78.8	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.72	1.0	20	0	134	53 - 141				
Carbon disulfide	37.74	2.0	40	0	94.4	64 - 133				
Carbon tetrachloride	19.65	1.0	20	0	98.2	72 - 136				
Chlorobenzene	21.83	1.0	20	0	109	82 - 118				
Chloroethane	21.93	1.0	20	0	110	60 - 138				
Chloroform	21.08	1.0	20	0	105	79 - 124				
Chloromethane	23.3	1.0	20	0	116	50 - 139				
cis-1,2-Dichloroethene	20.72	1.0	20	0	104	78 - 123				
cis-1,3-Dichloropropene	16.9	1.0	20	0	84.5	75 - 124				
Dibromochloromethane	17.9	1.0	20	0	89.5	74 - 126				
Dibromomethane	21.45	1.0	20	0	107	79 - 123				
Dichlorodifluoromethane	18.56	1.0	20	0	92.8	32 - 152				
Ethylbenzene	22.37	1.0	20	0	112	79 - 121				
Hexachlorobutadiene	20.02	1.0	20	0	100	66 - 134				
Isopropylbenzene	22.85	1.0	20	0	114	72 - 131				
m,p-Xylene	46.19	2.0	40	0	115	80 - 121				
Methylene chloride	19.01	2.0	20	0	95.0	74 - 124				
Naphthalene	18.5	1.0	20	0	92.5	61 - 128				
n-Butylbenzene	21.11	1.0	20	0	106	75 - 128				
n-Propylbenzene	22.58	1.0	20	0	113	76 - 126				
o-Xylene	22.84	1.0	20	0	114	78 - 122				
sec-Butylbenzene	22.42	1.0	20	0	112	77 - 126				
Styrene	23.01	1.0	20	0	115	78 - 123				
tert-Butylbenzene	22.16	1.0	20	0	111	78 - 124				
Tetrachloroethene	21.65	1.0	20	0	108	74 - 129				
Toluene	22.67	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	20.56	1.0	20	0	103	75 - 124				
trans-1,3-Dichloropropene	15.81	1.0	20	0	79.0	73 - 127				
Trichloroethene	23.47	1.0	20	0	117	79 - 123				
Trichlorofluoromethane	20.88	1.0	20	0	104	65 - 141				
Vinyl chloride	21.7	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.66*	*1.0*	*50*	*0*	*91.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.79*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*45.79*	*1.0*	*50*	*0*	*91.6*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.12*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.29	1.0	20	0	96.5	78 - 124	20.48	5.97	20	
1,1,1-Trichloroethane	19.66	1.0	20	0	98.3	74 - 131	20.72	5.28	20	
1,1,2,2-Tetrachloroethane	21.09	1.0	20	0	105	71 - 121	21.35	1.24	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	20.72	1.0	20	0	104	70 - 136	22.4	7.79	20	
1,1,2-Trichloroethane	21.92	1.0	20	0	110	80 - 119	22.56	2.9	20	
1,1-Dichloroethane	23.74	1.0	20	4.165	97.9	77 - 125	25.01	5.2	20	
1,1-Dichloroethene	28.42	1.0	20	8.721	98.5	71 - 131	30.59	7.36	20	
1,1-Dichloropropene	21.99	1.0	20	0	110	78 - 125	24.02	8.85	20	
1,2,3-Trichlorobenzene	19.85	1.0	20	0	99.3	69 - 129	21.04	5.83	20	
1,2,3-Trichloropropane	19.77	1.0	20	0	98.9	73 - 122	20.36	2.91	20	
1,2,4-Trichlorobenzene	20.33	1.0	20	0	102	69 - 130	20.81	2.32	20	
1,2,4-Trimethylbenzene	22.02	1.0	20	0	110	76 - 124	22.8	3.49	20	
1,2-Dibromo-3-chloropropane	15.97	1.0	20	0	79.8	62 - 128	16.24	1.74	20	
1,2-Dibromoethane	22.15	1.0	20	0	111	77 - 121	22.69	2.41	20	
1,2-Dichlorobenzene	21.04	1.0	20	0	105	80 - 119	22.38	6.17	20	
1,2-Dichloroethane	21.72	1.0	20	0.6746	105	73 - 128	22.45	3.32	20	
1,2-Dichloropropane	25.72	1.0	20	4.123	108	78 - 122	27.59	7.02	20	
1,3,5-Trimethylbenzene	21.72	1.0	20	0	109	75 - 124	23.18	6.47	20	
1,3-Dichlorobenzene	20.7	1.0	20	0	104	80 - 119	21.76	4.98	20	
1,3-Dichloropropane	22.41	1.0	20	0	112	80 - 119	22.84	1.9	20	
1,4-Dichlorobenzene	20.83	1.0	20	0	104	79 - 118	22	5.48	20	
2,2-Dichloropropane	11.86	1.0	20	0	59.3	60 - 139	12.73	7.08	20	S
2-Butanone	37.29	2.0	40	0	93.2	56 - 143	36.96	0.884	20	
2-Chlorotoluene	21.89	1.0	20	0	109	79 - 122	22.79	4.05	20	
2-Hexanone	43.55	2.0	40	0	109	57 - 139	43.82	0.623	20	
4-Chlorotoluene	21.91	1.0	20	0	110	78 - 122	23	4.86	20	
4-Isopropyltoluene	21.95	1.0	20	0	110	77 - 127	23.16	5.37	20	
4-Methyl-2-pentanone	41.8	2.0	40	0	105	67 - 130	41.55	0.601	20	
Acetone	38.23	2.0	40	0	95.6	39 - 160	37.87	0.936	20	
Benzene	22.04	1.0	20	0	110	79 - 120	23.54	6.59	20	
Bromobenzene	21.63	1.0	20	0	108	80 - 120	22.73	4.97	20	
Bromochloromethane	20.69	1.0	20	0	103	78 - 123	21.04	1.65	20	
Bromodichloromethane	18.11	1.0	20	0	90.6	79 - 125	19.12	5.39	20	
Bromoform	16.53	1.0	20	0	82.6	66 - 130	16.55	0.122	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	24.6	1.0	20	0	123	53 - 141	26.4	7.07	20	
Carbon disulfide	36.39	2.0	40	0	91.0	64 - 133	39.07	7.09	20	
Carbon tetrachloride	19.37	1.0	20	0	96.8	72 - 136	20.43	5.36	20	
Chlorobenzene	21.31	1.0	20	0	107	82 - 118	22.38	4.89	20	
Chloroethane	20.35	1.0	20	0	102	60 - 138	21.52	5.6	20	
Chloroform	20.71	1.0	20	0	104	79 - 124	21.92	5.65	20	
Chloromethane	21.23	1.0	20	0	106	50 - 139	23.15	8.64	20	
cis-1,2-Dichloroethene	60.08	1.0	20	41.84	91.2	78 - 123	63	4.74	20	
cis-1,3-Dichloropropene	17	1.0	20	0	85.0	75 - 124	17.7	4.05	20	
Dibromochloromethane	17.87	1.0	20	0	89.3	74 - 126	18.31	2.41	20	
Dibromomethane	20.65	1.0	20	0	103	79 - 123	21.87	5.72	20	
Dichlorodifluoromethane	17.76	1.0	20	0	88.8	32 - 152	19.2	7.81	20	
Ethylbenzene	21.96	1.0	20	0	110	79 - 121	22.97	4.51	20	
Hexachlorobutadiene	20.97	1.0	20	0	105	66 - 134	21.93	4.46	20	
Isopropylbenzene	22.67	1.0	20	0	113	72 - 131	23.76	4.7	20	
m,p-Xylene	44.88	2.0	40	0	112	80 - 121	47.12	4.87	20	
Methylene chloride	18.57	2.0	20	0	92.8	74 - 124	19.68	5.83	20	
Naphthalene	19.83	1.0	20	0	99.1	61 - 128	20.51	3.39	20	
n-Butylbenzene	21.1	1.0	20	0	106	75 - 128	22.67	7.16	20	
n-Propylbenzene	22.33	1.0	20	0	112	76 - 126	23.81	6.42	20	
o-Xylene	22.21	1.0	20	0	111	78 - 122	22.97	3.38	20	
sec-Butylbenzene	22.31	1.0	20	0	112	77 - 126	23.7	6.03	20	
Styrene	22.57	1.0	20	0	113	78 - 123	23.38	3.52	20	
tert-Butylbenzene	22.22	1.0	20	0	111	78 - 124	23.73	6.59	20	
Tetrachloroethene	32.64	1.0	20	12.88	98.8	74 - 129	34.24	4.79	20	
Toluene	22.09	1.0	20	0	110	80 - 121	23.02	4.13	20	
trans-1,2-Dichloroethene	20.32	1.0	20	0.7949	97.6	75 - 124	21.25	4.51	20	
trans-1,3-Dichloropropene	16.04	1.0	20	0	80.2	73 - 127	16.55	3.11	20	
Trichloroethene	62.69	1.0	20	44.65	90.2	79 - 123	66.88	6.47	20	
Trichlorofluoromethane	20.47	1.0	20	0	102	65 - 141	21.73	5.96	20	
Vinyl chloride	20.63	1.0	20	0	103	58 - 137	21.75	5.3	20	
Surr: 1,2-Dichloroethane-d4	*45*	*1.0*	*50*	*0*	*90.0*	*81 - 118*	*45.33*	*0.732*	*20*	
Surr: 4-Bromofluorobenzene	*51.48*	*1.0*	*50*	*0*	*103*	*85 - 114*	*51.48*	*0.0133*	*20*	
Surr: Dibromofluoromethane	*46.12*	*1.0*	*50*	*0*	*92.2*	*80 - 119*	*46.66*	*1.16*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.43*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.14*	*0.574*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.58	1.0	20	0	97.9	78 - 124	19.82	1.2	20	
1,1,1-Trichloroethane	19.51	1.0	20	0	97.6	74 - 131	19.83	1.61	20	
1,1,2,2-Tetrachloroethane	21.41	1.0	20	0	107	71 - 121	21.24	0.762	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	20.31	1.0	20	0	102	70 - 136	21.23	4.47	20	
1,1,2-Trichloroethane	22.05	1.0	20	0	110	80 - 119	21.89	0.742	20	
1,1-Dichloroethane	24.14	1.0	20	4.38	98.8	77 - 125	25.03	3.63	20	
1,1-Dichloroethene	37.07	1.0	20	17.94	95.6	71 - 131	38.68	4.26	20	
1,1-Dichloropropene	22.59	1.0	20	0	113	78 - 125	22.88	1.25	20	
1,2,3-Trichlorobenzene	19.81	1.0	20	0	99.0	69 - 129	18.91	4.64	20	
1,2,3-Trichloropropane	19.72	1.0	20	0	98.6	73 - 122	19.53	0.937	20	
1,2,4-Trichlorobenzene	19.67	1.0	20	0	98.3	69 - 130	19.39	1.42	20	
1,2,4-Trimethylbenzene	21.66	1.0	20	0	108	76 - 124	21.84	0.828	20	
1,2-Dibromo-3-chloropropane	15.85	1.0	20	0	79.2	62 - 128	15.02	5.36	20	
1,2-Dibromoethane	21.94	1.0	20	0	110	77 - 121	22.25	1.42	20	
1,2-Dichlorobenzene	20.73	1.0	20	0	104	80 - 119	20.97	1.13	20	
1,2-Dichloroethane	21.71	1.0	20	0.6695	105	73 - 128	22.36	2.97	20	
1,2-Dichloropropane	21.71	1.0	20	0	109	78 - 122	22.54	3.78	20	
1,3,5-Trimethylbenzene	21.47	1.0	20	0	107	75 - 124	21.88	1.89	20	
1,3-Dichlorobenzene	20.49	1.0	20	0	102	80 - 119	20.65	0.801	20	
1,3-Dichloropropane	22.25	1.0	20	0	111	80 - 119	22.46	0.924	20	
1,4-Dichlorobenzene	20.5	1.0	20	0	102	79 - 118	20.97	2.28	20	
2,2-Dichloropropane	11.77	1.0	20	0	58.9	60 - 139	12.42	5.4	20	S
2-Butanone	36.34	2.0	40	0	90.8	56 - 143	34.84	4.2	20	
2-Chlorotoluene	21.58	1.0	20	0	108	79 - 122	21.86	1.28	20	
2-Hexanone	44.53	2.0	40	0	111	57 - 139	43.48	2.4	20	
4-Chlorotoluene	21.43	1.0	20	0	107	78 - 122	21.92	2.29	20	
4-Isopropyltoluene	21.44	1.0	20	0	107	77 - 127	21.84	1.87	20	
4-Methyl-2-pentanone	41.05	2.0	40	0	103	67 - 130	41.15	0.249	20	
Acetone	35.11	2.0	40	0	87.8	39 - 160	35.31	0.559	20	
Benzene	22.05	1.0	20	0	110	79 - 120	22.93	3.93	20	
Bromobenzene	21.09	1.0	20	0	105	80 - 120	21.62	2.51	20	
Bromochloromethane	20.78	1.0	20	0	104	78 - 123	21.15	1.75	20	
Bromodichloromethane	18.47	1.0	20	0	92.4	79 - 125	18.52	0.268	20	
Bromoform	15.8	1.0	20	0	79.0	66 - 130	15.75	0.327	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	25.39	1.0	20	0	127	53 - 141	26.72	5.08	20	
Carbon disulfide	37.18	2.0	40	0	92.9	64 - 133	37.74	1.51	20	
Carbon tetrachloride	18.97	1.0	20	0	94.8	72 - 136	19.65	3.53	20	
Chlorobenzene	21.31	1.0	20	0	107	82 - 118	21.83	2.45	20	
Chloroethane	19.77	1.0	20	0	98.9	60 - 138	21.93	10.4	20	
Chloroform	20.49	1.0	20	0	102	79 - 124	21.08	2.84	20	
Chloromethane	22.03	1.0	20	0	110	50 - 139	23.3	5.61	20	
cis-1,2-Dichloroethene	20.37	1.0	20	0	102	78 - 123	20.72	1.68	20	
cis-1,3-Dichloropropene	16.6	1.0	20	0	83.0	75 - 124	16.9	1.8	20	
Dibromochloromethane	17.57	1.0	20	0	87.8	74 - 126	17.9	1.89	20	
Dibromomethane	20.81	1.0	20	0	104	79 - 123	21.45	3.01	20	
Dichlorodifluoromethane	17.39	1.0	20	0	87.0	32 - 152	18.56	6.51	20	
Ethylbenzene	21.9	1.0	20	0	110	79 - 121	22.37	2.11	20	
Hexachlorobutadiene	20.44	1.0	20	0	102	66 - 134	20.02	2.1	20	
Isopropylbenzene	22.25	1.0	20	0	111	72 - 131	22.85	2.66	20	
m,p-Xylene	44.12	2.0	40	0	110	80 - 121	46.19	4.58	20	
Methylene chloride	18.66	2.0	20	0	93.3	74 - 124	19.01	1.85	20	
Naphthalene	19.58	1.0	20	0	97.9	61 - 128	18.5	5.63	20	
n-Butylbenzene	20.77	1.0	20	0	104	75 - 128	21.11	1.61	20	
n-Propylbenzene	21.74	1.0	20	0	109	76 - 126	22.58	3.79	20	
o-Xylene	22.07	1.0	20	0	110	78 - 122	22.84	3.46	20	
sec-Butylbenzene	21.93	1.0	20	0	110	77 - 126	22.42	2.25	20	
Styrene	22.13	1.0	20	0	111	78 - 123	23.01	3.92	20	
tert-Butylbenzene	21.91	1.0	20	0	110	78 - 124	22.16	1.16	20	
Tetrachloroethene	20.71	1.0	20	0	104	74 - 129	21.65	4.43	20	
Toluene	21.89	1.0	20	0	109	80 - 121	22.67	3.47	20	
trans-1,2-Dichloroethene	20.26	1.0	20	0	101	75 - 124	20.56	1.45	20	
trans-1,3-Dichloropropene	15.85	1.0	20	0	79.3	73 - 127	15.81	0.27	20	
Trichloroethene	21.92	1.0	20	0	110	79 - 123	23.47	6.81	20	
Trichlorofluoromethane	20.44	1.0	20	0	102	65 - 141	20.88	2.12	20	
Vinyl chloride	20.77	1.0	20	0	104	58 - 137	21.7	4.35	20	
Surr: 1,2-Dichloroethane-d4	*45.87*	*1.0*	*50*	*0*	*91.7*	*81 - 118*	*45.66*	*0.469*	*20*	
Surr: 4-Bromofluorobenzene	*51.19*	*1.0*	*50*	*0*	*102*	*85 - 114*	*51.79*	*1.17*	*20*	
Surr: Dibromofluoromethane	*46.1*	*1.0*	*50*	*0*	*92.2*	*80 - 119*	*45.79*	*0.69*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.89*	*1.0*	*50*	*0*	*102*	*89 - 112*	*51.12*	*0.455*	*20*	

The following samples were analyzed in this batch:

HS21110813-11	HS21110813-12	HS21110813-13	HS21110813-14
HS21110813-15	HS21110813-16	HS21110813-17	HS21110813-18
HS21110813-19			

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396499 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211124** Units: **ug/L** Analysis Date: **24-Nov-2021 13:22**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394647** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.76*	*1.0*	*50*	*0*	*91.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.65*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*43.52*	*1.0*	*50*	*0*	*87.0*	*80 - 119*				
Surr: Toluene-d8	*51.66*	*1.0*	*50*	*0*	*103*	*89 - 112*				

LCS Sample ID: **VLCSW-211124** Units: **ug/L** Analysis Date: **24-Nov-2021 12:37**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394646** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.49	1.0	20	0	102	71 - 131				
Surr: 1,2-Dichloroethane-d4	*51.78*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.96*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*51.01*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*49.58*	*1.0*	*50*	*0*	*99.2*	*89 - 112*				

MS Sample ID: **HS21111214-18MS** Units: **ug/L** Analysis Date: **24-Nov-2021 15:58**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394654** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.76	1.0	20	0.673	105	71 - 131				
Surr: 1,2-Dichloroethane-d4	*45.52*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.51*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46.08*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				
Surr: Toluene-d8	*51.21*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396499 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-01MS** Units: **ug/L** Analysis Date: **24-Nov-2021 16:43**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394656** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21720	1000	20000	0	109	71 - 131				
Surr: 1,2-Dichloroethane-d4	*44850*	*1000*	*50000*	*0*	*89.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51490*	*1000*	*50000*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45650*	*1000*	*50000*	*0*	*91.3*	*80 - 119*				
Surr: Toluene-d8	*50820*	*1000*	*50000*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS21111214-18MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 16:20**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.78	1.0	20	0.673	101	71 - 131	21.76	4.64	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	*1.0*	*50*	*0*	*91.1*	*81 - 118*	*45.52*	*0.0253*	*20*	
Surr: 4-Bromofluorobenzene	*51.88*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.51*	*0.721*	*20*	
Surr: Dibromofluoromethane	*46.32*	*1.0*	*50*	*0*	*92.6*	*80 - 119*	*46.08*	*0.511*	*20*	
Surr: Toluene-d8	*51.33*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.21*	*0.229*	*20*	

MSD Sample ID: **HS21111214-01MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 17:05**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394657** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20690	1000	20000	0	103	71 - 131	21720	4.86	20	
Surr: 1,2-Dichloroethane-d4	*45310*	*1000*	*50000*	*0*	*90.6*	*81 - 118*	*44850*	*1.02*	*20*	
Surr: 4-Bromofluorobenzene	*51720*	*1000*	*50000*	*0*	*103*	*85 - 114*	*51490*	*0.439*	*20*	
Surr: Dibromofluoromethane	*46860*	*1000*	*50000*	*0*	*93.7*	*80 - 119*	*45650*	*2.62*	*20*	
Surr: Toluene-d8	*51160*	*1000*	*50000*	*0*	*102*	*89 - 112*	*50820*	*0.667*	*20*	

The following samples were analyzed in this batch: HS21110813-16 HS21110813-17

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396691 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211130** Units: **ug/L** Analysis Date: **30-Nov-2021 12:42**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399425** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.48*	*1.0*	*50*	*0*	*89.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*43.57*	*1.0*	*50*	*0*	*87.1*	*80 - 119*				
Surr: Toluene-d8	*50.52*	*1.0*	*50*	*0*	*101*	*89 - 112*				

LCS Sample ID: **VLCSW-211130** Units: **ug/L** Analysis Date: **30-Nov-2021 11:57**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399424** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.07	1.0	20	0	110	71 - 131				
Surr: 1,2-Dichloroethane-d4	*49.06*	*1.0*	*50*	*0*	*98.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.47*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*50.06*	*1.0*	*50*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*49.81*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

MS Sample ID: **HS21111162-29MS** Units: **ug/L** Analysis Date: **30-Nov-2021 15:00**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399431** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.98	1.0	20	0	110	71 - 131				
Surr: 1,2-Dichloroethane-d4	*44.23*	*1.0*	*50*	*0*	*88.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.9*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.25*	*1.0*	*50*	*0*	*92.5*	*80 - 119*				
Surr: Toluene-d8	*50.78*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396691 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111162-29MSD** Units: **ug/L** Analysis Date: **30-Nov-2021 15:23**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399432** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.4	1.0	20	0	107	71 - 131	21.98	2.64	20	
Surr: 1,2-Dichloroethane-d4	*43.39*	*1.0*	*50*	*0*	*86.8*	*81 - 118*	*44.23*	*1.91*	*20*	
Surr: 4-Bromofluorobenzene	*51.36*	*1.0*	*50*	*0*	*103*	*85 - 114*	*50.9*	*0.898*	*20*	
Surr: Dibromofluoromethane	*45.5*	*1.0*	*50*	*0*	*91.0*	*80 - 119*	*46.25*	*1.62*	*20*	
Surr: Toluene-d8	*51.5*	*1.0*	*50*	*0*	*103*	*89 - 112*	*50.78*	*1.42*	*20*	

The following samples were analyzed in this batch: HS21110813-18

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R395659 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **13-Nov-2021 08:36**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372292** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **13-Nov-2021 08:43**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372293** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.45	0.500	20	0	97.3	80 - 120				
Nitrogen, Nitrate (As N)	3.878	0.100	4	0	96.9	80 - 120				
Sulfate	19.62	0.500	20	0	98.1	80 - 120				

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **13-Nov-2021 07:14**
Client ID: **67WW08-211111** Run ID: **ICS-Integrion_395659** SeqNo: **6372282** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1651	2.50	50	1720	-138	80 - 120				SEO
Nitrogen, Nitrate (As N)	9.284	0.500	10	0.3185	89.7	80 - 120				
Sulfate	488	2.50	50	471	34.2	80 - 120				SO

MS Sample ID: **HS21110799-04MS** Units: **mg/L** Analysis Date: **13-Nov-2021 10:12**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372303** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	24.69	0.500	10	15.07	96.2	80 - 120				
Nitrogen, Nitrate (As N)	1.972	0.100	2	0.1328	92.0	80 - 120				
Sulfate	57.63	0.500	10	48.29	93.4	80 - 120				O

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R395659 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS21110813-13MSD** Units: **mg/L** Analysis Date: **13-Nov-2021 07:22**
Client ID: **67WW08-211111** Run ID: **ICS-Integrion_395659** SeqNo: **6372283** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1683	2.50	50	1720	-74.4	80 - 120	1651	1.91	20	SEO
Nitrogen, Nitrate (As N)	9.441	0.500	10	0.3185	91.2	80 - 120	9.284	1.67	20	
Sulfate	497.5	2.50	50	471	53.1	80 - 120	488	1.92	20	SO

MSD Sample ID: **HS21110799-04MSD** Units: **mg/L** Analysis Date: **13-Nov-2021 10:19**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372304** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	24.66	0.500	10	15.07	95.9	80 - 120	24.69	0.13	20	
Nitrogen, Nitrate (As N)	1.968	0.100	2	0.1328	91.8	80 - 120	1.972	0.188	20	
Sulfate	57.41	0.500	10	48.29	91.2	80 - 120	57.63	0.378	20	O

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396090 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON - SM5310B-2011

MBLK Sample ID: **MBLK-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 07:35**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383213** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	1.00	1.00								U

LCS Sample ID: **LCS-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 07:51**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383214** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.75	1.00	10	0	108	85 - 115				

LCSD Sample ID: **LCSD-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 08:07**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383215** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.7	1.00	10	0	107	85 - 115	10.75	0.466	20	

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **19-Nov-2021 09:27**
Client ID: **67WW08-211111** Run ID: **TOC_04_396090** SeqNo: **6383220** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	16.59	1.00	10	4.709	119	80 - 120				

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: **HS21110813**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 20-Jan-22

Sample Receipt Checklist

Work Order ID: HS21110813 **Date/Time Received:** **12-Nov-2021 11:50**

Client Name: CBI-Houston **Received by:** **Eric Widjaja**

Completed By: /S/ Pablo Marinez (eSignature) 12-Nov-2021 20:23 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 16-Nov-2021 14:39 (Date/Time)

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

	Yes	No	
Shipping container/cooler in good condition?	☑	☐	Not Present ☐
Custody seals intact on shipping container/cooler?	☑	☐	Not Present ☐
Custody seals intact on sample bottles?	☐	☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	Not Present ☑
Chain of custody present?	☑	☐	3 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:CLIENT
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	0.4°C UC/C	IR 31
Cooler(s)/Kit(s):	46056	
Date/Time sample(s) sent to storage:	11/12/21 20:25	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☐	☐	N/A ☑
pH adjusted?	☐	☐	N/A ☑

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Giga

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 67 November 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
67WW14-211110	WG	11/10/21/0700		3	X						
67WW05-211110	WG	11/10/21 0740		3	X						
67WW05-211110-FD	WG	11/10/21 0740		3	X						
67WW18-211110	WG	11/10/21 0825		3	X						
67WW17-211110	WG	11/10/21 0915		3	X						
67WW02-211110	WG	11/10/21 0955		3	X						
67WW12-211110	WG	11/10/21 1045		3	X						
67WW07-211110	WG	11/10/21 1130		3	X						

HS21110813
Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
[signature]	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 UCK CFOU 1243

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS, 10450 Stancliff Rd, Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Gips

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 67 November 2021

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
67WW10-211110	WG	11/10/21 1215		3	X						
67WW09A-211110	WG	11/10/21 1255		3	X						
67WW01-211111	WG	11/11/21 0725		3	X						
67WW16I-211111	WG	11/11/21 0805		3	X						
67WW08-211111	WG	11/11/21 0845		12	X	X	X	X	X		
67WW08-211111-MS	WG	11/11/21 0845		12	X	X	X	X	X		
67WW08-211111-MSD	WG	11/11/21 0845		12	X	X	X	X	X		
67WW11-211111	WG	11/11/21 0940		3	X						

HS21110813

Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com **and invoices to** fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
[illegible]	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 UN 1F00 1R31

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Giga

Page 1 of 1

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 67 November 2021

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
67WW13-211111	WG	11/11/21 1025		12	X	X	X	X	X		
67WW13-211111-FD	WG	11/11/21 1025		12	X	X	X	X	X		
67WW15-211111	WG	11/11/21 1120		3	X						
67WW09-211111	WG	11/11/21 1205		3	X						
TRIP Blank-211111	W	11/11/21		2	X						

HS21110813
Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
[illegible]	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 VC CFD.0 11/12/21

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ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46056

CUSTODY SEAL

Date: 11/11/21 Time: 1430
Name: Scott Beesinger
Company: BAHOTS

Seal Broken By: SM
Date: 11/12/21

46056

ALS

46056

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFRASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 28DC121
ACTWGT: 1.00 LB MAN
CAD: 0221242/CAFE3507
DIMS: 18x16x13 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-67-B081554-RG
RMA:

FedEx Express

TRK# 5300 5224 2212

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

4238674 11Nov2021 GGGA 56DC2/9A7E/1R73

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 01/19/2022

Report # 221111777

Project HS21110813

Samples Collected 11/11/21

Deliver To	***Additional Recipients***
Ragen Giga ALS Houston 10450 Stancliff Rd Suite 210 Houston, TX 77099 281-530-5656	Jumoke Lawal, ALS Houston

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics **-** The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature
Pace Gulf Coast Report 221111777

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: ALS Environmental - Houston, TX **Report:** 221111777

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis for analytical batch 727709, the MS/MSD recoveries and RPDs are not applicable to Carbon Dioxide because the spike was diluted out of the samples. The LCS recovery is acceptable.

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22111177701	67WW08-211111	Water	11/11/21 08:45	11/16/21 11:57
22111177702	67WW08-211111-MS	Water	11/11/21 08:45	11/16/21 11:57
22111177703	67WW08-211111-MSD	Water	11/11/21 08:45	11/16/21 11:57
22111177704	67WW13-211111	Water	11/11/21 10:25	11/16/21 11:57
22111177705	67WW13-211111-FD	Water	11/11/21 10:25	11/16/21 11:57

Test Summary

EPA RSK-175					
Lab ID	**Client ID**	**Matrix**	**Batch**	**Instru**	**RunDate**
22111177701	67WW08-211111	Water	727709	GCV8B	11/23/21 19:04
22111177702	67WW08-211111-MS	Water	727709	GCV8B	11/23/21 19:14
22111177703	67WW08-211111-MSD	Water	727709	GCV8B	11/23/21 19:19
22111177704	67WW13-211111	Water	727709	GCV8B	11/23/21 19:25
22111177705	67WW13-211111-FD	Water	727709	GCV8B	11/23/21 19:30

Manual Integrations

Lab ID	Client ID	Matrix	Method	Parameter
22111177702	67WW08-211111-MS	Water	EPA RSK-175	Carbon Dioxide

Detect Summary

Results and Detection Limits are adjusted for dilution and moisture when applicable

EPA RSK-175						
Lab ID	**Client ID**	**Parameter**	**Units**	**Result**	**Dil.**	**%Moist**
22111177701	67WW08-211111	Carbon Dioxide	ug/L	466000	50	NA
22111177704	67WW13-211111	Carbon Dioxide	ug/L	637000	50	NA
22111177705	67WW13-211111-FD	Carbon Dioxide	ug/L	657000	50	NA

EPA RSK-175

Form 1D

Results

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177701
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8016
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1904
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	466000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d
Lab Smp Id: 22111177701
Inj Date : 23-NOV-2021 19:04
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177701
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	27788703	9329.86	466000

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d

Page 1

Date : 23-NOV-2021 19:04

Client ID:

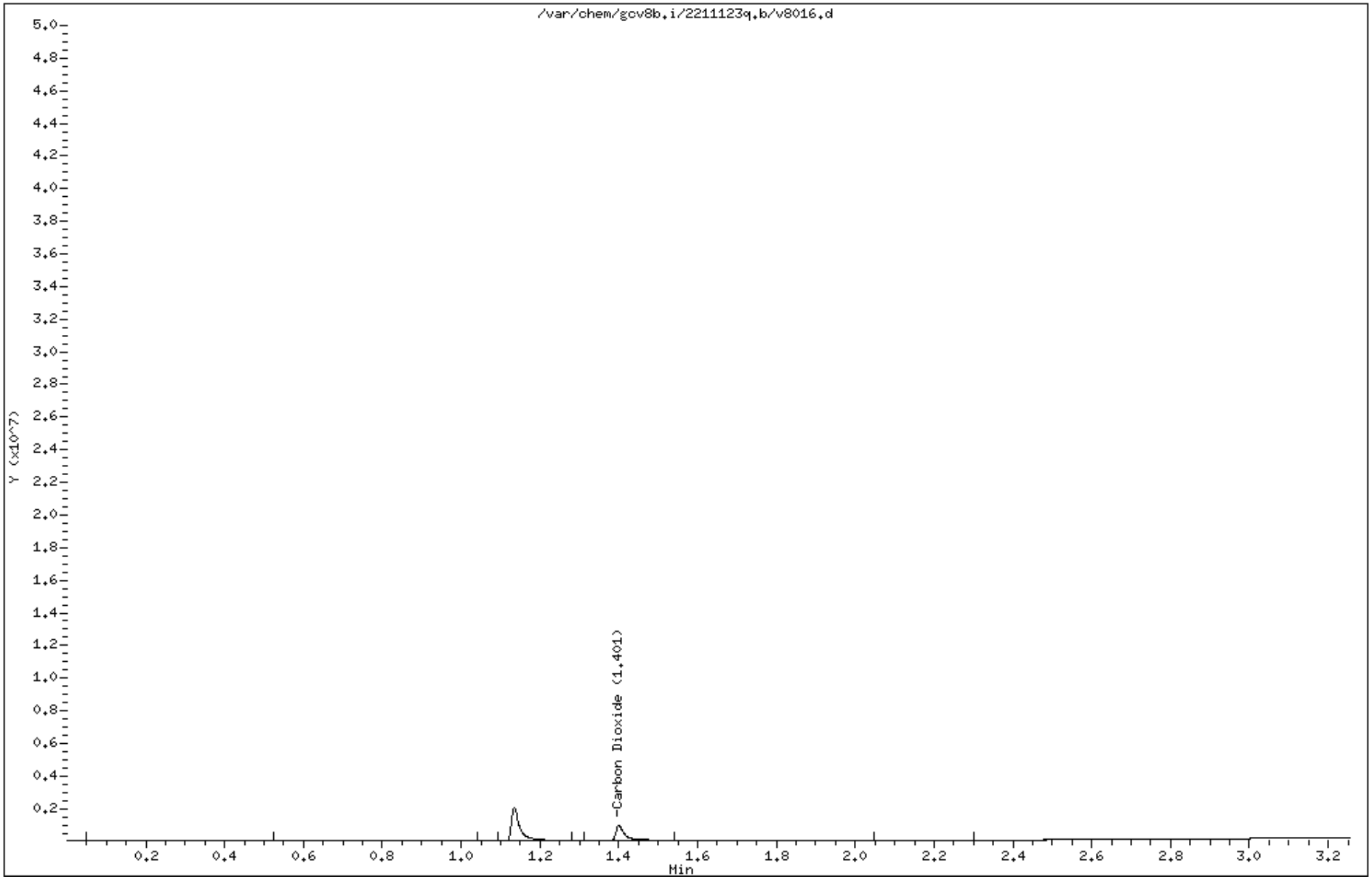
Instrument: gcv8b.i

Sample Info: 22111177701

Operator: JAR

Column phase: GS-Q-30

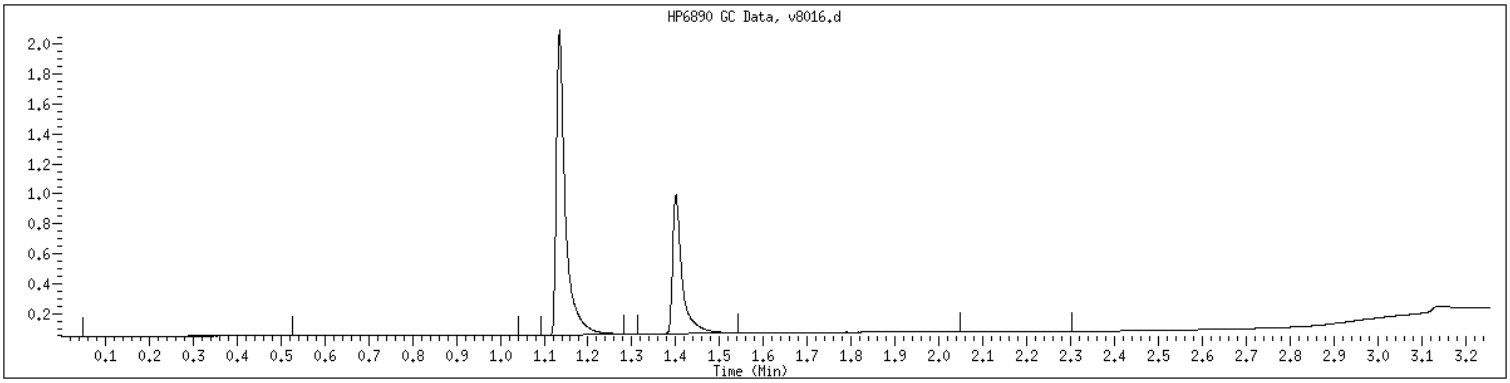
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177701 SampleType : SAMPLE
Injection Date: 11/23/2021 19:04 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177701
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MS
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177702
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8018
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1914
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	427000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d
Lab Smp Id: 22111177702
Inj Date : 23-NOV-2021 19:14
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177702
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MS
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	25438242	8540.71	427000(RM1)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d

Page 1

Date : 23-NOV-2021 19:14

Client ID:

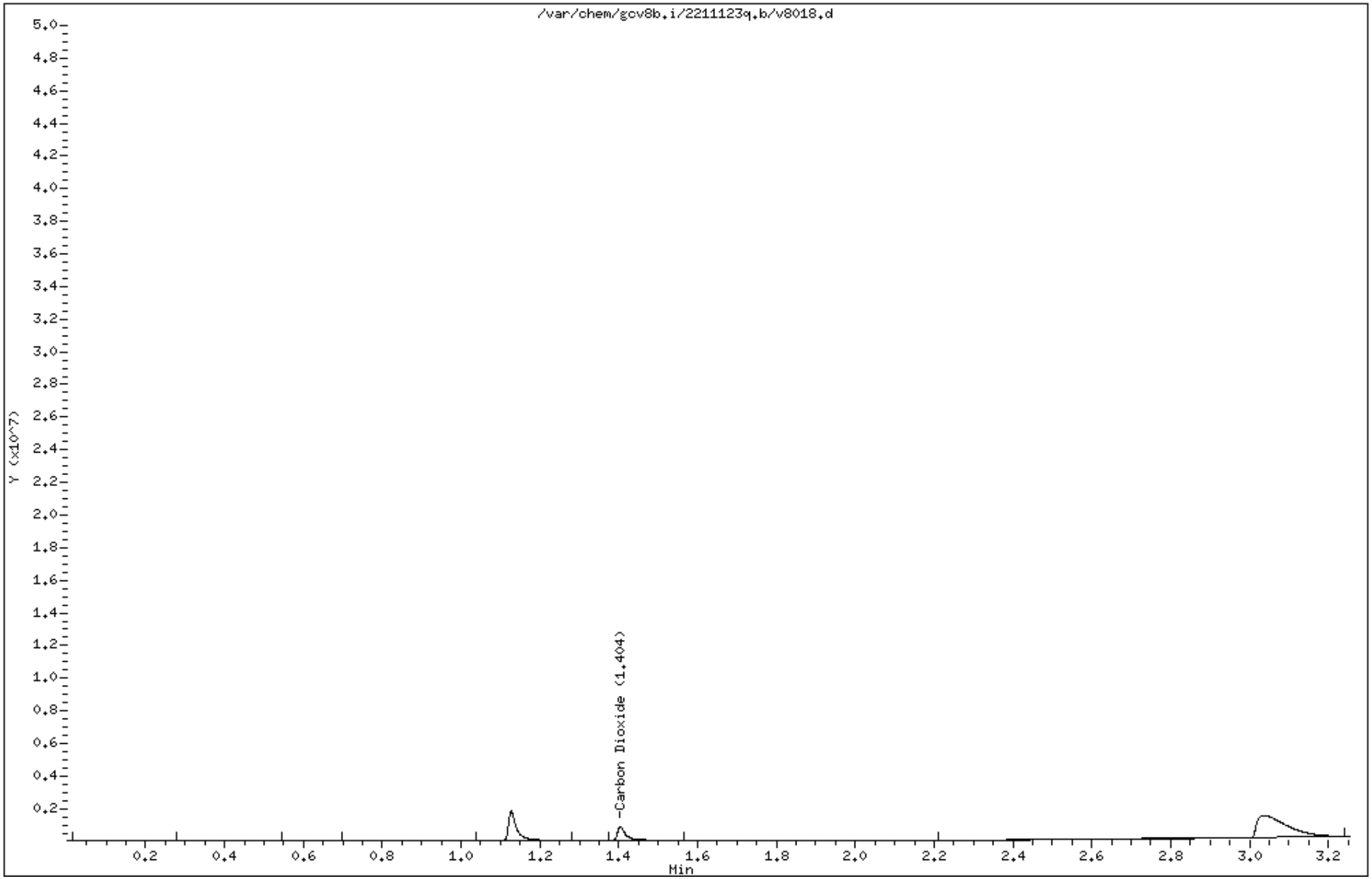
Instrument: gcv8b.i

Sample Info: 22111177702

Operator: JAR

Column phase: GS-Q-30

Column diameter: 0.53

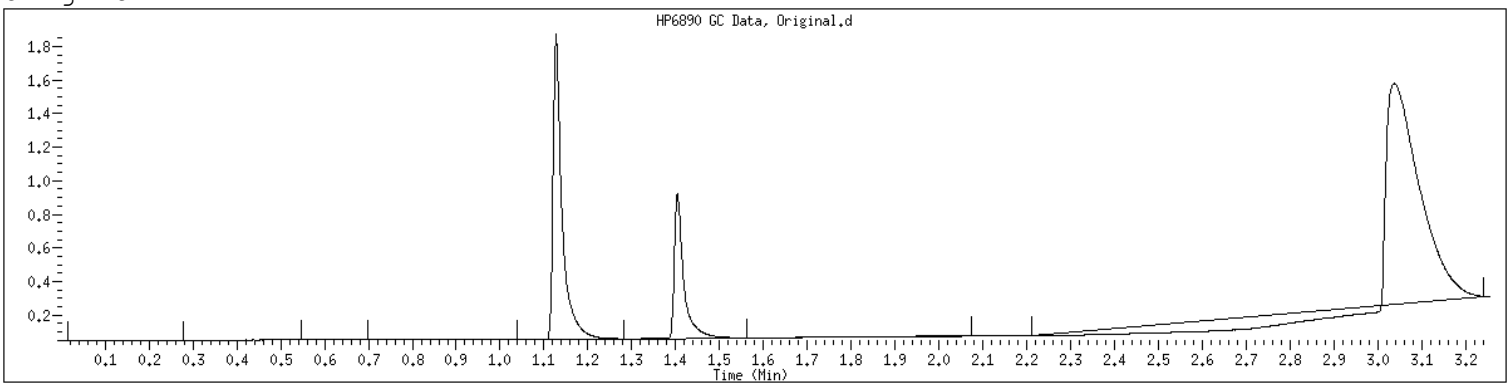


Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177702 SampleType : MS
Injection Date: 11/23/2021 19:14 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177702
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



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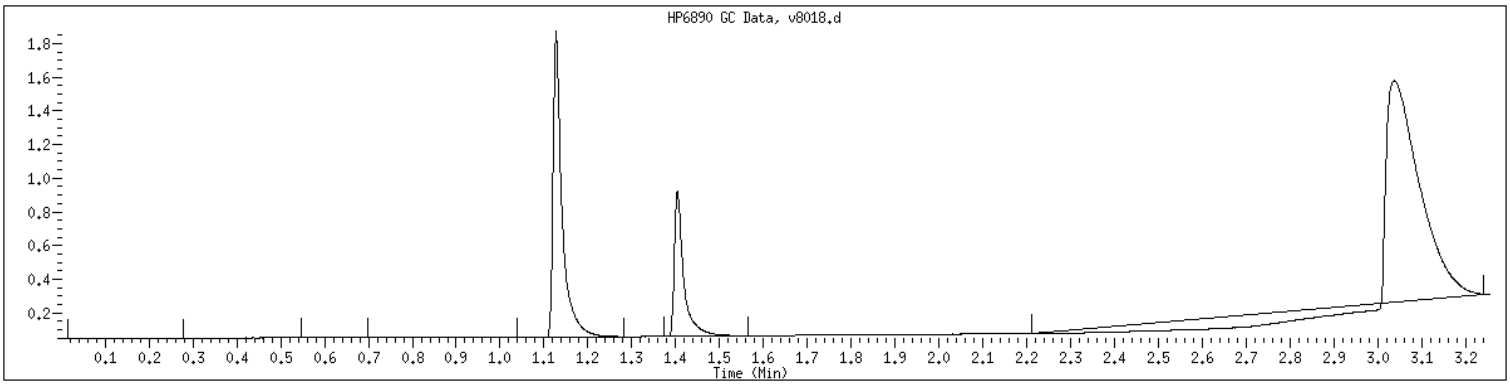


1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MSD
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177703
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8019
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1919
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	495000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d
Lab Smp Id: 22111177703
Inj Date : 23-NOV-2021 19:19
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177703
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	29480711	9897.94	495000(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d

Page 1

Date : 23-NOV-2021 19:19

Client ID:

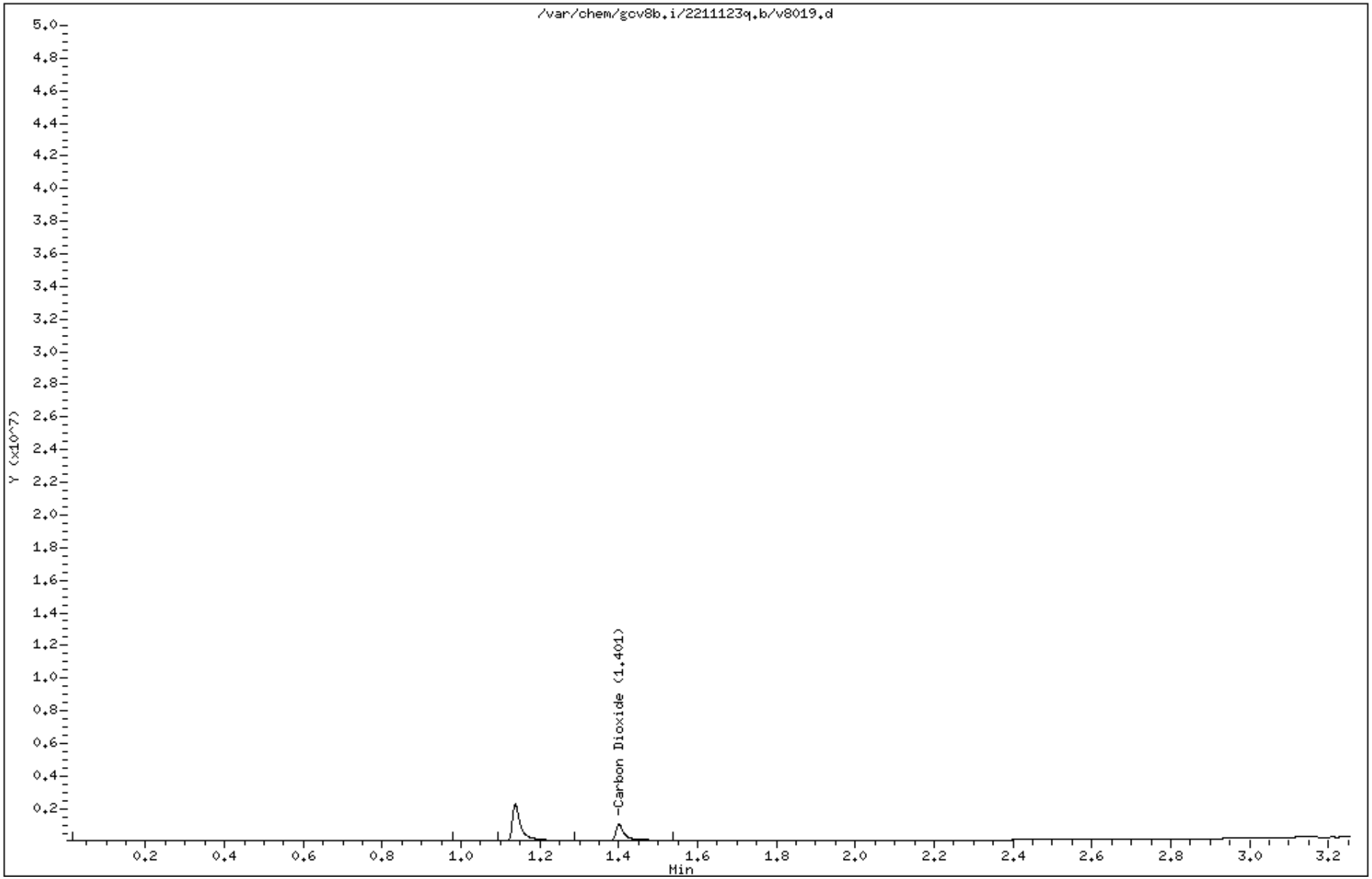
Instrument: gcv8b.i

Sample Info: 22111177703

Operator: JAR

Column phase: GS-Q-30

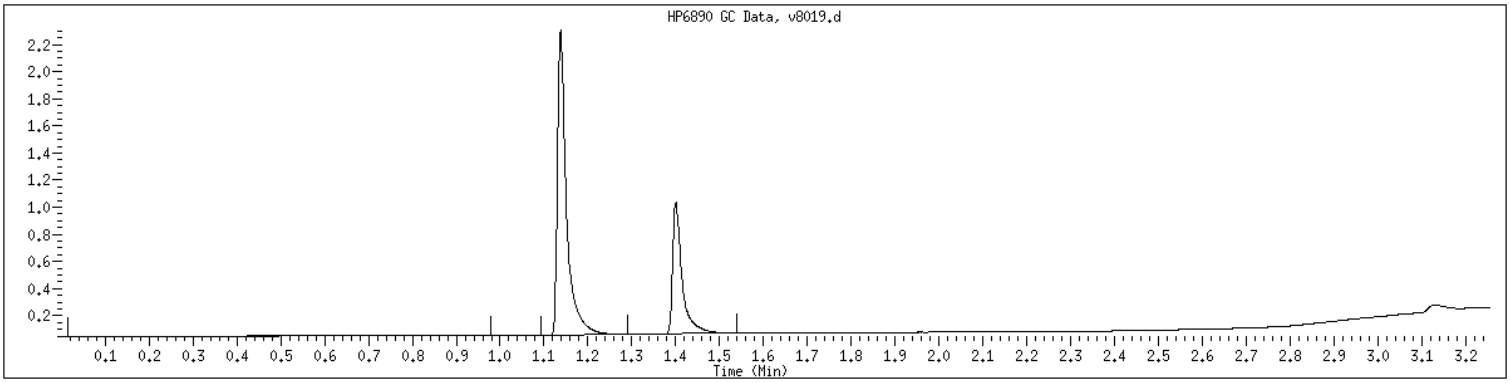
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177703 SampleType : MSD
Injection Date: 11/23/2021 19:19 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177703
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8020
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1925
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	637000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d
Lab Smp Id: 22111177704
Inj Date : 23-NOV-2021 19:25
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	37942037	12738.8	637000

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d

Page 1

Date : 23-NOV-2021 19:25

Client ID:

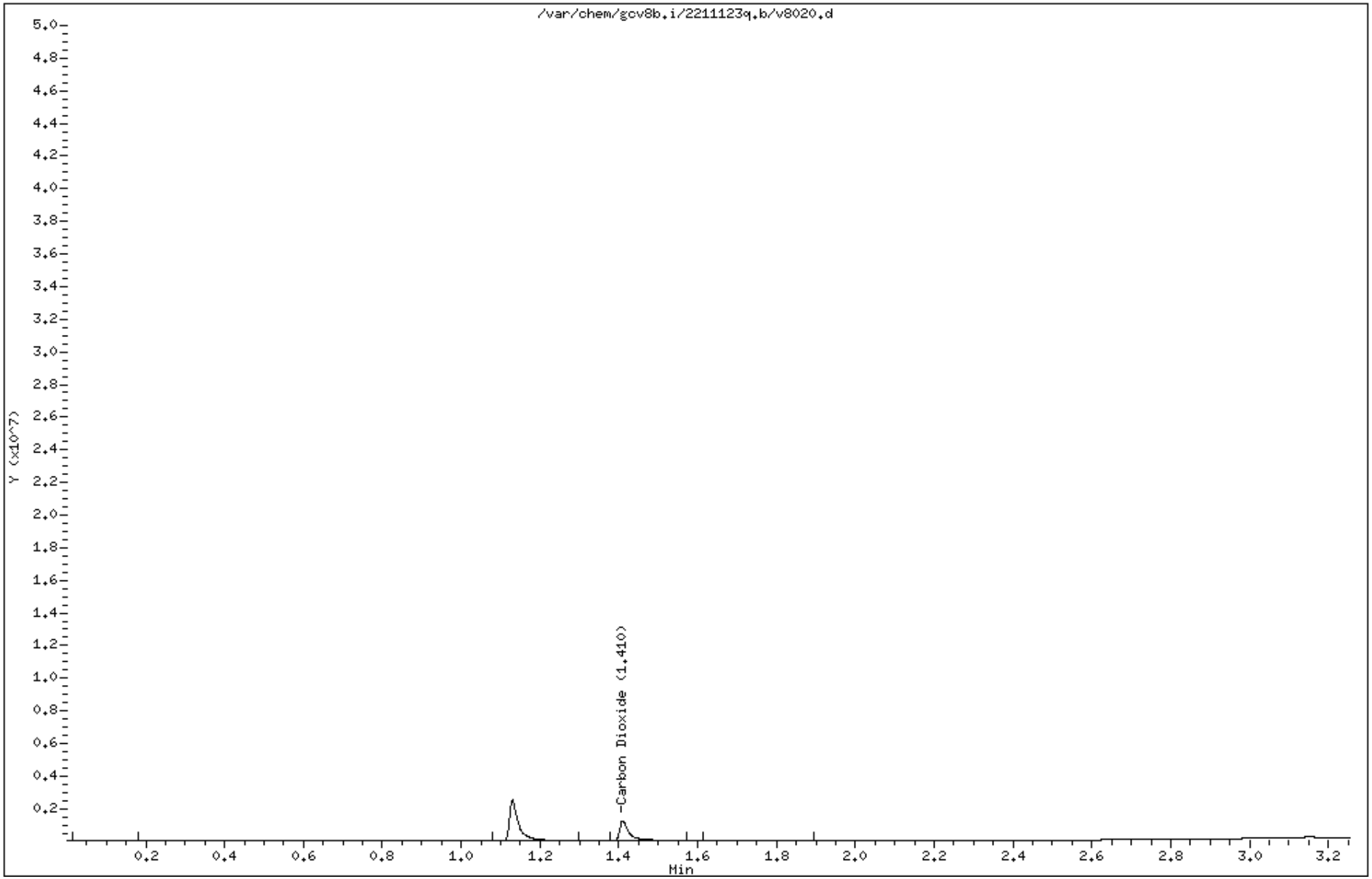
Instrument: gcv8b.i

Sample Info: 22111177704

Operator: JAR

Column phase: GS-Q-30

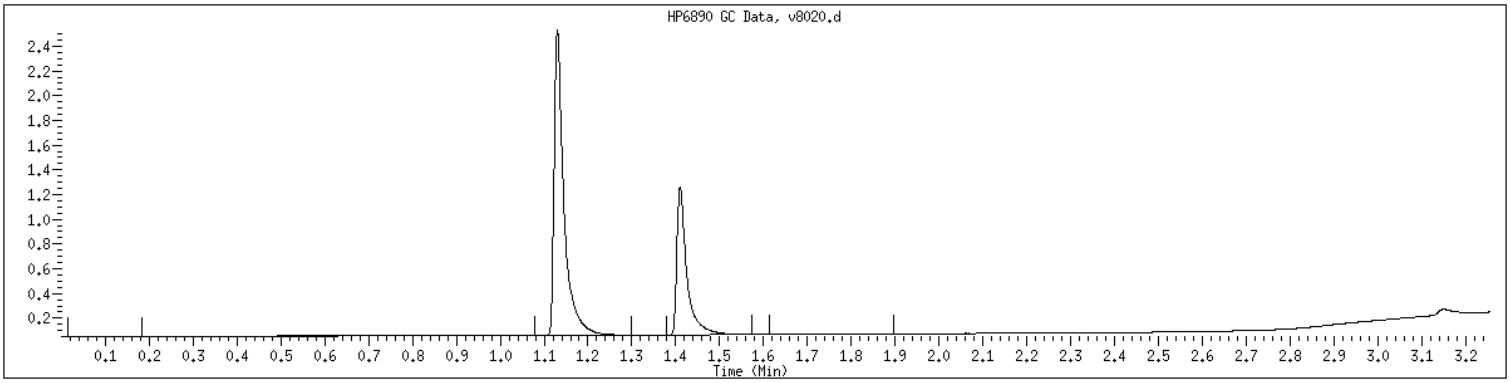
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177704 SampleType : SAMPLE
Injection Date: 11/23/2021 19:25 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111-FD
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8021
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1930
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	657000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d
Lab Smp Id: 22111177705
Inj Date : 23-NOV-2021 19:30
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	39156891	13146.6	657000

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d

Page 1

Date : 23-NOV-2021 19:30

Client ID:

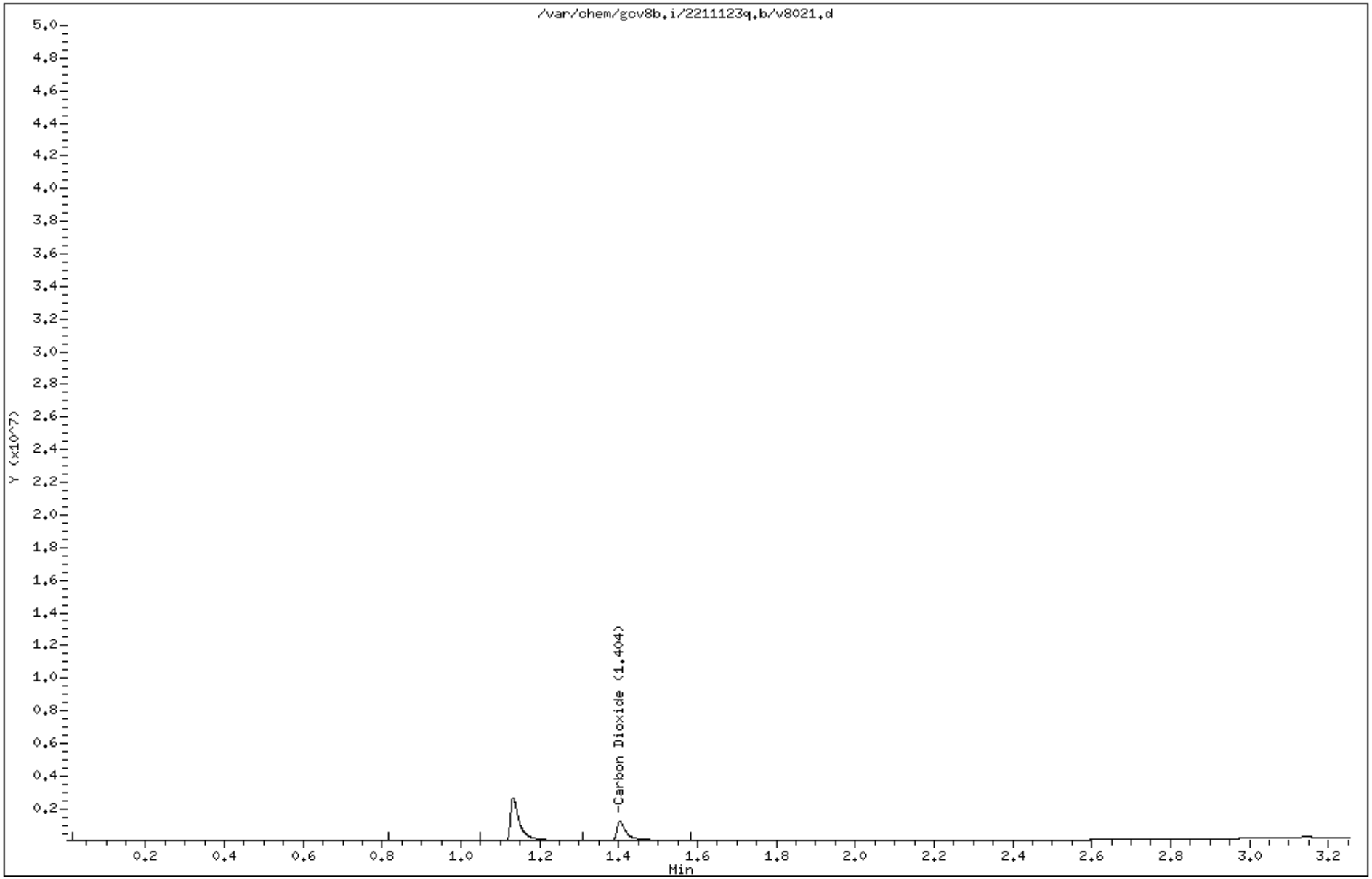
Instrument: gcv8b.i

Sample Info: 22111177705

Operator: JAR

Column phase: GS-Q-30

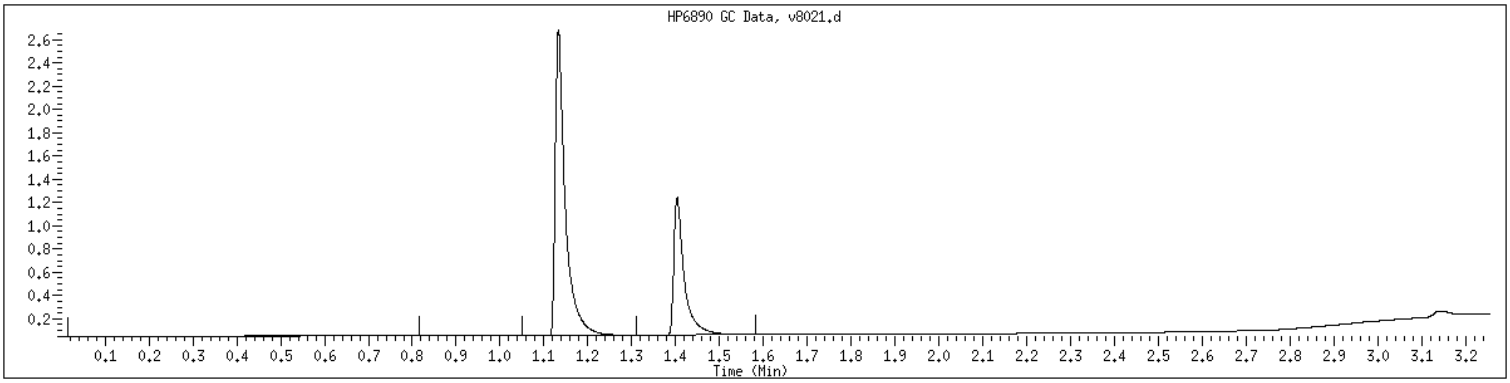
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177705 SampleType : SAMPLE
Injection Date: 11/23/2021 19:30 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	MB2277704
Collect Date:	NA Time: NA	GCAL Sample ID:	2277704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	900	U	127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d
Lab Smp Id: 2277704
Inj Date : 23-NOV-2021 17:37
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	517662	173.801	174

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d

Page 1

Date : 23-NOV-2021 17:37

Client ID:

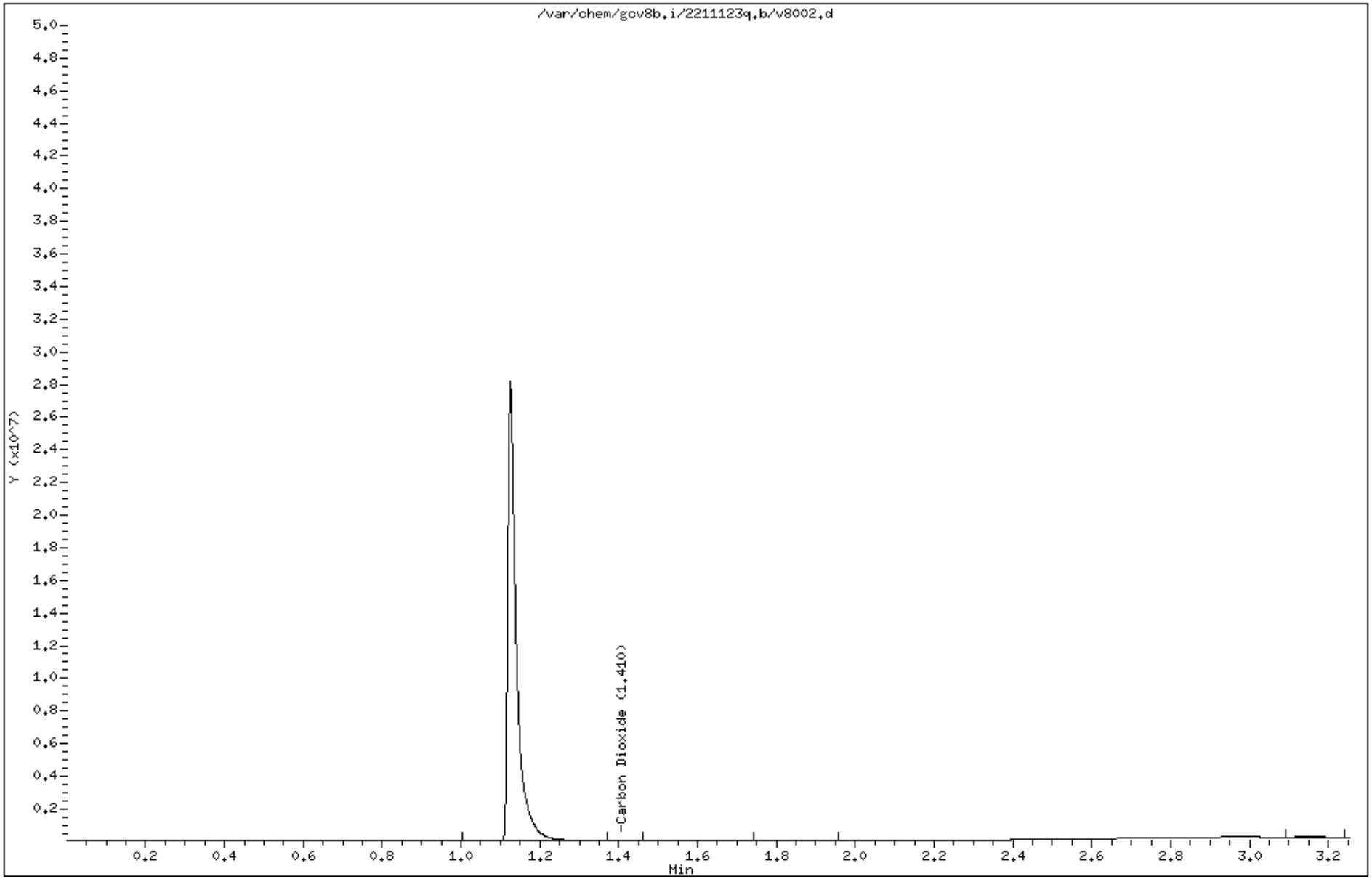
Instrument: gcv8b.i

Sample Info: 2277704

Operator: JAR

Column phase: GS-Q-30

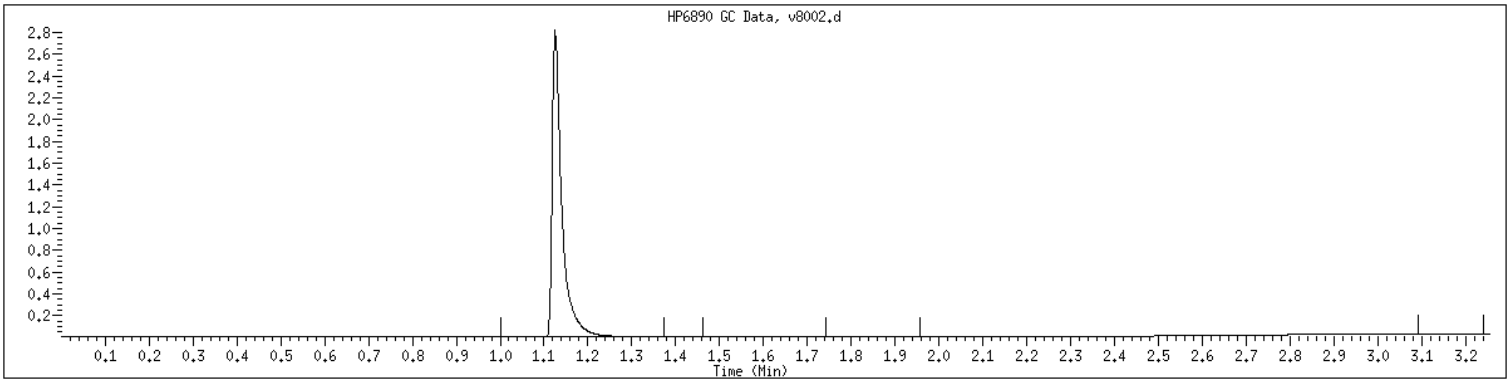
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277704 SampleType : BLANK
Injection Date: 11/23/2021 17:37 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCS2277705
Collect Date:	NA Time: NA	GCAL Sample ID:	2277705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8003
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1742
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8480		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d
Lab Smp Id: 2277705
Inj Date : 23-NOV-2021 17:42
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.409	1.414	-0.005	25249944	8477.49	8480

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d

Page 1

Date : 23-NOV-2021 17:42

Client ID:

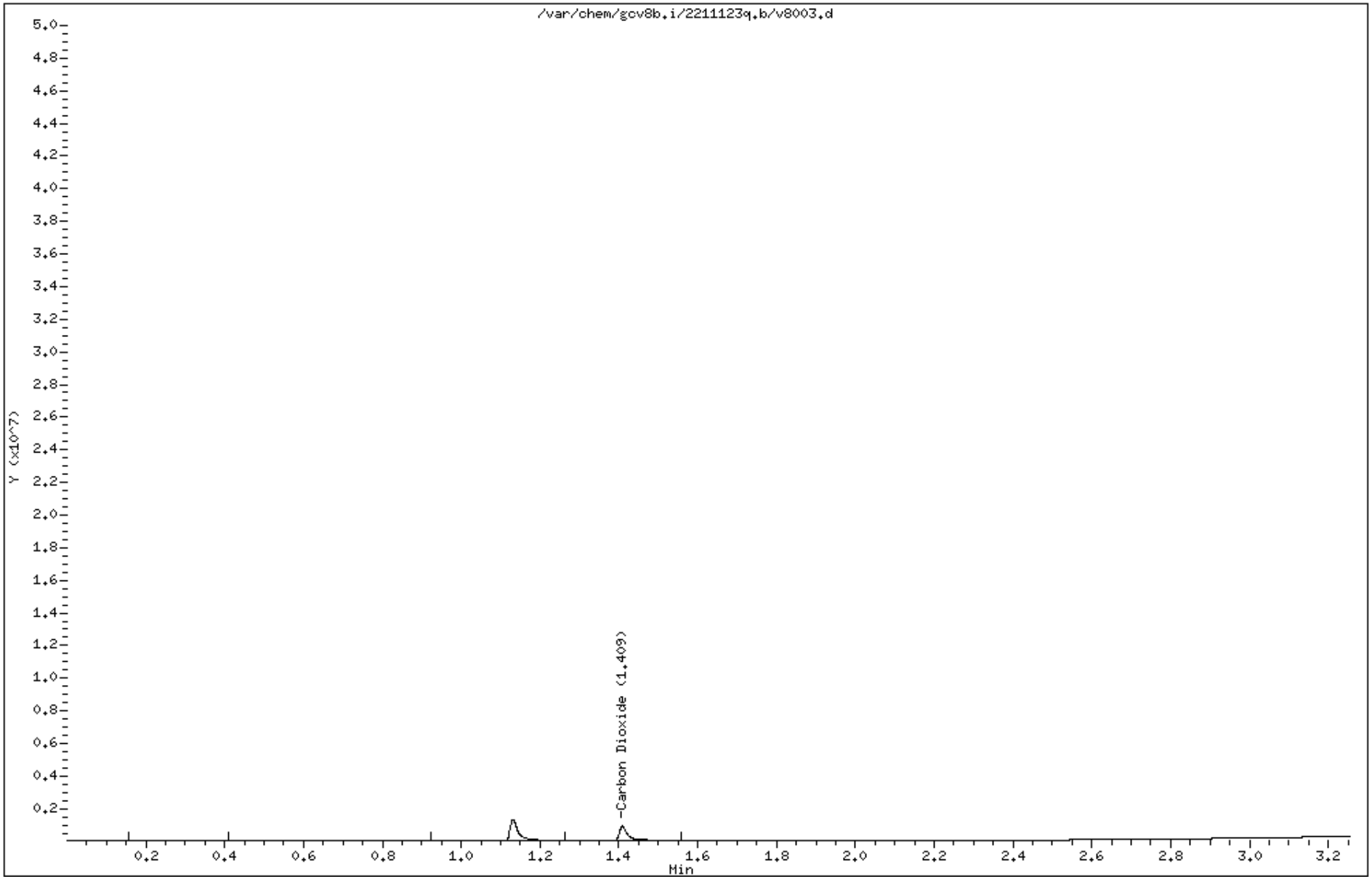
Instrument: gcv8b.i

Sample Info: 2277705

Operator: JAR

Column phase: GS-Q-30

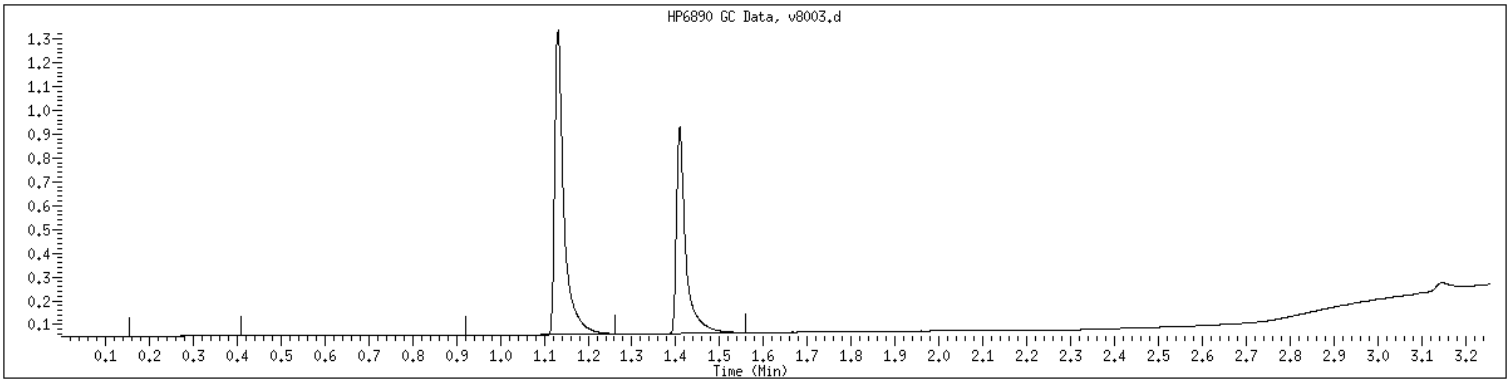
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277705 SampleType : LCS
Injection Date: 11/23/2021 17:42 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCSD2277706
Collect Date:	NA Time: NA	GCAL Sample ID:	2277706
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8004
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1748
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8770		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d
Lab Smp Id: 2277706
Inj Date : 23-NOV-2021 17:48
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277706
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.402	1.414	-0.012	26116384	8768.39	8770

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d

Page 1

Date : 23-NOV-2021 17:48

Client ID:

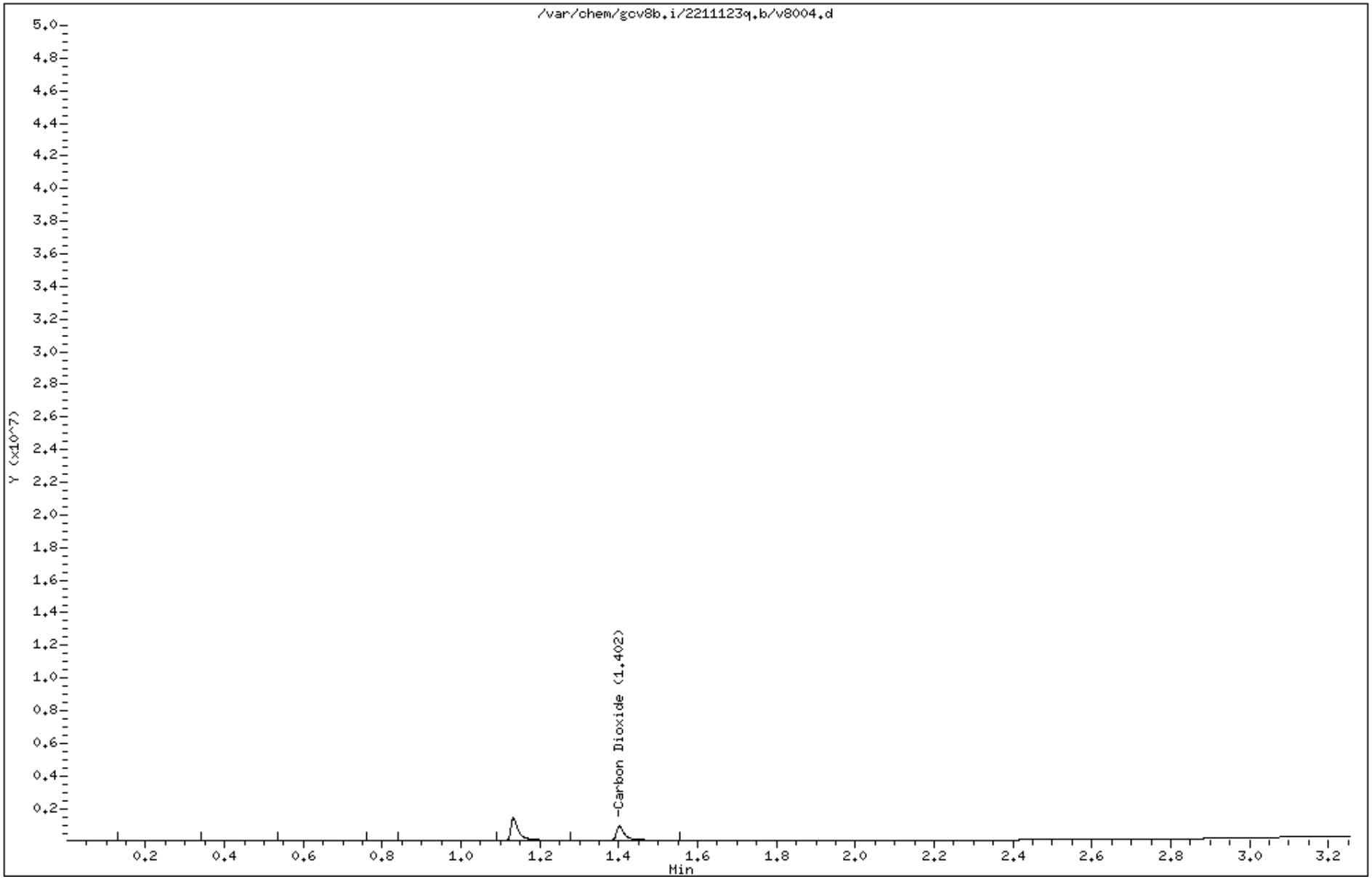
Instrument: gcv8b.i

Sample Info: 2277706

Operator: JAR

Column phase: GS-Q-30

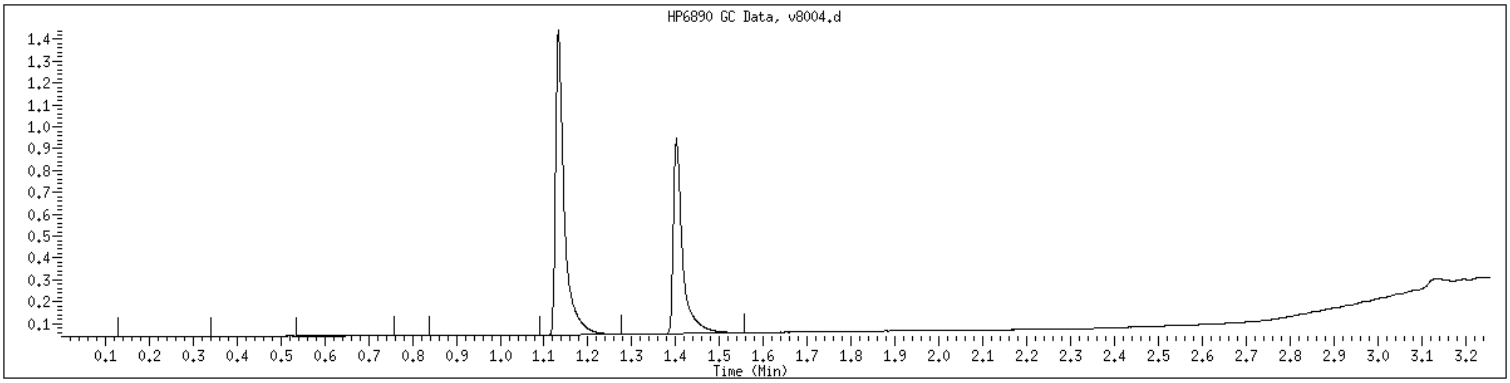
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277706 SampleType : LCSD
Injection Date: 11/23/2021 17:48 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277706
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

Form 3E

Spikes

3E
WATER ORGANICS MS/MSD RECOVERY

Report No:	221111777	Parent Sample ID:	67WW08-211111
Prep Method:	NA	Prep Batch:	NA
Analytical Method:	RSK-175	Analytical Batch:	727709

GCAL QC ID: 22111177702

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	466000	427000	-448	*	38 - 147

GCAL QC ID: 22111177703

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	495000	333	*	15		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

3E

WATER ORGANICS LCS/LCSD RECOVERY

Report No: 221111777

Prep Method: NA

Prep Batch: NA

Analytical Method: RSK-175

Analytical Batch: 727709

GCAL QC ID: 2277705

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	0	8480	97		38 - 147

GCAL QC ID: 2277706

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	8770	101		3		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

EPA RSK-175

Form 4C

Method Blanks

4C
ORGANIC METHOD BLANK SUMMARY

Report No:	221111777	Method Blank ID:	2277704
Matrix:	Water	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	(µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	DATE ANALYZED	TIME ANALYZED	INSTRUMENT ID
1 .	LCS2277705	2277705	11/23/21	1742	GCV8B
2 .	LCSD2277706	2277706	11/23/21	1748	GCV8B
3 .	67WW08-211111	22111177701	11/23/21	1904	GCV8B
4 .	67WW08-211111-MS	22111177702	11/23/21	1914	GCV8B
5 .	67WW08-211111-MSD	22111177703	11/23/21	1919	GCV8B
6 .	67WW13-211111	22111177704	11/23/21	1925	GCV8B
7 .	67WW13-211111-FD	22111177705	11/23/21	1930	GCV8B

FORM IV ORGANIC

Client ID: ALS Houston - ALS Environmental - Houston, TX

SDG: 221111777

PM: RWe

F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense**

COC ID: **17377**

SUBCONTRACT TO:

Pace Analytical
7979 Innovation Park Drive
Baton Rouge, LA 70820

Phone: +1 225 769 4900

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21110813
TSR: Ron Martino

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS21110813-13**	**67WW08-211111**	**GW**	**11 Nov 2021 08:45** -1,2,3
	XXX SUB			30 Nov 2021
2.	**HS21110813-15**	**67WW13-211111**	**GW**	**11 Nov 2021 10:25** -4
	XXX SUB			30 Nov 2021
3.	**HS21110813-16**	**67WW13-211111-FD**	**GW**	**11 Nov 2021 10:25** -5
	XXX SUB			30 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
67WW08-211111 has extra volume for MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: [signature] Date/Time: 11/15/2021 1800.

Received By: ~~FedEx~~ JH Date/Time: ~~11/16/21~~ JH

Cooler ID(s): FedEx Temperature(s): 11/16/21 1157

Rel. Received: [signature] 11-16-21 1157

RIGHT SOLUTIONS | RIGHT PARTNER

0.2 E38 5300 5224 9662

Pace Analytical®

SAMPLE RECEIVING CHECKLIST

221111777

SAMPLE DELIVERY GROUP 221111777	
Client **PM** RWe ALS Houston - ALS Environmental - Houston, TX	**Transport Method** FEDEX
Profile Number 294923	**Received By** McCune, Dodie N.
Line Item(s) 1 - CO2	**Receive Date(s)** 11/16/21

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E38	Temp °C
530052249662		0.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Page 1 of 1

HS21110813 LHAAP 67 November 2021 Cover Page

ALS WO# HS21110813

ALS Environmental
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Houston, TX 77099
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HS21110813 8260

HS21110813 RSK175

HS21110813 9056_W IC

HS21110813 Wet Chem

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Cover

Laboratory Endorsement

Certifications

Case Narrative

Sample Summary

Test Summary

Manual Integrations

Detect Summary

EPA RSK-175

COC & Sample Checklist

10450 Stancliff Rd. Suite 210
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WorkOrder: HS21110813

LHAAP 67 November 2021

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
10333 Richmond Ave Ste 1030
Houston TX 77042

20-Jan-2022

HS21110813 LHAAP 67 November 2021 Final

ALS WO# HS21110813

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January 20, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS21110813**

Laboratory Results for: **LHAAP 67 November 2021**

Dear Vicki Graves ,

ALS Environmental received 19 sample(s) on Nov 12, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21110813-01	67WW14-211110	GW		10-Nov-2021 07:00	12-Nov-2021 11:50	☐
HS21110813-02	67WW05-211110	GW		10-Nov-2021 07:40	12-Nov-2021 11:50	☐
HS21110813-03	67WW05-211110-FD	GW		10-Nov-2021 07:40	12-Nov-2021 11:50	☐
HS21110813-04	67WW18-211110	GW		10-Nov-2021 08:25	12-Nov-2021 11:50	☐
HS21110813-05	67WW17-211110	GW		10-Nov-2021 09:15	12-Nov-2021 11:50	☐
HS21110813-06	67WW02-211110	GW		10-Nov-2021 09:55	12-Nov-2021 11:50	☐
HS21110813-07	67WW12-211110	GW		10-Nov-2021 10:45	12-Nov-2021 11:50	☐
HS21110813-08	67WW07-211110	GW		10-Nov-2021 11:30	12-Nov-2021 11:50	☐
HS21110813-09	67WW10-211110	GW		10-Nov-2021 12:15	12-Nov-2021 11:50	☐
HS21110813-10	67WW09A-211110	GW		10-Nov-2021 12:55	12-Nov-2021 11:50	☐
HS21110813-11	67WW01-211111	GW		11-Nov-2021 07:25	12-Nov-2021 11:50	☐
HS21110813-12	67WW16I-211111	GW		11-Nov-2021 08:05	12-Nov-2021 11:50	☐
HS21110813-13	67WW08-211111	GW		11-Nov-2021 08:45	12-Nov-2021 11:50	☐
HS21110813-14	67WW11-211111	GW		11-Nov-2021 09:40	12-Nov-2021 11:50	☐
HS21110813-15	67WW13-211111	GW		11-Nov-2021 10:25	12-Nov-2021 11:50	☐
HS21110813-16	67WW13-211111-FD	GW		11-Nov-2021 10:25	12-Nov-2021 11:50	☐
HS21110813-17	67WW15-211111	GW		11-Nov-2021 11:20	12-Nov-2021 11:50	☐
HS21110813-18	67WW09-211111	GW		11-Nov-2021 12:05	12-Nov-2021 11:50	☐
HS21110813-19	Trip Blank-211111	Water	CG-101321-151	11-Nov-2021 00:00	12-Nov-2021 11:50	☐

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

CASE NARRATIVE

Work Order Comments

- The analysis for CO2 by RSK175 was subcontracted to A Pace Analytical Gulf Coast in Baton Rouge LA. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R396307

Sample ID: 67WW08-211111 (HS21110813-13MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: 67WW08-211111 (HS21110813-13MSD)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

GCMS Volatiles by Method SW8260

Batch ID: R396415

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R396417

Sample ID: VSTD050

- Bromomethane exceeded %D limits for CCV .Samples are ND for this compound.

Sample ID: VSTD050-END

- 2,2,_Dichloropropane failed recovery limits for closing CCV due to temperature change.

Sample ID: HS21111214-06MS

- MS and MSD are for an unrelated sample

Sample ID: 67WW08-211111 (HS21110813-13MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference. 2,2-Dichloropropane

Batch ID: R396499

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R396691

Sample ID: 67WW09-211111 (HS21110813-18)

- Sample HS21110813-18 run out of hold for one compound. Dilution for 1,1-Dichloroethene did not match original run therefore reran second vial @1X to confirm. There are no more vials to rerun.

WetChemistry by Method SM5310B

Batch ID: R396090

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Work Order: HS21110813

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R395659

Sample ID: 67WW08-211111 (HS21110813-13)

- Dilution due to high concentration of CL

Sample ID: 67WW08-211111 (HS21110813-13MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)

Sample ID: 67WW13-211111 (HS21110813-15)

- Dilution due to high concentration of CL

Sample ID: 67WW13-211111-FD (HS21110813-16)

- Dilution due to high concentration of CL

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW14-211110
Collection Date: 10-Nov-2021 07:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,1-Dichloroethane	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,1-Dichloroethene	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,2-Dichloroethane	**0.58**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 14:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 14:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 14:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW14-211110
Collection Date: 10-Nov-2021 07:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 14:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:21
Surr: 1,2-Dichloroethane-d4	*94.5*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 14:21*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 14:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:43
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 14:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 14:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 14:43
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 14:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 14:43
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 14:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 14:43
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 14:43*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 14:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110-FD
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,1-Dichloroethene	**0.62**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 15:06
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:06
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:06
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:06
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW05-211110-FD
Collection Date: 10-Nov-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:06
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 15:06
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:06
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:06
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:06*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW18-211110
Collection Date: 10-Nov-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW18-211110
Collection Date: 10-Nov-2021 08:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 15:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:29
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:29*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW17-211110
Collection Date: 10-Nov-2021 09:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:51
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 15:51
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 15:51
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW17-211110
Collection Date: 10-Nov-2021 09:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 15:51
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 15:51
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 15:51
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 15:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 15:51
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 15:51*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 15:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW02-211110
Collection Date: 10-Nov-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-06
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,1,2-Trichloroethane	**0.60**	J	**0.30**	**1.0**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloroethane	**5.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloroethene	**100**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,2-Dichloroethane	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW02-211110
Collection Date: 10-Nov-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-06
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:14
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 16:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:14
Surr: 1,2-Dichloroethane-d4	*93.4*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:14*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW12-211110
Collection Date: 10-Nov-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-07
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,1-Dichloroethene	**6.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	23-Nov-2021 16:36
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW12-211110
Collection Date: 10-Nov-2021 10:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-07
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:36
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:36*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW07-211110
Collection Date: 10-Nov-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-08
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 16:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 16:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW07-211110
Collection Date: 10-Nov-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-08
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 16:58
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 16:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 16:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 16:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 16:58
Surr: 1,2-Dichloroethane-d4	*94.9*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 16:58*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 16:58*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW10-211110
Collection Date: 10-Nov-2021 12:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-09
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 17:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 17:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW10-211110
Collection Date: 10-Nov-2021 12:15

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-09
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	23-Nov-2021 17:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:21
Surr: 1,2-Dichloroethane-d4	*94.5*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 17:21*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 17:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09A-211110
Collection Date: 10-Nov-2021 12:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-10
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:43
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	23-Nov-2021 17:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	23-Nov-2021 17:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09A-211110
Collection Date: 10-Nov-2021 12:55

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-10
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	23-Nov-2021 17:43
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	23-Nov-2021 17:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	23-Nov-2021 17:43
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	23-Nov-2021 17:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	23-Nov-2021 17:43
Surr: 1,2-Dichloroethane-d4	*93.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2021 17:43*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2021 17:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW01-211111
Collection Date: 11-Nov-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-11
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,1-Dichloroethane	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,1-Dichloroethene	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,2-Dichloroethane	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:07
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:07
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:07
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:07
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW01-211111
Collection Date: 11-Nov-2021 07:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-11
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:07
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:07
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:07
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:07
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:07*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:07*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW16I-211111
Collection Date: 11-Nov-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-12
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW16I-211111
Collection Date: 11-Nov-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-12
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 04:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:29
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: 4-Bromofluorobenzene	*99.1*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: Dibromofluoromethane	*87.9*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:29*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW08-211111
Collection Date: 11-Nov-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-13
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,1-Dichloroethane	**4.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,1-Dichloroethene	**18**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,2-Dichloroethane	**0.67**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 00:24
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:24
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 00:24
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 00:24
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW08-211111
Collection Date: 11-Nov-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-13
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:24
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 00:24
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:24
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:24
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: Dibromofluoromethane	*87.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 00:24*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 00:24*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000151**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 11:39
Ethene	**0.000304**	J	**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 11:39
Methane	**0.00179**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	22-Nov-2021 11:39
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.71**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client:	Aptim Environmental & Infrastucture, Inc.	**ANALYTICAL REPORT**
Project:	LHAAP 67 November 2021	WorkOrder:HS21110813
Sample ID:	67WW08-211111	Lab ID:HS21110813-13
Collection Date:	11-Nov-2021 08:45	Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,660**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:44
Nitrogen, Nitrate (As N)	**0.318**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:07
Sulfate	**471**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:07
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW11-211111
Collection Date: 11-Nov-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-14
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,1-Dichloroethane	**0.57**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 04:52
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:52
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 04:52
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 04:52
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW11-211111
Collection Date: 11-Nov-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-14
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 04:52
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 04:52
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 04:52
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 04:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 04:52
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: Dibromofluoromethane	*87.4*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 04:52*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 04:52*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:14
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 05:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:14
Surr: 1,2-Dichloroethane-d4	*93.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:14*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000794**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:36
Ethene	**0.00102**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:36
Methane	**0.00229**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	22-Nov-2021 12:36
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.00**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-15
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,200**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:51
Nitrogen, Nitrate (As N)	**0.320**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:29
Sulfate	**268**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:29
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111-FD
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-16
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,1,2-Trichloroethane	**5.9**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,1-Dichloroethane	**32**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,1-Dichloroethene	**410**		**2.0**	**5.0**	**10**	**ug/L**	10	24-Nov-2021 17:27
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,2-Dichloroethane	**43**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111-FD
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-16
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
cis-1,2-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:36
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 05:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Trichloroethene	**2.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:36
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*10*	*24-Nov-2021 17:27*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:36*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*24-Nov-2021 17:27*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: MBG
Ethane	**0.000293**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	22-Nov-2021 12:48
Ethene	0.000500	U	0.000234	0.000500	0.00100	mg/L	1	22-Nov-2021 12:48
Methane	**0.00172**		**0.000107**	**0.000250**	**0.000500**	**mg/L**	1	22-Nov-2021 12:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW13-211111-FD
Collection Date: 11-Nov-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-16
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B-2011		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**4.61**		**0.500**	**1.00**	**1.00**	**mg/L**	1	19-Nov-2021 09:59
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,210**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Nov-2021 07:59
Nitrogen, Nitrate (As N)	**0.310**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Nov-2021 07:36
Sulfate	**261**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Nov-2021 07:36
SUBCONTRACTED ANALYSIS		**Method:NA**						Analyst: SUB
Miscellaneous Analysis	See Attached		0	0		NA	1	20-Jan-2022 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW15-211111
Collection Date: 11-Nov-2021 11:20

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-17
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,1,2-Trichloroethane	**5.7**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,1-Dichloroethane	**31**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,1-Dichloroethene	**420**		**2.0**	**5.0**	**10**	**ug/L**	10	24-Nov-2021 17:50
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,2-Dichloroethane	**43**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:58
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 05:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 05:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW15-211111
Collection Date: 11-Nov-2021 11:20

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-17
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
cis-1,2-Dichloroethene	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 05:58
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 05:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 05:58
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Trichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 05:58
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 05:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 05:58
Surr: 1,2-Dichloroethane-d4	*94.1*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: Dibromofluoromethane	*87.3*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: Dibromofluoromethane	*87.4*			**0**	*80-119*	*%REC*	*10*	*24-Nov-2021 17:50*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 05:58*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*24-Nov-2021 17:50*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09-211111
Collection Date: 11-Nov-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-18
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,1,2-Trichloroethane	**5.5**		**0.30**	**1.0**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,1-Dichloroethane	**13**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,1-Dichloroethene	0.50	HU	0.20	0.50	1.0	ug/L	1	30-Nov-2021 14:16
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,2-Dichloroethane	**29**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 06:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 06:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 06:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: 67WW09-211111
Collection Date: 11-Nov-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-18
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
cis-1,2-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 06:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	24-Nov-2021 06:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 06:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Trichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	24-Nov-2021 06:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 06:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 06:21
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: Dibromofluoromethane	*88.1*			**0**	*80-119*	*%REC*	*1*	*30-Nov-2021 14:16*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 06:21*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*30-Nov-2021 14:16*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: Trip Blank-211111
Collection Date: 11-Nov-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-19
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:01
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	24-Nov-2021 00:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	24-Nov-2021 00:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
Sample ID: Trip Blank-211111
Collection Date: 11-Nov-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21110813
Lab ID:HS21110813-19
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	24-Nov-2021 00:01
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	24-Nov-2021 00:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	24-Nov-2021 00:01
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	24-Nov-2021 00:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	24-Nov-2021 00:01
Surr: 1,2-Dichloroethane-d4	*92.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2021 00:01*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2021 00:01*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R395659 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			13 Nov 2021 07:44	50
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			13 Nov 2021 07:07	5
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			13 Nov 2021 07:51	50
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			13 Nov 2021 07:29	5
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			13 Nov 2021 07:59	50
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			13 Nov 2021 07:36	5
Batch ID: R396090 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B-2011				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			19 Nov 2021 09:11	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			19 Nov 2021 09:43	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			19 Nov 2021 09:59	1
Batch ID: R396307 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			22 Nov 2021 11:39	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			22 Nov 2021 12:36	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			22 Nov 2021 12:48	1
Batch ID: R396415 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-01	67WW14-211110	10 Nov 2021 07:00			23 Nov 2021 14:21	1
HS21110813-02	67WW05-211110	10 Nov 2021 07:40			23 Nov 2021 14:43	1
HS21110813-03	67WW05-211110-FD	10 Nov 2021 07:40			23 Nov 2021 15:06	1
HS21110813-04	67WW18-211110	10 Nov 2021 08:25			23 Nov 2021 15:29	1
HS21110813-05	67WW17-211110	10 Nov 2021 09:15			23 Nov 2021 15:51	1
HS21110813-06	67WW02-211110	10 Nov 2021 09:55			23 Nov 2021 16:14	1
HS21110813-07	67WW12-211110	10 Nov 2021 10:45			23 Nov 2021 16:36	1
HS21110813-08	67WW07-211110	10 Nov 2021 11:30			23 Nov 2021 16:58	1
HS21110813-09	67WW10-211110	10 Nov 2021 12:15			23 Nov 2021 17:21	1
HS21110813-10	67WW09A-211110	10 Nov 2021 12:55			23 Nov 2021 17:43	1
Batch ID: R396417 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21110813-19	Trip Blank-211111	11 Nov 2021 00:00			24 Nov 2021 00:01	1
Batch ID: R396417 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-11	67WW01-211111	11 Nov 2021 07:25			24 Nov 2021 04:07	1
HS21110813-12	67WW16I-211111	11 Nov 2021 08:05			24 Nov 2021 04:29	1
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			24 Nov 2021 00:24	1
HS21110813-14	67WW11-211111	11 Nov 2021 09:40			24 Nov 2021 04:52	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			24 Nov 2021 05:14	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			24 Nov 2021 05:36	1
HS21110813-17	67WW15-211111	11 Nov 2021 11:20			24 Nov 2021 05:58	1
HS21110813-18	67WW09-211111	11 Nov 2021 12:05			24 Nov 2021 06:21	1

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R396499 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			24 Nov 2021 17:27	10
HS21110813-17	67WW15-211111	11 Nov 2021 11:20			24 Nov 2021 17:50	10
Batch ID: R396691 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21110813-18	67WW09-211111	11 Nov 2021 12:05			30 Nov 2021 14:16	1
Batch ID: R400655 (0)	**Test Name :** SUBCONTRACTED ANALYSIS				**Matrix:** GW	
HS21110813-13	67WW08-211111	11 Nov 2021 08:45			20 Jan 2022 09:09	1
HS21110813-15	67WW13-211111	11 Nov 2021 10:25			20 Jan 2022 09:09	1
HS21110813-16	67WW13-211111-FD	11 Nov 2021 10:25			20 Jan 2022 09:09	1

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396307 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-211122** Units: **mg/L** Analysis Date: **22-Nov-2021 10:48**
Client ID: Run ID: **FID-4_396307** SeqNo: **6389452** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000250	0.000500								U

LCS Sample ID: **LCS-211122** Units: **mg/L** Analysis Date: **22-Nov-2021 11:04**
Client ID: Run ID: **FID-4_396307** SeqNo: **6389453** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0190	0.00100	0.01804	0	105	75 - 125				
Ethene	0.0167	0.00100	0.0168	0	99.5	75 - 125				
Methane	0.00906	0.000500	0.009647	0	93.9	75 - 125				

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **22-Nov-2021 12:10**
Client ID: **67WW08-211111** Run ID: **FID-4_396307** SeqNo: **6389457** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0163	0.00100	0.01804	0.0001515	89.6	75 - 125				
Ethene	0.0161	0.00100	0.0168	0.0003039	94.2	75 - 125				
Methane	0.00755	0.000500	0.009647	0.001789	59.8	75 - 125				S

MSD Sample ID: **HS21110813-13MSD** Units: **mg/L** Analysis Date: **22-Nov-2021 12:22**
Client ID: **67WW08-211111** Run ID: **FID-4_396307** SeqNo: **6389458** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0163	0.00100	0.01804	0.0001515	89.4	75 - 125	0.01631	0.136	30	
Ethene	0.0160	0.00100	0.0168	0.0003039	93.6	75 - 125	0.01614	0.647	30	
Methane	0.00719	0.000500	0.009647	0.001789	55.9	75 - 125	0.007554	5	30	S

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.75*	*1.0*	*50*	*0*	*91.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.81*	*1.0*	*50*	*0*	*99.6*	*85 - 114*				
Surr: Dibromofluoromethane	*43.71*	*1.0*	*50*	*0*	*87.4*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 12:07**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392141** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.14*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.53	1.0	20	0	97.7	78 - 124				
1,1,1-Trichloroethane	19.28	1.0	20	0	96.4	74 - 131				
1,1,2,2-Tetrachloroethane	21.4	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.36	1.0	20	0	102	70 - 136				
1,1,2-Trichloroethane	21.94	1.0	20	0	110	80 - 119				
1,1-Dichloroethane	20.67	1.0	20	0	103	77 - 125				
1,1-Dichloroethene	20.3	1.0	20	0	101	71 - 131				
1,1-Dichloropropene	21.09	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	21.03	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	20.61	1.0	20	0	103	73 - 122				
1,2,4-Trichlorobenzene	21.56	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	21.88	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	16.99	1.0	20	0	85.0	62 - 128				
1,2-Dibromoethane	22.74	1.0	20	0	114	77 - 121				
1,2-Dichlorobenzene	21.55	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	21.23	1.0	20	0	106	73 - 128				
1,2-Dichloropropane	21.75	1.0	20	0	109	78 - 122				
1,3,5-Trimethylbenzene	21.34	1.0	20	0	107	75 - 124				
1,3-Dichlorobenzene	20.81	1.0	20	0	104	80 - 119				
1,3-Dichloropropane	22.06	1.0	20	0	110	80 - 119				
1,4-Dichlorobenzene	21.12	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	18.77	1.0	20	0	93.8	60 - 139				
2-Butanone	41.26	2.0	40	0	103	56 - 143				
2-Chlorotoluene	21.46	1.0	20	0	107	79 - 122				
2-Hexanone	44.26	2.0	40	0	111	57 - 139				
4-Chlorotoluene	21.74	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	21.84	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	41.2	2.0	40	0	103	67 - 130				
Acetone	43.27	2.0	40	0	108	39 - 160				
Benzene	21.65	1.0	20	0	108	79 - 120				
Bromobenzene	21.26	1.0	20	0	106	80 - 120				
Bromochloromethane	22.4	1.0	20	0	112	78 - 123				
Bromodichloromethane	18.56	1.0	20	0	92.8	79 - 125				
Bromoform	16.36	1.0	20	0	81.8	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.65	1.0	20	0	133	53 - 141				
Carbon disulfide	38.74	2.0	40	0	96.8	64 - 133				
Carbon tetrachloride	17.63	1.0	20	0	88.1	72 - 136				
Chlorobenzene	21.1	1.0	20	0	106	82 - 118				
Chloroethane	20.22	1.0	20	0	101	60 - 138				
Chloroform	21.75	1.0	20	0	109	79 - 124				
Chloromethane	21.12	1.0	20	0	106	50 - 139				
cis-1,2-Dichloroethene	21.61	1.0	20	0	108	78 - 123				
cis-1,3-Dichloropropene	17.99	1.0	20	0	89.9	75 - 124				
Dibromochloromethane	17.95	1.0	20	0	89.8	74 - 126				
Dibromomethane	21.2	1.0	20	0	106	79 - 123				
Dichlorodifluoromethane	15.36	1.0	20	0	76.8	32 - 152				
Ethylbenzene	21.54	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	24.95	1.0	20	0	125	66 - 134				
Isopropylbenzene	21.4	1.0	20	0	107	72 - 131				
m,p-Xylene	44.55	2.0	40	0	111	80 - 121				
Methylene chloride	20.14	2.0	20	0	101	74 - 124				
Naphthalene	20.34	1.0	20	0	102	61 - 128				
n-Butylbenzene	22.22	1.0	20	0	111	75 - 128				
n-Propylbenzene	21.72	1.0	20	0	109	76 - 126				
o-Xylene	21.77	1.0	20	0	109	78 - 122				
sec-Butylbenzene	21.29	1.0	20	0	106	77 - 126				
Styrene	22.52	1.0	20	0	113	78 - 123				
tert-Butylbenzene	20.76	1.0	20	0	104	78 - 124				
Tetrachloroethene	20.26	1.0	20	0	101	74 - 129				
Toluene	21.48	1.0	20	0	107	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	17.21	1.0	20	0	86.1	73 - 127				
Trichloroethene	21.31	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	19.67	1.0	20	0	98.3	65 - 141				
Vinyl chloride	19.1	1.0	20	0	95.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.05*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.62*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*51.95*	*1.0*	*50*	*0*	*104*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 11:22**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392140** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.51*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.91	1.0	20	0	94.5	78 - 124				
1,1,1-Trichloroethane	19.52	1.0	20	0	97.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.26	1.0	20	0	101	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	23.24	1.0	20	0	116	70 - 136				
1,1,2-Trichloroethane	20.84	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	19.77	1.0	20	0	98.8	77 - 125				
1,1-Dichloroethene	21	1.0	20	0	105	71 - 131				
1,1-Dichloropropene	23.03	1.0	20	0	115	78 - 125				
1,2,3-Trichlorobenzene	19.58	1.0	20	0	97.9	69 - 129				
1,2,3-Trichloropropane	19.36	1.0	20	0	96.8	73 - 122				
1,2,4-Trichlorobenzene	19.86	1.0	20	0	99.3	69 - 130				
1,2,4-Trimethylbenzene	21.98	1.0	20	0	110	76 - 124				
1,2-Dibromo-3-chloropropane	15.24	1.0	20	0	76.2	62 - 128				
1,2-Dibromoethane	21.06	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	20.8	1.0	20	0	104	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	21.2	1.0	20	0	106	78 - 122				
1,3,5-Trimethylbenzene	22.36	1.0	20	0	112	75 - 124				
1,3-Dichlorobenzene	20.65	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	21.15	1.0	20	0	106	80 - 119				
1,4-Dichlorobenzene	21.02	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	18.26	1.0	20	0	91.3	60 - 139				
2-Butanone	38.98	2.0	40	0	97.5	56 - 143				
2-Chlorotoluene	22.13	1.0	20	0	111	79 - 122				
2-Hexanone	43.62	2.0	40	0	109	57 - 139				
4-Chlorotoluene	22.18	1.0	20	0	111	78 - 122				
4-Isopropyltoluene	23.17	1.0	20	0	116	77 - 127				
4-Methyl-2-pentanone	38.87	2.0	40	0	97.2	67 - 130				
Acetone	51.94	2.0	40	0	130	39 - 160				
Benzene	21.74	1.0	20	0	109	79 - 120				
Bromobenzene	20.96	1.0	20	0	105	80 - 120				
Bromochloromethane	20.02	1.0	20	0	100	78 - 123				
Bromodichloromethane	17.76	1.0	20	0	88.8	79 - 125				
Bromoform	15.4	1.0	20	0	77.0	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	25.84	1.0	20	0	129	53 - 141				
Carbon disulfide	38.57	2.0	40	0	96.4	64 - 133				
Carbon tetrachloride	19.55	1.0	20	0	97.8	72 - 136				
Chlorobenzene	21.02	1.0	20	0	105	82 - 118				
Chloroethane	22.51	1.0	20	0	113	60 - 138				
Chloroform	20.16	1.0	20	0	101	79 - 124				
Chloromethane	22.52	1.0	20	0	113	50 - 139				
cis-1,2-Dichloroethene	20.27	1.0	20	0	101	78 - 123				
cis-1,3-Dichloropropene	17.16	1.0	20	0	85.8	75 - 124				
Dibromochloromethane	17.02	1.0	20	0	85.1	74 - 126				
Dibromomethane	20.29	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	20.5	1.0	20	0	103	32 - 152				
Ethylbenzene	22.12	1.0	20	0	111	79 - 121				
Hexachlorobutadiene	23.72	1.0	20	0	119	66 - 134				
Isopropylbenzene	22.98	1.0	20	0	115	72 - 131				
m,p-Xylene	45.67	2.0	40	0	114	80 - 121				
Methylene chloride	18.54	2.0	20	0	92.7	74 - 124				
Naphthalene	18.58	1.0	20	0	92.9	61 - 128				
n-Butylbenzene	23.17	1.0	20	0	116	75 - 128				
n-Propylbenzene	23.4	1.0	20	0	117	76 - 126				
o-Xylene	21.72	1.0	20	0	109	78 - 122				
sec-Butylbenzene	23.29	1.0	20	0	116	77 - 126				
Styrene	22.42	1.0	20	0	112	78 - 123				
tert-Butylbenzene	22.39	1.0	20	0	112	78 - 124				
Tetrachloroethene	22.34	1.0	20	0	112	74 - 129				
Toluene	21.91	1.0	20	0	110	80 - 121				
trans-1,2-Dichloroethene	20.51	1.0	20	0	103	75 - 124				
trans-1,3-Dichloropropene	16.22	1.0	20	0	81.1	73 - 127				
Trichloroethene	21.93	1.0	20	0	110	79 - 123				
Trichlorofluoromethane	21.43	1.0	20	0	107	65 - 141				
Vinyl chloride	21.5	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.19*	*1.0*	*50*	*0*	*92.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.76*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*46.5*	*1.0*	*50*	*0*	*93.0*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21111305-20MS** Units: **ug/L** Analysis Date: **23-Nov-2021 12:52**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392143** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.92*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.07	1.0	20	0	95.3	78 - 124	18.91	0.854	20	
1,1,1-Trichloroethane	18.58	1.0	20	0	92.9	74 - 131	19.52	4.94	20	
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121	20.26	4.74	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	21.36	1.0	20	0	107	70 - 136	23.24	8.41	20	
1,1,2-Trichloroethane	20.8	1.0	20	0	104	80 - 119	20.84	0.166	20	
1,1-Dichloroethane	18.39	1.0	20	0	92.0	77 - 125	19.77	7.21	20	
1,1-Dichloroethene	19.41	1.0	20	0	97.1	71 - 131	21	7.87	20	
1,1-Dichloropropene	21.59	1.0	20	0	108	78 - 125	23.03	6.48	20	
1,2,3-Trichlorobenzene	19.51	1.0	20	0	97.5	69 - 129	19.58	0.359	20	
1,2,3-Trichloropropane	19.29	1.0	20	0	96.5	73 - 122	19.36	0.342	20	
1,2,4-Trichlorobenzene	19.81	1.0	20	0	99.1	69 - 130	19.86	0.258	20	
1,2,4-Trimethylbenzene	21.85	1.0	20	0	109	76 - 124	21.98	0.559	20	
1,2-Dibromo-3-chloropropane	15.77	1.0	20	0	78.9	62 - 128	15.24	3.43	20	
1,2-Dibromoethane	20.47	1.0	20	0	102	77 - 121	21.06	2.81	20	
1,2-Dichlorobenzene	20.08	1.0	20	0	100	80 - 119	20.8	3.52	20	
1,2-Dichloroethane	19.72	1.0	20	0	98.6	73 - 128	20.36	3.21	20	
1,2-Dichloropropane	20.19	1.0	20	0	101	78 - 122	21.2	4.88	20	
1,3,5-Trimethylbenzene	21.68	1.0	20	0	108	75 - 124	22.36	3.08	20	
1,3-Dichlorobenzene	20.11	1.0	20	0	101	80 - 119	20.65	2.63	20	
1,3-Dichloropropane	20.53	1.0	20	0	103	80 - 119	21.15	2.97	20	
1,4-Dichlorobenzene	20.27	1.0	20	0	101	79 - 118	21.02	3.61	20	
2,2-Dichloropropane	16.72	1.0	20	0	83.6	60 - 139	18.26	8.82	20	
2-Butanone	39.34	2.0	40	0	98.3	56 - 143	38.98	0.897	20	
2-Chlorotoluene	21.05	1.0	20	0	105	79 - 122	22.13	5	20	
2-Hexanone	43.98	2.0	40	0	110	57 - 139	43.62	0.822	20	
4-Chlorotoluene	21.13	1.0	20	0	106	78 - 122	22.18	4.82	20	
4-Isopropyltoluene	22.5	1.0	20	0	113	77 - 127	23.17	2.92	20	
4-Methyl-2-pentanone	39.18	2.0	40	0	97.9	67 - 130	38.87	0.794	20	
Acetone	52.07	2.0	40	0	130	39 - 160	51.94	0.249	20	
Benzene	20.49	1.0	20	0	102	79 - 120	21.74	5.95	20	
Bromobenzene	20.51	1.0	20	0	103	80 - 120	20.96	2.16	20	
Bromochloromethane	19.35	1.0	20	0	96.8	78 - 123	20.02	3.41	20	
Bromodichloromethane	17.15	1.0	20	0	85.8	79 - 125	17.76	3.48	20	
Bromoform	15.29	1.0	20	0	76.4	66 - 130	15.4	0.76	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396415 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	23.46	1.0	20	0	117	53 - 141	25.84	9.68	20	
Carbon disulfide	36.31	2.0	40	0	90.8	64 - 133	38.57	6.01	20	
Carbon tetrachloride	18.57	1.0	20	0	92.8	72 - 136	19.55	5.17	20	
Chlorobenzene	20.17	1.0	20	0	101	82 - 118	21.02	4.15	20	
Chloroethane	19.26	1.0	20	0	96.3	60 - 138	22.51	15.5	20	
Chloroform	19.13	1.0	20	0	95.7	79 - 124	20.16	5.22	20	
Chloromethane	21	1.0	20	0	105	50 - 139	22.52	6.98	20	
cis-1,2-Dichloroethene	19.1	1.0	20	0	95.5	78 - 123	20.27	5.95	20	
cis-1,3-Dichloropropene	16.9	1.0	20	0	84.5	75 - 124	17.16	1.57	20	
Dibromochloromethane	16.87	1.0	20	0	84.4	74 - 126	17.02	0.863	20	
Dibromomethane	19.53	1.0	20	0	97.6	79 - 123	20.29	3.83	20	
Dichlorodifluoromethane	18.98	1.0	20	0	94.9	32 - 152	20.5	7.69	20	
Ethylbenzene	21.29	1.0	20	0	106	79 - 121	22.12	3.84	20	
Hexachlorobutadiene	22.85	1.0	20	0	114	66 - 134	23.72	3.72	20	
Isopropylbenzene	22.15	1.0	20	0	111	72 - 131	22.98	3.69	20	
m,p-Xylene	43.32	2.0	40	0	108	80 - 121	45.67	5.27	20	
Methylene chloride	17.5	2.0	20	0	87.5	74 - 124	18.54	5.76	20	
Naphthalene	19.02	1.0	20	0	95.1	61 - 128	18.58	2.34	20	
n-Butylbenzene	22.62	1.0	20	0	113	75 - 128	23.17	2.4	20	
n-Propylbenzene	22.79	1.0	20	0	114	76 - 126	23.4	2.64	20	
o-Xylene	20.86	1.0	20	0	104	78 - 122	21.72	4.08	20	
sec-Butylbenzene	22.44	1.0	20	0	112	77 - 126	23.29	3.72	20	
Styrene	21.3	1.0	20	0	107	78 - 123	22.42	5.12	20	
tert-Butylbenzene	21.78	1.0	20	0	109	78 - 124	22.39	2.74	20	
Tetrachloroethene	21.51	1.0	20	0	108	74 - 129	22.34	3.81	20	
Toluene	20.91	1.0	20	0	105	80 - 121	21.91	4.67	20	
trans-1,2-Dichloroethene	19.1	1.0	20	0	95.5	75 - 124	20.51	7.13	20	
trans-1,3-Dichloropropene	15.66	1.0	20	0	78.3	73 - 127	16.22	3.52	20	
Trichloroethene	20.58	1.0	20	0	103	79 - 123	21.93	6.36	20	
Trichlorofluoromethane	20.09	1.0	20	0	100	65 - 141	21.43	6.41	20	
Vinyl chloride	19.89	1.0	20	0	99.5	58 - 137	21.5	7.78	20	
Surr: 1,2-Dichloroethane-d4	*46.07*	*1.0*	*50*	*0*	*92.1*	*81 - 118*	*46.19*	*0.278*	*20*	
Surr: 4-Bromofluorobenzene	*51.68*	*1.0*	*50*	*0*	*103*	*85 - 114*	*51.76*	*0.157*	*20*	
Surr: Dibromofluoromethane	*46.43*	*1.0*	*50*	*0*	*92.9*	*80 - 119*	*46.5*	*0.155*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396415 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21111305-20MSD** Units: **ug/L** Analysis Date: **23-Nov-2021 13:14**
Client ID: Run ID: **VOA9_396415** SeqNo: **6392144** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.08*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.92*	*0.322*	*20*	

The following samples were analyzed in this batch:

HS21110813-01	HS21110813-02	HS21110813-03	HS21110813-04
HS21110813-05	HS21110813-06	HS21110813-07	HS21110813-08
HS21110813-09	HS21110813-10		

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.3*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.72*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*44.22*	*1.0*	*50*	*0*	*88.4*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 23:39**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392197** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.47*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.05	1.0	20	0	95.3	78 - 124				
1,1,1-Trichloroethane	19.6	1.0	20	0	98.0	74 - 131				
1,1,2,2-Tetrachloroethane	21.67	1.0	20	0	108	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.15	1.0	20	0	90.7	70 - 136				
1,1,2-Trichloroethane	21.79	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	21.4	1.0	20	0	107	77 - 125				
1,1-Dichloroethene	20.73	1.0	20	0	104	71 - 131				
1,1-Dichloropropene	19.75	1.0	20	0	98.8	78 - 125				
1,2,3-Trichlorobenzene	20.03	1.0	20	0	100	69 - 129				
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	20.06	1.0	20	0	100	69 - 130				
1,2,4-Trimethylbenzene	21.05	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	16.1	1.0	20	0	80.5	62 - 128				
1,2-Dibromoethane	21.97	1.0	20	0	110	77 - 121				
1,2-Dichlorobenzene	21.33	1.0	20	0	107	80 - 119				
1,2-Dichloroethane	20.82	1.0	20	0	104	73 - 128				
1,2-Dichloropropane	21.32	1.0	20	0	107	78 - 122				
1,3,5-Trimethylbenzene	20.5	1.0	20	0	102	75 - 124				
1,3-Dichlorobenzene	20.4	1.0	20	0	102	80 - 119				
1,3-Dichloropropane	21.99	1.0	20	0	110	80 - 119				
1,4-Dichlorobenzene	20.51	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	15.05	1.0	20	0	75.2	60 - 139				
2-Butanone	40.33	2.0	40	0	101	56 - 143				
2-Chlorotoluene	20.95	1.0	20	0	105	79 - 122				
2-Hexanone	43.07	2.0	40	0	108	57 - 139				
4-Chlorotoluene	21.25	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	19.72	1.0	20	0	98.6	77 - 127				
4-Methyl-2-pentanone	39.95	2.0	40	0	99.9	67 - 130				
Acetone	39.94	2.0	40	0	99.8	39 - 160				
Benzene	21.24	1.0	20	0	106	79 - 120				
Bromobenzene	21.46	1.0	20	0	107	80 - 120				
Bromochloromethane	23.05	1.0	20	0	115	78 - 123				
Bromodichloromethane	18.08	1.0	20	0	90.4	79 - 125				
Bromoform	16.62	1.0	20	0	83.1	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	28.19	1.0	20	0	141	53 - 141				
Carbon disulfide	38.73	2.0	40	0	96.8	64 - 133				
Carbon tetrachloride	16.68	1.0	20	0	83.4	72 - 136				
Chlorobenzene	20.63	1.0	20	0	103	82 - 118				
Chloroethane	19.85	1.0	20	0	99.2	60 - 138				
Chloroform	22.46	1.0	20	0	112	79 - 124				
Chloromethane	21.5	1.0	20	0	107	50 - 139				
cis-1,2-Dichloroethene	22.16	1.0	20	0	111	78 - 123				
cis-1,3-Dichloropropene	17.14	1.0	20	0	85.7	75 - 124				
Dibromochloromethane	17.76	1.0	20	0	88.8	74 - 126				
Dibromomethane	20.75	1.0	20	0	104	79 - 123				
Dichlorodifluoromethane	14.52	1.0	20	0	72.6	32 - 152				
Ethylbenzene	20.6	1.0	20	0	103	79 - 121				
Hexachlorobutadiene	18.75	1.0	20	0	93.7	66 - 134				
Isopropylbenzene	20.15	1.0	20	0	101	72 - 131				
m,p-Xylene	42.01	2.0	40	0	105	80 - 121				
Methylene chloride	20.51	2.0	20	0	103	74 - 124				
Naphthalene	19.87	1.0	20	0	99.3	61 - 128				
n-Butylbenzene	18.93	1.0	20	0	94.7	75 - 128				
n-Propylbenzene	20.51	1.0	20	0	103	76 - 126				
o-Xylene	21	1.0	20	0	105	78 - 122				
sec-Butylbenzene	19.32	1.0	20	0	96.6	77 - 126				
Styrene	21.91	1.0	20	0	110	78 - 123				
tert-Butylbenzene	19.83	1.0	20	0	99.1	78 - 124				
Tetrachloroethene	18.1	1.0	20	0	90.5	74 - 129				
Toluene	20.94	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	21.25	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	16.35	1.0	20	0	81.8	73 - 127				
Trichloroethene	20.5	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	19.37	1.0	20	0	96.9	65 - 141				
Vinyl chloride	19.13	1.0	20	0	95.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.77*	*1.0*	*50*	*0*	*110*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.47*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*53.52*	*1.0*	*50*	*0*	*107*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-211123** Units: **ug/L** Analysis Date: **23-Nov-2021 22:54**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392196** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.48	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	20.72	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	21.35	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	22.4	1.0	20	0	112	70 - 136				
1,1,2-Trichloroethane	22.56	1.0	20	0	113	80 - 119				
1,1-Dichloroethane	25.01	1.0	20	4.165	104	77 - 125				
1,1-Dichloroethene	30.59	1.0	20	8.721	109	71 - 131				
1,1-Dichloropropene	24.02	1.0	20	0	120	78 - 125				
1,2,3-Trichlorobenzene	21.04	1.0	20	0	105	69 - 129				
1,2,3-Trichloropropane	20.36	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	20.81	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	22.8	1.0	20	0	114	76 - 124				
1,2-Dibromo-3-chloropropane	16.24	1.0	20	0	81.2	62 - 128				
1,2-Dibromoethane	22.69	1.0	20	0	113	77 - 121				
1,2-Dichlorobenzene	22.38	1.0	20	0	112	80 - 119				
1,2-Dichloroethane	22.45	1.0	20	0.6746	109	73 - 128				
1,2-Dichloropropane	27.59	1.0	20	4.123	117	78 - 122				
1,3,5-Trimethylbenzene	23.18	1.0	20	0	116	75 - 124				
1,3-Dichlorobenzene	21.76	1.0	20	0	109	80 - 119				
1,3-Dichloropropane	22.84	1.0	20	0	114	80 - 119				
1,4-Dichlorobenzene	22	1.0	20	0	110	79 - 118				
2,2-Dichloropropane	12.73	1.0	20	0	63.6	60 - 139				
2-Butanone	36.96	2.0	40	0	92.4	56 - 143				
2-Chlorotoluene	22.79	1.0	20	0	114	79 - 122				
2-Hexanone	43.82	2.0	40	0	110	57 - 139				
4-Chlorotoluene	23	1.0	20	0	115	78 - 122				
4-Isopropyltoluene	23.16	1.0	20	0	116	77 - 127				
4-Methyl-2-pentanone	41.55	2.0	40	0	104	67 - 130				
Acetone	37.87	2.0	40	0	94.7	39 - 160				
Benzene	23.54	1.0	20	0	118	79 - 120				
Bromobenzene	22.73	1.0	20	0	114	80 - 120				
Bromochloromethane	21.04	1.0	20	0	105	78 - 123				
Bromodichloromethane	19.12	1.0	20	0	95.6	79 - 125				
Bromoform	16.55	1.0	20	0	82.7	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.4	1.0	20	0	132	53 - 141				
Carbon disulfide	39.07	2.0	40	0	97.7	64 - 133				
Carbon tetrachloride	20.43	1.0	20	0	102	72 - 136				
Chlorobenzene	22.38	1.0	20	0	112	82 - 118				
Chloroethane	21.52	1.0	20	0	108	60 - 138				
Chloroform	21.92	1.0	20	0	110	79 - 124				
Chloromethane	23.15	1.0	20	0	116	50 - 139				
cis-1,2-Dichloroethene	63	1.0	20	41.84	106	78 - 123				
cis-1,3-Dichloropropene	17.7	1.0	20	0	88.5	75 - 124				
Dibromochloromethane	18.31	1.0	20	0	91.5	74 - 126				
Dibromomethane	21.87	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	19.2	1.0	20	0	96.0	32 - 152				
Ethylbenzene	22.97	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	21.93	1.0	20	0	110	66 - 134				
Isopropylbenzene	23.76	1.0	20	0	119	72 - 131				
m,p-Xylene	47.12	2.0	40	0	118	80 - 121				
Methylene chloride	19.68	2.0	20	0	98.4	74 - 124				
Naphthalene	20.51	1.0	20	0	103	61 - 128				
n-Butylbenzene	22.67	1.0	20	0	113	75 - 128				
n-Propylbenzene	23.81	1.0	20	0	119	76 - 126				
o-Xylene	22.97	1.0	20	0	115	78 - 122				
sec-Butylbenzene	23.7	1.0	20	0	119	77 - 126				
Styrene	23.38	1.0	20	0	117	78 - 123				
tert-Butylbenzene	23.73	1.0	20	0	119	78 - 124				
Tetrachloroethene	34.24	1.0	20	12.88	107	74 - 129				
Toluene	23.02	1.0	20	0	115	80 - 121				
trans-1,2-Dichloroethene	21.25	1.0	20	0.7949	102	75 - 124				
trans-1,3-Dichloropropene	16.55	1.0	20	0	82.8	73 - 127				
Trichloroethene	66.88	1.0	20	44.65	111	79 - 123				
Trichlorofluoromethane	21.73	1.0	20	0	109	65 - 141				
Vinyl chloride	21.75	1.0	20	0	109	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.33*	*1.0*	*50*	*0*	*90.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.48*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21111214-06MS** Units: **ug/L** Analysis Date: **24-Nov-2021 02:38**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392205** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.14*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.82	1.0	20	0	99.1	78 - 124				
1,1,1-Trichloroethane	19.83	1.0	20	0	99.1	74 - 131				
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	21.23	1.0	20	0	106	70 - 136				
1,1,2-Trichloroethane	21.89	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	25.03	1.0	20	4.38	103	77 - 125				
1,1-Dichloroethene	38.68	1.0	20	17.94	104	71 - 131				
1,1-Dichloropropene	22.88	1.0	20	0	114	78 - 125				
1,2,3-Trichlorobenzene	18.91	1.0	20	0	94.5	69 - 129				
1,2,3-Trichloropropane	19.53	1.0	20	0	97.7	73 - 122				
1,2,4-Trichlorobenzene	19.39	1.0	20	0	96.9	69 - 130				
1,2,4-Trimethylbenzene	21.84	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	15.02	1.0	20	0	75.1	62 - 128				
1,2-Dibromoethane	22.25	1.0	20	0	111	77 - 121				
1,2-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119				
1,2-Dichloroethane	22.36	1.0	20	0.6695	108	73 - 128				
1,2-Dichloropropane	22.54	1.0	20	0	113	78 - 122				
1,3,5-Trimethylbenzene	21.88	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	20.65	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	22.46	1.0	20	0	112	80 - 119				
1,4-Dichlorobenzene	20.97	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	12.42	1.0	20	0	62.1	60 - 139				
2-Butanone	34.84	2.0	40	0	87.1	56 - 143				
2-Chlorotoluene	21.86	1.0	20	0	109	79 - 122				
2-Hexanone	43.48	2.0	40	0	109	57 - 139				
4-Chlorotoluene	21.92	1.0	20	0	110	78 - 122				
4-Isopropyltoluene	21.84	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	41.15	2.0	40	0	103	67 - 130				
Acetone	35.31	2.0	40	0	88.3	39 - 160				
Benzene	22.93	1.0	20	0	115	79 - 120				
Bromobenzene	21.62	1.0	20	0	108	80 - 120				
Bromochloromethane	21.15	1.0	20	0	106	78 - 123				
Bromodichloromethane	18.52	1.0	20	0	92.6	79 - 125				
Bromoform	15.75	1.0	20	0	78.8	66 - 130				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	26.72	1.0	20	0	134	53 - 141				
Carbon disulfide	37.74	2.0	40	0	94.4	64 - 133				
Carbon tetrachloride	19.65	1.0	20	0	98.2	72 - 136				
Chlorobenzene	21.83	1.0	20	0	109	82 - 118				
Chloroethane	21.93	1.0	20	0	110	60 - 138				
Chloroform	21.08	1.0	20	0	105	79 - 124				
Chloromethane	23.3	1.0	20	0	116	50 - 139				
cis-1,2-Dichloroethene	20.72	1.0	20	0	104	78 - 123				
cis-1,3-Dichloropropene	16.9	1.0	20	0	84.5	75 - 124				
Dibromochloromethane	17.9	1.0	20	0	89.5	74 - 126				
Dibromomethane	21.45	1.0	20	0	107	79 - 123				
Dichlorodifluoromethane	18.56	1.0	20	0	92.8	32 - 152				
Ethylbenzene	22.37	1.0	20	0	112	79 - 121				
Hexachlorobutadiene	20.02	1.0	20	0	100	66 - 134				
Isopropylbenzene	22.85	1.0	20	0	114	72 - 131				
m,p-Xylene	46.19	2.0	40	0	115	80 - 121				
Methylene chloride	19.01	2.0	20	0	95.0	74 - 124				
Naphthalene	18.5	1.0	20	0	92.5	61 - 128				
n-Butylbenzene	21.11	1.0	20	0	106	75 - 128				
n-Propylbenzene	22.58	1.0	20	0	113	76 - 126				
o-Xylene	22.84	1.0	20	0	114	78 - 122				
sec-Butylbenzene	22.42	1.0	20	0	112	77 - 126				
Styrene	23.01	1.0	20	0	115	78 - 123				
tert-Butylbenzene	22.16	1.0	20	0	111	78 - 124				
Tetrachloroethene	21.65	1.0	20	0	108	74 - 129				
Toluene	22.67	1.0	20	0	113	80 - 121				
trans-1,2-Dichloroethene	20.56	1.0	20	0	103	75 - 124				
trans-1,3-Dichloropropene	15.81	1.0	20	0	79.0	73 - 127				
Trichloroethene	23.47	1.0	20	0	117	79 - 123				
Trichlorofluoromethane	20.88	1.0	20	0	104	65 - 141				
Vinyl chloride	21.7	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.66*	*1.0*	*50*	*0*	*91.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.79*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*45.79*	*1.0*	*50*	*0*	*91.6*	*80 - 119*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21110813-13MS** Units: **ug/L** Analysis Date: **24-Nov-2021 01:53**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.12*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.29	1.0	20	0	96.5	78 - 124	20.48	5.97	20	
1,1,1-Trichloroethane	19.66	1.0	20	0	98.3	74 - 131	20.72	5.28	20	
1,1,2,2-Tetrachloroethane	21.09	1.0	20	0	105	71 - 121	21.35	1.24	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	20.72	1.0	20	0	104	70 - 136	22.4	7.79	20	
1,1,2-Trichloroethane	21.92	1.0	20	0	110	80 - 119	22.56	2.9	20	
1,1-Dichloroethane	23.74	1.0	20	4.165	97.9	77 - 125	25.01	5.2	20	
1,1-Dichloroethene	28.42	1.0	20	8.721	98.5	71 - 131	30.59	7.36	20	
1,1-Dichloropropene	21.99	1.0	20	0	110	78 - 125	24.02	8.85	20	
1,2,3-Trichlorobenzene	19.85	1.0	20	0	99.3	69 - 129	21.04	5.83	20	
1,2,3-Trichloropropane	19.77	1.0	20	0	98.9	73 - 122	20.36	2.91	20	
1,2,4-Trichlorobenzene	20.33	1.0	20	0	102	69 - 130	20.81	2.32	20	
1,2,4-Trimethylbenzene	22.02	1.0	20	0	110	76 - 124	22.8	3.49	20	
1,2-Dibromo-3-chloropropane	15.97	1.0	20	0	79.8	62 - 128	16.24	1.74	20	
1,2-Dibromoethane	22.15	1.0	20	0	111	77 - 121	22.69	2.41	20	
1,2-Dichlorobenzene	21.04	1.0	20	0	105	80 - 119	22.38	6.17	20	
1,2-Dichloroethane	21.72	1.0	20	0.6746	105	73 - 128	22.45	3.32	20	
1,2-Dichloropropane	25.72	1.0	20	4.123	108	78 - 122	27.59	7.02	20	
1,3,5-Trimethylbenzene	21.72	1.0	20	0	109	75 - 124	23.18	6.47	20	
1,3-Dichlorobenzene	20.7	1.0	20	0	104	80 - 119	21.76	4.98	20	
1,3-Dichloropropane	22.41	1.0	20	0	112	80 - 119	22.84	1.9	20	
1,4-Dichlorobenzene	20.83	1.0	20	0	104	79 - 118	22	5.48	20	
2,2-Dichloropropane	11.86	1.0	20	0	59.3	60 - 139	12.73	7.08	20	S
2-Butanone	37.29	2.0	40	0	93.2	56 - 143	36.96	0.884	20	
2-Chlorotoluene	21.89	1.0	20	0	109	79 - 122	22.79	4.05	20	
2-Hexanone	43.55	2.0	40	0	109	57 - 139	43.82	0.623	20	
4-Chlorotoluene	21.91	1.0	20	0	110	78 - 122	23	4.86	20	
4-Isopropyltoluene	21.95	1.0	20	0	110	77 - 127	23.16	5.37	20	
4-Methyl-2-pentanone	41.8	2.0	40	0	105	67 - 130	41.55	0.601	20	
Acetone	38.23	2.0	40	0	95.6	39 - 160	37.87	0.936	20	
Benzene	22.04	1.0	20	0	110	79 - 120	23.54	6.59	20	
Bromobenzene	21.63	1.0	20	0	108	80 - 120	22.73	4.97	20	
Bromochloromethane	20.69	1.0	20	0	103	78 - 123	21.04	1.65	20	
Bromodichloromethane	18.11	1.0	20	0	90.6	79 - 125	19.12	5.39	20	
Bromoform	16.53	1.0	20	0	82.6	66 - 130	16.55	0.122	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	24.6	1.0	20	0	123	53 - 141	26.4	7.07	20	
Carbon disulfide	36.39	2.0	40	0	91.0	64 - 133	39.07	7.09	20	
Carbon tetrachloride	19.37	1.0	20	0	96.8	72 - 136	20.43	5.36	20	
Chlorobenzene	21.31	1.0	20	0	107	82 - 118	22.38	4.89	20	
Chloroethane	20.35	1.0	20	0	102	60 - 138	21.52	5.6	20	
Chloroform	20.71	1.0	20	0	104	79 - 124	21.92	5.65	20	
Chloromethane	21.23	1.0	20	0	106	50 - 139	23.15	8.64	20	
cis-1,2-Dichloroethene	60.08	1.0	20	41.84	91.2	78 - 123	63	4.74	20	
cis-1,3-Dichloropropene	17	1.0	20	0	85.0	75 - 124	17.7	4.05	20	
Dibromochloromethane	17.87	1.0	20	0	89.3	74 - 126	18.31	2.41	20	
Dibromomethane	20.65	1.0	20	0	103	79 - 123	21.87	5.72	20	
Dichlorodifluoromethane	17.76	1.0	20	0	88.8	32 - 152	19.2	7.81	20	
Ethylbenzene	21.96	1.0	20	0	110	79 - 121	22.97	4.51	20	
Hexachlorobutadiene	20.97	1.0	20	0	105	66 - 134	21.93	4.46	20	
Isopropylbenzene	22.67	1.0	20	0	113	72 - 131	23.76	4.7	20	
m,p-Xylene	44.88	2.0	40	0	112	80 - 121	47.12	4.87	20	
Methylene chloride	18.57	2.0	20	0	92.8	74 - 124	19.68	5.83	20	
Naphthalene	19.83	1.0	20	0	99.1	61 - 128	20.51	3.39	20	
n-Butylbenzene	21.1	1.0	20	0	106	75 - 128	22.67	7.16	20	
n-Propylbenzene	22.33	1.0	20	0	112	76 - 126	23.81	6.42	20	
o-Xylene	22.21	1.0	20	0	111	78 - 122	22.97	3.38	20	
sec-Butylbenzene	22.31	1.0	20	0	112	77 - 126	23.7	6.03	20	
Styrene	22.57	1.0	20	0	113	78 - 123	23.38	3.52	20	
tert-Butylbenzene	22.22	1.0	20	0	111	78 - 124	23.73	6.59	20	
Tetrachloroethene	32.64	1.0	20	12.88	98.8	74 - 129	34.24	4.79	20	
Toluene	22.09	1.0	20	0	110	80 - 121	23.02	4.13	20	
trans-1,2-Dichloroethene	20.32	1.0	20	0.7949	97.6	75 - 124	21.25	4.51	20	
trans-1,3-Dichloropropene	16.04	1.0	20	0	80.2	73 - 127	16.55	3.11	20	
Trichloroethene	62.69	1.0	20	44.65	90.2	79 - 123	66.88	6.47	20	
Trichlorofluoromethane	20.47	1.0	20	0	102	65 - 141	21.73	5.96	20	
Vinyl chloride	20.63	1.0	20	0	103	58 - 137	21.75	5.3	20	
Surr: 1,2-Dichloroethane-d4	*45*	*1.0*	*50*	*0*	*90.0*	*81 - 118*	*45.33*	*0.732*	*20*	
Surr: 4-Bromofluorobenzene	*51.48*	*1.0*	*50*	*0*	*103*	*85 - 114*	*51.48*	*0.0133*	*20*	
Surr: Dibromofluoromethane	*46.12*	*1.0*	*50*	*0*	*92.2*	*80 - 119*	*46.66*	*1.16*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21111214-06MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 03:00**
Client ID: Run ID: **VOA9_396417** SeqNo: **6392206** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.43*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.14*	*0.574*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.58	1.0	20	0	97.9	78 - 124	19.82	1.2	20	
1,1,1-Trichloroethane	19.51	1.0	20	0	97.6	74 - 131	19.83	1.61	20	
1,1,2,2-Tetrachloroethane	21.41	1.0	20	0	107	71 - 121	21.24	0.762	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	20.31	1.0	20	0	102	70 - 136	21.23	4.47	20	
1,1,2-Trichloroethane	22.05	1.0	20	0	110	80 - 119	21.89	0.742	20	
1,1-Dichloroethane	24.14	1.0	20	4.38	98.8	77 - 125	25.03	3.63	20	
1,1-Dichloroethene	37.07	1.0	20	17.94	95.6	71 - 131	38.68	4.26	20	
1,1-Dichloropropene	22.59	1.0	20	0	113	78 - 125	22.88	1.25	20	
1,2,3-Trichlorobenzene	19.81	1.0	20	0	99.0	69 - 129	18.91	4.64	20	
1,2,3-Trichloropropane	19.72	1.0	20	0	98.6	73 - 122	19.53	0.937	20	
1,2,4-Trichlorobenzene	19.67	1.0	20	0	98.3	69 - 130	19.39	1.42	20	
1,2,4-Trimethylbenzene	21.66	1.0	20	0	108	76 - 124	21.84	0.828	20	
1,2-Dibromo-3-chloropropane	15.85	1.0	20	0	79.2	62 - 128	15.02	5.36	20	
1,2-Dibromoethane	21.94	1.0	20	0	110	77 - 121	22.25	1.42	20	
1,2-Dichlorobenzene	20.73	1.0	20	0	104	80 - 119	20.97	1.13	20	
1,2-Dichloroethane	21.71	1.0	20	0.6695	105	73 - 128	22.36	2.97	20	
1,2-Dichloropropane	21.71	1.0	20	0	109	78 - 122	22.54	3.78	20	
1,3,5-Trimethylbenzene	21.47	1.0	20	0	107	75 - 124	21.88	1.89	20	
1,3-Dichlorobenzene	20.49	1.0	20	0	102	80 - 119	20.65	0.801	20	
1,3-Dichloropropane	22.25	1.0	20	0	111	80 - 119	22.46	0.924	20	
1,4-Dichlorobenzene	20.5	1.0	20	0	102	79 - 118	20.97	2.28	20	
2,2-Dichloropropane	11.77	1.0	20	0	58.9	60 - 139	12.42	5.4	20	S
2-Butanone	36.34	2.0	40	0	90.8	56 - 143	34.84	4.2	20	
2-Chlorotoluene	21.58	1.0	20	0	108	79 - 122	21.86	1.28	20	
2-Hexanone	44.53	2.0	40	0	111	57 - 139	43.48	2.4	20	
4-Chlorotoluene	21.43	1.0	20	0	107	78 - 122	21.92	2.29	20	
4-Isopropyltoluene	21.44	1.0	20	0	107	77 - 127	21.84	1.87	20	
4-Methyl-2-pentanone	41.05	2.0	40	0	103	67 - 130	41.15	0.249	20	
Acetone	35.11	2.0	40	0	87.8	39 - 160	35.31	0.559	20	
Benzene	22.05	1.0	20	0	110	79 - 120	22.93	3.93	20	
Bromobenzene	21.09	1.0	20	0	105	80 - 120	21.62	2.51	20	
Bromochloromethane	20.78	1.0	20	0	104	78 - 123	21.15	1.75	20	
Bromodichloromethane	18.47	1.0	20	0	92.4	79 - 125	18.52	0.268	20	
Bromoform	15.8	1.0	20	0	79.0	66 - 130	15.75	0.327	20	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396417 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	25.39	1.0	20	0	127	53 - 141	26.72	5.08	20	
Carbon disulfide	37.18	2.0	40	0	92.9	64 - 133	37.74	1.51	20	
Carbon tetrachloride	18.97	1.0	20	0	94.8	72 - 136	19.65	3.53	20	
Chlorobenzene	21.31	1.0	20	0	107	82 - 118	21.83	2.45	20	
Chloroethane	19.77	1.0	20	0	98.9	60 - 138	21.93	10.4	20	
Chloroform	20.49	1.0	20	0	102	79 - 124	21.08	2.84	20	
Chloromethane	22.03	1.0	20	0	110	50 - 139	23.3	5.61	20	
cis-1,2-Dichloroethene	20.37	1.0	20	0	102	78 - 123	20.72	1.68	20	
cis-1,3-Dichloropropene	16.6	1.0	20	0	83.0	75 - 124	16.9	1.8	20	
Dibromochloromethane	17.57	1.0	20	0	87.8	74 - 126	17.9	1.89	20	
Dibromomethane	20.81	1.0	20	0	104	79 - 123	21.45	3.01	20	
Dichlorodifluoromethane	17.39	1.0	20	0	87.0	32 - 152	18.56	6.51	20	
Ethylbenzene	21.9	1.0	20	0	110	79 - 121	22.37	2.11	20	
Hexachlorobutadiene	20.44	1.0	20	0	102	66 - 134	20.02	2.1	20	
Isopropylbenzene	22.25	1.0	20	0	111	72 - 131	22.85	2.66	20	
m,p-Xylene	44.12	2.0	40	0	110	80 - 121	46.19	4.58	20	
Methylene chloride	18.66	2.0	20	0	93.3	74 - 124	19.01	1.85	20	
Naphthalene	19.58	1.0	20	0	97.9	61 - 128	18.5	5.63	20	
n-Butylbenzene	20.77	1.0	20	0	104	75 - 128	21.11	1.61	20	
n-Propylbenzene	21.74	1.0	20	0	109	76 - 126	22.58	3.79	20	
o-Xylene	22.07	1.0	20	0	110	78 - 122	22.84	3.46	20	
sec-Butylbenzene	21.93	1.0	20	0	110	77 - 126	22.42	2.25	20	
Styrene	22.13	1.0	20	0	111	78 - 123	23.01	3.92	20	
tert-Butylbenzene	21.91	1.0	20	0	110	78 - 124	22.16	1.16	20	
Tetrachloroethene	20.71	1.0	20	0	104	74 - 129	21.65	4.43	20	
Toluene	21.89	1.0	20	0	109	80 - 121	22.67	3.47	20	
trans-1,2-Dichloroethene	20.26	1.0	20	0	101	75 - 124	20.56	1.45	20	
trans-1,3-Dichloropropene	15.85	1.0	20	0	79.3	73 - 127	15.81	0.27	20	
Trichloroethene	21.92	1.0	20	0	110	79 - 123	23.47	6.81	20	
Trichlorofluoromethane	20.44	1.0	20	0	102	65 - 141	20.88	2.12	20	
Vinyl chloride	20.77	1.0	20	0	104	58 - 137	21.7	4.35	20	
Surr: 1,2-Dichloroethane-d4	*45.87*	*1.0*	*50*	*0*	*91.7*	*81 - 118*	*45.66*	*0.469*	*20*	
Surr: 4-Bromofluorobenzene	*51.19*	*1.0*	*50*	*0*	*102*	*85 - 114*	*51.79*	*1.17*	*20*	
Surr: Dibromofluoromethane	*46.1*	*1.0*	*50*	*0*	*92.2*	*80 - 119*	*45.79*	*0.69*	*20*	

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: **R396417 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS21110813-13MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 02:15**
Client ID: **67WW08-211111** Run ID: **VOA9_396417** SeqNo: **6392204** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.89*	*1.0*	*50*	*0*	*102*	*89 - 112*	*51.12*	*0.455*	*20*	

The following samples were analyzed in this batch:

HS21110813-11	HS21110813-12	HS21110813-13	HS21110813-14
HS21110813-15	HS21110813-16	HS21110813-17	HS21110813-18
HS21110813-19			

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396499 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211124** Units: **ug/L** Analysis Date: **24-Nov-2021 13:22**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394647** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.76*	*1.0*	*50*	*0*	*91.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.65*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*43.52*	*1.0*	*50*	*0*	*87.0*	*80 - 119*				
Surr: Toluene-d8	*51.66*	*1.0*	*50*	*0*	*103*	*89 - 112*				

LCS Sample ID: **VLCSW-211124** Units: **ug/L** Analysis Date: **24-Nov-2021 12:37**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394646** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.49	1.0	20	0	102	71 - 131				
Surr: 1,2-Dichloroethane-d4	*51.78*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.96*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*51.01*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*49.58*	*1.0*	*50*	*0*	*99.2*	*89 - 112*				

MS Sample ID: **HS21111214-18MS** Units: **ug/L** Analysis Date: **24-Nov-2021 15:58**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394654** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.76	1.0	20	0.673	105	71 - 131				
Surr: 1,2-Dichloroethane-d4	*45.52*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.51*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46.08*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				
Surr: Toluene-d8	*51.21*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396499 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21111214-01MS** Units: **ug/L** Analysis Date: **24-Nov-2021 16:43**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394656** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21720	1000	20000	0	109	71 - 131				
Surr: 1,2-Dichloroethane-d4	*44850*	*1000*	*50000*	*0*	*89.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51490*	*1000*	*50000*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45650*	*1000*	*50000*	*0*	*91.3*	*80 - 119*				
Surr: Toluene-d8	*50820*	*1000*	*50000*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS21111214-18MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 16:20**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.78	1.0	20	0.673	101	71 - 131	21.76	4.64	20	
Surr: 1,2-Dichloroethane-d4	*45.53*	*1.0*	*50*	*0*	*91.1*	*81 - 118*	*45.52*	*0.0253*	*20*	
Surr: 4-Bromofluorobenzene	*51.88*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.51*	*0.721*	*20*	
Surr: Dibromofluoromethane	*46.32*	*1.0*	*50*	*0*	*92.6*	*80 - 119*	*46.08*	*0.511*	*20*	
Surr: Toluene-d8	*51.33*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.21*	*0.229*	*20*	

MSD Sample ID: **HS21111214-01MSD** Units: **ug/L** Analysis Date: **24-Nov-2021 17:05**
Client ID: Run ID: **VOA9_396499** SeqNo: **6394657** PrepDate: DF: **1000**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20690	1000	20000	0	103	71 - 131	21720	4.86	20	
Surr: 1,2-Dichloroethane-d4	*45310*	*1000*	*50000*	*0*	*90.6*	*81 - 118*	*44850*	*1.02*	*20*	
Surr: 4-Bromofluorobenzene	*51720*	*1000*	*50000*	*0*	*103*	*85 - 114*	*51490*	*0.439*	*20*	
Surr: Dibromofluoromethane	*46860*	*1000*	*50000*	*0*	*93.7*	*80 - 119*	*45650*	*2.62*	*20*	
Surr: Toluene-d8	*51160*	*1000*	*50000*	*0*	*102*	*89 - 112*	*50820*	*0.667*	*20*	

The following samples were analyzed in this batch: HS21110813-16 HS21110813-17

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396691 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-211130** Units: **ug/L** Analysis Date: **30-Nov-2021 12:42**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399425** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.48*	*1.0*	*50*	*0*	*89.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*43.57*	*1.0*	*50*	*0*	*87.1*	*80 - 119*				
Surr: Toluene-d8	*50.52*	*1.0*	*50*	*0*	*101*	*89 - 112*				

LCS Sample ID: **VLCSW-211130** Units: **ug/L** Analysis Date: **30-Nov-2021 11:57**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399424** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	22.07	1.0	20	0	110	71 - 131				
Surr: 1,2-Dichloroethane-d4	*49.06*	*1.0*	*50*	*0*	*98.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.47*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*50.06*	*1.0*	*50*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*49.81*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

MS Sample ID: **HS21111162-29MS** Units: **ug/L** Analysis Date: **30-Nov-2021 15:00**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399431** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.98	1.0	20	0	110	71 - 131				
Surr: 1,2-Dichloroethane-d4	*44.23*	*1.0*	*50*	*0*	*88.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.9*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.25*	*1.0*	*50*	*0*	*92.5*	*80 - 119*				
Surr: Toluene-d8	*50.78*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396691 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21111162-29MSD** Units: **ug/L** Analysis Date: **30-Nov-2021 15:23**
Client ID: Run ID: **VOA9_396691** SeqNo: **6399432** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.4	1.0	20	0	107	71 - 131	21.98	2.64	20	
Surr: 1,2-Dichloroethane-d4	*43.39*	*1.0*	*50*	*0*	*86.8*	*81 - 118*	*44.23*	*1.91*	*20*	
Surr: 4-Bromofluorobenzene	*51.36*	*1.0*	*50*	*0*	*103*	*85 - 114*	*50.9*	*0.898*	*20*	
Surr: Dibromofluoromethane	*45.5*	*1.0*	*50*	*0*	*91.0*	*80 - 119*	*46.25*	*1.62*	*20*	
Surr: Toluene-d8	*51.5*	*1.0*	*50*	*0*	*103*	*89 - 112*	*50.78*	*1.42*	*20*	

The following samples were analyzed in this batch: HS21110813-18

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R395659 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **13-Nov-2021 08:36**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372292** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **13-Nov-2021 08:43**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372293** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.45	0.500	20	0	97.3	80 - 120				
Nitrogen, Nitrate (As N)	3.878	0.100	4	0	96.9	80 - 120				
Sulfate	19.62	0.500	20	0	98.1	80 - 120				

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **13-Nov-2021 07:14**
Client ID: **67WW08-211111** Run ID: **ICS-Integrion_395659** SeqNo: **6372282** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1651	2.50	50	1720	-138	80 - 120				SEO
Nitrogen, Nitrate (As N)	9.284	0.500	10	0.3185	89.7	80 - 120				
Sulfate	488	2.50	50	471	34.2	80 - 120				SO

MS Sample ID: **HS21110799-04MS** Units: **mg/L** Analysis Date: **13-Nov-2021 10:12**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372303** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	24.69	0.500	10	15.07	96.2	80 - 120				
Nitrogen, Nitrate (As N)	1.972	0.100	2	0.1328	92.0	80 - 120				
Sulfate	57.63	0.500	10	48.29	93.4	80 - 120				O

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R395659 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS21110813-13MSD** Units: **mg/L** Analysis Date: **13-Nov-2021 07:22**
Client ID: **67WW08-211111** Run ID: **ICS-Integrion_395659** SeqNo: **6372283** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1683	2.50	50	1720	-74.4	80 - 120	1651	1.91	20	SEO
Nitrogen, Nitrate (As N)	9.441	0.500	10	0.3185	91.2	80 - 120	9.284	1.67	20	
Sulfate	497.5	2.50	50	471	53.1	80 - 120	488	1.92	20	SO

MSD Sample ID: **HS21110799-04MSD** Units: **mg/L** Analysis Date: **13-Nov-2021 10:19**
Client ID: Run ID: **ICS-Integrion_395659** SeqNo: **6372304** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	24.66	0.500	10	15.07	95.9	80 - 120	24.69	0.13	20	
Nitrogen, Nitrate (As N)	1.968	0.100	2	0.1328	91.8	80 - 120	1.972	0.188	20	
Sulfate	57.41	0.500	10	48.29	91.2	80 - 120	57.63	0.378	20	O

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: HS21110813

QC BATCH REPORT

Batch ID: R396090 (0) **Instrument:** TOC_04 **Method:** TOTAL ORGANIC CARBON - SM5310B-2011

MBLK Sample ID: **MBLK-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 07:35**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383213** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	1.00	1.00								U

LCS Sample ID: **LCS-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 07:51**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383214** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.75	1.00	10	0	108	85 - 115				

LCSD Sample ID: **LCSD-11182021** Units: **mg/L** Analysis Date: **19-Nov-2021 08:07**
Client ID: Run ID: **TOC_04_396090** SeqNo: **6383215** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.7	1.00	10	0	107	85 - 115	10.75	0.466	20	

MS Sample ID: **HS21110813-13MS** Units: **mg/L** Analysis Date: **19-Nov-2021 09:27**
Client ID: **67WW08-211111** Run ID: **TOC_04_396090** SeqNo: **6383220** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	16.59	1.00	10	4.709	119	80 - 120				

The following samples were analyzed in this batch: HS21110813-13 HS21110813-15 HS21110813-16

ALS Houston, US Date: 20-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 67 November 2021
WorkOrder: **HS21110813**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2021-2022	31-Jul-2022
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
Texas	T104704231-21-28	30-Apr-2022

ALS Houston, US Date: 20-Jan-22

Sample Receipt Checklist

Work Order ID: HS21110813 **Date/Time Received:** **12-Nov-2021 11:50**

Client Name: CBI-Houston **Received by:** **Eric Widjaja**

Completed By: /S/ Pablo Marinez (eSignature) 12-Nov-2021 20:23 (Date/Time) **Reviewed by:** /S/ Ragen Giga (eSignature) 16-Nov-2021 14:39 (Date/Time)

Matrices: **WATER** Carrier name: **FedEx Priority Overnight**

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐	☐	☑
Chain of custody present?	☑	☐	3 Page(s)
Chain of custody signed when relinquished and received?	☑	☐	COC IDs:CLIENT
Samplers name present on COC?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	

Temperature(s)/Thermometer(s):	0.4°C UC/C	IR 31
Cooler(s)/Kit(s):	46056	
Date/Time sample(s) sent to storage:	11/12/21 20:25	

	Yes	No	
Water - VOA vials have zero headspace?	☑	☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	☐	☐	N/A ☑
pH adjusted?	☐	☐	N/A ☑

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Giga

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 67 November 2021

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056						Remarks (Preservatives, etc.)	Lab I.D.#
67WW14-211110	WG	11/10/21/0700		3	X											
67WW05-211110	WG	11/10/21 0740		3	X											
67WW05-211110-FD	WG	11/10/21 0740		3	X											
67WW18-211110	WG	11/10/21 0825		3	X											
67WW17-211110	WG	11/10/21 0915		3	X											
67WW02-211110	WG	11/10/21 0955		3	X											
67WW12-211110	WG	11/10/21 1045		3	X											
67WW07-211110	WG	11/10/21 1130		3	X											

HS21110813
Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 VCK CFOU #2431

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Giga

Page 1 of 1

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 67 November 2021

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056						Remarks (Preservatives, etc.)	Lab I.D.#
67WW10-211110	WG	11/10/21 1215		3	X											
67WW09A-211110	WG	11/10/21 1255		3	X											
67WW01-211111	WG	11/11/21 0725		3	X											
67WW16I-211111	WG	11/11/21 0805		3	X											
67WW08-211111	WG	11/11/21 0845		12	X	X	X	X	X							
67WW08-211111-MS	WG	11/11/21 0845		12	X	X	X	X	X							
67WW08-211111-MSD	WG	11/11/21 0845		12	X	X	X	X	X							
67WW11-211111	WG	11/11/21 0940		3	X											

HS21110813

Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
[illegible]	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 IR31

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: Ragen Giga

Page 1 of 1

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: LHAAP 67 November 2021

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	CO2 by RSK 175	Anions (chloride, sulfate, nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
67WW13-211111	WG	11/11/21 1025		12	X	X	X	X	X		
67WW13-211111-FD	WG	11/11/21 1025		12	X	X	X	X	X		
67WW15-211111	WG	11/11/21 1120		3	X						
67WW09-211111	WG	11/11/21 1205		3	X						
TRIP BLANK-211111	W	11/11/21		2	X						

HS21110813
Aptim Environmental & Infrastucture, Inc.
LHAAP 67 November 2021

Additional Remarks: Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
	11/12/21	1150					0.4°C		

Remarks: Cooler # 46056 UCL CF 0.0 IR 31

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46056

CUSTODY SEAL

Date: 11/11/21 Time: 1430
Name: Scott Beesinger
Company: BAMCO

Seal Broken By: SM
Date: 11/12/21

46056

46056

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFRASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 28DC121
ACTWGT: 1.00 LB MAN
CAD: 0221242/CAFE3507
DIMS: 18x16x13 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-67-B081554-RG
RMA:

FedEx Express

TRK# 5300 5224 2212

PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

4238674 11Nov2021 GGGA 56DC2/9A7E/1R73

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 01/19/2022

Report # 221111777

Project HS21110813

Samples Collected 11/11/21

Deliver To	***Additional Recipients***
Ragen Giga ALS Houston 10450 Stancliff Rd Suite 210 Houston, TX 77099 281-530-5656	Jumoke Lawal, ALS Houston

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics **-** The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature
Pace Gulf Coast Report 221111777

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: ALS Environmental - Houston, TX **Report:** 221111777

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis for analytical batch 727709, the MS/MSD recoveries and RPDs are not applicable to Carbon Dioxide because the spike was diluted out of the samples. The LCS recovery is acceptable.

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22111177701	67WW08-211111	Water	11/11/21 08:45	11/16/21 11:57
22111177702	67WW08-211111-MS	Water	11/11/21 08:45	11/16/21 11:57
22111177703	67WW08-211111-MSD	Water	11/11/21 08:45	11/16/21 11:57
22111177704	67WW13-211111	Water	11/11/21 10:25	11/16/21 11:57
22111177705	67WW13-211111-FD	Water	11/11/21 10:25	11/16/21 11:57

Test Summary

EPA RSK-175					
Lab ID	**Client ID**	**Matrix**	**Batch**	**Instru**	**RunDate**
22111177701	67WW08-211111	Water	727709	GCV8B	11/23/21 19:04
22111177702	67WW08-211111-MS	Water	727709	GCV8B	11/23/21 19:14
22111177703	67WW08-211111-MSD	Water	727709	GCV8B	11/23/21 19:19
22111177704	67WW13-211111	Water	727709	GCV8B	11/23/21 19:25
22111177705	67WW13-211111-FD	Water	727709	GCV8B	11/23/21 19:30

Manual Integrations

Lab ID	Client ID	Matrix	Method	Parameter
22111177702	67WW08-211111-MS	Water	EPA RSK-175	Carbon Dioxide

Detect Summary

Results and Detection Limits are adjusted for dilution and moisture when applicable

EPA RSK-175						
Lab ID	**Client ID**	**Parameter**	**Units**	**Result**	**Dil.**	**%Moist**
22111177701	67WW08-211111	Carbon Dioxide	ug/L	466000	50	NA
22111177704	67WW13-211111	Carbon Dioxide	ug/L	637000	50	NA
22111177705	67WW13-211111-FD	Carbon Dioxide	ug/L	657000	50	NA

EPA RSK-175

Form 1D

Results

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177701
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8016
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1904
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	466000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d
Lab Smp Id: 22111177701
Inj Date : 23-NOV-2021 19:04
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177701
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	27788703	9329.86	466000

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d

Page 1

Date : 23-NOV-2021 19:04

Client ID:

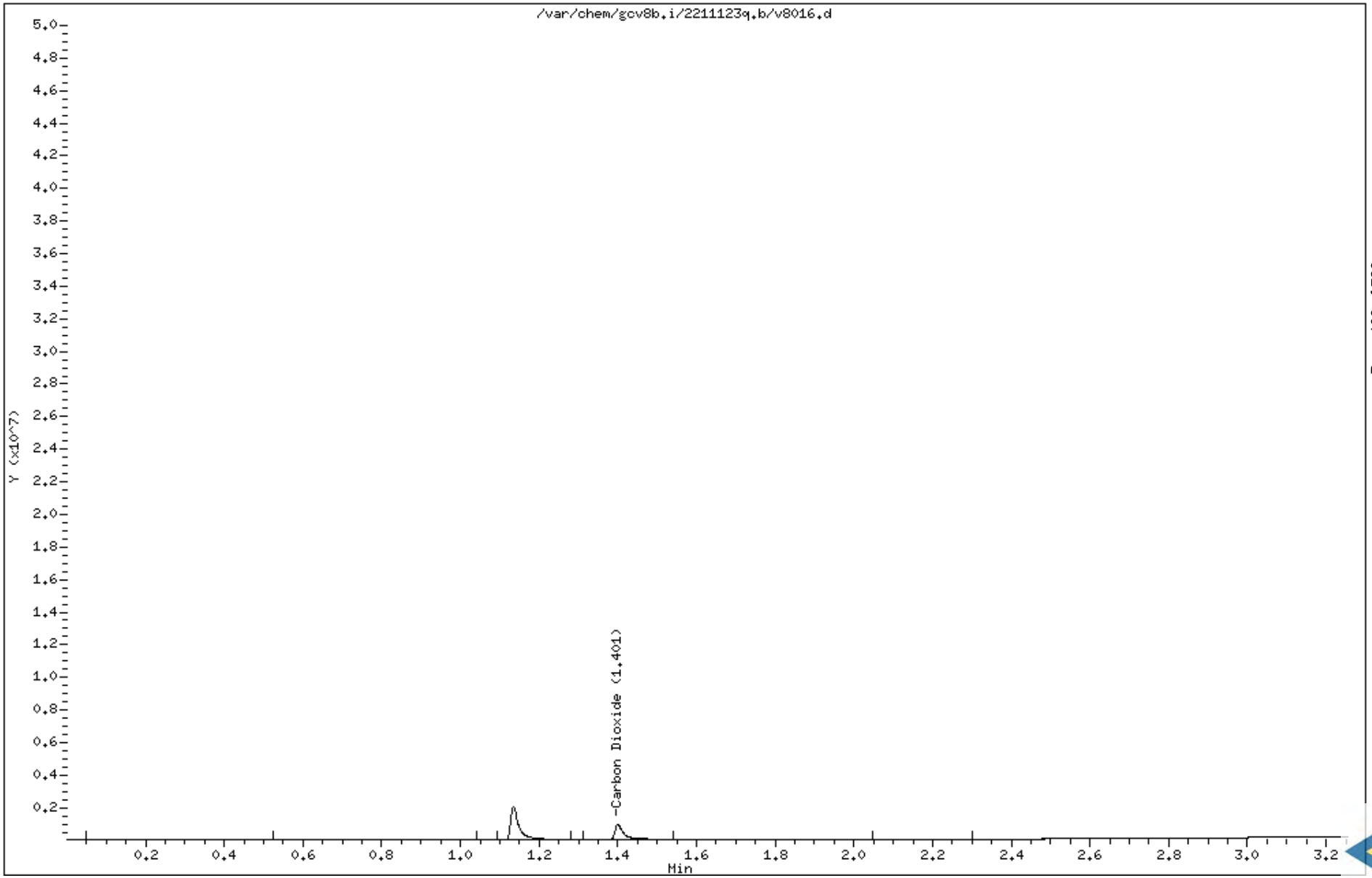
Instrument: gcv8b.i

Sample Info: 22111177701

Operator: JAR

Column phase: GS-Q-30

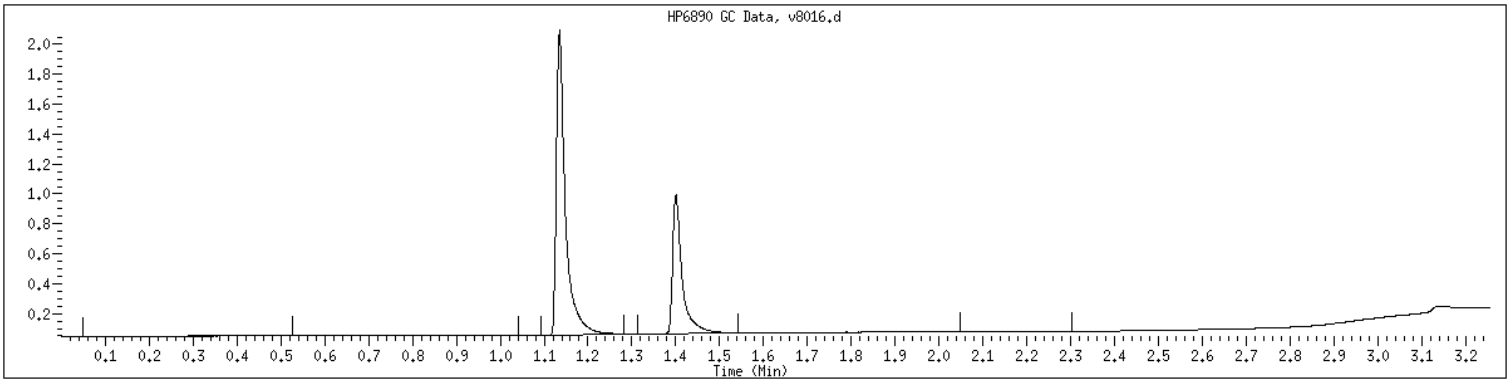
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177701 SampleType : SAMPLE
Injection Date: 11/23/2021 19:04 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177701
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MS
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177702
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8018
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1914
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	427000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d
Lab Smp Id: 22111177702
Inj Date : 23-NOV-2021 19:14
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177702
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MS
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	25438242	8540.71	427000(RM1)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d

Page 1

Date : 23-NOV-2021 19:14

Client ID:

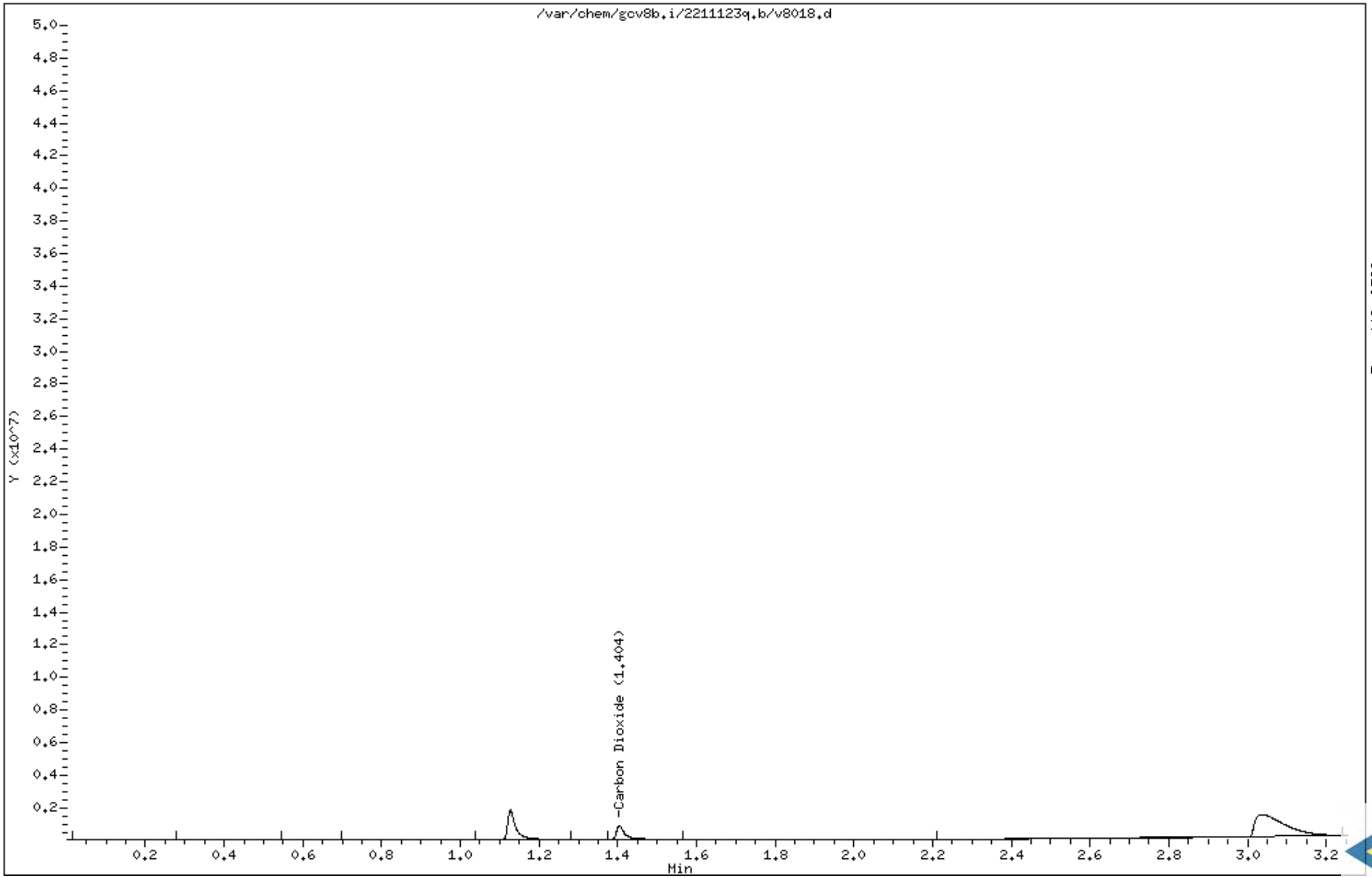
Instrument: gcv8b.i

Sample Info: 22111177702

Operator: JAR

Column phase: GS-Q-30

Column diameter: 0.53

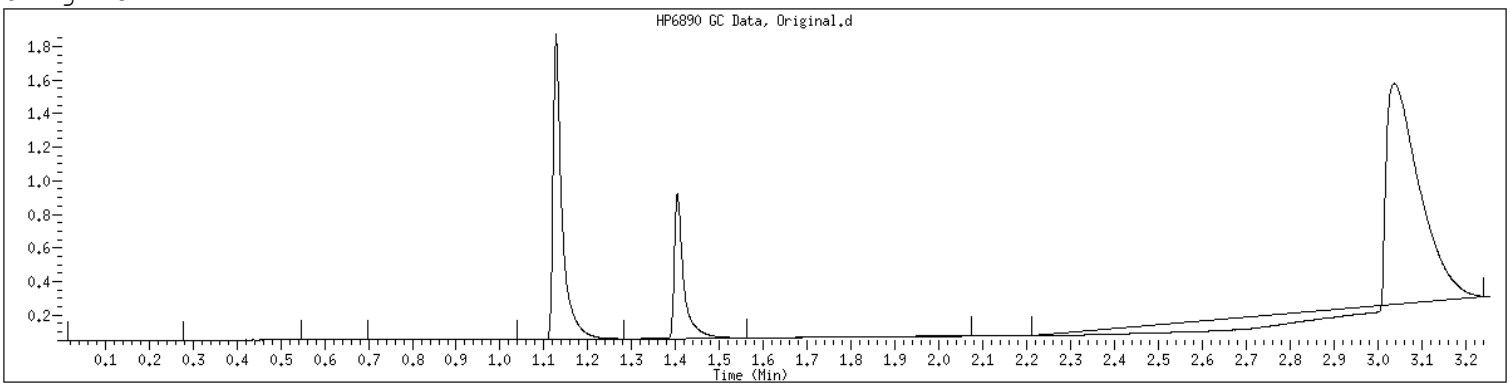


Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177702 SampleType : MS
Injection Date: 11/23/2021 19:14 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177702
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



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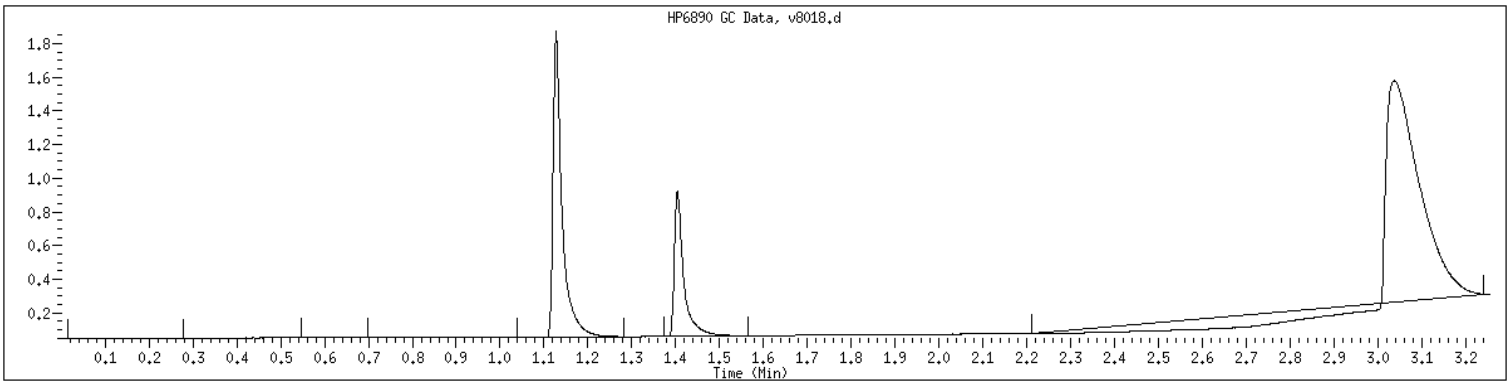


1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MSD
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177703
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8019
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1919
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	495000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d
Lab Smp Id: 22111177703
Inj Date : 23-NOV-2021 19:19
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177703
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	29480711	9897.94	495000(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d

Page 1

Date : 23-NOV-2021 19:19

Client ID:

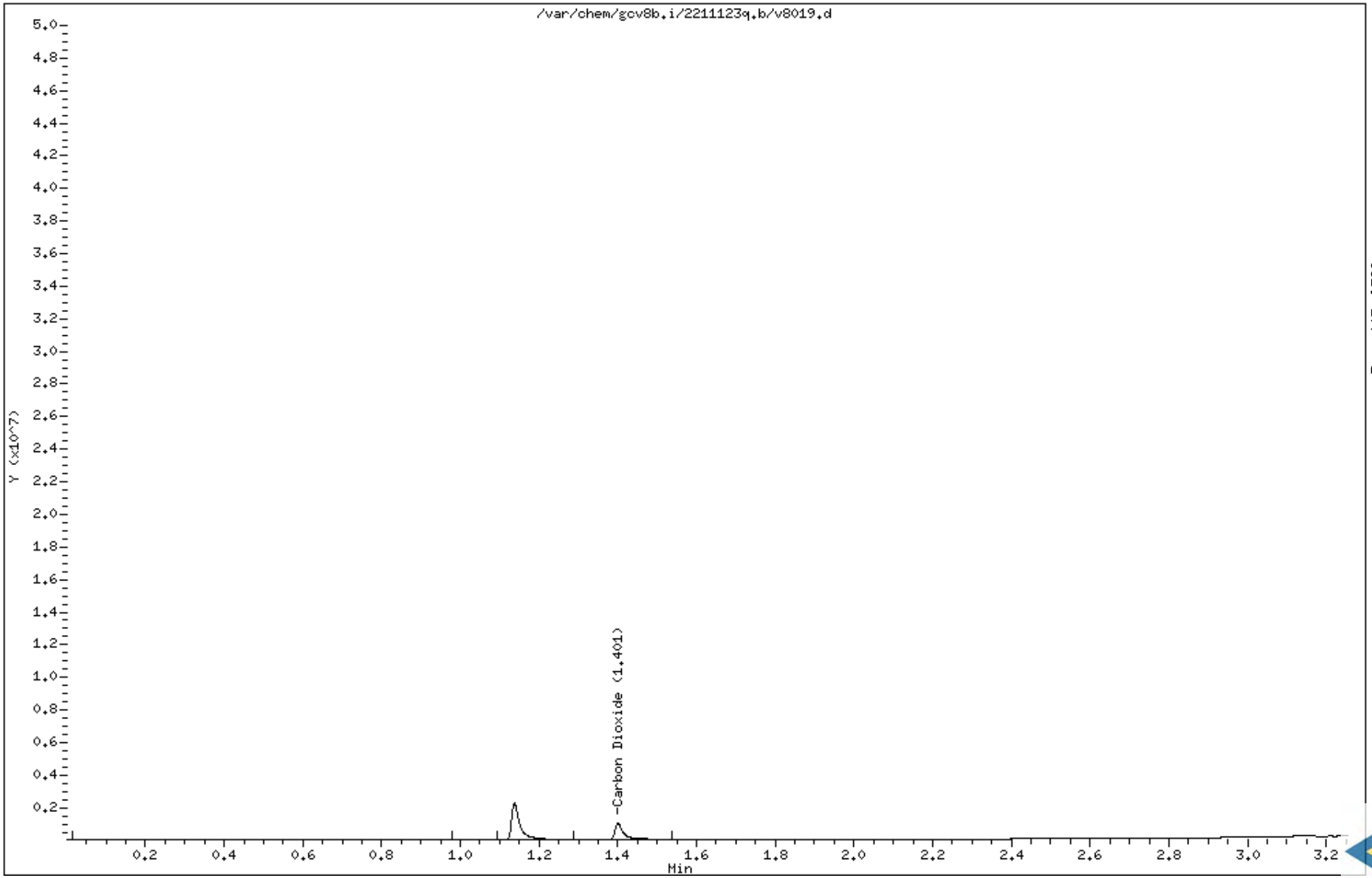
Instrument: gcv8b.i

Sample Info: 22111177703

Operator: JAR

Column phase: GS-Q-30

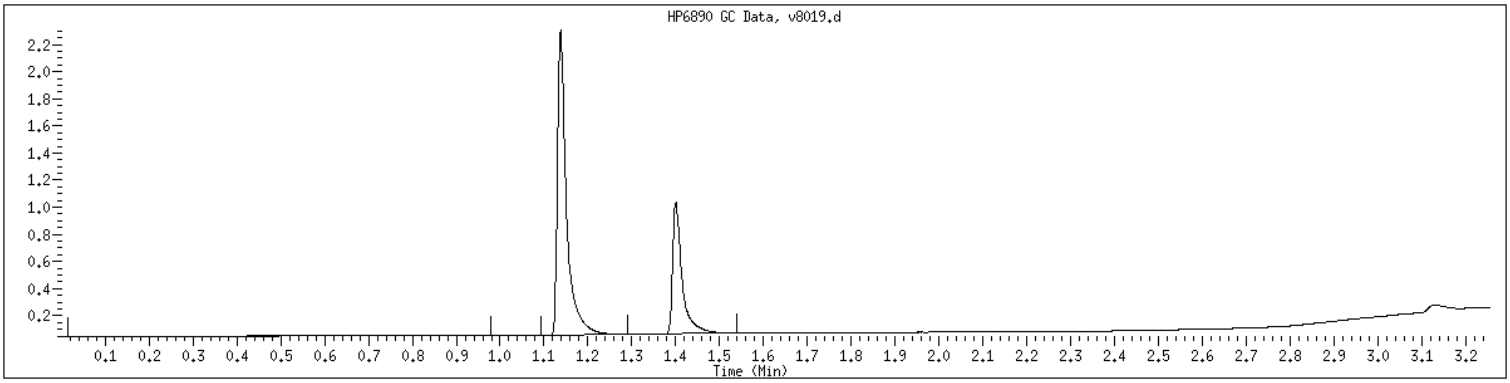
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177703 SampleType : MSD
Injection Date: 11/23/2021 19:19 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177703
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8020
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1925
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	637000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d
Lab Smp Id: 22111177704
Inj Date : 23-NOV-2021 19:25
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	37942037	12738.8	637000

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d

Page 1

Date : 23-NOV-2021 19:25

Client ID:

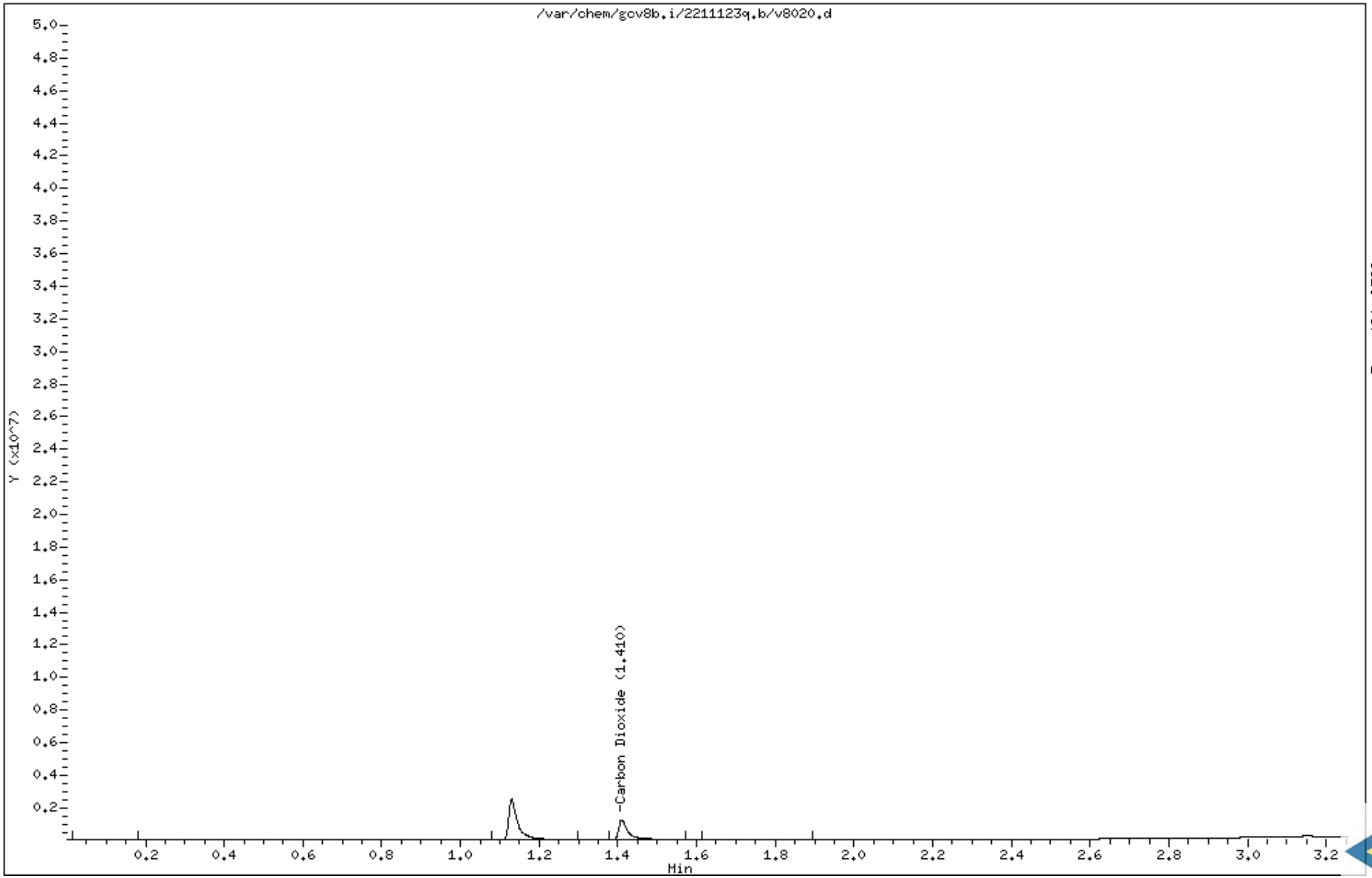
Instrument: gcv8b.i

Sample Info: 22111177704

Operator: JAR

Column phase: GS-Q-30

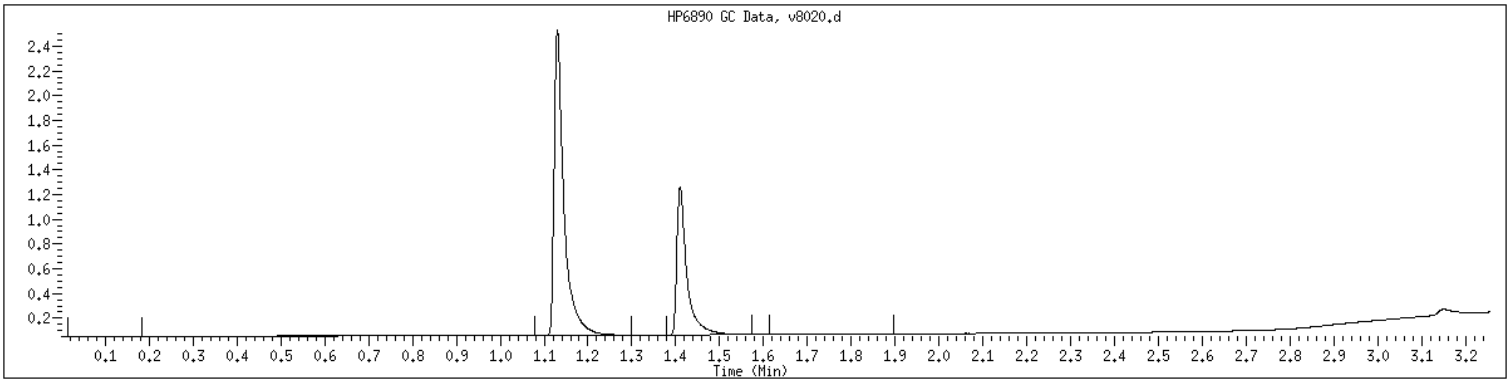
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177704 SampleType : SAMPLE
Injection Date: 11/23/2021 19:25 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111-FD
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8021
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1930
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	657000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d
Lab Smp Id: 22111177705
Inj Date : 23-NOV-2021 19:30
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	39156891	13146.6	657000

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d

Page 1

Date : 23-NOV-2021 19:30

Client ID:

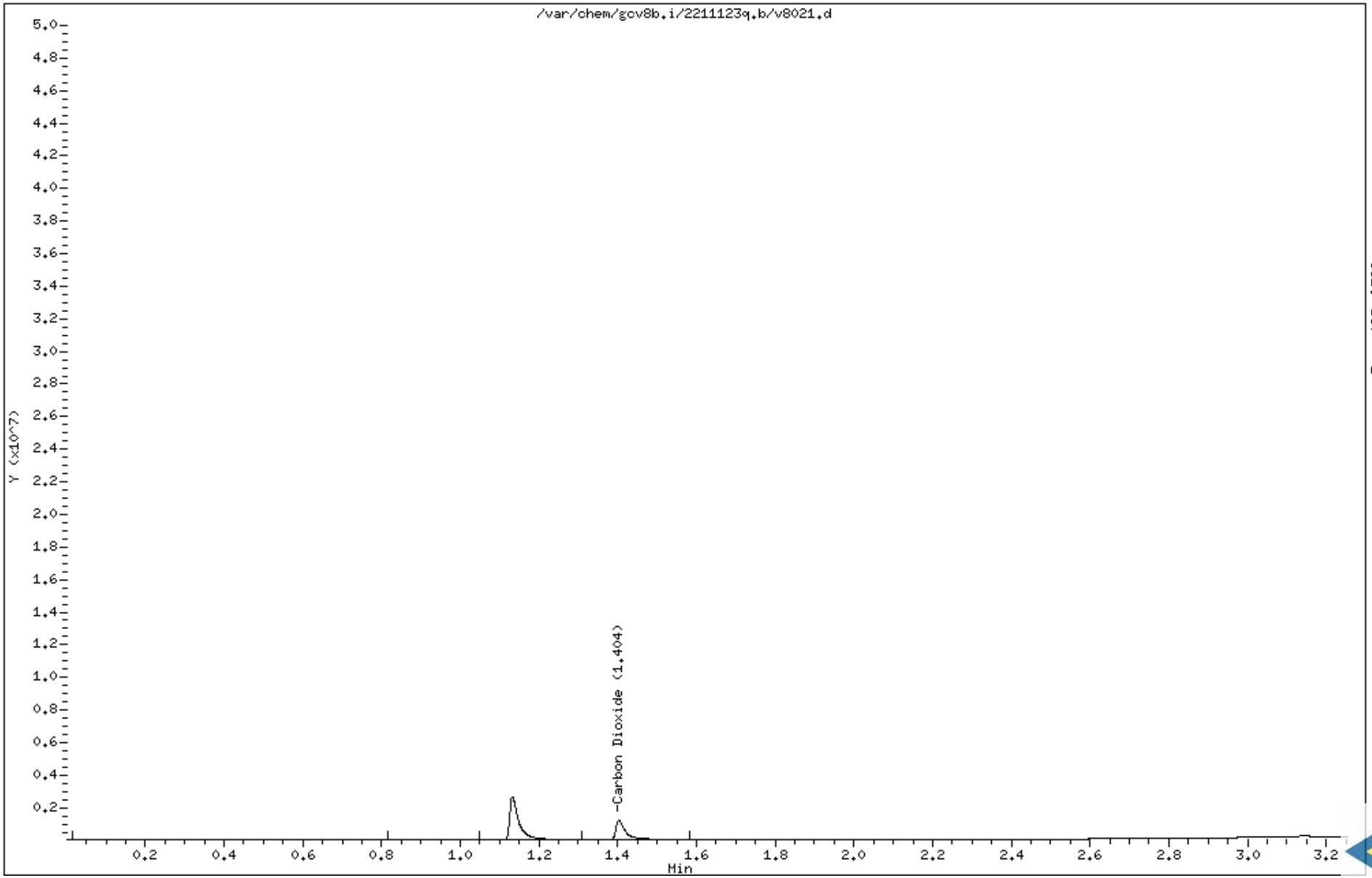
Instrument: gcv8b.i

Sample Info: 22111177705

Operator: JAR

Column phase: GS-Q-30

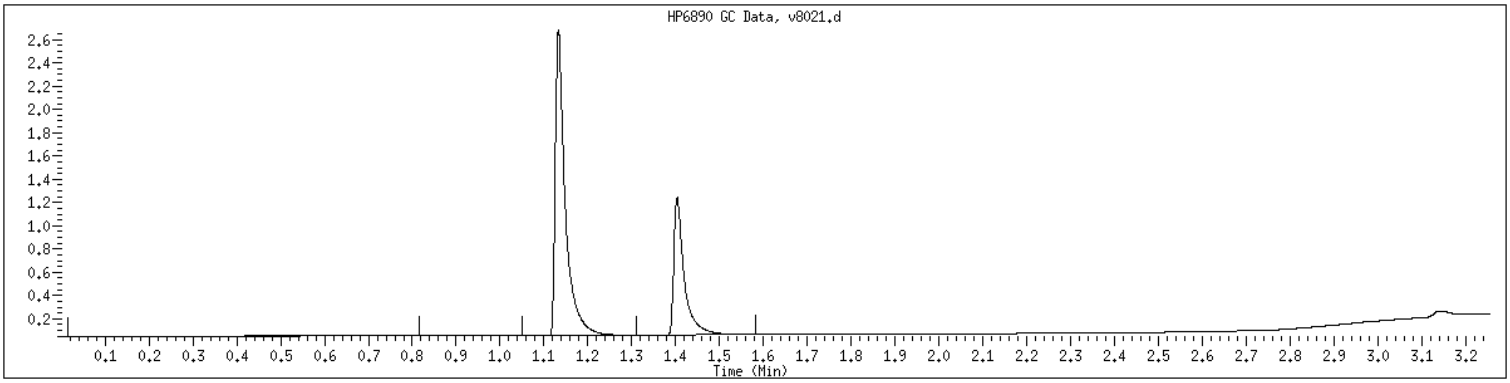
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177705 SampleType : SAMPLE
Injection Date: 11/23/2021 19:30 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	MB2277704
Collect Date:	NA Time: NA	GCAL Sample ID:	2277704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	900	U	127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d
Lab Smp Id: 2277704
Inj Date : 23-NOV-2021 17:37
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	517662	173.801	174

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d

Page 1

Date : 23-NOV-2021 17:37

Client ID:

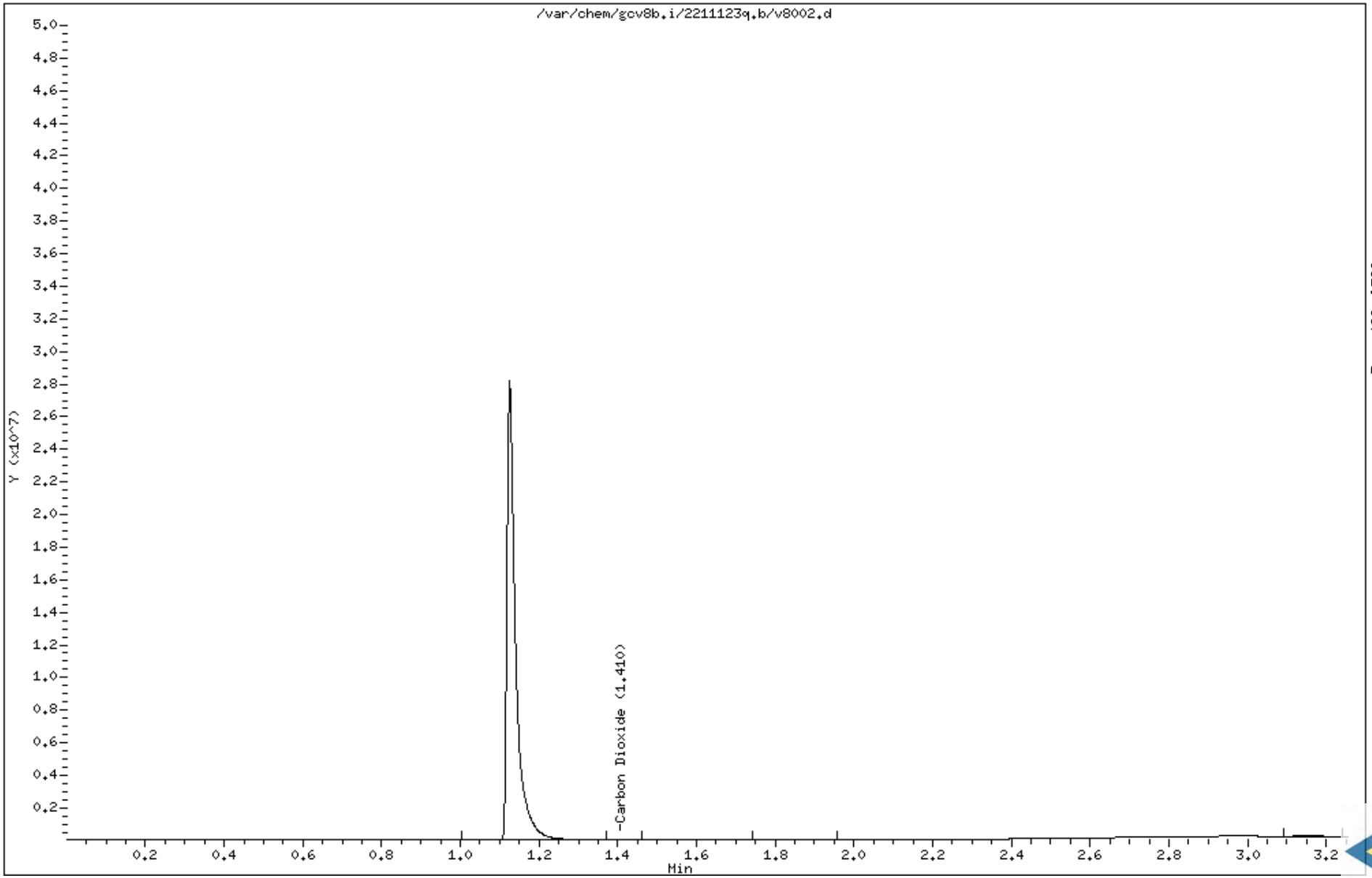
Instrument: gcv8b.i

Sample Info: 2277704

Operator: JAR

Column phase: GS-Q-30

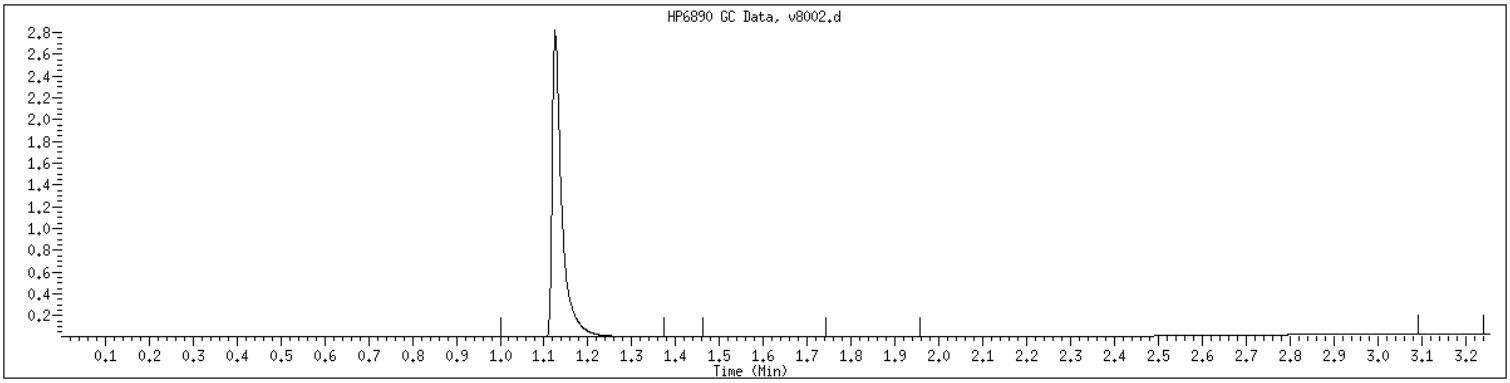
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277704 SampleType : BLANK
Injection Date: 11/23/2021 17:37 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCS2277705
Collect Date:	NA Time: NA	GCAL Sample ID:	2277705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8003
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1742
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8480		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d
Lab Smp Id: 2277705
Inj Date : 23-NOV-2021 17:42
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.409	1.414	-0.005	25249944	8477.49	8480

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d

Page 1

Date : 23-NOV-2021 17:42

Client ID:

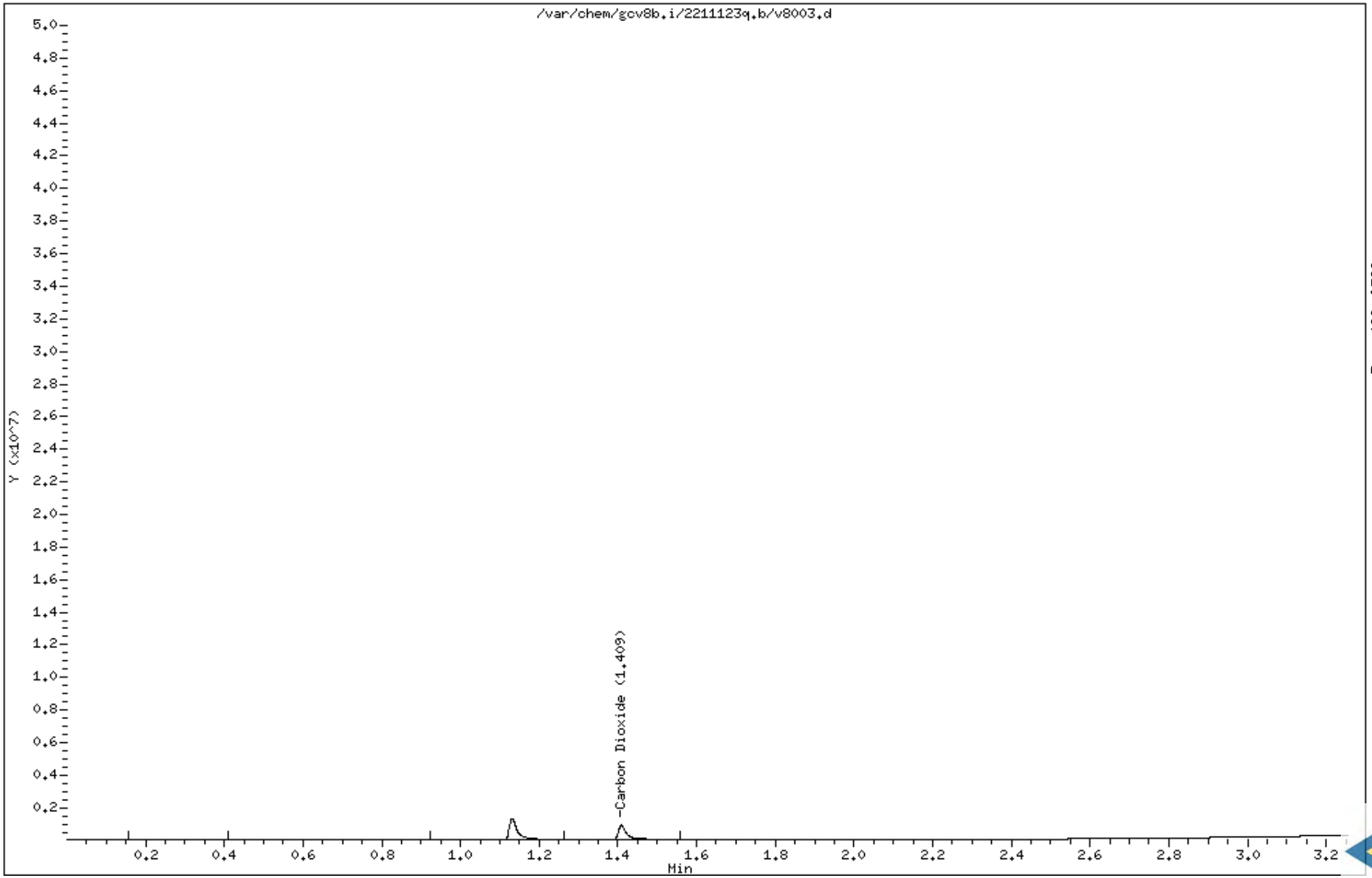
Instrument: gcv8b.i

Sample Info: 2277705

Operator: JAR

Column phase: GS-Q-30

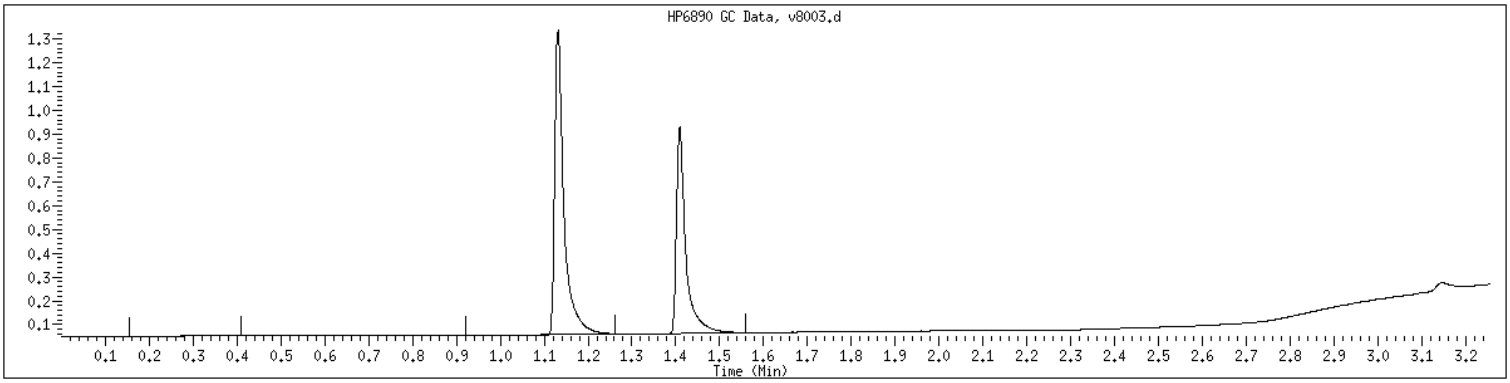
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277705 SampleType : LCS
Injection Date: 11/23/2021 17:42 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCSD2277706
Collect Date:	NA Time: NA	GCAL Sample ID:	2277706
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8004
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1748
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8770		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d
Lab Smp Id: 2277706
Inj Date : 23-NOV-2021 17:48
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277706
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.402	1.414	-0.012	26116384	8768.39	8770

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d

Page 1

Date : 23-NOV-2021 17:48

Client ID:

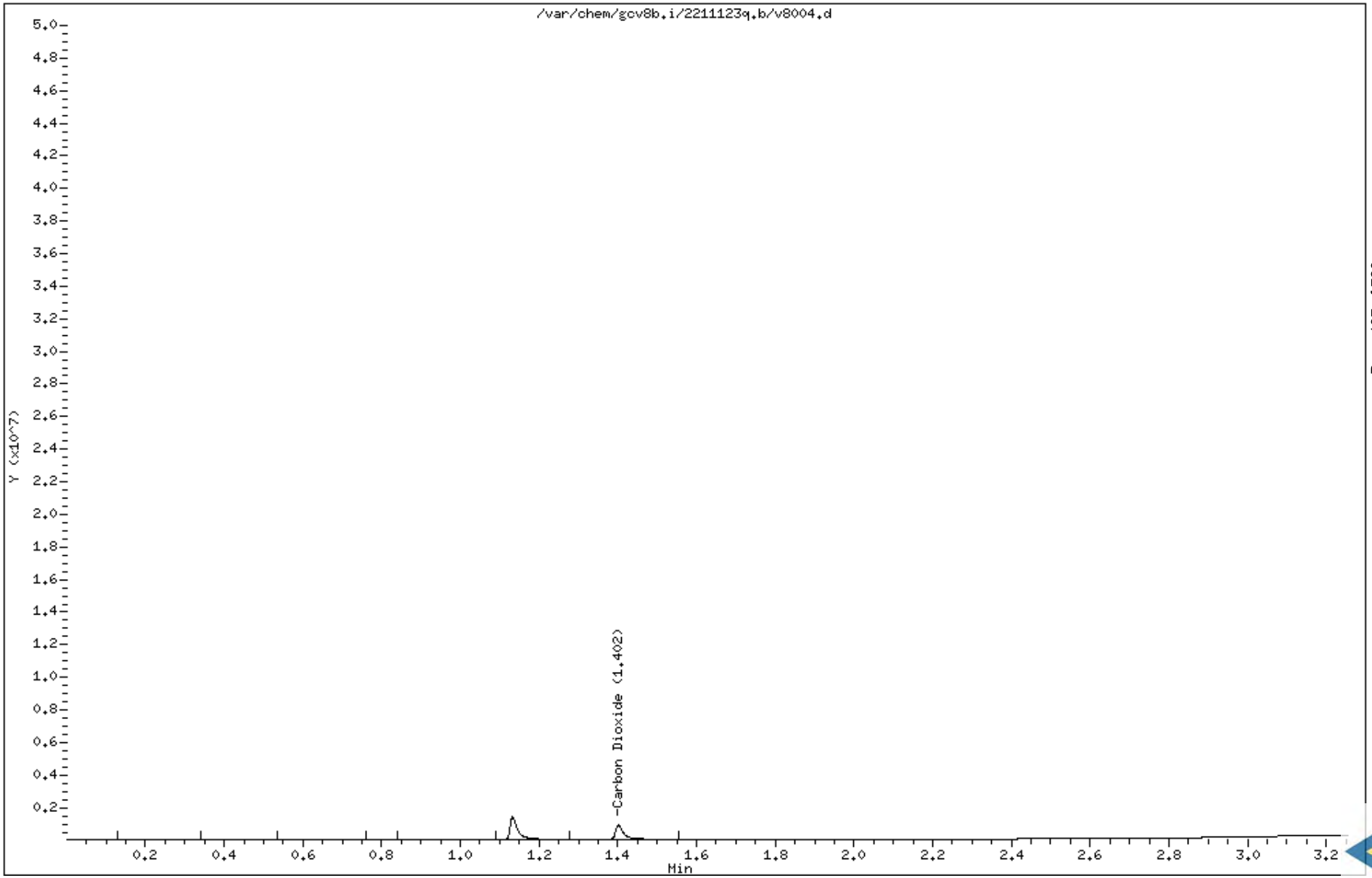
Instrument: gcv8b.i

Sample Info: 2277706

Operator: JAR

Column phase: GS-Q-30

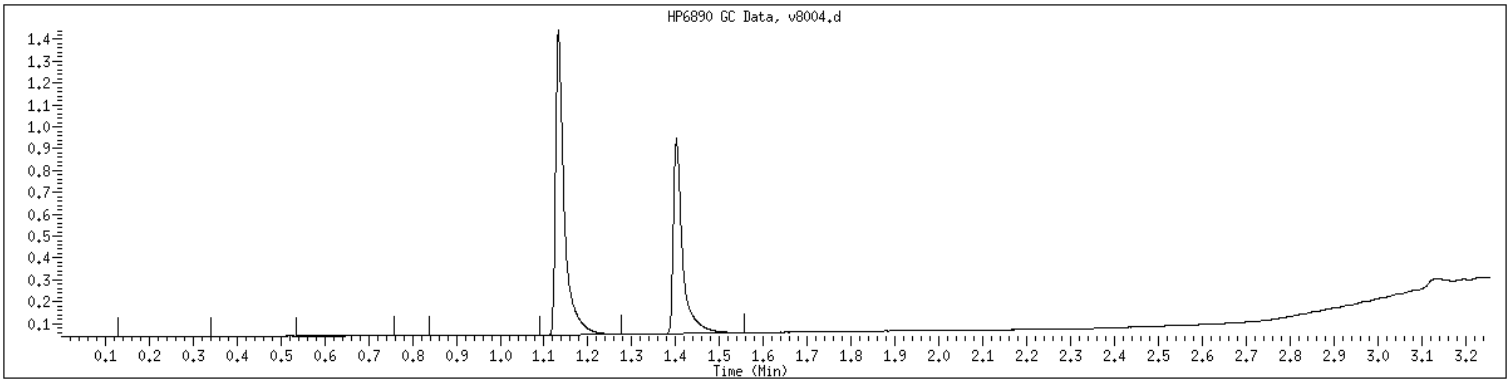
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277706 SampleType : LCSD
Injection Date: 11/23/2021 17:48 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277706
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

Form 3E

Spikes

3E
WATER ORGANICS MS/MSD RECOVERY

Report No:	221111777	Parent Sample ID:	67WW08-211111
Prep Method:	NA	Prep Batch:	NA
Analytical Method:	RSK-175	Analytical Batch:	727709

GCAL QC ID: 22111177702

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	466000	427000	-448	*	38 - 147

GCAL QC ID: 22111177703

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	495000	333	*	15		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

3E
WATER ORGANICS LCS/LCSD RECOVERY

Report No: 221111777

Prep Method: NA | Prep Batch: NA

Analytical Method: RSK-175 | Analytical Batch: 727709

GCAL QC ID: 2277705

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	0	8480	97		38 - 147

GCAL QC ID: 2277706

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	8770	101		3		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

EPA RSK-175

Form 4C

Method Blanks

4C
ORGANIC METHOD BLANK SUMMARY

Report No:	221111777	Method Blank ID:	2277704
Matrix:	Water	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	(µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	DATE ANALYZED	TIME ANALYZED	INSTRUMENT ID
1 .	LCS2277705	2277705	11/23/21	1742	GCV8B
2 .	LCSD2277706	2277706	11/23/21	1748	GCV8B
3 .	67WW08-211111	22111177701	11/23/21	1904	GCV8B
4 .	67WW08-211111-MS	22111177702	11/23/21	1914	GCV8B
5 .	67WW08-211111-MSD	22111177703	11/23/21	1919	GCV8B
6 .	67WW13-211111	22111177704	11/23/21	1925	GCV8B
7 .	67WW13-211111-FD	22111177705	11/23/21	1930	GCV8B

FORM IV ORGANIC

Client ID: ALS Houston - ALS Environmental - Houston, TX
SDG: 221111777
PM: RWe

F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **17377**

SUBCONTRACT TO:

Pace Analytical
7979 Innovation Park Drive
Baton Rouge, LA 70820

Phone: +1 225 769 4900

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21110813
TSR: Ron Martino

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS21110813-13**	**67WW08-211111**	**GW**	**11 Nov 2021 08:45** -1,2,3
	XXX SUB			30 Nov 2021
2.	**HS21110813-15**	**67WW13-211111**	**GW**	**11 Nov 2021 10:25** -4
	XXX SUB			30 Nov 2021
3.	**HS21110813-16**	**67WW13-211111-FD**	**GW**	**11 Nov 2021 10:25** -5
	XXX SUB			30 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
67WW08-211111 has extra volume for MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: Date/Time: 11/15/2021 1800.
Received By: ~~FedEx~~ JH Date/Time: ~~11/16/21~~ JH
REL. Cooler ID(s): FedEx Temperature(s): 11/16/21 1157
Received: 11-16-21 1157

RIGHT SOLUTIONS | RIGHT PARTNER

0.2 E38 5300 5224 9662

Pace Analytical®

SAMPLE RECEIVING CHECKLIST

221111777

SAMPLE DELIVERY GROUP 221111777	
Client **PM** RWe ALS Houston - ALS Environmental - Houston, TX	**Transport Method** FEDEX
Profile Number 294923	**Received By** McCune, Dodie N.
Line Item(s) 1 - CO2	**Receive Date(s)** 11/16/21

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E38	Temp °C
530052249662		0.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

HS21110813 8260

ALS WO# HS21110813

MSVOA09 -Logbook

Batch: 47180
Date: 11-15-2021
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	TUNE	11-15-2021 01:30 pm	1.00	50 mL	50 mL	U111501.D	Liquid	Y	N
2	VSTD000.25	ICAL1	11-15-2021 01:52 pm	1.00	50 mL	50 mL	U111502.D	Liquid	Y	N
3	VSTD000.5	ICAL2	11-15-2021 02:36 pm	1.00	50 mL	50 mL	U111503.D	Liquid	Y	N
4	VSTD001	ICAL3	11-15-2021 02:58 pm	1.00	50 mL	50 mL	U111504.D	Liquid	Y	N
5	VSTD002	ICAL4	11-15-2021 03:20 pm	1.00	50 mL	50 mL	U111505.D	Liquid	Y	N
6	VSTD005	ICAL5	11-15-2021 03:43 pm	1.00	50 mL	50 mL	U111506.D	Liquid	Y	N
7	VSTD020	ICAL6	11-15-2021 04:05 pm	1.00	50 mL	50 mL	U111507.D	Liquid	Y	N
8	VSTD050	ICAL7	11-15-2021 04:27 pm	1.00	50 mL	50 mL	U111508.D	Liquid	Y	N
9	VSTD100	ICAL8	11-15-2021 04:49 pm	1.00	50 mL	50 mL	U111509.D	Liquid	Y	N
10	VSTD150	ICAL9	11-15-2021 05:11 pm	1.00	50 mL	50 mL	U111510.D	Liquid	Y	N
11	VSTD200	ICAL	11-15-2021 05:34 pm	1.00	50 mL	50 mL	U111511.D	Liquid	Y	N
12	BLANK	SAMP	11-15-2021 05:56 pm	1.00	50 mL	50 mL	U111512.D	Liquid	Y	N
13	VSTD050	CCV	11-15-2021 06:18 pm	1.00	50 mL	50 mL	U111513.D	Liquid	Y	N
14	BLANK	SAMP	11-15-2021 06:40 pm	1.00	50 mL	50 mL	U111514.D	Liquid	Y	N
15	CCB	SAMP	11-15-2021 07:03 pm	1.00	50 mL	50 mL	U111515.D	Liquid	Y	N
16	VLCSW-211115	LCS	11-15-2021 07:25 pm	1.00	50 mL	50 mL	U111516.D	Liquid	Y	N
17	BLANK	SAMP	11-15-2021 07:47 pm	1.00	50 mL	50 mL	U111517.D	Liquid	Y	N
18	VBLKW-211115	MBLK	11-15-2021 08:10 pm	1.00	50 mL	50 mL	U111518.D	Liquid	Y	N
19	HS21110151-02	SAMP	11-15-2021 08:32 pm	1.00	50 mL	50 mL	U111519.D	Liquid	Y	N
20	HS21110151-01	SAMP	11-15-2021 08:54 pm	1.00	50 mL	50 mL	U111520.D	Liquid	Y	N
21	HS21110314-20	SAMP	11-15-2021 09:17 pm	1.00	50 mL	50 mL	U111521.D	Liquid	Y	N
22	HS21110387-04	SAMP	11-15-2021 09:39 pm	1.00	50 mL	50 mL	U111522.D	Liquid	Y	N
23	HS21110387-10	SAMP	11-15-2021 10:01 pm	1.00	50 mL	50 mL	U111523.D	Liquid	Y	N
24	HS21110426-01	SAMP	11-15-2021 10:23 pm	1.00	50 mL	50 mL	U111524.D	Liquid	Y	N
25	HS21110449-01	SAMP	11-15-2021 10:46 pm	1.00	50 mL	50 mL	U111525.D	Liquid	Y	N
26	HS21110450-03	SAMP	11-15-2021 11:08 pm	1.00	50 mL	50 mL	U111526.D	Liquid	Y	N
27	HS21110349-01	SAMP	11-15-2021 11:30 pm	1.00	50 mL	50 mL	U111527.D	Liquid	Y	N
28	HS21110572-01	SAMP	11-15-2021 11:53 pm	1000.0	50 µL	50 mL	U111528.D	Liquid	Y	N
29	HS21110572-01MS	MS	11-16-2021 12:15 am	1000.0	50 µL	50 mL	U111529.D	Liquid	Y	N
30	HS21110572-01MSD	MSD	11-16-2021 12:37 am	1000.0	50 µL	50 mL	U111530.D	Liquid	Y	N
31	VSTD050-END	CCV	11-16-2021 12:59 am	1.00	50 mL	50 mL	U111531.D	Liquid	Y	N
32	HS21110572-01	SAMP	11-16-2021 01:22 am	100.0	500 µL	50 mL	U111532.D	Liquid	Y	N
33	BFB	TUNE	11-16-2021 01:44 am	1.00	50 mL	50 mL	V111501.D	Liquid	Y	N
34	VSTD050	CCV	11-16-2021 02:06 am	1.00	50 mL	50 mL	V111502.D	Liquid	Y	N
35	VSTD050	CCV	11-16-2021 02:28 am	1.00	50 mL	50 mL	V111503.D	Liquid	Y	N
36	CCB	SAMP	11-16-2021 02:51 am	1.00	50 mL	50 mL	V111504.D	Liquid	Y	N
37	VLCSW-211115	LCS	11-16-2021 03:13 am	1.00	50 mL	50 mL	V111505.D	Liquid	Y	N
38	BLANK	SAMP	11-16-2021 03:35 am	1.00	50 mL	50 mL	V111506.D	Liquid	Y	N
39	VBLKW-211115	MBLK	11-16-2021 03:57 am	50.00	1 mL	50 mL	V111507.D	Liquid	Y	N
40	HS21110426-02	SAMP	11-16-2021 04:20 am	5000.0	10 µL	50 mL	V111508.D	Liquid	Y	N
41	HS21110426-02	SAMP	11-16-2021 04:42 am	500.0	100 µL	50 mL	V111509.D	Liquid	Y	N

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
42	HS21110426-02MS	MS	11-16-2021 05:04 am	500.0(	100 µL	50 mL	V111510.D	Liquid	Y	N
43	HS21110426-02MSD	MSD	11-16-2021 05:26 am	500.0(	100 µL	50 mL	V111511.D	Liquid	Y	N
44	BLANK	SAMP	11-16-2021 05:49 am	1.00	50 mL	50 mL	V111512.D	Liquid	Y	N
45	HS21110426-03	SAMP	11-16-2021 06:11 am	500.0(	100 µL	50 mL	V111513.D	Liquid	Y	N
46	HS21110426-03	SAMP	11-16-2021 06:33 am	5000.0	10 µL	50 mL	V111514.D	Liquid	Y	N
47	HS21110426-04	SAMP	11-16-2021 06:56 am	500.0(	100 µL	50 mL	V111515.D	Liquid	Y	N
48	HS21110426-04	SAMP	11-16-2021 07:18 am	5000.0	10 µL	50 mL	V111516.D	Liquid	Y	N
49	HS21110449-04	SAMP	11-16-2021 07:40 am	50.00	1 mL	50 mL	V111517.D	Liquid	Y	N
50	HS21110449-04	SAMP	11-16-2021 08:03 am	500.0(	100 µL	50 mL	V111518.D	Liquid	Y	N
51	HS21110450-01	SAMP	11-16-2021 08:25 am	250.0(	200 µL	50 mL	V111519.D	Liquid	Y	N
52	HS21110450-01	SAMP	11-16-2021 08:47 am	2500.0	20 µL	50 mL	V111520.D	Liquid	Y	N
53	HS21110450-02	SAMP	11-16-2021 09:10 am	1000.0	50 µL	50 mL	V111521.D	Liquid	Y	N
54	HS21110450-02	SAMP	11-16-2021 09:32 am	10000.(	5 µL	50 mL	V111522.D	Liquid	Y	N
55	HS21110450-08	SAMP	11-16-2021 09:54 am	500.0(	100 µL	50 mL	V111523.D	Liquid	Y	N
56	HS21110450-08	SAMP	11-16-2021 10:17 am	5000.0	10 µL	50 mL	V111524.D	Liquid	Y	N
57	HS21110450-09	SAMP	11-16-2021 10:39 am	2000.0	25 µL	50 mL	V111525.D	Liquid	Y	N
58	HS21110450-09	SAMP	11-16-2021 11:01 am	20000.(	2.5 µL	50 mL	V111526.D	Liquid	Y	N
59	HS21110450-10	SAMP	11-16-2021 11:24 am	500.0(	100 µL	50 mL	V111527.D	Liquid	Y	N
60	HS21110450-10	SAMP	11-16-2021 11:46 am	5000.0	10 µL	50 mL	V111528.D	Liquid	Y	N
61	BLANK	SAMP	11-16-2021 12:08 pm	1.00	50 mL	50 mL	V111529.D	Liquid	Y	N
62	CCV-END	CCV	11-16-2021 12:31 pm	1.00	50 mL	50 mL	V111530.D	Liquid	Y	N
63	BLANK	SAMP	11-16-2021 12:53 pm	1.00	50 mL	50 mL	V111531.D	Liquid	Y	N

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	52.43	105	80-120
2-Butanone	100.00	98.76	99	80-120
cis-1,3-Dichloropropene	50.00	47.99	96	80-120
2-Hexanone	100.00	112.63	113	80-120
Dichlorodifluoromethane	50.00	47.62	95	80-120
1,3-Dichlorobenzene	50.00	48.12	96	80-120
Dibromochloromethane	50.00	47.90	96	80-120
Isopropylbenzene	50.00	48.13	96	80-120
1,2-Dibromoethane	50.00	52.96	106	80-120
4-Methyl-2-Pentanone	100.00	103.85	104	80-120
1,2-Dibromo-3-Chloropro	50.00	47.07	94	80-120
trans-1,3-Dichloroprope	50.00	47.48	95	80-120
Freon TF	50.00	46.23	92	80-120
Carbon Disulfide	100.00	100.49	100	80-120
1,2,4-Trichlorobenzene	50.00	50.49	101	80-120
Styrene	50.00	51.92	104	80-120
2,2-Dichloropropane	50.00	52.44	105	80-120
1,1-Dichloropropene	50.00	49.02	98	80-120
Dibromomethane	50.00	51.27	102	80-120
1,3-Dichloropropane	50.00	49.94	100	80-120
1,2-Dichloroethane	50.00	49.72	99	80-120
1,2-Dichloropropane	50.00	50.65	101	80-120
1,1,2-Trichloroethane	50.00	50.67	101	80-120
1,2-Dichlorobenzene	50.00	49.10	98	80-120
1,1-Dichloroethane	50.00	47.76	96	80-120
Toluene	50.00	48.78	98	80-120
1,4-Dichlorobenzene	50.00	48.60	97	80-120
1,1,2,2-Tetrachloroetha	50.00	50.33	101	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
trans-1,2-Dichloroethen	50.00	48.32	97	80-120
1,1,1,2-Tetrachloroetha	50.00	48.79	98	80-120
Tetrachloroethene	50.00	46.55	93	80-120
1,1,1-Trichloroethane	50.00	51.58	103	80-120
Trichlorofluoromethane	50.00	47.23	94	80-120
o-Xylene	50.00	49.55	99	80-120
Acetone	100.00	102.63	103	80-120
Trichloroethene	50.00	51.11	102	80-120
Vinyl Chloride	50.00	47.53	95	80-120
Bromodichloromethane	50.00	47.32	95	80-120
Bromoform	50.00	48.31	97	80-120
Bromomethane	50.00	59.05	118	80-120
Carbon Tetrachloride	50.00	45.44	91	80-120
Chlorobenzene	50.00	48.60	97	80-120
Chloroethane	50.00	44.89	90	80-120
Chloroform	50.00	50.22	100	80-120
Chloromethane	50.00	50.93	102	80-120
cis-1,2-Dichloroethene	50.00	49.81	100	80-120
1,1-Dichloroethene	50.00	48.22	96	80-120
Ethylbenzene	50.00	49.18	98	80-120
Methylene Chloride	50.00	45.36	91	80-120
m,p-Xylenes	100.00	100.37	100	80-120
Benzene	50.00	50.06	100	80-120
Bromobenzene	50.00	51.00	102	80-120
1,2,3-Trichloropropane	50.00	52.94	106	80-120
n-Propylbenzene	50.00	48.47	97	80-120
2-Chlorotoluene	50.00	48.19	96	80-120
1,3,5-Trimethylbenzene	50.00	48.38	97	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
4-Chlorotoluene	50.00	48.96	98	80-120
tert-Butylbenzene	50.00	47.53	95	80-120
1,2,4-Trimethylbenzene	50.00	49.44	99	80-120
sec-Butylbenzene	50.00	47.04	94	80-120
p-Isopropyltoluene	50.00	48.68	97	80-120
n-Butylbenzene	50.00	46.76	94	80-120
Hexachlorobutadiene	50.00	48.57	97	80-120
Naphthalene	50.00	50.21	100	80-120
1,2,3-Trichlorobenzene	50.00	49.28	98	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U111501 BFB Injection Date: 11/15/21

Instrument ID: VOA9 BFB Injection Time: 1330

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.6
75	30.0 - 60.0% of mass 95	47.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	Greater than 50.0% of mass 95	79.5
175	5.0 - 9.0% of mass 174	6.2 (7.8)1
176	95.0 - 101.0% of mass 174	76.3 (96.0)1
177	5.0 - 9.0% of mass 176	4.9 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	U111502	11/15/21	1352
02	VSTD000.5	VSTD000.5	U111503	11/15/21	1436
03	VSTD001	VSTD001	U111504	11/15/21	1458
04	VSTD002	VSTD002	U111505	11/15/21	1520
05	VSTD005	VSTD005	U111506	11/15/21	1543
06	VSTD020	VSTD020	U111507	11/15/21	1605
07	VSTD050	VSTD050	U111508	11/15/21	1627
08	VSTD100	VSTD100	U111509	11/15/21	1649
09	VSTD150	VSTD150	U111510	11/15/21	1711
10	VSTD200	VSTD200	U111511	11/15/21	1734
11	ICV	ICV	U111513	11/15/21	1818
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

LAB FILE ID: RF0.25: U111502 RF0.5: U111503 RF1: U111504
RF2: U111505 RF5: U111506 RF20: U111507

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Bromochloromethane		0.222	0.288	0.297	0.301	0.309
2-Butanone		0.290	0.263	0.236	0.263	0.271
cis-1,3-Dichloropropene		1095	2819	5706	15790	82868
2-Hexanone		0.166	0.196	0.235	0.251	0.265
Dichlorodifluoromethane		1420	3384	6494	15309	63286
1,3-Dichlorobenzene		1.290	1.572	1.451	1.481	1.451
Dibromochloromethane		630	2071	3879	11164	55171
Isopropylbenzene		1.180	1.525	1.469	1.488	1.497
1,2-Dibromoethane		0.270	0.351	0.339	0.374	0.390
4-Methyl-2-Pentanone		0.308	0.363	0.341	0.357	0.380
1,2-Dibromo-3-Chloropropane		40	360	886	2022	11576
trans-1,3-Dichloropropene		735	2070	4426	12599	66354
Freon TF		0.322	0.450	0.423	0.409	0.405
Carbon Disulfide		1.032	1.308	1.211	1.225	1.245
1,2,4-Trichlorobenzene		0.792	0.915	0.919	0.902	0.905
Styrene		0.768	0.988	0.986	1.069	1.088
2,2-Dichloropropane		0.422	0.495	0.447	0.456	0.479
1,1-Dichloropropene		0.325	0.432	0.408	0.428	0.416
Dibromomethane		0.196	0.220	0.211	0.221	0.222
1,3-Dichloropropane		0.503	0.662	0.628	0.698	0.664
1,2-Dichloroethane		0.373	0.512	0.448	0.489	0.468
1,2-Dichloropropane		0.247	0.330	0.319	0.335	0.328
1,1,2-Trichloroethane		0.253	0.314	0.290	0.320	0.306
1,2-Dichlorobenzene		1.126	1.515	1.479	1.481	1.450
1,1-Dichloroethane		0.768	0.957	0.950	0.950	0.919
Toluene		1.376	1.627	1.485	1.566	1.540
1,4-Dichlorobenzene		1.237	1.642	1.503	1.560	1.495
1,1,2,2-Tetrachloroethane		0.852	1.090	1.126	1.105	1.113
trans-1,2-Dichloroethene		0.513	0.537	0.503	0.507	0.502
1,1,1,2-Tetrachloroethane		803	2215	4304	11768	54596
Tetrachloroethene		0.265	0.313	0.289	0.285	0.276
1,1,1-Trichloroethane		0.545	0.680	0.652	0.673	0.733
Trichlorofluoromethane		0.648	0.893	0.820	0.805	0.816
o-Xylene		0.498	0.642	0.566	0.626	0.609
Acetone		3031	4060	7509	12006	42250
Trichloroethene		0.274	0.339	0.332	0.330	0.324
Vinyl Chloride		0.550	0.636	0.612	0.612	0.606
Bromodichloromethane		1201	3055	5486	15337	68589
Bromoform		450	1090	2438	6778	32750
Bromomethane		935	2151	3804	9672	34362
Carbon Tetrachloride		1045	3053	5276	13108	61682
Chlorobenzene		0.917	1.063	0.976	1.013	0.985
Chloroethane		0.501	0.439	0.384	0.426	0.407
Chloroform		0.758	1.012	0.944	1.039	1.013

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

LAB FILE ID: RF0.25: U111502 RF0.5: U111503 RF1: U111504
RF2: U111505 RF5: U111506 RF20: U111507

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloromethane		1429	3019	5164	13015	52032
cis-1,2-Dichloroethene		0.516	0.640	0.636	0.641	0.629
1,1-Dichloroethene		0.374	0.476	0.474	0.450	0.445
Ethylbenzene		0.405	0.512	0.490	0.502	0.492
Methylene Chloride		0.708	0.680	0.636	0.610	0.568
m,p-Xylenes		0.471	0.620	0.596	0.633	0.626
Benzene		1.101	1.407	1.232	1.307	1.289
Bromobenzene		0.573	0.826	0.752	0.814	0.813
1,2,3-Trichloropropane		0.831	0.900	0.952	1.060	1.059
n-Propylbenzene		2.771	3.584	3.352	3.462	3.491
2-Chlorotoluene		1.790	2.279	2.177	2.289	2.209
1,3,5-Trimethylbenzene		2.126	2.512	2.442	2.481	2.526
4-Chlorotoluene		2.122	2.544	2.497	2.655	2.594
tert-Butylbenzene		1.825	2.105	2.018	2.067	2.103
1,2,4-Trimethylbenzene		1.982	2.556	2.475	2.550	2.640
sec-Butylbenzene		2.300	2.816	2.739	2.762	2.809
p-Isopropyltoluene		1.920	2.338	2.401	2.413	2.500
n-Butylbenzene		2.000	2.140	2.132	2.120	2.199
Hexachlorobutadiene		0.281	0.322	0.303	0.305	0.327
Naphthalene		2.420	2.700	2.813	2.633	2.728
1,2,3-Trichlorobenzene		0.686	0.955	0.932	0.895	0.895
Dibromofluoromethane		1516	2474	5867	15313	59371
Toluene-d8		1.503	1.155	1.348	1.440	1.329
1,2-Dichloroethane-d4		1948	3378	7830	19646	71255
4-Bromofluorobenzene		3705	6215	11258	23787	86314

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

LAB FILE ID: RF50: U111508 RF100: U111509 RF150: U111510
RF200: U111511

COMPOUND	RF50	RF100	RF150	RF200
Bromochloromethane	0.294	0.285	0.271	0.271
2-Butanone	0.264	0.266	0.251	0.249
cis-1,3-Dichloropropene	238784	512945	784849	1067583
2-Hexanone	0.267	0.243	0.258	0.254
Dichlorodifluoromethane	172970	337382	508351	667949
1,3-Dichlorobenzene	1.439	1.434	1.426	1.415
Dibromochloromethane	155960	334001	509745	696655
Isopropylbenzene	1.551	1.531	1.488	1.492
1,2-Dibromoethane	0.382	0.383	0.367	0.364
4-Methyl-2-Pentanone	0.382	0.382	0.366	0.361
1,2-Dibromo-3-Chloropropane	34570	77043	120988	163858
trans-1,3-Dichloropropene	203307	440168	679057	919660
Freon TF	0.436	0.426	0.419	0.410
Carbon Disulfide	1.314	1.299	1.254	1.248
1,2,4-Trichlorobenzene	0.952	0.966	0.968	0.963
Styrene	1.109	1.100	1.059	1.059
2,2-Dichloropropane	0.528	0.560	0.564	0.580
1,1-Dichloropropene	0.431	0.426	0.417	0.411
Dibromomethane	0.216	0.219	0.212	0.212
1,3-Dichloropropane	0.644	0.638	0.608	0.605
1,2-Dichloroethane	0.453	0.454	0.433	0.429
1,2-Dichloropropane	0.323	0.325	0.313	0.312
1,1,2-Trichloroethane	0.301	0.300	0.283	0.286
1,2-Dichlorobenzene	1.440	1.428	1.392	1.379
1,1-Dichloroethane	0.900	0.880	0.834	0.836
Toluene	1.517	1.490	1.436	1.426
1,4-Dichlorobenzene	1.494	1.494	1.456	1.454
1,1,2,2-Tetrachloroethane	1.071	1.071	1.033	1.010
trans-1,2-Dichloroethene	0.511	0.496	0.476	0.480
1,1,1,2-Tetrachloroethane	145929	305424	468015	631462
Tetrachloroethene	0.282	0.278	0.274	0.274
1,1,1-Trichloroethane	0.782	0.809	0.794	0.809
Trichlorofluoromethane	0.853	0.829	0.796	0.798
o-Xylene	0.625	0.613	0.596	0.598
Acetone	102765	199248	287306	371722
Trichloroethene	0.340	0.338	0.330	0.332
Vinyl Chloride	0.626	0.617	0.592	0.589
Bromodichloromethane	187745	392803	600907	813877
Bromoform	96626	216725	341423	468271
Bromomethane	83889	170081		
Carbon Tetrachloride	182502	382517	595268	799370
Chlorobenzene	0.973	0.968	0.938	0.940
Chloroethane	0.400	0.401	0.392	0.374
Chloroform	0.999	0.993	0.952	0.959

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

LAB FILE ID: RF50: U111508 RF100: U111509 RF150: U111510
RF200: U111511

COMPOUND	RF50	RF100	RF150	RF200
Chloromethane	145589	274951	431092	557544
cis-1,2-Dichloroethene	0.628	0.617	0.592	0.600
1,1-Dichloroethene	0.464	0.455	0.437	0.436
Ethylbenzene	0.508	0.501	0.492	0.488
Methylene Chloride	0.547	0.538	0.508	0.507
m,p-Xylenes	0.633	0.629	0.609	0.608
Benzene	1.291	1.284	1.238	1.229
Bromobenzene	0.800	0.812	0.797	0.792
1,2,3-Trichloropropane	1.090	1.136	1.142	1.130
n-Propylbenzene	3.531	3.532	3.463	3.377
2-Chlorotoluene	2.201	2.187	2.135	2.110
1,3,5-Trimethylbenzene	2.546	2.544	2.499	2.449
4-Chlorotoluene	2.554	2.559	2.481	2.450
tert-Butylbenzene	2.152	2.160	2.127	2.093
1,2,4-Trimethylbenzene	2.652	2.626	2.566	2.513
sec-Butylbenzene	2.948	2.958	2.930	2.848
p-Isopropyltoluene	2.604	2.636	2.591	2.527
n-Butylbenzene	2.309	2.316	2.259	2.188
Hexachlorobutadiene	0.362	0.382	0.394	0.384
Naphthalene	2.851	2.911	2.898	2.839
1,2,3-Trichlorobenzene	0.909	0.924	0.935	0.927
Dibromofluoromethane	146958	294099	451793	584069
Toluene-d8	1.272	1.254	1.230	1.180
1,2-Dichloroethane-d4	174378	347770	519537	675186
4-Bromofluorobenzene	212217	425707	646932	842976

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	AVRG		0.28203061		9.198	20.000
2-Butanone	AVRG		0.26145057		5.850	20.000
cis-1,3-Dichloropropene	LINR	3.487e-002	1.83134486		0.9996162	0.9900000
2-Hexanone	AVRG		0.23735195		14.451	20.000
Dichlorodifluoromethane	LINR	-1.42e-002	1.69951750		0.9995681	0.9900000
1,3-Dichlorobenzene	AVRG		1.44005923		5.076	20.000
Dibromochloromethane	LINR	2.999e-002	2.57567744		0.9996307	0.9900000
Isopropylbenzene	AVRG		1.46892443		7.590	20.000
1,2-Dibromoethane	AVRG		0.35789930		10.224	20.000
4-Methyl-2-Pentanone	AVRG		0.36009677		6.532	20.000
1,2-Dibromo-3-Chloropropane	LINR	4.869e-002	5.46522257		0.9992261	0.9900000
trans-1,3-Dichloropropene	LINR	4.225e-002	2.11997871		0.9994871	0.9900000
Freon TF	AVRG		0.41095954		8.847	20.000
Carbon Disulfide	AVRG		1.23725488		6.898	20.000
1,2,4-Trichlorobenzene	AVRG		0.92028728		6.006	20.000
Styrene	AVRG		1.02517757		10.329	20.000
2,2-Dichloropropane	AVRG		0.50343025		11.334	20.000
1,1-Dichloropropene	AVRG		0.41059421		8.131	20.000
Dibromomethane	AVRG		0.21458337		3.716	20.000
1,3-Dichloropropane	AVRG		0.62780551		8.738	20.000
1,2-Dichloroethane	AVRG		0.45105608		8.724	20.000
1,2-Dichloropropane	AVRG		0.31462191		8.382	20.000
1,1,2-Trichloroethane	AVRG		0.29462567		6.763	20.000
1,2-Dichlorobenzene	AVRG		1.40999862		8.162	20.000
1,1-Dichloroethane	AVRG		0.88828730		7.312	20.000
Toluene	AVRG		1.49582459		5.150	20.000
1,4-Dichlorobenzene	AVRG		1.48179325		7.318	20.000
1,1,2,2-Tetrachloroethane	AVRG		1.05239113		7.961	20.000
trans-1,2-Dichloroethene	AVRG		0.50286983		3.614	20.000
1,1,1,2-Tetrachloroethane	LINR	1.65e-002	2.83730731		0.9998992	0.9900000
Tetrachloroethene	AVRG		0.28198562		4.841	20.000
1,1,1-Trichloroethane	AVRG		0.71976811		12.476	20.000
Trichlorofluoromethane	AVRG		0.80634694		8.275	20.000
o-Xylene	AVRG		0.59701249		7.174	20.000
Acetone	LINR	-0.1327078	6.11155985		0.9980573	0.9900000
Trichloroethene	AVRG		0.32664734		6.189	20.000
Vinyl Chloride	AVRG		0.60470714		4.166	20.000
Bromodichloromethane	LINR	2.074e-002	2.40666475		0.9998321	0.9900000
Bromoform	2ORDR	2.858e-002	4.22513840	-0.4148270	0.9996537	0.9900000
Bromomethane	LINR	-1.03e-002	3.27907024		0.9997756	0.9900000
Carbon Tetrachloride	LINR	3.012e-002	2.44047659		0.9997197	0.9900000
Chlorobenzene	AVRG		0.97474921		4.490	20.000
Chloroethane	AVRG		0.41373377		9.243	20.000
Chloroform	AVRG		0.96311174		8.652	20.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date(s): 11/15/21 11/15/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1352 1734

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloromethane	LINR	-1.17e-002	2.03080489		0.9996091	0.9900000
cis-1,2-Dichloroethene	AVRG		0.61087669		6.500	20.000
1,1-Dichloroethene	AVRG		0.44578296		6.832	20.000
Ethylbenzene	AVRG		0.48784043		6.585	20.000
Methylene Chloride	AVRG		0.58922292		12.471	20.000
m,p-Xylenes	AVRG		0.60276579		8.439	20.000
Benzene	AVRG		1.26430019		6.460	20.000
Bromobenzene	AVRG		0.77538721		10.169	20.000
1,2,3-Trichloropropane	AVRG		1.03329000		10.902	20.000
n-Propylbenzene	AVRG		3.39600934		7.236	20.000
2-Chlorotoluene	AVRG		2.15306767		6.882	20.000
1,3,5-Trimethylbenzene	AVRG		2.45827404		5.294	20.000
4-Chlorotoluene	AVRG		2.49516740		6.122	20.000
tert-Butylbenzene	AVRG		2.07221419		4.925	20.000
1,2,4-Trimethylbenzene	AVRG		2.50663317		8.196	20.000
sec-Butylbenzene	AVRG		2.79010830		7.172	20.000
p-Isopropyltoluene	AVRG		2.43660884		8.975	20.000
n-Butylbenzene	AVRG		2.18473949		4.610	20.000
Hexachlorobutadiene	AVRG		0.34013347		12.120	20.000
Naphthalene	AVRG		2.75488767		5.678	20.000
1,2,3-Trichlorobenzene	AVRG		0.89541206		9.048	20.000
Dibromofluoromethane	LINR	-1.72e-002	1.93811970		0.9996464	0.9900000
Toluene-d8	AVRG		1.30132427		8.896	20.000
1,2-Dichloroethane-d4	LINR	-3.e-002	1.67917269		0.9992844	0.9900000
4-Bromofluorobenzene	LINR	-2.69e-002	2.11455518		0.9996403	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111501.D Page 1

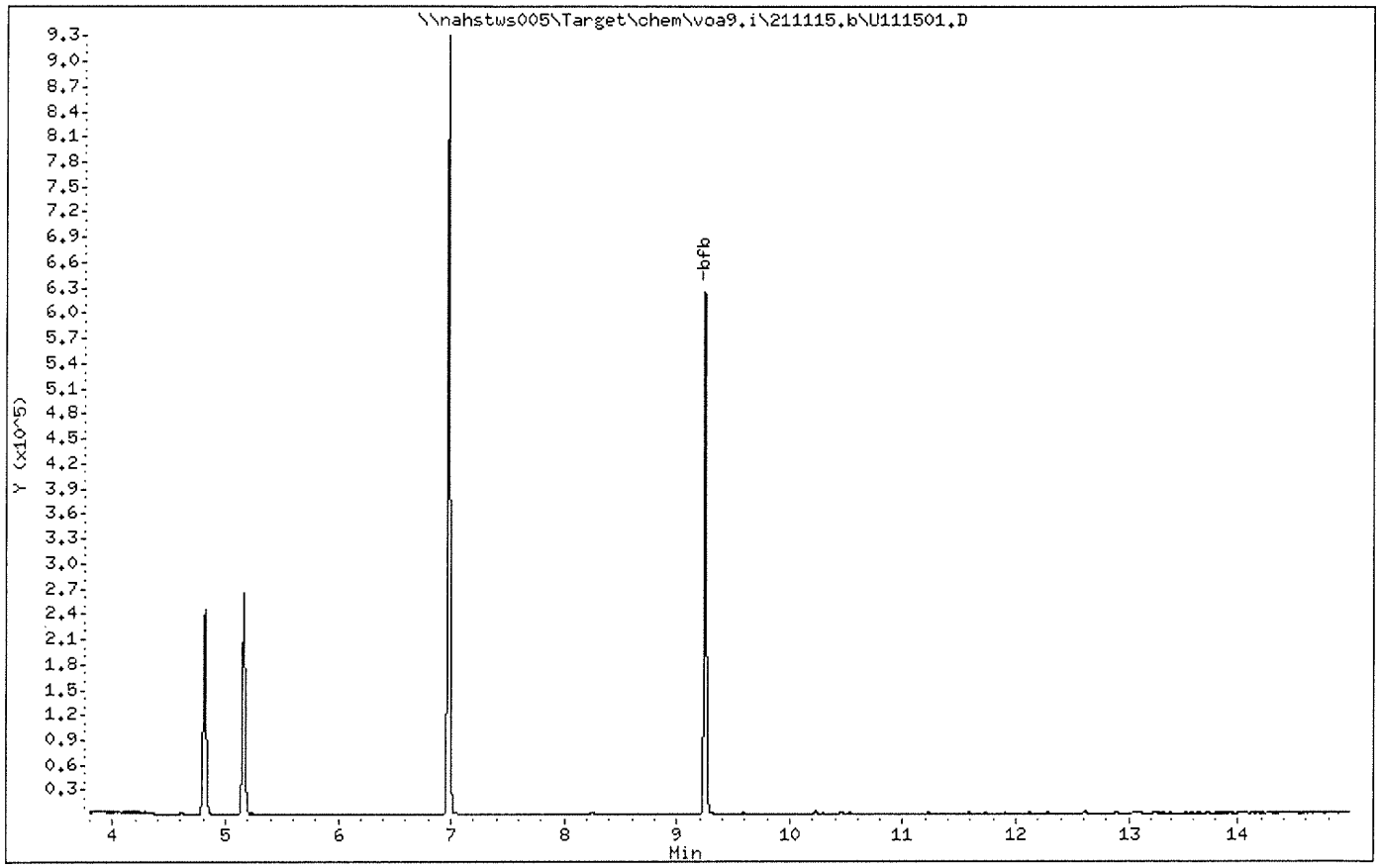
Date : 15-NOV-2021 13:30

Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111501.D Page 2

Date : 15-NOV-2021 13:30

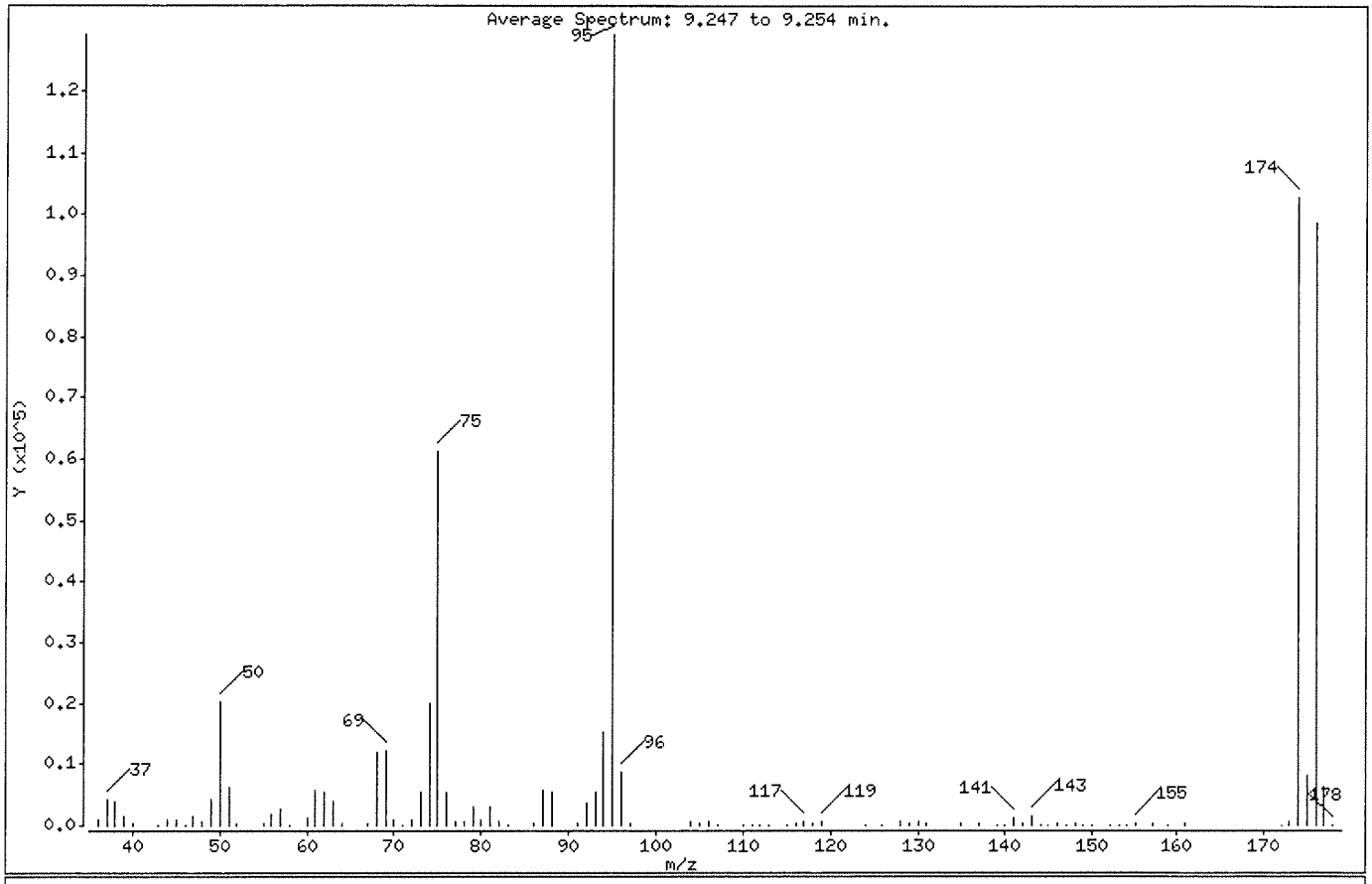
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.55
75	30.00 - 60.00% of mass 95	47.37
96	5.00 - 9.00% of mass 95	6.69
173	Less than 2.00% of mass 174	0.38 (0.48)
174	Greater than 50.00% of mass 95	79.51
175	5.00 - 9.00% of mass 174	6.24 (7.85)
176	95.00 - 101.00% of mass 174	76.33 (96.00)
177	5.00 - 9.00% of mass 176	4.91 (6.44)

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111501.D

Date : 15-NOV-2021 13:30

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U111501.D
Spectrum: Average Spectrum: 9.247 to 9.254 min.
Location of Maximum: 95.00
Number of points: 98

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	941	68.00	11785	97.00	266	142.00	180
37.00	4243	69.00	12077	104.00	559	143.00	1387
38.00	3806	70.00	924	105.00	203	144.00	63
39.00	1546	71.00	37	106.00	485	145.00	121
40.00	316	72.00	753	107.00	107	146.00	201
43.00	109	73.00	5407	110.00	72	147.00	87
44.00	891	74.00	19864	111.00	23	148.00	284
45.00	980	75.00	61208	112.00	76	149.00	97
46.00	50	76.00	5285	113.00	60	150.00	102
47.00	1494	77.00	600	115.00	127	152.00	45
48.00	586	78.00	574	116.00	421	153.00	86
49.00	4230	79.00	3048	117.00	726	154.00	90
50.00	20096	80.00	898	118.00	405	155.00	302
51.00	6128	81.00	2855	119.00	658	157.00	257
52.00	336	82.00	628	124.00	99	159.00	130
55.00	350	83.00	36	126.00	83	161.00	171
56.00	1670	86.00	153	128.00	509	172.00	31
57.00	2712	87.00	5639	129.00	222	173.00	488
58.00	119	88.00	5327	130.00	489	174.00	102728
60.00	1096	91.00	437	131.00	196	175.00	8062
61.00	5540	92.00	3482	135.00	192	176.00	98616
62.00	5258	93.00	5420	137.00	195	177.00	6348
63.00	3781	94.00	15052	139.00	50	178.00	148
64.00	320	95.00	129208	140.00	92		
67.00	367	96.00	8638	141.00	1285		

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 15-NOV-2021 13:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	322381	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.617	(1.000)	561409	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	505816	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	250052	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	1798	0.25000	(Ta)
$ 69 4-Bromofluorobenzene	95	9.250	9.250	(1.122)	4568	0.25000	(a)
$ 30 Dibromofluoromethane	113	4.823	4.823	(0.988)	1512	0.25000	
$ 48 Toluene-d8	98	6.982	6.982	(0.847)	5872	0.25000	0.44(a)
31 1,1,1-Trichloroethane	97	4.815	4.815	(0.986)	1167	0.25000	0.25(a)
57 1,2-Dibromoethane	107	7.844	7.844	(0.952)	944	0.25000	0.26(a)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	632	0.25000	1.00(a)
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	1258	0.25000	0.23(aM)
53 1,1,2-Trichloroethane	83	7.409	7.409	(0.899)	870	0.25000	0.29(a)
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	1954	0.25000	0.34(aM)
11 1,1-Dichloroethene	96	2.394	2.394	(0.490)	913	0.25000	0.31(aM)
32 1,1-Dichloropropene	75	4.991	4.991	(0.889)	1396	0.25000	0.30(a)
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	1206	0.25000	0.26(aM)
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	1328	0.25000	0.25(a)
90 1,2,4-Trichlorobenzene	180	11.911	11.911	(1.165)	1396	0.25000	0.30(aM)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	3727	0.25000	0.29(a)
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	1995	0.25000	0.28(a)
33 1,2-Dichloroethane	62	5.246	5.246	(0.934)	1530	0.25000	0.30(aM)

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D Page 2
Report Date: 22-Dec-2021 13:55

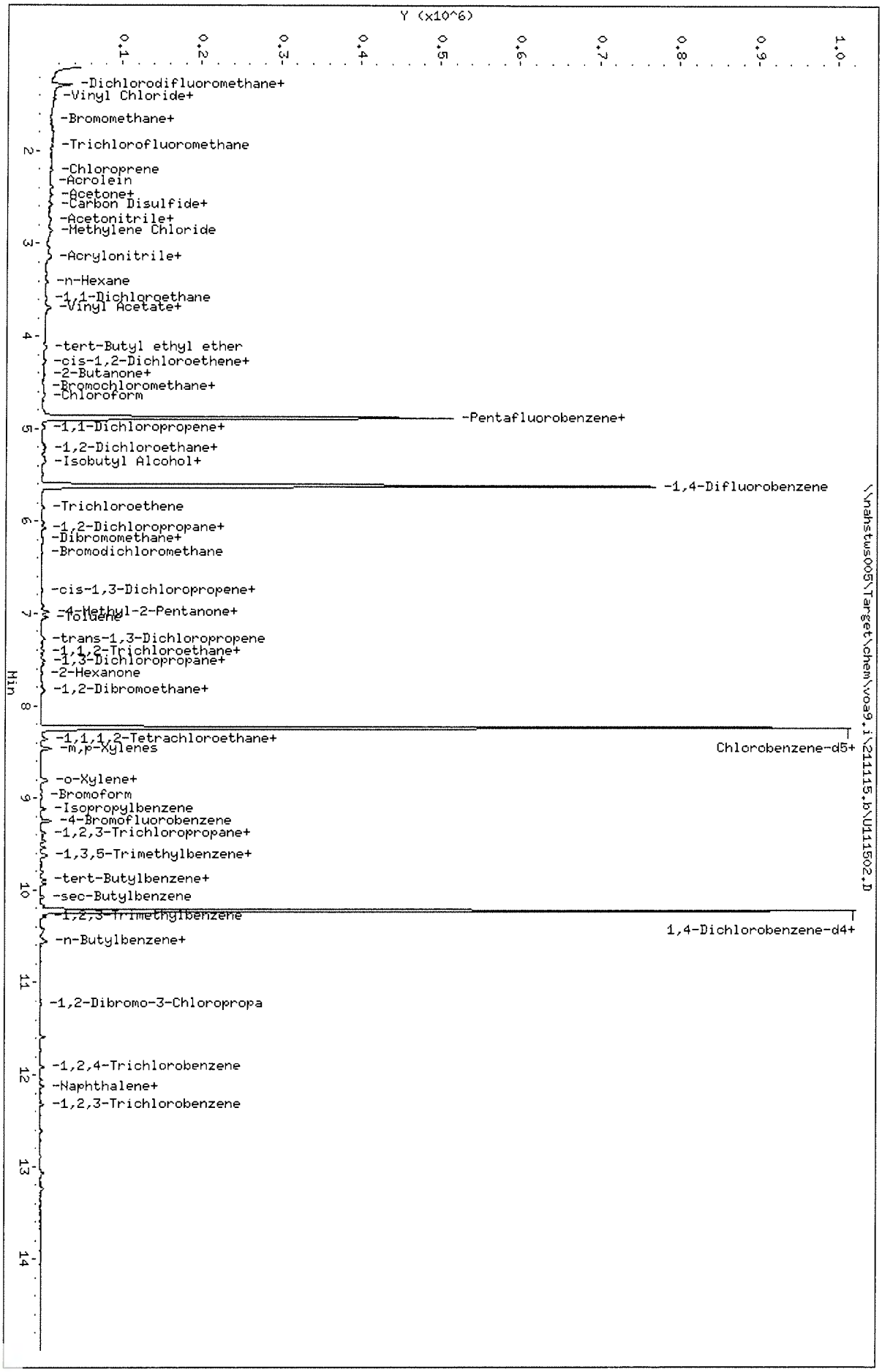
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	966	0.25000	0.27(a)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	2005	0.25000	0.27(a)
54 1,3-Dichloropropane	76	7.555	7.555	(0.917)	2015	0.25000	0.31(a)
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	3805	0.25000	0.30(a)
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	2212	0.25000	0.29(a)
89 1,2-Dibromo-3-Chloropropane	155	11.225	11.225	(1.098)	68	0.25000	2.50(aM)
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	1106	0.25000	0.34(aM)
24 2-Butanone	43	4.350	4.350	(0.891)	1658	0.50000	0.98(aM)
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	3378	0.25000	0.31(a)
52 2-Hexanone	43	7.649	7.649	(0.928)	1299	0.50000	0.54(TaH)
77 4-Chlorotoluene	91	9.636	9.636	(0.942)	3484	0.25000	0.27(a)
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	3158	0.25000	0.25(a)
10 Acetone	43	2.476	2.476	(0.507)	2903	0.50000	(a)
37 Benzene	78	5.205	5.205	(0.927)	4360	0.25000	0.30(a)
74 Bromobenzene	156	9.377	9.377	(0.917)	1019	0.25000	0.26(a)
29 Bromochloromethane	128	4.542	4.542	(0.930)	627	0.25000	0.34(a)
39 Bromodichloromethane	83	6.341	6.341	(1.129)	1011	0.25000	1.25(aM)
66 Bromoform	173	8.972	8.972	(1.089)	374	0.25000	1.58(aM)
6 Bromomethane	94	1.663	1.663	(0.341)	802	0.25000	(a)
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	989	0.25000	1.72(a)
59 Chlorobenzene	112	8.268	8.268	(1.003)	3108	0.25000	0.31(a)
7 Chloroethane	64	1.749	1.749	(0.358)	1007	0.25000	0.37(aM)
28 Chloroform	83	4.647	4.647	(0.952)	1934	0.25000	0.31(a)
3 Chloromethane	50	1.336	1.336	(0.274)	967	0.25000	(aM)
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	1143	0.25000	0.29(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.839)	2324	0.50000	0.63(a)
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	1036	0.25000	1.91(aM)
44 Dibromomethane	93	6.180	6.180	(1.100)	727	0.25000	0.30(a)
2 Dichlorodifluoromethane	85	1.198	1.198	(0.245)	1178	0.25000	(aM)
61 Ethylbenzene	106	8.361	8.361	(1.015)	1495	0.25000	0.30(a)
91 Hexachlorobutadiene	225	12.050	12.050	(1.179)	504	0.25000	0.29(aM)
62 m,p-Xylenes	106	8.463	8.463	(1.027)	3523	0.50000	0.57(a)
64 Styrene	104	8.819	8.819	(1.070)	2661	0.25000	0.25(a)
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	2917	0.25000	0.28(a)
17 Methylene Chloride	84	2.858	2.858	(0.585)	1637	0.25000	0.43(a)
87 n-Butylbenzene	91	10.547	10.547	(1.032)	3648	0.25000	0.33(a)
73 n-Propylbenzene	91	9.467	9.467	(0.926)	5107	0.25000	0.30(a)
92 Naphthalene	128	12.125	12.125	(1.186)	4226	0.25000	0.30(a)
63 o-Xylene	106	8.804	8.804	(1.068)	1735	0.25000	0.28(a)
81 sec-Butylbenzene	105	10.075	10.075	(0.985)	3944	0.25000	0.28(a)
55 Dibromochloromethane	129	7.750	7.750	(0.940)	615	0.25000	1.65(aM)
56 Tetrachloroethene	164	7.511	7.511	(0.911)	975	0.25000	0.34(a)
50 Toluene	91	7.038	7.038	(0.854)	4969	0.25000	0.32(a)
19 Carbon Disulfide	76	2.581	2.581	(0.529)	4854	0.50000	0.60(a)
20 trans-1,2-Dichloroethene	96	3.128	3.128	(0.641)	992	0.25000	0.30(a)
38 Trichloroethene	130	5.850	5.850	(1.041)	1142	0.25000	0.31(a)
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	1441	0.25000	0.27(a)
5 Vinyl Chloride	62	1.411	1.411	(0.289)	1216	0.25000	0.31(a)
138 Freon TF	101	2.390	2.390	(0.489)	676	0.25000	0.25(a)
67 Isopropylbenzene	105	9.115	9.115	(1.106)	4114	0.25000	0.27(a)
51 trans-1,3-Dichloropropene	75	7.256	7.256	(1.292)	656	0.25000	2.23(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

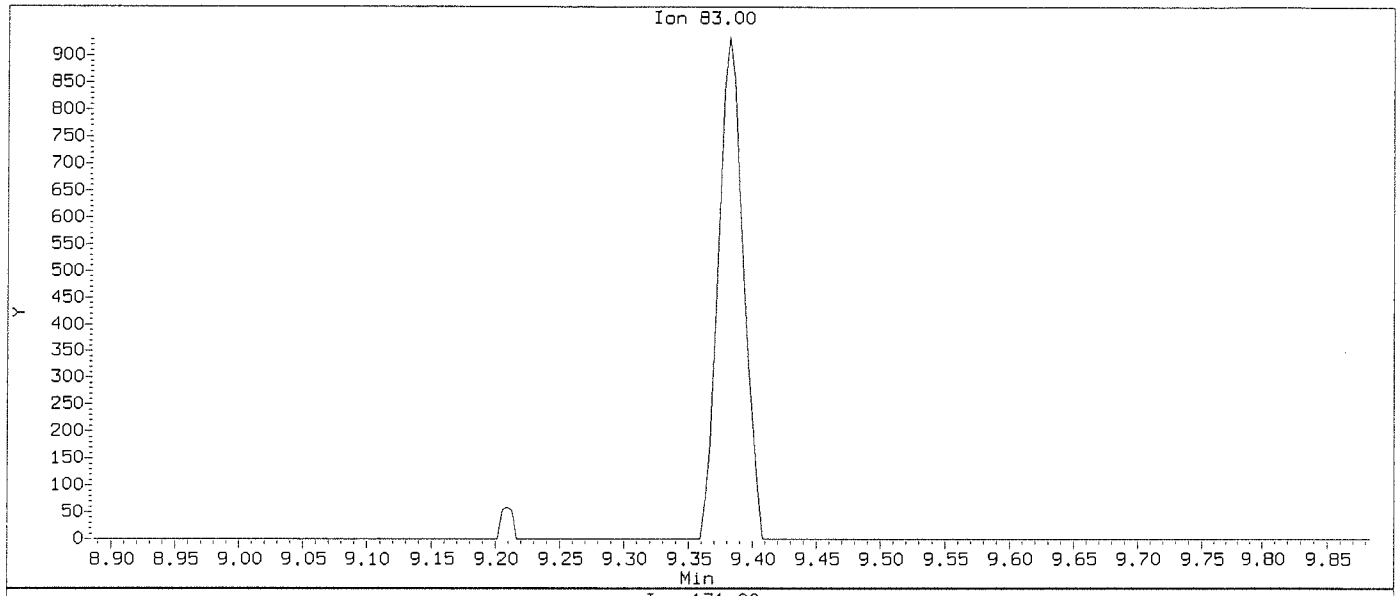
Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D
Date : 15-NOV-2021 13:52
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

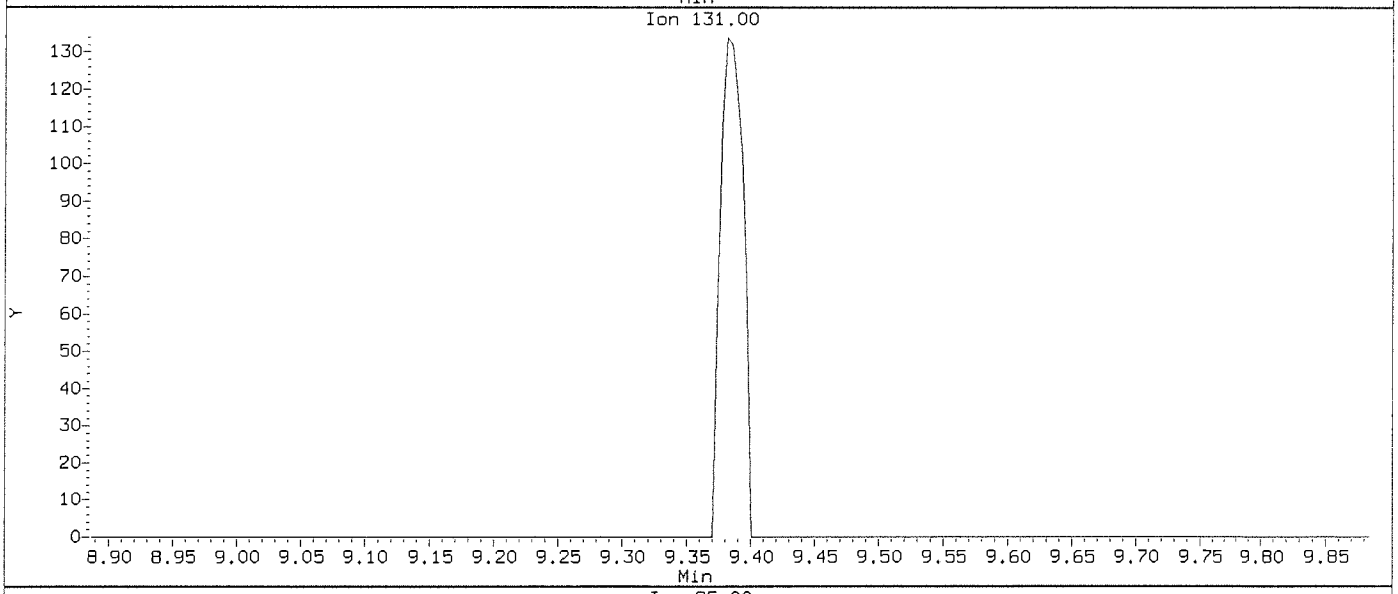
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

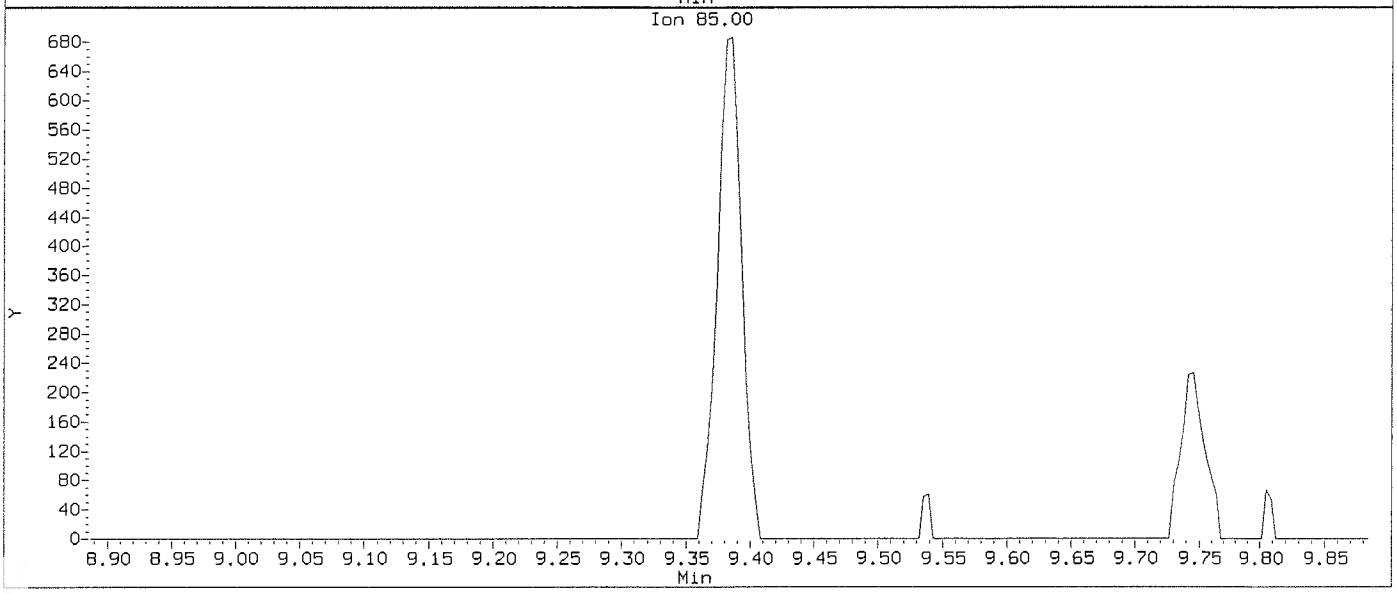


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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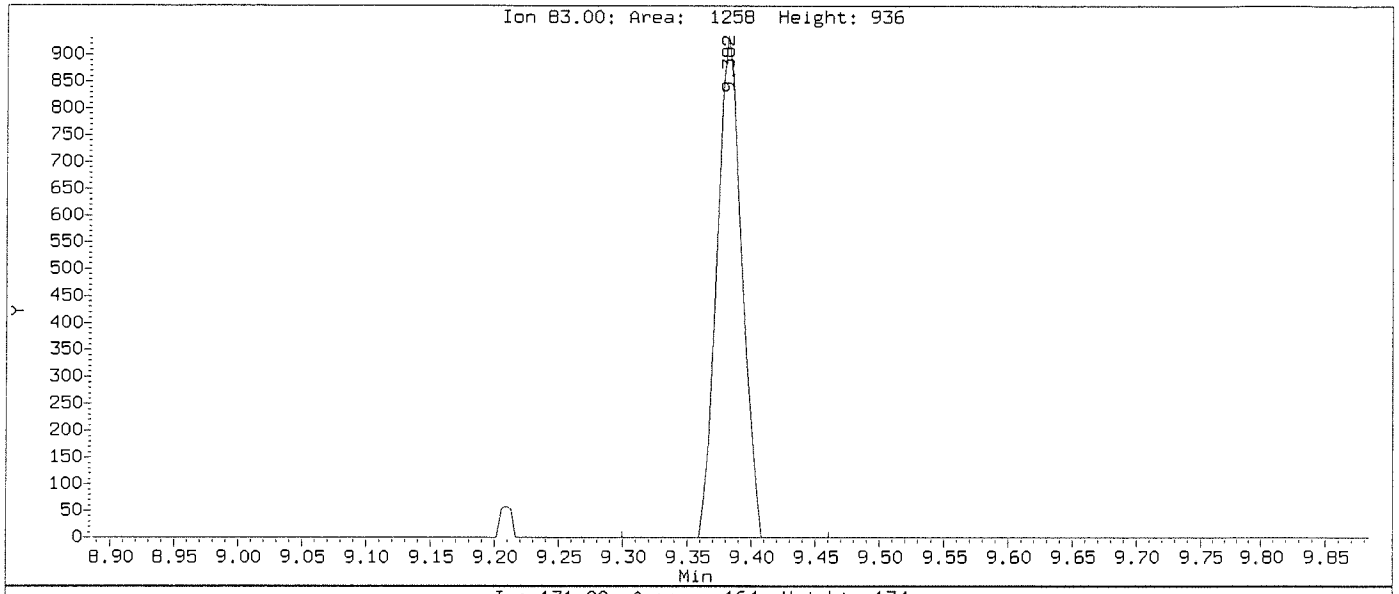
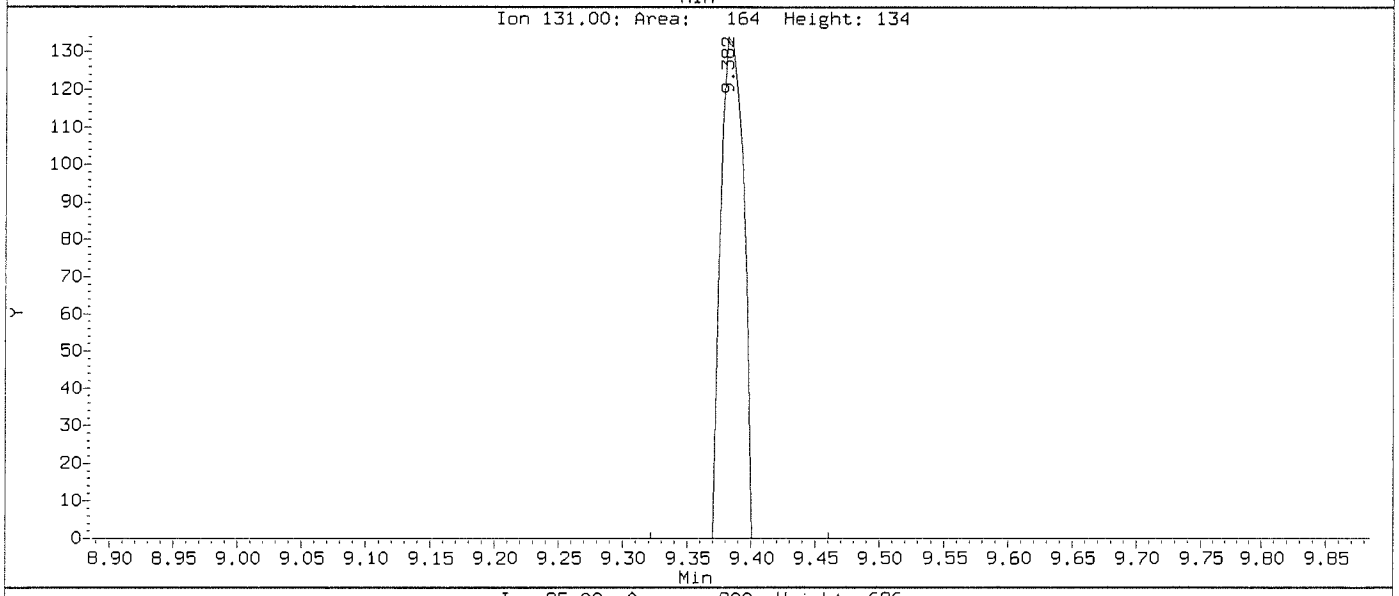
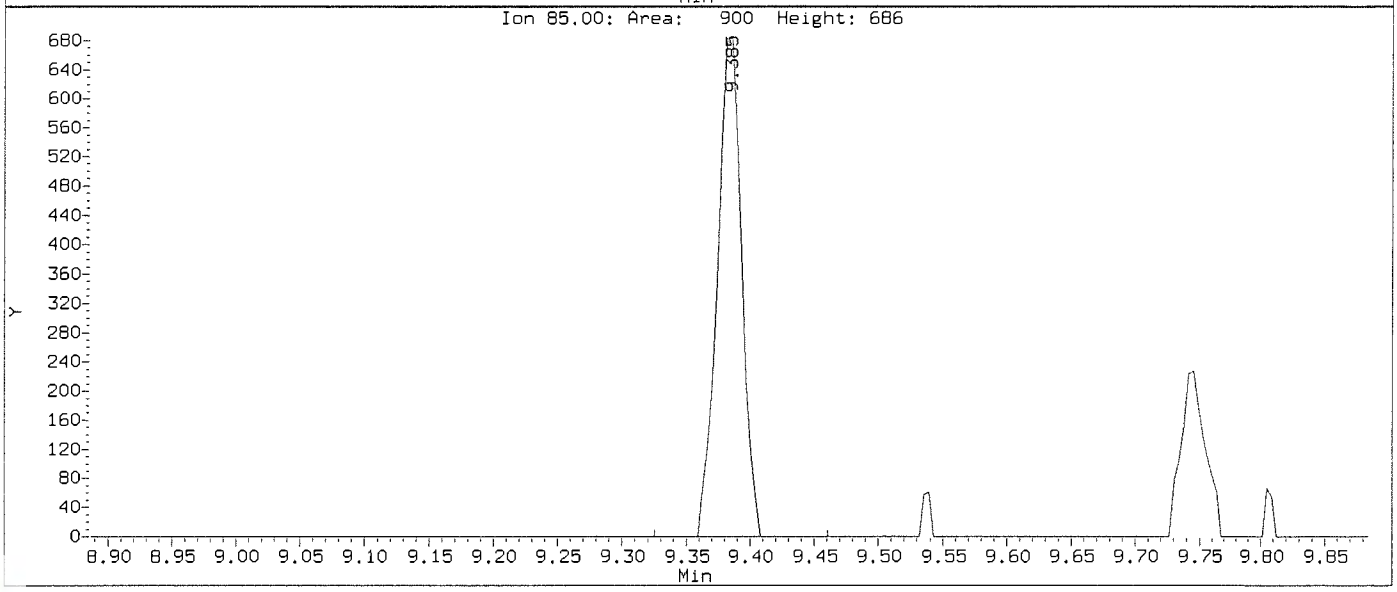
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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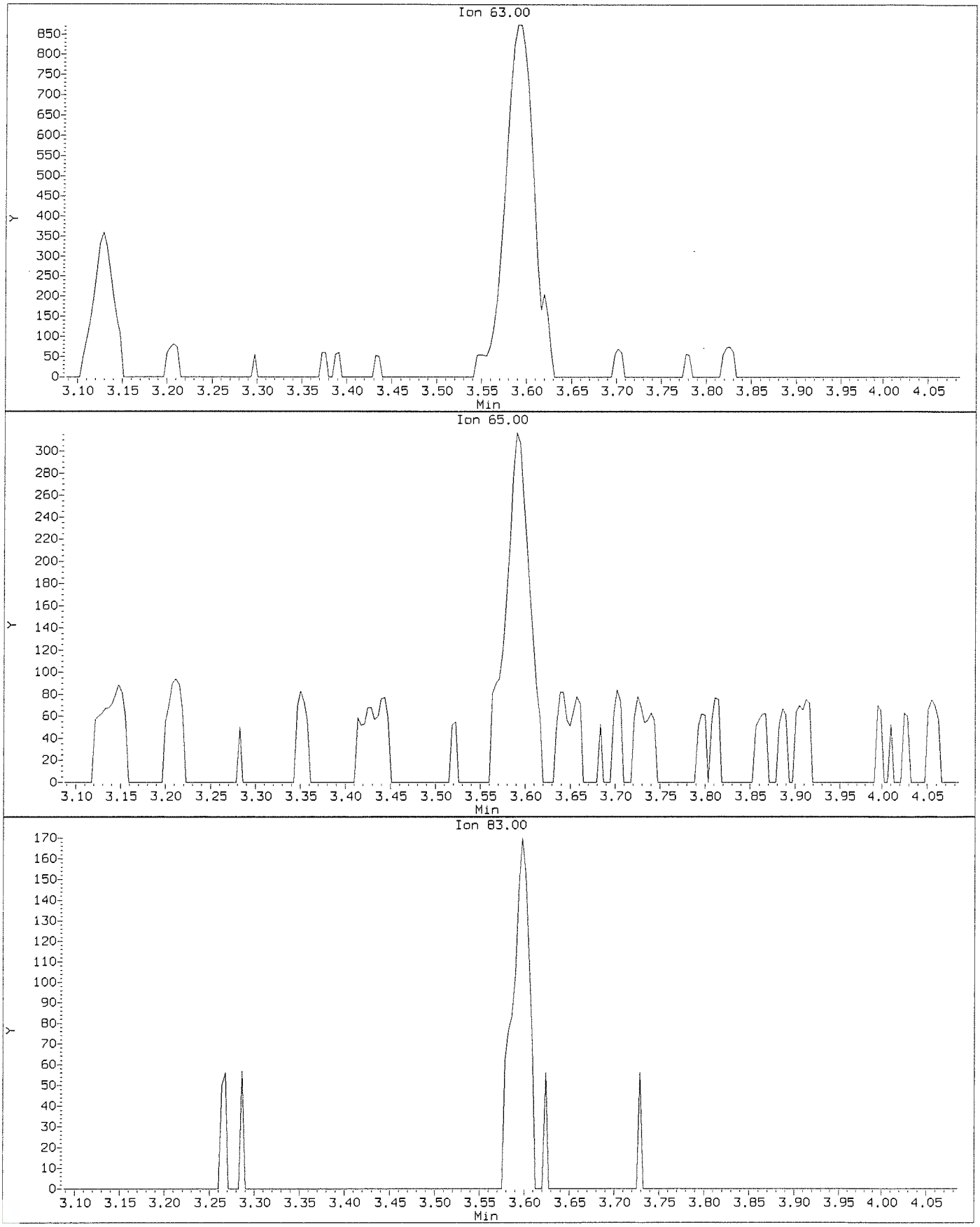
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1-Dichloroethane
CAS Number: 75-34-3



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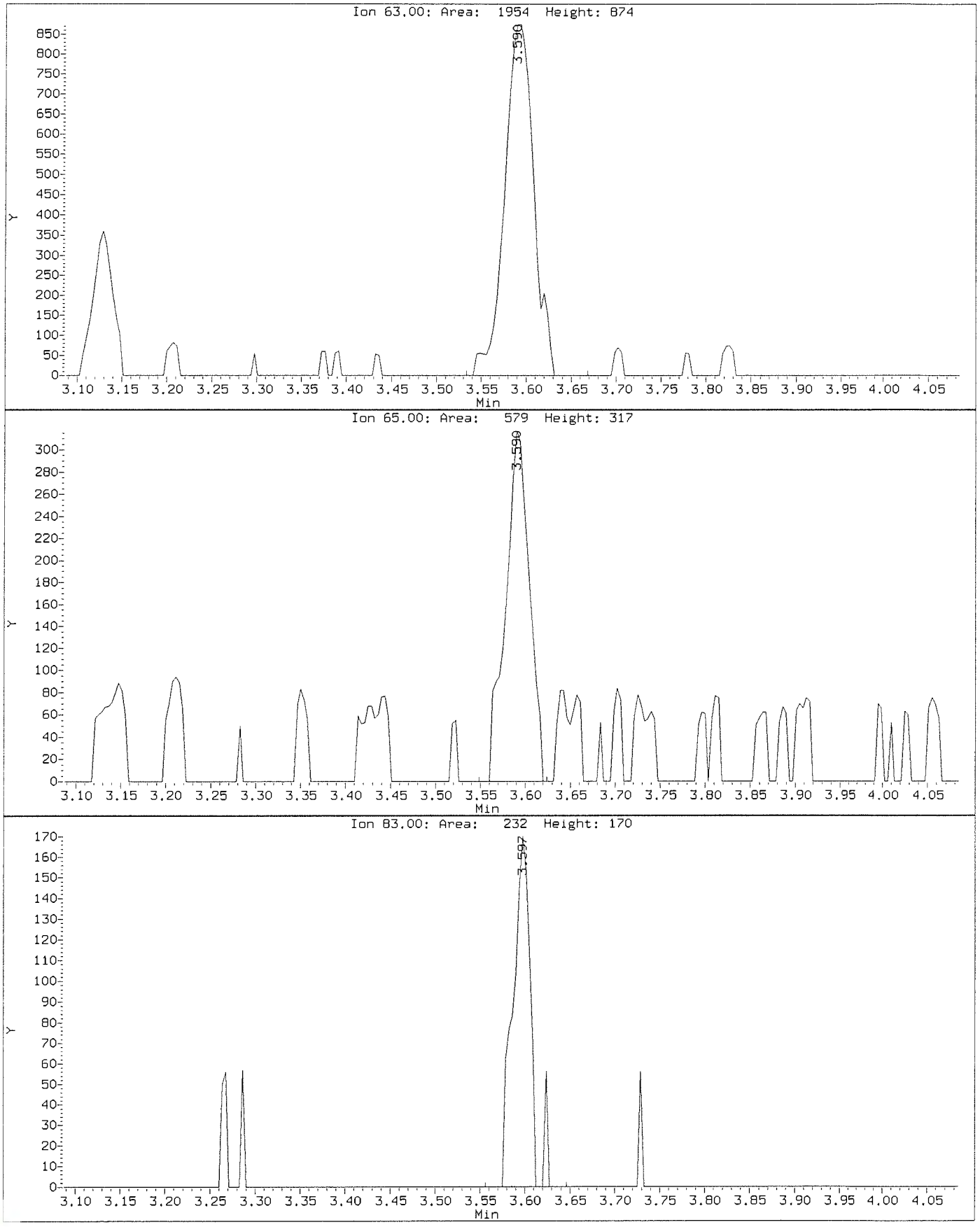
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1-Dichloroethane
CAS Number: 75-34-3



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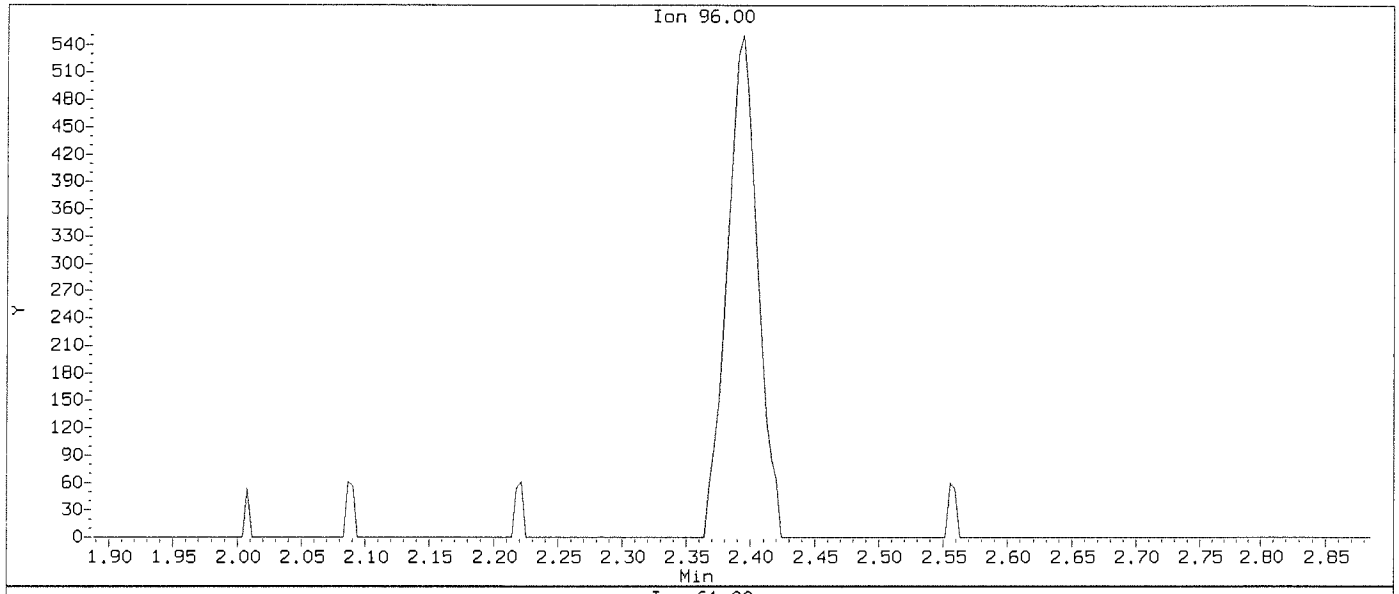
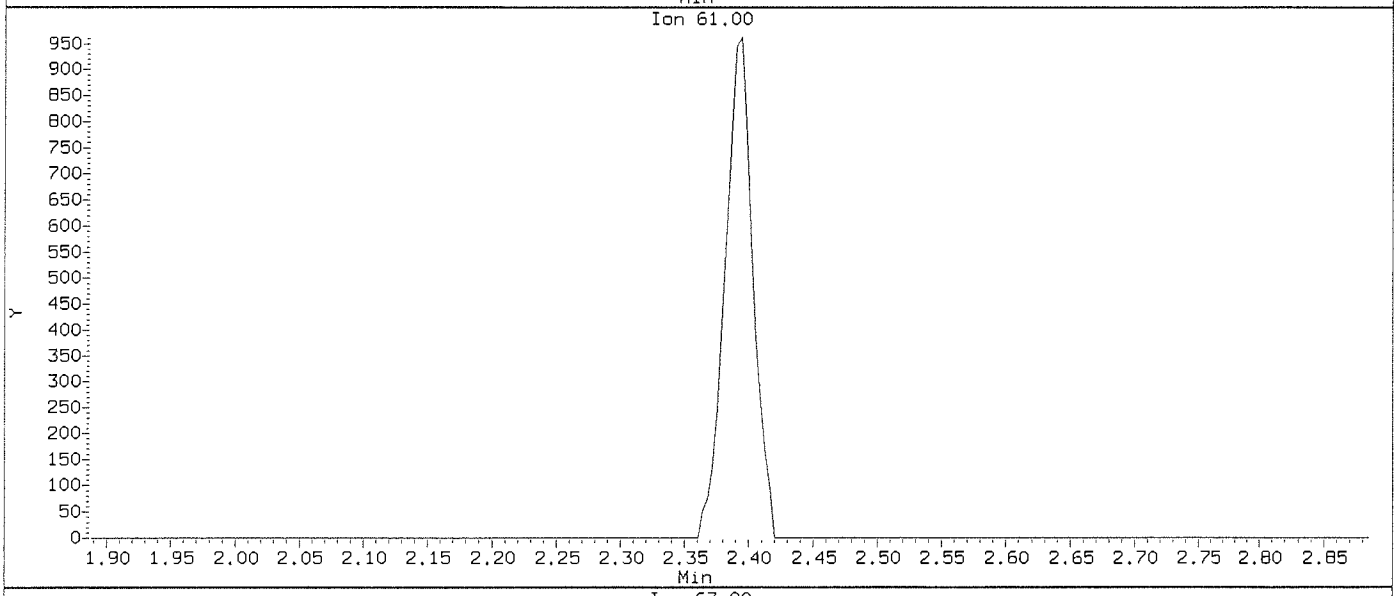
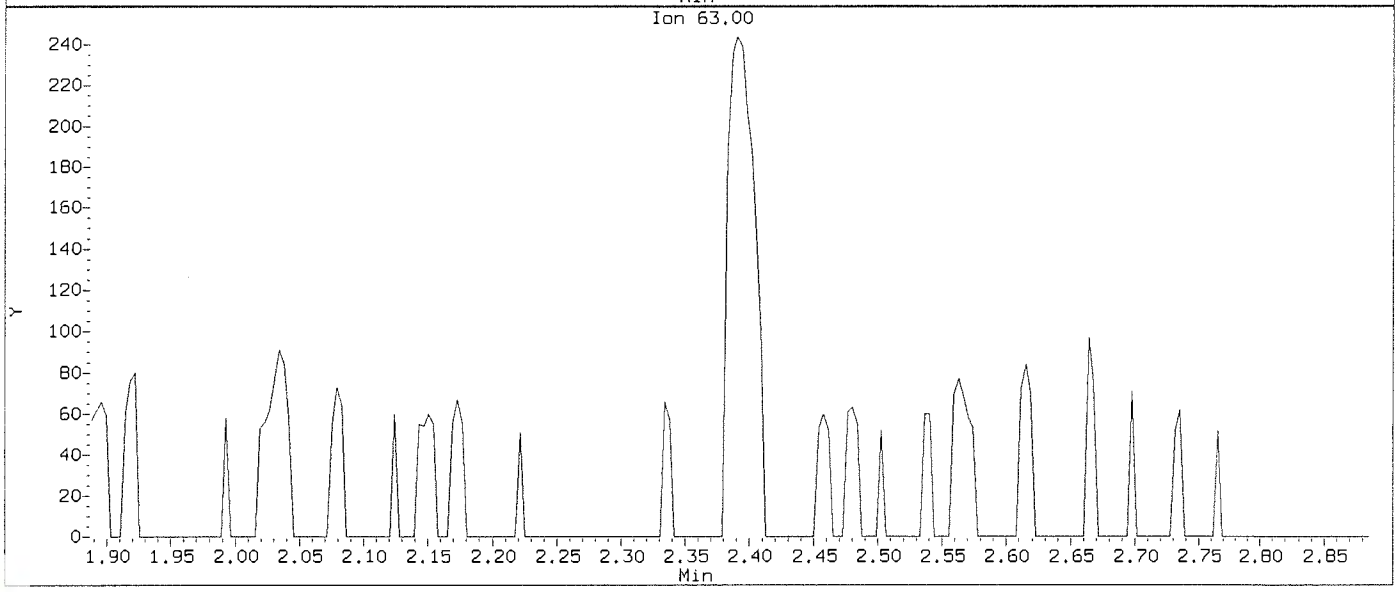
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4







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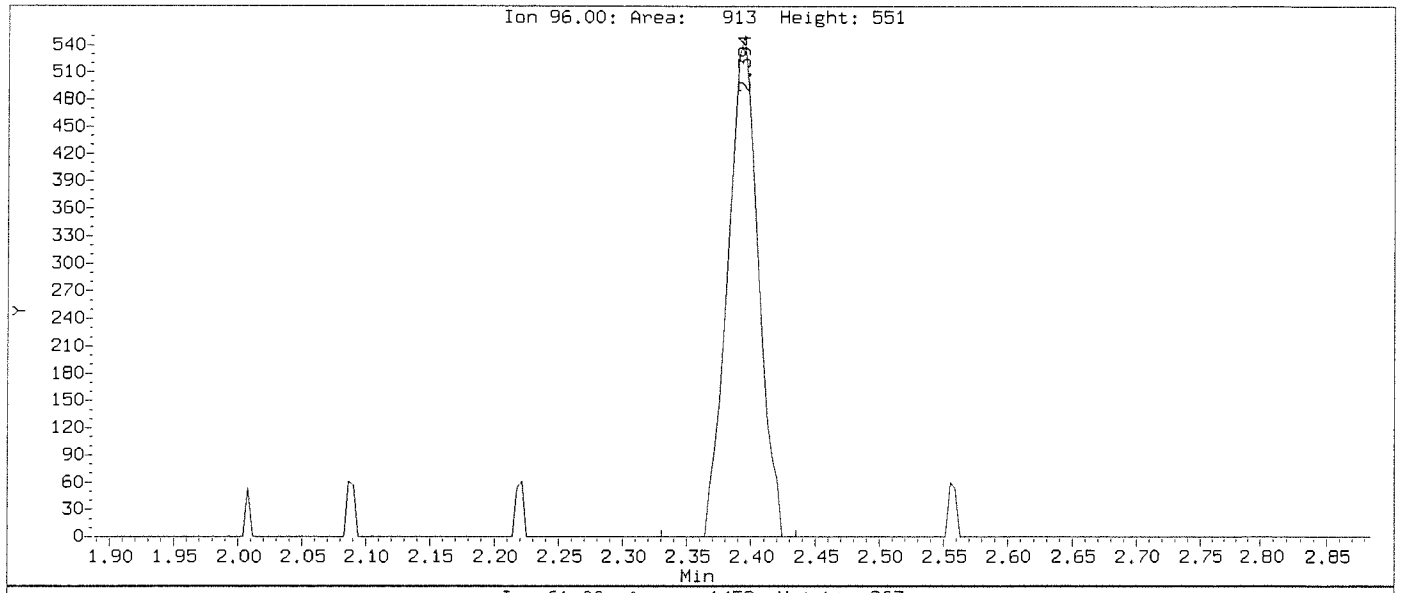
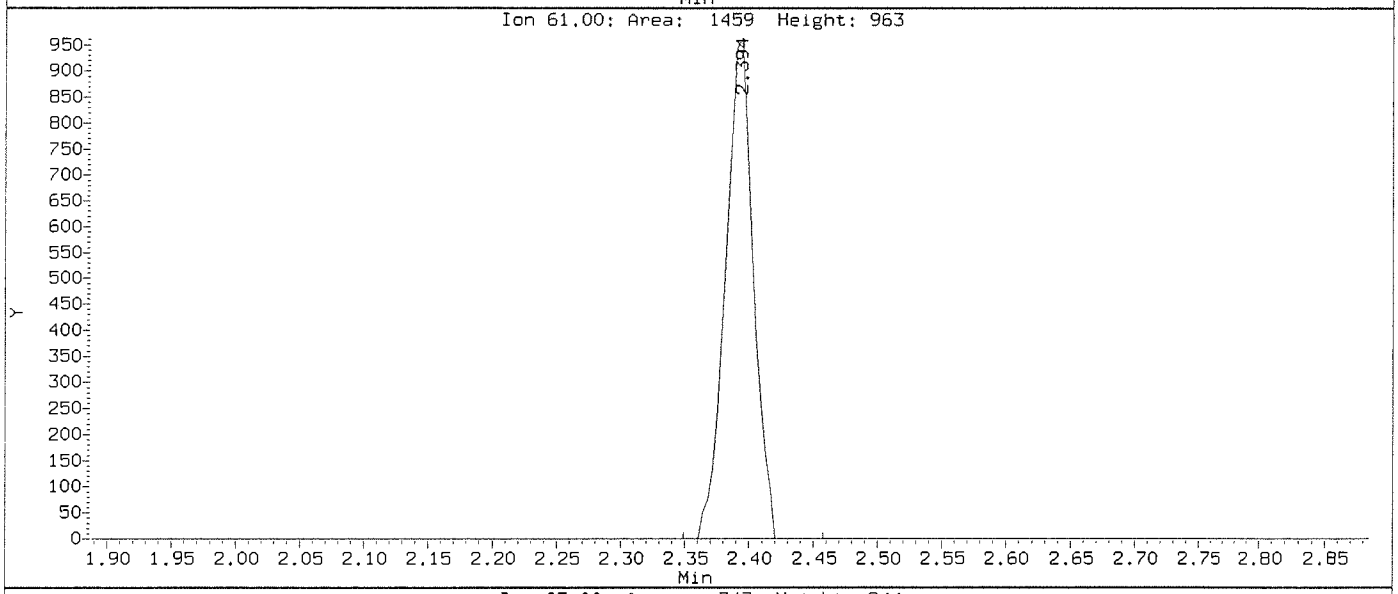
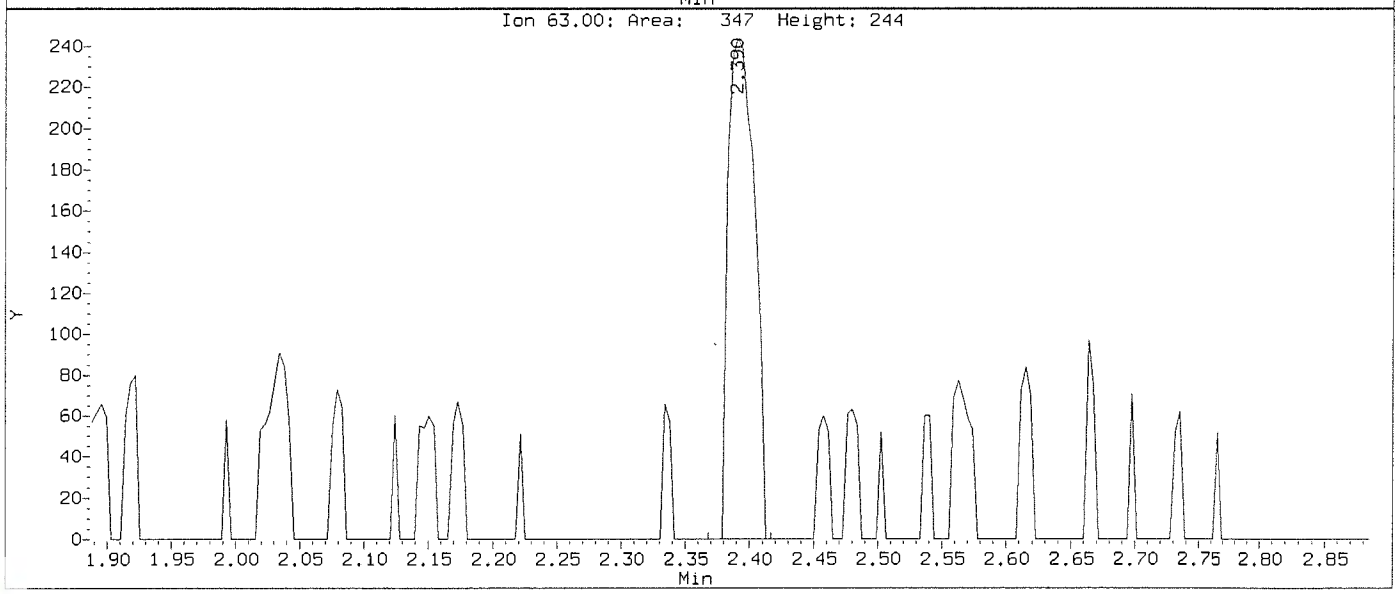
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4







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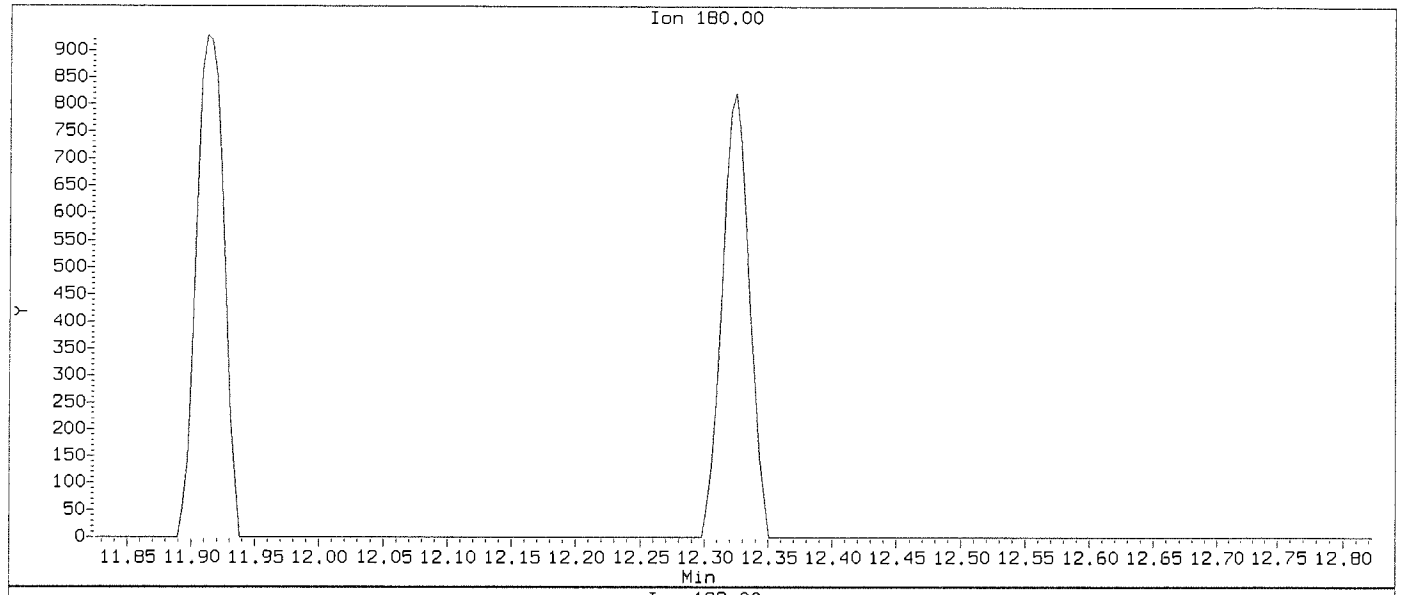
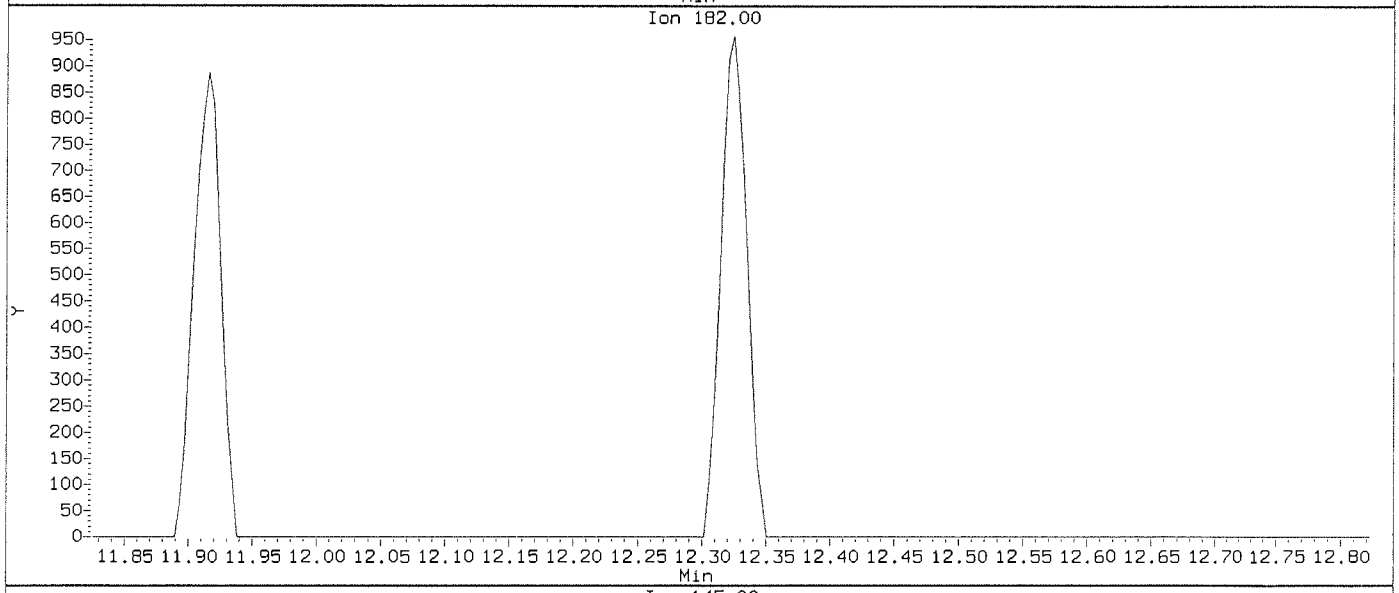
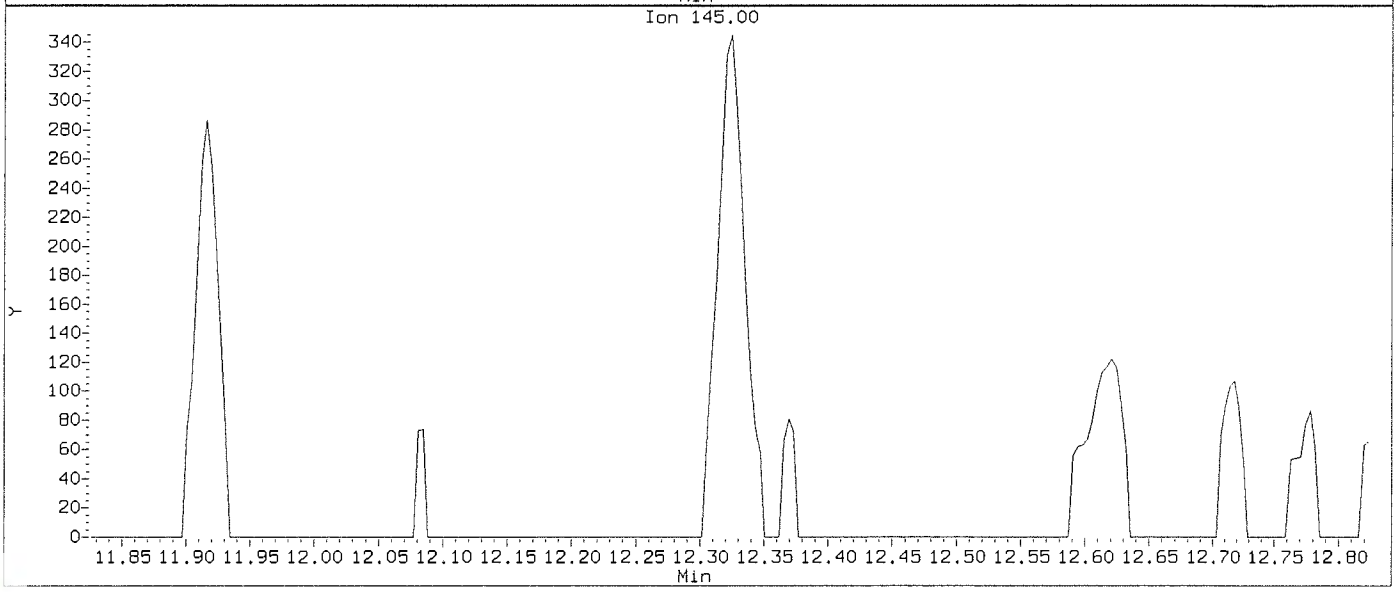
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6







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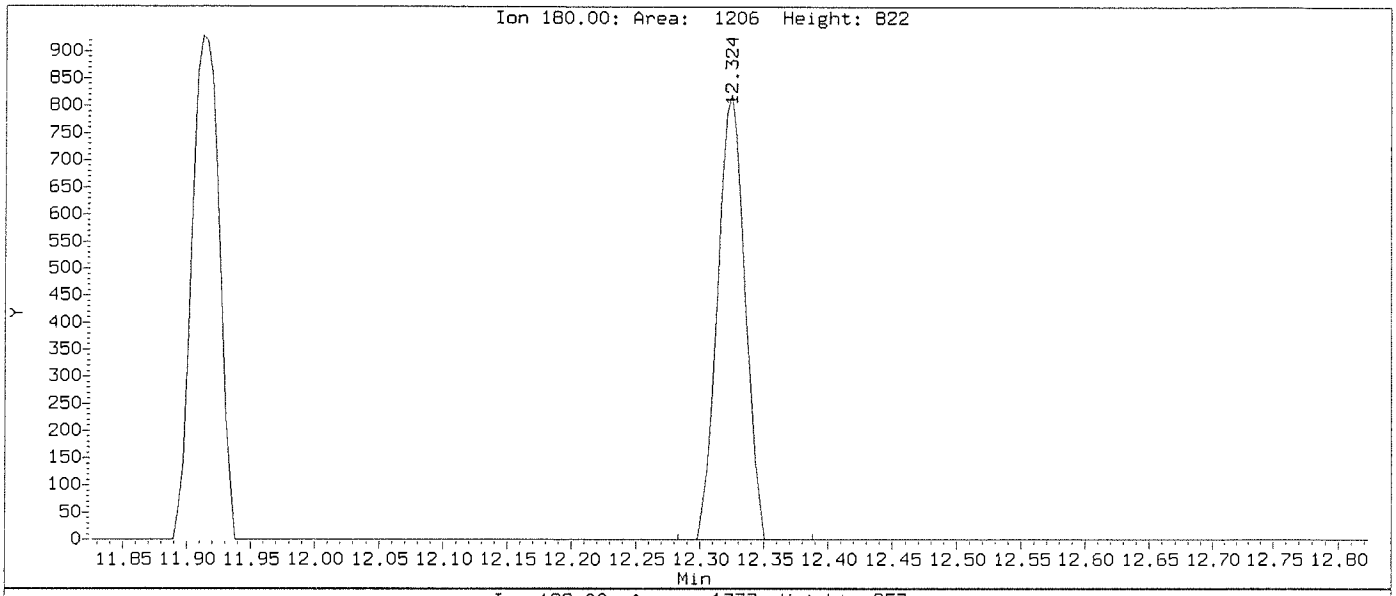
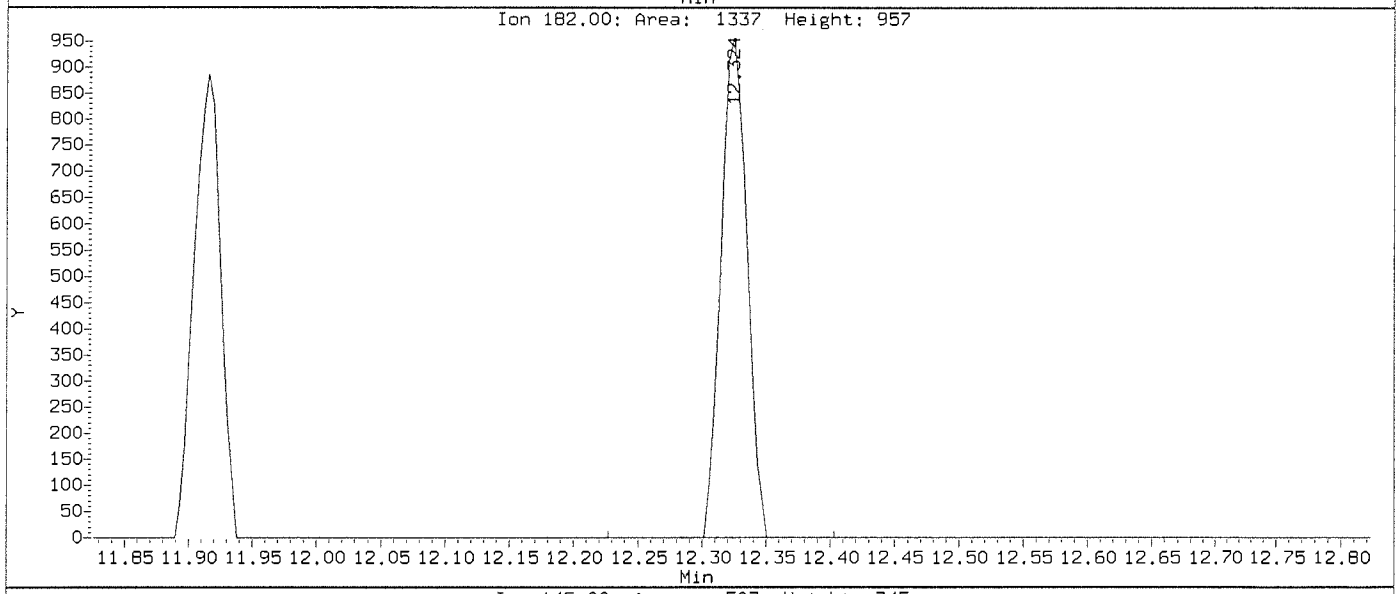
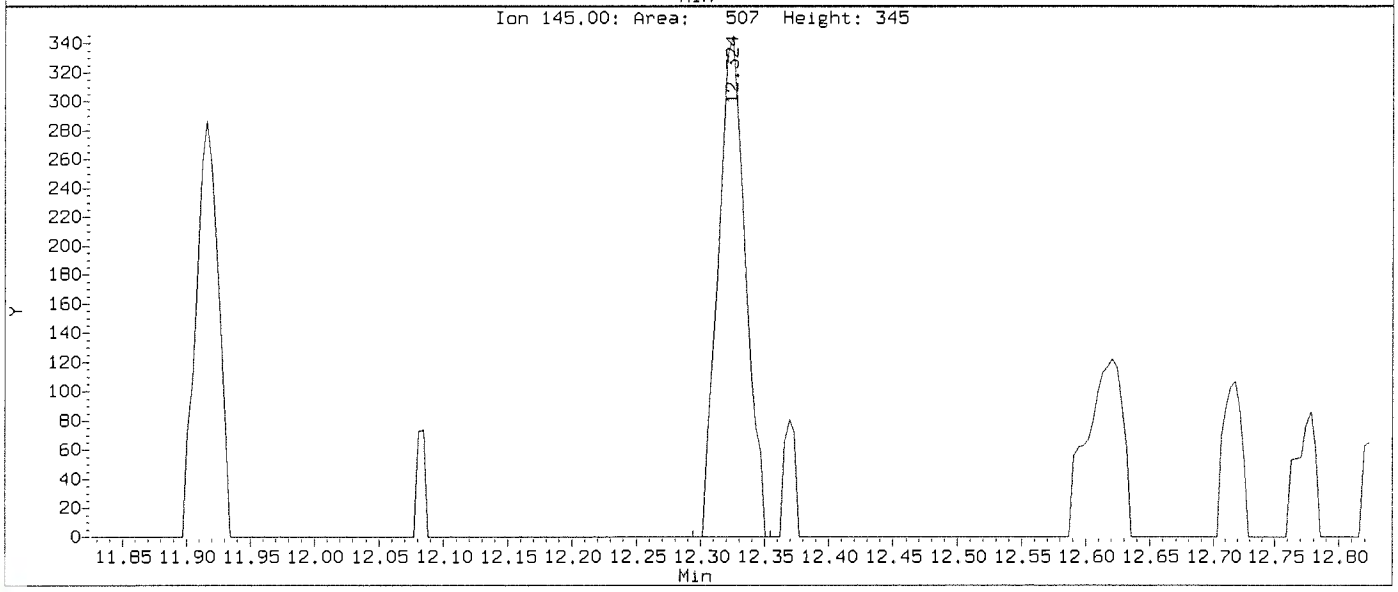
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

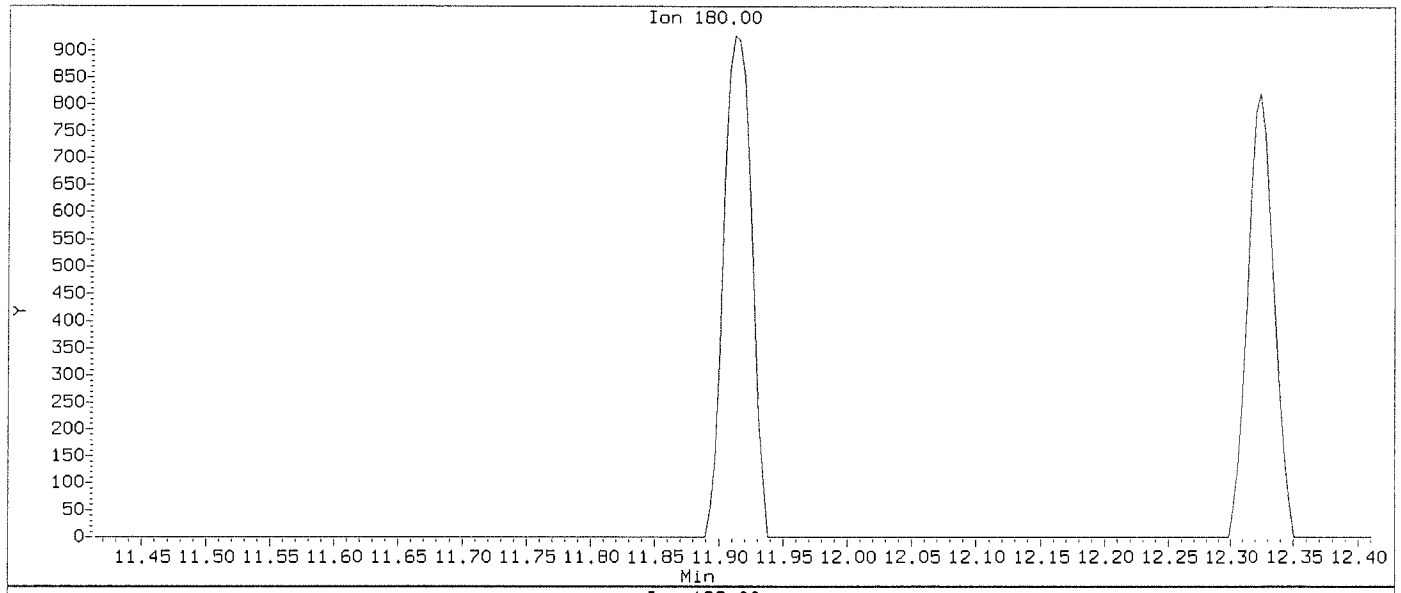


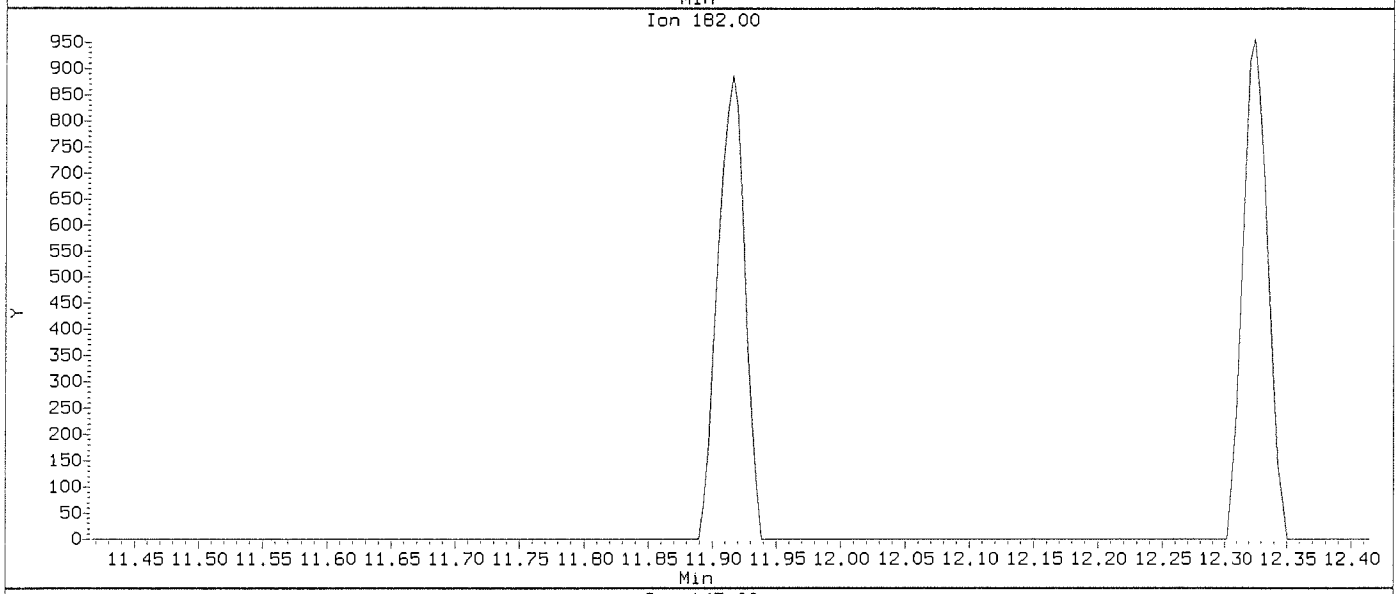


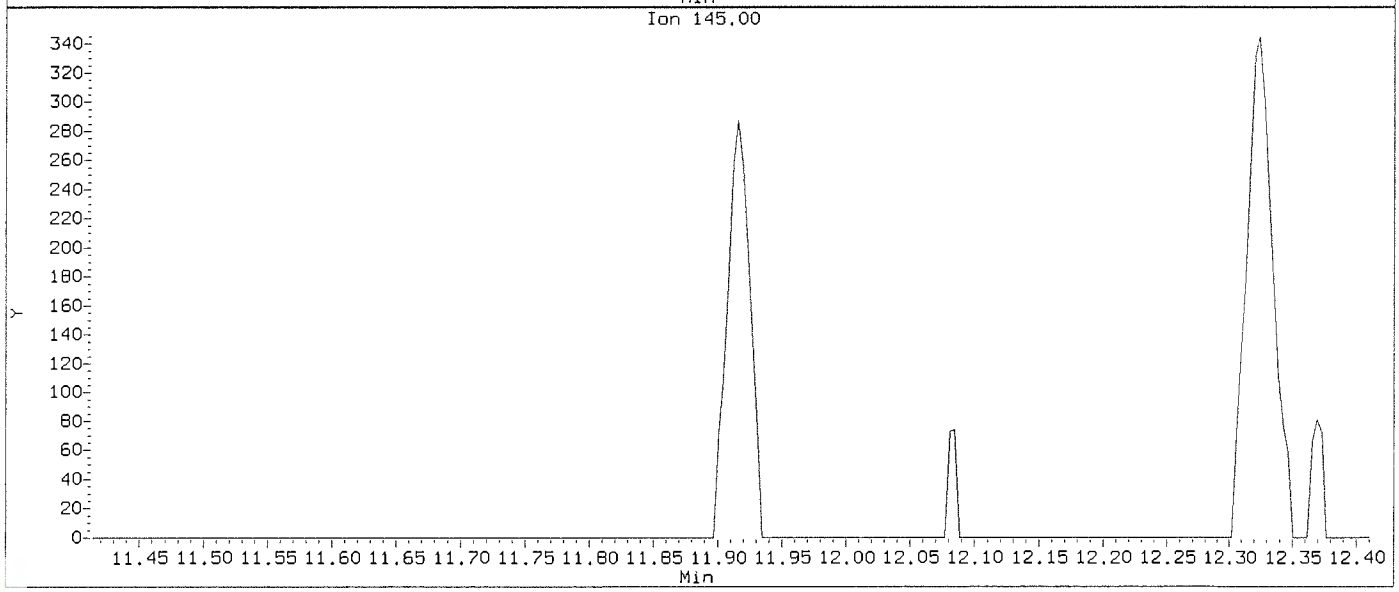


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1

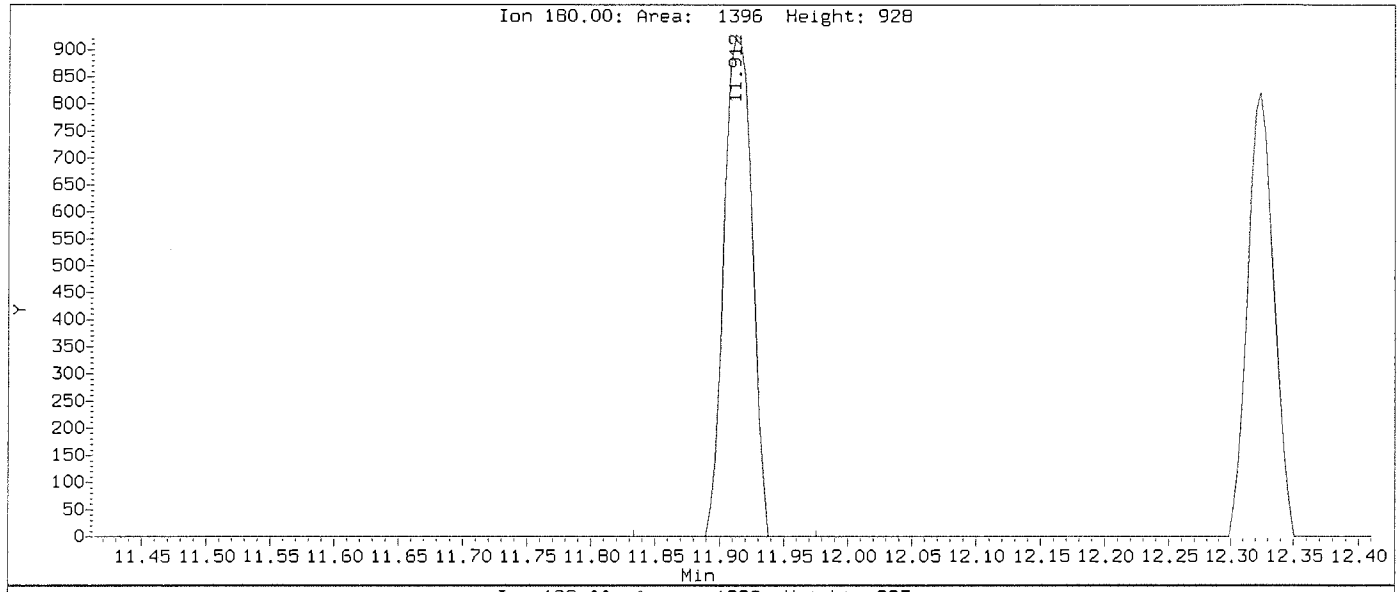


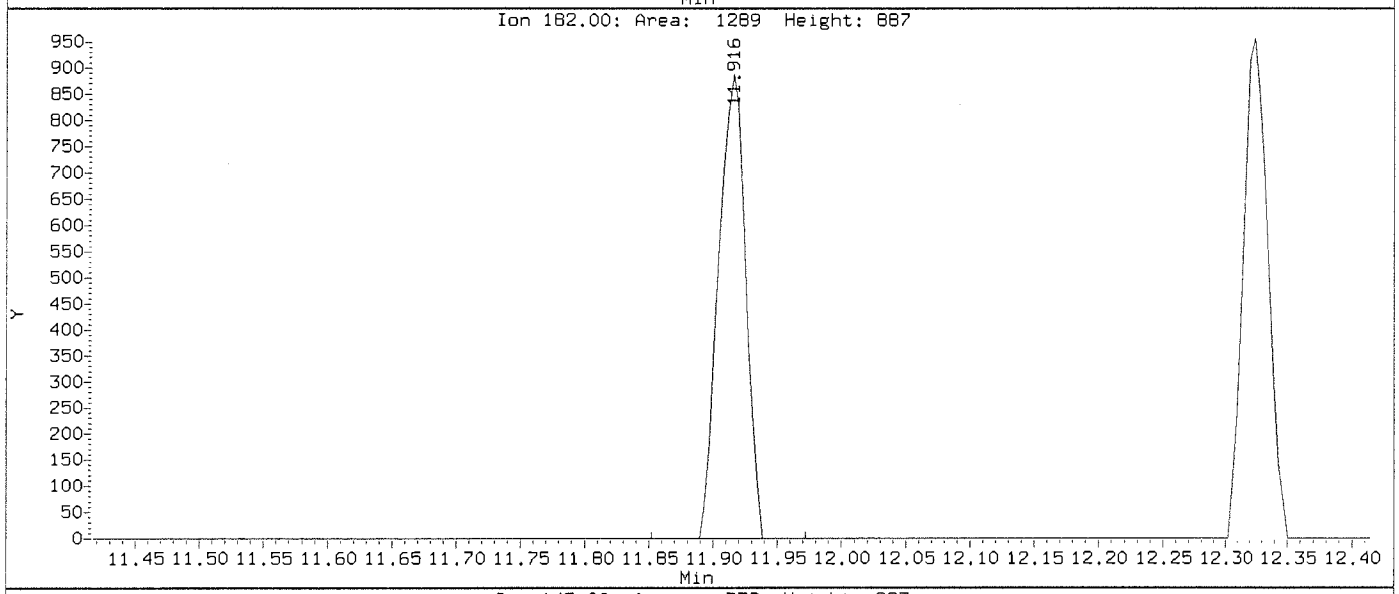


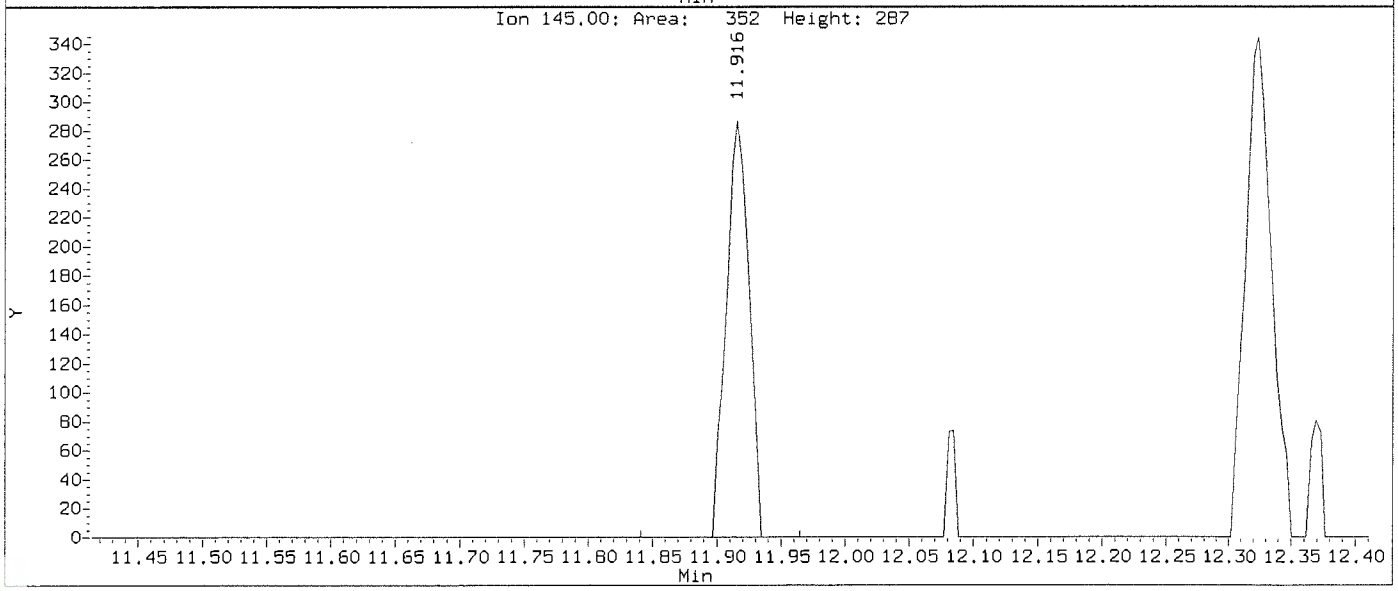


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1

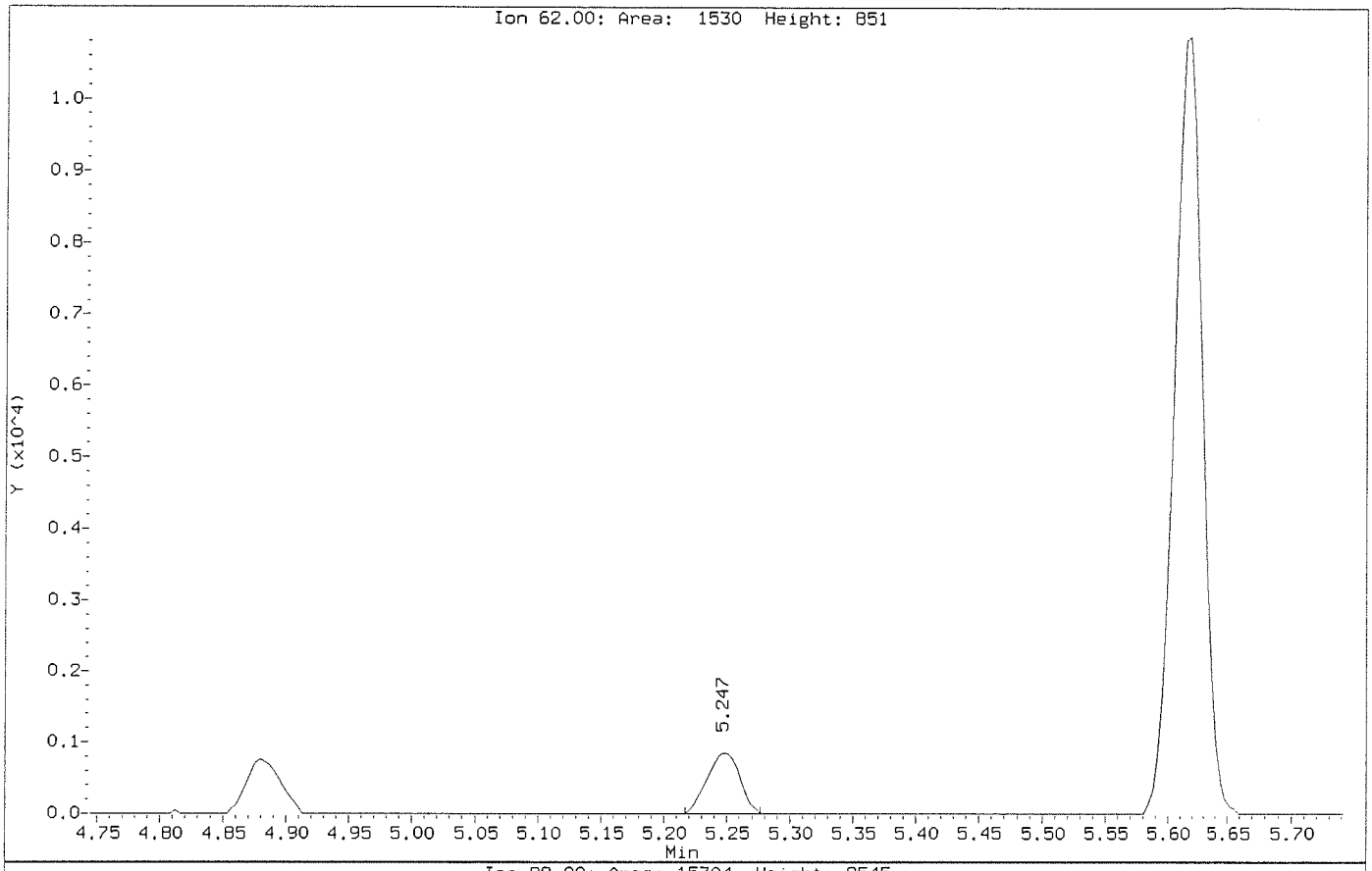


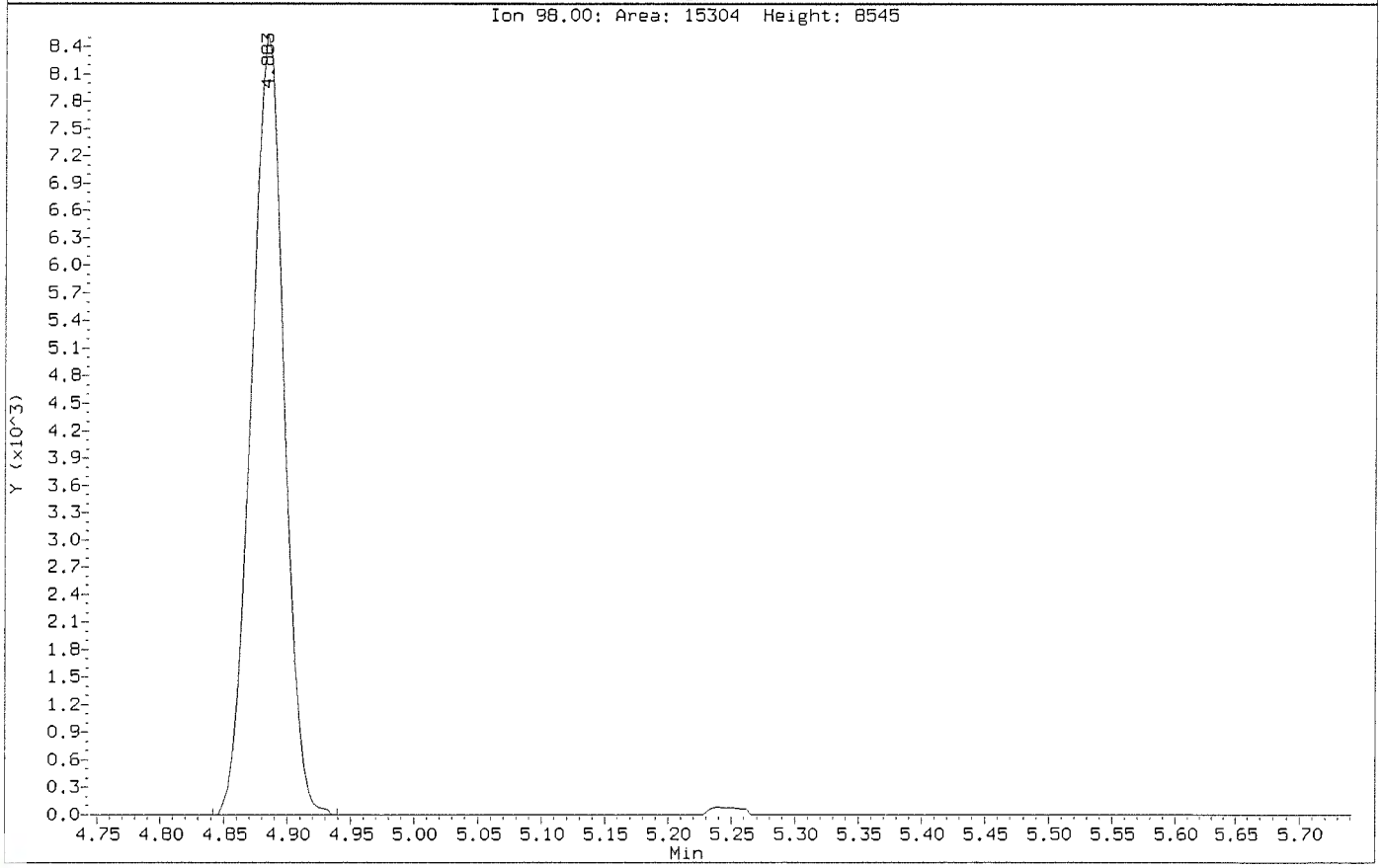




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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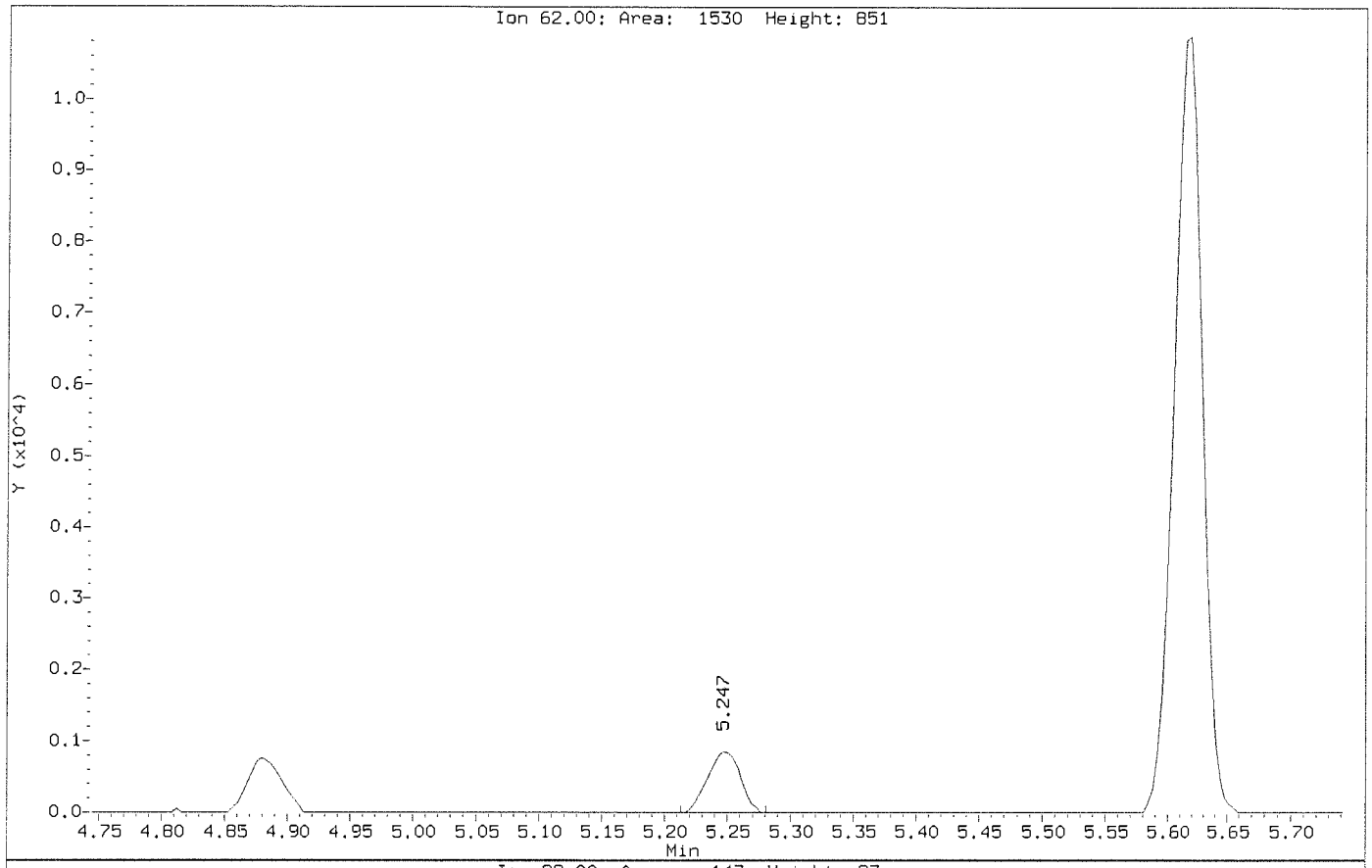
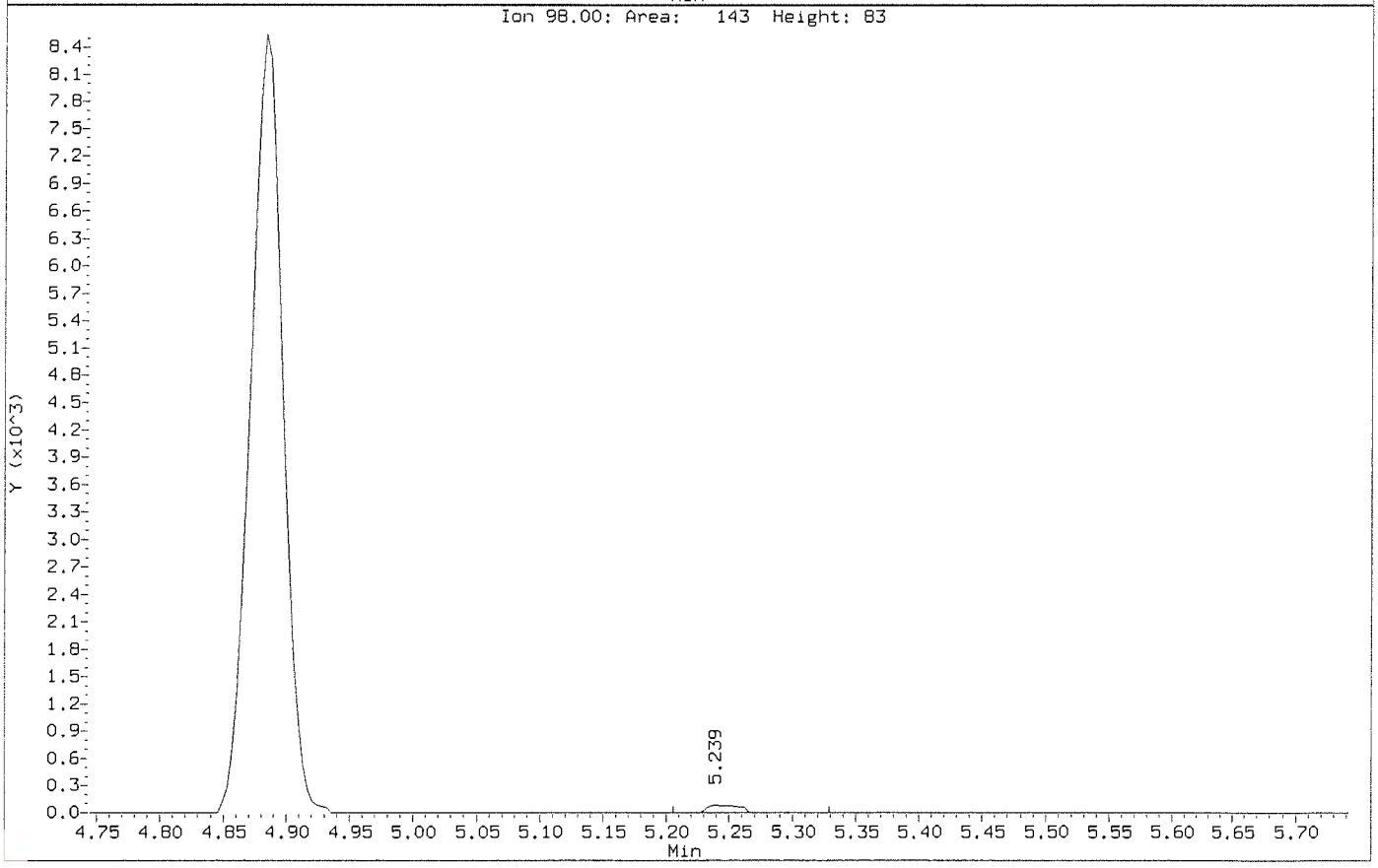
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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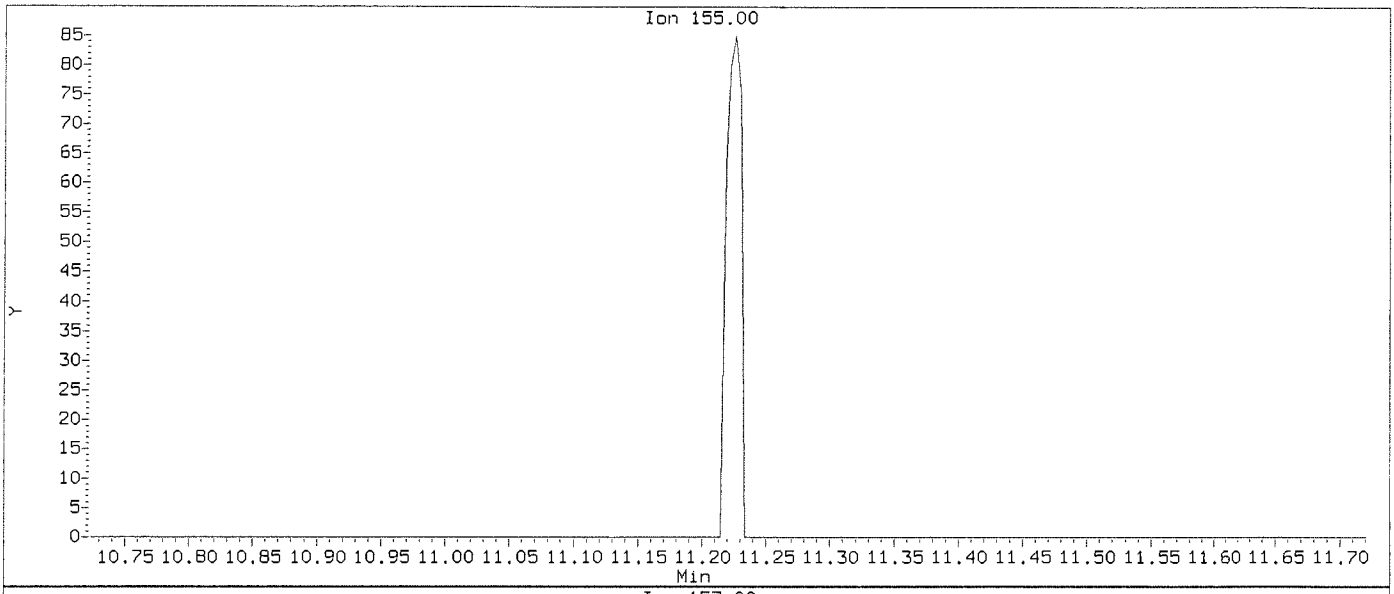
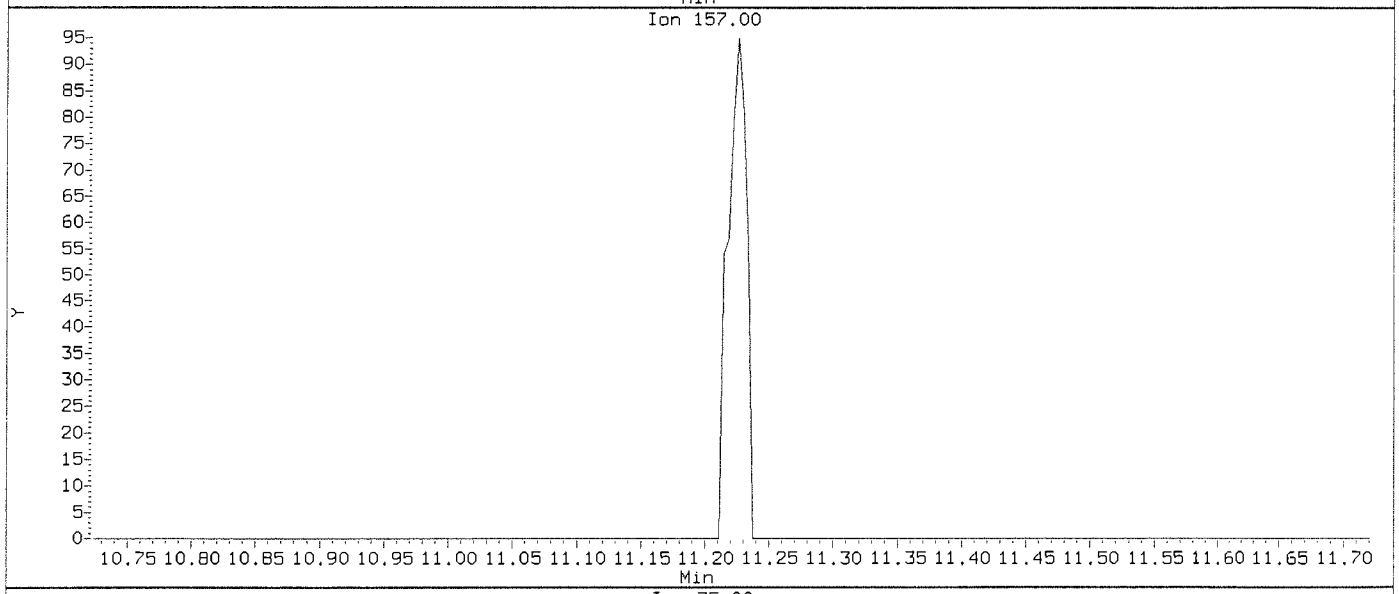
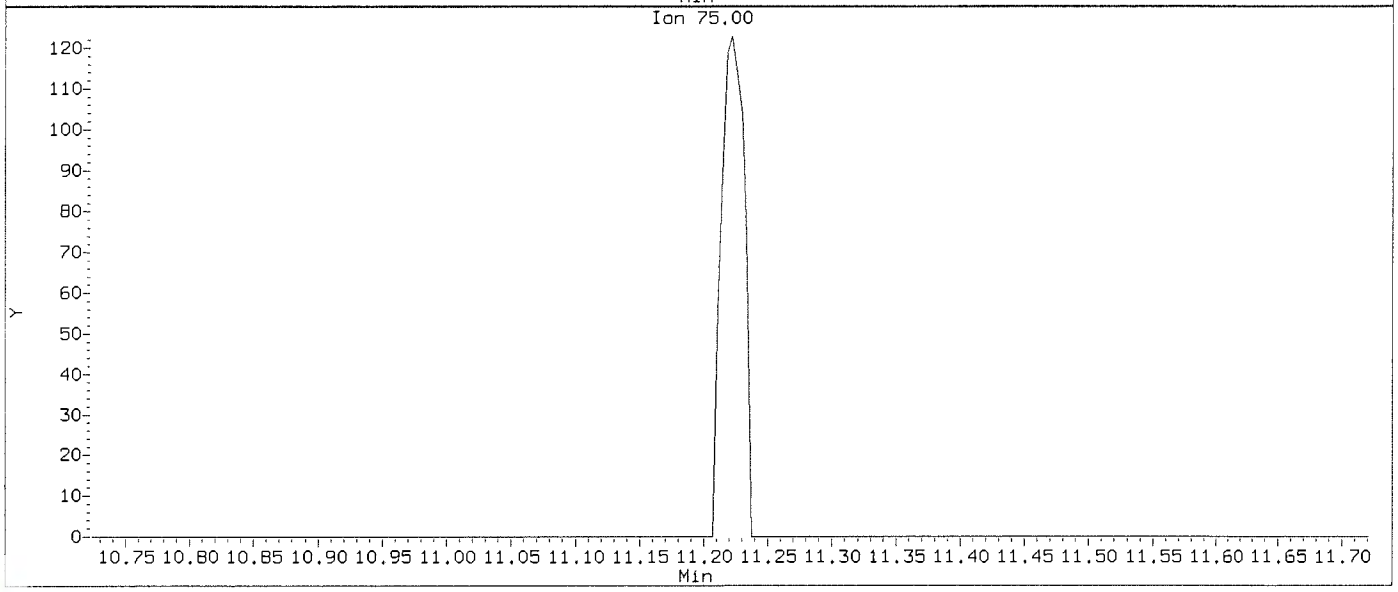
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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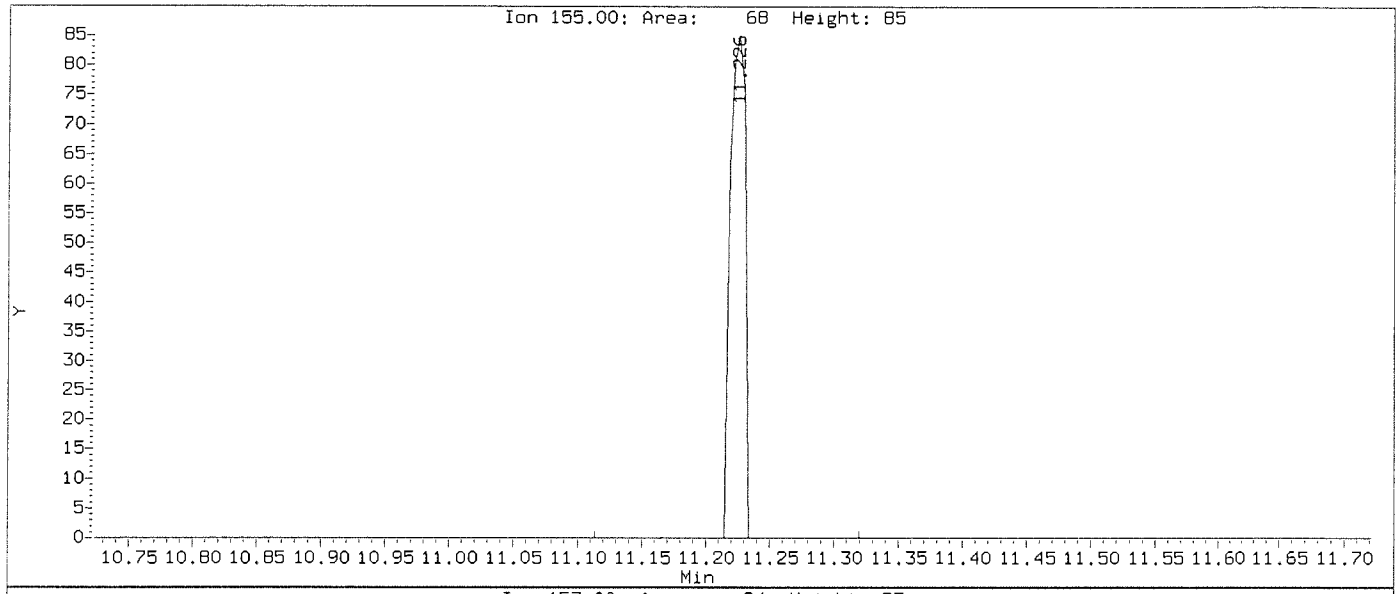
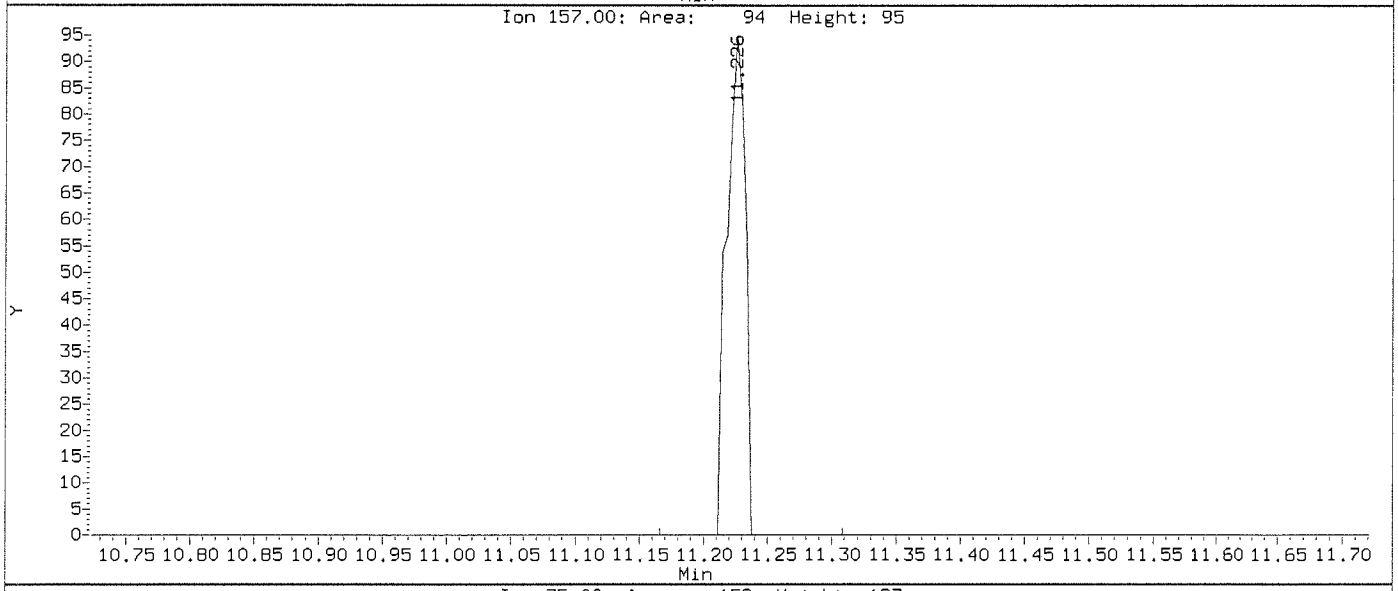
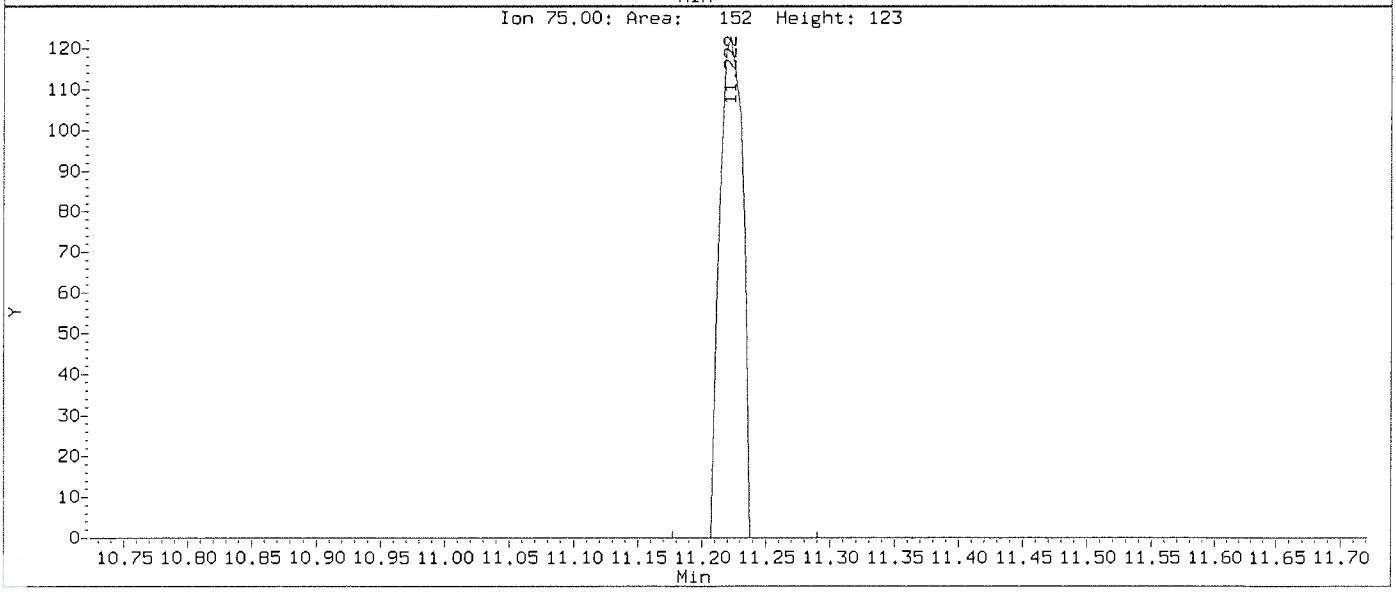
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

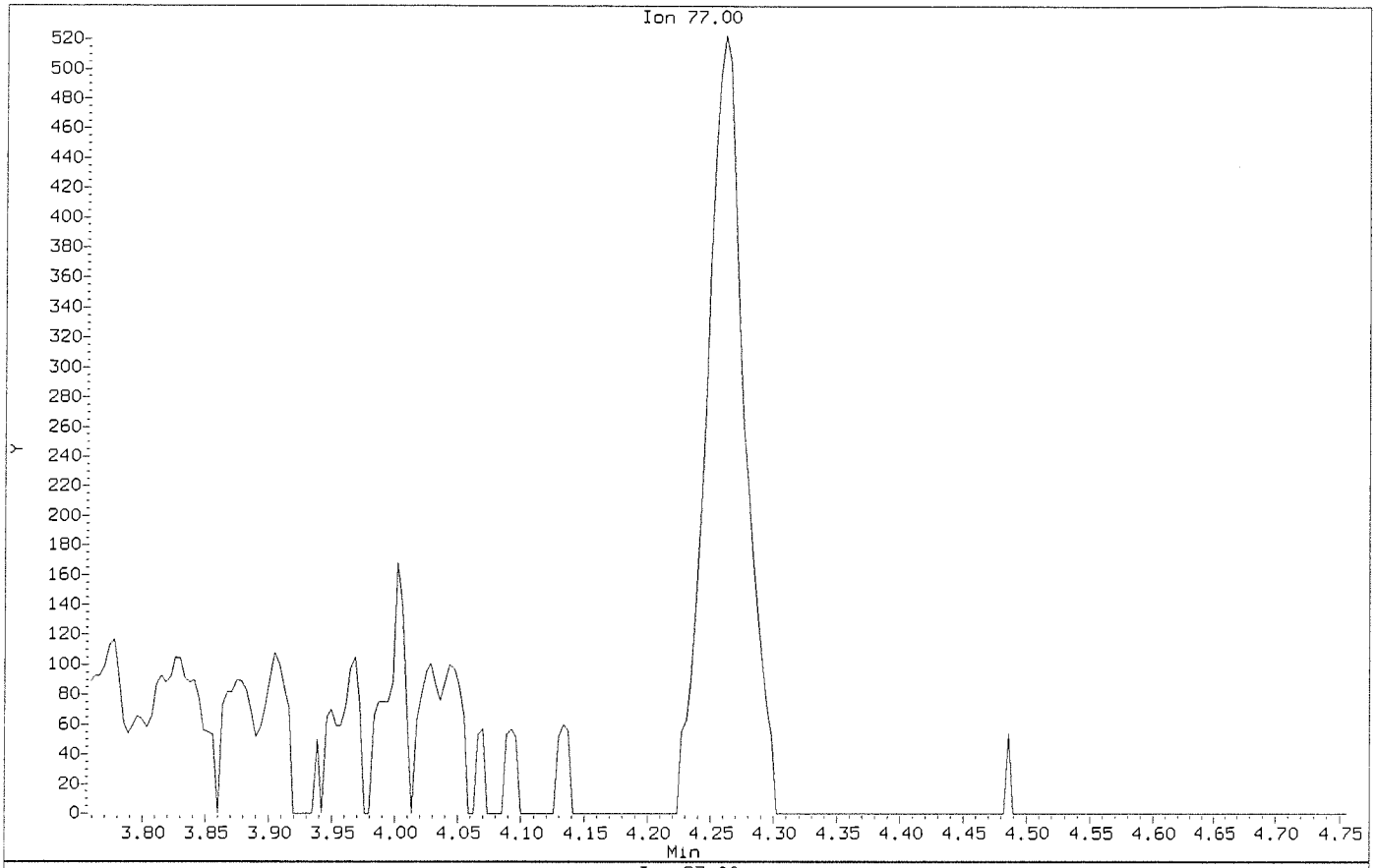


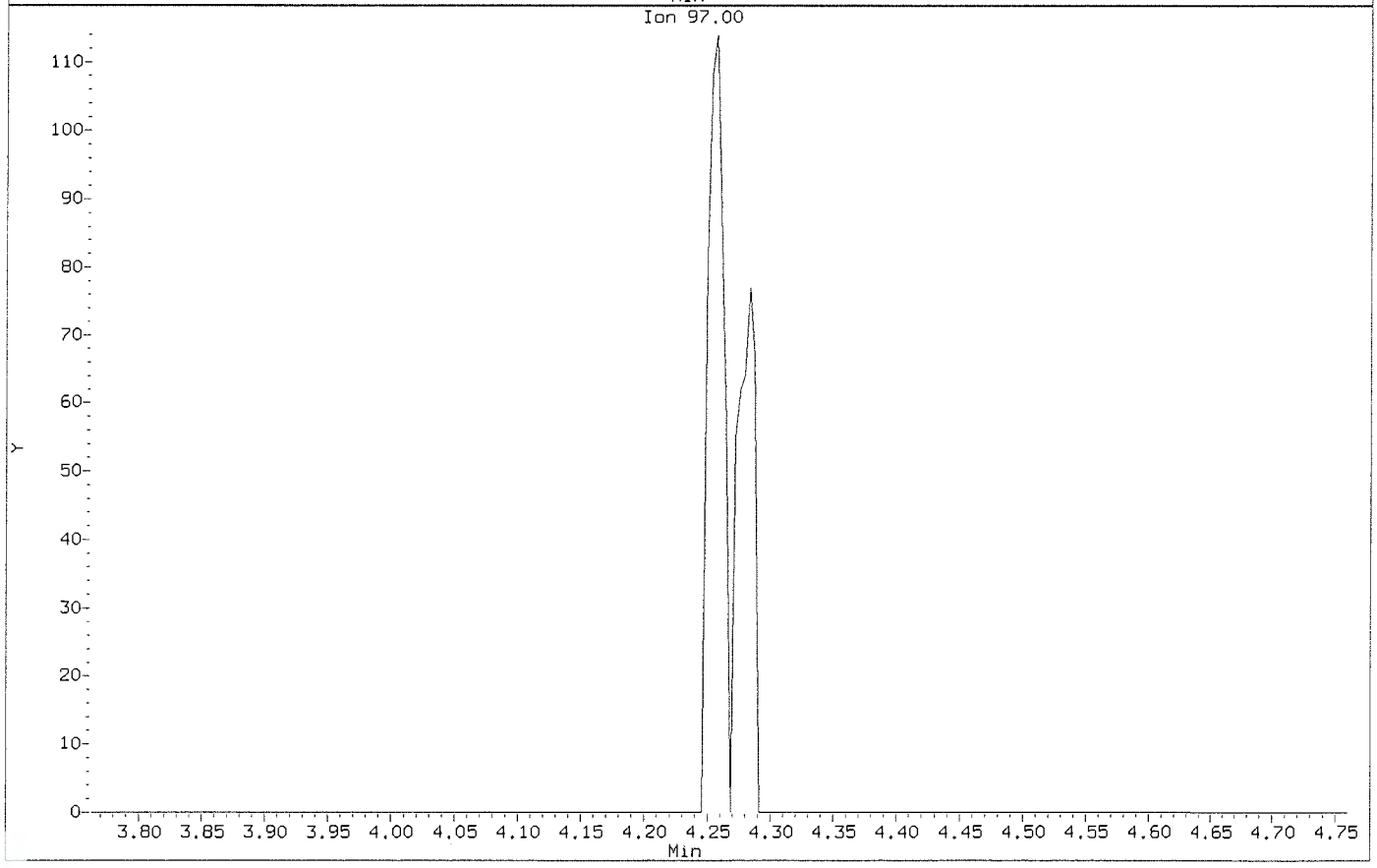




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

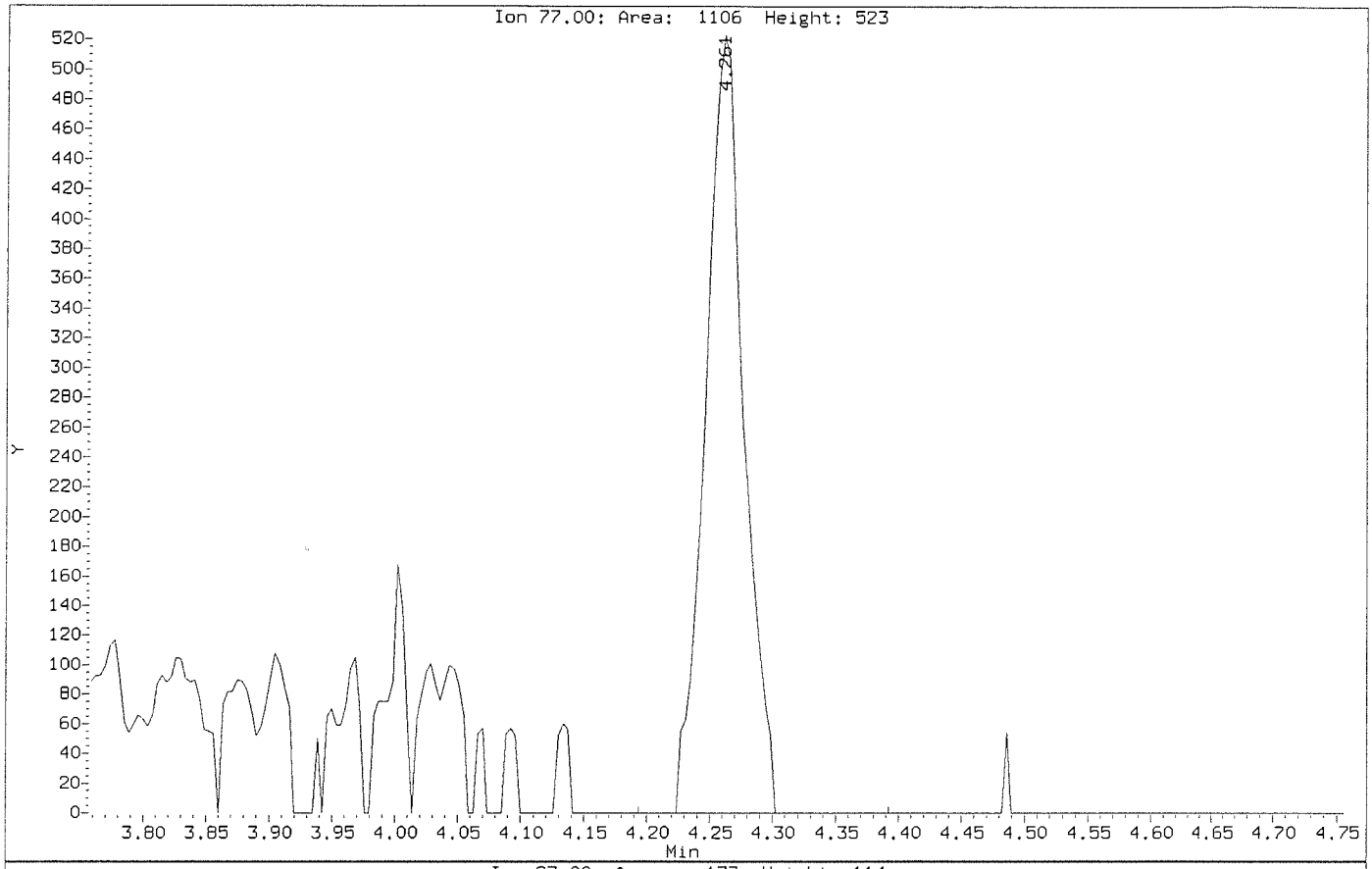
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

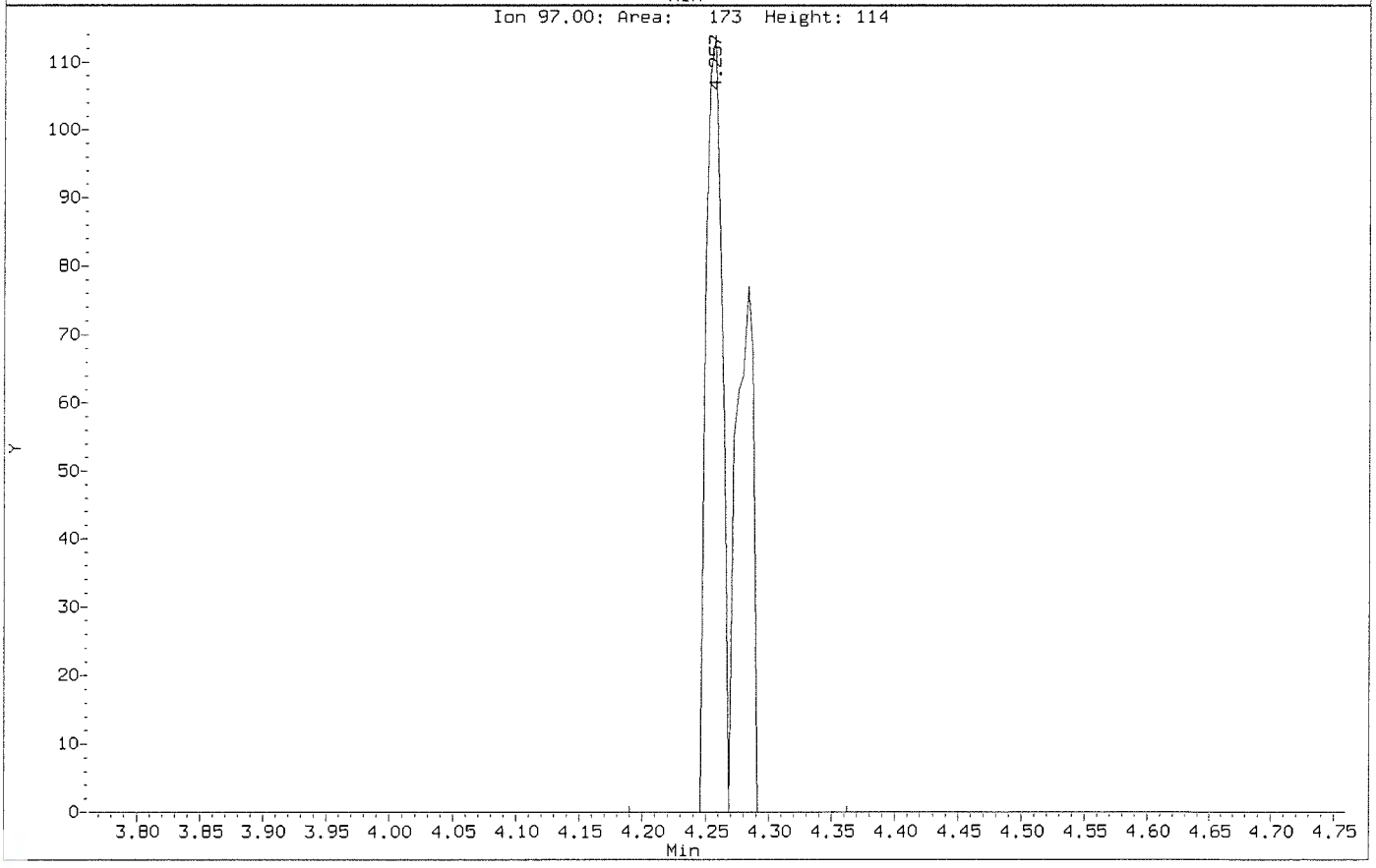




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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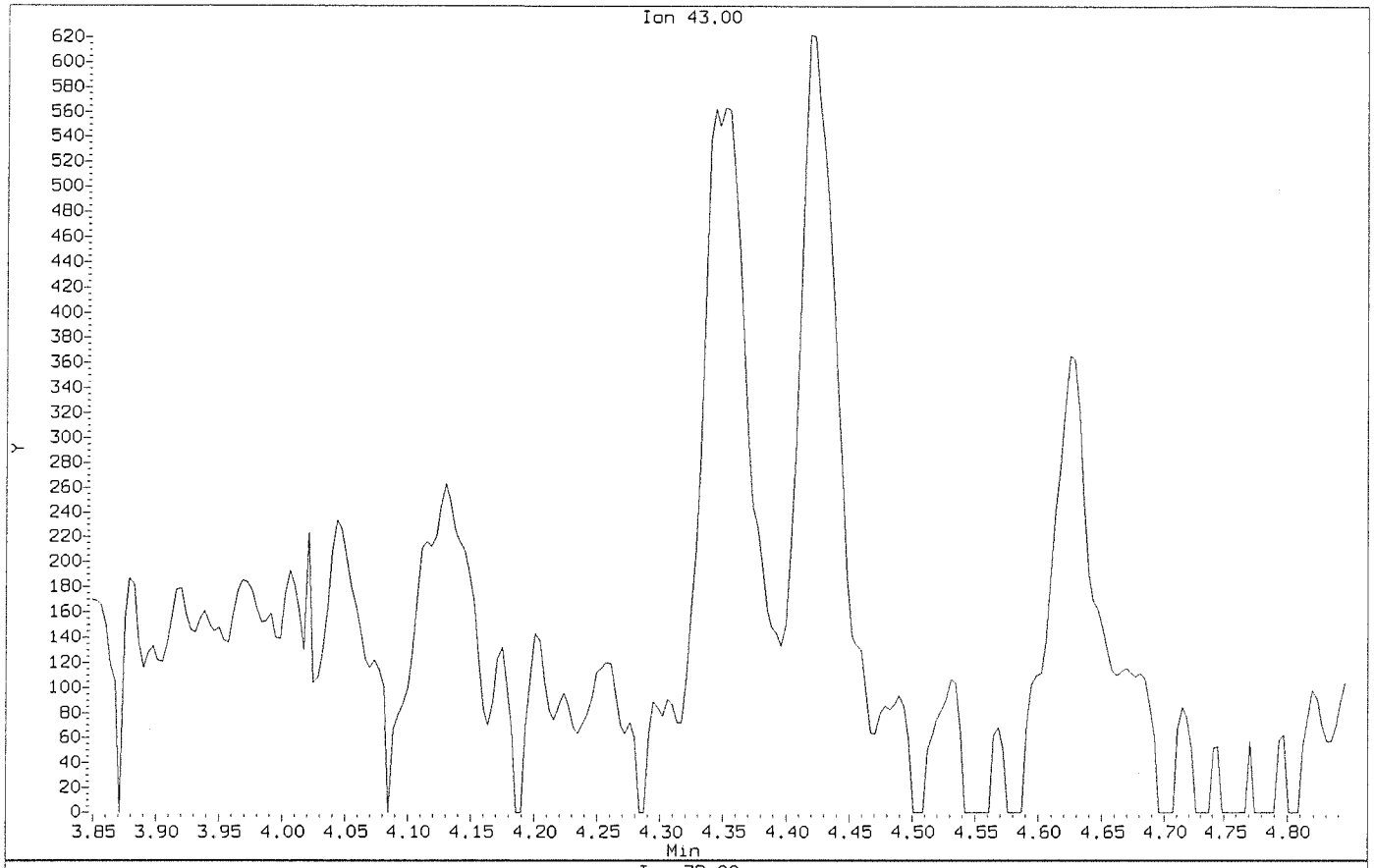
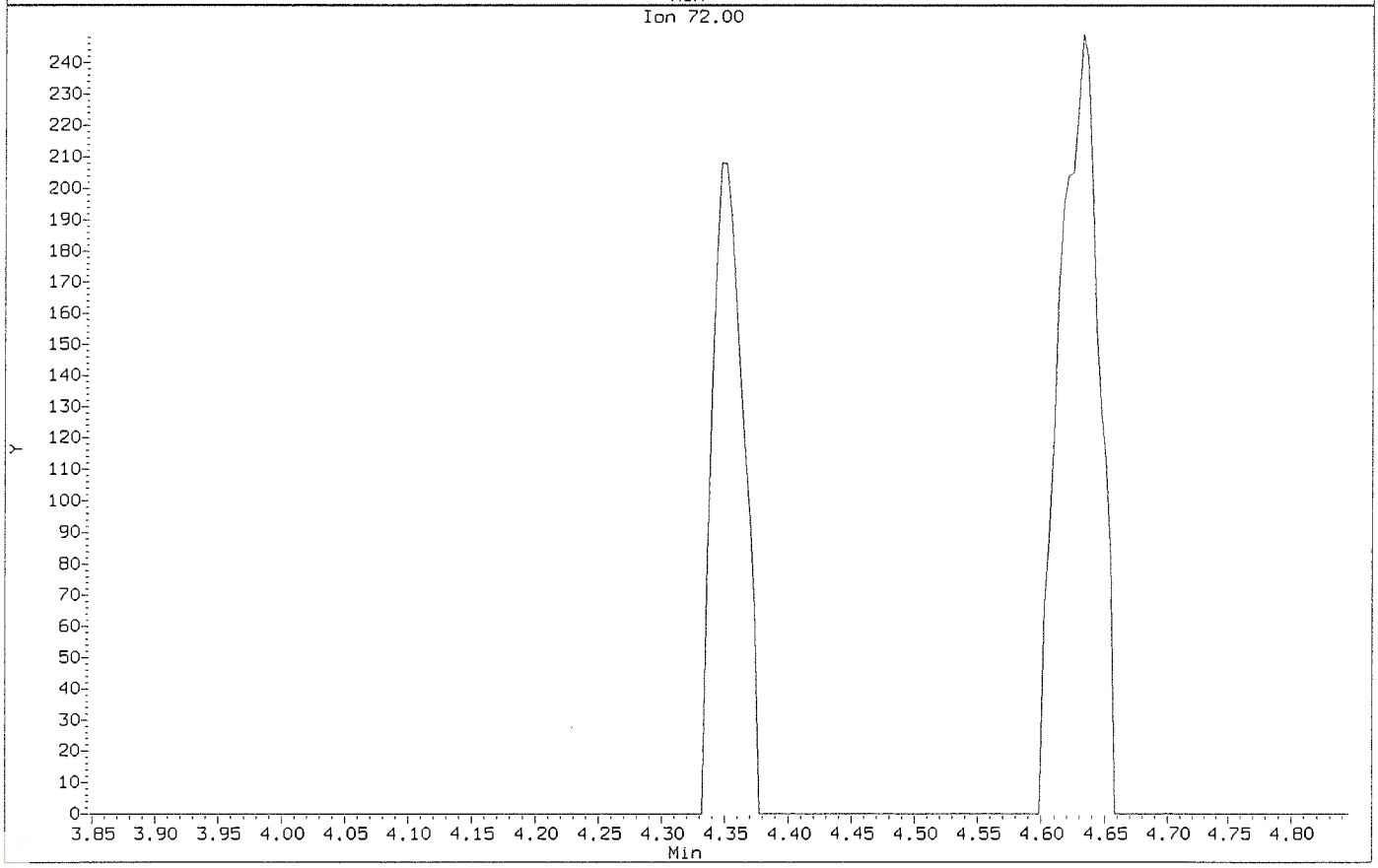
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 2-Butanone
CAS Number: 78-93-3





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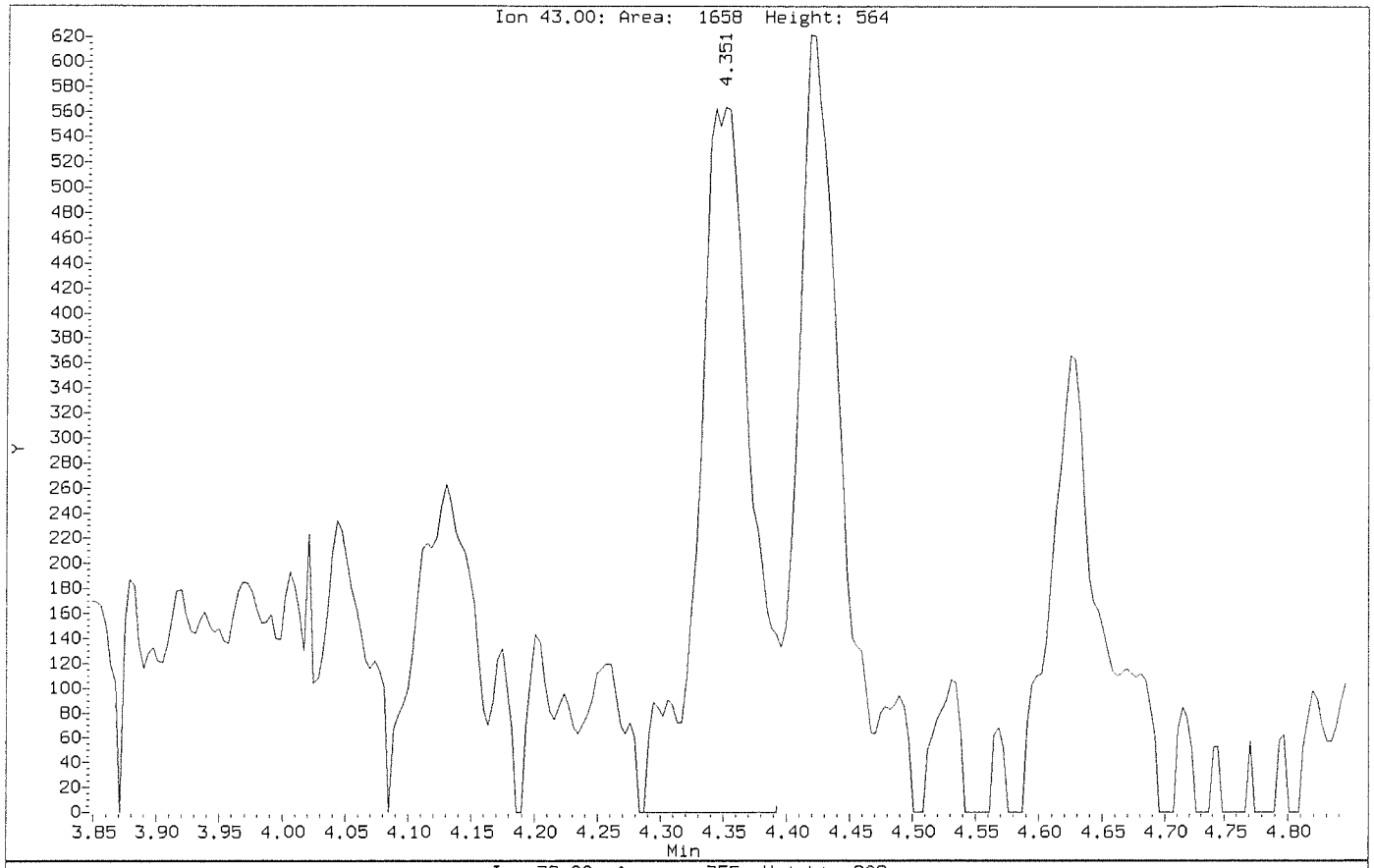
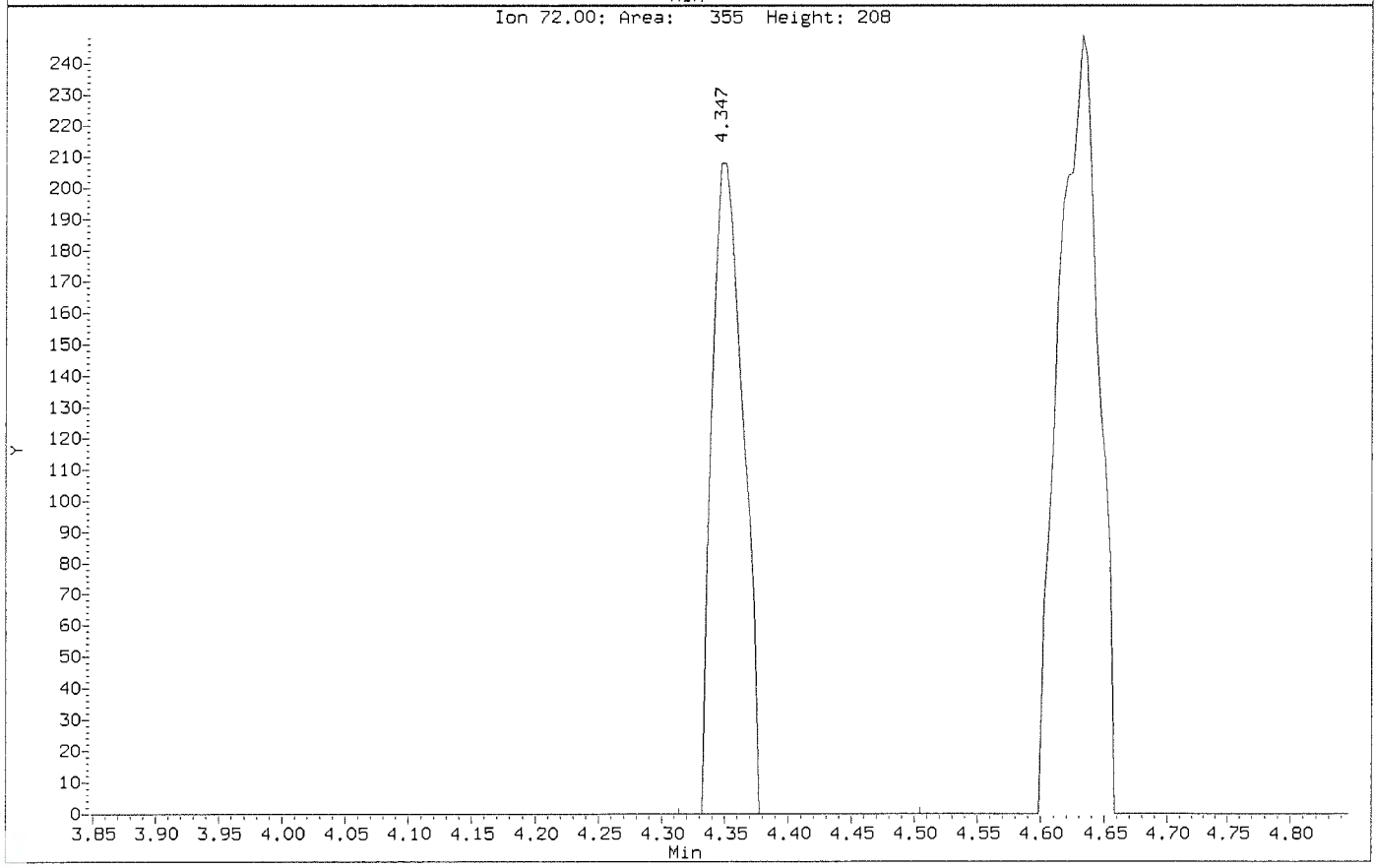
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: 2-Butanone
CAS Number: 78-93-3





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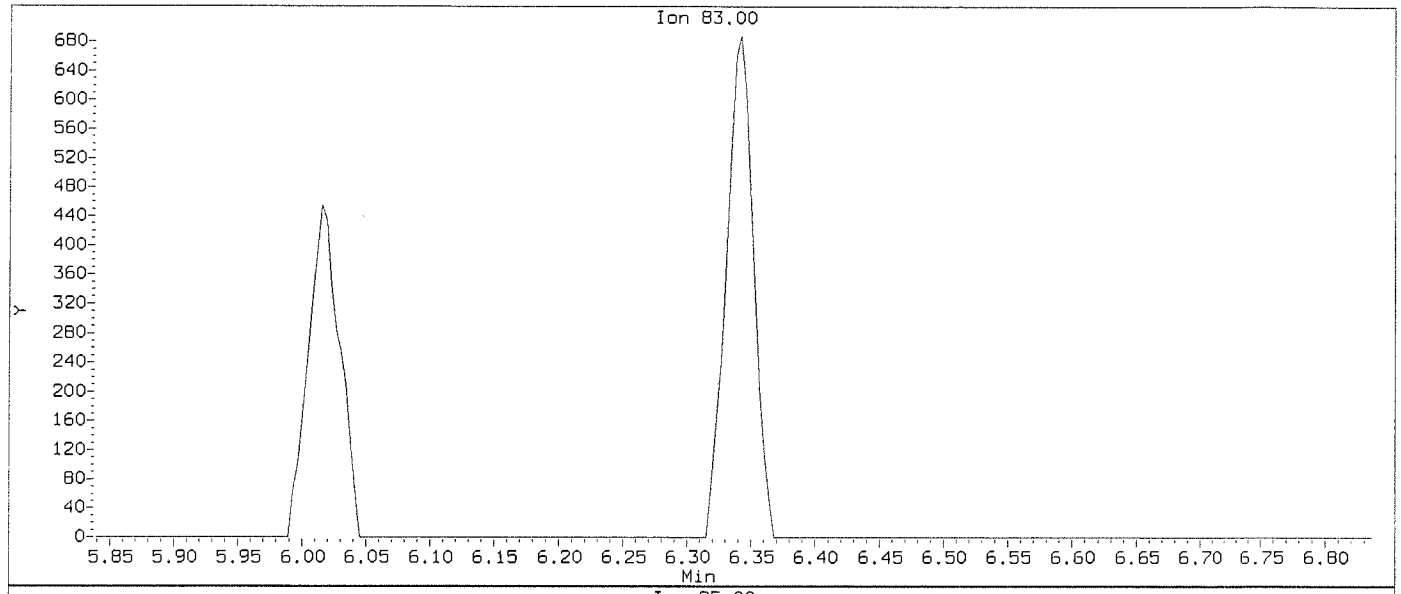
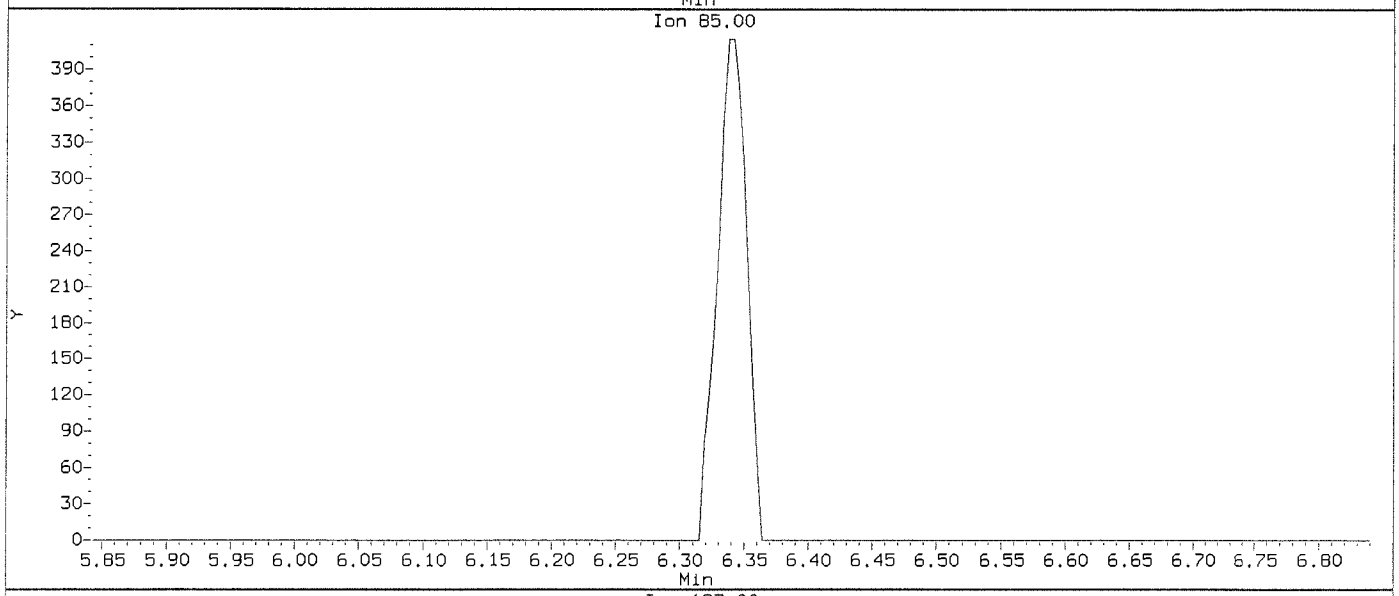
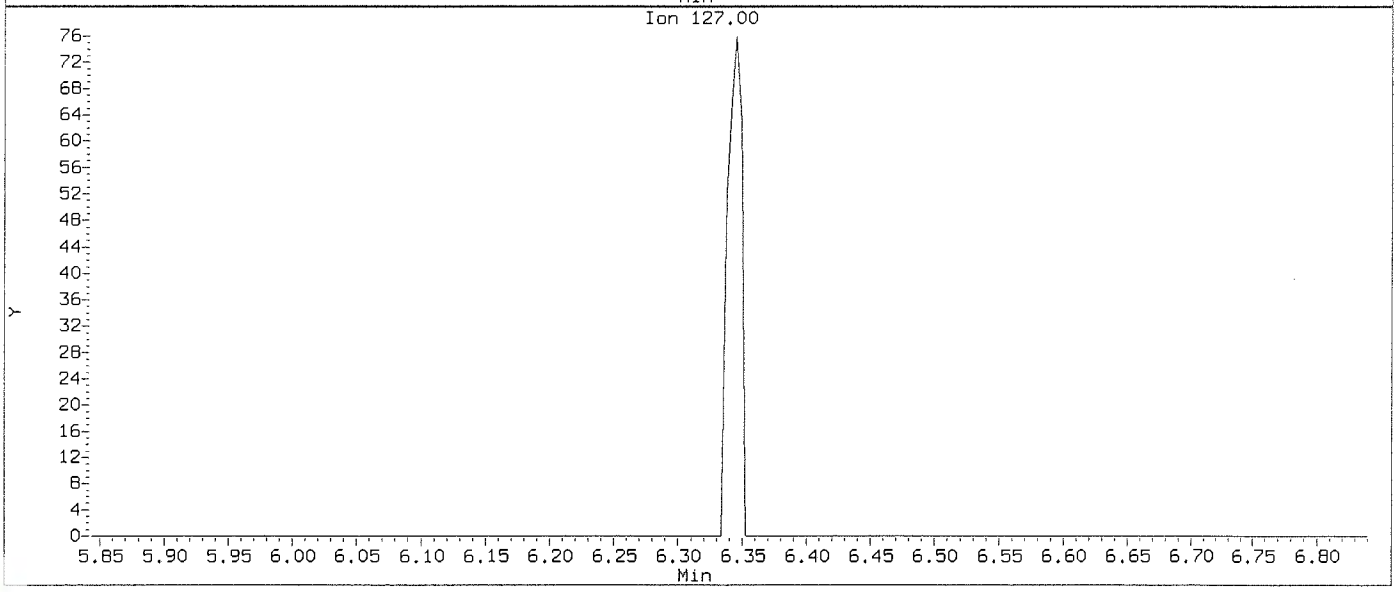
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Bromodichloromethane
CAS Number: 75-27-4







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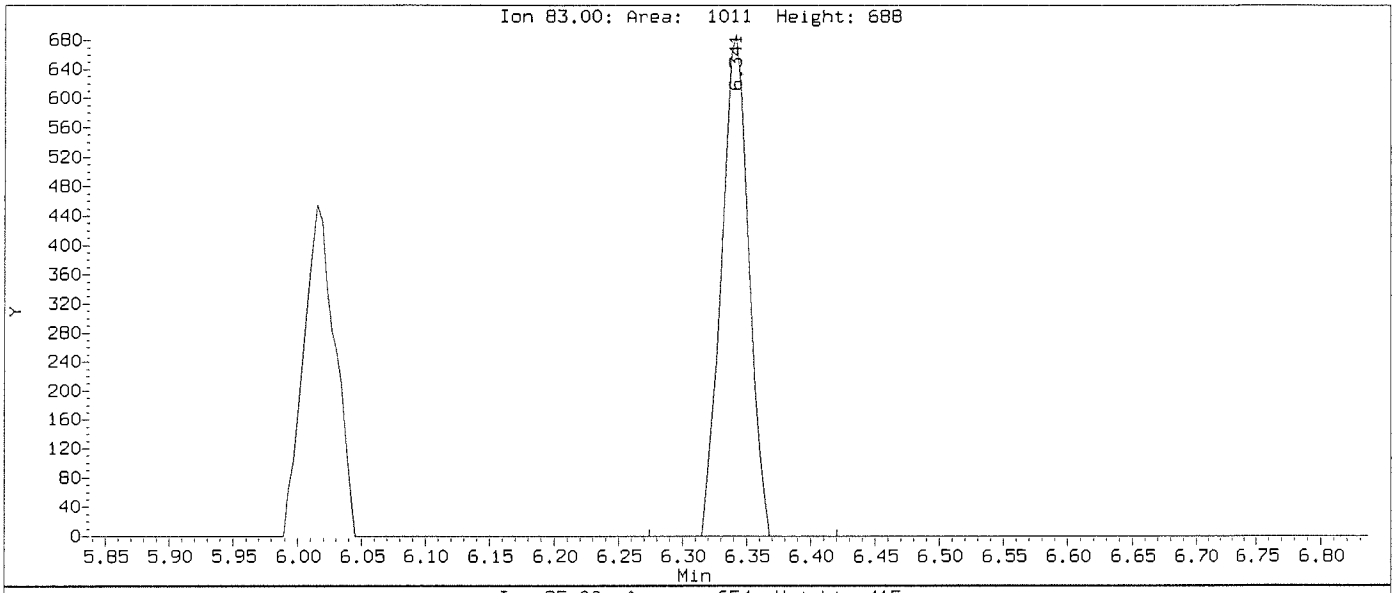
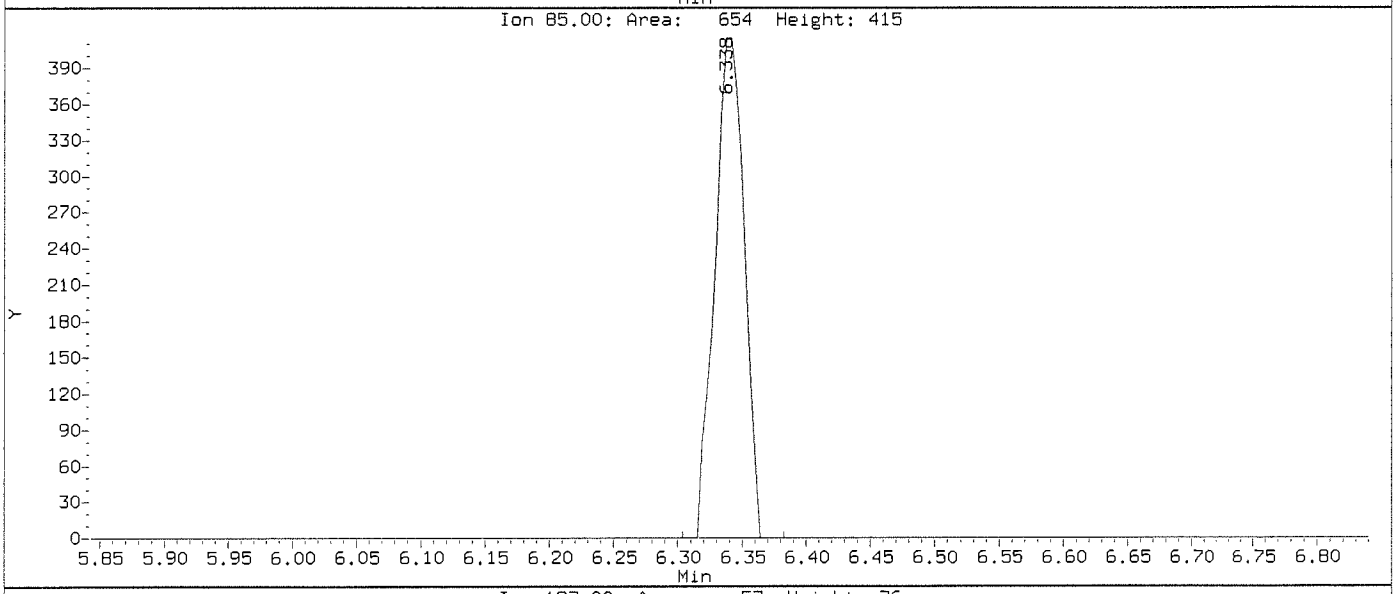
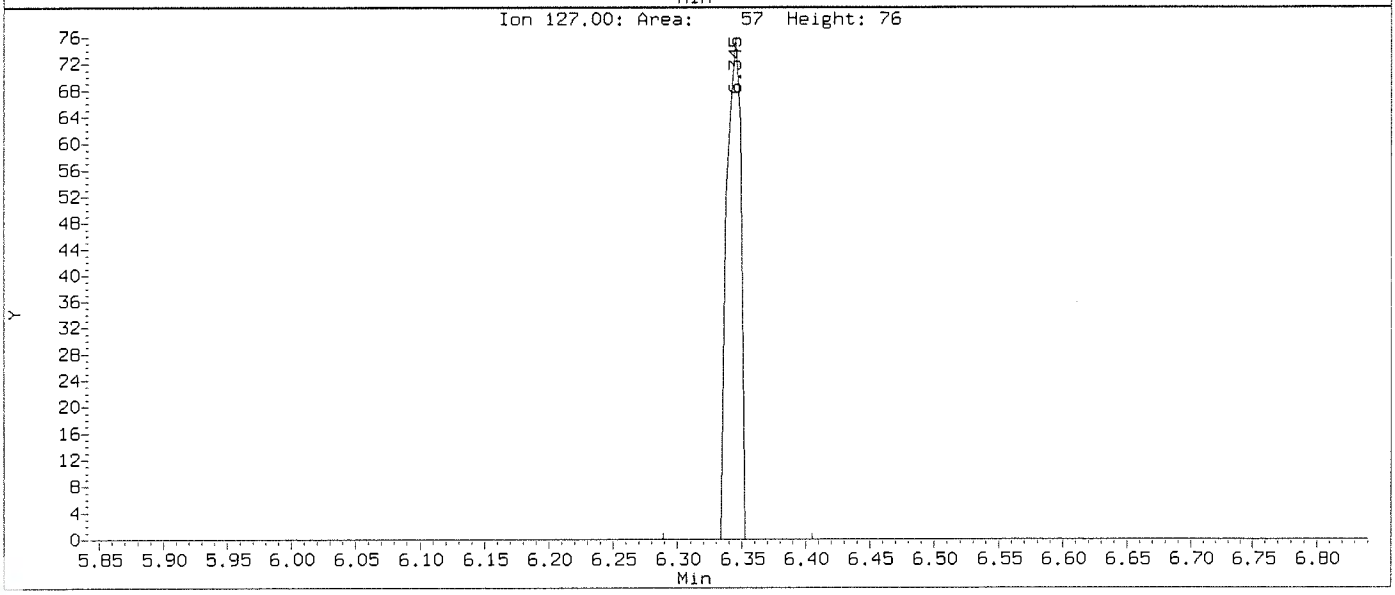
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Bromodichloromethane
CAS Number: 75-27-4

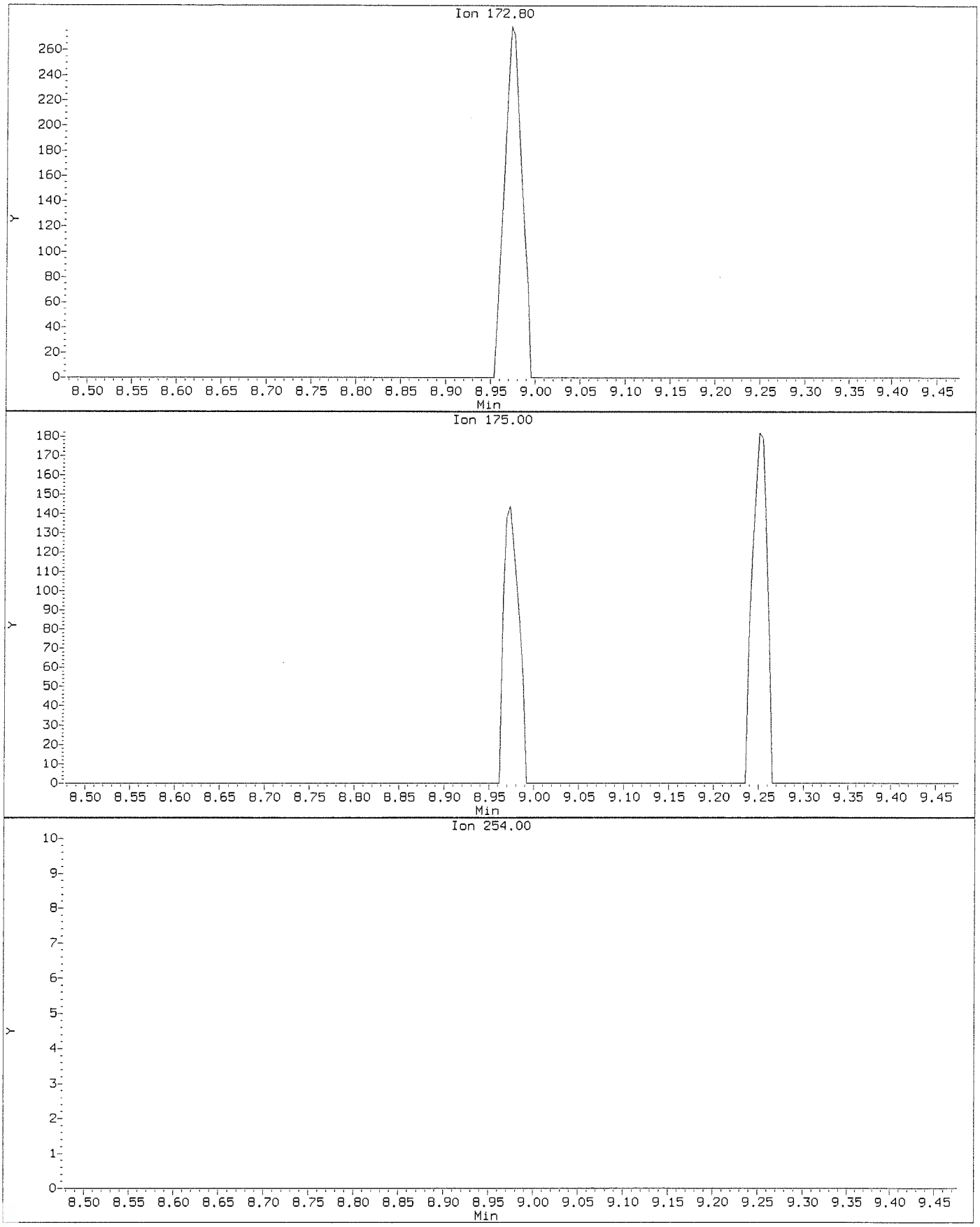






Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Bromoform
CAS Number: 75-25-2



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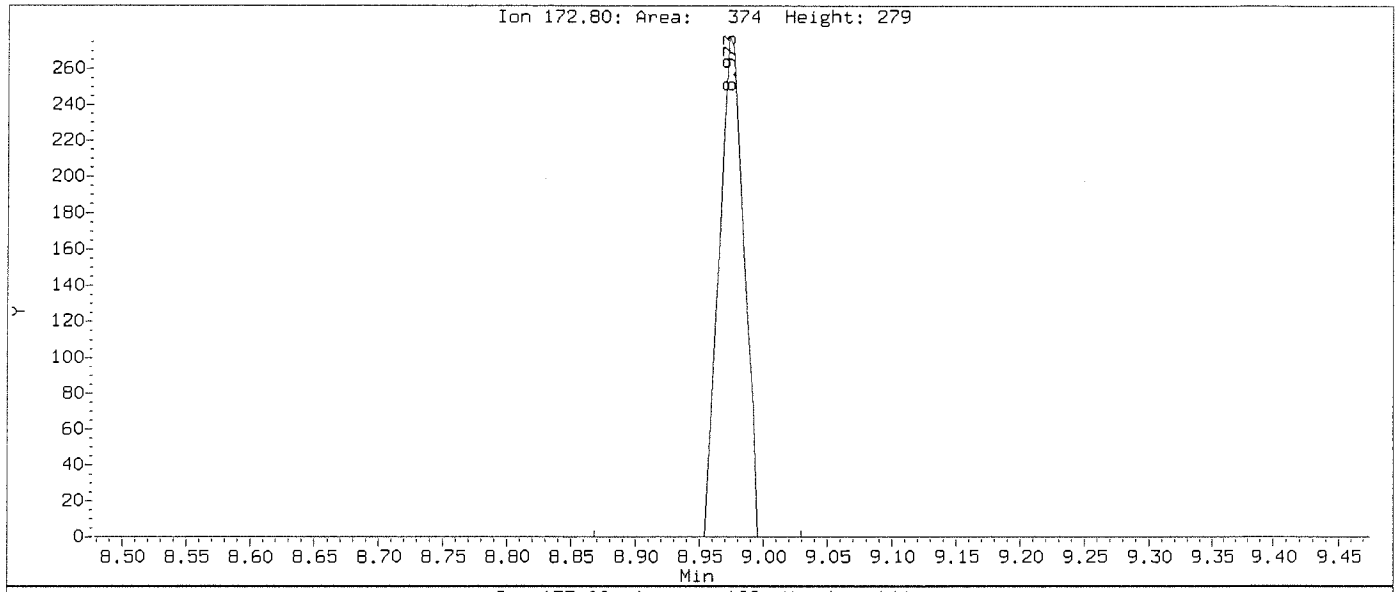
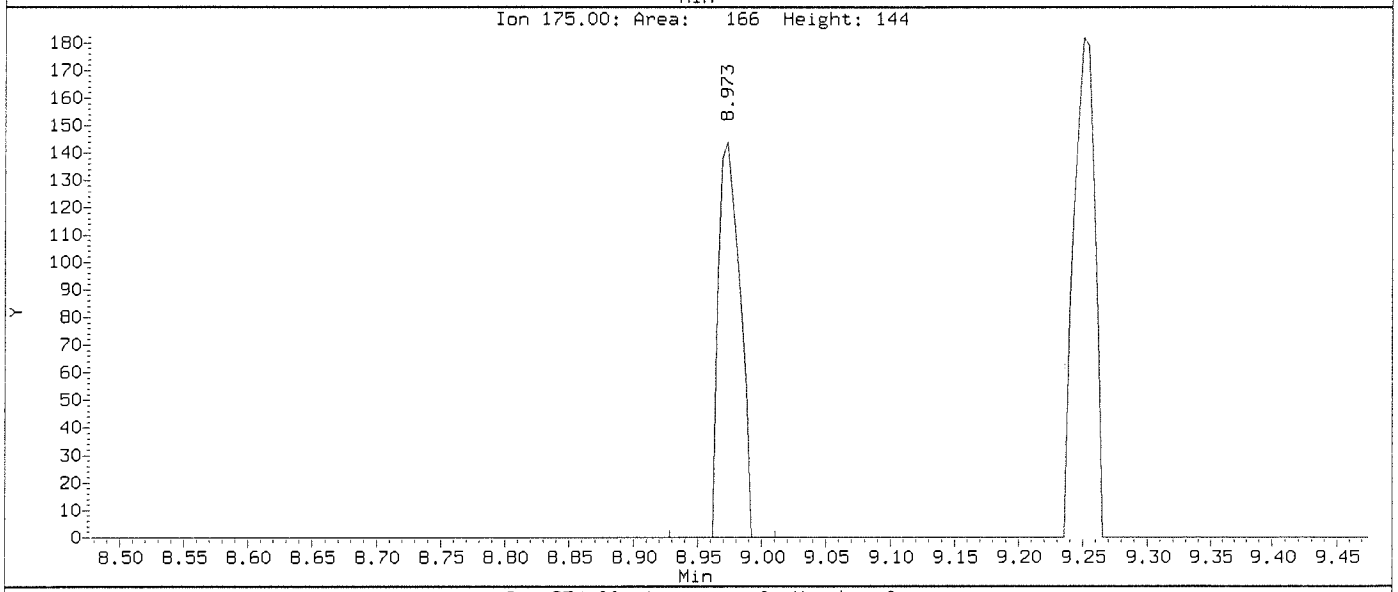
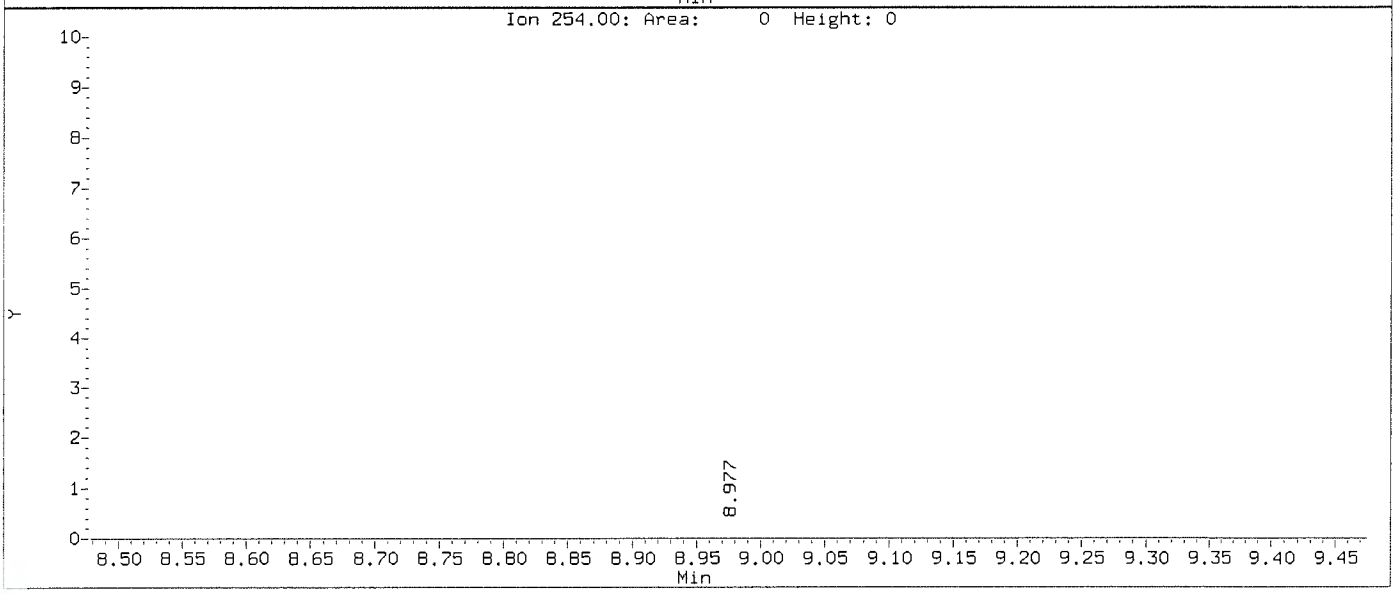
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Bromoform
CAS Number: 75-25-2







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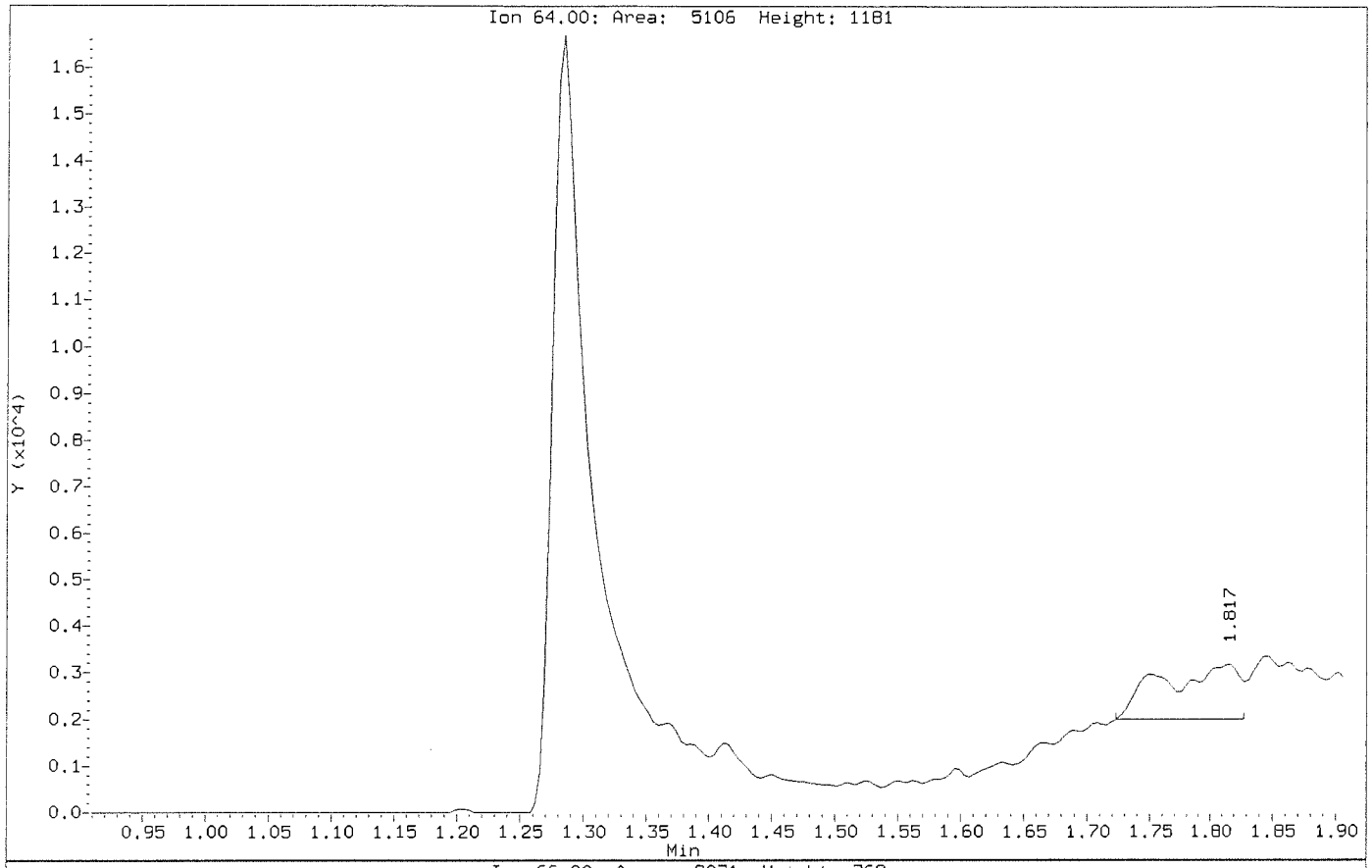
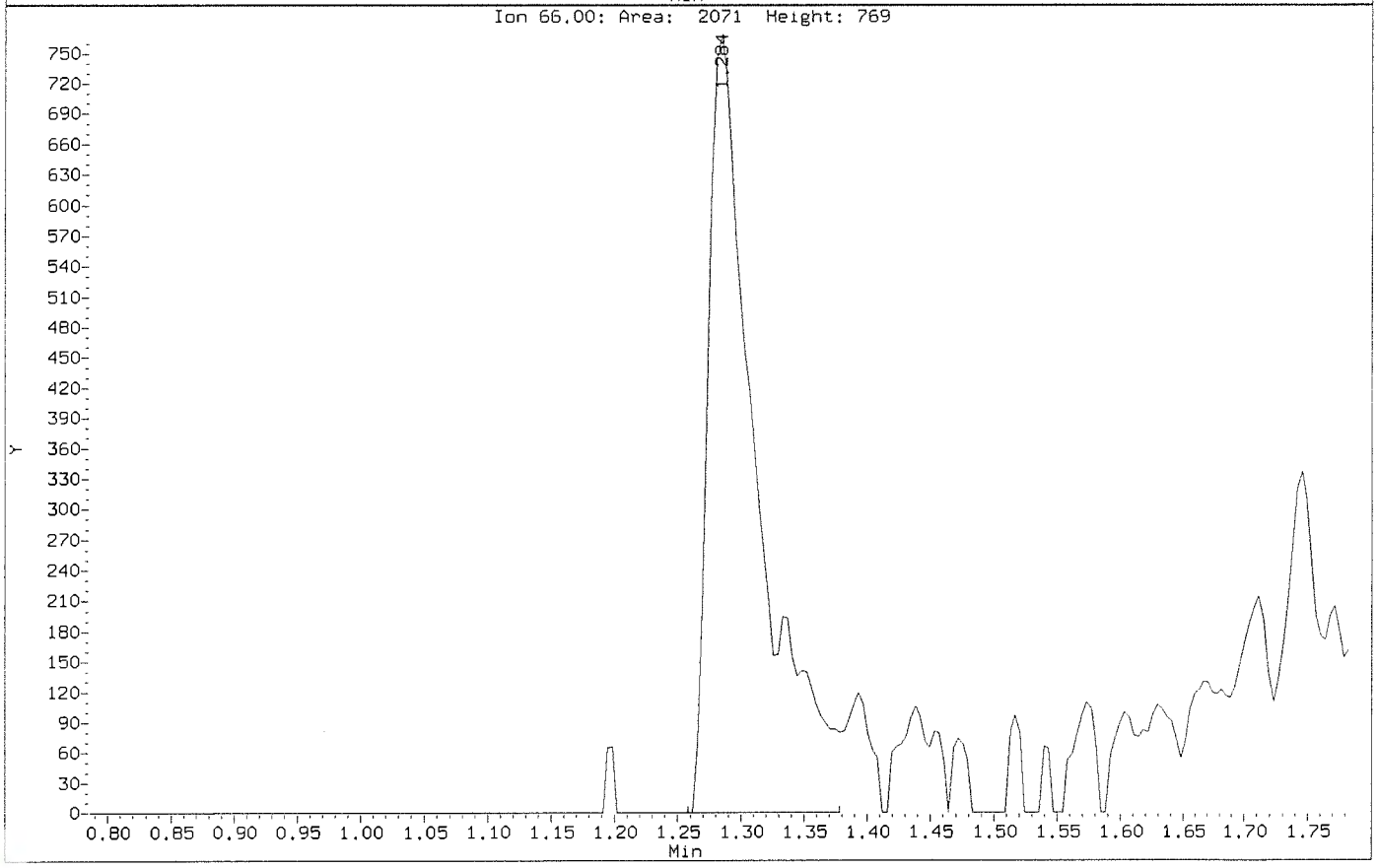
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Chloroethane
CAS Number: 75-00-3





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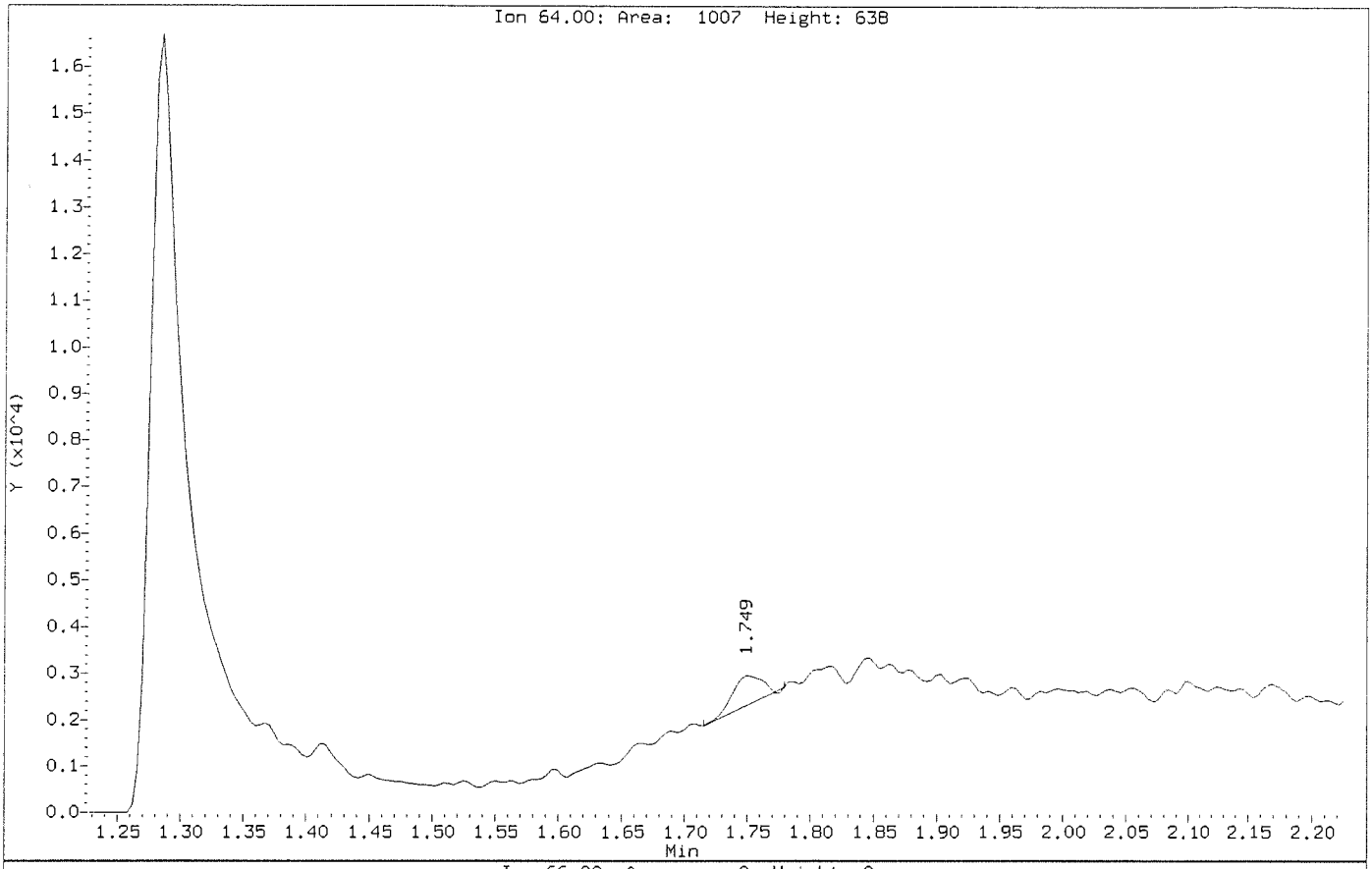
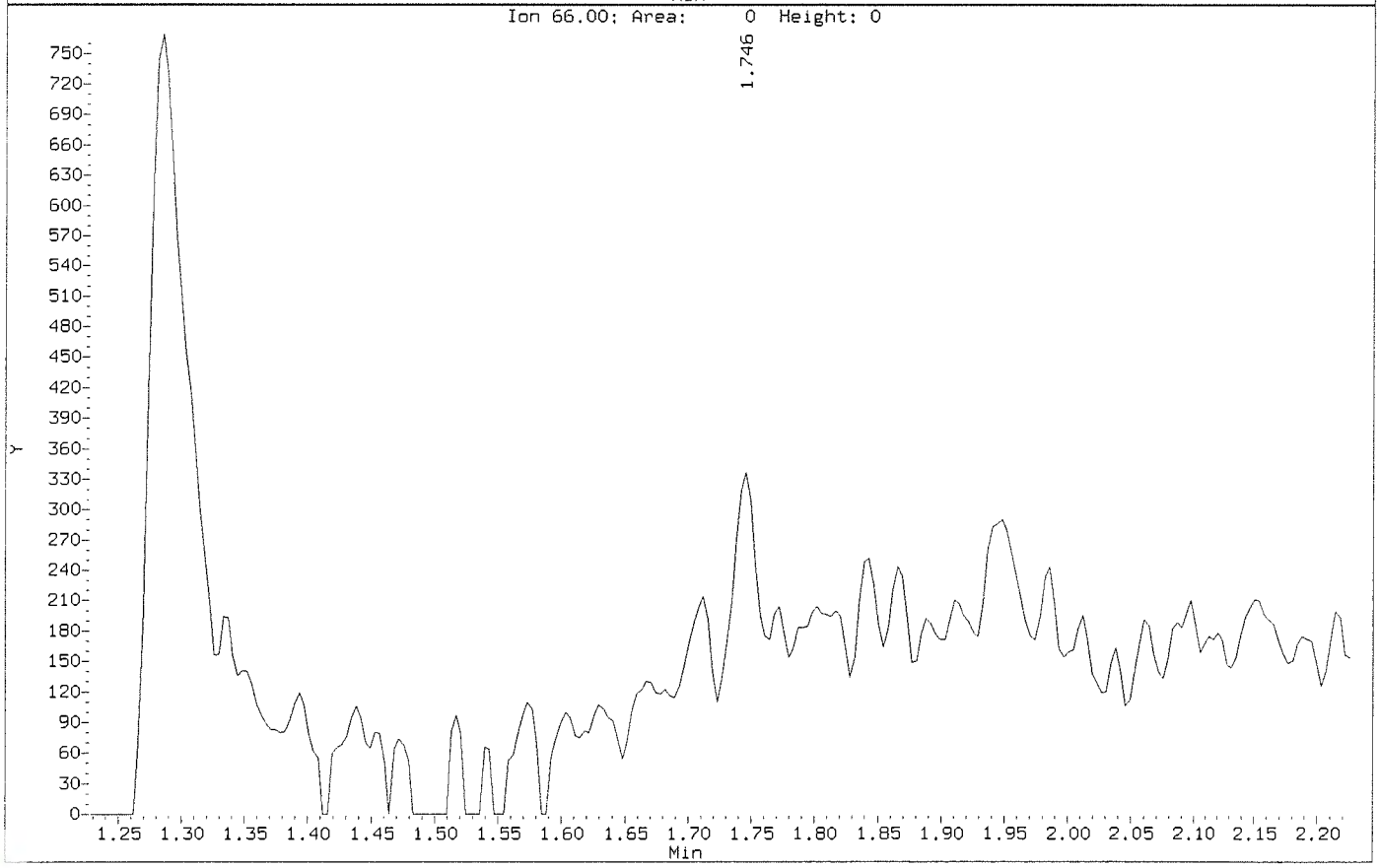
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Chloroethane
CAS Number: 75-00-3





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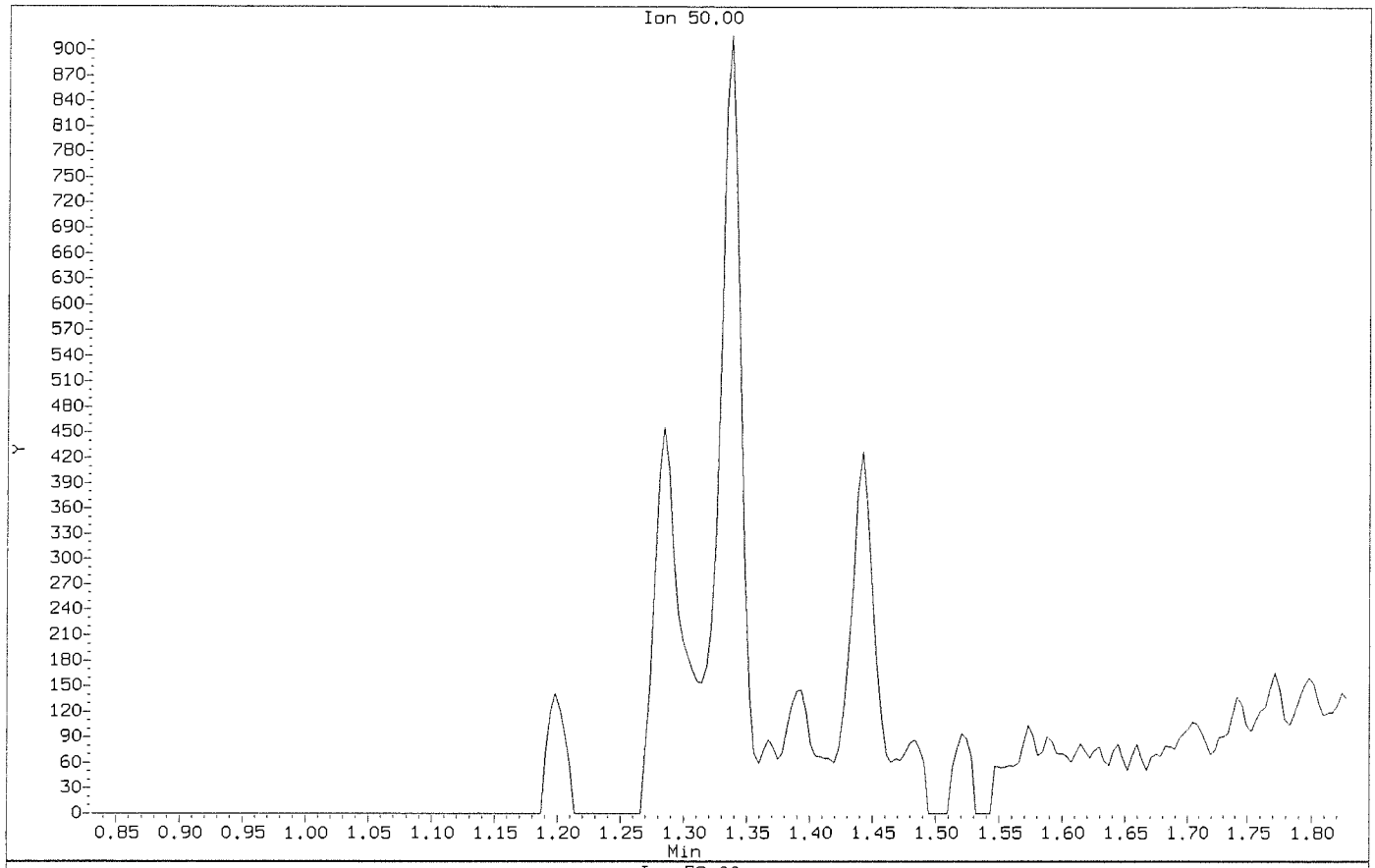
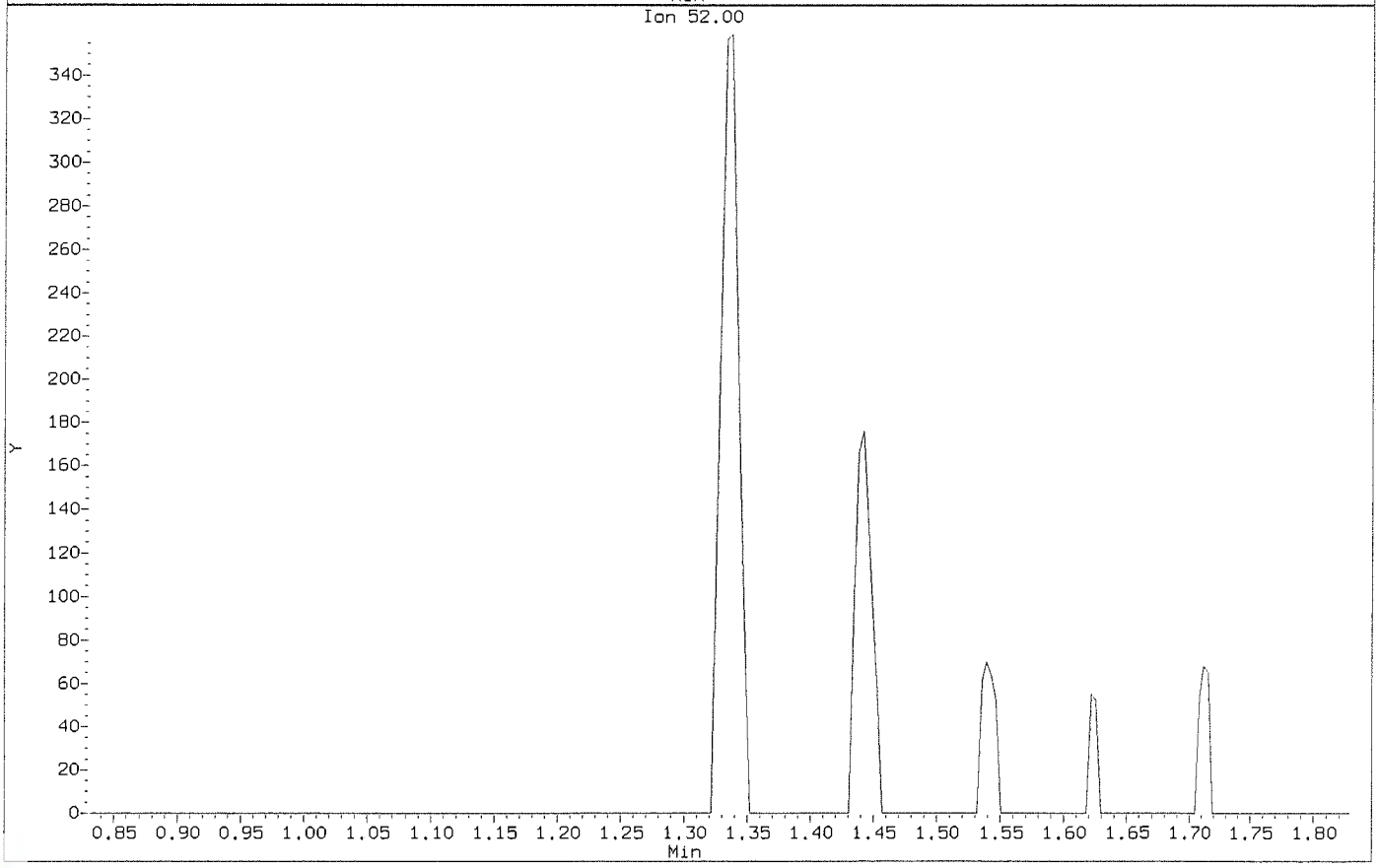
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Chloromethane
CAS Number: 74-87-3





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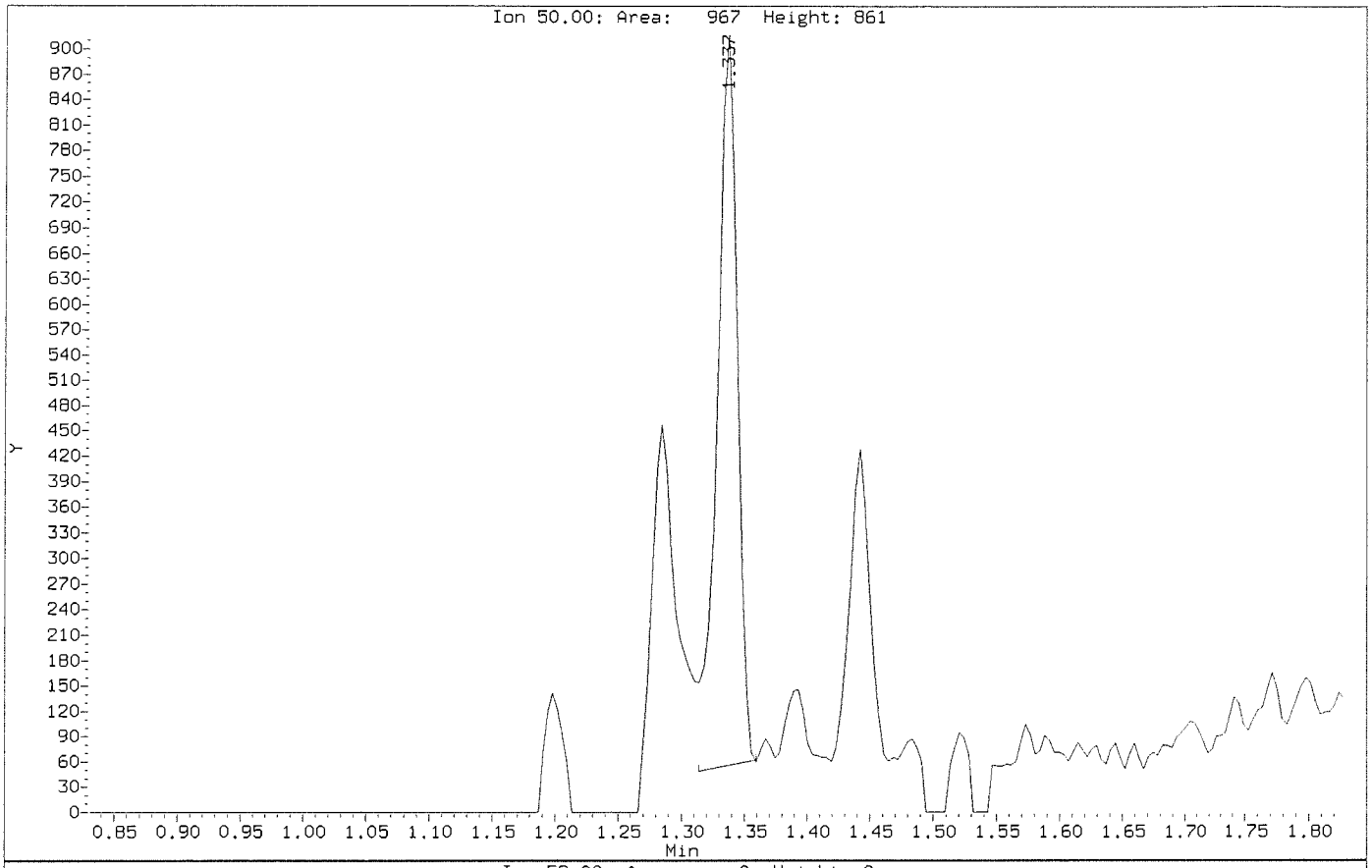
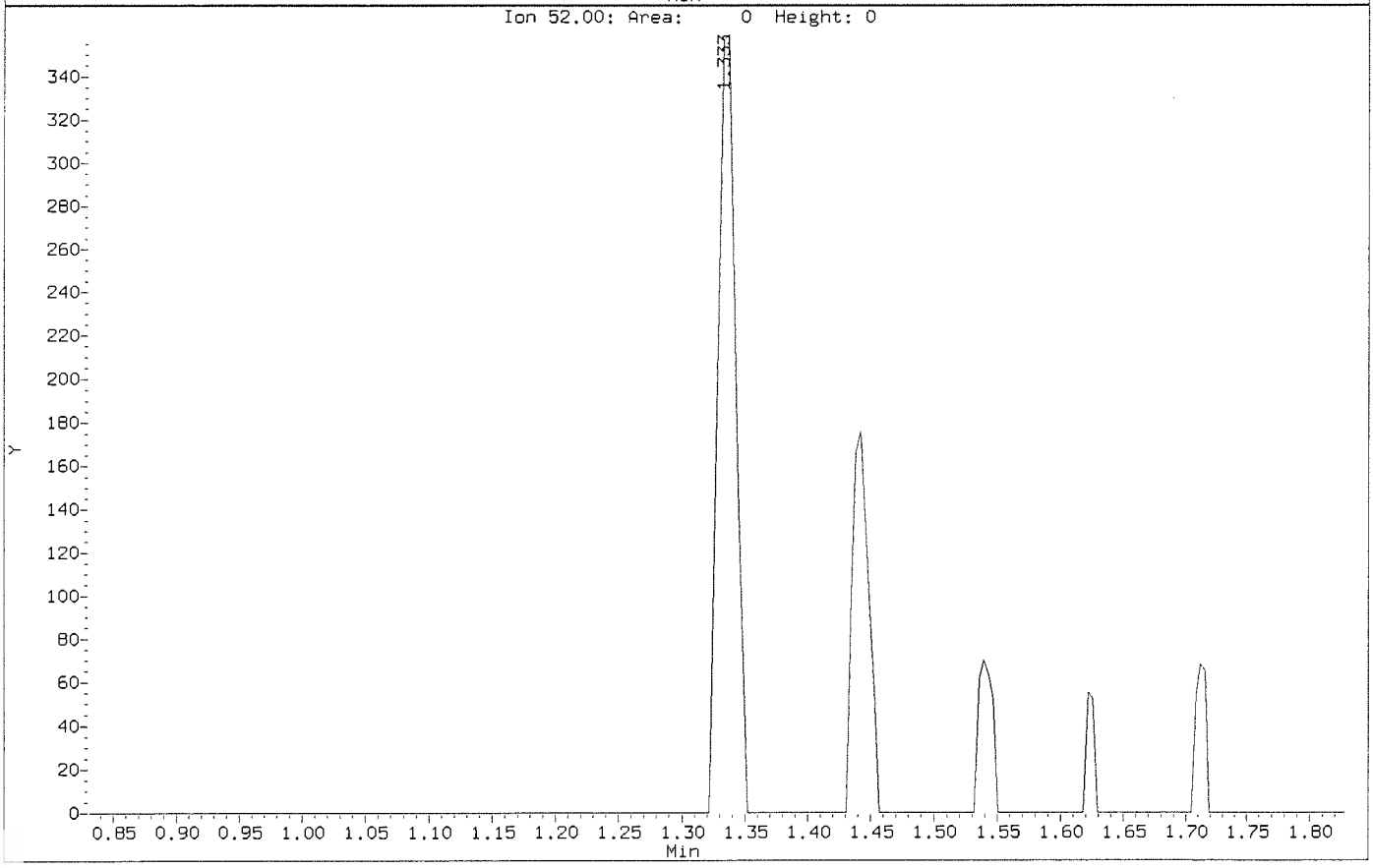
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Chloromethane
CAS Number: 74-87-3





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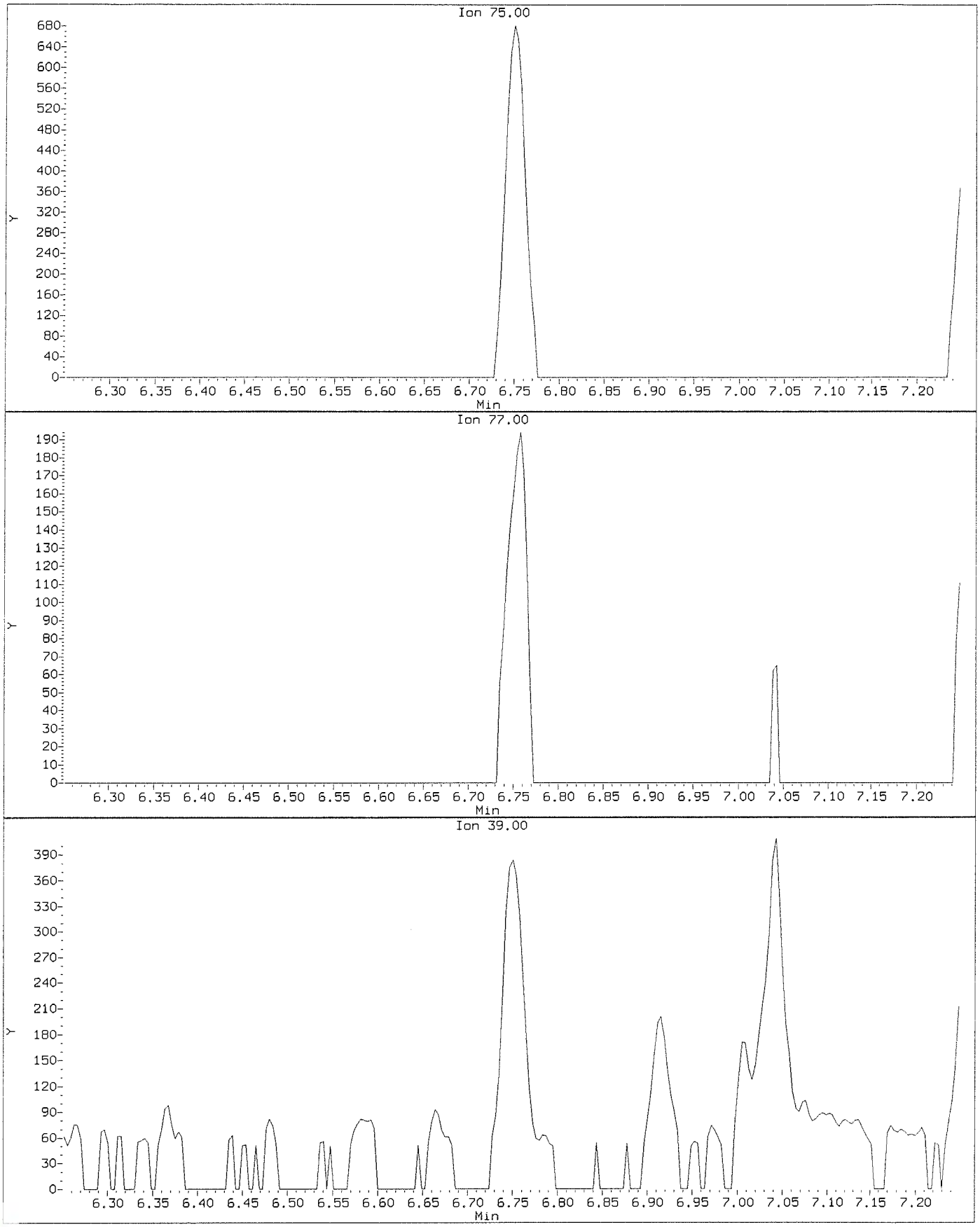
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5



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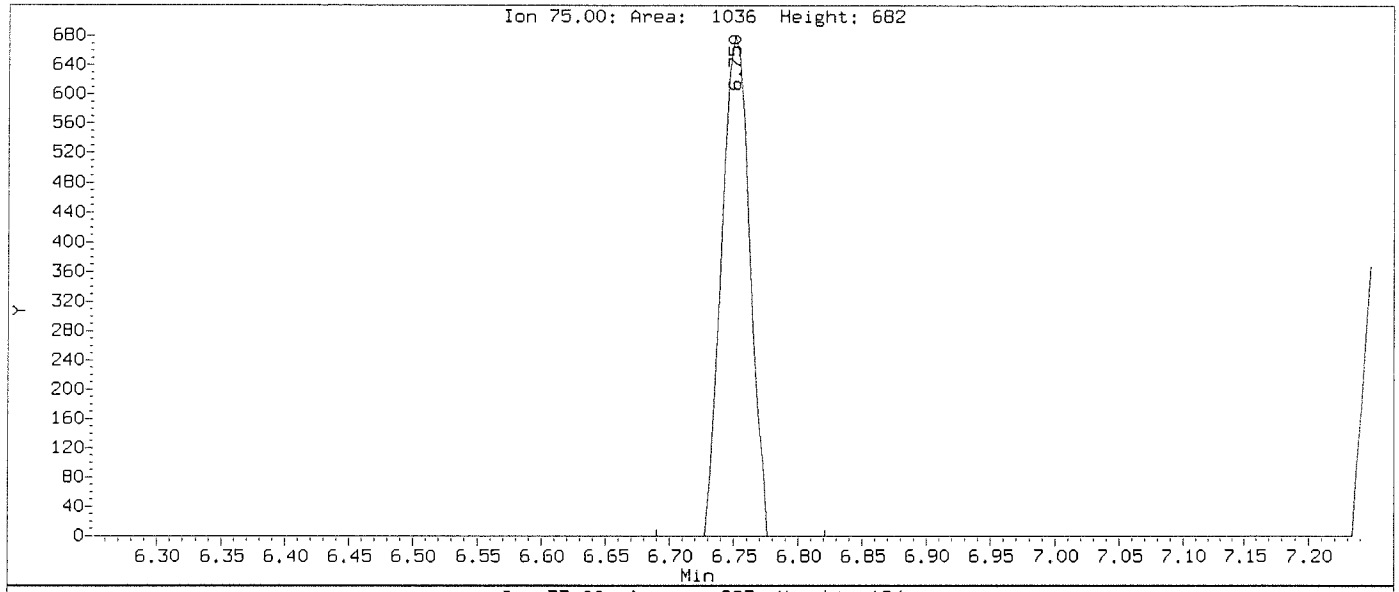
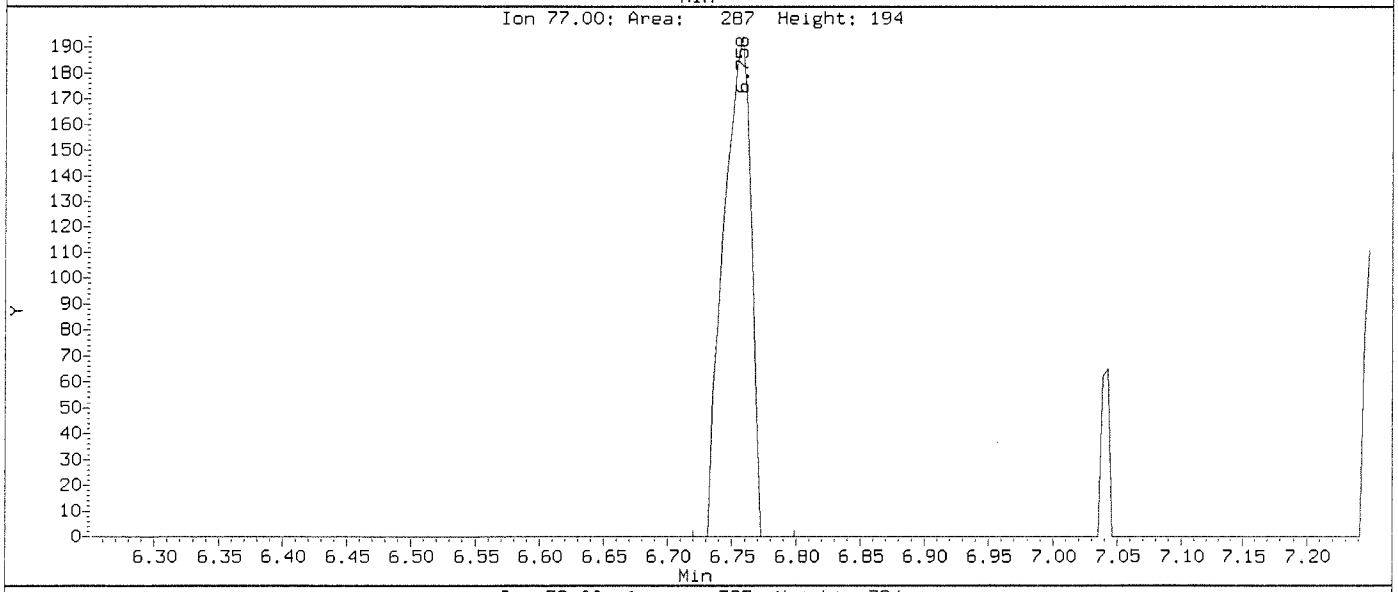
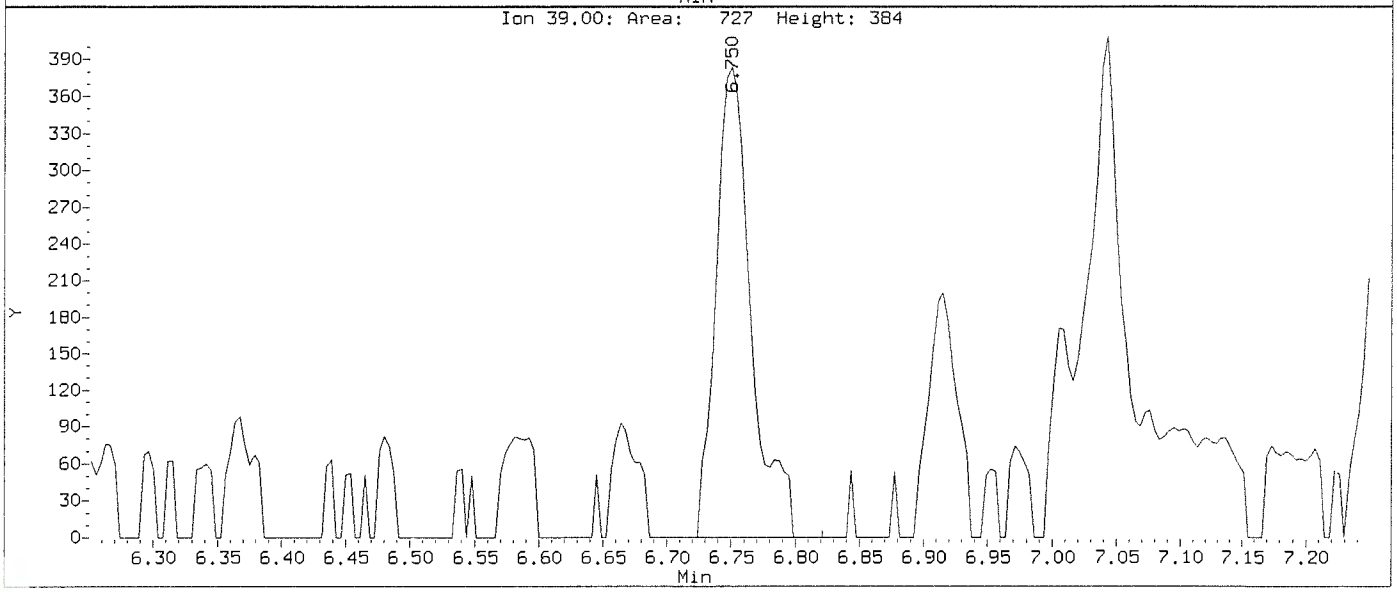
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5

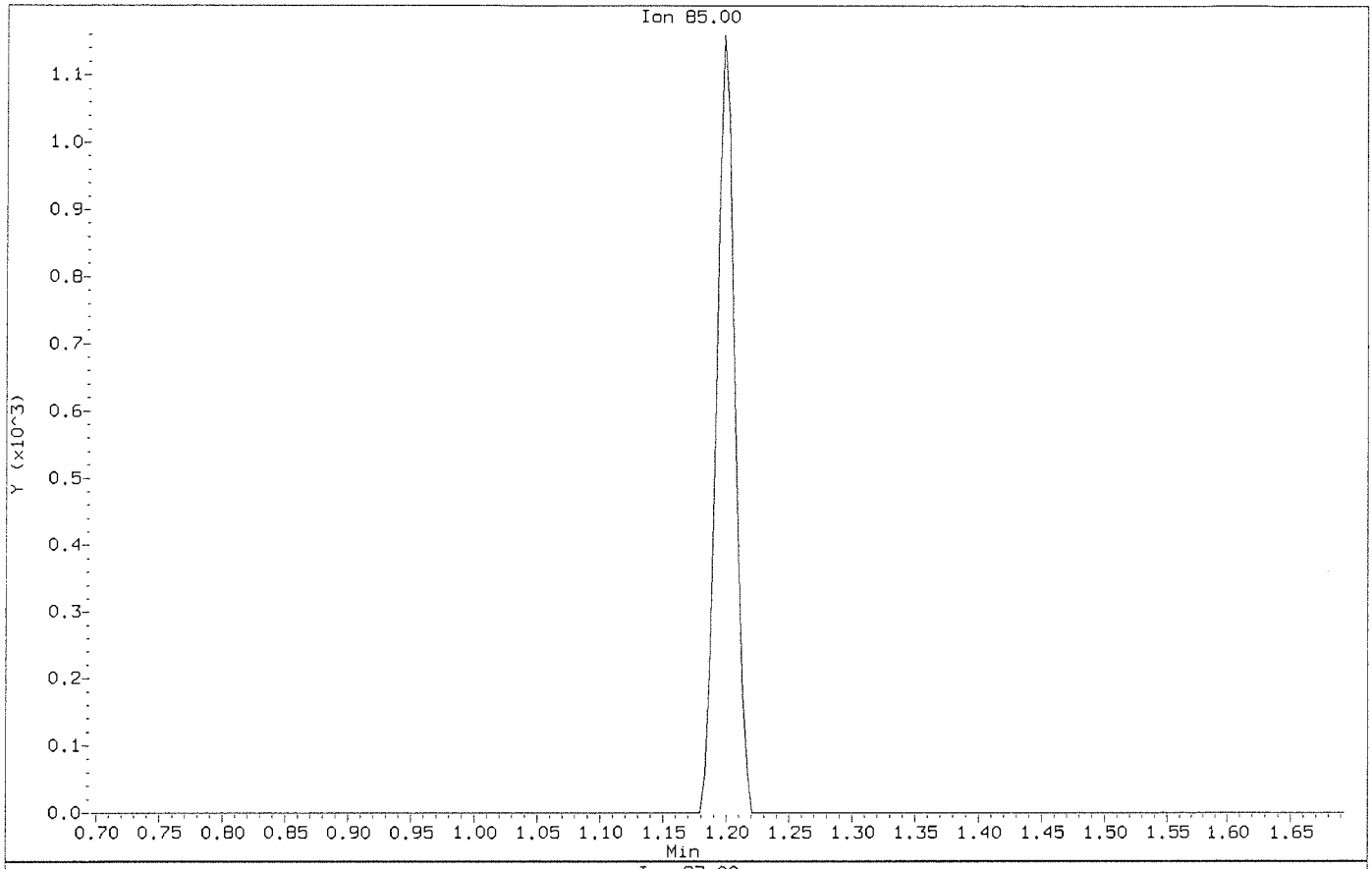


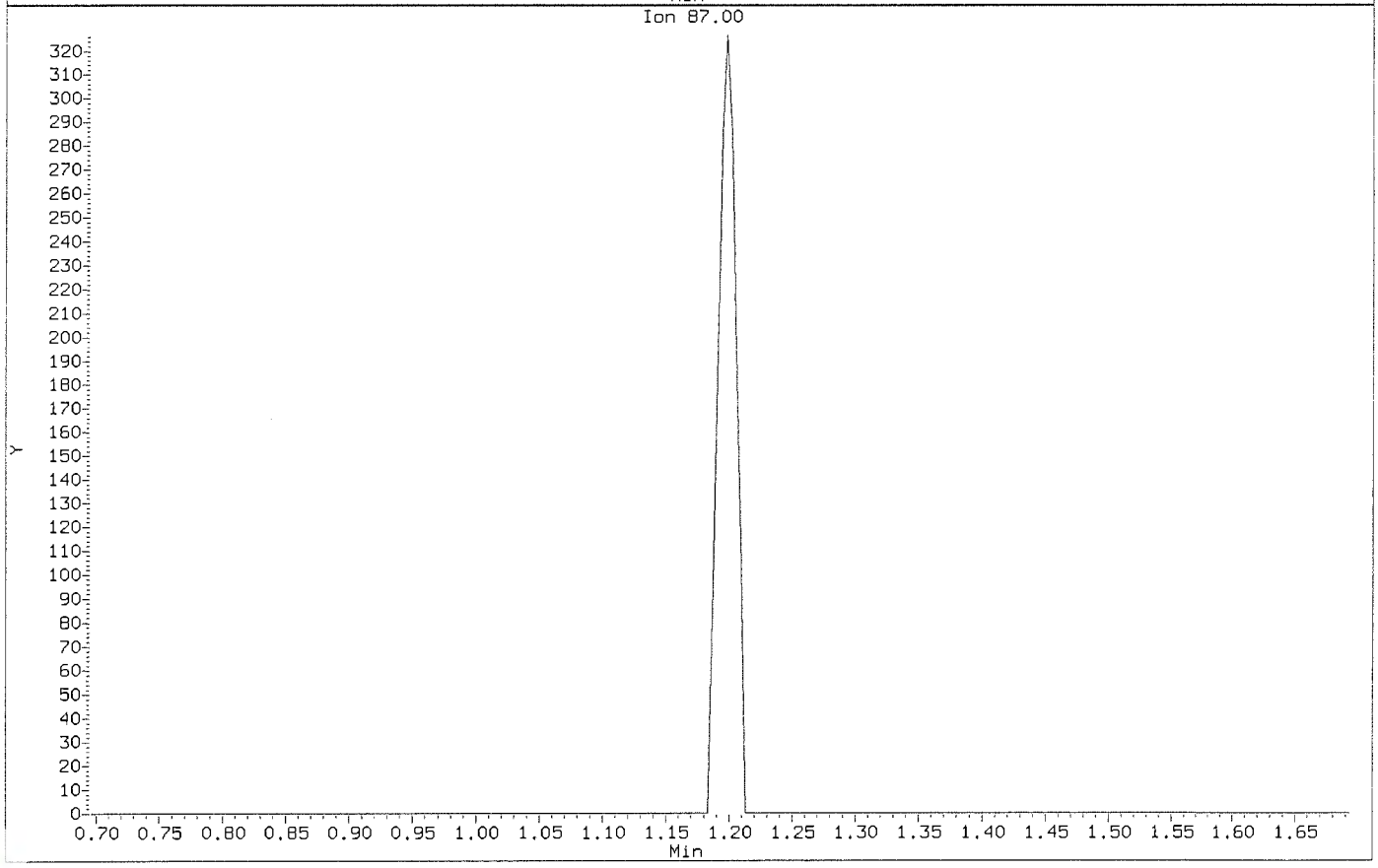




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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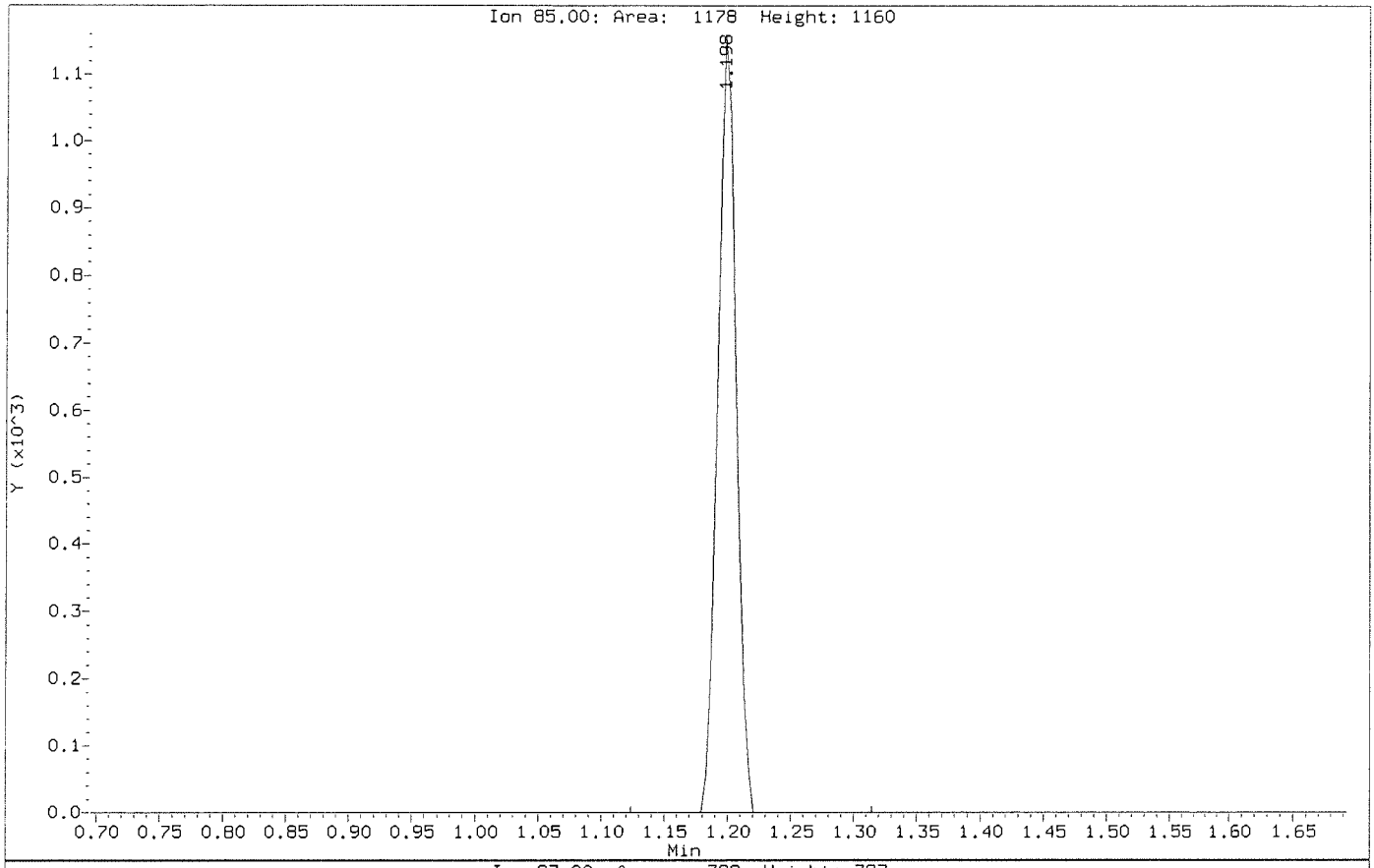
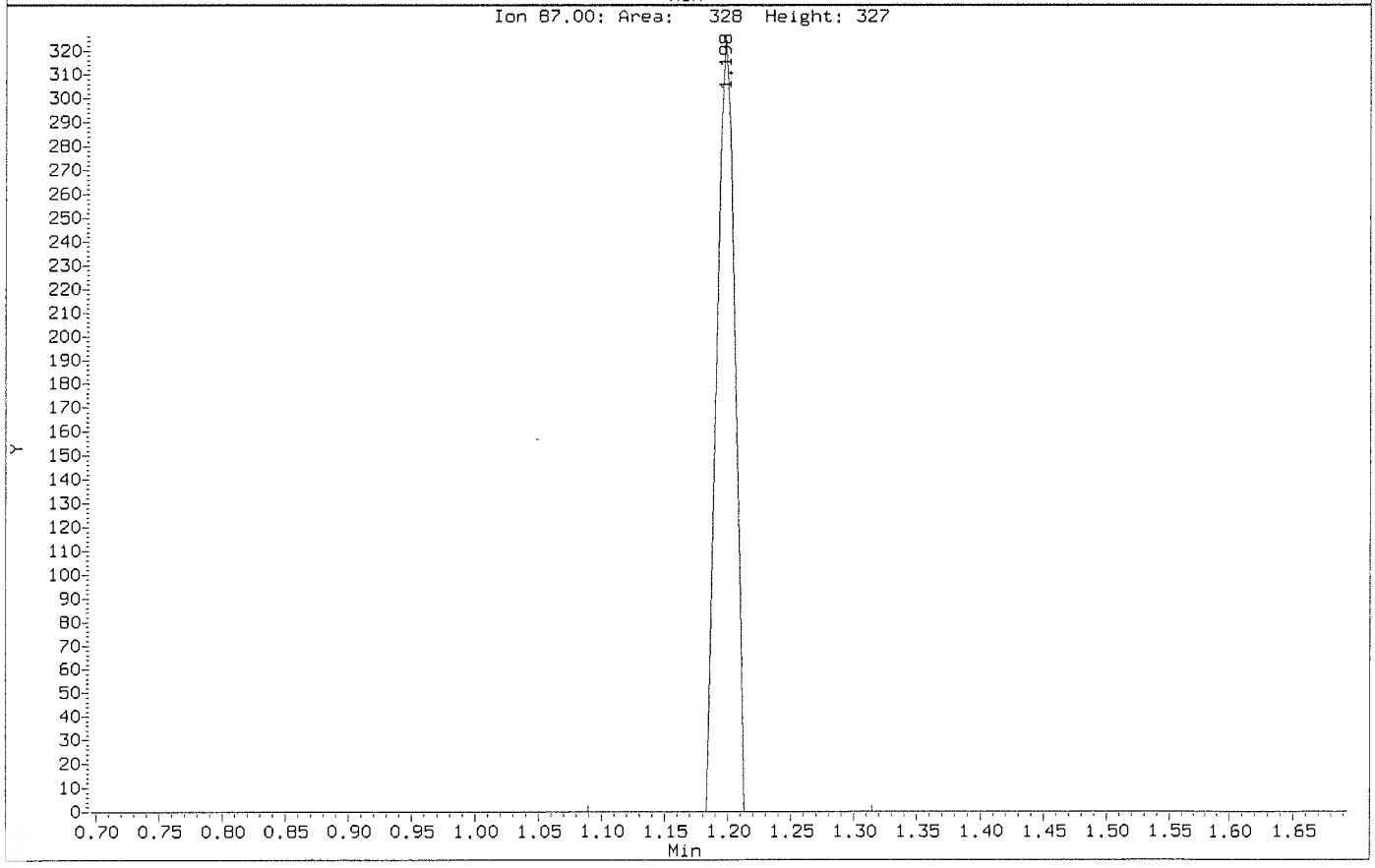
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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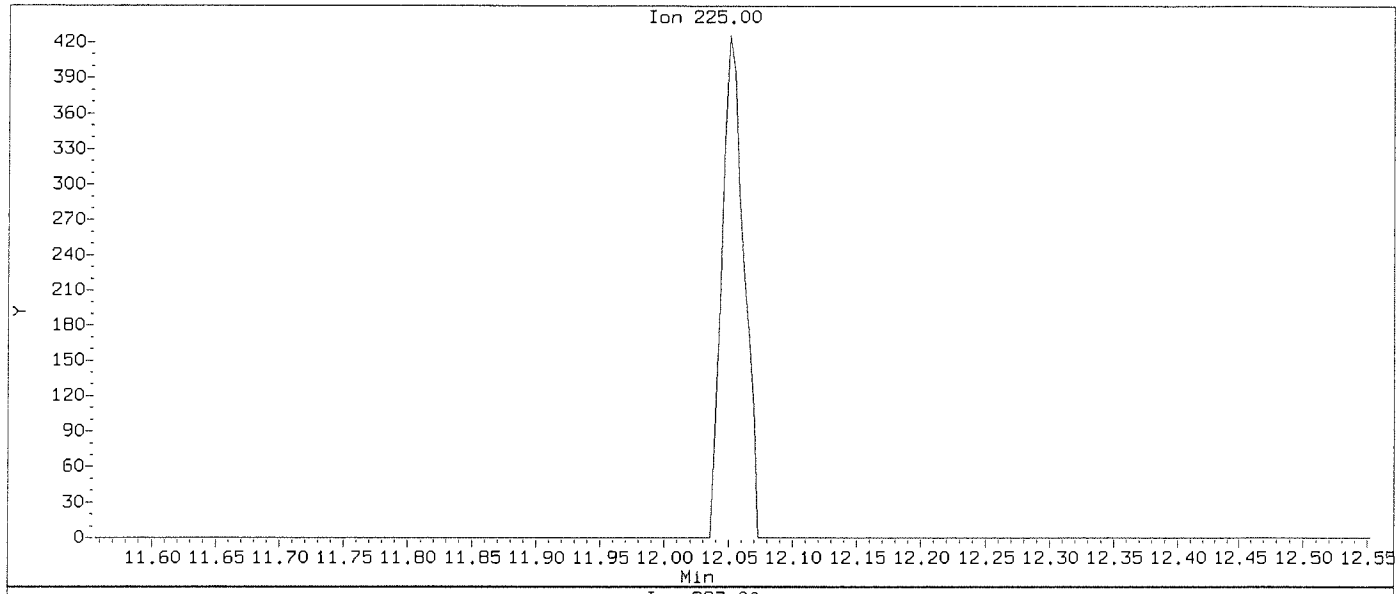
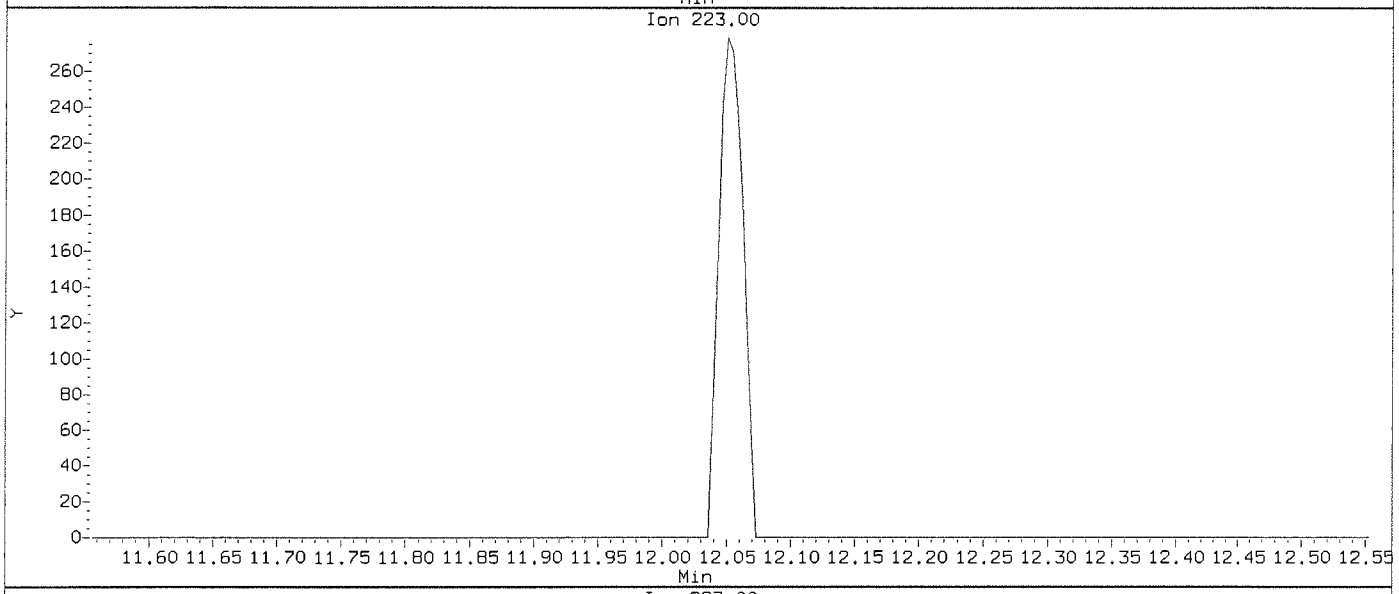
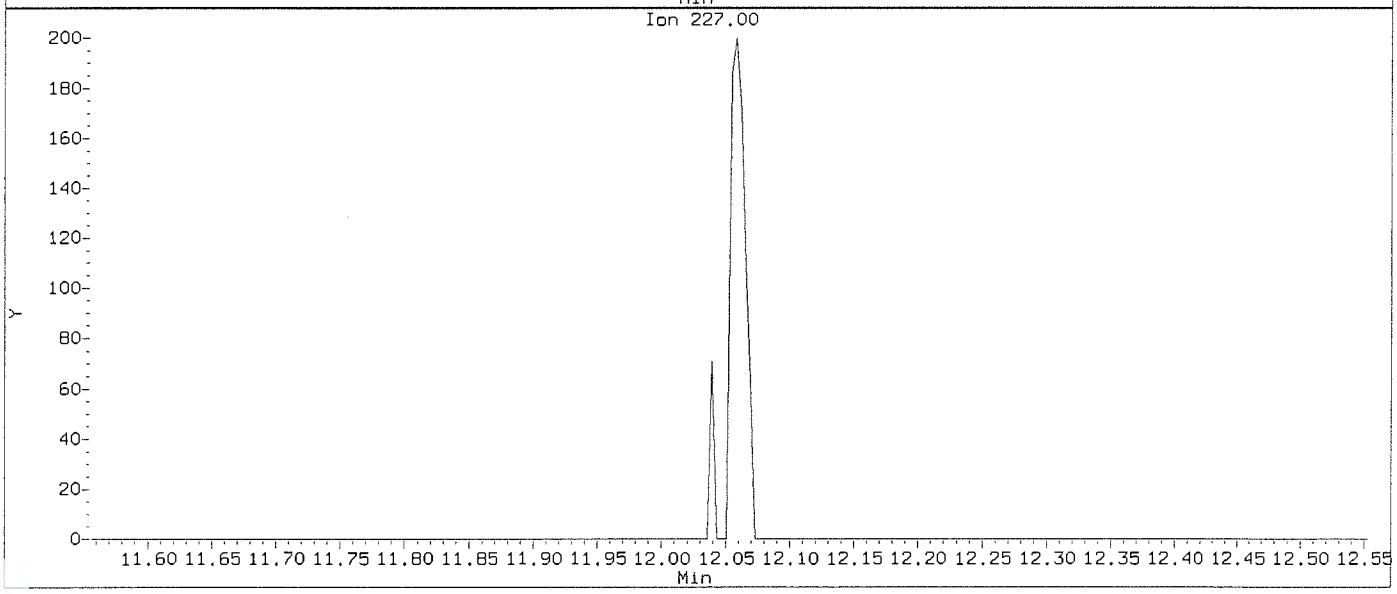
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Hexachlorobutadiene
CAS Number: 87-68-3







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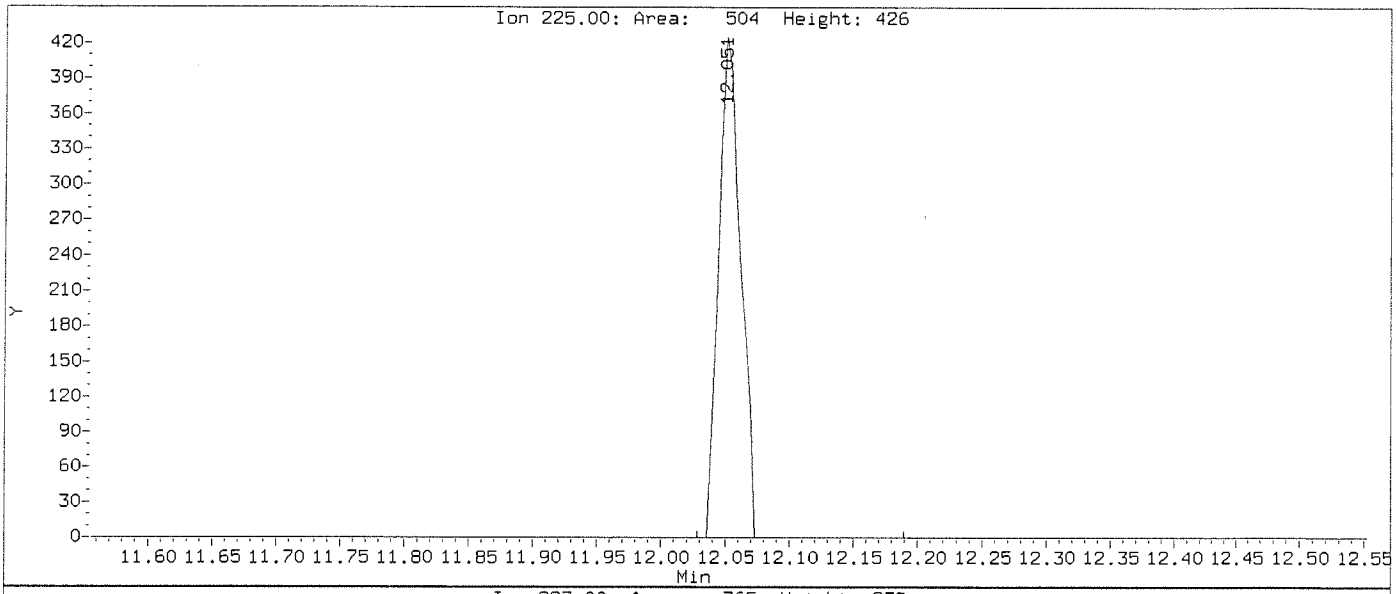
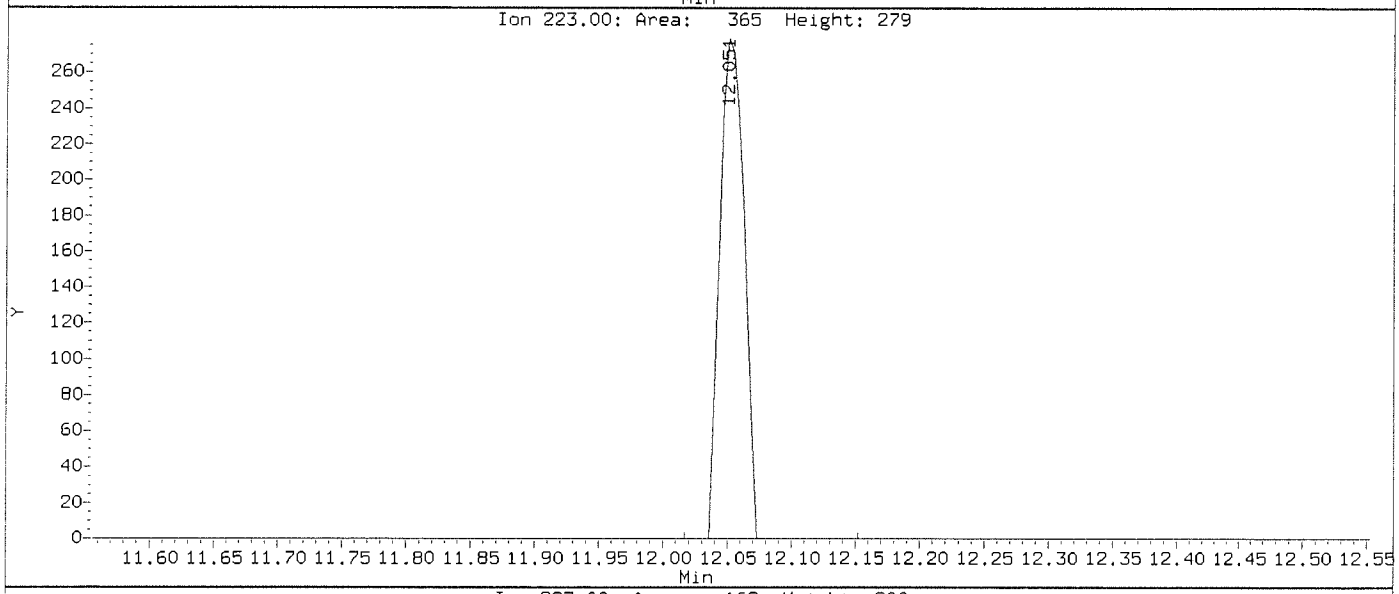
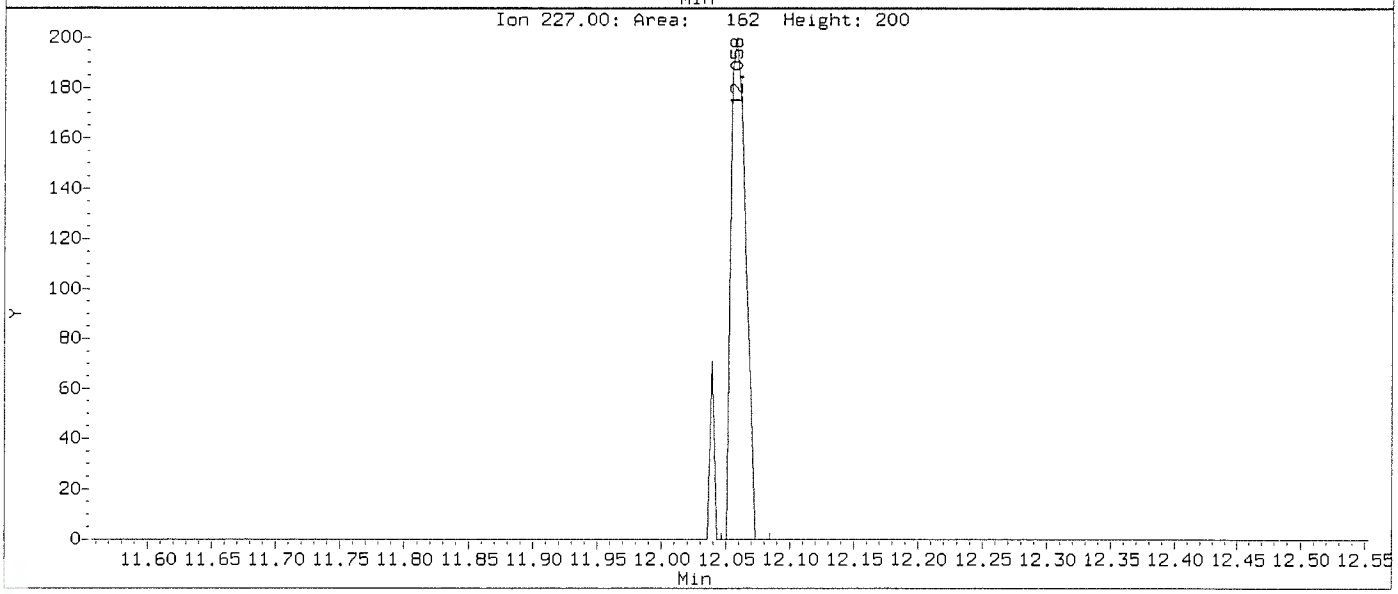
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Hexachlorobutadiene
CAS Number: 87-68-3

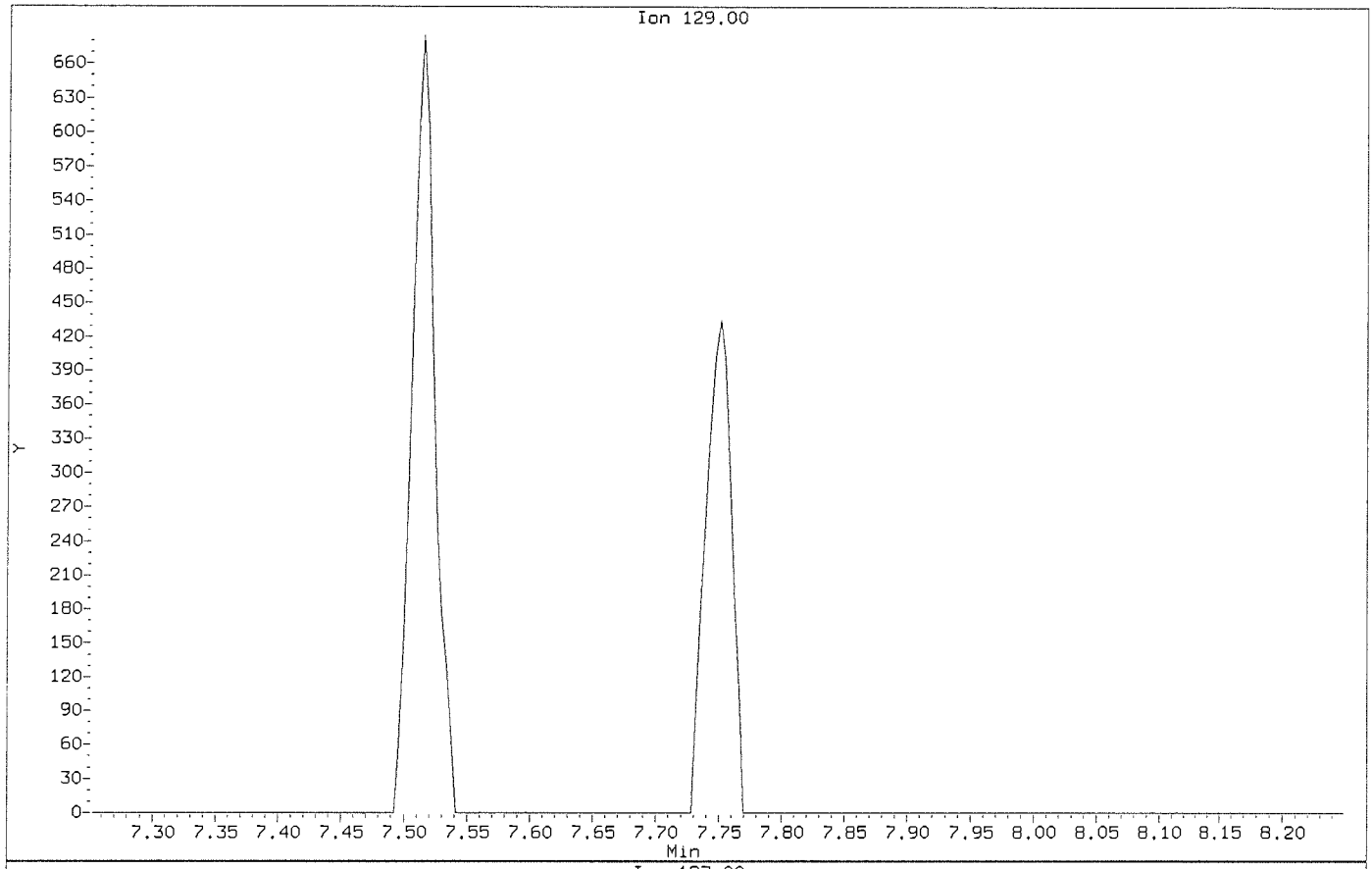


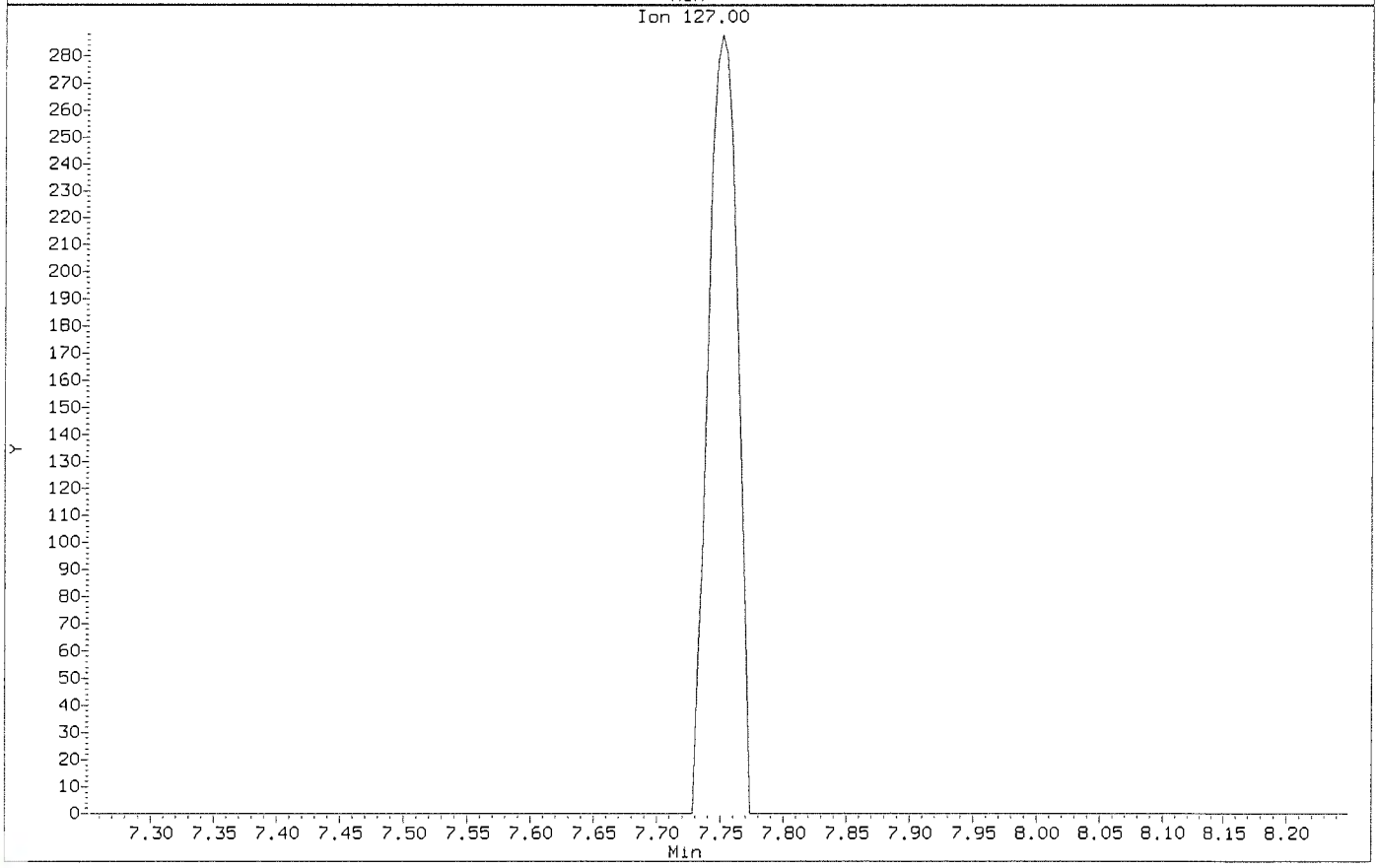




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: Dibromochloromethane
CAS Number: 124-48-1





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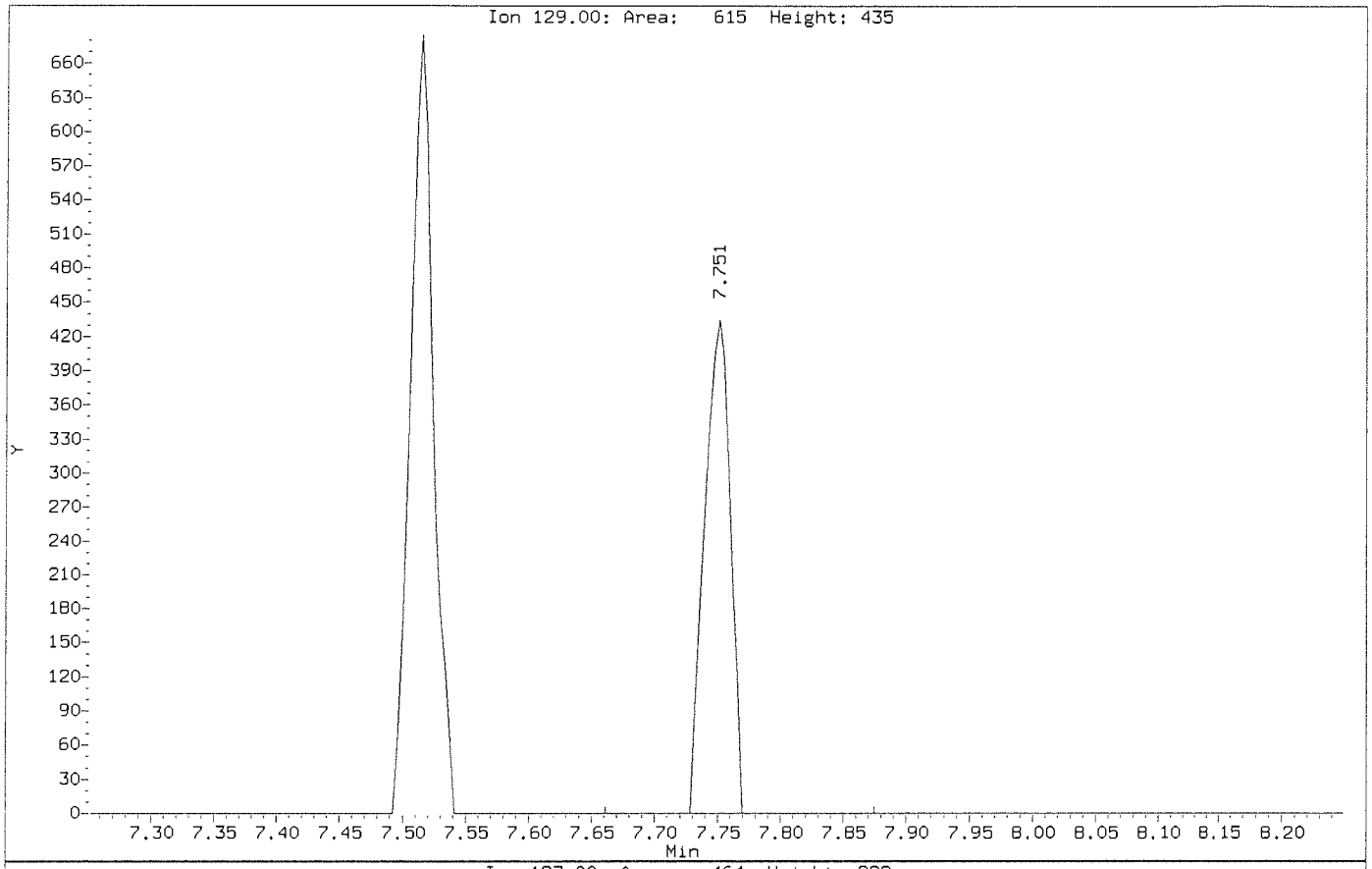
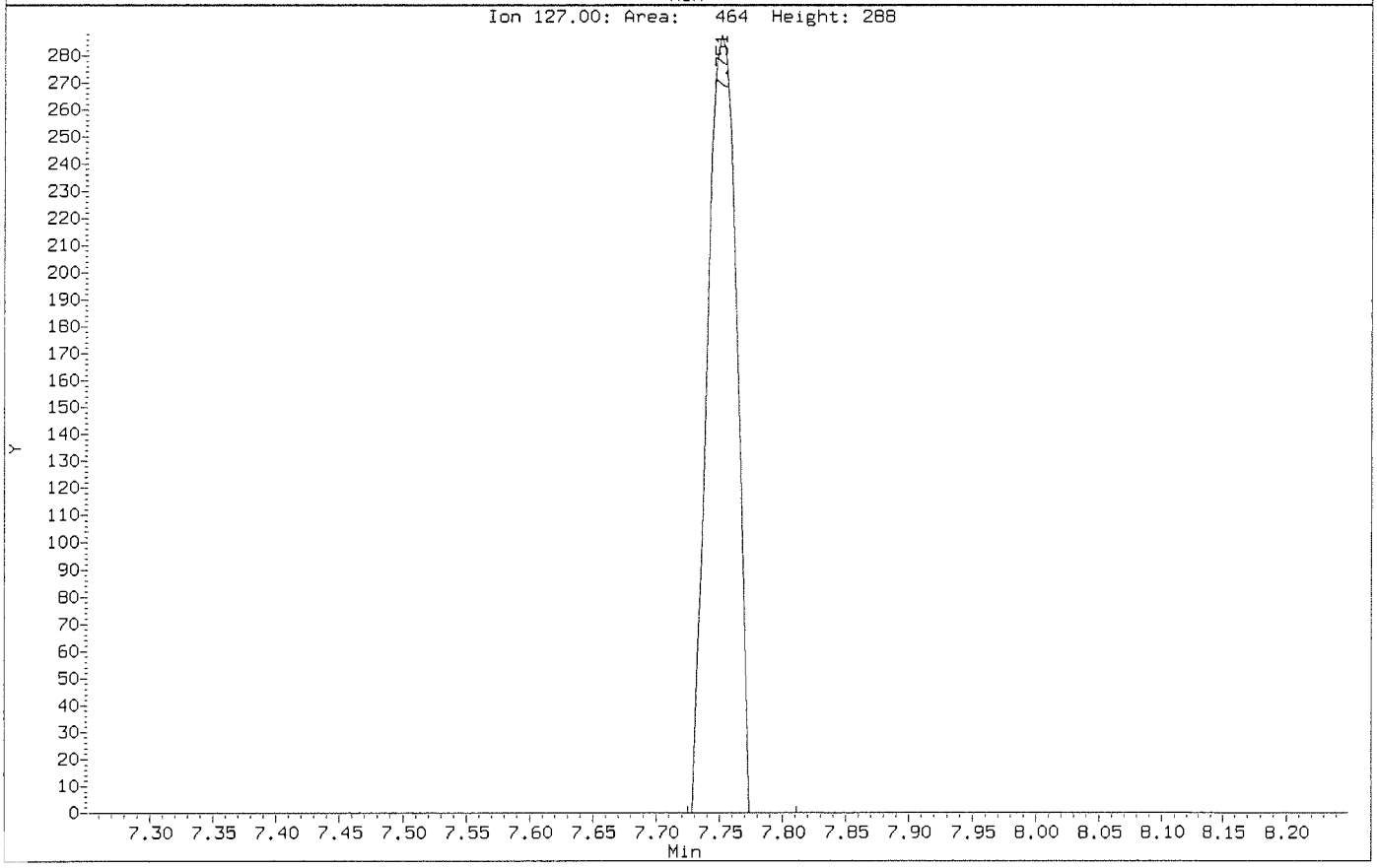
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

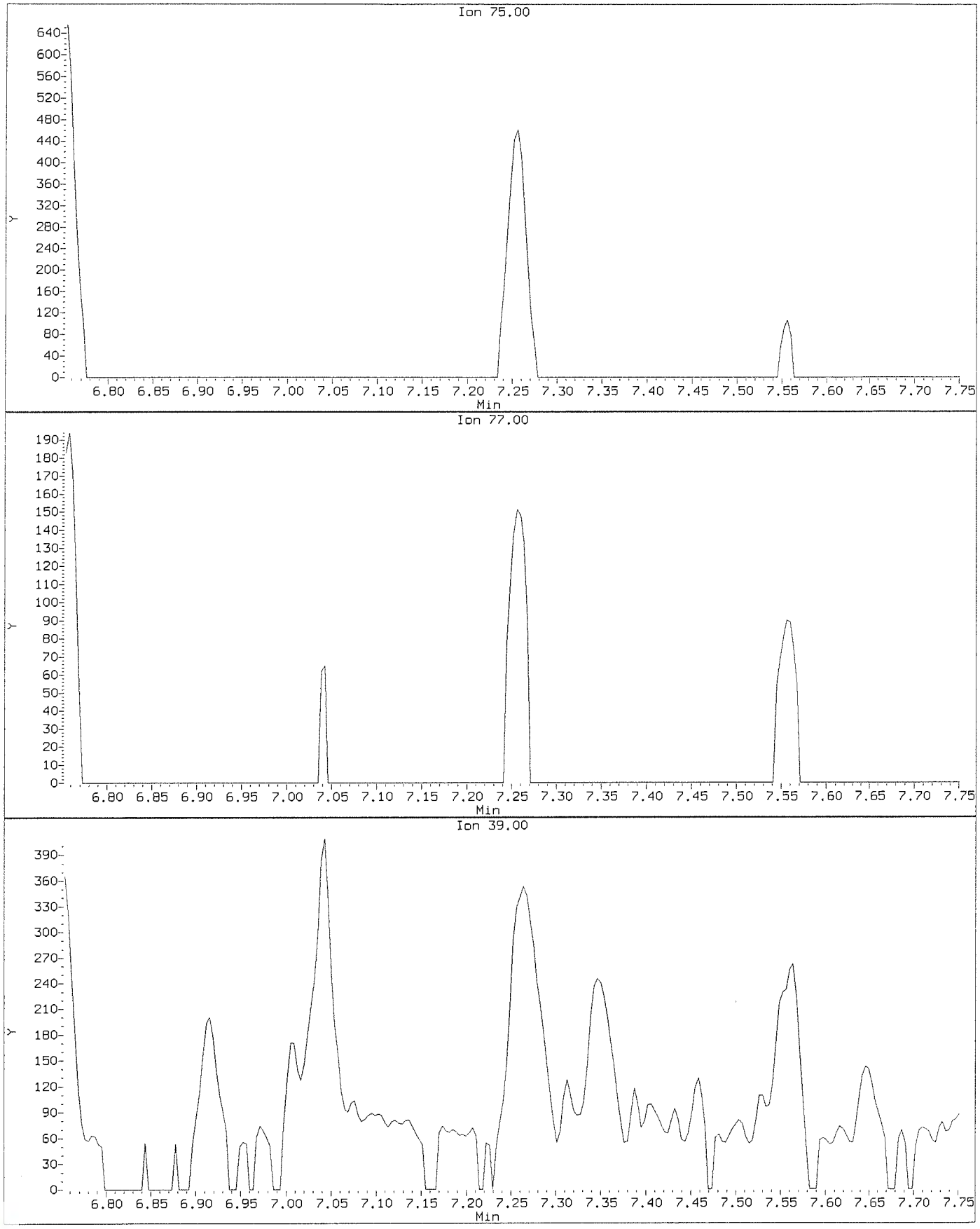
Compound: Dibromochloromethane
CAS Number: 124-48-1





Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111502.D
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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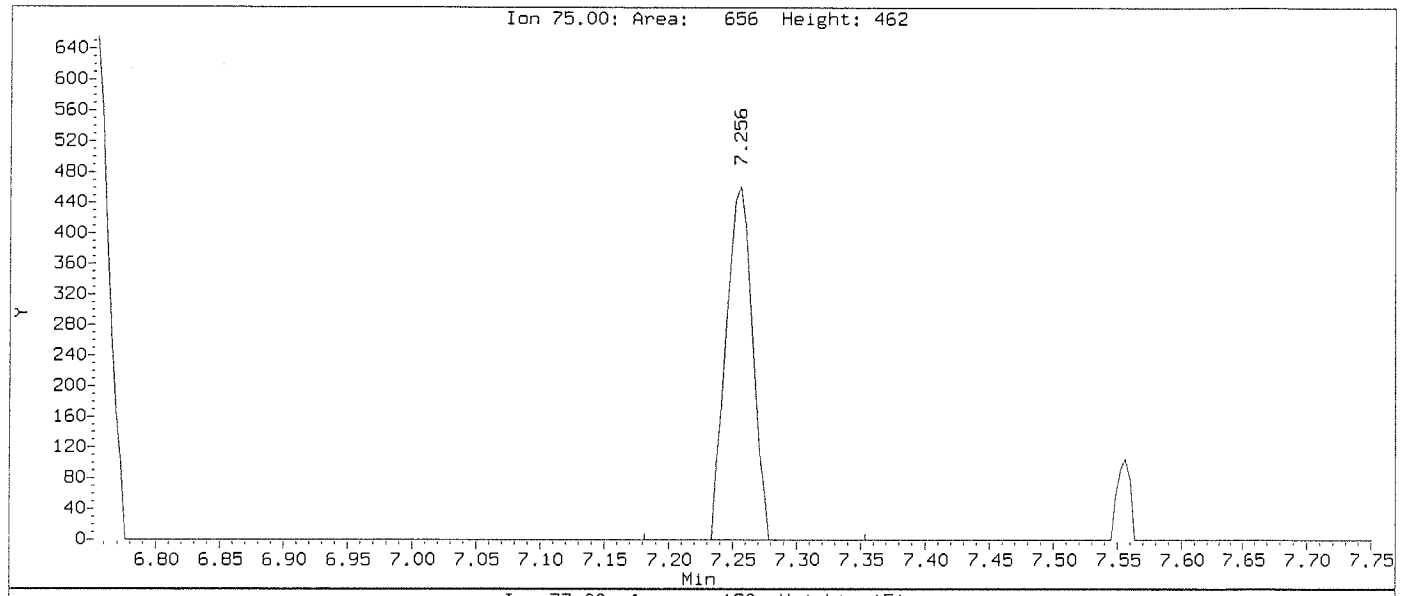
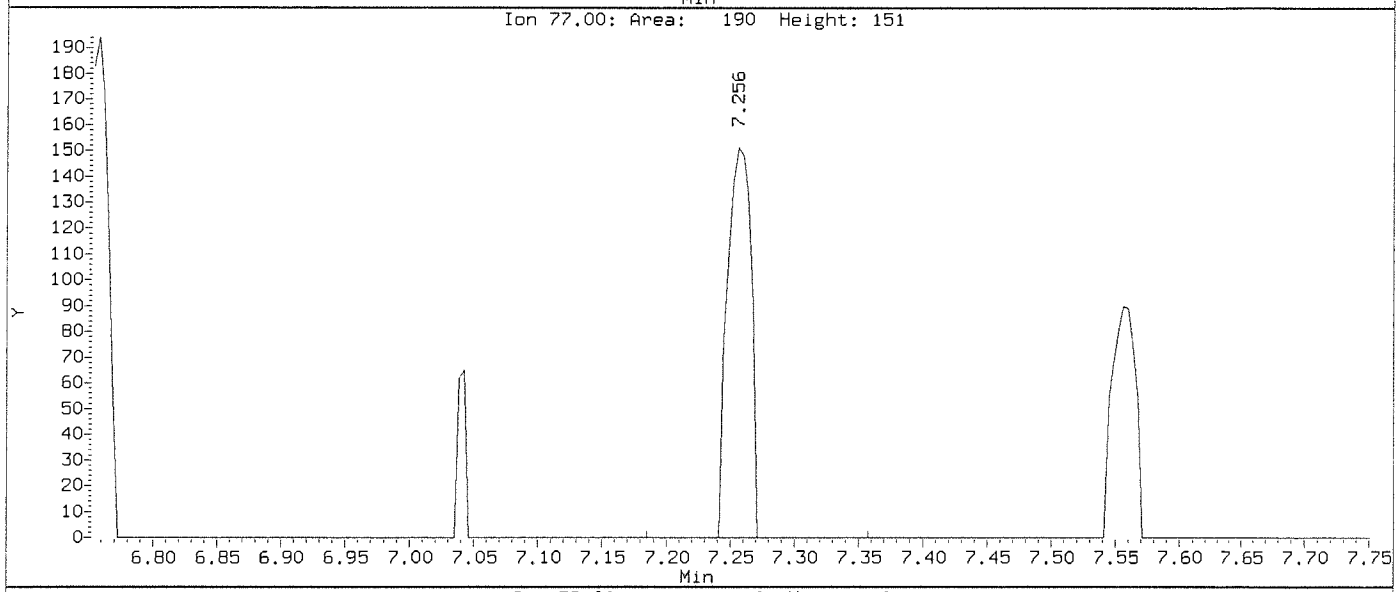
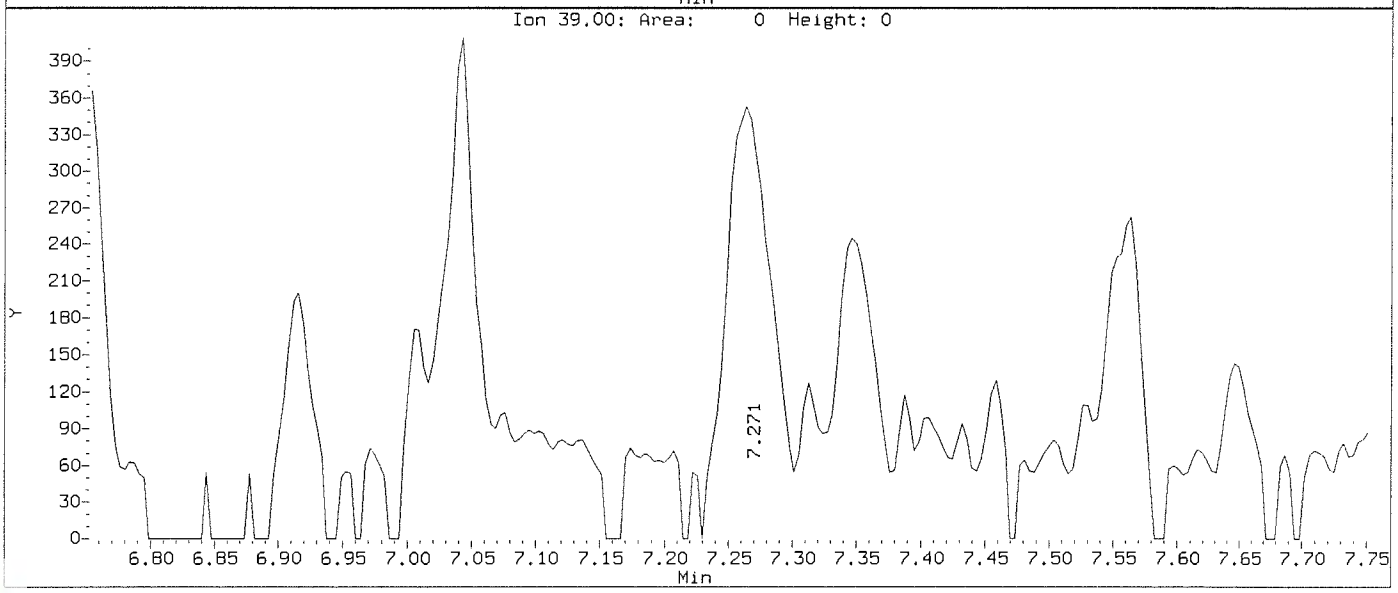
Injection Date: 15-NOV-2021 13:52
Instrument: VOA9.i
Client Sample ID: VSTD000.25

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6







Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 15-NOV-2021 14:36
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 13:52 Cal File: U111502.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	271182	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	470948	50.0000	
* 47 Chlorobenzene-d5	117	8.238	8.238	(1.000)	422791	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	207538	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	1948	0.50000	(aM)
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	3705	0.50000	(aM)
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	1516	0.50000	(M)
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	6356	0.50000	0.57(aM)
31 1,1,1-Trichloroethane	97	4.808	4.808	(0.985)	1478	0.50000	0.37(a)
57 1,2-Dibromoethane	107	7.840	7.840	(0.952)	1142	0.50000	0.37(a)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	803	0.50000	1.09(a)
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	1769	0.50000	0.40(aM)
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.900)	1069	0.50000	0.42(a)
22 1,1-Dichloroethane	63	3.582	3.582	(0.734)	2083	0.50000	0.43(Ta)
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	1015	0.50000	0.41(aM)
32 1,1-Dichloropropene	75	4.984	4.984	(0.888)	1529	0.50000	0.39(a)
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	1423	0.50000	0.38(aM)
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	1725	0.50000	0.40(a)
90 1,2,4-Trichlorobenzene	180	11.915	11.915	(1.165)	1643	0.50000	0.43(aM)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	4113	0.50000	0.39(a)
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	2336	0.50000	0.39(a)
33 1,2-Dichloroethane	62	5.246	5.246	(0.935)	1755	0.50000	0.41(aM)

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D Page 2
Report Date: 22-Dec-2021 13:55

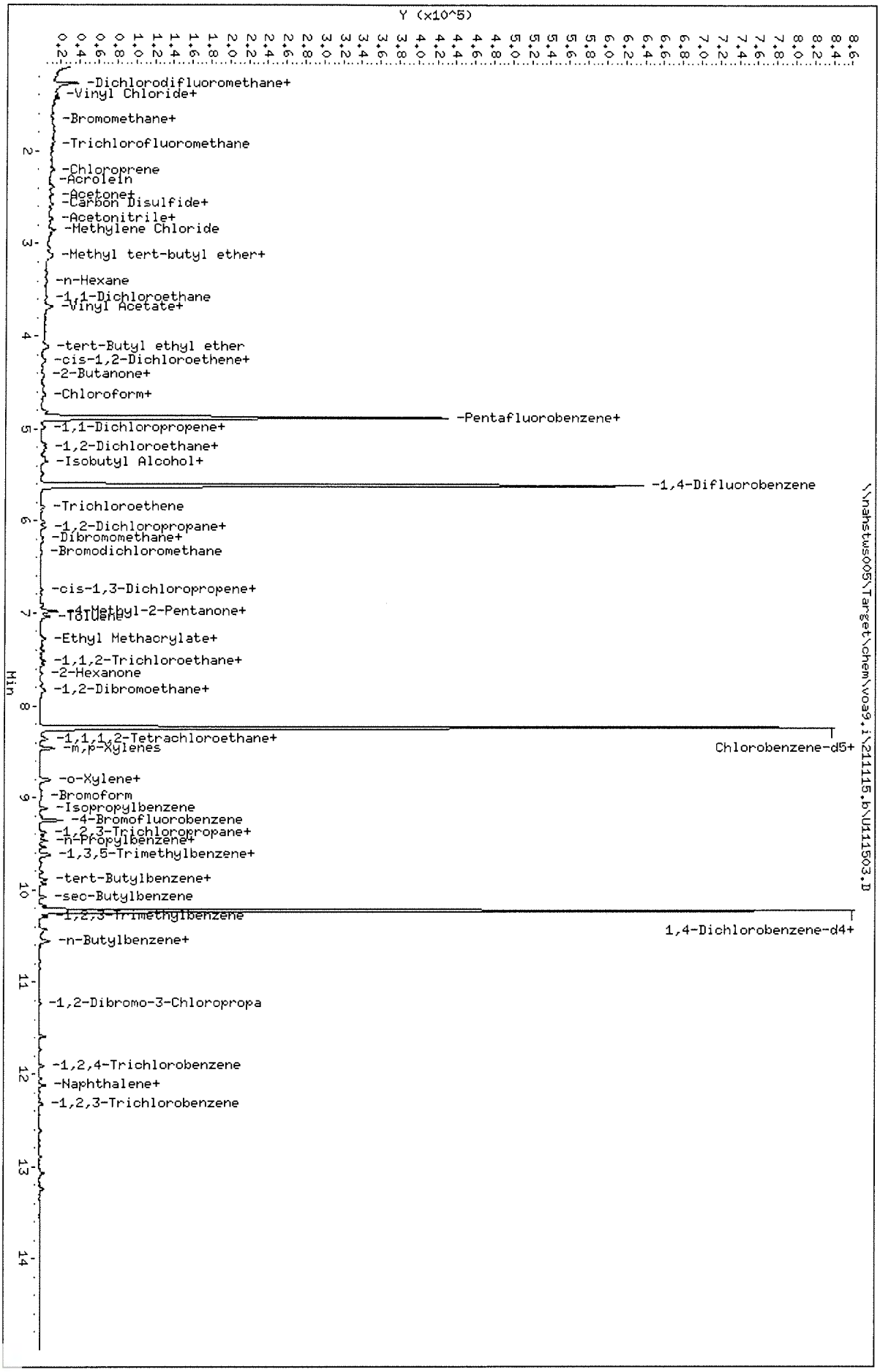
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42	1,2-Dichloropropane	63	6.075	6.075	(1.082)	1164	0.50000	0.39(a)
83	1,3-Dichlorobenzene	146	10.172	10.172	(0.995)	2678	0.50000	0.44(a)
54	1,3-Dichloropropane	76	7.555	7.555	(0.917)	2128	0.50000	0.40(a)
75	1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	4412	0.50000	0.43(a)
84	1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	2568	0.50000	0.41(a)
89	1,2-Dibromo-3-Chloropropane	155	11.225	11.225	(1.098)	40	0.50000	2.48(aM)
26	2,2-Dichloropropane	77	4.257	4.257	(0.872)	1144	0.50000	0.41(aM)
24	2-Butanone	43	4.350	4.350	(0.892)	1576	1.00000	1.11(aM)
76	2-Chlorotoluene	91	9.539	9.539	(0.933)	3715	0.50000	0.41(a)
52	2-Hexanone	43	7.653	7.653	(0.929)	1404	1.00000	0.69(aH)
77	4-Chlorotoluene	91	9.632	9.632	(0.942)	4404	0.50000	0.42(a)
82	p-Isopropyltoluene	119	10.202	10.202	(0.998)	3984	0.50000	0.39(a)
10	Acetone	43	2.469	2.469	(0.506)	3031	1.00000	(a)
37	Benzene	78	5.201	5.201	(0.927)	5187	0.50000	0.43(a)
74	Bromobenzene	156	9.374	9.374	(0.917)	1189	0.50000	0.36(a)
29	Bromochloromethane	128	4.542	4.542	(0.931)	602	0.50000	0.39(a)
39	Bromodichloromethane	83	6.341	6.341	(1.130)	1201	0.50000	1.34(aM)
66	Bromoform	173	8.976	8.976	(1.090)	450	0.50000	1.65(aM)
6	Bromomethane	94	1.655	1.655	(0.339)	935	0.50000	0.05(a)
34	Carbon Tetrachloride	117	4.973	4.973	(0.886)	1045	0.50000	1.77(aM)
59	Chlorobenzene	112	8.264	8.264	(1.003)	3879	0.50000	0.47(a)
7	Chloroethane	64	1.741	1.741	(0.357)	1358	0.50000	0.60(aM)
28	Chloroform	83	4.643	4.643	(0.952)	2055	0.50000	0.39(a)
3	Chloromethane	50	1.325	1.325	(0.272)	1429	0.50000	(aM)
27	cis-1,2-Dichloroethene	96	4.264	4.264	(0.874)	1398	0.50000	0.42(a)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.839)	2609	1.00000	0.85(a)
46	cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	1095	0.50000	1.95(aM)
44	Dibromomethane	93	6.180	6.180	(1.101)	925	0.50000	0.45(a)
2	Dichlorodifluoromethane	85	1.186	1.186	(0.243)	1420	0.50000	(aM)
61	Ethylbenzene	106	8.361	8.361	(1.015)	1713	0.50000	0.41(a)
91	Hexachlorobutadiene	225	12.054	12.054	(1.179)	584	0.50000	0.41(aM)
62	m,p-Xylenes	106	8.466	8.466	(1.028)	3986	1.00000	0.78(a)
64	Styrene	104	8.819	8.819	(1.071)	3248	0.50000	0.37(a)
78	tert-Butylbenzene	119	9.891	9.891	(0.967)	3788	0.50000	0.44(a)
17	Methylene Chloride	84	2.851	2.851	(0.584)	1919	0.50000	0.60(a)
87	n-Butylbenzene	91	10.547	10.547	(1.032)	4151	0.50000	0.45(a)
73	n-Propylbenzene	91	9.467	9.467	(0.926)	5751	0.50000	0.40(a)
92	Naphthalene	128	12.121	12.121	(1.186)	5022	0.50000	0.43(a)
63	o-Xylene	106	8.804	8.804	(1.069)	2107	0.50000	0.41(a)
81	sec-Butylbenzene	105	10.078	10.078	(0.986)	4774	0.50000	0.41(a)
55	Dibromochloromethane	129	7.747	7.747	(0.940)	630	0.50000	1.69(aM)
56	Tetrachloroethene	164	7.511	7.511	(0.912)	1122	0.50000	0.47(a)
50	Toluene	91	7.038	7.038	(0.854)	5816	0.50000	0.45(a)
19	Carbon Disulfide	76	2.570	2.570	(0.527)	5595	1.00000	0.83(a)
20	trans-1,2-Dichloroethene	96	3.121	3.121	(0.640)	1392	0.50000	0.51(a)
38	Trichloroethene	130	5.850	5.850	(1.042)	1292	0.50000	0.41(a)
8	Trichlorofluoromethane	101	1.932	1.932	(0.396)	1758	0.50000	0.40(a)
5	Vinyl Chloride	62	1.400	1.400	(0.287)	1493	0.50000	0.45(a)
138	Freon TF	101	2.382	2.382	(0.488)	872	0.50000	0.39(a)
67	Isopropylbenzene	105	9.119	9.119	(1.107)	4987	0.50000	0.40(a)
51	trans-1,3-Dichloropropene	75	7.256	7.256	(1.292)	735	0.50000	2.27(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\voa9,i\211115,b\U111503.D
Date : 15-NOV-2021 14:36
Client ID: VSTD000,5
Sample Info: VSTD000,5;VSTD000,5;1;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



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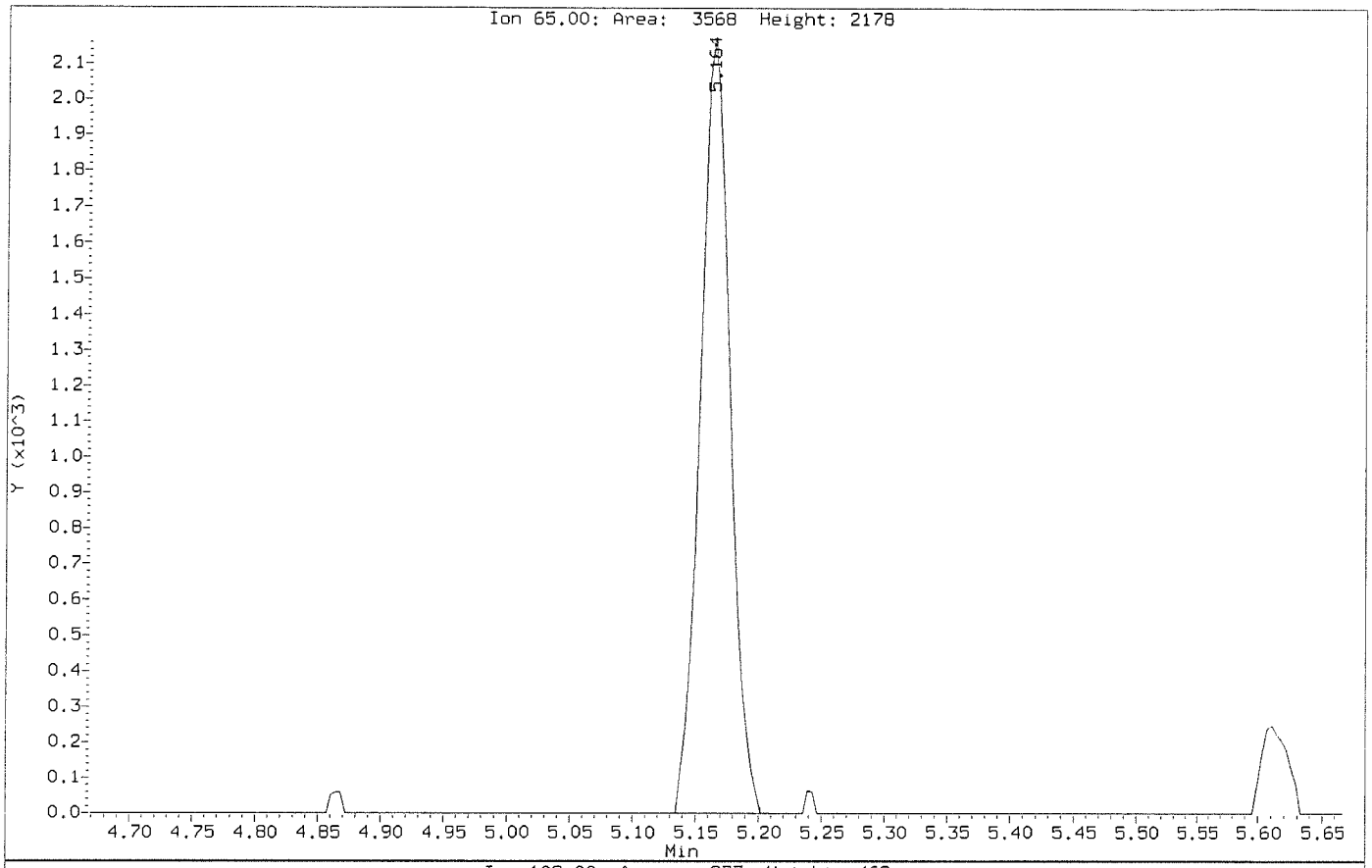
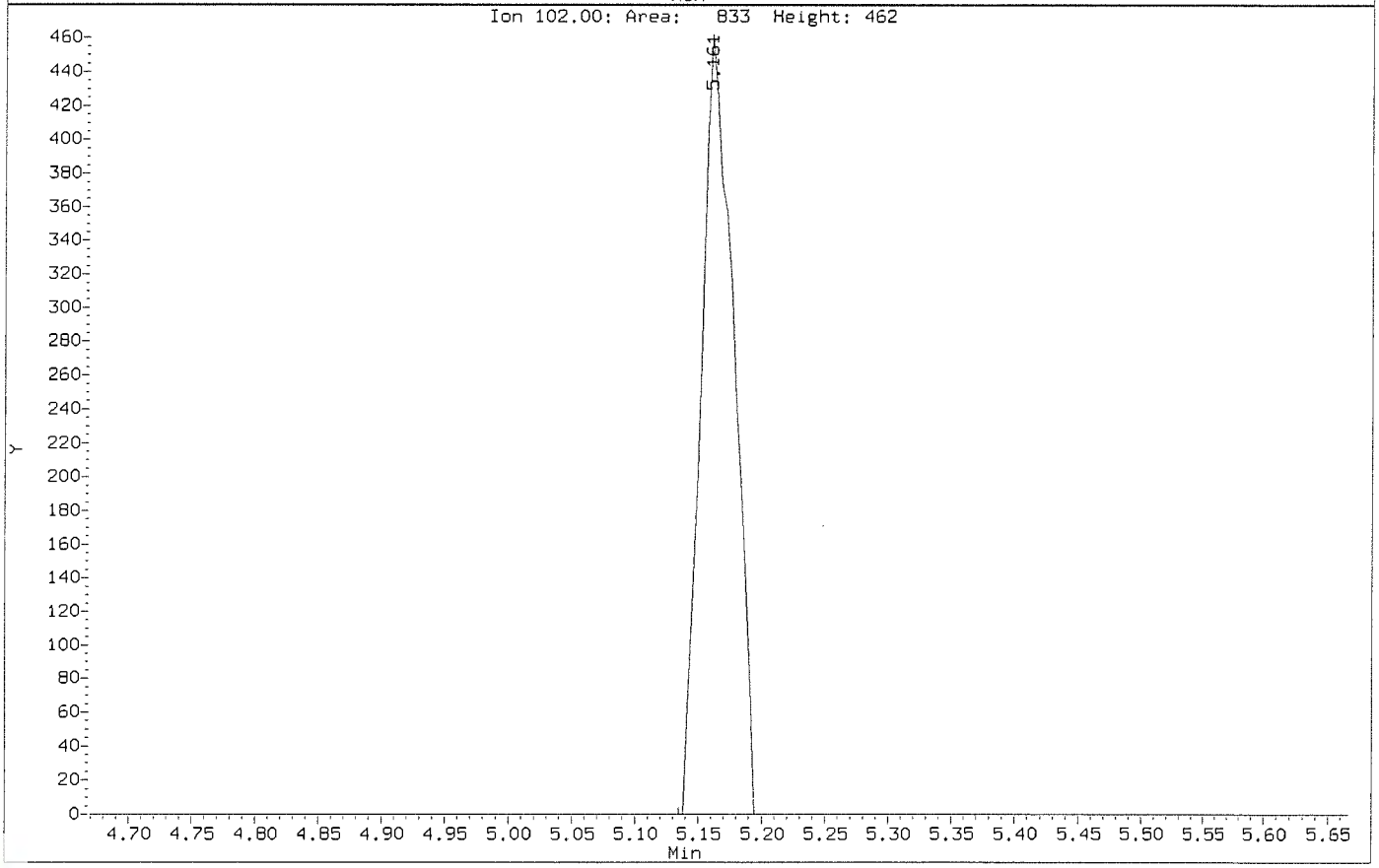
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





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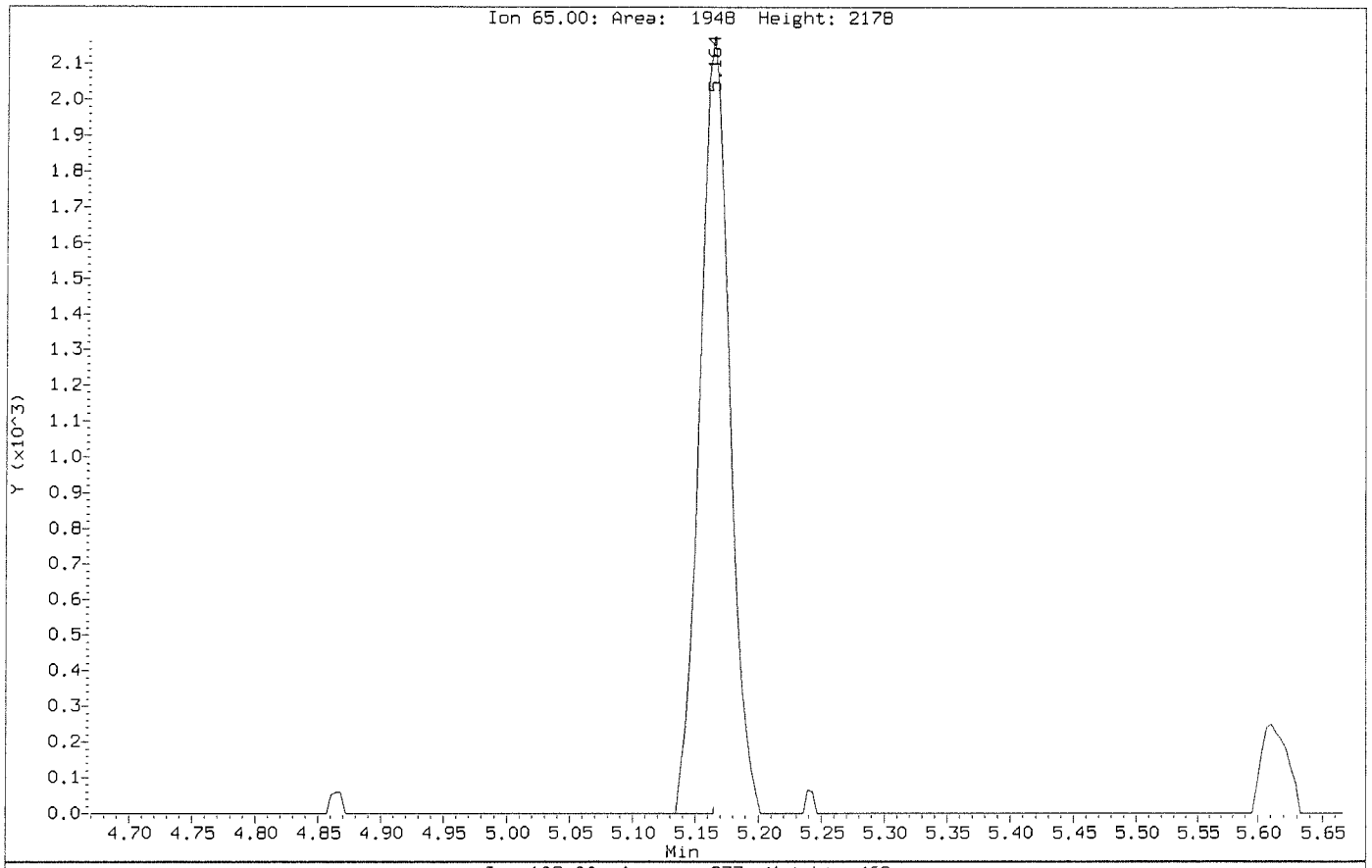
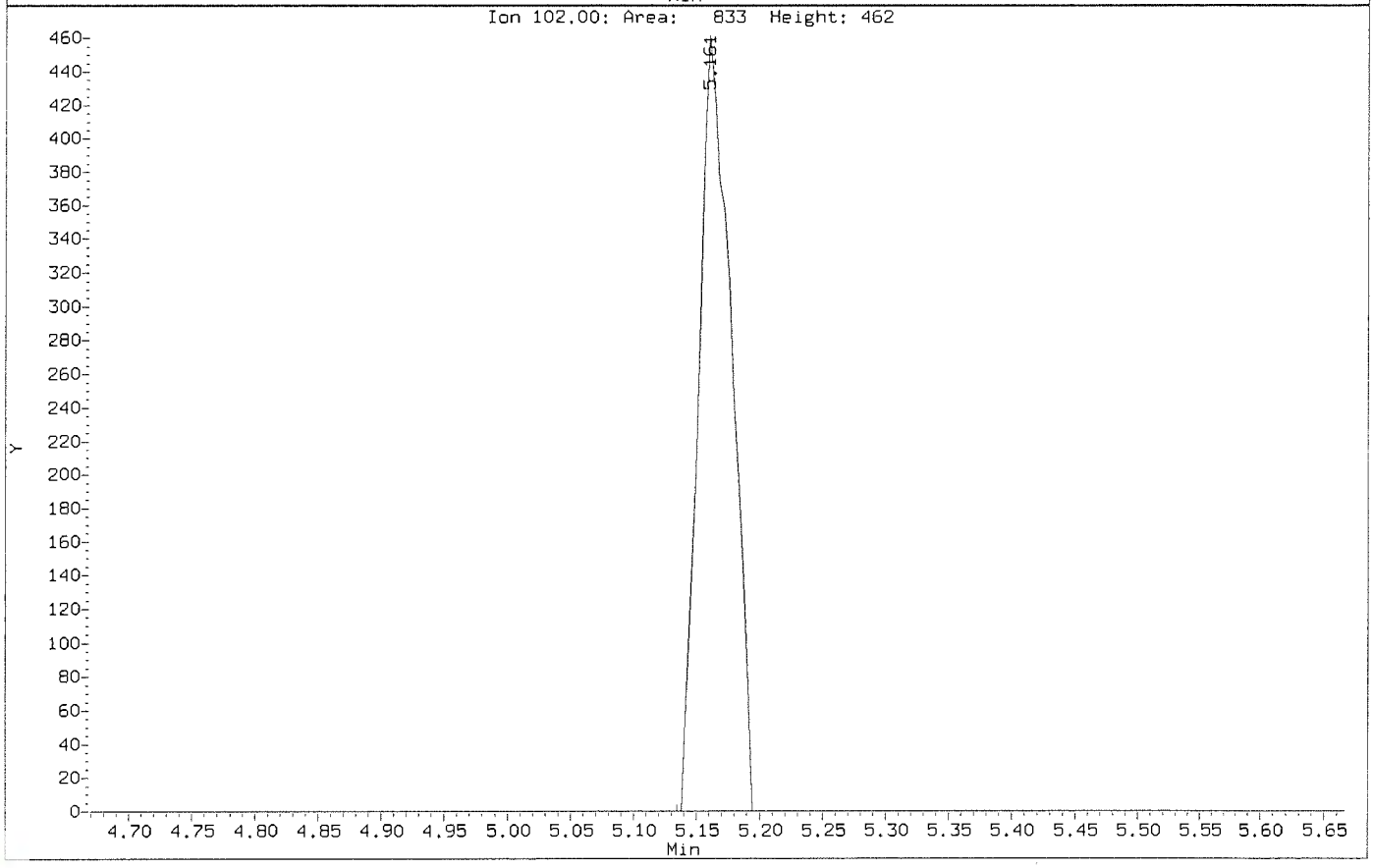
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





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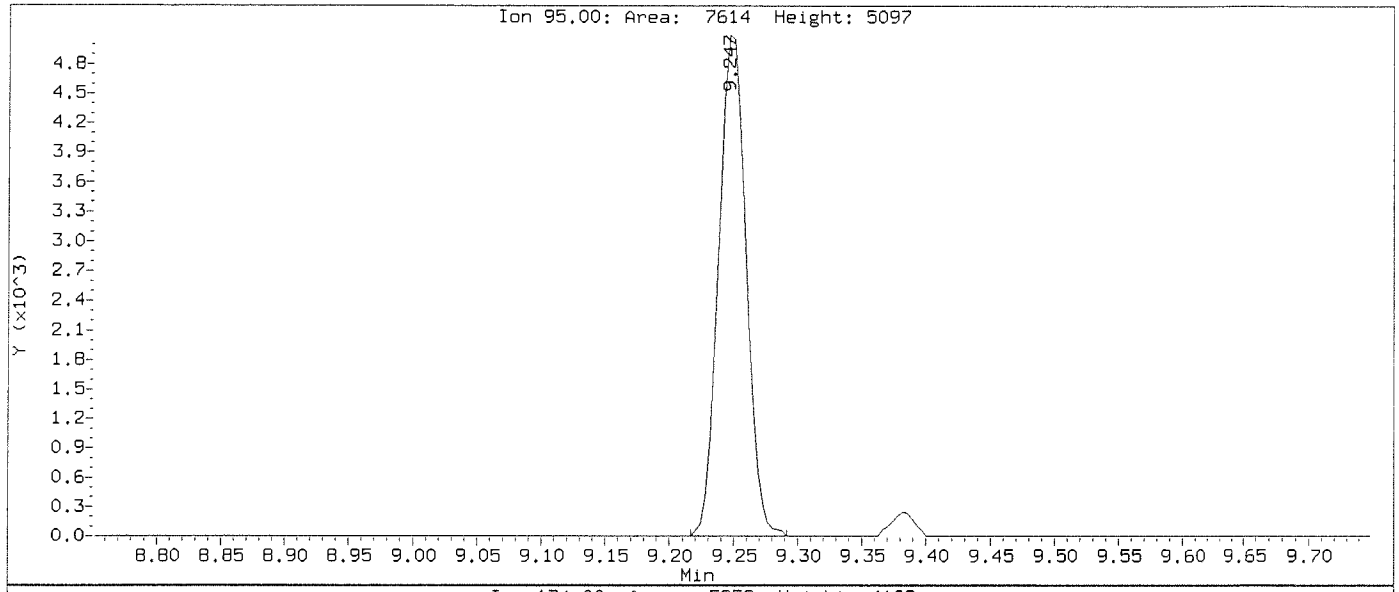
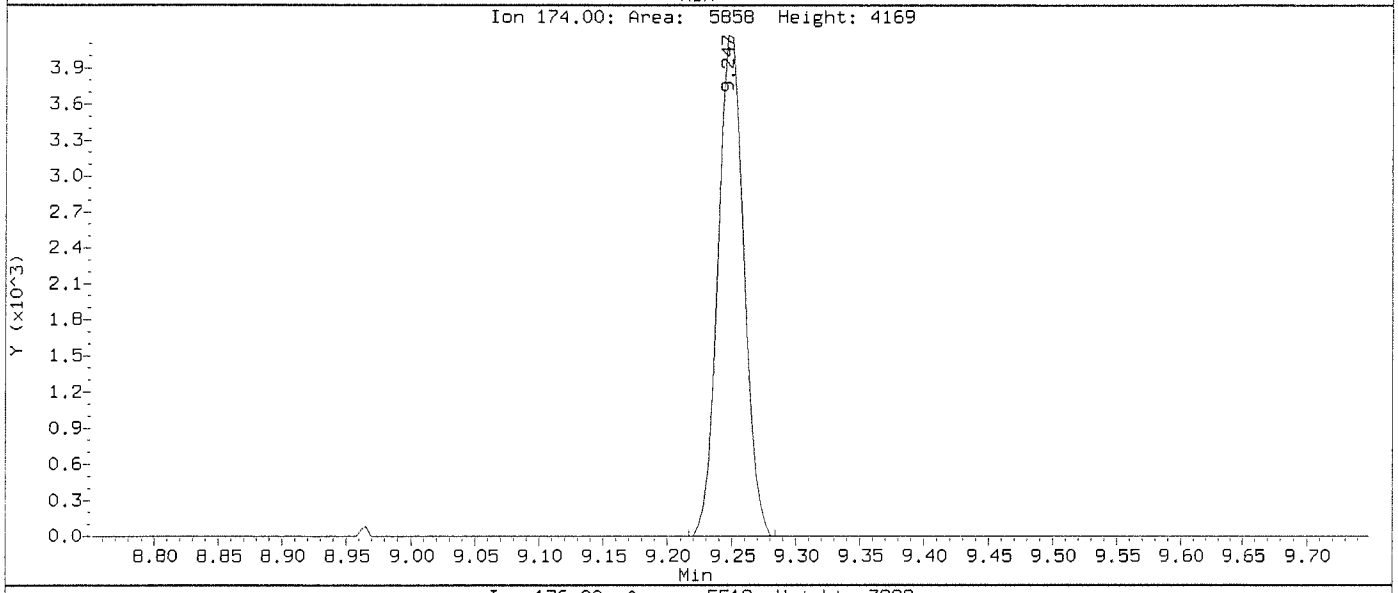
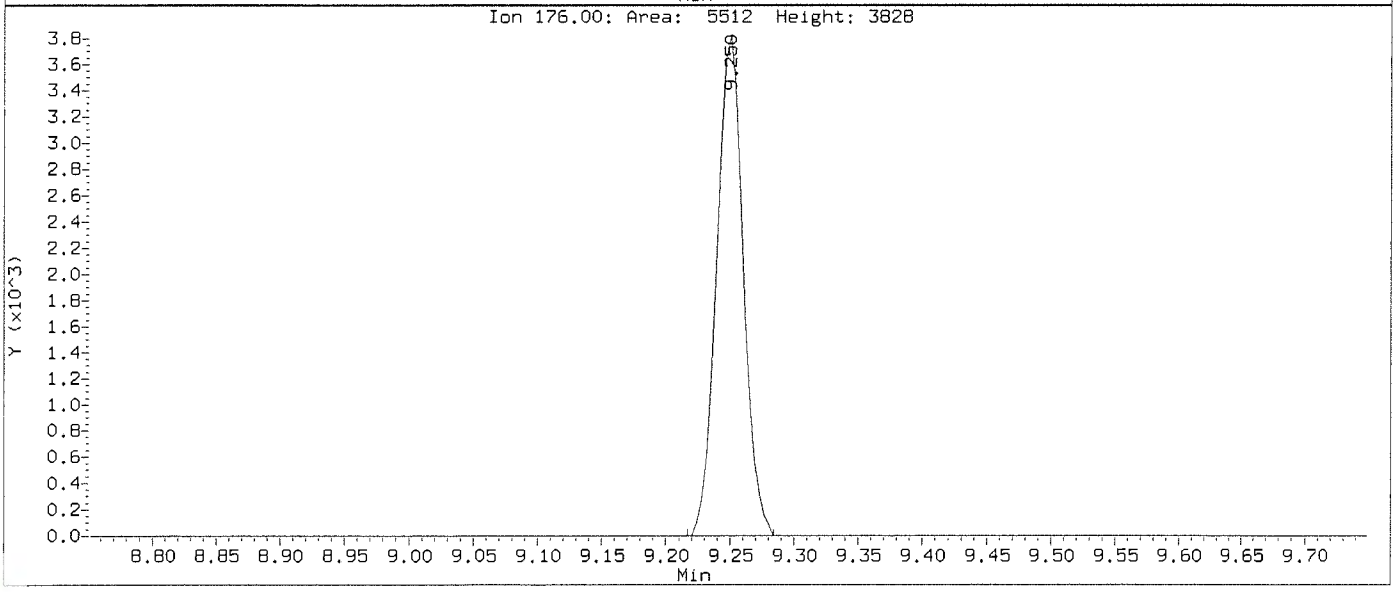
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4







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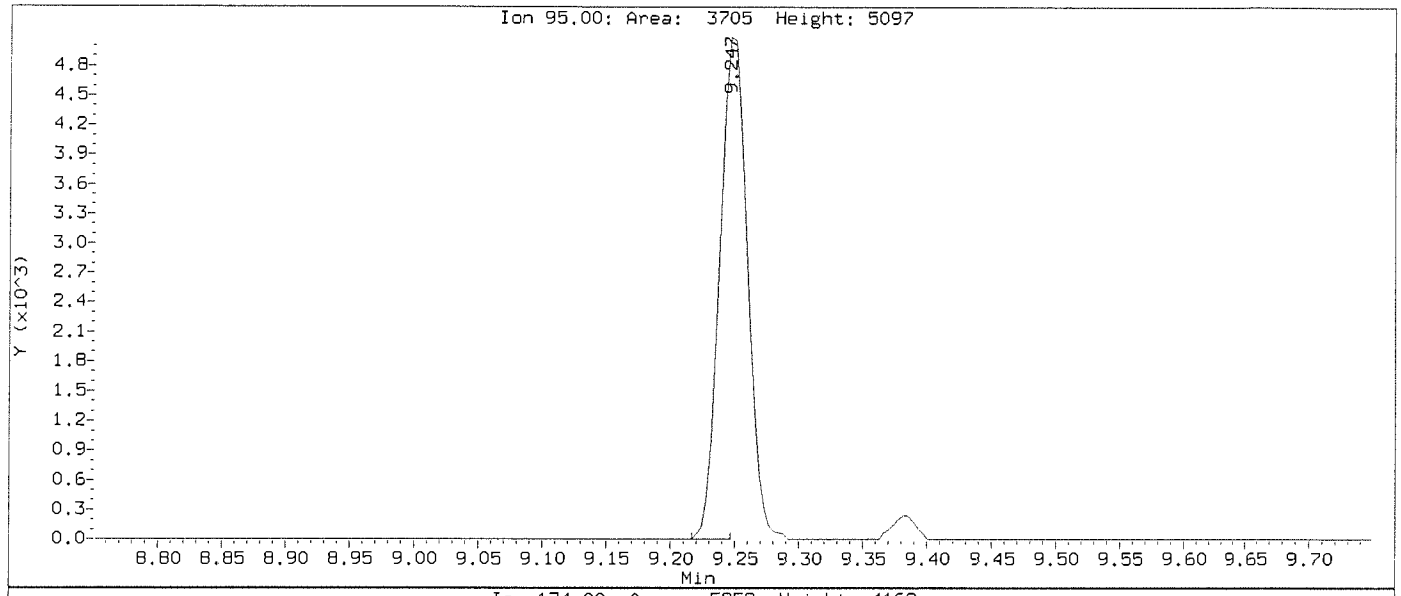
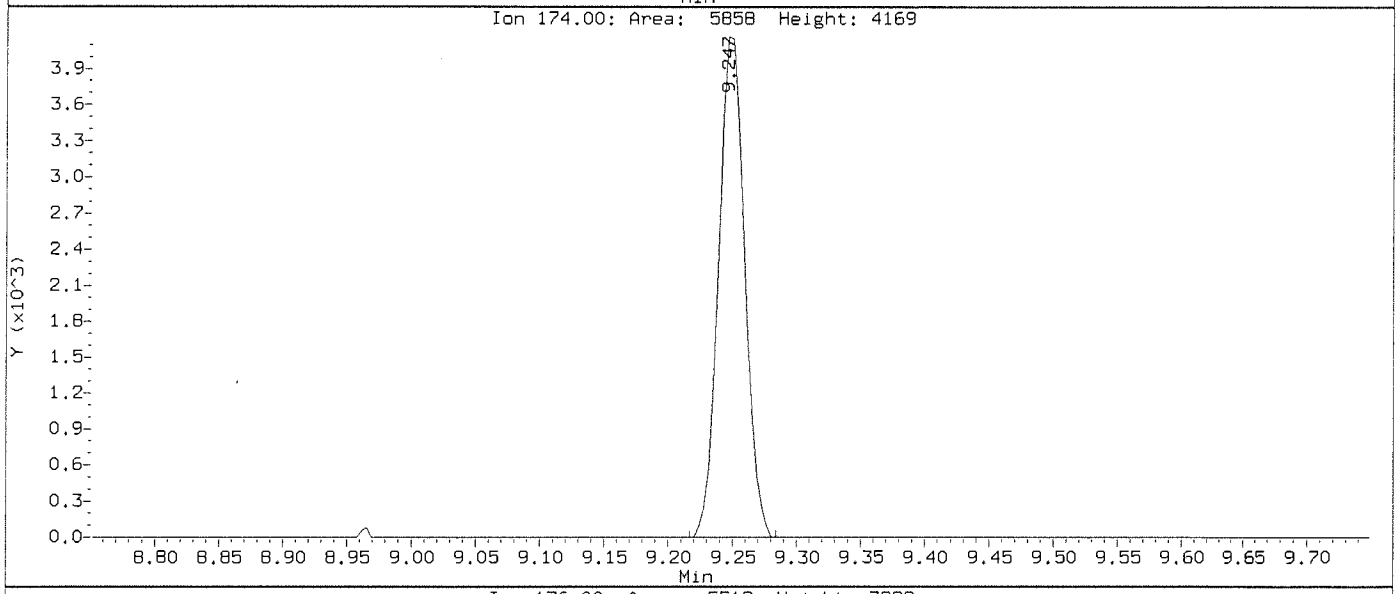
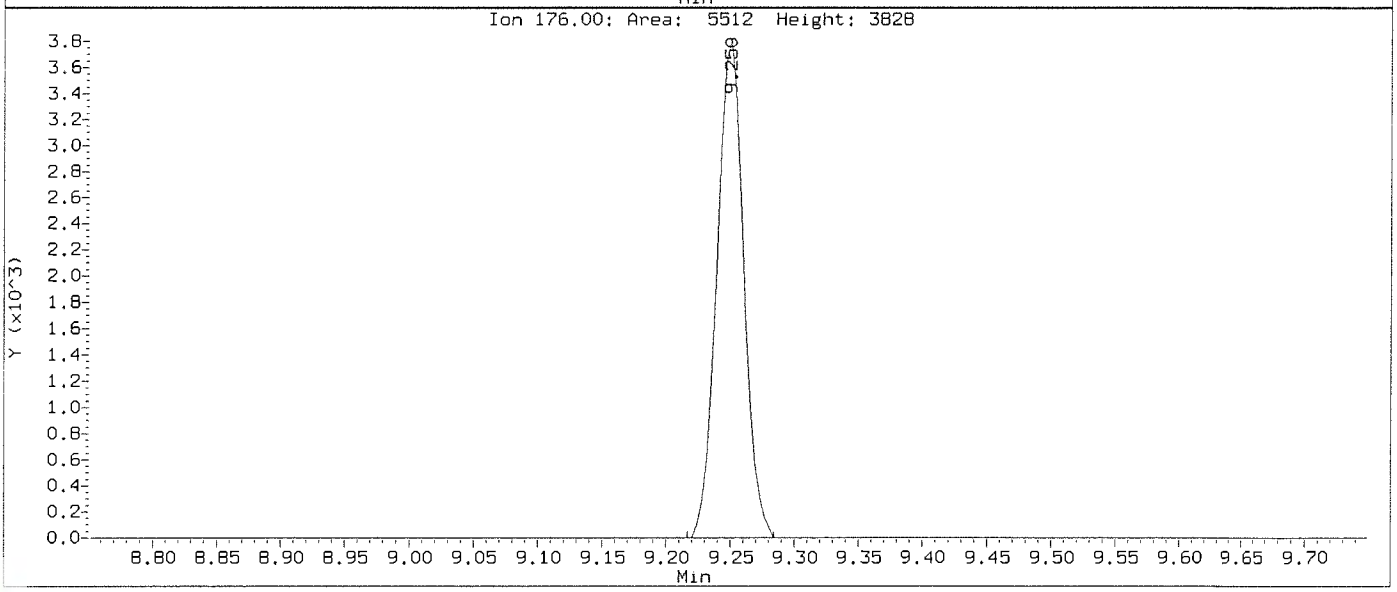
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4







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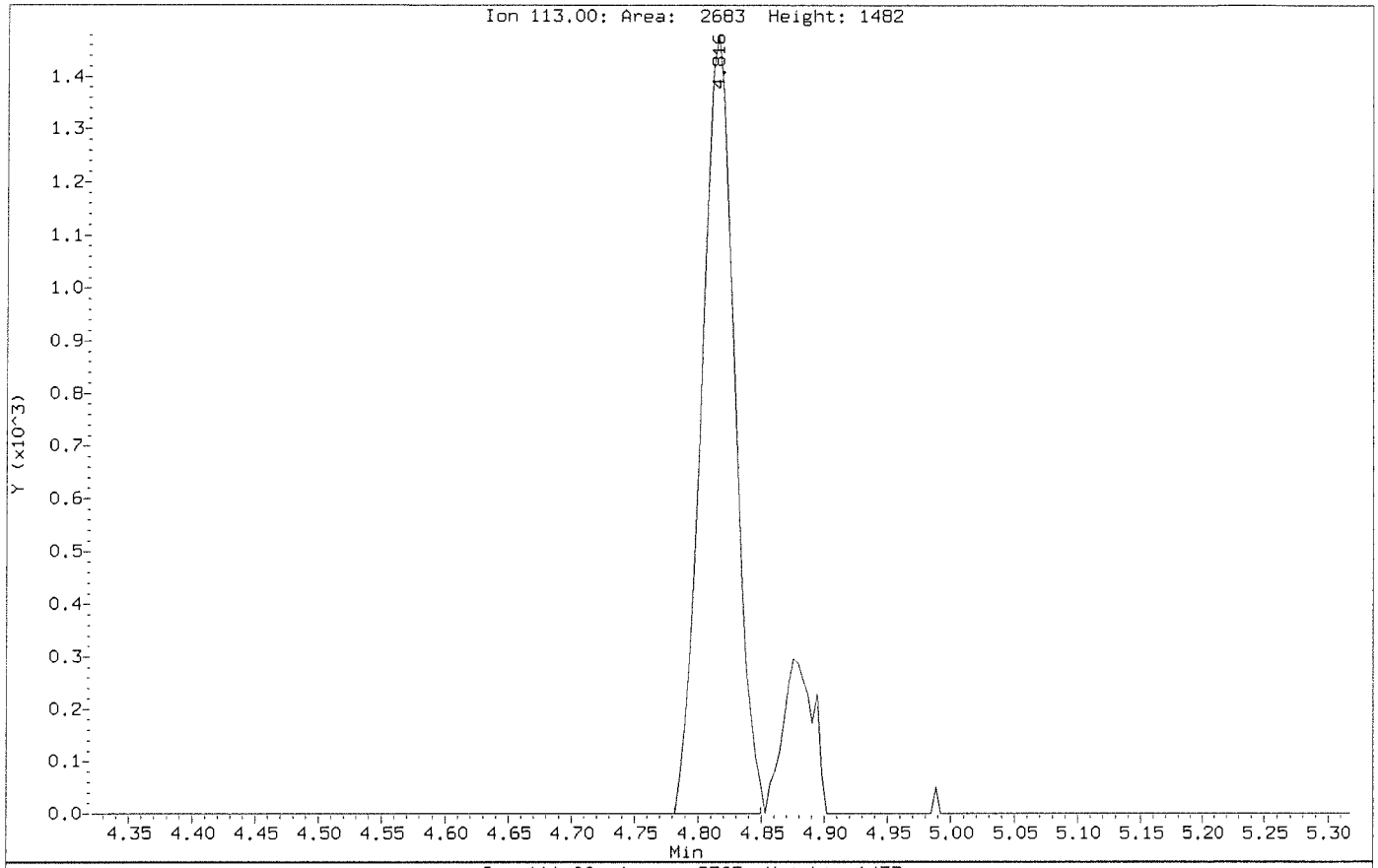
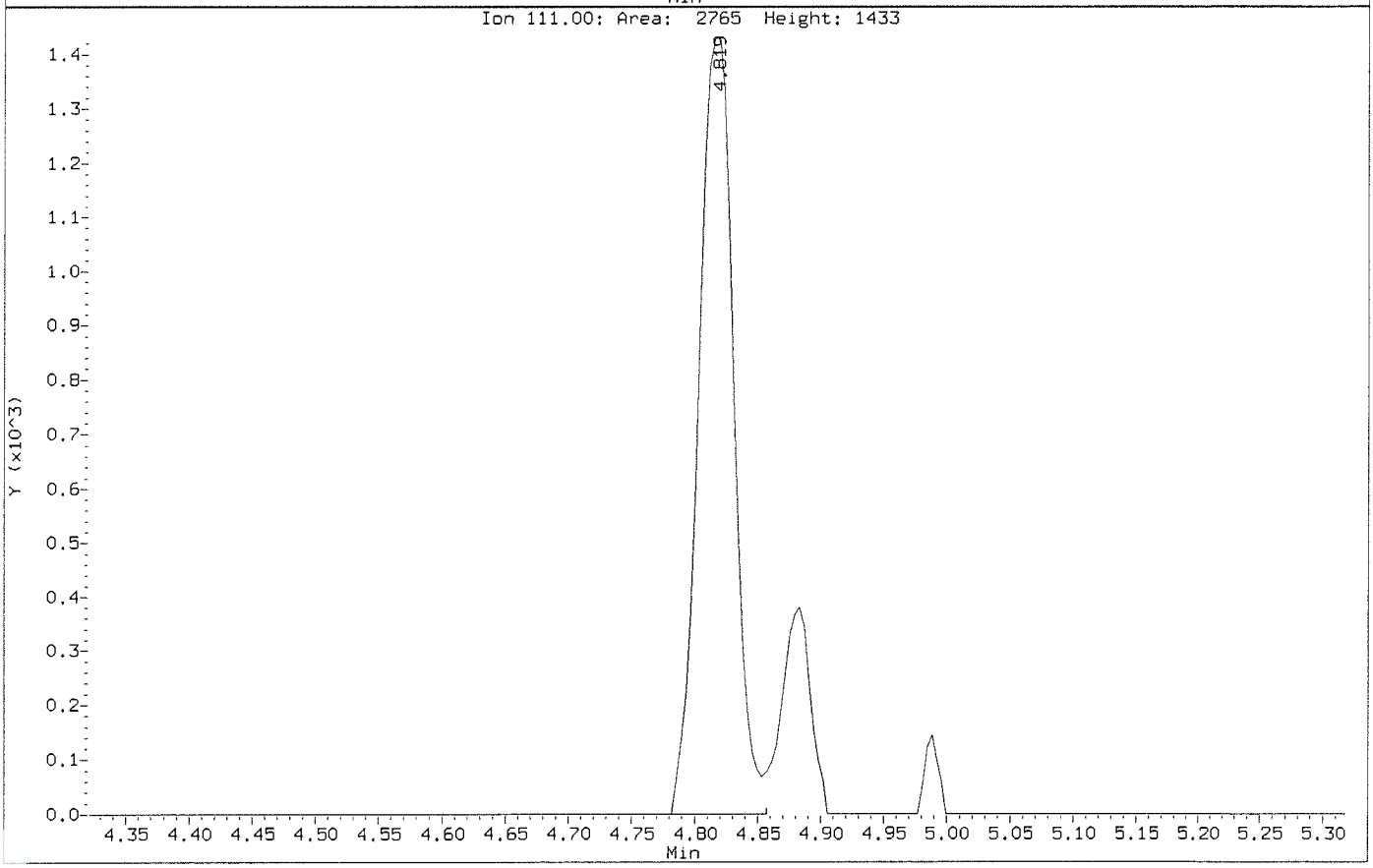
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Dibromofluoromethane
CAS Number: 1868-53-7





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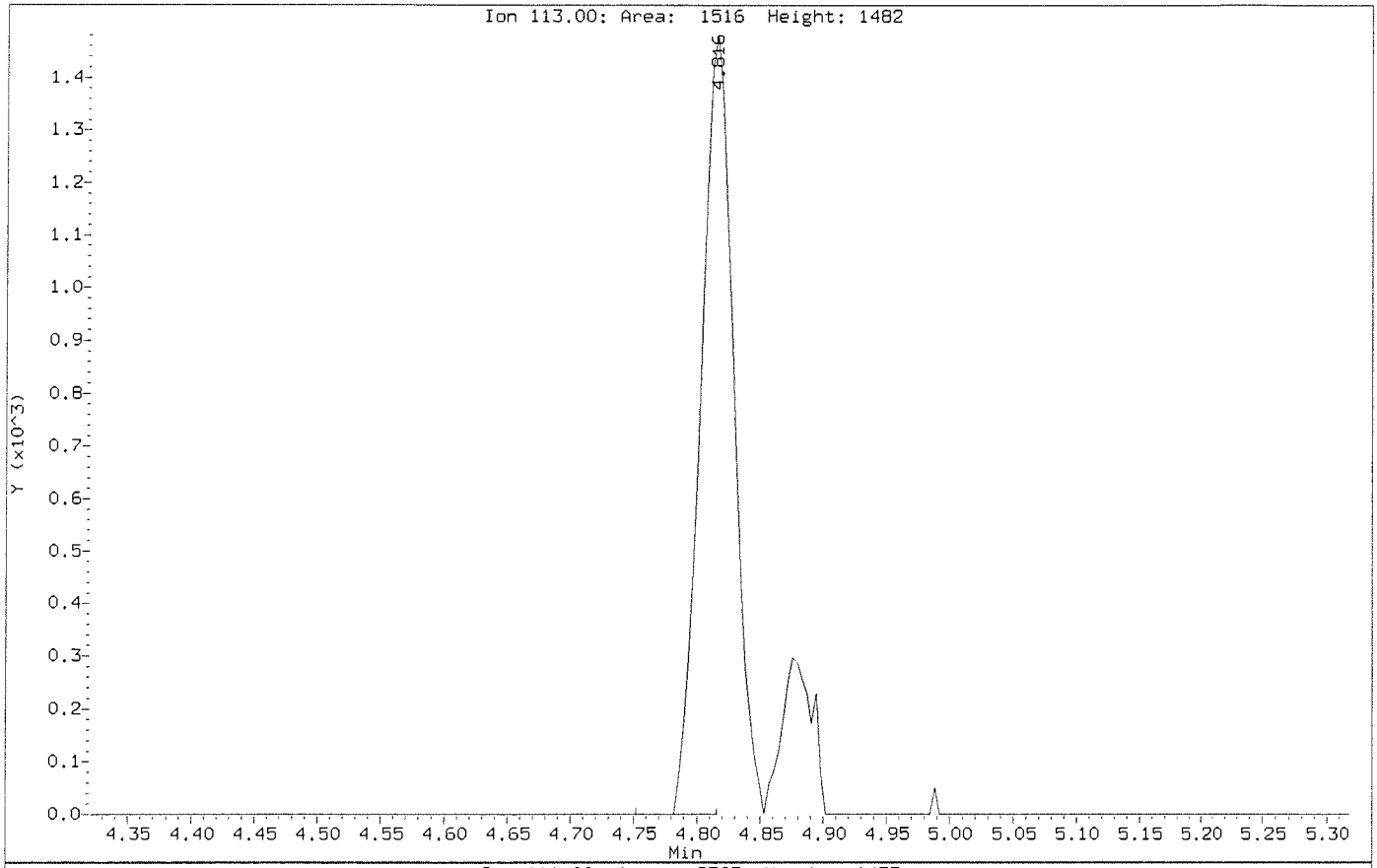
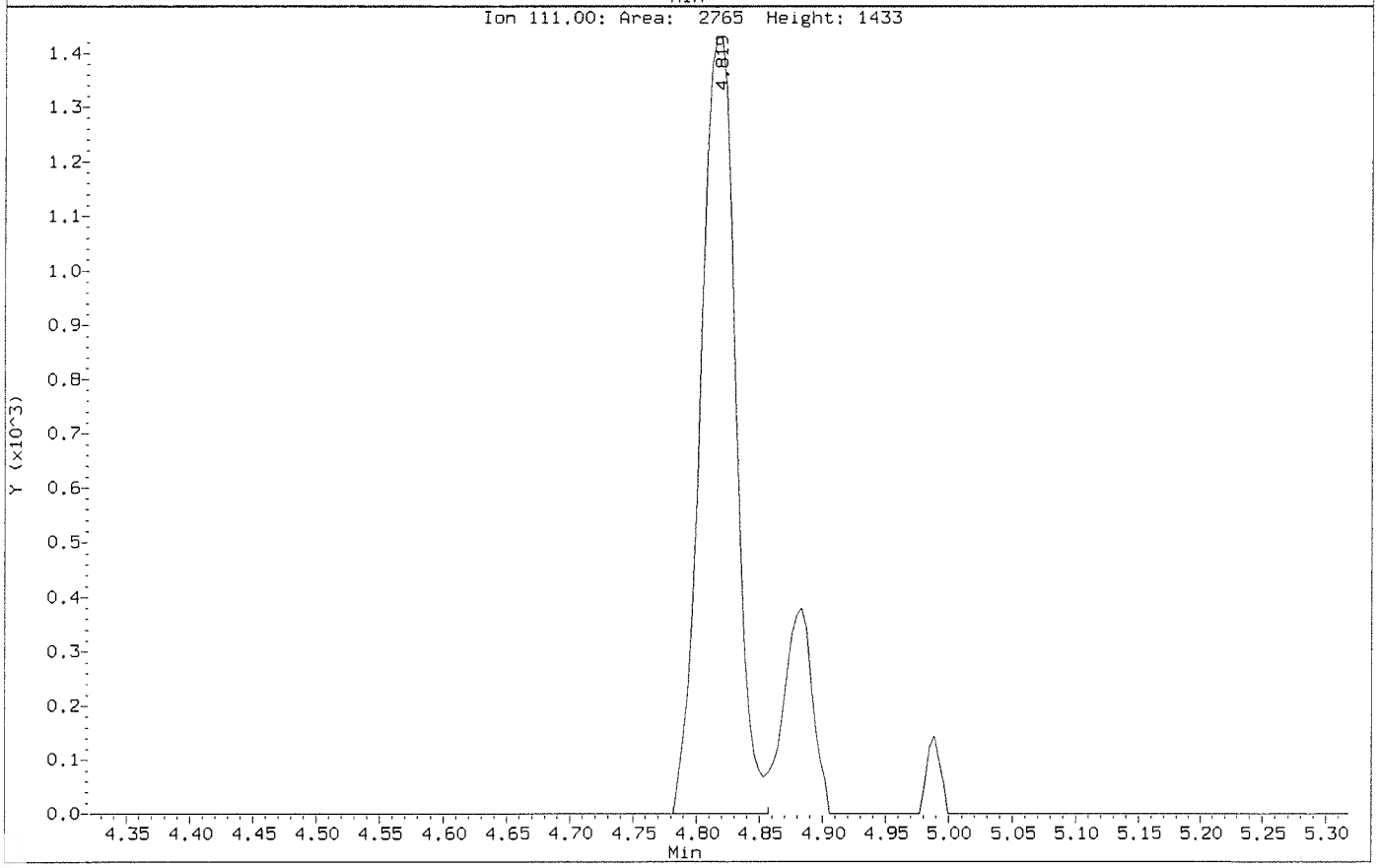
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Dibromofluoromethane
CAS Number: 1868-53-7





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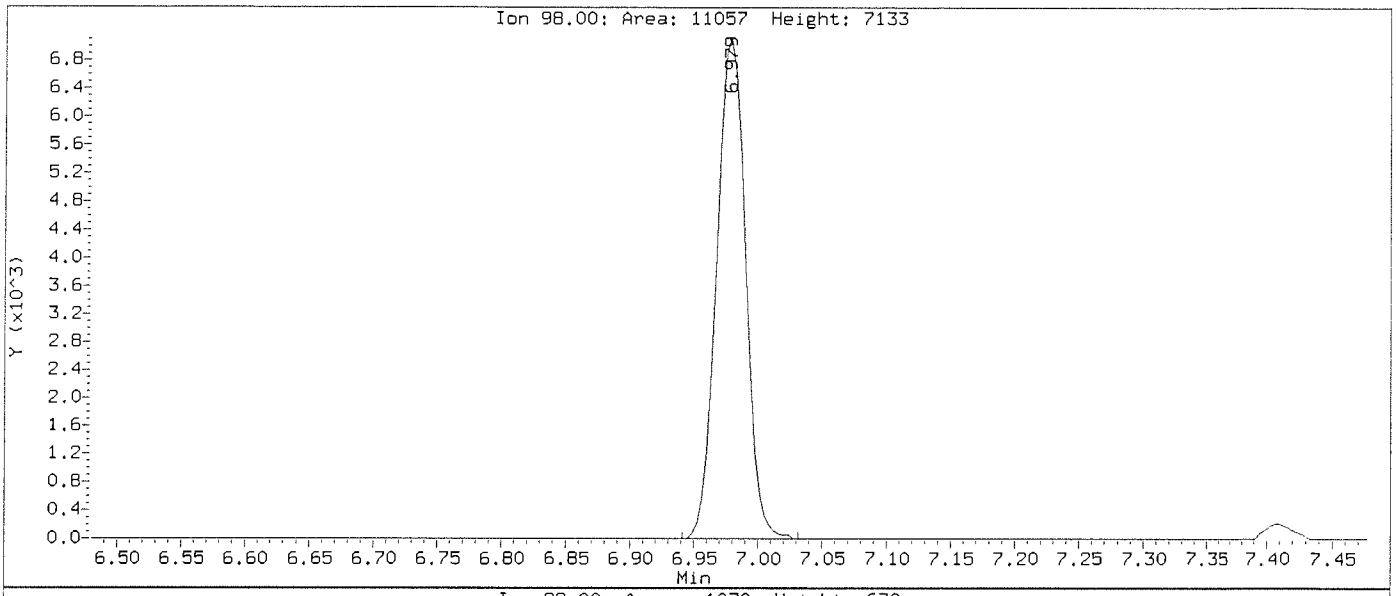
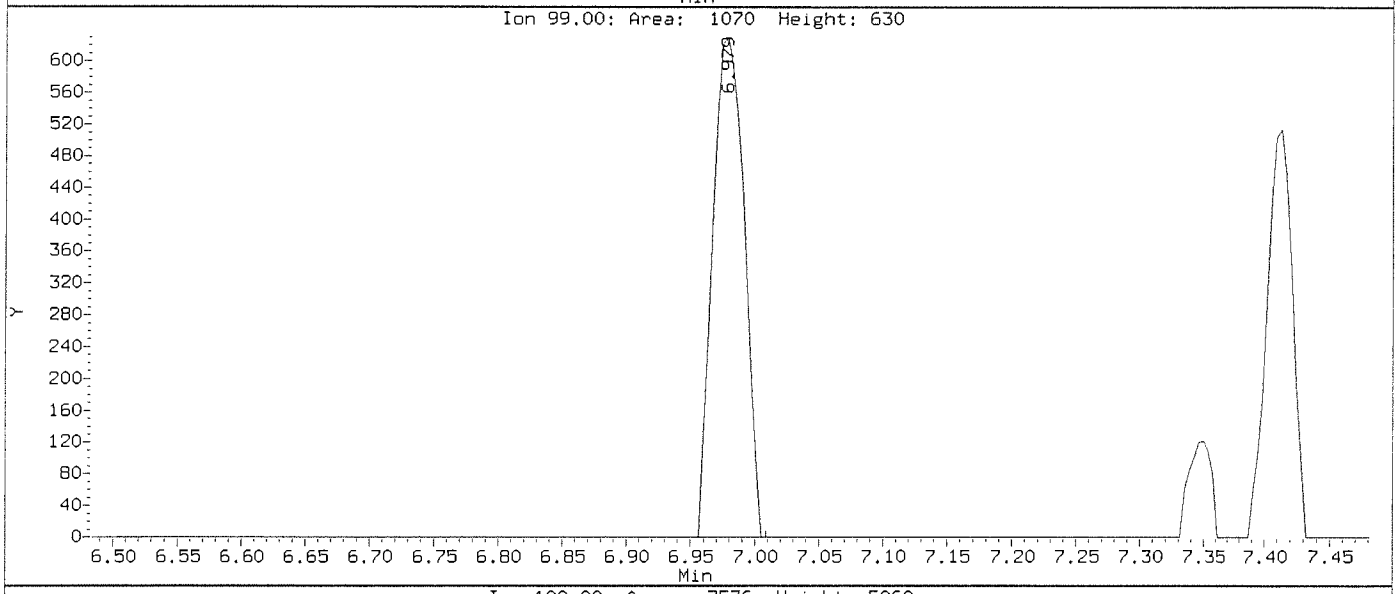
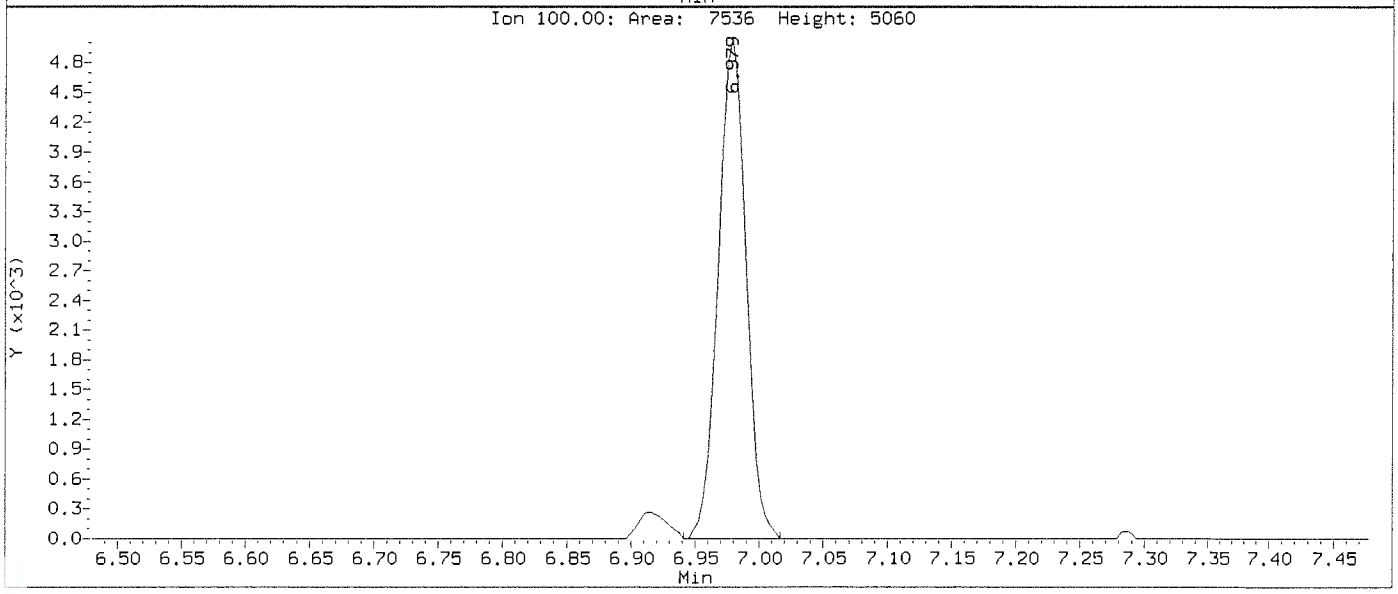
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Toluene-d8
CAS Number: 2037-26-5







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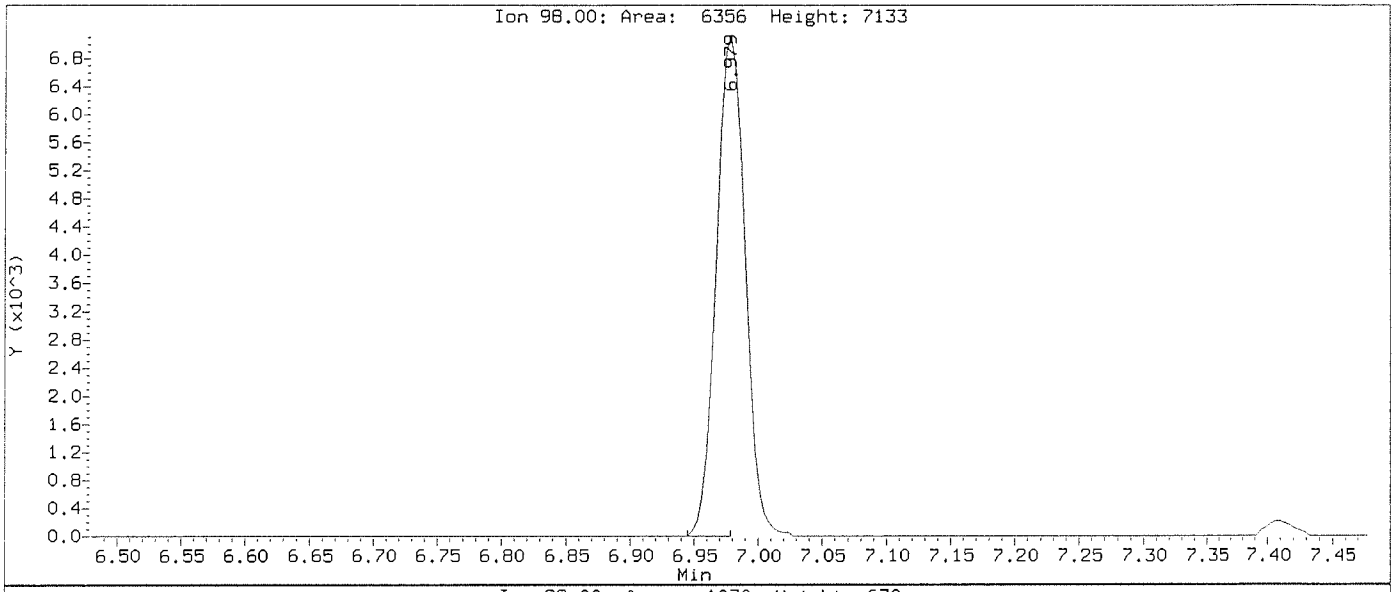
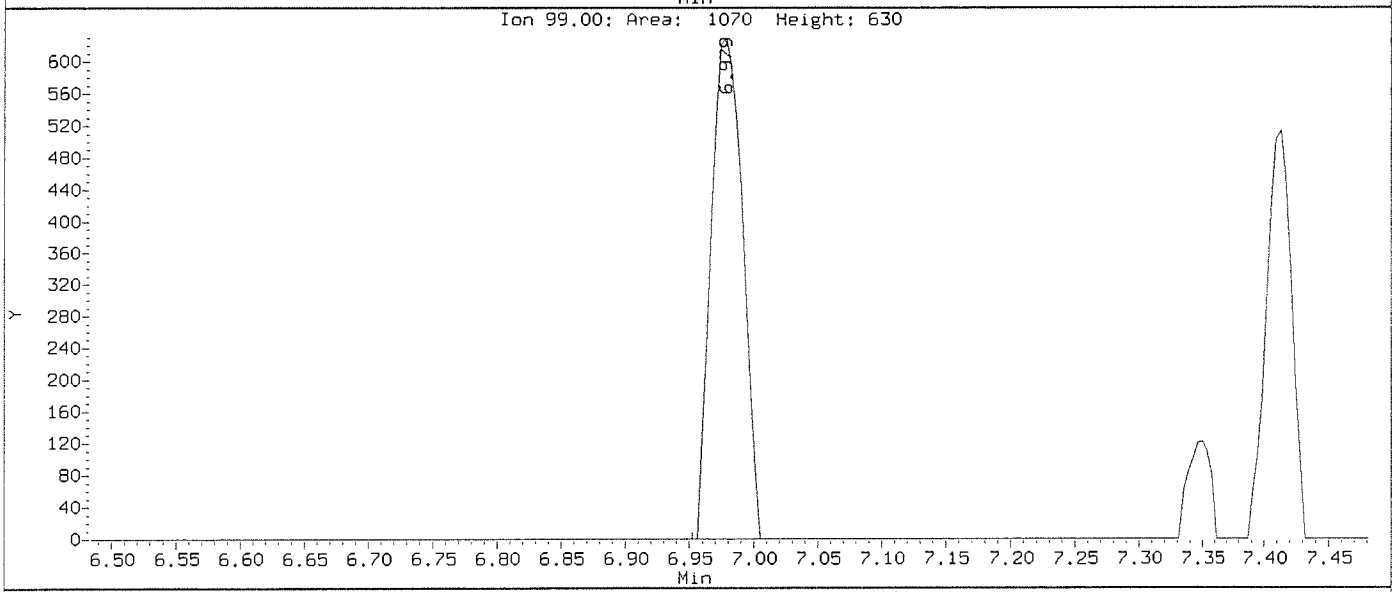
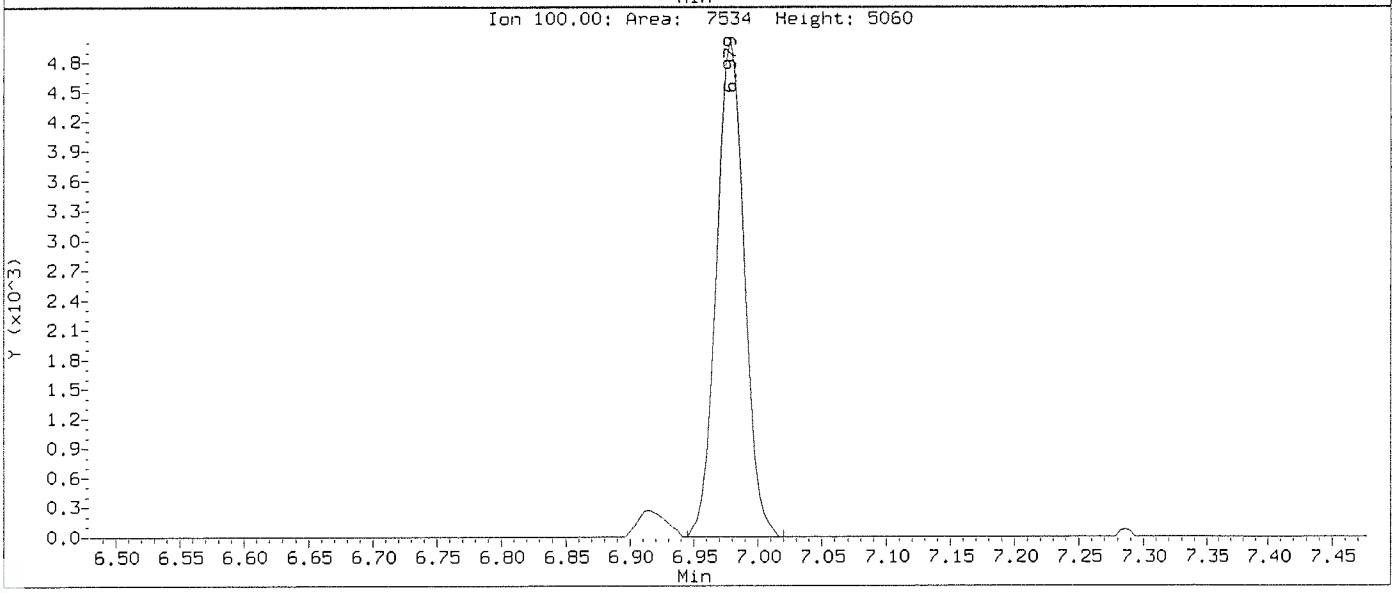
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Toluene-d8
CAS Number: 2037-26-5







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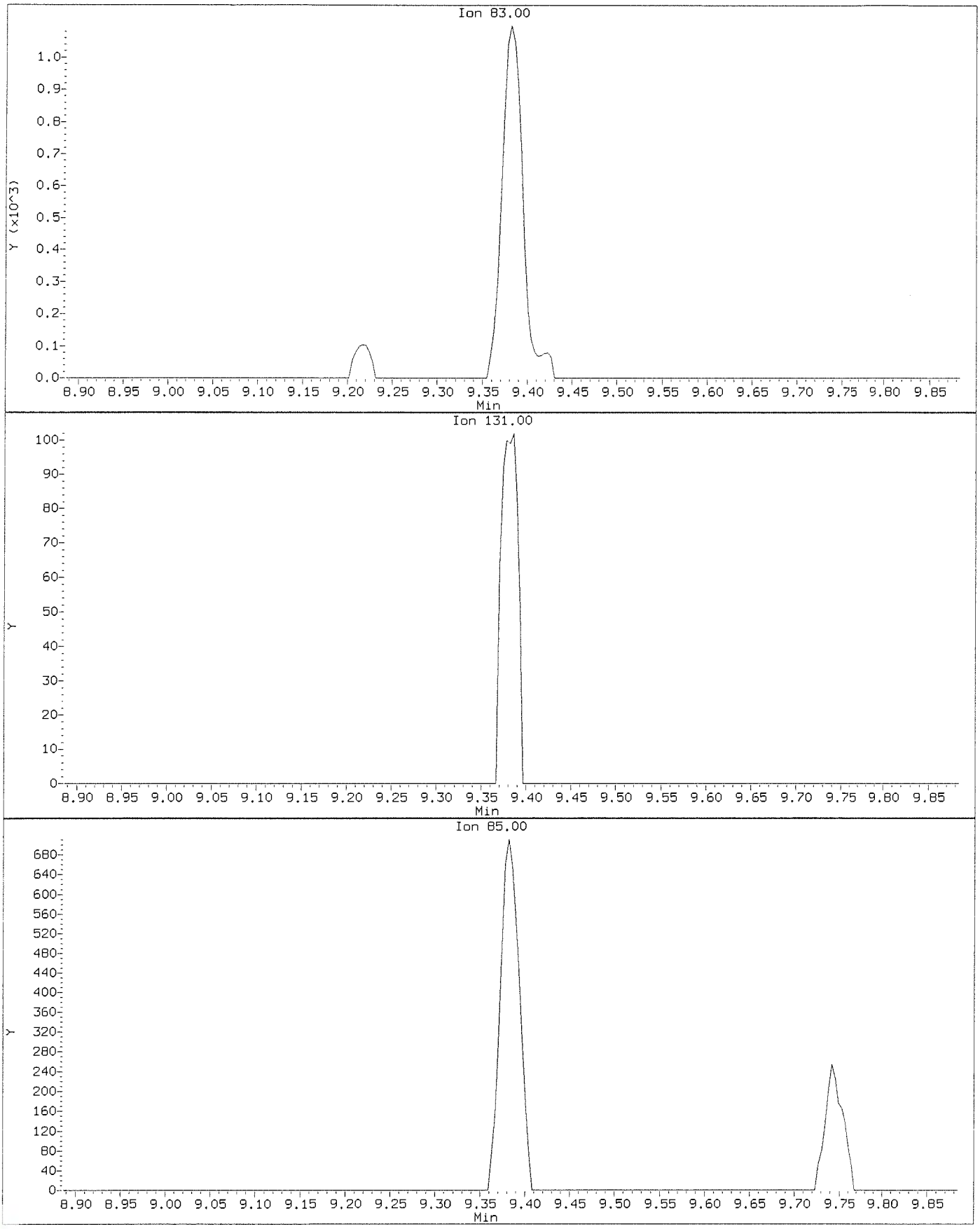
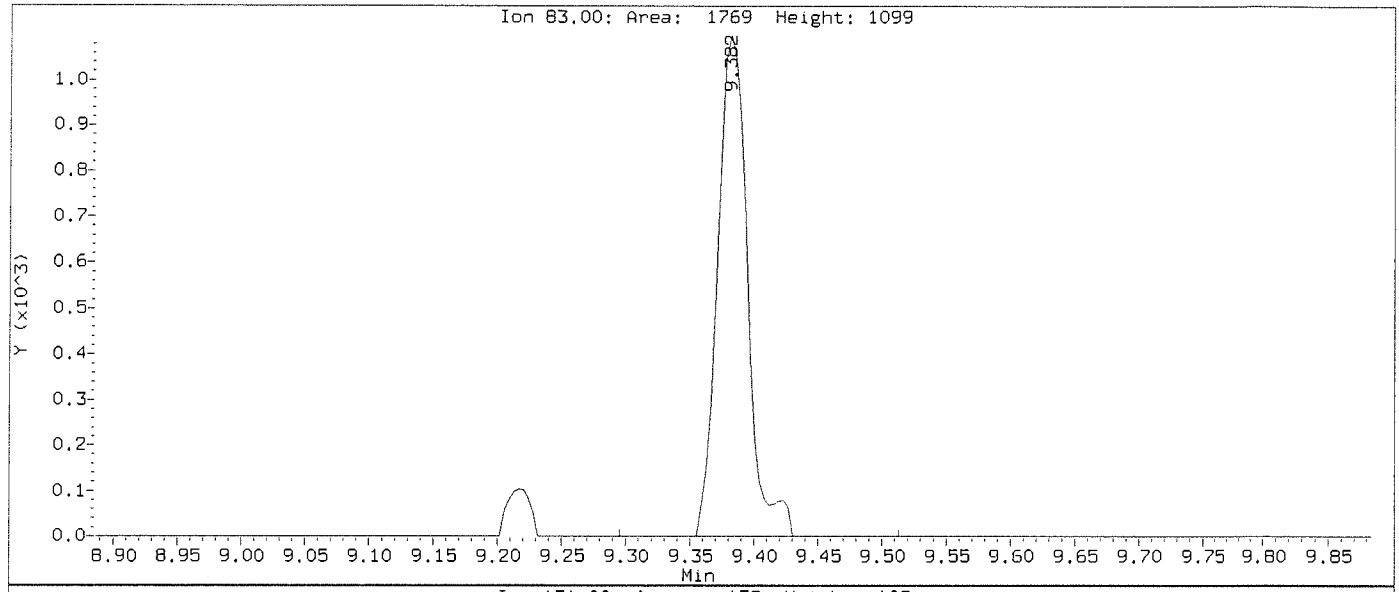
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

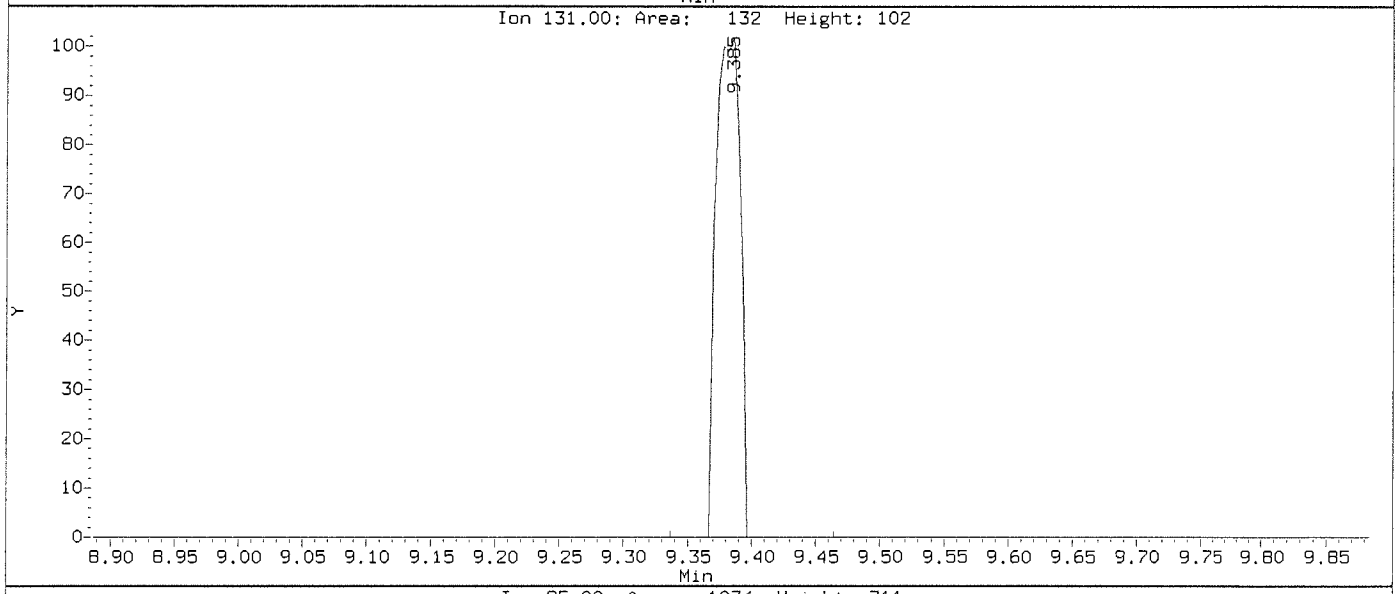
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

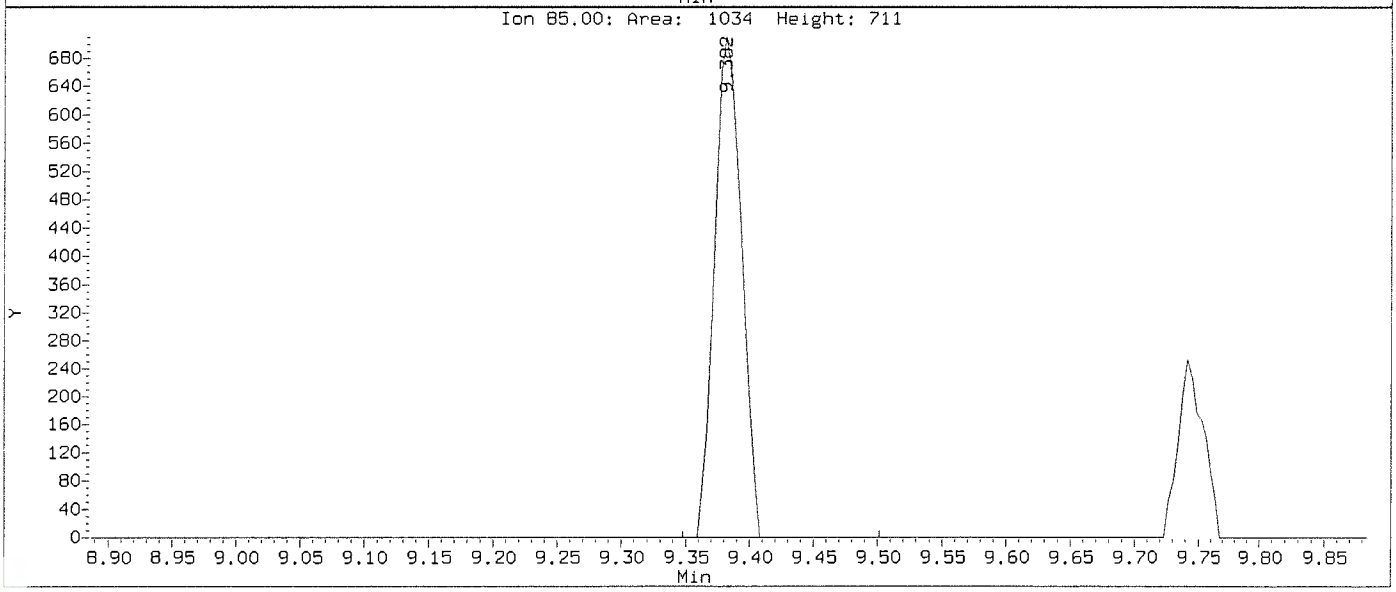


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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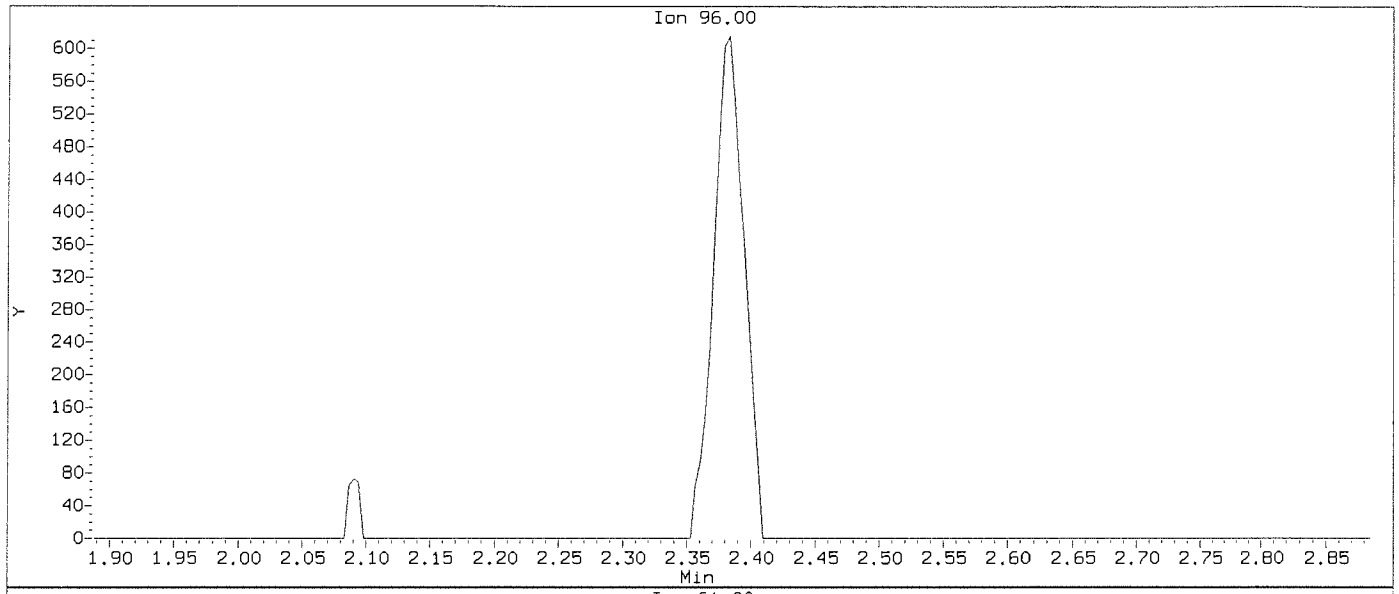
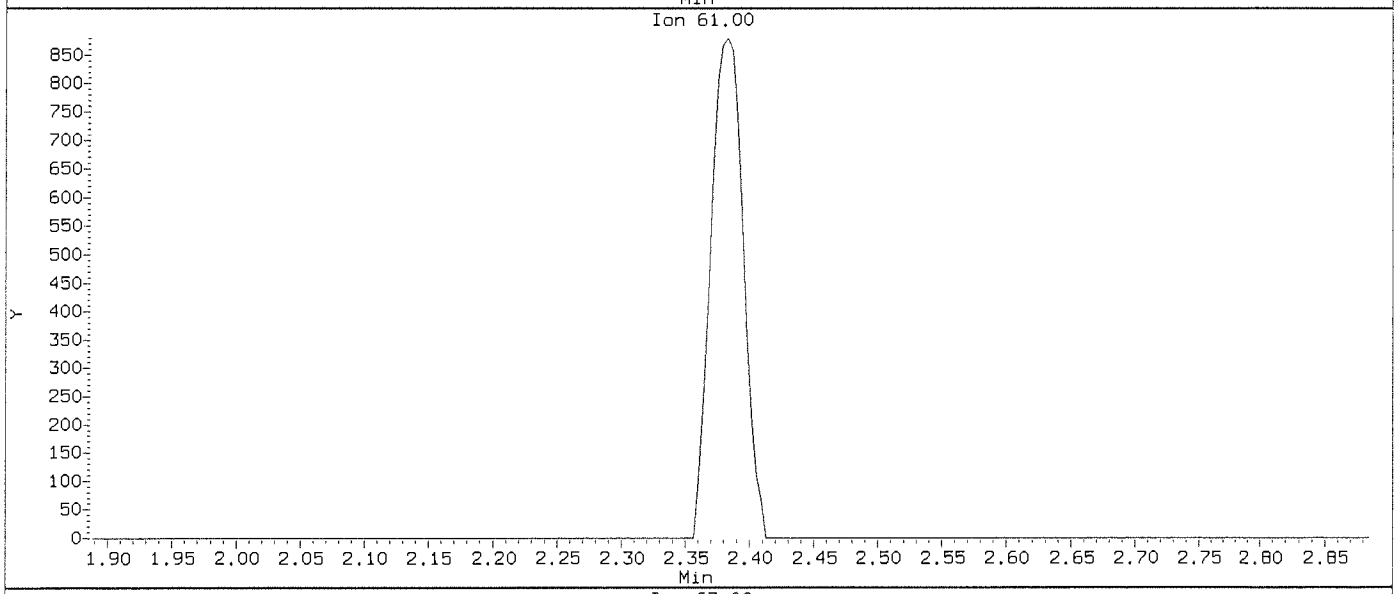
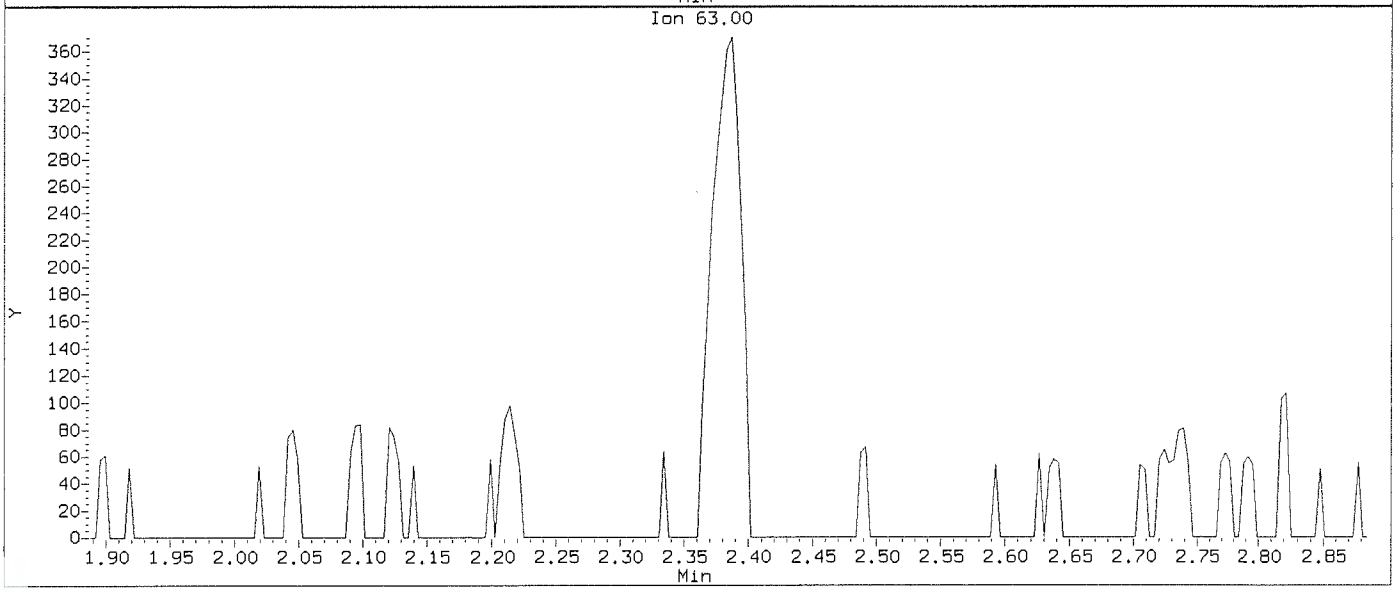
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4







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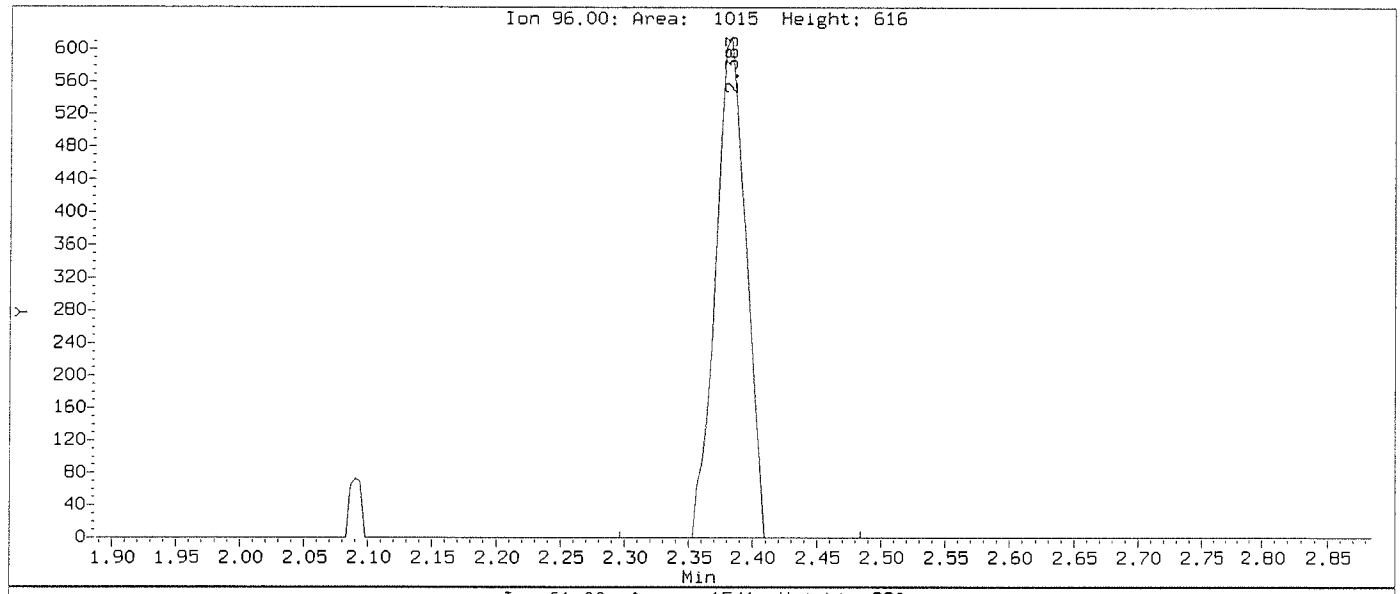
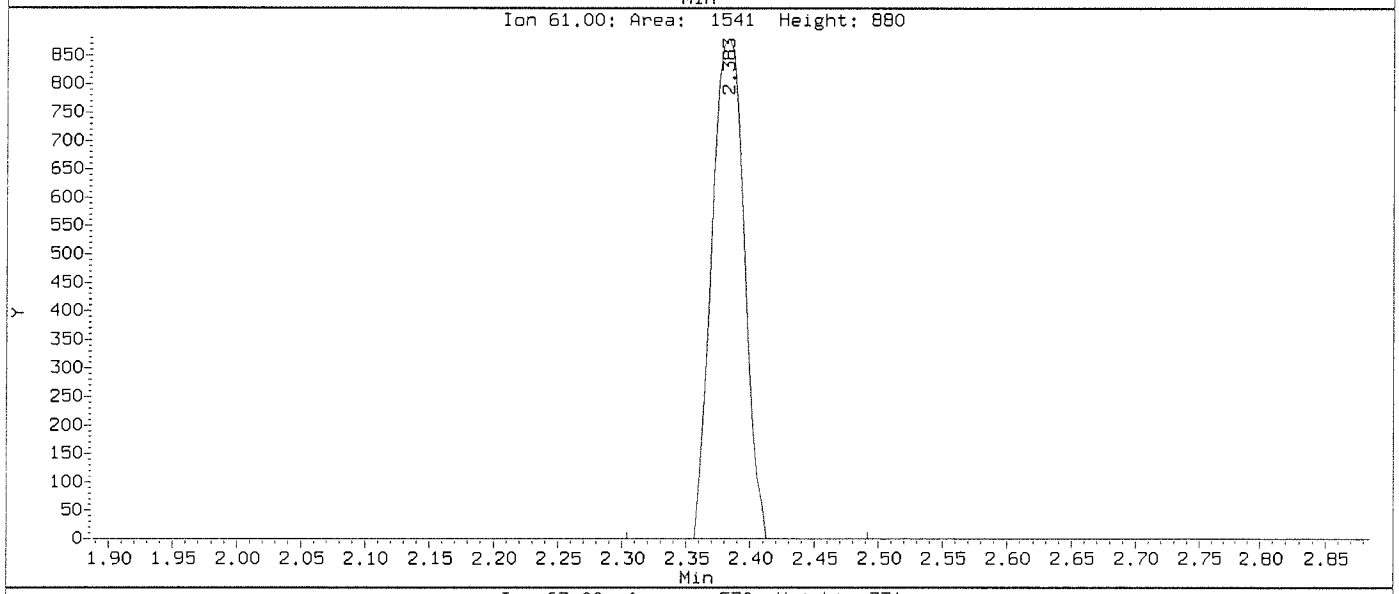
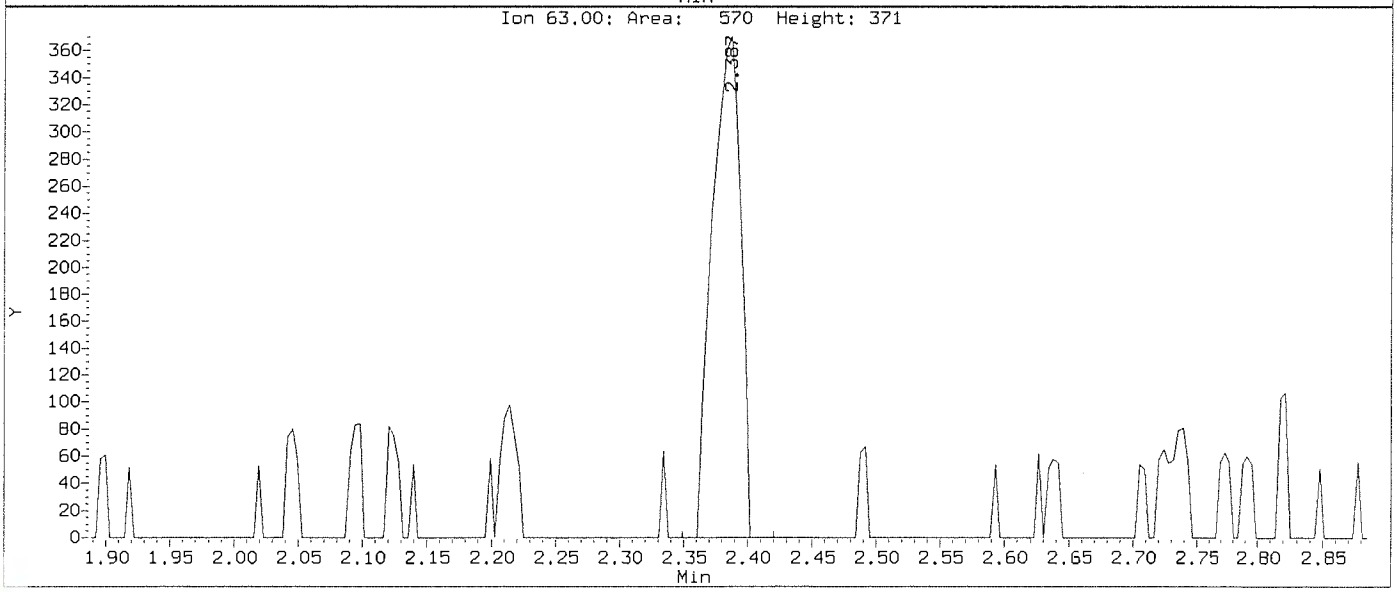
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4







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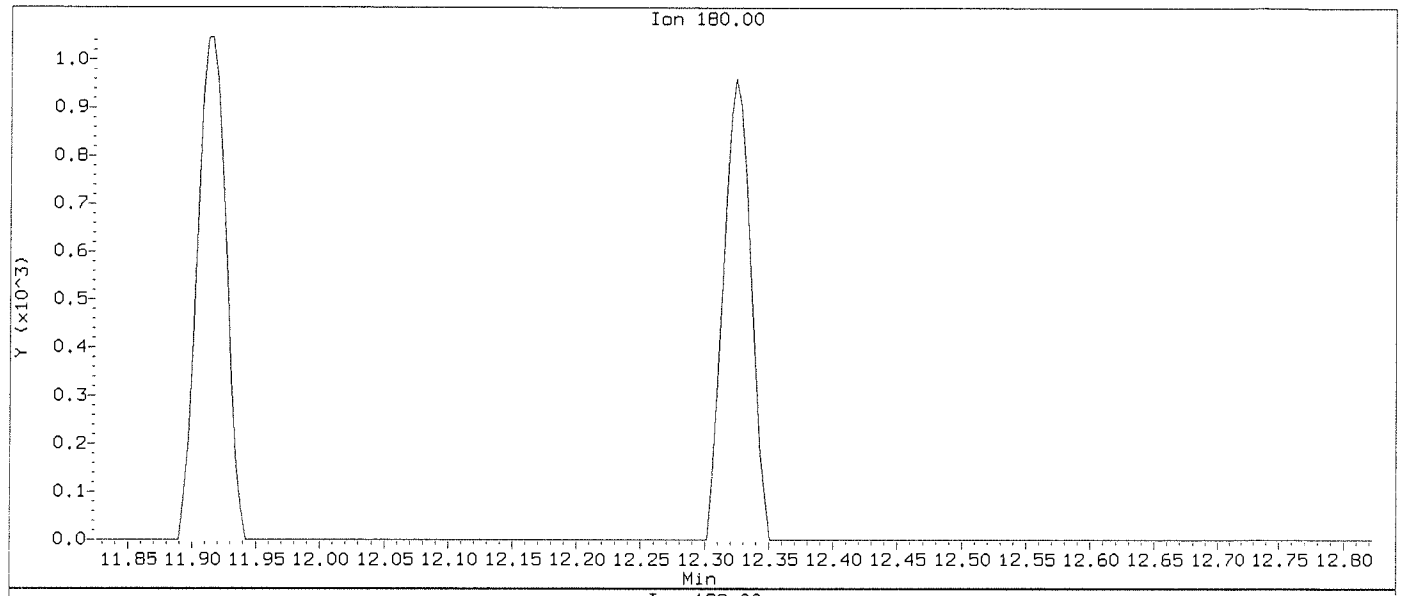
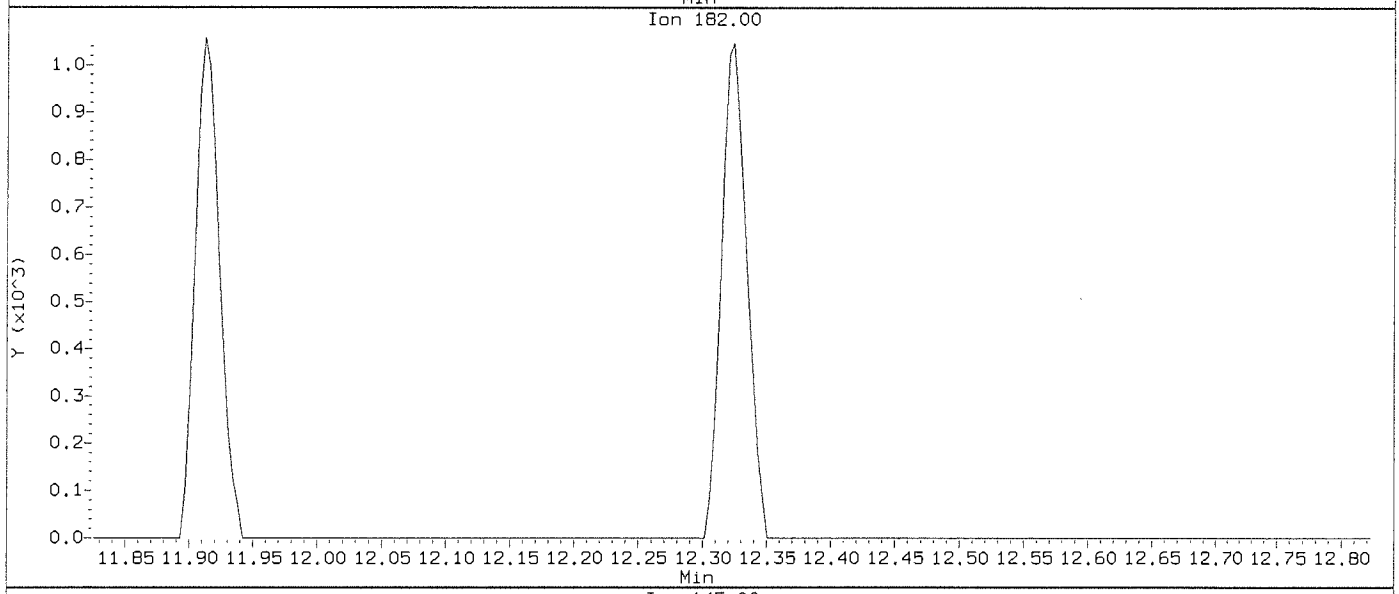
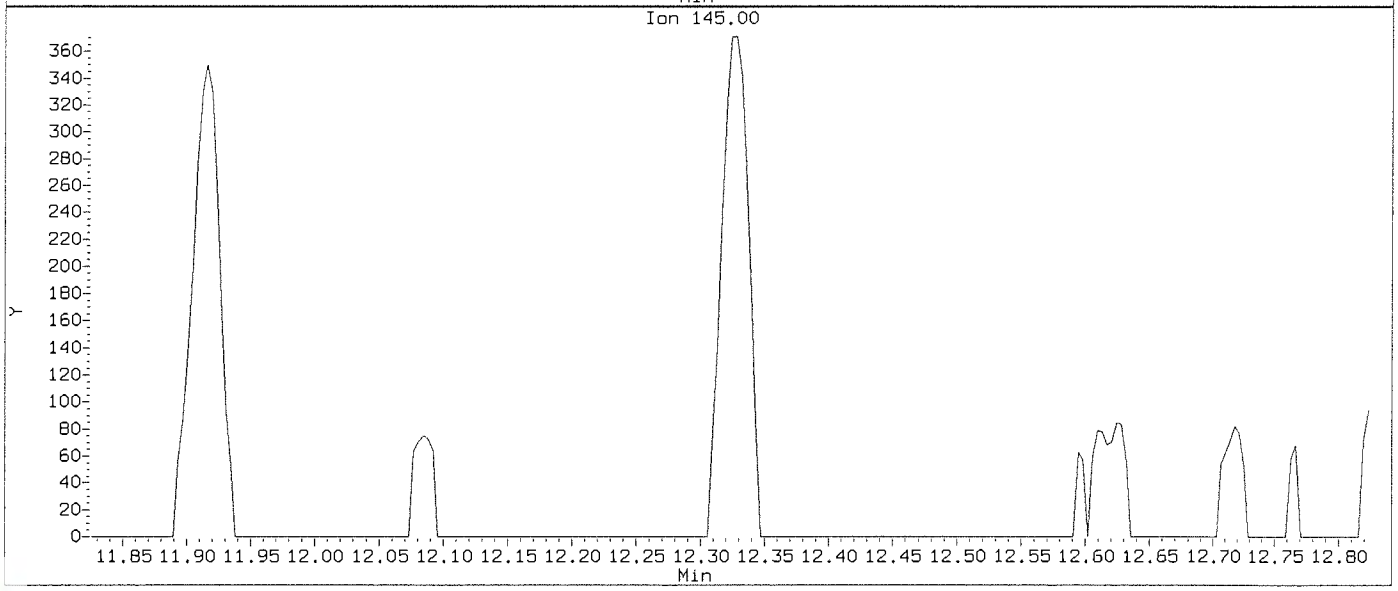
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

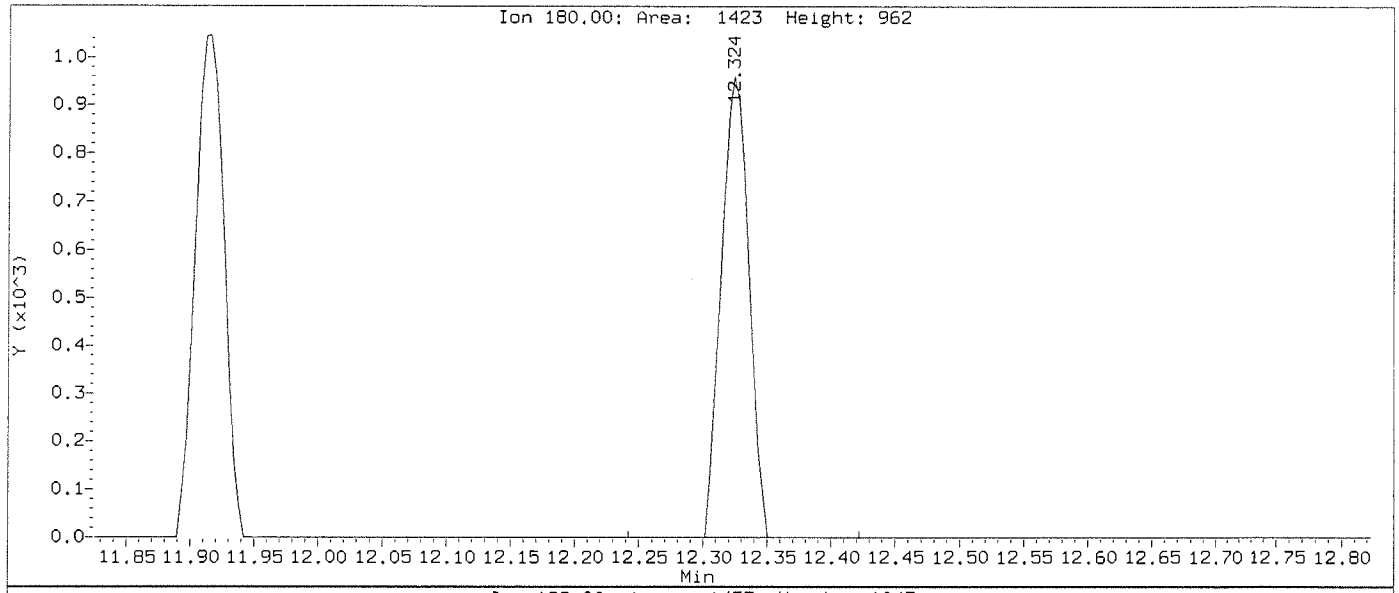


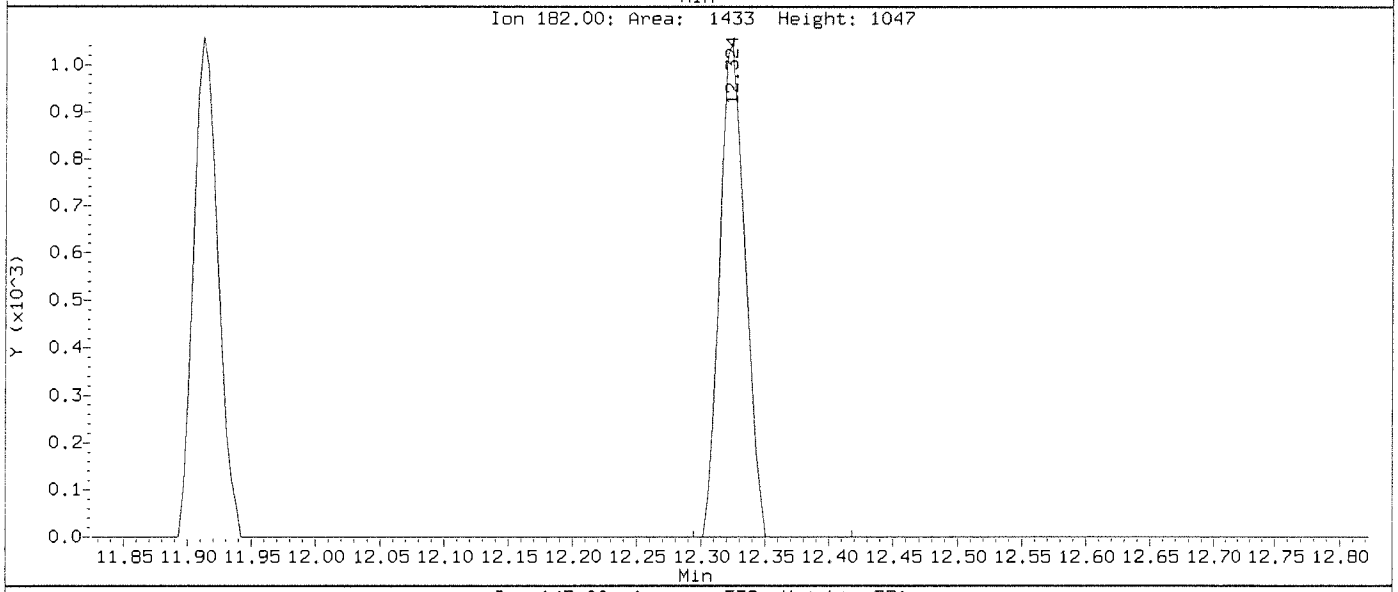


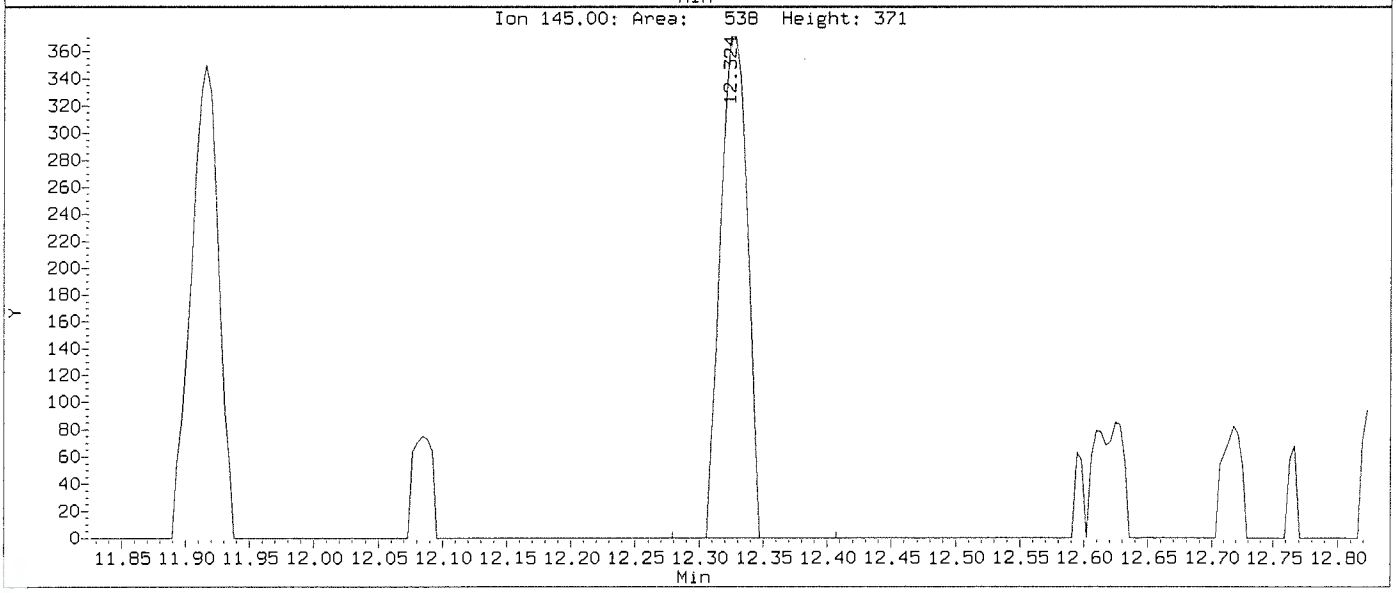


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

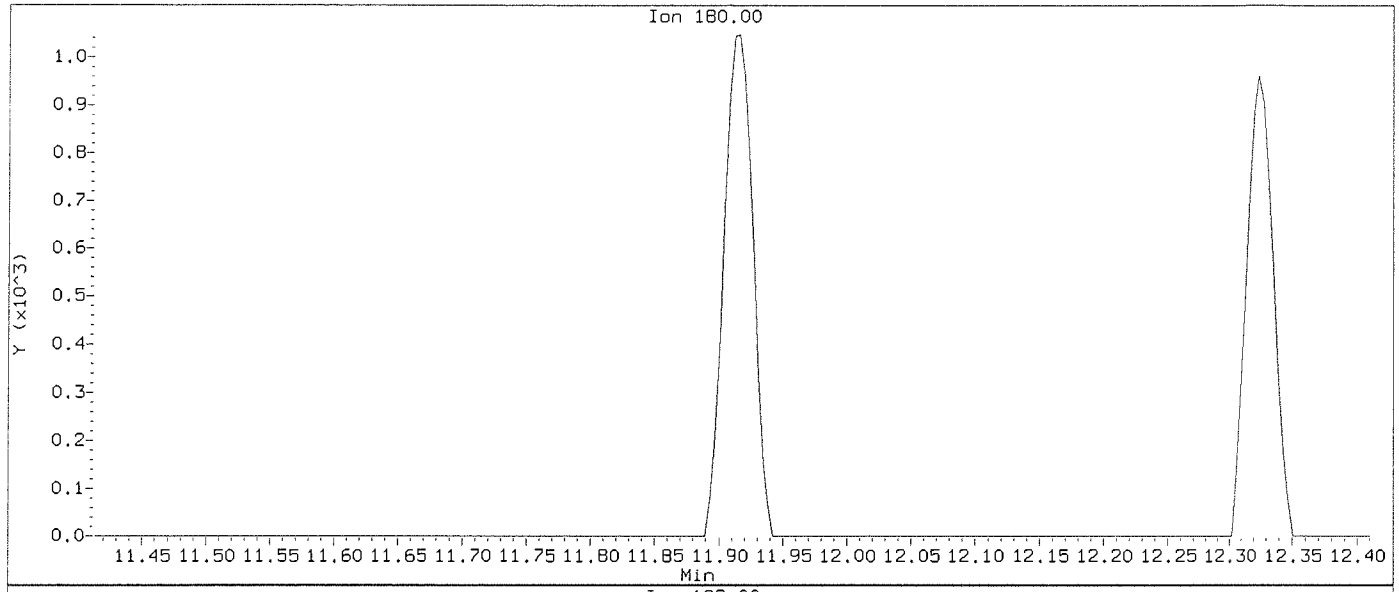


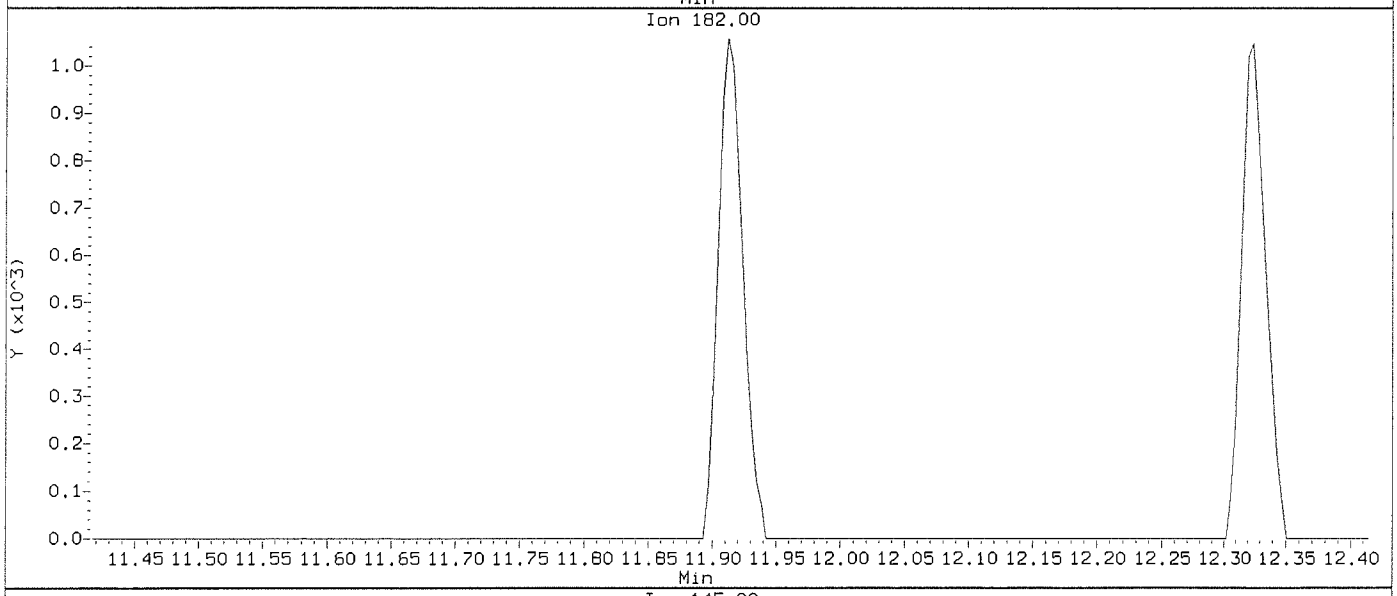


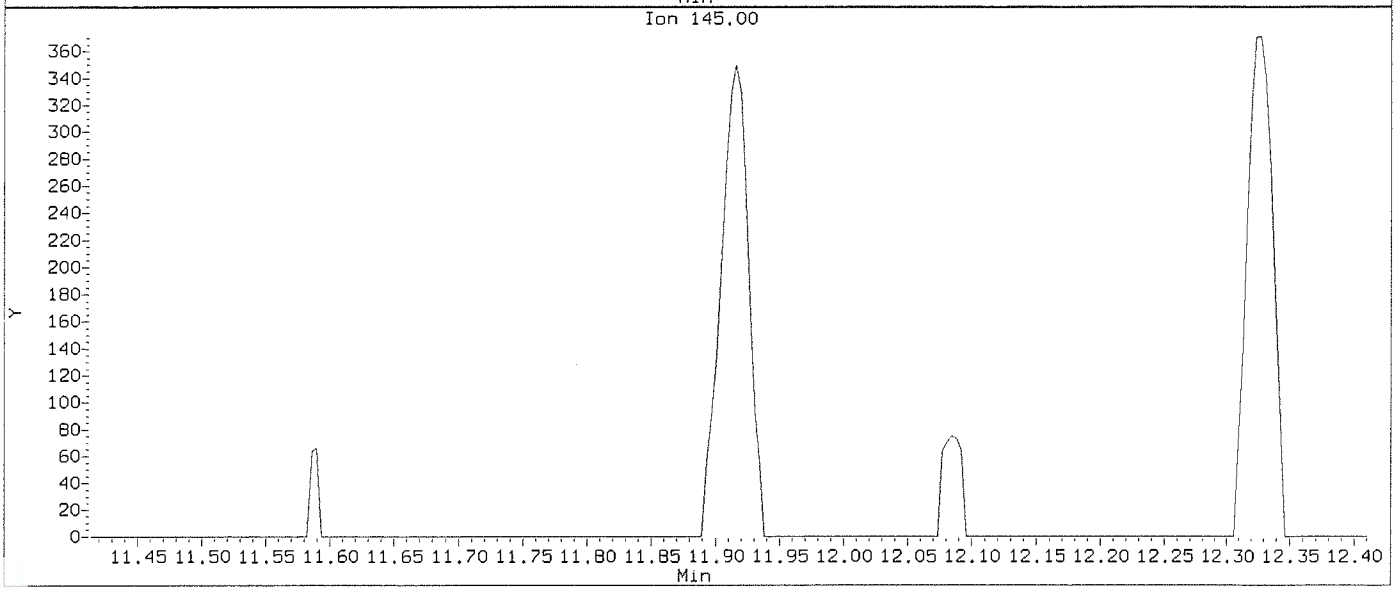


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1

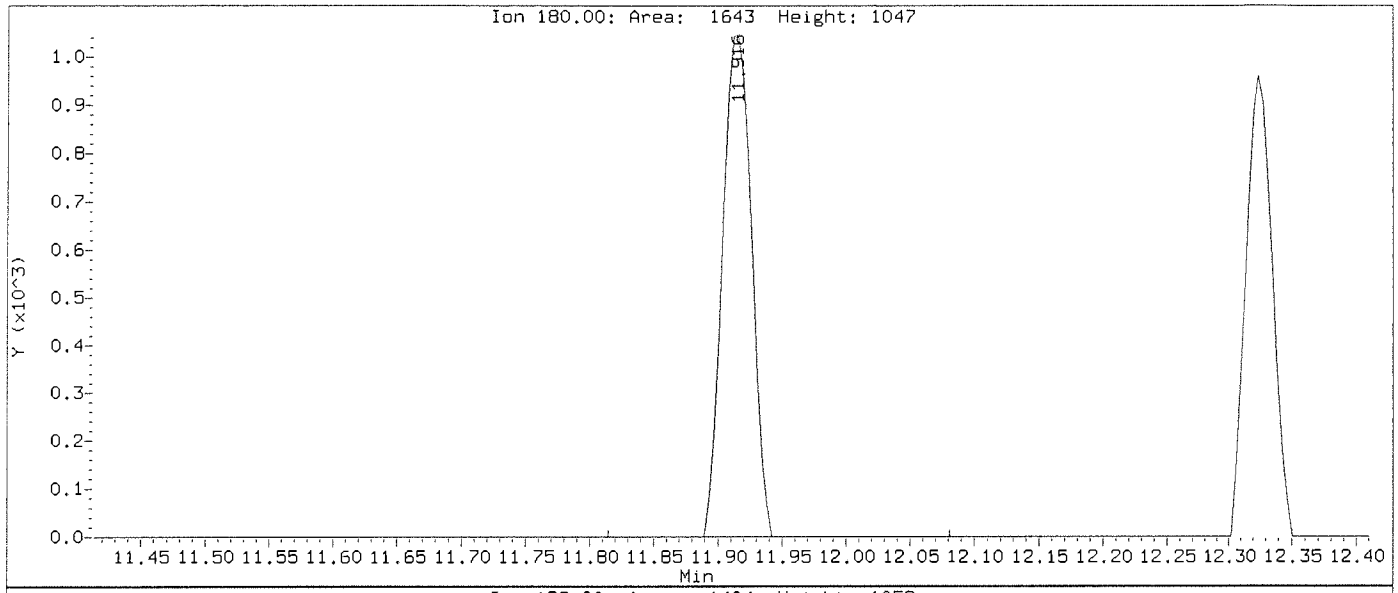


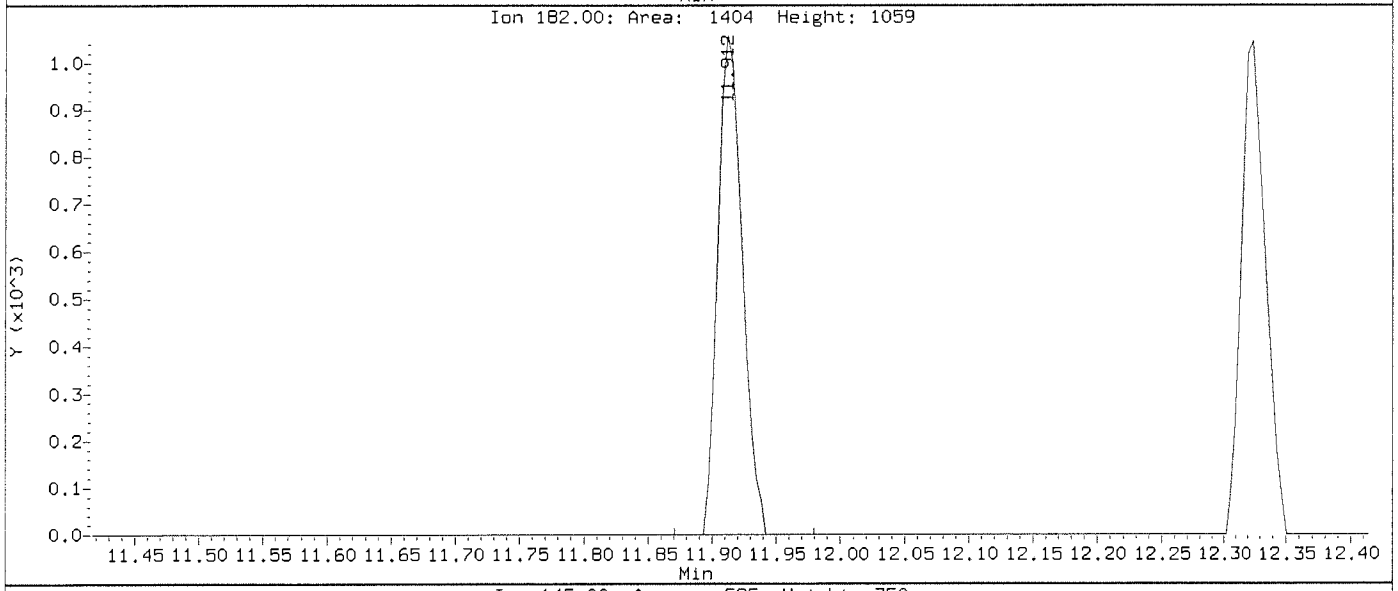


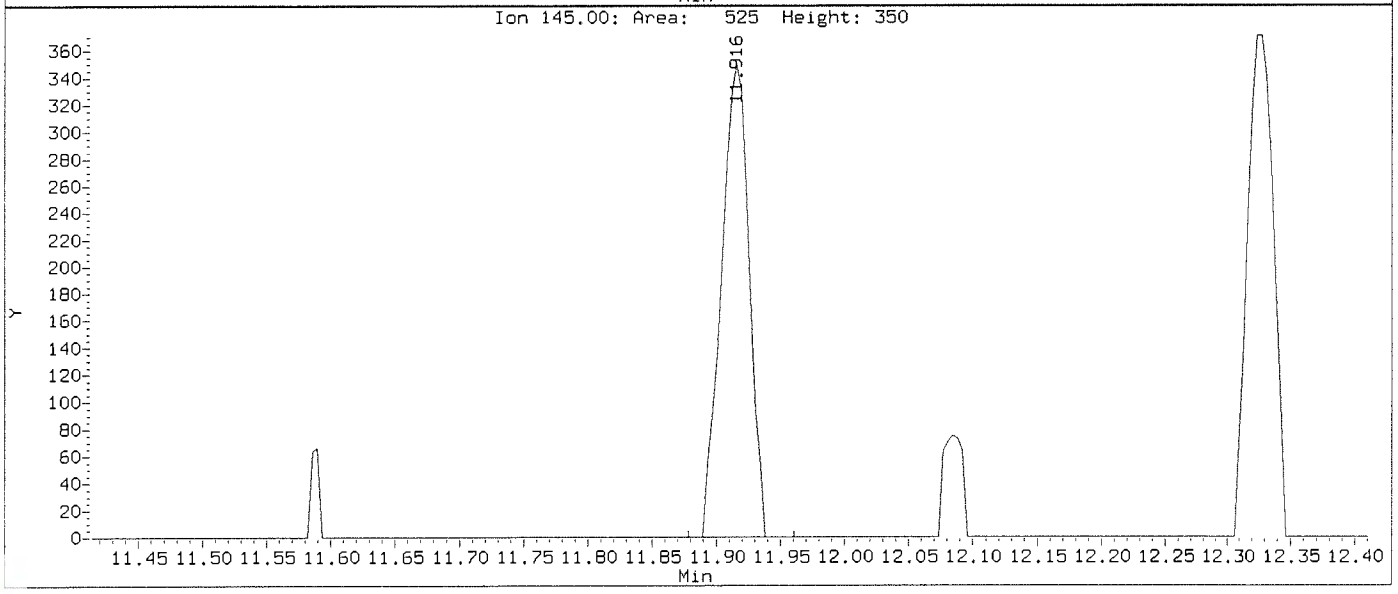


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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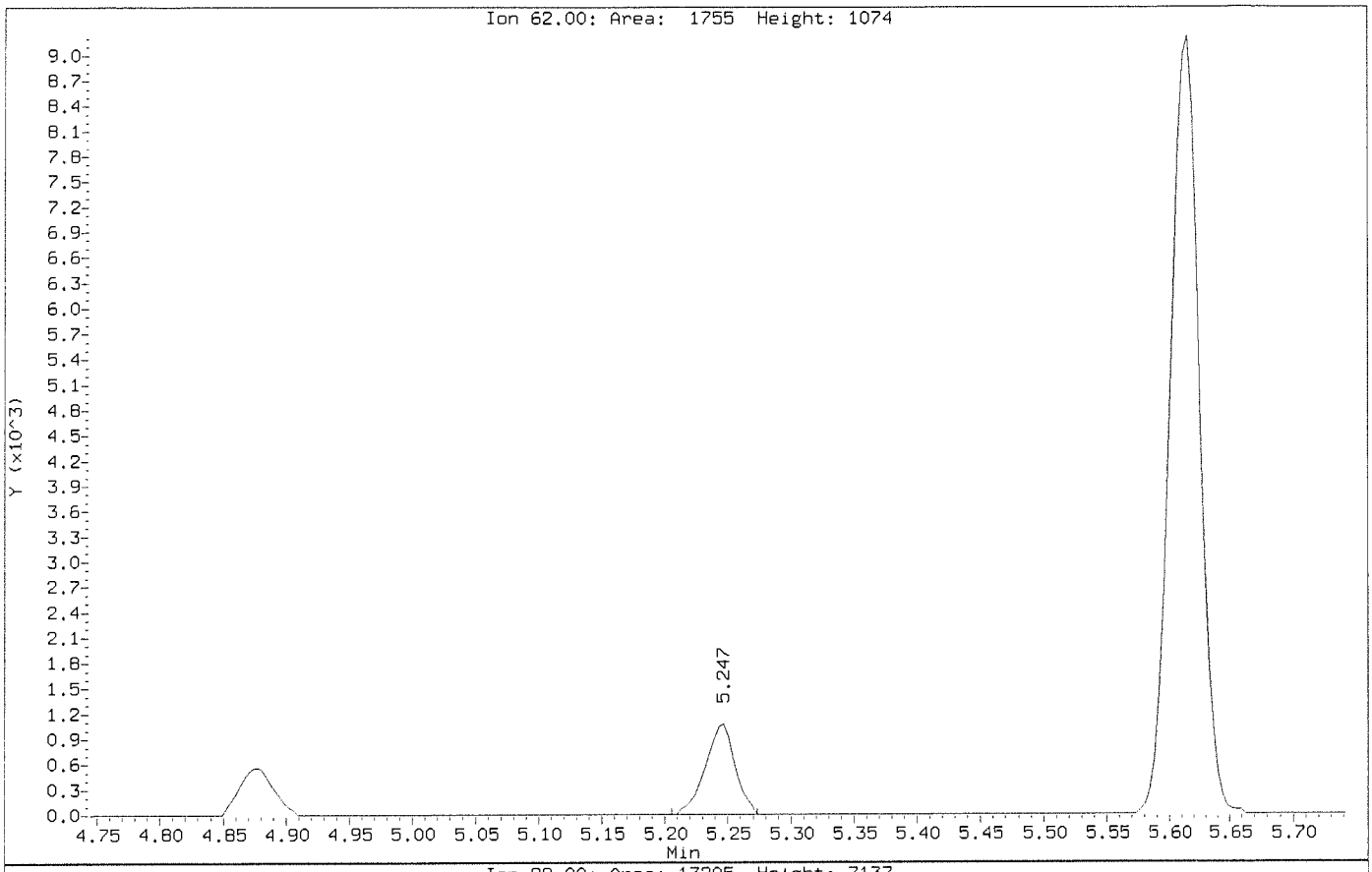
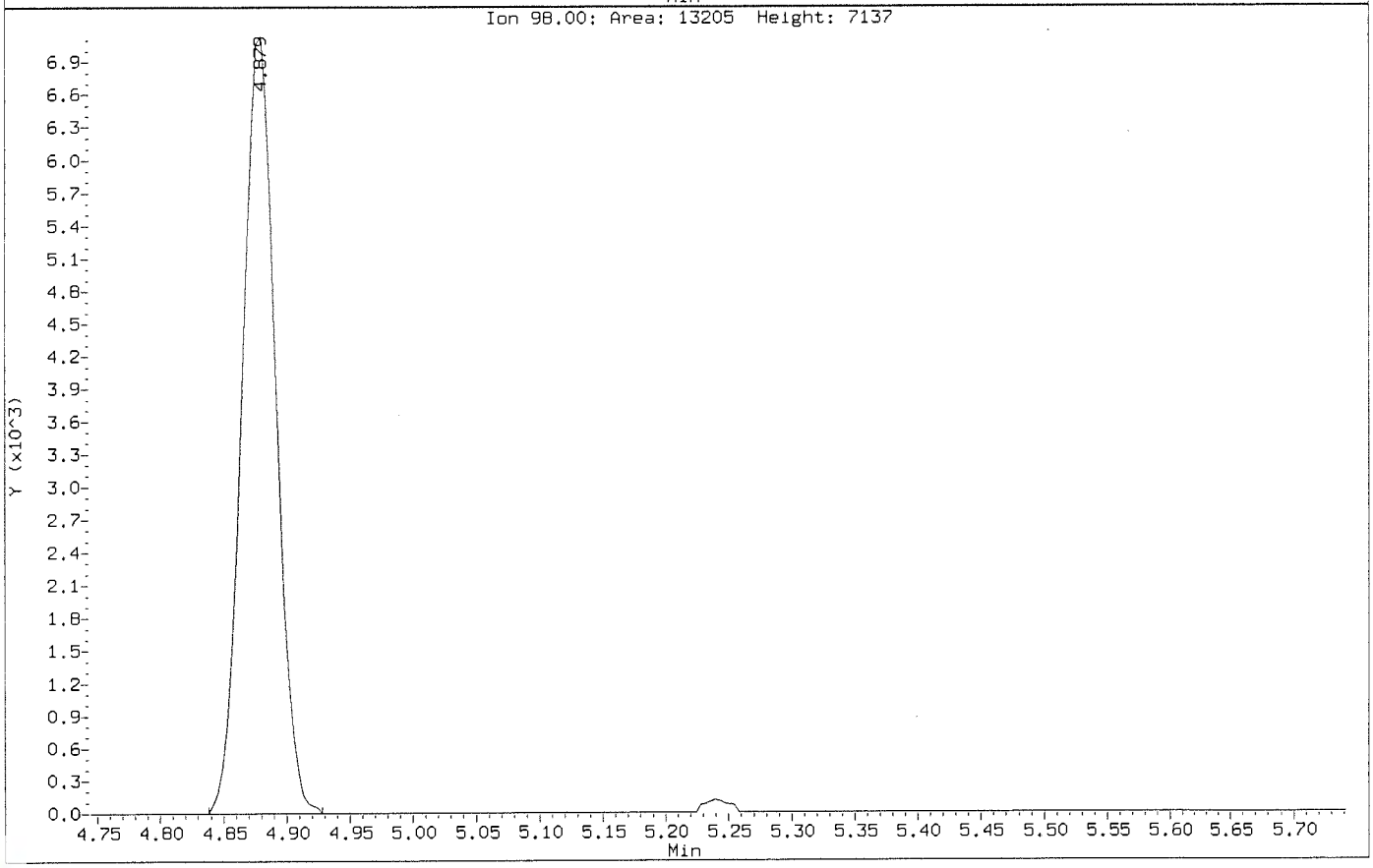
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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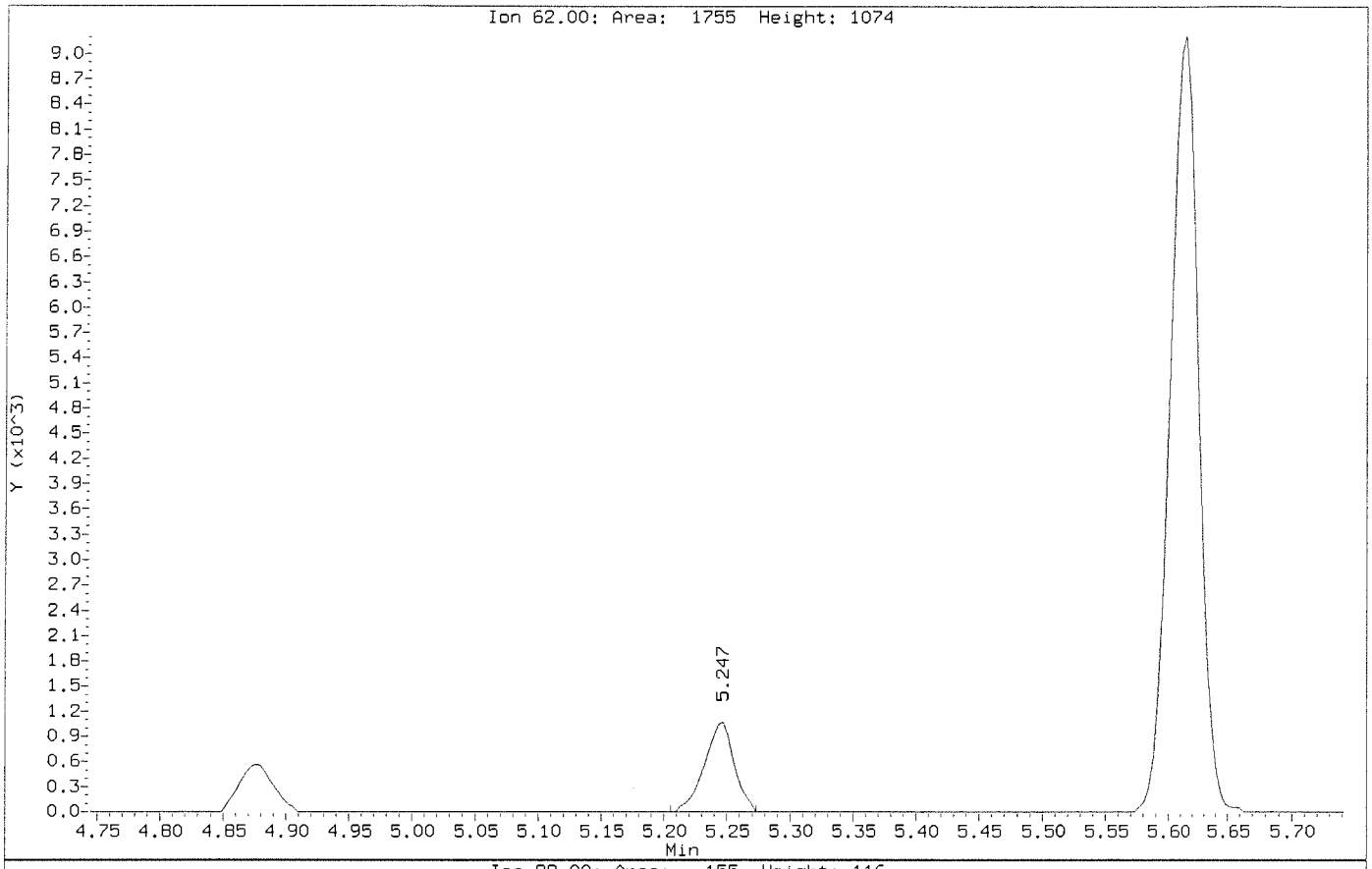
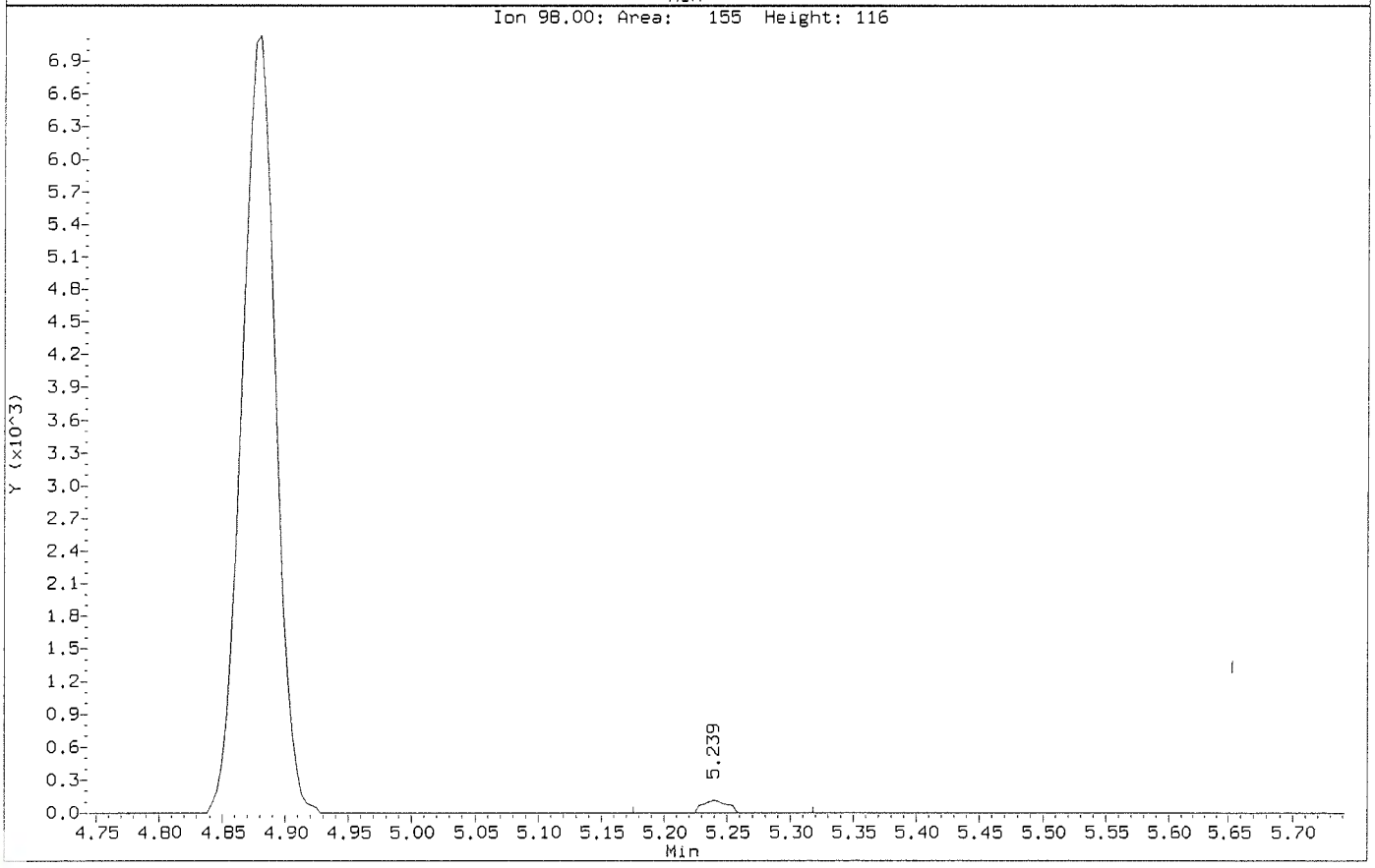
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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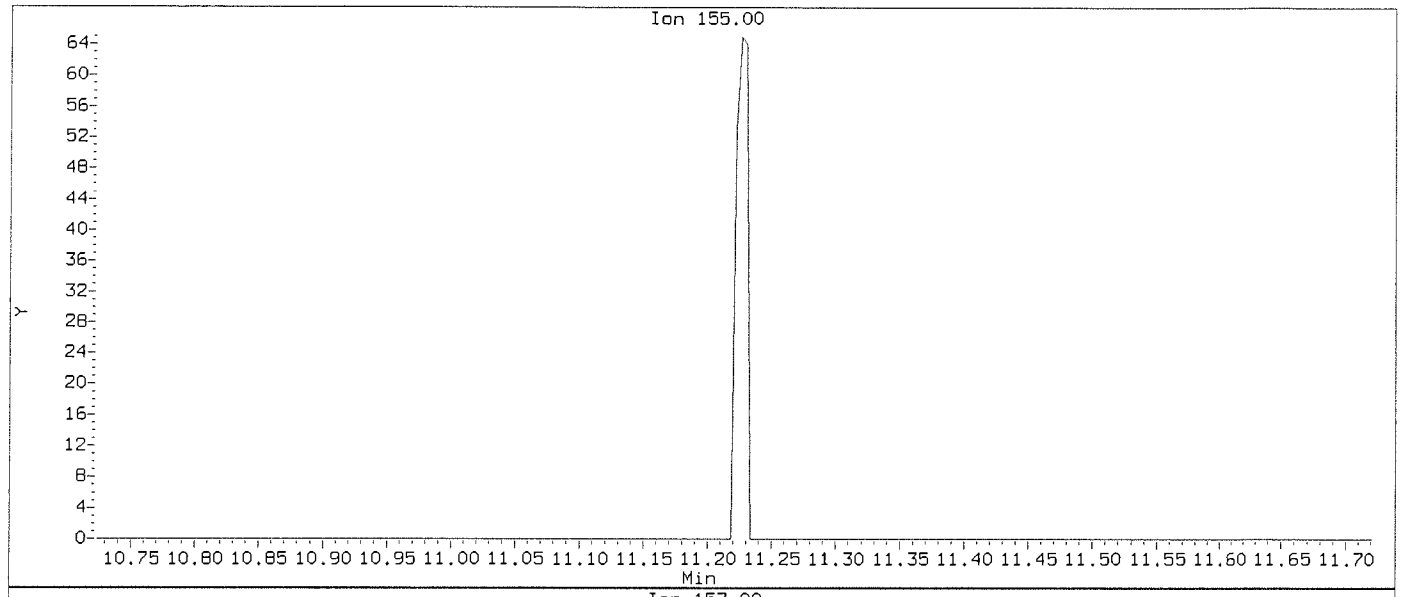
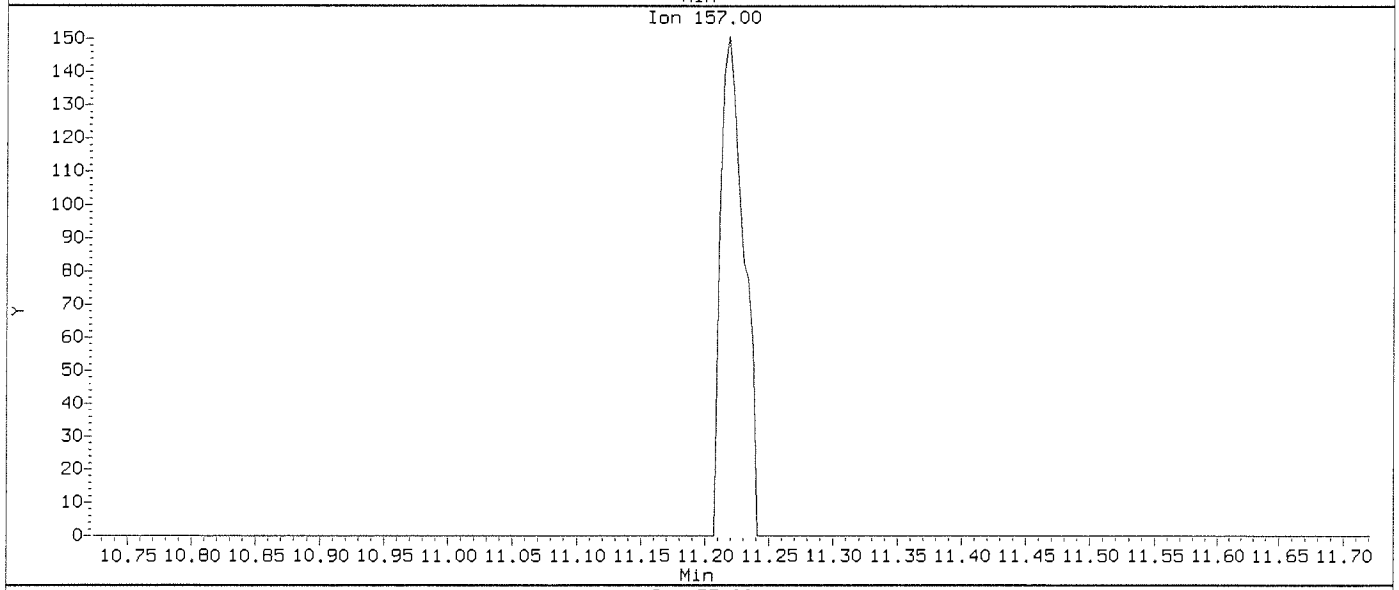
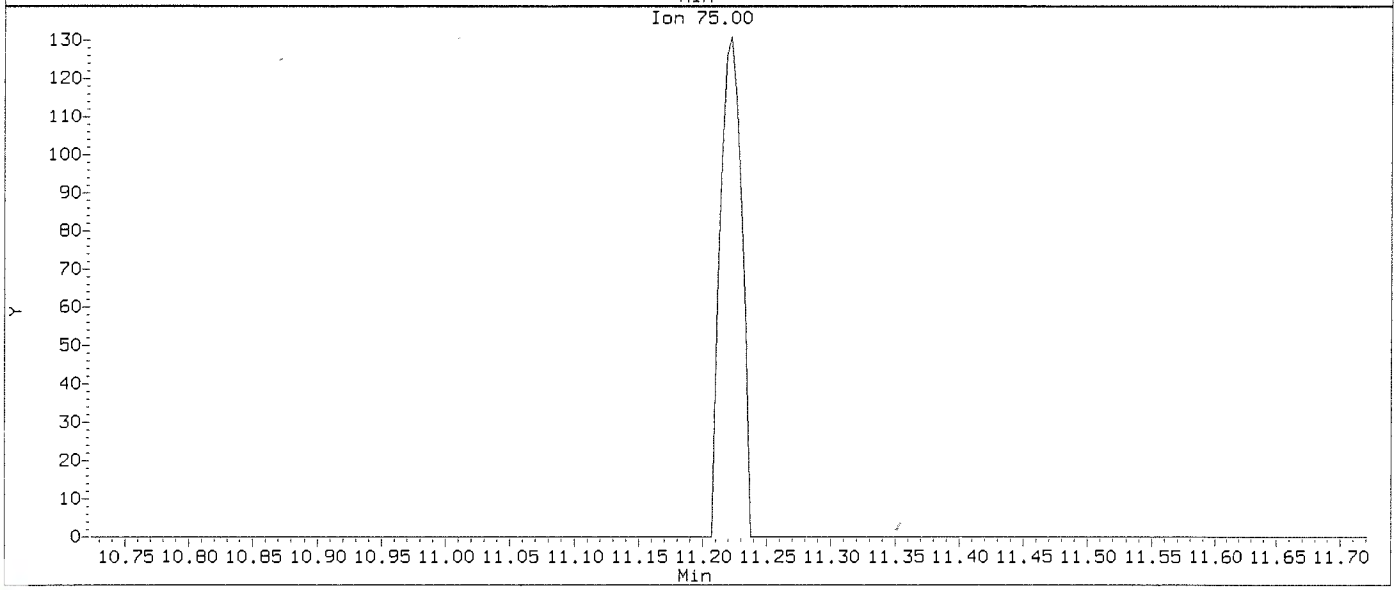
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

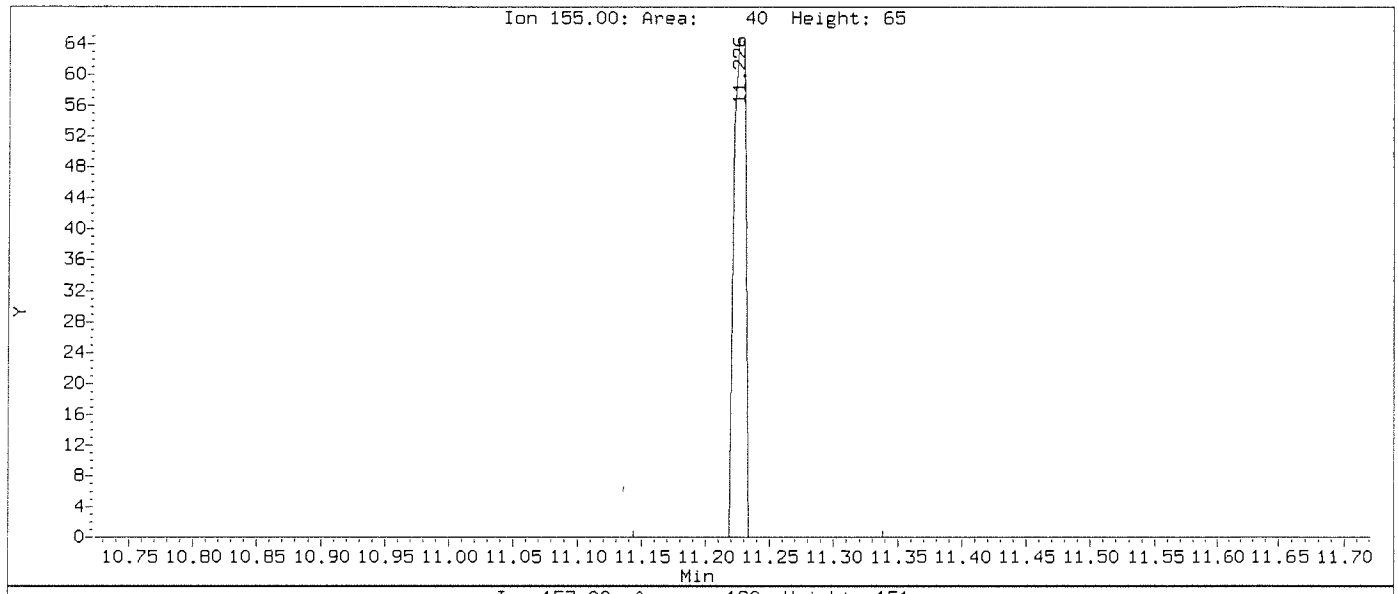


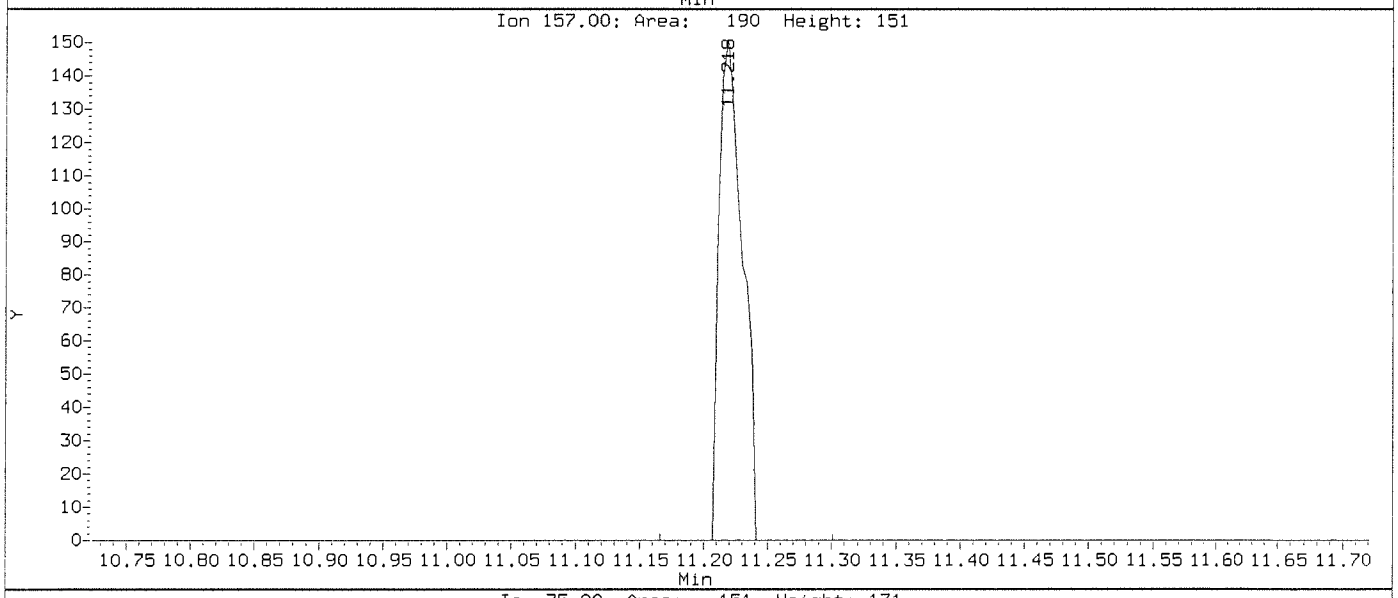


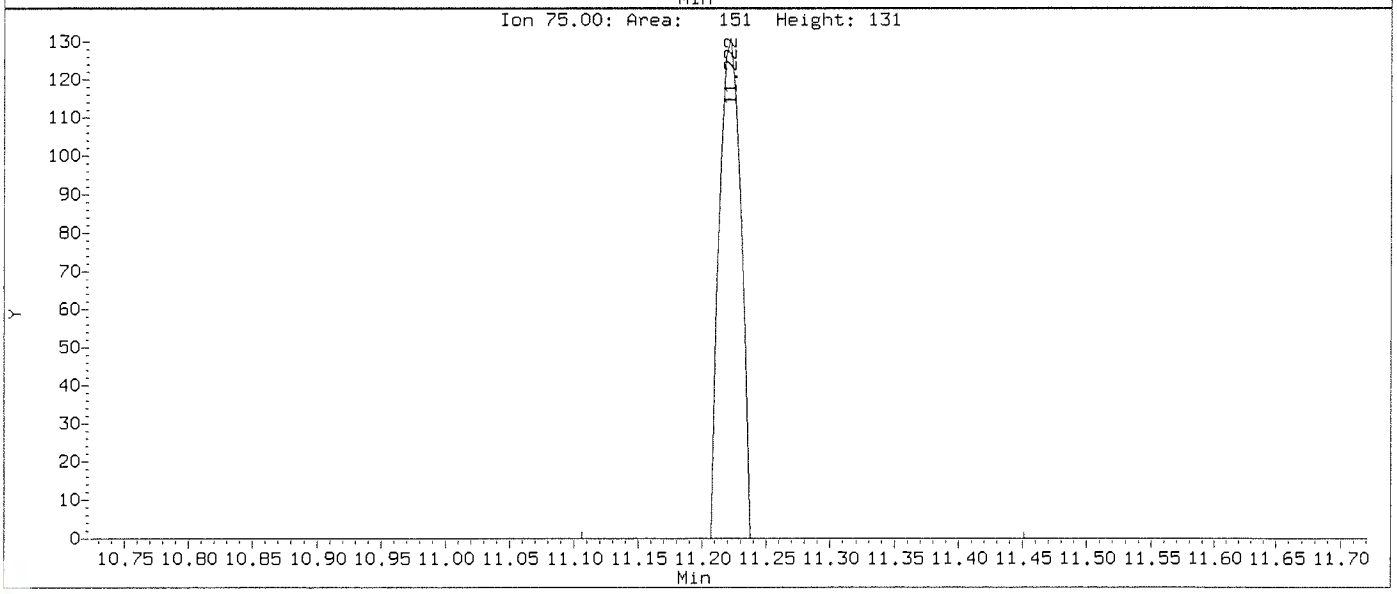


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

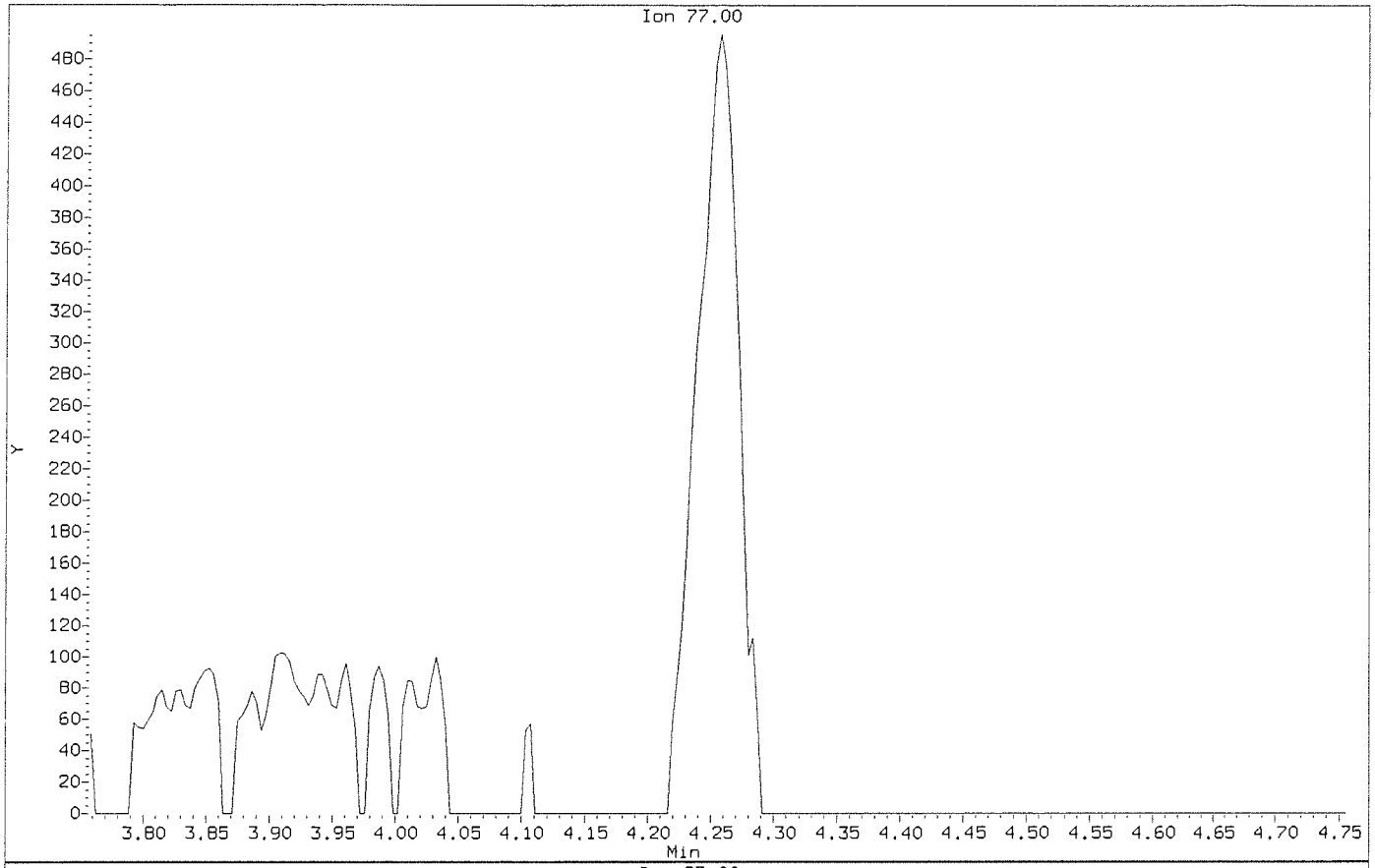


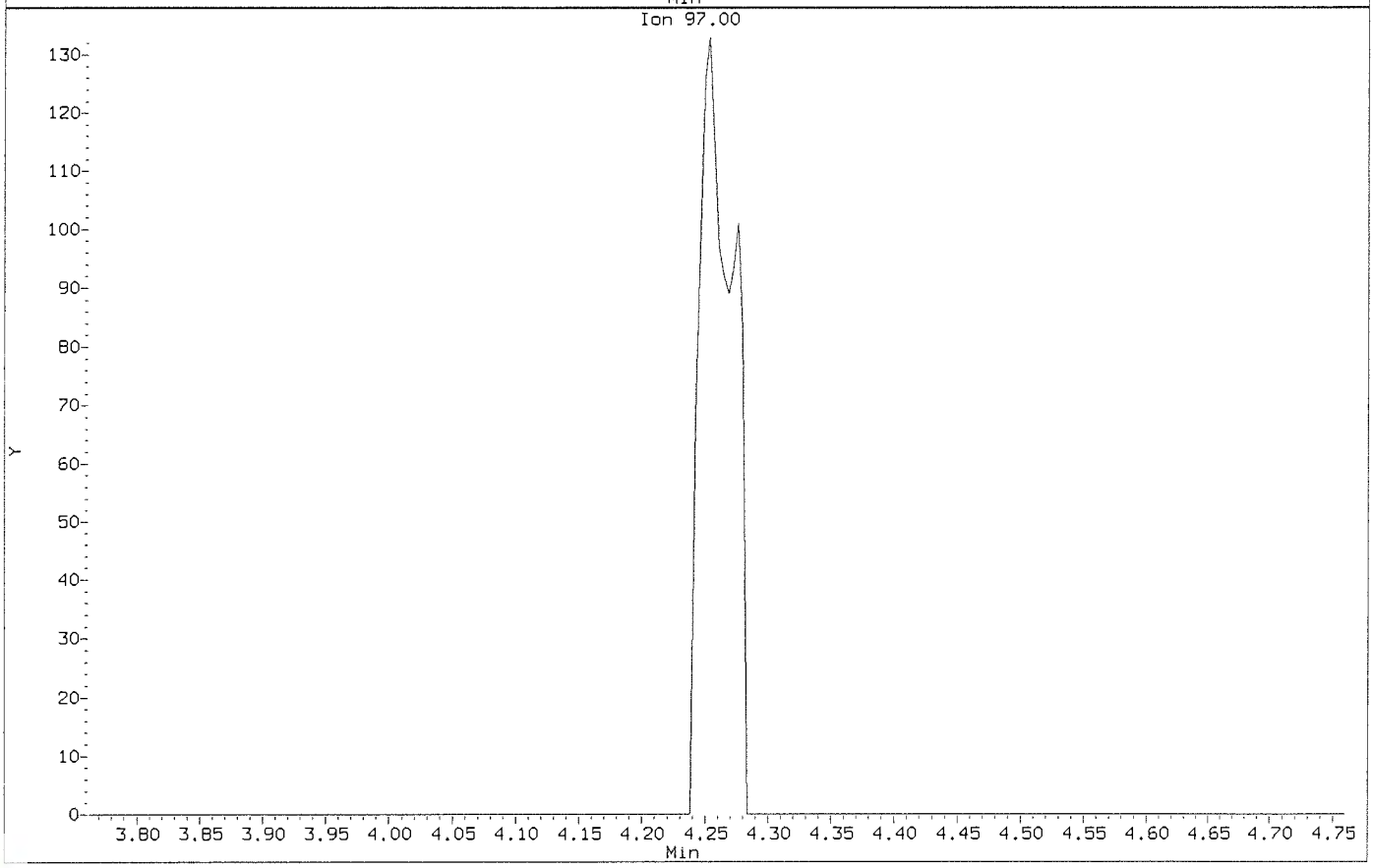




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

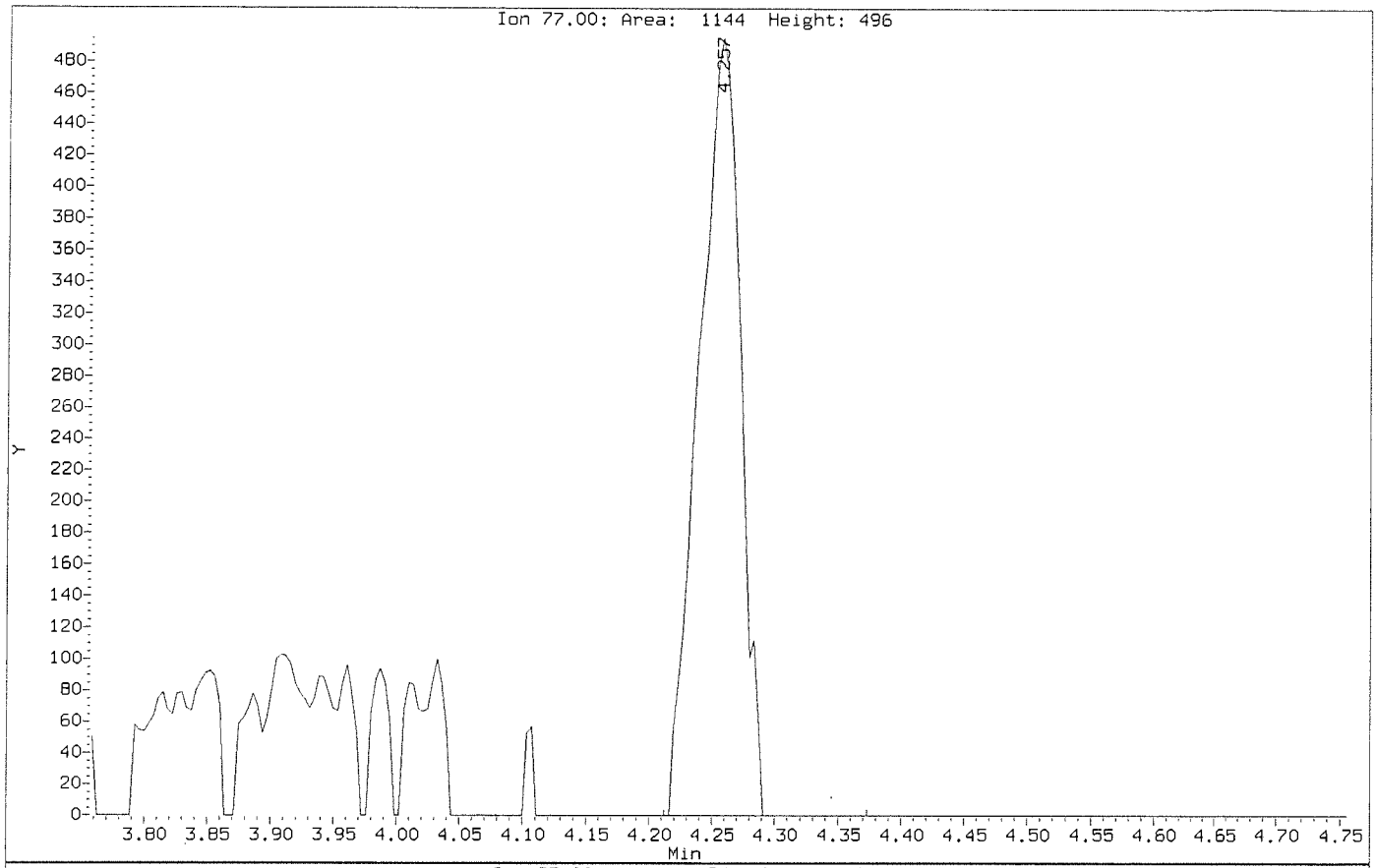
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

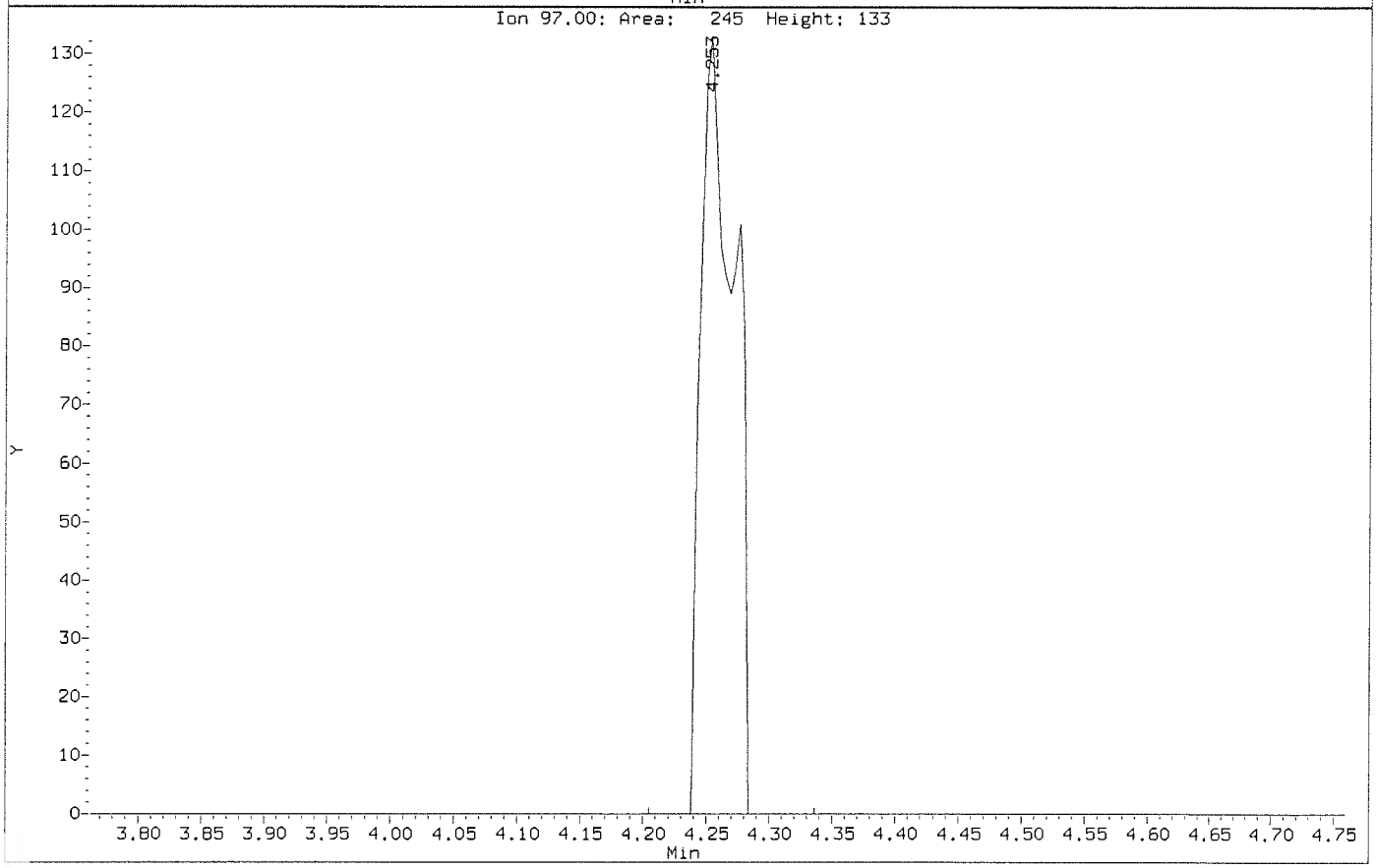




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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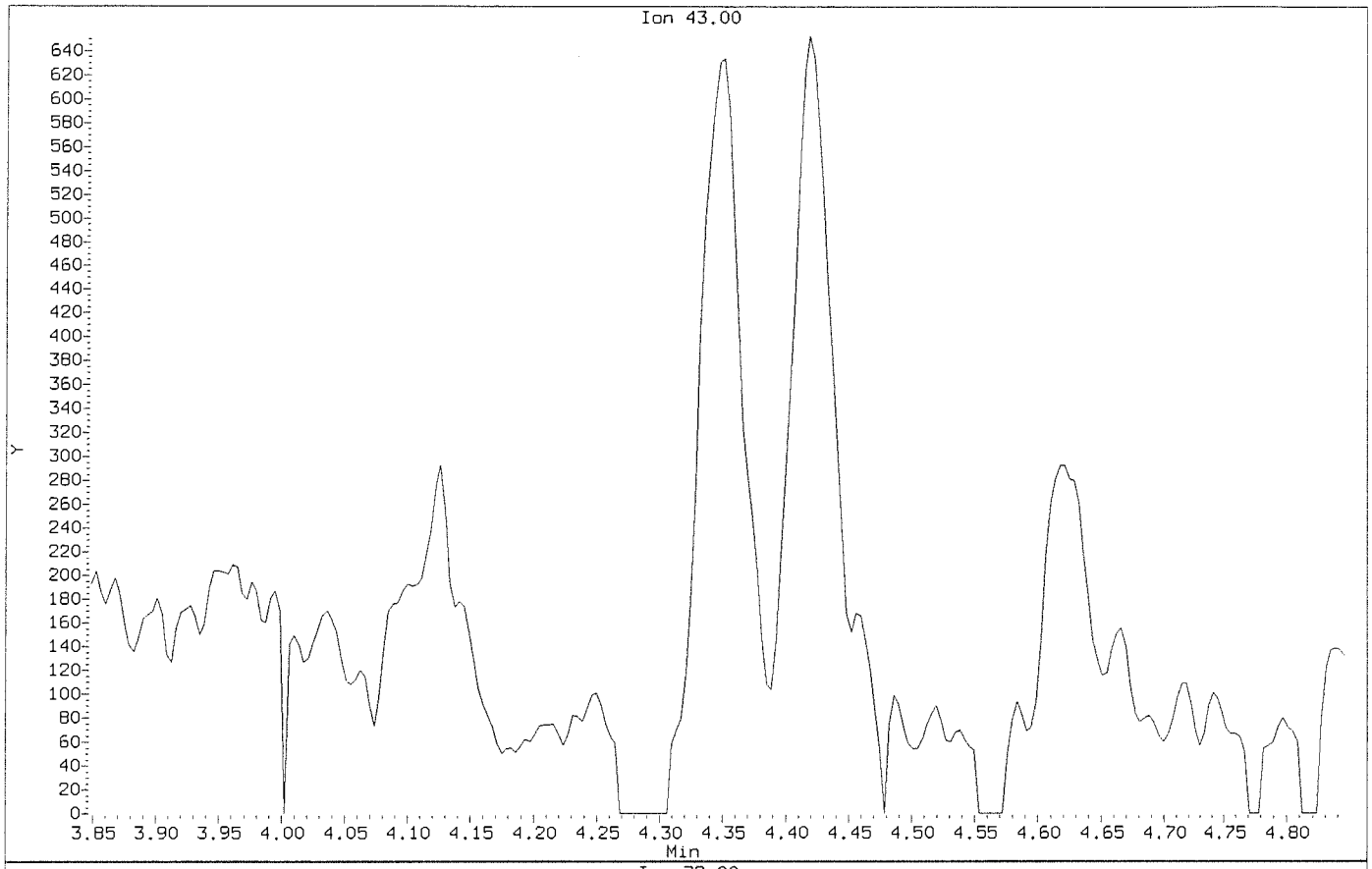
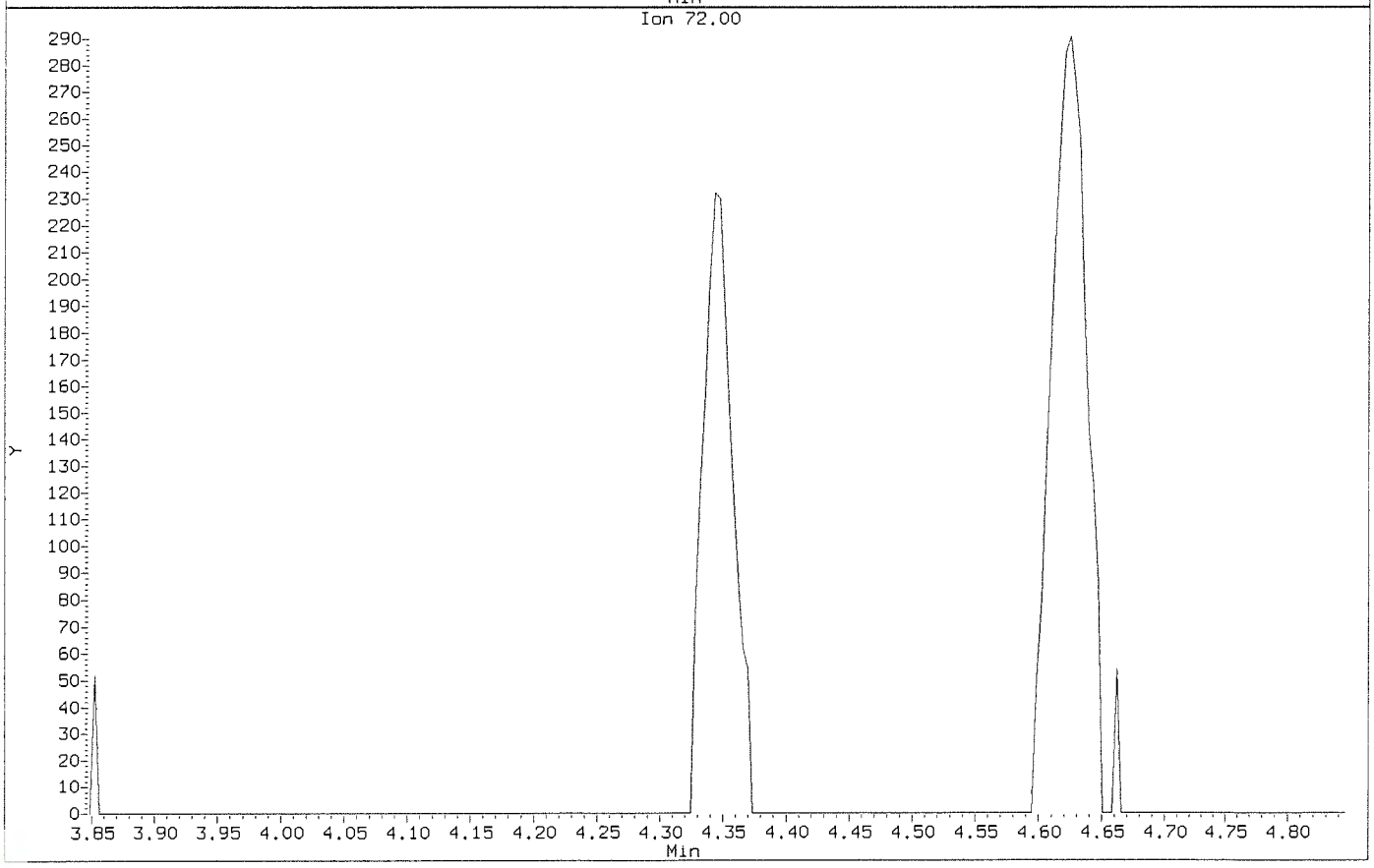
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

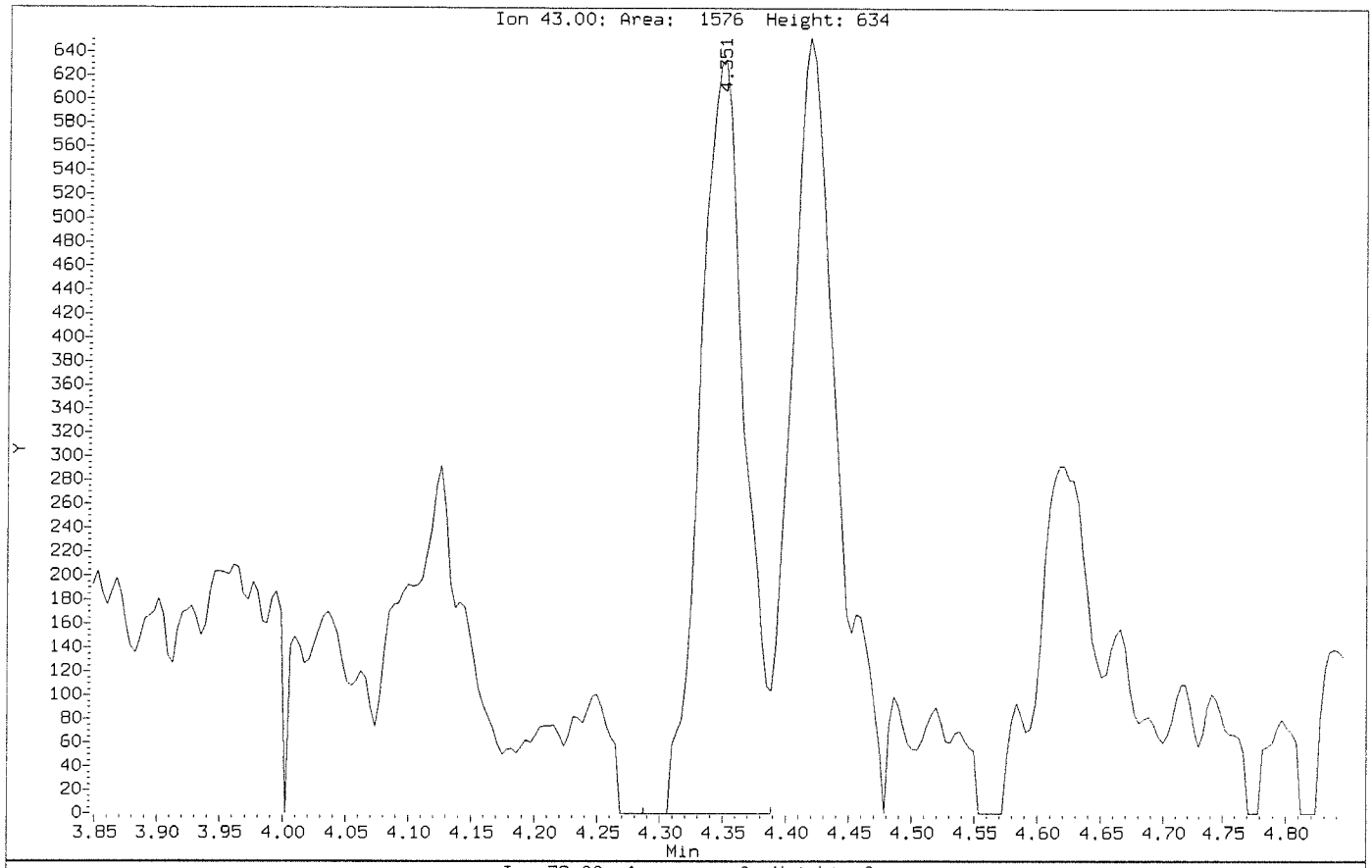
Compound: 2-Butanone
CAS Number: 78-93-3

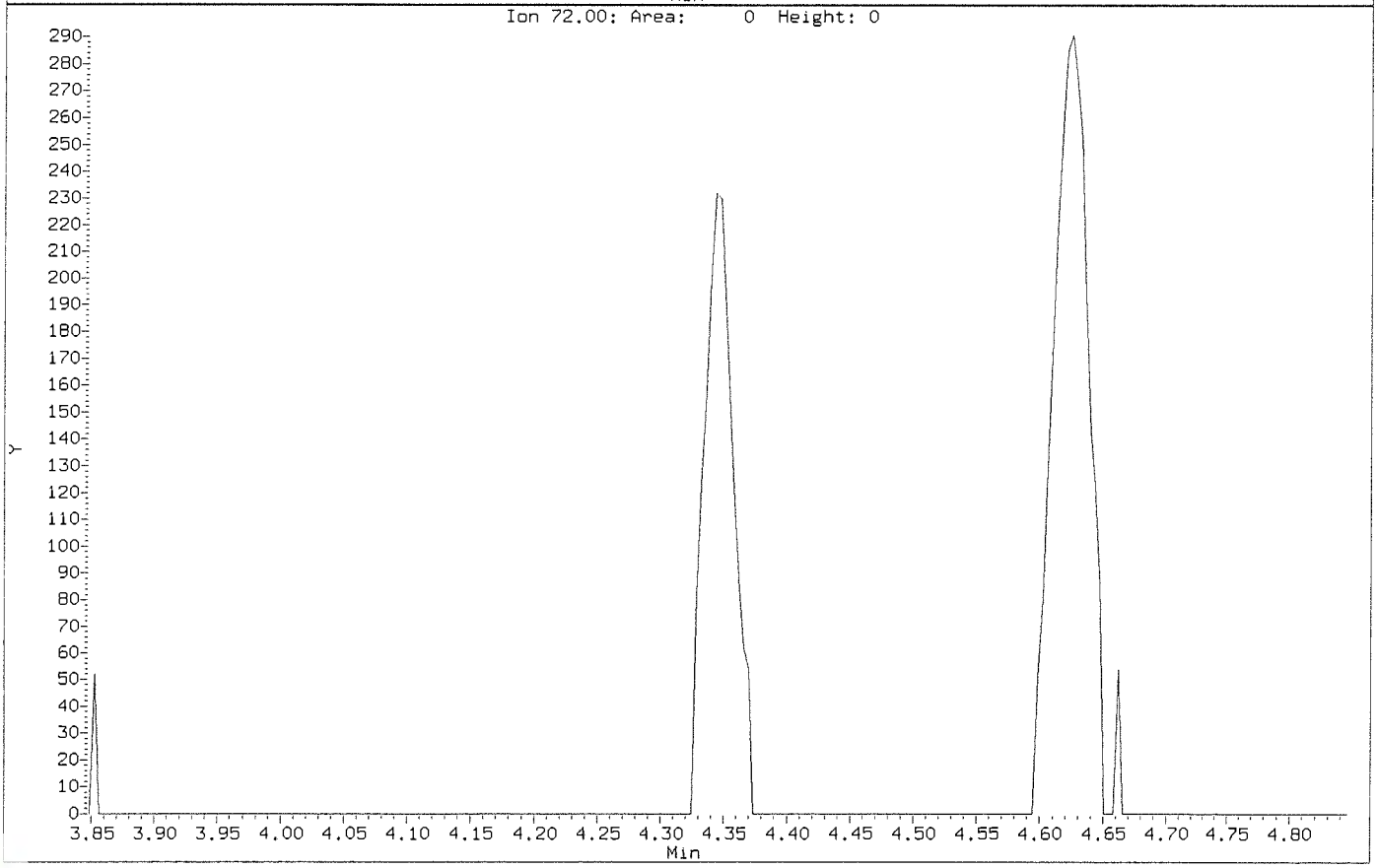




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

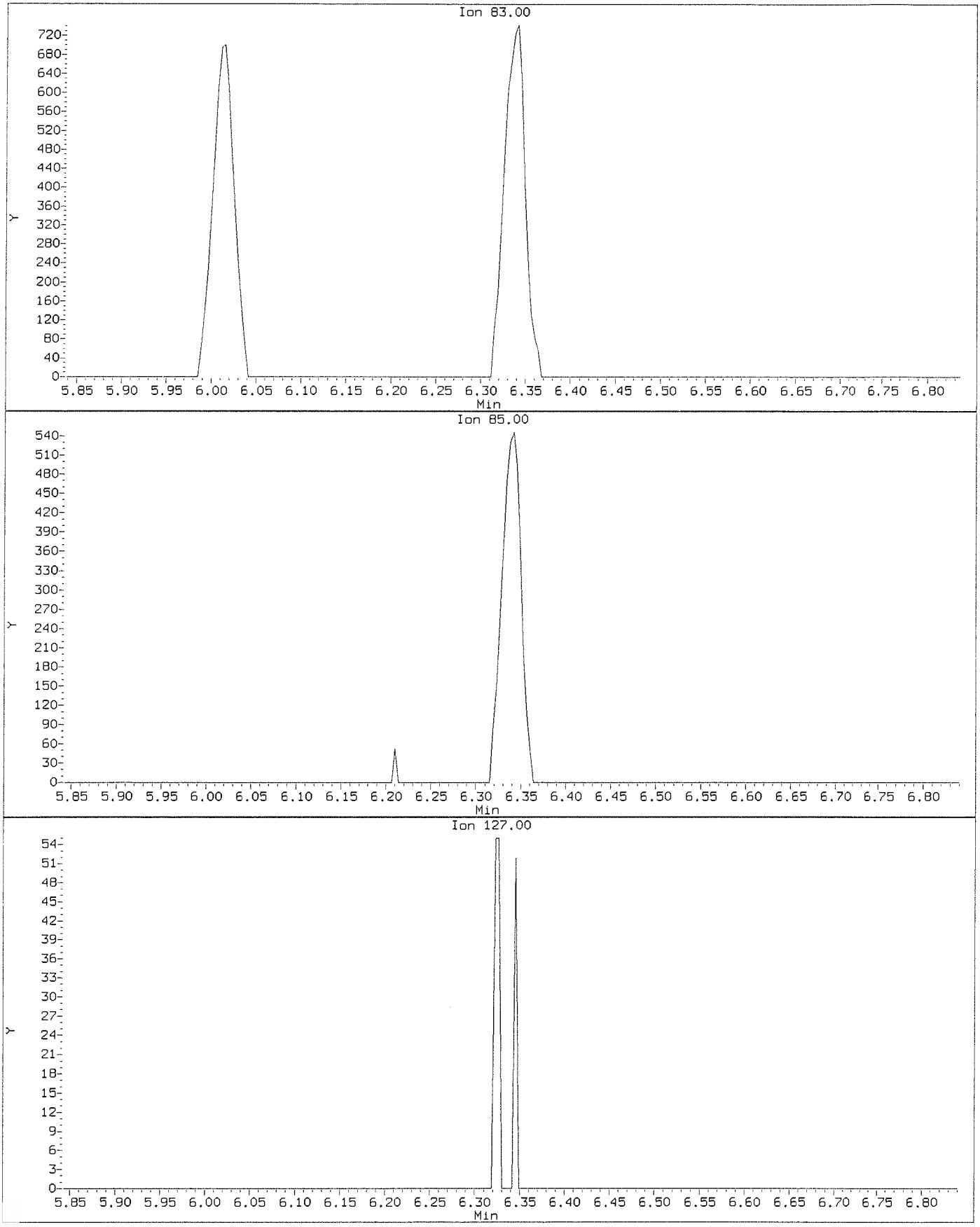
Compound: 2-Butanone
CAS Number: 78-93-3





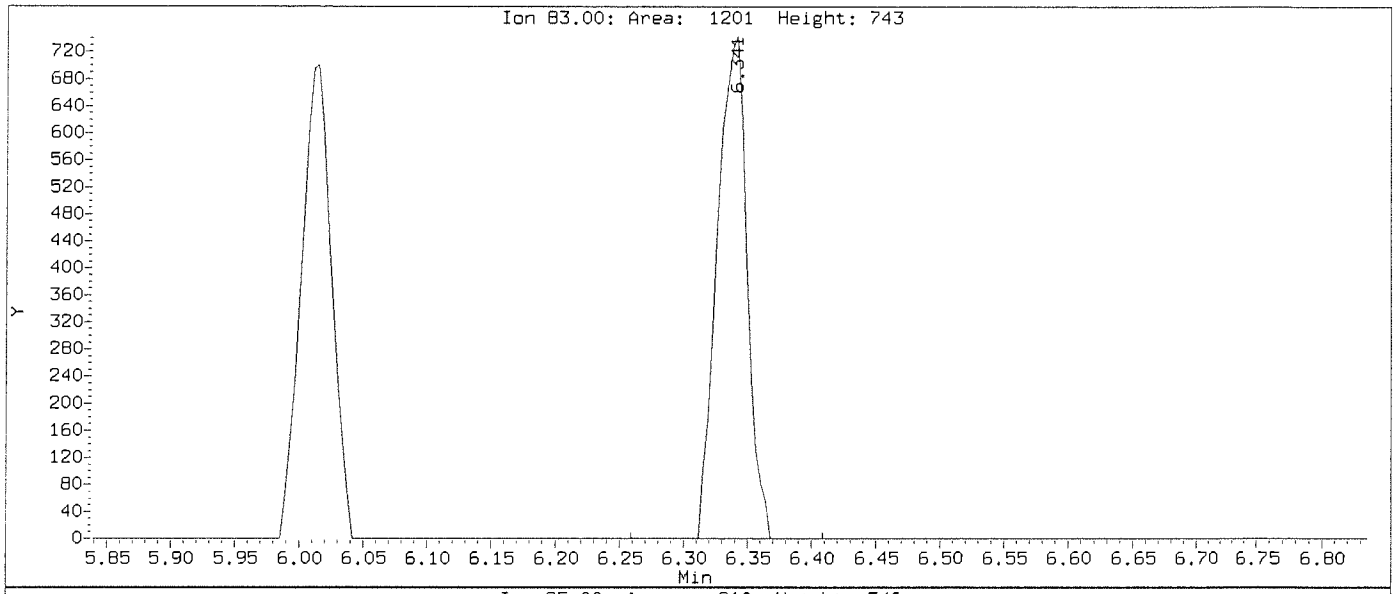
Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

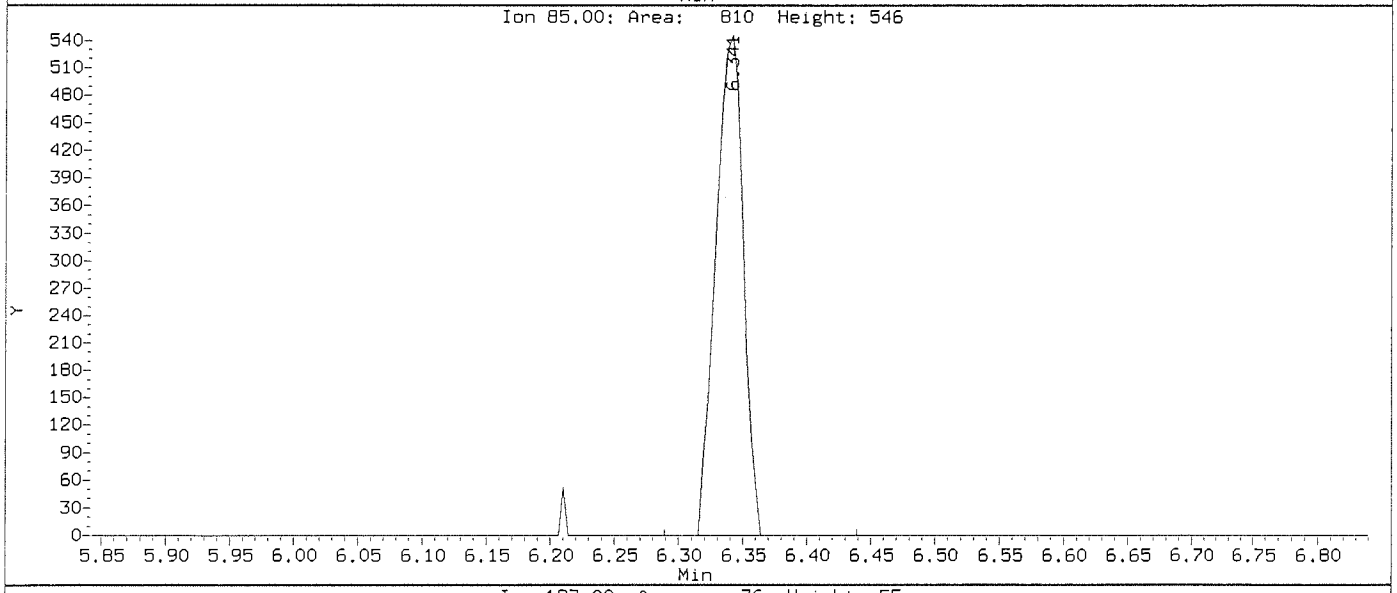
Compound: Bromodichloromethane
CAS Number: 75-27-4

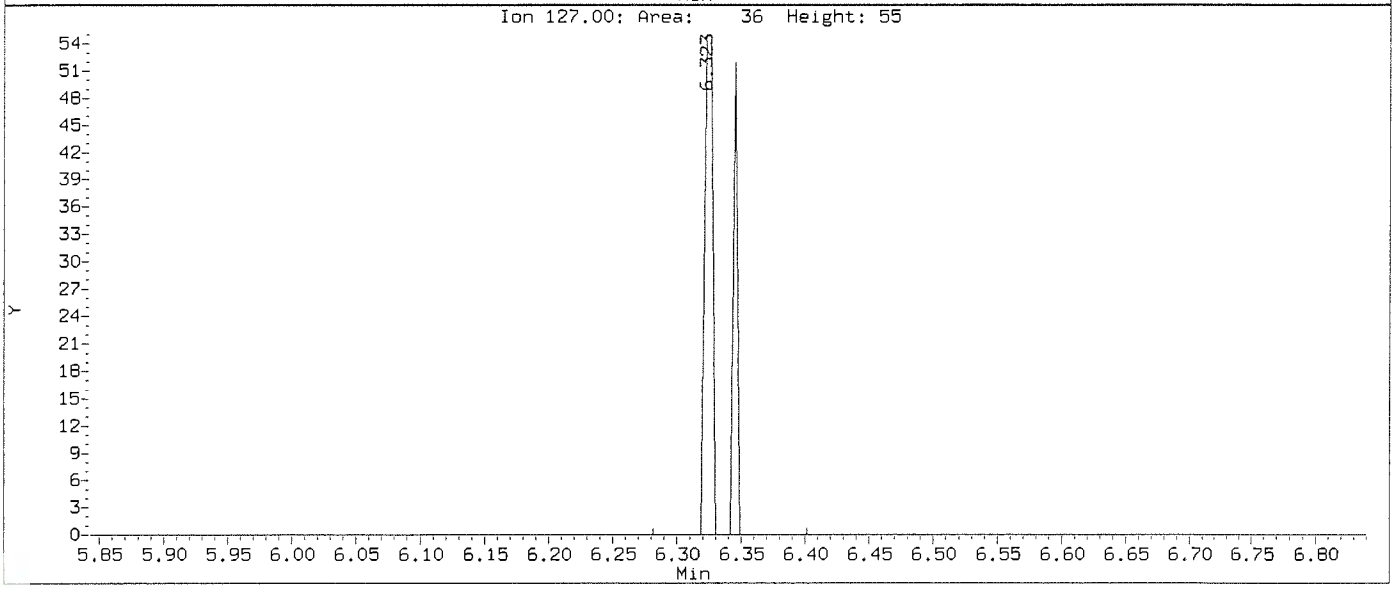


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

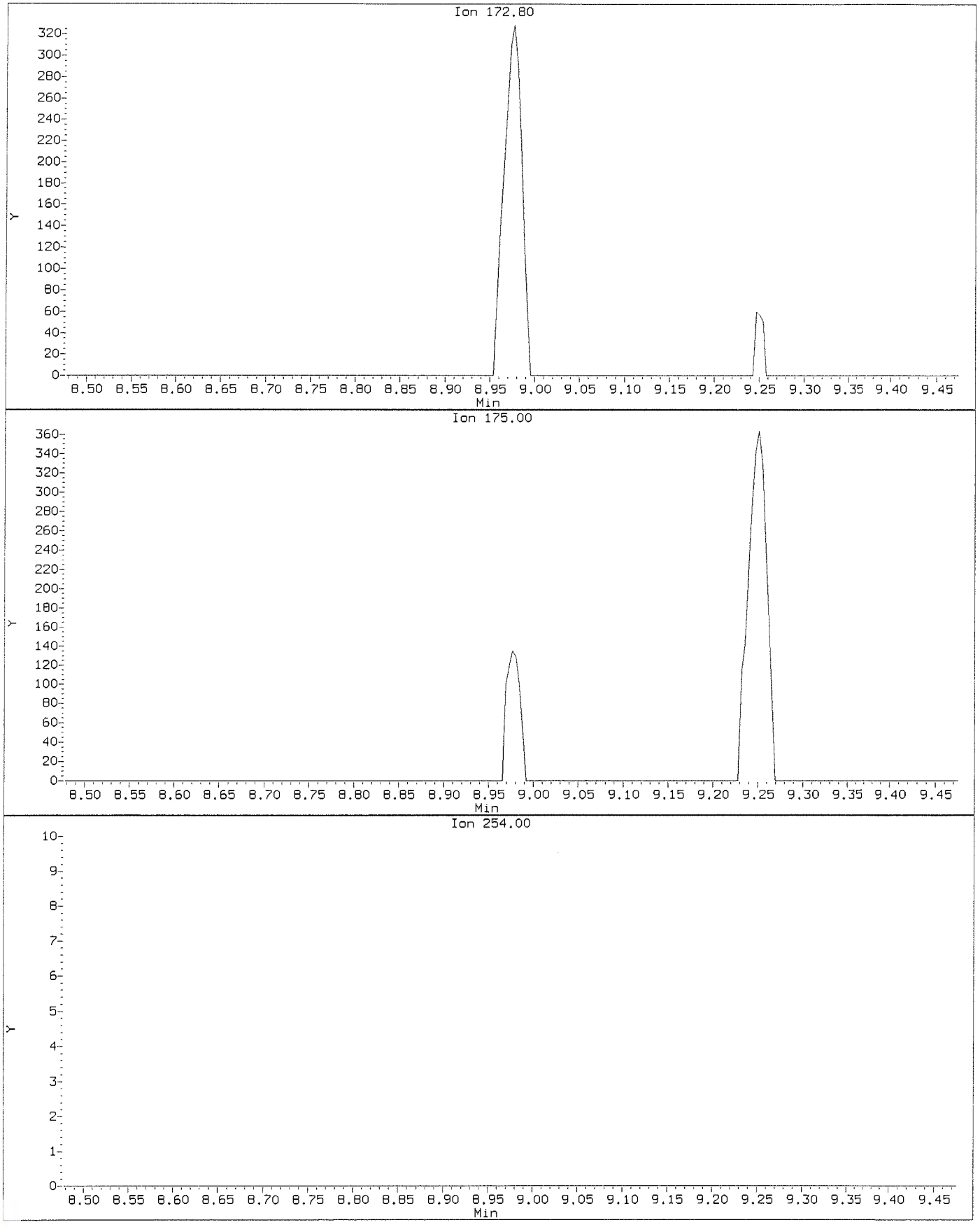






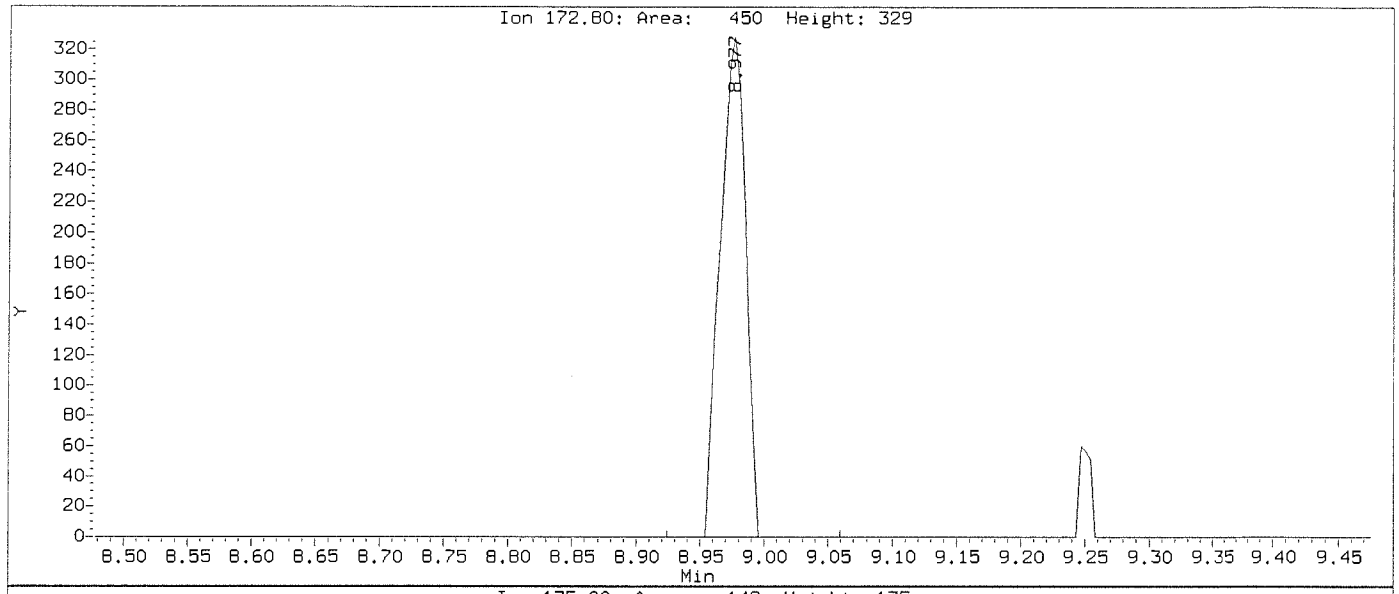
Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

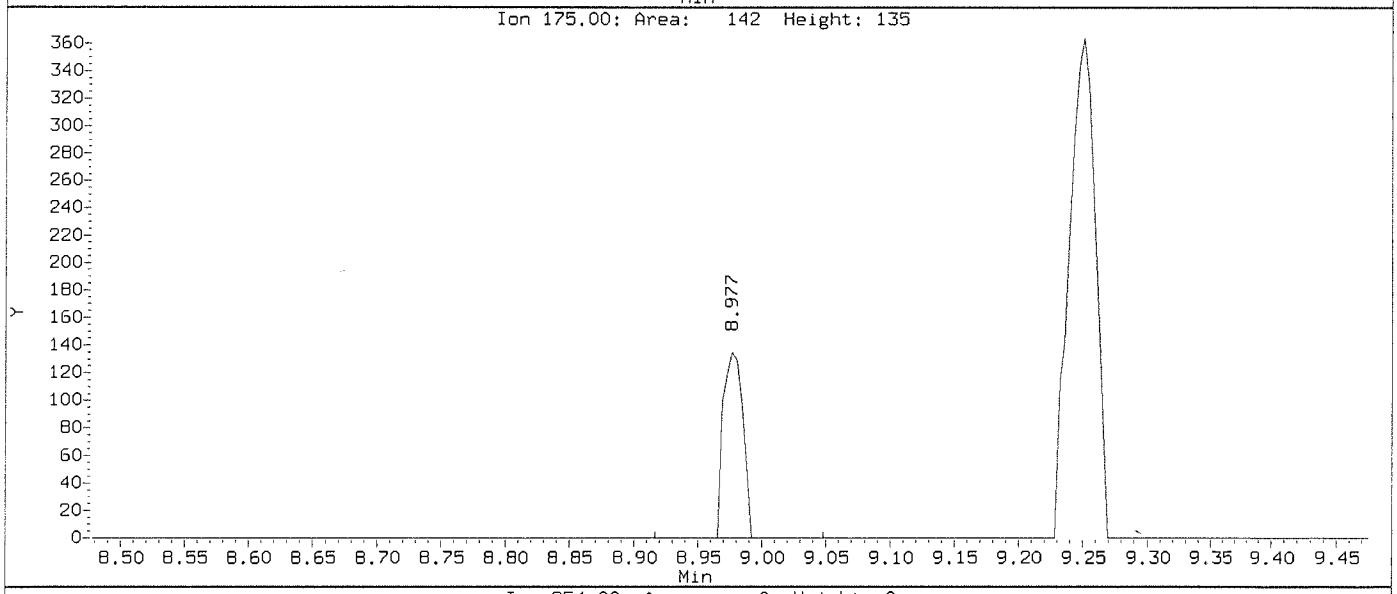
Compound: Bromoform
CAS Number: 75-25-2

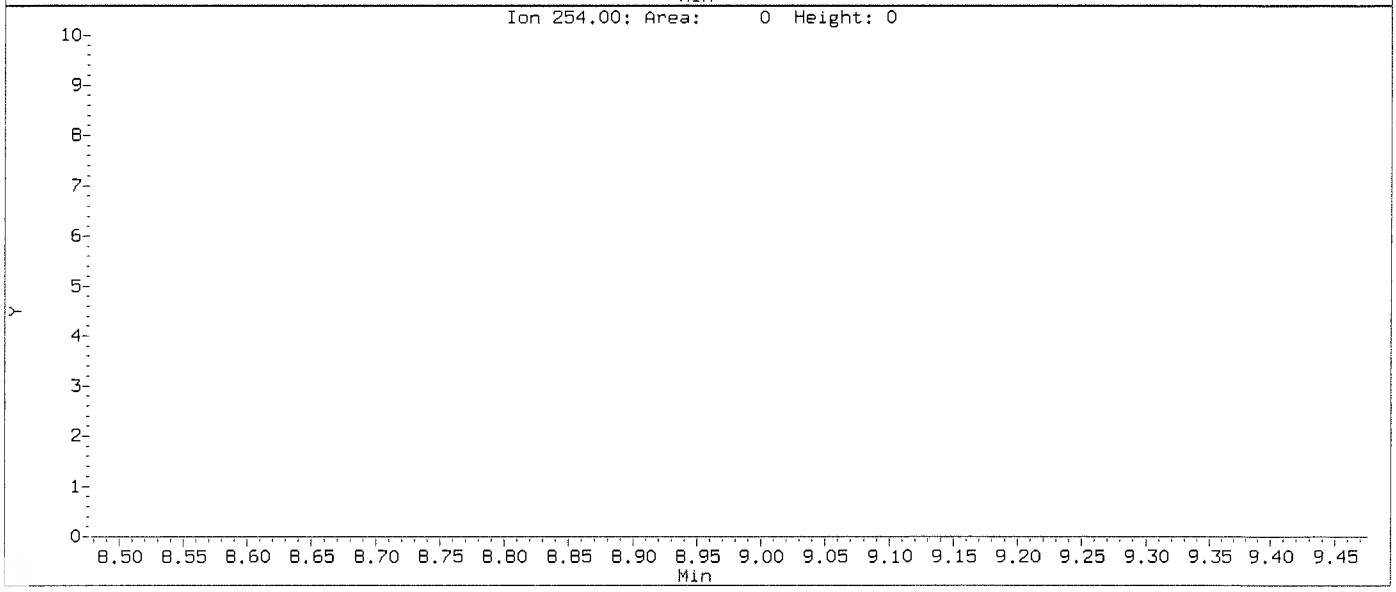


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2

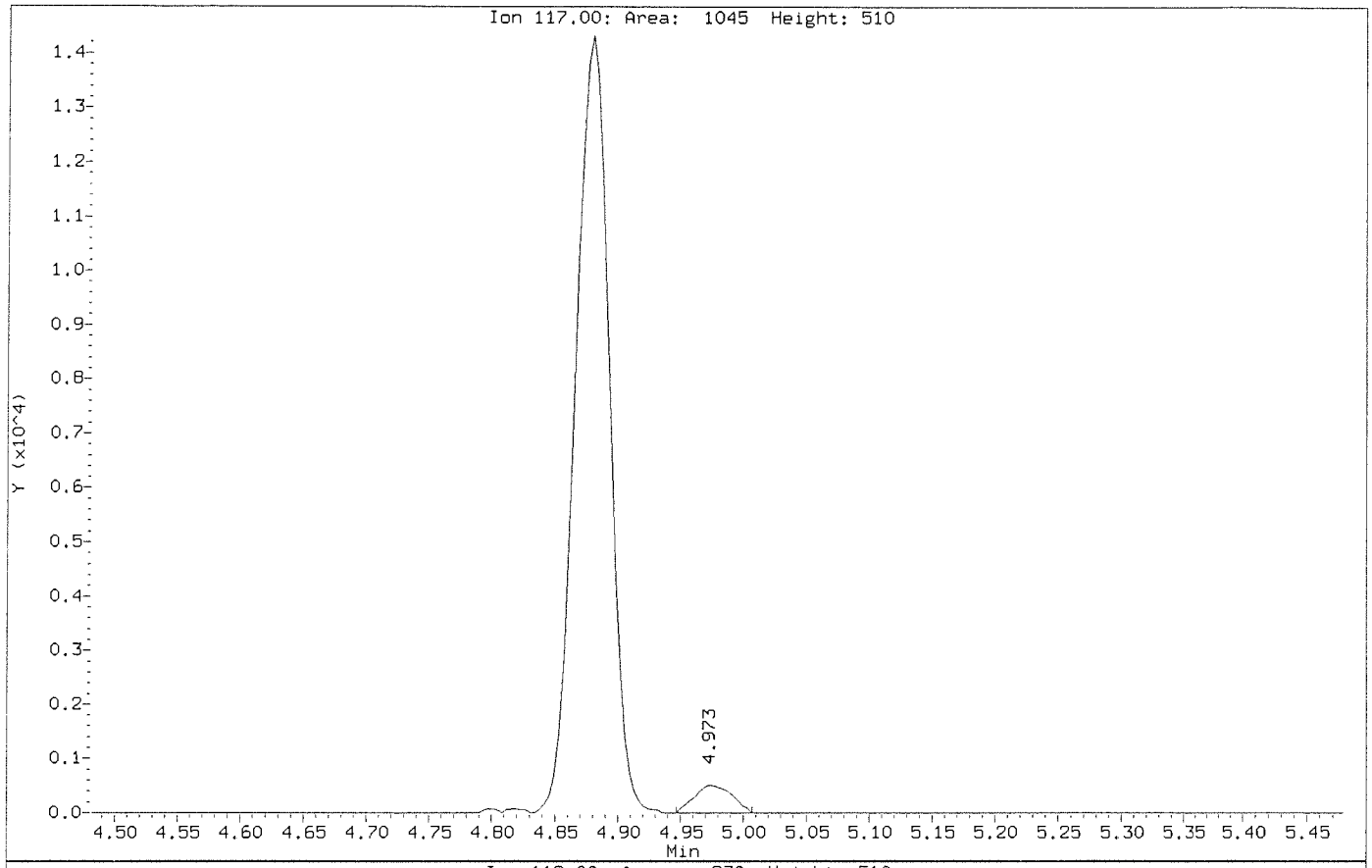


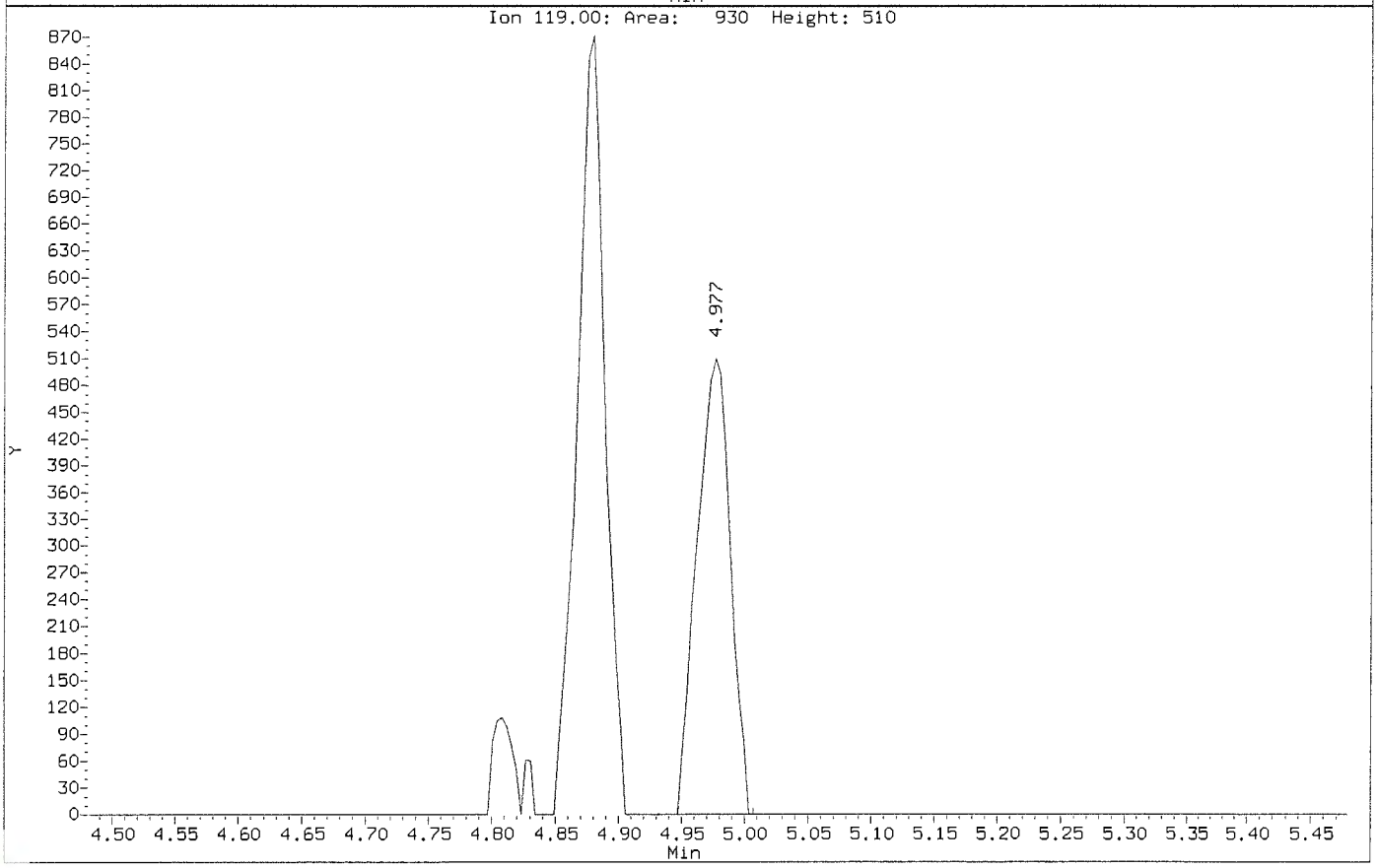




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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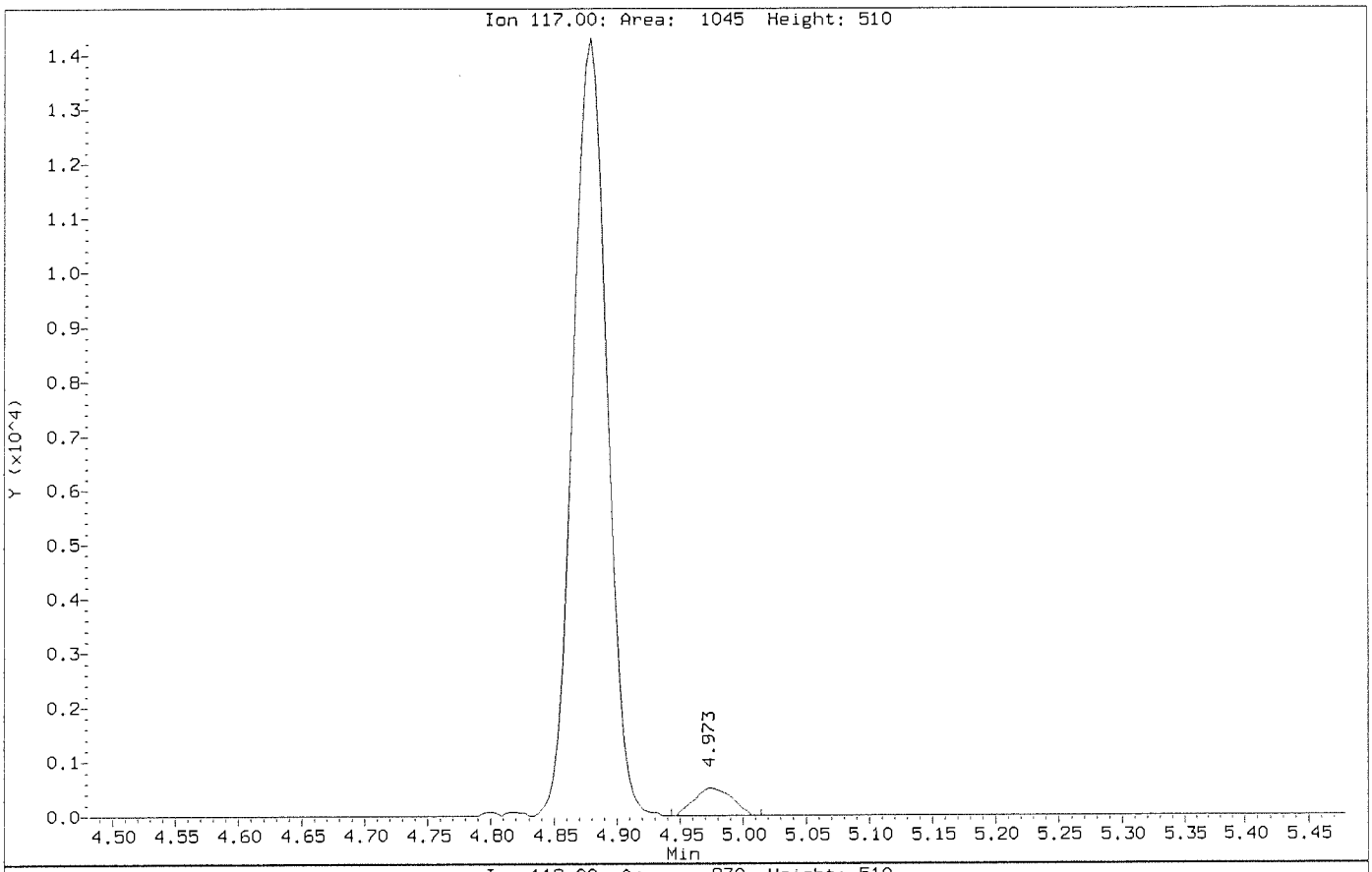
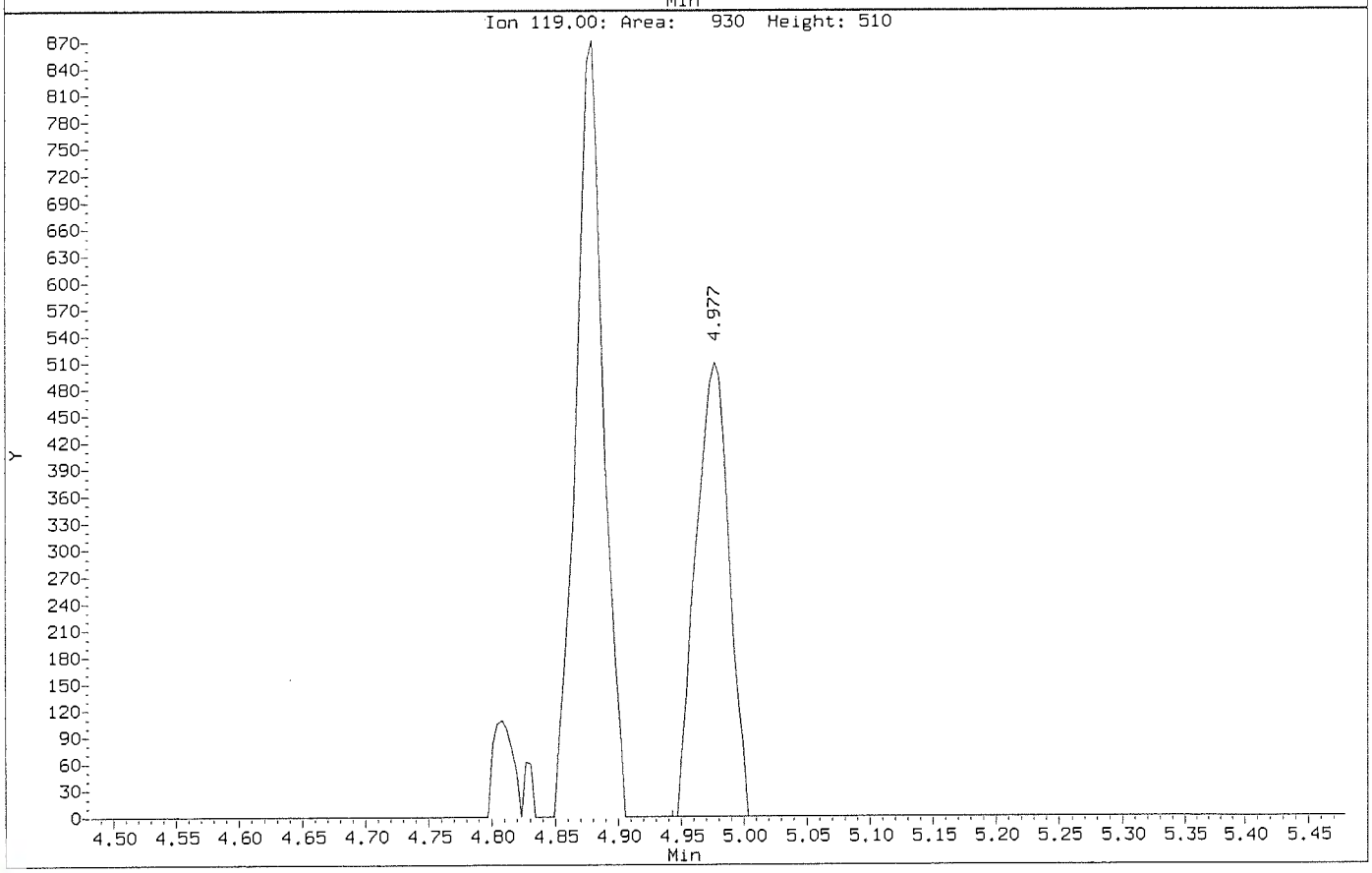
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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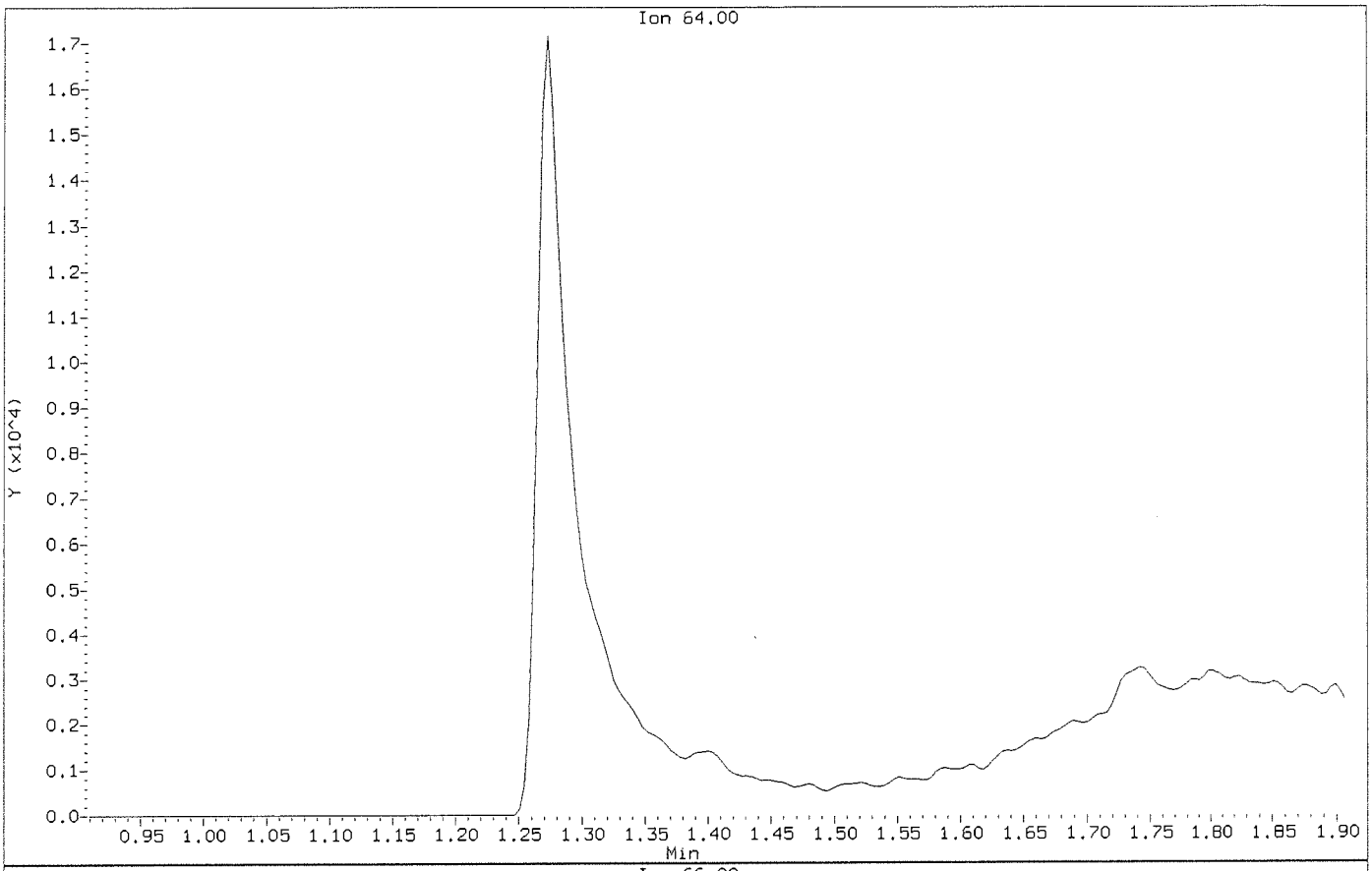
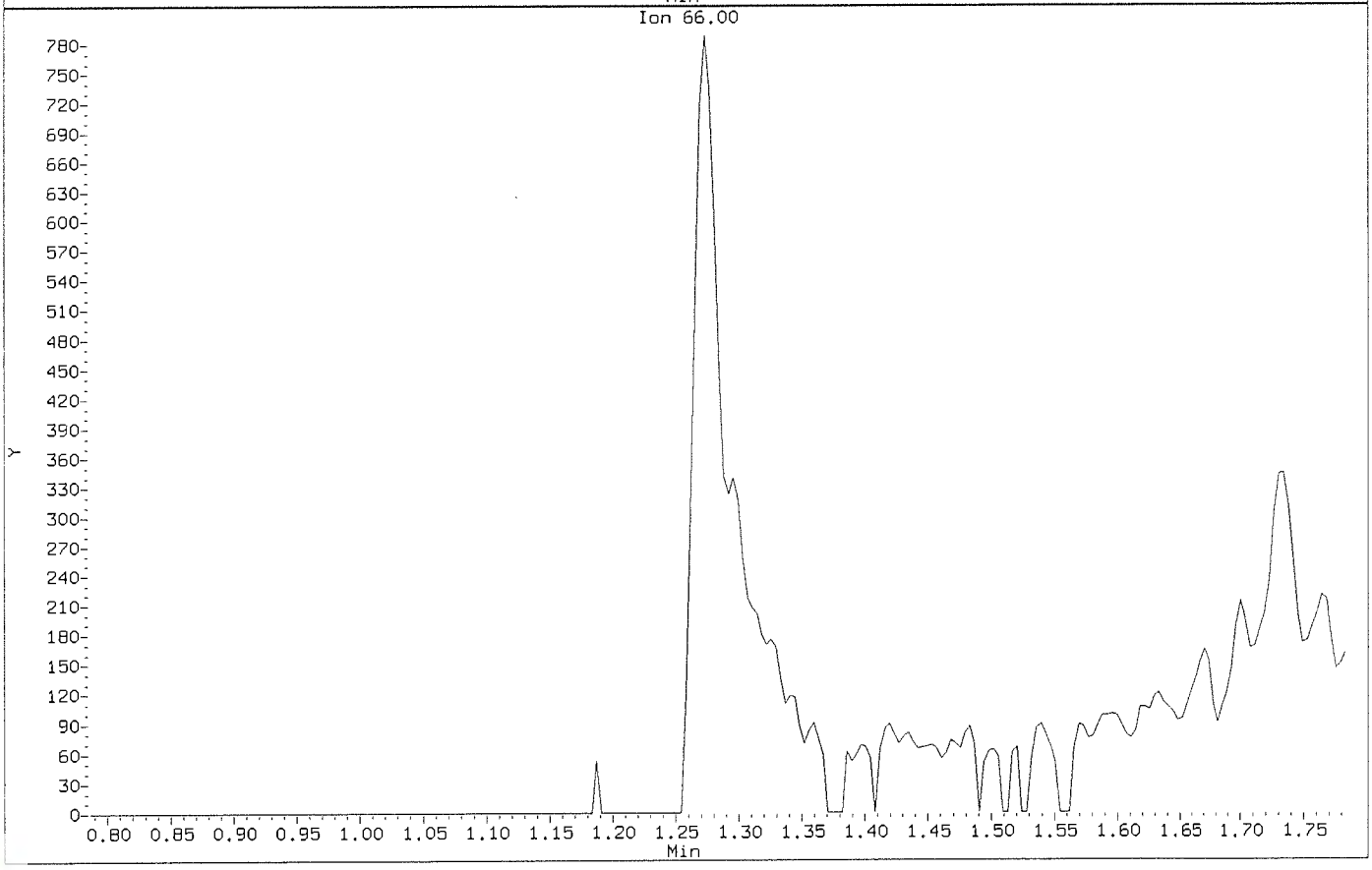
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3





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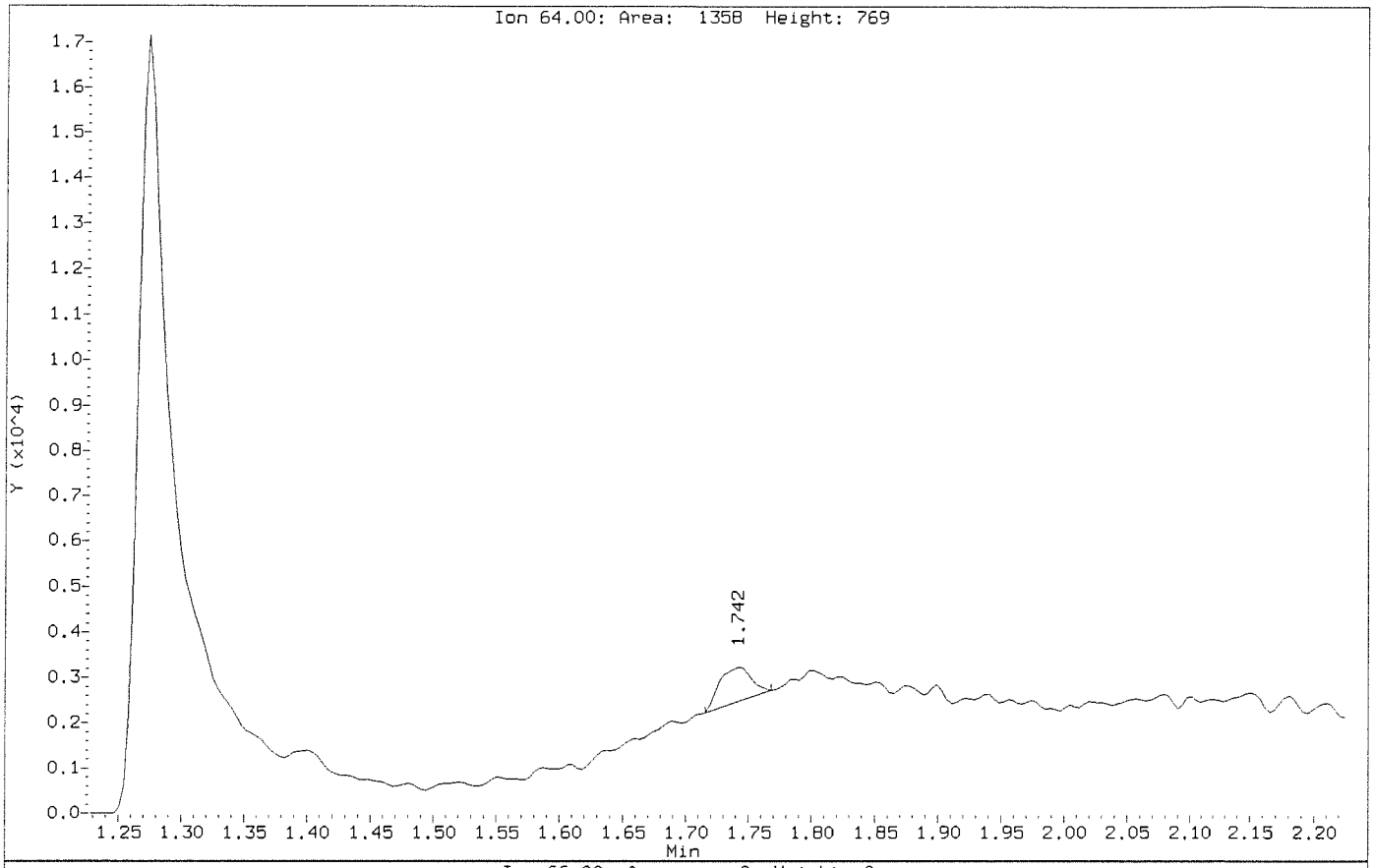
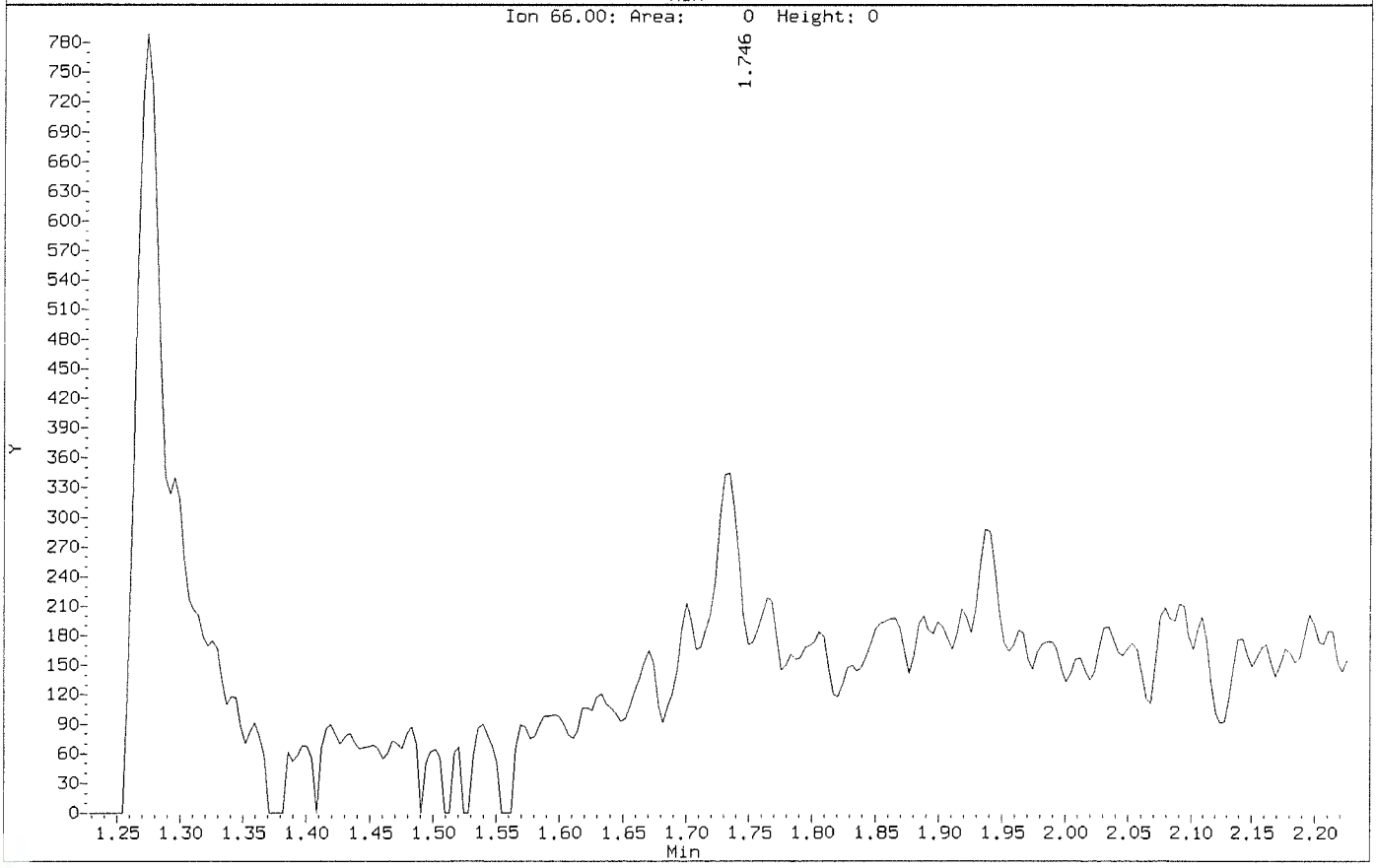
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3





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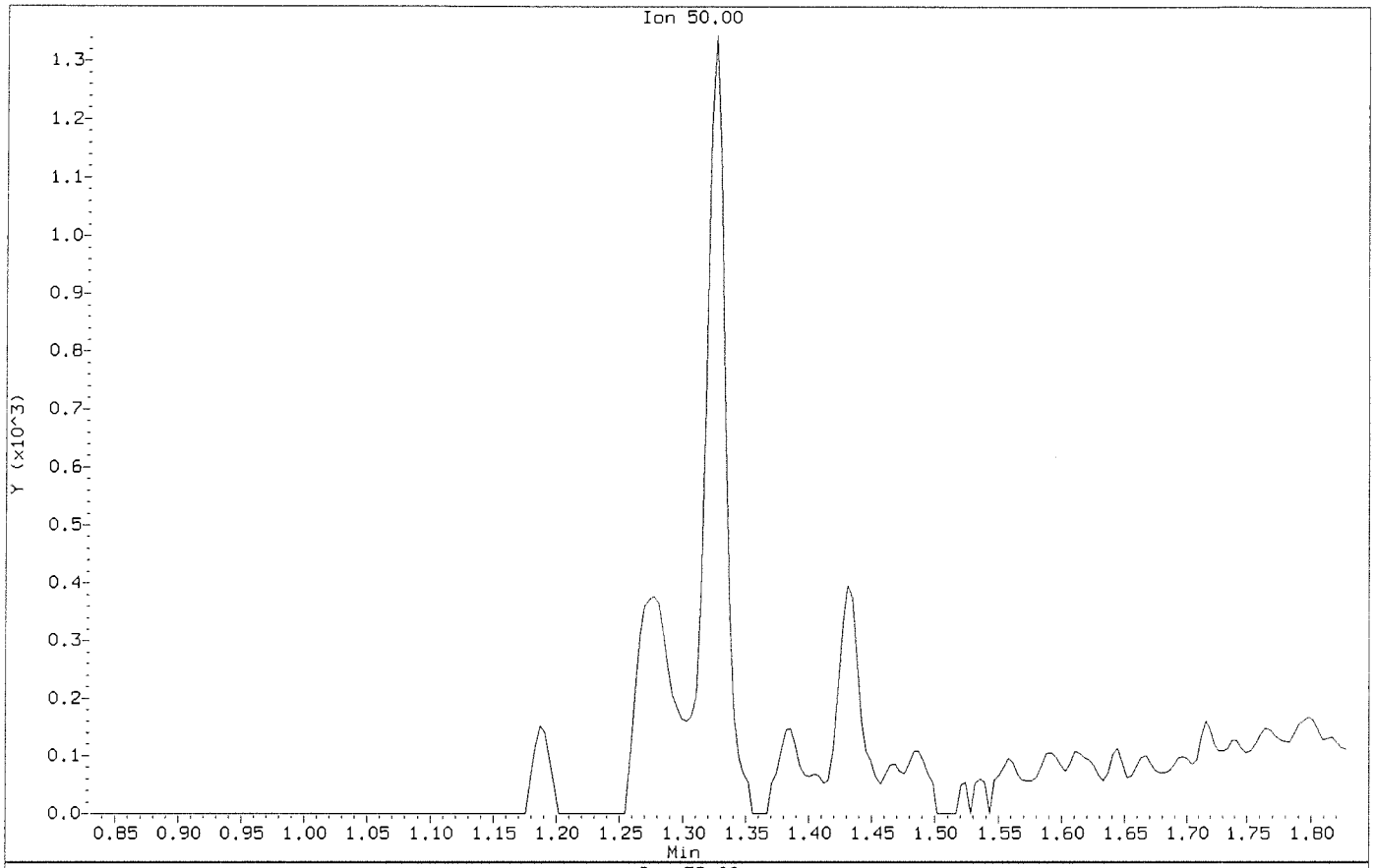
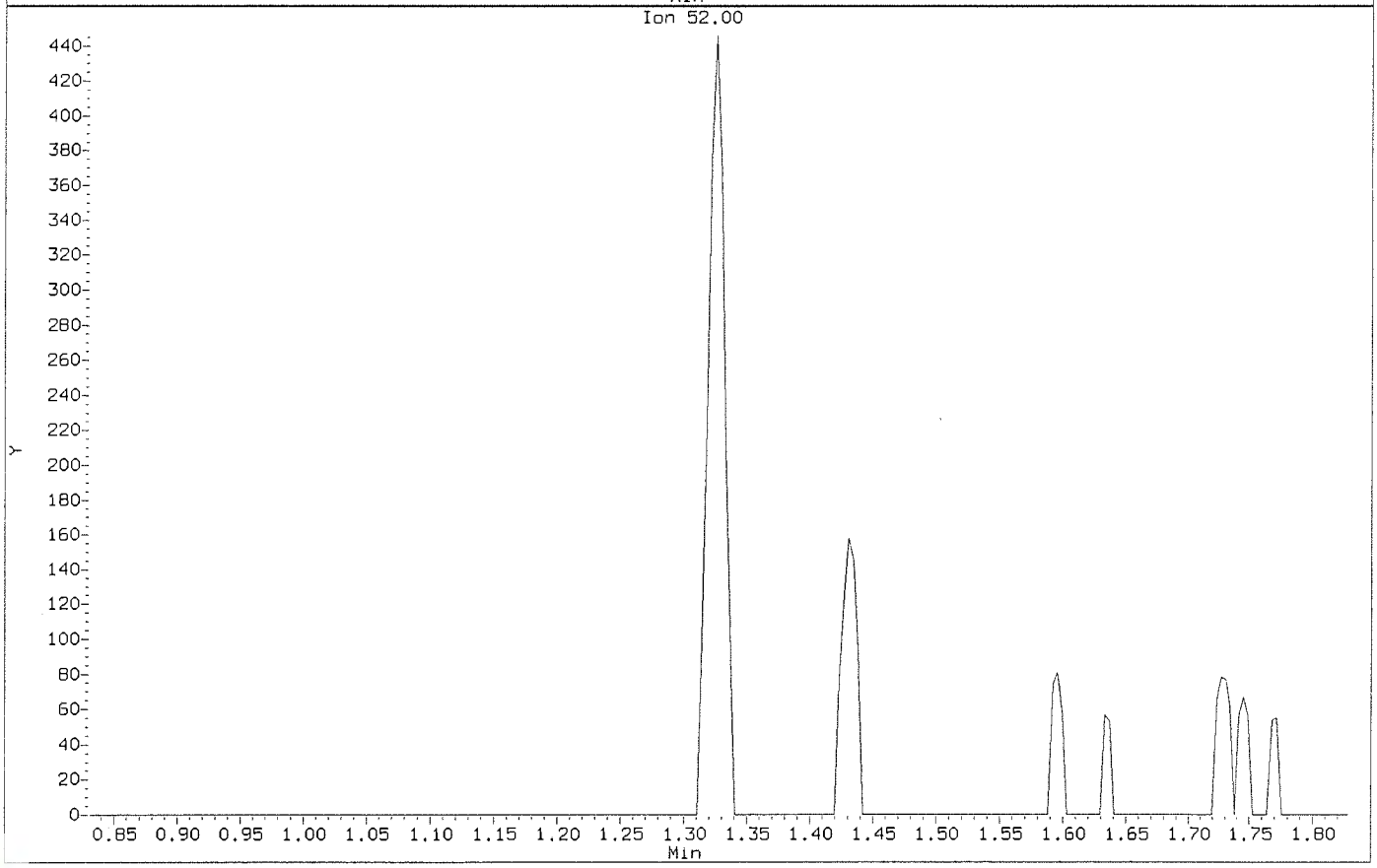
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Chloromethane
CAS Number: 74-87-3





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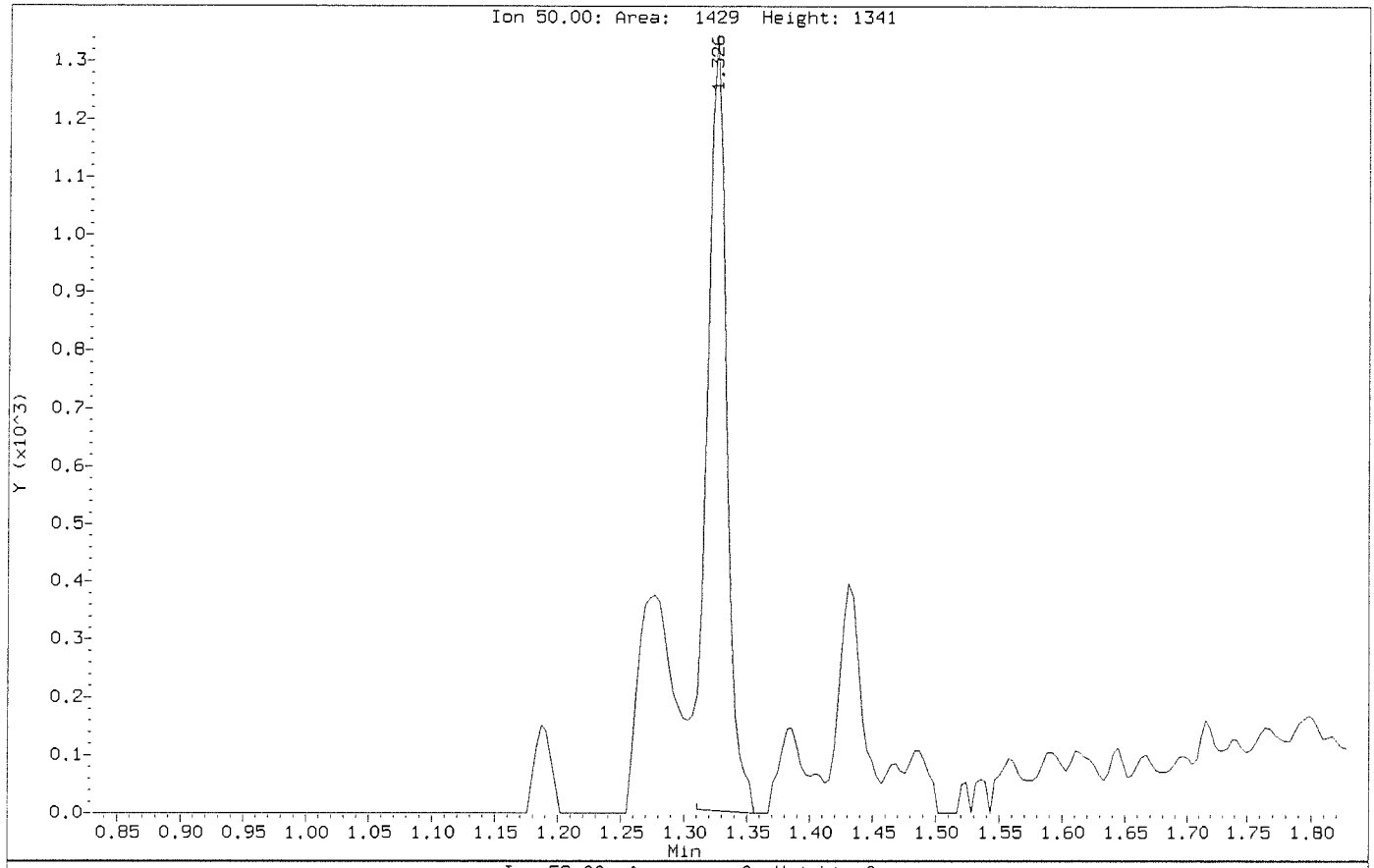
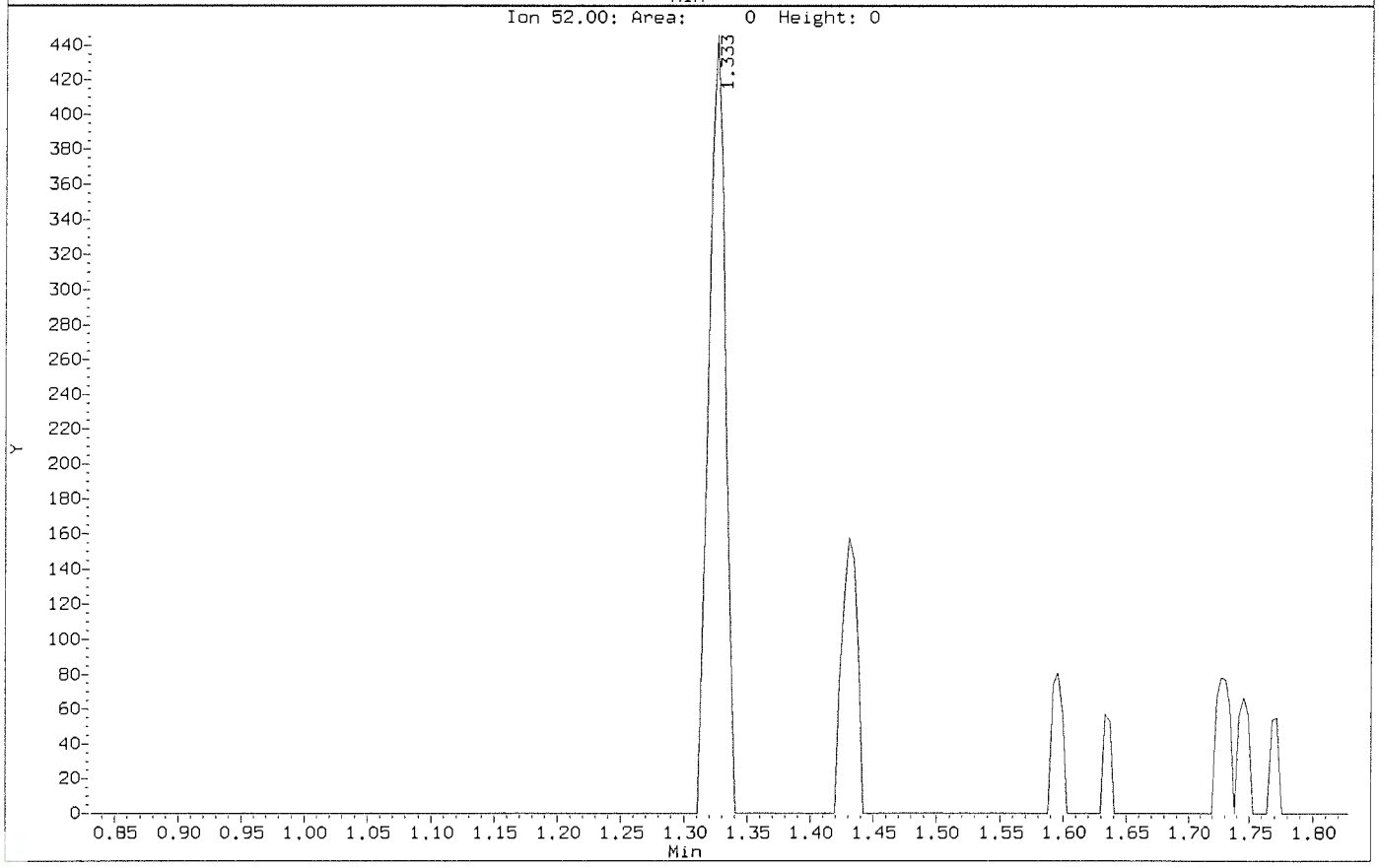
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

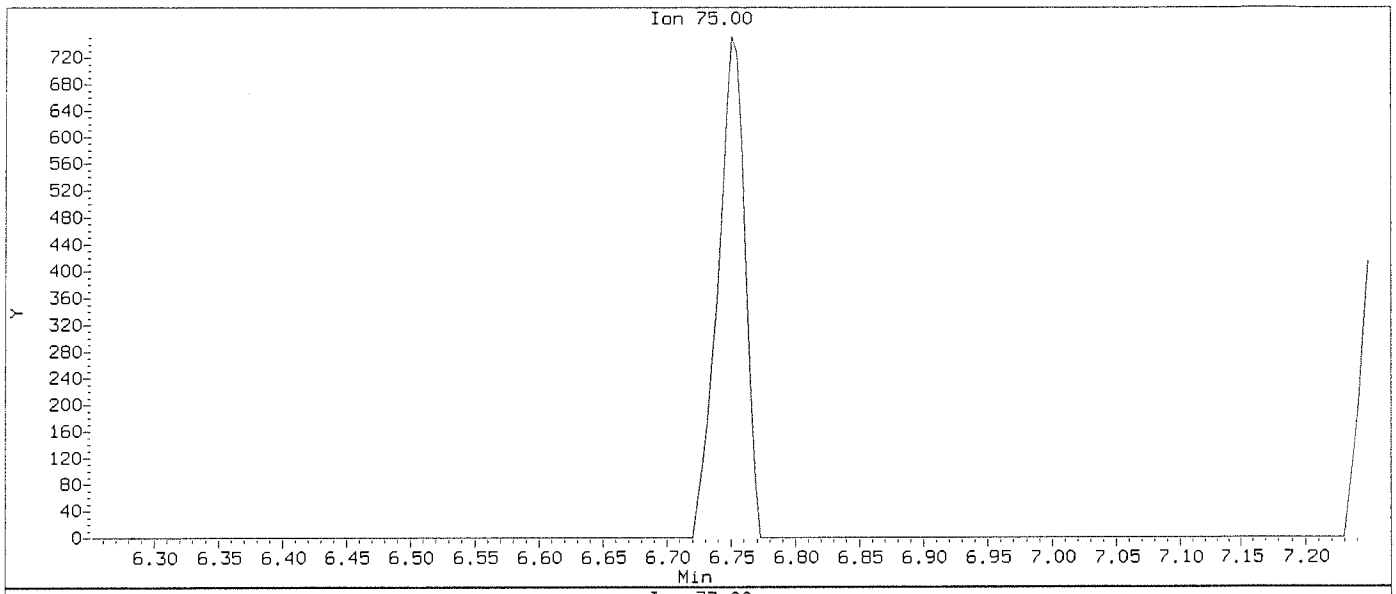
Compound: Chloromethane
CAS Number: 74-87-3

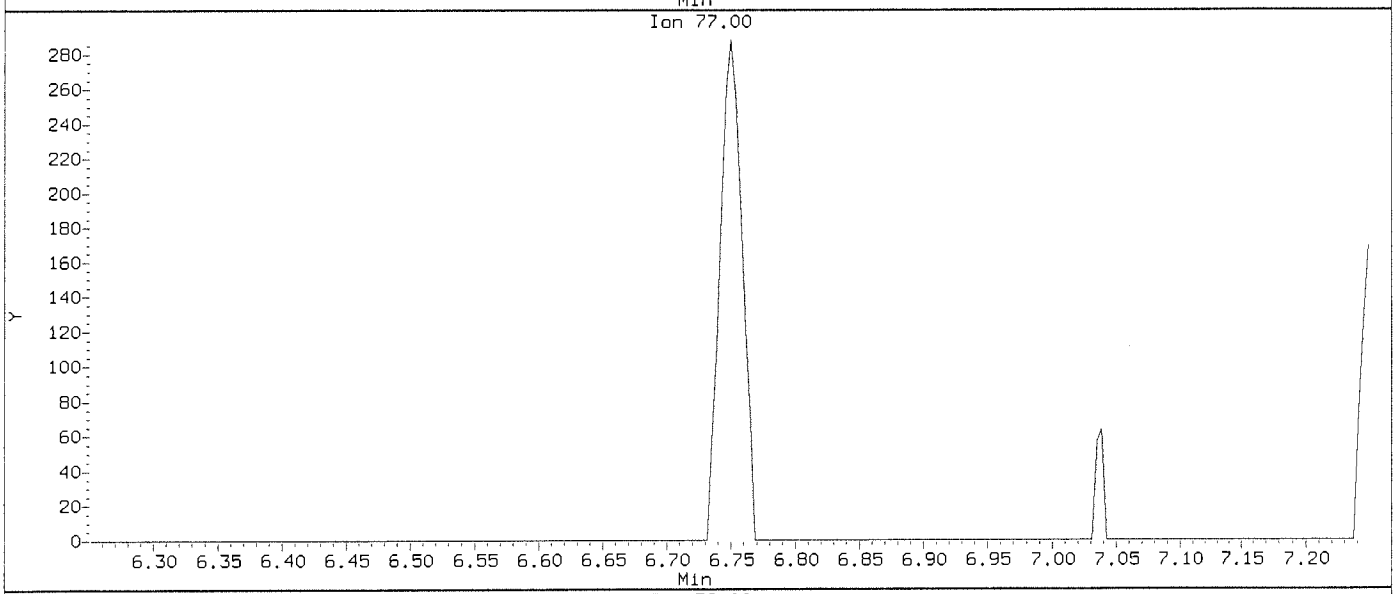


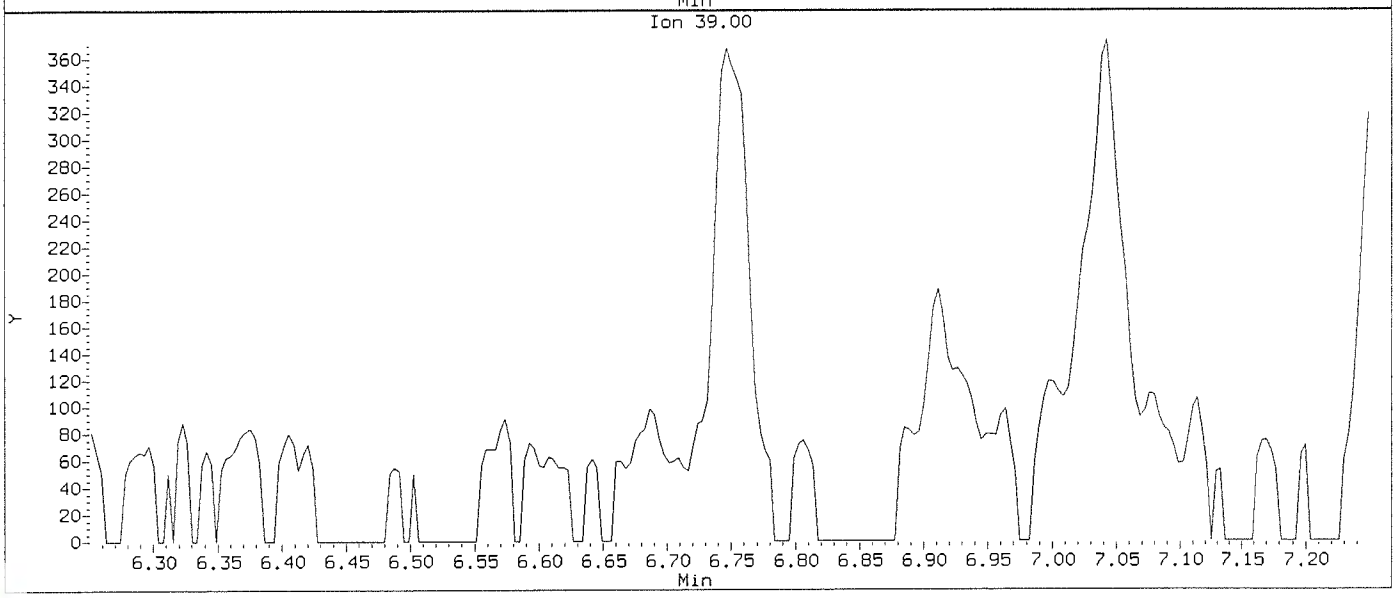


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5







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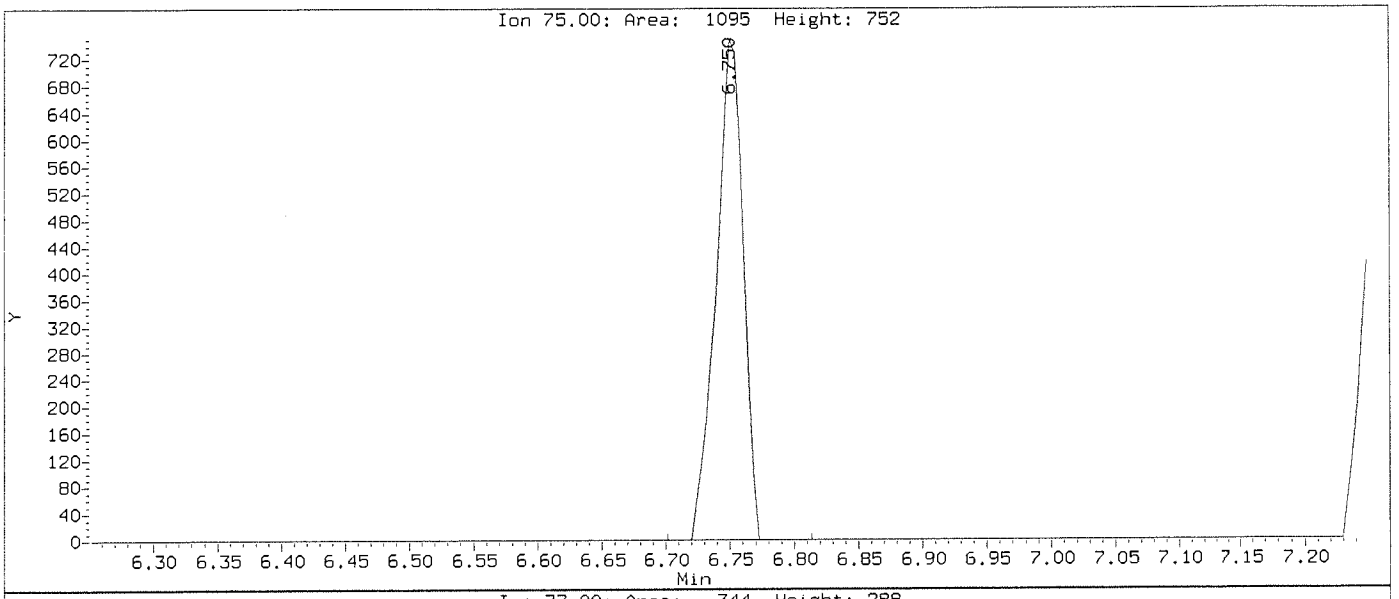
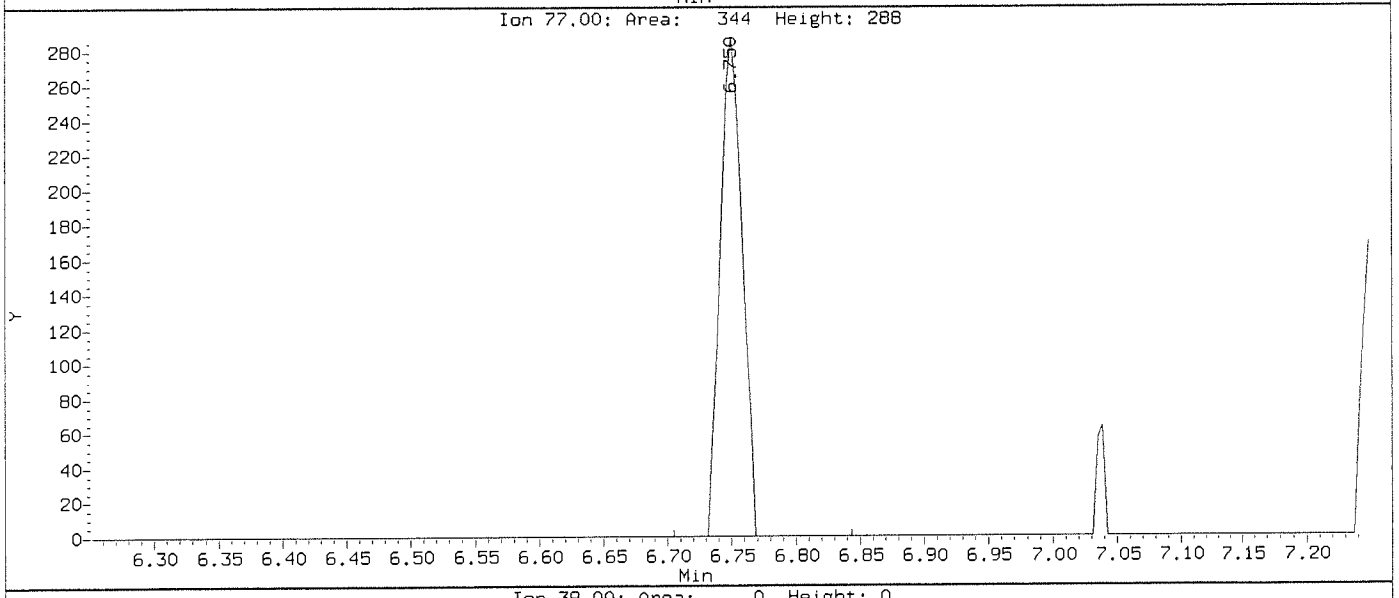
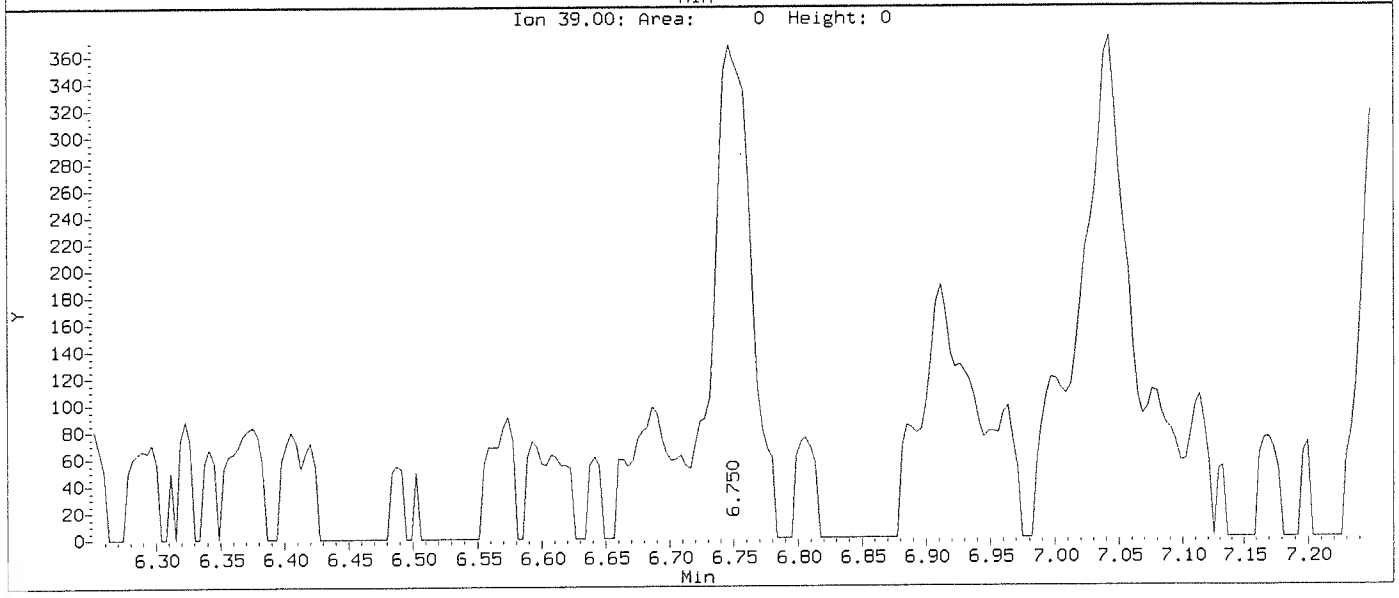
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: cis-1,3-Dichloropropene
CAS Number: 10061-01-5

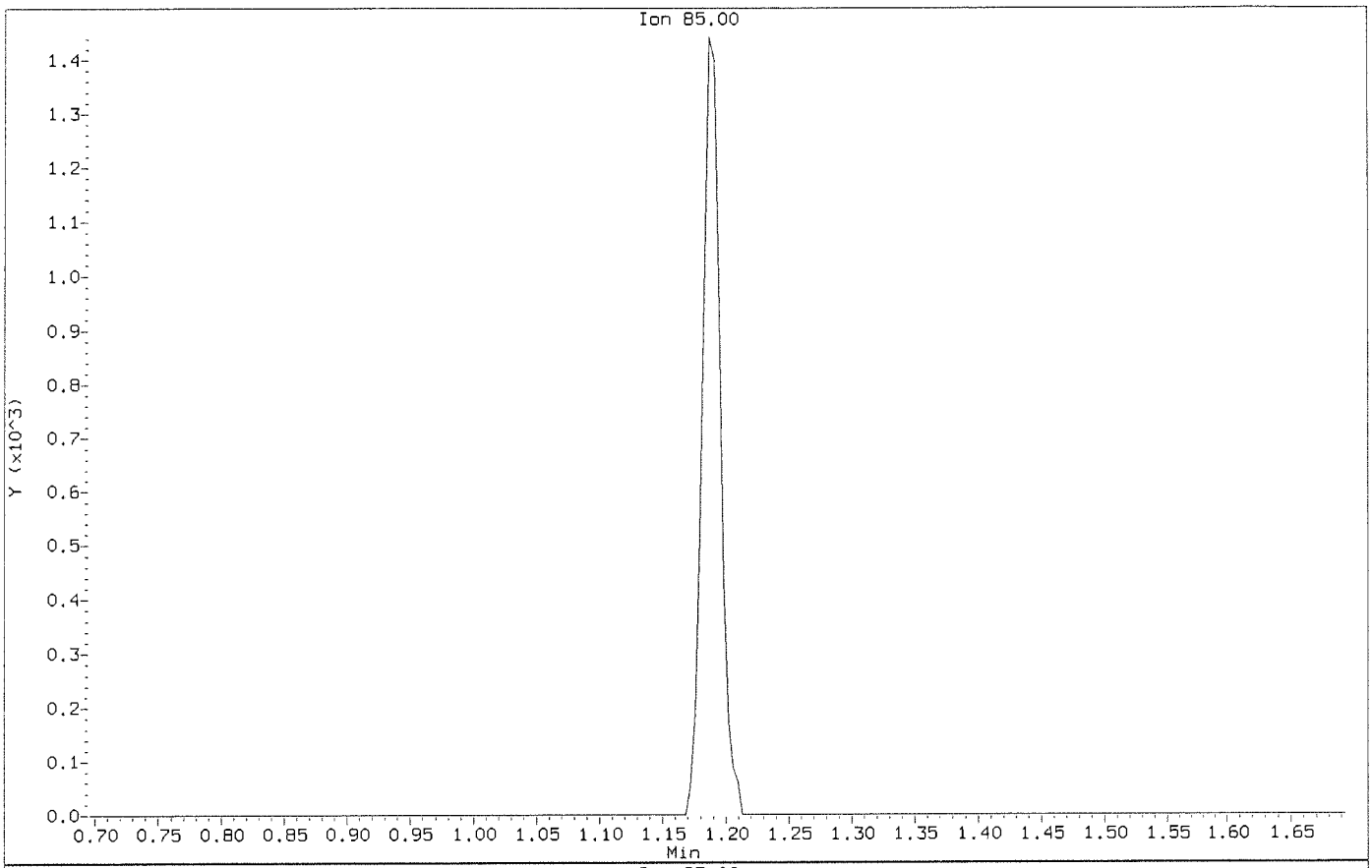


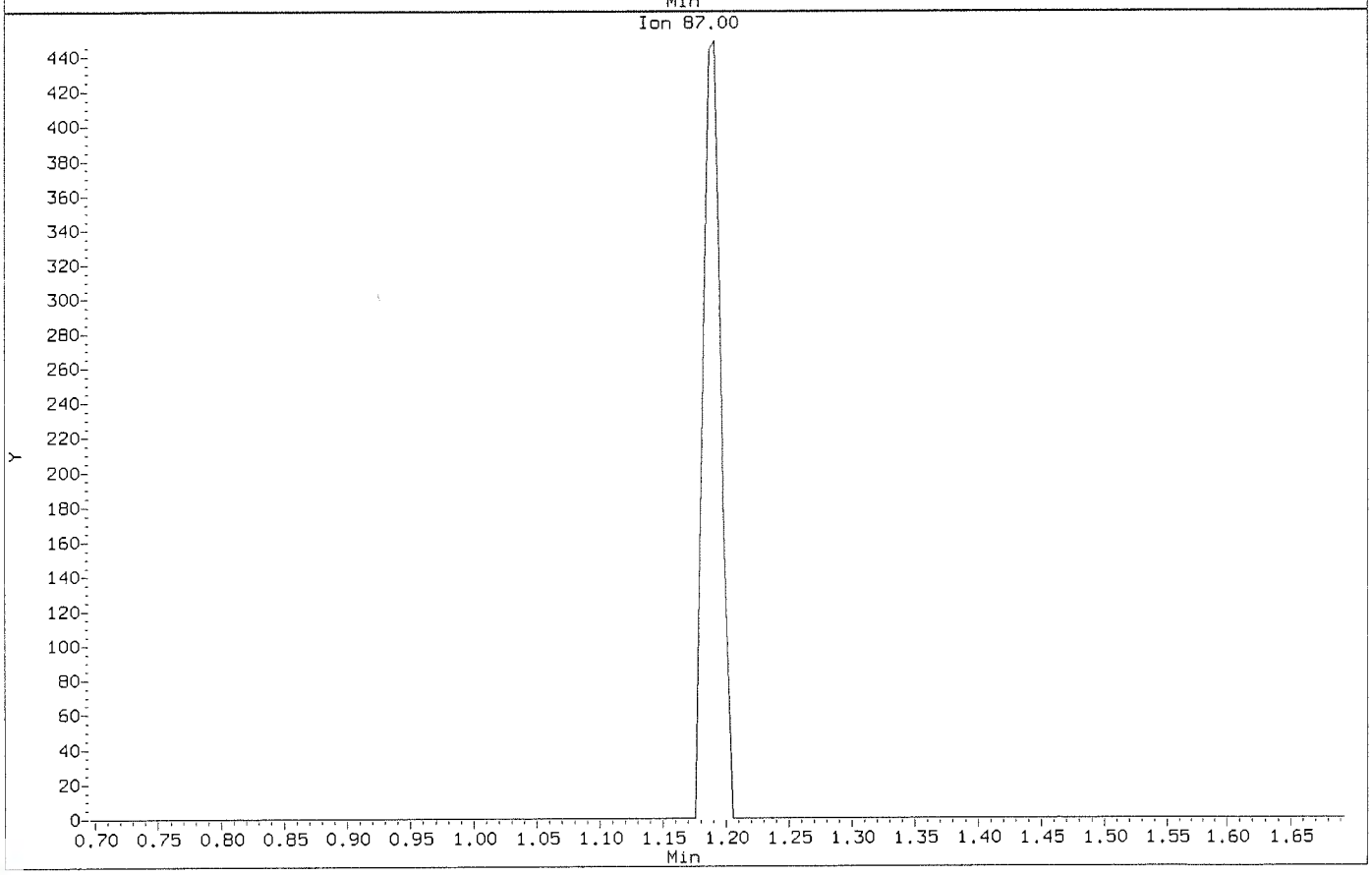




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

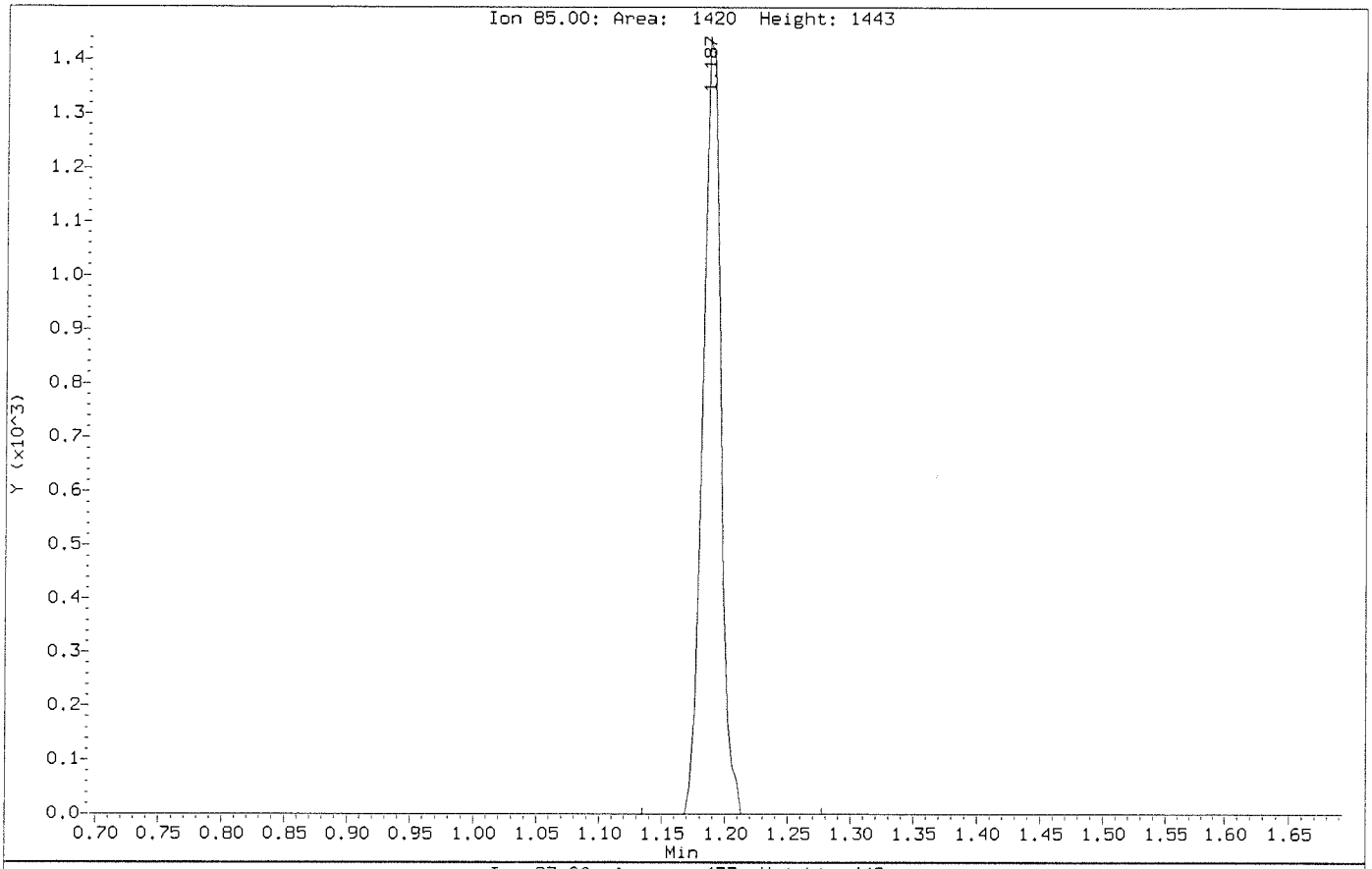
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

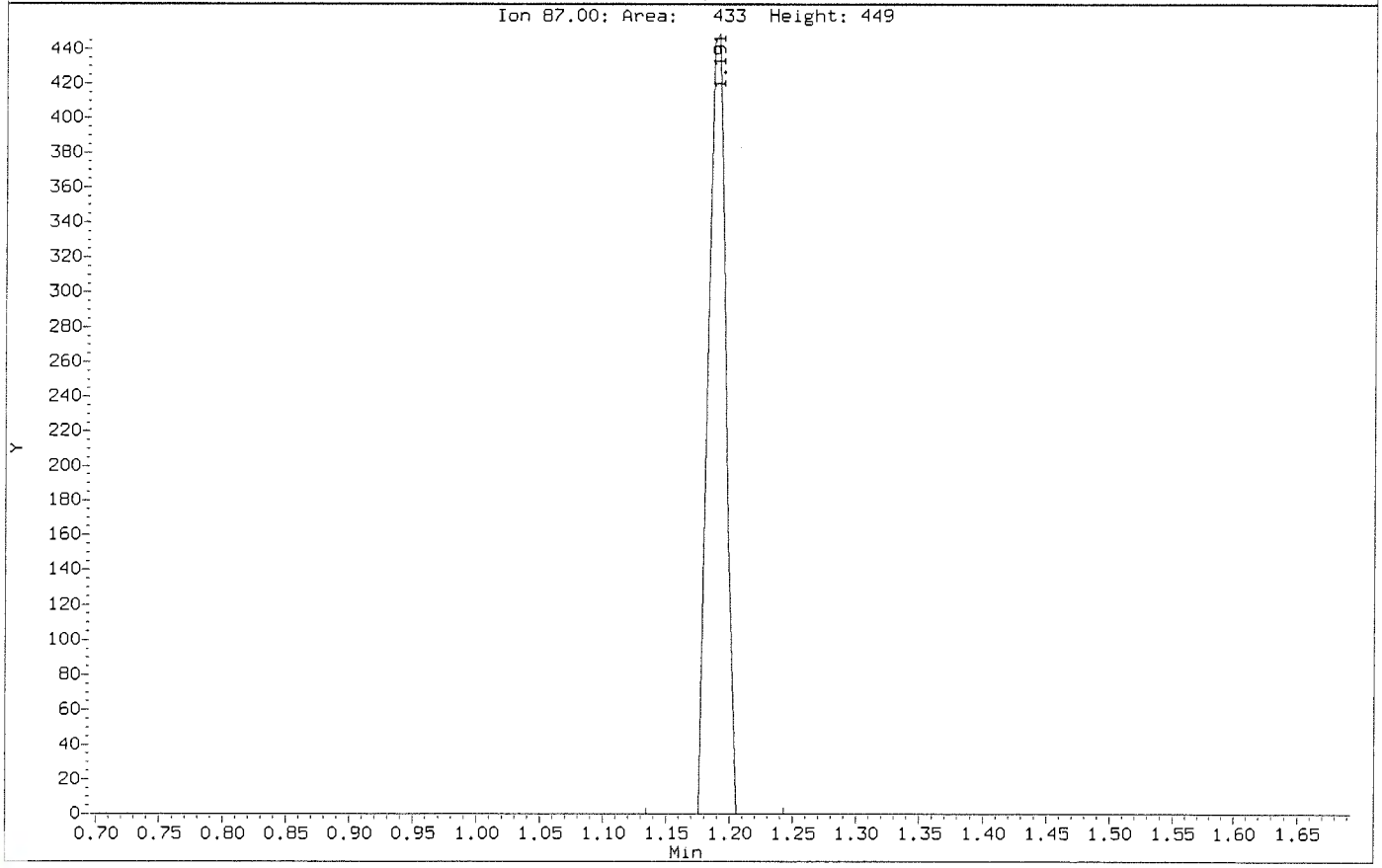




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

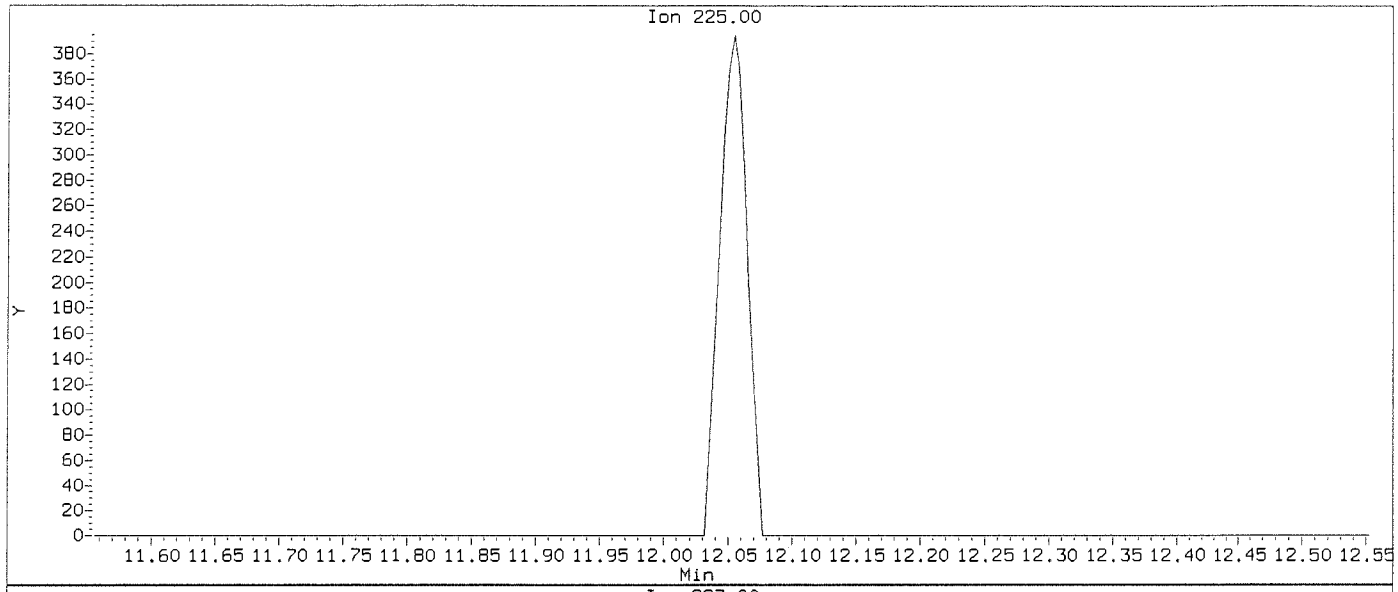
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

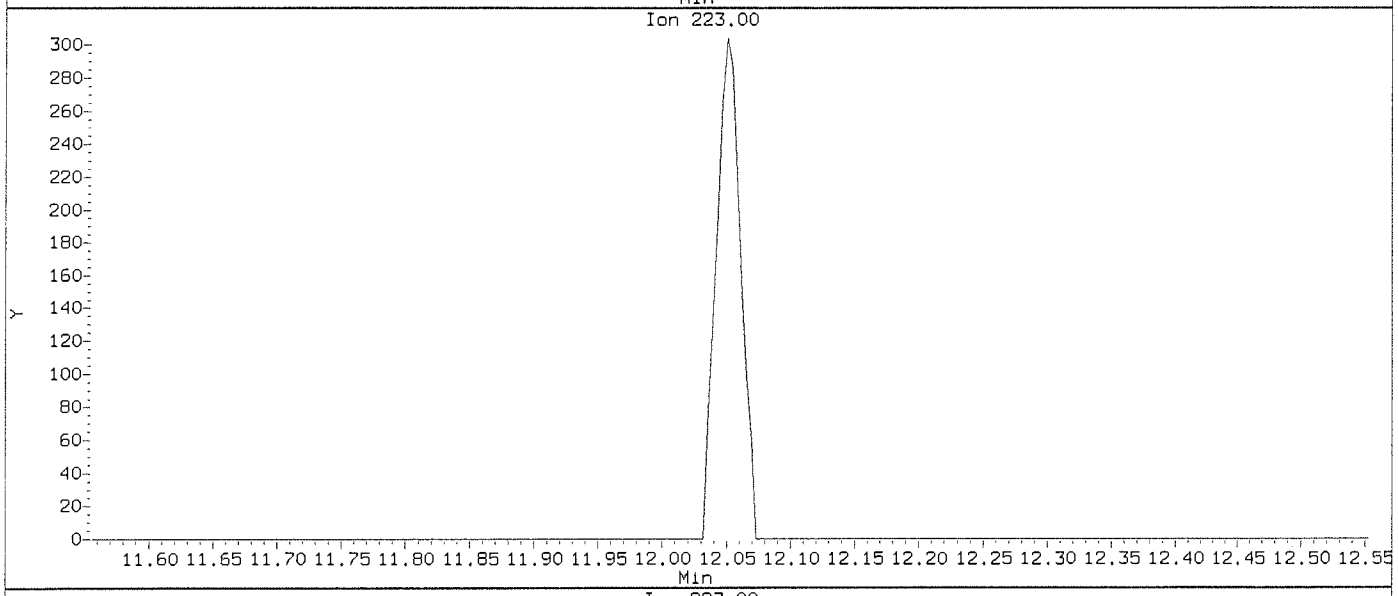


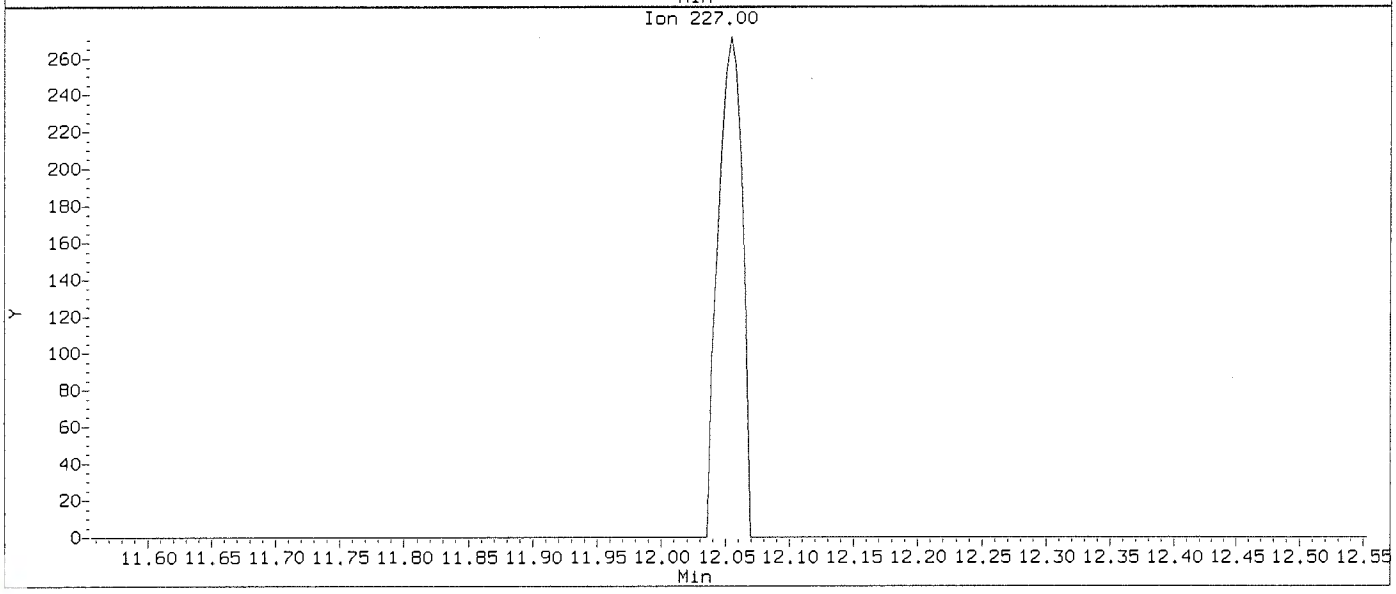


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Hexachlorobutadiene
CAS Number: 87-68-3

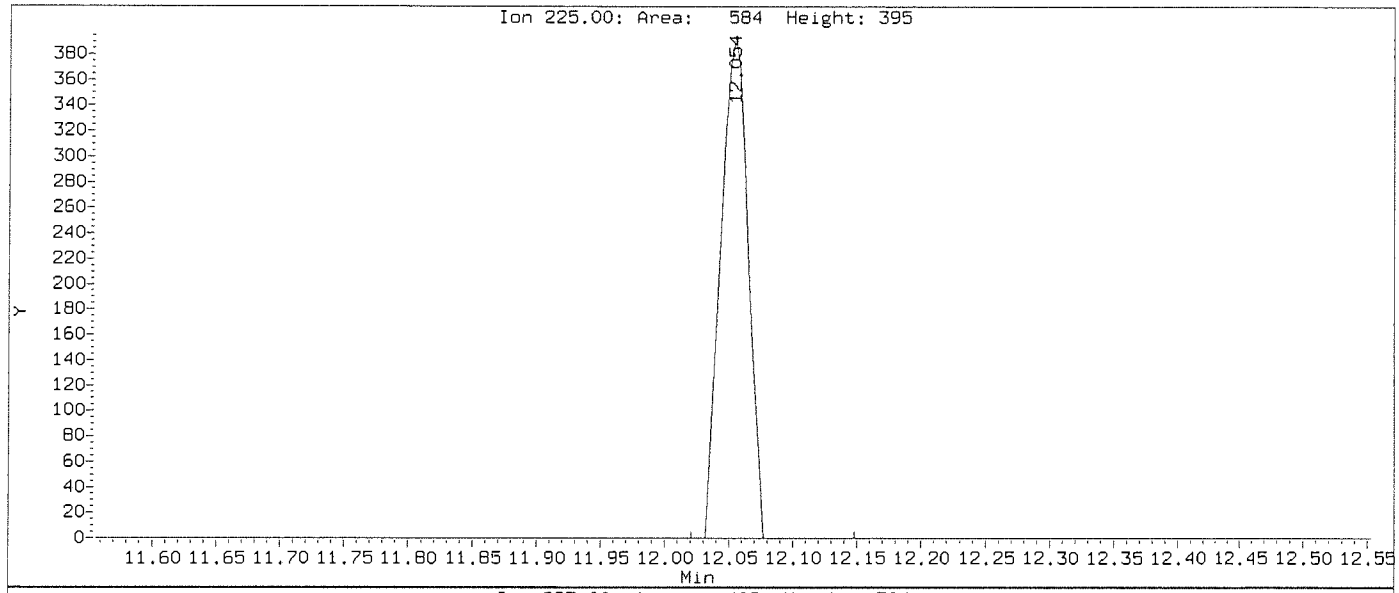


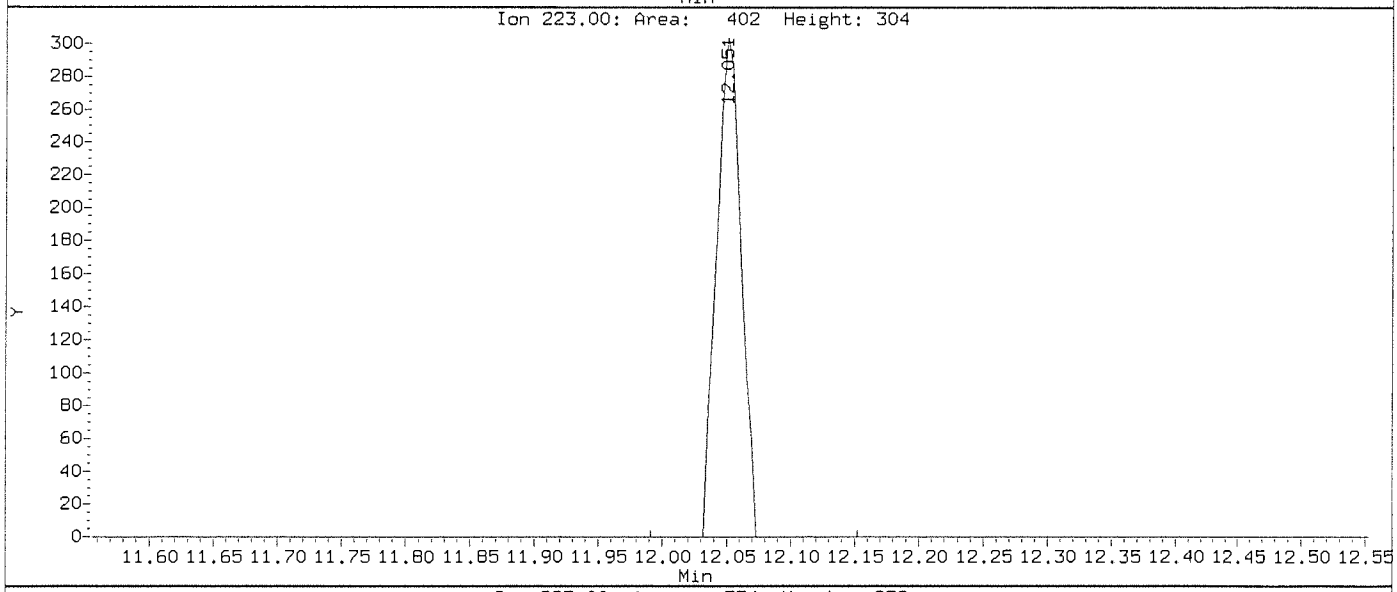


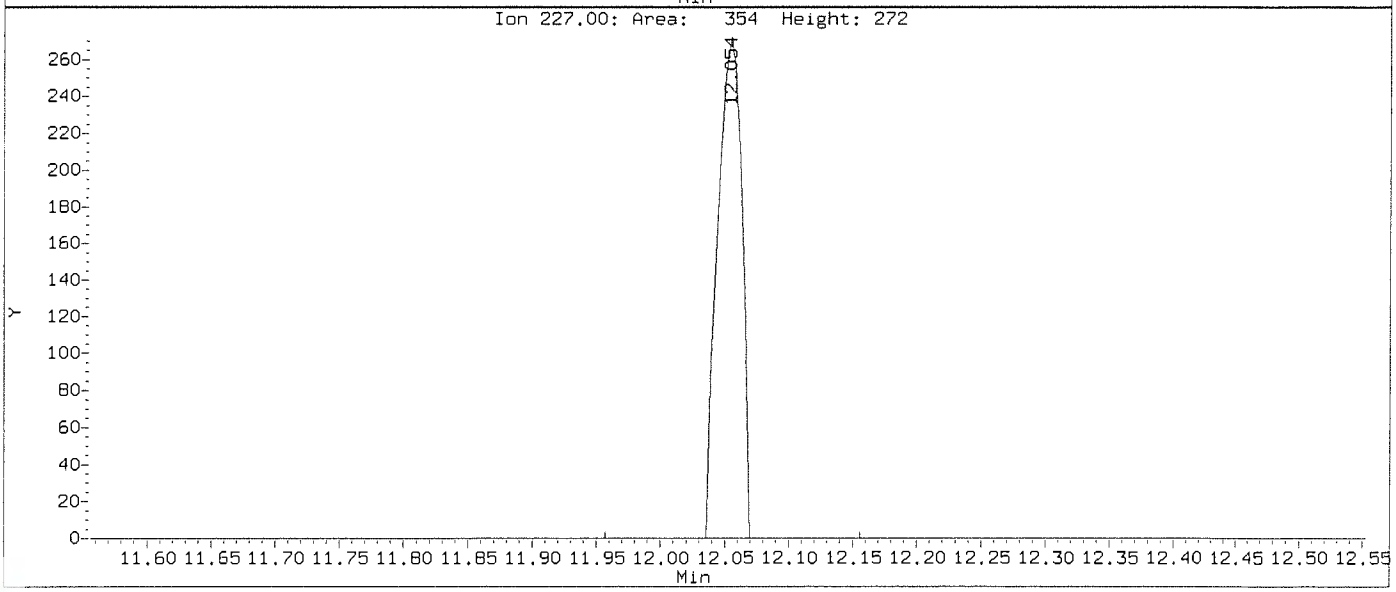


Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Hexachlorobutadiene
CAS Number: 87-68-3

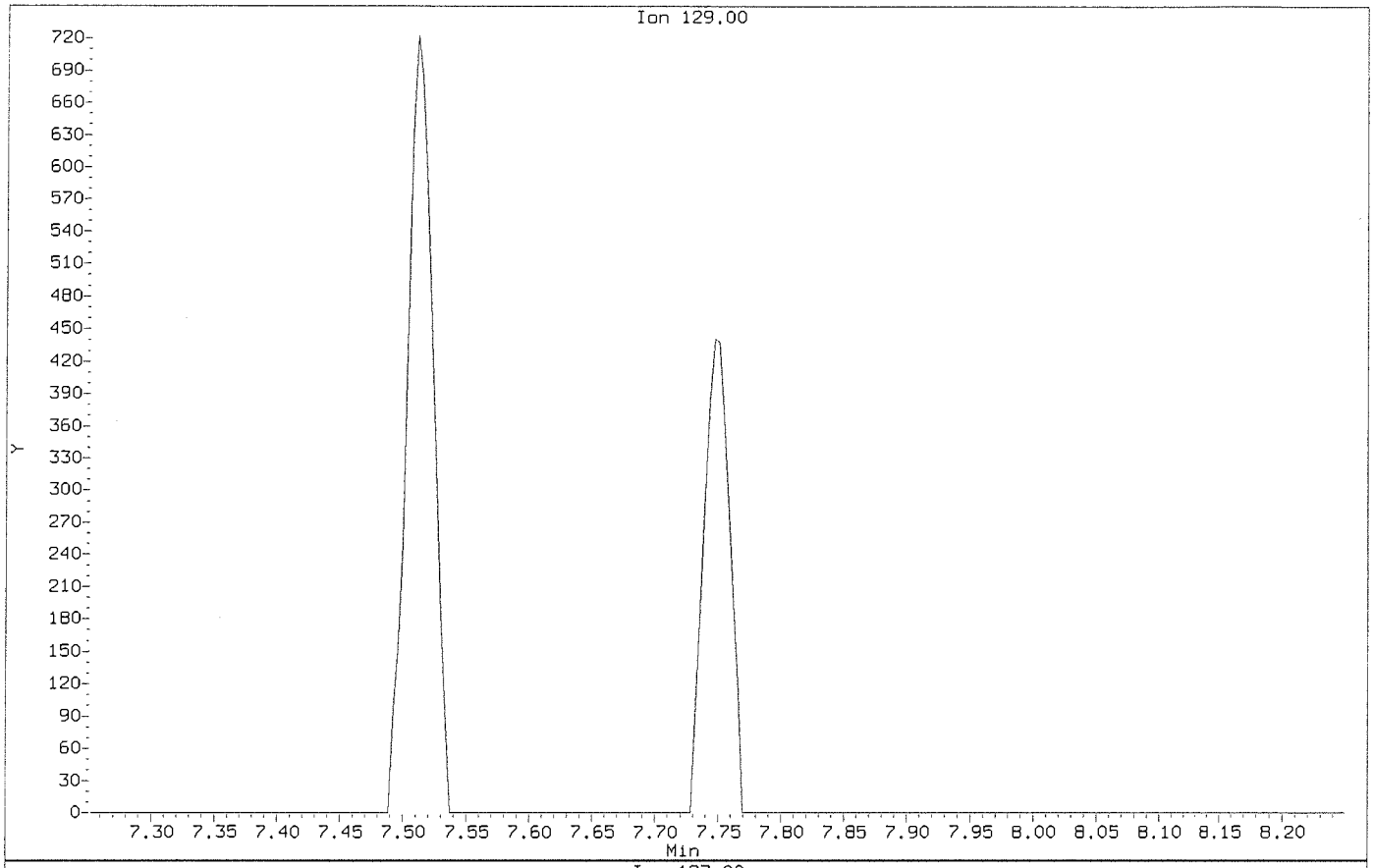


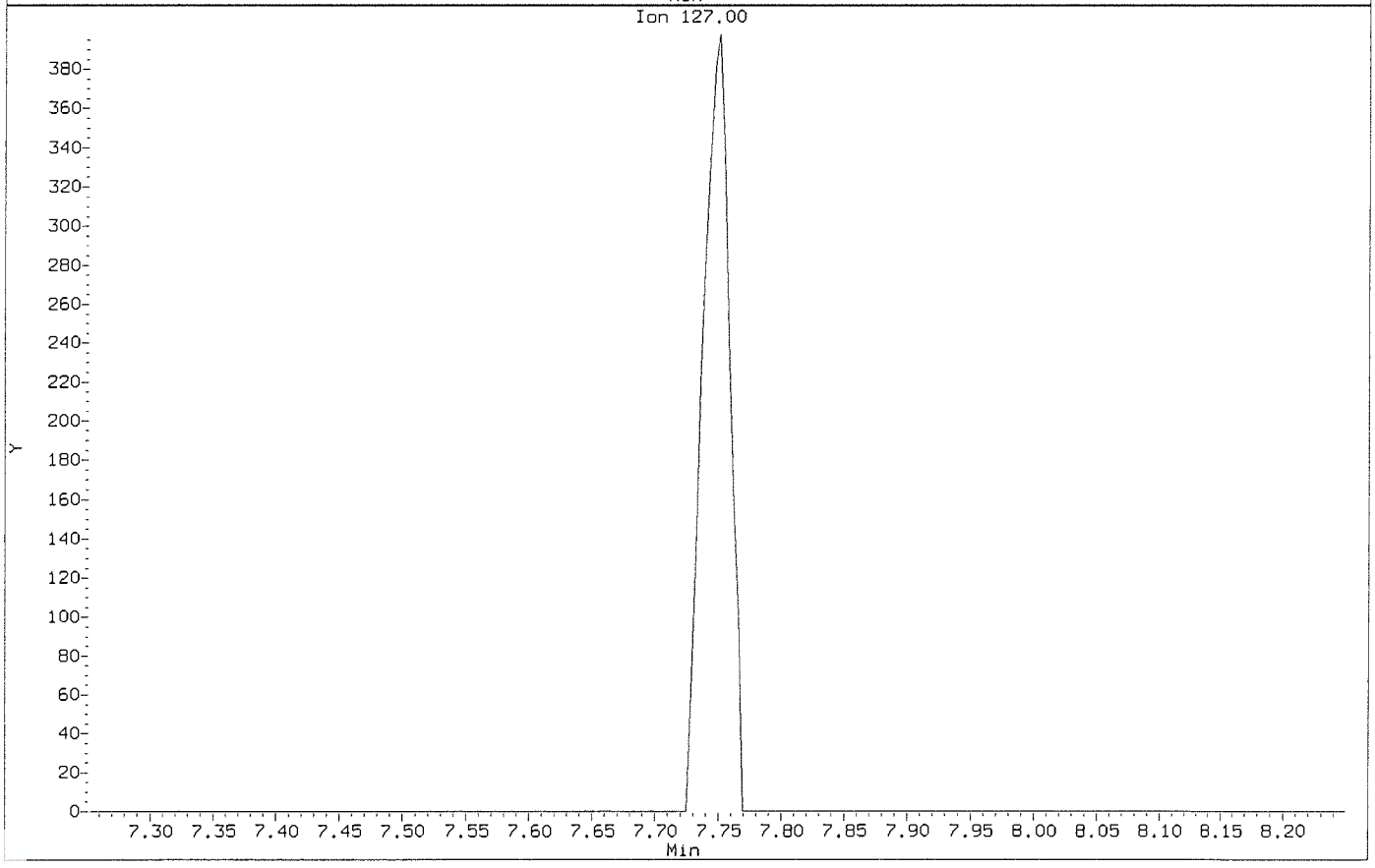




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

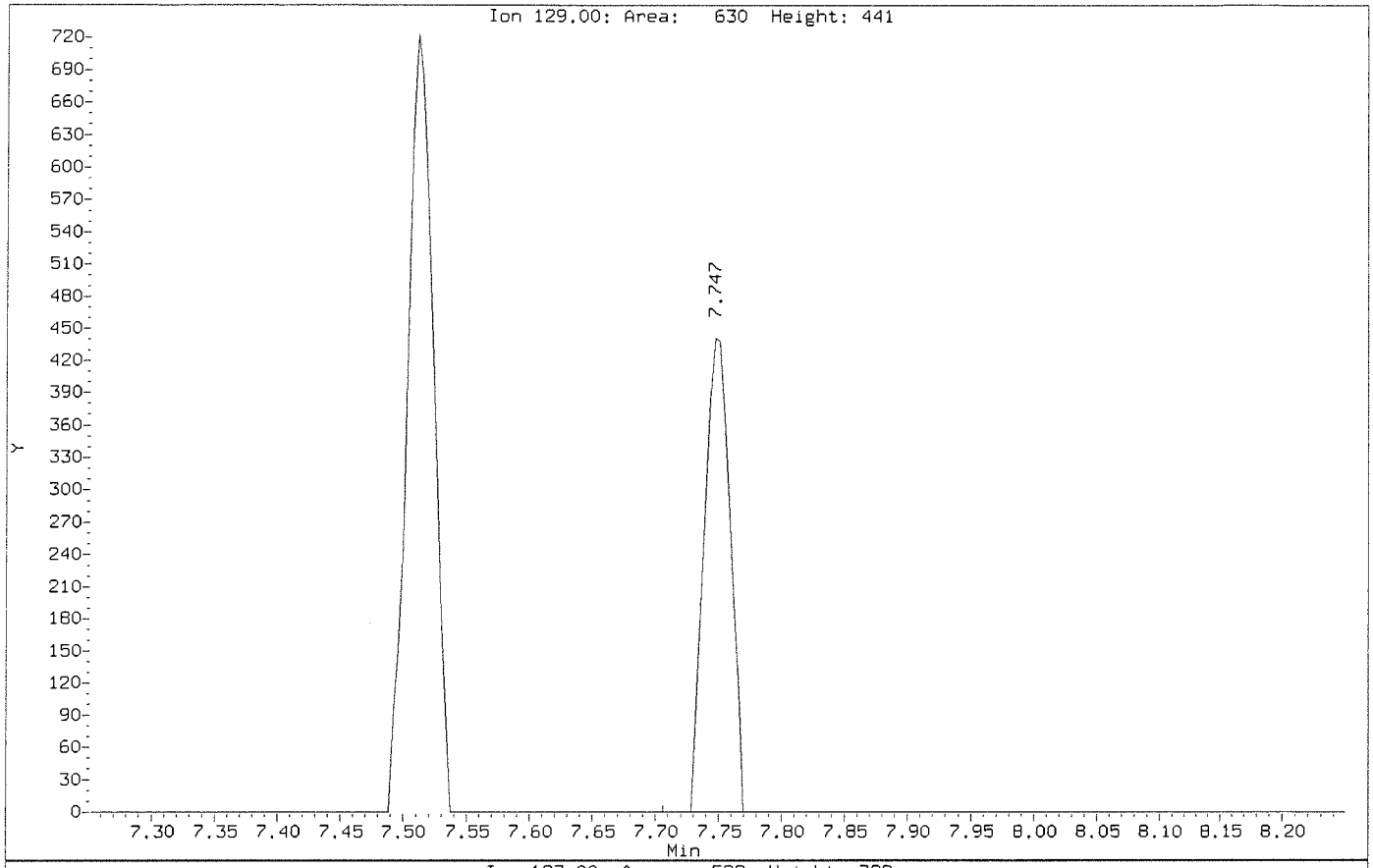
Compound: Dibromochloromethane
CAS Number: 124-48-1

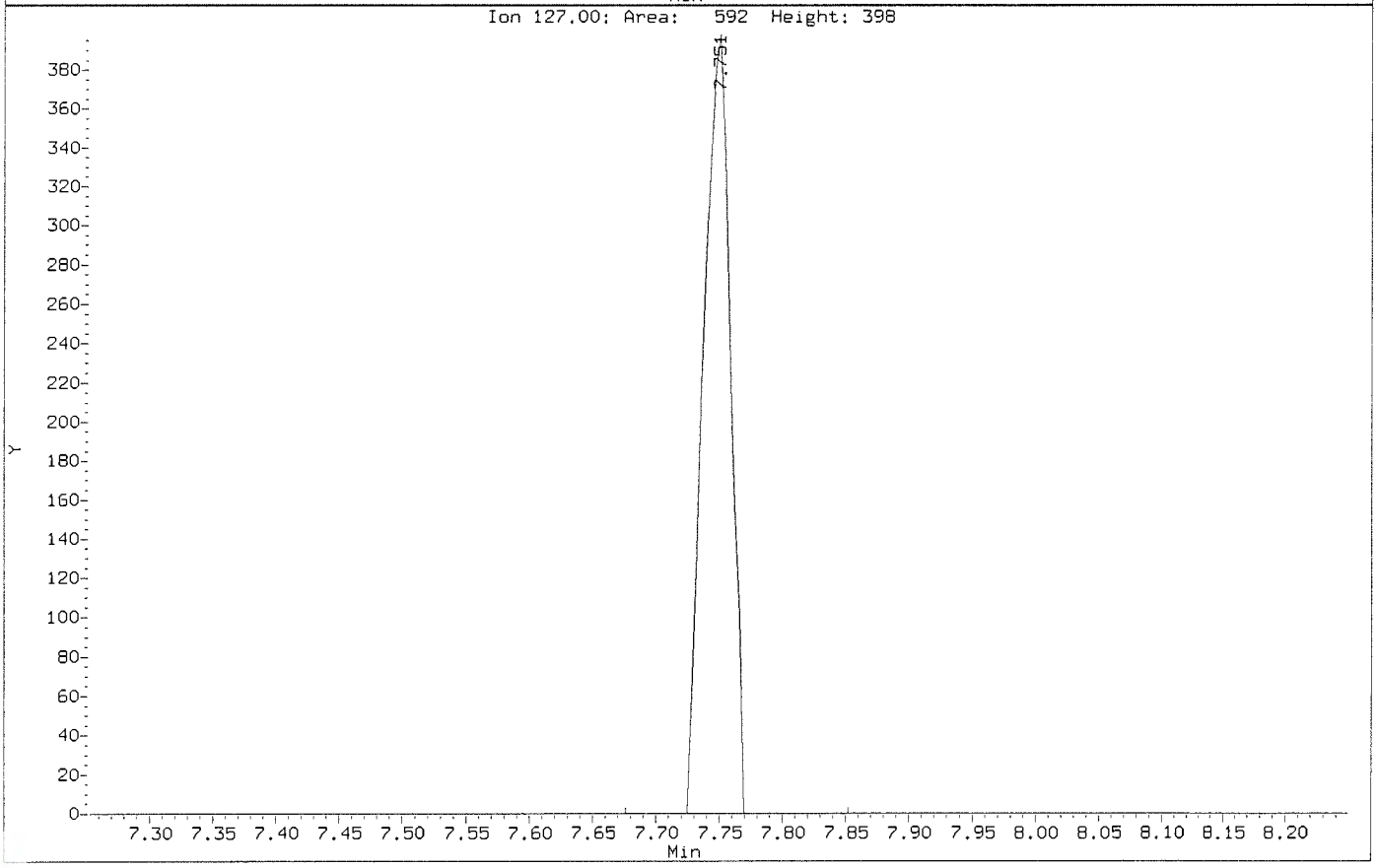




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111503.D
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: Dibromochloromethane
CAS Number: 124-48-1





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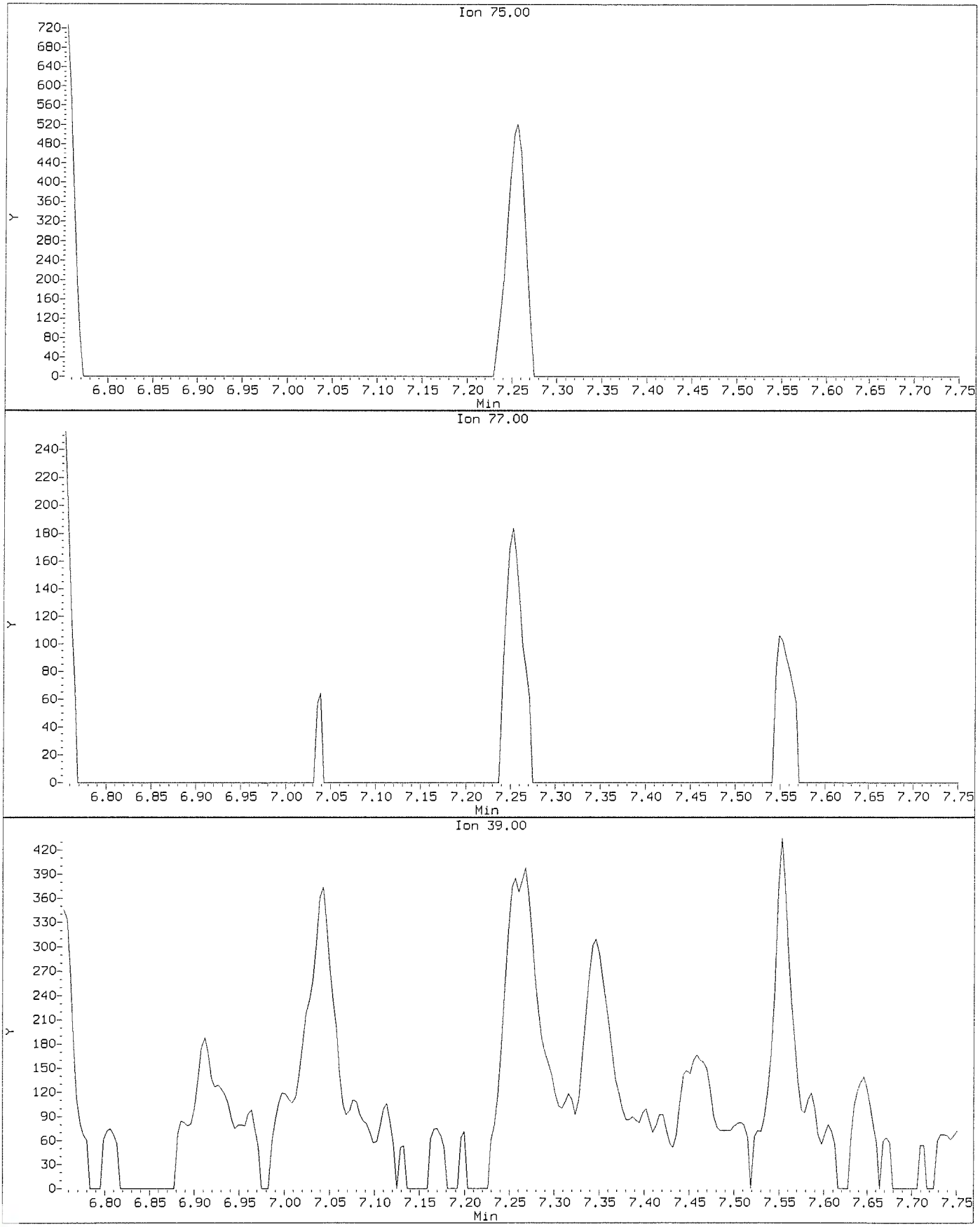
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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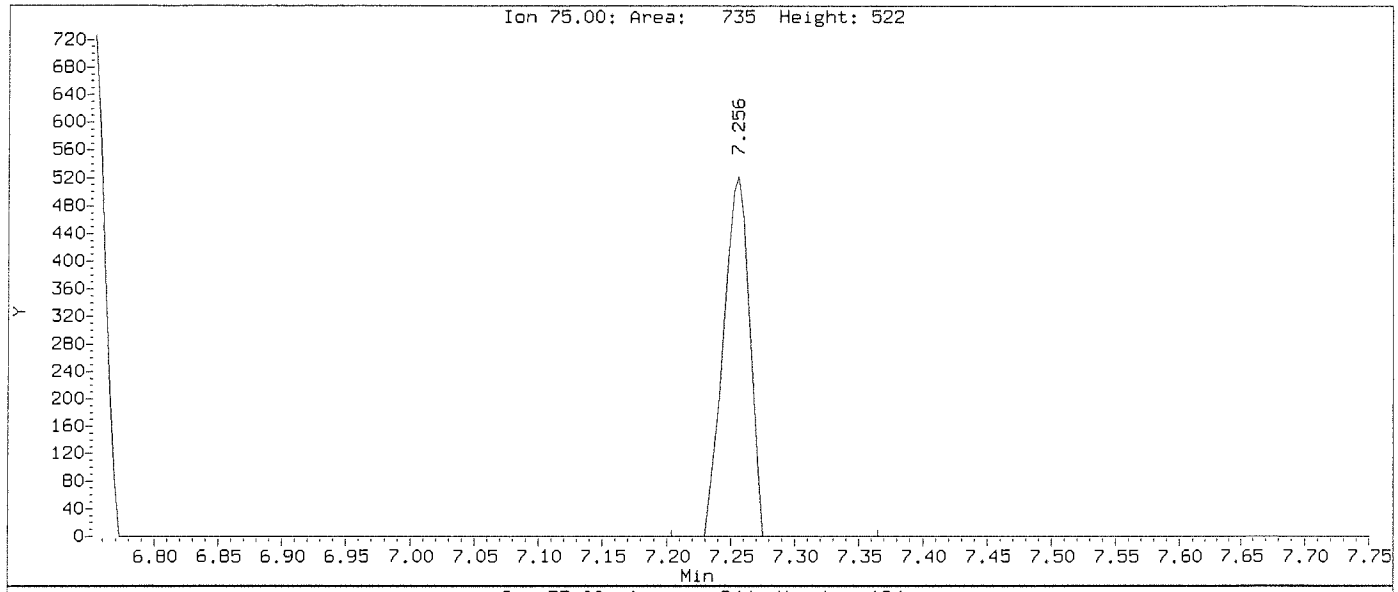
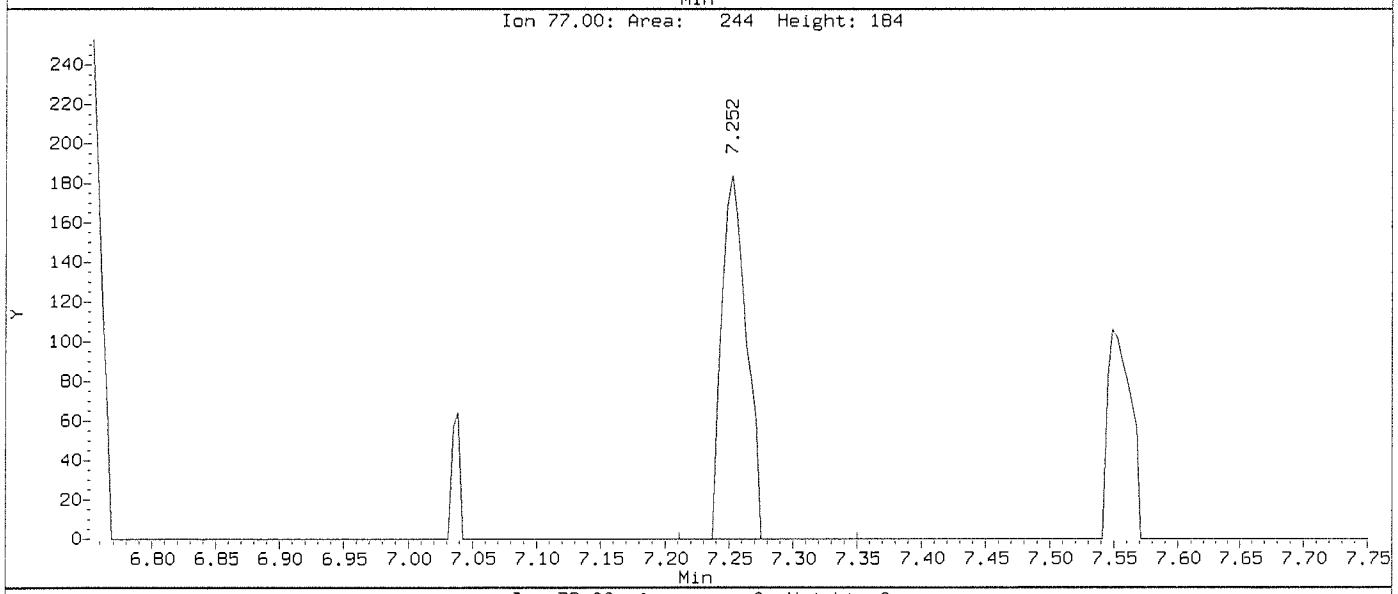
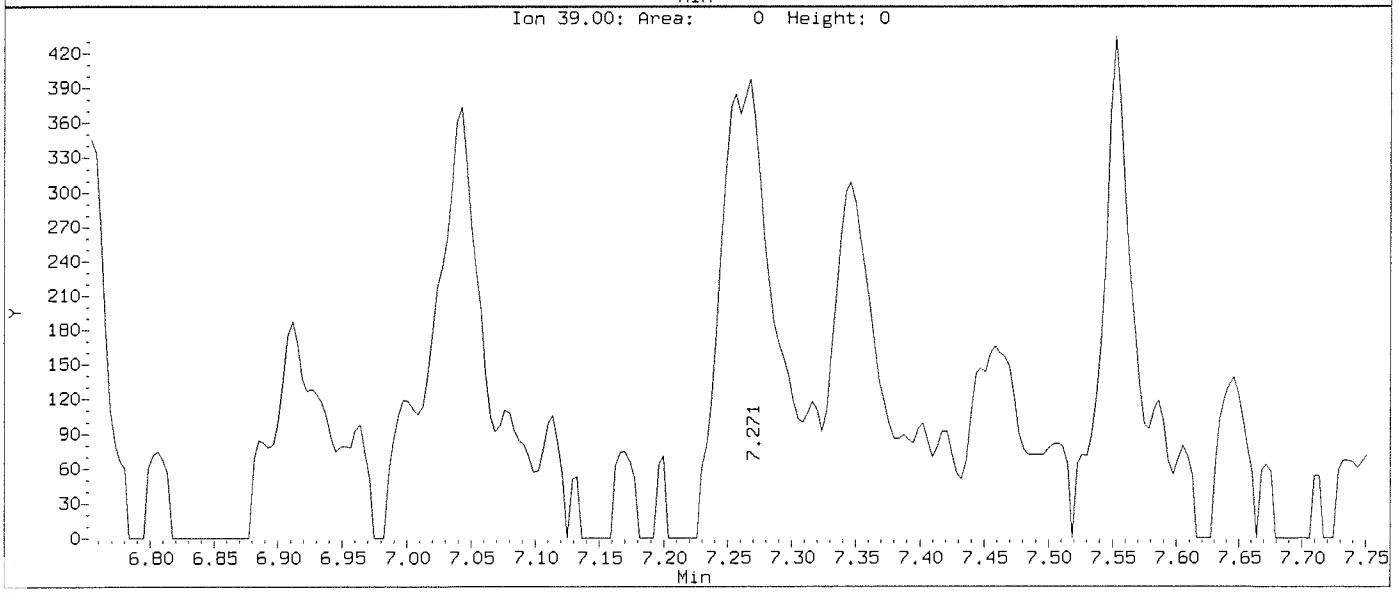
Injection Date: 15-NOV-2021 14:36
Instrument: VOA9.i
Client Sample ID: VSTD000.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6







Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111504.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111504.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 15-NOV-2021 14:58
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 14:36 Cal File: U111503.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	271018	50.0000	
* 36 1,4-Difluorobenzene	114	5.618	5.618	(1.000)	470773	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	421143	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	208819	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	3378	1.00000	(a)
$ 69 4-Bromofluorobenzene	95	9.250	9.250	(1.122)	6215	1.00000	0.21(a)
$ 30 Dibromofluoromethane	113	4.823	4.823	(0.988)	2474	1.00000	0.02
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	9726	1.00000	0.88(a)
31 1,1,1-Trichloroethane	97	4.815	4.815	(0.986)	3685	1.00000	0.94(a)
57 1,2-Dibromoethane	107	7.844	7.844	(0.952)	2956	1.00000	0.98(a)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	2215	1.00000	1.57(a)
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	4554	1.00000	1.03(aM)
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	2641	1.00000	1.06(a)
22 1,1-Dichloroethane	63	3.590	3.590	(0.735)	5189	1.00000	1.07(a)
11 1,1-Dichloroethene	96	2.394	2.394	(0.490)	2581	1.00000	1.06(a)
32 1,1-Dichloropropene	75	4.992	4.992	(0.889)	4071	1.00000	1.05(a)
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	3989	1.00000	1.06(a)
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	3759	1.00000	0.87(a)
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	3820	1.00000	0.99(a)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	10675	1.00000	1.01(a)
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	6329	1.00000	1.07(a)
33 1,2-Dichloroethane	62	5.246	5.246	(0.934)	4817	1.00000	1.13(aM)

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111504.D Page 2
Report Date: 22-Dec-2021 13:55

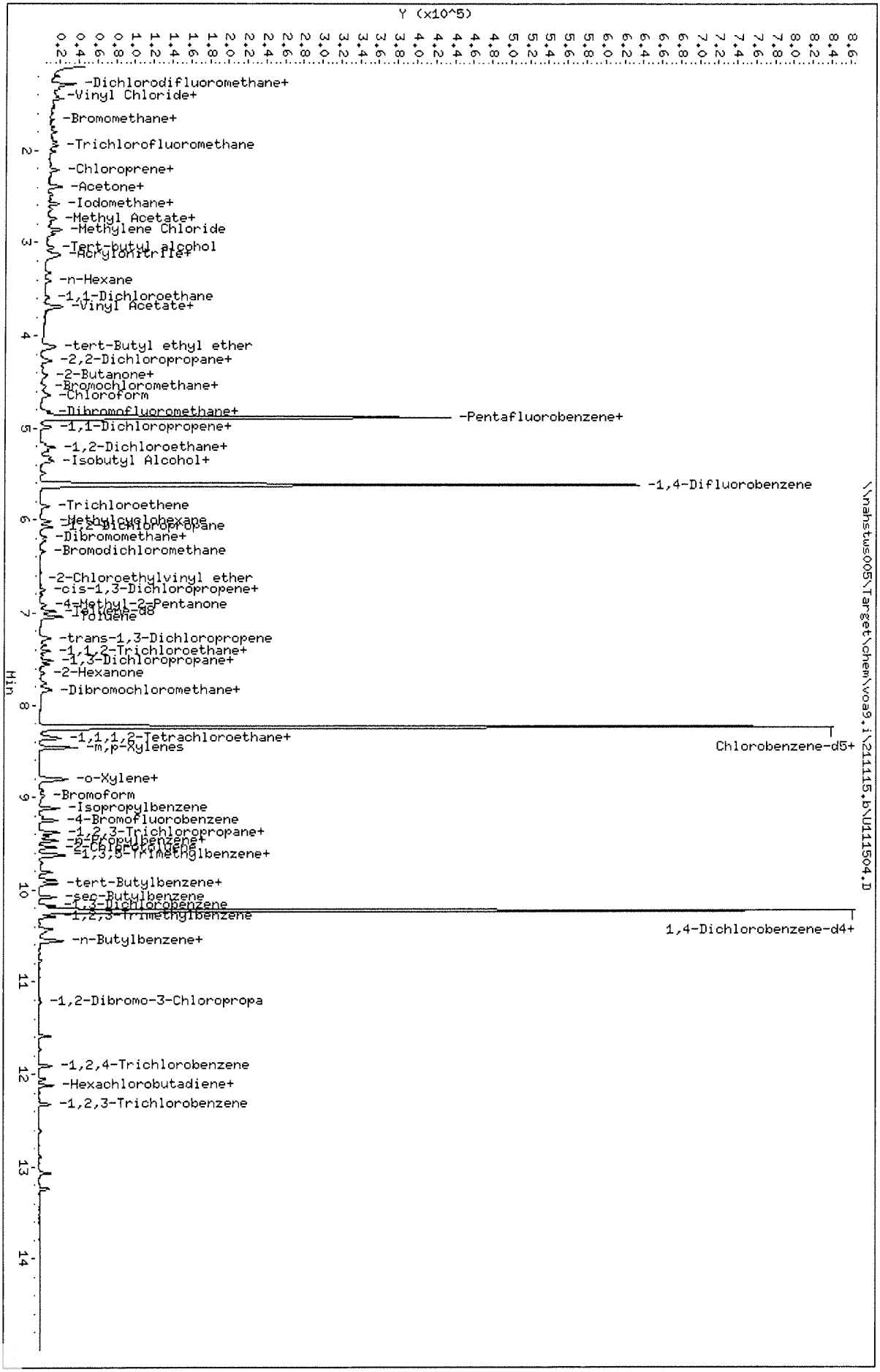
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	3104	1.00000	1.04(a)
83 1,3-Dichlorobenzene	146	10.172	10.172	(0.995)	6567	1.00000	1.09(a)
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	5573	1.00000	1.05(a)
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	10492	1.00000	1.02(a)
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	6860	1.00000	1.10(a)
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	360	1.00000	2.90(aM)
26 2,2-Dichloropropane	77	4.264	4.264	(0.873)	2682	1.00000	0.98(a)
24 2-Butanone	43	4.350	4.350	(0.891)	2847	2.00000	2.00(a)
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	9519	1.00000	1.05(a)
52 2-Hexanone	43	7.649	7.649	(0.928)	3298	2.00000	1.64(TaH)
77 4-Chlorotoluene	91	9.632	9.632	(0.942)	10627	1.00000	1.01(a)
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	9764	1.00000	0.95(a)
10 Acetone	43	2.476	2.476	(0.507)	4060	2.00000	(a)
37 Benzene	78	5.205	5.205	(0.927)	13246	1.00000	1.11(a)
74 Bromobenzene	156	9.374	9.374	(0.917)	3452	1.00000	1.06(a)
29 Bromochloromethane	128	4.545	4.545	(0.931)	1559	1.00000	1.01(a)
39 Bromodichloromethane	83	6.337	6.337	(1.128)	3055	1.00000	1.81(aM)
66 Bromoform	173	8.976	8.976	(1.089)	1090	1.00000	1.97(aM)
6 Bromomethane	94	1.663	1.663	(0.341)	2151	1.00000	0.78(a)
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	3053	1.00000	2.29(a)
59 Chlorobenzene	112	8.264	8.264	(1.003)	8952	1.00000	1.09(a)
7 Chloroethane	64	1.745	1.745	(0.357)	2379	1.00000	1.06(aM)
28 Chloroform	83	4.647	4.647	(0.952)	5488	1.00000	1.05(a)
3 Chloromethane	50	1.337	1.337	(0.274)	3019	1.00000	0.54(a)
27 cis-1,2-Dichloroethene	96	4.276	4.276	(0.876)	3470	1.00000	1.04(a)
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.839)	6121	2.00000	2.01(a)
46 cis-1,3-Dichloropropene	75	6.753	6.753	(1.202)	2819	1.00000	2.29(a)
44 Dibromomethane	93	6.180	6.180	(1.100)	2075	1.00000	1.02(a)
2 Dichlorodifluoromethane	85	1.198	1.198	(0.245)	3384	1.00000	0.34(a)
61 Ethylbenzene	106	8.362	8.362	(1.015)	4316	1.00000	1.05(a)
91 Hexachlorobutadiene	225	12.050	12.050	(1.179)	1346	1.00000	0.94(a)
62 m,p-Xylenes	106	8.463	8.463	(1.027)	10438	2.00000	2.05(a)
64 Styrene	104	8.819	8.819	(1.070)	8325	1.00000	0.96(a)
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	8791	1.00000	1.01(a)
17 Methylene Chloride	84	2.859	2.859	(0.585)	3687	1.00000	1.15(a)
87 n-Butylbenzene	91	10.547	10.547	(1.032)	8937	1.00000	0.97(a)
73 n-Propylbenzene	91	9.467	9.467	(0.926)	14969	1.00000	1.05(a)
92 Naphthalene	128	12.122	12.122	(1.186)	11275	1.00000	0.97(a)
63 o-Xylene	106	8.804	8.804	(1.068)	5404	1.00000	1.07(a)
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	11762	1.00000	1.00(a)
55 Dibromochloromethane	129	7.751	7.751	(0.940)	2071	1.00000	2.13(a)
56 Tetrachloroethene	164	7.514	7.514	(0.912)	2638	1.00000	1.11(a)
50 Toluene	91	7.038	7.038	(0.854)	13702	1.00000	1.08(a)
19 Carbon Disulfide	76	2.577	2.577	(0.528)	14181	2.00000	2.11(a)
20 trans-1,2-Dichloroethene	96	3.125	3.125	(0.640)	2912	1.00000	1.06(a)
38 Trichloroethene	130	5.854	5.854	(1.042)	3189	1.00000	1.03(a)
8 Trichlorofluoromethane	101	1.948	1.948	(0.399)	4839	1.00000	1.10(a)
5 Vinyl Chloride	62	1.412	1.412	(0.289)	3447	1.00000	1.05(a)
138 Freon TF	101	2.394	2.394	(0.490)	2437	1.00000	1.09(a)
67 Isopropylbenzene	105	9.115	9.115	(1.106)	12845	1.00000	1.03(a)
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.291)	2070	1.00000	2.57(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111504.D
Date : 15-NOV-2021 14:58
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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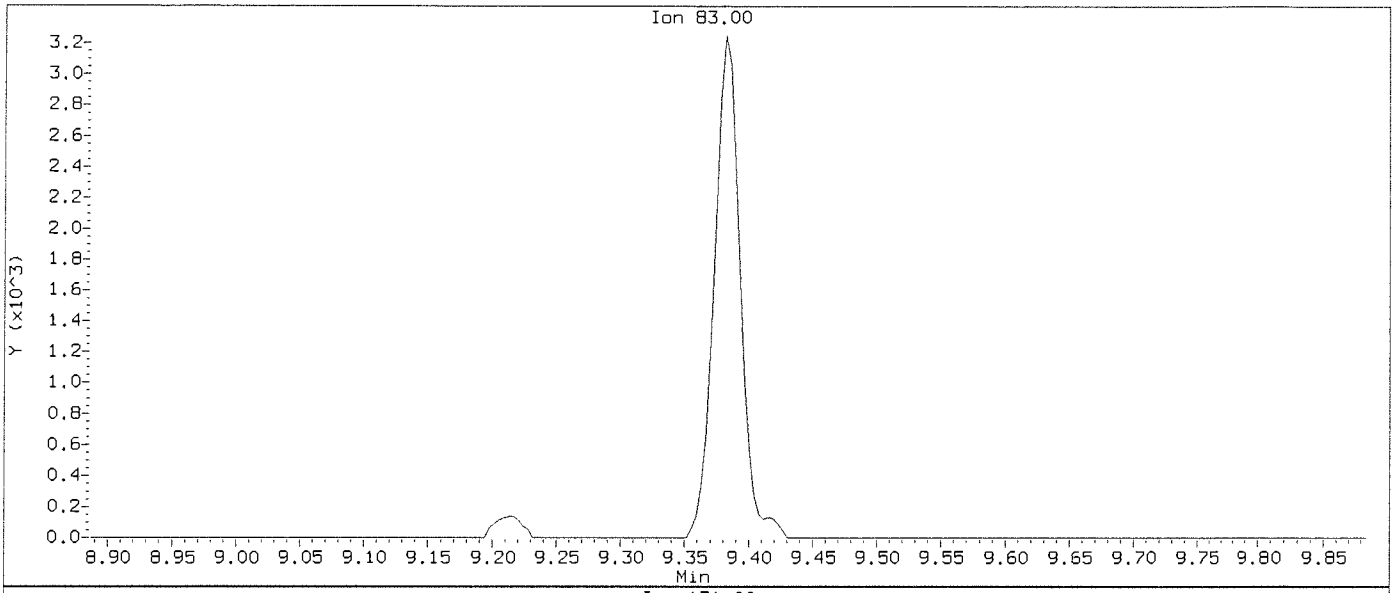
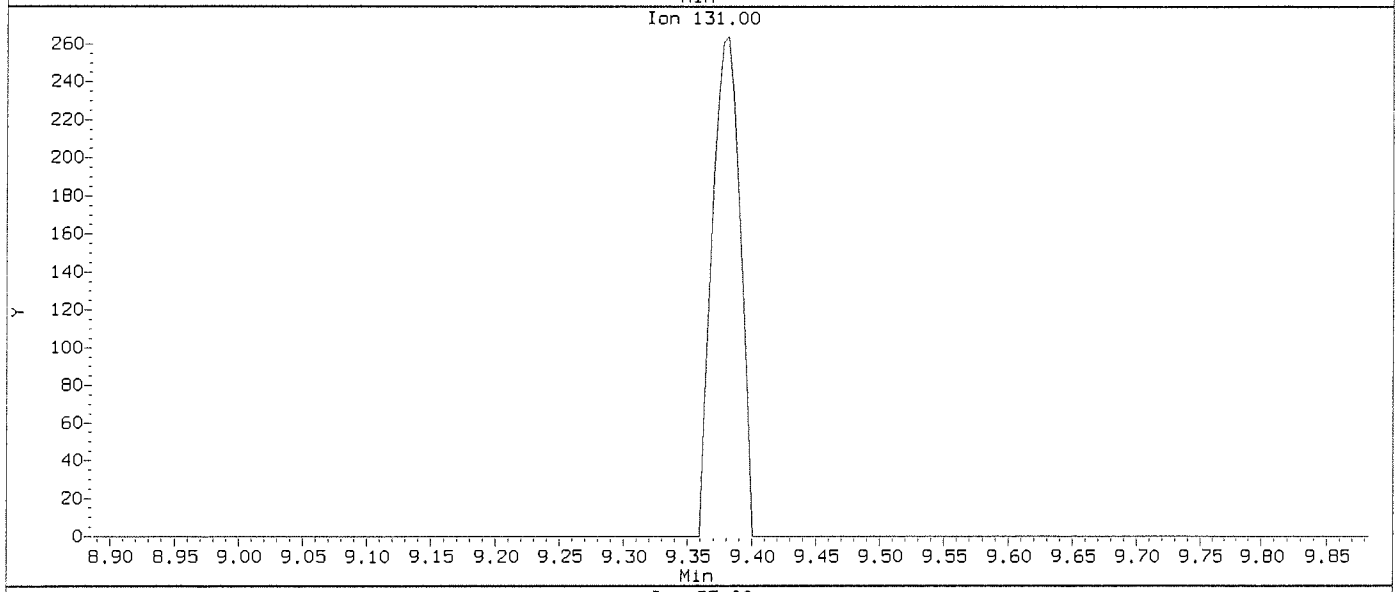
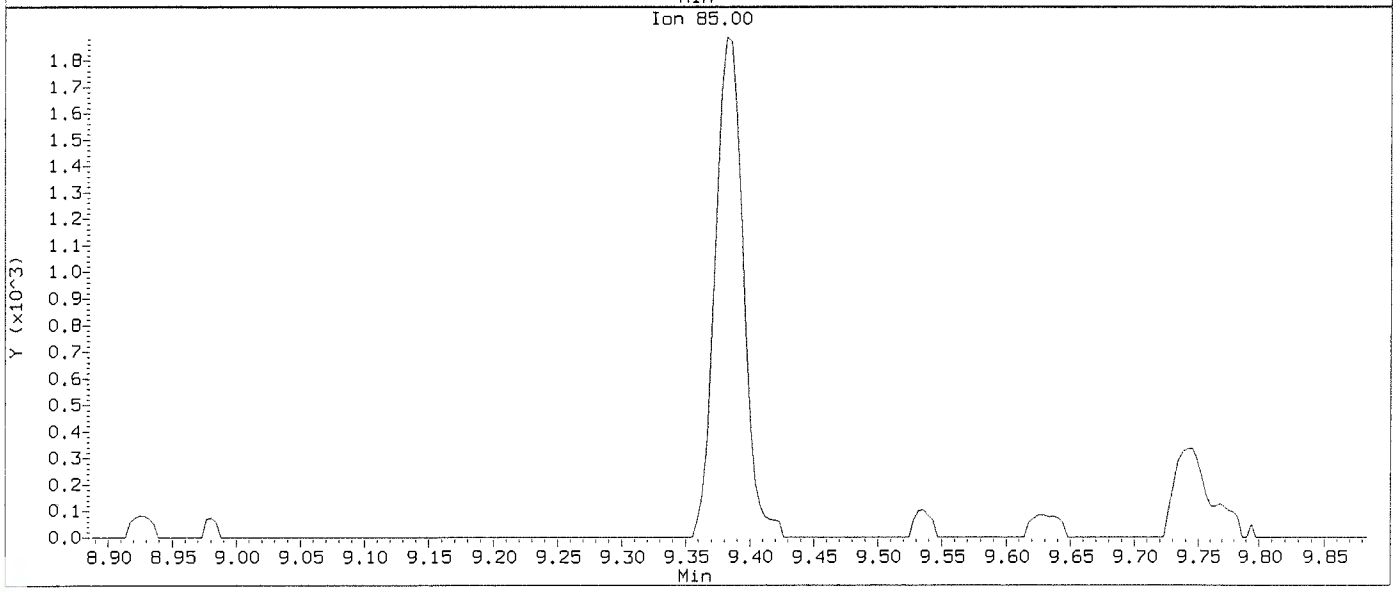
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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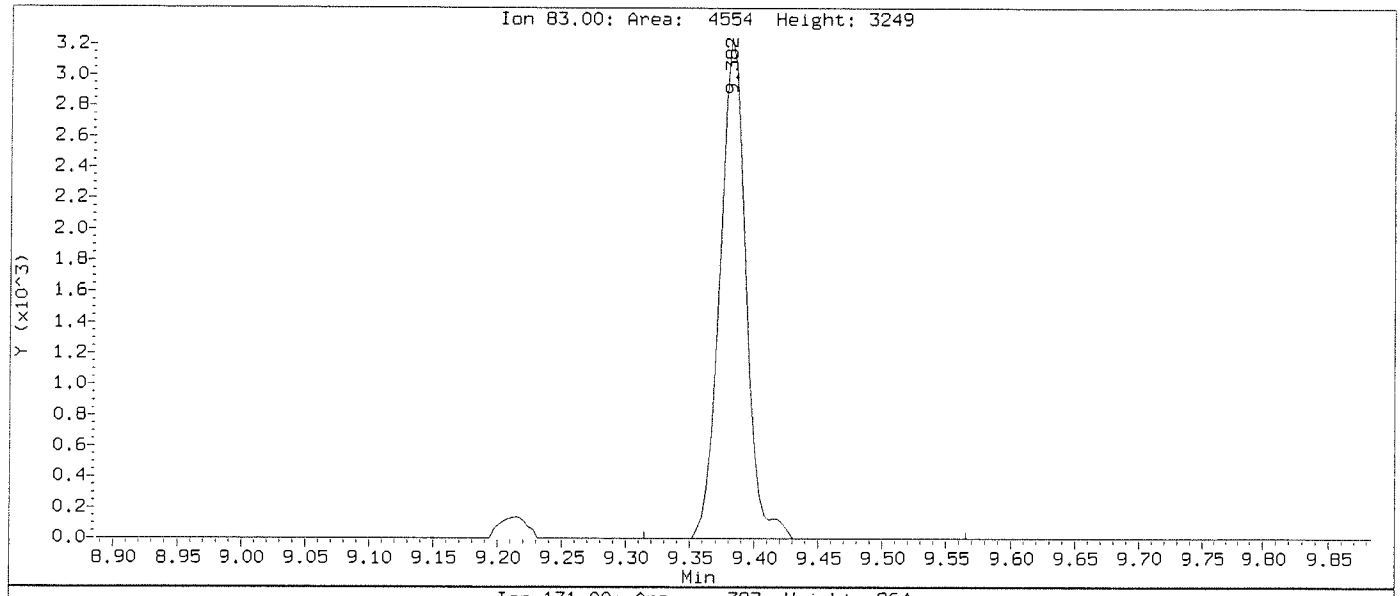
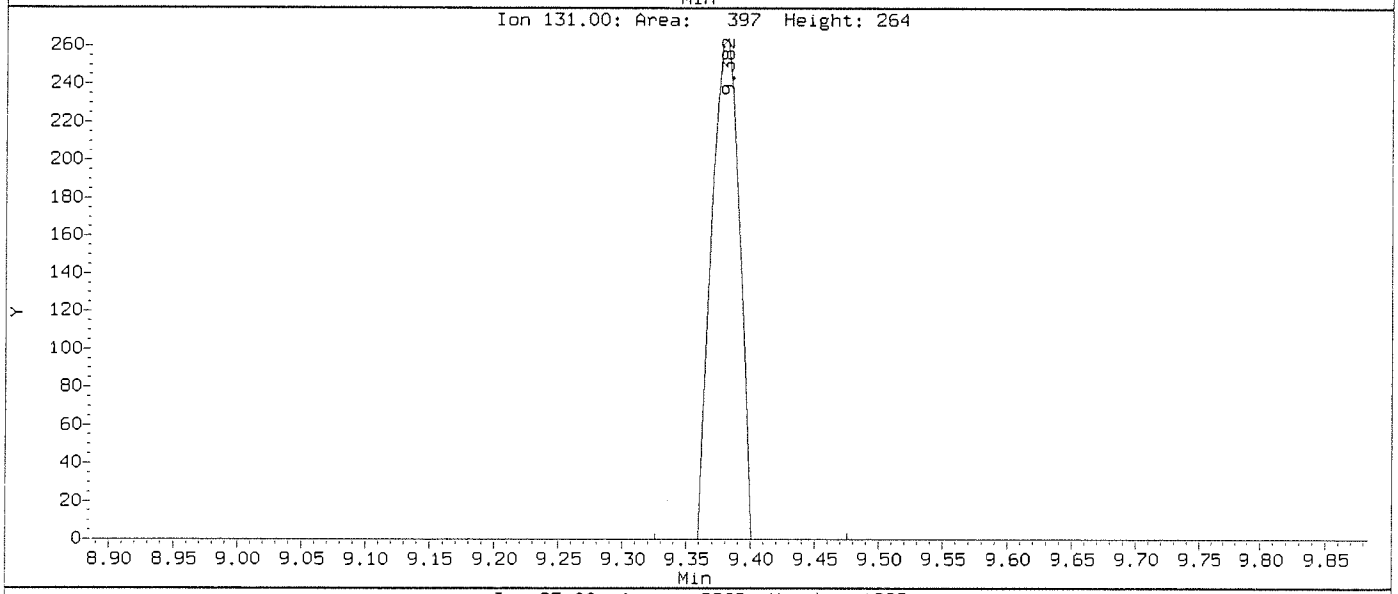
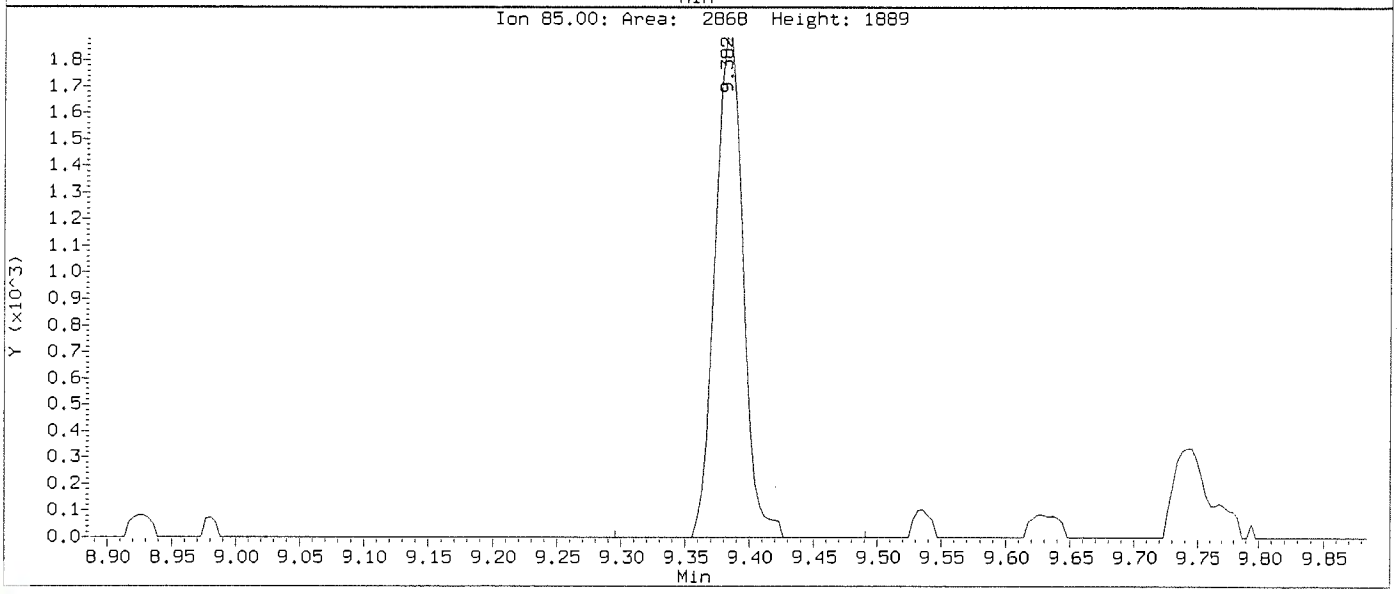
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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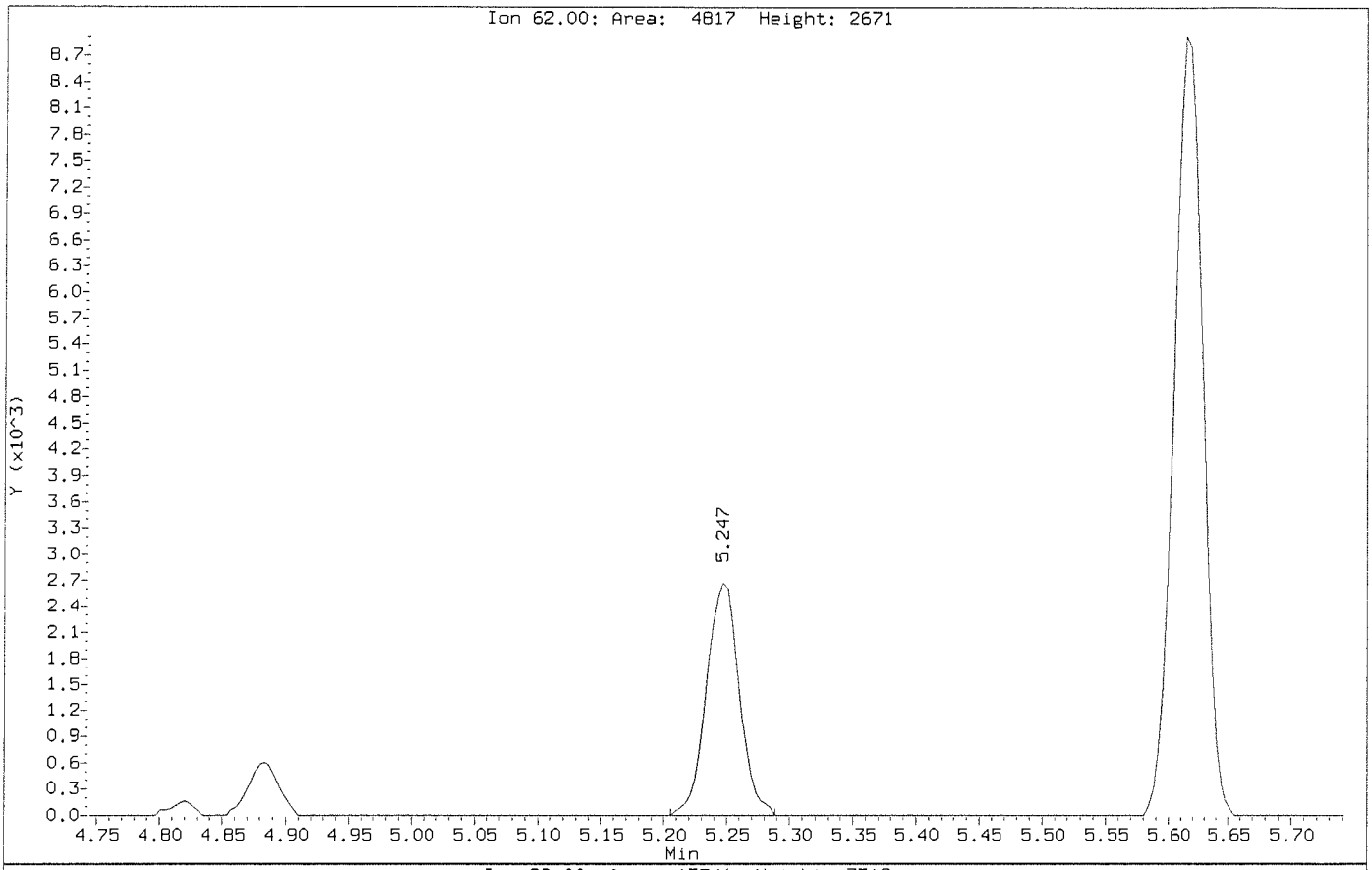
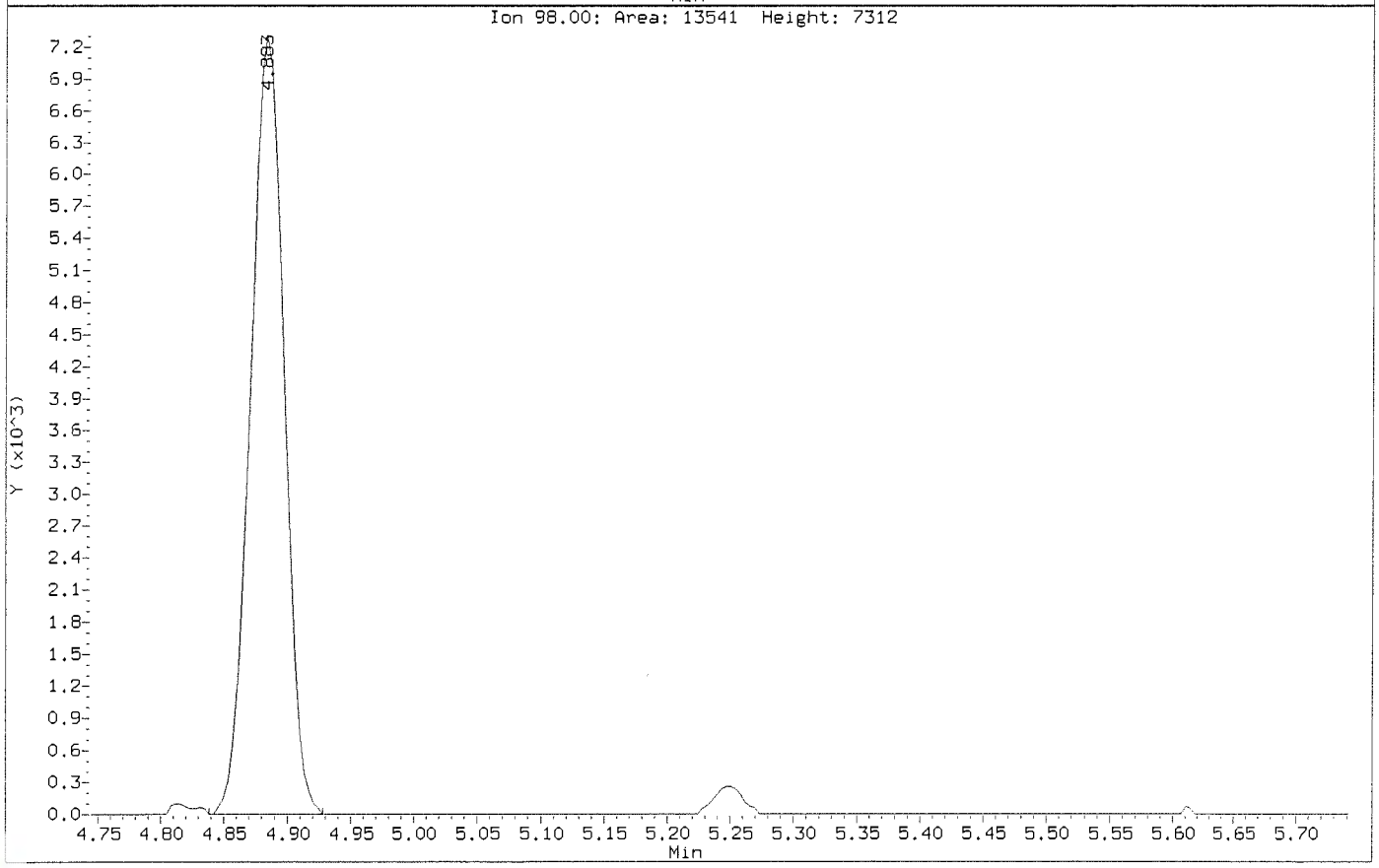
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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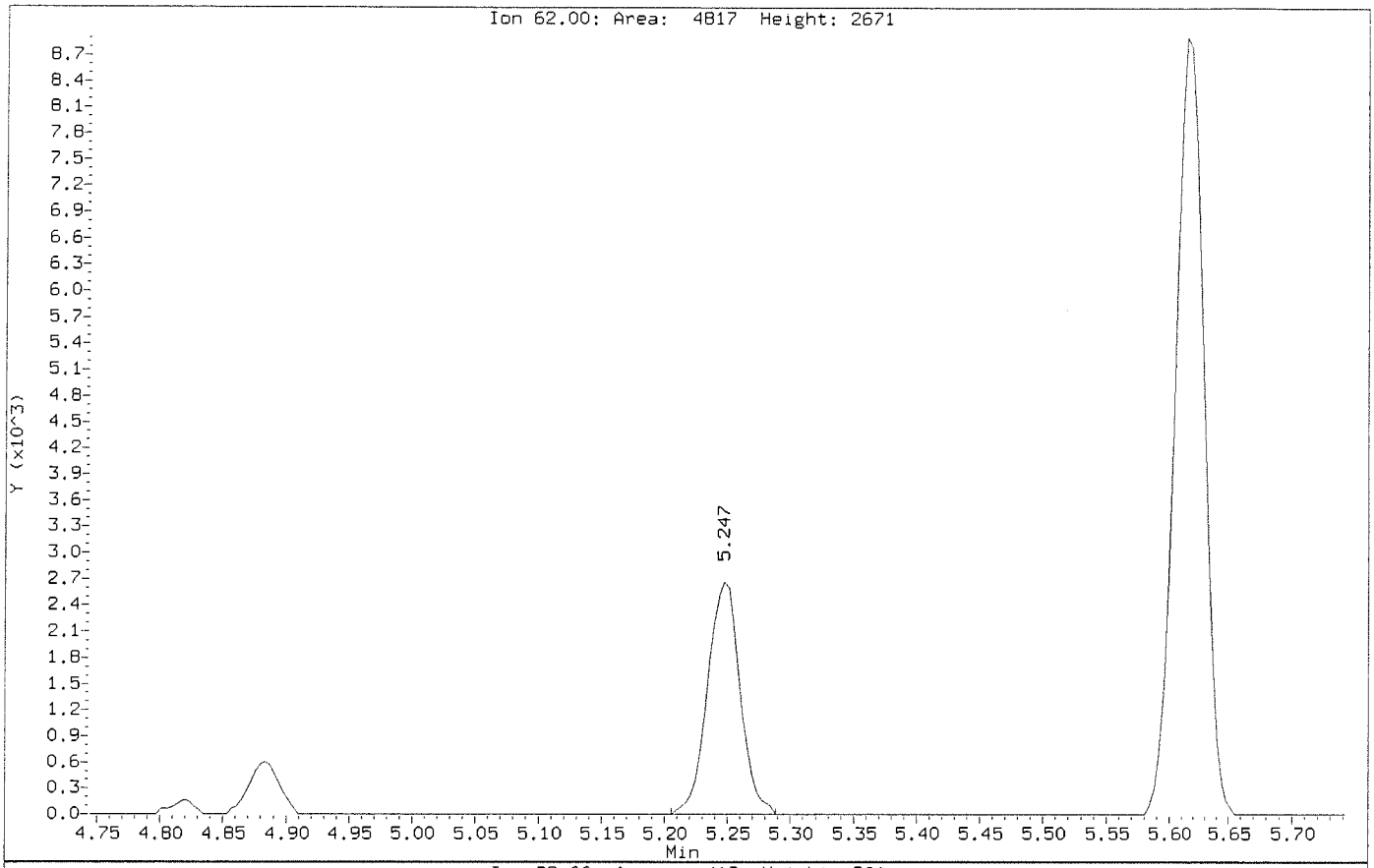
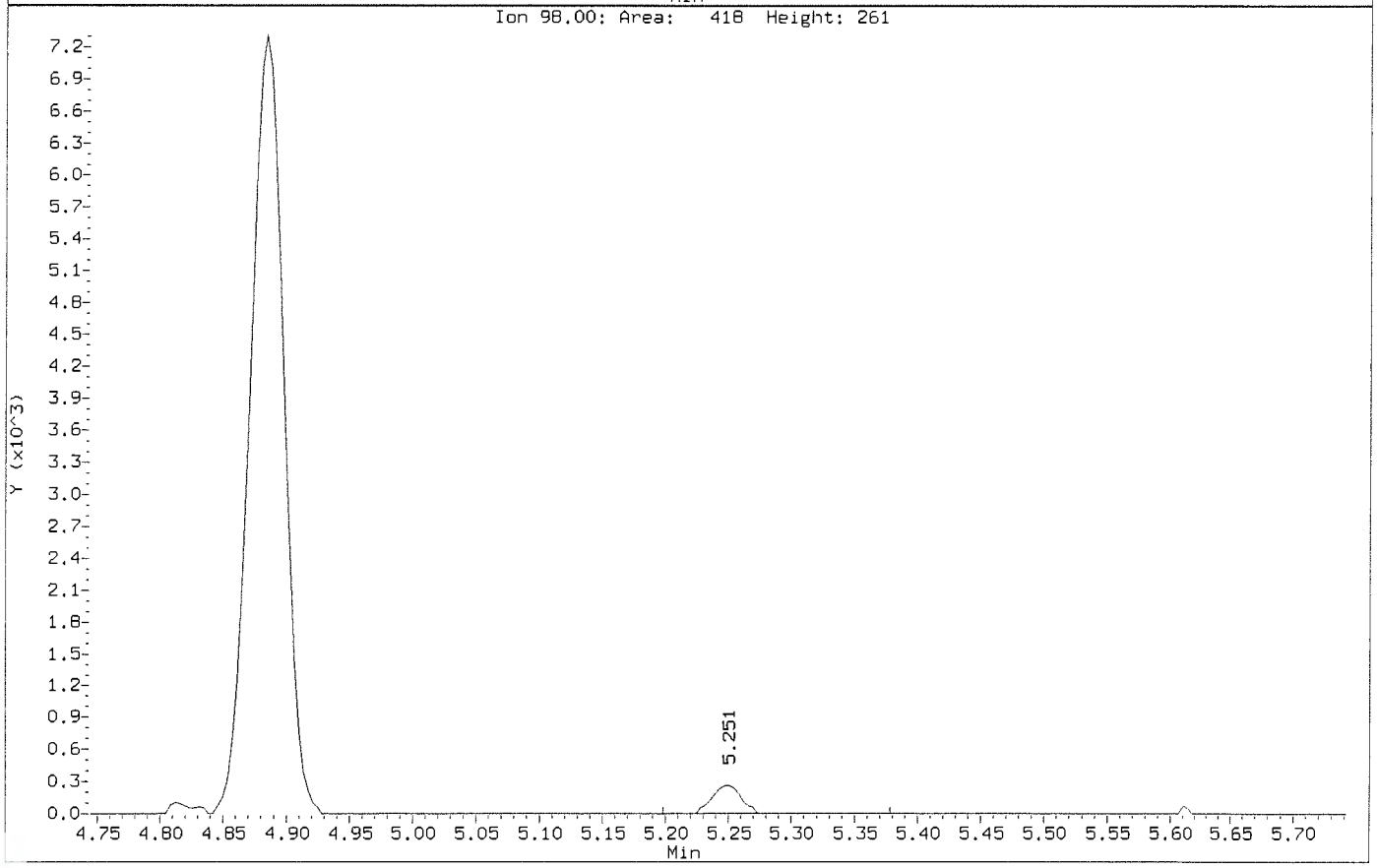
Client Sample ID: VSTD001

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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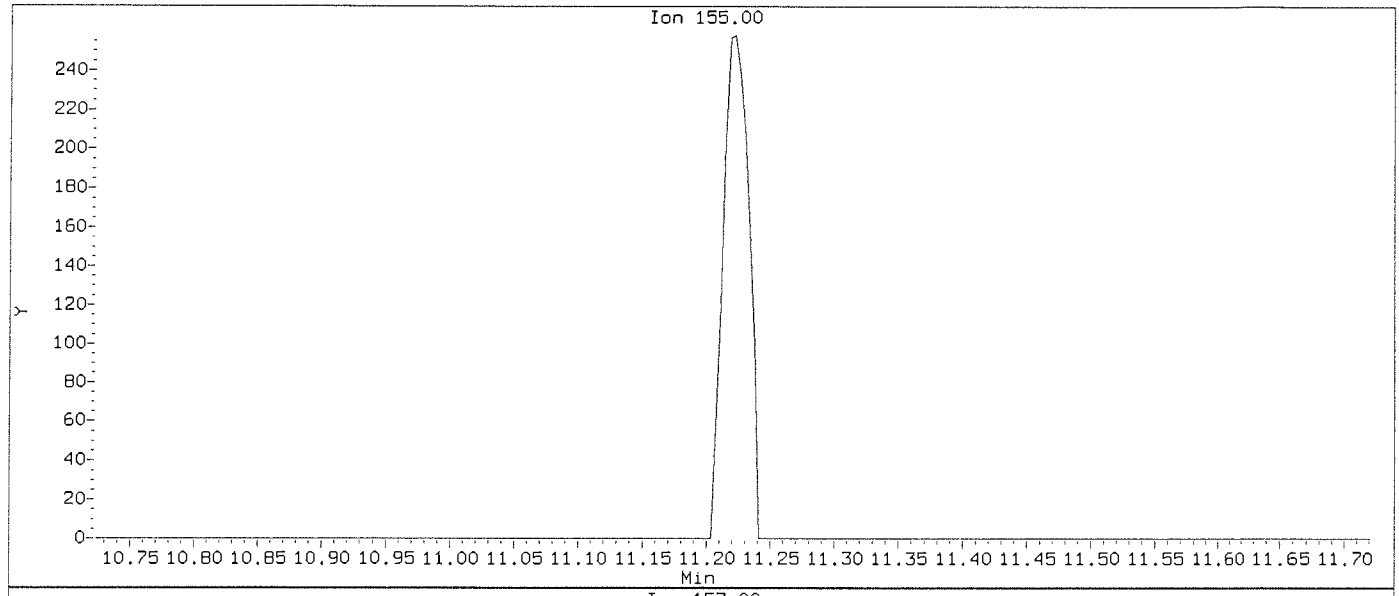
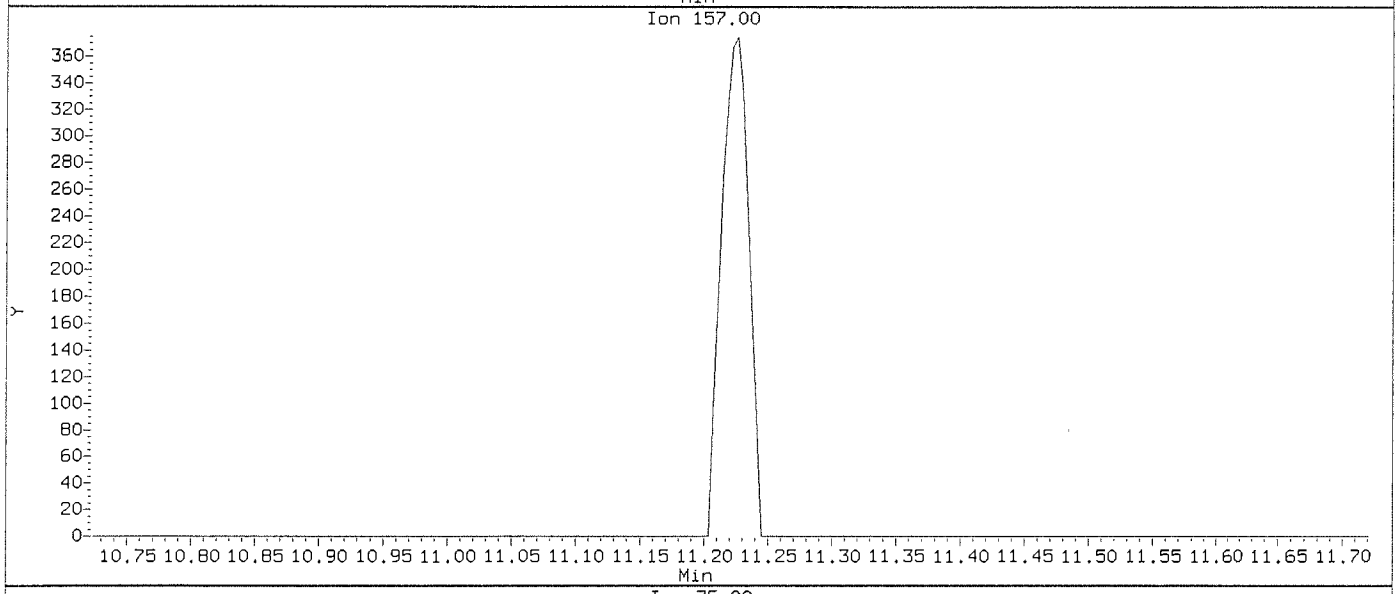
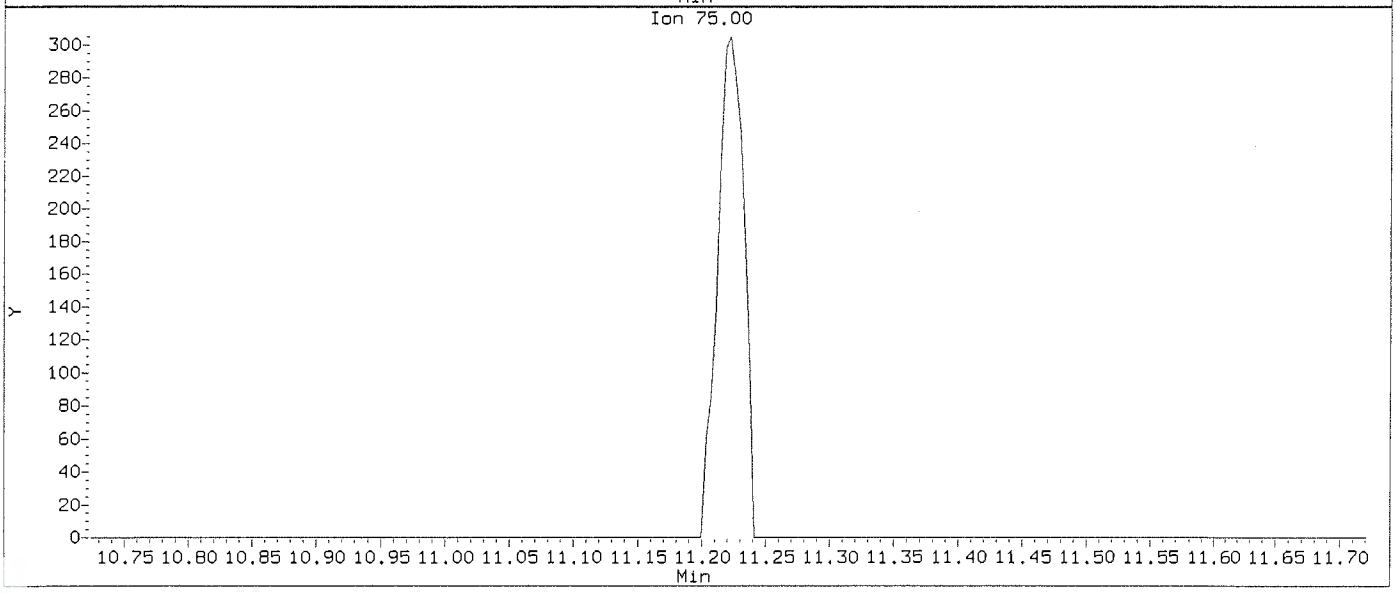
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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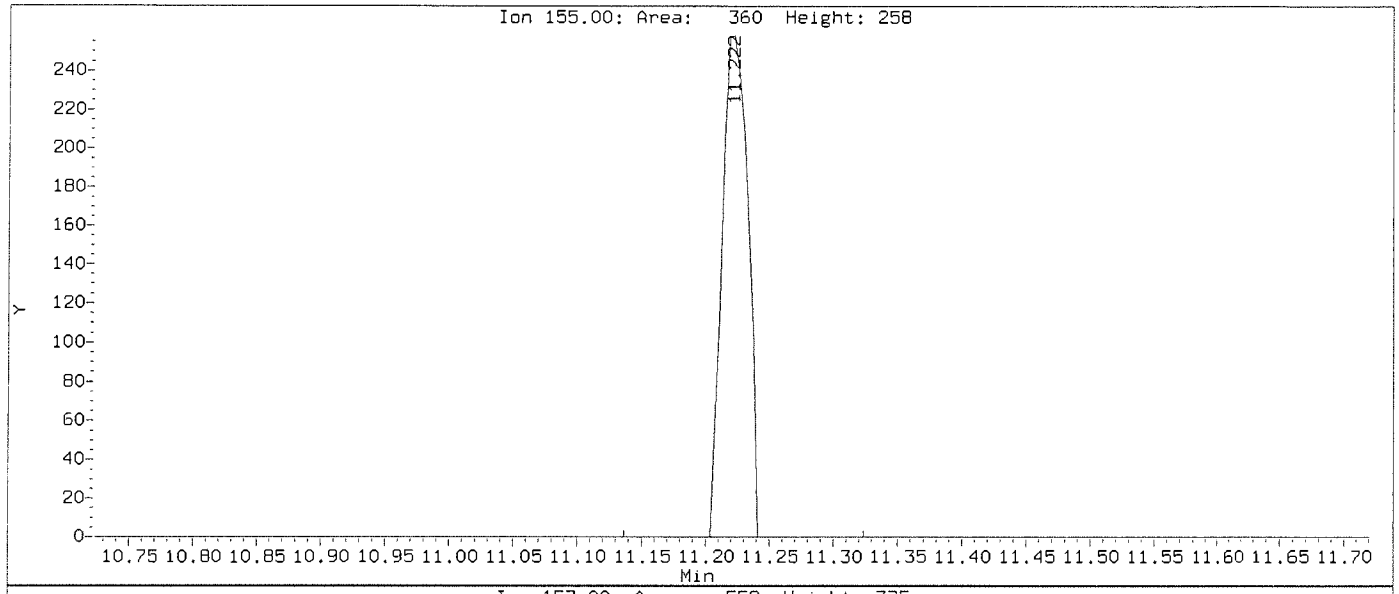
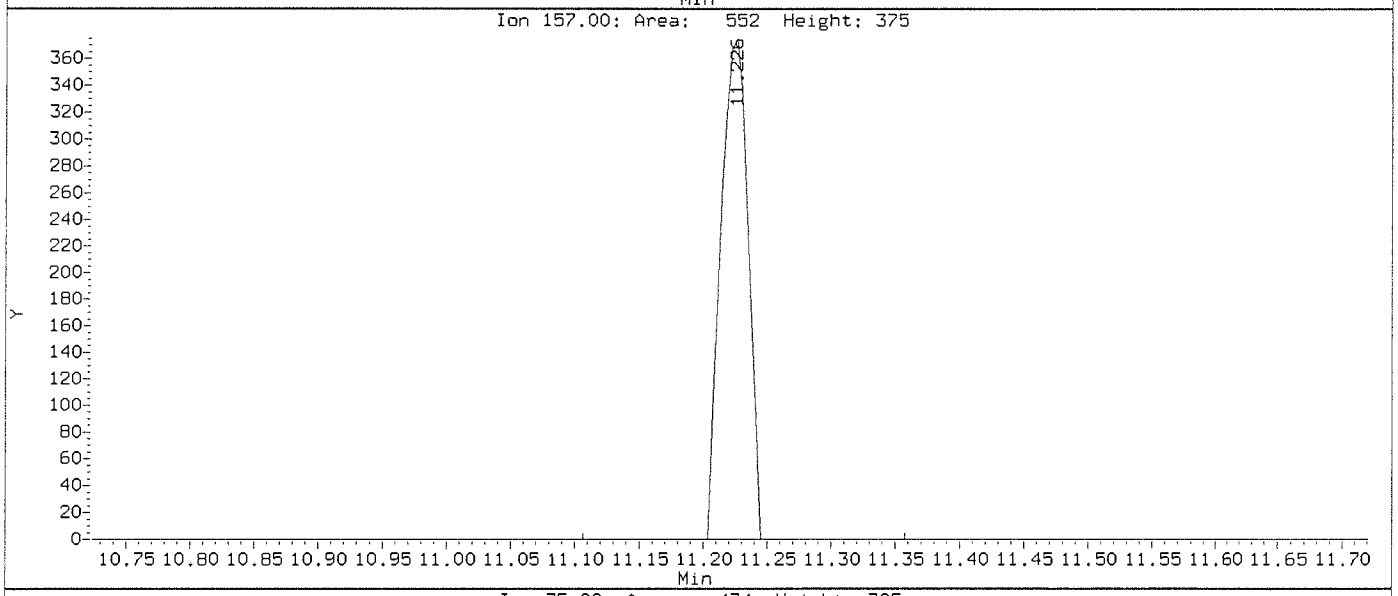
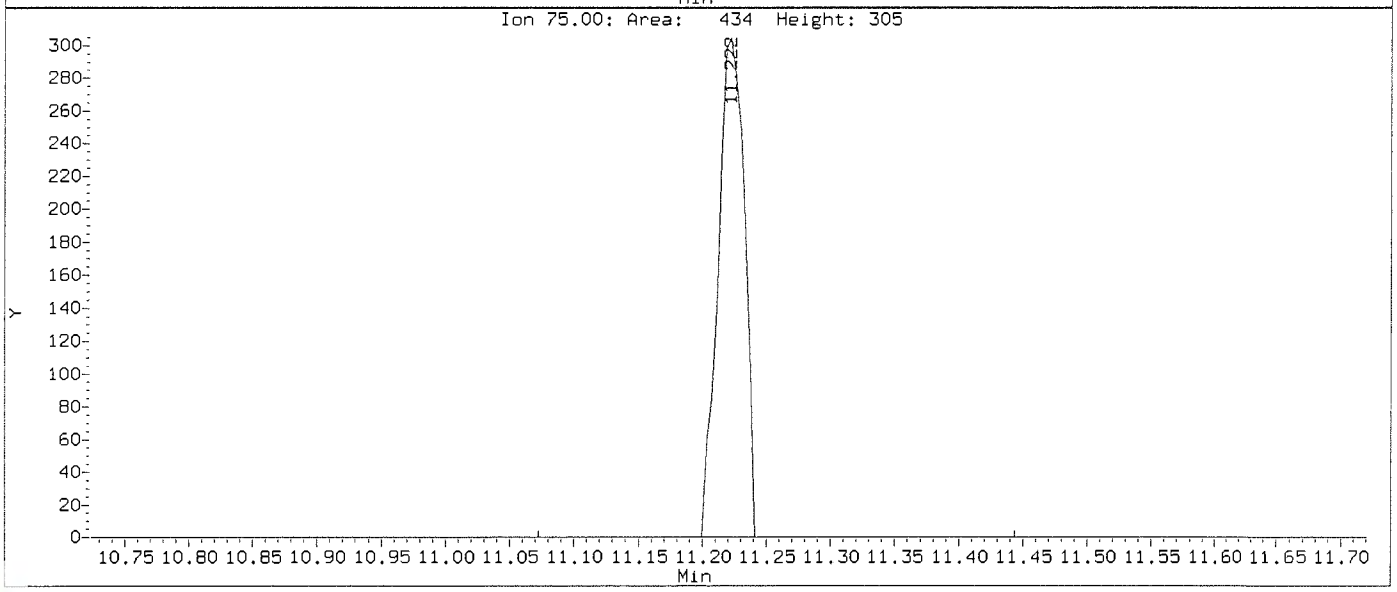
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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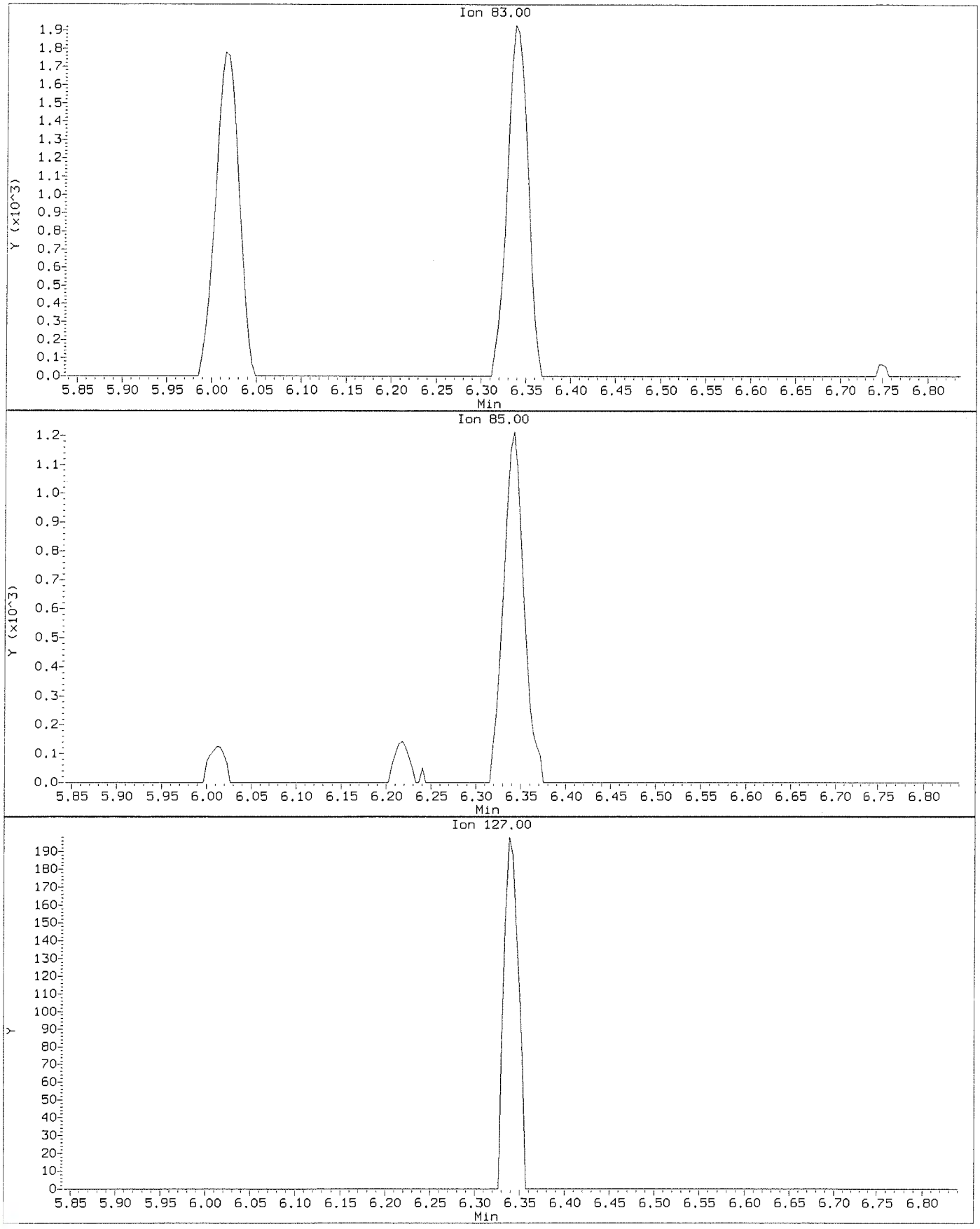
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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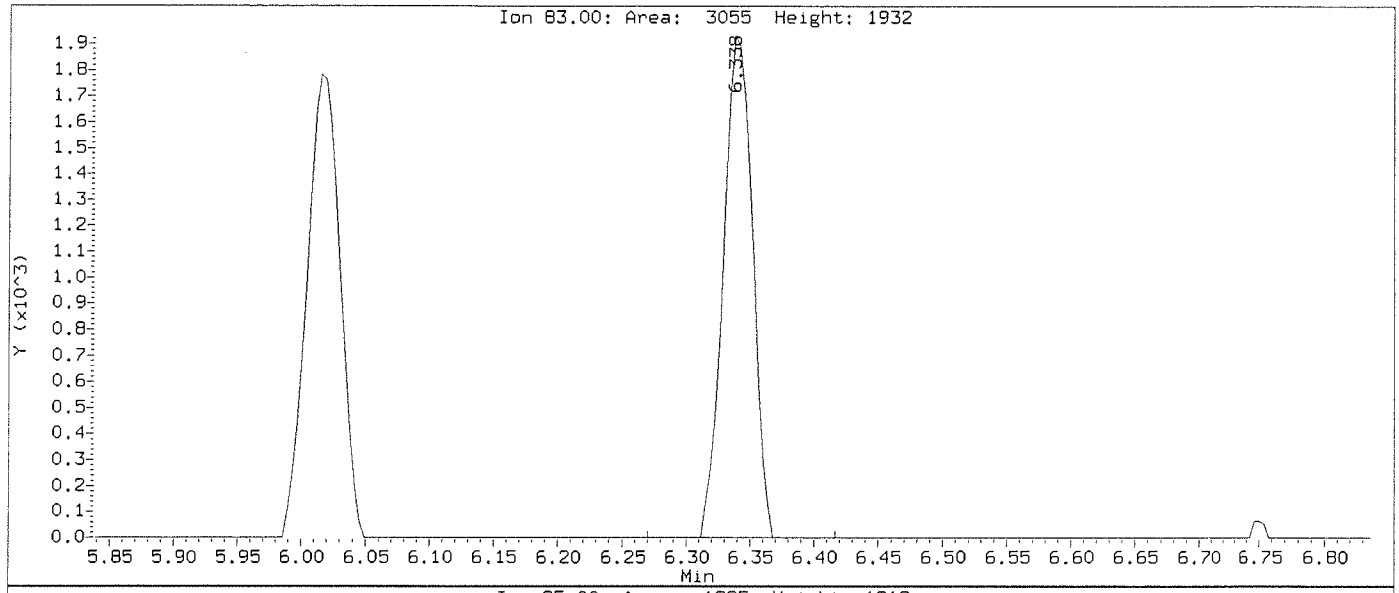
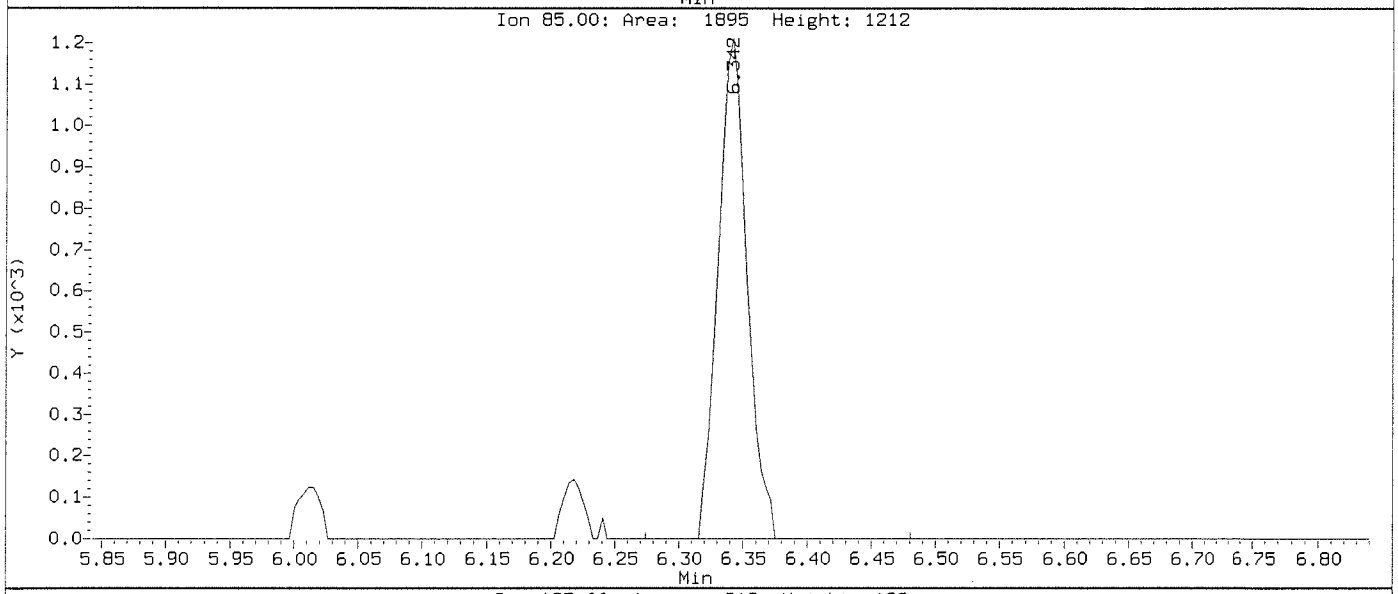
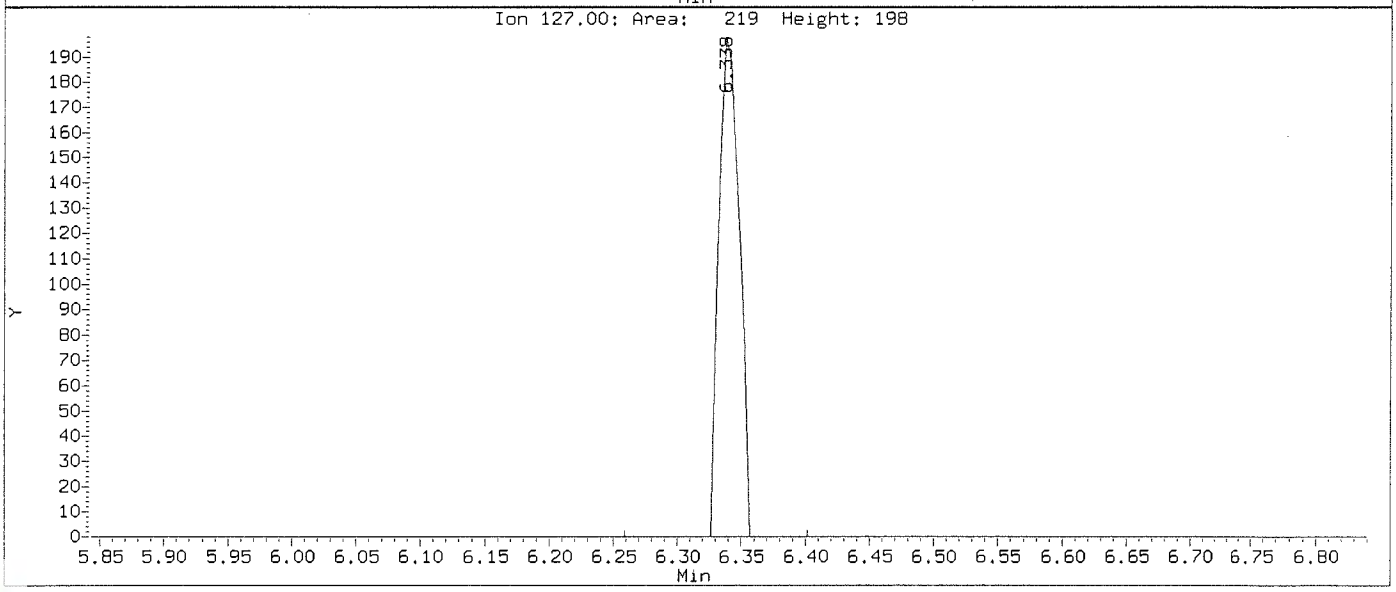
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4







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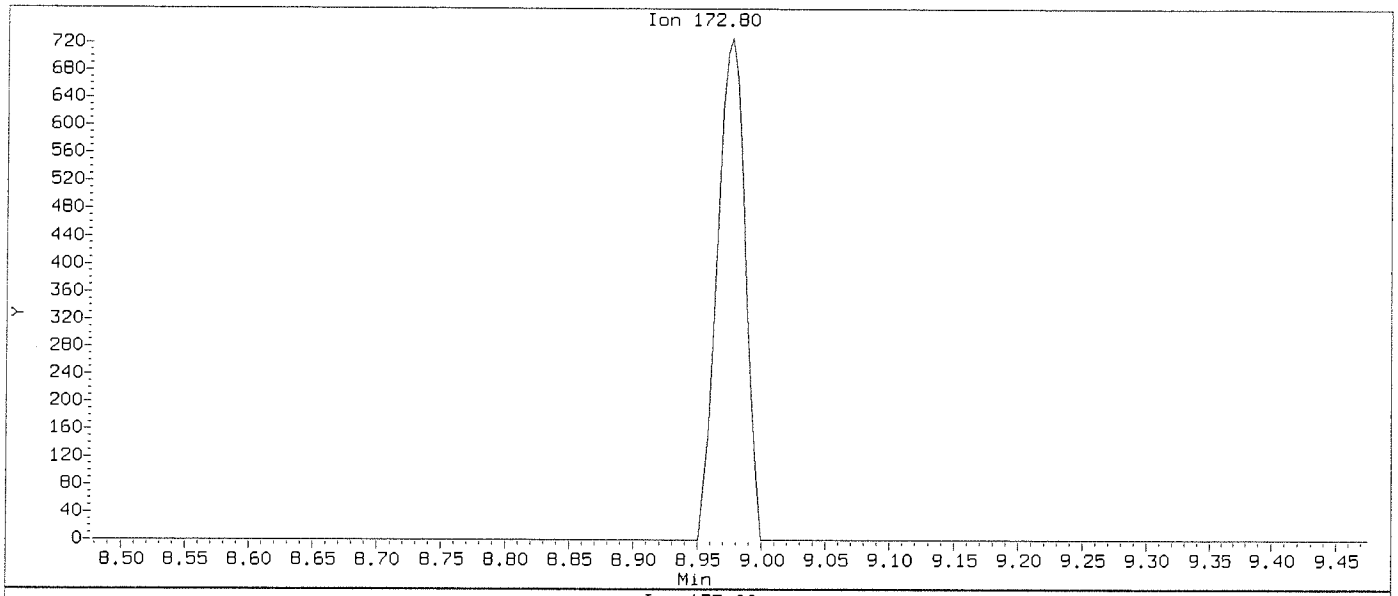
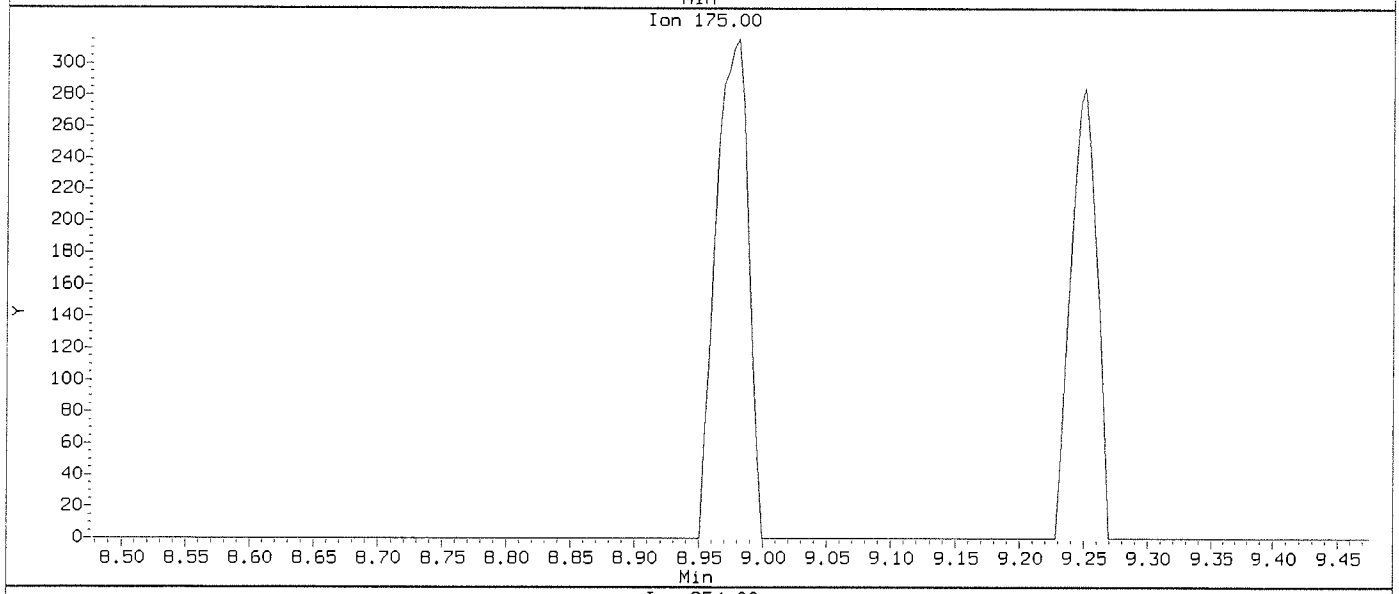
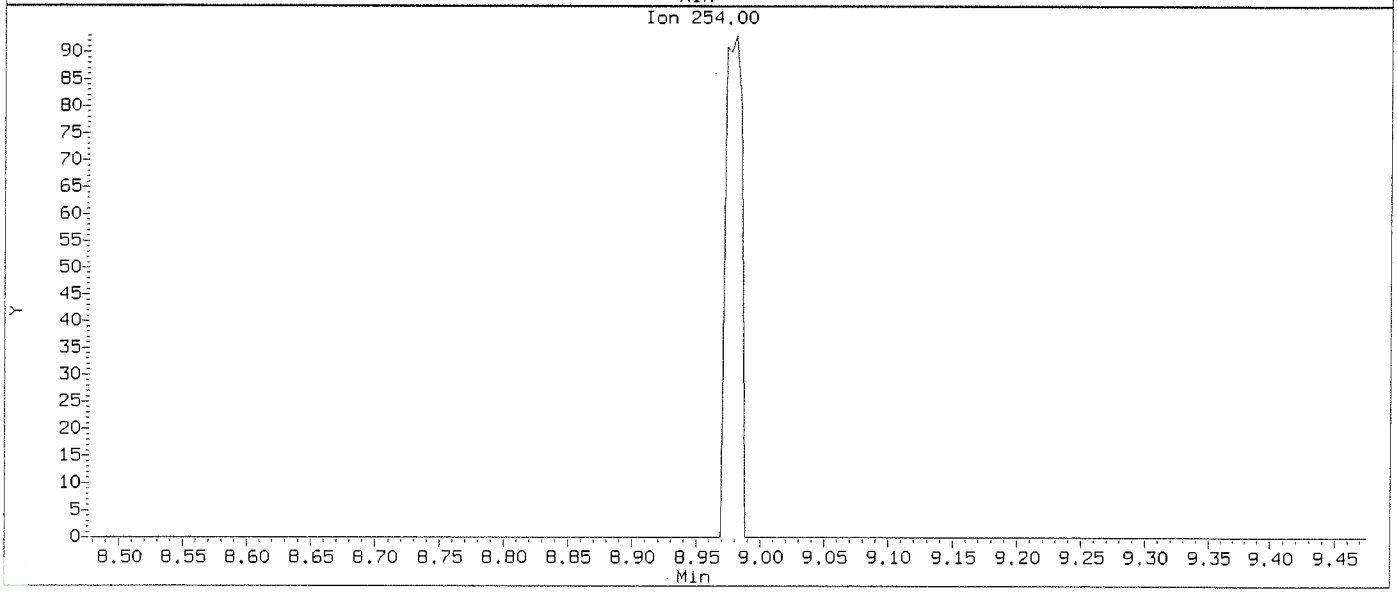
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromoform
CAS Number: 75-25-2







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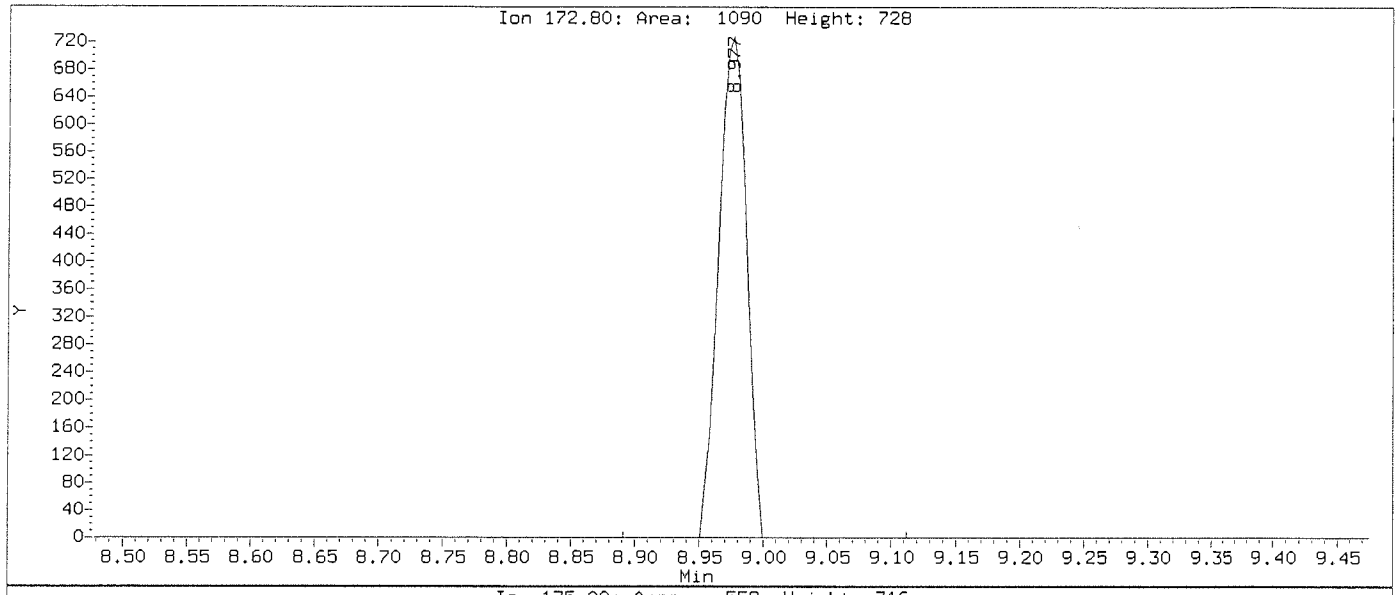
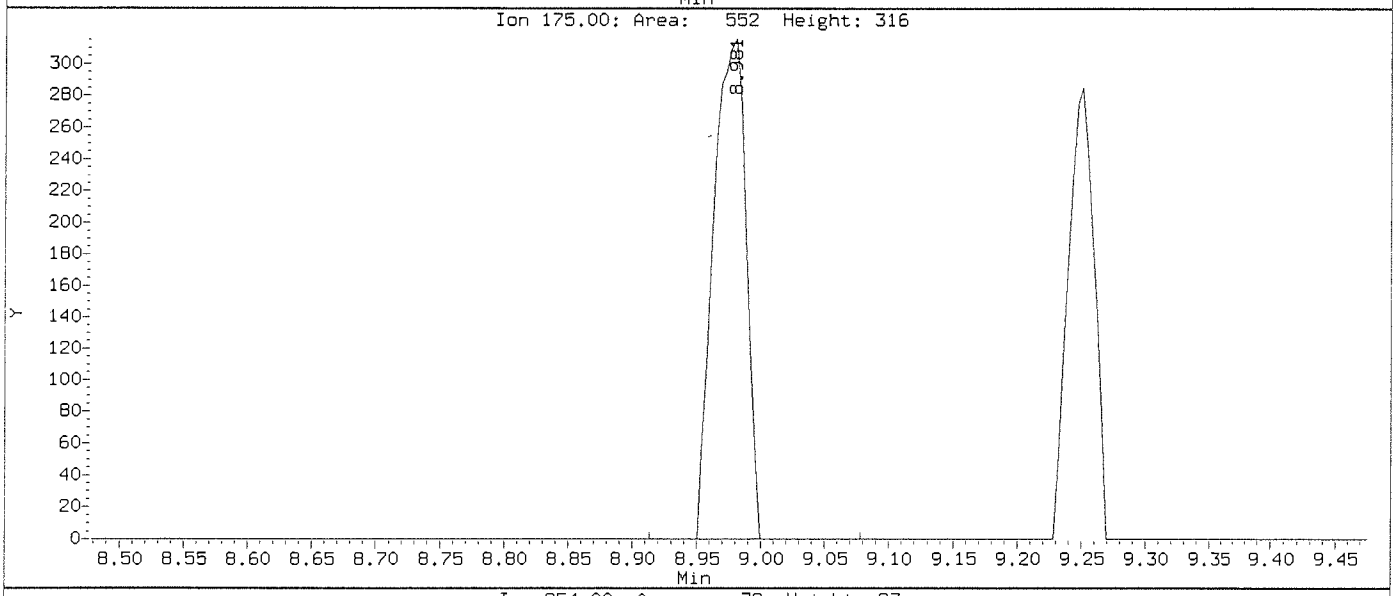
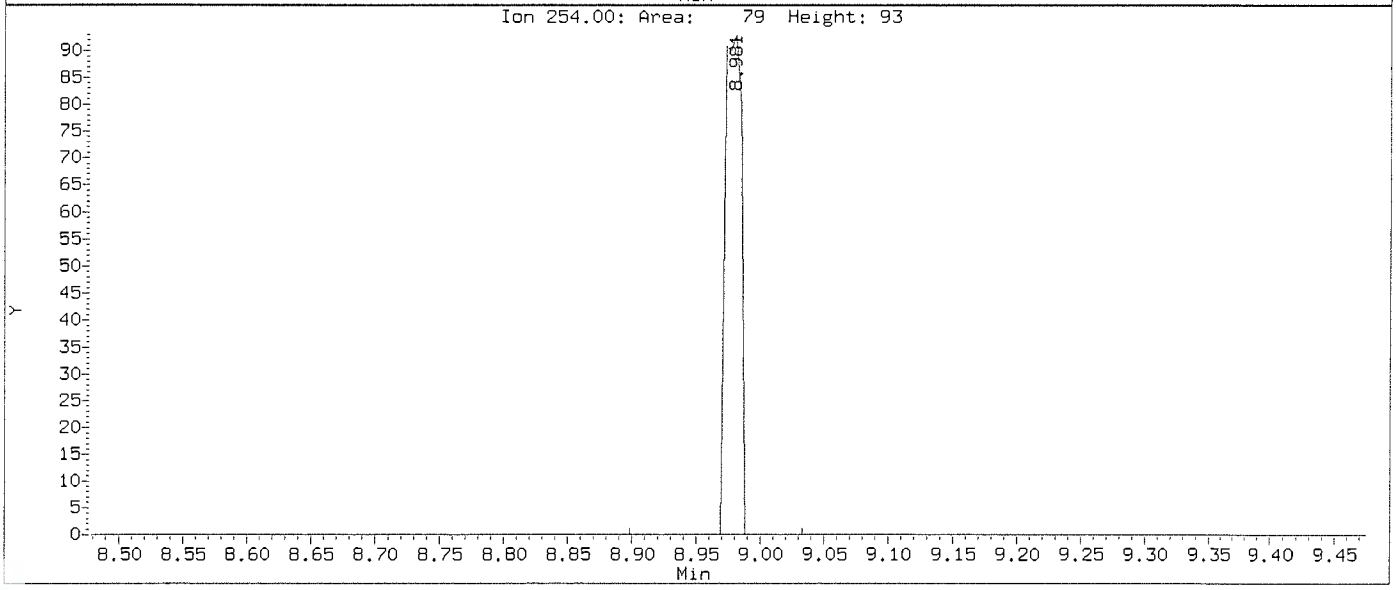
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromoform
CAS Number: 75-25-2







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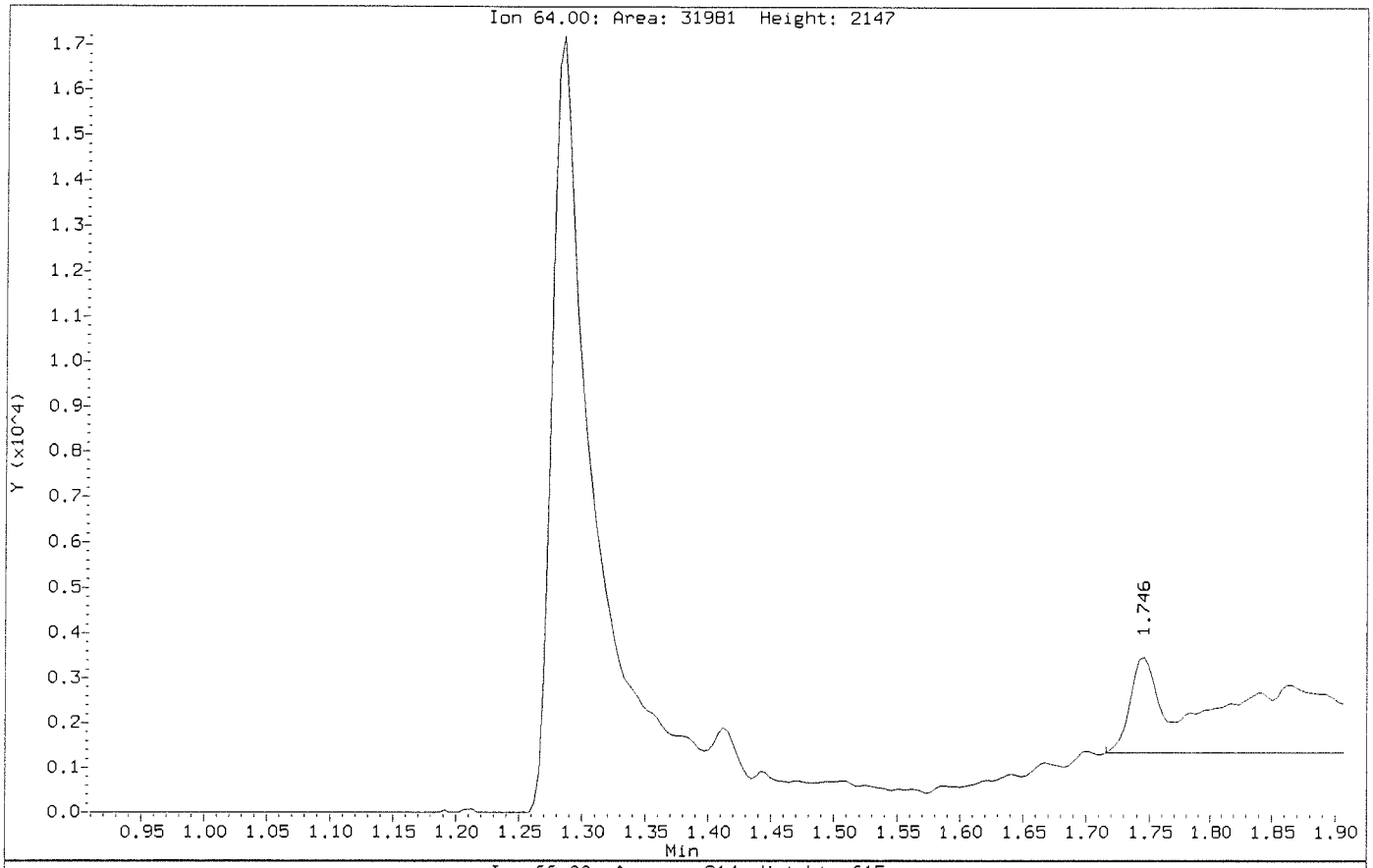
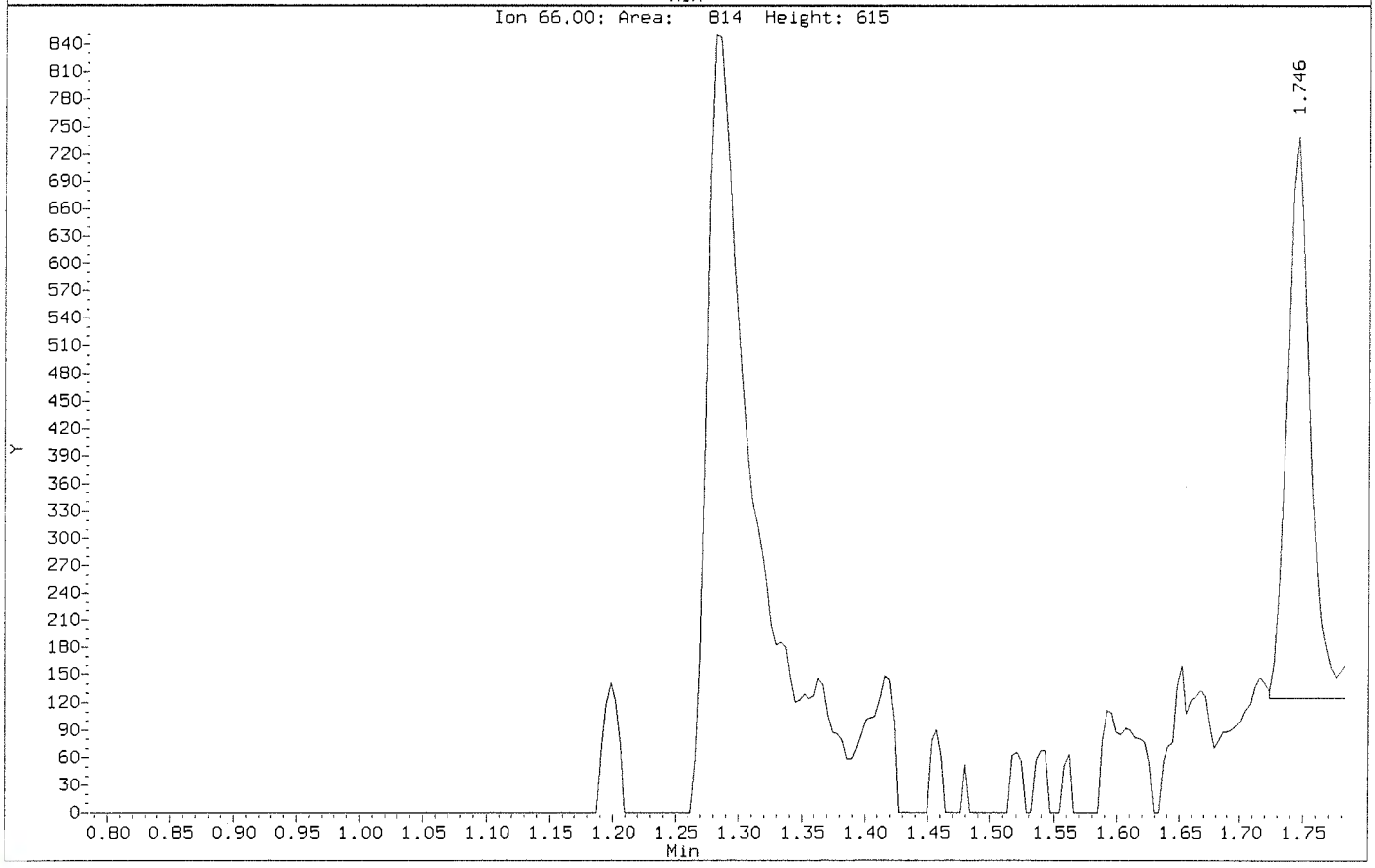
Injection Date: 15-NOV-2021 14:58
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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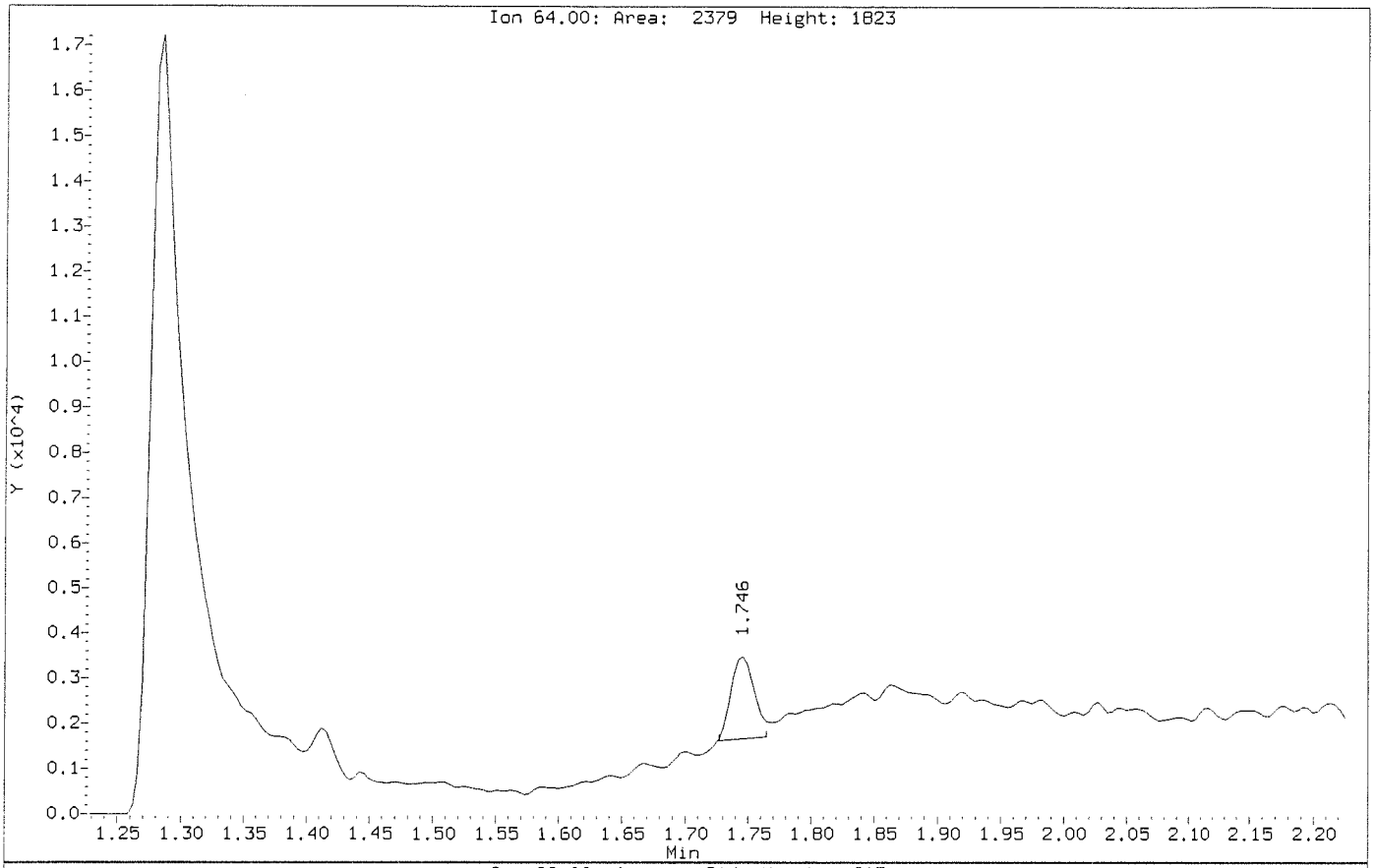
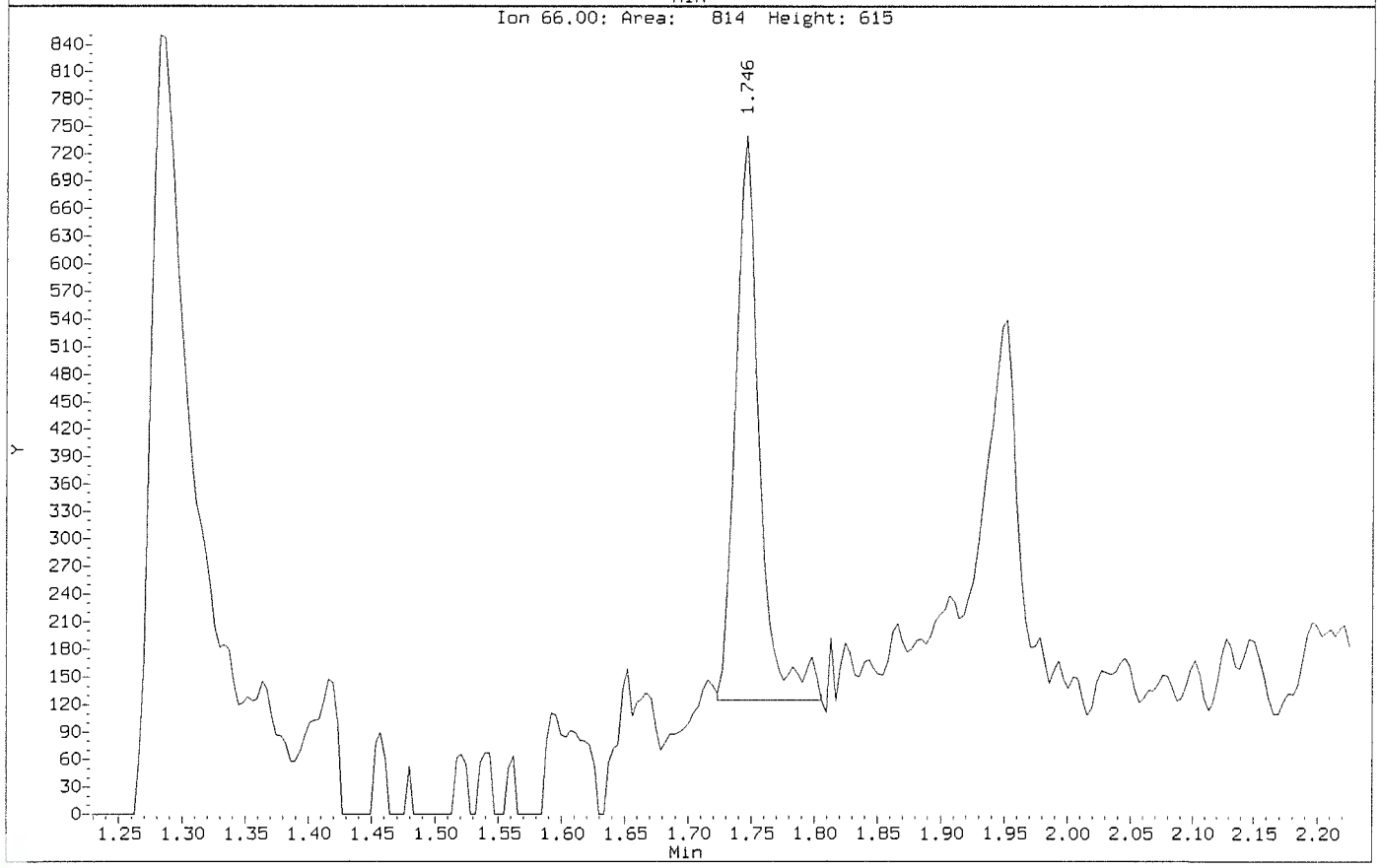
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111505.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 15-NOV-2021 15:20
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 14:58 Cal File: U111504.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	266816	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	472045	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	430733	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	210030	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	7830	2.00000	0.96(a)
$ 69 4-Bromofluorobenzene	95	9.250	9.250	(1.122)	11258	2.00000	1.41(a)
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	5867	2.00000	1.27
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	23234	2.00000	2.07(a)
31 1,1,1-Trichloroethane	97	4.812	4.812	(0.985)	6959	2.00000	1.81(a)
57 1,2-Dibromoethane	107	7.841	7.841	(0.951)	5849	2.00000	1.89(a)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	4304	2.00000	2.24(a)
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	9463	2.00000	2.14(a)
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	5003	2.00000	1.97(a)
22 1,1-Dichloroethane	63	3.586	3.586	(0.734)	10144	2.00000	2.14(a)
11 1,1-Dichloroethene	96	2.386	2.386	(0.489)	5060	2.00000	2.12(a)
32 1,1-Dichloropropene	75	4.988	4.988	(0.888)	7710	2.00000	1.98(a)
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	7830	2.00000	2.08(a)
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	7996	2.00000	1.84(a)
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	7719	2.00000	1.99(a)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	20790	2.00000	1.97(a)
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	12429	2.00000	2.09(a)
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	8462	2.00000	1.98(a)

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111505.D Page 2
Report Date: 22-Dec-2021 13:55

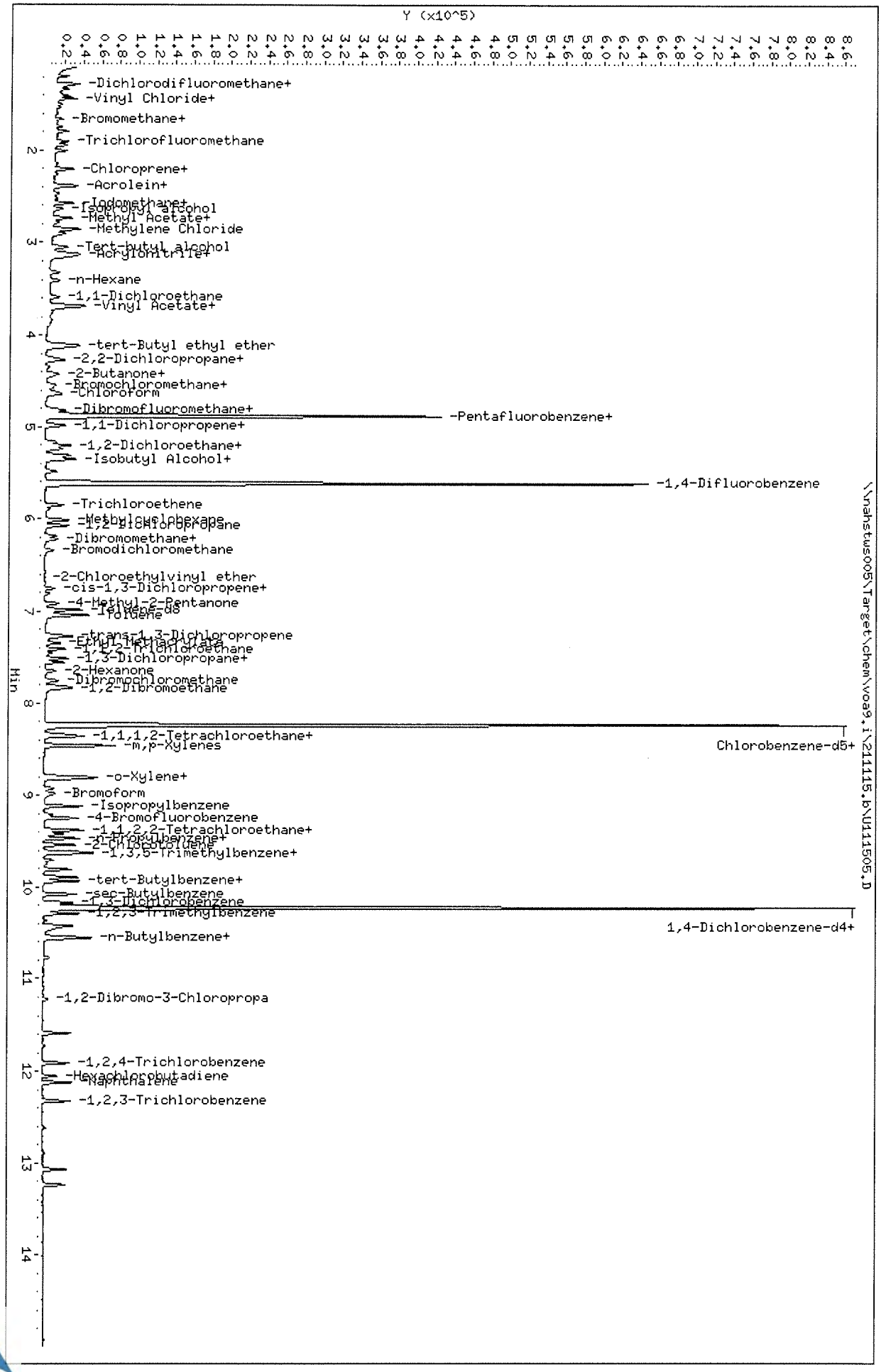
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	6025	2.00000	2.02(a)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	12191	2.00000	2.01(a)
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	10818	2.00000	2.00(a)
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	20514	2.00000	1.98(a)
84 1,4-Dichlorobenzene	146	10.243	10.243	(1.002)	12630	2.00000	2.02(a)
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	886	2.00000	3.58(a)
26 2,2-Dichloropropane	77	4.257	4.257	(0.872)	4769	2.00000	1.77(a)
24 2-Butanone	43	4.347	4.347	(0.890)	5042	4.00000	3.61(a)
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	18287	2.00000	2.02(a)
52 2-Hexanone	43	7.649	7.649	(0.928)	8112	4.00000	3.96(aH)
77 4-Chlorotoluene	91	9.632	9.632	(0.942)	20975	2.00000	2.00(a)
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	20170	2.00000	1.97(a)
10 Acetone	43	2.469	2.469	(0.506)	7509	4.00000	1.96(a)
37 Benzene	78	5.205	5.205	(0.927)	23270	2.00000	1.94(a)
74 Bromobenzene	156	9.374	9.374	(0.917)	6315	2.00000	1.93(a)
29 Bromochloromethane	128	4.542	4.542	(0.930)	3175	2.00000	2.10(a)
39 Bromodichloromethane	83	6.337	6.337	(1.129)	5486	2.00000	2.43(aM)
66 Bromoform	173	8.973	8.973	(1.089)	2438	2.00000	2.62(Ta)
6 Bromomethane	94	1.659	1.659	(0.340)	3804	2.00000	1.82(a)
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	5276	2.00000	2.86(a)
59 Chlorobenzene	112	8.264	8.264	(1.003)	16817	2.00000	2.00(a)
7 Chloroethane	64	1.741	1.741	(0.357)	4101	2.00000	1.85(aM)
28 Chloroform	83	4.643	4.643	(0.951)	10070	2.00000	1.95(a)
3 Chloromethane	50	1.329	1.329	(0.272)	5164	2.00000	1.37(a)
27 cis-1,2-Dichloroethene	96	4.268	4.268	(0.874)	6784	2.00000	2.08(a)
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.839)	11742	4.00000	3.78(a)
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	5706	2.00000	2.85(a)
44 Dibromomethane	93	6.180	6.180	(1.101)	3989	2.00000	1.96(a)
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	6494	2.00000	1.35(a)
61 Ethylbenzene	106	8.362	8.362	(1.015)	8437	2.00000	2.00(a)
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	2545	2.00000	1.78(a)
62 m,p-Xylenes	106	8.463	8.463	(1.027)	20542	4.00000	3.95(a)
64 Styrene	104	8.815	8.815	(1.070)	16987	2.00000	1.92(a)
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	16956	2.00000	1.94(a)
17 Methylene Chloride	84	2.855	2.855	(0.585)	6792	2.00000	2.16(a)
87 n-Butylbenzene	91	10.547	10.547	(1.032)	17916	2.00000	1.95(a)
73 n-Propylbenzene	91	9.467	9.467	(0.926)	28162	2.00000	1.97(a)
92 Naphthalene	128	12.122	12.122	(1.186)	23636	2.00000	2.04(a)
63 o-Xylene	106	8.800	8.800	(1.068)	9754	2.00000	1.89(a)
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	23008	2.00000	1.96(a)
55 Dibromochloromethane	129	7.747	7.747	(0.940)	3879	2.00000	2.65(a)
56 Tetrachloroethene	164	7.514	7.514	(0.912)	4981	2.00000	2.05(a)
50 Toluene	91	7.038	7.038	(0.854)	25594	2.00000	1.98(a)
19 Carbon Disulfide	76	2.574	2.574	(0.527)	25850	4.00000	3.91(a)
20 trans-1,2-Dichloroethene	96	3.125	3.125	(0.640)	5365	2.00000	1.99(a)
38 Trichloroethene	130	5.850	5.850	(1.042)	6273	2.00000	2.03(a)
8 Trichlorofluoromethane	101	1.940	1.940	(0.397)	8751	2.00000	2.03(a)
5 Vinyl Chloride	62	1.408	1.408	(0.288)	6538	2.00000	2.02(a)
138 Freon TF	101	2.386	2.386	(0.489)	4511	2.00000	2.05(a)
67 Isopropylbenzene	105	9.119	9.119	(1.106)	25310	2.00000	2.00(a)
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	4426	2.00000	3.10(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111505.D
Date : 15-NOV-2021 15:20
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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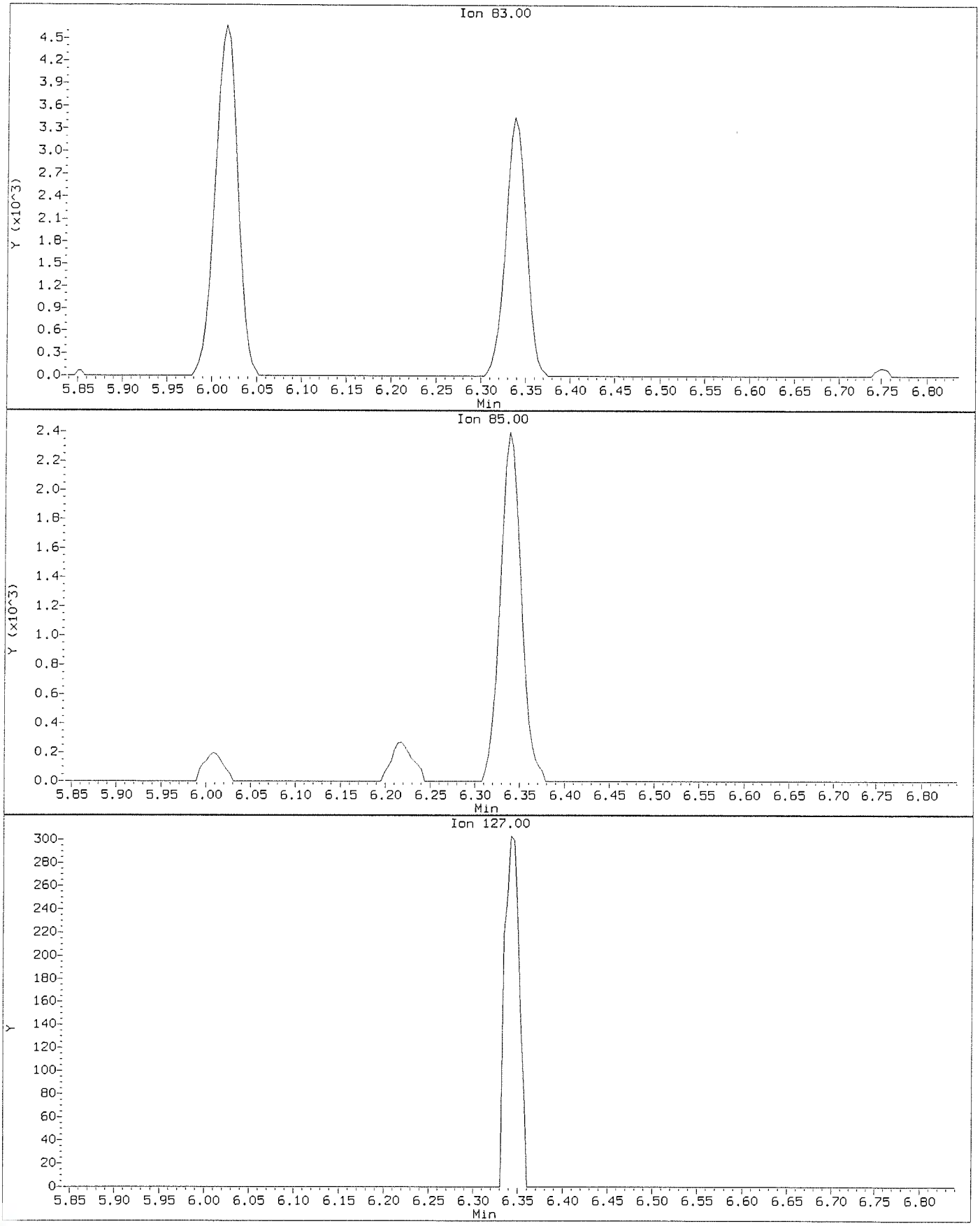
Injection Date: 15-NOV-2021 15:20
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Bromodichloromethane
CAS Number: 75-27-4



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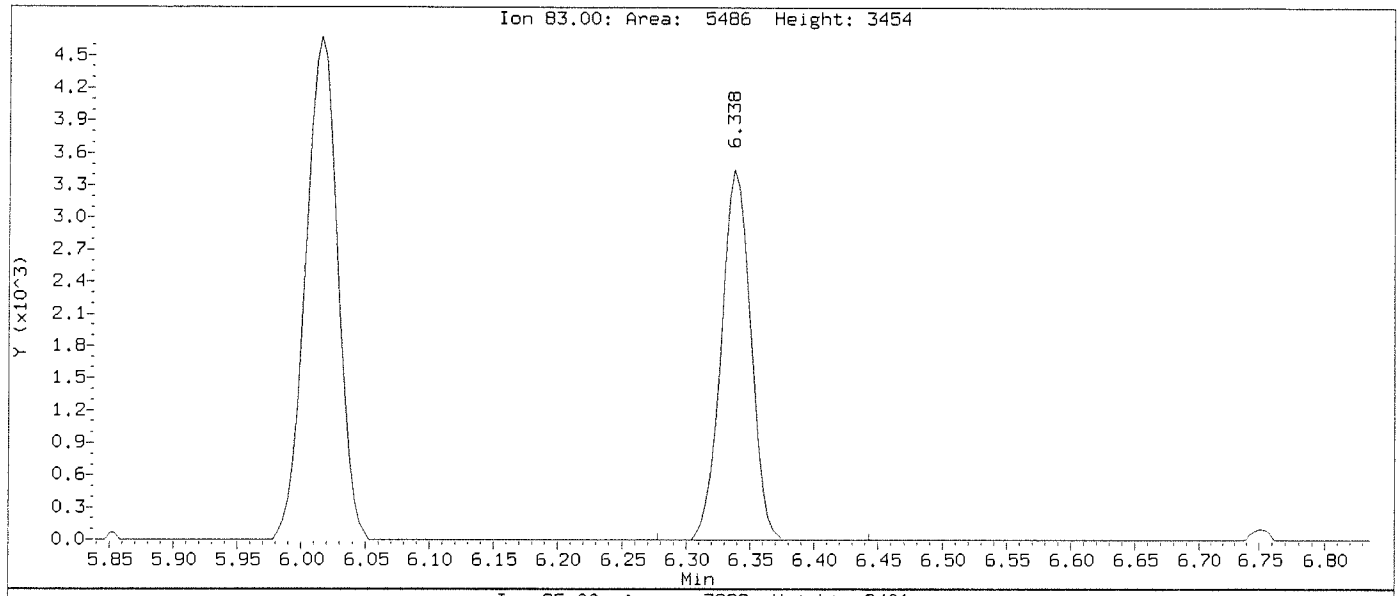
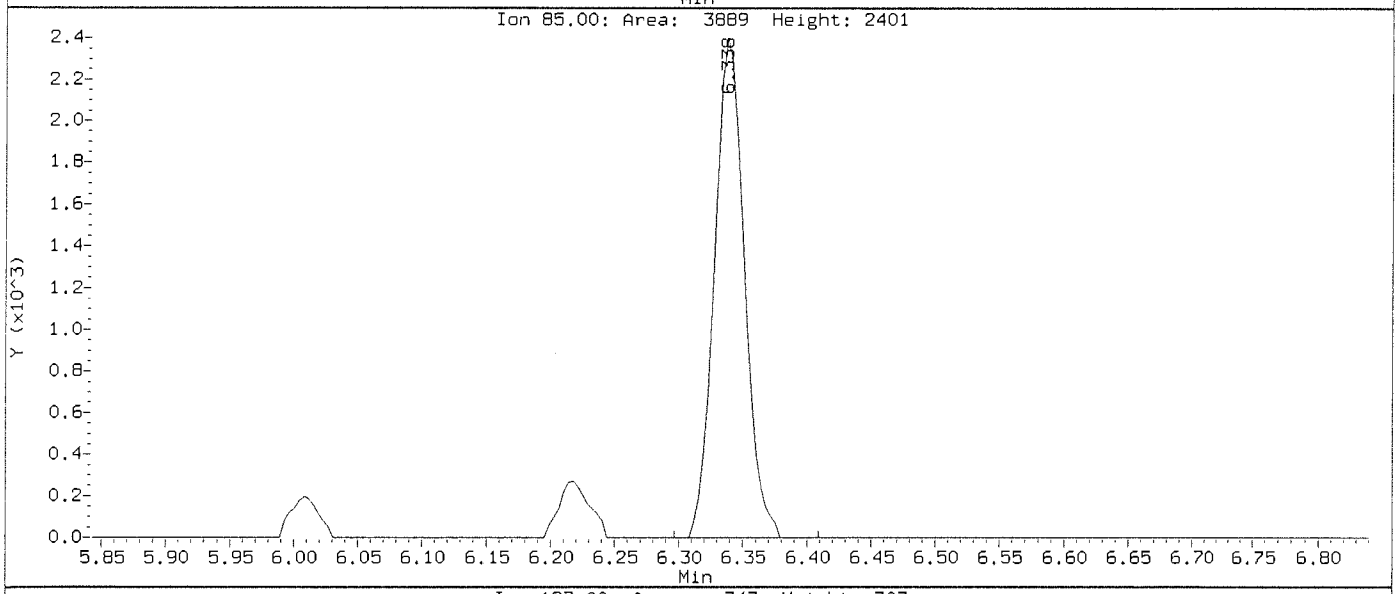
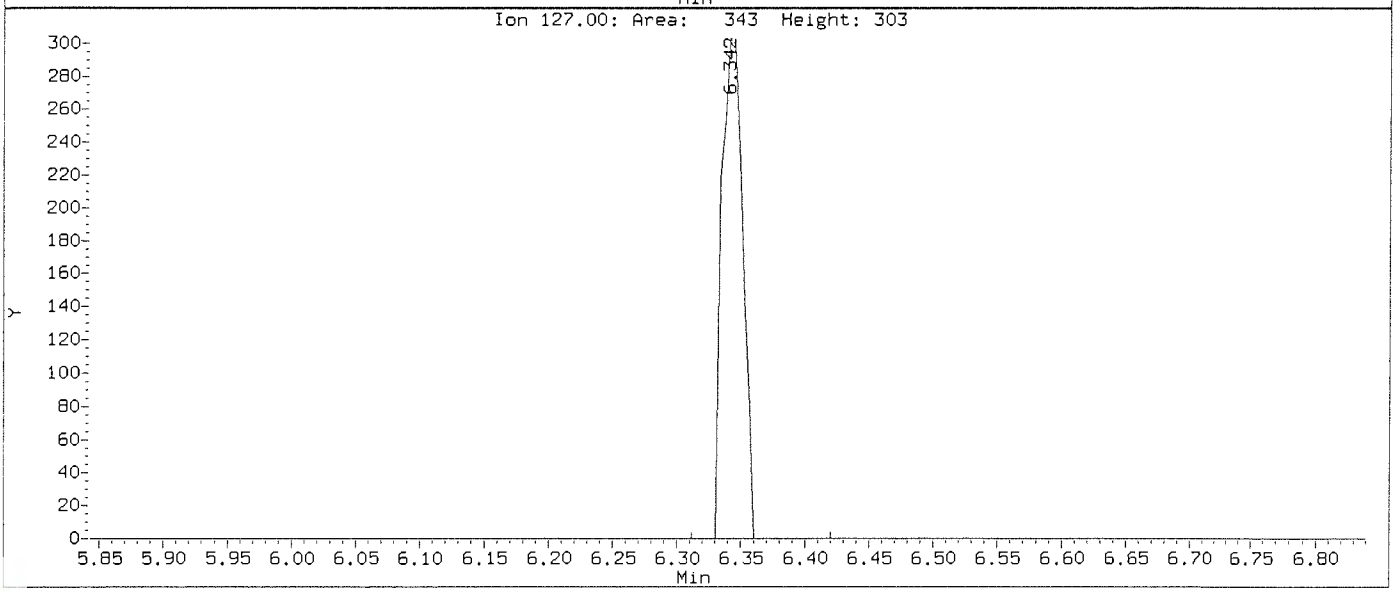
Injection Date: 15-NOV-2021 15:20
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Bromodichloromethane
CAS Number: 75-27-4







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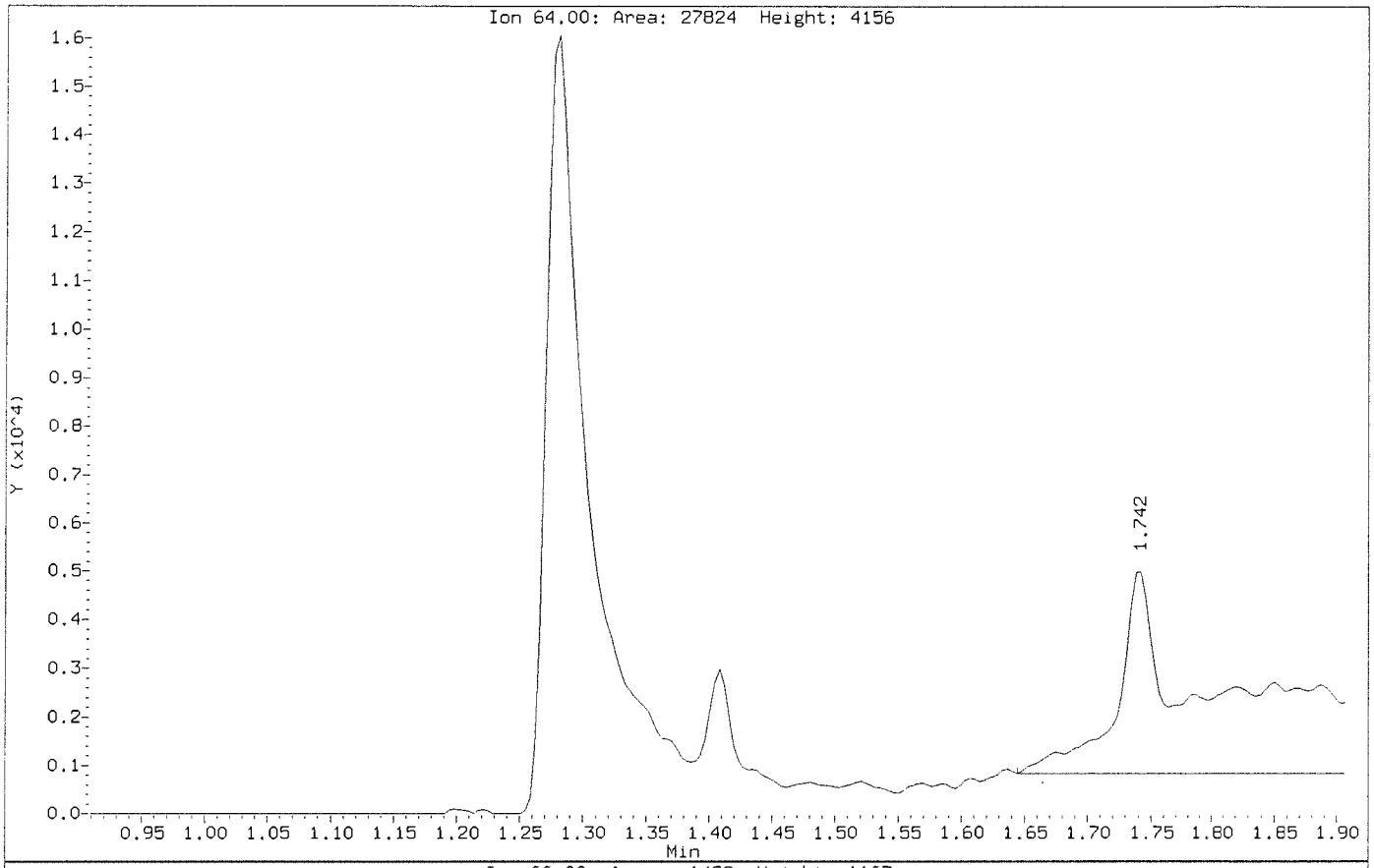
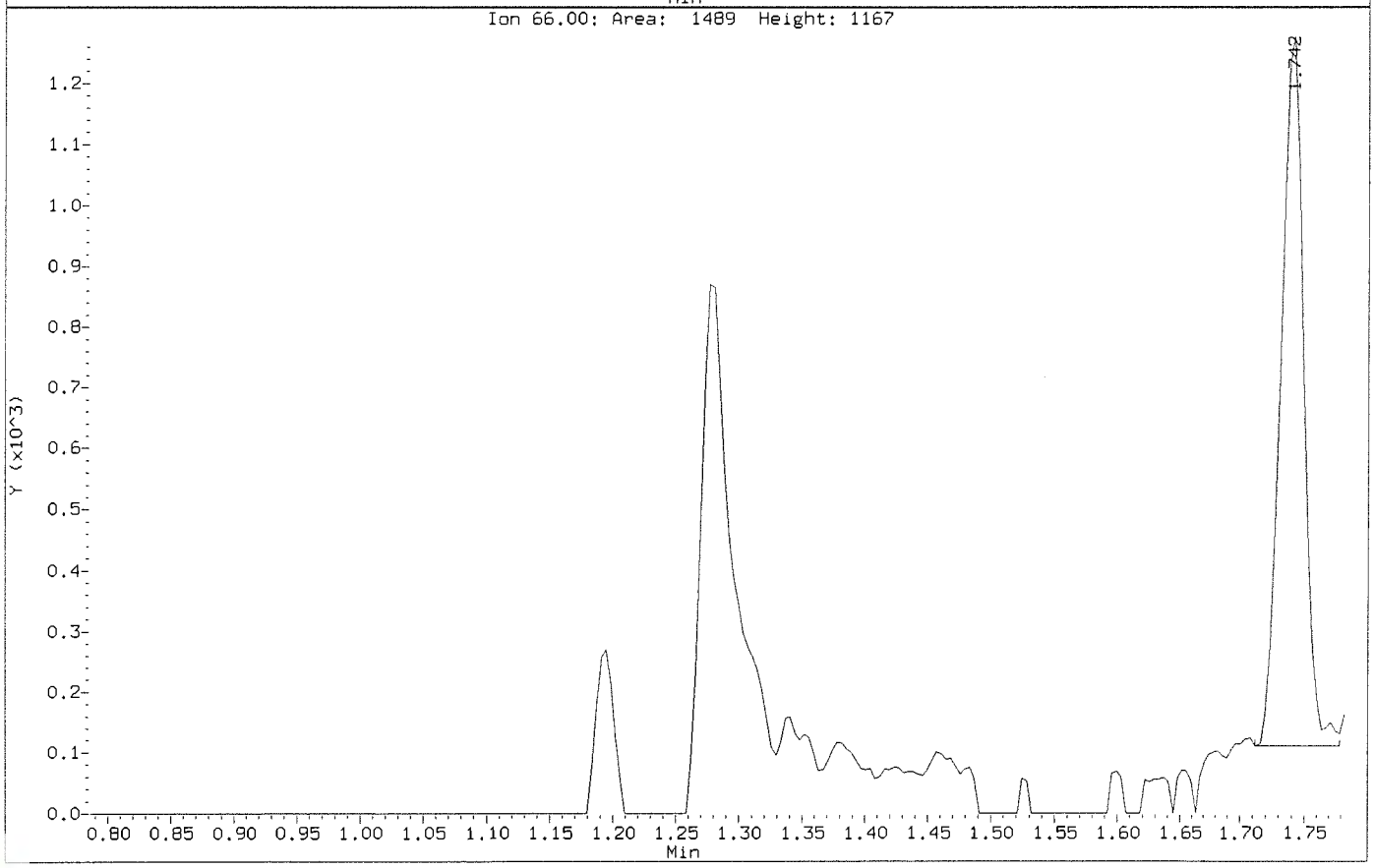
Injection Date: 15-NOV-2021 15:20
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





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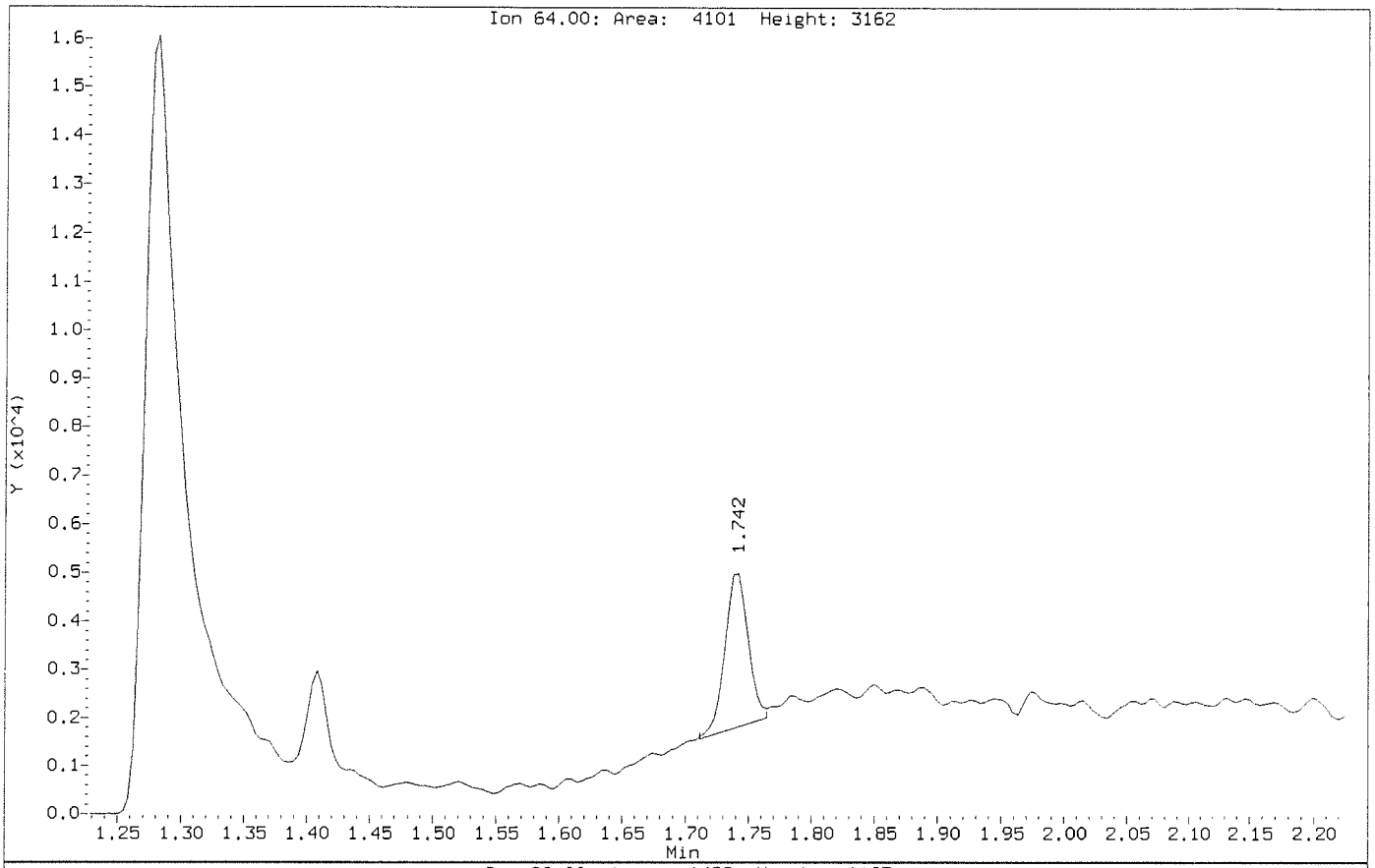
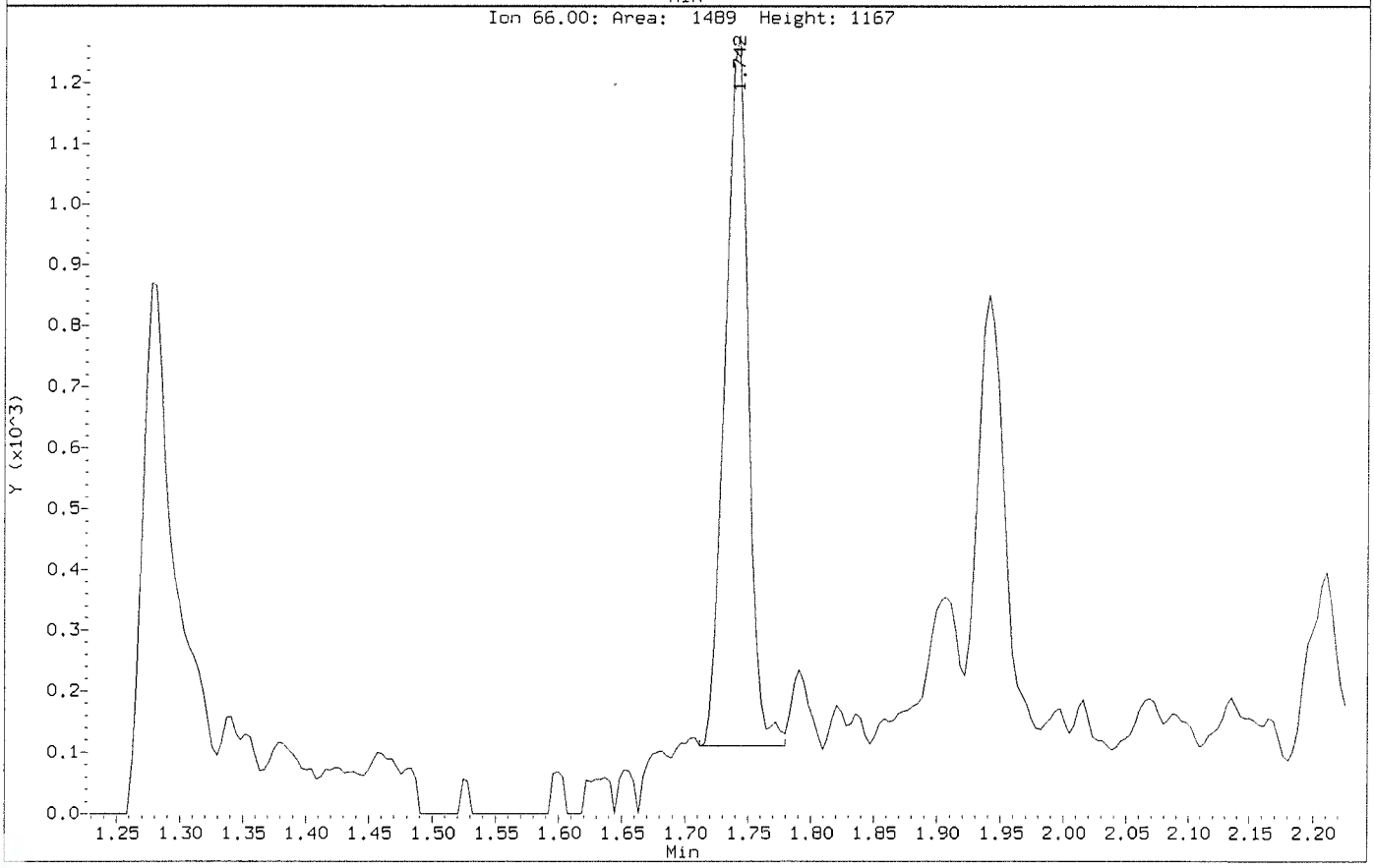
Injection Date: 15-NOV-2021 15:20
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111506.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111506.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 15-NOV-2021 15:43
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 15:20 Cal File: U111505.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	259004	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	458652	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	409495	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	203243	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	19646	5.00000	4.86(a)
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	23787	5.00000	4.79(a)
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	15313	5.00000	4.87
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	58951	5.00000	5.53
31 1,1,1-Trichloroethane	97	4.812	4.812	(0.985)	17435	5.00000	4.67(a)
57 1,2-Dibromoethane	107	7.841	7.841	(0.951)	15326	5.00000	5.22
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	11768	5.00000	4.90(a)
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	22452	5.00000	5.24
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	13113	5.00000	5.43
22 1,1-Dichloroethane	63	3.590	3.590	(0.735)	24605	5.00000	5.34
11 1,1-Dichloroethene	96	2.390	2.390	(0.490)	11651	5.00000	5.04
32 1,1-Dichloropropene	75	4.992	4.992	(0.889)	19635	5.00000	5.21
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	18192	5.00000	4.99(a)
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	21536	5.00000	5.12
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	18332	5.00000	4.90(a)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	51830	5.00000	5.08
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	30096	5.00000	5.25
33 1,2-Dichloroethane	62	5.246	5.246	(0.935)	22428	5.00000	5.42

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111506.D Page 2
Report Date: 22-Dec-2021 13:55

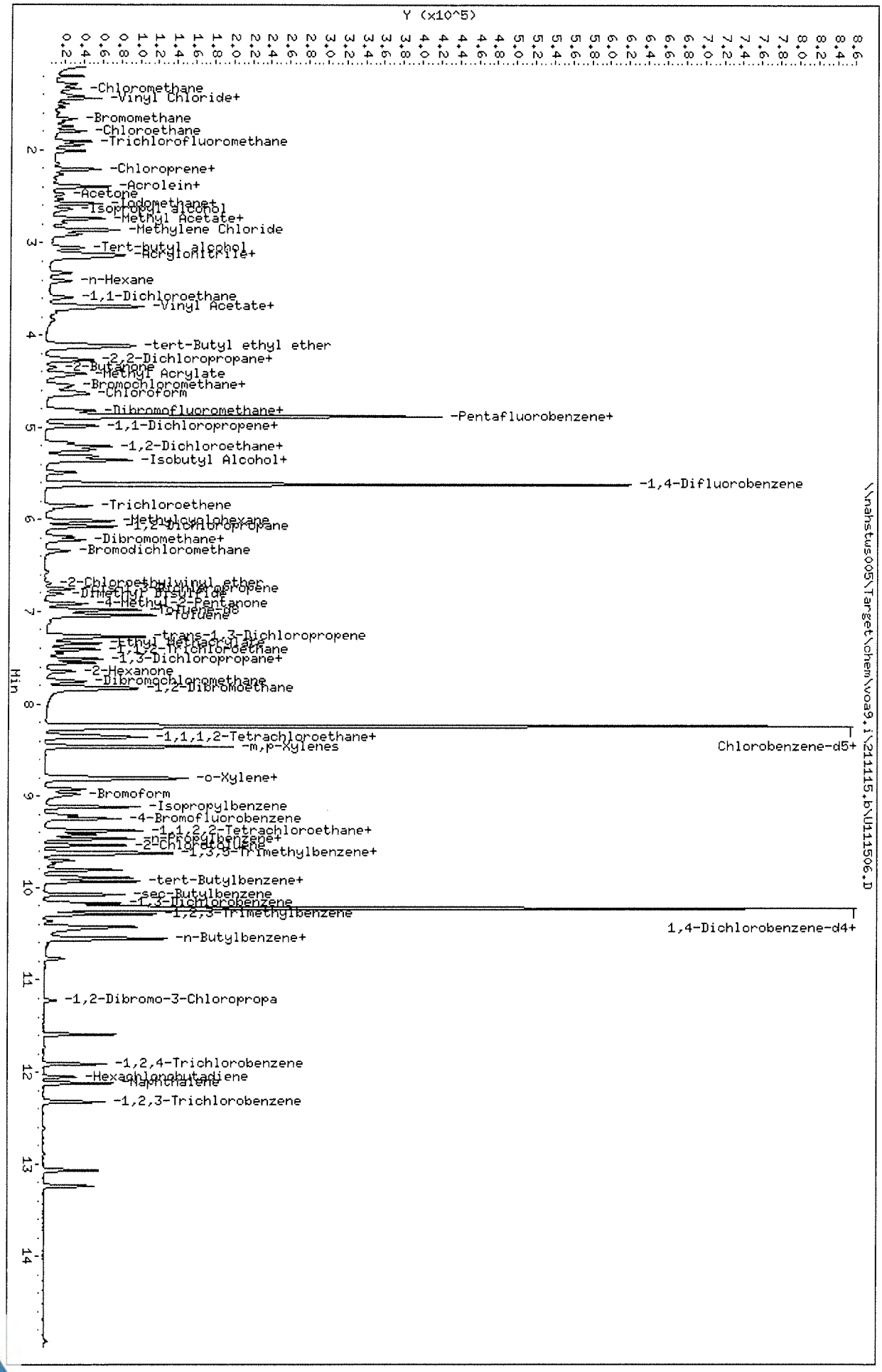
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.075	6.075	(1.082)	15359	5.00000	5.32
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	30110	5.00000	5.14
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	28565	5.00000	5.55
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	50426	5.00000	5.04
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	31699	5.00000	5.26
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	2022	5.00000	5.15
26 2,2-Dichloropropane	77	4.261	4.261	(0.873)	11813	5.00000	4.52(a)
24 2-Butanone	43	4.351	4.351	(0.891)	13640	10.0000	10.07
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	46528	5.00000	5.31
52 2-Hexanone	43	7.649	7.649	(0.928)	20582	10.0000	10.58(H)
77 4-Chlorotoluene	91	9.632	9.632	(0.942)	53956	5.00000	5.31
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	49045	5.00000	4.95(a)
10 Acetone	43	2.472	2.472	(0.506)	12006	10.0000	7.52
37 Benzene	78	5.205	5.205	(0.927)	59955	5.00000	5.16
74 Bromobenzene	156	9.374	9.374	(0.917)	16545	5.00000	5.24
29 Bromochloromethane	128	4.545	4.545	(0.931)	7796	5.00000	5.33
39 Bromodichloromethane	83	6.337	6.337	(1.129)	15337	5.00000	5.06
66 Bromoform	173	8.973	8.973	(1.089)	6778	5.00000	4.91(a)
6 Bromomethane	94	1.663	1.663	(0.341)	9672	5.00000	5.60
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	13108	5.00000	4.99(a)
59 Chlorobenzene	112	8.264	8.264	(1.003)	41501	5.00000	5.19
7 Chloroethane	64	1.741	1.741	(0.357)	11038	5.00000	5.15(M)
28 Chloroform	83	4.647	4.647	(0.952)	26919	5.00000	5.39
3 Chloromethane	50	1.333	1.333	(0.273)	13015	5.00000	4.51(a)
27 cis-1,2-Dichloroethene	96	4.276	4.276	(0.876)	16593	5.00000	5.24
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.839)	29230	10.0000	9.91
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	15790	5.00000	4.89(a)
44 Dibromomethane	93	6.180	6.180	(1.101)	10158	5.00000	5.16
2 Dichlorodifluoromethane	85	1.198	1.198	(0.245)	15309	5.00000	4.31(a)
61 Ethylbenzene	106	8.362	8.362	(1.015)	20541	5.00000	5.14
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	6204	5.00000	4.48(a)
62 m,p-Xylenes	106	8.463	8.463	(1.027)	51822	10.0000	10.49
64 Styrene	104	8.815	8.815	(1.070)	43765	5.00000	5.21
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	42020	5.00000	4.98(a)
17 Methylene Chloride	84	2.859	2.859	(0.585)	15812	5.00000	5.18
87 n-Butylbenzene	91	10.547	10.547	(1.032)	43095	5.00000	4.85(a)
73 n-Propylbenzene	91	9.467	9.467	(0.926)	70372	5.00000	5.09
92 Naphthalene	128	12.122	12.122	(1.186)	53513	5.00000	4.77(a)
63 o-Xylene	106	8.800	8.800	(1.068)	25615	5.00000	5.23
81 sec-Butylbenzene	105	10.079	10.079	(0.986)	56145	5.00000	4.95(a)
55 Dibromochloromethane	129	7.747	7.747	(0.940)	11164	5.00000	5.01
56 Tetrachloroethene	164	7.514	7.514	(0.912)	11689	5.00000	5.06
50 Toluene	91	7.038	7.038	(0.854)	64107	5.00000	5.23
19 Carbon Disulfide	76	2.577	2.577	(0.528)	63439	10.0000	9.89
20 trans-1,2-Dichloroethene	96	3.128	3.128	(0.641)	13129	5.00000	5.04
38 Trichloroethene	130	5.850	5.850	(1.042)	15133	5.00000	5.05
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	20844	5.00000	4.99(a)
5 Vinyl Chloride	62	1.412	1.412	(0.289)	15859	5.00000	5.06
138 Freon TF	101	2.390	2.390	(0.490)	10591	5.00000	4.97(a)
67 Isopropylbenzene	105	9.115	9.115	(1.106)	60913	5.00000	5.06
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	12599	5.00000	5.02

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

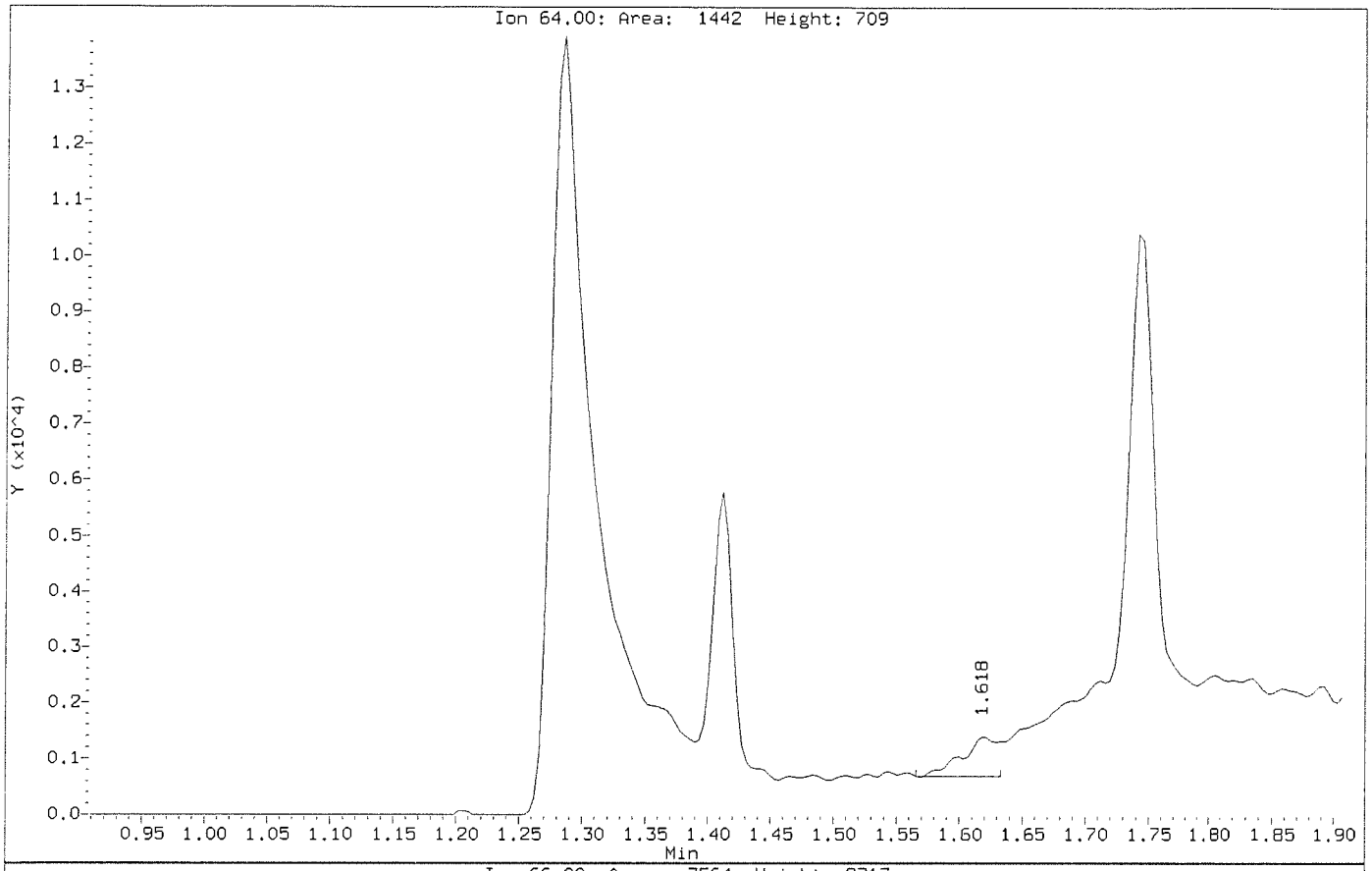
Data File: \\nahstus005\Target\chem\voa9.i\211115.b\U111506.D
Date : 15-NOV-2021 15:43
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

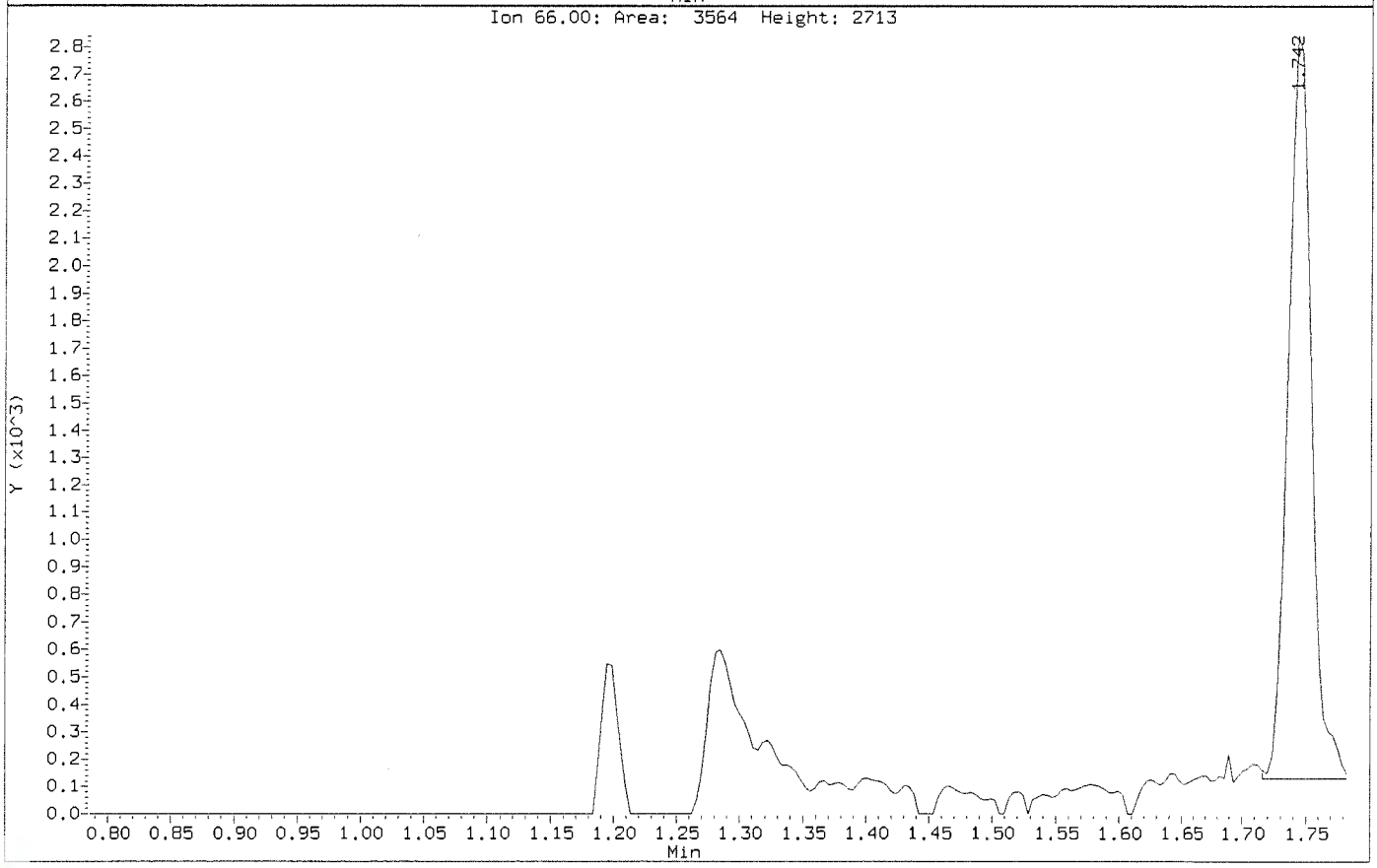
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111506.D
Injection Date: 15-NOV-2021 15:43
Instrument: VOA9.i
Client Sample ID: VSTD005

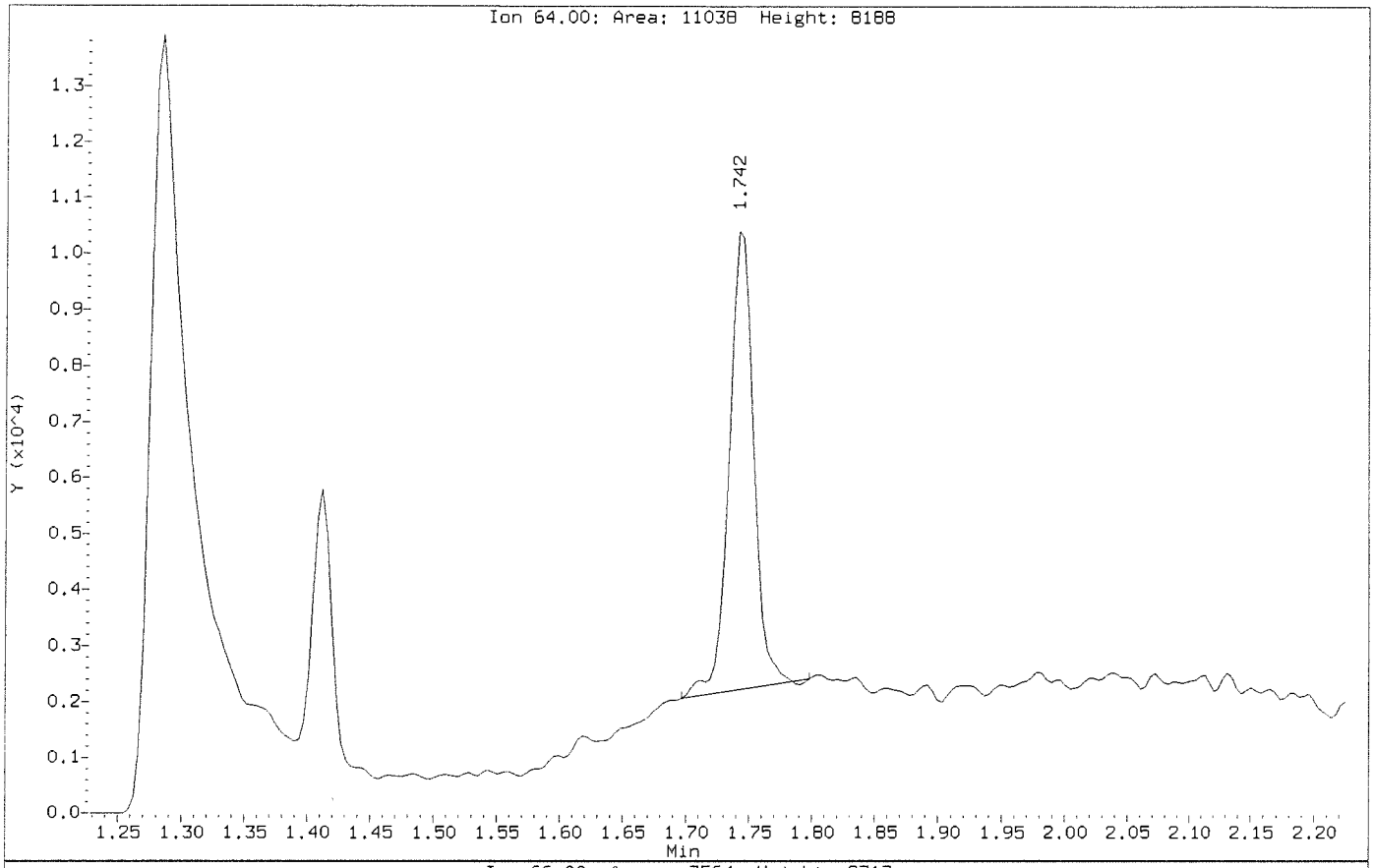
Compound: Chloroethane
CAS Number: 75-00-3

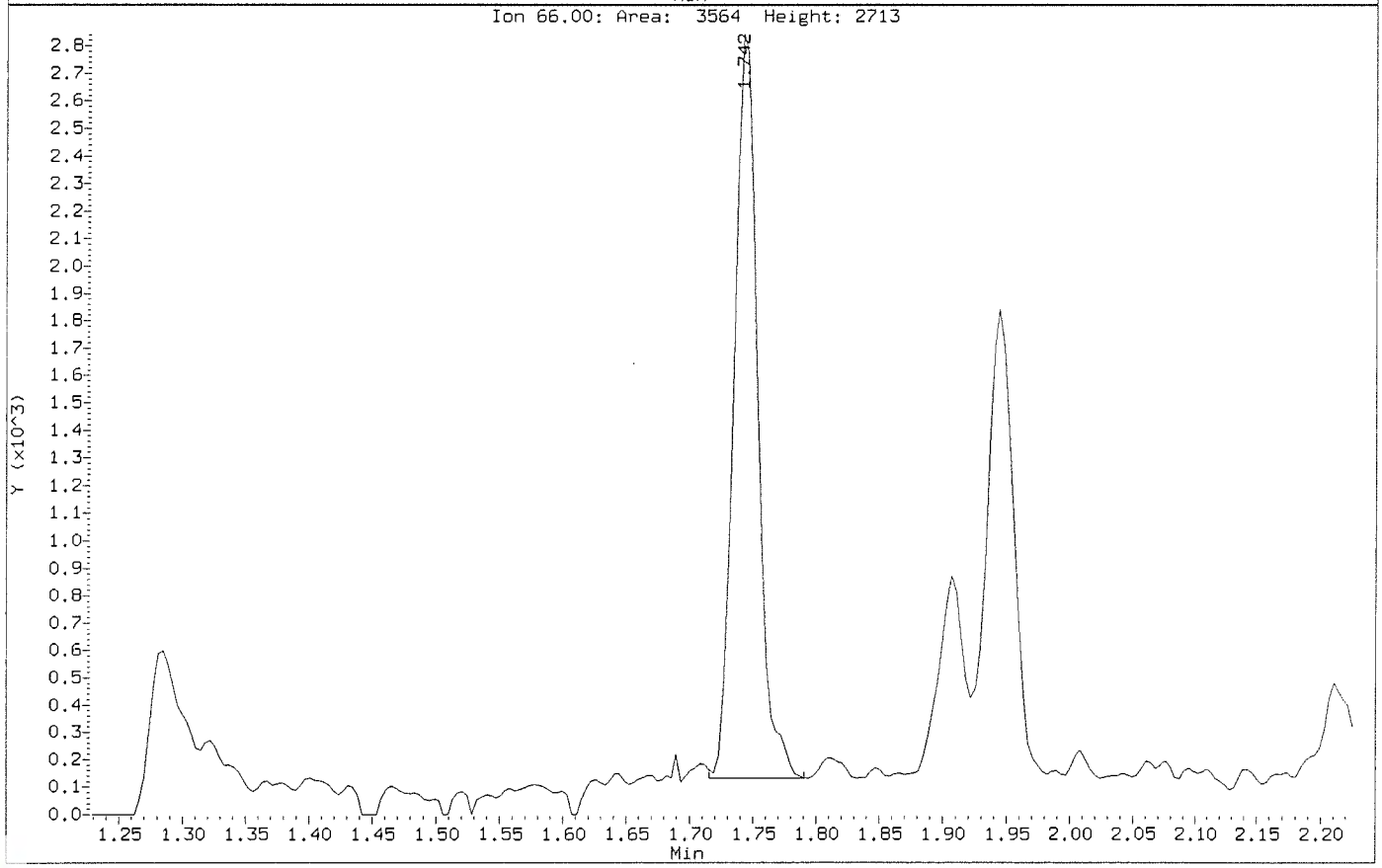




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111506.D
Injection Date: 15-NOV-2021 15:43
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111507.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111507.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 15-NOV-2021 16:05
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 15:43 Cal File: U111506.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	264317	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	463809	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	419294	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	209272	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	71255	20.0000	21.13
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	86314	20.0000	20.41
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	59371	20.0000	20.90
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	222856	20.0000	20.42
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.986)	77494	20.0000	20.36
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	65351	20.0000	21.77
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	54596	20.0000	19.29
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	93137	20.0000	21.14
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	51258	20.0000	20.74
22 1,1-Dichloroethane	63	3.586	3.586	(0.735)	97169	20.0000	20.69
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	47090	20.0000	19.98
32 1,1-Dichloropropene	75	4.988	4.988	(0.888)	77211	20.0000	20.27
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	74907	20.0000	19.98
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	88639	20.0000	20.49
90 1,2,4-Trichlorobenzene	180	11.915	11.915	(1.165)	75774	20.0000	19.67
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	221020	20.0000	21.06
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	121358	20.0000	20.56
33 1,2-Dichloroethane	62	5.242	5.242	(0.934)	86931	20.0000	20.77

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111507.D Page 2
Report Date: 22-Dec-2021 13:55

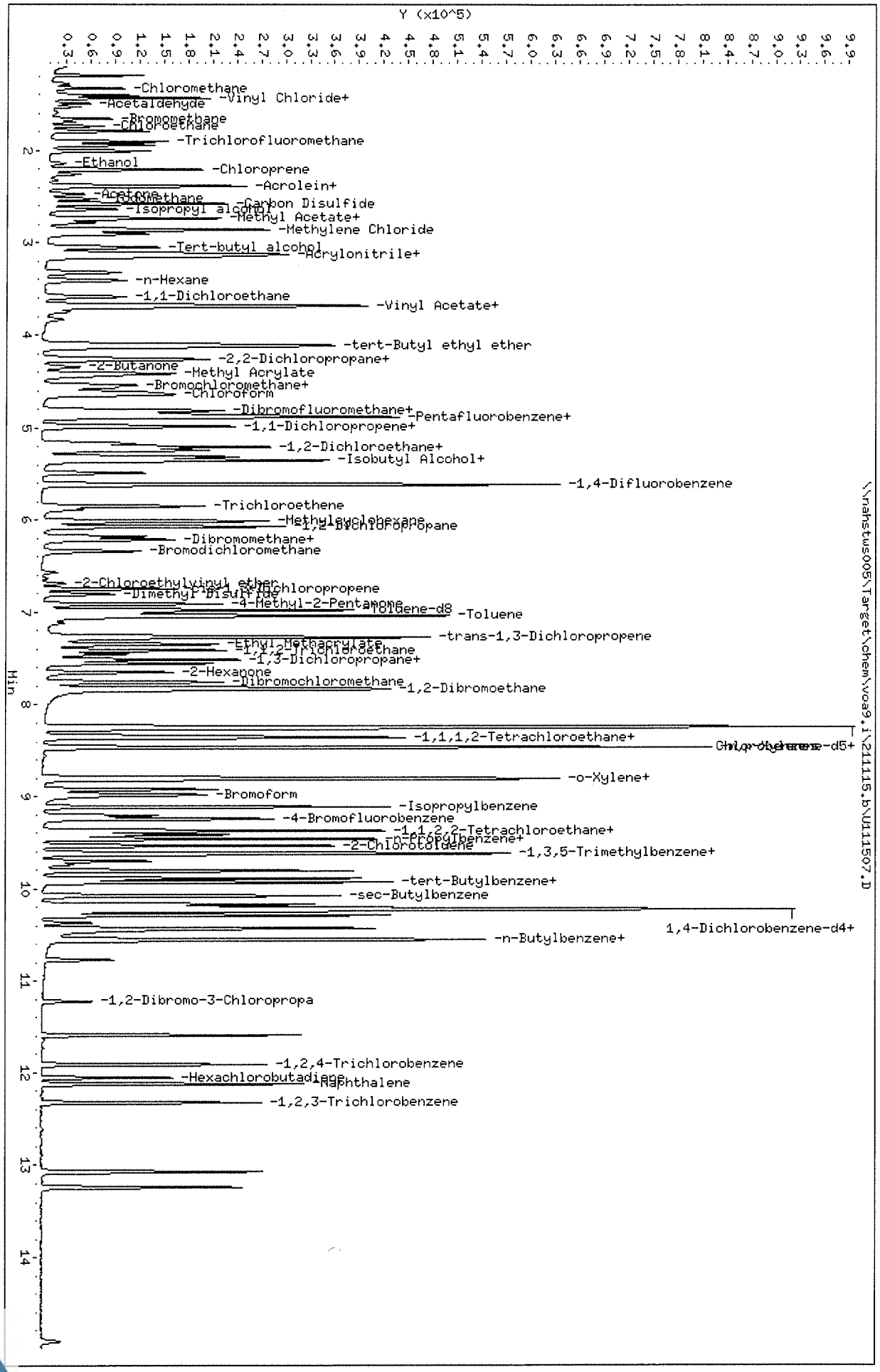
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	60765	20.0000	20.82
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	121441	20.0000	20.14
54 1,3-Dichloropropane	76	7.555	7.555	(0.917)	111361	20.0000	21.15
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	211420	20.0000	20.54
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	125166	20.0000	20.18
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	11576	20.0000	17.55
26 2,2-Dichloropropane	77	4.257	4.257	(0.872)	50678	20.0000	19.04
24 2-Butanone	43	4.343	4.343	(0.890)	57283	40.0000	41.44
76 2-Chlorotoluene	91	9.538	9.538	(0.933)	184931	20.0000	20.52
52 2-Hexanone	43	7.645	7.645	(0.928)	89034	40.0000	44.73(H)
77 4-Chlorotoluene	91	9.628	9.628	(0.942)	217131	20.0000	20.79
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	209271	20.0000	20.52
10 Acetone	43	2.468	2.468	(0.506)	42250	40.0000	42.21
37 Benzene	78	5.205	5.205	(0.927)	239195	20.0000	20.39
74 Bromobenzene	156	9.374	9.374	(0.917)	68062	20.0000	20.97
29 Bromochloromethane	128	4.538	4.538	(0.930)	32696	20.0000	21.93
39 Bromodichloromethane	83	6.337	6.337	(1.129)	68589	20.0000	18.83
66 Bromoform	173	8.972	8.972	(1.089)	32750	20.0000	17.80
6 Bromomethane	94	1.655	1.655	(0.339)	34362	20.0000	20.80
34 Carbon Tetrachloride	117	4.976	4.976	(0.886)	61682	20.0000	17.73
59 Chlorobenzene	112	8.264	8.264	(1.003)	165227	20.0000	20.21
7 Chloroethane	64	1.737	1.737	(0.356)	43002	20.0000	19.66(M)
28 Chloroform	83	4.643	4.643	(0.952)	107071	20.0000	21.03
3 Chloromethane	50	1.329	1.329	(0.272)	52032	20.0000	19.40
27 cis-1,2-Dichloroethene	96	4.268	4.268	(0.875)	66536	20.0000	20.60
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	127487	40.0000	42.21
46 cis-1,3-Dichloropropene	75	6.749	6.749	(1.202)	82868	20.0000	18.10
44 Dibromomethane	93	6.180	6.180	(1.101)	41095	20.0000	20.64
2 Dichlorodifluoromethane	85	1.190	1.190	(0.244)	63286	20.0000	19.63
61 Ethylbenzene	106	8.361	8.361	(1.015)	82503	20.0000	20.16
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	27398	20.0000	19.24
62 m,p-Xylenes	106	8.463	8.463	(1.027)	209942	40.0000	41.53
64 Styrene	104	8.815	8.815	(1.070)	182495	20.0000	21.22
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	176018	20.0000	20.29
17 Methylene Chloride	84	2.855	2.855	(0.585)	60113	20.0000	19.29
87 n-Butylbenzene	91	10.547	10.547	(1.032)	184043	20.0000	20.12
73 n-Propylbenzene	91	9.467	9.467	(0.926)	292230	20.0000	20.55
92 Naphthalene	128	12.121	12.121	(1.186)	228366	20.0000	19.80
63 o-Xylene	106	8.800	8.800	(1.068)	102220	20.0000	20.41
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	235156	20.0000	20.13
55 Dibromochloromethane	129	7.747	7.747	(0.940)	55171	20.0000	18.44
56 Tetrachloroethene	164	7.514	7.514	(0.912)	46359	20.0000	19.60
50 Toluene	91	7.038	7.038	(0.854)	258382	20.0000	20.59
19 Carbon Disulfide	76	2.573	2.573	(0.528)	263250	40.0000	40.24
20 trans-1,2-Dichloroethene	96	3.121	3.121	(0.640)	53117	20.0000	19.98
38 Trichloroethene	130	5.850	5.850	(1.042)	60190	20.0000	19.86
8 Trichlorofluoromethane	101	1.940	1.940	(0.398)	86234	20.0000	20.23
5 Vinyl Chloride	62	1.404	1.404	(0.288)	64078	20.0000	20.04
138 Freon TF	101	2.386	2.386	(0.489)	42801	20.0000	19.70
67 Isopropylbenzene	105	9.115	9.115	(1.106)	251092	20.0000	20.38
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	66354	20.0000	17.27

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

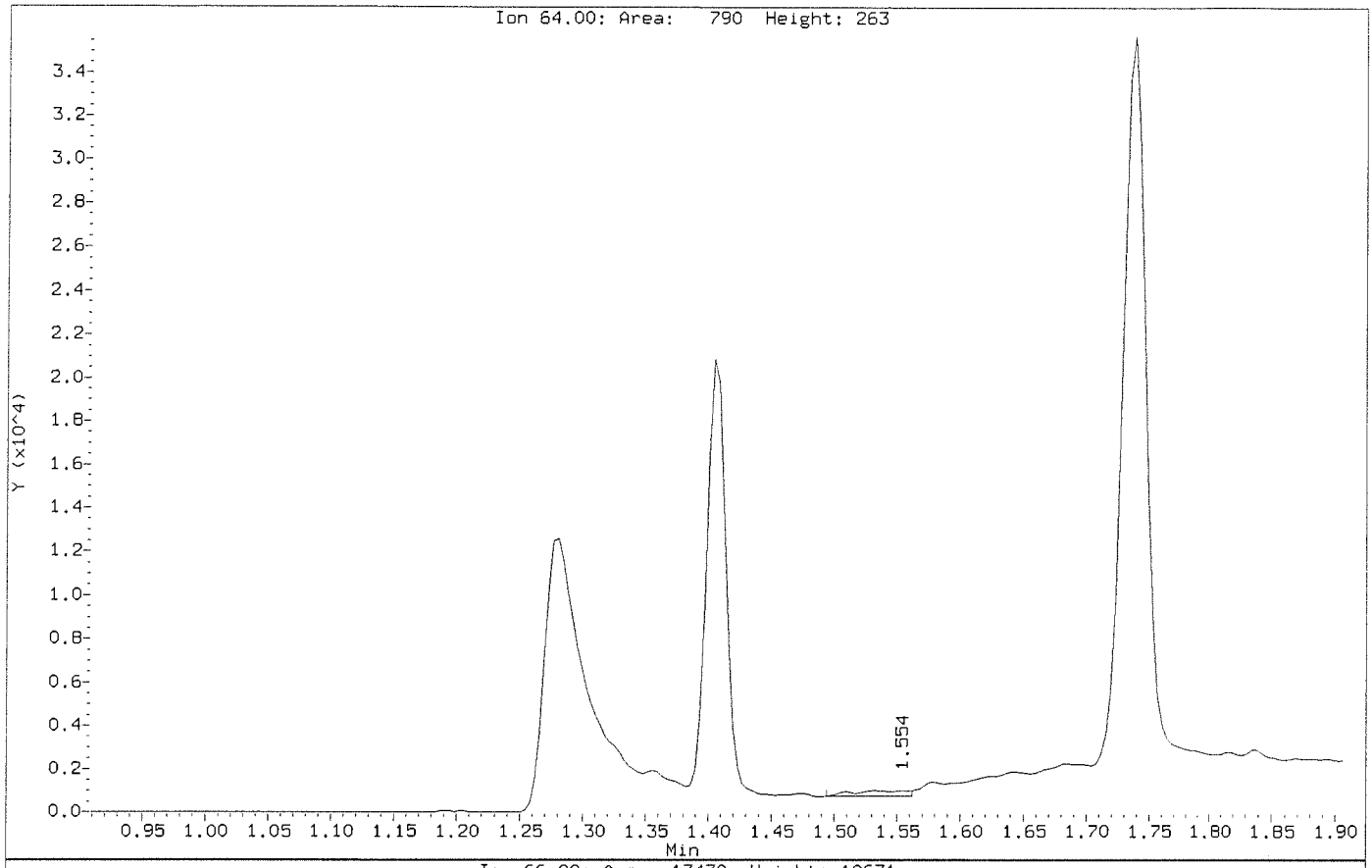
Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111507.D
Date : 15-NOV-2021 16:05
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;;
Purge Volume: 5.0
Column phase: DB624

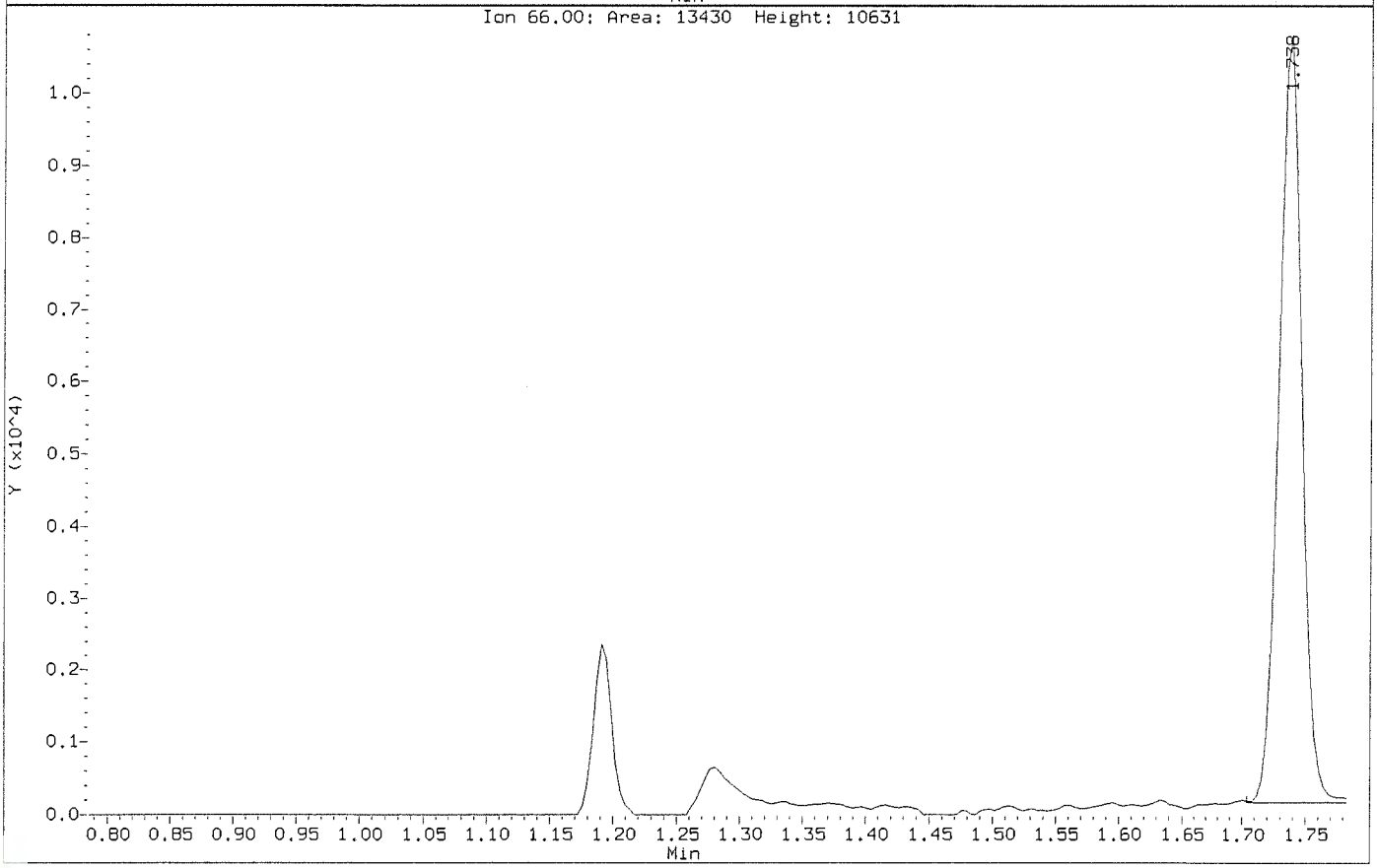
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111507.D
Injection Date: 15-NOV-2021 16:05
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





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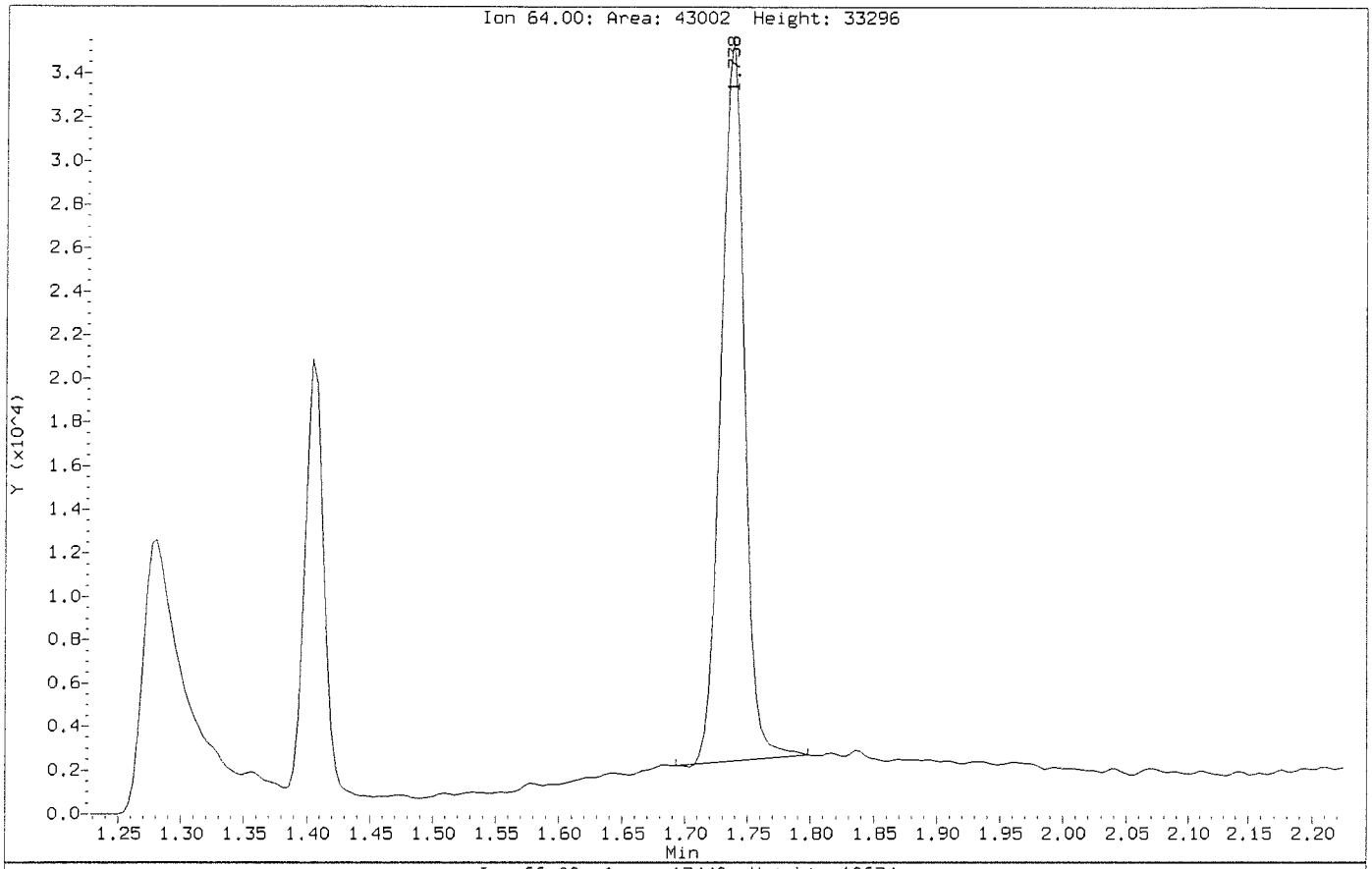
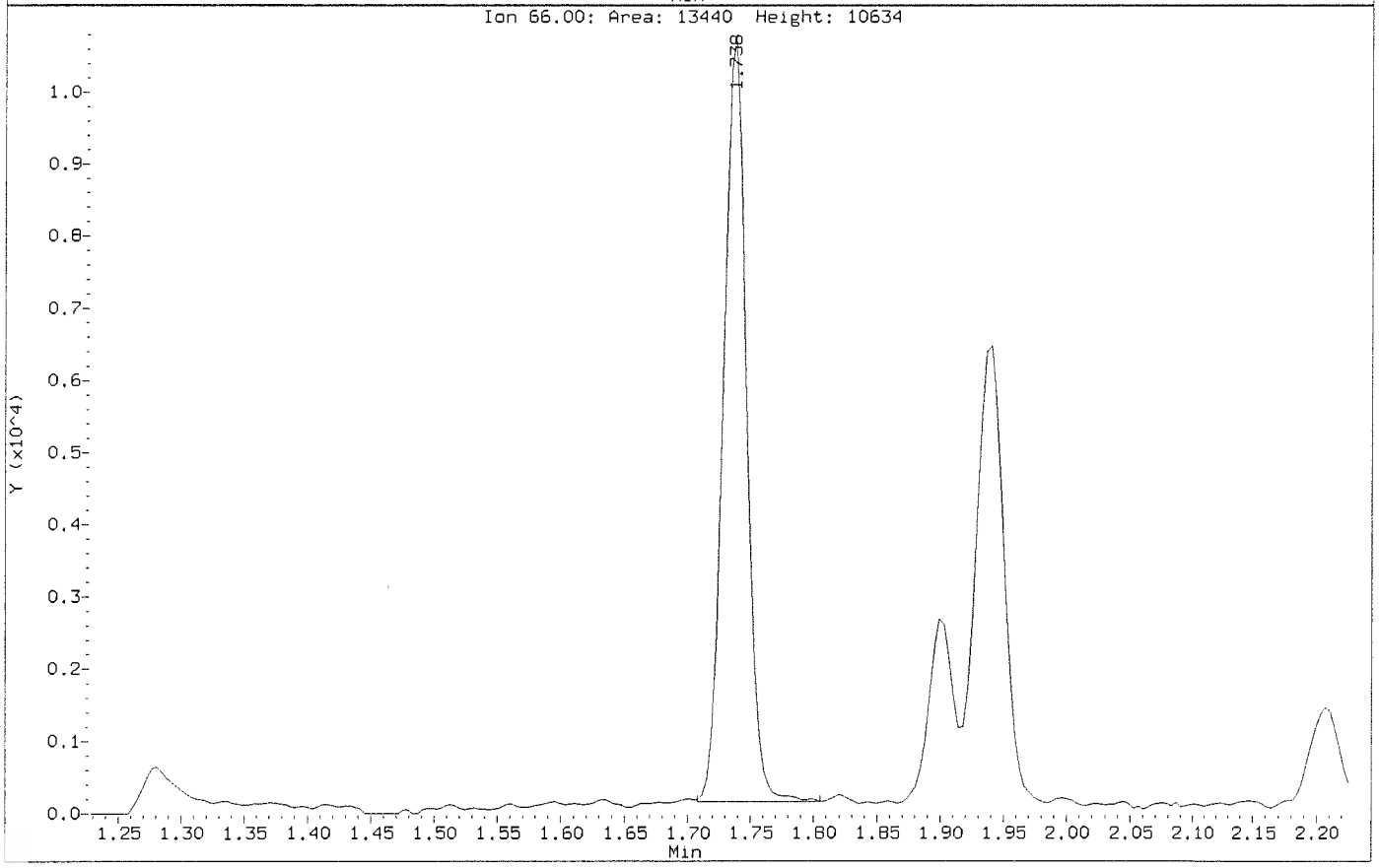
Injection Date: 15-NOV-2021 16:05
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111508.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111508.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 15-NOV-2021 16:27
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:05 Cal File: U111507.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	276380	50.0000	
* 36 1,4-Difluorobenzene	114	5.613	5.613	(1.000)	475930	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	429500	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	217147	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	174378	50.0000	51.47
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	212217	50.0000	50.89
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	146958	50.0000	50.66
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	546357	50.0000	48.87
31 1,1,1-Trichloroethane	97	4.807	4.807	(0.985)	216178	50.0000	54.33
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	164064	50.0000	53.36
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	145929	50.0000	49.02
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	232653	50.0000	50.90
53 1,1,2-Trichloroethane	83	7.409	7.409	(0.899)	129181	50.0000	51.04
22 1,1-Dichloroethane	63	3.582	3.582	(0.734)	248821	50.0000	50.67
11 1,1-Dichloroethene	96	2.378	2.378	(0.488)	128120	50.0000	51.99
32 1,1-Dichloropropene	75	4.984	4.984	(0.888)	205255	50.0000	52.51
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	197495	50.0000	50.78
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	236775	50.0000	52.76
90 1,2,4-Trichlorobenzene	180	11.911	11.911	(1.165)	206782	50.0000	51.73
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	575954	50.0000	52.90
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	312765	50.0000	51.07
33 1,2-Dichloroethane	62	5.238	5.238	(0.933)	215530	50.0000	50.20

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111508.D Page 2
Report Date: 22-Dec-2021 13:55

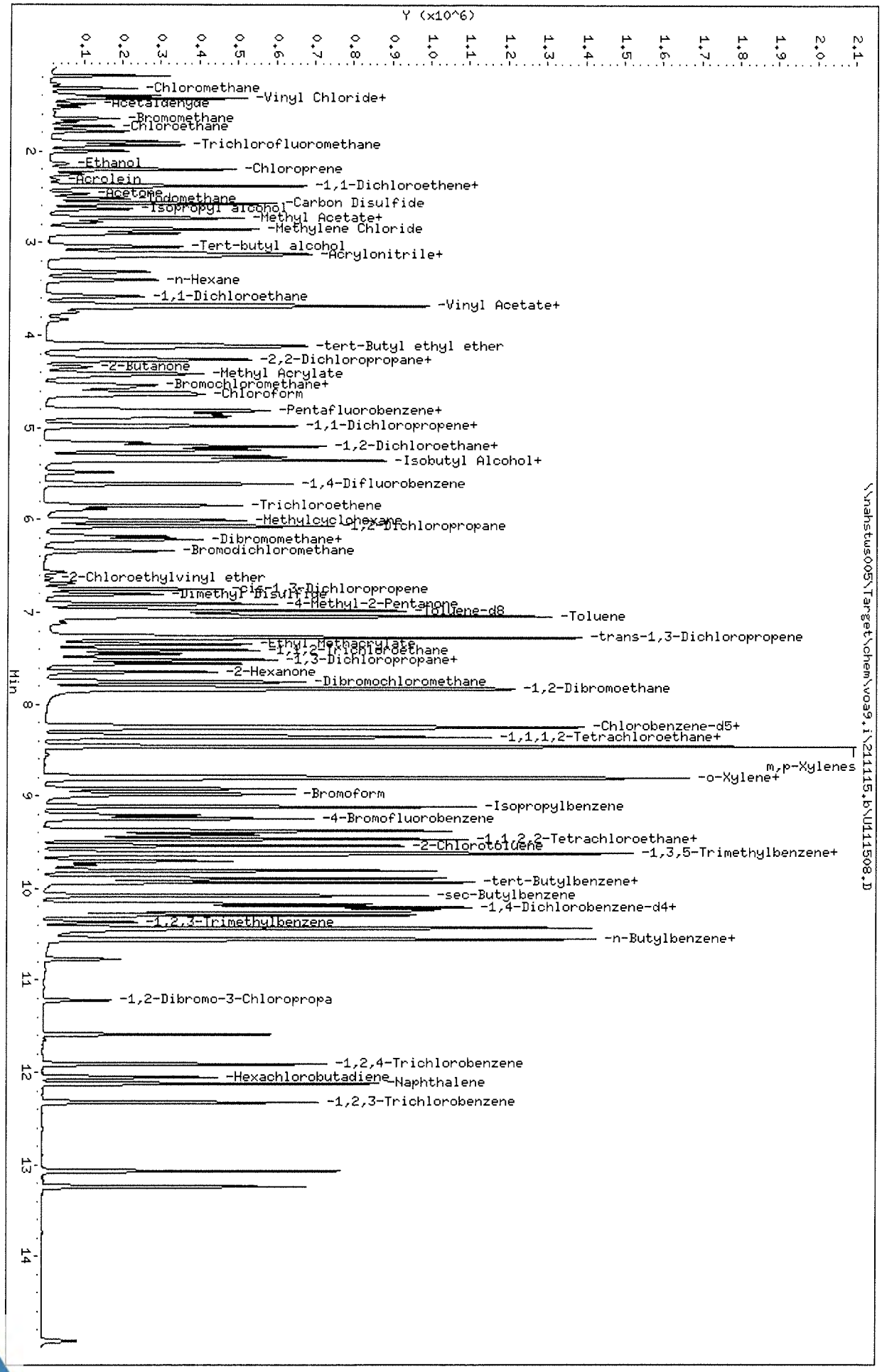
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	153894	50.0000	51.38
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	312442	50.0000	49.95
54 1,3-Dichloropropane	76	7.555	7.555	(0.917)	276461	50.0000	51.26
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	552914	50.0000	51.78
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	324361	50.0000	50.40
89 1,2-Dibromo-3-Chloropropane	155	11.221	11.221	(1.098)	34570	50.0000	45.93
26 2,2-Dichloropropane	77	4.253	4.253	(0.872)	146044	50.0000	52.48
24 2-Butanone	43	4.339	4.339	(0.889)	145658	100.000	100.78
76 2-Chlorotoluene	91	9.538	9.538	(0.933)	478010	50.0000	51.12
52 2-Hexanone	43	7.645	7.645	(0.928)	229120	100.000	112.37(H)
77 4-Chlorotoluene	91	9.632	9.632	(0.942)	554589	50.0000	51.17
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	565348	50.0000	53.42
10 Acetone	43	2.464	2.464	(0.505)	102765	100.000	106.98
37 Benzene	78	5.201	5.201	(0.927)	614439	50.0000	51.05
74 Bromobenzene	156	9.373	9.373	(0.917)	173629	50.0000	51.56
29 Bromochloromethane	128	4.537	4.537	(0.930)	81234	50.0000	52.10
39 Bromodichloromethane	83	6.337	6.337	(1.129)	187745	50.0000	48.50
66 Bromoform	173	8.972	8.972	(1.089)	96626	50.0000	47.90
6 Bromomethane	94	1.644	1.644	(0.337)	83889	50.0000	49.25
34 Carbon Tetrachloride	117	4.976	4.976	(0.886)	182502	50.0000	48.29
59 Chlorobenzene	112	8.264	8.264	(1.003)	417893	50.0000	49.90
7 Chloroethane	64	1.730	1.730	(0.355)	110524	50.0000	48.32(M)
28 Chloroform	83	4.639	4.639	(0.951)	276051	50.0000	51.85
3 Chloromethane	50	1.321	1.321	(0.271)	145589	50.0000	52.90
27 cis-1,2-Dichloroethene	96	4.264	4.264	(0.874)	173599	50.0000	51.41
45 4-Methyl-2-Pentanone	43	6.910	6.910	(0.839)	327903	100.000	106.00(A)
46 cis-1,3-Dichloropropene	75	6.749	6.749	(1.202)	238784	50.0000	47.68
44 Dibromomethane	93	6.179	6.179	(1.101)	103075	50.0000	50.46
2 Dichlorodifluoromethane	85	1.186	1.186	(0.243)	172970	50.0000	52.46
61 Ethylbenzene	106	8.361	8.361	(1.015)	218185	50.0000	52.06
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	78634	50.0000	53.23
62 m,p-Xylenes	106	8.462	8.462	(1.027)	543578	100.000	104.98
64 Styrene	104	8.815	8.815	(1.070)	476282	50.0000	54.08
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	467210	50.0000	51.91
17 Methylene Chloride	84	2.847	2.847	(0.584)	151108	50.0000	46.39
87 n-Butylbenzene	91	10.547	10.547	(1.032)	501371	50.0000	52.84
73 n-Propylbenzene	91	9.467	9.467	(0.926)	766824	50.0000	51.99
92 Naphthalene	128	12.121	12.121	(1.186)	619173	50.0000	51.75
63 o-Xylene	106	8.800	8.800	(1.068)	268452	50.0000	52.34
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	640176	50.0000	52.83
55 Dibromochloromethane	129	7.746	7.746	(0.940)	155960	50.0000	48.26
56 Tetrachloroethene	164	7.510	7.510	(0.911)	121252	50.0000	50.05
50 Toluene	91	7.034	7.034	(0.854)	651446	50.0000	50.69
19 Carbon Disulfide	76	2.566	2.566	(0.526)	726090	100.000	106.16(A)
20 trans-1,2-Dichloroethene	96	3.117	3.117	(0.639)	141166	50.0000	50.78
38 Trichloroethene	130	5.846	5.846	(1.041)	161654	50.0000	51.99
8 Trichlorofluoromethane	101	1.932	1.932	(0.396)	235822	50.0000	52.90
5 Vinyl Chloride	62	1.400	1.400	(0.287)	173173	50.0000	51.80
138 Freon TF	101	2.382	2.382	(0.488)	120456	50.0000	53.02
67 Isopropylbenzene	105	9.115	9.115	(1.106)	666038	50.0000	52.78
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	203307	50.0000	47.39

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

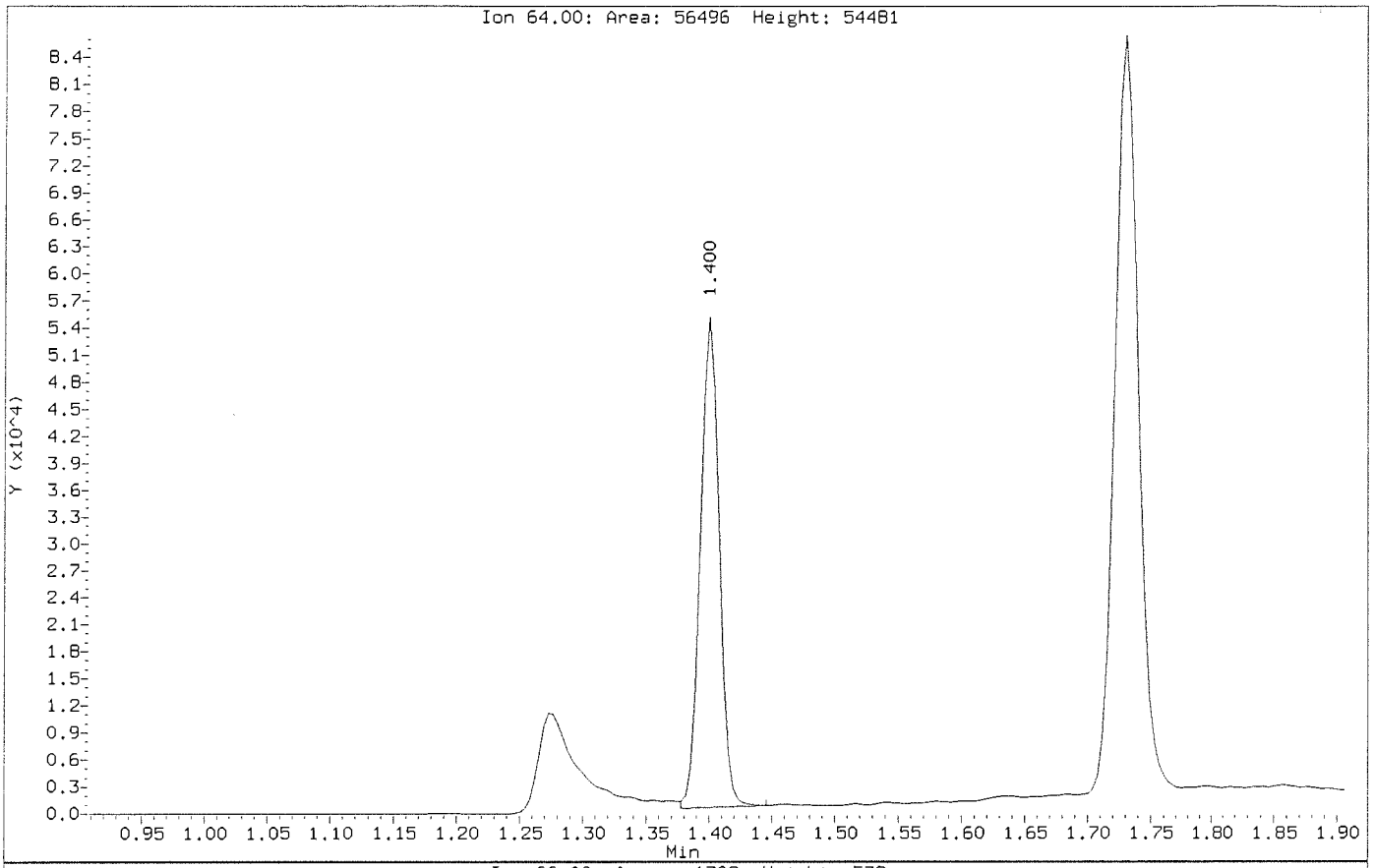
Data File: \\nahstus005\Target\chem\voa9.i\211115.b\U111508.D
Date : 15-NOV-2021 16:27
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;;
Purge Volume: 5.0
Column phase: DB624

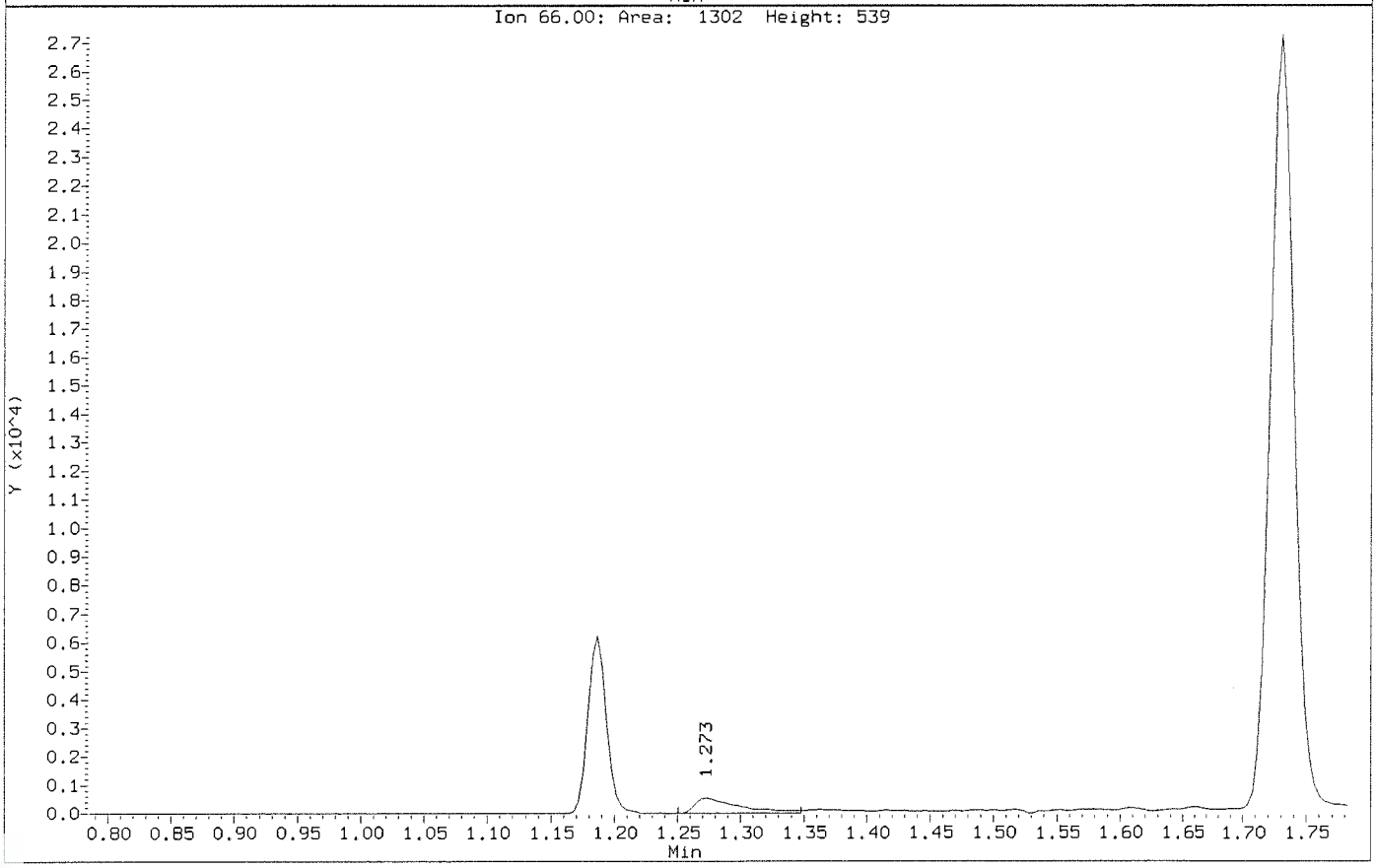
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111508.D
Injection Date: 15-NOV-2021 16:27
Instrument: VOA9.i
Client Sample ID: VSTD050

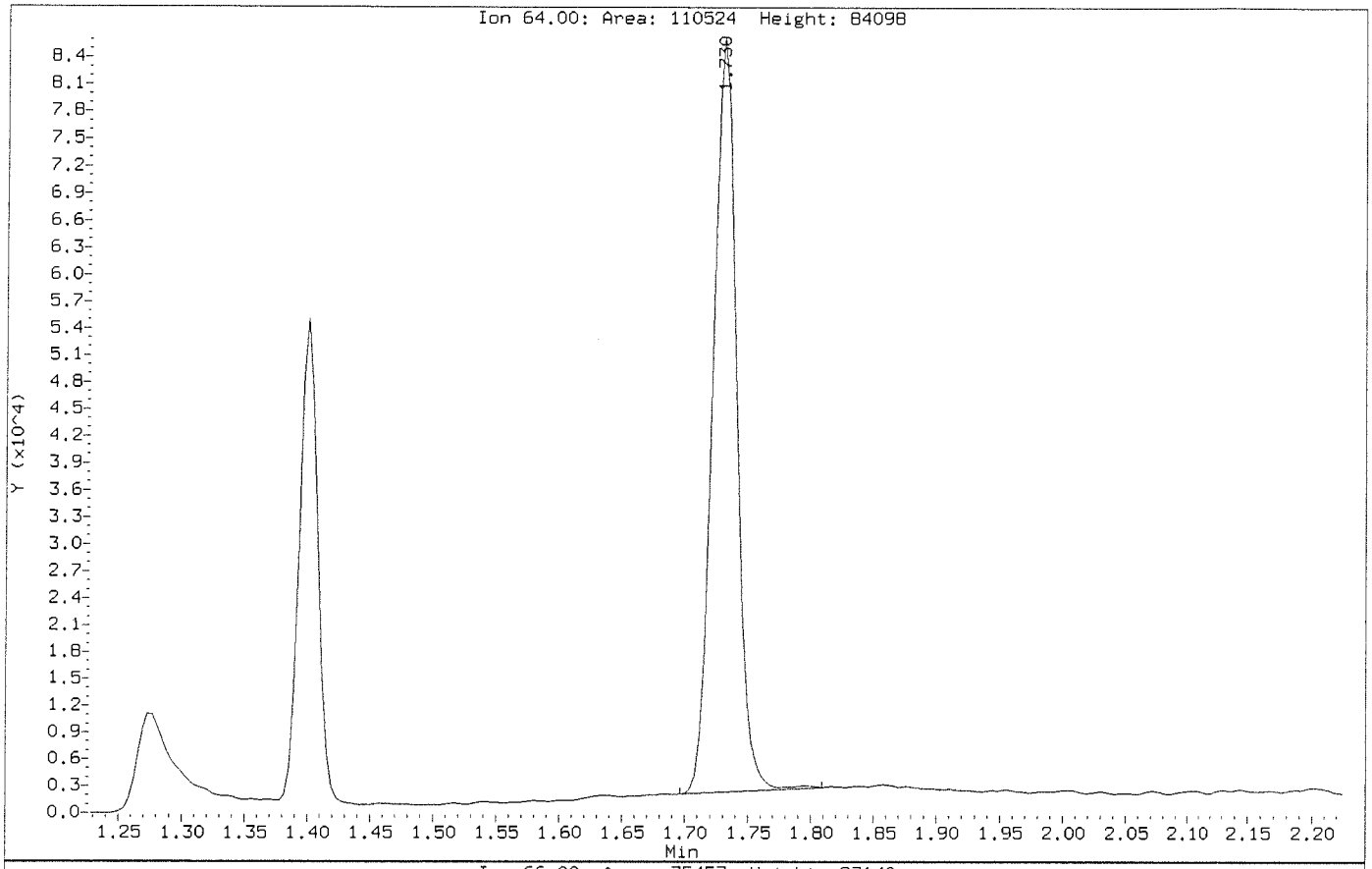
Compound: Chloroethane
CAS Number: 75-00-3

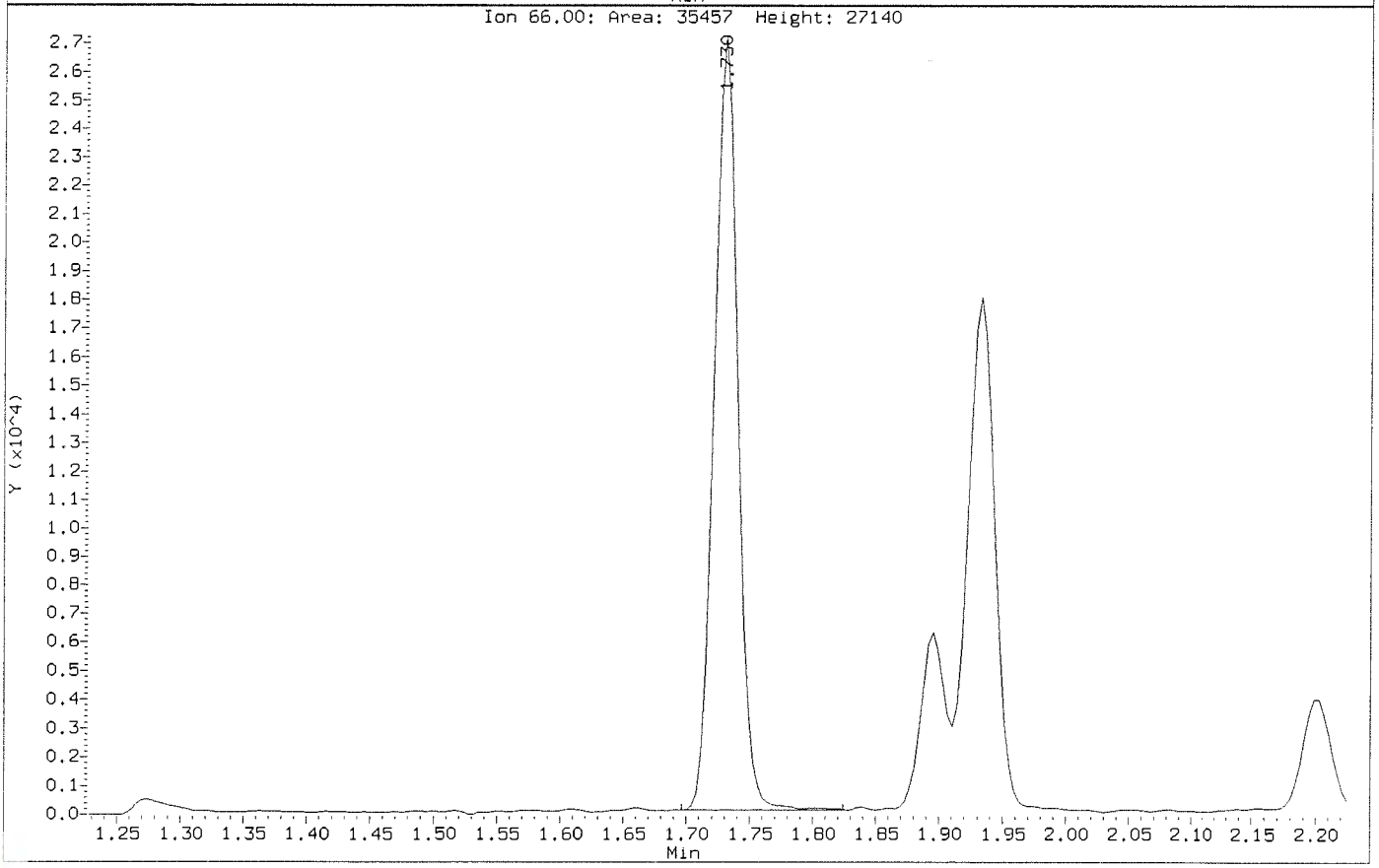




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111508.D
Injection Date: 15-NOV-2021 16:27
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111509.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111509.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 15-NOV-2021 16:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	276955	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	474551	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	433803	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	217322	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.167	(1.058)	347770	100.000	103.92
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	425707	100.000	102.40
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	294099	100.000	102.04
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	1088412	100.000	96.40
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.985)	448245	100.000	112.43
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	332327	100.000	107.02(A)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	305424	100.000	100.70
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	465345	100.000	101.73
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	259942	100.000	101.69
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	487188	100.000	99.01
11 1,1-Dichloroethene	96	2.386	2.386	(0.489)	252111	100.000	102.10
32 1,1-Dichloropropene	75	4.991	4.991	(0.889)	404548	100.000	103.81
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	401804	100.000	103.24
71 1,2,3-Trichloropropane	75	9.418	9.418	(0.921)	493615	100.000	109.90
90 1,2,4-Trichlorobenzene	180	11.911	11.911	(1.165)	420010	100.000	105.00(A)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	1141292	100.000	104.75
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	620557	100.000	101.25
33 1,2-Dichloroethane	62	5.242	5.242	(0.934)	431283	100.000	100.74

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111509.D Page 2
Report Date: 22-Dec-2021 13:55

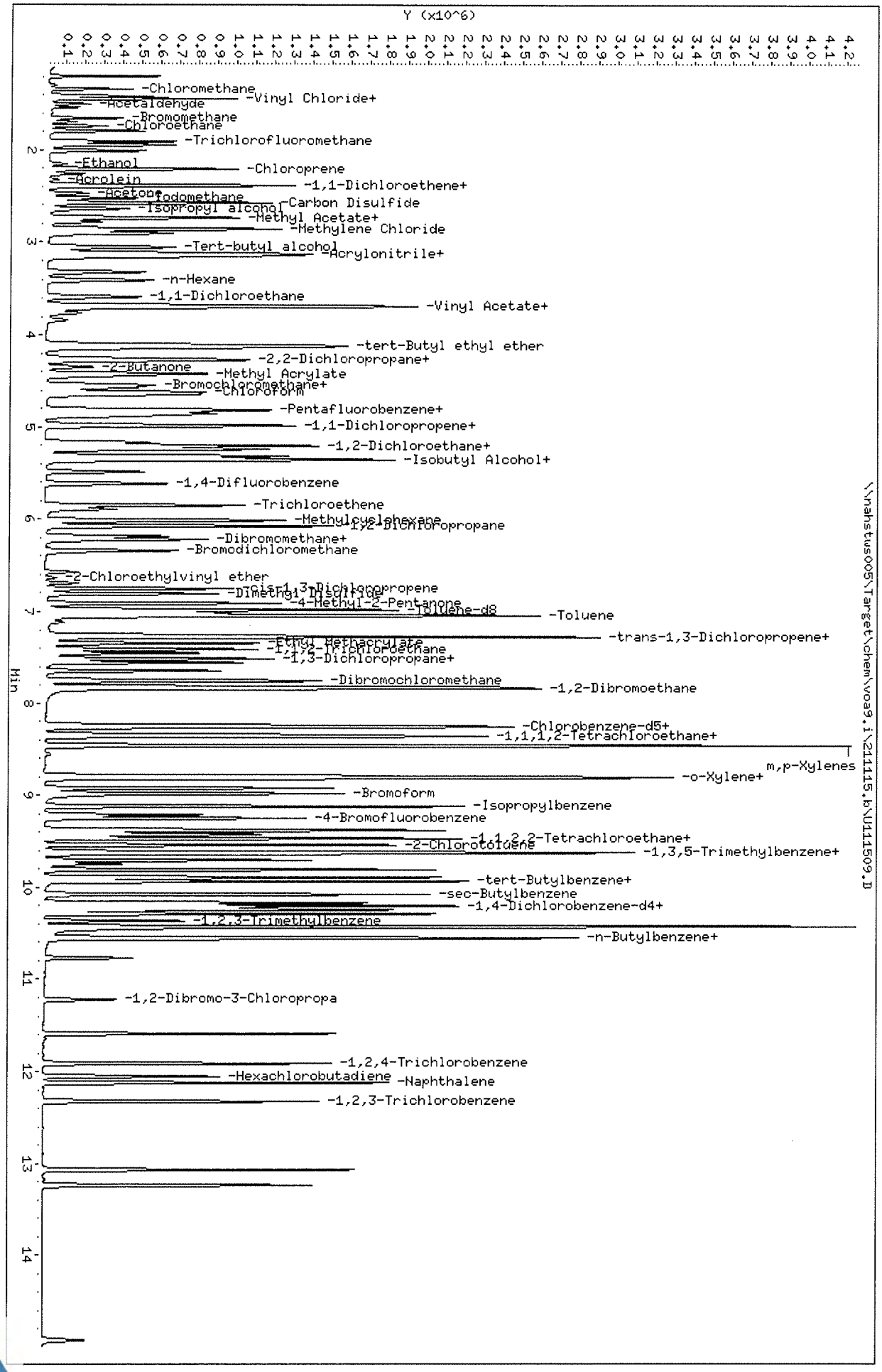
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	308280	100.000	103.23
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	623472	100.000	99.60
54 1,3-Dichloropropane	76	7.555	7.555	(0.917)	554036	100.000	101.71
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	1105545	100.000	103.46
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	649602	100.000	100.86
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	77043	100.000	99.30
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	310140	100.000	111.21
24 2-Butanone	43	4.346	4.346	(0.890)	294665	200.000	203.46
76 2-Chlorotoluene	91	9.538	9.538	(0.933)	950588	100.000	101.57
52 2-Hexanone	43	7.274	7.274	(0.883)	422256	200.000	205.05
77 4-Chlorotoluene	91	9.628	9.628	(0.942)	1112395	100.000	102.57
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	1145933	100.000	108.20
10 Acetone	43	2.472	2.472	(0.506)	199248	200.000	213.20(A)
37 Benzene	78	5.205	5.205	(0.927)	1218325	100.000	101.53
74 Bromobenzene	156	9.373	9.373	(0.917)	352762	100.000	104.67
29 Bromochloromethane	128	4.541	4.541	(0.930)	158137	100.000	101.22
39 Bromodichloromethane	83	6.341	6.341	(1.130)	392803	100.000	100.64
66 Bromoform	173	8.976	8.976	(1.089)	216725	100.000	101.79
6 Bromomethane	94	1.651	1.651	(0.338)	170081	100.000	100.17
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	382517	100.000	99.86
59 Chlorobenzene	112	8.264	8.264	(1.003)	839635	100.000	99.28
7 Chloroethane	64	1.737	1.737	(0.356)	222198	100.000	96.95
28 Chloroform	83	4.646	4.646	(0.952)	549897	100.000	103.07
3 Chloromethane	50	1.333	1.333	(0.273)	274951	100.000	100.21
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	341672	100.000	100.97
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	662320	200.000	211.99(A)
46 cis-1,3-Dichloropropene	75	6.749	6.749	(1.202)	512945	100.000	100.71
44 Dibromomethane	93	6.180	6.180	(1.101)	208170	100.000	102.21
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	337382	100.000	102.80
61 Ethylbenzene	106	8.361	8.361	(1.015)	434998	100.000	102.77
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	165847	100.000	112.18
62 m,p-Xylenes	106	8.463	8.463	(1.027)	1092288	200.000	208.86(A)
64 Styrene	104	8.815	8.815	(1.070)	954419	100.000	107.30(A)
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	938646	100.000	104.21
17 Methylene Chloride	84	2.858	2.858	(0.585)	297977	100.000	91.29
87 n-Butylbenzene	91	10.547	10.547	(1.032)	1006428	100.000	105.98
73 n-Propylbenzene	91	9.467	9.467	(0.926)	1535160	100.000	104.00
92 Naphthalene	128	12.121	12.121	(1.186)	1265419	100.000	105.68
63 o-Xylene	106	8.800	8.800	(1.068)	531572	100.000	102.62
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	1285548	100.000	106.00
55 Dibromochloromethane	129	7.750	7.750	(0.940)	334001	100.000	100.65(A)
56 Tetrachloroethene	164	7.514	7.514	(0.912)	241581	100.000	98.74
50 Toluene	91	7.038	7.038	(0.854)	1292303	100.000	99.57
19 Carbon Disulfide	76	2.577	2.577	(0.528)	1439204	200.000	210.00(A)
20 trans-1,2-Dichloroethene	96	3.124	3.124	(0.640)	274819	100.000	98.66
38 Trichloroethene	130	5.850	5.850	(1.042)	320726	100.000	103.45
8 Trichlorofluoromethane	101	1.940	1.940	(0.397)	459124	100.000	102.79
5 Vinyl Chloride	62	1.411	1.411	(0.289)	341984	100.000	102.09
138 Freon TF	101	2.390	2.390	(0.489)	236028	100.000	103.68(A)
67 Isopropylbenzene	105	9.119	9.119	(1.106)	1327982	100.000	104.20(A)
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	440168	100.000	100.43(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstus005\Target\chem\voa9.i\211115.b\U111509.D
Date : 15-NOV-2021 16:49
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111510.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111510.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 15-NOV-2021 17:11
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:49 Cal File: U111509.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	287432	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	488809	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	448388	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	223026	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	519537	150.000	150.25
$ 69 4-Bromofluorobenzene	95	9.250	9.250	(1.122)	646932	150.000	151.19
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	451793	150.000	151.46
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	1655087	150.000	141.82(A)
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.986)	684856	150.000	165.51
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	493996	150.000	153.91(A)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	468015	150.000	148.90
68 1,1,2,2-Tetrachloroethane	83	9.385	9.385	(0.918)	690970	150.000	147.19
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	380690	150.000	144.08
22 1,1-Dichloroethane	63	3.586	3.586	(0.735)	719035	150.000	140.80
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	376843	150.000	147.05
32 1,1-Dichloropropene	75	4.988	4.988	(0.888)	611762	150.000	152.40
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	625529	150.000	156.61
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	764142	150.000	165.79
90 1,2,4-Trichlorobenzene	180	11.911	11.911	(1.165)	647828	150.000	157.81(A)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	1716802	150.000	153.54
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	931353	150.000	148.08
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	635572	150.000	144.13

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111510.D Page 2
Report Date: 22-Dec-2021 13:55

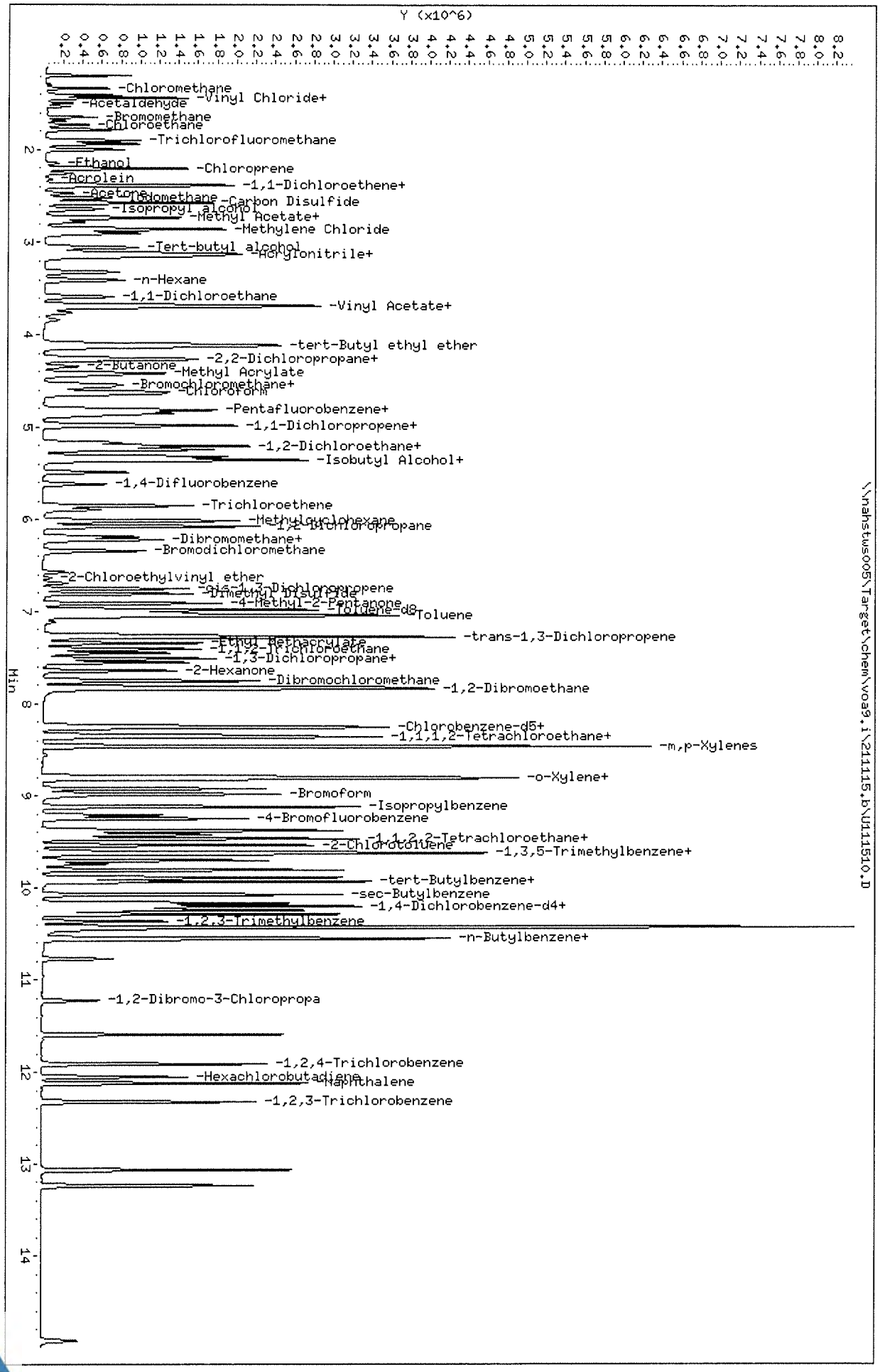
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	458917	150.000	149.20
83 1,3-Dichlorobenzene	146	10.172	10.172	(0.995)	954409	150.000	148.58
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	818561	150.000	145.39
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	1672188	150.000	152.49
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	973989	150.000	147.36
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	120988	150.000	150.67(A)
26 2,2-Dichloropropane	77	4.257	4.257	(0.872)	486198	150.000	167.99
24 2-Butanone	43	4.343	4.343	(0.890)	433312	300.000	288.30
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	1428226	150.000	148.71
52 2-Hexanone	43	7.645	7.645	(0.928)	695436	300.000	326.72(H)
77 4-Chlorotoluene	91	9.632	9.632	(0.942)	1660020	150.000	149.15
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	1733366	150.000	159.48
10 Acetone	43	2.469	2.469	(0.506)	287306	300.000	298.80(A)
37 Benzene	78	5.205	5.205	(0.927)	1815130	150.000	146.85
74 Bromobenzene	156	9.374	9.374	(0.917)	533195	150.000	154.16
29 Bromochloromethane	128	4.542	4.542	(0.931)	233535	150.000	144.04
39 Bromodichloromethane	83	6.337	6.337	(1.129)	600907	150.000	148.96
66 Bromoform	173	8.976	8.976	(1.089)	341423	150.000	150.26
6 Bromomethane	94	1.644	1.644	(0.337)	215171	150.000	122.22
34 Carbon Tetrachloride	117	4.976	4.976	(0.886)	595268	150.000	150.10
59 Chlorobenzene	112	8.264	8.264	(1.003)	1261119	150.000	144.27
7 Chloroethane	64	1.730	1.730	(0.355)	337912	150.000	142.07
28 Chloroform	83	4.643	4.643	(0.952)	820803	150.000	148.25
3 Chloromethane	50	1.329	1.329	(0.272)	431092	150.000	151.70
27 cis-1,2-Dichloroethene	96	4.268	4.268	(0.875)	510106	150.000	145.25
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	985556	300.000	305.19(A)
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	784849	150.000	148.76
44 Dibromomethane	93	6.180	6.180	(1.101)	311006	150.000	148.25
2 Dichlorodifluoromethane	85	1.190	1.190	(0.244)	508351	150.000	149.57
61 Ethylbenzene	106	8.361	8.361	(1.015)	661822	150.000	151.27
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	263784	150.000	173.86
62 m,p-Xylenes	106	8.463	8.463	(1.027)	1637388	300.000	302.91(A)
64 Styrene	104	8.815	8.815	(1.070)	1424573	150.000	154.95(A)
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	1423086	150.000	153.96
17 Methylene Chloride	84	2.851	2.851	(0.584)	437879	150.000	129.27
87 n-Butylbenzene	91	10.547	10.547	(1.032)	1511185	150.000	155.07
73 n-Propylbenzene	91	9.467	9.467	(0.926)	2317098	150.000	152.96
92 Naphthalene	128	12.121	12.121	(1.186)	1938991	150.000	157.79
63 o-Xylene	106	8.800	8.800	(1.068)	801718	150.000	149.74
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	1960196	150.000	157.50
55 Dibromochloromethane	129	7.750	7.750	(0.940)	509745	150.000	147.90(A)
56 Tetrachloroethene	164	7.514	7.514	(0.912)	368036	150.000	145.53
50 Toluene	91	7.038	7.038	(0.854)	1931747	150.000	144.00
19 Carbon Disulfide	76	2.570	2.570	(0.527)	2162433	300.000	304.03(A)
20 trans-1,2-Dichloroethene	96	3.121	3.121	(0.640)	410390	150.000	141.96
38 Trichloroethene	130	5.850	5.850	(1.042)	484476	150.000	151.71
8 Trichlorofluoromethane	101	1.936	1.936	(0.397)	686186	150.000	148.03
5 Vinyl Chloride	62	1.404	1.404	(0.288)	510132	150.000	146.74
138 Freon TF	101	2.386	2.386	(0.489)	361062	150.000	152.83(A)
67 Isopropylbenzene	105	9.119	9.119	(1.106)	2002397	150.000	152.00(A)
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	679057	150.000	149.36(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111510.D
Date : 15-NOV-2021 17:11
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111511.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111511.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 15-NOV-2021 17:34
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 17:11 Cal File: U111510.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	285252	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	490029	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	448063	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	225618	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	675186	200.000	197.22
$ 69 4-Bromofluorobenzene	95	9.250	9.250	(1.122)	842976	200.000	197.56
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	584069	200.000	197.56
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	2114876	200.000	181.35(A)
31 1,1,1-Trichloroethane	97	4.812	4.812	(0.985)	923358	200.000	224.86(A)
57 1,2-Dibromoethane	107	7.844	7.844	(0.952)	653050	200.000	203.61(A)
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	631462	200.000	200.75(A)
68 1,1,2,2-Tetrachloroethane	83	9.385	9.385	(0.918)	911732	200.000	191.99
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	511919	200.000	193.89
22 1,1-Dichloroethane	63	3.586	3.586	(0.734)	953825	200.000	188.21
11 1,1-Dichloroethene	96	2.386	2.386	(0.489)	498067	200.000	195.84
32 1,1-Dichloropropene	75	4.988	4.988	(0.888)	805619	200.000	200.20(A)
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	836695	200.000	207.08(A)
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	1019741	200.000	218.70(A)
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	869474	200.000	209.37(A)
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	2267562	200.000	200.47(A)
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	1244446	200.000	195.59
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	840563	200.000	190.14

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111511.D Page 2
Report Date: 22-Dec-2021 13:55

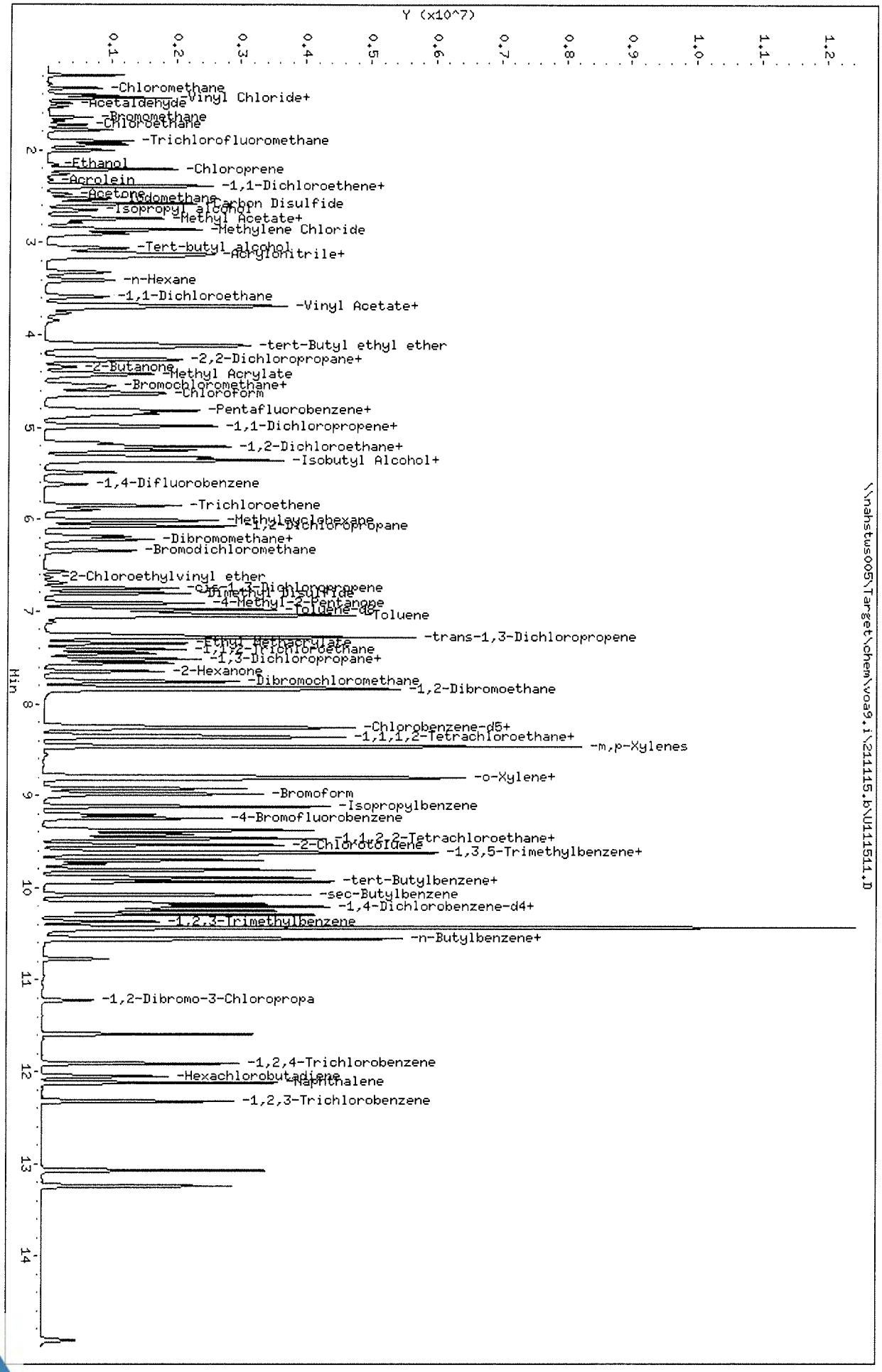
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
42	1,2-Dichloropropane	63	6.071	6.071	(1.081)	611859	200.000	198.43
83	1,3-Dichlorobenzene	146	10.172	10.172	(0.995)	1276700	200.000	196.47
54	1,3-Dichloropropane	76	7.556	7.556	(0.917)	1084428	200.000	192.75
75	1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	2209947	200.000	199.22
84	1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	1312117	200.000	196.23
89	1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	163858	200.000	200.89(A)
26	2,2-Dichloropropane	77	4.257	4.257	(0.872)	661532	200.000	230.33(A)
24	2-Butanone	43	4.347	4.347	(0.890)	567478	400.000	380.45
76	2-Chlorotoluene	91	9.539	9.539	(0.933)	1904334	200.000	196.01
52	2-Hexanone	43	7.649	7.649	(0.928)	909144	400.000	427.43(AH)
77	4-Chlorotoluene	91	9.632	9.632	(0.942)	2211302	200.000	196.40
82	p-Isopropyltoluene	119	10.202	10.202	(0.998)	2280793	200.000	207.44(A)
10	Acetone	43	2.472	2.472	(0.506)	371722	400.000	391.57(A)
37	Benzene	78	5.205	5.205	(0.927)	2409160	200.000	194.43
74	Bromobenzene	156	9.374	9.374	(0.917)	714850	200.000	204.31(A)
29	Bromochloromethane	128	4.542	4.542	(0.930)	308852	200.000	191.95
39	Bromodichloromethane	83	6.337	6.337	(1.129)	813877	200.000	200.89(A)
66	Bromoform	173	8.976	8.976	(1.089)	468271	200.000	199.55
6	Bromomethane	94	1.644	1.644	(0.337)	270719	200.000	155.08
34	Carbon Tetrachloride	117	4.980	4.980	(0.887)	799370	200.000	200.55(A)
59	Chlorobenzene	112	8.268	8.268	(1.003)	1683826	200.000	192.76
7	Chloroethane	64	1.726	1.726	(0.354)	426580	200.000	180.72
28	Chloroform	83	4.647	4.647	(0.952)	1093898	200.000	199.08
3	Chloromethane	50	1.329	1.329	(0.272)	557544	200.000	197.88
27	cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	684672	200.000	196.45
45	4-Methyl-2-Pentanone	43	6.915	6.915	(0.839)	1295771	400.000	401.55(A)
46	cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	1067583	200.000	201.23(A)
44	Dibromomethane	93	6.184	6.184	(1.101)	415970	200.000	197.79
2	Dichlorodifluoromethane	85	1.194	1.194	(0.245)	667949	200.000	198.26
61	Ethylbenzene	106	8.362	8.362	(1.015)	875310	200.000	200.22(A)
91	Hexachlorobutadiene	225	12.054	12.054	(1.179)	346631	200.000	225.84(A)
62	m,p-Xylenes	106	8.463	8.463	(1.027)	2180098	400.000	403.60(A)
64	Styrene	104	8.815	8.815	(1.070)	1898305	200.000	206.63(A)
78	tert-Butylbenzene	119	9.891	9.891	(0.967)	1889047	200.000	202.02(A)
17	Methylene Chloride	84	2.855	2.855	(0.585)	578716	200.000	172.15
87	n-Butylbenzene	91	10.547	10.547	(1.032)	1974686	200.000	200.30(A)
73	n-Propylbenzene	91	9.467	9.467	(0.926)	3047395	200.000	198.86
92	Naphthalene	128	12.121	12.121	(1.186)	2562320	200.000	206.12(A)
63	o-Xylene	106	8.804	8.804	(1.068)	1072334	200.000	200.43(A)
81	sec-Butylbenzene	105	10.078	10.078	(0.986)	2570698	200.000	204.18(A)
55	Dibromochloromethane	129	7.750	7.750	(0.940)	696655	200.000	201.73(A)
56	Tetrachloroethene	164	7.514	7.514	(0.912)	491043	200.000	194.32
50	Toluene	91	7.038	7.038	(0.854)	2555981	200.000	190.68
19	Carbon Disulfide	76	2.574	2.574	(0.527)	2848696	400.000	403.57(A)
20	trans-1,2-Dichloroethene	96	3.125	3.125	(0.640)	548207	200.000	191.08
38	Trichloroethene	130	5.850	5.850	(1.042)	651192	200.000	203.41(A)
8	Trichlorofluoromethane	101	1.936	1.936	(0.397)	910358	200.000	197.89
5	Vinyl Chloride	62	1.408	1.408	(0.288)	672430	200.000	194.91
138	Freon TF	101	2.386	2.386	(0.489)	468272	200.000	199.72(A)
67	Isopropylbenzene	105	9.119	9.119	(1.106)	2674363	200.000	203.16(A)
51	trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	919660	200.000	201.04(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
H - Operator selected an alternate compound hit.

Data File: \\nahstus005\Target\chem\voa9.i\211115.b\U111511.D
Date : 15-NOV-2021 17:34
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



\\nahstus005\Target\chem\voa9.i\211115.b\U111511.D

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111513.D Page 1
Report Date: 22-Dec-2021 13:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\211115.b\U111513.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 15-NOV-2021 18:18
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\211115.b\8260C.m
Meth Date : 22-Dec-2021 13:55 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 17:34 Cal File: U111511.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.887	4.883	(1.000)	284064	50.0000	
* 36 1,4-Difluorobenzene	114	5.618	5.614	(1.000)	484722	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	441442	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	220674	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	183207	52.6492	52.64
$ 69 4-Bromofluorobenzene	95	9.246	9.250	(1.122)	224672	52.4648	52.46
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	157305	52.8049	52.80
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	578307	50.3349	50.33
31 1,1,1-Trichloroethane	97	4.815	4.812	(0.985)	210930	51.5822	51.58
57 1,2-Dibromoethane	107	7.844	7.844	(0.952)	167352	52.9622	52.96
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	149257	48.7916	48.79
68 1,1,2,2-Tetrachloroethane	83	9.381	9.385	(0.918)	233777	50.3319	50.33
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	131825	50.6785	50.67
22 1,1-Dichloroethane	63	3.593	3.586	(0.735)	241068	47.7683	47.76
11 1,1-Dichloroethene	96	2.394	2.386	(0.490)	122139	48.2264	48.22
32 1,1-Dichloropropene	75	4.991	4.988	(0.889)	195154	49.0277	49.02
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	194769	49.2851	49.28
71 1,2,3-Trichloropropane	75	9.419	9.419	(0.921)	241453	52.9455	52.94
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	205098	50.4960	50.49
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	547052	49.4489	49.44
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	305551	49.1003	49.10
33 1,2-Dichloroethane	62	5.246	5.243	(0.934)	217435	49.7252	49.72

Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111513.D Page 2
Report Date: 22-Dec-2021 13:55

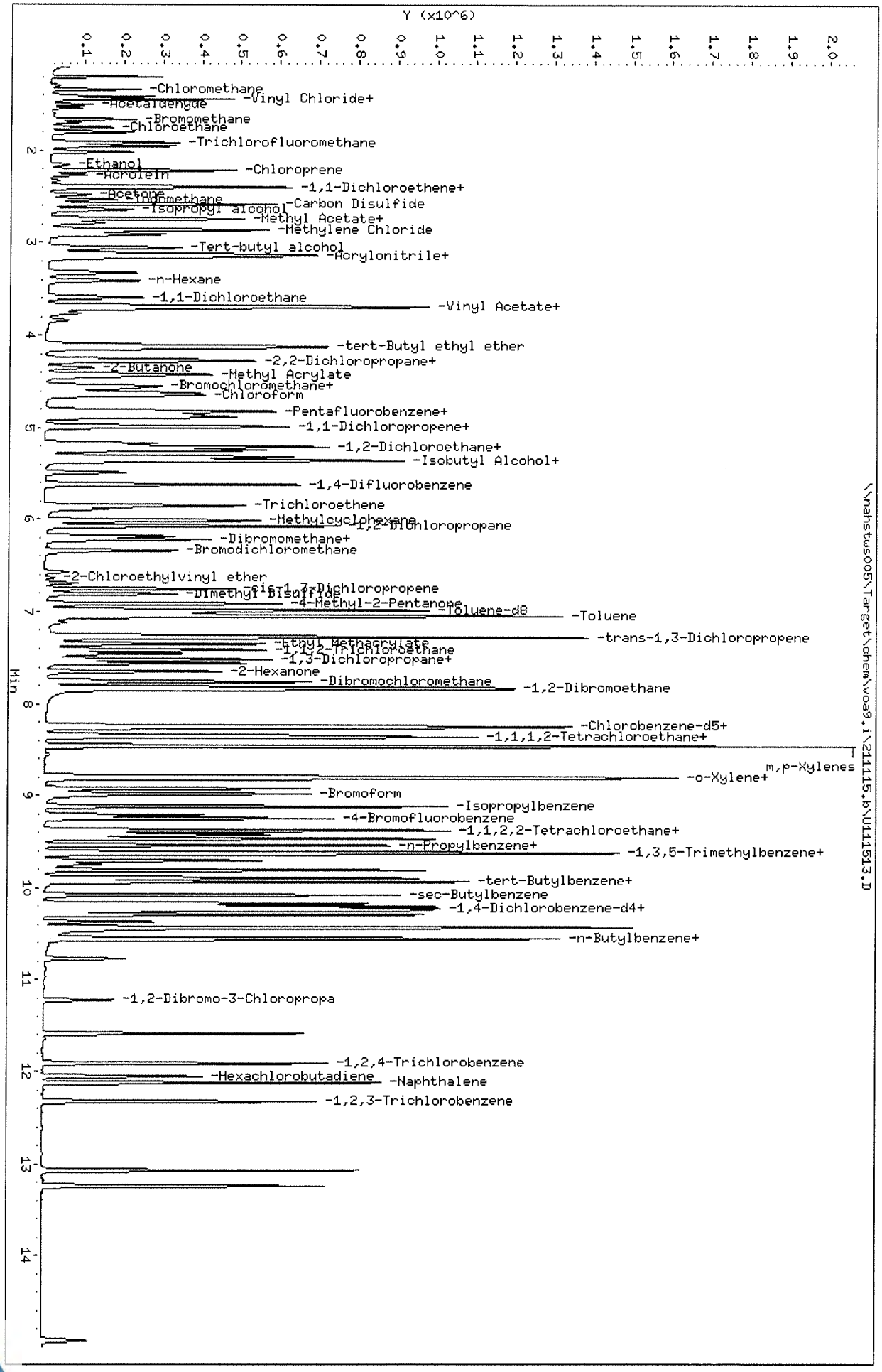
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
42	1,2-Dichloropropane	63	6.075	6.071	(1.081)	154517	50.6599	50.65
83	1,3-Dichlorobenzene	146	10.168	10.172	(0.995)	305860	48.1239	48.12
54	1,3-Dichloropropane	76	7.556	7.556	(0.917)	276841	49.9461	49.94
75	1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	525006	48.3897	48.38
84	1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	317845	48.6012	48.60
89	1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	36047	47.0718	47.07
26	2,2-Dichloropropane	77	4.264	4.257	(0.873)	149988	52.4410	52.44
24	2-Butanone	43	4.347	4.347	(0.890)	146702	98.7644	98.76
76	2-Chlorotoluene	91	9.539	9.539	(0.933)	458017	48.1995	48.19
52	2-Hexanone	43	7.646	7.649	(0.928)	236040	112.639	112.63
77	4-Chlorotoluene	91	9.629	9.632	(0.942)	539200	48.9631	48.96
82	p-Isopropyltoluene	119	10.202	10.202	(0.998)	523508	48.6806	48.68
10	Acetone	43	2.476	2.472	(0.507)	101577	102.635	102.63
37	Benzene	78	5.209	5.205	(0.927)	613633	50.0652	50.06
74	Bromobenzene	156	9.374	9.374	(0.917)	174545	51.0044	51.00
29	Bromochloromethane	128	4.545	4.542	(0.930)	84018	52.4360	52.43
39	Bromodichloromethane	83	6.341	6.337	(1.129)	186469	47.3284	47.32
66	Bromoform	173	8.973	8.976	(1.089)	100202	48.3130	48.31
6	Bromomethane	94	1.659	1.644	(0.340)	103205	59.0539	59.05
34	Carbon Tetrachloride	117	4.980	4.980	(0.887)	174535	45.4435	45.44
59	Chlorobenzene	112	8.264	8.268	(1.003)	418271	48.6028	48.60
7	Chloroethane	64	1.745	1.726	(0.357)	105520	44.8919	44.89(M)
28	Chloroform	83	4.647	4.647	(0.951)	274842	50.2297	50.22
3	Chloromethane	50	1.337	1.329	(0.274)	144132	50.9348	50.93
27	cis-1,2-Dichloroethene	96	4.275	4.272	(0.875)	172874	49.8115	49.81
45	4-Methyl-2-Pentanone	43	6.911	6.915	(0.839)	330171	103.852	103.85(A)
46	cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	244859	47.9988	47.99
44	Dibromomethane	93	6.184	6.184	(1.101)	106658	51.2713	51.27
2	Dichlorodifluoromethane	85	1.202	1.194	(0.246)	161569	47.6202	47.62
61	Ethylbenzene	106	8.362	8.362	(1.015)	211842	49.1848	49.18
91	Hexachlorobutadiene	225	12.054	12.054	(1.179)	72925	48.5787	48.57
62	m,p-Xylenes	106	8.463	8.463	(1.027)	534173	100.376	100.37
64	Styrene	104	8.815	8.815	(1.070)	469983	51.9253	51.92
78	tert-Butylbenzene	119	9.891	9.891	(0.967)	434765	47.5378	47.53
17	Methylene Chloride	84	2.862	2.855	(0.586)	151865	45.3661	45.36
87	n-Butylbenzene	91	10.547	10.547	(1.032)	450936	46.7664	46.76
73	n-Propylbenzene	91	9.467	9.467	(0.926)	726518	48.4726	48.47
92	Naphthalene	128	12.121	12.121	(1.186)	610596	50.2191	50.21
63	o-Xylene	106	8.800	8.804	(1.068)	261202	49.5552	49.55
81	sec-Butylbenzene	105	10.078	10.078	(0.986)	579302	47.0438	47.04
55	Dibromochloromethane	129	7.751	7.750	(0.940)	159082	47.9094	47.90
56	Tetrachloroethene	164	7.514	7.514	(0.912)	115893	46.5507	46.55
50	Toluene	91	7.038	7.038	(0.854)	644212	48.7803	48.78
19	Carbon Disulfide	76	2.581	2.574	(0.528)	706398	100.495	100.49(A)
20	trans-1,2-Dichloroethene	96	3.132	3.125	(0.641)	138064	48.3258	48.32
38	Trichloroethene	130	5.854	5.850	(1.042)	161856	51.1125	51.11
8	Trichlorofluoromethane	101	1.948	1.936	(0.399)	216391	47.2358	47.23
5	Vinyl Chloride	62	1.415	1.408	(0.290)	163317	47.5379	47.53
138	Freon TF	101	2.394	2.386	(0.490)	107949	46.2353	46.23
67	Isopropylbenzene	105	9.115	9.119	(1.106)	624216	48.1318	48.13
51	trans-1,3-Dichloropropene	75	7.252	7.252	(1.291)	207482	47.4845	47.48

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

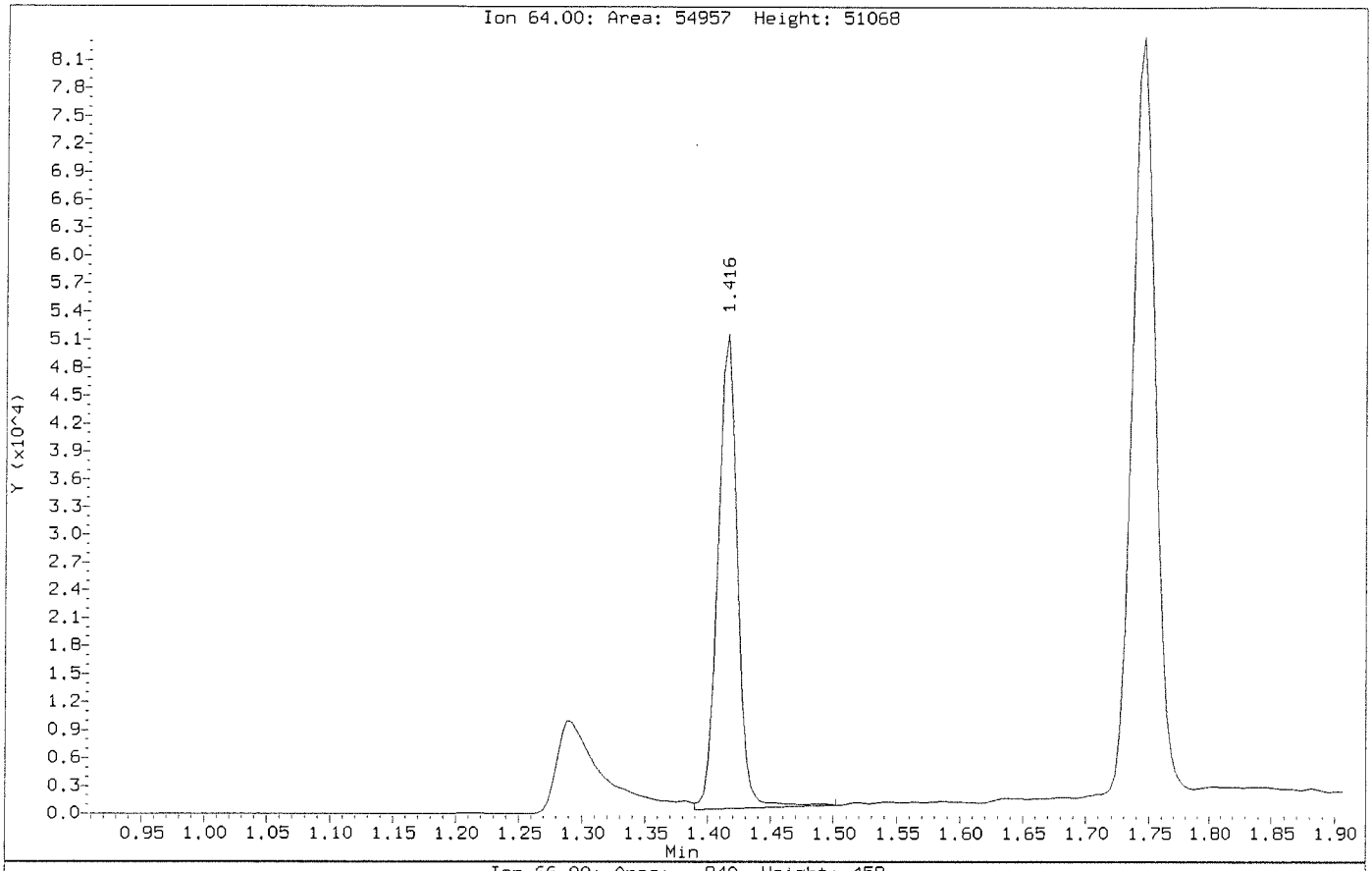
Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111513.D
Date : 15-NOV-2021 18:18
Client ID: ICV
Sample Info: VSTD050;VSTD050;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

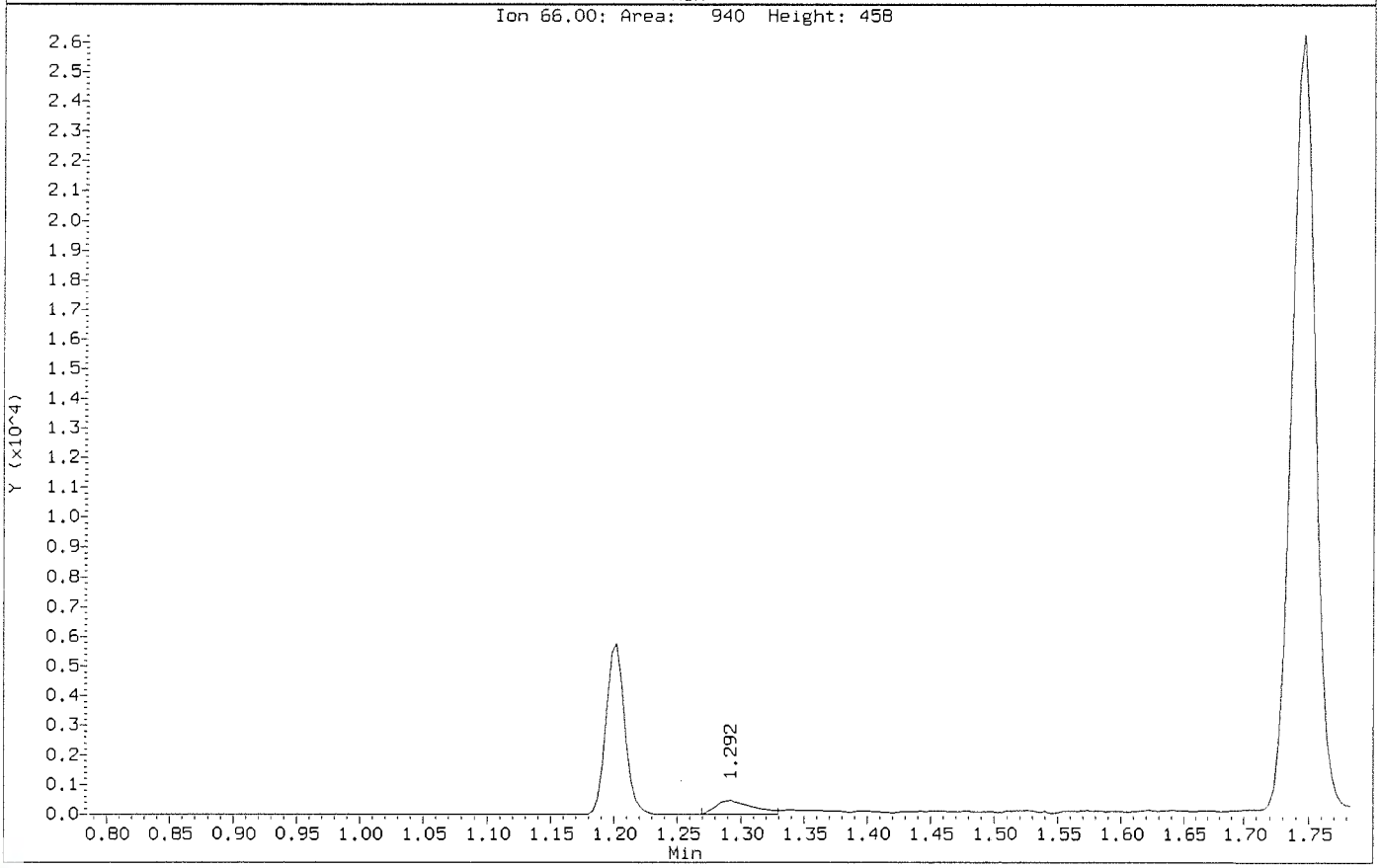
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\211115.b\Before\U111513.D
Injection Date: 15-NOV-2021 18:18
Instrument: VOA9.i
Client Sample ID: ICV

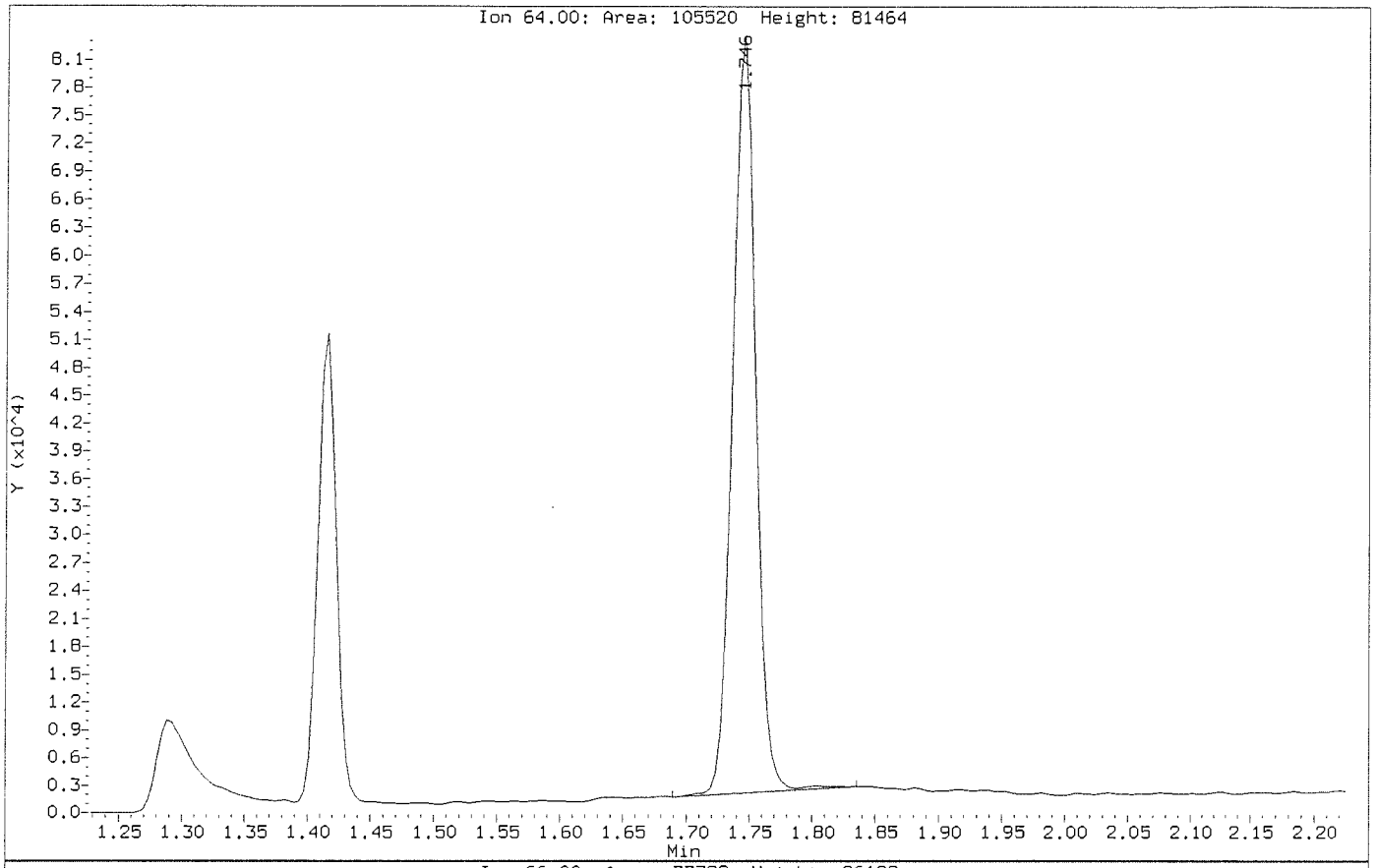
Compound: Chloroethane
CAS Number: 75-00-3

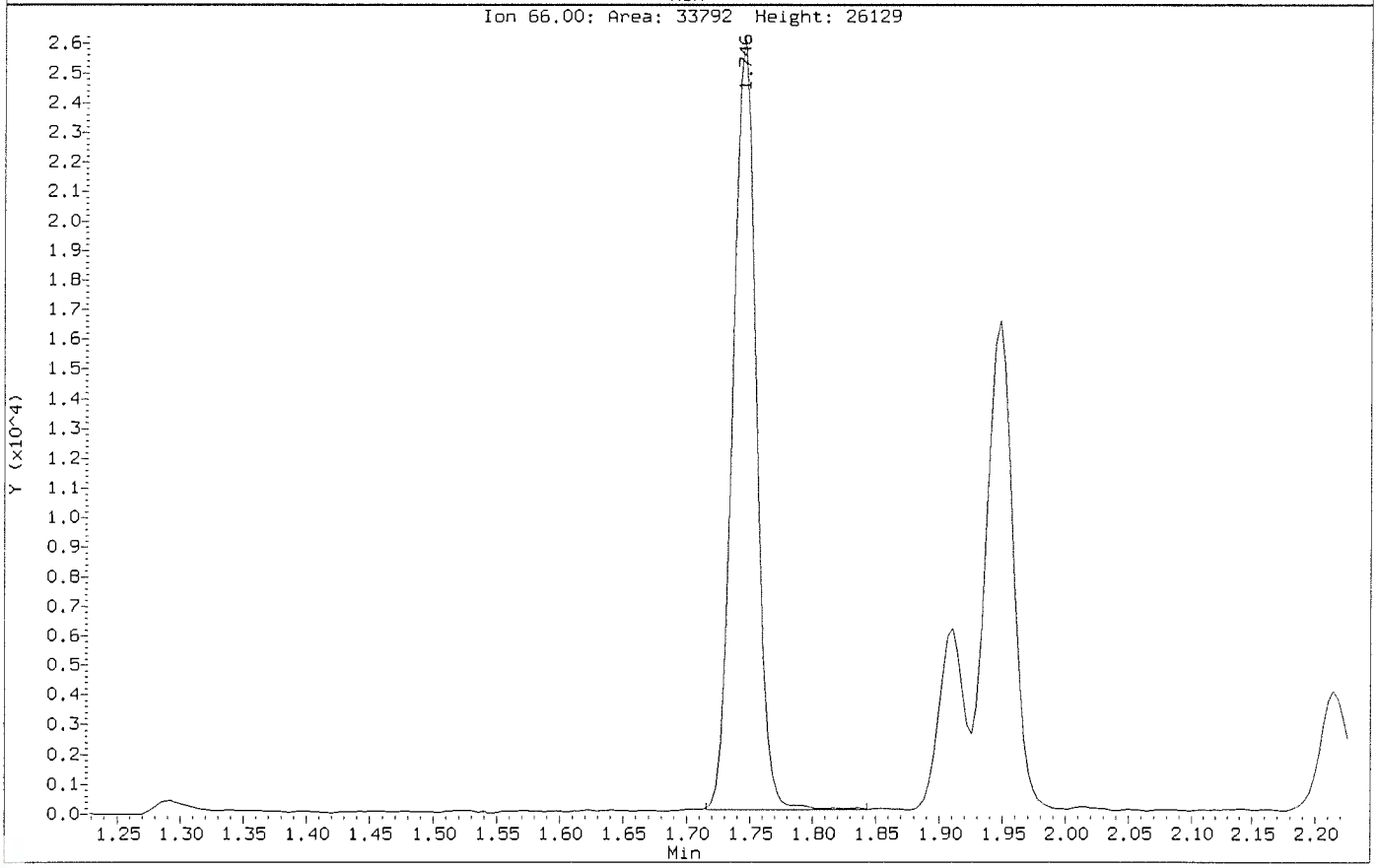




Data File: \\nahstws005\Target\chem\voa9.i\211115.b\U111513.D
Injection Date: 15-NOV-2021 18:18
Instrument: VOA9.i
Client Sample ID: ICV

Compound: Chloroethane
CAS Number: 75-00-3





MSVOA09 -Logbook

Batch: 47502
Date: 11-23-2021
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	BFB	11-23-2021 09:53 am	1.00	0.00 mL	0.00 mL	U112301.D	Liquid	Y	N
2	VSTD050	CCV	11-23-2021 10:16 am	1.00	5.00 mL	0.00 mL	U112302a.D	Liquid	Y	N
3	CCV	CCV	11-23-2021 10:38 am	1.00	5.00 mL	0.00 mL	U112303.D	Liquid	Y	N
4	CCB	SAMP	11-23-2021 11:00 am	1.00	5.00 mL	0.00 mL	U112304.D	Liquid	Y	N
5	VLCSW-211123	LCS	11-23-2021 11:22 am	1.00	5.00 mL	0.00 mL	U112305.D	Liquid	Y	N
6	BLANK	SAMP	11-23-2021 11:45 am	1.00	5.00 mL	0.00 mL	U112306.D	Liquid	Y	N
7	VBLKW-211123	MBLK	11-23-2021 12:07 pm	1.00	5.00 mL	0.00 mL	U112307.D	Liquid	Y	N
8	HS21111305-20	SAMP	11-23-2021 12:29 pm	1.00	5.00 mL	0.00 mL	U112308.D	Liquid	Y	N
9	HS21111305-20MS	MS	11-23-2021 12:52 pm	1.00	5.00 mL	0.00 mL	U112309.D	Liquid	Y	N
10	HS21111305-20MSD	MSD	11-23-2021 01:14 pm	1.00	5.00 mL	0.00 mL	U112310.D	Liquid	Y	N
11	HS21111108-14	SAMP	11-23-2021 01:36 pm	5.00	5.00 mL	0.00 mL	U112311.D	Liquid	Y	N
12	HS21111108-15	SAMP	11-23-2021 01:59 pm	5.00	5.00 mL	0.00 mL	U112312.D	Liquid	Y	N
13	HS21110813-01	SAMP	11-23-2021 02:21 pm	1.00	5.00 mL	0.00 mL	U112313.D	Liquid	Y	N
14	HS21110813-02	SAMP	11-23-2021 02:43 pm	1.00	5.00 mL	0.00 mL	U112314.D	Liquid	Y	N
15	HS21110813-03	SAMP	11-23-2021 03:06 pm	1.00	5.00 mL	0.00 mL	U112315.D	Liquid	Y	N
16	HS21110813-04	SAMP	11-23-2021 03:29 pm	1.00	5.00 mL	0.00 mL	U112316.D	Liquid	Y	N
17	HS21110813-05	SAMP	11-23-2021 03:51 pm	1.00	5.00 mL	0.00 mL	U112317.D	Liquid	Y	N
18	HS21110813-06	SAMP	11-23-2021 04:14 pm	1.00	5.00 mL	0.00 mL	U112318.D	Liquid	Y	N
19	HS21110813-07	SAMP	11-23-2021 04:36 pm	1.00	5.00 mL	0.00 mL	U112319.D	Liquid	Y	N
20	HS21110813-08	SAMP	11-23-2021 04:58 pm	1.00	5.00 mL	0.00 mL	U112320.D	Liquid	Y	N
21	HS21110813-09	SAMP	11-23-2021 05:21 pm	1.00	5.00 mL	0.00 mL	U112321.D	Liquid	Y	N
22	HS21110813-10	SAMP	11-23-2021 05:43 pm	1.00	5.00 mL	0.00 mL	U112322.D	Liquid	Y	N
23	HS21111305-02	SAMP	11-23-2021 06:05 pm	10.00	5.00 mL	0.00 mL	U112323.D	Liquid	Y	N
24	HS21111305-02	SAMP	11-23-2021 06:27 pm	50.00	5.00 mL	0.00 mL	U112324.D	Liquid	Y	N
25	HS21111305-03	SAMP	11-23-2021 06:50 pm	10.00	5.00 mL	0.00 mL	U112325.D	Liquid	Y	N
26	HS21111305-03n/r	SAMP	11-23-2021 07:12 pm	50.00	5.00 mL	0.00 mL	U112326.D	Liquid	Y	N
27	HS21111305-06	SAMP	11-23-2021 07:34 pm	10.00	5.00 mL	0.00 mL	U112327.D	Liquid	Y	N
28	HS21111305-06n/r	SAMP	11-23-2021 07:57 pm	100.0(	5.00 mL	0.00 mL	U112328.D	Liquid	Y	N
29	HS21111305-05	SAMP	11-23-2021 08:19 pm	50.00	5.00 mL	0.00 mL	U112329.D	Liquid	Y	N
30	HS21111305-05	SAMP	11-23-2021 08:41 pm	500.0(	5.00 mL	0.00 mL	U112330.D	Liquid	Y	N
31	CCV-END	CCV	11-23-2021 09:03 pm	1.00	5.00 mL	0.00 mL	U112331.D	Liquid	Y	N
32	BFB	BFB	11-23-2021 09:26 pm	1.00	0.00 mL	0.00 mL	V112301.D	Liquid	Y	N
33	VSTD050	CCV	11-23-2021 09:48 pm	1.00	5.00 mL	0.00 mL	V112302a.D	Liquid	Y	N
34	CCV	CCV	11-23-2021 10:10 pm	1.00	5.00 mL	0.00 mL	V112303.D	Liquid	Y	N
35	CCB	SAMP	11-23-2021 10:32 pm	1.00	5.00 mL	0.00 mL	V112304.D	Liquid	Y	N
36	VLCSW-211123	LCS	11-23-2021 10:54 pm	1.00	5.00 mL	0.00 mL	V112305.D	Liquid	Y	N
37	BLANK	SAMP	11-23-2021 11:17 pm	1.00	5.00 mL	0.00 mL	V112306.D	Liquid	Y	N
38	VBLKW-211123	MBLK	11-23-2021 11:39 pm	1.00	5.00 mL	0.00 mL	V112307.D	Liquid	Y	N
39	HS21110813-19	SAMP	11-24-2021 12:01 am	1.00	5.00 mL	0.00 mL	V112308.D	Liquid	Y	N
40	HS21110813-13	SAMP	11-24-2021 12:24 am	1.00	5.00 mL	0.00 mL	V112309.D	Liquid	Y	N
41	HS21111214-06	SAMP	11-24-2021 12:46 am	1.00	5.00 mL	0.00 mL	V112310.D	Liquid	Y	N

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
42	HS21111305-13	SAMP	11-24-2021 01:08 am	10.00	5.00 mL	0.00 mL	V112311.D	Liquid	Y	N
43	HS21111305-14	SAMP	11-24-2021 01:31 am	10.00	5.00 mL	0.00 mL	V112312.D	Liquid	Y	N
44	HS21110813-13MS	MS	11-24-2021 01:53 am	1.00	5.00 mL	0.00 mL	V112313.D	Liquid	Y	N
45	HS21110813-13MSD	MSD	11-24-2021 02:15 am	1.00	5.00 mL	0.00 mL	V112314.D	Liquid	Y	N
46	HS21111214-06MS	MS	11-24-2021 02:38 am	1.00	5.00 mL	0.00 mL	V112315.D	Liquid	Y	N
47	HS21111214-06MSD	MSD	11-24-2021 03:00 am	1.00	5.00 mL	0.00 mL	V112316.D	Liquid	Y	N
48	HS21111305-13n/r	SAMP	11-24-2021 03:22 am	50.00	5.00 mL	0.00 mL	V112317.D	Liquid	Y	N
49	HS21111305-14	SAMP	11-24-2021 03:45 am	50.00	5.00 mL	0.00 mL	V112318.D	Liquid	Y	N
50	HS21110813-11	SAMP	11-24-2021 04:07 am	1.00	5.00 mL	0.00 mL	V112319.D	Liquid	Y	N
51	HS21110813-12	SAMP	11-24-2021 04:29 am	1.00	5.00 mL	0.00 mL	V112320.D	Liquid	Y	N
52	HS21110813-14	SAMP	11-24-2021 04:52 am	1.00	5.00 mL	0.00 mL	V112321.D	Liquid	Y	N
53	HS21110813-15	SAMP	11-24-2021 05:14 am	1.00	5.00 mL	0.00 mL	V112322.D	Liquid	Y	N
54	HS21110813-16	SAMP	11-24-2021 05:36 am	1.00	5.00 mL	0.00 mL	V112323.D	Liquid	Y	N
55	HS21110813-17	SAMP	11-24-2021 05:58 am	1.00	5.00 mL	0.00 mL	V112324.D	Liquid	Y	N
56	HS21110813-18	SAMP	11-24-2021 06:21 am	1.00	5.00 mL	0.00 mL	V112325.D	Liquid	Y	N
57	HS21111214-08	SAMP	11-24-2021 06:43 am	1.00	5.00 mL	0.00 mL	V112326.D	Liquid	Y	N
58	HS21111214-12	SAMP	11-24-2021 07:05 am	1.00	5.00 mL	0.00 mL	V112327.D	Liquid	Y	N
59	HS21111214-15	SAMP	11-24-2021 07:28 am	1.00	5.00 mL	0.00 mL	V112328.D	Liquid	Y	N
60	HS21111214-16	SAMP	11-24-2021 07:50 am	1.00	5.00 mL	0.00 mL	V112329.D	Liquid	Y	N
61	HS21111214-10	SAMP	11-24-2021 08:13 am	1.00	5.00 mL	0.00 mL	V112330.D	Liquid	Y	N
62	HS21111214-11	SAMP	11-24-2021 08:35 am	1.00	5.00 mL	0.00 mL	V112331.D	Liquid	Y	N
63	CCV-END	CCV	11-24-2021 08:57 am	1.00	5.00 mL	0.00 mL	V112332.D	Liquid	Y	N
64	BLANK	SAMP	11-24-2021 09:19 am	1.00	5.00 mL	0.00 mL	V112333.D	Liquid	Y	N

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (TOL) #	SMC3 (DCE) #	OTHER #	TOT OUT
01	VLSCW-211123	104	101	104	105	0
02	VBLKW-211123	87	102	91	100	0
03	HS21111305-20MS	93	102	92	104	0
04	HS21111305-20MSD	93	102	92	103	0
05	HS21110813-01	89	101	94	100	0
06	HS21110813-02	89	102	93	101	0
07	HS21110813-03	87	101	92	98	0
08	HS21110813-04	88	102	94	100	0
09	HS21110813-05	89	101	94	100	0
10	HS21110813-06	90	101	93	99	0
11	HS21110813-07	89	103	94	99	0
12	HS21110813-08	88	102	95	100	0
13	HS21110813-09	89	102	94	100	0
14	HS21110813-10	87	102	94	98	0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (TOL)	= Toluene-d8	(78-123)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (TOL) #	SMC3 (DCE) #	OTHER #	TOT OUT
01	VLSCW-211123	107	100	110	103	0
02	VBLKW-211123	88	103	93	101	0
03	HS21110813-19	88	101	93	100	0
04	HS21110813-13	87	102	92	100	0
05	HS21110813-13MS	92	102	91	104	0
06	HS21110813-13MSD	92	102	92	102	0
07	HS21111214-06MS	93	102	91	103	0
08	HS21111214-06MSD	92	103	90	103	0
09	HS21110813-11	88	102	92	99	0
10	HS21110813-12	88	101	93	99	0
11	HS21110813-14	87	103	93	100	0
12	HS21110813-15	90	101	94	99	0
13	HS21110813-16	88	102	93	100	0
14	HS21110813-17	87	102	94	99	0
15	HS21110813-18	89	101	93	98	0
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		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (TOL)	= Toluene-d8	(78-123)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-211123

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U112307 Lab Sample ID: VBLKW-211123

Date Analyzed: 11/23/21 Time Analyzed: 1207

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLSCW-211123	VLCSW-211123	U112305	1122
02	HS21111305-20MS	HS21111305-20MS	U112309	1252
03	HS21111305-20MSD	HS21111305-20MSD	U112310	1314
04	HS21110813-01	HS21110813-01	U112313	1421
05	HS21110813-02	HS21110813-02	U112314	1443
06	HS21110813-03	HS21110813-03	U112315	1506
07	HS21110813-04	HS21110813-04	U112316	1529
08	HS21110813-05	HS21110813-05	U112317	1551
09	HS21110813-06	HS21110813-06	U112318	1614
10	HS21110813-07	HS21110813-07	U112319	1636
11	HS21110813-08	HS21110813-08	U112320	1658
12	HS21110813-09	HS21110813-09	U112321	1721
13	HS21110813-10	HS21110813-10	U112322	1743
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COMMENTS:

FORM IV VOA

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-211123

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: V112307 Lab Sample ID: VBLKW-211123

Date Analyzed: 11/23/21 Time Analyzed: 2339

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLSCW-211123	VLCSW-211123	V112305	2254
02	HS21110813-19	HS21110813-19	V112308	0001
03	HS21110813-13	HS21110813-13	V112309	0024
04	HS21110813-13MS	HS21110813-13MS	V112313	0153
05	HS21110813-13MSD	HS21110813-13MSD	V112314	0215
06	HS21111214-06MS	HS21111214-06MS	V112315	0238
07	HS21111214-06MSD	HS21111214-06MSD	V112316	0300
08	HS21110813-11	HS21110813-11	V112319	0407
09	HS21110813-12	HS21110813-12	V112320	0429
10	HS21110813-14	HS21110813-14	V112321	0452
11	HS21110813-15	HS21110813-15	V112322	0514
12	HS21110813-16	HS21110813-16	V112323	0536
13	HS21110813-17	HS21110813-17	V112324	0558
14	HS21110813-18	HS21110813-18	V112325	0621
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U112301 BFB Injection Date: 11/23/21

Instrument ID: VOA9 BFB Injection Time: 0953

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.0
75	30.0 - 60.0% of mass 95	49.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	70.8
175	5.0 - 9.0% of mass 174	6.0 (8.5)1
176	95.0 - 101.0% of mass 174	68.7 (97.1)1
177	5.0 - 9.0% of mass 176	4.6 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	U112303	11/23/21	1038
02	VLSCW-211123	VLCSW-211123	U112305	11/23/21	1122
03	VBLKW-211123	VBLKW-211123	U112307	11/23/21	1207
04	HS21111305-20MS	HS21111305-20MS	U112309	11/23/21	1252
05	HS21111305-20MSD	HS21111305-20MSD	U112310	11/23/21	1314
06	HS21110813-01	HS21110813-01	U112313	11/23/21	1421
07	HS21110813-02	HS21110813-02	U112314	11/23/21	1443
08	HS21110813-03	HS21110813-03	U112315	11/23/21	1506
09	HS21110813-04	HS21110813-04	U112316	11/23/21	1529
10	HS21110813-05	HS21110813-05	U112317	11/23/21	1551
11	HS21110813-06	HS21110813-06	U112318	11/23/21	1614
12	HS21110813-07	HS21110813-07	U112319	11/23/21	1636
13	HS21110813-08	HS21110813-08	U112320	11/23/21	1658
14	HS21110813-09	HS21110813-09	U112321	11/23/21	1721
15	HS21110813-10	HS21110813-10	U112322	11/23/21	1743
16	CCV-END	CCV-END	U112331	11/23/21	2103
17					
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21					
22					

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FORM V VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: V112301 BFB Injection Date: 11/23/21

Instrument ID: VOA9 BFB Injection Time: 2126

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.7
75	30.0 - 60.0% of mass 95	47.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	69.7
175	5.0 - 9.0% of mass 174	5.8 (8.3)1
176	95.0 - 101.0% of mass 174	67.8 (97.2)1
177	5.0 - 9.0% of mass 176	4.8 (7.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	V112303	11/23/21	2210
02	VLSCW-211123	VLCSW-211123	V112305	11/23/21	2254
03	VBLKW-211123	VBLKW-211123	V112307	11/23/21	2339
04	HS21110813-19	HS21110813-19	V112308	11/24/21	0001
05	HS21110813-13	HS21110813-13	V112309	11/24/21	0024
06	HS21110813-13MS	HS21110813-13MS	V112313	11/24/21	0153
07	HS21110813-13MSD	HS21110813-13MSD	V112314	11/24/21	0215
08	HS21111214-06MS	HS21111214-06MS	V112315	11/24/21	0238
09	HS21111214-06MSD	HS21111214-06MSD	V112316	11/24/21	0300
10	HS21110813-11	HS21110813-11	V112319	11/24/21	0407
11	HS21110813-12	HS21110813-12	V112320	11/24/21	0429
12	HS21110813-14	HS21110813-14	V112321	11/24/21	0452
13	HS21110813-15	HS21110813-15	V112322	11/24/21	0514
14	HS21110813-16	HS21110813-16	V112323	11/24/21	0536
15	HS21110813-17	HS21110813-17	V112324	11/24/21	0558
16	HS21110813-18	HS21110813-18	V112325	11/24/21	0621
17	CCV-END	CCV-END	V112332	11/24/21	0857
18					
19					
20					
21					
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FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 1038

Lab File ID: U112303 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	0.2820000	0.2966700	0.2966700	0.1	-5.20	20.00	AVRG
2-Butanone	0.2610000	0.2422438	0.2422438	0.1	7.19	20.00	AVRG
cis-1,3-Dichloropropene	47.095680	50.000000	0.4952906	0.2	5.81	20.00	LINR
2-Hexanone	0.2370000	0.2469270	0.2469270	0.1	-4.19	20.00	AVRG
Dichlorodifluoromethane	40.025983	50.000000	0.4794075	0.1	19.95	20.00	LINR
1,3-Dichlorobenzene	1.4400000	1.4324220	1.4324220	0.6	0.53	20.00	AVRG
Dibromochloromethane	46.159175	50.000000	0.3467783	0.1	7.68	20.00	LINR
Isopropylbenzene	1.4690000	1.5158248	1.5158248	0.1	-3.19	20.00	AVRG
1,2-Dibromoethane	0.3580000	0.3761761	0.3761761	0.1	-5.08	20.00	AVRG
4-Methyl-2-Pentanone	0.3600000	0.3487519	0.3487519	0.1	3.12	20.00	AVRG
1,2-Dibromo-3-Chloropropane	41.888680	50.000000	0.1443818	0.05	16.22	20.00	LINR
trans-1,3-Dichloropropene	45.775416	50.000000	0.4119196	0.1	8.45	20.00	LINR
Freon TF	0.4110000	0.4163847	0.4163847	0.1	-1.31	20.00	AVRG
Carbon Disulfide	1.2370000	1.2381969	1.2381969	0.1	-0.10	20.00	AVRG
1,2,4-Trichlorobenzene	0.9200000	0.9290173	0.9290173	0.2	-0.98	20.00	AVRG
Styrene	1.0250000	1.0997598	1.0997598	0.3	-7.29	20.00	AVRG
2,2-Dichloropropane	0.5030000	0.5202194	0.5202194	0.1	-3.42	20.00	AVRG
1,1-Dichloropropene	0.4100000	0.4290220	0.4290220	0.1	-4.64	20.00	AVRG
Dibromomethane	0.2140000	0.2179047	0.2179047	0.1	-1.82	20.00	AVRG
1,3-Dichloropropane	0.6280000	0.6525431	0.6525431	0.1	-3.91	20.00	AVRG
1,2-Dichloroethane	0.4510000	0.4472244	0.4472244	0.1	0.84	20.00	AVRG
1,2-Dichloropropane	0.3150000	0.3262401	0.3262401	0.1	-3.57	20.00	AVRG
1,1,2-Trichloroethane	0.2950000	0.3031584	0.3031584	0.1	-2.76	20.00	AVRG
1,2-Dichlorobenzene	1.4100000	1.4192383	1.4192383	0.4	-0.66	20.00	AVRG
1,1-Dichloroethane	0.8880000	0.8754796	0.8754796	0.2	1.41	20.00	AVRG
Toluene	1.4960000	1.5155242	1.5155242	0.4	-1.30	20.00	AVRG
1,4-Dichlorobenzene	1.4820000	1.4846411	1.4846411	0.4	-0.18	20.00	AVRG
1,1,2,2-Tetrachloroethane	1.0520000	1.0564656	1.0564656	0.3	-0.42	20.00	AVRG
trans-1,2-Dichloroethene	0.5030000	0.5041200	0.5041200	0.1	-0.22	20.00	AVRG
1,1,1,2-Tetrachloroethane	48.553357	50.000000	0.3364328	0.1	2.89	20.00	LINR
Tetrachloroethene	0.2820000	0.2771912	0.2771912	0.2	1.70	20.00	AVRG
1,1,1-Trichloroethane	0.7200000	0.7569571	0.7569571	0.1	-5.13	20.00	AVRG
Trichlorofluoromethane	0.8060000	0.8009253	0.8009253	0.1	0.63	20.00	AVRG
o-Xylene	0.5970000	0.6106630	0.6106630	0.3	-2.29	20.00	AVRG
Acetone	96.020038	100.00000	0.1679693	0.1	3.98	20.00	LINR
Trichloroethene	0.3260000	0.3353211	0.3353211	0.2	-2.86	20.00	AVRG
Vinyl Chloride	0.6040000	0.5779135	0.5779135	0.1	4.32	20.00	AVRG
Bromodichloromethane	46.559039	50.000000	0.3782989	0.2	6.88	20.00	LINR
Bromoform	43.560168	50.000000	0.2034972	0.1	12.88	20.00	2RDR
Bromomethane	59.096696	50.000000	0.3635768	0.1	-18.19	20.00	LINR
Carbon Tetrachloride	46.252375	50.000000	0.3667013	0.1	7.50	20.00	LINR
Chlorobenzene	0.9750000	0.9754181	0.9754181	0.5	-0.04	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 1038

Lab File ID: U112303 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chloroethane	0.4140000	0.3949858	0.3949858	0.1	4.59	20.00	AVRG
Chloroform	0.9630000	0.9936692	0.9936692	0.2	-3.18	20.00	AVRG
Chloromethane	51.747729	50.000000	0.5153991	0.1	-3.50	20.00	LINR
cis-1,2-Dichloroethene	0.6110000	0.6234909	0.6234909	0.1	-2.04	20.00	AVRG
1,1-Dichloroethene	0.4460000	0.4487812	0.4487812	0.1	-0.62	20.00	AVRG
Ethylbenzene	0.4880000	0.5000176	0.5000176	0.1	-2.46	20.00	AVRG
Methylene Chloride	0.5890000	0.5421596	0.5421596	0.1	7.95	20.00	AVRG
m,p-Xylenes	0.6030000	0.6340415	0.6340415	0.1	-5.15	20.00	AVRG
Benzene	1.2640000	1.3016049	1.3016049	0.5	-2.98	20.00	AVRG
Bromobenzene	0.7750000	0.8036685	0.8036685	0.1	-3.70	20.00	AVRG
1,2,3-Trichloropropane	1.0330000	1.0553874	1.0553874	0.1	-2.17	20.00	AVRG
n-Propylbenzene	3.3960000	3.5835564	3.5835564	0.1	-5.52	20.00	AVRG
2-Chlorotoluene	2.1530000	2.2293521	2.2293521	0.1	-3.55	20.00	AVRG
1,3,5-Trimethylbenzene	2.4580000	2.5318195	2.5318195	0.1	-3.00	20.00	AVRG
4-Chlorotoluene	2.4950000	2.5732005	2.5732005	0.1	-3.13	20.00	AVRG
tert-Butylbenzene	2.0720000	2.1071574	2.1071574	0.1	-1.70	20.00	AVRG
1,2,4-Trimethylbenzene	2.5070000	2.6227621	2.6227621	0.1	-4.62	20.00	AVRG
sec-Butylbenzene	2.7900000	2.9062580	2.9062580	0.1	-4.17	20.00	AVRG
p-Isopropyltoluene	2.4370000	2.5800619	2.5800619	0.1	-5.87	20.00	AVRG
n-Butylbenzene	2.1850000	2.3058863	2.3058863	0.5	-5.53	20.00	AVRG
Hexachlorobutadiene	0.3400000	0.3777060	0.3777060	0.1	-11.09	20.00	AVRG
Naphthalene	2.7550000	2.7362560	2.7362560	0.2	0.68	20.00	AVRG
1,2,3-Trichlorobenzene	0.8950000	0.8983752	0.8983752	0.1	-0.38	20.00	AVRG
Dibromofluoromethane	50.786332	50.000000	0.5329359	0.1	-1.57	20.00	LINR
Toluene-d8	1.3010000	1.2721123	1.2721123	0.1	2.22	20.00	AVRG
1,2-Dichloroethane-d4	50.255848	50.000000	0.6164433	0.1	-0.51	20.00	LINR
4-Bromofluorobenzene	50.670053	50.000000	0.4919755	0.1	-1.34	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 2103

Lab File ID: U112331 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	0.2820000	0.3215828	0.3215828	0.1	-14.04	50.00	AVRG
2-Butanone	0.2610000	0.2585772	0.2585772	0.1	0.93	50.00	AVRG
cis-1,3-Dichloropropene	43.680556	50.000000	0.4579943	0.2	12.64	50.00	LINR
2-Hexanone	0.2370000	0.2556683	0.2556683	0.1	-7.88	50.00	AVRG
Dichlorodifluoromethane	40.227414	50.000000	0.4817780	0.1	19.54	50.00	LINR
1,3-Dichlorobenzene	1.4400000	1.4072691	1.4072691	0.6	2.27	50.00	AVRG
Dibromochloromethane	45.622692	50.000000	0.3426126	0.1	8.75	50.00	LINR
Isopropylbenzene	1.4690000	1.4671650	1.4671650	0.1	0.12	50.00	AVRG
1,2-Dibromoethane	0.3580000	0.3865438	0.3865438	0.1	-7.97	50.00	AVRG
4-Methyl-2-Pentanone	0.3600000	0.3626687	0.3626687	0.1	-0.74	50.00	AVRG
1,2-Dibromo-3-Chloropropane	41.036922	50.000000	0.1412648	0.05	17.93	50.00	LINR
trans-1,3-Dichloropropene	42.002758	50.000000	0.3763281	0.1	15.99	50.00	LINR
Freon TF	0.4110000	0.4184219	0.4184219	0.1	-1.80	50.00	AVRG
Carbon Disulfide	1.2370000	1.2239763	1.2239763	0.1	1.05	50.00	AVRG
1,2,4-Trichlorobenzene	0.9200000	0.8688472	0.8688472	0.2	5.56	50.00	AVRG
Styrene	1.0250000	1.1039386	1.1039386	0.3	-7.70	50.00	AVRG
2,2-Dichloropropane	0.5030000	0.3459688	0.3459688	0.1	31.22	50.00	AVRG
1,1-Dichloropropene	0.4100000	0.4170172	0.4170172	0.1	-1.71	50.00	AVRG
Dibromomethane	0.2140000	0.2247936	0.2247936	0.1	-5.04	50.00	AVRG
1,3-Dichloropropane	0.6280000	0.6642768	0.6642768	0.1	-5.78	50.00	AVRG
1,2-Dichloroethane	0.4510000	0.4592451	0.4592451	0.1	-1.83	50.00	AVRG
1,2-Dichloropropane	0.3150000	0.3349780	0.3349780	0.1	-6.34	50.00	AVRG
1,1,2-Trichloroethane	0.2950000	0.3147971	0.3147971	0.1	-6.71	50.00	AVRG
1,2-Dichlorobenzene	1.4100000	1.4362174	1.4362174	0.4	-1.86	50.00	AVRG
1,1-Dichloroethane	0.8880000	0.9490122	0.9490122	0.2	-6.87	50.00	AVRG
Toluene	1.4960000	1.5325922	1.5325922	0.4	-2.45	50.00	AVRG
1,4-Dichlorobenzene	1.4820000	1.4736579	1.4736579	0.4	0.56	50.00	AVRG
1,1,2,2-Tetrachloroethane	1.0520000	1.1170798	1.1170798	0.3	-6.19	50.00	AVRG
trans-1,2-Dichloroethene	0.5030000	0.5232741	0.5232741	0.1	-4.03	50.00	AVRG
1,1,1,2-Tetrachloroethane	47.975603	50.000000	0.3323602	0.1	4.05	50.00	LINR
Tetrachloroethene	0.2820000	0.2579594	0.2579594	0.2	8.52	50.00	AVRG
1,1,1-Trichloroethane	0.7200000	0.7677305	0.7677305	0.1	-6.63	50.00	AVRG
Trichlorofluoromethane	0.8060000	0.8264254	0.8264254	0.1	-2.53	50.00	AVRG
o-Xylene	0.5970000	0.6108466	0.6108466	0.3	-2.32	50.00	AVRG
Acetone	109.08650	100.00000	0.1893492	0.1	-9.09	50.00	LINR
Trichloroethene	0.3260000	0.3380648	0.3380648	0.2	-3.70	50.00	AVRG
Vinyl Chloride	0.6040000	0.6118139	0.6118139	0.1	-1.29	50.00	AVRG
Bromodichloromethane	46.682311	50.000000	0.3793234	0.2	6.64	50.00	LINR
Bromoform	42.552115	50.000000	0.1985294	0.1	14.90	50.00	2RDR
Bromomethane	60.645243	50.000000	0.3730219	0.1	-21.29	50.00	LINR
Carbon Tetrachloride	44.714943	50.000000	0.3541018	0.1	10.57	50.00	LINR
Chlorobenzene	0.9750000	0.9748957	0.9748957	0.5	0.01	50.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 2103

Lab File ID: U112331 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chloroethane	0.4140000	0.4252304	0.4252304	0.1	-2.71	50.00	AVRG
Chloroform	0.9630000	1.0655397	1.0655397	0.2	-10.65	50.00	AVRG
Chloromethane	52.667626	50.000000	0.5244585	0.1	-5.34	50.00	LINR
cis-1,2-Dichloroethene	0.6110000	0.6643891	0.6643891	0.1	-8.74	50.00	AVRG
1,1-Dichloroethene	0.4460000	0.4722097	0.4722097	0.1	-5.88	50.00	AVRG
Ethylbenzene	0.4880000	0.4950498	0.4950498	0.1	-1.44	50.00	AVRG
Methylene Chloride	0.5890000	0.6003521	0.6003521	0.1	-1.93	50.00	AVRG
m,p-Xylenes	0.6030000	0.6156383	0.6156383	0.1	-2.10	50.00	AVRG
Benzene	1.2640000	1.3238235	1.3238235	0.5	-4.73	50.00	AVRG
Bromobenzene	0.7750000	0.8073024	0.8073024	0.1	-4.17	50.00	AVRG
1,2,3-Trichloropropane	1.0330000	1.0583356	1.0583356	0.1	-2.45	50.00	AVRG
n-Propylbenzene	3.3960000	3.4913337	3.4913337	0.1	-2.81	50.00	AVRG
2-Chlorotoluene	2.1530000	2.1914916	2.1914916	0.1	-1.79	50.00	AVRG
1,3,5-Trimethylbenzene	2.4580000	2.4732442	2.4732442	0.1	-0.62	50.00	AVRG
4-Chlorotoluene	2.4950000	2.5576872	2.5576872	0.1	-2.51	50.00	AVRG
tert-Butylbenzene	2.0720000	2.0699361	2.0699361	0.1	0.10	50.00	AVRG
1,2,4-Trimethylbenzene	2.5070000	2.5679001	2.5679001	0.1	-2.43	50.00	AVRG
sec-Butylbenzene	2.7900000	2.7920083	2.7920083	0.1	-0.07	50.00	AVRG
p-Isopropyltoluene	2.4370000	2.4294963	2.4294963	0.1	0.31	50.00	AVRG
n-Butylbenzene	2.1850000	2.1009481	2.1009481	0.5	3.85	50.00	AVRG
Hexachlorobutadiene	0.3400000	0.3205403	0.3205403	0.1	5.72	50.00	AVRG
Naphthalene	2.7550000	2.6704830	2.6704830	0.2	3.07	50.00	AVRG
1,2,3-Trichlorobenzene	0.8950000	0.8581953	0.8581953	0.1	4.11	50.00	AVRG
Dibromofluoromethane	55.976356	50.000000	0.5864932	0.1	-11.95	50.00	LINR
Toluene-d8	1.3010000	1.3354233	1.3354233	0.1	-2.64	50.00	AVRG
1,2-Dichloroethane-d4	56.254316	50.000000	0.6878888	0.1	-12.51	50.00	LINR
4-Bromofluorobenzene	52.582904	50.000000	0.5100677	0.1	-5.16	50.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 2210

Lab File ID: V112303 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Bromochloromethane	0.2820000	0.3332105	0.3332105	0.1	-18.16	20.00	AVRG	
2-Butanone	0.2610000	0.2649548	0.2649548	0.1	-1.52	20.00	AVRG	
cis-1,3-Dichloropropene	48.870898	50.000000	0.5146777	0.2	2.26	20.00	LINR	
2-Hexanone	0.2370000	0.2545748	0.2545748	0.1	-7.42	20.00	AVRG	
Dichlorodifluoromethane	44.152984	50.000000	0.5279743	0.1	11.69	20.00	LINR	
1,3-Dichlorobenzene	1.4400000	1.5222778	1.5222778	0.6	-5.71	20.00	AVRG	
Dibromochloromethane	48.977966	50.000000	0.3686661	0.1	2.04	20.00	LINR	
Isopropylbenzene	1.4690000	1.6300881	1.6300881	0.1	-10.96	20.00	AVRG	
1,2-Dibromoethane	0.3580000	0.4011785	0.4011785	0.1	-12.06	20.00	AVRG	
4-Methyl-2-Pentanone	0.3600000	0.3686708	0.3686708	0.1	-2.41	20.00	AVRG	
1,2-Dibromo-3-Chloropropane	45.021978	50.000000	0.1558481	0.05	9.96	20.00	LINR	
trans-1,3-Dichloropropene	47.780663	50.000000	0.4308372	0.1	4.44	20.00	LINR	
Freon TF	0.4110000	0.4701595	0.4701595	0.1	-14.39	20.00	AVRG	
Carbon Disulfide	1.2370000	1.3531400	1.3531400	0.1	-9.39	20.00	AVRG	
1,2,4-Trichlorobenzene	0.9200000	0.9982402	0.9982402	0.2	-8.50	20.00	AVRG	
Styrene	1.0250000	1.1691836	1.1691836	0.3	-14.07	20.00	AVRG	
2,2-Dichloropropane	0.5030000	0.4786919	0.4786919	0.1	4.83	20.00	AVRG	
1,1-Dichloropropene	0.4100000	0.4573677	0.4573677	0.1	-11.55	20.00	AVRG	
Dibromomethane	0.2140000	0.2307475	0.2307475	0.1	-7.82	20.00	AVRG	
1,3-Dichloropropane	0.6280000	0.6858079	0.6858079	0.1	-9.20	20.00	AVRG	
1,2-Dichloroethane	0.4510000	0.4722802	0.4722802	0.1	-4.72	20.00	AVRG	
1,2-Dichloropropane	0.3150000	0.3521107	0.3521107	0.1	-11.78	20.00	AVRG	
1,1,2-Trichloroethane	0.2950000	0.3203042	0.3203042	0.1	-8.58	20.00	AVRG	
1,2-Dichlorobenzene	1.4100000	1.5106978	1.5106978	0.4	-7.14	20.00	AVRG	
1,1-Dichloroethane	0.8880000	0.9791604	0.9791604	0.2	-10.26	20.00	AVRG	
Toluene	1.4960000	1.6003712	1.6003712	0.4	-6.98	20.00	AVRG	
1,4-Dichlorobenzene	1.4820000	1.5809826	1.5809826	0.4	-6.68	20.00	AVRG	
1,1,2,2-Tetrachloroethane	1.0520000	1.1267828	1.1267828	0.3	-7.11	20.00	AVRG	
trans-1,2-Dichloroethene	0.5030000	0.5617200	0.5617200	0.1	-11.67	20.00	AVRG	
1,1,1,2-Tetrachloroethane	51.540167	50.000000	0.3574866	0.1	-3.08	20.00	LINR	
Tetrachloroethene	0.2820000	0.2903629	0.2903629	0.2	-2.96	20.00	AVRG	
1,1,1-Trichloroethane	0.7200000	0.8399535	0.8399535	0.1	-16.66	20.00	AVRG	
Trichlorofluoromethane	0.8060000	0.8932140	0.8932140	0.1	-10.82	20.00	AVRG	
o-Xylene	0.5970000	0.6572082	0.6572082	0.3	-10.08	20.00	AVRG	
Acetone	107.65743	100.00000	0.1870109	0.1	-7.66	20.00	LINR	
Trichloroethene	0.3260000	0.3621357	0.3621357	0.2	-11.08	20.00	AVRG	
Vinyl Chloride	0.6040000	0.6317689	0.6317689	0.1	-4.60	20.00	AVRG	
Bromodichloromethane	49.751855	50.000000	0.4048321	0.2	0.50	20.00	LINR	
Bromoform	46.153776	50.000000	0.2163020	0.1	7.69	20.00	2RDR	
Bromomethane	65.007834	50.000000	0.3996306	0.1	-30.02	20.00	LINR	<-
Carbon Tetrachloride	50.165795	50.000000	0.3987722	0.1	-0.33	20.00	LINR	
Chlorobenzene	0.9750000	1.0346534	1.0346534	0.5	-6.12	20.00	AVRG	

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date: 11/23/21 Time: 2210

Lab File ID: V112303 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chloroethane	0.4140000	0.4438748	0.4438748	0.1	-7.22	20.00	AVRG
Chloroform	0.9630000	1.1194464	1.1194464	0.2	-16.24	20.00	AVRG
Chloromethane	56.343158	50.000000	0.5606563	0.1	-12.69	20.00	LINR
cis-1,2-Dichloroethene	0.6110000	0.7040834	0.7040834	0.1	-15.23	20.00	AVRG
1,1-Dichloroethene	0.4460000	0.5054489	0.5054489	0.1	-13.33	20.00	AVRG
Ethylbenzene	0.4880000	0.5316931	0.5316931	0.1	-8.95	20.00	AVRG
Methylene Chloride	0.5890000	0.6085601	0.6085601	0.1	-3.32	20.00	AVRG
m,p-Xylenes	0.6030000	0.6759794	0.6759794	0.1	-12.10	20.00	AVRG
Benzene	1.2640000	1.3907224	1.3907224	0.5	-10.02	20.00	AVRG
Bromobenzene	0.7750000	0.8530828	0.8530828	0.1	-10.08	20.00	AVRG
1,2,3-Trichloropropane	1.0330000	1.0882360	1.0882360	0.1	-5.35	20.00	AVRG
n-Propylbenzene	3.3960000	3.8674625	3.8674625	0.1	-13.88	20.00	AVRG
2-Chlorotoluene	2.1530000	2.3588634	2.3588634	0.1	-9.56	20.00	AVRG
1,3,5-Trimethylbenzene	2.4580000	2.7358802	2.7358802	0.1	-11.30	20.00	AVRG
4-Chlorotoluene	2.4950000	2.7237685	2.7237685	0.1	-9.17	20.00	AVRG
tert-Butylbenzene	2.0720000	2.3073485	2.3073485	0.1	-11.36	20.00	AVRG
1,2,4-Trimethylbenzene	2.5070000	2.8182909	2.8182909	0.1	-12.42	20.00	AVRG
sec-Butylbenzene	2.7900000	3.1346737	3.1346737	0.1	-12.35	20.00	AVRG
p-Isopropyltoluene	2.4370000	2.7575675	2.7575675	0.1	-13.15	20.00	AVRG
n-Butylbenzene	2.1850000	2.4186316	2.4186316	0.5	-10.69	20.00	AVRG
Hexachlorobutadiene	0.3400000	0.3860418	0.3860418	0.1	-13.54	20.00	AVRG
Naphthalene	2.7550000	2.9535011	2.9535011	0.2	-7.20	20.00	AVRG
1,2,3-Trichlorobenzene	0.8950000	0.9747743	0.9747743	0.1	-8.91	20.00	AVRG
Dibromofluoromethane	54.750085	50.000000	0.5738390	0.1	-9.50	20.00	LINR
Toluene-d8	1.3010000	1.2842461	1.2842461	0.1	1.29	20.00	AVRG
1,2-Dichloroethane-d4	54.395805	50.000000	0.6657528	0.1	-8.79	20.00	LINR
4-Bromofluorobenzene	50.823930	50.000000	0.4934309	0.1	-1.65	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/24/21 Time: 0857

Lab File ID: V112332 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Bromochloromethane	0.2820000	0.3281590	0.3281590	0.1	-16.37	50.00	AVRG	
2-Butanone	0.2610000	0.2763072	0.2763072	0.1	-5.86	50.00	AVRG	
cis-1,3-Dichloropropene	40.877007	50.000000	0.4273769	0.2	18.24	50.00	LINR	
2-Hexanone	0.2370000	0.2554720	0.2554720	0.1	-7.79	50.00	AVRG	
Dichlorodifluoromethane	37.003517	50.000000	0.4438390	0.1	25.99	50.00	LINR	
1,3-Dichlorobenzene	1.4400000	1.3778444	1.3778444	0.6	4.32	50.00	AVRG	
Dibromochloromethane	45.084502	50.000000	0.3384336	0.1	9.83	50.00	LINR	
Isopropylbenzene	1.4690000	1.3991623	1.3991623	0.1	4.75	50.00	AVRG	
1,2-Dibromoethane	0.3580000	0.3846500	0.3846500	0.1	-7.44	50.00	AVRG	
4-Methyl-2-Pentanone	0.3600000	0.3679926	0.3679926	0.1	-2.22	50.00	AVRG	
1,2-Dibromo-3-Chloropropane	42.553797	50.000000	0.1468158	0.05	14.89	50.00	LINR	
trans-1,3-Dichloropropene	40.325204	50.000000	0.3605020	0.1	19.35	50.00	LINR	
Freon TF	0.4110000	0.3807509	0.3807509	0.1	7.36	50.00	AVRG	
Carbon Disulfide	1.2370000	1.1844488	1.1844488	0.1	4.25	50.00	AVRG	
1,2,4-Trichlorobenzene	0.9200000	0.8506542	0.8506542	0.2	7.54	50.00	AVRG	
Styrene	1.0250000	1.0528499	1.0528499	0.3	-2.72	50.00	AVRG	
2,2-Dichloropropane	0.5030000	0.2399374	0.2399374	0.1	52.30	50.00	AVRG	<-
1,1-Dichloropropene	0.4100000	0.3962042	0.3962042	0.1	3.36	50.00	AVRG	
Dibromomethane	0.2140000	0.2244100	0.2244100	0.1	-4.86	50.00	AVRG	
1,3-Dichloropropane	0.6280000	0.6543260	0.6543260	0.1	-4.19	50.00	AVRG	
1,2-Dichloroethane	0.4510000	0.4523244	0.4523244	0.1	-0.29	50.00	AVRG	
1,2-Dichloropropane	0.3150000	0.3278084	0.3278084	0.1	-4.07	50.00	AVRG	
1,1,2-Trichloroethane	0.2950000	0.3062869	0.3062869	0.1	-3.83	50.00	AVRG	
1,2-Dichlorobenzene	1.4100000	1.4223837	1.4223837	0.4	-0.88	50.00	AVRG	
1,1-Dichloroethane	0.8880000	0.9500568	0.9500568	0.2	-6.99	50.00	AVRG	
Toluene	1.4960000	1.4679585	1.4679585	0.4	1.87	50.00	AVRG	
1,4-Dichlorobenzene	1.4820000	1.4330417	1.4330417	0.4	3.30	50.00	AVRG	
1,1,2,2-Tetrachloroethane	1.0520000	1.1112561	1.1112561	0.3	-5.63	50.00	AVRG	
trans-1,2-Dichloroethene	0.5030000	0.5215562	0.5215562	0.1	-3.69	50.00	AVRG	
1,1,1,2-Tetrachloroethane	46.664847	50.000000	0.3231208	0.1	6.67	50.00	LINR	
Tetrachloroethene	0.2820000	0.2441096	0.2441096	0.2	13.44	50.00	AVRG	
1,1,1-Trichloroethane	0.7200000	0.7417475	0.7417475	0.1	-3.02	50.00	AVRG	
Trichlorofluoromethane	0.8060000	0.8056147	0.8056147	0.1	0.05	50.00	AVRG	
o-Xylene	0.5970000	0.5944848	0.5944848	0.3	0.42	50.00	AVRG	
Acetone	116.58710	100.00000	0.2016220	0.1	-16.59	50.00	LINR	
Trichloroethene	0.3260000	0.3224642	0.3224642	0.2	1.08	50.00	AVRG	
Vinyl Chloride	0.6040000	0.5881950	0.5881950	0.1	2.62	50.00	AVRG	
Bromodichloromethane	45.958041	50.000000	0.3733045	0.2	8.08	50.00	LINR	
Bromoform	42.937892	50.000000	0.2004300	0.1	14.12	50.00	2RDR	
Bromomethane	60.777726	50.000000	0.3738299	0.1	-21.56	50.00	LINR	
Carbon Tetrachloride	42.088393	50.000000	0.3325769	0.1	15.82	50.00	LINR	
Chlorobenzene	0.9750000	0.9404635	0.9404635	0.5	3.54	50.00	AVRG	

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: VOA9 Calibration Date: 11/24/21 Time: 0857

Lab File ID: V112332 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chloroethane	0.4140000	0.4200954	0.4200954	0.1	-1.47	50.00	AVRG
Chloroform	0.9630000	1.0792589	1.0792589	0.2	-12.07	50.00	AVRG
Chloromethane	52.269676	50.000000	0.5205394	0.1	-4.54	50.00	LINR
cis-1,2-Dichloroethene	0.6110000	0.6755024	0.6755024	0.1	-10.56	50.00	AVRG
1,1-Dichloroethene	0.4460000	0.4661271	0.4661271	0.1	-4.51	50.00	AVRG
Ethylbenzene	0.4880000	0.4721519	0.4721519	0.1	3.25	50.00	AVRG
Methylene Chloride	0.5890000	0.6093474	0.6093474	0.1	-3.45	50.00	AVRG
m,p-Xylenes	0.6030000	0.5949697	0.5949697	0.1	1.33	50.00	AVRG
Benzene	1.2640000	1.2995513	1.2995513	0.5	-2.81	50.00	AVRG
Bromobenzene	0.7750000	0.7964132	0.7964132	0.1	-2.76	50.00	AVRG
1,2,3-Trichloropropane	1.0330000	1.0463521	1.0463521	0.1	-1.29	50.00	AVRG
n-Propylbenzene	3.3960000	3.3026560	3.3026560	0.1	2.75	50.00	AVRG
2-Chlorotoluene	2.1530000	2.1346588	2.1346588	0.1	0.85	50.00	AVRG
1,3,5-Trimethylbenzene	2.4580000	2.3947427	2.3947427	0.1	2.57	50.00	AVRG
4-Chlorotoluene	2.4950000	2.4797922	2.4797922	0.1	0.61	50.00	AVRG
tert-Butylbenzene	2.0720000	1.9636882	1.9636882	0.1	5.23	50.00	AVRG
1,2,4-Trimethylbenzene	2.5070000	2.4771576	2.4771576	0.1	1.19	50.00	AVRG
sec-Butylbenzene	2.7900000	2.6110145	2.6110145	0.1	6.42	50.00	AVRG
p-Isopropyltoluene	2.4370000	2.2949564	2.2949564	0.1	5.83	50.00	AVRG
n-Butylbenzene	2.1850000	1.9353401	1.9353401	0.5	11.43	50.00	AVRG
Hexachlorobutadiene	0.3400000	0.2877897	0.2877897	0.1	15.36	50.00	AVRG
Naphthalene	2.7550000	2.7349456	2.7349456	0.2	0.73	50.00	AVRG
1,2,3-Trichlorobenzene	0.8950000	0.8504998	0.8504998	0.1	4.97	50.00	AVRG
Dibromofluoromethane	56.810761	50.000000	0.5951037	0.1	-13.62	50.00	LINR
Toluene-d8	1.3010000	1.3024007	1.3024007	0.1	-0.11	50.00	AVRG
1,2-Dichloroethane-d4	57.575154	50.000000	0.7036208	0.1	-15.15	50.00	LINR
4-Bromofluorobenzene	51.269814	50.000000	0.4976482	0.1	-2.54	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U112303 Date Analyzed: 11/23/21

Instrument ID: VOA9 Time Analyzed: 1038

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DCB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	273425	4.88	211474	10.22	425883	8.24
	UPPER LIMIT	546850	5.38	422948	10.72	851766	8.74
	LOWER LIMIT	136713	4.38	105737	9.72	212942	7.74
	CLIENT SAMPLE NO.						
01	VLSCW-211123	268775	4.88	209363	10.22	415021	8.24
02	VBLKW-211123	295371	4.89	203525	10.22	417434	8.24
03	HS21111305-20MS	287376	4.88	208198	10.22	415391	8.24
04	HS21111305-20MSD	294144	4.88	209367	10.22	420953	8.24
05	HS21110813-01	282445	4.88	200041	10.23	410407	8.24
06	HS21110813-02	288148	4.88	204819	10.23	413587	8.24
07	HS21110813-03	286246	4.89	195414	10.23	410585	8.24
08	HS21110813-04	287544	4.89	201991	10.23	415886	8.24
09	HS21110813-05	289609	4.88	204305	10.23	422350	8.24
10	HS21110813-06	283097	4.88	199704	10.22	411046	8.24
11	HS21110813-07	279478	4.88	193902	10.22	399707	8.24
12	HS21110813-08	284568	4.89	198795	10.23	409750	8.24
13	HS21110813-09	291216	4.88	206233	10.22	424057	8.24
14	HS21110813-10	287637	4.88	201089	10.23	412928	8.24
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DCB) = 1,4-Dichlorobenzene-d4
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U112303 Date Analyzed: 11/23/21

Instrument ID: VOA9 Time Analyzed: 1038

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DFB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	470871	5.61				
	UPPER LIMIT	941742	6.11				
	LOWER LIMIT	235436	5.11				
	CLIENT SAMPLE NO.						
01	VLSCW-211123	463465	5.61				
02	VBLKW-211123	476880	5.62				
03	HS21111305-20MS	468878	5.62				
04	HS21111305-20MSD	478651	5.61				
05	HS21110813-01	460614	5.62				
06	HS21110813-02	471807	5.62				
07	HS21110813-03	466145	5.62				
08	HS21110813-04	472046	5.62				
09	HS21110813-05	479080	5.62				
10	HS21110813-06	467406	5.61				
11	HS21110813-07	461220	5.61				
12	HS21110813-08	469180	5.62				
13	HS21110813-09	482267	5.62				
14	HS21110813-10	470111	5.61				
15							
16							
17							
18							
19							
20							

IS4 (DFB) = 1,4-Difluorobenzene

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): V112303 Date Analyzed: 11/23/21

Instrument ID: VOA9 Time Analyzed: 2210

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DCB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	260418	4.88	212521	10.23	427837	8.24
	UPPER LIMIT	520836	5.38	425042	10.73	855674	8.74
	LOWER LIMIT	130209	4.38	106261	9.73	213919	7.74
	CLIENT SAMPLE NO.						
01	VLSCW-211123	257875	4.88	205231	10.23	416313	8.24
02	VBLKW-211123	293806	4.89	201356	10.22	417064	8.24
03	HS21110813-19	293319	4.88	204861	10.23	422370	8.24
04	HS21110813-13	289991	4.88	198757	10.23	412480	8.24
05	HS21110813-13MS	294750	4.88	213090	10.23	420577	8.24
06	HS21110813-13MSD	296235	4.88	213037	10.23	426620	8.24
07	HS21111214-06MS	288650	4.88	204755	10.22	412486	8.24
08	HS21111214-06MSD	295635	4.88	210503	10.23	419085	8.24
09	HS21110813-11	296316	4.88	205836	10.23	426612	8.24
10	HS21110813-12	288793	4.88	204806	10.23	418734	8.24
11	HS21110813-14	289575	4.88	203637	10.23	412552	8.24
12	HS21110813-15	285656	4.88	200780	10.22	416513	8.24
13	HS21110813-16	289554	4.89	202612	10.22	416870	8.24
14	HS21110813-17	286860	4.88	200132	10.23	415131	8.24
15	HS21110813-18	282989	4.88	195418	10.23	408739	8.24
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DCB) = 1,4-Dichlorobenzene-d4
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): V112303 Date Analyzed: 11/23/21

Instrument ID: VOA9 Time Analyzed: 2210

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DFB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	468330	5.61				
	UPPER LIMIT	936660	6.11				
	LOWER LIMIT	234165	5.11				
	CLIENT SAMPLE NO.						
01	VLSCW-211123	467434	5.61				
02	VBLKW-211123	482265	5.62				
03	HS21110813-19	480639	5.61				
04	HS21110813-13	473228	5.61				
05	HS21110813-13MS	471362	5.61				
06	HS21110813-13MSD	476924	5.62				
07	HS21111214-06MS	461917	5.61				
08	HS21111214-06MSD	479449	5.61				
09	HS21110813-11	483181	5.62				
10	HS21110813-12	474624	5.61				
11	HS21110813-14	471652	5.61				
12	HS21110813-15	470155	5.62				
13	HS21110813-16	474808	5.62				
14	HS21110813-17	469409	5.61				
15	HS21110813-18	462497	5.62				
16							
17							
18							
19							
20							

IS4 (DFB) = 1,4-Difluorobenzene

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112301.D

Date : 23-NOV-2021 09:53

Client ID: BFB

Instrument: VOA9.i

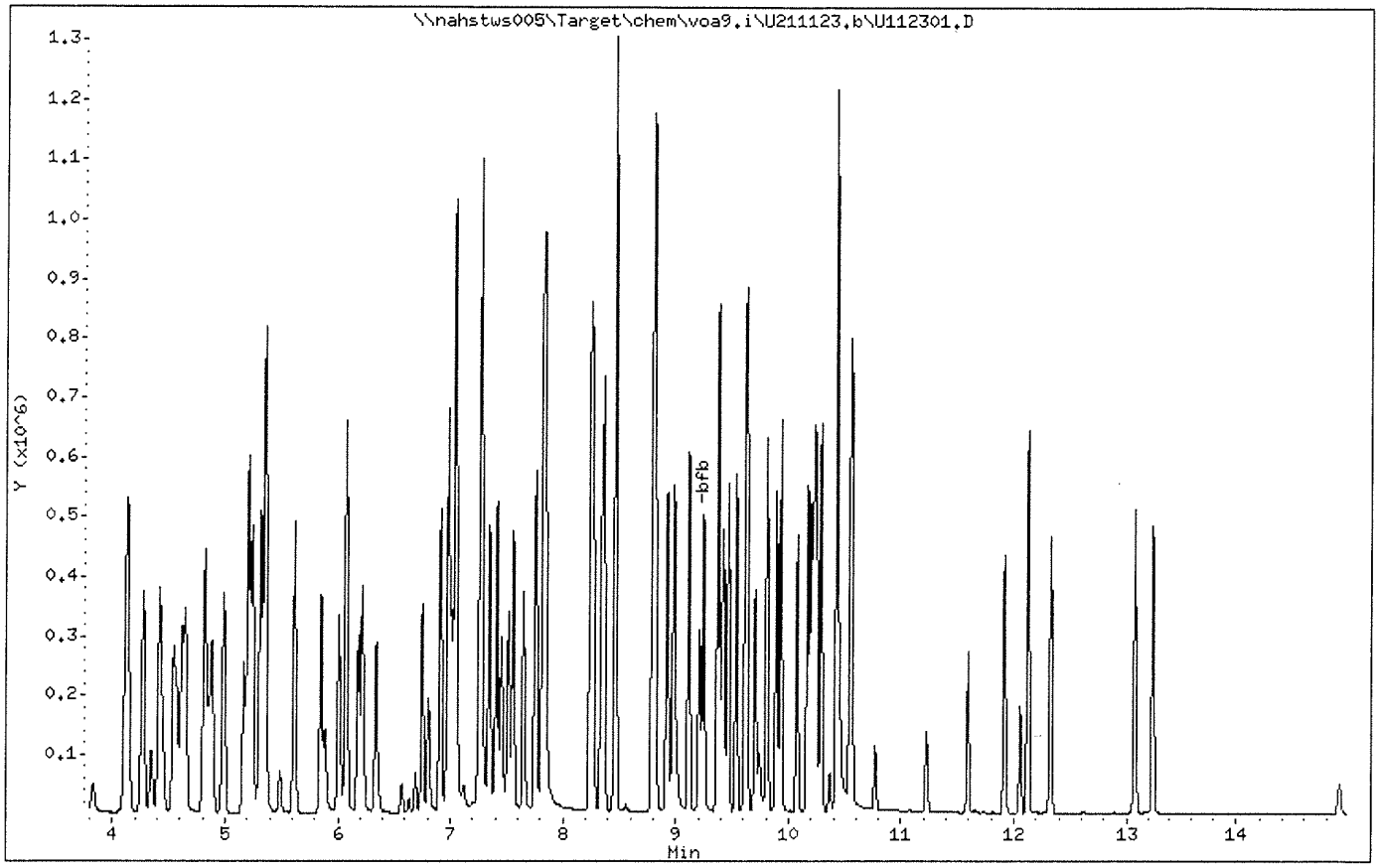
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112301.D

Date : 23-NOV-2021 09:53

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

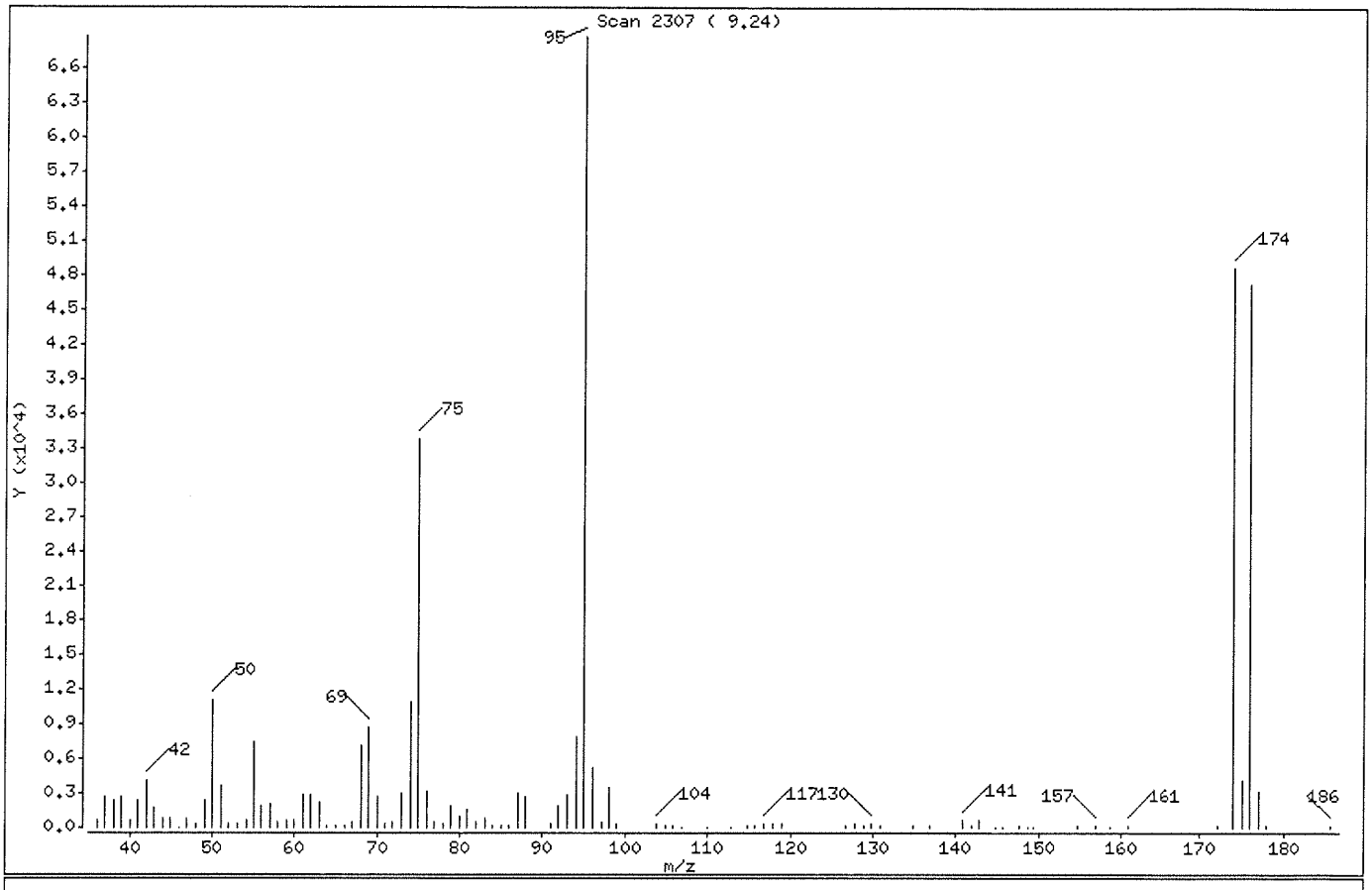
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.01
75	30.00 - 60.00% of mass 95	49.13
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	70.76
175	5.00 - 9.00% of mass 174	5.98 (8.45)
176	95.00 - 101.00% of mass 174	68.73 (97.14)
177	5.00 - 9.00% of mass 176	4.63 (6.74)

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112301.D

Date : 23-NOV-2021 09:53

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U112301.D
Spectrum: Scan 2307 (9.24)
Location of Maximum: 95.05
Number of points: 99

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	665	61.00	2857	86.00	148	128.90	87
37.00	2646	62.00	2861	87.00	2990	129.90	298
38.00	2411	63.00	2232	87.90	2755	130.90	83
39.00	2646	63.90	187	91.00	258	134.80	109
40.00	631	64.90	157	91.90	1876	136.80	151
41.00	2331	66.00	110	93.00	2852	140.90	711
42.00	4108	67.00	533	94.00	7877	141.90	204
43.00	1798	68.00	7035	95.00	68752	142.80	665
44.00	739	69.00	8691	96.00	5175	144.90	52
45.00	779	70.00	2714	97.10	429	145.60	76
46.10	59	71.00	258	98.00	3446	147.70	173
47.00	807	71.90	458	99.00	259	148.80	51
48.00	370	73.00	3038	103.80	266	149.50	53
49.00	2333	74.00	10959	104.80	172	154.70	131
50.00	11009	75.00	33776	105.70	231	156.90	151
51.00	3679	76.00	3149	106.80	67	158.70	63
52.00	272	76.90	465	110.00	54	160.80	117
53.00	390	77.90	366	112.80	51	172.10	87
54.10	667	78.90	1954	114.70	80	173.90	48648
55.00	7481	80.00	986	115.80	237	174.90	4111
56.00	1931	80.90	1643	116.80	361	175.90	47256
57.00	1998	81.90	529	117.80	269	176.90	3185
58.00	481	83.00	831	118.90	332	177.90	116
59.00	604	84.00	93	126.80	185	185.90	138
60.00	644	85.10	83	127.90	287		

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112303.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112303.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 23-NOV-2021 10:38
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	273425	50.0000	
* 36 1,4-Difluorobenzene	114	5.613	5.614	(1.000)	470871	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	425883	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	211474	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	168551	50.0000	50.25
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	209524	50.0000	50.67
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	145718	50.0000	50.78
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	541771	50.0000	48.87
31 1,1,1-Trichloroethane	97	4.807	4.811	(0.985)	206971	50.0000	52.58
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	160207	50.0000	52.55
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	143281	50.0000	48.55
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	223415	50.0000	50.19
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	129110	50.0000	51.44
22 1,1-Dichloroethane	63	3.582	3.589	(0.734)	239378	50.0000	49.27
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	122708	50.0000	50.33
32 1,1-Dichloropropene	75	4.987	4.991	(0.888)	202014	50.0000	52.24
93 1,2,3-Trichlorobenzene	180	12.323	12.324	(1.205)	189983	50.0000	50.16
71 1,2,3-Trichloropropane	75	9.418	9.415	(0.921)	223187	50.0000	51.06
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	196463	50.0000	50.47
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	554646	50.0000	52.31
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	300132	50.0000	50.32
33 1,2-Dichloroethane	62	5.242	5.243	(0.934)	210585	50.0000	49.57
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	153617	50.0000	51.84

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112303.D Page 2
Report Date: 22-Dec-2021 16:05

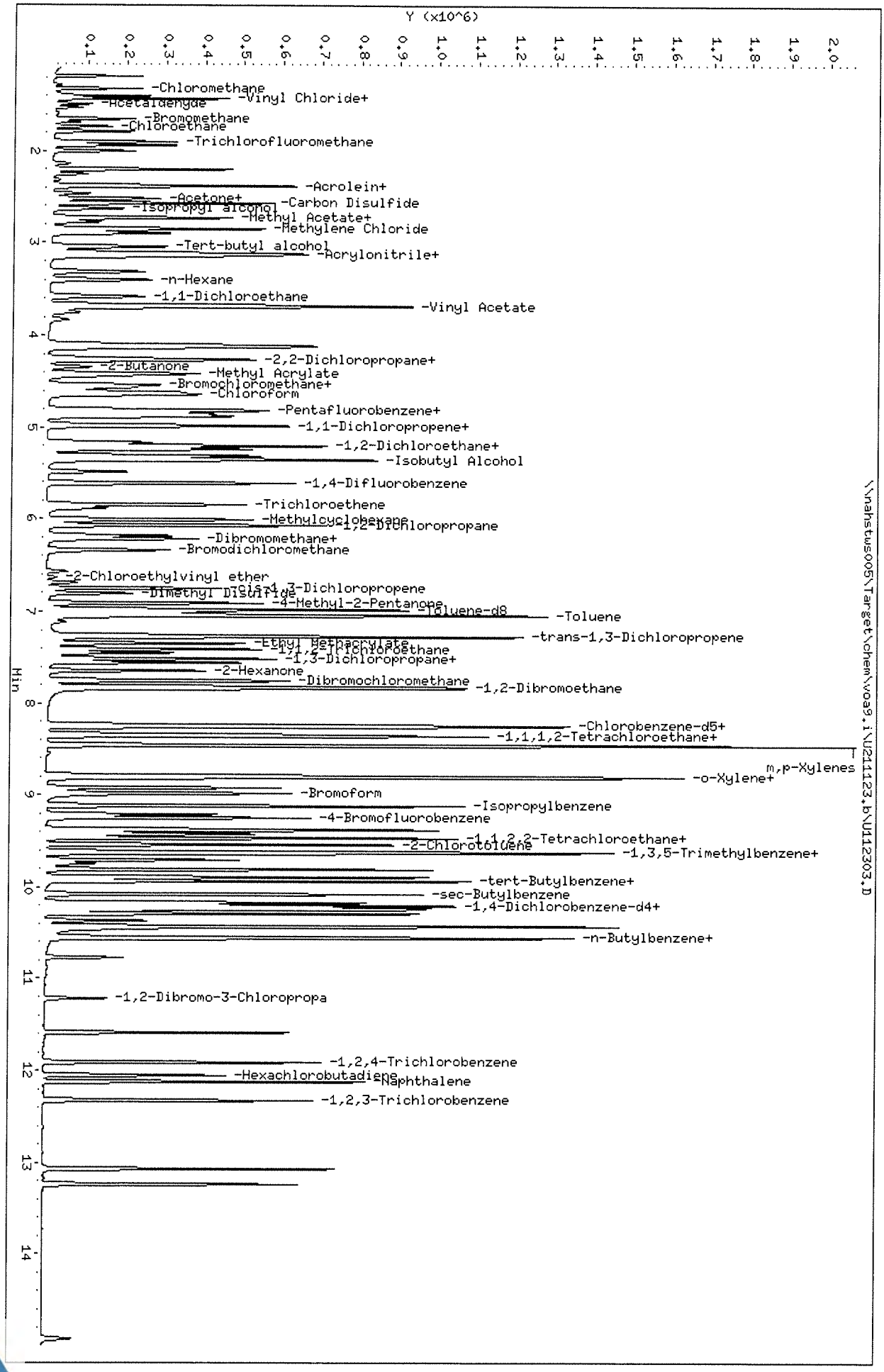
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	302920	50.0000	49.73
54 1,3-Dichloropropane	76	7.555	7.556	(0.917)	277907	50.0000	51.97
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	535414	50.0000	51.49
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	313963	50.0000	50.09
89 1,2-Dibromo-3-Chloropropane	155	11.221	11.222	(1.098)	30533	50.0000	41.88
26 2,2-Dichloropropane	77	4.253	4.260	(0.872)	142241	50.0000	51.66
24 2-Butanone	43	4.339	4.347	(0.889)	132471	100.000	92.65
76 2-Chlorotoluene	91	9.538	9.539	(0.933)	471450	50.0000	51.77
52 2-Hexanone	43	7.645	7.646	(0.928)	210324	100.000	104.03
77 4-Chlorotoluene	91	9.628	9.629	(0.942)	544165	50.0000	51.56
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	545616	50.0000	52.94
10 Acetone	43	2.464	2.472	(0.505)	91854	100.000	96.02
37 Benzene	78	5.201	5.205	(0.927)	612888	50.0000	51.47
74 Bromobenzene	156	9.373	9.374	(0.917)	169955	50.0000	51.82
29 Bromochloromethane	128	4.537	4.542	(0.930)	81117	50.0000	52.59
39 Bromodichloromethane	83	6.337	6.341	(1.129)	178130	50.0000	46.55
66 Bromoform	173	8.976	8.976	(1.089)	86666	50.0000	43.56
6 Bromomethane	94	1.647	1.655	(0.338)	99411	50.0000	59.09
34 Carbon Tetrachloride	117	4.976	4.980	(0.886)	172669	50.0000	46.25
59 Chlorobenzene	112	8.264	8.264	(1.003)	415414	50.0000	50.03
7 Chloroethane	64	1.730	1.741	(0.355)	107999	50.0000	47.73
28 Chloroform	83	4.639	4.647	(0.951)	271694	50.0000	51.58
3 Chloromethane	50	1.325	1.333	(0.272)	140923	50.0000	51.74
27 cis-1,2-Dichloroethene	96	4.268	4.272	(0.875)	170478	50.0000	51.03
45 4-Methyl-2-Pentanone	43	6.910	6.911	(0.839)	297055	100.000	96.84
46 cis-1,3-Dichloropropene	75	6.749	6.750	(1.202)	233218	50.0000	47.09
44 Dibromomethane	93	6.179	6.180	(1.101)	102605	50.0000	50.77
2 Dichlorodifluoromethane	85	1.186	1.194	(0.243)	131082	50.0000	40.02(M)
61 Ethylbenzene	106	8.361	8.362	(1.015)	212949	50.0000	51.24
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	79875	50.0000	55.52
62 m,p-Xylenes	106	8.462	8.463	(1.027)	540055	100.000	105.18
64 Styrene	104	8.815	8.815	(1.070)	468369	50.0000	53.63
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	445609	50.0000	50.84
17 Methylene Chloride	84	2.851	2.858	(0.584)	148240	50.0000	46.00
87 n-Butylbenzene	91	10.547	10.547	(1.032)	487635	50.0000	52.77
73 n-Propylbenzene	91	9.467	9.467	(0.926)	757829	50.0000	52.76
92 Naphthalene	128	12.121	12.121	(1.186)	578647	50.0000	49.66
63 o-Xylene	106	8.800	8.800	(1.068)	260071	50.0000	51.14
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	614598	50.0000	52.08
55 Dibromochloromethane	129	7.746	7.750	(0.940)	147687	50.0000	46.15
56 Tetrachloroethene	164	7.514	7.514	(0.912)	118051	50.0000	49.14
50 Toluene	91	7.038	7.038	(0.854)	645436	50.0000	50.65
19 Carbon Disulfide	76	2.569	2.577	(0.527)	677108	100.000	100.07(A)
20 trans-1,2-Dichloroethene	96	3.120	3.125	(0.640)	137839	50.0000	50.12
38 Trichloroethene	130	5.846	5.850	(1.041)	157893	50.0000	51.32
8 Trichlorofluoromethane	101	1.936	1.944	(0.397)	218993	50.0000	49.66
5 Vinyl Chloride	62	1.400	1.411	(0.287)	158016	50.0000	47.78
138 Freon TF	101	2.382	2.390	(0.488)	113850	50.0000	50.66
67 Isopropylbenzene	105	9.115	9.115	(1.106)	645564	50.0000	51.59
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	193961	50.0000	45.77

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

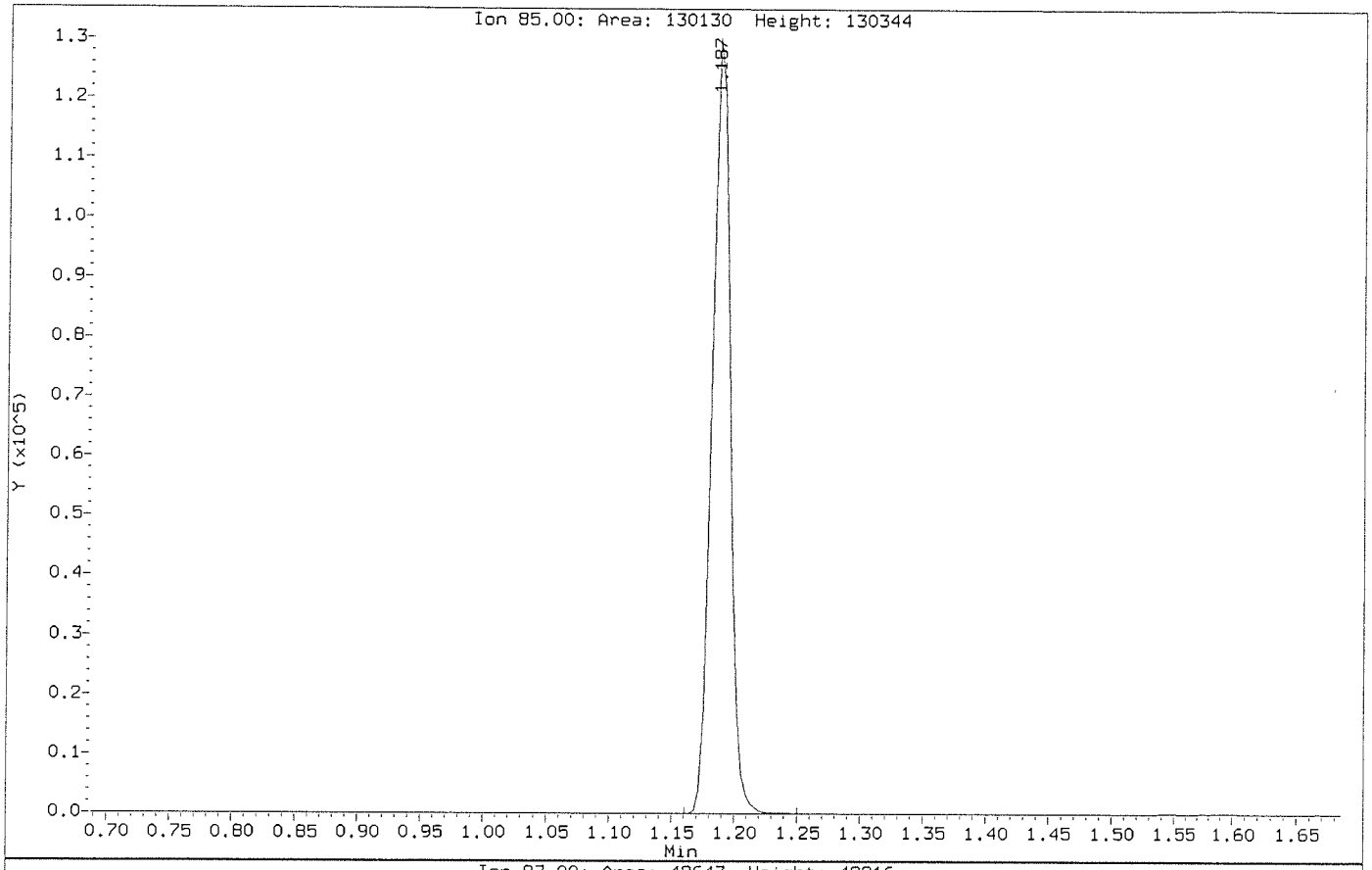
Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112303.D
Date : 23-NOV-2021 10:38
Client ID: CCV
Sample Info: VSTD050;VSTD050;2;;;
Purge Volume: 5.0
Column phase: DB624

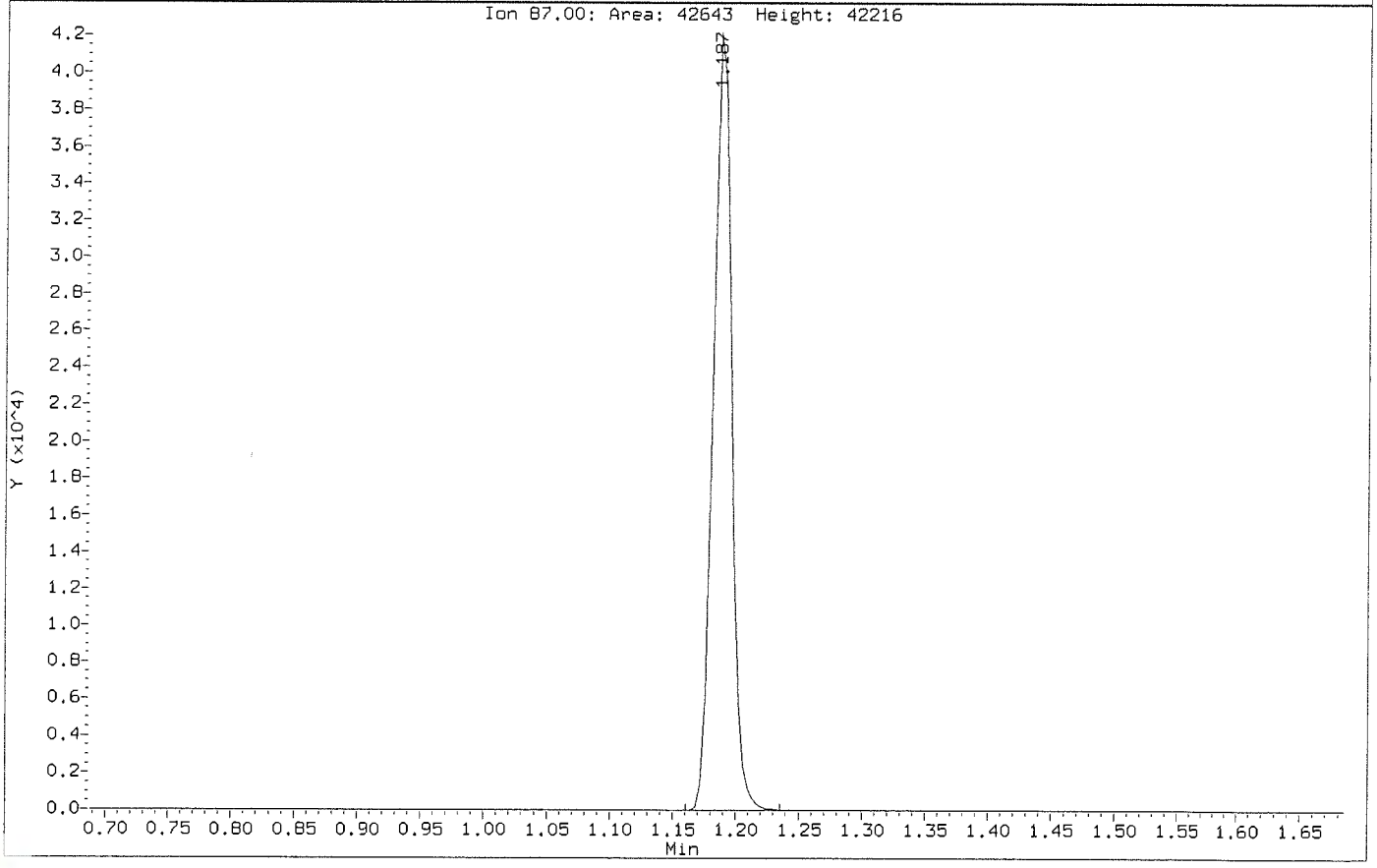
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\Before\U112303.D
Injection Date: 23-NOV-2021 10:38
Instrument: VOA9.i
Client Sample ID: CCV

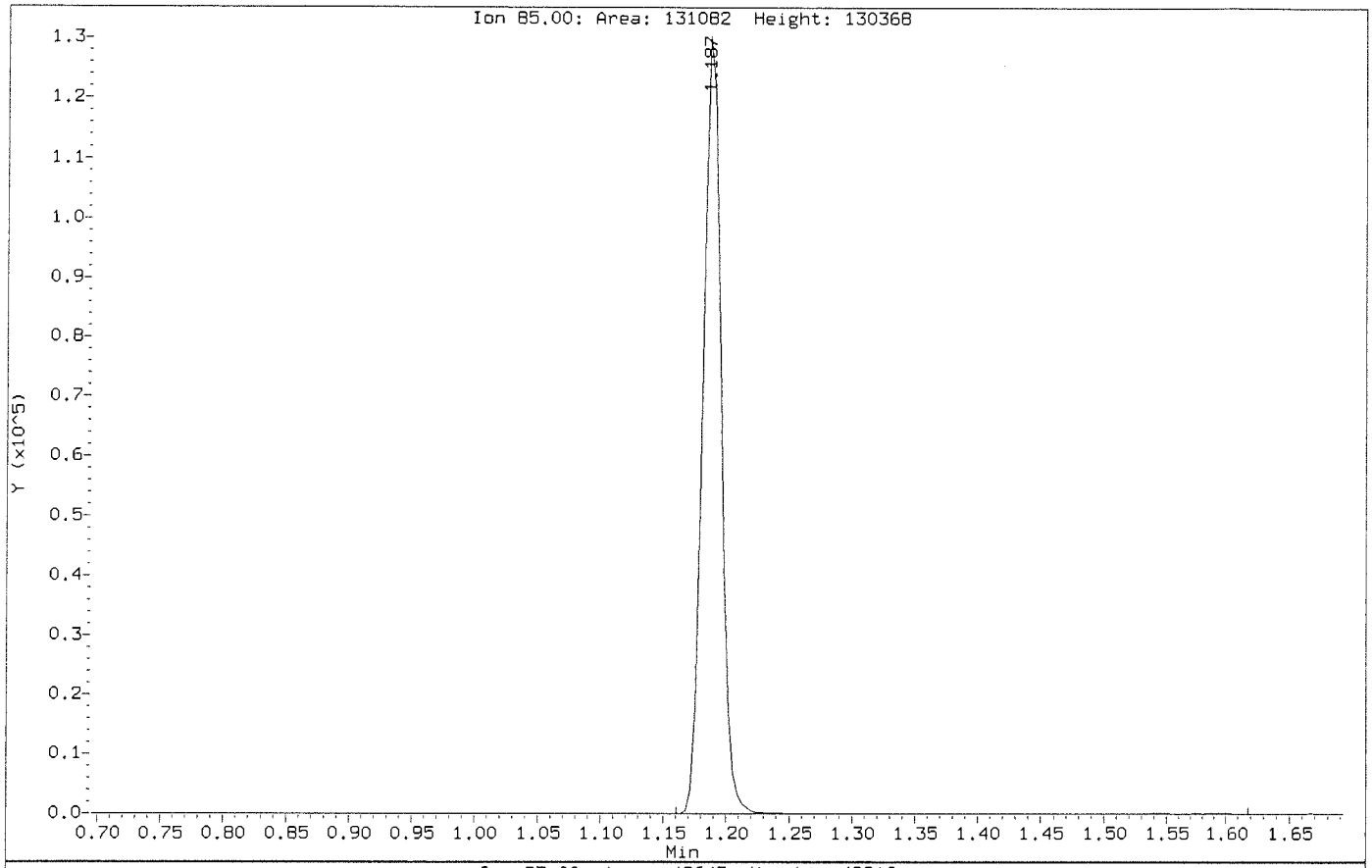
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

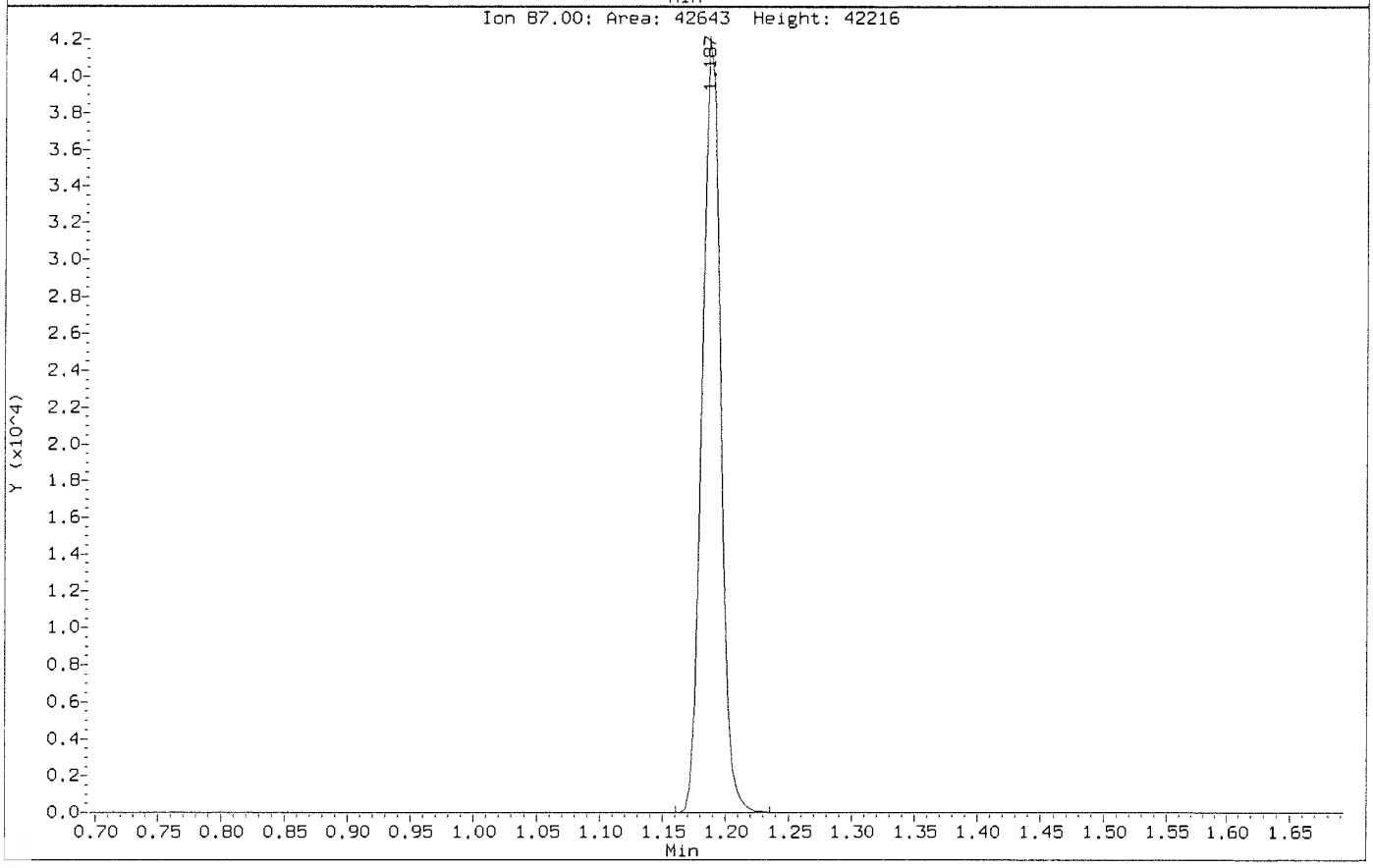




Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112303.D
Injection Date: 23-NOV-2021 10:38
Instrument: VOA9.i
Client Sample ID: CCV

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112305.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112305.D
Lab Smp Id: VLCSW-211123 Client Smp ID: VLSCW-211123
Inj Date : 23-NOV-2021 11:22
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-211123;VLSCW-211123;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

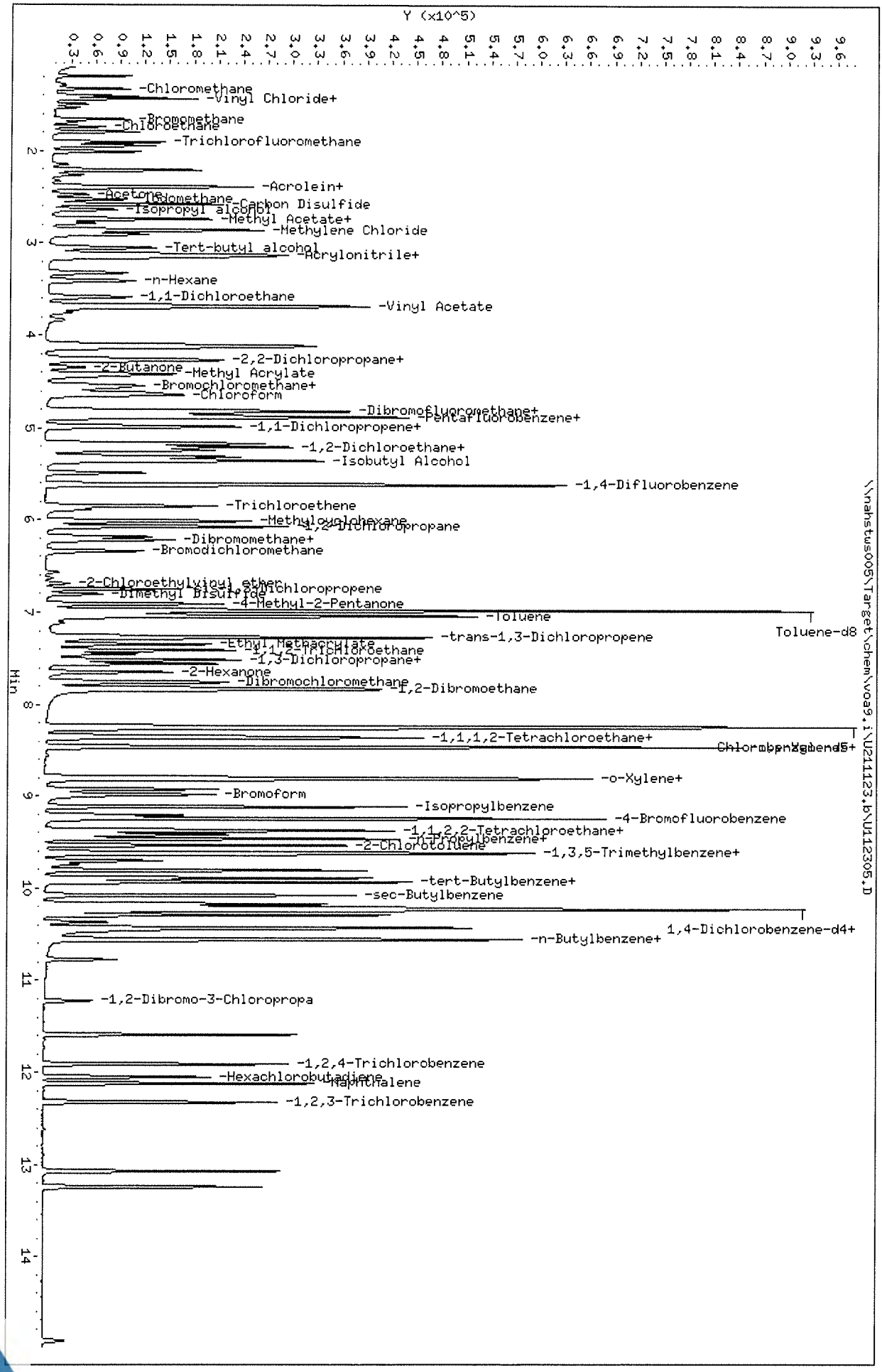
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	268775	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	463465	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	415021	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	209363	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	171422	52.0481	52.04
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211815	52.6150	52.61
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	146477	51.9535	51.95
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	545549	50.5066	50.50
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.985)	74609	19.2832	19.28
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	67562	22.7427	22.74
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	54729	19.5330	19.53
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	94282	21.3955	21.39
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	53665	21.9442	21.94
22 1,1-Dichloroethane	63	3.586	3.589	(0.734)	98718	20.6740	20.67
11 1,1-Dichloroethene	96	2.386	2.390	(0.489)	48641	20.2983	20.29
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	80275	21.0921	21.09
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	78849	21.0302	21.03
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	89174	20.6104	20.61
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	83069	21.5569	21.55
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	229611	21.8762	21.87
88 1,2-Dichlorobenzene	146	10.558	10.562	(1.033)	127225	21.5488	21.54
33 1,2-Dichloroethane	62	5.242	5.243	(0.934)	88774	21.2329	21.23
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	63420	21.7465	21.74

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112305.D Page 2
Report Date: 22-Dec-2021 16:05

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83	1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	125453	20.8051	20.80
54	1,3-Dichloropropane	76	7.555	7.556	(0.917)	114960	22.0608	22.06
75	1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	219713	21.3450	21.34
84	1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	131056	21.1222	21.12
89	1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	11155	16.9943	16.99
26	2,2-Dichloropropane	77	4.260	4.260	(0.873)	50785	18.7662	18.76
24	2-Butanone	43	4.347	4.347	(0.890)	57989	41.2608	41.26
76	2-Chlorotoluene	91	9.538	9.539	(0.933)	193449	21.4575	21.45
52	2-Hexanone	43	7.649	7.646	(0.928)	87204	44.2633	44.26
77	4-Chlorotoluene	91	9.628	9.629	(0.942)	227157	21.7419	21.74
82	p-Isopropyltoluene	119	10.202	10.202	(0.998)	222843	21.8415	21.84
10	Acetone	43	2.472	2.472	(0.506)	43896	43.2712	43.27
37	Benzene	78	5.205	5.205	(0.927)	253739	21.6516	21.65
74	Bromobenzene	156	9.373	9.374	(0.917)	69017	21.2573	21.25
29	Bromochloromethane	128	4.541	4.542	(0.930)	33959	22.3996	22.39
39	Bromodichloromethane	83	6.337	6.341	(1.129)	67493	18.5609	18.56
66	Bromoform	173	8.976	8.976	(1.089)	29543	16.3620	16.36
6	Bromomethane	94	1.655	1.655	(0.339)	44522	26.6455	26.64
34	Carbon Tetrachloride	117	4.980	4.980	(0.887)	61241	17.6300	17.62
59	Chlorobenzene	112	8.264	8.264	(1.003)	170741	21.1030	21.10
7	Chloroethane	64	1.737	1.741	(0.356)	44961	20.2160	20.21
28	Chloroform	83	4.643	4.647	(0.951)	112620	21.7530	21.75
3	Chloromethane	50	1.329	1.333	(0.272)	57454	21.1195	21.11
27	cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	70977	21.6145	21.61
45	4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	123131	41.1953	41.19
46	cis-1,3-Dichloropropene	75	6.749	6.750	(1.202)	82223	17.9882	17.98
44	Dibromomethane	93	6.180	6.180	(1.101)	42171	21.2017	21.20
2	Dichlorodifluoromethane	85	1.194	1.194	(0.245)	50845	15.3631	15.36
61	Ethylbenzene	106	8.361	8.362	(1.015)	87239	21.5443	21.54
91	Hexachlorobutadiene	225	12.054	12.054	(1.179)	35534	24.9497	24.94
62	m,p-Xylenes	106	8.463	8.463	(1.027)	222893	44.5500	44.55
64	Styrene	104	8.815	8.815	(1.070)	191639	22.5208	22.52
78	tert-Butylbenzene	119	9.891	9.891	(0.967)	180126	20.7593	20.75
17	Methylene Chloride	84	2.855	2.858	(0.585)	63787	20.1388	20.13
87	n-Butylbenzene	91	10.547	10.547	(1.032)	203228	22.2154	22.21
73	n-Propylbenzene	91	9.467	9.467	(0.926)	308893	21.7225	21.72
92	Naphthalene	128	12.121	12.121	(1.186)	234666	20.3431	20.34
63	o-Xylene	106	8.800	8.800	(1.068)	107865	21.7669	21.76
81	sec-Butylbenzene	105	10.078	10.078	(0.986)	248759	21.2926	21.29
55	Dibromochloromethane	129	7.750	7.750	(0.940)	53013	17.9500	17.95
56	Tetrachloroethene	164	7.514	7.514	(0.912)	47422	20.2606	20.26
50	Toluene	91	7.038	7.038	(0.854)	266649	21.4763	21.47
19	Carbon Disulfide	76	2.577	2.577	(0.528)	257626	38.7357	38.73
20	trans-1,2-Dichloroethene	96	3.124	3.125	(0.640)	56851	21.0312	21.03
38	Trichloroethene	130	5.850	5.850	(1.042)	64532	21.3132	21.31
8	Trichlorofluoromethane	101	1.940	1.944	(0.397)	85256	19.6691	19.66
5	Vinyl Chloride	62	1.408	1.411	(0.288)	62090	19.1011	19.10
138	Freon TF	101	2.390	2.390	(0.489)	44979	20.3607	20.36
67	Isopropylbenzene	105	9.115	9.115	(1.106)	260962	21.4032	21.40
51	trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	66028	17.2136	17.21

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112305.D
Date : 23-NOV-2021 11:22
Client ID: VLSCW-211123
Sample Info: VLCSW-211123;VLSCW-211123;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112307.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112307.D
Lab Smp Id: VBLKW-211123 Client Smp ID: VBLKW-211123
Inj Date : 23-NOV-2021 12:07
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-211123;VBLKW-211123;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

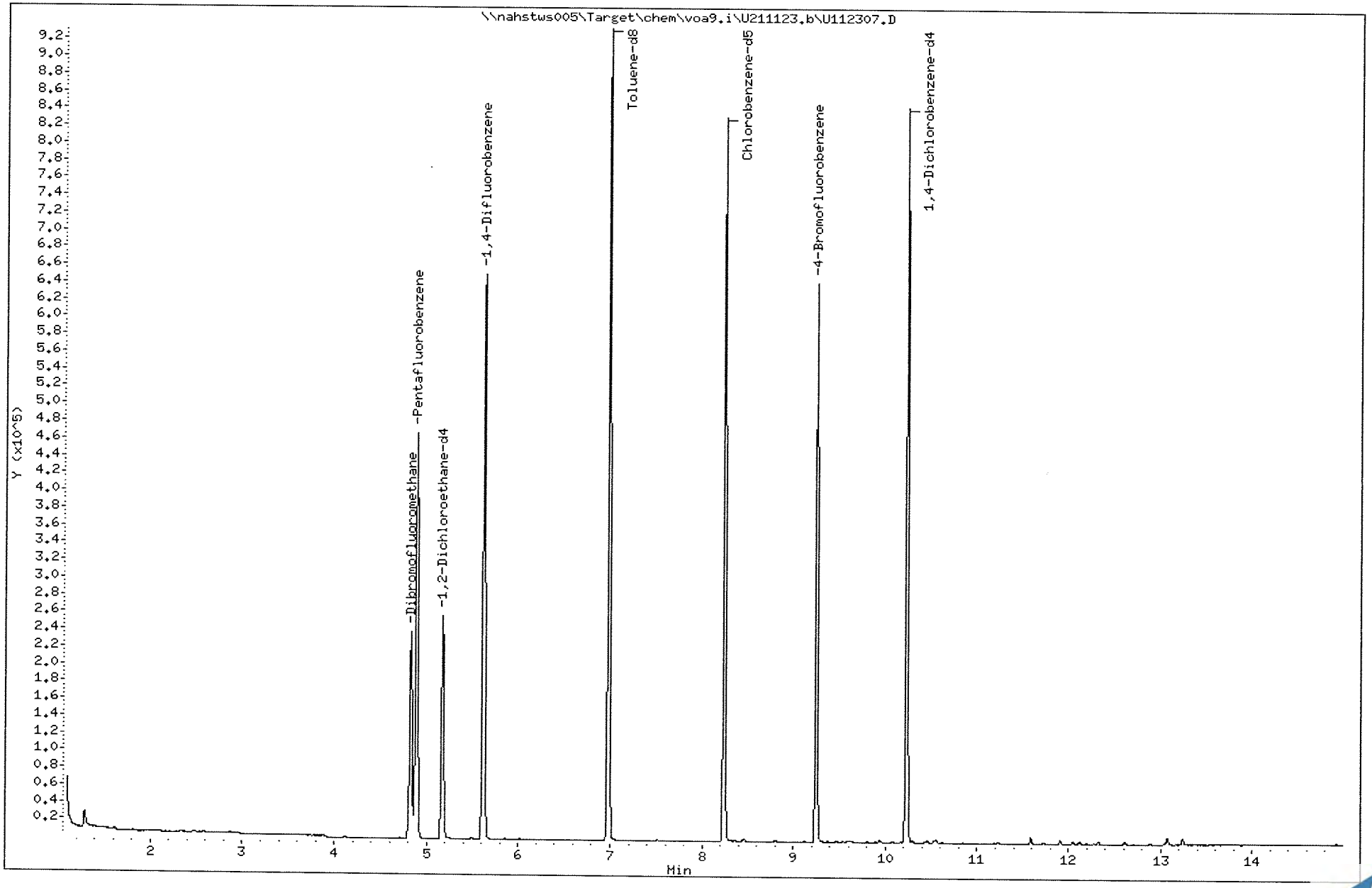
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.886	4.883	(1.000)	295371	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	476880	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	417434	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	203525	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	166213	45.7458	45.74
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	201990	49.8146	49.81
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	135848	43.7110	43.71
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	555554	51.1356	51.13

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112307.D
Date : 23-NOV-2021 12:07
Client ID: VBLKW-211123
Sample Info: VBLKW-211123;VBLKW-211123;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112309.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112309.D
Lab Smp Id: HS21111305-20MS Client Smp ID: HS21111305-20MS
Inj Date : 23-NOV-2021 12:52
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111305-20MS;HS21111305-20MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 9 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

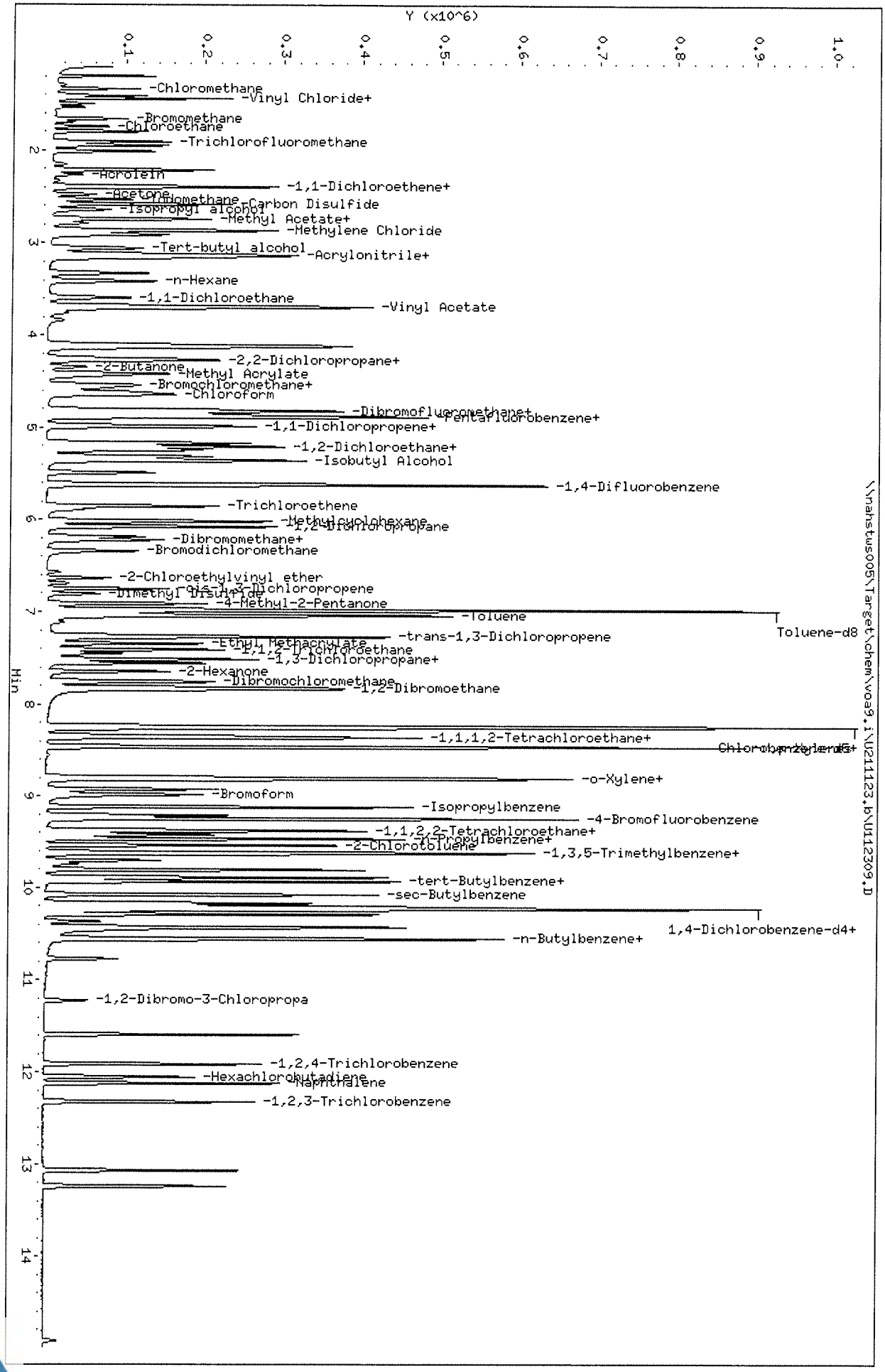
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	287376	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	468878	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	415391	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	208198	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.168	(1.058)	163248	46.1940	46.19
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	208643	51.7596	51.75
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	140448	46.5021	46.50
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	550511	50.9206	50.92
31 1,1,1-Trichloroethane	97	4.815	4.811	(0.986)	80744	19.5181	19.51
57 1,2-Dibromoethane	107	7.844	7.840	(0.952)	62606	21.0556	21.05
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	52944	18.9068	18.90
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	88771	20.2576	20.25
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	50999	20.8355	20.83
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	100916	19.7663	19.76
11 1,1-Dichloroethene	96	2.393	2.390	(0.490)	53813	21.0031	21.00
32 1,1-Dichloropropene	75	4.991	4.991	(0.889)	88686	23.0331	23.03
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	72990	19.5764	19.57
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	83291	19.3584	19.35
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	76111	19.8617	19.86
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	229378	21.9763	21.97
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	122122	20.8003	20.80
33 1,2-Dichloroethane	62	5.246	5.243	(0.934)	86128	20.3622	20.36
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	62550	21.2006	21.20

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112309.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	123804	20.6466	20.64
54 1,3-Dichloropropane	76	7.555	7.556	(0.917)	110326	21.1527	21.15
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	228906	22.3625	22.36
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	129689	21.0189	21.01
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	9758	15.2422	15.24
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	52833	18.2594	18.25
24 2-Butanone	43	4.346	4.347	(0.890)	58582	38.9847	38.98
76 2-Chlorotoluene	91	9.538	9.539	(0.933)	198423	22.1324	22.13
52 2-Hexanone	43	7.649	7.646	(0.928)	86021	43.6239	43.62
77 4-Chlorotoluene	91	9.628	9.629	(0.942)	230399	22.1755	22.17
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	235097	23.1715	23.17
10 Acetone	43	2.476	2.472	(0.507)	55084	51.9376	51.93
37 Benzene	78	5.205	5.205	(0.927)	257803	21.7444	21.74
74 Bromobenzene	156	9.373	9.374	(0.917)	67671	20.9593	20.95
29 Bromochloromethane	128	4.545	4.542	(0.931)	32458	20.0237	20.02
39 Bromodichloromethane	83	6.341	6.341	(1.129)	65170	17.7624	17.76
66 Bromoform	173	8.976	8.976	(1.089)	27657	15.4026	15.40
6 Bromomethane	94	1.662	1.655	(0.341)	46194	25.8416	25.84
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	69339	19.5513	19.55
59 Chlorobenzene	112	8.264	8.264	(1.003)	170216	21.0194	21.01
7 Chloroethane	64	1.745	1.741	(0.357)	53516	22.5052	22.50
28 Chloroform	83	4.646	4.647	(0.952)	111602	20.1611	20.16
3 Chloromethane	50	1.336	1.333	(0.274)	65397	22.5211	22.52
27 cis-1,2-Dichloroethene	96	4.275	4.272	(0.876)	71168	20.2699	20.26
45 4-Methyl-2-Pentanone	43	6.914	6.911	(0.839)	116274	38.8666	38.86
46 cis-1,3-Dichloropropene	75	6.749	6.750	(1.202)	78966	17.1646	17.16
44 Dibromomethane	93	6.183	6.180	(1.101)	40830	20.2905	20.29
2 Dichlorodifluoromethane	85	1.198	1.194	(0.245)	71738	20.5005	20.50
61 Ethylbenzene	106	8.361	8.362	(1.015)	89652	22.1205	22.12
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	33595	23.7202	23.72
62 m,p-Xylenes	106	8.463	8.463	(1.027)	228682	45.6664	45.66
64 Styrene	104	8.815	8.815	(1.070)	190976	22.4229	22.42
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	193183	22.3886	22.38
17 Methylene Chloride	84	2.862	2.858	(0.586)	62780	18.5379	18.53
87 n-Butylbenzene	91	10.547	10.547	(1.032)	210755	23.1671	23.16
73 n-Propylbenzene	91	9.467	9.467	(0.926)	330940	23.4031	23.40
92 Naphthalene	128	12.121	12.121	(1.186)	213114	18.5781	18.57
63 o-Xylene	106	8.800	8.800	(1.068)	107752	21.7248	21.72
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	270544	23.2868	23.28
55 Dibromochloromethane	129	7.750	7.750	(0.940)	50055	17.0183	17.01
56 Tetrachloroethene	164	7.514	7.514	(0.912)	52345	22.3440	22.34
50 Toluene	91	7.038	7.038	(0.854)	272323	21.9137	21.91
19 Carbon Disulfide	76	2.581	2.577	(0.529)	274244	38.5654	38.56
20 trans-1,2-Dichloroethene	96	3.128	3.125	(0.641)	59281	20.5107	20.51
38 Trichloroethene	130	5.850	5.850	(1.041)	67179	21.9313	21.93
8 Trichlorofluoromethane	101	1.947	1.944	(0.399)	99298	21.4259	21.42
5 Vinyl Chloride	62	1.411	1.411	(0.289)	74738	21.5038	21.50
138 Freon TF	101	2.393	2.390	(0.490)	54893	23.2401	23.24
67 Isopropylbenzene	105	9.115	9.115	(1.106)	280429	22.9793	22.97
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.291)	62407	16.2207	16.22

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112309.D
Date : 23-NOV-2021 12:52
Client ID: HS21111305-20MS
Sample Info: HS21111305-20MS;HS21111305-20MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112310.D
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Inj Date : 23-NOV-2021 13:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111305-20MSD;HS21111305-20MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 9 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

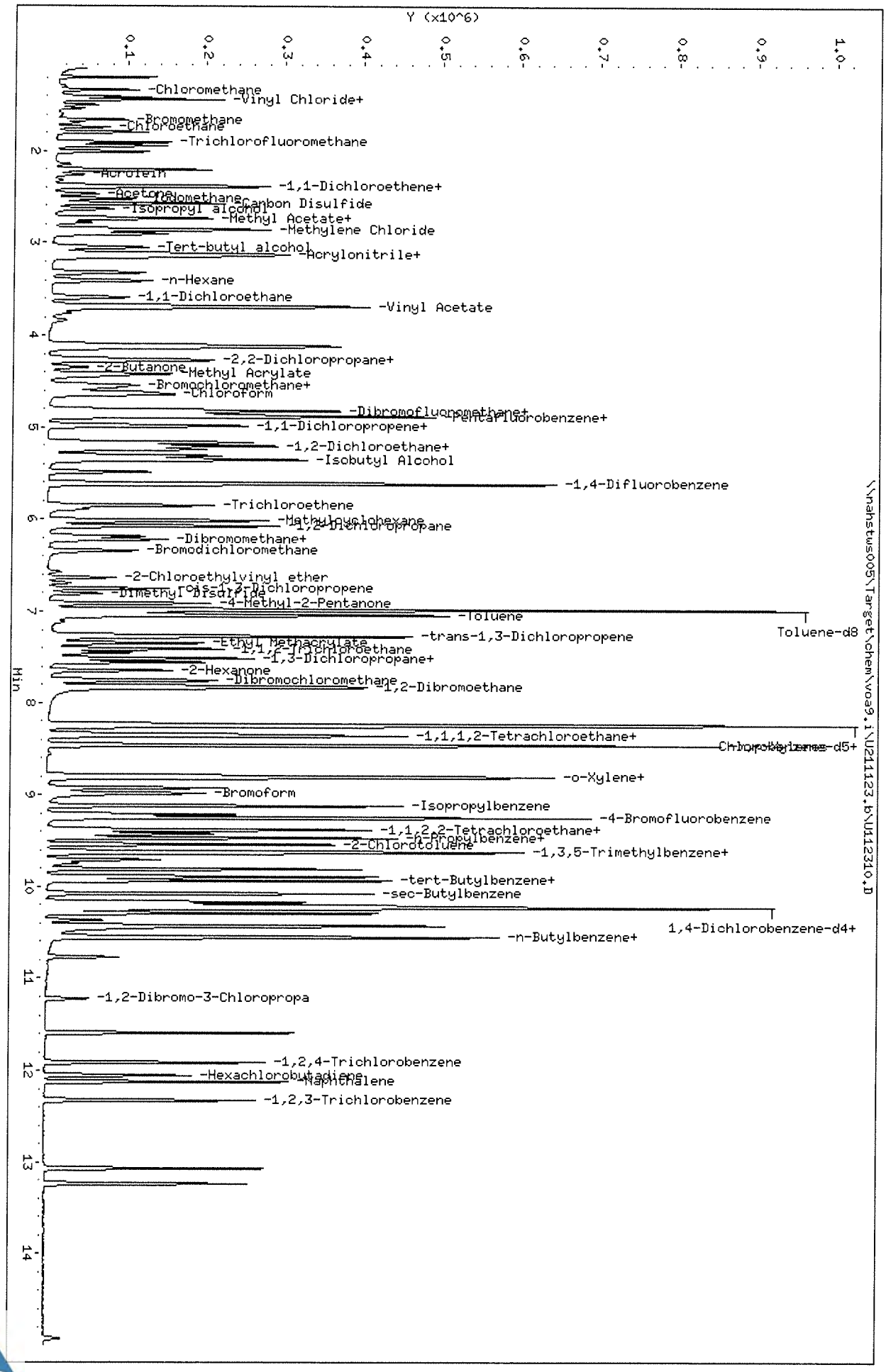
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	294144	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	478651	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	420953	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	209367	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	166644	46.0659	46.06
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211114	51.6786	51.67
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	143537	46.4300	46.43
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	559681	51.0848	51.08
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.985)	78663	18.5775	18.57
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	61687	20.4724	20.47
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	54134	19.0689	19.06
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	93607	21.2419	21.24
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	51596	20.8009	20.80
22 1,1-Dichloroethane	63	3.586	3.589	(0.734)	96107	18.3913	18.39
11 1,1-Dichloroethene	96	2.386	2.390	(0.489)	50908	19.4121	19.41
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	84848	21.5864	21.58
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	73137	19.5063	19.50
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	83473	19.2924	19.29
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	76341	19.8105	19.81
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	229381	21.8539	21.85
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	118556	20.0801	20.08
33 1,2-Dichloroethane	62	5.242	5.243	(0.934)	85149	19.7197	19.71
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	60812	20.1907	20.19

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112310.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	121272	20.1114	20.11
54 1,3-Dichloropropane	76	7.555	7.556	(0.917)	108528	20.5330	20.53
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	223217	21.6850	21.68
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	125797	20.2742	20.27
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	10220	15.7737	15.77
26 2,2-Dichloropropane	77	4.257	4.260	(0.872)	49510	16.7172	16.71
24 2-Butanone	43	4.347	4.347	(0.890)	60502	39.3360	39.33
76 2-Chlorotoluene	91	9.538	9.539	(0.933)	189812	21.0537	21.05
52 2-Hexanone	43	7.649	7.646	(0.928)	87892	43.9838	43.98
77 4-Chlorotoluene	91	9.628	9.629	(0.942)	220785	21.1316	21.13
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	229605	22.5039	22.50
10 Acetone	43	2.472	2.472	(0.506)	56506	52.0671	52.06
37 Benzene	78	5.205	5.205	(0.927)	247971	20.4881	20.48
74 Bromobenzene	156	9.374	9.374	(0.917)	66597	20.5115	20.51
29 Bromochloromethane	128	4.541	4.542	(0.930)	32108	19.3521	19.35
39 Bromodichloromethane	83	6.337	6.341	(1.129)	64112	17.1549	17.15
66 Bromoform	173	8.976	8.976	(1.089)	27792	15.2860	15.28
6 Bromomethane	94	1.655	1.655	(0.339)	43001	23.4554	23.45
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	66920	18.5662	18.56
59 Chlorobenzene	112	8.264	8.264	(1.003)	165487	20.1654	20.16
7 Chloroethane	64	1.737	1.741	(0.356)	46881	19.2613	19.26
28 Chloroform	83	4.643	4.647	(0.951)	108416	19.1349	19.13
3 Chloromethane	50	1.329	1.333	(0.272)	62537	21.0021	21.00
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	68632	19.0978	19.09
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	118770	39.1763	39.17
46 cis-1,3-Dichloropropene	75	6.749	6.750	(1.202)	79210	16.8964	16.89
44 Dibromomethane	93	6.180	6.180	(1.101)	40116	19.5287	19.52
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	68173	18.9826	18.98
61 Ethylbenzene	106	8.361	8.362	(1.015)	87427	21.2865	21.28
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	32551	22.8548	22.85
62 m,p-Xylenes	106	8.463	8.463	(1.027)	219835	43.3196	43.31
64 Styrene	104	8.815	8.815	(1.070)	183870	21.3034	21.30
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	189021	21.7840	21.78
17 Methylene Chloride	84	2.855	2.858	(0.585)	60661	17.5001	17.50
87 n-Butylbenzene	91	10.547	10.547	(1.032)	206916	22.6181	22.61
73 n-Propylbenzene	91	9.467	9.467	(0.926)	324114	22.7924	22.79
92 Naphthalene	128	12.121	12.121	(1.186)	219375	19.0171	19.01
63 o-Xylene	106	8.800	8.800	(1.068)	104825	20.8554	20.85
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	262118	22.4356	22.43
55 Dibromochloromethane	129	7.747	7.750	(0.940)	50247	16.8720	16.87
56 Tetrachloroethene	164	7.514	7.514	(0.912)	51065	21.5096	21.50
50 Toluene	91	7.038	7.038	(0.854)	263372	20.9134	20.91
19 Carbon Disulfide	76	2.577	2.577	(0.528)	264314	36.3137	36.31
20 trans-1,2-Dichloroethene	96	3.124	3.125	(0.640)	56502	19.0993	19.09
38 Trichloroethene	130	5.850	5.850	(1.042)	64349	20.5785	20.57
8 Trichlorofluoromethane	101	1.940	1.944	(0.397)	95323	20.0949	20.09
5 Vinyl Chloride	62	1.408	1.411	(0.288)	70768	19.8931	19.89
138 Freon TF	101	2.390	2.390	(0.489)	51651	21.3643	21.36
67 Isopropylbenzene	105	9.115	9.115	(1.106)	273893	22.1472	22.14
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	61174	15.6596	15.65

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112310.D
Date : 23-NOV-2021 13:14
Client ID: HS21111305-20HSD
Sample Info: HS21111305-20HSD;HS21111305-20HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112313.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112313.D
Lab Smp Id: HS21110813-01 Client Smp ID: HS21110813-01
Inj Date : 23-NOV-2021 14:21
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-01;HS21110813-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	282445	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	460614	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	410407	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	200041	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	163920	47.2264	47.22
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	199051	49.9335	49.93
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	132770	44.6946	44.69
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	538272	50.3931	50.39
22 1,1-Dichloroethane	63	3.589	3.586	(0.735)	4448	0.88644	0.88(a)
11 1,1-Dichloroethene	96	2.390	2.386	(0.489)	7472	2.96722	2.96(a)
33 1,2-Dichloroethane	62	5.246	5.242	(0.934)	2414	0.58095	0.58(a)

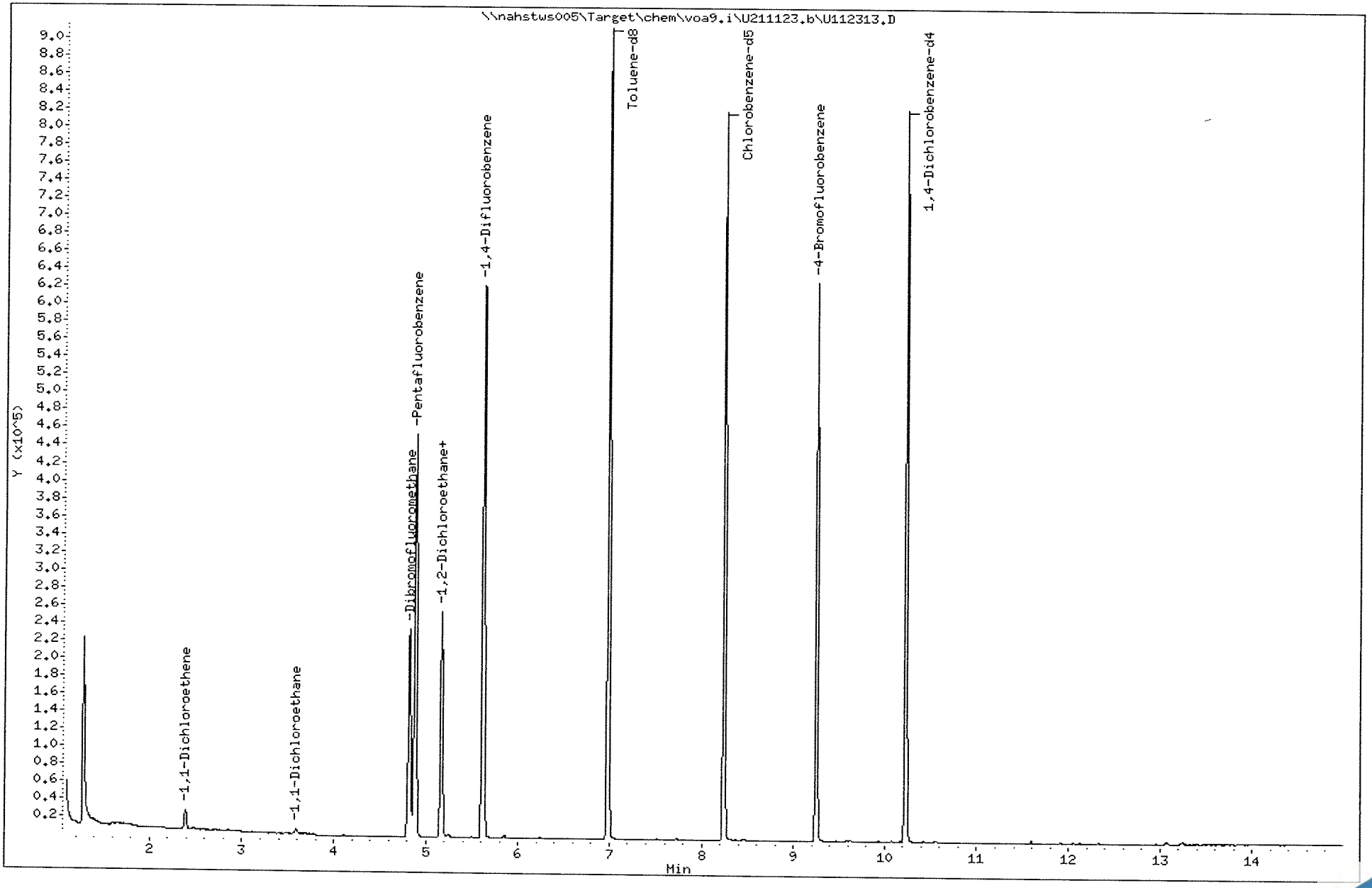
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112313.D
Date : 23-NOV-2021 14:21
Client ID: HS21110813-01
Sample Info: HS21110813-01;HS21110813-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112313.D

Date : 23-NOV-2021 14:21

Client ID: HS21110813-01

Instrument: VOA9.i

Sample Info: HS21110813-01;HS21110813-01;;;

Purge Volume: 5.0

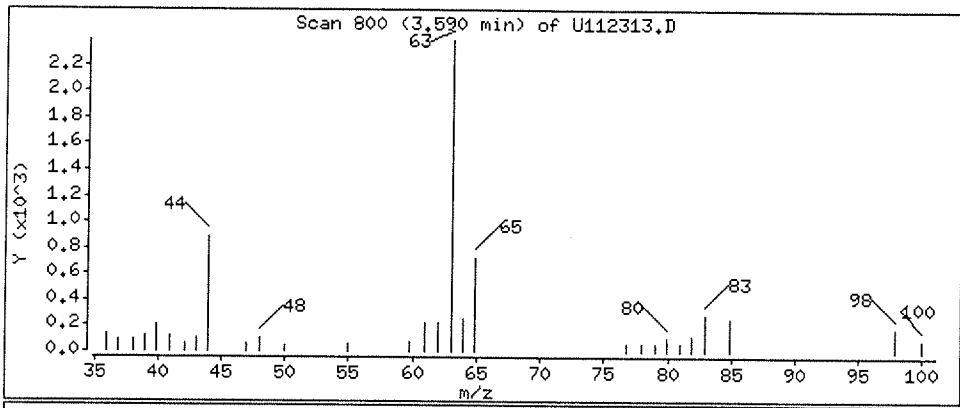
Operator: PC

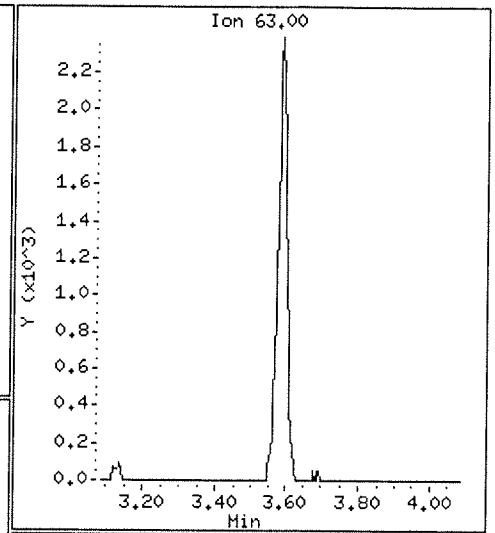
Column phase: DB624

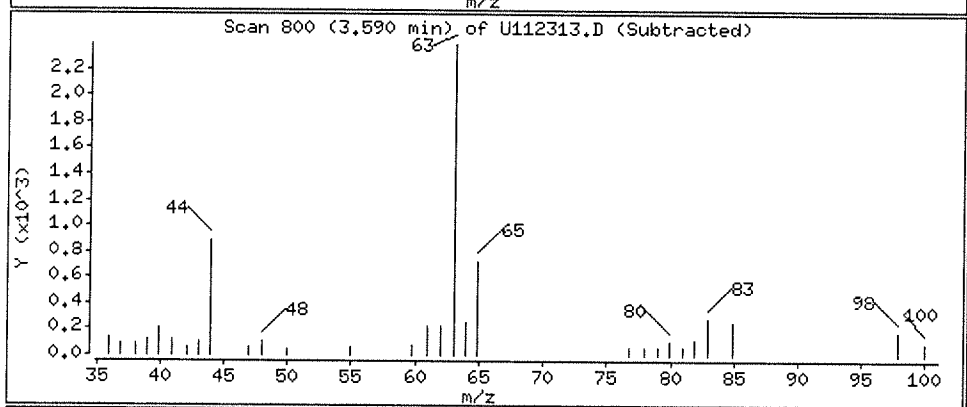
Column diameter: 0.18

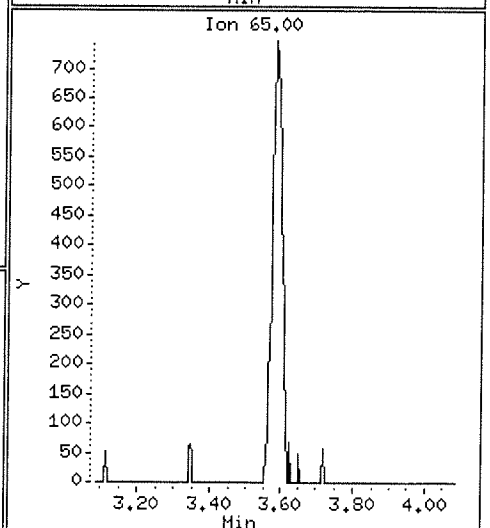
22 1,1-Dichloroethane

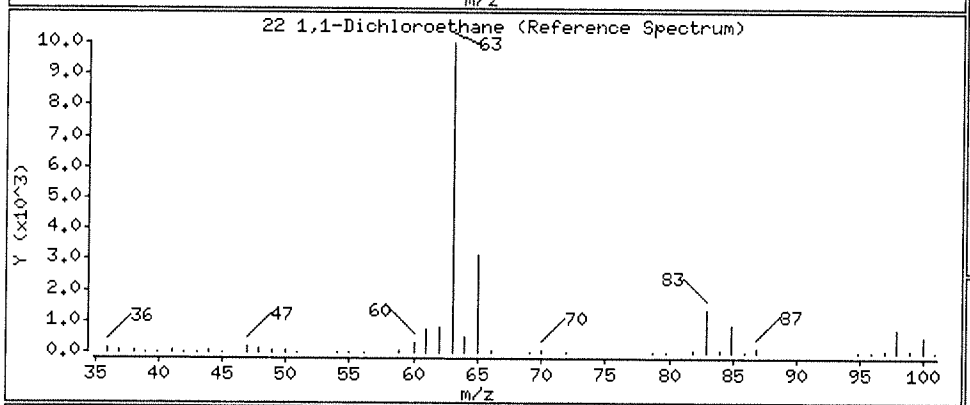
Concentration: 0.88 ug/l

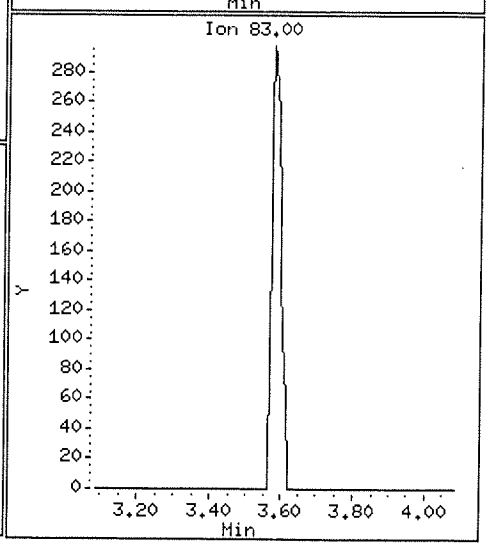


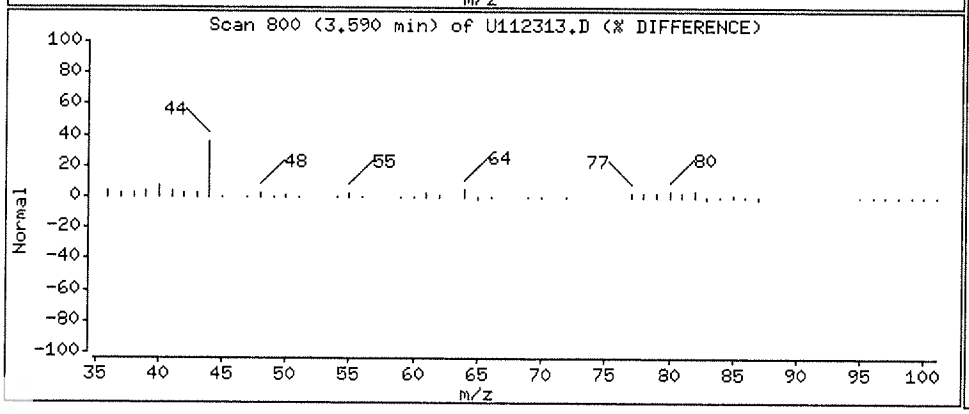












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112313.D

Date : 23-NOV-2021 14:21

Client ID: HS21110813-01

Instrument: VOA9.i

Sample Info: HS21110813-01;HS21110813-01;;;

Purge Volume: 5.0

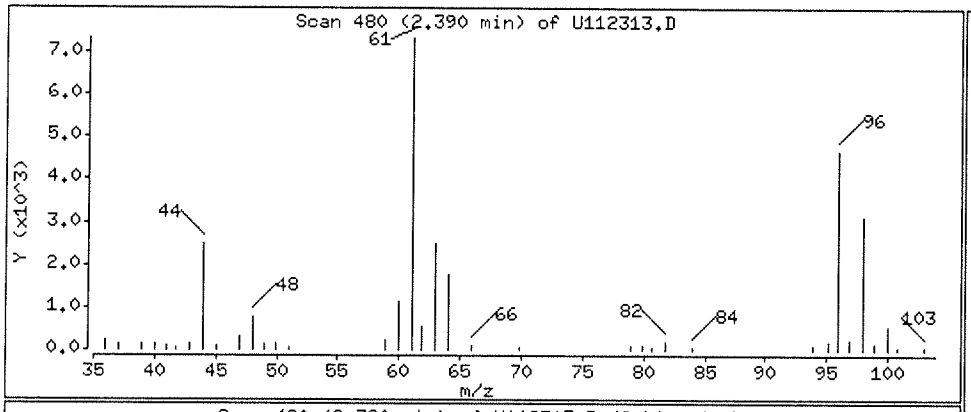
Operator: PC

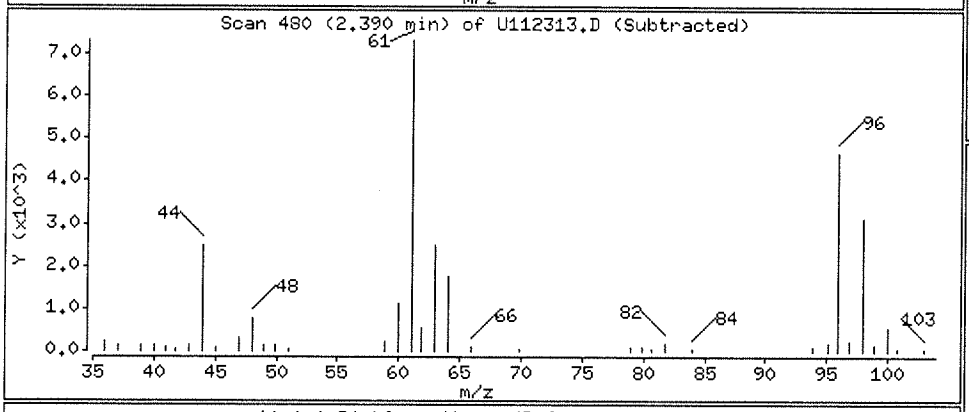
Column phase: DB624

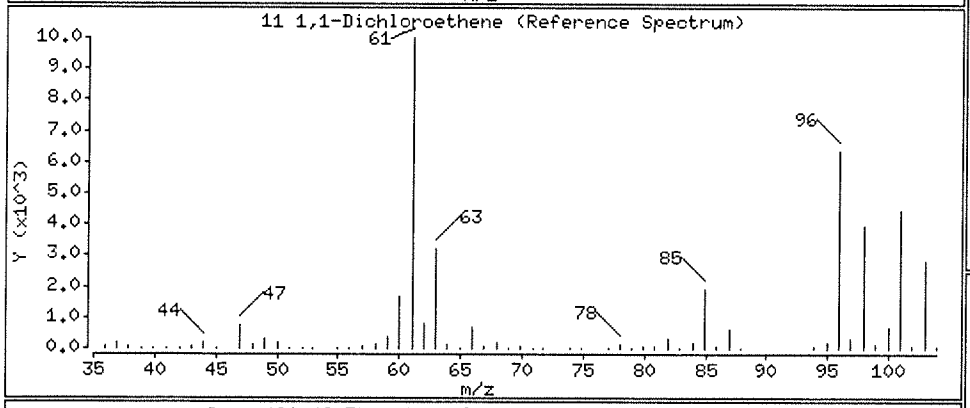
Column diameter: 0.18

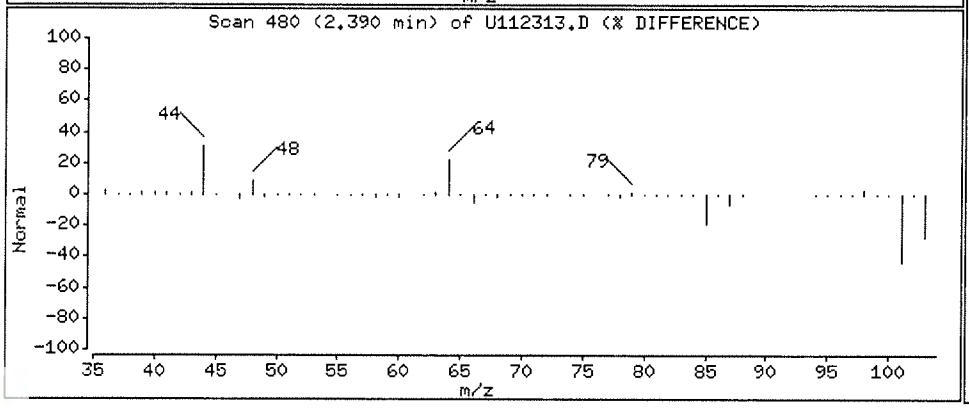
11 1,1-Dichloroethene

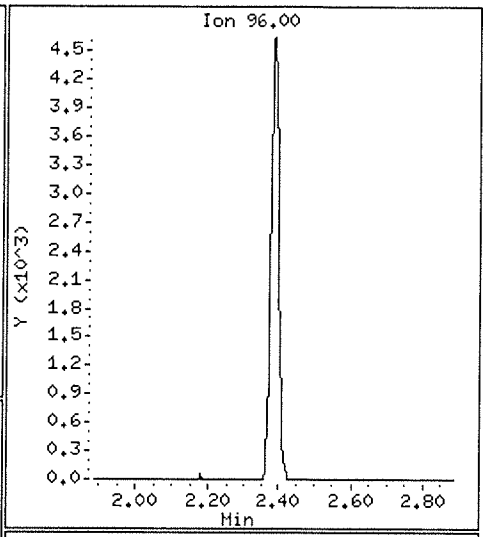
Concentration: 2.96 ug/l

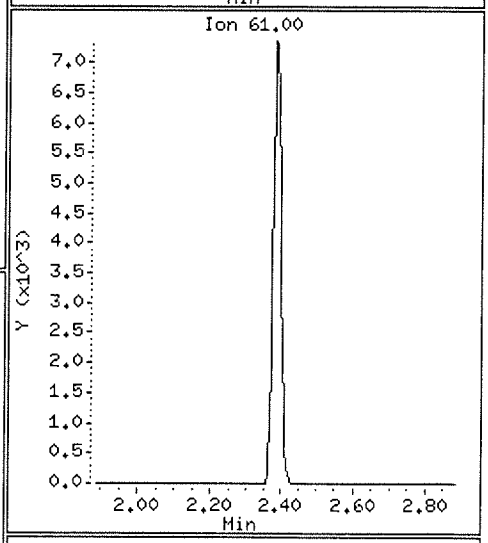


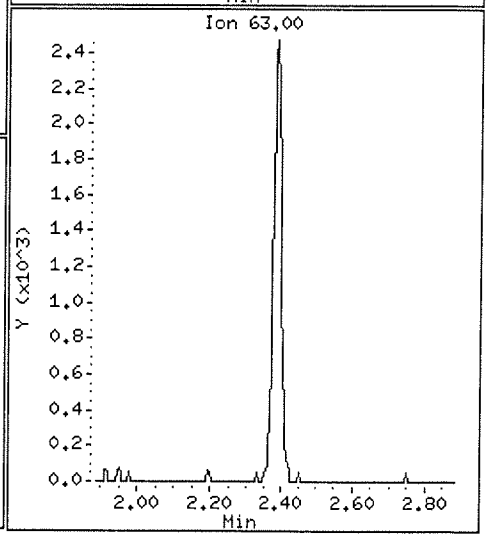












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Date : 23-NOV-2021 14:21

Client ID: HS21110813-01

Instrument: VOA9.i

Sample Info: HS21110813-01;HS21110813-01;;;

Purge Volume: 5.0

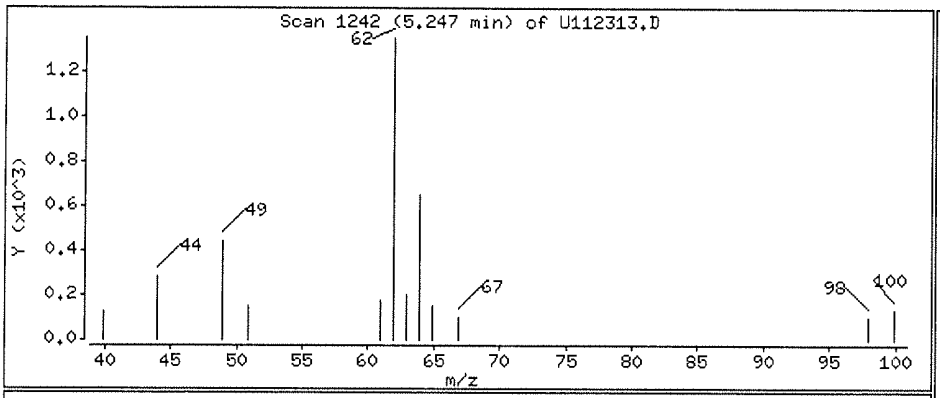
Operator: PC

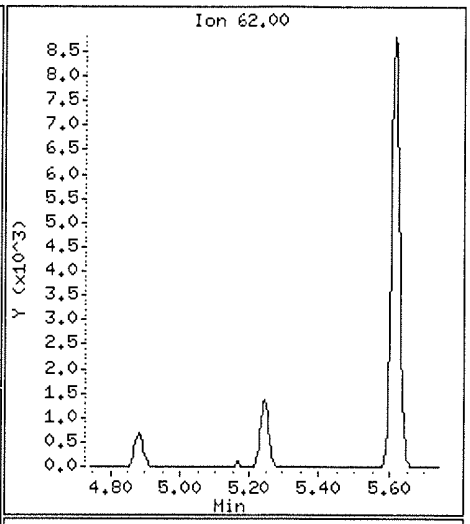
Column phase: DB624

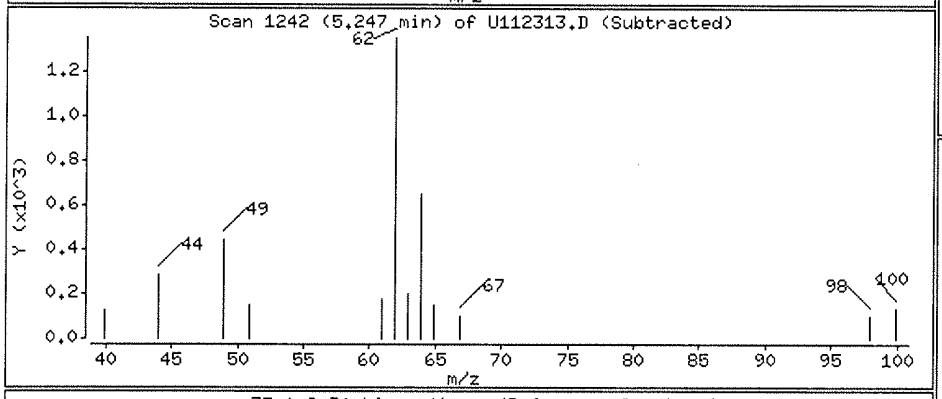
Column diameter: 0.18

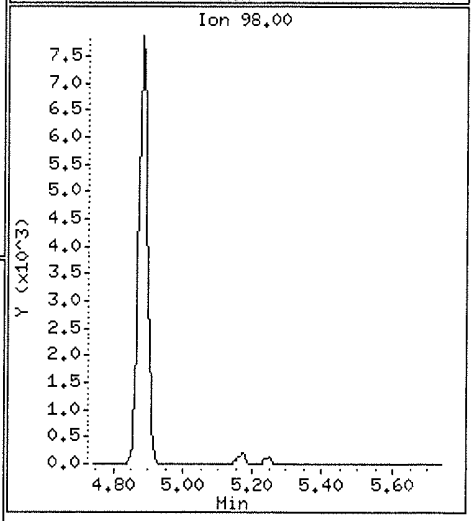
33 1,2-Dichloroethane

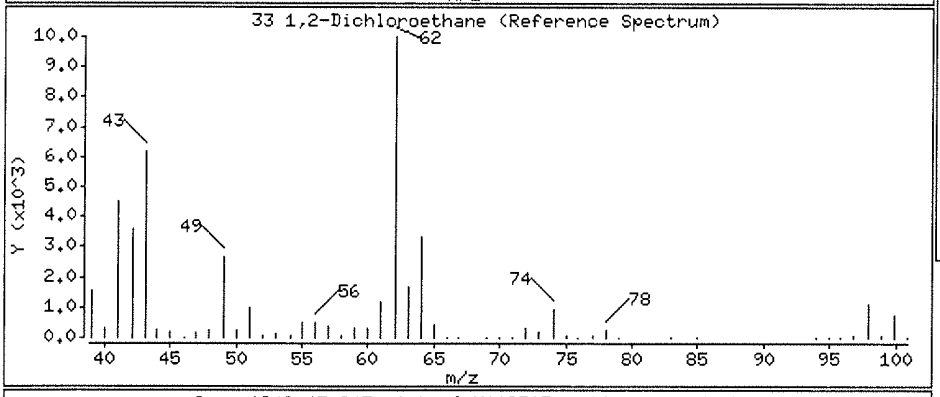
Concentration: 0.58 ug/l

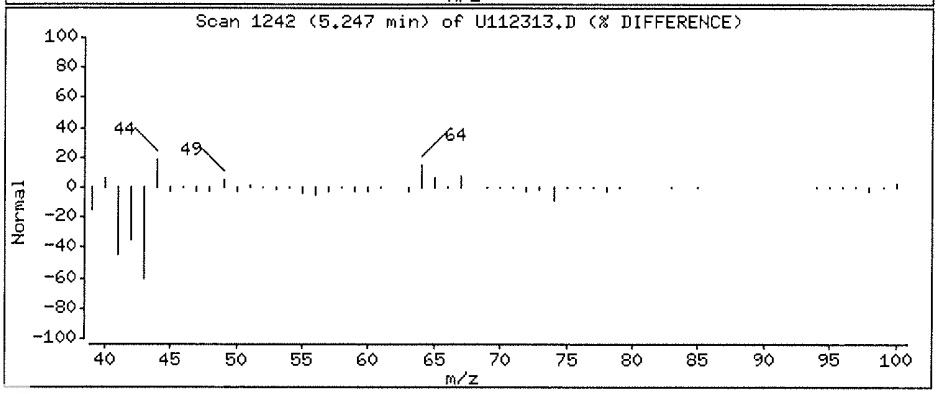












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112314.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112314.D
Lab Smp Id: HS21110813-02 Client Smp ID: HS21110813-02
Inj Date : 23-NOV-2021 14:43
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-02;HS21110813-02;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

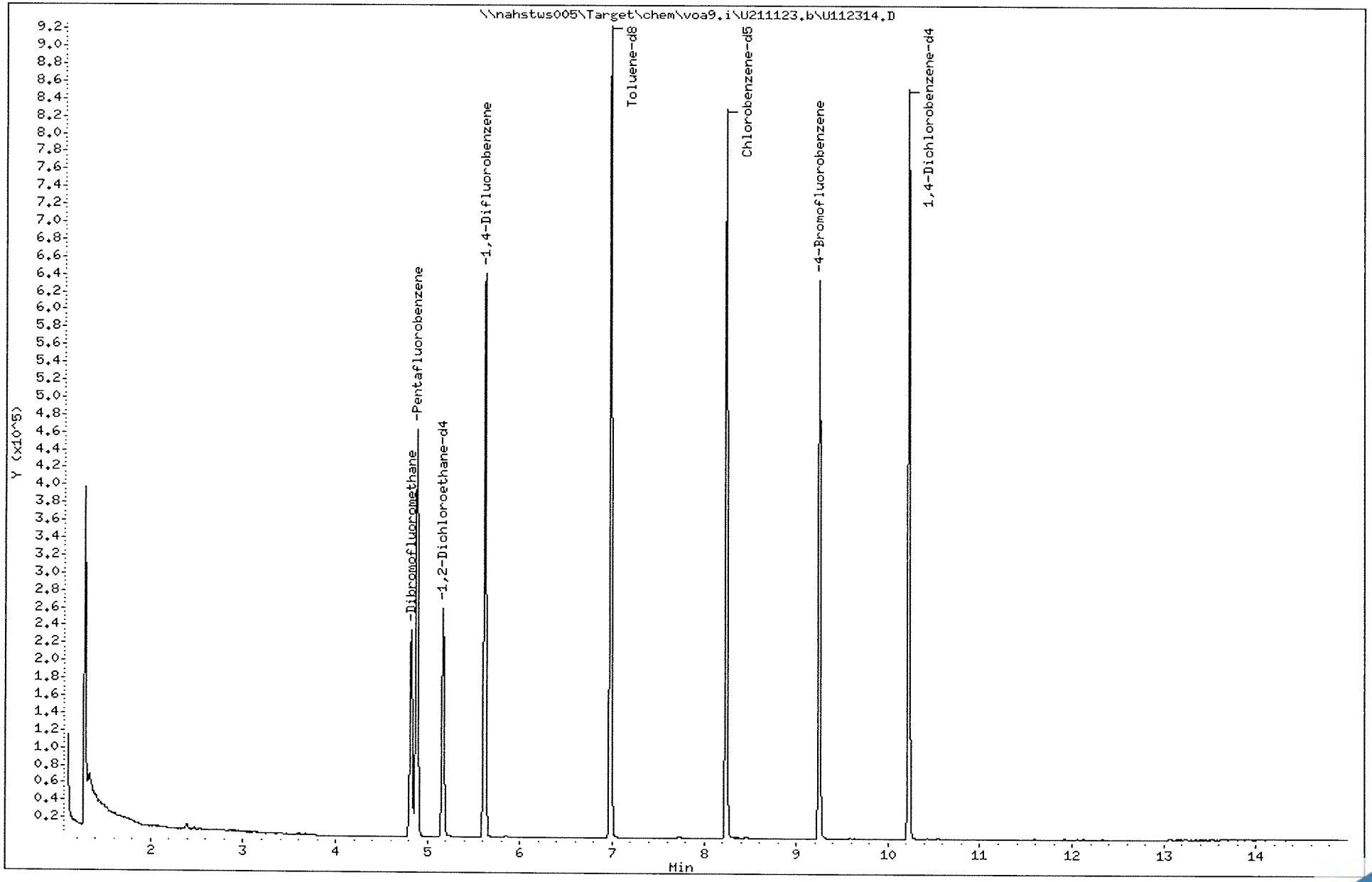
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	288148	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	471807	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	413587	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	204819	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	164916	46.5522	46.55
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	202975	50.5423	50.54
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.988)	134926	44.5181	44.51
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	550248	51.1183	51.11

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112314.D
Date : 23-NOV-2021 14:43
Client ID: HS21110813-02
Sample Info: HS21110813-02;HS21110813-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112315.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112315.D
Lab Smp Id: HS21110813-03 Client Smp ID: HS21110813-03
Inj Date : 23-NOV-2021 15:06
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-03;HS21110813-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.890	4.883	(1.000)	286246	50.0000	
* 36 1,4-Difluorobenzene	114	5.621	5.614	(1.000)	466145	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	410585	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.228	10.224	(1.000)	195414	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.171	5.164	(1.057)	162955	46.2963	46.29
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	196484	49.2502	49.25
$ 30 Dibromofluoromethane	113	4.827	4.819	(0.987)	131400	43.6259	43.62
$ 48 Toluene-d8	98	6.982	6.978	(0.847)	540744	50.6026	50.60
11 1,1-Dichloroethene	96	2.397	2.386	(0.490)	1573	0.61636	0.61(a)

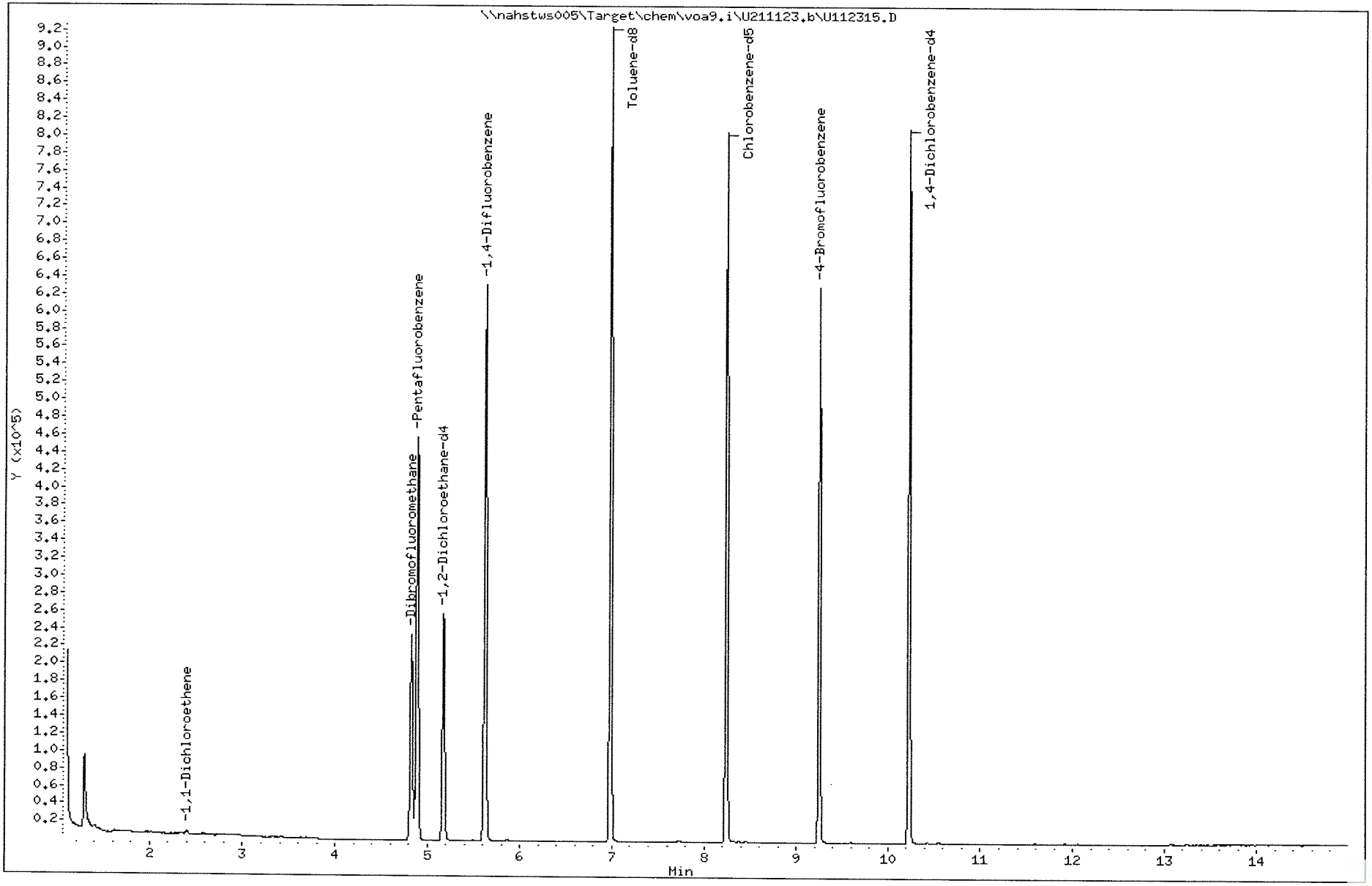
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112315.D
Date : 23-NOV-2021 15:06
Client ID: HS21110813-03
Sample Info: HS21110813-03;HS21110813-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112315.D

Date : 23-NOV-2021 15:06

Client ID: HS21110813-03

Instrument: VOA9.i

Sample Info: HS21110813-03;HS21110813-03;;;

Purge Volume: 5.0

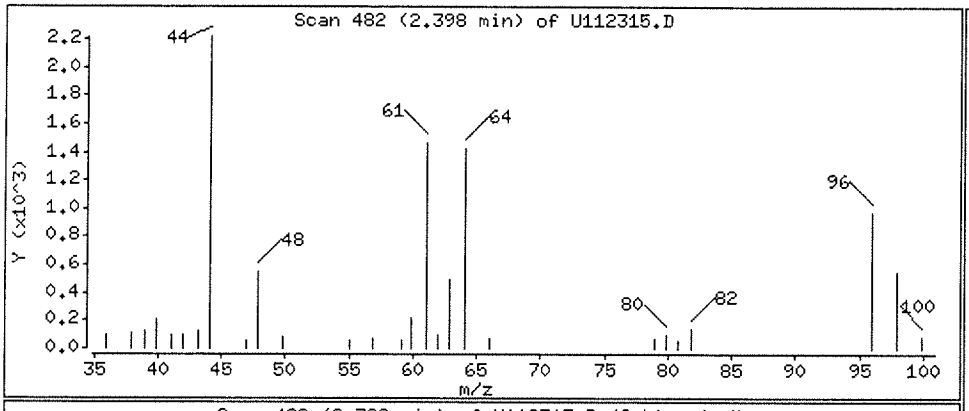
Operator: PC

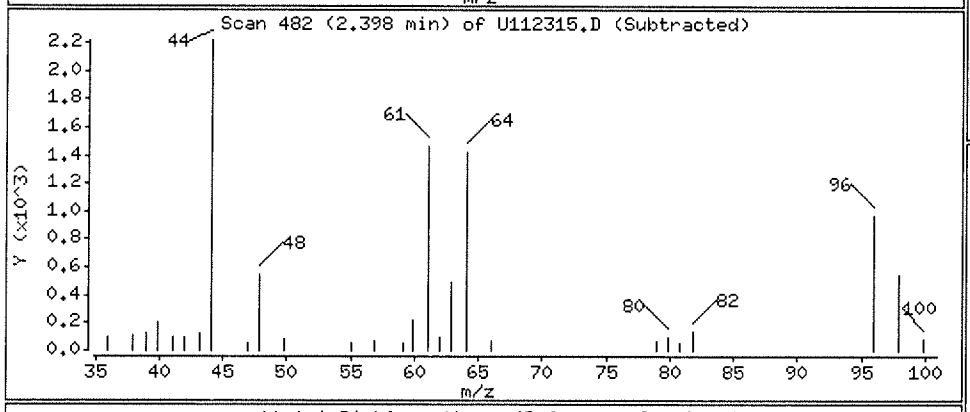
Column phase: DB624

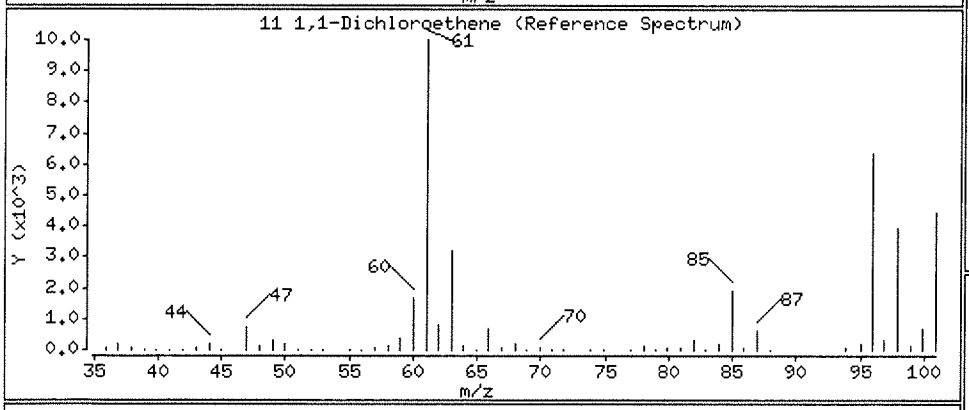
Column diameter: 0.18

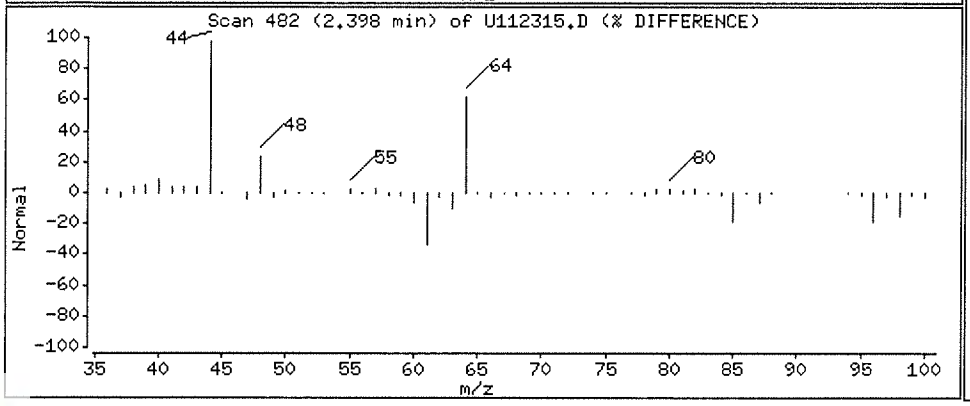
11 1,1-Dichloroethene

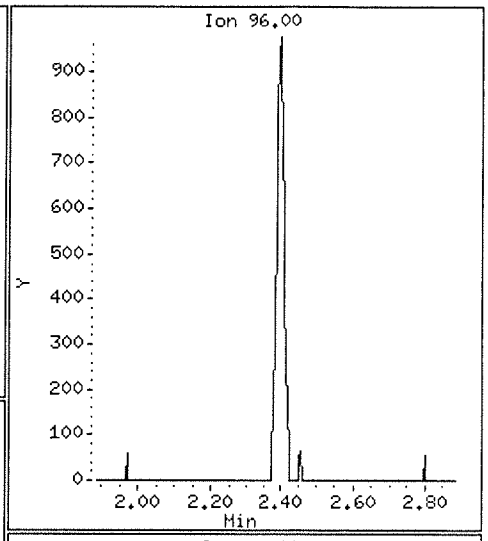
Concentration: 0.61 ug/l

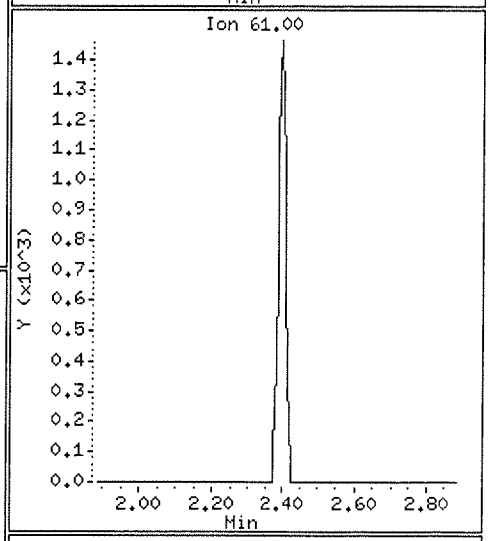


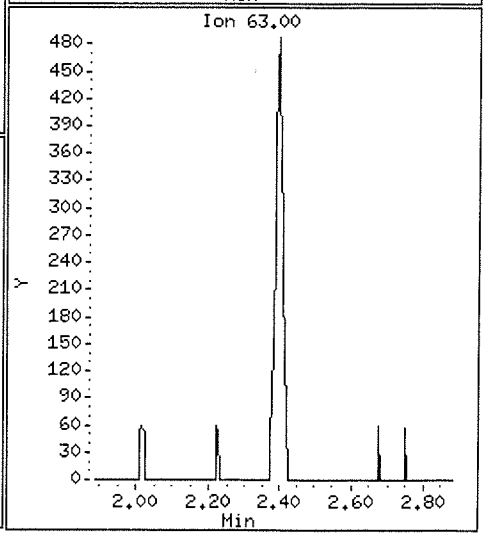












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112316.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112316.D
Lab Smp Id: HS21110813-04 Client Smp ID: HS21110813-04
Inj Date : 23-NOV-2021 15:29
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-04;HS21110813-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

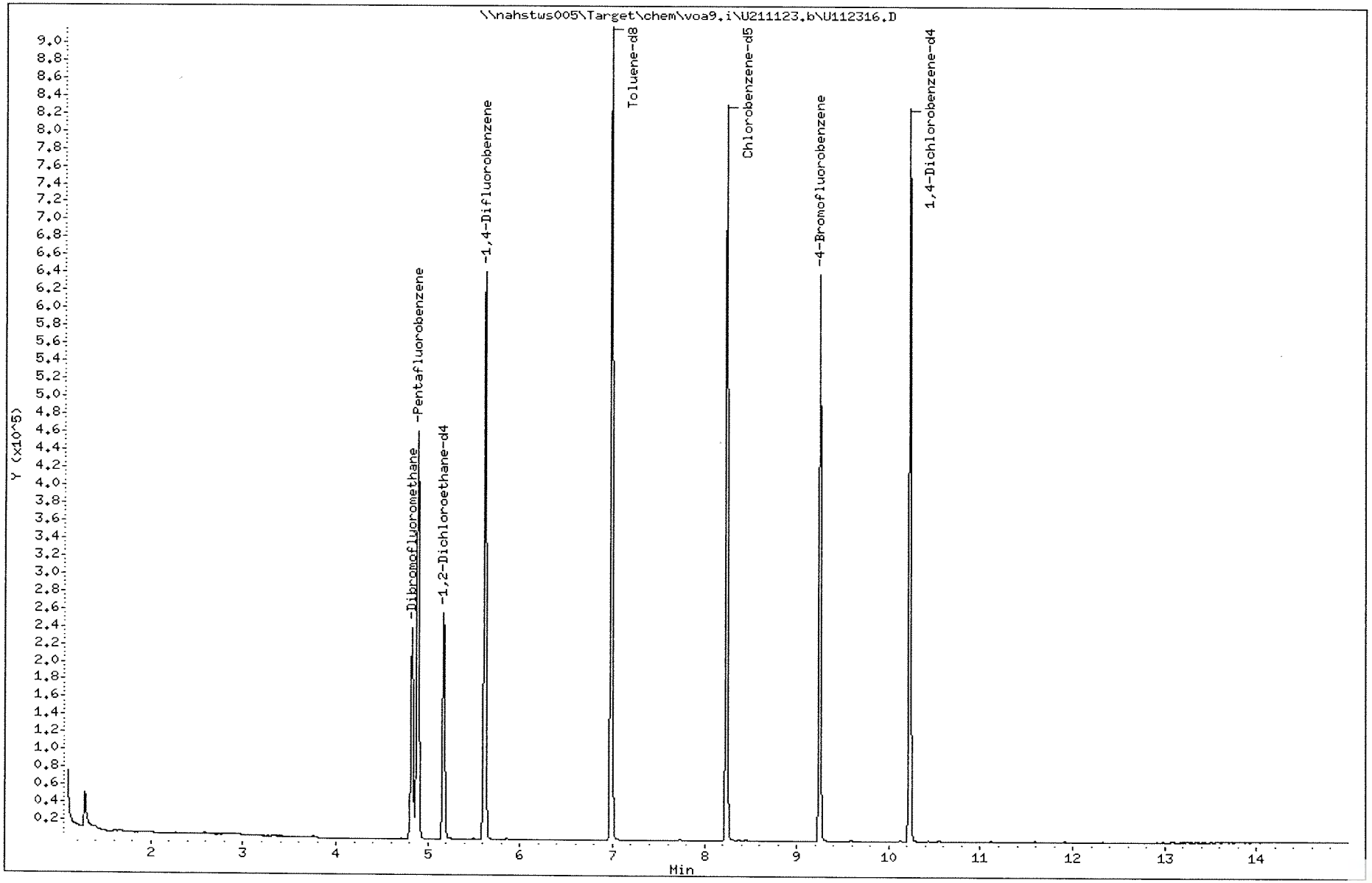
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.887	4.883	(1.000)	287544	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	472046	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	415886	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.228	10.224	(1.000)	201991	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.171	5.164	(1.058)	165622	46.8593	46.85
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	201630	49.9136	49.91
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	133583	44.1608	44.16
$ 48 Toluene-d8	98	6.982	6.978	(0.847)	550427	50.8522	50.85

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112316.D
Date : 23-NOV-2021 15:29
Client ID: HS21110813-04
Sample Info: HS21110813-04;HS21110813-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112317.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112317.D
Lab Smp Id: HS21110813-05 Client Smp ID: HS21110813-05
Inj Date : 23-NOV-2021 15:51
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-05;HS21110813-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

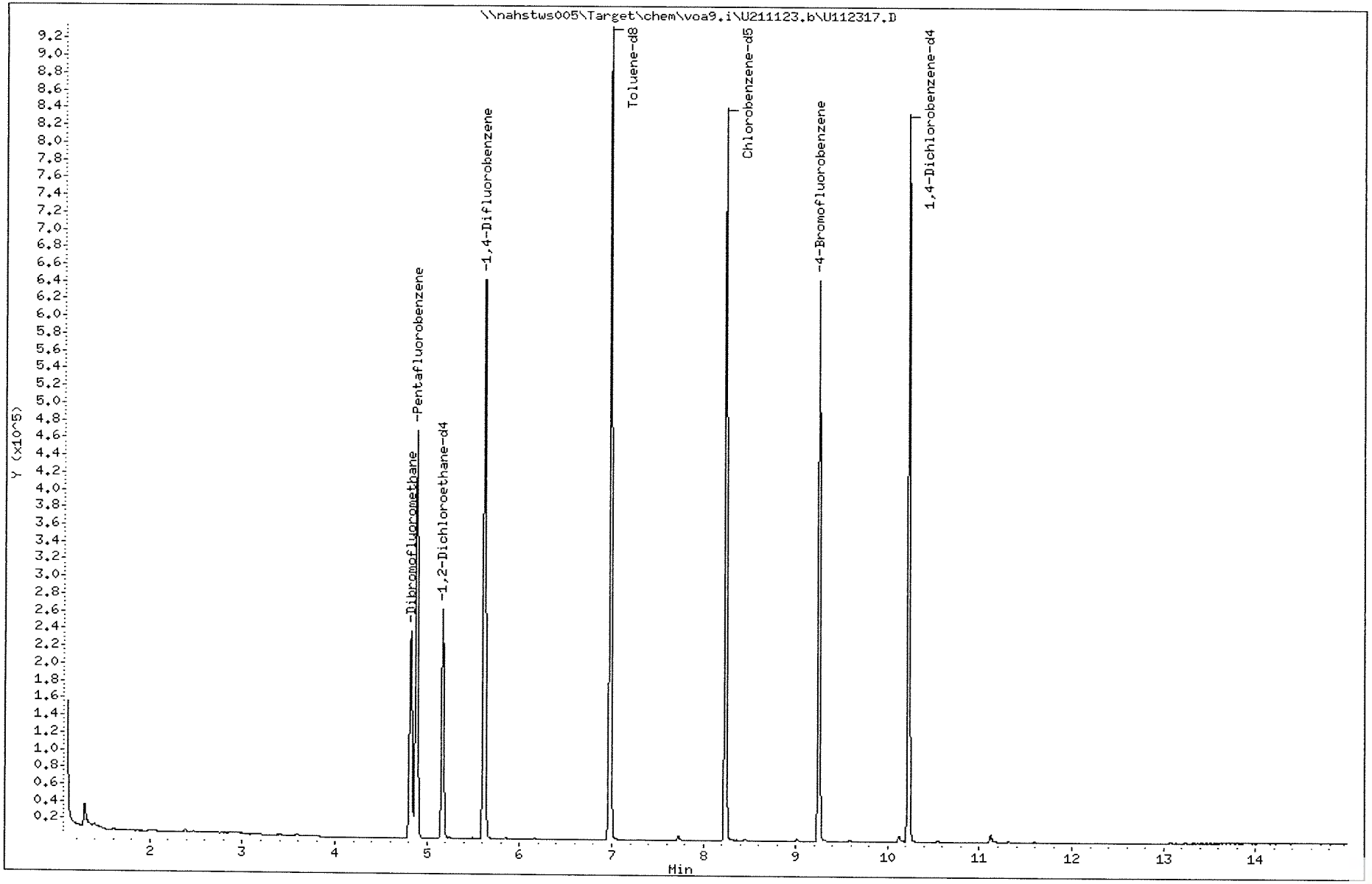
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	289609	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	479080	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	422350	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.228	10.224	(1.000)	204305	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.164	(1.058)	168278	47.2845	47.28
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	204767	49.9143	49.91
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	135138	44.3601	44.36
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	557593	50.7258	50.72

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112317.D
Date : 23-NOV-2021 15:51
Client ID: HS21110813-05
Sample Info: HS21110813-05;HS21110813-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112318.D
Lab Smp Id: HS21110813-06 Client Smp ID: HS21110813-06
Inj Date : 23-NOV-2021 16:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-06;HS21110813-06;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

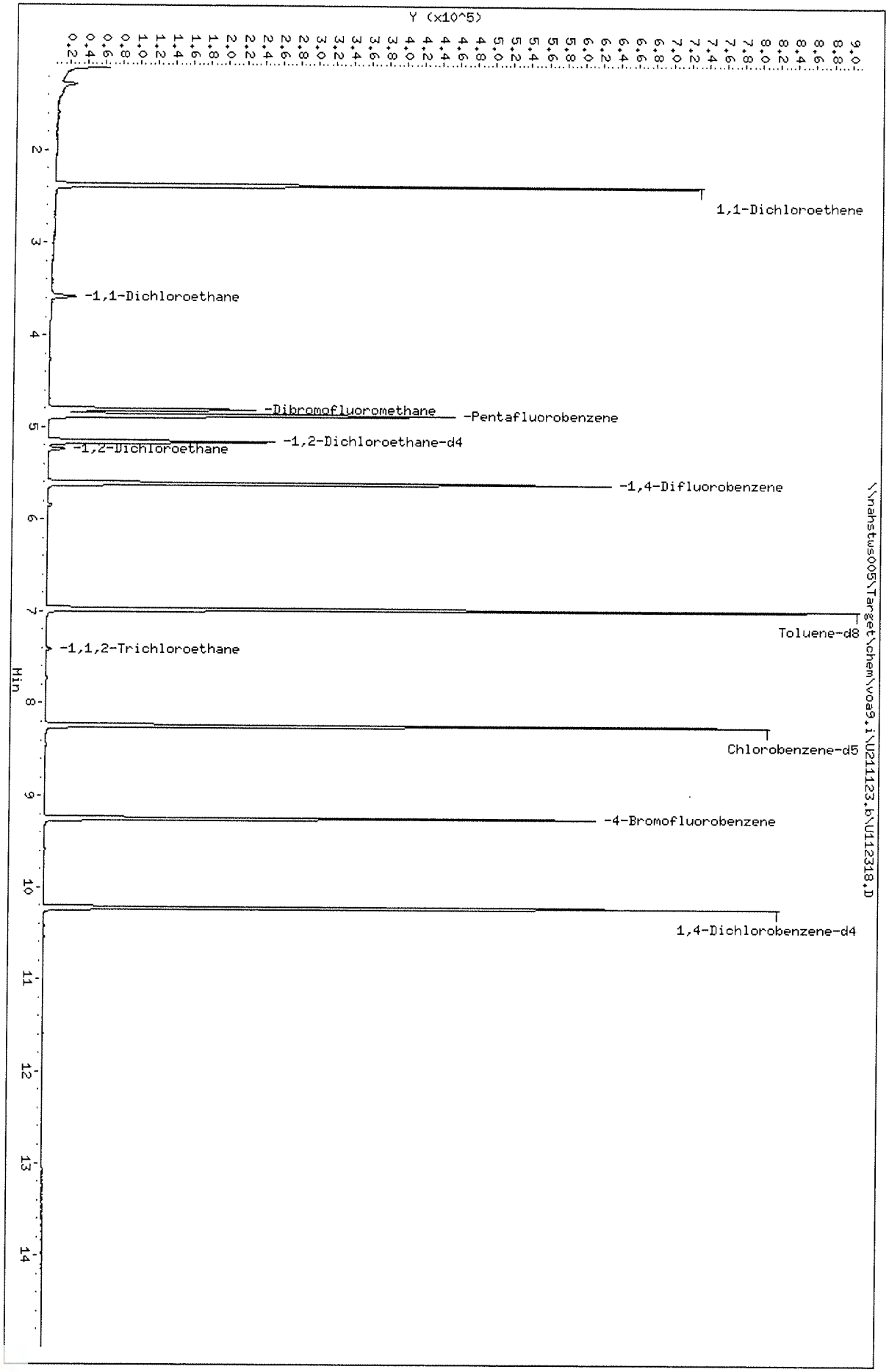
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.875	4.883	(1.000)	283097	50.0000	
* 36 1,4-Difluorobenzene	114	5.610	5.614	(1.000)	467406	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	411046	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	199704	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.160	5.164	(1.058)	162459	46.6809	46.68
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	196975	49.3198	49.31
$ 30 Dibromofluoromethane	113	4.811	4.819	(0.987)	133713	44.9125	44.91
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	541885	50.6525	50.65
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	1455	0.60072	0.60(a)
22 1,1-Dichloroethane	63	3.578	3.586	(0.734)	26330	5.23519	5.23
11 1,1-Dichloroethene	96	2.378	2.386	(0.488)	253307	100.359	100.35
33 1,2-Dichloroethane	62	5.238	5.242	(0.934)	13534	3.20975	3.20(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9,i\U211123,b\U112318,D
Date : 23-NOV-2021 16:14
Client ID: HS21110813-06
Sample Info: HS21110813-06;HS21110813-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112318.D

Date : 23-NOV-2021 16:14

Client ID: HS21110813-06

Instrument: VOA9.i

Sample Info: HS21110813-06;HS21110813-06;;;

Purge Volume: 5.0

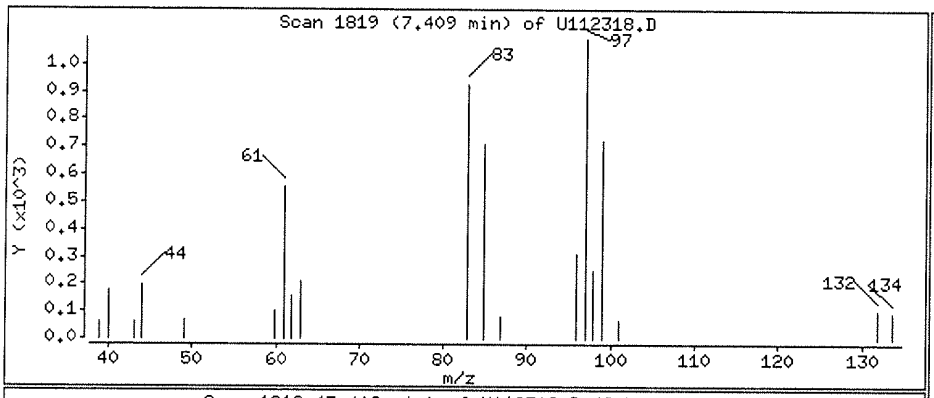
Operator: PC

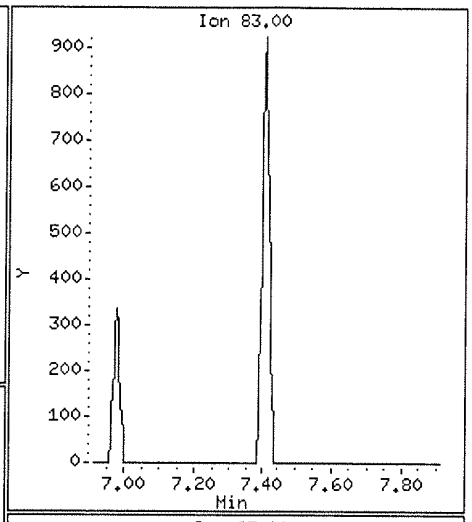
Column phase: DB624

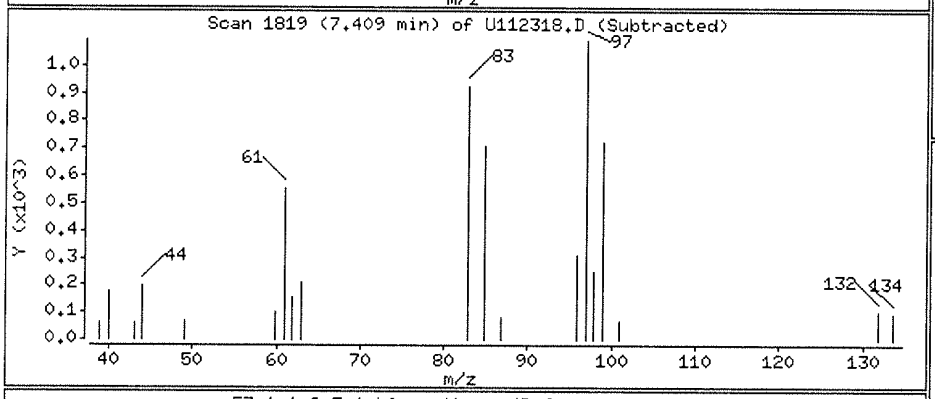
Column diameter: 0.18

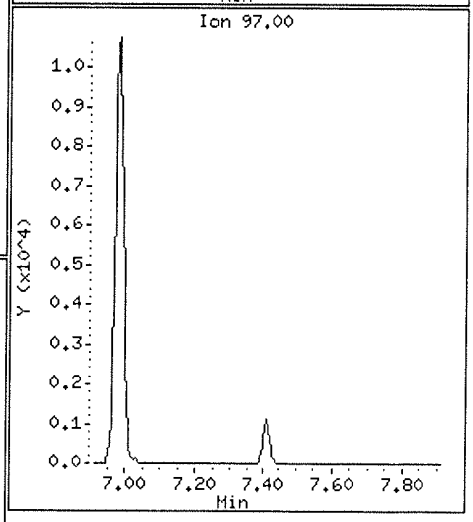
53 1,1,2-Trichloroethane

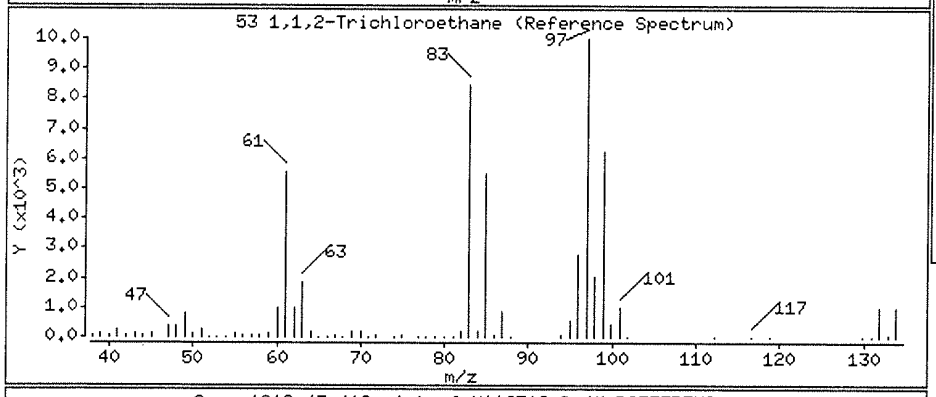
Concentration: 0.60 ug/l

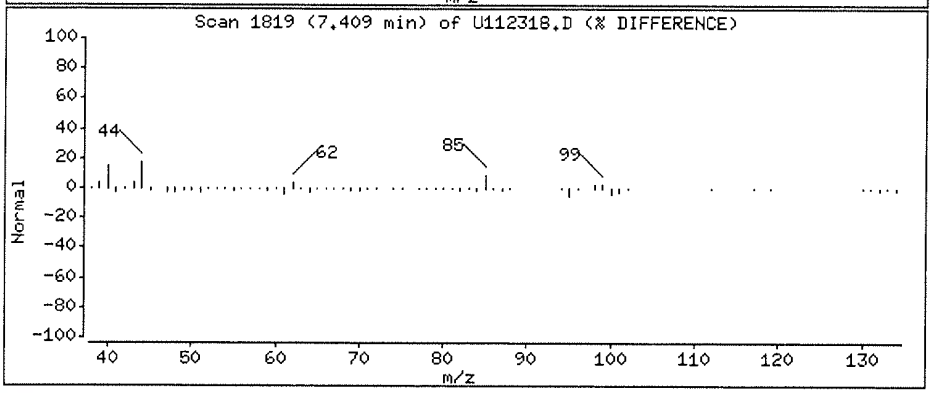












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112318.D

Date : 23-NOV-2021 16:14

Client ID: HS21110813-06

Instrument: VOA9.i

Sample Info: HS21110813-06;HS21110813-06;;;

Purge Volume: 5.0

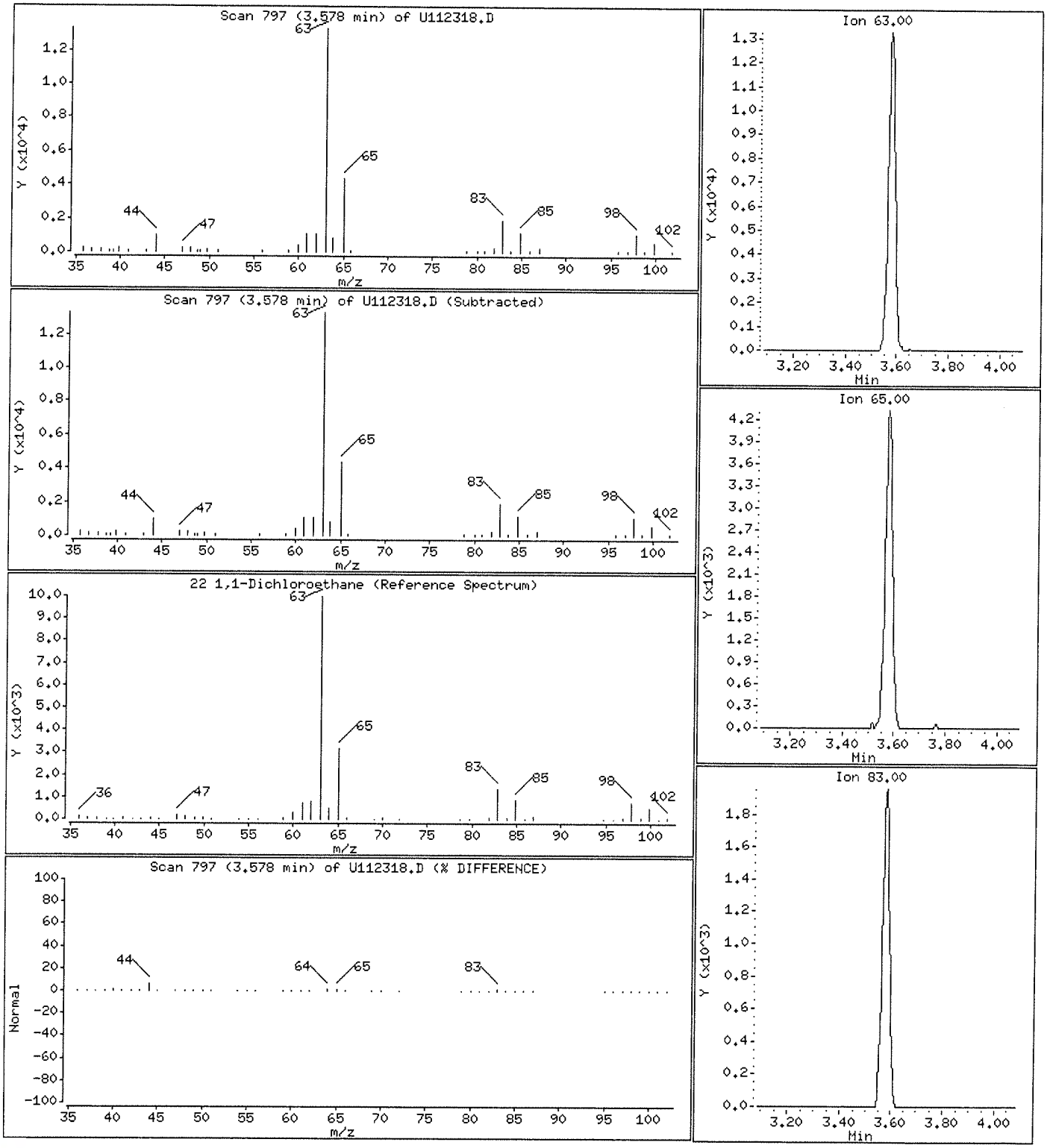
Operator: PC

Column phase: DB624

Column diameter: 0.18

22 1,1-Dichloroethane

Concentration: 5.23 ug/l



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112318.D

Date : 23-NOV-2021 16:14

Client ID: HS21110813-06

Instrument: VOA9.i

Sample Info: HS21110813-06;HS21110813-06;;;

Purge Volume: 5.0

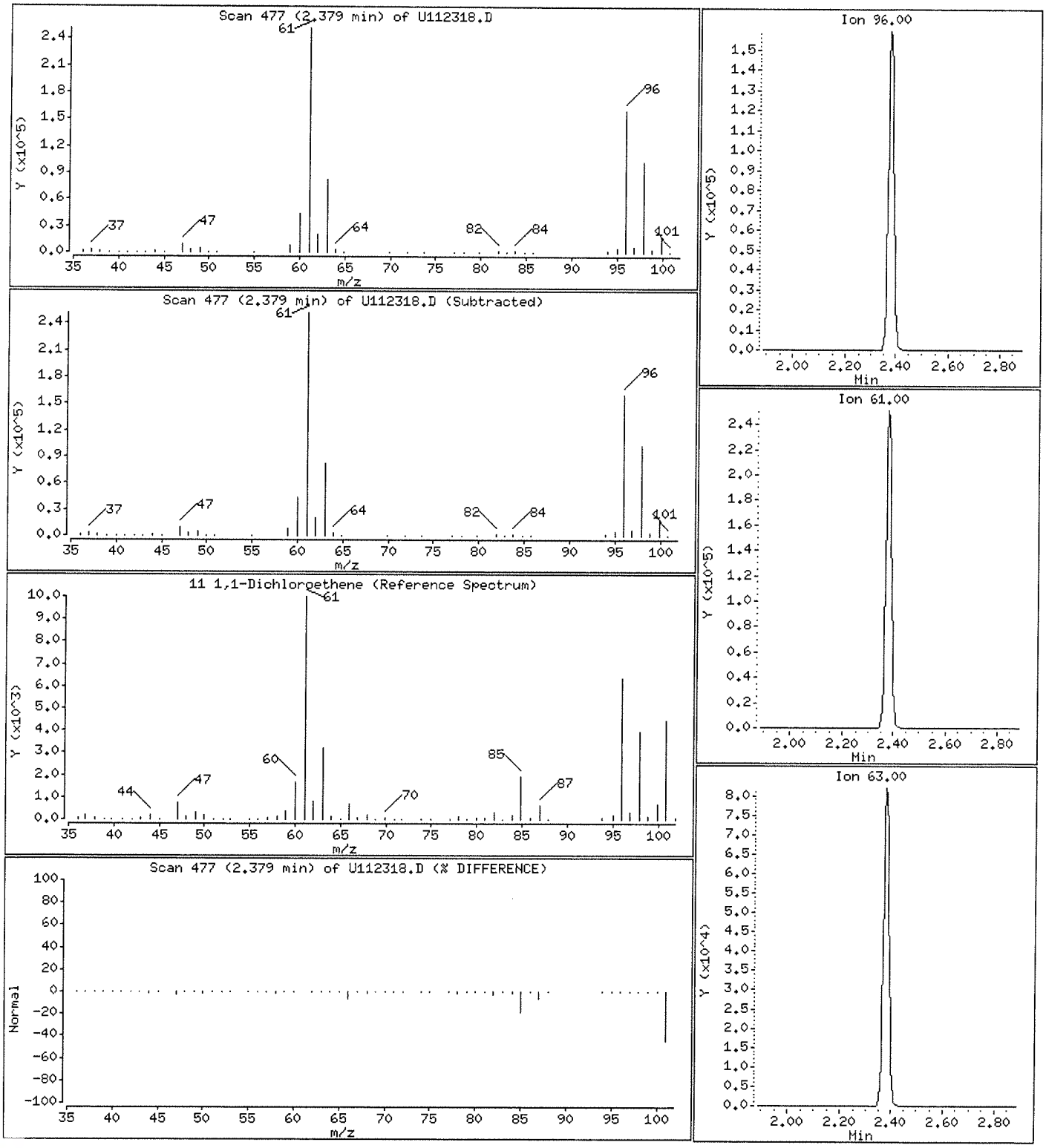
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 100.35 ug/l



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112318.D

Date : 23-NOV-2021 16:14

Client ID: HS21110813-06

Instrument: VOA9.i

Sample Info: HS21110813-06;HS21110813-06;;;

Purge Volume: 5.0

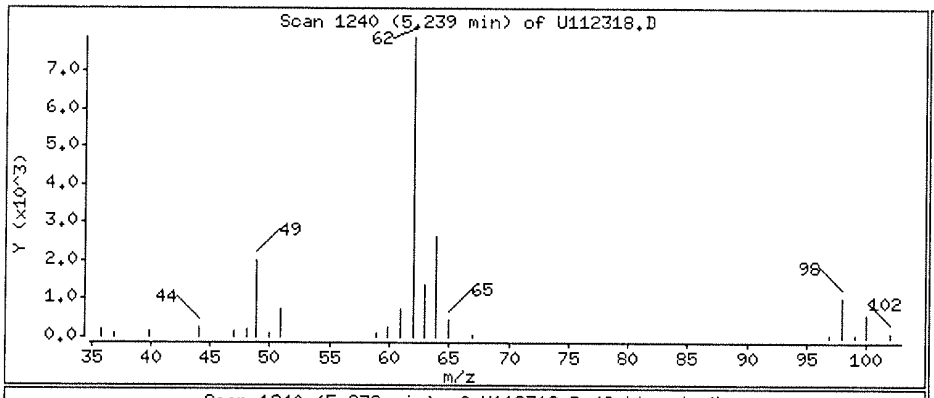
Operator: PC

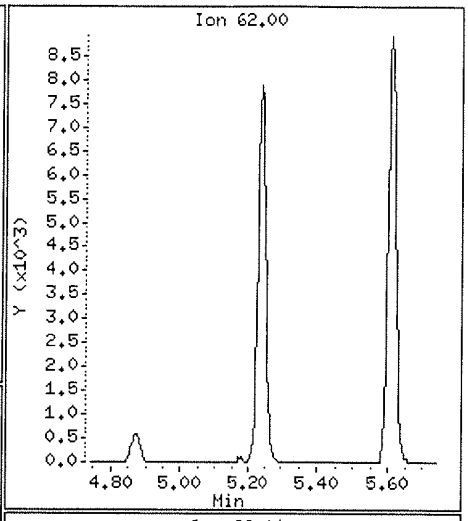
Column phase: DB624

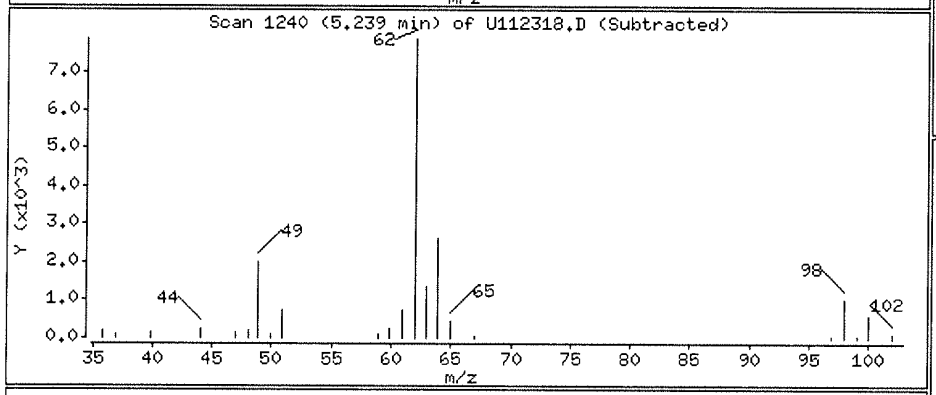
Column diameter: 0.18

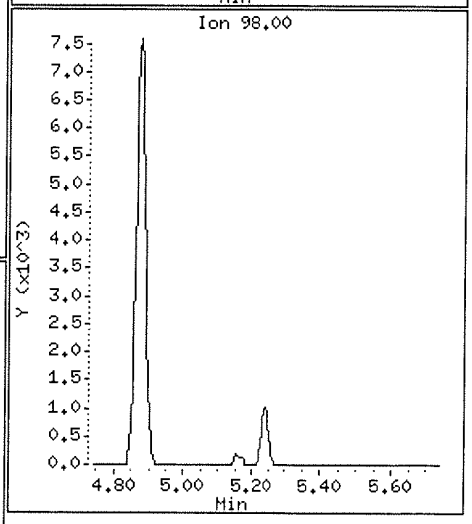
33 1,2-Dichloroethane

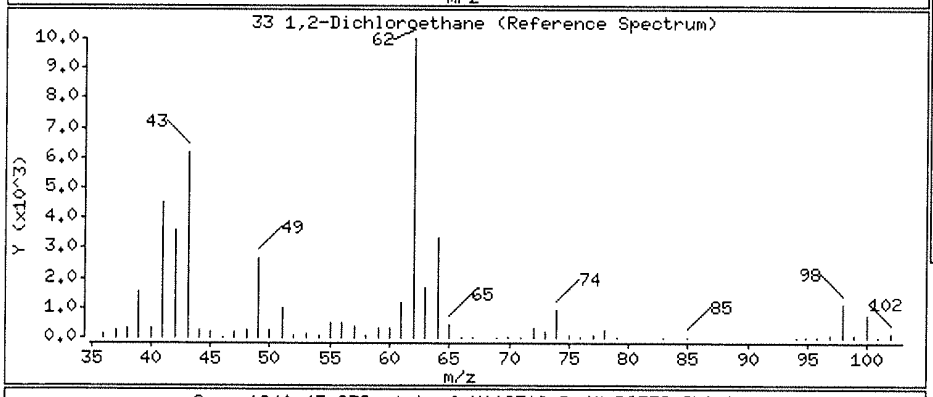
Concentration: 3.20 ug/l

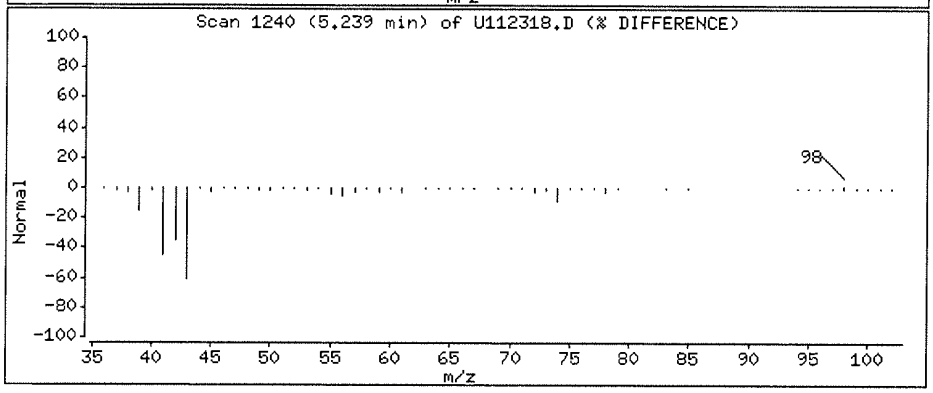












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112319.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112319.D
Lab Smp Id: HS21110813-07 Client Smp ID: HS21110813-07
Inj Date : 23-NOV-2021 16:36
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-07;HS21110813-07;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

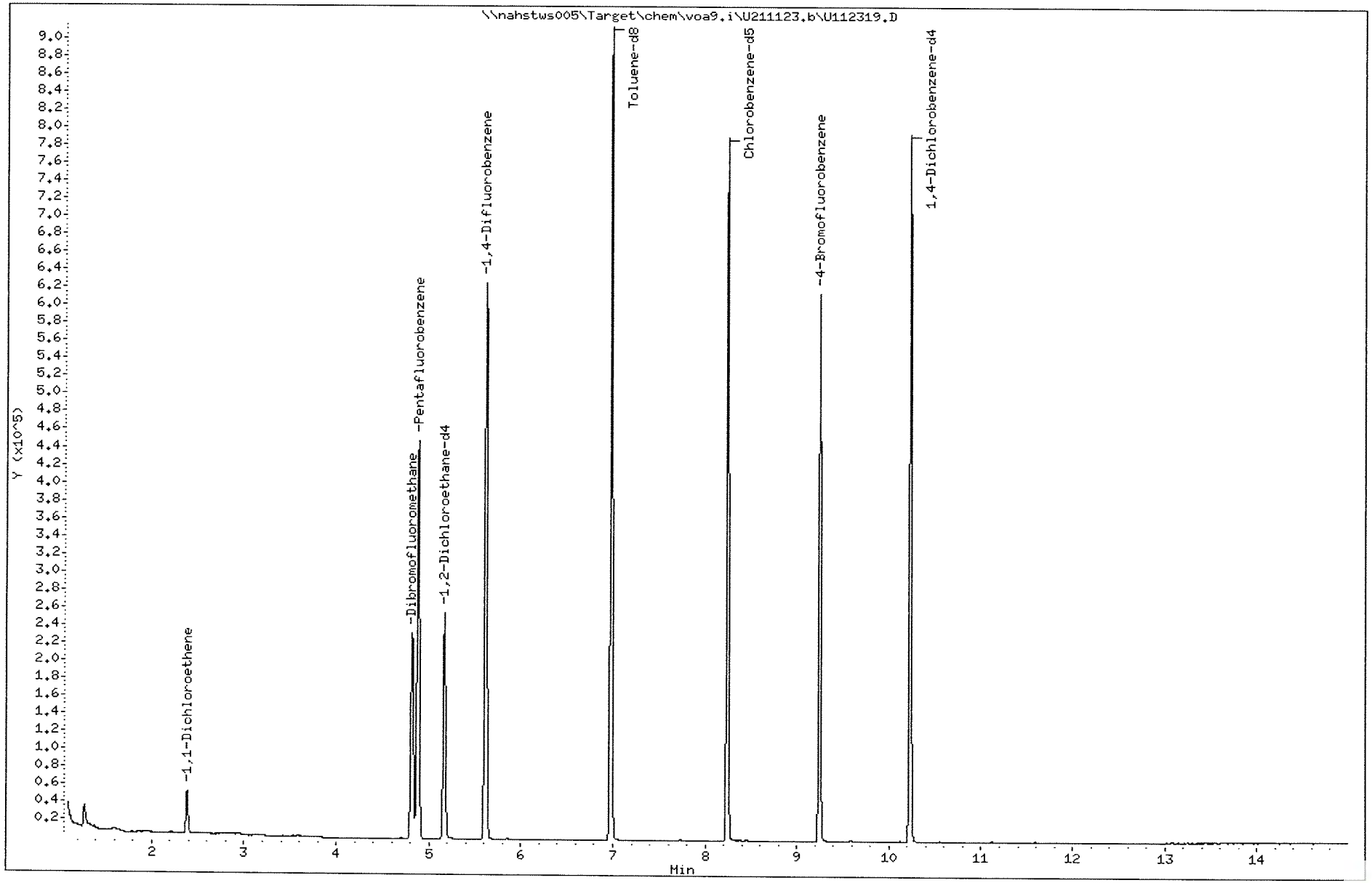
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	279478	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	461220	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	399707	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	193902	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	162434	47.2973	47.29
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	193133	49.7408	49.74
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	130491	44.3880	44.38
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	535816	51.5061	51.50
11 1,1-Dichloroethene	96	2.382	2.386	(0.488)	16156	6.48385	6.48

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112319.D
Date : 23-NOV-2021 16:36
Client ID: HS21110813-07
Sample Info: HS21110813-07;HS21110813-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112319.D

Date : 23-NOV-2021 16:36

Client ID: HS21110813-07

Instrument: VOA9.i

Sample Info: HS21110813-07;HS21110813-07;;;

Purge Volume: 5.0

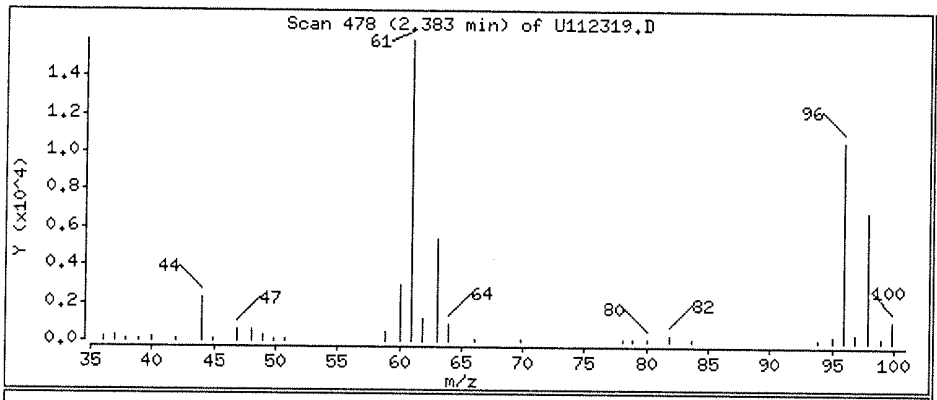
Operator: PC

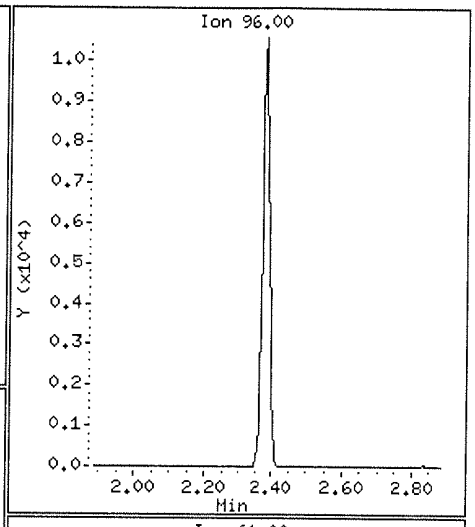
Column phase: DB624

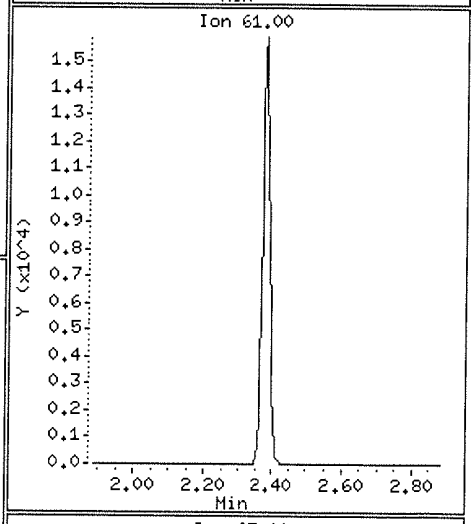
Column diameter: 0.18

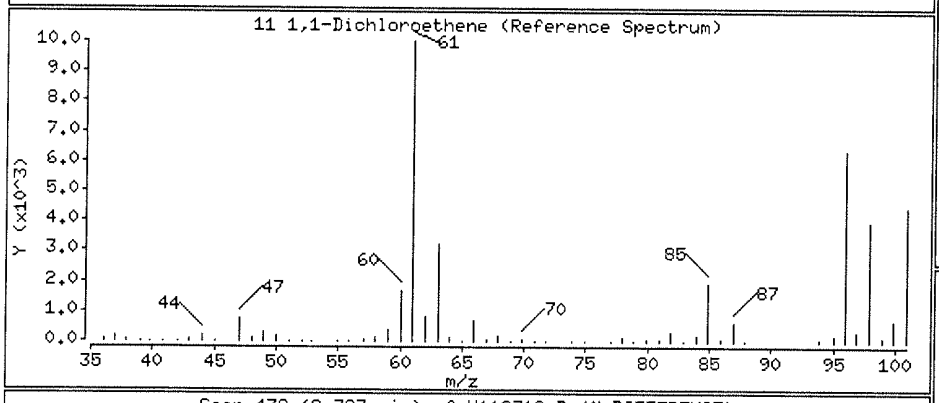
11 1,1-Dichloroethene

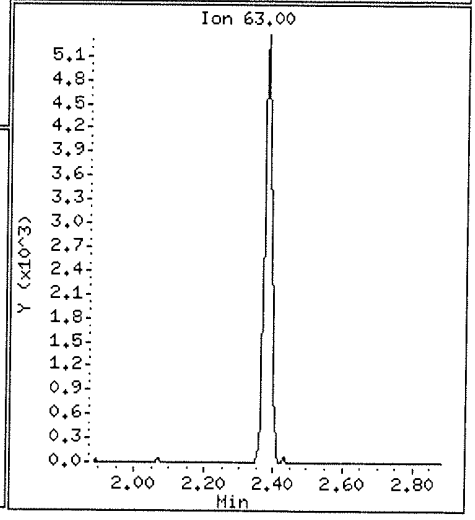
Concentration: 6.48 ug/l

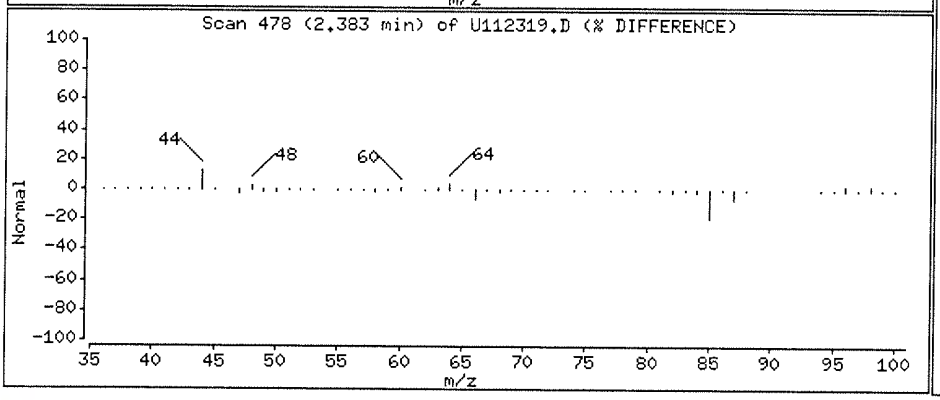












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112320.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112320.D
Lab Smp Id: HS21110813-08 Client Smp ID: HS21110813-08
Inj Date : 23-NOV-2021 16:58
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-08;HS21110813-08;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.887	4.883	(1.000)	284568	50.0000	
* 36 1,4-Difluorobenzene	114	5.618	5.614	(1.000)	469180	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	409750	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	198795	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	165984	47.4719	47.47
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199742	50.1940	50.19
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	132374	44.2199	44.21
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	546893	51.2823	51.28

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112320.D

Date : 23-NOV-2021 16:58

Client ID: HS21110813-08

Sample Info: HS21110813-08;HS21110813-08;;;

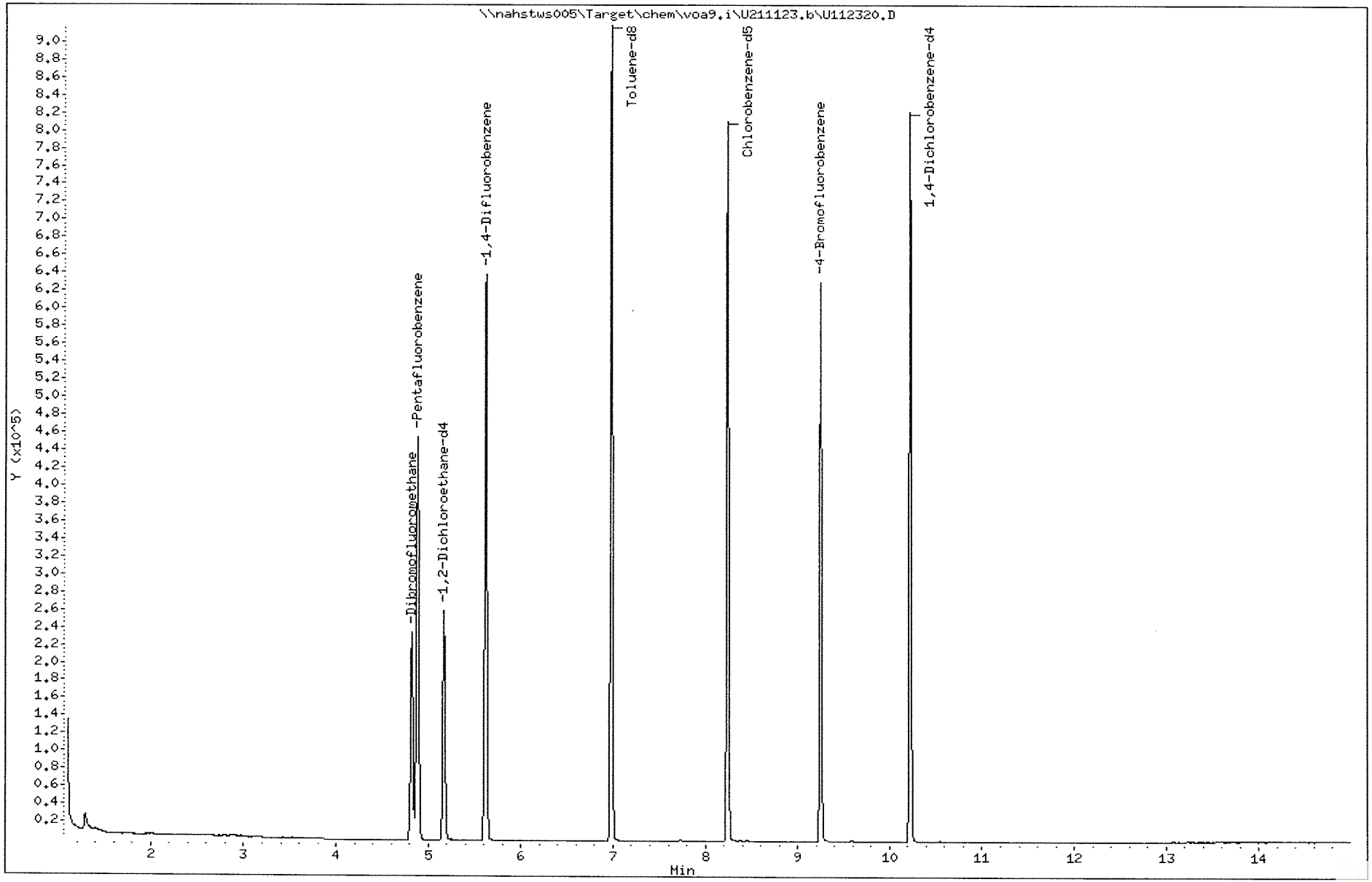
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112321.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112321.D
Lab Smp Id: HS21110813-09 Client Smp ID: HS21110813-09
Inj Date : 23-NOV-2021 17:21
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-09;HS21110813-09;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

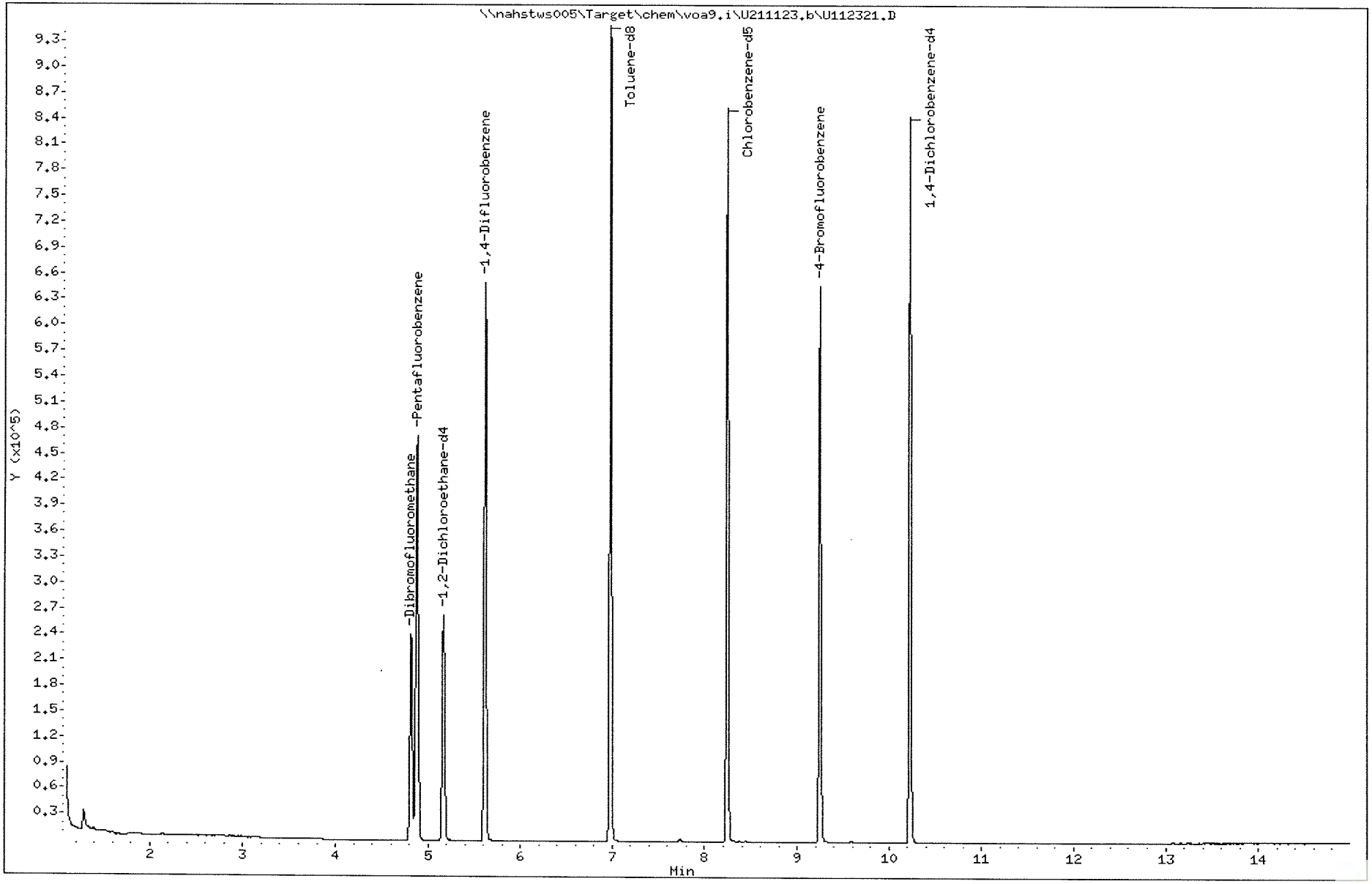
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.882	4.883	(1.000)	291216	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	482267	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	424057	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	206233	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.164	(1.058)	169084	47.2476	47.24
$ 69 4-Bromofluorobenzene	95	9.249	9.246	(1.122)	205506	49.8922	49.89
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	136896	44.6956	44.69
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	561133	50.8424	50.84

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112321.D
Date : 23-NOV-2021 17:21
Client ID: HS21110813-09
Sample Info: HS21110813-09;HS21110813-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112322.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112322.D
Lab Smp Id: HS21110813-10 Client Smp ID: HS21110813-10
Inj Date : 23-NOV-2021 17:43
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-10;HS21110813-10;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	287637	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	470111	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	412928	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	201089	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	165558	46.8250	46.82
$ 69 4-Bromofluorobenzene	95	9.250	9.246	(1.122)	197689	49.2717	49.27
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	132163	43.6679	43.66
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	546119	50.8156	50.81

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112322.D

Date : 23-NOV-2021 17:43

Client ID: HS21110813-10

Sample Info: HS21110813-10;HS21110813-10;;;

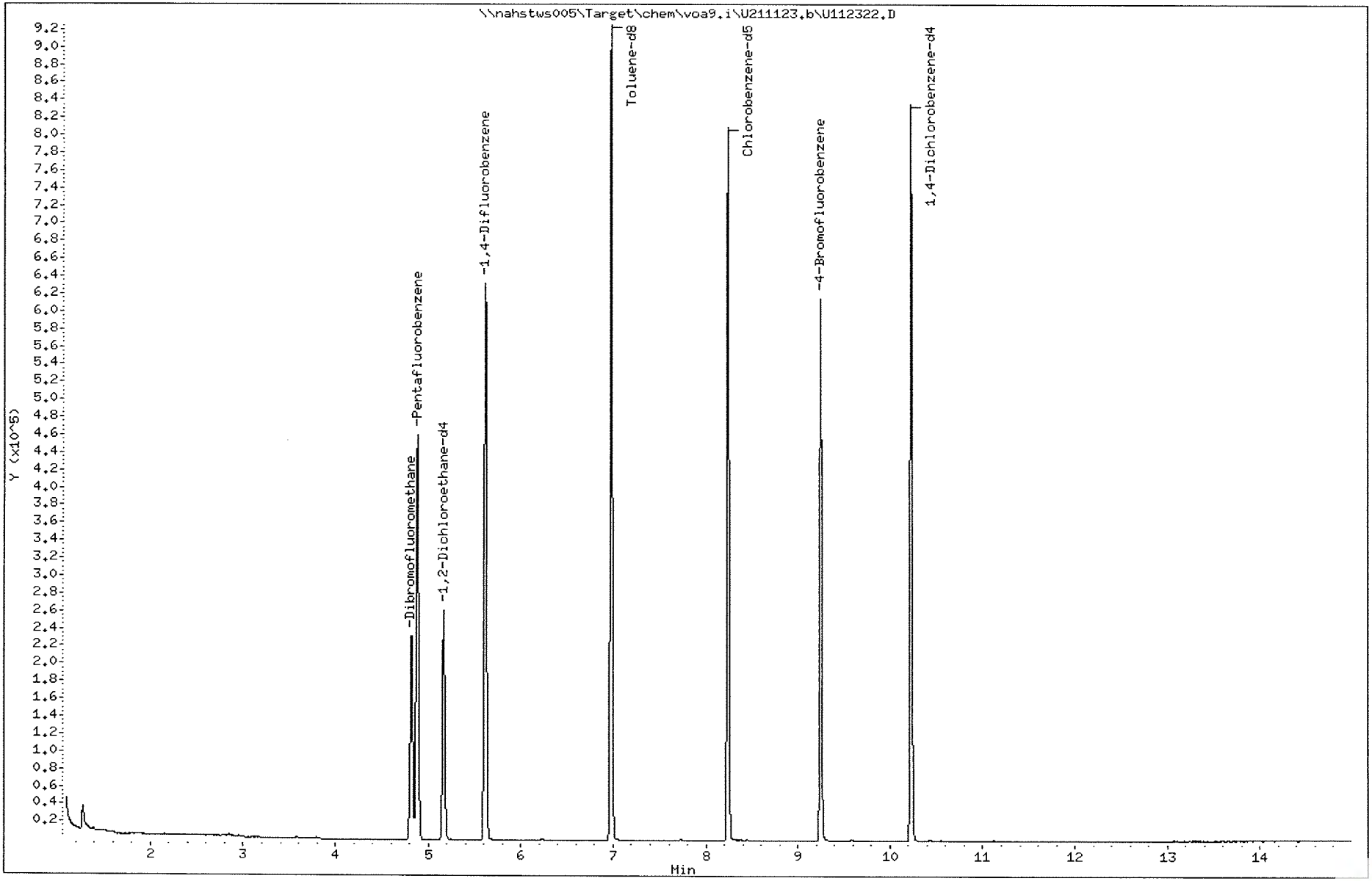
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112331.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\U112331.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 23-NOV-2021 21:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.883	4.883	(1.000)	248216	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	447713	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	403517	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	198181	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	170745	50.0000	56.25
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	205821	50.0000	52.58
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	145577	50.0000	55.97
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	538866	50.0000	51.31
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.985)	190563	50.0000	53.33
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	155977	50.0000	54.00
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	134113	50.0000	47.97
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	221384	50.0000	53.07
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	127026	50.0000	53.42
22 1,1-Dichloroethane	63	3.586	3.589	(0.734)	235560	50.0000	53.41
11 1,1-Dichloroethene	96	2.386	2.390	(0.489)	117210	50.0000	52.96
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	186704	50.0000	50.78
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	170078	50.0000	47.92
71 1,2,3-Trichloropropane	75	9.419	9.415	(0.921)	209742	50.0000	51.21
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	172189	50.0000	47.20
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	508909	50.0000	51.22
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	284631	50.0000	50.92
33 1,2-Dichloroethane	62	5.242	5.243	(0.934)	205610	50.0000	50.90
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	149974	50.0000	53.23

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\U112331.D Page 2
Report Date: 22-Dec-2021 16:05

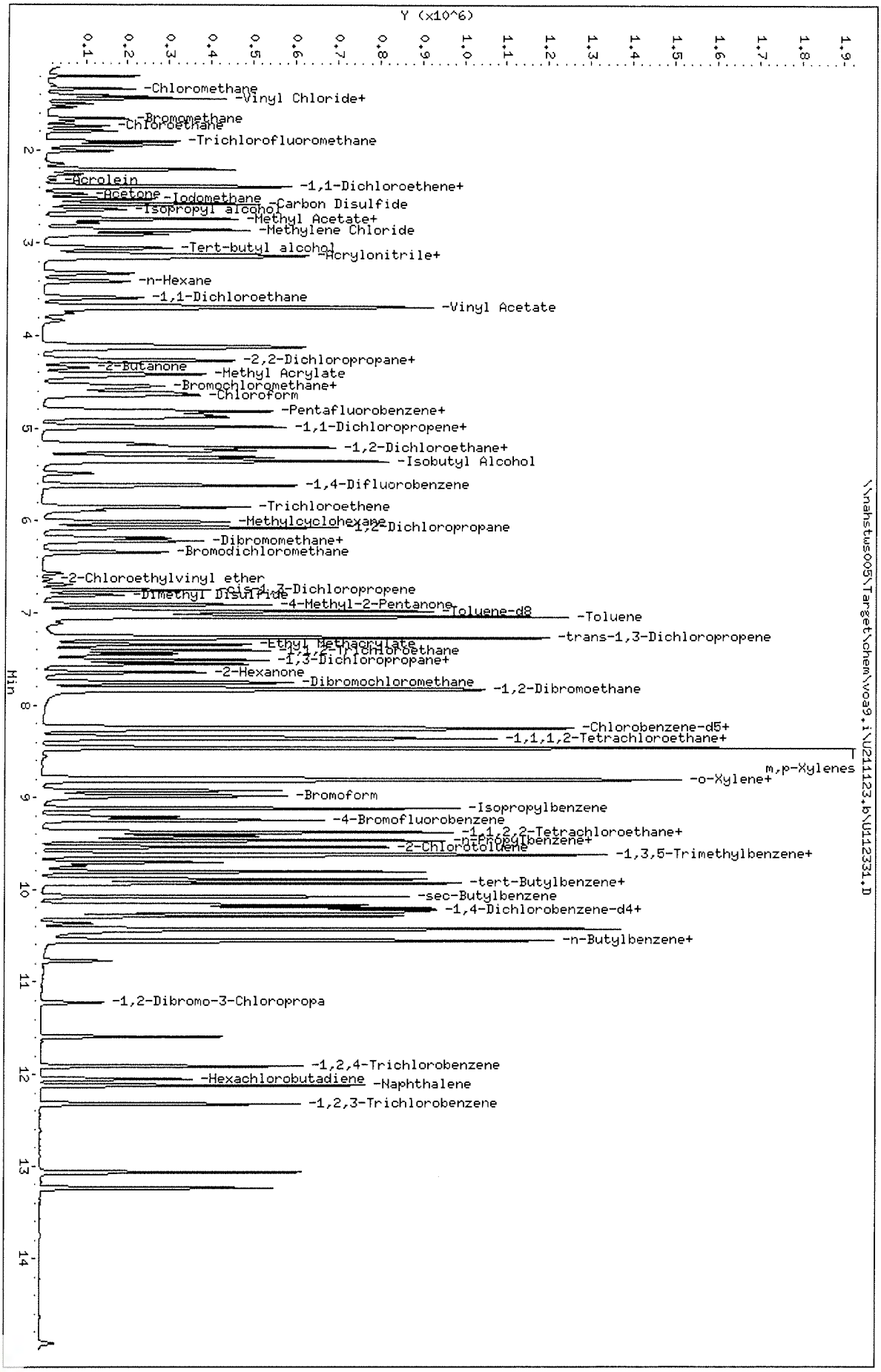
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	278894	50.0000	48.86
54 1,3-Dichloropropane	76	7.555	7.556	(0.917)	268047	50.0000	52.90
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	490150	50.0000	50.30
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	292051	50.0000	49.72
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	27996	50.0000	41.03
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	85875	50.0000	34.36
24 2-Butanone	43	4.343	4.347	(0.889)	128366	100.000	98.90
76 2-Chlorotoluene	91	9.538	9.539	(0.933)	434312	50.0000	50.89
52 2-Hexanone	43	7.645	7.646	(0.928)	206333	100.000	107.71
77 4-Chlorotoluene	91	9.628	9.629	(0.942)	506885	50.0000	51.25
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	481480	50.0000	49.85
10 Acetone	43	2.472	2.472	(0.506)	93999	100.000	109.08
37 Benzene	78	5.205	5.205	(0.927)	592693	50.0000	52.35
74 Bromobenzene	156	9.374	9.374	(0.917)	159992	50.0000	52.05
29 Bromochloromethane	128	4.541	4.542	(0.930)	79822	50.0000	57.01
39 Bromodichloromethane	83	6.337	6.341	(1.129)	169828	50.0000	46.68
66 Bromoform	173	8.972	8.976	(1.089)	80110	50.0000	42.55
6 Bromomethane	94	1.655	1.655	(0.339)	92590	50.0000	60.64
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	158536	50.0000	44.71
59 Chlorobenzene	112	8.264	8.264	(1.003)	393387	50.0000	50.00
7 Chloroethane	64	1.737	1.741	(0.356)	105549	50.0000	51.38
28 Chloroform	83	4.646	4.647	(0.952)	264484	50.0000	55.31
3 Chloromethane	50	1.333	1.333	(0.273)	130179	50.0000	52.66
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	164912	50.0000	54.37
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	292686	100.000	100.71(A)
46 cis-1,3-Dichloropropene	75	6.749	6.750	(1.202)	205050	50.0000	43.68
44 Dibromomethane	93	6.180	6.180	(1.101)	100643	50.0000	52.37
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	119585	50.0000	40.22
61 Ethylbenzene	106	8.361	8.362	(1.015)	199761	50.0000	50.73
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	63525	50.0000	47.11
62 m,p-Xylenes	106	8.463	8.463	(1.027)	496841	100.000	102.13
64 Styrene	104	8.815	8.815	(1.070)	445458	50.0000	53.84
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	410222	50.0000	49.94
17 Methylene Chloride	84	2.858	2.858	(0.585)	149017	50.0000	50.94
87 n-Butylbenzene	91	10.547	10.547	(1.032)	416368	50.0000	48.08
73 n-Propylbenzene	91	9.467	9.467	(0.926)	691916	50.0000	51.40
92 Naphthalene	128	12.121	12.121	(1.186)	529239	50.0000	48.46
63 o-Xylene	106	8.800	8.800	(1.068)	246487	50.0000	51.15
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	553323	50.0000	50.03
55 Dibromochloromethane	129	7.747	7.750	(0.940)	138250	50.0000	45.62
56 Tetrachloroethene	164	7.514	7.514	(0.912)	104091	50.0000	45.73
50 Toluene	91	7.038	7.038	(0.854)	618427	50.0000	51.22
19 Carbon Disulfide	76	2.577	2.577	(0.528)	607621	100.000	98.92
20 trans-1,2-Dichloroethene	96	3.124	3.125	(0.640)	129885	50.0000	52.02
38 Trichloroethene	130	5.850	5.850	(1.042)	151356	50.0000	51.74
8 Trichlorofluoromethane	101	1.940	1.944	(0.397)	205132	50.0000	51.24
5 Vinyl Chloride	62	1.408	1.411	(0.288)	151862	50.0000	50.58
138 Freon TF	101	2.390	2.390	(0.489)	103859	50.0000	50.90
67 Isopropylbenzene	105	9.115	9.115	(1.106)	592026	50.0000	49.94
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	168487	50.0000	42.00

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstus005\Target\chem\voa9.i\U211123.b\U112331.D
Date : 23-NOV-2021 21:03
Client ID: CCV-END
Sample Info: VSTD050-END;VSTD050-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112301.D

Page 1

Date : 23-NOV-2021 21:26

Client ID: BFB

Instrument: VOA9.i

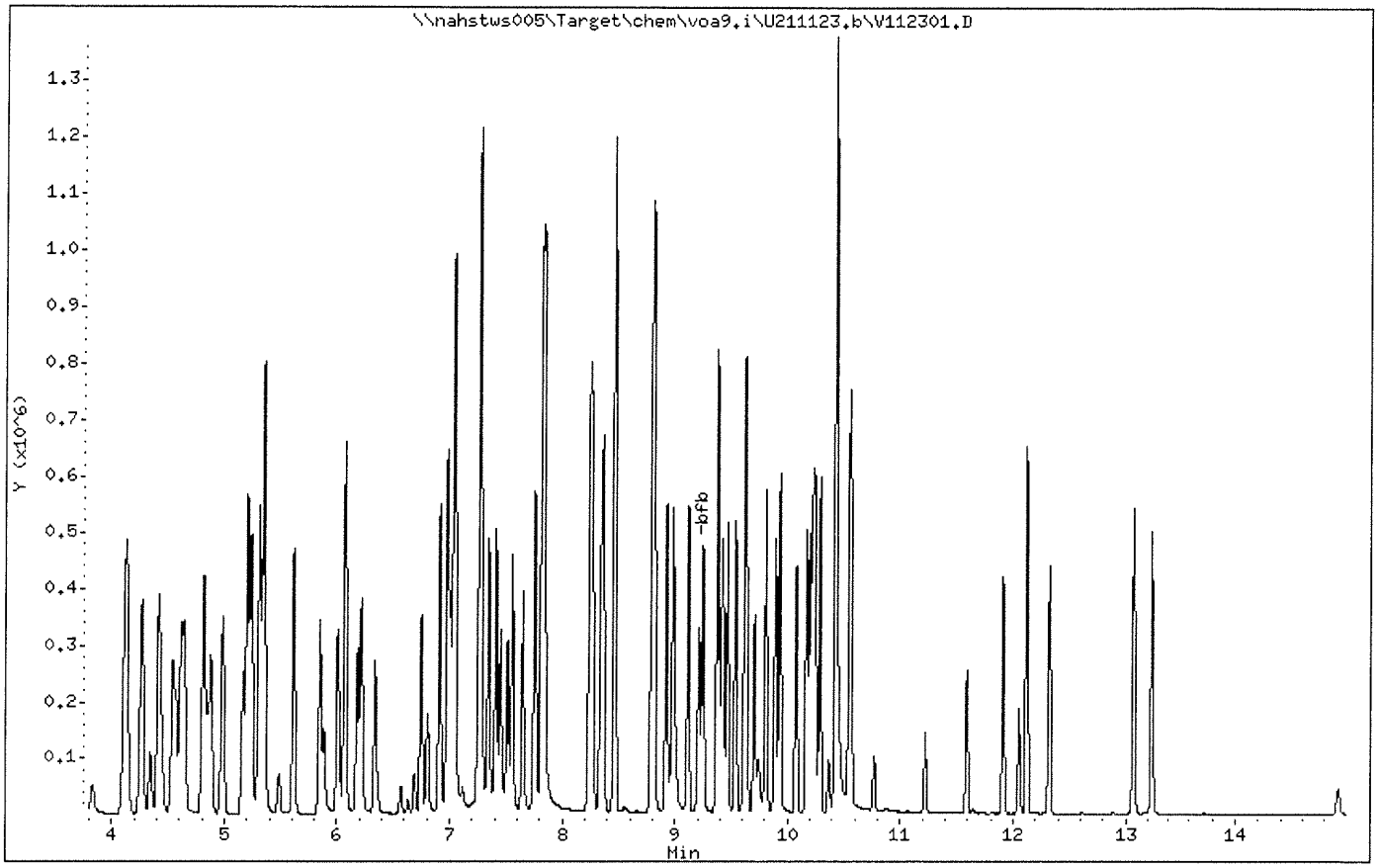
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112301.D Page 2

Date : 23-NOV-2021 21:26

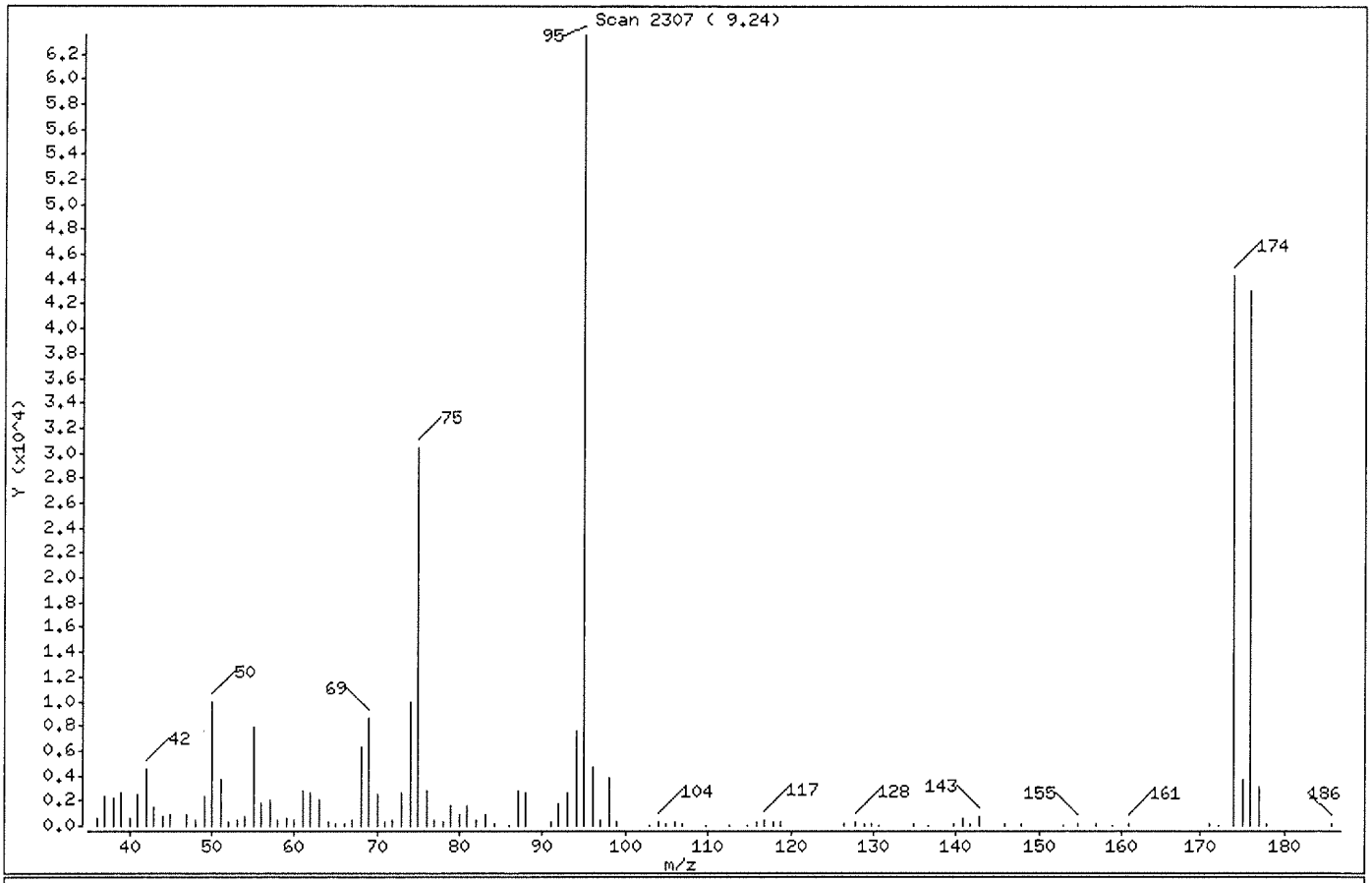
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.66
75	30.00 - 60.00% of mass 95	47.77
96	5.00 - 9.00% of mass 95	7.38
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	69.75
175	5.00 - 9.00% of mass 174	5.80 (8.31)
176	95.00 - 101.00% of mass 174	67.81 (97.22)
177	5.00 - 9.00% of mass 176	4.78 (7.06)

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112301.D

Date : 23-NOV-2021 21:26

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: V112301.D
Spectrum: Scan 2307 (9.24)
Location of Maximum: 95.05
Number of points: 98

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	530	62.00	2664	87.90	2647	129.70	219
37.00	2277	63.00	2113	90.90	253	130.70	62
38.00	2240	64.00	222	91.90	1776	134.90	126
39.00	2684	65.00	177	92.90	2566	136.70	63
40.00	596	66.00	110	94.00	7635	139.80	87
41.00	2501	67.00	436	95.00	63544	140.90	636
42.00	4543	68.00	6323	96.00	4690	141.80	204
43.00	1492	69.00	8634	97.00	411	142.90	658
44.00	704	70.00	2449	98.00	3820	145.90	83
45.00	817	71.00	289	99.00	256	147.90	138
47.00	836	71.80	388	102.90	62	153.00	64
48.00	407	73.00	2693	103.90	297	154.80	154
49.00	2314	74.00	9924	104.80	107	156.90	104
50.00	9953	75.00	30352	105.90	222	158.90	64
51.00	3625	76.00	2703	106.90	95	160.90	101
51.90	249	76.90	509	109.80	58	171.00	83
53.00	407	78.00	302	112.60	58	172.10	52
54.00	687	78.90	1607	114.90	58	173.90	44320
55.00	7832	79.90	891	115.90	264	174.90	3683
56.00	1791	80.90	1604	116.80	410	175.90	43088
57.00	1995	81.90	439	117.80	241	176.90	3040
58.00	502	83.00	893	118.70	228	177.90	91
59.00	654	84.10	92	126.60	163	185.90	133
60.00	499	86.00	73	127.90	297		
61.00	2780	87.00	2714	128.90	87		

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112303.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112303.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 23-NOV-2021 22:10
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 33 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	260418	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	468330	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	427837	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	212521	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	173374	50.0000	54.39
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211108	50.0000	50.82
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	149438	50.0000	54.75
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	549448	50.0000	49.34
31 1,1,1-Trichloroethane	97	4.808	4.811	(0.985)	218739	50.0000	58.34
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	171639	50.0000	56.04
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	152946	50.0000	51.54
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	239465	50.0000	53.53
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	137038	50.0000	54.35
22 1,1-Dichloroethane	63	3.582	3.589	(0.734)	254991	50.0000	55.11
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	131628	50.0000	56.69
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	214199	50.0000	55.69
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	207160	50.0000	54.43
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	231273	50.0000	52.65
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	212147	50.0000	54.23
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	598946	50.0000	56.21
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	321055	50.0000	53.57
33 1,2-Dichloroethane	62	5.239	5.243	(0.933)	221183	50.0000	52.35
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	164904	50.0000	55.95

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112303.D Page 2
Report Date: 22-Dec-2021 16:05

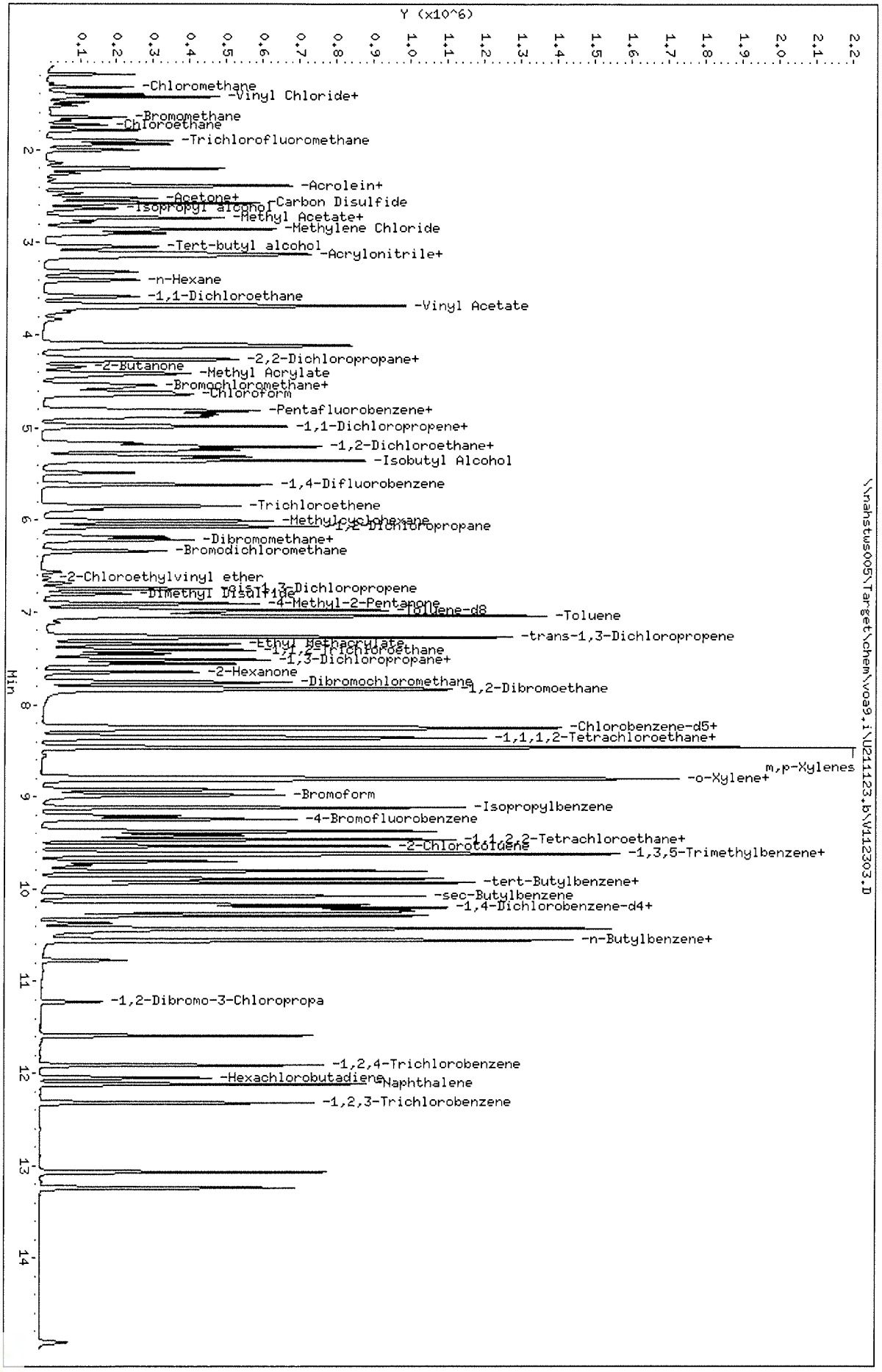
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	323516	50.0000	52.85
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	293414	50.0000	54.61
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	581432	50.0000	55.64
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	335992	50.0000	53.34
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	33121	50.0000	45.02
26 2,2-Dichloropropane	77	4.253	4.260	(0.872)	124660	50.0000	47.54
24 2-Butanone	43	4.339	4.347	(0.889)	137998	100.000	101.34
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	501308	50.0000	54.77
52 2-Hexanone	43	7.646	7.646	(0.928)	217833	100.000	107.25
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	578858	50.0000	54.58
82 p-Isopropyltoluene	119	10.198	10.202	(0.997)	586041	50.0000	56.58
10 Acetone	43	2.465	2.472	(0.505)	97402	100.000	107.65
37 Benzene	78	5.201	5.205	(0.927)	651317	50.0000	54.99
74 Bromobenzene	156	9.374	9.374	(0.917)	181298	50.0000	55.01
29 Bromochloromethane	128	4.538	4.542	(0.930)	86774	50.0000	59.07
39 Bromodichloromethane	83	6.337	6.341	(1.129)	189595	50.0000	49.75
66 Bromoform	173	8.973	8.976	(1.089)	92542	50.0000	46.15
6 Bromomethane	94	1.648	1.655	(0.338)	104071	50.0000	65.00
34 Carbon Tetrachloride	117	4.976	4.980	(0.886)	186757	50.0000	50.16
59 Chlorobenzene	112	8.264	8.264	(1.003)	442663	50.0000	53.07
7 Chloroethane	64	1.734	1.741	(0.355)	115593	50.0000	53.64
28 Chloroform	83	4.639	4.647	(0.951)	291524	50.0000	58.11
3 Chloromethane	50	1.325	1.333	(0.272)	146005	50.0000	56.34
27 cis-1,2-Dichloroethene	96	4.268	4.272	(0.875)	183356	50.0000	57.62
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	315462	100.000	102.38(A)
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	241039	50.0000	48.87
44 Dibromomethane	93	6.180	6.180	(1.101)	108066	50.0000	53.76
2 Dichlorodifluoromethane	85	1.187	1.194	(0.243)	137494	50.0000	44.15
61 Ethylbenzene	106	8.362	8.362	(1.015)	227478	50.0000	54.49
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	82042	50.0000	56.74
62 m,p-Xylenes	106	8.463	8.463	(1.027)	578418	100.000	112.14
64 Styrene	104	8.815	8.815	(1.070)	500220	50.0000	57.02
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	490360	50.0000	55.67
17 Methylene Chloride	84	2.851	2.858	(0.584)	158480	50.0000	51.64
87 n-Butylbenzene	91	10.547	10.547	(1.032)	514010	50.0000	55.35
73 n-Propylbenzene	91	9.467	9.467	(0.926)	821917	50.0000	56.94
92 Naphthalene	128	12.121	12.121	(1.186)	627681	50.0000	53.60
63 o-Xylene	106	8.800	8.800	(1.068)	281178	50.0000	55.04
81 sec-Butylbenzene	105	10.075	10.078	(0.985)	666184	50.0000	56.17
55 Dibromochloromethane	129	7.747	7.750	(0.940)	157729	50.0000	48.97
56 Tetrachloroethene	164	7.514	7.514	(0.912)	124228	50.0000	51.48
50 Toluene	91	7.038	7.038	(0.854)	684698	50.0000	53.49
19 Carbon Disulfide	76	2.570	2.577	(0.527)	704764	100.000	109.36(A)
20 trans-1,2-Dichloroethene	96	3.121	3.125	(0.640)	146282	50.0000	55.85
38 Trichloroethene	130	5.850	5.850	(1.042)	169599	50.0000	55.43
8 Trichlorofluoromethane	101	1.936	1.944	(0.397)	232609	50.0000	55.38
5 Vinyl Chloride	62	1.404	1.411	(0.288)	164524	50.0000	52.23
138 Freon TF	101	2.382	2.390	(0.488)	122438	50.0000	57.20
67 Isopropylbenzene	105	9.115	9.115	(1.106)	697412	50.0000	55.48
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	201774	50.0000	47.78

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112303.D
Date : 23-NOV-2021 22:10
Client ID: CCV
Sample Info: VSTD050;VSTD050;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112305.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112305.D
Lab Smp Id: VLCSW-211123 Client Smp ID: VLSCW-211123
Inj Date : 23-NOV-2021 22:54
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-211123;VLSCW-211123;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 35 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

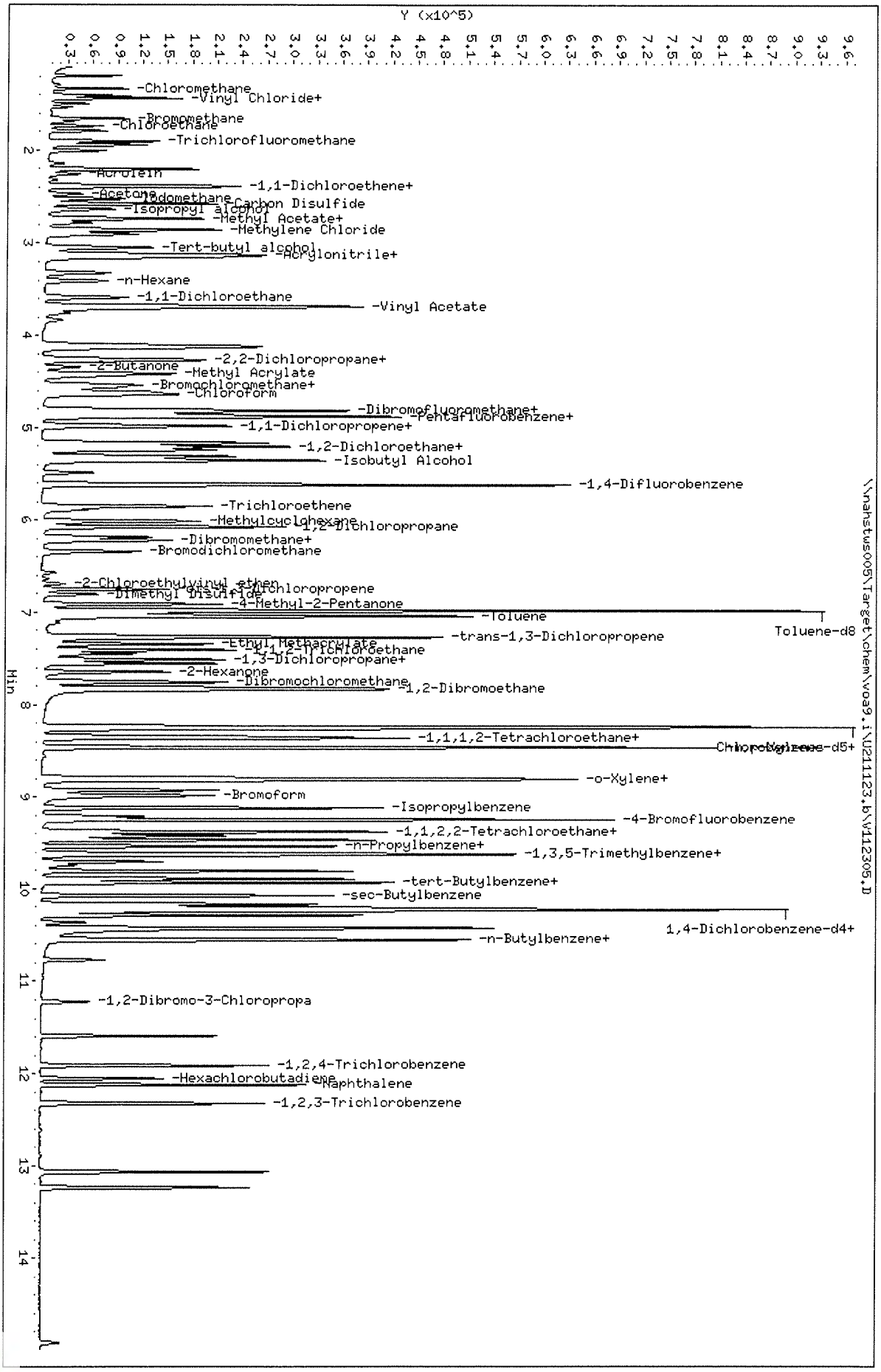
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	257875	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	467434	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	416313	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	205231	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.168	(1.058)	172841	54.7735	54.77
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	207962	51.4691	51.46
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	144701	53.5184	53.51
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	542122	50.0336	50.03
31 1,1,1-Trichloroethane	97	4.812	4.811	(0.985)	72757	19.5994	19.59
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	65460	21.9667	21.96
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	53486	19.0514	19.05
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	93598	21.6679	21.66
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	53443	21.7856	21.78
22 1,1-Dichloroethane	63	3.586	3.589	(0.734)	98023	21.3961	21.39
11 1,1-Dichloroethene	96	2.386	2.390	(0.489)	47659	20.7292	20.72
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	75811	19.7501	19.75
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	73614	20.0292	20.02
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	86289	20.3451	20.34
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	75779	20.0610	20.06
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	216562	21.0484	21.04
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	123434	21.3277	21.32
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	87779	20.8166	20.81
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	62696	21.3157	21.31

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112305.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	120602	20.4033	20.40
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	114972	21.9946	21.99
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	206815	20.4965	20.49
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	124772	20.5143	20.51
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	10261	16.0971	16.09
26 2,2-Dichloropropane	77	4.257	4.260	(0.872)	39067	15.0464	15.04
24 2-Butanone	43	4.343	4.347	(0.889)	54386	40.3328	40.33
76 2-Chlorotoluene	91	9.535	9.539	(0.933)	185121	20.9472	20.94
52 2-Hexanone	43	7.646	7.646	(0.928)	85114	43.0683	43.06
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	217676	21.2539	21.25
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	197223	19.7196	19.71
10 Acetone	43	2.469	2.472	(0.506)	39301	39.9357	39.93
37 Benzene	78	5.205	5.205	(0.927)	251002	21.2362	21.23
74 Bromobenzene	156	9.374	9.374	(0.917)	68305	21.4615	21.46
29 Bromochloromethane	128	4.542	4.542	(0.930)	33525	23.0480	23.04
39 Bromodichloromethane	83	6.337	6.341	(1.129)	66206	18.0808	18.08
66 Bromoform	173	8.973	8.976	(1.089)	30160	16.6247	16.62
6 Bromomethane	94	1.655	1.655	(0.339)	45148	28.1915	28.19
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	58133	16.6817	16.68
59 Chlorobenzene	112	8.264	8.264	(1.003)	167464	20.6338	20.63
7 Chloroethane	64	1.738	1.741	(0.356)	42355	19.8493	19.84
28 Chloroform	83	4.643	4.647	(0.951)	111554	22.4579	22.45
3 Chloromethane	50	1.329	1.333	(0.272)	56087	21.4987	21.49
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	69817	22.1599	22.15
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	119793	39.9542	39.95
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	78617	17.1438	17.14
44 Dibromomethane	93	6.180	6.180	(1.101)	41630	20.7520	20.75
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	46217	14.5175	14.51
61 Ethylbenzene	106	8.362	8.362	(1.015)	83669	20.5986	20.59
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	26175	18.7484	18.74
62 m,p-Xylenes	106	8.463	8.463	(1.027)	210860	42.0142	42.01
64 Styrene	104	8.815	8.815	(1.070)	186996	21.9070	21.90
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	168647	19.8276	19.82
17 Methylene Chloride	84	2.855	2.858	(0.585)	62314	20.5053	20.50
87 n-Butylbenzene	91	10.547	10.547	(1.032)	169787	18.9335	18.93
73 n-Propylbenzene	91	9.464	9.467	(0.926)	285897	20.5101	20.51
92 Naphthalene	128	12.121	12.121	(1.186)	224641	19.8661	19.86
63 o-Xylene	106	8.800	8.800	(1.068)	104412	21.0047	21.00
81 sec-Butylbenzene	105	10.075	10.078	(0.985)	221313	19.3247	19.32
55 Dibromochloromethane	129	7.747	7.750	(0.940)	52552	17.7564	17.75
56 Tetrachloroethene	164	7.514	7.514	(0.912)	42498	18.1005	18.10
50 Toluene	91	7.038	7.038	(0.854)	260808	20.9407	20.94
19 Carbon Disulfide	76	2.574	2.577	(0.527)	247130	38.7282	38.72
20 trans-1,2-Dichloroethene	96	3.125	3.125	(0.640)	55122	21.2535	21.25
38 Trichloroethene	130	5.850	5.850	(1.042)	62604	20.5009	20.50
8 Trichlorofluoromethane	101	1.940	1.944	(0.397)	80559	19.3710	19.37
5 Vinyl Chloride	62	1.408	1.411	(0.288)	59669	19.1322	19.13
138 Freon TF	101	2.390	2.390	(0.490)	38465	18.1479	18.14
67 Isopropylbenzene	105	9.115	9.115	(1.106)	246429	20.1485	20.14
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	62799	16.3532	16.35

Data File: \\nahstus005\Target\chem\voa9.i\U211123.b\V112305.D
Date : 23-NOV-2021 22:54
Client ID: VLSCW-211123
Sample Info: VLCSW-211123;VLSCW-211123;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112307.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112307.D
Lab Smp Id: VBLKW-211123 Client Smp ID: VBLKW-211123
Inj Date : 23-NOV-2021 23:39
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-211123;VBLKW-211123;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 37 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.886	4.883	(1.000)	293806	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	482265	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.242	(1.000)	417064	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	201356	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.168	(1.058)	167283	46.3033	46.30
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	205363	50.7151	50.71
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	136681	44.2231	44.22
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	558710	51.4717	51.47

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112307.D

Date : 23-NOV-2021 23:39

Client ID: VBLKW-211123

Sample Info: VBLKW-211123;VBLKW-211123;3;;BLANK

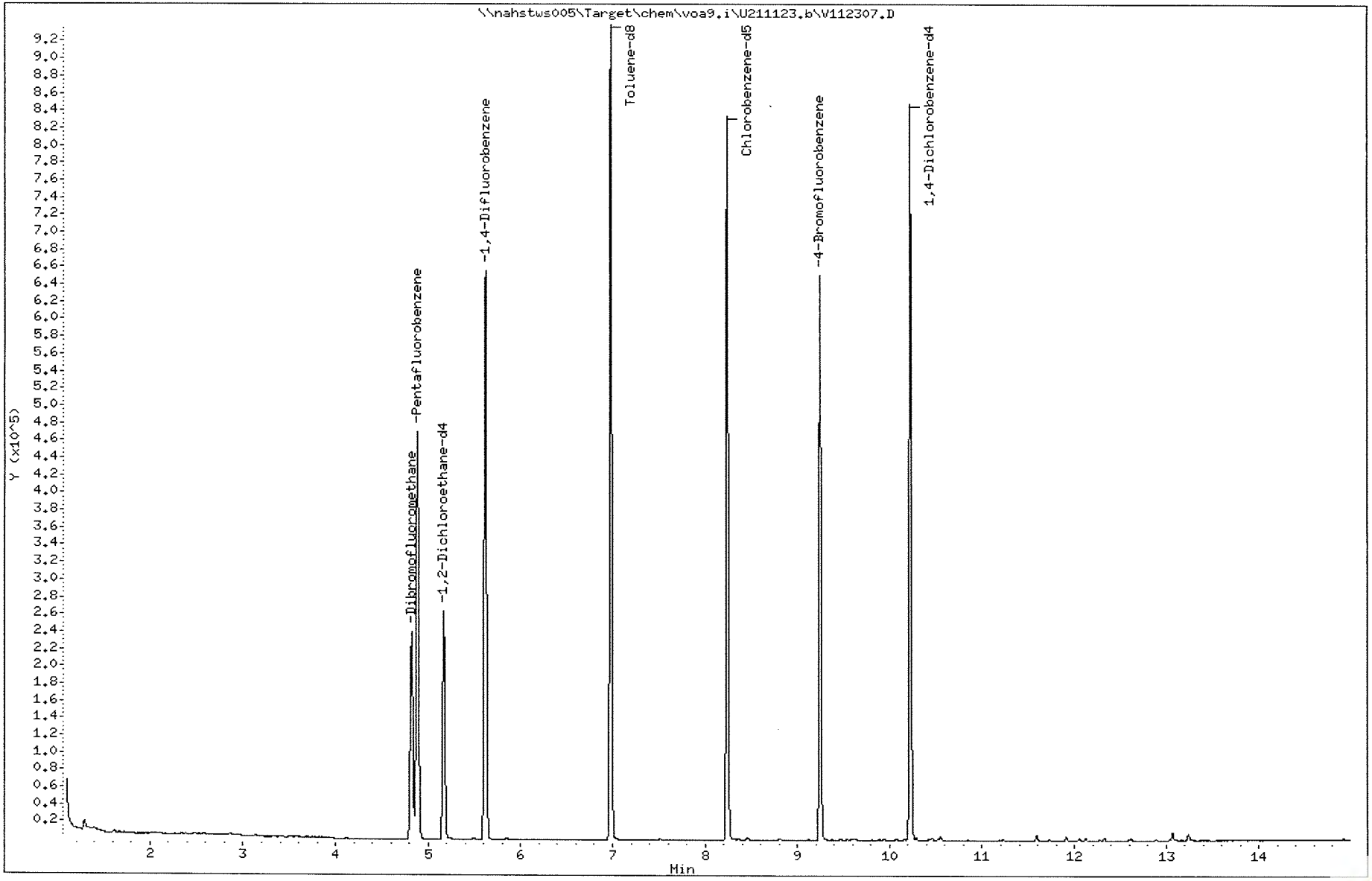
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112308.D
Lab Smp Id: HS21110813-19 Client Smp ID: HS21110813-19
Inj Date : 24-NOV-2021 00:01
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-19;HS21110813-19;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 38
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	293319	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	480639	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	422370	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	204861	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	167336	46.3978	46.39
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	204896	49.9442	49.94
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	135264	43.8298	43.82
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	554637	50.4545	50.45

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112308.D

Date : 24-NOV-2021 00:01

Client ID: HS21110813-19

Sample Info: HS21110813-19;HS21110813-19;;;

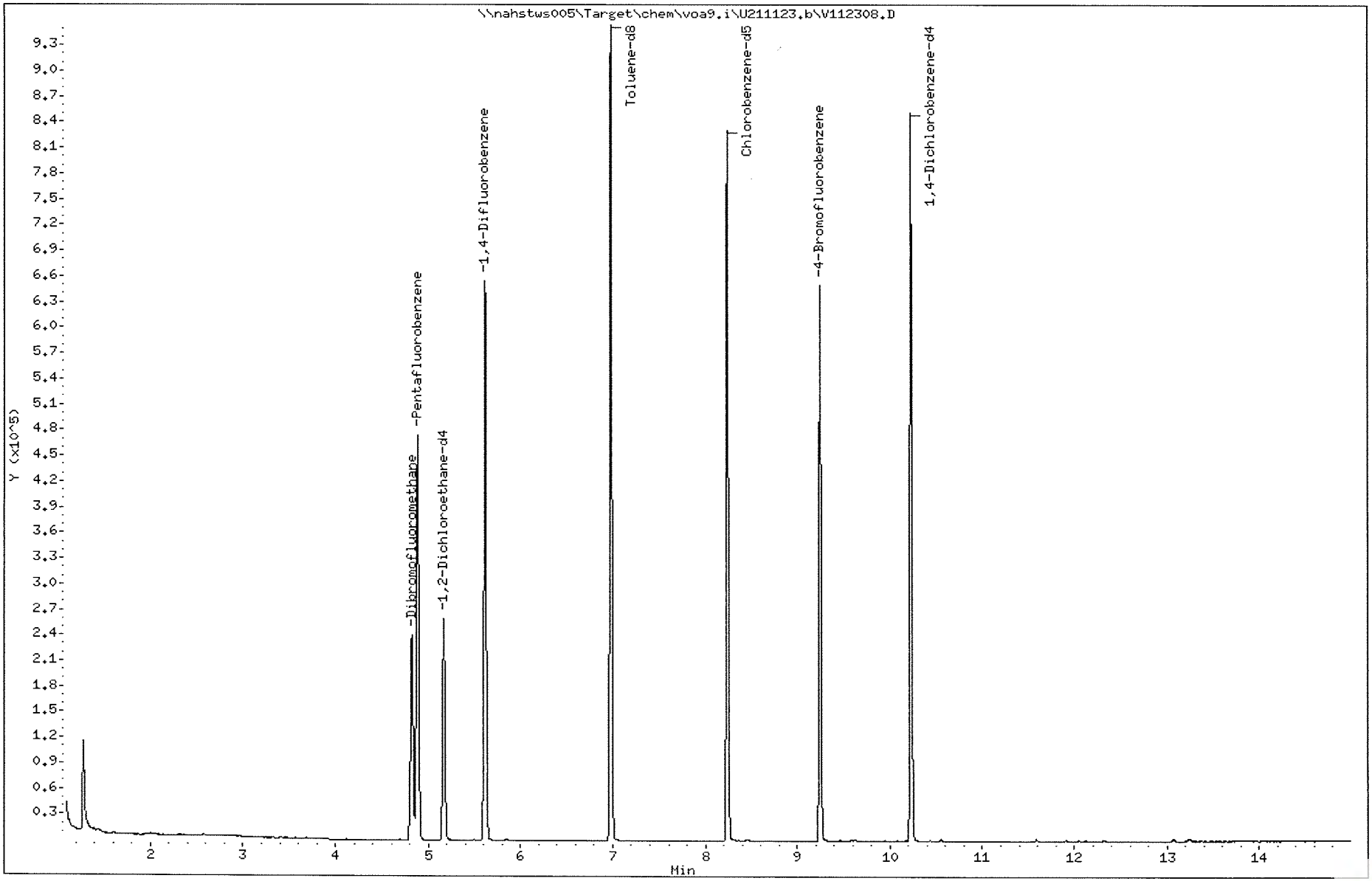
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D
Lab Smp Id: HS21110813-13 Client Smp ID: HS21110813-13
Inj Date : 24-NOV-2021 00:24
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-13;HS21110813-13;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 39
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

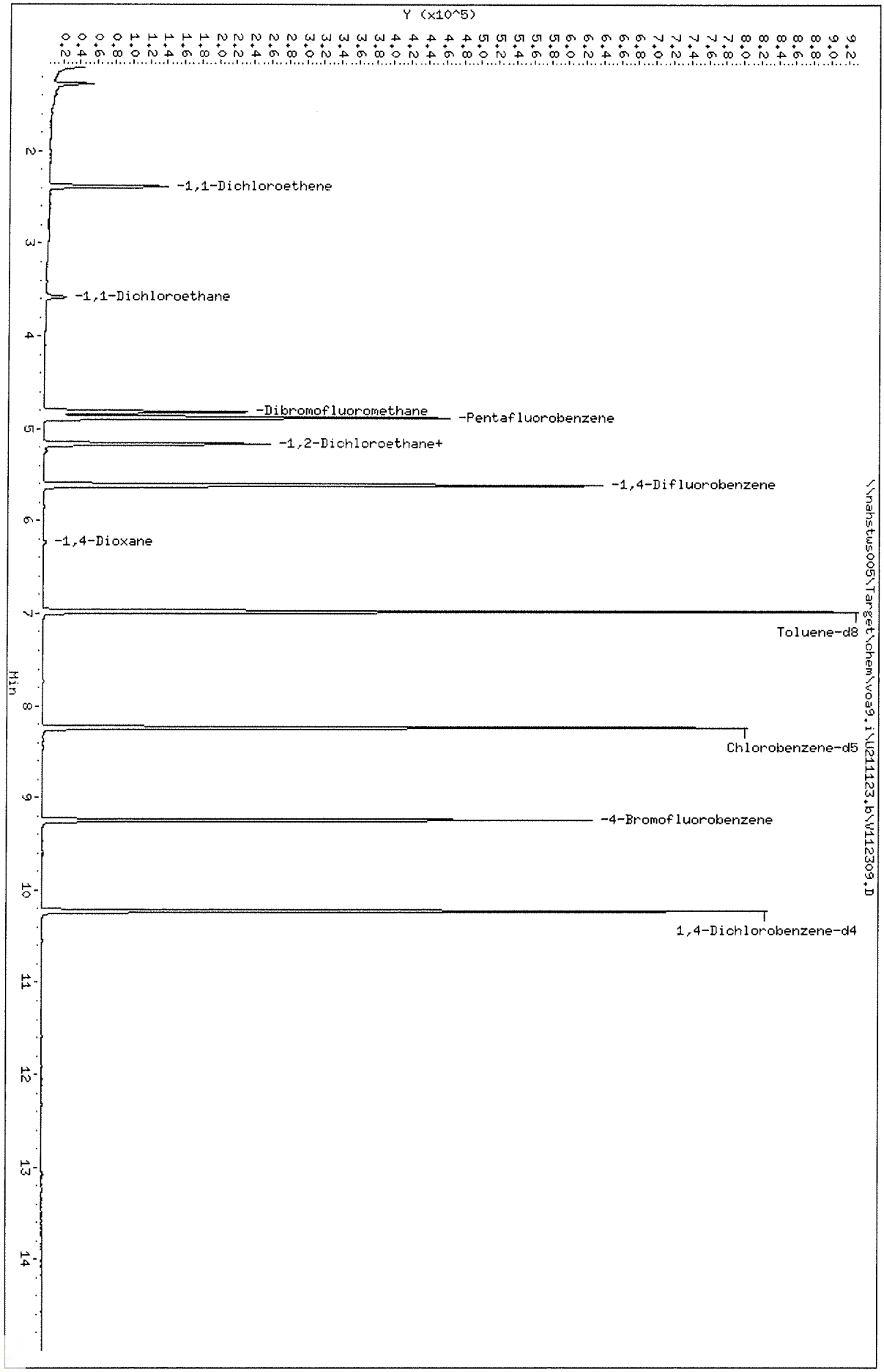
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	289991	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	473228	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	412480	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	198757	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	164967	46.2616	46.26
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199903	49.8942	49.89
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	132936	43.5647	43.56
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	548113	51.0566	51.05
22 1,1-Dichloroethane	63	3.586	3.586	(0.735)	22567	4.38032	4.38(a)
11 1,1-Dichloroethene	96	2.386	2.386	(0.489)	46396	17.9450	17.94
33 1,2-Dichloroethane	62	5.242	5.242	(0.934)	2858	0.66947	0.66(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D
Date : 24-NOV-2021 00:24
Client ID: HS21110813-13
Sample Info: HS21110813-13;HS21110813-13;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D

Date : 24-NOV-2021 00:24

Client ID: HS21110813-13

Instrument: VOA9.i

Sample Info: HS21110813-13;HS21110813-13;;;

Purge Volume: 5.0

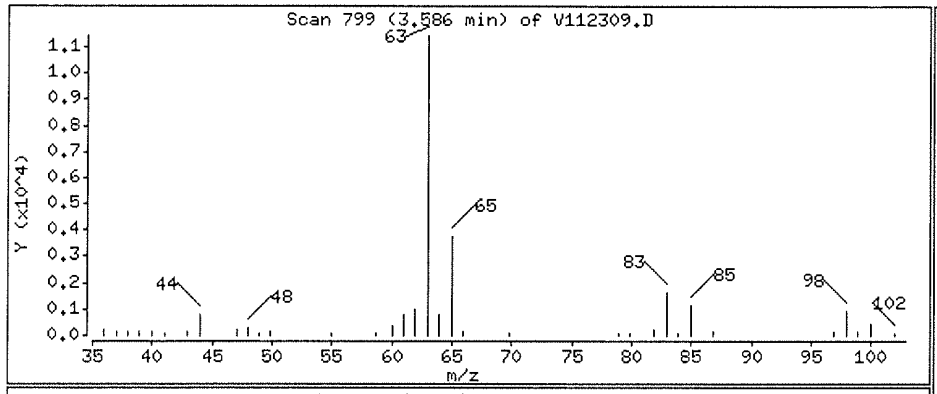
Operator: PC

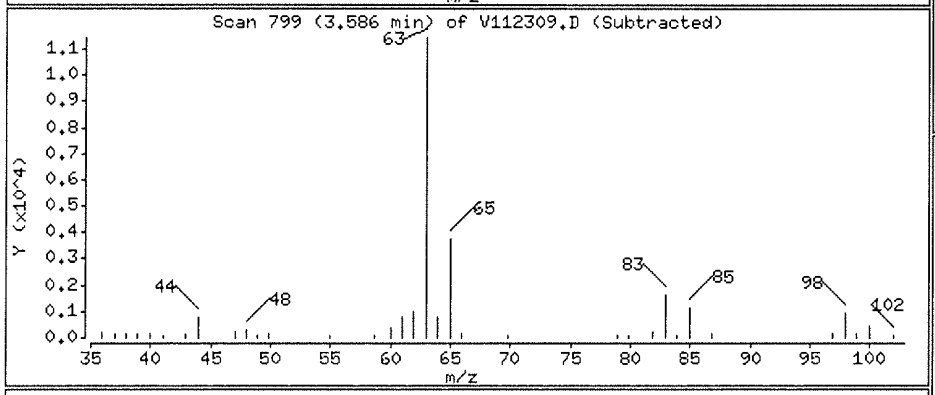
Column phase: DB624

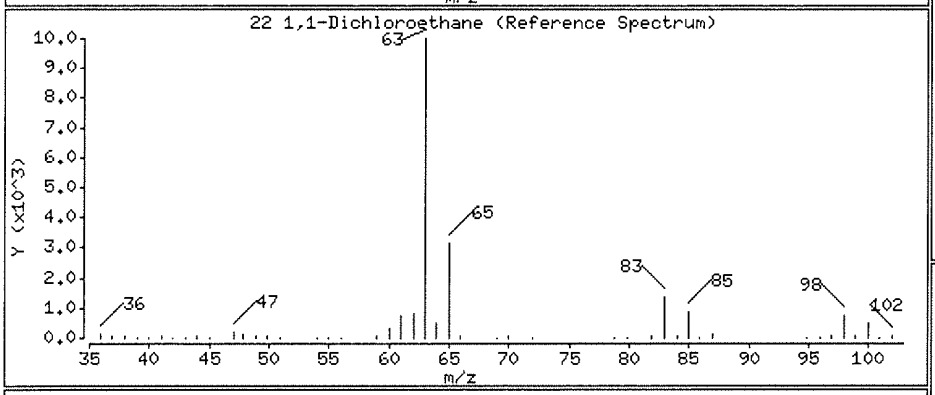
Column diameter: 0.18

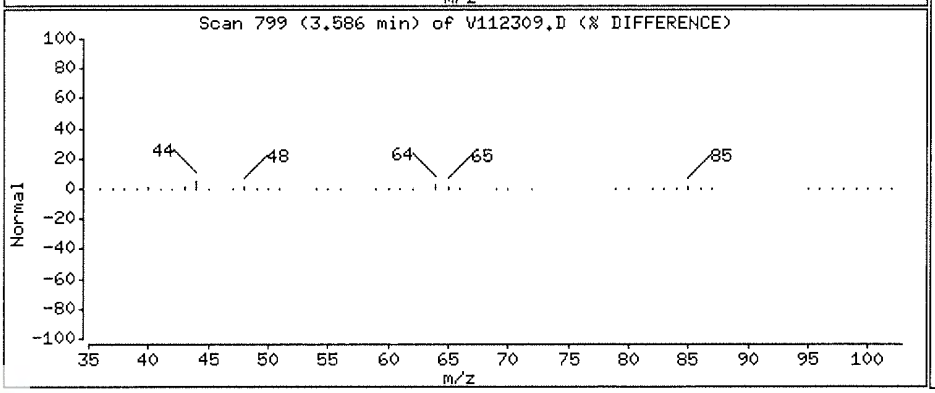
22 1,1-Dichloroethane

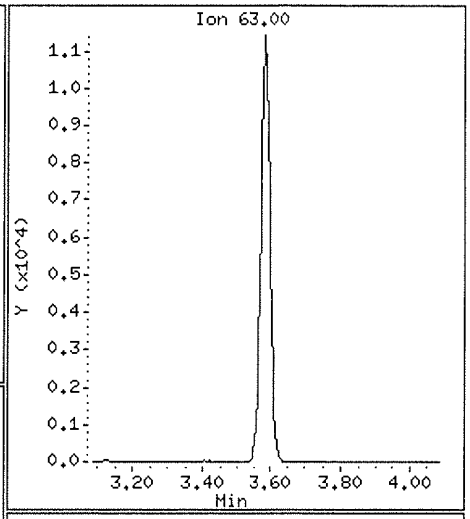
Concentration: 4.38 ug/l

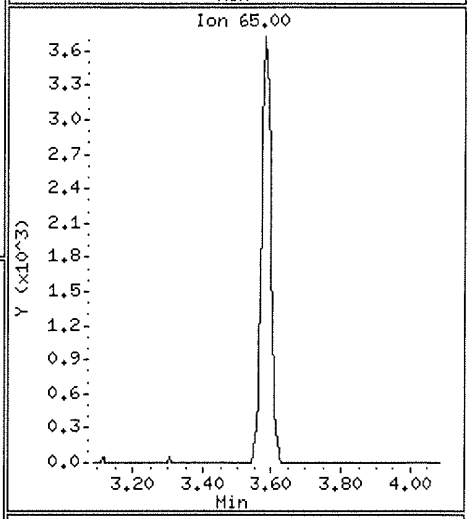


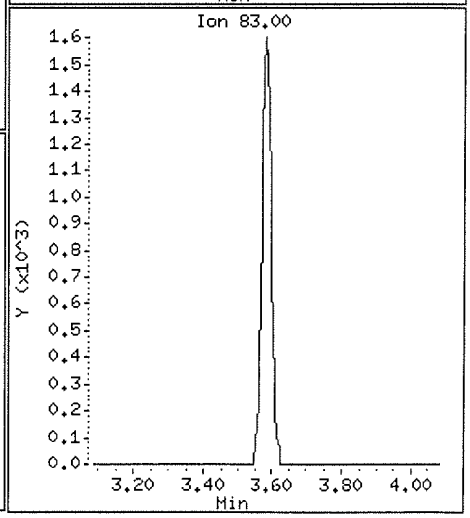












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D

Date : 24-NOV-2021 00:24

Client ID: HS21110813-13

Instrument: VOA9.i

Sample Info: HS21110813-13;HS21110813-13;;;

Purge Volume: 5.0

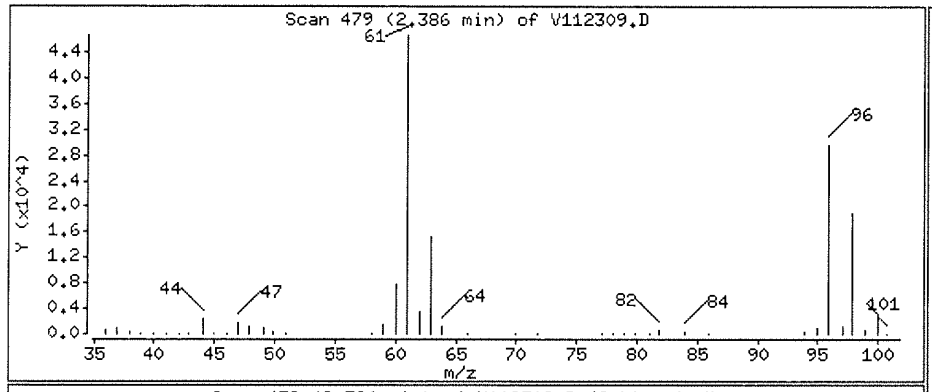
Operator: PC

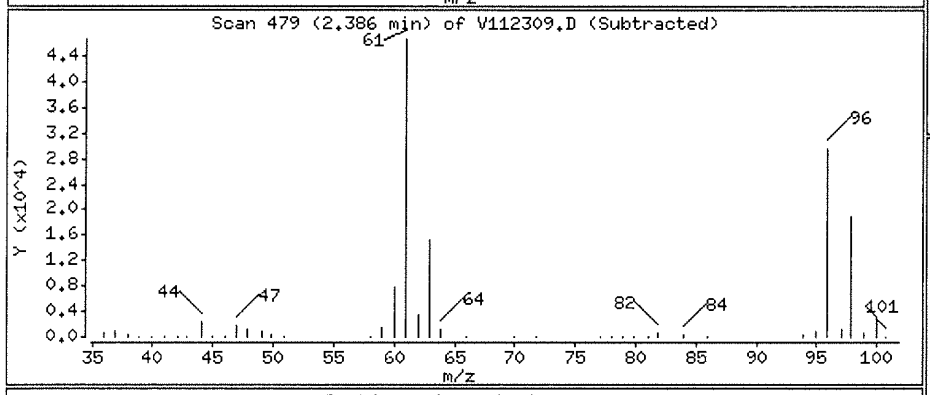
Column phase: DB624

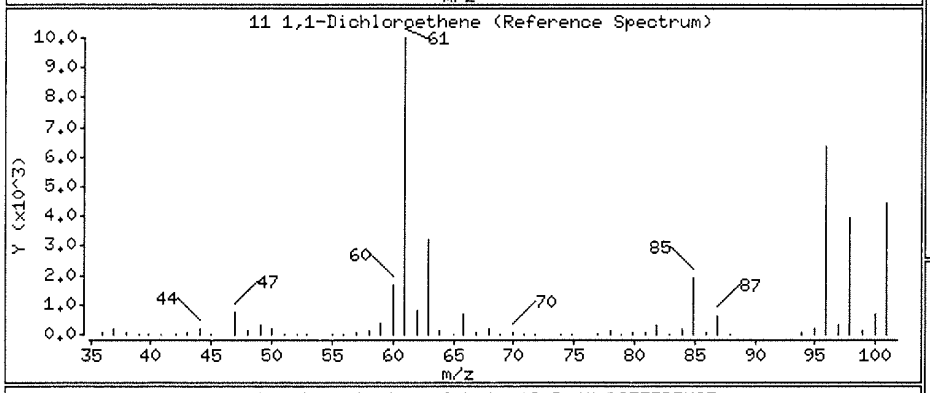
Column diameter: 0.18

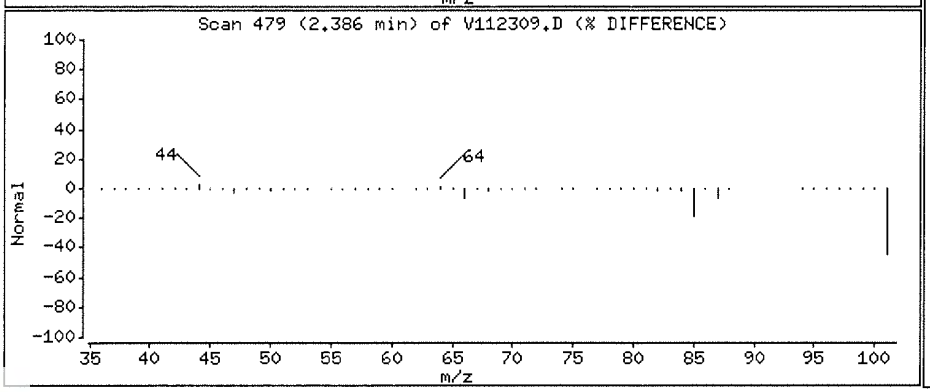
11 1,1-Dichloroethene

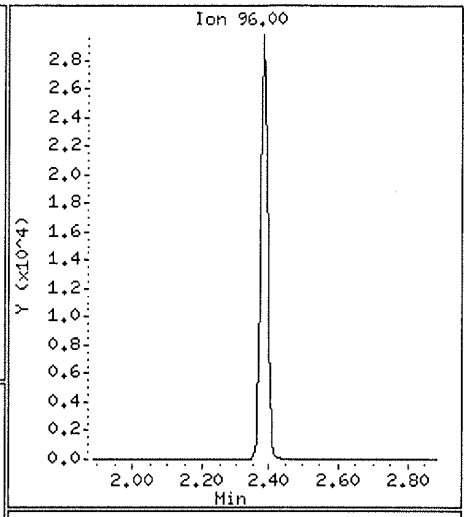
Concentration: 17.94 ug/l

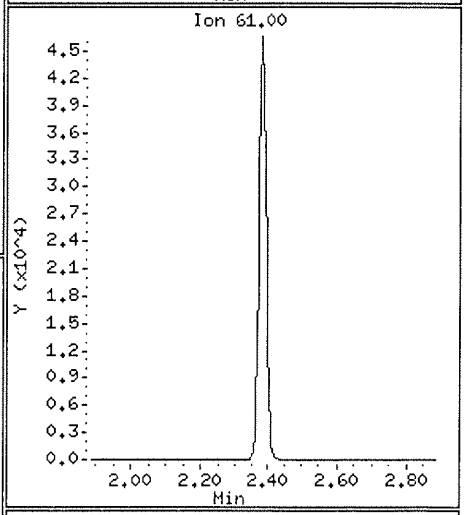


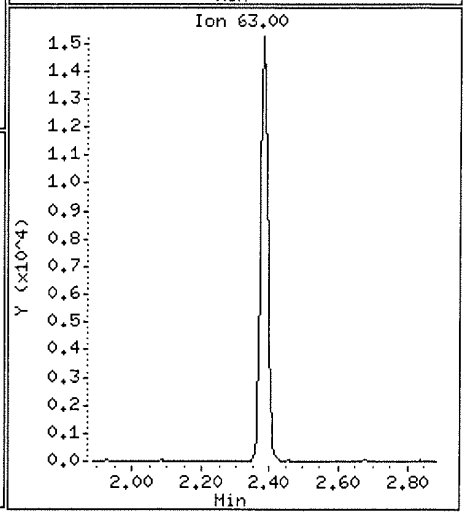












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112309.D

Date : 24-NOV-2021 00:24

Client ID: HS21110813-13

Instrument: VOA9.i

Sample Info: HS21110813-13;HS21110813-13;;;

Purge Volume: 5.0

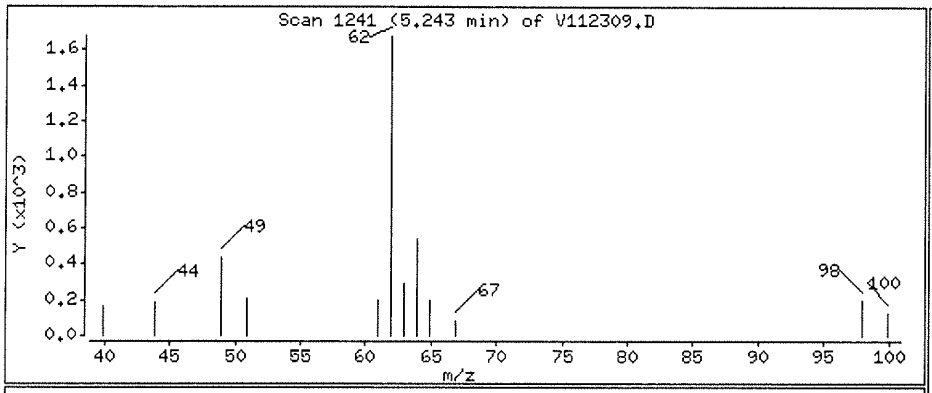
Operator: PC

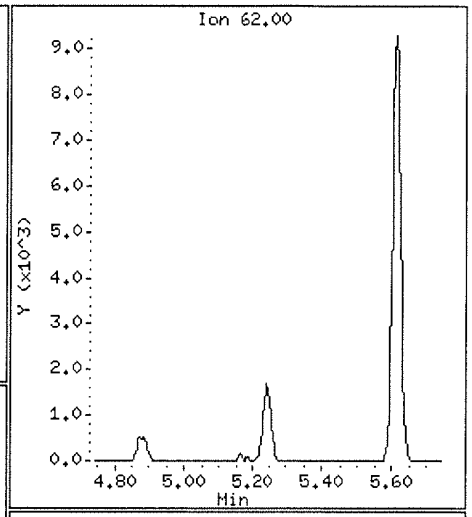
Column phase: DB624

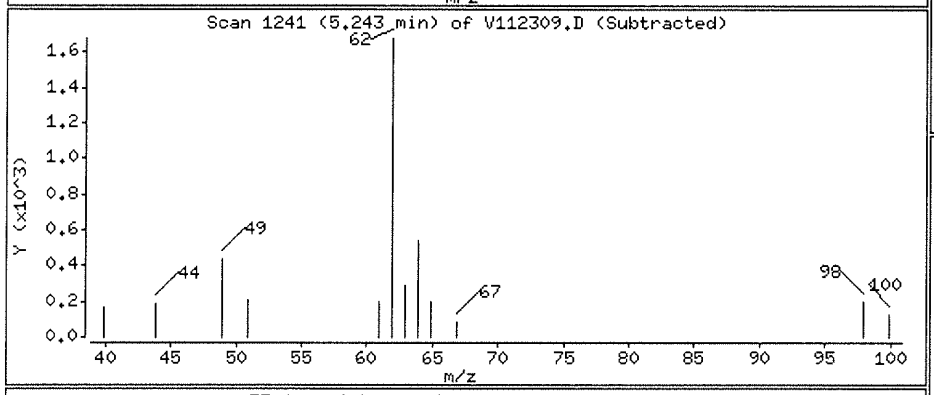
Column diameter: 0.18

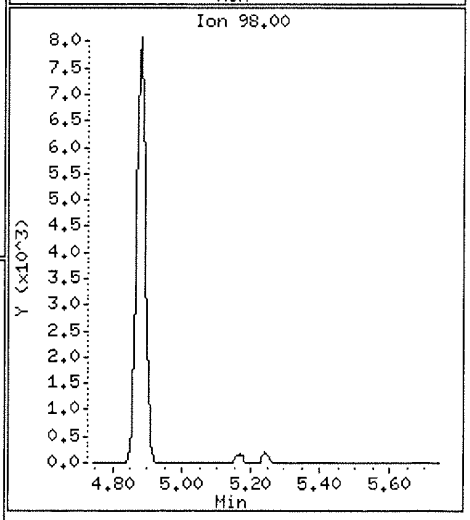
33 1,2-Dichloroethane

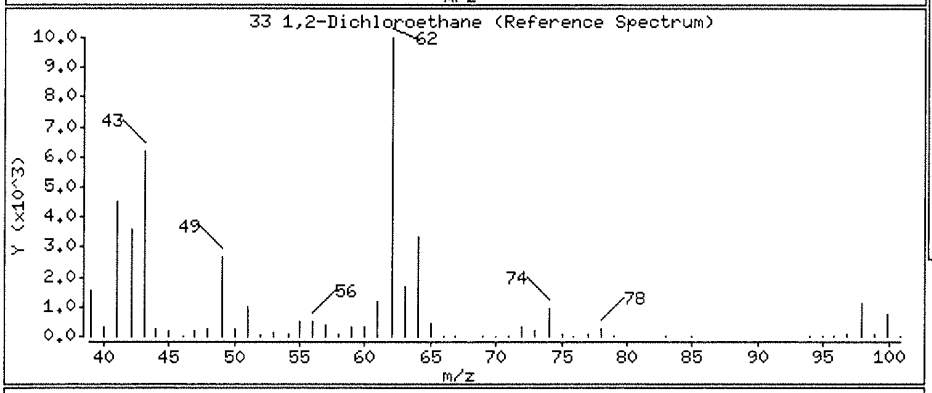
Concentration: 0.66 ug/l

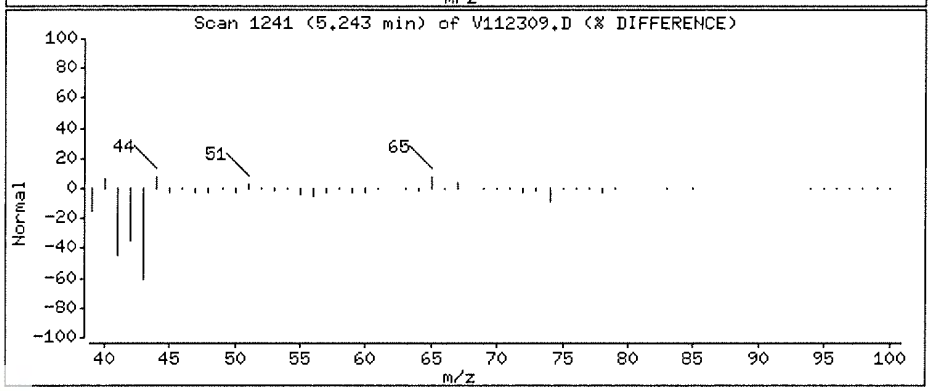












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112313.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112313.D
Lab Smp Id: HS21110813-13MS Client Smp ID: HS21110813-13MS
Inj Date : 24-NOV-2021 01:53
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-13MS;HS21110813-13MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 43 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	294750	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	471362	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	420577	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	213090	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.160	5.168	(1.058)	165555	45.6579	45.65
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211381	51.7931	51.79
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	141879	45.7877	45.78
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	559585	51.1217	51.12
31 1,1,1-Trichloroethane	97	4.808	4.811	(0.985)	84135	19.8290	19.82
57 1,2-Dibromoethane	107	7.841	7.840	(0.951)	66986	22.2509	22.25
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	56314	19.8205	19.82
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	95278	21.2433	21.24
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	54247	21.8892	21.88
22 1,1-Dichloroethane	63	3.582	3.589	(0.734)	131081	25.0324	25.03
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	101654	38.6827	38.68
32 1,1-Dichloropropene	75	4.988	4.991	(0.888)	88545	22.8753	22.87
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	72158	18.9090	18.90
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	86025	19.5348	19.53
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	76042	19.3882	19.38
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	233278	21.8368	21.83
88 1,2-Dichlorobenzene	146	10.558	10.562	(1.033)	125984	20.9654	20.96
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	95079	22.3599	22.35
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	66856	22.5407	22.54

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112313.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	126762	20.6545	20.65
54 1,3-Dichloropropane	76	7.552	7.556	(0.916)	118586	22.4560	22.45
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	229234	21.8804	21.88
84 1,4-Dichlorobenzene	146	10.243	10.247	(1.002)	132436	20.9713	20.97
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	9814	15.0200	15.01
26 2,2-Dichloropropane	77	4.253	4.260	(0.872)	36870	12.4237	12.42
24 2-Butanone	43	4.339	4.347	(0.889)	53700	34.8418	34.84
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	200568	21.8580	21.85
52 2-Hexanone	43	7.646	7.646	(0.928)	86802	43.4772	43.47
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	233103	21.9207	21.92
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	226823	21.8428	21.84
10 Acetone	43	2.465	2.472	(0.505)	40456	35.3068	35.30
37 Benzene	78	5.201	5.205	(0.927)	273306	22.9305	22.93
74 Bromobenzene	156	9.374	9.374	(0.917)	71449	21.6214	21.62
29 Bromochloromethane	128	4.538	4.542	(0.930)	35157	21.1462	21.14
39 Bromodichloromethane	83	6.337	6.341	(1.129)	68483	18.5200	18.52
66 Bromoform	173	8.973	8.976	(1.089)	28706	15.7514	15.75
6 Bromomethane	94	1.651	1.655	(0.339)	48955	26.7180	26.71
34 Carbon Tetrachloride	117	4.977	4.980	(0.886)	70082	19.6486	19.64
59 Chlorobenzene	112	8.264	8.264	(1.003)	179026	21.8347	21.83
7 Chloroethane	64	1.734	1.741	(0.355)	53496	21.9339	21.93
28 Chloroform	83	4.643	4.647	(0.952)	119686	21.0806	21.08
3 Chloromethane	50	1.325	1.333	(0.272)	69332	23.2986	23.29
27 cis-1,2-Dichloroethene	96	4.268	4.272	(0.875)	74612	20.7191	20.71
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	124651	41.1530	41.15
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	78030	16.9015	16.90
44 Dibromomethane	93	6.180	6.180	(1.101)	43382	21.4451	21.44
2 Dichlorodifluoromethane	85	1.187	1.194	(0.243)	66860	18.5635	18.56
61 Ethylbenzene	106	8.362	8.362	(1.015)	91791	22.3690	22.36
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	29018	20.0182	20.01
62 m,p-Xylenes	106	8.463	8.463	(1.027)	234185	46.1886	46.18
64 Styrene	104	8.815	8.815	(1.070)	198437	23.0117	23.01
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	195706	22.1603	22.16
17 Methylene Chloride	84	2.851	2.858	(0.584)	66026	19.0087	19.00
87 n-Butylbenzene	91	10.547	10.547	(1.032)	196566	21.1113	21.11
73 n-Propylbenzene	91	9.464	9.467	(0.926)	326786	22.5788	22.57
92 Naphthalene	128	12.122	12.121	(1.186)	217242	18.5032	18.50
63 o-Xylene	106	8.800	8.800	(1.068)	114722	22.8448	22.84
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	266651	22.4248	22.42
55 Dibromochloromethane	129	7.747	7.750	(0.940)	53568	17.9026	17.90
56 Tetrachloroethene	164	7.511	7.514	(0.911)	51358	21.6524	21.65
50 Toluene	91	7.035	7.038	(0.854)	285183	22.6656	22.66
19 Carbon Disulfide	76	2.570	2.577	(0.527)	275272	37.7415	37.74
20 trans-1,2-Dichloroethene	96	3.121	3.125	(0.640)	60940	20.5572	20.55
38 Trichloroethene	130	5.846	5.850	(1.041)	72258	23.4651	23.46
8 Trichlorofluoromethane	101	1.936	1.944	(0.397)	99258	20.8814	20.88
5 Vinyl Chloride	62	1.404	1.411	(0.288)	77352	21.6991	21.69
138 Freon TF	101	2.382	2.390	(0.488)	51444	21.2350	21.23
67 Isopropylbenzene	105	9.115	9.115	(1.106)	282372	22.8532	22.85
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	60907	15.8090	15.80

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112313.D
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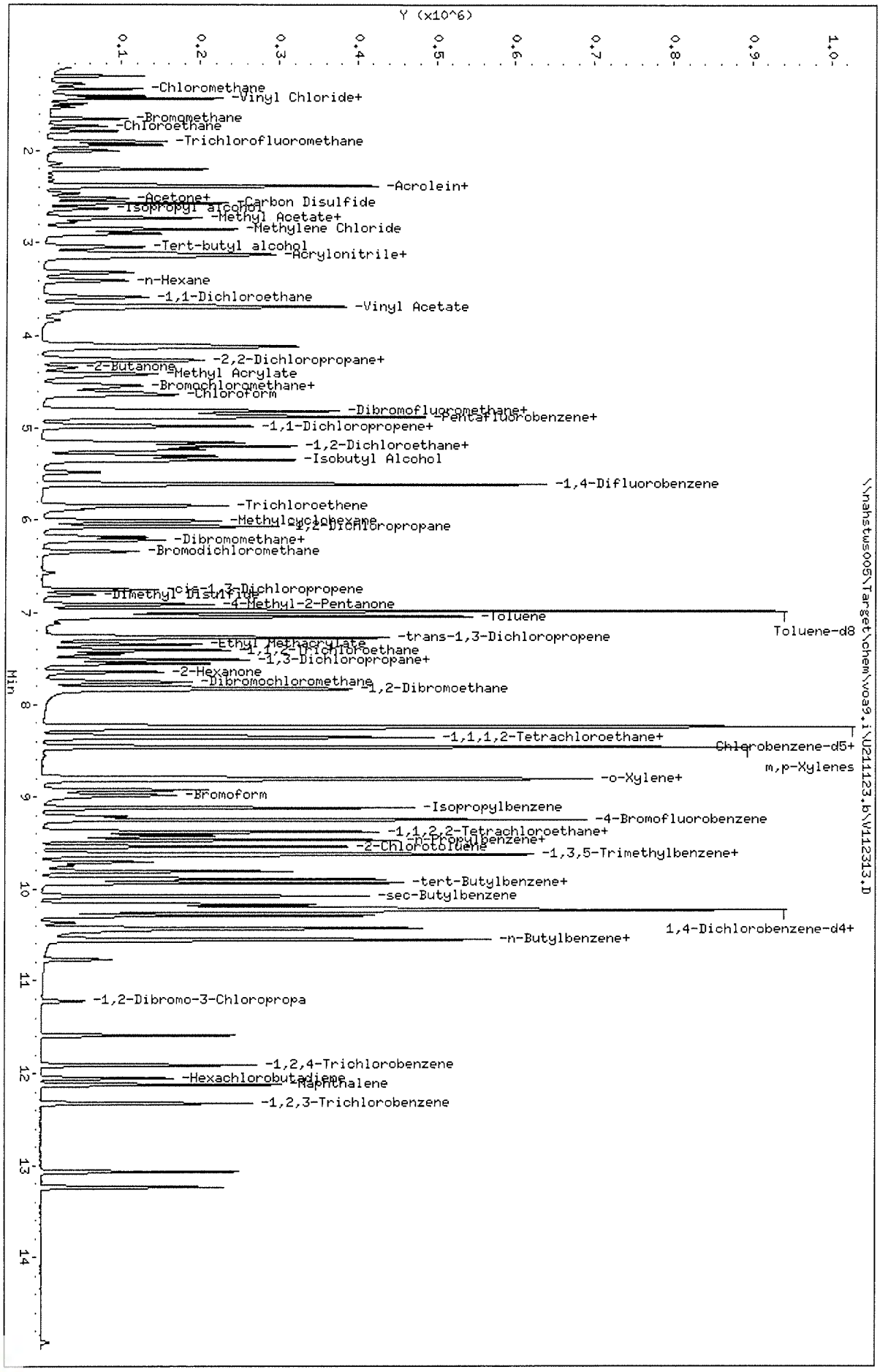
Sample Info: HS21110813-13MS;HS21110813-13MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112314.D
Lab Smp Id: HS21110813-13MSD Client Smp ID: HS21110813-13MSD
Inj Date : 24-NOV-2021 02:15
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-13MSD;HS21110813-13MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 43 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	296235	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	476924	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	426620	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	213037	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	167147	45.8728	45.87
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211988	51.1908	51.19
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	143563	46.1048	46.10
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	565047	50.8895	50.88
31 1,1,1-Trichloroethane	97	4.815	4.811	(0.986)	83207	19.5120	19.51
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	66992	21.9377	21.93
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	56411	19.5837	19.58
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	95983	21.4058	21.40
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	55436	22.0521	22.05
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	127042	24.1395	24.13
11 1,1-Dichloroethene	96	2.390	2.390	(0.490)	97901	37.0678	37.06
32 1,1-Dichloropropene	75	4.991	4.991	(0.889)	88473	22.5901	22.59
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	75568	19.8075	19.80
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	86813	19.7187	19.71
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	77111	19.6656	19.66
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	231297	21.6568	21.65
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	124543	20.7308	20.73
33 1,2-Dichloroethane	62	5.246	5.243	(0.934)	93385	21.7054	21.70
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	65138	21.7053	21.70

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112314.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	125719	20.4897	20.48
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	119184	22.2496	22.24
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	224881	21.4703	21.47
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	129420	20.4988	20.49
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	10457	15.8479	15.84
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	35109	11.7710	11.77
24 2-Butanone	43	4.347	4.347	(0.890)	56284	36.3353	36.33
76 2-Chlorotoluene	91	9.535	9.539	(0.933)	197977	21.5810	21.58
52 2-Hexanone	43	7.646	7.646	(0.928)	90185	44.5318	44.53
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	227776	21.4251	21.42
82 p-Isopropyltoluene	119	10.198	10.202	(0.997)	222567	21.4383	21.43
10 Acetone	43	2.476	2.472	(0.507)	40469	35.1100	35.10
37 Benzene	78	5.205	5.205	(0.927)	265883	22.0476	22.04
74 Bromobenzene	156	9.374	9.374	(0.917)	69662	21.0859	21.08
29 Bromochloromethane	128	4.545	4.542	(0.931)	34722	20.7798	20.77
39 Bromodichloromethane	83	6.341	6.341	(1.129)	69095	18.4705	18.47
66 Bromoform	173	8.973	8.976	(1.089)	29224	15.8029	15.80
6 Bromomethane	94	1.659	1.655	(0.340)	46811	25.3949	25.39
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	68244	18.9667	18.96
59 Chlorobenzene	112	8.264	8.264	(1.003)	177195	21.3053	21.30
7 Chloroethane	64	1.745	1.741	(0.357)	48472	19.7744	19.77
28 Chloroform	83	4.647	4.647	(0.952)	116922	20.4905	20.49
3 Chloromethane	50	1.336	1.333	(0.274)	65975	22.0282	22.02
27 cis-1,2-Dichloroethene	96	4.275	4.272	(0.876)	73738	20.3738	20.37
45 4-Methyl-2-Pentanone	43	6.915	6.911	(0.839)	126128	41.0507	41.05
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	77383	16.6005	16.60
44 Dibromomethane	93	6.180	6.180	(1.100)	42593	20.8096	20.80
2 Dichlorodifluoromethane	85	1.198	1.194	(0.245)	63116	17.3929	17.39
61 Ethylbenzene	106	8.362	8.362	(1.015)	91163	21.9013	21.90
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	29625	20.4420	20.44
62 m,p-Xylenes	106	8.463	8.463	(1.027)	226913	44.1204	44.12
64 Styrene	104	8.815	8.815	(1.070)	193543	22.1262	22.12
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	193403	21.9050	21.90
17 Methylene Chloride	84	2.862	2.858	(0.586)	65142	18.6601	18.66
87 n-Butylbenzene	91	10.547	10.547	(1.032)	193385	20.7749	20.77
73 n-Propylbenzene	91	9.464	9.467	(0.926)	314544	21.7384	21.73
92 Naphthalene	128	12.121	12.121	(1.186)	229777	19.5757	19.57
63 o-Xylene	106	8.800	8.800	(1.068)	112411	22.0676	22.06
81 sec-Butylbenzene	105	10.075	10.078	(0.985)	260650	21.9256	21.92
55 Dibromochloromethane	129	7.750	7.750	(0.940)	53230	17.5683	17.56
56 Tetrachloroethene	164	7.514	7.514	(0.912)	49836	20.7131	20.71
50 Toluene	91	7.038	7.038	(0.854)	279406	21.8919	21.89
19 Carbon Disulfide	76	2.581	2.577	(0.529)	272511	37.1756	37.17
20 trans-1,2-Dichloroethene	96	3.128	3.125	(0.641)	60365	20.2611	20.26
38 Trichloroethene	130	5.850	5.850	(1.041)	68293	21.9189	21.91
8 Trichlorofluoromethane	101	1.948	1.944	(0.399)	97670	20.4443	20.44
5 Vinyl Chloride	62	1.411	1.411	(0.289)	74429	20.7745	20.77
138 Freon TF	101	2.394	2.390	(0.490)	49442	20.3063	20.30
67 Isopropylbenzene	105	9.115	9.115	(1.106)	278901	22.2525	22.25
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.291)	61818	15.8518	15.85

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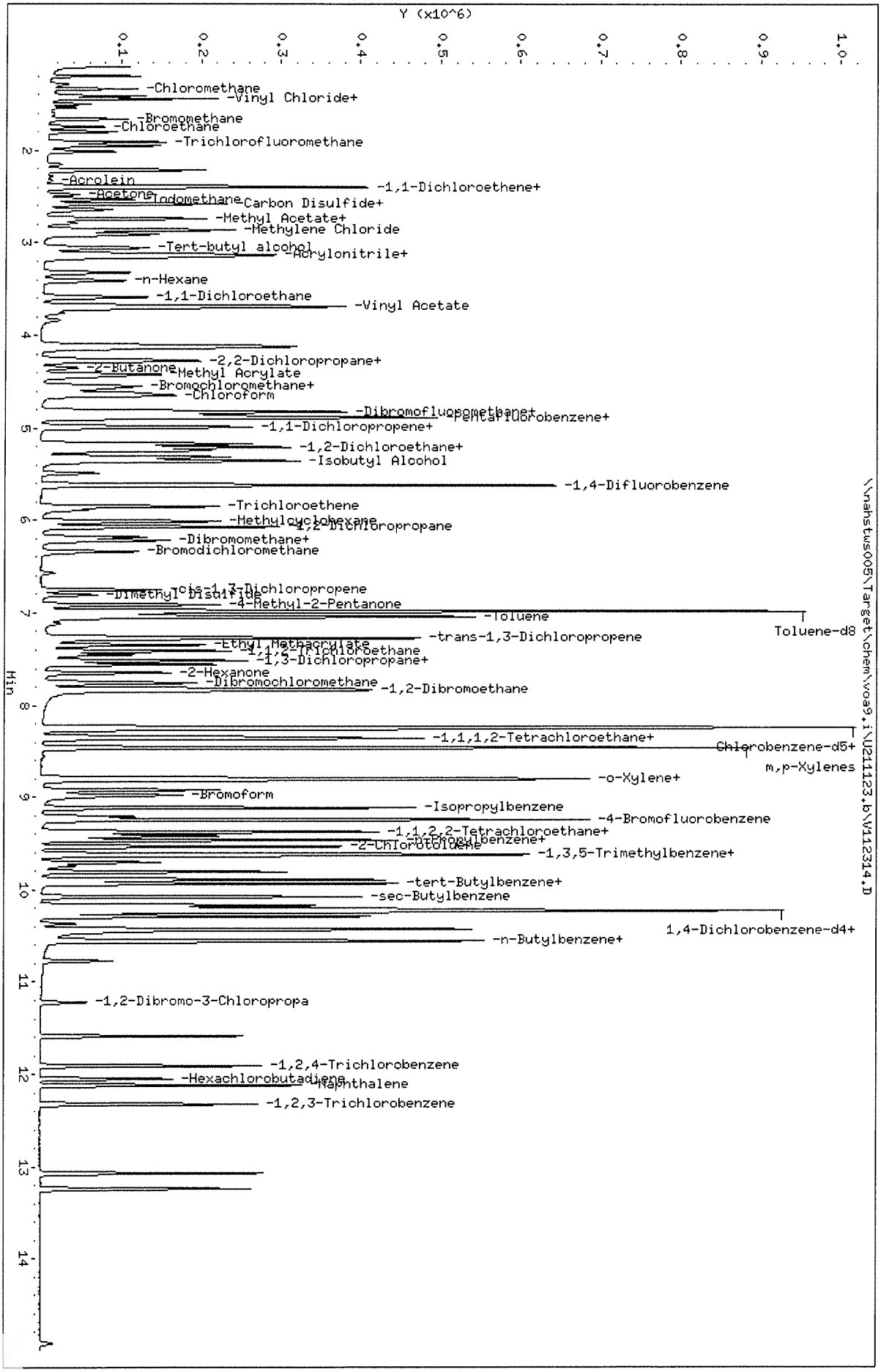
Sample Info: HS21110813-13MSD;HS21110813-13MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112315.D
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Inj Date : 24-NOV-2021 02:38
Operator : PC Inst ID: VOA9.i
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Misc Info : 180315V9;WATER;0;1;
Comment :
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Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 44 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

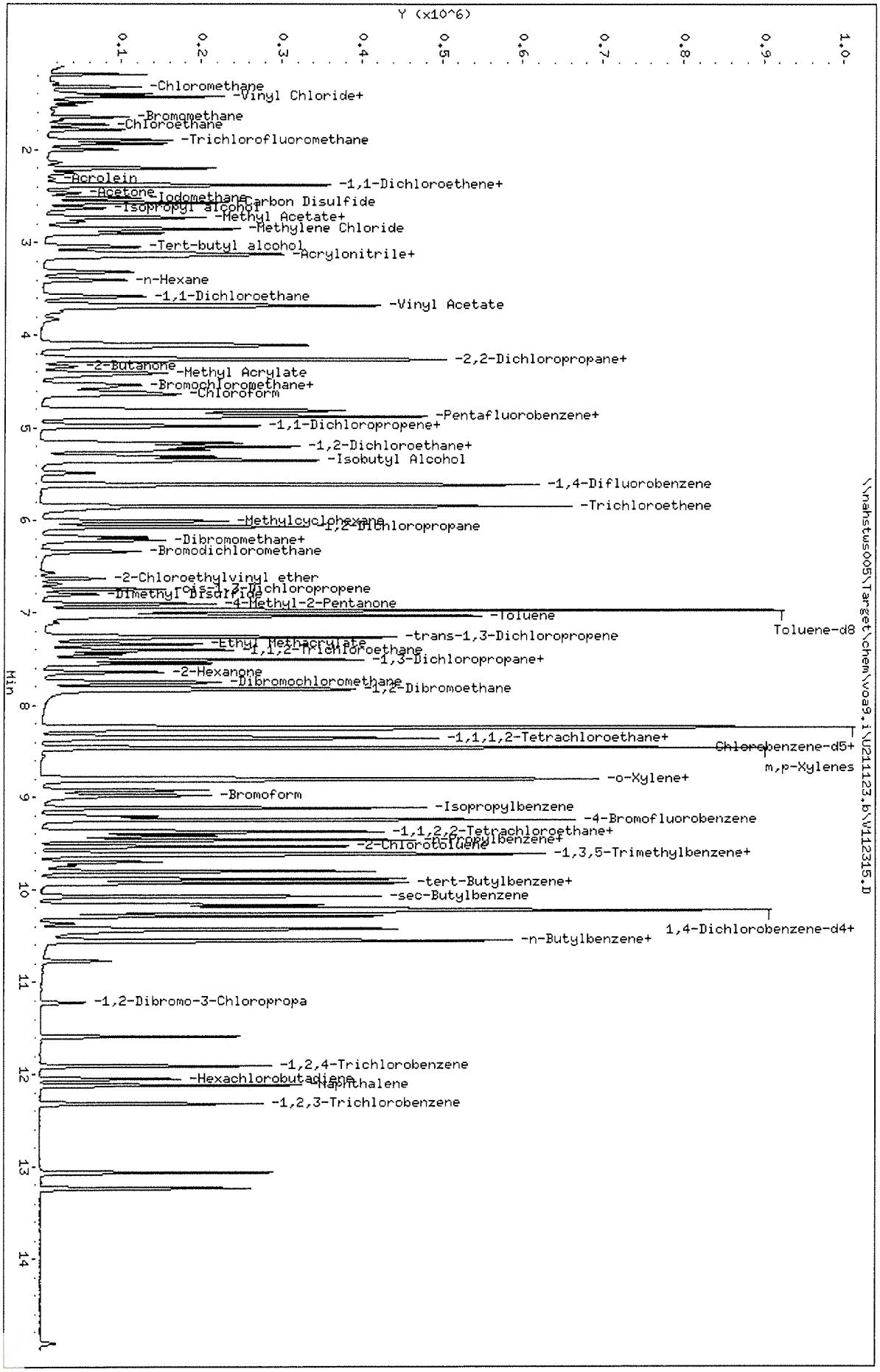
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	288650	50.0000	
* 36 1,4-Difluorobenzene	114	5.610	5.614	(1.000)	461917	50.0000	
* 47 Chlorobenzene-d5	117	8.238	8.242	(1.000)	412486	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	204755	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.160	5.168	(1.058)	160992	45.3273	45.32
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	206078	51.4762	51.47
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	141549	46.6627	46.66
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	549010	51.1394	51.13
31 1,1,1-Trichloroethane	97	4.808	4.811	(0.985)	86116	20.7248	20.72
57 1,2-Dibromoethane	107	7.840	7.840	(0.952)	66990	22.6887	22.68
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	57144	20.4786	20.47
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	92025	21.3533	21.35
53 1,1,2-Trichloroethane	83	7.409	7.413	(0.899)	54846	22.5650	22.56
22 1,1-Dichloroethane	63	3.578	3.589	(0.733)	128247	25.0088	25.00
11 1,1-Dichloroethene	96	2.378	2.390	(0.488)	78721	30.5890	30.58
32 1,1-Dichloropropene	75	4.984	4.991	(0.888)	91121	24.0221	24.02
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	77159	21.0426	21.04
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	86138	20.3567	20.35
90 1,2,4-Trichlorobenzene	180	11.911	11.912	(1.165)	78431	20.8113	20.81
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	234033	22.7993	22.79
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	129205	22.3767	22.37
33 1,2-Dichloroethane	62	5.239	5.243	(0.934)	93550	22.4502	22.45
42 1,2-Dichloropropane	63	6.067	6.071	(1.082)	80195	27.5908	27.59

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112315.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	128322	21.7599	21.75
54 1,3-Dichloropropane	76	7.552	7.556	(0.917)	118274	22.8363	22.83
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	233317	23.1767	23.17
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	133495	21.9995	21.99
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	10348	16.2449	16.24
26 2,2-Dichloropropane	77	4.253	4.260	(0.872)	36985	12.7258	12.72
24 2-Butanone	43	4.339	4.347	(0.889)	55785	36.9595	36.95
76 2-Chlorotoluene	91	9.535	9.539	(0.933)	200956	22.7918	22.79
52 2-Hexanone	43	7.645	7.646	(0.928)	85802	43.8193	43.81
77 4-Chlorotoluene	91	9.628	9.629	(0.942)	235025	23.0012	23.00
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	231095	23.1601	23.16
10 Acetone	43	2.461	2.472	(0.504)	42041	37.8711	37.87
37 Benzene	78	5.201	5.205	(0.927)	274927	23.5382	23.53
74 Bromobenzene	156	9.374	9.374	(0.917)	72180	22.7318	22.73
29 Bromochloromethane	128	4.538	4.542	(0.930)	34250	21.0360	21.03
39 Bromodichloromethane	83	6.337	6.341	(1.130)	69408	19.1185	19.11
66 Bromoform	173	8.972	8.976	(1.089)	29732	16.5485	16.54
6 Bromomethane	94	1.647	1.655	(0.338)	47380	26.3989	26.39
34 Carbon Tetrachloride	117	4.976	4.980	(0.887)	71653	20.4345	20.43
59 Chlorobenzene	112	8.264	8.264	(1.003)	179982	22.3819	22.38
7 Chloroethane	64	1.730	1.741	(0.355)	51395	21.5178	21.51
28 Chloroform	83	4.639	4.647	(0.951)	121865	21.9180	21.91
3 Chloromethane	50	1.321	1.333	(0.271)	67476	23.1504	23.15
27 cis-1,2-Dichloroethene	96	4.264	4.272	(0.874)	222179	63.0011	63.00
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	123439	41.5522	41.55
46 cis-1,3-Dichloropropene	75	6.746	6.750	(1.202)	80518	17.7046	17.70
44 Dibromomethane	93	6.180	6.180	(1.102)	43357	21.8710	21.87
2 Dichlorodifluoromethane	85	1.186	1.194	(0.243)	67654	19.2046	19.20
61 Ethylbenzene	106	8.361	8.362	(1.015)	92443	22.9698	22.96
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	30541	21.9265	21.92
62 m,p-Xylenes	106	8.463	8.463	(1.027)	234303	47.1183	47.11
64 Styrene	104	8.815	8.815	(1.070)	197772	23.3844	23.38
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	201381	23.7312	23.73
17 Methylene Chloride	84	2.847	2.858	(0.584)	66954	19.6832	19.68
87 n-Butylbenzene	91	10.547	10.547	(1.032)	202849	22.6730	22.67
73 n-Propylbenzene	91	9.463	9.467	(0.926)	331099	23.8081	23.80
92 Naphthalene	128	12.121	12.121	(1.186)	231398	20.5112	20.51
63 o-Xylene	106	8.800	8.800	(1.068)	113144	22.9725	22.97
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	270827	23.7032	23.70
55 Dibromochloromethane	129	7.747	7.750	(0.940)	53829	18.3059	18.30
56 Tetrachloroethene	164	7.510	7.514	(0.912)	79645	34.2367	34.23
50 Toluene	91	7.034	7.038	(0.854)	284034	23.0171	23.01
19 Carbon Disulfide	76	2.570	2.577	(0.527)	279045	39.0673	39.06
20 trans-1,2-Dichloroethene	96	3.117	3.125	(0.639)	61701	21.2537	21.25
38 Trichloroethene	130	5.846	5.850	(1.042)	201821	66.8795	66.87
8 Trichlorofluoromethane	101	1.932	1.944	(0.396)	101150	21.7291	21.72
5 Vinyl Chloride	62	1.400	1.411	(0.287)	75920	21.7475	21.74
138 Freon TF	101	2.382	2.390	(0.488)	53135	22.3965	22.39
67 Isopropylbenzene	105	9.115	9.115	(1.106)	287980	23.7642	23.76
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.293)	62926	16.5524	16.55

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112315.D
Date : 24-NOV-2021 02:38
Client ID: HS211111214-06MS
Sample Info: HS211111214-06MS;HS211111214-06MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112316.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112316.D
Lab Smp Id: HS21111214-06MSD Client Smp ID: HS21111214-06MSD
Inj Date : 24-NOV-2021 03:00
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111214-06MSD;HS21111214-06MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 44 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

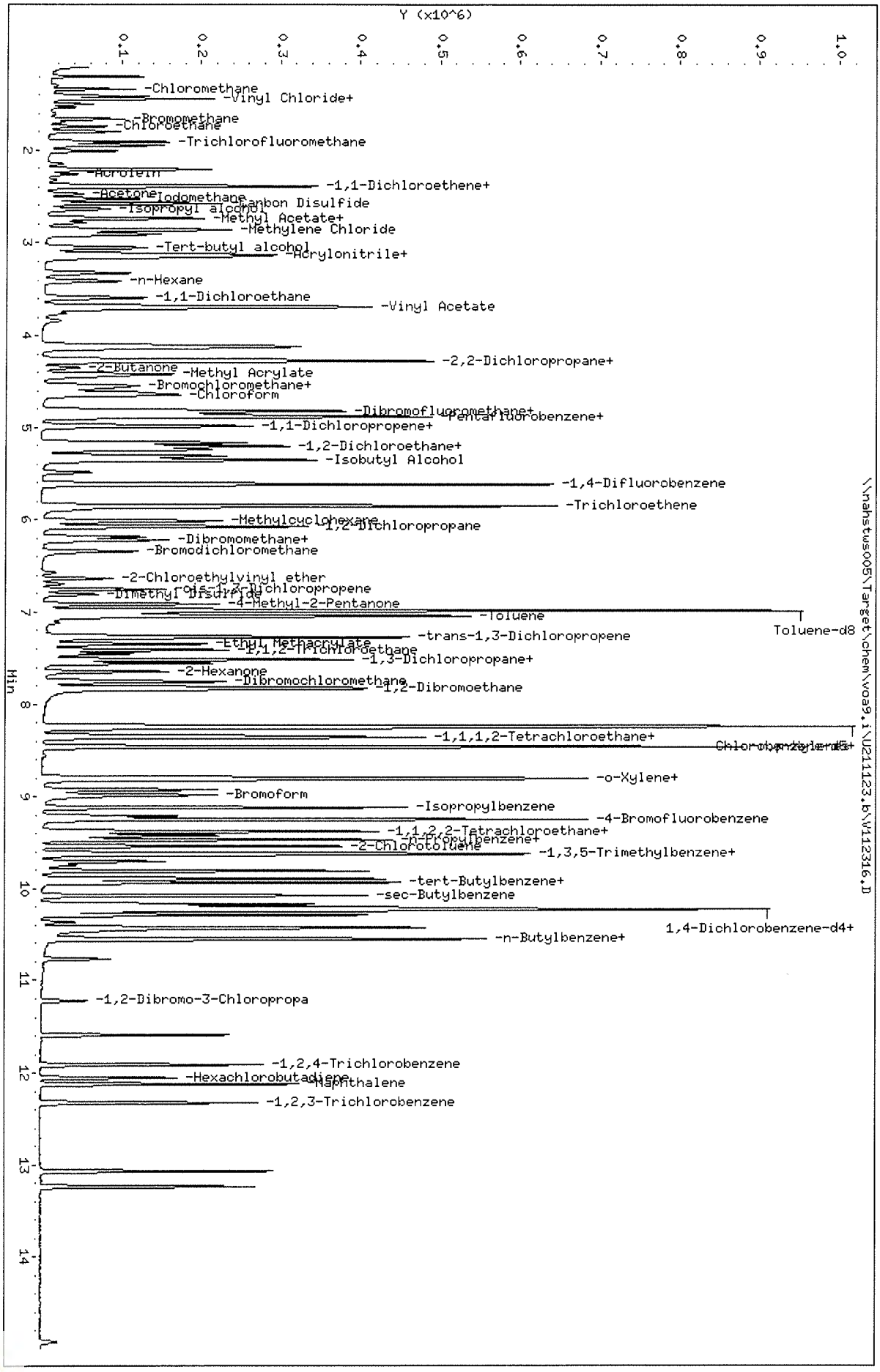
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	295635	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	479449	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	419085	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	210503	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	163724	44.9968	44.99
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	209402	51.4830	51.48
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	143332	46.1243	46.12
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	561005	51.4339	51.43
31 1,1,1-Trichloroethane	97	4.815	4.811	(0.986)	83660	19.6580	19.65
57 1,2-Dibromoethane	107	7.841	7.840	(0.951)	66442	22.1488	22.14
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	54551	19.2914	19.29
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	93443	21.0902	21.09
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	54128	21.9189	21.91
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	124691	23.7408	23.74
11 1,1-Dichloroethene	96	2.390	2.390	(0.490)	74904	28.4181	28.41
32 1,1-Dichloropropene	75	4.992	4.991	(0.889)	86560	21.9853	21.98
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	74833	19.8510	19.85
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	86016	19.7728	19.77
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	78786	20.3347	20.33
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	232353	22.0176	22.01
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	124877	21.0366	21.03
33 1,2-Dichloroethane	62	5.246	5.243	(0.935)	93933	21.7178	21.71
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	77590	25.7184	25.71

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112316.D Page 2
Report Date: 22-Dec-2021 16:05

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	125517	20.7030	20.70
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	117909	22.4073	22.40
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	224837	21.7245	21.72
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	129927	20.8268	20.82
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	10423	15.9652	15.96
26 2,2-Dichloropropane	77	4.261	4.260	(0.873)	35289	11.8553	11.85
24 2-Butanone	43	4.347	4.347	(0.890)	57642	37.2875	37.28
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	198400	21.8875	21.88
52 2-Hexanone	43	7.646	7.646	(0.928)	86633	43.5470	43.54
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	230147	21.9087	21.90
82 p-Isopropyltoluene	119	10.198	10.202	(0.997)	225161	21.9492	21.94
10 Acetone	43	2.472	2.472	(0.506)	43403	38.2274	38.22
37 Benzene	78	5.205	5.205	(0.927)	267168	22.0375	22.03
74 Bromobenzene	156	9.374	9.374	(0.917)	70607	21.6292	21.62
29 Bromochloromethane	128	4.542	4.542	(0.930)	34504	20.6913	20.69
39 Bromodichloromethane	83	6.337	6.341	(1.129)	68043	18.1147	18.11
66 Bromoform	173	8.976	8.976	(1.089)	30167	16.5283	16.52
6 Bromomethane	94	1.659	1.655	(0.340)	45276	24.5962	24.59
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	70181	19.3677	19.36
59 Chlorobenzene	112	8.264	8.264	(1.003)	174125	21.3126	21.31
7 Chloroethane	64	1.741	1.741	(0.357)	49772	20.3460	20.34
28 Chloroform	83	4.647	4.647	(0.952)	117957	20.7139	20.71
3 Chloromethane	50	1.333	1.333	(0.273)	63529	21.2340	21.23
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	217022	60.0848	60.08
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	126170	41.8027	41.80
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	79898	17.0025	17.00
44 Dibromomethane	93	6.180	6.180	(1.101)	42500	20.6548	20.65
2 Dichlorodifluoromethane	85	1.198	1.194	(0.245)	64267	17.7605	17.76
61 Ethylbenzene	106	8.362	8.362	(1.015)	89780	21.9568	21.95
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	30028	20.9695	20.96
62 m,p-Xylenes	106	8.463	8.463	(1.027)	226727	44.8769	44.87
64 Styrene	104	8.815	8.815	(1.070)	193978	22.5747	22.57
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	193822	22.2167	22.21
17 Methylene Chloride	84	2.859	2.858	(0.585)	64690	18.5683	18.56
87 n-Butylbenzene	91	10.547	10.547	(1.032)	194119	21.1047	21.10
73 n-Propylbenzene	91	9.467	9.467	(0.926)	319226	22.3276	22.32
92 Naphthalene	128	12.122	12.121	(1.186)	229975	19.8284	19.82
63 o-Xylene	106	8.800	8.800	(1.068)	111136	22.2095	22.20
81 sec-Butylbenzene	105	10.075	10.078	(0.985)	262123	22.3149	22.31
55 Dibromochloromethane	129	7.751	7.750	(0.940)	53269	17.8692	17.86
56 Tetrachloroethene	164	7.514	7.514	(0.912)	77134	32.6352	32.63
50 Toluene	91	7.038	7.038	(0.854)	276901	22.0857	22.08
19 Carbon Disulfide	76	2.577	2.577	(0.528)	266221	36.3913	36.39
20 trans-1,2-Dichloroethene	96	3.128	3.125	(0.641)	60404	20.3153	20.31
38 Trichloroethene	130	5.850	5.850	(1.042)	196344	62.6854	62.68
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	97604	20.4720	20.47
5 Vinyl Chloride	62	1.412	1.411	(0.289)	73744	20.6251	20.62
138 Freon TF	101	2.394	2.390	(0.490)	50340	20.7171	20.71
67 Isopropylbenzene	105	9.115	9.115	(1.106)	279141	22.6721	22.67
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	63018	16.0447	16.04

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112316.D
Date : 24-NOV-2021 03:00
Client ID: HS21111214-06MSD
Sample Info: HS21111214-06MSD;HS21111214-06MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112319.D
Lab Smp Id: HS21110813-11 Client Smp ID: HS21110813-11
Inj Date : 24-NOV-2021 04:07
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-11;HS21110813-11;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 47
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

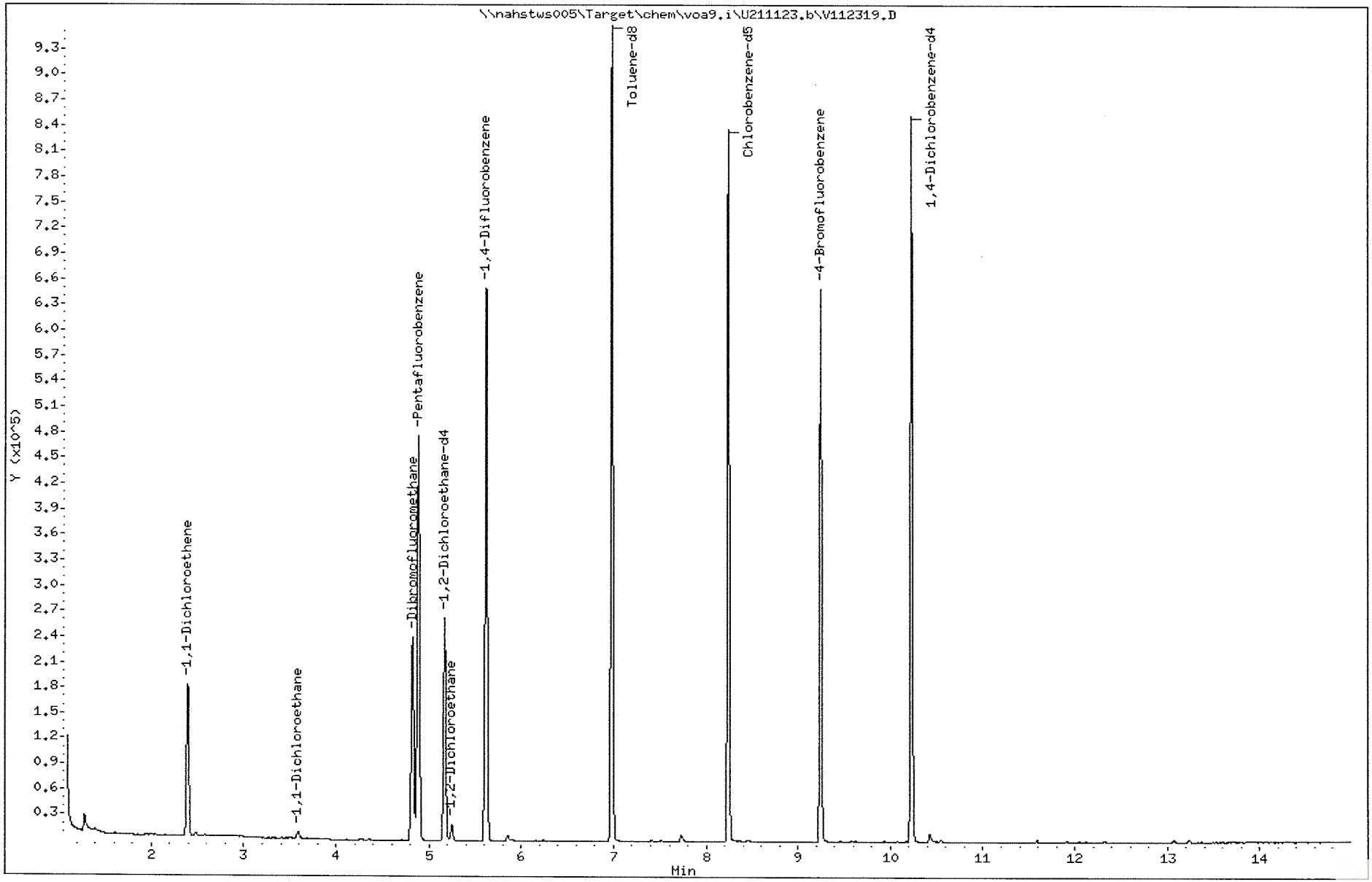
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	296316	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	483181	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	426612	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	205836	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	168143	46.1420	46.14
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	206066	49.7242	49.72
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	137931	44.2500	44.25
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	563951	50.7917	50.79
22 1,1-Dichloroethane	63	3.586	3.586	(0.734)	8320	1.58046	1.58(a)
11 1,1-Dichloroethene	96	2.390	2.386	(0.490)	60952	23.0717	23.07
33 1,2-Dichloroethane	62	5.246	5.242	(0.934)	13117	3.00929	3.00(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112319.D
Date : 24-NOV-2021 04:07
Client ID: HS21110813-11
Sample Info: HS21110813-11;HS21110813-11;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Date : 24-NOV-2021 04:07

Client ID: HS21110813-11

Instrument: VOA9.i

Sample Info: HS21110813-11;HS21110813-11;;;

Purge Volume: 5.0

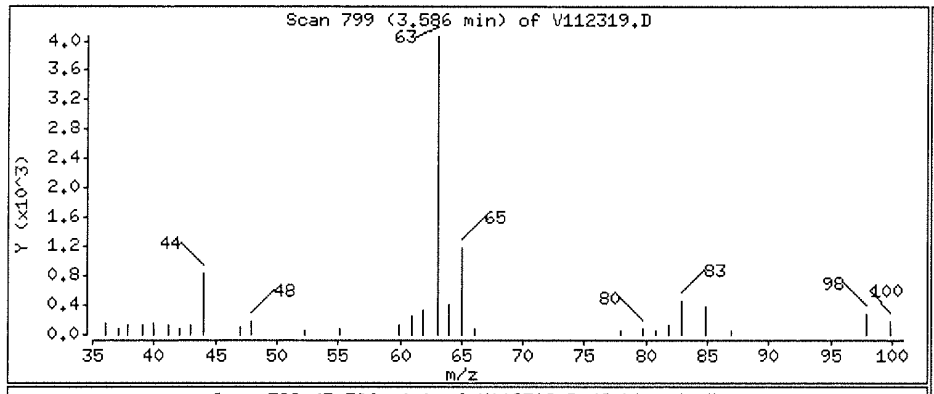
Operator: PC

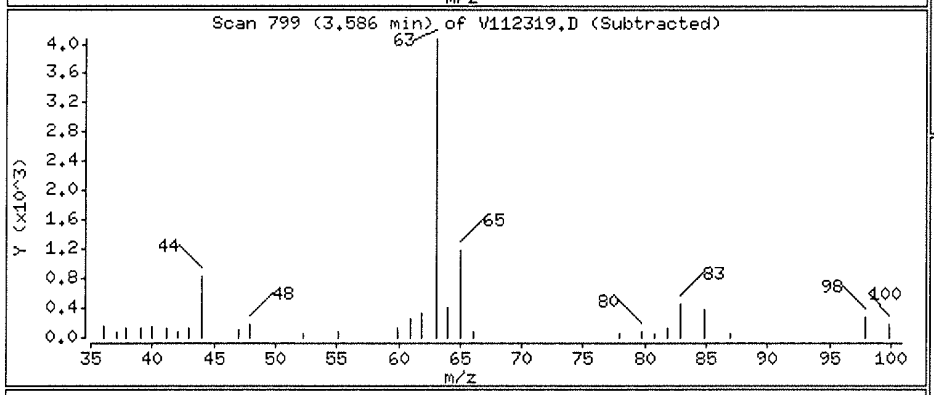
Column phase: DB624

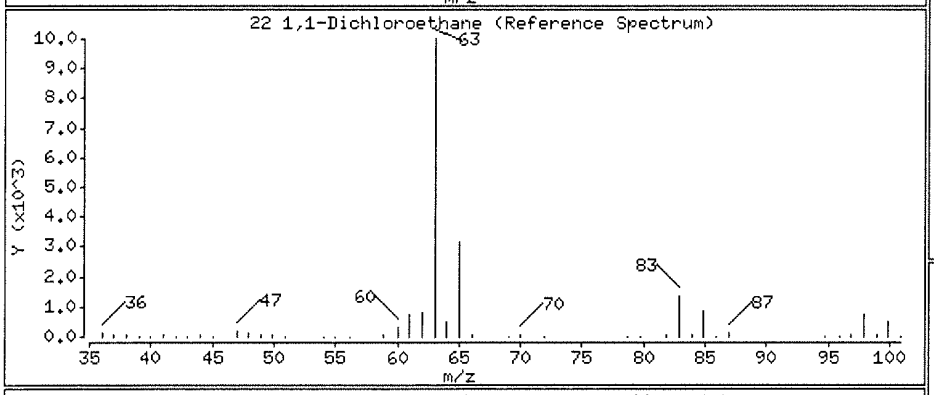
Column diameter: 0.18

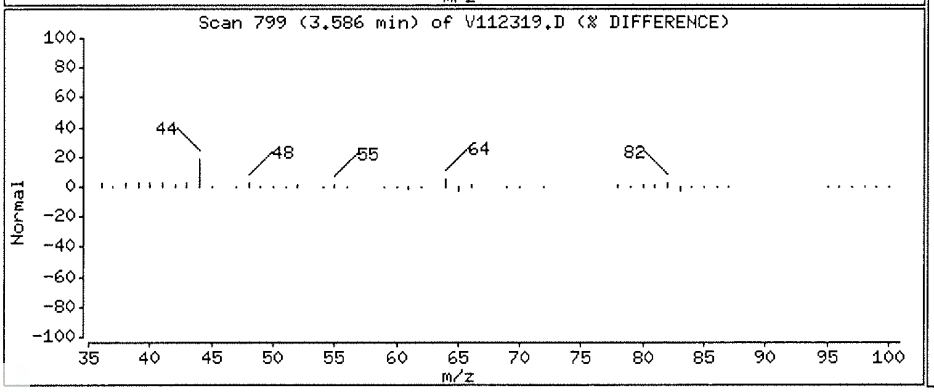
22 1,1-Dichloroethane

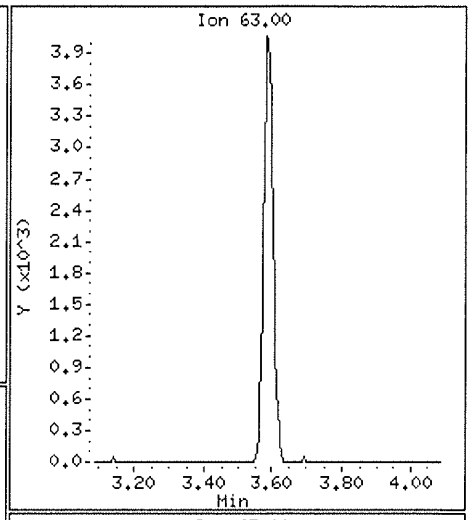
Concentration: 1.58 ug/l

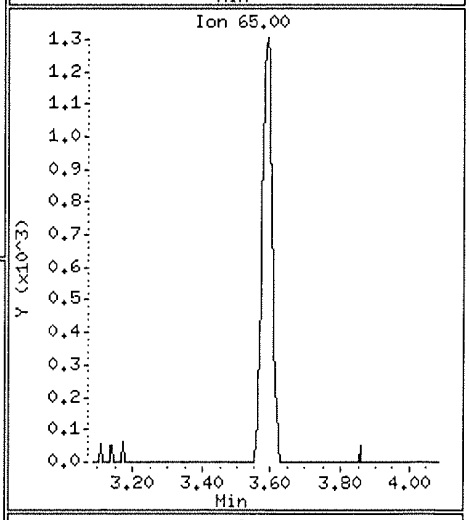


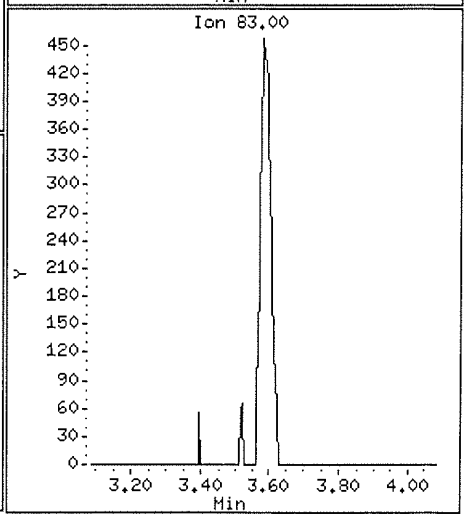












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Date : 24-NOV-2021 04:07

Client ID: HS21110813-11

Instrument: VOA9.i

Sample Info: HS21110813-11;HS21110813-11;;;

Purge Volume: 5.0

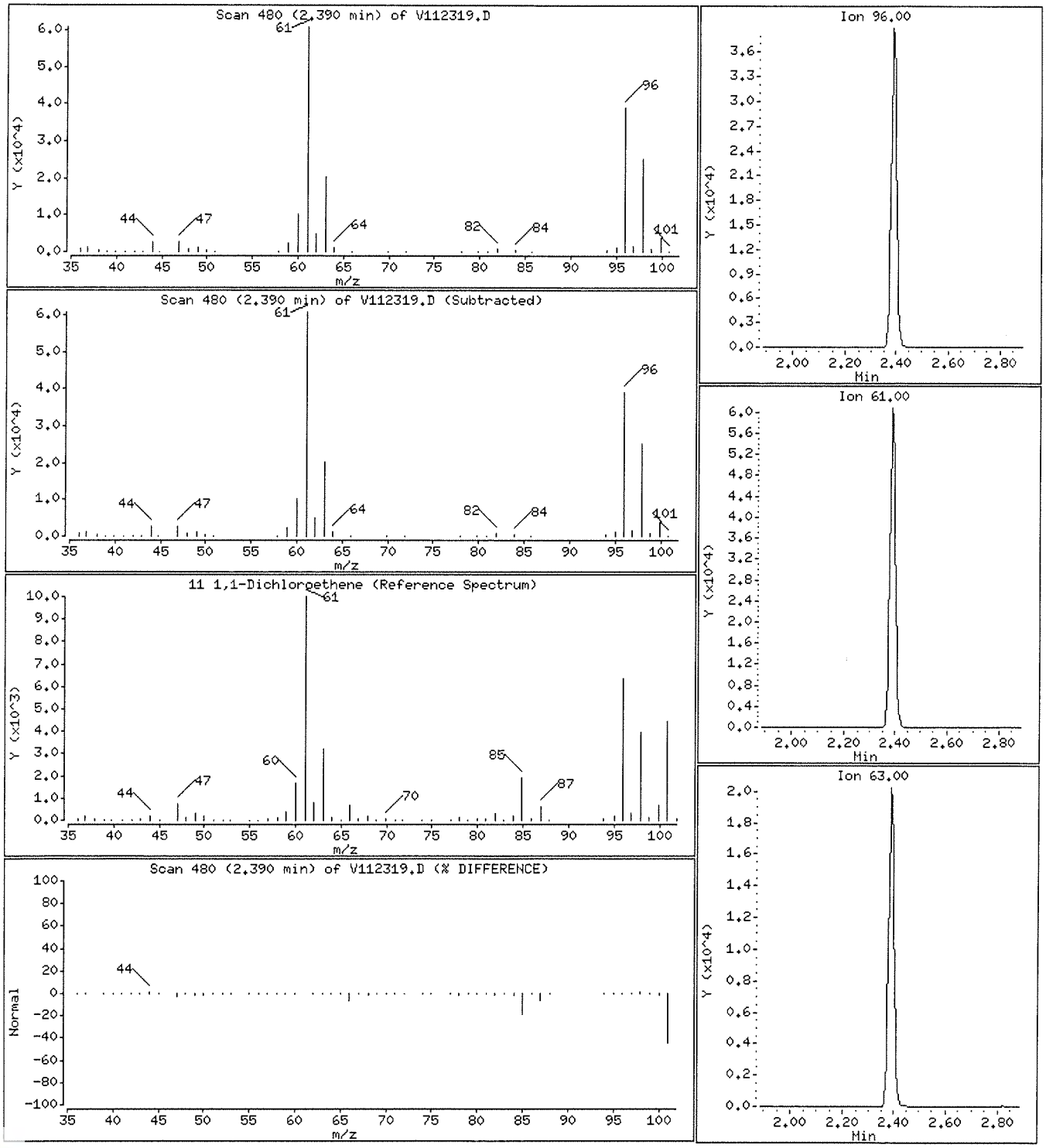
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 23.07 ug/l



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Date : 24-NOV-2021 04:07

Client ID: HS21110813-11

Instrument: VOA9.i

Sample Info: HS21110813-11;HS21110813-11;;;

Purge Volume: 5.0

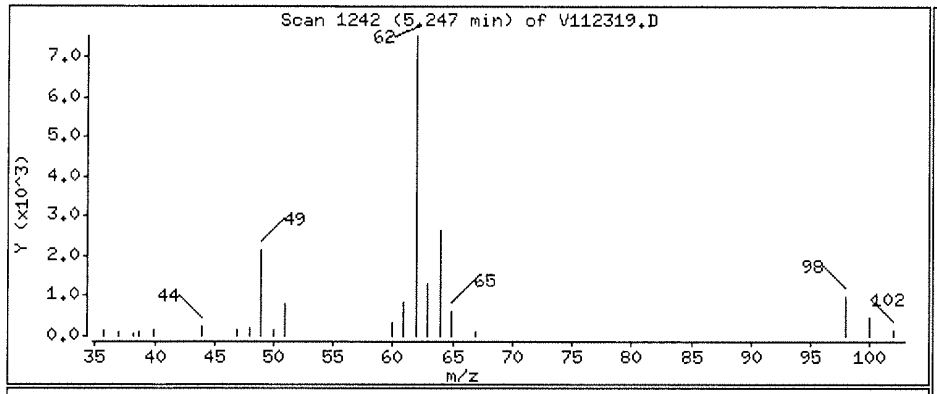
Operator: PC

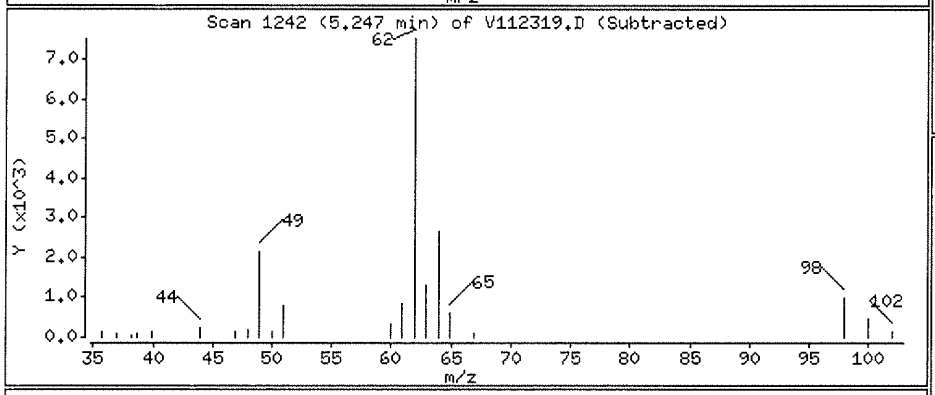
Column phase: DB624

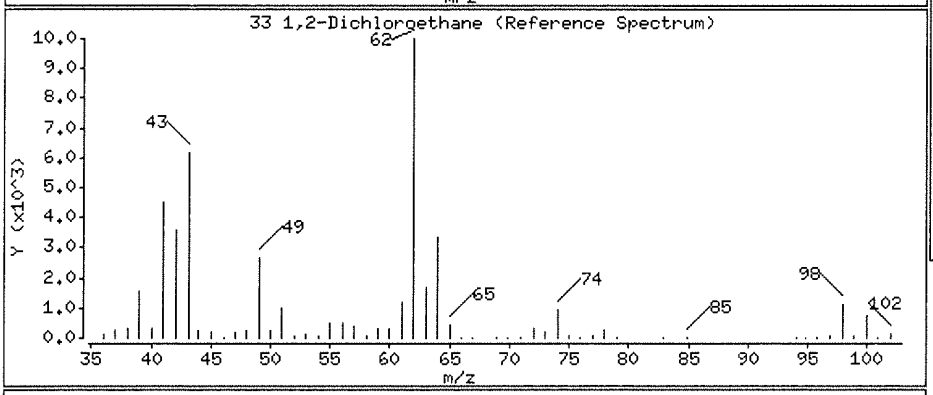
Column diameter: 0.18

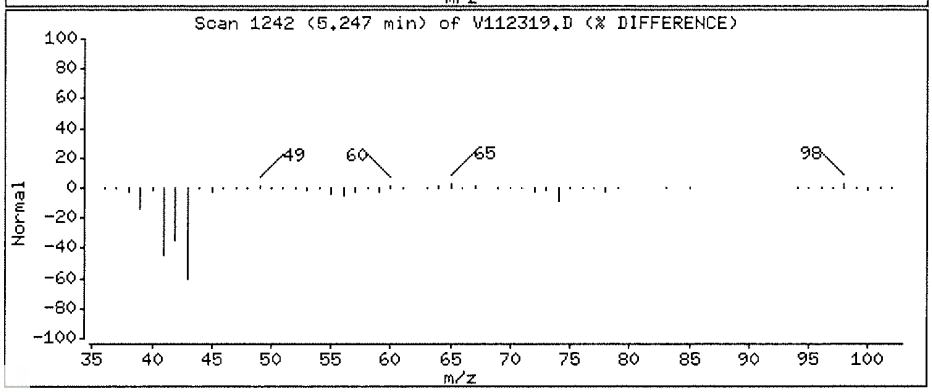
33 1,2-Dichloroethane

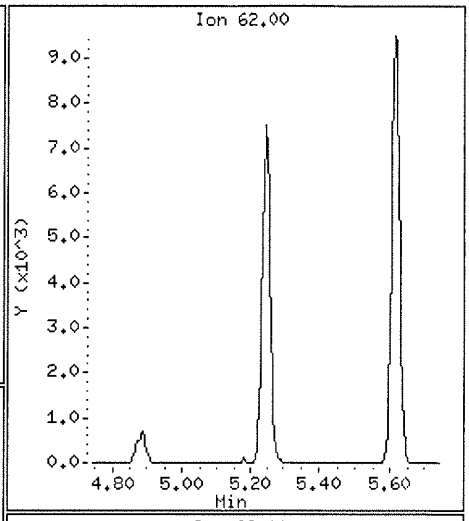
Concentration: 3.00 ug/l

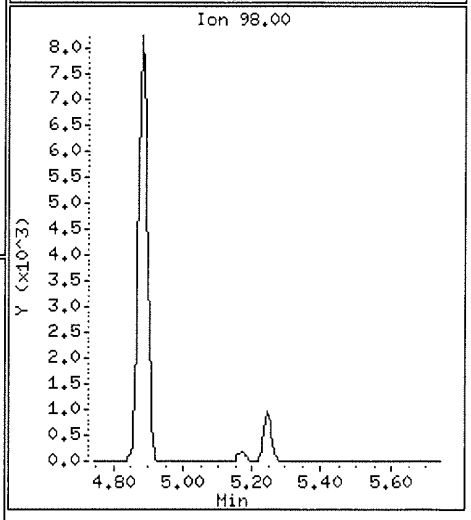












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112320.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112320.D
Lab Smp Id: HS21110813-12 Client Smp ID: HS21110813-12
Inj Date : 24-NOV-2021 04:29
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-12;HS21110813-12;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 48
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	288793	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	474624	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	418734	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	204806	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	165390	46.5827	46.58
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	201651	49.5702	49.57
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	133606	43.9738	43.97
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	551731	50.6260	50.62

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112320.D

Date : 24-NOV-2021 04:29

Client ID: HS21110813-12

Sample Info: HS21110813-12;HS21110813-12;;;

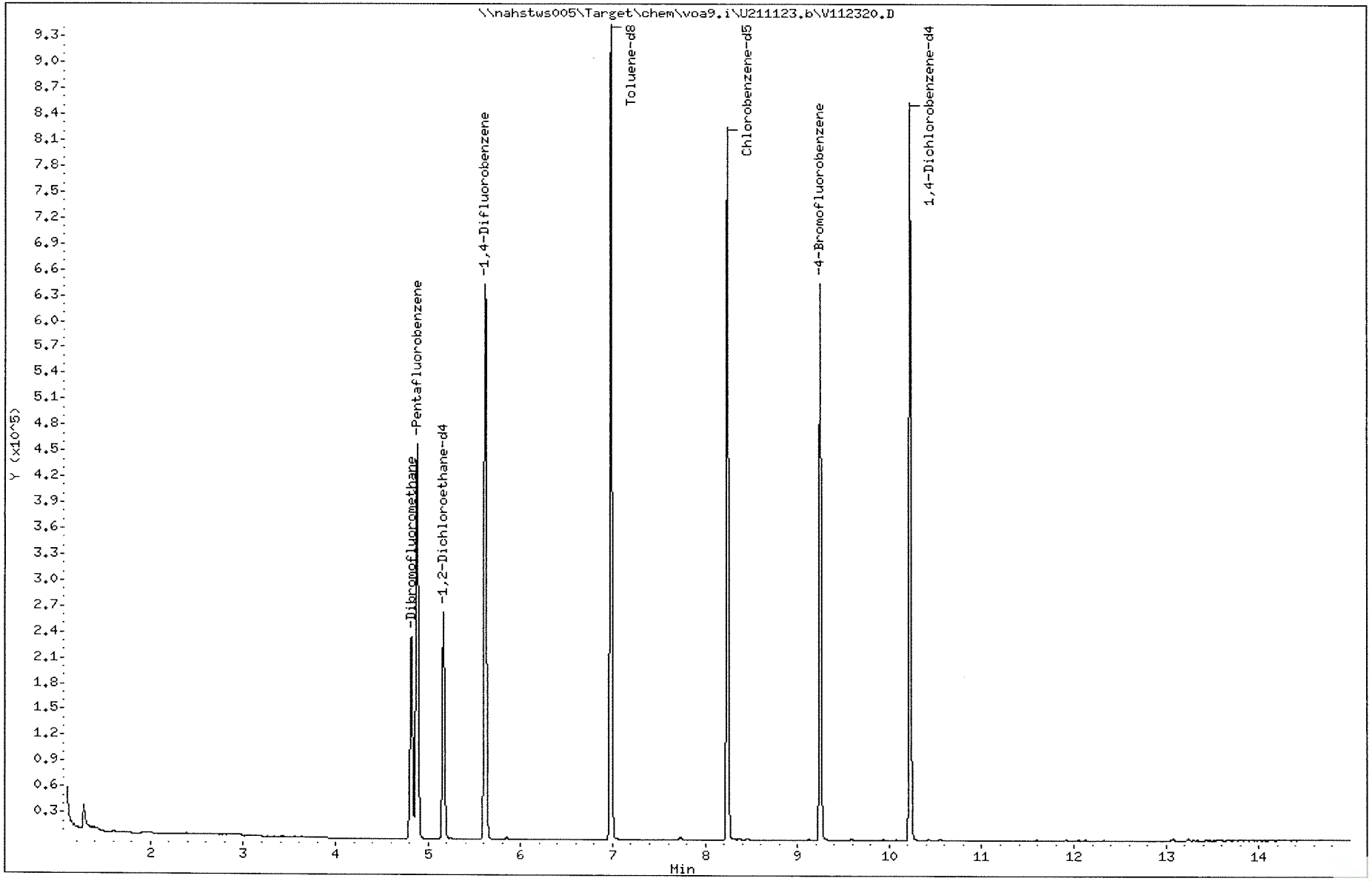
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112321.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112321.D
Lab Smp Id: HS21110813-14 Client Smp ID: HS21110813-14
Inj Date : 24-NOV-2021 04:52
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-14;HS21110813-14;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 49
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

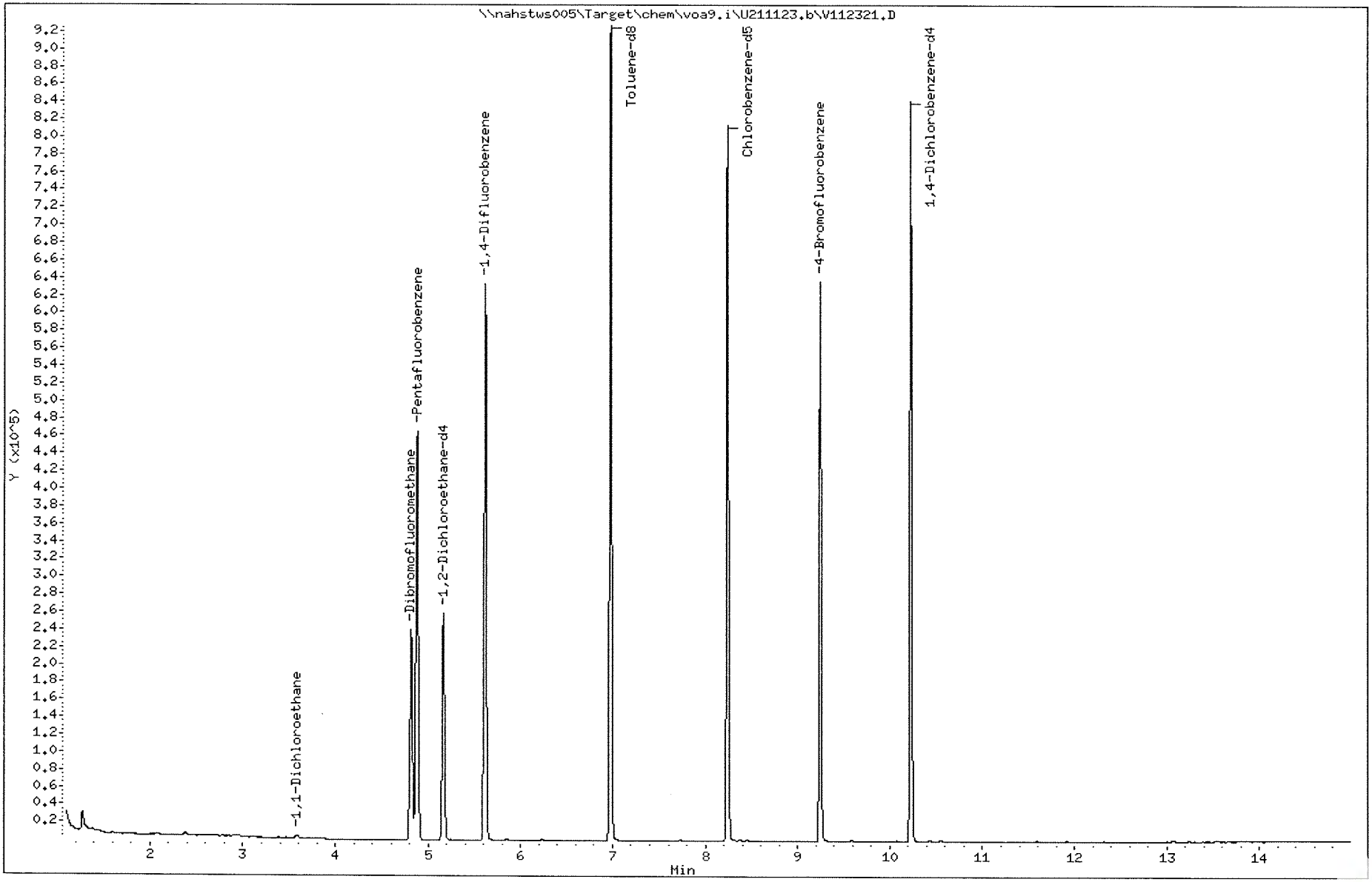
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.883	(1.000)	289575	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	471652	50.0000	
* 47 Chlorobenzene-d5	117	8.238	8.241	(1.000)	412552	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	203637	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.160	5.164	(1.058)	165869	46.5917	46.59
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	200165	49.9524	49.95
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	133186	43.7122	43.71
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	551992	51.4089	51.40
22 1,1-Dichloroethane	63	3.582	3.586	(0.734)	2916	0.56682	0.56(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112321.D
Date : 24-NOV-2021 04:52
Client ID: HS21110813-14
Sample Info: HS21110813-14;HS21110813-14;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112321.D

Date : 24-NOV-2021 04:52

Client ID: HS21110813-14

Instrument: VOA9.i

Sample Info: HS21110813-14;HS21110813-14;;;

Purge Volume: 5.0

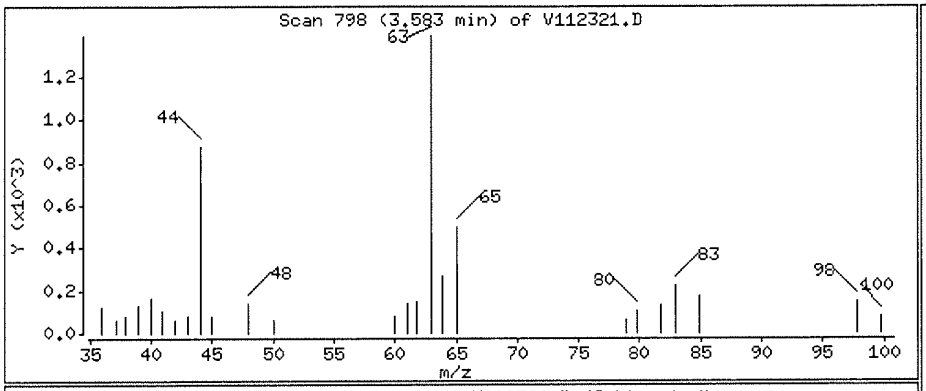
Operator: PC

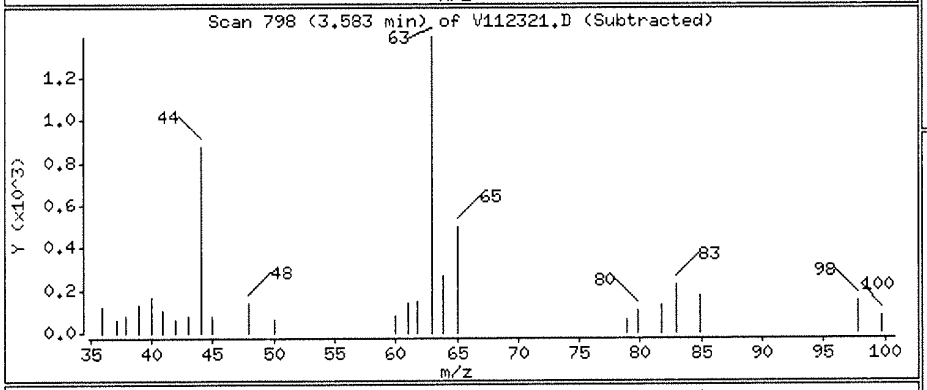
Column phase: DB624

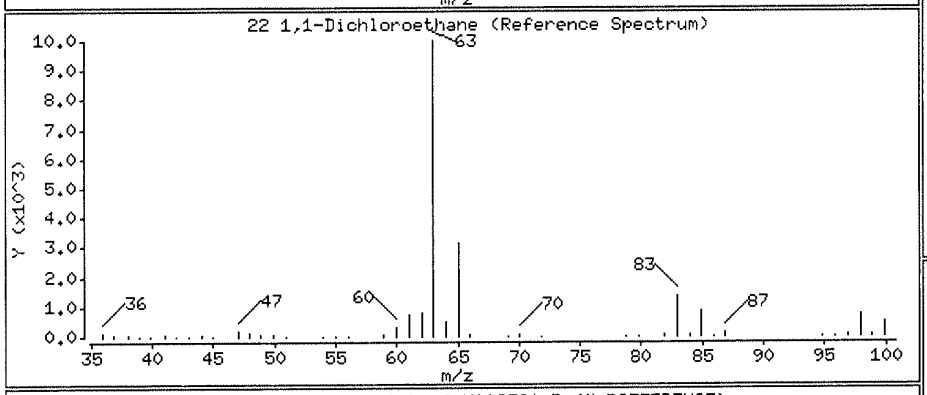
Column diameter: 0.18

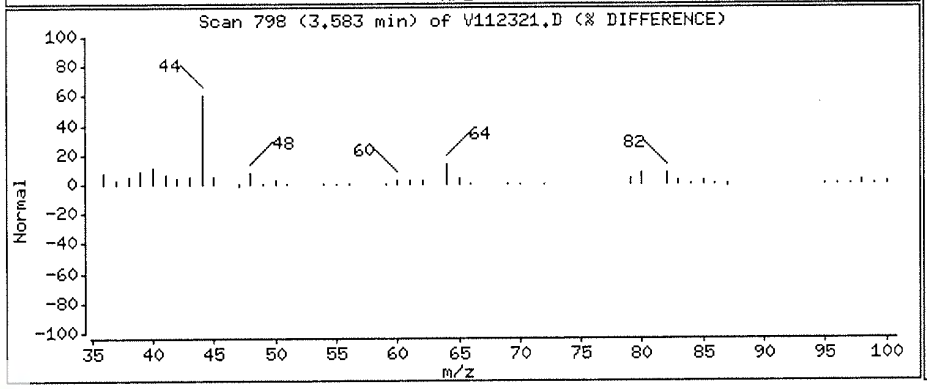
22 1,1-Dichloroethane

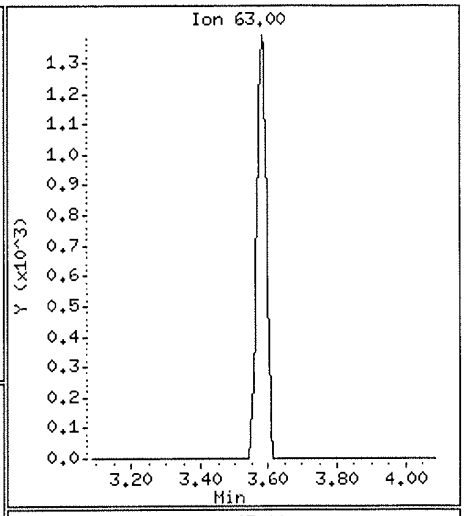
Concentration: 0.56 ug/l

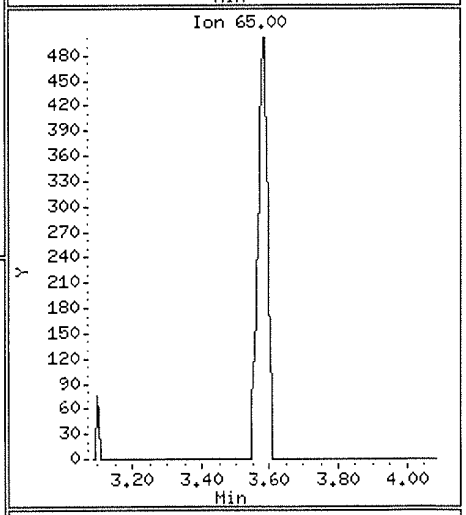


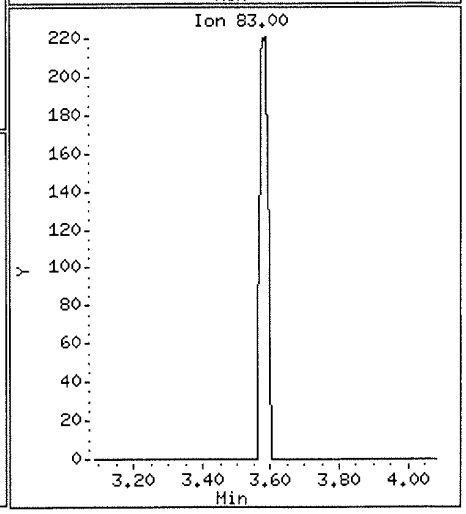












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112322.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112322.D
Lab Smp Id: HS21110813-15 Client Smp ID: HS21110813-15
Inj Date : 24-NOV-2021 05:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-15;HS21110813-15;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 50
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.882	4.883	(1.000)	285656	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	470155	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	416513	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	200780	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.164	(1.058)	164598	46.8780	46.87
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	200935	49.6600	49.65
$ 30 Dibromofluoromethane	113	4.822	4.819	(0.988)	134703	44.8383	44.83
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	548279	50.5775	50.57

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\W112322.D

Date : 24-NOV-2021 05:14

Client ID: HS21110813-15

Instrument: VOA9.i

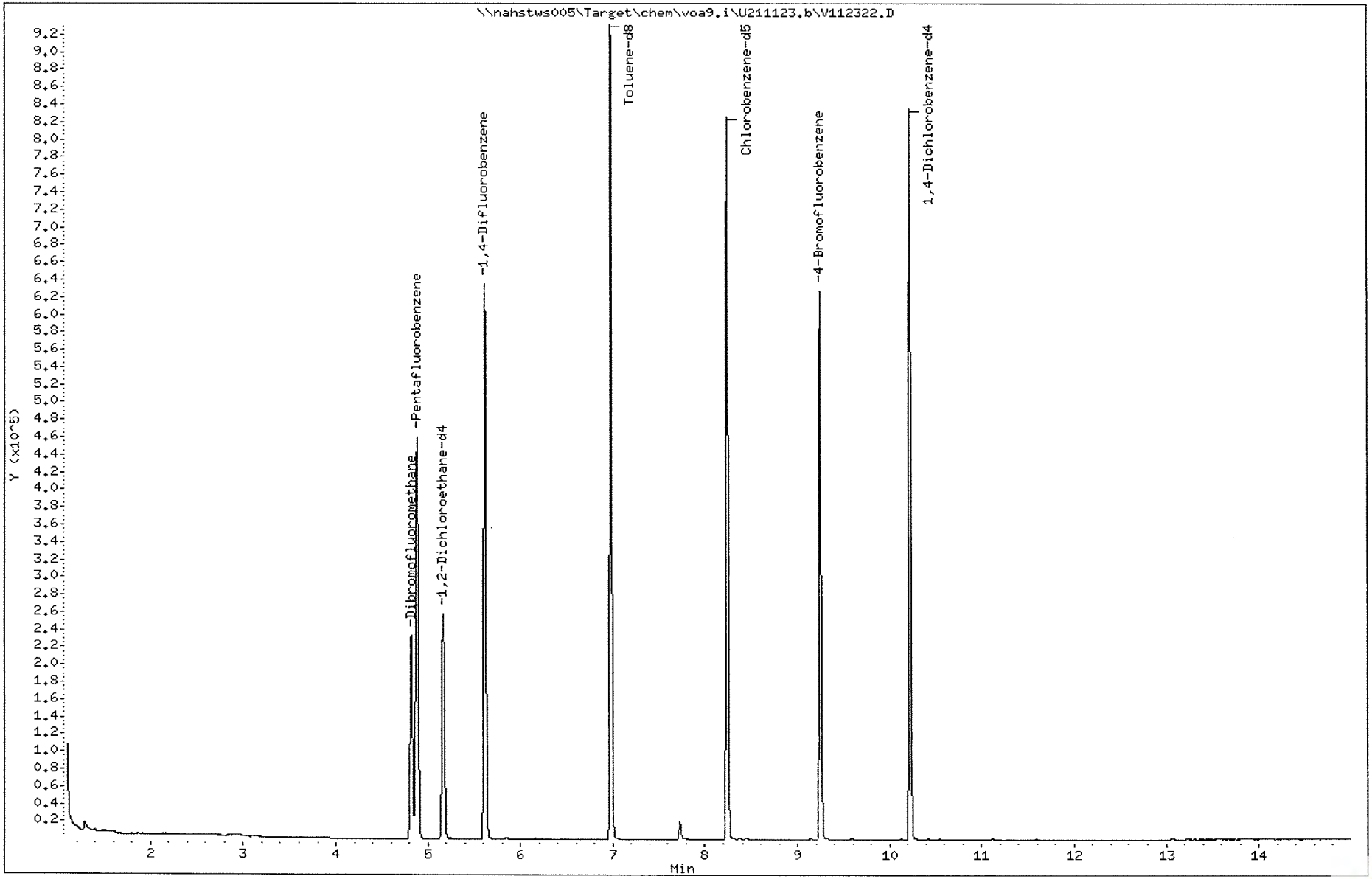
Sample Info: HS21110813-15;HS21110813-15;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D
Lab Smp Id: HS21110813-16 Client Smp ID: HS21110813-16
Inj Date : 24-NOV-2021 05:36
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-16;HS21110813-16;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 51
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

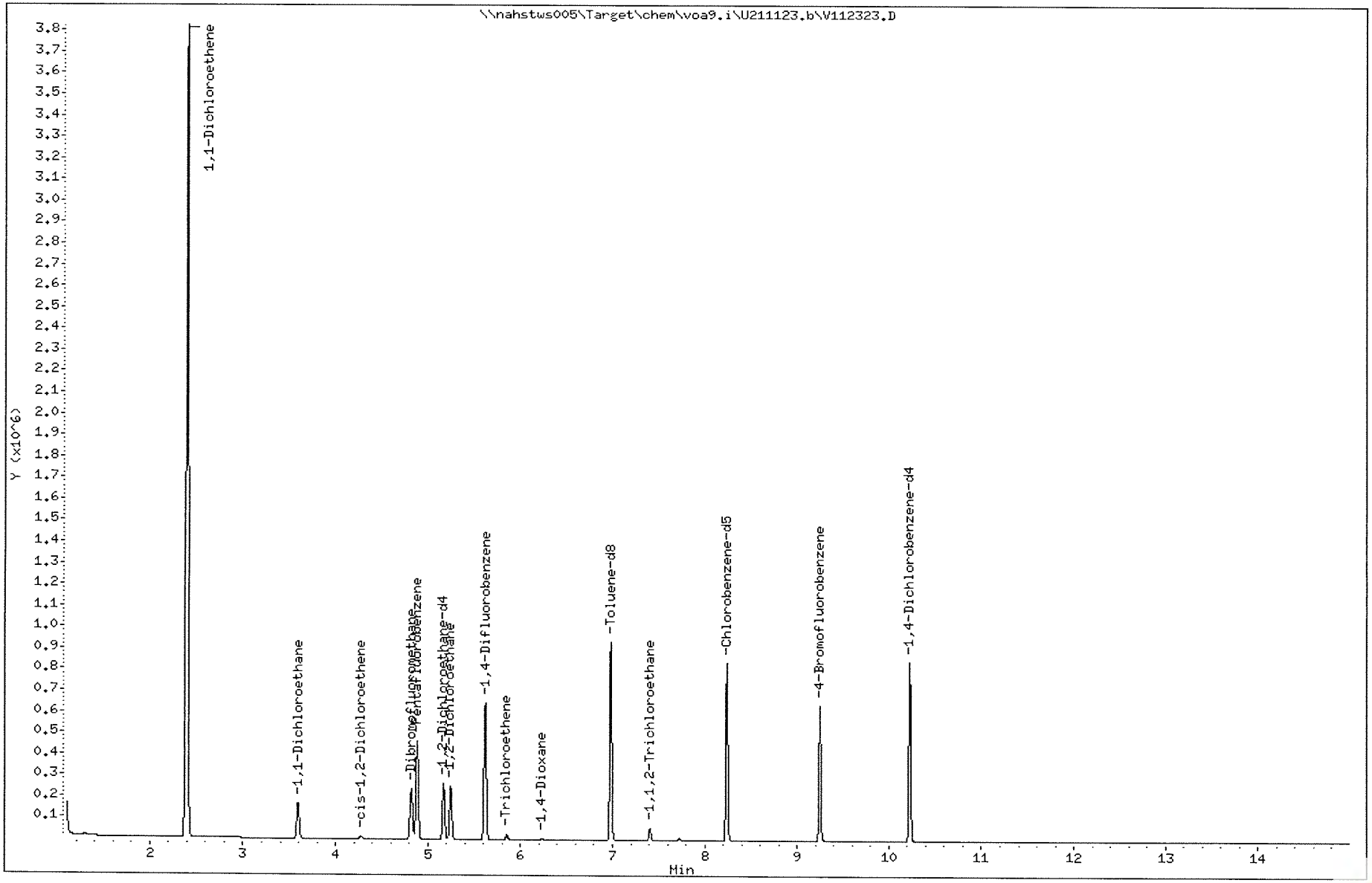
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.886	4.883	(1.000)	289554	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	474808	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	416870	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	202612	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.164	(1.058)	165378	46.4529	46.45
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	202244	49.9483	49.94
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.987)	134842	44.2697	44.26
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	553222	50.9898	50.98
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	14462	5.88745	5.88
22 1,1-Dichloroethane	63	3.593	3.586	(0.735)	163637	31.8104	31.81
11 1,1-Dichloroethene	96	2.393	2.386	(0.490)	1315189	509.454	509.45(A)
33 1,2-Dichloroethane	62	5.246	5.242	(0.934)	183100	42.7474	42.74
27 cis-1,2-Dichloroethene	96	4.275	4.272	(0.875)	5817	1.64432	1.64(a)
38 Trichloroethene	130	5.853	5.850	(1.042)	7502	2.41852	2.41(a)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\W112323.D
Date : 24-NOV-2021 05:36
Client ID: HS21110813-16
Sample Info: HS21110813-16;HS21110813-16;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D

Date : 24-NOV-2021 05:36

Client ID: HS21110813-16

Instrument: VOA9.i

Sample Info: HS21110813-16;HS21110813-16;;;

Purge Volume: 5.0

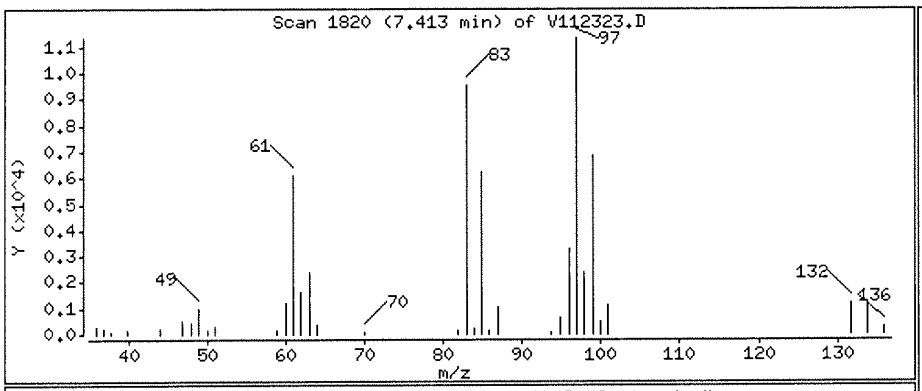
Operator: PC

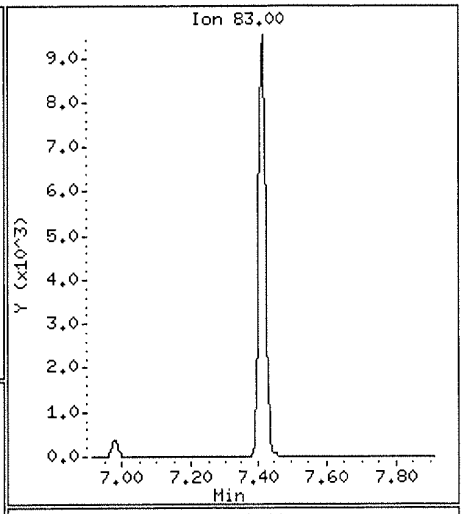
Column phase: DB624

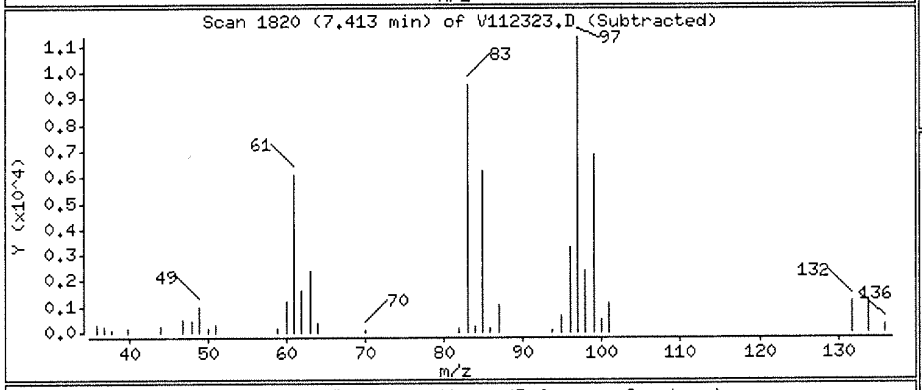
Column diameter: 0.18

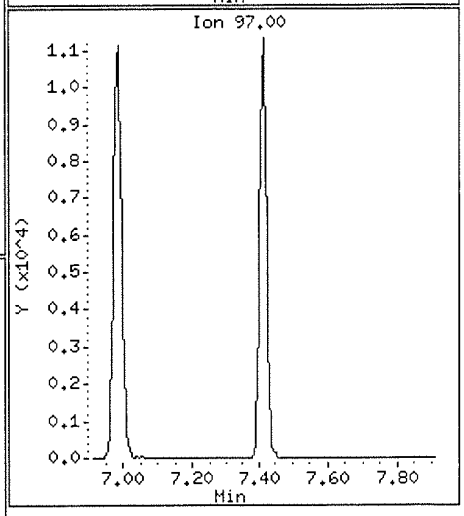
53 1,1,2-Trichloroethane

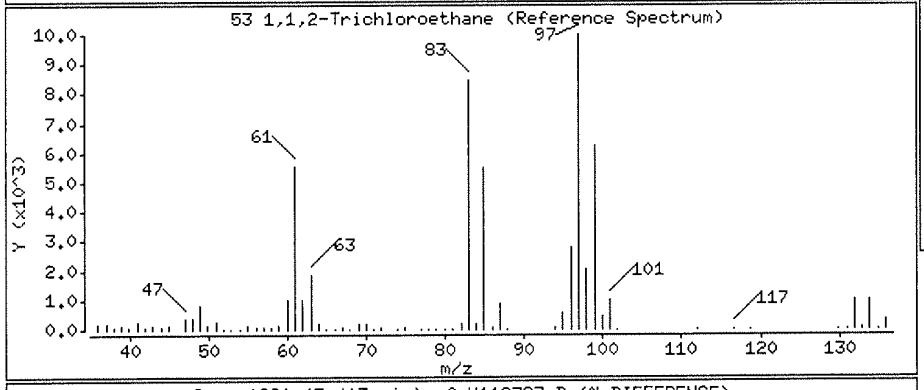
Concentration: 5.88 ug/l

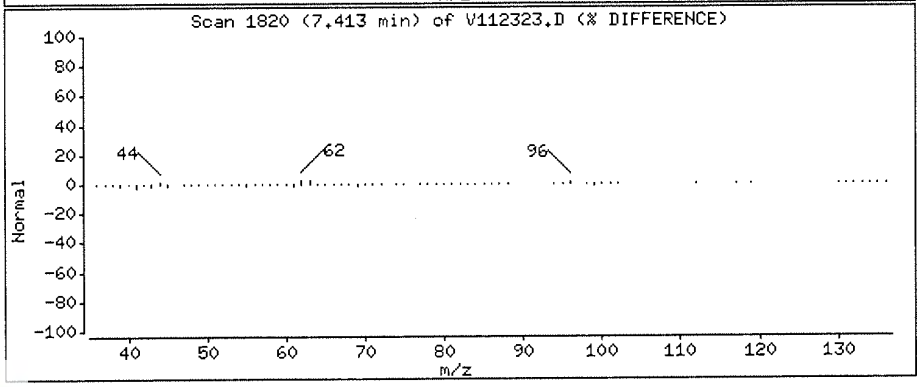












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D

Date : 24-NOV-2021 05:36

Client ID: HS21110813-16

Instrument: VOA9.i

Sample Info: HS21110813-16;HS21110813-16;;;

Purge Volume: 5.0

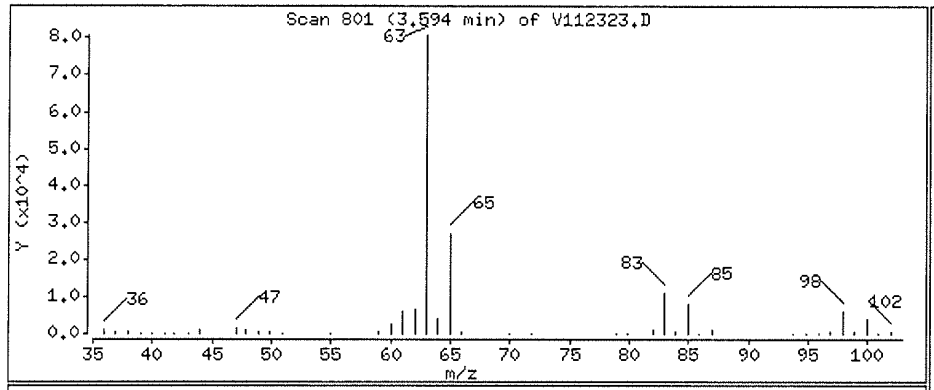
Operator: PC

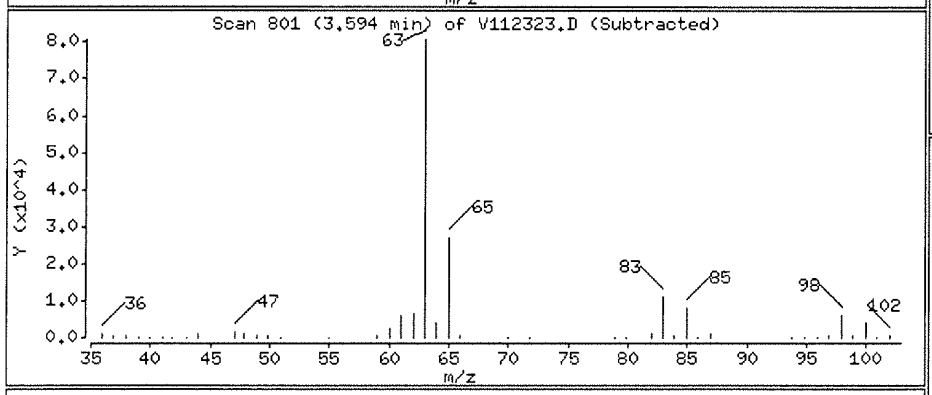
Column phase: DB624

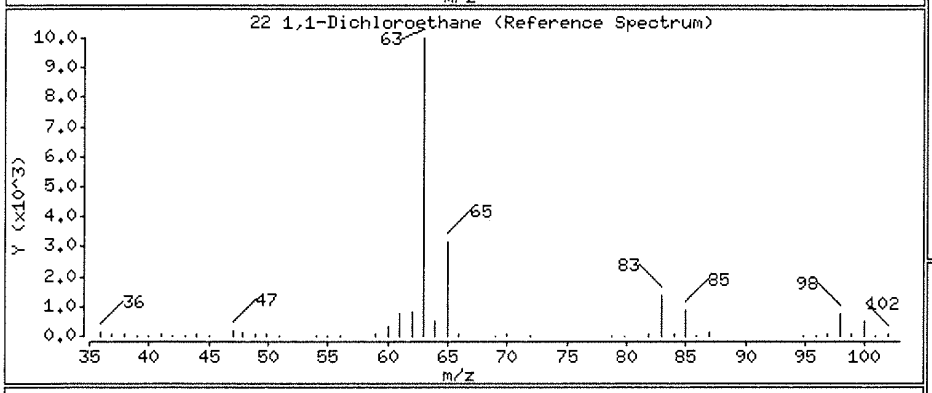
Column diameter: 0.18

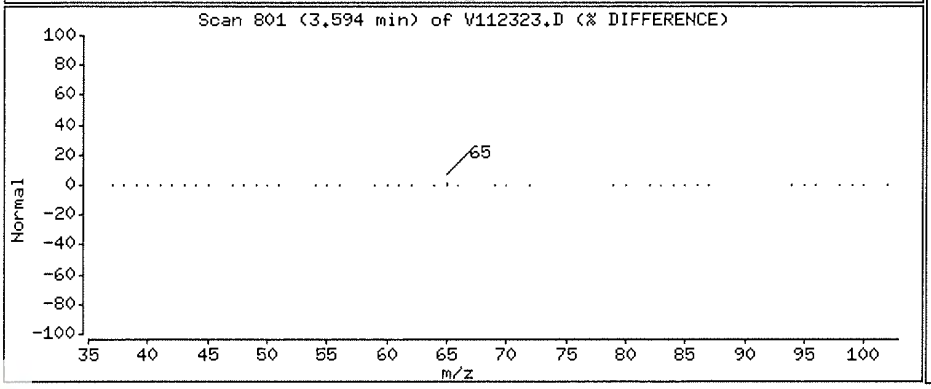
22 1,1-Dichloroethane

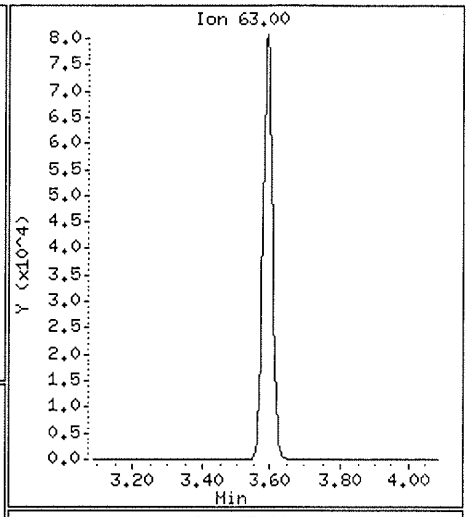
Concentration: 31.81 ug/l

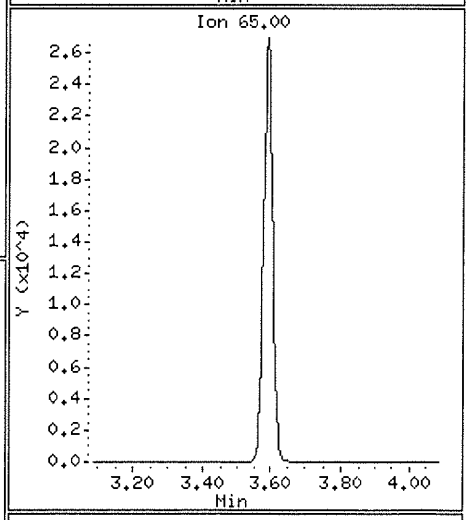


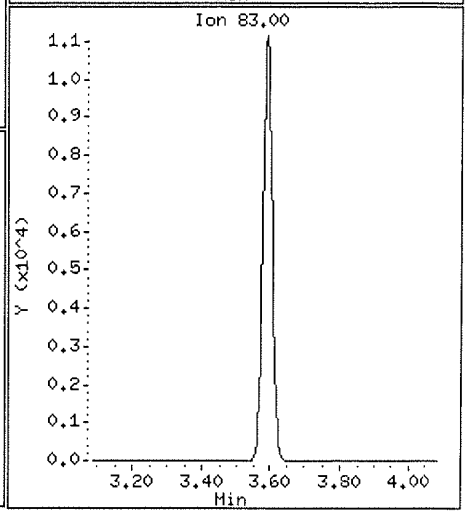












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D

Date : 24-NOV-2021 05:36

Client ID: HS21110813-16

Instrument: VOA9.i

Sample Info: HS21110813-16;HS21110813-16;;;

Purge Volume: 5.0

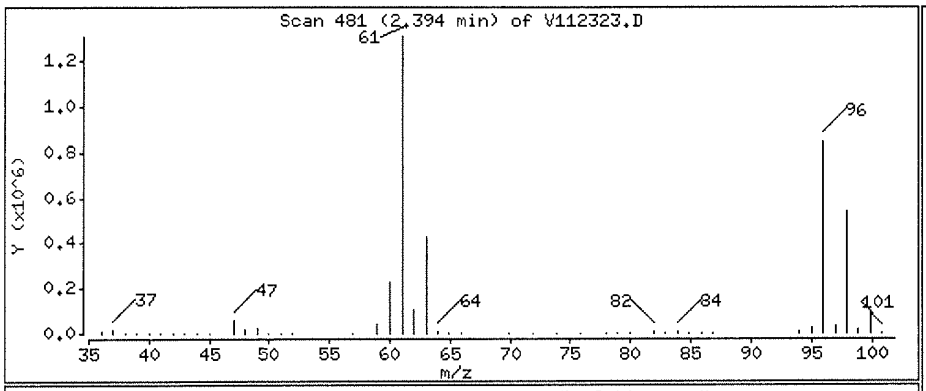
Operator: PC

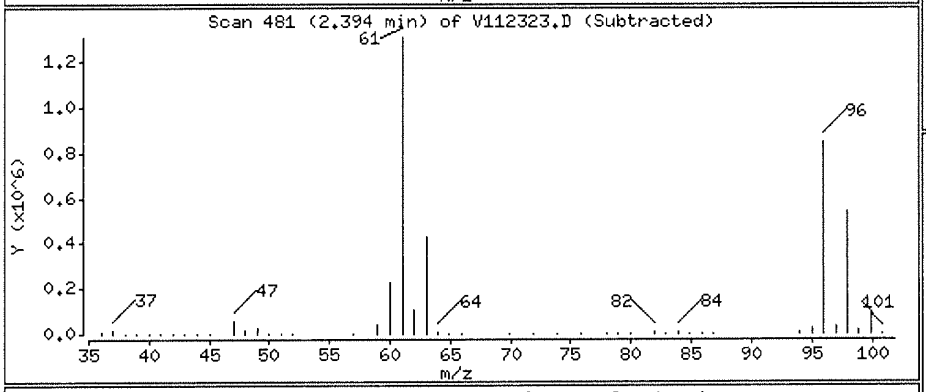
Column phase: DB624

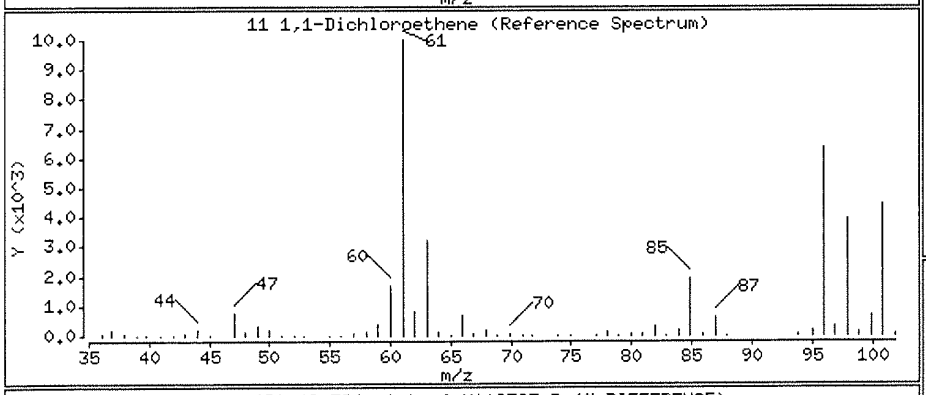
Column diameter: 0.18

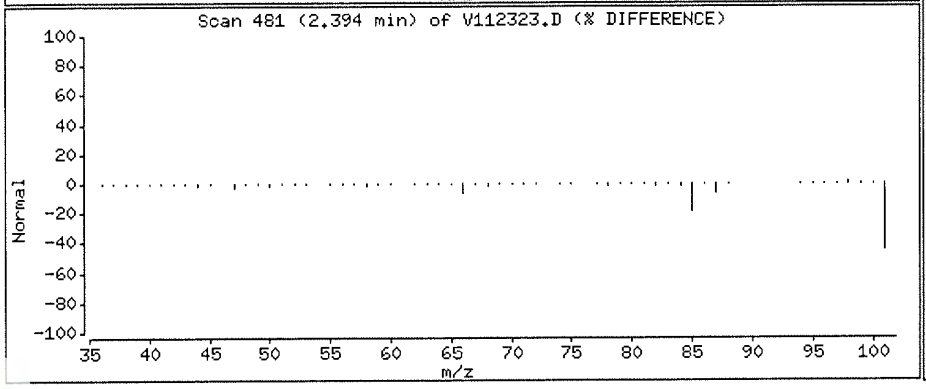
11 1,1-Dichloroethene

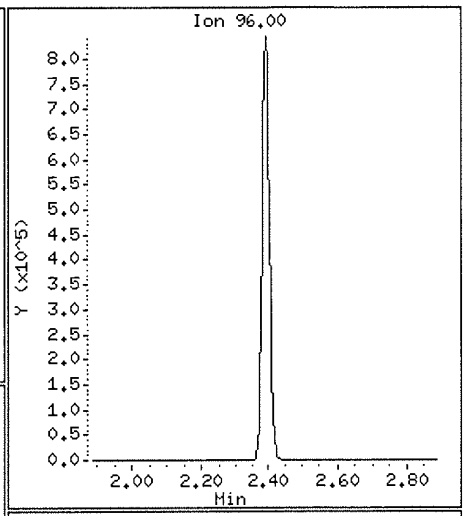
Concentration: 509.45 ug/l

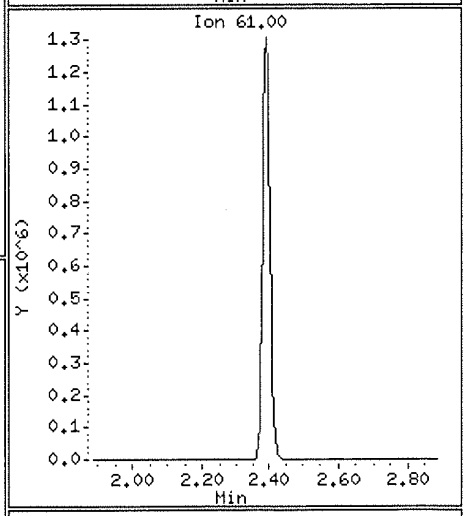


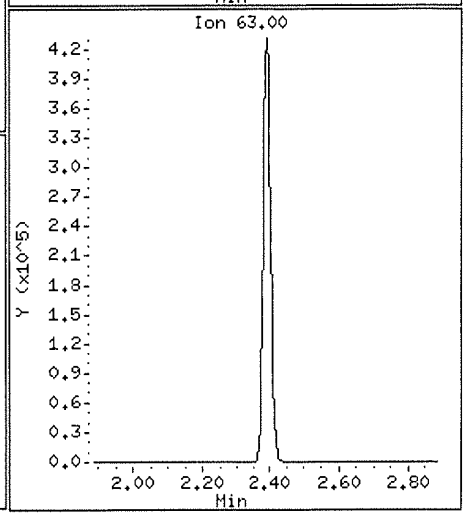












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D

Date : 24-NOV-2021 05:36

Client ID: HS21110813-16

Instrument: VOA9.i

Sample Info: HS21110813-16;HS21110813-16;;;

Purge Volume: 5.0

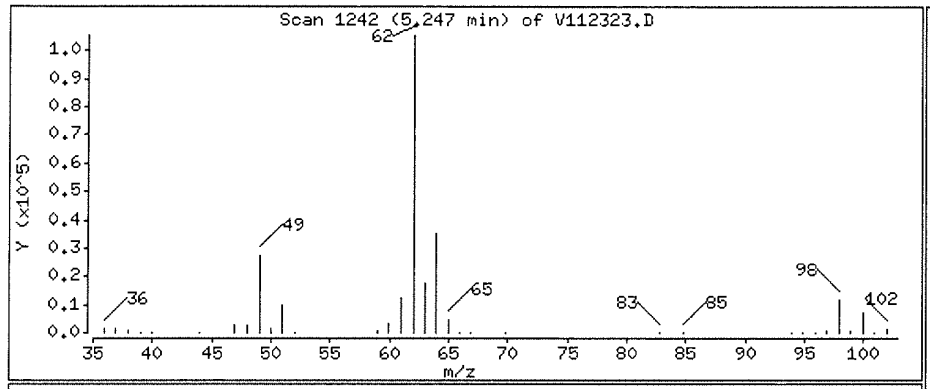
Operator: PC

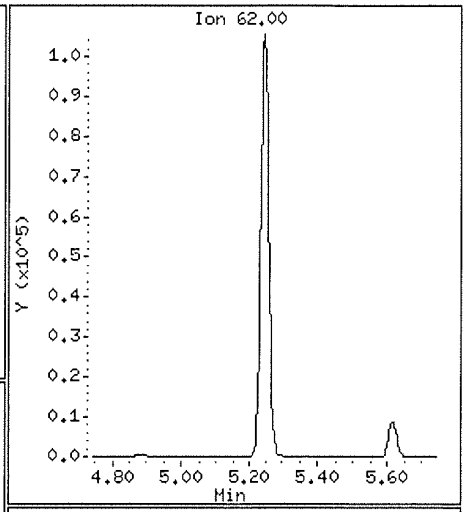
Column phase: DB624

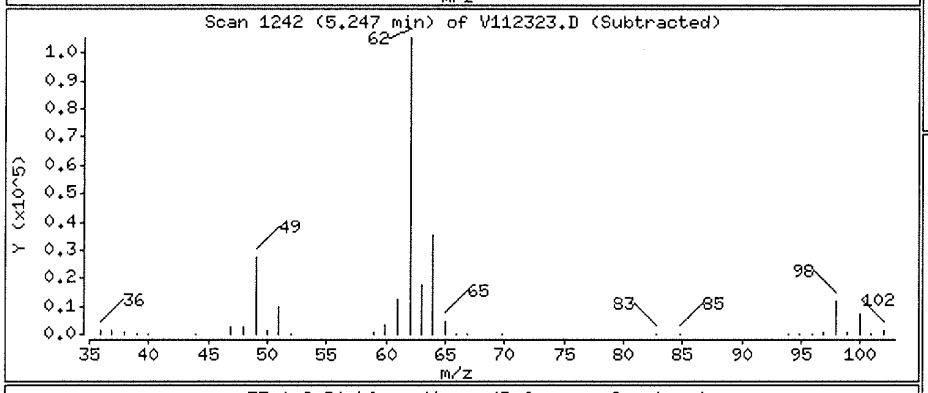
Column diameter: 0.18

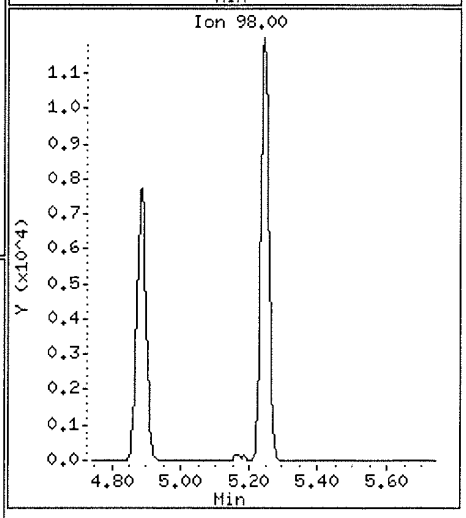
33 1,2-Dichloroethane

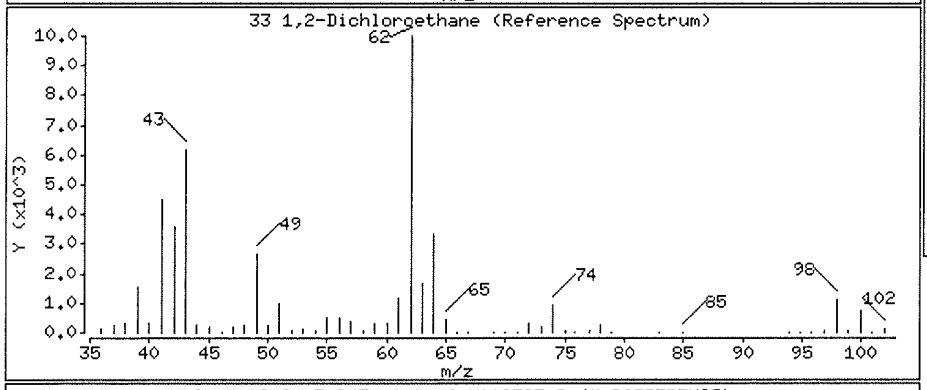
Concentration: 42.74 ug/l

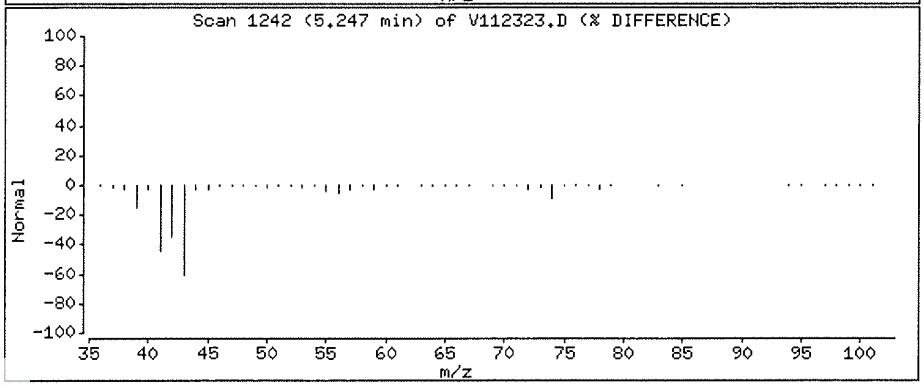












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D Page 7

Date : 24-NOV-2021 05:36

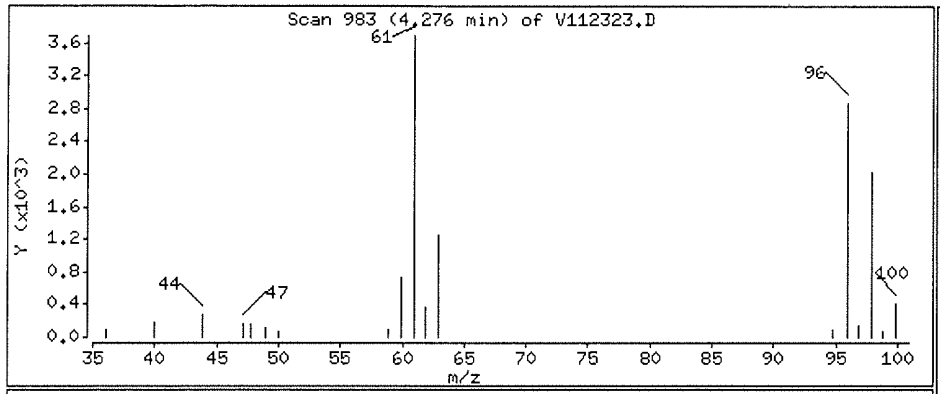
Client ID: HS21110813-16 Instrument: VOA9.i

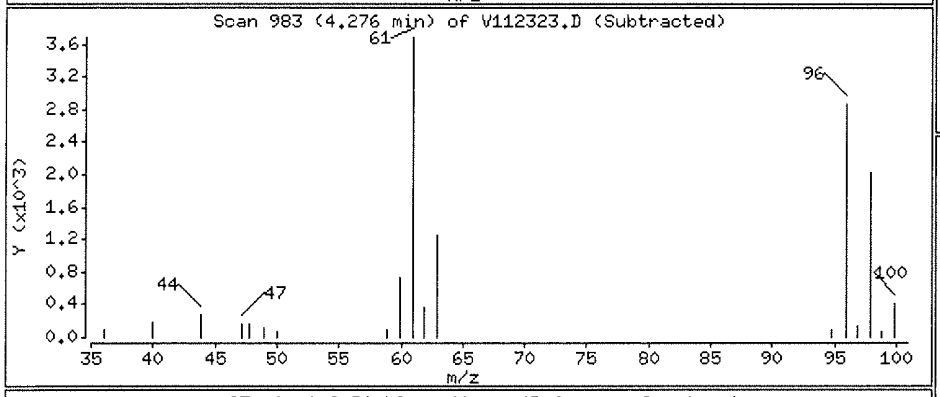
Sample Info: HS21110813-16;HS21110813-16;;;

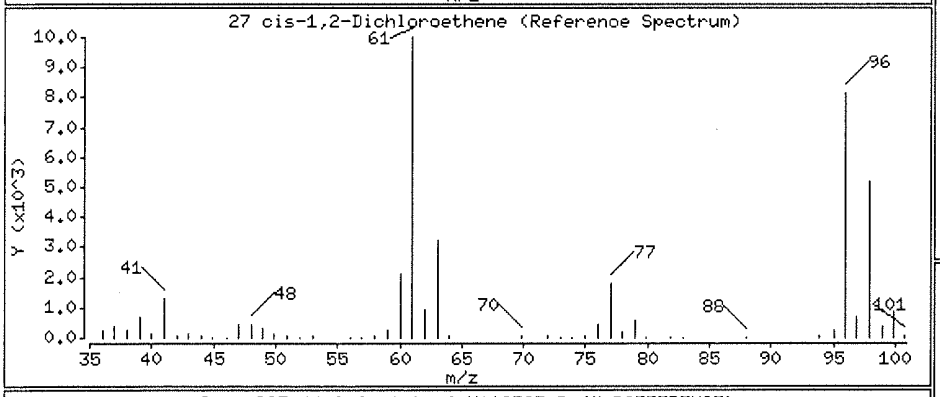
Purge Volume: 5.0 Operator: PC

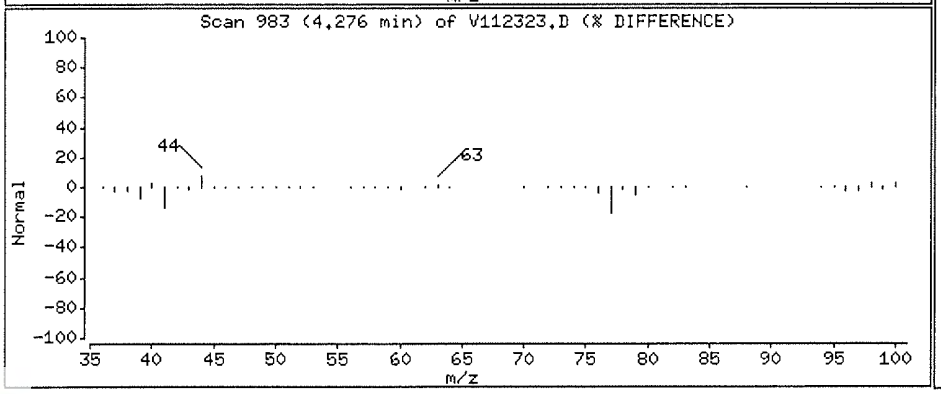
Column phase: DB624 Column diameter: 0.18

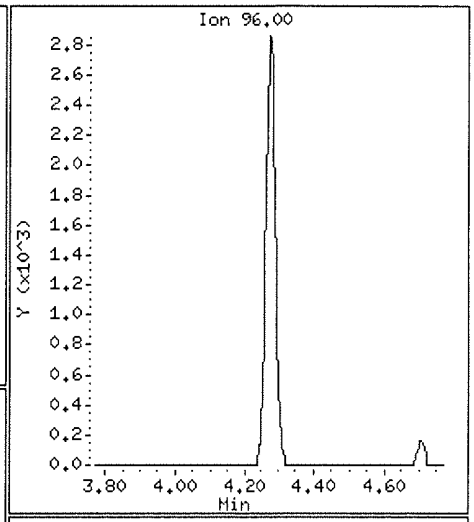
27 cis-1,2-Dichloroethene Concentration: 1.64 ug/l

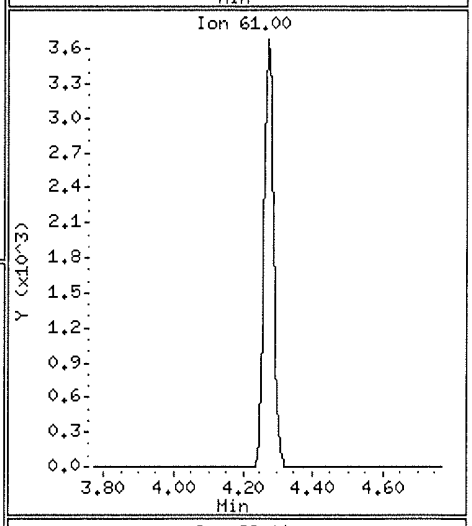


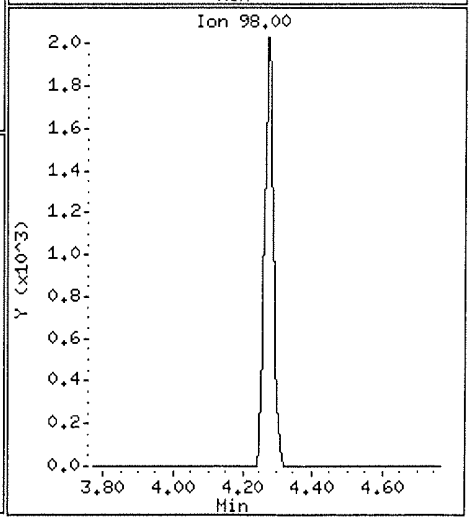












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112323.D Page 8

Date : 24-NOV-2021 05:36

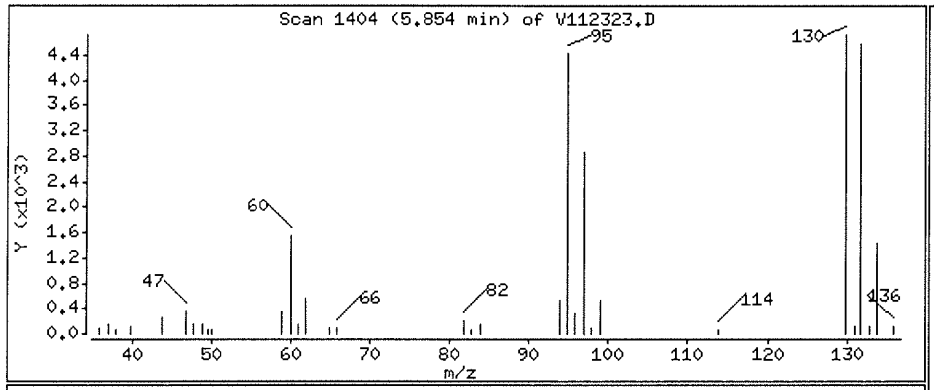
Client ID: HS21110813-16 Instrument: VOA9.i

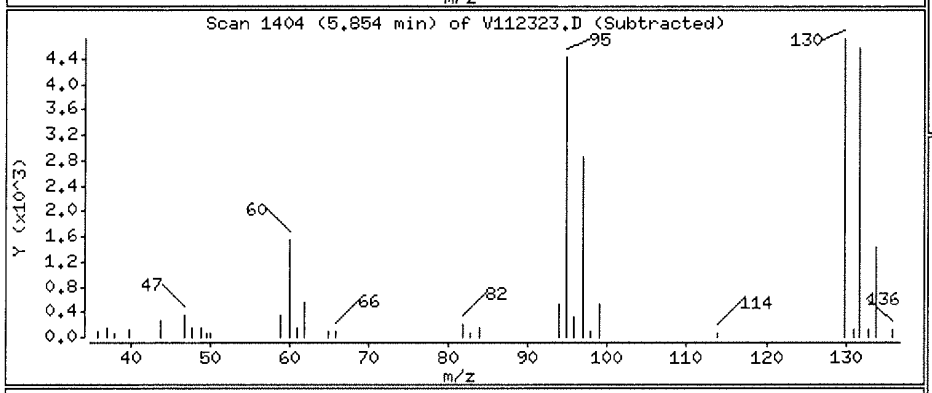
Sample Info: HS21110813-16;HS21110813-16;;;

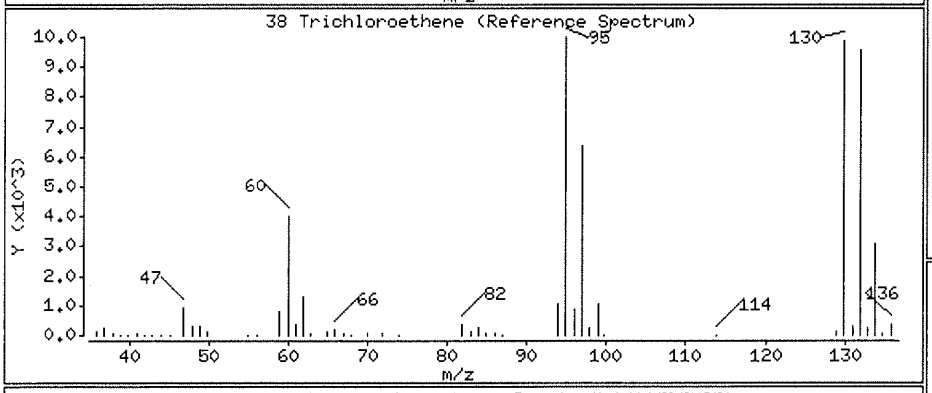
Purge Volume: 5.0 Operator: PC

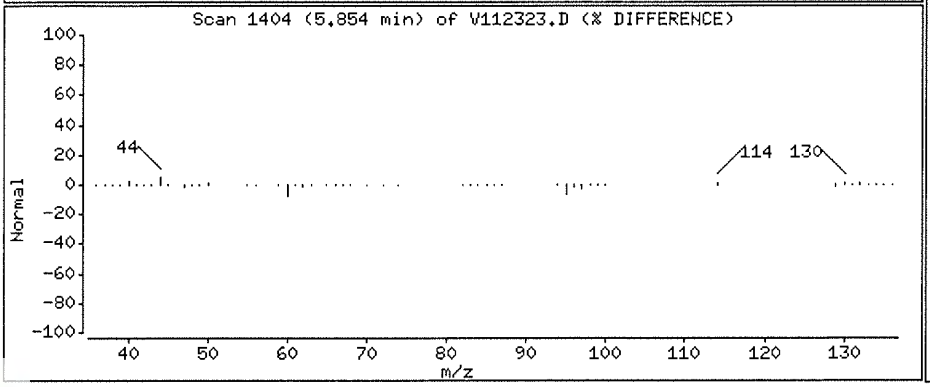
Column phase: DB624 Column diameter: 0.18

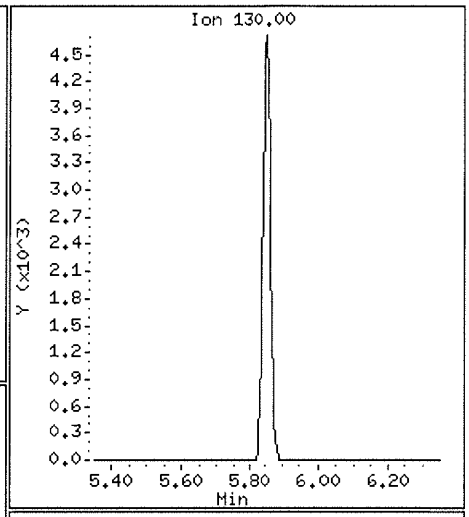
38 Trichloroethene Concentration: 2.41 ug/l

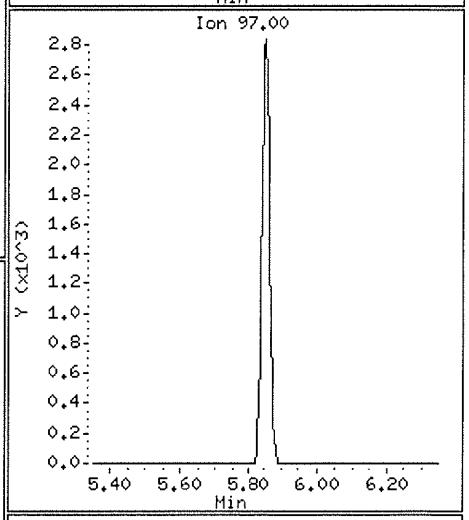


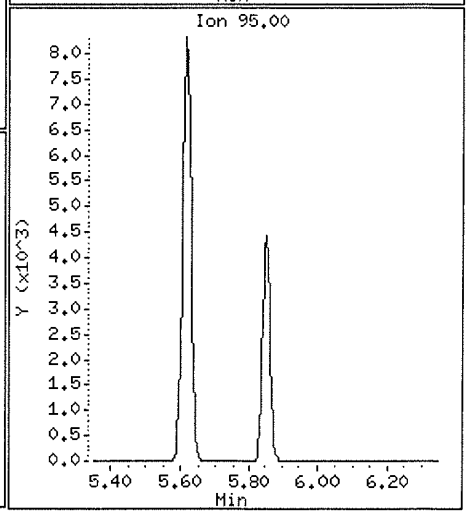












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D
Lab Smp Id: HS21110813-17 Client Smp ID: HS21110813-17
Inj Date : 24-NOV-2021 05:58
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-17;HS21110813-17;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 52
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	286860	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	469409	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	415131	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	200132	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	165962	47.0741	47.07
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	198959	49.3265	49.32
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	131812	43.6699	43.66
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	550418	50.9439	50.94
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	13900	5.68236	5.68
22 1,1-Dichloroethane	63	3.589	3.586	(0.735)	156368	30.6828	30.68
11 1,1-Dichloroethene	96	2.390	2.386	(0.490)	1182741	462.452	462.45(A)
33 1,2-Dichloroethane	62	5.243	5.242	(0.934)	180955	42.7325	42.73
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	5614	1.60184	1.60(a)
38 Trichloroethene	130	5.850	5.850	(1.042)	6833	2.22818	2.22(a)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Sample Info: HS21110813-17;HS21110813-17;;;

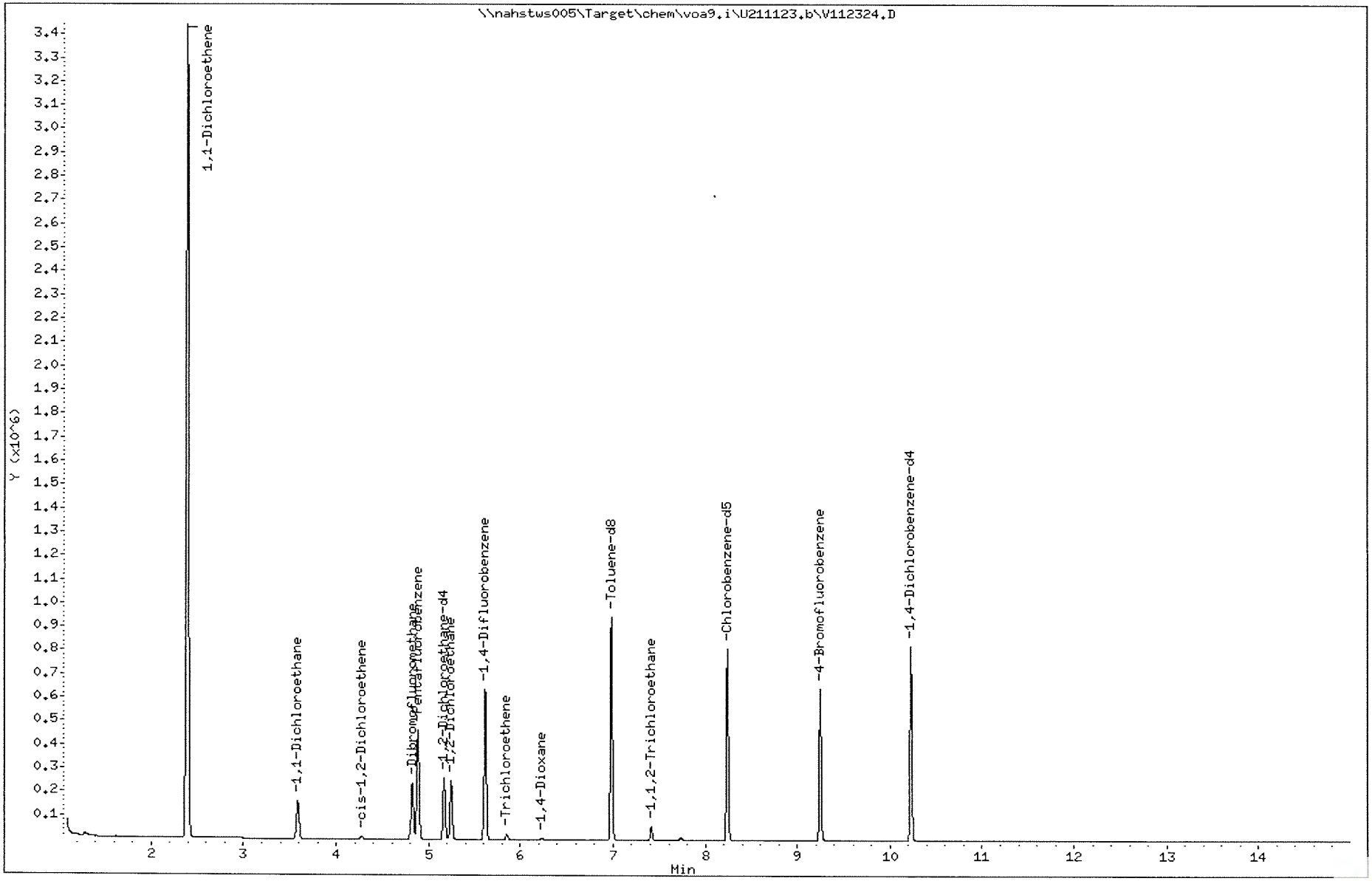
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

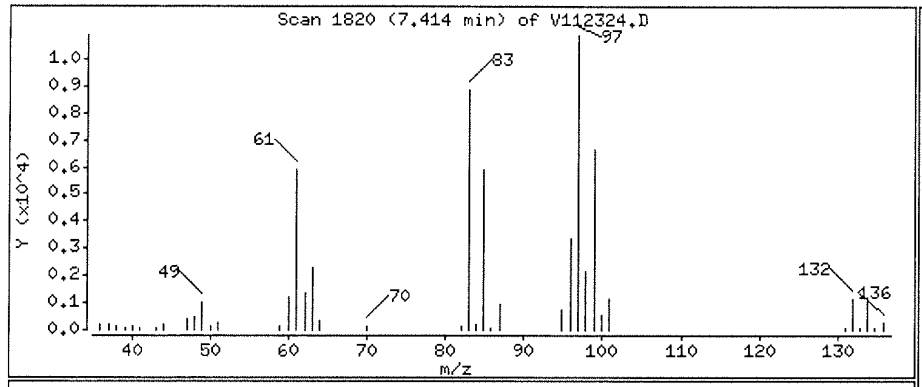
Operator: PC

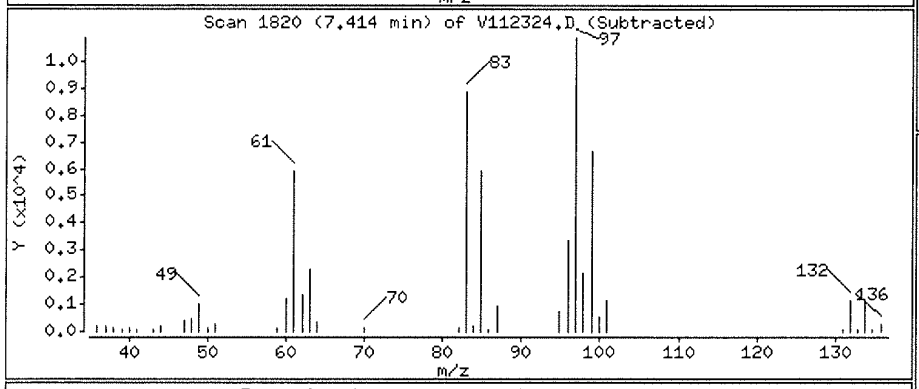
Column phase: DB624

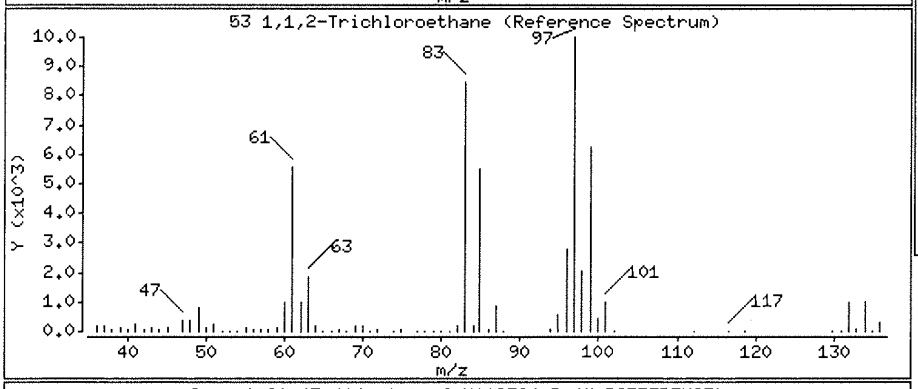
Column diameter: 0.18

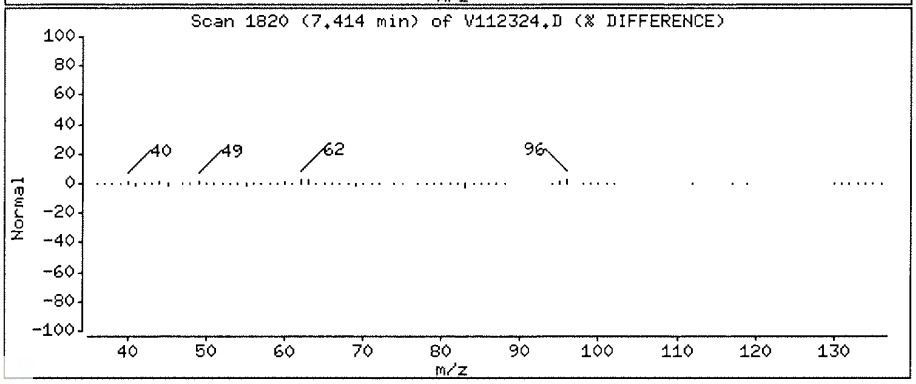
53 1,1,2-Trichloroethane

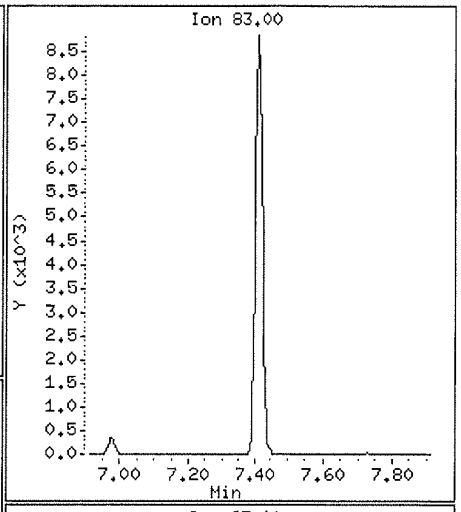
Concentration: 5.68 ug/l

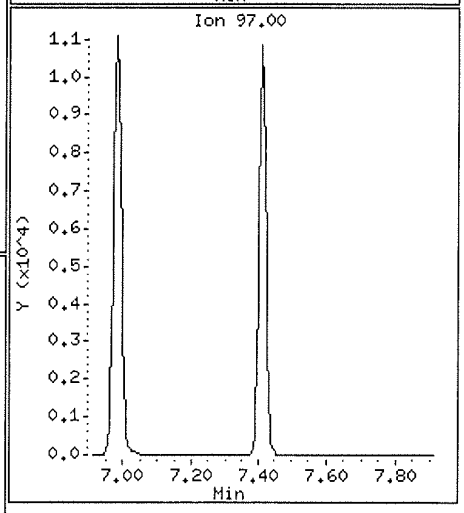












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

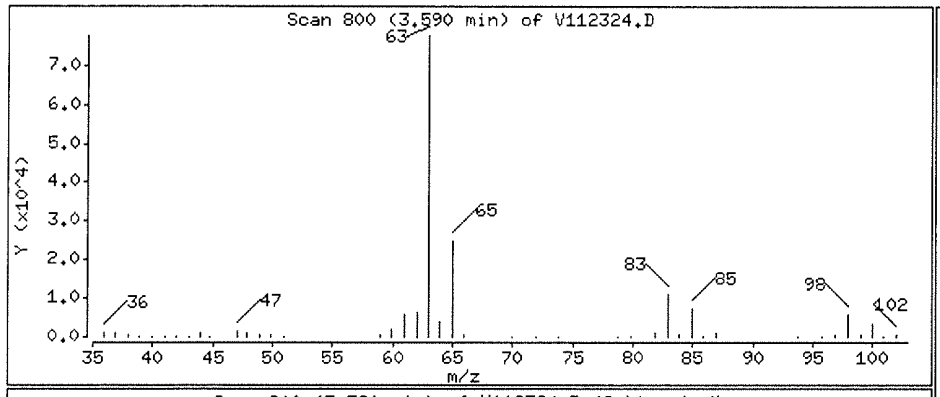
Operator: PC

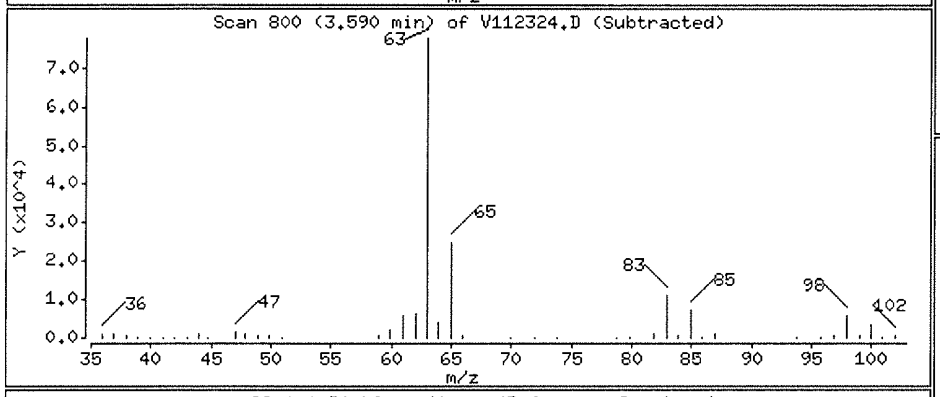
Column phase: DB624

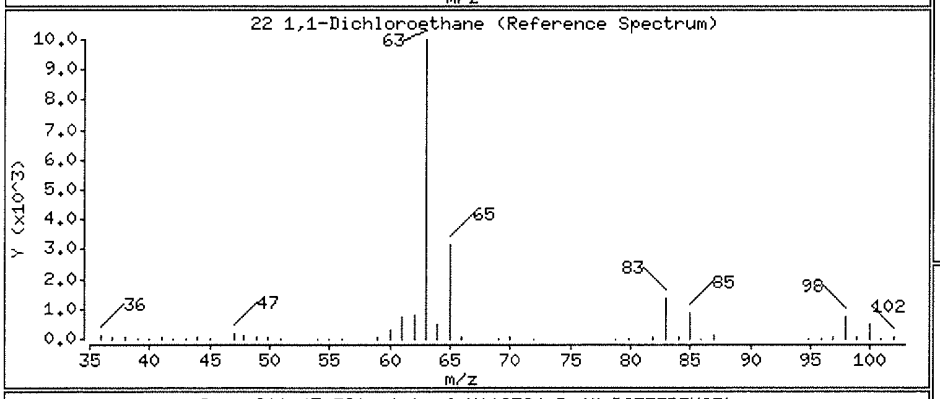
Column diameter: 0.18

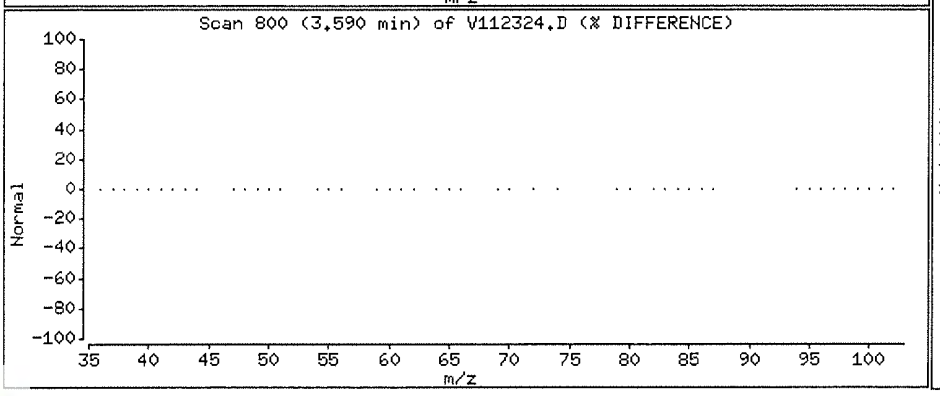
22 1,1-Dichloroethane

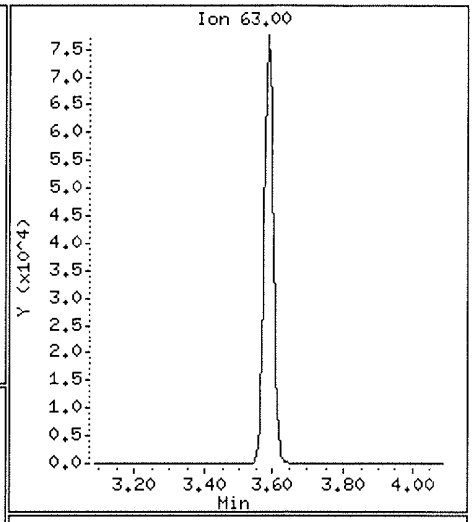
Concentration: 30.68 ug/l

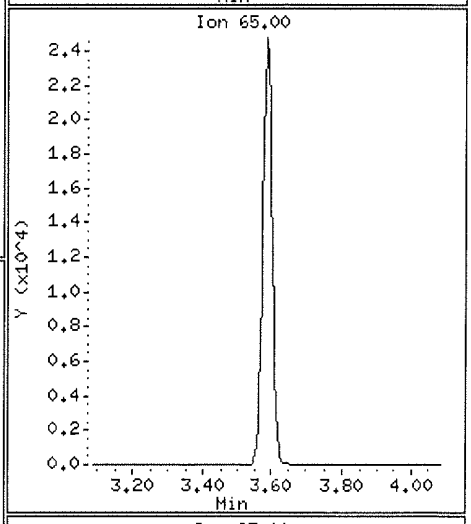


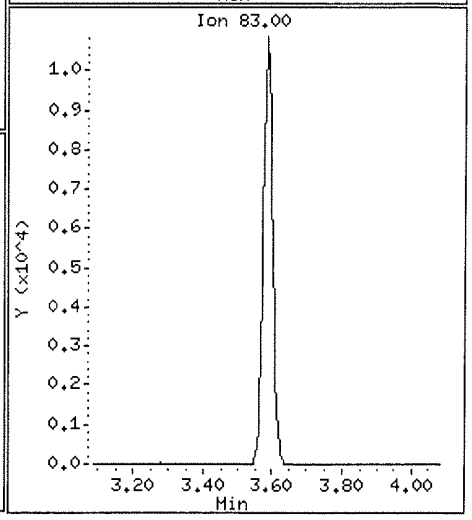












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D Page 5

Date : 24-NOV-2021 05:58

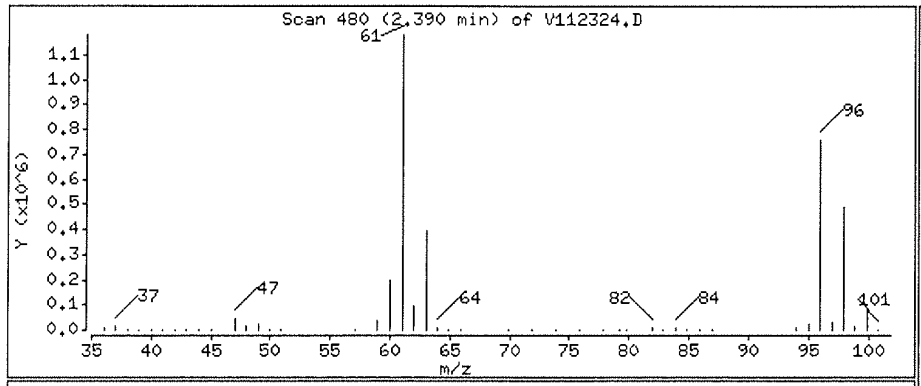
Client ID: HS21110813-17 Instrument: VOA9.i

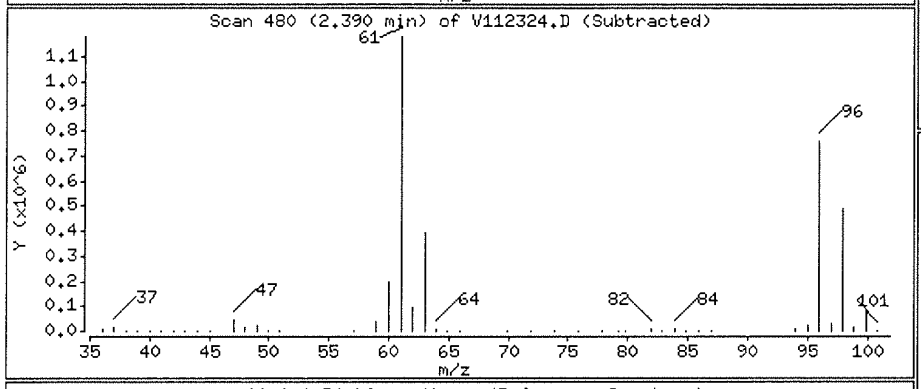
Sample Info: HS21110813-17;HS21110813-17;;;

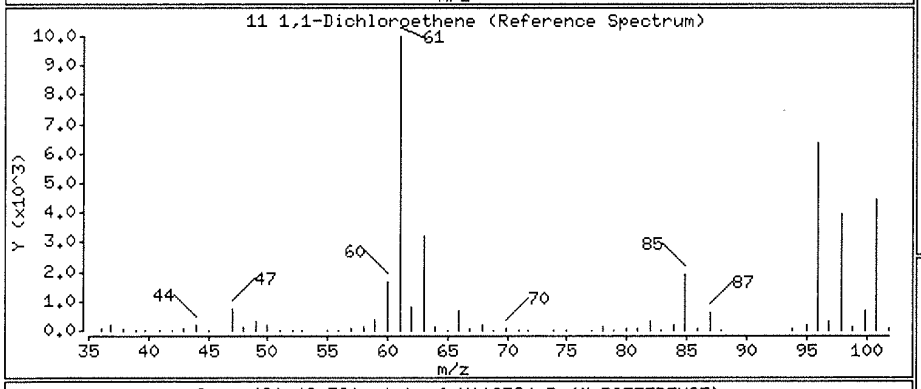
Purge Volume: 5.0 Operator: PC

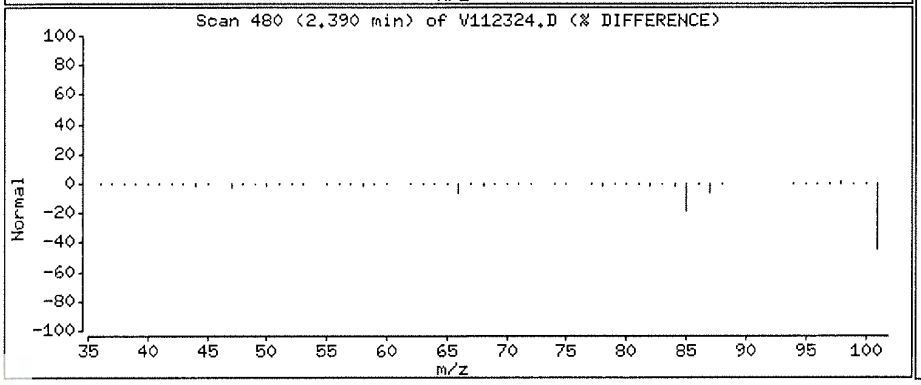
Column phase: DB624 Column diameter: 0.18

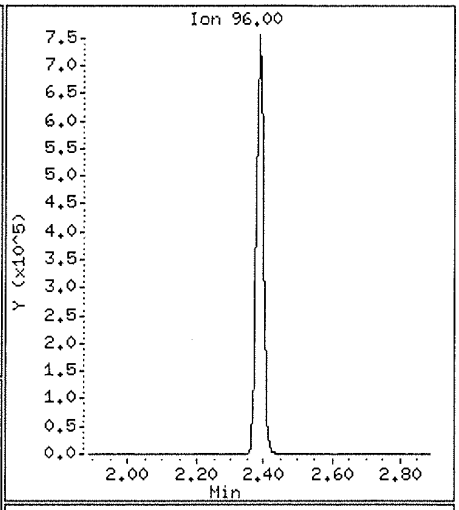
11 1,1-Dichloroethene Concentration: 462.45 ug/l

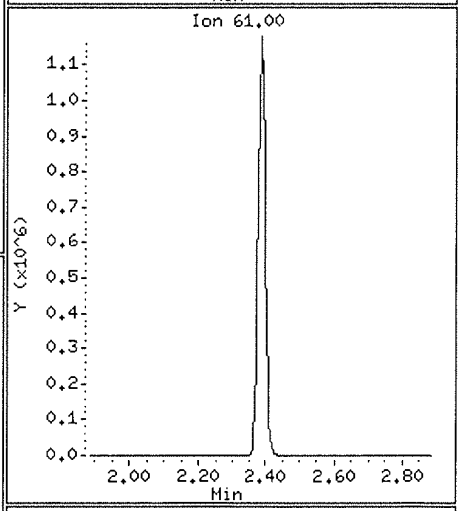


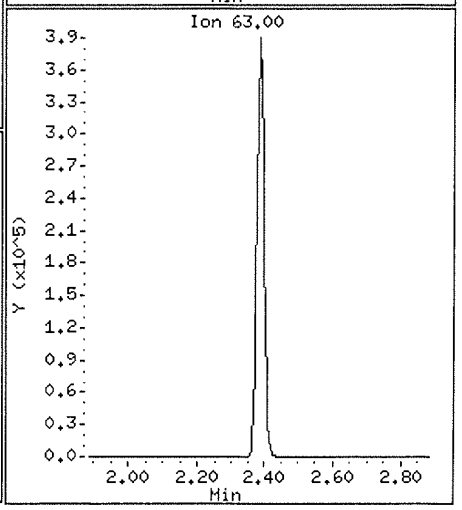












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

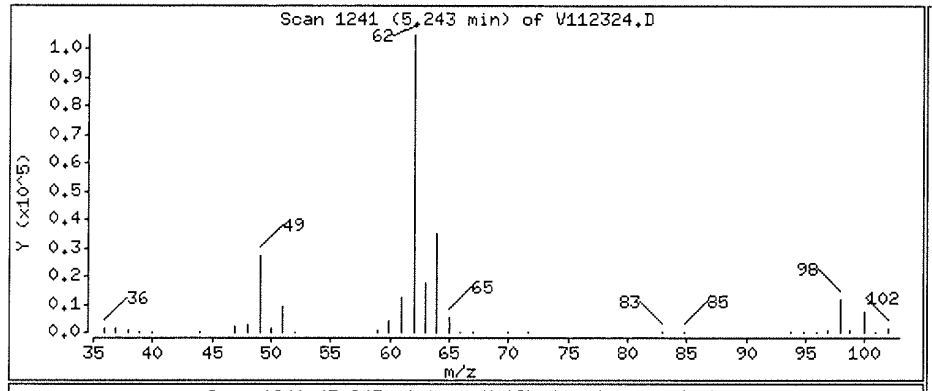
Operator: PC

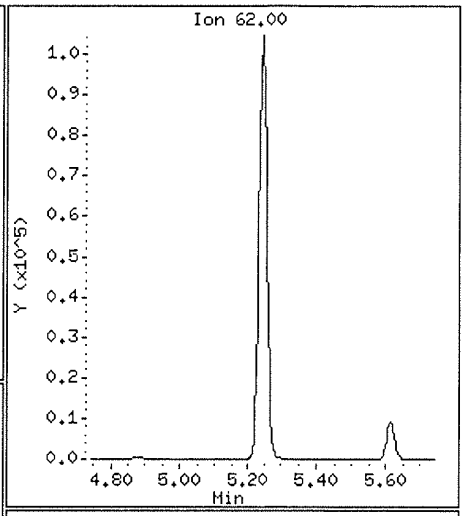
Column phase: DB624

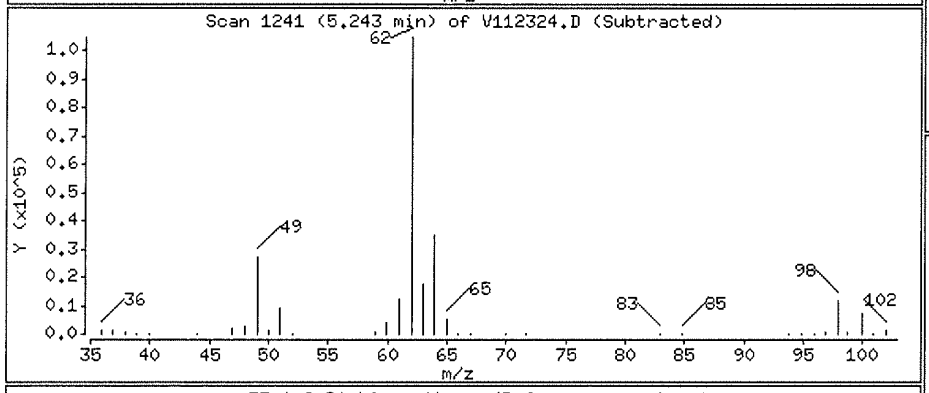
Column diameter: 0.18

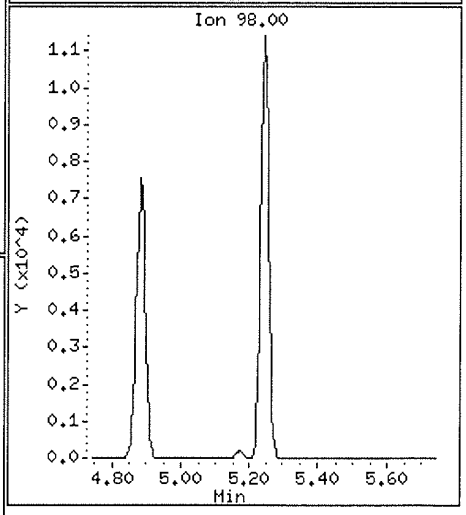
33 1,2-Dichloroethane

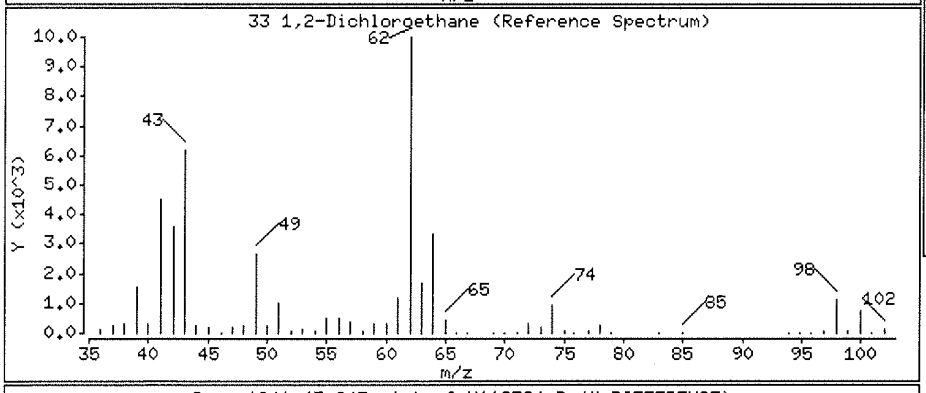
Concentration: 42.73 ug/l

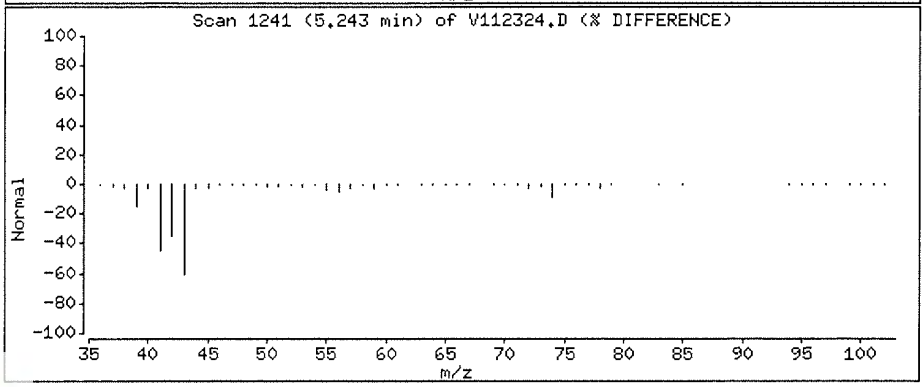












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

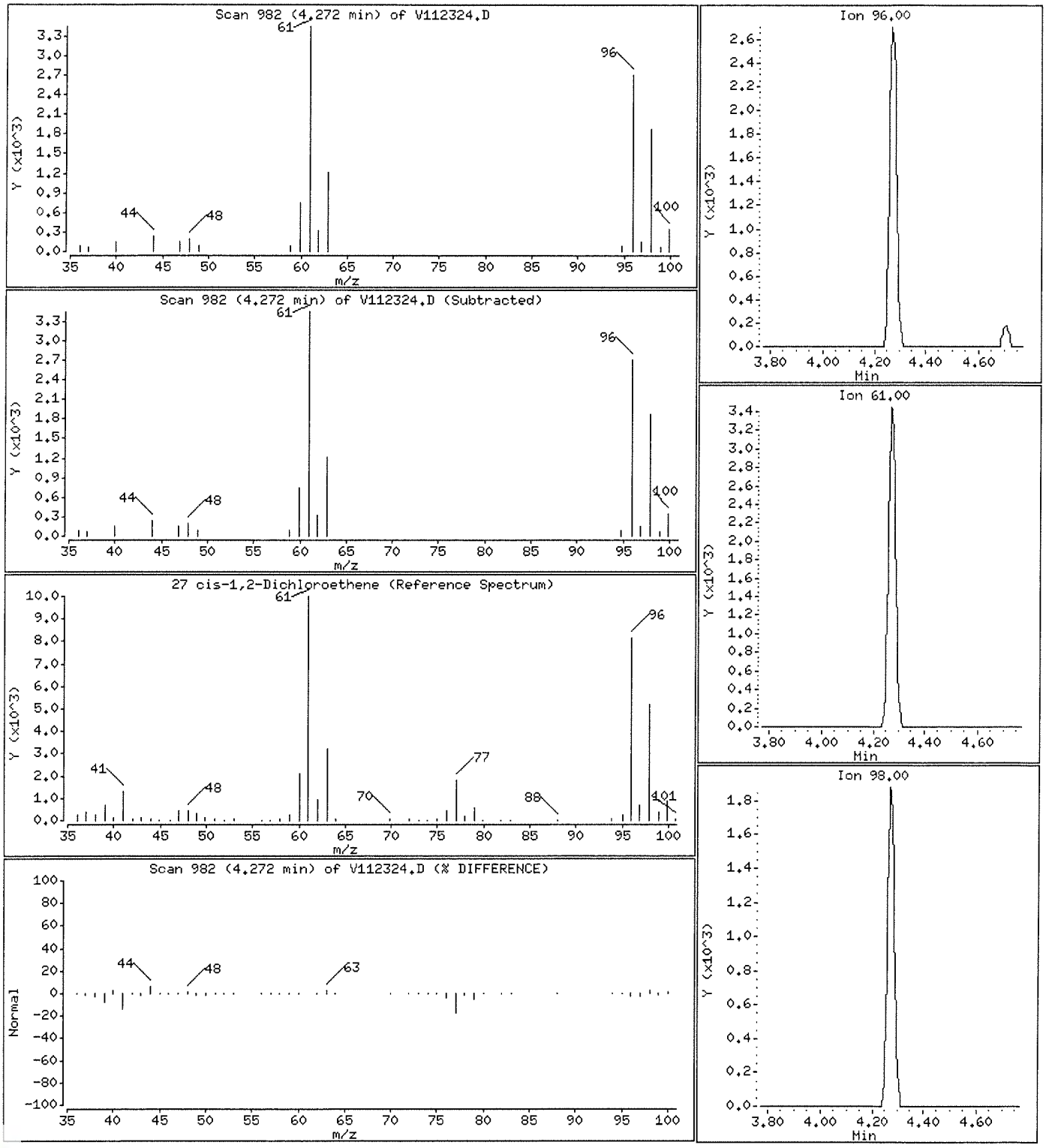
Operator: PC

Column phase: DB624

Column diameter: 0.18

27 cis-1,2-Dichloroethene

Concentration: 1.60 ug/l



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112324.D

Date : 24-NOV-2021 05:58

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

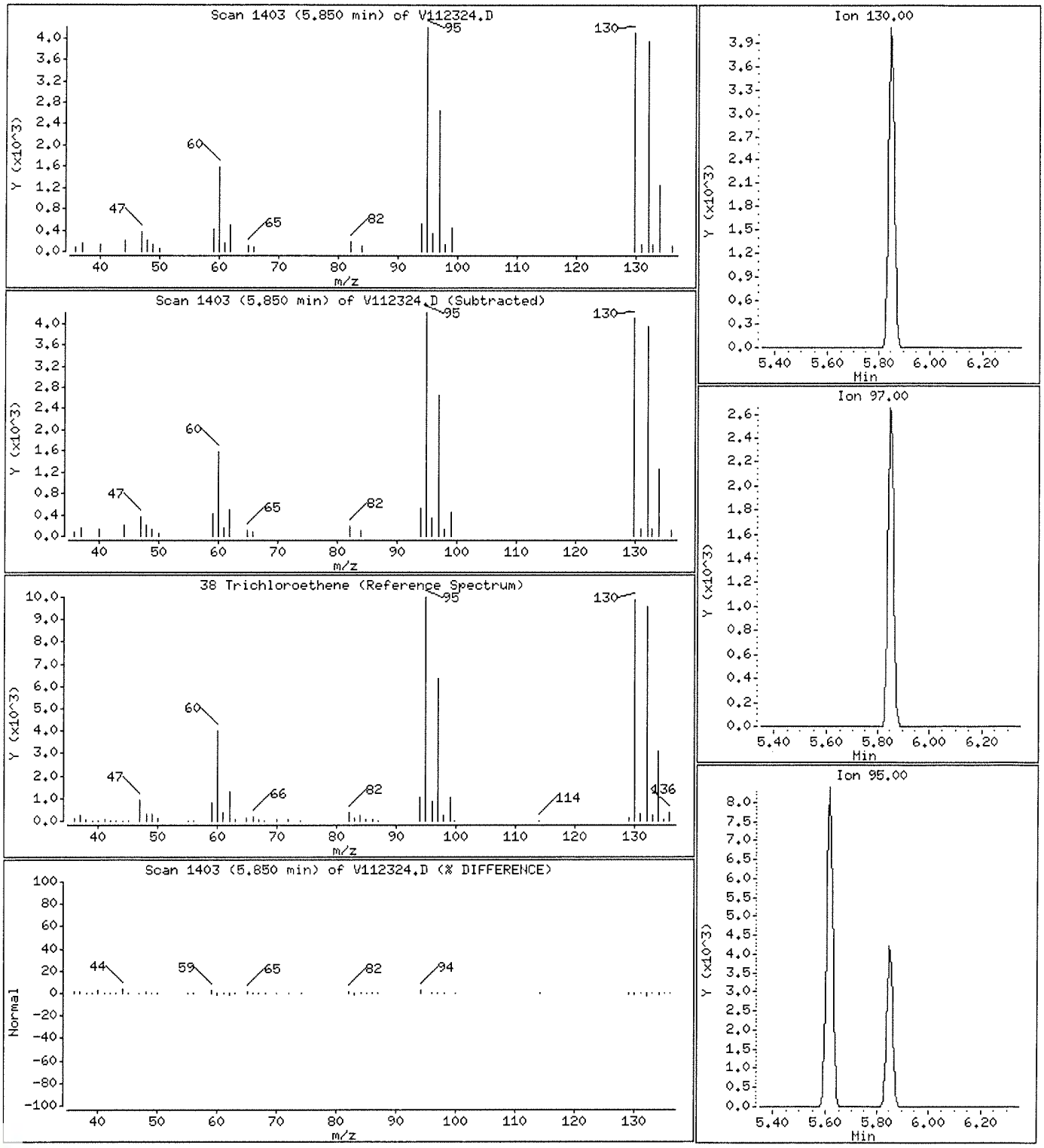
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 2.22 ug/l



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D Page 1
Report Date: 22-Dec-2021 16:00

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D
Lab Smp Id: HS21110813-18 Client Smp ID: HS21110813-18
Inj Date : 24-NOV-2021 06:21
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-18;HS21110813-18;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 15:50 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 53
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

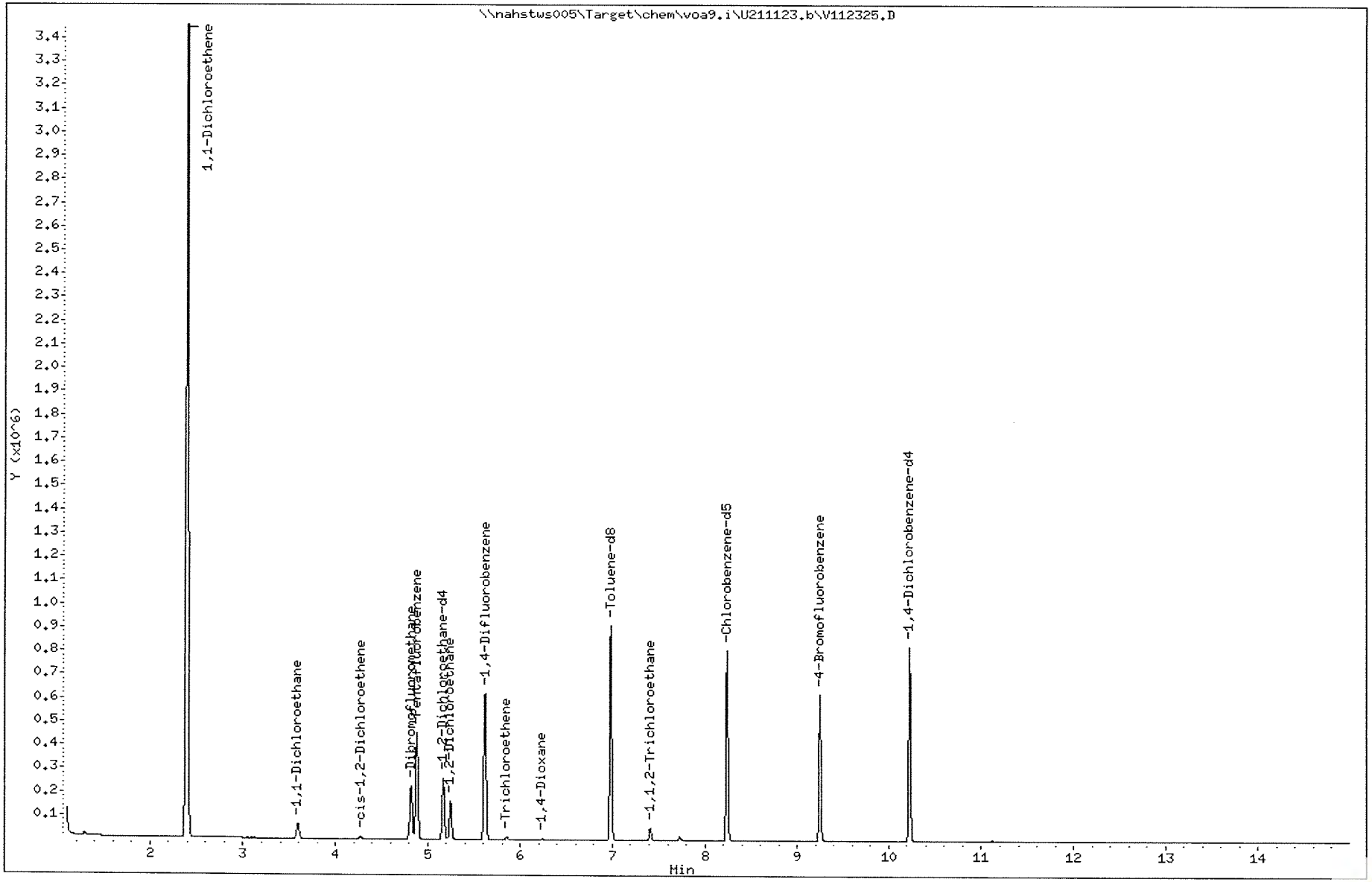
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	282989	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	462497	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	408739	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	195418	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	162337	46.6631	46.66
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	194456	48.9542	48.95
$ 30 Dibromofluoromethane	113	4.823	4.819	(0.988)	132105	44.3793	44.37
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	536780	50.4585	50.45
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	13337	5.53747	5.53
22 1,1-Dichloroethane	63	3.589	3.586	(0.735)	63324	12.5955	12.59
11 1,1-Dichloroethene	96	2.394	2.386	(0.490)	1198621	475.071	475.07(A)
33 1,2-Dichloroethane	62	5.246	5.242	(0.934)	118927	28.5043	28.50
27 cis-1,2-Dichloroethene	96	4.275	4.272	(0.876)	4744	1.37212	1.37(a)
38 Trichloroethene	130	5.850	5.850	(1.041)	4262	1.41057	1.41(a)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D
Date : 24-NOV-2021 06:21
Client ID: HS21110813-18
Sample Info: HS21110813-18;HS21110813-18;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D Page 3

Date : 24-NOV-2021 06:21

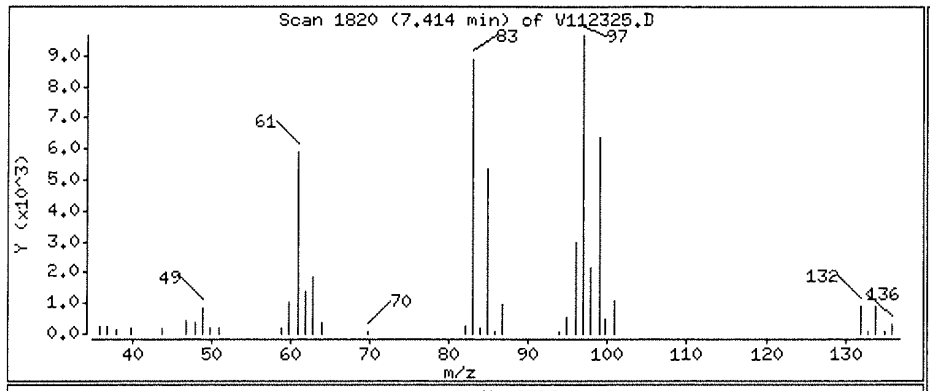
Client ID: HS21110813-18 Instrument: VOA9.i

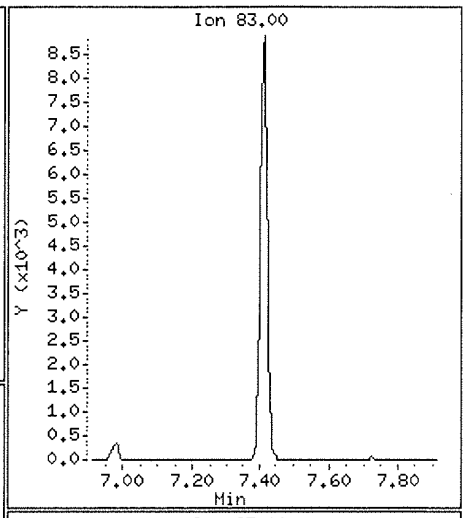
Sample Info: HS21110813-18;HS21110813-18;;;

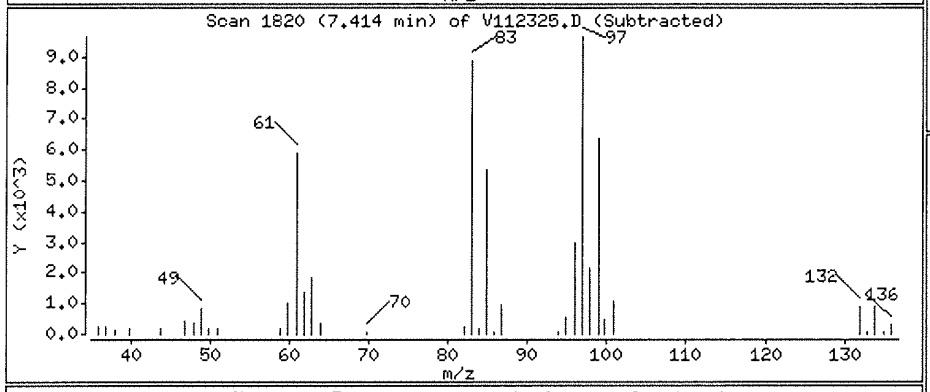
Purge Volume: 5.0 Operator: PC

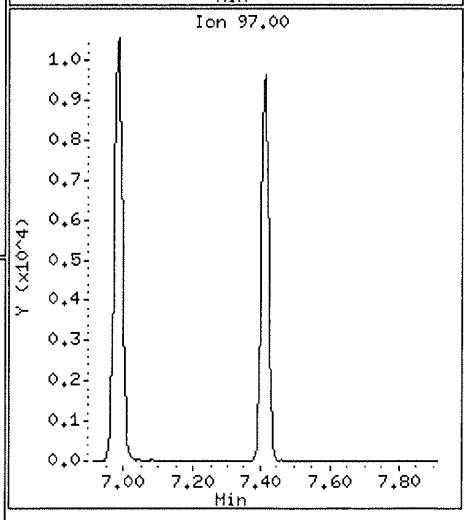
Column phase: DB624 Column diameter: 0.18

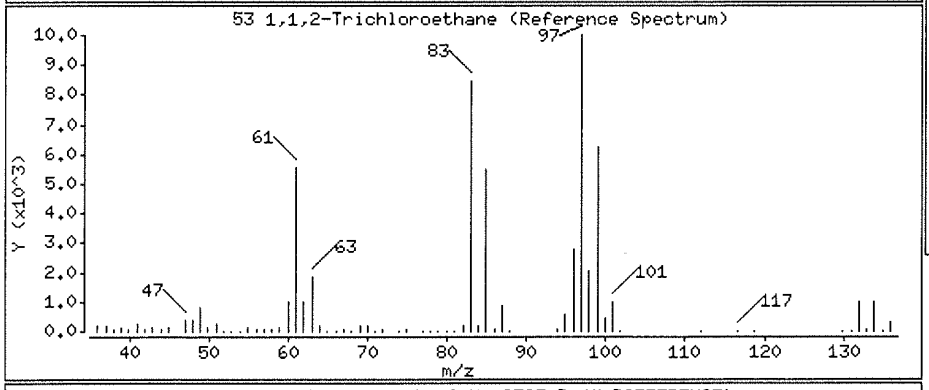
53 1,1,2-Trichloroethane Concentration: 5.53 ug/l

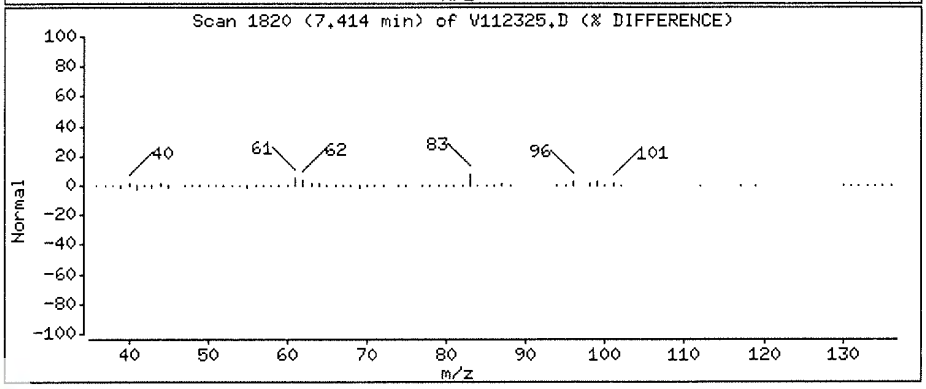












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D Page 4

Date : 24-NOV-2021 06:21

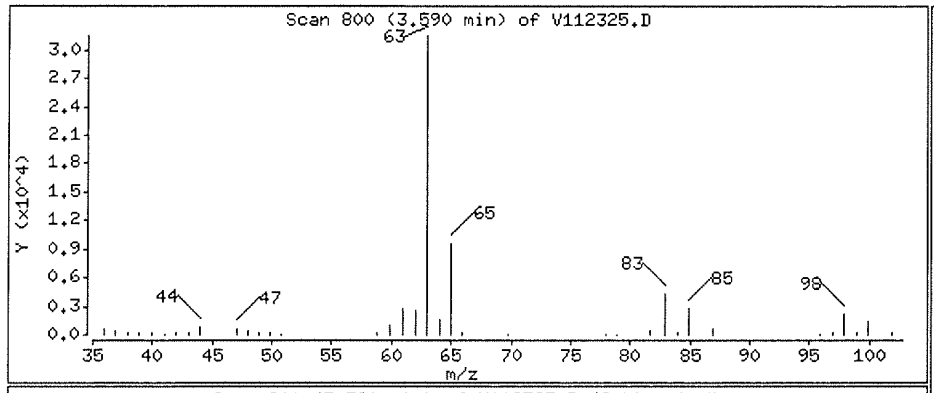
Client ID: HS21110813-18 Instrument: VOA9.i

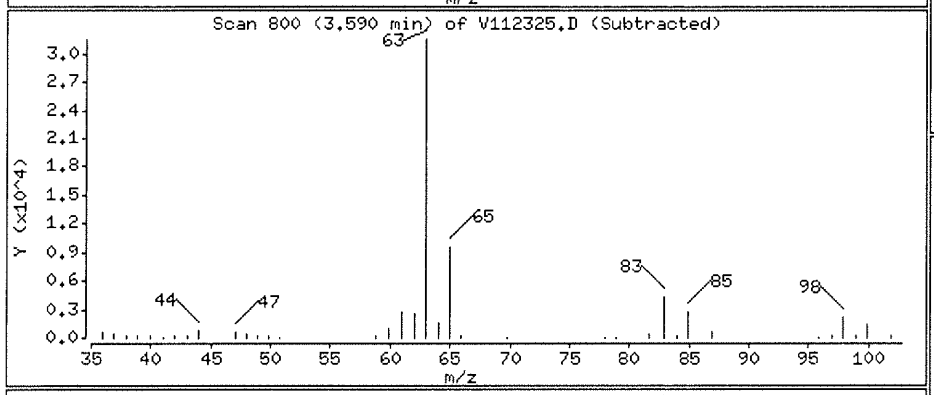
Sample Info: HS21110813-18;HS21110813-18;;;

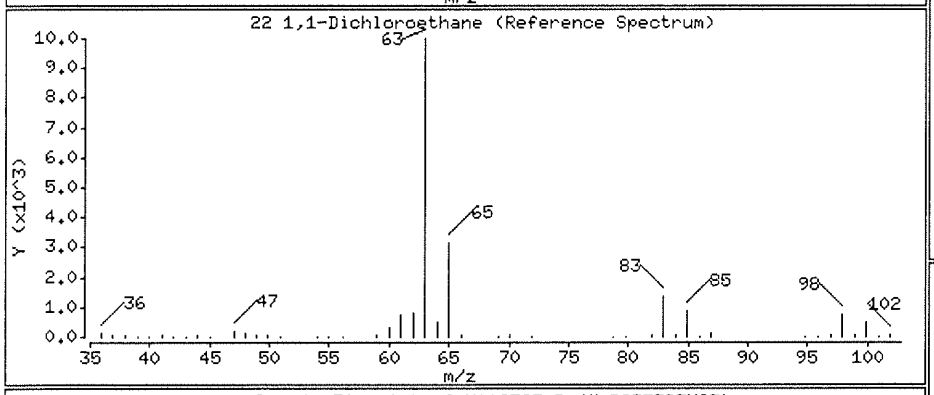
Purge Volume: 5.0 Operator: PC

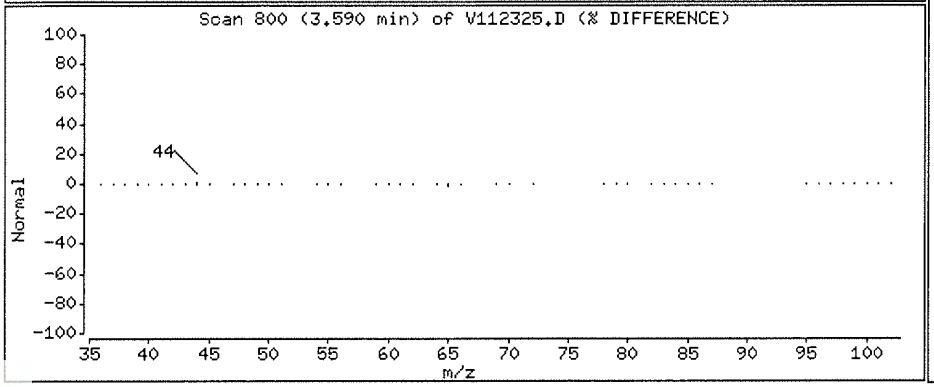
Column phase: DB624 Column diameter: 0.18

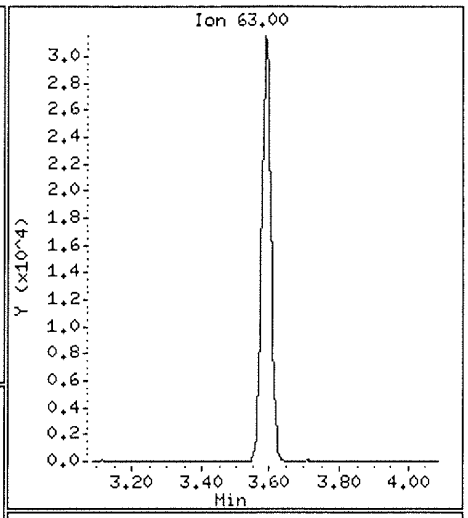
22 1,1-Dichloroethane Concentration: 12.59 ug/l

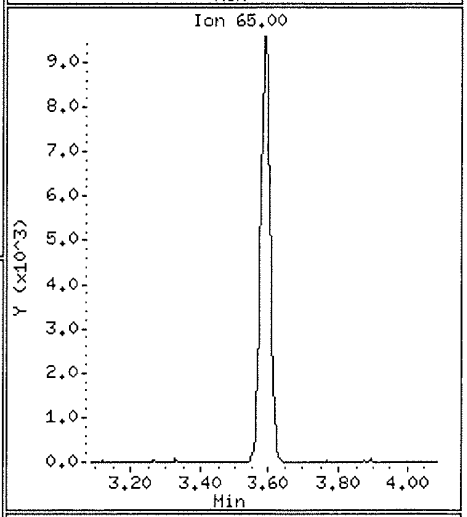


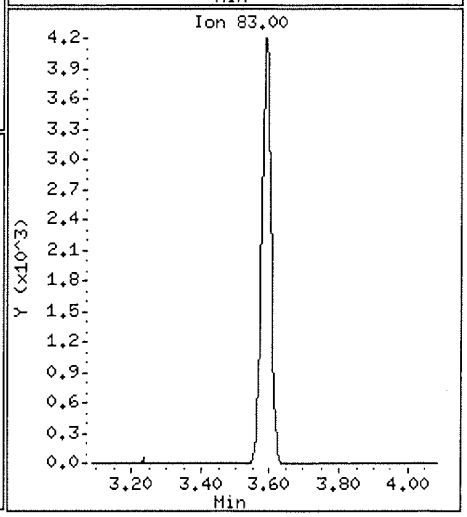












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D

Date : 24-NOV-2021 06:21

Client ID: HS21110813-18

Instrument: VOA9.i

Sample Info: HS21110813-18;HS21110813-18;;;

Purge Volume: 5.0

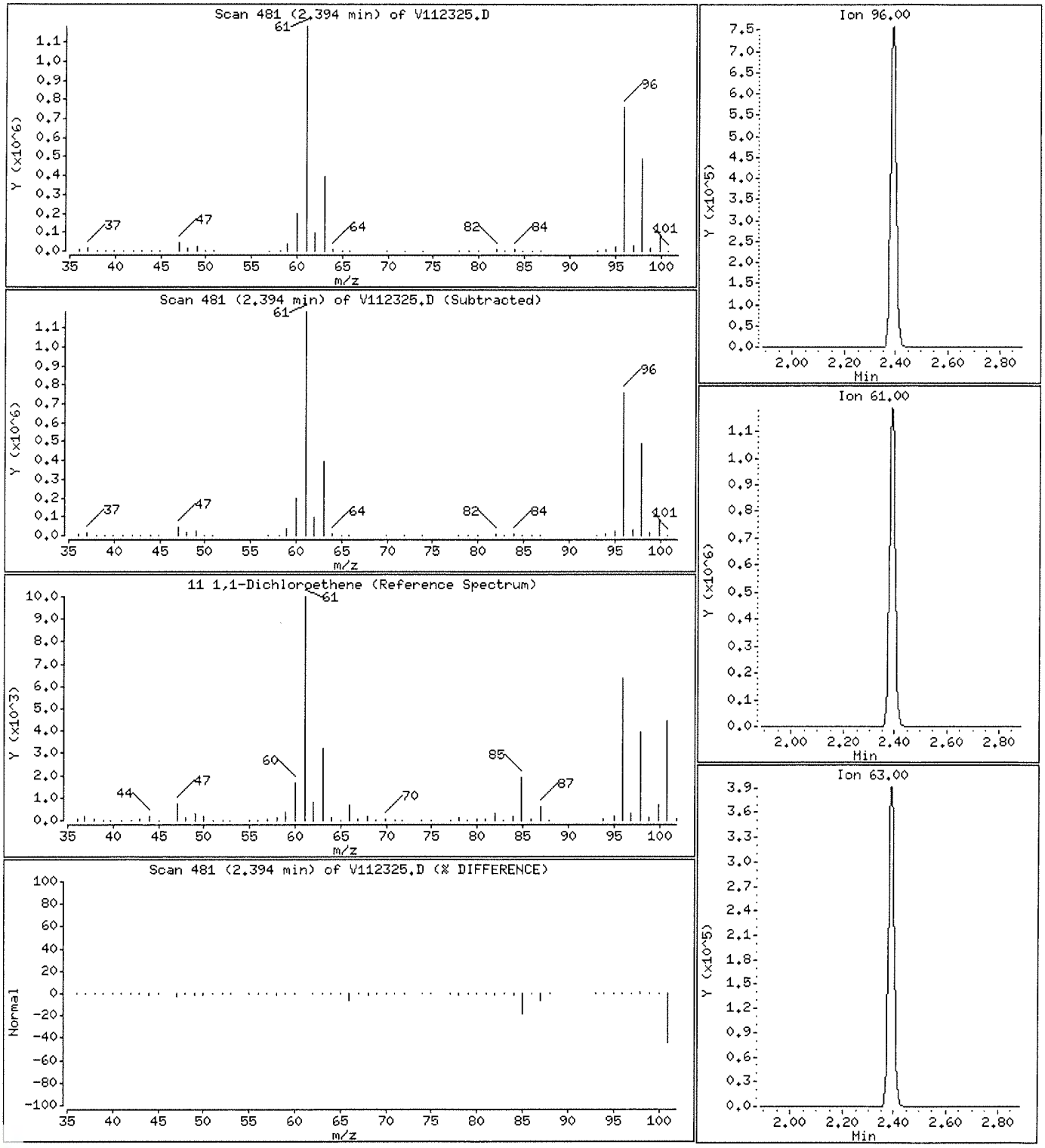
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 475.07 ug/l



Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D

Date : 24-NOV-2021 06:21

Client ID: HS21110813-18

Instrument: VOA9.i

Sample Info: HS21110813-18;HS21110813-18;;;

Purge Volume: 5.0

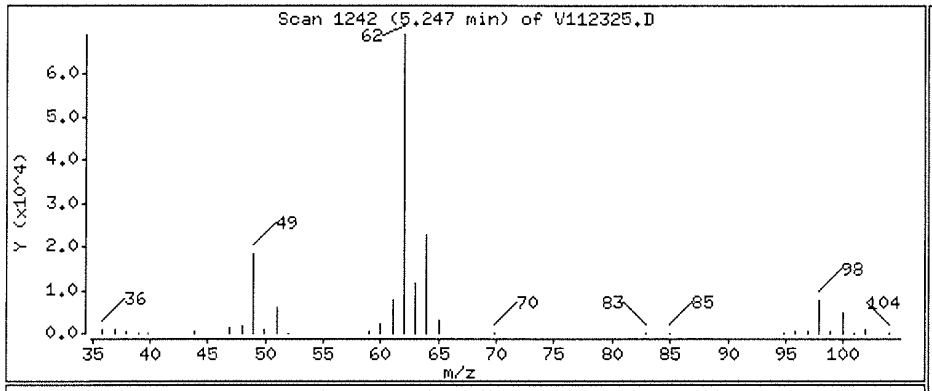
Operator: PC

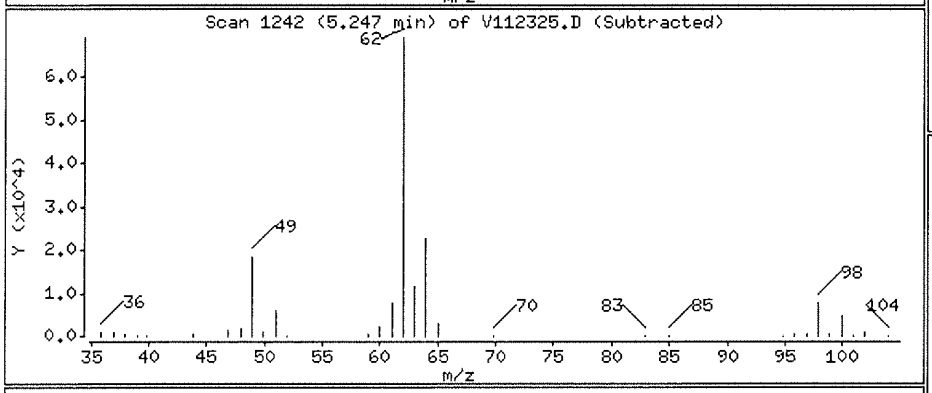
Column phase: DB624

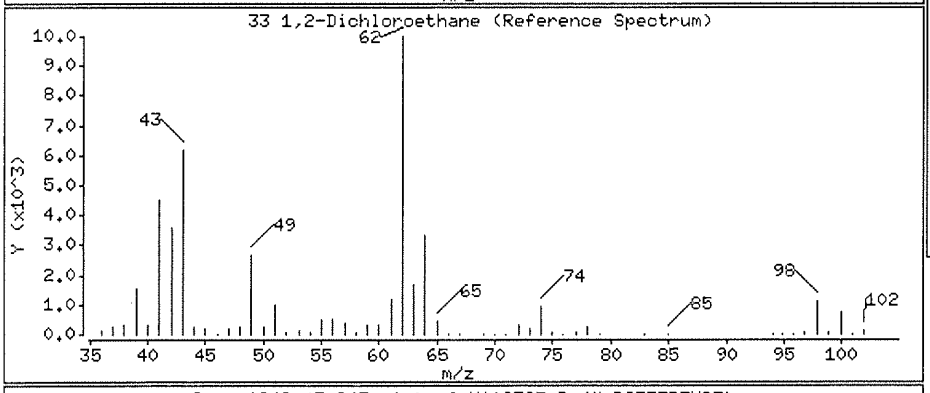
Column diameter: 0.18

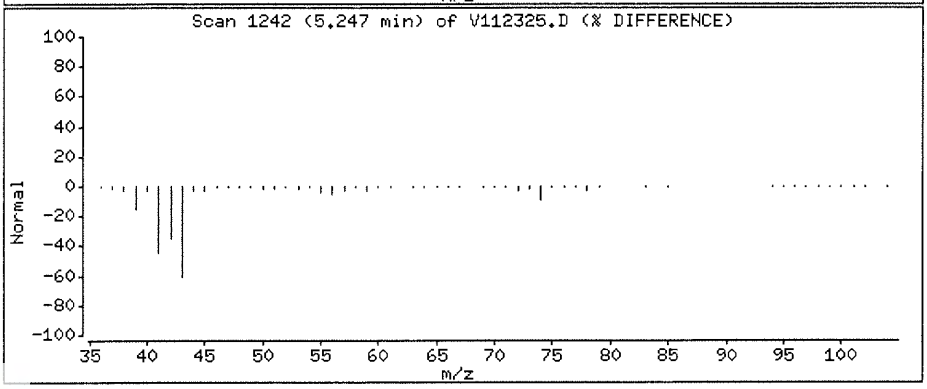
33 1,2-Dichloroethane

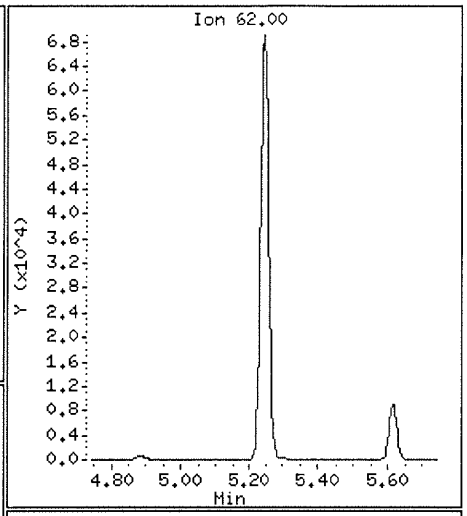
Concentration: 28.50 ug/l

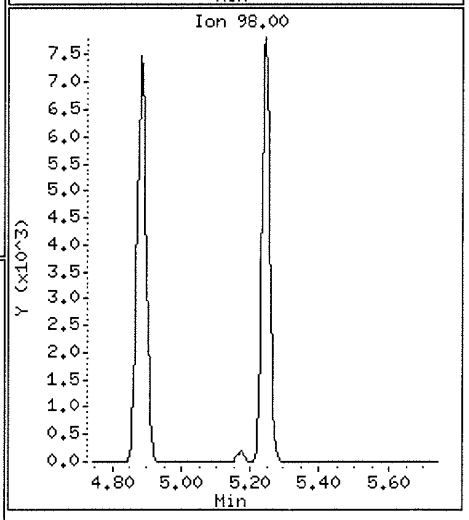












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D

Date : 24-NOV-2021 06:21

Client ID: HS21110813-18

Instrument: VOA9.i

Sample Info: HS21110813-18;HS21110813-18;;;

Purge Volume: 5.0

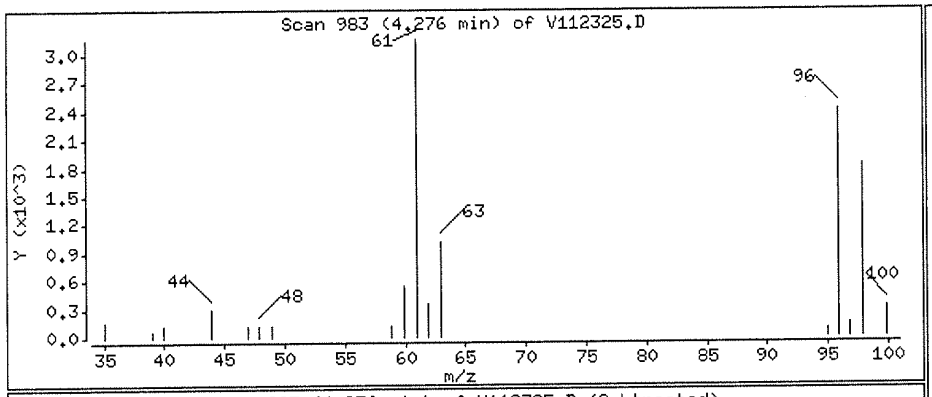
Operator: PC

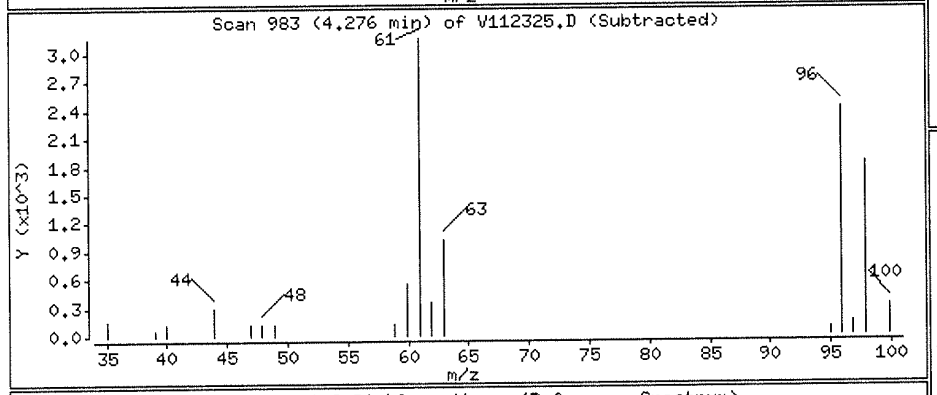
Column phase: DB624

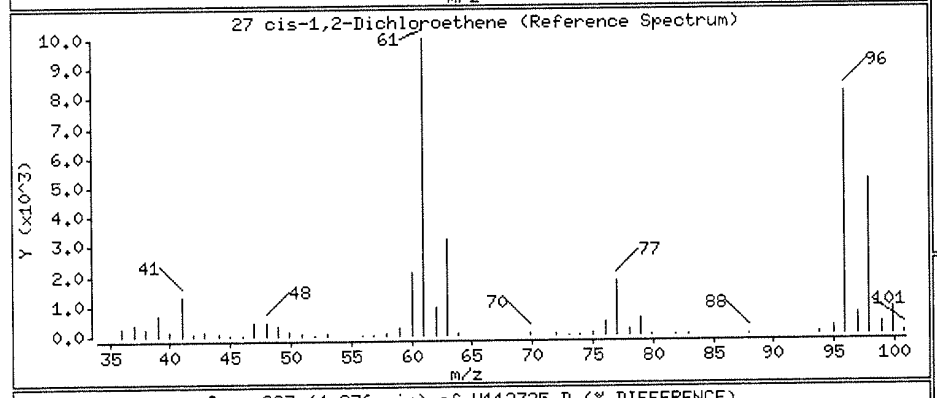
Column diameter: 0.18

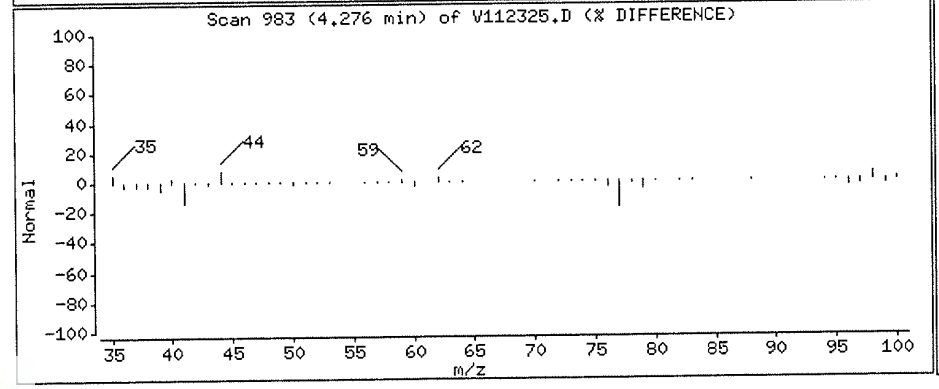
27 cis-1,2-Dichloroethene

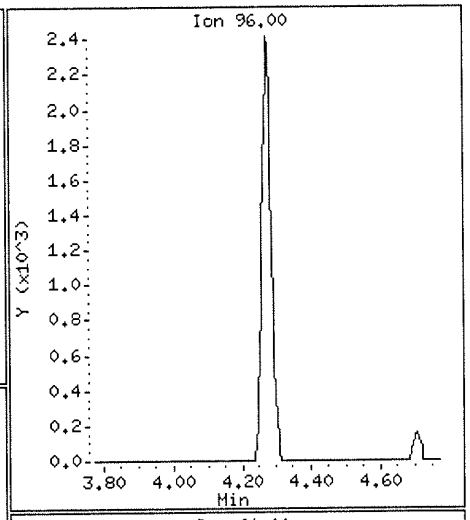
Concentration: 1.37 ug/l

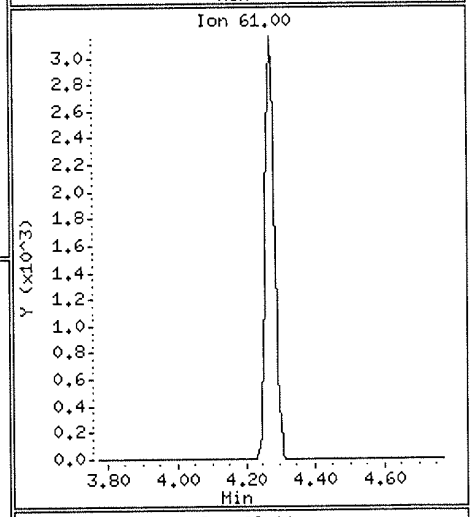


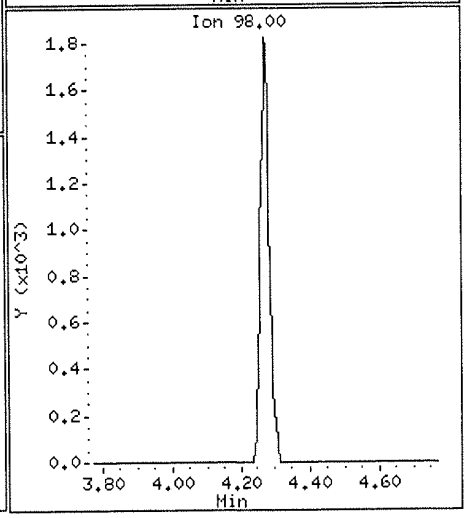












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112325.D

Date : 24-NOV-2021 06:21

Client ID: HS21110813-18

Instrument: VOA9.i

Sample Info: HS21110813-18;HS21110813-18;;;

Purge Volume: 5.0

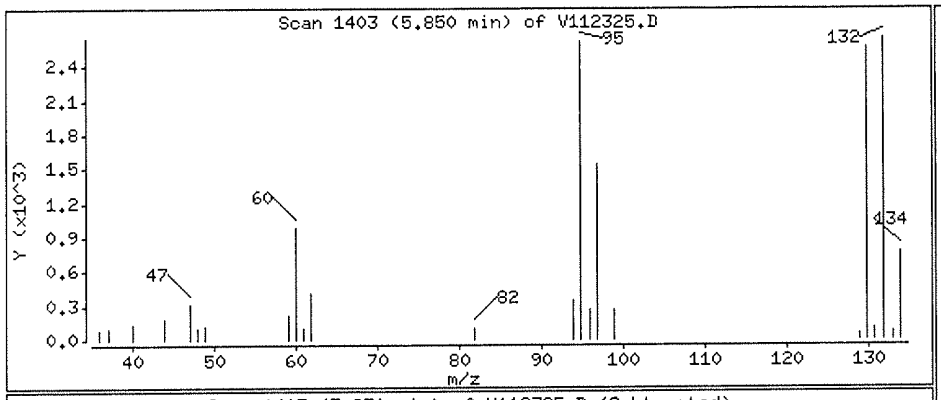
Operator: PC

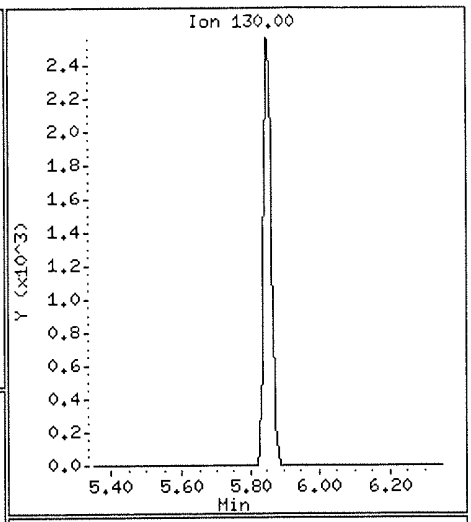
Column phase: DB624

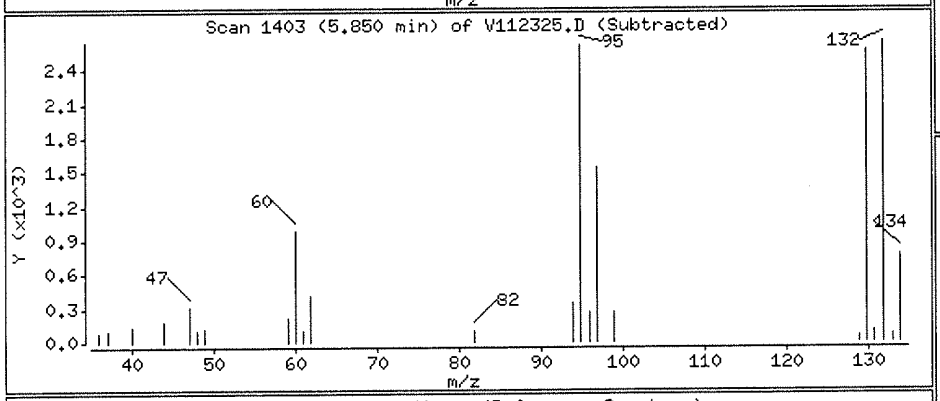
Column diameter: 0.18

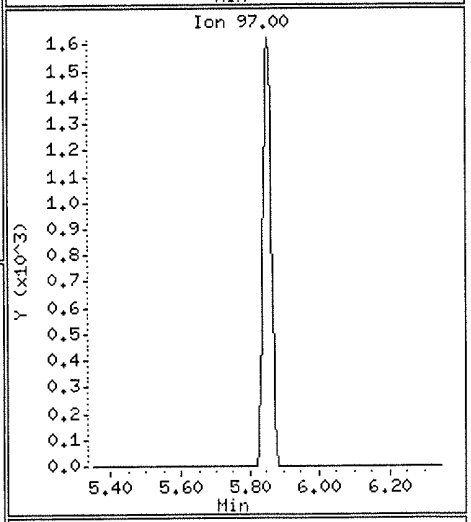
38 Trichloroethene

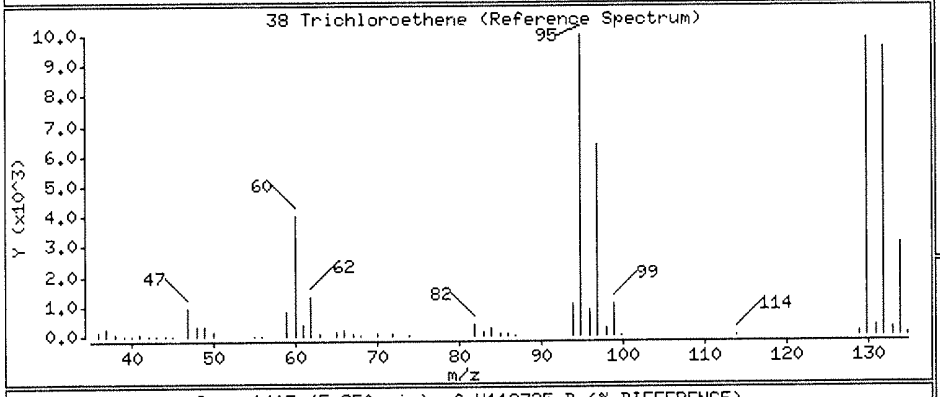
Concentration: 1.41 ug/l

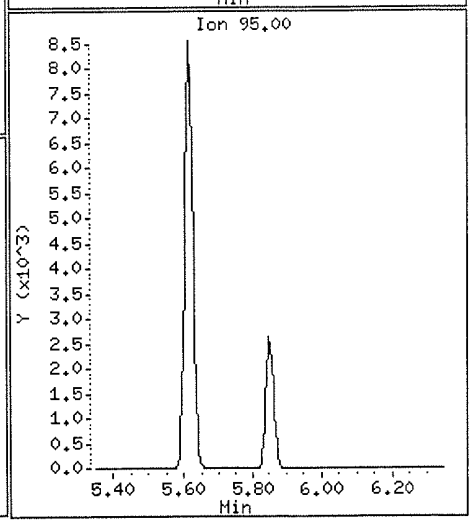


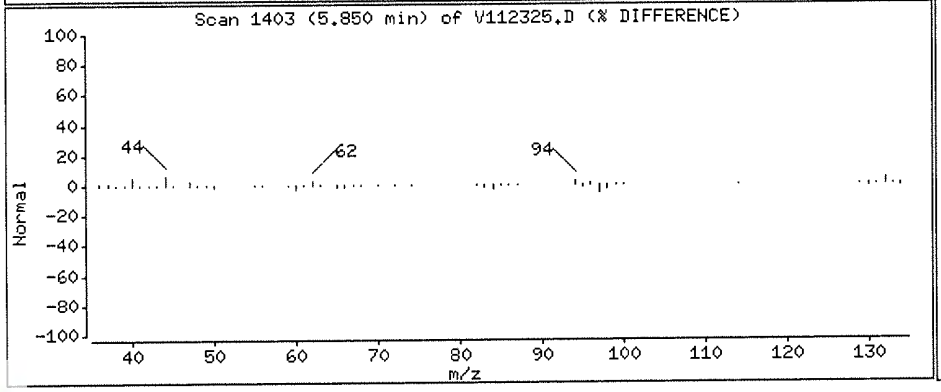












Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112332.D Page 1
Report Date: 22-Dec-2021 16:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211123.b\V112332.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-NOV-2021 08:57
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211123.b\8260C.m
Meth Date : 22-Dec-2021 16:03 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 60 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	243897	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	451709	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	413511	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	200789	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	171611	50.0000	57.57
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	205783	50.0000	51.26
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	145144	50.0000	56.81
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	538557	50.0000	50.04
31 1,1,1-Trichloroethane	97	4.811	4.811	(0.985)	180910	50.0000	51.52
57 1,2-Dibromoethane	107	7.840	7.840	(0.951)	159057	50.0000	53.73
60 1,1,1,2-Tetrachloroethane	131	8.339	8.339	(1.012)	133614	50.0000	46.66
68 1,1,2,2-Tetrachloroethane	83	9.381	9.381	(0.918)	223128	50.0000	52.79
53 1,1,2-Trichloroethane	83	7.413	7.413	(0.899)	126653	50.0000	51.97
22 1,1-Dichloroethane	63	3.589	3.589	(0.735)	231716	50.0000	53.47
11 1,1-Dichloroethene	96	2.390	2.390	(0.489)	113687	50.0000	52.28
32 1,1-Dichloropropene	75	4.991	4.991	(0.889)	178969	50.0000	48.24
93 1,2,3-Trichlorobenzene	180	12.324	12.324	(1.205)	170771	50.0000	47.49
71 1,2,3-Trichloropropane	75	9.415	9.415	(0.921)	210096	50.0000	50.63
90 1,2,4-Trichlorobenzene	180	11.912	11.912	(1.165)	170802	50.0000	46.21
79 1,2,4-Trimethylbenzene	105	9.932	9.932	(0.971)	497386	50.0000	49.41
88 1,2-Dichlorobenzene	146	10.562	10.562	(1.033)	285599	50.0000	50.43
33 1,2-Dichloroethane	62	5.243	5.243	(0.934)	204319	50.0000	50.14
42 1,2-Dichloropropane	63	6.071	6.071	(1.081)	148074	50.0000	52.09

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112332.D Page 2
Report Date: 22-Dec-2021 16:05

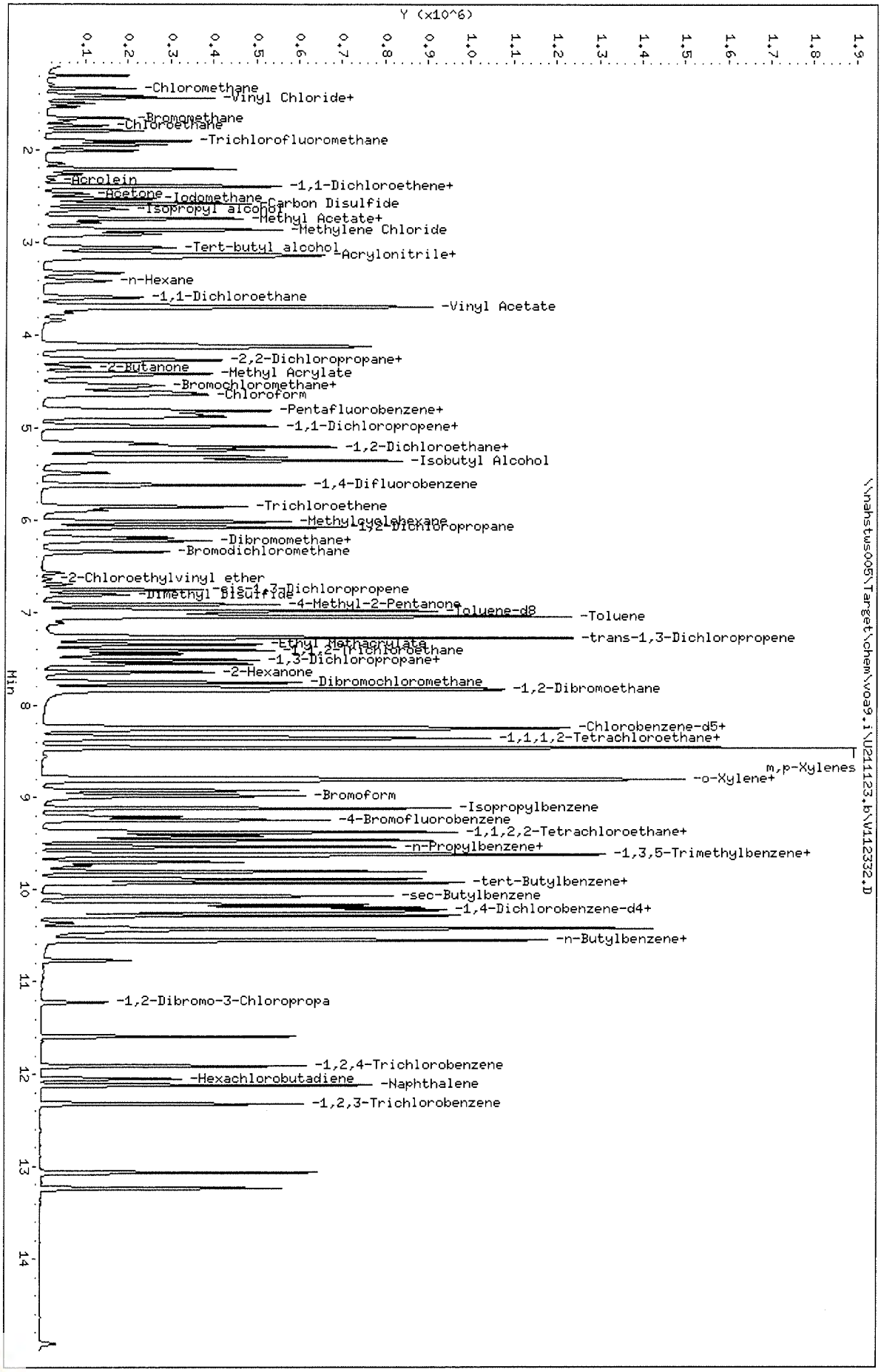
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
83 1,3-Dichlorobenzene	146	10.168	10.168	(0.995)	276656	50.0000	47.83
54 1,3-Dichloropropane	76	7.556	7.556	(0.917)	270571	50.0000	52.11
75 1,3,5-Trimethylbenzene	105	9.617	9.617	(0.941)	480838	50.0000	48.70
84 1,4-Dichlorobenzene	146	10.247	10.247	(1.002)	287739	50.0000	48.35
89 1,2-Dibromo-3-Chloropropane	155	11.222	11.222	(1.098)	29479	50.0000	42.55
26 2,2-Dichloropropane	77	4.260	4.260	(0.873)	58520	50.0000	23.83
24 2-Butanone	43	4.347	4.347	(0.890)	134781	100.000	105.68
76 2-Chlorotoluene	91	9.539	9.539	(0.933)	428616	50.0000	49.57
52 2-Hexanone	43	7.646	7.646	(0.928)	211281	100.000	107.63
77 4-Chlorotoluene	91	9.629	9.629	(0.942)	497915	50.0000	49.69
82 p-Isopropyltoluene	119	10.202	10.202	(0.998)	460802	50.0000	47.09
10 Acetone	43	2.472	2.472	(0.506)	98350	100.000	116.58
37 Benzene	78	5.205	5.205	(0.927)	587019	50.0000	51.39
74 Bromobenzene	156	9.374	9.374	(0.917)	159911	50.0000	51.35
29 Bromochloromethane	128	4.542	4.542	(0.930)	80037	50.0000	58.17
39 Bromodichloromethane	83	6.341	6.341	(1.130)	168625	50.0000	45.95
66 Bromoform	173	8.976	8.976	(1.089)	82880	50.0000	42.93
6 Bromomethane	94	1.655	1.655	(0.339)	91176	50.0000	60.77
34 Carbon Tetrachloride	117	4.980	4.980	(0.887)	150228	50.0000	42.08
59 Chlorobenzene	112	8.264	8.264	(1.003)	388892	50.0000	48.24
7 Chloroethane	64	1.741	1.741	(0.357)	102460	50.0000	50.76
28 Chloroform	83	4.647	4.647	(0.952)	263228	50.0000	56.02
3 Chloromethane	50	1.333	1.333	(0.273)	126958	50.0000	52.26
27 cis-1,2-Dichloroethene	96	4.272	4.272	(0.875)	164753	50.0000	55.28
45 4-Methyl-2-Pentanone	43	6.911	6.911	(0.839)	304338	100.000	102.19(A)
46 cis-1,3-Dichloropropene	75	6.750	6.750	(1.202)	193050	50.0000	40.87
44 Dibromomethane	93	6.180	6.180	(1.101)	101368	50.0000	52.28
2 Dichlorodifluoromethane	85	1.194	1.194	(0.245)	108251	50.0000	37.00
61 Ethylbenzene	106	8.362	8.362	(1.015)	195240	50.0000	48.39
91 Hexachlorobutadiene	225	12.054	12.054	(1.179)	57785	50.0000	42.30
62 m,p-Xylenes	106	8.463	8.463	(1.027)	492053	100.000	98.70
64 Styrene	104	8.815	8.815	(1.070)	435365	50.0000	51.34
78 tert-Butylbenzene	119	9.891	9.891	(0.967)	394287	50.0000	47.38
17 Methylene Chloride	84	2.858	2.858	(0.585)	148618	50.0000	51.70
87 n-Butylbenzene	91	10.547	10.547	(1.032)	388595	50.0000	44.29
73 n-Propylbenzene	91	9.467	9.467	(0.926)	663137	50.0000	48.62
92 Naphthalene	128	12.121	12.121	(1.186)	549147	50.0000	49.63
63 o-Xylene	106	8.800	8.800	(1.068)	245826	50.0000	49.78
81 sec-Butylbenzene	105	10.078	10.078	(0.986)	524263	50.0000	46.79
55 Dibromochloromethane	129	7.750	7.750	(0.940)	139946	50.0000	45.08
56 Tetrachloroethene	164	7.514	7.514	(0.912)	100942	50.0000	43.28
50 Toluene	91	7.038	7.038	(0.854)	607017	50.0000	49.06
19 Carbon Disulfide	76	2.577	2.577	(0.528)	577767	100.000	95.73
20 trans-1,2-Dichloroethene	96	3.125	3.125	(0.640)	127206	50.0000	51.85
38 Trichloroethene	130	5.850	5.850	(1.042)	145660	50.0000	49.35
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	196487	50.0000	49.95
5 Vinyl Chloride	62	1.411	1.411	(0.289)	143459	50.0000	48.63
138 Freon TF	101	2.390	2.390	(0.489)	92864	50.0000	46.32
67 Isopropylbenzene	105	9.115	9.115	(1.106)	578569	50.0000	47.62
51 trans-1,3-Dichloropropene	75	7.252	7.252	(1.292)	162842	50.0000	40.32

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa9.i\U211123.b\V112332.D
Date : 24-NOV-2021 08:57
Client ID: CCV-END
Sample Info: VSTD050-END;VSTD050-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



MSVOA09 -Logbook

Batch: 47501
Date: 11-24-2021
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	BFB	11-24-2021 11:08 am	1.00	0.00 mL	0.00 mL	U112401.D	Liquid	Y	N
2	VSTD050	CCV	11-24-2021 11:30 am	1.00	5.00 mL	0.00 mL	U112402a.D	Liquid	Y	N
3	CCV	CCV	11-24-2021 11:53 am	1.00	5.00 mL	0.00 mL	U112403.D	Liquid	Y	N
4	CCB	SAMP	11-24-2021 12:15 pm	1.00	5.00 mL	0.00 mL	U112404.D	Liquid	Y	N
5	VLCSW-211124	LCS	11-24-2021 12:37 pm	1.00	5.00 mL	0.00 mL	U112405.D	Liquid	Y	N
6	BLANK	SAMP	11-24-2021 01:00 pm	1.00	5.00 mL	0.00 mL	U112406.D	Liquid	Y	N
7	VBLKW-211124	MBLK	11-24-2021 01:22 pm	1.00	5.00 mL	0.00 mL	U112407.D	Liquid	Y	N
8	HS21111214-22	SAMP	11-24-2021 01:44 pm	1.00	5.00 mL	0.00 mL	U112408.D	Liquid	Y	N
9	HS21111214-23	SAMP	11-24-2021 02:07 pm	1.00	5.00 mL	0.00 mL	U112409.D	Liquid	Y	N
10	HS21111214-18	SAMP	11-24-2021 02:29 pm	1.00	5.00 mL	0.00 mL	U112410.D	Liquid	Y	N
11	HS21111214-02	SAMP	11-24-2021 02:51 pm	1.00	5.00 mL	0.00 mL	U112411.D	Liquid	Y	N
12	HS21111214-01	SAMP	11-24-2021 03:13 pm	100.0	5.00 mL	0.00 mL	U112412.D	Liquid	Y	N
13	HS21111214-01	SAMP	11-24-2021 03:36 pm	1000.0	5.00 mL	0.00 mL	U112413.D	Liquid	Y	N
14	HS21111214-18MS	MS	11-24-2021 03:58 pm	1.00	5.00 mL	0.00 mL	U112414.D	Liquid	Y	N
15	HS21111214-18MSD	MSD	11-24-2021 04:20 pm	1.00	5.00 mL	0.00 mL	U112415.D	Liquid	Y	N
16	HS21111214-01MS	MS	11-24-2021 04:43 pm	1000.0	5.00 mL	0.00 mL	U112416.D	Liquid	Y	N
17	HS21111214-01MSD	MSD	11-24-2021 05:05 pm	1000.0	5.00 mL	0.00 mL	U112417.D	Liquid	Y	N
18	HS21110813-16	SAMP	11-24-2021 05:27 pm	10.00	5.00 mL	0.00 mL	U112418.D	Liquid	Y	N
19	HS21110813-17	SAMP	11-24-2021 05:50 pm	10.00	5.00 mL	0.00 mL	U112419.D	Liquid	Y	N
20	HS21110813-18	SAMP	11-24-2021 06:12 pm	10.00	5.00 mL	0.00 mL	U112420.D	Liquid	Y	N
21	HS21111214-20	SAMP	11-24-2021 06:34 pm	1.00	5.00 mL	0.00 mL	U112421.D	Liquid	Y	N
22	HS21111214-17	SAMP	11-24-2021 06:57 pm	1.00	5.00 mL	0.00 mL	U112422.D	Liquid	Y	N
23	HS21111214-19	SAMP	11-24-2021 07:19 pm	1.00	5.00 mL	0.00 mL	U112423.D	Liquid	Y	N
24	HS21111214-21	SAMP	11-24-2021 07:41 pm	1.00	5.00 mL	0.00 mL	U112424.D	Liquid	Y	N
25	HS21111214-13	SAMP	11-24-2021 08:03 pm	1.00	5.00 mL	0.00 mL	U112425.D	Liquid	Y	N
26	HS21111214-02	SAMP	11-24-2021 08:26 pm	10.00	5.00 mL	0.00 mL	U112426.D	Liquid	Y	N
27	HS21111214-10	SAMP	11-24-2021 08:48 pm	10.00	5.00 mL	0.00 mL	U112427.D	Liquid	Y	N
28	HS21111214-11	SAMP	11-24-2021 09:10 pm	10.00	5.00 mL	0.00 mL	U112428.D	Liquid	Y	N
29	HS21111214-03	SAMP	11-24-2021 09:33 pm	10.00	5.00 mL	0.00 mL	U112429.D	Liquid	Y	N
30	HS21111214-04	SAMP	11-24-2021 09:55 pm	25.00	5.00 mL	0.00 mL	U112430.D	Liquid	Y	N
31	HS21111214-04	SAMP	11-24-2021 10:17 pm	250.0	5.00 mL	0.00 mL	U112431.D	Liquid	Y	N
32	CCV-END	CCV	11-24-2021 10:40 pm	1.00	5.00 mL	0.00 mL	U112432.D	Liquid	Y	N
33	BFB	BFB	11-24-2021 11:02 pm	1.00	0.00 mL	0.00 mL	V112401.D	Liquid	Y	N
34	CCV	CCV	11-24-2021 11:24 pm	1.00	5.00 mL	0.00 mL	V112402.D	Liquid	Y	N
35	BLANK	SAMP	11-24-2021 11:46 pm	1.00	5.00 mL	0.00 mL	V112403.D	Liquid	Y	N
36	CCB	SAMP	11-25-2021 12:08 am	1.00	5.00 mL	0.00 mL	V112404.D	Liquid	Y	N
37	VLCSW-211124	LCS	11-25-2021 12:30 am	1.00	5.00 mL	0.00 mL	V112405.D	Liquid	Y	N
38	BLANK	SAMP	11-25-2021 12:53 am	1.00	5.00 mL	0.00 mL	V112406.D	Liquid	Y	N
39	VBLKW-211124	MBLK	11-25-2021 01:15 am	1.00	5.00 mL	0.00 mL	V112407.D	Liquid	Y	N
40	HS21111214-07	SAMP	11-25-2021 01:37 am	10.00	5.00 mL	0.00 mL	V112408.D	Liquid	Y	N
41	HS21111214-07	SAMP	11-25-2021 02:00 am	50.00	5.00 mL	0.00 mL	V112409.D	Liquid	Y	N

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
42	HS21111214-09	SAMP	11-25-2021 02:22 am	10.00	5.00 mL	0.00 mL	V112410.D	Liquid	Y	N
43	HS21111214-14	SAMP	11-25-2021 02:44 am	10.00	5.00 mL	0.00 mL	V112411.D	Liquid	Y	N
44	HS21111214-07MS	MS	11-25-2021 03:06 am	50.00	5.00 mL	0.00 mL	V112412.D	Liquid	Y	N
45	HS21111214-07MSD	MSD	11-25-2021 03:29 am	50.00	5.00 mL	0.00 mL	V112413.D	Liquid	Y	N
46	HS21111214-03n/r	SAMP	11-25-2021 03:51 am	50.00	5.00 mL	0.00 mL	V112414.D	Liquid	Y	N
47	HS21111214-09	SAMP	11-25-2021 04:13 am	50.00	5.00 mL	0.00 mL	V112415.D	Liquid	Y	N
48	HS21111214-14	SAMP	11-25-2021 04:36 am	50.00	5.00 mL	0.00 mL	V112416.D	Liquid	Y	N
49	HS21111309-01	SAMP	11-25-2021 04:58 am	1.00	5.00 mL	0.00 mL	V112417.D	Liquid	Y	N
50	HS21111309-02	SAMP	11-25-2021 05:20 am	1.00	5.00 mL	0.00 mL	V112418.D	Liquid	Y	N
51	HS21111309-03	SAMP	11-25-2021 05:42 am	1.00	5.00 mL	0.00 mL	V112419.D	Liquid	Y	N
52	HS21111309-04	SAMP	11-25-2021 06:05 am	1.00	5.00 mL	0.00 mL	V112420.D	Liquid	Y	N
53	HS21111309-05	SAMP	11-25-2021 06:27 am	1.00	5.00 mL	0.00 mL	V112421.D	Liquid	Y	N
54	HS21111309-06	SAMP	11-25-2021 06:49 am	1.00	5.00 mL	0.00 mL	V112422.D	Liquid	Y	N
55	HS21111309-10	SAMP	11-25-2021 07:12 am	1.00	5.00 mL	0.00 mL	V112423.D	Liquid	Y	N
56	HS21111309-12	SAMP	11-25-2021 07:34 am	1.00	5.00 mL	0.00 mL	V112424.D	Liquid	Y	N
57	HS21111309-16	SAMP	11-25-2021 07:56 am	1.00	5.00 mL	0.00 mL	V112425.D	Liquid	Y	N
58	HS21111309-17	SAMP	11-25-2021 08:18 am	1.00	5.00 mL	0.00 mL	V112426.D	Liquid	Y	N
59	HS21111309-07	SAMP	11-25-2021 08:41 am	10.00	5.00 mL	0.00 mL	V112427.D	Liquid	Y	N
60	HS21111309-08	SAMP	11-25-2021 09:03 am	1.00	5.00 mL	0.00 mL	V112428.D	Liquid	Y	N
61	HS21111309-09	SAMP	11-25-2021 09:25 am	1.00	5.00 mL	0.00 mL	V112429.D	Liquid	Y	N
62	HS21111309-11	SAMP	11-25-2021 09:48 am	1.00	5.00 mL	0.00 mL	V112430.D	Liquid	Y	N
63	CCV-END	CCV	11-25-2021 10:10 am	1.00	5.00 mL	0.00 mL	V112431.D	Liquid	Y	N

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (TOL) #	SMC3 (DCE) #	OTHER #	TOT OUT
01	VLSCW-211124	102	99	104	102	0
02	VBLKW-211124	87	103	92	101	0
03	HS21111214-18MS	92	102	91	103	0
04	HS21111214-18MSD	93	103	91	104	0
05	HS21111214-01MS	91	102	90	103	0
06	HS21111214-01MSD	94	102	91	103	0
07	HS21110813-16	87	100	91	99	0
08	HS21110813-17	87	101	91	100	0
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (TOL)	= Toluene-d8	(78-123)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-211124

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U112407 Lab Sample ID: VBLKW-211124

Date Analyzed: 11/24/21 Time Analyzed: 1322

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLSCW-211124	VLCSW-211124	U112405	1237
02	HS21111214-18MS	HS21111214-18MS	U112414	1558
03	HS21111214-18MSD	HS21111214-18MSD	U112415	1620
04	HS21111214-01MS	HS21111214-01MS	U112416	1643
05	HS21111214-01MSD	HS21111214-01MSD	U112417	1705
06	HS21110813-16	HS21110813-16	U112418	1727
07	HS21110813-17	HS21110813-17	U112419	1750
08				
09				
10				
11				
12				
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14				
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29				
30				

COMMENTS:

FORM IV VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U112401 BFB Injection Date: 11/24/21

Instrument ID: VOA9 BFB Injection Time: 1108

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.0
75	30.0 - 60.0% of mass 95	48.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	1.2 (1.6)1
174	Greater than 50.0% of mass 95	71.0
175	5.0 - 9.0% of mass 174	6.1 (8.6)1
176	95.0 - 101.0% of mass 174	69.4 (97.6)1
177	5.0 - 9.0% of mass 176	4.7 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	U112403	11/24/21	1153
02	VLSCW-211124	VLCSW-211124	U112405	11/24/21	1237
03	VBLKW-211124	VBLKW-211124	U112407	11/24/21	1322
04	HS21111214-18MS	HS21111214-18MS	U112414	11/24/21	1558
05	HS21111214-18MSD	HS21111214-18MSD	U112415	11/24/21	1620
06	HS21111214-01MS	HS21111214-01MS	U112416	11/24/21	1643
07	HS21111214-01MSD	HS21111214-01MSD	U112417	11/24/21	1705
08	HS21110813-16	HS21110813-16	U112418	11/24/21	1727
09	HS21110813-17	HS21110813-17	U112419	11/24/21	1750
10	CCV-END	CCV-END	U112432	11/24/21	2240
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

page 1 of 1

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/24/21 Time: 1153

Lab File ID: U112403 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1-Dichloroethene	0.4460000	0.4822149	0.4822149	0.1	-8.12	20.00	AVRG
Dibromofluoromethane	51.817489	50.000000	0.5435767	0.1	-3.63	20.00	LINR
Toluene-d8	1.3010000	1.3121344	1.3121344	0.1	-0.86	20.00	AVRG
1,2-Dichloroethane-d4	51.138818	50.000000	0.6269600	0.1	-2.28	20.00	LINR
4-Bromofluorobenzene	51.788754	50.000000	0.5025565	0.1	-3.58	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/24/21 Time: 2240

Lab File ID: U112432 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1-Dichloroethene	0.4460000	0.4546701	0.4546701	0.1	-1.94	50.00	AVRG
Dibromofluoromethane	56.708776	50.000000	0.5940513	0.1	-13.42	50.00	LINR
Toluene-d8	1.3010000	1.3478145	1.3478145	0.1	-3.60	50.00	AVRG
1,2-Dichloroethane-d4	56.391006	50.000000	0.6895168	0.1	-12.78	50.00	LINR
4-Bromofluorobenzene	52.228462	50.000000	0.5067153	0.1	-4.46	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U112403 Date Analyzed: 11/24/21

Instrument ID: VOA9 Time Analyzed: 1153

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	270282	4.88	461372	5.62	417961	8.24
	UPPER LIMIT	540564	5.38	922744	6.12	835922	8.74
	LOWER LIMIT	135141	4.38	230686	5.12	208981	7.74
	CLIENT SAMPLE NO.						
01	VLSCW-211124	270213	4.88	467669	5.61	418462	8.24
02	VBLKW-211124	289749	4.88	469539	5.61	405892	8.24
03	HS21111214-18MS	284606	4.88	461160	5.61	405250	8.24
04	HS21111214-18MSD	288842	4.88	463313	5.61	412346	8.24
05	HS21111214-01MS	289626	4.88	463522	5.61	411564	8.24
06	HS21111214-01MSD	293072	4.88	479038	5.61	421015	8.24
07	HS21110813-16	288453	4.88	468926	5.61	412787	8.24
08	HS21110813-17	287577	4.88	469235	5.61	410997	8.24
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U112403 Date Analyzed: 11/24/21

Instrument ID: VOA9 Time Analyzed: 1153

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	206004	10.22				
	UPPER LIMIT	412008	10.72				
	LOWER LIMIT	103002	9.72				
	CLIENT SAMPLE NO.						
01	VLSCW-211124	211044	10.23				
02	VBLKW-211124	193598	10.23				
03	HS21111214-18MS	204540	10.22				
04	HS21111214-18MSD	207739	10.23				
05	HS21111214-01MS	207756	10.23				
06	HS21111214-01MSD	210400	10.23				
07	HS21110813-16	200850	10.23				
08	HS21110813-17	202069	10.23				
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112401.D

Date : 24-NOV-2021 11:08

Client ID: BFB

Instrument: VOA9.i

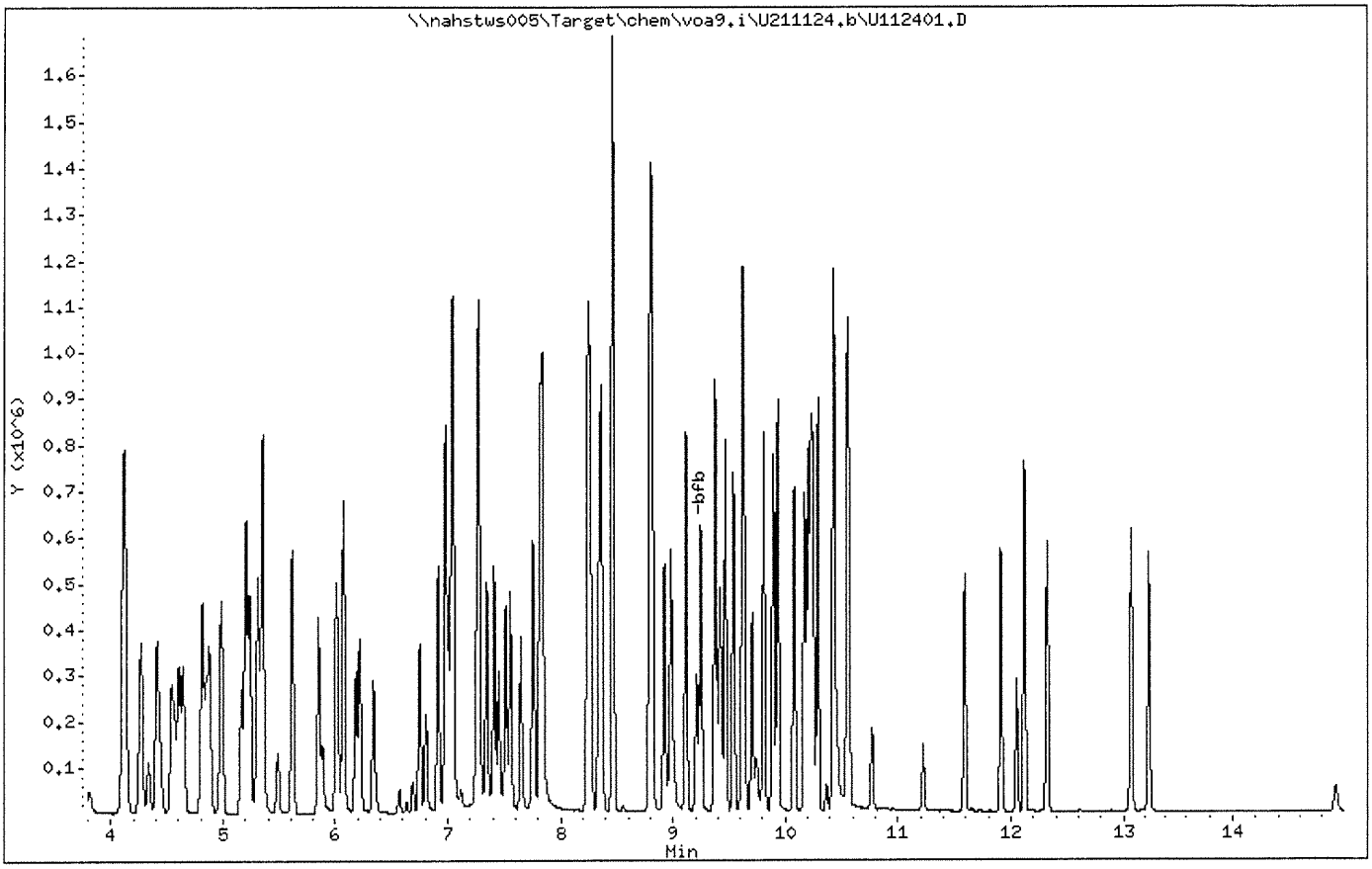
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112401.D

Date : 24-NOV-2021 11:08

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

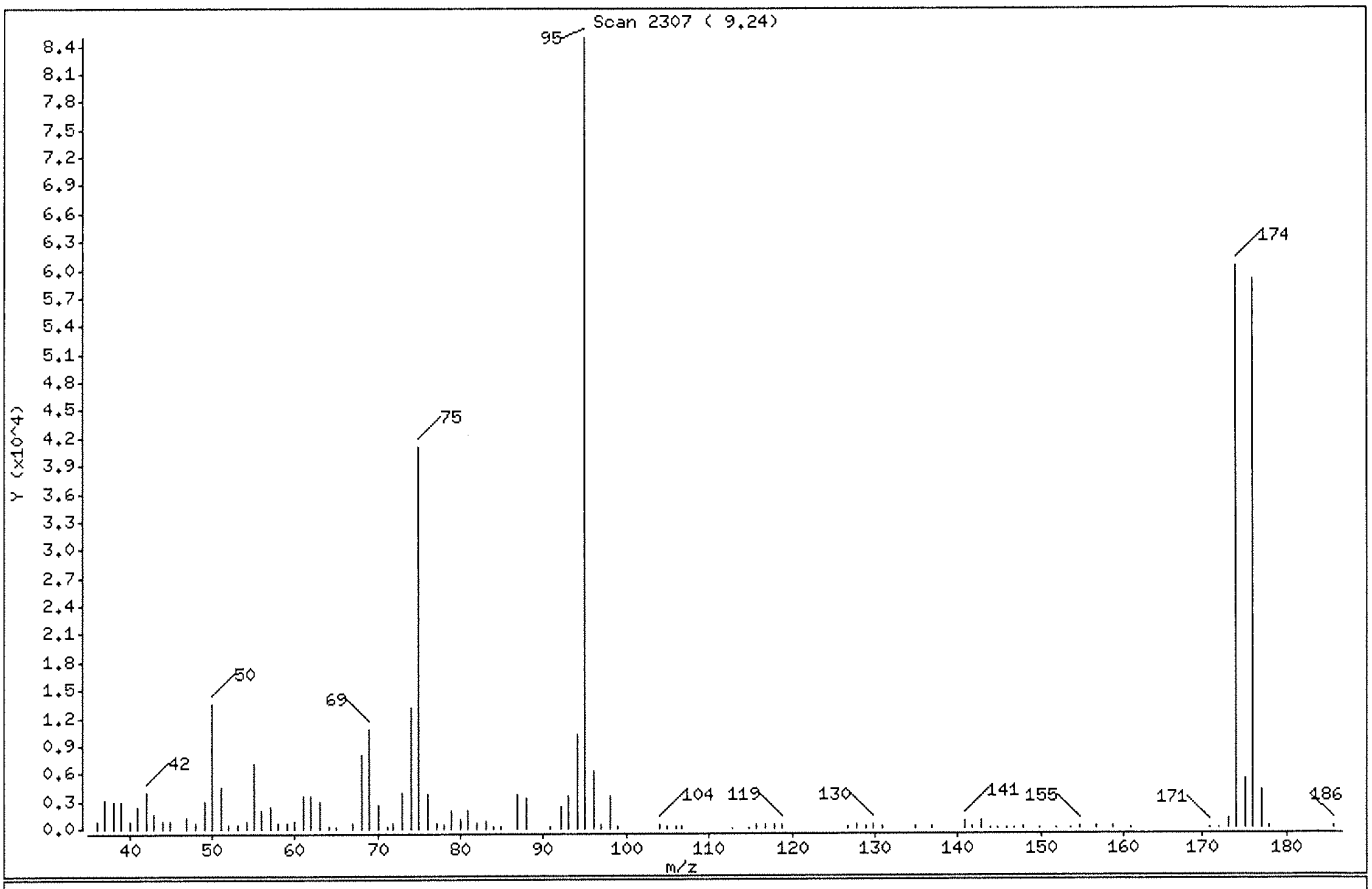
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.96
75	30.00 - 60.00% of mass 95	48.27
96	5.00 - 9.00% of mass 95	7.34
173	Less than 2.00% of mass 174	1.16 (1.64)
174	Greater than 50.00% of mass 95	71.05
175	5.00 - 9.00% of mass 174	6.12 (8.62)
176	95.00 - 101.00% of mass 174	69.37 (97.64)
177	5.00 - 9.00% of mass 176	4.73 (6.81)

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112401.D Page 3

Date : 24-NOV-2021 11:08

Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: U112401.D
Spectrum: Scan 2307 (9.24)
Location of Maximum: 95.00
Number of points: 100

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	710	63.00	2904	93.00	3474	142.90	701
37.00	3052	64.00	234	94.00	10227	143.80	88
38.00	2919	64.90	136	95.00	84880	144.80	97
39.00	2856	67.00	529	96.00	6227	145.80	78
40.00	710	68.00	8066	97.00	427	146.80	68
41.00	2269	69.00	10649	98.00	3488	147.90	161
42.00	3945	70.00	2506	98.90	269	149.80	92
43.00	1535	71.10	220	103.90	355	151.90	64
44.00	798	71.90	530	104.90	149	153.70	61
45.00	810	73.00	3816	105.90	292	154.80	170
47.00	1168	74.00	13049	106.70	103	156.80	131
48.00	591	75.00	40968	112.90	66	158.70	124
49.00	2940	76.00	3612	114.90	96	160.80	74
50.00	13550	77.00	597	115.80	293	170.70	85
51.00	4548	77.90	453	116.80	384	172.00	78
52.00	295	78.90	2011	117.80	373	173.00	987
53.00	377	80.00	996	118.80	445	173.90	60304
54.10	735	80.90	1976	126.80	219	174.90	5196
55.00	6948	81.90	678	127.80	306	175.90	58880
56.00	1868	83.00	781	128.90	158	176.90	4012
57.00	2248	83.90	116	129.80	326	177.80	103
58.00	496	84.90	99	130.80	128	185.90	138
59.00	653	86.90	3701	134.80	198		
59.90	710	88.00	3275	136.90	119		
61.00	3508	90.80	281	140.90	790		
62.00	3567	92.00	2299	141.80	165		

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112403.D Page 1
Report Date: 22-Dec-2021 15:29

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112403.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 24-NOV-2021 11:53
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

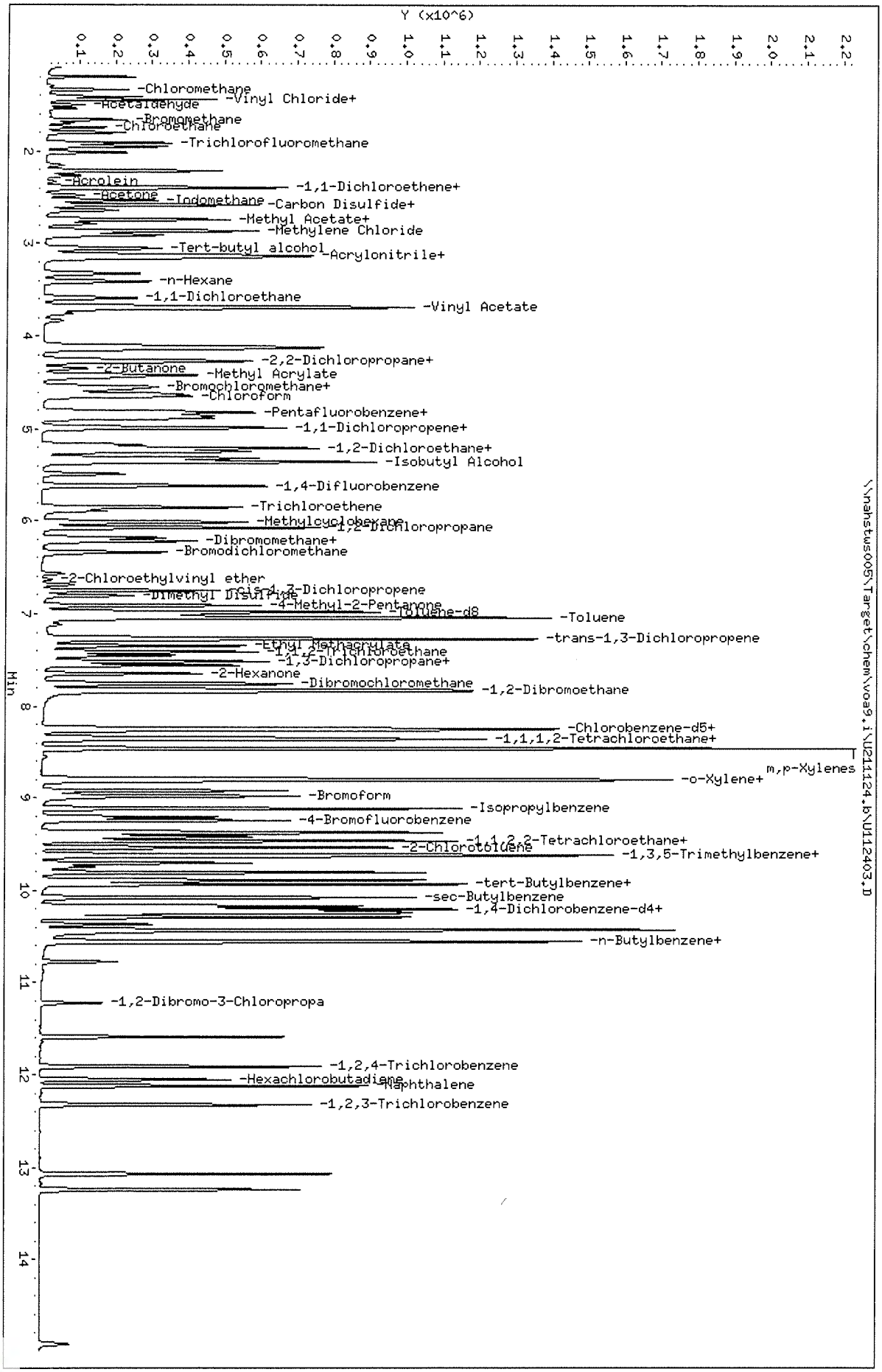
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.882	4.882	(1.000)	270282	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.617	(1.000)	461372	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	417961	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	206004	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.167	5.167	(1.058)	169456	50.0000	51.13
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	210049	50.0000	51.78
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	146919	50.0000	51.81
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	548421	50.0000	50.41
11 1,1-Dichloroethene	96	2.390	2.390	(0.489)	130334	50.0000	54.08

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112403.D
Date : 24-NOV-2021 11:53
Client ID: CCV
Sample Info: VSTD050;VSTD050;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112405.D Page 1
Report Date: 22-Dec-2021 15:29

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112405.D
Lab Smp Id: VLCSW-211124 Client Smp ID: VLSCW-211124
Inj Date : 24-NOV-2021 12:37
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-211124;VLSCW-211124;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

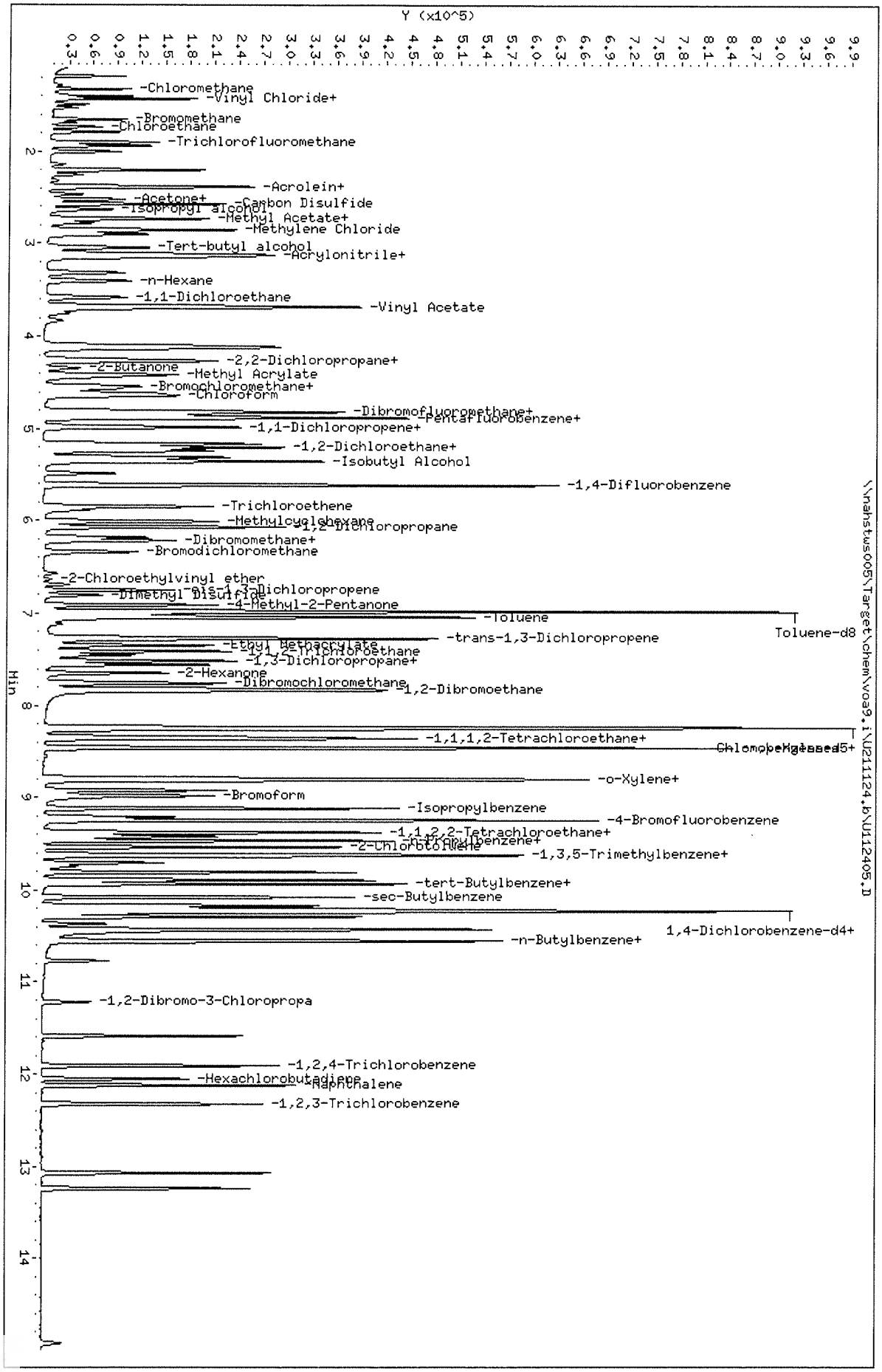
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.882	(1.000)	270213	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.617	(1.000)	467669	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	418462	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	211044	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.167	(1.058)	171476	51.7799	51.77
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	207018	50.9593	50.95
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	144642	51.0143	51.01
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	540001	49.5819	49.58
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	49365	20.4908	20.49

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112405.D
Date : 24-NOV-2021 12:37
Client ID: VLSCW-211124
Sample Info: VLCSW-211124;VLSCW-211124;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112407.D Page 1
Report Date: 22-Dec-2021 15:29

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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112407.D
Lab Smp Id: VBLKW-211124 Client Smp ID: VBLKW-211124
Inj Date : 24-NOV-2021 13:22
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-211124;VBLKW-211124;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.882	(1.000)	289749	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.617	(1.000)	469539	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	405892	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	193598	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.160	5.167	(1.058)	163089	45.7573	45.75
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199624	50.6531	50.65
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	132677	43.5152	43.51
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	545769	51.6634	51.66

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112407.D

Date : 24-NOV-2021 13:22

Client ID: VBLKW-211124

Sample Info: VBLKW-211124;VBLKW-211124;3;;BLANK

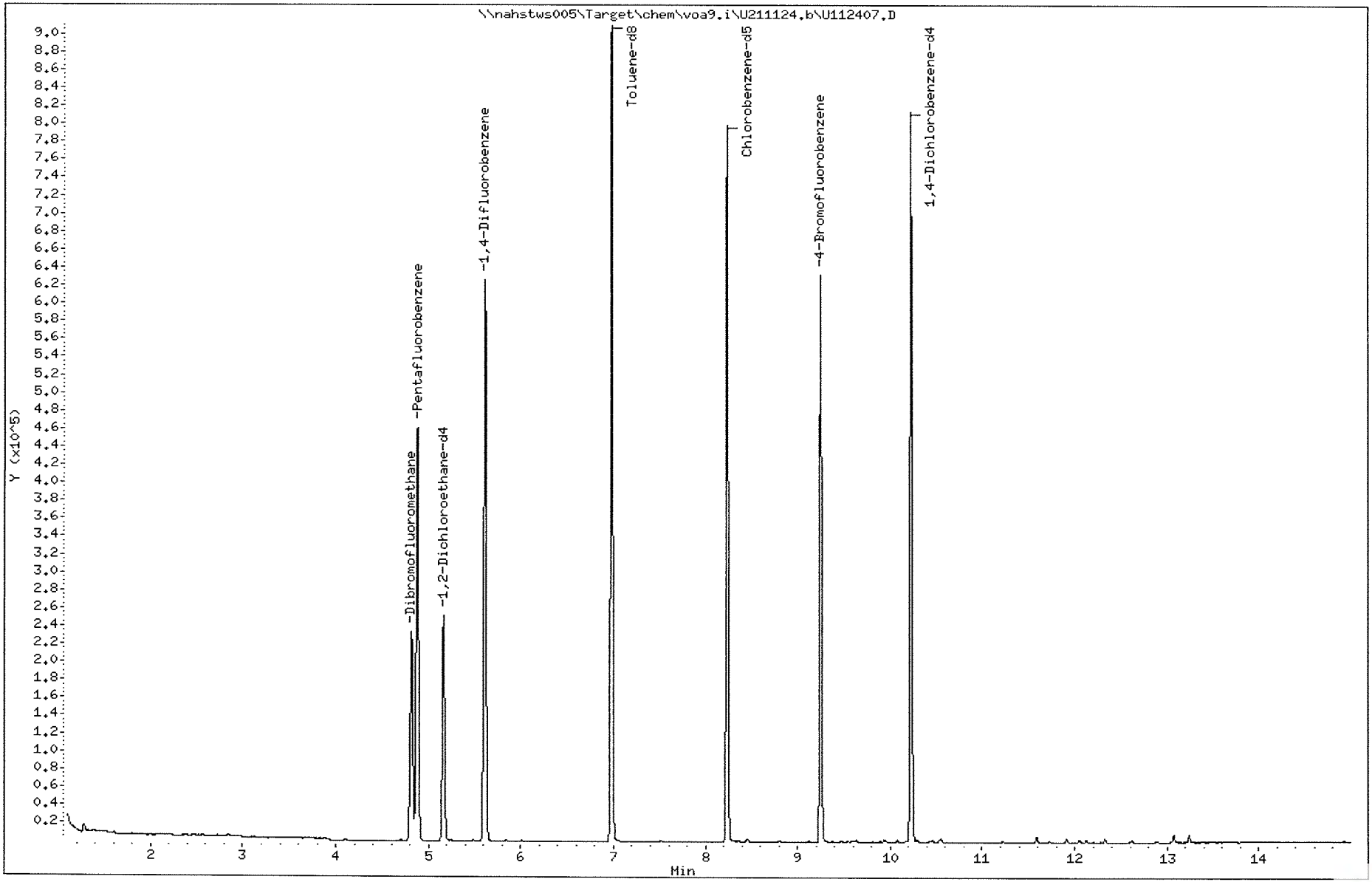
Purge Volume: 5.0

Column phase: DB624

Instrument: VOA9.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112414.D Page 1
Report Date: 22-Dec-2021 15:29

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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112414.D
Lab Smp Id: HS21111214-18MS Client Smp ID: HS21111214-18MS
Inj Date : 24-NOV-2021 15:58
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111214-18MS;HS21111214-18MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 14 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

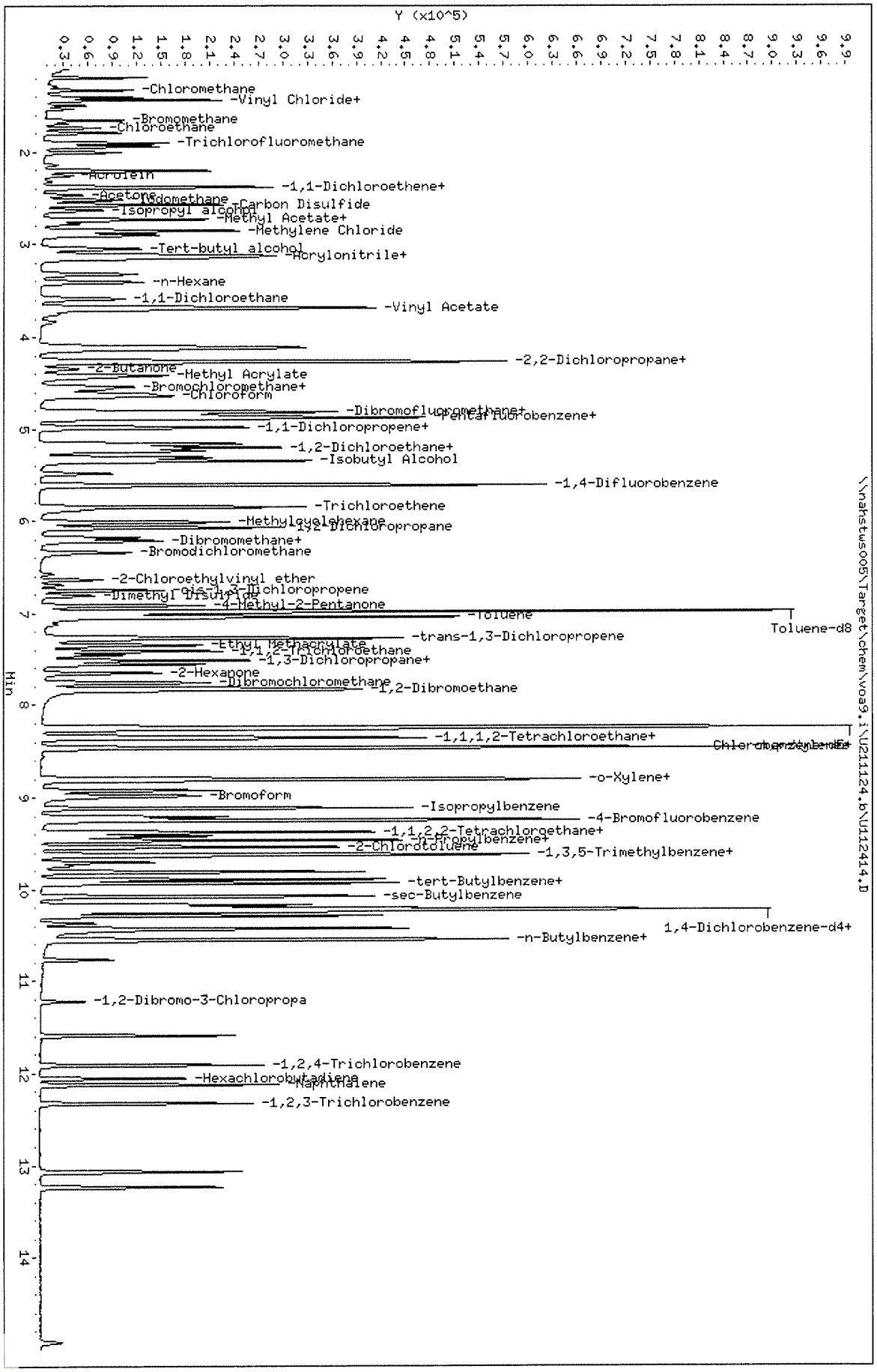
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.882	(1.000)	284606	50.0000	
* 36 1,4-Difluorobenzene	114	5.613	5.617	(1.000)	461160	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	405250	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	204540	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.167	(1.058)	159392	45.5207	45.52
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	202585	51.5080	51.50
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	137864	46.0832	46.08
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	540117	51.2094	51.20
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	55221	21.7624	21.76

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112414.D
Date : 24-NOV-2021 15:58
Client ID: HS211111214-18MS
Sample Info: HS211111214-18MS;HS211111214-18MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112415.D
Lab Smp Id: HS21111214-18MSD Client Smp ID: HS21111214-18MSD
Inj Date : 24-NOV-2021 16:20
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111214-18MSD;HS21111214-18MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

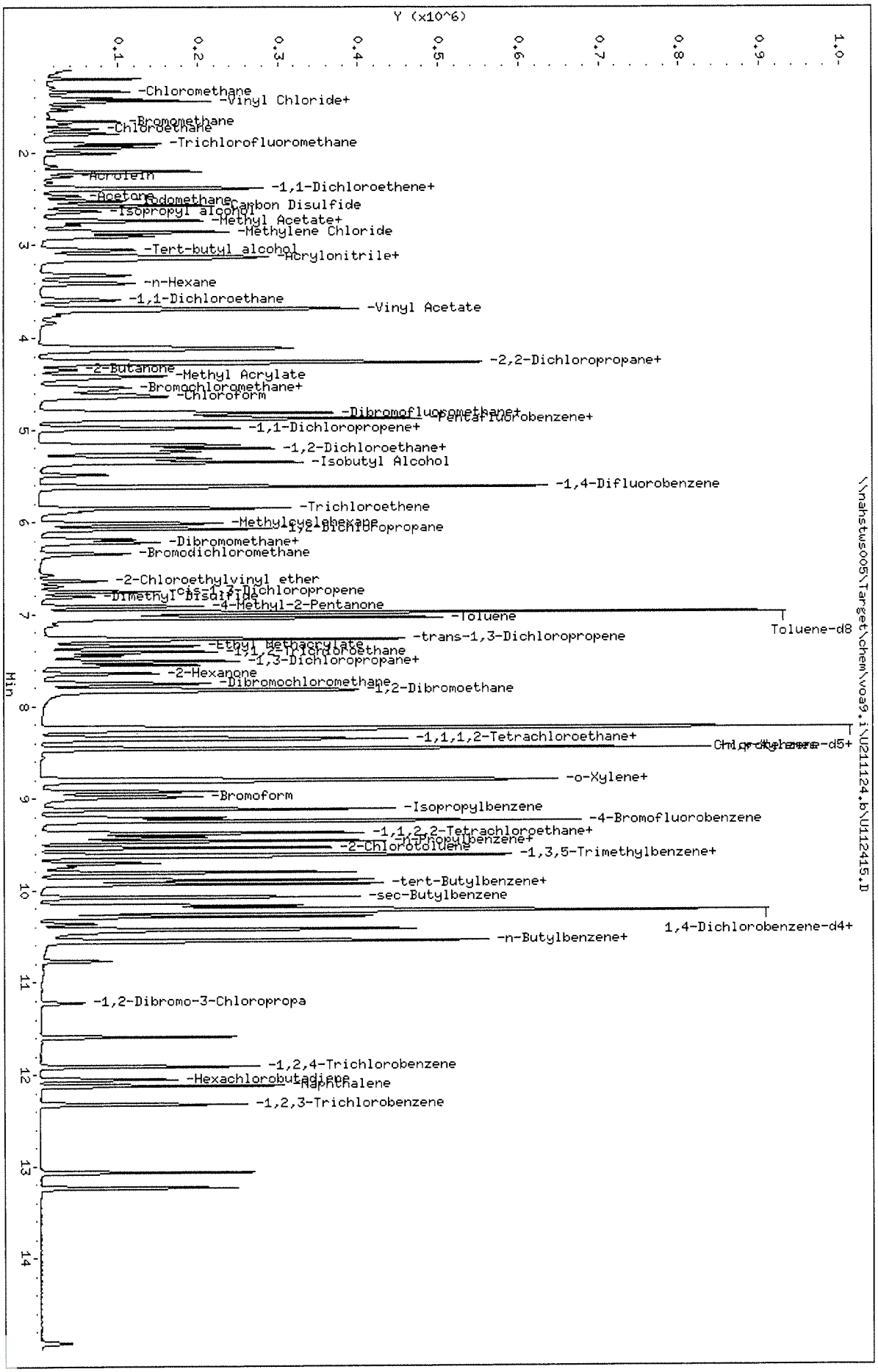
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.882	(1.000)	288842	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.617	(1.000)	463313	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	412346	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	207739	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.167	(1.058)	161804	45.5322	45.53
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	207585	51.8805	51.88
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	140619	46.3191	46.31
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	550832	51.3265	51.32
11 1,1-Dichloroethene	96	2.386	2.390	(0.489)	53501	20.7753	20.77

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112415.D
Date : 24-NOV-2021 16:20
Client ID: HS21111214-18HSD
Sample Info: HS21111214-18HSD;HS21111214-18HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112416.D Page 1
Report Date: 22-Dec-2021 15:29

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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112416.D
Lab Smp Id: HS21111214-01MS Client Smp ID: HS21111214-01MS
Inj Date : 24-NOV-2021 16:43
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111214-01MS;HS21111214-01MS;3;;MS
Misc Info : 180315V9;WATER;0;1000;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1000.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

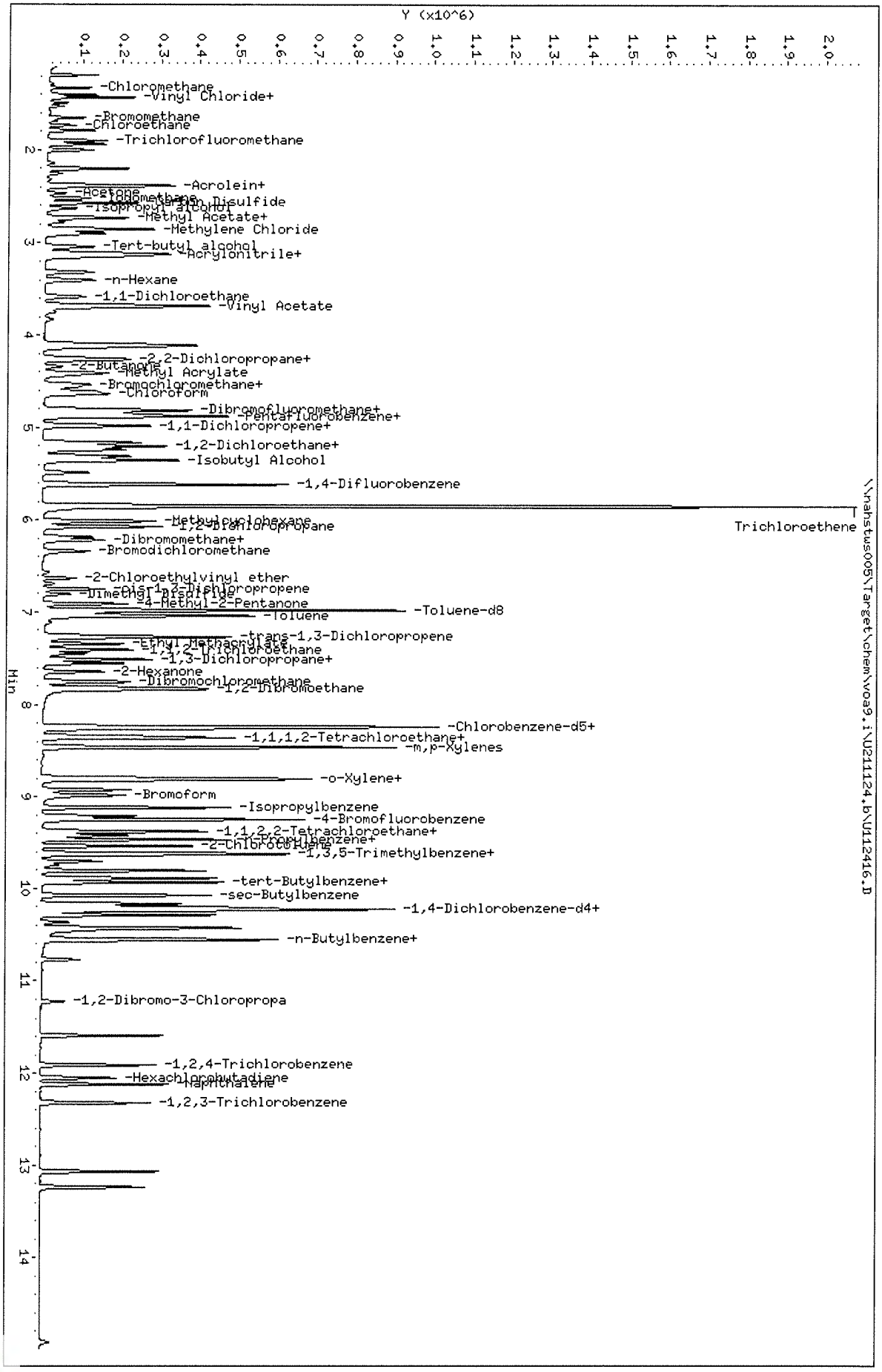
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1000.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.882	(1.000)	289626	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.617	(1.000)	463522	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	411564	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	207756	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.167	(1.058)	159879	44.8469	44.84
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	205679	51.4920	51.49
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	139006	45.6517	45.65
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	544410	50.8245	50.82
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	56087	21.7206	21720.56

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112416.D
Date : 24-NOV-2021 16:43
Client ID: HS211111214-01HS
Sample Info: HS211111214-01HS;HS211111214-01HS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112417.D Page 1
Report Date: 22-Dec-2021 15:29

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112417.D
Lab Smp Id: HS21111214-01MSD Client Smp ID: HS21111214-01MSD
Inj Date : 24-NOV-2021 17:05
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111214-01MSD;HS21111214-01MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1000;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1000.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

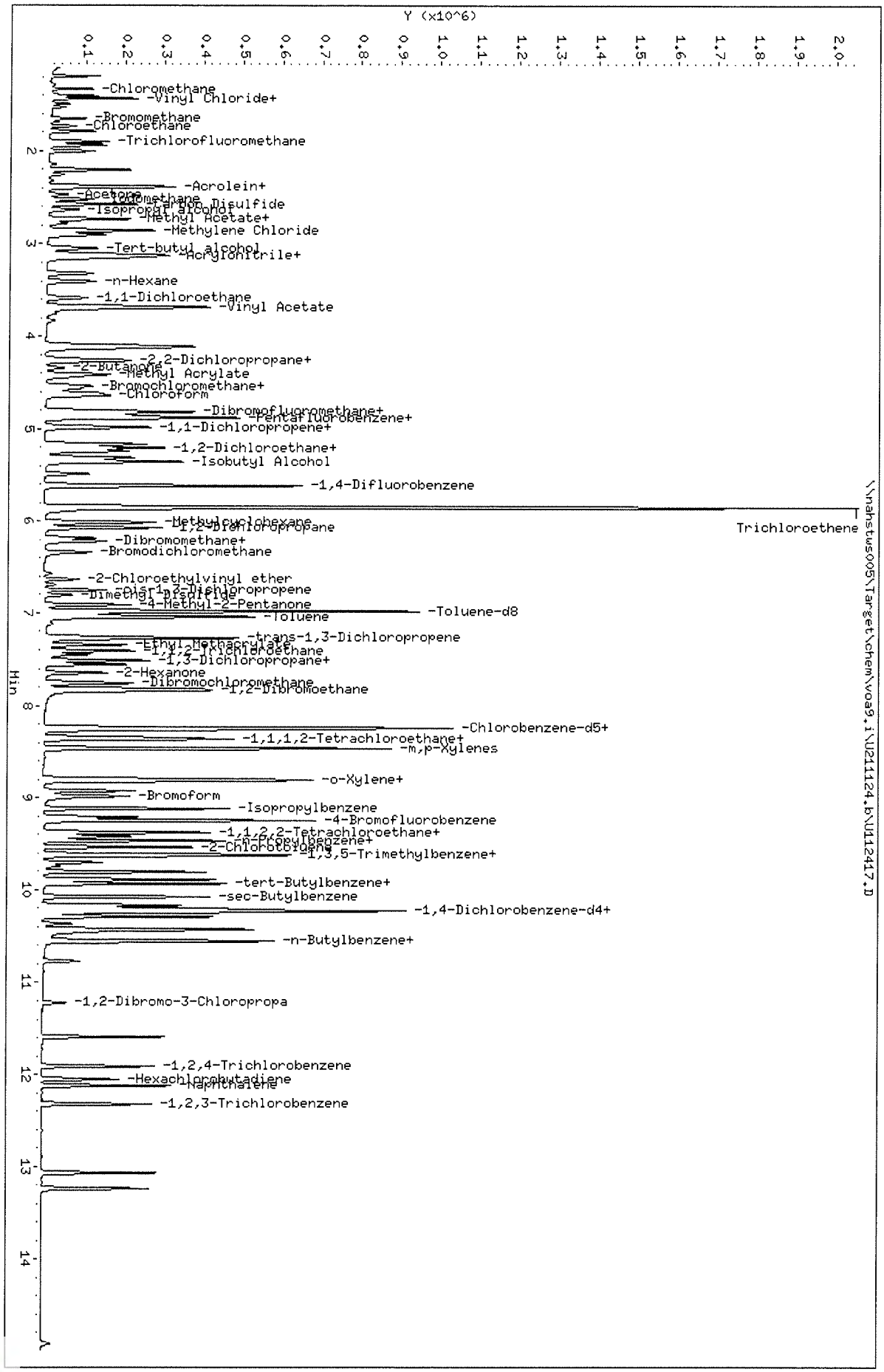
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1000.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.882	(1.000)	293072	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.617	(1.000)	479038	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	421015	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.224	(1.000)	210400	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.167	(1.058)	163386	45.3066	45.30
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	211304	51.7185	51.71
$ 30 Dibromofluoromethane	113	4.815	4.819	(0.987)	144326	46.8639	46.86
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	560636	51.1644	51.16
11 1,1-Dichloroethene	96	2.382	2.390	(0.488)	54062	20.6902	20690.18

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112417.D
Date : 24-NOV-2021 17:05
Client ID: HS21111214-01MSD
Sample Info: HS21111214-01MSD;HS21111214-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112418.D Page 1
Report Date: 22-Dec-2021 15:28

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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112418.D
Lab Smp Id: HS21110813-16 Client Smp ID: HS21110813-16
Inj Date : 24-NOV-2021 17:27
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-16;HS21110813-16;;;
Misc Info : 180315V9;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:27 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 16
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

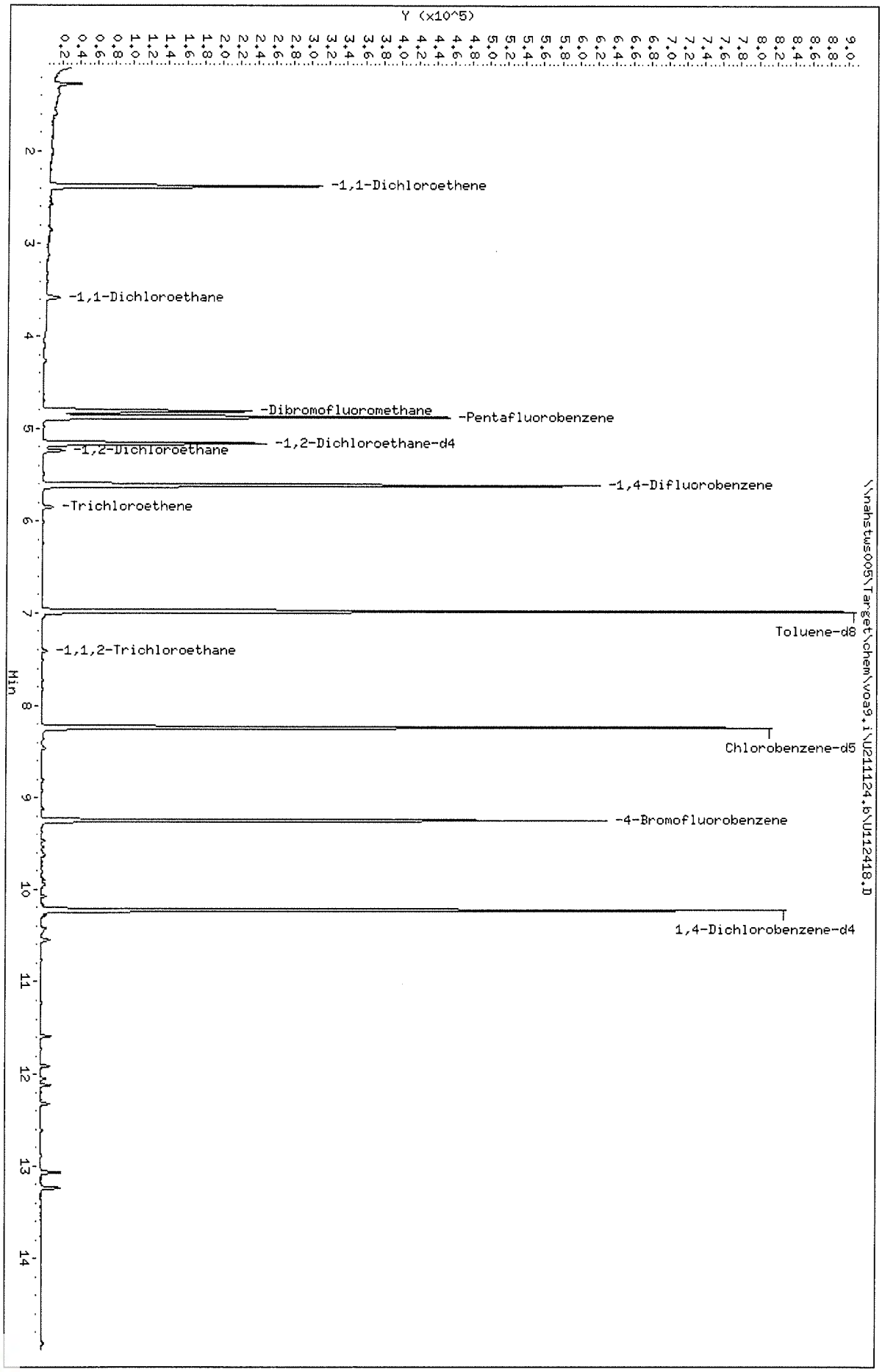
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	288453	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	468926	50.0000	
* 47 Chlorobenzene-d5	117	8.238	8.242	(1.000)	412787	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	200850	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	162117	45.6867	45.68
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199022	49.6304	49.63
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	132499	43.6548	43.65
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	540277	50.2892	50.28
11 1,1-Dichloroethene	96	2.379	2.379	(0.488)	104561	40.6576	406.57

Data File: \\nahstws005\Target\chem\voa9,i\U211124,b\U112418.D
Date : 24-NOV-2021 17:27
Client ID: HS21110813-16
Sample Info: HS21110813-16;HS21110813-16;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112418.D Page 3

Date : 24-NOV-2021 17:27

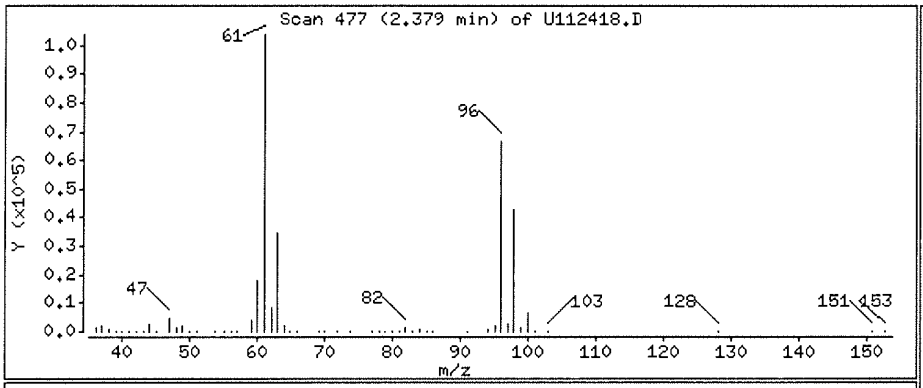
Client ID: HS21110813-16 Instrument: VOA9.i

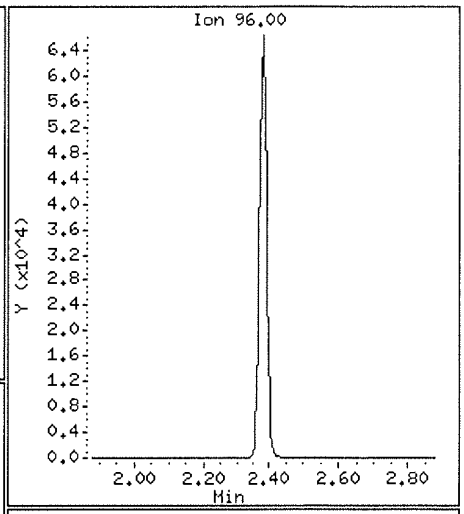
Sample Info: HS21110813-16;HS21110813-16;;;

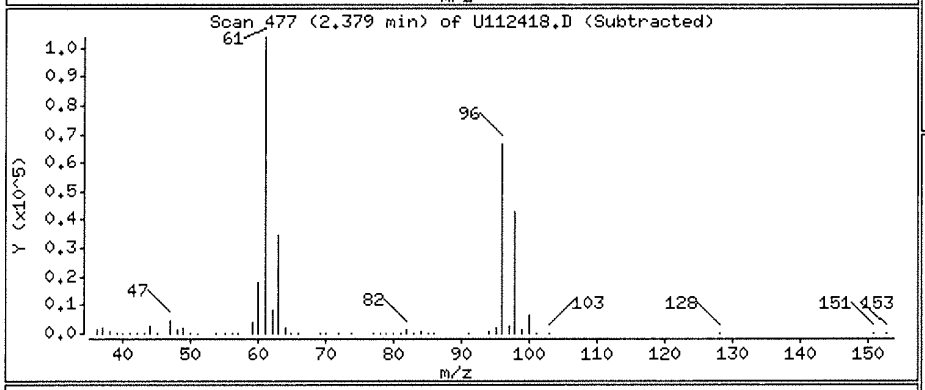
Purge Volume: 5.0 Operator: PC

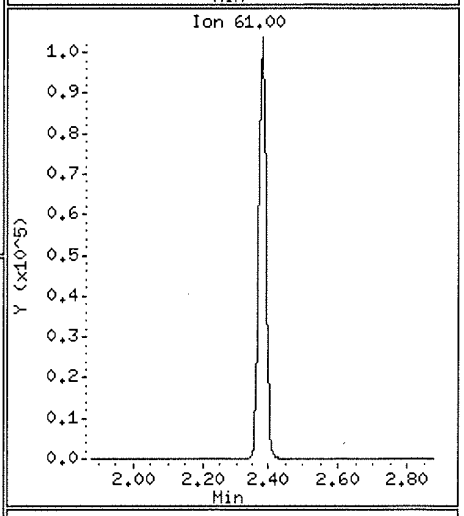
Column phase: DB624 Column diameter: 0.18

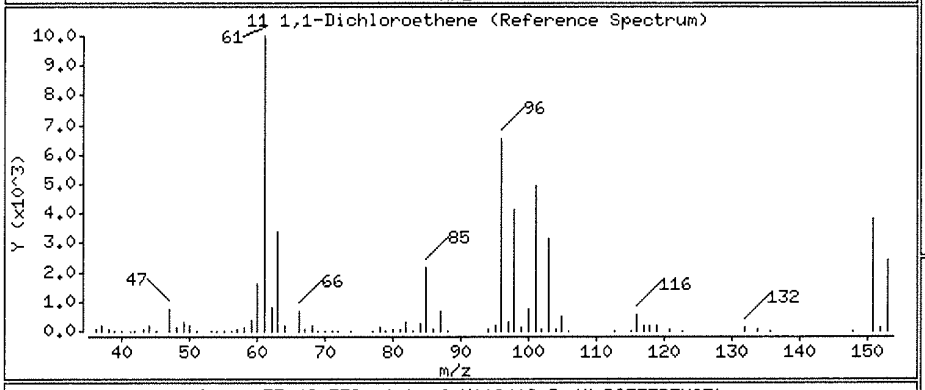
11 1,1-Dichloroethene Concentration: 406.57 ug/l

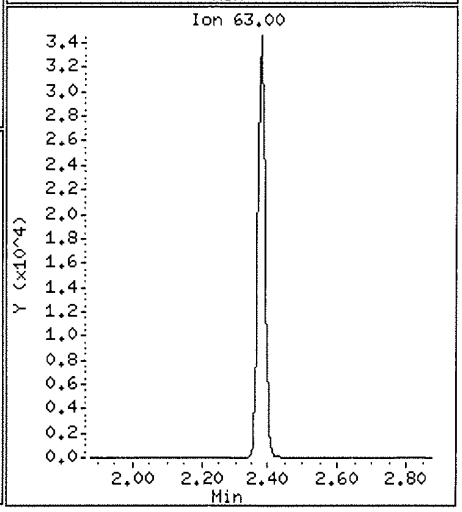


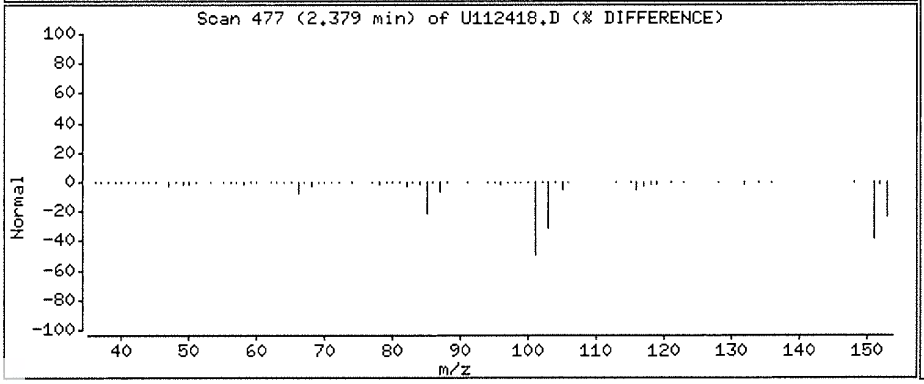












Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112419.D Page 1
Report Date: 22-Dec-2021 15:28

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Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112419.D
Lab Smp Id: HS21110813-17 Client Smp ID: HS21110813-17
Inj Date : 24-NOV-2021 17:50
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-17;HS21110813-17;;;
Misc Info : 180315V9;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:27 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 17
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

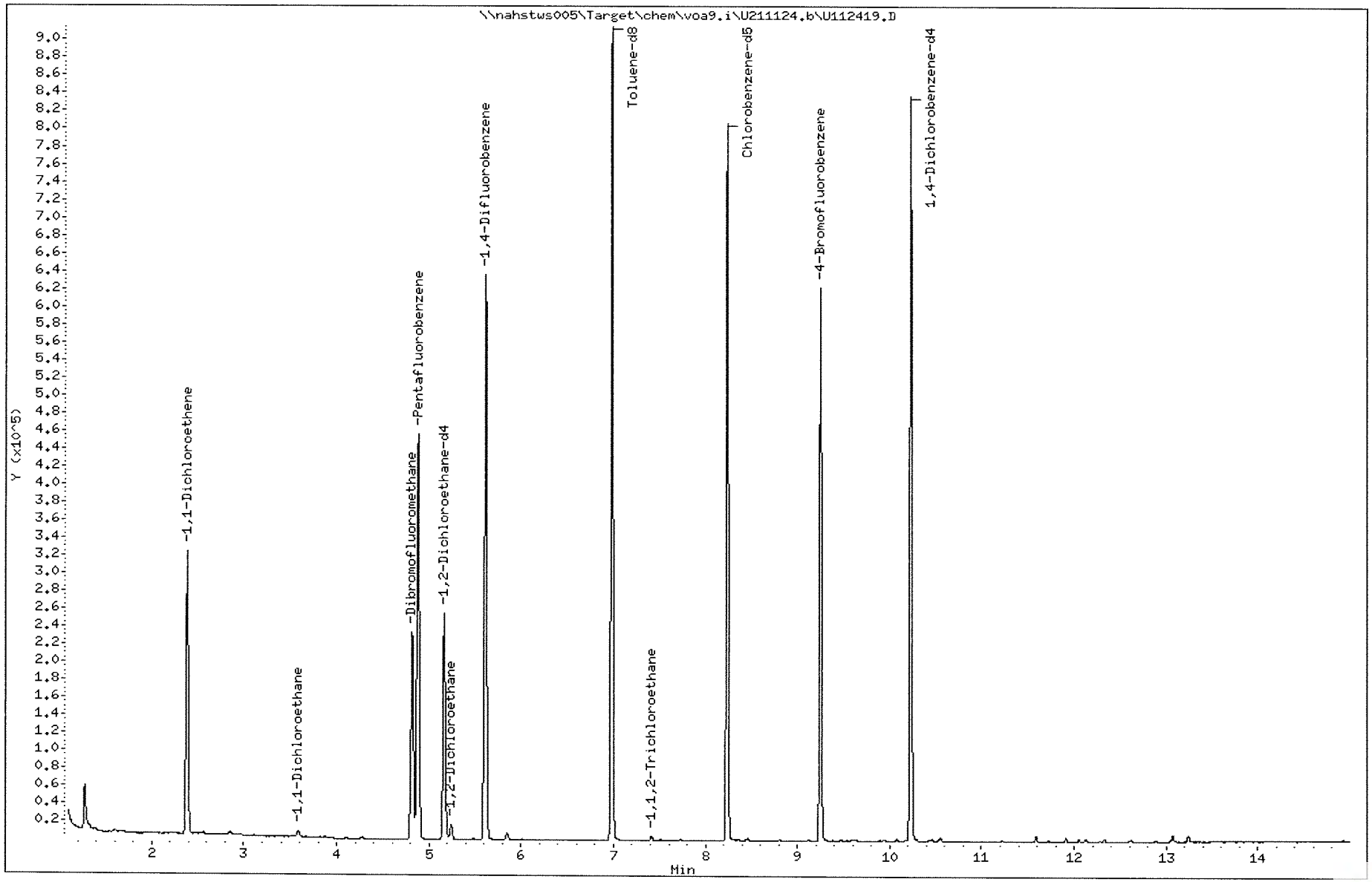
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	287577	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	469235	50.0000	
* 47 Chlorobenzene-d5	117	8.238	8.242	(1.000)	410997	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	202069	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	160674	45.4092	45.40
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199471	49.9679	49.96
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	132248	43.7058	43.70
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	540009	50.4832	50.48
11 1,1-Dichloroethene	96	2.382	2.379	(0.488)	108919	42.4811	424.81

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112419.D
Date : 24-NOV-2021 17:50
Client ID: HS21110813-17
Sample Info: HS21110813-17;HS21110813-17;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112419.D

Date : 24-NOV-2021 17:50

Client ID: HS21110813-17

Instrument: VOA9.i

Sample Info: HS21110813-17;HS21110813-17;;;

Purge Volume: 5.0

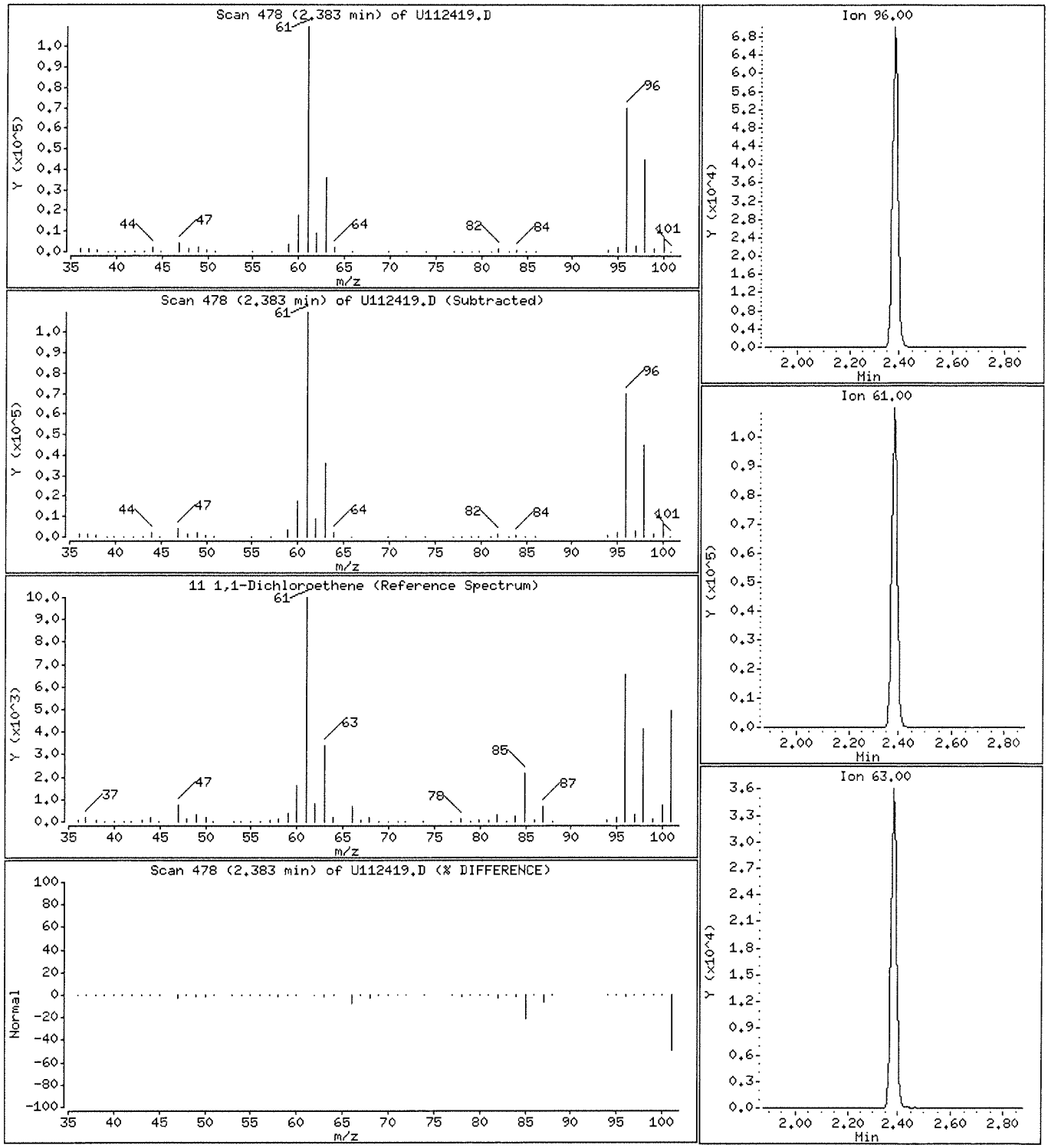
Operator: PC

Column phase: DB624

Column diameter: 0.18

11 1,1-Dichloroethene

Concentration: 424.81 ug/l



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211124.b\U112432.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-NOV-2021 22:40
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211124.b\8260C.m
Meth Date : 22-Dec-2021 15:29 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

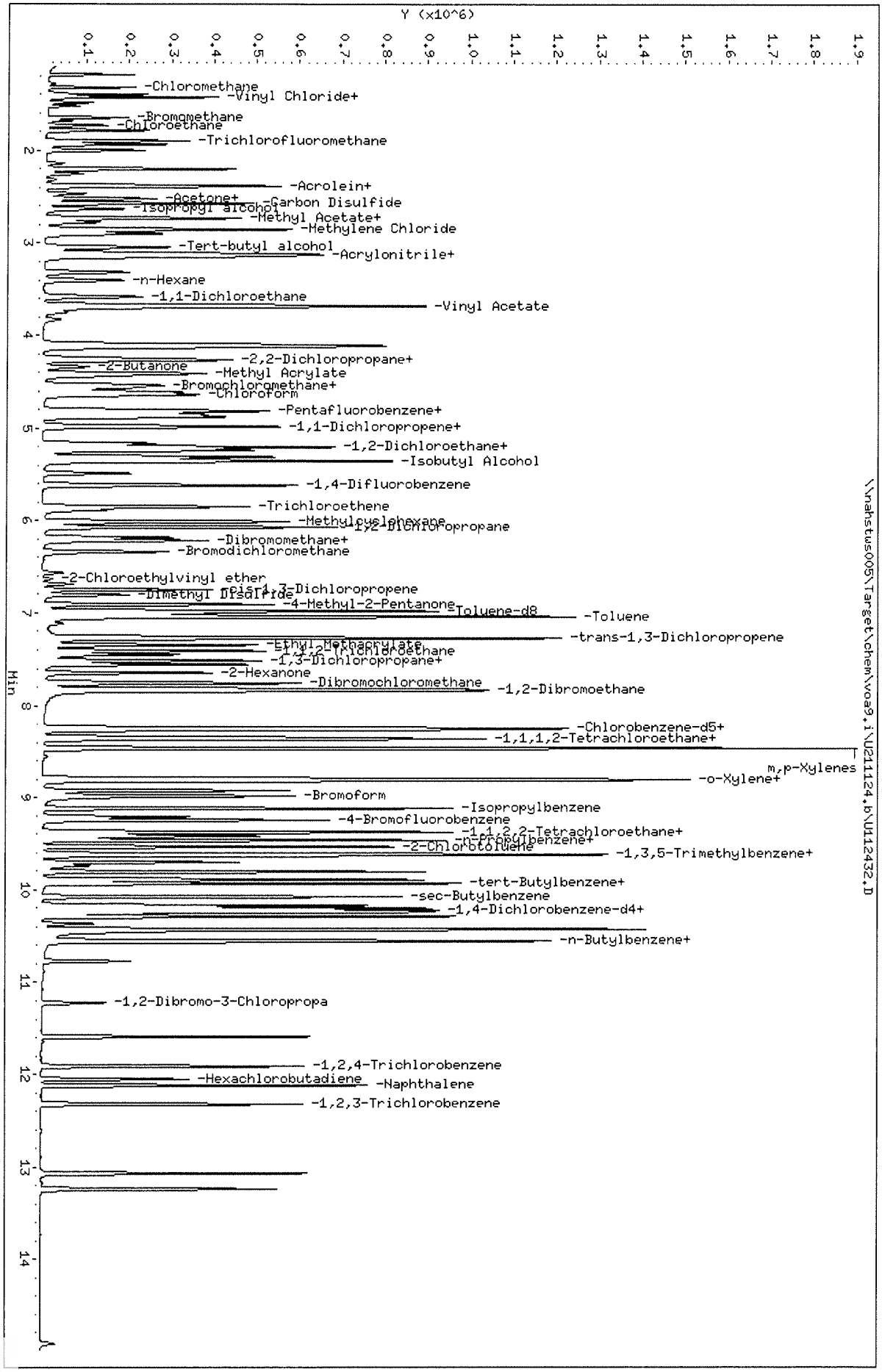
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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 Pentafluorobenzene	168	4.879	4.879	(1.000)	244287	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	437895	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	401395	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	196677	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	168440	50.0000	56.39
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	203393	50.0000	52.22
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	145119	50.0000	56.70
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	541006	50.0000	51.78
11 1,1-Dichloroethene	96	2.379	2.379	(0.488)	111070	50.0000	50.99

Data File: \\nahstws005\Target\chem\voa9.i\U211124.b\U112432.D
Date : 24-NOV-2021 22:40
Client ID: CCV-END
Sample Info: VSTD050-END;VSTD050-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



MSVOA09 -Logbook

Batch: 47371
Date: 11-30-2021
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	TUNE	11-30-2021 10:28 am	1.00	50 mL	50 mL	U113001.D	Liquid	Y	N
2	VSTD050	CCV	11-30-2021 10:50 am	1.00	50 mL	50 mL	U113002a.D	Liquid	Y	N
3	VSTD050	CCV	11-30-2021 11:13 am	1.00	50 mL	50 mL	U113003.D	Liquid	Y	N
4	CCB	SAMP	11-30-2021 11:35 am	1.00	50 mL	50 mL	U113004.D	Liquid	Y	N
5	VLCSW-211130	LCS	11-30-2021 11:57 am	1.00	50 mL	50 mL	U113005.D	Liquid	Y	N
6	BLANK	SAMP	11-30-2021 12:19 pm	1.00	50 mL	50 mL	U113006.D	Liquid	Y	N
7	VBLKW-211130	MBLK	11-30-2021 12:42 pm	1.00	50 mL	50 mL	U113007.D	Liquid	Y	N
8	HS21111149-11	SAMP	11-30-2021 01:09 pm	1.00	50 mL	50 mL	U113008.D	Liquid	Y	N
9	HS21111149-09	SAMP	11-30-2021 01:31 pm	1.00	50 mL	50 mL	U113009.D	Liquid	Y	N
10	HS21111149-10	SAMP	11-30-2021 01:53 pm	1.00	50 mL	50 mL	U113010.D	Liquid	Y	N
11	HS21110813-18	SAMP	11-30-2021 02:16 pm	1.00	50 mL	50 mL	U113011.D	Liquid	Y	N
12	HS21111162-29	SAMP	11-30-2021 02:38 pm	1.00	50 mL	50 mL	U113012.D	Liquid	Y	N
13	HS21111162-29MS	MS	11-30-2021 03:00 pm	1.00	50 mL	50 mL	U113013.D	Liquid	Y	N
14	HS21111162-29MSD	MSD	11-30-2021 03:23 pm	1.00	50 mL	50 mL	U113014.D	Liquid	Y	N
15	HS21111309-11	SAMP	11-30-2021 03:45 pm	5.00	10 mL	50 mL	U113015.D	Liquid	Y	N
16	VSTD050-END	CCV	11-30-2021 04:07 pm	1.00	50 mL	50 mL	U113016.D	Liquid	Y	N
17	BLANK	SAMP	11-30-2021 04:29 pm	1.00	50 mL	50 mL	U113017.D	Liquid	Y	N
18	HS21111162-15	SAMP	11-30-2021 04:52 pm	1.00	50 mL	50 mL	U113018.D	Liquid	Y	N
19	HS21111162-16	SAMP	11-30-2021 05:14 pm	1.00	50 mL	50 mL	U113019.D	Liquid	Y	N
20	HS21111162-17	SAMP	11-30-2021 05:37 pm	1.00	50 mL	50 mL	U113020.D	Liquid	Y	N
21	HS21111162-18	SAMP	11-30-2021 05:59 pm	1.00	50 mL	50 mL	U113021.D	Liquid	Y	N
22	HS21111162-19	SAMP	11-30-2021 06:21 pm	1.00	50 mL	50 mL	U113022.D	Liquid	Y	N
23	HS21111162-20	SAMP	11-30-2021 06:44 pm	1.00	50 mL	50 mL	U113023.D	Liquid	Y	N
24	HS21111162-21	SAMP	11-30-2021 07:06 pm	1.00	50 mL	50 mL	U113024.D	Liquid	Y	N
25	HS21111162-22	SAMP	11-30-2021 07:28 pm	1.00	50 mL	50 mL	U113025.D	Liquid	Y	N
26	HS21111162-23	SAMP	11-30-2021 07:51 pm	1.00	50 mL	50 mL	U113026.D	Liquid	Y	N
27	HS21111162-24	SAMP	11-30-2021 08:13 pm	1.00	50 mL	50 mL	U113027.D	Liquid	Y	N
28	HS21111162-25	SAMP	11-30-2021 08:35 pm	1.00	50 mL	50 mL	U113028.D	Liquid	Y	N
29	HS21111162-26	SAMP	11-30-2021 08:57 pm	1.00	50 mL	50 mL	U113029.D	Liquid	Y	N
30	HS21111162-27	SAMP	11-30-2021 09:20 pm	1.00	50 mL	50 mL	U113030.D	Liquid	Y	N
31	HS21111162-28	SAMP	11-30-2021 09:42 pm	1.00	50 mL	50 mL	U113031.D	Liquid	Y	N
32	BFB	TUNE	11-30-2021 10:04 pm	1.00	50 mL	50 mL	V113001.D	Liquid	Y	N
33	VSTD050	CCV	11-30-2021 10:26 pm	1.00	50 mL	50 mL	V113002a.D	Liquid	Y	N
34	VSTD050	CCV	11-30-2021 10:49 pm	1.00	50 mL	50 mL	V113003.D	Liquid	Y	N
35	CCB	SAMP	11-30-2021 11:11 pm	1.00	50 mL	50 mL	V113004.D	Liquid	Y	N
36	VLCSW-211130	LCS	11-30-2021 11:33 pm	1.00	50 mL	50 mL	V113005.D	Liquid	Y	N
37	BLANK	SAMP	11-30-2021 11:55 pm	1.00	50 mL	50 mL	V113006.D	Liquid	Y	N
38	VBLKW-211130	MBLK	12-01-2021 12:18 am	1.00	50 mL	50 mL	V113007.D	Liquid	Y	N
39	HS21111162-30	SAMP	12-01-2021 12:40 am	1.00	50 mL	50 mL	V113008.D	Liquid	Y	N
40	HS21111162-31	SAMP	12-01-2021 01:02 am	1.00	50 mL	50 mL	V113009.D	Liquid	Y	N
41	HS21111162-32	SAMP	12-01-2021 01:25 am	1.00	50 mL	50 mL	V113010.D	Liquid	Y	N

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
42	HS21111162-33	SAMP	12-01-2021 01:47 am	1.00	50 mL	50 mL	V113011.D	Liquid	Y	N
43	HS21111162-34	SAMP	12-01-2021 02:10 am	1.00	50 mL	50 mL	V113012.D	Liquid	Y	N
44	HS21111162-35	SAMP	12-01-2021 02:32 am	1.00	50 mL	50 mL	V113013.D	Liquid	Y	N
45	HS21111162-36	SAMP	12-01-2021 02:54 am	1.00	50 mL	50 mL	V113014.D	Liquid	Y	N
46	HS21111162-37	SAMP	12-01-2021 03:17 am	1.00	50 mL	50 mL	V113015.D	Liquid	Y	N
47	HS21111162-38	SAMP	12-01-2021 03:39 am	1.00	50 mL	50 mL	V113016.D	Liquid	Y	N
48	HS21111162-39	SAMP	12-01-2021 04:02 am	1.00	50 mL	50 mL	V113017.D	Liquid	Y	N
49	HS21111162-40	SAMP	12-01-2021 04:24 am	1.00	50 mL	50 mL	V113018.D	Liquid	Y	N
50	HS21111162-41	SAMP	12-01-2021 04:47 am	1.00	50 mL	50 mL	V113019.D	Liquid	Y	N
51	HS21111251-01	SAMP	12-01-2021 05:09 am	1.00	50 mL	50 mL	V113020.D	Liquid	Y	N
52	HS21111251-01MS	MS	12-01-2021 05:31 am	1.00	50 mL	50 mL	V113021.D	Liquid	Y	N
53	HS21111251-01MSD	MSD	12-01-2021 05:54 am	1.00	50 mL	50 mL	V113022.D	Liquid	Y	N
54	HS21111152-10	SAMP	12-01-2021 06:16 am	100.0	500 µL	50 mL	V113023.D	Liquid	Y	N
55	HS21111152-13	SAMP	12-01-2021 06:39 am	100.0	500 µL	50 mL	V113024.D	Liquid	Y	N
56	HS21111152-14	SAMP	12-01-2021 07:01 am	10.00	5 mL	50 mL	V113025.D	Liquid	Y	N
57	HS21111152-14	SAMP	12-01-2021 07:23 am	100.0	500 µL	50 mL	V113026.D	Liquid	Y	N
58	HS21111152-15	SAMP	12-01-2021 07:46 am	10.00	5 mL	50 mL	V113027.D	Liquid	Y	N
59	HS21111152-15	SAMP	12-01-2021 08:08 am	100.0	500 µL	50 mL	V113028.D	Liquid	Y	N
60	HS21111105-01	SAMP	12-01-2021 08:31 am	1.00	50 mL	50 mL	V113029.D	Liquid	Y	N
61	BLANK	SAMP	12-01-2021 08:53 am	1.00	50 mL	50 mL	V113030.D	Liquid	Y	N

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (TOL)#	SMC3 (DCE)#	OTHER #	TOT OUT
01	VLSCW-211130	100	100	98	101	0
02	VBLKW-211130	87	101	89	99	0
03	HS21110813-18	88	100	90	98	0
04	HS21111162-29MS	92	102	88	102	0
05	HS21111162-29MSD	91	103	87	103	0
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07						
08						
09						
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27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (TOL)	= Toluene-d8	(78-123)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-211130

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U113007 Lab Sample ID: VBLKW-211130

Date Analyzed: 11/30/21 Time Analyzed: 1242

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLSCW-211130	VLCSW-211130	U113005	1157
02	HS21110813-18	HS21110813-18	U113011	1416
03	HS21111162-29MS	HS21111162-29MS	U113013	1500
04	HS21111162-29MSD	HS21111162-29MSD	U113014	1523
05				
06				
07				
08				
09				
10				
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30				

COMMENTS:

FORM IV VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U113001 BFB Injection Date: 11/30/21

Instrument ID: VOA9 BFB Injection Time: 1028

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.1
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	71.9
175	5.0 - 9.0% of mass 174	6.2 (8.6)1
176	95.0 - 101.0% of mass 174	69.6 (96.9)1
177	5.0 - 9.0% of mass 176	5.0 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	U113003	11/30/21	1113
02	VLSCW-211130	VLCSW-211130	U113005	11/30/21	1157
03	VBLKW-211130	VBLKW-211130	U113007	11/30/21	1242
04	HS21110813-18	HS21110813-18	U113011	11/30/21	1416
05	HS21111162-29MS	HS21111162-29MS	U113013	11/30/21	1500
06	HS21111162-29MSD	HS21111162-29MSD	U113014	11/30/21	1523
07	CCV-END	CCV-END	U113016	11/30/21	1607
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/30/21 Time: 1113

Lab File ID: U113003 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1-Dichloroethene	0.4460000	0.4897736	0.4897736	0.1	-9.81	20.00	AVRG
Dibromofluoromethane	50.473293	50.000000	0.5297056	0.1	-0.95	20.00	LINR
Toluene-d8	1.3010000	1.3148184	1.3148184	0.1	-1.06	20.00	AVRG
1,2-Dichloroethane-d4	49.300109	50.000000	0.6050598	0.1	1.40	20.00	LINR
4-Bromofluorobenzene	51.793573	50.000000	0.5026020	0.1	-3.59	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: VOA9 Calibration Date: 11/30/21 Time: 1607

Lab File ID: U113016 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1-Dichloroethene	0.4460000	0.4874860	0.4874860	0.1	-9.30	50.00	AVRG
Dibromofluoromethane	50.567377	50.000000	0.5306764	0.1	-1.13	50.00	LINR
Toluene-d8	1.3010000	1.2812939	1.2812939	0.1	1.51	50.00	AVRG
1,2-Dichloroethane-d4	50.554801	50.000000	0.6200040	0.1	-1.11	50.00	LINR
4-Bromofluorobenzene	50.358225	50.000000	0.4890262	0.1	-0.72	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U113003 Date Analyzed: 11/30/21

Instrument ID: VOA9 Time Analyzed: 1113

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	276295	4.88	461223	5.61	414099	8.24
	UPPER LIMIT	552590	5.38	922446	6.11	828198	8.74
	LOWER LIMIT	138148	4.38	230612	5.11	207050	7.74
	CLIENT SAMPLE NO.						
01	VLSCW-211130	275168	4.88	465781	5.61	415189	8.24
02	VBLKW-211130	295174	4.88	473987	5.61	415368	8.24
03	HS21110813-18	288001	4.88	467469	5.62	410872	8.24
04	HS21111162-29MS	292261	4.89	467752	5.62	415159	8.24
05	HS21111162-29MSD	294623	4.88	464820	5.61	405678	8.24
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U113003 Date Analyzed: 11/30/21

Instrument ID: VOA9 Time Analyzed: 1113

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	209351	10.23				
	UPPER LIMIT	418702	10.73				
	LOWER LIMIT	104676	9.72				
	CLIENT SAMPLE NO.						
01	VLSCW-211130	210499	10.23				
02	VBLKW-211130	203941	10.22				
03	HS21110813-18	199673	10.23				
04	HS21111162-29MS	208585	10.23				
05	HS21111162-29MSD	206421	10.23				
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113001.D Page 1

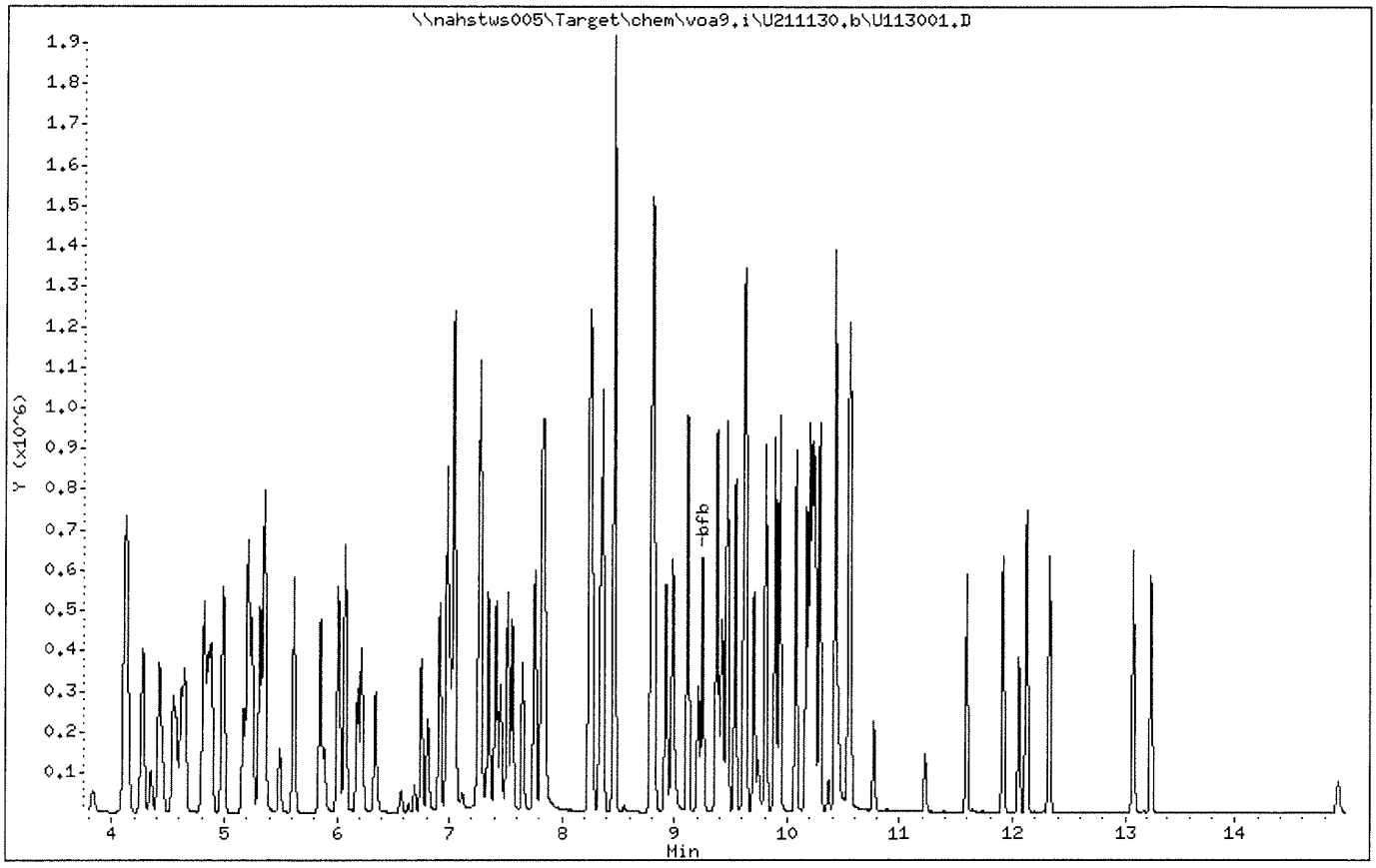
Date : 30-NOV-2021 10:28

Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113001.D Page 2

Date : 30-NOV-2021 10:28

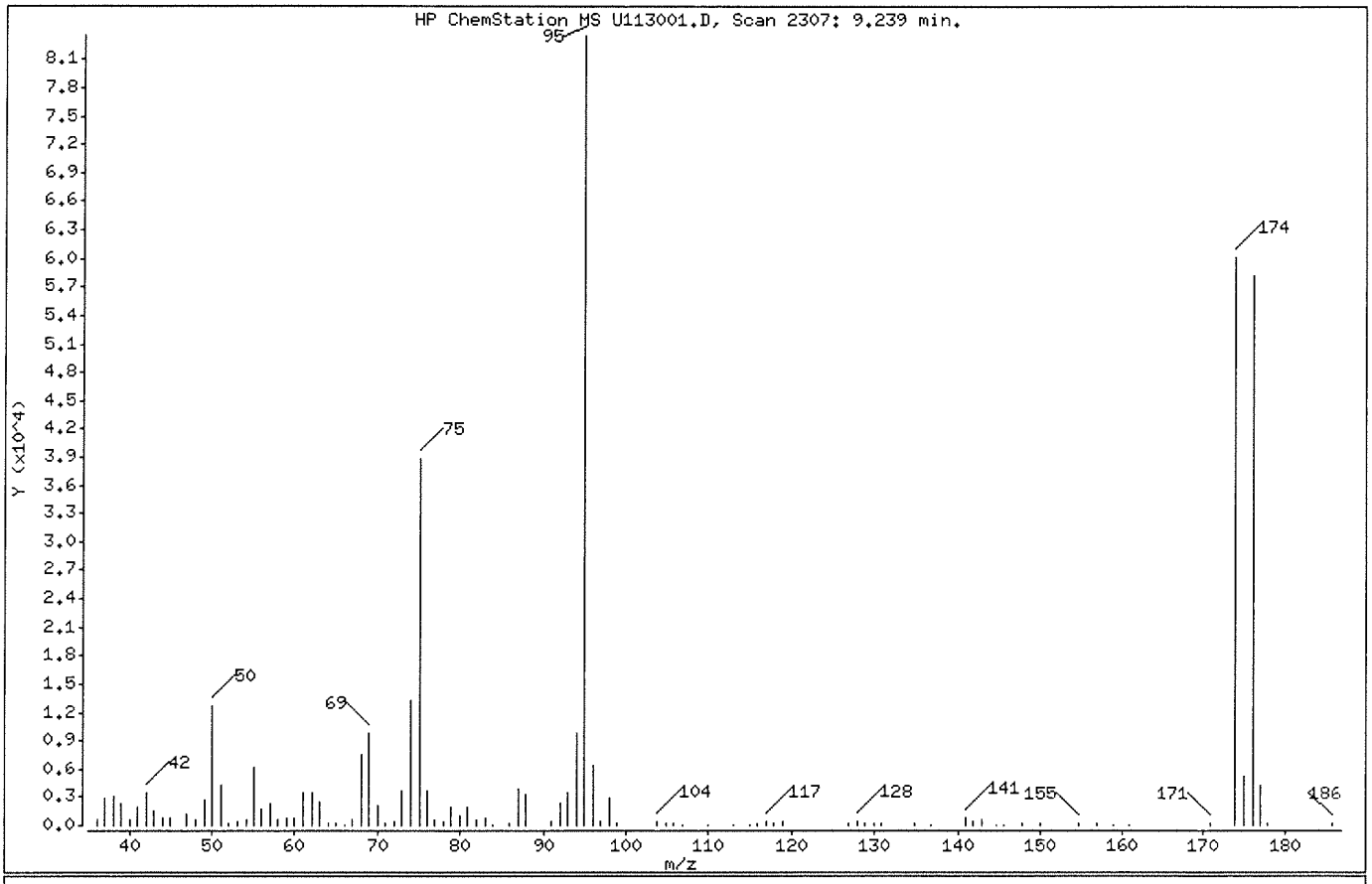
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.08
75	30.00 - 60.00% of mass 95	46.38
96	5.00 - 9.00% of mass 95	7.48
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	71.86
175	5.00 - 9.00% of mass 174	6.18 (8.59)
176	95.00 - 101.00% of mass 174	69.62 (96.88)
177	5.00 - 9.00% of mass 176	5.03 (7.23)

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113001.D

Date : 30-NOV-2021 10:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U113001.D
Spectrum: HP ChemStation MS U113001.D, Scan 2307: 9.239 min.
Location of Maximum: 95.05
Number of points: 96

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	660	62.00	3513	87.90	3352	130.90	119
37.00	2797	63.00	2552	90.90	330	134.80	129
38.00	2992	64.00	255	92.00	2357	136.70	85
39.00	2341	64.90	168	93.00	3406	140.90	698
40.00	622	66.00	88	94.00	9775	141.90	292
41.00	1933	67.00	517	95.00	83576	142.90	658
42.00	3419	68.00	7587	96.00	6248	144.70	73
43.00	1446	69.00	9803	97.00	420	145.70	83
44.00	762	70.00	2040	98.00	2852	147.80	185
45.00	860	70.90	207	99.00	234	149.90	121
47.00	1086	72.00	475	103.80	352	154.70	200
48.00	513	73.00	3694	104.90	154	156.90	121
49.00	2651	74.00	13209	105.80	232	158.80	69
50.00	12605	75.00	38760	106.80	96	160.90	60
51.00	4203	76.00	3626	109.90	56	170.90	99
52.00	209	76.90	507	112.90	62	173.90	60056
53.00	355	78.00	409	114.90	76	174.90	5161
54.10	516	78.90	2004	115.90	268	175.90	58184
55.00	6112	79.90	925	116.90	476	176.90	4207
56.00	1766	80.90	2009	117.90	215	177.80	144
57.00	2284	81.90	514	118.90	404	185.80	118
57.90	520	83.00	713	126.80	212		
59.00	779	83.90	96	127.90	324		
60.00	692	86.00	115	128.90	146		
61.00	3537	87.00	3877	129.90	263		

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113003.D Page 1
Report Date: 22-Dec-2021 15:37

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113003.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 30-NOV-2021 11:13
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

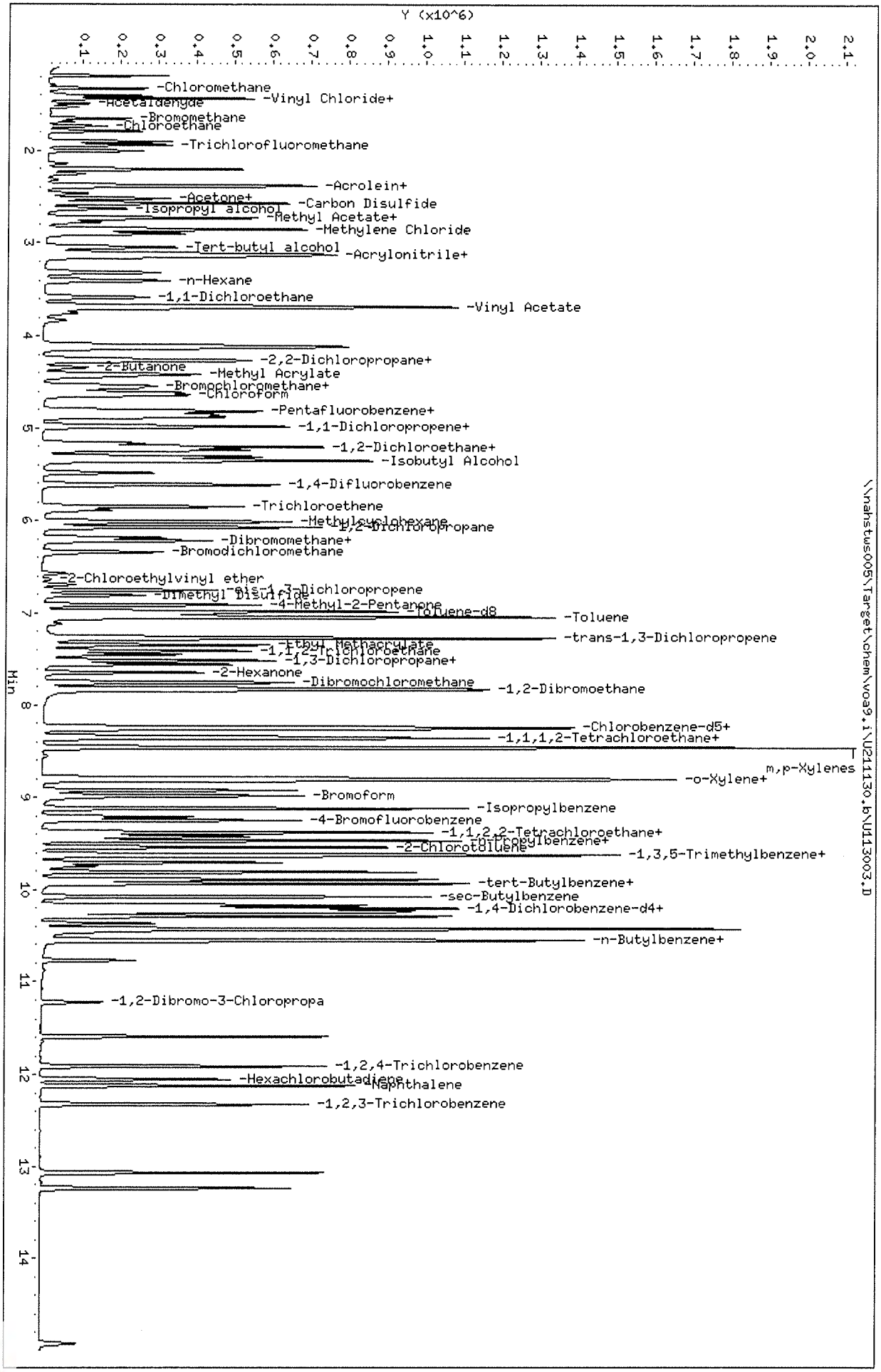
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	276295	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	461223	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	414099	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	209351	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	167175	50.0000	49.30
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	208127	50.0000	51.79
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	146355	50.0000	50.47
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	544465	50.0000	50.51
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	135322	50.0000	54.93

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113003.D
Date : 30-NOV-2021 11:13
Client ID: CCV
Sample Info: VSTD050;VSTD050;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113005.D
Lab Smp Id: VLCSW-211130 Client Smp ID: VLSCW-211130
Inj Date : 30-NOV-2021 11:57
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-211130;VLSCW-211130;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

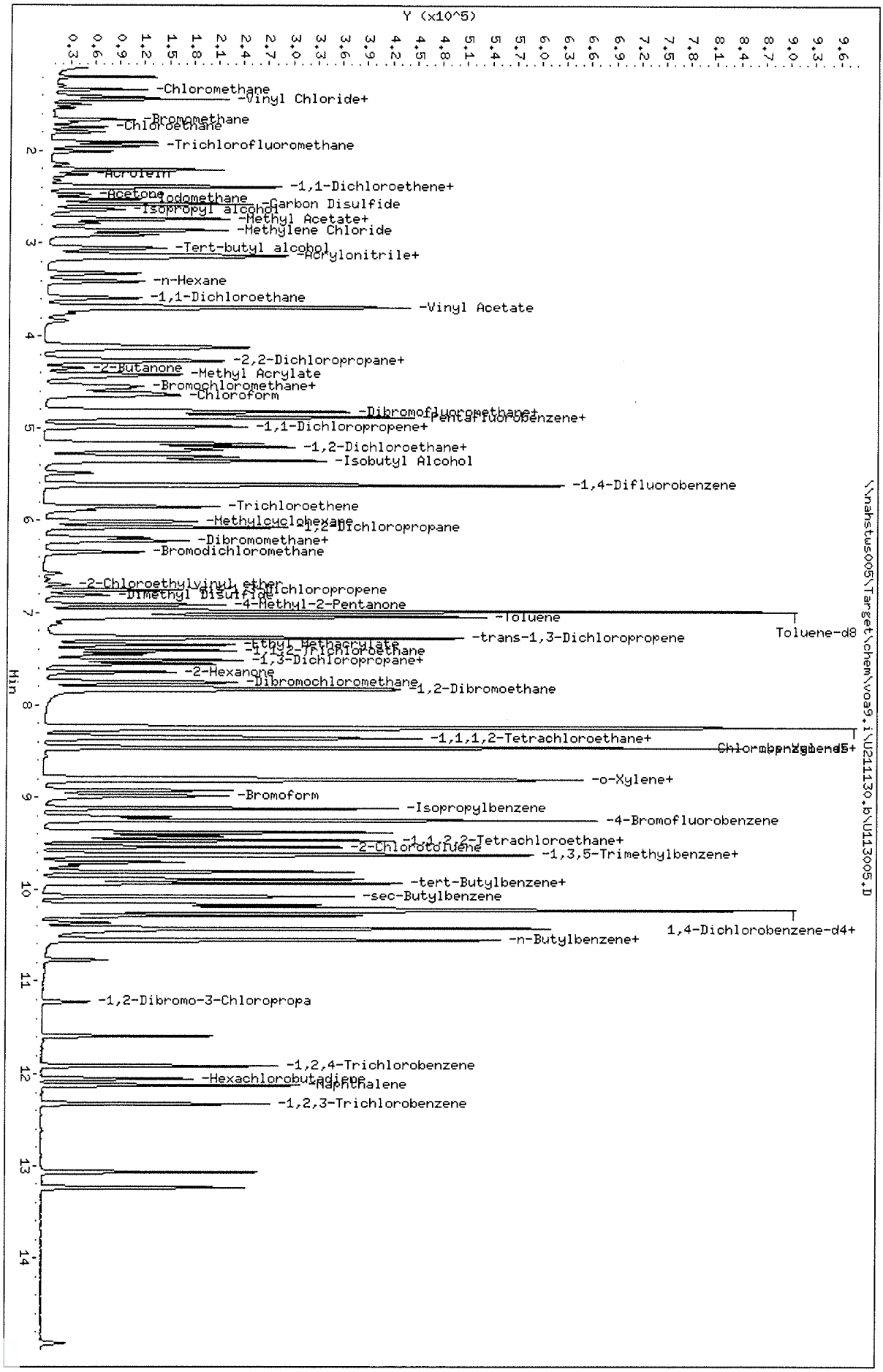
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.879	(1.000)	275168	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	465781	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	415189	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	210499	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	165701	49.0584	49.05
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	203477	50.4699	50.46
$ 30 Dibromofluoromethane	113	4.819	4.815	(0.987)	144593	50.0630	50.06
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	538264	49.8120	49.81
11 1,1-Dichloroethene	96	2.390	2.382	(0.489)	54137	22.0670	22.06

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113005.D
Date : 30-NOV-2021 11:57
Client ID: VLSCW-211130
Sample Info: VLCSW-211130;VLSCW-211130;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113007.D
Lab Smp Id: VBLKW-211130 Client Smp ID: VBLKW-211130
Inj Date : 30-NOV-2021 12:42
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-211130;VBLKW-211130;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

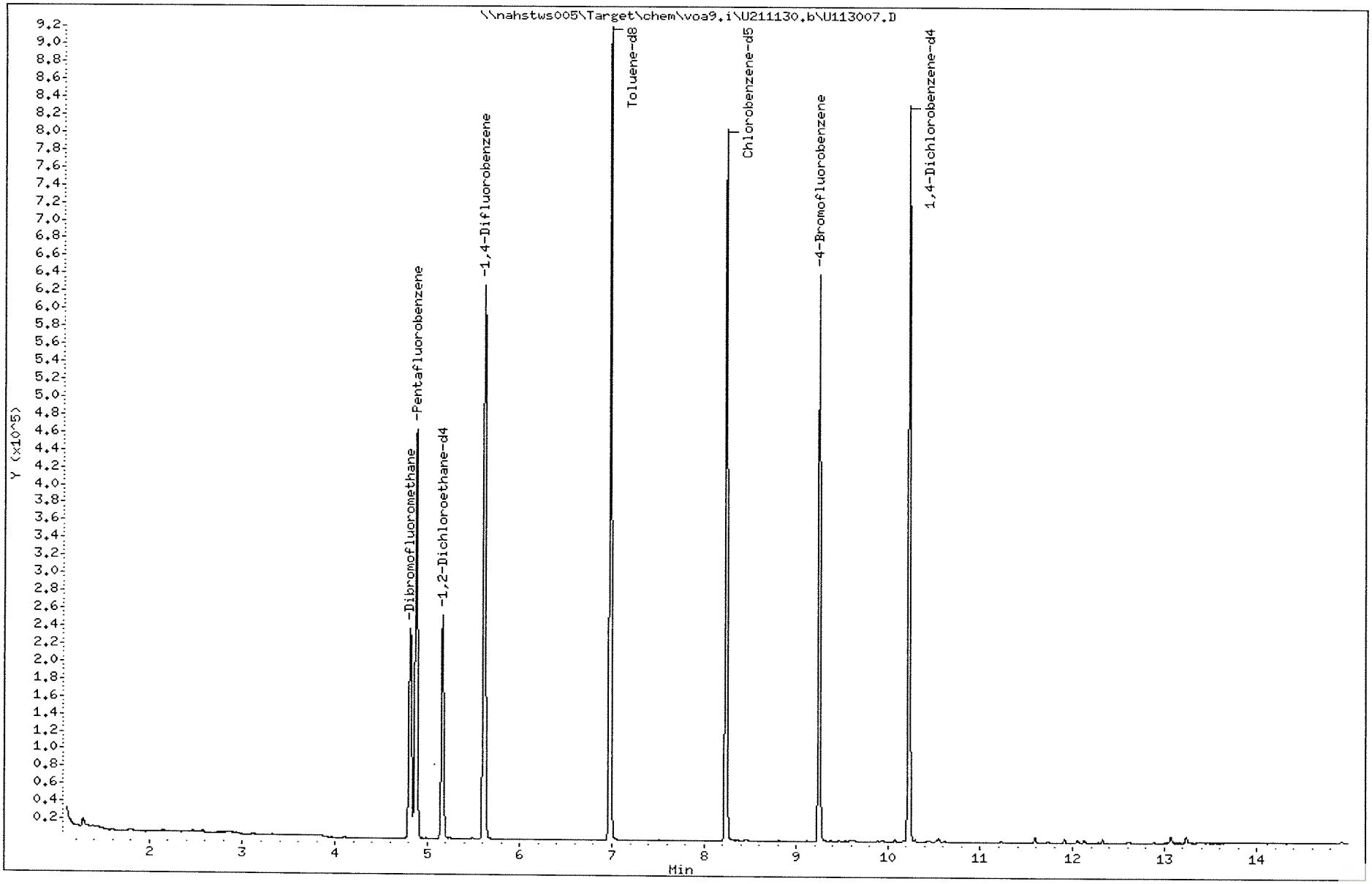
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	295174	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	473987	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	415368	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.225	(1.000)	203941	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	161652	44.4800	44.48
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	200347	49.6509	49.65
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	135328	43.5700	43.57
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	546134	50.5185	50.51

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113007.D
Date : 30-NOV-2021 12:42
Client ID: VBLKW-211130
Sample Info: VBLKW-211130;VBLKW-211130;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113011.D Page 1
Report Date: 22-Dec-2021 15:35

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Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113011.D
Lab Smp Id: HS21110813-18 Client Smp ID: HS21110813-18
Inj Date : 30-NOV-2021 14:16
Operator : PC Inst ID: VOA9.i
Smp Info : HS21110813-18;HS21110813-18;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:35 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14

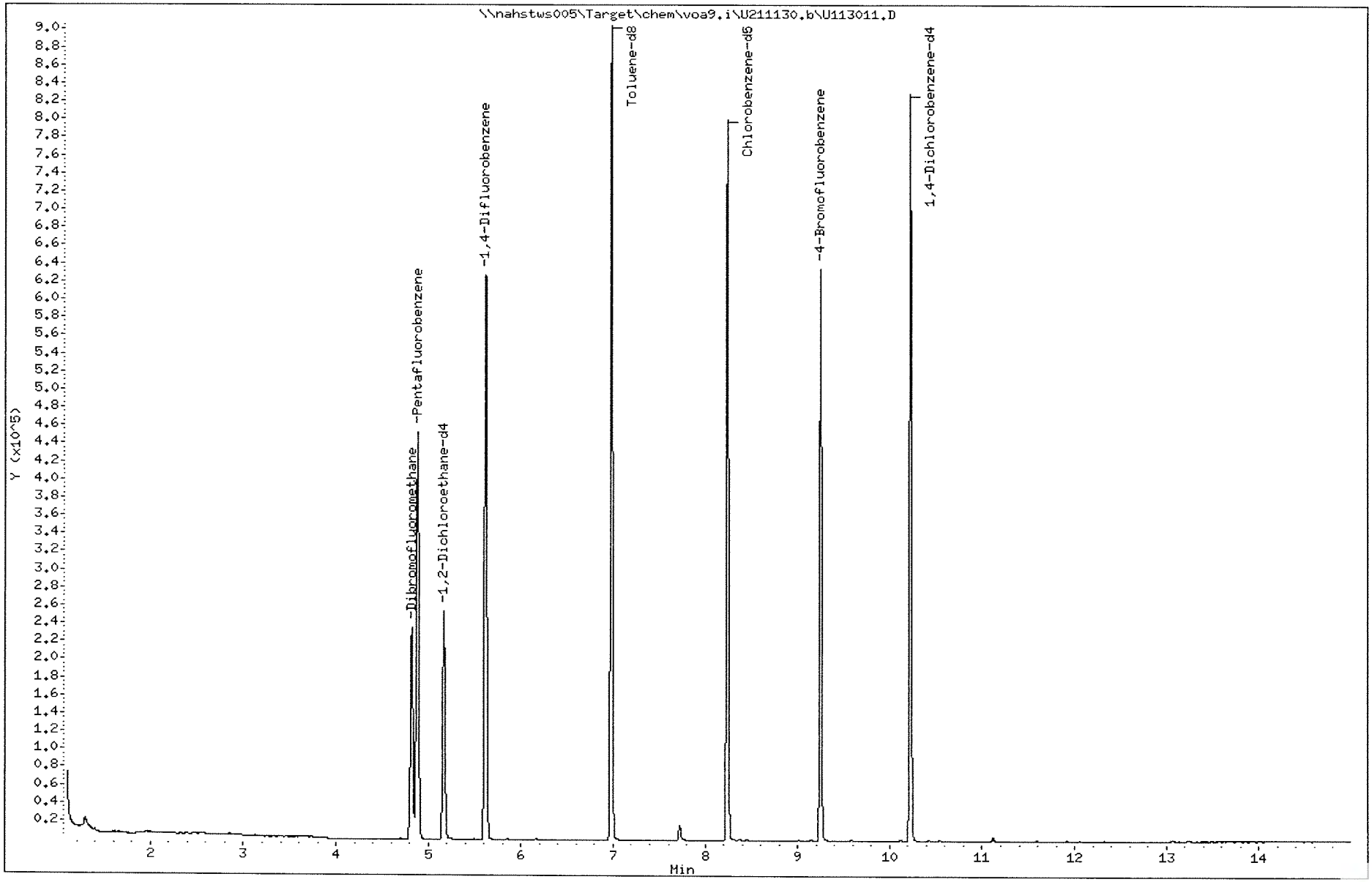
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	288001	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	467469	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	410872	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	199673	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	160323	45.2378	45.23
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	195959	49.0798	49.07
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	133506	44.0635	44.06
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	536911	50.2088	50.20

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113011.D
Date : 30-NOV-2021 14:16
Client ID: HS21110813-18
Sample Info: HS21110813-18;HS21110813-18;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113013.D
Lab Smp Id: HS21111162-29MS Client Smp ID: HS21111162-29MS
Inj Date : 30-NOV-2021 15:00
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111162-29MS;HS21111162-29MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 13 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

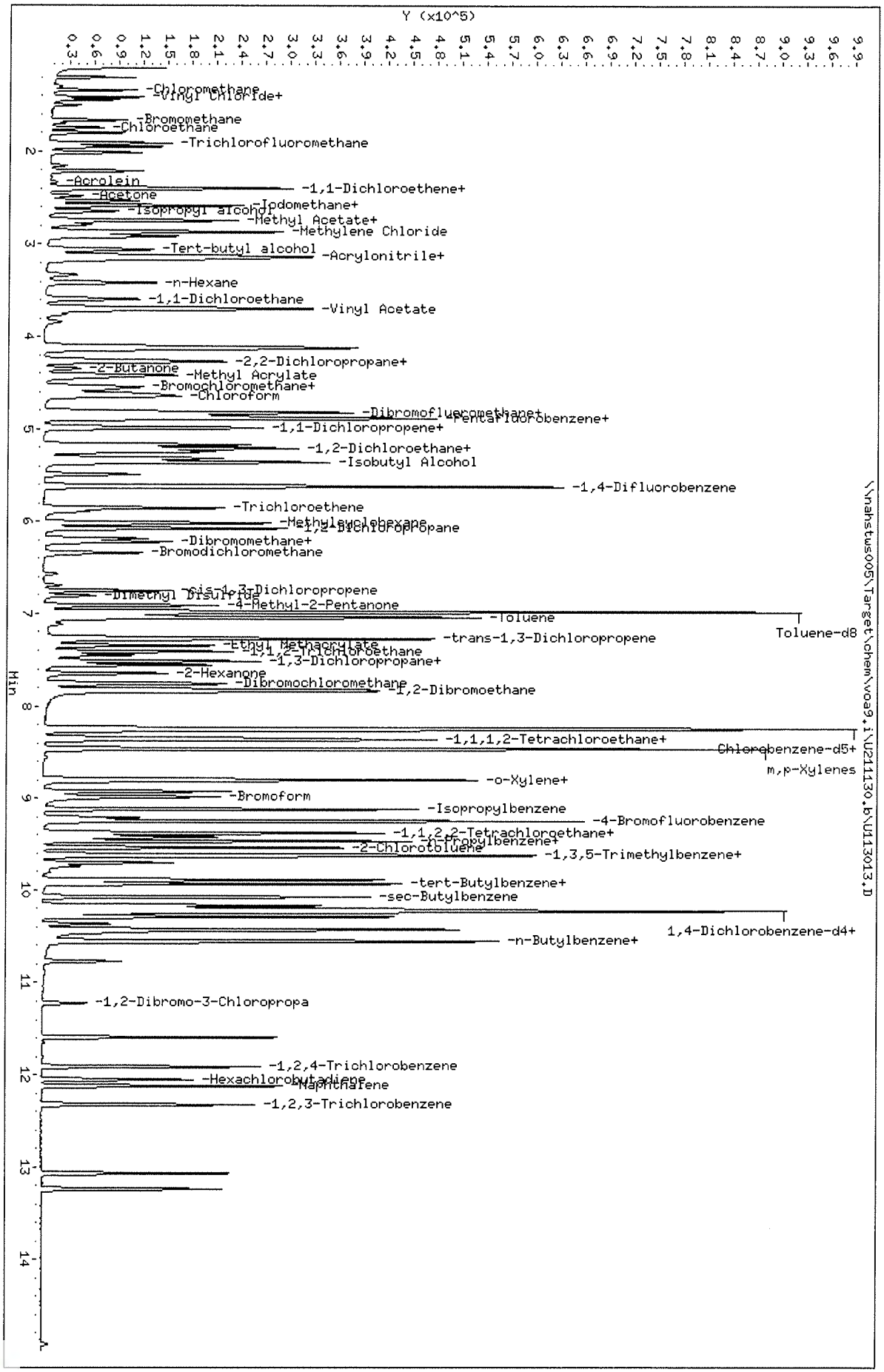
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.886	4.879	(1.000)	292261	50.0000	
* 36 1,4-Difluorobenzene	114	5.617	5.614	(1.000)	467752	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	415159	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	208585	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.164	(1.058)	159170	44.2253	44.22
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	205138	50.8967	50.89
$ 30 Dibromofluoromethane	113	4.823	4.815	(0.987)	142062	46.2456	46.24
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	548671	50.7788	50.77
11 1,1-Dichloroethene	96	2.394	2.382	(0.490)	57262	21.9757	21.97

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113013.D
Date : 30-NOV-2021 15:00
Client ID: HS21111162-29HS
Sample Info: HS21111162-29HS;HS21111162-29HS;3;;HS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113014.D
Lab Smp Id: HS21111162-29MSD Client Smp ID: HS21111162-29MSD
Inj Date : 30-NOV-2021 15:23
Operator : PC Inst ID: VOA9.i
Smp Info : HS21111162-29MSD;HS21111162-29MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 13 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

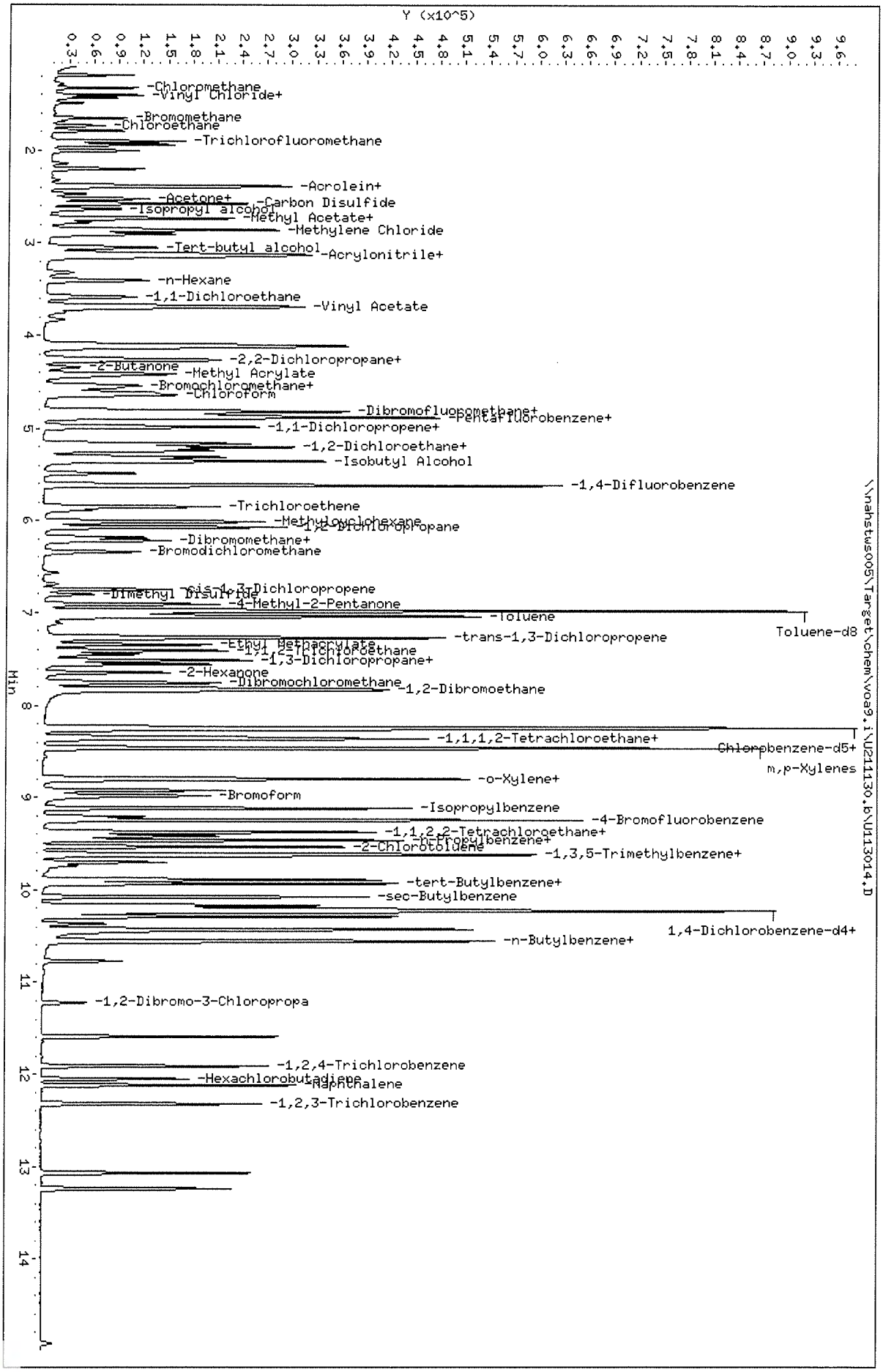
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	294623	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	464820	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.241	(1.000)	405678	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	206421	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	157515	43.3871	43.38
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	202215	51.3558	51.35
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	140951	45.5026	45.50
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	543784	51.5026	51.50
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	56220	21.4028	21.40

Data File: \\nahstws005\Target\chem\voa9.i\U211130.b\U113014.D
Date : 30-NOV-2021 15:23
Client ID: HS21111162-29MSD
Sample Info: HS21111162-29MSD;HS21111162-29MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211130.b\U113016.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 30-NOV-2021 16:07
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa9.i\U211130.b\8260C.m
Meth Date : 22-Dec-2021 15:37 VOA9.i Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 15 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14
Processing Host: NAHSTW7056

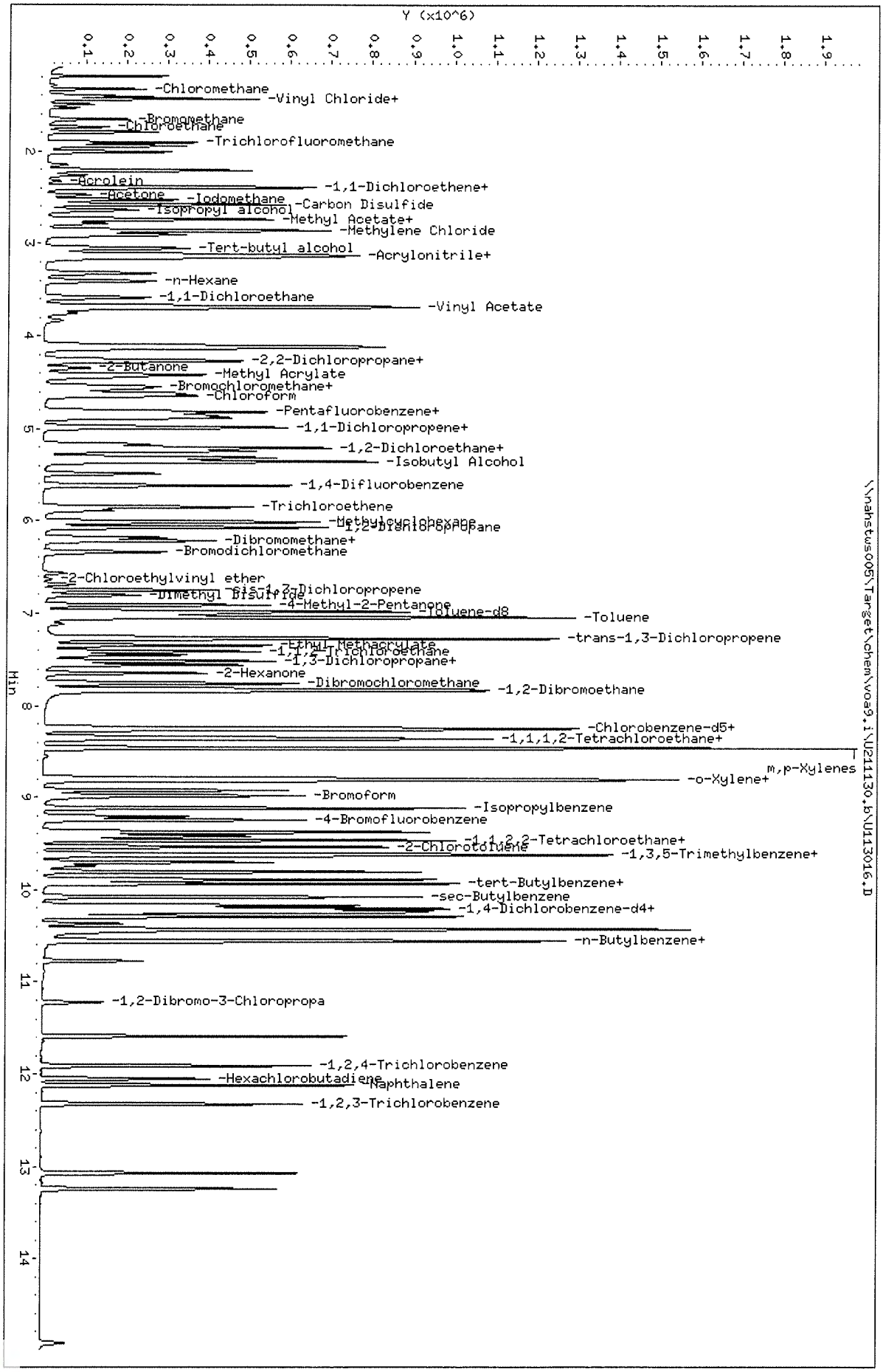
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.883	4.883	(1.000)	261308	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	452072	50.0000	
* 47 Chlorobenzene-d5	117	8.242	8.242	(1.000)	407332	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.225	10.225	(1.000)	206512	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.168	5.168	(1.058)	162012	50.0000	50.55
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	199196	50.0000	50.35
$ 30 Dibromofluoromethane	113	4.819	4.819	(0.987)	138670	50.0000	50.56
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	521912	50.0000	49.23
11 1,1-Dichloroethene	96	2.386	2.386	(0.489)	127384	50.0000	54.67

Data File: \\nahstus005\Target\chem\voa9.i\U211130.b\U113016.D
Date : 30-NOV-2021 16:07
Client ID: CCV-END
Sample Info: VSTD050-END;VSTD050-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Page 2

MSVOA09 -Logbook

Batch: 47437
Date: 12-07-2021
Method: 8260
Comments:

Analyst: Qin Xu
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	TUNE	12-07-2021 01:05 pm	1.00	0.00 mL	0.00 mL	U120701.D	Liquid	Y	N
2	VSTD050	CCV	12-07-2021 01:27 pm	1.00	5.00 mL	0.00 mL	U120702a.D	Liquid	Y	N
3	VSTD050	CCV	12-07-2021 01:49 pm	1.00	5.00 mL	0.00 mL	U120703.D	Liquid	Y	N
4	CCB	SAMP	12-07-2021 02:11 pm	1.00	5.00 mL	0.00 mL	U120704.D	Liquid	Y	N
5	VLCSW-211207	LCS	12-07-2021 02:34 pm	1.00	5.00 mL	0.00 mL	U120705.D	Liquid	Y	N
6	BLANK	SAMP	12-07-2021 02:56 pm	1.00	5.00 mL	0.00 mL	U120706.D	Liquid	Y	N
7	VBLKW-211207	MBLK	12-07-2021 03:18 pm	1.00	5.00 mL	0.00 mL	U120707.D	Liquid	Y	N
8	HS21120092-05	SAMP	12-07-2021 03:41 pm	1.00	5.00 mL	0.00 mL	U120708.D	Liquid	Y	N
9	HS21120092-05MS	MS	12-07-2021 04:03 pm	1.00	5.00 mL	0.00 mL	U120709.D	Liquid	Y	N
10	HS21120092-05MSD	MSD	12-07-2021 04:26 pm	1.00	5.00 mL	0.00 mL	U120710.D	Liquid	Y	N
11	HS211201040-01	SAMP	12-07-2021 04:51 pm	2000.0	5.00 mL	0.00 mL	U120711.D	Liquid	Y	N
12	HS21120161-09	SAMP	12-07-2021 05:13 pm	1.00	5.00 mL	0.00 mL	U120712.D	Liquid	Y	N
13	HS21120161-18	SAMP	12-07-2021 05:36 pm	1.00	5.00 mL	0.00 mL	U120713.D	Liquid	Y	N
14	HS21120161-08	SAMP	12-07-2021 05:58 pm	1.00	5.00 mL	0.00 mL	U120714.D	Liquid	Y	N
15	HS21120161-10	SAMP	12-07-2021 06:20 pm	1.00	5.00 mL	0.00 mL	U120715.D	Liquid	Y	N
16	HS21120161-17	SAMP	12-07-2021 06:43 pm	1.00	5.00 mL	0.00 mL	U120716.D	Liquid	Y	N
17	HS21120161-19	SAMP	12-07-2021 07:05 pm	1.00	5.00 mL	0.00 mL	U120717.D	Liquid	Y	N
18	HS21120196-08	SAMP	12-07-2021 07:27 pm	1.00	5.00 mL	0.00 mL	U120718.D	Liquid	Y	N
19	HS21120196-09	SAMP	12-07-2021 07:50 pm	1.00	5.00 mL	0.00 mL	U120719.D	Liquid	Y	N
20	HS21120196-10	SAMP	12-07-2021 08:12 pm	1.00	5.00 mL	0.00 mL	U120720.D	Liquid	Y	N
21	HS21120092-04	SAMP	12-07-2021 08:34 pm	1.00	5.00 mL	0.00 mL	U120721.D	Liquid	Y	N
22	HS21120092-01	SAMP	12-07-2021 08:57 pm	1.00	5.00 mL	0.00 mL	U120722.D	Liquid	Y	N
23	HS21120092-02	SAMP	12-07-2021 09:19 pm	1.00	5.00 mL	0.00 mL	U120723.D	Liquid	Y	N
24	HS21120092-03	SAMP	12-07-2021 09:41 pm	1.00	5.00 mL	0.00 mL	U120724.D	Liquid	Y	N
25	HS21120092-06	SAMP	12-07-2021 10:04 pm	1.00	5.00 mL	0.00 mL	U120725.D	Liquid	Y	N
26	HS21120092-07	SAMP	12-07-2021 10:26 pm	1.00	5.00 mL	0.00 mL	U120726.D	Liquid	Y	N
27	CCV-END	CCV	12-07-2021 10:48 pm	1.00	5.00 mL	0.00 mL	U120727.D	Liquid	Y	N
28	BLANK	SAMP	12-07-2021 11:10 pm	1.00	5.00 mL	0.00 mL	U120728.D	Liquid	Y	N
29	MBLK-173052	MBLK	12-07-2021 11:33 pm	20.00	5.00 mL	0.00 mL	U120729.D	Liquid	Y	N
30	HS21120023-01	SAMP	12-07-2021 11:55 pm	20.00	5.00 mL	0.00 mL	U120730.D	Liquid	Y	N
31	HS21111632-01	SAMP	12-08-2021 12:17 am	20.00	5.00 mL	0.00 mL	U120731.D	Liquid	Y	N
32	HS21111632-02	SAMP	12-08-2021 12:40 am	20.00	5.00 mL	0.00 mL	U120732.D	Liquid	Y	N
33	BFB	TUNE	12-08-2021 01:02 am	1.00	0.00 mL	0.00 mL	V120701.D	Liquid	Y	N
34	VSTD050	CCV	12-08-2021 01:24 am	1.00	5.00 mL	0.00 mL	V120702.D	Liquid	Y	N
35	TEST	SAMP	12-08-2021 01:46 am	1.00	5.00 mL	0.00 mL	V120703.D	Liquid	Y	N
36	CCB	SAMP	12-08-2021 02:09 am	1.00	5.00 mL	0.00 mL	V120704.D	Liquid	Y	N
37	VLCSW-211207	LCS	12-08-2021 02:31 am	1.00	5.00 mL	0.00 mL	V120705.D	Liquid	Y	N
38	BLANK	SAMP	12-08-2021 02:53 am	1.00	5.00 mL	0.00 mL	V120706.D	Liquid	Y	N
39	VBLKW-211207	MBLK	12-08-2021 03:15 am	1.00	5.00 mL	0.00 mL	V120707.D	Liquid	Y	N
40	HS21120153-01	SAMP	12-08-2021 03:38 am	1.00	5.00 mL	0.00 mL	V120708.D	Liquid	Y	N
41	HS21120153-13	SAMP	12-08-2021 04:00 am	1.00	5.00 mL	0.00 mL	V120709.D	Liquid	Y	N

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
42	HS21120153-13MS	MS	12-08-2021 04:22 am	1.00	5.00 mL	0.00 mL	V120710.D	Liquid	Y	N
43	HS21120153-13MSD	MSD	12-08-2021 04:45 am	1.00	5.00 mL	0.00 mL	V120711.D	Liquid	Y	N
44	BLANK	SAMP	12-08-2021 05:07 am	1.00	5.00 mL	0.00 mL	V120712.D	Liquid	Y	N
45	HS21120153-02	SAMP	12-08-2021 05:29 am	10.00	5.00 mL	0.00 mL	V120713.D	Liquid	Y	N
46	HS21120153-02	SAMP	12-08-2021 05:52 am	100.0(	5.00 mL	0.00 mL	V120714.D	Liquid	Y	N
47	HS21120153-03	SAMP	12-08-2021 06:14 am	5.00	5.00 mL	0.00 mL	V120715.D	Liquid	Y	N
48	HS21120153-03	SAMP	12-08-2021 06:36 am	50.00	5.00 mL	0.00 mL	V120716.D	Liquid	Y	N
49	HS21120153-04	SAMP	12-08-2021 06:59 am	5.00	5.00 mL	0.00 mL	V120717.D	Liquid	Y	N
50	HS21120153-04	SAMP	12-08-2021 07:21 am	50.00	5.00 mL	0.00 mL	V120718.D	Liquid	Y	N
51	HS21120153-05	SAMP	12-08-2021 07:44 am	5.00	5.00 mL	0.00 mL	V120719.D	Liquid	Y	N
52	HS21120153-05	SAMP	12-08-2021 08:06 am	50.00	5.00 mL	0.00 mL	V120720.D	Liquid	Y	N
53	HS21120153-06	SAMP	12-08-2021 08:28 am	25.00	5.00 mL	0.00 mL	V120721.D	Liquid	Y	N
54	HS21120153-06	SAMP	12-08-2021 08:51 am	250.0(	5.00 mL	0.00 mL	V120722.D	Liquid	Y	N
55	HS21120153-07	SAMP	12-08-2021 09:13 am	10.00	5.00 mL	0.00 mL	V120723.D	Liquid	Y	N

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (TOL) #	SMC3 (DCE) #	OTHER #	TOT OUT
01	VLSCW-211207	110	100	118	102	0
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (TOL)	= Toluene-d8	(78-123)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID: U120701 BFB Injection Date: 12/07/21

Instrument ID: VOA9 BFB Injection Time: 1305

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.5
75	30.0 - 60.0% of mass 95	50.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	66.5
175	5.0 - 9.0% of mass 174	5.7 (8.6)1
176	95.0 - 101.0% of mass 174	63.7 (95.8)1
177	5.0 - 9.0% of mass 176	4.6 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	U120703	12/07/21	1349
02	VLSCW-211207	VLCSW-211207	U120705	12/07/21	1434
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21120813

Instrument ID: VOA9 Calibration Date: 12/07/21 Time: 1349

Lab File ID: U120703 Init. Calib. Date(s): 11/15/21 11/15/21

Init. Calib. Times: 1352 1734

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1-Dichloroethene	0.4460000	0.4608002	0.4608002	0.1	-3.32	20.00	AVRG
Dibromofluoromethane	55.662473	50.000000	0.5832542	0.1	-11.32	20.00	LINR
Toluene-d8	1.3010000	1.3646178	1.3646178	0.1	-4.89	20.00	AVRG
1,2-Dichloroethane-d4	57.893906	50.000000	0.7074173	0.1	-15.79	20.00	LINR
4-Bromofluorobenzene	54.304744	50.000000	0.5263533	0.1	-8.61	20.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U120703 Date Analyzed: 12/07/21

Instrument ID: VOA9 Time Analyzed: 1349

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	267374	4.88	477558	5.61	428978	8.24
	UPPER LIMIT	534748	5.38	955116	6.11	857956	8.74
	LOWER LIMIT	133687	4.38	238779	5.11	214489	7.74
	CLIENT SAMPLE NO.						
01	VLSCW-211207	254392	4.88	468117	5.61	420341	8.24
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Lab File ID (Standard): U120703 Date Analyzed: 12/07/21

Instrument ID: VOA9 Time Analyzed: 1349

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	205508	10.22				
	UPPER LIMIT	411016	10.72				
	LOWER LIMIT	102754	9.72				
	CLIENT SAMPLE NO.						
01	VLSCW-211207	200578	10.22				
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

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

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa9.i\U211207.b\U120701.D

Date : 07-DEC-2021 13:05

Client ID: BFB

Instrument: VOA9.i

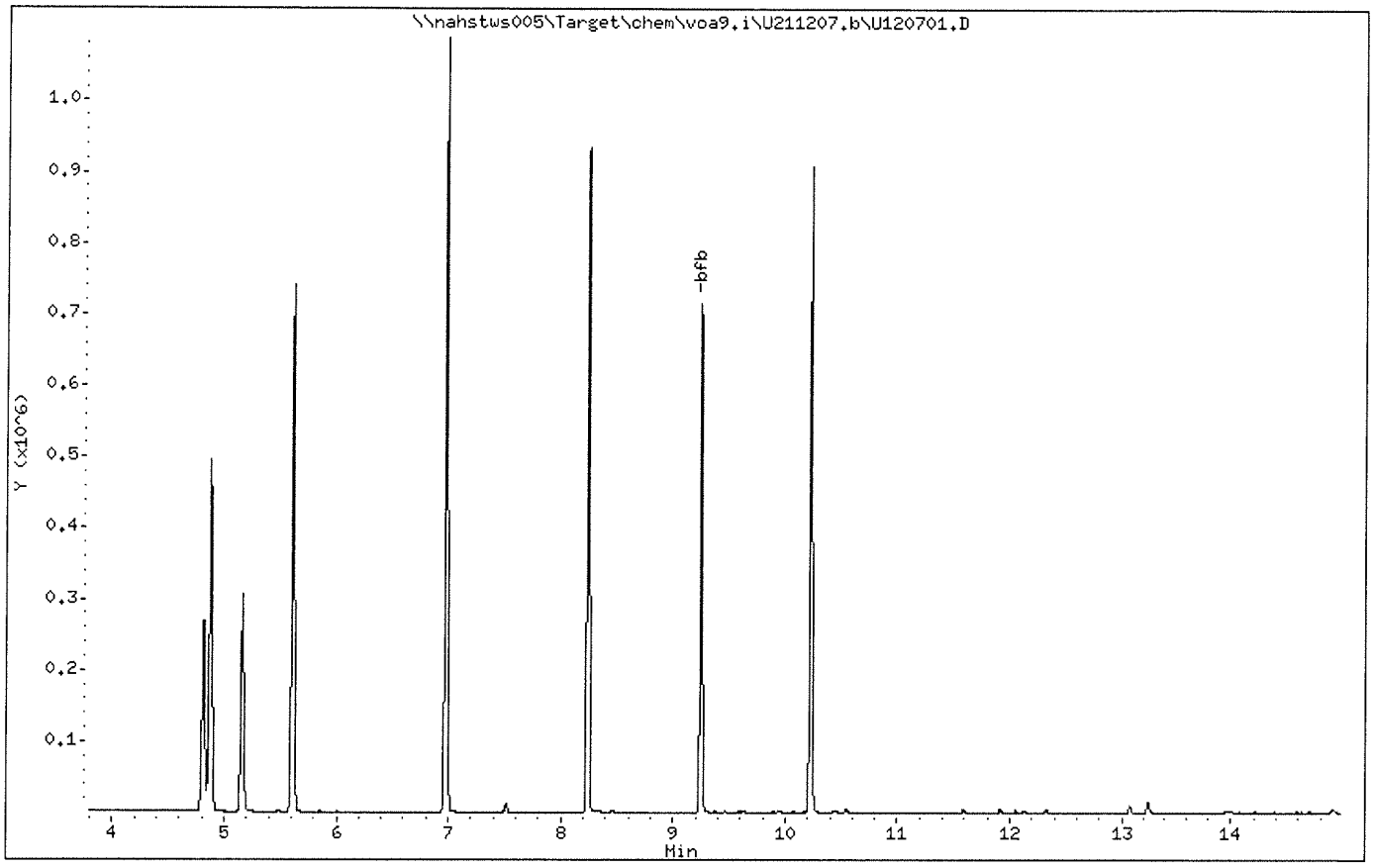
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa9.i\U211207.b\U120701.D Page 2

Date : 07-DEC-2021 13:05

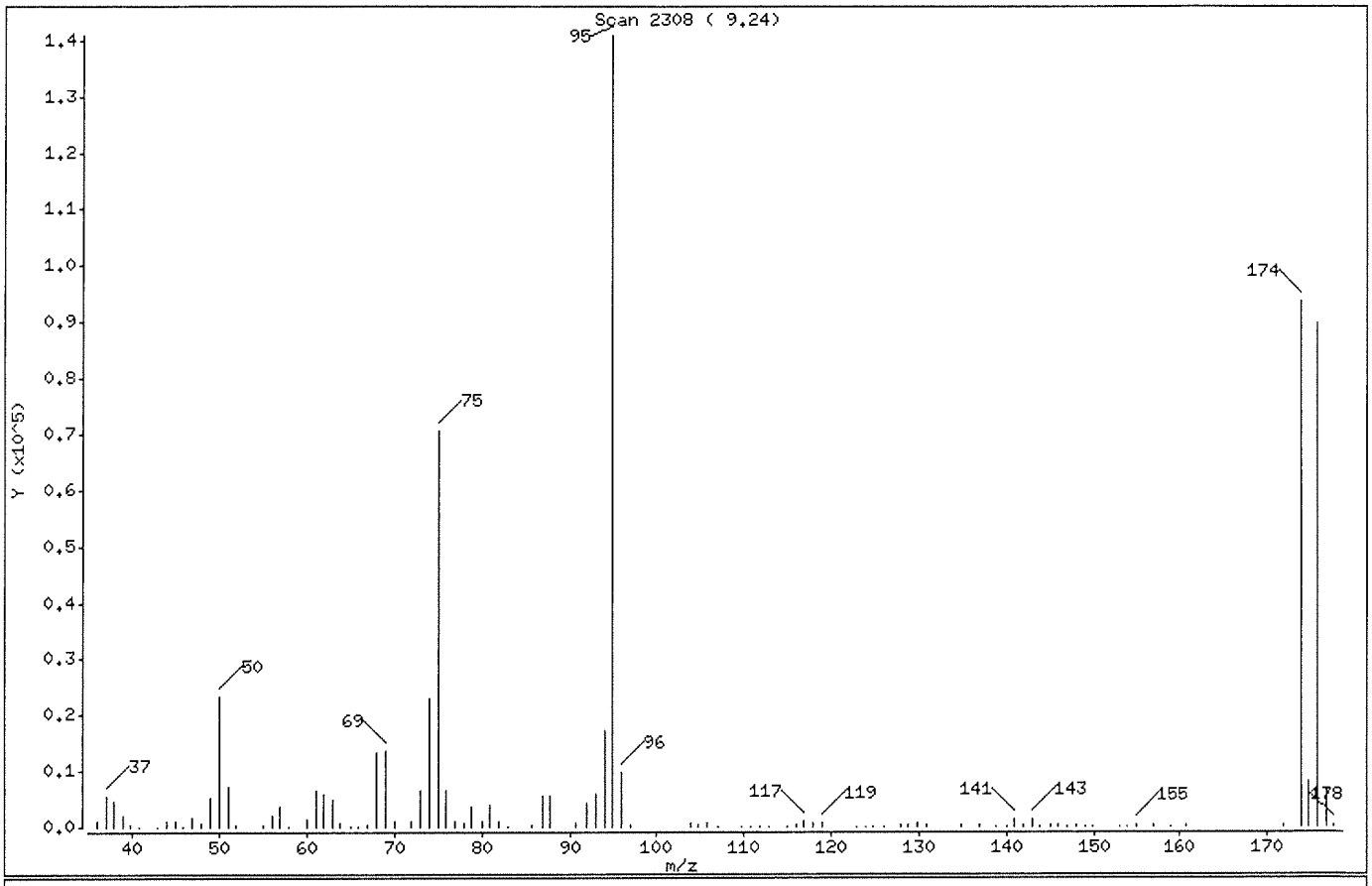
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.54
75	30.00 - 60.00% of mass 95	50.07
96	5.00 - 9.00% of mass 95	6.93
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	66.54
175	5.00 - 9.00% of mass 174	5.71 (8.58)
176	95.00 - 101.00% of mass 174	63.73 (95.77)
177	5.00 - 9.00% of mass 176	4.61 (7.23)

Data File: \\nahstws005\Target\chem\voa9.i\U211207.b\U120701.D

Date : 07-DEC-2021 13:05

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U120701.D
Spectrum: Scan 2308 (9.24)
Location of Maximum: 95.00
Number of points: 100

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	966	65.80	67	97.00	373	140.80	1366
37.00	5390	67.00	428	103.80	544	141.90	224
38.00	4591	68.00	13178	104.80	229	142.80	1284
39.00	1925	69.00	13733	105.80	554	143.80	101
39.90	186	70.00	1087	106.90	132	144.90	173
40.80	64	72.00	891	109.80	62	145.90	197
42.90	113	73.00	6517	110.70	113	146.80	59
44.00	845	74.00	22888	111.80	71	147.90	238
45.00	933	75.00	70568	112.80	111	148.90	70
45.90	76	76.00	6424	114.90	144	149.80	144
47.00	1543	76.90	879	115.90	430	152.90	53
47.90	739	77.90	585	116.80	860	153.80	66
49.00	5085	78.90	3698	117.80	498	154.80	328
50.00	23312	80.00	1065	118.80	744	156.80	214
51.00	7243	80.90	3750	122.80	58	158.90	159
52.00	332	81.90	823	123.90	72	160.80	217
55.00	344	82.90	140	124.80	53	172.00	260
56.00	2054	85.80	190	126.00	55	173.90	93776
57.00	3535	86.90	5633	127.80	411	174.90	8048
58.00	121	87.90	5615	128.80	229	175.90	89808
60.00	1336	90.80	499	129.80	506	176.90	6494
61.00	6351	91.90	4167	130.80	175	177.80	196
62.00	5972	93.00	5824	134.80	328		
63.00	4710	94.00	17296	136.90	305		
63.90	509	95.00	140928	138.80	50		
65.00	135	96.00	9770	140.00	116		

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211207.b\U120703.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 07-DEC-2021 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U211207.b\8260C.m
Meth Date : 22-Dec-2021 15:48 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14

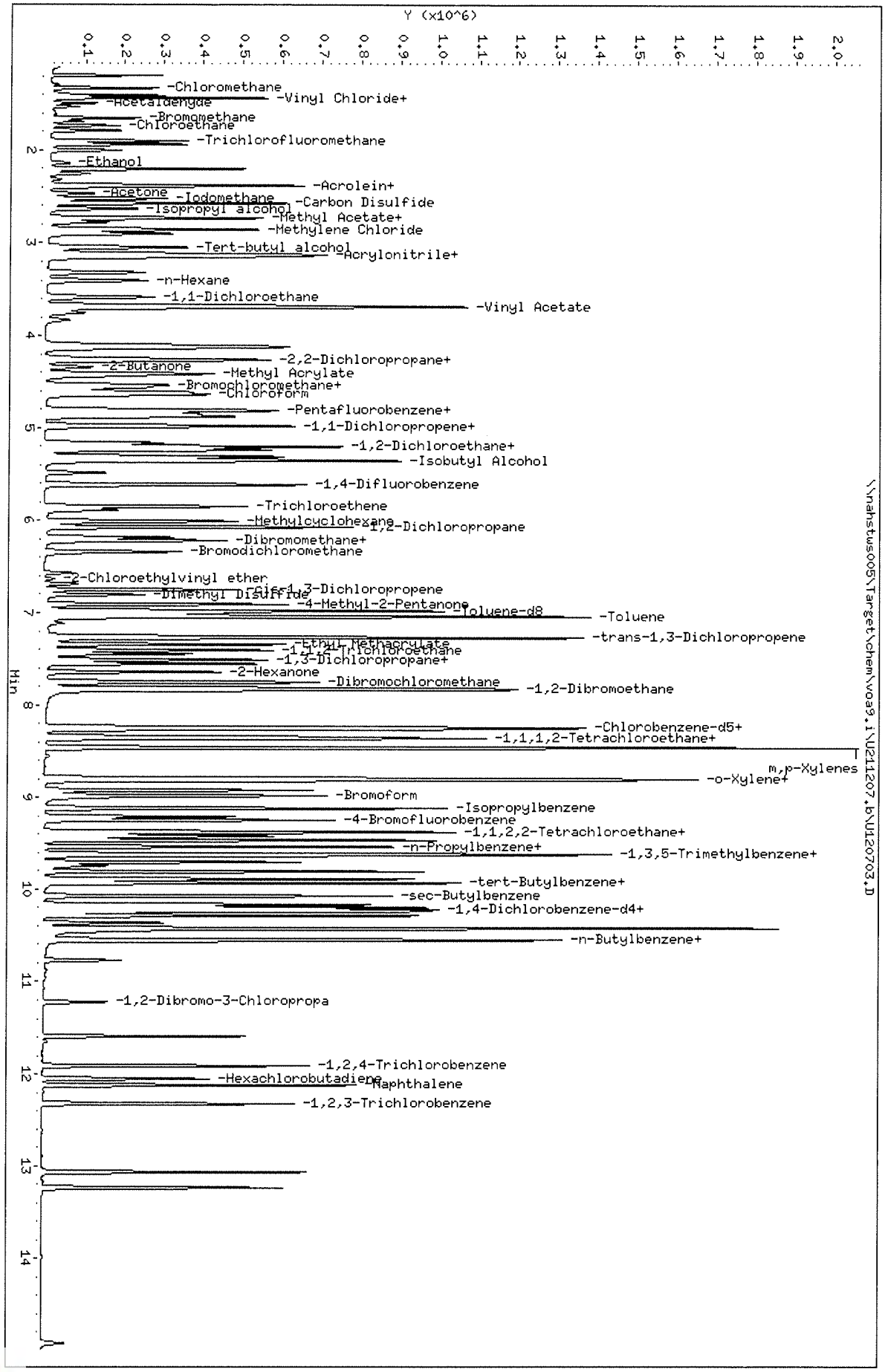
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
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)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	267374	50.0000	
* 36 1,4-Difluorobenzene	114	5.614	5.614	(1.000)	477558	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	428978	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	205508	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.164	5.164	(1.058)	189145	50.0000	57.89
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	225794	50.0000	54.30
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	155947	50.0000	55.66
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	585391	50.0000	52.43
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	123206	50.0000	51.68

Data File: \\nahstus005\Target\chem\voa9.i\U211207.b\U120703.D
Date : 07-DEC-2021 13:49
Client ID: CCV
Sample Info: VSTD050;VSTD050;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa9.i\U211207.b\U120705.D Page 1
Report Date: 22-Dec-2021 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa9.i\U211207.b\U120705.D
Lab Smp Id: VLCSW-211207 Client Smp ID: VLSCW-211207
Inj Date : 07-DEC-2021 14:34
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-211207;VLSCW-211207;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U211207.b\8260C.m
Meth Date : 22-Dec-2021 15:48 linh.pham Quant Type: ISTD
Cal Date : 15-NOV-2021 16:27 Cal File: U111508.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0CBI-VOA1.sub
Target Version: 4.14

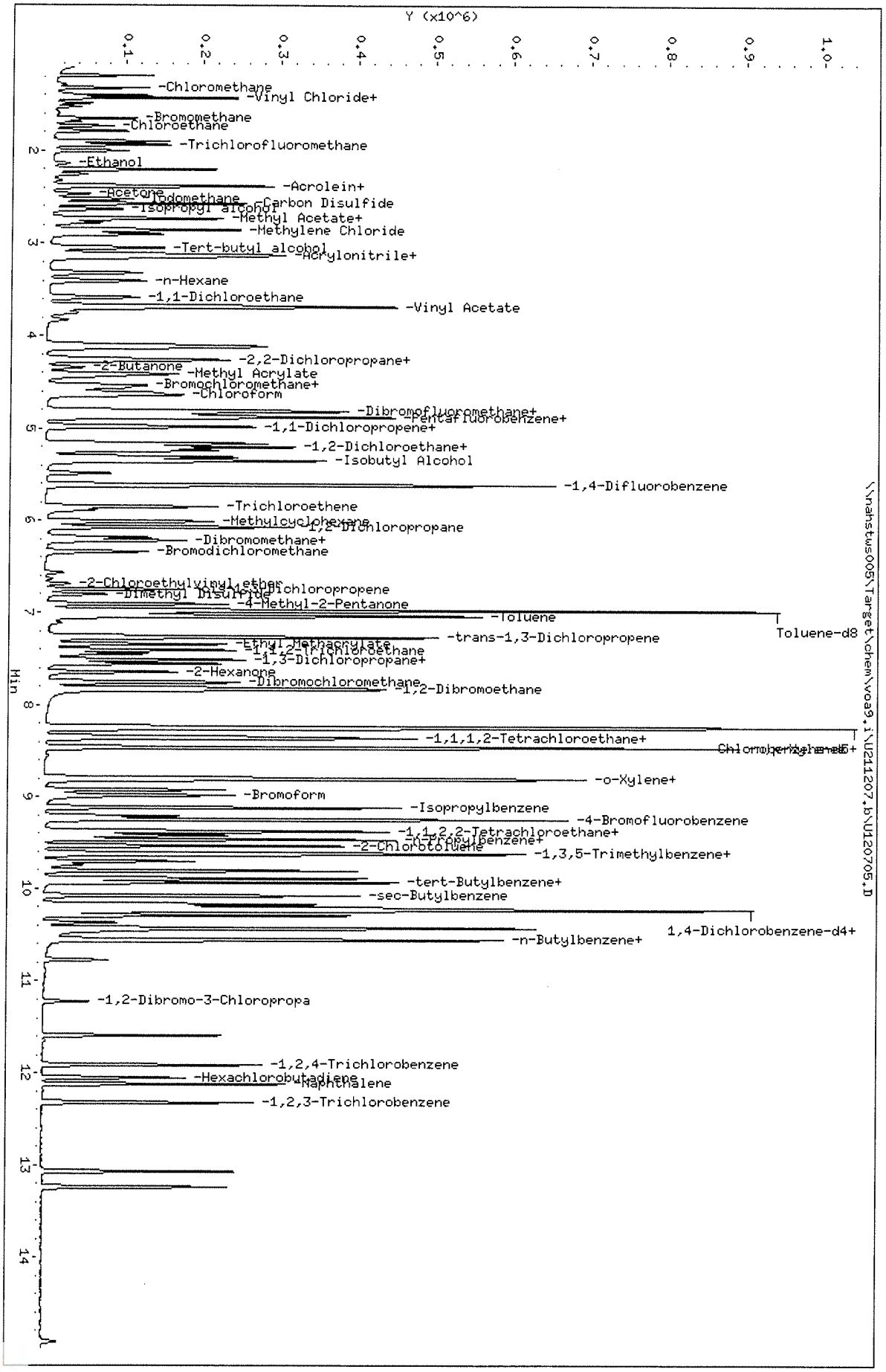
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.879	4.879	(1.000)	254392	50.0000	
* 36 1,4-Difluorobenzene	114	5.613	5.614	(1.000)	468117	50.0000	
* 47 Chlorobenzene-d5	117	8.241	8.241	(1.000)	420341	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.224	10.224	(1.000)	200578	50.0000	
$ 35 1,2-Dichloroethane-d4	65	5.163	5.164	(1.058)	183276	58.9879	58.98
$ 69 4-Bromofluorobenzene	95	9.246	9.246	(1.122)	208482	51.0938	51.09
$ 30 Dibromofluoromethane	113	4.815	4.815	(0.987)	146419	54.9173	54.91
$ 48 Toluene-d8	98	6.978	6.978	(0.847)	544397	49.7621	49.76
11 1,1-Dichloroethene	96	2.382	2.382	(0.488)	52949	23.3454	23.34

Data File: \\nahstws005\Target\chem\voa9.i\U211207.b\U120705.D
Date : 07-DEC-2021 14:34
Client ID: WLSCW-211207
Sample Info: WLCSW-211207;WLSCW-211207;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



HS21110813 RSK175

ALS WO# HS21110813

FID04 -Logbook

Batch: 26730
Date: 01-24-2017
Method: RSK 175 ICAL
Comments: Target Sequence 170124

Analyst: Nosa Izekor
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	ICAL1	CALIB_1	01-24-2017 09:06 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	N
2	ICAL2	CALIB_2	01-24-2017 09:30 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	N
3	ICAL3	CALIB_3	01-24-2017 09:59 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	N
4	ICAL4	CALIB_4	01-24-2017 10:15 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	N
5	ICAL5	CALIB_5	01-24-2017 10:39 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	N
6	ICAL6	CALIB_6	01-24-2017 10:57 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	N
7	ICAL7	CALIB_7	01-24-2017 11:13 am	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	N
8	ICV	METHSPIKI	01-24-2017 12:05 pm	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	N
9	LCS-170124	LCS	01-24-2017 12:24 pm	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	N
10	LCSD-170124	LCSD	01-24-2017 12:40 pm	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	N
11	MBLK-170124	MBLK	01-24-2017 12:57 pm	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	N
12	HS17010778-01	SAMP	01-24-2017 01:14 pm	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	N
13	HS17010779-01	SAMP	01-24-2017 01:31 pm	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	N
14	HS17010779-01DUP	SAMP	01-24-2017 01:47 pm	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	N
15	CCV	CCV	01-24-2017 02:01 pm	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	N

Chemical	Value
ICAL STD ID	30010700217
ICV STD ID	30010700610

FORM 3
WATER GASES METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Matrix Spike - ENG SC Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Ethene	16.800	19.090	114	75-125
Methane	9.647	9.597	99	75-125
Ethane	18.043	19.657	109	75-125
Propane	26.463	27.238	103	75-125
N-Butane	34.955	36.010	103	75-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

FORM III GASES

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

LAB FILE ID: RF10: 001 RF25: 002 RF50: 003
RF100: 004 RF250: 005 RF500: 006

COMPOUND	RF10	RF25	RF50	RF100	RF250	RF500
Ethene	535.608	567.359	564.985	516.024	665.282	425.678
Methane	968.912	978.238	1019.699	880.798	960.713	930.704
Ethane	602.493	670.177	658.908	597.201	808.513	817.630
Propane	500	1279	2602	4785	18294	38286
N-Butane	438	936	2034	3864	18446	42817

FORM VI GASES

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2111081

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

RF1000: 007

COMPOUND	RF1000	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MA
Ethene	828.858	AVRG		586.256273		21.932	
Methane	1081.580	AVRG		974.377787		6.550	
Ethane	999.335	AVRG		736.322546		19.885	
Propane	96509	2ORDR	0.97987006	1.529e-003	-4.58e-009	0.9991365	0
N-Butane	114164	2ORDR	2.46870151	1.834e-003	-5.54e-009	0.9980766	0

FORM VI GASES

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\001.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\001.D
Lab Smp Id: ICAL1 Client Smp ID: ICAL1
Inj Date : 24-JAN-2017 09:06
Operator : JA Inst ID: FID-4.i
Smp Info : ICAL1;ICAL1;;;
Misc Info :
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:06 Cal File: 001.D
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	374	0.38600	0.383(a)
2 Ethene	1.553	1.556	-0.003	361	0.67400	0.615(a)
3 Ethane	1.716	1.723	-0.007	435	0.72200	0.590(a)
4 Propane	4.073	4.113	-0.040	500	1.05900	1.743
5 N-Butane	7.640	7.690	-0.050	438	1.39800	3.271

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\001.D

Date : 24-JAN-2017 09:06

Client ID: ICAL1

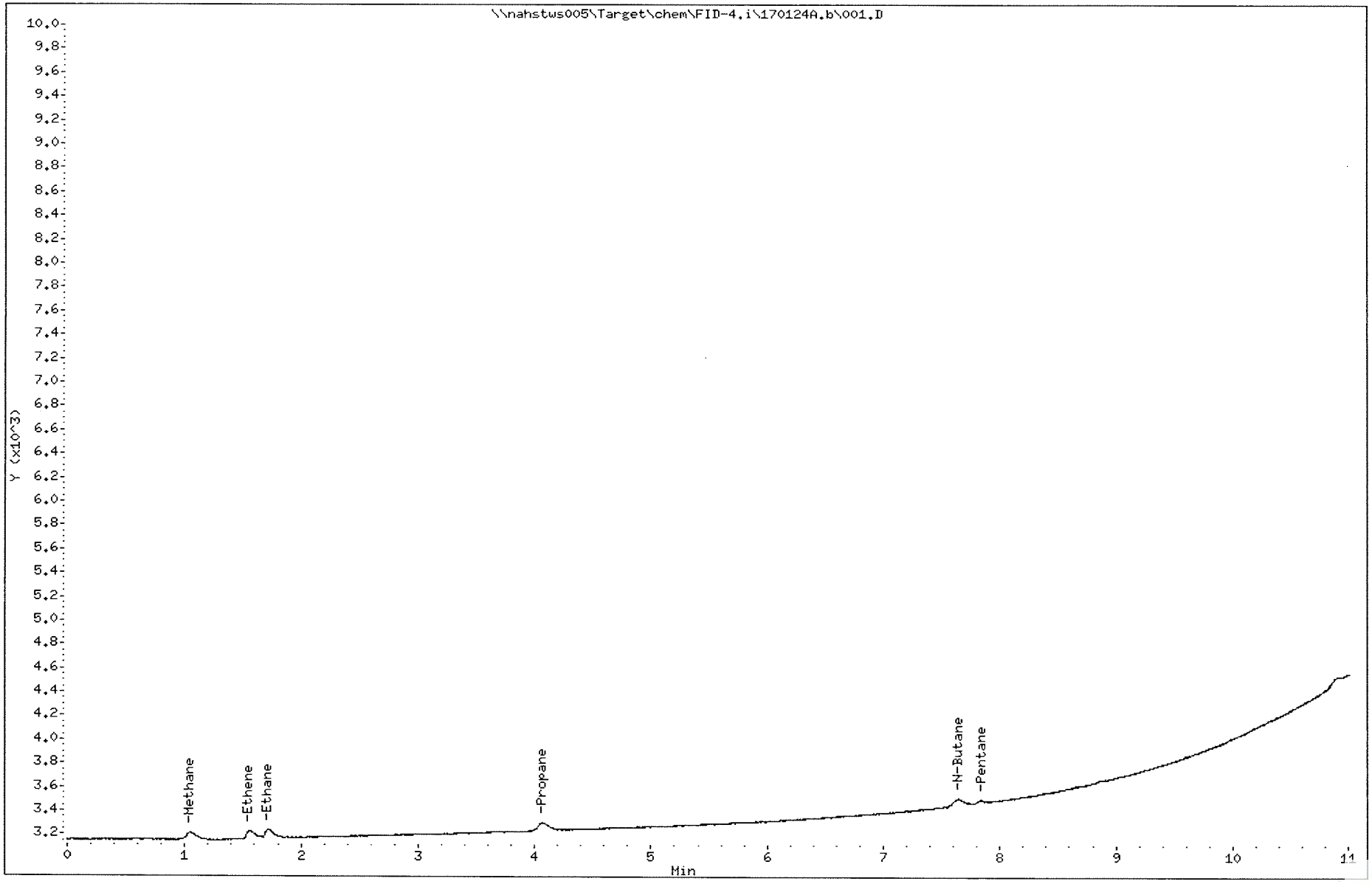
Instrument: FID-4.i

Sample Info: ICAL1;ICAL1;;;

Operator: JA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\002.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\002.D
Lab Smp Id: ICAL2 Client Smp ID: ICAL2
Inj Date : 24-JAN-2017 09:30
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL2;ICAL2;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:59 Cal File: 003.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	944	0.96500	0.968
2 Ethene	1.560	1.556	0.004	956	1.68500	1.630
3 Ethane	1.723	1.723	0.000	1209	1.80400	1.641
4 Propane	4.123	4.113	0.010	1279	2.64600	2.927
5 N-Butane	7.716	7.690	0.026	936	3.49600	4.180

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\002.D

Date : 24-JAN-2017 09:30

Client ID: ICAL2

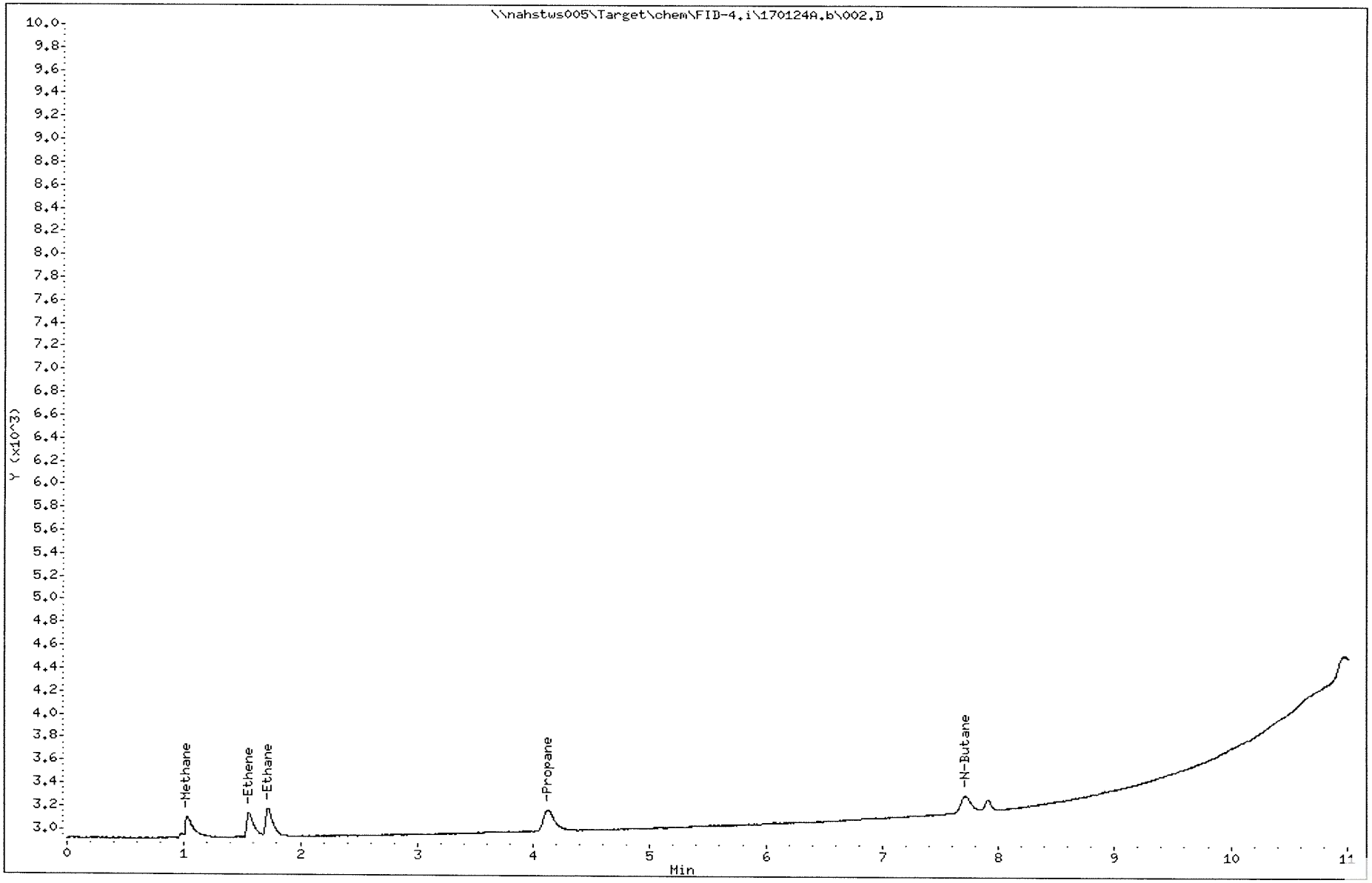
Sample Info: ICAL2;ICAL2;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\003.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\003.D
Lab Smp Id: ICAL3 Client Smp ID: ICAL3
Inj Date : 24-JAN-2017 09:59
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL3;ICAL3;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13 Cal File: 007.D
Als bottle: 3 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	1967	1.92900	2.018
2 Ethene	1.570	1.556	0.014	1904	3.37000	3.247
3 Ethane	1.736	1.723	0.013	2378	3.60900	3.229
4 Propane	4.123	4.113	0.010	2602	5.29300	4.926
5 N-Butane	7.703	7.690	0.013	2034	6.99100	6.176

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\003.D

Date : 24-JAN-2017 09:59

Client ID: ICAL3

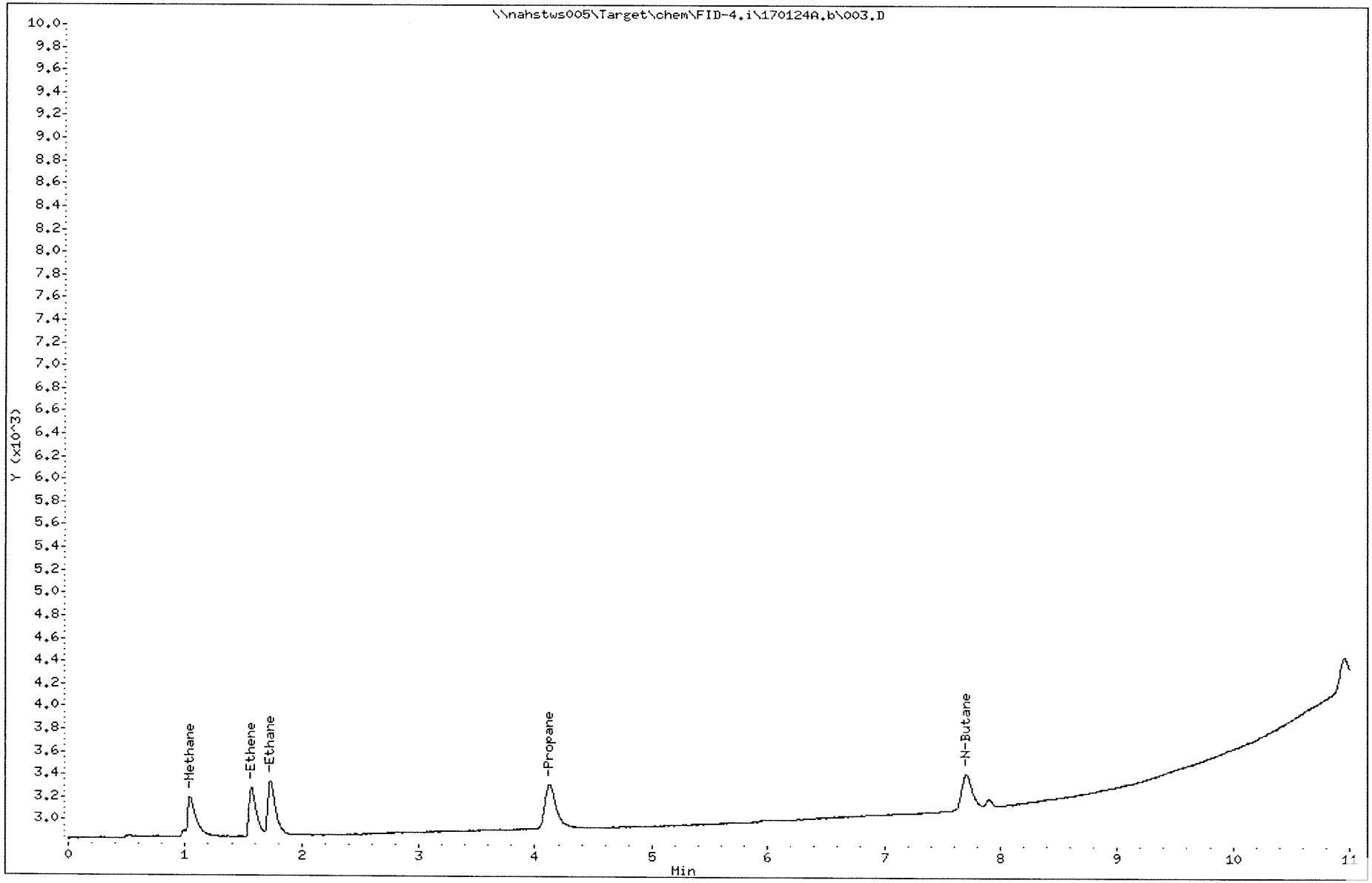
Sample Info: ICAL3;ICAL3;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\004.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\004.D
Lab Smp Id: ICAL4 Client Smp ID: ICAL4
Inj Date : 24-JAN-2017 10:15
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL4;ICAL4;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:30 Cal File: 002.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.033	1.030	0.003	3399	3.85900	3.488
2 Ethene	1.563	1.556	0.007	3478	6.74000	5.932
3 Ethane	1.726	1.723	0.003	4310	7.21700	5.853
4 Propane	4.120	4.113	0.007	4785	10.5850	8.190
5 N-Butane	7.703	7.690	0.013	3864	13.9820	9.473(M)

QC Flag Legend

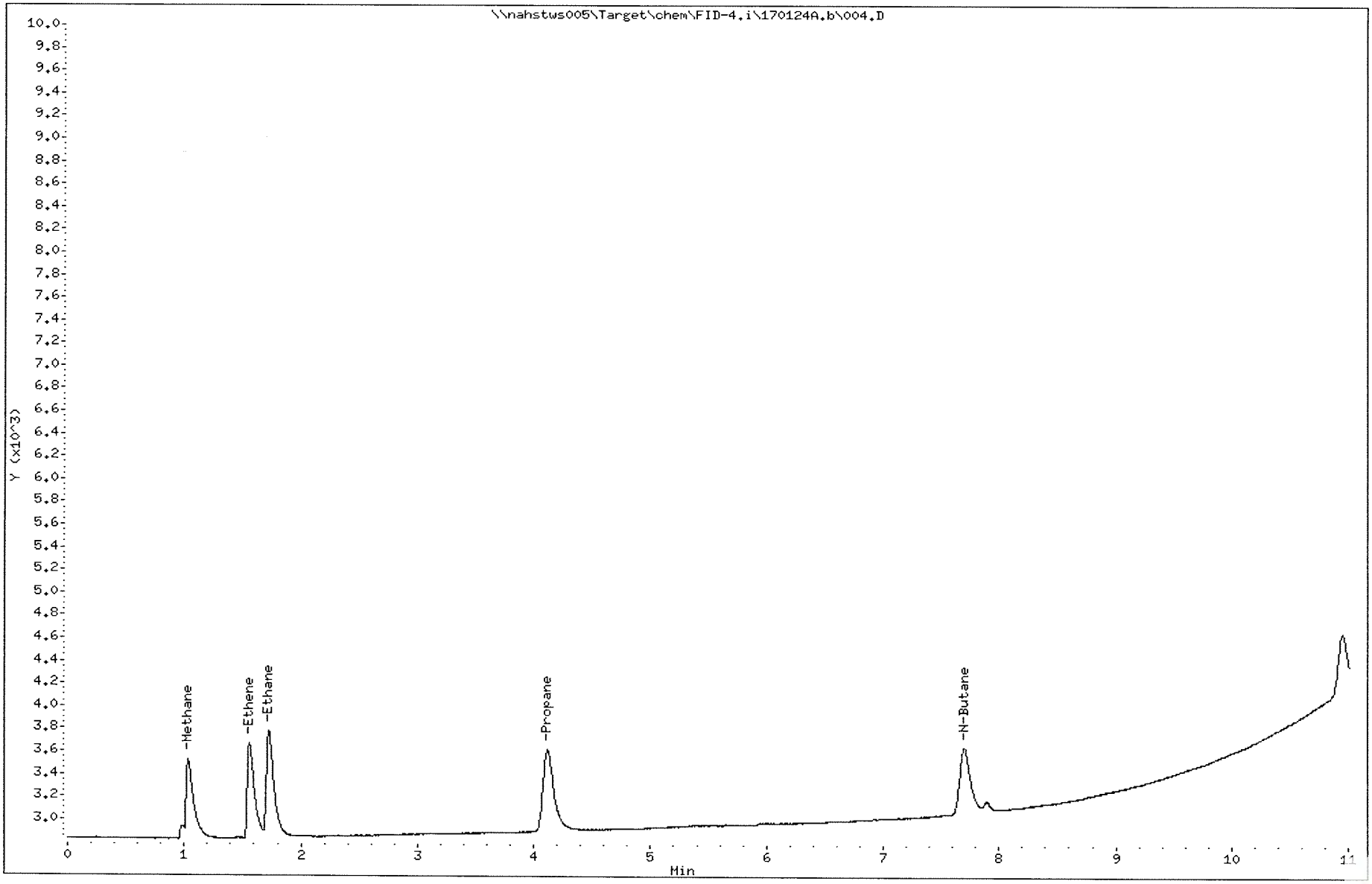
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\004.D
Date : 24-JAN-2017 10:15
Client ID: ICAL4
Sample Info: ICAL4;ICAL4;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\005.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\005.D
Lab Smp Id: ICAL5 Client Smp ID: ICAL5
Inj Date : 24-JAN-2017 10:39
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL5;ICAL5;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	9268	9.64700	9.511
2 Ethene	1.570	1.556	0.014	11210	16.8500	19.121
3 Ethane	1.733	1.723	0.010	14588	18.0430	19.811
4 Propane	4.120	4.113	0.007	18294	26.4630	27.415
5 N-Butane	7.700	7.690	0.010	18446	34.9550	34.419(M)

QC Flag Legend

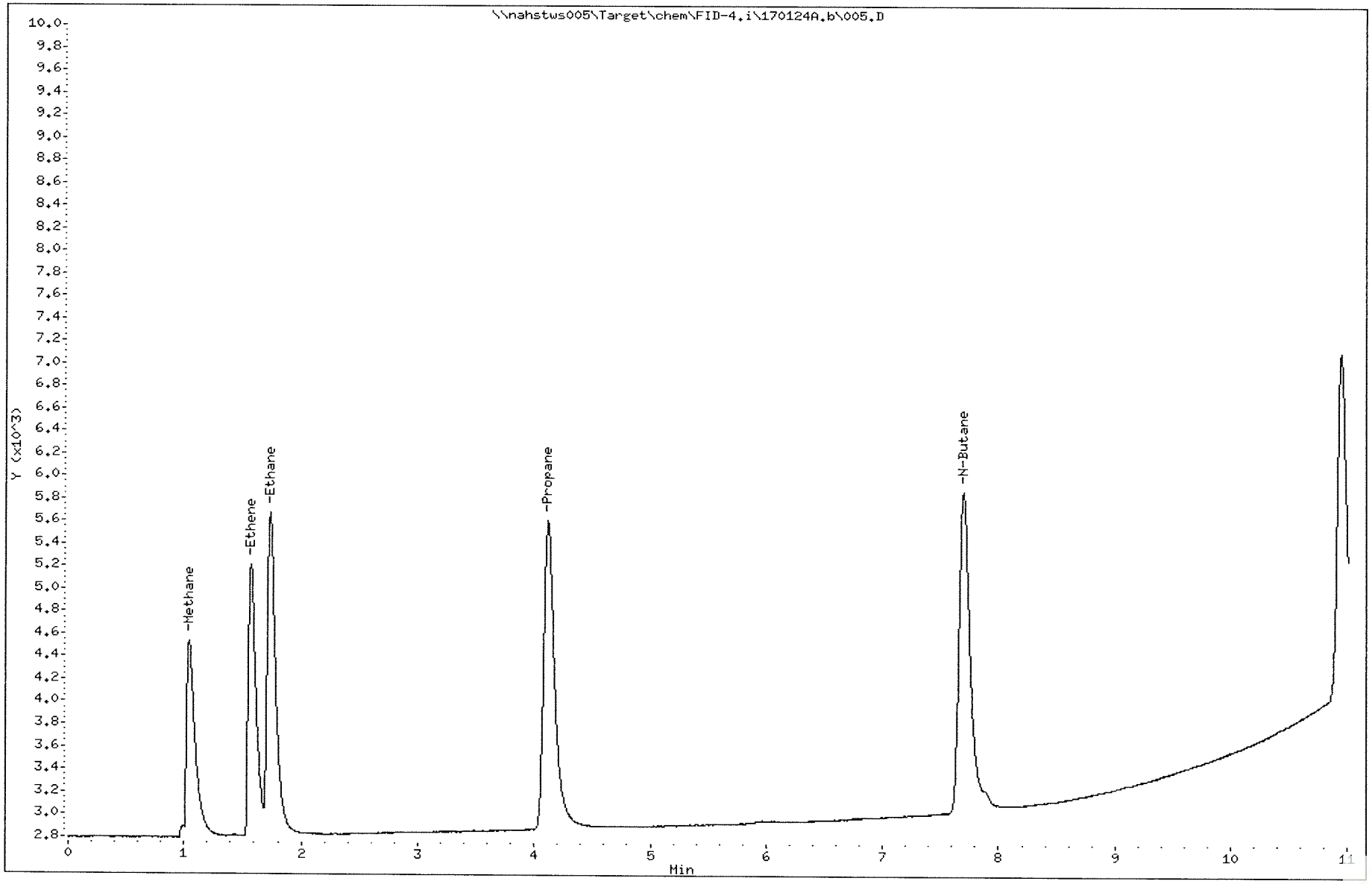
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\005.D
Date : 24-JAN-2017 10:39
Client ID: ICAL5
Sample Info: ICAL5;ICAL5;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\006.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\006.D
Lab Smp Id: ICAL6 Client Smp ID: ICAL6
Inj Date : 24-JAN-2017 10:57
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL6;ICAL6;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 6 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

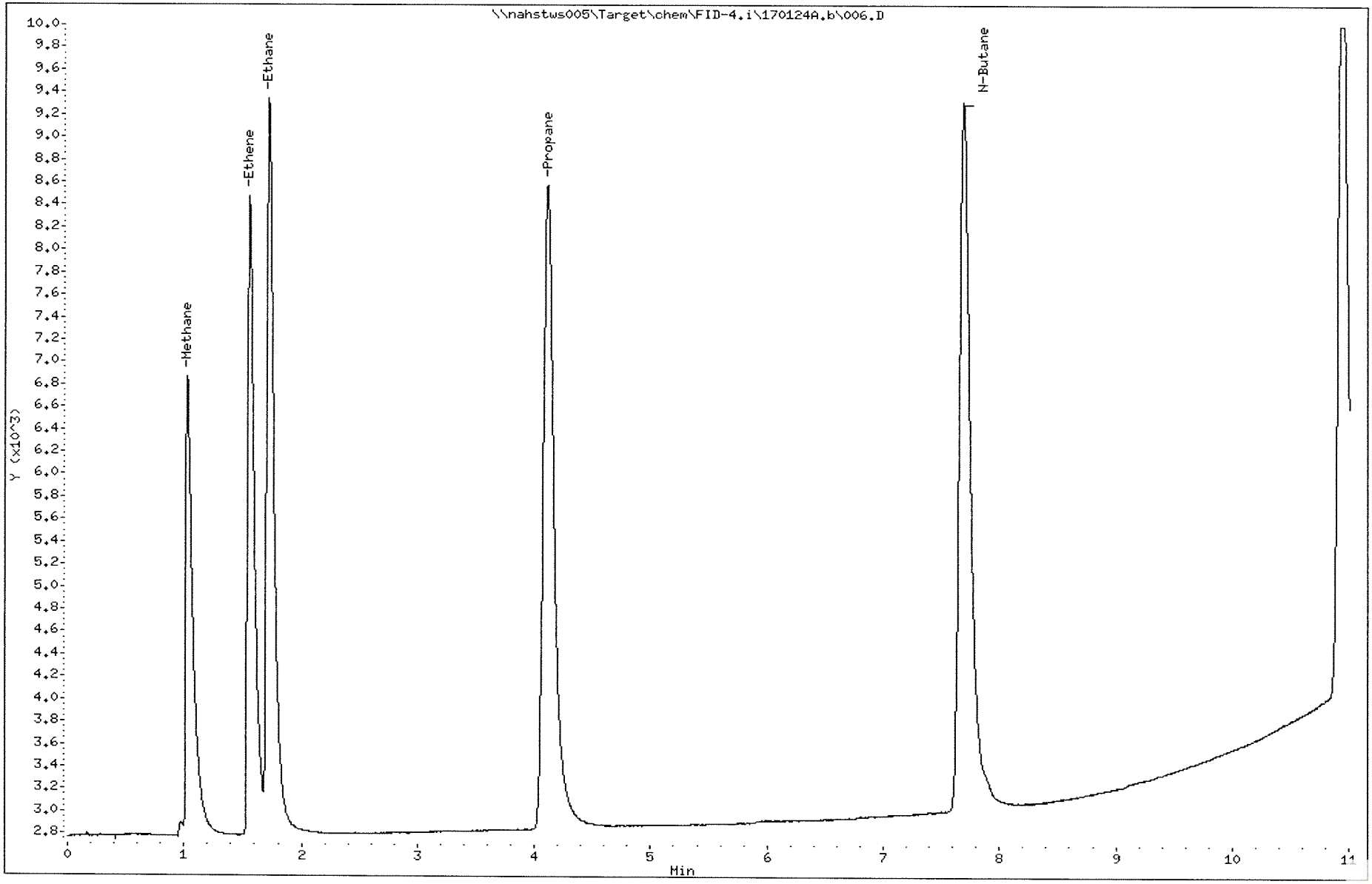
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	17957	19.2940	18.429
2 Ethene	1.550	1.556	-0.006	22910	53.8200	39.078
3 Ethane	1.716	1.723	-0.007	29505	36.0860	40.070
4 Propane	4.110	4.113	-0.003	38286	52.9260	52.796
5 N-Butane	7.696	7.690	0.006	42817	69.9110	70.855

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\006.D
Date : 24-JAN-2017 10:57
Client ID: ICAL6
Sample Info: ICAL6;ICAL6;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\007.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\007.D
Lab Smp Id: ICAL7 Client Smp ID: ICAL7
Inj Date : 24-JAN-2017 11:13
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL7;ICAL7;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:57 Cal File: 006.D
Als bottle: 7 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
1 Methane	1.030	1.030	0.000	41736	38.5880	42.833(A)
2 Ethene	1.556	1.556	0.000	55865	67.4000	95.291(A)
3 Ethane	1.723	1.723	0.000	72124	72.1720	97.951(A)
4 Propane	4.113	4.113	0.000	96509	105.852	105.844
5 N-Butane	7.690	7.690	0.000	114164	139.821	139.707

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\007.D

Page 2

Date : 24-JAN-2017 11:13

Client ID: ICAL7

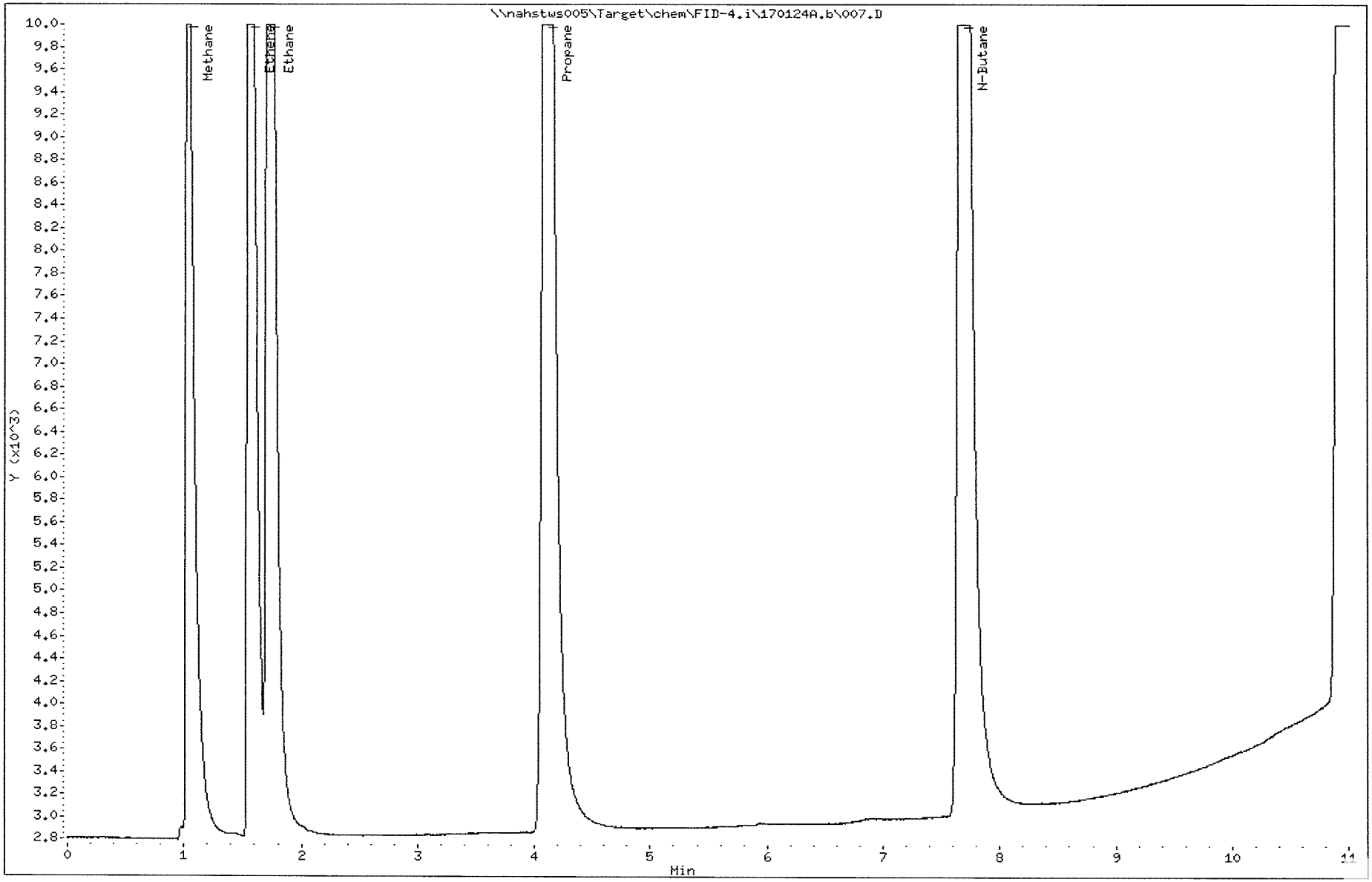
Instrument: FID-4.i

Sample Info: ICAL7;ICAL7;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\008.D Page 1
Report Date: 23-Dec-2021 08:35

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\170124A.b\008.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-JAN-2017 12:05
Operator : MA Inst ID: FID-4.i
Smp Info : ICV;ICV;;;
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 22-Dec-2021 11:10 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13 Cal File: 007.D
Als bottle: 8 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	1.046	1.030	0.016	9352	9.59792	9.597
2 Ethene	1.573	1.556	0.017	11192	19.0906	19.090
3 Ethane	1.736	1.723	0.013	14474	19.6571	19.657
4 Propane	4.116	4.113	0.003	18164	27.2381	27.238
5 N-Butane	7.696	7.690	0.006	19425	36.0103	36.010

Data File: \\nahstws005\Target\chem\FID-4.i\170124A.b\008.D

Date : 24-JAN-2017 12:05

Client ID: ICV

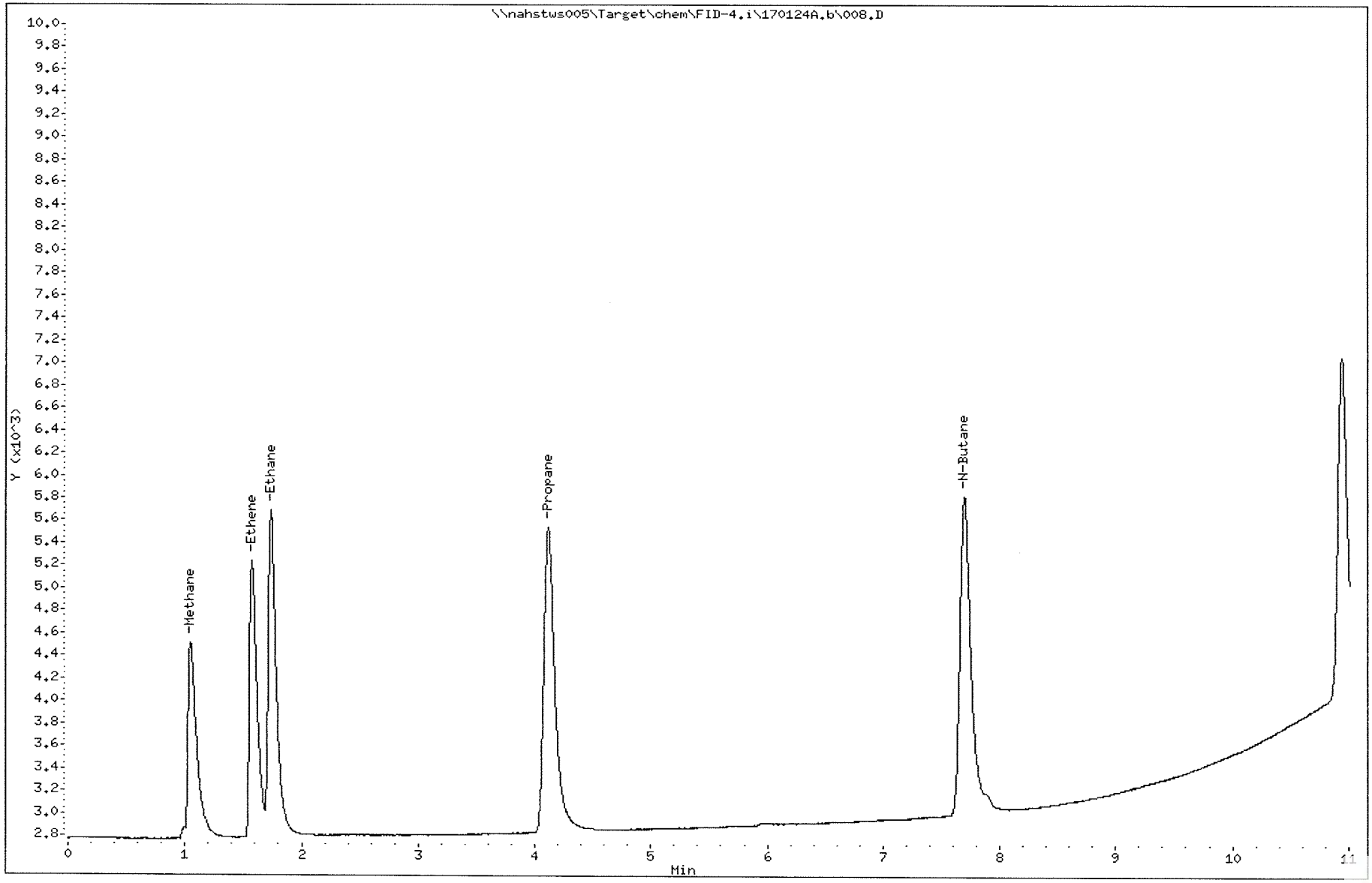
Sample Info: ICV;ICV;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



FID04 -Logbook

Batch: 47623
Date: 11-22-2021
Method: RSK175
Comments:

Analyst: Purvi Lad
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	RSK-CCV	CCV	11-22-2021 10:34 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	N
2	MBLK-211122	MBLK	11-22-2021 10:48 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	N
3	LCS-211122	LCS	11-22-2021 11:04 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	N
4	HS21110817-01	SAMP	11-22-2021 11:15 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	<
5	HS21111187-01	SAMP	11-22-2021 11:27 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	<
6	HS21110813-13	SAMP	11-22-2021 11:39 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	<
7	HS21110813-13MS	MS	11-22-2021 12:10 pm	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	<
8	HS21110813-13MSD	MSD	11-22-2021 12:22 pm	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	<
9	HS21110813-15	SAMP	11-22-2021 12:36 pm	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	<
10	HS21110813-16	SAMP	11-22-2021 12:48 pm	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	<
11	RSK-CCV	CCV	11-22-2021 01:05 pm	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	N
12	HS21110946-01	SAMP	11-22-2021 01:24 pm	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	<
13	HS21110946-02	SAMP	11-22-2021 01:48 pm	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	<
14	HS21110946-03	SAMP	11-22-2021 02:04 pm	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	<
15	HS21110946-04	SAMP	11-22-2021 02:19 pm	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	<
16	HS21110946-05	SAMP	11-22-2021 02:32 pm	1.00	0.00 mL	0.00 mL	016.D	Liquid	Y	<
17	HS21110946-06	SAMP	11-22-2021 02:44 pm	1.00	0.00 mL	0.00 mL	017.D	Liquid	Y	<
18	HS21110946-07	SAMP	11-22-2021 02:56 pm	1.00	0.00 mL	0.00 mL	018.D	Liquid	Y	<
19	HS21110946-05	SAMP	11-22-2021 03:11 pm	1.00	0.00 mL	0.00 mL	019.D	Liquid	Y	<
20	HS21111026-05	SAMP	11-22-2021 03:27 pm	1.00	0.00 mL	0.00 mL	020.D	Liquid	Y	<
21	HS21111026-08	SAMP	11-22-2021 03:54 pm	1.00	0.00 mL	0.00 mL	021.D	Liquid	Y	<
22	RSK-CCV	CCV	11-22-2021 04:06 pm	1.00	0.00 mL	0.00 mL	022.D	Liquid	Y	N
23	HS21111026-09	SAMP	11-22-2021 04:19 pm	1.00	0.00 mL	0.00 mL	023.D	Liquid	Y	<
24	HS21111026-05	SAMP	11-22-2021 04:34 pm	200.0(	0.00 mL	0.00 mL	024.D	Liquid	Y	<
25	RSK-CCV	CCV	11-22-2021 04:49 pm	1.00	0.00 mL	0.00 mL	025.D	Liquid	Y	N

Chemical	Value
pH Paper	300107065-15
CCV/LC/LSD/MS/MSD	300107063-06

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: FID-4 Calibration Date: 11/22/21 Time: 1034

Lab File ID: 001 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	792.21859	0.01	-10.11	20.00	AVRG
Methane	974.99200	968.17664	0.01	0.70	20.00	AVRG
Ethene	585.76000	623.62018	0.01	-6.46	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: FID-4 Calibration Date: 11/22/21 Time: 1305

Lab File ID: 011 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	781.35565	0.01	-8.60	20.00	AVRG
Methane	974.99200	865.24308	0.01	11.26	20.00	AVRG
Ethene	585.76000	614.54006	0.01	-4.91	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: FID-4 Calibration Date: 11/22/21 Time: 1606

Lab File ID: 022 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	799.70071	0.01	-11.15	20.00	AVRG
Methane	974.99200	1012.0245	0.01	-3.80	20.00	AVRG
Ethene	585.76000	641.66172	0.01	-9.54	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21110813

Instrument ID: FID-4 Calibration Date: 11/22/21 Time: 1649

Lab File ID: 025 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	806.18522	0.01	-12.05	20.00	AVRG
Methane	974.99200	886.07857	0.01	9.12	20.00	AVRG
Ethene	585.76000	615.60831	0.01	-5.10	20.00	AVRG

FORM VII GASES

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\001.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 10:34
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.486	0.466	0.020	9340	9.64700	9.579
2 Ethene	0.733	0.720	0.013	10508	16.8500	17.939(M)
3 Ethane	0.816	0.803	0.013	14294	18.0430	19.866(M)

QC Flag Legend

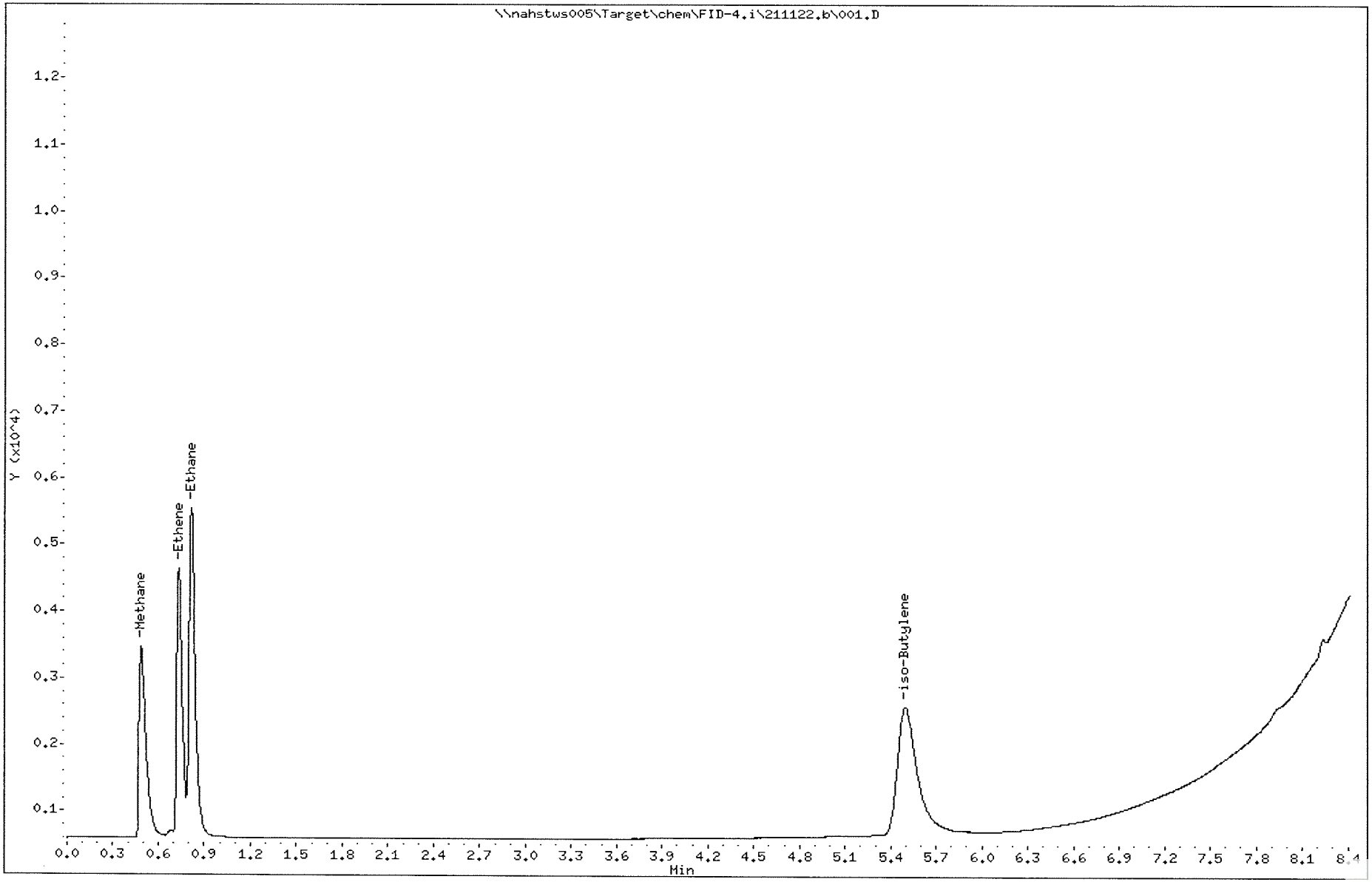
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\001.D
Date : 22-NOV-2021 10:34
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 10:34
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.486	0.466	0.020	9340	9.64700	9.579
2 Ethene	0.733	0.733	0.000	24664	16.8500	42.105

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\001.D

Date : 22-NOV-2021 10:34

Client ID: RSK-CCV

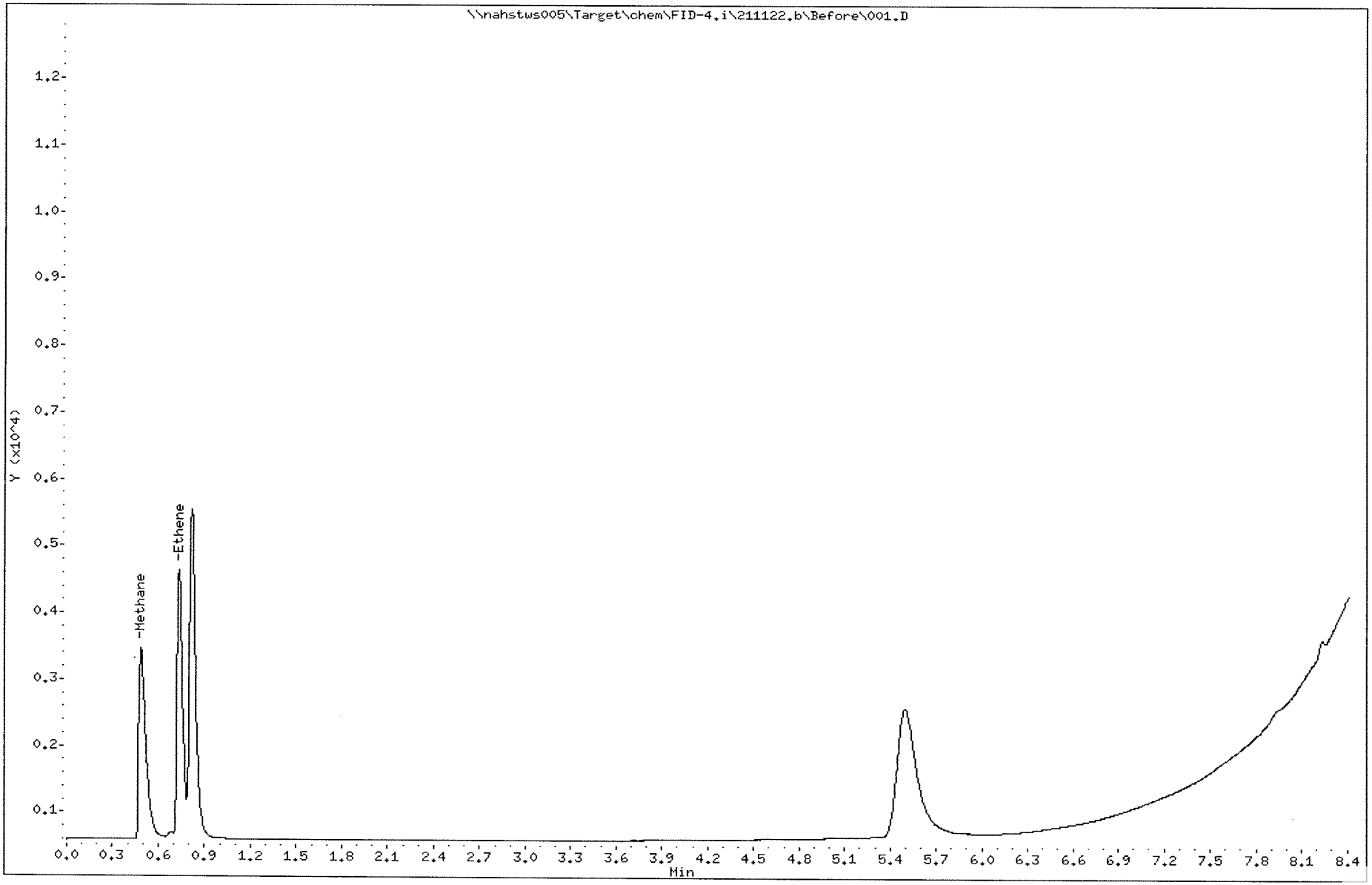
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\002.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\002.D
Lab Smp Id: MBLK-211122 Client Smp ID: MBLK-211122
Inj Date : 22-NOV-2021 10:48
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-211122;MBLK-211122;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 2 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

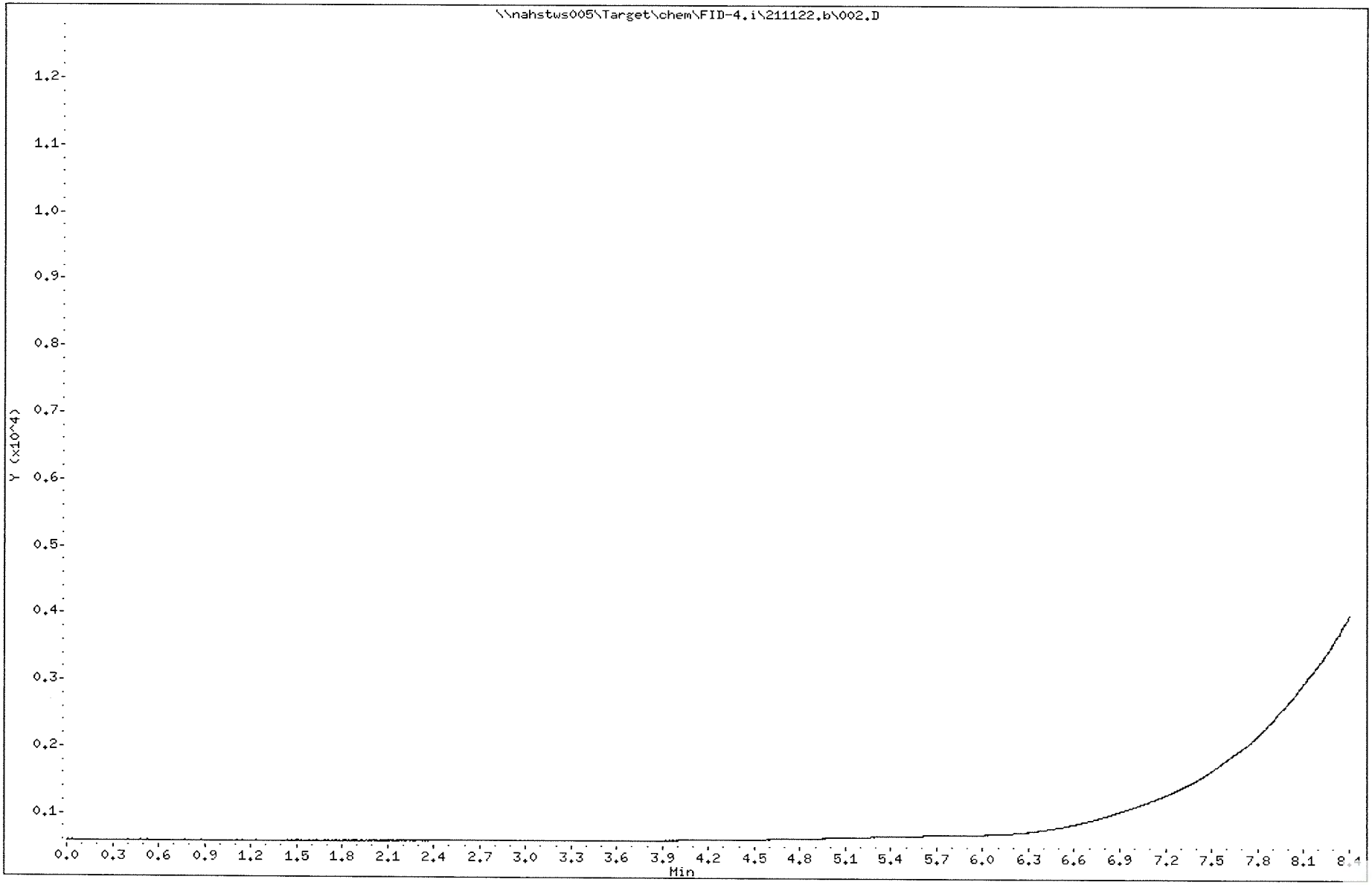
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\002.D
Date : 22-NOV-2021 10:48
Client ID: MBLK-211122
Sample Info: MBLK-211122;MBLK-211122;3;;BLANK

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\002.D
Lab Smp Id: MBLK-211122 Client Smp ID: MBLK-211122
Inj Date : 22-NOV-2021 10:48
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-211122;MBLK-211122;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 2 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\002.D

Date : 22-NOV-2021 10:48

Client ID: MBLK-211122

Instrument: FID-4.i

Sample Info: MBLK-211122;MBLK-211122;3;;BLANK

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\003.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\003.D
Lab Smp Id: LCS-211122 Client Smp ID: LCS-211122
Inj Date : 22-NOV-2021 11:04
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-211122;LCS-211122;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.480	0.466	0.014	8829	9.05546	9.055
2 Ethene	0.730	0.720	0.010	9787	16.7082	16.708(M)
3 Ethane	0.810	0.803	0.007	13641	18.9593	18.959(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\003.D

Date : 22-NOV-2021 11:04

Client ID: LCS-211122

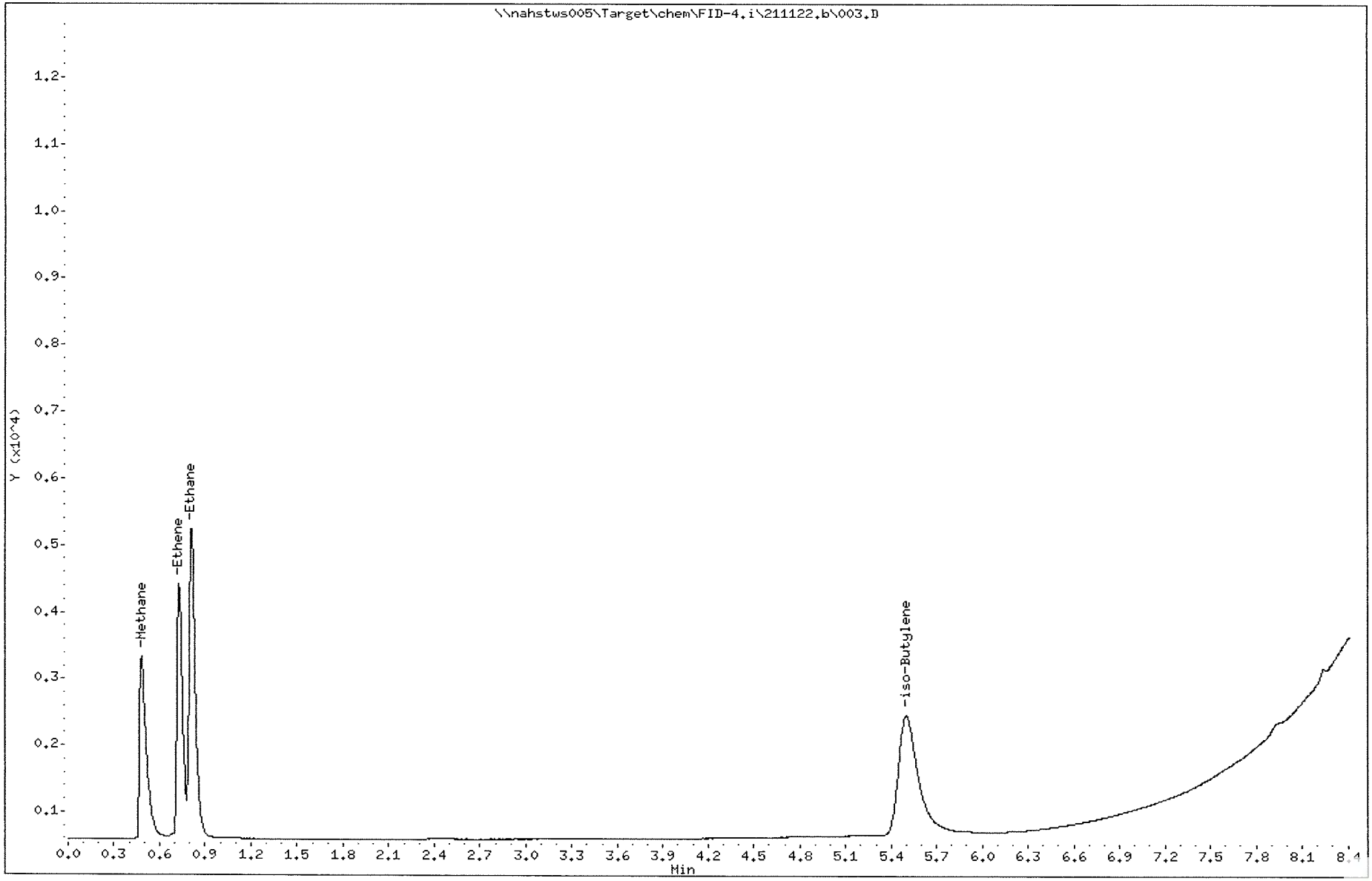
Instrument: FID-4.i

Sample Info: LCS-211122;LCS-211122;3;;LCS

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\003.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\003.D
Lab Smp Id: LCS-211122 Client Smp ID: LCS-211122
Inj Date : 22-NOV-2021 11:04
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-211122;LCS-211122;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.480	0.466	0.014	8829	9.05546	9.055
2 Ethene	0.730	0.733	-0.003	23302	39.7808	39.780(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\003.D

Date : 22-NOV-2021 11:04

Client ID: LCS-211122

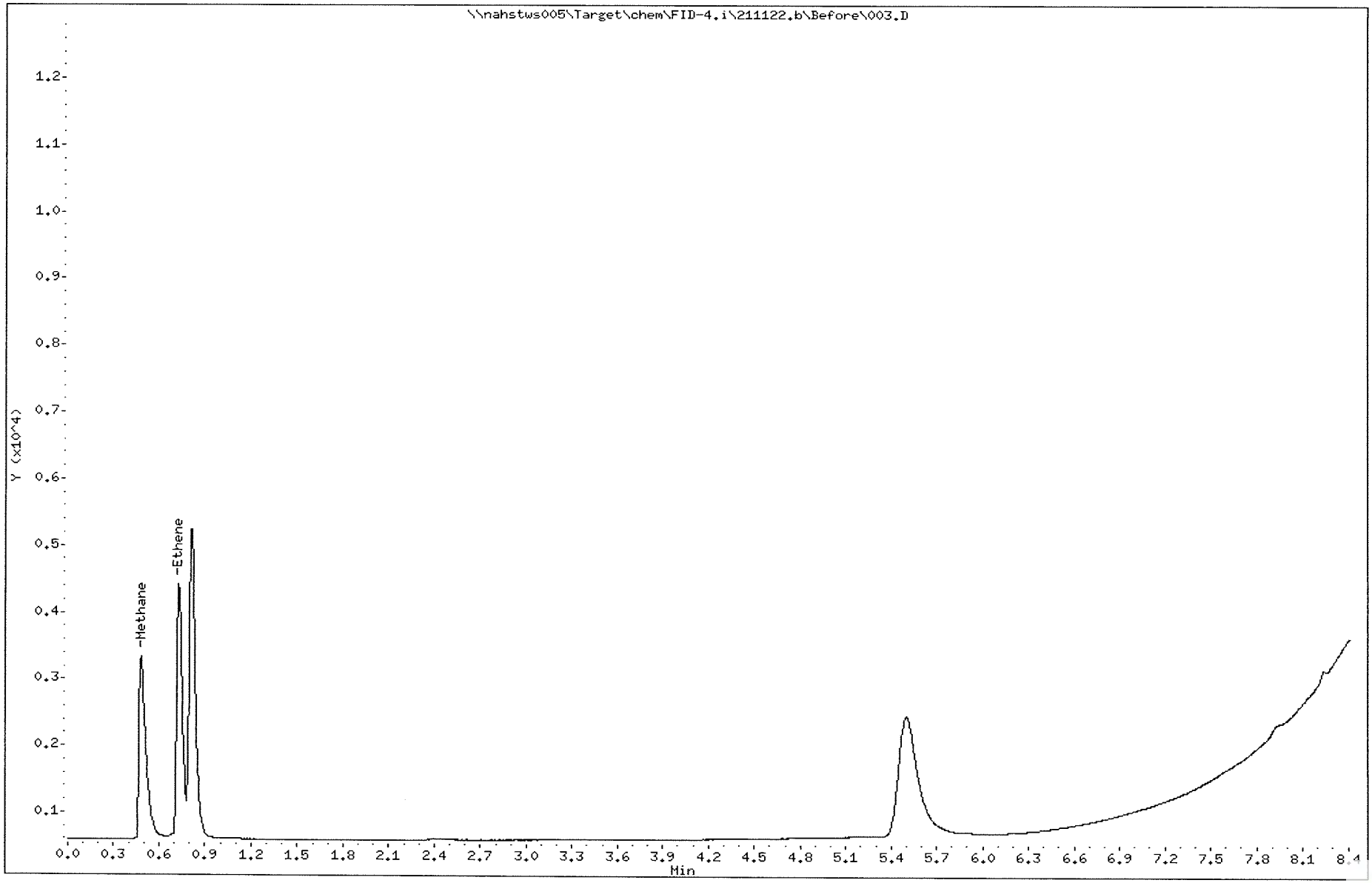
Instrument: FID-4.i

Sample Info: LCS-211122;LCS-211122;3;;LCS

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\006.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\006.D
Lab Smp Id: HS21110813-13 Client Smp ID: HS21110813-13
Inj Date : 22-NOV-2021 11:39
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13;HS21110813-13
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.513	0.466	0.047	1744	1.78873	1.788(M)
2 Ethene	0.710	0.720	-0.010	178	0.30388	0.303(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\006.D

Date : 22-NOV-2021 11:39

Client ID: HS21110813-13

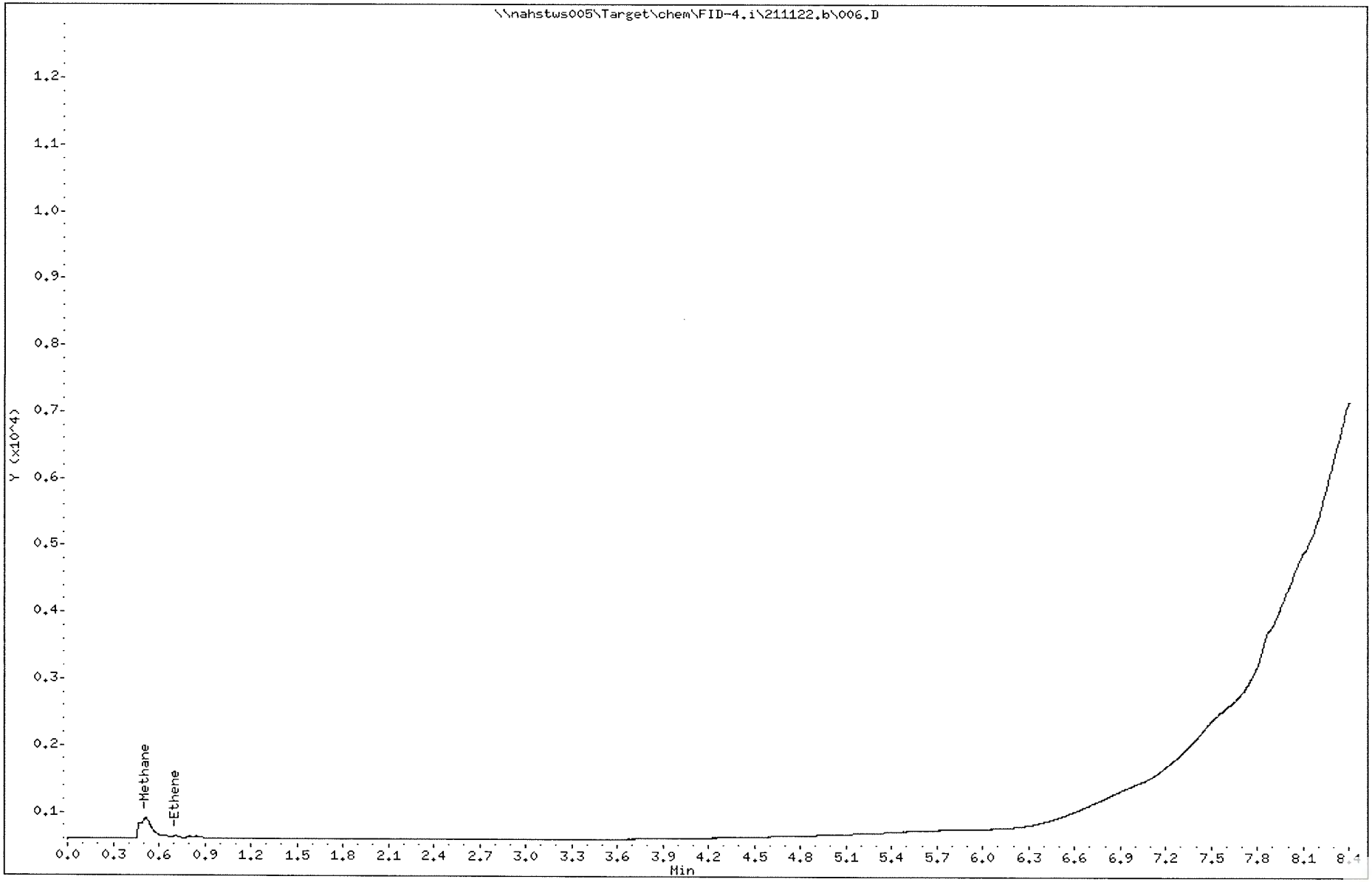
Sample Info: HS21110813-13;HS21110813-13

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\006.D
Lab Smp Id: HS21110813-13 Client Smp ID: HS21110813-13
Inj Date : 22-NOV-2021 11:39
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13;HS21110813-13
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.513	0.466	0.047	2085	2.13848	2.138
3 Ethane	0.850	0.803	0.047	341	0.47395	0.473(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\006.D

Date : 22-NOV-2021 11:39

Client ID: HS21110813-13

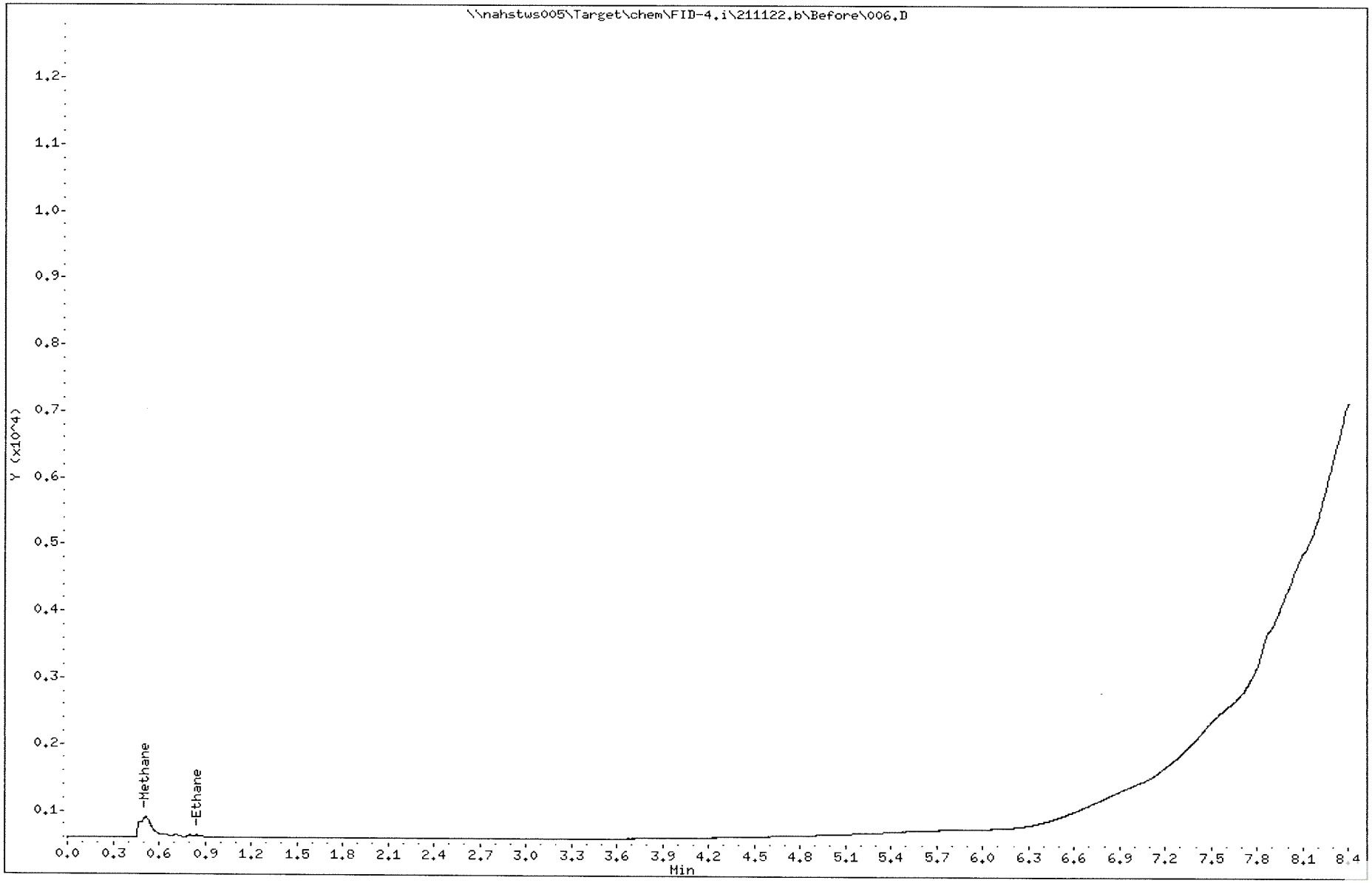
Instrument: FID-4.i

Sample Info: HS21110813-13;HS21110813-13

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\007.D
Lab Smp Id: HS21110813-13MS Client Smp ID: HS21110813-13MS
Inj Date : 22-NOV-2021 12:10
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13MS;HS21110813-13MS
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 7 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.483	0.466	0.017	7365	7.55391	7.553
2 Ethene	0.726	0.720	0.006	9452	16.1363	16.136(M)
3 Ethane	0.810	0.803	0.007	11737	16.3130	16.312(M)

QC Flag Legend

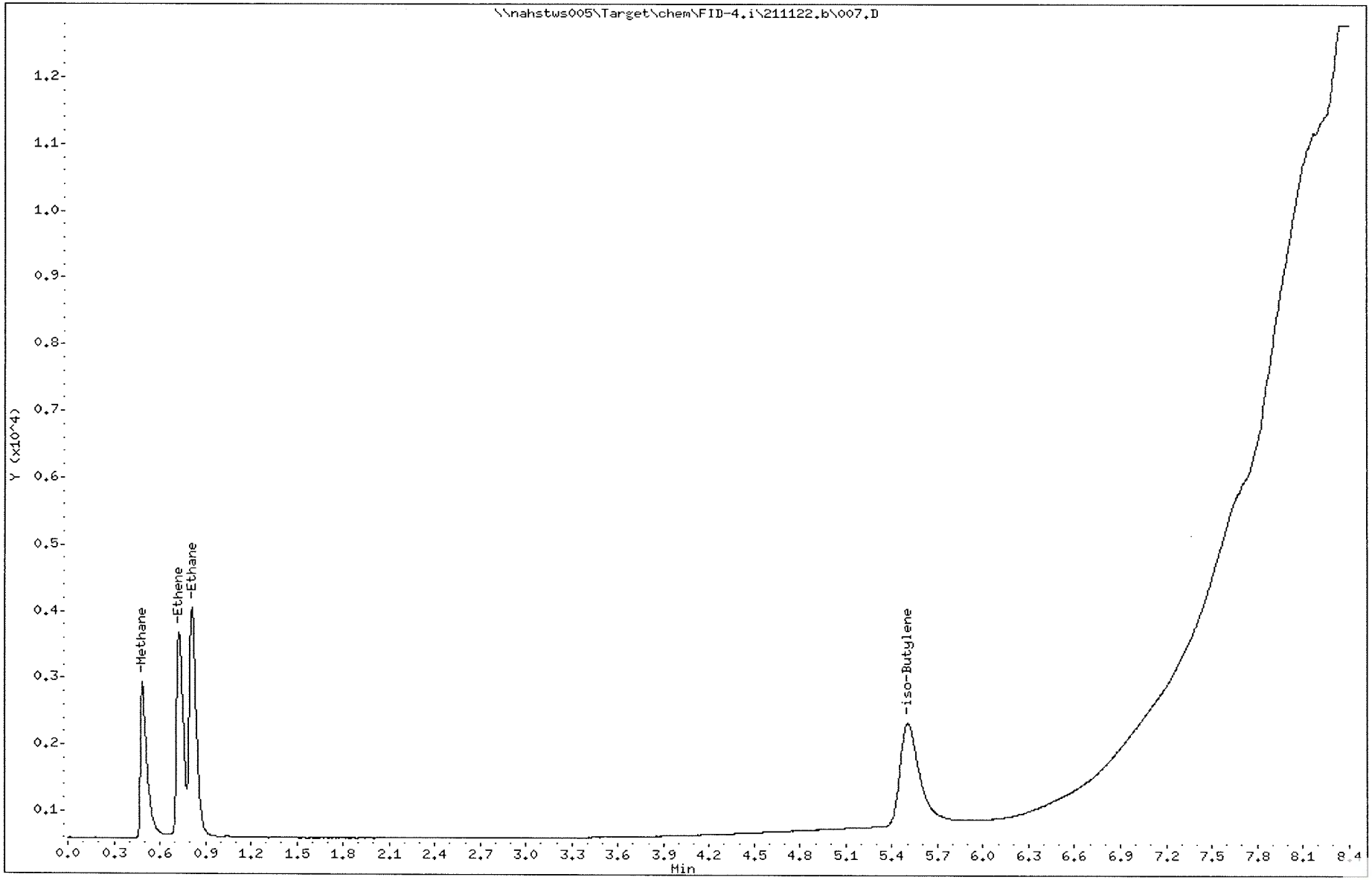
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\007.D
Date : 22-NOV-2021 12:10
Client ID: HS21110813-13MS
Sample Info: HS21110813-13MS;HS21110813-13MS

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\007.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\007.D
Lab Smp Id: HS21110813-13MS Client Smp ID: HS21110813-13MS
Inj Date : 22-NOV-2021 12:10
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13MS;HS21110813-13MS
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 7 QC Sample: MS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.483	0.466	0.017	7365	7.55391	7.553
2 Ethene	0.726	0.733	-0.007	21039	35.9174	35.917(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\007.D

Date : 22-NOV-2021 12:10

Client ID: HS21110813-13MS

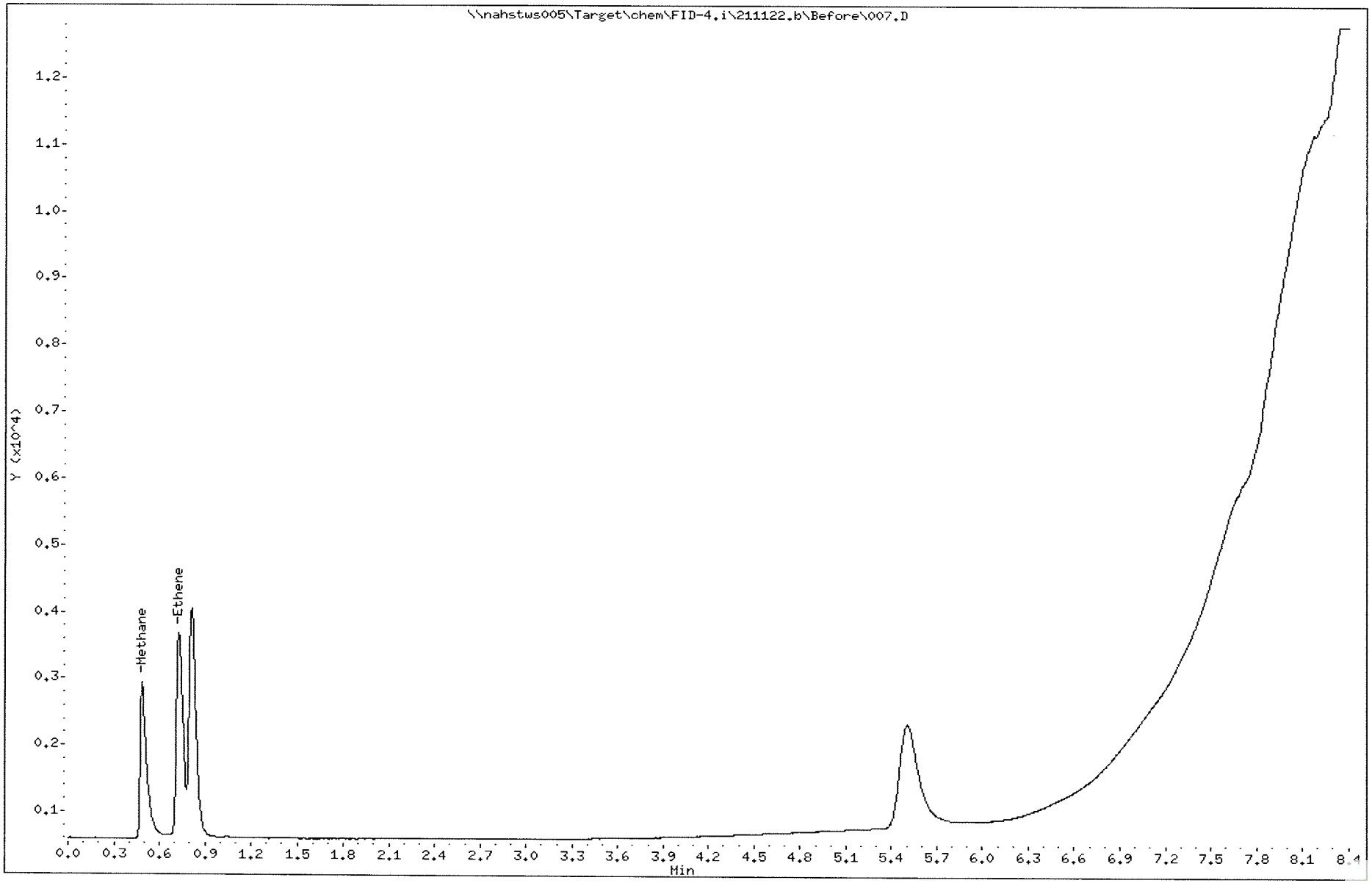
Sample Info: HS21110813-13MS;HS21110813-13MS

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\008.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\008.D
Lab Smp Id: HS21110813-13MSD Client Smp ID: HS21110813-13MSD
Inj Date : 22-NOV-2021 12:22
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13MSD;HS21110813-13MSD
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 8 QC Sample: MSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.466	0.000	7006	7.18570	7.185(R)
2 Ethene	0.710	0.720	-0.010	9391	16.0322	16.032(M)
3 Ethane	0.796	0.803	-0.007	11721	16.2907	16.290(M)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\008.D

Date : 22-NOV-2021 12:22

Client ID: HS21110813-13MSD

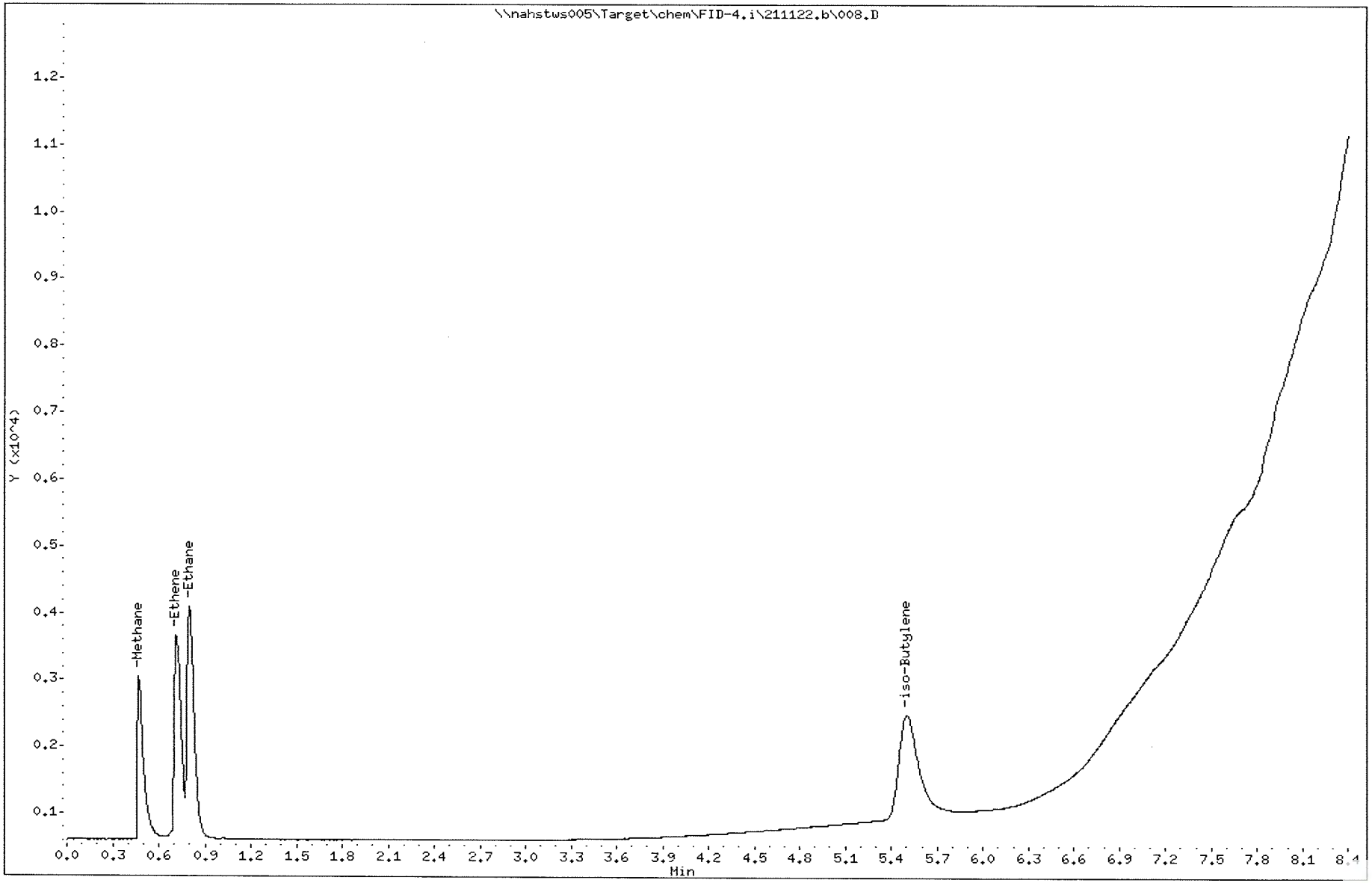
Instrument: FID-4.i

Sample Info: HS21110813-13MSD;HS21110813-13MSD

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\008.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\008.D
Lab Smp Id: HS21110813-13MSD Client Smp ID: HS21110813-13MSD
Inj Date : 22-NOV-2021 12:22
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-13MSD;HS21110813-13MSD
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 8 QC Sample: MSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.466	0.000	7006	7.18570	7.185(R)
2 Ethene	0.710	0.733	-0.023	20967	35.7945	35.794(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\008.D

Date : 22-NOV-2021 12:22

Client ID: HS21110813-13MSD

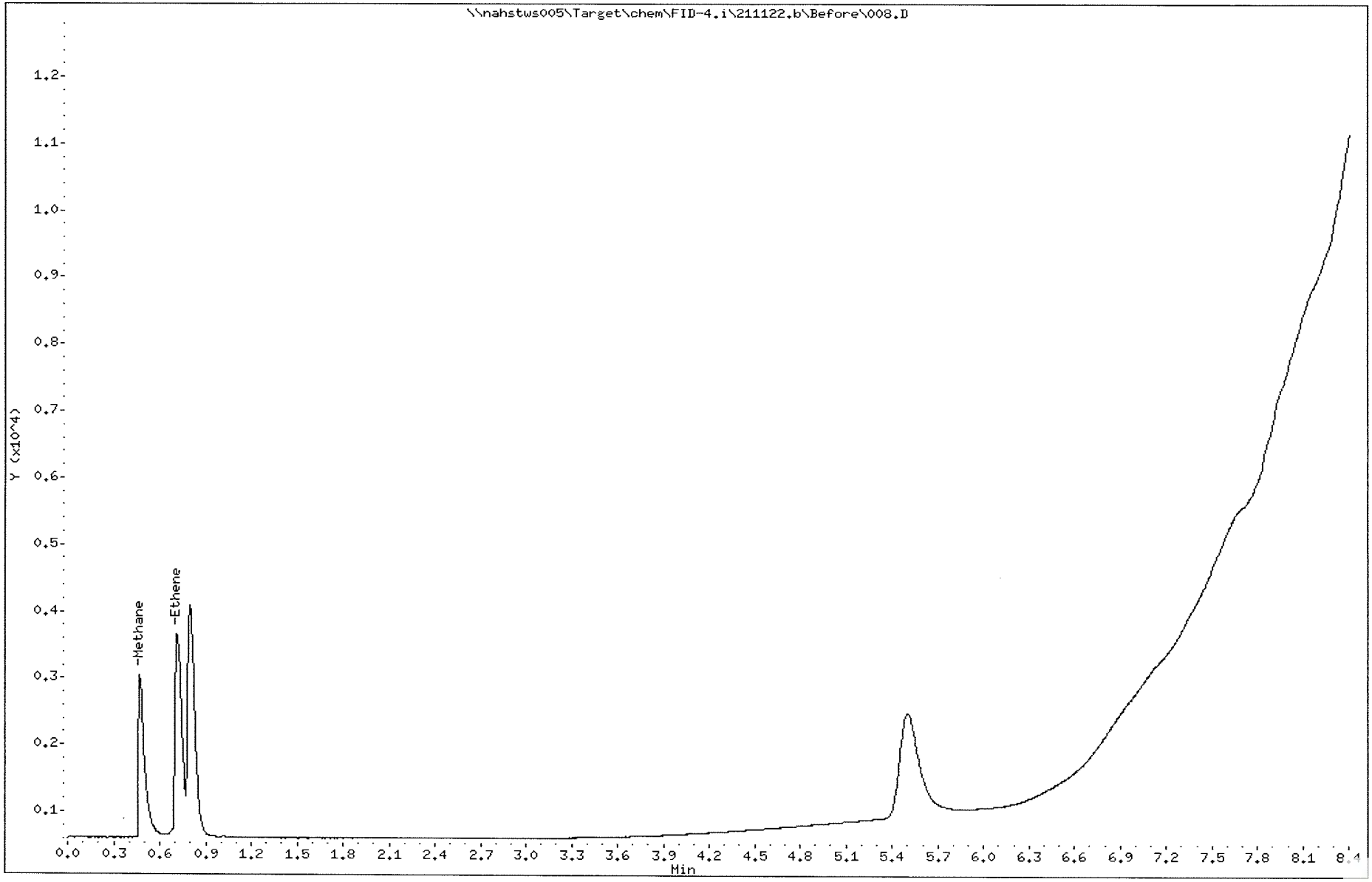
Instrument: FID-4.i

Sample Info: HS21110813-13MSD;HS21110813-13MSD

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\009.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\009.D
Lab Smp Id: HS21110813-15 Client Smp ID: HS21110813-15
Inj Date : 22-NOV-2021 12:36
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-15;HS21110813-15
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.520	0.466	0.054	2228	2.28515	2.285
2 Ethene	0.710	0.720	-0.010	597	1.01919	1.019(M)
3 Ethane	0.800	0.803	-0.003	571	0.79362	0.793(aM)

QC Flag Legend

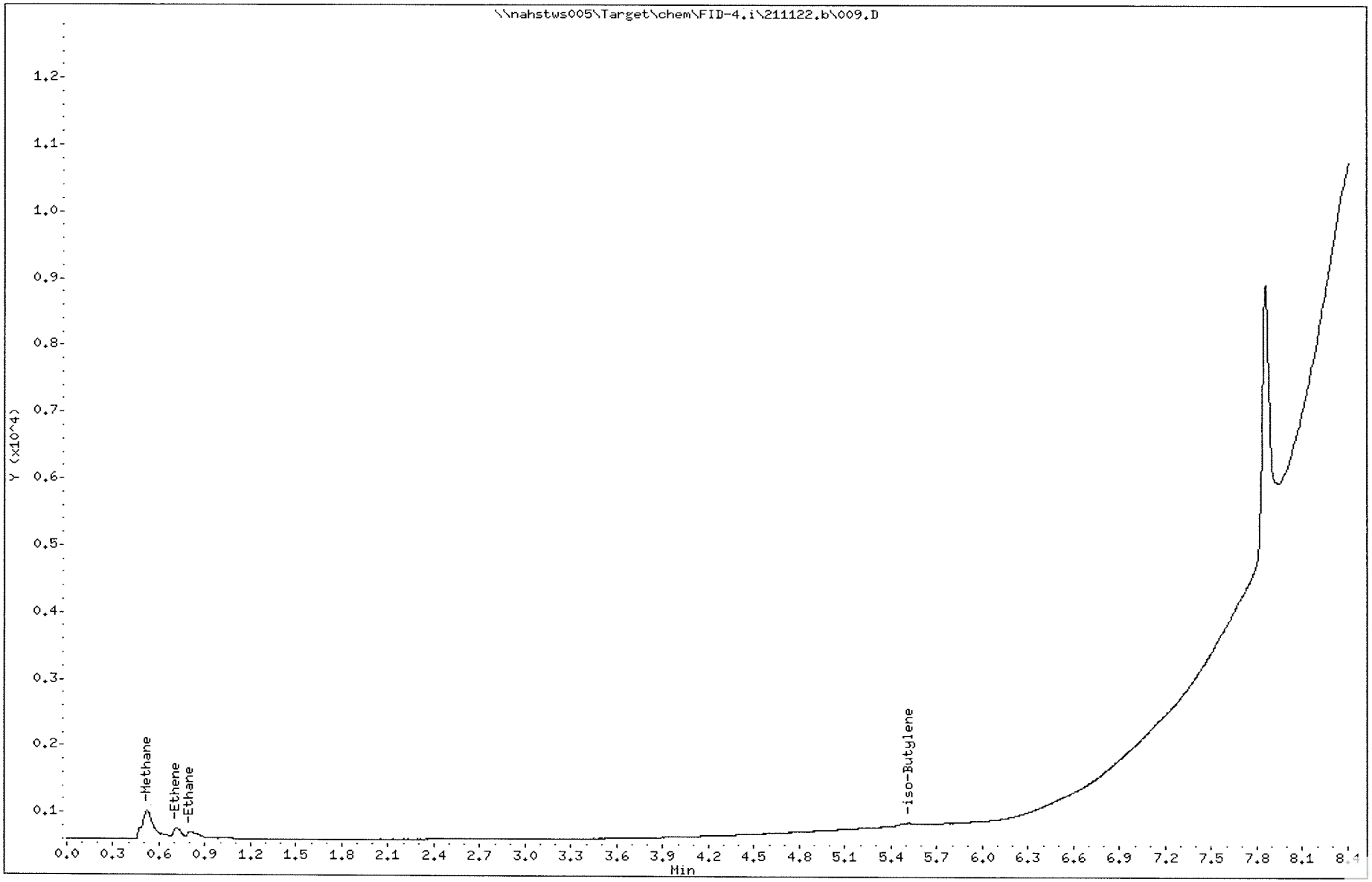
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\009.D
Date : 22-NOV-2021 12:36
Client ID: HS21110813-15
Sample Info: HS21110813-15;HS21110813-15

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\009.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\009.D
Lab Smp Id: HS21110813-15 Client Smp ID: HS21110813-15
Inj Date : 22-NOV-2021 12:36
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-15;HS21110813-15
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.520	0.466	0.054	2228	2.28515	2.285
2 Ethene	0.713	0.733	-0.020	1157	1.97521	1.975

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\009.D

Date : 22-NOV-2021 12:36

Client ID: HS21110813-15

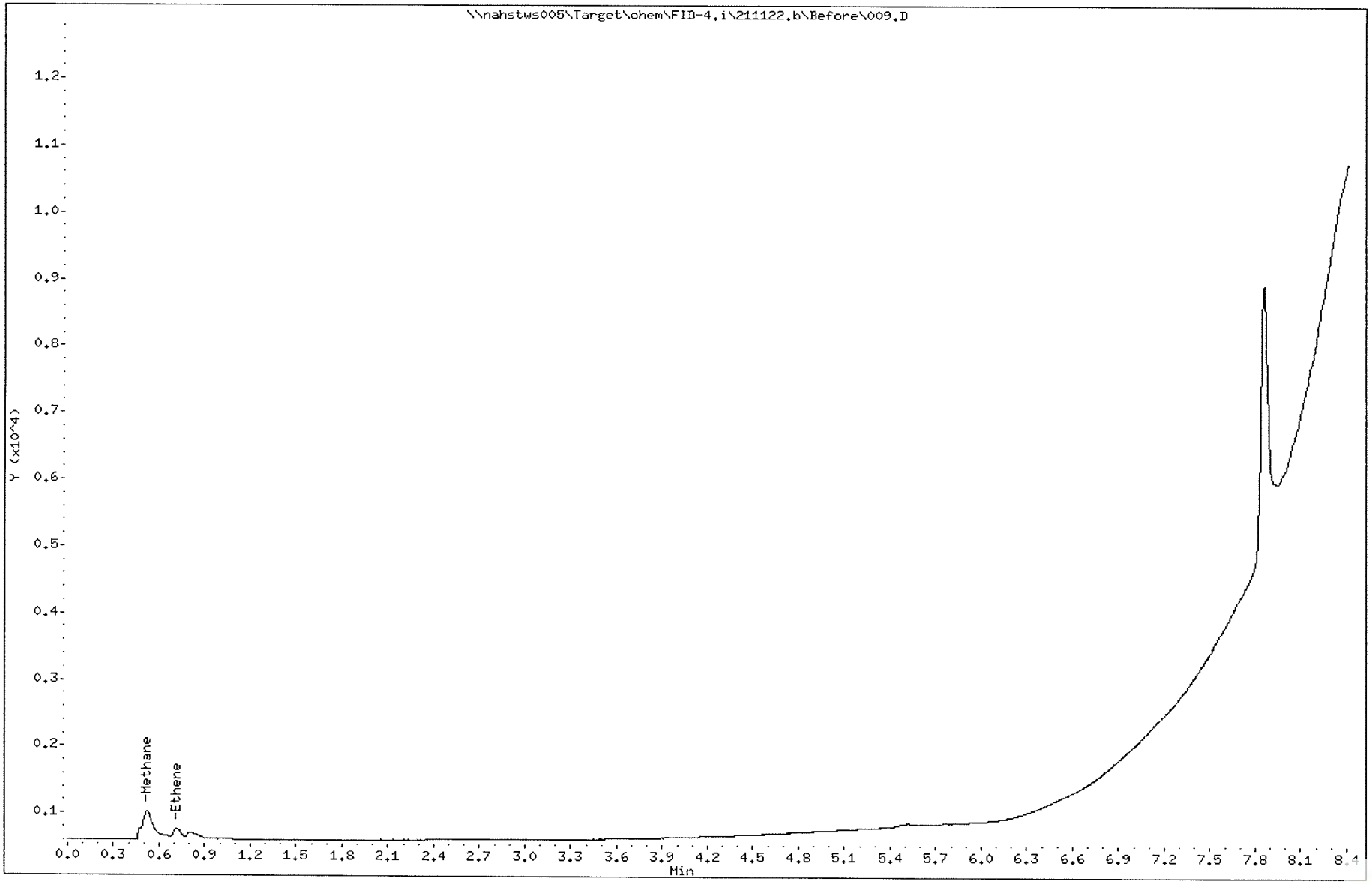
Sample Info: HS21110813-15;HS21110813-15

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\010.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\010.D
Lab Smp Id: HS21110813-16 Client Smp ID: HS21110813-16
Inj Date : 22-NOV-2021 12:48
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-16;HS21110813-16
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.516	0.466	0.050	1674	1.71694	1.716(M)
3 Ethane	0.856	0.803	0.053	211	0.29326	0.293(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\010.D

Date : 22-NOV-2021 12:48

Client ID: HS21110813-16

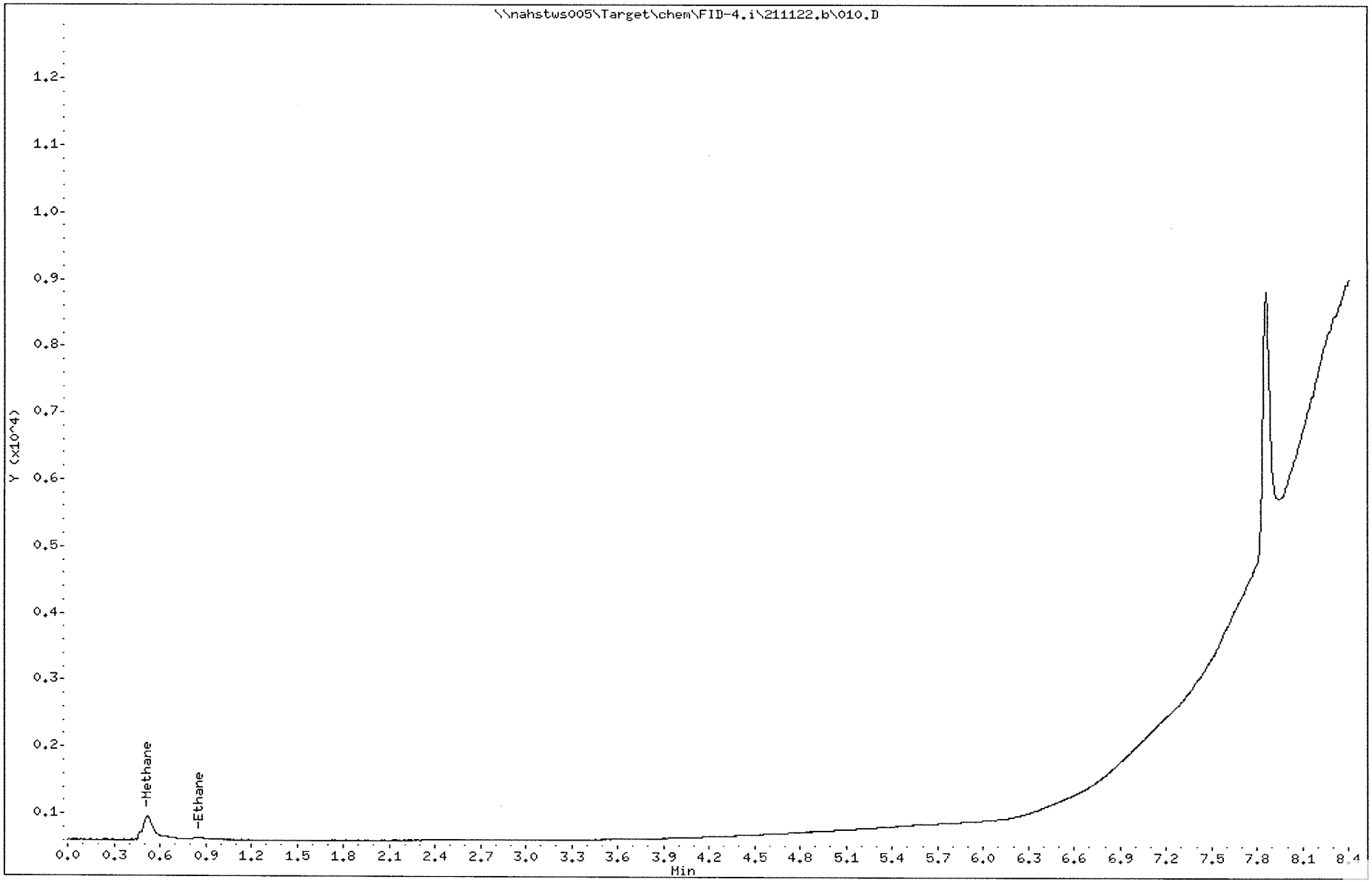
Instrument: FID-4.i

Sample Info: HS21110813-16;HS21110813-16

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\010.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\010.D
Lab Smp Id: HS21110813-16 Client Smp ID: HS21110813-16
Inj Date : 22-NOV-2021 12:48
Operator : PL Inst ID: FID-4.i
Smp Info : HS21110813-16;HS21110813-16
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.516	0.466	0.050	2138	2.19284	2.192

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\010.D

Date : 22-NOV-2021 12:48

Client ID: HS21110813-16

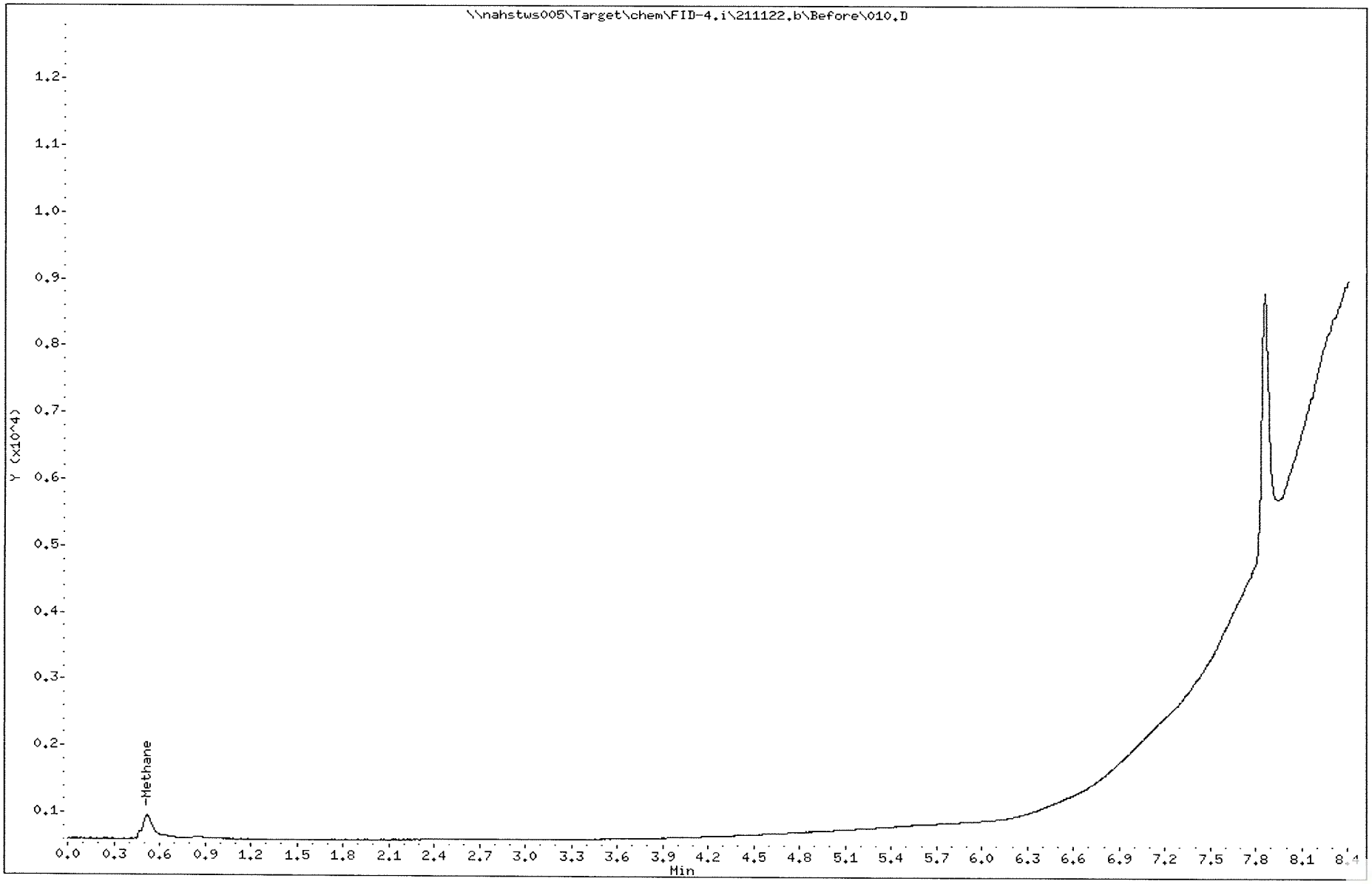
Instrument: FID-4.i

Sample Info: HS21110813-16;HS21110813-16

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 13:05
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 11 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.463	0.466	-0.003	8347	9.64700	8.561
2 Ethene	0.713	0.720	-0.007	10355	16.8500	17.677(M)
3 Ethane	0.796	0.803	-0.007	14098	18.0430	19.594(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\011.D

Date : 22-NOV-2021 13:05

Client ID: RSK-CCV

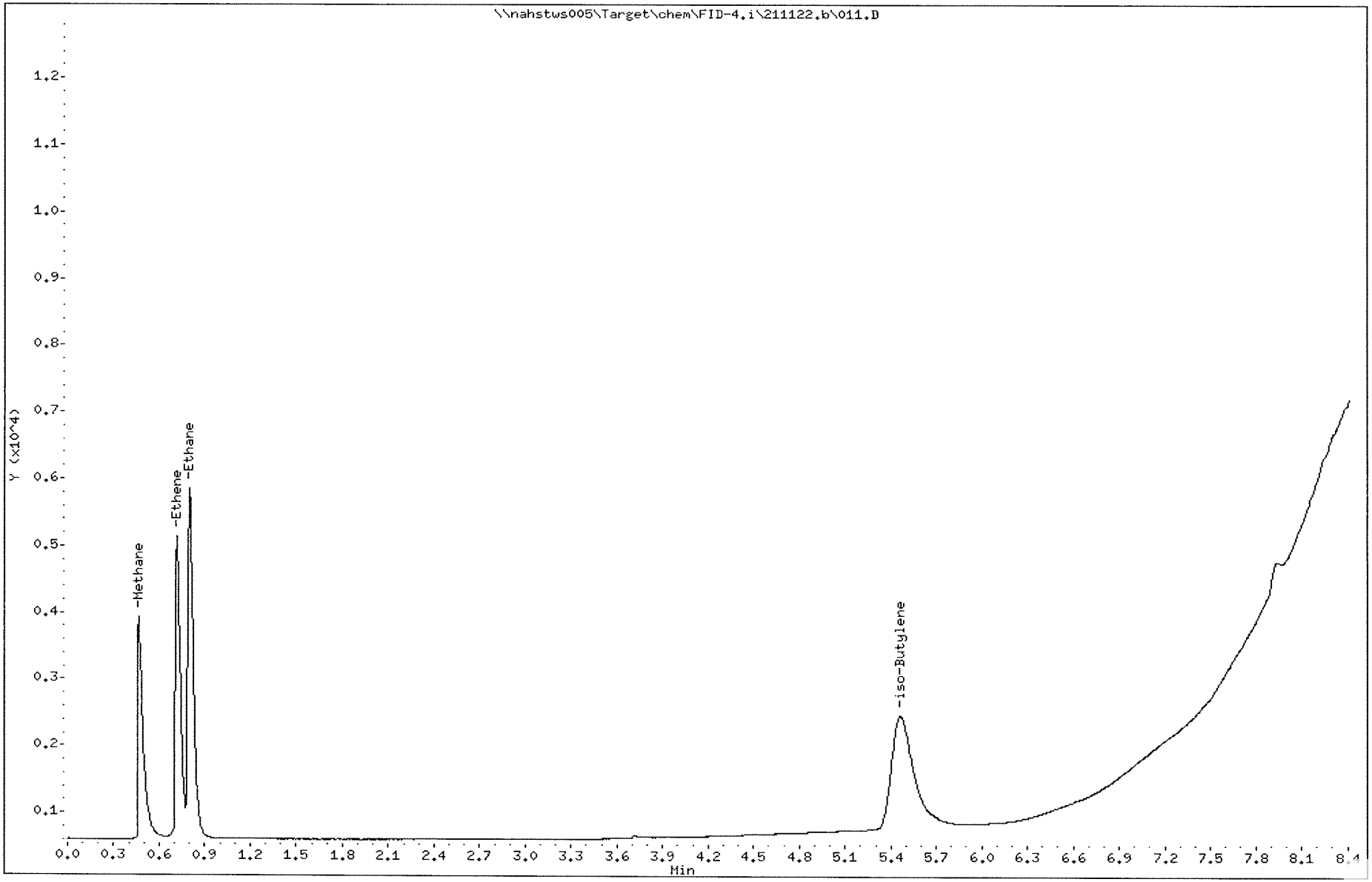
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 13:05
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 11 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.463	0.466	-0.003	8347	9.64700	8.561
2 Ethene	0.713	0.733	-0.020	24328	16.8500	41.532

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\011.D

Date : 22-NOV-2021 13:05

Client ID: RSK-CCV

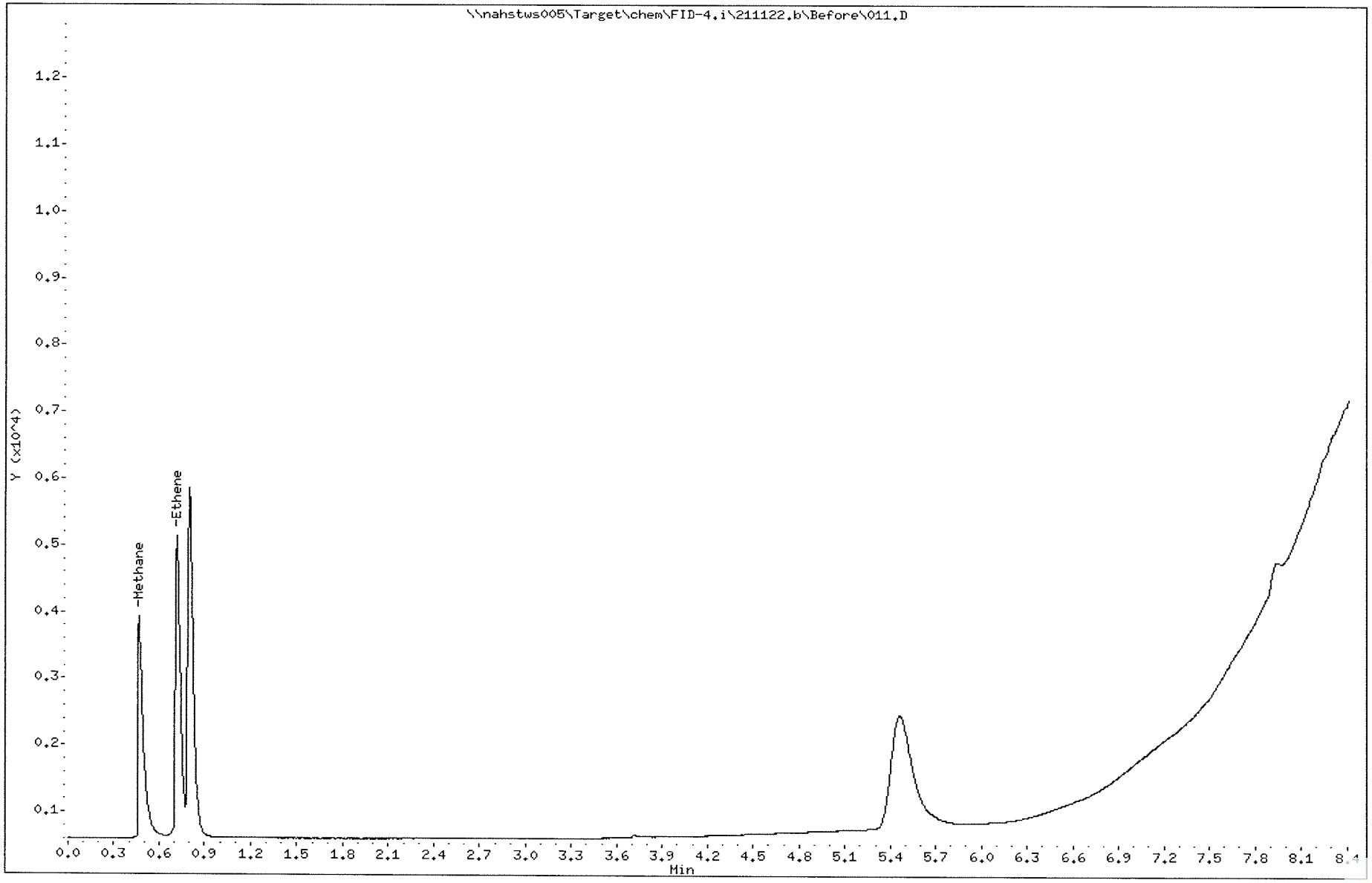
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\022.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 16:06
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 22 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.483	0.466	0.017	9763	9.64700	10.013
2 Ethene	0.733	0.720	0.013	10812	16.8500	18.458(M)
3 Ethane	0.813	0.803	0.010	14429	18.0430	20.054(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\022.D

Date : 22-NOV-2021 16:06

Client ID: RSK-CCV

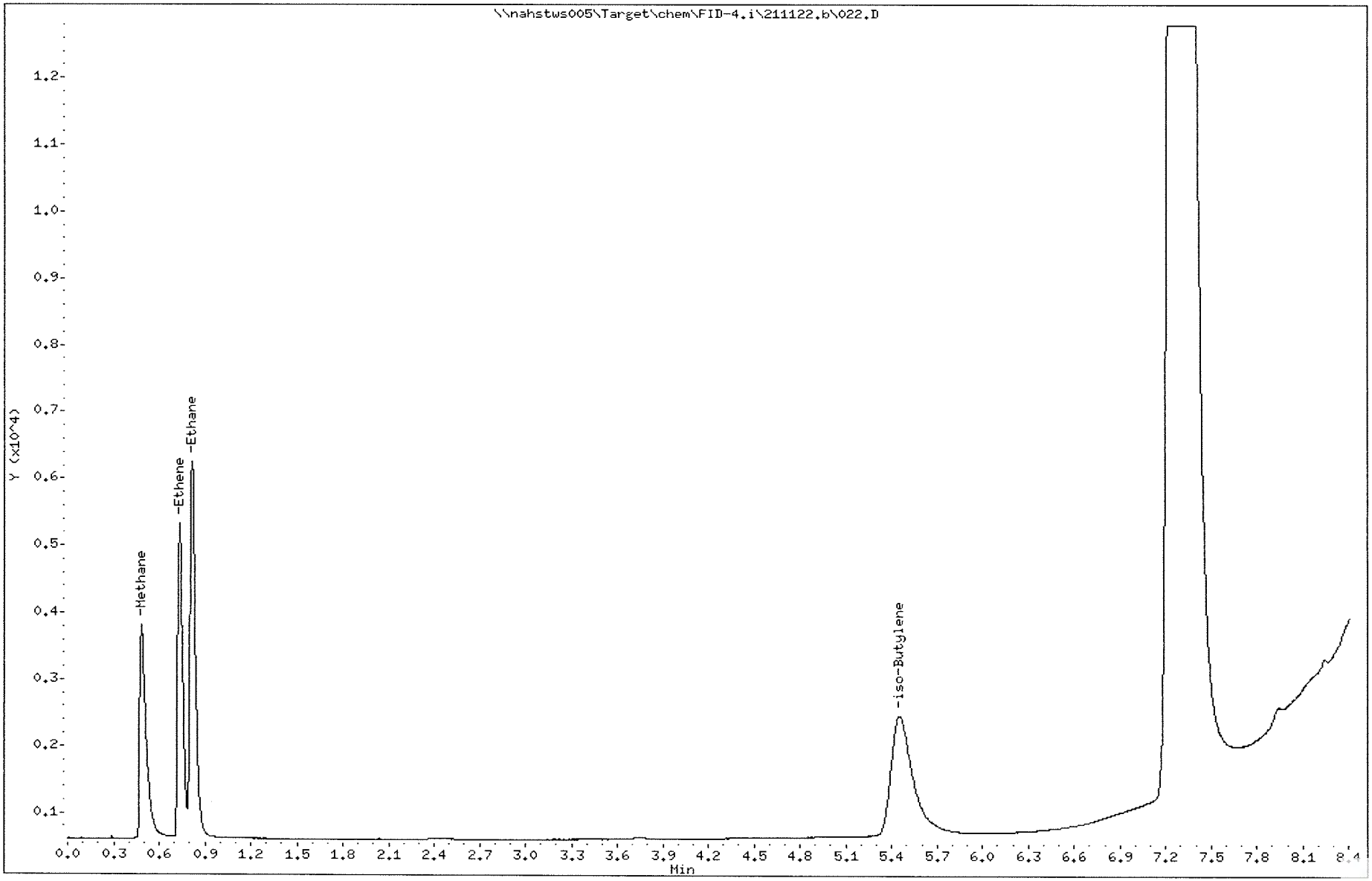
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\022.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\022.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 16:06
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 22 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

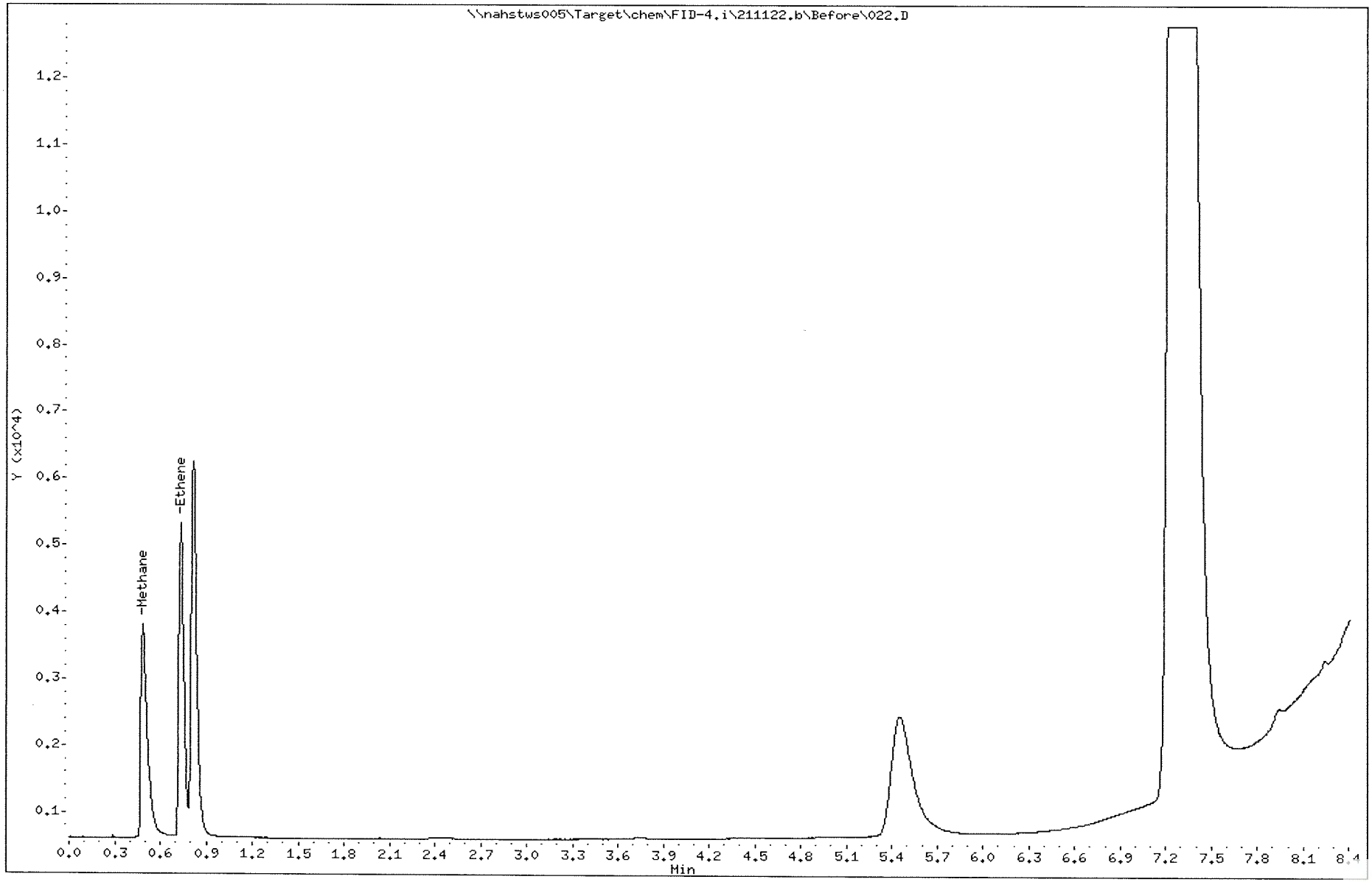
Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.483	0.466	0.017	9763	9.64700	10.013
2 Ethene	0.733	0.733	0.000	25152	16.8500	42.939

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\022.D
Date : 22-NOV-2021 16:06
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\025.D Page 1
Report Date: 23-Dec-2021 08:44

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\025.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 16:49
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:42 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 25 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.466	0.466	0.000	8548	9.64700	8.767
2 Ethene	0.720	0.720	0.000	10373	16.8500	17.708(M)
3 Ethane	0.803	0.803	0.000	14546	18.0430	20.217(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\025.D

Date : 22-NOV-2021 16:49

Client ID: RSK-CCV

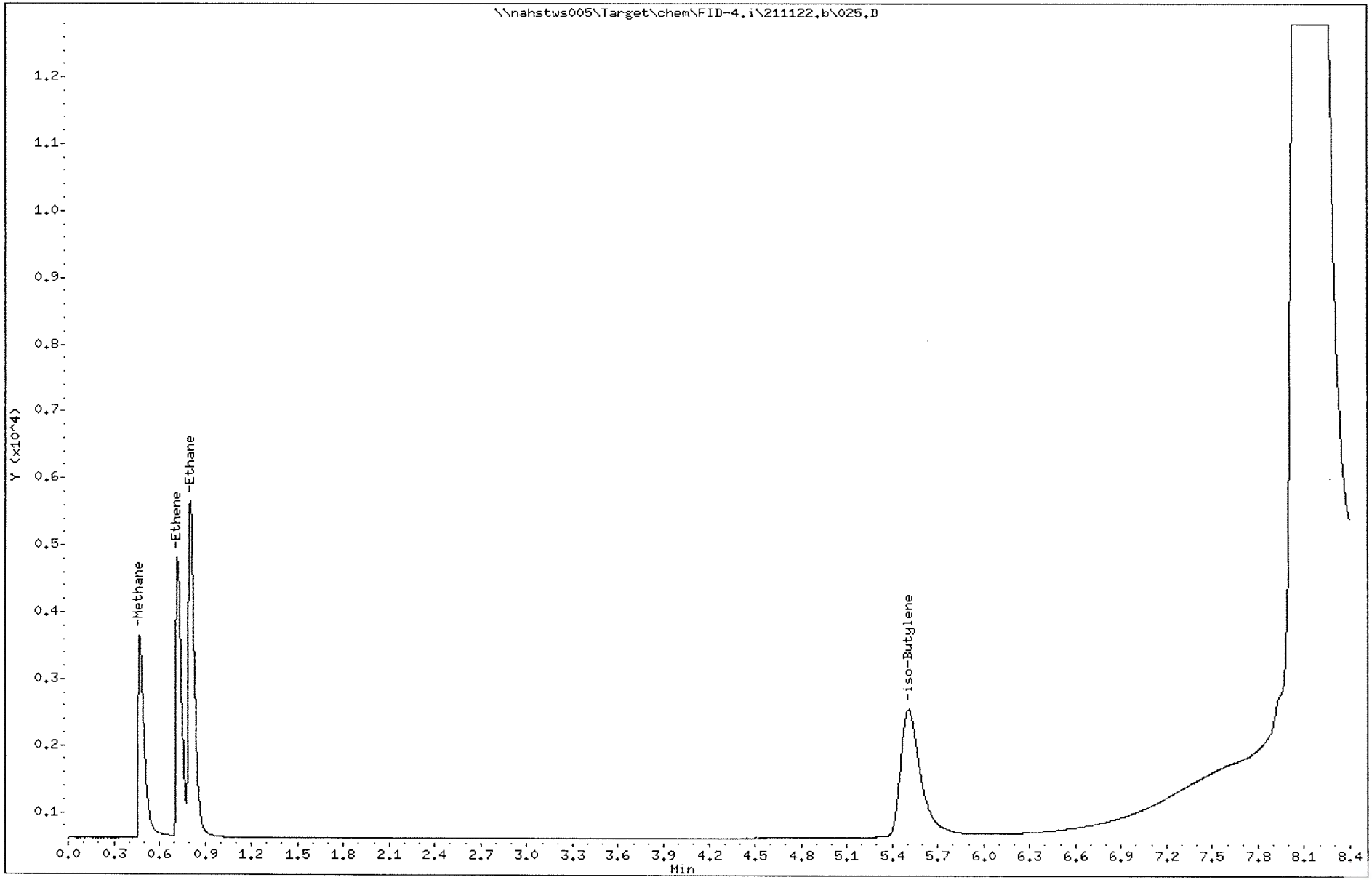
Instrument: FID-4.i

Sample Info: RSK-CCV;RSK-CCV;2;4

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\025.D Page 1
Report Date: 23-Dec-2021 08:46

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\211122.b\Before\025.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 22-NOV-2021 16:49
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\211122.b\MEEISB.m
Meth Date : 23-Dec-2021 08:44 linh.pham Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 25 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.466	0.466	0.000	8548	9.64700	8.767
3 Ethane	0.803	0.803	0.000	25320	18.0430	35.191

Data File: \\nahstws005\Target\chem\FID-4.i\211122.b\Before\025.D

Date : 22-NOV-2021 16:49

Client ID: RSK-CCV

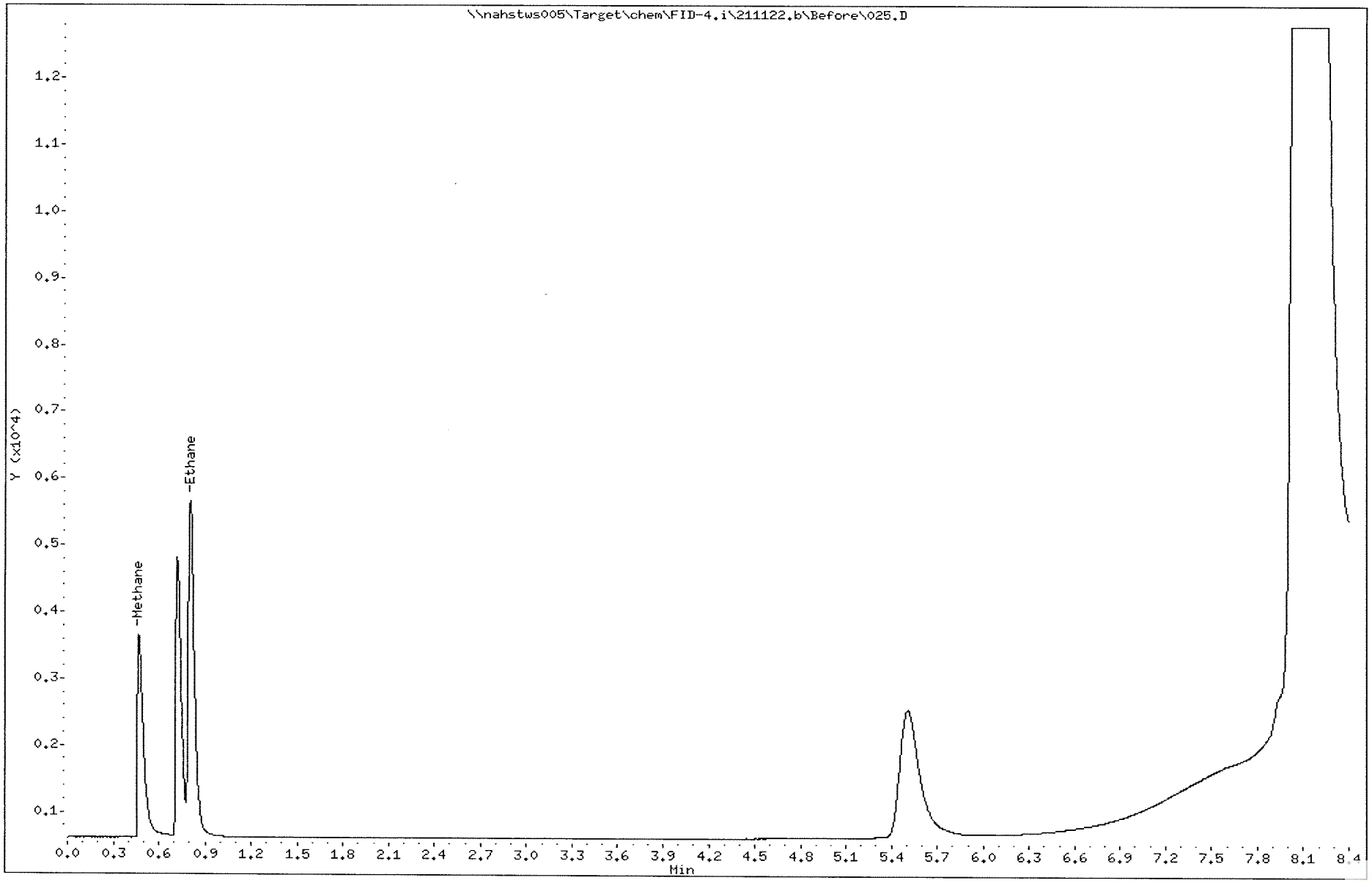
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



HS21110813 9056_W IC

ALS WO# HS21110813

Sequence: 111221
Last Update Operator: ALSHS.NoUser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	CCV		Unknown	R1	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 6:37:30 AM -06:00
	CCB		Unknown	R6	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 6:52:20 AM -06:00
	HS21110813-13DF5	SH-9056_W	Unknown	BB1	5.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:07:10 AM -06:00
	HS21110813-13MSDF5		Unknown	BB2	5.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:14:35 AM -06:00
	HS21110813-13MSDDF5		Unknown	BB3	5.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:22:00 AM -06:00
	HS21110813-15DF5		Unknown	BB4	5.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:29:24 AM -06:00
	HS21110813-16DF5		Unknown	BB5	5.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:36:49 AM -06:00
	HS21110813-13DF50		Unknown	BB6	50.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:44:13 AM -06:00
	HS21110813-15DF50		Unknown	BB7	50.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:51:38 AM -06:00
	HS21110813-16DF50	SH-9056_W	Unknown	BB8	50.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 7:59:03 AM -06:00
	CCV1		Unknown	R3	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 8:13:52 AM -06:00
	CCB		Unknown	R6	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 8:28:42 AM -06:00
	MBLK		Unknown	R5	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 8:36:07 AM -06:00
	LCS		Unknown	R2	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 8:43:32 AM -06:00
	CCV		Unknown	R1	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 9:35:25 AM -06:00
	CCB		Unknown	R4	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 9:42:50 AM -06:00
	HS21110799-04		Unknown	BC8	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 10:05:04 AM -06:00
	HS21110799-04MS		Unknown	BD1	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 10:12:29 AM -06:00
	HS21110799-04MSD		Unknown	BD2	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 10:19:54 AM -06:00
	CCV1		Unknown	R3	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 10:49:31 AM -06:00
	CCB		Unknown	R8	1.00		Anions Program I	Anions Proce	5.0	Finished	11/13/2021 10:56:55 AM -06:00

Sequence: 111021
Injection #6: STD6

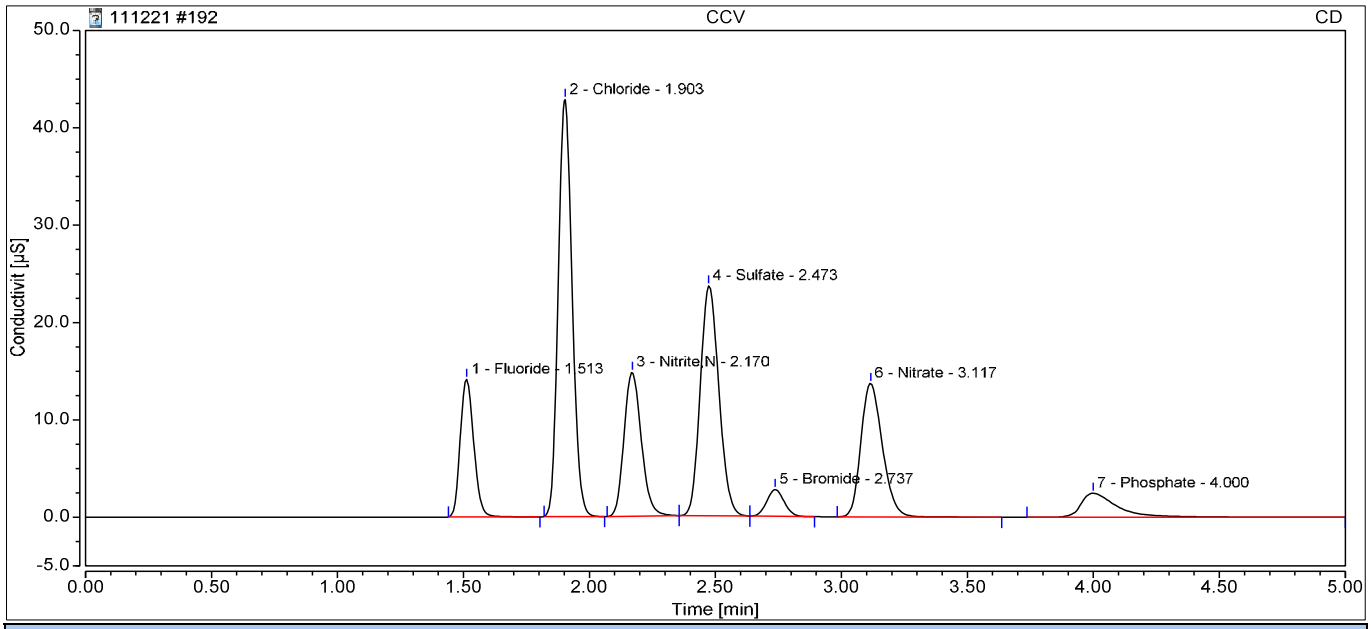
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	***Fluoride***	***Lin, WithOffset, 1/***	***Area***	***6***	***27.8876***	***0.99658***	***-0.0083***	***0.2107***	***0.0000***
2	Chloride	Lin, WithOffset, 1/	Area	6	10.8147	0.99945	-0.0187	0.1414	0.0000
3	Nitrite,N	Quad, WithOffset,	Area	6	13.6827	0.99907	-0.0001	0.3141	-0.0036
4	Sulfate	Lin, WithOffset, 1/	Area	6	12.4596	0.99926	-0.0126	0.1039	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	18.4384	0.99858	-0.0030	0.0609	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	10.9439	0.99950	-0.0172	0.3553	0.0000
n.a.	Chlorate	Lin, WithOffset, 1/	Area	0	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	Quad, WithOffset,	Area	5	27.6931	0.99780	-0.0107	0.1204	0.0006
Maximum					**27.8876**	0.99950			
Minimum					10.8147	**0.99658**			

192 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 06:37**	*Sample Weight:*	**1.0000**

Run Time:



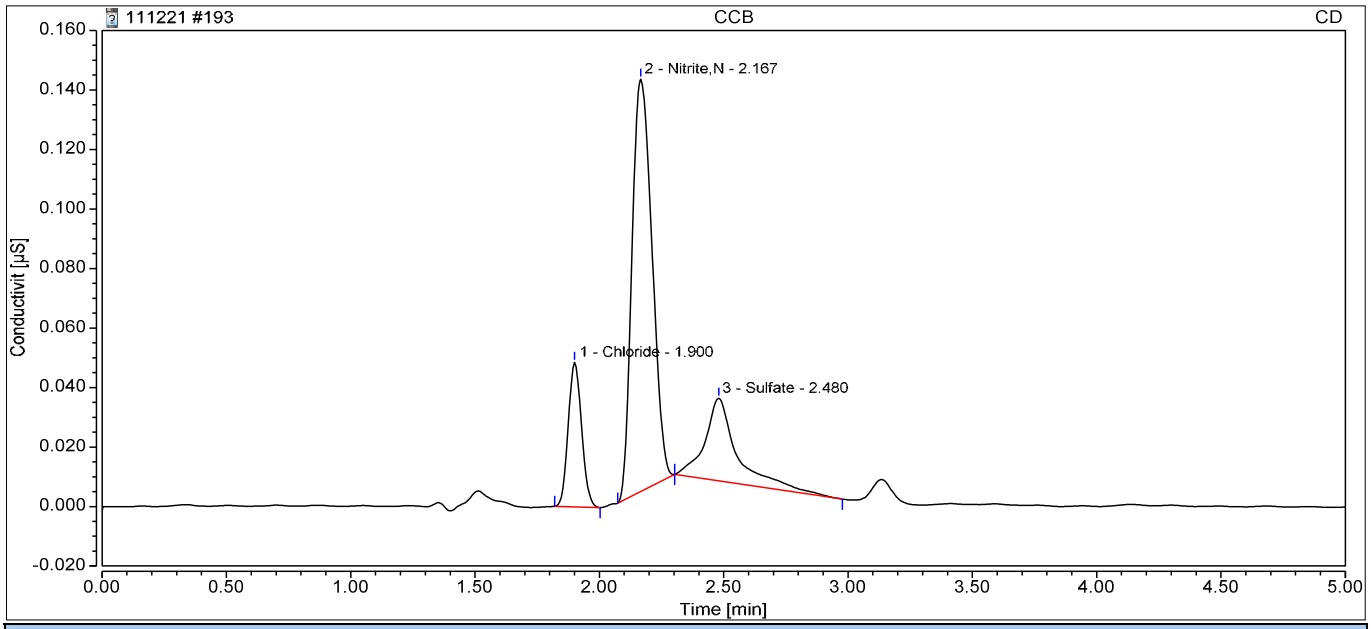
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.879	4.2124	4.2124	1.0000
2	1.90	Chloride	BMB	2.732	19.4539	19.4539	1.0000
3	2.17	Nitrite,N	BMB	1.174	3.9123	3.9123	1.0000
4	2.47	Sulfate	BMB	2.023	19.5918	19.5918	1.0000
5	2.74	Bromide	BMB	0.221	3.6704	3.6704	1.0000
6	3.12	Nitrate	BMB	1.357	3.8665	3.8665	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	4.00	Phosphate	BMB	0.420	3.5163	3.5163	1.0000
Total:			**0.000**	**8.805**		**58.22**	

193 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 06:52**	*Sample Weight:*	**1.0000**

Run Time:



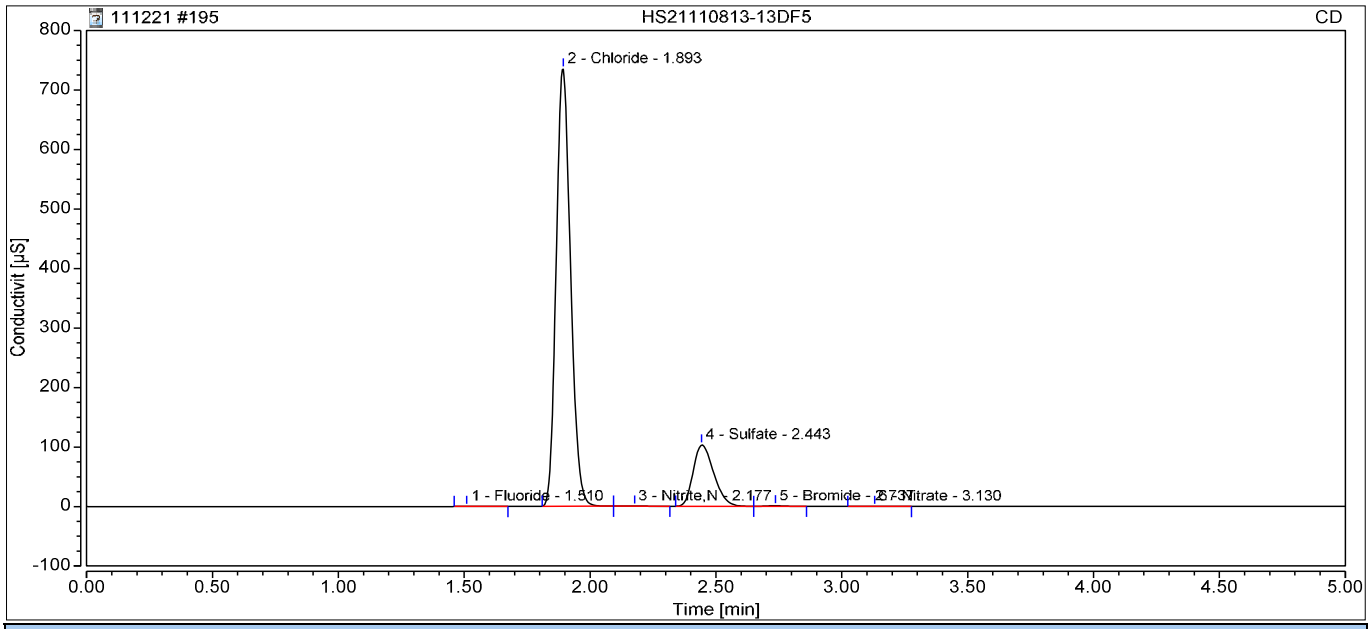
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	1.90	Chloride	BMB	0.003	0.1535	0.1535	1.0000
2	2.17	Nitrite,N	BMB	0.013	0.0415	0.0415	1.0000
3	2.48	Sulfate	BMB	0.004	0.1618	0.1618	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.020**		**0.36**	

195 HS21110813-13DF5

Sample Name:	**HS21110813-13DF5**	*Injection Volume:*	**5.00**
Vial Number:	**BB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**11/13/2021 07:07**	*Sample Weight:*	**1.0000**

Run Time:



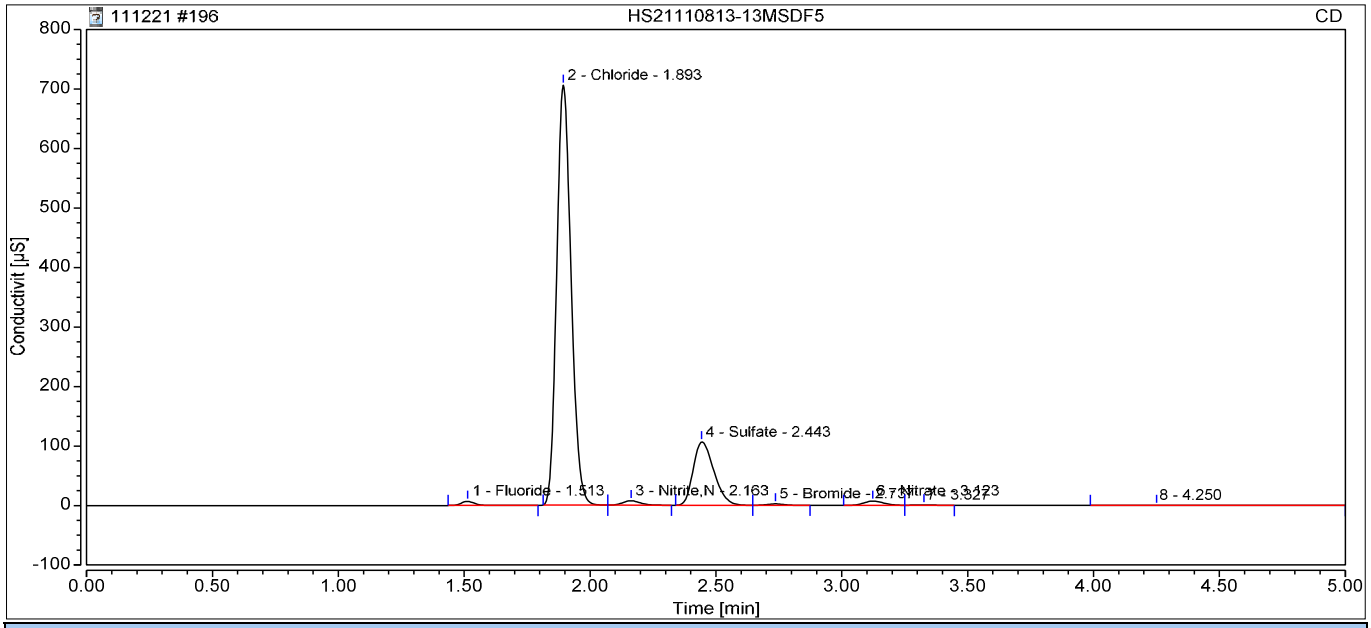
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.010	0.0848	0.4238	5.0000
2	1.89	Chloride	BMB	48.617	343.9505	1719.7524	5.0000
3	2.18	Nitrite,N	BMB	0.012	0.0383	0.1915	5.0000
4	2.44	Sulfate	BMB	9.772	94.1931	470.9653	5.0000
5	2.74	Bromide	BMB	0.085	1.4469	7.2343	5.0000
6	3.13	Nitrate	BMB	0.005	0.0637	0.3186	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**58.502**		**2198.89**	

196 HS21110813-13MSDF5

Sample Name:	**HS21110813-13MSDF5**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**11/13/2021 07:14**	*Sample Weight:*	**1.0000**

Run Time:



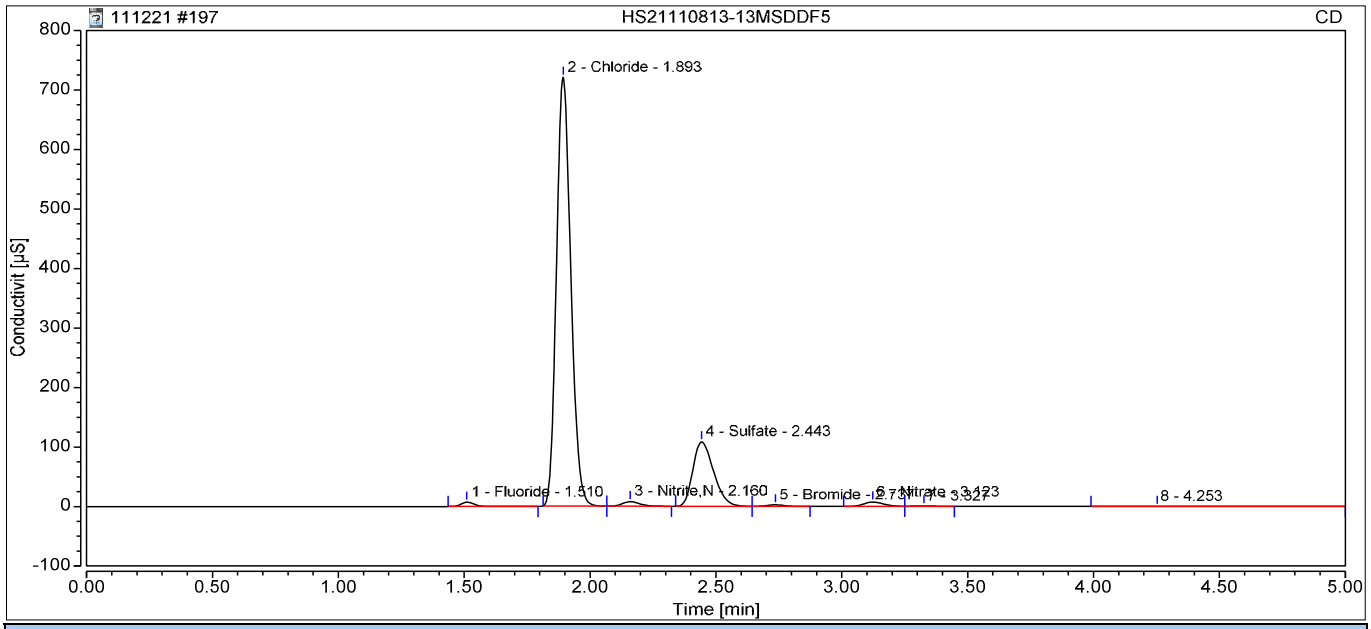
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.433	2.0951	10.4753	5.0000
2	1.89	Chloride	BMB	46.666	330.1533	1650.7664	5.0000
3	2.16	Nitrite,N	BMB	0.590	1.9221	9.6107	5.0000
4	2.44	Sulfate	BMB	10.127	97.6092	488.0460	5.0000
5	2.74	Bromide	BMB	0.195	3.2453	16.2264	5.0000
6	3.12	Nitrate	BMB	0.643	1.8569	9.2844	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**58.654**		**2184.41**	

197 HS21110813-13MSDDF5

Sample Name:	**HS21110813-13MSDDF5**	*Injection Volume:*	**5.00**
Vial Number:	**BB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**11/13/2021 07:22**	*Sample Weight:*	**1.0000**

Run Time:



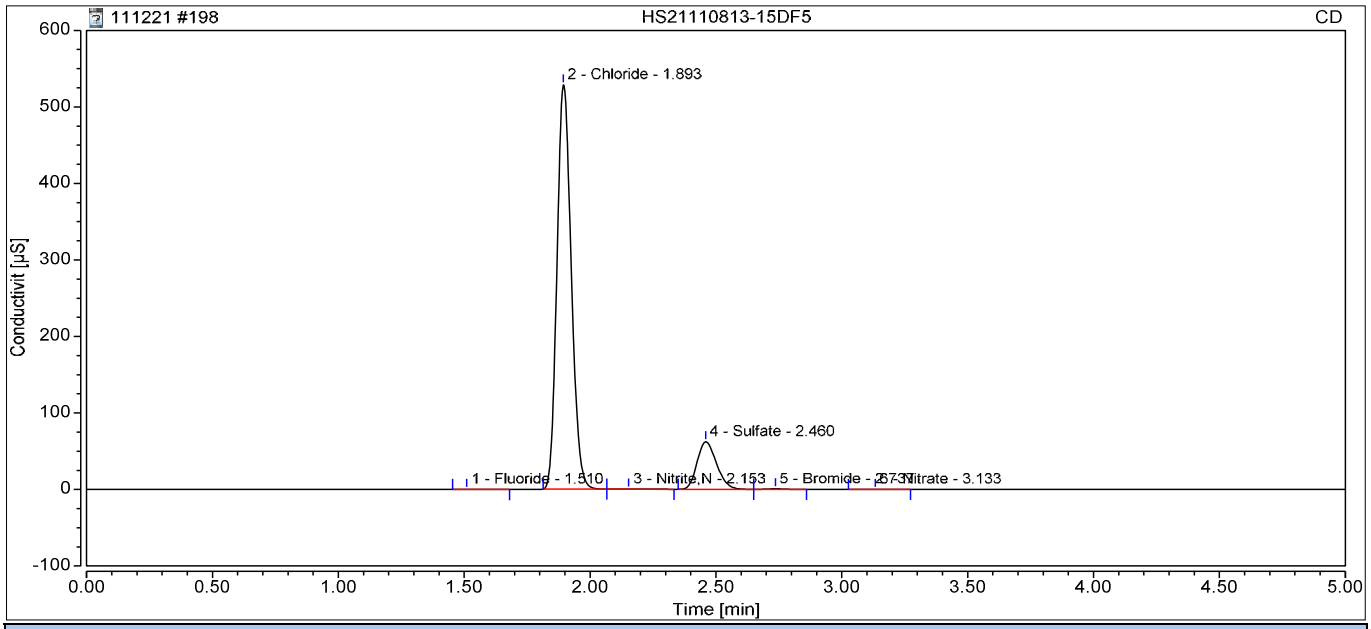
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.447	2.1592	10.7961	5.0000
2	1.89	Chloride	BMB	47.565	336.5106	1682.5530	5.0000
3	2.16	Nitrite,N	BMB	0.602	1.9614	9.8072	5.0000
4	2.44	Sulfate	BMB	10.324	99.5036	497.5178	5.0000
5	2.74	Bromide	BMB	0.199	3.3238	16.6189	5.0000
6	3.12	Nitrate	BMB	0.654	1.8882	9.4410	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**59.791**		**2226.73**	

198 HS21110813-15DF5

Sample Name:	**HS21110813-15DF5**	*Injection Volume:*	**5.00**
Vial Number:	**BB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**11/13/2021 07:29**	*Sample Weight:*	**1.0000**

Run Time:



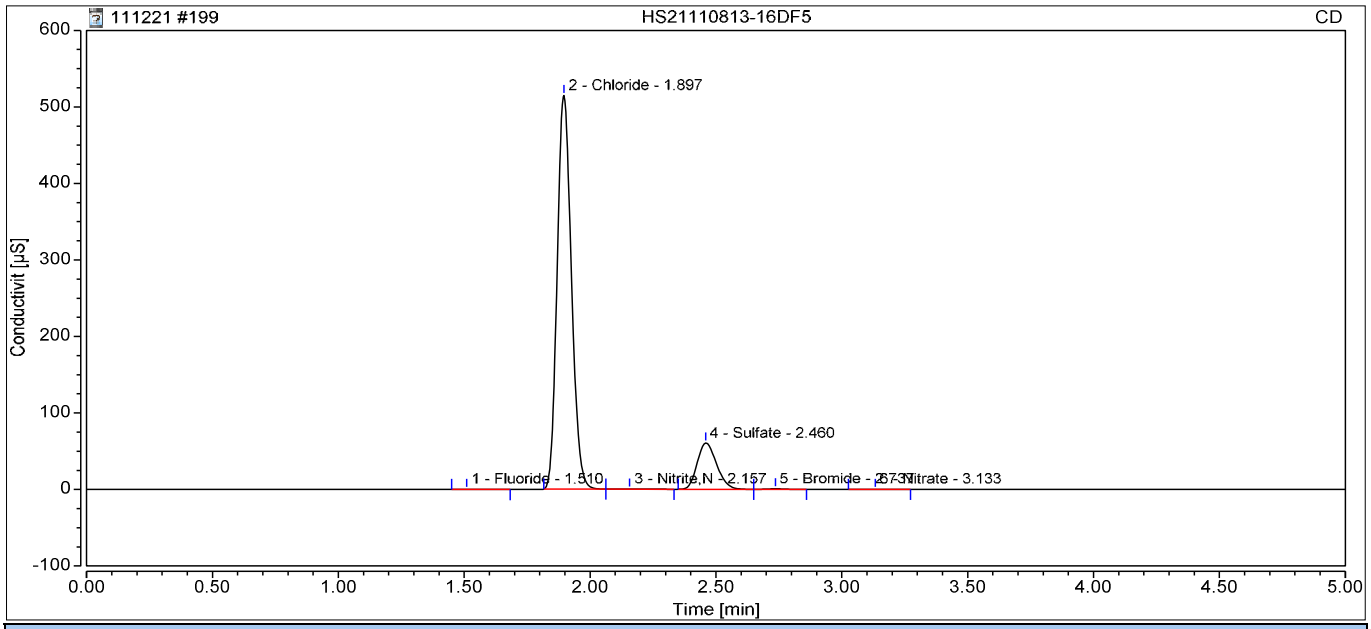
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.012	0.0973	0.4866	5.0000
2	1.89	Chloride	BMB	34.692	245.4700	1227.3502	5.0000
3	2.15	Nitrite,N	BMB	0.024	0.0757	0.3786	5.0000
4	2.46	Sulfate	BMB	5.560	53.6482	268.2412	5.0000
5	2.74	Bromide	BMB	0.055	0.9564	4.7822	5.0000
6	3.13	Nitrate	BMB	0.006	0.0639	0.3195	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**40.349**		**1501.56**	

199 HS21110813-16DF5

Sample Name:	**HS21110813-16DF5**	*Injection Volume:*	**5.00**
Vial Number:	**BB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**5.0000**
Recording Time:	**11/13/2021 07:36**	*Sample Weight:*	**1.0000**

Run Time:



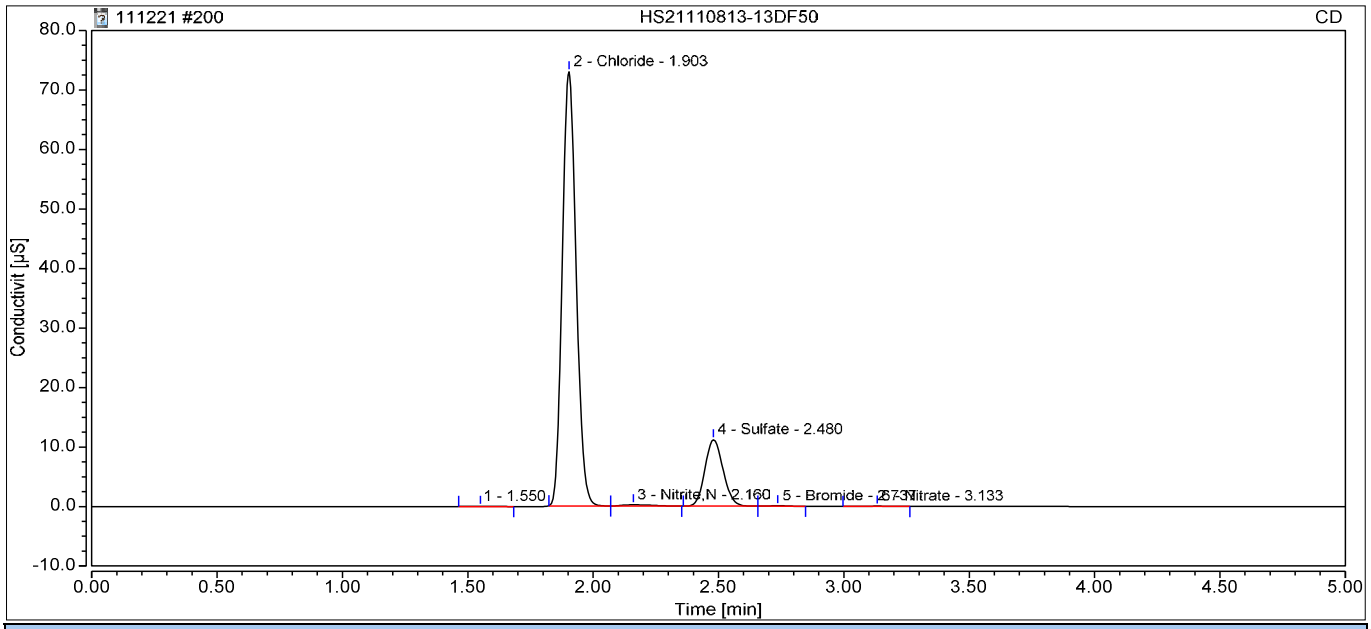
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.010	0.0883	0.4416	5.0000
2	1.90	Chloride	BMB	33.667	238.2241	1191.1205	5.0000
3	2.16	Nitrite,N	BMB	0.025	0.0788	0.3939	5.0000
4	2.46	Sulfate	BMB	5.410	52.2001	261.0007	5.0000
5	2.74	Bromide	BMB	0.054	0.9315	4.6574	5.0000
6	3.13	Nitrate	BMB	0.005	0.0620	0.3102	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**39.171**		**1457.92**	

200 HS21110813-13DF50

Sample Name:	**HS21110813-13DF50**	*Injection Volume:*	**5.00**
Vial Number:	**BB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**50.0000**
Recording Time:	**11/13/2021 07:44**	*Sample Weight:*	**1.0000**

Run Time:



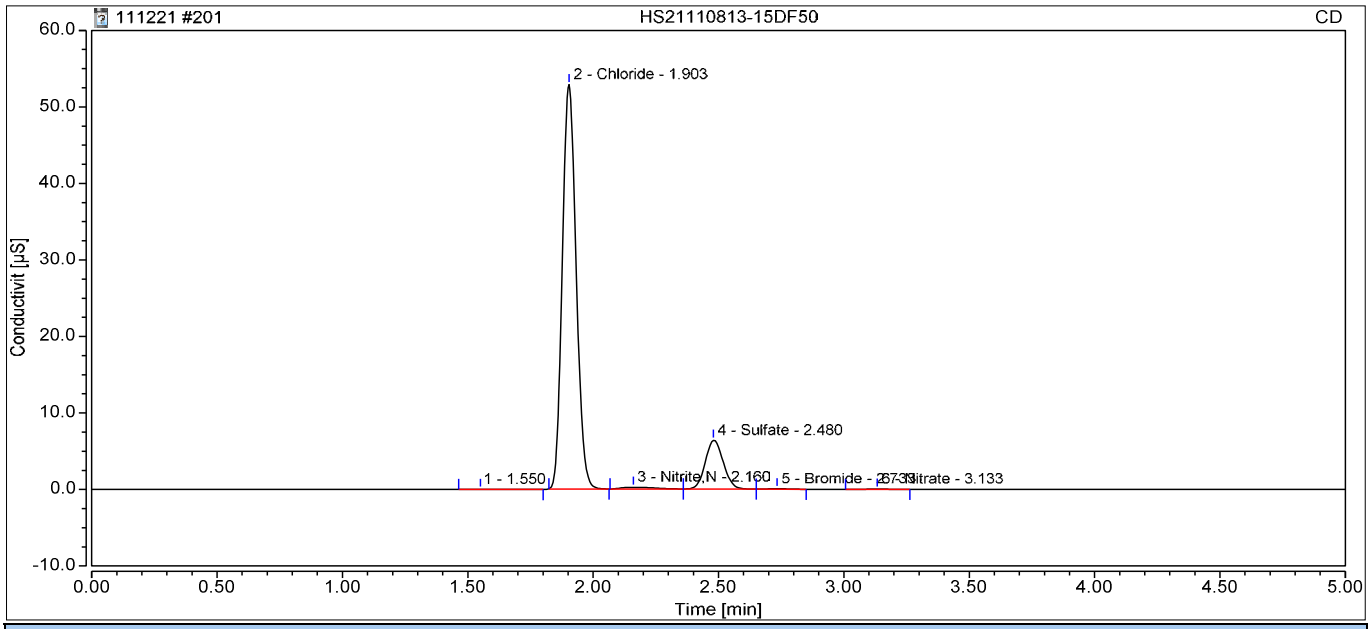
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
2	1.90	Chloride	BMB	4.663	33.1075	1655.3765	50.0000
3	2.16	Nitrite,N	BMB	0.028	0.0910	4.5499	50.0000
4	2.48	Sulfate	BMB	0.937	9.1413	457.0642	50.0000
5	2.74	Bromide	BMB	0.007	0.1617	8.0854	50.0000
6	3.13	Nitrate	BMB	0.004	0.0597	2.9845	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**5.639**		**2128.06**	

201 HS21110813-15DF50

Sample Name:	**HS21110813-15DF50**	*Injection Volume:*	**5.00**
Vial Number:	**BB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**50.0000**
Recording Time:	**11/13/2021 07:51**	*Sample Weight:*	**1.0000**

Run Time:



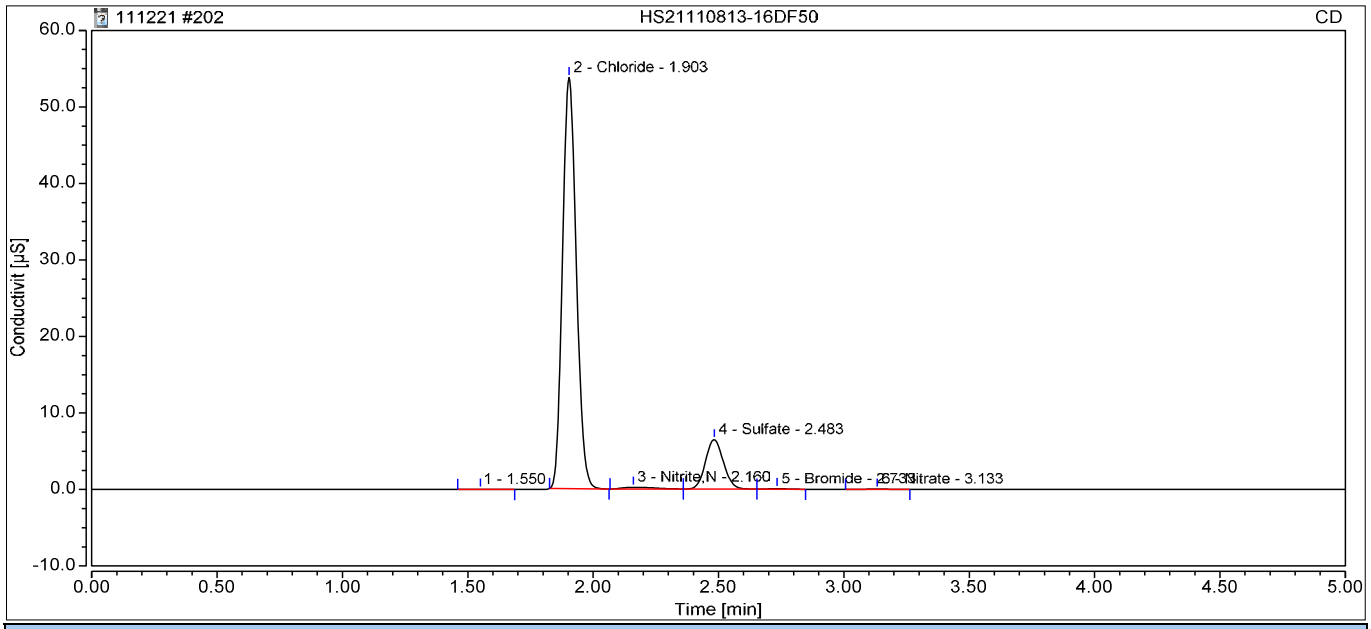
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
2	1.90	Chloride	BMB	3.364	23.9186	1195.9303	50.0000
3	2.16	Nitrite,N	BMB	0.032	0.1037	5.1860	50.0000
4	2.48	Sulfate	BMB	0.528	5.2045	260.2244	50.0000
5	2.73	Bromide	BMB	0.005	0.1276	6.3786	50.0000
6	3.13	Nitrate	BMB	0.004	0.0594	2.9719	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**3.933**		**1470.69**	

202 HS21110813-16DF50

Sample Name:	**HS21110813-16DF50**	*Injection Volume:*	**5.00**
Vial Number:	**BB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**50.0000**
Recording Time:	**11/13/2021 07:59**	*Sample Weight:*	**1.0000**

Run Time:



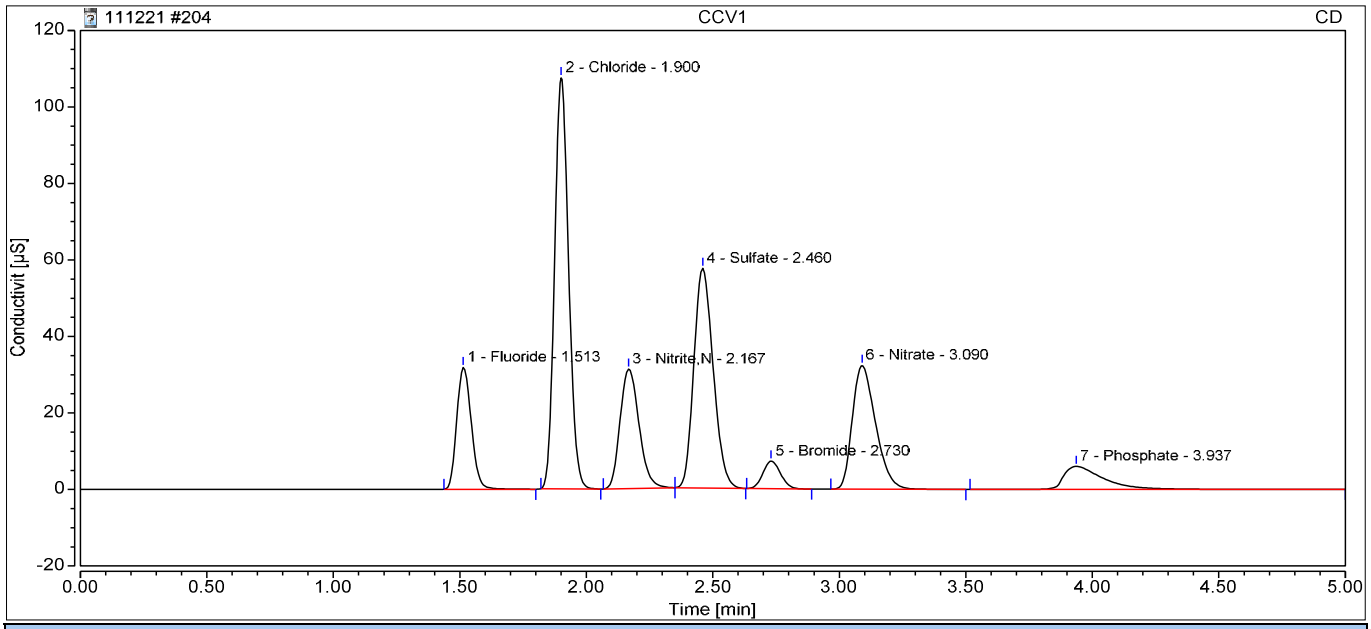
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
2	1.90	Chloride	BMB	3.417	24.2976	1214.8790	50.0000
3	2.16	Nitrite,N	BMB	0.032	0.1016	5.0821	50.0000
4	2.48	Sulfate	BMB	0.534	5.2596	262.9793	50.0000
5	2.73	Bromide	BMB	0.005	0.1294	6.4675	50.0000
6	3.13	Nitrate	BMB	0.004	0.0590	2.9524	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**3.991**		**1492.36**	

204 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 08:13**	*Sample Weight:*	**1.0000**

Run Time:



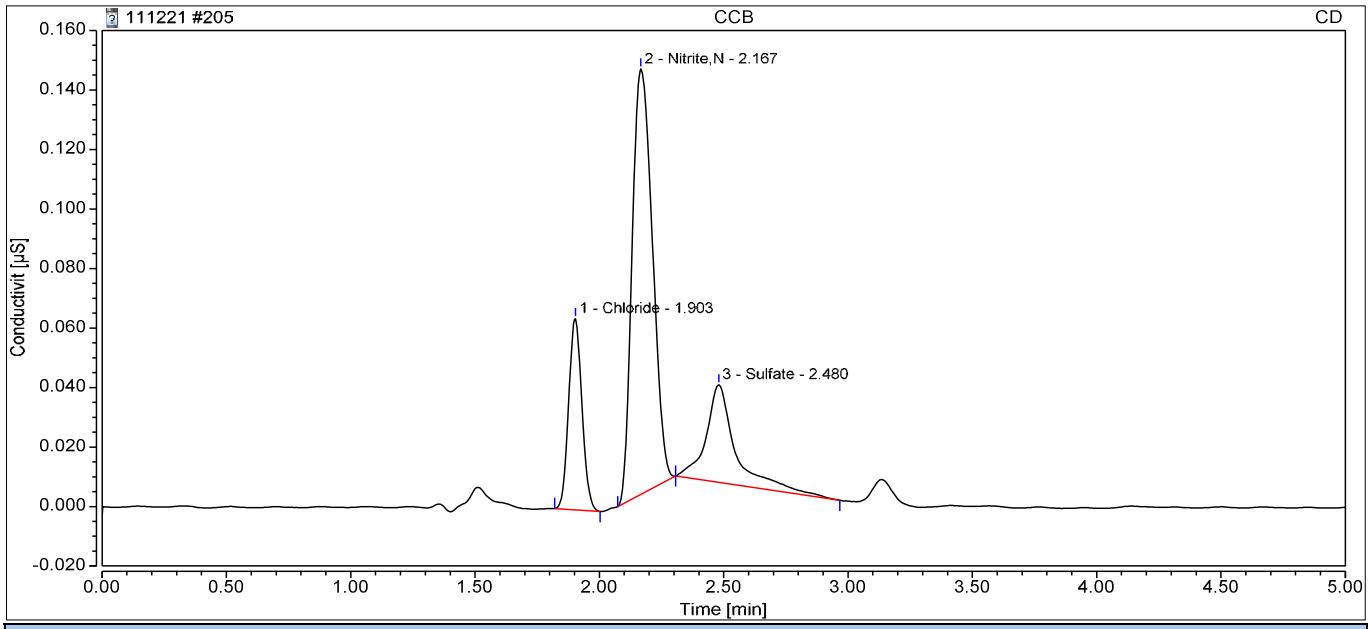
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	2.130	10.1485	10.1485	1.0000
2	1.90	Chloride	BMB	6.890	48.8563	48.8563	1.0000
3	2.17	Nitrite,N	BMB	2.703	9.6783	9.6783	1.0000
4	2.46	Sulfate	BMB	5.082	49.0436	49.0436	1.0000
5	2.73	Bromide	BMB	0.584	9.6421	9.6421	1.0000
6	3.09	Nitrate	BMB	3.443	9.7389	9.7389	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	3.94	Phosphate	BMB	1.102	8.8309	8.8309	1.0000
Total:			**0.000**	**21.934**		**145.94**	

205 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 08:28**	*Sample Weight:*	**1.0000**

Run Time:



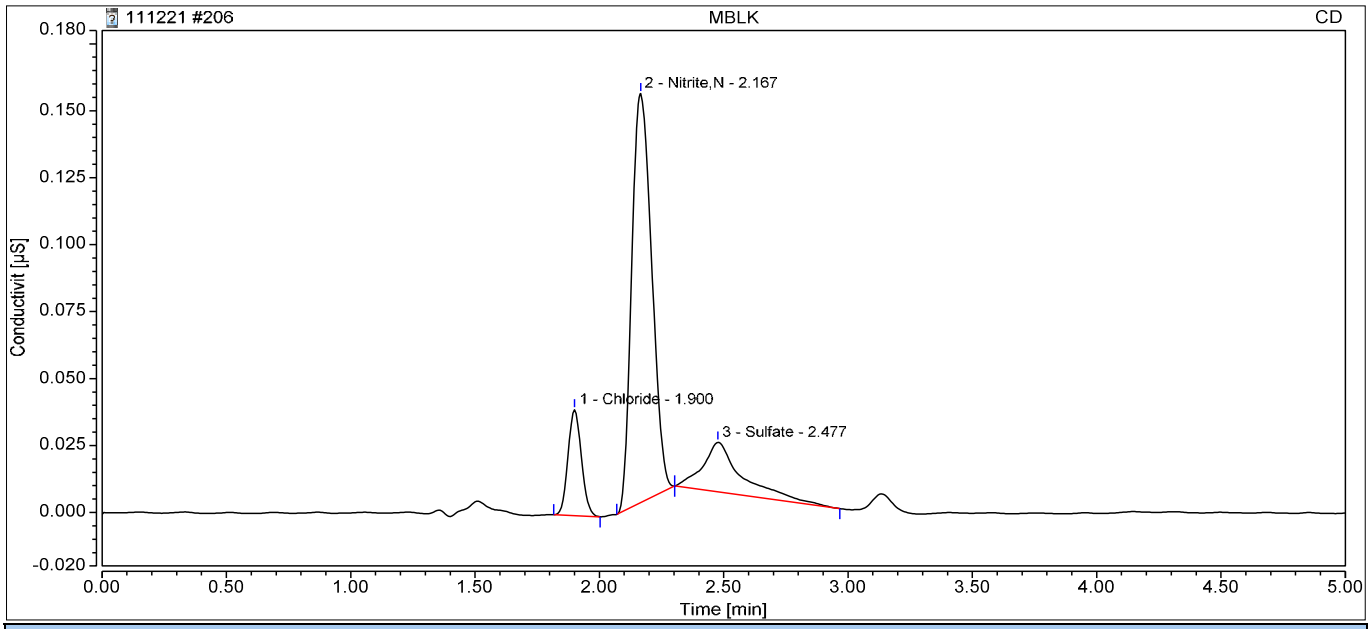
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	1.90	Chloride	BMB	0.004	0.1601	0.1601	1.0000
2	2.17	Nitrite,N	BMB	0.014	0.0433	0.0433	1.0000
3	2.48	Sulfate	BMB	0.005	0.1648	0.1648	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.022**		**0.37**	

206 MBLK

Sample Name:	**MBLK**	*Injection Volume:*	**5.00**
Vial Number:	**R5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 08:36**	*Sample Weight:*	**1.0000**

Run Time:



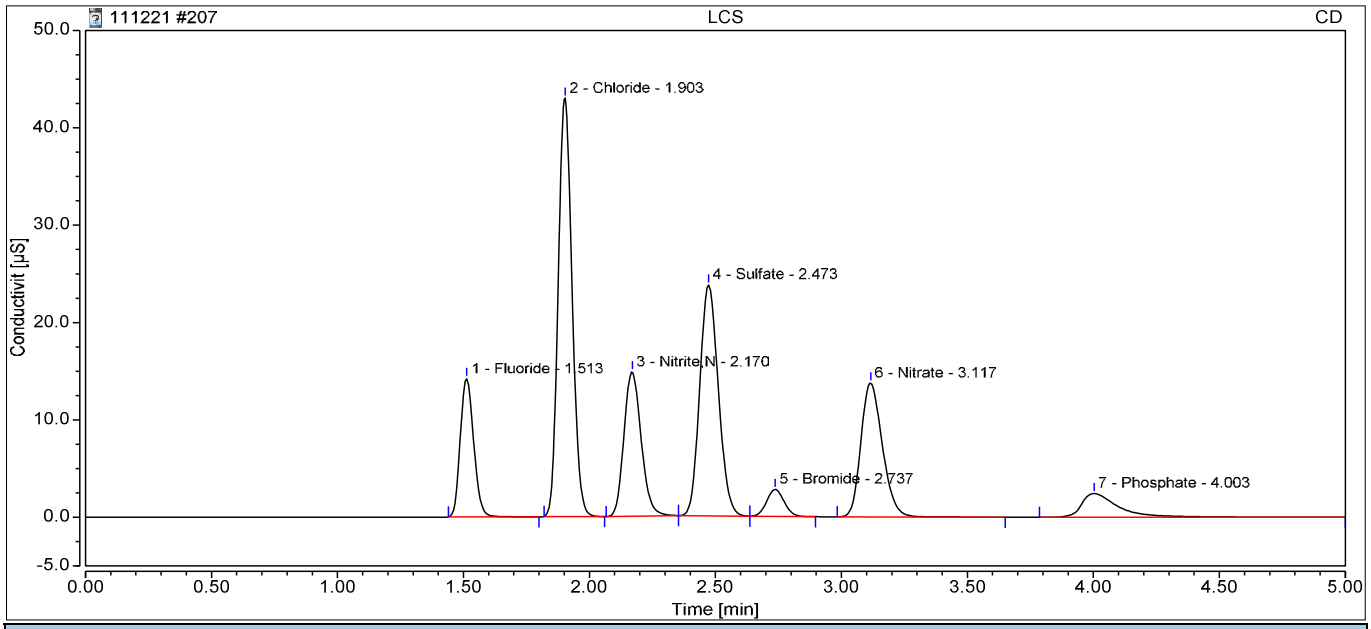
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	1.90	Chloride	BMB	0.002	0.1495	0.1495	1.0000
2	2.17	Nitrite,N	BMB	0.014	0.0455	0.0455	1.0000
3	2.48	Sulfate	BMB	0.003	0.1543	0.1543	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.020**		**0.35**	

207 LCS

Sample Name:	**LCS**	*Injection Volume:*	**5.00**
Vial Number:	**R2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 08:43**	*Sample Weight:*	**1.0000**

Run Time:



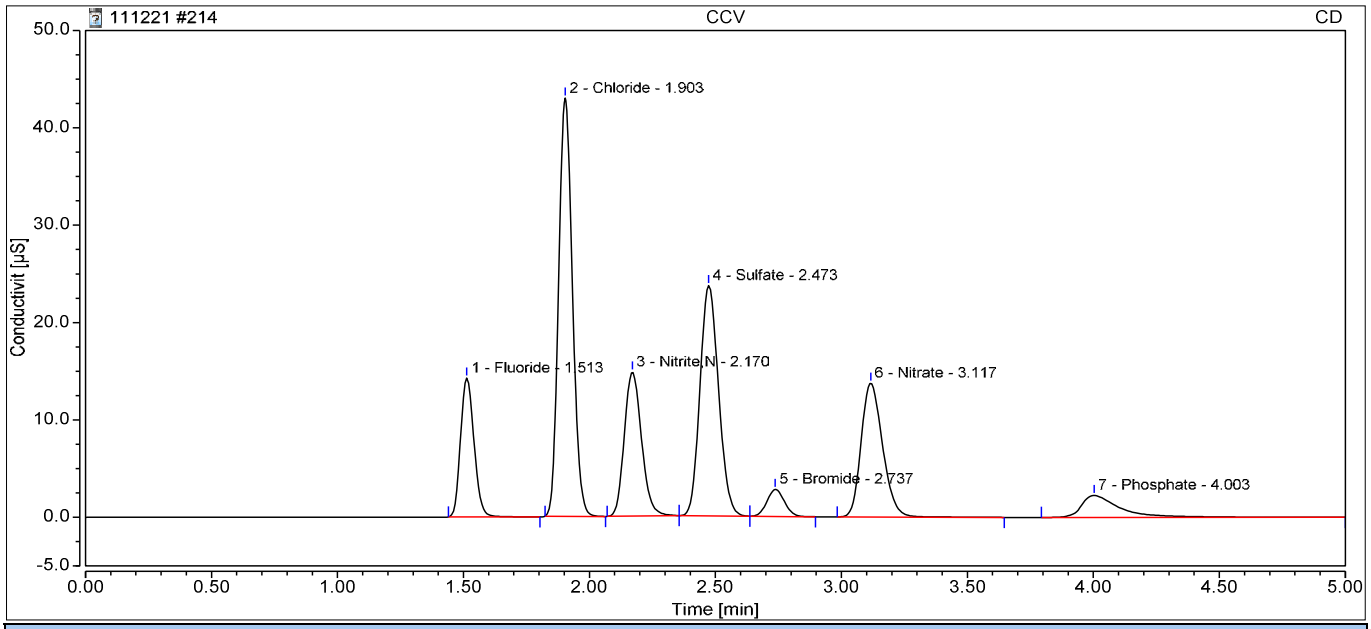
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.880	4.2151	4.2151	1.0000
2	1.90	Chloride	BMB	2.732	19.4536	19.4536	1.0000
3	2.17	Nitrite,N	BMB	1.176	3.9207	3.9207	1.0000
4	2.47	Sulfate	BMB	2.026	19.6217	19.6217	1.0000
5	2.74	Bromide	BMB	0.222	3.6986	3.6986	1.0000
6	3.12	Nitrate	BMB	1.360	3.8776	3.8776	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	4.00	Phosphate	BMB	0.422	3.5313	3.5313	1.0000
Total:			**0.000**	**8.819**		**58.32**	

214 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 09:35**	*Sample Weight:*	**1.0000**

Run Time:



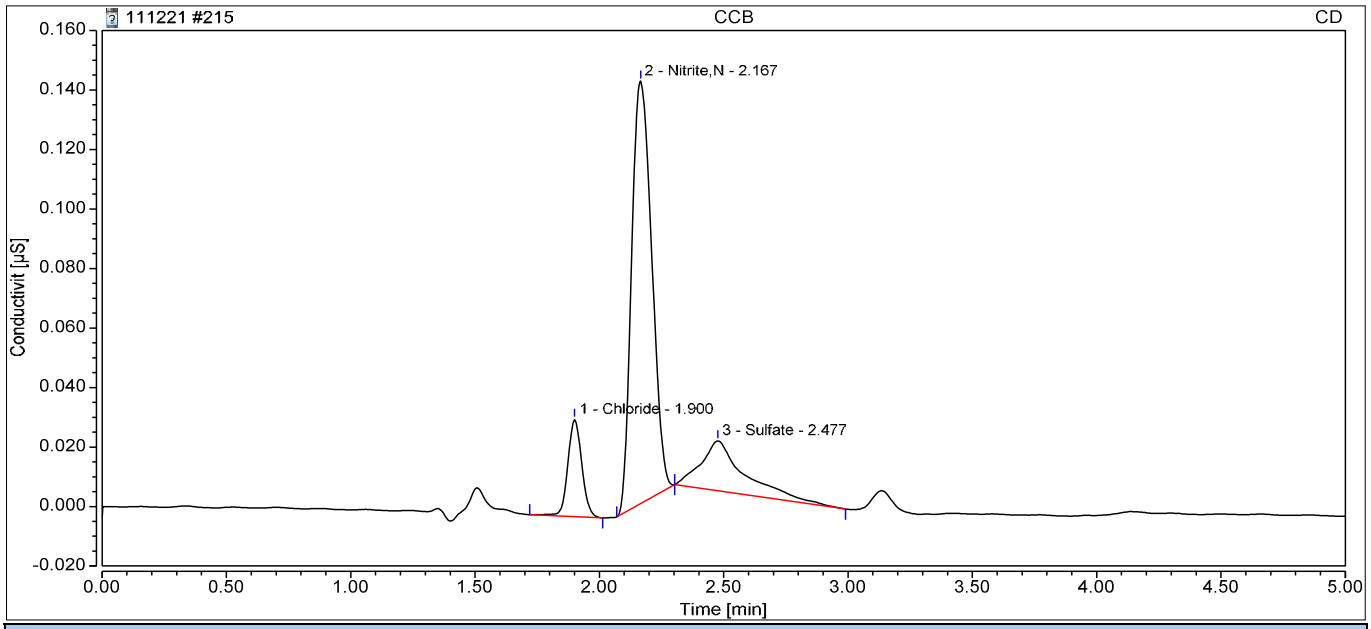
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.886	4.2436	4.2436	1.0000
2	1.90	Chloride	BMB	2.730	19.4400	19.4400	1.0000
3	2.17	Nitrite,N	BMB	1.172	3.9080	3.9080	1.0000
4	2.47	Sulfate	BMB	2.017	19.5404	19.5404	1.0000
5	2.74	Bromide	BMB	0.222	3.6902	3.6902	1.0000
6	3.12	Nitrate	BMB	1.357	3.8669	3.8669	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	4.00	Phosphate	BMB	0.405	3.3910	3.3910	1.0000
Total:			**0.000**	**8.789**		**58.08**	

215 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 09:42**	*Sample Weight:*	**1.0000**

Run Time:



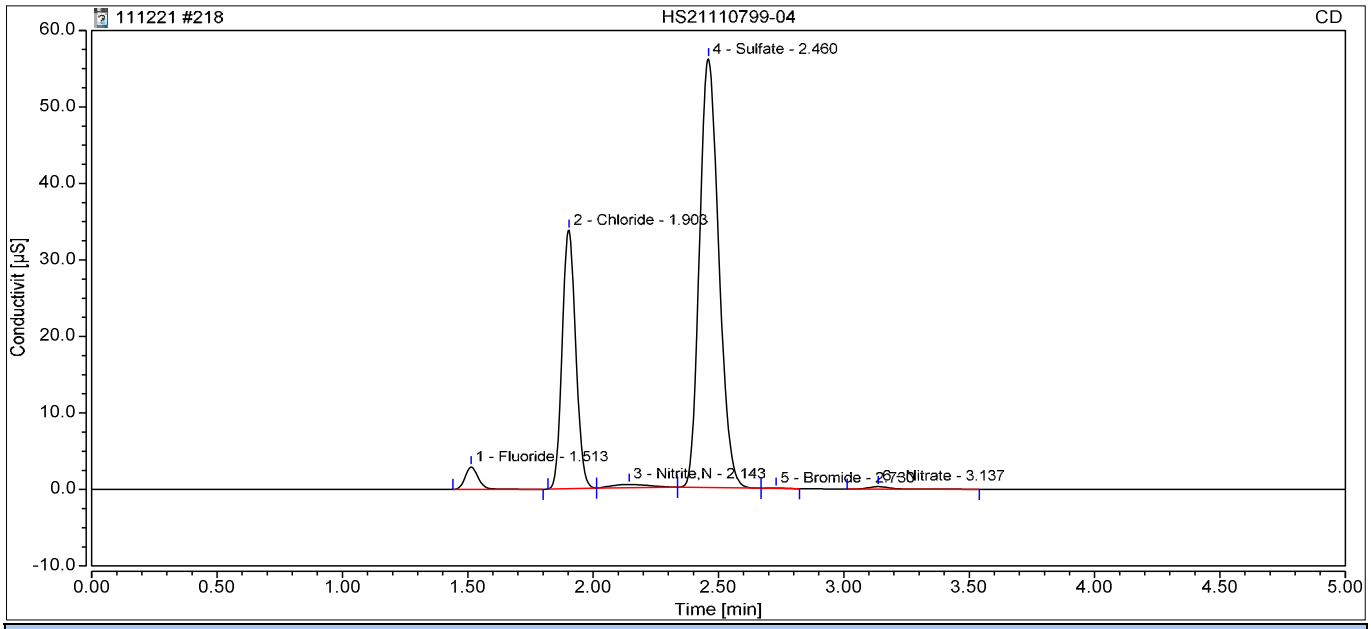
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	1.90	Chloride	BMB	0.002	0.1471	0.1471	1.0000
2	2.17	Nitrite,N	BMB	0.013	0.0427	0.0427	1.0000
3	2.48	Sulfate	BMB	0.003	0.1544	0.1544	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.019**		**0.34**	

218 HS21110799-04

Sample Name:	**HS21110799-04**	*Injection Volume:*	**5.00**
Vial Number:	**BC8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 10:05**	*Sample Weight:*	**1.0000**

Run Time:



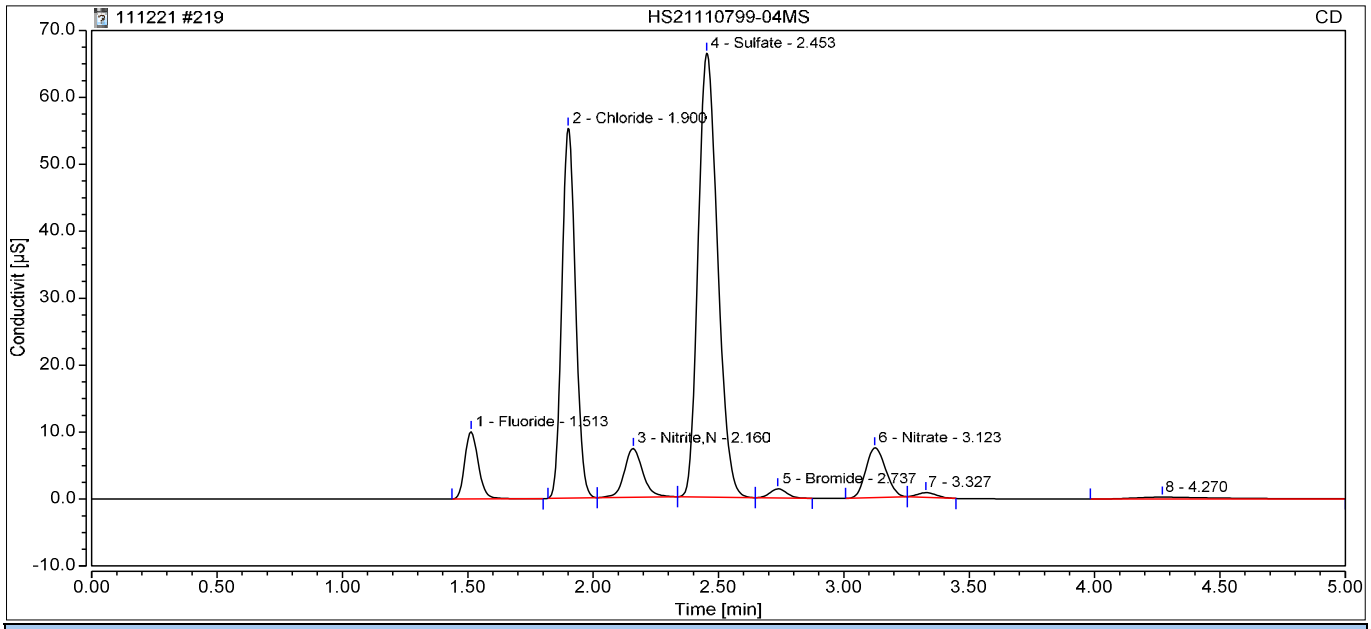
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.180	0.8944	0.8944	1.0000
2	1.90	Chloride	BMB	2.112	15.0705	15.0705	1.0000
3	2.14	Nitrite,N	BMB	0.077	0.2453	0.2453	1.0000
4	2.46	Sulfate	BMB	5.004	48.2924	48.2924	1.0000
5	2.73	Bromide	BMB	0.004	0.1092	0.1092	1.0000
6	3.14	Nitrate	BMB	0.030	0.1328	0.1328	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**7.407**		**64.74**	

219 HS21110799-04MS

Sample Name:	**HS21110799-04MS**	*Injection Volume:*	**5.00**
Vial Number:	**BD1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 10:12**	*Sample Weight:*	**1.0000**

Run Time:



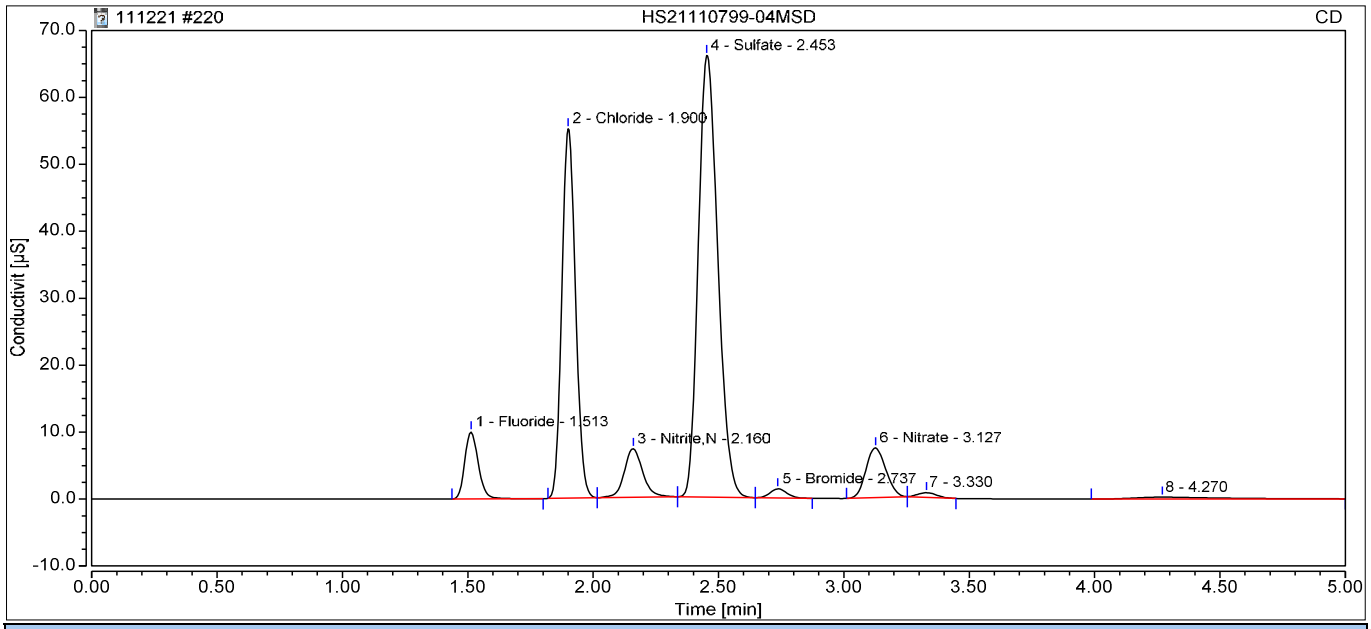
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.632	3.0367	3.0367	1.0000
2	1.90	Chloride	BMB	3.473	24.6916	24.6916	1.0000
3	2.16	Nitrite,N	BMB	0.618	2.0158	2.0158	1.0000
4	2.45	Sulfate	BMB	5.974	57.6303	57.6303	1.0000
5	2.74	Bromide	BMB	0.105	1.7668	1.7668	1.0000
6	3.12	Nitrate	BMB	0.683	1.9718	1.9718	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.485**		**91.11**	

220 HS21110799-04MSD

Sample Name:	**HS21110799-04MSD**	*Injection Volume:*	**5.00**
Vial Number:	**BD2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 10:19**	*Sample Weight:*	**1.0000**

Run Time:



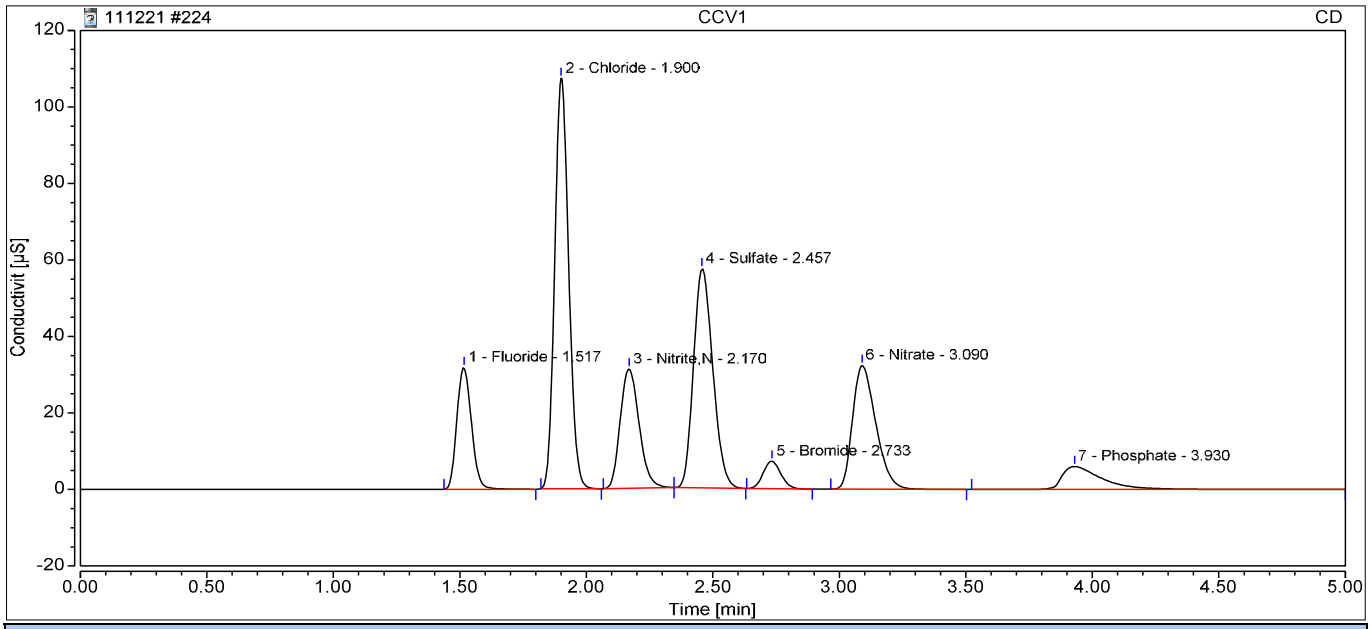
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.51	Fluoride	BMB	0.631	3.0322	3.0322	1.0000
2	1.90	Chloride	BMB	3.468	24.6597	24.6597	1.0000
3	2.16	Nitrite,N	BMB	0.618	2.0129	2.0129	1.0000
4	2.45	Sulfate	BMB	5.951	57.4126	57.4126	1.0000
5	2.74	Bromide	BMB	0.104	1.7644	1.7644	1.0000
6	3.13	Nitrate	BMB	0.682	1.9681	1.9681	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**11.454**		**90.85**	

224 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 10:49**	*Sample Weight:*	**1.0000**

Run Time:



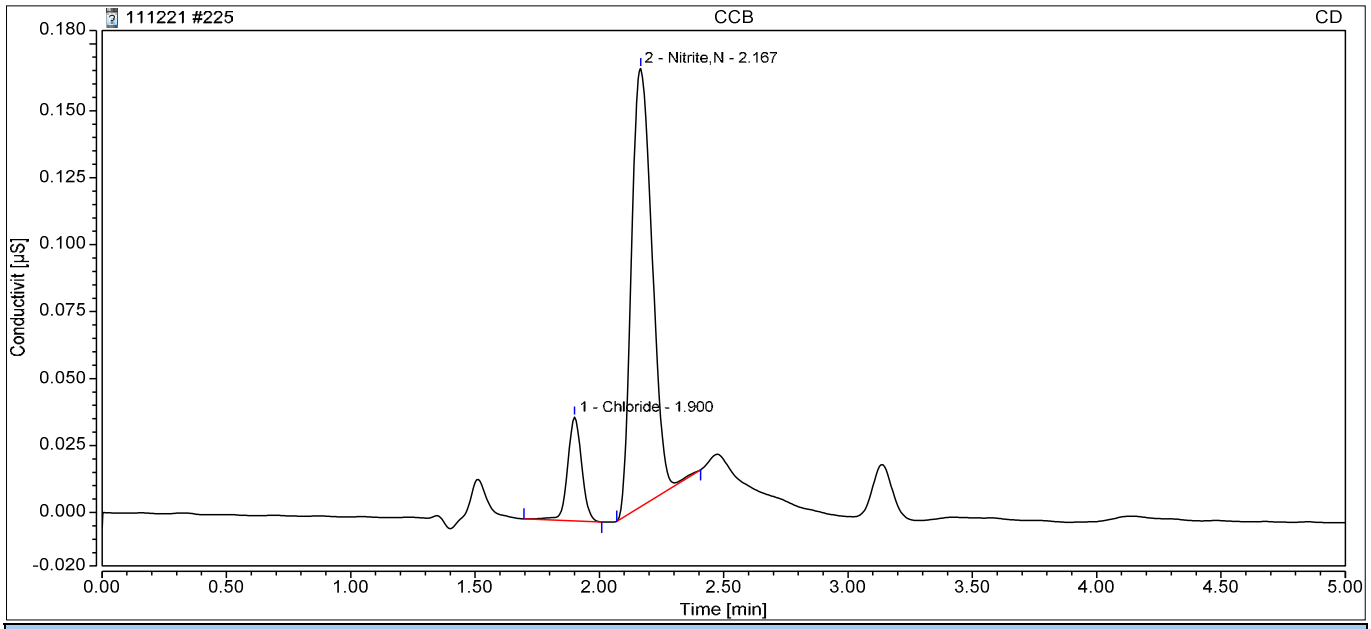
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	1.52	Fluoride	BMB	2.130	10.1451	10.1451	1.0000
2	1.90	Chloride	BMB	6.872	48.7314	48.7314	1.0000
3	2.17	Nitrite,N	BMB	2.699	9.6632	9.6632	1.0000
4	2.46	Sulfate	BMB	5.067	48.8989	48.8989	1.0000
5	2.73	Bromide	BMB	0.585	9.6538	9.6538	1.0000
6	3.09	Nitrate	BMB	3.440	9.7318	9.7318	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	3.93	Phosphate	BMB	1.105	8.8576	8.8576	1.0000
Total:			**0.000**	**21.898**		**145.68**	

225 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program ISO37mM 150mm short 0.4**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method ISO**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/13/2021 10:56**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	1.90	Chloride	BMB	0.003	0.1500	0.1500	1.0000
2	2.17	Nitrite,N	BMB	0.016	0.0502	0.0502	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.018**		**0.20**	

HS21110813 Wet Chem

ALS WO# HS21110813

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HS21110813

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
1	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.06454mg/L	
2	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.06455mg/L	
3	Unknown	NPOC	RINSE		10_18_2021	1.000	NPOC:0.07074mg/L	
4	Standard	NPOC	CAL	3100604915	10_25_2021	1.000		
5	Unknown	NPOC	ICB		10_25_2021	1.000	NPOC:0.09179mg/L	
6	Unknown	NPOC	ICV	3100604423	10_25_2021	1.000	NPOC:10.60mg/L	
7	Unknown	NPOC	ICB		10_25_2021	1.000	NPOC:0.05172mg/L	
8	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.73mg/L	
9	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.06181mg/L	
10	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.05600mg/L	
11	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.287mg/L	
12	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.83mg/L	
13	Unknown	NPOC	HS21101075-01DF10		10_25_2021	1.000	NPOC:0.2805mg/L	
14	Unknown	NPOC	HS21101075-01MSDF10		10_25_2021	1.000	NPOC:12.37mg/L	
15	Unknown	NPOC	HS21101075-02DF10		10_25_2021	1.000	NPOC:0.3788mg/L	
16	Unknown	NPOC	HS21101075-03DF10		10_25_2021	1.000	NPOC:0.2410mg/L	
17	Unknown	NPOC	HS21101075-04DF10		10_25_2021	1.000	NPOC:0.3913mg/L	
18	Unknown	NPOC	HS21101075-05DF10		10_25_2021	1.000	NPOC:0.2171mg/L	
19	Unknown	NPOC	HS21101075-06DF10		10_25_2021	1.000	NPOC:0.1665mg/L	
20	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.66mg/L	
21	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.05208mg/L	
22	Unknown	NPOC	HS21101075-07DF10		10_25_2021	1.000	NPOC:0.1747mg/L	
23	Unknown	NPOC	HS21101075-08DF10		10_25_2021	1.000	NPOC:0.1648mg/L	
24	Unknown	NPOC	HS21101075-09DF10		10_25_2021	1.000	NPOC:0.1167mg/L	
25	Unknown	NPOC	HS21101075-10DF10		10_25_2021	1.000	NPOC:0.1071mg/L	
26	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.76mg/L	
27	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.05571mg/L	
28	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.06486mg/L	
29	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.320mg/L	
30	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.96mg/L	
31	Unknown	NPOC	HS21101075-11DF10		10_25_2021	1.000	NPOC:0.1323mg/L	
32	Unknown	NPOC	HS21101075-11MSDF10		10_25_2021	1.000	NPOC:11.21mg/L	
33	Unknown	NPOC	HS21101075-12DF10		10_25_2021	1.000	NPOC:0.2792mg/L	
34	Unknown	NPOC	HS21101080-01DF10		10_25_2021	1.000	NPOC:0.1261mg/L	
35	Unknown	NPOC	HS21101080-02DF10		10_25_2021	1.000	NPOC:0.1407mg/L	
36	Unknown	NPOC	HS21101080-03DF10		10_25_2021	1.000	NPOC:0.1267mg/L	
37	Unknown	NPOC	HS21101080-04DF10		10_25_2021	1.000	NPOC:0.1381mg/L	
38	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.74mg/L	
39	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.09212mg/L	
40	Unknown	NPOC	HS21101080-05DF10		10_25_2021	1.000	NPOC:0.1654mg/L	
41	Unknown	NPOC	HS21101080-06DF10		10_25_2021	1.000	NPOC:0.1460mg/L	
42	Unknown	NPOC	HS21101080-07DF10		10_25_2021	1.000	NPOC:0.1360mg/L	
43	Unknown	NPOC	HS21101080-08DF10		10_25_2021	1.000	NPOC:0.1453mg/L	
44	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.54mg/L	
45	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1296mg/L	
46	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.05576mg/L	
47	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.292mg/L	
48	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.94mg/L	
49	Unknown	NPOC	HS21101080-09DF10		10_25_2021	1.000	NPOC:0.2259mg/L	
50	Unknown	NPOC	HS21101080-09MSDF10		10_25_2021	1.000	NPOC:11.03mg/L	
51	Unknown	NPOC	HS21101080-10DF10		10_25_2021	1.000	NPOC:0.1935mg/L	

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	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
52	Unknown	NPOC	HS21101080-11DF10		10_25_2021	1.000	NPOC:0.1278mg/L	
53	Unknown	NPOC	HS21101080-12DF10		10_25_2021	1.000	NPOC:0.1284mg/L	
54	Unknown	NPOC	HS21101080-13DF10		10_25_2021	1.000	NPOC:0.1196mg/L	
55	Unknown	NPOC	HS21101080-14DF10		10_25_2021	1.000	NPOC:0.2314mg/L	
56	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.69mg/L	
57	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.02809mg/L	
58	Unknown	NPOC	HS21101083-01DF10		10_25_2021	1.000	NPOC:0.2332mg/L	
59	Unknown	NPOC	HS21101083-02DF10		10_25_2021	1.000	NPOC:0.2108mg/L	
60	Unknown	NPOC	HS21101083-03DF10		10_25_2021	1.000	NPOC:0.2038mg/L	
61	Unknown	NPOC	HS21101083-04DF10		10_25_2021	1.000	NPOC:0.3380mg/L	
62	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.53mg/L	
63	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1115mg/L	
64	Unknown	NPOC	MBLK-10252021		10_25_2021	1.000	NPOC:0.06795mg/L	
65	Unknown	NPOC	LCS-10252021	3100604423	10_25_2021	1.000	NPOC:9.230mg/L	
66	Unknown	NPOC	LCSD-10252021	3100604423	10_25_2021	1.000	NPOC:10.89mg/L	
67	Unknown	NPOC	HS21101083-05DF10		10_25_2021	1.000	NPOC:0.4956mg/L	
68	Unknown	NPOC	HS21101083-05MSDF10		10_25_2021	1.000	NPOC:11.17mg/L	
69	Unknown	NPOC	HS21101083-06DF10		10_25_2021	1.000	NPOC:0.2640mg/L	
70	Unknown	NPOC	HS21101083-07DF10		10_25_2021	1.000	NPOC:0.2414mg/L	
71	Unknown	NPOC	HS21101083-08DF10		10_25_2021	1.000	NPOC:0.2102mg/L	
72	Unknown	NPOC	HS21101083-09DF10		10_25_2021	1.000	NPOC:0.1629mg/L	
73	Unknown	NPOC	HS21101083-10DF10		10_25_2021	1.000	NPOC:0.1838mg/L	
74	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.60mg/L	
75	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1118mg/L	
76	Unknown	NPOC	HS21101083-11DF10		10_25_2021	1.000	NPOC:0.1718mg/L	
77	Unknown	NPOC	HS21101083-12DF10		10_25_2021	1.000	NPOC:0.1978mg/L	
78	Unknown	NPOC	HS21101083-13DF10		10_25_2021	1.000	NPOC:0.2415mg/L	
79	Unknown	NPOC	HS21101083-14DF10		10_25_2021	1.000	NPOC:0.2981mg/L	
80	Unknown	NPOC	CCV	317195504	10_25_2021	1.000	NPOC:25.57mg/L	
81	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.1184mg/L	

	Status	Date / Time	Vial
1	Completed	10/25/2021 6:02:30	64
2	Completed	10/25/2021 6:13:46	65
3	Completed	10/25/2021 6:24:47	66
4	Completed	10/25/2021 8:13:11	1, 2, 3, 4, 5,
5	Completed	10/25/2021 8:29:06	1
6	Completed	10/25/2021 8:45:09	8
7	Completed	10/25/2021 9:01:04	1
8	Completed	10/25/2021 10:05:19	9
9	Completed	10/25/2021 10:21:02	10
10	Completed	10/25/2021 10:36:45	11
11	Completed	10/25/2021 10:52:59	12
12	Completed	10/25/2021 11:09:01	13
13	Completed	10/25/2021 11:24:44	14
14	Completed	10/25/2021 11:40:52	15
15	Completed	10/25/2021 11:56:35	16
16	Completed	10/26/2021 12:12:18	17
17	Completed	10/26/2021 12:28:01	18
18	Completed	10/26/2021 12:43:44	19
19	Completed	10/26/2021 12:59:27	20
20	Completed	10/26/2021 1:15:58	9
21	Completed	10/26/2021 1:31:41	10
22	Completed	10/26/2021 1:47:30	21
23	Completed	10/26/2021 2:03:13	22
24	Completed	10/26/2021 2:18:56	23
25	Completed	10/26/2021 2:34:39	24
26	Completed	10/26/2021 2:50:56	9
27	Completed	10/26/2021 3:06:39	10
28	Completed	10/26/2021 3:22:22	11
29	Completed	10/26/2021 3:38:27	12
30	Completed	10/26/2021 3:54:35	13
31	Completed	10/26/2021 4:10:25	25
32	Completed	10/26/2021 4:26:25	26
33	Completed	10/26/2021 4:42:08	27
34	Completed	10/26/2021 4:57:52	28
35	Completed	10/26/2021 5:13:36	29
36	Completed	10/26/2021 5:29:20	30
37	Completed	10/26/2021 5:45:04	31
38	Completed	10/26/2021 6:01:22	32
39	Completed	10/26/2021 6:17:06	33
40	Completed	10/26/2021 6:32:50	34
41	Completed	10/26/2021 6:48:35	35
42	Completed	10/26/2021 7:04:19	36
43	Completed	10/26/2021 7:20:02	37
44	Completed	10/26/2021 7:36:27	32
45	Completed	10/26/2021 7:52:11	33
46	Completed	10/26/2021 8:07:55	11
47	Completed	10/26/2021 8:23:52	12
48	Completed	10/26/2021 8:39:51	13
49	Completed	10/26/2021 8:55:33	38
50	Completed	10/26/2021 9:11:37	39
51	Completed	10/26/2021 9:27:20	40

	Status	Date / Time	Vial
52	Completed	10/26/2021 9:43:06	41
53	Completed	10/26/2021 9:58:51	42
54	Completed	10/26/2021 10:14:35	43
55	Completed	10/26/2021 10:30:21	44
56	Completed	10/26/2021 10:46:46	32
57	Completed	10/26/2021 11:02:30	33
58	Completed	10/26/2021 11:18:23	45
59	Completed	10/26/2021 11:34:07	46
60	Completed	10/26/2021 11:49:51	47
61	Completed	10/26/2021 12:05:36	48
62	Completed	10/26/2021 12:21:57	49
63	Completed	10/26/2021 12:37:42	50
64	Completed	10/26/2021 12:53:28	11
65	Completed	10/26/2021 1:09:27	12
66	Completed	10/26/2021 1:25:38	13
67	Completed	10/26/2021 1:41:34	51
68	Completed	10/26/2021 1:57:34	52
69	Completed	10/26/2021 2:13:19	53
70	Completed	10/26/2021 2:29:04	54
71	Completed	10/26/2021 2:44:49	55
72	Completed	10/26/2021 3:00:34	56
73	Completed	10/26/2021 3:16:19	57
74	Completed	10/26/2021 3:32:39	49
75	Completed	10/26/2021 3:48:24	50
76	Completed	10/26/2021 4:04:17	58
77	Completed	10/26/2021 4:20:02	59
78	Completed	10/26/2021 4:35:47	60
79	Completed	10/26/2021 4:51:32	61
80	Completed	10/26/2021 5:07:56	49
81	Completed	10/26/2021 5:23:41	50

TOC-Control L Report

2021_10_25_002.tlx

Instr.Information

Instrument Options: TOC/ASI/IC Unit/
Catalyst: Regular Sensitivity

Cal. Curve

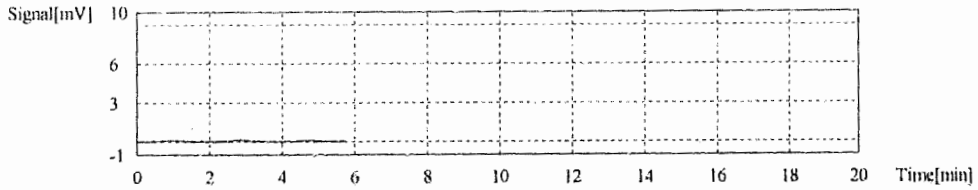
Sample Name: CAL
Sample ID:
Cal. Curve: 10_25_2021_CAL.2021_10_25_18_24_47.cal
Status: Completed

Type	Anal
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.1779	50uL	1.000	*******		10/25/2021 6:33:22 PM
2	0.000	50uL	1.000	*******		10/25/2021 6:36:36 PM
3	0.000	50uL	1.000	*******		10/25/2021 6:39:50 PM

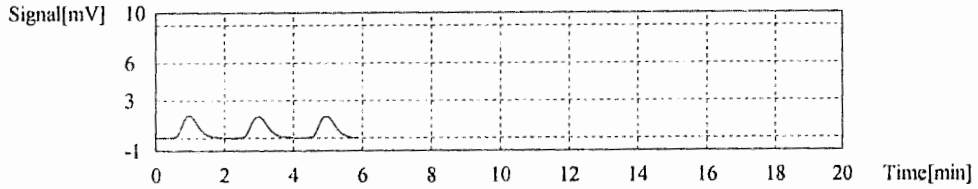
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 0.05930



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	5.679	50uL	1.000	*******		10/25/2021 6:48:38 PM
2	5.762	50uL	1.000	*******		10/25/2021 6:51:52 PM
3	5.629	50uL	1.000	*******		10/25/2021 6:55:02 PM

Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 5.690



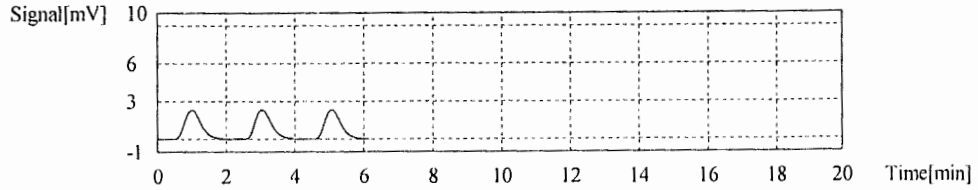
Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.704	50uL	1.000	*******		10/25/2021 7:03:55 PM
2	7.453	50uL	1.000	*******		10/25/2021 7:07:06 PM
3	7.508	50uL	1.000	*******		10/25/2021 7:10:22 PM

TOC-Control L Report

2021_10_25_002.tlx

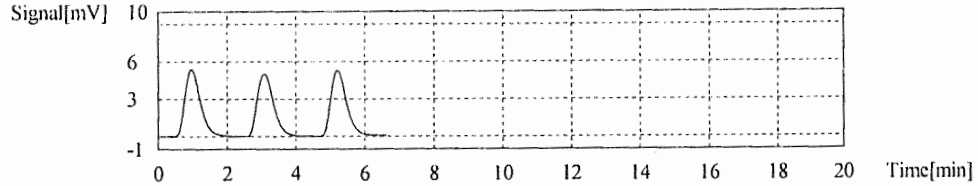
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 7.555



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	16.62	50uL	1.000	*******		10/25/2021 7:19:15 PM
2	16.58	50uL	1.000	*******		10/25/2021 7:22:33 PM
3	16.79	50uL	1.000	*******		10/25/2021 7:26:01 PM

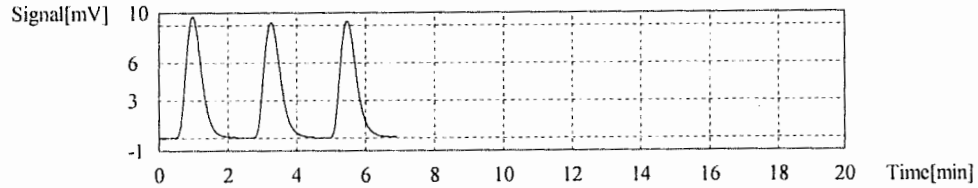
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 16.66



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	30.96	50uL	1.000	*******		10/25/2021 7:35:05 PM
2	31.10	50uL	1.000	*******		10/25/2021 7:38:17 PM
3	31.16	50uL	1.000	*******		10/25/2021 7:41:41 PM

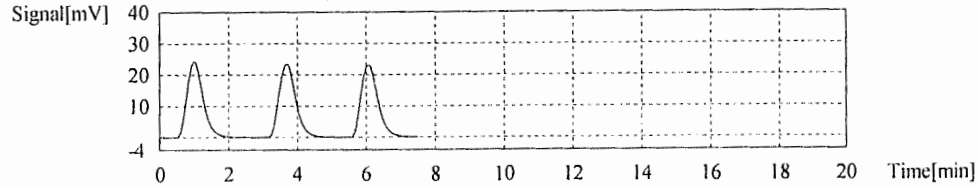
Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 31.07



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	79.40	50uL	1.000	*******		10/25/2021 7:51:09 PM
2	79.56	50uL	1.000	*******		10/25/2021 7:54:09 PM
3	79.35	50uL	1.000	*******		10/25/2021 7:57:24 PM

Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 79.44



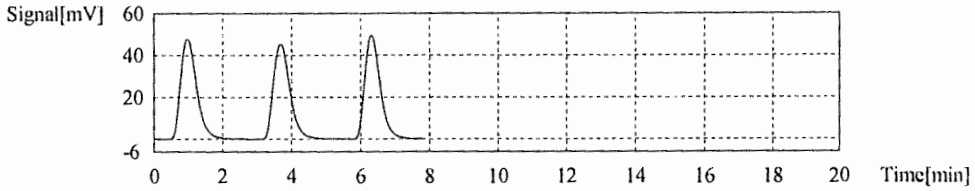
Conc: 50.00mg/L

TOC-Control L Report

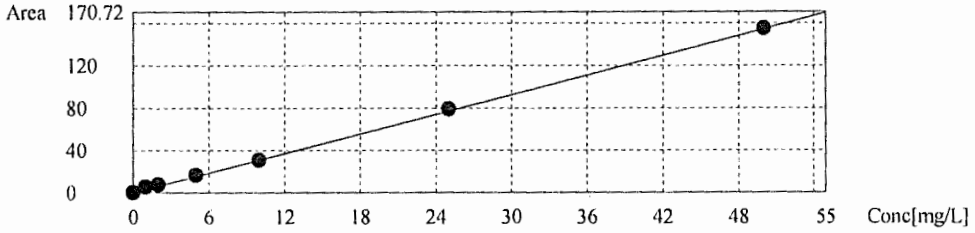
2021_10_25_002.tlx

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	156.1	50uL	1.000	*******		10/25/2021 8:06:53 PM
2	154.0	50uL	1.000	*******		10/25/2021 8:10:05 PM
3	155.5	50uL	1.000	*******		10/25/2021 8:13:11 PM

Acid Add. 1.500%
Sparge Gas Flow 80mL/min
Sp. Time 120.0sec
Mean Area 155.2



Slope: 3.086
Intercept 0.000
r^2 0.9997
r 0.9999
RSE(%) N/A
Zero Shift Yes



Sample

Sample Name: ICV
Sample ID: 3100604423
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

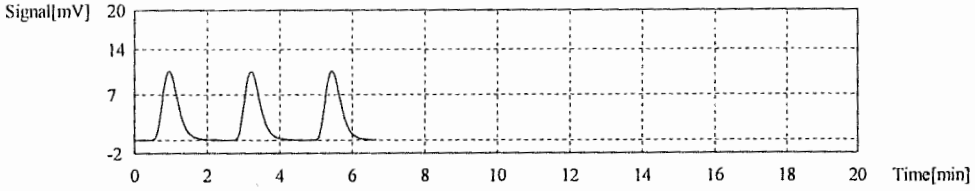
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.60mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	32.74	10.61mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:38:14 PM
2	32.74	10.61mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:41:41 PM
3	32.67	10.59mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:45:09 PM

Mean Area 32.72
Mean Conc. 10.60mg/L



Sample

TOC-Control L Report

2021_10_25_002.tlx

Sample Name: ICB
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

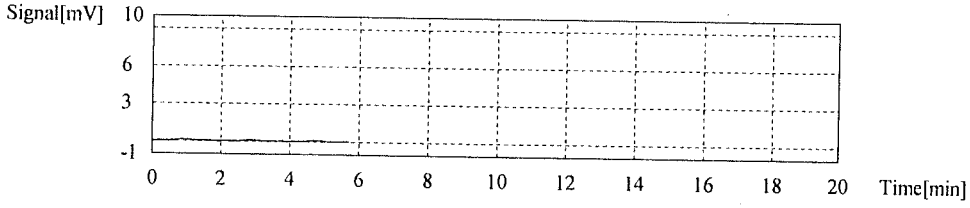
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.05172mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1343	0.04352mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:54:04 PM
2	0.1944	0.06299mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 8:57:34 PM
3	0.1502	0.04867mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	10/25/2021 9:01:04 PM

Mean Area 0.1596
Mean Conc. 0.05172mg/L



C:\TOC-L\Data\2021_11_18_001.tlx

	Type	Analysis	Sample Name	Sample ID	Origin	Manual Dilutl	Result	Notes
1	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.3293mg/L	
2	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.3146mg/L	
3	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2373mg/L	
4	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2141mg/L	
5	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.57mg/L	
6	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2515mg/L	
7	Unknown	NPOC	MBLK-11182021		10_25_2021	1.000	NPOC:0.2448mg/L	
8	Unknown	NPOC	LCS-11182021	3100604423	10_25_2021	1.000	NPOC:10.74mg/L	
9	Unknown	NPOC	LCSD-11182021	3100604423	10_25_2021	1.000	NPOC:10.82mg/L	
10	Unknown	NPOC	HS21110956-01DF10		10_25_2021	1.000	NPOC:0.2968mg/L	
11	Unknown	NPOC	HS21110956-01MSDF10		10_25_2021	1.000	NPOC:12.01mg/L	
12	Unknown	NPOC	HS21110956-02DF10		10_25_2021	1.000	NPOC:0.4360mg/L	
13	Unknown	NPOC	HS21110956-03DF10		10_25_2021	1.000	NPOC:0.3626mg/L	
14	Unknown	NPOC	HS21110956-04DF20		10_25_2021	1.000	NPOC:0.3809mg/L	
15	Unknown	NPOC	HS21110956-05DF10		10_25_2021	1.000	NPOC:0.6706mg/L	
16	Unknown	NPOC	HS21110956-06DF10		10_25_2021	1.000	NPOC:0.4764mg/L	
17	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.49mg/L	
18	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2324mg/L	
19	Unknown	NPOC	HS21110956-07DF10		10_25_2021	1.000	NPOC:0.3862mg/L	
20	Unknown	NPOC	HS21110956-08DF10		10_25_2021	1.000	NPOC:0.2618mg/L	
21	Unknown	NPOC	HS21110956-09DF10		10_25_2021	1.000	NPOC:0.2560mg/L	
22	Unknown	NPOC	HS21110956-10DF10		10_25_2021	1.000	NPOC:0.2414mg/L	
23	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.51mg/L	
24	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2611mg/L	
25	Unknown	NPOC	MBLK-11182021		10_25_2021	1.000	NPOC:0.2064mg/L	
26	Unknown	NPOC	LCS-11182021	3100604423	10_25_2021	1.000	NPOC:10.73mg/L	
27	Unknown	NPOC	LCSD-11182021	3100604423	10_25_2021	1.000	NPOC:10.72mg/L	
28	Unknown	NPOC	HS21110996-01DF10		10_25_2021	1.000	NPOC:13.78mg/L	
29	Unknown	NPOC	HS21110998-01DF10		10_25_2021	1.000	NPOC:11.34mg/L	
30	Unknown	NPOC	HS21110999-01DF2		10_25_2021	1.000	NPOC:22.92mg/L	
31	Unknown	NPOC	HS21110549-04DF10		10_25_2021	1.000	NPOC:6.081mg/L	
32	Unknown	NPOC	HS21110549-05		10_25_2021	1.000	NPOC:3.522mg/L	
33	Unknown	NPOC	HS21110549-05MS		10_25_2021	1.000	NPOC:14.94mg/L	
34	Unknown	NPOC	HS21111024-01DF20		10_25_2021	1.000	NPOC:2.040mg/L	
35	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.41mg/L	
36	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2321mg/L	
37	Unknown	NPOC	HS21111041-01		10_25_2021	1.000	NPOC:9.049mg/L	
38	Unknown	NPOC	HS21111044-01		10_25_2021	1.000	NPOC:12.24mg/L	
39	Unknown	NPOC	HS21111046-01		10_25_2021	1.000	NPOC:11.83mg/L	
40	Unknown	NPOC	HS21110626-01		10_25_2021	1.000	NPOC:4.730mg/L	
41	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.27mg/L	
42	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.2960mg/L	
43	Unknown	NPOC	MBLK-11182021		10_25_2021	1.000	NPOC:0.2312mg/L	
44	Unknown	NPOC	LCS-11182021	3100604423	10_25_2021	1.000	NPOC:10.75mg/L	
45	Unknown	NPOC	LCSD-11182021	3100604423	10_25_2021	1.000	NPOC:10.70mg/L	
46	Unknown	NPOC	HS21110626-02DF5		10_25_2021	1.000	NPOC:10.88mg/L	
47	Unknown	NPOC	HS21110626-03		10_25_2021	1.000	NPOC:3.219mg/L	
48	Unknown	NPOC	HS21110721-01		10_25_2021	1.000	NPOC:1.227mg/L	
49	Unknown	NPOC	HS21110813-13		10_25_2021	1.000	NPOC:4.709mg/L	
50	Unknown	NPOC	HS21110813-13MS		10_25_2021	1.000	NPOC:16.59mg/L	
51	Unknown	NPOC	HS21110813-15		10_25_2021	1.000	NPOC:3.995mg/L	

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	Type	Analysis	Sample Name	Sample ID	Origin	Manual Diluti	Result	Notes
52	Unknown	NPOC	HS21110813-16		10_25_2021	1.000	NPOC:4.606mg/L	
53	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.67mg/L	
54	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.3170mg/L	
55	Unknown	NPOC	HS21110831-01		10_25_2021	1.000	NPOC:11.78mg/L	
56	Unknown	NPOC	HS21110831-02		10_25_2021	1.000	NPOC:9.752mg/L	
57	Unknown	NPOC	HS21110831-03		10_25_2021	1.000	NPOC:9.442mg/L	
58	Unknown	NPOC	HS21110831-04		10_25_2021	1.000	NPOC:9.542mg/L	
59	Unknown	NPOC	CCV	317197001	10_25_2021	1.000	NPOC:24.65mg/L	
60	Unknown	NPOC	CCB		10_25_2021	1.000	NPOC:0.3577mg/L	

	Status	Date / Time	Vial
1	Completed	11/18/2021 5:44:44	43
2	Completed	11/18/2021 6:00:28	44
3	Completed	11/18/2021 6:16:27	43
4	Completed	11/18/2021 6:32:11	44
5	Completed	11/18/2021 7:23:27	1
6	Completed	11/18/2021 7:39:09	2
7	Completed	11/18/2021 7:54:52	3
8	Completed	11/18/2021 9:13:47	4
9	Completed	11/18/2021 9:29:50	5
10	Completed	11/18/2021 9:45:33	6
11	Completed	11/18/2021 10:01:37	7
12	Completed	11/18/2021 10:17:21	8
13	Completed	11/18/2021 10:33:05	9
14	Completed	11/18/2021 10:48:48	10
15	Completed	11/18/2021 11:04:31	11
16	Completed	11/18/2021 11:20:14	12
17	Completed	11/18/2021 11:52:31	1
18	Completed	11/19/2021 12:08:14	2
19	Completed	11/19/2021 12:24:03	13
20	Completed	11/19/2021 12:39:46	14
21	Completed	11/19/2021 12:55:29	15
22	Completed	11/19/2021 1:11:12	16
23	Completed	11/19/2021 1:43:22	1
24	Completed	11/19/2021 1:59:05	2
25	Completed	11/19/2021 2:14:48	3
26	Completed	11/19/2021 2:30:57	4
27	Completed	11/19/2021 2:47:10	5
28	Completed	11/19/2021 3:03:18	17
29	Completed	11/19/2021 3:19:19	18
30	Completed	11/19/2021 3:35:30	19
31	Completed	11/19/2021 3:51:28	20
32	Completed	11/19/2021 4:07:18	21
33	Completed	11/19/2021 4:23:40	22
34	Completed	11/19/2021 4:39:28	23
35	Completed	11/19/2021 5:11:43	24
36	Completed	11/19/2021 5:27:26	25
37	Completed	11/19/2021 5:43:23	26
38	Completed	11/19/2021 5:59:31	27
39	Completed	11/19/2021 6:15:39	28
40	Completed	11/19/2021 6:31:48	29
41	Completed	11/19/2021 7:03:57	24
42	Completed	11/19/2021 7:19:40	25
43	Completed	11/19/2021 7:35:25	3
44	Completed	11/19/2021 7:51:30	4
45	Completed	11/19/2021 8:07:36	5
46	Completed	11/19/2021 8:24:00	30
47	Completed	11/19/2021 8:40:03	31
48	Completed	11/19/2021 8:55:56	32
49	Completed	11/19/2021 9:11:47	33
50	Completed	11/19/2021 9:27:59	34
51	Completed	11/19/2021 9:43:52	35

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	Status	Date / Time	Vial
52	Completed	11/19/2021 9:59:44	36
53	Completed	11/19/2021 10:32:02	24
54	Completed	11/19/2021 10:47:44	25
55	Completed	11/19/2021 11:04:07	37
56	Completed	11/19/2021 11:20:09	38
57	Completed	11/19/2021 11:36:23	39
58	Completed	11/19/2021 11:52:31	40
59	Completed	11/19/2021 12:24:32	24
60	Completed	11/19/2021 12:40:15	25

TOC-Control L Report

2021_11_18_001.ts

Instrument Information

Instrument Options: TOC/TNM Unit
Catalyst: Regular Sensitivity

Sample Details

Sample Name: CCV
Sample ID: 21718301
Origin: 10_25_2021_CAL.cal
Status: Completed
Chk. Result:

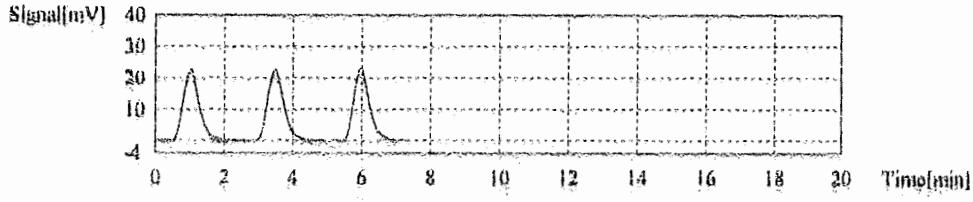
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.27mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	75.03	24.31mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 6:56:59 AM
2	74.65	24.19mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:00:33 AM
3	75.02	24.31mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:03:57 AM

Mean Area: 74.90
Mean Conc.: 24.27mg/L



Sample Details

Sample Name: CCB
Sample ID:
Origin: 10_25_2021_CAL.cal
Status: Completed
Chk. Result:

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2960mg/L

1. Det

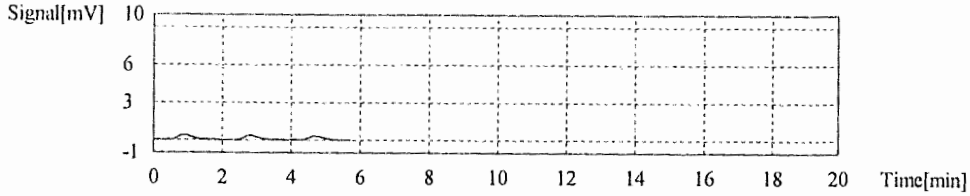
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.014	0.3286mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:12:40 AM
2	0.9649	0.3126mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:16:10 AM
3	0.7615	0.2467mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:19:40 AM

TOC-Control L Report

2021_11_18_001.tlx

Mean Area 0.9135
Mean Conc. 0.2960mg/L



Sample

Sample Name: MBLK-11182021
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

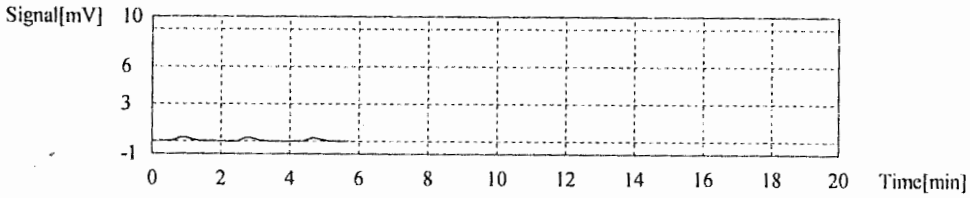
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2312mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol	Aut. Dil	Ex.	Cal. Curve	Date / Time
1	0.7553	0.2447mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:28:25 AM
2	0.7721	0.2502mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:31:55 AM
3	0.6129	0.1986mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:35:25 AM

Mean Area 0.7134
Mean Conc. 0.2312mg/L



Sample

Sample Name: LCS-11182021
Sample ID: 3100604423
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.75mg/L

1. Det

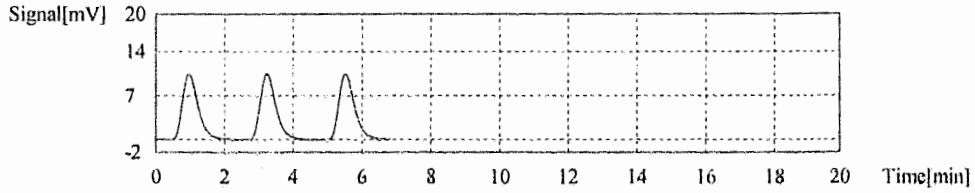
Anal.: NPOC

TOC-Control L Report

2021_11_18_001.tlx

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	33.23	10.77mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:44:29 AM
2	33.14	10.74mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:48:02 AM
3	33.20	10.76mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 7:51:30 AM

Mean Area 33.19
Mean Conc. 10.75mg/L



Sample

Sample Name: LCSD-11182021
Sample ID: 3100604423
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

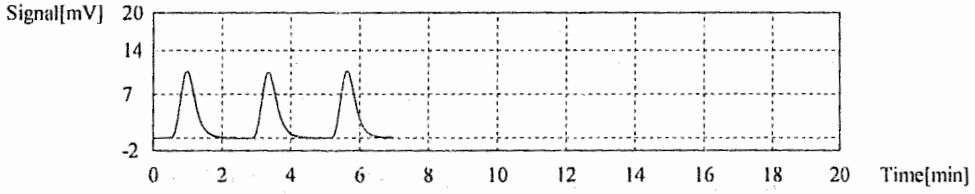
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.70mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	33.31	10.79mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 8:00:42 AM
2	32.99	10.69mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 8:04:07 AM
3	32.74	10.61mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 8:07:36 AM

Mean Area 33.01
Mean Conc. 10.70mg/L



Sample

Sample Name: HS21110813-13
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:4.709mg/L

1. Det

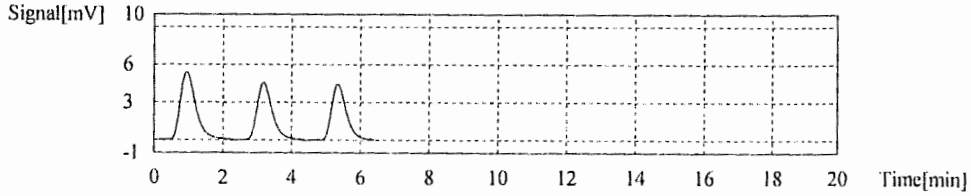
TOC-Control L Report

2021_11_18_001.tlx

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	16.65	5.395mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:04:58 AM
2	13.84	4.484mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:08:27 AM
3	13.11	4.248mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:11:47 AM

Mean Area 14.53
Mean Conc. 4.709mg/L



Sample

Sample Name: HS21110813-13MS
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

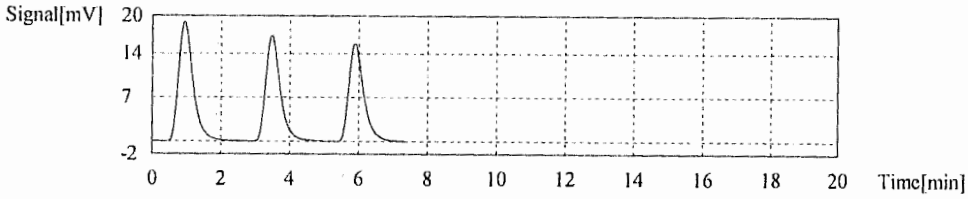
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:16.59mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	56.21	18.21mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:21:08 AM
2	49.77	16.13mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:24:33 AM
3	47.61	15.43mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:27:59 AM

Mean Area 51.20
Mean Conc. 16.59mg/L



Sample

Sample Name: HS21110813-15
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.995mg/L

TOC-Control L Report

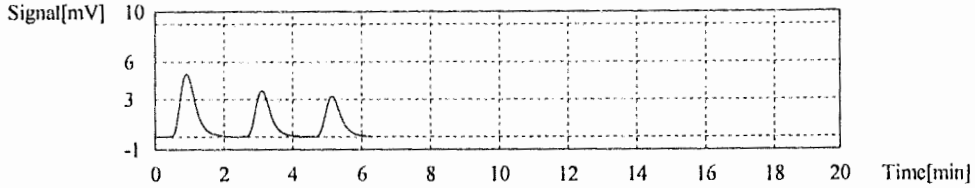
2021_11_18_001.tlx

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	15.67	5.077mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:36:59 AM
2	11.19	3.626mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:40:20 AM
3	10.13	3.282mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:43:52 AM

Mean Area 12.33
Mean Conc. 3.995mg/L



Sample

Sample Name: HS21110813-16
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

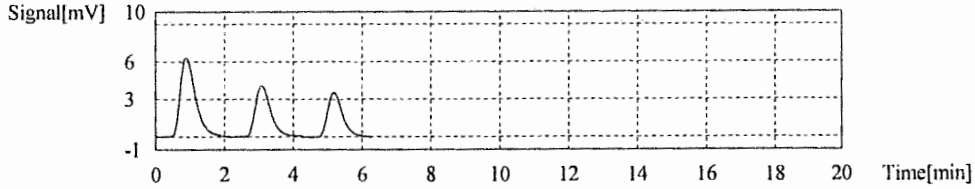
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:4.606mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	19.51	6.322mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:52:50 AM
2	12.38	4.011mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:56:18 AM
3	10.76	3.486mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 9:59:44 AM

Mean Area 14.22
Mean Conc. 4.606mg/L



Sample

Sample Name: CCV
Sample ID: 317197001
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

TOC-Control L Report

2021_11_18_001.tlx

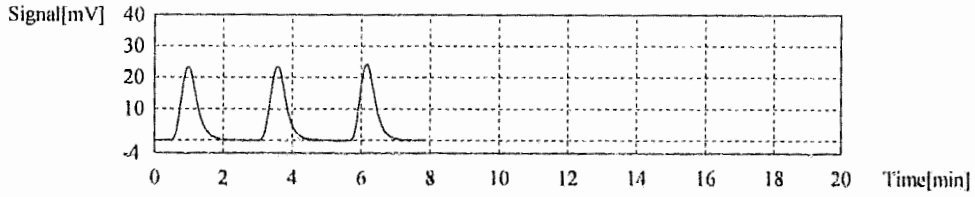
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.67mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	76.21	24.69mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:24:55 AM
2	75.54	24.48mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:28:28 AM
3	76.63	24.83mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:32:02 AM

Mean Area 76.13
Mean Conc. 24.67mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 10_25_2021_CAL.cal
Status Completed
Chk. Result

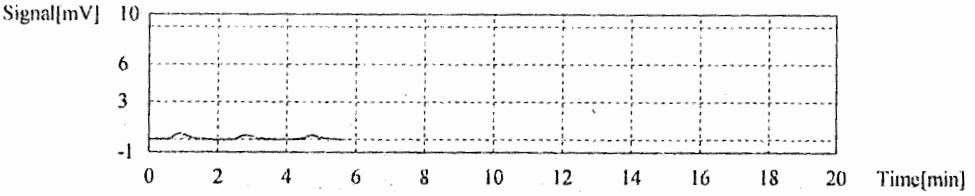
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3170mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.164	0.3772mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:40:44 AM
2	0.9355	0.3031mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:44:14 AM
3	0.8351	0.2706mg/L	50uL	1.000		10_25_2021_CAL.2021_10_25_18_24_47.cal	11/19/2021 10:47:44 AM

Mean Area 0.9782
Mean Conc. 0.3170mg/L



HS21110813 Sub Pace Analytical Lab
221111777 4

ALS WO# HS21110813

LELAP CERTIFICATE NUMBER: 01955
DOD-ELAP ACCREDITATION NUMBER: 74960

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast
7979 Innovation Park Dr.
Baton Rouge, LA 70820
(225) 769-4900

Report Date 01/19/2022

Report # 221111777

Project HS21110813

Samples Collected 11/11/21

Deliver To	***Additional Recipients***
Ragen Giga ALS Houston 10450 Stancliff Rd Suite 210 Houston, TX 77099 281-530-5656	Jumoke Lawal, ALS Houston

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*****	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	Organics **-** The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
L	Reporting Limits adjusted to meet risk-based limit.
P	RPD between primary and confirmation result is greater than 40
DL	Diluted analysis – when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature
Pace Gulf Coast Report 221111777

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234

Case Narrative

Client: ALS Environmental - Houston, TX **Report:** 221111777

Pace Analytical Gulf Coast received and analyzed the sample(s) listed
on the Report Sample Summary page of this report. Receipt of the sample(s) is documented
by the attached chain of custody. This applies only to the sample(s) listed in this report.
No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES GAS CHROMATOGRAPHY

In the EPA RSK-175 analysis for analytical batch 727709, the MS/MSD recoveries and RPDs are not applicable to Carbon Dioxide because the spike was diluted out of the samples. The LCS recovery is acceptable.

Sample Summary

Lab ID	Client ID	Matrix	Collect Date	Receive Date
22111177701	67WW08-211111	Water	11/11/21 08:45	11/16/21 11:57
22111177702	67WW08-211111-MS	Water	11/11/21 08:45	11/16/21 11:57
22111177703	67WW08-211111-MSD	Water	11/11/21 08:45	11/16/21 11:57
22111177704	67WW13-211111	Water	11/11/21 10:25	11/16/21 11:57
22111177705	67WW13-211111-FD	Water	11/11/21 10:25	11/16/21 11:57

Test Summary

EPA RSK-175					
Lab ID	**Client ID**	**Matrix**	**Batch**	**Instru**	**RunDate**
22111177701	67WW08-211111	Water	727709	GCV8B	11/23/21 19:04
22111177702	67WW08-211111-MS	Water	727709	GCV8B	11/23/21 19:14
22111177703	67WW08-211111-MSD	Water	727709	GCV8B	11/23/21 19:19
22111177704	67WW13-211111	Water	727709	GCV8B	11/23/21 19:25
22111177705	67WW13-211111-FD	Water	727709	GCV8B	11/23/21 19:30

Manual Integrations

Lab ID	Client ID	Matrix	Method	Parameter
22111177702	67WW08-211111-MS	Water	EPA RSK-175	Carbon Dioxide

Detect Summary

Results and Detection Limits are adjusted for dilution and moisture when applicable

EPA RSK-175						
Lab ID	**Client ID**	**Parameter**	**Units**	**Result**	**Dil.**	**%Moist**
22111177701	67WW08-211111	Carbon Dioxide	ug/L	466000	50	NA
22111177704	67WW13-211111	Carbon Dioxide	ug/L	637000	50	NA
22111177705	67WW13-211111-FD	Carbon Dioxide	ug/L	657000	50	NA

EPA RSK-175

Form 1D

Results

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177701
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8016
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1904
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	466000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d
Lab Smp Id: 22111177701
Inj Date : 23-NOV-2021 19:04
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177701
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	27788703	9329.86	466000

Data File: /var/chem/gcv8b.i/2211123q.b/v8016.d

Page 1

Date : 23-NOV-2021 19:04

Client ID:

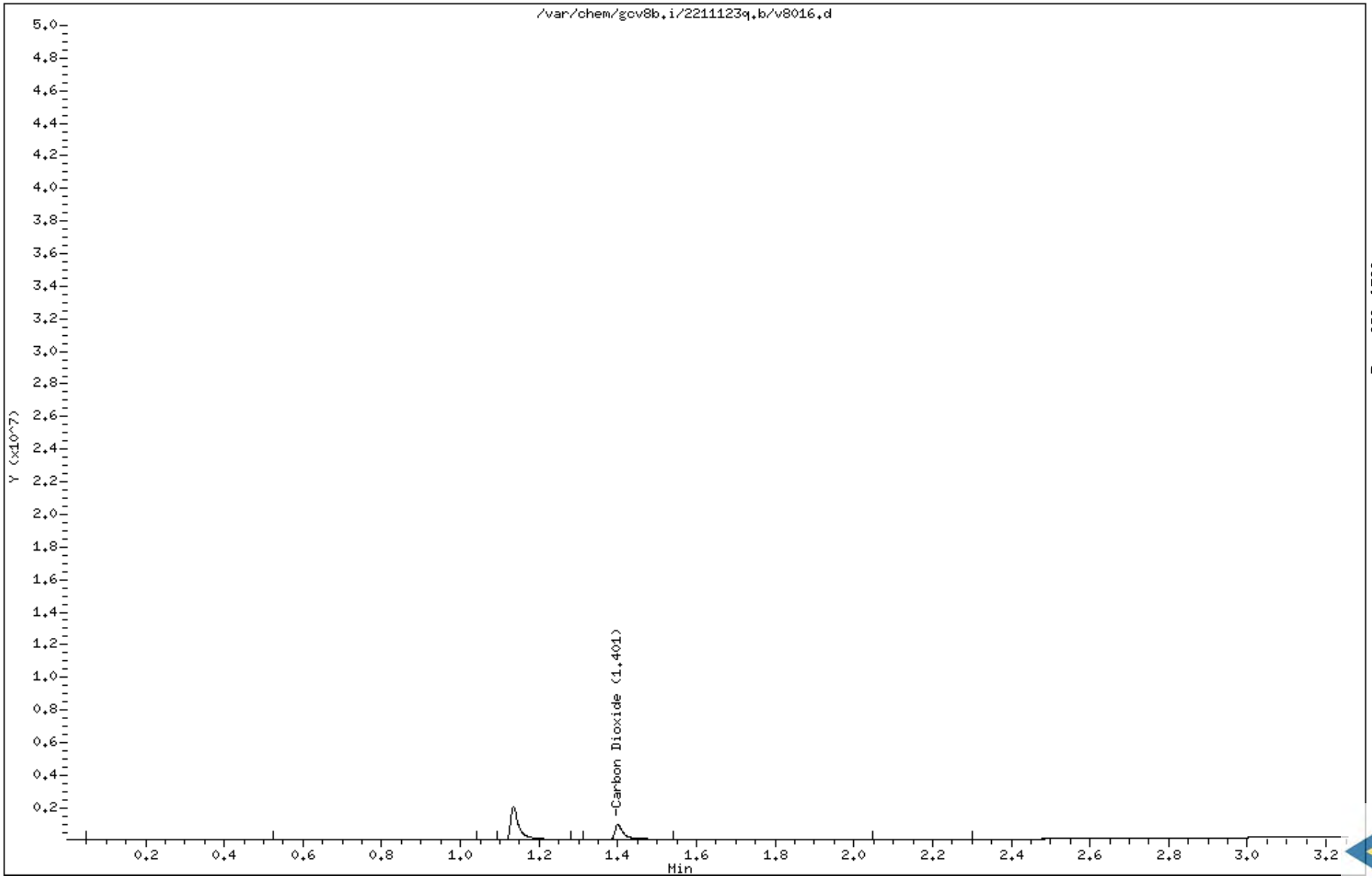
Instrument: gcv8b.i

Sample Info: 22111177701

Operator: JAR

Column phase: GS-Q-30

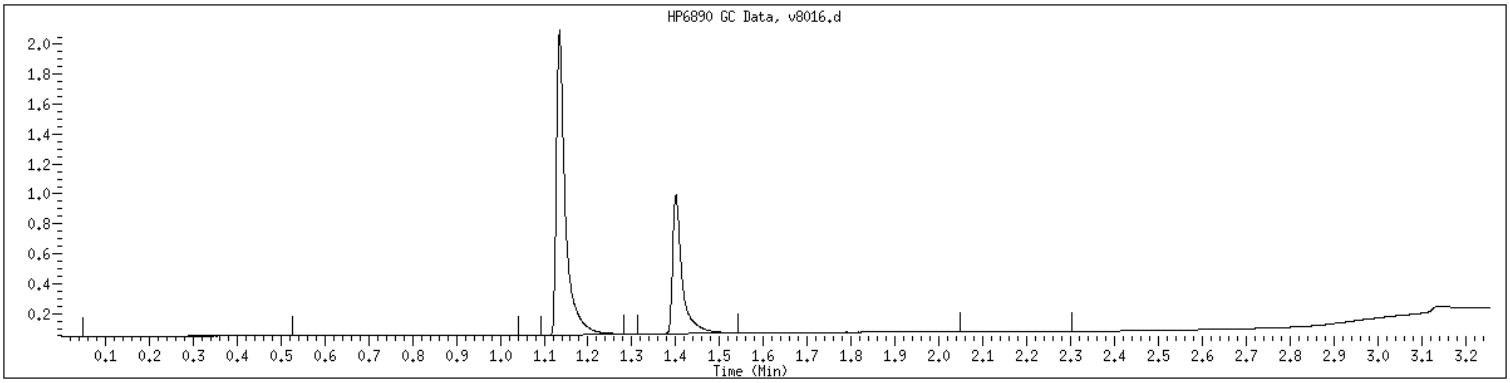
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8016.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177701 SampleType : SAMPLE
Injection Date: 11/23/2021 19:04 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177701
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MS
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177702
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8018
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1914
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	427000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d
Lab Smp Id: 22111177702
Inj Date : 23-NOV-2021 19:14
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177702
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MS
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	25438242	8540.71	427000(RM1)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2211123q.b/v8018.d

Page 1

Date : 23-NOV-2021 19:14

Client ID:

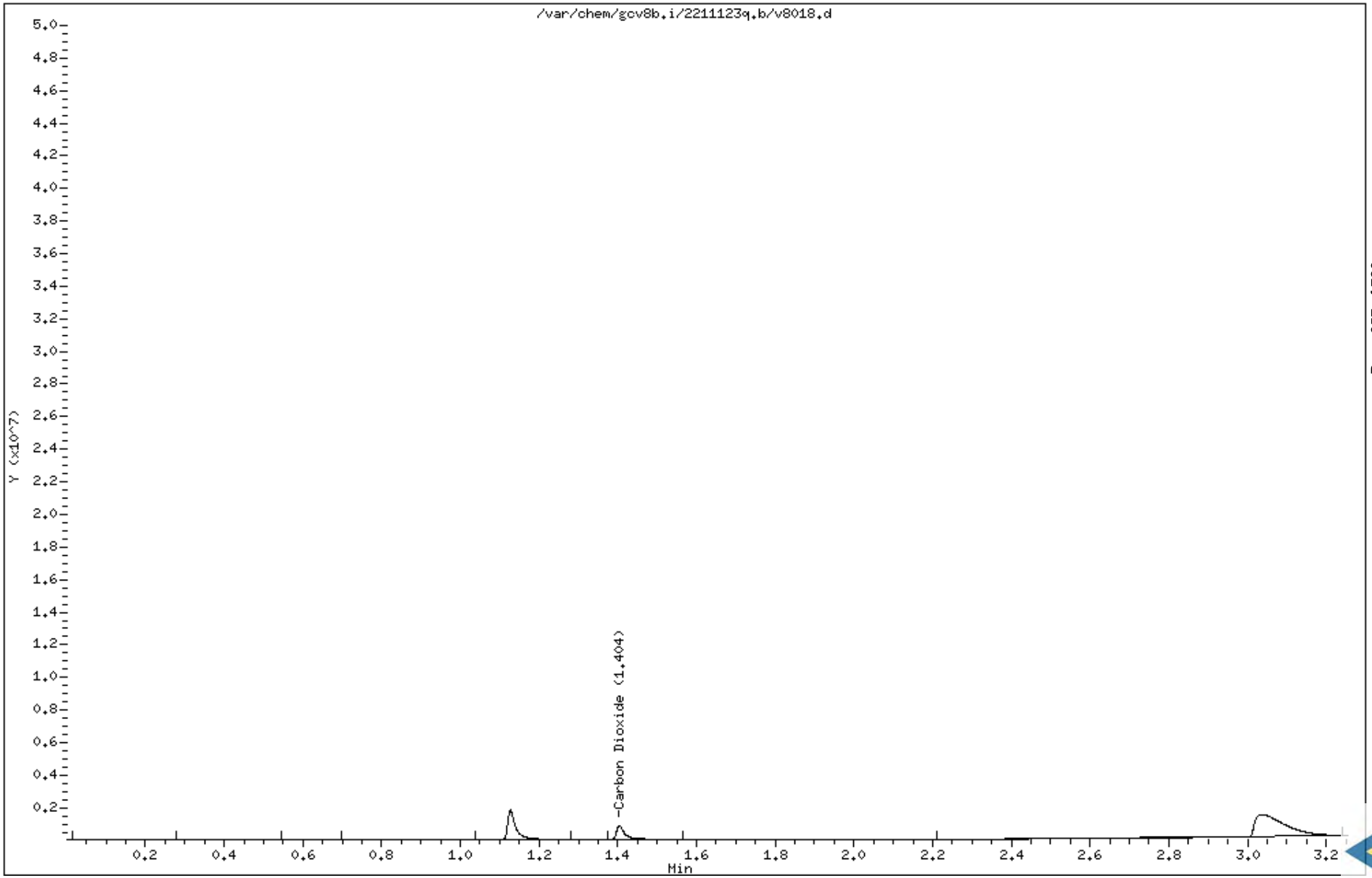
Instrument: gcv8b.i

Sample Info: 22111177702

Operator: JAR

Column phase: GS-Q-30

Column diameter: 0.53

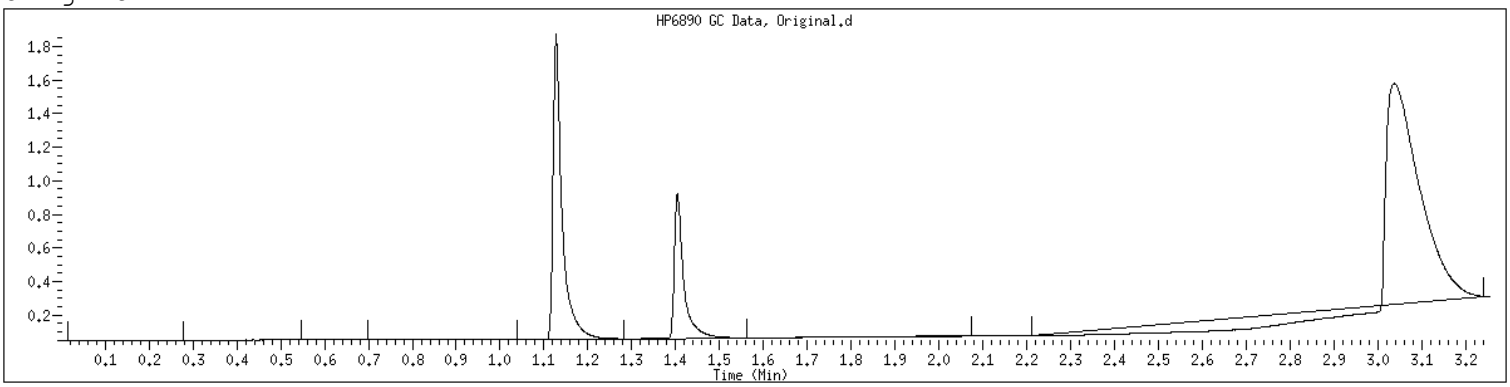


Data file : /var/chem/gcv8b.i/2211123q.b/v8018.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177702 SampleType : MS
Injection Date: 11/23/2021 19:14 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177702
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



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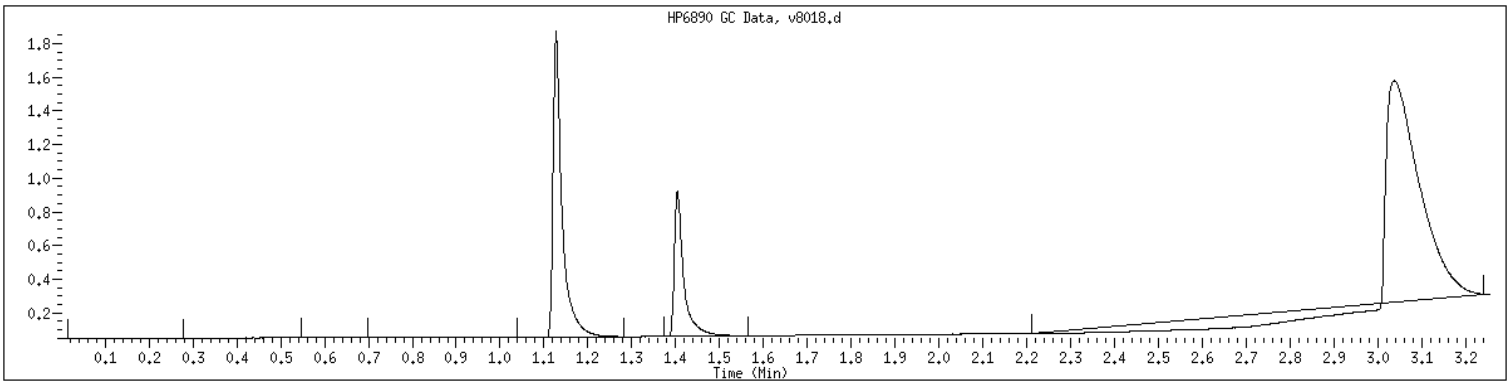


1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW08-211111-MSD
Collect Date:	11/11/21 Time: 0845	GCAL Sample ID:	22111177703
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8019
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1919
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	495000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d
Lab Smp Id: 22111177703
Inj Date : 23-NOV-2021 19:19
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177703
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.401	1.414	-0.013	29480711	9897.94	495000(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

Data File: /var/chem/gcv8b.i/2211123q.b/v8019.d

Page 1

Date : 23-NOV-2021 19:19

Client ID:

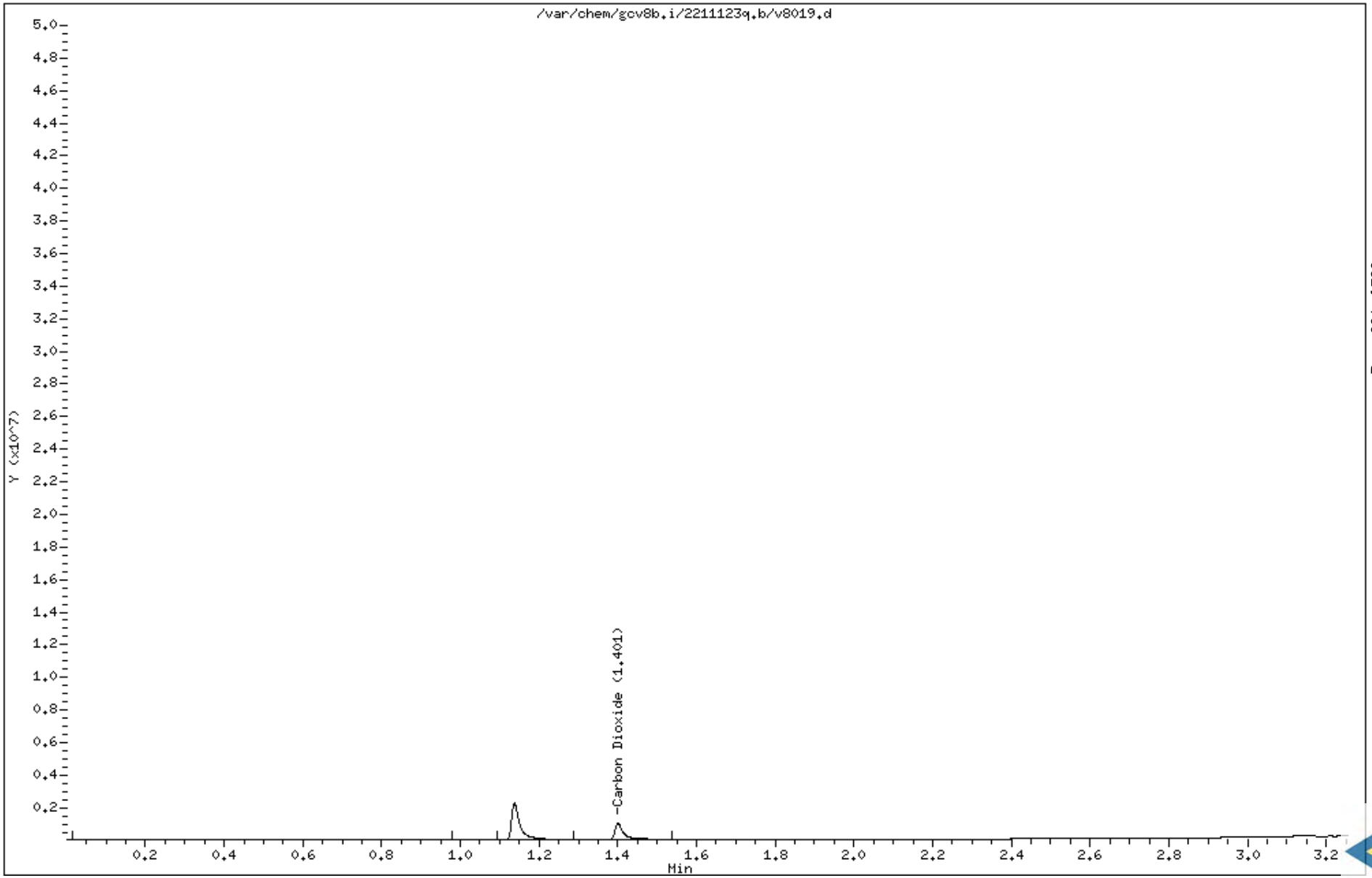
Instrument: gcv8b.i

Sample Info: 22111177703

Operator: JAR

Column phase: GS-Q-30

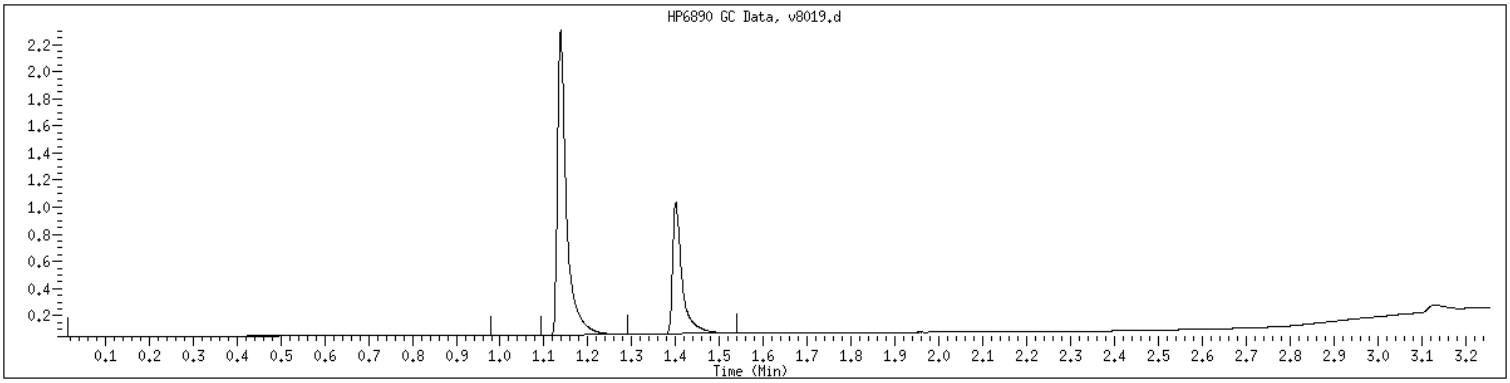
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8019.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177703 SampleType : MSD
Injection Date: 11/23/2021 19:19 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177703
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8020
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1925
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	637000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d
Lab Smp Id: 22111177704
Inj Date : 23-NOV-2021 19:25
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	37942037	12738.8	637000

Data File: /var/chem/gcv8b.i/2211123q.b/v8020.d

Page 1

Date : 23-NOV-2021 19:25

Client ID:

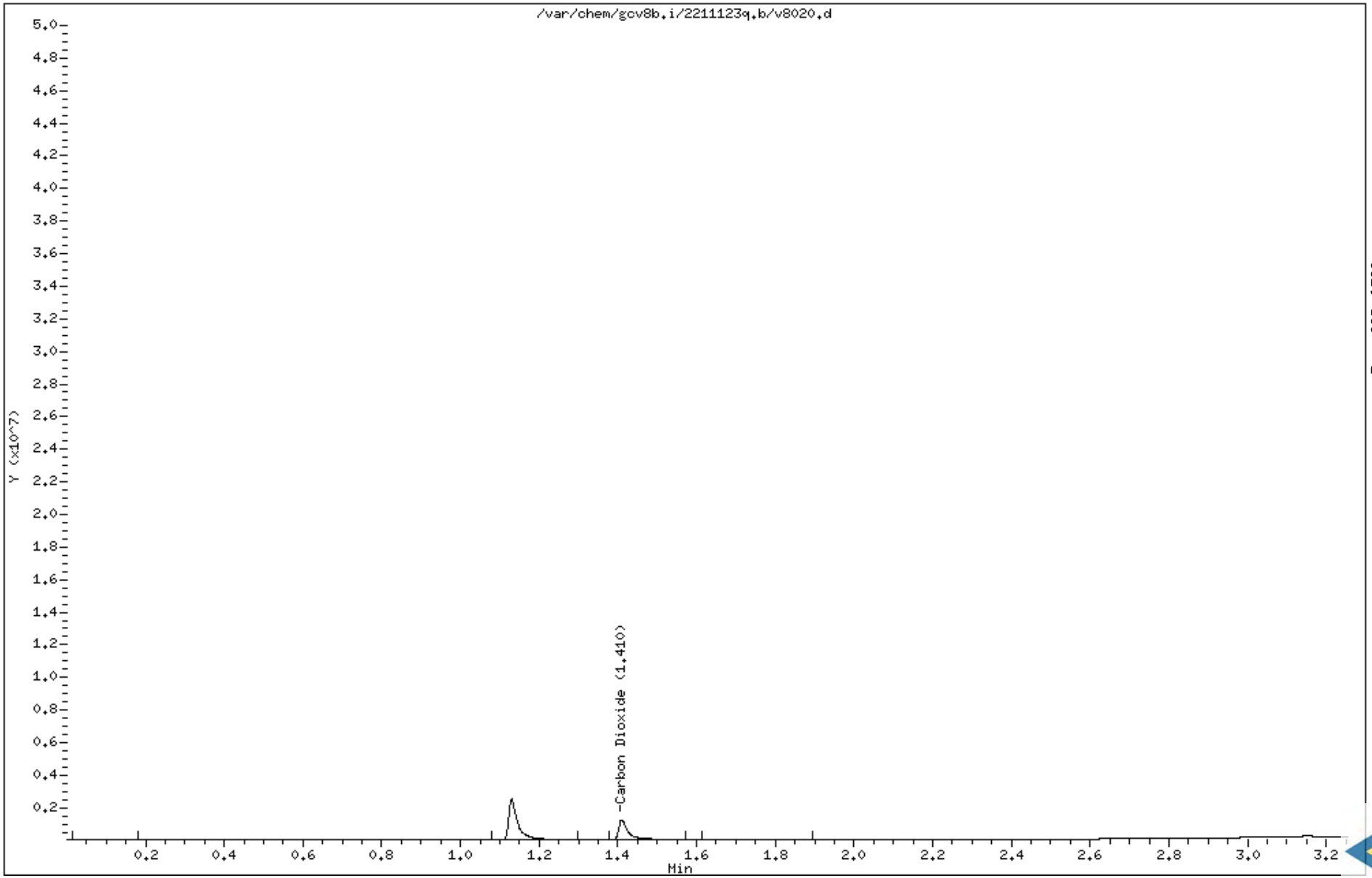
Instrument: gcv8b.i

Sample Info: 22111177704

Operator: JAR

Column phase: GS-Q-30

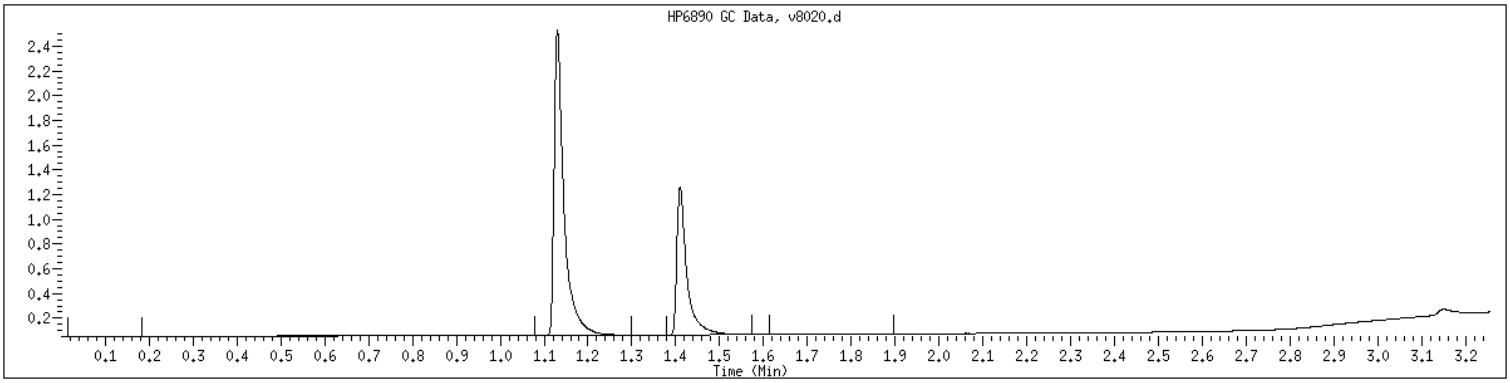
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8020.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177704 SampleType : SAMPLE
Injection Date: 11/23/2021 19:25 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	67WW13-211111-FD
Collect Date:	11/11/21 Time: 1025	GCAL Sample ID:	22111177705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8021
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	50 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1930
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	657000		6350	19300	45000

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d
Lab Smp Id: 22111177705
Inj Date : 23-NOV-2021 19:30
Operator : JAR Inst ID: gcv8b.i
Smp Info : 22111177705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.404	1.414	-0.010	39156891	13146.6	657000

Data File: /var/chem/gcv8b.i/2211123q.b/v8021.d

Page 1

Date : 23-NOV-2021 19:30

Client ID:

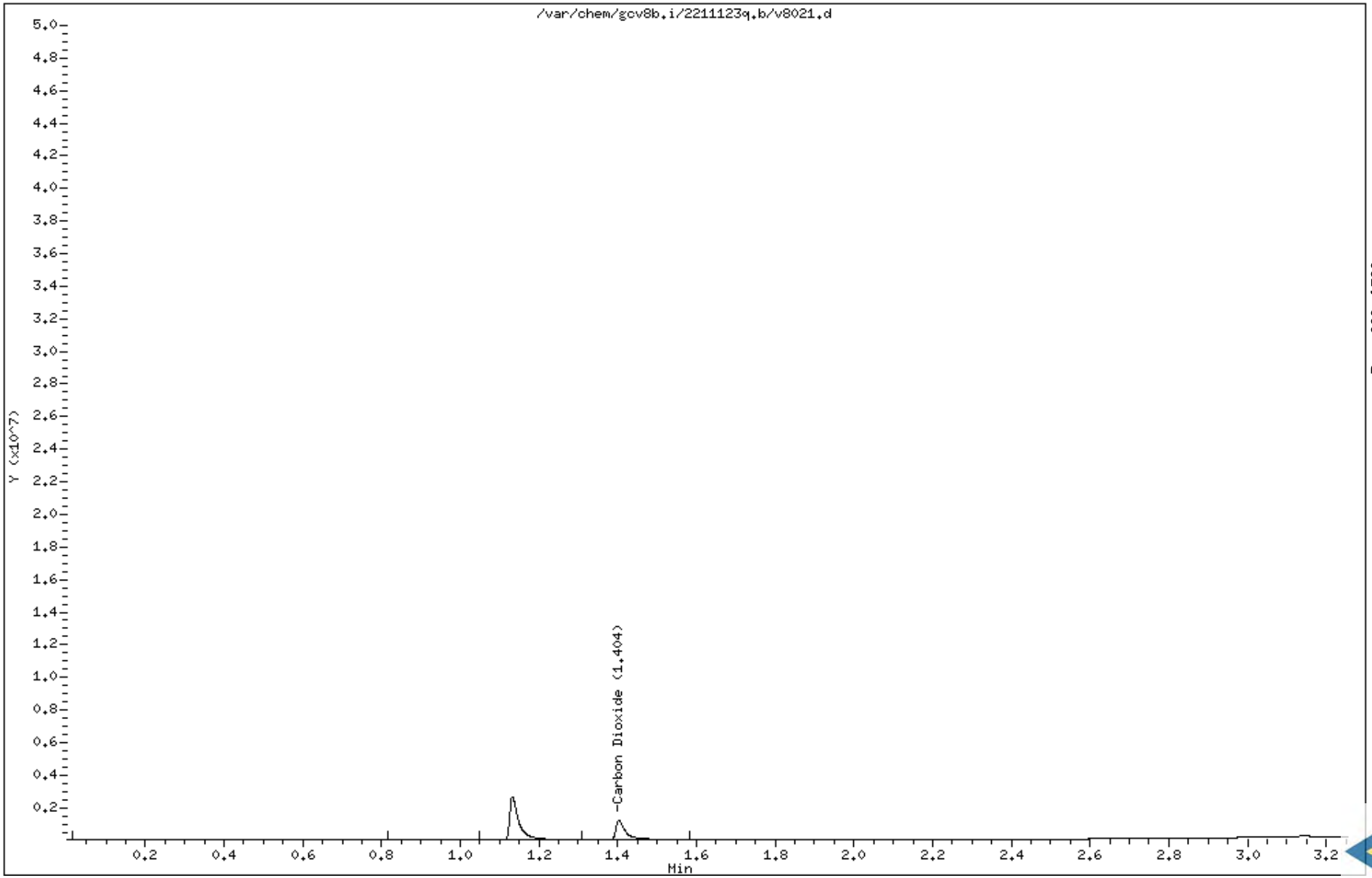
Instrument: gcv8b.i

Sample Info: 22111177705

Operator: JAR

Column phase: GS-Q-30

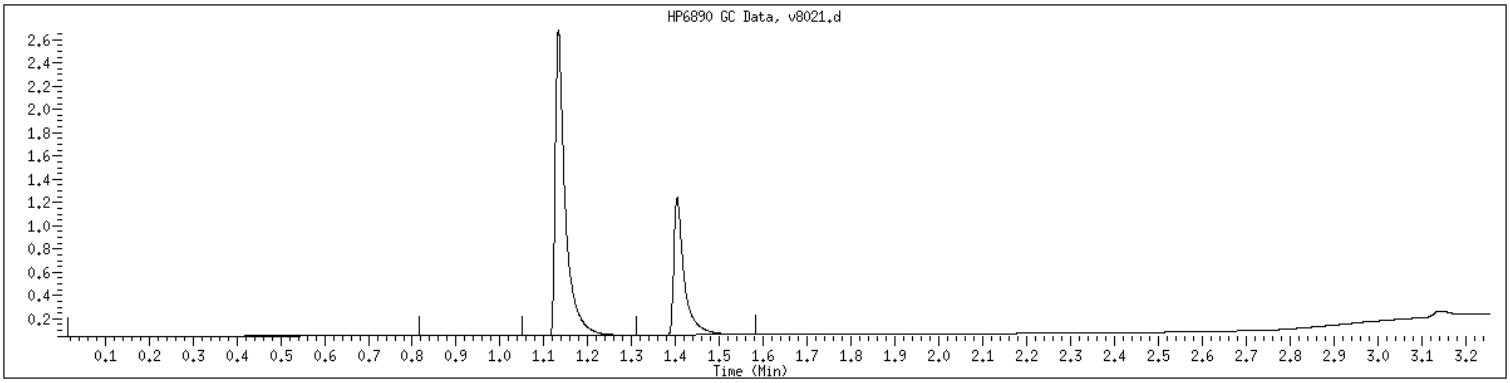
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8021.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 22111177705 SampleType : SAMPLE
Injection Date: 11/23/2021 19:30 Instrument : gcv8b.i
Operator : JAR
Sample Info : 22111177705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	MB2277704
Collect Date:	NA Time: NA	GCAL Sample ID:	2277704
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	900	U	127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d
Lab Smp Id: 2277704
Inj Date : 23-NOV-2021 17:37
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277704
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Carbon Dioxide	1.410	1.414	-0.004	517662	173.801	174

Data File: /var/chem/gcv8b.i/2211123q.b/v8002.d

Page 1

Date : 23-NOV-2021 17:37

Client ID:

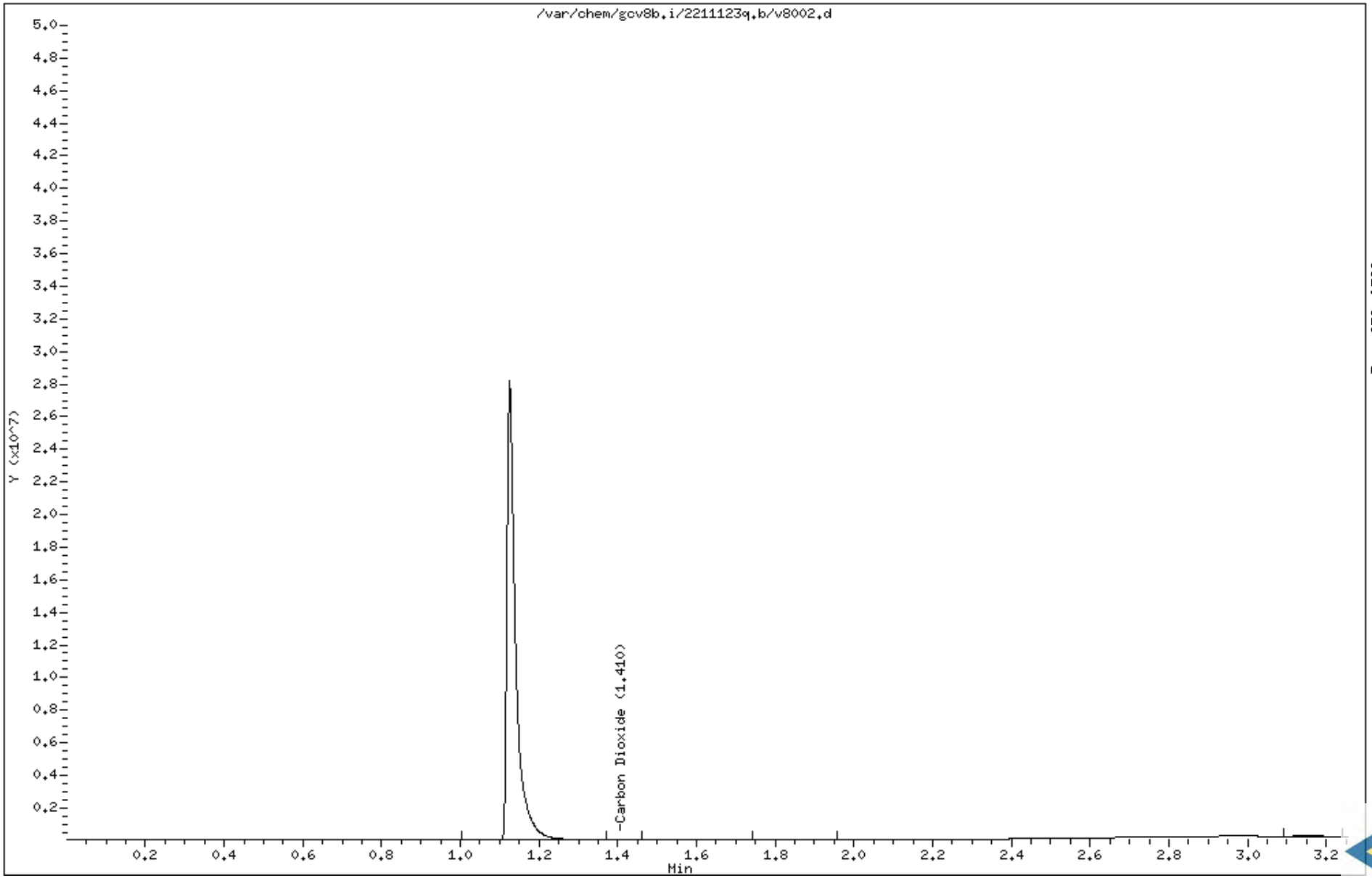
Instrument: gcv8b.i

Sample Info: 2277704

Operator: JAR

Column phase: GS-Q-30

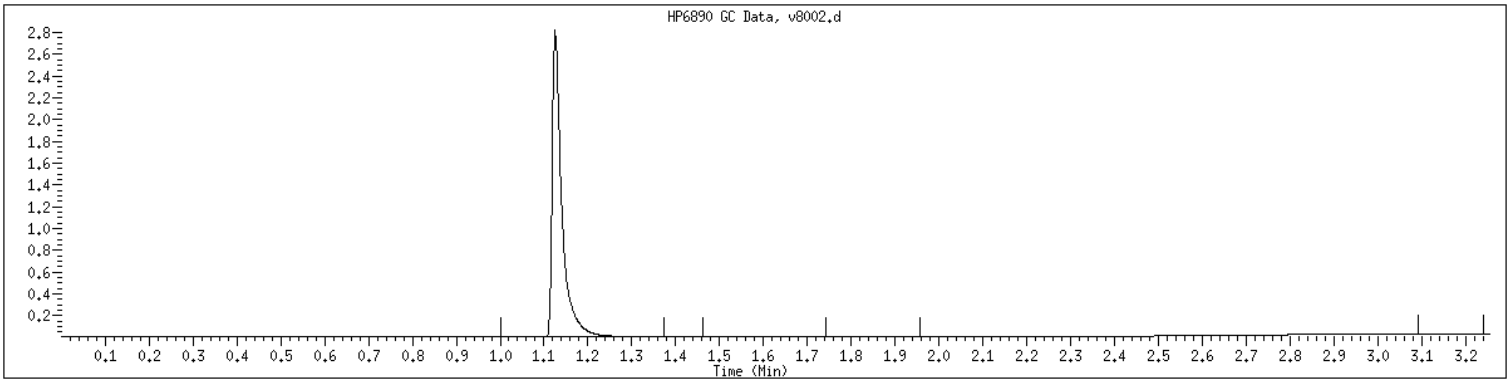
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8002.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277704 SampleType : BLANK
Injection Date: 11/23/2021 17:37 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277704
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCS2277705
Collect Date:	NA Time: NA	GCAL Sample ID:	2277705
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8003
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1742
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8480		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d
Lab Smp Id: 2277705
Inj Date : 23-NOV-2021 17:42
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277705
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.409	1.414	-0.005	25249944	8477.49	8480

Data File: /var/chem/gcv8b.i/2211123q.b/v8003.d

Page 1

Date : 23-NOV-2021 17:42

Client ID:

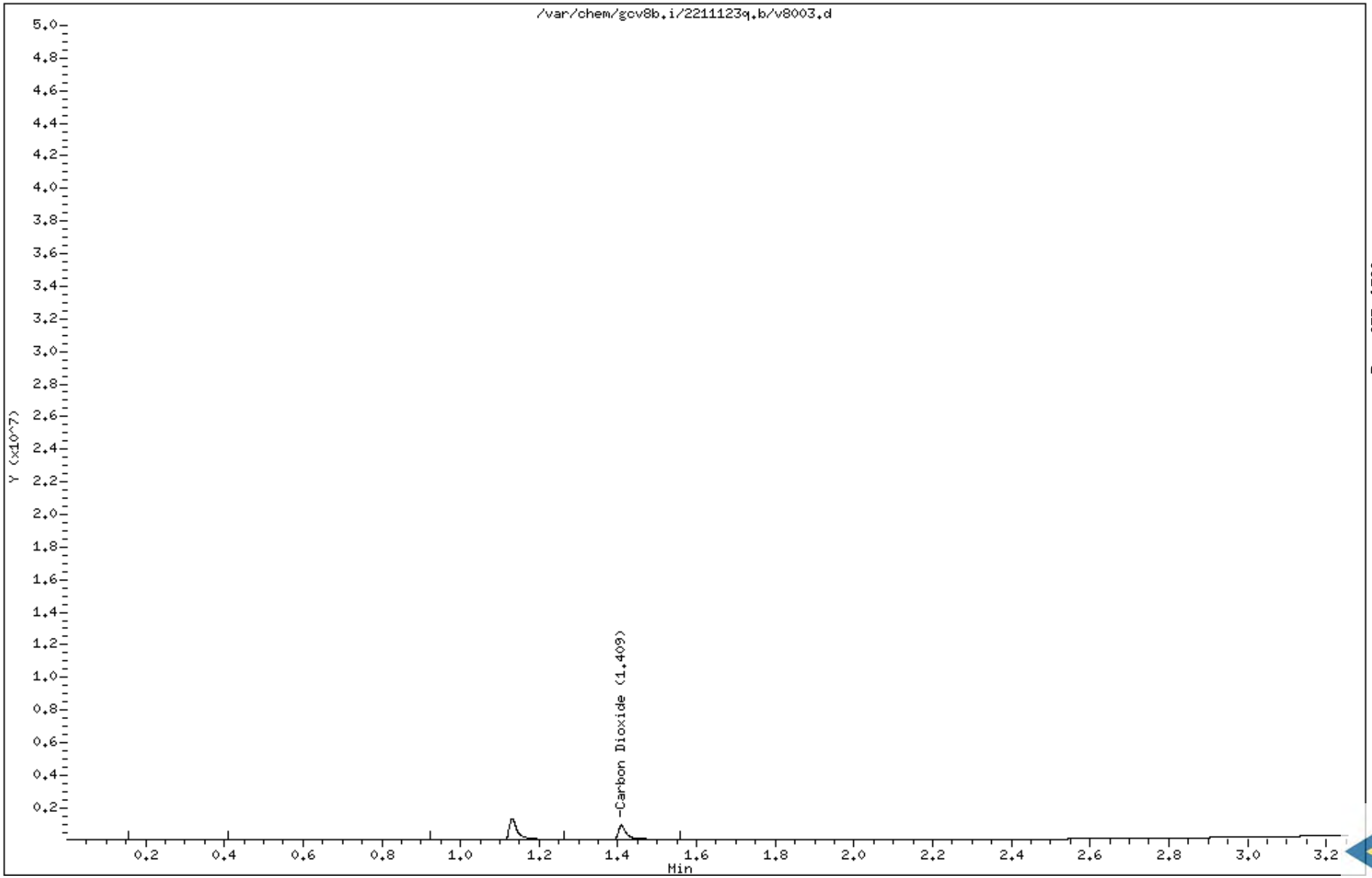
Instrument: gcv8b.i

Sample Info: 2277705

Operator: JAR

Column phase: GS-Q-30

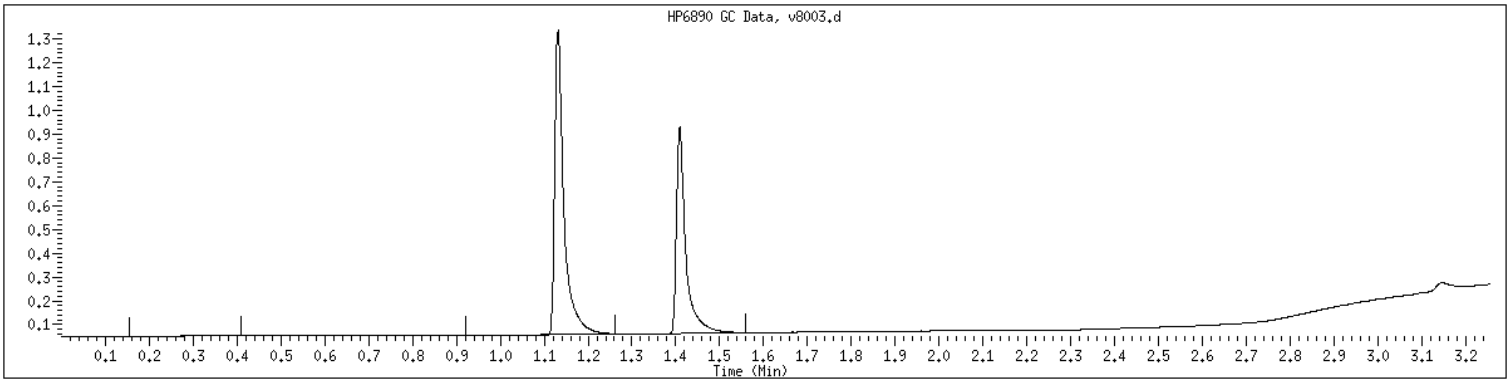
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8003.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277705 SampleType : LCS
Injection Date: 11/23/2021 17:42 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277705
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

1D
ORGANICS ANALYSIS DATA SHEET

Report No:	221111777	Client Sample ID:	LCSD2277706
Collect Date:	NA Time: NA	GCAL Sample ID:	2277706
Matrix:	Water % Moisture: NA	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8004
Injection Vol.:	1 (µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1748
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

CONCENTRATION UNITS: ug/L

CAS	ANALYTE	RESULT	Q	DL	LOD	LOQ
124-38-9	Carbon Dioxide	8770		127	386	900

FORM I ORG-1

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d
Lab Smp Id: 2277706
Inj Date : 23-NOV-2021 17:48
Operator : JAR Inst ID: gcv8b.i
Smp Info : 2277706
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:43 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.402	1.414	-0.012	26116384	8768.39	8770

Data File: /var/chem/gcv8b.i/2211123q.b/v8004.d

Page 1

Date : 23-NOV-2021 17:48

Client ID:

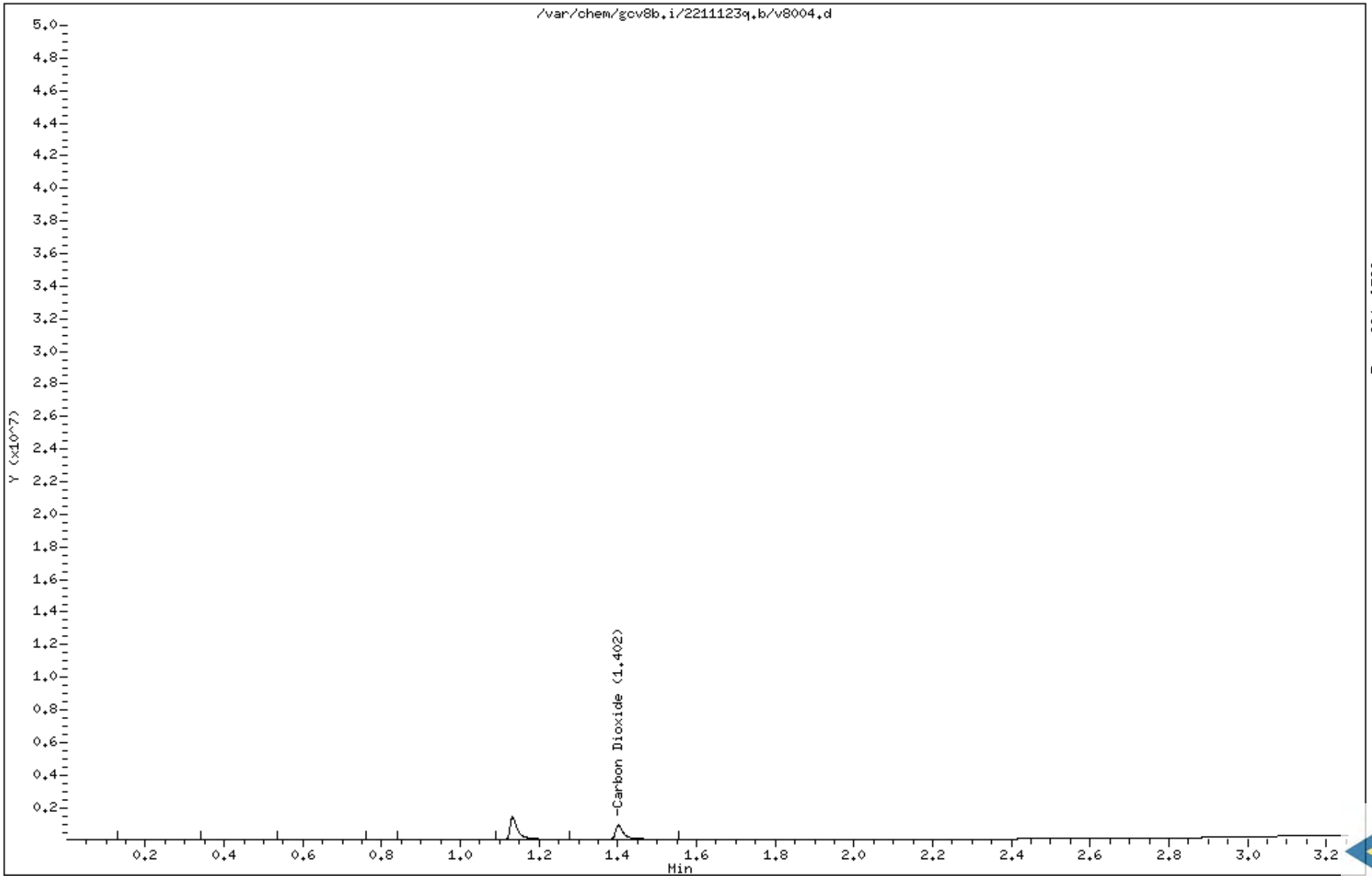
Instrument: gcv8b.i

Sample Info: 2277706

Operator: JAR

Column phase: GS-Q-30

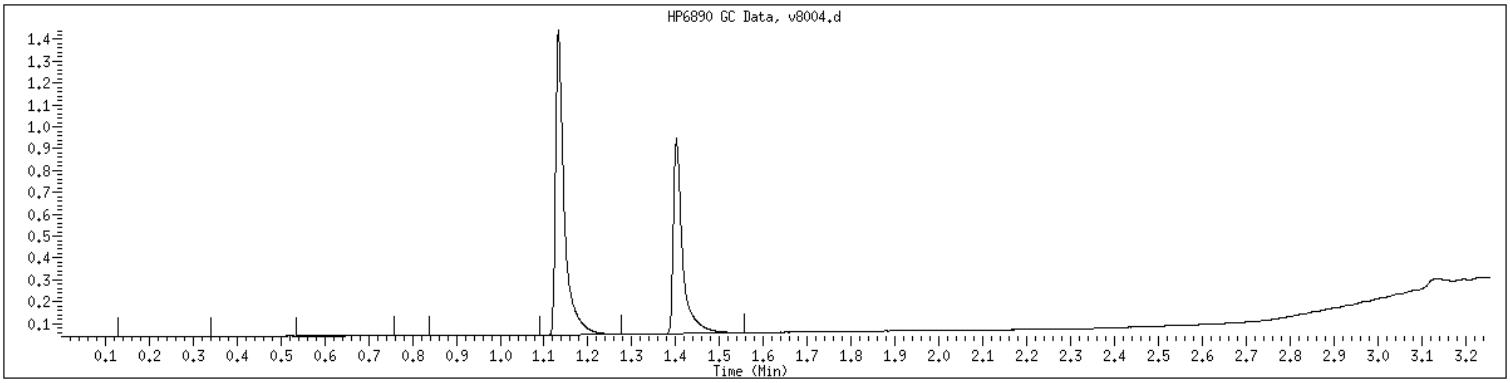
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8004.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 2277706 SampleType : LCSD
Injection Date: 11/23/2021 17:48 Instrument : gcv8b.i
Operator : JAR
Sample Info : 2277706
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

Form 3E

Spikes

3E
WATER ORGANICS MS/MSD RECOVERY

Report No:	221111777	Parent Sample ID:	67WW08-211111
Prep Method:	NA	Prep Batch:	NA
Analytical Method:	RSK-175	Analytical Batch:	727709

GCAL QC ID: 22111177702

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	MS RESULT	MS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	466000	427000	-448	*	38 - 147

GCAL QC ID: 22111177703

ANALYTE	UNITS	SPIKE ADDED	MSD RESULT	MSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	495000	333	*	15		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

3E
WATER ORGANICS LCS/LCSD RECOVERY

Report No: 221111777

Prep Method: NA | Prep Batch: NA

Analytical Method: RSK-175 | Analytical Batch: 727709

GCAL QC ID: 2277705

ANALYTE	UNITS	SPIKE ADDED	SAMPLE RESULT	LCS RESULT	LCS % REC	#	QC LIMITS
Carbon Dioxide	ug/L	8700	0	8480	97		38 - 147

GCAL QC ID: 2277706

ANALYTE	UNITS	SPIKE ADDED	LCSD RESULT	LCSD % REC	#	% RPD	#	QC LIMITS REC	QC LIMITS RPD
Carbon Dioxide	ug/L	8700	8770	101		3		38 - 147	0 - 40

RPD : 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM III ORG-1

EPA RSK-175

Form 4C

Method Blanks

4C
ORGANIC METHOD BLANK SUMMARY

Report No:	221111777	Method Blank ID:	2277704
Matrix:	Water	Instrument ID:	GCV8B
Sample Amt:	5 mL	Lab File ID:	2211123q/v8002
Injection Vol.:	(µL)	GC Column:	GS-Q-30 ID .53 (mm)
Prep Final Vol.:	NA (µL)	Dilution Factor:	1 Analyst: JAR
Prep Date:	NA	Analysis Date:	11/23/21 Time: 1737
Prep Batch:	NA	Analytical Batch:	727709
Prep Method:	NA	Analytical Method:	RSK-175

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	CLIENT SAMPLE ID	GCAL SAMPLE ID	DATE ANALYZED	TIME ANALYZED	INSTRUMENT ID
1 .	LCS2277705	2277705	11/23/21	1742	GCV8B
2 .	LCSD2277706	2277706	11/23/21	1748	GCV8B
3 .	67WW08-211111	22111177701	11/23/21	1904	GCV8B
4 .	67WW08-211111-MS	22111177702	11/23/21	1914	GCV8B
5 .	67WW08-211111-MSD	22111177703	11/23/21	1919	GCV8B
6 .	67WW13-211111	22111177704	11/23/21	1925	GCV8B
7 .	67WW13-211111-FD	22111177705	11/23/21	1930	GCV8B

FORM IV ORGANIC

EPA RSK-175

Form 6E

Calibrations

6E

ORGANICS INITIAL CALIBRATION DATA

							LabQC ID - FileID - Conc	1201 ~ 2210921p/v8003 ~ mix
Report No:	221111777			Instrument ID:	GCV8B		1202 ~ 2210921p/v8004 ~ mix	1203 ~ 2210921p/v8005 ~ mix
GC Column:	GS-Q-30	ID	.53 (mm)	Analyst:	BMR		1204 ~ 2210921p/v8006 ~ mix	1205 ~ 2210921p/v8007 ~ mix
Calib. Date 1:	09/21/21	Time 1:	1153	Analytical Batch:	721348			
Calib. Date 2:	09/21/21	Time 2:	1218	Analytical Method:	RSK-175			

ANALYTE	***1201***	***1202***	***1203***	***1204***	***1205***	***1206***	***1207***	***1208***	***1209***	***$\overline{RF}$ / m / A***	***b / B***	***C***	***FIT***	***TYPE***
Carbon Dioxide	2723	2646	3214	3161	3149					2978			9.107	A

FIT = %RSD for Average Curve and the Coefficient of Determination (r2) for Linear and Quadratic

Curve Types: A - Averaged, L - Linear Regression, W - Weighted Linear, Q - Quadratic

For curve types L and Q, the RRF and RSP (Response) are shown on separate lines to allow for evaluation against minimum RRF

$\overline{RF}$ = Mean Response Factor For Average Curve

m,b = Slope and Intercept For Linear Curve

A,B,C = Coefficents For Quadratic Curve

FORM V I SVOA

Data File: /var/chem/gcv8b.i/2210921p.b/v8003.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8003.d
Lab Smp Id: 1201
Inj Date : 21-SEP-2021 11:53
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1201
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 11:53 Cal File: v8003.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.637	1.637	0.000	2352285	864.000	790(M1)

QC Flag Legend

M1- Compound response manually integrated because
Target system did not integrate.

Data File: /var/chem/gcv8b.i/2210921p.b/v8003.d

Page 1

Date : 21-SEP-2021 11:53

Client ID:

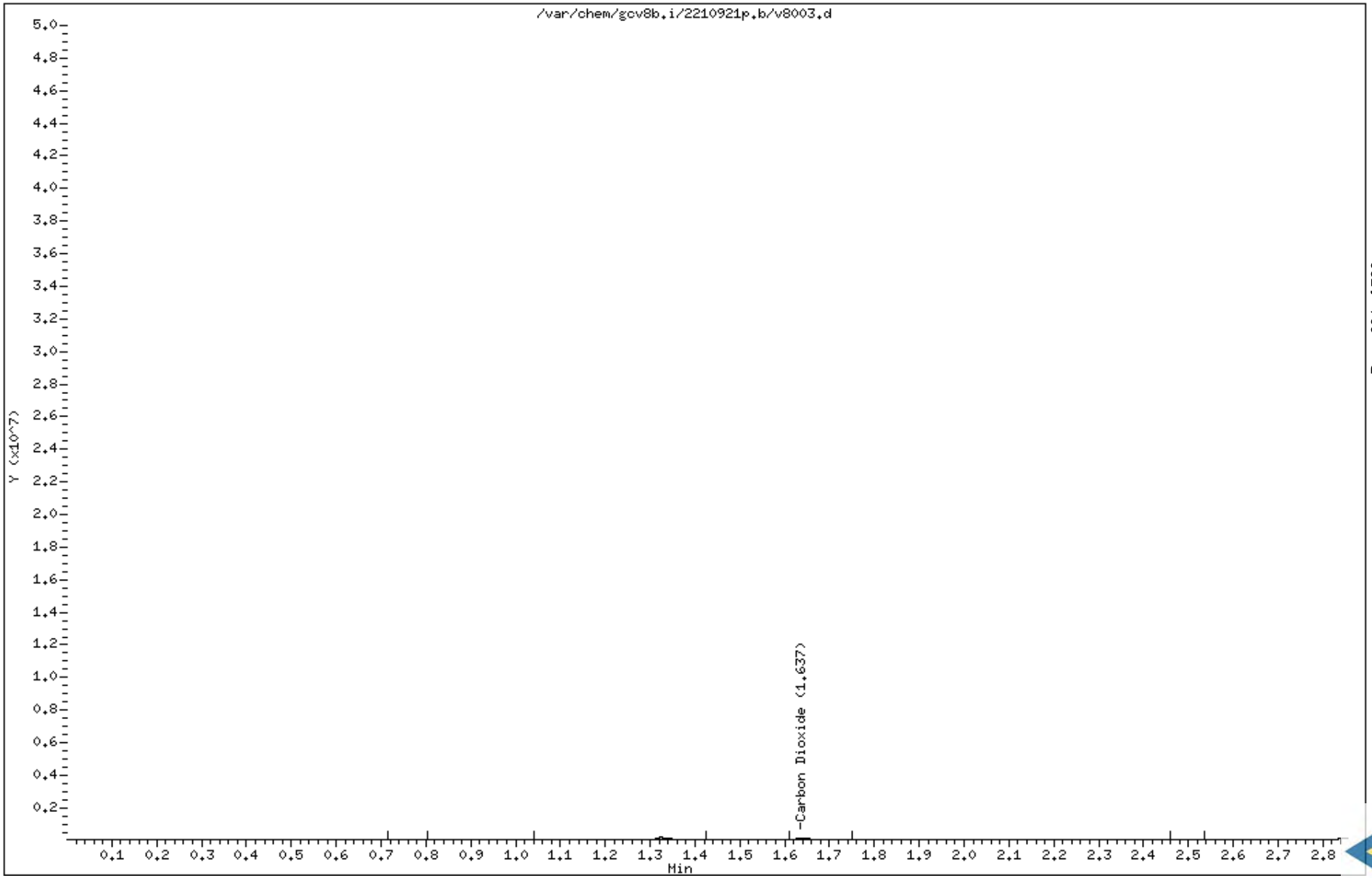
Instrument: gcv8b.i

Sample Info: 1201

Operator: BMR

Column phase: GS-Q-30

Column diameter: 0.53

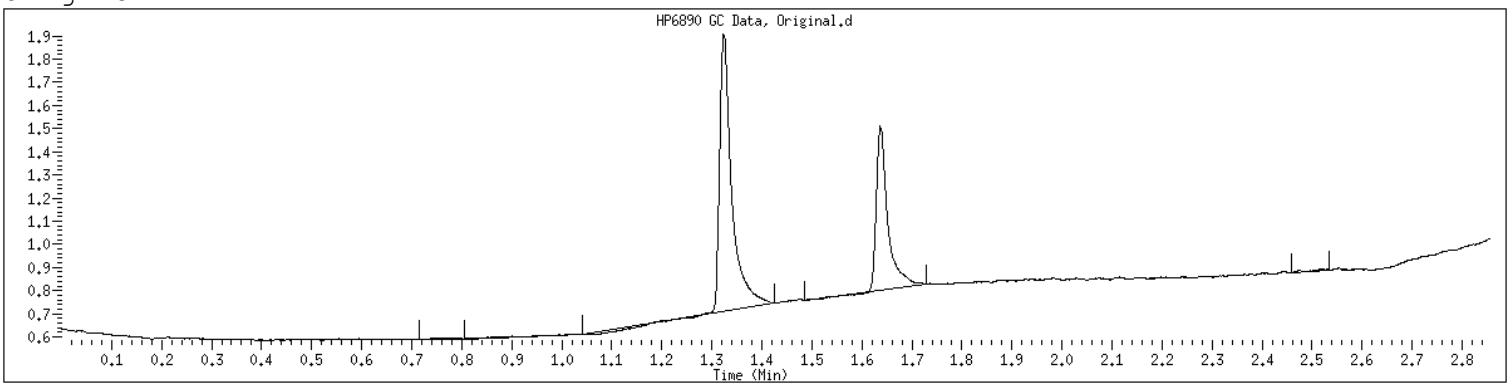


Data file : /var/chem/gcv8b.i/2210921p.b/v8003.d Page: 1
Report Date: 09/21/2021 15:58

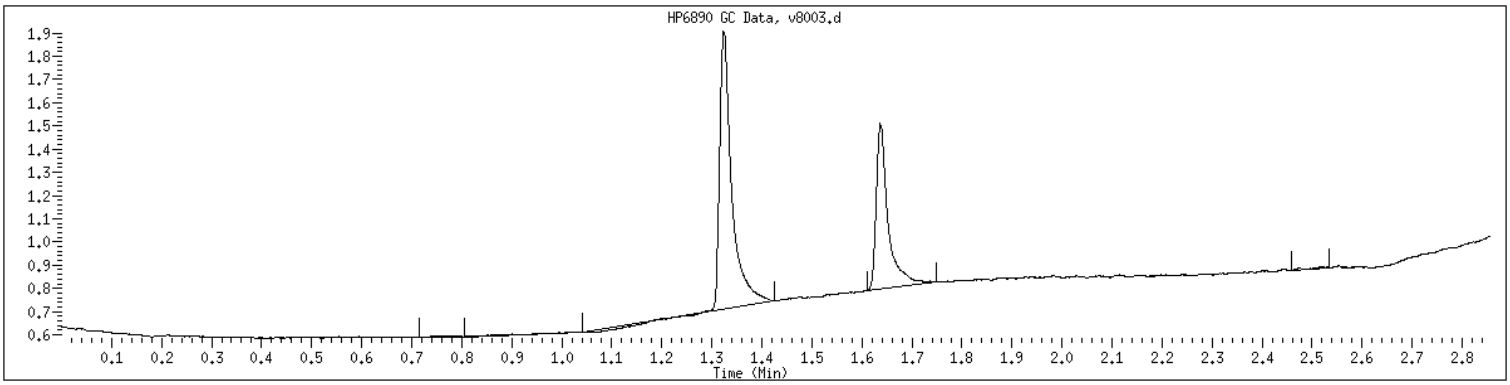
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1201 SampleType : CALIB_1
Injection Date: 09/21/2021 11:53 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1201
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



Final



Data File: /var/chem/gcv8b.i/2210921p.b/v8004.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8004.d
Lab Smp Id: 1202
Inj Date : 21-SEP-2021 11:58
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1202
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 11:58 Cal File: v8004.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.634	1.634	0.000	4576744	1730.00	1540(M2)

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.

Data File: /var/chem/gcv8b.i/2210921p.b/v8004.d

Page 1

Date : 21-SEP-2021 11:58

Client ID:

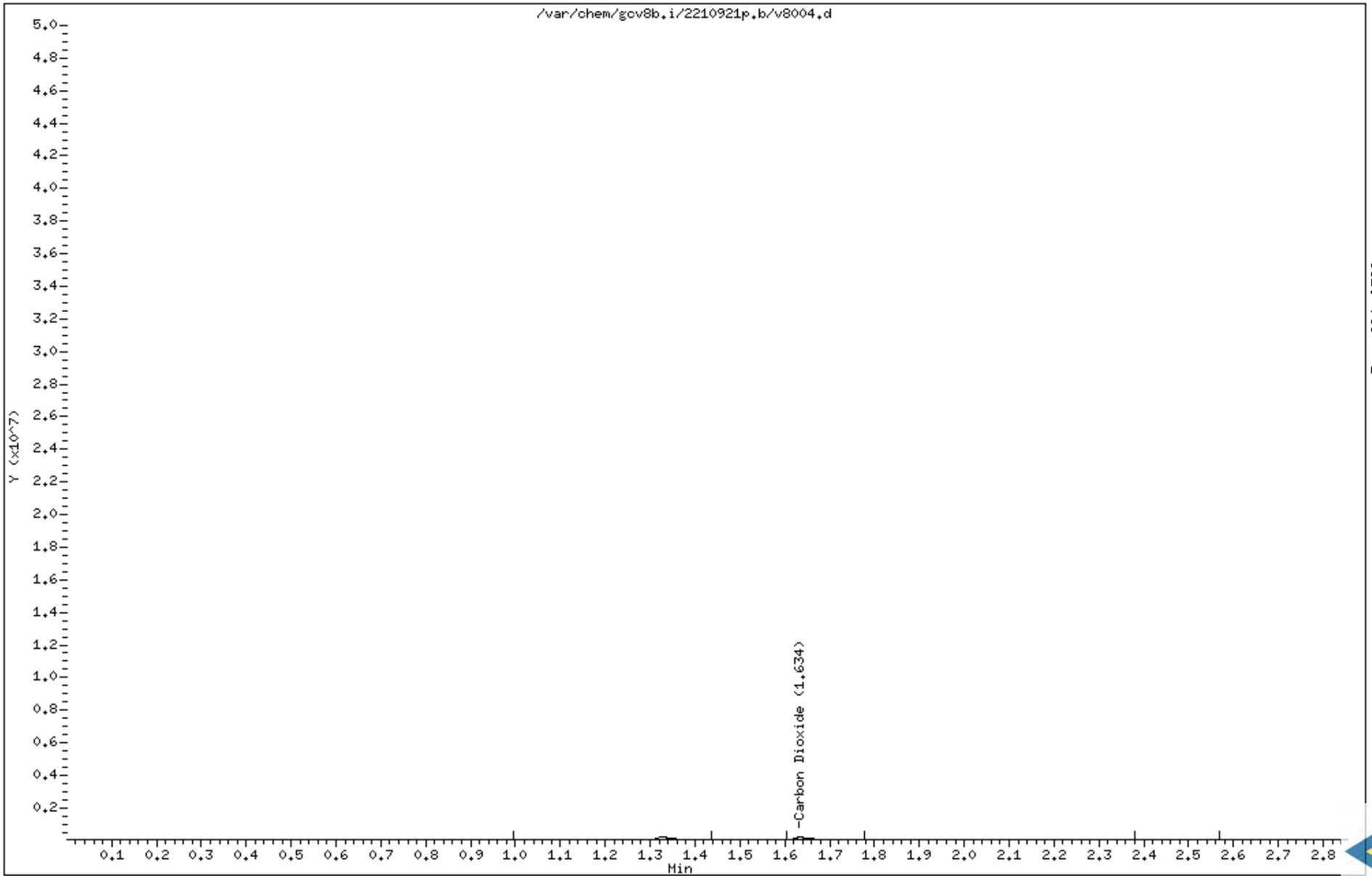
Instrument: gcv8b.i

Sample Info: 1202

Operator: BMR

Column phase: GS-Q-30

Column diameter: 0.53

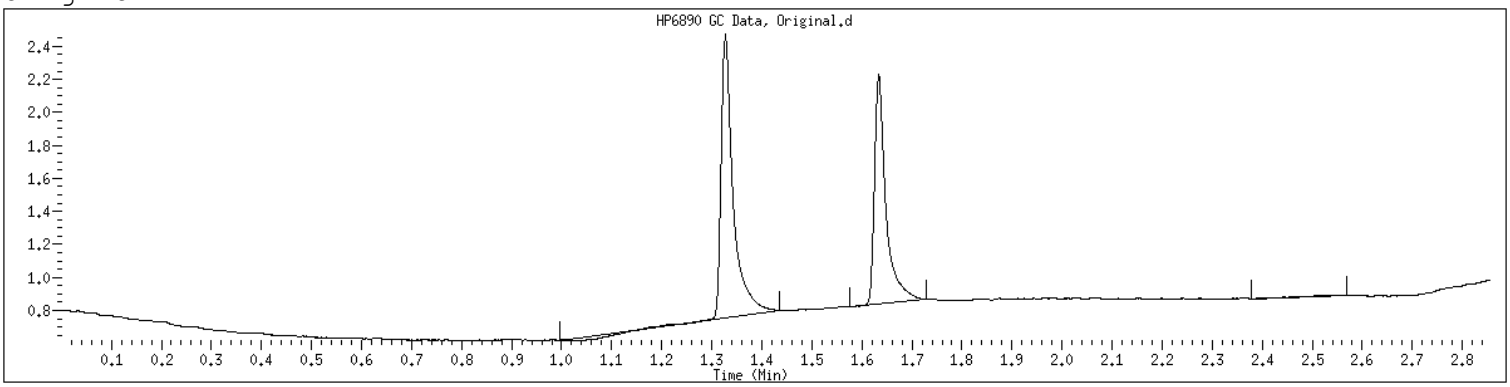


Data file : /var/chem/gcv8b.i/2210921p.b/v8004.d Page: 1
Report Date: 09/21/2021 15:58

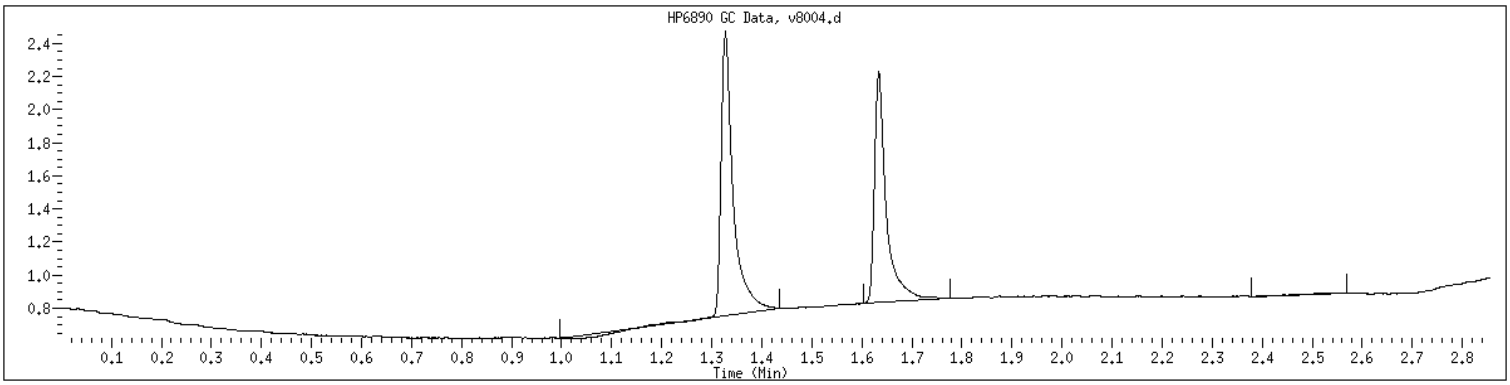
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1202 SampleType : CALIB_2
Injection Date: 09/21/2021 11:58 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1202
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



Final



Data File: /var/chem/gcv8b.i/2210921p.b/v8005.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8005.d
Lab Smp Id: 1203
Inj Date : 21-SEP-2021 12:06
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1203
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:06 Cal File: v8005.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.632	1.632	0.000	27769800	8640.00	9320(M2)

QC Flag Legend

M2- Compound response manually integrated because
Target system integrated incorrectly.

Data File: /var/chem/gcv8b.i/2210921p.b/v8005.d

Page 1

Date : 21-SEP-2021 12:06

Client ID:

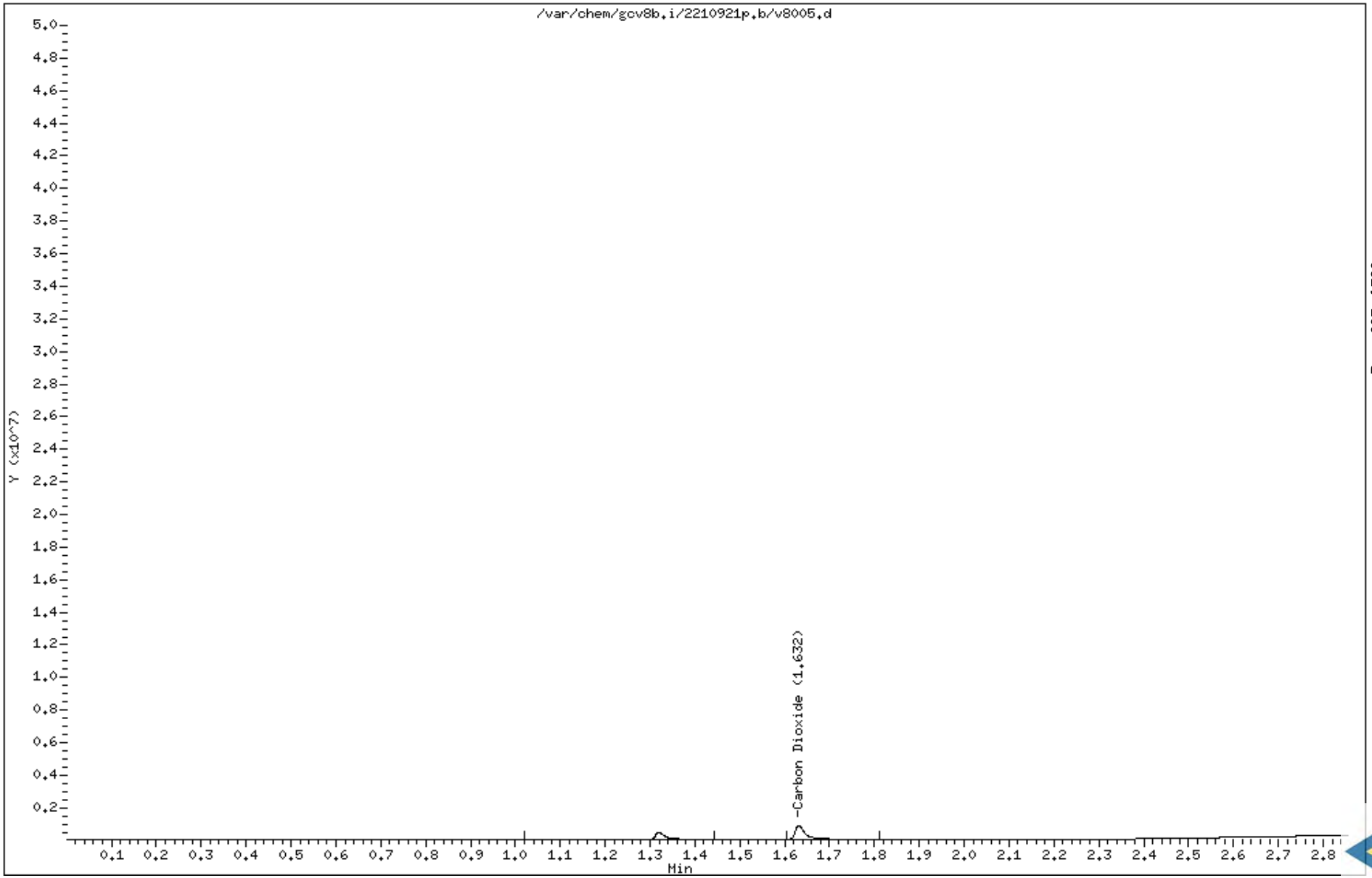
Instrument: gcv8b.i

Sample Info: 1203

Operator: BMR

Column phase: GS-Q-30

Column diameter: 0.53

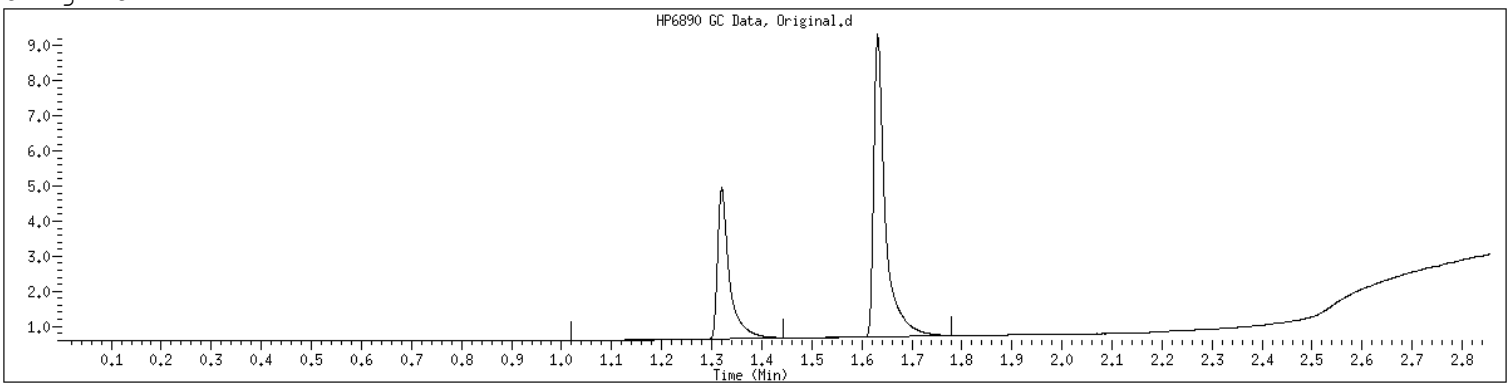


Data file : /var/chem/gcv8b.i/2210921p.b/v8005.d Page: 1
Report Date: 09/21/2021 15:58

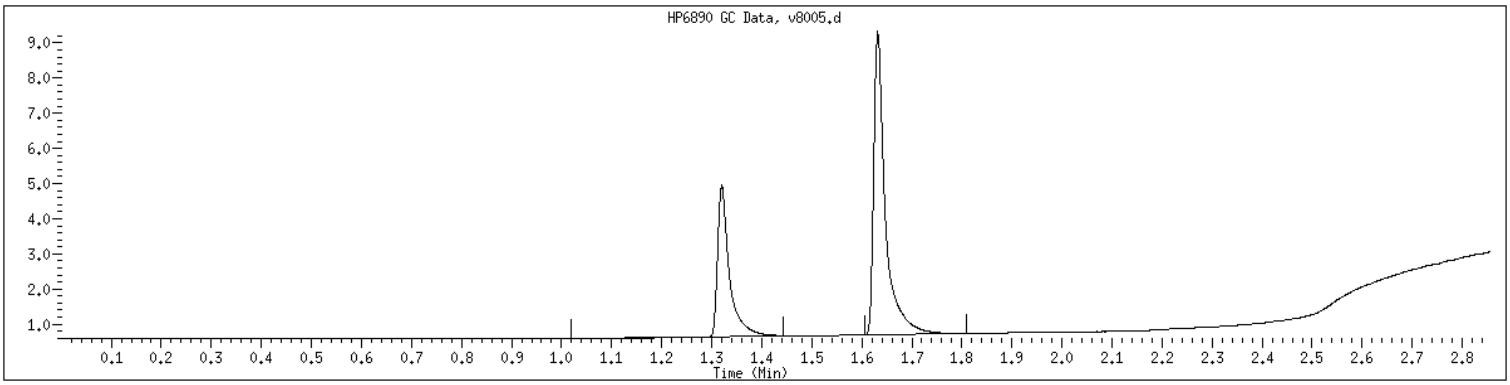
MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1203 SampleType : CALIB_3
Injection Date: 09/21/2021 12:06 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1203
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2

Original



Final



Data File: /var/chem/gcv8b.i/2210921p.b/v8006.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8006.d
Lab Smp Id: 1204
Inj Date : 21-SEP-2021 12:11
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1204
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:11 Cal File: v8006.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.629	1.629	0.000	43619426	13800.0	14600

Data File: /var/chem/gcv8b.i/2210921p.b/v8006.d

Page 1

Date : 21-SEP-2021 12:11

Client ID:

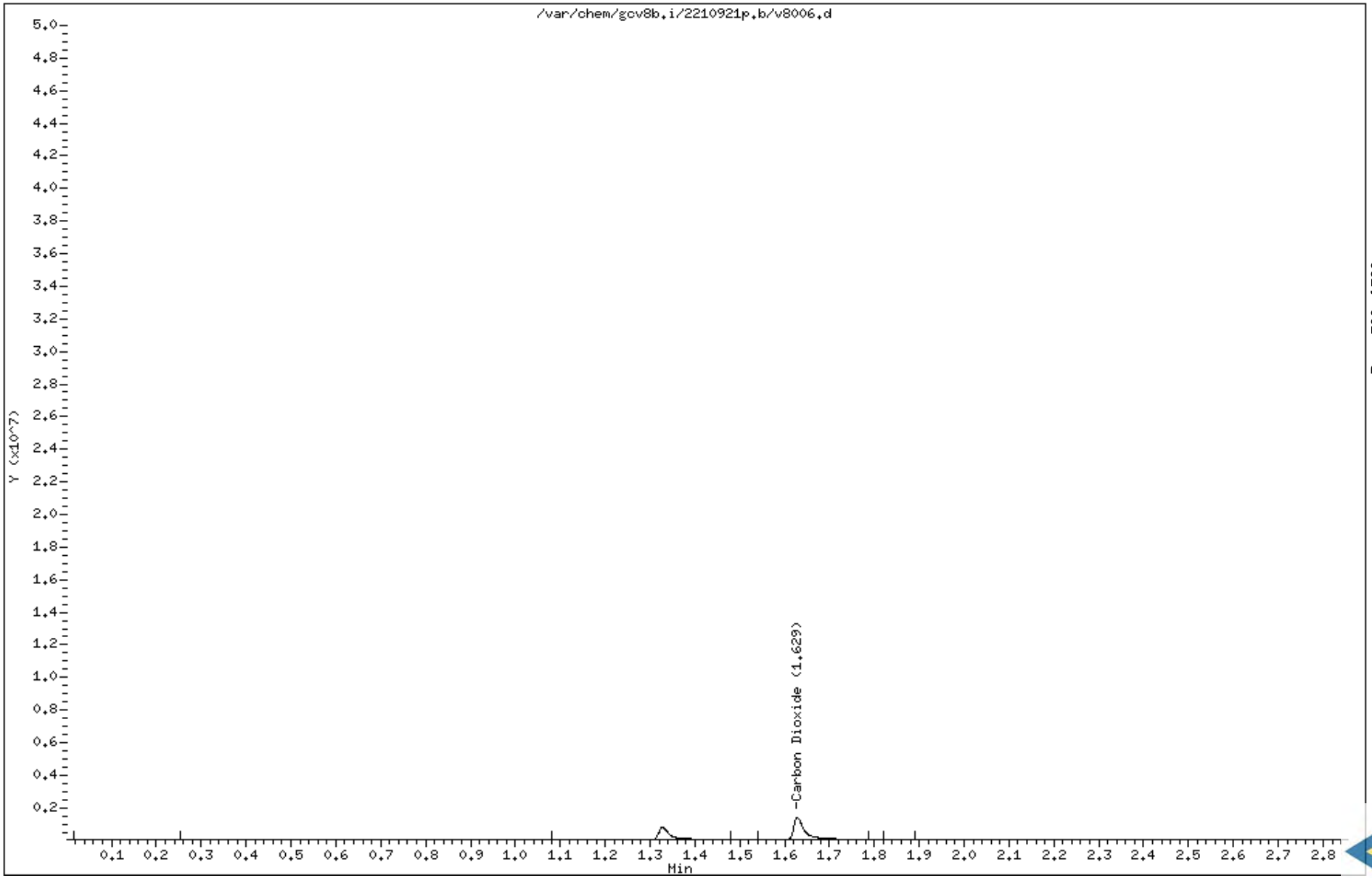
Instrument: gcv8b.i

Sample Info: 1204

Operator: BMR

Column phase: GS-Q-30

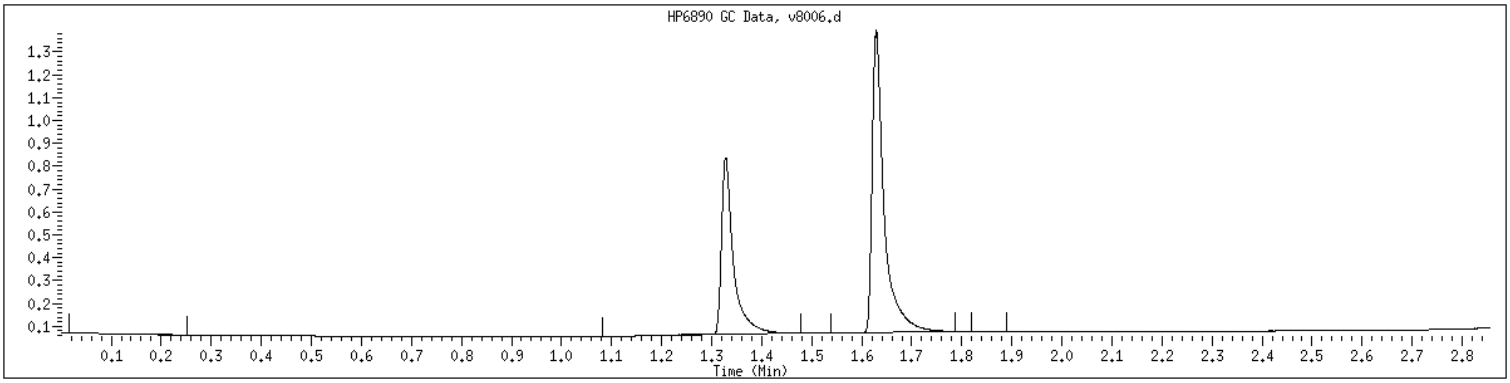
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2210921p.b/v8006.d Page: 1
Report Date: 09/21/2021 15:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1204 SampleType : CALIB_4
Injection Date: 09/21/2021 12:11 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1204
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

Data File: /var/chem/gcv8b.i/2210921p.b/v8007.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8007.d
Lab Smp Id: 1205
Inj Date : 21-SEP-2021 12:18
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1205
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.632	1.632	0.000	54483866	17300.0	18300

Data File: /var/chem/gcv8b.i/2210921p.b/v8007.d

Page 1

Date : 21-SEP-2021 12:18

Client ID:

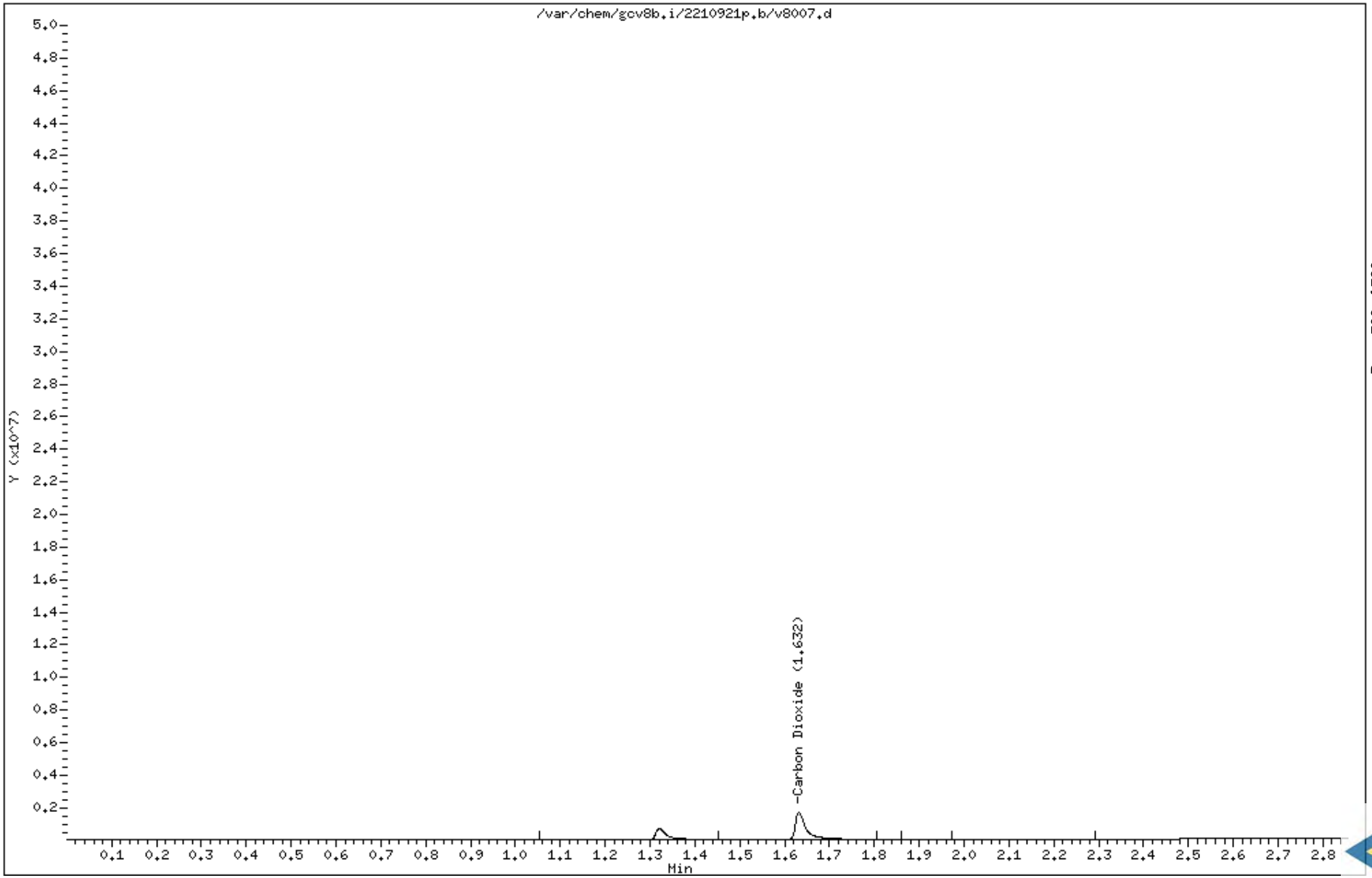
Instrument: gcv8b.i

Sample Info: 1205

Operator: BMR

Column phase: GS-Q-30

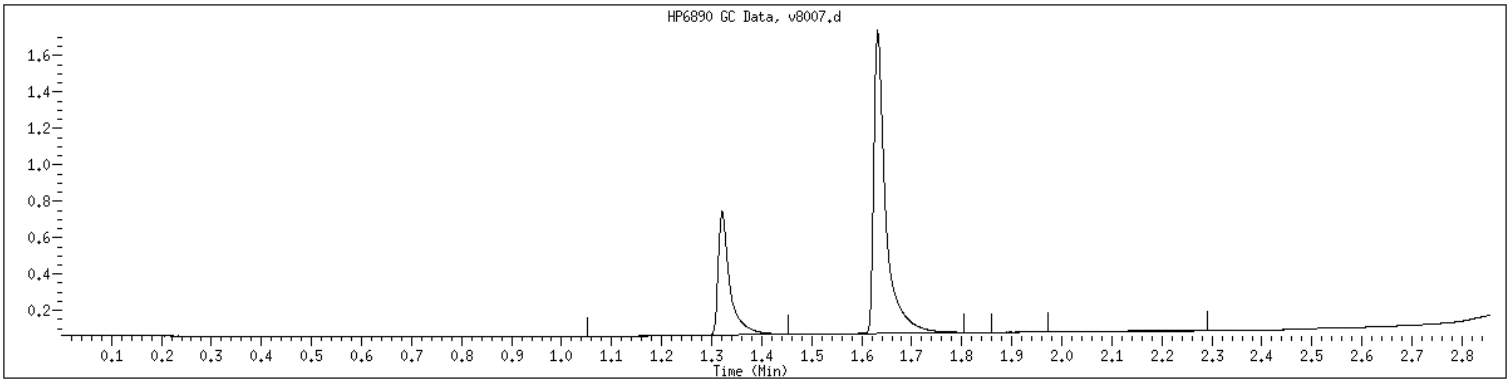
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2210921p.b/v8007.d Page: 1
Report Date: 09/21/2021 15:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1205 SampleType : CALIB_5
Injection Date: 09/21/2021 12:18 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1205
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

Form 6I

ICAL Verifications

6I

ORGANICS INITIAL CALIBRATION VERIFICATION

Report No:	221111777	Instrument ID:	GCV8B
Analysis Date:	09/21/21 1223	Lab File ID:	2210921p/v8008
Analytical Method:		Analytical Batch:	721348

ANALYTE	*UNITS*	*TRUE*	*FOUND*	*%REC*	*LCL*	*UCL*	*Q*
Carbon Dioxide	ug/L	8700	9200	106	80	120	

FORM 6I - ORG

Data File: /var/chem/gcv8b.i/2210921p.b/v8008.d Page 1
Report Date: 21-Sep-2021 15:58

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2210921p.b/v8008.d
Lab Smp Id: 1600
Inj Date : 21-SEP-2021 12:23
Operator : BMR Inst ID: gcv8b.i
Smp Info : 1600
Misc Info : 2125156
Comment :
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Meth Date : 21-Sep-2021 15:58 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Carbon Dioxide	1.641	1.632	0.009	27406998	9201.70	9200

Data File: /var/chem/gcv8b.i/2210921p.b/v8008.d

Page 1

Date : 21-SEP-2021 12:23

Client ID:

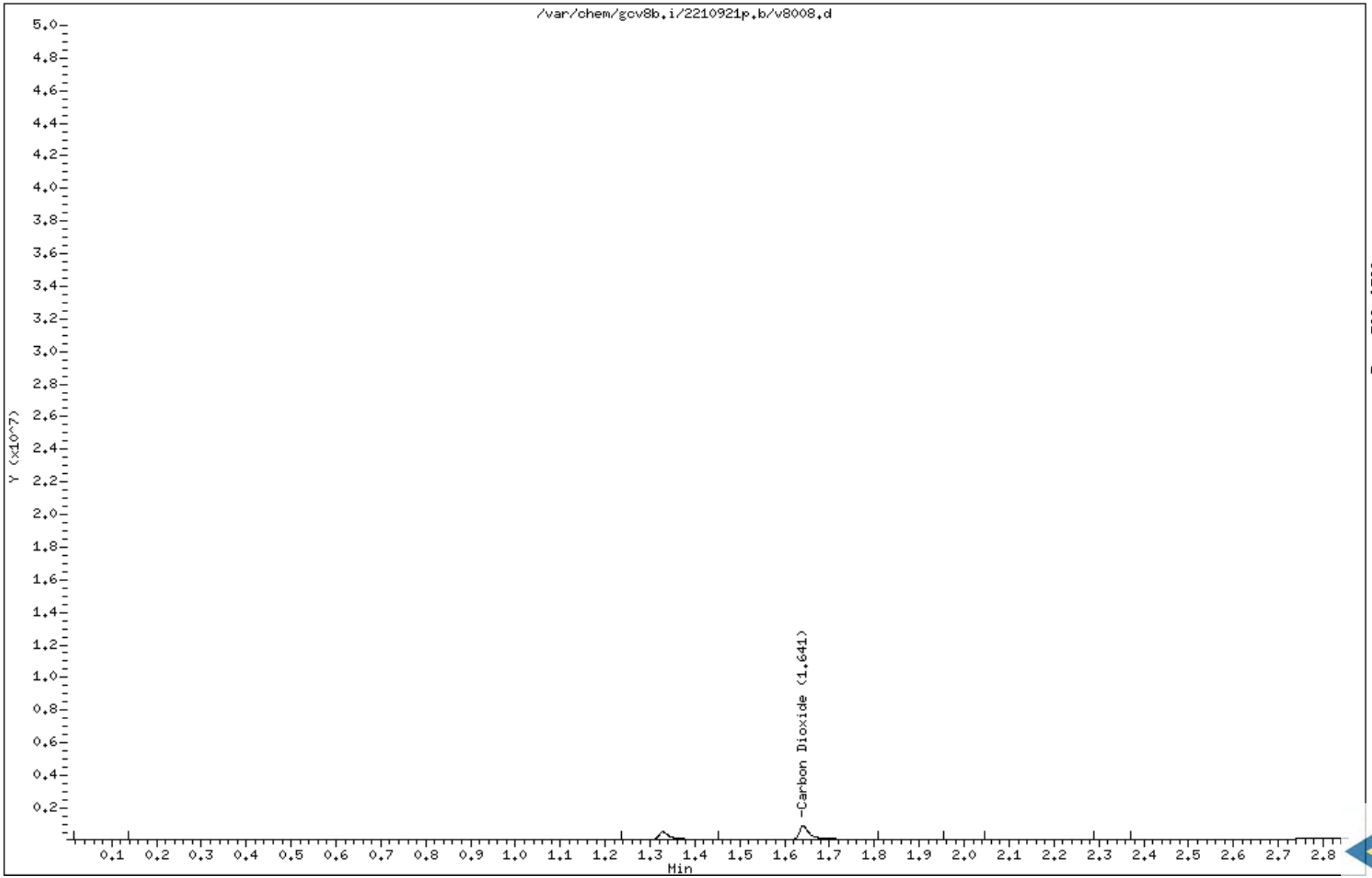
Instrument: gcv8b.i

Sample Info: 1600

Operator: BMR

Column phase: GS-Q-30

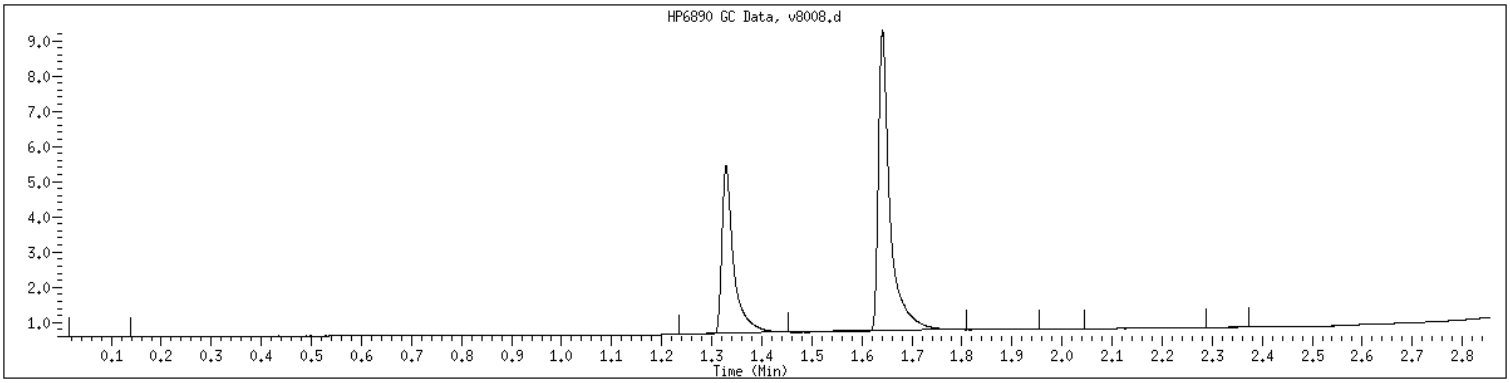
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2210921p.b/v8008.d Page: 1
Report Date: 09/21/2021 15:58

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1600 SampleType : LCS
Injection Date: 09/21/2021 12:23 Instrument : gcv8b.i
Operator : BMR
Sample Info : 1600
Misc Info : 2125156
Method : /var/chem/gcv8b.i/2210921p.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

Form 7E

CCAL Verifications

7E
ORGANICS CONTINUING CALIBRATION CHECK

Report No:	221111777	CCAL ID:	1400
GC Column:	GS-Q-30 ID .53 (mm)	Instrument ID:	GCV8B
Injection Vol.:	1.0 (µL)	Lab File ID:	2211123q/v8001
Init. Calib. Date 1:	09/21/21 Time 1: 1153	Analyst:	JAR
Init. Calib. Date 2:	09/21/21 Time 2: 1218	Analytical Batch:	727709
Analysis Date:	11/23/21 Time: 1730	Analytical Method:	RSK-175

ANALYTE	$\overline{RRF}$	RRF CCV	%D/%Drift	Max %D/ % Drift	TYPE	Q
Carbon Dioxide	2978	2940	1.28	20	A	

FORM V II SV

Data File: /var/chem/gcv8b.i/2211123q.b/v8001.d Page 1
Report Date: 24-Nov-2021 12:46

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8001.d
Lab Smp Id: 1400
Inj Date : 23-NOV-2021 17:30
Operator : JAR Inst ID: gcv8b.i
Smp Info : 1400
Misc Info : 68/30/06/ 68/29/09
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:46 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 50.00000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100-M)/100)5 * CpndVariabl

Name	Value	Description
DF	50.00000	Dilution Factor
Uf	5.00000	ng unit correction factor
Vt	1.00000	Final Volume
Vi	1.00000	Volume Injected
Ws	5.00000	Weight of sample
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.401	1.401	0.000	25405605	8640.00	8530

Data File: /var/chem/gcv8b.i/2211123q.b/v8001.d

Page 1

Date : 23-NOV-2021 17:30

Client ID:

Instrument: gcv8b.i

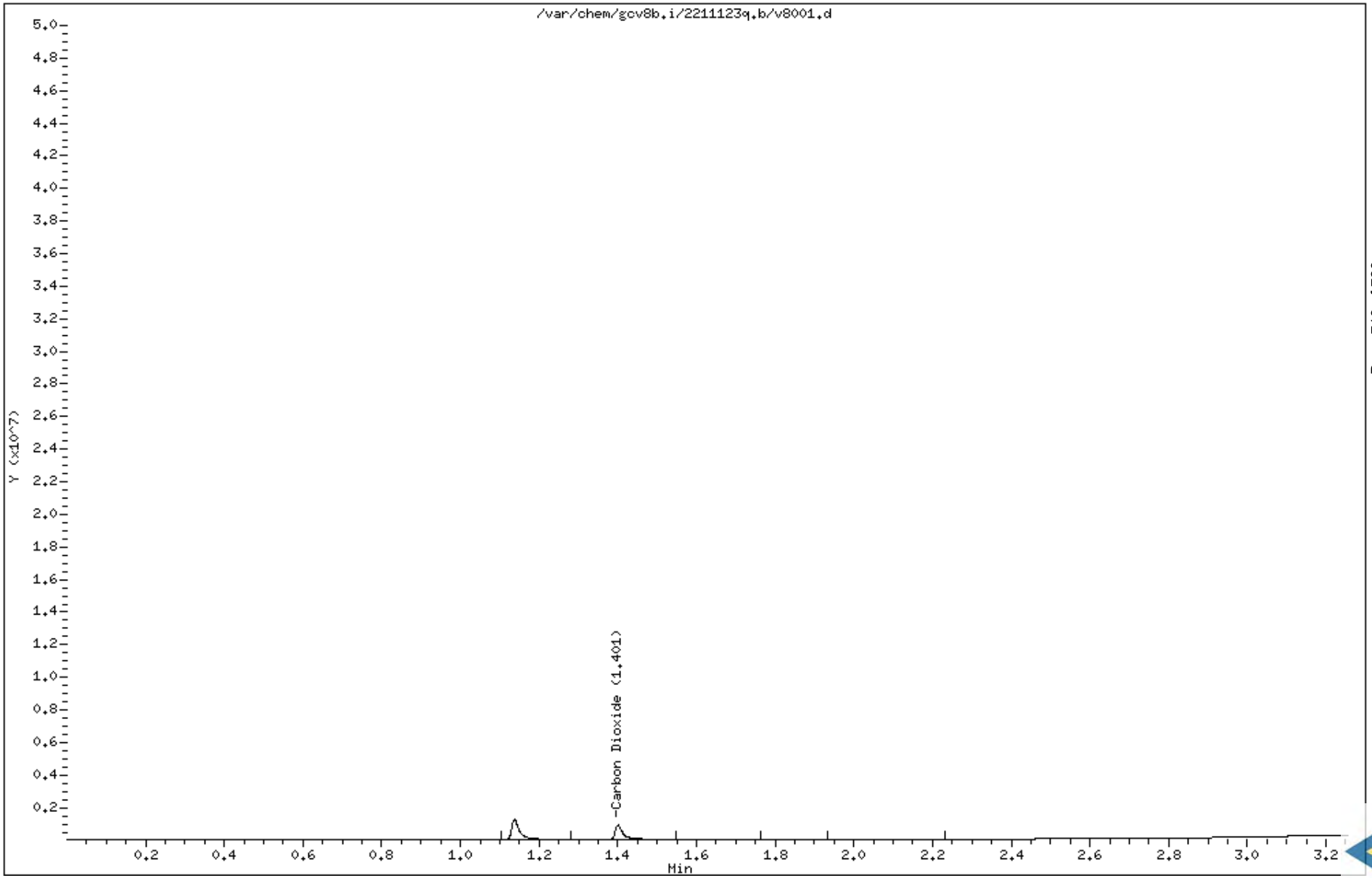
Sample Info: 1400

Volume Injected (uL): 1.0

Operator: JAR

Column phase: GS-Q-30

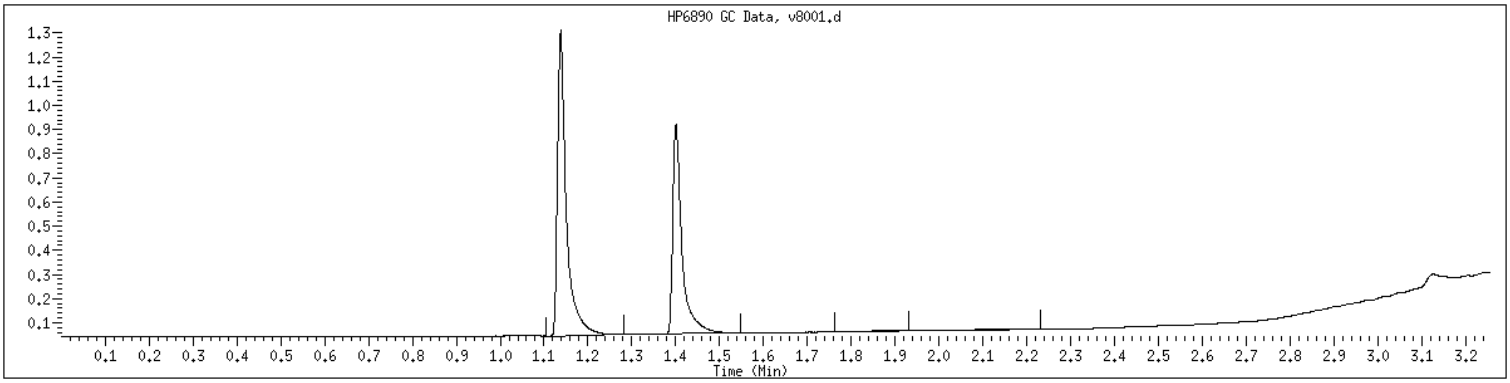
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8001.d Page: 1
Report Date: 11/24/2021 12:46

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1400 SampleType : CCALIB_3
Injection Date: 11/23/2021 17:30 Instrument : gcv8b.i
Operator : JAR
Sample Info : 1400
Misc Info : 68/30/06/ 68/29/09
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 50.0
Matrix : SOIL
Integrator : HP Genie Compound Sublist: all



NO MANUAL INTEGRATIONS

7E
ORGANICS CONTINUING CALIBRATION CHECK

Report No:	221111777	CCAL ID:	1400
GC Column:	GS-Q-30 ID .53 (mm)	Instrument ID:	GCV8B
Injection Vol.:	1.0 (µL)	Lab File ID:	2211123q/v8022
Init. Calib. Date 1:	09/21/21 Time 1: 1153	Analyst:	JAR
Init. Calib. Date 2:	09/21/21 Time 2: 1218	Analytical Batch:	727709
Analysis Date:	11/23/21 Time: 1936	Analytical Method:	RSK-175

ANALYTE	$\overline{RRF}$	RRF CCV	%D/%Drift	Max %D/ % Drift	TYPE	Q
Carbon Dioxide	2978	2922	1.9	20	A	

FORM V II SV

Data File: /var/chem/gcv8b.i/2211123q.b/v8022.d Page 1
Report Date: 24-Nov-2021 12:44

GCAL, Inc.

Data file : /var/chem/gcv8b.i/2211123q.b/v8022.d
Lab Smp Id: 1400
Inj Date : 23-NOV-2021 19:36
Operator : JAR Inst ID: gcv8b.i
Smp Info : 1400
Misc Info : 2125155
Comment :
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Meth Date : 24-Nov-2021 12:44 bmr Quant Type: ESTD
Cal Date : 21-SEP-2021 12:18 Cal File: v8007.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP Genie Compound Sublist: co2.sub
Target Version: 3.50
Processing Host: org.gcal.com

Concentration Formula: Amt * DF * CpndVariable

Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Carbon Dioxide	1.414	1.414	0.000	25245400	8640.00	8480

Data File: /var/chem/gcv8b.i/2211123q.b/v8022.d

Page 1

Date : 23-NOV-2021 19:36

Client ID:

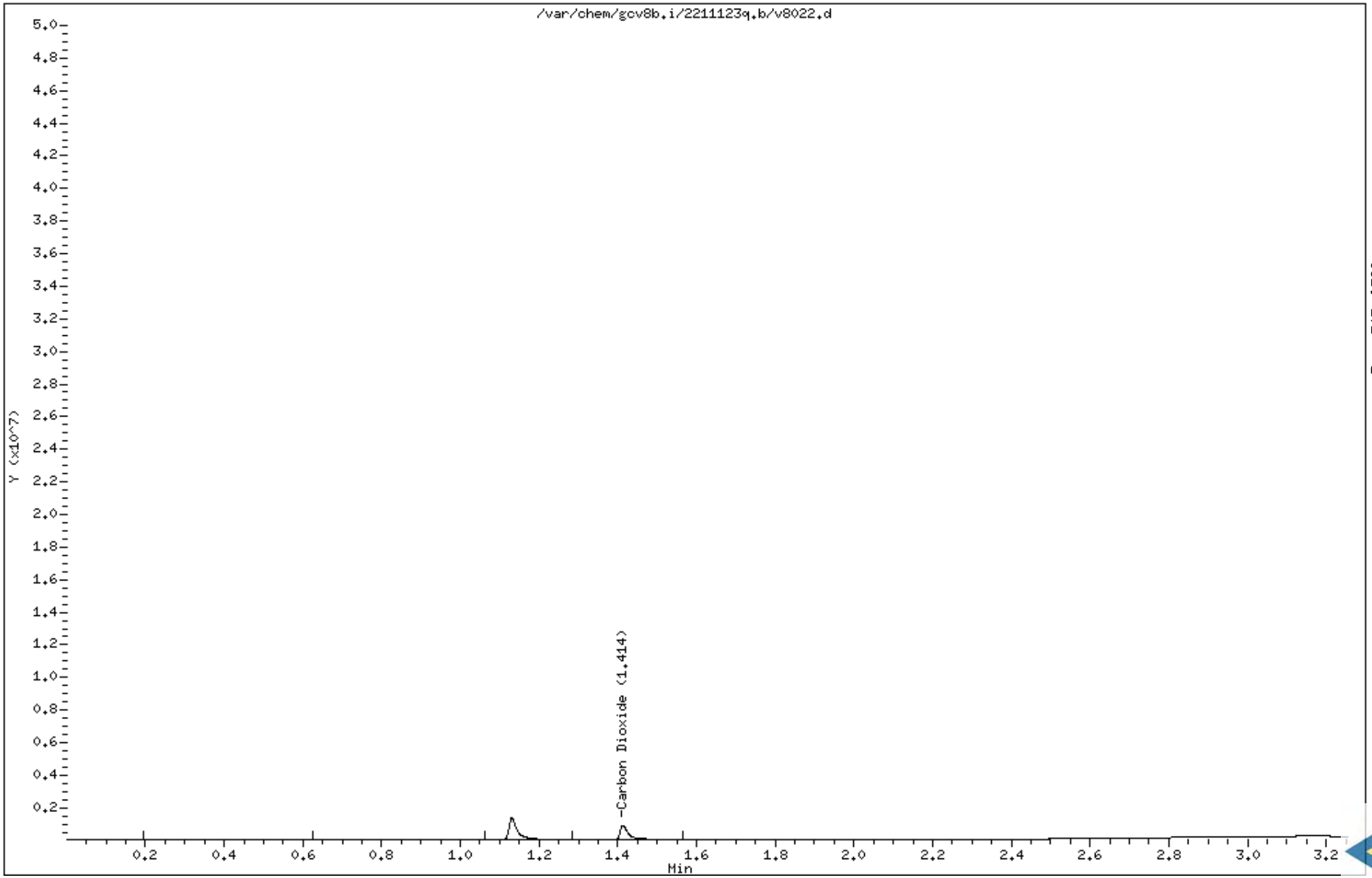
Instrument: gcv8b.i

Sample Info: 1400

Operator: JAR

Column phase: GS-Q-30

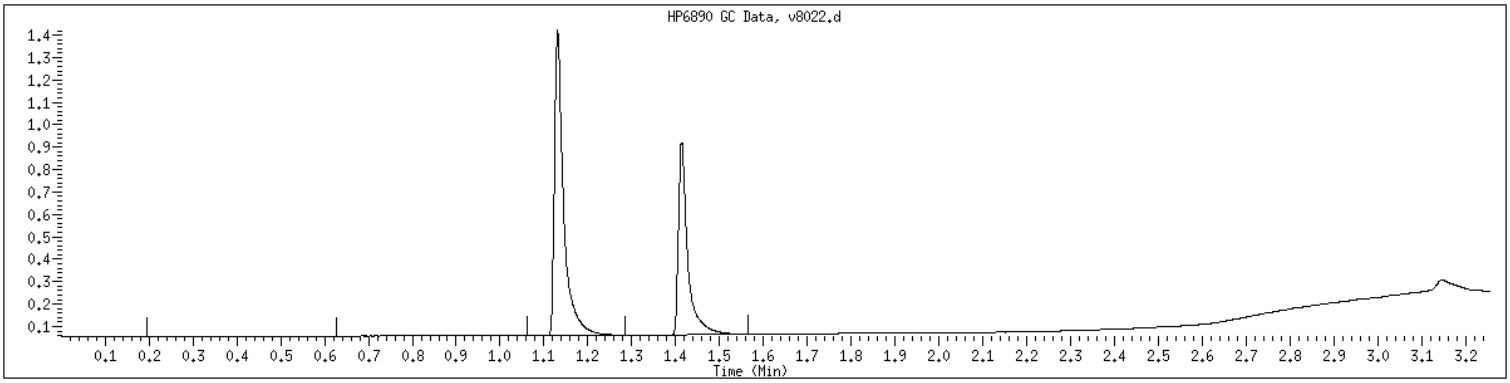
Column diameter: 0.53



Data file : /var/chem/gcv8b.i/2211123q.b/v8022.d Page: 1
Report Date: 11/24/2021 12:44

MANUAL INTEGRATION GRAPHIC REPORT

Lab ID : 1400 SampleType : CCALIB_3
Injection Date: 11/23/2021 19:36 Instrument : gcv8b.i
Operator : JAR
Sample Info : 1400
Misc Info : 2125155
Method : /var/chem/gcv8b.i/2211123q.b/CO2h.m
Dilution : 1.0
Matrix : WATER
Integrator : HP Genie Compound Sublist: co2



NO MANUAL INTEGRATIONS

EPA RSK-175

RunLogs

LABORATORY CHRONICLE: GCV DEPARTMENT

Date: 09/21/2021
Instrument: gcv8b.i
Method File: /var/chem/gcv8b.i/2210921p.b/CO2h.m
Batch: /var/chem/gcv8b.i/2210921p.b
Column-Detector: GS-Q-30

Sample ID	Method	DataFile	Wgt/Vol	Injection Time	Dil	Anal	ALS	Comments
1201	CO2h.m	v8001.d	0.00 ml	21-SEP-2021 11:44	1.0	BMR	1	co2
	CO2h.m	v8002.d	0.00 ml	21-SEP-2021 11:48	1.0	BMR	1	co2
1201	CO2h.m	v8003.d	0.00 ml	21-SEP-2021 11:53	1.0	BMR	1	co2
1202	CO2h.m	v8004.d	0.00 ml	21-SEP-2021 11:58	1.0	BMR	1	co2
1203	CO2h.m	v8005.d	0.00 ml	21-SEP-2021 12:06	1.0	BMR	1	co2
1204	CO2h.m	v8006.d	0.00 ml	21-SEP-2021 12:11	1.0	BMR	1	co2
1205	CO2h.m	v8007.d	0.00 ml	21-SEP-2021 12:18	1.0	BMR	1	co2
1600	CO2h.m	v8008.d	0.00 ml	21-SEP-2021 12:23	1.0	BMR	1	co2
2240651	CO2h.m	v8008L.d	0.00 ml	21-SEP-2021 12:23	1.0	BMR	1	co2
2240652	CO2h.m	v8009.d	0.00 ml	21-SEP-2021 12:30	1.0	BMR	1	co2
2240650	CO2h.m	v8010.d	0.00 ml	21-SEP-2021 12:43	1.0	BMR	1	co2
22109179001	CO2h.m	v8011.d	0.00 ml	21-SEP-2021 13:26	10.0	BMR	1	co2
22109179002	CO2h.m	v8012.d	0.00 ml	21-SEP-2021 13:33	10.0	BMR	1	co2
22109179003	CO2h.m	v8013.d	0.00 ml	21-SEP-2021 13:45	10.0	BMR	1	co2
22109179101	CO2h.m	v8014.d	0.00 ml	21-SEP-2021 13:53	10.0	BMR	1	co2
22109179102	CO2h.m	v8015.d	0.00 ml	21-SEP-2021 13:58	10.0	BMR	1	co2
22109179103	CO2h.m	v8016.d	0.00 ml	21-SEP-2021 14:04	10.0	BMR	1	co2
22109183001	CO2h.m	v8017.d	0.00 ml	21-SEP-2021 14:08	10.0	BMR	1	co2
22109183002	CO2h.m	v8018.d	0.00 ml	21-SEP-2021 14:13	10.0	BMR	1	co2
22109183003	CO2h.m	v8019.d	0.00 ml	21-SEP-2021 14:18	10.0	BMR	1	co2
22109183004	CO2h.m	v8020.d	0.00 ml	21-SEP-2021 14:23	10.0	BMR	1	co2
22109183005	CO2h.m	v8021.d	0.00 ml	21-SEP-2021 14:28	10.0	BMR	1	co2
22109190101	CO2h.m	v8022.d	0.00 ml	21-SEP-2021 14:33	10.0	BMR	1	co2
22109190102	CO2h.m	v8023.d	0.00 ml	21-SEP-2021 14:38	10.0	BMR	1	co2
22109190103	CO2h.m	v8024.d	0.00 ml	21-SEP-2021 14:43	10.0	BMR	1	co2
22109190104	CO2h.m	v8025.d	0.00 ml	21-SEP-2021 14:50	10.0	BMR	1	co2
22109190105	CO2h.m	v8026.d	0.00 ml	21-SEP-2021 14:54	10.0	BMR	1	co2
22109190106	CO2h.m	v8027.d	0.00 ml	21-SEP-2021 15:02	10.0	BMR	1	co2
1400	CO2h.m	v8028.d	0.00 ml	21-SEP-2021 15:07	1.0	BMR	1	co2

LABORATORY CHRONICLE: GCV DEPARTMENT

Date: 11/24/2021
Instrument: gcv8b.i
Method File: /var/chem/gcv8b.i/2211123p.b/CO2h.m
Batch: /var/chem/gcv8b.i/2211123q.b
Column-Detector: GS-Q-30

Sample ID	Method	DataFile	Wgt/Vol	Injection Time	Dil	Anal	ALS	Comments
1400	CO2h.m	v8001.d	5.00 g	23-NOV-2021 17:30	50.0	JAR	1	all
BLK	CO2h.m	v8002.d	0.00 ml	23-NOV-2021 17:37	1.0	JAR	1	co2
LCS	CO2h.m	v8003.d	0.00 ml	23-NOV-2021 17:42	1.0	JAR	1	co2
lcsd	CO2h.m	v8004.d	0.00 ml	23-NOV-2021 17:48	1.0	JAR	1	co2
22111173301	CO2h.m	v8005.d	0.00 ml	23-NOV-2021 18:01	30.0	JAR	1	co2
22111173302	CO2h.m	v8006.d	0.00 ml	23-NOV-2021 18:12	30.0	JAR	1	co2
22111173303	CO2h.m	v8007.d	0.00 ml	23-NOV-2021 18:17	30.0	JAR	1	co2
22111173304	CO2h.m	v8008.d	0.00 ml	23-NOV-2021 18:22	30.0	JAR	1	co2
22111173305	CO2h.m	v8009.d	0.00 ml	23-NOV-2021 18:28	30.0	JAR	1	co2
22111173306	CO2h.m	v8010.d	0.00 ml	23-NOV-2021 18:33	30.0	JAR	1	co2
22111173307	CO2h.m	v8011.d	0.00 ml	23-NOV-2021 18:38	30.0	JAR	1	co2
22111173308	CO2h.m	v8012.d	0.00 ml	23-NOV-2021 18:43	30.0	JAR	1	co2
22111177601	CO2h.m	v8013.d	0.00 ml	23-NOV-2021 18:48	1.0	JAR	1	co2
22111177701	CO2h.m	v8014.d	0.00 ml	23-NOV-2021 18:54	1.0	JAR	1	co2
22111177701	CO2h.m	v8015.d	0.00 ml	23-NOV-2021 18:59	50.0	JAR	1	co2
22111177701	CO2h.m	v8016.d	0.00 ml	23-NOV-2021 19:04	50.0	JAR	1	co2
22111177703	CO2h.m	v8017.d	0.00 ml	23-NOV-2021 19:09	50.0	JAR	1	all
22111177702	CO2h.m	v8018.d	0.00 ml	23-NOV-2021 19:14	50.0	JAR	1	co2
22111177703	CO2h.m	v8019.d	0.00 ml	23-NOV-2021 19:19	1.0	JAR	1	co2
22111177704	CO2h.m	v8020.d	0.00 ml	23-NOV-2021 19:25	50.0	JAR	1	co2
22111177705	CO2h.m	v8021.d	0.00 ml	23-NOV-2021 19:30	50.0	JAR	1	co2
1400	CO2h.m	v8022.d	0.00 ml	23-NOV-2021 19:36	1.0	JAR	1	co2

Client ID: ALS Houston - ALS Environmental - Houston, TX
SDG: 221111777
PM: RWe

F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 17377**

SUBCONTRACT TO:

Pace Analytical
7979 Innovation Park Drive
Baton Rouge, LA 70820

Phone: +1 225 769 4900

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Ragen Giga
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RagenP.Giga@ALSGlobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21110813
TSR: Ron Martino

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS21110813-13**	**67WW08-211111**	**GW**	**11 Nov 2021 08:45** -1,2,3
	XXX SUB			30 Nov 2021
2.	**HS21110813-15**	**67WW13-211111**	**GW**	**11 Nov 2021 10:25** -4
	XXX SUB			30 Nov 2021
3.	**HS21110813-16**	**67WW13-211111-FD**	**GW**	**11 Nov 2021 10:25** -5
	XXX SUB			30 Nov 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
67WW08-211111 has extra volume for MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: [signature] Date/Time: 11/15/2021 1800.
Received By: ~~FedEx~~ JH Date/Time: ~~11/16/21~~ JH
REL. Cooler ID(s): FedEx Temperature(s): 11/16/21 1157
Received: [signature] 11-16-21 1157

RIGHT SOLUTIONS | RIGHT PARTNER

0.2 E38 5300 5224 9662

Pace Analytical®

SAMPLE RECEIVING CHECKLIST

221111777

SAMPLE DELIVERY GROUP 221111777	
Client **PM** RWe ALS Houston - ALS Environmental - Houston, TX	**Transport Method** FEDEX
Profile Number 294923	**Received By** McCune, Dodie N.
Line Item(s) 1 - CO2	**Receive Date(s)** 11/16/21

CHECKLIST	YES	NO
Samples received with proper thermal preservation?	☑	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐
COC relinquished and complete (including sampleIDs, collect times, and sampler)?	☑	☐
All containers received in good condition and within hold time?	☑	☐
All sample labels and containers received match the chain of custody?	☑	☐
Preservative added to any containers?	☐	☑
If received, was headspace for VOC water containers < 6mm?	☑	☐
Samples collected in containers provided by Pace Gulf Coast?	☑	☐

COOLERS

Airbill	Thermometer ID: E38	Temp °C
530052249662		0.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

Appendix D

Photographic Log

PHOTO LOG

Photo No.	Date	Task and Description
1	11-11-2021	Well Inspection, 67WW01
2	11-10-2021	Well Inspection, 67WW02
3	11-10-2021	Well Inspection, 67WW03
4	11-11-2021	Well Inspection, 67WW04
5	11-10-2021	Well Inspection, 67WW05
6	11-10-2021	Well Inspection, 67WW06
7	11-10-2021	Well Inspection, 67WW07
8	11-11-2021	Well Inspection, 67WW08
9	11-11-2021	Well Inspection, 67WW09
10	11-10-2021	Well Inspection, 67WW09A
11	11-10-2021	Well Inspection, 67WW10
12	11-11-2021	Well Inspection, 67WW11
13	11-10-2021	Well Inspection, 67WW12
14	11-11-2021	Well Inspection, 67WW13
15	11-10-2021	Well Inspection, 67WW14
16	11-11-2021	Well Inspection, 67WW15
17	11-11-2021	Well Inspection, 67WW16I
18	11-10-2021	Well Inspection, 67WW17
19	11-10-2021	Well Inspection, 67WW18

PHOTO 1: Well Inspection, 67WW01
DATE: November 11, 2021

PHOTO 2: Well Inspection, 67WW02
DATE: November 10, 2021

PHOTO 3: Well Inspection, 67WW03
DATE: November 10, 2021

PHOTO 4: Well Inspection, 67WW04
DATE: November 11, 2021

PHOTO 5: Well Inspection, 67WW05
DATE: November 10, 2021

PHOTO 6: Well Inspection, 67WW06
DATE: November 10, 2021

PHOTO 7: Well Inspection, 67WW07
DATE: November 10, 2021

PHOTO 8: Well Inspection, 67WW08
DATE: November 11, 2021

PHOTO 9: Well Inspection, 67WW09
DATE: November 11, 2021

PHOTO 10: Well Inspection, 67WW09A
DATE: November 10, 2021

PHOTO 11: Well Inspection, 67WW10
DATE: November 10, 2021

PHOTO 12: Well Inspection, 67WW11
DATE: November 11, 2021

PHOTO 13: Well Inspection, 67WW12
DATE: November 10, 2021

PHOTO 14: Well Inspection, 67WW13
DATE: November 11, 2021

PHOTO 15: Well Inspection, 67WW14
DATE: November 10, 2021

PHOTO 16: Well Inspection, 67WW15
DATE: November 11, 2021

PHOTO 17: Well Inspection, 67WW16I
DATE: November 11, 2021

PHOTO 18: Well Inspection, 67WW17
DATE: November 10, 2021

PHOTO 19: Well Inspection, 67WW18
DATE: November 10, 2021

Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

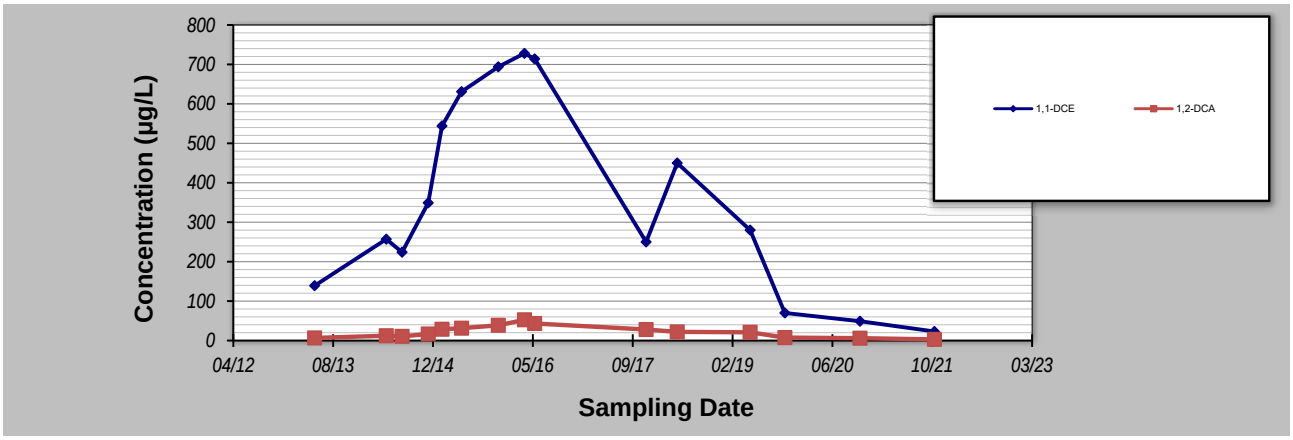
Appendix E

Mann-Kendall Trend Test Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	1-Mar-22	Job ID:	501032
Facility Name:	LHAAP-67	Constituent:	67WW01
Conducted By:	Robert Mayer	Concentration Units:	µg/L

Sampling Point ID:		1,1-DCE	1,2-DCA					
Sampling Event	Sampling Date	67WW01 CONCENTRATION (µg/L)						
1	13-May-13	139	6.7					
2	7-May-14	257	12					
3	25-Jul-14	224	11					
4	3-Dec-14	349	17					
5	10-Feb-15	544	29					
6	19-May-15	631	31					
7	19-Nov-15	694	39					
8	29-Mar-16	728	53					
9	19-May-16	714	43					
10	28-Nov-17	250	28					
11	3-May-18	450	22					
12	3-May-19	280	21					
13	24-Oct-19	70	7.6					
14	3-Nov-20	49	6.1					
15	11-Nov-21	23	3.0					
16								
17								
18								
19								
20								
Coefficient of Variation:		0.70	0.68					
Mann-Kendall Statistic (S):		-15	-11					
Confidence Factor:		75.2%	68.7%					
Concentration Trend:		Stable	Stable					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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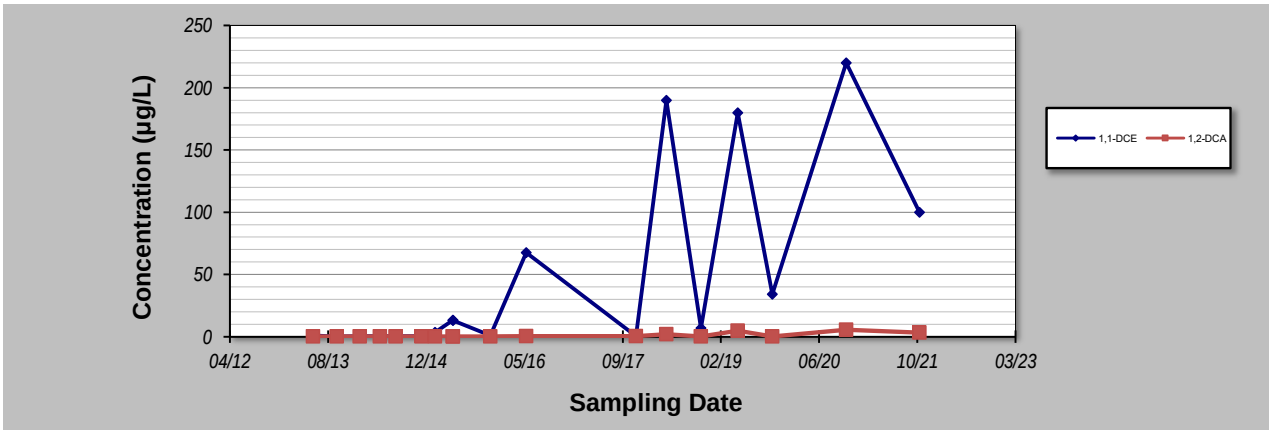
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	1-Mar-22	Job ID:	501032
Facility Name:	LHAAP-67	Constituent:	67WW02
Conducted By:	Robert Mayer	Concentration Units:	µg/L

Sampling Point ID:		1,1-DCE	1,2-DCA					
Sampling Event	Sampling Date	67WW02 CONCENTRATION (µg/L)						
1	31-May-13	1.0	0.25					
2	27-Sep-13	0.25	0.25					
3	23-Jan-14	0.5	0.25					
4	6-May-14	0.5	0.25					
5	24-Jul-14	0.5	0.25					
6	3-Dec-14	0.5	0.25					
7	10-Feb-15	3.59	0.25					
8	12-May-15	13.2	0.25					
9	12-May-15	13	0.25					
10	19-Nov-15	0.86	0.25					
11	19-May-16	68	0.377					
12	28-Nov-17	0.5	0.5					
13	3-May-18	190	2					
14	25-Oct-18	6.9	0.25					
15	1-May-19	180	4.7					
16	24-Oct-19	34	0.25					
17	3-Nov-20	220	5.5					
18	11-Nov-21	100	3.2					
19								
20								
Coefficient of Variation:		1.61	1.55					
Mann-Kendall Statistic (S):		89	69					
Confidence Factor:		>99.9%	99.6%					
Concentration Trend:		Increasing	Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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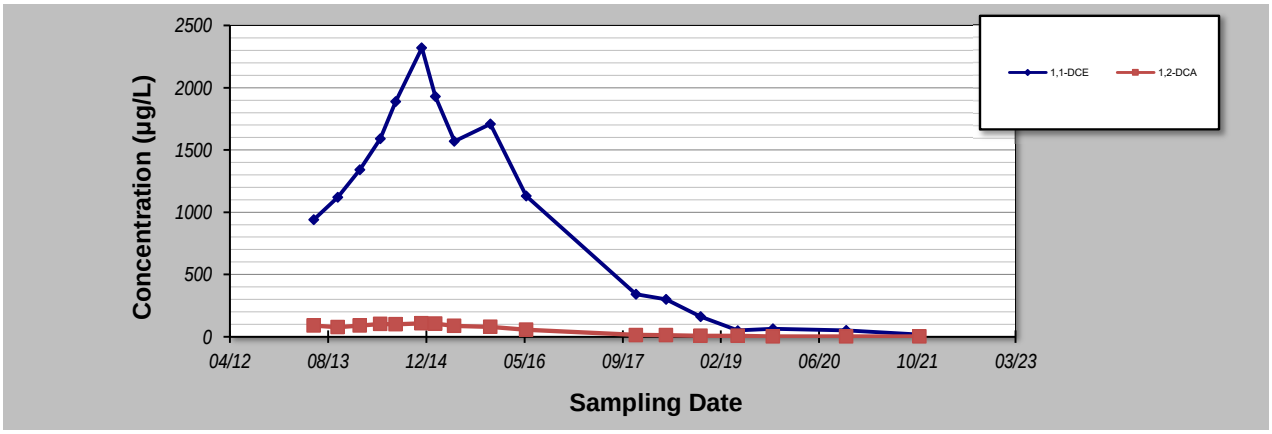
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 1-Mar-22
Facility Name: LHAAP-67
Conducted By: Robert Mayer

Job ID: 501032
Constituent: 67WW08
Concentration Units: µg/L

Sampling Point ID:		1,1-DCE	1,2-DCA					
Sampling Event	Sampling Date	67WW08 CONCENTRATION (µg/L)						
1	3-Jun-13	940	89.2					
2	2-Oct-13	1,120	76.5					
3	23-Jan-14	1,340	89.9					
4	7-May-14	1,590	101					
5	24-Jul-14	1,890	98.9					
6	4-Dec-14	2,320	106					
7	11-Feb-15	1,930	104					
8	19-May-15	1,570	85.6					
9	19-Nov-15	1,710	77.6					
10	19-May-16	1,130	56.1					
11	28-Nov-17	340	13					
12	1-May-18	300	11					
13	23-Oct-18	160	6.5					
14	1-May-19	49	6.1					
15	27-Oct-19	63	2.3					
16	3-Nov-20	50	1.6					
17	11-Nov-21	18	0.67					
18								
19								
20								
Coefficient of Variation:		0.81	0.80					
Mann-Kendall Statistic (S):		-72	-96					
Confidence Factor:		99.9%	>99.9%					
Concentration Trend:		Decreasing	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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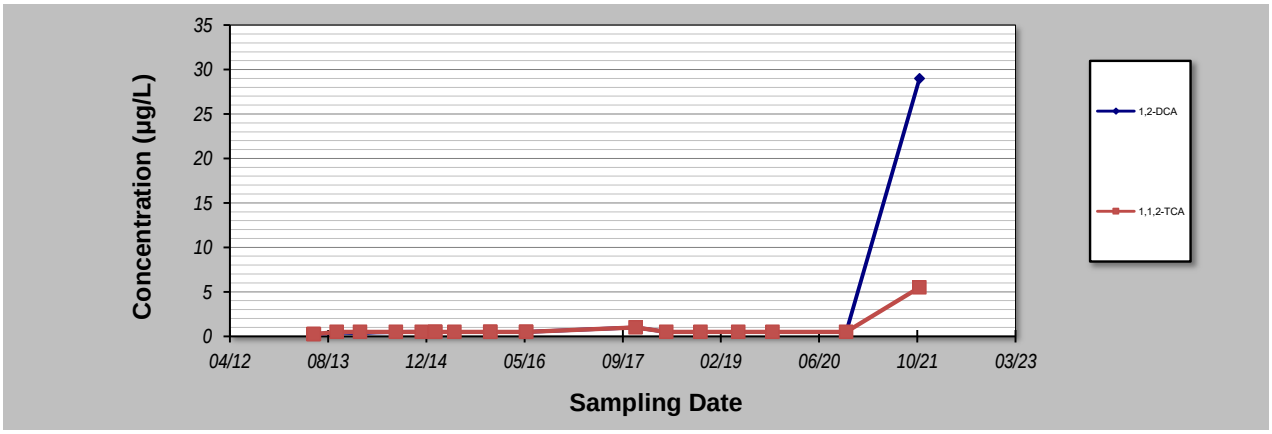
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 1-Mar-22
Facility Name: LHAAP-67
Conducted By: Robert Mayer

Job ID: 501032
Constituent: 67WW09
Concentration Units: µg/L

Sampling Point ID:		1,2-DCA	1,1,2-TCA					
Sampling Event	Sampling Date	67WW09 CONCENTRATION (µg/L)						
1	1-Jun-13	0.25	0.25					
2	3-Jun-13	0.25	0.25					
3	28-Sep-13	0.414	0.5					
4	24-Jan-14	0.347	0.5					
5	25-Jul-14	0.5	0.5					
6	4-Dec-14	0.5	0.5					
7	11-Feb-15	0.5	0.5					
8	11-Feb-15	0.5	0.5					
9	19-May-15	0.5	0.5					
10	18-Nov-15	0.5	0.5					
11	18-Nov-15	0.5	0.5					
12	18-May-16	0.5	0.5					
13	18-May-16	0.5	0.5					
14	27-Nov-17	1	1					
15	2-May-18	0.5	0.5					
16	23-Oct-18	0.5	0.5					
17	3-May-19	0.5	0.5					
18	24-Oct-19	0.5	0.5					
19	3-Nov-20	0.5	0.5					
20	11-Nov-21	29	5.5					
21								
22								
23								
24								
25								
Coefficient of Variation:		3.33	1.50					
Mann-Kendall Statistic (S):		86	59					
Confidence Factor:		99.8%	97.1%					
Concentration Trend:		Increasing	Increasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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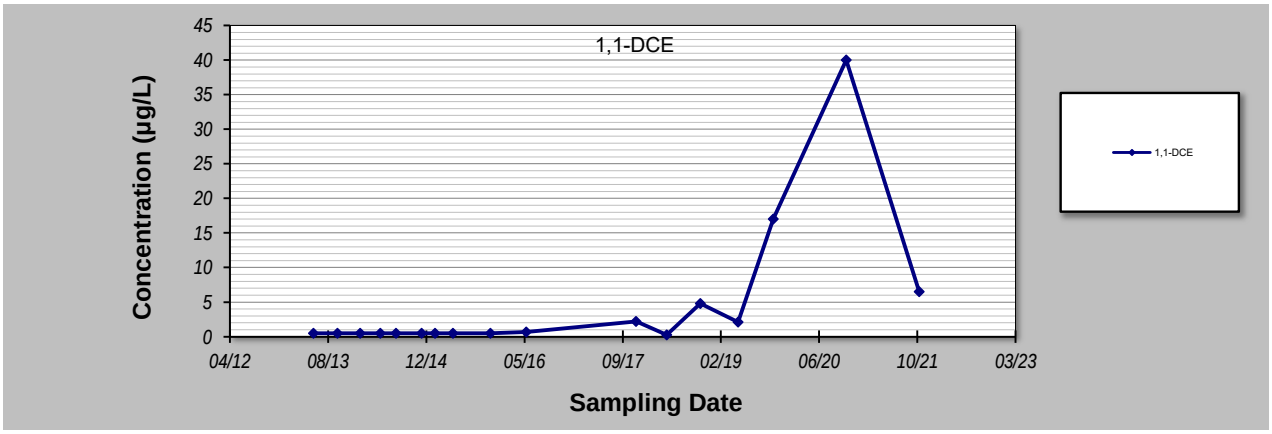
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 1-Mar-22
Facility Name: LHAAP-67
Conducted By: Robert Mayer

Job ID: 501032
Constituent: 67WW12
Concentration Units: µg/L

Sampling Point ID: 1,1-DCE

Sampling Event	Sampling Date	67WW12 CONCENTRATION (µg/L)						
1	1-Jun-13	0.5						
2	1-Oct-13	0.5						
3	24-Jan-14	0.5						
4	6-May-14	0.5						
5	25-Jul-14	0.5						
6	3-Dec-14	0.5						
7	10-Feb-15	0.5						
8	12-May-15	0.5						
9	18-Nov-15	0.5						
10	18-May-16	0.681						
11	29-Nov-17	2.2						
12	3-May-18	0.25						
13	22-Oct-18	4.8						
14	2-May-19	2.1						
15	28-Oct-19	17						
16	3-Nov-20	40						
17	10-Nov-21	6.5						
18								
19								
20								
Coefficient of Variation:		2.18						
Mann-Kendall Statistic (S):		70						
Confidence Factor:		99.8%						
Concentration Trend:		Increasing						



Notes:

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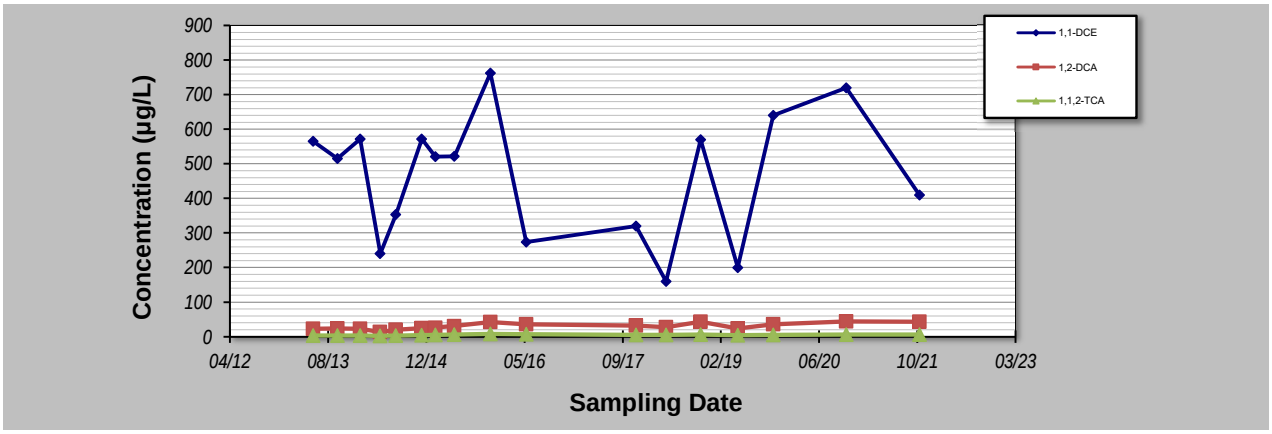
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 1-Mar-22
Facility Name: LHAAP-67
Conducted By: Robert Mayer

Job ID: 501032
Constituent: 67WW13
Concentration Units: µg/L

Sampling Point ID:		1,1-DCE	1,2-DCA	1,1,2-TCA				
Sampling Event	Sampling Date	67WW13 CONCENTRATION (µg/L)						
1	31-May-13	565	23.1	2.91				
2	1-Oct-13	515	23.8	3.37				
3	24-Jan-14	572	22.9	2.99				
4	6-May-14	240	13.7	1.99				
5	25-Jul-14	353	19.8	3.48				
6	4-Dec-14	572	24.9	4.4				
7	11-Feb-15	521	26	4.87				
8	19-May-15	522	30.6	5.96				
9	18-Nov-15	762	42.6	7.66				
10	19-May-16	274	35.7	7				
11	28-Nov-17	320	32	5.1				
12	1-May-18	160	27	4.8				
13	23-Oct-18	570	43	6.1				
14	1-May-19	200	24	3.9				
15	28-Oct-19	640	36	5				
16	3-Nov-20	720	44	5.7				
17	11-Nov-21	410	43	5.9				
18								
19								
20								
Coefficient of Variation:		0.39	0.31	0.32				
Mann-Kendall Statistic (S):		1	83	64				
Confidence Factor:		50.0%	>99.9%	99.6%				
Concentration Trend:		No Trend	Increasing	Increasing				



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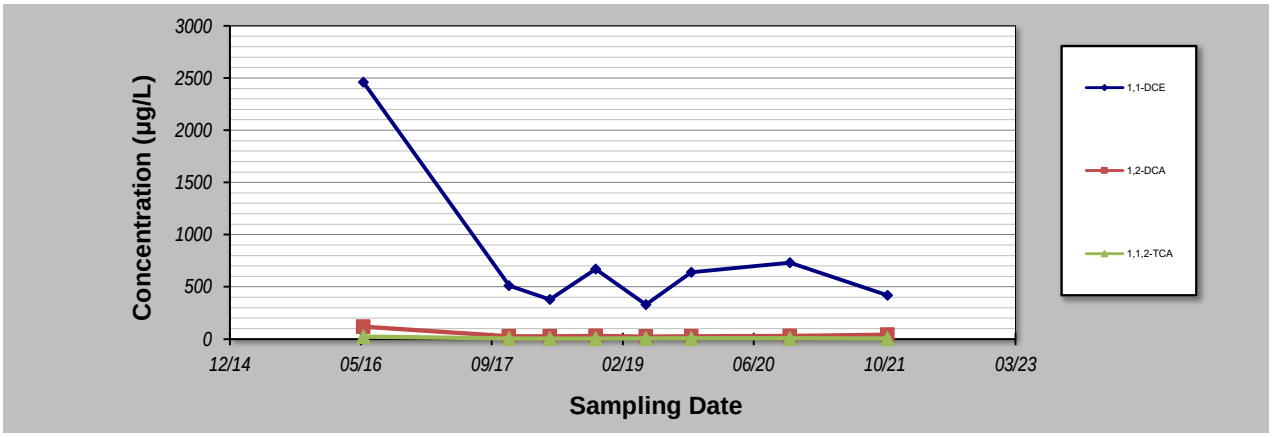
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	1-Mar-22	Job ID:	501032
Facility Name:	LHAAP-67	Constituent:	67WW15
Conducted By:	Robert Mayer	Concentration Units:	µg/L

Sampling Point ID:		1,1-DCE	1,2-DCA	1,1,2-TCA				
Sampling Event	Sampling Date	67WW15 CONCENTRATION (µg/L)						
1	19-May-16	2,460	117	22.7				
2	27-Nov-17	510	27	5.6				
3	2-May-18	380	26	5.6				
4	23-Oct-18	670	30	6.0				
5	3-May-19	330	22	5.4				
6	24-Oct-19	640	27	6.4				
7	3-Nov-20	730	29	6.4				
8	11-Nov-21	420	43	5.7				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.91	0.79	0.75				
Mann-Kendall Statistic (S):		-4	1	0				
Confidence Factor:		64.0%	50.0%	45.2%				
Concentration Trend:		Stable	No Trend	Stable				



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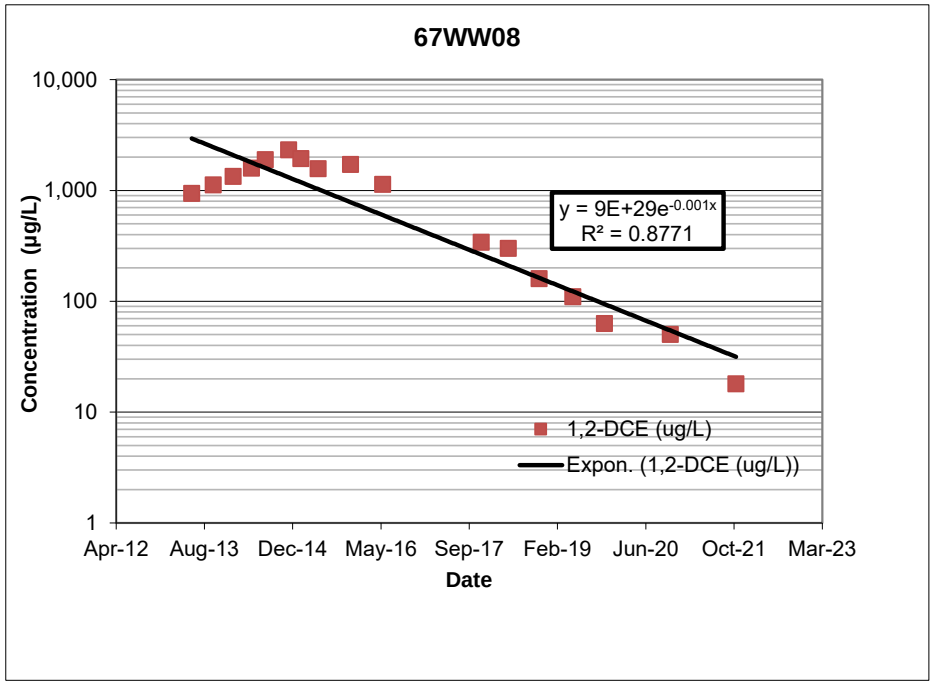
Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Final • Rev 0 • July 2022

Appendix F

Regression Analysis

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
67WW08

Date	1,1-DCE (µg/L)
3-Jun-13	940
2-Oct-13	1,120
23-Jan-14	1,340
7-May-14	1,590
24-Jul-14	1,890
4-Dec-14	2,320
11-Feb-15	1,930
19-May-15	1,570
19-Nov-15	1,710
19-May-16	1,130
28-Nov-17	340
1-May-18	300
23-Oct-18	160
1-May-19	110
27-Oct-19	63
3-Nov-20	50
11-Nov-21	18



Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
1,1-DCE	0.0010	693.1	1.9	18	7	2.6

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected COC concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

µg/L - micrograms per liter

DCA - dichloroethane

DCE - dichloroethene

MCL - maximum contaminant level

NA - not applicable because the concentration is below the Target Concentration

Subject: **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting: **Karnack Community Center**
Date of Meeting: **22 June 2022 – 2:00 PM Central Daylight Time (CDT)**

Attendees:

Army BRAC:	Rose M. Zeiler (RMZ)
USEPA:	Brian Follin (BF) and Chris Braun with United States Geological Survey (USGS) in support of the USEPA
USAEC:	Lena Sierocinski and Michael Bowlby (MB)
TCEQ:	April Palmie (AP) – via telephone
USACE:	Aaron Williams (AW)
USFWS:	Paul Bruckwicki (PB)
Bhate:	Kim Nemmers, Scott Beesinger (SB), and Zack Beck (ZB)
APTIM:	William Foss (WF)
HDR:	Phil Werner (PW) and Amita Patel

Defense Environmental Restoration Program (DERP) Performance-Based Remediation Update

- Open action item for Bhate/APTIM is to prepare the Updated 2022 Sampling Plan for regulatory concurrence. WF said that the monitoring programs in the Technical Memorandum for Proposed Revisions to the LHAAP-04 and LHAAP-16 Remedial Action Operation (RA-O) was submitted and approved by Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) on 10 June 2022. A Draft Final of the Technical Memorandum will be produced to address TCEQ's comments.

Groundwater Treatment Plant (GWTP) – SB stated that the GWTP is mostly operating normally. On 21 June 2022 additional granular activated carbon was added to the fluidized bed reactor (FBR) to raise the carbon bed height to the recommended level. ZB said that the weekly perchlorate samples collected after the FBR have been relatively consistent at approximately 25 micrograms per liter (µg/L). SB stated that the treated groundwater continues to go through the ion exchange vessel before discharge to Harrison Bayou. ZB said that weekly perchlorate samples are also being collected between the ion exchange vessels to confirm adequate treatment prior to discharge to the Harrison Bayou given the reduced treatment efficiency by the FBR.

Field Work – ZB stated that the semiannual sampling event at LHAAP-58 was completed in June 2022. ZB said that the Year 3 1st semiannual, RA-O sampling event for LHAAP-16 was currently being conducted with completion expected at the end of June or early July 2022. WF said that in addition to the Year 3 semiannual sampling event, samples were being collected at LHAAP-16 for metals analysis to support the upcoming Five-Year Review.

ZB asked everyone to refer to the Document and Issues (DI) Tracking Table dated 22 June 2022.

- **Task 1** (Project Management) – ZB said that the May 2022 Monthly Manager's Meeting (MMM) minutes were issued Final on 31 May 2022. ZB said that the April 2022 MMM minutes were still awaiting USEPA review and concurrence. ZB said that TCEQ has provided approval of the April 2022 MMM minutes via email. ZB said that the next MMM is scheduled for 20 July 2022 via conference call.
- **Task 4** (LHAAP-04) – WF stated that the Draft Second Annual, RA-O Report was submitted for regulatory review on 2 June 2022. WF said that the Year 3 2nd semiannual

RA-O Sampling Event is scheduled for August 2022. WF said that the technical memorandum prepared to propose revisions to the sampling network at both LHAAP-04 and LHAAP-16 has received regulatory approval of the monitoring network changes.

- **Task 5** (LHAAP-12) – WF said that the Draft 2021 Annual RA-O Report was submitted to the Regulators on 3 May 2022. WF said that comments were received from the USEPA on 2 June 2022. WF added that TCEQ completed review and provided an email stating no additional comment on 15 June 2022.
- **Task 6** (LHAAP-16) – WF said that the Year 3 1st Semiannual RA-O Sampling Event is currently being completed in June 2022. WF said that the validated data would be presented at the August 2022 MMM. WF said that the Year 2 RA-O Report is in progress with a delivery date to the regulators of July 2022.
- **Task 9** (LHAAP-37) – WF said that the Year 5 Second Semi-Annual sampling was completed in May 2022 with the validated data to be presented at the July 2022 MMM.
- **Task 10** (LHAAP-46) – WF said that the Year 7 RA-O Report has gone Final with approvals of the Draft Final received from TCEQ and USEPA in February 2022 and is being incorporated in the Administrative Record (AR).
- **Task 11** (LHAAP-50) **–** WF stated the Year 2 Quarter 4 sampling was completed in April 2022. The validated data for the April 2022 event is included in the June 2022 MMM validated data package. WF presented a summary of the Year 2 Quarter 4 analytical results. WF discussed the perchlorate results at 50WW12 which remain elevated. WF said that the Year 7 RA-O Report has gone Final on 1 April 2022 with no comments received on the Draft Final document.
- **Task 12** (LHAAP-58) – ZB stated that the Year 8 2nd Semiannual event for LHAAP-58 was completed in early June 2022. The validated data for the June 2022 semiannual sampling event will be included in the August 2022 MMM. ZB said that the LHAAP-58 Year 8 RA-O Report will follow.
- **Task 13** (LHAAP-67) – WF stated that the Draft Year 8 Annual RA-O Report was transmitted for regulatory review on 3 May 2022. WF said that USEPA provided comment on 6 June 2022. WF added that TCEQ completed review and provided an email stating no additional comment on 15 June 2022.
- **Task 14** (LHAAP-001-R-01 and LHAAP-003-R-01) – ZB said that no current activities under the performance base remediation contract are ongoing, however, continued inspections will be included under the upcoming contract modification.
- **Task 16** (GWTP) **–** ZB said that the Draft 4th Quarter 2021 GWTP Report was submitted for regulatory review on 25 May 2022. ZB said that the 1st Quarter 2022 GWTP Report is under preparation as well and is expected to be ready for regulatory review in July 2022.
- **Task 17** (LHAAP-18/24) – ZB said that the next semi-annual sampling event is scheduled to be completed in July 2022, with the validated data package to be presented at the September 2022 MMM.
- **Task 18** (Surface Water) – ZB said that that the 3rd Quarter 2022 surface water samples will be collected sometime from July to September 2022 depending on flow in Harrison Bayou. SB added that there would be little to no flow in July 2022 based on current weather.
- **Task 19:** (2021 Land Use Control Management Plan) – No discussion.
- **Administrative Record (AR) –** WF said that the October – December 2021 AR was shipped in June 2022. WF said that the January – March 2022 AR is being compiled and Bates stamped for printing.

Update on other DERP Sites:

- **LHAAP 18/24 –** PW stated that the 30-percent (Conceptual Design) LHAAP-18/24 Remedial Design was submitted to the regulators on 25 May 2022. RMZ recommended submittal of the Response to Comments (RTCs) on the Conceptual Design along with the Draft Final 60-percent Remedial Design. BF and AP concurred with this approach. PW said that the 60-percent Remedial Design submittal has a due date of 25 August 2022.
- **LHAAP-29** – PW said that the Army Draft 30-percent Remedial Design was submitted on 22 June 2022, with an anticipated regulatory submittal in July 2022. PW said that the Draft Pre-Design Investigation (PDI) Report is under preparation with regulatory submittal in late June 2022. PW said that the data from the PDI is included in the 30-percent Remedial Design. AP stated that it is expected to receive the PDI Report prior to the 30-percent Remedial Design. PW confirmed that the regulators will receive the PDI Report before submittal of the 30-percent Remedial Design.
- **LHAAP-47** – PW said that the Final Record of Decision (ROD) has been signed by the Army and is awaiting TCEQ concurrence and USEPA signature.
- **LHAAP-17** – ZB said that the groundwater extraction system installation is ongoing. ZB said that Ark-La-Tex is working to install the overhead power to the site. ZB said that the final step for getting the groundwater extraction system operational is wiring and setting up the programmable logic control (PLC). The PLC telemetry system will integrate the LHAAP-17 extraction system into the GWTP control. ZB said that groundwater extraction system is anticipated to completed in July. RMZ asked when groundwater sampling will begin after the extraction system is operational. ZB said that monthly groundwater sampling will be conducted for the first three months, and then quarterly sampling for an additional year. ZB said that Draft Remedial Action Completion Report is under preparation. ZB said that upon completion of the groundwater extraction system the After-Action Report will be prepared. MB asked if there was 100 percent subsurface and surface clearance. RMZ stated that all of the subsurface has not been cleared.

Per- and Polyfluoroalkyl Substance (PFAS) Update: RMZ stated that the field work is scheduled for November 2022. RMZ said that although not required by the Federal Facility Agreement (FFA), a courtesy copy of the Quality Assurance Project Plan (QAPP) will be transmitted to the regulators for their information. Regulators may provide comments if they wish. RMZ said that the results of the Preliminary Assessment/Site Inspection Report (PA/SI) will determine if a Remedial Investigation (RI) is necessary.

Schedule Next Managers' Meeting: The next MMM will be held on Wednesday, 20 July 2022 at 10:00 am CDT via a WebEx.

Meeting concluded at approximately 2:55 pm CDT.

ACRONYM LIST

AP	April Palmie
APTIM	APTIM Federal Services, LLC
AR	Administrative Record
AW	Aaron Williams
BF	Brian Follin
Bhate	Bhate Environmental Associates, Inc.
BRAC	Base Realignment and Closure
CDT	Central Daylight Time
DERP	Defense Environmental Restoration Program
DI	Documents and Issues
FBR	Fluidized Bed Reactor
FFA	Federal Facilities Agreement
GWTP	Groundwater Treatment Plant
LHAAP	Longhorn Army Ammunition Plant
µg/L	Micrograms per Liter
MB	Michael Bowlby
MMM	Monthly Managers' Meeting
PA	Preliminary Assessment
PDI	Pre-Design Investigation
PFAS	Per- and Polyfluoroalkyl Substance
PLC	Programmable Logic Controller
PW	Phil Werner
QAPP	Quality Assurance Project Plan
RAB	Restoration Advisory Board
RA-O	Remedial Action – Operation
RI	Remedial Investigation
RMZ	Rose M. Zeiler
ROD	Record of Decision
RTC	Response to Comments
SI	Site Inspection
SB	Scott Beesinger
TCEQ	Texas Commission on Environmental Quality
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WF	William (Bill) Foss
ZB	Zack Beck

LHAAP Validated Data Packages for June 2022 Monthly Manager's Meeting

LHAAP Area	Analytical Method
LHAAP-50	*Remedial Performance Monitoring (Year 2, Quarter 4)-April 2022* Volatile Organic Compounds (8260C) Perchlorate (6850) Anions (9056A) Total Organic Carbon (SM5310B) Methane, Ethane, Ethene, and Carbon Dioxide (RSK-175) Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, Ferrous Iron, and pH)
GWTP Effluent	*Weekly Perchlorate Sampling – May 2022* Perchlorate (6850)
GWTP Effluent	*Bi-Weekly Sampling - May 2022* Volatile Organic Compounds (8260C) Anions (9056A)
GWTP Effluent	*Weekly Sampling – May 2022* Ammonia (350.3) Ortho-Phosphate (365.3) Total Organic Carbon (415.1)
GWTP Quarterly	*Influent and Effluent – May 2022* Oil and Grease (1664A) Perchlorate (6850) Metals (6020A) 1,4-Dioxane (8270D-SIM) Chemical Oxygen Demand (410.4) VOC (8260C) Anions (9056A)

LHAAP-50 Year 2 Quarter 4 Remedial Performance Monitoring
April 2022

		Sample Location	50WW05		50WW06		50WW08		50WW11		50WW12			
		Sample ID	50WW05-220405		50WW06-220406		50WW08-220406		50WW11-220406		50WW12-220406		50WW12-220406-FD	
		Sample Date	4/5/2022		4/6/2022		4/6/2022		4/6/2022		4/6/2022		4/6/2022	
		Sample Purpose	REG		REG		REG		REG		REG		FD	
		Location Description	Site 50 - NE, lower shallow, outside site boundary		Site 50 - ENE, outside site boundary		Site 50 - E, upper shallow, inside site boundary		Site 50 - ENE, upper shallow, outside site boundary		Site 50 - ENE, upper shallow, outside site boundary			
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Measurements														
Dissolved oxygen	mg/L	NV	0.3		5.4		0.2		6.9		0		0	
Ferrous Iron	NA	NV	NM		0.08		NM		0.18		0.17		0.17	
Oxidation Reduction Potential	mV	NV	183		187		176		12		67		67	
pH	Std units	NV	6.27		6.2		6.58		6.76		6.49		6.49	
Dissolved Gases (RSK-175)														
Carbon dioxide	µg/L	NV	NA		36400	J	NA		61400	J	83700	J	96000	J
Ethane	µg/L	NV	NA		2.09		NA		< 0.5	U	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	NA		< 0.5	U	NA		3.4		< 0.5	U	< 0.5	U
Methane	µg/L	NV	NA		3.1		NA		5.29		3380		3220	
General Chemistry (SM5310B/SW9056A)														
Chloride	mg/L	NV	NA		10.4		NA		294		1010		1020	
Nitrate	mg/L	NV	NA		0.46		NA		0.0429	J	< 0.2	U	< 0.2	U
Sulfate	mg/L	NV	NA		11.8		NA		302		574		576	
Total organic carbon	mg/L	NV	NA		1.61		NA		0.896	J	1.84		1.41	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.05	U	24.7		83.4		1020		141000	J	101000	J
Volatile Organic Compounds (8260C)														
1,1-Dichloroethene	µg/L	7	3.6		< 0.5	U	1.1		3.3		20		19	
1,2-Dichloroethane	µg/L	5	1.9		< 0.5	U	1.7		3.1		10		10	
cis-1,2-Dichloroethene	µg/L	70	150		< 0.5	U	91		19		3.5		4.1	
Tetrachloroethene	µg/L	5	0.67	J	< 1	U	1.7		1.8		< 1	U	< 1	U
Trichloroethene	µg/L	5	220		23		720		530		1400		1400	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Blue Highlighting Indicates the concentration exceeds the MCL/PCL

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate,where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

NM - not measured

Std Units - Standard pH Units

mV - millivolts

Val Qual - validation qualifier

LHAAP-50 Year 2 Quarter 4 Remedial Performance Monitoring
April 2022

		Sample Location	50WW13		50WW14		50WW29	
		Sample ID	50WW13-220406		50WW14-220406		50WW29-220405	
		Sample Date	4/6/2022		4/6/2022		4/5/2022	
		Sample Purpose	REG		REG		REG	
		Location Description	Site 50 - E, upper shallow, outside site boundary		Site 50 - E, lower shallow, outside site boundary		Site 50 - ENE, upper shallow, outside site boundary	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual
Field Measurements								
Dissolved oxygen	mg/L	NV	1		0.2		5.5	
Ferrous Iron	NA	NV	0.00		3.30		NM	
Oxidation Reduction Potential	mV	NV	71		-56		333	
pH	Std units	NV	6.78		6.68		6.67	
Dissolved Gases (RSK-175)								
Carbon dioxide	µg/L	NV	50100	J	65700	J	NA	
Ethane	µg/L	NV	1.56		< 0.5	U	NA	
Ethylene	µg/L	NV	< 0.5	U	2.28		NA	
Methane	µg/L	NV	2.81		3.21	J	NA	
General Chemistry (SM5310B/SW9056A)								
Chloride	mg/L	NV	372		405		NA	
Nitrate	mg/L	NV	0.0314	J	< 0.1	U	NA	
Sulfate	mg/L	NV	349		380		NA	
Total organic carbon	mg/L	NV	1.89		3.11		NA	
Perchlorate (EPA 6850)								
Perchlorate	µg/L	17	514		1.48		0.0655	J
Volatile Organic Compounds (8260C)								
1,1-Dichloroethene	µg/L	7	3.2		< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	7.1		0.51	J	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	72		14		< 0.5	U
Tetrachloroethene	µg/L	5	7.2		< 1	U	< 1	U
Trichloroethene	µg/L	5	2100		48		< 0.5	U
Vinyl chloride	µg/L	2	0.54	J	< 0.5	U	< 0.5	U

Notes:

Blue Highlighting Indicates the concentration exceeds the MCL/PCL

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate,where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

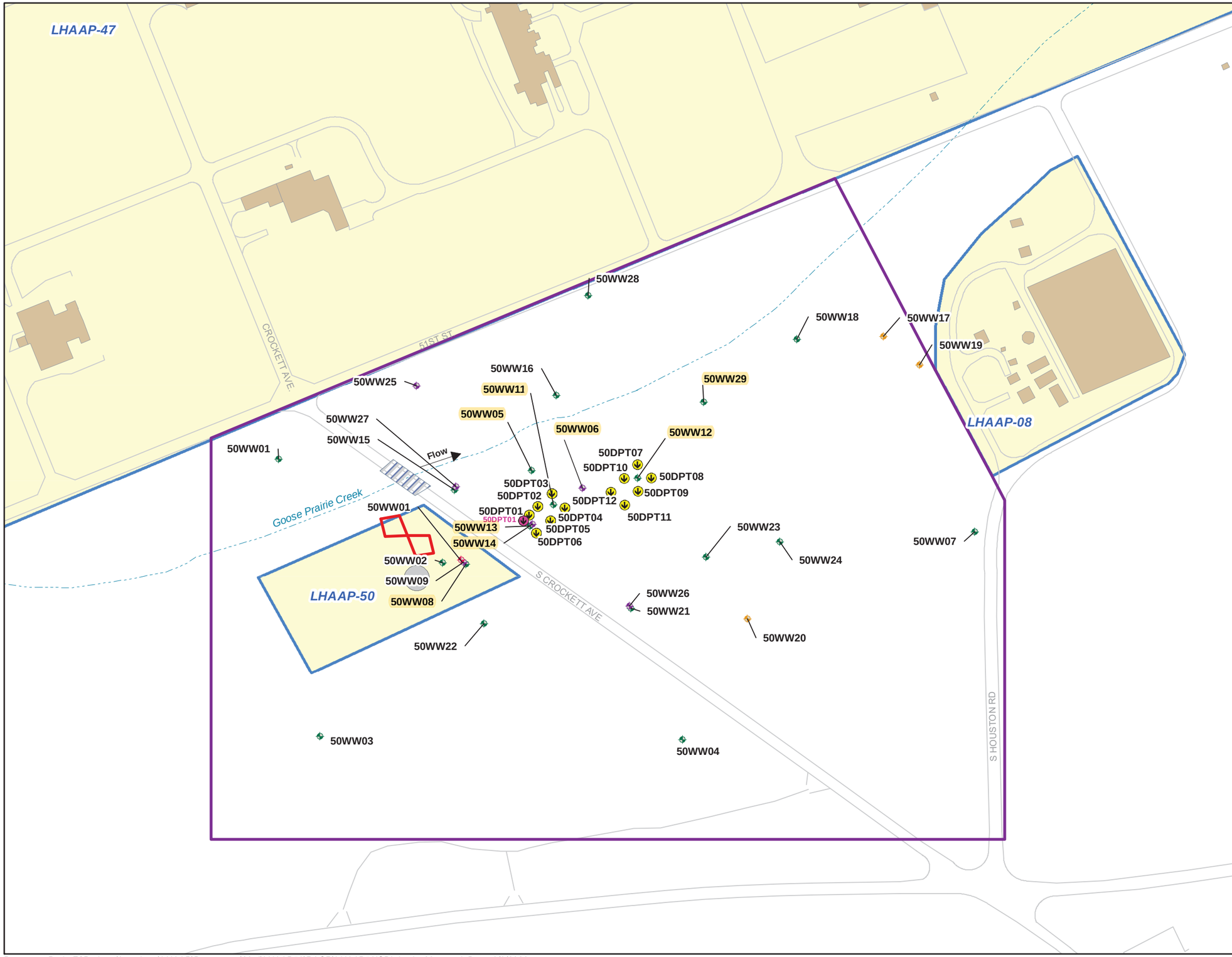
NA - not analyzed

NM - not measured

Std Units - Standard pH Units

mV - millivolts

Val Qual - validation qualifier



Lower Shallow Monitoring Well
Upper Shallow Monitoring Well
Fully Penetrating Shallow Monitoring Well
Intermediate Monitoring Well
Completed ISB DPT Point
Planned ISB Location (Relocated)
Goose Prairie Creek
Roads
LHAAP-50 Excavation Area
Land Use Control Boundary
Bridges
Former Storage Tank Location
Buildings
Site Boundaries

ISB = in situ bioremediation
DPT = direct push technology

0 75 150
Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

bhate APTIM

LHAAP-50 Injection and Remedial Performance Monitoring Location Map

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RACR\LHAAP50ISBInjectionMap.mxd Date: 9/8/2020

GWTP Weekly/Effluent Perchlorate Sampling - May 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	PCL	LH18/24-SP650_051722_BIX 5/17/22	LH18/24-SP650_051722_AIX 5/17/22	LH18/24-SP650_052422_BIX 5/24/22	LH18/24-SP650_052422_AIX 5/24/22	LH18/24-SP650_052422_AIX 5/24/22
Location Description								
				Weekly	Weekly	Weekly	Weekly	Quarterly Eff
Perchlorate (6850)								
Perchlorate	µg/L	589	17	**68.1**	**0.931**	**56.8**	**0.433 J**	**0.232**

µg/L - micrograms per liter

BIX - before ion exchange/AIX - after ion exchange

J -estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

GWTP Bi-Weekly Sampling - May 2022

Location ID: Sample Date:	Units	(Bayou) Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_051722 5/17/22
Location Description				GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled Biweekly.
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-Dichloroethene	µg/L	NV	70	**2.2**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 1.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Anions (9056)				
Chloride	mg/L	NV	NV	**770**
Sulfate	mg/L	NV	NV	**29.7**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - No Value

GWTP Weekly Sampling - May 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	LH18/24-SP650_051722 5/17/22	LH18/24-SP650_052422 5/24/22
Location Description			**GWTP–Collected from a spigot on the discharge of effluent TK-650. Sampled Weekly.**	
Ammonia as N (350.3)				
Ammonia as N	mg/L	NV	**28**	**24**
Ortho-Phosphate (365.3)				
Ortho-Phosphate	mg/L	NV	**5.90**	**5.09**
Organic Carbon (415.1)				
Total Organic Carbon (TOC)	mg/L	NV	**5.74**	**10.2**

mg/L - milligrams per liter

NV - No Value

GWTP Quarterly Effluent Sampling - May 2022

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_052422 5/24/22
Location Description				GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled quarterly
Oil and Grease (1664A)				
Oil & Grease	mg/L	15	NV	< 1.00 U
Chemical Oxygen Demand (410.4)				
Chemical Oxygen Demand	mg/L	200	NV	**49.0**
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-dichloroethene	mg/L	NV	70	**2.4**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 2.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Metals (6020A)				
Aluminum	mg/L	1.644	NV	**0.0189**
Antimony	mg/L	NV	0.006	< 0.00100 U
Arsenic	mg/L	0.722	0.01	**0.000735 J**
Barium	mg/L	2	2	**0.331**
Beryllium	mg/L	NV	0.004	< 0.000500 U
Cadmium	mg/L	0.0034	0.005	< 0.000500 U
Calcium	mg/L	NV	NV	**17.3**
Chromium	mg/L	0.752	0.1	**0.000529 J**
Cobalt	mg/L	11.495	NV	< 0.000500 U
Iron	mg/L	2.395	NV	**0.0721 J**
Lead	mg/L	0.0046	0.015	< 0.00100 U
Magnesium	mg/L	NV	NV	**12.4**
Manganese	mg/L	15.494	NV	**0.0629**
Nickel	mg/L	0.184	NV	**0.00132 J**
Potassium	mg/L	NV	NV	**1.71 J**
Selenium	mg/L	0.012	0.05	**0.00142 J**
Silver	mg/L	0.003	NV	< 0.000500 U
Sodium	mg/L	NV	NV	**442**
Thallium	mg/L	NV	NV	< 0.000500 U
Vanadium	mg/L	3.592	NV	**0.00149 J**
Zinc	mg/L	0.31	NV	0.00651 UB
Mercury	mg/L	NV	0.002	< 0.000100 U
Anions (9056)				
Chloride	mg/L	NV	NV	**793**
Sulfate	mg/L	NV	NV	**31.4**
Semi-Volatile Organic Compounds (8270D SIM)				
1,4-Dioxane	µg/L	134.2	NV	**8.3**

µg/L - micrograms per liter

mg/L - milligrams per liter

J - estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

NV - No Value

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

UB - considered an artifact of blank contamination

GWTP Quarterly Influent Sampling - May 2022

Location ID: Sample Date:	Units	LH18/24-SP140_052422 5/24/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Quarterly.**
Oil and Grease (1664A)		
Oil & Grease	mg/L	< 1.00 U
Chemical Oxygen Demand (410.4)		
Chemical Oxygen Demand	mg/L	**16.0**
Perchlorate (6850)		
Perchlorate	µg/L	**6,990**
Volatile Organic Compounds (8260C)		
1,1,1,2-Tetrachloroethane	µg/L	< 10 U
1,1,1-Trichloroethane	µg/L	< 5.0 U
1,1,2,2-Tetrachloroethane	µg/L	< 10 U
1,1,2-Trichloroethane	µg/L	< 10 U
1,1-Dichloroethane	µg/L	**9.7 J**
1,1-Dichloroethene	µg/L	< 5.0 U
1,1-Dichloropropene	µg/L	< 10 U
1,2,3-Trichlorobenzene	µg/L	< 10 U
1,2,3-Trichloropropane	µg/L	< 10 U
1,2,4-Trichlorobenzene	µg/L	< 10 U
1,2,4-Trimethylbenzene	µg/L	< 10 U
1,2-Dibromo-3-chloropropane	µg/L	< 10 U
1,2-Dibromoethane	µg/L	< 5.0 U
1,2-Dichlorobenzene	µg/L	< 10 U
1,2-Dichloroethane	µg/L	**25**
1,2-Dichloropropane	µg/L	< 10 U
1,3,5-Trimethylbenzene	µg/L	< 10 U
1,3-Dichlorobenzene	µg/L	< 10 U
1,3-Dichloropropane	µg/L	< 10 U
1,4-Dichlorobenzene	µg/L	< 10 U
2,2-Dichloropropane	µg/L	< 5.0 U
2-Butanone	µg/L	< 10 U
2-Chlorotoluene	µg/L	< 10 U
2-Hexanone	µg/L	< 20 U
4-Chlorotoluene	µg/L	< 10 U
4-Isopropyltoluene	µg/L	< 10 U
4-Methyl-2-pentanone	µg/L	< 20 U
Acetone	µg/L	< 20 U
Benzene	µg/L	< 5.0 U
Bromobenzene	µg/L	< 10 U
Bromochloromethane	µg/L	< 5.0 U
Bromodichloromethane	µg/L	< 5.0 U
Bromoform	µg/L	< 10 U
Bromomethane	µg/L	< 10 U
Carbon disulfide	µg/L	< 20 U
Carbon tetrachloride	µg/L	< 10 U
Chlorobenzene	µg/L	< 10 U
Chloroethane	µg/L	< 10 U
Chloroform	µg/L	**9.9 J**
Chloromethane	µg/L	< 5.0 U
cis-1,2-Dichloroethene	µg/L	**3,200**
cis-1,3-Dichloropropene	µg/L	< 5.0 U
Dibromochloromethane	µg/L	< 10 U
Dibromomethane	µg/L	< 5.0 U
Dichlorodifluoromethane	µg/L	< 10 U
Ethylbenzene	µg/L	< 10 U
Hexachlorobutadiene	µg/L	< 10 U
Isopropylbenzene	µg/L	< 10 U
m,p-Xylene	µg/L	< 10 U
Methylene chloride	µg/L	**2,400**
Naphthalene	µg/L	< 10 U
n-Butylbenzene	µg/L	< 10 U
n-Propylbenzene	µg/L	< 10 U
o-Xylene	µg/L	< 10 U
sec-Butylbenzene	µg/L	< 10 U
Styrene	µg/L	< 10 U
tert-Butylbenzene	µg/L	< 10 U

GWTP Quarterly Influent Sampling - May 2022

Location ID: Sample Date:	Units	LH18/24-SP140_052422 5/24/22
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Quarterly.**
Tetrachloroethene	µg/L	**36**
Toluene	µg/L	< 5.0 U
trans-1,2-Dichloroethene	µg/L	**11**
trans-1,3-Dichloropropene	µg/L	< 5.0 U
Trichloroethene	µg/L	**3,900**
Trichlorofluoromethane	µg/L	< 10 U
Vinyl chloride	µg/L	**300**
Metals (6020A)		
Aluminum	mg/L	**0.126**
Antimony	mg/L	**0.000693 J**
Arsenic	mg/L	**0.00186 J**
Barium	mg/L	**0.622**
Beryllium	mg/L	< 0.000500 U
Cadmium	mg/L	< 0.000500 U
Calcium	mg/L	**27.5**
Chromium	mg/L	**0.00200 J**
Cobalt	mg/L	**0.00621**
Iron	mg/L	**2.31**
Lead	mg/L	<0.00100 U
Magnesium	mg/L	**21.4**
Manganese	mg/L	**0.506**
Nickel	mg/L	**0.0122**
Potassium	mg/L	**1.14**
Selenium	mg/L	**0.00189 J**
Silver	mg/L	< 0.000500 U
Sodium	mg/L	**178**
Thallium	mg/L	< 0.000500 U
Vanadium	mg/L	**0.00133 J**
Zinc	mg/L	**0.0332**
Mercury	mg/L	**0.0000330 J**
Anions (9056)		
Chloride	mg/L	**290**
Sulfate	mg/L	**26.7**
Semi-Volatile Organic Compounds (8270D SIM)		
1,4-Dioxane	µg/L	**13**

µg/L - micrograms per liter

mg/L - milligrams per liter

J -estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 13, 2022

DAIN-ISE

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final 2021 Remedial Action Operation Report,
Landfill 12 (LHAAP-12),
Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Draft Final document includes revisions based upon the Environmental Protection Agency (EPA) comments on the Draft version received on June 2, 2022. The Texas Commission on Environmental Quality (TCEQ) indicated that they had no comments on the document via email on June 15, 2022. A table of responses to the EPA comments on the Draft version is included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK

A. Williams, USACE, Tulsa District, OK
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

July 13, 2022

DAIN-ISE

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Final 2021 Remedial Action Operation Report,
Landfill 12 (LHAAP-12),
Longhorn Army Ammunition Plant, Karnack, Texas, July 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your records: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The Draft Final document includes revisions based upon the Environmental Protection Agency (EPA) comments on the Draft version received on June 2, 2022. The Texas Commission on Environmental Quality (TCEQ) indicated that they had no comments on the document via email on June 15, 2022. A table of responses to the EPA comments on the Draft version is included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

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Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

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K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

Response to Comments on
Draft 2021 Annual Remedial Action Operation Report, Landfill 12 (LHAAP-12)

Document Date: May 3, 2022
Comment Date: June 2, 2022

Reviewer: Brian Follin - USEPA
Respondent: Dr. Rose Zeiler - Army

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
Specific Comments					
1	Section 1.1, Page 1-2	The Site Description states the following…" From 1978 until its closure in April 1994, the landfill was used continuously for the disposal of non-hazardous industrial solid waste, including cafeteria waste, chemical waste, petroleum-contaminated soil, and asbestos." I'm not sure I would classify "chemical waste, petroleum-contaminated soil, and asbestos" as "non-hazardous."	C/E	The term "non-hazardous" in this instance refers to the RCRA definition. The text will be revised as follows: "From 1978 until its closure in April 1994, the landfill was used continuously for the disposal of non-hazardous (as defined by RCRA) industrial solid waste…"	
2	Section 2.1, Page 2-2	This section mentions that "US Fish and Wildlife Service conducted a prescribed burn at LHAAP-12 in March 2021" and goes on to say that a "…physical inspection of the LHAAP-12 landfill cap and well field was conducted following the burn on March 23, 2021" before indicating that the "…vegetative cover was observed to be in good condition and well maintained with no excessive cracking or desiccation cracks." Based on the photos provided in Appendix B, most of the vegetation appears to be dead following the prescribed burn (as would be	C/E	The description of vegetative cover being on good conditions was intended to mean that there were not areas of bare dirt with no vegetation growing visible. While the exposed vegetation was burned by the fire, the presence of the vegetation could be noted by what remained after the burn. The text in Section 2.1 will be revised as follows to clarify: "The inspection was conducted immediately following the March 2021 controlled burn, so live vegetation growth was not visible; however, the remains of the vegetation observed during the inspection	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		expected), so I'm not sure what "…vegetative cover was observed to be in good condition and well maintained" could mean if the vegetative cover was dead		indicated that there were no bare spots or areas lacking vegetative cover. The landfill cover was observed to be in good condition and well maintained with no excessive cracking or desiccation cracks."	
3	Section 2.2, Page 2-2	This section states that…" sampling was discontinued at well 12WW23 following the 2016 annual sampling event" but doesn't indicate why the decision was made to discontinue sampling at this well. Perhaps a sentence could be added to the text that would explain why this happened.	C	Discontinuation of the sampling at 12WW23 was also recommended in the conclusions of the 2014 RAO Report, but was not discontinued until after the 2016 sampling event. The text will be revised as follows: "Discontinuation of sampling at well 12WW23 was also recommended in the 2014 RAO Report (AECOM 2015) due to the distance of the well downgradient from the plume and the presence of 12WW21 between the plume and 12WW23. Well 12WW23 was last sampled during the 2016 annual sampling event."	
4	Section 2.3, Page 2-4	Referring to VOC concentrations at 12WW24, the following statement was made…" However, the concentration trends for these degradation products mimic those of TCE, suggesting that dilution and dispersion remains the dominant natural attenuation pathway." The concentration of TCE and cis-DCE since 2013 (shown in Table 2-4), indicate that the ratio of cis-DCE to TCE has been increasing since that time, which seems to suggest that the relative contribution of reductive dechlorination (compared to dissolution/dispersion) to the TCE degradation process has actually increased since 2013.	C/D	The commenter is correct that the ratio of cis-DCE to TCE has gone up over time, but the trend in both COCs has been downward as groundwater elevations have increased. As stated in the previous sentence in the text, the presence of cis-1,2-DCE is evidence that anaerobic reductive dechlorination is occurring despite ORP values above 50 mV since 2006, except for the 2018 reading (-31 mV). However, the consistent decline in cis-1,2-DCE even as the ratio to TCE goes up is an indication that abiotic processes are likely to be the dominant pathway for TCE reduction. The text will be revised as follows: "However, the concentration trends for cis-	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
				1,2-DCE exhibit a downward trend similar to TCE despite the increasing cis-1,2-DCE to TCE ratio and the ORP values have been consistently above the 50 mV threshold conducive to reductive dechlorination with the exception of 2018. This suggests that abiotic processes are likely to be the dominant pathway for TCE reduction."	
5	Section 2.3, Page 2-5	When discussing the estimated duration needed to achieve MCLs, a variety of reasons are provided for why it may be difficult to pin down an exact date (year) when MCLs will be reached. One additional reason, that may be worth mentioning, for why this may be the case is because the measured concentrations of TCE at 12WW24 (5.5 µg/L in the most recent event) and the MCL (5 µg/L) of TCE are approaching the method detection limit for TCE (0.5 µg/L), so the reliability of the lab results as well as the resolution (unclear if the lab will report at intervals less than 0.5 µg/L when dealing with concentrations in this range) are likely going to be compromised to some degree in this range.	C	The text will be revised as follows to include laboratory precision as a factor potentially affecting the accuracy of the calculation: "However, given the lithologic variability at the site, the potential for plume migration, the concentrations approaching the laboratory detection limit, concentrations within the limits of analytical precision relative to the MCL, and other factors affecting the concentration trends, the time to achieve MCLs at LHAAP-12 may vary by an order of magnitude or more."	
6	Figure 2-2	The water level associated with 12WW10R seems a little bit out of sync with the water levels measured at the remaining wells. Section 2.2 mentions that this well was drilled in 2019, whereas the remaining wells were drilled in prior years. When the TOC was surveyed in, was the survey tied to the surrounding wells? Is it possible that the surveyed TOC at 12WW10R is off by ~1 ft, which has led to the unusual potentiometric	C	The area between 12WW10R and the surrounding wells is relatively flat and there are no topographic elevation features that would explain any significant differences in the potentiometric contours. The surrounding wells were not resurveyed at the time the well was installed and surveyed, but may have been used for control points by the surveyors. The land surface does gently dip away from the landfill from west to east. The presence of	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		contour distribution around 12WW10R? An alternative explanation could be that there is some sort of topographic feature (land surface dipping from west to east) in the area surrounding this well, but based on the photos in the Appendix, this does not appear to be the case.		the surface water body to the north of the landfill likely influences the groundwater elevations in 12WW21 and 12WW23. That influence flattens the gradient lines in the area north of 12WW10R, likely making the groundwater elevation in 12WW10R appear to be anomalous by comparison. No change to the text is proposed.	
7	Appendix A (Well Construction Information table)	How was the "Water Column (ft)" data provided in the table calculated? I assumed that it would be the difference between the "Total Measured Well Depth (ft btoc)" and the "Depth to Water (ft btoc)", but that does not appear to be the case.	C	The values currently shown on the table were improperly calculated by subtracting the "Depth to Water (ft btoc)" from the "Constructed Well Depth (ft bgs)", which would not include the well stickup height or the effect of siltation. The table will be revised to calculate the water column height to reflect the total measured depth minus the depth to water, both in (ft btoc) as suggested by the comment.	

Foss, William A.

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Cc: Braun, Christopher L; pbging@usgs.gov; Bruckwicki, Paul; Williams, Aaron K SWF @SWT; Zeiler, Rose; 'rose.m.zeiler.ctr@army.mil'; michael.a.bowlby.civ@army.mil; Sierocinski, Lena J CIV USARMY IMCOM AEC (USA); Montoya, Chelsea R CIV USARMY CESWF (USA); Kim Nemmers; Zack Beck; Srivastav, Praveen; Suryanarayanan, Sowmya
Subject: RE: Draft Final 2021 Remedial Action Operation Report for LHAAP-12

EXTERNAL SENDER

Thank you for the responses to our comments. We accept the revisions provided in the RTC table.

Thank you,

Brian Follin
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Subject: RE: Draft Final 2021 Remedial Action Operation Report for LHAAP-12

Thank you. I accept the Draft Final 2021 Remedial Action Operation Report for LHAAP-12.

April Palmie
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Subject: Draft Final 2021 Remedial Action Operation Report for LHAAP-12

Brian and April,

The *Draft Final 2021 Annual Remedial Action Operation Report for Landfill 12 (LHAAP-12)* has been uploaded to a subfolder in the "Documents" folder of the project portal for your records and can be accessed directly via the link provided below. The Draft Final document includes a table with responses to comments (RTC) on the Draft report that were received from the USEPA on June 2, 2022. The TCEQ indicated that they had no comments on the document via email on June 15, 2022. Electronic copies of the transmittal letters and the RTC table are included in the report PDF and are attached to this email for your convenience. In accordance with the Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

July 2022 Draft Final 2021 Annual Remedial Action Operation Report, Landfill 12 (LHAAP-12) (~25 MB)
July 2022 Draft Final 2021 Annual Remedial Action Operation Report - Landfill 12 (LHAAP-12)

Please let us know if you have any questions or have any difficulty accessing the files. Thanks!

Bill

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Acronyms and Abbreviations

µg/L	micrograms per liter
AECOM	AECOM Technical Services, Inc.
APTIM	Aptim Federal Services, LLC
Bhate	Bhate Environmental Associates, Inc.
COC	contaminant of concern
DCE	dichloroethene
ft/ft	foot vertical per foot horizontal
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MCL	maximum contaminant level
MNA	monitored natural attenuation
No.	number
RA-O	remedial action operation
RCRA	Resource Conservation and Recovery Act
RD	remedial design
ROD	Record of Decision
Shaw	Shaw Environmental, Inc.
TCE	trichloroethene
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
VC	vinyl chloride
VOC	volatile organic compound

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1.0 INTRODUCTION

The United States (U.S.) Army Corps of Engineers, Tulsa District, on behalf of the U.S. Army Base Realignment and Closure Division contracted Bhate Environmental Associates, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract, Environmental Remediation Services with Military Munitions Response Program, Task Order Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team is comprised of Bhate and Aptim Federal Services, LLC (APTIM). The groundwater monitoring and site inspection activities have been conducted as described in the *Final Remedial Design Addendum Landfill 12 (LHAAP-12)* (Shaw 2007). LHAAP-12 was transferred to the U.S. Fish and Wildlife Service (USFWS) as part of the Caddo Lake National Wildlife Refuge in 2014. This Remedial Action Operation (RA-O) Report represents the 14th year of RA-O implementation and summarizes the results of the sampling activities and site inspections completed in December 2021.

LHAAP is located in east-central Texas in the northeastern corner of Harrison County between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1-1**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds the former LHAAP installation to the north and east. The eastern fence is 3.5 miles from the Texas-Louisiana state border.

1.1 Remedial Action Objectives

Work completed in 2021 as part of the remedial action objectives at LHAAP-12 consisted of the following components: physical inspections, groundwater monitoring, and concentration trend analysis. Physical inspections are conducted annually, at a minimum, to confirm compliance with land use control (LUC) objectives, which consist of ensuring the integrity of the existing landfill cover and ensuring no exposure to trichloroethene (TCE)-contaminated groundwater.

The objectives for groundwater monitoring at LHAAP-12 are to:

- Determine the effectiveness of natural attenuation in reducing contaminant concentrations over time.
- Evaluate plume migration to ensure that TCE-contaminated groundwater does not impact nearby surface water.

- Perform trend analysis of groundwater contaminants of concern: TCE, cis-1,2-dichloroethene (DCE), and vinyl chloride (VC).
- Perform a comparison of the contaminants of concern concentration trends relative to the maximum contaminant levels (MCLs).

The remedy at LHAAP-12 is functioning as intended, and all human risks are currently under control. This report summarizes the results of groundwater monitoring and the landfill integrity inspections.

1.2 Site Description

LHAAP-12, established in 1963, covers approximately seven acres and is 500 feet southeast of Central Creek, which eventually drains into Caddo Lake. LHAAP-12 was used for the disposal of industrial solid wastes, possibly containing small quantities of hazardous constituents generated at LHAAP (**Figure 1-2**). From 1978 until its closure in April 1994, the landfill was used continuously for the disposal of non-hazardous (as defined by RCRA) industrial solid waste, including cafeteria waste, chemical waste, petroleum-contaminated soil, and asbestos. The construction of a landfill cap over the site was completed in 1998 as part of an interim remedial action. The interim remedial action is consistent with U.S. Environmental Protection Agency presumptive remedy guidance. The final remedy for LHAAP-12 is protective of human health and the environment and consists of LUCs in conjunction with monitored natural attenuation (MNA) as described in the *Final Record of Decision, Landfill 12 (LHAAP-12)* (Shaw 2006). The LUCs are discussed in more detail in **Section 2.0**.

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2.0 OPERATIONS AND MAINTENANCE ACTIVITIES AT LHAAP-12

Operation, maintenance, and physical inspection activities at LHAAP-12 consist of the following:

- Maintenance of the integrity of the landfill cap and repairs to desiccation cracks, erosion, or gullying upon observance.
- Maintenance of the vegetative cover on the landfill cap, including periodic mowing.
- Maintenance of the signage around the landfill cap.
- Prohibition of any activities that would affect the integrity of the cap.
- Prohibition of any activities that would cause exposure to contaminated groundwater.

Inspections of the well field are conducted annually, and the information is recorded on well inspection forms and associated photographs (**Appendix A**). Maintenance or repairs are then conducted, as needed, based on observed conditions.

A prescribed burn was conducted at LHAAP-12 by USFWS on March 20, 2021, as described further in **Section 2.1**. Mowing the sampling area for brush and weeds is conducted on a routine basis and as needed, to access the well field. However, the tractor used for mowing the site was out of service from November 2021 through March 2022. Therefore, mowing did not occur in December 2021. Now that the tractor has been repaired, wet conditions at the site will not allow for mowing without potentially damaging the cover. Mowing will be conducted as soon as site conditions allow in May/June 2022 and manual removal of the trees growing on the landfill cap began in late April 2022.

The RD Addendum (Shaw 2007) stipulated physical inspections to be conducted annually and annual groundwater sampling to monitor the effectiveness of natural attenuation in reducing contaminant concentrations over time. The annual landfill cap inspection for LHAAP-12 was conducted on March 10, 2022. Inspections are actually conducted more frequently, with periodic drive-by oversight to ensure compliance with the above requirements. The effectiveness of MNA was initially evaluated quarterly in the *Draft Annual Remedial Action Operation Report, Years 1 and 2, Landfill 12 (LHAAP-12)* (Shaw 2011) and has been evaluated annually beginning in the third year of RA-O. Groundwater monitoring was included as a component of the remedy for LHAAP-12 identified in the Record of Decision (ROD) (Shaw 2006).

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2.1 Physical Inspection Summary

The U.S. Fish and Wildlife Service conducted a prescribed burn at LHAAP-12 in March 2021. A physical inspection of the LHAAP-12 landfill cap and well field was conducted following the burn on March 23, 2021 and the LUC Inspection and Maintenance Log is included in **Appendix B**. Pictures from the landfill inspection are also included in **Appendix B**. The inspection was conducted immediately following the March 2021 controlled burn, so live vegetation growth was not visible; however, the remains of the vegetation observed during the inspection indicated that there were no bare spots or areas lacking vegetative cover. The landfill cover was observed to be in good condition and well maintained with no excessive cracking or desiccation cracks. Small trees were observed to be growing on the landfill in January 2022 and manual removal of the trees began in late April 2022. No change in land or groundwater use was observed at the site, and the use of the site is consistent with the LUCs mandated by the ROD (Shaw 2006). Signs were all visible around the landfill. No damage to bollards, pads, or protective casings was observed, and minimal encroachment of weeds or brush on the well pads was observed. Well head locks continue to be in good condition. The December 2021 well inspection forms and associated well photographs are provided in **Appendix A**.

2.2 Groundwater Monitoring

The purpose of sampling was to provide data to support evaluating whether the RAOs are being met. The RAOs include:

- Determine the effectiveness of natural attenuation in reducing contaminant concentrations over time.
- Evaluate plume migration to ensure that TCE-contaminated groundwater does not impact nearby surface water.
- Perform trend analysis of groundwater contaminants of concern: TCE, cis-1,2-DCE, and VC.
- Perform a comparison of the contaminants of concern concentration trends relative to the MCLs.

As described by the Groundwater Sampling Plan included in the RD Addendum (Shaw 2007), annual groundwater sampling of three on-site monitoring wells (12WW20, 12WW21, and 12WW24) and two downgradient compliance monitoring wells (12WW22 and 12WW23) was to be conducted annually beginning in the third year of the RA-O (i.e., 2010). As recommended in the *Draft Final 2014 Remedial Action Operation Report* (AECOM 2015), the sampling frequency of monitoring well 12WW22 was changed to once every five years and will be sampled as part of the RA-O event in December 2024. Discontinuation of sampling at well

12WW23 was also recommended in the 2014 RAO Report (AECOM 2015) due to the distance of the well downgradient from the plume and the presence of 12WW21 between the plume and 12WW23. Well 12WW23 was last sampled during the 2016 annual sampling event. Monitoring well 12WW10R, installed in August 2019, was also added to the list of monitoring wells to be sampled annually (Bhate 2020). The locations of these groundwater monitoring wells are shown on **Figure 2-1**.

Four wells (12WW10R, 12WW20, 12WW21, and 12WW24) will continue to be sampled annually for volatile organic compounds (VOCs). 12WW22 will be sampled every five years to support the five year reviews. Any change in this frequency will be evaluated in the next five year review.

2.2.1 Groundwater Elevation Measurements

The groundwater elevations from nine wells, 12WW01, 12WW02, 12WW05, 12WW10R, 12WW20, 12WW21, 12WW22, 12WW23, and 12WW24, were gauged and recorded in December 2021 and are included in **Table 2-1**. The groundwater elevation measurements collected in December 2021 indicate that groundwater flows to the east and northeast as shown on **Figure 2-2**. The groundwater elevation in six of the nine measured wells was approximately 0.02 to 0.81 feet higher in December 2021 than in the previous gauging event which occurred in December 2020. Groundwater elevations were lower in wells 12WW05, 12WW20, and 12WW22. The groundwater elevations in December 2021 are generally within the range of historical values. The hydraulic gradient as measured in December 2021 was 0.03 feet vertical per foot horizontal (ft/ft) in the northern portion of the site and 0.01 ft/ft in the eastern portion of the site. The well siltation measurements from the December 2021 gauging event have been included in **Appendix A**. Based on these observations, 12WW21, 12WW22, and 12WW23 show screen siltation of 17 to 18 percent. Wells 12WW22 and 12WW23 were only used for groundwater gauging during the December 2021 sampling event, and the level of siltation observed is unlikely to have impacted the groundwater elevation measurements. Monitoring well 12WW23 was redeveloped in October 2021; the redevelopment did not change the total depth measurement of the well. The well redevelopment log for 12WW23 is included in **Appendix C**. Monitoring well 12WW21 is sampled annually and will be redeveloped prior to the next sampling event in 2022. The remaining wells were in good condition, and no evidence of turbidity or silt accumulation was identified during the sampling and gauging event. Monitoring well 12WW22 will be redeveloped prior to the sampling event in 2024. If the level of siltation in 12WW23 increases in the future, additional redevelopment may be prudent to maintain its usefulness as a groundwater gauging location.

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2.2.2 Groundwater Sampling and Analytical Results

Groundwater samples were collected in December 2021 using low-flow methodology, in accordance with Bhate's *Standard Operating Procedures, Groundwater Sampling Procedures* (Bhate 2018). The objective of using low-flow sampling methods is to reduce turbidity in the samples. After the water quality parameters stabilized and were within acceptable ranges, samples were collected at the same low flow rate. Groundwater monitoring well sampling forms were completed for each monitoring well sampled and are included in **Appendix C**. Laboratory analytical results are included in **Appendix D**.

Groundwater samples were collected on December 28, 2021, from 12WW10R, 12WW20, 12WW21, and 12WW24. The samples were analyzed for VOCs according to USEPA Method 8260 (SW-846). No VOCs were detected in monitoring wells 12WW20, 12WW21, or 12WW10R. In monitoring well 12WW24, TCE was detected at a concentration of 5.5 micrograms per liter (µg/L) and was the only VOC that slightly exceeded its MCL (5 µg/L).

The TCE concentration at monitoring well 12WW24 declined from 19 µg/L in December 2019 to 15 µg/L in December 2020 and further reduced to 5.5 µg/L in December 2021. Cis-1,2-DCE was detected at 11 µg/L in December 2020, which further reduced to 7.7 µg/L in December 2021, below its respective MCL of 70 µg/L. Historical contaminant of concern (COC) trends are discussed further in the MNA Evaluation in **Section 2.3**. Analytical results for the December 2021 samples are shown in **Table 2-2**. Historical TCE concentrations for LHAAP-12 wells are shown in **Table 2-3**. Historical COC concentrations for monitoring well 12WW24 are shown in **Table 2-4**. Historical COC trends and groundwater elevations for 12WW24 are shown on **Figure 2-3**. The 2021 COC concentrations are shown on **Figure 2-4**.

2.3 Monitored Natural Attenuation Evaluation

The MNA evaluation, completed as part of the *Final 2013 Five-Year Review Report* (AECOM 2014), concluded that TCE degradation was occurring via anaerobic reductive dechlorination. Although an increasing trend in TCE concentration was observed in well 12WW24 between June 2010 and January 2015, concentrations have decreased over the past seven sampling events from December 2015 to December 2021 (**Figure 2-3**). Historically, TCE concentrations appear to inversely correlate with fluctuating water levels, as shown on **Figure 2-3**, and the groundwater elevations have increased over three feet in 12WW24 between 2015 and 2021. The presence of cis-1,2-DCE indicates that degradation by anaerobic reductive dechlorination is occurring (see **Table 2-4** and **Figure 2-3**). However, the concentration trends for cis-1,2-DCE exhibit a downward trend similar to TCE despite the increasing cis-1,2-DCE to TCE ratio and the oxidation-reduction potential values have been consistently above the 50 millivolt threshold conducive to reductive dechlorination with the exception of 2018. This suggests that abiotic processes are likely to be the dominant pathway

for TCE reduction. Groundwater TCE concentrations for all wells can be found in **Table 2-3**. The December 2021 concentrations are shown on **Figure 2-4**.

Statistical analysis of the concentration profile for TCE in 12WW24 was completed using Mann-Kendall trend analysis for the data collected from 2006 to 2021. The results are shown in **Appendix E**. The Mann-Kendall trend test indicates a statistically significant decreasing trend at the 99.9 percent confidence level for TCE concentrations in monitoring well 12WW24. A drought persisted between 2011 and 2012. This resulted in decreased groundwater levels and well 12WW24 being dry and not sampled in 2012. After the groundwater level in 12WW24 recovered, TCE concentrations increased during the December 2013 and January 2015 sampling events, and then declined during the December sampling events from 2015 through 2021. Additional annual sampling is necessary for the next five year review when the trends will continue to be evaluated for statistical significance and a decrease of sampling frequency. The decreasing contaminant trend provides evidence that the plume is stable and natural attenuation is occurring, resulting in an overall decrease in TCE concentration in groundwater over time. The presence of cis-1,2-DCE in 12WW24 since 2013 also indicates that biodegradation has been occurring.

The TCE trend in 12WW24 shown on **Figure 2-3** was used to calculate a first order decay rate (**Appendix F**). Two calculations have been made: 1) the first for the dataset through June 2011, and 2) the second for the dataset that includes all results through December 2021. The reason for the two calculations is because the recovery from drought conditions evidenced by the dry well in December 2012 appears to have generated a temporary increase in TCE concentration in this well in the December 2013 and January 2015 sampling events. This increase temporarily disrupted the overall trend in the dataset. However, the groundwater elevations have been increasing since the well was dry in December 2012, and an overall decrease in TCE concentration has also been observed after the concentrations peaked in January 2015.

The first order rate constant for the period from December 2006 through June 2011 was 6.0 E-04 per day, while the first order rate constant for the entire dataset from December 2006 to December 2021 was 5.0 E-04 per day. Based on these rate constants, the estimated duration to achieve the MCL for TCE in 12WW24 is 15 years from June 2011 using the rate constant for the pre-drought dataset from December 2006 through June 2011 and approximately 0.5 years from December 2021 using the rate constant for the entire dataset. However, given the lithologic variability at the site, the potential for plume migration, the concentrations approaching the laboratory detection limit, concentrations within the limits of analytical precision relative to the MCL, and other factors affecting the concentration trends, the time to achieve MCLs at LHAAP-12 may vary by an order of magnitude or more. Additionally, the rate of reduction could diminish over time as the residual concentrations decrease, and the time frames to achieve the MCL might be longer than estimated.

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3.0 CONCLUSIONS AND RECOMMENDATIONS

Physical inspections and groundwater monitoring continue at LHAAP-12 in compliance with the ROD for LHAAP-12 (Shaw 2006). Monitoring well 12WW23 was redeveloped in October 2021 and continues to show excess siltation post redevelopment of well. Monitoring well 12WW22 will be redeveloped prior to the next sampling event in 2022 and 12WW24 will be redeveloped prior to the next sampling in 2024 if siltation continues to exceed 10%. No damage to bollards, pads, or protective casings was observed, and limited encroachment of weeds or brush on the well pads was observed. No change in land or groundwater use has occurred at the site. LUCs were verified, and the use of the site is still consistent with that mandated by the ROD. Annual LUC inspections will continue to be conducted.

In accordance with the Groundwater Sampling Plan, found in Appendix A of the RD Addendum for LHAAP-12 (Shaw 2007), annual sampling of wells will continue until the next Five-Year Review.

The groundwater gauging event from December 2021 indicates an easterly to northeasterly gradient. Based on historical gradient maps, the direction of groundwater flow varies. The monitoring wells will continue to be gauged and inspected as part of future sampling events.

Monitoring wells 12WW10R, 12WW20, 12WW21, and 12WW24 were sampled on December 28, 2021, for VOCs. No VOCs were detected in 12WW10R, 12WW20, and 12WW21. At 12WW24, TCE was detected slightly above its MCL of 5 µg/L at a concentration of 5.5 µg/L. This was a decrease from the December 2020 TCE concentration of 15 µg/L. None of the other detected compounds exceeded their respective MCLs. TCE concentrations in 12WW24 show a statistically significant decreasing trend since 2006 based on Mann-Kendall analysis (**Appendix E**). Monitoring well 12WW10R, installed to delineate the plume more tightly in the downgradient direction, did not contain detectable COC concentrations. This indicates that the plume is delineated and has not expanded very far beyond 12WW24. 12WW10R will continue to be sampled annually.

As evidenced by **Figure 2-3**, the groundwater elevation data exhibit an inverse correlation with VOC concentrations in 12WW24. The increase in TCE in the December 2013 and January 2015 sampling events in 12WW24 is thought to be associated with lower water levels and sampling following drought conditions, as these were the first samples collected since the well was dry due to drought conditions in 2012. Water levels have continued to increase since 2012, and TCE concentrations have been decreasing since January 2015 with the December 2021 sampling result being the lowest TCE concentration measured during the 2006–2021 period.

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Overall, the MNA remedy at LHAAP-12 is working as planned. TCE concentrations are declining with increasing groundwater elevations, indicating that dilution and dispersion may be the most dominant natural attenuation pathway. The presence of daughter products (cis-1,2-DCE and VC) (prior to 2016) indicate that reductive dechlorination is also occurring. The degradation rate analysis for the entire dataset estimates that TCE may reduce to below the MCL at LHAAP-12 in six months. The time to attain MCL may vary depending on the lithologic variability at the site, the potential for plume migration, and other factors affecting the concentration trends.

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Tables

Table 2-1
Groundwater Elevation Data, LHAAP-12

Well ID	Sampling Date	Top of Casing Elevation (ft)	Depth to Water from TOC (ft)	Groundwater Elevation (ft amsl)	Total Depth (ft bgs)	Screen Interval (ft bgs)
12WW01	12/1/2016	204.19	23.60	180.59	26.5	14.50 - 26.50
	3/27/2018	204.19	23.55	180.64		
	1/29/2019	204.19	22.99	181.20		
	12/3/2019	204.19	22.10	182.09		
	12/21/2020	204.19	21.57	182.62		
	12/28/2021	204.19	21.24	182.95		
12WW02	12/1/2016	202.45	22.07	180.38	28.50	13.50 - 28.50
	3/27/2018	202.45	21.82	180.63		
	1/29/2019	202.45	20.93	181.52		
	12/3/2019	202.45	20.5	181.95		
	12/21/2020	202.45	20	182.45		
	12/28/2021	202.45	19.81	182.64		
12WW05	12/1/2016	190.52	9.88	180.64	35.50	15.50 - 35.50
	3/27/2018	190.52	8.05	182.47		
	1/29/2019	190.52	6.95	183.57		
	12/3/2019	190.52	8.52	182		
	12/21/2020	190.52	6.8	183.72		
	12/28/2021	190.52	7.96	182.56		
12WW10R	12/3/2019	202.59	22	180.59	28	18-28
	12/21/2020	202.59	21.38	181.21		
	12/28/2021	202.59	21.04	181.55		
12WW20	6/15/2010	199.15	17.98	181.17	38	28 - 38
	6/7/2011	199.15	19.78	179.37		
	12/3/2012	199.15	22.03	177.12		
	1/8/2014	199.15	20.71	178.44		
	1/9/2015	199.15	19.34	179.81		
	12/19/2015	199.15	19.00	180.15		
	12/1/2016	199.15	18.69	180.46		
	12/4/2017	199.15	18.8	180.35		
	3/27/2018	199.15	17.6	181.55		
	12/4/2018	199.15	18.35	180.8		
	1/29/2019	199.15	16.81	182.34		
	12/3/2019	199.15	17.23	181.92		
	12/21/2020	199.15	16	183.15		
	12/28/2021	199.15	16.51	182.64		
12WW21	6/15/2010	202.07	21.85	180.22	41.00	31 - 41
	6/7/2011	202.07	23.35	178.72		
	12/3/2012	202.07	24.21	177.86		
	1/8/2014	202.07	24.56	177.51		
	1/9/2015	202.07	24.35	177.72		
	12/19/2015	202.07	22.95	179.12		
	12/1/2016	202.07	21.97	180.10		
	12/4/2017	202.07	21.92	180.15		
	3/27/2018	202.07	21.42	180.65		
	12/4/2018	202.07	22.2	179.87		
	1/29/2019	202.07	21.00	181.07		
	12/3/2019	202.07	20.45	181.62		

Table 2-1
Groundwater Elevation Data, LHAAP-12

Well ID	Sampling Date	Top of Casing Elevation (ft)	Depth to Water from TOC (ft)	Groundwater Elevation (ft amsl)	Total Depth (ft bgs)	Screen Interval (ft bgs)
12WW21 (cont.)	12/21/2020	202.07	19.57	182.5	41.00	31 - 41
	12/28/2021	202.07	19.55	182.52		
12WW22	6/15/2010	190.20	7.93	182.27	38	28 - 38
	6/7/2011	190.20	9.72	180.48		
	12/3/2012	190.20	13.46	176.74		
	1/8/2014	190.20	10.57	179.63		
	1/9/2015	190.20	9.60	180.60		
	12/1/2016	190.20	10.32	179.88		
	3/27/2018	190.20	7.81	182.39		
	1/29/2019	190.20	6.93	183.27		
	12/3/2019	190.20	9.3	180.90		
	12/21/2020	190.20	7.61	182.59		
	12/28/2021	190.20	8.85	181.35		
12WW23	6/16/2010	196.97	18.28	178.69	25	15 - 25
	6/7/2011	196.97	19.40	177.57		
	12/3/2012	196.97	20.38	176.59		
	1/8/2014	196.97	20.80	176.17		
	1/9/2015	196.97	19.34	177.63		
	12/1/2016	196.97	17.23	179.74		
	3/27/2018	196.97	16.88	180.09		
	1/29/2019	196.97	16.02	180.95		
	12/3/2019	196.97	15.48	181.49		
	12/21/2020	196.97	15.63	181.34		
	12/28/2021	196.97	14.82	182.15		
12WW24	6/16/2010	203.17	22.50	180.67	25.50	15.50 - 25.50
	6/7/2011	203.17	24.15	179.02		
	12/3/2012	203.17	Dry	Dry		
	12/9/2013	203.17	26.00	177.17		
	1/9/2015	203.17	24.22	178.95		
	12/18/2015	203.17	23.50	179.67		
	11/30/2016	203.17	22.53	180.64		
	12/4/2017	203.17	22.61	180.56		
	3/27/2018	203.17	22.35	180.82		
	12/4/2018	203.17	22.87	180.30		
	1/29/2019	203.17	21.61	181.56		
	12/3/2019	203.17	21.1	182.07		
	12/21/2020	203.17	20.45	182.72		
	12/28/2021	203.17	20.25	182.92		

Notes:

amsl - above mean sea level

bgs - below ground surface

ft - feet

ID - identifier

TOC - top of casing

Table 2-2
2021 Sample Results, LHAAP-12

			Location Code	12WW10R		12WW20		12WW21				12WW24	
			Sample ID	12WW10R-211228		12WW20-211228		12WW21-211228-FD		12WW21-211228		12WW24-211228	
			Sample Date	12/28/2021		12/28/2021		12/28/2021		12/28/2021		12/28/2021	
			Sample Purpose	REG		REG		REG		REG		REG	
Parameter		Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
FIELD TESTS													
	Dissolved oxygen	mg/L	NV	0.21		0.27				0.25		0.17	
	Oxidation Reduction Potential	mV	NV	138		124				226		60	
	pH	STD UNIT	NV	5.68		4.82				5.3		5.41	
	Specific conductivity	µS/cm	NV	1.87		1.32				5.05		1.8	
	Temperature	C	NV	18.83		18.99				18.32		18.78	
	Turbidity	NTU	NV	110		2.2				7.6		1.5	
VOLATILES													
	1,1,1,2-Tetrachloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1,1-Trichloroethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	1,1,2,2-Tetrachloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1,2-Trichloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,1-Dichloroethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	1,1-Dichloropropene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2,3-Trichlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2,3-Trichloropropane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2,4-Trichlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2,4-Trimethylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2-Dibromo-3-chloropropane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2-Dibromoethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	1,2-Dichlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	1,2-Dichloropropane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,3,5-Trimethylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,3-Dichlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,3-Dichloropropane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	1,4-Dichlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	2,2-Dichloropropane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	2-Butanone	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	2-Chlorotoluene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	2-Hexanone	µg/L	NV	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
	4-Chlorotoluene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Acetone	µg/L	NV	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
	Benzene	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	Bromobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Bromochloromethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	Bromodichloromethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
	Bromoform	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Bromomethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Carbon disulfide	µg/L	NV	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
	Carbon tetrachloride	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Chlorobenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Chloroethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
	Chloroform	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-2
2021 Sample Results, LHAAP-12

		Location Code	12WW10R		12WW20		12WW21				12WW24	
		Sample ID	12WW10R-211228		12WW20-211228		12WW21-211228-FD		12WW21-211228		12WW24-211228	
		Sample Date	12/28/2021		12/28/2021		12/28/2021		12/28/2021		12/28/2021	
		Sample Purpose	REG		REG		REG		REG		REG	
Parameter	Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Chloromethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	7.7	
cis-1,3-Dichloropropene	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dibromochloromethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Dibromomethane	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Dichlorodifluoromethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Ethylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Hexachlorobutadiene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Isopropylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
m,p-Xylenes	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Methyl isobutyl ketone	µg/L	NV	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U
Methylene chloride	µg/L	NV	< 1	U	< 1	U	< 2	U	< 2	U	< 1	U
Naphthalene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Butylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
n-Propylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
o-Xylene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
p-Isopropyltoluene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
sec-Butylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Styrene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
tert-Butylbenzene	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Tetrachloroethene	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Toluene	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,2-Dichloroethene	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
trans-1,3-Dichloropropene	µg/L	NV	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	5.5	
Trichlorofluoromethane	µg/L	NV	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bolded and highlighted results indicate concentration above the MCL.

µg/L - micrograms per liter
µS/cm - microsiemens per centimeter
C - degrees Celsius
FD - field duplicate
ID - identifier
MCL - maximum contaminant level
mg/L - milligrams per liter
mV - millivolts
NTU - nephelometric turbidity unit
NV - no value
PCL - protective concentration level
REG - regular sample
STD Unit - standard unit
U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.
UTL - upper tolerance limit
Val Qual - validation qualifier

Table 2-3
Historical TCE Concentrations at LHAAP-12 Monitoring Wells

Sampling Date	Monitoring Wells						
	12WW10R (µg/L)	12WW20 (µg/L)	12WW21 (µg/L)	12WW22 (µg/L)	12WW23 (µg/L)	12WW24 (µg/L)	12WW25(30) [a] (µg/L)
19 Dec 2006	NA	0.713	1 U	1 U	1 U	396	NS
5 Sep 2007	NA	1.34	1 U	1 U	1 U	272	NS
19 Dec 2007	NA	1.19	1 U	1 U	1 U	313	NS
5 Mar 2008	NA	0.999 J	0.25 U	0.25 U	0.25 U	301	NS
4 Jun 2008	NA	1.04	0.25 U	0.25 U	0.25 U	237	NS
11 Sep 2008	NA	0.985	0.25 U	0.25 U	0.25 U	185	NS
4 Mar 2009	NA	1.18	0.25 U	0.25 U	0.25 U	334	NS
29 Apr 2009	NA	0.997	0.25 U	0.25 U	0.25 U	197	NS
14 Jul 2009	NA	0.931	0.25 U	0.25 U	0.25 U	204	NS
16 Jun 2010	NA	0.353 J	0.25 U	0.25 U	0.25 U	145	NS
7 Jun 2011	NA	0.263 J	0.25 U	0.25 U	0.25 U	147	NS
3 Dec 2012	NA	0.5 J	0.582 J	0.5 U	0.5 U	Dry Well	NS
11 Dec 2013	NA	5	0.721 J	0.5 U	0.5 U	259 [b]	NS
1 Aug 2014	NA	NS	NS	NS	NS	NS	0.317 J
1 Jan 2015	NA	0.293 J	0.25 U	0.25 U	0.25 U	353	NS
15 Dec 2015	NA	0.5 U	0.5 U	NS	NS	278	NS
16 Dec 2016	NA	0.5 U	0.5 U	0.5 U	0.5 U	151	NS
4 Dec 2017	NA	1 U	1 U	NS	NS	83	NS
4 Dec 2018	NA	0.5 U	0.5 U	NS	NS	48	NS
3 Dec 2019	0.5 U	0.5 U	0.5 U	0.5 U	NS	19	NS
21 Dec 2020	0.5 U	0.5 U	0.5 U	0.5 U	NS	15	NS
28 Dec 2021	0.5 U	0.5 U	0.5 U	0.5 U	NS	5.5	NS

Notes:

[a] This was a 2014 DPT boring grab groundwater sample; no well was subsequently installed.

[b] Analyte diluted 5X.

µg/L - micrograms per liter

J - estimated value; analyte concentration was less than the limit of quantification.

U - Not detected. The analyte was analyzed for, but not detected above the associated limit of detection.

DPT - direct-push technology

NA - not available

NS - not sampled

TCE - trichloroethene

Table 2-4
Historical COC Concentrations at Monitoring Well 12WW24

Sampling Date	Monitoring Wells		
	Trichloroethene (µg/L)	cis-1,2-DCE (µg/L)	Vinyl Chloride (µg/L)
12/19/2006	396	1 U	1 U
9/5/2007	272	1 U	1 U
12/19/2007	313	1 U	1 U
3/5/2008	301	0.25 U	0.25 U
6/4/2008	237	0.25 U	0.25 U
9/11/2008	185	0.25 U	0.25 U
3/4/2009	334	0.25 U	0.25 U
4/29/2009	197	0.25 U	0.25 U
7/14/2009	204	0.25 U	0.25 U
6/16/2010	145	0.25 U	0.25 U
6/7/2011	147	0.25 U	0.25 U
12/11/2013	259 [a]	66.1	0.873 J
1/1/2015	353	70.8	1.25
12/15/2015	278	58.5	0.786
12/16/2016	151	36.7	0.51
12/4/2017	83	26	1 U
12/4/2018	48	22	0.5 U
12/3/2019	19	12	0.5 U
12/21/2020	15	11	0.5 U
12/28/2021	5.5	7.7	0.5 U

Notes:

[a] Analyte diluted 5X.

µg/L - micrograms per liter

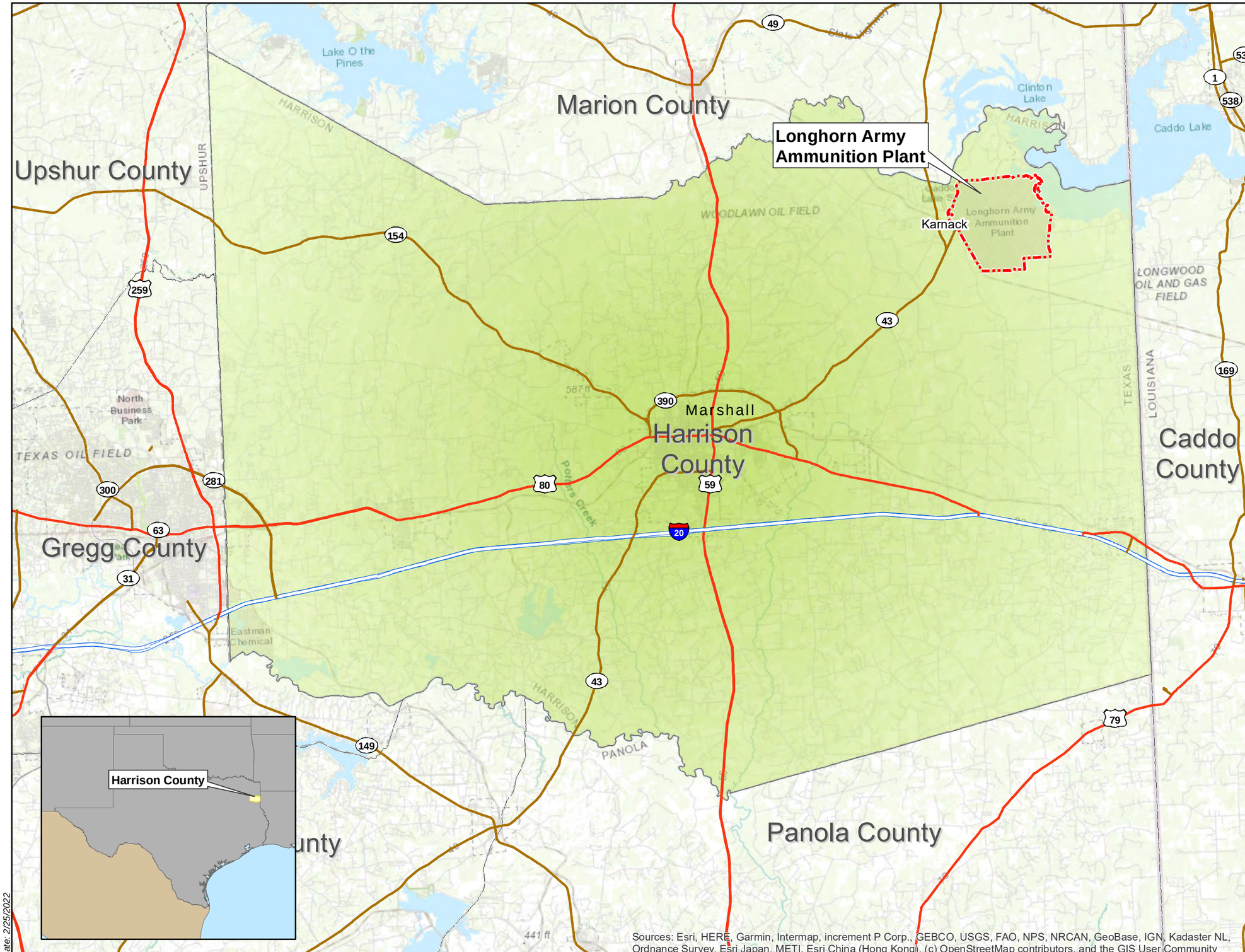
J - estimated value; analyte concentration was less than the limit of quantification.

U - Not detected. The analyte was analyzed for, but not detected above the associated limit of detection.

COC - contaminant of concern

DCE - dichloroethene

Figures



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Note:
1. RA-O = Remedial Action Operations
2. LHAAP = Longhorn Army Ammunition Plant

N

0 2 4 Miles

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TULSA, OKLAHOMA

bhate APTIM

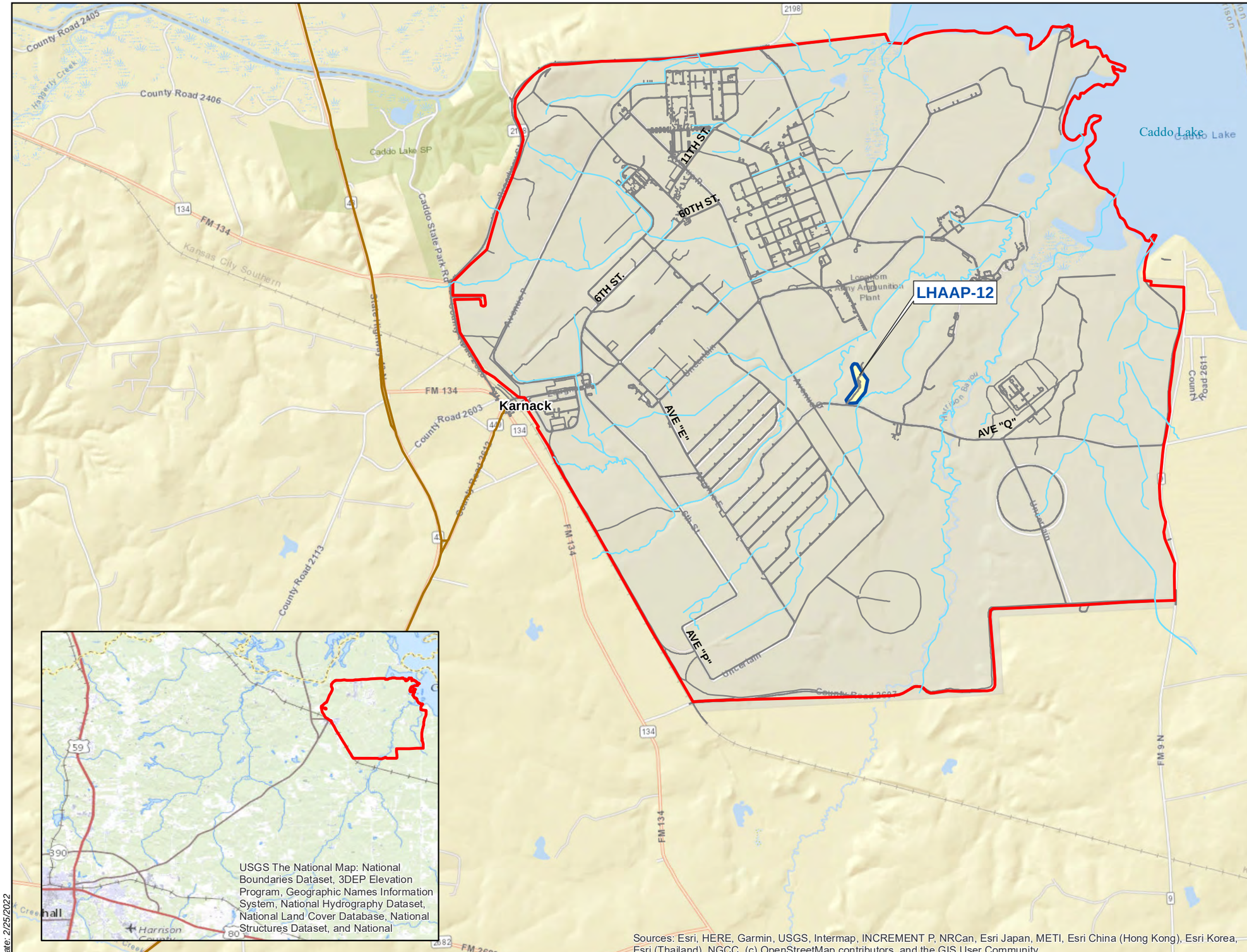
Figure 1-1

LHAAP Location Map
LHAAP-12
2021 Annual RA-O Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/25/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP12\RAO\2021\LHAAP_LocationMap.mxd



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TULSA, OKLAHOMA

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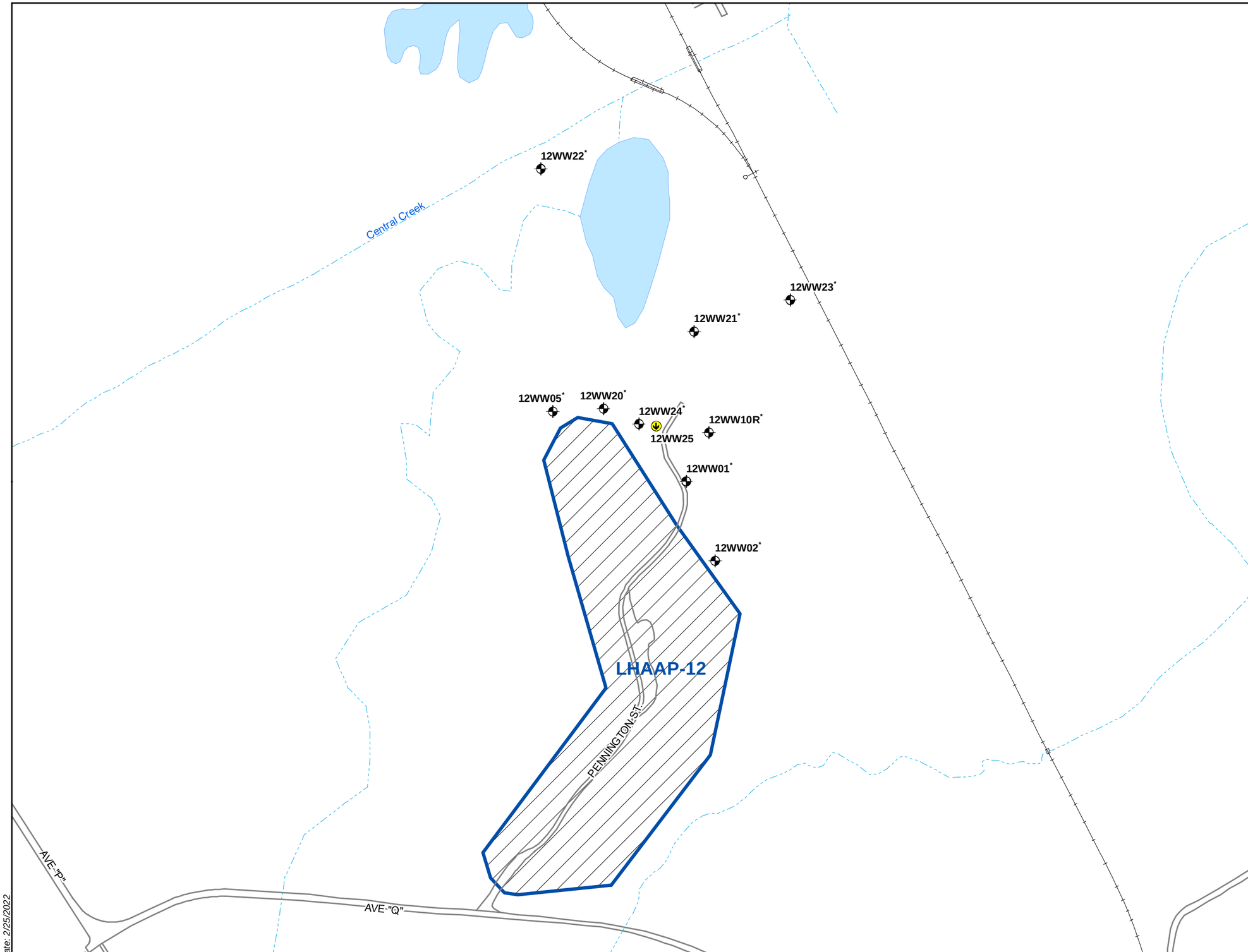
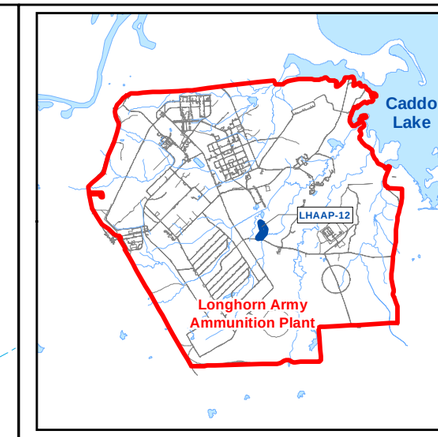
Figure 1-2
LHAAP Site Vicinity Map
LHAAP-12
2021 Annual RA-O Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/25/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP12\RAO\2021\LHAAP12_SiteLocationMap.mxd





Monitoring Well

2014 direct push technology (DPT) Location (This was a DPT boring grab groundwater sample, no well was subsequently installed)

Stream

Road

Site Boundary

Landfill Cap Area

Railroad

Note:
1. Each well has 5'x5' concrete surface monument surrounded by bollards. Each well has a polyvinyl chloride riser.
2. * Gauged for water levels.

N

0 125 250 Feet

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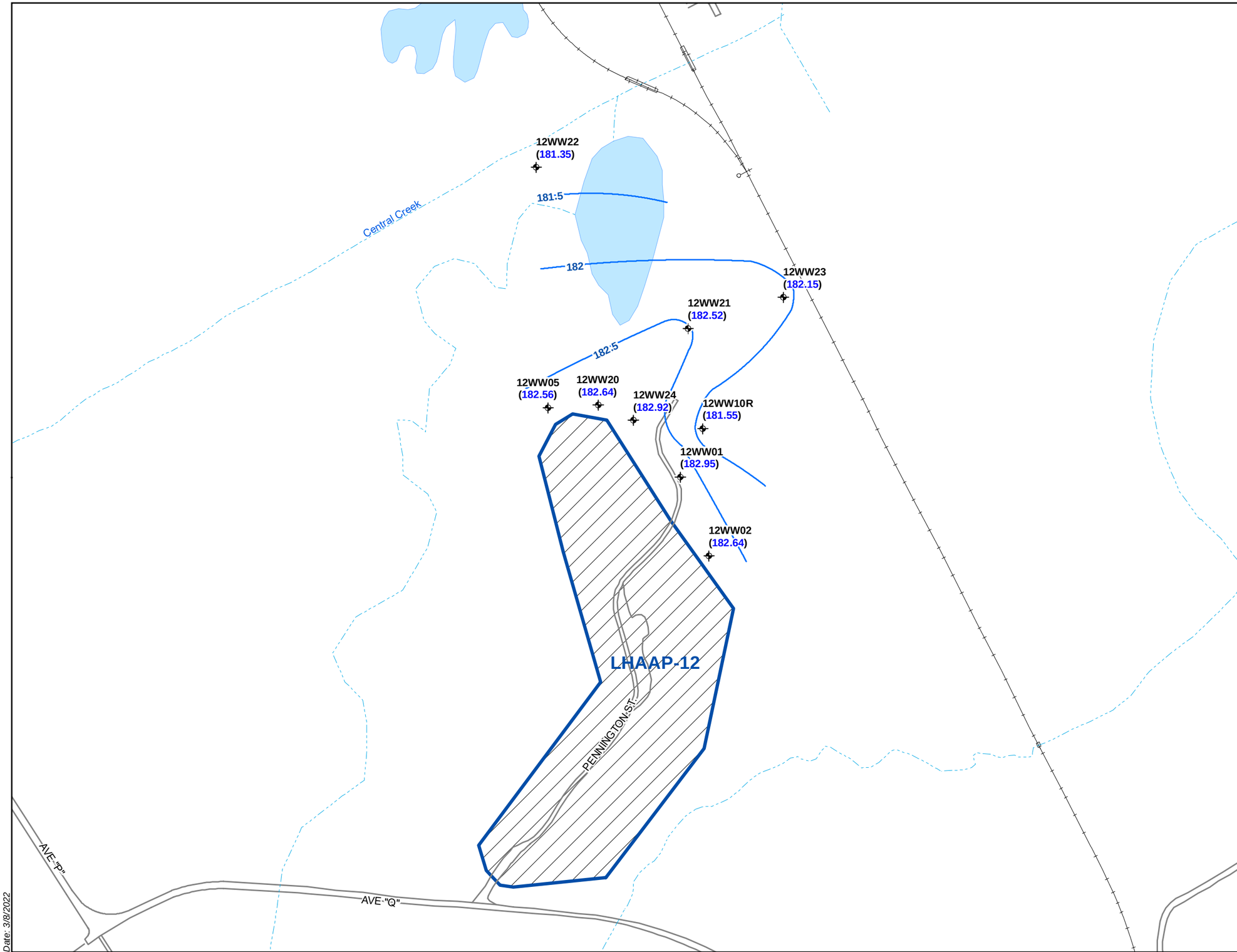
Figure 2-1

Groundwater Monitoring Well Locations
LHAAP-12
2021 Annual RA-O Report

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/25/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP12\RAO\2021\LHAAP12_GWMonitoringWellLocations.mxd



Legend

- Shallow Monitoring Well
- Groundwater Contour
- Stream
- Fence_Line
- Road
- Site Boundary
- Landfill Cap Area
- Railroad
- Lakes

N

0 125 250 Feet

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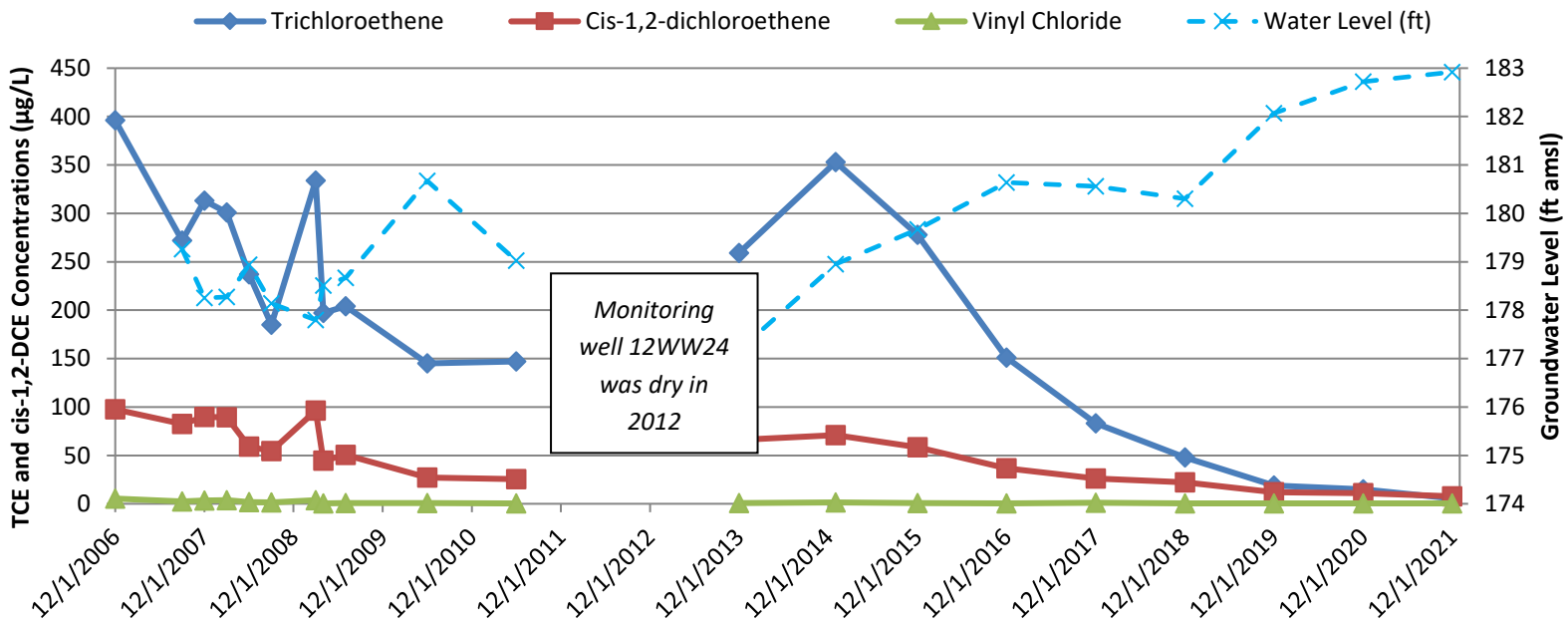
Figure 2-2
Shallow Groundwater Gradient Map
December 2021
LHAAP-12
2021 Annual RA-O Report
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

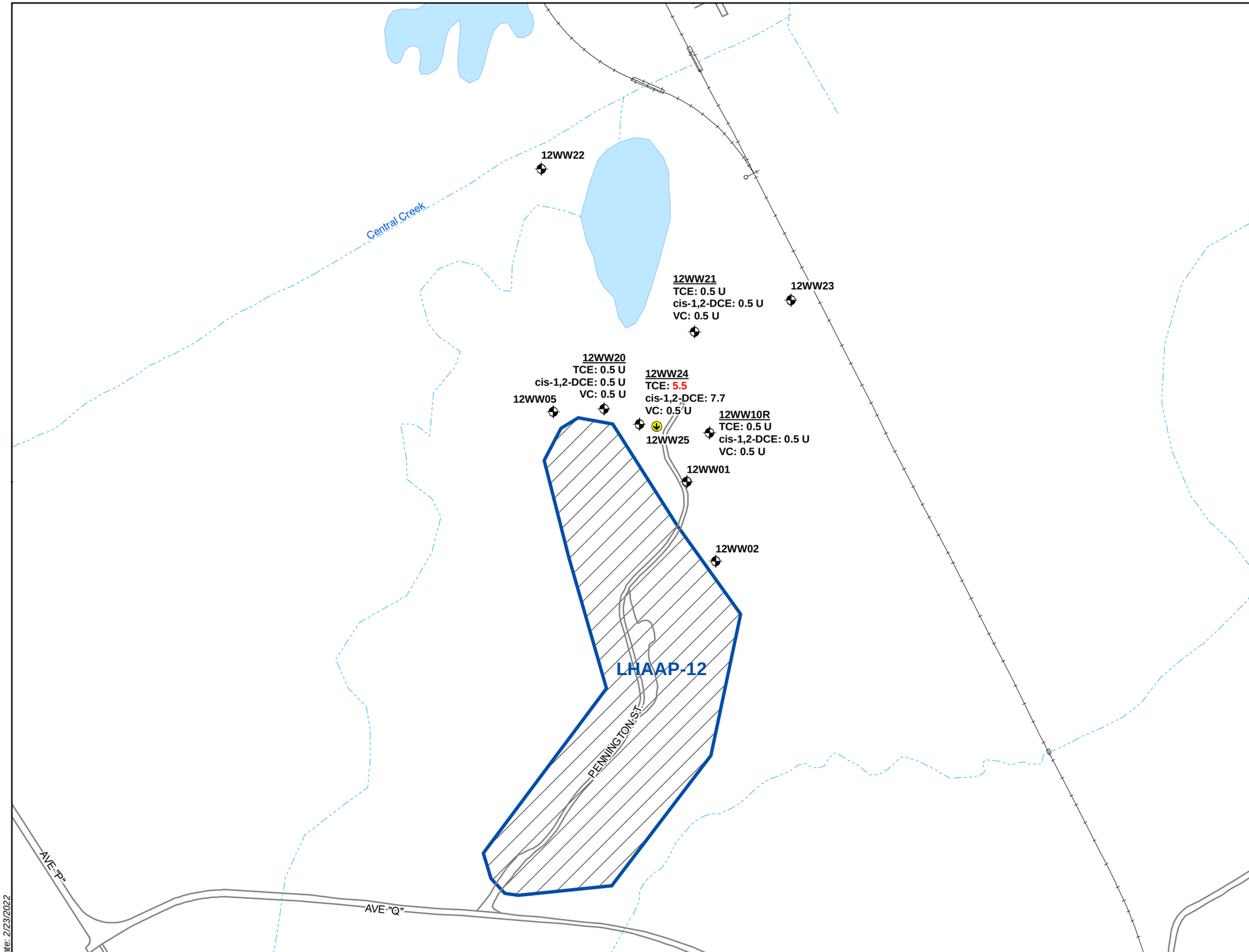
Date: 3/8/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP12\RAO\2021\LHAAP12_GWGradientMap_Dec2021.mxd

Figure 2-3
TCE, cis-1,2-DCE, and VC Concentrations in 12WW24
LHAAP-12



Notes:
Maximum Contaminant Levels: TCE = 5 µg/L; cis-1,2-DCE = 70 µg/L; VC = 2 µg/L
µg/L - micrograms per liter
DCE - dichloroethene
ft amsl - feet above mean sea level
TCE - trichloroethene
VC - vinyl chloride



Monitoring Well
2014 DPT Location (This was a DPT boring grab groundwater sample, no well was subsequently installed)
Stream
Road
Site Boundary
Landfill Cap Area
Railroad

Note:
1. Results are in micrograms per liter (µg/L)
U - Not detected. The analyte was analyzed for, but not detected above the associated limit of detection
TCE - trichloroethene
DCE - dichloroethene
VC - Vinyl Chloride
DPT - direct push technology
2. Concentrations in red are above the Maximum Contaminant Limit (MCL)

N

0 125 250 Feet

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TULSA, OKLAHOMA

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Figure 2-4
Groundwater COC Concentrations
December 2021
LHAAP-12
2021 Annual RA-O Report
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 2/23/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP12\RAO\2021\LHAAP12_GWCOC_ConcentrationsMapDec2021.mxd

Appendix A

Photo Log and Well Inspection Forms

APPENDIX A

Photo Log

Photo No.	Date	Task and Description
1	12/28/2021	View of Monitoring Well 12WW01
2	12/28/2021	View of Monitoring Well 12WW02
3	12/28/2021	View of Monitoring Well 12WW05
4	12/28/2021	View of Newly Installed 12WW10R
5	12/28/2021	View of Monitoring Well 12WW20
6	12/28/2021	View of Monitoring Well 12WW21
7	12/28/2021	View of Monitoring Well 12WW22
8	12/28/2021	View of Monitoring Well 12WW23
9	12/28/2021	View of Monitoring Well 12WW24

PHOTO 1: View of Monitoring Well 12WW01
DATE: December 28, 2021

PHOTO 2: View of Monitoring Well 12WW02
DATE: December 28, 2021

PHOTO 3: View of Monitoring Well 12WW05
DATE: December 28, 2021

PHOTO 4: View of Newly Installed 12WW10R
DATE: December 28, 2021

PHOTO 5: View of Monitoring Well 12WW20
DATE: December 28, 2021

PHOTO 6: View of Monitoring Well 12WW21
DATE: December 28, 2021

PHOTO 7: View of Monitoring Well 12WW22
DATE: December 28, 2021

PHOTO 8: View of Monitoring Well 12WW23
DATE: December 28, 2021

PHOTO 9: View of Monitoring Well 12WW24
DATE: December 28 2021

2021 Summary of Monitoring Well Inspection and Repair

Well Information		Visual Inspections of Well												
Well Identification	Date	ID Plate	Lock	Gasket	Cap	Bolts	Bollards	Pad	Vegetation	Tampering/ Obstructions	Limited Access	New Wells	Subsurface Activities	Comments
12WW01	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW02	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW05	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW20	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW21	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW22	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW23	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	
12WW24	12/28/2021	X	X	X	X	X	Present/Functioning	Good	None - Well is Clear	N	N	N	N	

Notes:
ID - identification
N - none

Well Construction Information

Well Identification	Log Date	Depth to Water (ft btoc)	Total Measured Well Depth (ft btoc)	Total Measured Well Depth (ft bgs)	Dry?	Water Column (ft)	Survey Data		Well Construction Data				Percent Siltation
							Top of Casing Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Constructed Well Depth (ft bgs)	Well Screen Beginning Depth (ft bgs)	Well Screen Ending Depth (ft bgs)	Screen Length (ft)	
12WW01	12/28/2021	21.24	29.90	27.28	No	8.66	204.19	201.57	26.5	14.50	26.50	12.00	0.0%
12WW02	12/28/2021	19.81	31.62	29.43	No	11.81	202.45	200.26	28.5	13.50	28.50	15.00	0.0%
12WW05	12/28/2021	7.96	38.55	36.40	No	30.59	190.52	188.37	35.5	15.50	35.50	20.00	0.0%
12WW10R	12/28/2021	21.04	31.55	29.12	No	10.51	202.59	200.16	28	18.00	28.00	10.00	0.0%
12WW20	12/28/2021	16.51	39.23	37.16	No	22.72	199.15	197.08	38	28.00	38.00	10.00	8.4%
12WW21	12/28/2021	19.55	41.70	39.73	No	22.15	202.07	200.10	41	31.00	41.00	10.00	12.7%
12WW22	12/28/2021	8.85	38.63	36.21	No	29.78	190.20	187.78	38	28.00	38.00	10.00	17.9%
12WW23	12/28/2021	14.82	25.37	23.27	No	10.55	196.97	194.87	25	15.00	25.00	10.00	17.3%
12WW24	12/28/2021	20.25	28.22	25.92	No	7.97	203.17	200.87	25.5	15.50	25.50	10.00	0.0%

Notes:

ft - feet

ft amsl - feet above mean sea level

ft bgs - feet below ground surface

ft btoc - feet below top of casing

Water Level Report

Location	Sampling Date	TOC Elevation (ft msl)	Ground Surface Elevation (ft msl)	Depth to Water (ft toc)	Water Elevation (ft msl)	Cons Depth of Well (ft bgs)	Screen Interval (ft bgs)		Measured Well Depth (ft toc)
12WW01	12/28/2021	204.19	201.57	21.24	182.95	26.5	14.5	26.5	29.9
12WW02	12/28/2021	202.45	200.26	19.81	182.64	28.5	13.5	28.5	31.62
12WW05	12/28/2021	190.52	188.37	7.96	182.56	35.5	15.5	35.5	38.55
12WW10R	12/28/2021	202.59	200.16	21.04	181.55	28	18	28	31.55
12WW20	12/28/2021	199.15	197.08	16.51	182.64	38	28	38	39.23
12WW21	12/28/2021	202.07	200.1	19.55	182.52	41	31	41	41.7
12WW22	12/28/2021	190.2	187.78	8.85	181.35	38	28	38	38.63
12WW23	12/28/2021	196.97	194.87	14.82	182.15	25	15	25	25.37
12WW24	12/28/2021	203.17	200.87	20.25	182.92	25.5	15.5	25.5	28.22

Notes:

bgs - below ground surface

ft - feet

msl - mean sea level

toc - top of casing

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12
Well ID: 12WW10R
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 31.55
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12W W21
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 41.70
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 12

Well ID: 12WW23
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 25.37
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 12

Well ID: 12WW24
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 28.22
Inspector: Scott Baessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12WW20
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 39.23
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12WW05
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 38.55
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12WW22
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 38.63
Inspector: Scott Baessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12WW01
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 29.90
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 12

Well ID: 12WW02
Inspection Date: 12/28/21
Well Completion Depth/ Measured Depth: 31.62
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

Appendix B

Land Use Controls and Maintenance Log

APPENDIX B

Photo Log

Photo No.	Date	Task and Description
1	3/23/2021	View of Monitoring Well 12WW01
2	3/23/2021	View of Monitoring Well 12WW02
3	3/23/2021	View of Monitoring Well 12WW05
4	3/23/2021	View of Landfill and Signage
5	3/23/2021	View of Landfill and Signage
6	3/23/2021	View of Landfill
7	3/23/2021	View of Landfill

PHOTO 1: View of Monitoring Well 12WW01
DATE: March 23, 2021

PHOTO 2: View of Monitoring Well 12WW02
DATE: March 23, 2021

PHOTO 3: View of Monitoring Well 12WW05
DATE: March 23, 2021

PHOTO 4: View of Landfill and Signage
DATE: March 23, 2021

PHOTO 5: View of Landfill and Signage
DATE: March 23, 2021

PHOTO 6: View of Landfill
DATE: March 23, 2021

PHOTO 7: View of Landfill
DATE: March 23, 2021

LUC Inspection and Maintenance Log - LHAAP 12

Date	Inspected By	Inspection / Maintenance Activities (yearly, at a minimum)					Corrective Action or Repairs Required?	Repairs / Action Taken
		Protect Landfill Integrity				Prevent Human Exposure to Groundwater		
		Vegetative Cover Maintained (i.e., grass mowed at least annually)	Fence and Signage Maintained	Observance of Landfill Cover Degradation (e.g., desiccation cracks, erosion, or gullying)	Continued Compliance Verified for No Digging or Disturbance of Landfill Cover or Contents	Verified No Withdrawal of Use of Groundwater (other than environmental testing)		
3/23/2021	Beesinger, S.	Maintained. Vegetative cover is in good condition.	Fence and signage in good repair.	Cover subsidence observed and found to be in good condition. No erosion, cracks, or gullying was found.	No evidence of animal burrowing in the cap.	Completed and verified.	None	None

Notes:
e.g. - for example
i.e. - that is
LUC - land use control

Appendix C

Well Redevelopment Log and Groundwater Sampling Forms

WELL DEVELOPMENT LOG

APTIM

PROJECT: LHAAP-12			**WELL ID:** 12WW23
Performed By: Michael Martinez	**Signature:** Michael S. Martinez	**Completion Date:**	**Development Date:** October 17, 2021
Water Level **Initial:** 14.68'	**Final:** Pumped Dry	**Develop Method:** submersible pump/ typhoon	**Total Vol. Dev:** 30 gallons purged
Weather: Sunny 70 F	**Screen Interval:**	Top:	Bottom:
Wetted Volume: **.016gal/ft 2' casing +.87 gal/ft sand pack for a borehole**			**Total Depth:** **Initial:** 25.34' **Final:** 25.34

Time	Cumulative Volume (Gallons)	Water Quality Parameters						Water Level (Feet)	Comments
		Temp (°C)	pH	Cond (mS/cm)	Turb (NTU)	D.O. (mg/L)	Redox (mV)		
1105	5	19.34	6.45	0.483	611.5	5.36	68.6	17.30	Heavy Silt
1110	10	19.83	6.04	0.324	81.5	4.56	46.3	21.20	Cloudy
1115	15	19.11	5.61	0.356	81.3	3.32	29.2	24.62	Cloudy
1118	PUMP DRY/ LET RECHARGE								
1156	PUMP ON/ DTW 18.00'								
1200	20	19.51	5.66	0.261	19.2	7.89	407.1	19.2	Transparent
1205	25	19.61	5.35	0.237	18.1	7.09	390.2	18.1	Transparent
1207	PUMP DRY/ LET RECHARGE								
1217	PUMP ON/ DTW at 20.60'								
1220	30	19.49	5.53	0.238	15.2	8.49	408.1	23.65	Transparent
1221	PUMP DRY/ FINISH								
	Decon Equipment								
	Purge water taken to GWTP for processing								

Remarks YSI 6920 V2/ Calibration Pass

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW10R**

Sampler(s): Scott Bergsinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 12WW10R-211228 **DATE/TIME:** 12/28/21 0703 **Pump Inlet Depth:** 25.53

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 21.04

Depth to Well Bottom (ft) 31.55

Screen Interval (ft): 20.53 - 30.53

Approximate depth of pump inlet*(ft): 25.53

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 12/28/21 0710

Purge End Date/Time: 12/28/21 0740

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0710

2ND DTW - 21.04

APTIM

Sample Collection Log

Location ID: 12WW10R Sample No: 12WW10R-211228

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0715	100	.5	21.11	1.91	19.02	6.16	141	132	0.87
	0720	100	1.0	21.17	1.89	18.85	5.99	128	128	0.40
	0725	100	1.5	21.21	1.88	18.84	5.70	112	136	0.23
	0730	100	2.0	21.24	1.87	18.83	5.70	111	137	0.22
	0735	100	2.5	21.26	1.87	18.82	5.69	111	137	0.22
	0740	100	3.0	21.28	1.87	18.83	5.68	110	138	0.21

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW20**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Cloudy / Light Rain

SAMPLING INFORMATION

Sample No: 12WW20-211228 **DATE/TIME:** 12/28/21 0916 **Pump Inlet Depth:** 35.07

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 12/28/21 0985

Depth to Water - Initial (DTWi) (ft) 16.51

Purge End Date/Time: 12/28/21 0955

Depth to Well Bottom (ft) 39.23

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 30.07 - 40.07

Discharge Tube Diameter: 1/4"

Immersible Layer: Y/N

Approximate depth of pump inlet*(ft): 35.07

Pump Start Time: 0925

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 16.51

APTIM

Sample Collection Log

Location ID: 12WW20				Sample No: 12WW20-211228						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0930	100	5	16.58	1.32	18.96	5.47	6.5	98	0.68
	0935	100	1.0	16.63	1.32	18.93	4.99	3.8	112	0.35
	0940	100	1.5	16.66	1.32	18.95	4.85	3.4	123	0.28
	0945	100	2.0	16.68	1.32	18.96	4.84	3.0	123	0.28
	0950	100	2.5	16.69	1.32	18.97	4.83	2.6	124	0.27
	0955	100	3.0	16.69	1.32	18.99	4.82	2.2	124	0.27

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW21**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 12WW21-211228 **DATE/TIME:** 12/28/21 0746 **Pump Inlet Depth:** 37.97

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 12/28/21 0750

Depth to Water - Initial (DTWi) (ft) 19.55

Purge End Date/Time: 12/28/21 0820

Depth to Well Bottom (ft) 41.70

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 32.97 - 42.97

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 37.97

Pump Start Time: 0750

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 19.55

APTIM

Sample Collection Log

Location ID: 12WW21				Sample No: 12WW21-2112 28						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0755	100	.5	19.62	4.89	18.74	6.06	12.9	141	0.69
	0800	100	1.0	19.67	4.98	18.44	5.71	9.1	190	0.29
	0805	100	1.5	19.71	5.04	18.41	5.33	8.7	223	0.26
	0810	100	2.0	19.73	5.04	18.37	5.32	8.4	224	0.26
	0815	100	2.5	19.74	5.05	18.35	5.31	7.9	225	0.25
	0820	100	3.0	19.75	5.05	18.32	5.30	7.6	226	0.25

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW21**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 12WW21-211228 -FD **DATE/TIME:** 12/28/21 0746 **Pump Inlet Depth:** 37.97

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 12/28/21 0750

Depth to Water - Initial (DTWi) (ft) 19.55

Purge End Date/Time: 12/28/21 0820

Depth to Well Bottom (ft) 41.70

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 32.97 - 42.97

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 37.97

Pump Start Time: 0750

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW- 19.55

APTIM

Sample Collection Log

Location ID: 12WW21	Sample No: 12WW21-211228-FD									
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0755	100	.5	19.62	4.89	18.74	6.06	12.9	141	0.69
	0800	100	1.0	19.67	4.98	18.44	5.71	9.1	190	0.29
	0805	100	1.5	19.71	5.04	18.41	5.33	8.7	223	0.26
	0810	100	2.0	19.73	5.04	18.37	5.32	8.4	224	0.26
	0815	100	2.5	19.74	5.05	18.35	5.31	7.9	225	0.25
	0820	100	3.0	19.75	5.05	18.32	5.30	7.6	226	0.25

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW24**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Cloudy / Light Rain

SAMPLING INFORMATION

Sample No: 12WW24-211228 **DATE/TIME:** 12/28/21 0833 **Pump Inlet Depth:** 22.80

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 20.25

Depth to Well Bottom (ft) 28.22

Screen Interval (ft): 17.80 - 27.80

Approximate depth of pump inlet*(ft): 22.80

Ferrous Iron (Required Y or N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 12/28/21 0840

Purge End Date/Time: 12/28/21 0910

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Pump Start Time: 0840

2ND DTW - 20.25

APTIM

Sample Collection Log

Location ID: 12WW24 Sample No: 12WW24-211228

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0845	100	.5	20.33	1.90	18.88	5.76	3.7	53	0.71
	0850	100	1.0	20.39	1.84	18.84	5.60	2.7	48	0.39
	0855	100	1.5	20.43	1.81	18.82	5.42	2.4	58	0.18
	0900	100	2.0	20.46	1.80	18.80	5.42	2.0	59	0.17
	0905	100	2.5	20.49	1.80	18.79	5.41	1.8	59	0.17
	0910	100	3.0	20.51	1.80	18.78	5.41	1.5	60	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW24**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Cloudy / Light Rain

SAMPLING INFORMATION

Sample No: 12WW24-211228-MS **DATE/TIME:** 12/28/21 0833 **Pump Inlet Depth:** 22.80

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 12/28/21 0840

Depth to Water - Initial (DTWi) (ft) 20.25

Purge End Date/Time: 12/28/21 0910

Depth to Well Bottom (ft) 28.22

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.80-27.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 22.80

Pump Start Time: 0840

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 20.25

APTIM

Sample Collection Log

Location ID: 12WW24 Sample No: 12WW24-211228-MS

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0845	100	.5	20.33	1.90	18.88	5.76	3.7	53	0.71
	0850	100	1.0	20.39	1.84	18.84	5.60	2.7	48	0.39
	0855	100	1.5	20.43	1.81	18.82	5.42	2.4	58	0.18
	0900	100	2.0	20.46	1.80	18.80	5.42	2.0	59	0.17
	0905	100	2.5	20.49	1.80	18.79	5.41	1.8	59	0.17
	0910	100	3.0	20.51	1.80	18.78	5.41	1.5	60	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **12WW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy / Light Rain

SAMPLING INFORMATION

Sample No: 12WW24-211228-MSD **DATE/TIME:** 12/28/21 0833 **Pump Inlet Depth:** 22.80

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 12/28/21 0840

Depth to Water - Initial (DTWi) (ft) 20.25

Purge End Date/Time: 12/28/21 0910

Depth to Well Bottom (ft) 28.22

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.80 - 27.80

Discharge Tube Diameter: 1/4"

Immersible Layer: Y/N

Approximate depth of pump inlet*(ft): 22.80

Pump Start Time: 0840

Ferrous Iron (Required Y or N) _____ mg/L

2ND DTW - 20.25

APTIM

Sample Collection Log

Location ID: 12WW24				Sample No: 12WW24-211228-MSD						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
12/28/21	0845	100	.5	20.33	1.90	18.88	5.76	3.7	53	0.71
	0850	100	1.0	20.39	1.84	18.84	5.60	2.7	48	0.39
	0855	100	1.5	20.43	1.81	18.82	5.42	2.4	58	0.18
	0900	100	2.0	20.46	1.80	18.80	5.42	2.0	59	0.17
	0905	100	2.5	20.49	1.80	18.79	5.41	1.8	59	0.17
	0910	100	3.0	20.51	1.80	18.78	5.41	1.5	60	0.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Appendix D

Laboratory Analytical Data Package

(Provided electronically on CD and the Portal)

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January 06, 2022

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS21121538**

Laboratory Results for: **LHAAP 12 December 2021**

Dear Vicki Graves ,

ALS Environmental received 6 sample(s) on Dec 29, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL

Ragen Giga
Project Manager

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Work Order: HS21121538

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21121538-01	12WW10R-211228	GW		28-Dec-2021 07:40	29-Dec-2021 10:40	☐
HS21121538-02	12WW21-211228	GW		28-Dec-2021 08:20	29-Dec-2021 10:40	☐
HS21121538-03	12WW21-211228-FD	GW		28-Dec-2021 08:20	29-Dec-2021 10:40	☐
HS21121538-04	12WW24-211228	GW		28-Dec-2021 09:10	29-Dec-2021 10:40	☐
HS21121538-05	12WW20-211228	GW		28-Dec-2021 09:55	29-Dec-2021 10:40	☐
HS21121538-06	Trip Blank-211228	Water		28-Dec-2021 00:00	29-Dec-2021 10:40	☐

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Work Order: HS21121538

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R398935

Sample ID: 12WW24-211228(HS21121538-04MS

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: 12WW24-211228 (HS21121538-04MSMSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW10R-211228
Collection Date: 28-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 16:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 16:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 16:33
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 16:33
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 16:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW10R-211228
Collection Date: 28-Dec-2021 07:40

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-01
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 16:33
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	05-Jan-2022 16:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 16:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 16:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 16:33
Surr: 1,2-Dichloroethane-d4	*84.4*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 16:33*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 16:33*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 16:33*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 16:33*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW21-211228
Collection Date: 28-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:04
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 15:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 15:04
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 15:04
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 15:04
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW21-211228
Collection Date: 28-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-02
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:04
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 15:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:04
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:04
Surr: 1,2-Dichloroethane-d4	*83.9*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 15:04*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 15:04*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 15:04*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 15:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW21-211228-FD
Collection Date: 28-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:48
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 15:48
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 15:48
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 15:48
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 15:48
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW21-211228-FD
Collection Date: 28-Dec-2021 08:20

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-03
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:48
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 15:48
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:48
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:48
Surr: 1,2-Dichloroethane-d4	*85.3*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 15:48*
Surr: 4-Bromofluorobenzene	*98.3*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 15:48*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 15:48*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 15:48*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW24-211228
Collection Date: 28-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 13:12
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 13:12
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 13:12
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 13:12
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 13:12
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW24-211228
Collection Date: 28-Dec-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-04
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
cis-1,2-Dichloroethene	**7.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	05-Jan-2022 13:12
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 13:12
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	05-Jan-2022 13:12
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 13:12
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Trichloroethene	**5.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	05-Jan-2022 13:12
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 13:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 13:12
Surr: 1,2-Dichloroethane-d4	*85.9*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 13:12*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 13:12*
Surr: Dibromofluoromethane	*91.4*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 13:12*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 13:12*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW20-211228
Collection Date: 28-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 15:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 15:26
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 15:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 15:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: 12WW20-211228
Collection Date: 28-Dec-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-05
Matrix:GW

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 15:26
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	05-Jan-2022 15:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 15:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 15:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 15:26
Surr: 1,2-Dichloroethane-d4	*84.2*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 15:26*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 15:26*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 15:26*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 15:26*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: Trip Blank-211228
Collection Date: 28-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2-Dibromo-3-chloropropane	1.0	U	0.20	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 12:28
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	05-Jan-2022 12:28
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	05-Jan-2022 12:28
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 12:28
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	05-Jan-2022 12:28
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
Sample ID: Trip Blank-211228
Collection Date: 28-Dec-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21121538
Lab ID:HS21121538-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
cis-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	05-Jan-2022 12:28
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	05-Jan-2022 12:28
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	05-Jan-2022 12:28
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	05-Jan-2022 12:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	05-Jan-2022 12:28
Surr: 1,2-Dichloroethane-d4	*84.3*			**0**	*81-118*	*%REC*	*1*	*05-Jan-2022 12:28*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*05-Jan-2022 12:28*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*05-Jan-2022 12:28*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*05-Jan-2022 12:28*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R398935 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21121538-06	Trip Blank-211228	28 Dec 2021 00:00			05 Jan 2022 12:28	1
Batch ID: R398935 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** GW	
HS21121538-01	12WW10R-211228	28 Dec 2021 07:40			05 Jan 2022 16:33	1
HS21121538-02	12WW21-211228	28 Dec 2021 08:20			05 Jan 2022 15:04	1
HS21121538-03	12WW21-211228-FD	28 Dec 2021 08:20			05 Jan 2022 15:48	1
HS21121538-04	12WW24-211228	28 Dec 2021 09:10			05 Jan 2022 13:12	1
HS21121538-05	12WW20-211228	28 Dec 2021 09:55			05 Jan 2022 15:26	1

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

QC BATCH REPORT

Batch ID: R398935 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-220105** Units: **ug/L** Analysis Date: **05-Jan-2022 12:05**
Client ID: Run ID: **VOA9_398935** SeqNo: **6453855** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	1.0	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

QC BATCH REPORT

Batch ID: R398935 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-220105** Units: **ug/L** Analysis Date: **05-Jan-2022 12:05**
Client ID: Run ID: **VOA9_398935** SeqNo: **6453855** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*42.1*	*1.0*	*50*	*0*	*84.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.74*	*1.0*	*50*	*0*	*99.5*	*85 - 114*				
Surr: Dibromofluoromethane	*44.98*	*1.0*	*50*	*0*	*90.0*	*80 - 119*				

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

QC BATCH REPORT

Batch ID: **R398935 (0)** **Instrument:** **VOA9** **Method:** **VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-220105** Units: **ug/L** Analysis Date: **05-Jan-2022 12:05**
Client ID: Run ID: **VOA9_398935** SeqNo: **6453855** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.22*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

QC BATCH REPORT

Batch ID: R398935 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-220105** Units: **ug/L** Analysis Date: **05-Jan-2022 11:21**
Client ID: Run ID: **VOA9_398935** SeqNo: **6453854** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.03	1.0	20	0	105	78 - 124				
1,1,1-Trichloroethane	18.47	1.0	20	0	92.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.54	1.0	20	0	97.7	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.71	1.0	20	0	88.6	70 - 136				
1,1,2-Trichloroethane	20.47	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	18.12	1.0	20	0	90.6	77 - 125				
1,1-Dichloroethene	19.03	1.0	20	0	95.1	71 - 131				
1,1-Dichloropropene	19.1	1.0	20	0	95.5	78 - 125				
1,2,3-Trichlorobenzene	20.62	1.0	20	0	103	69 - 129				
1,2,3-Trichloropropane	18.74	1.0	20	0	93.7	73 - 122				
1,2,4-Trichlorobenzene	21.14	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	20.8	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	18.34	1.0	20	0	91.7	62 - 128				
1,2-Dibromoethane	20.57	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	20.56	1.0	20	0	103	80 - 119				
1,2-Dichloroethane	17.5	1.0	20	0	87.5	73 - 128				
1,2-Dichloropropane	20.83	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	20.87	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	20.53	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	20.32	1.0	20	0	102	80 - 119				
1,4-Dichlorobenzene	19.61	1.0	20	0	98.0	79 - 118				
2,2-Dichloropropane	18.71	1.0	20	0	93.6	60 - 139				
2-Butanone	35.23	2.0	40	0	88.1	56 - 143				
2-Chlorotoluene	20.37	1.0	20	0	102	79 - 122				
2-Hexanone	39.67	2.0	40	0	99.2	57 - 139				
4-Chlorotoluene	20.47	1.0	20	0	102	78 - 122				
4-Isopropyltoluene	20.69	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	39.69	2.0	40	0	99.2	67 - 130				
Acetone	33.57	2.0	40	0	83.9	39 - 160				
Benzene	20.35	1.0	20	0	102	79 - 120				
Bromobenzene	20.85	1.0	20	0	104	80 - 120				
Bromochloromethane	20.18	1.0	20	0	101	78 - 123				
Bromodichloromethane	19.21	1.0	20	0	96.0	79 - 125				
Bromoform	18.35	1.0	20	0	91.7	66 - 130				

ALS Houston, US Date: 06-Jan-22

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 12 December 2021
WorkOrder: HS21121538

QC BATCH REPORT

Batch ID: R398935 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-220105** Units: **ug/L** Analysis Date: **05-Jan-2022 11:21**
Client ID: Run ID: **VOA9_398935** SeqNo: **6453854** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	20.59	1.0	20	0	103	53 - 141				
Carbon disulfide	38.46	2.0	40	0	96.1	64 - 133				
Carbon tetrachloride	18.21	1.0	20	0	91.0	72 - 136				
Chlorobenzene	20.68	1.0	20	0	103	82 - 118				
Chloroethane	19.19	1.0	20	0	96.0	60 - 138				
Chloroform	18.25	1.0	20	0	91.3	79 - 124				
Chloromethane	18.97	1.0	20	0	94.8	50 - 139				
cis-1,2-Dichloroethene	20.41	1.0	20	0	102	78 - 123				
cis-1,3-Dichloropropene	18.81	1.0	20	0	94.1	75 - 124				
Dibromochloromethane	18.88	1.0	20	0	94.4	74 - 126				
Dibromomethane	19.27	1.0	20	0	96.4	79 - 123				
Dichlorodifluoromethane	18.55	1.0	20	0	92.8	32 - 152				
Ethylbenzene	20.42	1.0	20	0	102	79 - 121				
Hexachlorobutadiene	21.42	1.0	20	0	107	66 - 134				
Isopropylbenzene	21	1.0	20	0	105	72 - 131				
m,p-Xylene	42.46	2.0	40	0	106	80 - 121				
Methylene chloride	18.95	2.0	20	0	94.7	74 - 124				
Naphthalene	19.04	1.0	20	0	95.2	61 - 128				
n-Butylbenzene	20.69	1.0	20	0	103	75 - 128				
n-Propylbenzene	20.12	1.0	20	0	101	76 - 126				
o-Xylene	21.37	1.0	20	0	107	78 - 122				
sec-Butylbenzene	20.55	1.0	20	0	103	77 - 126				
Styrene	22.13	1.0	20	0	111	78 - 123				
tert-Butylbenzene	20.38	1.0	20	0	102	78 - 124				
Tetrachloroethene	21.06	1.0	20	0	105	74 - 129				
Toluene	21.08	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	19.16	1.0	20	0	95.8	75 - 124				
trans-1,3-Dichloropropene	17.83	1.0	20	0	89.1	73 - 127				
Trichloroethene	21.03	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	17.76	1.0	20	0	88.8	65 - 141				
Vinyl chloride	18.2	1.0	20	0	91.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.88*	*1.0*	*50*	*0*	*89.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.7*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*49.51*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				